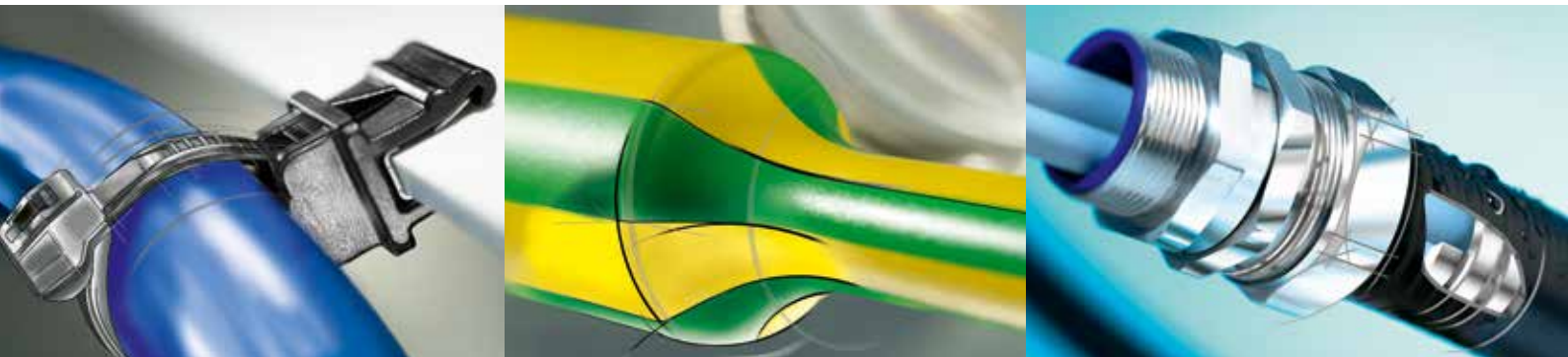


**HellermannTyton**

Product  
Catalogue





## 1. Cable Ties and Fixings

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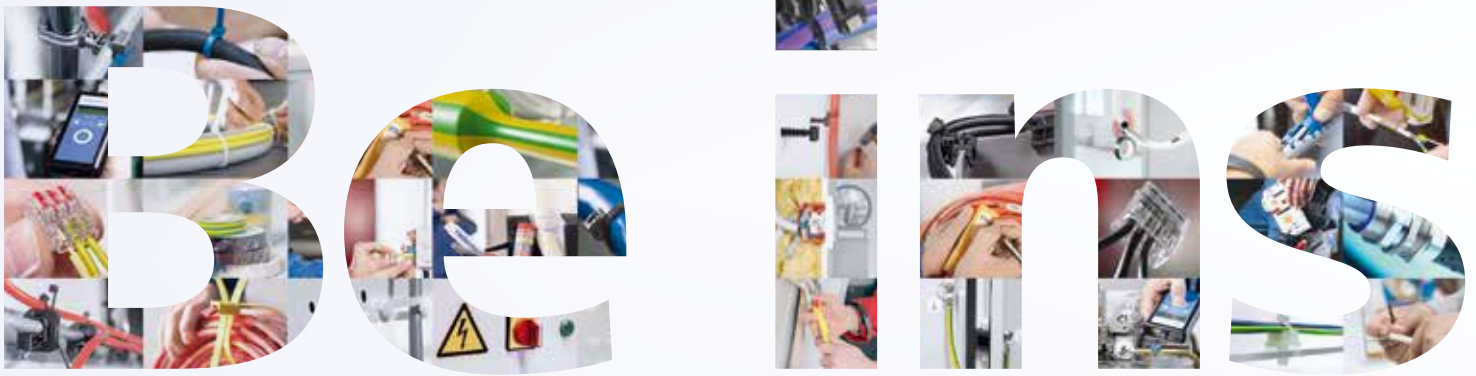
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Thanks to growing requirements and a desire for smarter solutions, our products are a familiar sight to professionals around the world. Reassuring on account of their quality, these HellermannTyton products are perfect to handle and their characteristics inspire innovative solutions.

Not only do we aim to drive forward innovation in our role as a manufacturer with 15 world-class production facilities, we provide you with personal service in 37 countries for your unique challenges, questions and ideas. Benefit from the enthusiastic support of motivated teams with considerable development expertise, industry-specific knowledge and reliability.

Inspired by torsion

HellermannTyton





## HellermannTyton develops industry-specific product ranges that raise the bar across the world



### Innovation for wind turbines: the Loop Spacer

Minimises the abrasion on the cable sheaths caused by torsion within the rotating nacelle. The Loop Spacer can also be easily retrofitted to existing installations and enhances the cable's cooling properties.

### Comprehensive industry expertise

From torsion to weight reduction – every single industry has its own unique demands in terms of cable management. With a high degree of specialist knowledge, HellermannTyton develops tailor-made technologies for different markets and industries. These include:



Agricultural technology



Automotive



Construction



Aviation and aerospace



Medical technology



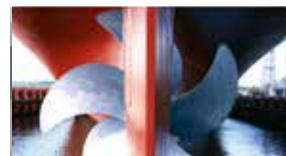
Food and beverage industry



Commercial vehicles



Rail vehicle construction



Shipbuilding



Solar industry



Telecommunications



Wind power

For more information about our markets and industries please refer to:  
<http://www.hellermanntyton.com.sg/competences/markets-and-industries>

Inspired by extremes



## HellermannTyton develops products that you can count on, even under extreme conditions

### Protection in tough environments: Helagain HEGMAN

NOMEX® HEGMAN-02 braided sleeving offers exceptional mechanical protection in applications with high temperatures and fire protection requirements.



The outstanding flexibility of the braiding enables straightforward assembly even when working with long sections and around installed connectors. The non-flammable braiding also offers excellent protection against fluids and radiation and is both water- and oil-repellent.

### Highly specialised

In order to keep on defying inhospitable conditions, HellermannTyton continuously explores the use of new materials. Our products and manufacturing methods are the only ones of their kind in many areas.



### PEEK cable ties

The world's most powerful thermoplastic substance can permanently withstand temperatures of  $-55\text{ }^{\circ}\text{C}$  to  $+240\text{ }^{\circ}\text{C}$ . See page 65.



### MST cable ties

SS304 stainless steel offers chemical resistance and enhanced vibration stability at temperatures of  $-80\text{ }^{\circ}\text{C}$  to  $+538\text{ }^{\circ}\text{C}$ . See page 89.



### M-BOSS Compact

This stainless steel marking system ensures outstanding legibility under harsh conditions. See page 563.



### Heavy duty mounts

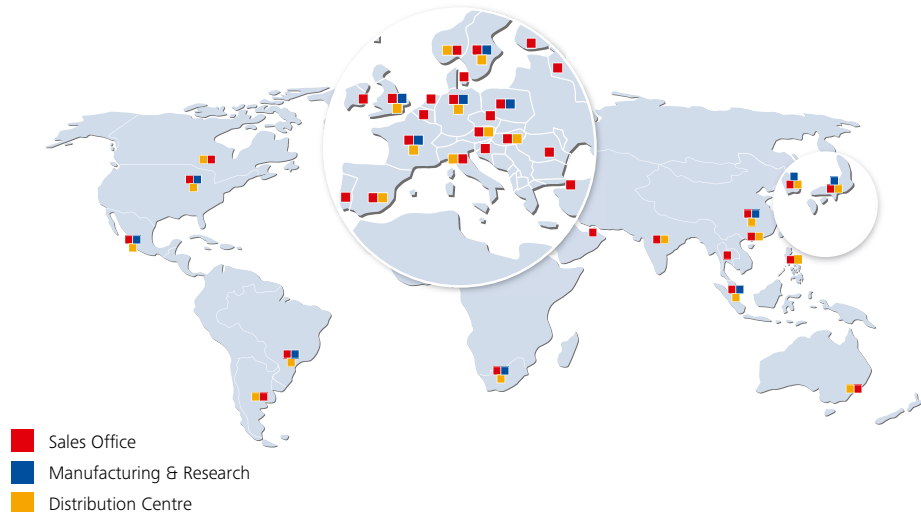
Can be attached to threaded bolts and screws with a high level of tightening torque. See page 162.



Inspired by teamwork



HellermannTyton is an international team with a passion for the best solutions around cables



Regardless of which HellermannTyton sites you visit in person, you can be assured of a friendly atmosphere and maximum reliability. As part of a survey, 10 000 customers all over Europe confirmed that we are on the right track, with 98 per cent of them saying they would be happy to recommend us.

We want things to stay that way and even improve wherever possible. We will do this with high-quality products and – first and foremost – motivated staff. People who listen carefully, get things done and seek to satisfy all needs.

### **HellermannTyton Inside**

Be inspired by teamwork at HellermannTyton. Our Inside HellermannTyton programme gives new insights into how our teams work.

See for yourself how we generate new ideas and develop innovative products:  
[www.HellermannTyton.com.sg/company/product-development](http://www.HellermannTyton.com.sg/company/product-development)



Inspired by improvement





HellermannTyton develops its own products on an ongoing basis. Currently, there are about 75 000 items. We add new ideas every day



## 1. Cable Ties and Fixings

---

Our tip: Innovative cable management with the Q-tie. The integrated pre-locking function of the Q-tie offers the ability of a temporary and also a final cable fastening solution with the same cable tie and without additional effort. (page 51).



## 2. Insulation

---

Our tip: flame retarded heat-shrinkable tubing with TA37. The combination of low smoke index and excellent flame retardant properties meet strict fire security standards in electrical insulation (page 249).



## 3. Cable Protection Systems

---

Our tip: our braided sleeving offers protection to highly sensitive electronics where fire protection is important, such as mass transit, aerospace and military industries (page 346).



## 4. Electrical Installation

---

Our tip: all-weather, professional grade vinyl insulating tape. HelaTape Flex 1000+ is designed for low voltage applications and available in a variety of sizes and colours (page 303).



## 5. Identification Systems

---

Our tip: perfect for double-sided printing on HellermannTyton shrinkable tubing. With two print heads mounted one on top of the other, the TrakMark DS prints onto both sides of the material at the same time. (page 384).



## 6. Application Tooling

---

Our tip: recoil-free application of cable ties with the EVO7 processing tool. Even when strong forces are involved, the EVO7 significantly reduces the recoil generated when installing cable ties with conventional pliers (page 598).

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## HellermannTyton is your partner for close, intensive on-site cooperation

We meet growing global challenges by being close to our clients. HellermannTyton speaks your language when it comes to devising new solutions and optimising processes. We want you to be able to provide your customers with even better results.

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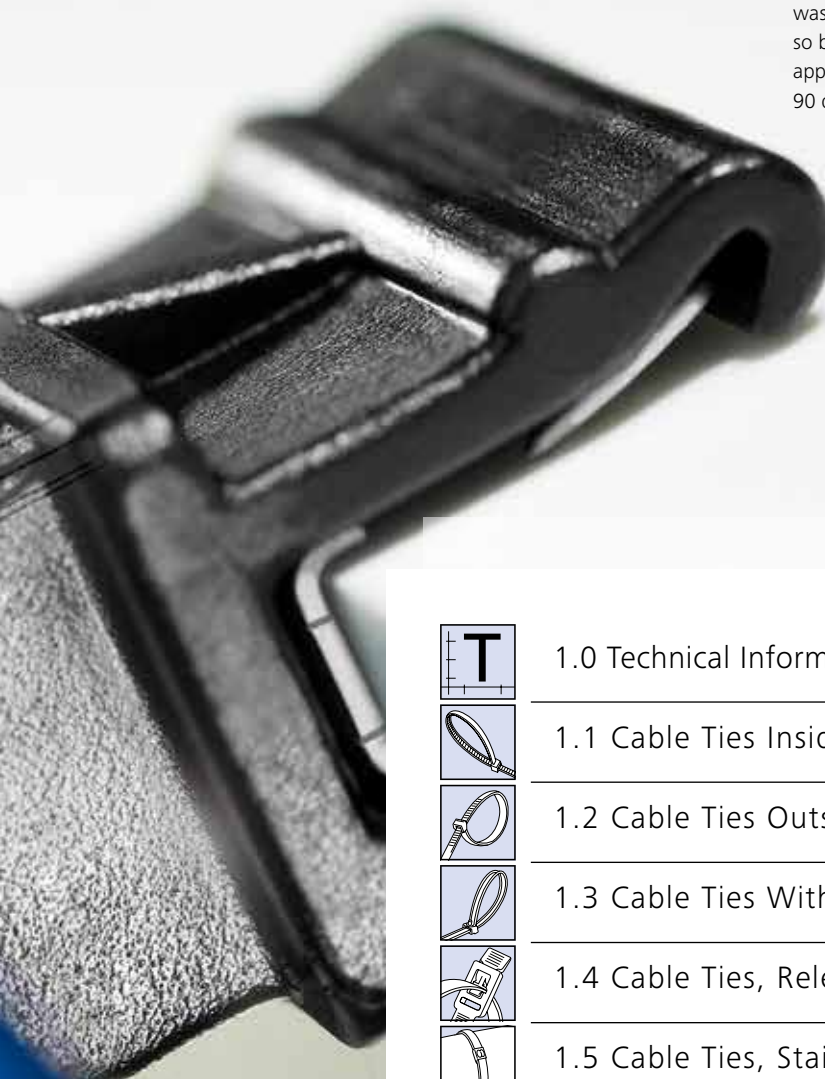
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









### Inspired by design

EdgeClips were developed for a luxury car. The cables needed to be routed precisely along an edge where neither drilling nor welding was permitted. The newly developed EdgeClip solved the problem so brilliantly that this smart cable routing solution was quickly applied to other models all over the world. We now offer around 90 different versions that are used in different industries.

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## 1.0 Technical Information

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Properties of Polyamide PEEK and E/TFE (Tefzel®)	29
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Conformity to IEC 62275 standards for Cable Ties	32
Determination of Minimum Tensile Strength	33
Locking technologies for cable ties	34
Optimum Storage Conditions for Cable Ties	35

### 1.1 Cable Ties Inside Serrated

<b>T-Series</b>		
standard, natural and black	PA66	36
standard, coloured	PA66	38
for outdoor use, black	PA66, UV-resistant	40
up to +105 °C	PA66, heat stabilised	42
for higher impact resistance, scan black	PA66, high impact modified	44
for higher fire-protection	PA66V0	45
up to + 150 °C	PA46	46
for higher chemical resistance and up to +170 °C	(E/TFE)	47
for higher chemical resistance and up to +115 °C	Polypropylene	48
sustainable bioplastic, black	PA11	49
<b>In-between size to T-Series</b>		
natural and black	LK-series	50
<b>With Open Head</b>		
standard, natural and black	Q-Series, PA66	52
standard, coloured	Q-Series, PA66	53
UV-resistant, black	Q-Series, PA66W	55
up to + 105 °C, natural and black	Q-Series, PA66HS	56
<b>With streamlined design</b>		
for tight applications	X-Series	57
<b>For Hose and Gaiter</b>		
	CTT-Series	58
<b>For Parallel Routing</b>		
	DH-Series	59

### For Food Industry

	MCT-Series	61
detectable	MCTS-Series	62
	MCT-/MCTS-Series, PPMP	63
detectable, releasable	MCT-Series	61

### 1.2 Cable Ties Outside Serrated

<b>For thin-walled bundles</b>		
	OS-Series	64
<b>For temperatures up to +240 °C</b>		
	PEEK-Ties	65
<b>With 90° angled head</b>		
	V-Series	66
<b>With low profile head</b>		
	PE-Series	67
Releasable	RPE-Series	67
	LPH-Series	68
	Robusto-Series	69

### 1.3 Cable Ties Without Serration

<b>Locked by Glass Fibre Pin</b>		
1-piece	KR-Series	70
ultrasonic welded	KR-Series	71
endless	KR-Series	71
<b>With Separate Head and Spacer</b>		
endless	EL-TY-Series	72

### 1.4 Cable Ties, Releasable

<b>Inside serrated</b>		
	RELK-Series	73
	RLT-Series	73
With tuckaway	RT250-Series	74
	REL250-Series	74
With kickdown lever	REL-Series	75
One-hand release mechanism	REZ-Series	76
<b>Outside serrated</b>		
For marking	LR55-Series	77
<b>Without serration</b>		
	SOFTFIX-Family	
Flexible	SRT-series for industry quantities	78
<b>With quick release mechanism</b>		
	SpeedyTie	79
<b>With Hook and Loop</b>		
	TEXTIE-Series	80



## 1.5 Cable Ties, Stainless Steel

### Technical Information

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### With Ball-Lock

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MBT-Series SS316 83

Double wrapped MBTXHD- and MBTUHD-Series SS316 85

Coated MBT-FC-Series SS316 86

Double wrapped, coated MBTXHD-FC- and MBTUHD-FC-Series SS316 88

### With Punch-locking Mechanism

MST-Series SS304 89

### With Fold Locking

Uncoated MLT-Series SS316 90

Coated MLT-C-Series SS316 90

### Protective Channel for Stainless Steel Ties

LFPC-Series 91

## 1.6 Cable Ties With Fixing Elements

### Product Selection

Consulting Assistant for Fixing Ties 92

### 1-Piece Fixing Ties

for round holes 94

releasable 95

With arrowhead and disc for round holes, sealed 96

for oval holes, sealed 96

in the strap for round holes 97

for round holes 98

With arrowhead and wings releasable 99

for oval holes 100

in the strap 100

With arrowhead without Wings and Disc 101

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for cable routing above the stud 113

For weld studs for cable routing alongside the stud 114

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115

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With mounting head for screws 120

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With wire clip 129

### 2-Piece Fixing Ties

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for round holes 103

With arrowhead and disc for oval holes 104

for parallel routing 104

for temperatures up to +240 °C, PEEK 105

FT5 110

With fir tree and disc FT6 111

FT7 - FT10 112

moveable, for oval holes 118

For weld studs moveable, for round holes 119

for parallel routing 117

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1.0 - 3.0 mm, top fixing 123

1.0 - 3.0 mm, side fixing 124

3.0 - 6.0 mm, top fixing 125

For edges 3.0 - 6.0 mm, side fixing 125

0.5 - 2.5 mm, top fixing 126

0.5 - 2.5 mm, side fixing 126

twistable 127

for holes 128

With pipe clip twistable 360° 130

twistable 90° 132

With coupler for parallel separation 133

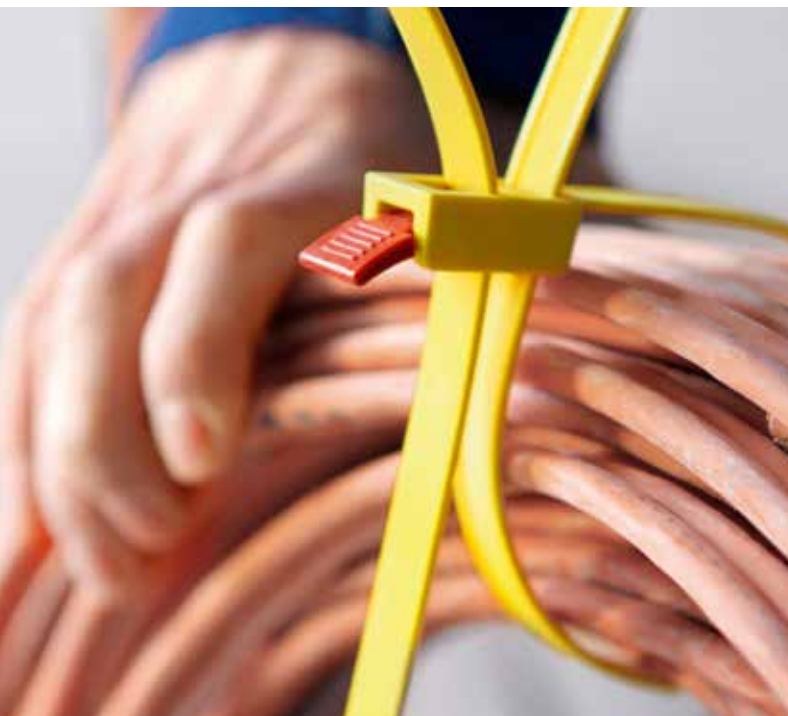
For heavy duty applications HDM-Series 134

DHDM-Series 134

### For Single Hole Application

Chasis Ties (BH-T-Ties) 135





## 1.7 Cable Tie Mounts

### Technical Information

Installation of self adhesive mounts 136

### Cable Tie Mounts with Special Adhesive

self adhesive, for round and angled surfaces FlexTack-Series FMB 137

Screwable, self adhesive SolidTack-Series QM 138

Screwable, self adhesive SolidTack-Series MB 140

### Flat Ribbon Cable Mount

Screwable, self-adhesive SolidTack-Series FKH 141

### Square-Cut

Screwable, self adhesive MB-Series 142

Q-Mount-Series QMA 139

Screwable MB-Series 142

Q-Mount-Series QM 139

screw-fixing, detectable MCMB-Series 148

### Rectangled

Screwable TY-Series 143

Screwable, self adhesive TY-Series 143

### For limited space

Screwable Q-Mount-Series CTQM 149

CTAM-Series 151

### Paste Adhesive Mount

PMB5 144

### Round Design

self-adhesive RA-Series 145

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## Material Specification Overview

<b>Aluminium-alloy</b>	AL	-40 °C to +180 °C	Natural (NA)		<ul style="list-style-type: none"> <li>Corrosion resistant</li> <li>Antimagnetic</li> </ul>	<b>RoHS</b>
<b>Chloroprene</b>	CR	-20 °C to +80 °C	Black (BK)		<ul style="list-style-type: none"> <li>Weather-resistant</li> <li>High yield strength</li> </ul>	<b>RoHS</b>
<b>Ethylene Tetrafluoroethylene (Tefzel®)</b>	E/TFE	-80 °C to +170 °C	Blue (BU)	UL 94 V0	<ul style="list-style-type: none"> <li>Resistance to radioactivity</li> <li>UV-resistant, not moisture sensitive</li> <li>Good chemical resistance to: acids, bases, oxidizing agents</li> </ul>	<b>RoHS</b>
<b>Polyacetal</b>	POM	-40 °C to +90 °C, (+110 °C, 500 h)	Natural (NA)	UL 94 HB	<ul style="list-style-type: none"> <li>Limited brittleness sensitivity</li> <li>Flexible at low temperature</li> <li>Not moisture sensitive</li> <li>Robust on impacts</li> </ul>	<b>RoHS</b>
<b>Polyamide 11</b>	PA11	-40 °C to +85 °C, (+105 °C, 500 h)	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> <li>Bio-plastic, derived from vegetable oil</li> <li>Strong impact resistance at low temperature</li> <li>Very low moisture absorption</li> <li>Weather-resistant</li> <li>Good chemical resistant</li> </ul>	<b>HF</b> <b>RoHS</b>
<b>Polyamide 12</b>	PA12	-40 °C to +85 °C, (+105 °C, 500 h)	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> <li>Good chemical resistance to: acids, bases, oxidizing agents</li> <li>UV-resistant</li> </ul>	<b>HF</b> <b>RoHS</b>
<b>Polyamide 4.6</b>	PA46	-40 °C to +150 °C (5000 h), +195 °C (500 h)	Natural (NA), Grey (GY)	UL 94 V2	<ul style="list-style-type: none"> <li>Resistance to high temperatures</li> <li>Very moisture sensitive</li> <li>Low smoke sensitiv</li> </ul>	<b>HF</b> <b>LFH</b> <b>RoHS</b>
<b>Polyamide 6</b>	PA6	-40 °C to +80 °C	Black (BK)	UL 94 V2	<ul style="list-style-type: none"> <li>High yield strength</li> </ul>	<b>RoHS</b>
<b>Polyamide 6, high impact modified</b>	PA6HIR	-40 °C to +80 °C	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> <li>Limited brittleness sensitivity</li> <li>Higher flexibility at low temperature</li> </ul>	<b>RoHS</b>
<b>Polyamide 6.6</b>	PA66	-40 °C to +85 °C, (+105 °C, 500 h)	Black (BK), Natural (NA)	UL 94 V2	<ul style="list-style-type: none"> <li>High yield strength</li> </ul>	<b>HF</b> <b>RoHS</b>
<b>Polyamide 6.6, glass-fibre reinforced</b>	PA66GF13, PA66GF15	-40 °C to +105 °C	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> <li>Good resistance to: lubricants, vehicle fuel, salt water and a lot of solvent</li> </ul>	<b>HF</b> <b>RoHS</b>
<b>Polyamide 6.6, heat and UV stabilised</b>	PA66HSW	-40 °C to +105 °C	Black (BK)	UL 94 V2	<ul style="list-style-type: none"> <li>High yield strength</li> <li>Modified elevated max. temperature</li> <li>UV-resistant</li> </ul>	<b>HF</b> <b>RoHS</b>
<b>Polyamide 6.6, heat stabilised</b>	PA66HS	-40 °C to +105 °C	Black (BK), Natural (NA)	UL 94 V2	<ul style="list-style-type: none"> <li>High yield strength</li> <li>Modified elevated max. temperature</li> </ul>	<b>HF</b> <b>RoHS</b>
<b>Polyamide 6.6, high impact modified</b>	PA66HIR	-40 °C to +80 °C, (+105 °C, 500 h)	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> <li>Limited brittleness sensitivity</li> <li>Higher flexibility at low temperature</li> </ul>	<b>RoHS</b>
<b>Polyamide 6.6, high impact modified, heat and UV stabilised</b>	PA66HIRHSW	-40 °C to +110 °C	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> <li>Limited brittleness sensitivity</li> <li>Higher flexibility at low temperature</li> <li>Modified elevated max. temperature</li> <li>High yield strength, UV-resistant</li> </ul>	<b>RoHS</b>
<b>Polyamide 6.6, high impact modified, heat stabilised</b>	PA66HIRHS	-40 °C to +105 °C	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> <li>Limited brittleness sensitivity</li> <li>Higher flexibility at low temperature</li> <li>Modified elevated max. temperature</li> </ul>	<b>RoHS</b>
<b>Polyamide 6.6, high impact modified, scan black</b>	PA66HIR(S)	-40 °C to +80 °C, (+105 °C, 500 h)	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> <li>Limited brittleness sensitivity</li> <li>Higher flexibility at low temperature</li> </ul>	<b>RoHS</b>
<b>Polyamide 6.6, UV-resistant</b>	PA66W	-40 °C to +85 °C, (+105 °C, 500 h)	Black (BK)	UL 94 V2	<ul style="list-style-type: none"> <li>High yield strength</li> <li>UV-resistant</li> </ul>	<b>HF</b> <b>RoHS</b>
<b>Polyamide 6.6, with metal particles</b>	PA66MP	-40 °C to +85 °C, (+105 °C, 500 h)	Blue (BU)	UL 94 HB	<ul style="list-style-type: none"> <li>High yield strength</li> <li>Metal and X-Ray detectable</li> </ul>	<b>HF</b> <b>RoHS</b>

MATERIAL	Material Shortcut	Operating Temperature	Colour**	Flammability	Material Properties*	Material Specifications
<b>Polyamide 6.6</b> , with metal particles	PA66MP+	-40 °C to +85 °C	Blue (BU)	not flame retardant	<ul style="list-style-type: none"> <li>High yield strength</li> <li>Metal and x-ray detectable</li> </ul>	HF RoHS
<b>Polyamide 6.6 V0</b>	PA66V0	-40 °C to +85 °C	White (WH)	UL 94 V0	<ul style="list-style-type: none"> <li>High yield strength</li> <li>Low smoke emission</li> </ul>	HF LFH RoHS
<b>Polyester</b>	SP	-50 °C to +150 °C	Black (BK)	halogen free	<ul style="list-style-type: none"> <li>UV-resistant</li> <li>Good chemical resistance to: most acids, alkalis and oils</li> </ul>	HF LFH RoHS
<b>Polyetheretherketone</b>	PEEK	-55 °C to +240 °C	Beige (BGE)	UL 94 V0	<ul style="list-style-type: none"> <li>Resistance to radioactivity</li> <li>Not moisture sensitive</li> <li>Good chemical resistance to: acids, bases, oxidizing agents</li> </ul>	HF LFH RoHS
<b>Polyethylene</b>	PE	-40 °C to +50 °C	Black (BK), Grey (GY)	UL 94 HB	<ul style="list-style-type: none"> <li>Low moisture absorption</li> <li>Good chemical oils resistance to: most acids, alcohol and oils</li> </ul>	HF RoHS
<b>Polyolefin</b>	PO	-40 °C to +90 °C	Black (BK)	UL 94 V0	<ul style="list-style-type: none"> <li>Low smoke emissions</li> </ul>	HF LFH RoHS
<b>Polypropylene</b>	PP	-40 °C to +115 °C	Black (BK), Natural (NA)	UL 94 HB	<ul style="list-style-type: none"> <li>Floats in water</li> <li>Moderate yield strength</li> <li>Good chemical resistance to: organic acids</li> </ul>	HF RoHS
<b>Polypropylene, Ethylene-Propylene-Dien-Terpolymere-rubber</b> free of Nitrosamine	PP, EPDM	-20 °C to +95 °C	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> <li>Good resistance to high temperatures</li> <li>Good chemical and abrasion resistance</li> </ul>	HF RoHS
<b>Polypropylene</b> with metal particles	PPMP	-40 °C to +115 °C	Blue (BU)	UL 94 HB	<ul style="list-style-type: none"> <li>Metal and X-Ray detectable</li> <li>Heat resistant</li> <li>Moderate yield strength</li> <li>Good chemical resistance</li> </ul>	RoHS
<b>Polypropylene</b> with metal particles	PPMP+	-40 °C to +85 °C	Blue (BU)	not flame retardant	<ul style="list-style-type: none"> <li>High yield strength</li> <li>Metal and x-ray detectable</li> </ul>	HF RoHS
<b>Polyvinylchloride</b>	PVC	-10 °C to +70 °C	Black (BK), Natural (NA)	UL 94 V0	<ul style="list-style-type: none"> <li>Low moisture absorption</li> <li>Good chemical resistance to: acids, ethanol and oil</li> </ul>	RoHS
<b>Stainless Steel</b>	SS304, SS316	-80 °C to +538 °C	Natural (NA)	non-burning	<ul style="list-style-type: none"> <li>Corrosion resistant</li> <li>Antimagnetic</li> <li>Weather resistant</li> <li>Outstanding chemical resistance</li> </ul>	HF LFH RoHS
<b>Thermoplastic Polyurethane</b>	TPU	-40 °C to +85 °C	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> <li>High elastic</li> <li>Good chemical resistance to: acids, bases and oxidizing agents</li> </ul>	HF RoHS

Tefzel® is a registered trademark of DuPont. General linguistic usage for cable ties made from raw material E/TFE is Tefzel®-Tie. In addition to Tefzel® from DuPont HellermannTyton is also using equivalent E/TFE raw material from other suppliers. \*These details are only rough guide values. They should not be regarded as a material specification and are no substitute for a suitability test. Please see our datasheets for further details.

\*\*More colours on request.

= Minimum Loop Tensile Strength for Cable Ties (Newton)

HF = Halogenfree

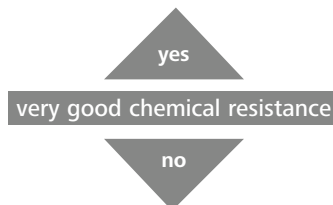
LFH = Limited Fire Hazard

RoHS = Restriction of Hazardous Substances



## Indoor applications

Standard temperature up to +85 °C		Heat stabilised up to +105 °C		High temperature +150 °C and higher	
Cable tie series and length	Page	Cable tie series and length	Page	Cable tie series and length	Page
SOFTFIX-Family TPU, BK Length 180–880 mm	81	T-Series PP, NA, BK Length 100–390 mm	52	PEEK-Series, BGE Length 145–250 mm	69
SRT-Series Industrial quantities TPU, BK Length 180–880 mm	81				



Standard temperature up to +85 °C					
Cable tie series and length	Page	Cable tie series and length	Page	Cable tie series and length	Page
CTT-Series PA66, NA, BK Length 101.6–205 mm	62	MCTRELK-Series PA66MP, BU Length 250 mm	65	RT250-Series PA66, BK, NA Length 563.3–1,030 mm	78
DH-Series PA66, NA, BK Length 210–395 mm	63	MCTS-Series PA66MP+, MGN, MST, RUS, BU, Length 100–301 mm	66	SpeedyTie PA66, RD, YE Length 752 mm	83
KR-Series PA66, NA Length 210–360 mm	74	OS-Series PA66V0 BK, NA, WH, GY Length 100–385 mm	68	SpeedyTie PA66HIR(S), BK Length 752 mm	83
LK-Series PA66, BK, NA Length 270–535 mm	54	PE-Series PA66, BU, YE, GN, RD Length 400 mm	71	TEXTIE-Series PA66 and PP, BK, RD, YE, GN, BU, WH Length 150–25,000 mm	84
LK-Series PA66HIR(S), BK Length 270–535 mm	54	Q-Series PA66, GN, RD, BK, NA, BU, YE Length 105–520 mm	57	T-Series PA66, GY, GN, RD, BK, NA, OG, SR, YE, BU, BN Length 83–1,325 mm	42
LPH-Series PA66, BK Length 175 mm	72	RELK-Series to 200N PA66, NA, BK Length 200–350 mm	77	T-Series PA66HIR(S), BK Length 200–760 mm	48
LPH-Series PA66HIR(S), BK Length 265–355 mm	72	REL-Series PA66, BK, NA Length 180–250 mm	79	T-Series PA66V0, WH Length 100–387 mm	49
LR55-Series PA66, GN, RD, BK, NA, BU, YE Length 195 mm	80	REZ-Series PA66, BK, FLPK, GN, OG Length 200–305 mm	82	X-Series PA66HIR(S) BK Length 100–715 mm	61
MCT-Series PA66MP, BU Length 100–387 mm	65	RLT-Series to 670N PA66, NA, BK Length 340–770 mm	77		

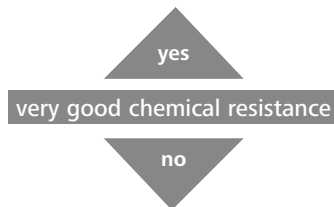
Heat stabilised up to +105 °C				High temperature +150 °C and higher	
Cable tie series and length	Page	Cable tie series and length	Page	Cable tie series and length	Page
CTT-Series PA66HS, BK Length 101.6–205 mm	62	OS-Series PA66HS, NA, BK Length 100–385 mm	68	DH-Series PA46, GY Length 210 mm	63
DH-Series PA66HS, BK Length 210–395 mm	63	Q-Series PA66HS, NA, BK Length 105–520 mm	60	T-Series PA46, NA, GY Length 100–390 mm	50
KR-Series PA66HS, NA, BK Length 210–426 mm	74	RLT-Series bis 670 N PA66HS, NA Length 770 mm	77	V-Series PA46, GY Length 102.5–150 mm	70
LK-Series PA66HS, BK, NA Length 270–535 mm	54	T-Series PA66HS, NA, BK Length 100–1,095 mm	47		
LR55-Series PA66HS, BK Length 195 mm	80	V-Series PA66HS, NA Length 102.5–150 mm	70		

Colours guide: Beige (BGE), Black (BK), Blue (BU), Brown (BN), Fluorescent Pink (FLPK), Green (GN), Grey (GY), Mint Green (MGN), Metal (ML), Mustard (MST), Natural (NA), Orange (OG), Red (RD), Russet (RUS), Silver (SR), White (WH), Yellow (YE)

## Outdoor applications

Standard temperature up to +85 °C	
Cable tie series and length	Page
EL-TY-Series POM, BK Length 15.8–53.3 mm	76
Robusto-Series PA11, BK Length 123–355 mm	73
RT250, BK Length: 565,3 mm	74
T-Series PA11, BK Length 100–200 mm	53

High temperature +150 °C and higher	
Cable tie series and length	Page
MBT-FC-Series SS316, BK Length 362–1,245 mm	90
MBT-Series SS304, ML Length 127–838 mm	86
MST-Series SS304, ML Length 207–700 mm	93
MBT-Series SS316, ML Length 127–838 mm	87, 88
MBTXHD-/MBTUHD-Series SS316, ML Length 681–1,524 mm	89
MLT-Series, MLTC-Series SS316, ML, BK Length 230–630 mm	94
T-Series E/TFE, BU Length 100–387 mm	51

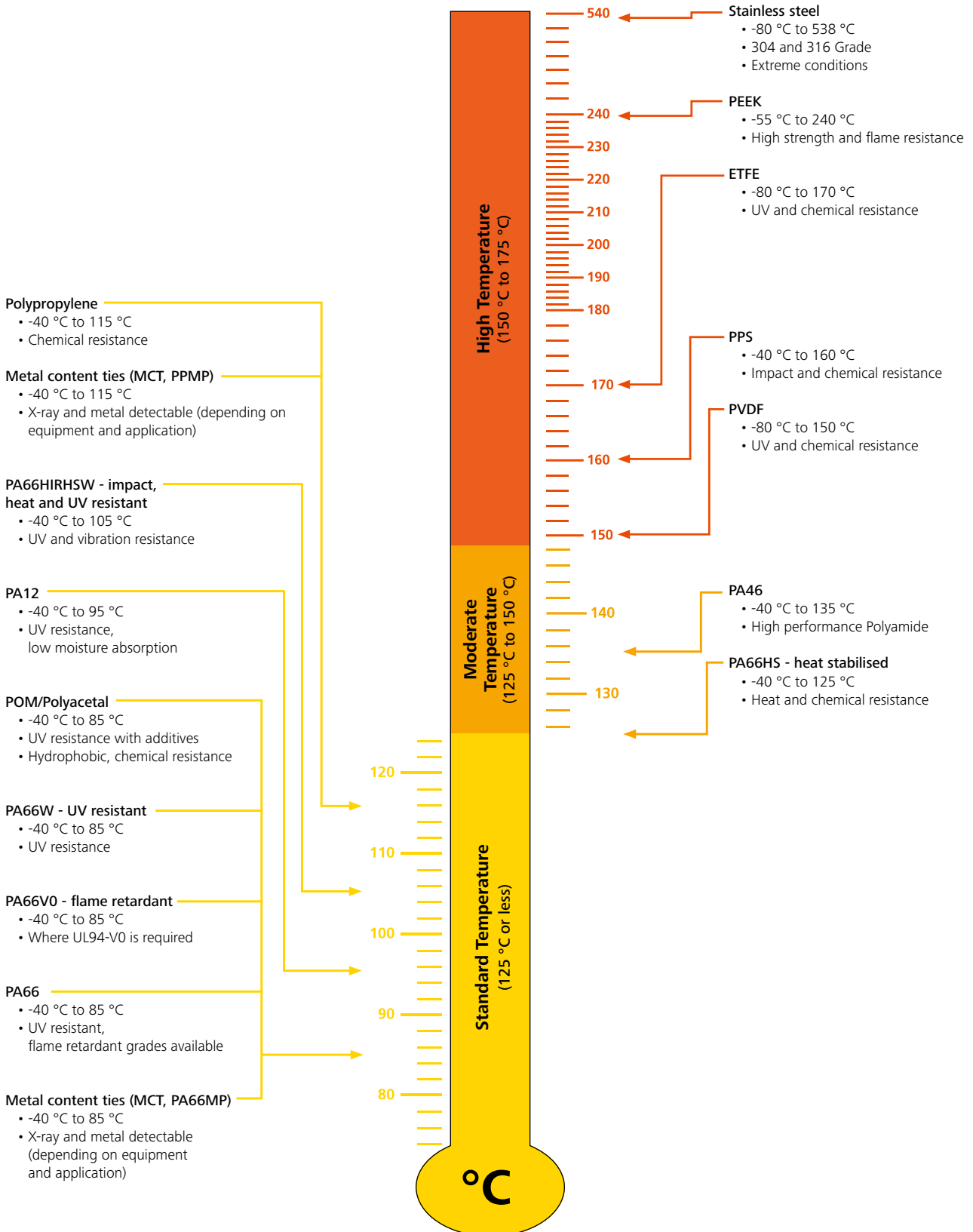


Standard temperature up to +85 °C	
Cable tie series and length	Page
DH-Series PA66W, BK Length 210–305 mm	63
KR-Series PA66W, BK Length 210–360 mm	74
LK-Series PA66W, BK Length 270–535 mm	54
Q-Series PA66W, BK Length 105–520 mm	59
REL-Series PA66W, BK Length 250 mm	79
RLT-Series to 670 N PA66W, BK Length 770 mm	77
T-Series PA66W, BK Length 100–1,325 mm	44
X-Series PA66W, BK Length 100–715 mm	61

Heat stabilised up to +105 °C	
Cable tie series and length	Page
RPE-Series PA66HSW, BK Length 275–350 mm	71

**Colours Guide:** Beige (BGE), Black (BK), Blue (BU), Brown (BN), Fluorescent Pink (FLPK), Green (GN), Grey (GY), Mint Green (MGN), Metal (ML), Mustard (MST), Natural (NA), Orange (OG), Red (RD), Russet (RUS), Silver (SR), White (WH), Yellow (YE)

## Materials guide for cable ties series



## Properties of Polyamide PA66

Polyamides are among the most important thermoplastic synthetic materials. Thermoplastics can be reshaped by heating as often as required without undergoing chemical decomposition or other negative changes. This makes polyamide ideal for processing via injection moulding into high quality products. About 90 % of cable ties and fixings from HellermannTyton are made from this material. Polyamide is also known under the brand name of Nylon®, which was introduced by the Dupont company.

The inner structure of polyamide displays a partial order of polymer chains, i.e. polyamides are partially crystalline. Due to the tighter packing of the individual molecular chains polyamide only has limited transparency to light. The plastic is therefore described as translucent.

Each base unit contains 6 carbon atoms (C). Hence the name PA66.

The polyamide PA66 has many properties which are highly advantageous for HellermannTyton cable ties and fixings, such as:

- High strength, rigidity and hardness
- High dimensional stability, even under the effect of heat
- High abrasion resistance

Having a wide range of polyamides and additives allows for an optimum adaptation of the properties of the finished product to suit the respective requirements.

The following PA66 variants are used for HellermannTyton products:

- Polyamide 6.6 standard (PA66) for temperature conditions of up to +85 °C
- Polyamide 6.6 Heat Stabilised (PA66HS) for temperature conditions of up to +105 °C
- Polyamide 6.6 UV Stabilised (PA66W) for exterior use
- Polyamide 6.6 Heat Stabilised and UV Stabilised (PA66HSW) for exterior use up to +105 °C
- Polyamide 6.6 Impact Resistant (PA66HIR) for high elasticity requirements
- Polyamide 6.6 Impact Resistant and Heat Stabilised (PA66HIRHS) for high elasticity requirements and temperatures up to +105 °C
- Polyamide 6.6 V0 for high standards of fire protection

### Water content in polyamide

Polyamide is a hygroscopic material - this means that it absorbs and releases water. The mechanical properties are significantly affected by the water content – especially flexibility and minimum tensile strength.

In a standard atmosphere of 23 °C and 50 % relative humidity, the degree of water saturation of polyamide is around 2.5 %. For optimal processing of cable ties it is therefore important that the polyamide has a water content of approximately 2.5 % in a state of equilibrium.



**The quality and functionality of the products are thus affected by the water content, therefore the correct storage of our products is crucial. Please read our separate instructions on storage.**

**Since humidity is so critical to the quality of the tie, the question arises: What happens if the tie is installed and the water content in the tie alters?**

The water content determines the flexibility and strength of a tie. At a water content of approximately 2.5 % the tie has the ideal flexibility for installation. When the strap is being threaded through the head of the tie, the pawl must be flexible enough to “see-saw” over the serration of the strap without breaking. On the other hand, there must also be adequate material rigidity for the serrations of the pawl to engage with the serrations of the strap during the tying process so that a 'positive locking' action is achieved. After achieving the positive locking action the tie is in a static condition. Changes in the mechanical properties of the tie as a function of water content are insignificant during this status.

### Properties of UV-stabilised Polyamide PA66W

The question constantly arises as to whether a black cable tie is suitable for use outside. This is dependant on the application of the tie, but in general the following statements can be made:

A black cable tie made of polyamide 6.6 standard (PA66) is only coloured black with a low proportion of carbon black. This is not sufficient to protect the material from damage caused by UV-radiation in the long term.

Products made from UV-stabilised polyamide PA66W are produced in accordance with ASTM standard D6779 with a higher carbon black percentage of approx. 2 %. So they resist UV-radiation in the European area for a considerably longer period than standard PA66.

This is clearly illustrated by the comparison of the two images:

#### After 500 hours of UV-radiation exposure

Polyamide 6.6 standard (PA66) dyed black:



*The joint has been damaged throughout by UV-radiation.*

Polyamide 6.6 UV-stabilised (PA66W) with approx. 2 % carbon black:



*The joint has only been altered at isolated points by the UV-radiation.*

**For outdoor use we recommend our range of products made from UV-stabilised polyamide (PA66W).**

#### A simple practical test: "the hammer test"

You can quickly determine whether or not a cable tie is UV stabilised. Strike with a hammer the tail of the strap on the tie. Hold up this flattened end to the light. Cable ties with a carbon black content of about 2 % allow no light through and look black throughout. Standard black ties, however, are transparent on the flattened end.

### Properties of Polyamide PA11/PA12

Apart from PA66, there are polyamides which are less hygroscopic. These include PA11/PA12.

#### PA11/PA12 have the following advantages over PA66:

- Less hygroscopic - saturation at 23 °C and 50 % relative humidity is approximately 1 %
- Better impact performance
- Good weather resistance, even without a special additive

These three properties make PA11/PA12 ideal for use outdoors, in particular when requirements may include impact resistance.

The water absorption of PA11/PA12 is not only less than that of PA66 but also slower. This is the requirement where the mechanical properties need to remain relatively unaffected by changing environmental conditions.

### Properties of Polyamide PA46

Polyamide PA66, despite the use of additives, is not suitable for long-term use in temperatures of +105 °C. Due to considerably better heat resistance, polyamide PA46 is more suitable for temperatures of up to and exceeding 150 °C (depending on the length of time of operation).

#### Advantages of PA46 over PA66:

- Greater rigidity, even at higher temperatures
- Higher operating temperature ranges of up to +150 °C (5,000 hours)
- Greater form stability at higher temperatures
- Excellent chemical resistance

### Properties of Polyetheretherketone PEEK

PEEK, a linear aromatic polymer is semi-crystalline and is widely regarded as the highest performance thermoplastic material currently available. A summary of key physical properties is as follows:

#### High temperature performance

- Melting temperature of +343 °C
- Continuous use temperature of +240 °C (UL 746B)

#### Wear resistance

- Outstanding wear resistance over wide ranges of pressure, velocity, temperature and counter facial roughness

#### Chemical resistance

- Excellent resistance to a wide range of chemical environments, even at elevated temperatures
- The only common environment that dissolves it is concentrated sulfuric acid

#### Fire, smoke and toxicity

- Highly stable and requires no flame-retardant additives to achieve a UL94 V0 rating at 1.45 mm thickness
- The composition and inherent purity of the material results in extremely low smoke and toxic gas emission in fire situations

#### Hydrolysis resistance

- PEEK is not attacked by water or pressurized steam
- Components that are constructed from these materials retain a high level of mechanical properties when continuously conditioned in water at elevated temperatures and pressures

#### Radiation resistance

- Excellent radiation resistance due to the energetically stable chemical structure of PEEK

#### Purity

- PEEK materials are inherently pure with exceptionally low levels of ionic extractables
- Excellent out gassing characteristics

This makes PEEK the right choice for any high performance application in any industry with a clearly outstanding continuous use temperature of +240 °C.

### Properties of Ethylene Tetrafluoroethylene (E/TFE) - Tefzel®

E/TFE can be best described as a rugged thermoplastic with an outstanding balance of properties.

Mechanically, it is tough, has medium stiffness, impact and abrasion resistance.

E/TFE can perform successfully in applications where other materials are lacking in mechanical toughness, broad thermal capability, ability to meet severe environmental conditions.

Tefzel® is a registered trademark of DuPont.

#### Summary of key properties:

- No load continuous use temperature of +170 °C
- Weather resistant
- Inert to most solvents and chemicals
- Hydrolytically stable
- Substantially better resistance to radiation than other plastic materials

### Chemical resistance of various plastics

▲ = resistant

△ = partly resistant

○ = not resistant

These values are only rough guides. They should not be regarded as a material specification and are no substitute for a suitability test. Please see our technical datasheets for further details.

	Conc. (%)	Temp. (°C)	PA66	PA46	PA12	PA11	POM	PP	E/TFE (Tefzel®)	TPU	PEEK
Acetaldehyde, liquid	100	23 °C	▲	○		▲	▲	△	▲	○	▲
Acetowne	100	23 °C	▲	▲	▲	▲	▲	▲	▲	○	▲
Allyl chloride	100	23 °C				▲	▲	▲		○	
Aniline	100	23 °C	▲	△	△	▲	△	▲	▲	○	▲
Aromatic compounds							▲	○	▲	△	▲
Benzaldehyde		23 °C	▲	△		▲	▲	▲	▲	○	▲
Benzine/Benzol mix		23 °C	▲	▲	▲	▲	▲	△	▲	△	▲
Benzol	100	23 °C	▲		▲	▲	△	△	▲	△	▲
Bromine		23 °C		○	○	○		○		○	
Carbon bisulphide	100	23 °C	▲	○	▲	○	▲	○	▲	○	▲
Carbon tetrachloride	100	23 °C	▲	▲	△	○	▲	△	▲	○	▲
CFC								△			
Chlorine, gaeous	100	23 °C	○			○		○	▲	△	
Chlorine, liquefied	100	23 °C	○	○		○		○			
Chlorobenzene	100	23 °C			○	△	△	▲			
Chloroform	100	23 °C		○	○	▲	○	△		○	
Chromic acid 10 %	10	23 °C	○	○		○	○	▲	▲	○	▲
Chromic acid 20 %	20	20 °C	○	○		○	○	▲	▲	○	▲
Chromic acid 50 %	50	20 °C	○	○		○	○	▲	▲	○	▲
Cyclohexane	100	23 °C	▲			▲	▲	▲	▲	▲	▲
Cyclohexanone	100	23 °C	▲			▲	▲	▲	▲		▲
Decahydronaphthlene	100	23 °C	▲			▲	▲	△	▲	▲	▲
Diethyl ether	100	23 °C	▲			▲	▲	△	▲		▲
Di-isopropyl ether	100	23 °C						△			
Dimethyl formamide	100	23 °C	▲	▲		▲	▲	▲	▲		▲
Diocetyl phthalate		23 °C	▲	▲		▲	▲	▲	▲	○	▲
Engine oil	100	23 °C			▲	▲	▲	▲		▲	▲
Ethanonic acid 10 %	10	20 °C	○	△	△	▲	▲	▲	▲		
Ethanonic acid 100 %	100	23 °C	○	○		▲	△	▲	▲		
Ethanonic acid 25 %	25	20 °C	○			▲	△	▲	▲		
Ethanonic acid 50 %	50	20 °C	○			▲	△	▲	▲		
Ethyl acetate	100	23 °C		▲	▲	▲	△	△		△	▲
Formic acid	98	23 °C	○		○	▲	○	▲	▲	○	△
Freon		23 °C						▲			▲
Heptane	100	23 °C	▲	▲	▲	▲	▲	▲	▲	▲	▲
Hydrogen peroxide 10 %	10	20 °C	△			▲	▲	▲	▲	△	
Hydrogen peroxide 30 %	30	23 °C	○	○		▲	▲	▲	▲	△	
Ketone			▲	▲			▲	▲	▲		▲
Methyisobutylketone	100	23 °C	▲			▲	▲	▲	▲		▲
Methylethylketone	100	23 °C	▲	▲		▲	△	▲	▲	○	▲
Nitric acid 10 %	10	20 °C	○		○	○	○	▲	▲	○	▲
Nitric acid 50 %	50	23 °C	○		○	○	○	○	▲	○	○
Nitrobenzene	100	23 °C	▲	△		▲	▲	▲	▲	○	▲
Ordinary petrol		23 °C		▲		▲	▲	▲			▲
Paraffin oil		23 °C	▲	▲	▲	▲	▲	▲	▲	▲	▲
Perchloroethylene		23 °C	▲		▲	△	▲	△	▲	○	▲
Petroleum		23 °C	▲	▲	▲	▲	▲	▲	▲	▲	▲
Phenol	65	23 °C	○	○	○	○	○	▲	▲	○	
Potass. Permanganate	6	23 °C	○	○	○	○	▲	▲	▲	△	▲
Salad oil		23 °C		△		▲	▲	▲			▲
Silicon oil		23 °C	▲	▲	▲	▲	▲	▲	▲	▲	▲
Sulphuric acid 10 %	10	20 °C	○		△	▲	○	▲	▲	○	△
Sulphuric acid 50 %	50	20 °C	○				○	▲	▲	○	○
Sulphuric acid 96 %	96	23 °C	○	○			○	○	▲	○	○
Toluol	100	23 °C	▲		▲	▲	▲	△	▲	○	▲
Trichlorethylene	100	23 °C	▲	△	△	△	△	△	▲	○	▲
Water, cold			▲		▲	▲	▲			▲	▲
Water, hot						▲	▲			△	▲
Xylene	100	23 °C	▲	▲	▲	▲	▲	△	▲	○	▲



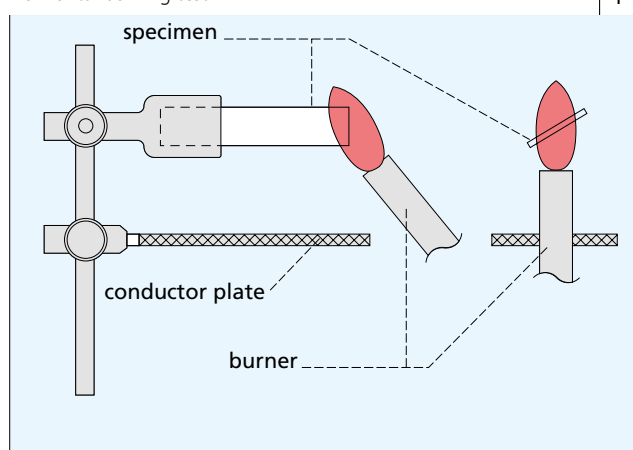
## What does flammability UL94 mean?

UL is the shortcut for Underwriters Laboratories. This is an independent organisation in the United States to control and certificate product safety. Beside a lot of product standards UL also specified the flammability test UL94 for plastic materials. UL94 is a material burning test done on defined specimen of the raw material but not a test on final products. UL94 differs between a horizontal burning test UL94 HB (picture 1) and a vertical burning test UL94 V (picture 2). For the vertical test UL94 V there are three flame ratings defined: UL94 V0, UL94 V1 and UL94 V2.

In all these burning tests an open flame is applied for a certain time to the specimen. As the burning behaviour also depends on the thickness of the material it is important to classify the material not only according to HB, V0, V1 or V2 but also to mention the thickness of specimen.

### UL94 HB:

Horizontal burning test



#### Test criteria:

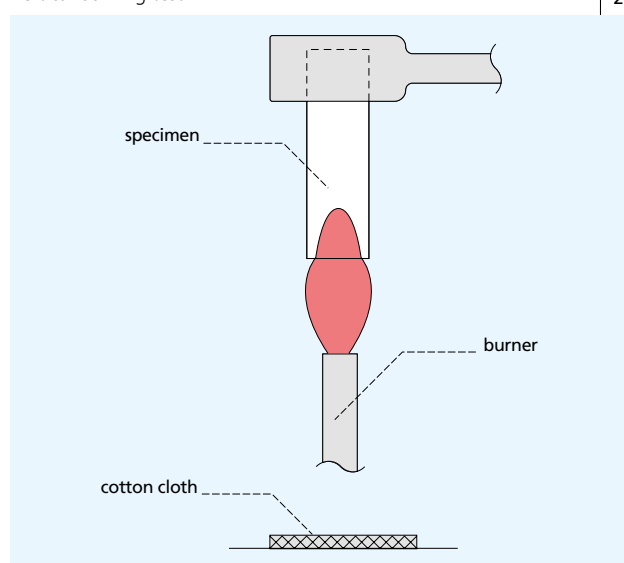
- burning rate of specimen in mm/min.

#### Classification:

- according to HB

### UL94 V:

Vertical burning test



#### Test criteria:

- afterflame time of specimen
- drip of flaming particles

#### Classification:

- according to V0, V1 or V2

Following table is a summary of test procedures and requirements of the UL94 classification.

Classification	Horizontal Test UL94		Vertical Test UL94		
	HB	HB	V0	V1	V2
Number of specimen	3	3	5	5	5
Thickness of specimen	< 3 mm	3 to 13 mm	up to max. 13 mm		
1st flame application	30 sec.	30 sec.	10 sec.	10 sec.	10 sec.
2nd flame application	-	-	10 sec.	10 sec.	10 sec.
Burning rate	max. 75 mm/min	max. 40 mm/min	-	-	-
Afterflame time after 1st flame application for each individual specimen	-	-	max. 10 sec.	max. 30 sec.	max. 30 sec.
Afterflame time after 2nd flame application for each individual specimen	-	-	max. 30 sec.	max. 60 sec.	max. 60 sec.
Total afterflame time for all 5 specimen after 1st and 2nd flame application	-	-	max. 50 sec.	max. 250 sec.	max. 250 sec.
Afterflame or afterglow of any specimen up to its end allowed	yes	yes	no	no	no
Cotton indicator ignited by flaming particles or drops allowed	-	-	no	no	yes

Flammability behaviour on the following product pages are always related to the raw material burning rate according to UL94. Most commonly used raw materials for cable ties and fixing elements are Polyamide 6.6 standard, Polyamide 6.6 weather resistant and Polyamide 6.6 heat stabilised. These materials normally fulfill UL94 V2 requirement.

## HellermannTyton cable ties conform to IEC62275 standard

HellermannTyton is a global manufacturer of cable management products who specialise in high performance fastening, connecting, routing, protecting and identifying solutions to diverse markets. The extensive product portfolio reflects our long-standing industry expertise. HellermannTyton has provided outstanding product quality and has met the high requirements of various industries for 80 years. Cable ties from the inside serrated (T-Series, Q-Series), the outside serrated (OS-Series) as well as our metal cable ties (MBT-Series and MST-Series) have been tested in accordance with the international cable tie standard IEC 62275 (Cable management systems - Cable ties for electrical installations).

Cable ties manufactured from the standard material Polyamide 6.6 (PA66), heat-stabilised Polyamide 6.6 (PA66HS), UV-stabilised Polyamide 6.6 (PA66W) and Stainless Steel grades SS304 and SS316 have been successfully tested and approved.

### The standard includes the following tests:

- Installation test on minimum and maximum specified bundle diameters
- Installation test at minimum specified installation temperature
- Impact test at minimum specified operating temperature
- Minimum tensile strength (in the standard this is described as the loop test)
- Loop tensile test after heat ageing at the specified operating temperature
- Loop tensile test after heat cycling at the minimum and maximum operating temperatures
- Loop tensile test after humidity and heat cycling at the minimum and maximum operating temperatures
- Contribution to the spread of fire on both the actual product and test (tissue paper) substrate
- Loop tensile and visual tests after exposure to ultraviolet light radiation for PA66W ties
- Resistance to corrosion (dependent on material)
- Loop tensile test after vibration test for metallic cable ties

### The following cable ties have been tested and certified

- T-Series inside-serrated in PA66-NA, PA66-BK, PA66HS-NA, PA66HS-BK, PA66W
- OS-Series outside-serrated in PA66-NA, PA66-BK, PA66HS-NA, PA66HS-BK, PA66W
- Q-Series inside-serrated in PA66-NA, PA66-BK, coloured PA66, PA66HS-NA, PA66HS-BK
- MBT-Series, uncoated in SS316 material grade
- MST-Series, uncoated in SS304 material grade



**Material specification please see page 22.**

In addition to the IEC62275, we are proud to offer our customers products which have been certified by well known and independent laboratories such as:



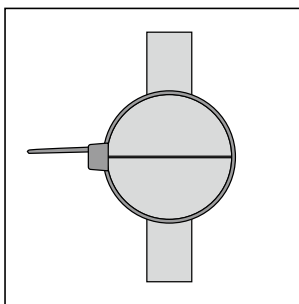
**Profit from the knowledge and experience of HellermannTyton and the high-quality of our cable management solutions for your particular industry and market.**

## Determination of minimum tensile strength

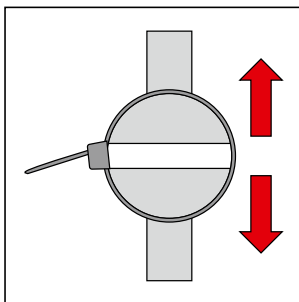
The minimum tensile strength is a critical selection criteria for cable ties. It expresses how much loading a cable tie can bear.

### The test procedure to determine minimum tensile strength:

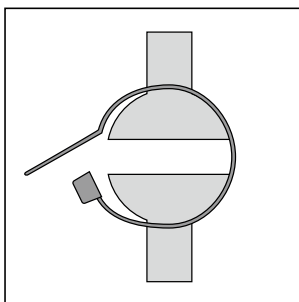
- Stabilisation to achieve equilibrium moisture content
- Set-up of the tensile test fixture
- Application of the tie on a split mandrel fixture
- Test speed



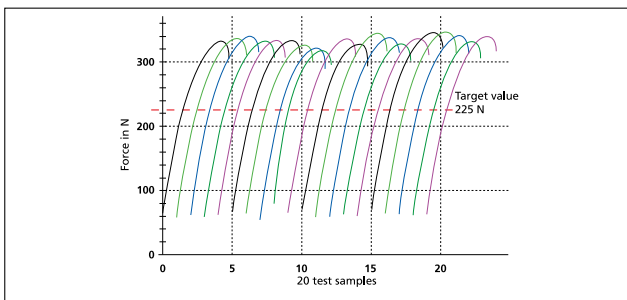
The cable tie is fixed onto a split mandrel fixture with the suitable cable tie application tool.



The mandrel is opened at a defined speed.



The loading at which the cable tie fails is determined. This value is stated in Newtons (N) and is recorded through a computer programme reading the tests. This programme produces graphs as outlined below.



Typical measurement protocol of a T50R made of PA66 with a minimum tensile strength of 225 N.

## Explanation of minimum tensile strengths

### What does a minimum tensile strength of 225 N (50 lbs) mean?

To explain what this value means, the mass with which the tie can be loaded is calculated. The unit of measurement of the mass is stated in kg. To do so, the unit Newton (N) is shown in the following way:

$$[N] = [kg * m/s^2]$$

The formula for calculating the mass is:

$$\text{Mass} = \text{minimum tensile strength} / \text{acceleration due to gravity}$$

The acceleration due to gravity is 9.81 m/s<sup>2</sup>

$$\text{Mass} = \text{minimum tensile strength} / [kg * m/s^2] / 9.81 [m/s^2]$$

At a minimum tensile strength of 225 N (50 lbs) the mass is:

$$\text{Mass} = 225 [kg * m/s^2] / 9.81 [m/s^2]$$

The units m/s<sup>2</sup> cancel each other out, leaving the unit [kg] for the mass. Thus:

$$\text{Mass} = 225 / 9.81 \text{ kg} = 22.9 \text{ kg}$$

Therefore, a T50R cable tie with a minimum tensile strength of 225 N (50 lbs) can be loaded with 22.9 kg.

Conversely, with the required loading capacity the minimum tensile strength can be calculated by a mass:

$$\text{Min. tensile strength} = \text{mass} * 9.81 [m/s^2]$$

If the tie is to be loaded with, for example, 53 kg this produces:

$$\text{Minimum tensile strength} = [53 \text{ kg}] * 9.81 [m/s^2] = 520 \text{ N}$$

In order to withstand a load of 53 kg, the tie must therefore have a minimum tensile strength of 520 N. In this case, select our T120R with a minimum tensile strength of 535 N (120 lbs).



$$225 \text{ N} / 9.81 = 22.9 \text{ kg}$$



$$53 \text{ kg} * 9.81 = 520 \text{ N}$$



= Minimum Loop Tensile Strength for Cable Ties (Newton)

## Introduction to the main locking technologies used for cable ties

HellermannTyton offers a wide range of cable ties for use in different applications. By constantly refining our products and satisfying the ever-changing demands of the market, various locking technologies have been developed. Below you will find a brief overview of three most common locking technologies and their characteristics.

### Cable ties with plastic pawls

This technology is used in 90% of all polyamide (PA) cable ties applied by HellermannTyton. In order to cover a variety of applications, there are different variants of this system, for example: releasable versions, in-line versions, open head versions.

These are one-piece cable ties, the pawl is moulded as an integral part of the cable tie, thereby building in inherent strengths.

### Locking technology

Positive locking is achieved by engaging the pawl with the strap serrations. This allows the cable tie to perform to the published minimum tensile strength, that is the loading that the cable tie can hold under application.

### KR series cable ties

This cable tie is distinguished by its smooth strap and unique locking mechanism. With the KR series the chamfered head achieves an especially firm fit around the bundled material.

### Locking technology

This locking technology takes advantage of the excellent deformation properties of polyamide (PA). Here, the glass fibre-reinforced locking pin (yellow) is forced into the strap by the use of an application tool - either the KR6/8 or KR8PNSE. The strap is deformed into the head of the tie by the application of the pin, thereby locking the cable tie in position and allowing the bundling of heavy loads.

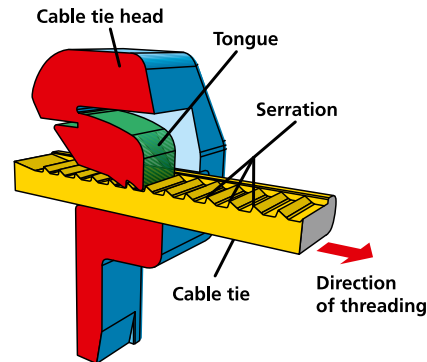
### MBT series of cable ties

Made of stainless steel grade 304 or 316, the MBT range of cable ties have no serrations on the strap and are threaded parallel through the head, gliding under a metal ball-bearing locking mechanism. By using an appropriate application tool like our MK9SST the cable tie is tensioned and the strap cut to a flush finish.

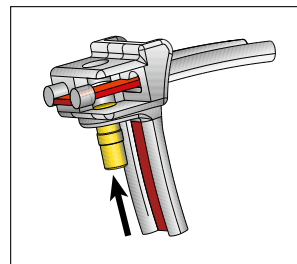
### Locking technology

The strap is locked into the head by means of the small ball-bearing. The ball locks into the small end of the wedged shaped housing, forming a positive locking with the strap.

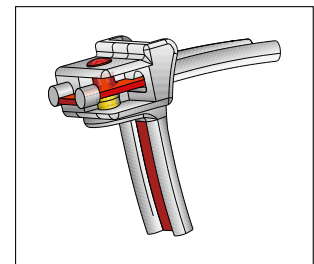
This cable tie is not suitable for rigid objects. Retraction of the ball-bearing (see drawing) is required into the small end of the wedged shaped housing to allow for a positive locking of the strap and also having a flush cut off at the end of the strap. This retraction cannot be ensured when bundling around inflexible materials such as metal pipes. The force by cutting the cable tie might end up in a rebound that could allow the ball moving back slightly. For rigid objects we therefore recommend a protective channel (LFPC) to be laid between strap and bundled object in order to compensate the rebound. The MBT locking technology allows for minimum tensile strengths of up to 7,000 Newton.



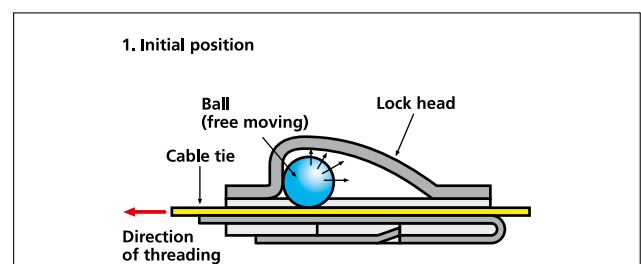
Locking technology of an outside serrated tie.



The unopened head of a KR-tie.



The cable tie (red) is locked into place with the pin.



#### 1. Initial position

Ball (free moving)  
Lock head  
Cable tie  
Direction of threading

#### 2. Ball locks cable tie by wedging.

Ball (wedged)  
Rebound  
Lock head  
Cable tie  
Direction of threading

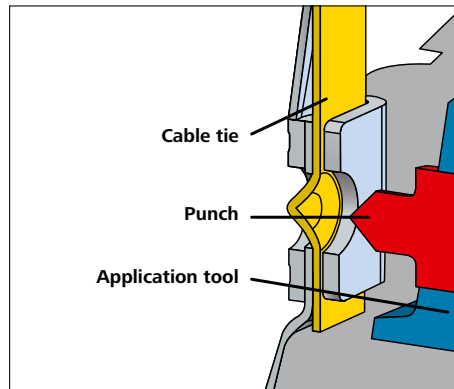
## Introduction to the main locking technologies used for cable ties

### MST series cable ties

MST cable ties are made of stainless steel 304. They offer similar features to MBT products but with a different head design and closure. Where space is tight the flat head allows for space savings. MST cable ties are not only weather-resistant but also highly resistant to heat, fire, and radiation. It can be used in challenging environments including indoor, outdoor and underground installations.

### Locking technology

The punch-locking mechanism keeps the lock tight even in challenging areas with very high vibration such as on trains. Our MST application tools (MST6/MST9) have been specifically developed for tightening and cutting MST cable ties. This tool is mandatory to apply and lock these stainless steel cable ties properly.



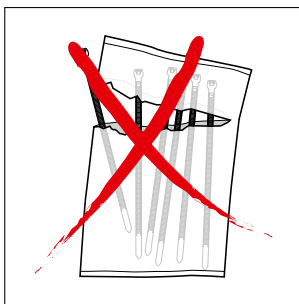
*Punch-locking mechanism of the MST-Series.*

## Optimum storage conditions for cable ties made of Polyamide (PA)

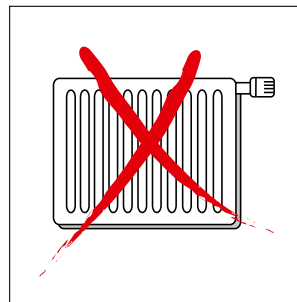
HellermannTyton cable ties, fastenings and fixings are manufactured from high-quality polyamide (PA). This industrial synthetic material is mainly processed using injection moulding, but can also be extruded. Polyamide is a hygroscopic material. This means that the material absorbs and loses moisture. For optimum handling of cable ties it is

important that the material is in a condition of equilibrium with a water content of approximately 2.5%.

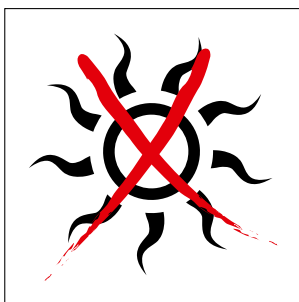
The packaging used by HellermannTyton ensures that the water content in the material remains constant. Therefore, it is important to store the products in their original packaging to preserve the quality of the ties.



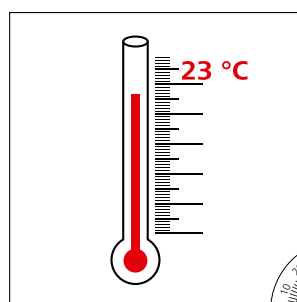
1. Once opened you should use the ties as quickly as possible.
2. Always store ties in the sealed plastic bag.



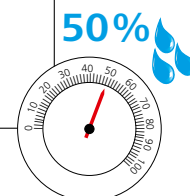
5. Store the product away from direct sources of heat.
6. Avoid contact with heat: for example, do not place on the radiators.



3. Do not expose the product to direct sunlight.
4. Do not store the product in sunlight; for example, on the windowsill.



7. The ideal storage conditions are those of the central European standard climate: 23 °C



50% relative humidity



### Cable Ties Polyamide 6.6 standard

#### T-Series in PA66 natural and black

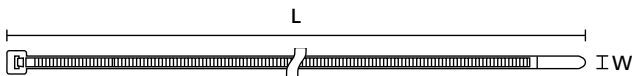
T-Series cable ties for bundling and securing cables, pipes and hoses. These cable ties can be used for almost any type of application.

#### Features and Benefits

- Natural and black cable ties available in a wide range of sizes
- Made from 100 % high quality plastic, allows for good recycling
- Inside serration for a strong hold around bundles
- Easy application either manually or with a processing tool
- Simply to insert due to the ergonomically bent tail



Standard T-Series cable ties – for almost any type of application (PA66).



T-Series

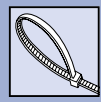
TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
T18S	2.3	83.0	16.0	80	PA66	Natural (NA)	1,000 pcs.	2;4-6	111-02809
	2.3	83.0	16.0	80	PA66	Black (BK)	100 pcs.	2;4-6	111-02810
T18R	2.5	100.0	22.0	80	PA66	Natural (NA)	1,000 pcs.	2;4-6	111-01929
	2.5	100.0	22.0	80	PA66	Black (BK)	100 pcs.	2;4-6	111-01910
T18I	2.5	145.0	35.0	80	PA66	Black (BK)	100 pcs.	2;4-6	111-02370
	2.5	145.0	35.0	80	PA66	Natural (NA)	100 pcs.	2;4-6	111-02319
T18L	2.5	205.0	55.0	80	PA66	Natural (NA)	100 pcs.	2;4-6	111-02119
	2.5	205.0	55.0	80	PA66	Black (BK)	100 pcs.	2;4-6	111-02110
T25L	2.8	240.0	65.0	110	PA66	Black (BK)	100 pcs.	2;4-6	111-02500
	2.8	240.0	65.0	110	PA66	Natural (NA)	100 pcs.	2;4-6	111-02519
T25LL	2.8	330.0	95.0	110	PA66	Natural (NA)	100 pcs.	2;4-6	111-02619
T30R	3.5	150.0	35.0	135	PA66	Natural (NA)	100 pcs.	2;4-6	111-03219
	3.5	150.0	35.0	135	PA66	Black (BK)	100 pcs.	2;4-6	111-03210
T30L	3.5	198.0	50.0	135	PA66	Natural (NA)	100 pcs.	2;4-6	111-00946
	3.5	198.0	50.0	135	PA66	Black (BK)	100 pcs.	2;4-6	111-00945
T30LL	3.5	290.0	80.0	135	PA66	Black (BK)	100 pcs.	2;4-6	111-00982
	3.5	290.0	80.0	135	PA66	Natural (NA)	100 pcs.	2;4-6	111-03549
T40R	4.0	175.0	40.0	180	PA66	Natural (NA)	100 pcs.	2;4-8	111-03819
T50S	4.6	150.0	35.0	225	PA66	Black (BK)	100 pcs.	2;4-6,10	111-05810
	4.6	150.0	35.0	225	PA66	Natural (NA)	100 pcs.	2;4-6,10	111-05819
T50R	4.6	200.0	50.0	225	PA66	Black (BK)	100 pcs.	2;4-6,10	111-04810
	4.6	200.0	50.0	225	PA66	Natural (NA)	100 pcs.	2;4-6,10	111-04819
T50M	4.6	245.0	65.0	225	PA66	Natural (NA)	100 pcs.	2;4-6,10	111-00956
	4.6	245.0	65.0	225	PA66	Black (BK)	100 pcs.	2;4-6,10	111-06200
T50I	4.6	300.0	85.0	225	PA66	Black (BK)	100 pcs.	2;4-6,10	111-00950
	4.6	300.0	85.0	225	PA66	Natural (NA)	100 pcs.	2;4-6,10	111-00951
T50L	4.6	390.0	110.0	225	PA66	Natural (NA)	100 pcs.	2;4-6,10	111-05619
	4.6	390.0	110.0	225	PA66	Black (BK)	100 pcs.	2;4-6,10	111-00985
T50LL	4.6	445.0	130.0	225	PA66	Black (BK)	500 pcs.	2;4-6,10	111-06002
T80R	4.7	210.0	55.0	355	PA66	Natural (NA)	100 pcs.	2;4-6,10-12	111-05019
	4.7	210.0	55.0	355	PA66	Black (BK)	100 pcs.	2;4-6,10-12	111-08010

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



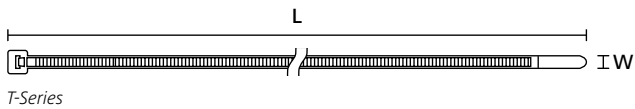
For product specific approvals and specifications please refer to the Appendix.





### Cable Ties Polyamide 6.6 standard

#### T-Series in PA66 natural and black



Material specification please see page 22.

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
T80I	4.7	300.0	85.0	355	PA66	Natural (NA)	100 pcs.	2;4-6,10-12	111-08229
	4.7	300.0	85.0	355	PA66	Black (BK)	100 pcs.	2;4-6,10-12	111-08210
T80L	4.7	390.0	110.0	355	PA66	Black (BK)	100 pcs.	2;4-6,10-12	111-05410
	4.7	390.0	110.0	355	PA66	Natural (NA)	100 pcs.	2;4-6,10-12	111-05419
T120S	7.6	225.0	55.0	535	PA66	Natural (NA)	50 pcs.	3,10-12	111-12829
T120I	7.6	300.0	80.0	535	PA66	Black (BK)	100 pcs.	3,10-12	111-00958
	7.6	300.0	80.0	535	PA66	Natural (NA)	100 pcs.	3,10-12	111-12119
T150R	7.6	365.0	100.0	670	PA66	Black (BK)	100 pcs.	3,10-12	111-14810
	7.6	365.0	100.0	670	PA66	Natural (NA)	100 pcs.	3,10-12	111-14819
T120R(E)	7.6	387.0	100.0	535	PA66	Black (BK)	100 pcs.	3,10-12	111-12010
	7.6	387.0	100.0	535	PA66	Natural (NA)	100 pcs.	3,10-12	111-12019
T120M	7.6	460.0	125.0	535	PA66	Black (BK)	100 pcs.	3,10-12	111-12610
	7.6	460.0	125.0	535	PA66	Natural (NA)	100 pcs.	3,10-12	111-12619
T120XM	7.6	600.0	175.0	535	PA66	Black (BK)	50 pcs.	3,10-12	111-12701
	7.6	600.0	175.0	535	PA66	Natural (NA)	50 pcs.	3,10-12	111-12704
T120L	7.6	760.0	225.0	535	PA66	Black (BK)	50 pcs.	3,10-12	111-12403
	7.6	760.0	225.0	535	PA66	Natural (NA)	50 pcs.	3,10-12	111-12429
T150L	8.8	820.0	245.0	780	PA66	Black (BK)	25 pcs.	10-12	111-15405
	8.8	820.0	245.0	780	PA66	Natural (NA)	25 pcs.	10-12	111-15419
T150M	8.9	530.0	150.0	780	PA66	Black (BK)	25 pcs.	10-12	111-00124
	8.9	530.0	150.0	780	PA66	Natural (NA)	25 pcs.	10-12	111-15619
T150XL	8.9	1,095.0	330.0	780	PA66	Black (BK)	25 pcs.	10-12	111-15500
	8.9	1,095.0	330.0	780	PA66	Natural (NA)	25 pcs.	10-12	111-15519
T150XLL	8.9	1,325.0	405.0	780	PA66	Black (BK)	25 pcs.	10-12	111-15300
	8.9	1,325.0	405.0	780	PA66	Natural (NA)	25 pcs.	10-12	111-15304
T250S	12.5	225.0	55.0	1,115	PA66	Natural (NA)	100 pcs.	11-12	111-24705
T250X	12.5	370.0	100.0	1,115	PA66	Black (BK)	100 pcs.	11-12	111-25102
T250R	12.5	515.0	125.0	1,115	PA66	Natural (NA)	25 pcs.	11-12	111-24803
T250M	12.5	565.3	150.0	1,115	PA66	Black (BK)	25 pcs.	11-12	111-25001
	12.5	565.3	150.0	1,115	PA66	Natural (NA)	25 pcs.	11-12	111-25002
T250I	12.5	730.0	203.0	1,115	PA66	Natural (NA)	25 pcs.	11-12	111-25219
T250L	12.5	880.0	254.0	1,115	PA66	Black (BK)	25 pcs.	11-12	111-24601
T250XL	12.5	1,030.0	305.0	1,115	PA66	Black (BK)	25 pcs.	11-12	111-25200
	12.5	1,030.0	305.0	1,115	PA66	Natural (NA)	25 pcs.	11-12	111-00466

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools										
	2	3	4	5	6	8	9	10	11	12
	MK20	MK21	MK3SP	MK3PNP2	EVO7	MK7P	MK6	EVO9	EVO9HT	MK9P
	595	595	596	596	598	601	600	599	599	602

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



### Cable Ties Polyamide 6.6 standard

#### T-Series in PA66 coloured

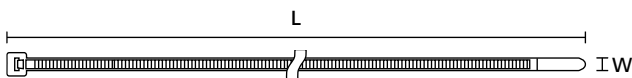
T-Series cable ties for bundling and securing cables, pipes and hoses. These cable ties can be used for almost any type of application.

#### Features and Benefits

- Coloured cable ties available in a wide range of sizes
- Made from 100 % high quality plastic, allows for good recycling
- Inside serration for a strong hold around bundles
- Easy application either manually or with a processing tool
- Simply to insert due to the ergonomically bent tail
- Other colours are available on request



T-Series cable ties – ideally suited for colour coding.



T-Series

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
T18R	2.5	100.0	22.0	80	PA66	Blue (BU)	100 pcs.	2;4-6	116-01816
	2.5	100.0	22.0	80	PA66	Green (GN)	100 pcs.	2;4-6	116-01815
	2.5	100.0	22.0	80	PA66	Red (RD)	100 pcs.	2;4-6	116-01812
	2.5	100.0	22.0	80	PA66	Yellow (YE)	100 pcs.	2;4-6	116-01814
T30R	3.5	150.0	35.0	135	PA66	Blue (BU)	100 pcs.	2;4-6	111-03008
	3.5	150.0	35.0	135	PA66	Green (GN)	100 pcs.	2;4-6	111-03014
	3.5	150.0	35.0	135	PA66	Red (RD)	100 pcs.	2;4-6	111-03004
	3.5	150.0	35.0	135	PA66	Yellow (YE)	100 pcs.	2;4-6	111-03006
T50R	4.6	200.0	50.0	225	PA66	Blue (BU)	100 pcs.	2;4-6,10	111-04800
	4.6	200.0	50.0	225	PA66	Green (GN)	100 pcs.	2;4-6,10	111-04801
	4.6	200.0	50.0	225	PA66	Red (RD)	100 pcs.	2;4-6,10	111-04804
	4.6	200.0	50.0	225	PA66	Yellow (YE)	100 pcs.	2;4-6,10	111-04805
T50L	4.6	390.0	110.0	225	PA66	Blue (BU)	100 pcs.	2;4-6,10	111-05404
	4.6	390.0	110.0	225	PA66	Green (GN)	100 pcs.	2;4-6,10	111-05402
	4.6	390.0	110.0	225	PA66	Red (RD)	100 pcs.	2;4-6,10	111-05406
	4.6	390.0	110.0	225	PA66	Yellow (YE)	100 pcs.	2;4-6,10	111-05428

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



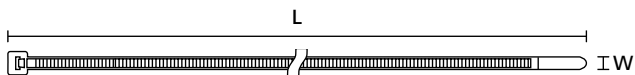
For product specific approvals and specifications please refer to the Appendix.





### Cable Ties Polyamide 6.6 standard

#### T-Series in PA66 coloured



T-Series



Material specification please see page 22.

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
T80R	4.7	210.0	55.0	355	PA66	Blue (BU)	100 pcs.	2;4-6,10-12	116-08016
	4.7	210.0	55.0	355	PA66	Green (GN)	100 pcs.	2;4-6,10-12	116-08015
	4.7	210.0	55.0	355	PA66	Red (RD)	100 pcs.	2;4-6,10-12	116-08012
	4.7	210.0	55.0	355	PA66	Yellow (YE)	100 pcs.	2;4-6,10-12	116-08014
T80L	4.7	390.0	110.0	355	PA66	Blue (BU)	100 pcs.	2;4-6,10-12	116-05416
	4.7	390.0	110.0	355	PA66	Green (GN)	100 pcs.	2;4-6,10-12	116-05415
	4.7	390.0	110.0	355	PA66	Red (RD)	100 pcs.	2;4-6,10-12	116-05412
	4.7	390.0	110.0	355	PA66	Yellow (YE)	100 pcs.	2;4-6,10-12	116-05414
T150R(H)	7.6	365.0	100.0	670	PA66	Blue (BU)	100 pcs.	3,10-12	116-15016
	7.6	365.0	100.0	670	PA66	Red (RD)	100 pcs.	3,10-12	116-15012
	7.6	365.0	100.0	670	PA66	Yellow (YE)	100 pcs.	3,10-12	116-15014
T120R(E)	7.6	387.0	100.0	535	PA66	Green (GN)	100 pcs.	3,10-12	111-12001
	7.6	387.0	100.0	535	PA66	Red (RD)	100 pcs.	3,10-12	111-12002

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools								
	2	3	4	5	6	10	11	12
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	EVO9	EVO9HT	MK9P
	595	596	596	596	598	599	599	602

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



### Cable Ties for outdoor use (UV-resistant)

#### T-Series in PA66W black

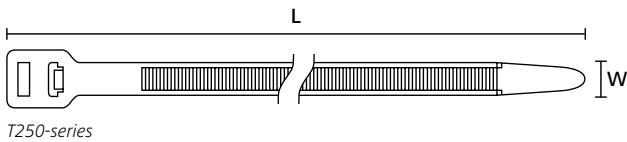
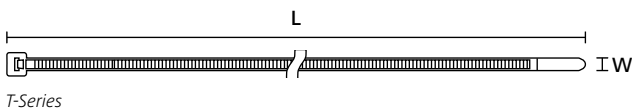
T-Series cable ties for bundling and securing cables, pipes and hoses. These cable ties can be used for almost any type of application.

#### Features and Benefits

- Weather-resistant black cable tie available in a wide range of sizes
- Made from 100 % high quality plastic, allows for good recycling
- Inside serration for a strong hold around bundles
- Easy application either manually or with a processing tool
- Simply to insert due to the ergonomically bent tail
- UV-resistant



UV-resistant T-Series cable ties (PA66W).



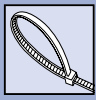
**Material specification  
please see page 22.**

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
T18S	2.3	83.0	16.0	80	PA66W	Black (BK)	1,000 pcs.	2;4-6	111-02860
T18R	2.5	100.0	22.0	80	PA66W	Black (BK)	100 pcs.	2;4-6	111-01960
T18I	2.5	145.0	35.0	80	PA66W	Black (BK)	100 pcs.	2;4-6	111-02360
T18L	2.5	205.0	55.0	80	PA66W	Black (BK)	100 pcs.	2;4-6	111-02160
T25L	2.8	240.0	65.0	110	PA66W	Black (BK)	100 pcs.	2;4-6	111-02560
T25LL	2.8	330.0	95.0	110	PA66W	Black (BK)	100 pcs.	2;4-6	111-02660
T30R	3.5	150.0	35.0	135	PA66W	Black (BK)	100 pcs.	2;4-6	111-03260
T30L	3.5	198.0	50.0	135	PA66W	Black (BK)	100 pcs.	2;4-6	111-00947
T30LL	3.5	290.0	80.0	135	PA66W	Black (BK)	100 pcs.	2;4-6	111-03580
T40R	4.0	175.0	40.0	180	PA66W	Black (BK)	100 pcs.	2;4-8	111-03860
T50S	4.6	150.0	35.0	225	PA66W	Black (BK)	100 pcs.	2;4-6,10	111-05860
T50R	4.6	200.0	50.0	225	PA66W	Black (BK)	100 pcs.	2;4-6,10	111-04860
T50M	4.6	245.0	65.0	225	PA66W	Black (BK)	100 pcs.	2;4-6,10	111-00957
T50I	4.6	300.0	85.0	225	PA66W	Black (BK)	100 pcs.	2;4-6,10	111-00952
T50L	4.6	390.0	110.0	225	PA66W	Black (BK)	100 pcs.	2;4-6,10	111-05710
T50LL	4.6	445.0	130.0	225	PA66W	Black (BK)	100 pcs.	2;4-6,10	111-06000
T80R	4.7	210.0	55.0	355	PA66W	Black (BK)	100 pcs.	2;4-6,10-12	111-05060
T80I	4.7	300.0	85.0	355	PA66W	Black (BK)	100 pcs.	2;4-6,10-12	111-08290

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

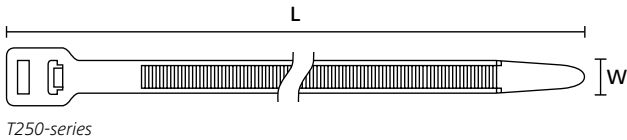
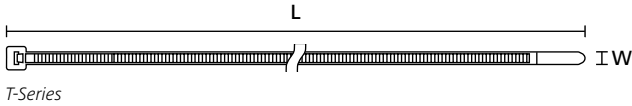


For product specific approvals and specifications please refer to the Appendix.



### Cable Ties for outdoor use (UV-resistant)

#### T-Series in PA66W black



TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
T80L	4.7	390.0	110.0	355	PA66W	Black (BK)	100 pcs.	2;4-6,10-12	111-05460
T120S	7.6	225.0	55.0	535	PA66W	Black (BK)	50 pcs.	3,10-12	111-12830
T120I	7.6	300.0	80.0	535	PA66W	Black (BK)	100 pcs.	3,10-12	111-12160
T150R(H)	7.6	365.0	100.0	670	PA66W	Black (BK)	100 pcs.	3,10-12	111-14860
T120R(E)	7.6	387.0	100.0	535	PA66W	Black (BK)	100 pcs.	3,10-12	111-12060
T120M	7.6	460.0	125.0	535	PA66W	Black (BK)	100 pcs.	3,10-12	111-12660
T120L	7.6	760.0	225.0	535	PA66W	Black (BK)	50 pcs.	3,10-12	111-12430
T150L	8.8	820.0	245.0	780	PA66W	Black (BK)	25 pcs.	10-12	111-15460
T150M	8.9	530.0	150.0	780	PA66W	Black (BK)	25 pcs.	10-12	111-15660
T150XL	8.9	1,095.0	330.0	780	PA66W	Black (BK)	25 pcs.	10-12	111-15502
T150XLL	8.9	1,325.0	405.0	780	PA66W	Black (BK)	25 pcs.	10-12	111-15305
T250X	12.5	370.0	100.0	1115	PA66W	Black (BK)	25 pcs.	110-12	111-25100
T250R	12.5	515.0	125.0	1,115	PA66HIRHSUV	Black (BK)	25 pcs.	11-12	111-24805

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools								
	2	3	4	5	6	10	11	12
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	EVO9	EVO9HT	MK9P
	595	596	596	596	598	599	599	602

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



### Cable Ties for temperatures up to +105 °C (heat stabilised)

#### T-Series in PA66HS natural and black

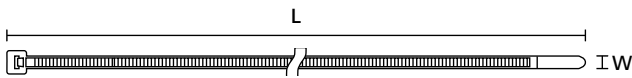
T-Series cable ties for bundling and securing cables, pipes and hoses. These cable ties can be used for almost any type of application.

#### Features and Benefits

- Heat stabilised cable tie available in a wide range of sizes
- Made from 100 % high quality plastic, allows for good recycling
- Inside serration for a strong hold around bundles
- Easy application either manually or with a processing tool
- Simply to insert due to the ergonomically bent tail
- Higher temperature resistance up to +105 °C



Heat stabilised T-Series cable ties up to +105 °C.



T-Series

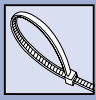
TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
T18S	2.3	83.0	16.0	80	PA66HS	Natural (NA)	1000 pcs.	2;4-6	111-00962
	2.3	83.0	16.0	80	PA66HS	Black (BK)	1000 pcs.	2;4-6	111-00977
T18R	2.5	100.0	22.0	80	PA66HS	Black (BK)	100 pcs.	2;4-6	111-01950
	2.5	100.0	22.0	80	PA66HS	Natural (NA)	100 pcs.	2;4-6	111-01959
	2.5	100.0	22.0	80	PA66HSW	Black (BK)	1000 pcs.	2;4-6	111-01199
T18I	2.5	145.0	35.0	80	PA66HS	Black (BK)	100 pcs.	2;4-6	111-02358
	2.5	145.0	35.0	80	PA66HS	Natural (NA)	1000 pcs.	2;4-6	111-02359
T18L	2.5	205.0	55.0	80	PA66HS	Black (BK)	1000 pcs.	2;4-6	111-01183
	2.5	205.0	55.0	80	PA66HS	Natural (NA)	100 pcs.	2;4-6	111-02159
	2.5	205.0	55.0	80	PA66HSW	Black (BK)	100 pcs.	2;4-6	111-01274
T30R	3.5	150.0	35.0	135	PA66HS	Natural (NA)	100 pcs.	2;4-6	111-03259
	3.5	150.0	35.0	135	PA66HS	Black (BK)	100 pcs.	2;4-6	111-03250
	3.5	150.0	35.0	135	PA66HSW	Black (BW)	100 pcs.	2;4-6	111-01211
T30L	3.5	198.0	50.0	135	PA66HS	Black (BK)	100 pcs.	2;4-6	111-03450
	3.5	198.0	50.0	135	PA66HS	Natural (NA)	100 pcs.	2;4-6	111-03459
T30LL	3.5	290.0	80.0	135	PA66HS	Black (BK)	1,000 pcs.	2;4-6	111-03640
	3.5	290.0	80.0	135	PA66HS	Natural (NA)	100 pcs.	2;4-6	111-01555
T40R	4.0	175.0	40.0	180	PA66HS	Black (BK)	100 pcs.	2;4-8	111-01618
	4.0	175.0	40.0	180	PA66HS	Natural (NA)	100 pcs.	2;4-8	111-03859
T50S	4.6	150.0	35.0	225	PA66HS	Natural (NA)	100 pcs.	2;4-6,10	111-05859
	4.6	150.0	35.0	225	PA66HS	Black (BK)	100 pcs.	2;4-6,10	111-05850
T50R	4.6	200.0	50.0	225	PA66HS	Natural (NA)	100 pcs.	2;4-6,10	111-04855
	4.6	200.0	50.0	225	PA66HSW	Black (BK)	100 pcs.	2;4-6,10	111-01278
	4.6	200.0	50.0	225	PA66HS	Black (BK)	100 pcs.	2;4-6,10	111-04940

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

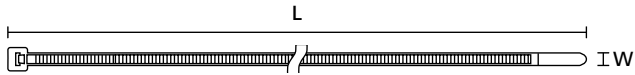


For product specific approvals and specifications please refer to the Appendix.



### Cable Ties for temperatures up to +105 °C (heat stabilised)

#### T-Series in PA66HS natural and black



T-Series



Material specification please see page 22.

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
T50I	4.6	300.0	85.0	225	PA66HS	Black (BK)	100 pcs.	2;4-6,10	111-05250
	4.6	300.0	85.0	225	PA66HS	Natural (NA)	100 pcs.	2;4-6,10	111-00953
	4.6	300.0	85.0	225	PA66HSW	Black (BK)	100 pcs.	2;4-6,10	111-00954
T50L	4.6	390.0	110.0	225	PA66HS	Black (BK)	100 pcs.	2;4-6,10	111-05450
	4.6	390.0	110.0	225	PA66HS	Natural (NA)	100 pcs.	2;4-6,10	111-05655
	4.6	390.0	110.0	225	PA66HSW	Black (BK)	100 pcs.	2;4-6,10	111-01226
T80R	4.7	210.0	55.0	355	PA66HS	Black (BK)	100 pcs.	2;4-6,10,11	111-05059
	4.7	210.0	55.0	355	PA66HS	Natural (NA)	100 pcs.	2;4-6,10,11	111-05059
T80I	4.7	300.0	85.0	355	PA66HS	Black (BK)	100 pcs.	2;4-6,10,11	111-08250
	4.7	300.0	85.0	355	PA66HS	Natural (NA)	100 pcs.	2;4-6,10,11	111-08259
T80L	4.7	390.0	110.0	355	PA66HS	Black (BK)	100 pcs.	2;4-6,10,11	111-00388
	4.7	390.0	110.0	355	PA66HS	Natural (NA)	100 pcs.	2;4-6,10,11	111-05459
T120S	7.6	225.0	55.0	535	PA66HS	Black (BK)	50 pcs.	3,10,11	111-12850
	7.6	225.0	55.0	535	PA66HS	Natural (NA)	50 pcs.	3,10,11	111-12824
T150R	7.6	365.0	100.0	670	PA66HS	Black (BK)	100 pcs.	3,10,11	111-01636
T150R(H)	7.6	365.0	100.0	670	PA66HS	Black (BK)	100 pcs.	3,10,11	111-01156
	7.6	365.0	100.0	670	PA66HS	Natural (NA)	100 pcs.	3,10,11	111-15069
T120R(E)	7.6	387.0	100.0	535	PA66HS	Black (BK)	100 pcs.	3,10,11	111-12050
	7.6	387.0	100.0	535	PA66HS	Natural (NA)	100 pcs.	3,10,11	111-12059
T120M	7.6	460.0	125.0	535	PA66HS	Black (BK)	100 pcs.	3,10,11	111-00153
T120XM	7.6	600.0	175.0	535	PA66HS	Black (BK)	50 pcs.	3,10,11	111-12700
	7.6	600.0	175.0	535	PA66HS	Natural (NA)	50 pcs.	3,10,11	111-12719
T120L	7.6	760.0	225.0	535	PA66HS	Black (BK)	50 pcs.	3,10,11	111-12440
	7.6	760.0	225.0	535	PA66HS	Natural (NA)	50 pcs.	3,10,11	111-12449
T150L	8.8	820.0	245.0	780	PA66HS	Black (BK)	25 pcs.	10,11	111-15410
T150M	8.9	530.0	150.0	780	PA66HS	Black (BK)	25 pcs.	10,11	111-15609
T150XL	8.9	1,095.0	330.0	780	PA66HS	Black (BK)	25 pcs.	10,11	111-15510

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools								
	2	3	4	5	6	10	11	12
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	EVO9	EVO9HT	MK9P
	595	596	596	596	598	599	599	602

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



### Cable Ties for higher impact resistant Polyamide 6.6 ScanBlack

#### T-Series in PA66HIR(S) black

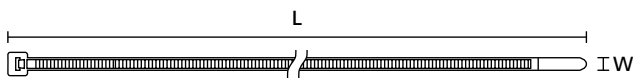
Impact resistance T-Series cable ties are manufactured from PA66HIR(S) – an impact modified material formulation. This high performance material offers limited brittleness sensitivity and a higher flexibility even at low temperatures. PA66HIR(S) cable ties meet increasing requirements like in the chemical, medical and/or automotive industry.

#### Features and benefits

- Impact resistant cable tie in black colour
- For bundling and securing cables, pipes and hoses
- Available in different sizes
- Higher flexibility especially in cold environments
- Limited brittleness sensitivity



Impact resistant T-Series cable tie (PA66HIR(S)).



T-Series



**Material specification  
please see page 22.**

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
T50R	4.6	200.0	50.0	225	PA66HIR(S)	Black (BK)	100 pcs.	2-10	111-04890
T50I	4.6	300.0	85.0	225	PA66HIR(S)	Black (BK)	100 pcs.	2-10	111-00222
T50L	4.6	390.0	110.0	225	PA66HIR(S)	Black (BK)	100 pcs.	2-10	111-05441
T120I	7.6	300.0	80.0	535	PA66HIR(S)	Black (BK)	100 pcs.	3;9-12	111-12203
T120R(E)	7.6	387.0	100.0	535	PA66HIR(S)	Black (BK)	100 pcs.	3;9-12	111-12032
T120L	7.6	760.0	225.0	535	PA66HIR(S)	Black (BK)	50 pcs.	3;9-12	111-12402

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

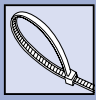
Recommended Tools										
	2	3	4	5	6	8	9	10	11	12
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9	EVO9HT	MK9P
	595	595	596	596	598	601	600	599	599	602

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.





### Cable Ties for higher fire-protection

#### T-Series in PA66V0 white

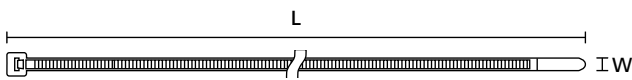
T-Series cable ties for bundling and securing cables, pipes and hoses. These cable ties can be used for almost any type of application especially where safety regulations are high and the reduction of smoke and dangerous gases is required. PA66V0 products are most critically used within public sector areas – particularly in the rail, construction and defence industry.

#### Features and benefits


- White cable tie for higher fire-protection
- Conform to low smoke generation requirements (UL94 V0)
- Low evolution of toxic gases and corrosive acids in event of a fire
- PA66V0 cable ties are available in different sizes
- High safety rating due to low fire hazard




White T-Series cable ties for higher fire protection (PA66V0).



T-Series

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Tools	Article-No.
T18R	2.5	100.0	22.0	80	PA66V0	White (WH)	1,000 pcs.	2;4-6	111-00961
T18L	2.5	205.0	55.0	80	PA66V0	White (WH)	1,000 pcs.	2;4-6	111-02043
T30R	3.5	150.0	35.0	135	PA66V0	White (WH)	100 pcs.	2;4-6	111-00980
T50R	4.6	200.0	50.0	225	PA66V0	White (WH)	100 pcs.	2-10	111-95019
T50I	4.6	300.0	85.0	225	PA66V0	White (WH)	100 pcs.	2-10	111-00317
T50L	4.7	390.0	110.0	225	PA66V0	White (WH)	100 pcs.	2-10	111-05438
T120R(E)	7.6	387.0	100.0	535	PA66V0	White (WH)	100 pcs.	3;9-12	111-91210

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools										
	2	3	4	5	6	8	9	10	11	12
	MK20	MK21	MK35P	MK3PNSP2	EVO7	MK7P	MK6	EVO9	EVO9HT	MK9P
	595	595	596	596	598	601	600	599	599	602

For more information on toolings please refer to the Application Tooling chapter.

**EN 45545-2**



For product specific approvals and specifications please refer to the Appendix.



### Cable Ties for temperatures up to +150 °C in Polyamide 4.6

#### T-Series in PA46 natural and grey

These inside serrated cable ties are made from Polyamide 4.6 (PA46). They can be applied in environments with continuous temperatures up to +150 °C which makes them suitable for applications where a broader temperature range is required. Polyamide 4.6 is a well known material in the automotive, railway or white goods area. An application tool is recommended to ensure greater process reliability while installing cable ties.

#### Features and benefits

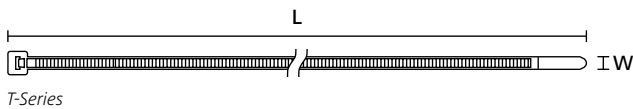
- Cable tie for high temperature applications up to +150 °C
- Available in different sizes to cover various bundle diameters
- Low smoke generation in the event of a fire
- PA46 is a moisture sensitive material
- Inside serrated cable tie offers strong hold around bundles
- Easy application either manually or with an application tool



T-Series cable ties – higher temperature resistance up to +150 °C (PA46).



**Material specification please see page 22.**



TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
T18S	2.5	83.0	16.0	80	PA46	Natural (NA)	1,000 pcs.	2;4-6	111-02802
T18R	2.5	100.0	22.0	80	PA46	Natural (NA)	1,000 pcs.	2;4-6	111-00960
	2.5	100.0	22.0	80	PA46	Grey (GY)	1,000 pcs.	2;4-6	111-01617
T18I	2.5	145.0	35.0	80	PA46	Natural (NA)	1,000 pcs.	2;4-6	111-01182
T30R	3.5	150.0	35.0	135	PA46	Natural (NA)	100 pcs.	2;4-6	114-03079
	3.5	150.0	35.0	135	PA46	Grey (GY)	100 pcs.	2;4-6	111-00968
T30L	3.5	198.0	35.0	135	PA46	Grey (GY)	100 pcs.	2;4-6	111-01581
T50R	4.6	200.0	50.0	225	PA46	Black (BK)	100 pcs.	2-10	111-00969
	4.6	200.0	50.0	225	PA46	Grey (GY)	100 pcs.	2-10	111-00824
	4.6	200.0	50.0	225	PA46	Grey (GY)	1,000 pcs.	2-10	111-00983
	4.6	200.0	50.0	225	PA46	Natural (NA)	100 pcs.	2-10	111-00525
T50I	4.6	300.0	85.0	225	PA46	Natural (NA)	100 pcs.	2-10	111-05220
	4.6	300.0	85.0	225	PA46	Black (BK)	100 pcs.	2-10	111-01472
T50L	4.6	390.0	110.0	225	PA46	Natural (NA)	100 pcs.	2-10	111-00526
T120R(E)	7.6	387.0	100.0	535	PA46	Natural (NA)	100 pcs.	3;9-12	114-12179
T150R(H)	7.6	365.0	100.0	670	PA46	Grey (GY)	100 pcs.	3;9-12	111-01415

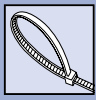
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools										
	2	3	4	5	6	8	9	10	11	12
	MK20	MK21	MK35P	MK3PN5P2	EVO7	MK7P	MK6	EVO9	EVO9HT	MK9P
	595	595	596	596	598	601	600	599	599	602

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



### Cable Ties for higher chemical resistance and temperatures up to +170°C

#### T-Series in E/TFE (Tefzel®) blue

E/TFE or Tefzel® cable ties are used when higher chemical resistance and/or temperatures up to +170 °C are required. These ties are most likely chosen for challenging applications in industries like food and beverage, aerospace, automotive or railway.

#### Features and benefits

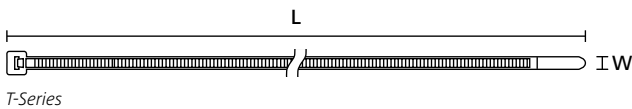
- Blue cable tie offering high chemical resistance
- Suitable for applications with temperatures up to 170 °C
- Resistant to radioactivity and UV light
- E/TFE is a non hydroscopic material, no moisture absorption
- Complying with UL94 V0 requirements



T-Series E/TFE cable ties – for higher chemical resistance up to +170 °C.



For more information on E/TFE mounts please refer to KR-Series on page 150.



TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Tools	Article-No.
T18R	2.5	100.0	22.0	80	E/TFE	Blue (BU)	100 pcs.	2;4-6	111-00659
T30R	3.5	150.0	36.0	133	E/TFE	Blue (BU)	100 pcs.	2;4-6	111-00698
T50R	4.7	201.0	50.0	222	E/TFE	Blue (BU)	100 pcs.	2-10	111-00732
T50L	4.7	382.0	105.0	222	E/TFE	Blue (BU)	100 pcs.	2-10	111-00718
T120R	7.4	387.0	105.0	535	E/TFE	Blue (BU)	50 pcs.	3;9-12	111-01125

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available. General linguistic usage for cable ties made from raw material E/TFE is Tefzel®-Tie. In addition to Tefzel® from DuPont HellermannTyton is also using equivalent E/TFE raw material from other suppliers.

Recommended Tools										
	2	3	4	5	6	8	9	10	11	12
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9	EVO9HT	MK9P
	595	595	596	596	598	601	600	599	599	602

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



### Polypropylene Cable Ties for higher chemical resistance and temperatures up to +115°C

#### T-Series in PP natural and black

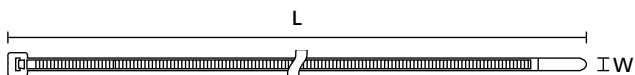
T-Series cable ties made from Polypropylene (PP) are less hydroscopic and offer a higher chemical resistance and temperature range compared to a standard Polyamide 6.6 (PA66) material. Cable ties from Polypropylene can withstand continuous operating temperatures up to +115 °C. These cable ties are used to bundle and secure cables, pipes and/or hoses.

#### Features and benefits

- Polypropylene cable ties for higher chemical resistance
- Can withstand continuous operating temperatures up to 115 °C
- Different sizes available in black and natural colour
- Due to its low density PP cable ties can float on water
- Less hydroscopic material, almost no water absorption



T-Series cable ties for higher chemical resistance and temperatures up to +115 °C (PP).



T-Series



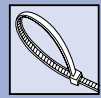
**Material specification please see page 22.**

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
T18R	2.5	100.0	22.0	36	PP	Black (BK)	100	2;4-6	111-01917
	2.5	100.0	22.0	36	PP	Natural (NA)	1,000 pcs.	2;4-6	111-01922
T30R	3.6	148.0	32.0	89	PP	Natural (NA)	100 pcs.	2;4-6	111-03017
T50R	4.8	202.0	44.5	111	PP	Black (BK)	100 pcs.	2-10	111-04928
	4.8	202.0	44.5	111	PP	Natural (NA)	100 pcs.	2-10	111-04931
T120S	7.6	225.0	55.0	267	PP	Black (BK)	500 pcs.	3;9-12	111-12827
T120R	7.6	390.0	105.0	267	PP	Black (BK)	500 pcs.	3;9-12	111-12066

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools										
	2	3	4	5	6	8	9	10	11	12
	MK20	MK21	MK35P	MK3PNSP2	EVO7	MK7P	MK6	EVO9	EVO9HT	MK9P
	595	595	596	596	598	601	600	599	599	602

For more information on toolings please refer to the Application Tooling chapter.



### Cable Ties made from sustainable bioplastic

#### T-Series in PA11 black

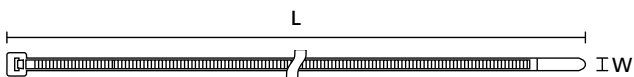
T-Series cable ties manufactured from PA11 have many technical features making them suitable for use in a variety of applications to fix and support cables, pipes and other elements. They offer an excellent resistance to chemicals in most challenging environments like offshore or on oil rigs and construction vehicles. In addition the very good UV resistance makes it a perfect choice for solar panel cable installations.

#### Features and benefits

- Made of Polyamide 11 – a sustainable bioplastic from vegetable oil
- Very good UV resistance and durability in outdoor applications
- Stable technical performance even at very low temperatures
- High resistance to chemicals including chlorides
- Low water absorption rate offers consistent technical performance



A sustainable T-Series cable tie with high resistance to chemicals and UV light.



T-Series

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
T18R	2.5	100.0	22.0	80	PA11	Black (BK)	100 pcs.	2;4-6	111-01718
T30R	3.5	150.0	35.0	130	PA11	Black (BK)	100 pcs.	2;4-6	111-01719
T50S	4.6	150.0	35.0	170	PA11	Black (BK)	100 pcs.	2-10	111-01720
T50R	4.6	200.0	50.0	170	PA11	Black (BK)	100 pcs.	2-10	111-01721
T50M	4.6	245.0	65.0	225	PA11	Black (BK)	100 pcs.	2-10	111-02218
T50I	4.6	300.0	85.0	225	PA11	Black (BK)	100 pcs.	2-10	111-02217

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools								
	2	3	4	5	6	8	9	10
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9
	595	595	596	596	598	601	600	599

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.





### Cable Ties in-between size to T-Series

#### LK-Series natural and black

For bundling and securing cables, pipes and hoses. These cable ties can be used for almost any type of application.

#### Features and Benefits

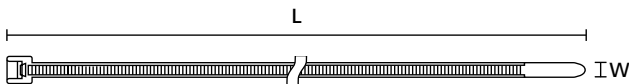
- Available in a wide range of materials and sizes
- Inside serrated ties for a strong hold around bundles
- High tensile strength with very low insertion force
- Simple and quick to install
- Easy application either manually or with a processing tool



LK-Series – in-between size to T-Series.



**Material specification please see page 22.**



LK-Series

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
LK2A	4.6	270.0	73.0	225	PA66	Black (BK)	100 pcs.	2;4-6,10	111-60110
	4.6	270.0	73.0	225	PA66	Natural (NA)	100 pcs.	2;4-6,10	111-60119
	4.6	270.0	73.0	225	PA66HIR(S)	Black (BK)	100 pcs.	2;4-6,10	111-00127
	4.6	270.0	73.0	225	PA66HS	Black (BK)	100 pcs.	2;4-6,10	111-60150
	4.6	270.0	73.0	225	PA66HS	Natural (NA)	100 pcs.	2;4-6,10	111-60159
	4.6	270.0	73.0	225	PA66W	Black (BK)	100 pcs.	2;4-6,10	111-60160
	4.6	270.0	73.0	225	PA66HIR	Black (BK)	500 pcs.	2;4-6,10	111-00118
LK2	4.8	120.0	28.0	135	PA66	Natural (NA)	200 pcs.	2;4-6	111-60219
LK5	13.2	535.0	150.0	1,115	PA66	Black (BK)	50 pcs.	11	111-60510
	13.2	535.0	150.0	1,115	PA66	Natural (NA)	50 pcs.	11	111-60519
	13.2	535.0	150.0	1,115	PA66HIR(S)	Black (BK)	50 pcs.	11	111-60501
	13.2	535.0	150.0	1,115	PA66HS	Natural (NA)	50 pcs.	11	111-60559
	13.2	535.0	150.0	1,115	PA66W	Black (BK)	50 pcs.	11	111-60560

All dimensions in mm. Subject to technical changes.

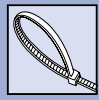
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools					
	2	3	6	10	11
	MK20	MK21	EVO7	EVO9	EVO9HT
	595	596	598	599	599

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



### Q-ties

#### Innovative – Effective – Safe!

The new Q-tie has not only innovative, but also has a revolutionary new design. The open head of the cable tie enables a simple and quick installation. Simply insert the ergonomically bent tail into the open side of the head and tighten the cable tie.

With Q-ties you can save time and money!

#### Easy Application for every Situation!

Q-tie provides the perfect solution for applications in difficult working conditions. It is ideal for use in applications when working with gloves is necessary or for blind applications with a limited view of the work. The new Q-tie allowing for a quick and simple installation, even with work gloves and restricted view.

Features for quick and easy application:

- Large curved tail with easy-grip ribs
- Open head with easy detectable slot

This saves time and trouble!

#### Integrated Pre-locking Functionality!

Due to several simultaneous working processes, it is not always possible to install all cables and conduits in one single step. Working with standard cable ties means either removing the cable tie of the first installation or applying additional cable ties. The integrated pre-locking function of the Q-tie offers both a temporary and final cable fastening solution.

This saves material and time!



Application video:  
Q-Series



Even under difficult circumstances the Q-tie cable tie is very fast and easy to apply.



Please find more Q-Series products for your system solution on page 139, 149 and 530.

#### Application Method:



1. Insert the thin part of the cable tie into the open lock head.



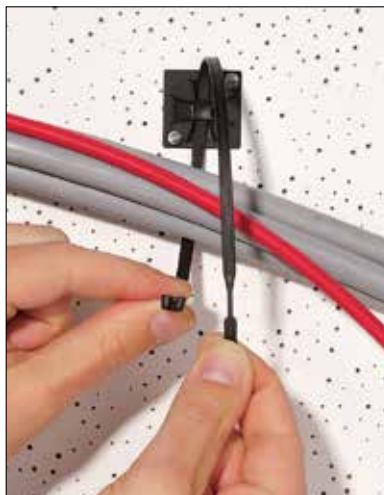
2. Pull the tie through the head until the bundle is fixed.

3. Cut off the remaining part of the tie with an application tool.

#### Pre-locking Function of the Q-tie:



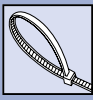
1. Insert tail into lock head and push tail partly into the head.



2. To release the tie push the tail slightly out of the head.



3. If installation is finished, Q-tie can be tightened and cut off - either manually or with an application tool.



### Cable Ties with open head Polyamide 6.6 standard

#### Q-Series in PA66 natural and black

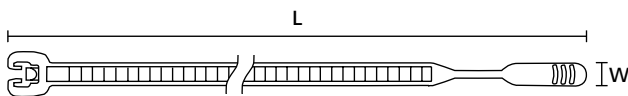
Q-Series cable ties for bundling and securing cables, pipes and hoses. These innovative and effective cable ties enable a simple and quick installation, even in difficult applications.

#### Features and benefits

- Open lock head for quick and easy insertion
- Integrated pre-locking function
- More than 25 % faster to apply than a standard cable tie
- Inside serration for a strong hold around bundles
- Easy application either manually or with a processing tool



Q-tie cable ties: choose from a wide product range in different sizes.



Q-Series

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Tools	Article-No.
Q18R	2.6	105.0	24.0	80	PA66	Black (BK)	100 pcs.	2;4-6	109-00030
	2.6	105.0	24.0	80	PA66	Natural (NA)	100 pcs.	2;4-6	109-00001
Q18I	2.6	155.0	40.0	80	PA66	Black (BK)	100 pcs.	2;4-6	109-00033
	2.6	155.0	40.0	80	PA66	Natural (NA)	100 pcs.	2;4-6	109-00004
Q18L	2.6	195.0	50.0	80	PA66	Black (BK)	100 pcs.	2;4-6	109-00036
	2.6	195.0	50.0	80	PA66	Natural (NA)	100 pcs.	2;4-6	109-00007
Q30R	3.6	160.0	38.0	130	PA66	Black (BK)	100 pcs.	2;4-6;8	109-00039
	3.6	160.0	38.0	130	PA66	Natural (NA)	100 pcs.	2;4-6;8	109-00010
Q30L	3.6	200.0	50.0	130	PA66	Black (BK)	100 pcs.	2;4-6;8	109-00041
	3.6	200.0	50.0	130	PA66	Natural (NA)	100 pcs.	2;4-6;8	109-00012
Q30LR	3.6	250.0	65.0	130	PA66	Black (BK)	100 pcs.	2;4-6;8	109-00043
	3.6	250.0	65.0	130	PA66	Natural (NA)	100 pcs.	2;4-6;8	109-00014
Q50R	4.7	210.0	50.0	220	PA66	Black (BK)	100 pcs.	2-12;15	109-00047
	4.7	210.0	50.0	220	PA66	Natural (NA)	100 pcs.	2-12;15	109-00018
Q50I	4.7	290.0	75.0	220	PA66	Black (BK)	100 pcs.	2-12;15	109-00049
	4.7	290.0	75.0	220	PA66	Natural (NA)	100 pcs.	2-12;15	109-00020
Q50L	4.7	410.0	110.0	220	PA66	Black (BK)	100 pcs.	2-12;15	109-00051
	4.7	410.0	110.0	220	PA66	Natural (NA)	100 pcs.	2-12;15	109-00022
Q120I	7.7	300.0	70.0	530	PA66	Black (BK)	100 pcs.	3;9-12;15	109-00053
	7.7	300.0	70.0	530	PA66	Natural (NA)	100 pcs.	3;9-12;15	109-00024
Q120R	7.7	420.0	110.0	530	PA66	Black (BK)	100 pcs.	3;9-12;15	109-00055
	7.7	420.0	110.0	530	PA66	Natural (NA)	100 pcs.	3;9-12;15	109-00026
Q120M	7.7	520.0	130.0	530	PA66	Black (BK)	100 pcs.	3;9-12;15	109-00057
	7.7	520.0	130.0	530	PA66	Natural (NA)	100 pcs.	3;9-12;15	109-00028

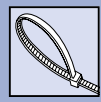
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools											
	2	3	4	5	6	8	9	10	11	12	15
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9	EVO9HT	MK9P	MK9SST
	595	595	596	596	598	601	600	599	599	602	604

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



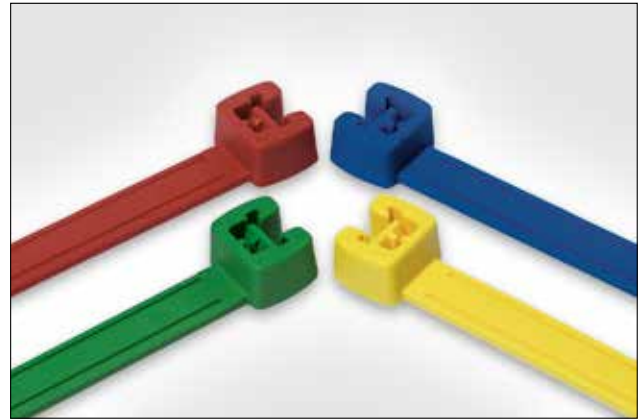
### Cable Ties with open head Polyamide 6.6 standard

#### Q-Series in PA66 coloured

Q-Series cable ties for bundling and securing cables, pipes and hoses. These innovative and effective cable ties enable a simple and quick installation, even in difficult applications.

#### Features and benefits

- Coloured cable ties available in a wide range of sizes
- Open lock head for quick and easy insertion
- Integrated pre-locking function
- More than 25 % faster to apply than a standard cable tie
- Inside serration for a strong hold around bundles
- Easy application either manually or with a processing tool



Q-ties in different colours are ideal for marking and bundling in one step.



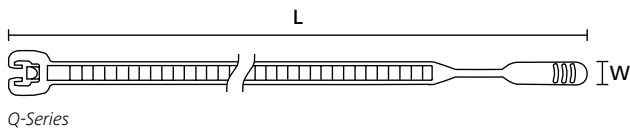
One Step to the Web!



**Material specification**  
please see page 22.



**Please find more Q-Series products for your system solution on page 139, 149 and 530.**



TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
Q18R	2.6	105.0	24.0	80	PA66	Blue (BU)	100 pcs.	2;4-6	109-00147
	2.6	105.0	24.0	80	PA66	Green (GN)	100 pcs.	2;4-6	109-00148
	2.6	105.0	24.0	80	PA66	Red (RD)	100 pcs.	2;4-6	109-00149
	2.6	105.0	24.0	80	PA66	Yellow (YE)	100 pcs.	2;4-6	109-00150
Q18I	2.6	155.0	40.0	80	PA66	Blue (BU)	100 pcs.	2;4-6	109-00152
	2.6	155.0	40.0	80	PA66	Green (GN)	100 pcs.	2;4-6	109-00153
	2.6	155.0	40.0	80	PA66	Red (RD)	100 pcs.	2;4-6	109-00154
	2.6	155.0	40.0	80	PA66	Yellow (YE)	100 pcs.	2;4-6	109-00155
Q18L	2.6	195.0	50.0	80	PA66	Blue (BU)	100 pcs.	2;4-6	109-00157
	2.6	195.0	50.0	80	PA66	Green (GN)	100 pcs.	2;4-6	109-00158
	2.6	195.0	50.0	80	PA66	Red (RD)	100 pcs.	2;4-6	109-00159
	2.6	195.0	50.0	80	PA66	Yellow (YE)	100 pcs.	2;4-6	109-00160

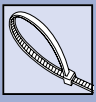
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools											
	2	3	4	5	6	8	9	10	11	12	15
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9	EVO9HT	MK9P	MK9SST
	595	595	596	596	598	601	600	599	599	602	604

For more information on toolings please refer to the Application Tooling chapter.

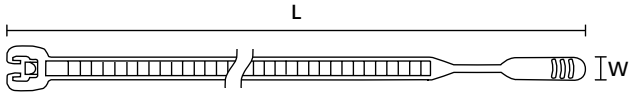


For product specific approvals and specifications please refer to the Appendix.



## Cable Ties with open head Polyamide 6.6 standard

## Q-Series in PA66 coloured



Q-Series

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
Q30R	3.6	160.0	38.0	130	PA66	Blue (BU)	100 pcs.	2;4-6;8	109-00162
	3.6	160.0	38.0	130	PA66	Green (GN)	100 pcs.	2;4-6;8	109-00163
	3.6	160.0	38.0	130	PA66	Red (RD)	100 pcs.	2;4-6;8	109-00164
	3.6	160.0	38.0	130	PA66	Yellow (YE)	100 pcs.	2;4-6;8	109-00165
Q30L	3.6	200.0	50.0	130	PA66	Blue (BU)	100 pcs.	2;4-6;8	109-00167
	3.6	200.0	50.0	130	PA66	Green (GN)	100 pcs.	2;4-6;8	109-00168
	3.6	200.0	50.0	130	PA66	Red (RD)	100 pcs.	2;4-6;8	109-00169
	3.6	200.0	50.0	130	PA66	Yellow (YE)	100 pcs.	2;4-6;8	109-00170
Q30LR	3.6	250.0	65.0	130	PA66	Blue (BU)	100 pcs.	2;4-6;8	109-00172
	3.6	250.0	65.0	130	PA66	Green (GN)	100 pcs.	2;4-6;8	109-00173
	3.6	250.0	65.0	130	PA66	Red (RD)	100 pcs.	2;4-6;8	109-00174
	3.6	250.0	65.0	130	PA66	Yellow (YE)	100 pcs.	2;4-6;8	109-00175
Q50R	4.7	210.0	50.0	220	PA66	Blue (BU)	100 pcs.	2-12;15	109-00182
	4.7	210.0	50.0	220	PA66	Green (GN)	100 pcs.	2-12;15	109-00183
	4.7	210.0	50.0	220	PA66	Red (RD)	100 pcs.	2-12;15	109-00184
	4.7	210.0	50.0	220	PA66	Yellow (YE)	100 pcs.	2-12;15	109-00185
Q50I	4.7	290.0	75.0	220	PA66	Blue (BU)	100 pcs.	2-12;15	109-00187
	4.7	290.0	75.0	220	PA66	Green (GN)	100 pcs.	2-12;15	109-00188
	4.7	290.0	75.0	220	PA66	Red (RD)	100 pcs.	2-12;15	109-00189
	4.7	290.0	75.0	220	PA66	Yellow (YE)	100 pcs.	2-12;15	109-00190
Q50L	4.7	410.0	110.0	220	PA66	Blue (BU)	100 pcs.	2-12;15	109-00192
	4.7	410.0	110.0	220	PA66	Green (GN)	100 pcs.	2-12;15	109-00193
	4.7	410.0	110.0	220	PA66	Red (RD)	100 pcs.	2-12;15	109-00194
	4.7	410.0	110.0	220	PA66	Yellow (YE)	100 pcs.	2-12;15	109-00195
Q120I	7.7	300.0	70.0	530	PA66	Blue (BU)	100 pcs.	3;9-12;15	109-00197
	7.7	300.0	70.0	530	PA66	Green (GN)	100 pcs.	3;9-12;15	109-00198
	7.7	300.0	70.0	530	PA66	Red (RD)	100 pcs.	3;9-12;15	109-00199
	7.7	300.0	70.0	530	PA66	Yellow (YE)	100 pcs.	3;9-12;15	109-00200
Q120R	7.7	420.0	110.0	530	PA66	Blue (BU)	100 pcs.	3;9-12;15	109-00202
	7.7	420.0	110.0	530	PA66	Green (GN)	100 pcs.	3;9-12;15	109-00203
	7.7	420.0	110.0	530	PA66	Red (RD)	100 pcs.	3;9-12;15	109-00204
	7.7	420.0	110.0	530	PA66	Yellow (YE)	100 pcs.	3;9-12;15	109-00205
Q120M	7.7	520.0	130.0	530	PA66	Blue (BU)	100 pcs.	3;9-12;15	109-00207
	7.7	520.0	130.0	530	PA66	Green (GN)	100 pcs.	3;9-12;15	109-00208
	7.7	520.0	130.0	530	PA66	Red (RD)	100 pcs.	3;9-12;15	109-00209
	7.7	520.0	130.0	530	PA66	Yellow (YE)	100 pcs.	3;9-12;15	109-00210

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



For product specific approvals and specifications please refer to the Appendix.





### Cable Ties with open head for outdoor use (UV-resistant)

#### Q-Series in PA66W black

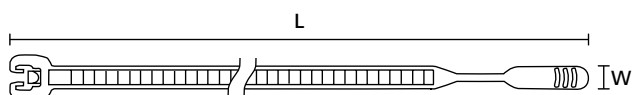
Q-Series cable ties for bundling and securing cables, pipes and hoses. These innovative and effective cable ties enable a simple and quick installation, even in difficult applications.

#### Features and benefits

- Weather-resistant black cable ties available in a wide range of sizes
- Open lock head for quick and easy insertion
- Integrated pre-locking function
- More than 25 % faster to apply than a standard cable tie
- Inside serration for a strong hold around bundles
- Easy application either manually or with a processing tool
- UV-resistant



Q-tie cable ties: choose from a wide product range in different sizes.



Q-Series



**Material specification please see page 22.**



**Please find more Q-Series products for your system solution on page 139, 149 and 530.**

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
Q18R	2.6	105.0	24.0	80	PA66W	Black (BK)	100 pcs.	2;4-6	109-00059
Q18I	2.6	155.0	40.0	80	PA66W	Black (BK)	100 pcs.	2;4-6	109-00062
Q18L	2.6	195.0	50.0	80	PA66W	Black (BK)	100 pcs.	2;4-6	109-00065
Q30R	3.6	160.0	38.0	130	PA66W	Black (BK)	100 pcs.	2;4-6;8	109-00068
Q30L	3.6	200.0	50.0	130	PA66W	Black (BK)	100 pcs.	2;4-6;8	109-00070
Q30LR	3.6	250.0	65.0	130	PA66W	Black (BK)	100 pcs.	2;4-6;8	109-00072
Q50R	4.7	210.0	50.0	220	PA66W	Black (BK)	100 pcs.	2-12;15	109-00076
Q50I	4.7	290.0	75.0	220	PA66W	Black (BK)	100 pcs.	2-12;15	109-00078
Q50L	4.7	410.0	110.0	220	PA66W	Black (BK)	100 pcs.	2-12;15	109-00080
Q120I	7.7	300.0	70.0	530	PA66W	Black (BK)	100 pcs.	3;9-12;15	109-00082
Q120R	7.7	420.0	110.0	530	PA66W	Black (BK)	100 pcs.	3;9-12;15	109-00084
Q120M	7.7	520.0	130.0	530	PA66W	Black (BK)	100 pcs.	3;9-12;15	109-00086

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools											
	2	3	4	5	6	8	9	10	11	12	15
	MK20	MK21	MK35P	MK3PNSP2	EVO7	MK7P	MK6	EVO9	EVO9HT	MK9P	MK9SST
	595	595	596	596	598	601	600	599	599	602	604

For more information on toolings please refer to the Application Tooling chapter.



### Cable Ties with open head for temperatures up to +105 °C (heat stabilised)

#### Q-Series in PA66HS natural and black

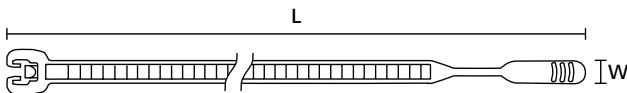
Q-Series cable ties for bundling and securing cables, pipes and hoses. These innovative and effective cable ties enable a simple and quick installation, even in difficult applications.

#### Features and benefits

- Heat stabilised cable ties available in a wide range of sizes
- Open lock head for quick and easy insertion
- Integrated pre-locking function
- More than 25 % faster to apply than a standard cable tie
- Inside serration for a strong hold around bundles
- Easy application either manually or with a processing tool
- Higher temperature resistance up to +105 °C



Q-tie cable ties: choose from a wide product range in different sizes.



Q-Series

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
Q18R	2.6	105.0	24.0	80	PA66HS	Black (BK)	100 pcs.	2;4-6	109-00088
	2.6	105.0	24.0	80	PA66HS	Natural (NA)	100 pcs.	2;4-6	109-00117
Q18I	2.6	155.0	40.0	80	PA66HS	Black (BK)	100 pcs.	2;4-6	109-00091
	2.6	155.0	40.0	80	PA66HS	Natural (NA)	100 pcs.	2;4-6	109-00120
Q18L	2.6	195.0	50.0	80	PA66HS	Black (BK)	100 pcs.	2;4-6	109-00094
	2.6	195.0	50.0	80	PA66HS	Natural (NA)	100 pcs.	2;4-6	109-00123
Q30R	3.6	160.0	38.0	130	PA66HS	Black (BK)	100 pcs.	2;4-6;8	109-00097
	3.6	160.0	38.0	130	PA66HS	Natural (NA)	100 pcs.	2;4-6;8	109-00126
Q30L	3.6	200.0	50.0	130	PA66HS	Black (BK)	100 pcs.	2;4-6;8	109-00099
	3.6	200.0	50.0	130	PA66HS	Natural (NA)	100 pcs.	2;4-6;8	109-00128
Q30LR	3.6	250.0	65.0	130	PA66HS	Black (BK)	100 pcs.	2;4-6;8	109-00101
	3.6	250.0	65.0	130	PA66HS	Natural (NA)	100 pcs.	2;4-6;8	109-00130
Q50R	4.7	210.0	50.0	220	PA66HS	Black (BK)	100 pcs.	2-12;15	109-00105
	4.7	210.0	50.0	220	PA66HS	Natural (NA)	100 pcs.	2-12;15	109-00134
Q50I	4.7	290.0	75.0	220	PA66HS	Black (BK)	100 pcs.	2-12;15	109-00107
	4.7	290.0	75.0	220	PA66HS	Natural (NA)	100 pcs.	2-12;15	109-00136
Q50L	4.7	410.0	110.0	220	PA66HS	Black (BK)	100 pcs.	2-12;15	109-00109
	4.7	410.0	110.0	220	PA66HS	Natural (NA)	100 pcs.	2-12;15	109-00138
Q120I	7.7	300.0	70.0	530	PA66HS	Black (BK)	100 pcs.	3;9-12;15	109-00111
	7.7	300.0	70.0	530	PA66HS	Natural (NA)	100 pcs.	3;9-12;15	109-00140
Q120R	7.7	420.0	110.0	530	PA66HS	Black (BK)	100 pcs.	3;9-12;15	109-00113
	7.7	420.0	110.0	530	PA66HS	Natural (NA)	100 pcs.	3;9-12;15	109-00142
Q120M	7.7	520.0	130.0	530	PA66HS	Black (BK)	100 pcs.	3;9-12;15	109-00115
	7.7	520.0	130.0	530	PA66HS	Natural (NA)	100 pcs.	3;9-12;15	109-00144

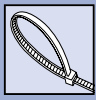
All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools											
	2	3	4	5	6	8	9	10	11	12	15
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9	EVO9HT	MK9P	MK9SST
	595	595	596	596	598	601	600	599	599	602	604

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



### Cable Ties with smart design

#### X-Series

The X-series range of cable ties provides a new and improved design compared with standard cable ties, delivering a range of benefits and enhanced performance. With a new streamlined design and smaller head, the X-Series cable ties provide a superior fixing solution for tight applications, whilst also benefiting from a better grip around the bundle. This professional cable tie range is available in weather resistant and high impact / heat stabilised materials, ensuring these fixings consistently perform well at both high temperatures and in cold environments.

#### Features and benefits

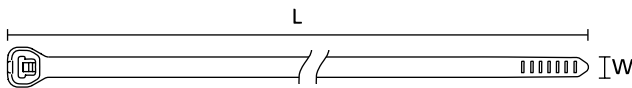
- Inside serrated cable tie
- High tensile strength around cable bundles
- Smooth, rounded head design
- Space saving solution
- Improved ergonomic design
- Provides a secure fastening with no lateral movement



X-series provides a superior fixing solution for tight applications.



**Material specification please see page 22.**



X-series

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
X20R	2.5	100.0	20.0	90	PA66HIRHS	Black (BK)	100 pcs.	2;4-6	108-00066
	2.5	100.0	20.0	90	PA66W	Black (BK)	100 pcs.	2;4-6	108-00072
X80S	4.7	150.0	35.0	355	PA66HIRHS	Black (BK)	100 pcs.	2-12	108-00001
	4.7	150.0	35.0	355	PA66W	Black (BK)	100 pcs.	2-12	108-00003
X80R	4.7	200.0	50.0	355	PA66HIRHS	Black (BK)	100 pcs.	2-12	108-00004
	4.7	200.0	50.0	355	PA66W	Black (BK)	100 pcs.	2-12	108-00010
X80I	4.7	300.0	84.0	355	PA66HIRHS	Black (BK)	100 pcs.	2-12	108-00018
	4.7	300.0	84.0	355	PA66W	Black (BK)	100 pcs.	2-12	108-00024
X80L	4.7	385.0	110.0	355	PA66HIRHS	Black (BK)	100 pcs.	2-12	108-00028
	4.7	385.0	110.0	355	PA66W	Black (BK)	100 pcs.	2-12	108-00034
X120R	7.7	369.0	100.0	535	PA66HIRHS	Black (BK)	100 pcs.	3;9-12	108-00040
	7.7	369.0	100.0	535	PA66W	Black (BK)	100 pcs.	3;9-12	108-00042
X250R	13.0	535.0	150.0	1,115	PA66HIRHS	Black (BK)	50 pcs.	11-12	108-00050
	13.0	535.0	150.0	1,115	PA66W	Black (BK)	50 pcs.	11-12	108-00052
X250I	13.0	715.0	205.0	1,115	PA66HIRHS	Black (BK)	50 pcs.	11-12	108-00045
	13.0	715.0	205.0	1,115	PA66W	Black (BK)	50 pcs.	11-12	108-00047

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools										
	2	3	4	5	6	8	9	10	11	12
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9	EVO9HT	MK9P
	595	595	596	596	598	601	600	599	599	602

For more information on toolings please refer to the Application Tooling chapter.



### Cable Ties for hose and gaiter

#### CTT-Series natural and black

CTT is designed to secure pipes, hoses and gaiters where low pressures are being secured. These ties can be used in many different industries including automotive, white goods manufacturing, medical, medical industry and construction.

#### Features and benefits

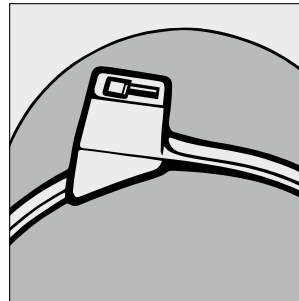
- Curved head design offers a good fit to the bundle
- Inside serration for a strong hold onto bundles
- Easy application either manually or with a processing tool



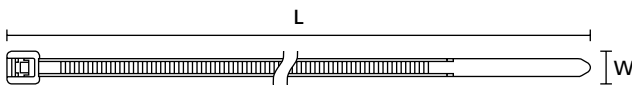
CTT ties installed on flexible gaiters.



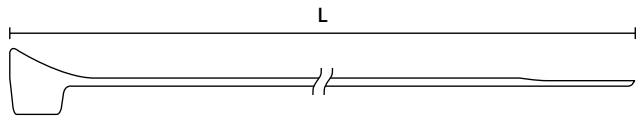
**Material specification please see page 22.**



For secure fixing of round and solid shapes.



CTT series



CTT Hose Ties

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
CTT20R	2.5	101.6	13.0	90	PA66	Natural (NA)	100 pcs.	2;4-6	112-51919
	2.5	101.6	13.0	90	PA66HS	Black (BK)	1,000 pcs.	2;4-6	112-51960
CTT60R	4.7	205.0	45.0	265	PA66	Black (BK)	100 pcs.	2-12	112-56019
	4.7	205.0	45.0	265	PA66HS	Black (BK)	100 pcs.	2-12	112-52112

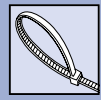
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools										
	2	3	4	5	6	8	9	10	11	12
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9	EVO9HT	MK9P
	595	595	596	596	598	601	600	599	599	602

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



### Cable Ties for parallel routing

#### DH-Series

Ideal for running two cables in parallel that need to be separated. These ties allow for installation of a second cable run without the need for additional cable ties.

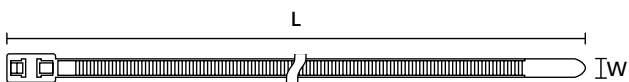
The DH ties are also widely used within the packaging industry - the first loop closes and secures the bag, whilst the second loop can be made into a carrying handle (subject to weight).

#### Features and Benefits

- Available in a wide range of materials
- Cable tie designed with two heads which creates an inside and outside serrated loop
- For parallel routing of two bundles with only one cable tie
- Bundles can be of different diameter
- Easy application either manually or with a processing tool



DH-Series cable ties for parallel routing.



DH-Series



**Material specification please see page 22.**

TYPE	Width (W)	Length (L)	Ø max. side loops		Min. Tensile Strength 2nd loop (N)	Material	Colour	Pack Cont.	Tools	Article-No.
T50RDH	4.7	210.0	19.0	225	180 N	PA46	Grey (GY)	100 pcs.	2;4-6;8	117-05168
	4.7	210.0	19.0	225	180 N	PA66	Black (BK)	100 pcs.	2;4-6;8	117-05000
	4.7	210.0	19.0	225	180 N	PA66	Natural (NA)	100 pcs.	2;4-6;8	117-05002
	4.7	210.0	19.0	225	180 N	PA66HS	Black (BK)	100 pcs.	2;4-6;8	117-05050
	4.7	210.0	19.0	225	180 N	PA66W	Black (BK)	500 pcs.	2;4-6;8	117-05060
T50IDH	4.7	305.0	38.1	225	180 N	PA66	Natural (NA)	1,000 pcs.	2;4-6;8	117-05303
	4.7	305.0	38.1	225	180 N	PA66HS	Black (BK)	1,000 pcs.	2;4-6;8	117-05350
	4.7	305.0	38.1	225	180 N	PA66W	Black (BK)	100 pcs.	2;4-6;8	117-05360
T50LDH	4.7	395.0	50.8	225	180 N	PA66	Natural (NA)	1,000 pcs.	2;4-6;8	117-05461
	4.7	395.0	50.8	225	180 N	PA66HS	Black (BK)	100 pcs.	2;4-6;8	117-00008

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools					
	2	3	6	10	11
	MK20	MK21	EVO7	EVO9	EVO9HT
	595	596	598	599	599

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



We brought the first detectable metal content tie  
onto the market

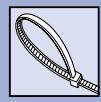


Today we are leading the next generation of solutions for a highly automated, highly competitive food and beverage industry.

Find out more about our detectable products for food processing in our brochure.

**Order now!**





### Cable Ties for food industry, detectable

The Metal Content Tie is a cable tie specifically designed for use in the food and pharmaceutical processing industries. A unique manufacturing process, involving the inclusion of a metallic pigment, enables even small 'cut-off' sections of the tie to be detected by standard metal-detecting equipment. Ideally suited for the installation of cabling in and around the manufacturing process.

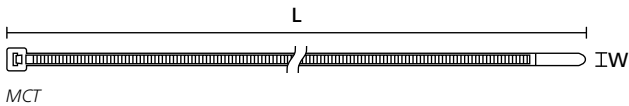
#### Features and Benefits

- Total metal dispersion throughout the tie
- Usable as part of HACCP process\*
- Blue colour most common for easy visual detection
- Greatly reduces risk of contamination
- Magnetic and X-Ray detectable (detection level depending on specific application)
- Available in a wide range of sizes and colours



Our detectable MCT(S) cable ties used in the food and pharmaceutical industry.

#### MCT-Series



**Material specification please see page 22.**



**Supports quality processes around the production of food stuffs, such as e.g. HACCP.**

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
MCT18R	2.5	100.0	22.0	80	PA66MP	Blue (BU)	100 pcs.	2;4-6	111-01225
MCT30R	3.5	150.0	35.0	135	PA66MP	Blue (BU)	100 pcs.	2;4-6	111-00829
MCT50R	4.6	202.0	50.0	225	PA66MP	Blue (BU)	100 pcs.	2;4-6,10	111-00830
MCT50L	4.7	380.0	110.0	225	PA66MP	Blue (BU)	100 pcs.	2;4-6,10	111-00831
MCT120R	7.6	387.0	100.0	535	PA66MP	Blue (BU)	100 pcs.	3,10,11	111-01136

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools					
	2	3	6	10	11
	MK20	MK21	EVO7	EVO9	EVO9HT
	595	596	598	599	599

For more information on toolings please refer to the Application Tooling chapter.

#### MCT-Series releasable

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
MCTRELK2M	4.6	250.0	65.0	225	PA66MP	Blue (BU)	100 pcs.	2-11	111-00937

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

\*HACCP stands for Hazard Analysis Critical Control Points. It is a method of identifying and eliminating potential hazards in food production. Those hazards that cannot be eliminated are controlled in such a way that the consumer is protected. These controls are known as Critical Control Points (CCPs). They are CRITICAL because if they fail or are not carried out, the risk of the product harming the customer increases.



### Cable Ties for food industry, detectable, corrosion resistant

#### MCTS-Series

Our MCTS cable ties have been specifically developed to be used in the food & beverage as well as in the pharmaceutical industry. A unique manufacturing process in combination with a unique material formulation is offering outstanding performance in line with high corrosion resistance. This makes the MCTS an ideal product even for very humid environments. In addition the MCTS ties manufactured from a polypropylene base material are offering very good chemical resistance.

#### Features and Benefits

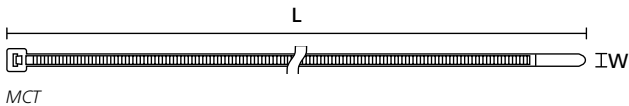
- Total metal dispersion throughout the tie
- Available in different sizes and colours
- Supports quality processes around the production of food stuffs
- Blue colour most common for easy visual detection
- Greatly reduces risk of contamination
- Magnetic and X-Ray detectable (detection level depending on specific application)
- MCTS ties have very good corrosion resistance




Our detectable MCT(S) cable ties used in the food and pharmaceutical industry.


**i More colours on request. Please contact us!**

**i Supports quality processes around the production of food stuffs, such as e.g. HACCP.\***



TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Tools	Article-No.
MCTS100	2.5	100.0	22.0	60	PA66MP+	Blue (BU)	100 pcs.	2;4-6	111-01341
MCTS150	3.5	153.0	36.0	110	PA66MP+	Blue (BU)	100 pcs.	2;4-6	111-01342
MCTS200	4.7	203.0	50.0	150	PA66MP+	Blue (BU)	100 pcs.	2;4-6,10	111-01343
MCTS300	4.8	301.0	80.0	150	PA66MP+	Blue (BU)	100 pcs.	2;4-6,10	111-01399

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools					
	2	3	6	10	11
	MK20	MK21	EVO7	EVO9	EVO9HT
	595	596	598	599	599

For more information on toolings please refer to the Application Tooling chapter.

\*HACCP stands for Hazard Analysis Critical Control Points. It is a method of identifying and eliminating potential hazards in food production. Those hazards that cannot be eliminated are controlled in such a way that the consumer is protected. These controls are known as Critical Control Points (CCPs). They are CRITICAL because if they fail or are not carried out, the risk of the product harming the customer increases.



### Cable Ties for food industry, detectable

#### MCT-Series / MCTS-Series PPMP

The Metal Content Tie is a cable tie specifically designed for use in the food and pharmaceutical processing industries. A unique manufacturing process, involving the inclusion of a metallic pigment, enables even small 'cut-off' sections of the tie to be detected by standard metal-detecting equipment. Ideally suited for the installation of cabling in and around the manufacturing process.

#### Features and Benefits

- High chemical and temperature resistance
- Blue color for easy visual detection
- Greatly reduces risk of contamination
- Magnetic and X-Ray detectable (detection level depending on specific application)
- MCTS ties have very good corrosion resistance
- Usable as part of HACCP process\*
- PP cable ties tend to float in various liquids



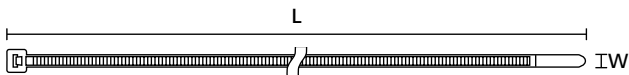
MCTPP ties will float to the surface of liquids so they can easily be seen and removed.




The MCT ties made of PA66MP are the ideal complement for MCMB mounts on page 148.




Supports quality processes around the production of food stuffs, such as e.g. HACCP.



MCT

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Tools	Article-No.
MCTPP18R	2.5	100.0	22.0	85	PPMP	Blue (BU)	100 pcs.	2;4-6	111-01664
MCTPP30R	3.5	150.0	35.0	130	PPMP	Blue (BU)	100 pcs.	2;4-6	111-01665
MCTPP50R	4.6	200.0	50.0	150	PPMP	Blue (BU)	100 pcs.	2;4-6,10	111-01666
MCTPP50L	4.6	390.0	110.0	150	PPMP	Blue (BU)	100 pcs.	2;4-6,10	111-01667
MCTS200	4.7	201.0	50.0	140	PPMP+	Blue (BU)	100 pcs.	2;4-6,10	111-01386
MCTPP120R	7.6	387.0	100.0	380	PPMP	Blue (BU)	100 pcs.	3,10,11	111-01668

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools					
	2	3	6	10	11
	MK20	MK21	EVO7	EVO9	EVO9HT
	595	596	598	599	599

For more information on toolings please refer to the Application Tooling chapter.

\*HACCP stands for Hazard Analysis Critical Control Points. It is a method of identifying and eliminating potential hazards in food production. Those hazards that cannot be eliminated are controlled in such a way that the consumer is protected. These controls are known as Critical Control Points (CCPs). They are CRITICAL because if they fail or are not carried out, the risk of the product harming the customer increases.



### Cable Ties for thin-walled bundles

#### OS-Series

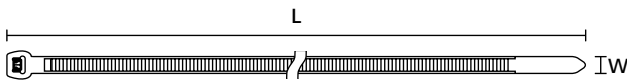
OS-Series cable ties are used in many areas where thin-walled or soft insulation wires and cable are being installed, for instance automotive and aircraft industry. OS ties manufactured from PA66V0 material are suitable for applications where safety regulations require reduction of smoke and dangerous gases.

#### Features and benefits

- Outside serrated cable tie with smooth surface to the bundle
- Tie follows the contours of the cable bundle perfectly
- Takes up less space due to curved head design
- Easy insertion combined with high tensile strength
- PA46 material for higher temperatures up to +150 °C
- PA66V0 cable ties fulfill Limited Fire Hazard requirements
- Easy application either manually or with a processing tool



Outside serrated OS-Series cable tie with smooth surface to the bundle.



OS-Series



The curved head design of the OS-Series



**Material specification please see page 22.**

TYPE	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
T18ROS	2.5	100.0	1.6	20.0	80	PA66HS	Black (BK)	500 pcs.	2;4-6	118-04701
	2.5	100.0	1.6	20.0	80	PA66HS	Natural (NA)	1,000 pcs.	2;4-6	118-00035
	2.5	100.0	1.6	20.0	80	PA66V0	White (WH)	100 pcs.	2;4-6	118-00079
	2.5	100.0	1.6	20.0	80	PA66W	Black (BK)	100 pcs.	2;4-6	118-00125
T30ROS	3.4	145.0	1.6	35.0	135	PA66HS	Natural (NA)	100 pcs.	2;4-6	118-00064
	3.4	145.0	1.6	35.0	135	PA66HS	Black (BK)	100 pcs.	2;4-6	118-04800
T30LOS	3.4	200.0	1.6	50.0	135	PA66HS	Natural (NA)	100 pcs.	2;4-6	118-00044
	3.4	200.0	1.6	50.0	135	PA66V0	White (WH)	100 pcs.	2;4-6	118-00080
	3.4	200.0	1.6	50.0	135	PA66W	Black (BK)	100 pcs.	2;4-6	118-00126
	3.4	200.0	1.6	50.0	135	PA66HS	Black (BK)	100 pcs.	2;4-6	118-04900
T50SOS	4.6	150.0	1.6	35.0	225	PA66HS	Black (BK)	100 pcs.	2;4-8	118-05850
T50ROS	4.6	200.0	1.6	50.0	225	PA46	Grey (GY)	500 pcs.	2;4-8	118-05078
	4.6	200.0	1.6	50.0	225	PA66HS	Black (BK)	1,000 pcs.	2;4-8	118-00093
	4.6	200.0	1.6	50.0	225	PA66HS	Natural (NA)	1,000 pcs.	2;4-8	118-00097
	4.6	200.0	1.6	50.0	225	PA66	Natural (NA)	1,000 pcs.	2;4-8	118-00096
	4.6	200.0	1.6	50.0	225	PA66W	Black (BK)	100 pcs.	2;4-8	118-00127
T50MOS	4.6	245.0	1.6	66.0	225	PA66HS	Black (BK)	100 pcs.	2;4-8	118-00018
	4.6	245.0	1.6	66.0	225	PA66HS	Natural (NA)	100 pcs.	2;4-8	118-00055
	4.6	245.0	1.6	66.0	225	PA66V0	White (WH)	100 pcs.	2;4-8	118-00081
	4.6	245.0	1.6	66.0	225	PA66W	Black (BK)	100 pcs.	2;4-8	118-00128
T50LOS	4.6	384.0	1.6	110.0	225	PA66HS	Black (BK)	100 pcs.	2;4-8	118-05900
T120ROS	7.6	385.0	5.0	105.0	535	PA66HS	Black (BK)	100 pcs.	3;9-12	118-00066
	7.6	385.0	5.0	105.0	535	PA66HS	Natural (NA)	100 pcs.	3;9-12	118-00067
	7.6	385.0	5.0	105.0	535	PA66V0	White (WH)	100 pcs.	3;9-12	118-00082
	7.6	385.0	5.0	105.0	535	PA66W	Black (BK)	100 pcs.	3;9-12	118-00130

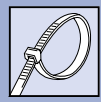
All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

**EN 45545-2**

For product specific approvals and specifications please refer to the Appendix.





### Cable Ties for high temperature applications up to +240°C

PEEK Ties have been designed for the use in hazardous environment. Their suitability for high temperature applications makes them ideal for use in the drilling industry, railway, offshore or automotive industry. The excellent chemical and radiation resistance is predestined for applications in medical engineering, chemical industry and power stations. Within the aerospace industry, PEEK ties are suitable due to their good ratio weight to tensile strength. Because of this combination of different properties, PEEK ties can replace metal solutions.

#### Features and benefits

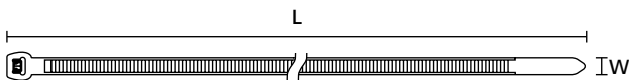
- For high temperature applications from -55 °C up to +240 °C
- Outside serrated cable tie with smooth surface to the bundle
- Close fit to the cable bundle due to the deepening head shape
- Easy insertion combined with high tensile strength
- Takes up less space due to curved head design
- Combines the performance of a metal tie with the ease of use of a polyamide cable tie
- Manual and/or pneumatic tools available for greater process reliability



The contoured head takes up less space, gives a low insertion force and offers high strength.



Please find more PEEK products for your system solutions: Foot Part P1SFT65, see page 105. Screw Mount CTAM, see page 151.



PEEK-Series



One Step to the Web!

#### PEEK Ties, outside serrated

TYPE	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.	N	Colour	Material	Pack Cont.	Tools	Article-No.
PT2A	3.4	145.0	4.0	35.0	230	Beige (BGE)	PEEK	100 pcs.	6-8	118-00032
PT3B	4.7	250.0	4.0	65.0	300	Beige (BGE)	PEEK	100 pcs.	6-8	118-00116

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

#### PEEK Ties, inside serrated

TYPE	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
PT220	4.7	220.0	8.0	56.0	380	PEEK	Beige (BGE)	100 pcs.	8;12;15	111-01235

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

#### Recommended Tools

	2	3	4	5	6	8	9	10	11	12	15
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9	EVO9HT	MK9P	MK9SST
	595	595	596	596	598	601	600	599	599	602	604

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



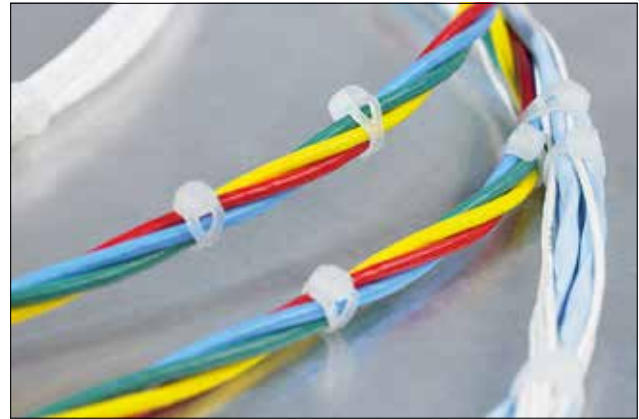
#### Cable Ties with 90° angled head

##### V-Series

Due to its low profile head, V-Series outside serrated cable ties are perfectly suited for applications with restricted space, such as camera, alarm and automation systems (Remote I/O Systems). Where bundles are fed through a grommet or ductwork, V-Series provides a practical solution due to its unique rounded design.

##### Features and benefits

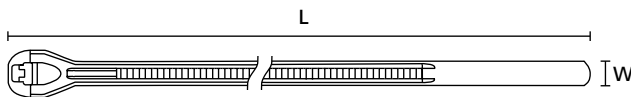
- Outside serrated cable tie with smooth surface to the bundle
- The 90° angled head perfectly fits onto the bundle
- Rounded head design minimises the risk of damage to insulation, especially of parallel routed bundles
- Low profile head takes up less space above the bundle
- Easy insertion and high tensile strength
- Easy application either manually or with a processing tool



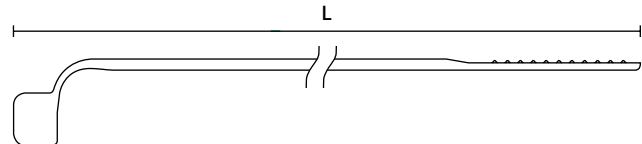
V-Series is perfect for parallel bundles.



**Material specification please see page 22.**



V-Series

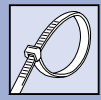


TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
V100R	2.5	102.5	20.0	100	PA46	Grey (GY)	1,000 pcs.	2;4-6	118-00109
	2.5	102.5	20.0	100	PA66HS	Natural (NA)	1,000 pcs.	2;4-6	118-00074
V150R	3.3	150.0	35.0	150	PA46	Grey (GY)	100 pcs.	2;4-6;8	118-00107
	3.3	150.0	35.0	150	PA66HS	Natural (NA)	100 pcs.	2;4-6;8	118-00089

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools					
	2	4	5	6	8
	MK20	MK3SP	MK3PNSP2	EVO7	MK7P
	595	596	596	598	601

For more information on toolings please refer to the Application Tooling chapter.



### Cable ties with low profile head

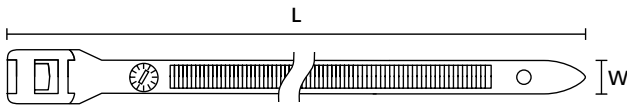
Designed primarily for use within the electrical supply industry these ties are particularly useful in areas with limited space. In addition the low profile head ensures there are no sharp edges. Coloured low profile cable ties are ideal for securing foam padding to playground equipment or for any identification purpose.

#### Features and benefits

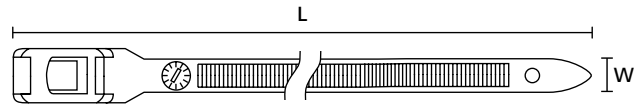
- Outside serrated cable tie with a smooth surface to bundle
- Coloured cable ties can be used for identification
- Broad contact area with cable, minimising risk of damage
- Low profile head for use in restricted area
- Parallel entry for enhanced fit around circular bundles



Low profile cable ties, RPE- and PE-Series.



PE-Series



RPE-Series

#### PE-Series coloured

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
PE180	9.0	180.0	42.0	445	PA66HSW	Black (BK)	100 pcs.	1;3;9-12	112-18060
PE400	9.0	400.0	116.0	445	PA66	Blue (BU)	100 pcs.	1;3;9-12	112-18101
	9.0	400.0	116.0	445	PA66	Green (GN)	100 pcs.	1;3;9-12	112-18100
	9.0	400.0	116.0	445	PA66	Red (RD)	100 pcs.	1;3;9-12	112-18102
	9.0	400.0	116.0	445	PA66	Yellow (YE)	100 pcs.	1;3;9-12	112-18103
PE530	9.0	535.0	146.0	445	PA66HSW	Black (BK)	100 pcs.	1;3;9-12	112-53060

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

#### RPE-Series releasable

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
RPE275	9.0	275.0	69.0	445	PA66HSW	Black (BK)	100 pcs.	112-27560
RPE350	9.0	350.0	92.0	445	PA66HSW	Black (BK)	100 pcs.	112-35060

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

#### Recommended Tools

	1	3	9	10	12
	MK10-SB	MK21	MK6	EVO9	MK9P
	595	595	600	599	602

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



#### Cable ties with low profile head

##### LPH-Series

LPH cable ties are made of Polyamide 6.6 materials. The design with its serration on the outside provides a smooth surface to the cable bundle. Any damage to the insulation can be avoided. The flat head design offers additional benefit in areas with restricted space. They are mainly used within the electrical supply industry but perfectly suited for construction, heavy duty applications or the automotive industry.

##### Features and benefits

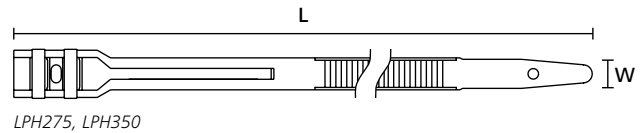
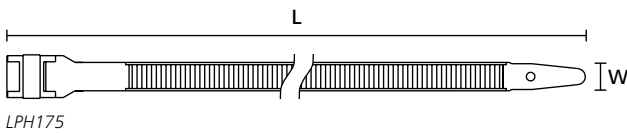
- For more flexibility high impact modified cable ties are available
- Good tensile strength with a single or a double bridged head
- Outside serration allows for a smooth surface to bundle
- Design protects against damage to cable insulation
- Low profile head for optimized use especially in restricted areas
- Strap is threaded parallel through the low profile head



Low profile cable tie, LPH-Series.



**Material specification**  
please see page 22.



TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
LPH175	9.0	175.0	40.0	310	PA66	Black (BK)	100 pcs.	1;3;9-12	112-00203
LPH275	9.0	265.0	62.0	480	PA66HIR(S)	Black (BK)	100 pcs.	1;3;9-12	112-00303
LPH350	9.0	355.0	92.0	480	PA66HIR(S)	Black (BK)	100 pcs.	1;3;9-12	112-00403
LPH500	9.0	505.0	140.0	540	PA66HIR(S)	Black (BK)	100 pcs.	1;3;9-12	112-00033
LPH750	9.0	752.0	220.0	540	PA66HIR(S)	Black (BK)	100 pcs.	1;3;9-12	112-00034

All dimensions in mm. Subject to technical changes.

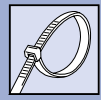
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools					
	1	3	9	10	12
	MK10-SB	MK21	MK6	EVO9	MK9P
	595	595	600	599	602

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



### Cable ties with low profile head

#### Robusto-Series

Robusto cable ties manufactured from PA11 have many technical features making them suitable for use in a variety of applications to fix and support cables, pipes and other elements. They offer an excellent resistance to chemicals in most challenging environments like offshore or on oil rigs and construction vehicles. In addition the very good UV resistance makes it a perfect choice for solar panel cable installations.

#### Features and benefits

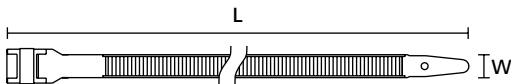
- Made of Polyamide 11 – a sustainable bioplastic from vegetable oil
- Outside serrated cable tie with an innovative rounded head design
- Low insertion force for tool-free application
- High tensile strength with a single or a double bridged head
- Soft material for easy handling without damaging cables
- Very good UV resistance and durability in outdoor applications
- Stable technical performance even at very low temperatures
- High resistance to chemicals including chlorides
- Low water absorption rate for consistent technical performance and high durability
- Prelocking function by simply pushing the strap through the eyelet provided



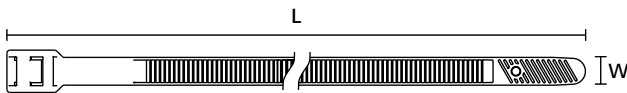
Flat head cable tie from sustainable bioplastic, Robusto-Series.



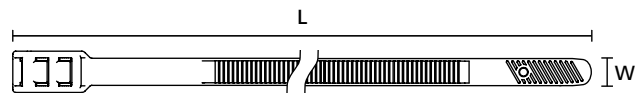
Application video:  
Robusto



Robusto (LPH922)



Robusto (LPH942)



Robusto (LPH962, LPH992)

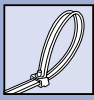
TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
Robusto (LPH922)	9.0	123.0	22.0	310	PA11	Black (BK)	100 pcs.	1;3;9-12	112-00025
Robusto (LPH942)	9.0	180.0	42.0	360	PA11	Black (BK)	100 pcs.	1;3;9-12	112-00011
Robusto (LPH962)	9.0	260.0	62.0	530	PA11	Black (BK)	100 pcs.	1;3;9-12	112-00012
Robusto (LPH992)	9.0	355.0	92.0	530	PA11	Black (BK)	100 pcs.	1;3;9-12	112-00013

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools					
	1	3	9	10	12
	MK10-SB	MK21	MK6	EVO9	MK9P
	595	595	600	599	602

For more information on toolings please refer to the Application Tooling chapter.





#### Cable Tie locked by glass fibre pin

This cable tie is distinguished by its smooth strap and unique locking mechanism. The chamfered head of the KR-Series allows for a firm fit around the bundled element. Due to its special design KR-Series cable ties can be used as a safety method to bundle any cable and to also secure bellows on steering racks, water hoses or vacuum lines. The endless strap version is fairly flexible and can be cut to any length required. Separate heads are available to fix the strap.

#### Features and benefits

- Cable tie without serration to avoid any damage to cables
- Strap is locked into place with a glass-fibre reinforced pin
- Very secure and vibration resistant fixing
- Available in various materials, colours and almost every length
- Cable ties from PA12 are highly resistant to chemicals, impact and UV light
- KR-ties up to 426 mm are made as one piece
- For assembly a special KR-tool is needed



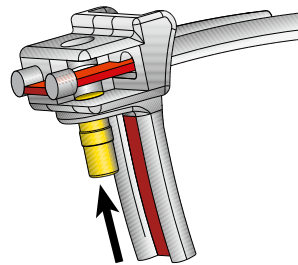
The KR-Series has been repeatedly proven in high vibration applications.



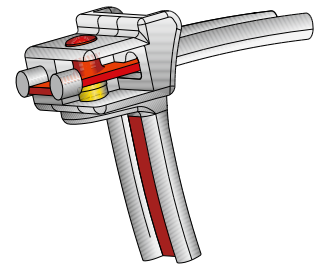
**Specific part numbers according to EN45545 available on request.**



**Material specification please see page 22.**

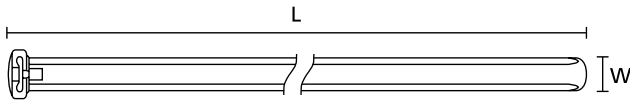


The unlocked head of a KR-tie.



The cable tie (red) is locked into place with the pin.

#### KR-Series, 1-Piece



Cable tie KR-Series

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
KR6/35	6.1	360.0	93.0	490	PA66	Natural (NA)	50 pcs.	13	121-63519
	6.1	360.0	93.0	490	PA66HS	Natural (NA)	50 pcs.	13	121-63555
	6.1	360.0	93.0	490	PA66W	Black (BK)	50 pcs.	13	121-63560
KR8/21	8.0	210.0	47.0	785	PA66HS	Natural (NA)	50 pcs.	13-14	121-82155
	8.0	210.0	47.0	785	PA66	Natural (NA)	50 pcs.	13-14	121-82119
	8.0	210.0	47.0	785	PA66W	Black (BK)	50 pcs.	13-14	121-82160

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

#### Recommended Tools

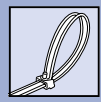
	13	14
	KR6/8	KR8PNSE
	603	603

For more information on toolings please refer to the Application Tooling chapter.

**EN 45545-2**

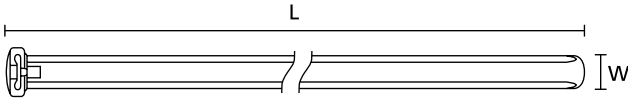


For product specific approvals and specifications please refer to the Appendix.



### Cable Tie locked by glass fibre pin

#### KR-Series, 1-Piece



Cable tie KR-Series

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
KR8/33	8.0	337.0	86.0	390	PA12	Black (BK)	50 pcs.	13-14	121-83380
	8.0	337.0	86.0	785	PA66	Natural (NA)	50 pcs.	13-14	121-83319
	8.0	337.0	86.0	785	PA46	Grey (GY)	50 pcs.	13-14	121-83378
	8.0	337.0	86.0	785	PA66HS	Natural (NA)	50 pcs.	13-14	121-83355
	8.0	337.0	86.0	785	PA66W	Black (BK)	50 pcs.	13-14	121-83360
KR8/43	8.0	426.0	105.0	785	PA66HS	Black (BK)	50 pcs.	13-14	121-74360
	8.0	426.0	105.0	785	PA66HS	Natural (NA)	50 pcs.	13-14	121-74359

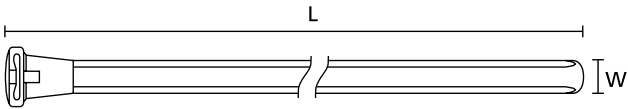
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

**EN 45545-2**



For product specific approvals and specifications please refer to the Appendix.

#### KR-Series, ultrasonic welded



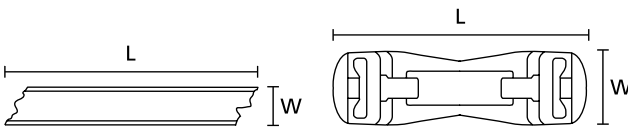
Cable tie KR-Series, ultrasonic welded

**i** Other dimensions are available on request.

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
KR8/50	8.0	500.0	152.0	785	PA66	Natural (NA)	50 pcs.	13-14	121-05019
KR8/60	8.0	600.0	184.0	785	PA66W	Black (BK)	50 pcs.	13-14	121-06060

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

#### KR-Series, endless

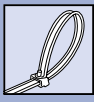


Cable tie KR8S1

Double-head KR8C5

TYPE	Width (W)	Length (L)	N	Material	Colour	Pack Cont.	Tools	Article-No.
KR8/S1	8.0	50.0 m	785	PA66HS	Natural (NA)	50.0 m	13-14	121-98151
	8.0	50.0 m	785	PA66W	Black (BK)	50.0 m	13-14	121-98160
KR8/C5	11.7	38.0	-	PA66HS	Natural (NA)	200 pcs.	13-14	121-58551
	11.7	38.0	-	PA66W	Black (BK)	200 pcs.	13-14	121-58560

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Endless cable ties with separate head and spacer

#### EL-TY-Series

These robust cable ties are particularly suitable for use with larger diameter cables, pipes and hoses. Designed originally for securing overhead, catenary and cables they are now used in many industries from the building sector, through to the chemical industry, to the installation of signs for traffic management. Separate spacers allow for a defined distance when bundling in parallel.

#### Features and benefits

- Made of very strong Polyacetal (POM)
- System consists of endless strap, spacers and heads
- Head includes stainless steel pawls for a proper fixation
- Very secure fixing and good resistance to ageing and UV light
- Suits any bundle diameter and reduces inventory

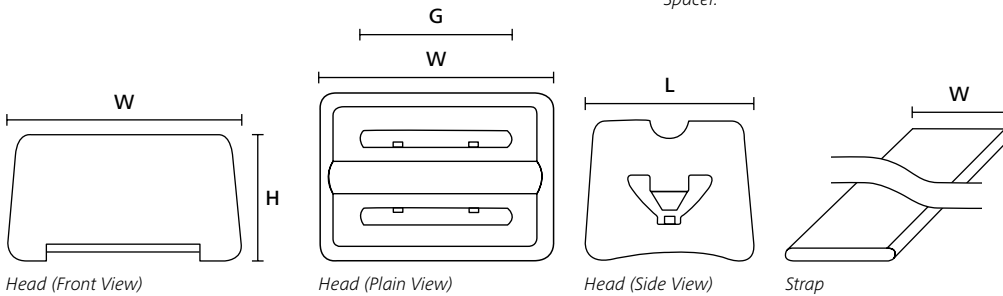
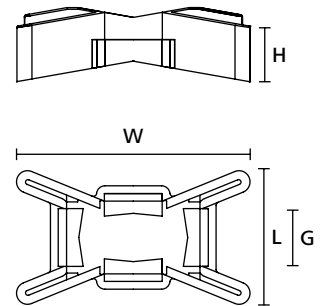


The EL-TY strap can be cut to suit any bundle.

**Material specification please see page 22.**



Spacer.



TYPE	Width (W)	Length (L)	Height (H)		Strap Width max. (G)	Material	Colour	Content	Tools	Article-No.
EL-TY (TELS1)	12.7	15.2 m	-	1,112	-	POM	Black (BK)	15m Strap, 30 Heads	11	111-30000
EL-TY (TELSH)	20.3	15.8	12.4	-	12.7	POM	Black (BK)	25 Heads	-	111-31000
EL-TY (TELS-SPK2)	53.3	30.5	17.0	-	12.7	PP	Black (BK)	50 Spacer	-	111-32000

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools	
	11 EVO9HT
	599

For more information on toolings please refer to the Application Tooling chapter.



### Cable Ties inside serrated

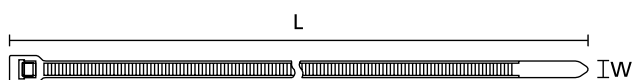
Used in a wide range of industries these releasable and reusable ties are ideal where changes are anticipated. This includes temporary installation and the addition or removal of elements. These releasable cable ties are commonly used to fix stage equipment, for cable management at outdoor events or prototype harnessing work. The extended pawl is simply pushed down with a finger to release the strap.

#### Features and benefits

- Releasable and reusable cable tie
- Multiple grades of PA66 for indoors, outdoors or at high temperatures
- Available in black and natural colour
- Extended trigger for simple and quick release of ties
- Inside serrated cable tie
- Different lengths available



RELK releasable cable ties for temporary bundling.



RELK-, RLT-Series



Application video:  
RELK

#### RELK-Series up to 200 N loop tensile strength

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
RELK2R	4.6	200.0	50.0	200	PA66	Natural (NA)	100 pcs.	115-02202
RELK2M	4.6	250.0	65.0	200	PA66	Black (BK)	100 pcs.	115-02000
	4.6	250.0	65.0	200	PA66	Natural (NA)	100 pcs.	115-06729
RELK2I	4.6	300.0	81.0	200	PA66	Black (BK)	100 pcs.	115-06760
	4.6	300.0	81.0	200	PA66	Natural (NA)	100 pcs.	115-02101
RELK2L	4.6	350.0	95.0	200	PA66	Black (BK)	100 pcs.	115-02300
	4.6	350.0	95.0	200	PA66	Natural (NA)	100 pcs.	115-06919

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

#### RLT-Series up to 670 N loop tensile strength

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
RLT120	7.6	340.0	90.0	535	PA66	Black (BK)	100 pcs.	111-70361
	7.6	340.0	90.0	535	PA66	Natural (NA)	100 pcs.	111-70319
RLT150	8.9	770.0	225.0	670	PA66	Black (BK)	50 pcs.	111-70110
	8.9	770.0	225.0	670	PA66	Natural (NA)	50 pcs.	111-70119
	8.9	770.0	225.0	670	PA66HS	Natural (NA)	50 pcs.	111-70159
	8.9	770.0	225.0	670	PA66W	Black (BK)	50 pcs.	111-70160

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



For product specific approvals and specifications please refer to the Appendix.



### Cable Ties inside serrated

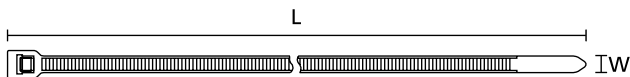
Used in a wide range of industries these releasable and reusable ties are ideal where changes are anticipated. This includes temporary installation and the addition or removal of elements. These releasable cable ties are commonly used to fix stage equipment, for cable management at outdoor events or prototype harnessing work. The extended pawl is simply pushed down with a finger to release the strap.

#### Features and benefits

- Releasable and reusable cable tie
- Multiple grades of PA66 for indoors, outdoors or at high temperatures
- Available in black and natural colour
- Extended trigger for simple and quick release of ties
- Inside serrated cable tie
- Different lengths available



RELK releasable cable ties for temporary bundling.



RELK-, RLT-Series



Application video:  
RELK

#### RELK-Series up to 200 N loop tensile strength

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
RELK2R	4.6	200.0	50.0	200	PA66	Natural (NA)	100 pcs.	115-02202
RELK2M	4.6	250.0	65.0	200	PA66	Black (BK)	100 pcs.	115-02000
	4.6	250.0	65.0	200	PA66	Natural (NA)	100 pcs.	115-06729
RELK2I	4.6	300.0	81.0	200	PA66	Black (BK)	100 pcs.	115-06760
	4.6	300.0	81.0	200	PA66	Natural (NA)	100 pcs.	115-02101
RELK2L	4.6	350.0	95.0	200	PA66	Black (BK)	100 pcs.	115-02300
	4.6	350.0	95.0	200	PA66	Natural (NA)	100 pcs.	115-06919

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

#### RLT-Series up to 670 N loop tensile strength

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
RLT120	7.6	340.0	90.0	535	PA66	Black (BK)	100 pcs.	111-70361
	7.6	340.0	90.0	535	PA66	Natural (NA)	100 pcs.	111-70319
RLT150	8.9	770.0	225.0	670	PA66	Black (BK)	50 pcs.	111-70110
	8.9	770.0	225.0	670	PA66	Natural (NA)	50 pcs.	111-70119
	8.9	770.0	225.0	670	PA66HS	Natural (NA)	50 pcs.	111-70159
	8.9	770.0	225.0	670	PA66W	Black (BK)	50 pcs.	111-70160

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



For product specific approvals and specifications please refer to the Appendix.





### Cable Ties inside serrated with tuckaway

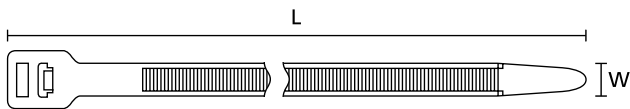
The RT250 is a releasable cable tie. Due to its minimum loop tensile strength of 1,115 N the cable tie is perfectly suited to fix larger and/or heavier bundles. RT250 can be opened and re-used. UV resistant cable ties manufactured from PA66W are recommended for outdoor applications. For shorter lengths REL250-Series can be offered.

#### Features and benefits

- Releasable and reusable cable tie
- Suitable for larger and/or heavier bundles
- Eyelet allows excess tail to be tucked neatly away
- Available in black and natural colour
- Extended trigger for simple and quick release of ties
- Protected trigger to avoid accidental release
- RT250 cable ties are inside serrated



*Ideal for larger or heavier bundles these ties can be opened and reused.*

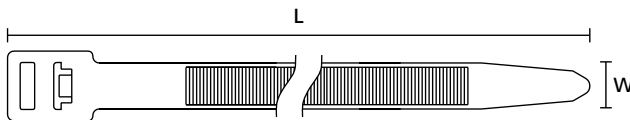


RT250-Series

#### RT250-Series

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
RT250XL	12.5	1,030.0	305.0	1,115	PA66	Black (BK)	25 pcs.	131-75510
	12.5	1,030.0	305.0	1,115	PA66	Natural (NA)	25 pcs.	131-75519
RT250M	12.5	565.3	150.0	1,115	PA66	Black (BK)	25 pcs.	131-75610
	12.5	565.3	150.0	1,115	PA66	Natural (NA)	25 pcs.	131-75619
	12.5	565.3	150.0	1,115	PA66W	Black (BK)	25 pcs.	131-75620

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



Releasable cable tie REL250-Series

#### REL250-Series

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
REL250S	12.2	230.0	50.0	1,115	PA66HIR(S)	Black (BK)	50 pcs.	111-00074
REL250X	12.2	385.0	100.0	1,115	PA66HIR(S)	Black (BK)	50 pcs.	111-00075

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



For product specific approvals and specifications please refer to the Appendix.



### Cable Ties inside serrated with kickdown lever

#### REL-Series

The REL-Series is ideally used in applications where changes are anticipated and a tie need to be opened and closed repeatedly. The release mechanism of an REL cable tie allows simple and quick opening with only one hand. UV resistant cable ties manufactured from PA66W are recommended for outdoor applications.

#### Features and benefits

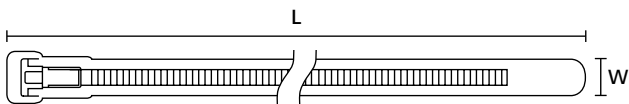
- Releasable and reusable cable tie for medium-weight loads
- Extremely easy-to-operate release mechanism
- Opens simply and quickly with only one hand
- Also available in PA66W for outdoor applications
- REL cable ties have their serration on the inside



Releasable and reusable cable tie, REL-Series.



**Material specification please see page 22.**



REL-Series

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
REL180	6.5	180.0	46.0	150	PA66	Black (BK)	100 pcs.	115-00027
REL100	6.7	100.0	21.0	180	PA66	Black (BK)	100 pcs.	131-21010
	6.7	100.0	21.0	180	PA66	Natural (NA)	100 pcs.	131-21019
REL140	7.6	150.0	35.0	200	PA66	Black (BK)	100 pcs.	131-21410
	7.6	150.0	35.0	200	PA66	Natural (NA)	100 pcs.	131-21419
REL250	7.6	250.0	68.0	200	PA66	Black (BK)	100 pcs.	131-22510
	7.6	250.0	68.0	200	PA66	Natural (NA)	100 pcs.	131-22519
	7.6	250.0	68.0	200	PA66W	Black (BK)	100 pcs.	131-22560

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



For product specific approvals and specifications please refer to the Appendix.



### Cable Ties inside serrated with one-hand release mechanism

#### REZ-Series

Perfect for use in the packaging industry as a bag closure where access to part of the bag content may be needed but the bag need to be re-sealed later. Something that often occurs for instance in the catering or service industry. In addition the cable tie can be opened easily with only two fingers by simply pushing the wings of the unique head.

#### Features and benefits

- REZ-Series can be released and reused
- Unique head design for simple and rapid use
- Quick-release mechanism for one-hand operation
- Cable tie can be opened even when under tension
- Can still be released when working with gloves



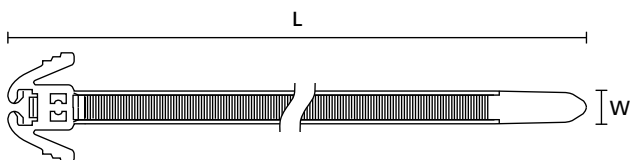
The REZ ties have a one-hand, simple release mechanism.



**Material specification please see page 22.**



Application video:  
REZ



REZ-Series

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
REZ200	4.7	200.0	50.0	135	PA66	Black (BK)	100 pcs.	115-40200
	4.7	200.0	50.0	135	PA66	Fluorescent Pink (FLPK)	100 pcs.	115-00147
	4.7	200.0	50.0	135	PA66	Green (GN)	100 pcs.	115-00106
	4.7	200.0	50.0	135	PA66	Orange (OG)	100 pcs.	115-00132
REZ300	4.7	305.0	80.0	135	PA66	Black (BK)	100 pcs.	115-40300
	4.7	305.0	80.0	135	PA66	Fluorescent Pink (FLPK)	100 pcs.	115-00138

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



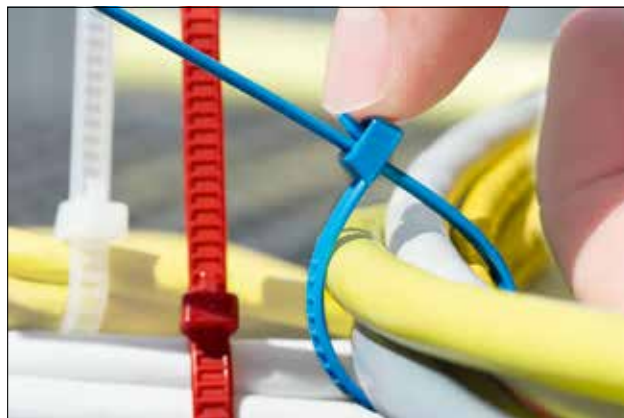
### Cable Ties outside serrated for marking

#### LR55-Series

Releasable cable ties of our LR55-Series offer some extra benefits. Their serration is on the outside of the cable tie. This will minimise the risk of damage to cables or other elements. Additionally LR55 cable ties are available in different colours – optimally suited for temporary identification within logistic, packaging, cable harness production or for testing purposes. The strap is released when pushing the extended pawl upwards. The risk of opening the cable tie accidentally is minimised.

#### Features and benefits

- Releasable and reusable cable tie
- Various colours for applications needing colour coding
- Extended trigger for simple and quick release of ties
- Risk of accidental release is minimised
- Outside serration prevents damage to cable insulation



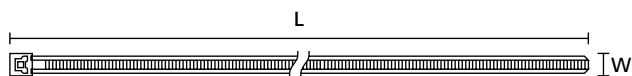
Releasable and outside serrated LR55 cable ties are ideal suited for colour coding.



Application video:  
LR55



**Material specification  
please see page 22.**



LR55-Series

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
LR55R	4.7	195.0	50.0	245	PA66	Blue (BU)	25 pcs.	115-00006
	4.7	195.0	50.0	245	PA66	Green (GN)	25 pcs.	115-00005
	4.7	195.0	50.0	245	PA66	Natural (NA)	25 pcs.	115-00008
	4.7	195.0	50.0	245	PA66	Red (RD)	25 pcs.	115-00003
	4.7	195.0	50.0	245	PA66	Yellow (YE)	25 pcs.	115-00004
	4.7	195.0	50.0	245	PA66HS	Black (BK)	25 pcs.	115-00002

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Cable Ties without serration in flexible TPU

The soft, flexible material makes these ties particularly suitable for use on sensible wires for instance fibre-optic cables. Additionally they are suitable for moving elements and vibrating applications. The double slotted head allows for parallel bundling.

#### Features and benefits

- Elastic and flexible cable ties with rounded and smooth edges
- Releasable and reusable
- Double slotted head with fixation pawl
- Flexibility ensures steady and evenly distributed pressure
- Tight fixation even in vertical position: prevent sliding down or loosening bundle
- Suitable for moving elements and vibrating applications like windmills, machines, robotics, pulsating tubing and conduits
- Ideal use for temporarily fixation for presentations, concerts, theatres, exhibitions
- Long lifetime when used indoor
- Remains flexible even at cold temperatures (-20°C)

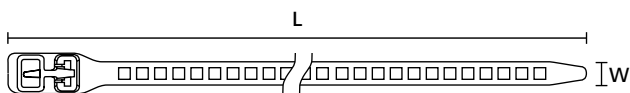


The elasticity of the SOFTFIX ties makes them suitable for use in many applications.

**i With 2nd loop to run bundles in parallel!**



Application video: SOFTFIX



SRT- and SOFTFIX-Series



SOFTFIX ties available in small packaging units.

#### SRT-Series for industry quantities

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Article-No.
SRT1807	7.0	180.0	45.0	57	TPU	Black (BK)	50 pcs.	115-07189
SRT2607	7.0	260.0	79.0	57	TPU	Black (BK)	50 pcs.	115-07269
SRT26011	11.0	260.0	55.0	123	TPU	Black (BK)	50 pcs.	115-11269
SRT34011	11.0	340.0	90.0	123	TPU	Black (BK)	50 pcs.	115-11349
SRT58028	28.0	580.0	150.0	360	TPU	Black (BK)	10 pcs.	115-28589
SRT88028	28.0	880.0	240.0	360	TPU	Black (BK)	180 pcs.	115-28889

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

#### SOFTFIX-Family

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Article-No.
SOFTFIX XS	7.0	180.0	45.0	57	TPU	Black (BK)	16 pcs.	115-07190
SOFTFIX S	7.0	260.0	79.0	57	TPU	Black (BK)	12 pcs.	115-07270
SOFTFIX M	11.0	260.0	55.0	123	TPU	Black (BK)	8 pcs.	115-11270
SOFTFIX L	11.0	340.0	90.0	123	TPU	Black (BK)	6 pcs.	115-11350
SOFTFIX XL	28.0	580.0	150.0	360	TPU	Black (BK)	3 pcs.	115-28590
SOFTFIX XXL	28.0	880.0	240.0	360	TPU	Black (BK)	3 pcs.	115-28898

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Cable Tie with quick release mechanism Speedy-Click

#### SpeedyTie

The versatility of the SpeedyTie means that it is suitable for a multitude of applications like electro installations, heating and ventilation, construction, exhibitions and trade fairs. Whether it is used for permanent or temporarily solutions the SpeedyTie is a very strong helping hand in every situation.

#### Features and benefits

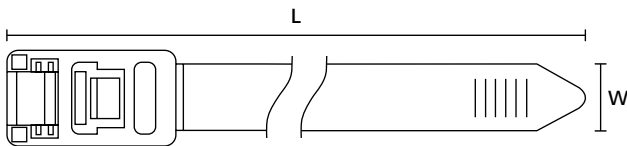
- Releasable and reusable cable tie
- Bears loads of up to 888 N (approx. 90 kg)
- 750 mm long for use in a wide variety of applications
- Can be used for parallel bundling
- Easy to handle when wearing work gloves
- Available in signal yellow and in black



Excess tails can be neatly tucked away.



Application video:  
SpeedyTie



SpeedyTie

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Article-No.
SpeedyTie (RTT750HR)	13.0	752.0	210.0	888	PA66	Yellow (YE), Red (RD)	5 pcs.	115-00001
	13.0	752.0	210.0	888	PA66	Yellow (YE), Red (RD)	25 pcs.	115-00000
	13.0	752.0	210.0	888	PA66HIR(S)	Black (BK)	5 pcs.	115-00030

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.





### Hook and Loop Ties

#### TEXTIE-Series

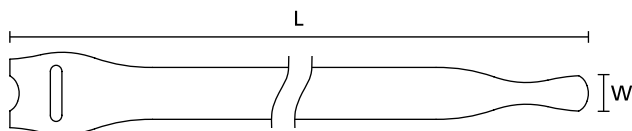
The TEXTIE-Series offers a soft bundling method and is ideal for use on telephone cables, optical fibre and network cables. These cable ties can be reopened and reused up to 400 times. A perfect solution for temporary installations and cable management for stage equipment, at outdoor events or for prototype harnessing. Maybe it is simply used in private or office applications. TEXTIE cable ties are available in various colours and can be used to colour-code cables and/or wires.

#### Features and benefits

- Quick and simple to use without tools
- Re-usable up to 400 times
- Various colours for easy identification
- For indoor and outdoor use
- Can be attached to the bundle permanently
- Resistant to ageing, no corrosion



Application video:  
TEXTIE



TEXTIE-Series



Due to the functional cable tie design the TEXTIE is fixed on the cable and cannot get lost.



The TEXTIE-Series is available in different colours and lengths.



**Material specification  
please see page 22.**

TYPE	Width (W)	Length (L)	Bundle Ø max.	Material Loop	Material Hook	Colour	Pack Cont.	Article-No.
TEXTIE 5M	12.5	5,000.0	-	Polyamide 6.6 (PA66)	Polypropylene (PP)	Black (BK)	1 pc.	130-00020
TEXTIE S	12.5	150.0	45.0	Polyamide 6.6 (PA66)	Polypropylene (PP)	Black (BK)	10 pcs.	130-00012
TEXTIE M	12.5	200.0	60.0	Polyamide 6.6 (PA66)	Polypropylene (PP)	Black (BK)	10 pcs.	130-00013
	12.5	200.0	60.0	Polyamide 6.6 (PA66)	Polypropylene (PP)	Blue (BU)	10 pcs.	130-00018
	12.5	200.0	60.0	Polyamide 6.6 (PA66)	Polypropylene (PP)	Green (GN)	10 pcs.	130-00017
	12.5	200.0	60.0	Polyamide 6.6 (PA66)	Polypropylene (PP)	Red (RD)	10 pcs.	130-00014
	12.5	200.0	60.0	Polyamide 6.6 (PA66)	Polypropylene (PP)	White (WH)	10 pcs.	130-00021
	12.5	200.0	60.0	Polyamide 6.6 (PA66)	Polypropylene (PP)	Yellow (YE)	10 pcs.	130-00016
TEXTIE L	12.5	330.0	100.0	Polyamide 6.6 (PA66)	Polypropylene (PP)	Black (BK)	10 pcs.	130-00019
TEXTIE 25M	13.0	25,000.0	-	Polyamide 6.6 (PA66)	Polypropylene (PP)	Black (BK)	1 pc.	130-00022

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

## Short Circuit Test (SCT)

### The alternative to cable cleats

HellermannTyton's single and double wrap Metal Ball (MBT) and Buckle Ties (AMT) fully withstand the maximum force of short circuits in trefoil formation according to the results of laboratory tests performed using the parameters outlined in the IEC 61914:2009 cable cleat standard.

The tests conducted by the NEFI High Power Laboratory in Norway – a member of the Scandinavian Association for Testing of Electric Power Equipment (SATS) – demonstrated that our MBT and AMT stainless steel cable ties resist the huge forces unleashed by power cables in the event of a short circuit, even when they are installed in a 'worst case' trefoil formation scenario (see drawing below).

### Construction of the HellermannTyton SCT

The MBT and AMT metal ties were insulated from the cable jackets with LFPC polyolefin protective channels as an added layer of protection. Two different cable sizes,  $\varnothing$  36 mm (300 mm<sup>2</sup>) and  $\varnothing$  13 mm (50 mm<sup>2</sup>), each with 3 cables 8 m in length in trefoil formation, were tested with short circuit times between 0.2 and 0.5 seconds at various current levels.

### Advantages of using HellermannTyton stainless steel cable ties over cable cleats:

- Suitable for indoor and outdoor environments
- Very good heat and chemical resistance
- Due to the range of strap lengths and widths it is easy to choose a solution for every application
- Only one cable tie for many different cable diameters
- Lower installation costs
- Low inventory value

### Conclusion

- With the SCT we have proven that our MBT and AMT cable ties are suitable for low and medium voltage cable and withstand a certain level of short circuit currents.

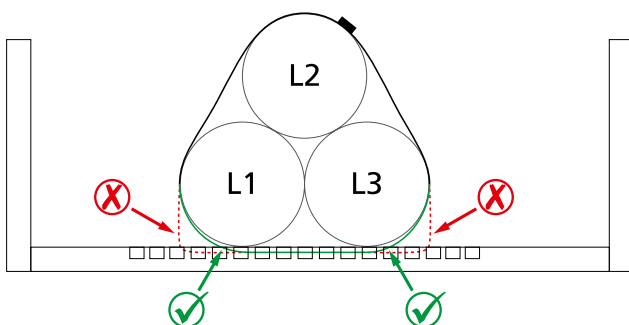
**The stainless steel cable ties from HellermannTyton are a time saving solution with a low price and low installation cost.**



Double wrap stainless steel cable ties, uncoated, MBT\_UHD.



AMT Ties with and without protective profile.



Best practice for installation in trefoil formation. Ties should be bundled as closely as possible to the cables for a smooth loop and to avoid sharp edges.



One Step to the Web!

Please note that the information provided here is no substitute for a suitability test of your individual application.



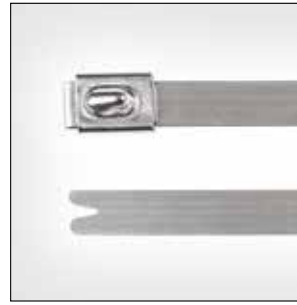
### Cable ties with ball-lock

#### MBT-Series, stainless steel 304

Metal ties are ideal for all applications that require high strength, reliability and fire resistance. The MBT range of stainless steel cable ties can be used in chemical industries and on oil platforms as well as in mass transit, shipbuilding and mining industries. MBT ties are also suitable for machine building, construction and in the outside area of radio technology. Additionally MBT ties are ideal for securing lighting in theatres and exhibition halls.

#### Features and benefits

- Cable ties MBT, made from stainless steel 304
- Non-releasable locking feature
- Corrosion resistant
- Weather resistant
- Outstanding chemical resistance
- High temperature resistant
- Non-burning



Stainless steel cable ties, uncoated, MBT\_SS, MBT\_HS.



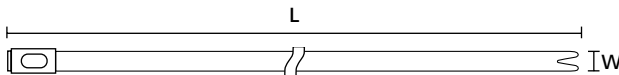
Stainless Steel Cable Ties, uncoated, MBT\_XHS.



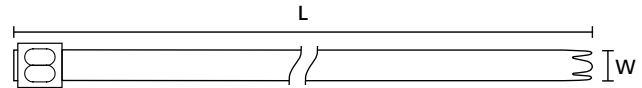
Can support quality assurance in the production of food stuffs, for example HACCP.



The MBT-Series (up to 7.9 mm) can be used in combination with the stainless steel P-Mount. The mount is simple to install with a screw or bolt and ensures a durable fixing solution. Please see page 163.



MBT-Series 4.6 mm and 7.9 mm width



MBT-Series 12.3 mm width

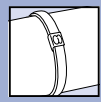
TYPE	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.		Material	Pack Cont.	Tools	Article-No.
MBT5SS	4.6	127.0	12.0	25.0	900	SS304	100 pcs.	15-18	111-93058
MBT8SS	4.6	201.0	17.0	50.0	900	SS304	100 pcs.	15-18	111-93088
MBT14SS	4.6	362.0	17.0	102.0	900	SS304	100 pcs.	15-18	111-93148
MBT20SS	4.6	521.0	17.0	152.0	900	SS304	100 pcs.	15-18	111-93208
MBT27SS	4.6	685.0	17.0	203.0	900	SS304	100 pcs.	15-18	111-93278
MBT33SS	4.6	838.0	17.0	254.0	900	SS304	100 pcs.	15-18	111-93338
MBT8HS	7.9	201.0	17.0	50.0	2,000	SS304	50 pcs.	15-18	111-94088
MBT14HS	7.9	362.0	17.0	102.0	2,000	SS304	50 pcs.	15-18	111-94148
MBT20HS	7.9	521.0	17.0	152.0	2,000	SS304	50 pcs.	15-18	111-94208
MBT27HS	7.9	685.0	17.0	203.0	2,000	SS304	50 pcs.	15-18	111-94278
MBT33HS	7.9	838.0	17.0	254.0	2,000	SS304	50 pcs.	15-18	111-94338
MBT14XHS	12.3	362.0	17.0	102.0	2,700	SS304	50 pcs.	15-18	111-95148
MBT20XHS	12.3	521.0	17.0	152.0	2,700	SS304	50 pcs.	15-18	111-95208
MBT27XHS	12.3	681.0	17.0	203.0	2,700	SS304	50 pcs.	15-18	111-95278
MBT33XHS	12.3	838.0	17.0	254.0	2,700	SS304	50 pcs.	15-18	111-95338

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools				
	15	16	17	18
	MK9SST	MK9PSST	HDT16	KST-STG200
	604	604	605	605

For more information on toolings please refer to the Application Tooling chapter.



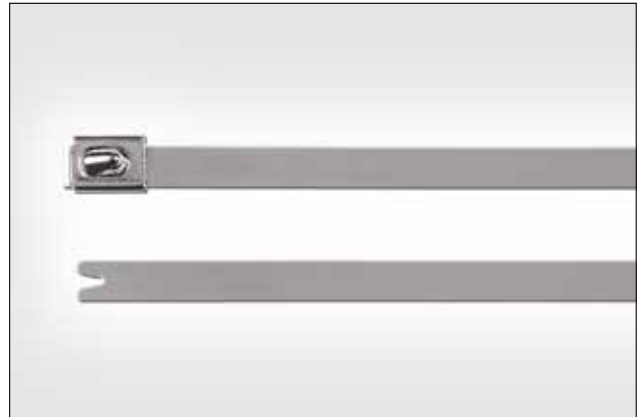
### Cable ties with ball-lock

#### MBT-Series, stainless steel 316

Metal ties are predestined for all areas with requirements for high holding force, reliability and fire resistance. The MBT range of stainless steel cable ties can be used in chemical industry and on oil platform as well as in mass transit, shipbuilding and mining industry. MBT ties are also suitable for machine building, apparatus construction and in the outside area of radio technology. Additionally MBT ties are a good solution to fix lighting in theatres and exhibition halls.

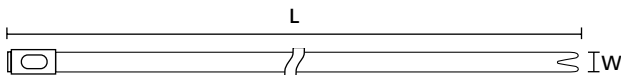
#### Features and benefits

- MBT cable ties made from stainless steel 316
- Non-releasable locking feature
- Corrosion resistant
- Weather resistant
- Outstanding chemical resistance
- Antimagnetic
- High temperature resistant
- Non-burning



Stainless steel cable ties, uncoated, MBT\_S, MBT\_H.

**Material specification please see page 23.**



MBT-Series 4.6 mm and 7.9 mm width

**Can support quality assurance in the production of food stuffs, for example HACCP.**

**The MBT-Series (up to 7.9 mm) can be used in combination with the stainless steel P-Mount. The mount is simple to install with a screw or bolt and ensures a durable fixing solution. Please see page 163.**

TYPE	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.		Material	Pack Cont.	Tools	Article-No.
MBT5S	4.6	127.0	12.0	25.0	900	SS316	100 pcs.	15-18	111-93059
MBT8S	4.6	201.0	12.0	50.0	900	SS316	100 pcs.	15-18	111-93089
MBT14S	4.6	362.0	12.0	102.0	900	SS316	100 pcs.	15-18	111-93149
MBT20S	4.6	521.0	12.0	152.0	900	SS316	100 pcs.	15-18	111-93209
MBT27S	4.6	685.0	12.0	203.0	900	SS316	100 pcs.	15-18	111-93279
MBT33S	4.6	838.0	12.0	254.0	900	SS316	100 pcs.	15-18	111-93339
MBT8H	7.9	201.0	12.0	50.0	2,000	SS316	50 pcs.	15-18	111-94089
MBT14H	7.9	362.0	12.0	102.0	2,000	SS316	50 pcs.	15-18	111-94149
MBT20H	7.9	521.0	12.0	152.0	2,000	SS316	50 pcs.	15-18	111-94209
MBT27H	7.9	685.0	12.0	203.0	2,000	SS316	50 pcs.	15-18	111-94279
MBT33H	7.9	838.0	12.0	254.0	2,000	SS316	50 pcs.	15-18	111-94339

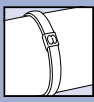
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools				
	15	16	17	18
	MK9SST	MK9PSST	HDT16	KST-STG200
	604	604	605	605

For more information on toolings please refer to the Application Tooling chapter.

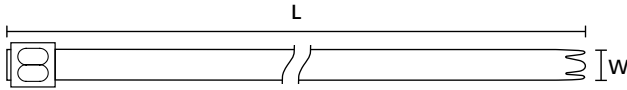


For product specific approvals and specifications please refer to the Appendix.

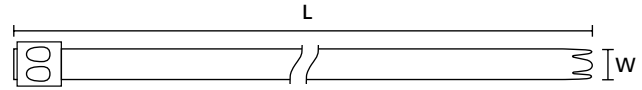


### Cable ties with ball-lock

MBT-Series, stainless steel 316



MBT-Series 12.3 mm width



MBT-Series 16.0 mm width

TYPE	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.		Material	Pack Cont.	Tools	Article-No.
MBT14XH	12.3	362.0	12.0	102.0	2,700	SS316	50 pcs.	15-18	111-95149
MBT20XH	12.3	521.0	12.0	152.0	2,700	SS316	50 pcs.	15-18	111-95209
MBT27XH	12.3	681.0	12.0	203.0	2,700	SS316	50 pcs.	15-18	111-95279
MBT33XH	12.3	838.0	12.0	254.0	2,700	SS316	50 pcs.	15-18	111-95339
MBT43UH	16.0	1,092.0	12.0	330.0	4,100	SS316	25 pcs.	15;17	111-01305
MBT49UH	16.0	1,245.0	12.0	380.0	4,100	SS316	25 pcs.	15;17	111-01306
MBT14UH	16.0	362.0	12.0	102.0	4,100	SS316	50 pcs.	15;17	111-01301
MBT20UH	16.0	521.0	12.0	152.0	4,100	SS316	50 pcs.	15;17	111-01302
MBT27UH	16.0	681.0	12.0	203.0	4,100	SS316	50 pcs.	15;17	111-01303
MBT33UH	16.0	838.0	12.0	254.0	4,100	SS316	50 pcs.	15;17	111-01304
MBT43UH	16.0	1092.0	12.0	330.0	4,100	SS316	25 pcs.	15; 17	111-01305
MBT49UH	16.0	1245.0	12.0	380.0	4,100	SS316	25 pcs.	15; 17	111-01306

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools				
	15	16	17	18
	MK9SST	MK9PSST	HDT16	KST-STG200
	604	604	605	605

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



### Double wrap cable ties with ball-lock

**MBTXHD- / MBTUHD-Series, stainless steel 316**

The double wrap ties of the MBT-series are used in applications where a fixing requires an extraordinary high tensile strength.

#### Features and benefits

- Stainless steel MBT ties with double wrap operation
- Wraps around the bundle and passes through the head twice
- Very high tensile strength to carry enormous applied loads
- Head with two locking balls
- Resistant to arduous conditions and environments



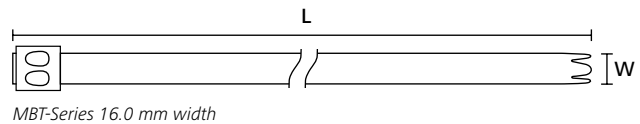
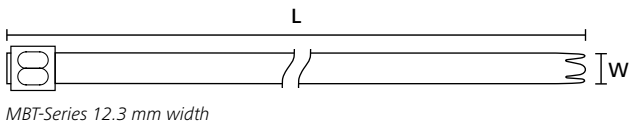
Double wrap stainless steel cable ties, uncoated, MBT\_UHD.



**Can support quality assurance in the production of food stuffs, for example HACCP.**



**Material specification please see page 23.**



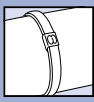
TYPE	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.	N	Material	Pack Cont.	Tools	Article-No.
MBT27XHD	12.3	681.0	17.0	100.0	5,000	SS316	50 pcs.	15-18	111-01307
MBT33XHD	12.3	838.0	17.0	120.0	5,000	SS316	50 pcs.	15-18	111-01308
MBT43XHD	12.3	1,092.0	17.0	160.0	5,000	SS316	25 pcs.	15-18	111-01309
MBT49XHD	12.3	1,245.0	17.0	180.0	5,000	SS316	25 pcs.	15-18	111-01310
MBT60XHD	12.3	1,524.0	17.0	230.0	5,000	SS316	25 pcs.	15-18	111-01311
MBT27UHD	16.0	681.0	25.0	100.0	7,000	SS316	50 pcs.	15;17	111-01312
MBT33UHD	16.0	838.0	25.0	120.0	7,000	SS316	50 pcs.	15;17	111-01313
MBT43UHD	16.0	1,092.0	25.0	160.0	7,000	SS316	25 pcs.	15;17	111-01314
MBT49UHD	16.0	1,245.0	25.0	180.0	7,000	SS316	25 pcs.	15;17	111-01315
MBT60UHD	16.0	1,524.0	25.0	230.0	7,000	SS316	25 pcs.	15;17	111-01316

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools				
	15	16	17	18
	MK9SST	MK9PSST	HDT16	KST-STG200
	604	604	605	605

For more information on toolings please refer to the Application Tooling chapter.





### Cable ties with ball-lock and coating

#### MBT-FC-Series, stainless steel 316

The MBT range of stainless steel cable ties can be used in the most arduous of conditions or where the additional security, strength and fire resistance of a metal fixing is required. Used in all industries from mass transit, ship building, oil rigs, mining and chemical industry, theatres and exhibition halls. In the event of a fire, cables will remain securely held in place and will not fall to block emergency exits. Fully coated ties can also be used to avoid any reflection. An important consideration for instance in the defence industry.

#### Features and benefits

- Fully coated MBT, made from type 316 stainless steel with polyester coating
- Non-releasable locking feature
- Coated cable tie with smooth edges
- Comfortable handling and installation
- Eliminates contact corrosion between dissimilar materials during application



The MBT-Series (up to 7.9 mm) can be used in combination with the stainless steel P-Mount. The mount is simple to install with a screw or bolt and ensures a durable fixing solution. Please see page 163.



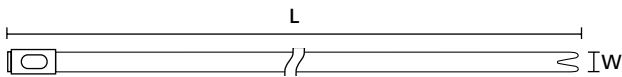
Material specification please see page 23.



Stainless steel cable ties, coated, MBT\_SFC, MBT\_HFC.



Stainless steel cable ties, coated, MBT\_XHFC.



MBT-Series 4.6 mm and 7.9 mm width

TYPE	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.		Material	Pack Cont.	Tools	Article-No.
MBT5SFC	4.6	127	15	25	540	SS316, SP	100 pcs.	15-18	111-00288
MBT8SFC	4.6	201	17	50	540	SS316, SP	100 pcs.	15-18	111-00289
MBT14SFC	4.6	362	17	102	540	SS316, SP	100 pcs.	15-18	111-00290
MBT20SFC	4.6	521	17	152	540	SS316, SP	100 pcs.	15-18	111-00291
MBT27SFC	4.6	681	17	203	540	SS316, SP	100 pcs.	15-18	111-00292
MBT33SFC	4.6	838	17	254	540	SS316, SP	100 pcs.	15-18	111-00293
MBT8HFC	7.9	201	17	50	1,020	SS316, SP	50 pcs.	15-18	111-00294
MBT14HFC	7.9	362	17	102	1,020	SS316, SP	50 pcs.	15-18	111-00295
MBT20HFC	7.9	521	17	152	1,020	SS316, SP	50 pcs.	15-18	111-00296
MBT27HFC	7.9	681	17	203	1,020	SS316, SP	50 pcs.	15-18	111-00297
MBT33HFC	7.9	838	17	254	1,020	SS316, SP	50 pcs.	15-18	111-00298

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools				
	15	16	17	18
	MK9SST	MK9PSST	HDT16	KST-STG200
	604	604	605	605

For more information on toolings please refer to the Application Tooling chapter.

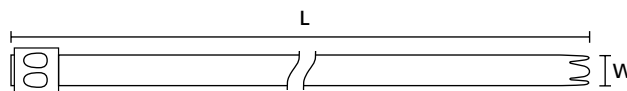


### Cable ties with ball-lock and coating


#### MBT-FC-Series, stainless steel 316




MBT-Series 12.3 mm width



MBT-Series 16.0 mm width

TYPE	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.		Material	Pack Cont.	Tools	Article-No.
MBT14XHFC	12.3	362	17	102	1,620	SS316, SP	50 pcs.	15-18	111-00299
MBT20XHFC	12.3	521	17	152	1,620	SS316, SP	50 pcs.	15-18	111-00300
MBT27XHFC	12.3	681	17	203	1,620	SS316, SP	50 pcs.	15-18	111-00301
MBT33XHFC	12.3	838	17	254	1,620	SS316, SP	50 pcs.	15-18	111-00302
MBT17XHFC	12.3	434	17	125	1,620	SS316, SP	50 pcs.	15-18	111-01500
MBT23XHFC	12.3	575	17	168	1,620	SS316, SP	50 pcs.	15-18	111-01501
MBT30XHFC	12.3	754	17	225	1,620	SS316, SP	50 pcs.	15-18	111-01502
MBT43XHFC	12.3	1,092.00	17	330	1,620	SS316, SP	25 pcs.	15-18	111-01503
MBT49XHFC	12.3	1,245.00	17	380	1,620	SS316, SP	25 pcs.	15-18	111-01504
MBT14UHFC	16	362	25	102	2,500	SS316, SP	50 pcs.	15;17	111-01512
MBT17UHFC	16	434	25	125	2,500	SS316, SP	50 pcs.	15;17	111-01513
MBT20UHFC	16	521	25	152	2,500	SS316, SP	50 pcs.	15;17	111-01514
MBT23UHFC	16	575	25	168	2,500	SS316, SP	50 pcs.	15;17	111-01515
MBT27UHFC	16	681	25	203	2,500	SS316, SP	50 pcs.	15;17	111-01516
MBT30UHFC	16	754	25	225	2,500	SS316, SP	50 pcs.	15;17	111-01517
MBT33UHFC	16	838	25	254	2,500	SS316, SP	50 pcs.	15;17	111-01518
MBT43UHFC	16	1,092.00	25	330	2,500	SS316, SP	25 pcs.	15;17	111-01519
MBT49UHFC	16	1,245.00	25	380	2,500	SS316, SP	25 pcs.	15;17	111-01520

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools				
	15	16	17	18
	MK9SST	MK9PSST	HDT16	KST-STG200
	604	604	605	605

For more information on toolings please refer to the Application Tooling chapter.



### Double wrap cable ties with ball-lock and coating

**MBTXHDFC- / MBTUHDFC-Series, stainless steel 316**

The MBT range of stainless steel cable ties can be used in the most arduous of conditions or where the additional security, strength and fire resistance of a metal fixing is required. Used in all industries from mass transit, ship building, oil rigs, mining and chemical industry, theatres and exhibition halls. In the event of a fire, cables will remain securely held in place and will not fall to block emergency exits. Fully coated ties can also be used to avoid any reflection. An important consideration for instance in the defence industry.

#### Features and benefits

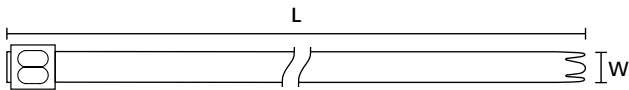
- MBT cable ties, made from stainless steel SS316 with a polyester coating
- Non-releasable locking feature
- Double wrap operation
- Corrosion resistant
- Weather resistant
- Outstanding chemical resistance
- Antimagnetic
- High temperature resistant
- Non-burning



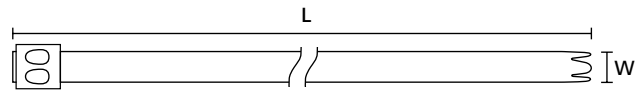
Stainless Steel Cable Ties, coated, MBT\_UHDFC.



**Material specification  
please see page 23.**



MBT-Series 12.3 mm width



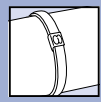
MBT-Series 16.0 mm width

TYPE	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.		Material	Pack Cont.	Tools	Article-No.
MBT27XHDFC	12.3	681	17	100	2,500	SS316, SP	50 pcs.	15-18	111-01505
MBT33XHDFC	12.3	838	17	120	2,500	SS316, SP	50 pcs.	15-18	111-01506
MBT43XHDFC	12.3	1,092.00	17	160	2,500	SS316, SP	25 pcs.	15-18	111-01507
MBT49XHDFC	12.3	1,245.00	17	180	2,500	SS316, SP	25 pcs.	15-18	111-01508
MBT60XHDFC	12.3	1,524.00	17	230	2,500	SS316, SP	25 pcs.	15-18	111-01509
MBT27UHDFC	16	681	25	100	5,000	SS316, SP	50 pcs.	15;17	111-01521
MBT33UHDFC	16	838	25	120	5,000	SS316, SP	50 pcs.	15;17	111-01522
MBT43UHDFC	16	1,092.00	25	160	5,000	SS316, SP	25 pcs.	15;17	111-01523
MBT49UHDFC	16	1,245.00	25	180	5,000	SS316, SP	25 pcs.	15;17	111-01524
MBT60UHDFC	16	1,524.00	25	230	5,000	SS316, SP	25 pcs.	15;17	111-01525

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools				
	15	16	17	18
	MK9SST	MK9PSST	HDT16	KST-STG200
	604	604	605	605

For more information on toolings please refer to the Application Tooling chapter.



### Cable Ties with punch-locking mechanism

#### MST-Series, stainless steel 304

Stainless steel cable ties are designed for fixing loads and cables securely in hazardous industrial environments such as railway carriages, jet engines, inside power plants or on offshore drilling platforms, where exposure to extremes of weather, saltwater and temperature are common. The MST-Series tie with its new punch-locking mechanism is an excellent choice especially for environments which require high resistance to vibrations.

#### Features and benefits

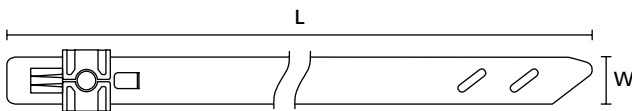
- MST-Series cable ties are made from stainless steel 304
- No loosening after bundling
- Corrosion and weather resistant
- Significantly improved vibration resistance
- Outstanding chemical resistance
- Space saving solution
- Safe cut-off (no sharp edges)
- High temperature resistant
- Non-burning



Stainless Steel Cable Ties MST-Series.



One Step to the Web!



MST tie

**i** The MST-Series (up to 8.9 mm) can be used in combination with the stainless steel P-Mount. The mount is simple to install with a screw or bolt and ensures a durable fixing solution. Please see page 163.

**i** Can support quality assurance in the production of food stuffs, for example HACCP.

TYPE	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.	N	Material	Pack Cont.	Tools	Article-No.
MST200S	5.9	207.0	5.0	50.0	900	SS304	100 pcs.	19	111-01549
MST360S	5.9	360.0	5.0	100.0	900	SS304	100 pcs.	19	111-01550
MST500S	5.9	500.0	5.0	145.0	900	SS304	100 pcs.	19	111-01551
MST700S	5.9	700.0	5.0	205.0	900	SS304	100 pcs.	19	111-01552
MST360M	8.9	369.0	8.0	100.0	1,500	SS304	50 pcs.	20	111-01631
MST500M	8.9	509.0	8.0	145.0	1,500	SS304	50 pcs.	20	111-01632
MST700M	8.9	700.0	8.0	205.0	1,500	SS304	50 pcs.	20	111-01633

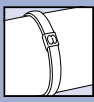
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools		
	19	20
	MST6	MST9
	606	606

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



### Cable Ties with fold locking

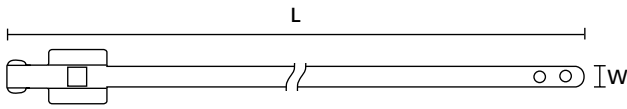
The MLT range of stainless steel cable ties can be used in the most arduous of conditions or where the additional security, strength and fire resistance of a metal fixing is required. Used in all industries from mass transit, ship building, oil rigs, mining and chemical industry, theatres and exhibition halls. In the event of a fire, cables will remain securely held in place and will not fall to block emergency exits.

#### Features and benefits

- Releasable stainless steel buckle tie
- Heavy duty type in stainless steel 316
- Can be re-opened and re-used
- Available also with polyester coating which prevents corrosion between dissimilar materials



MLT-Series. Releasable Stainless Steel buckle tie with and without coating.



MLT tie

**i** The MLT-Series (up to 10 mm) can be used in combination with the stainless steel P-Mount. The mount is simple to install with a screw or bolt and ensures a durable fixing solution. Please see page 163.

#### MLT-Series, stainless steel 316

TYPE	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.		Material	Pack Cont.	Tools	Article-No.
MLT8SS5	5.0	230.0	20.0	60.0	420	SS316	100 pcs.	17;21	111-94080
MLT12SS5	5.0	330.0	20.0	90.0	420	SS316	100 pcs.	17;21	111-94120
MLT16SS5	5.0	430.0	20.0	120.0	420	SS316	100 pcs.	17;21	111-94161
MLT24SS5	5.0	630.0	20.0	180.0	420	SS316	100 pcs.	17;21	111-91400
MLT8SS10	10.0	230.0	25.0	60.0	850	SS316	100 pcs.	17;21	111-95080
MLT12SS10	10.0	330.0	25.0	90.0	850	SS316	100 pcs.	17;21	111-95120
MLT16SS10	10.0	430.0	25.0	120.0	850	SS316	100 pcs.	17;21	111-91300
MLT24SS10	10.0	630.0	25.0	180.0	850	SS316	100 pcs.	17;21	111-95241

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

#### MLT-C-Series coated, stainless steel 316

TYPE	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.		Material	Pack Cont.	Tools	Article-No.
MLT8SSC5	5.3	230.0	20.0	60.0	420	SS316, SP	100 pcs.	17;21	111-91000
MLT12SSC5	5.3	330.0	20.0	90.0	420	SS316, SP	100 pcs.	17;21	111-91121
MLT16SSC5	5.3	430.0	20.0	120.0	420	SS316, SP	100 pcs.	17;21	111-91161
MLT24SSC5	5.3	630.0	20.0	180.0	420	SS316, SP	100 pcs.	17;21	111-91180
MLT8SSC10	10.3	230.0	25.0	60.0	850	SS316, SP	100 pcs.	17;21	111-91001
MLT12SSC10	10.3	330.0	25.0	90.0	850	SS316, SP	100 pcs.	17;21	111-91123
MLT16SSC10	10.3	430.0	25.0	120.0	850	SS316, SP	100 pcs.	17;21	111-91163
MLT24SSC10	10.3	630.0	25.0	180.0	850	SS316, SP	100 pcs.	17;21	111-91181

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

#### Recommended Tools

	17	21
	HDT16	MTT4
	605	607

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



### Protective channel for stainless steel ties

#### LFPC-Series

When used in conjunction with the MBT, MST, MLT and AMT range of stainless steel cable ties this channel gives the cable protection against chafing, vibration and shock. Ideal for use in arduous conditions such as those found on board ships, oil rigs or in nuclear power stations.

#### Features and benefits

- LFPC channel, manufactured from Polyolefin
- Works with MBT-, MST-, MLT- and AMT-Series
- Smooth surface protects bundle against chafing caused by vibrations and shocks
- Can be cut from roll to any length
- Halogenfree
- Flame retardant



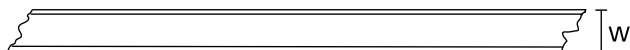
Protective channel LFPC, polyolefin, black.



**Material specification please see page 23.**



**The fire protection properties of the material relate to the test performed on defined test samples. This is a test under laboratory conditions and not directly transferable to the product made from this material.**



LFPC

TYPE	Width (W)	For Ties	Material	Pack Cont.	Article-No.
LFPC70	7.0	MBTS	PO	25 m	111-93000
LFPC83	8.3	MBTH	PO	25 m	111-00257
LFPC103	10.3	MBTH	PO	25 m	111-94000
LFPC129	12.9	MBTXH	PO	50 m	111-00253
LFPC132	13.2	MBTXH	PO	25 m	111-00254
LFPC150	15.0	MBTXH	PO	25 m	111-95000
LFPC163	16.3	AMT, MBTUH	PO	50 m	111-00255

All dimensions in mm. Subject to technical changes.

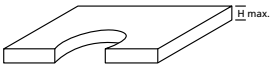
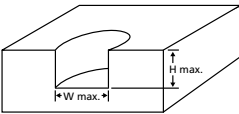
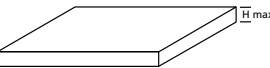
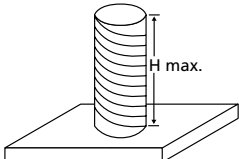
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



For product specific approvals and specifications please refer to the Appendix.



User guide for fixing ties

Application	Arrowhead	Fir Tree Mount	Rivet Wall Plug	Screw Mount	EdgeClip	Weld Stud Mount
	●	●		●		
		●	●	●		
					●	
						●



**Arrowhead**

This fixing tie is based on an arrowhead offering high extraction forces. The arrowhead is securely in place when a click can be heard and felt by the user.



**Arrowhead with disc**

The disc minimises the ingress of dust, dirt and water. Furthermore a safe fixation inside the drill hole is assured that withstands pressure from various directions.



**Arrowhead with supporting legs**

Arrowhead fixings with supporting legs offer good and stable fixation in drilled holes. The supporting legs generate additional pressure to assure a firm and secure fixing while taking up any variation in panel thickness. These ties are also suitable in high vibration applications.



**Arrowhead without supporting legs**

The arrowhead design assures good fixation while utilising lowest possible space.



**Fir Tree Mount**

Fir Tree Mounts can be pushed into pre-punched holes easily in panels or threaded, blind holes based on the low insertion forces. The design is ideally suited for a wide range of sheet thicknesses. The disc on top of the fir tree covers the hole and minimises the ingress of dust, dirt and water.



### Weld Stud Mount

Many of the HellermannTyton weld stud mounts can easily be attached by hand ("soft push"). The design offers very low insertion forces that require no tools. The mounts can be removed by twisting to the left.



### Weld Stud Fixings with Lateral Adjustment

The special oval shape of these mounts provides a 5 - 6 mm lateral adjustment to cater for any misalignment of the stud or incorrect positioning of ties on the cables. The bundle can therefore be moved when mounted.



### EdgeClip

The EdgeClips are specifically designed to bundle and guide cable and wires on edges. Cost intensive drill holes for fixing are no longer required. EdgeClips are easily mounted by hand, the integrated metal clamp, securely keeping the clips on the edge.



### EdgeClip Twistable

Ideally suited for fixations where bundles need to be flexibly guided. These EdgeClips are available with facilities for 90° or 360° rotation.



### Cable and Hose Attachment

Excellent solution for subsequent attachment of pipes and wires to installed tubes.



### Heavy Duty Application

These sturdy fixing ties can withstand vibrations. They are easy to apply and give a secure alignment to the bundle. There will be high tightening torque through metal bushing.



### Two Piece Fixing Ties with Clip Coupler

The Coupler is an article to connect two cable ties for parallel bundling of tubes, harnesses or cables. Its design enables the cable ties to rotate up to 90° and allows flexible installations.



### 1-Piece Fixing Ties with Arrowhead, with Disc

With a diverse range of fixing possibilities these ties are ideal for use in many different industries, including automotive, aerospace, white goods manufacture and panel building.

#### Features and benefits

- Easy to install without the need for a tool
- Arrowhead simply locks into place
- Disc adjusts tie for pressures from various directions and minimises access of dust, dirt and water
- Cable tie head always situated in a defined position
- KSFT-types with specially rounded arrowhead minimise the assembly height

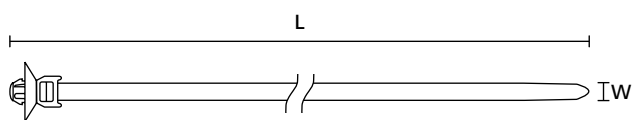


The Disc at the head of the T50SOSSFT6.5E protects the bore against dirt and splashes.

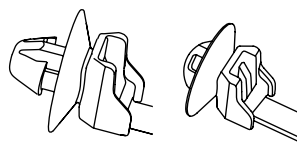


**Material specification please see page 22.**

### 1-Piece Fixing Ties with Arrowhead, with Disc, for round holes



T50SOSKSFT5.4E

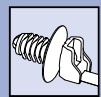


T50SOSSFT6.5E

T50SOSKSFT6.5E

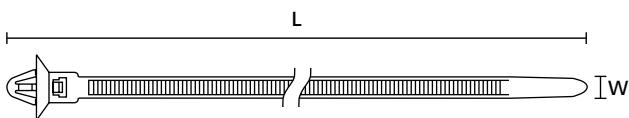
TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Tools	Article-No.
PT2ASFT6.5PT0.7-1.5-E	3.4	112.7	20.0	230	16.0	6.3 - 6.7	0.7 - 1.5	PEEK	Beige (BGE)	2;4-6	126-00183
T30SOS-AS-SFT6.5-E	3.5	126.4	25.0	200	16	6.5 - 7.0	0.8 - 1.5	PA66HS	Black (BK)	2;4-6	126-00255
T50SOSAH7S-E	4.6	161.6	35.0	180	16.0	7.0	0.6 - 3.2	PA66HS	Black (BK)	2-10	126-00249
T50SOSKSFT5SE	4.6	156.0	35.0	180	16.0	4.8 - 5.2	0.7 - 1.3	PA66HS	Natural (NA)	2-10	126-00111
	4.6	156.0	35.0	180	16.0	4.8 - 5.2	0.7 - 1.3	PA66HS	Black (BK)	2-10	126-00099
T50SOSKSFT5.4E	4.6	156.0	35.0	180	16.0	5.2 - 5.6	0.7 - 1.3	PA66HS	Black (BK)	2-10	126-00075
T50SOSKSSFT5.4E-MD	4.6	156.0	35.0	180	16.0	5.4	0.7 - 1.3	PA66HS	Black (BK)	2-10	126-00180
T50SOSKSFT6.5E	4.6	156.0	35.0	180	16.0	6.3 - 6.7	0.7 - 1.3	PA66HS	Black (BK)	2-10	126-00081
T50SOSKSFT6.5S2-E	4.6	157.5	35.0	225	16.0	6.3 - 6.7	1.7 - 2.3	PA66HS	Black (BK)	2-10	126-00219
T50SOSSFT6.5E	4.6	158.8	30.0	225	16.0	6.3 - 6.7	1.9 - 2.5	PA66HS	Black (BK)	2-10	126-03102
T50SOSSFT6.5E-MD	4.6	158.8	30.0	180	16.0	6.3 - 6.7	0.6 - 1.8	PA66HS	Green (GN)	2-10	126-00216
	4.6	158.8	30.0	180	16.0	6.3 - 6.7	0.6 - 1.8	PA66HS	Black (BK)	2-10	126-00215
	4.6	158.8	30.0	180	16.0	6.3 - 6.7	0.6 - 1.8	PA66HS	Natural (NA)	2-10	126-00242
T50SL8	4.6	165.0	35.0	225	20.0	8.0	0.8 - 1.5	PA66	Black (BK)	2;4-6;8	126-01900
T50SST5	4.6	170.0	31.0	225	16.2	6.1 - 6.5	0.7 - 1.5	PA66	Natural (NA)	2-10	126-02300
	4.6	170.0	31.0	225	16.2	6.1 - 6.5	0.7 - 1.5	PA66HS	Black (BK)	2-10	126-00017
T50SD6	5.0	160.0	31.0	200	18.0	6.3 - 7.5	0.6 - 1.8	PA66HS	Black (BK)	2-10	111-85350
T50MD7	5.0	225.0	59.0	225	16.0	6.8 - 7.2	0.8 - 2.0	PA66HS	Black (BK)	2-10	111-85850
	5.0	225.0	59.0	225	16.0	6.8 - 7.2	0.8 - 2.0	PA66	Black (BK)	2-10	126-00181
OS180AH7S-LH-E	5.3	178.4	30.0	180	16.0	6.8 - 7.2	0.6 - 3.2	PA66HS	Black (BK)	2-10	126-00310

All dimensions in mm. Subject to technical changes.

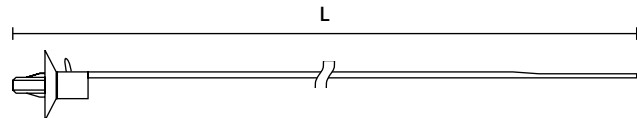


### 1-Piece Fixing Tie with Arrowhead, with Disc

#### 1-Piece Fixing Tie with Arrowhead, with Disc, releasable



RT50SD6

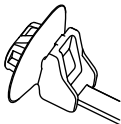


RT50SD6

TYPE	Width (W)	Length (L)	Bundle Ø max.		Disc Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Tools	Article-No.
RT50SD6	5.0	160.0	31.0	225	18.0	6.3 - 7.5	0.6 - 1.8	PA66HS	Black (BK)	2-10	111-85480

All dimensions in mm. Subject to technical changes.

#### 1-Piece Fixing Tie with Arrowhead, with Disc, for oval holes



T50SOSKSFT62x122PT0.7-1.3

TYPE	Width (W)	Length (L)	Bundle Ø max.		Disc Ø	Panel Thickness	Material	Colour	Tools	Article-No.
T50SOSKSFT62x122 PT0.7-1.3	4.6	153.5	35.0	225	16.0 x 21.0	0.7 - 1.3	PA66HS	Black (BK)	2-10	126-00141
T50SOSKSFT62x122 PT0.7-1.3 90°	4.6	158.0	35.0	225	16.0 x 21.0	0.7 - 1.3	PA66HS	Black (BK)	2-10	126-00143
T50SOSKSFT62x122 PT1.7-2.3 90°	4.6	159.0	35.0	225	16.0 x 21.0	1.5 - 2.3	PA66HS	Black (BK)	2-10	126-00144
T50SOSKSFT62x122 PT1.7-2.3	4.6	159.0	35.0	225	16.0 x 21.0	1.7 - 2.3	PA66HS	Black (BK)	2-10	126-00142
T50SDOR	5.0	160.0	30.0	225	22.0	0.5 - 1.5	PA66HS	Black (BK)	2-10	126-01600
T50SDOP	5.0	160.0	30.0	225	22.0	1.0 - 1.9	PA66HS	Black (BK)	2-10	126-00015
T60XSOSFT62X122-E	5.5	133.6	25.0	300	16.0 x 21.0	2.0 - 3.0	PA66HS	Black (BK)	3;8-12	126-00254
T60SOSSFT712S-E	5.5	158.0	30.0	300	16.0 x 22.0	0.6 - 3.2	PA66HS	Black (BK)	2-12	126-00207
T60SOSSFT712S-E1	5.5	158.0	30.0	300	16.0 x 22.0	0.6 - 3.2	PA66HS	Black (BK)	2-12	126-00281
T60XSOSFT712S-E	5.5	120.0	20.0	300	16.0 x 22.0	0.6 - 3.2	PA66HS	Black (BK)	2-12	126-00259
T60XOSFT712S-E1	5.5	120.0	20.0	300	16.0 x 22.0	0.6 - 3.2	PA66HS	Black (BK)	2-12	126-00298
T60SOSSFT65x130-E	5.5	157.6	30.0	300	16.0 x 22.0	2.4 - 3.3	PA66HS	Natural (NA)	2-12	126-00157
T60SOSSFT70X120-E	5.5	157.7	30.0	300	16.0 x 22.0	2.4 - 3.3	PA66HS	Black (BK)	2-12	126-00210
T60SOSSFT62x122-E	5.5	158.0	30.0	300	16.0 x 22.0	2.4 - 3.3	PA66HS	Black (BK)	2-12	126-00191

All dimensions in mm. Subject to technical changes.

Recommended Tools										
	2	3	4	5	6	8	9	10	12	
	MK20	MK21	MK3SP	MK3PNPSP2	EVO7	MK7P	MK6	EVO9	MK9P	
	595	595	596	596	598	601	600	599	602	

For more information on toolings please refer to the Application Tooling chapter.



### 1-Piece Fixing Ties with Arrowhead, with disc, sealed

The parts are mainly used in the automotive industry, e.g. for door harnesses.

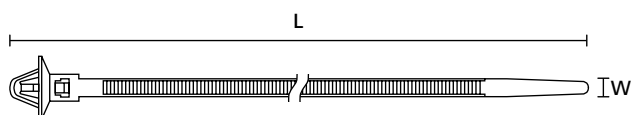
#### Features and benefits

- One-piece fixing ties with cellular rubber disc
- Especially suitable for door and tailgate harnesses used for car body applications
- Made from PA66 heat-stabilised material
- Cellular rubber disc minimises access of dust, dirt and water

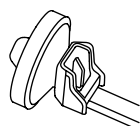


The additional seal protects against the ingress of moisture.

#### Fixing Ties, sealed, for Round Holes



One piece fixing tie with arrowhead and disc, standard design

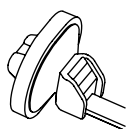


T50SOSSFT6.5E-MDL

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Tools	Article-No.
T50SOSSFT6.5E-MDL	4.6	158.8	30.0	225	16.0	6.3 - 6.7	0.6 - 1.8	PA66HS	Green (GN)	2-10	126-03100
	4.6	158.8	30.0	225	16.0	6.3 - 6.7	0.6 - 1.8	PA66HS	Black (BK)	2-10	156-00264
	4.6	158.8	30.0	225	16.0	6.3 - 6.7	0.6 - 1.8	PA66HS	Natural (NA)	2-10	156-00271
T50SOSSFT6.5E-MS-MD	4.6	163.0	35.0	180	16.0	6.35 - 6.5	0.7 - 1.6	PA66HS	Natural (NA)	2-10	126-00217
T50XCROSSFT6.5-E-MDL	4.6	200.0	45.0	200	16.0	6.25 - 6.75	1.2 - 2.1	PA66HS	Black (BK)	2-10	156-00379

All dimensions in mm. Subject to technical changes.

#### Fixing Ties, sealed, oval holes



T60SOSSFT6.5x130E-MD



Material specification please see page 22.

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Tools	Article-No.
T60XSOSST62X122EMD	5.5	133.6	25.0	300	16.0 x 22.0	6.2 x 12.2	0.7 - 2.0	PA66HS	Black (BK)	2-12	126-00256
T60SOSSFT62x122-E-MD	5.5	157.5	30.0	300	16.0 x 22.0	6.2 x 12.2	0.6 - 2.0	PA66HS	Black (BK)	2-12	126-00080
T60SOSSFT70x120-E-MD	5.5	157.5	30.0	300	16.0 x 22.0	7.0 x 12.0	0.7 - 2.0	PA66HS	Black (BK)	2-12	126-00079
T60SOSSFT65x130-E-MD	5.5	157.6	30.0	300	16.0 x 22.0	6.5 x 13.0	0.6 - 2.0	PA66HS	Natural (NA)	2-12	126-00076
T60SOSSFT65x130-E-MS-MD	5.5	158.0	30.0	300	16.0 x 22.0	6.5 x 13.0	0.6 - 2.0	PA66HS	Black (BK)	2-12	126-00186

All dimensions in mm. Subject to technical changes.

Recommended Tools										
	2	3	4	5	6	8	9	10	11	12
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9	EVO9HT	MK9P
	595	595	596	596	598	601	600	599	599	602

For more information on toolings please refer to the Application Tooling chapter.



### 1-Piece Fixing Ties with Arrowhead, with Disc in the strap, for Round Holes

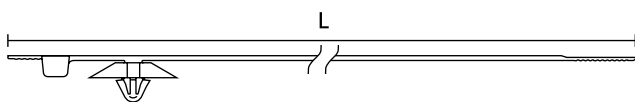
These fixing ties are ideal for use in many different industries, including automotive, aerospace, rail and panel building.

#### Features and Benefits

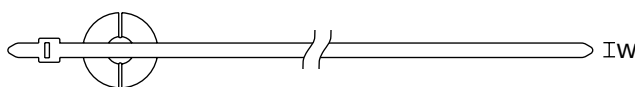
- Easy to assemble without the need for a tool
- Arrowhead simply locks into place
- Disc adjusts tie for pressures from various directions and minimises access of dust, dirt and water
- Cable tie head always situated in defined position
- Bundle runs directly across fixing point
- Simple assembly due to tab at the end of the head



The 'tab' on the head of the tie makes it easy to locate and lift the head for assembly.



T80RSFT



T80RSFT with flexible disc.

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø	Panel Thickness	Material	Colour	Tools	Article-No.
T80RSFT	4.6	190.0	45.0	355	24,4	1.0 - 3.5	PA46	Grey (GY)	2;4-6;8	150-15498
	4.6	190.0	45.0	355	24,4	1.0 - 3.5	PA66HS	Black (BK)	2;4-6;8	150-15493

All dimensions in mm. Subject to technical changes.

Recommended Tools					
	2	4	5	6	8
	MK20	MK3SP	MK3PNSP2	EVO7	MK7P
	595	596	596	598	601

For more information on toolings please refer to the Application Tooling chapter.





### 1-Piece Fixing Ties with Arrowhead, with Wings

For bundling and fixing of cable harnesses, pipes and hoses in many different industries, including automotive, aerospace, white goods manufacturing and panel building.

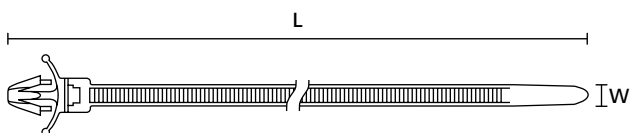
#### Features and benefits

- Easy to assemble without the need for a tool
- Cable tie head always situated in defined position
- Arrowhead simply locks into place
- Supporting legs provide a secure and firm fixing in areas where space is limited



A wide range of arrowhead fixing ties which are suitable for different panel thicknesses and hole diameters.

### 1-Piece Fixing Ties with Arrowhead, with Wings, for Round Holes



T50SSL5

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Hole Ø (FH)	Panel Thickness	Material	Colour	Tools	Article-No.
T18RWPM		2.5	113.0	22.0	80	4.8 - 5.6	1.5 - 2.2	PA66	Black (BK)	2;4-6	126-00077
		2.5	113.0	22.0	80	4.8 - 5.6	1.5 - 2.2	PA66	Natural (NA)	2;4-6	126-00078
		2.5	113.0	22.0	80	4.8 - 5.6	1.5 - 2.2	PA66HS	Black (BK)	2;4-6	126-00232
T18RSF		2.5	100.0	16.0	80	4.6 - 4.8	0.8 - 3.0	PA66HS	Natural (NA)	2;4-6	111-85519
		2.5	100.0	16.0	80	4.6 - 4.8	0.8 - 3.0	PA66W	Black (BK)	2;4-6	111-85560
		2.5	100.0	16.0	80	4.6 - 4.8	1.0 - 3.0	PA46	Grey (GY)	2;4-6	126-00275
T50SSL5		4.6	135.0	27.0	200	6.1 - 6.5	0.5 - 2.7	PA66HS	Black (BK)	2-10	126-02204
		4.6	135.0	27.0	225	6.1 - 6.5	0.5 - 2.7	PA46	Grey (GY)	2-10	111-85395
		4.6	135.0	27.0	225	6.1 - 6.5	0.5 - 2.7	PA66	Natural (NA)	2-10	111-85339
T50SL5		4.6	163.0	34.0	222	6.1 - 6.5	0.8 - 2.7	PA66HIRHS	Black (BK)	2-10	126-00005
		4.6	163.0	34.0	222	6.1 - 6.5	0.8 - 2.7	PA66HS	Black (BK)	2-10	126-00001
		4.6	165.0	34.0	222	6.1 - 6.5	0.8 - 2.7	PA66	Natural (NA)	2-10	111-85369
T50SL6		4.6	165.0	34.0	225	6.3 - 7.5	0.5 - 2.5	PA66	Black (BK)	2-10	111-85460
T50SL7		4.6	165.0	34.0	225	6.9 - 7.1	0.8 - 2.5	PA66	Natural (NA)	2-10	111-85479
T50SSF5M		4.6	160.0	35.0	222	6.0 - 6.6	0.7 - 3.0	PA66	Natural (NA)	2-10	111-85739
T50SSF5M		4.6	160.0	35.0	222	6.0 - 6.6	0.7 - 3.0	PA66HS	Black (BK)	2-10	126-00125
		4.6	160.0	35.0	222	6.0 - 6.6	0.7 - 3.0	PA66HS	Natural (NA)	2-10	126-01104
T50RSFM		4.6	205.0	45.0	225	6.0 - 6.6	0.7 - 3.0	PA66HS	Natural (NA)	2-10	111-85720
OS130		5.0	130.0	20.0	147	6.8 - 7.2	0.6 - 2.6	PA66W	Black (BK)	2-10	126-00060
T50SAH		4.6	160.0	25.0	225	6.0 - 6.6	0.7 - 3.0	PA66HS	Natural (NA)	2-10	155-41102
		4.6	160.0	25.0	225	6.0 - 6.6	0.7 - 3.0	PA66HS	Black (BK)	2-10	126-00163

All dimensions in mm. Subject to technical changes.



### 1-Piece Fixing Ties with Arrowhead, with Wings

#### 1-Piece Fixing Ties with Arrowhead, with wings, releasable

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Hole Ø (FH)	Panel Thickness	Material	Colour	Tools	Article-No.
RT18RSF		3.0	132.0	27.0	80	3.8 - 4.2	0.6 - 2.3	PA66	Natural (NA)	2;4-6	115-01900
RT30SSF5		3.3	130.0	27.0	196	4.7 - 5.0	0.5 - 2.3	PA66V0	White (WH)	2-10	115-00068
YQR10016		4.6	165.0	34.0	225	6.9 - 7.1	1.6 - 4.0	PA66	Grey (GY)	2-10	126-03000
RT50RSF		4.8	200.0	48.0	225	6.3 - 7.5	0.8 - 2.6	PA66W	Black (BK)	2-10	115-00076
RT50SFK		5.0	225.0	50.0	225	6.4 - 7.0	0.8 - 3.0	PA66	Black (BK)	2-10	115-06960

All dimensions in mm. Subject to technical changes.

#### 1-Piece Fixing Ties with Arrowhead, with wings, for oval holes

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Hole Ø (FH)	Panel Thickness	Material	Colour	Tools	Article-No.
T80RFT6X12		4.6	228.0	45.0	222	6.3 x 12.3	0.6 - 3.0	PA46	Grey (GY)	2-12	150-48397
		4.6	228.0	45.0	222	6.3 x 12.3	0.6 - 3.0	PA66	Black (BK)	2-12	150-48396

All dimensions in mm. Subject to technical changes.

Recommended Tools									
	2	3	4	5	6	8	9	10	12
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9	MK9P
	595	595	596	596	598	601	600	599	602

For more information on toolings please refer to the Application Tooling chapter.



#### 1-Piece Fixing Ties with Arrowhead, with Wings in the strap

This range of fixing ties are ideal for use in many different industries, for example: automotive, aerospace, rail and panel building.

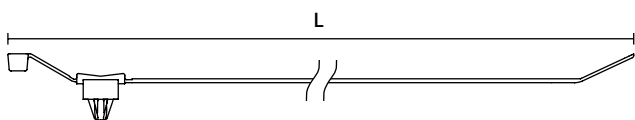
##### Features and Benefits

- Easy to assemble without the need for a tool
- Arrowhead simply locks into place
- Supporting legs provide a secure and firm fixing in areas where space is limited
- Bundle runs central across fixing point
- Cable tie head always situated in defined position
- For parallel routing of two bundles



Designed to secure battery cables the T80RSF6.5F offers a simple and secure fixing.

#### T80RSF6.5F



T80RSF6.5F

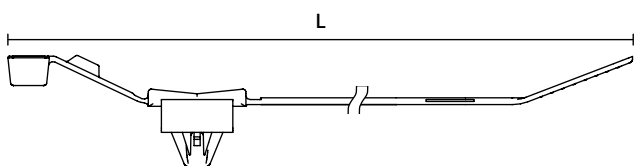


Material specification please see page 22.

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Hole Ø (FH)	Panel Thickness	Material	Colour	Tools	Article-No.
T80RSF6.5F	4.7	209.0	50.0	355	6.3 - 6.5	0.6 - 3.0	PA46	Grey (GY)	2;4-6;8	150-39395
	4.7	209.0	50.0	355	6.3 - 6.5	0.6 - 3.0	PA66HS	Black (BK)	2;4-6;8	126-02600
T80RSF6.5FW	4.7	209.0	50.0	355	6.3 - 6.5	0.6 - 3.0	PA66HS	Black (BK)	2;4-6;8	150-39385

All dimensions in mm. Subject to technical changes.

#### T80RSF6.5FW with rib for convoluted tubes



T80RSF6.5FW

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Hole Ø (FH)	Panel Thickness	Material	Colour	Tools	Article-No.
T80RSF6.5FW	4.7	209.0	50.0	355	6.3 - 6.5	0.6 - 3.0	PA66HS	Black (BK)	2;4-6;8	150-39385

All dimensions in mm. Subject to technical changes.

Recommended Tools					
	2	4	5	6	8
	MK20	MK3SP	MK3PNSP2	EVO7	MK7P
	595	596	596	598	601

For more information on toolings please refer to the Application Tooling chapter.



### 1-Piece Fixing Ties with Arrowhead

#### 1-Piece Fixing Ties with Arrowhead, without Wings and Disc

The arrowhead design allows these ties to be used in areas with limited space.

#### Features and benefits

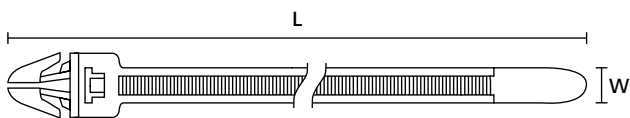
- Easy to assemble without the need for a tool
- Fixing tie with arrowhead without legs
- Arrowhead simply locks into place
- Cable tie head always situated in defined position



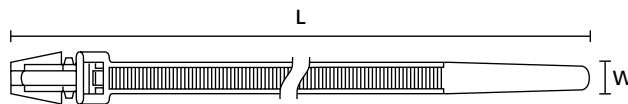
The arrowhead design allows these fixing ties to be used in areas with limited space.



**Material specification please see page 22.**



T30RSF(U)



T50RSF(E)

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Hole Ø (FH)	Panel Thickness	Material	Colour	Tools	Article-No.
T30RSF(U)	3.6	158.0	31.0	136	4.7 - 5.5	0.8 - 2.1	PA66HS	Black (BK)	2;4-6	111-85610
	3.6	158.0	32.0	136	4.7 - 5.5	0.8 - 2.1	PA66	Natural (NA)	2;4-6	111-85603
T50RSF(E)	4.6	210.0	44.0	225	6.2 - 6.4	2.9 - 3.0	PA66	Natural (NA)	2-10	111-85799
	4.6	210.0	44.0	225	6.2 - 6.4	2.9 - 3.0	PA66	Black (BK)	2-10	126-01001

All dimensions in mm. Subject to technical changes.

Recommended Tools								
	2	3	4	5	6	8	9	10
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9
	595	595	596	596	598	601	600	599

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



#### 1-Piece Fixing Ties with Arrowhead, with Disc

For temperatures up to +240 °C

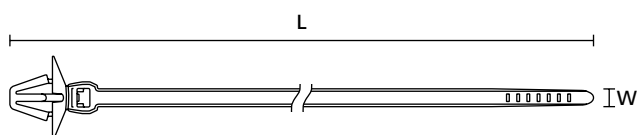
With a diverse range of fixing possibilities these ties are ideal for use in many different industries, including automotive, aerospace, white goods manufacture and panel building.

##### Features and benefits

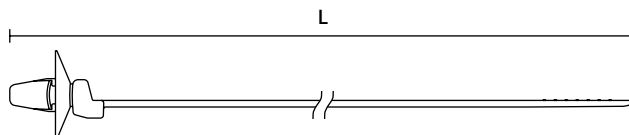
- Easy to install without the need for a tool
- Arrowhead simply locks into place
- Disc adjusts tie for pressures from various directions and minimises access of dust, dirt and water
- Cable tie head always situated in a defined position
- Features Material PEEK
- -55 °C to +240 °C operating temperature
- Excellent resistance against chemicals and gamma radiation



One piece fixing tie with arrowhead, outside serrated.



PT2ASFT6.5PT0.7-1.5E



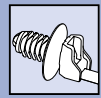
PT2ASFT6.5PT0.7-1.5E

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Tools	Article-No.
PT2ASFT6.5PT0.7-1.5-E	3.4	112.7	20.0	230	16.0	6.3 - 6.7	0.7 - 1.5	PEEK	Beige (BGE)	2;4-6	126-00183

All dimensions in mm. Subject to technical changes.

Recommended Tools				
	2	4	5	6
	MK20	MK3SP	MK3PNSP2	EVO7
	595	596	596	598

For more information on toolings please refer to the Application Tooling chapter.



### 2-Piece Fixing Ties with Arrowhead, with Disc

Primarily designed for fixing cable harnesses in the automotive industry, their simplicity and ease of use has resulted in these parts being used in other industries, for example aviation, switch gear and white goods manufacturing.

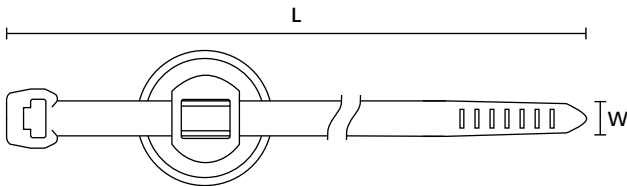
#### Features and Benefits

- Pre-assembled 2-piece fixing tie with arrowhead foot part
- Cable tie head can be moved after bundling
- Easy to assemble without the need for a tool
- Arrowhead simply locks into place
- Disc adjusts tie for pressure from various directions

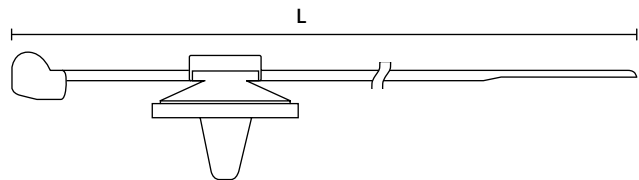


Being a two piece assembly allows the tie head to be located in the most convenient position.

### 2-Piece Fixing Ties with Arrowhead, with Disc, sealed



T50ROSSFT6.5-16-2MOD-MD

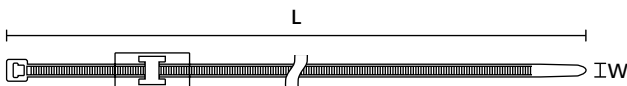


T50ROSSFT6.5-16-2MOD-MD

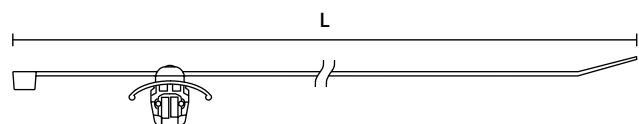
TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø	Hole Ø (FH)	Panel Thickness	Material Cable Tie	Material Foot Part	Colour	Tools	Article-No.
T30RAHD6-MD	3.5	150.0	35.0	135	18.0	6.5 - 7.0	0.7 - 1.2	PA66HS	PA66HS	Natural (NA)	2-10	156-01186
	3.5	150.0	35.0	135	18.0	6.5 - 7.0	0.7 - 1.2	PA66HS	PA66HS	Black (BK)	2-10	156-01187
T50ROSSFT 6.5-16-2-MD	4.6	200.0	45.0	225	16.0	6.3 - 6.7	0.7 - 1.2	PA66HS	PA66HIRHS	Black (BK)	2-10	155-42002
T50ROSSFT 6.5 16-3MD	4.6	200.0	45.0	225	16.0	6.3 - 6.7	2.5 - 3.5	PA66HS	PA66HIRHS	Black (BK)	2-10	150-37799
T50ROSSFT 6.5ZD16-2	4.6	200.0	45.0	225	16.0	6.3 - 6.7	0.7 - 1.8	PA66HS	PA66HIRHS	Black (BK)	2-10	156-01221
T50ROSA HD6-MS-MD	4.6	200.0	50.0	225	18.0	6.5 - 7.0	0.7 - 1.2	PA66HS	PA66	Natural (NA)	2-10	156-01302
	4.6	200.0	50.0	225	18.0	6.5 - 7.0	0.7 - 1.2	PA66HS	PA66	Black (BK)	2-10	156-01299
T50ROSA HD6-MD	4.6	200.0	50.0	225	18.0	6.5 - 7.0	0.7 - 1.2	PA66HS	PA66	Natural (NA)	2-10	156-01298
	4.6	200.0	50.0	225	18.0	6.5 - 7.0	0.7 - 1.2	PA66HS	PA66	Black (BK)	2-10	156-01297
T50RAHD6-MD	4.6	202.0	50.0	225	18.0	6.5 - 7.0	0.7 - 1.2	PA66HS	PA66HS	Black (BK)	2-10	156-01188
	4.6	202.0	50.0	225	18.0	6.5 - 7.0	0.7 - 1.2	PA66HS	PA66HS	Black (BK)	2-10	156-01189

All dimensions in mm. Subject to technical changes.

### 2-Piece Fixing Ties with Arrowhead, for oval holes



T50RFT62x122



T50RFT62x122

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Hole Ø (FH)	Panel Thickness	Material Cable Tie	Material Foot Part	Colour	Tools	Article-No.
T30RSFT712	3.5	150.0	34.0	133	7.0 x 12,0	0.6 - 1.5	PA66HS	PA66HIRHS	Black (BK)	2,4-6	156-01460
T30RKSFT65x13	3.5	150.0	36.0	135	6.5 x 13,0	1.0 - 1.7	PA66HS	PA66HIRHS	Black (BK)	2,4-6	156-01235
T50RFT62x122HR	4.6	202.0	45.0	225	6.3 x 12,2	0.6 - 3.0	PA46	PA46	Grey (GY)	2-10	156-00446
T50RFT6OVAL	4.6	202.0	45.0	355	6.3 x 12,2	0.6 - 3.0	PA66HS	PA66HIRHS	Black (BK)	2-10	150-37591
T80RFT62x122	4.7	205.0	45.0	355	6.3 x 12,2	0.6 - 3.0	PA66HS	PA66HIRHS	Black (BK)	2-12	156-01521

All dimensions in mm. Subject to technical changes.

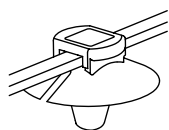




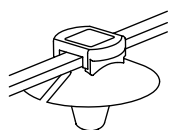
## Cable Ties and Fixings

### Cable Ties With Fixing Elements

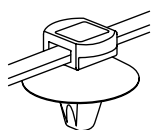
#### 2-Piece Fixing Ties with Arrowhead, with Disc, for round holes



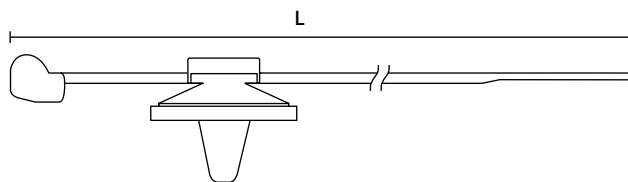
T50SSFT6.5



T50SSFT6.5



T50RSFT6.5D18



T50ROSSFT6.5-16-2MOD-MD

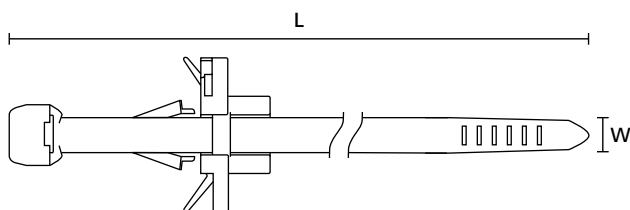
TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø	Hole Ø (FH)	Panel Thickness	Material Cable Tie	Material Foot Part	Colour	Tools	Article-No.
T30RSFT7H	3.5	150.0	36.0	135	16,0	6.8 - 7,2	0.8 - 1.5	PA66HS	PA66HIRHS	Black (BK)	2;4-6	156-01044
T50SOSSFT 651620D	4.6	150.0	35.0	225	16,0	6.3 - 6.7	1.5 - 2.2	PA66HS	PA66HIRHS	Black (BK)	2-10	150-93130
T50SSFT6.5	4.6	150.0	35.0	225	22,4	6.3 - 6.7	0.7 - 2.0	PA66HS	PA66HS	Black (BK)	2-10	150-13593
T50RSFT 6.5D18	4.6	200.0	45.0	200	18,0	6.5 - 6.8	0.4 - 1.6	PA66HS	PA66HIRHS	Black (BK)	2-10	150-37691
T50ROS-SFT 6.5 16-3	4.6	200.0	45.0	225	16,0	6.3 - 6.7	2.5 - 3.5	PA66HS	PA66HIRHS	Black (BK)	2-10	150-37791
T50RSFT6.5	4.6	200.0	45.0	225	22,4	6.3 - 6.7	0.7 - 2.0	PA66HS	PA66HS	Black (BK)	2-10	150-13591
T50RSFT 6.5 16-3	4.6	200.0	49.0	222	16,0	6.3 - 6.7	2.5 - 3.5	PA66HS	PA66HIRHS	Black (BK)	2-10	150-37792
T50ROS P1SFT6.5	4.6	200.0	45.0	225	16,0	6.3 - 6.7	0.7 - 1.3	PA46	PEEK	Grey (GY), Beige (BGE)	2;4-8	156-00455
T50ROS P2SFT6.5	4.6	200.0	45.0	225	16,0	6.3 - 6.7	1.7 - 2.3	PA46	PEEK	Grey (GY), Beige (BGE)	2;4-8	156-00456
T80ISFT6.5	4.6	300.0	81.0	355	22,4	6.3 - 6.7	0.7 - 2.0	PA66HS	PA66HS	Black (BK)	2-12	150-13596
T50RDHSFT6.5	4.7	210.0	38.0	178	22,4	6.4 - 6.8	0.7 - 2.0	PA66HS	PA66HS	Black (BK)	2-10	117-05160

All dimensions in mm. Subject to technical changes.

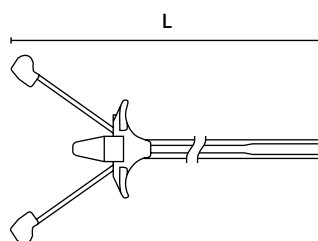
#### 2-Piece Fixing Ties with Arrowhead, for parallel routing



Material specification please see page 22.



T50SOSDSFT6.5



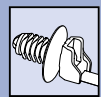
T50SOSDSFT6.5

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Hole Ø (FH)	Panel Thickness	Material Cable Tie	Material Foot Part	Colour	Tools	Article-No.
T50SOSDSFT6.5	4.6	150.0	35.0	225	6.3 - 6.7	0.7 - 1.5	PA66HS	PA66HIRHS	Black (BK)	2-10	156-00133

All dimensions in mm. Subject to technical changes.

Recommended Tools									
	2	3	4	5	6	8	9	10	15
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9	MK9SST
	595	595	596	596	598	601	600	599	560

For more information on toolings please refer to the Application Tooling chapter.



### 2-Piece Fixing Ties with Arrowhead, with Disc

For temperatures up to +240 °C

Primarily designed for fixing cable harnesses in the automotive industry, their simplicity and ease of use has resulted in these parts being used in other industries, for example aviation, switch gear and white goods manufacturing.

#### Features and benefits

- Pre-assembled 2-piece fixing tie with arrowhead foot part
- Cable tie head can be moved after bundling
- Easy to assemble without the need for a tool
- Arrowhead simply locks into place
- Disc adjusts tie for pressure from various directions and minimises access of dust, dirt and water
- Features Material PEEK
- -55 °C to +240 °C operating temperature
- Excellent resistance against chemicals and gamma radiation



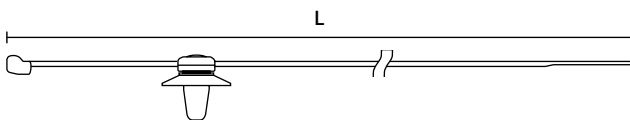
PEEK Fixing Ties can be used for small diameters from 1.0 mm.



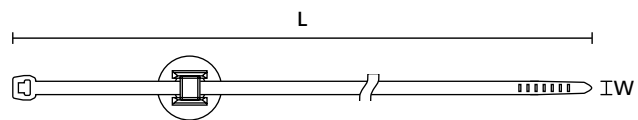
Please find more PEEK products for your system solutions: PEEK Ties, see page 65. Screw Mount CTAM, see page 151.



One Step to the Web!



PT2AP1SFT6.5



PT2AP1SFT6.5

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Tools	Article-No.
T50ROSP1SFT6.5	4.6	200.0	45.0	225	16.0	6.3 - 6.7	0.7 - 1.3	PA46, PEEK	Grey (GY), Beige (BGE)	2;4-8	156-00455
T50ROSP2SFT6.5	4.6	200.0	45.0	225	16.0	6.3 - 6.7	1.7 - 2.3	PA46, PEEK	Grey (GY), Beige (BGE)	2;4-8	156-00456
PT2AP1SFT6.5	3.4	145.0	35.0	230	16.0	6.3 - 6.7	0.7 - 1.3	PEEK	Beige (BGE)	2;4-6	156-01090
PT2AP2SFT6.5	3.4	145.0	35.0	230	16.0	6.3 - 6.7	1.7 - 2.3	PEEK	Beige (BGE)	2;4-6	156-01091
PT2AP3SFT6.5	3.4	145.0	32.0	230	16.0	6.3 - 6.7	1.2 - 1.8	PEEK	Beige (BGE)	2;4-6	156-01146

All dimensions in mm. Subject to technical changes.

Recommended Tools					
	2	4	5	6	8
	MK20	MK3SP	MK3PNSP2	EVO7	MK7P
	595	595	596	598	601

For more information on toolings please refer to the Application Tooling chapter.



### 1-Piece Fixing Ties with Fir Tree, with Disc

#### 1-Piece Fixing Ties with Fir Tree, with Disc, for Round Holes

Primarily designed for fixing cable harnesses in the automotive industry, their simplicity and ease of use has resulted in these parts being used in other industries, for example aviation, switch gear manufacturer, white goods manufacturer.

#### Features and benefits

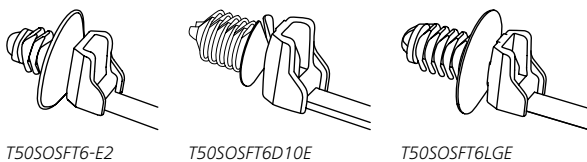
- Cable tie head always situated in defined position
- Easy to assemble without the need for a tool
- Disc adjusts tie for pressure from various directions and minimises access of dust, dirt and water
- Fir tree foot part can be used for a variety of panel thicknesses
- Suitable for use within threaded holes



Fir tree foot parts can be used for a variety of panel thicknesses.



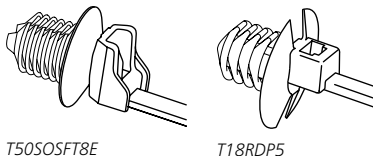
**Material specification please see page 22.**



T50SOSFT6-E2

T50SOSFT6D10E

T50SOSFT6LGE

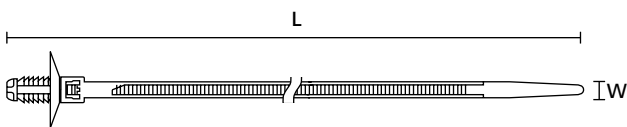


T50SOSFT8E

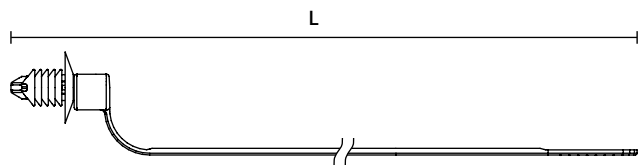
T18RDP5



T50SOSFT6D10E - One piece fixing tie with fir tree foot part.



Fir tree foot part can be used for a variety of panel thicknesses

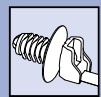


Special design without a gap between head and bundle; FT220DP7

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Tools	Article-No.
T18RDP5	2.5	110.0	20.0	80	13.0	4.9 - 5.1	3.0 - 4.0	PA66	Black (BK)	2;4-6	150-55610
T30SOS-AS-FT6-E	3.5	126.4	25.0	200	16	6.3 - 6.7	0.6 - 4.0	PA66HS	Black (BK)	2;4-6	157-00243
T50SOSFT6-E2	4.6	161.0	35.0	180	16.0	6.3 - 7.0	0.6 - 4.2	PA66HS	Black (BK)	2-10	157-00136
	4.6	160.0	35.0	180	16.0	6.3 - 7.0	0.6 - 4.2	PA66HS	Grey (GY)	2-10	157-00198
T50SOSFT6D10E	4.6	163.0	32.0	225	9.8	5.8 - 6.2	0.8 - 5.5	PA46	Grey (GY)	2-10	157-00028
	4.6	163.0	32.0	225	9.8	5.8 - 6.2	0.8 - 5.5	PA66HS	Black (BK)	2-10	157-00045
T50SOSFT8E	4.6	163.0	35.0	225	16.0	8.0 - 8.5	0.6 - 6.0	PA46	Grey (GY)	2-10	157-00115
	4.6	163.0	35.0	225	16.0	8.0 - 8.5	0.6 - 6.0	PA66HS	Black (BK)	2-10	157-00072
T50SOSFT6LGE	4.6	165.0	35.0	180	16.0	6.3 - 7.0	0.7 - 7.0	PA66HS	Black (BK)	2-10	157-00137
T50SOSFT6LG-E2	4.6	167.0	35.0	180	16.0	6.1 - 7.0 Round Hole 6.35	0.6 - 8.3	PA66HS	Black (BK)	2-10	157-00182
T50SOSFT6E	4.6	160.0	35.0	150	16.0	6.5 - 7.0	0.75 - 3.0	PA66HIRHS	Black (BK)	2-10	155-05800
T50SOSFT6-E3	4.7	161.0	35.0	150	16	6.1 - 6.9	0.7 - 3.5	PA66HIRHS	Black (BK)	2-10	157-00241

All dimensions in mm. Subject to technical changes.





### 1-Piece Fixing Ties with Fir Tree, with Disc

#### 1-Piece Fixing Ties with Fir Tree, with Disc, for Round Holes

TYPE	Width (W)	Length (L)	Bundle Ø max.		Disc Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Tools	Article-No.
T50SOSFT6E1	4.7	161.4	35.0	150	16.0	6.3 - 7.0	0.7 - 3.0	PA66HS	Black (BK)	2-10	157-00126
	4.7	161.4	35.0	150	16.0	6.3 - 7.0	0.7 - 3.0	PA66	Natural (NA)	2-10	157-00147
T50ROSFT6LG-E2	4.6	217.0	50.0	180	16.0	6.1 - 7.0 Round Hole 6.35	0.6 - 8.3	PA66HS	Black (BK)	2-10	157-00190
T50ROSFTQM6	5.08	203.2	50.0	225	7.9	6.1	0.6 - 7.0	PA66HIRHSUV	Black (BK)	2-10	157-00112
FT220DP7	4.7	232.0	40.0	225	16.0	6.8 - 7.2	0.8 - 5.0	PA66	Black (BK)	2-12	150-01700
OS180FT62122	5.1	180.0	33.0	225	16 x 21	6.2 - 12.2	0.7 - 5.2	PA46	Grey (GY)	2-10	157-00262
	5.1	180.0	33.0	225	16 x 21	6.2 - 12.2	0.7 - 5.2	PA66HS	Black (BK)	2-10	157-00088
OS180FT6513	5.1	180.0	33.0	225	16 x 21	6.5 - 13.0	0.7 - 5.2	PA66HS	Grey (GY)	2-10	157-00162
	5.1	180.0	33.0	225	16 x 21	6.5 - 13.0	0.7 - 5.2	PA66HS	Black (BK)	2-10	157-00087
OS180FT62122A	5.1	180.0	33.0	225	16 x 26	6.2 - 12.2	0.7 - 3.0	PA66	Black (BK)	2-10	157-00103
OS160FT6	5.3	170.0	30.0	200	16.0	6.3 - 6.7	0.7 - 5.0	PA66HS	Black (BK)	3;9-12	157-00096
	5.3	170.0	30.0	200	16.0	6.3 - 6.7	0.7 - 5.0	PA66	Black (BK)	3;9-12	157-00095
OS160FT6HEX	5.3	170.0	30.0	200	16.0	6.35	0.7 - 5.0	PA66	Grey (GY)	3;9-12	157-00098
	5.3	170.0	30.0	200	16.0	6.35	0.7 - 5.0	PA66	Black (BK)	3;9-12	157-00080
	5.3	170.0	30.0	200	16.0	6.5	0.7 - 5.0	PA66HS	Black (BK)	3;9-12	157-00081
OS170-FT7	5.3	170.0	30.0	147	16.0	6.8 - 7.2	0.6 - 4.5	PA66	Black (BK)	3;9-12	157-00017
OS180FT7LH	5.3	180.0	30.0	200	16.0	6.5 - 7.0. 6.35	0.6 - 4.5	PA66	Natural (NA)	3;9-12	157-00071
	5.3	180.0	30.0	200	16.0	6.5 - 7.0. 6.35	0.6 - 4.5	PA66	Black (BK)	3;9-12	157-00070
	5.3	180.0	30.0	200	16.0	6.5 - 7.0. 6.35	0.6 - 4.5	PA66HS	Black (BK)	3;9-12	157-00079

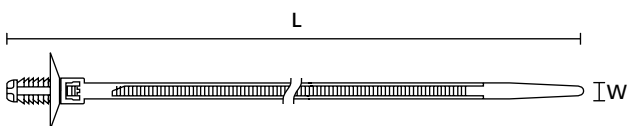
All dimensions in mm. Subject to technical changes.

### 1-Piece Fixing Ties with Fir Tree, with Disc

#### 1-Piece Fixing Ties with Fir Tree, with Disc, releasable



Material specification please see page 22.



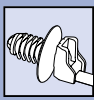
Fir tree foot part can be used for a variety of panel thicknesses

TYPE	Width (W)	Length (L)	Bundle Ø max.		Disc Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Tools	Article-No.
REL30SDP6	5.0	170.0	31.0	135	22.0	6.3 - 7.1	3.0 - 7.0	PA66	Black (BK)	2;4-6	150-55500

All dimensions in mm. Subject to technical changes.

Recommended Tools										
	2	3	4	5	6	8	9	10	11	12
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9	EVO9HT	MK9P
	595	595	596	596	598	601	600	599	599	602

For more information on toolings please refer to the Application Tooling chapter.



### 1-Piece Fixing Ties with Fir Tree and Disc, with Stand-off, for Round Holes

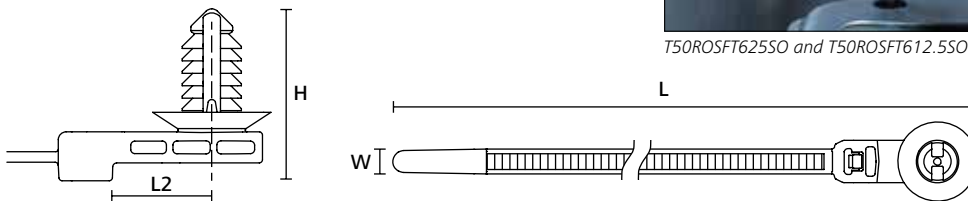
With Offset 12.5 and 25.0 mm

#### Features and benefits

- Bundling and fixing solution
- Ideal combination of materials and design
- Different positions of the fixing anchor are available to fit installation space
- 1-Piece Fixing Tie with defined offset 12.5 and 25.0 mm



T50ROSFT625SO and T50ROSFT612.5SO.

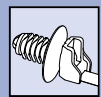


TYPE	Drawing	Width (W)	Length (L)	Length (L2)	Bundle Ø max.	N	Hole Ø (FH)	Panel Thickness	Material	Colour	Tools	Article-No.
T50ROSFT 612.5SO		5.1	234.2	12.5	50.0	222	6.1 - 6.9	0.6 - 6.0	PA66HIRHS	Black (BK)	2-10	157-00216
T50ROSFT 6525SO		5.1	242.2	25.0	50.0	220	6.1 - 6.9	0.6 - 3.8	PA66HIRHS	Black (BK)	2-10	157-00195
T50ROSFT 825SO		5.1	245.1	25.0	50.0	220	7.6 - 8.4	0.6 - 6.0	PA66HIRHS	Black (BK)	2-10	157-00196
T50ROSFT 65O12.5A		5.1	215.5	12.5	50.0	222	6.1 - 7.0	0.6 - 6.7	PA66HIRHS	Grey (GY)	2-10	157-00130
		5.1	215.5	12.5	50.0	222	6.1 - 7.0. 6.35 (hexagonal)	0.6 - 6.7	PA66HIRHS	Black (BK)	2-10	157-00145
T50ROSFT M6SO12.5A		5.1	215.5	12.5	50.0	222	M6	0.6 - 5.5	PA66HIRHS	Grey (GY)	2-10	157-00118
T50ROSFT 85O25A		5.1	230.0	25.0	50.0	222	7.6 - 8.4	0.6 - 6.7	PA66HIRHS	Grey (GY)	2-10	157-00120
T50ROSFT 65O25A		5.1	230.0	25.0	50.0	222	6.1 - 7.0	0.6 - 6.7	PA46	Brown (BN)	2-10	157-00158
		5.1	230.0	25.0	50.0	222	6.1 - 7.0	0.6 - 6.7	PA66HIRHS	Grey (GY)	2-10	157-00119
T50ROSFT 65O12.5B		5.1	215.5	12.5	50.0	222	6.1 - 7.0	0.6 - 6.7	PA66HIRHS	Black (BK)	2-10	157-00171
T50ROSFT 65O25B		5.1	230.0	25.0	50.0	222	6.1 - 7.0	0.6 - 6.7	PA66HIRHS	Black (BK)	2-10	157-00169
T50ROSFT M6SO12.5B		15.0	215.5	12.5	50.0	225	M6	0.6 - 5.5	PA66HIRHS	Black (BK)	2-10	157-00131
T50ROSFT M6SO25B		19.0	230.0	25.0	50.0	220	M6	0.5 - 6.5	PA66HIRHS	Black (BK)	2-10	157-00172
T50ROSFT 85O25B	19.0	230.0	25.0	50.0	225	7.6 - 8.4	0.6 - 5.0	PA66HIRHS	Black (BK)	2-10	157-00170	
T50ROSFT 65O12.5R		5.1	223.1	12.5	50.0	222	6.1 - 7.0	0.6 - 8.3	PA66HIRHS	Black (BK)	2-10	157-00165
T50ROSFT 65O25R		5.1	237.7	25.0	50.0	222	6.1 - 7.0	0.6 - 8.3	PA66HIRHS	Black (BK)	2-10	157-00164

All dimensions in mm. Subject to technical changes.

Recommended Tools								
	2	3	4	5	6	8	9	10
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9
	595	595	596	596	598	601	600	599

For more information on toolings please refer to the Application Tooling chapter.



### 1-Piece Fixing Ties with Fir Tree, with Disc, for Oval Holes

#### 1-Piece Fixing Ties with Fir Tree, with Disc, for Oval Holes

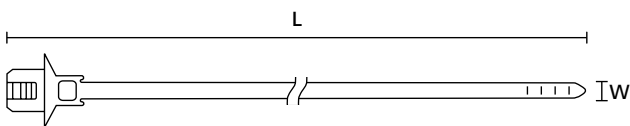
Primarily designed for fixing cable harnesses in the automotive industry their simplicity, and ease of use, has seen these parts used in everything from aircraft, to switch-gear, to washing machines.

#### Features and Benefits

- Cable tie head always situated in defined position
- Easy to assemble without the need for a tool
- Disc adjusts tie for pressure from various directions and minimises access of dust, dirt and water
- Fir tree foot part can be used for a variety of panel thicknesses
- Suitable for use within threaded holes
- DOP versions for oval holes feature anti-twist protection.



The DOP versions for oval holes feature anti-twist protection.



T50SOS2DOP



Material specification please see page 22.

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Hole Ø (FH)	Material	Colour	Tools	Article-No.
T50SOS2DOP	4.6	164.0	35.0	200	6.2 x 12.2	PA46	Grey (GY)	2-10	157-00069
	4.6	164.0	35.0	200	6.2 x 12.2	PA66HS	Black (BK)	2-10	157-00183
T50SOS2DOP7X12-E	4.6	164.0	35.0	225	7.0 x 12.0	PA66HS	Black (BK)	2-10	157-01105
T50SOS3DOP65X130E	4.6	165.0	35.0	180	6.5 x 13.0	PA66HS	Black (BK)	2-10	157-00184
T50SOSFT7X12U	5.1	165.0	35.0	225	7.0 x 12.0	PA66HS	Black (BK)	2-10	157-00053
T50SOSFTOVALU	5.1	174.2	35.0	222	6,2 x 12.2	PA66HS	Black (BK)	2-10	157-00253
T50ROSFT7X12U	5.1	216.0	50.0	225	7.0 x 12.0	PA66HS	Black (BK)	2-10	157-00054
T50ROSFTOVALU	5.1	225.0	50.0	222	6.2 x 12.2	PA66HIRHS	Black (BK)	2-10	157-00142
T50ROSFTOVAL25A	4.7	229.3	50.0	225	6.2 x 12.2	PA66HIRHS	Black (BK)	2-10	157-00222
T50ROSFTOVAL12.5B	4.7	215.9	50.0	225	6.5 x 12.5 6.5 x 13.0 7.0 x 12.0	PA66HIRHS	Black (BK)	2-10	157-00249

All dimensions in mm. Subject to technical changes.

Recommended Tools								
	2	3	4	5	6	8	9	10
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9
	595	595	596	596	598	601	600	599

For more information on toolings please refer to the Application Tooling chapter.





### 2-Piece Fixing Ties with Fir Tree, with Disc, for Round Holes

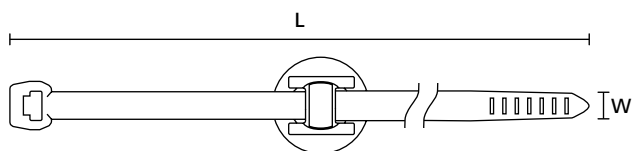
Primarily designed for fixing cable harnesses in the automotive industry, their simplicity and ease of use has resulted in these parts being used in other industries, for example aviation, switch gear manufacturer, white goods manufacturer.

#### Features and benefits

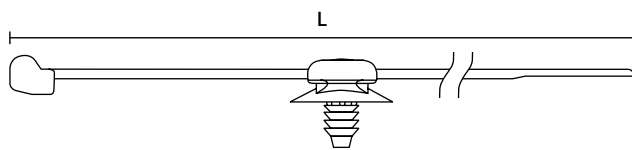
- Pre-assembled 2-piece fixing tie with fir tree foot part
- Cable tie head can be moved after bundling
- Easy to assemble without the need for a tool
- Disc adjusts tie for pressure from various directions and minimises access of dust, dirt and water
- Fir tree foot part can be used for a variety of panel thicknesses
- Suitable for use within threaded holes



These Fir-Tree fixings can also be used in threaded, blind holes.



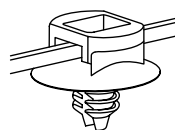
T50SOSFT5SD



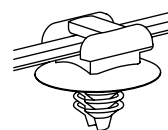
T50SOSFT5SD

**i** Other dimensions are available on request.

**d** Material specification please see page 22.



T30RFT5



T50SOSFT5SD

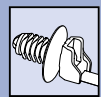
#### Fir Tree Parts FT3 - FT5

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø	Hole Ø (FH)	Panel Thickness	Material Cable Tie	Material Foot Part	Colour	Tools	Article-No.
T18RFT3	2.5	100.0	20.0	80	13	M3	1.5 - 3.0	PA66HSUV	PA66HSW	Black (BK)	2;4-6	156-00338
T18RFT5	2.5	100.0	22.0	80	16.0	4.5 - 5.0	0.7 - 3.0	PA66HS	PA66HIRHS	Black (BK)	2;4-6	156-01225
T30RFT5	3.5	150.0	34.0	135	16.0	4.5 - 5.0	0.7 - 3.0	PA46	PA46	Grey (GY)	2;4-6	156-01019
	3.5	150.0	34.0	135	16.0	4.5 - 5.0	0.7 - 3.0	PA66HS	PA66HIRHS	Black (BK)	2;4-6	156-00460
T40RFT5	4.0	180.0	40.0	180	16.0	4.5 - 5.0	0.7 - 3.0	PA66HS	PA66HIRHS	Black (BK)	2;4-6	156-00518
T50SOSFT5	4.6	150.0	31.0	225	16.0	4.5 - 5.0	0.7 - 3.0	PA66HS	PA66HIRHS	Black (BK)	2-10	156-06200
T50SOSFT5SD	4.6	150.0	35.0	225	16.0	4.5 - 5.0	0.7 - 3.0	PA66HS	PA66HIRHS	Black (BK)	2-10	156-00432
T50RFT5	4.6	202.0	45.0	225	16.0	4.5 - 5.0	0.7 - 3.0	PA66HS	PA66HIRHS	Black (BK)	2-10	156-00569
	4.6	202.0	45.0	225	16.0	4.5 - 5.0	0.7 - 3.0	PA66HS	PA66	Black (BK), Grey (GY)	2-10	156-00571
	4.6	202.0	45.0	225	16.0	4.5 - 5.0	0.7 - 3.0	PA66HS	PA46	Black (BK), Grey (GY)	2-10	156-00535

All dimensions in mm. Subject to technical changes.

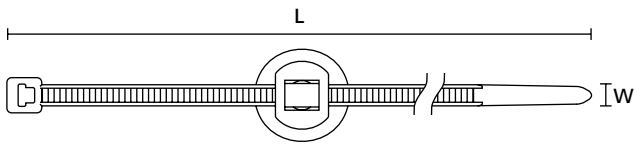
Recommended Tools								
	2	3	4	5	6	8	9	10
	MK20	MK21	MK3SP	MK3PNP2	EVO7	MK7P	MK6	EVO9
	595	595	596	596	598	601	600	599

For more information on toolings please refer to the Application Tooling chapter.

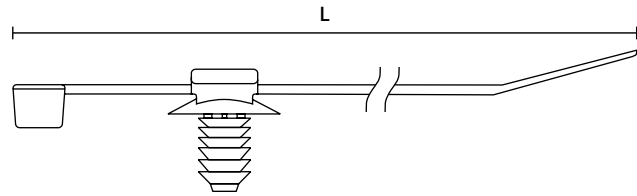


### 2-Piece Fixing Ties with Fir Tree, with Disc, for Round Holes

#### Fir Tree Parts FT6



T50RFT6LG



T50RFT6LG

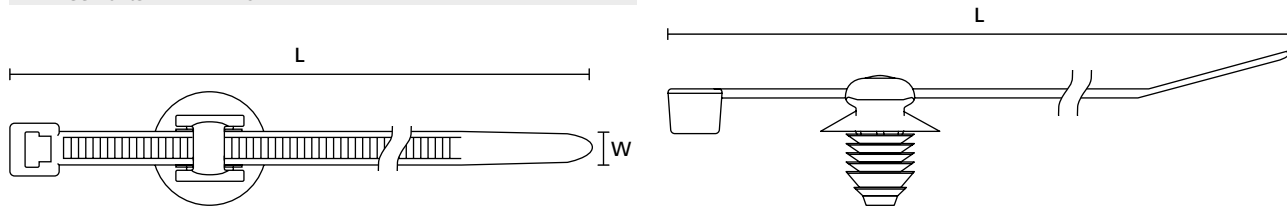
TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø	Hole Ø (FH)	Panel Thickness	Material Cable Tie	Material Foot Part	Colour	Tools	Article-No.
PT2AFT6	3.4	145	35.0	230	16	6.4 - 7.1	0.8 - 3.0	PEEK	PA46	Beige (BGE), Grey (GY)	2;4-6	156-00890
PT2AFT6LG	3.4	145	35.0	230	16	6.4 - 7.1	0.8 - 6.0	PEEK	PA46	Beige (BGE), Grey (GY)	2;4-6	156-01336
T18RFT6	2.5	100	20.0	80	16	6.4 - 7.1	0.8 - 3.0	PA66UV	PA66	Black (BK)	2;4-6	150-77935
T18RFT6LG1SD	2.5	100	18.0	80	16	6.4 - 7.1	0.6 - 6.0	PA66HS	PA66HIRHS	Black (BK)	2;4-6	156-01256
T18RFT6SD	2.5	100	20.0	80	16	6.4 - 7.1	0.8 - 6.0	PA66HS	PA66HIRHS	Black (BK)	2;4-6	156-00517
T18RFT6SDSET	2.5	100	22.0	80	16	6.4 - 7.1	0.8 - 3.0	PA66HS	PA66HIRHS	Black (BK)	2;4-6	156-01260
T30RFT6	3.5	150	30.0	135	16	6.4 - 7.1	0.8 - 3.0	PA66HS	PA66HIRHS	Black (BK)	2;4-6	150-77950
	3.5	150	34.0	135	16	6.5 - 7.0	0.8 - 3.0	PA46	PA46	Grey (GY)	2;4-6	156-01068
T30RFT6LG	3.5	150	35.0	133	16	6.4 - 7.1	0.8 - 6.0	PA66HS	PA66HIRHS	Black (BK)	2;4-6	150-31090
T30RFT6LG1SDSET	3.5	150	30.0	135	16	6.5 - 7.0	0.6 - 6.0	PA66HS	PA66HIRHS	Black (BK)	2;4-6	156-01265
T30RFT6SD	3.6	148	35.0	135	16	6.4 - 7.1	0.8 - 3.0	PA66HS	PA66HIRHS	Black (BK)	2;4-6	150-52690
T50SFT6	4.6	160	35.0	225	16	6.4 - 7.1	0.8 - 3.0	PA66HS	PA66HIRHS	Black (BK)	2-10	156-00156
T50SFT6LG	4.6	160	36.0	225	16	6.5 - 7.0	0.8 - 6.0	PA66HS	PA66HS	Black (BK)	2-10	156-00053
T50SFT6LG1SD	4.6	160	30.0	225	16	6.5 - 7.0	0.6 - 6.0	PA66HS	PA66HIRHS	Black (BK)	2-10	156-00154
T50ROSFT6	4.6	200	45.0	225	16	6.4 - 7.1	0.8 - 3.0	PA66HS	PA66HIRHS	Black (BK)	2-10	156-00076
T50ROSFT6SD	4.6	200	46.0	225	16	6.4 - 7.1	0.8 - 3.0	PA66HS	PA66HIR	Black (BK)	2-10	156-05902
T50ROSFT6LG	4.6	200	45.0	225	16	6.4 - 7.1	0.8 - 6.0	PA66HS	PA66HIRHS	Black (BK)	2;4-8	150-31099
T50RFT6	4.6	202	45.0	225	16	6.5 - 7.0	0.75 - 3.0	PA46	PA46	Grey (GY)	2-10	156-00466
	4.6	202	45.0	225	16	6.4 - 7.1	0.8 - 3.0	PA66HS	PA66	Black (BK)	2-10	150-77941
	4.6	202	45.0	225	16	6.5 - 7.0	0.8 - 3.0	PA66HS	PA66HIRHS	Black (BK)	2-10	156-00157
T50RFT6SD	4.6	202	45.0	225	16	6.4 - 7.1	0.8 - 3.0	PA66HS	PA66HIRHS	Black (BK)	2-10	156-01246
T50RFT6LG	4.6	202	44.0	225	16	6.4 - 7.1	0.8 - 6.0	PA66HS	PA66HIRHS	Black (BK)	2-10	150-31091
	4.6	202	45.0	225	16	6.5 - 7.0	0.8 - 6.0	PA66	PA66	Natural (NA)	2-10	156-01278
T50RFT6LG1SD	4.6	202	45.0	225	16	6.5 - 7.0	0.6 - 6.0	PA66HS	PA66HIRHS	Black (BK)	2-10	156-01391
T50RTC40 FT635	4.6	202	45.0	225	-	6.25 - 6.75	0.7 - 4.0	PA66HS	PA66HIRHS	Black (BK)	2-10	156-00969
	4.6	202	45.0	225	-	6.25 - 6.75	0.7 - 4.0	PA66	PA66	Natural (NA), Black (BK)	2-10	156-00516
T50RFT6LGSD-HEX	4.6	202	45.0	225	16	6.25 - 6.75, 6.1 - 6.6 (hexagonal)	0.7 - 5.0	PA66HS	PA66HIRHS	Black (BK)	2-10	156-00892
T50RDHFT6	4.7	210	19.0	180	16	6.4 - 7.1	0.8 - 3.0	PA66HS	PA66HIRHS	Black (BK)	2-10	150-77936
T50IFT6LG	4.6	305	85.0	225	16	6.5 - 7.0	0.8 - 6.0	PA66HS	PA66HIR	Black (BK)	2-10	156-00054
T50LFT6	4.6	390	110	225	16	6.6 - 7.0	0.8 - 3.0	PA66HS	PA66HIRHS	Black (BK)	2-10	156-00066
T80LFT	5.0	390	108	355	16	6.4 - 7.1	0.8 - 3.0	PA66HS	PA66HIRHS	Black (BK)	2-10	150-77934
T80IFT6LG	4.6	300	81.0	356	16	6.4 - 7.1	0.8 - 6.0	PA66HS	PA66HIRHS	Black (BK)	2-12	150-31096

All dimensions in mm. Subject to technical changes.



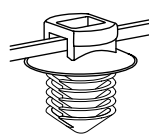
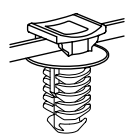
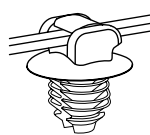
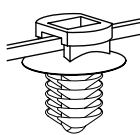
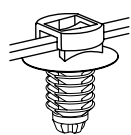
### 2-Piece Fixing Ties with Fir Tree, with Disc, for Round Holes

#### Fir Tree Parts FT7 - FT10



T50RFT8GSD

T50RFT8GSD



T50IFT7

T50RFT8

T50RFT8GSD

T120IFT9

T50RFT10



**Material specification  
please see page 22.**

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Disc Ø	Hole Ø (FH)	Panel Thickness	Material Cable Tie	Material Foot Part	Colour	Tools	Article-No.
V150RFT10	3.3	150.0	35.0	150	18	9.7 - 10.0	0.8 - 5.0	PA66	PA66HS	Black (BK)	2;4-6	156-01233
T30RFT7	3.5	150.0	35.0	135	16	6.5 - 7.0	0.8 - 7.0	PA66HS	PA66HS	Black (BK)	2;4-6;8	156-00057
	3.5	150.0	35.0	135	16	6.5 - 7.0	0.8 - 7.0	PA66HS	PA66	Black (BK)	2;4-6;8	156-01476
T30RFT8	3.5	150.0	35.0	135	16	7.7 - 8.0	0.8 - 6.0	PA66HS	PA66HS	Black (BK)	2;4-6;8	156-00058
T30RFT10	2.5	150.0	31.0	135	18	9.7 - 10.0	0.8 - 5.0	PA66HS	PA66HS	Black (BK)	2;4-6;8	156-00062
T40RFT8GSD	4.0	180.0	40.0	180	16	8.0 - 8.5	1.5 - 4.0	PA66HS	PA66HIRHS	Black (BK)	2;4-8	156-00104
T50RFT7	4.6	200.0	44.0	225	16	6.5 - 7.0	0.8 - 7.0	PA66HS	PA66HS	Black (BK)	2-10	111-85871
T50RFT8	4.6	202.0	44.0	225	16	7.7 - 8.0	0.8 - 6.0	PA66HIRHS	PA66HIRHS	Black (BK)	2-10	156-00158
T50RFT10	4.6	202.0	45.0	225	18	9.7 - 10.0	0.8 - 5.0	PA66HS	PA66HS	Black (BK)	2-10	156-00523
T50ROSFT7	4.6	200.0	45.0	225	16	6.5 - 7.0	0.8 - 7.0	PA66HS	PA66HS	Black (BK)	2-10	156-01056
T50ROSFT10	4.6	200.0	45.0	225	18	9.7 - 10.0	0.8 - 5.0	PA66HS	PA66HS	Black (BK)	2-10	156-00120
T50RFT7	4.6	202.0	45.0	225	16	6.5 - 7.0	0.8 - 7.0	PA66HSW	PA66HS	Black (BK)	2-10	156-00587
	4.6	202.0	45.0	225	16	6.5 - 7.0	0.8 - 7.0	PA46	PA66HS	Natural (NA)	2-10	156-00465
T50RFT8GSD	4.6	200.0	45.0	225	16	8.0 - 8.5	1.5 - 4.0	PA66HS	PA66HIRHS	Black (BK)	2-10	133-00034
	4.6	200.0	45.0	225	16	8.0 - 8.5	1.5 - 4.0	PA46	PA46	Grey (GY)	2-10	156-00235
T50SFT7	4.6	160.0	35.0	225	16	6.5 - 7.0	0.8 - 7.0	PA66HS	PA66HS	Black (BK)	2-10	156-00056
T50SFT10	4.6	160.0	31.0	225	18	9.7 - 10.0	0.8 - 5.0	PA66HS	PA66HS	Black (BK)	2-10	156-00063
T50IFT8	4.6	305.0	81.0	225	16	7.7 - 8.0	0.8 - 6.0	PA66HS	PA66HS	Black (BK)	2-10	150-00060
T50IFT10	4.6	305.0	81.0	225	18	9.7 - 10.0	0.8 - 5.0	PA66HS	PA66HS	Black (BK)	2-10	156-00064
T50LFT7	4.6	390.0	110.0	225	16	6.5 - 7.0	0.8 - 7.0	PA66HS	PA66HS	Black (BK)	2-10	156-00055
T50LFT8	4.6	390.0	110.0	225	16	7.7 - 8.0	0.8 - 6.0	PA66HS	PA66HS	Black (BK)	2-10	156-00061
T50LFT10	4.6	390.0	106.0	225	18	9.7 - 10.0	0.8 - 5.0	PA66HS	PA66HS	Black (BK)	2-10	156-00065
T150RFT9	7.6	365.0	100.0	670	20	9.0 - 10.6	5.0 - 11.0	PA66HS	PA66HIRHS	Black (BK)	2-10	156-00845
T150RFT9B	7.6	365.0	100.0	670	21.6	8.75 - 9.25	1.0 - 15.8	PA66HS	PA66HIRHS	Black (BK)	2-10	156-00985

All dimensions in mm. Subject to technical changes.

Recommended Tools											
	2	3	4	5	6	8	9	10	11	12	15
	MK20	MK21	MK3SP	MK3PNP2	EVO7	MK7P	MK6	EVO9	EVO9HT	MK9P	MK9SST
	595	595	596	596	598	601	600	599	599	602	560

For more information on toolings please refer to the Application Tooling chapter.



### 1-Piece Fixing Ties for Weld Studs

#### For cable routing above the stud

Primarily designed for use in the automotive industry, these parts can be used in a wide variety of applications where weld studs or ISO bolts are used and cables need to be bundled and secured (WS series, T120RSM, DCT9 & DCT 11 are for 1/4" bolts).

#### Features and benefits

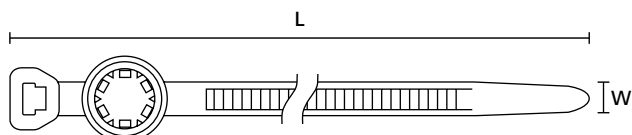
- Cable tie head always situated in defined position
- Easy to assemble without the need for a tool
- Bundle runs directly above weld stud with defined stand-off from the panel



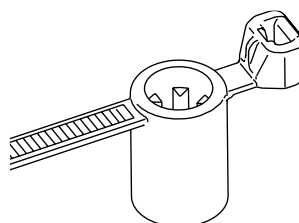
The T50SSBS50TE / T50SSBS60T-E allows very precise routing of cable bundles.



**Material specification please see page 22.**



T50SSBS60T-E



T50SSBS50TE

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Stud Ø	Material	Colour	Tools	Article-No.
T50SSBS50T-E	4.6	160.0	35.0	200	5.0	PA66HS	Black (BK)	2-10	155-30602
T50SSBS60T-E	4.6	160.0	35.0	200	6.0	PA66HS	Black (BK)	2-10	157-00083
T50SOSSBH5E	4.6	166.4	35.0	225	5.0	PA66HS	Black (BK)	2-10	155-05701

All dimensions in mm. Subject to technical changes.

Recommended Tools								
	2	3	4	5	6	8	9	10
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9
	595	595	596	596	598	601	600	599

For more information on toolings please refer to the Application Tooling chapter.



#### 1-Piece Fixing Ties for Weld Studs

For cable routing alongside the stud

##### Features and benefits

- Cable tie head always situated in defined position
- Easy to install without the need for a tool
- Bundles are routed very close to stud



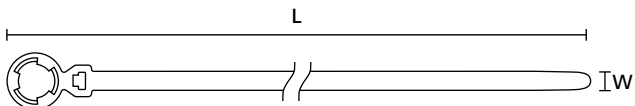
T50SOSSBD-M8/10.



T50SOSSBU-M8/10 for bundles which run below the stud.



This outside serrated cable tie with weld stud mounting keeps the cables close to the fixing stud.



T50SOSSBD-M8/M10

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Stud Ø	Material	Colour	Tools	Article-No.
T50SOSSBD-M10		5.7	175.0	30.0	150	10.0	PA66HSW	Black (BK)	2-10	157-00040
T50SOSSBU-M6		5.7	175.0	30.0	150	M6	PA66HSW	Grey (GY)	2-10	157-00065
T50SOSSBD-M8		5.7	175.0	30.0	150	8.0	PA66HSW	Black (BK)	2-10	157-00039
T50SOSSBU-M10		5.7	175.0	30.0	150	10.0	PA66HSW	Grey (GY)	2-10	157-00067
T50SOSSBU-M8		5.7	175.0	30.0	150	8.0	PA66HSW	Grey (GY)	2-10	157-00066
T50SOSSBS5E		4.7	161.0	35.0	225	5.0	PA66HS	Black (BK)	2-10	155-12300

All dimensions in mm. Subject to technical changes.

Recommended Tools										
	2	3	4	5	6	8	9	10	11	12
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9	EVO9HT	MK9P
	595	595	596	596	598	601	600	599	599	602

For more information on toolings please refer to the Application Tooling chapter.

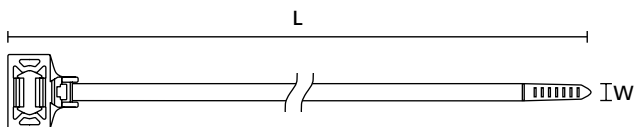


### 1-Piece Fixing Ties for Weld Studs, moveable

#### T50SOSWSP5E-2 for 5 mm studs, retainer height 3.5 mm

#### Features and Benefits

- Cable tie head always situated in defined position
- Easy to install without the need for a tool
- Provides 5 - 6 mm lateral adjustment
- Very low profile, stackable design
- For parallel routing of several bundles



T50SOSWSP5E-2



T50SOSWSP5E, parallel installation using two fixing ties.

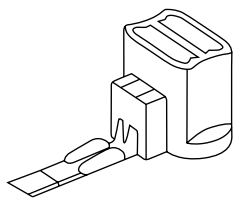
TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Stud Ø	Material	Colour	Tools	Article-No.
T50SOSWSP5E-2	4.6	162.6	35.0	225	5.0	PA66HS	Black (BK)	2-10	133-01553
T50SOSWSP5E	4.6	163.0	35.0	200	5.0	PA66HS	Black (BK)	2-10	157-00226

All dimensions in mm. Subject to technical changes.

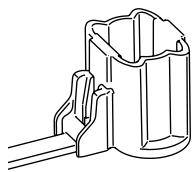
#### T50SOSSB5-High-E-C-CC for 5 and 6 mm studs

#### Features and Benefits

- Cable tie head always situated in defined position
- Easy to install without the need for a tool
- Provides a 5 – 6 mm lateral adjustment possibility



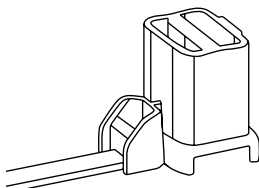
FixingTie\_T50SOSSB5-High-E-C-CC



T50SOSSB6HE



T50SOSSB5-High-E-C-CC.



T60ROSSB6HEC

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Stud Ø	Material	Colour	Tools	Article-No.
T50SOSSB6HE	4.7	160.0	35.0	170	6.0	PA66HS	Black (BK)	2-10	155-46302
HT160SB6HE	5.0	167.0	35.0	200	6.0	PA66	Black (BK)	2-10	157-00094
	5.0	167.0	35.0	200	6.0	PA66HS	Black (BK)	2-10	157-00090
HT160SB5HE	5.0	167.0	35.0	200	6.0	PA66	Black (BK)	2-10	157-00093
	5.0	167.0	35.0	200	6.0	PA66HS	Black (BK)	2-10	157-00089
T50SOSSB5-High-E-C-CC	5.0	167.0	35.0	225	5.0	PA66HS	Black (BK)	2-10	157-00227
T60ROSSB6HEC	5.5	227.4	55.0	300	6.0	PA66HS	Black (BK)	3;9-12	157-00101

All dimensions in mm. Subject to technical changes.



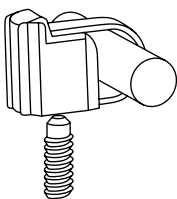


#### 1-Piece Fixing Ties for Weld Studs

##### LFC-Series for routing close to the stud

##### Features and Benefits

- 1-piece fixing tie for 5 mm studs
- Cable tie head always situated in defined position
- Easy to install without the need for a tool
- Bundle runs very close next to stud
- Closed stud retainer protects the bundle against damage
- Contact surface allows secure bundling with tensioning tool



LFC165-2 can be put on by hand.



LFC165-2 for bundle diameters up to 35.0 mm



Material specification please see page 22.

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Stud Ø	Material	Colour	Tools	Article-No.
LFC155	4.6	163.0	26.0	160	5.0	PA66	Black (BK)	2-10	131-60070
LFC165(PSA)	4.7	165.0	35.0	90	5.0	PA66HS	Black (BK)	2-10	155-34202
LFC165-2	4.7	165.0	35.0	150	5.0	PA66HS	Black (BK)	2-10	157-00047

All dimensions in mm. Subject to technical changes.

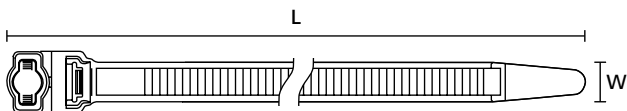
#### 1-Piece Fixing Ties for Weld Studs, for Heavy Duty Applications

##### WS-Series for threaded studs

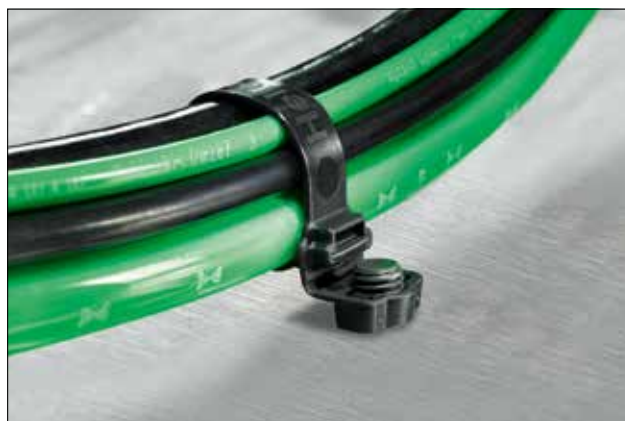
Wide strap stud-mounted cable ties are primarily designed for use in the automotive or truck industry.

##### Features and Benefits

- Very flexible strap provides minimum pinching of soft hoses and convoluted tubing
- Low profile head for compact bundling
- Clamping rails to increase grip on round bundles
- Flexible hinge



Wide Strap Heavy Duty Stud Mount Cable Ties



The wide strap stud mount cable tie minimizes pinching on soft bundles.

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Stud Ø	Material	Colour	Tools	Article-No.
WSS25	12.7	236.0	57.0	534	6.35	PA66HIRHSUV	Black (BK)	11-12	157-00400
WSI25	12.7	322.6	82.5	534	6.35	PA66HIRHSUV	Black (BK)	11-12	157-00401
WSI38	12.7	322.6	82.5	534	9.52	PA66HIRHSUV	Black (BK)	11-12	157-00404
WSR25	12.7	389.0	104.1	534	6.35	PA66HIRHSUV	Black (BK)	11-12	157-00402

All dimensions in mm. Subject to technical changes.



### 2-Piece Fixing Ties for Weld Studs, for parallel routing

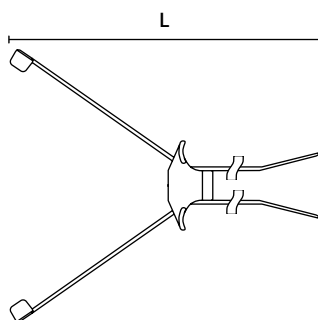
Many applications require cables to be run parallel to each other but separated to avoid abrasion. The double mounting base, when used with two cable ties allows this to be achieved simply and quickly.

#### Features and benefits

- Pre-assembled 2-piece fixing tie with stud retainer
- For parallel routing of cables, hoses or harnesses
- Cable tie head can be moved after bundling
- Easy to install without the need for a tool
- For 5 mm studs or 5 mm ISO threaded studs



Parallel fixation of two cables.



DSBS5




Other dimensions are available on request.



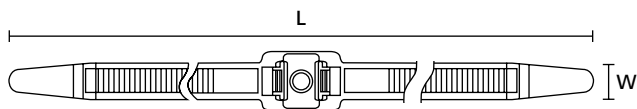
Material specification please see page 22.

### 2-Piece Fixing Ties for Weld Studs

TYPE	Width (W)	Length (L)	Bundle Ø max.	 N	Stud Ø	Material Cable Tie	Material Foot Part	Colour	Tools	Article-No.
T50SDSBS5	4.6	150.0	35.0	225	5.0	PA66HS	PA66HIRHS	Black (BK)	2-10	150-56193
T50ROSDSBS5	4.6	200.0	45.0	222	5.0	PA66HS	PA66HIRHS	Black (BK)	2-10	150-56199

All dimensions in mm. Subject to technical changes.


### 1-Piece Fixing Ties for Weld Studs for Heavy Duty Applications



Dual Clamp Ties (DCT)

TYPE	Width (W)	Length (L)	Bundle Ø max.	Stud Ø	Material	Colour	Tools	Article-No.
DCT11	12.7	489.0	58.0	6.35	PA66HIRHSUV	Black (BK)	3;9-12	115-31100
DCT9	12.8	331.0	33.0	6.35	PA66HIRHS	Black (BK)	2-11	115-00034

All dimensions in mm. Subject to technical changes.

Recommended Tools										
	2	3	4	5	6	8	9	10	11	12
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9	EVO9HT	MK9P
	595	595	596	596	598	601	600	599	599	602

For more information on toolings please refer to the Application Tooling chapter.



#### 2-Piece Fixing Ties for Weld Studs

Series SBH5 and SBH5SD are used mainly in the automotive industry. The SD variant is for the smallest bundle diameters from 1.0 mm. Series SB5 and SBS5 are suitable for bundling and fastening cable looms and pipes in switch cabinet construction and automotive and construction machine industry.

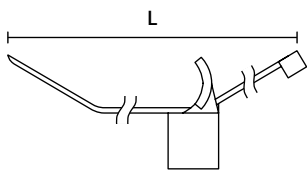
##### Features and Benefits

- Pre-assembled 2-piece fixing tie with stud retainer
- Cable tie head can be moved after bundling
- Easy to install without the need for a tool
- SB5-types for 5 mm studs or 5 mm ISO threaded studs
- Types with discs can retain insulation materials while fixing a cable bundle
- Oval shape can be adjusted in a lateral position
- GB58C for 8 mm retainer enables parallel routing



Cable ties illustrating the variety of application methods for weld stud fixing.

#### 2-Piece Fixing Ties for Weld Studs, moveable, oval hole

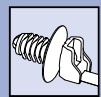


TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Material Cable Tie	Material Foot Part	Colour	Tools	Article-No.
T30RSB5		3.5	150.0	32.0	135	PA66HS	POM	Black (BK)	2;4-6	150-10140
T50SSB5		4.6	150.0	32.0	225	PA6HS	PA66HS	Black (BK)	2-10	150-10144
T50SOSSB5		4.6	150.0	35.0	225	PA66HS	POM	Black (BK)	2-10	156-00080
T50RSB5		4.6	200.0	45.0	225	PA66HS	POM	Black (BK)	2-10	150-10141
T50ROSSB5		4.6	200.0	45.0	225	PA66HS	POM	Black (BK)	2-10	156-00916
T50ROSSB5SET		4.6	200.0	45.0	225	PA66HS	POM	Black (BK)	2-10	150-05005
T50RSB5		4.6	202.0	45.0	225	PA46	PA46	Grey (GY)	2-10	156-00084
T50RSB5CSD		4.6	200.0	45.0	225	PA66HS	PA66HS	Black (BK)	2-10	156-00083
T50ROSSB5CSD		4.6	200.0	45.0	225	PA66HS	PA66HS	Black (BK)	2-10	156-05906

All dimensions in mm. Subject to technical changes.

Recommended Tools								
	2	3	4	5	6	8	9	10
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9
	595	595	596	596	598	601	600	599

For more information on toolings please refer to the Application Tooling chapter.



### 2-Piece Fixing Ties for Weld Studs, moveable, round hole

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Material Cable Tie	Material Foot Part	Colour	Tools	Article-No.
T30RSBS5		3.5	150.0	35.0	135	PA66HS	PA66HS	Black (BK)	2;4-6	150-21290
T50SOSSBS5		4.6	150.0	31.0	225	PA66HS	PA66	Black (BK)	2-10	156-00079
T50SSBS5		4.6	150.0	35.0	225	PA66HS	PA66HS	Black (BK)	2-10	150-21293
T50RSBS5		4.6	200.0	45.0	225	PA66HS	PA66HS	Black (BK)	2-10	150-21291
T50ROSSBS5		4.6	200.0	45.0	225	PA66HS	PA66HS	Black (BK)	2-10	150-21299
T80ISBS5		4.7	305.0	80.0	355	PA66HS	PA66HS	Black (BK)	2-12	150-21297
T50ROSGBS8CA		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	Black (BK)	2-10	156-00251
T50ROSGBS8CB		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	Black (BK)	2-10	156-00252
T50ROSGBS8CC		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	Black (BK)	2-10	156-00116

All dimensions in mm. Subject to technical changes.



**Material specification please see page 22.**

### 2-Piece Fixing Ties for Weld Studs, with disc

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Material Cable Tie	Material Foot Part	Colour	Tools	Article-No.
T50RSBH5-10		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	Black (BK)	2-10	156-00536
T50RSBH5		4.6	202.0	45.0	225	PA66HS	PA66HS	Black (BK)	2-10	150-16943
T80ISBH5		5.0	300.0	80.0	355	PA66HS	PA66HS	Black (BK)	2-12	150-16945
T50RSBH5-SD		4.6	200.0	45.0	222	PA66HS	PA66HS	Black (BK)	2-10	156-00522
T50ROSSBH5SD		4.6	200.0	45.0	225	PA66HS	PA66HS	Black (BK)	2-10	156-05905
T80ISBH5SD		4.6	300.0	78.0	356	PA66HS	PA66HS	Black (BK)	2-12	150-92905
T50R-SBH5SD-14		4.6	200.0	45.0	222	PA66HS	PA66HS	Black (BK)	2-10	150-77591
T50RSBH6SD		4.6	200.0	45.0	225	PA66HS	PA66HS	Black (BK)	2-10	156-00819

All dimensions in mm. Subject to technical changes.

Recommended Tools										
	2	3	4	5	6	8	9	10	11	12
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9	EVO9HT	MK9P
	595	595	596	596	598	601	600	599	599	602

For more information on toolings please refer to the Application Tooling chapter.



### 1-Piece Fixing Ties with Mounting Head for Screws

This range of one piece cable ties have a built in mounting hole and once fastened around the cables the bundle can be simply secured to the panel with a screw or bolt.

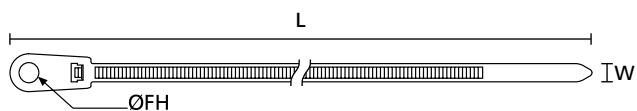
The tie is fitted to the panel first and then the cables can be added.

#### Features and benefits

- One-piece bundling and fixing tie
- Quick and easy installation



The mounting head ties can be easily screwed onto a panel.



T( )MR Series with Mounting Head for Screw fixing



**Material specification please see page 22.**

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Hole Ø (FH)	Material	Colour	Tools	Article-No.
T18MR	2.5	110.0	20.0	80	3.1	PA66	Black (BK)	2;4-6	113-01810
	2.5	110.0	20.0	80	3.1	PA66	Natural (NA)	2;4-6	113-01819
T30MR	3.5	160.0	32.0	135	4.3	PA66	Black (BK)	2;4-6	113-03010
	3.5	160.0	32.0	135	4.3	PA66	Natural (NA)	2;4-6	113-03019
T50MS	4.6	165.0	32.0	225	5.3	PA66	Natural (NA)	2-10	113-05819
	4.6	165.0	32.0	225	5.3	PA66	Black (BK)	2-10	113-05820
T50MR	4.7	215.0	45.0	225	5.4	PA66	Black (BK)	2-10	113-05010
	4.7	215.0	45.0	225	5.4	PA66	Natural (NA)	2-10	113-05019
	4.7	215.0	45.0	225	5.4	PA66W	Black (BK)	2-10	113-05060
T50ML	4.7	390.0	100.0	225	5.5	PA66	Natural (NA)	2-10	113-05419
T120MR	7.6	395.0	102.0	535	6.5	PA66	Black (BK)	3;9-12	113-12020
	7.6	395.0	102.0	535	6.5	PA66	Natural (NA)	3;9-12	113-12029
	7.6	395.0	102.0	535	6.5	PA66HIRHSUV	Black (BK)	3;9-12	113-12060

All dimensions in mm. Subject to technical changes.

Recommended Tools										
	2	3	4	5	6	8	9	10	11	12
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9	EVO9HT	MK9P
	595	595	596	596	598	601	600	599	599	602

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



### Fixing Ties for Edges

#### EdgeClip-Family

These cable ties and EdgeClip assemblies are ideal for use where holes are not acceptable or where, due to temperature problems, adhesives will fail. Once the cable tie is fastened around the cables the EdgeClip is presented ready for attaching to the panel. Widely used within the automotive and panel building industries these cable ties and EdgeClips save time and money.

#### Features and Benefits

- Easy assembly by hand
- For edges of 1 – 3 mm or 3 – 6 mm
- Integrated metal clamp holds clip firmly in place
- Clamp consists of double tempered steel spring
- Ideal for applications where holes or adhesives are not suitable



One Step to the Web!



T50ROSEC10 fitted onto a plastic panel to hold a Ø 6 mm harness.



1-Piece-Fixing Tie T50SOSEC12 can be pushed easily on edges.



Pre-assembled 2-Piece Fixing Tie with Edge Clip for edges of 1-3 mm.

The silver-grey clamp, the heart of our EdgeClips, consists of double-tempered spring steel in accordance with DIN EN 10132-4 C75S. The spring steel gives the clamp both the necessary rigidity to provide high pull-off forces and also sufficient flexibility for various possible applications.

The double coating is applied initially with a zinc plate system followed by inorganic surface sealing. Naturally, no chromium (VI) is used in this process. The clamp therefore complies with the current

EU Directive 200/53/EC on end of life vehicles and the prohibition on heavy metals. The refined spring-steel clamp also fulfils the requirements for resistance to salt spray stipulated in DIN EN ISO 9227 NSS (min. 840 h without corrosion of base metal) and DIN EN ISO 6270-Z-CH (min. 720 h without corrosion of base material). This solution has therefore been approved by many OEMs for exposed installation locations, e.g. in engine compartments and the running-gear area.



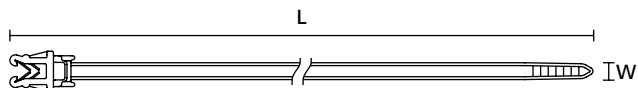


#### Fixing Ties for Edges

EdgeClip-Family



Material specification please see page 22.



T50SOSEC12E



EdgeClips are also available on request for panel thickness from 4 - 7 mm.

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Panel Thickness	Material	Colour	Tools	Article-No.
T50SOSEC12E		4.6	160.0	35.0	150	1.0 - 3.0	PA66HS	Black (BK)	2-10	148-00200
		4.6	160.0	35.0	150	1.0 - 3.0	PA46	Grey (GY)	2-10	126-00253
T50SOSEC13E		4.6	160.0	35.0	180	1.0 - 3.0	PA66HS	Black (BK)	2-10	126-00000
T40XEC5SP-E		4.0	85.0	15.0	178	1.0 - 3.0	PA66HS	Black (BK)	2;4-8	133-00059
T50SOSEC34E		4.6	155.0	35.0	180	1.0 - 3.0	PA66HS	Black (BK)	2-10	126-00036
T50SOSEC20-E		4.6	161.0	35.0	180	3.0 - 6.0	PA66HS	Black (BK)	2-10	126-00235

All dimensions in mm. Subject to technical changes.

Recommended Tools								
	2	3	4	5	6	8	9	10
	MK20	MK21	MK3SP	MK3PNP2	EVO7	MK7P	MK6	EVO9
	595	595	596	596	598	601	600	599

For more information on toolings please refer to the Application Tooling chapter.

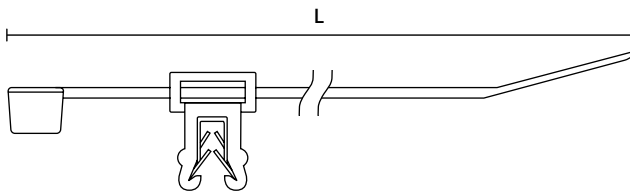


### 2-Piece Fixing Ties for Edges, 1.0 - 3.0 mm, Top Fixing

#### EdgeClip-Family

#### Features and Benefits

- Pre-assembled 2-piece fixing tie with EdgeClip
- Cable tie head can be moved after bundling
- EC9, EC10, EC21 and EC22 are for minimum bundle diameters of 1 mm
- For edges of 1 – 3 mm



Fixing Tie with EC4



T50ROSEC10 fitted onto a plastic panel to hold a Ø 6 mm harness.

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Material Cable Tie	Material Foot Part	Colour	Tools	Article-No.
T30REC4A		3.6	148.0	33.0	135	PA66HS	PA66HIRHS	Black (BK)	2,6	156-00811
T50SOSEC4A		4.6	150.0	35.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	150-76093
T50ROSEC4A		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-00461
T50ROSEC4A-W		4.6	200.0	45.0	225	PA66W	PA66W	Black (BK)	2,6,10	156-00570
T50REC4A		4.6	202.0	45.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-01114
T30REC4B		3.6	148.0	35.0	135	PA66HS	PA66HIRHS	Black (BK)	2,6	156-00893
T50SOSEC4B		4.6	150.0	35.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-00109
T50ROSEC4B		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-00462
T18REC10SD		2.5	100.0	22.0	80	PA66HS	PA66HIRHS	Black (BK)	2,6	156-01253
T50SOSEC10		4.6	150.0	31.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-00015
T50ROSEC10		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-05904
T18REC9SD		2.5	100.0	22.0	80	PA66HS	PA66HIRHS	Black (BK)	2,6	156-01255
T18REC9SDSET		2.45	100.0	20.0	80	PA66HS	PA66HIRHS	Black (BK)	2,6	156-01262
T50SOSEC9SD		4.6	150.0	31.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-00019
T50ROSEC9		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-05903
T50REC9SD		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-01280
Q50REC4A		4.7	210.0	45.0	220	PA66W	PA66W	Black (BK)	2,6,10	156-01085
Q50REC4B		4.7	210.0	45.0	220	PA66W	PA66W	Black (BK)	2,6,10	156-01086

All dimensions in mm. Subject to technical changes.



### 2-Piece Fixing Ties for Edges, 1.0 - 3.0 mm, Side Fixing

#### EdgeClip-Family

#### Features and Benefits

- Pre-assembled 2-piece fixing tie with EdgeClip
- Cable tie head can be moved after bundling
- EC9, EC10, EC21 and EC22 are for minimum bundle diameters of 1 mm
- For edges of 1 – 3 mm



T50ROSEC23 - the cable bundle runs parallel with the edge.



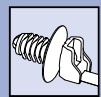
**Material specification please see page 22.**

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Material Cable Tie	Material Foot Part	Colour	Tools	Article-No.
T30REC5A		3.6	148.0	33.0	135	PA66HS	PA66HIRHS	Black (BK)	2,6	156-00003
T40REC5A		4.0	175.0	45.0	180	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-00559
T50SOSEC5A		4.6	150.0	31.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-00788
T50ROSEC5A		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-00463
T50REC5A		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-01037
T50SOSEC5B		4.6	150.0	31.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-00789
T50REC5B		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	150-40582
T50ROSEC5B		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-00464
T18REC21		2.5	100.0	18.0	80	PA66W	PA66HIRHS	Black (BK)	2,6	156-01258
T50SOSEC21		4.6	150.0	35.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-00017
T50ROSEC21		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-00951
T18REC21		2.5	100.0	20.0	80	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-01254
T50ROSEC22		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-00011
T50REC22		4.6	200.0	45.0	225	PA66W	PA66HIRHS	Black (BK)	2,6,10	156-00576
Q50REC5A		4.7	210.0	45.0	220	PA66W	PA66W	Black (BK)	2,6,10	156-01087
Q50REC5B		4.7	210.0	45.0	220	PA66W	PA66W	Black (BK)	2,6,10	156-01088

All dimensions in mm. Subject to technical changes.

Recommended Tools								
	2	3	4	5	6	8	9	10
	MK20	MK21	MK3SP	MK3PNP2	EVO7	MK7P	MK6	EVO9
	595	595	596	596	598	601	600	599

For more information on toolings please refer to the Application Tooling chapter.



### 2-Piece Fixing Ties for Edges, 3.0 - 6.0 mm, Top Fixing

#### EdgeClip-Family

#### Features and Benefits

- Pre-assembled 2-piece fixing tie with EdgeClip
- Cable tie head can be moved after bundling
- For minimum bundle diameters of 1 mm
- For edges of 3 – 6 mm



**Material specification please see page 22.**



Pre-assembled 2-piece fixing tie with EdgeClip.

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Material Cable Tie	Material Foot Part	Colour	Tools	Article-No.
T18ROSEC19		2.5	100.0	20.0	80	PA66HS	PA66HIRHS	Black (BK)	2,6	156-04600
T50SOSEC19		4.6	150.0	35.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-01309
T50REC19		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-00907
T50ROSEC19		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-01038
T50SOSEC20		4.6	150.0	35.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-00016
T50ROSEC20		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-00834

All dimensions in mm. Subject to technical changes.



**Other combinations between cable tie and foot part available on request.**

### 2-Piece Fixing Ties for Edges, 3.0 - 6.0 mm, Side Fixing

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Material Cable Tie	Material Foot Part	Colour	Tools	Article-No.
T50ROSEC23		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-00774
T50ROSEC24		4.6	200.0	45.0	225	PA66HS	PA66HIRHS	Black (BK)	2,6,10	156-00775

All dimensions in mm. Subject to technical changes.

#### Recommended Tools

	2	3	4	5	6	8	9	10
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9
	595	595	596	596	598	601	600	599

For more information on toolings please refer to the Application Tooling chapter.



#### 2-Piece Fixing Ties for Edges, 0.5 - 2.5 mm, Top Fixing

##### Edge Clip Family for flat and thin edges

These cable ties and EdgeClip assemblies are ideal for use where holes are not acceptable or where due to temperature problems adhesives will fail. These assemblies are widely used for fixing and bundling cables, pipes and hoses within the automotive industry, harness making, panel building and electrical industry. These EdgeClips are specially designed for applications where space is limited such as in mirrors and headlights.

##### Features and benefits

- For flat edges
- For thin edges 0.5 - 2.5 mm
- Small housing for limited space
- Pre-assembled 2-piece fixing tie with EdgeClip
- Cable tie head can be moved after bundling



T30ROSECO,5-2,5SPV for application on thin edges.



The capabilities of our popular Edge Clip family have been enhanced with the introduction of new, smaller clips. These smaller clips allow bundles to run more safely on thin or flat edges.

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Panel Thickness	Material Cable Tie	Material Foot Part	Colour	Tools	Article-No.
T30ROSECO.5-2.5TP-SD		3.4	145.0	35.0	135	0.5 - 2.5	PA66HS	PA66HIRHS	Black (BK)	2;4-6	156-01543
T30ROSECO.5-2.5TV-SD		3.4	145.0	35.0	135	0.5 - 2.5	PA66HS	PA66HIRHS	Black (BK)	2;4-6	156-01545
T30ROSECO.5-2.5TPVA		3.4	145.0	35.0	135	0.5 - 2.5	PA66HS	PA66HIRHS	Black (BK)	2;4-6	156-01542

All dimensions in mm. Subject to technical changes.

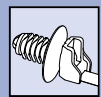
#### 2-Piece Fixing Ties for Edges, 0.5 - 2.5 mm, Side Fixing

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Panel Thickness	Material Cable Tie	Material Foot Part	Colour	Tools	Article-No.
T30ROSECO.5-2.5SP-SVB		3.4	145.0	35.0	135	0.5 - 2.5	PA66HS	PA66HIRHS	Black (BK)	2;4-6	156-01546
T30ROSEC05-2.5SPSVA		3.4	145.0	35.0	133	0.5 - 2.5	PA66HS	PA66HIRHS	Black (BK)	2;4-6	156-01797
T30ROSECO.5-2.5SPVA		3.4	145.0	35.0	135	0.5 - 2.5	PA66HS	PA66HIRHS	Black (BK)	2;4-6	156-01544

All dimensions in mm. Subject to technical changes.

Recommended Tools				
	2	4	5	6
	MK20	MK3SP	MK3PNP2	EVO7
	595	596	596	598

For more information on toolings please refer to the Application Tooling chapter.



### 2-Piece Fixing Ties for Edges, twistable

#### EdgeClip-Family

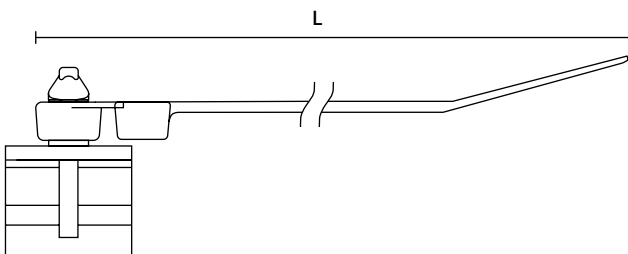
These cable ties and Edge Clip assemblies are ideal for use where holes are not acceptable or where due to temperature problems adhesives will fail. These assemblies are widely used for fixing and bundling cables, pipes and hoses within the automotive industry, harness making, panel building and electrical industry.

#### Features and benefits

- Pre-assembled 2-piece fixing tie with EdgeClip
- Easy to assemble by hand
- Cable tie head can be moved after bundling
- For edges of 1 – 2.5 mm or 1 – 3 mm
- Can be rotated to the desired position during mounting




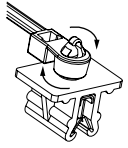

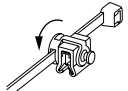
EdgeClip CBTO50R, rotatable 90°.




CBT30MR



**Material specification please see page 22.**

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.		Panel Thickness	Material Cable Tie	Material Foot Part	Colour	Tools	Article-No.
CBT30MR		3.5	160.0	32.0	135	2.5	PA66HS	POM	Black (BK)	2;5-6	156-00049
CBTO50R		4.6	202.0	47.0	225	3.0	PA66HS	PA66HIRHS	Black (BK)	2-10	156-01601
CBTOS50RSTUD5		4.6	200.0	47.0	225	3.0	PA66HS	PA66HIRHS	Black (BK)	2-10	156-00380

All dimensions in mm. Subject to technical changes.

Recommended Tools								
	2	3	4	5	6	8	9	10
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9
	595	595	596	596	598	601	600	599

For more information on toolings please refer to the Application Tooling chapter.



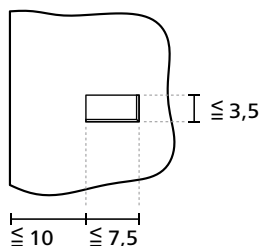


#### 2-Piece Fixing Ties for Edges, for Holes

Due to the tie's reduced installation height it is ideal for use wherever space is at a premium.

##### Features and Benefits

- Pre-assembled 2-piece fixing tie with EdgeClip
- Easy to assemble by hand
- Cable tie head can be moved after bundling
- For edges of 1.0 - 3.0 mm
- Secure fixing of the EdgeClip into drill hole
- Ideal for use wherever space is at its premium



Position of the drill hole for the holding tab



The holding tab increases the tensile strength additionally.



**Material specification please see page 22.**

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Material Cable Tie	Material Foot Part	Colour	Tools	Article-No.
T50REC2.5B		4.6	202.0	40.0	225	PA66HS	PA66HIRHS	Black (BK)	2-10	150-45292
T50ROSEC2.5A		4.6	200.0	50.0	225	PA66HS	PA66HIRHS	Black (BK)	2-10	150-45299

All dimensions in mm. Subject to technical changes.

Recommended Tools								
	2	3	4	5	6	8	9	10
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9
	595	595	596	596	598	601	600	599

For more information on toolings please refer to the Application Tooling chapter.



### Heavy Duty Harness Clips

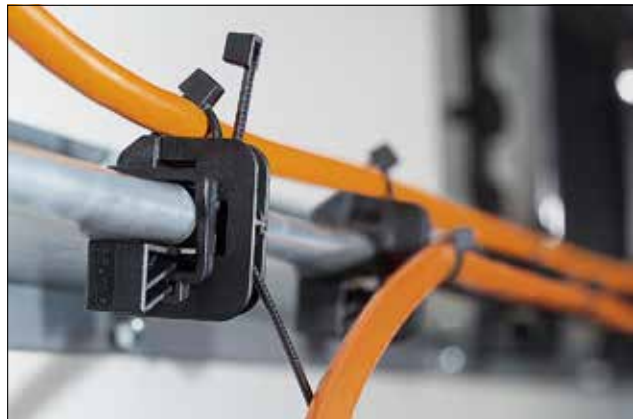
#### Beam Clamps

Primarily designed for use in the automotive/truck industry, these parts can be used in a wide variety of industries and applications where bundles need mounting.

These heavy duty harness clips help to fix and secure cables, lines and hydraulic lines in truck, agriculture and railway vehicle construction, as well as in the ship building industry and industrial buildings.

#### Features and Benefits

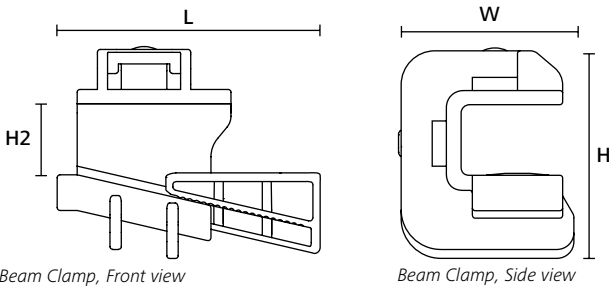
- Easy to install
- No damage to surfaces
- Easy maintenance of bundle by simply changing cable tie
- Cable tie head can be moved after bundling
- Applicable to a wide range of panel thicknesses



The Beam Clamp can be fixed onto a beam with a wedge. Up to two bundles can be routed on the top or rear side of the clamp.



Our two Beam Clamps with 3 different wedges for diverse sheet thicknesses.



TYPE	Drawing	Width (W)	Length (L)	Height (H)	Height (H2)	Material	Colour	Article-No.
Beam Clamp B-PA6GF30-BK		28.6	46.2	36.7	12.5	PA6GF30	Black (BK)	151-00822
Beam Clamp C-PA6GF30-BK		28.6	46.2	36.7	12.5	PA6GF30	Black (BK)	151-00823
Beam Clamp D-PA6GF30-BK		28.6	46.2	36.7	12.5	PA6GF30	Black (BK)	151-00886
Beam Clamp B with foam-PA6GF30-BK		28.6	46.2	36.7	12.5	PA6GF30	Black (BK)	151-01186
Beam Clamp C with foam-PA6GF30-BK		28.6	46.2	36.7	12.5	PA6GF30	Black (BK)	151-01187
Beam Clamp D with foam-PA6GF30-BK		28.6	46.2	36.7	12.5	PA6GF30	Black (BK)	151-01188

All dimensions in mm. Subject to technical changes.



#### 2-Piece Fixing Ties with Pipe Clip, twistable 360°

##### Features and Benefits

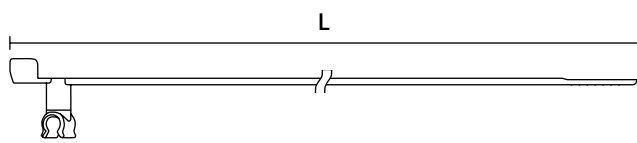
- Simply clip onto a wire or hose
- Fixing clip offers full 360° rotation
- Routed cable can move in any direction in relation to the fixing point
- Inside serrated cable tie
- Ideally used in the Automotive Industry



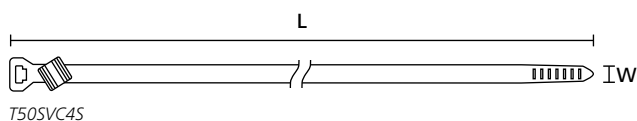
T50SVC5 rotates in any direction.



**Material specification please see page 22.**



T50SVC4S



T50SVC4S

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	Attach to Ø	Material	Colour	Tools	Article-No.
T50SVC3.5		4.7	155.0	35.0	3.45 - 3.55	PA66HS, PA66HIRHS	Black (BK)	2-10	156-01579
T50SVC4		4.7	155.0	35.0	3.8 - 4.2	PA66HS, PA66HIRHS	Black (BK)	2-10	156-01375
T50SVC5		4.7	155.0	35.0	4.5 - 5.2	PA66HS	Black (BK)	2-10	156-01366
T50SVC4S		4.7	155.0	35.0	3.8 - 4.2	PA66HS, PP	Black (BK), Natural (NA)	2-10	156-01374
T50SVC6.5		4.7	155.0	35.0	6.5 - 8.0	PA66HS, PA66HIRHS	Black (BK)	2-10	156-01371
T50SVCOC10-14		4.7	155.0	35.0	10.0 - 14.0	PA66HS, PA66HIRHS	Black (BK)	2-10	156-02004
T50SVCOC15-18		4.7	155.0	35.0	15.0 - 18.0	PA66HS, PA66HIRHS	Black (BK)	2-10	156-02002
T50SVCOC19-24,5		4.7	155.0	35.0	19.0 - 24.5	PA66HS, PA66HIRHS	Black (BK)	2-10	156-02005
T50SVCOC25-31		4.7	155.0	35.0	25.0 - 31.0	PA66HS, PA66HIRHS	Black (BK)	2-10	156-01230
T50SVCOC31-39		4.7	155.0	35.0	31.0 - 39.0	PA66HS, PA66HIRHS	Black (BK)	2-10	156-02000
T50SVCOC39-45		4.7	155.0	35.0	39.0 - 45.0	PA66HS, PA66HIRHS	Black (BK)	2-10	156-01334
T50SVCOC9-11A		4.7	155.0	35.0	9.0 - 11.0	PA66HIRHS, PA66HS	Black (BK)	2-10	156-01419
T50SVCOC9-11B		4.7	155.0	35.0	9.0 - 11.0	PA66HIRHS, PA66HS	Black (BK)	2-10	156-01237
T50SVCOC14		4.7	155.0	35.0	14.0	PA66HS, PA66HIRHS	Black (BK)	2-10	156-01318
T50SVCOC18-20A		4.7	155.0	35.0	18.0 - 20.0	PA66HS, PA66HIRHS	Black (BK)	2-10	156-01190
T50SVCOC18-20B		4.7	155.0	35.0	18.0 - 20.0	PA66HS, PA66HIRHS	Black (BK)	2-10	156-01194
T50SVCOC28		4.7	155.0	35.0	28.0	PA66HS, PA66HIRHS	Black (BK)	2-10	156-01239
T50SMVOC28		4.7	210.0	50.0	28.0	PA66HS, PA66HIRHS	Black (BK)	2-10	156-01268

All dimensions in mm. Subject to technical changes.

Recommended Tools								
	2	3	4	5	6	8	9	10
	MK20	MK21	MK3SP	MK3PNP2	EVO7	MK7P	MK6	EVO9
	595	595	596	596	598	601	600	599

For more information on toolings please refer to the Application Tooling chapter.





### 2-Piece Fixing Ties with Pipe Clip, twistable 360°

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	Attach to Ø	Material	Colour	Tools	Article-No.
T50SVC3.5		4.7	155.0	35.0	3.45 - 3.55	PA66HS, PA66HIRHS	Black (BK)	2-10	156-01376
T50SMVCO1014		4.7	210.0	50.0	10.0 - 14.0	PA66HS, PA66HIRHS	Black (BK)	2-10	156-02003
T50SMVCO15-18		4.7	210.0	50.0	15.0 - 18.0	PA66HS, PA66HIRHS	Black (BK)	2-10	156-01365
T50SMVCO19-24.5		4.7	210.0	50.0	19.0 - 24.5	PA66HS, PA66HIRHS	Black (BK)	2-10	156-02001
T50SMVCO19-24,5		4.7	210.0	50.0	19.0 - 24.5	PA46	Grey (GY)	2-10	156-00577
T50SMVCO25-31		4.7	210.0	50.0	25.0 - 31.0	PA66HS, PA66HIRHS	Black (BK)	2-10	156-01250
T50SMVCO31-39		4.7	210.0	50.0	31.0 - 39.0	PA66HS, PA66HIRHS	Black (BK)	2-10	156-00304
T50SMVCO39-45		4.7	210.0	50.0	39.0 - 45.0	PA66HS, PA66HIRHS	Black (BK)	2-10	156-00131

All dimensions in mm. Subject to technical changes.

### 1-Piece Fixing Ties with Wire Clip

#### Features and Benefits

- Cable tie head always in defined position
- Easy to close by simply pressing the cover
- Firm fit around wires
- Suitable for post-installation of bundles
- Available in a range of sizes



T50SOSWA - The easy way for parallel guidance of cables next to a wire.

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Tools	Article-No.
T50SOSWA1.8E		4.6	150.0	35.0	225	PA66HS	Black (BK)	2-10	148-00089
T50SOSWA2.0E		4.6	150.0	35.0	225	PA66HS	Black (BK)	2-10	148-00088
T50SOSWA3.4E		4.6	150.0	35.0	225	PA66HS	Black (BK)	2-10	148-00095
T50SOSWA4.3E		4.6	150.0	35.0	225	PA66HS	Black (BK)	2-10	148-00092
T50SOSWB1.8E		4.6	150.0	35.0	225	PA66HS	Black (BK)	2-10	148-00090
T50SOSWB2.0E		4.6	150.0	35.0	225	PA66HS	Black (BK)	2-10	148-00093
T50SOSWB3.4E		4.6	150.0	35.0	225	PA66HS	Black (BK)	2-10	148-00096
T50SOSWB4.3E		4.6	150.0	35.0	225	PA66HS	Black (BK)	2-10	148-00091

All dimensions in mm. Subject to technical changes.

Recommended Tools								
	2	3	4	5	6	8	9	10
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9
	595	595	596	596	598	601	600	599

For more information on toolings please refer to the Application Tooling chapter.



#### 2-Piece Fixing Ties with Pipe Clip

##### Features and Benefits

- For post-installation of additional cables for pre-assembled cable looms
- Variety of twist angles and even different loop directions provide flexibility for cable routing
- For OC1 and 2A additional cable tie dimensions are available
- CBTO-series for cable ties up to 5 mm



EdgeClip CBTO50R, verdrehbar um 90°.

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	Attach to Ø	Material	Colour	Tools	Article-No.
T30ROC2A		3.6	148.0	31.0	6.5 - 7,5	PA46	Grey (GY)	2;4-6	156-00014
		3.6	148.0	31.0	6.5 - 7,5	PA66HS, PA66HIRHS	Black (BK)	2;4-6	156-00013
T30ROC1A		3.6	148.0	31.0	4,0 - 10,0	PA66HS, PA66HIRHS	Black (BK)	2;4-6	156-00950
T50ROC1A		4.6	202.0	45.0	4,0 - 10,0	PA66HS, PA66HIRHS	Black (BK)	2-10	156-01141
T30ROC1B		3.6	148.0	30.0	4,0 - 10,0	PA66HS, PA66HIRHS	Black (BK)	2;4-6	156-00505
T50ROC1B		4.6	202.0	45.0	4,0 - 10,0	PA66HS, PA66HIRHS	Black (BK)	2-10	156-01247
T30ROC2B		3.6	150.0	31.0	6.5 - 7,5	PA46, PA66HIRHS	Natural, Black (BK)	2;4-6	156-00936

All dimensions in mm. Subject to technical changes.

#### 2-Piece Fixing Ties with Pipe Clip, twistable 90°

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	Attach to Ø	Material	Colour	Tools	Article-No.
T50ROC10		4.6	202.0	45.0	10,0 - 14,0	PA66HS, PA66HIRHS	Black (BK)	2-10	156-01180
T50ROC15-18CBTO-SD-SET		4.6	202.0	45.0	15,0 - 18,0	PA66HS, PA66HIRHS	Black (BK)	2-10	156-00419
T50ROC19-24.5CBTO-SD-SET		4.6	202.0	45.0	19,0 - 24,5	PA66HS, PA66HIRHS	Black (BK)	2-10	156-00422

All dimensions in mm. Subject to technical changes.

Recommended Tools								
	2	3	4	5	6	8	9	10
	MK20	MK21	MK3SP	MK3PNSP2	EVO7	MK7P	MK6	EVO9
	595	595	596	596	598	601	600	599

For more information on toolings please refer to the Application Tooling chapter.



### 2-Piece Fixing Ties for parallel separation

#### Features and benefits

- Pre-assembled 2-piece fixing tie with coupler
- Cable tie head can be moved after bundling
- Easy addition of cables after assembly
- For parallel routing of bundles that can be twisted 90° even after installation



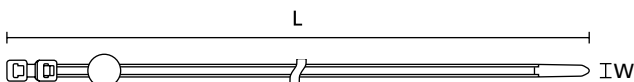
**Material specification please see page 22.**



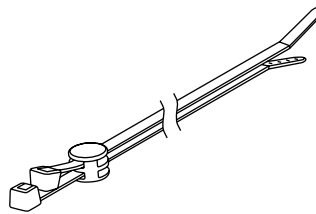
T120RCOUPLER can be used for parallel routing of two cable ties.



The second tie can be used for post-installations.



Two Cable Ties with Coupler



T120RCOUPLER



Fixing Element - COUPLER

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material Cable Tie	Material Foot Part	Colour	Tools	Article-No.
T50RCOUPLER	4.6	202.0	47.0	225	PA46	PA46	Grey (GY)	2-10	156-00382
	4.6	202.0	47.0	225	PA66HIR(S)	PA66HIRHS	Black (BK)	2-10	156-00276
T50RSINGLECOUPLER	4.6	202.0	47.0	225	PA66HIRHS	PA66HIRHS	Black (BK)	2-10	156-01134
T120RCOUPLER	7.6	390.0	105.0	535	PA66HIR(S)	PA66HIRHS	Black (BK)	3;9-12	156-00275
T120RSINGLECOUPLER	7.6	390.0	105.0	535	PA66HIR(S)	PA66HIRHS	Black (BK)	3;9-12	156-00550

All dimensions in mm. Subject to technical changes.

Recommended Tools										
	2	3	4	5	6	8	9	10	11	12
	MK20	MK21	MK35P	MK3PNSP2	EVO7	MK7P	MK6	EVO9	EVO9HT	MK9P
	595	595	596	596	598	601	600	599	599	602

For more information on toolings please refer to the Application Tooling chapter.





#### 2-Piece Fixing Ties for Heavy Duty Applications, for Screws

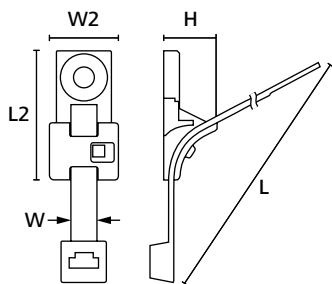
Used in the automotive and truck industry for harness fixing in the engine body, these parts offer solutions in many other industrial applications with difficult environment.

##### Features and benefits

- Pre-assembled 2-piece fixing tie
- Cable tie head can be moved after bundling
- Secure alignment to the bundle due to H-design
- A suitable alternative for metal clamps
- Withstands vibrations and displacement forces
- High tightening torque through metal bushing



These HDM are suitable for assembling on screws.



HDM with cable tie (L = length of the tie "flat")



DHDM for parallel routing of bundles.

#### HDM-Series

TYPE	Width (W)	Width (W2)	Length (L)	Length (L2)	Height (H)	Bundle Ø max.	Mounting Screw Type	Material	Colour	Tools	Article-No.
T50RHDM6	4.6	20.0	200.0	37.5	16.0	50.0	M6	PA66HS, PA66HIRHS	Black (BK)	2-10	156-00918
	4.6	20.0	200.0	37.5	16.0	50.0	M6	PA46	Grey (GY)	2-10	156-00919
T50RHDM8	4.6	20.0	200.0	37.5	16.0	50.0	M8	PA66HS, PA66HIRHS	Black (BK)	2-10	156-00920
	4.6	20.0	200.0	37.5	16.0	50.0	M8	PA46	Grey (GY)	2-10	156-01251
X80RHDM60	4.6	26.0	200.0	34.7	15.5	23.0	M6	PA66HS, PA66HIRHS	Black (BK)	2-12	156-01425
T120SHDM8	7.6	20.0	225.0	38	15.6	55.0	-	PA46	Grey (GY)	9-10;12;15	156-00429
T120RHDM6	7.6	20.0	390.0	37.5	16.0	105.0	M6	PA46	Grey (GY)	3;9-12	156-00407
	7.6	20.0	390.0	37.5	16.0	105.0	M6	PA66HIRHS	Black (BK)	3;9-12	156-00406
T120RHDM8	7.6	20.0	390.0	37.5	16.0	105.0	M8	PA46	Grey (GY)	3;9-12	156-00409
	7.6	20.0	390.0	37.5	16.0	105.0	M8	PA66HIRHS	Black (BK)	3;9-12	156-00408
X120RHDM 65x160	7.7	32.0	369.0	40.2	15.5	100.0	M6	PA66HIRHS	Black (BK)	3;9-12	156-01466

All dimensions in mm. Subject to technical changes.

#### DHDM-Series

TYPE	Width (W)	Width (W2)	Length (L)	Length (L2)	Height (H)	Bundle Ø max.	Mounting Screw Type	Material	Colour	Tools	Article-No.
T120ROSDHDM6	7.6	25.4	385.0	59.4	15.5	105.0	M6	PA66W, PA66HS	Black (BK)	3;9-12	156-01485
X120RDHDM6	7.7	25.4	369.0	59.4	15.5	100.0	M6	PA66HIRHS	Black (BK)	3;9-12	156-01096
X120RDHDM8	7.7	25.4	369.0	59.4	15.5	100.0	M8	PA66HIRHS	Black (BK)	3;9-12	156-01097

All dimensions in mm. Subject to technical changes.



### Cable Ties for single hole application (Chassis Tie)

Using a single hole these 'chassis ties' are widely used in the automotive, truck and heavy equipment markets. Ideal for applications which have access to both sides of the hole - for example truck frames.

#### Features and Benefits

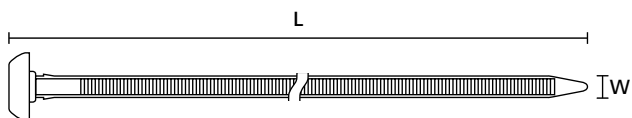
- Both sides of the cable tie serrated
- BHT-Series with round head for larger bearing area
- BHT375 for centred position
- CT- and DE-Series with small squared head for restricted space areas
- Tensioning with application tool



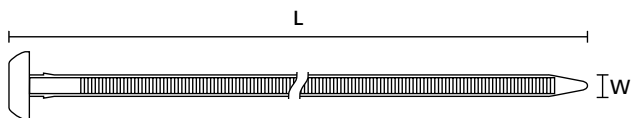
BHT375 - used for mounting cables via a single hole.



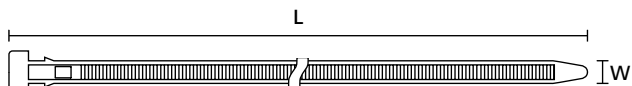
For your system solutions we offer suitable fixing elements: MSBT120, page 161.



BHT375



BHT375M



CT375, DE863220

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Tools	Article-No.
BHT375		7.6	375.0	100.0	700	PA66HS	Black (BK)	3;9-11	150-37595
BHT375M		7.6	375.0	100.0	700	PA66HS	Black (BK)	3;9-11	150-47595
DE863220		6.0	300.0	80.0	135	PA66HS	Black (BK)	3;9-11	132-00200
CT375		7.6	375.0	100.0	700	PA66HS	Black (BK)	3;9-11	132-37540

All dimensions in mm. Subject to technical changes.

Recommended Tools				
	3	9	10	11
	MK21	MK6	EVO9	EVO9HT
	595	600	599	599

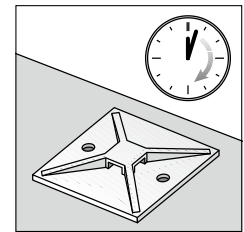
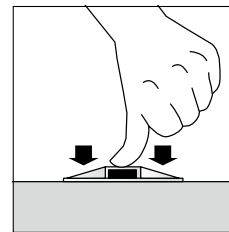
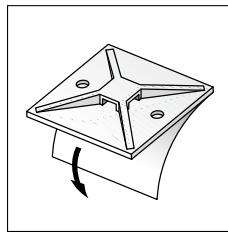
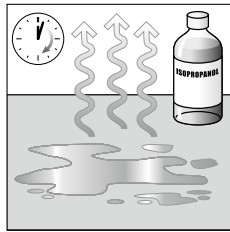
For more information on toolings please refer to the Application Tooling chapter.

## Information and installation instructions for self-adhesive mounting bases

HellermannTyton uses different types of adhesives for self-adhesive bases: acrylate and synthetic rubber. These differ in the operating temperature range and the 'pull off' force of the adhesive. Synthetic rubber has an excellent initial grip, allowing for almost immediate use. Acrylate adhesive has less initial grip, so there is a need to wait for a few hours before use, but has a higher 'pull off' force than synthetic rubber. This enables a permanent fixing lasting months or even years.

<b>Synthetic rubber with base of polyethylene foam</b>	Synthetic rubber T50	-20 °C to +50 °C
	Synthetic rubber T60	-40 °C to +60 °C
<b>Acrylate with base of polyurethane foam</b>	Acrylate	to +105 °C
<b>Acrylate with base of acrylic foam</b>	mod. Acrylate	-30 °C to +120 °C

### Instructions for use



1. The surface must be dry, free from dust, oil, oxides, parting agents and other impurities. The surface to be glued should be cleaned using a clean cloth and isopropanol / water (50/50). When using other appropriate cleaning agents, ensure that they do not attack the surface nor leave any residues. After cleaning allow the surface to air-dry completely.

2. Peel off protective backing and ensure the adhesive area is not touched.

3. Press down firmly on the base with the thumbs for several seconds.

4. Depending on the type of adhesive, wait for several minutes (synthetic rubber) or hours (acrylate) so that the adhesive can bond completely with the surface.

### Advantages of our self-adhesive mounts with mod. Acrylate (SolidTack / FlexTack)

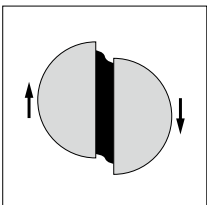
- Acrylic Foam Tape is made from a homogeneous system of high performance acrylic adhesive
- Very good initial bond
- High temperature resistance
- Adhesive offers design freedom, no need for bolts or screws
- Reduces the risk of corrosion, no need for boreholes



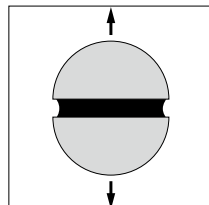
We will be happy to send you on request an up-to-date technical datasheet for whichever adhesive you are using.

- Weight reduction compared to mechanical mounting
- Possibility to optimize production processes and to reduce production cost (bonding vs. screwing)
- Can compensate unevenness up to a certain degree
- Specially developed for low energy surfaces

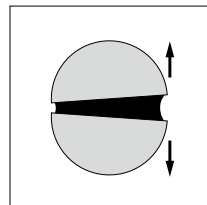
### Load types on adhesive bonds



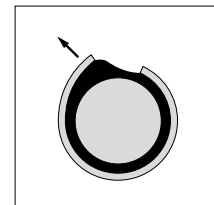
**Shear resistance.**  
Shear force pulls the adhesive surfaces in opposite directions along a parallel line.



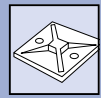
**Tensile strength.**  
Tension force pulls surfaces apart perpendicular to the adhesive bond.



**Cleavage resistance.**  
Cleavage can occur where forces acting on bonded surfaces are not evenly spread but concentrated along a single line.



**Peel adhesion.**  
Peeling force acts on a small amount of adhesive at the edge of the tape and weakens the adhesive bond. At least one adherend is flexible.



### Cable Tie Mounts with high performance adhesive

#### FlexTack-Series FMB for round and angled surfaces

FlexTack cable tie mounts can be successfully applied to a variety of high- and low-energy surfaces such as glass, metals (including painted, varnished or powder-coated surfaces) as well as plastics. FlexTack provides a reliable fixing solution where it is impractical to use screws or bolts. The unique design in combination with the special acrylate adhesive makes professional cable management easy.

#### Features and benefits

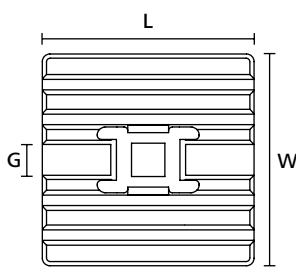
- Flexible Mount for round and angled surfaces
- FMB mounts with homogeneous system of acrylic adhesive
- Allows greater design freedom and offers uniform stress distribution along with weight reduction
- Adhesive with high cohesive strength combined with good weathering resistance
- Innovative fixing solution for high and low energy surfaces
- Protection foil with finger lift for easy peel off
- Temperature resistance up to +105 °C
- 4-way entry for cable tie for quicker and more flexible installation
- FMB4APT-I is also suitable for high energy surfaces like metal or glass



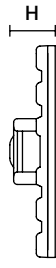
Flexible cable tie mount (FlexTack) in a concave application.



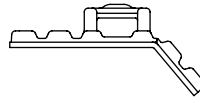
**Material specification please see page 22.**



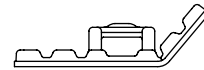
Flexible Adhesive Mount FMB4APT-I (plan view)



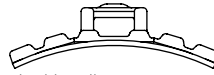
Flexible Adhesive Mount FMB4APT-I (side view)



Flexible Adhesive Mount FMB4APT-I (down angled, side view)



Flexible Adhesive Mount FMB4APT-I (up angled, side view)



Flexible Adhesive Mount FMB4APT-I (convex, side view)

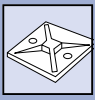


Flexible Adhesive Mount FMB4APT-I (concave, side view)

TYPE	Width (W)	Length (L)	Height (H)	Strap Width max. (G)	Material	Colour	Adhesive	Pack Cont.	Article-No.
FMB4APT	28.0	28.0	6.3	5.4	PA66HS	Black (BK)	mod. Acrylate	100 pcs.	151-01527
	28.0	28.0	6.3	5.4	PA66HS	White (WH)	mod. Acrylate	100 pcs.	151-01528

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Cable Tie Mounts with high performance adhesive

#### SolidTack-Series QM

Q-mounts are ideally suited for holding our innovative Q-ties in place. They would perfectly fit to all applications where a reliable and durable fixation is required. With its SolidTack adhesive Q-mounts offer an innovative fixing solution especially for low energy surfaces or if drilling a hole is not possible. Suitable for a wide range of applications on varnished or plastic or metal surfaces in many areas like electrical cabinet, railway, aerospace, automotive and agriculture machinery.

#### Features and benefits

- Q-mounts with homogeneous system of acrylic adhesive
- Perfect for combination with Q-ties
- Very good initial adhesion, increases with time
- Adhesive with high cohesive strength combined with good weathering resistance
- Innovative fixing solution for high and low energy surfaces
- Q-Mount base locks Q-tie in vertical position, means the hands are free to apply cables



Mounting bases Q-Mount.



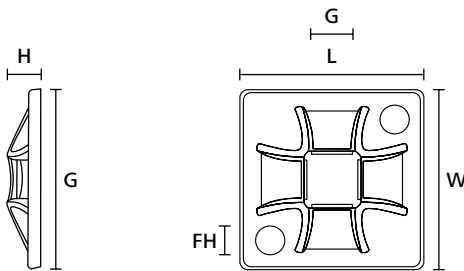
Please find more Q-Series products for your system solution on page 139, 149 and 530.



For more information on the types of adhesive please see page 136.



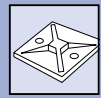
Material specification please see page 22.



Q-Mount (side view)    Q-Mount (plan view)

TYPE	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Adhesive	Pack Cont.	Article-No.
QM20APT-I	20.0	20.0	3.7	3.1	4.0	PA66	Black (BK)	mod. Acrylate	100 pcs.	151-01592
	20.0	20.0	3.7	3.1	4.0	PA66	Natural (NA)	mod. Acrylate	100 pcs.	151-01591
QM30APT-I	30.0	30.0	4.5	4.1	5.1	PA66	Black (BK)	mod. Acrylate	100 pcs.	151-01594
	30.0	30.0	4.5	4.1	5.1	PA66	Natural (NA)	mod. Acrylate	100 pcs.	151-01593
QM40APT-I	40.0	40.0	5.5	4.1	8.4	PA66	Black (BK)	mod. Acrylate	50 pcs.	151-01596
	40.0	40.0	5.5	4.1	8.4	PA66	Natural (NA)	mod. Acrylate	50 pcs.	151-01595

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Cable Tie Mounts Q-Series

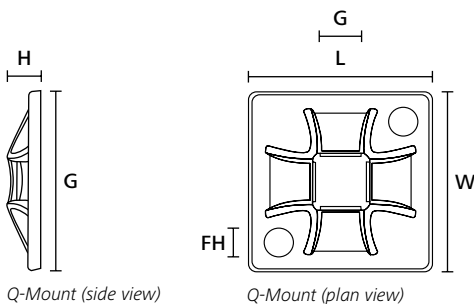
Q-mounts are ideally suited for holding our innovative Q-ties in place. They would perfectly fit to all applications where a reliable and durable fixation is required. Self adhesive versions of our Q-Mounts are suitable for applications where using screws, nuts, bolts or drilling holes to fix cables is problematic, or not the first choice.

#### Features and benefits

- Screwable or self adhesive versions
- Perfect for combination with Q-ties
- 4-way entry for cable ties
- Adhesive with high pull-off force
- Locks cable tie in vertical position, means the hands are free to apply cables



Q-ties can be used for both temporary and final cable installation.



Application video:  
Q-Series

#### Q-Mount Series QMA, self adhesive, screwable

TYPE	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Adhesive	Pack Cont.	Article-No.
QM20A	20.0	20.0	3.7	3.1	4.0	PA66	Black (BK)	Synthetic rubber T60	100 pcs.	151-10914
	20.0	20.0	3.7	3.1	4.0	PA66	Natural (NA)	Synthetic rubber T60	100 pcs.	151-10904
QM30A	30.0	30.0	4.5	4.1	5.1	PA66	Black (BK)	Synthetic rubber T60	100 pcs.	151-10915
	30.0	30.0	4.5	4.1	5.1	PA66	Natural (NA)	Synthetic rubber T60	100 pcs.	151-10905
QM40A	40.0	40.0	5.5	4.1	8.4	PA66	Black (BK)	Synthetic rubber T60	50 pcs.	151-10916
	40.0	40.0	5.5	4.1	8.4	PA66	Natural (NA)	Synthetic rubber T60	50 pcs.	151-10906

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

#### Q-Mount Series QM, screwable

TYPE	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
QM20	20.0	20.0	3.7	3.1	4.0	PA66	Natural (NA)	100 pcs.	151-10901
	20.0	20.0	3.7	3.1	4.0	PA66	Black (BK)	100 pcs.	151-10911
QM30	30.0	30.0	4.5	4.1	5.1	PA66	Natural (NA)	100 pcs.	151-10902
	30.0	30.0	4.5	4.1	5.1	PA66	Black (BK)	100 pcs.	151-10912
QM40	40.0	40.0	5.5	4.1	8.4	PA66	Natural (NA)	50 pcs.	151-10903
	40.0	40.0	5.5	4.1	8.4	PA66	Black (BK)	50 pcs.	151-10913

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



For product specific approvals and specifications please refer to the Appendix.





## Cable Tie Mounts with high performance adhesive

### SolidTack-Series MB

SolidTack MB Series mounts do have a square design and are fairly common in areas like electrical cabinet, railway, aerospace, automotive and agriculture machinery. The premium self-adhesive bonds well on high and low-energy surfaces like plastics, metal, varnish or paint and is suitable for a wide range of applications.

#### Features and benefits

- MB mounts with homogeneous system of acrylic adhesive
- Very good initial adhesion, increases with time
- Adhesive with high cohesive strength combined with good weathering resistance
- Innovative fixing solution for high and low energy surfaces
- Protection foil with finger lift for easy peel off



SolidTack products work on varnished and powder coated surfaces.



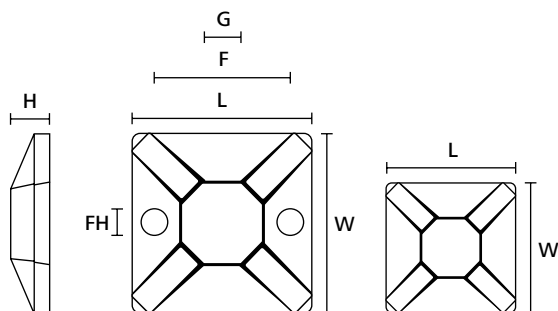
For more information on the types of adhesive please see page 136.



Material specification please see page 22.



One Step to the Web!



MB3-MB5 (side view)

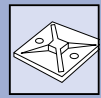
MB3-MB5 (plan view)

Cable Tie Mount MB2A (plan view)

TYPE	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Fixing Hole Centres (F)	Strap Width max. (G)	Material	Colour	Adhesive	Pack Cont.	Article-No.
MB2APT-I	13.0	13.0	4.1	-	-	2.7	PA66	Black (BK)	mod. Acrylate	100 pcs.	151-01556
MB3APT	19.0	19.0	3.8	3.1	13.2	4.1	PA66	Black (BK)	mod. Acrylate	100 pcs.	151-00432
MB3APT-I	19.0	19.0	3.8	3.1	13.2	4.4	PA66	Black (BK)	mod. Acrylate	100 pcs.	151-01557
	19.0	19.0	3.8	3.1	13.2	4.4	PA66	White (WH)	mod. Acrylate	100 pcs.	151-01558
MB4APT-I	28.0	28.0	4.7	4.0	20.2	5.6	PA66	Black (BK)	mod. Acrylate	100 pcs.	151-01559
	28.0	28.0	4.7	4.0	20.2	5.6	PA66	White (WH)	mod. Acrylate	100 pcs.	151-01560
MB5APT-I	38.0	38.0	6.3	4.7	25.3	10.0	PA66	Black (BK)	mod. Acrylate	100 pcs.	151-01561

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Flat ribbon cable mounts

FKH mounts are designed to retain flat ribbon cables commonly used in information technology applications, in entertainment electronics or for connecting sensors. As each installation scenario is individual, FKH mounts are available in different dimensions and can be supplied as self adhesive and/or screwable versions.

#### Features and benefits

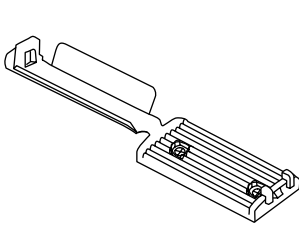
- One-piece fixing mount for flat ribbon cables
- Increased mounting area ensures proper bonding
- Quick and easy installation
- Can be released and re-used easily
- Flat cable is gently fastened due to soft wings



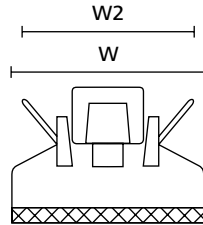
Based on extremely soft wings any flat cable is gently fastened.



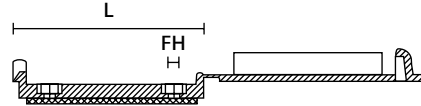
**Material specification please see page 22.**



Fixing can be realised with M3 screws or acrylic adhesive backing



Flat Ribbon Cable Mount (front view)



Flat Ribbon Cable Mount (side view)

### SolidTack-Series FKH, high performance adhesive

TYPE	Width (W)	Width (W2)	Length (L)	Hole Ø (FH)	For Cable Width max.	Material	Colour	Adhesive	Pack Cont.	Article-No.
FKH50APT-I	25.0	22.0	56.5	3.1	50.0	PA66HIR	Black (BK)	mod. Acrylate	100 pcs.	151-01562
FKH80APT-I	25.0	22.0	86.0	3.1	80.0	PA66HIR	Black (BK)	mod. Acrylate	100 pcs.	151-01563

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

### FKH-Series, self adhesive, screw fixing

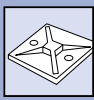
TYPE	Width (W)	Length (L)	Width (W2)	Hole Ø (FH)	Material	Colour	Adhesive	Article-No.
FKH25A	25.0	31.0	22.0	3.1	PA66HIR	Black (BK)	Acrylate	151-15250
FKH30A	25.0	35.0	22.0	3.1	PA66HIR	Black (BK)	Acrylate	151-15300
FKH50A	25.0	56.5	22.0	3.1	PA66HIR	Black (BK)	Acrylate	151-15500
FKH80A	25.0	86.0	22.0	3.1	PA66HIR	Black (BK)	Acrylate	151-15800

All dimensions in mm. Subject to technical changes.

### FKH-Series, screw fixing

TYPE	Width (W)	Length (L)	Width (W2)	Hole Ø (FH)	Material	Colour	Article-No.
FKH25	25.0	31.0	22.0	3.1	PA66HIR	Black (BK)	151-16250
FKH30	25.0	35.0	22.0	3.1	PA66HIR	Black (BK)	151-16300
FKH50	25.0	56.5	22.0	3.1	PA66HIR	Black (BK)	151-16500
FKH80	25.0	86.0	22.0	3.1	PA66HIR	Black (BK)	151-16800

All dimensions in mm. Subject to technical changes.



### Self Adhesive, Screw Fixing Cable Tie Mounts

Where speed, simplicity and a firm fixing base are required these self adhesive clips are ideal. Particularly suitable for use in control cabinets, telecoms equipment or domestic appliances where the use of holes, screws, or nuts and bolts is impractical or undesirable.

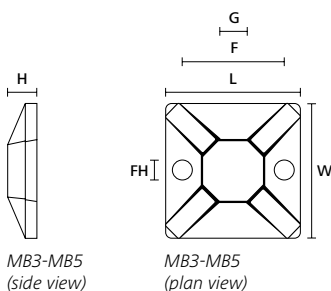
#### Features and benefits

- Screwable or self-adhesive versions
- Simple to install with a screw or bolt
- Excellent security, particularly in areas of high vibration
- Maximum surface area with adhesive to achieve high pull-off force
- 4-way entry for cable tie for quicker and more flexible installation

#### MB-Series square design, screwable



MB-Series Mounts with square design / screwable, self adhesive.

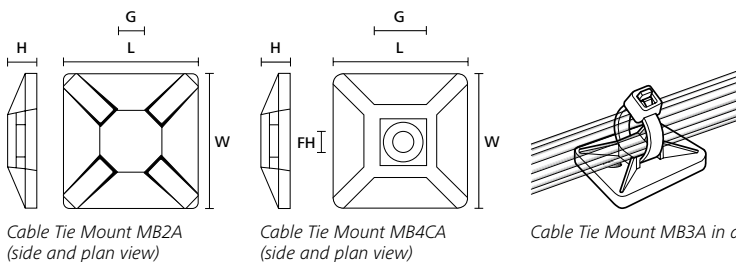


For more information on the types of adhesive please see page 136.

TYPE	Width (W)	Length (L)	Height (H)	Fixing Hole Centres (F)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
MB3	19.0	19.0	3.8	13.2	3.1	4.1	PA66	White (WH)	100 pcs.	151-28359
MB4	28.0	28.0	4.7	20.0	4.0	5.4	PA66	White (WH)	100 pcs.	151-28479
MB5	37.7	37.7	6.2	25.3	4.8	8.9	PA66	White (WH)	100 pcs.	151-00324

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

#### MB-Series square design, self adhesive, screwable

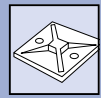


TYPE	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Adhesive	Pack Cont.	Article-No.
MB2A	13.0	13.0	4.1	-	2.7	PA66	Black (BK)	Synthetic rubber T60	50 pcs.	151-01800
	13.0	13.0	4.1	-	2.7	PA66	White (WH)	Synthetic rubber T60	100 pcs.	151-01802
MB3A	19.0	19.0	3.8	3.1	4.1	PA66	Black (BK)	Synthetic rubber T60	100 pcs.	151-28320
	19.0	19.0	3.8	3.1	4.1	PA66	White (WH)	Synthetic rubber T60	100 pcs.	151-28349
MB4A3	28.0	28.0	4.7	4.0	5.4	PA66	Black (BK)	Acrylate	100 pcs.	151-28430
MB4A	28.0	28.0	4.7	4.0	5.4	PA66	Black (BK)	Synthetic rubber T60	100 pcs.	151-28412
	28.0	28.0	4.7	4.0	5.4	PA66	White (WH)	Synthetic rubber T60	100 pcs.	151-28469
MB4CA*	29.0	29.0	5.7	4.2	5.4	PA66	Natural (NA)	Synthetic rubber T60	100 pcs.	151-28459
MB4CAS	29.0	29.0	5.7	4.2	5.4	PA66	Natural (NA)	Synthetic rubber T60	100 pcs.	151-28449
MB5A	37.7	37.7	7.1	4.8	8.9	PA66	Black (BK)	Synthetic rubber T50	100 pcs.	151-28602
	37.7	37.7	7.1	4.8	8.9	PA66	White (WH)	Synthetic rubber T50	100 pcs.	151-28529
MB5A3	38.0	38.0	6.4	4.7	10.0	PA66	Black (BK)	Acrylate	100 pcs.	151-28530

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available. \* Plastic box



For product specific approvals and specifications please refer to the Appendix.

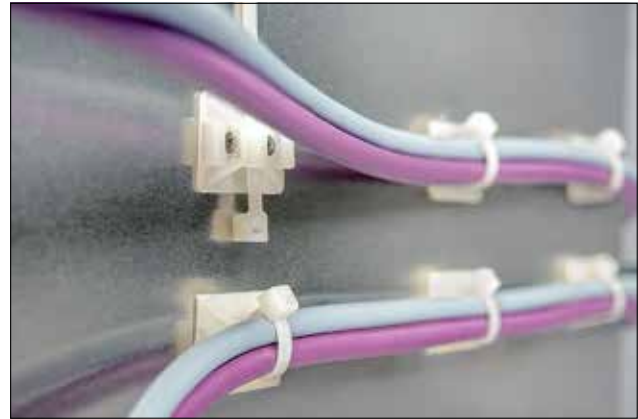


### Screw Fixing Cable Tie Mounts

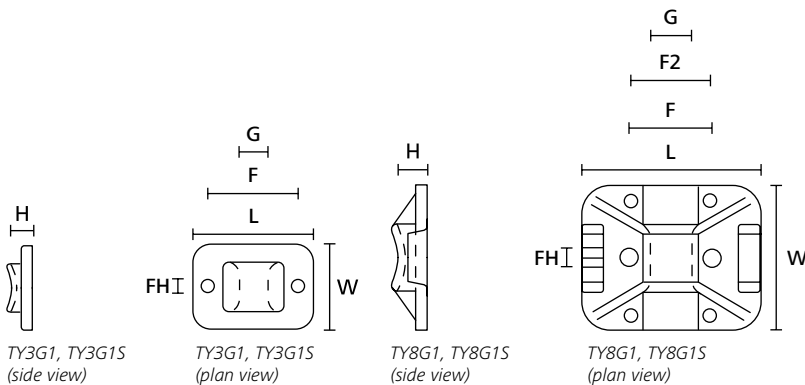
These products are designed for simple yet robust installation in a wide variety of applications. TY-Series mounts with rectangled design are particularly used in telecoms equipment, switchgear and control cabinets. With its small and compact design TY3G1 offers an easy and rapid assembly for many different applications.

#### Features and benefits

- Screwable or self-adhesive versions
- Concave design to support larger diameter cables and bundles
- 2-way mounting base for safe guiding of cables and conduits
- Suitable for applications with minimal space
- Mounted before cable installation
- Usable with standard cable ties



TY-Series mounts with rectangle design / screwable, self adhesive.



**For more information on the types of adhesive please see page 136.**

#### TY-Series Rectangle Design, screwable

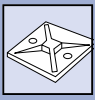
TYPE	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Fixing Hole Centres (F)	Fixing Hole Centres (F2)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
TY3G1	14.0	20.0	3.7	2.2	15.0	-	4.0	PA66	Natural (NA)	100 pcs.	151-21319
TY8G1	25.0	32.0	5.5	3.2	15.0	14.0	8.0	PA66	Natural (NA)	100 pcs.	151-21819

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

#### TY-Series Rectangle Design, self adhesive, screwable

TYPE	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Fixing Hole Centres (F)	Fixing Hole Centres (F2)	Strap Width max. (G)	Material	Colour	Adhesive	Pack Cont.	Article-No.
TY3G1S	14.0	20.0	3.7	2.2	15.0	-	4.0	PA66	Natural (NA)	Acrylate	100 pcs.	151-11319
	14.0	20.0	3.7	2.2	15.0	-	4.0	PA66W	Black (BK)	Acrylate	100 pcs.	151-11310
TY8G1S	25.0	32.0	5.5	3.2	15.0	14.0	8.0	PA66	Natural (NA)	Acrylate	100 pcs.	151-11819
	25.0	32.0	5.5	3.2	15.0	14.0	8.0	PA66W	Black (BK)	Acrylate	100 pcs.	151-11810

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Paste Adhesive Mount

#### PMB5 mount for uneven surfaces

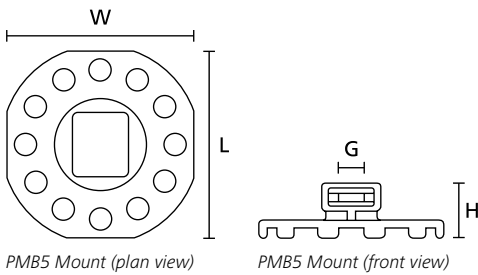
PMB5 pasty mount offers a fixing solution wherever screw fixing is not allowed. Due to a larger diameter the mount can even be installed onto uneven surfaces. PMB5 pasty mount is used in the railway industry as well as in the renewable energy industry. Further applications are in the ship building industry, in the electrical industry and the production of switching cabinets.

#### Features and benefits

- PMB5 paste adhesive mount for fixings with paste / liquid adhesive
- Mount geometry offers a good form closure with cured adhesive
- Can even be installed onto uneven surfaces due to large diameter
- Can also be applied in combination with hot-melt adhesive, as mount is made of heat resistant PA66



PMB5 mount with paste adhesive.



PMB5 Mount (plan view)

PMB5 Mount (front view)



**Material specification please see page 22.**

TYPE	Width (W)	Length (L)	Height (H)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
PMB5	36.0	36.0	10.7	4.8	PA66HS	Black (BK)	100 pcs.	151-00498

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Mounts with round design, self adhesive

#### RA-Series

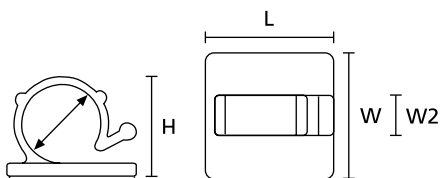
These mounts are ideal for use in applications which are difficult to access or for areas where self adhesive is the only possible fixing method and fixing holes would be unacceptable. The round self adhesive mounts can be used without cable ties. Offering process optimization in industries like automotive, bus and truck, construction vehicles or industrial building.

#### Features and benefits

- One-piece self adhesive mount for quick and easy installation
- Can be used without cable ties offering process optimization
- Designed to hold wires, cables or hoses
- Different sizes for various bundle diameters available
- Two types of adhesive can be offered



Self adhesive one piece fixing mounts RA6 (l) and RB5 (r).



RA3-18 Series (side view)

RA3-18 Series (plan view)

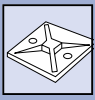


For more information on the types of adhesive please see page 136.

TYPE	Width (W)	Width (W2)	Length (L)	Height (H)	Bundle Ø max.	Material	Colour	Adhesive	Article-No.
RA3	13.0	5.0	13.0	5.0	3.0	PA66	Natural (NA)	Synthetic rubber T60	151-13018
RA6APT-I	19.0	5.0	19.0	9.0	6.0	PA66	Natural (NA)	mod. Acrylate	151-01635
RA6	19.0	5.0	19.0	9.0	6.0	PA66	Natural (NA)	Synthetic rubber T60	151-13019
RA9	19.0	7.5	19.0	12.5	9.0	PA66	Natural (NA)	Synthetic rubber T60	151-13020
RA13APT-I	25.0	10.0	25.0	16.5	13.0	PA66	Natural (NA)	mod. Acrylate	151-01636
RA13	25.0	10.0	25.0	16.5	13.0	PA66	Natural (NA)	Synthetic rubber T60	151-13021
RA18	28.5	10.0	28.5	23.0	18.0	PA66	Natural (NA)	Synthetic rubber T60	151-13119

All dimensions in mm. Subject to technical changes.





## Mounts with flat and round design, self adhesive

### RB-Series

RB-Series self adhesive mounts offer greater routing freedom and also reduce the risk of corrosion compared to screw fixing mounts. They are ideally suited for tool-free installation and can be re-opened and reused easily when cables need to be replaced. These mounts can be used without the need for additional cable ties. Offering process optimization in a variety of applications.

### Features and benefits

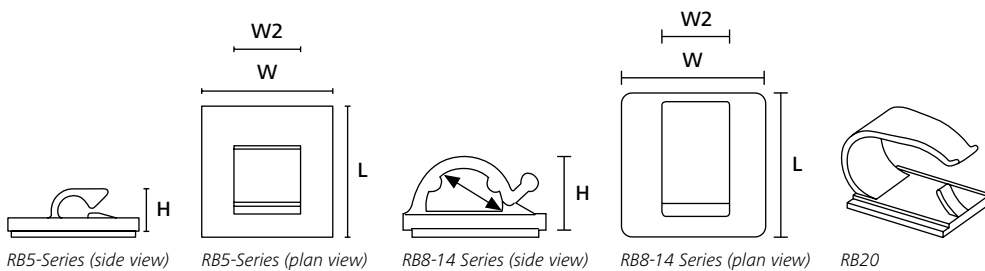
- Flat design to use in applications with limited space
- One-piece self adhesive mount for quick and easy installation
- Can be used without cable ties offering process optimization
- Different sizes for various bundle diameters available
- Cost effective with easy application on smooth, clean surfaces



Self adhesive one piece fixing mounts RB20 (l) and RB14 (r).

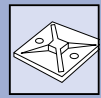


**Material specification  
please see page 22.**



TYPE	Width (W)	Width (W2)	Length (L)	Height (H)	Bundle Ø max.	Material	Colour	Adhesive	Article-No.
RB5	19.0	9.7	19.0	6.0	5.0	PA66	Black (BK)	Synthetic rubber T60	151-14000
	19.0	9.7	19.0	6.0	5.0	PA66	Natural (NA)	Synthetic rubber T60	151-14059
RB8	25.0	12.7	25.0	11.5	8.0	PA66	Black (BK)	Synthetic rubber T60	151-13601
	25.0	12.7	25.0	11.5	8.0	PA66	Natural (NA)	Synthetic rubber T60	151-13606
RB20	27.0	18.0	33.0	25.0	20.0	PA66HIRHS	Black (BK)	Synthetic rubber T60	151-00831
RB14	27.4	23.0	33.2	16.0	14.0	PA66	Black (BK)	Synthetic rubber T60	151-00502
	27.4	23.0	33.2	16.0	14.0	PA66	Natural (NA)	Synthetic rubber T60	151-00505

All dimensions in mm. Subject to technical changes.



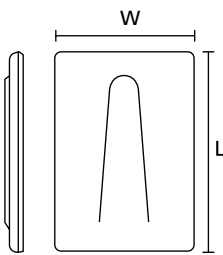
### Mounts with flexible flat design

#### SAC-Series

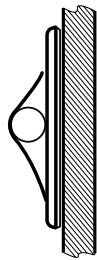
These clips are ideal for use in applications which are difficult to access, or for areas where a self adhesive solution is the only possible fixing method and holes would be unacceptable. Typical applications include domestic appliances and trailers.

#### Features and benefits

- Bendable metal tongue for any shape or configuration of wires or cables
- Cost effective with easy application on smooth, clean surfaces



SAC-Series Self Adhesive Clip



SAC-Series in application



Malleable tongue allows for a variety of sizes per clip.



For more information on the types of adhesive please see page 136.

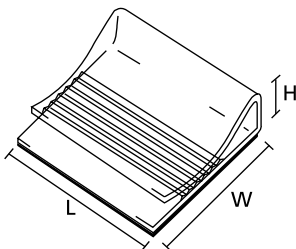
TYPE	Width (W)	Length (L)	Bundle Ø max.	Material	Colour	Adhesive	Article-No.
SAC0	15.0	20.0	3.0	ST	White (WH)	Acrylate	151-00033
SAC1	20.0	30.0	4.0	ST	White (WH)	Acrylate	151-00100
SAC2	25.0	35.0	8.0	ST	White (WH)	Acrylate	151-00200
SAC3	31.0	43.0	12.0	ST	White (WH)	Acrylate	151-00300
SAC4	38.0	51.0	16.0	ST	White (WH)	Acrylate	151-00400

All dimensions in mm. Subject to technical changes.

#### Type 130100

#### Features and benefits

- Self adhesive mount with integrated clamp for holding flat cables
- Manufactured from PVC



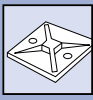
130100 Self Adhesive Clip



130100 self adhesive mount for flat cables.

TYPE	Width (W)	Length (L)	Height (H)	Material	Colour	Adhesive	Article-No.
130100	25.0	25.0	9.1	PVC	White (WH)	Acrylate	154-01119

All dimensions in mm. Subject to technical changes.



### Cable Tie Mounts for food industry, detectable

#### MCMB-Series, screwable

MCMB mounts are ideally suited for holding MCT-Series cable ties in position, even in areas of high vibration such as food manufacturing equipment and automated packaging machines.

#### Features and benefits

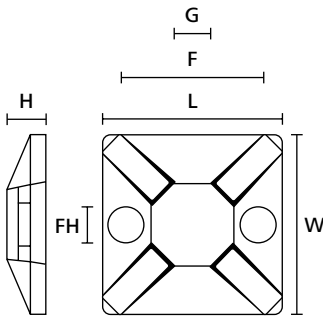
- Distinctive blue colour for easy visual detection
- Simple to install with a screw or bolt
- Provides a secure fixing solution for routing cables, tubes and hoses
- 4-way entry for the cable tie leads to a quicker and more flexible installation
- Magnetic and X-Ray detectable – perfect for use with food and pharmaceutical grade detection equipment
- Total metal dispersion provides consistent detectability, even for small cut-off pieces
- Greatly reduced risk of contamination within food products
- Can support quality assurance in the production of food stuffs, for example HACCP



Detectable fixing solution containing of MCMB mount and MCT cable tie.



One Step to the Web!



MCMB Mount (side and plan view)



Can support quality assurance in the production of food stuffs, for example HACCP.

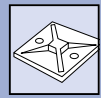


The MCMB mount can ideally be combined with MCT cable ties on page 63.

TYPE	Width (W)	Length (L)	Height (H)	Fixing Hole Centres (F)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
MCMB3	19.0	19.0	3.8	13.2	3.1	3.5	PA66MP	Blue (BU)	100 pcs.	151-01169
MCMB4	28.0	28.0	4.7	20.0	4.0	4.7	PA66MP	Blue (BU)	100 pcs.	151-01170

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

\*HACCP stands for Hazard Analysis Critical Control Points. It is a method of identifying and eliminating potential hazards in food production. Those hazards that cannot be eliminated are controlled in such a way that the consumer is protected. These controls are known as Critical Control Points (CCPs). They are CRITICAL because if they fail or are not carried out, the risk of the product harming the customer increases.



### Screw Fixing Cable Tie Mounts CTQM

#### Q-Mount Series CTQM

CTQM mounts are ideally suited for holding our innovative Q-ties in place. They would perfectly fit to all applications where a reliable and durable fixation is required and where space is limited.

#### Features and benefits

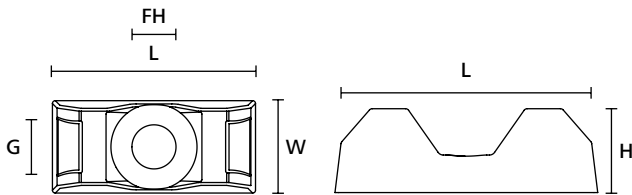
- 2-way mounting base for safe guiding of cables and conduits
- For cable ties up to 5 mm width
- Uses screw with countersunk head (max.  $\varnothing$  of head: 8.0 mm)
- Perfect for combination with Q-ties
- Pre-assembly feature in combination with cable tie
- Holds the cable tie in vertical mounting position



Q-Mount, CTQM 2-way entry, screwable.



Application video:  
Q-Series



CTQM-Series (plan view)

CTQM-Series (side view)



**Material specification  
please see page 22.**



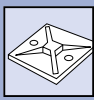
**Please find more Q-Series products  
for your system solution on page  
51, 139 and 530.**

TYPE	Width (W)	Length (L)	Height (H)	Hole $\varnothing$ (FH)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
CTQM5	9.5	21.0	6.7	4.5	5.0	PA66	Natural (NA)	100 pcs.	151-10920
	9.5	21.0	6.7	4.5	5.0	PA66	Black (BK)	100 pcs.	151-10930

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



For product specific approvals and specifications please refer to the Appendix.



### Screw Fixing Mounts

#### Cable Tie Mounts with curved design

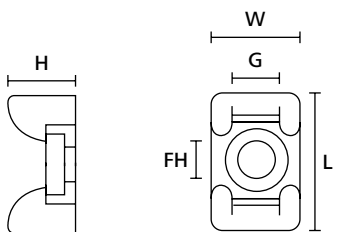
Designed specifically for holding heavier cable bundles these mounting bases can be used in many industries from agriculture to truck manufacture. They offer a very secure fixing and can be used with a wide variety of heavy duty cable ties up to 8.3 mm width.

#### Features and benefits

- Curved design for additional cable support
- Simple to install with a screw or bolt
- Excellent security, particularly in areas of high vibration
- Mounts are available in various sizes and materials



Cable Tie Mounts KR6G5, KR8G5 and CTM.



KR6G5, KR8G5 and CTM (side view)

KR6G5, KR8G5 and CTM (plan view)



The KR-E/TFE mounts can ideally be combined with the E/TFE-cable ties on page 47.



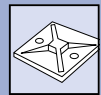
Can support quality assurance in the production of food stuffs, for example HACCP.

TYPE	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
CTM0	9.4	14.7	6.9	3.8	5.0	PA66	Black (BK)	100 pcs.	151-30300
	9.4	14.7	6.9	3.8	5.0	PA66	White (WH)	100 pcs.	151-30303
CTM1	9.4	14.7	6.9	4.8	5.0	PA66	Black (BK)	100 pcs.	151-30400
	9.4	14.7	6.9	4.8	5.0	PA66	White (WH)	100 pcs.	151-30404
KR6G5	11.8	17.8	8.8	4.5	6.4	E/TFE	Blue (BU)	100 pcs.	151-00653
MCKR6G5	11.8	17.8	8.8	4.5	6.4	PA66MP+	Blue (BU)	100 pcs.	151-00950
KR6G5	12.0	18.0	9.0	4.5	6.0	PA66	Natural (NA)	100 pcs.	151-24619
	12.0	18.0	9.0	4.5	6.0	PA66W	Black (BK)	100 pcs.	151-24660
MCKR8G5-5	14.3	24.8	12.0	5.2	8.3	PA66MP+	Blue (BU)	100 pcs.	151-01020
KR8G5	14.3	24.8	12.1	6.5	8.3	E/TFE	Blue (BU)	100 pcs.	151-00654
	14.5	25.0	12.0	6.5	8.0	PA66	Natural (NA)	100 pcs.	151-24819
	14.5	25.0	12.0	6.5	8.0	PA66HS	Black (BK)	100 pcs.	151-24850
CTM2	15.5	21.8	9.4	4.6	7.9	PA66	Black (BK)	100 pcs.	151-30500
	15.5	21.8	9.4	4.6	7.9	PA66	White (WH)	100 pcs.	151-30504
CTM3	15.5	21.8	9.4	5.1	7.9	PA66	Black (BK)	100 pcs.	151-30600
	15.5	21.8	9.4	5.1	7.9	PA66	White (WH)	100 pcs.	151-30605
CTM4	15.8	21.8	9.4	6.4	7.9	PA66	Black (BK)	100 pcs.	151-30700
	15.8	21.8	9.4	6.4	7.9	PA66	White (WH)	100 pcs.	151-30703

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



For product specific approvals and specifications please refer to the Appendix.



### Screw Fixing Mounts

#### CTAM-Series for applications where space is limited

Each of these products offers particular benefits, but all are designed for simple yet robust installation in a wide variety of applications. Particularly used in telecoms equipment, switchgear and control cabinets these cable tie mounts are also used within the aerospace and railway industry.

#### Features and benefits

- Suitable for applications with minimal space
- Mounted before cable installation and in line with cable
- CTAM has 4-way entry design for use in line or at 90° angle to cable run
- CTAM mounts are available in different sizes and materials



CTAM mounts for applications with limited space.



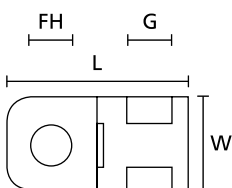
The CTAM mounts made of PEEK are the ideal complement for the PEEK tie on page 65.



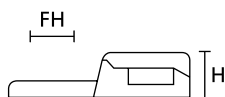
The CTAM mounts made of PA66MP+ are the ideal complement for MCTS ties on page 63.



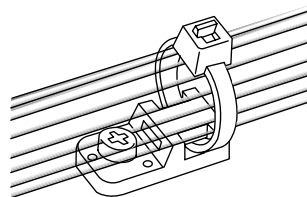
Can support quality assurance in the production of food stuffs, for example HACCP.



CTAM-Series (plan view)



CTAM-Series (side view)



CTAM-Series in application



One Step to the Web!

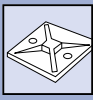
TYPE	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
CTAM1	10.2	20.4	5.1	4.3	5.0	PA66	White (WH)	100 pcs.	151-31109
CTAM2	10.2	20.4	5.1	5.2	5.0	PA66	White (WH)	100 pcs.	151-31203
CTAM1	10.2	20.5	5.5	4.3	5.0	PEEK	Beige (BGE)	100 pcs.	151-00757
CTAM2	10.2	20.5	5.5	5.2	5.0	PEEK	Beige (BGE)	100 pcs.	151-00758
MCCTAM1	10.3	20.7	5.1	4.3	5.0	PA66MP+	Blue (BU)	100 pcs.	151-00997

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



For product specific approvals and specifications please refer to the Appendix.





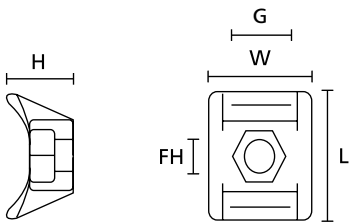
## Screw Fixing Mounts

### LKC- and NY-Series with overlapping curved design

Designed specifically for holding heavier cable bundles, these mounting bases can be used in many industries from agriculture to truck manufacturing. They offer a very secure fixing and can be used with a wide variety of heavy duty cable ties up to 13 mm width.

#### Features and benefits

- Curved design for additional cable support
- Simple to install with a screw or bolt
- Excellent security, particularly in areas of high vibration



NY3256 (side view)

NY3256 (plan view)



Cable Tie Mounts LKC Series.



**Material specification  
please see page 22.**

TYPE	Drawing	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
LKC		17.0	25.0	13.5	5,5	8.0	PA66	Black (BK)	100 pcs.	151-27010
		17.0	25.0	13.5	5,5	8.0	PA66	Natural (NA)	100 pcs.	151-27019
LKCSF1		19.0	40.0	16.0	6,0	13.0	PA66W	Black (BK)	100 pcs.	151-01683
		19.0	40.0	16.8	6,0	13.0	PA66	Natural (NA)	100 pcs.	151-27219
		19.0	40.0	16.8	6,0	13.0	PA66	Black (BK)	100 pcs.	151-27202
NY3256		12.0	13.5	7.8	3,1	8.0	PA66	Natural (NA)	1,000 pcs.	151-25219

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Screw Fixing Mounts

These cable tie mounts are very small in their overall size. They are designed for simple yet robust installation particularly in areas with high vibrations and/or limited space. They are a common fixing method for telecoms equipment, switchgear and control cabinets.

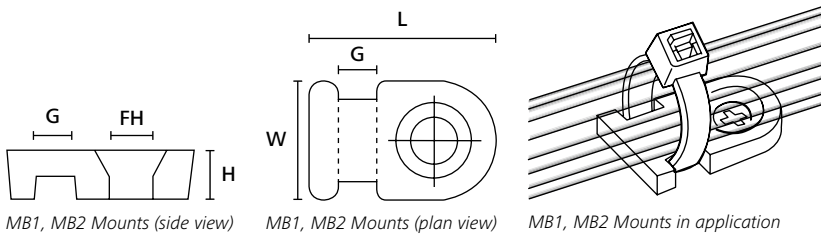
#### Features and benefits

- Small overall size for areas with limited mounting space
- Simple to install with a screw, bolt or rivet
- Excellent security, particularly in areas of high vibration
- Single hole fixing with two-way entry for cable tie



TY- (l) and MB-Series (r) with curved design, screwable.

#### MB-Series Curved Design, screwable



MB1, MB2 Mounts (side view)

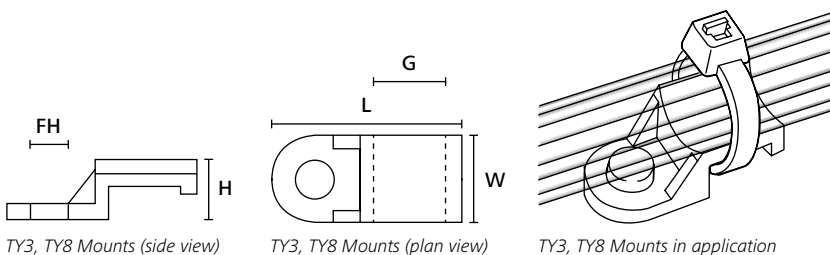
MB1, MB2 Mounts (plan view)

MB1, MB2 Mounts in application

TYPE	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
MB1	8.0	12.5	3.5	2.9	2.6	PA66	Natural (NA)	100 pcs.	151-28119
MB2	12.5	20.5	3.3	5.0	5.0	PA66	Black (BK)	100 pcs.	151-28210
	12.5	20.5	3.3	5.0	5.0	PA66	White (WH)	100 pcs.	151-28219

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

#### TY-Series Curved Design, screwable



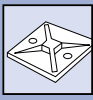
TY3, TY8 Mounts (side view)

TY3, TY8 Mounts (plan view)

TY3, TY8 Mounts in application

TYPE	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
TY3F1	8.0	19.0	5.7	3.5	5.0	PA66	Natural (NA)	1,000 pcs.	151-02156
TY8F1	10.0	22.5	7.2	4.5	8.0	PA66	Natural (NA)	1,000 pcs.	151-02157

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Screw Fixing Mounts

#### LKM / CL / FH with curved design for sideways fixing

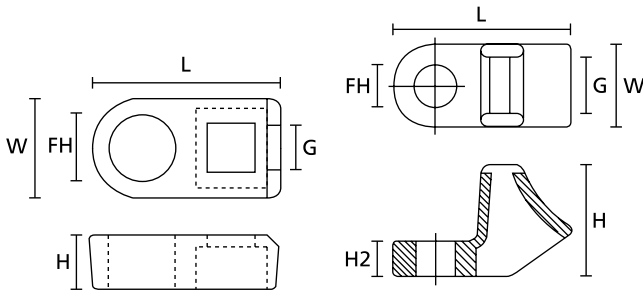
In areas with limited space these mounting bases allow the cable to be offset from the fixing hole, and can be installed in the equipment prior to the cable installation. A major cost saving can be made using these products as they will allow the use of many different sizes of standard cable ties without the need to stock a wide range of specific fixing ties.

#### Features and benefits

- Small overall size for areas with limited mounting space
- Screwable mounts for fixing cable sideways
- Ideal for securing large, heavier bundles
- Suitable for cable ties up to 8 mm width

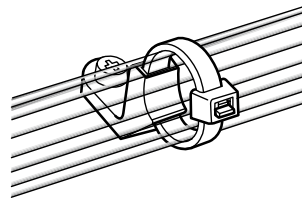


LKM, CL8 and FH cable tie mounts for applications with limited space.



FH cable tie mounts (plan and side view)

LKM, CL8 cable tie mounts (plan and side view)



CL8 cable tie mount in application

TYPE	Width (W)	Length (L)	Height (H)	Height (H2)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
FH18	7.1	13.3	4.0	-	3.7	2.5	PA66	Natural (NA)	500 pcs.	151-61119
FH30	9.5	17.9	4.7	-	5.5	3.5	PA66	Natural (NA)	500 pcs.	151-61319
FH50	11.3	22.2	6.2	-	7.1	4.6	PA66	Natural (NA)	500 pcs.	151-61519
LKM	12.0	27.0	16.0	5.0	6.0	7.6	PA66	Black (BK)	100 pcs.	151-26301
	12.0	27.0	16.0	5.0	6.0	7.6	PA66	Natural (NA)	100 pcs.	151-26304
CL8	12.5	27.3	16.0	5.0	6.5	8.0	PA66	Natural (NA)	100 pcs.	151-26819
	12.5	27.3	16.0	5.0	6.5	8.0	PA66W	Black (BK)	100 pcs.	151-26860

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Fixing Base

#### LOK02

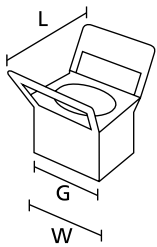
Designed specifically for holding heavier cable bundles these mounting bases can be used in many industries from agriculture to truck manufacture. LOK cable tie mounts offer a very secure fixing and can be used in combination with cable ties up to 9 mm width.

#### Features and benefits

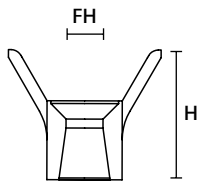
- Special design of fixing base gives additional support to cables
- Simple to install with a screw or bolt
- Excellent security, particularly in areas of high vibration



LOK02 fixing base application.



LOK02 Fixing Base



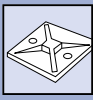
LOK02 Fixing Base  
(front view)



**Material specification  
please see page 22.**

TYPE	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Article-No.
LOK02	14.0	21.0	18.0	5.1	9.0	PAGHIR	Black (BK)	151-80210

All dimensions in mm. Subject to technical changes.



### Clips with elasticated loop

#### Cradle clamp

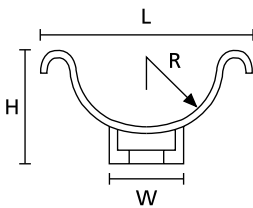
Simple and versatile method of bundling cables. These clamps consist of two parts. The clamping base for mounting onto a panel and the elastical loop.

#### Features and benefits

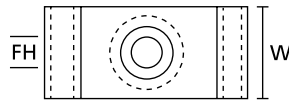
- 2-piece fixing part consists of clamp and retaining ring
- Suitable for pre-assembly and prototyping
- Useful for applications requiring addition or removal of cables
- Simply stretch loop over clip for simple and quick cable containment



2-Piece fixing cradle clamp.



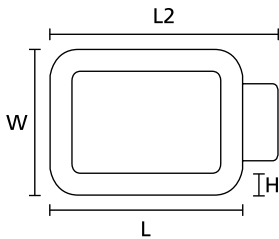
Cradle Clip (front view)



Cradle Clip (plan view)

TYPE	Width (W)	Length (L)	Height (H)	Radius (R)	Hole Ø (FH)	Material	Colour	Article-No.
C1	12.7	22.0	14.0	6.3	4.8	PA6HIR	Black (BK)	201-10010
C2	12.7	35.0	18.0	11.0	4.8	PA6HIR	Black (BK)	201-10020
C3	12.7	48.0	25.0	17.5	4.8	PA6HIR	Black (BK)	201-10030

All dimensions in mm. Subject to technical changes.



Retaining Ring R1 - 3

TYPE	Width (W)	Length (L)	Length (L2)	Height (H)	Material	Colour	Article-No.
R1	23.8	16.0	22.0	3.2	PVC	Black (BK)	201-20010
R2	23.8	22.0	29.0	3.2	PVC	Black (BK)	201-20020
R3	23.8	33.0	39.0	3.2	PVC	Black (BK)	201-20030

All dimensions in mm. Subject to technical changes.



### Strain Relief Clips

#### Klam-Klip (KK)

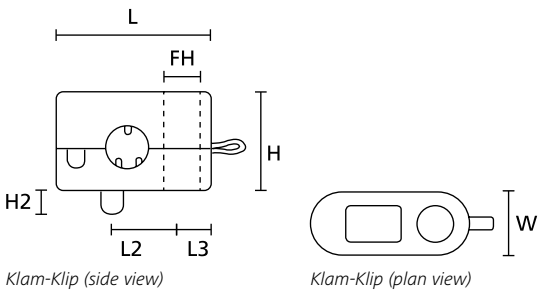
Strain relief clips for gripping cables up to 8.5 mm bundle diameter. Strain relief clip is simply attached to mounting surface with an M4 fixing screw.

#### Features and benefits

- Simple 1-screw fixing to guide and secure leads
- Two halves of the clip are linked to ensure no loss of parts during re-wiring
- Anti-rotation pin prevents leads from twisting



Strain relief Klam-Klip in application.



Klam-Klip (side view)

Klam-Klip (plan view)

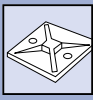


**Material specification  
please see page 22.**

TYPE	Width (W)	Length (L)	Height (H)	Height (H2)	Hole Ø (FH)	Bundle Ø min.	Bundle Ø max.	Material	Colour	Article-No.
KK1	8.8	22.0	14.0	3.5	5.0	4.5	5.7	PA6HIR	Black (BK)	234-10100
KK2	8.8	22.0	14.0	3.5	5.0	5.5	6.7	PA6HIR	Black (BK)	234-10200
KK3	8.8	22.0	14.0	3.5	5.0	6.5	7.7	PA6HIR	Black (BK)	234-10300
KK4	8.8	22.0	14.0	3.5	5.0	7.5	8.5	PA6HIR	Black (BK)	234-10400

All dimensions in mm. Subject to technical changes.





### Harness Clip for Heavy Duty Applications, for Screws or threaded Bolts

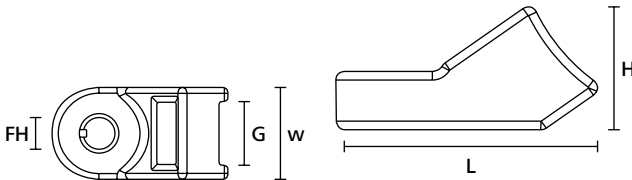
These heavy duty mounts (HDM) have been primarily designed for use in the automotive and truck industry. Nowadays they can be found in a variety of applications requiring heavy duty mounting in areas like the railway, defence and/or agriculture industry.

#### Features and benefits

- Design offers secure alignment to the bundle
- Possible replacement of cushion clamps and/or metal clamps
- Eliminates the needs for multiple sized fix diameter clamps
- For heavy duty cable ties up to 12.7 mm width
- High tightening torque through metal bushing
- Easy maintenance of bundle by simply changing the cable tie



Heavy Duty Mounts HDM-Series, Patent Number US5820083.



HDM19, 25, 312



Material specification please see page 22.

#### Standard Torque Mounts

TYPE	Drawing	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
HDM25		19.0	35.8	16.7	6.2	12.7	PA66HIR	Black (BK)	100 pcs.	151-00437
HDM19		19.3	36.3	16.7	4.7	12.7	PA66HIRHS	Black (BK)	100 pcs.	151-00134
HDM312		19.3	36.3	16.7	7.8	12.7	PA66HIRHSW	Black (BK)	100 pcs.	151-00439

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

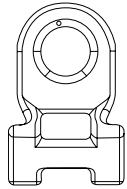
#### Medium Torque Mounts

TYPE	Drawing	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
HDM321		24.0	46.0	20.7	8.31	12.7	PA66HSW	Black (BK)	500 pcs.	151-07100
HDM401		24.0	46.0	20.7	9.5	12.7	PA66HIRHSW	Black (BK)	100 pcs.	151-00442
HDM501		24.0	46.0	20.7	12.7	12.7	PA66HIRHS	Black (BK)	500 pcs.	151-07500

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### High Torque Mounts (metal bushing)

TYPE	Drawing	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
HDM400BR		25.0	47.0	20.7	10,29	12.7	PA66HIRHSUV	Black (BK)	500	151-01224

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

### Two Way Saddle Mount for heavy duty applications, for parallel separation

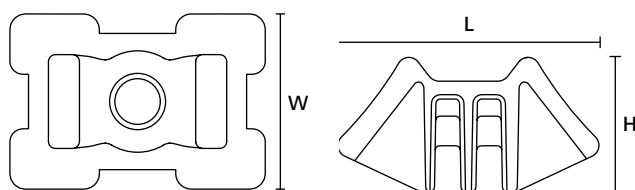
Heavy duty saddle mounts can be installed between two bundles to separate them and prevent chafing and wear. Fastened to a frame rail or mounting bracket, the special profile on the saddle mount provides a tight circumferential loop on large and small bundles. The saddle mount is an ideal assistant in many applications within the railway, truck and agricultural vehicle construction as well as in the ship building industry.

#### Features and benefits

- For parallel routing of different bundles to avoid wear and chafing
- Offers secure alignment to the bundle
- Can be used in combination with heavy duty cable ties
- Easy maintenance of bundle by simply changing the cable tie
- Made from impact modified, heat stabilized material



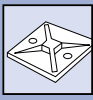
This saddle mount is installed between two bundles to separate them and prevent chafing and wear.



S2CM25

TYPE	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Bundle Ø max.	Material	Colour	Pack Cont.	Article-No.
S2CM25	30.0	45.0	23.0	6.0	12.5	89.0	PA66HIRHS	Grey (GY)	500 pcs.	151-29400
S2HM25	30.0	45.0	23.0	6.0	13.5	89.0	PA66HIRHSW	Black (BK)	500 pcs.	151-29403

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Harness Clip for Heavy Duty Applications, for Screws or threaded Bolts for Edges

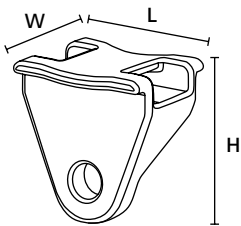
This heavy duty harness clip helps to fix and secure cables and wires in railway, truck and agricultural vehicle construction, and is also used in the ship building industry.

#### Features and Benefits

- Guides bundles securely above sharp edges
- For bolts or screws of D = 8 mm
- Cable tie head can be moved after bundling
- Secure alignment to the bundle due to H-design
- For cable ties up to 12.7 mm wide



*Axial oval mounts stand off bundles from frame rails and cross members to prevent them from rubbing and chafing.*



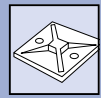
SAM83



**Material specification please see page 22.**

TYPE	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Material	Colour	Pack Cont.	Article-No.
SAM83	26.0	34.0	35.0	8,0	PA66HIRHS	Grey (GY)	500 pcs.	151-29600
SAOM82	26.0	34.3	35.0	8,0	PA66HIRHSW	Black (BK)	500 pcs.	151-29701

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Fixing Elements with Fir Tree, for Distance Routing

#### Saddle Mount

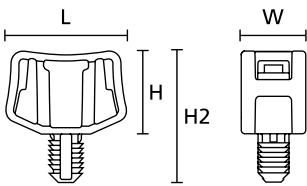
These heavy duty fixing offers excellent performance for ship building and the truck and construction vehicle industries.

#### Features and Benefits

- For parallel routing of four bundles
- Secure alignment to the bundle due to H-design
- For cable ties up to 12.7 mm wide
- Pre-fixing of tie with integrated nose



The mount can secure up to four separate bundles, providing parallel spacing between the frame rail and adjacent bundles.



Fir Tree Saddle Mounts

TYPE	Width (W)	Length (L)	Height (H)	Height (H2)	Hole Ø (FH)	Panel Thickness	Bundle Ø max.	Material	Colour	Pack Cont.	Article-No.
S3STM50	22.0	50.0	35.0	55.0	12,7 - 13,7	1.9 - 13.0	127.0	PA66HIRHS	Black (BK)	100 pcs.	151-29500

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

### Fixing Elements for BHT-Ties for Distance Routing

#### MSBT120

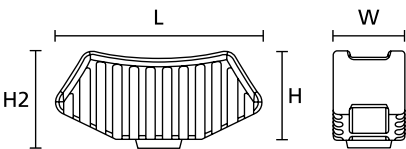
These heavy duty fixing offers excellent performance for ship building and the truck and construction vehicle industries.

#### Features and Benefits

- For parallel routing of three bundles
- Retainer is fixed in the hole with BHT-tie
- Socket centres retainer in the hole and can protect tie from sharp edges



Saddle Mount MSBT120.



MSBT120

TYPE	Width (W)	Length (L)	Height (H)	Height (H2)	Hole Ø (FH)	Panel Thickness	Material	Colour	Pack Cont.	Article-No.
MSBT120	16.5	48.3	20.6	22.2	11,2 - 20,8	2.7	PA66HIRHSW	Black (BK)	500 pcs.	151-29301

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Heavy Duty Mounts for 3-way routing

Primarily designed for use in the automotive/truck industry, these parts can be used in a wide variety of industries and applications where bundles need mounting.

These heavy duty harness clips helps to fix and secure cable, lines and hydraulic lines in truck, agriculture and railway vehicle construction, as well as in ship building.

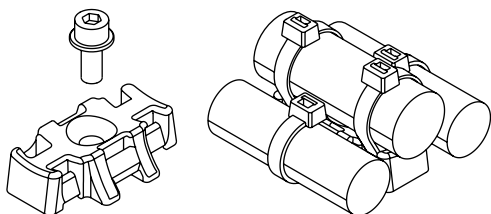
#### Features and benefits

- For parallel routing of bundles
- Secure alignment to the bundle due to H-design
- Easy maintenance of bundle by simply changing cable tie
- Cable tie head can be moved after bundling



S3CBM8 in combination with our X-Series.

#### S3CBM8



Suitable for external cylindrical hexagonal bolts M8

Exemplary illustration of a possible 3-way transfer

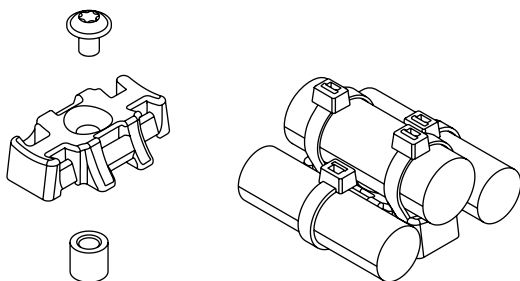


S3SB15CBM8 and S3CBM8.

TYPE	Width (W)	Length (L)	Height (H)	Bundle Ø max.	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
S3CBM8	46.0	70.0	18.6	100.0	9.0	PA6GF30	Black (BK)	500 pcs.	151-01040

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

#### S3SB15CBM8

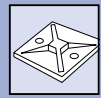


Suitable for welding studs (M8 internal bore & outer diameter 15 mm)

Exemplary illustration of a possible 3-way transfer

TYPE	Width (W)	Length (L)	Height (H)	Bundle Ø max.	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
S3SB15CBM8	46.0	70.0	18.6	100.0	9.0	PA6GF30	Black (BK)	500 pcs.	151-01010

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Screw Fixing Mounts

#### Stainless Steel 316 mounts

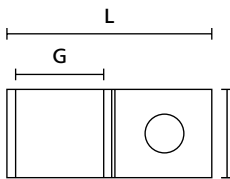
Suitable for the secure fixing of cables, tubing, conduits and pipes within the most arduous of environments. Providing a complete fastening and fixing solution when used in conjunction with stainless steel ties up to 10.0 mm width. SSPC metal cable tie mounts are ideal for use within shipbuilding, oil and gas (offshore), industrial machinery and vehicles, food and beverage, power, renewable energy or process industries.

#### Features and benefits

- 2-way fixing for metal cable ties
- High performance stainless steel 316 material
- Heavy duty design
- Robust and durable solution
- Resistant to a range of chemicals in challenging environments
- Quick and easy to install
- Safe and secure solution for cables, tubing, conduits and pipes



One Step to the Web!



SSPC Series (plan view)



SSPC-Series (side view)



Stainless Steel P-Mount SSPC for use in arduous environments.

**i** The SSPC-Mounts can ideally be combined with the MBT cable ties on page 82–88 and with the MST and MLT cable ties on page 89, 90.

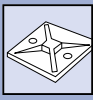
**i** Can support quality assurance in the production of food stuffs, for example HACCP.

**i** Material specification please see page 23.

TYPE	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	Pack Cont.	Article-No.
SSPC4	10.2	23.0	4.5	4.2	10.0	SS316	Metal (ML)	100 pcs.	151-00837
SSPC5	10.2	23.0	4.5	5.3	10.0	SS316	Metal (ML)	100 pcs.	151-00838
SSPC6	10.2	23.0	4.5	6.3	10.0	SS316	Metal (ML)	100 pcs.	151-00839

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.





## Ratchet P-Clamp

**For bundle diameters from 6.2 mm to 51.0 mm**

The Ratchet P-Clamp family offers versatility when managing wires, cables and hoses. The robust design and durable materials make it ideal for heavy duty applications, both in- and outdoors. The one-piece adjustable clamp can be closed by hand to the desired diameter. The release feature provides easy and nondestructive removal of cables simply by using a flat-head screwdriver. This nondestructive release allows the clamp to be reused without removing or replacing any bolts or screws. The Ratchet P-Clamp is offered in four sizes and multiple mounting configurations.

### Features and benefits

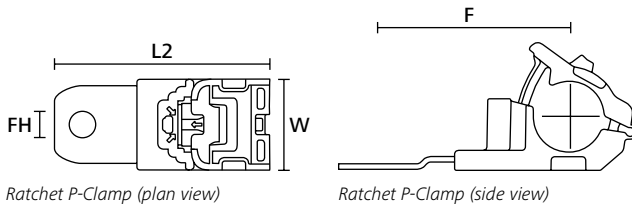
- One-piece ratchet closure design allows for easy installation during pre- or final assembly
- Multiple configurations handle a wide range of diameters and applications, reducing part inventory
- Clamp interior is designed to guide and center bundle to reduce pinching
- Easy release feature allows for quick adjustments and maintenance
- Impact modified, heat and UV stabilized PA66 provides long-term durability, in- and outdoors
- Steel mounting plate tolerates high torque mounting and is treated to resist chemicals and salt spray



Ratchet P-Clamps in multiple configurations to handle a wide range of diameters and applications.



One Step to the Web!



Ratchet P-Clamp (plan view)

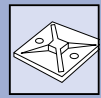
Ratchet P-Clamp (side view)

**For bundle diameters from 6.2 mm to 13.7 mm**

TYPE	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.	Hole Ø (FH)	Fixing Hole Centres (F)	Variant	Material	Colour	Article-No.
RCA90SM6	34.9	101.9	6.2	13.7	M6	24.9	90° Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01643
RCA180SM6	34.9	116.2	6.2	13.7	M6	50.5	180° Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01637
RCA180SM8	34.9	116.2	6.2	13.7	M8	50.5	180° Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01416
RCA180SM10	34.9	116.2	6.2	13.7	M10	50.5	180° Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01417
RCA180SM12	34.9	116.2	6.2	13.7	M12	50.5	180° Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01418
RCA90LM6	34.9	129.9	6.2	13.7	M6	24.9	90° Long	PA66HIRHSUV, ST, ZN	Black (BK)	151-01644
RCA90LM8	34.9	129.9	6.2	13.7	M8	24.9	90° Long	PA66HIRHSUV, ST, ZN	Black (BK)	151-01437
RCA180MM6	34.9	138.2	6.2	13.7	M6	72.5	180° Medium	PA66HIRHSUV, ST, ZN	Black (BK)	151-01638
RCA180MM8	34.9	138.2	6.2	13.7	M8	72.5	180° Medium	PA66HIRHSUV, ST, ZN	Black (BK)	151-01419
RCA180LM6	34.9	167.2	6.2	13.7	M6	101.5	180° Long	PA66HIRHSUV, ST, ZN	Black (BK)	151-01639

All dimensions in mm. Subject to technical changes.





### Ratchet P-Clamp

For bundle diameters from 12.7 mm to 19.5 mm

TYPE	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.	Hole Ø (FH)	Fixing Hole Centres (F)	Variant	Material	Colour	Article-No.
RCB90SM6	34.9	101.9	12.7	19.5	M6	26.7	90° Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01651
RCB90SM8	34.9	101.9	12.7	19.5	M8	26.7	90° Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01457
RCB180SM6	34.9	116.2	12.7	19.5	M6	52.8	180° Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01645
RCB180SM8	34.9	116.2	12.7	19.5	M8	52.8	180° Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01440
RCB180SM10	34.9	116.2	12.7	19.5	M10	52.8	180° Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01390
RCB180SM12	34.9	116.2	12.7	19.5	M12	52.8	180° Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01441
RCB90LM6	34.9	129.9	12.7	19.5	M6	26.7	90° Long	PA66HIRHSUV, ST, ZN	Black (BK)	151-01652
RCB90LM8	34.9	129.9	12.7	19.5	M8	26.7	90° Long	PA66HIRHSUV, ST, ZN	Black (BK)	151-01460
RCB180MM6	34.9	138.2	12.7	19.5	M6	74.8	180° Medium	PA66HIRHSUV, ST, ZN	Black (BK)	151-01646
RCB180LM6	34.9	167.2	12.7	19.5	M6	103.8	180° Long	PA66HIRHSUV, ST, ZN	Black (BK)	151-01647

All dimensions in mm. Subject to technical changes.

For bundle diameters from 19.4 mm to 36.0 mm

TYPE	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.	Hole Ø (FH)	Fixing Hole Centres (F)	Variant	Material	Colour	Article-No.
RCC90SM6	34.9	141.8	19.4	36.0	M6	39.9	90° Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01659
RCC90SM8	34.9	141.8	19.4	36.0	M8	39.9	90° Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01492
RCC180SM6	34.9	156.1	19.4	36.0	M6	62.3	180° Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01653
RCC180SM8	34.9	156.1	19.4	36.0	M8	62.3	180° Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01474
RCC180SM10	34.9	156.1	19.4	36.0	M10	62.3	180° Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01475
RCC180SM12	34.9	156.1	19.4	36.0	M12	62.3	180° Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01476
RCC90LM6	34.9	169.8	19.4	36.0	M6	39.9	90° Long	PA66HIRHSUV, ST, ZN	Black (BK)	151-01660
RCC90LM8	34.9	169.8	19.4	36.0	M8	39.9	90° Long	PA66HIRHSUV, ST, ZN	Black (BK)	151-01495
RCC180MM6	34.9	178.1	19.4	36.0	M6	84.3	180° Medium	PA66HIRHSUV, ST, ZN	Black (BK)	151-01654
RCC180LM6	34.9	207.1	19.4	36.0	M6	113.3	180° Long	PA66HIRHSUV, ST, ZN	Black (BK)	151-01655

All dimensions in mm. Subject to technical changes.

For bundle diameters from 36.0 mm to 51.0 mm

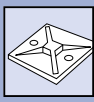
TYPE	Width (W)	Length (L)	Bundle Ø min.	Bundle Ø max.	Hole Ø (FH)	Fixing Hole Centres (F)	Variant	Material	Colour	Article-No.
RCD180SM8	34.9	181.5	36.0	51.0	M8	70.0	180° Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01499
RCD180SM10	34.9	181.5	36.0	51.0	M10	70.0	180° Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01501
RCD180SM12	34.9	181.5	36.0	51.0	M12	70.0	180° Short	PA66HIRHSUV, ST, ZN	Black (BK)	151-01502
RCD90LM8	34.9	195.2	36.0	51.0	M8	42.4	90° Long	PA66HIRHSUV, ST, ZN	Black (BK)	151-01521

All dimensions in mm. Subject to technical changes.

### Accessories

TYPE	Variant	Material	Colour	Article-No.
RCTT	No Serration	PA66HIRHSUV	Black (BK)	151-01529
RCINSERTA	Rubber profile	TPE	Black (BK)	151-01530
RCINSERTB	Rubber profile	TPE	Black (BK)	151-01531
RCINSERTC	Rubber profile	TPE	Black (BK)	151-01532
RCINSERTD	Rubber profile	TPE	Black (BK)	151-01533

All dimensions in mm. Subject to technical changes.



### Aluminium P-Clamps

#### Alu-P-Clamp with / without chloroprene insert

Manufactured from a high quality aluminium, these metal P-Clamps provide flexibility whilst providing a permanent fixing in the most arduous of environments. The addition of a chloroprene insert provides the cable or pipe bundle with a high degree of protection against vibration, reducing noise and also providing electrical isolation. They are commonly used in caravan construction, the defence and railway industry as well as in the renewable energy sector.

#### Features and benefits

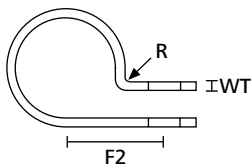
- Simple and secure pipe or cable fixation
- Can be combined with chloroprene rubber for vibration resistance
- Ideal for use in high temperature applications
- Suitable for applications needing strength of metal components



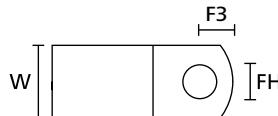
P-Clamps manufactured in polyamide, aluminium or aluminium with a chloroprene insert.



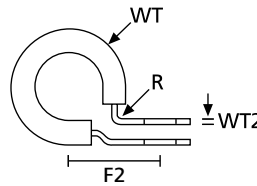
**Material specification please see page 22.**



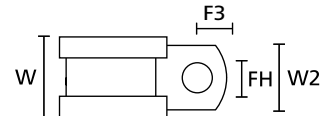
ALU P-Clamp (side view)



ALU P-Clamp (plan view)



ALU\_C P-Clamp with chloroprene insert (side view)

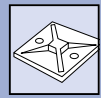


ALU\_C P-Clamp with chloroprene insert (plan view)

TYPE	Width (W)	Width (W2)	Wall (WT)	Wall (WT2)	Hole Ø (FH)	Fixing Hole Centres (F2)	Fixing Hole Centres (F3)	Bundle Ø max.	Radius (R)	Material	Colour	Article-No.
ALU4	12.7	-	0.80	-	5.2	11.6	5.5	6.4	1.6	AL	Natural (NA)	211-10040
ALU5	12.7	-	0.80	-	5.2	12.6	5.5	8.0	1.6	AL	Natural (NA)	211-10050
ALU6	12.7	-	0.80	-	5.2	13.4	5.5	9.5	1.6	AL	Natural (NA)	211-10060
ALU7	12.7	-	0.80	-	5.2	14.2	5.5	11.1	1.6	AL	Natural (NA)	211-10070
ALU8	12.7	-	0.80	-	5.2	15.0	5.5	12.7	1.6	AL	Natural (NA)	211-10080
ALU10	12.7	-	0.80	-	5.2	16.6	5.5	15.9	1.6	AL	Natural (NA)	211-10100
ALU11	12.7	-	1.30	-	5.2	19.1	5.5	17.5	2.8	AL	Natural (NA)	211-10110
ALU12	12.7	-	1.30	-	5.2	19.9	5.5	19.1	2.8	AL	Natural (NA)	211-10120
ALU13	12.7	-	1.30	-	5.2	20.7	5.5	20.6	2.8	AL	Natural (NA)	211-10130
ALU4C	16.3	12.7	3.70	0.8	5.2	11.6	5.5	3.2	1.6	AL, CR	Black (BK)	211-15040
ALU5C	16.3	12.7	3.70	0.8	5.2	12.6	5.5	4.8	1.6	AL, CR	Black (BK)	211-15050
ALU6C	16.3	12.7	3.70	0.8	5.2	13.4	5.5	6.4	1.6	AL, CR	Black (BK)	211-15060
ALU7C	16.3	12.7	3.70	0.8	5.2	14.2	5.5	8.0	1.6	AL, CR	Black (BK)	211-15070
ALU8C	16.3	12.7	3.70	0.8	5.2	15.0	5.5	9.5	1.6	AL, CR	Black (BK)	211-15080
ALU9C	16.3	12.7	3.70	0.8	5.2	15.8	5.5	11.1	1.6	AL, CR	Black (BK)	211-15090
ALU10C	16.3	12.7	3.70	0.8	5.2	16.6	5.5	12.7	1.6	AL, CR	Black (BK)	211-15100

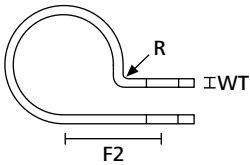
All dimensions in mm. Subject to technical changes.



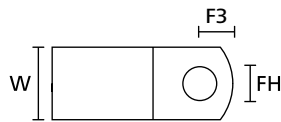


### Aluminium P-Clamps

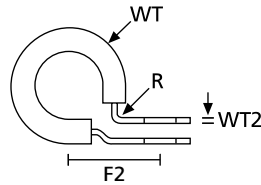
#### Alu-P-Clamp with / without chloroprene insert



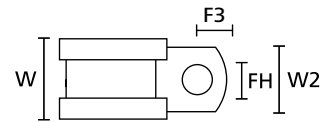
ALU P-Clamp (side view)



ALU P-Clamp (plan view)



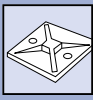
ALU\_C P-Clamp with chloroprene insert (side view)



ALU\_C P-Clamp with chloroprene insert (plan view)

TYPE	Width (W)	Width (W2)	Wall (WT)	Wall (WT2)	Hole Ø (FH)	Fixing Hole Centres (F2)	Fixing Hole Centres (F3)	Bundle Ø max.	Radius (R)	Material	Colour	Article-No.
ALU11C	16.3	12.7	4.50	1.3	5.2	19.1	5.5	14.3	2.8	AL, CR	Black (BK)	211-15110
ALU12C	16.3	12.7	4.50	1.3	5.2	19.9	5.5	15.9	2.8	AL, CR	Black (BK)	211-15120
ALU13C	16.3	12.7	4.50	1.3	5.2	20.7	5.5	17.5	2.8	AL, CR	Black (BK)	211-15130
ALU14C	16.3	12.7	4.50	1.3	5.2	21.5	5.5	19.1	2.8	AL, CR	Black (BK)	211-15140
ALU15C	16.3	12.7	4.50	1.3	5.2	22.3	5.5	20.6	2.8	AL, CR	Black (BK)	211-15150
ALU16C	16.3	12.7	4.50	1.3	5.2	23.1	5.5	22.2	2.8	AL, CR	Black (BK)	211-15160
ALU17C	16.3	12.7	4.50	1.3	5.2	23.9	5.5	23.8	2.8	AL, CR	Black (BK)	211-15170
ALU18C	16.3	12.7	4.50	1.3	5.2	24.6	5.5	25.4	2.8	AL, CR	Black (BK)	211-15180
ALU19C	16.3	12.7	4.50	1.3	5.2	25.5	5.5	27.0	2.8	AL, CR	Black (BK)	211-15190
ALU20C	16.3	12.7	4.50	1.6	5.2	27.0	5.5	28.6	3.2	AL, CR	Black (BK)	211-15200
ALU22C	16.3	12.7	4.50	1.6	5.2	28.6	5.5	31.8	3.2	AL, CR	Black (BK)	211-15220
ALU23C	16.3	12.7	4.50	1.6	5.2	29.4	5.5	33.3	3.2	AL, CR	Black (BK)	211-15230
ALU24C	16.3	12.7	4.50	1.6	5.2	30.2	5.5	34.9	3.2	AL, CR	Black (BK)	211-15240
ALU25C	16.3	12.7	4.50	1.6	5.2	30.8	5.5	36.5	3.2	AL, CR	Black (BK)	211-15250
ALU26C	16.3	12.7	4.50	1.6	5.2	31.7	5.5	38.1	3.2	AL, CR	Black (BK)	211-15260
ALU28C	16.3	12.7	4.50	1.6	5.2	33.3	5.5	41.3	3.2	AL, CR	Black (BK)	211-15280
ALU29C	16.3	12.7	4.50	1.6	5.2	34.1	5.5	42.9	3.2	AL, CR	Black (BK)	211-15290
ALU30C	16.3	12.7	4.50	1.6	5.2	34.9	5.5	44.5	3.2	AL, CR	Black (BK)	211-15300
ALU34C	16.3	12.7	4.50	1.6	5.2	38.1	5.5	50.8	3.2	AL, CR	Black (BK)	211-15340

All dimensions in mm. Subject to technical changes.



### Plastic P-Clamps

#### HP-Series

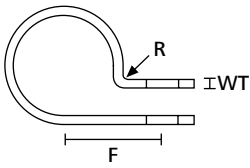
For permanent or semi-permanent cable fixings this range of plastic P-Clamps can be used in many industries. Their light weight makes them particularly suitable for use in areas such as aircraft and aerospace where minimising weight, but retaining a strong fixing, is vitally important.

#### Features and benefits

- Manufactured from Polyamide
- Good temperature resistance and high strength
- Wide range of sizes for every application
- Can be used without cable ties



P-Clamps H1P - H18P in different dimensions.



P-Clamp H1P - H18P (side view)

P-Clamp H1P - H18P (plan view)



**Material specification please see page 22.**

TYPE	Width (W)	Wall (WT)	Hole Ø (FH)	Bundle Ø max.	Fixing Hole Centres (F)	Radius (R)	Material	Colour	Article-No.
H1P	10.0	0.80	4.2	3.2	8.5	0.5	PA66	Natural (NA)	211-60019
	10.0	0.80	4.2	3.2	8.5	0.5	PA66HS	Black (BK)	211-60000
H2P	10.0	1.00	4.2	5.0	9.5	1.0	PA66	Natural (NA)	211-60029
	10.0	1.00	4.2	5.0	9.5	1.0	PA66HS	Black (BK)	211-60001
H3P	10.0	1.00	4.2	6.5	10.0	1.0	PA66	Natural (NA)	211-60039
	10.0	1.00	4.2	6.5	10.0	1.0	PA66HS	Black (BK)	211-60002
H4P	10.0	1.20	4.2	8.0	10.0	1.0	PA66	Natural (NA)	211-60049
	10.0	1.20	4.2	8.0	10.0	1.0	PA66HS	Black (BK)	211-60003
H5P	10.0	1.20	4.2	9.5	11.0	1.0	PA66	Natural (NA)	211-60059
	10.0	1.20	4.2	9.5	11.0	1.0	PA66HS	Black (BK)	211-60004
H6P	10.0	1.20	4.2	11.0	13.0	1.0	PA66	Natural (NA)	211-60069
	10.0	1.20	4.2	11.0	13.0	1.0	PA66HS	Black (BK)	211-60005
H7P	10.0	1.20	4.2	12.5	14.0	1.5	PA66	Natural (NA)	211-60079
	10.0	1.20	4.2	12.5	14.0	1.5	PA66HS	Black (BK)	211-60006
H8P	10.0	1.50	4.2	14.0	15.0	1.5	PA66	Natural (NA)	211-60089
	10.0	1.50	4.2	14.0	15.0	1.5	PA66HS	Black (BK)	211-60007
H9P	10.0	1.50	4.2	16.0	16.0	1.5	PA66	Natural (NA)	211-60099
	10.0	1.50	4.2	16.0	16.0	1.5	PA66HS	Black (BK)	211-60008
H10P	10.0	1.50	4.2	17.5	17.0	1.5	PA66	Natural (NA)	211-60109
	10.0	1.50	4.2	17.5	17.0	1.5	PA66HS	Black (BK)	211-60009
H11P	10.0	1.50	4.2	19.0	18.0	2.0	PA66	Natural (NA)	211-60119
H12P	10.0	1.50	4.2	20.5	19.0	2.0	PA66	Natural (NA)	211-60129
H13P	12.0	1.50	5.2	22.0	20.5	2.0	PA66	Natural (NA)	211-60139
H14P	12.0	1.50	5.2	24.0	21.5	2.0	PA66	Natural (NA)	211-60149
H15P	12.0	1.50	5.2	25.5	23.0	2.5	PA66	Natural (NA)	211-60159
H16P	12.0	1.50	5.2	28.5	24.0	2.5	PA66	Natural (NA)	211-60169
H17P	12.0	1.50	5.2	31.5	26.0	2.5	PA66	Natural (NA)	211-60179
H18P	12.0	1.50	5.2	35.0	27.5	2.5	PA66	Natural (NA)	211-60189

All dimensions in mm. Subject to technical changes.



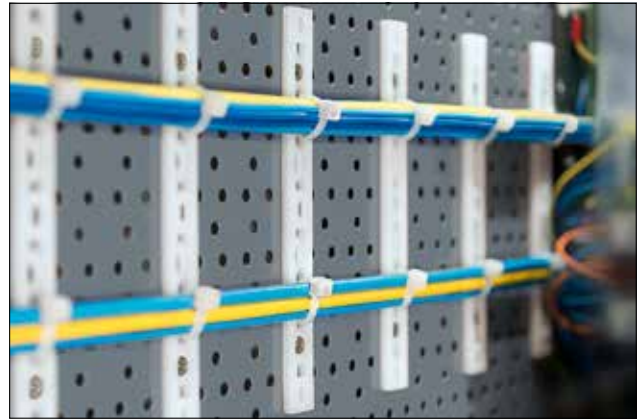
### Mounting Plates for Screw Fixing

#### MP-Series for parallel bundling

Many applications require each cable run to be firmly held in place but to be held separately from adjacent cable runs (example - control cabinets, machinery and military systems). The MP series of mounts can achieve this.

#### Features and benefits

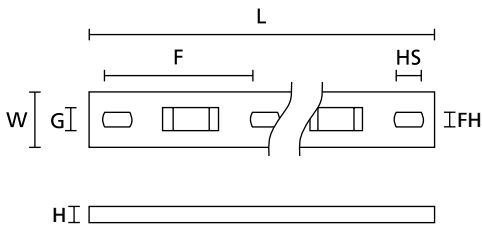
- Allow multiple cables to run in parallel
- Simple to fix with two screws
- Cables are fixed by using a cable tie through any combination of the available slots



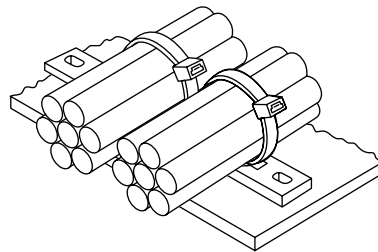
MSMP mounting plates, screwable.



**Material specification please see page 22.**



Mounting plates MP and MSMP (plan and side view)



Mounting plates in application

TYPE	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	No. of bundles	Material	Colour	Pack Cont.	Article-No.
MP2M3	12.7	76.2	3.2	3.7	5.2	2	PA66	Natural (NA)	100 pcs.	151-24219
MP3M3	12.7	108.0	3.2	3.7	5.2	3	PA66	Natural (NA)	100 pcs.	151-24319
MP4M3	12.7	139.8	3.2	3.7	5.2	4	PA66	Natural (NA)	100 pcs.	151-24419
MP5M3	12.7	171.6	3.2	3.7	5.2	5	PA66	Natural (NA)	100 pcs.	151-24519
MSMP5/10	15.8	204.5	5.3	5.1	7.6	5	PA66	Natural (NA)	100 pcs.	151-25519
MSMP6/6	15.8	244.0	5.3	3.8	7.6	6	PA66	Natural (NA)	100 pcs.	151-25619
MSMP4	15.9	167.0	5.2	5.1	8.2	4	PA66	Natural (NA)	500 pcs.	150-83499

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



For product specific approvals and specifications please refer to the Appendix.





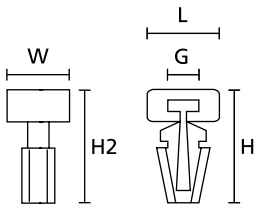
### Cable Fixing Cradle

#### TM1SF for cable ties width up to 5.0 mm

Offering simple and easy methods of securing cables or pipes, these fixing accessories have many applications within a wide range of industries.

#### Features and benefits

- Ideal mount for space-saving applications with restricted access
- Arrowhead for very secure fixing



TM1SF Fixing Base



TM1SF Fixing Base for pre-drilled or pre-punched holes.



**Material specification please see page 22.**

TYPE	Width (W)	Length (L)	Height (H)	Height (H2)	Hole Ø (FH)	Panel Thickness	Strap Width max. (G)	Material	Colour	Article-No.
TM1SF	10.2	15.8	4.6	4.6	6.35	3.3 - 3.4	5.0	PA66	White (WH)	151-40119

All dimensions in mm. Subject to technical changes.

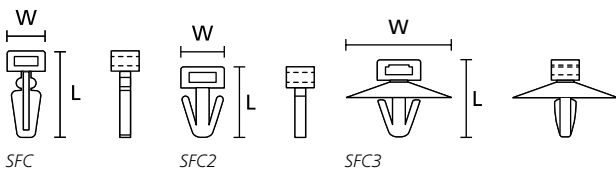
### Arrowhead Cradle

#### SFC

Offering simple and easy methods of securing cables or pipes, these fixing accessories have many applications within a wide range of industries.

#### Features and benefits

- Arrowhead fixing for use in pre-drilled or punched holes
- SFC and SFC2 for ties up to 5.3 mm wide
- SFC3 for ties up to 8.6 mm wide



SFC

SFC2

SFC3



Securely fix and route cables and pipes with SFC3.

TYPE	Width (W)	Length (L)	Hole Ø (FH)	Panel Thickness	Strap Width max. (G)	Material	Colour	Article-No.
SFC2	6.0	14.5	6.0	0.8 - 1.0	5.3	PA66	Natural (NA)	151-02000
SFC	11.0	18.0	6.0	3.0 - 3.2	5.3	PA66	Natural (NA)	151-01600
SFC3	22.0	15.5	6.3	0.8 - 1.8	8.6	PA66	Black (BK)	151-01906
	22.0	15.5	6.3	0.8 - 1.8	8.6	PA66	Natural (NA)	151-01909

All dimensions in mm. Subject to technical changes.



### Bundling Clips with Arrowhead

#### Bundling Clips with Arrowhead

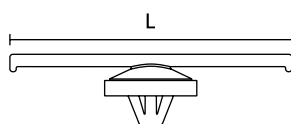
Originally designed for the Automotive industry, these clips offer simple and easy methods of securing cables, hoses or pipes. They have many applications within a wide range of industries.

#### Features and Benefits

- Easy to install without the need for a tool
- Cable tie head always situated in defined position
- Arrowhead simply locks into place
- Disc adjusts tie for pressure from various directions and minimises access of dust, dirt and water
- ATS fixing elements can be tied automatically with the ATS3080 tool
- Variants with pipe clips allow the addition of cables after installation



BundlingClip with OmegaClip, BundlingClip with foam, BundlingClip LRJ1



BCSFT6.5 16-3MD



**Material specification  
please see page 22.**

TYPE	Drawing	Length (L)	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
LRJ1		55.0	6,2 - 6,7	0,7 - 2,0	PA6	Black (BK)	151-08101
BCSFT6.5 16-3		55.0	6,3 - 6,7	2,3 - 3,5	PA66HIRHS	Black (BK)	151-00431
ATSBCSFT6.5		39.0	6,3 - 6,7	2,3 - 3,3	PA66HIRHS	Black (BK)	102-69066
ATSBCSFT6.5		39.0	6,3 - 6,7	0,7 - 1,3	PA66HIRHS	Black (BK)	102-69067
ATSBC2KSFT6.5		39.0	6,3 - 6,7	1,7 - 2,3	PA66HIRHS	Black (BK)	102-69068
ATSBCOWSFT6.5		39.0	6,3 - 6,7	2,3 - 3,3	PA46	Grey (GY)	102-69070
ATSBCSFT 6.5PT2,3-3,3		39.0	6,3 - 6,7	2,3 - 3,3	PA46	Grey (GY)	102-69069
BC70SFT712-MD		70.0	7,0 x 12,0	0,7 - 1,8	PA66HIRHS	Black (BK)	151-01094
BC70SFT712		70.0	7,0 x 12,0	0,7 - 3,2	PA66HIRHS	Black (BK)	151-01036
BCHSFT712-MD		42.0	7,0 x 12,0	0,7 - 1,8	PA66HIRHS	Black (BK), Natural (NA)	151-01301
BCHSFT712		40.0	7,0 x 12,0	0,7 - 1,8	PA66HIRHS	Black (BK)	151-01037
BCLSFT712		64.5	7,0 x 12,0	0,8 - 2,0	PPT20	Black (BK)	151-01014

All dimensions in mm. Subject to technical changes.



#### Bundling Clips with Arrowhead, sealed

TYPE	Drawing	Length (L)	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
BCSFT6.5 16-3MD		55.0	6.3 - 6.7	1.5 - 3.0	PA66HIRHS	Black (BK)	155-11601
ATSBCSFT6.5-MD		39.0	6.3 - 6.7	2.0 - 3.0	PA66HIRHS	Black (BK)	102-69065

All dimensions in mm. Subject to technical changes.

#### Bundling Clips with additional Harness Clip

TYPE	Drawing	Length (L)	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
OCTC1		60.0	-	-	PA66HIRHS	Black (BK)	151-00447
Halter SFT6.5		60.0	6.3 - 6.7	0.6 - 1.5	PA66HIRHS	Black (BK)	133-00067

All dimensions in mm. Subject to technical changes.

#### Bundling Clips, moveable

An easy means of routing and securing cable sets in various parts of cars.

##### Features and Benefits

- Easy to install without the need for a tool
- Horizontal length tolerance compensation
- Ideal if holes do not fit registration or bundles need to be routed around corners



The CHA2 with fir tree base and length tolerance compensation for precise cable routing even in difficult conditions.

#### CHA1 with arrowhead

TYPE	Drawing	Width (W)	Length (L)	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
CHA1		6.0	54.0	6.3 - 7.0	0.5 - 1.2	PA66HS	Black (BK)	150-08110

All dimensions in mm. Subject to technical changes.

#### CHA2 with fir tree

TYPE	Drawing	Width (W)	Length (L)	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
CHA2		6.0	54.0	6.5 - 7.0	0.8 - 2.0	PA66	Black (BK)	151-02901

All dimensions in mm. Subject to technical changes.

#### TCSFT6.5CHAMD with arrowhead, sealed

TYPE	Drawing	Length (L)	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
TCSFT6.5S-CHA-MD		54.0	6.5 - 6.7	0.6 - 1.8	PA66HS	Green (GN)	156-01238

All dimensions in mm. Subject to technical changes.



### Bundling Clips with Arrowhead for Distance Routing

#### SOC for distance routing 31.0 mm

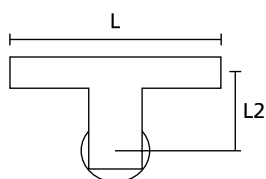
Originally designed for the Automotive industry, these clips offer simple and easy methods of securing cables, hoses or pipes. They have many applications within a wide range of industries.

#### Features and Benefits

- Easy to install without the need for a tool
- Arrowhead simply locks into place
- Disc adjusts tie for pressure from various directions and minimises access of dust, dirt and water
- Versions for oval holes feature anti-twist protection



StandOff Clips allow cable looms to be routed at a set distance from the punched holes.



Material specification please see page 22.

TYPE	Drawing	Length (L)	Length (L2)	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
SOC30D6MD		50.0	36.0	6.4 - 7.0	0.7 - 1.2	PA66HIRHS	Black (BK)	151-01360
		50.0	36.0	6.4 - 7.0	0.7 - 1.2	PA66	Natural (NA)	151-01159
CH20D6		50.0	20.0	6.4 - 7.0	0.6 - 1.4	PA66HS	Black (BK)	151-00077
CH20D7		50.0	20.0	7.0	0.8 - 1.6	PA66	Black (BK)	151-02600
STAND-OFF-CLIP-2		40.0	25.0	6.5 - 6.8	0.4 - 1.6	PA66HIRHS	Black (BK)	155-01600
STAND OFF CLIP		40.0	31.0	6.5 - 6.8	0.4 - 1.6	PA46	Grey (GY)	150-45398
		40.0	31.0	6.5 - 6.8	0.4 - 1.6	PA66HIRHS	Black (BK)	150-45397
BC20KSFT6.5		50.0	19.2	6.25 - 6.75	0.7 - 1.3	PA66HIRHS	Black (BK)	151-01070
BC20SFT6.5-MD		50.0	24.0	6.25 - 6.75	0.7 - 1.6	PA66HIRHS, EPDM	Black (BK)	151-01067
SOC20SFT712-MD		50.0	20.0	7.0 x 12.0	0.6 - 2.0	PA66HIRHS, EPDM	Black (BK)	151-01255
SOC32SFT65X130-MD		50.0	32.0	6.5 x 13.0	0.6 - 2.0	PA66HIRHS	Black (BK)	151-01331

All dimensions in mm. Subject to technical changes.



### Bundling Clips with Fir Tree, for Round Holes

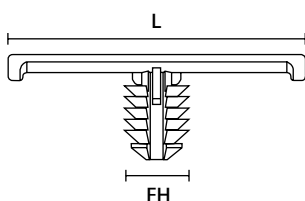
Widespread use in cable harness production; a quick and easy means of fixing cables and lines securely in various parts of cars.

#### Features and Benefits

- Easy to install without the need for a tool
- One fir tree foot part can be used for a variety of panel thicknesses
- Suitable for use within threaded holes
- Holding tabs prevent the tie slipping sideways
- Versions for oval holes feature anti-twist protection



BundlingClips with fir tree bases for a variety of applications with a wide range of metal thicknesses and drill holes.



TYPE	Drawing	Length (L)	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
TC5FT6S		37.0	6.4 - 7.1	0.8 - 1.5	PA66HIRHS	Black (BK)	150-95500
TC3FT6S		37.0	6.5 - 7.0	0.8 - 1.5	PA66HIRHS	Black (BK)	151-00028
TC4FT6LG		37.0	6.3 - 7.0	0.6 - 5.1	PA66HIRHS	Black (BK)	151-00215
TC4FT6LG-A		37.0	6.3 - 7.0	0.6 - 5.1	PA66HIRHS	Natural (NA)	151-00467
TCDSFT6-HEX		40.0	6.3	0.8 - 4.5	PA66HIRHS	Black (BK)	155-39002
BCFT6XL56		56.0	6.3 - 7.0	0.7 - 9.0	PA66HIRHS	Black (BK)	151-00662
ATSBCFT6LG		39.0	6.3 - 7.0	0.6 - 5.1	PA66HIRHS	Black (BK)	102-67065
BCOWFT6M		27.3	6.5 - 7.0	0.6 - 3.5	PA66HIRHS	Natural (NA)	151-00790
BCOWFT5		24.9	4.9 - 5.1	2.9 - 3.1	PA66HIRHS	Black (BK)	151-00904
BC13FT6.35		40.0	6.25 - 6.75	1.1 - 5.0	PA66HIRHS	Black (BK)	151-01335
BC37FT7LG		37.0	6.3 - 6.7	0.5 - 2.8	PA66HIRHS	Black (BK)	151-01262
TC2FT6LG		55.0	6.3 - 7.0	0.6 - 5.1	PA66HIRHS	Black (BK)	155-30802
		55.0	6.3 - 7.0	0.6 - 5.1	PA66HIRHS	Natural (NA)	151-00020

All dimensions in mm. Subject to technical changes.



### Bundling Clips with Fir Tree, for Oval Holes

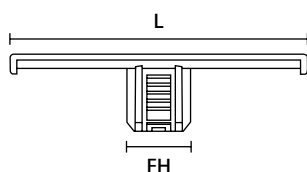
Originally designed for the Automotive industry, these clips offer simple and easy methods of securing cables, hoses or pipes. They have many applications within a wide range of industries.

#### Features and Benefits

- Especially for banding of cables and cable looms
- Fastened onto winding bar with binding twine, adhesive tape or cable ties
- Manually or automatic application with Autotool 2000 or ATS3080
- Various base geometries for wide variety of metal gauges and bore diameters



BundlingClips with fir tree bases for a variety of applications with a wide range of metal thicknesses and drill holes.



Material specification please see page 22.

TYPE	Drawing	Length (L)	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
TC50FT62122		50.0	6.2 x 12.2	0.7 - 3.0	PA66	Black (BK)	151-00883
TCOP62x122		55.0	6.2 x 12.2	0.6 - 6.0	PA66HIRHS	Black (BK)	151-00605
TCOP70x120		55.0	7.0 x 12.0	0.6 - 6.0	PA66HIRHS	Black (BK)	151-00029
WICKELCLIP-VDS		40.0	6.3 x 9.0	0.6 - 2.5	PA66HIRHS	Black (BK)	155-16301
BCFT63x100S		40.0	6.5 x 10.2	0.6 - 2.5	PA66HIRHS	Black (BK)	151-00759
BC70LFT712		81.3	7.0 x 12.0	0.9 - 5.5	PA66HIRHS	Black (BK)	151-01217

All dimensions in mm. Subject to technical changes.





### Bundling Clips with Fir Tree, for Distance Routing

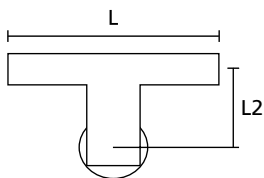
Originally designed for the Automotive industry, these clips offer simple and easy methods of securing cables or pipes and have many applications within a wide range of industries.

#### Features and Benefits

- Easy to install without the need for a tool
- One fir tree foot part can be used for a variety of panel thicknesses
- Suitable for use within threaded holes
- Disc covers the hole to prevent dirt and water gaining access
- Bundle runs in a set distance to the hole



*COW Clip used as tape-on clip.*

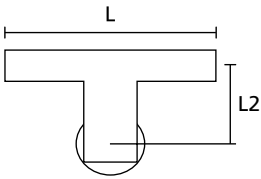


TYPE	Drawing	Length (L)	Length (L2)	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
<b>COW20SFT7</b>		42.0	20.0	6.35	0.7 - 1.6	PA66HS	Black (BK)	151-01570
<b>COW20DP7</b>		42.0	20.0	6.3 - 7.0	0.8 - 4.5	PA66HS	Brown (BN)	151-03100
		42.0	20.0	6.3 - 7.0	0.8 - 4.5	PA66	Brown (BN)	151-01095
		202.0	20.0	6.3 - 7.0	0.8 - 4.5	PA66HS	Black (BK)	156-00581
<b>COW30DP7</b>		42.0	30.0	6.3 - 7.0	0.8 - 4.5	PA66	Black (BK)	151-03200
<b>COW30T50R</b>		202.0	30.0	6.3 - 7.0	0.8 - 4.5	PA66, PA66HS	Black (BK)	156-00641
<b>SOC4 M.FT6</b>		55.0	20.0	6.5 - 7.0	0.7 - 5.1	PA66HIRHS	Black (BK)	155-30902
<b>SOC5FT6LG</b>		55.0	13.0	6.5 - 7.0	0.7 - 5.1	PA66HIRHS	Black (BK)	151-00074
<b>SOC5FT6S</b>		55.0	13.0	6.5 - 7.0	0.8 - 2.5	PA66HIRHS	Black (BK)	151-01329
<b>SOC6</b>		55.0	22.0	6.3 - 7.0	0.8 - 3.5	PA66HIRHS	Black (BK)	151-00023
<b>SOC10405</b>		55.0	20.0	6.3 - 6.7	0.7 - 3.5	PA66HIRHS	Black (BK)	151-00282
<b>SOC3-FT6-LG.</b>		12.0	30.0	6.4 - 7.1	0.8 - 6.0	PA66HIRHS	Black (BK)	155-19001
<b>SOC7FT6</b>		56.0	42.5	6.25 - 6.75	0.7 - 5.7	PA66HIRHSW	Black (BK)	151-00629

All dimensions in mm. Subject to technical changes.



### Bundling Clips with Fir Tree, for Distance Routing



TYPE	Drawing	Length (L)	Length (L2)	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
SOC8FT6		61.0	42.5	6.2 - 6.8	0.7 - 5.5	PA66HIRHS	Natural (NA)	151-00650
SOC8FT6LG		40.0	30.0	6.5 - 7.0	0.7 - 5.8	PA66HIRHS	Black (BK)	151-00665
CH20FT6		50.0	20.0	6.5 - 7.0	0.8 - 2.5	PA66HIRHS	Black (BK)	151-00830
SOC11FTOVAL		50.0	20.0	6.2 x 12.2	0.6 - 6.8	PA66HIRHS	Black (BK)	151-00992
		50.0	20.0	6.2 x 12.2	0.6 - 6.8	PA66HIRHS	Natural (NA)	151-00932
SOC13FTOVAL		50.0	20.0	6.5 x 12.5	0.6 - 4.0	PA66HIRHS	Black (BK)	151-01018
SOC20FT5		50.0	20.0	4.5 - 5.0	0.7 - 3.0	PA66HIRHS	Black (BK)	151-00970
SOC25FT63x100		42.0	18.0	6.3 x 10.0	0.6 - 2.5	PA66HIRHS	Black (BK)	133-00824
SOC25FT712		50.0	25.0	7.0 x 12.0	1.1 - 6.1	PA66HIRHS	Black (BK)	151-01213

All dimensions in mm. Subject to technical changes.



### Bundling Clips for Weld Studs, moveable

Originally designed for the Automotive industry, these clips offer simple and easy methods of securing cables, hoses or pipes. They have many applications within a wide range of industries.

#### Features and Benefits

- Easy assembly without the need for a tool
- Horizontal length tolerance compensation up to 4.0 mm
- BCUWS5-D5-25: for coarse thread studs
- If connector retainer is a request: TCSB5CYCC
- If post-installation of cables is needed: Bundling clip SB5
- For defined distance of bundles to surface: BCOS variants



TCSB5CYCC: Tapebar, Stud Retainer and ConnectorClip in just one article.



**Material specification**  
please see page 22.

### Bundling Clips for Weld Studs, moveable

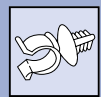
TYPE	Drawing	Stud Ø	Length (L)	Material	Colour	Article-No.
WICKELCLIP-SB5		5.0	60.0	POM	Black (BK)	155-23701
TC-SB5C		5.0	55.0	PA66HS	Black (BK)	151-26101
TCSB5CYCC		5.0	55.0	PA66HIRHS	Black (BK)	151-00484
BCUWS5-D5-25		5.0	50.0	PA66HIRHS	Natural (NA)	151-00851

All dimensions in mm. Subject to technical changes.

### Bundling Clips for Weld Studs

TYPE	Drawing	Stud Ø	Length (L)	Material	Colour	Article-No.
BCOS5		5.0	59.0	PA66HIRHS	Black (BK)	151-00664
BCOS6		6.0	59.0	PA66HIRHS	Black (BK)	151-00281

All dimensions in mm. Subject to technical changes.



### Bundling Clips for Weld Studs, moveable

The BC series is proving very popular in the automotive industry as a means of installing cable sets easily in various areas of the vehicle.

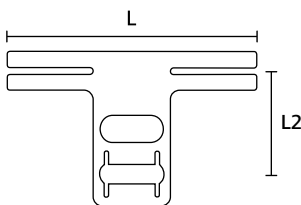
#### Features and Benefits

- Very flat bundling clip for 5.0 mm weld stud
- Horizontal length tolerance compensation
- Suitable for cables of reduced weight and diameter



The slim line BC series is particularly compact and flexible.

#### BC2212 for distance routing 12.0 and 22.0 mm



Material specification please see page 22.

TYPE	Drawing	Length (L)	Length (L2)	Stud Ø	Material	Colour	Article-No.
BC2212		55.0	22.0	5.0	PA66HIRHS	Black (BK)	151-00017

All dimensions in mm. Subject to technical changes.

#### BC30 for distance 30.0 mm

TYPE	Drawing	Length (L)	Length (L2)	Stud Ø	Material	Colour	Article-No.
BC30		55.0	30.0	5.0	PA66HIRHS	Black (BK)	151-00016

All dimensions in mm. Subject to technical changes.

#### BC-SCR6

TYPE	Drawing	Length (L)	Length (L2)	Hole Ø (FH)	Material	Colour	Article-No.
BC-SCR6		60.0	20.0	6.5	PA66GF60, PA66HIRHS	Black (BK)	156-00390

All dimensions in mm. Subject to technical changes.



### Bundling Clips for Edges

#### EdgeClip-Family

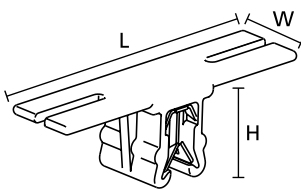
EdgeClips are used in the automotive and electrical industries and are ideal when it is impossible to drill holes or no other fixing points are available.

#### Features and Benefits

- Easy assembly without the need for a tool
- Designed for edges of 1 - 3 resp. 1.5 - 4.5 mm
- Integrated metal clamp holds clip firmly in place
- Clamp consists of double tempered steel spring
- ATS fixing elements can be tied automatically with tools ATS3080 and AT2000



Cables and leads can be fastened with a cable tie or adhesive tape to the bars of the mounting element.



EC15

One Step to the Web!

TYPE	Drawing	Width (W)	Length (L)	Height (H)	Panel Thickness	Material	Colour	Article-No.
EC14		10.0	40.0	12.4	1.0 - 3.0	PA66HIRHS	Black (BK)	151-03404
EC15		10.0	40.0	12.4	1.0 - 3.0	PA66HIRHS	Black (BK)	151-03401
EC16		10.0	40.0	13.0	1.0 - 3.0	PA66HIRHS	Black (BK)	151-03402
EC17		10.0	46.5	13.0	1.0 - 3.0	PA46	Grey (GY)	151-00819
		10.0	46.5	13.0	1.0 - 3.0	PA66HIRHS	Black (BK)	151-03403
ATSBCEC35		9.0	39.0	13.2	1.5 - 4.0	PA66HIRHS	Black (BK)	102-68355
ATSBCEC36		9.0	39.0	16.0	1.5 - 4.0	PA66HIRHS	Black (BK)	102-68365
ATSBCEC37		9.0	39.0	14.2	1.5 - 4.0	PA66HIRHS	Black (BK)	102-68375
ATSBCEC38		2.5	39.0	14.2	1.5 - 4.0	PA66HSW	Black (BK)	102-68385

All dimensions in mm. Subject to technical changes.

#### Bundling Clips for Edges, 1.0 - 3.0 mm, for Distance Routing

TYPE	Drawing	Width (W)	Length (L)	Length (L2)	Height (H)	Panel Thickness	Material	Article-No.
EC30		9.0	50.0	65.0	13.5	1.0 - 3.0	PA66HIRHS	151-00022

All dimensions in mm. Subject to technical changes.



### Bundling Clips for Connectors

Originally designed for the Automotive industry, these clips offer simple and easy methods of securing cables, hoses or pipes. They have many applications within a wide range of industries.

#### Features and Benefits

- Bundles are guided above connector plug
- Secure fixing of connector
- For horizontal length tolerance compensation up to 5.0 mm:  
CONNECTOR CLIP



ConnectorClips designed for cables and cable sets used in the automotive industry.



**Material specification  
please see page 22.**

### Bundling Clips for Connectors

TYPE	Drawing	Length (L)	Material	Colour	Article-No.
YAZ-CONN-TAPE-CLIP		55.0	PA66HS	Black (BK)	155-31102

All dimensions in mm. Subject to technical changes.

### Bundling Clips for Connectors, moveable

TYPE	Drawing	Length (L)	Material	Colour	Article-No.
CONNECTOR CLIP		55.0	PA66HIRHS	Black (BK)	150-41397

All dimensions in mm. Subject to technical changes.





### Connector Clips for round holes

The connector clips used here have been designed for electronic cables and cable sets used in the automotive industry.

#### Features and Benefits

- Connector easily installed by simply pushing into place
- Connection can be released (non-destructive)
- One fir tree foot part can be used for a variety of panel thicknesses
- Arrowhead simply locks into place
- Disc covers the hole to prevent dirt and water gaining access
- For twist protection: Variants with additional stick or for oval holes



ConnectorClips are available for many different connector types and fixing varieties.

TYPE	Drawing	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
Big YCC TS		6.4 - 7,1	0.7 - 5.1	PA66HIRHS	Black (BK)	151-00235
FT6LG.JAE. CONNECT.TS		6.5 - 7.0	0.7 - 5.1	PA66HIRHS	Black (BK)	151-00459
FT6LG.M.St.Aufn.II		6.5 - 7.0	0.8 - 5.0	PA66HIRHS	Black (BK)	155-32602
FT6LG.M. STECKERAUFN.		6.4 - 7,1	0.8 - 6.0	PA66HIRHS	Black (BK)	155-18901
FT6LG.YAZ. Connect.TS		6.4 - 7,1	0.7 - 5.1	PA66HIRHS	Black (BK)	155-30702
FT6S-Y-CONN-TS		6.5 - 7.0	0.8 - 1.5	PA66HIRHS	Black (BK)	155-43702
STECKERHALTER SITZ		6.5 - 7.0	0.6 - 3.0	PA66HIRHS	Black (BK)	155-36002
YCC-FT6-S		6.5 - 7.0	0.8 - 1.5	PA66HIRHS	Black (BK)	155-38102
YCCFT6S-2		6.5 - 7.0	0.8 - 1.5	PA66HIRHS	Black (BK)	151-00606

All dimensions in mm. Subject to technical changes.





## Connector Clips for round holes

TYPE	Drawing	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
<b>BIG CONNECTOR CLIP</b>		6.3 - 6.7	0.7 - 2.7	PA66HIRHS	Black (BK)	150-54498
<b>CCFT6LG</b>		6,0 - 6.7	0.7 - 4.0	PA66HIRHS	Black (BK)	151-00785
<b>CCSFT5</b>		4,8 - 5,2	0.7 - 2.3	PA66HIRHS	Black (BK)	151-00980
<b>CCSFT6.5</b>		6.3 - 6.7	1.7 - 2.3	PA66HIRHS	Black (BK)	151-00775
<b>CP6FT6</b>		6,2 - 6.5	0.7 - 5.0	PA6HIR	Black (BK)	151-00162
<b>CP2FT6</b>		6,2 - 6.5	0.7 - 5.0	PA66HIRHS	Black (BK)	151-00216
<b>CP3FT6</b>		6,2 - 6.5	0.7 - 5.0	PA66HIRHS	Black (BK)	151-00163
<b>YCKSFT6.5</b>		6.3 - 6.7	0.7 - 1.3	PA66HIRHS	Black (BK)	151-00675
<b>CC-PAEKSFT6.5PT1.7-2.3</b>		6.3 - 6.7	1.7 - 2.3	PA66HIRHS	Black (BK)	151-00840
<b>YCKSFT6.5-PT1.7-2.3</b>		6.5	1.7 - 2.3	PA66HIRHS	Black (BK)	151-00792
<b>CC1SFT7-MD</b>		6.8 - 7,2	0.7 - 2.0	PA66HIRHS	Black (BK)	151-01336
<b>CC2SFT7-MD</b>		6.8 - 7,2	0.7 - 2.0	PA66HIRHS	Black (BK)	151-01337
<b>CCFT6TSS11</b>		6.3 - 7.0	0.6 - 4.0	PA46	Grey (GY)	151-01294
<b>CCSFT6.5-MOD</b>		6.5 - 7.0	1.7 - 2.3	PA66HIRHS	Black (BK)	151-01323
<b>CCFT6LG-TS</b>		6.4 - 7,1	0.7 - 5.1	PA66HIRHS	Black (BK)	151-01141

All dimensions in mm. Subject to technical changes.



## Connector Clips for oval holes

### Features and Benefits

- Connector easily installed by simply pushing into place
- Connection can be released (non-destructive)
- Easy to assemble without the need for a tool
- Oval connectors offer twist protection



**Material specification please see page 22.**



*For a secure fixing simply push the connector by hand (ConnectorClip YCCFT62x122).*

TYPE	Drawing	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
CCSFT7x12		7.0 x 12,0	0.8 - 2.0	PA66HIRHS	Black (BK)	151-00194
		7.0 x 12,0	0.8 - 2.0	PA66HIRHS	Blue (BU)	151-00595
		7.0 x 12,0	0.8 - 2.0	PA66HIRHS	Grey (GY)	151-00222
YCCFT82x185		8.2 x 18.5	1.5 - 4.5	PA66HIRHS	Black (BK)	151-00704
YCCSFT62122		6.2 x 12.2	0.6 - 1.0	PA66HIRHS	Black (BK)	151-00513
YCCFT62x122		6.2 x 12.2	0.6 - 6.0	PA66HIRHS	Black (BK)	151-00180
YCCSFT6.5x13PT2.5-3.5		6.5 x 13,0	2.5 - 3.5	PA66HIRHS	Black (BK)	151-01356
CP21DOP		6,2 x 12,2	0.6 - 5.0	PA66HIRHS	Black (BK)	151-00465
CP31DOP		6.2 x 12.2	0.6 - 5.0	PA66HIRHS	Black (BK)	151-00214
CP61DOP		6.2 x 12.2	0.6 - 5.0	PA66HIRHS	Black (BK)	151-00466
CCIISFT6.5x13		6.5 x 13.0	0.7 - 3.0	PA66HIRHS	Black (BK)	151-00620
CCIVSFT6.5x130		6.5 x 13.0	0.7 - 3.0	PA66HIRHS	Black (BK)	133-00392
YCCKSFT62x122PT0.7-1.3 90°		6.2 x 12.2	0.7 - 1.3	PA66HIRHS	Black (BK)	151-00833
YCCKSFT62x122PT0.7-1.3		6.2 x 12,2	0.7 - 1.3	PA66HIRHS	Black (BK)	151-00835
YCCKSFT62x122PT1.7-2.3 90°		6.2 x 12.2	1.7 - 2.3	PA66HIRHS	Black (BK)	151-00834

All dimensions in mm. Subject to technical changes.



## Connector Clips for oval holes

TYPE	Drawing	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
YCKSFT 62x122PT1.7-2.3		6.2 x 12.2	1.7 - 2.3	PA66HIRHS	Black (BK)	151-00836
CCFT8X15		8.0 x 15.0	0.7 - 6.4	PA66HIRHS	Black (BK)	151-01358
CCSFT6.5X12.5-MD		6.5 x 12.5	0.6 - 1.5	PA66HIRHS	Black (BK)	151-01312
CCSFT8.5X16		8.5 x 16.0	0.7 - 1.5	PA66HIRHS	Black (BK)	151-01004
TCCSFT6.2x12.2-MD		6.2 x 12.2	0.6 - 2.0	PA66HIRHS, EPDM	Black (BK)	151-01254
TCCSFT 6.5X13PT0.6-2.0-MD		6.5 x 13.0	0.6 - 2.0	PA66HIRHS, EPDM	Black (BK)	151-01272
YCCSFT 6.5X13PT0.6-2.0-MD		6.5 x 13.0	0.6 - 2.0	PA66HIRHS, EPDM	Black (BK)	151-01273
CCOVAL		6.2 x 12.2, 6.5 x 12.5, 6.5 x 13.0, 7.0 x 12.0	0.6 - 6.0	PA66HIRHS	Black (BK)	151-00925
CCOVAL2			0.6 - 6.0	PA66HIRHS	Black (BK)	151-01108

All dimensions in mm. Subject to technical changes.

## Connector Clips for Weld Studs

TYPE	Drawing	Stud Ø	Material	Colour	Article-No.
CCSB55		5.0	PA66HIRHS	Black (BK)	151-01196

All dimensions in mm. Subject to technical changes.



## Connector Clips for Edges

### EdgeClip-Family

Edge Clips are used in the automotive and electrical industries for applications where it is impossible to drill holes or no other fixing points are available.

#### Features and Benefits

- Connectors are mounted simply by pushing them into retainer
- Connector can be removed without damage
- Fastened to an edge, the EdgeClip ensures a snug fit on almost all types of connector



**Material specification  
please see page 22.**



EdgeClip EC6mod.

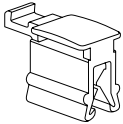
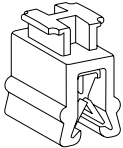
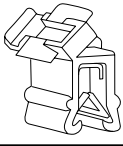
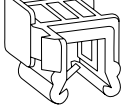
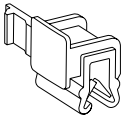
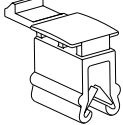
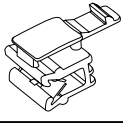
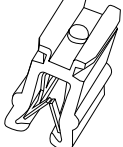
TYPE	Drawing	Panel Thickness	Material	Colour	Article-No.
Edge-Clip25		1.0 - 3.0	PA66HIRHS	Black (BK)	133-00075
EC28		1.0 - 3.0	PA66HIRHS	Black (BK)	151-00151
EC32		1.0 - 3.0	PA66HIRHS	Black (BK)	151-00173
EC33		1.0 - 3.0	PA66HIRHS	Black (BK)	151-00192
EC42		1.5 - 4.0	PA66HIRHS	Black (BK)	151-00429
EC43		1.5 - 4.0	PA66HIRHS	Black (BK)	151-00430
EC45		1.0 - 3.0	PA66HIRHS	Black (BK)	151-00460

All dimensions in mm. Subject to technical changes.





## Connector Clips for Edges

TYPE	Drawing	Panel Thickness	Material	Colour	Article-No.
EC6mod		1.0 - 3.0	PA66HIRHS	Black (BK)	151-00464
EC JAE CC		1.0 - 3.0	PA66HIRHS	Black (BK)	151-00472
CCEC3.0TP		1.0 - 3.0	PA66HIRHS	Black (BK)	151-00611
ECC1CPT		3.0 - 6.0	PA66HIRHS	Black (BK)	151-00499
EC11		1.0 - 3.0	PA66HIRHS	Black (BK)	155-40602
CONNECTOR-CLIP EC6		1.0 - 3.0	PA66HIRHS	Black (BK)	150-92600
CCEC3.0SV		1.0 - 3.0	PA66HIRHS	Black (BK)	151-01058
CCIIEC6mod		1.0 - 3.0	PA66HIRHS	Black (BK)	151-01124

All dimensions in mm. Subject to technical changes.





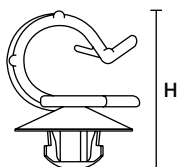
### Fixing Elements for Tubes and Harnesses

#### KSFT6.5OC with low Arrowhead

This fixing elements can be used ideally everywhere where space saving work is necessary.

#### Features and benefits

- Fixing part with rounded arrowhead to minimise assembly height
- Ideal for applications where space is limited
- Simply clip on a wire or hose
- Bundle diameter is defined
- Suitable for post-installation of bundles



KSFT6.5 OC 7-9



The very low arrowhead is specially designed for narrow installation spaces.

TYPE	Drawing	Height (H)	Attach to Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
KSFT6.5OC1-3		14.4	1.0 - 3.0	6.3 - 6.7	2.3 - 2.7	PA66HIRHS	Black (BK)	151-01843
KSFT6.5OC7-9		21.6	7.0 - 9.0	6.3 - 6.7	2.3 - 2.7	PA66HIRHS	Black (BK)	151-01844

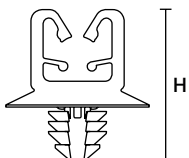
All dimensions in mm. Subject to technical changes.

### Fixing Elements with Fir Tree

#### HC48FT6 with Firtree for bundle diameter 4.8 mm

#### Features and benefits

- Easy to install without the need for a tool
- Disc covers the hole to prevent dirt and water gaining access
- Bundle diameter is defined
- Clips to be attached into bore hole
- Suitable for post-installation of bundles



HC48FT6



The HC48FT6 is designed for Bundle diameter 4.3 - 5.2 mm.

TYPE	Drawing	Height (H)	Attach to Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
HC48FT6		20.8	4.3 - 5.2	6.5 - 7.0	0.7 - 2.8	PA66HIRHS	Black (BK)	151-00680
HC48FT5		20.8	4.5 - 5.2	4.5 - 5.0	0.7 - 3.0	PA66HIRHS	Black (BK)	151-01405

All dimensions in mm. Subject to technical changes.



### Fixing Elements for Tubes and Harnesses with Automatic Locking Feature

#### AHC-Series

Offering a simple and secure method of attaching cables to panels. Originally designed for the automotive industry, these products are used in a wide range of applications with sheet metal panels across various industries.

#### Features and benefits

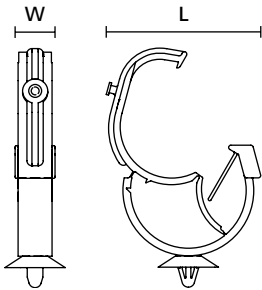
- Push and click closure for fixation of wires
- Clip is clicked into a specific hole
- AHC( )SS und AHC( )SB can be pushed onto a 5.0 mm stud



Automatic Harness Clip open.



Automatic Harness Clip closed.



AHC( )AH



Material specification please see page 22.

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	Hole Ø (FH)	Stud Ø	Panel Thickness	Material	Colour	Article-No.
AHC2SS		10.0	29.0	20.0	-	5.0	-	PA66HIRHS	Black (BK)	151-00368
AHC1AH		10.0	24.0	13.0	6.2 - 6.7	-	0.5 - 2.0	PA66HIRHS	Black (BK)	151-00366
AHC2AH		10.0	29.5	20.0	6.2 - 6.7	-	0.5 - 3.0	PA66HIRHS	Black (BK)	151-00367
AHC4AH		13.5	57.6	41.5	6.2 - 6.7	-	0.8 - 2.7	PA66HIRHS	Black (BK)	151-00374
AHC3SB		10.0	43.0	28.0	-	5.0	-	PA66HIRHS	Black (BK)	151-00373
AHC3DH		10.0	66.0	28.0	6.2 x 12.2	-	0.5 - 2.0	PA66HIRHS	Black (BK)	151-00181

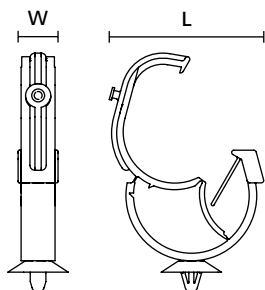
All dimensions in mm. Subject to technical changes.





### Fixing Elements for Tubes and Harnesses with Automatic Locking Feature

#### AHC-Series



AHC()AH



Material specification please see page 22.

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	Hole Ø (FH)	Stud Ø	Panel Thickness	Material	Colour	Article-No.
AHC3EH2		11.0	44.2	28.0	6.2 x 12.2	-	1.8 - 4.8	PA66HIRHS	Black (BK)	151-00928
AHC2BH		10.0	31.5	20.0	6.2 x 12.2	-	0.5 - 3.0	PA66HIRHS	Black (BK)	151-00208
AHC3BHR		10.0	40.0	28.0	6.2 x 12.2	-	0.7 - 3.0	PA66HIRHS	Black (BK)	151-00370
AHC45BHG2		14.0	50.0	36.0	6.2 x 12.2	-	1.0 - 3.0	PA46	Grey (GY)	151-01197
AHC25FT6LG		10.0	34.0	22.0	6.4 - 7.0	-	0.7 - 4.0	PA66HIRHS	Black (BK)	151-01198
AHC223FT6LG		10.0	35.0	23.0	6.4 - 7.0	-	0.7 - 4.0	PA66HIRHS	Black (BK)	151-01078
AHC336FT6LG		14.0	50.0	36.0	6.4 - 7.0	-	0.7 - 4.0	PA66HIRHS	Black (BK)	151-01302
AHC3CHR		10.0	40.0	28.0	6.2 x 12.2	-	1.0 - 2.7	PA6HIR	Black (BK)	151-00371

All dimensions in mm. Subject to technical changes.



### Fixing Elements for Tubes and Harnesses with Automatic Locking Feature, connectable

Offering a simple and secure method of attaching cables to panels. Originally designed for the automotive industry, these products are used in a wide range of applications with sheet metal panels across various industries.

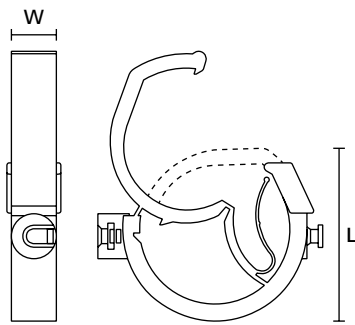
#### Features and benefits

- Push and click closure
- Coupling elements of the IAHC variants allow parts to connect
- Clip is clicked into a specific hole
- IAHC( )T can only be connected with another IAHC element



IAHC( )AH in combination with an IAHC( )T.

#### IAHC-Series, Connectable



IAHC( )T

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	Material	Colour	Article-No.
IAHC1T		10.0	23.0	13.0	PA66HIRHS	Black (BK)	151-00223
IAHC2T		10.0	30.0	20.0	PA66HIRHS	Black (BK)	151-00199
IAHC3T		10.0	40.0	28.0	PA66HIRHS	Black (BK)	151-00213
IAHC4T		13.5	47.0	36.0	PA66HIRHS	Black (BK)	151-00207
IAHC5T		13.5	57.0	45.0	PA66HIRHS	Black (BK)	151-00195

All dimensions in mm. Subject to technical changes.



### Fixing Elements for Tubes and Harnesses with Automatic Locking Feature, connectable

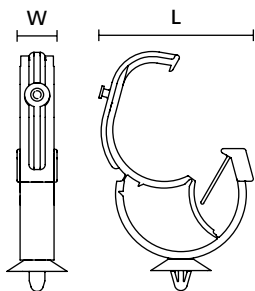
IAHC-Serie, Connectable, with Arrowhead



Material specification please see page 22.



IAHC elements can be connected.



AHC( )AH

TYPE	Drawing	Width (W)	Length (L)	Bundle Ø max.	Hole Ø (FH)	Material	Colour	Article-No.
IAHC3AH		13.5	40.0	28.0	6.2 - 6.7	PA66HIRHS	Black (BK)	151-00378
IAHC4AH		13.5	53.0	36.0	6.2 - 6.7	PA6HIRHS	Black (BK)	151-00211
		13.5	53.0	36.0	6.2 - 6.7	PA66HIRHS	Black (BK)	151-00382
IAHC5BH		13.5	57.0	45.0	6.2 x 12.2	PA66HIRHS	Black (BK)	151-00384
IAHC3CH		10.0	47.0	28.0	6.2 x 12.2	PA66HIRHS	Black (BK)	151-00381
IAHC4CH		13.5	53.0	36.0	6.2 x 12.2	PA6HIRHS	Black (BK)	151-00383
IAHC3EH		13.5	44.5	28.0	6.2 x 12.2	PA66HIRHS	Black (BK)	151-00489
IAHC5FH		13.5	61.5	45.0	6.2 x 12.2	PA66HIRHS	Black (BK)	151-00787

All dimensions in mm. Subject to technical changes.



### Fixing Elements for Tubes and Harnesses, for Edges

#### EdgeClip-Family

EdgeClips are used in the automotive industries and electrical industries and when it is impossible to drill holes or no other fixing points are available.

#### Features and benefits

- Releasable fixing elements with EdgeClip
- Low-vibration routing of bigger bundle diameters
- Clips to be pushed onto an edge
- To be closed single handed, a snap can be felt
- Bundles can be released at any time
- EC27: fixing element enables usage of smaller bundle diameter
- EC41: for parallel guidance of two bundles



EdgeClip cable and tube clips are suitable for the low-vibration routing of cables and tubes with larger bundle diameters.

TYPE	Drawing	Panel Thickness	Attach to Ø	Material	Colour	Article-No.
EC27		1.0 - 3.0	15.0 - 22.0	PA66HIRHS	Black (BK)	151-00161
EC39		1.0 - 3.0	15.3 - 15.9	PA6HIR	Black (BK)	151-00174
EC41		3.0 - 6.0	2 x 8.0	PA66HIR	Black (BK)	151-00234
HCEC3.0SP-C		1.0 - 3.0	12.0 - 15.0	PA66HIRHS	Black (BK)	151-01863
HCEC3.0TPS		1.0 - 3.0	4.5 - 5.0	PA66HIRHS	Black (BK)	151-00645

All dimensions in mm. Subject to technical changes.





### Fixing Elements for Corrugated Tubing, with Fir Tree

#### CTC-Series

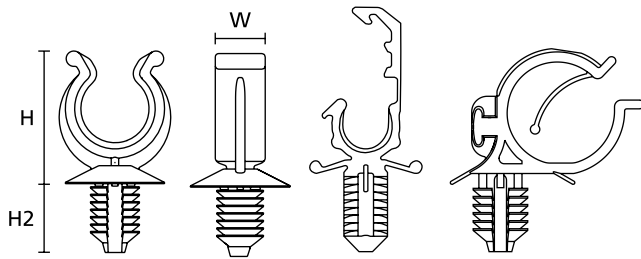
CTC clamps are used for example in the automotive, harness making, electrical industry and wherever corrugated tubing has to be quickly and firmly fixed.

#### Features and benefits

- CTC clamps for a variety of nominal diameters
- Fir tree foot part can be used for a variety of panel thicknesses
- Suitable for use within threaded holes
- Tube is guided accurately by clicking
- Axial slipping is prevented by the inside profile of the clamp



The tubing is clicked into the CTC clamp and is held firmly.



CTC-Series

CNCTC8FT6.5LG CTCFT6



CNCT8FT6.5LG Clamps

TYPE	Width (W)	Height (H)	Height (H2)	Nominal Ø	Disc Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
CTC4.5FT6LG	8.0	16.1	11.1	4.5	16.0	6.5 - 7.0	0.8 - 6.0	PA66HIRHS	Black (BK)	151-14314
CTC7.5FT6LG	8.0	18.6	11.1	7.5	16.0	6.5 - 7.0	0.8 - 6.0	PA66HIRHS	Black (BK)	151-14313
CTC7.5FT9	8.0	19.9	12.2	7.5	23.0	8.7 - 9.0	3.0 - 5.0	PA66HIRHS	Black (BK)	155-31602
CTC10FT6	8.0	21.4	7.5	10.0	16.0	6.5 - 7.0	0.8 - 3.0	PA66HIRHS	Black (BK)	151-14311
CTC10FT6LG	8.0	21.4	11.1	10.0	16.0	6.5 - 7.0	0.8 - 6.0	PA66HIRHS	Black (BK)	151-00018
CTC10FT9	8.0	22.7	12.2	10.0	23.0	8.7 - 9.0	3.0 - 5.0	PA66HIRHS	Black (BK)	155-17801
CTC13FT6	8.0	25.2	7.5	13.0	16.0	6.5 - 7.0	0.8 - 3.0	PA66HIRHS	Black (BK)	151-14312
CTC13FT6LG	8.0	25.2	11.1	13.0	16.0	6.5 - 7.0	0.8 - 6.0	PA66HIRHS	Black (BK)	151-00019
CTC22FT9	8.0	37.7	12.2	22.0	23.0	8.7 - 9.0	3.0 - 5.0	PA66HIRHS	Black (BK)	155-25201
CTCL4.5FT6LG	10.0	14.3	10.7	4.5	16.0	6.5 - 7.0	0.8 - 6.0	PA66HIRHS	Black (BK)	151-01115

All dimensions in mm. Subject to technical changes.

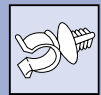
TYPE	Width (W)	Height (H)	Height (H2)	Nominal Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
CTCFT6	11.0	18.5	9.3	15.0	6.3 - 6.7	0.7 - 4.5	PA66HIRHS	Black (BK)	151-00783

All dimensions in mm. Subject to technical changes.

#### CNCTC-Series with cover

TYPE	Width (W)	Height (H)	Height (H2)	Nominal Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
CNCTC8FT6.5LG	10.0	11.0	11.4	7.0	6.5 - 6.7	1.0 - 6.0	PA66HIRHS	Black (BK)	151-01038
	10.0	11.0	11.4	7.0	6.5 - 6.7	1.0 - 6.0	PA66HIRHS	Blue (BU)	151-01177
LC9FTOVAL	10.0	37.7	13.2	-	6.2 x 12.2	0.6 - 6.8	PA66HIRHS	Black (BK)	151-01880

All dimensions in mm. Subject to technical changes.



### Fixing Elements for Corrugated Tubing, for Weld Studs

#### CTC-Series for Weld Studs

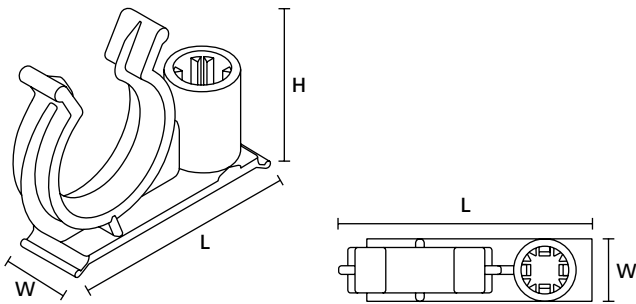
These holders are used in the automotive industry, in the production of cable harnesses and in the electrical industry. Their quick and easy mounting is the reason for their universal success wherever corrugated tubing and pipes have to be fixed quickly and securely.

#### Features and benefits

- Fixing elements for corrugated tubing for nominal diameters from 4.5 - 17.0 mm
- For M6 weld studs
- Soft-Push mechanic for simple assembly, without tool
- Tube is guided accurately by clicking
- Axial slipping is prevented by the inside profile of the clamp
- Clamp can be unscrewed and removed from the weld stud



The tubing is clicked into the CTC clamp and is held firmly.



CTC(S)BS6



Material specification please see page 22.

TYPE	Drawing	Width (W)	Length (L)	Height (H)	Nominal Ø	Stud Ø	Material	Colour	Article-No.
CTC4.5BS6		11.0	28.6	18.7	4.5	6.0	PA66HIRHS	Black (BK)	151-00700
CTC7.5BS6		11.0	31.8	19.4	7.5	6.0	PA66HIRHS	Black (BK)	151-00701
CTC10BS6		11.0	35.3	22.2	10.0	6.0	PA66HIRHS	Black (BK)	151-00702
CTC13BS6		11.0	37.0	26.5	13.0	6.0	PA66HIRHS	Black (BK)	151-00703
CTC17BS6		11.0	44.6	33.2	17.0	6.0	PA66HIRHS	Black (BK)	151-00010

All dimensions in mm. Subject to technical changes.



### Fixing Elements for Corrugated Tubing, with Arrowhead

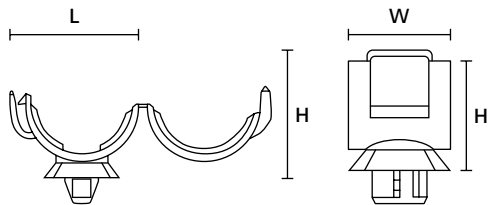
These clamps are used in the automotive industry, in the production of cable harnesses and in the electrical industry. Their quick and easy mounting is the reason for their universal success wherever corrugated tubing and pipes have to be fixed quickly and securely.

#### Features and benefits

- Clamps for corrugated tubing for a variety of nominal diameters
- Arrowhead simply locks into place
- Tube is guided accurately by clicking
- Axial slipping is prevented by the inside profile of the clamp
- CTCLPROFILE clamp can also fastened to a metal edge



Simple and secure installation of pipes or hoses to panels.



RCC D21, D24, D28

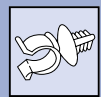
RCC D21, D24, D28



**Material specification please see page 22.**

TYPE	Drawing	Width (W)	Length (L)	Height (H)	Nominal Ø	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
RCC D21		22.0	31.0	30.0	21.0	6.2 x 12.2	0.7 - 2.5	PA66HIRHS	Black (BK)	150-92300
RCC D24		22.0	33.0	33.0	24.0	6.2 x 12.2	0.7 - 2.5	PA66HIRHS	Black (BK)	155-04000
RCC D28		22.0	37.0	37.0	28.0	6.75 x 13.25	0.7 - 3.0	PA66HIRHS	Black (BK)	151-00598
CTCLPROFILE		12.0	64.5	59.5	31.2	7.8 - 8.2	2.3 - 2.7	PA66HIRHS	Black (BK)	151-00026

All dimensions in mm. Subject to technical changes.



### Fixing Elements for Weld Studs

Many industries (but specifically the automotive market) are using weld studs as the standard method of attaching components. Simply hammered onto the stud these parts provide ideal fixing bases for attaching cables, pipes or hose.

The use of weld studs avoids the problems with holes (ingress of moisture, corrosion etc).

#### Features and benefits

- Simple and quick method of fixing
- SBH types simply hammered onto the stud
- SBH1 and SBH3 allow cables to run across the panel
- SBH2 allow cables to run at 90° to the panel

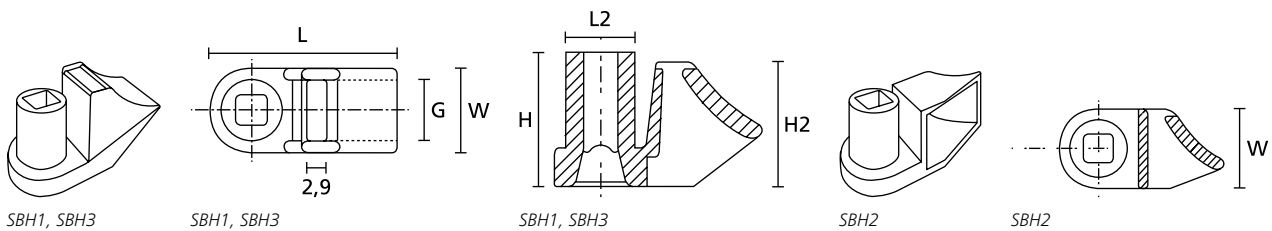


SBH2 allow cables to run at 90° to the panel.



**Material specification**  
please see page 22.

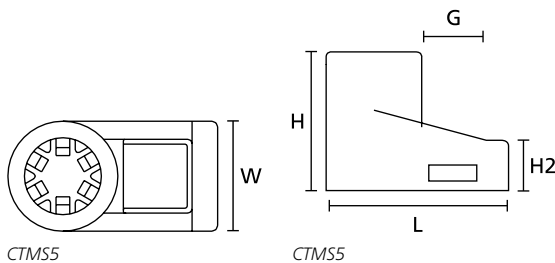
#### SB-Series



TYPE	Width (W)	Length (L)	Length (L2)	Height (H)	Height (H2)	Stud Ø	Strap Width max. (G)	Material	Colour	Article-No.
SBH1	12.5	26.8	9.0	13.9	15.9	5.0	8.5	PA66	Black (BK)	151-26150
SBH2	12.5	26.8	9.0	14.0	12.5	5.0	8.5	PA66	Black (BK)	151-26250
SBH3	12.5	26.8	9.0	18.0	15.9	5.0	8.5	PA66	Black (BK)	150-18900

All dimensions in mm. Subject to technical changes.

#### CT-Series



TYPE	Width (W)	Length (L)	Height (H)	Height (H2)	Stud Ø	Strap Width max. (G)	Material	Colour	Article-No.
CTM55	10.0	19.0	14.5	5.3	5.0	5.0	PA66	Black (BK)	151-03301

All dimensions in mm. Subject to technical changes.



### Fixing Elements for Weld Studs

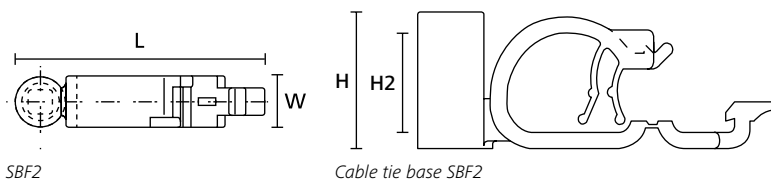
#### SBF-Clips

Many industries (but specifically the automotive market) are using 'weld studs' as the standard method of attaching components. Simply hammered onto the stud these parts provide ideal fixing bases for attaching cables, pipes or hose.

The use of weld studs avoids the problems with 'holes' (ingress of moisture, corrosion etc).

#### Features and Benefits

- One-piece fixing and retainer
- For bundles of up to 13.5 mm



SBF2

Cable tie base SBF2

TYPE	Width (W)	Length (L)	Height (H)	Height (H2)	Stud Ø	Bundle Ø max.	Material	Colour	Article-No.
SBF2	10.0	47.7	18.2	13.5	5.0	13.5	PA66	Black (BK)	150-47700

All dimensions in mm. Subject to technical changes.

### Fixing elements for Parallel Routing, twistable

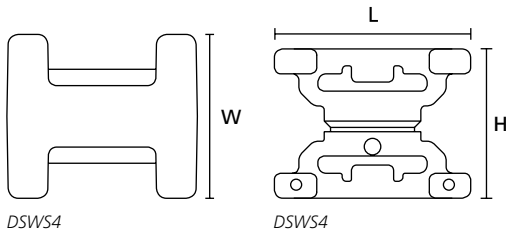
These fixing element for parallel routing can be used where bundles need separation from each other combined with the necessary functionality to support moving harnesses.

#### Features and benefits

- For parallel routing of bundles that can be twisted 360° even after setting
- Secure alignment to the bundle due to H-design
- Cable tie head can be moved after bundling
- For cable ties up to 12.7 mm wide
- For post-installation of bundles



The spacers can be easily rotated by hand, allowing the bundles to be crossed and rotated at any angle.



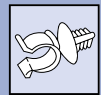
DSWS4

DSWS4

TYPE	Width (W)	Length (L)	Height (H)	Bundle Ø min.	Bundle Ø max.	Material	Colour	Pack Cont.	Article-No.
DSWS4	20.3	23.6	18.0	6.0	76.0	PA66HS, POM	Black (BK)	50	151-00644
	20.3	23.6	18.0	6.0	76.0	PA66HS, POM	Black (BK)	2,200 pcs.	151-06500
DSWS5	25.4	40.6	23.6	16.0	152.0	PA66HS	Black (BK)	50 pcs.	151-06502

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



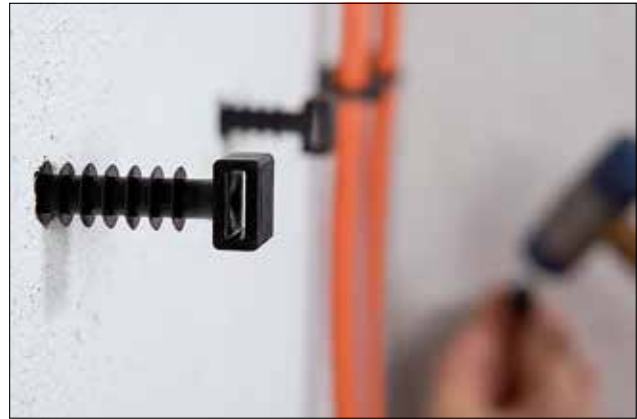
### Fixing Base

#### LOK-Series

The LOK mounts, in conjunction with a cable tie, can be used either indoors or outdoors for a diverse range of applications from holding climbing plants, to securing cables running between buildings.

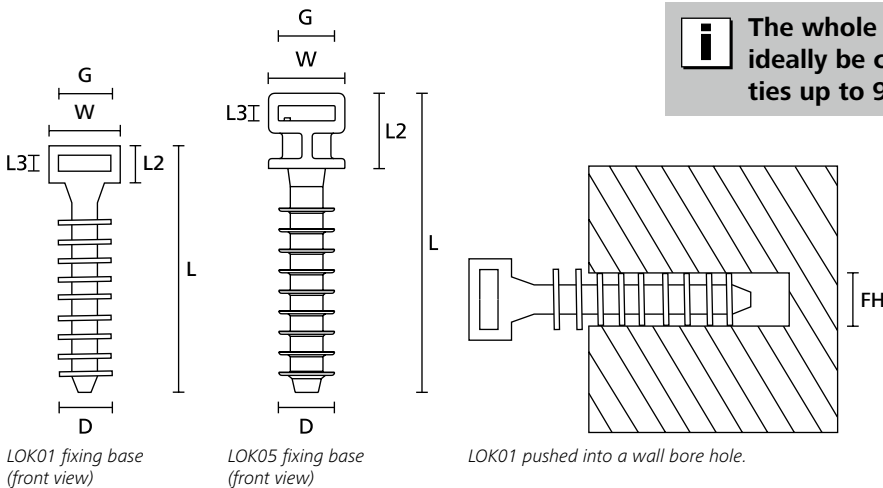
#### Features and Benefits

- LOK01 - LOK05 usable with any cable ties up to 9 mm wide
- Suitable for a wide range of materials, including concrete, brick, block and wood
- Installed by knocking into 7 mm or 8 mm diameter hole
- LOK01B is designed for soft brickwork and 6 mm holes
- Elongated head of LOK05 for setting bundles at a distance from brickwork



LOK01 fixing bases for indoor and outdoor use.

**i** The whole LOK-Series can ideally be combined with cable ties up to 9 mm cable tie width.



LOK01 fixing base (front view)

LOK05 fixing base (front view)

LOK01 pushed into a wall bore hole.

TYPE	Width (W)	Length (L)	Length (L2)	Length (L3)	Ø D	Strap Width max. (G)	Hole Ø (FH)	Material	Colour	Article-No.
LOK01B	12.0	30.0	6.5	2.5	7.2	9.0	6,0	PA6HIR	Black (BK)	151-80500
LOK01S	12.0	34.0	6.5	2.5	9.2	9.0	7.0 - 8,0	PA6HIR	Black (BK)	151-80600
LOK01	12.0	44.0	6.5	2.5	9.2	9.0	7.0 - 8,0	PA11	Black (BK)	151-01277
	12.0	44.0	6.5	2.5	9.2	9.0	7.0 - 8,0	PA6HIR	Black (BK)	151-80110
LOK05	12.0	49.0	12.5	2.5	9.2	9.0	7.0 - 8,0	PA6HIR	Black (BK)	151-80700

All dimensions in mm. Subject to technical changes.





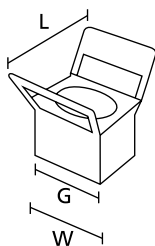
#### Fixing Base

##### LOK02

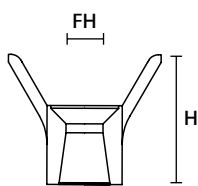
Designed specifically for holding heavier cable bundles these mounting bases can be used in many industries from agriculture to truck manufacture, they offer a very secure fixing and can be used with a wide variety of cable ties up to 9 mm wide.

##### Features and Benefits

- Special design of fixing base gives additional support to cables
- Simple to install with a screw or bolt
- Excellent security, particularly in areas of high vibration



LOK02 Fixing Base



LOK02 Fixing Base  
(front view)



LOK02 fixing base application.



**Material specification  
please see page 22.**

TYPE	Width (W)	Length (L)	Height (H)	Hole Ø (FH)	Strap Width max. (G)	Material	Colour	E-number	Article-No.
LOK02	14.0	21.0	18.0	5,1	9.0	PA6HIR	Black (BK)	00 000 00	151-80210

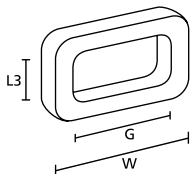
All dimensions in mm. Subject to technical changes.

##### LOK04

Whenever there is a need of running two or more cables in parallel the LOK04 fixing base would be an ideal and simple solution.

##### Features and Benefits

- LOK04 for running bundles with a distance in parallel
- Can be used with cable ties up to 9 mm cable tie width



LOK04



LOK04 ring for parallel routing.

TYPE	Width (W)	Length (L3)	Strap Width max. (G)	Material	Colour	E-number	Article-No.
LOK04	16.0	4.0	9.0	PA66	Black (BK)	00 000 00	151-80400

All dimensions in mm. Subject to technical changes.



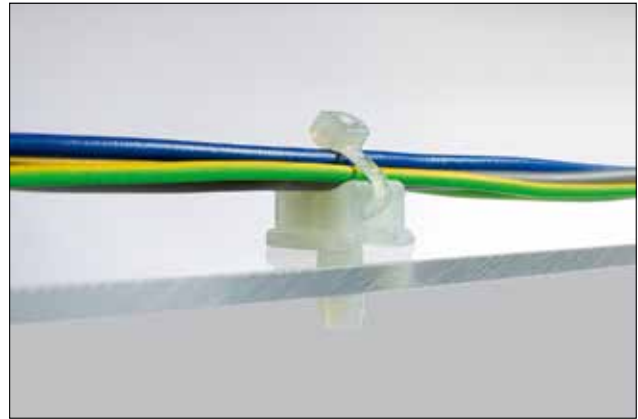
### Rivet Mount

#### TY5-Series

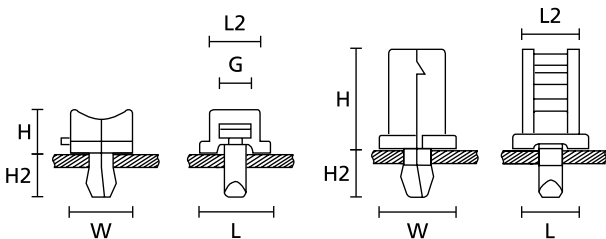
The TY Fixings are ideal for use where a high pull out force is required (eg. in the aircraft industry). The two piece 'wedge' ensures that once installed the mounts will not come away from the panel. Particularly designed for areas with restricted access.

#### Features and benefits

- Quick installation
- Two-piece wedge
- Easy insertion
- Firmly fixes wide variety of cable ties

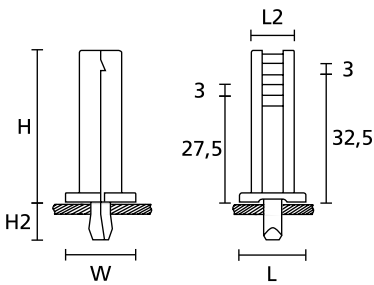


TY5 Wedge Base Socket.

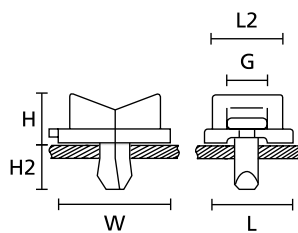


TY5K2 Rivet Mount

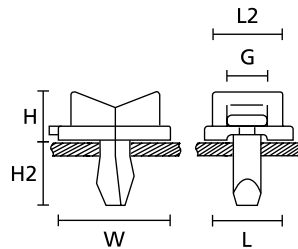
TY5K1 Rivet Mount



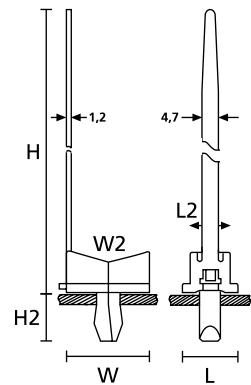
TY5K5 Rivet Mount



TY5K3/5 Rivet Mount



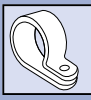
TY5K3 Rivet Mount



TY5K4 Rivet Mount

TYPE	Width (W)	Length (L)	Length (L2)	Height (H)	Height (H2)	Strap Width max. (G)	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
TY5K2	12.0	14.0	10.0	7.8	9.5	5.5	4.9 - 5.3	1.0 - 5.0	PA66HS	Natural (NA)	152-11209
TY5K1	14.8	15.0	11.0	18.3	9.5	5.4	5.0 - 5.3	1.0 - 3.0	PA66HS	Natural (NA)	152-51059
TY5K5	17.8	18.0	11.0	38.3	9.5	5.8	5.0 - 5.3	1.0 - 3.0	PA66HS	Natural (NA)	152-55059
TY5K4	22.0	14.0	10.0	175.0	12.5	-	5.9 - 6.4	2.0 - 8.0	PA66HS	Natural (NA)	152-11409
TY5K3/5	22.0	18.0	14.0	10.0	9.5	9.3	4.9 - 5.3	1.0 - 5.0	PA66HS	Natural (NA)	152-11359
TY5K3	22.0	18.0	14.0	10.0	12.5	9.3	5.9 - 6.4	2.0 - 8.0	PA66HS	Natural (NA)	152-11309

All dimensions in mm. Subject to technical changes.



## Blind Plugs

Products were developed especially for the automotive industry. Application in trunks, doors, wheel housing and dash panels. Parts are even used for optical reasons.

### Features and benefits

- Easy assembly without the need of a tool
- Disc of the part covers the hole and minimises ingress of dust, dirt and water
- Standard geometry for example fir tree or arrowhead



Blindplugs are available in different dimensions and materials.



**Material specification  
please see page 22.**

TYPE	Drawing	Hole Ø (FH)	Panel Thickness	Material	Colour	Article-No.
TRIM PLUG 5		5.0	4.0 - 4.5	PA66HIR	Natural (NA)	151-00333
PLUG11		11.0	4.0 - 6.0	PA66HIRHS	Natural (NA)	151-00485
		11.0	4.0 - 6.0	POM	Black (BK)	151-00360
PLUG5.5		5.0 - 5.5	2.5 - 26.0	PA6HIR	Black (BK)	151-00399
		5.0 - 5.5	2.5 - 26.0	PA6HIR	Grey (GY)	151-00401
PLUG SQ8x8		7.6 - 8.0	1.0 - 3.0	PA66HIR	Black (BK)	151-00415
PLUG5 WITH OPENING		5.05 - 5.25	4.8 - 5.2	PA66HIRHS	Black (BK)	151-00419
PLUG10		10.2	2.0 - 12.0	PE	Black (BK)	151-00426
		10.2	2.0 - 12.0	PE	Grey (GY)	151-00488
BPFT6XXL		6.3 - 7.0	6.0 - 17.0	PA66HIRHS	Natural (NA)	151-01160
PLUGFT6XL		6.5 - 7.0	0.7 - 18.0	PA46	Brown (BN)	151-00428
		6.5 - 7.0	0.7 - 18.0	PA66HIR	Black (BK)	241-00002
		6.5 - 7.0	0.7 - 18.0	PA66HIR	Grey (GY)	241-00001
PLUGFT7		7.05 - 7.25	2.5 - 8.0	PA6HIR	Black (BK)	151-00414

All dimensions in mm. Subject to technical changes.



### Snapper Hose Clips for Tubes and Harnesses

#### SNP-Series

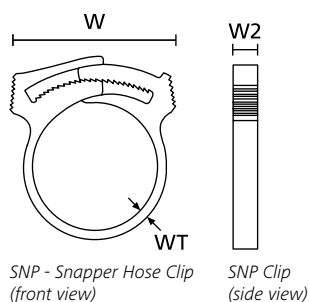
SNP range may replace metal hose clamps. Snapper can be used in markets as diverse as automotive, agriculture, white goods, venting systems, pumps and hydraulic systems to medical engineering.

#### Features and benefits

- Releasable and reusable plastic hose clamps
- Self-locking
- Releasable by giving a lateral movement to the 'head'
- Installation by hand possible
- Installation with processing tool for a secure tensing
- For higher operating temperatures: Glass Filled PA66



SNP - Snapper Hose Clips range.



SNP - Snapper Hose Clip (front view)

SNP Clip (side view)



Material specification please see page 22.

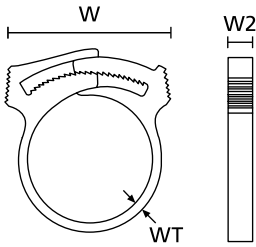
TYPE	Bundle Ø min.	Bundle Ø max.	Width (W) min.	Width (W) max.	Width (W2)	Wall (WT)	Material	Colour	Article-No.
SNP1	6.0	6.5	8.33	11.73	3.8	1.00	POM	White (WH)	190-00022
	6.0	6.8	8.40	11.70	3.8	1.00	PA66GF13	Black (BK)	192-10010
SNP1.25	7.1	7.7	10.57	12.62	3.8	1.10	PA66GF13	Black (BK)	190-00029
SNP2(E)	8.7	10.0	17.00	21.00	6.0	1.50	POM	Natural (NA)	191-10029
SNP2	9.3	10.5	12.20	17.60	5.9	1.70	PA66GF13	Black (BK)	192-10020
SNP3(E)	10.0	11.4	19.00	25.00	6.0	1.80	POM	Natural (NA)	191-10039
SNP4	10.4	11.7	13.30	19.20	5.9	1.70	PA66GF13	Black (BK)	192-10040
SNP4(E)	10.8	12.3	19.00	23.00	6.0	1.80	POM	Natural (NA)	191-10049
SNP7	11.4	13.7	18.40	28.50	5.9	1.70	PA66GF13	Black (BK)	192-10070
SNP6	11.7	13.3	14.70	21.60	5.9	1.70	PA66GF13	Black (BK)	192-10060
SNP6(E)	12.0	13.7	19.00	24.00	6.0	1.80	POM	Natural (NA)	191-10069
SNP8	13.1	15.0	16.70	24.90	5.7	1.70	PA66GF13	Black (BK)	192-10080
SNP8(E)	13.7	15.3	19.00	24.00	6.0	1.80	POM	Natural (NA)	191-10089
SNP10	14.5	16.6	17.60	26.90	5.9	1.80	PA66GF13	Black (BK)	192-10100
SNP10(E)	15.0	16.8	19.00	24.00	6.0	1.80	POM	Natural (NA)	191-10109
SNP12A	15.6	18.3	21.00	29.90	5.9	1.80	PA66GF13	Black (BK)	190-00254
SNP12(E)	16.8	18.4	19.00	24.00	6.0	1.80	POM	Natural (NA)	191-10129
SNP14(E)	18.1	19.9	19.00	24.00	6.0	1.80	POM	Natural (NA)	191-10149
SNP14A	18.5	21.0	20.90	30.10	5.9	1.80	PA66GF13	Black (BK)	190-00300
SNP16	19.1	21.7	19.90	30.80	5.8	1.50	PA66GF13	Black (BK)	192-10160
SNP16(E)	19.9	21.7	19.00	24.00	6.0	1.90	POM	Natural (NA)	191-10169
SNP18A	19.9	23.6	24.00	35.50	5.9	1.80	PA66GF13	Black (BK)	190-00258
SNP18(E)	21.4	23.0	16.00	22.00	6.0	1.90	POM	Natural (NA)	191-10189
SNP19	22.3	25.3	24.40	36.10	5.9	1.70	PA66GF13	Black (BK)	190-00090

All dimensions in mm. Subject to technical changes.



## Snapper Hose Clips for Tubes and Harnesses

### SNP-Series



SNP - Snapper Hose Clip  
(front view)

SNP Clip  
(side view)



SNP Snapper are also available on request in material PA66HS and PA46.



Snapper tools please see page 609.

TYPE	Bundle Ø min.	Bundle Ø max.	Width (W) min.	Width (W) max.	Width (W2)	Wall (WT)	Material	Colour	Article-No.
SNP20(E)	22.7	24.7	20.00	26.00	6.0	1.80	POM	Natural (NA)	191-10209
SNP22	23.7	27.4	23.90	37.70	6.0	1.80	PA66GF13	Black (BK)	192-10220
SNP22(E)	25.3	27.3	20.00	26.00	6.0	1.60	POM	Natural (NA)	191-10229
SNP24	25.8	29.2	26.50	39.40	7.3	1.70	PA66GF13	Black (BK)	192-10240
SNP24(E)	26.5	28.6	20.00	26.00	6.0	2.00	POM	Natural (NA)	191-10249
SNP28	28.8	33.2	26.00	42.10	7.3	1.70	PA66GF13	Black (BK)	190-00127
SNP32(E)	30.3	33.1	27.00	34.00	7.5	2.00	POM	Natural (NA)	191-10329
SNP32	31.2	35.8	27.30	44.40	7.3	1.80	PA66GF13	Black (BK)	192-10320
SNP34(E)	32.5	35.1	27.00	34.00	7.5	2.00	POM	Natural (NA)	191-10349
SNP36(E)	34.8	37.1	27.00	34.00	7.5	2.00	POM	Natural (NA)	191-10369
SNP38(E)	36.7	38.9	27.00	34.00	7.5	2.00	POM	Natural (NA)	191-10389
SNP36	37.8	44.0	32.41	53.80	7.3	1.70	PA66GF13	Black (BK)	192-10360
SNP42(E)	41.0	44.2	32.00	45.00	7.5	2.00	POM	Natural (NA)	191-10429
SNP38	41.0	48.1	35.60	57.50	7.3	1.80	PA66GF13	Black (BK)	192-10380
SNP42N	44.5	52.2	35.70	59.80	7.3	1.70	PA66GF13	Black (BK)	191-00005
SNP50(E)	48.8	52.0	32.00	45.00	7.5	2.00	POM	Natural (NA)	191-10509
SNP50	52.2	58.6	36.50	60.40	7.3	1.70	PA66GF13	Black (BK)	192-10500
SNP58(E)	56.7	59.2	31.00	39.00	7.5	2.00	POM	Natural (NA)	191-10589

All dimensions in mm. Subject to technical changes.



### Plastic Rivets

#### TY-Series

These simple-to-use plastic rivets are ideal for improving productivity in the working environment, saving time and money over more conventional fixing methods - ideal for fixing panels or components to panels in a wide range of industries from automotive to panel building.

#### Features and benefits

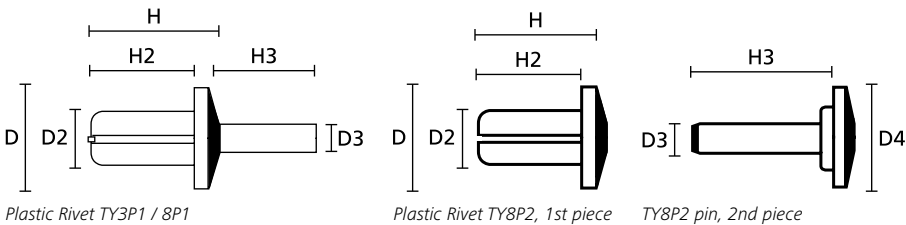
- One Piece
- Simply push pin into body of rivet
- TY3P1 and TY8P1 pins inserted using rivet placement tool
- TY8P2 has 'mushroom' head so pin is simply hammered in
- TY8P2 consists of two unattached parts



Plastic Rivet TY8P1 in application.



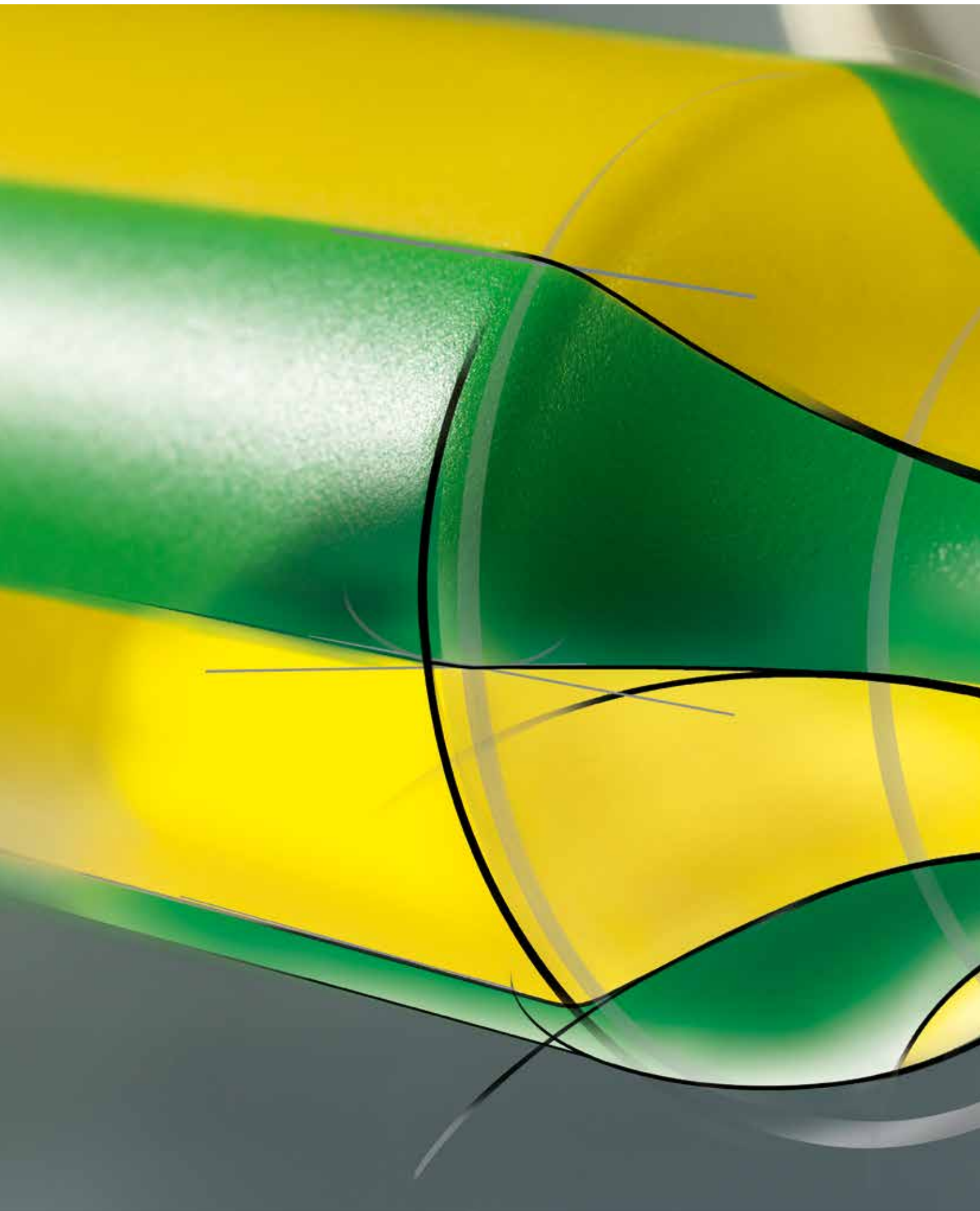
**Material specification please see page 22.**



TYPE	Height (H)	Height (H2)	Height (H3)	Ø (D)	Ø (D2)	Ø (D3)	Ø (D4)	Material	Colour	Article-No.
TY3P1	7.5	6.0	5.3	6.0	3.0	1.7	-	PA66	Black (BK)	241-11310
	7.5	6.0	5.3	6.0	3.0	1.7	-	PA66	Natural (NA)	241-11319
TY8P1	10.0	8.0	7.5	8.0	4.0	2.6	-	PA66	Black (BK)	241-11810
	10.0	8.0	7.5	8.0	4.0	2.6	-	PA66	Natural (NA)	241-11819
TY8P2	10.0	8.0	11.5	8.0	4.0	2.6	8.0	PA66	Black (BK)	241-11820
	10.0	8.0	11.5	8.0	4.0	2.6	8.0	PA66	Natural (NA)	241-11829

All dimensions in mm. Subject to technical changes.







**Inspired by Paul Hellermann**

Heat-shrinkable tubes have always made it easy to repair cables and pipes. Strictly speaking, however, Paul Hellermann used rubber bike valves to bring the insulation of damaged household cables to a mass market from 1935. The idea is the only thing that our modern heat-shrinkable tubes have in common with these simple chloroprene sleeves. Take SA47 (see page 250 ), which was specially developed in line with customer specifications and offers outstanding protection against moisture and corrosion, thus enabling vehicles to retain their functionality.



2.1 Heat Shrinkable Tubing

210



2.2 Heat Shrinkable Moulded Shapes

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2.3 Non Shrinkable Tubing

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## 2.1 Heat Shrinkable Tubing

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## Standard wall with adhesive liner

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------------------------	-----

## Medium walled with adhesive liner

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## 2.2 Heat Shrinkable Moulded Shapes

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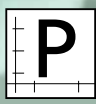
### Low Profile Boots and Transitions

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### Overview of Applications for Heat Shrink Tubing

When selecting the correct heat shrink tubing size, it is important to bear in mind the 80:20 rule. The heat shrink tubing must shrink by at least 20 % and not more than 80 % of its complete shrinkage capacity to achieve the right result. In our overview of applications you will find the best heat shrink tube for every cable diameter. The 80:20 rule has of course been taken into account in the table.

#### Heat Shrinkable Tubing with a shrink ratio of 2:1

HFT-A, TL27, TF21, TF24, VITON®-E, TK20, TK29, TFE-2, TR27, TCN20, SE28

Shrink ratio 2:1 Size mm		Cable/Wire Diameter
1,2/0,6		0,7 mm
		1,1 mm
3,2/1,6	2,4/1,2	1,4 mm
		1,9 mm
		2,2 mm
		2,9 mm
6,4/3,2	4,8/2,4	3,8 mm
		4,3 mm
		5,7 mm
12,7/6,4	9,5/4,7	5,8 mm
		7,7 mm
		8,6 mm
		11,4 mm
25,4/12,7	19,1/9,5	15,2 mm
		17,2 mm
		22,9 mm
50,8/25,4	38,1/19,1	30,5 mm
		34,3 mm
		45,7 mm
101,6/50,8	76,2/38,1	61,0 mm
		68,6 mm
		91,4 mm

#### Heat Shrinkable Tubing with a shrinkage ratio of 3:1

With the optimal shrinkage ratio of 3:1, you can cover a wide range of applications with just a few sizes. This leads to reduced stock expenditure and requires less space. 3:1 heat shrink tubes: TF34, TF31, EPS-300, TCN20 overexpanded, TA32, TA37

Shrink ratio 3:1 Size mm		Cable/Wire Diameter
1,5/0,5		0,7 mm
		1,3 mm
6/2	3/1	1,4 mm
		2,6 mm
		2,8 mm
		5,2 mm
18/6	12/4	5,6 mm
		8,4 mm
		10,4 mm
40/13	24/8	11,2 mm
		15,6 mm
		18,4 mm
		20,8 mm
		34,6 mm

#### Conversion from imperial to metric

<b>Inch</b>	1/32"	3/64"	1/16"	5/64"	3/32"	1/8"	3/16"	1/4"	3/8"
<b>mm</b>	0,8	1,2	1,6	2,0	2,4	3,2	4,8	6,4	9,5
<b>Inch</b>	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	3"	4"
<b>mm</b>	12,7	15,9	19,1	25,4	31,8	38,1	50,8	76,2	101,6

VITON® is a registered trademark of DuPont.



## The Right Heat Shrink Tube

The 80:20 rule means that a heat shrink tube should shrink by a maximum of 80 % and a minimum of 20 %.

### For example:

A cable with a diameter of 5mm is to be wrapped in heat shrink tubing. In theory both sizes 6/2 and 12/4 would be suitable, since the required diameter of 5mm lies within the shrink range of both tube sizes.

#### Size 6/2

##### Maximum shrink (100 %)



Shrinkage of 4 mm

##### Optimum shrinkage max. (80 %)



Shrinkage of 0.8 mm

##### Optimum shrinkage min. (20 %)



Shrinkage of 3.2 mm

#### Size 12/4

##### Maximum shrink (100 %)



Shrinkage of 8 mm

##### Optimum shrinkage max. (80 %)



Shrinkage of 6.4 mm

##### Optimum shrinkage min. (20 %)



Shrinkage of 1.6 mm

Size 6/2 has a range of application of between 2.8 mm and 5.2 mm and is therefore suitable for the cable diameter of 5 mm.

The smallest application diameter of size 12/4 is 5.6 mm. This size is therefore unsuitable for a cable diameter of 5 mm.

#### Calculator tool for Heat Shrink Tubing

The calculator tool for heat shrink tubing is a selection guide for shrink tubing sizes based on the object to be covered. Fill in your specification and the calculator presents the right tubing size according to the 80:20 rule.

Find more information under <http://www.HellermannTyton.co.uk/heatshrink-calculator!>

The calculator tool also checks if the heat shrink tubing you have chosen is suitable for your application. For example you can find the heat shrink tubing with the Product Search on the HellermannTyton website.

**Heat Shrinkable Tubing Overview**

TYPE	Packaging Type	VARIANT	Material	Shrink Ratio	Operating Temperature	Dimension (mm)	Halogen-free	Colour	Specifications	Page
TL27		Thin-Wall	PO-X	2:1	-55 °C to +135 °C	1.2 - 50.8	HF ✓	Black		220
TCN20			PO-X	2:1	-55 °C to +125 °C	1.2 - 50.8		Black	2, 3	218
TCN20 overexpanded			PO-X	3:1	-55 °C to +125 °C	2.4 - 38.0		Black	2, 3	219
HFT-A			PO-X	2:1	-55 °C to +135 °C	1.2 - 101.6		Black, Blue, Green-Yellow, Red, White, Yellow	1, 3, 4, 7, 8, 9, 10, 11, 12, 13, 14	221
TF21		Thin-Wall	PO-X	2:1	-55 °C to +135 °C	1.2 - 101.6		Black, Blue, Green-Yellow, Red, White, Yellow	3, 6, 9, 11, 12, 15	224
TF24			PO-X	2:1	-55 °C to +135 °C	1.2 - 101.6	HF ✓	Transparent	4, 12, 13, 14	227
TF31			PO-X	3:1	-55 °C to +135 °C	1.5 - 40.0		Black, Blue, Green, Green-Yellow, Red, White, Yellow	3, 11	232
TF34			PO-X	3:1	-55 °C to +135 °C	1.5 - 40.0	HF ✓	Transparent		235
TA32		Thin-Wall Hot melt adhesive	PO-X	3:1	-55 °C to +125 °C	3.2 - 40.0		Black	3, 11, 12	236
TA42			PO-X	4:1	-55 °C to +125 °C	4.0 - 52.0		Black	11, 12	237
EPS-300			PO-X	3:1	-55 °C to +125 °C	3.0 - 40.0		Black	12	238
EPS-400			PO-X	4:1	-55 °C to +125 °C	4.0 - 32.0		Black	12	238
MA40		Medium-Wall Hot melt adhesive	PO-X	up to 4:1	-55 °C to +110 °C	8.0 - 55.0		Black		239
MA47			PO-X	up to 4:1	-55 °C to +110 °C	8.0 - 140.0	HF ✓	Black		240
MU47		Medium-Wall	PO-X	up to 4:1	-55 °C to +110 °C	12.0 - 140.0	HF ✓	Black		241
RMS		Medium-Wall Hot melt adhesive	PO-X	up to 4.5:1	-40 °C to +120 °C	43.0 - 185.0	HF ✓	Black		242
HA40			PO-X	up to 4:1	-55 °C to +110 °C	9.0 - 92.0		Black		245



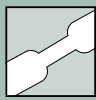
### Heat Shrinkable Tubing Overview

TYPE	Packaging Type	VARIANT	Material	Shrink Ratio	Operating Temperature	Dimension (mm)	Halogen-free	Colour	Specifications	Page
HA47		Thick-Wall Hot melt adhesive	PO-X	up to 4:1	-55 °C to +110 °C	9.0 - 180.0	HF ✓	Black		246
HA67			PO-X	6:1	-55 °C to +110 °C	19.0 - 235.0	HF ✓	Black		247
TR27		Thin-Wall	PO-X	2:1	-40 °C to +105 °C	3.2 - 50.8	HF ✓	Black	4, 15	248
TA37		Thin-Wall Hot melt adhesive	PO-X	3:1	-40 °C to +105 °C	3.0 - 120.0	HF ✓	Black	15	249
SA47		Standard-Wall Hot melt adhesive	PO-X	4:1	-40 °C to +125 °C	5.75 - 32.0	HF ✓	Transparent – Black		250
SA47-LA			PO-X	4:1	-40 °C to +125 °C	5.75 - 52.0	HF ✓	Transparent – Black		251
SA47-HT			PO-X	4:1	-40 °C to +150 °C	7.6 - 32.0		Black		252
SE28		Standard-Wall	POA	2:1	-75 °C to +150 °C	3.2 - 101.2		Black	9, 12, 13,14	254
TK20		Thin-Wall	PVDF	2:1	-55 °C to +175 °C	1.2 - 50.8		Transparent	1, 11, 12, 13,14	255
Viton®-E		Standard-Wall	FPMX	2:1	-55 °C to +220 °C	3.2 - 50.8		Black	7, 14	257
TFE2		Thin-Wall	PTFE	2:1	-70 °C to +260 °C	0.86 - 11.94		Transparent		258
TFE4			PTFE	4:1	-70 °C to +260 °C	1.98 - 31.75		Transparent	10	259

### CERTIFICATION / SPECIFICATION

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15						

Please refer to the Approvals Overview for further information, see page: 622.



## Heat shrinkable tubing up to 3:1 - 1 m lengths

### TREDUX - thin wall

TREDUX thin wall heat shrink tubing is used for general electrical insulation and mechanical protection of cables and wires.

#### Features and benefits

- Thin wall, flexible, cross-linked polyolefin tubing
- 1m shrink tubing lengths delivered in handy display carton
- 9 sizes from 1.5 mm to 101.6 mm
- All tubings can be sold in single 1 meter length or entire box



**More colours on request.  
Please contact us!**



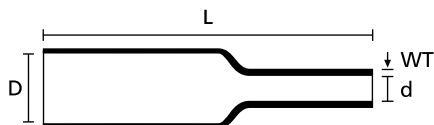
One Step to the Web!



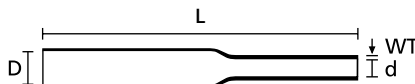
TREDUX shrinks a maximum of 3:1.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)	
<b>Shrink Ratio</b>	2:1	3:1
<b>Operating Temperature</b>	-55 °C to +135 °C	
<b>Min. Shrink Temperature</b>	+100 °C	
<b>Longitudinal change after shrinkage</b>	+/- 5 % max.	
<b>Dielectric Strength</b>	20 kV/mm according to ASTM D 150	
<b>Flammability</b>	UL224 VW-1	

**RoHS** ✓



Heat Shrinkable Tubing 3:1



Heat Shrinkable Tubing 2:1

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Pack Cont.	Colour	Shrink Ratio	Tools	Article-No.
TREDUX-1.5/0.5	1.5	0.5	0.50	1.0 m	20 pcs.	Black (BK)	3:1	30-32	319-00150
	1.5	0.5	0.50	1.0 m	20 pcs.	Green-Yellow (GNYE)	3:1	30-32	319-00157
TREDUX-3/1	3.0	1.0	0.60	1.0 m	20 pcs.	Black (BK)	3:1	30-32	319-00300
	3.0	1.0	0.60	1.0 m	20 pcs.	Green-Yellow (GNYE)	3:1	30-32	319-00307
TREDUX-6/2	6.0	2.0	0.70	1.0 m	15 pcs.	Black (BK)	3:1	30-32	319-00600
	6.0	2.0	0.70	1.0 m	15 pcs.	Green-Yellow (GNYE)	3:1	30-32	319-00607
TREDUX-12/4	12.0	4.0	0.85	1.0 m	10 pcs.	Black (BK)	3:1	30-32	319-01200
	12.0	4.0	0.85	1.0 m	10 pcs.	Green-Yellow (GNYE)	3:1	30-32	319-01207
TREDUX-24/8	24.0	8.0	1.20	1.0 m	5 pcs.	Black (BK)	3:1	30-32	319-02400
	24.0	8.0	1.20	1.0 m	5 pcs.	Green-Yellow (GNYE)	3:1	30-32	319-02407
TREDUX-38.1/19.1	38.1	19.1	1.02	1.0 m	6 pcs.	Black (BK)	2:1	30-32	319-03800
	38.1	19.1	1.02	1.0 m	6 pcs.	Green-Yellow (GNYE)	2:1	30-32	319-03807
TREDUX-50.8/25.4	50.8	25.4	1.14	1.0 m	6 pcs.	Black (BK)	2:1	30-32	319-05100
TREDUX-76.2/38.1	76.2	38.1	1.27	1.0 m	3 pcs.	Black (BK)	2:1	-	319-07600
TREDUX-101.6/50.8	101.6	50.8	1.40	1.0 m	2 pcs.	Black (BK)	2:1	-	319-10200

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



### Heat shrinkable tubing up to 4:1 - 1 m lengths

#### TREDUX MA47 - medium wall adhesive lined

Suitable for insulation and protection of low voltage cable joints and terminations.

#### Features and benefits

- Medium wall heat shrink tubing
- Thermoplastic adhesive liner for protection from moisture and weathering
- 1 m shrink tubing lengths delivered in handy display carton
- All tubes can be sold in single 1 meter length or entire box

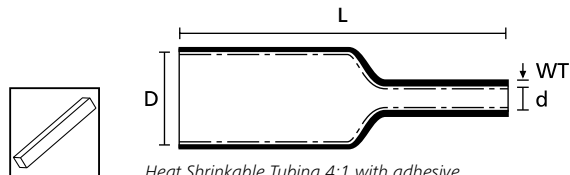


TREDUX MA47 in handy display carton.



One Step to the Web!

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	up to 4:1
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Softening Point Adhesive</b>	+85 °C
<b>Min. Shrink Temperature</b>	+120 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	20 kV/mm
<b>Flammability</b>	not flame retarded
<b>Insulation Class</b>	A (VDE 0530)



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Pack Cont.	Colour	Tools	Article-No.
TREDUX-MA47-12/3	12.0	3.0	2.00	1.0 m	6 pcs.	Black (BK)	30-32	323-50120
TREDUX-MA47-19/6	19.0	6.0	2.50	1.0 m	10 pcs.	Black (BK)	30-32	323-50190
TREDUX-MA47-30/8	30.0	8.0	2.50	1.0 m	6 pcs.	Black (BK)	30-32	323-50300
TREDUX-MA47-40/12	40.0	12.0	2.50	1.0 m	4 pcs.	Black (BK)	-	323-50400
TREDUX-MA47-50/16	50.0	16.0	2.70	1.0 m	2 pcs.	Black (BK)	-	323-50500
TREDUX-MA47-63/19	63.0	19.0	2.80	1.0 m	2 pcs.	Black (BK)	-	323-50630
TREDUX-MA47-75/22	75.0	22.0	3.00	1.0 m	2 pcs.	Black (BK)	-	323-50750
TREDUX-MA47-95/30	95.0	30.0	3.00	1.0 m	1 pc.	Black (BK)	-	323-50950

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools			
	30	31	32
	H5002	H5004	E4500
	611	611	610

For more information on toolings please refer to the Application Tooling chapter.



### Heat shrinkable tubing up to 3.5:1 - 1 m lengths

#### TREDUX HA47 - thick wall adhesive lined

The toughness and the weatherability make TREDUX thick wall tubing suitable for exposed applications and underground cable joints.

#### Features and benefits

- Thick wall polyolefin adhesive-lined tubing
- 1 m shrink tubing lengths delivered in handy display carton
- All tubes can be sold in single 1 meter length or entire box

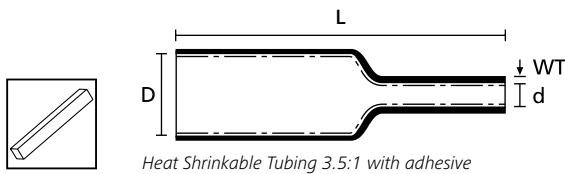


TREDUX HA47 - application below ground.



One Step to the Web!

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	up to 3.5:1
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Min. Shrink Temperature</b>	+120 °C
<b>Softening Point Adhesive</b>	+85 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	20 kV/mm
<b>Flammability</b>	not flame retarded



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Pack Cont.	Colour	Tools	Article-No.
TREDUX-HA47-19/6	19.0	6.0	2.70	1.0 m	10 pcs.	Black (BK)	30-32	321-50190
TREDUX-HA47-33/8	33.0	8.0	3.20	1.0 m	5 pcs.	Black (BK)	30-32	321-50330
TREDUX-HA47-45/12	45.0	12.0	4.10	1.0 m	4 pcs.	Black (BK)	-	321-50450
TREDUX-HA47-51/16	51.0	16.0	4.10	1.0 m	2 pcs.	Black (BK)	-	321-50510
TREDUX-HA47-68/22	68.0	22.0	4.10	1.0 m	1 pc.	Black (BK)	-	321-50680
TREDUX-HA47-85/25	85.0	25.4	4.30	1.0 m	1 pc.	Black (BK)	-	321-50850

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools			
	30	31	32
	H5002	H5004	E4500
	611	611	610

For more information on toolings please refer to the Application Tooling chapter.



### Heat shrinkable tubing 2:1 - PVC

#### LVR

LVR can be used for cable joints, low voltage bus bars and batteries.

#### Features and benefits

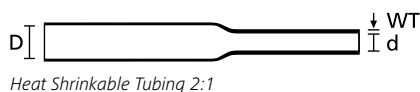
- PVC heat shrinkable tubing
- Self-extinguishing
- Good chemical resistance and mechanical protection



LVR used for mechanical protection.

<b>MATERIAL</b>	Flexible Polyvinyl Chloride, cadmium free (PVC)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-30 °C to +105 °C
<b>Min. Shrink Temperature</b>	+135 °C
<b>Longitudinal change after shrinkage</b>	+/-10 % max
<b>Dielectric Strength</b>	15 kV/mm according to IEC 243
<b>Shelf Life</b>	12 months
<b>Storage Temperature</b>	+25 °C max.
<b>Flammability</b>	ASTM D2671, UL224 VW-1

RoHS



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Tools	Article-No.
LVR-2.4/1.2	2.4	1.2	0.40	250 m	Black (BK)	30-32	344-00240
LVR-3.2/1.6	3.2	1.6	0.40	250 m	Black (BK)	30-32	344-00320
LVR-4.8/2.4	4.8	2.4	0.50	250 m	Black (BK)	30-32	344-00480
LVR-6.4/3.2	6.4	3.2	0.60	250 m	Black (BK)	30-32	344-00640
LVR-9.5/4.8	9.5	4.8	0.60	125 m	Black (BK)	30-32	344-00950
LVR-12.7/6.4	12.7	6.4	0.70	75 m	Black (BK)	30-32	344-01270
LVR-19.1/9.5	19.0	9.5	0.80	100 m	Black (BK)	30-32	344-01900
LVR-25.4/12.7	25.4	12.7	1.00	100 m	Black (BK)	30-32	344-02540

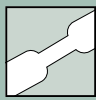
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools			
	30	31	32
	H5002	H5004	E4500
	611	611	610

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



## Heat shrinkable tubing 2:1 - Self extinguishing

### TCN20

TCN20 is suitable for a wide range of applications like electrical insulations, mechanical protection and cable bundling.

#### Features and benefits

- Thin wall general purpose polyolefin tubing
- Highly flame-retardant, UL224 VW-1, CSA
- Fast shrinking
- Low shrink temperature



Heat shrink tubing TCN20.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +125 °C
<b>Min. Shrink Temperature</b>	+100 °C
<b>Longitudinal change after shrinkage</b>	+/- 5 %
<b>Dielectric Strength</b>	20 kV/mm according to IEC 243
<b>Flammability</b>	self-extinguishing



Heat Shrinkable Tubing 2:1

RoHS

TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Tools	Article-No.
TCN20-1.2/0.6	1.2	3/64 "	0.6	0.30	300 m	Black (BK)	30-32	300-73010
TCN20-1.6/0.8	1.6	1/16 "	0.8	0.35	300 m	Black (BK)	30-32	300-73020
TCN20-2.4/1.2	2.4	3/32 "	1.2	0.45	300 m	Black (BK)	30-32	300-73030
TCN20-3.2/1.6	3.2	1/8 "	1.6	0.45	300 m	Black (BK)	30-32	300-73040
TCN20-4.8/2.4	4.8	3/16 "	2.4	0.50	300 m	Black (BK)	30-32	300-73050
TCN20-6.4/3.2	6.4	1/4 "	3.2	0.55	300 m	Black (BK)	30-32	300-73060
TCN20-9.5/4.8	9.5	3/8 "	4.8	0.55	100 m	Black (BK)	30-32	300-73070
TCN20-12.7/6.4	12.7	1/2 "	6.4	0.65	100 m	Black (BK)	30-32	300-73080
TCN20-19.1/9.5	19.1	3/4 "	9.5	0.80	60 m	Black (BK)	30-32	300-73090
TCN20-25.4/12.7	25.4	1 "	12.7	0.90	60 m	Black (BK)	30-32	300-73100
TCN20-38.1/19.1	38.1	1-1/2 "	19.1	1.02	30 m	Black (BK)	30-32	300-73110
TCN20-50.8/25.4	50.8	2 "	25.4	1.15	30 m	Black (BK)	30-32	300-73120

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools			
	30	31	32
	H5002	H5004	E4500
	611	611	610

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.





### Heat shrinkable tubing 3:1 - Self extinguishing

#### TCN20 overexpanded

Mechanical and electrical protection applications for parts with high diameter variances. This fast shrinking tubing makes it suitable for high volume production.

#### Features and benefits

- Thin wall overexpanded polyolefin tubing
- Very fast shrinking and low shrink temperature
- Highly flame-retardant, UL224 VW-1



Heat shrink tubing TCN20 overexpanded.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	3:1
<b>Operating Temperature</b>	-55 °C to +125 °C
<b>Min. Shrink Temperature</b>	+100 °C
<b>Longitudinal change after shrinkage</b>	+/- 5 %
<b>Dielectric Strength</b>	20 kV/mm according to IEC 243
<b>Flammability</b>	self-extinguishing



Heat Shrinkable Tubing 3:1



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Tools	Article-No.
TCN20-2.4/0.8	2.4	0.8	0.40	300 m	Black (BK)	30-32	300-73130
TCN20-3.2/1.2	3.2	1.2	0.50	300 m	Black (BK)	30-32	300-73140
TCN20-4.8/1.6	4.8	1.6	0.50	300 m	Black (BK)	30-32	300-73150
TCN20-6.6/2.4	6.6	2.4	0.55	300 m	Black (BK)	30-32	300-73160
TCN20-9.5/3.2	9.5	3.2	0.65	100 m	Black (BK)	30-32	300-73170
TCN20-12.7/4.8	12.7	4.8	0.75	100 m	Black (BK)	30-32	300-73180
TCN20-19.0/6.4	19.0	6.4	0.75	60 m	Black (BK)	30-32	300-73190
TCN20-25.4/9.5	25.4	9.5	0.79	60 m	Black (BK)	30-32	300-73200
TCN20-38.0/12.7	38.0	12.7	0.95	30 m	Black (BK)	30-32	300-73210

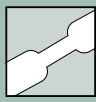
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools			
	30	31	32
	H5002	H5004	E4500
	611	611	610

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



## Heat shrinkable tubing 2:1 - Halogen free

### TL27

TL27 has a low shrink temperature which offers very fast recovery. Application fields include covering of heat sensitive parts, mechanical protection and cosmetic covering.

#### Features and benefits

- Very low shrink temperature
- Fast shrinking
- Halogen free



TL27 – a very flexible tubing for automotive applications or applications where halogens cannot be accepted.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Min. Shrink Temperature</b>	+90 °C
<b>Longitudinal change after shrinkage</b>	+5 %/-15 %
<b>Dielectric Strength</b>	>20 kV/mm
<b>Flammability</b>	FMVSS 302



Heat Shrinkable Tubing 2:1



TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Tools	Article-No.
TL27-1.2/0.6	1.2	3/64 "	0.6	0.31	500 m	Black (BK)	30-32	302-20120
TL27-1.6/0.8	1.6	1/16 "	0.8	0.33	500 m	Black (BK)	30-32	302-20160
TL27-2.4/1.2	2.4	3/32 "	1.2	0.36	500 m	Black (BK)	30-32	302-30240
TL27-3.2/1.6	3.2	1/8 "	1.6	0.39	300 m	Black (BK)	30-32	302-30320
TL27-4.8/2.4	4.8	3/16 "	2.4	0.42	150 m	Black (BK)	30-32	302-30480
TL27-6.4/3.2	6.4	1/4 "	3.2	0.45	100 m	Black (BK)	30-32	302-30640
TL27-9.5/4.8	9.5	3/8 "	4.8	0.48	100 m	Black (BK)	30-32	302-30950
TL27-12.7/6.4	12.7	1/2 "	6.4	0.52	100 m	Black (BK)	30-32	302-21270
TL27-19.1/9.5	19.1	3/4 "	9.5	0.58	100 m	Black (BK)	30-32	302-31900
TL27-25.4/12.7	25.4	1 "	12.7	0.67	100 m	Black (BK)	30-32	302-32540
TL27-38.1/19.1	38.1	1-1/2 "	19.1	0.76	100 m	Black (BK)	30-32	302-23810
TL27-50.8/25.4	50.8	2 "	25.4	0.85	100 m	Black (BK)	30-32	302-25080

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools			
	30	31	32
	H5002	H5004	E4500
	611	611	610

For more information on toolings please refer to the Application Tooling chapter.



### Heat shrinkable tubing 2:1 - flexible and coloured

#### HFT-A - self extinguishing

This high performance thin wall tubing is used extensively for electrical and mechanical protection. It is also well proven for sleeve marking to identify wiring circuits.

#### Features and benefits

- Flexible heat shrink tubing
- Fast shrinking, easy handling, good mechanical strength
- Wide range of colours
- Internal diameters up to 101.6 mm (4 inches)
- UL-224 ,CSA listed and VG approved



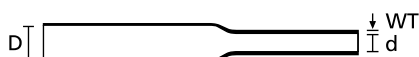
HFT-A conforms to major standards (VG) used in all Defence industries.



Standard sizes available in colours black, red, blue, yellow, white and green-yellow.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Min. Shrink Temperature</b>	+100 °C
<b>Longitudinal change after shrinkage</b>	+5 %/-10 %
<b>Dielectric Strength</b>	20 kV/mm according to IEC 684 P2
<b>Flammability</b>	self-extinguishing, UL224 VW-1

**RoHS**



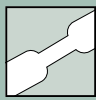
Heat Shrinkable Tubing 2:1

TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Designation as per VG-Norm	Tools	Article-No.
<b>HFT-A-1.2/0.6</b>	1.2	3/64 "	0.6	0.40	400 m	Black (BK)	VG 95343 T05 A 001 A	30-32	305-01200
	1.2	3/64 "	0.6	0.40	400 m	Blue (BU)	VG 95343 T05 A 001 G	30-32	305-01206
	1.2	3/64 "	0.6	0.40	400 m	Red (RD)	VG 95343 T05 A 001 C	30-32	305-01202
	1.2	3/64 "	0.6	0.40	400 m	White (WH)	VG 95343 T05 A 001 L	30-32	305-01209
	1.2	3/64 "	0.6	0.40	400 m	Yellow (YE)	VG 95343 T05 A 001 E	30-32	305-01204
<b>HFT-A-1.6/0.8</b>	1.6	1/16 "	0.8	0.40	400 m	Black (BK)	VG 95343 T05 A 002 A	30-32	305-01600
	1.6	1/16 "	0.8	0.40	400 m	Blue (BU)	VG 95343 T05 A 002 G	30-32	305-01606
	1.6	1/16 "	0.8	0.40	400 m	Red (RD)	VG 95343 T05 A 002 C	30-32	305-01602
	1.6	1/16 "	0.8	0.40	400 m	White (WH)	VG 95343 T05 A 002 L	30-32	305-01609
	1.6	1/16 "	0.8	0.40	400 m	Yellow (YE)	VG 95343 T05 A 002 E	30-32	305-01604
<b>HFT-A-2.4/1.2</b>	2.4	3/32 "	1.2	0.50	100 m	Blue (BU)	VG 95343 T05 A 003 G	30-32	305-02406
	2.4	3/32 "	1.2	0.50	100 m	Red (RD)	VG 95343 T05 A 003 C	30-32	305-02402
	2.4	3/32 "	1.2	0.50	100 m	White (WH)	VG 95343 T05 A 003 L	30-32	305-02409
	2.4	3/32 "	1.2	0.50	100 m	Yellow (YE)	VG 95343 T05 A 003 E	30-32	305-02404
	2.4	3/32 "	1.2	0.50	400 m	Black (BK)	VG 95343 T05 A 003 A	30-32	305-02400

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

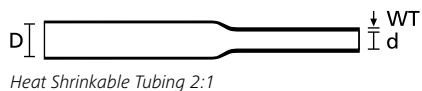


For product specific approvals and specifications please refer to the Appendix.



## Heat shrinkable tubing 2:1 - flexible and coloured

## HFT-A - self extinguishing



Heat Shrinkable Tubing 2:1

TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Designation as per VG-Norm	Tools	Article-No.
HFT-A-3.2/1.6	3.2	1/8 "	1.6	0.50	100 m	Blue (BU)	VG 95343 T05 A 004 G	30-32	305-03206
	3.2	1/8 "	1.6	0.50	100 m	Green-Yellow (GNYE)	VG 95343 T05 A 004 N	30-32	305-03245
	3.2	1/8 "	1.6	0.50	100 m	Red (RD)	VG 95343 T05 A 004 C	30-32	305-03202
	3.2	1/8 "	1.6	0.50	100 m	White (WH)	VG 95343 T05 A 004 L	30-32	305-03209
	3.2	1/8 "	1.6	0.50	100 m	Yellow (YE)	VG 95343 T05 A 004 E	30-32	305-03204
	3.2	1/8 "	1.6	0.50	400 m	Black (BK)	VG 95343 T05 A 004 A	30-32	305-03200
HFT-A-4.8/2.4	4.8	3/16 "	2.4	0.50	75 m	Blue (BU)	VG 95343 T05 A 005 G	30-32	305-04806
	4.8	3/16 "	2.4	0.50	75 m	Green-Yellow (GNYE)	VG 95343 T05 A 005 N	30-32	305-04845
	4.8	3/16 "	2.4	0.50	75 m	Red (RD)	VG 95343 T05 A 005 C	30-32	305-04802
	4.8	3/16 "	2.4	0.50	75 m	White (WH)	VG 95343 T05 A 005 L	30-32	305-04809
	4.8	3/16 "	2.4	0.50	75 m	Yellow (YE)	VG 95343 T05 A 005 E	30-32	305-04804
	4.8	3/16 "	2.4	0.50	300 m	Black (BK)	VG 95343 T05 A 005 A	30-32	305-04800
HFT-A-6.4/3.2	6.4	1/4 "	3.2	0.60	75 m	Blue (BU)	VG 95343 T05 A 006 G	30-32	305-06406
	6.4	1/4 "	3.2	0.60	75 m	Green-Yellow (GNYE)	VG 95343 T05 A 006 N	30-32	305-06445
	6.4	1/4 "	3.2	0.60	75 m	Red (RD)	VG 95343 T05 A 006 C	30-32	305-06402
	6.4	1/4 "	3.2	0.60	75 m	White (WH)	VG 95343 T05 A 006 L	30-32	305-06409
	6.4	1/4 "	3.2	0.60	75 m	Yellow (YE)	VG 95343 T05 A 006 E	30-32	305-06404
	6.4	1/4 "	3.2	0.60	300 m	Black (BK)	VG 95343 T05 A 006 A	30-32	305-06400
HFT-A-9.5/4.8	9.5	3/8 "	4.8	0.60	50 m	Blue (BU)	VG 95343 T05 A 007 G	30-32	305-09506
	9.5	3/8 "	4.8	0.60	50 m	Green-Yellow (GNYE)	VG 95343 T05 A 007 N	30-32	305-09545
	9.5	3/8 "	4.8	0.60	50 m	Red (RD)	VG 95343 T05 A 007 C	30-32	305-09502
	9.5	3/8 "	4.8	0.60	50 m	White (WH)	VG 95343 T05 A 007 L	30-32	305-09509
	9.5	3/8 "	4.8	0.60	50 m	Yellow (YE)	VG 95343 T05 A 007 E	30-32	305-09504
	9.5	3/8 "	4.8	0.60	150 m	Black (BK)	VG 95343 T05 A 007 A	30-32	305-09500
HFT-A-12.7/6.4	12.7	1/2 "	6.4	0.60	50 m	Blue (BU)	VG 95343 T05 A 008 G	30-32	305-12706
	12.7	1/2 "	6.4	0.60	50 m	Green-Yellow (GNYE)	VG 95343 T05 A 008 N	30-32	305-12745
	12.7	1/2 "	6.4	0.60	50 m	Red (RD)	VG 95343 T05 A 008 C	30-32	305-12702
	12.7	1/2 "	6.4	0.60	50 m	White (WH)	VG 95343 T05 A 008 L	30-32	305-12709
	12.7	1/2 "	6.4	0.60	50 m	Yellow (YE)	VG 95343 T05 A 008 E	30-32	305-12704
	12.7	1/2 "	6.4	0.60	100 m	Black (BK)	VG 95343 T05 A 008 A	30-32	305-12700

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

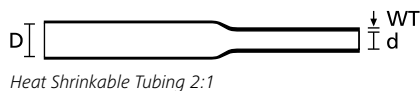


For product specific approvals and specifications please refer to the Appendix.



### Heat shrinkable tubing 2:1 - flexible and coloured

#### HFT-A - self extinguishing



TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Designation as per VG-Norm	Tools	Article-No.
HFT-A-19.0/9.5	19.0	3/4 "	9.5	0.80	25 m	Blue (BU)	VG 95343 T05 A 009 G	30-32	305-19006
	19.0	3/4 "	9.5	0.80	25 m	Green-Yellow (GNYE)	VG 95343 T05 A 009 N	30-32	305-19045
	19.0	3/4 "	9.5	0.80	25 m	Red (RD)	VG 95343 T05 A 009 C	30-32	305-19002
	19.0	3/4 "	9.5	0.80	25 m	White (WH)	VG 95343 T05 A 009 L	30-32	305-19009
	19.0	3/4 "	9.5	0.80	25 m	Yellow (YE)	VG 95343 T05 A 009 E	30-32	305-19004
	19.0	3/4 "	9.5	0.80	50 m	Black (BK)	VG 95343 T05 A 009 A	30-32	305-19000
HFT-A-25.4/12.7	25.4	1 "	12.7	0.90	25 m	Blue (BU)	VG 95343 T05 A 010 G	30-32	305-25406
	25.4	1 "	12.7	0.90	25 m	Green-Yellow (GNYE)	VG 95343 T05 A 010 N	30-32	305-25445
	25.4	1 "	12.7	0.90	25 m	Red (RD)	VG 95343 T05 A 010 C	30-32	305-25402
	25.4	1 "	12.7	0.90	25 m	White (WH)	VG 95343 T05 A 010 L	30-32	305-25409
	25.4	1 "	12.7	0.90	25 m	Yellow (YE)	VG 95343 T05 A 010 E	30-32	305-25404
	25.4	1 "	12.7	0.90	50 m	Black (BK)	VG 95343 T05 A 010 A	30-32	305-25400
HFT-A-38.0/19.0	38.0	1-1/2 "	19.0	1.00	50 m	Black (BK)	VG 95343 T05 A 011 A	30-32	305-38100
	38.0	1-1/2 "	19.0	1.00	50 m	Blue (BU)	VG 95343 T05 A 011 G	30-32	305-38106
	38.0	1-1/2 "	19.0	1.00	50 m	Green-Yellow (GNYE)	VG 95343 T05 A 011 N	30-32	305-38145
	38.0	1-1/2 "	19.0	1.00	50 m	Red (RD)	VG 95343 T05 A 011 C	30-32	305-38102
	38.0	1-1/2 "	19.0	1.00	50 m	White (WH)	VG 95343 T05 A 011 L	30-32	305-38109
	38.0	1-1/2 "	19.0	1.00	50 m	Yellow (YE)	VG 95343 T05 A 011 E	30-32	305-38104
HFT-A-50.8/25.4	50.8	2 "	25.4	1.10	35 m	Black (BK)	VG 95343 T05 A 012 A	30-32	305-50800
	50.8	2 "	25.4	1.10	35 m	Blue (BU)	VG 95343 T05 A 012 G	30-32	305-50806
	50.8	2 "	25.4	1.10	35 m	Red (RD)	VG 95343 T05 A 012 C	30-32	305-50802
	50.8	2 "	25.4	1.10	35 m	White (WH)	VG 95343 T05 A 012 L	30-32	305-50809
	50.8	2 "	25.4	1.10	35 m	Yellow (YE)	VG 95343 T05 A 012 E	30-32	305-50804
HFT-A-76.0/38.0	76.0	3 "	38.0	1.30	25 m	Black (BK)	VG 95343 T05 A 013 A	-	305-76200
	76.0	3 "	38.0	1.30	25 m	Blue (BU)	VG 95343 T05 A 013 G	-	305-76206
	76.0	3 "	38.0	1.30	25 m	Red (RD)	VG 95343 T05 A 013 C	-	305-76202
	76.0	3 "	38.0	1.30	25 m	White (WH)	VG 95343 T05 A 013 L	-	305-76209
	76.0	3 "	38.0	1.30	25 m	Yellow (YE)	VG 95343 T05 A 013 E	-	305-76204
HFT-A-101.6/50.8	101.6	4 "	50.8	1.40	25 m	Black (BK)	VG 95343 T05 A 014 A	-	305-91600
	101.6	4 "	50.8	1.40	25 m	Blue (BU)	VG 95343 T05 A 014 G	-	305-91606
	101.6	4 "	50.8	1.40	25 m	Red (RD)	VG 95343 T05 A 014 C	-	305-91602
	101.6	4 "	50.8	1.40	25 m	White (WH)	VG 95343 T05 A 014 L	-	305-91609
	101.6	4 "	50.8	1.40	25 m	Yellow (YE)	VG 95343 T05 A 014 E	-	305-91604

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



### Heat shrinkable tubing 2:1 - flexible and coloured

#### TF21

Due to its versatility TF21 is suitable for a wide range of applications like electrical insulations, mechanical protection and marking.

#### Features and benefits

- Thin wall, flexible polyolefin tubing
- Fast shrinking and low shrink temperature
- Meets and exceeds lots of industrial standards
- Big variety of different colours and sizes
- Flame retarded and UL224 VW1 listed



**Cut lengths available on request. Please contact us!**



One Step to the Web!



TF21 – available in a wide range of colours and sizes.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Min. Shrink Temperature</b>	+90 °C
<b>Longitudinal change after shrinkage</b>	+/- 5 %
<b>Dielectric Strength</b>	37 kV/mm
<b>Flammability</b>	ASTM D876



Heat Shrinkable Tubing 2:1

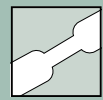
TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Tools	Article-No.
TF21-1.2/0.6	1.2	3/64 "	0.6	0.41	100 m	Blue (BU)	30-32	309-20126
	1.2	3/64 "	0.6	0.41	100 m	Red (RD)	30-32	309-20122
	1.2	3/64 "	0.6	0.41	100 m	White (WH)	30-32	309-20129
	1.2	3/64 "	0.6	0.41	100 m	Yellow (YE)	30-32	309-20124
	1.2	3/64 "	0.6	0.41	300 m	Black (BK)	30-32	309-10120
TF21-1.6/0.8	1.6	1/16 "	0.8	0.43	100 m	Blue (BU)	30-32	309-20166
	1.6	1/16 "	0.8	0.43	100 m	Red (RD)	30-32	309-20162
	1.6	1/16 "	0.8	0.43	100 m	White (WH)	30-32	309-20169
	1.6	1/16 "	0.8	0.43	100 m	Yellow (YE)	30-32	309-20164
	1.6	1/16 "	0.8	0.43	300 m	Black (BK)	30-32	309-10160
TF21-2.4/1.2	2.4	3/32 "	1.2	0.51	100 m	Blue (BU)	30-32	309-20246
	2.4	3/32 "	1.2	0.51	100 m	Green-Yellow (GNYE)	30-32	309-40247
	2.4	3/32 "	1.2	0.51	100 m	Red (RD)	30-32	309-20242
	2.4	3/32 "	1.2	0.51	100 m	White (WH)	30-32	309-20249
	2.4	3/32 "	1.2	0.51	100 m	Yellow (YE)	30-32	309-20244
	2.4	3/32 "	1.2	0.51	300 m	Black (BK)	30-32	309-10240

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content.



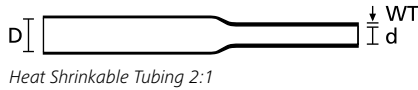
For product specific approvals and specifications please refer to the Appendix.





### Heat shrinkable tubing 2:1 - flexible and coloured

TF21



TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Tools	Article-No.
TF21-3.2/1.6	3.2	1/8 "	1.6	0.51	100 m	Blue (BU)	30-32	309-20326
	3.2	1/8 "	1.6	0.51	100 m	Green-Yellow (GNYE)	30-32	309-40327
	3.2	1/8 "	1.6	0.51	100 m	Red (RD)	30-32	309-20322
	3.2	1/8 "	1.6	0.51	100 m	White (WH)	30-32	309-20329
	3.2	1/8 "	1.6	0.51	100 m	Yellow (YE)	30-32	309-20324
	3.2	1/8 "	1.6	0.51	300 m	Black (BK)	30-32	309-10320
TF21-4.8/2.4	4.8	3/16 "	2.4	0.51	60 m	Blue (BU)	30-32	309-50486
	4.8	3/16 "	2.4	0.51	60 m	Green-Yellow (GNYE)	30-32	309-50487
	4.8	3/16 "	2.4	0.51	60 m	Red (RD)	30-32	309-50482
	4.8	3/16 "	2.4	0.51	60 m	White (WH)	30-32	309-50489
	4.8	3/16 "	2.4	0.51	60 m	Yellow (YE)	30-32	309-50484
	4.8	3/16 "	2.4	0.51	300 m	Black (BK)	30-32	309-10480
TF21-6.4/3.2	6.4	1/4 "	3.2	0.64	60 m	Blue (BU)	30-32	309-50646
	6.4	1/4 "	3.2	0.64	60 m	Green-Yellow (GNYE)	30-32	309-50647
	6.4	1/4 "	3.2	0.64	60 m	Red (RD)	30-32	309-50642
	6.4	1/4 "	3.2	0.64	60 m	White (WH)	30-32	309-50649
	6.4	1/4 "	3.2	0.64	60 m	Yellow (YE)	30-32	309-50644
	6.4	1/4 "	3.2	0.64	300 m	Black (BK)	30-32	309-10640
TF21-9.5/4.8	9.5	3/8 "	4.8	0.64	50 m	Blue (BU)	30-32	309-20956
	9.5	3/8 "	4.8	0.64	50 m	Green-Yellow (GNYE)	30-32	309-50957
	9.5	3/8 "	4.8	0.64	50 m	Red (RD)	30-32	309-20952
	9.5	3/8 "	4.8	0.64	50 m	White (WH)	30-32	309-20959
	9.5	3/8 "	4.8	0.64	50 m	Yellow (YE)	30-32	309-20954
	9.5	3/8 "	4.8	0.64	150 m	Black (BK)	30-32	309-10950
TF21-12.7/6.4	12.7	1/2 "	6.4	0.64	50 m	Blue (BU)	30-32	309-21276
	12.7	1/2 "	6.4	0.64	50 m	Green-Yellow (GNYE)	30-32	309-41277
	12.7	1/2 "	6.4	0.64	50 m	Red (RD)	30-32	309-21272
	12.7	1/2 "	6.4	0.64	50 m	White (WH)	30-32	309-21279
	12.7	1/2 "	6.4	0.64	50 m	Yellow (YE)	30-32	309-21274
	12.7	1/2 "	6.4	0.64	100 m	Black (BK)	30-32	309-11270

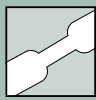
All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools			
	30	31	32
	H5002	H5004	E4500
	611	611	610

For more information on toolings please refer to the Application Tooling chapter.

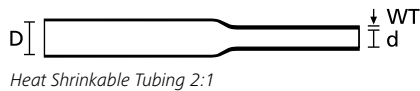


For product specific approvals and specifications please refer to the Appendix.



## Heat shrinkable tubing 2:1 - flexible and coloured

## TF21



TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Tools	Article-No.
TF21-19.1/9.5	19.1	3/4 "	9.5	0.76	50 m	Black (BK)	30-32	309-11900
	19.1	3/4 "	9.5	0.76	50 m	Blue (BU)	30-32	309-11906
	19.1	3/4 "	9.5	0.76	50 m	Green-Yellow (GNYE)	30-32	309-11907
	19.1	3/4 "	9.5	0.76	50 m	Red (RD)	30-32	309-11902
	19.1	3/4 "	9.5	0.76	50 m	White (WH)	30-32	309-11909
	19.1	3/4 "	9.5	0.76	50 m	Yellow (YE)	30-32	309-11904
TF21-25.4/12.7	25.4	1 "	12.7	0.89	50 m	Black (BK)	30-32	309-12540
	25.4	1 "	12.7	0.89	50 m	Blue (BU)	30-32	309-12546
	25.4	1 "	12.7	0.89	50 m	Green-Yellow (GNYE)	30-32	309-12547
	25.4	1 "	12.7	0.89	50 m	Red (RD)	30-32	309-12542
	25.4	1 "	12.7	0.89	50 m	White (WH)	30-32	309-12549
	25.4	1 "	12.7	0.89	50 m	Yellow (YE)	30-32	309-12544
TF21-38.0/19.0	38.1	1-1/2 "	19.1	1.02	60 m	Black (BK)	30-32	309-13810
	38.1	1-1/2 "	19.1	1.02	60 m	Blue (BU)	30-32	309-13816
	38.1	1-1/2 "	19.1	1.02	60 m	Green-Yellow (GNYE)	30-32	309-13817
	38.1	1-1/2 "	19.1	1.02	60 m	Red (RD)	30-32	309-13812
	38.1	1-1/2 "	19.1	1.02	60 m	White (WH)	30-32	309-13819
	38.1	1-1/2 "	19.1	1.02	60 m	Yellow (YE)	30-32	309-13814
TF21-50.8/25.4	50.8	2 "	25.4	1.14	60 m	Black (BK)	30-32	309-15080
	50.8	2 "	25.4	1.14	60 m	Blue (BU)	30-32	309-15086
	50.8	2 "	25.4	1.14	60 m	Green-Yellow (GNYE)	30-32	309-15087
	50.8	2 "	25.4	1.14	60 m	Red (RD)	30-32	309-15082
	50.8	2 "	25.4	1.14	60 m	White (WH)	30-32	309-15089
	50.8	2 "	25.4	1.14	60 m	Yellow (YE)	30-32	309-15084
TF21-76.0/38.0	76.2	3 "	38.1	1.27	30 m	Black (BK)	-	309-17600
	76.2	3 "	38.1	1.27	30 m	Blue (BU)	-	309-17606
	76.2	3 "	38.1	1.27	30 m	Red (RD)	-	309-17602
	76.2	3 "	38.1	1.27	30 m	White (WH)	-	309-17609
	76.2	3 "	38.1	1.27	30 m	Yellow (YE)	-	309-17604
TF21-101.6/50.8	101.6	4 "	50.8	1.40	15 m	Black (BK)	-	309-11020
	101.6	4 "	50.8	1.40	15 m	Blue (BU)	-	309-11026
	101.6	4 "	50.8	1.40	15 m	Red (RD)	-	309-11022
	101.6	4 "	50.8	1.40	15 m	White (WH)	-	309-11029
	101.6	4 "	50.8	1.40	15 m	Yellow (YE)	-	309-11024

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools			
	30 H5002	31 H5004	32 E4500
	611	611	610

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



### Heat shrinkable tubing 2:1 - flexible and transparent

#### TF24

Protects wire and cable markers subject to abuse, while permitting inspectability of each item covered. Protects electronic components while permitting their identification and inspection.

#### Features and benefits

- Transparent, flexible polyolefin tubing
- Protects identification marking perfect
- Halogen free
- Good mechanical and chemical resistance
- VG-approval and additional industrial approvals



TF24 transparent tubing with 2:1 shrink ratio.



**Cut lengths available on request. Please contact us!**



One Step to the Web!

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Min. Shrink Temperature</b>	+110 °C
<b>Longitudinal change after shrinkage</b>	+/- 5 % max.
<b>Dielectric Strength</b>	≥ 30 kV/mm min. according to ASTM D2171
<b>Flammability</b>	not flame retarded



Heat Shrinkable Tubing 2:1

TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Designation as per VG-Norm	Tools	Article-No.
TF24-1.2/0.6	1.2	3/64 "	0.6	0.41	100 m	Transparent (CL)	VG 95343 T05 B 001 M	30-32	309-40123
TF24-1.6/0.8	1.6	1/16 "	0.8	0.43	100 m	Transparent (CL)	VG 95343 T05 B 002 M	30-32	309-40163
TF24-2.4/1.2	2.4	3/32 "	1.2	0.51	100 m	Transparent (CL)	VG 95343 T05 B 003 M	30-32	309-40243
TF24-3.2/1.6	3.2	1/8 "	1.6	0.51	100 m	Transparent (CL)	VG 95343 T05 B 004 M	30-32	309-40323
TF24-4.8/2.4	4.8	3/16 "	2.4	0.51	60 m	Transparent (CL)	VG 95343 T05 B 005 M	30-32	309-50483
TF24-6.4/3.2	6.4	1/4 "	3.2	0.64	60 m	Transparent (CL)	VG 95343 T05 B 006 M	30-32	309-50643
TF24-9.5/4.8	9.5	3/8 "	4.8	0.64	50 m	Transparent (CL)	VG 95343 T05 B 007 M	30-32	309-40953
TF24-12.7/6.4	12.7	1/2 "	6.4	0.64	50 m	Transparent (CL)	VG 95343 T05 B 008 M	30-32	309-41273
TF24-19.1/9.5	19.1	3/4 "	9.5	0.76	50 m	Transparent (CL)	VG 95343 T05 B 009 M	30-32	309-31903
TF24-25.4/12.7	25.4	1 "	12.7	0.89	50 m	Transparent (CL)	VG 95343 T05 B 010 M	30-32	309-32543
TF24-38.1/19.1	38.1	1-1/2 "	19.1	1.02	60 m	Transparent (CL)	VG 95343 T05 B 011 M	30-32	309-33813
TF24-50.8/25.4	50.8	2 "	25.4	1.14	60 m	Transparent (CL)	VG 95343 T05 B 012 M	30-32	309-35083
TF24-76.2/38.1	76.2	3 "	38.1	1.27	30 m	Transparent (CL)	VG 95343 T05 B 013 M	-	309-37603
TF24-101.6/50.8	101.6	4 "	50.8	1.40	15 m	Transparent (CL)	VG 95343 T05 B 014 M	-	309-31023

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



### Heat shrinkable tubing 2:1 - flexible and coloured

#### TFN21

Due to its versatility TF21 is suitable for a wide range of applications like electrical insulations, mechanical protection and marking.

#### Features and benefits

- Thin wall, flexible polyolefin tubing
- Fast shrinking and low shrink temperature
- Meets and exceeds lots of industrial standards
- Big variety of different colours and sizes
- Flame retarded and UL224 VW1 listed



**Cut lengths available on request. Please contact us!**



TFN21 – available in a wide range of colours and sizes.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Min. Shrink Temperature</b>	+70 °C
<b>Longitudinal change after shrinkage</b>	+/-5 %
<b>Dielectric Strength</b>	>20 kV/mm
<b>Flammability</b>	UL 224 VW-1

**RoHS** ✓



Heat Shrinkable Tubing 2:1

TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Tools	Article-No.
TFN21-1.2/0.6	1.2	3/64 "	0.6	0.40	300 m	Black (BK)	30-32	309-60190
	1.2	3/64 "	0.6	0.40	300 m	Green-Yellow (GNYE)	30-32	309-60192
	1.2	3/64 "	0.6	0.40	300 m	Red (RD)	30-32	309-60193
	1.2	3/64 "	0.6	0.40	300 m	Yellow (YE)	30-32	309-60194
	1.2	3/64 "	0.6	0.40	300 m	Blue (BU)	30-32	309-60195
	1.2	3/64 "	0.6	0.40	300 m	Green (GN)	30-32	309-60196
TFN21-1.6/0.8	1.6	1/16 "	0.8	0.40	300 m	Green-Yellow (GNYE)	30-32	309-60100
	1.6	1/16 "	0.8	0.40	300 m	Black (BK)	30-32	309-60101
	1.6	1/16 "	0.8	0.40	300 m	Red (RD)	30-32	309-60103
	1.6	1/16 "	0.8	0.40	300 m	Yellow (YE)	30-32	309-60104
	1.6	1/16 "	0.8	0.40	300 m	Blue (BU)	30-32	309-60105
	1.6	1/16 "	0.8	0.40	300 m	Green (GN)	30-32	309-60106
TFN21-2.4/1.2	2.4	3/32 "	1.2	0.48	300 m	Green-Yellow (GNYE)	30-32	309-60110
	2.4	3/32 "	1.2	0.48	300 m	Black (BK)	30-32	309-60111
	2.4	3/32 "	1.2	0.48	300 m	Red (RD)	30-32	309-60113
	2.4	3/32 "	1.2	0.48	300 m	Yellow (YE)	30-32	309-60114
	2.4	3/32 "	1.2	0.48	300 m	Blue (BU)	30-32	309-60115
	2.4	3/32 "	1.2	0.48	300 m	Green (GN)	30-32	309-60116

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content.

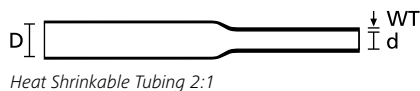


For product specific approvals and specifications please refer to the Appendix.



### Heat shrinkable tubing 2:1 - flexible and coloured

#### TFN21

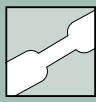


TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Tools	Article-No.
TFN21-3.2/1.6	3.2	1/8 "	1.6	0.48	300 m	Green-Yellow (GNYE)	30-32	309-60120
	3.2	1/8 "	1.6	0.48	300 m	Black (BK)	30-32	309-60121
	3.2	1/8 "	1.6	0.48	300 m	Red (RD)	30-32	309-60123
	3.2	1/8 "	1.6	0.48	300 m	Yellow (YE)	30-32	309-60124
	3.2	1/8 "	1.6	0.48	300 m	Blue (BU)	30-32	309-60125
	3.2	1/8 "	1.6	0.48	300 m	Green (GN)	30-32	309-60126
TFN21-4.8/2.4	4.8	3/16 "	2.4	0.48	300 m	Green-Yellow (GNYE)	30-32	309-60130
	4.8	3/16 "	2.4	0.48	300 m	Black (BK)	30-32	309-60131
	4.8	3/16 "	2.4	0.48	300 m	Red (RD)	30-32	309-60133
	4.8	3/16 "	2.4	0.48	300 m	Yellow (YE)	30-32	309-60134
	4.8	3/16 "	2.4	0.48	300 m	Blue (BU)	30-32	309-60135
	4.8	3/16 "	2.4	0.48	300 m	Green (GN)	30-32	309-60136
TFN21-6.4/3.2	6.4	1/4 "	3.2	0.56	300 m	Green-Yellow (GNYE)	30-32	309-60140
	6.4	1/4 "	3.2	0.56	300 m	Black (BK)	30-32	309-60141
	6.4	1/4 "	3.2	0.56	300 m	Red (RD)	30-32	309-60143
	6.4	1/4 "	3.2	0.56	300 m	Yellow (YE)	30-32	309-60144
	6.4	1/4 "	3.2	0.56	300 m	Blue (BU)	30-32	309-60145
	6.4	1/4 "	3.2	0.56	300 m	Green (GN)	30-32	309-60146
TFN21-9.5/4.8	9.5	3/8 "	4.8	0.62	300 m	Green-Yellow (GNYE)	30-32	309-60150
	9.5	3/8 "	4.8	0.62	150 m	Black (BK)	30-32	309-60151
	9.5	3/8 "	4.8	0.62	150 m	Red (RD)	30-32	309-60153
	9.5	3/8 "	4.8	0.62	150 m	Yellow (YE)	30-32	309-60154
	9.5	3/8 "	4.8	0.62	150 m	Blue (BU)	30-32	309-60155
	9.5	3/8 "	4.8	0.62	150 m	Green (GN)	30-32	309-60156
TFN21-12.7/6.4	12.7	1/2 "	6.4	0.68	100 m	Green-Yellow (GNYE)	30-32	309-60160
	12.7	1/2 "	6.4	0.68	100 m	Black (BK)	30-32	309-60161
	12.7	1/2 "	6.4	0.68	100 m	Red (RD)	30-32	309-60163
	12.7	1/2 "	6.4	0.68	100 m	Yellow (YE)	30-32	309-60164
	12.7	1/2 "	6.4	0.68	100 m	Blue (BU)	30-32	309-60165
	12.7	1/2 "	6.4	0.68	100 m	Green (GN)	30-32	309-60166
TFN21-19.1/9.5	19.1	3/4 "	9.5	0.68	60 m	Green-Yellow (GNYE)	30-32	309-60170
	19.1	3/4 "	9.5	0.68	60 m	Black (BK)	30-32	309-60171
	19.1	3/4 "	9.5	0.68	60 m	Red (RD)	30-32	309-60173
	19.1	3/4 "	9.5	0.68	60 m	Yellow (YE)	30-32	309-60174
	19.1	3/4 "	9.5	0.68	60 m	Blue (BU)	30-32	309-60175
	19.1	3/4 "	9.5	0.68	60 m	Green (GN)	30-32	309-60176
	19.1	3/4 "	9.5	0.68	60 m	White (WH)	30-32	309-60178

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content.

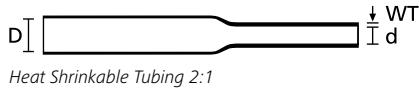


For product specific approvals and specifications please refer to the Appendix.



### Heat shrinkable tubing 2:1 - flexible and coloured

#### TFN21



TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Tools	Article-No.
TFN21-25.4/12.7	25.4	1 "	12.7	0.87	60 m	Green-Yellow (GNYE)	30-32	309-60180
	25.4	1 "	12.7	0.87	60 m	Black (BK)	30-32	309-60181
	25.4	1 "	12.7	0.87	60 m	Red (RD)	30-32	309-60183
	25.4	1 "	12.7	0.87	60 m	Yellow (YE)	30-32	309-60184
	25.4	1 "	12.7	0.87	60 m	Blue (BU)	30-32	309-60185
	25.4	1 "	12.7	0.87	60 m	Green (GN)	30-32	309-60186
TFN21-38.1/19.0	38.1	1-1/2 "	19.1	1.00	30 m	Black (BK)	30-32	309-60200
	38.1	1-1/2 "	19.1	1.00	30 m	Red (RD)	30-32	309-60202
	38.1	1-1/2 "	19.1	1.00	30 m	Yellow (YE)	30-32	309-60203
	38.1	1-1/2 "	19.1	1.00	30 m	Blue (BU)	30-32	309-60204
	38.1	1-1/2 "	19.1	1.00	30 m	Green (GN)	30-32	309-60205
	38.1	1-1/2 "	19.1	1.00	30 m	Green-Yellow (GNYE)	30-32	309-60206
TFN21-50.8/25.4	50.8	2 "	25.4	1.10	30 m	Black (BK)	30-32	309-60210
	50.8	2 "	25.4	1.10	30 m	Red (RD)	30-32	309-60212
	50.8	2 "	25.4	1.10	30 m	Yellow (YE)	30-32	309-60213
	50.8	2 "	25.4	1.10	30 m	Blue (BU)	30-32	309-60214
	50.8	2 "	25.4	1.10	30 m	Green (GN)	30-32	309-60215
	50.8	2 "	25.4	1.10	30 m	Green-Yellow (GNYE)	30-32	309-60216
TFN21-76.2/38.1	76.2	3 "	38.1	1.20	30 m	Black (BK)	-	309-60220
	76.2	3 "	38.1	1.20	30 m	Red (RD)	-	309-60222
	76.2	3 "	38.1	1.20	30 m	Yellow (YE)	-	309-60223
	76.2	3 "	38.1	1.20	30 m	Blue (BU)	-	309-60224
	76.2	3 "	38.1	1.20	30 m	Green (GN)	-	309-60225
	76.2	3 "	38.1	1.20	30 m	Green-Yellow (GNYE)	-	309-60226
TFN21-102/50.8	101.6	4 "	50.8	1.35	15 m	Black (BK)	-	309-60230
	101.6	4 "	50.8	1.35	15 m	Red (RD)	-	309-60232
	101.6	4 "	50.8	1.35	15 m	Yellow (YE)	-	309-60233
	101.6	4 "	50.8	1.35	15 m	Blue (BU)	-	309-60234
	101.6	4 "	50.8	1.35	15 m	Green (GN)	-	309-60235
	101.6	4 "	50.8	1.35	15 m	Green-Yellow (GNYE)	-	309-60236

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content.

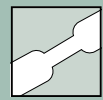
Recommended Tools			
	30	31	32
	H5002	H5004	E4500
	611	611	610

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.





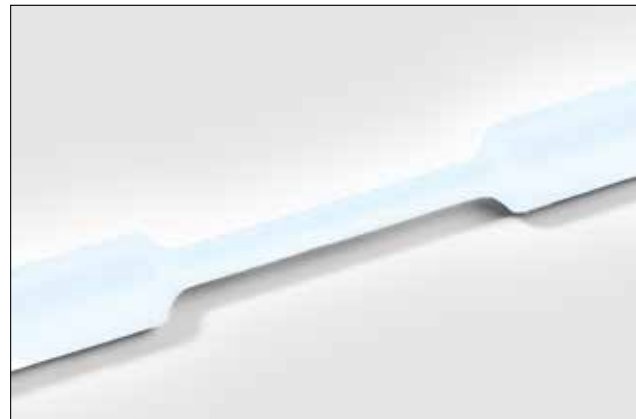
### Heat shrinkable tubing 2:1 - flexible and transparent

#### TFN24

Protects wire and cable markers subject to abuse, while permitting inspectability of each item covered. Protects electronic components while permitting their identification and inspection.

#### Features and benefits

- Transparent, flexible polyolefin tubing
- Protects identification marking perfect
- Halogen free
- Good mechanical and chemical resistance
- VG-approval and additional industrial approvals

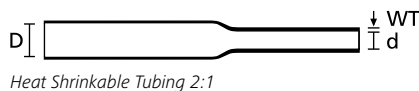


TFN24 transparent tubing with 2:1 shrink ratio.



**Cut lengths available on request. Please contact us!**

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Min. Shrink Temperature</b>	+100 °C
<b>Longitudinal change after shrinkage</b>	+/-5 % max.
<b>Dielectric Strength</b>	20 kV/mm
<b>Flammability</b>	not flame retarded



TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Designation as per VG-Norm	Tools	Article-No.
TFN24-1.2/0.6	1.2	3/64 "	0.6	0.40	300 m	Transparent (CL)	VG 95343 T05 B 001 M	30-32	309-60000
TFN24-1.6/0.8	1.6	1/16 "	0.8	0.40	300 m	Transparent (CL)	VG 95343 T05 B 002 M	30-32	309-60010
TFN24-2.4/1.2	2.4	3/32 "	1.2	0.48	300 m	Transparent (CL)	VG 95343 T05 B 003 M	30-32	309-60020
TFN24-3.2/1.6	3.2	1/8 "	1.6	0.48	300 m	Transparent (CL)	VG 95343 T05 B 004 M	30-32	309-60030
TFN24-4.8/2.4	4.8	3/16 "	2.4	0.48	300 m	Transparent (CL)	VG 95343 T05 B 005 M	30-32	309-60040
TFN24-6.4/3.2	6.4	1/4 "	3.2	0.56	300 m	Transparent (CL)	VG 95343 T05 B 006 M	30-32	309-60050
TFN24-9.5/4.8	9.5	3/8 "	4.7	0.62	150 m	Transparent (CL)	VG 95343 T05 B 007 M	30-32	309-60060
TFN24-12.7/6.4	12.7	1/2 "	6.4	0.68	100 m	Transparent (CL)	VG 95343 T05 B 008 M	30-32	309-60070
TFN24-19.1/9.5	19.0	3/4 "	9.5	0.68	60 m	Transparent (CL)	VG 95343 T05 B 009 M	30-32	309-60080
TFN24-25.4/12.7	25.4	1 "	12.7	0.87	60 m	Transparent (CL)	VG 95343 T05 B 010 M	30-32	309-60090
TFN24-38.1/19.1	38.1	1-1/2 "	19.1	1.00	30 m	Transparent (CL)	VG 95343 T05 B 011 M	30-32	309-60095

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Heat shrinkable tubing 3:1 - flexible and coloured

#### TF31

If higher fire protection is a requirement heat shrinkable tubing TF31 is a good choice. It is used for protection, insulation and identification wires, cables and light duty harnesses.

#### Features and benefits

- Thin wall, very flexible polyolefin tubing
- Few sizes cover a wide range of diameters allowing reduced inventory
- Fast shrinking and low shrink temperature
- Flame-retardant, UL224 VW1 listed



**Cut lengths available on request. Please contact us!**

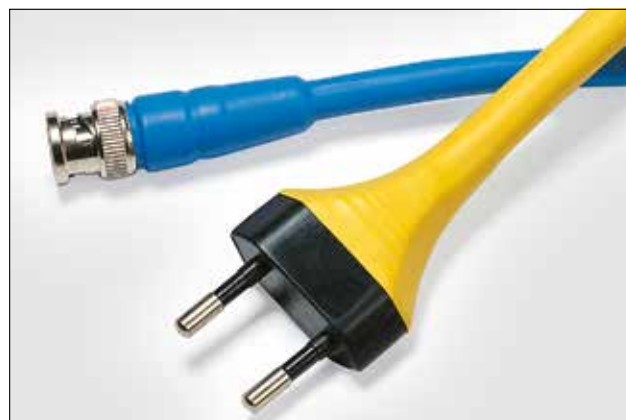


One Step to the Web!



Heat Shrinkable Tubing 3:1

**RoHS** ✓



TF31 with 3:1 shrink ratio allowing for a wider range of application.

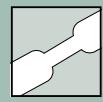
<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	3:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Min. Shrink Temperature</b>	+90 °C
<b>Longitudinal change after shrinkage</b>	+5 %/-15 %
<b>Dielectric Strength</b>	37 kV/mm
<b>Flammability</b>	ASTM D876, UL224 VW-1

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Tools	Article-No.
TF31-1.5/0.5	1.5	0.5	0.50	30 m	Black (BK)	30-32	333-30150
	1.5	0.5	0.50	30 m	Blue (BU)	30-32	333-30156
	1.5	0.5	0.50	30 m	Green (GN)	30-32	333-30155
	1.5	0.5	0.50	30 m	Green-Yellow (GNYE)	30-32	333-30157
	1.5	0.5	0.50	30 m	Red (RD)	30-32	333-30152
	1.5	0.5	0.50	30 m	White (WH)	30-32	333-30159
	1.5	0.5	0.50	30 m	Yellow (YE)	30-32	333-30154
	1.5	0.5	0.50	300 m	Black (BK)	30-32	333-20150
TF31-3/1	3.0	1.0	0.60	30 m	Black (BK)	30-32	333-30300
	3.0	1.0	0.60	30 m	Blue (BU)	30-32	333-30306
	3.0	1.0	0.60	30 m	Green (GN)	30-32	333-30305
	3.0	1.0	0.60	30 m	Green-Yellow (GNYE)	30-32	333-30307
	3.0	1.0	0.60	30 m	Red (RD)	30-32	333-30302
	3.0	1.0	0.60	30 m	White (WH)	30-32	333-30309
	3.0	1.0	0.60	30 m	Yellow (YE)	30-32	333-30304
	3.0	1.0	0.60	150 m	Black (BK)	30-32	333-40300

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

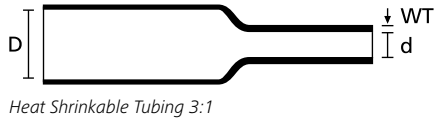


For product specific approvals and specifications please refer to the Appendix.



### Heat shrinkable tubing 3:1 - flexible and coloured

TF31



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Tools	Article-No.
TF31-6/2	6.0	2.0	0.70	30 m	Black (BK)	30-32	333-30600
	6.0	2.0	0.70	30 m	Blue (BU)	30-32	333-30606
	6.0	2.0	0.70	30 m	Green (GN)	30-32	333-30605
	6.0	2.0	0.70	30 m	Green-Yellow (GNYE)	30-32	333-30607
	6.0	2.0	0.70	30 m	Red (RD)	30-32	333-30602
	6.0	2.0	0.70	30 m	White (WH)	30-32	333-30609
	6.0	2.0	0.70	30 m	Yellow (YE)	30-32	333-30604
	6.0	2.0	0.70	150 m	Black (BK)	30-32	333-40600
TF31-9/3	9.0	3.0	0.80	30 m	Black (BK)	30-32	333-30900
	9.0	3.0	0.80	30 m	Blue (BU)	30-32	333-30906
	9.0	3.0	0.80	30 m	Green (GN)	30-32	333-30905
	9.0	3.0	0.80	30 m	Green-Yellow (GNYE)	30-32	333-30907
	9.0	3.0	0.80	30 m	Red (RD)	30-32	333-30902
	9.0	3.0	0.80	30 m	White (WH)	30-32	333-30909
	9.0	3.0	0.80	30 m	Yellow (YE)	30-32	333-30904
	9.0	3.0	0.80	150 m	Black (BK)	30-32	333-20900
TF31-12/4	12.0	4.0	0.85	30 m	Black (BK)	30-32	333-31200
	12.0	4.0	0.85	30 m	Blue (BU)	30-32	333-31206
	12.0	4.0	0.85	30 m	Green (GN)	30-32	333-31205
	12.0	4.0	0.85	30 m	Green-Yellow (GNYE)	30-32	333-31207
	12.0	4.0	0.85	30 m	Red (RD)	30-32	333-31202
	12.0	4.0	0.85	30 m	White (WH)	30-32	333-31209
	12.0	4.0	0.85	30 m	Yellow (YE)	30-32	333-31204
	12.0	4.0	0.85	100 m	Black (BK)	30-32	333-21200

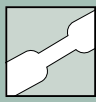
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools			
	30	31	32
	H5002	H5004	E4500
	611	611	610

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



## Heat shrinkable tubing 3:1 - flexible and coloured

TF31



Heat Shrinkable Tubing 3:1

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Tools	Article-No.
TF31-18/6	18.0	6.0	1.00	30 m	Black (BK)	30-32	333-31800
	18.0	6.0	1.00	30 m	Blue (BU)	30-32	333-31806
	18.0	6.0	1.00	30 m	Green (GN)	30-32	333-31805
	18.0	6.0	1.00	30 m	Green-Yellow (GNYE)	30-32	333-31807
	18.0	6.0	1.00	30 m	Red (RD)	30-32	333-31802
	18.0	6.0	1.00	30 m	White (WH)	30-32	333-31809
	18.0	6.0	1.00	30 m	Yellow (YE)	30-32	333-31804
	18.0	6.0	1.00	60 m	Black (BK)	30-32	333-41800
TF31-24/8	24.0	8.0	1.20	30 m	Black (BK)	30-32	333-32400
	24.0	8.0	1.20	30 m	Blue (BU)	30-32	333-32406
	24.0	8.0	1.20	30 m	Green (GN)	30-32	333-32405
	24.0	8.0	1.20	30 m	Green-Yellow (GNYE)	30-32	333-32407
	24.0	8.0	1.20	30 m	Red (RD)	30-32	333-32402
	24.0	8.0	1.20	30 m	White (WH)	30-32	333-32409
	24.0	8.0	1.20	30 m	Yellow (YE)	30-32	333-32404
	24.0	8.0	1.20	60 m	Black (BK)	30-32	333-42400
TF31-40/13	40.0	13.0	1.25	30 m	Black (BK)	30-32	333-34000
	40.0	13.0	1.25	30 m	Blue (BU)	30-32	333-34006
	40.0	13.0	1.25	30 m	Green (GN)	30-32	333-34005
	40.0	13.0	1.25	30 m	Green-Yellow (GNYE)	30-32	333-34007
	40.0	13.0	1.25	30 m	Red (RD)	30-32	333-34002
	40.0	13.0	1.25	30 m	White (WH)	30-32	333-34009
	40.0	13.0	1.25	30 m	Yellow (YE)	30-32	333-34004
	40.0	13.0	1.25	60 m	Black (BK)	30-32	333-24000

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools			
	30	31	32
	H5002	H5004	E4500
	568	568	567

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



### Heat shrinkable tubing 3:1 - flexible and transparent

#### TF34

Protects wire and cable markers subject to abuse, while permitting inspectability of each item covered. Protects electronic components while permitting their identification and inspection.

#### Features and benefits

- Transparent, flexible polyolefin tubing
- Protects identification marking perfect
- Few sizes cover a wide range of diameters allowing reduced inventory
- Halogen free



TF34 transparent tubing with 3:1 shrink ratio allowing for a wider range of application.



**Cut lengths available on request. Please contact us!**



One Step to the Web!



Heat Shrinkable Tubing 3:1



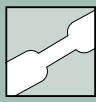
<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	3:1
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Min. Shrink Temperature</b>	+110 °C
<b>Longitudinal change after shrinkage</b>	-5 % max.
<b>Dielectric Strength</b>	46 kV/mm
<b>Flammability</b>	not flame retarded

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Tools	Article-No.
TF34-1.5/0.5	1.5	0.5	0.50	30 m	Transparent (CL)	30-32	333-30153
TF34-3/1	3.0	1.0	0.50	30 m	Transparent (CL)	30-32	333-30303
TF34-6/2	6.0	2.0	0.70	30 m	Transparent (CL)	30-32	333-30603
TF34-9/3	9.0	3.0	0.80	30 m	Transparent (CL)	30-32	333-30903
TF34-12/4	12.0	4.0	0.85	30 m	Transparent (CL)	30-32	333-31203
TF34-18/6	18.0	6.0	1.00	30 m	Transparent (CL)	30-32	333-31803
TF34-24/8	24.0	8.0	1.20	30 m	Transparent (CL)	30-32	333-32403
TF34-40/13	40.0	13.0	1.25	30 m	Transparent (CL)	30-32	333-34003

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools			
	30	31	32
	H5002	H5004	E4500
	611	611	610

For more information on toolings please refer to the Application Tooling chapter.



### Heat shrinkable tubing adhesive lined - 1.2 m lengths

TA32/TA42 is designed for environmental sealing and electrical insulation of wire splices, terminations and components.

#### Features and benefits

- Thin wall adhesive-lined heat shrink tubing
- Highly flame retardant
- Outer wall conforms to UL224
- High shrink ratio



TA32 and TA42 are UL224 listed adhesive lined tubing. Available in 3:1 and 4:1 shrink ratio.



**Cut lengths available on request. Please contact us!**

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-55 °C to +125 °C
<b>Min. Shrink Temperature</b>	+110 °C
<b>Softening Point Adhesive</b>	+110 °C
<b>Longitudinal change after shrinkage</b>	-15 % max.
<b>Dielectric Strength</b>	15 kV/mm according to IEC 684 P2
<b>Flammability</b>	UL224 VW-1

#### TA32 - thin wall, 3:1 shrink ratio



Heat Shrinkable Tubing 3:1 with adhesive



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Shrink Ratio	Tools	Article-No.
TA32-3/1	3.2	0.6	0.95	1.2 m	Black (BK)	3:1	30-32	318-30300
TA32 4.5/1.5	4.5	1.5	1.10	1.2 m	Black (BK)	3:1	30-32	318-30450
TA32-6/2	6.0	2.0	1.20	1.2 m	Black (BK)	3:1	30-32	318-30600
TA32-9/3	9.0	3.0	1.30	1.2 m	Black (BK)	3:1	30-32	318-30900
TA32-12/4	12.0	4.0	1.40	1.2 m	Black (BK)	3:1	30-32	318-31200
TA32-19/6	19.0	6.0	1.80	1.2 m	Black (BK)	3:1	30-32	318-31900
TA32-24/8	24.0	8.0	2.50	1.2 m	Black (BK)	3:1	30-32	318-32400
TA32-40/13	40.0	13.0	2.50	1.2 m	Black (BK)	3:1	30-32	318-34000

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools			
	30	31	32
	H5002	H5004	E4500
	568	568	567

For more information on toolings please refer to the Application Tooling chapter.



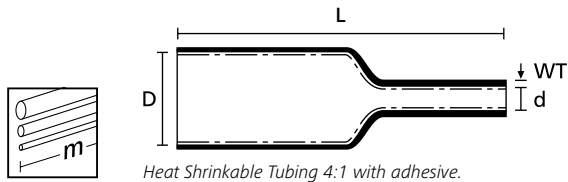
For product specific approvals and specifications please refer to the Appendix.





## Heat shrinkable tubing adhesive lined - 1.2 m lengths

### TA42 - thin wall, 4:1 shrink ratio

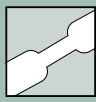


TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Shrink Ratio	Tools	Article-No.
TA42-4/1	4.0	1.0	1.00	1.2 m	Black (BK)	4:1	30-32	318-40400
TA42-8/2	8.0	2.0	1.20	1.2 m	Black (BK)	4:1	30-32	318-40800
TA42-12/3	12.0	3.0	1.40	1.2 m	Black (BK)	4:1	30-32	318-41200
TA42-16/4	16.0	4.0	1.80	1.2 m	Black (BK)	4:1	30-32	318-41600
TA42-24/6	24.0	6.0	2.25	1.2 m	Black (BK)	4:1	30-32	318-42400
TA42-32/8	32.0	8.0	2.55	1.2 m	Black (BK)	4:1	30-32	318-43200
TA42-52/13	52.0	13.0	2.55	1.2 m	Black (BK)	4:1	-	318-45200

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools			
	30	31	32
	H5002	H5004	E4500
	611	611	610

For more information on toolings please refer to the Application Tooling chapter.



### Heat shrinkable tubing adhesive lined

**EPS-300 - 3:1 shrink ratio**

**EPS-400 - 4:1 shrink ratio**

Heatshrinkable tubing EPS seals and protects a wide variety of electrical applications like back end connector sealing, connector-to-cable transitions and splices.

#### Features and benefits

- Flexible, thin wall polyolefin heat shrink tubing
- With coextruded hot melt adhesive inner wall
- Protects against moisture
- Provides an environmental sealing of complex parts



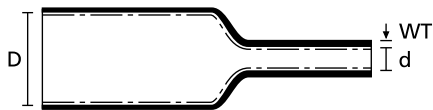
EPS300 and EPS400 offer high shrink ratios and protection against humidity.



**Cut lengths available on request. Please contact us!**



Heat Shrinkable Tubing 3:1 with adhesive



Heat Shrinkable Tubing 4:1 with adhesive



<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-55 °C to +125 °C
<b>Min. Shrink Temperature</b>	+120 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Softening Point Adhesive</b>	+90 °C
<b>Dielectric Strength</b>	15 kV/mm according to IEC 684 P2
<b>Flammability</b>	ASTM D2671 (outer layer only)

**RoHS** ✓

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Shrink Ratio	Tools	Article-No.
EPS-300-3/1	3.0	1.0	1.00	400 m	Black (BK)	3:1	30-32	340-03010
EPS-300-6/2	6.0	2.0	1.00	300 m	Black (BK)	3:1	30-32	340-06020
EPS-300-9/3	9.0	3.0	1.40	150 m	Black (BK)	3:1	30-32	340-09030
EPS-300-12/4	12.0	4.0	1.80	100 m	Black (BK)	3:1	30-32	340-12040
EPS-300-19/6	19.0	6.0	2.20	50 m	Black (BK)	3:1	30-32	340-19060
EPS-300-24/8	24.0	8.0	2.50	25 m	Black (BK)	3:1	30-32	340-24080
EPS-300-40/13	40.0	13.0	2.50	25 m	Black (BK)	3:1	30-32	340-40130

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content.

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Shrink Ratio	Tools	Article-No.
EPS-400-4/1	4.0	1.0	1.00	300 m	Black (BK)	4:1	30-32	341-04010
EPS-400-8/2	8.0	2.0	1.00	150 m	Black (BK)	4:1	30-32	341-08020
EPS-400-12/3	12.0	3.0	1.40	100 m	Black (BK)	4:1	30-32	341-12030
EPS-400-16/4	16.0	4.0	1.80	100 m	Black (BK)	4:1	30-32	341-16040
EPS-400-24/6	24.0	6.0	2.20	50 m	Black (BK)	4:1	30-32	341-24060
EPS-400-32/8	32.0	8.0	2.50	25 m	Black (BK)	4:1	30-32	341-32080

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



### Heat shrinkable tubing 4:1 - Flame retardant

#### MA40 - medium wall adhesive lined

Designed for low voltage cable joints and terminations in shipbuilding. Insulates and protects against moisture.

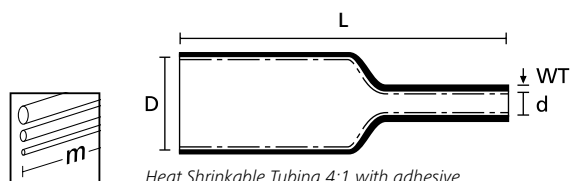
#### Features and benefits

- Medium wall adhesive lined shrink tubing for low voltage power cables
- Designed for shipbuilding, Germanische Lloyd approved
- Flame retarded
- UV and weather resistant
- Excellent mechanical performance



MA40 medium wall, adhesive lined and flame retarded tubing for shipbuilding applications.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	4:1
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Min. Shrink Temperature</b>	+120 °C
<b>Softening Point Adhesive</b>	+85 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	>18 kV/mm
<b>Flammability</b>	self-extinguishing



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Tools	Article-No.
MA40-8/2	8.0	2.0	1.70	1.0 m	Black (BK)	30-32	323-00100
MA40-12/3	12.0	3.0	2.00	1.0 m	Black (BK)	30-32	323-00101
MA40-16/5	16.0	5.0	2.00	1.0 m	Black (BK)	30-32	323-00103
MA40-22/6	22.0	6.0	2.40	1.0 m	Black (BK)	30-32	323-00104
MA40-33/8	33.0	8.0	2.50	1.0 m	Black (BK)	30-32	323-00105
MA40-40/12	40.0	12.0	2.50	1.0 m	Black (BK)	-	323-00106
MA40-55/16	55.0	16.0	2.70	1.0 m	Black (BK)	-	323-00107

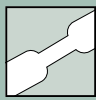
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools			
	30	31	32
	H5002	H5004	E4500
	611	611	610

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



## Heat shrinkable tubing up to 4:1 - 1 m lengths

### MA47 - medium wall adhesive lined

Insulation and protection of low voltage cable joints and terminations above and below ground.

#### Features and benefits

- Medium wall tubing with robust insulation characteristics
- Shrink tubing for above and underground cable applications
- Protects cable joints and terminations in low voltage applications
- Coated inside with thermoplastic adhesive
- Protects against humidity and other environmental impacts after shrinking

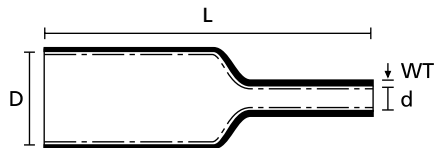


MA47 for above and below ground.



Cut lengths available on request. Please contact us!

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	up to 4:1
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Min. Shrink Temperature</b>	+120 °C
<b>Softening Point Adhesive</b>	+85 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	20 kV/mm
<b>Flammability</b>	not flame retarded
<b>Insulation Class</b>	A (VDE 0530)



Heat Shrinkable Tubing 4:1 with adhesive

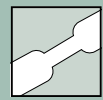


TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Tools	Article-No.
MA47-8/2	8.0	2.0	1.70	1.0 m	Black (BK)	30-32	323-20080
MA47-12/3	12.0	3.0	2.00	1.0 m	Black (BK)	30-32	323-20120
MA47-19/6	19.0	6.0	2.50	1.0 m	Black (BK)	30-32	323-20190
MA47-30/8	30.0	8.0	2.50	1.0 m	Black (BK)	30-32	323-20300
MA47-40/12	40.0	12.0	2.50	1.0 m	Black (BK)	-	323-20400
MA47-50/16	50.0	16.0	2.70	1.0 m	Black (BK)	-	323-20500
MA47-63/19	63.0	19.0	2.80	1.0 m	Black (BK)	-	323-20630
MA47-75/22	75.0	22.0	3.00	1.0 m	Black (BK)	-	323-20750
MA47-95/30	95.0	30.0	3.00	1.0 m	Black (BK)	-	323-20950
MA47-115/34	115.0	34.0	3.00	1.0 m	Black (BK)	-	323-21150
MA47-140/42	140.0	42.0	3.00	1.0 m	Black (BK)	-	323-21400

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools			
	30 H5002	31 H5004	32 E4500
	611	611	610

For more information on toolings please refer to the Application Tooling chapter.



### Heat shrinkable tubing up to 4:1 - 1 m lengths

#### MU47 - medium wall unlined

Insulation and production of low voltage cable joints and terminations.

#### Features and benefits

- Medium wall heat shrink tubing
- Not adhesive lined
- Provides good mechanical strength
- Resistant to solvents, acids and alkaline solutions



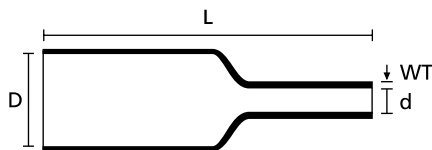
Medium wall tubing - lined or unlined.



**Detailed Information about Heatguns please refer to page 610.**



**Cut lengths available on request. Please contact us!**



Heat Shrinkable Tubing 4:1

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	up to 4:1
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Min. Shrink Temperature</b>	+120 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	20 kV/mm
<b>Flammability</b>	not flame retardant



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Tools	Article-No.
MU47-12/3	12.0	3.0	2.00	1.0 m	Black (BK)	30-32	323-10120
MU47-19/6	19.0	6.0	2.20	1.0 m	Black (BK)	30-32	323-10190
MU47-30/8	30.0	8.0	2.50	1.0 m	Black (BK)	30-32	323-10300
MU47-40/12	40.0	12.0	2.50	1.0 m	Black (BK)	-	323-10400
MU47-50/16	50.0	16.0	2.70	1.0 m	Black (BK)	-	323-10500
MU47-63/19	63.0	19.0	2.80	1.0 m	Black (BK)	-	323-10630
MU47-75/22	75.0	22.0	3.00	1.0 m	Black (BK)	-	323-10750
MU47-95/30	95.0	30.0	3.00	1.0 m	Black (BK)	-	323-10950
MU47-115/34	115.0	34.0	3.00	1.0 m	Black (BK)	-	323-11150
MU47-140/42	140.0	42.0	3.00	1.0 m	Black (BK)	-	323-11400

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools			
	30	31	32
	H5002	H5004	E4500
	611	611	610

For more information on toolings please refer to the Application Tooling chapter.



### Heat shrinkable cable repair sleeves

#### RMS

RMS wrap-around sleeves are closed with a steel channel. The sleeve is adhesive lined and will effectively seal the cable after shrinkage. RMS sleeves provide fast, watertight and reliable insulation.

#### Features and benefits

- Fast, moisture proof and permanent repair of cable jackets
- Only 6 sizes for a wide range of cable diameters: from 15 mm up to 160 mm
- Available in 4 standard lengths and also available in custom lengths available on request
- Each RMS kit is ready for use and comes with instruction sheet, abrasive strip and cleaning sachet
- The metal closure is made of 316 stainless steel for high overall corrosion resistance
- Weather resistant and halogen free
- TCP (thermo chromatic paint) spots indicate the sleeve has been sufficiently heated



Application video: RMS

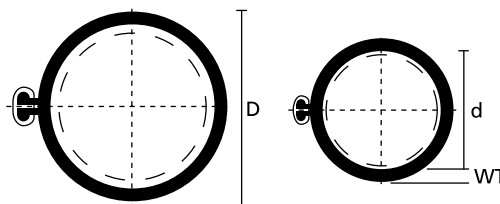


RMS wrap-around sleeves for rapid and secure cable repair.



RMS: Repair sleeve, steel closure, abrasive strip, cleaning sachet, instruction sheet.

<b>MATERIAL</b>	Polyolefin, chemically cross linked (PO-X)
<b>Shrink Ratio</b>	up to 4.5:1
<b>Operating Temperature</b>	-40 °C to +120 °C
<b>Min. Shrink Temperature</b>	+110 °C
<b>Softening Point Adhesive</b>	+105 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	30 kV/mm
<b>Flammability</b>	not flame retarded



Cable Repair Sleeve RMS with adhesive

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Suitable for Cable Ø from/to	Length (L)	Colour	Article-No.
RMS 43-10	43.0	10.0	2.30	15 - 35	1,000.0	Black (BK)	450-20002
	43.0	10.0	2.30	15 - 35	250.0	Black (BK)	450-20000
	43.0	10.0	2.30	15 - 35	500.0	Black (BK)	450-20001
	43.0	10.0	2.30	15 - 35	750.0	Black (BK)	450-20004
RMS 52-15	52.0	15.0	2.30	20 - 45	1,000.0	Black (BK)	450-20012
	52.0	15.0	2.30	20 - 45	250.0	Black (BK)	450-20010
	52.0	15.0	2.30	20 - 45	500.0	Black (BK)	450-20011
	52.0	15.0	2.30	20 - 45	750.0	Black (BK)	450-20014
RMS 76-22	76.0	22.0	2.50	28 - 65	1,000.0	Black (BK)	450-20022
	76.0	22.0	2.50	28 - 65	500.0	Black (BK)	450-20021
	76.0	22.0	2.50	28 - 65	750.0	Black (BK)	450-20024
RMS 100-30	100.0	30.0	2.54	35 - 85	1,000.0	Black (BK)	450-20031
	100.0	30.0	2.54	35 - 85	500.0	Black (BK)	450-20030
RMS 139-38	139.0	38.0	2.77	45 - 120	1,000.0	Black (BK)	450-20041
RMS 185-55	185.0	55.0	2.74	65 - 160	1,000.0	Black (BK)	450-20050

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





### Heat shrinkable straight-through joint

#### LVK - adhesive lined

LVK is a heat shrinkable straight-through joint for universal connecting of unarmoured polymeric cables or conductors insulated with PVC, PE and XLPE. Suitable for compression and mechanical connectors on aluminium or copper cables. Voltage level 0.6/1.0 (1.2) kV.

#### Features and benefits

- Universally suitable to connect cables and conductors
- Immediately ready for use
- Using a high-quality thermoplastic inner adhesive
- Good corrosion protection properties with excellent abrasion resistance and weather resistance
- TCP (thermo chromatic paint) spots indicate the sleeve has been sufficiently heated
- Resistant to chemical agents and alkaline earths
- Excellent shrink behavior
- High UV resistance
- Halogen free

#### Content of Set / Kit

Outer sleeve, inner sleeves, cleaning cloth, emery cloth, installation instructions

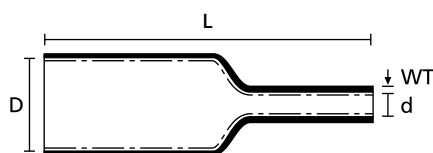


LVK - Heat shrinkable straight-through joint.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Colour</b>	Black (BK)
<b>Shrink Ratio</b>	up to 4:1
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Min. Shrink Temperature</b>	+120 °C
<b>Softening Point Adhesive</b>	+105 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	20 kV/mm according to ASTM D 2671



**Without connector!**

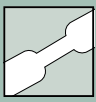


Heat Shrinkable Tubing 4:1 with adhesive.

TYPE	No. of Inner sleeves	Conductor Size Range mm <sup>2</sup>	Inner Tubing Supplied Ø D min.	Inner Tubing Recov. Ø d max.	Inner Tubing Length (L)	Outer Tubing Supplied Ø D min.	Outer Tubing Recov. Ø d max.	Outer Tubing Length (L)	Article-No.
LVK-4x16-50	4	16-50	22.0	6.0	170	55.0	16.0	550	380-04008
LVK-4x25-150	4	25-150	33.0	8.0	250	105.0	25.0	800	380-04010
LVK-4x25-95	4	25-95	33.0	8.0	250	75.0	20.0	800	380-04009
LVK-4x95-300	4	95-300	40.0	12.0	280	130.0	35.0	900	380-04011
LVK-5x1.5-16	5	1.5-16	19.0	3.2	125	48.0	12.0	450	380-04006
LVK-5x1.5-6	5	1.5-6	12.0	3.0	70	48.0	12.0	250	380-04005
LVK-5x6-25	5	6-25	22.0	6.0	125	55.0	16.0	500	380-04007

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





### Heat shrinkable straight-through joint with mechanical connectors

#### LVK-C - adhesive lined

LVK-C is a heat shrinkable straight-through joint for universal connecting of unarmoured polymeric cables or conductors insulated with PVC, PE and XLPE. With mechanical connectors for aluminium or copper cables. Voltage level 0.6/1.0 (1.2) kV.

#### Features and benefits

- Universally suitable to connect cables and conductors
- Immediately ready for use
- Using a high-quality thermoplastic inner adhesive
- Good corrosion protection properties with excellent abrasion resistance and weather resistance
- TCP (thermo chromatic paint) spots indicate the sleeve has been sufficiently heated
- Resistant to chemical agents and alkaline earths
- Excellent shrink behavior
- High UV resistance
- With mechanical connectors
- Halogen free

#### Content of Set / Kit

Outer sleeve, inner sleeves, mechanical connectors, cleaning cloth, emery cloth, installation instructions



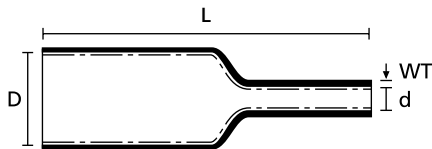
LVK-C - Heat shrinkable straight-through joint with connectors.



LVK-C: Outer sleeve, inner sleeves, mechanical connectors, cleaning cloth, emery cloth, installation instructions.



**With connector!**



Heat Shrinkable Tubing 4:1 with adhesive.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Colour</b>	Black (BK)
<b>Shrink Ratio</b>	up to 4:1
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Min. Shrink Temperature</b>	+120 °C
<b>Softening Point Adhesive</b>	+105 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	20 kV/mm according to ASTM D 2671

HF ✓

RoHS ✓

TYPE	No. of Inner sleeves	Conductor Size Range mm <sup>2</sup>	Inner Tubing Supplied Ø D min.	Inner Tubing Recov. Ø d max.	Inner Tubing Length (L)	Outer Tubing Supplied Ø D min.	Outer Tubing Recov. Ø d max.	Outer Tubing Length (L)	Article-No.
LVK-C-4x16-50	4	16-50	22.0	6.0	170	55.0	16.0	550	380-04016
LVK-C-4x25-150	4	25-150	33.0	8.0	250	105.0	25.0	800	380-04018
LVK-C-4x25-95	4	25-95	33.0	8.0	250	75.0	20.0	800	380-04017
LVK-C-5x1.5-16	5	1.5-16	19.0	3.2	125	48.0	12.0	450	380-04014
LVK-C-5x1.5-6	5	1.5-6	12.0	3.0	70	48.0	12.0	250	380-04013
LVK-C-5x6-25	5	6-25	22.0	6.0	125	55.0	16.0	500	380-04015

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content.



### Heat shrinkable tubing 4:1 - Flame retardant

#### HA40 - thick wall adhesive lined

Designed for low voltage cable joints and terminations in shipbuilding. Insulates and protects against moisture.

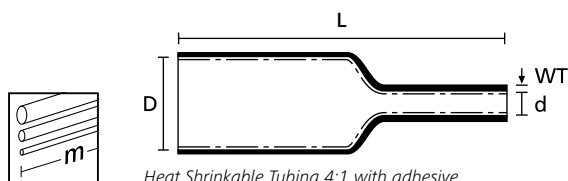
#### Features and benefits

- Thick wall adhesive lined shrink tubing for low voltage power cables
- Designed for shipbuilding, Germanische Lloyd approved
- Flame retarded
- UV and weather resistant
- Excellent mechanical performance



HA40 thick wall, adhesive lined and flame retarded tubing for shipbuilding applications.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	4:1
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Min. Shrink Temperature</b>	+120 °C
<b>Softening Point Adhesive</b>	+85 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	>18 kV/mm
<b>Flammability</b>	self-extinguishing



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Tools	Article-No.
HA40-9/3	9.0	3.0	1.80	1.0 m	Black (BK)	30-32	321-00100
HA40-13/4	13.0	4.0	2.20	1.0 m	Black (BK)	30-32	321-00101
HA40-22/6	22.0	6.0	2.70	1.0 m	Black (BK)	30-32	321-00102
HA40-33/8	33.0	8.0	2.70	1.0 m	Black (BK)	30-32	321-00103
HA40-40/12	40.0	12.0	4.00	1.0 m	Black (BK)	-	321-00104
HA40-55/16	55.0	16.0	4.00	1.0 m	Black (BK)	-	321-00105
HA40-75/22	75.0	22.0	4.10	1.0 m	Black (BK)	-	321-00106
HA40-92/25	92.0	25.0	4.20	1.0 m	Black (BK)	-	321-00107

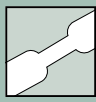
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools			
	30	31	32
	H5002	H5004	E4500
	611	611	610

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



## Heat shrinkable tubing up to 3.5:1 - 1 m lengths

### HA47 - thick wall adhesive lined

The toughness and weatherability makes it well suited for exposed applications and underground cable joints and cable terminations.

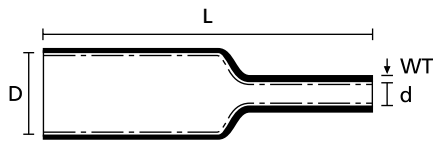
#### Features and benefits

- Thick wall polyolefin adhesive-lined sleeving
- Thermoplastic adhesive protects against moisture and weathering
- Used for low voltage power applications



Heavy wall tubing.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	up to 3.5:1
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Min. Shrink Temperature</b>	+120 °C
<b>Softening Point Adhesive</b>	+85 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	20 kV/mm
<b>Flammability</b>	not flame retarded
<b>Insulation Class</b>	A (VDE 0530)



Heat Shrinkable Tubing 3.5:1 with adhesive



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Tools	Article-No.
HA47-9/3	9.0	3.0	1.80	1.0 m	Black (BK)	30-32	321-20090
HA47-13/4	13.0	4.0	2.40	1.0 m	Black (BK)	30-32	321-20130
HA47-19/6	19.0	6.0	2.70	1.0 m	Black (BK)	30-32	321-20180
HA47-33/8	33.0	8.0	3.20	1.0 m	Black (BK)	30-32	321-20280
HA47-45/12	45.0	12.0	4.10	1.0 m	Black (BK)	-	321-20450
HA47-51/16	51.0	16.0	4.10	1.0 m	Black (BK)	-	321-20510
HA47-68/22	68.0	22.0	4.10	1.0 m	Black (BK)	-	321-20680
HA47-85/25	85.0	25.0	4.30	1.0 m	Black (BK)	-	321-20850
HA47-105/30	105.0	30.0	4.30	1.0 m	Black (BK)	-	321-20900
HA47-130/36	130.0	36.0	4.30	1.0 m	Black (BK)	-	321-21300
HA47-160/50	160.0	50.0	4.30	1.0 m	Black (BK)	-	321-21600
HA47-180/50	180.0	50.0	4.30	1.0 m	Black (BK)	-	321-21850

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools			
	30	31	32
	H5002	H5004	E4500
	611	611	610

For more information on toolings please refer to the Application Tooling chapter.



### Heat shrinkable tubing 6:1 - 1.2 m lengths

#### HA67 - thick wall adhesive lined

Insulates, seals and protects large size differences between connectors and cables.

#### Features and benefits

- High shrink ratio, heavy-duty heat shrinkable tubing
- Thermoplastic adhesive-lined tubing
- Conforms well to highly variable substrate dimensions
- Simplifies cable repair
- Passes over large connectors and shrinks onto much smaller cable jackets
- Environmental sealing and excellent insulation
- Resistant to impact and abrasion

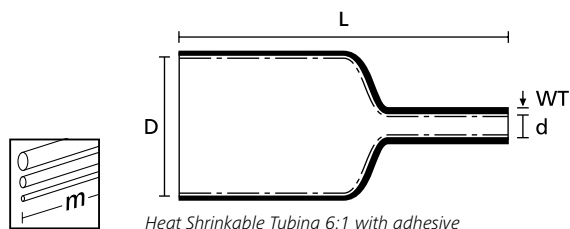


Due to the high shrink ratio HA67 is suitable for complex shapes and dimensions.



One Step to the Web!

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	6:1
<b>Operating Temperature</b>	-55 °C to +110 °C
<b>Min. Shrink Temperature</b>	+120 °C
<b>Softening Point Adhesive</b>	+85 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	20 kV/mm according to IEC 243
<b>Flammability</b>	not flame retarded



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Tools	Article-No.
HA67-19.0/3.2	19.0	3.2	3.20	1,220.0	Black (BK)	30-32	321-30000
HA67-33.0/5.5	33.0	5.5	3.40	1,220.0	Black (BK)	30-32	321-30100
HA67-44.4/7.4	44.4	7.4	3.60	1,220.0	Black (BK)	-	321-30200
HA67-50.8/8.3	50.8	8.3	4.80	1,220.0	Black (BK)	-	321-30300
HA67-69.8/11.7	69.8	11.7	4.80	1,220.0	Black (BK)	-	321-30400
HA67-88.9/17.1	88.9	17.1	4.80	1,220.0	Black (BK)	-	321-30500
HA67-119.4/22.9	119.4	22.9	4.80	1,220.0	Black (BK)	-	321-30600
HA67-235.0/40.0	235.0	40.0	4.80	1,000.0	Black (BK)	-	321-30701

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools			
	30	31	32
	H5002	H5004	E4500
	611	611	610

For more information on toolings please refer to the Application Tooling chapter.



### Heat shrinkable tubing 2:1 - Flame retardant

#### TR27

TR27 is used in applications where toxic emissions evolved in a fire must be minimised, e.g. for heavily populated buildings or safety sensitive areas like tunnels, hospitals, schools, theatres, mass transit vehicles and computer centres.

#### Features and benefits

- Thin wall, flexible polyolefin tubing
- Optional available with adhesive or as thick wall version (SR27)
- Halogen free and excellent flame-retardant properties
- Meets various industrial standards

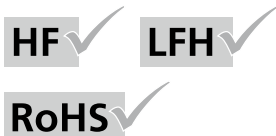


TR27 is ideal for safety sensitive areas.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-40 °C to +105 °C
<b>Min. Shrink Temperature</b>	+115 °C
<b>Longitudinal change after shrinkage</b>	+5 %/-10 % max.
<b>Dielectric Strength</b>	15 kV/mm according to IEC 684 P2
<b>Flammability</b>	Limited Fire Hazard, halogen free, low generation of toxic gases and corrosive acid, low smoke generation



TR27 is mainly used in the railway industry.



Heat Shrinkable Tubing 2:1

TYPE	Supplied Ø D min.	Size (imperial)	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Tools	Article-No.
TR27-3.2/1.6	3.2	1/8 "	1.6	0.51	150 m	Black (BK)	30-32	315-50320
TR27-4.8/2.4	4.8	3/16 "	2.4	0.51	60 m	Black (BK)	30-32	315-50480
TR27-6.4/3.2	6.4	1/4 "	3.2	0.64	60 m	Black (BK)	30-32	315-50640
TR27-9.5/4.8	9.5	3/8 "	4.8	0.64	60 m	Black (BK)	30-32	315-50950
TR27-12.7/6.4	12.7	1/2 "	6.4	0.64	60 m	Black (BK)	30-32	315-51270
TR27-19.1/9.5	19.1	3/4 "	9.5	0.76	60 m	Black (BK)	30-32	315-51900
TR27-25.4/12.7	3.2	1 "	1.6	0.51	60 m	Black (BK)	30-32	315-52540
TR27-38.1/19.1	38.1	1-1/2 "	19.1	1.02	60 m	Black (BK)	30-32	315-53810
TR27-50.8/25.4	50.8	2 "	25.4	1.14	60 m	Black (BK)	30-32	315-55100

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

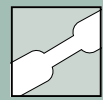
Recommended Tools			
	30	31	32
	H5002	H5004	E4500
	611	611	610

**EN 45545-2**

**DEF STAN**

For product specific approvals and specifications please refer to the Appendix.

For more information on toolings please refer to the Application Tooling chapter.



### Heat shrinkable tubing 3:1 - Flame retardant

#### TA37 - thin wall adhesive lined

TA37 shrink tubing has a low smoke index and excellent flame retardant properties to meet strict fire security standards in electrical insulation.

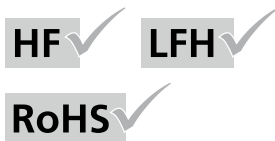
#### Features and benefits

- Thin wall adhesive lined heat shrink tubing
- Halogen Free
- Flame Retarded
- Combination of these three (halogen free, adhesive lined and flame retarded) product properties is unique

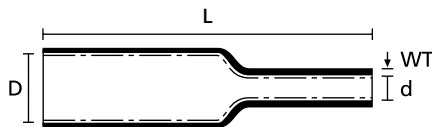


TA37 - adhesive lined tubing for safety sensitive areas.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	3:1
<b>Operating Temperature</b>	-40 °C to +105 °C
<b>Min. Shrink Temperature</b>	+150 °C
<b>Softening Point Adhesive</b>	+85 °C
<b>Longitudinal change after shrinkage</b>	-15 % max.
<b>Flammability</b>	self-extinguishing



Mainly used in railway applications.



Heat Shrinkable Tubing 3:1 with adhesive



One Step to the Web!

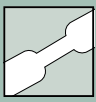
TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Tools	Article-No.
TA37 3-1	3.0	1.0	0.95	1.2 m	Black (BK)	30-32	315-13000
TA37 4.5-1.5	4.5	1.5	1.10	1.2 m	Black (BK)	30-32	315-13001
TA37 6-2	6.0	2.0	1.20	1.2 m	Black (BK)	30-32	315-13002
TA37 9-3	9.0	3.0	1.30	1.2 m	Black (BK)	30-32	315-13003
TA37 12-4	12.0	4.0	1.40	1.2 m	Black (BK)	30-32	315-13004
TA37 19-6	19.0	6.0	1.80	1.2 m	Black (BK)	30-32	315-13005
TA37 24-8	24.0	8.0	2.50	1.2 m	Black (BK)	30-32	315-13006
TA37 40-13	40.0	13.0	2.50	1.2 m	Black (BK)	30-32	315-13007
TA37 50-19	50.0	19.0	4.00	1.2 m	Black (BK)	30-32	315-13008
TA37 75-25	75.0	25.0	3.00	1.2 m	Black (BK)	-	315-13009
TA37 120-45	120.0	45.0	4.00	1.2 m	Black (BK)	-	315-13011

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

**EN 45545-2**

For product specific approvals and specifications please refer to the Appendix.





### Heat shrinkable tubing 4:1 - 1.2 m lengths

#### SA47 - standard wall adhesive lined

SA47 is a semi-rigid halogen free polyolefin tubing with a thick inner liner of hot melt adhesive. It has excellent tensile strength and strain relief. The adhesive liner provides excellent moisture protection. Ideal for electrical connections and splices in automobiles. Tubing is transparent and hot melt adhesive is black.

#### Features and benefits

- Flexible, standard wall polyolefin heat shrink tubing
- Excellent tensile strength and strain relief
- Provides excellent moisture protection
- Tubing is clear and hot melt adhesive black
- Provides an environmental sealing of complex parts
- Halogen free



Heat shrink tubing SA47 for splice application.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	4:1
<b>Operating Temperature</b>	-40 °C to +125 °C
<b>Min. Shrink Temperature</b>	+110 °C
<b>Melting Point</b>	starting from +110 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	>20 kV/mm

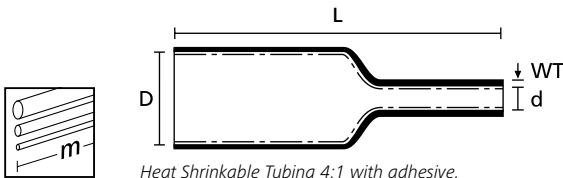


One Step to the Web!



**i** SA47 has been developed with our Automotive partners to eliminate the risk of corrosion around cable splices and terminations.

**i** Cut lengths available on request. Please contact us!



Heat Shrinkable Tubing 4:1 with adhesive.

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Tools	Article-No.
SA47 5,75/1,25	5.75	1.25	1.15	1.2 m	Transparent (CL), Black (BK)	30-32	301-10000
SA47 7,5/1,65	7.5	1.65	1.40	1.2 m	Transparent (CL), Black (BK)	30-32	301-10001
SA47 11,0/2,4	11.0	2.4	1.80	1.2 m	Transparent (CL), Black (BK)	30-32	301-10002
SA47 18,3/4,35	18.3	4.35	2.20	1.2 m	Transparent (CL), Black (BK)	30-32	301-10003
SA47 24/6	24.0	6.0	2.54	1.2 m	Transparent (CL), Black (BK)	30-32	301-10005
SA47 32/8	32.0	8.0	2.54	1.2 m	Transparent (CL), Black (BK)	30-32	301-10004

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools			
	30	31	32
	H5002	H5004	E4500
	611	611	610

For more information on toolings please refer to the Application Tooling chapter.





### Heat shrinkable tubing 4:1 - 1.2 m lengths

#### SA47-LA - standard wall adhesive lined

SA47-LA is a semi-rigid halogen free polyolefin tubing with an inner liner of hot melt adhesive. It has excellent tensile strength and strain relief. The adhesive liner provides excellent moisture protection. Ideal for electrical connections and splices in automobiles. Tubing is transparent and hot melt adhesive is black.

SA47-LA is specially designed with less adhesive for cable connections.

#### Features and benefits

- Flexible, standard wall polyolefin heat shrink tubing
- Excellent tensile strength and strain relief
- Provides excellent moisture protection
- Tubing is clear and hot melt adhesive black
- Provides an environmental sealing of complex parts
- Halogen free
- High shrink ratio 4:1



Heat shrink tubing SA47-LA for cable connection.

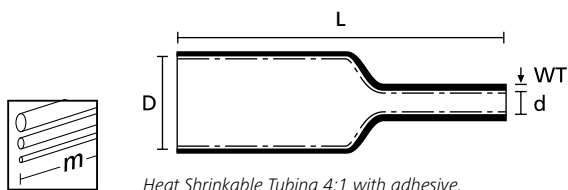
**i** SA47 has been developed with our Automotive partners to eliminate the risk of corrosion around cable splices and terminations.

**i** Cut lengths available on request. Please contact us!

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	4:1
<b>Operating Temperature</b>	-40 °C to +125 °C
<b>Min. Shrink Temperature</b>	+110 °C
<b>Melting Point</b>	starting from +110 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	>20 kV/mm

HF ✓

RoHS ✓



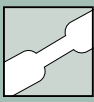
Heat Shrinkable Tubing 4:1 with adhesive.

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Tools	Article-No.
SA47-LA 5,75/1,25	5.75	1.25	1.15	1.2 m	Transparent (CL), Black (BK)	30-32	301-10020
SA47-LA 7,5/1,65	7.5	1.65	1.40	1.2 m	Transparent (CL), Black (BK)	30-32	301-10021
SA47-LA 11,0/2,4	11.0	2.4	1.80	1.2 m	Transparent (CL), Black (BK)	30-32	301-10022
SA47-LA 18,3/4,35	18.3	4.35	2.20	1.2 m	Transparent (CL), Black (BK)	30-32	301-10023
SA47-LA 24/6	24.0	6.0	2.54	1.2 m	Transparent (CL), Black (BK)	30-32	301-10024
SA47-LA 32/8	32.0	8.0	2.54	1.2 m	Transparent (CL), Black (BK)	30-32	301-10025
SA47-LA 52/13	52.0	13.0	3.00	1.2 m	Transparent (CL), Black (BK)	30-32	301-10026

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools			
	30	31	32
	H5002	H5004	E4500
	611	611	610

For more information on toolings please refer to the Application Tooling chapter.



### Heat shrinkable tubing 4:1 - 1.2 m lengths

#### SA47-HT - standard wall adhesive lined

SA47-HT is a semi-rigid flame retardant polyolefin tubing with a thick inner liner of hot melt adhesive. The tubing has excellent tensile strength and strain relief. The adhesive liner provides excellent moisture protection. Ideal for electrical connections and splices in automobiles. Suitable for high temperature applications up to 150 °C. Tubing is black and hot melt adhesive is black.

#### Features and benefits

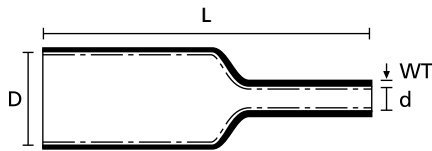
- Flexible, standard wall polyolefin heat shrink tubing
- Excellent tensile strength and strain relief
- Provides excellent moisture protection
- Tubing and hot melt adhesive is black
- Provides an environmental sealing of complex parts
- For high temperature applications up to 150 °C
- Flame retardant



One Step to the Web!

**i** SA47 has been developed with our Automotive partners to eliminate the risk of corrosion around cable splices and terminations.

**i** Cut lengths available on request. Please contact us!



Heat Shrinkable Tubing 4:1 with adhesive.



Heat shrink tubing SA47-HT for 150 °C application.



SA47-HT provides optimum protection against moisture in high temperature applications.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Shrink Ratio</b>	4:1
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Min. Shrink Temperature</b>	+130 °C
<b>Melting Point</b>	starting from +120 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	>20 kV/mm
<b>Flammability</b>	self-extinguishing



SA47-HT	7,6/1,7	9,0/2,3	11,6/2,5	17,8/4,4	24,0/6	32,0/8	
SA47-HT 7,6/1,7	7.6	1.7	1.52	1.2 m	Black (BK)	30-32	301-10010
SA47-HT 9,0/2,3	9.0	2.3	1.52	1.2 m	Black (BK)	30-32	301-10011
SA47-HT 11,6/2,5	11.6	2.5	2.29	1.2 m	Black (BK)	30-32	301-10012
SA47-HT 17,8/4,4	17.8	4.4	2.54	1.2 m	Black (BK)	30-32	301-10013
SA47-HT 24/6	24.0	6.0	2.54	1.2 m	Black (BK)	30-32	301-10015
SA47-HT 32/8	32.0	8.0	2.54	1.2 m	Black (BK)	30-32	301-10014



### Heat Shrinkable Tubing 2:1 - Elastomer

#### TE28 - lightweight

TE28 is used for long-term protection of cables and wire harnesses in military equipment, motor sports and aviation.

#### Features and Benefits

- Flexible, high performance elastomeric heat shrink tubing
- Used in aerospace, defence, railway and automotive applications
- Resistant to diesel fuel, aviation and hydrolic fluids
- Provides a reliable protection against abrasion and mechanical damage
- Very suitable for protecting cables and wire harnesses



SE28 tubing.

<b>MATERIAL</b>	Elastomer, cross-linked (POA)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-75 °C to +150 °C
<b>Min. Shrink Temperature - °C</b>	+170 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	20 kV/mm
<b>Flammability</b>	VG 95343

**RoHS** ✓



TE28 is mainly used in high performance applications.



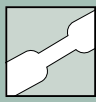
Heat Shrinkable Tubing 2:1

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Designation as per VG-Norm	Article-No.
TE28 2,4/1,2	2.4	1.2	0.50	150 m	Black (BK)	VG 95343 T05 D 012 A	342-30000
TE28 3,2/1,6	3.2	1.6	0.50	150 m	Black (BK)	VG 95343 T05 D 013 A	342-30010
TE28 4,8/2,4	4.8	2.4	0.50	60 m	Black (BK)	VG 95343 T05 D 014 A	342-30020
TE28 6,4/3,2	6.4	3.2	0.60	60 m	Black (BK)	VG 95343 T05 D 015 A	342-30030
TE28 9,5/4,8	9.5	4.8	0.60	60 m	Black (BK)	VG 95343 T05 D 016 A	342-30040
TE28 12,7/6,4	12.7	6.4	0.60	30 m	Black (BK)	VG 95343 T05 D 017 A	342-30050
TE28 19,0/9,5	19.0	9.5	0.80	30 m	Black (BK)	VG 95343 T05 D 018 A	342-30060
TE28 25,4/12,7	25.4	12.7	0.90	30 m	Black (BK)	VG 95343 T05 D 019 A	342-30070
TE28 38,0/19,0	38.0	19.0	1.00	30 m	Black (BK)	VG 95343 T05 D 020 A	342-30080
TE28 51,0/25,4	51.0	25.4	1.10	30 m	Black (BK)	VG 95343 T05 D 022 A	342-30090

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



### Heat Shrinkable Tubing 2:1 - Elastomer

#### SE28

SE28 is used for long-term protection of cables and wire harnesses in military equipment, motor sports and aviation.

#### Features and Benefits

- Flexible, high performance elastomeric heat shrink tubing
- Used in aerospace, defence, railway and automotive applications
- Resistant to diesel fuel, aviation and hydraulic fluids
- Provides a reliable protection against abrasion and mechanical damage
- Very suitable for protecting cables and wire harnesses



SE28 tubing.

<b>MATERIAL</b>	Elastomer, cross-linked (POA)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-75 °C to +150 °C
<b>Min. Shrink Temperature - °C</b>	+170 °C
<b>Longitudinal change after shrinkage</b>	-10 % max.
<b>Dielectric Strength</b>	20 kV/mm
<b>Flammability</b>	VG 95343



SE28 is mainly used in high performance applications.

RoHS



Heat Shrinkable Tubing 2:1

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Designation as per VG-Norm	Article-No.
SE28 3,2/1,6	3.2	1.6	0.70	150 m	Black (BK)	VG 95343 T05 D 001 A	342-20000
SE28 4,8/2,4	4.8	2.4	0.80	60 m	Black (BK)	VG 95343 T05 D 002 A	342-20010
SE28 6,4/3,2	6.4	3.2	0.90	60 m	Black (BK)	VG 95343 T05 D 003 A	342-20020
SE28 9,5/4,8	9.5	4.8	1.00	60 m	Black (BK)	VG 95343 T05 D 004 A	342-20030
SE28 12,7/6,4	12.7	6.4	1.20	60 m	Black (BK)	VG 95343 T05 D 005 A	342-20040
SE28 19,0/9,5	19.0	9.5	1.40	30 m	Black (BK)	VG 95343 T05 D 006 A	342-20050
SE28 25,4/12,7	25.4	12.7	1.80	30 m	Black (BK)	VG 95343 T05 D 007 A	342-20060
SE28 38,0/19,0	38.0	19.0	2.40	30 m	Black (BK)	VG 95343 T05 D 008 A	342-20070
SE28 51,0/25,4	51.0	25.4	2.80	30 m	Black (BK)	VG 95343 T05 D 009 A	342-20080
SE28 76,0/38,0	76.0	38.0	3.20	15 m	Black (BK)	VG 95343 T05 D 010 A	342-20090
SE28 101,2/51,0	102.0	51.0	3.50	10 m	Black (BK)	VG 95343 T05 D 011 A	342-20100

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



### Heat shrinkable tubing 2:1 - PVDF

#### TK20

Typical applications of this translucent tubing are where high-temperature performance is required. Also very suitable for applications that ask for visual inspection of covered components, or if low friction surface is needed. TK20 is also used as oil stop for energy cables.

This thin walled, translucent heat shrink tubing is often used for chemical applications.

#### Features and benefits

- Semi-rigid heat shrinkable tubing made of PVDF
- Thin wall and tough
- For higher temperature applications
- Very good mechanical strength, abrasion resistance and chemical resistance
- Meets various industrial standards
- Self extinguishing, UL 224 VW1 listed



TK20 is often used for chemical applications.

<b>MATERIAL</b>	Polyvinylidene Fluoride (PVDF)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +175 °C
<b>Min. Shrink Temperature</b>	+175 °C
<b>Longitudinal change after shrinkage</b>	+/-10 % max
<b>Dielectric Strength</b>	≥ 30 kV/mm min. according to ASTM D2171
<b>Flammability</b>	UL224 VW-1
<b>Specifications</b>	Airbus Group   ASNE 0718, PANAVIA Aircraft   PAN6491, SAE - AMS - DTL-23053/8, UL   ANSI/UL 224, VG 95343



Heat Shrinkable Tubing 2:1



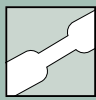
TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Designation as per VG-Norm	Tools	Article-No.
TK20-1.2/0.6	1.2	0.6	0.25	1.2 m	Transparent (CL)	VG 95343 T05 F 001 M	30-32	331-00129
TK20-1.6/0.8	1.6	0.8	0.25	1.2 m	Transparent (CL)	VG 95343 T05 F 002 M	30-32	311-00169
TK20-2.4/1.2	2.4	1.2	0.25	1.2 m	Transparent (CL)	VG 95343 T05 F 003 M	30-32	311-00249
TK20-3.2/1.6	3.2	1.6	0.25	1.2 m	Transparent (CL)	VG 95343 T05 F 004 M	30-32	311-00329
TK20-4.8/2.4	4.8	2.4	0.25	1.2 m	Transparent (CL)	VG 95343 T05 F 005 M	30-32	311-00489
TK20-6.4/3.2	6.4	3.2	0.30	1.2 m	Transparent (CL)	VG 95343 T05 F 006 M	30-32	311-00649
TK20-9.5/4.8	9.5	4.8	0.30	1.2 m	Transparent (CL)	VG 95343 T05 F 007 M	30-32	311-00959
TK20-12.7/6.4	12.7	6.4	0.30	1.2 m	Transparent (CL)	VG 95343 T05 F 008 M	30-32	311-01279
TK20-19.1/9.5	19.1	9.5	0.43	1.2 m	Transparent (CL)	VG 95343 T05 F 009 M	30-32	311-01909
TK20-25.4/12.7	25.4	12.7	0.48	1.2 m	Transparent (CL)	VG 95343 T05 F 010 M	30-32	311-02549
TK20-38.1/19.1	38.1	19.1	0.51	1.2 m	Transparent (CL)	-	30-32	311-03819
TK20-50.8/25.4	50.8	25.4	0.51	1.2 m	Transparent (CL)	-	30-32	311-05089

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.





## Heat shrinkable tubing 2:1 - PVDF

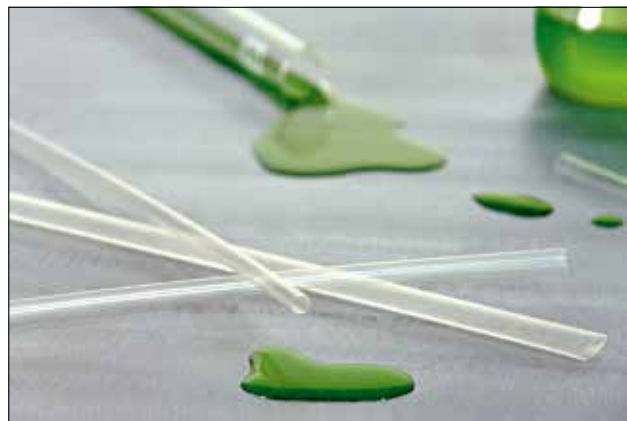
### TK29

Typical applications of this translucent tubing are where high-temperature performance is required. Also very suitable for applications that ask for visual inspection of covered components, or if low friction surface is needed. TK29 is also used as oil stop for energy cables.

This thin walled, translucent heat shrink tubing is often used for chemical applications.

#### Features and benefits

- Semi-rigid heat shrinkable tubing made of PVDF
- Thin wall and tough
- For higher temperature applications
- Very good mechanical strength, abrasion resistance and chemical resistance
- Meets various industrial standards
- Self extinguishing, UL 224 VW1 listed



TK20 is often used for chemical applications.

<b>MATERIAL</b>	Polyvinylidene Fluoride (PVDF)
<b>Shrink Ratio</b>	2:1
<b>Operating Temperature</b>	-55 °C to +175 °C
<b>Min. Shrink Temperature</b>	+150 °C
<b>Longitudinal change after shrinkage</b>	+/-10 % max
<b>Dielectric Strength</b>	≥ 30 kV/mm min. according to ASTM D2171
<b>Flammability</b>	UL224 VW-1
<b>Specifications</b>	ANSI/UL 224, SAE-AMS-DTL-23053 / 18 class1



Heat Shrinkable Tubing 2:1

RoHS

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Colour	Designation as per VG-Norm	Tools	Article-No.
TK29-1.2/0.6	1.2	0.6	0.25	1.2 m	Transparent (CL)	VG 95343 T05 F 001 M	30-32	331-00129
TK29-1.6/0.8	1.6	0.8	0.25	1.2 m	Transparent (CL)	VG 95343 T05 F 002 M	30-32	311-00169
TK29-2.4/1.2	2.4	1.2	0.25	1.2 m	Transparent (CL)	VG 95343 T05 F 003 M	30-32	311-00249
TK29-3.2/1.6	3.2	1.6	0.25	1.2 m	Transparent (CL)	VG 95343 T05 F 004 M	30-32	311-00329
TK29-4.8/2.4	4.8	2.4	0.25	1.2 m	Transparent (CL)	VG 95343 T05 F 005 M	30-32	311-00489
TK29-6.4/3.2	6.4	3.2	0.30	1.2 m	Transparent (CL)	VG 95343 T05 F 006 M	30-32	311-00649
TK29-9.5/4.8	9.5	4.8	0.30	1.2 m	Transparent (CL)	VG 95343 T05 F 007 M	30-32	311-00959
TK29-12.7/6.4	12.7	6.4	0.30	1.2 m	Transparent (CL)	VG 95343 T05 F 008 M	30-32	311-01279
TK29-19.1/9.5	19.1	9.5	0.43	1.2 m	Transparent (CL)	VG 95343 T05 F 009 M	30-32	311-01909
TK29-25.4/12.7	25.4	12.7	0.48	1.2 m	Transparent (CL)	VG 95343 T05 F 010 M	30-32	311-02549
TK29-38.1/19.1	38.1	19.1	0.51	1.2 m	Transparent (CL)	-	30-32	311-03819
TK29-50.8/25.4	50.8	25.4	0.51	1.2 m	Transparent (CL)	-	30-32	311-05089

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.





### Heat shrinkable tubing 2:1 - Fluoroelastomer

#### Viton® -E

Viton® -E is used for reliable protection against aggressive chemicals in high temperature environments like engine compartments and turbines. It is also used when protective tubings are required to remain flexible at low temperatures.

#### Features and benefits

- High temperature resistant fluoroelastomeric heat shrink tubing
- Very good electrical, chemical and mechanical features
- Resistant to many fuels, oils and lubricants
- Flexible even at very low temperatures



Viton® -E for flexibility and protection against aggressive chemicals.

<b>MATERIAL</b>	Fluoropolymer cross-linked (FPMX)	
<b>Shrink Ratio</b>	2:1	
<b>Operating Temperature</b>	-55 °C to +220 °C	
<b>Min. Shrink Temperature</b>	+175 °C	
<b>Longitudinal change after shrinkage</b>	-10 % max.	
<b>Dielectric Strength</b>	15 kV/mm	
<b>Flammability</b>	self-extinguishing	VG 95343
<b>Insulation Class</b>	C (VDE 0530)	



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Reel Length	Colour	Designation as per VG-Norm	Tools	Article-No.
VITON®-E-3.2/1.6	3.2	1.6	0.70	50 m	Black (BK)	VG 95343 T05 E 001 A	30-32	330-00320
VITON®-E-4.8/2.4	4.8	2.4	0.80	50 m	Black (BK)	VG 95343 T05 E 002 A	30-32	330-00480
VITON®-E-6.4/3.2	6.4	3.2	0.90	50 m	Black (BK)	VG 95343 T05 E 003 A	30-32	330-00640
VITON®-E-9.5/4.8	9.5	4.8	1.00	25 m	Black (BK)	VG 95343 T05 E 004 A	30-32	330-00950
VITON®-E-12.7/6.4	12.7	6.4	1.20	25 m	Black (BK)	VG 95343 T05 E 005 A	30-32	330-01270
VITON®-E-19.0/9.5	19.0	9.5	1.40	25 m	Black (BK)	VG 95343 T05 E 006 A	30-32	330-01900
VITON®-E-25.4/12.7	25.4	12.7	1.80	25 m	Black (BK)	VG 95343 T05 E 007 A	30-32	330-02540
VITON®-E-38.0/19.0	38.0	19.0	2.40	15 m	Black (BK)	VG 95343 T05 E 008 A	30-32	330-03810
VITON®-E-50.8/25.4	50.8	25.4	2.80	15 m	Black (BK)	VG 95343 T05 E 009 A	30-32	330-05080

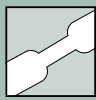
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools			
	30	31	32
	H5002	H5004	E4500
	611	611	610

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



## Heat shrinkable tubing - PTFE

TFE is ideal for high temperature applications, when resistance to aggressive fluids is required or a very thin walled tubing is needed, for example in pH-measuring instruments. TFE tubing is also used to reduce movement due to friction, covering cylinders for example.

### Features and benefits

- PTFE heat shrink tubing
- Very high temperature resistance
- Extra thin wall translucent tubing
- High abrasion resistance and good resistance against aggressive chemicals
- Available in either 2:1 (TFE2) or 4:1 (TFE4) shrink ratios

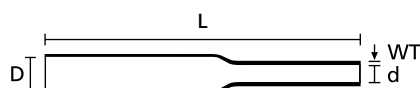


TFE is available in either 2:1 or 4:1 shrink ratios.



**Cut lengths available on request. Please contact us!**

### TFE2 - 2:1 shrink ratio



Heat Shrinkable Tubing 2:1

<b>MATERIAL</b>	Polytetrafluoroethylene (PTFE)
<b>Operating Temperature</b>	-70 °C to +260 °C
<b>Min. Shrink Temperature</b>	+350 °C
<b>Longitudinal change after shrinkage</b>	-20 % max.
<b>Dielectric Strength</b>	40 kV/mm according to DIN 53481
<b>Flammability</b>	non-burning

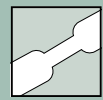
**RoHS** ✓

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wire Size (AWG)	Wall (WT)	Length (L)	Colour	Shrink Ratio	Tools	Article-No.
TFE2-30	0.86	0.38	30	0.23	1.2 m	Transparent (CL)	2:1	30-32	336-00079
TFE2-28	0.96	0.46	28	0.23	1.2 m	Transparent (CL)	2:1	30-32	336-00099
TFE2-26	1.17	0.56	26	0.23	1.2 m	Transparent (CL)	2:1	30-32	336-00109
TFE2-24	1.27	0.69	24	0.25	1.2 m	Transparent (CL)	2:1	30-32	336-00139
TFE2-22	1.39	0.82	22	0.25	1.2 m	Transparent (CL)	2:1	30-32	336-00149
TFE2-20	1.52	0.99	20	0.30	1.2 m	Transparent (CL)	2:1	30-32	336-00159
TFE2-18	1.93	1.25	18	0.30	1.2 m	Transparent (CL)	2:1	30-32	336-00199
TFE2-16	2.36	1.55	16	0.30	1.2 m	Transparent (CL)	2:1	30-32	336-00249
TFE2-14	3.05	1.83	14	0.30	1.2 m	Transparent (CL)	2:1	30-32	336-00319
TFE2-12	3.81	2.26	12	0.30	1.2 m	Transparent (CL)	2:1	30-32	336-00399
TFE2-10	4.85	2.85	10	0.30	1.2 m	Transparent (CL)	2:1	30-32	336-00489
TFE2-8	6.10	3.58	8	0.38	1.2 m	Transparent (CL)	2:1	30-32	336-00619
TFE2-6	7.67	4.52	6	0.38	1.2 m	Transparent (CL)	2:1	30-32	336-00779
TFE2-4	9.40	5.69	4	0.38	1.2 m	Transparent (CL)	2:1	30-32	336-00949
TFE2-2	10.92	7.06	2	0.38	1.2 m	Transparent (CL)	2:1	30-32	336-01109
TFE2-0	11.94	8.81	0	0.38	1.2 m	Transparent (CL)	2:1	30-32	336-01209

All dimensions in mm. Subject to technical changes. AWG: American Wire Gauge Minimum Order Quantity (MOQ) may differ from package content.

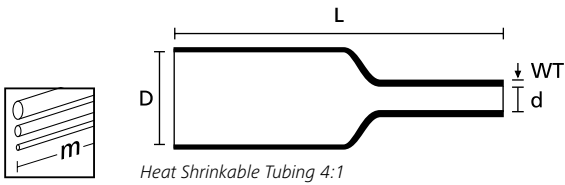
Recommended Tools			
	30	31	32
	H5002	H5004	E4500
	611	611	610

For more information on toolings please refer to the Application Tooling chapter.



### Heat shrinkable tubing - PTFE

#### TFE4 - 4:1 shrink ratio



TYPE	Supplied Ø D min.	Recov. Ø d max.	Size (imperial)	Wall (WT)	Length (L)	Colour	Shrink Ratio	Tools	Article-No.
TFE4-5/64	1.98	0.64	5/64 "	0.22	1.2 m	Transparent (CL)	4:1	30-32	339-00209
TFE4-1/8	3.17	0.94	1/8 "	0.25	1.2 m	Transparent (CL)	4:1	30-32	339-00329
TFE4-3/16	4.75	1.27	3/16 "	0.30	1.2 m	Transparent (CL)	4:1	30-32	339-00340
TFE4-1/4	6.35	1.60	1/4 "	0.30	1.2 m	Transparent (CL)	4:1	30-32	339-00649
TFE4-3/8	9.52	2.44	3/8 "	0.30	1.2 m	Transparent (CL)	4:1	30-32	339-00959
TFE4-1/2	12.7	3.66	1/2 "	0.38	1.2 m	Transparent (CL)	4:1	30-32	339-01279
TFE4-5/8	15.87	4.52	5/8 "	0.38	1.2 m	Transparent (CL)	4:1	30-32	339-01599
TFE4-3/4	19.05	5.69	3/4 "	0.38	1.2 m	Transparent (CL)	4:1	30-32	339-01909
TFE4-1	25.4	7.06	1 "	0.38	1.2 m	Transparent (CL)	4:1	30-32	339-02549
TFE4-1 1/4	31.75	8.82	1-1/4 "	0.38	1.2 m	Transparent (CL)	4:1	30-32	339-03189

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools			
	30	31	32
	H5002	H5004	E4500
	611	611	610

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.

## Materials for Heat Shrinkable Moulded Shapes

Material Specifications						
	-9	H	G	B7	B8	L
<b>Material</b>	Modified elastomer blend	Flexible limited fire hazard material	Fluid resistant elastomer	Semi-rigid flame retarded polyolefin	Semi-rigid flame retarded polyolefin	Flexible flame retarded fluoroelastomer
<b>Operating Temperature</b>	-55 °C to +120 °C	-55 °C to +105 °C	-75 °C to +150 °C	-55 °C to +135 °C	-55 °C to +100 °C	-55 °C to +200 °C
<b>Min. Shrink Temperature</b>	+135 °C	+135 °C	+135 °C	+135 °C	+135 °C	+175 °C
<b>Specifications</b>	SCX15112	DEF STAN 59-97, BSG198 Part 5, VG 95343 NAVSEA 5617649	DEF STAN 59-97, BSG198 Part 5, VG 95343 Part 6, 18	MIL-I-81765/1 Type 1, DEF STAN 59-97, BSG198 Part 5	EA-TS 09-11	DEF STAN 59-97, BSG198 Part 5, MIL-81765/4
<b>Tensile Strength</b>	12 MPa	10 MPa	15 MPa	13 MPa	15 MPa	12 MPa
<b>Elongation at break</b>	500 %	450 %	580 %	500 %	500 %	300 %
<b>Dielectric Strength</b>	20 kV/mm	15 kV/mm	14 kV/mm	14 kV/mm	15 kV/mm	8 kV/mm
<b>Flammability for Material</b>	excellent	excellent	excellent	excellent	good	excellent
<b>Features and Benefits</b>	Good physical and reasonable chemical resistance	Low smoke Halogen free	Excellent resistance to fuels	Good physical and chemical resistance	Good physical and reasonable chemical resistance	High temperature excellent chemical resistance
<b>Typical Application</b>	Military and general high performance harnessing	Ships, submarines & railways	Military and general high performance harnessing	Military and general high performance harnessing	Power/utility shapes	Military and high performance harnessing

**Adhesive for Heat Shrinkable Moulded Shapes**

Adhesive Specifications							
	W / W2	W8	W21	W24	WM250	V9500	HMT200A
<b>Adhesive</b>	General purpose hot melt adhesive	High performance EVA hot melt adhesive	Modified polyamide hot melt adhesive	High performance, pre-coat, 1 part epoxy	Hot melt adhesive	Two part, black, epoxy adhesive	Hot melt adhesive tape
<b>Operating Temperature</b>	-55 °C to +80 °C	-55 °C to +105 °C	-55 °C to +120 °C	-75 °C to +200 °C	-55 °C to +80 °C	-75 °C to +150 °C	-55 °C to +105 °C
<b>Softening Point Adhesive</b>	+95 °C	+110 °C	+120 °C		+95 °C		+110 °C
<b>Supplied Form</b>	pre-applied	pre-applied	pre-applied	pre-applied	pre-applied	cartridge	tape
<b>Shelf Life</b>	5 years	5 years	5 years	5 years	5 years	18 months	5 years
<b>Solvent Resistance</b>	Fair under splash conditions	Fair under splash conditions	Saline: Very good De-icing fluid: Good Diesel: Excellent Lubricating Oil: Good Hydraulic Oil: Excellent Aviation Fuel: Good Automotive Fuel: Good	De-icing fluid: Excellent Petrol: Excellent Lubricating Oil: Excellent Hydraulic Oil: Excellent	Fair under splash conditions	De-icing fluid: Excellent, Petrol: Excellent, Lubricating Oil: Excellent, Hydraulic Oil: Excellent	Fair under splash conditions

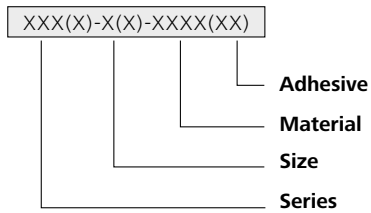


**i** A wider range of material / adhesive combinations are available in the Moulded Shapes Catalogue.

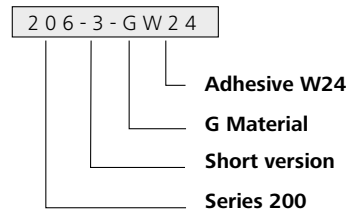


## Order Example

Type:



Example:



**i** Other product styles are available. Please refer to Moulded Shapes catalogue.



One Step to the Web!

### Low Profile Boots Product Overview

Page

**Convolute Boots**  
Helashrink 313C Series,  
with adapter lip



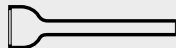
264

**Shim Boots**  
Helashrink 313E Series,  
without adapter lip

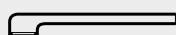


265

**Straight Boots**  
Helashrink 313F Series,  
with adapter lip



**Right Angle Boots**  
Helashrink 333F Series,  
with adapter lip, 90° angle

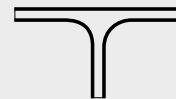


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### Low Profile Boots Product Overview

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**Transition Boots**  
Helashrink 412H Series,  
side breakout



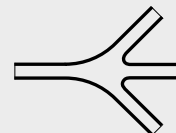
267

**Transition Boots**  
Helashrink 492H Series,  
1 to 2 cables



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**Transition Boots**  
Helashrink 573H Series,  
1 to 3 cables



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**Bulbous Boots  
Product Overview** Page

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<b>Right-Angle Shapes</b> Helashrink 1100 Series, without rib		279

**Bulbous Boots  
Product Overview** Page

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<b>Right-Angle Shapes</b> Helashrink 1100 Series, with rib, low profile, VG style/MIL style		280
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<b>Low Voltage</b> Helashrink 1600 Series		288



### Low Profile Convolute Boots

**Helashrink 313C Series, with adapter lip**

#### Features and Benefits

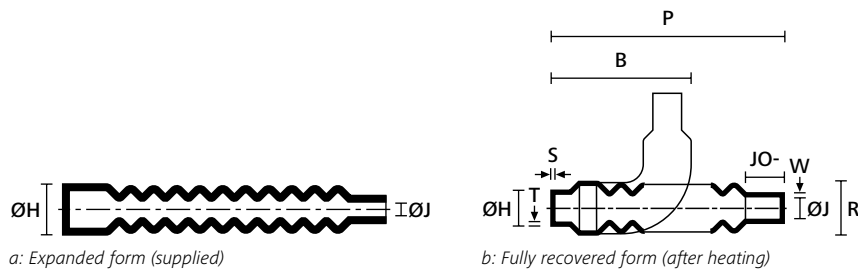
- For circular grooved adapters to provide strain relief
- Excellent environmental sealing with adhesive
- Convoluted design grants flexibility for different cable outlet angles



**For Material / Adhesive information please refer to page 260, 261.**



313C722-774 Series supplied / fully recovered.



TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R max.	JO ± 10%	W min.	B nom.	T ± 0.5	S ± 0.5	Article-No.
313C722-9	14.2	6.9	11.1	4.8	120.6	21.1	17.3	1.5	62.4	1.3	1.5	422-00001
313C732-9	22.4	11.7	17.7	8.1	133.3	26.5	19.8	1.5	67.8	1.3	1.5	422-00101
313C743-9	34.0	17.5	26.9	12.7	146.0	32.7	22.3	1.5	73.4	1.3	1.8	422-00201
313C753-9	44.2	22.3	36.5	17.5	158.7	37.8	25.4	1.5	78.2	1.3	1.8	422-00302
313C764-9	53.8	40.6	45.7	22.3	171.4	42.9	28.4	1.5	82.8	2.0	1.8	422-00400
313C774-9	77.2	40.6	54.6	22.8	236.2	62.2	25.4	1.5	138.4	2.0	2.0	422-00501

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the Moulded Shapes Catalogue.

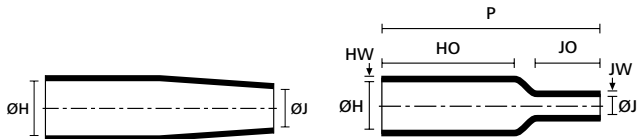


### Low Profile Shim Boots

#### Helashrink 313E Series, without adapter lip

#### Features and benefits

- Used to build up or shim a cable diameter
- Facilitates better fit for components in cable harness



a: Expanded form (supplied)

b: Fully recovered form (after heating)



313E445-457 Series supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10 %	HO ± 10 %	HW ± 25 %	JW ± 25 %	JO ± 10 %	Article-No.
313E445-9	12.7	12.7	11.1	3.3	63.5	41.1	1.5	1.5	15.7	422-10000
313E447-9	20.8	14.7	20.6	9.9	63.5	41.1	1.5	1.5	16.5	422-10100
313E455-9	22.1	22.1	11.2	3.3	53.3	27.9	2.3	1.5	15.7	422-10200
313E457-9	22.1	22.1	20.6	9.9	53.3	27.9	2.3	1.5	14.0	422-10300

All dimensions in mm. Subject to technical changes.

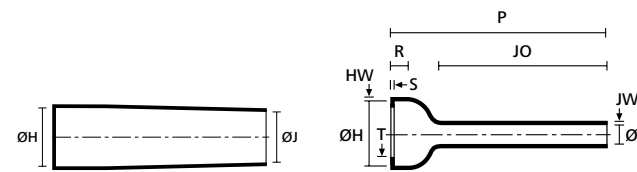
For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the Moulded Shapes Catalogue.

### Low Profile Straight Boots

#### Helashrink 313F Series, with adapter lip

#### Features and benefits

- Connector strain relief for small cable diameters requiring high shrink ratio



a: Expanded form (supplied)

b: Fully recovered form (after heating)



313F322-396 Series supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10 %	R ± 15 %	T ± 0.8	JO ± 10 %	HW ± 1.5	JW ± 0.8	S ± 1.5	Article-No.
313F322-9	23.8	9.9	17.2	6.6	105.9	11.6	1.3	86.3	1.5	1.5	1.5	422-20000
313F332-9	27.1	13.2	20.8	7.6	121.1	12.1	1.3	98.5	1.5	1.5	1.5	422-20100
313F343-9	30.9	18.5	24.3	8.9	138.6	12.1	1.3	112.7	1.7	1.5	1.7	422-20200
313F353-9	35.6	22.1	28.7	10.1	159.5	12.1	1.3	130.8	1.7	1.5	1.7	422-20300
313F364-9	38.8	28.2	31.4	10.9	177.8	13.9	1.8	142.2	1.7	1.5	1.7	422-20400
313F374-9	42.2	32.2	38.3	12.7	203.2	15.2	1.8	163	1.7	1.5	1.7	422-20500
313F385-9	51.5	45.4	45.4	14.9	203.2	15.2	1.8	157.7	1.7	1.7	1.7	422-20600
313F396-9	62.7	45.4	53.3	16.7	228.6	16.0	1.8	153.1	1.7	1.7	1.7	422-20700

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the Moulded Shapes Catalogue.



### Low Profile Right Angle Boots

Helashrink 333F Series, with adapter lip, 90° angle

#### Features and benefits

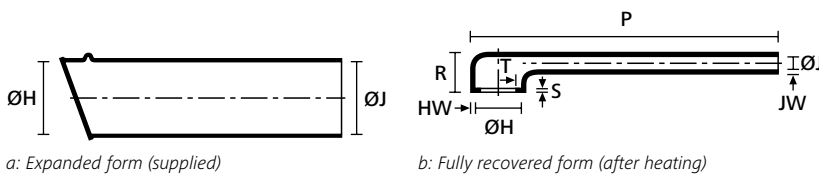
- Connector strain relief for small cable diameters requiring high shrink ratio
- Right angle connector housing with long cable entry and inner lip



For Material / Adhesive information please refer to page 260, 261.



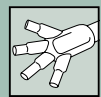
333F322-385 Series supplied / fully recovered.



TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10 %	R ± 15 %	T ± 0.8	HW ± 1.5	JW ± 0.8	S ± 1.5	Article-No.
333F322-9	23.8	9.9	17.2	6.6	105.1	18.5	1.3	1.5	1.5	1.5	422-30000
333F332-9	27.1	13.2	20.8	7.6	115.8	19.8	1.3	1.5	1.5	1.5	422-30004
333F343-9	30.9	18.5	24.3	8.9	146.3	20.8	1.3	1.7	1.5	1.7	422-30100
333F353-9	35.3	21.6	28.7	10.1	172.2	21.8	1.3	1.7	1.5	1.7	422-30200
333F364-9	38.8	27.9	31.4	10.9	185.1	24.1	1.8	1.7	1.5	1.7	422-30301
333F374-9	45.2	34.0	38.3	12.1	213.6	27.4	1.8	1.7	1.5	1.7	422-30400
333F385-9	51.5	41.1	44.4	15.0	224.5	29.4	1.7	1.7	1.7	1.7	422-30500

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the Moulded Shapes Catalogue.



### Low Profile Transition Boots

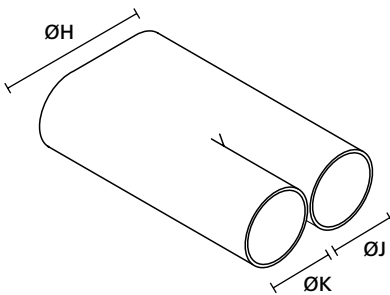
Helashrink 412H Series, side breakout

#### Features and benefits

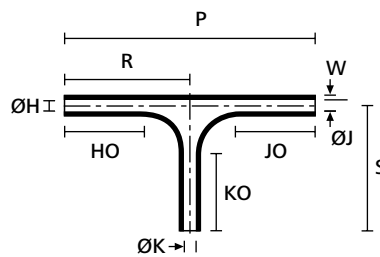
- Connector cable strain relief
- Used with circular adaptors



412H622-625 Series supplied / fully recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

TYPE	ØH min. a	ØH max. b	ØJ/K min. a	ØJ/K max. b	HO/JO/KO ± 10%	P ± 10 %	W nom.	R/S nom.	Article-No.
412H622-9	19.8	6.6	13.2	6.6	25.4	80.7	1.0	40.3	422-40000
412H623-9	34.2	11.4	22.8	6.6	41.1	120.3	1.3	60.1	422-40100
412H624-9	60.1	20.0	40.1	20.0	63.5	175.7	1.5	87.8	422-40200
412H625-9	83.3	33.2	54.8	33.2	88.9	242.3	1.7	121.1	422-40300

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the Moulded Shapes Catalogue.



#### Low Profile Transition Boots

Helashrink 492H Series, 1 to 2 cables

##### Features and benefits

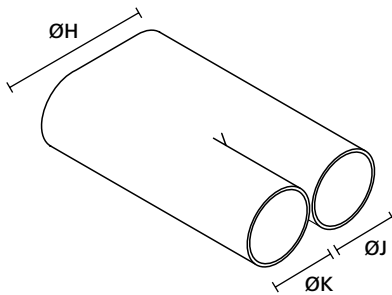
- For cable harness breakouts or transitions
- Strain relief, sealing and mechanical protection



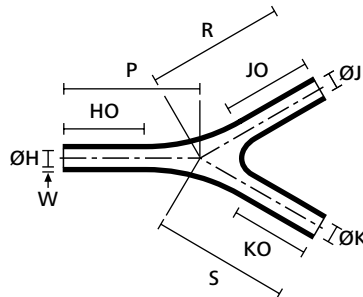
For Material / Adhesive information please refer to page 260, 261.



492H412-415 Series supplied / fully recovered.



a: Expanded form (supplied)



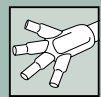
b: Fully recovered form (after heating)

TYPE	ØH min. a	ØH max. b	ØJ/K min. a	ØJ/K max. b	HO/JO/KO ± 15%	W nom.	P/R/S nom.	Article-No.
492H412-9	19.8	6.6	13.2	6.6	25.4	1.0	40.6	422-50000
492H413-9	34.2	11.4	22.8	11.4	41.1	1.3	62.9	422-50101
492H414-9	60.1	20.0	40.1	20.0	63.5	1.5	94.7	422-50202
492H415-9	83.3	33.2	54.8	33.2	49.7	1.7	133.8	422-50302

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the Moulded Shapes Catalogue.





### Low Profile Transition Boots

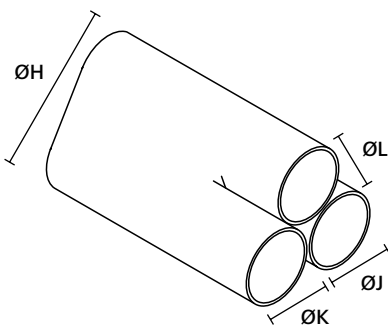
Helashrink 573H Series, 1 to 3 cables

#### Features and benefits

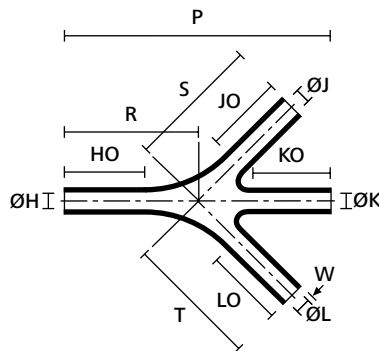
- For cable harness breakouts or transitions
- Strain relief, sealing and mechanical protection



573H532-535 Series supplied / fully recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

TYPE	ØH min. a	ØH max. b	ØJ/K/L min. a	ØJ/K/L max. b	P nom.	R/S/T nom.	W nom.	HO/JO/KO/LO ± 15%	Article-No.
573H532-9	19.8	6.6	13.2	6.6	85.8	42.9	1.0	25.4	422-60000
573H533-9	34.2	11.4	20.5	11.4	135.6	67.8	1.3	41.1	422-60100
573H534-9	60.1	20.0	36.0	20.0	207.2	103.6	1.5	63.5	422-60202
573H535-9	99.8	33.2	54.8	33.2	294.6	147.3	1.7	88.9	422-60302

All dimensions in mm. Subject to technical changes.

For these moulded shapes a wide range of material / adhesive combinations are available. Please refer to the Moulded Shapes Catalogue.



### Bottle Shapes, VG style

Helashrink 150 Series, with rib

#### Features and benefits

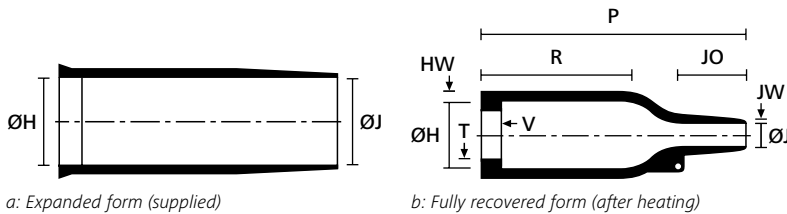
- Use in conjunction with circular grooved adaptors
- Strengthened strain relief by usage of an additional inner lip
- Excellent protection against environment impacts



150 Series boot recovered onto a connectors.



**For Material / Adhesive information please refer to page 260, 261.**



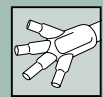
150 Series supplied.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10 %	R ± 10 %	JO ± 10 %	HW ± 20 %	JW ± 20 %	V max.	T ± 20 %	Designation as per VG-Norm	Article-No.
152-41-G	24.0	10.5	24.0	6.0	26.0	9.0	10.0	1.6	0.5	3.3	1.0	VG 95343 T06 A 001 A	401-52780
152-42-G	24.0	10.5	24.0	6.0	38.0	21.0	10.0	1.6	0.5	3.3	1.0	VG 95343 T06 B 001 A	401-52880
153-41-G	25.0	14.0	9.0	3.5	40.0	13.0	16.0	1.8	0.5	3.3	1.0	VG 95343 T18 A 002 A	401-53780
153-42-G	25.0	14.0	9.0	3.5	55.0	28.0	16.0	1.8	0.5	3.3	1.0	VG 95343 T06 B 002 A	401-53880
154-41-G	30.0	14.0	30.0	6.0	43.0	20.0	13.0	1.8	1.0	3.3	1.0	VG 95343 T06 A 003 A	401-54780
154-42-G	30.0	14.0	30.0	6.0	55.0	32.0	13.0	1.8	1.0	3.3	1.0	VG 95343 T06 B 003 A	401-54880
155-42-G	31.0	18.0	31.0	7.0	67.0	35.0	18.0	1.8	1.0	3.3	1.0	VG 95343 T06 B 004 A	401-55880
156-41-G	36.0	22.5	36.0	8.5	60.0	22.0	20.0	2.0	1.0	3.3	1.0	VG 95343 T06 A 005 A	401-56780
156-42-G	36.0	22.5	36.0	8.5	80.0	42.0	20.0	2.0	1.0	3.3	1.0	VG 95343 T06 B 005 A	401-56880
157-41-G	43.0	28.0	43.0	10.0	60.0	21.0	20.0	2.2	1.0	3.3	1.7	VG 95343 T06 A 006 A	401-57780
157-42-G	43.0	28.0	43.0	10.0	79.0	41.0	20.0	2.2	1.0	3.3	1.7	VG 95343 T06 B 006 A	401-57880
157-43-G	43.0	28.0	43.0	10.0	99.0	61.0	20.0	2.2	1.0	3.3	1.7	VG 95343 T06 C 001 A	401-57980
158-41-G	60.0	35.0	60.0	16.0	90.0	32.0	38.0	3.2	1.5	3.3	1.7	VG 95343 T06 A 007 A	401-58780
158-42-G	60.0	35.0	60.0	16.0	110.0	52.0	38.0	3.2	1.5	3.3	1.7	VG 95343 T06 B 007 A	401-58880
158-43-G	60.0	35.0	60.0	16.0	130.0	72.0	38.0	3.2	1.5	3.3	1.7	VG 95343 T06 C 002 A	401-58980
159-41-G	66.0	45.0	66.0	17.0	130.0	50.0	50.0	3.8	2.0	3.3	2.0	VG 95343 T06 A 008 A	401-59780
159-42-G	66.0	45.0	66.0	17.0	150.0	70.0	50.0	3.8	2.0	3.3	2.0	VG 95343 T06 B 008 A	401-59880
159-43-G	66.0	45.0	66.0	17.0	171.0	90.0	50.0	3.8	2.0	3.3	2.0	VG 95343 T06 C 003 A	401-59980
160-41-G	82.0	58.0	82.0	27.0	137.0	37.0	62.0	3.8	3.8	3.3	2.0	VG 95343 T06 A 009 A	401-60780
160-42-G	82.0	58.0	82.0	27.0	158.0	58.0	62.0	3.8	3.8	3.3	2.0	VG 95343 T06 B 009 A	401-60880
160-43-G	82.0	58.0	82.0	27.0	213.0	113.0	62.0	3.8	3.8	3.3	2.0	VG 95343 T06 C 004 A	401-60980

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



### Bottle Shapes, MIL style

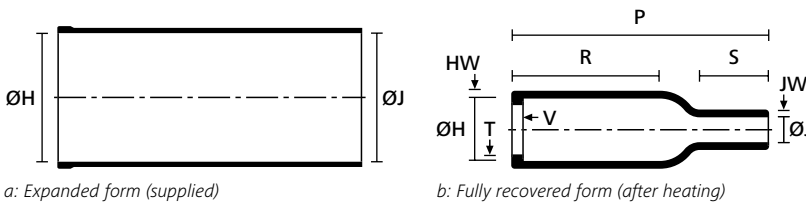
#### Helashrink 100 Series, with rib

#### Features and benefits

- With circular grooved adaptor for strain relief
- Combine with complementary adhesives for environmental sealing
- Suitable for small cable diameters



100 series supplied / fully recovered.



TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10 %	R ± 10 %	HW ± 20 %	JW ± 20 %	V ± 10 %	T ± 20 %	S nom.	Article-No.
113-4-G	10.7	7.9	4.6	2.0	25.4	14.5	1.3	1.0	3.0	1.0	4.6	401-13480

All dimensions in mm. Subject to technical changes.

### Bottle Shapes

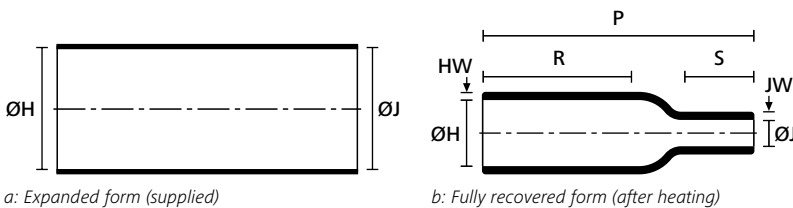
#### Helashrink 100 Series, without rib

#### Features and benefits

- Strain relief for connector cable
- Easy re-entry for repair when combined with hot melt adhesive
- For mechanical protection and protection against environment impacts



100 series supplied / fully recovered.



TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10 %	R max.	HW ± 20 %	JW ± 30 %	S nom.	Article-No.
113-1-G	10.7	7.9	4.6	2.0	25.4	14.5	1.3	1.0	4.6	401-13180

All dimensions in mm. Subject to technical changes.



### Long Outlet Shape, VG style

Helashrink 130 Series, with rib, low profile

#### Features and benefits

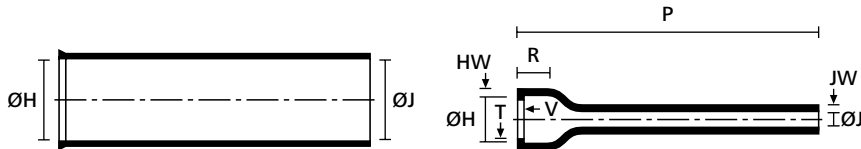
- Low profile and lightweight
- Typically used on airborne harnesses
- Rib locates on circular backshell



135-1 supplied / fully recovered.



For Material / Adhesive information please refer to page 260, 261.



a: Expanded form (supplied)

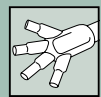
b: Fully recovered form (after heating)

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10 %	R ± 10 %	HW ± 20 %	JW ± 20 %	V max.	T ± 10 %	Designation as per VG-Norm	Article-No.
129-1-G	22.0	12.0	22.0	6.5	76.0	12.0	1.5	1.1	3.3	1.0	VG 95343 T06 D 001 A	401-29180
130-1-G	25.5	15.0	25.5	7.5	83.0	12.0	1.5	1.1	3.3	1.0	VG 95343 T06 D 002 A	401-30180
131-1-G	29.0	19.0	29.0	8.5	89.0	12.0	1.8	1.1	3.3	1.0	VG 95343 T06 D 003 A	401-31180
132-1-G	34.0	23.0	34.0	10.0	102.0	12.0	1.8	1.1	3.3	1.0	VG 95343 T06 D 004 A	401-32180
133-1-G	37.0	30.0	37.0	11.0	108.0	14.0	2.0	1.1	3.3	1.7	VG 95343 T06 D 005 A	401-33180
134-1-G	43.5	34.0	43.5	12.0	114.0	15.0	2.0	1.1	3.3	1.7	VG 95343 T06 D 006 A	401-34180
135-1-G	50.0	41.0	50.0	14.5	118.0	15.0	2.3	1.4	3.3	1.7	VG 95343 T06 D 007 A	401-35180
136-1-G	62.5	47.0	62.5	1.0	121.0	16.0	2.5	1.4	3.3	2.0	VG 95343 T06 D 008 A	401-36180
138-1-G	69.0	60.0	69.0	20.0	127.0	16.0	2.5	1.4	3.3	2.0	VG 95343 T06 D 009 A	401-38180

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



### Bottle Shapes, VG style

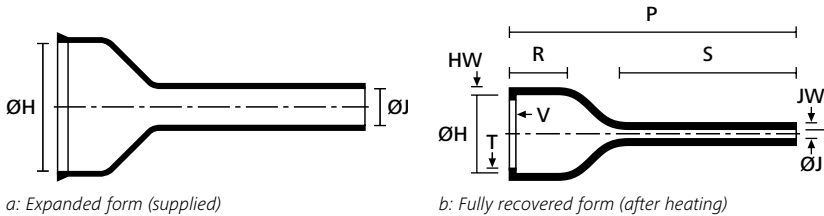
Helashrink 170 Series, with rib

#### Features and benefits

- Cable strain relief for partially loaded connectors
- Small cable diameters
- Use with our W24 adhesive for excellent chemical resistance



177-1-G supplied / fully recovered.



TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10 %	R ± 10 %	T ± 20 %	HW ± 20 %	JW nom.	V max.	S nom.	Designation as per VG-Norm	Article-No.
176-1-G	19.3	13.0	6.3	2.1	60.0	11.7	1.0	1.5	1.1	3.3	38.0	VG 95343 T06 D 011 A	401-76180
177-1-G	26.1	19.1	7.6	2.6	74.0	12.2	1.0	1.8	1.1	3.3	45.0	VG 95343 T06 D 012 A	401-77180
178-1-G	34.2	26.0	9.6	3.1	84.0	12.2	1.0	1.8	1.1	3.3	51.0	VG 95343 T06 D 013 A	401-78180
179-1-G	43.6	34.1	11.4	3.6	100.0	12.2	1.7	1.8	1.1	3.3	58.0	VG 95343 T06 D 014 A	401-79180

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.

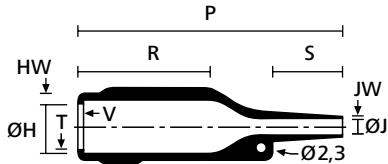


### Bottle Shapes, VG style

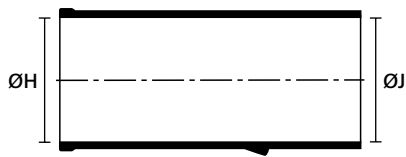
#### Helashrink 190 Series, with external ribs

#### Features and Benefits

- Specifically for small audio connectors
- Multiple external ribs to improve grip in harsh conditions



b: Fully recovered form (after heating)



a: Expanded form (supplied)



199-4-G supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	V ± 10%	T ± 20%	S nom.	Designation as per VG-Norm	Article-No.
199-4-G	17.5	14.0	7.0	4.3	70.0	35.0	1.8	0.5	1.5	1.0	20.0	VG 95343 T06 A 010 A	401-99480

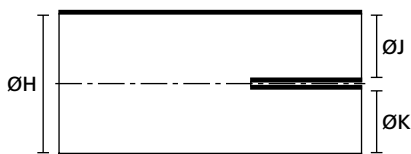
All dimensions in mm. Subject to technical changes.

### 2-Way Outlet Shapes

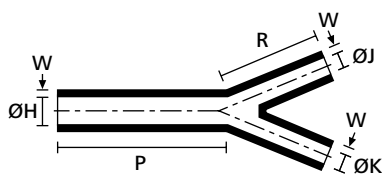
#### Helashrink 200 Series, low profile

#### Features and Benefits

- For harnesses which route multi-core cables in different directions
- High ratio expansion for quick and easy installation
- Mechanical tension relief



a: Expanded form (supplied)



b: Fully recovered form (after heating)



200 series supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	ØK min. a	ØK max. b	P ± 10%	R ± 10%	W ± 20%	Article-No.
201-1-G	19.0	9.4	6.4	14.0	6.4	14.0	50.8	30.5	1.5	402-01180
201-2-G	31.8	9.4	15.7	6.4	15.7	6.4	50.8	30.5	1.5	402-01220

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



### 2-Way Outlet Shapes, VG style

#### Helashrink 200 Series

#### Features and Benefits

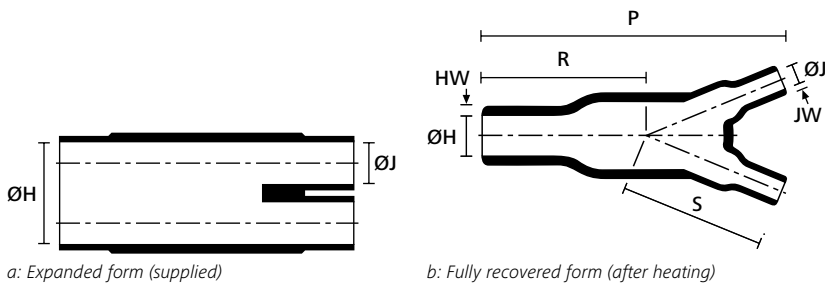
- Mechanical tension relief in cable harnesses



For Material / Adhesive information please refer to page 260, 261.



203-1 supplied / fully recovered.



TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	JW ± 30%	JW nom.	S nom.	Designation as per VG-Norm	Article-No.
206-1-G	13.0	6.0	7.0	3.0	41.0	19.0	1.5	-	1.0	1.0	19.0	VG 95343 T08 C 001 A	402-06180
212-1-G	14.5	8.0	8.5	5.5	82.6	83.0	2.3	-	2.0	2.0	63.0	VG 95343 T08 C 005 A	402-12180
213-1-G	17.3	7.9	11.1	7.9	140.0	83.1	2.3	2.3	-	1.0	64.0	-	402-13180
203-1-G	27.0	12.0	13.0	6.0	80.0	43.0	2.5	-	1.5	1.5	43.0	VG 95343 T08 C 002 A	402-03180
204-1-G	39.0	18.0	27.0	12.0	66.0	81.0	3.1	-	2.5	2.0	81.0	VG 95343 T08 C 003 A	402-04180

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.





### 3-Way Outlet Shapes, VG style

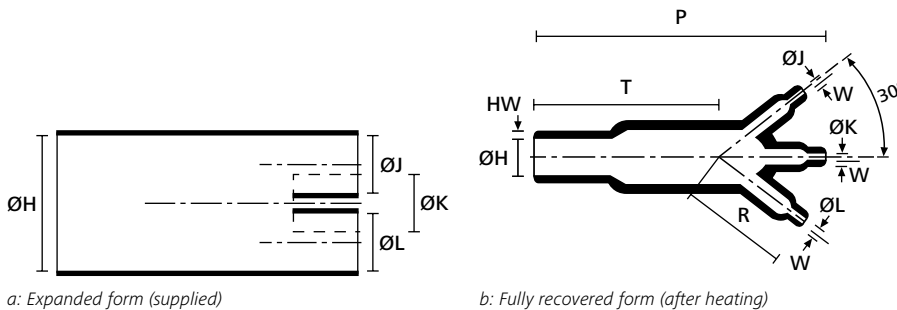
#### Helashrink 300 Series

#### Features and Benefits

- Cable strain relief and mechanical protection at harness transition points
- All outlets clearly marked to aid orientation during installation



304-1-G supplied / fully recovered.



TYPE	ØH min. a	ØH max. b	ØJ/K/L min. a	ØJ/K/L max. b	P ± 10%	R ± 10%	HW ± 30%	W ± 20%	T ± 10%	Designation as per VG-Norm	E-number	Article-No.
306-1-G	13.0	6.5	6.5	3.5	46.0	25.4	1.5	1.0	20.3	VG 95343 T08 D 001 A	00 000 00	403-06180
304-1-G	27.0	13.5	13.0	7.0	93.0	50.3	2.5	1.5	42.9	VG 95343 T08 D 002 A	00 000 00	403-04180
310-1-G	38.5	19.0	19.0	10.0	135.0	73.7	3.0	1.8	61.0	VG 95343 T08 D 003 A	00 000 00	403-10180
311-1-G	55.5	25.5	27.0	12.5	192.0	103.1	4.5	3.1	88.9	VG 95343 T08 D 004 A	00 000 00	403-11180

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



### 4-Way Outlet Shapes, VG style

#### Helashrink 400 Series

#### Features and Benefits

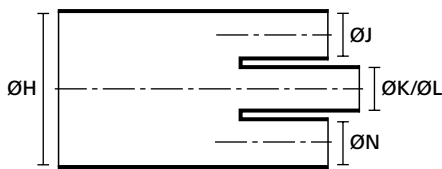
- All outlets clearly marked to aid orientation during installation
- Cable strain relief and mechanical protection at harness transition points



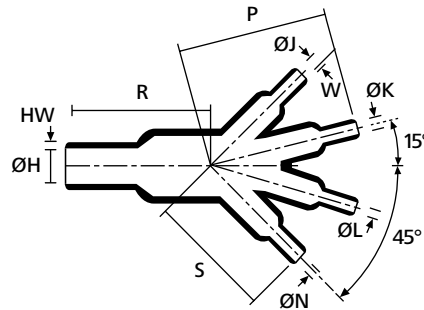
For Material / Adhesive information please refer to page 260, 261.



403-1 supplied / fully recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

TYPE	ØH min. a	ØH max. b	ØJ/K/L/N min. a	ØJ/K/L/N max. b	P ± 10%	R ± 10%	S ± 10%	HW ± 20%	W ± 10%	S nom.	Designation as per VG-Norm	E-number	Article-No.
411-1-G	19.0	10.0	9.5	5.5	36.1	35.6	32.0	1.8	1.0	32.0	VG 95343 T08 E 002 A	00 000 00	404-11180
403-1-G	27.0	13.0	13.0	7.0	51.8	49.0	45.0	2.5	1.0	45.0	VG 95343 T08 E 004 A	00 000 00	404-03180
413-1-G	38.6	19.0	19.0	10.0	74.9	75.0	65.3	1.8	1.0	65.0	VG 95343 T08 E 005 A	00 000 00	404-13180

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



### Right-Angle Shapes, VG style

Helashrink 1100 Series, with rib

#### Features and benefits

- Used in conjunction with a circular grooved adaptor
- Provides strain relief and an environmental seal



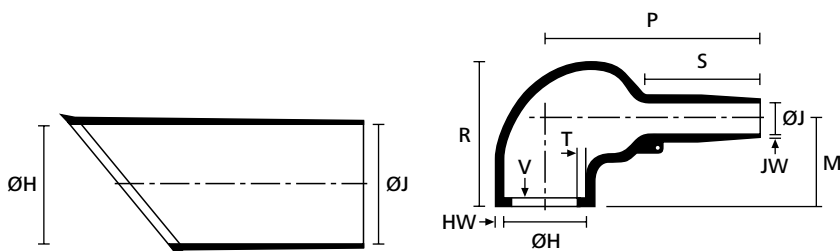
1152-4-G recovered onto a connector.



For Material / Adhesive information please refer to page 260, 261.



1155-4 supplied.



a: Expanded form (supplied)

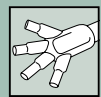
b: Fully recovered form (after heating)

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10 %	R ± 10 %	HW ± 20 %	JW ± 20 %	V max.	T ± 20 %	M nom.	S nom.	Designation as per VG-Norm	Article-No.
1152-4-G	24.0	10.5	24.0	6.0	32.0	25.0	1.3	0.5	3.3	1.0	19.0	10.0	VG 95343 T06 E 001 A	411-52480
1154-4-G	30.0	14.5	30.0	6.0	41.0	27.0	1.5	0.8	3.3	1.0	19.0	12.0	VG 95343 T06 E 002 A	411-54480
1155-4-G	31.0	18.0	31.0	7.0	51.0	31.0	1.8	1.0	3.3	1.0	21.0	15.0	VG 95343 T06 E 003 A	411-55480
1156-4-G	36.0	22.5	36.0	8.5	59.0	38.0	1.8	1.0	3.3	1.0	26.0	15.0	VG 95343 T06 E 004 A	411-56480
1157-4-G	43.0	28.5	43.0	10.0	71.0	45.0	2.0	1.0	3.3	1.7	30.0	16.0	VG 95343 T06 E 005 A	411-57480
1158-4-G	60.0	35.0	60.0	16.0	101	54.0	3.3	1.5	3.3	1.7	35.0	30.0	VG 95343 T06 E 006 A	411-58480
1159-4-G	66.0	45.0	66.0	17.0	134	68.0	3.8	2.0	3.3	2.0	42.0	51.0	VG 95343 T06 E 007 A	411-59480
1160-4-G	82.0	61.0	82.0	25.0	152	84.0	4.0	4.0	3.3	2.0	52.0	39.0	VG 95343 T06 E 008 A	411-60480

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.

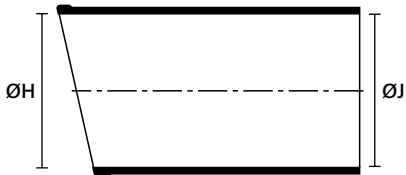


### Right-Angle Shapes, MIL style

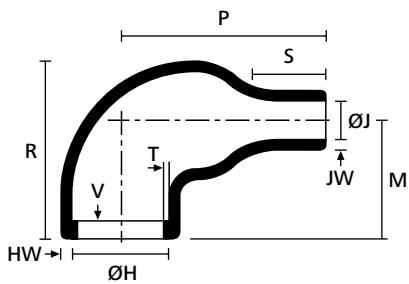
#### Helashrink 1100 Series, with rib

##### Features and benefits

- Used in conjunction with a circular grooved adaptor for strain relief



a: Expanded form (supplied)



b: Fully recovered form (after heating)



1108-4 supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10 %	R ± 10 %	HW ± 20 %	JW ± 30 %	V max.	T ± 20 %	M nom.	S nom.	Article-No.
1108-4-G	16.5	7.9	16.5	3.8	17.3	20.1	1.0	1.6	3.3	1.0	15.2	5.1	411-08480

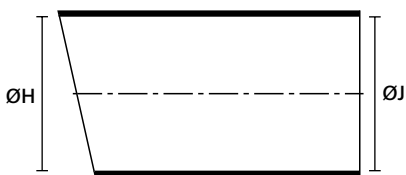
All dimensions in mm. Subject to technical changes.

### Right-Angle Shapes

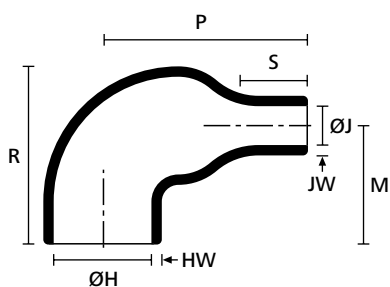
#### Helashrink 1100 Series, without rib

##### Features and benefits

- Strain relief for connector cable
- Easy re-entry for repair when combined with hot melt adhesive



a: Expanded form (supplied)



b: Fully recovered form (after heating)



1108-1 supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10 %	R ± 10 %	HW ± 20 %	JW ± 30 %	M nom.	S nom.	Article-No.
1108-1-G	16.5	7.9	16.5	2.5	18.3	20.1	1.0	1.6	15.2	5.1	411-08180

All dimensions in mm. Subject to technical changes.



### Right-Angle Shapes, VG style/MIL style

Helashrink 1100 Series, with rib, low profile

#### Features and benefits

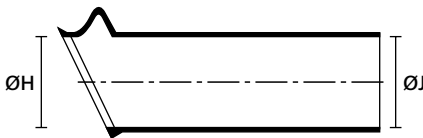
- Lightweight, low profile, compact strain relief and mechanical protection
- Typically used on airborne harnesses



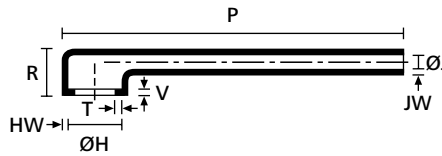
For Material / Adhesive information please refer to page 260, 261.



1123-1-G supplied / fully recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10 %	R ± 10 %	HW ± 20 %	JW ± 30 %	T ± 10 %	V ± 10 %	Designation as per VG-Norm	Article-No.
1121-1-G	22.0	12.0	22.0	6.5	70.0	19.0	1.5	1.1	1.0	3.0	VG 95343 T06 F 001 A	411-21180
1122-1-G	25.5	15.0	25.5	7.5	79.0	20.0	1.5	1.1	1.0	3.0	VG 95343 T06 F 002 A	411-22180
1123-1-G	29.0	19.0	29.0	8.5	89.0	21.0	1.8	1.1	1.0	3.0	VG 95343 T06 F 003 A	411-23180
1124-1-G	34.0	23.0	34.0	10.0	102.0	22.0	1.8	1.1	1.0	3.0	VG 95343 T06 F 004 A	411-24180
1125-1-G	37.0	30.0	37.0	11.0	108.0	24.0	2.0	1.1	1.7	3.0	VG 95343 T06 F 005 A	411-25180
1126-1-G	43.5	34.0	43.5	12.0	121.0	27.0	2.0	1.1	1.7	3.0	VG 95343 T06 F 006 A	411-26180
1127-1-G	50.0	41.5	50.0	14.5	132.0	30.0	2.3	1.4	1.7	3.0	VG 95343 T06 F 007 A	411-27180
1128-1-G	62.5	47.0	62.5	1.0	133.0	33.0	2.5	1.4	2.0	3.0	VG 95343 T06 F 008 A	411-28180
1129-1-G	69.0	60.0	69.0	20.0	137.0	35.0	2.5	1.4	2.0	3.0	VG 95343 T06 F 009 A	411-29180

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



### Right-Angle Shapes, VG style

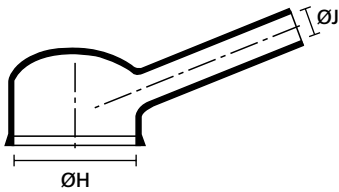
**Helashrink 1100 Series, with rib, low profile, high ratio**

#### Features and benefits

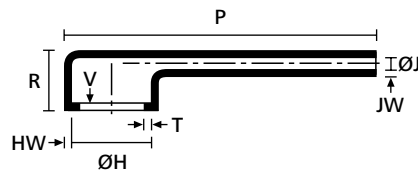
- Use in applications of partially loaded connectors with small cable diameters
- Tail design for easy orientation prior to cooling
- Strain relief for connector cable



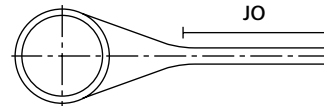
1135-1-G supplied / fully recovered.



a: Expanded form (supplied)



b: Fully recovered form (after heating)



Fully recovered form (after heating)

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10 %	R ± 10 %	HW ± 20 %	JW ± 20 %	JO ± 10 %	V max.	T ± 20 %	Designation as per VG-Norm	Article-No.
1133-1-G	19.0	13.0	6.0	2.0	45.0	16.0	1.5	1.1	21.8	3.3	1.0	VG 95343 T06 F 011 A	411-33180
1134-1-G	26.0	19.0	7.5	2.5	67.0	1.0	1.8	1.1	29.2	3.3	1.0	VG 95343 T06 F 012 A	411-34180
1135-1-G	34.0	26.0	9.5	3.0	81.0	19.0	1.8	1.1	35.3	3.3	1.0	VG 95343 T06 F 013 A	411-35180
1136-1-G	43.5	34.0	11.5	3.5	116	21.0	1.8	1.1	47.0	3.3	1.7	VG 95343 T06 F 014 A	411-36180

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



### T-Shapes, VG style/MIL style

#### Helashrink 1200 Series

#### Features and benefits

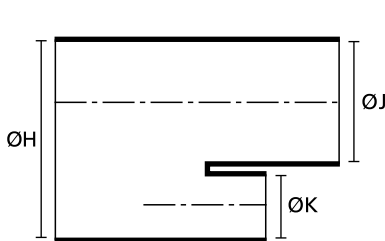
- Strain relief, sealing and mechanical protection on cable harnesses



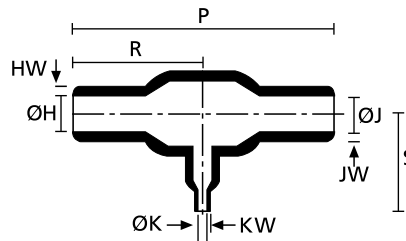
For Material / Adhesive information please refer to page 260, 261.



1202-1-G recovered onto a cable harness.



a: Expanded form (supplied)



b: Fully recovered form (after heating)

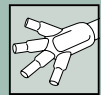
TYPE	ØH/J min. a	ØH/J max. b	ØK min. a	ØK max. b	P ± 10 %	R ± 10 %	HW ± 20 %	JW ± 30 %	KW ± 20 %	S ± 10 %	Designation as per VG-Norm	Article-No.
1206-1-G	6.6	3.0	6.6	3.0	29.7	14.7	1.0	1.0	1.0	14.7	VG 95343 T08 A 009 A	412-06180
1203-1-G	13.0	6.0	6.5	3.0	52.0	26.0	1.5	1.5	1.0	19.3	VG 95343 T08 A 001 A	412-03180
1202-1-G	13.2	6.1	13.2	6.1	58.7	29.2	1.5	1.5	1.5	29.2	VG 95343 T08 A 010 A	412-02180
1205-1-G	17.7	8.9	7.6	3.8	50.8	25.4	1.5	1.5	1.0	25.4	-	412-05180
1201-1-G	17.7	8.9	10.1	5.0	47.5	23.6	1.5	1.5	1.0	23.6	VG 95343 T08 A 007 A	412-01180
1207-1-G	26.9	12.4	26.9	12.4	120.1	55.9	2.5	2.5	2.5	59.9	VG 95343 T08 A 011 A	412-07180
1209-1-G	27.0	12.4	13.2	6.0	108.0	54.0	2.5	2.5	1.5	38.6	VG 95343 T08 A 002 A	412-09180

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



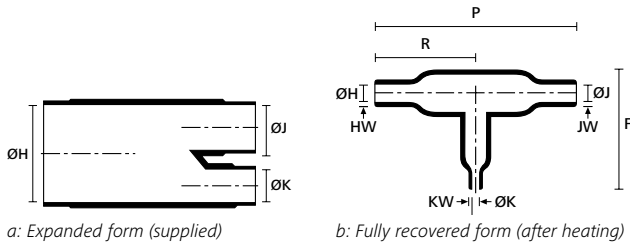


### T-Shapes, VG style

#### Helashrink 1200 Series, Offset

#### Features and benefits

- For strain relief, sealing and mechanical protection
- Use adhesive for cable transition on harness, if environmental sealing is required



1204-1 supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	ØK min. a	ØK max. b	P ± 10 %	R ± 10 %	HW ± 20 %	JW ± 20 %	KW ± 20 %	Designation as per VG-Norm	Article-No.
1204-1-G	13.0	7.5	6.5	4.0	6.5	4.0	56.0	33.0	1.5	1.0	1.0	VG 95343 T08 A 016 A	412-04180
1216-1-G	33.0	13.0	16.5	6.5	16.5	6.5	97.0	54.0	2.5	1.5	1.5	VG 95343 T08 A 017 A	412-16180

All dimensions in mm. Subject to technical changes.

## DEF STAN VG

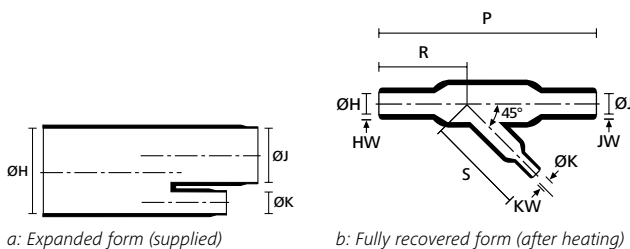
For product specific approvals and specifications please refer to the Appendix.

### Angled T-Shapes, VG style

#### Helashrink 1300 Series, 30° & 45° angle

#### Features and benefits

- Strain relief, sealing and mechanical protection on cable harnesses
- Branching part 30° & 45° Y-joint
- Mechanical strain relief for cable harnesses



1303-1-G supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	ØK min. a	ØK max. b	P ± 10 %	R ± 10 %	HW ± 30 %	JW ± 30 %	KW ± 20 %	S ± 10 %	Angle	Designation as per VG-Norm	Article-No.
1306-1-G	13.0	6.0	6.5	3.0	6.5	3.0	45.0	23.0	1.5	1.0	1.5	21.5	45 °	VG 95343 T06 B 010 A	413-06180
1301-1-G	13.0	7.0	13.0	7.0	7.0	3.5	50.0	23.0	1.5	1.5	1.0	23.0	45 °	VG 95343 T08 B 001 A	413-01180
1302-1-G	27.0	13.0	27.0	13.0	7.0	3.5	93.0	41.0	2.5	2.5	1.0	36.0	45 °	VG 95343 T08 B 004 A	413-02180
1303-1-G	27.0	14.0	27.0	14.0	13.0	7.5	145.0	70.0	1.5	1.5	1.5	54.0	45 °	VG 95343 T08 B 002 A	413-03180
1311-1-G	30.4	15.0	30.4	15.0	20.3	10.0	82.6	32.0	2.5	2.5	1.8	51.0	30 °	VG 95343 T08 B 003 A	413-11180

All dimensions in mm. Subject to technical changes.

## JN VG

For product specific approvals and specifications please refer to the Appendix.

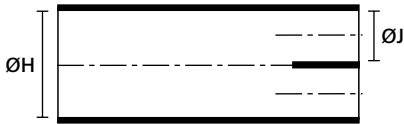


## 2-Way Outlet Shapes, Breakout Boots

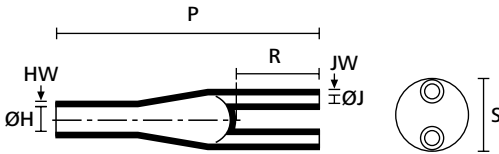
Helashrink 200 Series, in line, low voltage

### Features and Benefits

- Easy, time-saving insulation of cable branch point where it splits into single wires
- Adhesive to relieve mechanical tension in cable harnesses



a: Expanded form (supplied)



b: Fully recovered form (after heating)



223-2 supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	S nom.	Article-No.
216-3-B8W	21.0	9.4	9.0	2.8	76.5	20.0	1.6	1.6	14.0	402-16039
223-2-B8W	33.0	9.4	17.5	4.1	94.0	30.0	1.5	1.2	20.0	402-23058
218-2-B8W	49.0	22.9	20.0	7.6	119.0	34.0	3.2	3.2	30.0	402-18051

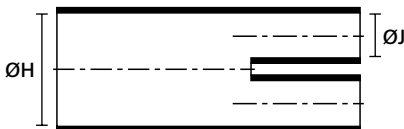
All dimensions in mm. Subject to technical changes.

## 3-Way Outlet Shapes, Breakout Boots

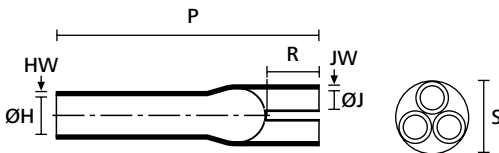
Helashrink 300 Series, in line, low voltage

### Features and Benefits

- Easy, time-saving insulation of cable branch point where it splits into single wires
- Adhesive is applied to relieve mechanical tension in cable harnesses



a: Expanded form (supplied)



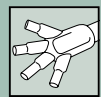
b: Fully recovered form (after heating)



300 Series supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	S nom.	Article-No.
354-1-B8W	45.0	10.0	16.0	4.0	100.0	25.0	3.0	2.0	-	403-54004
320-1-B8W	55.8	22.5	30.4	9.0	180.0	44.0	3.0	2.0	37.0	403-20014
355-1-B8W2	100.0	28.0	40.0	13.0	210.0	50.0	3.5	2.5	-	403-55008
342-1-B8W2	110.0	35.0	40.0	17.5	230.0	45.0	4.0	3.5	65.0	403-42006

All dimensions in mm. Subject to technical changes.

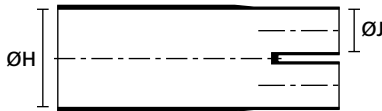


### 4-Way Outlet Shapes, Breakout Boots

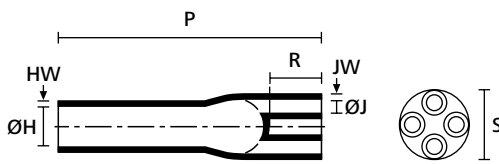
Helashrink 400 Series, in line, low voltage

#### Features and Benefits

- Easy, time-saving insulation of cable branch point where it splits into single wires
- Made of tough, cross-linked, Polyolefin
- Adhesive to relieve mechanical tension in cable harnesses



a: Expanded form (supplied)



b: Fully recovered form (after heating)



400 series supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	S nom.	Article-No.
442-1-B8WM250	28.0	9.0	9.0	1.8	78.0	17.0	2.7	2.0	20.0	404-42009
408-2-B8W2	35.0	12.0	15.0	3.0	95.0	24.0	2.5	2.0	22.0	404-08022
409-2-B8W2	47.4	22.9	21.5	6.4	165.0	38.1	4.1	3.3	38.1	404-09021
418-4-B8W2	60.0	22.9	30.0	6.4	202.0	38.1	4.1	3.3	38.1	404-18020
444-2-B8W2	95.0	35.6	35.6	12.5	240.0	55.0	4.0	3.5	50.8	404-44022

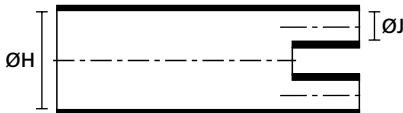
All dimensions in mm. Subject to technical changes.

### 5-Way Outlet Shapes, Breakout Boots

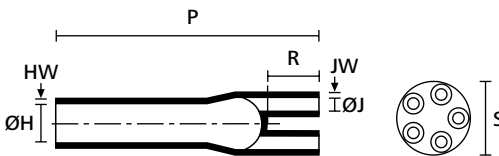
Helashrink 500 Series, in line, low voltage

#### Features and Benefits

- Cable breakout boots for insulating and sealing cable crotch or conduit system
- Excellent resistance to abrasion and weathering



a: Expanded form (supplied)



b: Fully recovered form (after heating)

Fully recovered form (after heating)



500 Series supplied / fully recovered.

TYPE	ØH min. a	ØH max. b	ØJ min. a	ØJ max. b	P ± 10%	R ± 10%	HW ± 20%	JW ± 20%	S nom.	Article-No.
508-3-B7	89.0	24.5	33.0	7.5	180.0	30.0	3.5	3.0	48.0	405-08036
508-3-B7W	89.0	24.5	33.0	7.5	180.0	30.0	3.5	3.0	48.0	405-08035

All dimensions in mm. Subject to technical changes.



### 6-Way Outlet Shapes, Breakout Boots

Helashrink 600 Series, in line, low voltage

#### Features and Benefits

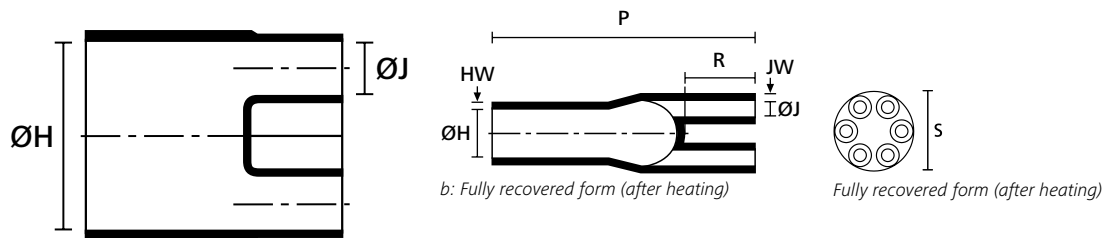
- Cable breakout boots for insulating and sealing cable crotch or conduit system
- Excellent resistance to abrasion and weathering



For Material / Adhesive information please refer to page 260, 261.



600 Series supplied / fully recovered.



a: Expanded form (supplied)

TYPE	$\varnothing H$ min. a	$\varnothing H$ max. b	$\varnothing J$ min. a	$\varnothing J$ max. b	$P \pm 10\%$	$R \pm 10\%$	$HW \pm 20\%$	$JW \pm 20\%$	S nom.	Article-No.
609-2-B7	40.0	16.0	12.0	4.0	75.0	20.0	2.5	1.5	25.0	406-09023
609-2-B7W	40.0	16.0	12.0	4.0	75.0	20.0	2.5	1.5	25.0	406-09027
608-2-B7W	61.0	37.0	21.0	9.0	152.0	56.0	3.2	3.2	46.0	406-08024
608-2-B7	61.0	37.0	21.0	9.0	152.0	56.0	3.2	3.2	46.0	406-08023
610-1-B8Hw	114.3	35.0	45.7	14.0	241.3	50.8	4.0	2.3	101.6	406-10000

All dimensions in mm. Subject to technical changes.



### Pinched End Caps

#### Helashrink PEC Series, low voltage

Pinched End Caps can be used for mechanical and environmental protection of stub splices in electrical harnesses. Due to the fast and easy installation, these caps can be used for non-electrical applications as well.

#### Features and benefits

- Small size End Caps
- Fast and easy application
- With Inner adhesive layer for moisture sealing
- 3:1 shrink ratio
- Different diameters for wide application range
- Other lengths available on request

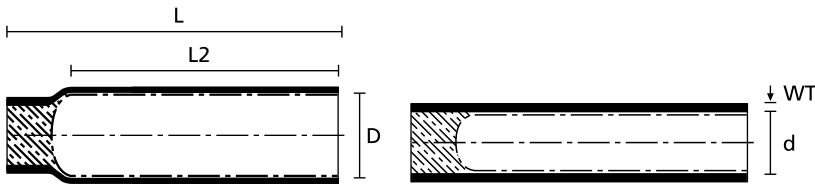


The appropriate end cap for every cable diameter, and cable types.



One Step to the Web!

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Colour</b>	Black (BK)
<b>Shrink Ratio</b>	3:1
<b>Min. Shrink Temperature</b>	+120 °C
<b>Operating Temperature</b>	-45 °C to +125 °C
<b>Dielectric Strength</b>	15 kV/mm according to IEC 684 P2
<b>Flammability</b>	self-extinguishing in 30 seconds according to SAE-AMS-DTL-23053/4



PEC-Series expanded

PEC-Series recovered

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Length (L)	Length (L2)	Pack Cont.	Article-No.
PEC-3/1	3.0	1.0	1.00	25.0	20.0	50 pcs.	416-00000
PEC-4.8/1.5	4.8	1.5	1.00	30.0	25.0	50 pcs.	416-00003
PEC-6/2	6.0	2.0	1.00	30.0	25.0	50 pcs.	416-00001
PEC-9/3	9.0	3.0	1.40	35.0	27.0	50 pcs.	416-00002

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## End Caps

### Helashrink 1600 Series, low voltage

End caps are suitable for use on both polymeric and paper insulated, lead jacketed cables which may include aluminium or steel armouring.

#### Features and benefits

- Seal cables during storage or transportation
- Insulating cap for live LV cables (0.6/1kV)
- Adhesive lining for excellent environmental seal
- High shrink ratio to minimise number of sizes needed
- Can be fitted with air valves for pressurised cable applications
- High shrink ratio to minimise number of sizes needed



The appropriate end cap for every cable diameter, and cable types.

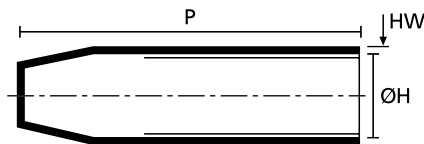


For Material / Adhesive information please refer to page 260, 261.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Colour</b>	Black (BK)
<b>Shrink Ratio</b>	up to 3:1
<b>Min. Shrink Temperature</b>	+135 °C
<b>Operating Temperature</b>	-55 °C to +80 °C
<b>Dielectric Strength</b>	15 kV/mm
<b>Flammability</b>	ASTM D635



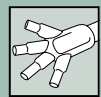
a: Expanded form (supplied)



b: Fully recovered form (after heating)

TYPE	Bundle Ø min.	Bundle Ø max.	ØH min. a	ØH max. b	P ± 10 %	HW ± 20 %	Article-No.
1612-1-B5W2	4.0	8.0	12.0	4.0	40.0	2.6	416-12046
1613-1-B5W2	6.5	16.0	20.0	6.0	55.0	2.8	416-13060
1602-1-B5W2	10.0	20.0	25.0	8.5	65.0	2.8	416-02008
1614-1-B5W2	16.0	32.0	40.0	15.0	75.0	3.3	416-14047
1615-1-B5W2	26.0	51.0	62.0	23.0	132.0	3.8	416-15035
1617-1-B5W2	32.0	61.0	75.0	32.0	140.0	4.0	416-17033
1616-1-B5W2	48.0	80.0	105.0	45.0	135.0	4.0	416-16053
1609-1-B5W2	65.0	110.0	120.0	60.0	150.0	4.2	416-09000
1610-1-B5W2	90.0	135.0	160.0	82.0	135.0	4.5	416-10000

All dimensions in mm. Subject to technical changes.



### Hot Melt Tape for Heat Shrinkable Tubing and Shapes

#### HMT200A

Designed for use with heat shrink sleeving and mouldings.

#### Features and Benefits

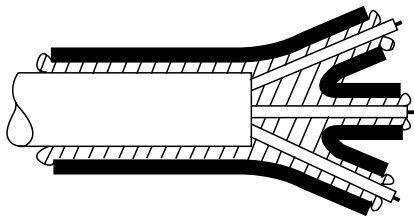
- Hot melt tape flows when heated to seal against moisture
- For heat shrink tubing and mouldings



HMT200A-Tape.



Adhesive tape HMT200A for sealing against humidity.



HMT200A

<b>MATERIAL</b>	Ethylenevinylacetate (EVA)
<b>Operating Temperature</b>	-55 °C to +105 °C



TYPE	Thickness (T)	Width (W)	Colour	Reel Length	Article-No.
HMT200A	0.25	25.0	Translucent (TT)	10 m	354-02260
	0.25	25.0	Translucent (TT)	50 m	354-02259

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.





## Two-Component Adhesive for Heat Shrinkable Tubing and Shapes

### V9500

#### Features and Benefits

- High performance, two-part epoxy adhesive
- Very resistant to most solvents and fuels, even at elevated temperatures
- Two different packages available
- V9500 available in 10g bags for manual mixing
- Processing set: emery paper, small mixing bowl and wooden spatula
- High performance bonding
- Meets military requirements for heat shrinkable components for harnesses
- VG-approved



Two-component epoxy adhesive V9500.



For Material / Adhesive information please refer to page 260, 261.



The V9500 applicator gun guarantees the clean and precise coating of special fittings.

<b>MATERIAL</b>	Epoxy resins (EP)
<b>Colour</b>	Black (BK)
<b>Curing Temperature</b>	+135 °C
<b>Curing Time</b>	24 hours at +25 °C, 2 hours at +85 °C
<b>Operating Temperature</b>	-75 °C to +150 °C

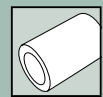
RoHS ✓

TYPE	Description	Designation as per VG-Norm	Article-No.
<b>V9500 Epoxy Kit</b>	5 x 10g sachets (50g), 5 x mixing pots, 5 x mixing sticks, 5 x emery papers	VG 95343 T15 A 001 A	627-95000
	1 x dual cartridge, 5 x mixing pots, 5 x mixing sticks, 5 x emery papers	VG 95343 T15 A 002 B	627-95001
<b>V9500 Epoxy Cartridge</b>	Two-component adhesive cartridge	VG 95343 T15 A	627-95002
<b>V9500 Applicator Gun</b>	Applicator gun	VG 95343 T15 DA	627-95003
<b>V9500 Applicator Nozzle</b>	Mixing nozzle	VG 95343 T15 MA	627-95004

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



### Rubber Tubing, PTFE

#### V9500

FE is ideal for high temperature applications, when resistance to aggressive fluids is required for example in high performance hose applications. FE tubing is also used to reduce movement due to friction, covering cable or wire.

#### Features and Benefits

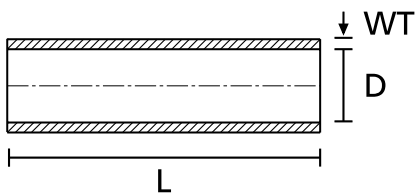
- Thin walled rubber tubing made of PTFE
- Transparent or coloured
- very high temperature resistance
- High abrasion resistance
- Good resistance to aggressive chemicals
- Available on reels



PTFE tubing FE.

<b>MATERIAL</b>	Polytetrafluoroethylene (PTFE)
<b>Operating Temperature</b>	-65 °C to 250 °C , intermittent +350 °C
<b>Dielectric Strength</b>	55 kV/mm according to IEC 60684 P2
<b>Flamability</b>	UL94 V0
<b>Specifications</b>	BS-2848 Type 6 250T, DEF STAN 59-15 Type D6

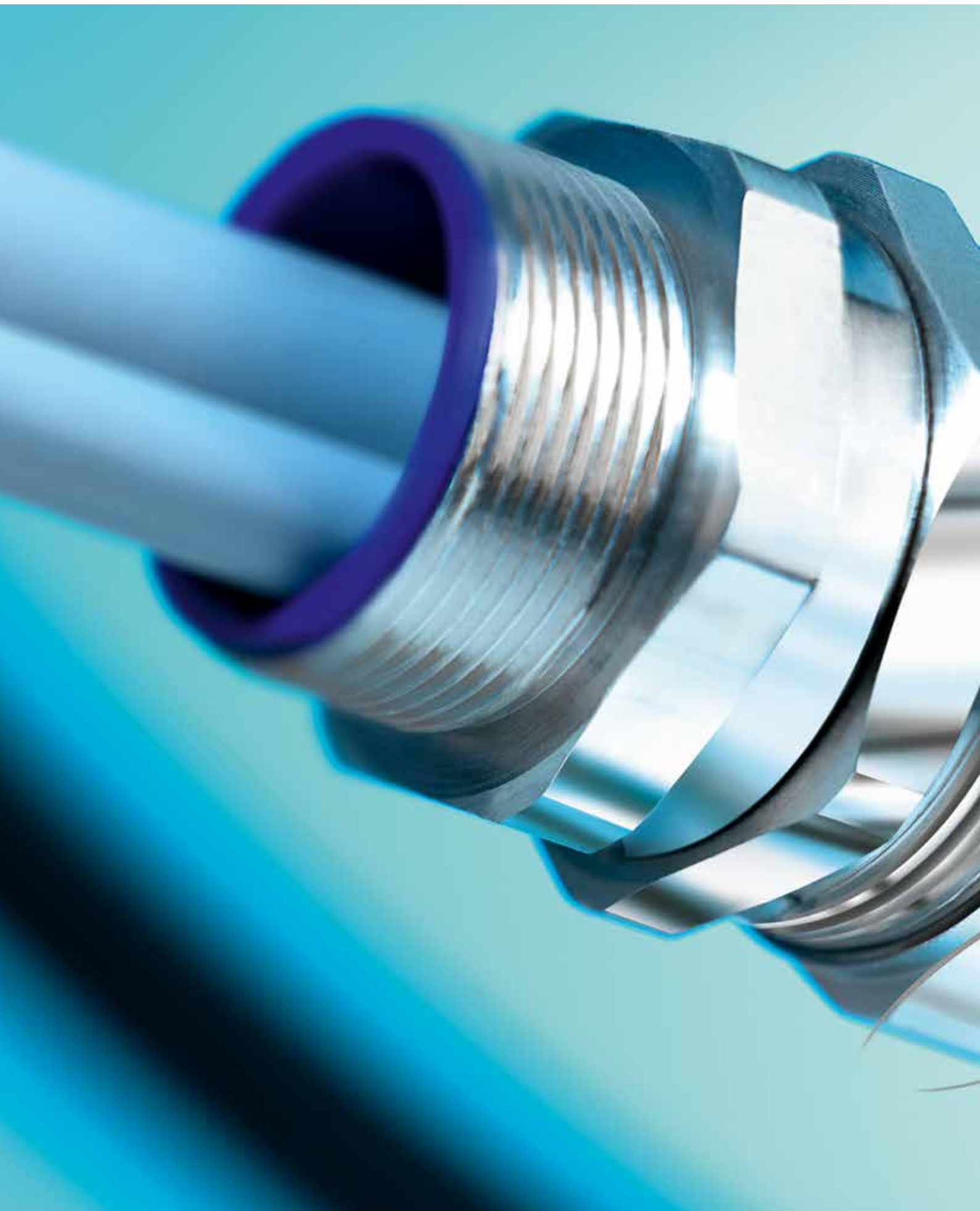
RoHS



PTFE tubing

TYPE	Supplied Ø D min.	Wall (WT)	Reel Length	Colour	Article-No.
FE3	0.3	0.20	500 m	Natural (NA)	178-00005
FE4	0.4	0.25	500 m	Natural (NA)	178-00012
FE5	0.5	0.25	500 m	Natural (NA)	178-00020
FE9	0.9	0.25	500 m	Natural (NA)	178-00056
FE10	1.0	0.30	500 m	Natural (NA)	178-00068
FE11	1.1	0.30	500 m	Natural (NA)	178-00083
FE15	1.5	0.30	500 m	Natural (NA)	178-00119
FE19	1.9	0.30	250 m	Natural (NA)	178-00143

All dimensions in mm. Subject to technical changes.












**Inspired by elemental power**

Our HelaGuard conduits and fittings are made to protect cables even in the toughest conditions. Yet our offshore customers challenged us with a whole new dimension: lightning.

We developed a liquid-tight system, resistant to immense pressure and impact as well as intense UV radiation, which withstands and safely diverts powerful and repeated lightning strikes. We simulated such conditions in a special laboratory to prove our solution.

Our technically high-advanced conduit and fitting not only emerged intact, but are now reliably fulfilling their exact function in countless off-shore installations across the globe.

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### 3.1 Non-Metallic Conduit Systems

#### Non-Metallic Conduits

HG-SW PA6 Standard	296
HG-LW PA6 Light	297
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#### Fittings for Non-Metallic Conduits

Fixed external thread	HG-S, Straight, IP66	300
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### 3.2 Metallic Conduit Systems

#### Metallic Conduits

SC galvanised steel conduit	302
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#### Fittings for Metallic Conduits

SC-FM fixed external thread	304
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#### Metallic Conduits with Plastic Coating

PCS, galvanised steel, PVC coating	305
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#### Fittings for Metallic Conduits with Plastic Coating

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PCS-FMC IP65 compression fitting, fixed thread	307

#### Metallic Conduits with Liquid-Tight Cover

LTS, galvanised steel, PVC cover	308
----------------------------------	-----

#### Fittings for Metallic Conduits with Liquid-Tight Cover

LTS-FMC IP68 compression fitting, fixed thread	309
--	-----

### 3.3 Spiral-Reinforced Conduit Systems

#### Spiral-Reinforced PVC Conduits

PSR smooth bore	310
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#### Fittings for Spiral-Reinforced PVC Conduits

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#### FlexiGuard Conduits & Fittings

FG PVC conduit, steel wire spiral-reinforced	313
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### 3.4 Conduit System Accessories

#### HelaGuard Accessories

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### 3.5 Protective Tubing and Spiral Binding

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SBPEMC metal-content spiral binding	329
SPS narrow pitch	330
SPF wide pitch	331

### 3.6 Protective Sleeves

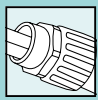
#### Expandable Braided Sleeves

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### Non-Metallic Conduits

#### HG-SW PA6 Standard Weight

Standard weight corrugated flexible conduit for industrial applications, including machine building, plant construction, control panels, public buildings.

#### Features and benefits

- Very flexible and high fatigue life
- Very abrasion resistant
- High impact strength, recovers if crushed
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus
- Low smoke and low toxicity
- Self-extinguishing according to UL94 V2
- Colour: black (UV resistant); grey on request

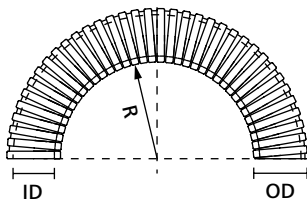


HelaGuard HG-SW for industrial applications.

<b>MATERIAL</b>	Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +120 °C
<b>Operating Temperature Moving</b>	-20 °C to +100 °C
<b>Flammability</b>	UL94 V2



One Step to the Web!



HelaGuard non-metallic conduit



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TYPE	Nominal Ø	NW Ø	Outside Ø (OD)	Inside Ø (ID)	Min. Bending Radius (R)	Weight	Reel Length	Colour	Article-No.
HG-SW10	10	7.5	10.0	6.3	15	19 g/m	50 m	Black (BK)	166-11100
HG-SW11	11	8.5	11.5	8.2	20	22 g/m	50 m	Black (BK)	166-11101
HG-SW13	13	10	13.0	9.8	25	28 g/m	50 m	Black (BK)	166-11102
HG-SW16	16	12	15.8	11.8	35	38 g/m	25 m	Black (BK)	166-11110
	16	12	15.8	11.8	35	38 g/m	50 m	Black (BK)	166-11103
HG-SW21	21	17	21.2	16.7	45	60 g/m	25 m	Black (BK)	166-11111
	21	17	21.2	16.7	45	60 g/m	50 m	Black (BK)	166-11104
HG-SW28	28	23	28.5	22.8	50	100 g/m	25 m	Black (BK)	166-11105
	28	23	28.5	22.8	50	100 g/m	50 m	Black (BK)	166-11112
HG-SW34	34	29	34.5	28.1	60	135 g/m	25 m	Black (BK)	166-11106
	34	29	34.5	28.1	60	135 g/m	50 m	Black (BK)	166-11118
HG-SW42	42	36	42.5	35.5	70	165 g/m	25 m	Black (BK)	166-11113
HG-SW54	54	48	54.5	47.2	80	235 g/m	25 m	Black (BK)	166-11114
HG-SW67	67	56	67.2	56.3	130	365 g/m	10 m	Black (BK)	166-11109

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.





### Non-Metallic Conduits

#### HG-LW PA6 Light Weight

Light weight corrugated flexible conduit for machine building, plant construction, control panels and public buildings.

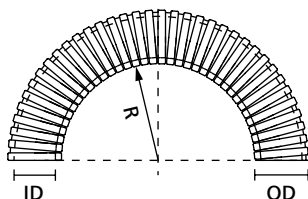
#### Features and benefits

- Light weight
- Very flexible and high fatigue life
- Small bending radius
- High impact strength and recovers if crushed
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus
- Colour: black; grey (RAL 7031) on request



*HelaGuard HG-LW is very light and flexibel.*

<b>MATERIAL</b>	Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +120 °C
<b>Operating Temperature Moving</b>	-20 °C to +100 °C
<b>Flammability</b>	self-extinguishing according to EN IEC 61386



*HelaGuard non-metallic conduit*

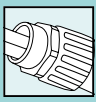
TYPE	Nominal Ø	NW Ø	Outside Ø (OD)	Inside Ø (ID)	Min. Bending Radius (R)	Weight	Reel Length	Colour	Article-No.
HG-LW10	10	7.5	10.0	6.5	15	18 g/m	50 m	Black (BK)	166-11200
HG-LW11	11	8.5	11.5	8.3	20	22 g/m	50 m	Black (BK)	166-11201
HG-LW13	13	10	13.0	10.0	25	24 g/m	50 m	Black (BK)	166-11202
HG-LW16	16	12	15.8	12.0	35	36 g/m	50 m	Black (BK)	166-11203
HG-LW21	21	17	21.2	16.9	40	56 g/m	50 m	Black (BK)	166-11204
HG-LW28	28	23	28.5	23.0	45	90 g/m	50 m	Black (BK)	166-11205
HG-LW34	34	29	34.5	28.3	55	110 g/m	50 m	Black (BK)	166-11206
HG-LW42	42	36	42.5	35.7	65	150 g/m	25 m	Black (BK)	166-11207
HG-LW54	54	48	54.5	47.4	80	200 g/m	25 m	Black (BK)	166-11208
HG-LW67	67	56	67.2	56.5	110	310 g/m	10 m	Black (BK)	166-11209

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



### Non-Metallic Conduits

#### HG-FR PA6 Flame Retardant

Flame-retardant standard weight corrugated flexible conduit is used where high fire-protection is required, including railway vehicles, tunnels and underground stations as well as public buildings.

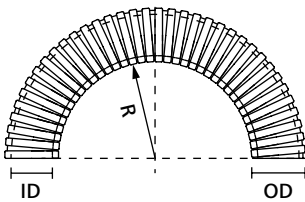
#### Features and benefits

- Highly flame retardant (UL94 V0)
- Low smoke, low toxicity
- Very flexible and high fatigue life
- High impact strength, recovers if crushed
- Abrasion resistant
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus
- Colour: black (UV resistant)



HelaGuard HG-FR offers excellent fire protection properties.

<b>MATERIAL</b>	Polyamide 6, flame retardant (PA6-FR)
<b>Operating Temperature</b>	-40 °C to +120 °C
<b>Operating Temperature Moving</b>	-20 °C to +100 °C
<b>Flammability</b>	UL94 V0



HelaGuard non-metallic conduit

TYPE	Nominal Ø	NW Ø	Outside Ø (OD)	Inside Ø (ID)	Min. Bending Radius (R)	Weight	Reel Length	Colour	Article-No.
HG-FR10	10	7.5	10.0	6.3	15	19 g/m	50 m	Black (BK)	166-11400
HG-FR13	13	10	13.0	9.8	25	28 g/m	50 m	Black (BK)	166-11401
HG-FR16	16	12	15.8	11.8	35	38 g/m	50 m	Black (BK)	166-11402
HG-FR21	21	17	21.2	16.7	45	60 g/m	50 m	Black (BK)	166-11403
HG-FR28	28	23	28.5	21.7	50	100 g/m	50 m	Black (BK)	166-11404
HG-FR34	34	29	34.5	28.1	60	135 g/m	50 m	Black (BK)	166-11405
HG-FR42	42	36	42.5	35.5	70	165 g/m	25 m	Black (BK)	166-11406
HG-FR54	54	48	54.5	47.2	80	235 g/m	25 m	Black (BK)	166-11407

All dimensions in mm. Subject to technical changes.  
Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



### Non-Metallic Conduits

#### HG-DC Double Slit

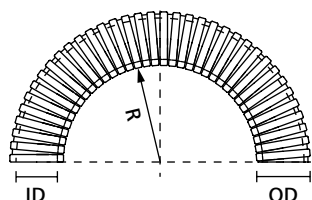
Double slit corrugated conduit for retrofitting is used in control panels, machine building, plant construction.

#### Features and benefits

- Can be opened and closed repeatedly
- Cables can be inserted laterally
- Abrasion resistant
- Free of halogen, sulphur and phosphorus
- Self-extinguishing to IEC 61386
- Colour: black



HelaGuard HG-DC double slit conduit is ideal for retrofitting.



HelaGuard non-metallic conduit

<b>MATERIAL</b>	Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +120 °C
<b>Flammability</b>	UL94 V2



TYPE	Nominal Ø	NW Ø	Outside Ø (OD)	Inside Ø (ID)	Min. Bending Radius (R)	Weight	Reel Length	Colour	Article-No.
HG-DC11	11	8.5	11.5	6.2	45	37 g/m	50 m	Black (BK)	166-11800
HG-DC13	13	10	12.9	7.9	55	46 g/m	50 m	Black (BK)	166-11801
HG-DC16	16	12	16.2	10.3	60	72 g/m	50 m	Black (BK)	166-11802
HG-DC21	21	17	21.0	13.7	90	110 g/m	50 m	Black (BK)	166-11803
HG-DC28	28	23	28.4	19.8	105	166 g/m	50 m	Black (BK)	166-11804
HG-DC34	34	29	34.2	26.6	150	180 g/m	25 m	Black (BK)	166-11805
HG-DC42	42	36	43.5	32.3	170	293 g/m	25 m	Black (BK)	166-11806
HG-DC54	54	48	53.3	44.0	170	378 g/m	25 m	Black (BK)	166-11807

All dimensions in mm. Subject to technical changes.

Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.



### Fittings with fixed external thread

#### HG-S Straight fitting, IP66

Straight external thread.

#### Features and benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus
- Metric threads supplied with locknuts

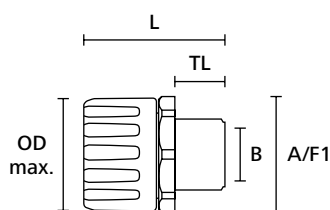


Fittings with PG and swivel threads are also available. For our complete range of conduits and fittings, please see our HelaGuard catalogue.



HelaGuard HG-S Straight, IP66.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2



HelaGuard fitting, straight with fixed external thread

TYPE	Nominal Ø	Thread Size	Min. Bore Size (B)	Outside Ø max (OD max.)	Length (L)	A/F Body (A/F1)	Thread Length (TL)	Pack Cont.	Colour	Article-No.
HG10-S-M12	10	M12	7.5	19	33	19	9	10 pcs.	Black (BK)	166-21000
HG10-S-M16	10	M16	9.5	19	35	19	11	10 pcs.	Black (BK)	166-21020
HG11-S-M12	11	M12	7.5	19	33	19	9	10 pcs.	Black (BK)	166-21021
HG13-S-M12	13	M12	7.5	24	35	23	9	10 pcs.	Black (BK)	166-21022
HG13-S-M16	13	M16	11.0	24	37	23	11	10 pcs.	Black (BK)	166-21001
HG13-S-M20	13	M20	12.5	24	40	23	14	10 pcs.	Black (BK)	166-21023
HG16-S-M16	16	M16	11.0	29	41	28	11	10 pcs.	Black (BK)	166-21002
HG16-S-M20	16	M20	14.5	29	34	28	14	10 pcs.	Black (BK)	166-21003
HG20-S-M20	20	M20	14.5	32	44	30	14	10 pcs.	Black (BK)	166-21025
HG21-S-M20	21	M20	14.5	32	44	30	14	10 pcs.	Black (BK)	166-21004
HG25-S-M25	25	M25	19.5	39	49	37	15	10 pcs.	Black (BK)	166-21026
HG28-S-M25	28	M25	19.5	44	49	42	15	10 pcs.	Black (BK)	166-21005
HG28-S-M32	28	M32	26.5	44	50	42	16	10 pcs.	Black (BK)	166-21027
HG34-S-M32	34	M32	26.5	51	53	49	16	10 pcs.	Black (BK)	166-21006
HG34-S-M40	34	M40	32.5	51	53	49	16	10 pcs.	Black (BK)	166-21028
HG42-S-M40	42	M40	32.5	63	60	60	16	2 pcs.	Black (BK)	166-21007
HG42-S-M50	42	M50	40.5	63	60	60	16	2 pcs.	Black (BK)	166-21029
HG54-S-M50	54	M50	42.0	76	65	73	16	2 pcs.	Black (BK)	166-21008
HG54-S-M63	54	M63	53.0	76	65	73	16	2 pcs.	Black (BK)	166-21030
HG67-S-M63	67	M63	56.0	90	70	87	16	1 pc.	Black (BK)	166-21009

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.

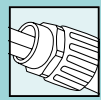


For product specific approvals and specifications please refer to the Appendix.



CAD download





### Fittings with fixed external thread

#### HG-90 90° Elbow fitting, IP66

90° elbow external thread.

#### Features and benefits

- One piece, fast fit
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus
- Metric threads supplied with locknuts

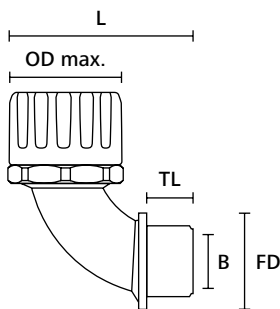


Fittings with PG and swivel threads are also available. For our complete range of conduits and fittings, please see our HelaGuard catalogue.



HelaGuard HG-90 90° Elbow, IP66.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2



HelaGuard fitting, 90° with fixed external thread

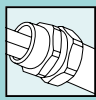
TYPE	Nominal Ø	Thread Size	Min. Bore Size (B)	Outside Ø max (OD max.)	Length (L)	Face Diameter (FD)	Thread Length (TL)	Pack Cont.	Colour	Article-No.
HG10-90-M12	10	M12	6.5	19	32	17	8	10 pcs.	Black (BK)	166-22200
HG11-90-M12	11	M12	6.5	19	32	17	8	10 pcs.	Black (BK)	166-22220
HG13-90-M16	13	M16	10.5	24	46	22	11	10 pcs.	Black (BK)	166-22201
HG16-90-M16	16	M16	10.5	29	49	22	11	10 pcs.	Black (BK)	166-22202
HG16-90-M20	16	M20	14.0	29	51	27	13	10 pcs.	Black (BK)	166-22203
HG21-90-M20	21	M20	14.0	32	53	27	13	10 pcs.	Black (BK)	166-22204
HG25-90-M25	25	M25	19.0	39	63	32	15	10 pcs.	Black (BK)	166-22222
HG28-90-M25	28	M25	19.0	44	66	32	15	10 pcs.	Black (BK)	166-22205
HG34-90-M32	34	M32	24.5	51	75	40	16	10 pcs.	Black (BK)	166-22206
HG42-90-M40	42	M40	32.5	63	98	50	16	2 pcs.	Black (BK)	166-22207
HG42-90-M50	42	M50	39.0	63	99	60	16	2 pcs.	Black (BK)	166-22223
HG54-90-M50	54	M50	39.0	76	104	60	16	2 pcs.	Black (BK)	166-22208
HG54-90-M63	54	M63	49.5	76	104	72	16	2 pcs.	Black (BK)	166-22224
HG67-90-M63	67	M63	49.5	90	120	72	16	1 pc.	Black (BK)	166-22209

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



### Metallic conduits

#### SC Galvanised steel conduit

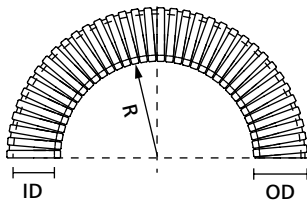
General purpose flexible steel conduit offers high mechanical protection and is typically used in machines, plants, underfloor wiring, data cabling and protection of hydraulic or pneumatic hoses.

#### Features and benefits

- High compression, tensile and impact strength
- Very flexible



One Step to the Web!



HelaGuard metallic conduit



HelaGuard SC Galvanised Steel Conduit.

<b>MATERIAL</b>	Galvanised Steel (GS)
<b>Operating Temperature</b>	-100 °C to +300 °C



TYPE	Nominal Ø	Outside Ø (OD)	Inside Ø (ID)	Min. Bending Radius (R)	Weight	Reel Length	Colour	Article-No.
SC10	10	9.1	6.8	25	110 g/m	10 m	Metal (ML)	166-30110
	10	9.1	6.8	25	110 g/m	50 m	Metal (ML)	166-30100
SC12	12	13.2	10.0	30	113 g/m	10 m	Metal (ML)	166-30111
	12	13.2	10.0	30	113 g/m	50 m	Metal (ML)	166-30101
SC16	16	16.4	12.9	40	152 g/m	10 m	Metal (ML)	166-30112
	16	16.4	12.9	40	152 g/m	25 m	Metal (ML)	166-30102
SC20	20	20.6	16.9	45	295 g/m	10 m	Metal (ML)	166-30113
	20	20.6	16.9	45	295 g/m	25 m	Metal (ML)	166-30103
SC25	25	24.6	21.1	55	321 g/m	10 m	Metal (ML)	166-30114
	25	24.6	21.1	55	321 g/m	25 m	Metal (ML)	166-30104
SC32	32	32.0	28.1	70	450 g/m	10 m	Metal (ML)	166-30115
	32	32.0	28.1	70	450 g/m	25 m	Metal (ML)	166-30105
SC40	40	42.5	37.6	80	519 g/m	10 m	Metal (ML)	166-30116
	40	42.5	37.6	80	519 g/m	25 m	Metal (ML)	166-30106
SC50	50	53.2	48.4	90	802 g/m	10 m	Metal (ML)	166-30117
	50	53.2	48.4	90	802 g/m	25 m	Metal (ML)	166-30107
SC63	63	62.5	57.5	115	836 g/m	10 m	Metal (ML)	166-30108
SC75	75	77.0	70.0	150	1,137 g/m	10 m	Metal (ML)	166-30109

All dimensions in mm. Subject to technical changes.  
Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.



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### Metallic conduits

#### SSC Stainless steel conduit

Stainless steel, corrosion-resistant flexible conduit used for protection of sensor cables, instrumentation tubing, as well as hydraulic and pneumatic hoses, particularly in corrosive environments. Commonly used in hospitals and clinics.

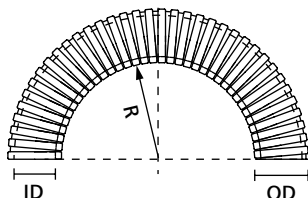
#### Features and benefits

- Highly resistant to rust and corrosion
- High compression, tensile and impact strength
- Very flexible



The HelaGuard SSC stainless steel conduit offers superior mechanical protection in corrosive environments.

<b>MATERIAL</b>	Stainless Steel (SS316)
<b>Operating Temperature</b>	-100 °C to +400 °C

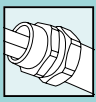


HelaGuard metallic conduit

TYPE	Nominal Ø	Outside Ø (OD)	Inside Ø (ID)	Min. Bending Radius (R)	Weight	Reel Length	Colour	Article-No.
SSC10	10	9.1	6.8	25	110 g/m	25 m	Metal (ML)	166-30200
SSC12	12	12.3	10.0	40	126 g/m	25 m	Metal (ML)	166-30201
SSC16	16	16.4	13.0	40	162 g/m	25 m	Metal (ML)	166-30202
SSC20	20	20.4	16.9	45	202 g/m	25 m	Metal (ML)	166-30203
SSC25	25	24.3	21.1	55	300 g/m	25 m	Metal (ML)	166-30204
SSC32	32	31.7	28.1	70	340 g/m	25 m	Metal (ML)	166-30205
SSC40	40	42.1	37.6	80	410 g/m	10 m	Metal (ML)	166-30206
SSC50	50	52.8	48.4	90	516 g/m	10 m	Metal (ML)	166-30207

All dimensions in mm. Subject to technical changes.  
Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.





### Fittings for metallic conduits

#### SC-FM Fixed external thread

Fixed external thread, nickel plated brass.

#### Features and benefits

- Two-part fitting of shell and body with external thread
- Provides tight, reliable hold of conduit
- Can be secured with locknut

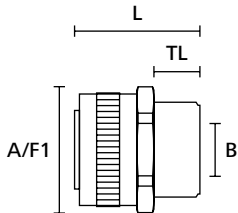


Fittings with PG and swivel threads are also available. For our complete range of conduits and fittings, please see our HelaGuard catalogue.



HelaGuard SC-FM Fixed External Thread.

<b>MATERIAL</b>	Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-100 °C to +300 °C



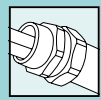
HelaGuard fitting, straight with fixed external thread

TYPE	Nominal Ø	Thread Size	Min. Bore Size (B)	Length (L)	A/F Body (A/F1)	Thread Length (TL)	Pack Cont.	Colour	Article-No.
SC10-FM-M12	10	M12	5.6	21.0	13	7.0	10 pcs.	Metal (ML)	166-30300
SC12-FM-M16	12	M16	8.5	23.0	17	10.0	10 pcs.	Metal (ML)	166-30301
SC16-FM-M16	16	M16	11.5	25.0	20	10.0	10 pcs.	Metal (ML)	166-30302
SC16-FM-M20	16	M20	11.5	25.0	22	10.0	10 pcs.	Metal (ML)	166-30303
SC20-FM-M20	20	M20	15.3	26.3	24	10.0	10 pcs.	Metal (ML)	166-30304
SC25-FM-M25	25	M25	19.1	29.5	29	10.0	10 pcs.	Metal (ML)	166-30305
SC32-FM-M32	32	M32	26.2	36.8	36	13.0	2 pcs.	Metal (ML)	166-30306
SC40-FM-M40	40	M40	34.6	39.0	48	14.0	2 pcs.	Metal (ML)	166-30307
SC50-FM-M50	50	M50	44.7	42.0	58	15.0	1 pc.	Metal (ML)	166-30308
SC63-FM-M63	63	M63	54.1	50.0	70	18.0	1 pc.	Metal (ML)	166-30309
SC75-FM-M75	75	M75	66.4	60.0	84	20.0	1 pc.	Metal (ML)	166-30310

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



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### Metallic conduits with plastic coating

#### PCS Galvanised metallic conduit, PVC coating

Flexible galvanised steel conduit with PVC coating, typically used in machine and plant construction and electrical installations.

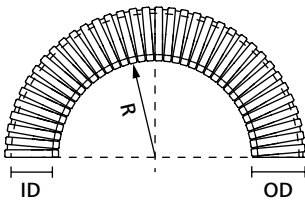
#### Features and benefits

- High compression, tensile and impact strength
- Very flexible
- Good resistance to alkalis and acids
- Good resistance to chemicals



HelaGuard PCS Galvanised Steel Conduit with PVC Coating.

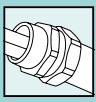
<b>MATERIAL</b>	Galvanised Steel (GS), Polyvinylchloride (PVC)
<b>Operating Temperature</b>	-15 °C to +70 °C



HelaGuard metallic conduit, plastic coating

TYPE	Nominal Ø	Outside Ø (OD)	Inside Ø (ID)	Min. Bending Radius (R)	Weight	Reel Length	Colour	Article-No.
PCS10	10	10.1	6.8	25	140 g/m	10 m	Grey (GY)	166-30722
	10	10.1	6.8	25	140 g/m	50 m	Black (BK)	166-30700
PCS12	12	14.2	10.2	30	143 g/m	10 m	Grey (GY)	166-30723
	12	14.2	10.2	30	143 g/m	50 m	Black (BK)	166-30701
PCS16	16	17.0	13.0	40	196 g/m	10 m	Grey (GY)	166-30724
	16	17.1	13.0	40	196 g/m	25 m	Black (BK)	166-30702
PCS20	20	21.6	16.9	45	345 g/m	10 m	Grey (GY)	166-30725
	20	21.6	16.9	45	345 g/m	25 m	Black (BK)	166-30703
PCS25	25	26.0	21.1	55	411 g/m	10 m	Grey (GY)	166-30726
	25	26.0	21.1	55	411 g/m	25 m	Black (BK)	166-30704
PCS32	32	34.0	28.1	60	560 g/m	10 m	Grey (GY)	166-30727
	32	34.0	28.1	60	560 g/m	25 m	Black (BK)	166-30705
PCS40	40	44.2	37.6	80	719 g/m	10 m	Grey (GY)	166-30728
	40	44.2	37.6	80	719 g/m	25 m	Black (BK)	166-30706
PCS50	50	55.0	48.4	90	1,052 g/m	10 m	Grey (GY)	166-30729
	50	55.0	48.4	90	1,052 g/m	25 m	Black (BK)	166-30707
PCS63	63	64.5	57.5	115	1,091 g/m	10 m	Black (BK)	166-30708
	63	64.5	57.5	115	1,091 g/m	10 m	Grey (GY)	166-30730
PCS75	75	79.2	70.0	150	1,459 g/m	10 m	Black (BK)	166-30709
	75	79.2	70.0	150	1,459 g/m	10 m	Grey (GY)	166-30731

All dimensions in mm. Subject to technical changes.  
Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for metallic conduits with plastic coating

#### PCS-FM Fixed external thread, IP54

Fixed external thread, nickel plated brass.

#### Features and benefits

- Two-part fitting of shell and body with external thread
- Provides tight, reliable hold of conduit
- Can be secured with locknut

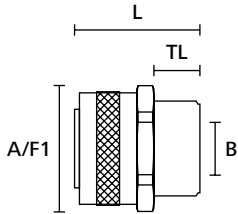


Fittings with PG and swivel threads are also available. For our complete range of conduits and fittings, please see our HelaGuard catalogue.



HelaGuard PCS-FM Fixed External Thread.

<b>MATERIAL</b>	Nickel Plated Brass (NPB)
<b>Operating Temperature</b>	-100 °C to +300 °C



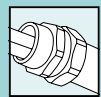
HelaGuard fitting, straight with fixed external thread

TYPE	Nominal Ø	Thread Size	Min. Bore Size (B)	Length (L)	A/F Body (A/F1)	Thread Length (TL)	Pack Cont.	Colour	Article-No.
PCS10-FM-M12	10	M12	5.6	21.0	13	8.0	10 pcs.	Metal (ML)	166-31000
PCS12-FM-M16	12	M16	8.5	23.0	17	8.0	10 pcs.	Metal (ML)	166-31001
PCS16-FM-M16	16	M16	11.5	25.0	20	10.0	10 pcs.	Metal (ML)	166-31002
PCS16-FM-M20	16	M20	11.5	25.0	22	10.0	10 pcs.	Metal (ML)	166-31003
PCS20-FM-M20	20	M20	15.3	26.3	24	10.0	10 pcs.	Metal (ML)	166-31004
PCS25-FM-M25	25	M25	19.1	32.5	29	10.0	10 pcs.	Metal (ML)	166-31005
PCS32-FM-M32	32	M32	26.2	36.8	36	13.0	2 pcs.	Metal (ML)	166-31006
PCS40-FM-M40	40	M40	34.6	39.0	48	14.0	2 pcs.	Metal (ML)	166-31007
PCS50-FM-M50	50	M50	44.7	42.0	58	15.0	1 pc.	Metal (ML)	166-31008
PCS63-FM-M63	63	M63	54.5	50.0	70	18.0	1 pc.	Metal (ML)	166-31009
PCS75-FM-M75	75	M75	66.5	60.0	84	20.0	1 pc.	Metal (ML)	166-31019

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



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### Fittings for metallic conduits with plastic coating

#### PCS-FMC Fixed thread compression fitting, IP65

External thread, nickel plated brass.

Fulfils IP65.

#### Features and benefits

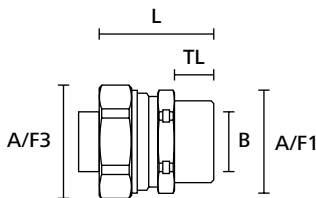
- Multipart compression fitting including elastomeric seal
- Provides excellent tensile strength
- Can be used for knockouts or threaded entries as fitting rotates until tightened



HeliaGuard PCS-FMC Compression Fitting.

**i** Fittings with PG and swivel threads are also available. For our complete range of conduits and fittings, please see our HeliaGuard catalogue.

<b>MATERIAL</b>	Nickel Plated Brass (NPB), Thermoplastic Elastomer (TPE)	Nickel Plated Brass (NPB), Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +135 °C	



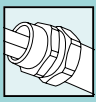
HeliaGuard compression fitting, straight with fixed external thread

TYPE	Nominal Ø	Thread Size	Min. Bore Size (B)	Length (L)	A/F Body (A/F1)	A/F Nut (A/F3)	Thread Length (TL)	Pack Cont.	Colour	Article-No.
PCS10-FMC-M12	10	M12	5.6	29.8	20	20	10.0	10 pcs.	Metal (ML)	166-31400
PCS12-FMC-M16	12	M16	8.6	29.8	20	22	10.0	10 pcs.	Metal (ML)	166-31401
PCS16-FMC-M16	16	M16	11.5	33.0	24	26	12.0	10 pcs.	Metal (ML)	166-31402
PCS16-FMC-M20	16	M20	11.5	33.0	24	26	12.0	10 pcs.	Metal (ML)	166-31403
PCS20-FMC-M20	20	M20	15.3	33.5	26	29	12.0	10 pcs.	Metal (ML)	166-31404
PCS25-FMC-M25	25	M25	19.1	40.5	33	35	14.0	10 pcs.	Metal (ML)	166-31405
PCS32-FMC-M32	32	M32	26.0	45.8	40	42	15.0	2 pcs.	Metal (ML)	166-31406
PCS40-FMC-M40	40	M40	34.6	47.5	56	58	16.0	2 pcs.	Metal (ML)	166-31407
PCS50-FMC-M50	50	M50	44.7	51.0	70	70	16.0	1 pc.	Metal (ML)	166-31408

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



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### Metallic conduits with liquid-tight cover

#### LTS Galvanised steel conduit, PVC cover

Flexible galvanised steel conduit with smooth, liquid-tight PVC cover. Fulfills IP66, IP67, IP68 and IP69k with LTS-fittings. LTS is used in machine tools and outdoor installations, wherever liquid-tight is a requirement.

#### Features and benefits

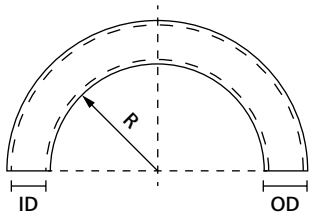
- Liquid-tight (IP68 and IP69k with LTS fittings)
- High compression, tensile and impact strength
- Good flexibility
- Smooth outer cover does not wrinkle when bent
- Good resistance to acids, petrol, oils and greases
- UV-resistant, suitable for outdoor use



HelaGuard LTS.



HelaGuard LTS galvanised steel conduit with a smooth, liquid-tight PVC cover is ideal for outdoor installations.



HelaGuard liquid-tight metallic conduit, plastic coating

<b>MATERIAL</b>	Galvanised Steel (G5), Polyvinylchloride (PVC)
<b>Operating Temperature</b>	-20 °C to +105 °C



TYPE	Nominal Ø	US Trade Size	Outside Ø (OD)	Inside Ø (ID)	Min. Bending Radius (R)	Weight	Reel Length	Colour	Article-No.
LTS10	10	1/4 "	11.8	7.0	35	185 g/m	50 m	Black (BK)	166-31900
LTS12	12	5/16 "	14.2	10.0	40	203 g/m	25 m	Black (BK)	166-31901
LTS16	16	3/8 "	17.8	12.6	45	311 g/m	25 m	Black (BK)	166-31902
LTS20	20	1/2 "	21.1	16.0	65	407 g/m	25 m	Black (BK)	166-31903
LTS25	25	3/4 "	26.4	21.1	100	503 g/m	25 m	Black (BK)	166-31904
LTS32	32	1 "	33.1	26.5	135	732 g/m	25 m	Black (BK)	166-31905
LTS40	40	1 1/4 "	41.8	35.4	175	885 g/m	25 m	Black (BK)	166-31906
LTS50	50	1 1/2 "	47.9	40.4	230	1,240 g/m	25 m	Black (BK)	166-31907
LTS63	63	2 "	59.7	51.6	280	1,470 g/m	10 m	Black (BK)	166-31908

All dimensions in mm. Subject to technical changes.  
Other reel lengths available on request. Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



### Fittings for metallic conduits with liquid-tight cover

#### LTS-FMC Fixed thread compression fitting, IP68

External thread, nickel plated brass.

Fulfils IP66, IP67, IP68 and IP69k.

#### Features and benefits

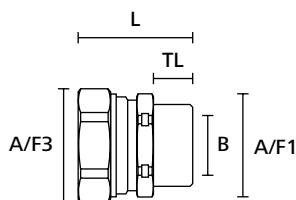
- Multipart compression fitting including elastomeric seal
- Provides excellent tensile strength
- Can be used for knockouts or threaded entries as fitting rotates until tightened

**i** Fittings with PG and swivel threads are also available. For our complete range of conduits and fittings, please see our HelaGuard catalogue.



HelaGuard LTS-FMC Compression Fitting.

<b>MATERIAL</b>	Nickel Plated Brass (NPB), Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +135 °C



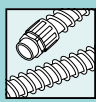
HelaGuard compression fitting, straight with fixed external thread

TYPE	Nominal Ø	Thread Size	Min. Bore Size (B)	Length (L)	A/F Body (A/F1)	A/F Nut (A/F3)	Thread Length (TL)	Pack Cont.	Colour	Article-No.
LTS10-FMC-M12	10	M12	5.6	29.8	20	20	10.0	10 pcs.	Metal (ML)	166-32200
LTS10-FMC-M16	10	M16	5.6	29.8	20	20	10.0	10 pcs.	Metal (ML)	166-32201
LTS12-FMC-M16	12	M16	8.6	29.8	20	22	10.0	10 pcs.	Metal (ML)	166-32203
LTS16-FMC-M16	16	M16	10.7	33.0	24	26	12.0	10 pcs.	Metal (ML)	166-32204
LTS16-FMC-M20	16	M20	10.7	33.0	24	26	12.0	10 pcs.	Metal (ML)	166-32205
LTS20-FMC-M20	20	M20	14.5	33.5	26	29	12.0	10 pcs.	Metal (ML)	166-32206
LTS25-FMC-M25	25	M25	18.0	40.5	33	35	14.0	10 pcs.	Metal (ML)	166-32207
LTS32-FMC-M32	32	M32	24.6	45.8	40	42	15.0	2 pcs.	Metal (ML)	166-32208
LTS40-FMC-M40	40	M40	32.7	47.5	50	52	16.0	1 pc.	Metal (ML)	166-32209
LTS50-FMC-M50	50	M50	37.7	53.0	58	58	18.0	1 pc.	Metal (ML)	166-32210
LTS63-FMC-M63	63	M63	49.0	58.8	70	70	20.0	1 pc.	Metal (ML)	166-32211

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



CAD download



### Spiral-reinforced PVC conduits

#### PSR Conduit

Flexible, smooth bore conduit with spiral rigid PVC reinforcement and flexible PVC cover. PSR conduits are typically used in machine building, plant construction, shipbuilding, automation, and electrical installations.

#### Features and benefits

- Extremely flexible
- Withstands torsional movement
- Self-extinguishing
- Easy to feed cables into conduit
- Can be used with PSR PA66 fittings
- Colour: grey; black, green (oil resistant) or blue (high temperature resistant) upon request



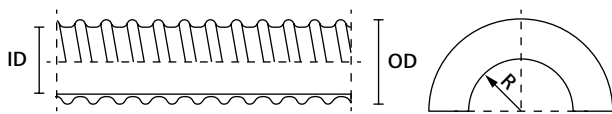
PSR is extremely flexible and allows for easy insertion of cables.



One Step to the Web!

<b>MATERIAL</b>	Polyvinylchloride (PVC)
<b>Operating Temperature</b>	-20 °C to +70 °C
<b>Flammability</b>	self-extinguishing according to EN IEC 61386

RoHS



HelaGuard spiral reinforced conduit

**i** PSR conduit with higher resistance to oil (color: green) and temperature (colour: blue) available on request.

TYPE	Nominal Ø	Outside Ø (OD)	Inside Ø (ID)	Min. Bending Radius (R)	Weight	Reel Length	Colour	Article-No.
PSR12	12	14.5	10	25	71 g/m	30 m	Grey (GY)	166-40001
PSR16	16	16.5	12	25	76 g/m	30 m	Grey (GY)	166-40002
PSR20	20	21.0	16	35	112 g/m	30 m	Grey (GY)	166-40003
PSR25	25	27.5	22	45	153 g/m	30 m	Grey (GY)	166-40004
PSR32	32	33.5	28	60	327 g/m	30 m	Grey (GY)	166-40005
PSR40	40	41.0	35	80	448 g/m	30 m	Grey (GY)	166-40006
PSR50	50	46.4	40	105	725 g/m	30 m	Grey (GY)	166-40007
PSR63	63	57.0	50	120	948 g/m	30 m	Grey (GY)	166-40008

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.





### Fittings for spiral-reinforced PVC conduits

#### PSR-S Straight fitting

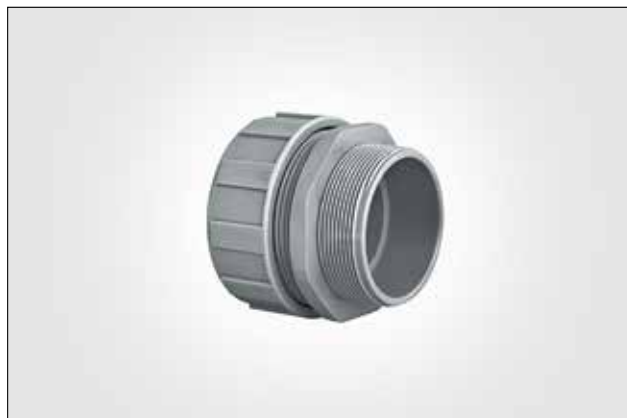
Straight PA66 fitting, fixed external thread.

Fulfils IP65 with PSR conduits.

Fulfils IP66 and IP67 with PSRSC conduits.

#### Features and benefits

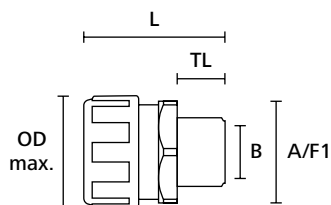
- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus
- Metric threads supplied with locknuts
- Fits both PSR and PSRSC conduits



PSR-S Straight.

**i** Fittings with PG-Thread and in 90° and 45° are also available. For our complete range of conduits and fittings, please see our HelaGuard catalogue.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2



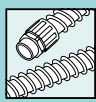
HelaGuard fitting, straight with fixed external thread

TYPE	Nominal Ø	Thread Size	Min. Bore Size (B)	Outside Ø max (OD max.)	Length (L)	A/F Body (A/F1)	Thread Length (TL)	Pack Cont.	Colour	Article-No.
PSR12-S-M16	12	M16	9.0	24	38	23	11	10 pcs.	Grey (GY)	166-40701
PSR16-S-M16	16	M16	10.5	28	40	25	11	10 pcs.	Grey (GY)	166-40702
PSR16-S-M20	16	M20	10.5	28	41	25	14	10 pcs.	Grey (GY)	166-40703
PSR20-S-M20	20	M20	14.5	33	43	30	14	10 pcs.	Grey (GY)	166-40704
PSR25-S-M25	25	M25	19.0	42	45	37	15	10 pcs.	Grey (GY)	166-40705
PSR32-S-M32	32	M32	24.5	48	48	45	16	10 pcs.	Grey (GY)	166-40706
PSR40-S-M40	40	M40	33.0	60	59	60	16	2 pcs.	Grey (GY)	166-40707
PSR50-S-M50	50	M50	39.0	64	55	60	16	2 pcs.	Grey (GY)	166-40708
PSR63-S-M63	63	M63	48.0	76	56	73	16	1 pc.	Grey (GY)	166-40709

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



### Fittings for spiral-reinforced PVC conduits

#### PSR-90 90° elbow fitting

90° PA66 fitting, fixed external thread.

Fulfils IP65 with PSR conduits.

Fulfils IP66 and IP67 with PSRSC conduits.

#### Features and benefits

- High pull-off strength
- Highly resistant to solvents and oils
- Free of halogen, sulphur and phosphorus
- Metric threads supplied with locknuts
- Fits both PSR and PSRSC conduits

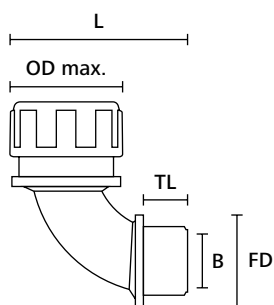


**Fittings with PG-Thread and in 90° and 45° are also available. For our complete range of conduits and fittings, please see our HelaGuard catalogue.**



PSR-90 90° Elbow.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2



HelaGuard fitting, 90° with fixed external thread

TYPE	Nominal Ø	Thread Size	Min. Bore Size (B)	Outside Ø max (OD max.)	Length (L)	Face Diameter (FD)	Thread Length (TL)	Pack Cont.	Article-No.
PSR16-90-M16	16	M16	10.5	28	49	22	11	10 pcs.	166-40801
PSR16-90-M20	16	M20	10.5	28	51	27	13	10 pcs.	166-40802
PSR20-90-M20	20	M20	14.5	33	52	27	13	10 pcs.	166-40803
PSR25-90-M25	25	M25	19.0	42	63	33	15	10 pcs.	166-40804
PSR32-90-M32	32	M32	24.5	48	74	40	16	2 pcs.	166-40805
PSR40-90-M40	40	M40	33.0	60	113	50	16	2 pcs.	166-40806

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



CAD download



For product specific approvals and specifications please refer to the Appendix.



### FlexiGuard conduits & fittings

#### PVC Conduits with steel wire spiral-reinforcement

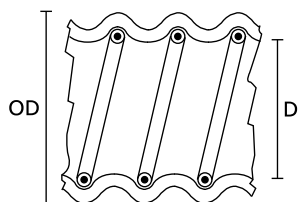
FlexiGuard protective hoses are used to protect cables in machines and plant construction, and robotics as well as leads to switch cabinets.

#### Features and benefits

- Extremely flexible
- Excellent mechanical protection
- Good resistance to oils, acids and alkalis
- Good resistance to chemicals
- Good resistance to UV and ozone



FlexiGuard FG with FG-UH fitting.



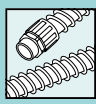
FlexiGuard

<b>MATERIAL</b>	Flexible Polyvinyl Chloride, cadmium free (PVC), Steel (ST)
<b>Operating Temperature</b>	-20 °C to +70 °C, (+80 °C, 200 h)
<b>Flammability</b>	UL94 HB



TYPE	Nominal Ø	Inside Ø (ID)	Outside Ø (OD)	Min. Bending Radius (R)	Reel Length	Colour	Pack Cont.	Article-No.
FG14	14	10	14	14	10 m	Grey (GY)	10 m	167-00209
FG17	17	13	17	17	10 m	Grey (GY)	10 m	167-00211
FG19	19	15	19	19	10 m	Grey (GY)	10 m	167-00213
FG21	21	16	21	21	10 m	Grey (GY)	10 m	167-00216
FG27	27	21	27	27	10 m	Grey (GY)	10 m	167-00221
FG36	36	30	36	36	10 m	Grey (GY)	10 m	167-00229
FG45	45	38	45	45	10 m	Grey (GY)	10 m	167-00236
FG56	56	48	56	56	10 m	Grey (GY)	10 m	167-00248

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for FlexiGuard spiral-reinforced PVC Conduits

#### FG straight fitting with swivel thread, IP54

Straight swivel external thread.

Fulfils IP54 with FlexiGuard FG conduits.

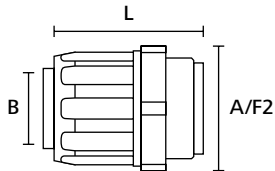
#### Features and benefits

- One piece, easy fit
- Swivel thread
- Vibration and tension resistant
- Large bore size
- Inner ferrule protects cables
- Good resistance to chemicals
- Good resistance to UV and ozone



FG conduit fitting.

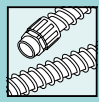
<b>MATERIAL</b>	Polypropylene (PP)
<b>Operating Temperature</b>	-35 °C to +80 °C
<b>Flammability</b>	UL94 V2



FlexiGuard fitting, straight with swivel thread

TYPE	Nominal Ø	Thread Size	Min. Bore Size (B)	Length (L)	A/F Thread (A/F2)	Colour	Pack Cont.	Article-No.
FG14-M16	14	M16	8.8	42.0	20	Grey (GY)	10 pcs.	167-00530
FG14-PG9	14	PG9	8.8	42.0	20	Grey (GY)	10 pcs.	167-00510
FG17-M20	17	M20	11.1	45.5	24	Grey (GY)	10 pcs.	167-00531
FG17-PG11	17	PG11	11.1	45.5	24	Grey (GY)	10 pcs.	167-00511
FG19-PG13	19	PG13.5	13.0	47.5	27	Grey (GY)	10 pcs.	167-00512
FG21-M25	21	M25	14.8	49.8	30	Grey (GY)	10 pcs.	167-00533
FG21-PG16	21	PG16	14.8	49.8	30	Grey (GY)	10 pcs.	167-00513
FG27-M32	27	M32	19.4	52.0	36	Grey (GY)	10 pcs.	167-00534
FG27-PG21	27	PG21	19.4	52.0	36	Grey (GY)	10 pcs.	167-00514
FG36-M40	36	M40	27.9	55.0	46	Grey (GY)	10 pcs.	167-00535
FG36-PG29	36	PG29	27.9	55.0	46	Grey (GY)	10 pcs.	167-00515
FG45-M50	45	M50	35.6	58.0	55	Grey (GY)	10 pcs.	167-00536
FG45-PG36	45	PG36	35.6	58.0	55	Grey (GY)	10 pcs.	167-00516
FG56-M63	56	M63	45.9	60.5	65	Grey (GY)	10 pcs.	167-00537
FG56-PG48	56	PG48	45.9	60.5	65	Grey (GY)	10 pcs.	167-00517

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Fittings for FlexiGuard spiral-reinforced PVC Conduits

#### FG-UH straight fitting with mounting bracket, IP54

Straight swivel bracket.

Fulfills IP54 with FlexiGuard FG conduits.

#### Features and benefits

- One piece, easy fit
- Swivel bracket
- Vibration and tension resistant
- Large bore size
- Inner ferrule protects cables
- Good resistance to chemicals
- Good resistance to UV and ozone

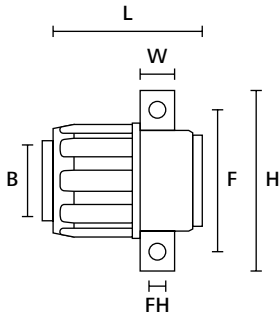


FG-UH fitting with bracket.

<b>MATERIAL</b>	Polypropylene (PP)
<b>Operating Temperature</b>	-35 °C to +80 °C
<b>Flammability</b>	UL94 V2

HF ✓

RoHS ✓



FlexiGuard fitting, straight with bracket

TYPE	Nominal Ø	Min. Bore Size (B)	Length (L)	Width (W)	Height (H)	Hole Ø (FH)	Fixing Hole Centres (F)	Colour	Pack Cont.	Article-No.
FG14-UH	14	8.8	42.0	10.0	40.0	5.7	29.0	Grey (GY)	10 pcs.	167-00520
FG17-UH	17	11.1	45.5	12.0	50.0	5.7	37.0	Grey (GY)	10 pcs.	167-00521
FG19-UH	19	13.0	47.5	12.0	50.0	5.7	37.0	Grey (GY)	10 pcs.	167-00522
FG21-UH	21	14.8	49.8	12.0	50.0	5.7	37.0	Grey (GY)	10 pcs.	167-00523
FG27-UH	27	19.4	52.0	12.5	57.0	5.7	43.0	Grey (GY)	10 pcs.	167-00524
FG36-UH	36	27.9	55.0	13.0	67.0	6.7	53.0	Grey (GY)	10 pcs.	167-00525
FG45-UH	45	35.6	58.0	14.0	80.0	6.7	65.0	Grey (GY)	10 pcs.	167-00526
FG56-UH	56	45.9	60.5	16.5	93.0	6.7	76.0	Grey (GY)	10 pcs.	167-00527

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



#### HelaGuard accessories

##### PACC Clip for corrugated conduits

##### Features and benefits

- Easy and quick assembly with non-metallic conduits
- Lid is integrated
- Hole for fastening with screw
- Inner rib prevents conduit from slipping
- Can be used in C-shaped DIN rails

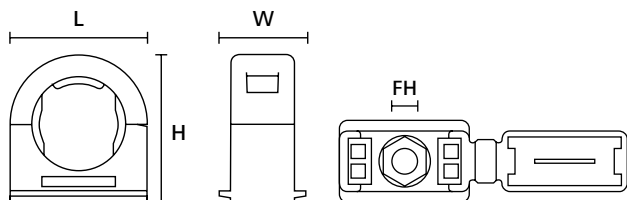


One Step to the Web!



HelaGuard PACC Conduit Clip.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-50 °C to +135 °C
<b>Flammability</b>	UL94 V2



HelaGuard conduit clip, side views

HelaGuard conduit clip, top view

TYPE	Nominal Ø	Height (H)	Width (W)	Length (L)	Hole Ø (FH)	Pack Cont.	Colour	Article-No.
PACC10	10	26	12	23	M5	10 pcs.	Black (BK)	166-25707
PACC13	13	26	12	23	M5	10 pcs.	Black (BK)	166-25700
PACC16	16	30	12	26	M5	10 pcs.	Black (BK)	166-25701
PACC21	21	36	15	32	M6	10 pcs.	Black (BK)	166-25702
PACC28	28	45	15	41	M6	10 pcs.	Black (BK)	166-25703
PACC34	34	51	15	48	M6	10 pcs.	Black (BK)	166-25704
PACC42	42	60	15	57	M6	5 pcs.	Black (BK)	166-25705
PACC54	54	72	15	70	M6	5 pcs.	Black (BK)	166-25706

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### HelaGuard accessories

#### AFCS Fixing clip, plated steel and PVC liner

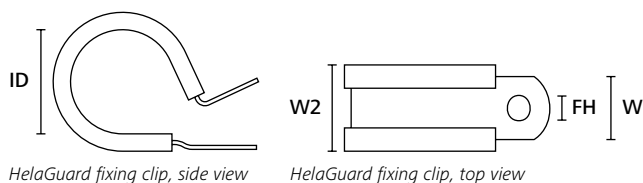
#### Features and benefits

- Simple, secure fixing of metallic conduits
- Liner prevents damage due to abrasion



HelaGuard AFCS Fixing Clip, Stainless Steel and PVC Liner.

<b>MATERIAL</b>	Galvanised Steel (GS), Polyvinylchloride (PVC)
<b>Operating Temperature</b>	-20 °C to +105 °C



HelaGuard fixing clip, side view

HelaGuard fixing clip, top view

TYPE	Nominal Ø	Inside Ø (ID)	Width (W)	Width (W2)	Hole Ø (FH)	Pack Cont.	Colour	Article-No.
AFCS10	10	11.0	12.7	17.4	5.1	10 pcs.	Metal (ML), Black (BK)	166-50600
AFCS12	12	14.0	12.7	17.4	5.1	10 pcs.	Metal (ML), Black (BK)	166-50601
AFCS16	16	17.0	12.7	17.4	5.1	10 pcs.	Metal (ML), Black (BK)	166-50602
AFCS20	20	21.0	12.7	17.4	5.1	10 pcs.	Metal (ML), Black (BK)	166-50603
AFCS25	25	25.0	12.7	17.4	5.1	10 pcs.	Metal (ML), Black (BK)	166-50604
AFCS32	32	34.0	12.7	17.4	5.1	10 pcs.	Metal (ML), Black (BK)	166-50605
AFCS40	40	44.0	25.4	30.5	14.2 x 17.5	5 pcs.	Metal (ML), Black (BK)	166-50606
AFCS50	50	54.0	25.4	30.5	14.2 x 17.5	5 pcs.	Metal (ML), Black (BK)	166-50607
AFCS63	63	70.0	25.4	30.5	14.2 x 17.5	1 pc.	Metal (ML), Black (BK)	166-50608
AFCS75	75	76.2	25.4	30.5	14.2 x 17.5	1 pc.	Metal (ML), Black (BK)	166-50609

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



CAD download





## Helawrap Cable Cover

### HWPP for industrial applications

Helawrap is used to bundle and protect cables and wires in the electrical industry, panel building, machine building and many other industrial applications. Helawrap is the time-saving solution for industrial applications.

#### Features and benefits

- Ideal solution for bundling, protecting and fixing cables
- Quick and effortless to apply
- Good abrasion protection
- Special profile enables branching off cable at any point
- Can be removed and reapplied often
- Available in several colours and sizes
- Handy HAT applicator tool included



HWPP is commonly used wherever high flexibility is required, such as in the door area of wiring panels.



Application video:  
Helawrap

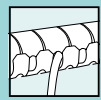
<b>MATERIAL</b>	Polypropylene (PP)
<b>Operating Temperature</b>	-60 °C to +110 °C, intermittent +140 °C
<b>Flammability</b>	UL94 HB

HF ✓

RoHS ✓

TYPE	Bundle Ø max.	Colour	Reel Length	Application Tool	Article-No.
HWPP8	9	Black (BK)	25 m	HAT8	161-64101
	9	Grey (GY)	25 m	HAT8	161-64102
	9	Silver (SR)	25 m	HAT8	161-64103
	9	White (WH)	25 m	HAT8	161-64104
HWPP16	16	Black (BK)	25 m	HAT16	161-64201
	16	Grey (GY)	25 m	HAT16	161-64202
	16	Silver (SR)	25 m	HAT16	161-64203
	16	White (WH)	25 m	HAT16	161-64207
HWPP20	21	Black (BK)	25 m	HAT20	161-64301
	21	Grey (GY)	25 m	HAT20	161-64302
	21	Silver (SR)	25 m	HAT20	161-64303
	21	White (WH)	25 m	HAT20	161-64304
HWPP25	27	Black (BK)	25 m	HAT25	161-64401
	27	Grey (GY)	25 m	HAT25	161-64402
	27	Silver (SR)	25 m	HAT25	161-64403
	27	White (WH)	25 m	HAT25	161-64407
HWPP30	32	Black (BK)	25 m	HAT30	161-64501
	32	Grey (GY)	25 m	HAT30	161-64502
	32	Silver (SR)	25 m	HAT30	161-64503
	32	White (WH)	25 m	HAT30	161-64504
HWPP40	42	Black (BK)	20 m	HAT40	161-64601

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Helawrap Cable Cover

#### HWPP for home and office use

Helawrap HWPP in practical 2 metre lengths is designed for home and office use. It puts an end to the cable chaos of PCs, TVs and Hi-Fi systems.



Complete cable management for home and office.



To order additional HAT application tools, see page 323



Helawrap HWPP, in practical 2m lengths, is available in 2 sizes and 4 colours.



Insert one or more cables into the insertion slot of the HAT applicator tool.



Place the HAT applicator tool in one end of the Helawrap cable cover.



Simply slide the HAT applicator tool through the Helawrap cover.

TYPE	Bundle Ø max.	Colour	Length (L)	Application Tool	Article-No.
HWPP16L2	16	Black (BK)	2 m	HAT16	161-64204
	16	Grey (GY)	2 m	HAT16	161-64205
	16	Silver (SR)	2 m	HAT16	161-64206
	16	White (WH)	2 m	HAT16	161-64215
HWPP25L2	27	Black (BK)	2 m	HAT25	161-64404
	27	Grey (GY)	2 m	HAT25	161-64405
	27	Silver (SR)	2 m	HAT25	161-64406
	27	White (WH)	2 m	HAT25	161-64415

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Helawrap Cable Cover

#### HWPAV0 flame-retardant and abrasion-resistant

Helawrap HWPAV0 is used to bundle and protect cable and wires, especially there is vibration and abrasion. HWPAV0 has excellent flame-retardant properties and is halogen-free.

#### Features and benefits

- Ideal solution for bundling, protecting and fixing cables
- Quick and effortless to apply
- Self-extinguishing according to UL94 V0
- Very good abrasion protection
- Special profile enables branching off cable at any point
- Can be removed and reapplied often
- Handy applicator tool included



Cables can be branched off at any point for better, more flexible protection.



To order additional HAT application tools, see page 323.

<b>MATERIAL</b>	Polyamide 6 V0 (PA6V0)
<b>Operating Temperature</b>	-40 °C to +90 °C, intermittent +120 °C
<b>Flammability</b>	UL94 V0

HF ✓

RoHS ✓

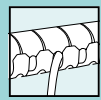
TYPE	Bundle Ø max.	Colour	Reel Length	Application Tool	Article-No.
HWPAV08	9	Black (BK)	25 m	HAT8	161-63101
HWPAV016	16	Black (BK)	25 m	HAT16	161-63201
HWPAV020	21	Black (BK)	25 m	HAT20	161-63301
HWPAV025	27	Black (BK)	25 m	HAT25	161-63401
HWPAV030	32	Black (BK)	25 m	HAT30	161-63501

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

EN 45545-2



For product specific approvals and specifications please refer to the Appendix.



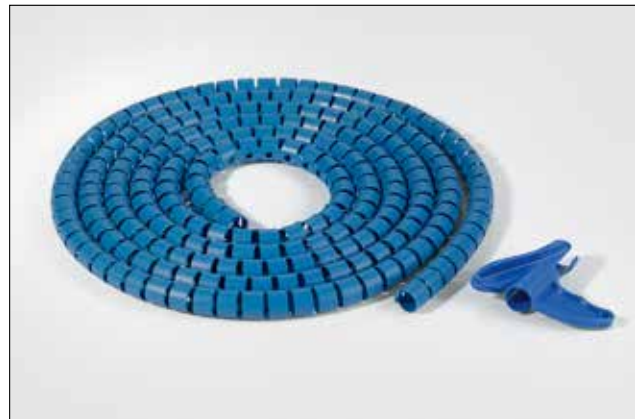
### Metal-Content Cable Cover

#### Helawrap HWPPMC

HWPPMC is particularly suitable for installation and maintenance for food-processing machines and in food-processing plants.

#### Features and benefits

- High metal-content for reliable detection with standard detection equipment
- Quick and effortless to apply
- Stainless steel preserves resistance to corrosion
- Blue colour for enhanced visibility
- Ideal solution for bundling and protecting cables and hoses
- Highly flexible
- Very good abrasion protection
- Special profile enables branching off cable at any point
- Can be removed and reused
- Handy applicator tool included



HWPPMC metal-content cable cover.

<b>MATERIAL</b>	Polypropylene (PP), Stainless Steel (SS)
<b>Operating Temperature</b>	-60 °C to +100 °C, intermittent +140 °C
<b>Flammability</b>	UL94 HB



**Can support quality assurance in the production of food stuffs, for example HACCP.**



**To order additional HAT application tools, see page 323.**

**HF** ✓

**RoHS** ✓



One Step to the Web!

TYPE	Bundle Ø max.	Colour	Reel Length	Application Tool	Article-No.
HWPPMC8	9	Blue (BU)	25 m	HAT8	161-66000
HWPPMC16	16	Blue (BU)	25 m	HAT16	161-66100
HWPPMC20	21	Blue (BU)	25 m	HAT20	161-66200
HWPPMC25	27	Blue (BU)	25 m	HAT25	161-66300
HWPPMC30	32	Blue (BU)	25 m	HAT30	161-66400

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Accessories for Helawrap Cable Cover

#### HWClips

Helawrap clips and mounting plates can be linked to mount and route Helawrap cable covers in wiring cabinets and machines as well as in the office or home.

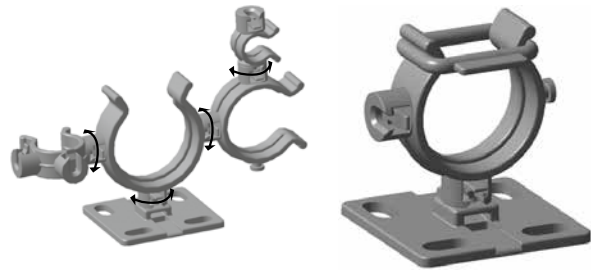
#### Features and benefits

- Mounts and routes Helawrap cable cover flexibly and efficiently
- Fit snugly around the cable cover and holds it tight
- Each clip can be joined to mounting plate or other clips of any size
- Each clip rotates freely
- Easily released and re-used



The Helawrap accessory set for bundling, protecting, mounting and routing cables.

<b>MATERIAL</b>	Polyamide 6.6, high impact modified, heat stabilised (PA66HIRHS)	Flexible Polyvinyl Chloride, cadmium free (PVC)
<b>Operating Temperature</b>	-40 °C to +105 °C	-35 °C to +85 °C
<b>Flammability</b>	UL94 HB	UL94 V2



Multiple clips can be joined. Clips swivel freely.

For secure hold, R1 loop can be used (for HWClip25 and HWClip30 only).

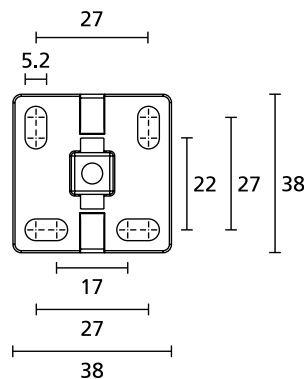
TYPE	for Helawrap size	Material	Colour	Article-No.
HWCLIP08	8	PA66HIRHS	Black (BK)	161-64002
HWCLIP16	16	PA66HIRHS	Black (BK)	161-64004
HWCLIP20	20	PA66HIRHS	Black (BK)	161-64006
HWCLIP25	25	PA66HIRHS	Black (BK)	161-64008
HWCLIP30	30	PA66HIRHS	Black (BK)	161-64010
R1	25, 30	PVC	Black (BK)	201-20010

Subject to technical changes.

#### HWBase

#### Features and benefits

- Mounting plates can be fixed with screws, cable ties or adhesive
- Can be used to mount any size HWClip



Helawrap HWBase/HWBaseA

TYPE	Adhesive	Colour	Article-No.
HWBASE	-	Black (BK)	161-64014
HWBASEA	Acrylate with base of polyurethane foam	Black (BK)	161-64012

All dimensions in mm. Subject to technical changes.



### Application Tools for Helawrap Cable Cover

#### HAT Tools

The HAT application tools are used with Helawrap HWPP, HWPAVO and HWPPMC cable covers to bundle and protect cables rapidly and efficiently. There is a specially designed HAT application tool for each size Helawrap cable cover.

#### Features and benefits

- Bundles cable rapidly and effortlessly
- Glides smoothly and securely through cover
- Easy insertion of cable



Applicator tools are available for every Helawrap cover size.

TYPE	Colour	Pack Cont.	Article-No.
HAT8	Blue (BU)	10 pcs.	161-60001
HAT16	Blue (BU)	10 pcs.	161-60002
HAT20	Blue (BU)	10 pcs.	161-60003
HAT25	Blue (BU)	10 pcs.	161-60004
HAT30	Blue (BU)	10 pcs.	161-60005
HAT40	Blue (BU)	5 pcs.	161-60006

Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





## Polyethylene spiral binding

### SBPE

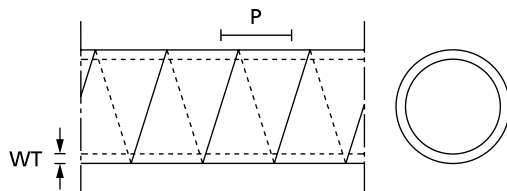
SBPE spiral binding is suitable for standard electrical applications and panel building and plant engineering. Sizes 4 and 9 are also available in practical 5 metre lengths.

#### Features and benefits

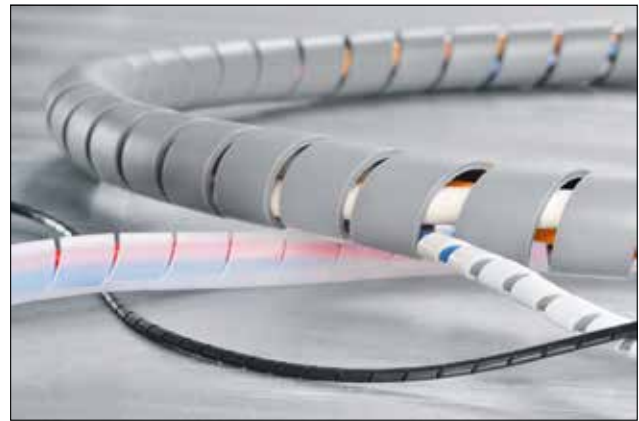
- Organises and protects cables and hoses
- Suitable for retro-fitting
- Cables branch out at any point
- Wide range of diameters and colours



One Step to the Web!



Spiral binding



Spiral binding SBPE.

<b>MATERIAL</b>	Polyethylene (PE)
<b>Operating Temperature</b>	-60 °C to +80 °C, intermittent +120 °C
<b>Flammability</b>	UL94 HB



TYPE	Nominal Ø	Wall (WT)	Pitch (P)	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
SBPE1.5	1.5	0.8	6.0	1.6	8	Black (BK)	30 m	161-41001
	1.5	0.8	6.0	1.6	8	Grey (GY)	30 m	161-41002
	1.5	0.8	6.0	1.6	8	Natural (NA)	30 m	161-41000
SBPE4	4	1.0	7.8	5	20	Natural (NA)	30 m	161-41100
	4	1.0	7.8	5	20	Black (BK)	30 m	161-41101
	4	1.0	7.8	5	20	Grey (GY)	30 m	161-41102
SBPE9	9	1.4	12.5	10	100	Black (BK)	30 m	161-41201
	9	1.4	12.5	10	100	Grey (GY)	30 m	161-41202
	9	1.4	12.5	10	100	Natural (NA)	30 m	161-41200
SBPE16	16	1.6	16.0	20	150	Black (BK)	30 m	161-41301
	16	1.6	16.0	20	150	Grey (GY)	30 m	161-41302
	16	1.6	16.0	20	150	Natural (NA)	30 m	161-41300

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

TYPE	Nominal Ø	Wall (WT)	Pitch (P)	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
SBPE4D	4	1.0	7.8	5	20	Black (BK)	5 m	161-41104
	4	1.0	7.8	5	20	Grey (GY)	5 m	161-41105
	4	1.0	7.8	5	20	Natural (NA)	5 m	161-41103
SBPE9D	9	1.4	12.5	10	100	Black (BK)	5 m	161-41204
	9	1.4	12.5	10	100	Grey (GY)	5 m	161-41205
	9	1.4	12.5	10	100	Natural (NA)	5 m	161-41203

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





### Flame-retardant polyethylene spiral binding

#### SBPEFR

The flame-retardant properties of SBPEFR make it suitable for applications in the automobile and electrical industries, where enhanced fire protection is needed.

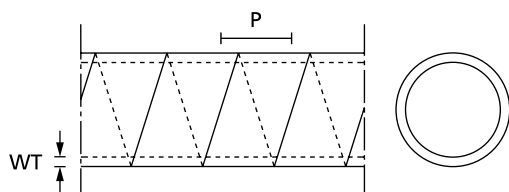
#### Features and benefits

- Organises and protects cables and hoses
- Self-extinguishing according to UL94 V2
- Suitable for retro-fitting
- Cables branch out at any point
- Wide range of diameters and colours



SBPEFR spiral binding is available in several diameters and in the colours black and white.

<b>MATERIAL</b>	Polyethylene, flame retardant (PE-FR)
<b>Operating Temperature</b>	-60 °C to +80 °C, intermittent +120 °C
<b>Flammability</b>	UL94 V2, FMVSS 302, Type B



Spiral binding



TYPE	Nominal Ø	Wall (WT)	Pitch (P)	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
SBPEFR1.5	1.5	0.8	6.0	1.6	8	Black (BK)	30 m	161-43001
	1.5	0.8	6.0	1.6	8	White (WH)	30 m	161-43000
SBPEFR4	4	1.0	7.8	5	20	Black (BK)	30 m	161-43101
	4	1.0	7.8	5	20	White (WH)	30 m	161-43100
SBPEFR9	9	1.4	12.5	10	100	Black (BK)	30 m	161-43201
	9	1.4	12.5	10	100	White (WH)	30 m	161-43200
SBPEFR16	16	1.6	16.0	20	150	Black (BK)	30 m	161-43301
	16	1.6	16.0	20	150	White (WH)	30 m	161-43300

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## Polyamide spiral binding

### SBPA

SBPA spiral binding is used for cable harnesses in the automobile industry and for many demanding industrial applications.

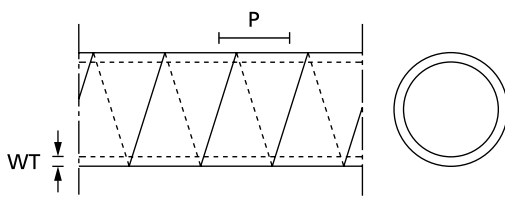
#### Features and benefits

- Organises and protects cables and hoses
- Very good protection against abrasion
- Suitable for retro-fitting
- Cables branch out at any point
- Wide range of diameters and colours



SBPA spiral binding made of polyamide offers excellent protection against abrasion.

<b>MATERIAL</b>	Polyamide 6 (PA6)
<b>Operating Temperature</b>	-60 °C to +95 °C, intermittent +130 °C
<b>Flammability</b>	UL94 HB



Spiral binding

TYPE	Nominal Ø	Wall (WT)	Pitch (P)	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
SBPA1.5	1.5	0.4	6.0	1.6	8	Natural (NA)	30 m	161-42000
SBPA4	4	0.6	7.8	5	20	Natural (NA)	30 m	161-42100
SBPA9	9	1.0	12.5	10	100	Natural (NA)	30 m	161-42200
SBPA16	16	1.2	16.0	20	150	Natural (NA)	30 m	161-42300

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Flame-retardant polyamide spiral binding

#### SBPAV0

Due to its excellent flame protection properties, SBPAV0 spiral binding is particularly suitable for the rail and aviation industries as well as public buildings.

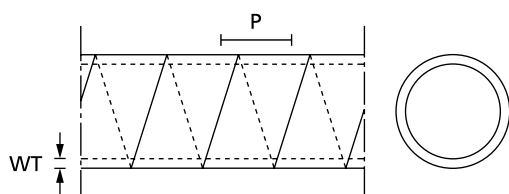
#### Features and benefits

- Organises and protects cables and hoses
- Self-extinguishing according to UL94 V0
- Very good protection against abrasion
- Suitable for retro-fitting
- Cables branch out at any point
- Wide range of diameters



Spiral binding SBPAV0.

<b>MATERIAL</b>	Polyamide 6 V0 (PA6V0)
<b>Operating Temperature</b>	-40 °C to +90 °C, intermittent +120 °C
<b>Flammability</b>	UL94 V0



Spiral binding

TYPE	Nominal Ø	Wall (WT)	Pitch (P)	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
SBPAV01.5	1.5	0.4	6.0	1.6	8	Black (BK)	30 m	161-44000
SBPAV04	4	0.6	7.8	5	20	Black (BK)	30 m	161-44100
SBPAV09	9	1.0	12.5	10	100	Black (BK)	30 m	161-44200
SBPAV016	16	1.2	16.0	20	150	Black (BK)	30 m	161-44300

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

**EN 45545-2**

For product specific approvals and specifications please refer to the Appendix.



#### PTFE spiral binding

##### SBPTFE

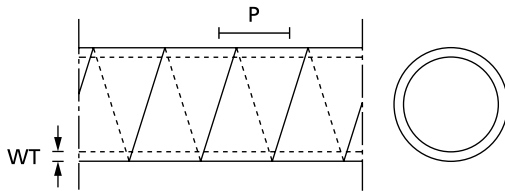
SBPTFE is recommended wherever superior protection against chemical and extreme temperatures are important.

##### Features and benefits

- Organises and protects cables and hoses
- Excellent fire protection
- Self-extinguishing according to UL94 V0
- Suitable for retro-fitting
- Cables branch out at any point
- Wide range of diameters and colours



Spiral binding SBTFE is ideal for extreme conditions.



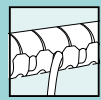
Spiral binding

<b>MATERIAL</b>	Polytetrafluoroethylene (PTFE)
<b>Operating Temperature</b>	-60 °C to +260 °C, intermittent +350 °C
<b>Flammability</b>	UL94 V0



TYPE	Nominal Ø	Wall (WT)	Pitch (P)	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
SBPTFE1.5	1.5	0.5	6.0	1.6	8	Natural (NA)	5 m	161-45000
SBPTFE4	4	0.7	7.8	5	20	Natural (NA)	5 m	161-45100
SBPTFE9	9	1.0	12.5	10	100	Natural (NA)	5 m	161-45200

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Metal-Content Spiral Binding

#### SBPEMC

SBPEMC is designed for applications in food-processing plants and machines.

#### Features and benefits

- High metal-content for reliable detection with standard detection equipment
- Stainless steel preserves resistance to corrosion
- Blue colour for enhanced visibility
- Ideal solution for bundling and protecting cables and hoses
- Highly flexible
- Suitable for retro-fitting
- Branching off cable at any point

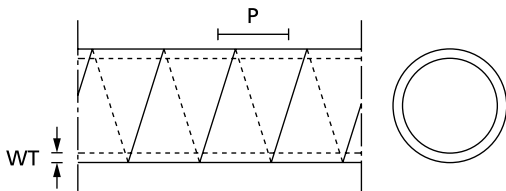


Detectable, metal-content spiral binding protects cables on food-processing machines.



One Step to the Web!

<b>MATERIAL</b>	Polyethylene (PE), Stainless Steel (SS)
<b>Operating Temperature</b>	-60 °C to +80 °C, intermittent +120 °C
<b>Flammability</b>	UL94 HB



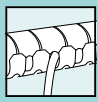
Spiral binding



Can support quality assurance in the production of food stuffs, for example HACCP.

TYPE	Nominal Ø	Wall (WT)	Pitch (P)	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
SBPEMC1.5	1.5	0.8	6.0	1.6	8	Blue (BU)	30 m	161-46000
SBPEMC4	4	1.0	7.8	5	20	Blue (BU)	30 m	161-46100
SBPEMC9	9	1.4	12.5	10	100	Blue (BU)	30 m	161-46200
SBPEMC16	16	1.6	16.0	20	150	Blue (BU)	30 m	161-46300

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### High abrasion-resistant polypropylene spiral binding, narrow pitch

#### SPS

SPS spiral binding is especially suitable wherever high abrasion resistance and much larger cable diameters are needed, for example in the petrochemical industry and in plant construction.

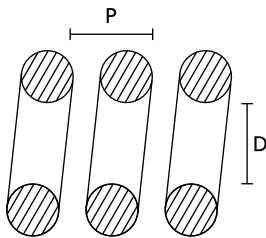
#### Features and benefits

- Heavy-walled and very robust
- Excellent protection from mechanical stress
- Very high abrasion resistance
- Very good resistance to oils
- Available in diameters up to 50 mm
- Ideal for larger cable bundles



Spiral binding SPS is very robust and provides good protection against oil.

<b>MATERIAL</b>	Polypropylene (PP)
<b>Operating Temperature</b>	-30 °C to +100 °C
<b>Flammability</b>	UL94 HB

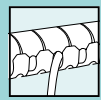


SPS spiral binding (narrow pitch)

TYPE	Ø (D)	Pitch (P)	Bundle Ø max.	Length (L)	Colour	Article-No.
SPS10	10.0	5.0	14	1.0 m	Black (BK)	162-10100
SPS15	15.0	5.0	20	1.0 m	Black (BK)	162-10150
SPS20	20.0	5.5	25	1.0 m	Black (BK)	162-10200
SPS25	25.0	6.0	30	1.0 m	Black (BK)	162-10250
SPS30	30.0	6.5	37	1.0 m	Black (BK)	162-10300
SPS35	35.0	6.5	42	1.0 m	Black (BK)	162-10350
SPS40	40.0	7.0	48	1.0 m	Black (BK)	162-10400
SPS50	50.0	8.0	59	1.0 m	Black (BK)	162-10500

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





### High abrasion-resistant polypropylene spiral binding, wide pitch

#### SPF

SPF spiral binding is especially suitable wherever high abrasion resistance and much larger cable diameters are needed, for example in the petrochemical industry and in plant construction.

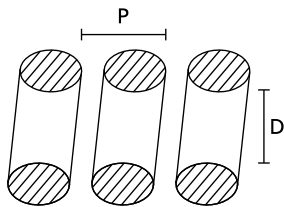
#### Features and benefits

- Heavy-walled and very robust
- Excellent protection from mechanical stress
- Very high abrasion resistance
- Very good resistance to oils
- Available in diameters up to 50 mm
- Ideal for larger cable bundles



SPF spiral binding is extremely robust and abrasion resistant.

<b>MATERIAL</b>	Polypropylene (PP)
<b>Operating Temperature</b>	-30 °C to +100 °C
<b>Flammability</b>	UL94 HB



SPF spiral binding (wide pitch)



TYPE	Ø (D)	Pitch (P)	Bundle Ø max.	Length (L)	Colour	Article-No.
SPF10	10.0	10	13	1.0 m	Black (BK)	162-20100
SPF15	15.0	13	18	1.0 m	Black (BK)	162-20150
SPF20	20.0	18	23	1.0 m	Black (BK)	162-20200
SPF25	25.0	19	29	1.0 m	Black (BK)	162-20250
SPF30	30.0	20	34	1.0 m	Black (BK)	162-20300
SPF35	35.0	20	39	1.0 m	Black (BK)	162-20350
SPF40	40.0	20	45	1.0 m	Black (BK)	162-20400
SPF50	50.0	22	56	1.0 m	Black (BK)	162-20500

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





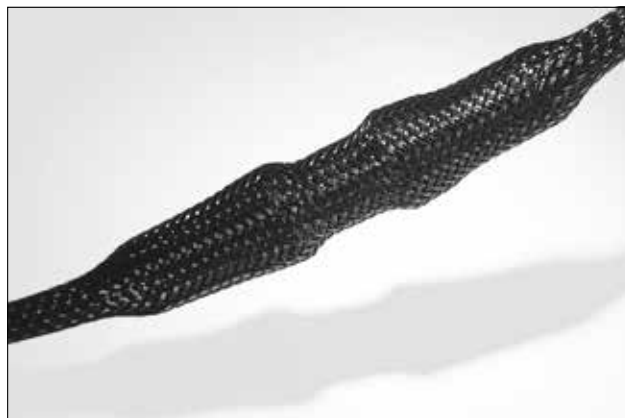
### Standard polyester braided sleeving

#### Helagain HEGP

Helagain HEGP braided sleeving provides abrasion protection in the automotive industry, in machine building, in panel building and in electrical appliances.

#### Features and benefits

- Made of sturdy polyester
- Highly flexible
- High abrasion resistance
- Very high surface coverage



Helagain HEGP braided sleeving.

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-50 °C to +150 °C, intermittent +220 °C
<b>Melting Point</b>	+250 °C
<b>Flammability</b>	UL94 V2, FMVSS 302



TYPE	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Tools	Article-No.
HEGP03	1	5	Black (BK)	200 m	45	170-10300
HEGP04	2	7	Black (BK)	200 m	45	170-10400
HEGP05	3	9	Black (BK)	200 m	45	170-10500
HEGP06	4	11	Black (BK)	100 m	45	170-10600
HEGP08	5	12	Black (BK)	100 m	45	170-10800
HEGP10	7	15	Black (BK)	100 m	45	170-11000
HEGP12	8	17	Black (BK)	100 m	45	170-11200
HEGP15	10	20	Black (BK)	100 m	45	170-11500
HEGP20	14	26	Black (BK)	50 m	45	170-12000
HEGP25	18	34	Black (BK)	50 m	45	170-12500
HEGP30	20	40	Black (BK)	50 m	45	170-13000
HEGP40	30	50	Black (BK)	50 m	45	170-14000
HEGP50	40	66	Black (BK)	50 m	45	170-15000

All dimensions in mm. Subject to technical changes.

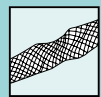
Colour grey available on request. Cuts in any lengths. Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools	
	45 HSG0
	572

For more information on toolings please refer to the Application Tooling chapter.

**EN 45545-2**

For product specific approvals and specifications please refer to the Appendix.



### High-expansion polyester braided sleeving

#### Helagain HEGPX

Helagain HEGPX is used whenever a higher expansion rate is required. HEGPX is particularly suitable for use in the automotive industry and in electrical appliances.

#### Features and benefits

- Made of sturdy polyester
- Highly flexible
- Expands to 3x nominal diameter
- Easy to apply over irregular shapes
- Good abrasion resistance



Helagain HEGPX braided sleeving.

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-50 °C to +150 °C, intermittent +220 °C
<b>Melting Point</b>	+250 °C
<b>Flammability</b>	UL94 V2, FMVSS 302



TYPE	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Tools	Article-No.
HEGPX06	3	10	Black (BK)	200 m	45	170-00060
HEGPX09	5	16	Black (BK)	100 m	45	170-00090
HEGPX12	6	19	Black (BK)	100 m	45	170-00120
HEGPX20	13	32	Black (BK)	100 m	45	170-00200
HEGPX30	19	45	Black (BK)	50 m	45	170-00300
HEGPX40	32	70	Black (BK)	50 m	45	170-00400

All dimensions in mm. Subject to technical changes.  
Colour grey available on request. Cuts in any lengths. Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools	
	45 HSG0
	572

For more information on toolings please refer to the Application Tooling chapter.

**EN 45545-2**



For product specific approvals and specifications please refer to the Appendix.



## Flame-retardant polyester braided sleeving

### Helagaine HEGPV0

HEGPV0 braided sleeving is used wherever fire protection is important such as in railway vehicles, machine tools, robotics and automatic equipment.

#### Features and benefits

- Made of sturdy polyester
- Self-extinguishing according to UL94 V0 for enhanced fire protection
- Highly flexible
- High abrasion resistance
- High surface coverage



Helagaine HEGPV0 braided sleeving.

<b>MATERIAL</b>	Polyester (PBT)
<b>Operating Temperature</b>	-50 °C to +150 °C, intermittent +200 °C
<b>Melting Point</b>	+225 °C
<b>Flammability</b>	UL94 V0, FMVSS 302



TYPE	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Tools	Article-No.
HEGPV004	3	7	Black with White Identification Yarn (BKIDWH)	100 m	45	170-30400
HEGPV006	5	11	Black with White Identification Yarn (BKIDWH)	100 m	45	170-30600
HEGPV008	7	13	Black with White Identification Yarn (BKIDWH)	100 m	45	170-30800
HEGPV012	11	17	Black with White Identification Yarn (BKIDWH)	50 m	45	170-31200
HEGPV015	13	20	Black with White Identification Yarn (BKIDWH)	50 m	45	170-31500
HEGPV020	18	25	Black with White Identification Yarn (BKIDWH)	50 m	45	170-32000
HEGPV030	27	40	Black with White Identification Yarn (BKIDWH)	50 m	45	170-33000
HEGPV040	35	50	Black with White Identification Yarn (BKIDWH)	50 m	45	170-34000
HEGPV050	40	60	Black with White Identification Yarn (BKIDWH)	50 m	45	170-35000

All dimensions in mm. Subject to technical changes.

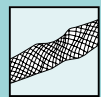
Colour grey available on request. Cuts in any lengths. Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools	
	45 HSG0
	572

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



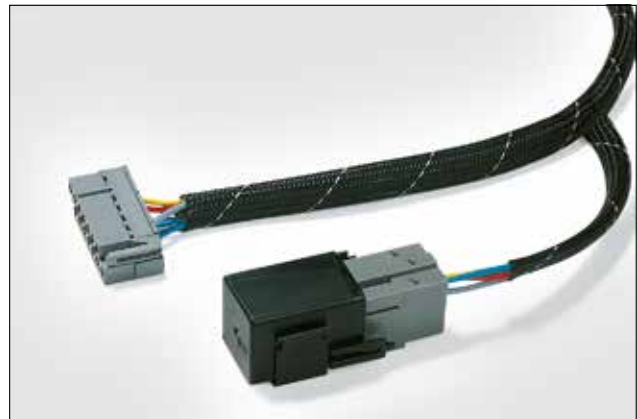
### Flame-retardant, high-expansion polyester braided sleeving

#### Helagain HEGPV0X

Helagain HEGPV0X braided sleeving is especially suitable wherever fire protection is important, such as in railway vehicles.

#### Features and benefits

- Made of sturdy polyester
- Self-extinguishing according to UL94 V0 for enhanced fire protection
- Highly flexible
- Expands to 3x nominal diameter
- Easy to apply over irregular shapes
- Good abrasion resistance



Helagain HEGPV0X flame-retardant braided sleeving.

<b>MATERIAL</b>	Polyester (PBT)
<b>Operating Temperature</b>	-50 °C to +150 °C, intermittent +200 °C
<b>Melting Point</b>	+225 °C
<b>Flammability</b>	UL94 V0, FMVSS 302



TYPE	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Tools	Article-No.
HEGPV0X03	2	6	Black with White Identification Yarn (BKIDWH)	200 m	45	170-50030
HEGPV0X06	3	10	Black with White Identification Yarn (BKIDWH)	200 m	45	170-50060
HEGPV0X09	5	16	Black with White Identification Yarn (BKIDWH)	100 m	45	170-50090
HEGPV0X12	6	19	Black with White Identification Yarn (BKIDWH)	100 m	45	170-50120
HEGPV0X20	12	32	Black with White Identification Yarn (BKIDWH)	100 m	45	170-50200
HEGPV0X30	19	45	Black with White Identification Yarn (BKIDWH)	50 m	45	170-50300
HEGPV0X40	32	70	Black with White Identification Yarn (BKIDWH)	50 m	45	170-50400
HEGPV0X50	38	76	Black with White Identification Yarn (BKIDWH)	50 m	45	170-50500

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Cuts in any lengths. Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools	
	45 HSG0
	572

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



### Abrasion-resistant polyamide braided sleeving

#### Helagaine HEGPA66

Helagaine HEGPA66 is particularly suitable for vehicle manufacturing as well as plant construction.

#### Features and benefits

- Made from heavy-duty polyamide yarn
- Excellent abrasion resistance
- Highly flexible
- Easy to apply over irregular shapes
- Eases application by expanding when compressed
- Very high surface covering



Helagaine HEGPA66 braided sleeving.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-60 °C to +150 °C, intermittent +200 °C
<b>Melting Point</b>	+255 °C
<b>Flammability</b>	UL94 V2, FMVSS 302



TYPE	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Tools	Article-No.
HEGPA6604	3	6	Black (BK)	200 m	45	170-40400
HEGPA6606	4	8	Black (BK)	100 m	45	170-40600
HEGPA6608	5	10	Black (BK)	100 m	45	170-40800
HEGPA6610	7	12	Black (BK)	100 m	45	170-41000
HEGPA6612	8	14	Black (BK)	100 m	45	170-41200
HEGPA6616	12	18	Black (BK)	50 m	45	170-41600
HEGPA6620	15	23	Black (BK)	50 m	45	170-42000
HEGPA6625	18	28	Black (BK)	50 m	45	170-42500
HEGPA6630	25	32	Black (BK)	50 m	45	170-43000
HEGPA6640	30	44	Black (BK)	50 m	45	170-44000
HEGPA6650	40	55	Black (BK)	50 m	45	170-45000
HEGPA6660	50	65	Black (BK)	50 m	45	170-46000

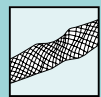
All dimensions in mm. Subject to technical changes.  
Colour grey available on request. Cuts in any lengths. Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools	
	45 HSG0
	572

For more information on toolings please refer to the Application Tooling chapter.

**EN 45545-2**

For product specific approvals and specifications please refer to the Appendix.



### Light-weight polyester braided sleeving

#### Helagain HEGPL

Helagain HEGPL is used primarily in the automobile interior, motor compartment, car body and chassis.

#### Features and benefits

- Made of sturdy polyester
- Expands to 3x nominal diameter
- Easier application over irregular shapes
- Highly flexible
- Good abrasion resistance



Helagain HEGPL braided sleeving.

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-50 °C to +150 °C, intermittent +220 °C
<b>Melting Point</b>	+250 °C
<b>Flammability</b>	UL94 V2, FMVSS 302, Type B



TYPE	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Tools	Article-No.
HEGPL03	3	8	Black (BK)	1,000 m	45	170-80503
HEGPL06	5	12	Black (BK)	400 m	45	170-80506
HEGPL12	8	21	Black (BK)	300 m	45	170-80512
HEGPL20	12	30	Black (BK)	300 m	45	170-80520
HEGPL30	18	55	Black (BK)	200 m	45	170-80530
HEGPL40	24	66	Black (BK)	150 m	45	170-80540
HEGPL50	30	82	Black (BK)	150 m	45	170-80550

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Cuts in any lengths. Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools	
	45 HSG0
	572

For more information on toolings please refer to the Application Tooling chapter.



### Standard braided sleeving in dispenser boxes

#### Helagain HLB

Because Helagain HLB is supplied in practical dispenser boxes and covers a wide range of applications with only a few sizes, it is ideal for both the professional and the home user. Helagain HLB bundles and effectively protects cables and wires, for instance in HiFi systems.

#### Features and benefits

- In practical, space-saving 10 m dispenser boxes
- Expands to 3x nominal diameter
- Bundling diameters from 5 mm to 54 mm
- Three sizes for very wide range of applications
- Extraction of sleeves



Only three sizes of Helagain HLB cover almost all application diameters and are available in practical dispenser boxes.



One Step to the Web!

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-50 °C to +150 °C, intermittent +220 °C
<b>Melting Point</b>	+250 °C
<b>Flammability</b>	UL94 V2



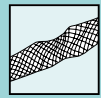
TYPE	Ø (D)	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Tools	Article-No.
HLB15	15	5	21	Black (BK)	10 m	45	170-80150
HLB25	25	10	30	Black (BK)	10 m	45	170-80250
HLB35	35	18	54	Black (BK)	10 m	45	170-80350

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools	
	45 HSG0
	572

For more information on toolings please refer to the Application Tooling chapter.





### Noise-protection polyester braided sleeving

#### Helagain HEGSAS

Helagain HEGSAS braided sleeving is used primarily in the automotive sector, where vibration noise must be reduced.

#### Features and benefits

- Superior noise reduction
- Made of sturdy polyester
- Highly flexible
- Easy to apply over irregular shapes due
- High surface coverage
- Excellent abrasion resistance



Helagain HEGSAS braided sleeving.

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-50 °C to +150 °C, intermittent +200 °C
<b>Melting Point</b>	+250 °C
<b>Flammability</b>	FMVSS 302



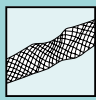
TYPE	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Tools	Article-No.
HEGSAS04	2	8	Black (BK)	200 m	45	170-60401
HEGSAS06	4	11	Black (BK)	200 m	45	170-60600
HEGSAS09	6	16	Black (BK)	100 m	45	170-60900
HEGSAS12	8	20	Black (BK)	100 m	45	170-61200
HEGSAS15	10	24	Black (BK)	50 m	45	170-61500
HEGSAS20	13	30	Black (BK)	50 m	45	170-62000
HEGSAS30	20	40	Black (BK)	25 m	45	170-63000
HEGSAS40	30	50	Black (BK)	25 m	45	170-64000

All dimensions in mm. Subject to technical changes.

Colour grey available on request. Cuts in any lengths. Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools	
	45 HSG0
	572

For more information on toolings please refer to the Application Tooling chapter.



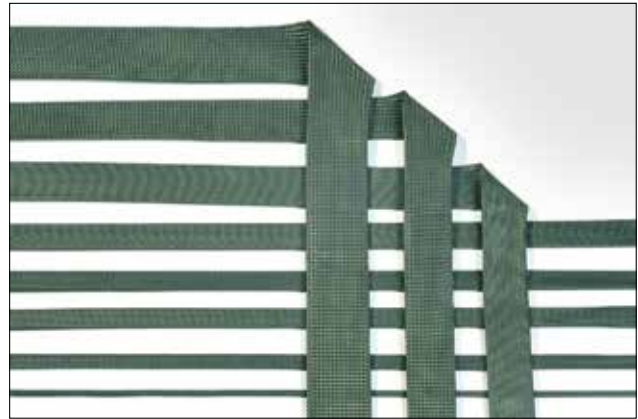
## Meta-aramid braided sleeving

### Helagaine HEGMAN

Helagaine HEGMAN provides excellent mechanical protection for applications involving high temperatures and fire-protection, particularly in the aerospace, military, railway and ship-building industries.

#### Features and benefits

- Made of non-flammable meta-aramid
- Extremely flexible
- High expansion for easy installation over long lengths
- Optimal mechanical protection for harnesses
- Able to withstand the most severe environments
- Superior protection against abrasion, flames and high temperatures
- Highly resistant to radiation and fluids



The non-flammable Helagaine HEGMAN and HEGMANWO are available in many different sizes.



One Step to the Web!

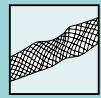
<b>MATERIAL</b>	Polyaramid Polymetaphenylene Isophthalamide (NOMEX)
<b>Operating Temperature</b>	+240 °C
<b>Melting Point</b>	Does not melt / Carbonisation above +370 °C
<b>Flammability</b>	UL94 V0 (Raw material), UL224 VW-1



TYPE	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
HEGMAN-02	1	2	Green (GN)	100 m	170-02100
HEGMAN-04	2	4	Green (GN)	100 m	170-02101
HEGMAN-06	4	8	Green (GN)	100 m	170-02102
HEGMAN-08	6	12	Green (GN)	50 m	170-02103
HEGMAN-10	8	16	Green (GN)	50 m	170-02104
HEGMAN-15	10	20	Green (GN)	50 m	170-02105
HEGMAN-20	12	24	Green (GN)	50 m	170-02106
HEGMAN-25	15	30	Green (GN)	50 m	170-02107
HEGMAN-30	20	40	Green (GN)	50 m	170-02108

All dimensions in mm. Subject to technical changes.

Cuts in any lengths. NOMEX® is a registered trademark of DuPont. Minimum Order Quantity (MOQ) may differ from package content.



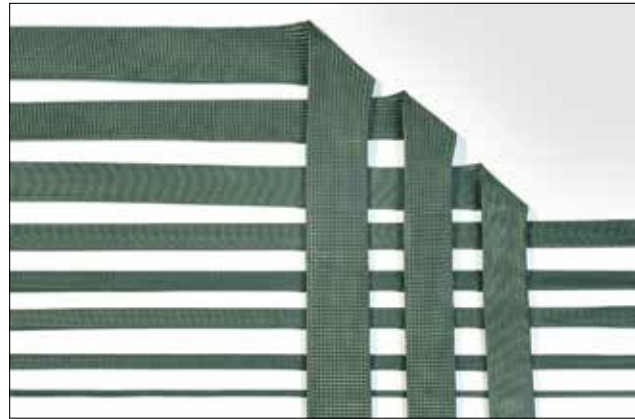
### Water and oil repellent meta-aramid braided sleeving

#### Helagain HEGMANWO

Helagain HEGMANWO is especially resistant to water and oil and is designed for applications requiring mechanical protection at high temperatures, particularly in the aerospace, military, railway and ship-building industries.

#### Features and benefits

- Made of non-flammable meta-aramid
- Water and oil-repellent
- Extremely flexible
- High expansion for easy installation over long lengths
- Optimal mechanical protection for harnesses
- Able to withstand the most severe environments
- Superior protection against abrasion, flames and high temperatures
- Highly resistant to radiation and fluids



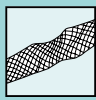
The non-flammable Helagain HEGMAN and HEGMANWO are available in many different sizes.

<b>MATERIAL</b>	Polyaramid Polymetaphenylene Isophthalamide (NOMEX)
<b>Operating Temperature</b>	-60 °C to +240 °C
<b>Melting Point</b>	Does not melt / Carbonisation above +370 °C
<b>Flammability</b>	UL94 V0 (Raw material), UL224 VW-1



TYPE	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
HEGMANWO-02	1	2	Green (GN)	100 m	170-02000
HEGMANWO-04	2	4	Green (GN)	100 m	170-02001
HEGMANWO-06	4	8	Green (GN)	100 m	170-02002
HEGMANWO-08	6	12	Green (GN)	50 m	170-02003
HEGMANWO-10	8	16	Green (GN)	50 m	170-02004
HEGMANWO-15	10	20	Green (GN)	50 m	170-02005
HEGMANWO-20	12	24	Green (GN)	50 m	170-02006
HEGMANWO-25	15	30	Green (GN)	50 m	170-02007
HEGMANWO-30	20	40	Green (GN)	50 m	170-02008

All dimensions in mm. Subject to technical changes.  
Cuts in any lengths. NOMEX® is a registered trademark of DuPont. Minimum Order Quantity (MOQ) may differ from package content.



## Self-closing polyester sleeving

### Helagaine Twist-In

Helagaine Twist-In is used to bundle and protect pre-terminated cables in machine-building and automation, electrical installations and automobile and truck manufacturing.

Helagaine Twist-In is also available in practical 2 m and 5 m lengths for use in the home or office.

#### Features and benefits

- Self-closing sleeve made of sturdy polyester
- Provides very good protection against abrasion
- Ideal for retro-fitting
- Quick and easy installation and removal
- Allows for inspection and maintenance



Helagaine Twist-In enables easy access to cables and wires for assembly, inspection and maintenance.



One Step to the Web!

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-50 °C to +125 °C
<b>Melting Point</b>	+255 °C
<b>Flammability</b>	self-extinguishing, FMVSS 302



TYPE	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Tools	Article-No.
Twist-In 05	4	5	Black (BK)	150 m	45	170-01000
Twist-In 08	5	8	Black (BK)	100 m	45	170-01001
Twist-In 13	10	13	Black (BK)	50 m	45	170-01002
Twist-In 19	16	19	Black (BK)	25 m	45	170-01004
Twist-In 25	19	25	Black (BK)	25 m	45	170-01005
Twist-In 29	25	29	Black (BK)	15 m	45	170-01006
Twist-In 32	29	32	Black (BK)	15 m	45	170-01007
Twist-In 38	32	38	Black (BK)	15 m	45	170-01008
Twist-In 50	38	50	Black (BK)	15 m	45	170-01010

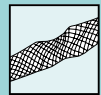
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

TYPE	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Tools	Article-No.
Twist-In 05	4	5	Black (BK)	5 m	45	170-01011
Twist-In 08	5	8	Black (BK)	5 m	45	170-01012
Twist-In 13	10	13	Black (BK)	5 m	45	170-01013
Twist-In 19	16	19	Black (BK)	2 m	45	170-01014
Twist-In 25	19	25	Black (BK)	2 m	45	170-01015
Twist-In 29	25	29	Black (BK)	2 m	45	170-01016
Twist-In 32	29	32	Black (BK)	2 m	45	170-01017
Twist-In 38	32	38	Black (BK)	2 m	45	170-01018

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



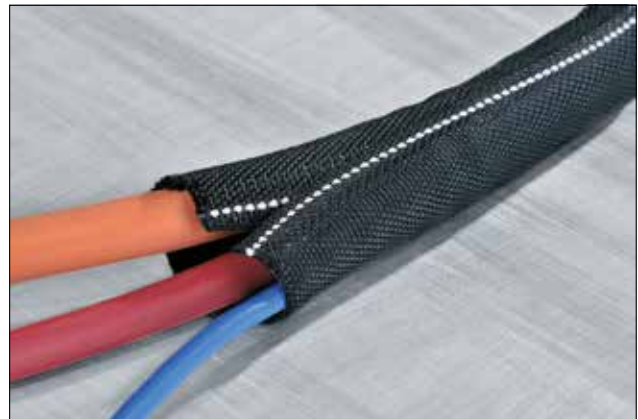
### Self-closing, flame-retardant polyester sleeving

#### Helagaine Twist-In-FR

Helagaine Twist-In-FR is used wherever fire protection is essential, such as in the railway, aerospace and shipbuilding industries.

#### Features and benefits

- Self-closing sleeve made from polyester
- Optimal fire protection
- Easy and quick installation and removal
- Ideal for retro-fitting
- Allows access to bundle for assembly, inspection and maintenance



Helagaine Twist-In-FR is used wherever fire safety is important.



One Step to the Web!

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-50 °C to +125 °C
<b>Melting Point</b>	+240 °C
<b>Flammability</b>	FMVSS 302, self-extinguishing



TYPE	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Tools	Article-No.
<b>Twist-In-FR 05</b>	4	5	Black with White Identification Yarn (BKIDWH)	150 m	45	170-01100
<b>Twist-In-FR 08</b>	5	8	Black with White Identification Yarn (BKIDWH)	100 m	45	170-01101
<b>Twist-In-FR 13</b>	10	13	Black with White Identification Yarn (BKIDWH)	50 m	45	170-01102
<b>Twist-In-FR 19</b>	16	19	Black with White Identification Yarn (BKIDWH)	25 m	45	170-01104
<b>Twist-In-FR 25</b>	19	25	Black with White Identification Yarn (BKIDWH)	25 m	45	170-01105
<b>Twist-In-FR 29</b>	25	29	Black with White Identification Yarn (BKIDWH)	15 m	45	170-01106
<b>Twist-In-FR 32</b>	29	32	Black with White Identification Yarn (BKIDWH)	15 m	45	170-01107
<b>Twist-In-FR 38</b>	32	38	Black with White Identification Yarn (BKIDWH)	15 m	45	170-01108
<b>Twist-In-FR 50</b>	38	50	Black with White Identification Yarn (BKIDWH)	15 m	45	170-01109

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools	
	45 HSG0
	572

For more information on toolings please refer to the Application Tooling chapter.

**EN 45545-2**

**NF F**



For product specific approvals and specifications please refer to the Appendix.



### Re-closeable protective sleeving with hook-and-loop seal

#### HELAHOOK

HELAHOOK is used in automobiles and commercial vehicles as well as industrial machines and railway vehicles. HELAHOOK is especially practical where repeated use is required, for instance in event management.

#### Features and benefits

- Re-sealable cable protection made of polyester
- Very elastic, fits snugly around the cables
- Hook and loop sealing system can be used for retro-fitting
- High abrasion-resistance



HELAHOOK protective sleeving allows for retro-fitting and repeated use.



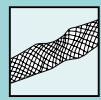
One Step to the Web!

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-50 °C to +150 °C
<b>Flammability</b>	UL94 V2, FMVSS 302



TYPE	Bundle Ø min.	Bundle Ø max.	Colour	Reel Length	Article-No.
HELAHOOK10	3	15	Black (BK)	25 m	170-05100
HELAHOOK15	10	20	Black (BK)	25 m	170-05150
HELAHOOK20	15	30	Black (BK)	25 m	170-05200
HELAHOOK25	20	40	Black (BK)	25 m	170-05250
HELAHOOK30	25	50	Black (BK)	25 m	170-05300

All dimensions in mm. Subject to technical changes.  
Cuts in any lengths. Minimum Order Quantity (MOQ) may differ from package content.



### Burst Protection Sleeving for Hydraulic Hoses

#### Helagain HEGWS

HEGWS is burst protection sleeve highly resistant to abrasion and tears. HEGWS is used to protect hydraulic hoses and prevent injuries due to leaks emitting high-pressure liquid jets. HEGWS is typically used with earth moving machinery and where there is high mechanical vibration.

#### Features and benefits

- Exceptional tear-resistance
- Very good protection against abrasion
- Optimal protection of hydraulic hoses
- Reduces risk of liquid-jet injuries
- Fulfills the standards of Earth Moving Machinery EN ISO 3457 and Mechanical Vibration and Shock EN 1299



Helagain HEGWS: The ideal protective sleeve for hydraulic hoses.



One Step to the Web!

<b>MATERIAL</b>	Polyamide 6 (PA6)
<b>Operating Temperature</b>	-60 °C to +125 °C
<b>Melting Point</b>	+220 +/- 10 °C
<b>Flammability</b>	UL94 V2, FMVSS 302, Type B



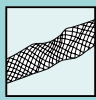
TYPE	Inside Ø (ID)	Wall (WT)	Colour	Reel Length	Tools	Article-No.
HEGWS20	12	1.1	Black (BK)	50 m	45	170-01300
HEGWS25	15	1.1	Black (BK)	50 m	45	170-01301
HEGWS30	19	1.1	Black (BK)	50 m	45	170-01302
HEGWS35	22	1.1	Black (BK)	50 m	45	170-01303
HEGWS40	25	1.1	Black (BK)	50 m	45	170-01304
HEGWS45	28	1.1	Black (BK)	50 m	45	170-01305
HEGWS50	31	1.1	Black (BK)	50 m	45	170-01306
HEGWS60	38	1.1	Black (BK)	50 m	45	170-01307
HEGWS70	44	1.1	Black (BK)	50 m	45	170-01308
HEGWS80	50	1.1	Black (BK)	50 m	45	170-01309
HEGWS90	57	1.1	Black (BK)	50 m	45	170-01310
HEGWS100	60	1.1	Black (BK)	50 m	45	170-01311
HEGWS115	70	1.1	Black (BK)	50 m	45	170-01312
HEGWS145	90	1.1	Black (BK)	50 m	45	170-01313
HEGWS176	110	1.1	Black (BK)	50 m	45	170-01314
HEGWS200	125	1.1	Black (BK)	50 m	45	170-01315

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content.

Recommended Tools	
	45 HSG0
	572

For more information on toolings please refer to the Application Tooling chapter.





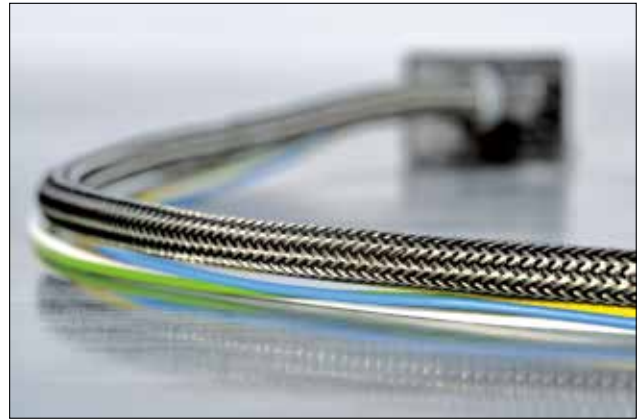
## Electromagnetic protection braided sleeving

### Helagain HEGEMIP

Helagain HEGEMIP braided sleeving is used for highly sensitive electronics, such as in machines, military equipment and automobiles.

#### Features and benefits

- Excellent electromagnetic protection
- Extremely flexible, expandable and easy to apply
- No kinks or ruptures even when bent at sharp angles
- Superior abrasion protection
- Particularly suitable for applications with restricted space or requiring movement
- Inner disposable tube protects sleeve from deformation and allows for easy insertion of cables
- Fulfils the requirements of IEC CISPR25 for radio disturbances in vehicles, boats and engines



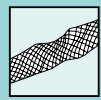
HEGEMIP braided sleeving: reliable protection from electromagnetic radiation.

<b>MATERIAL</b>	Polyester, halogen free (PET), Tin-plated copper (TNCU)
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>EMI requirements</b>	10 kHz to 1 GHz according to CISPR25 (DIN VDE 0879-2)
<b>Flammability</b>	UL94 V2, FMVSS 302



TYPE	Ø (D)	Bundle Ø min.	Bundle Ø max.	Colour	Weight	Reel Length	Article-No.
HEGEMIP04	4	4	6	Tin-coloured and Black (TCBK)	21.5 g/m	100 m	173-00400
HEGEMIP06	6	5	10	Tin-coloured and Black (TCBK)	28.5 g/m	100 m	173-00600
HEGEMIP08	8	8	11	Tin-coloured and Black (TCBK)	35.7 g/m	100 m	173-00800
HEGEMIP10	10	8	13	Tin-coloured and Black (TCBK)	43.5 g/m	50 m	173-01000
HEGEMIP12	12	10	15	Tin-coloured and Black (TCBK)	48.0 g/m	50 m	173-01200
HEGEMIP14	14	12	18	Tin-coloured and Black (TCBK)	58.0 g/m	100 m	173-01400
HEGEMIP16	16	14	20	Tin-coloured and Black (TCBK)	72.5 g/m	100 m	173-01600
HEGEMIP18	18	16	22	Tin-coloured and Black (TCBK)	78.6 g/m	50 m	173-01800
HEGEMIP20	20	18	25	Tin-coloured and Black (TCBK)	100.0 g/m	50 m	173-02000

All dimensions in mm. Subject to technical changes.  
Cuts in any lengths. Minimum Order Quantity (MOQ) may differ from package content.



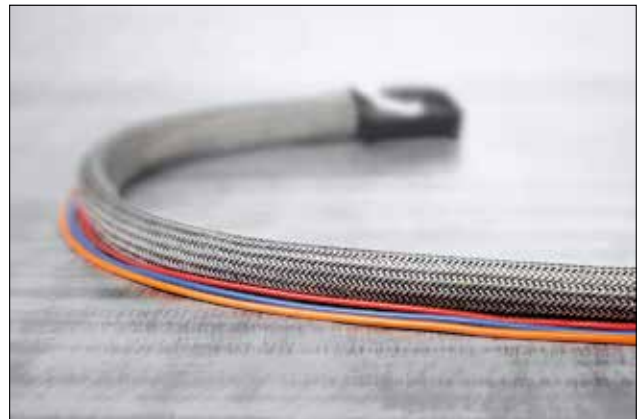
### Electromagnetic protection, flame-retardant protection braided sleeving

#### Helagaine HEGEMIPV0

Helagaine HEGEMIPV0 braided sleeving is used for sensitive electronics where fire protection is important, such as in the mass transit, aerospace and military industries.

#### Features and benefits

- Excellent electromagnetic protection
- Extremely flexible, expandable and easy to apply
- No kinks or ruptures, even when bent at sharp angles
- Self-extinguishing according to UL94 V0
- Superior abrasion protection
- Particularly suitable for applications with restricted space or requiring movement
- Inner disposable tube protects sleeve from deformation and allows for easy insertion of cables
- Fulfils the requirements of IEC CISPR25 for radio disturbances in vehicles, boats and engines



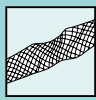
HEGEMIPV0 braided sleeve: EMI protection with enhanced flame retardance.

<b>MATERIAL</b>	Polyester (PBT), Tin-plated copper (TNCU)
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>EMI requirements</b>	10 kHz to 1 GHz according to CISPR25 (DIN VDE 0879-2)
<b>Flammability</b>	UL94 V0, FMVSS 302



TYPE	Ø (D)	Bundle Ø min.	Bundle Ø max.	Colour	Weight	Reel Length	Article-No.
HEGEMIPV004	4	4	6	Tin-coloured and Black (TCBK)	21.5 g/m	100 m	173-60400
HEGEMIPV006	6	5	10	Tin-coloured and Black (TCBK)	28.5 g/m	100 m	173-60600
HEGEMIPV008	8	8	11	Tin-coloured and Black (TCBK)	26.5 g/m	100 m	173-60800
HEGEMIPV010	10	8	13	Tin-coloured and Black (TCBK)	43.5 g/m	50 m	173-61000
HEGEMIPV012	12	10	15	Tin-coloured and Black (TCBK)	48.0 g/m	50 m	173-61200
HEGEMIPV014	14	12	18	Tin-coloured and Black (TCBK)	58.0 g/m	100 m	173-61400
HEGEMIPV016	16	14	20	Tin-coloured and Black (TCBK)	72.5 g/m	100 m	173-61600
HEGEMIPV018	18	16	22	Tin-coloured and Black (TCBK)	78.6 g/m	50 m	173-61800
HEGEMIPV020	20	18	25	Tin-coloured and Black (TCBK)	100.0 g/m	50 m	173-62000

All dimensions in mm. Subject to technical changes.  
Cuts in any lengths. Minimum Order Quantity (MOQ) may differ from package content.



### Electromagnetic protection braided sleeving for hybrid automobiles

#### Helagaine HEGEMIP-HY

Helagaine HEGEMIP-HY provides electromagnetic protection in hybrid automobiles.

#### Features and benefits

- Excellent electromagnetic protection
- Extremely flexible, expandable and easy to apply
- No kinks or ruptures even when bent at sharp angles
- Superior abrasion protection
- Special copper alloy for enhanced protection against salt spray
- Particularly suitable for applications with restricted space or requiring movement
- Inner disposable tube protects sleeve from deformation and allows for easy insertion of cables
- Fulfils the requirements of IEC CISPR25 for radio disturbances in vehicles, boats and engines



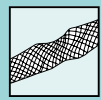
HEGEMIP-HY braided sleeving: EMI protection for hybrid automobiles.

<b>MATERIAL</b>	Polyester (PET), Tin-plated copper (TNCU)
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>EMI requirements</b>	10 kHz to 1 GHz according to CISPR25 (DIN VDE 0879-2)
<b>Flammability</b>	UL94 V2, FMVSS 302



TYPE	Ø (D)	Bundle Ø min.	Bundle Ø max.	Colour	Weight	Reel Length	Article-No.
HEGEMIP-HY20	20	19	27	Silver (SR), Orange (OG)	72 g/m	50 m	173-02001
HEGEMIP-HY30	30	25	35	Silver (SR), Orange (OG)	101 g/m	50 m	173-03000
HEGEMIP-HY35	35	30	40	Silver (SR), Orange (OG)	120 g/m	50 m	173-03501
HEGEMIP-HY40	40	30	50	Silver (SR), Orange (OG)	180 g/m	50 m	173-04000
HEGEMIP-HY50	50	40	60	Silver (SR), Orange (OG)	193 g/m	50 m	173-05000

All dimensions in mm. Subject to technical changes.  
Cuts in any lengths. Minimum Order Quantity (MOQ) may differ from package content.



### Electromagnetic protection braided sleeving for defence applications

#### Helagain HEGEMIP-VG

Helagain HEGEMIP-VG provides electromagnetic protection for the defence industry.

#### Features and benefits

- Excellent electromagnetic protection
- Very flexible, expandable and easy to apply
- Especially suitable for applications in tight areas or requiring movement
- Inner disposable tube protects sleeve from deformation and allows for easy insertion of cables
- Very good abrasion resistance
- Approved to military norm VG 96936-10 / Type A



HEGEMIP-VG braided sleeving with VG approval for defence applications.



One Step to the Web!

<b>MATERIAL</b>	Tin-plated copper (TNCU)
<b>Operating Temperature</b>	-65 °C to +150 °C
<b>Flammability</b>	UL94 V2, FMVSS 302

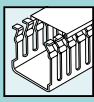


TYPE	Ø (D)	Bundle Ø min.	Bundle Ø max.	Colour	Weight	Reel Length	Article-No.
HEGEMIP-VG03	3	3.5	5.0	Metal (ML)	18.5 g/m	500 m	173-00200
HEGEMIP-VG04	4	4.5	7.0	Metal (ML)	30.0 g/m	500 m	173-00201
HEGEMIP-VG06	6	5.5	8.5	Metal (ML)	36.5 g/m	500 m	173-00202
HEGEMIP-VG07,5	7.5	7.5	13.5	Metal (ML)	71.0 g/m	500 m	173-00203
HEGEMIP-VG10	10	13.0	17.5	Metal (ML)	95.5 g/m	250 m	173-00204
HEGEMIP-VG12,5	12.5	15.0	19.5	Metal (ML)	100.0 g/m	200 m	173-00205
HEGEMIP-VG20	20	19.0	30.0	Metal (ML)	264.5 g/m	100 m	173-00206

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



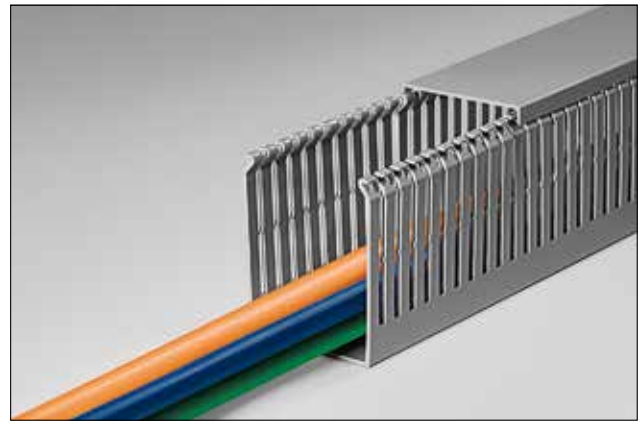
### Rigid PVC Wiring Ducts

#### HelaDuct HTWD-PN for small-diameter wires

HelaDuct HTWD-PN wiring ducts are used to route and protect wires in control panels and switching systems.

#### Features and benefits

- Narrow slots suitable for small-diameter wires
- Smooth, burr-free edges protect installers from injury and wires from damage
- Fingers can be removed with no sharp edges at pre-notched snap-off points
- Further pre-notched snap-off point at base of sidewall allow cutting out and removing sections of sidewall with no sharp edges
- Raised mounting points for easily and securely fastening wire retainers and other accessories prior to cabling
- Wire retainers and accessories leave no protruding parts below surface of duct
- Duct covers are easy to mount and remove, yet hold securely even in a vertical position and under vibration
- Cover is flush with side of duct, allowing for tight, contiguous placement of ducts
- Additional retainer nub on fingers on ducts height 80 and above to prevent cables from slipping
- Base perforation according to DIN EN 50085

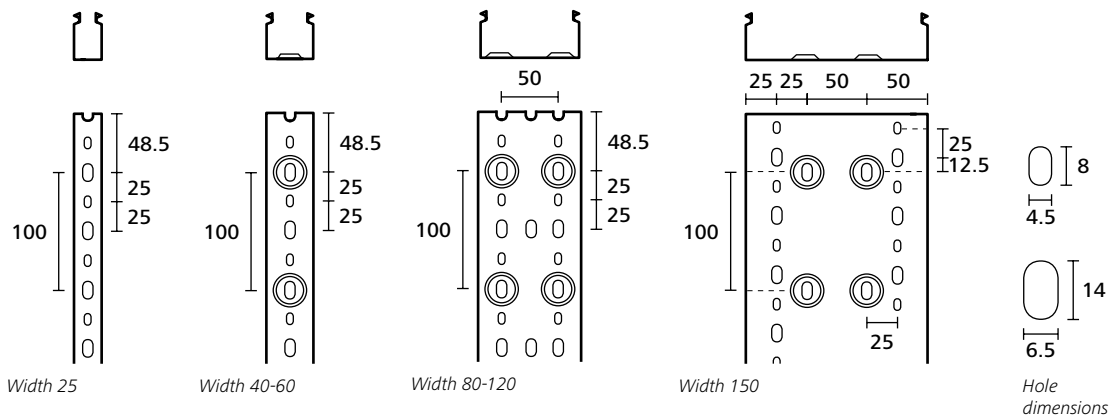


HTWD-PN wiring ducts with narrow fingers and slots for small-diameter wires.

<b>MATERIAL</b>	Polyvinylchloride (PVC)
<b>Colour</b>	Grey (GY)
<b>Length (L)</b>	2 m
<b>Operating Temperature</b>	-5 °C to +65 °C
<b>Flammability</b>	UL94 V0



HTWD-PN wiring ducts base perforation according to DIN EN 50085

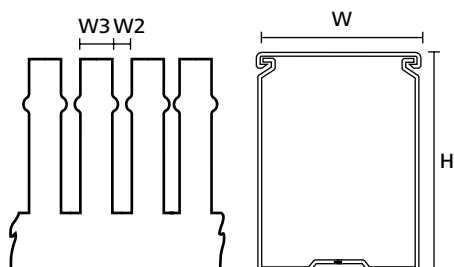


For product specific approvals and specifications please refer to the Appendix.



## Rigid PVC Wiring Ducts

## HelaDuct HTWD-PN for small-diameter wires



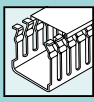
Wiring duct HTWD-PN

TYPE	Width (W)	Height (H)	Width (W2)	Width (W3)	Pack Cont.	Article-No.
HTWD-PN-25X40	25	40	4	6	72 m	184-10068
HTWD-PN-25X60	25	60	4	6	48 m	184-10138
HTWD-PN-25X80	25	80	4	6	48 m	184-10198
HTWD-PN-40X40	40	40	4	6	40 m	184-10078
HTWD-PN-40X60	40	60	4	6	36 m	184-10148
HTWD-PN-40X80	40	80	4	6	32 m	184-10208
HTWD-PN-40X100	40	100	4	6	16 m	184-10258
HTWD-PN-60X40	60	40	4	6	24 m	184-10088
HTWD-PN-60X60	60	60	4	6	24 m	184-10158
HTWD-PN-60X80	60	80	4	6	24 m	184-10218
HTWD-PN-60X100	60	100	4	6	8 m	184-10268
HTWD-PN-80X40	80	40	4	6	24 m	184-10098
HTWD-PN-80X60	80	60	4	6	24 m	184-10168
HTWD-PN-80X80	80	80	4	6	24 m	184-10228
HTWD-PN-80X100	80	100	4	6	8 m	184-10329
HTWD-PN-100X40	100	40	4	6	16 m	184-10108
HTWD-PN-100X60	100	60	4	6	16 m	184-10178
HTWD-PN-100X80	100	80	4	6	16 m	184-10238
HTWD-PN-100X100	100	100	4	6	8 m	184-10278
HTWD-PN-120X60	120	60	4	6	16 m	184-10188
HTWD-PN-120X80	120	80	4	6	16 m	184-10248

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



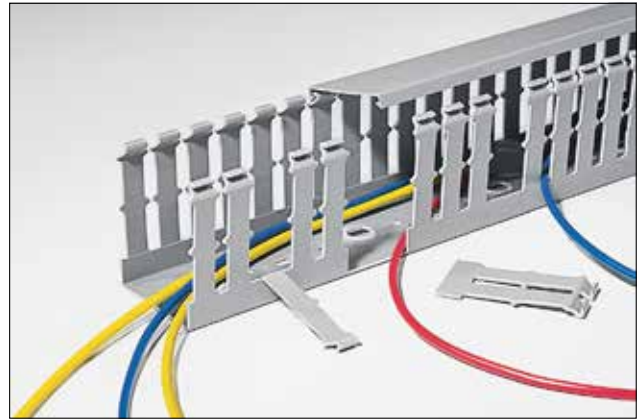
### Rigid PVC Wiring Ducts

#### HelaDuct HTWD-PW for large-diameter wires

HelaDuct HTWD-PW wiring ducts are used to route and protect wires in control panels and switching systems.

#### Features and benefits

- Wide slots suitable for large-diameter wires
- Wide fingers provide additional wire support
- Smooth, burr-free edges protect installers from injury and wires from damage
- Fingers can be removed with no sharp edges at pre-notched snap-off points
- Further pre-notched snap-off point at base of sidewall allow cutting out and removing sections of sidewall with no sharp edges
- Raised mounting points for easily, quickly and securely fastening wire retainers and other accessories prior to cabling
- Wire retainers and accessories leave no protruding parts below surface of duct
- Duct covers are easy to mount and remove, yet hold securely even in a vertical position and under vibration
- Cover is flush with side of duct, allowing for tight, contiguous placement of ducts
- Additional retainer nub on fingers on ducts height 80 and above to prevent cables from slipping
- Base perforation according to DIN EN 50085

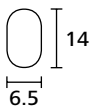
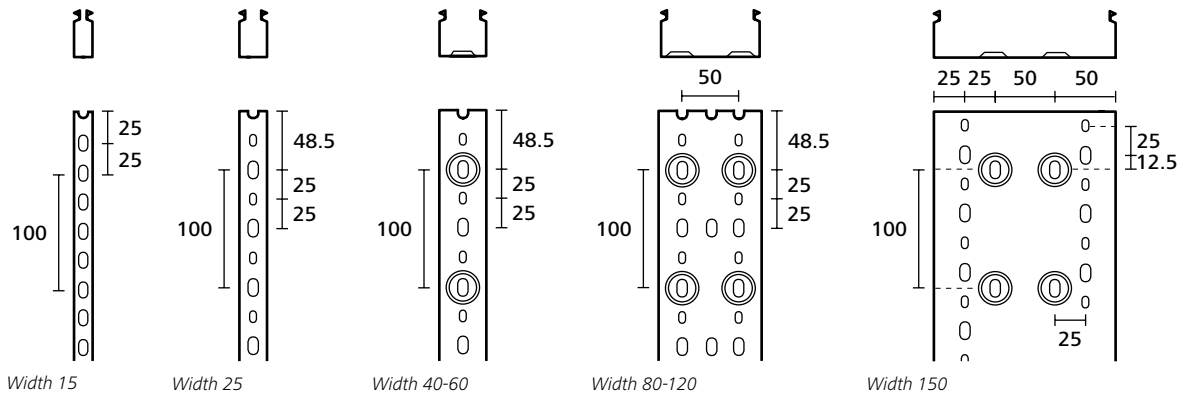


HTWD-PW wiring ducts with wide fingers and slots for large-diameter wires.

<b>MATERIAL</b>	Polyvinylchloride (PVC)
<b>Colour</b>	Grey (GY)
<b>Length (L)</b>	2 m
<b>Operating Temperature</b>	-5 °C to +65 °C
<b>Flammability</b>	UL94 V0



HTWD-PW wiring ducts base perforation according to DIN EN 50085

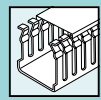


Hole dimensions



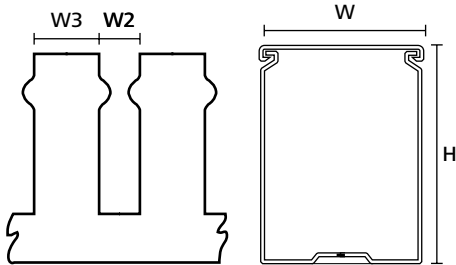
For product specific approvals and specifications please refer to the Appendix.





### Rigid PVC Wiring Ducts

**HelaDuct HTWD-PW for large-diameter wires**



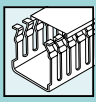
Wiring duct HTWD-PW

TYPE	Width (W)	Height (H)	Width (W2)	Width (W3)	Pack Cont.	Article-No.
HTWD-PW-15X18	15	18	5	7.5	72 m	181-10018
HTWD-PW-15X30	15	30	5	7.5	64 m	181-10038
HTWD-PW-15X40	15	40	5	7.5	48 m	181-10058
HTWD-PW-15X60	15	60	5	7.5	32 m	181-10118
HTWD-PW-25X30	25	30	5	7.5	72 m	181-10028
HTWD-PW-25X40	25	40	8	12	72 m	181-10068
HTWD-PW-25X60	25	60	8	12	48 m	181-10138
HTWD-PW-25X80	25	80	8	12	48 m	181-10198
HTWD-PW-25X100	25	100	8	12	16 m	181-10328
HTWD-PW-40X40	40	40	8	12	40 m	181-10078
HTWD-PW-40X60	40	60	8	12	36 m	181-10148
HTWD-PW-40X80	40	80	8	12	32 m	181-10208
HTWD-PW-40X100	40	100	8	12	16 m	181-10258
HTWD-PW-60X40	60	40	8	12	24 m	181-10088
HTWD-PW-60X60	60	60	8	12	24 m	181-10158
HTWD-PW-60X80	60	80	8	12	24 m	181-10218
HTWD-PW-60X100	60	100	8	12	8 m	181-10268
HTWD-PW-80X40	80	40	8	12	24 m	181-10098
HTWD-PW-80X60	80	60	8	12	24 m	181-10168
HTWD-PW-80X80	80	80	8	12	24 m	181-10228
HTWD-PW-80X100	80	100	8	12	8 m	181-10329
HTWD-PW-100X40	100	40	8	12	16 m	181-10108
HTWD-PW-100X60	100	60	8	12	16 m	181-10178
HTWD-PW-100X80	100	80	8	12	16 m	181-10238
HTWD-PW-100X100	100	100	8	12	8 m	181-10278
HTWD-PW-120X60	120	60	8	12	16 m	181-10188
HTWD-PW-120X80	120	80	8	12	16 m	181-10248
HTWD-PW-150X100	150	100	8	12	8 m	181-10288

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



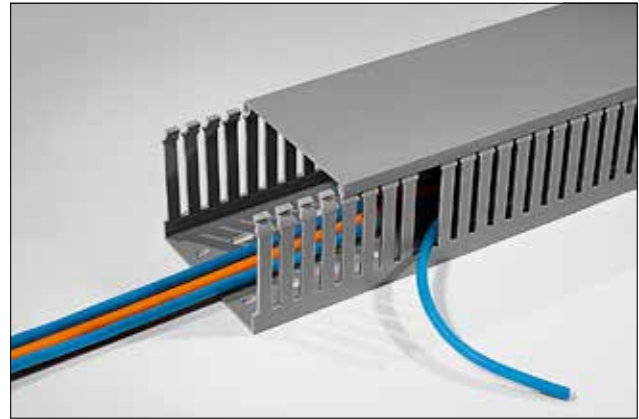
### Rigid PVC Wiring Ducts

#### HelaDuct HTWD-PD DIN-sizes

HelaDuct HTWD-PD wiring ducts are used to route and protect wires in control panels and switching systems.

#### Features and benefits

- Narrow slots suitable for small-diameter wires
- Smooth, burr-free edges protect installers from injury and wires from damage
- Fingers can be removed with no sharp edges at pre-notched snap-off points
- Further pre-notched snap-off point at base of sidewall allow cutting out and removing sections of sidewall with no sharp edges
- Duct covers are easy to mount and remove, yet hold securely even in a vertical position and under vibration
- Cover is flush with side of duct, allowing for tight, contiguous placement of ducts
- Base perforation according to DIN EN 50085

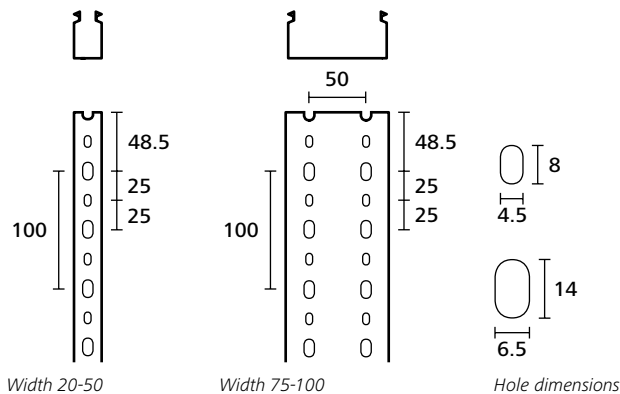


HTWD-PD wiring ducts in DIN sizes.

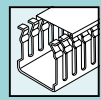
<b>MATERIAL</b>	Polyvinylchloride (PVC)
<b>Colour</b>	Grey (GY)
<b>Length (L)</b>	2 m
<b>Flammability</b>	UL94 V0
<b>Operating Temperature</b>	-5 °C to +60 °C



HTWD-PD wiring ducts base perforation according to DIN EN 50085

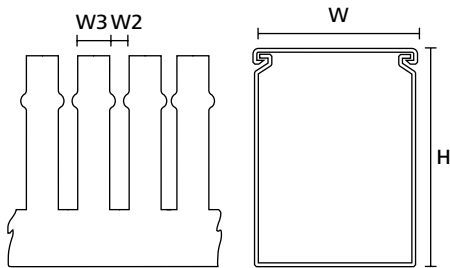


For product specific approvals and specifications please refer to the Appendix.



## Rigid PVC Wiring Ducts

## HelaDuct HTWD-PD DIN-sizes



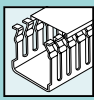
Wiring duct HTWD-PD

TYPE	Width (W)	Height (H)	Width (W2)	Width (W3)	Pack Cont.	Article-No.
HTWD-PD-20X20	20	20	4	6	64 m	185-42020
HTWD-PD-20X37.5	20	37.5	4	6	32 m	185-42037
HTWD-PD-20X50	20	50	4	6	20 m	185-42050
HTWD-PD-25X25	25	25	5	7.5	48 m	185-42525
HTWD-PD-25X50	25	50	5	7.5	18 m	185-42550
HTWD-PD-25X75	25	75	5	7.5	32 m	185-42575
HTWD-PD-37.5X25	37.5	25	5	7.5	64 m	185-43725
HTWD-PD-37.5X37.5	37.5	37.5	5	7.5	32 m	185-43737
HTWD-PD-37.5X50	37.5	50	5	7.5	40 m	185-43750
HTWD-PD-37.5X75	37.5	75	5	7.5	40 m	185-43775
HTWD-PD-50X50	50	50	5	7.5	48 m	185-45050
HTWD-PD-50X75	50	75	5	7.5	20 m	185-45075
HTWD-PD-50X100	50	100	5	7.5	24 m	185-45010
HTWD-PD-75X50	75	50	5	7.5	20 m	185-47550
HTWD-PD-75X75	75	75	5	7.5	16 m	185-47575
HTWD-PD-75X100	75	100	5	7.5	16 m	185-47510
HTWD-PD-100X50	100	50	5	7.5	24 m	185-41050
HTWD-PD-100X75	100	75	5	7.5	16 m	185-41075
HTWD-PD-100X100	100	100	5	7.5	12 m	185-41010
HTWD-PD-125X50	125	50	5	7.5	18 m	185-41250
HTWD-PD-125X75	125	75	5	7.5	12 m	185-41275

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



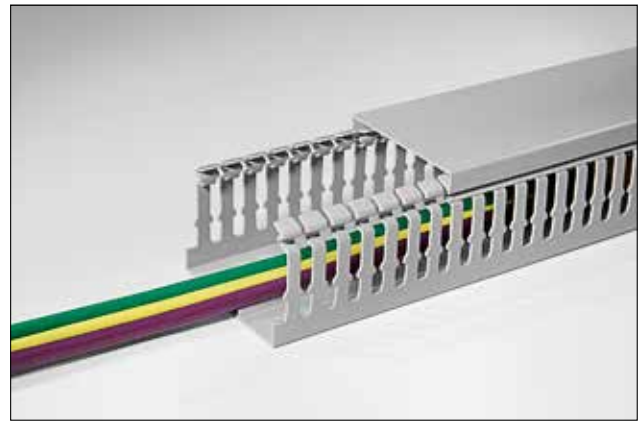
### Halogen-Free Wiring Ducts

#### HelaDuct HTWD-HF

HelaDuct HTWD-HF wiring ducts are used to route and protect wires in control panels and switching systems where there are high demands on personal or material safety in case of fire, such as in public transport, tunnels, data-processing centers or public buildings.

#### Features and benefits

- Excellent fire-safety characteristics
- Narrow slots suitable for small-diameter wires
- Smooth, burr-free edges protect installers from injury and wires from damage
- Fingers can be removed with no sharp edges at pre-notched snap-off points
- Further pre-notched snap-off point at base of sidewall allow cutting out and removing sections of sidewall with no sharp edges
- Duct covers hold securely even in a vertical position and under vibration
- Cover is flush with side of duct, allowing for tight, contiguous placement of duct
- Base perforation according to DIN EN 50085

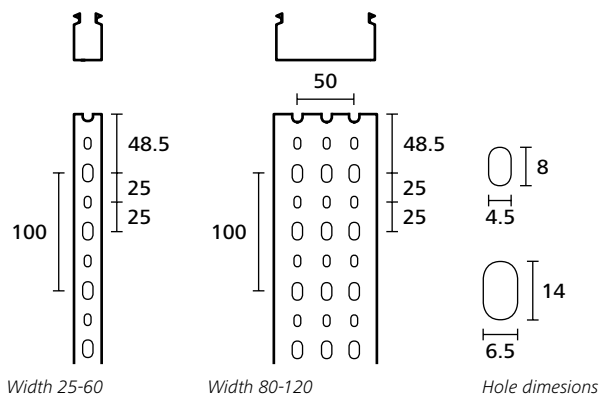


Halogen-Free wiring ducts HelaDuct HTWD-HF for high safety demands.

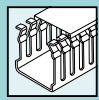
<b>MATERIAL</b>	Acrylonitrile Butadiene Styrene alloyed with Polycarbonate (PC/ABS)
<b>Colour</b>	Grey (GY)
<b>Length (L)</b>	2 m
<b>Operating Temperature</b>	-25 °C to +90 °C
<b>Flammability</b>	UL94 V0



HTWD-HF wiring ducts base perforation according to DIN EN 50085

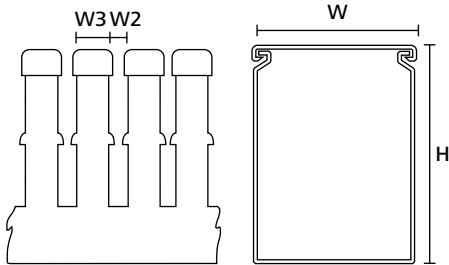


For product specific approvals and specifications please refer to the Appendix.



### Halogen-Free Wiring Ducts

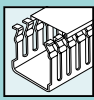
#### HelaDuct HTWD-HF



HelaDuct Wiring ducts HTWD-HF

TYPE	Width (W)	Height (H)	Width (W2)	Width (W3)	Pack Cont.	Article-No.
HTWD-HF-25X25	25	25	6	6.5	50 m	183-22525
HTWD-HF-25X40	25	40	6	6.5	48 m	183-22540
HTWD-HF-25X60	25	60	6	6.5	60 m	183-25060
HTWD-HF-25X80	25	80	6	6.5	20 m	183-22580
HTWD-HF-40X25	40	25	6	6.5	48 m	183-24025
HTWD-HF-40X40	40	40	6	6.5	50 m	183-24040
HTWD-HF-40X60	40	60	6	6.5	40 m	183-24060
HTWD-HF-40X80	40	80	6	6.5	20 m	183-24080
HTWD-HF-60X40	60	40	6	6.5	40 m	183-26040
HTWD-HF-60X60	60	60	6	6.5	24 m	183-26060
HTWD-HF-60X80	60	80	6	6.5	20 m	183-26080
HTWD-HF-60X100	60	100	6	6.5	16 m	183-26010
HTWD-HF-80X40	80	40	6	6.5	30 m	183-28040
HTWD-HF-80X60	80	60	6	6.5	24 m	183-28060
HTWD-HF-80X80	80	80	6	6.5	12 m	183-28080
HTWD-HF-80X100	80	100	6	6.5	16 m	183-28010
HTWD-HF-100X40	100	40	6	6.5	20 m	183-22040
HTWD-HF-100X60	100	60	6	6.5	16 m	183-21060
HTWD-HF-100X80	100	80	6	6.5	12 m	183-21080
HTWD-HF-100X100	100	100	6	6.5	12 m	183-21010
HTWD-HF-120X60	120	60	6	6.5	12 m	183-21260
HTWD-HF-120X80	120	80	6	6.5	16 m	183-21280

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Flexible Cable Support

HelaDuct flexible cable supports are commonly used in switching cabinets. They are also used in the furniture industry, where cables need to be routed rapidly and attractively.

#### Features and benefits

- Space-saving wiring system
- Highly flexible, can be installed at angles of 90° and higher
- Cable clearly open to view
- Rapid mounting with screws or adhesive strip with high-quality foam bonding layer



*HelaDuct Flex can be installed at angles above 90°.*

<b>MATERIAL</b>	Polypropylene (PP)
<b>Operating Temperature</b>	-20 °C to +70 °C
<b>Adhesive</b>	Synthetic rubber with base of polyethylene foam
<b>Flammability</b>	UL94 V0 (excluding adhesive)



#### HelaDuct Flex screwable

TYPE	Nominal Ø	Fixation Method	No. of Wires		Colour	Length (L)	Pack Cont.	Article-No.
HelaDuct Flex10	10	Screw Mounting	6 x 1.50 mm <sup>2</sup>	4 x 2.50 mm <sup>2</sup>	White (WH)	500	100 pcs.	164-11008
HelaDuct Flex20	20	Screw Mounting	22 x 1.50 mm <sup>2</sup>	14 x 2.50 mm <sup>2</sup>	White (WH)	500	70 pcs.	164-21008
HelaDuct Flex30	30	Screw Mounting	50 x 1.50 mm <sup>2</sup>	34 x 2.50 mm <sup>2</sup>	White (WH)	500	40 pcs.	164-31008
HelaDuct Flex40	40	Screw Mounting	81 x 1.50 mm <sup>2</sup>	60 x 2.50 mm <sup>2</sup>	White (WH)	500	24 pcs.	164-41008

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

#### HelaDuct Flex with Adhesive

TYPE	Nominal Ø	Fixation Method	No. of Wires		Colour	Length (L)	Pack Cont.	Article-No.
HelaDuct Flex10SK	10	Screw Mounting and Adhesive	6 x 1.50 mm <sup>2</sup>	4 x 2.50 mm <sup>2</sup>	White (WH)	500	100 pcs.	164-11108
HelaDuct Flex20SK	20	Screw Mounting and Adhesive	22 x 1.50 mm <sup>2</sup>	14 x 2.50 mm <sup>2</sup>	White (WH)	500	70 pcs.	164-21108
HelaDuct Flex30SK	30	Screw Mounting and Adhesive	50 x 1.50 mm <sup>2</sup>	34 x 2.50 mm <sup>2</sup>	White (WH)	500	40 pcs.	164-31108
HelaDuct Flex40SK	40	Screw Mounting and Adhesive	81 x 1.50 mm <sup>2</sup>	60 x 2.50 mm <sup>2</sup>	White (WH)	500	24 pcs.	164-41108

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

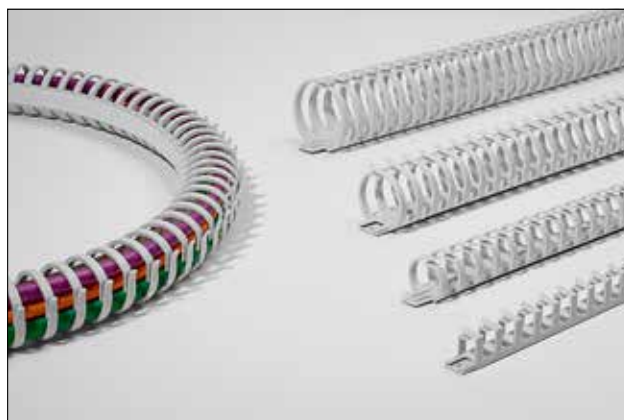


### Flexible Cable Support

HelaDuct Flex are used to route cables where bending and twisting are common and cables need to be monitored, particularly in the door area.

#### Features and benefits

- Very flexible, can be bent and twisted
- Cables easily and safely inserted
- Keeps cables open to view
- Rapidly mounted with adhesive strip or screws with high-quality foam bonding layer
- Can be clicked together end-to-end to create longer lengths



HelaDuct HTWD-Flex is strong, flexible and easy to mount.

<b>MATERIAL</b>	Polyamide 6 (PA6)
<b>Operating Temperature</b>	-25 °C to +90 °C
<b>Flammability</b>	UL94 V0



#### HelaDuct Flex screwable

TYPE	Nominal Ø	Fixation Method	No. of Wires		Colour	Length (L)	Pack Cont.	Article-No.
			8 x 1.50 mm <sup>2</sup>	5 x 2.50 mm <sup>2</sup>				
HTWD-FLEX-10	10	Screw Mounting	8 x 1.50 mm <sup>2</sup>	5 x 2.50 mm <sup>2</sup>	White (WH)	250	40 pcs.	164-40010
HTWD-FLEX-20	20	Screw Mounting	18 x 1.50 mm <sup>2</sup>	13 x 2.50 mm <sup>2</sup>	White (WH)	500	40 pcs.	164-40020
HTWD-FLEX-30	30	Screw Mounting	46 x 1.50 mm <sup>2</sup>	30 x 2.50 mm <sup>2</sup>	White (WH)	500	40 pcs.	164-40030
HTWD-FLEX-40	40	Screw Mounting	81 x 1.50 mm <sup>2</sup>	53 x 2.50 mm <sup>2</sup>	White (WH)	500	40 pcs.	164-40040

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

#### HelaDuct Flex with Adhesive

<b>MATERIAL</b>	Polyamide 6 (PA6)
<b>Operating Temperature</b>	-25 °C to +90 °C
<b>Adhesive</b>	Acrylate with base of polyethylene foam
<b>Flammability</b>	UL94 V0 (excluding adhesive)



TYPE	Nominal Ø	Fixation Method	No. of Wires		Colour	Length (L)	Pack Cont.	Article-No.
			8 x 1.50 mm <sup>2</sup>	5 x 2.50 mm <sup>2</sup>				
HTWD-FLEX-A-10	10	Screw Mounting and Adhesive	8 x 1.50 mm <sup>2</sup>	5 x 2.50 mm <sup>2</sup>	White (WH)	250	40 pcs.	164-40015
HTWD-FLEX-A-20	20	Screw Mounting and Adhesive	18 x 1.50 mm <sup>2</sup>	13 x 2.50 mm <sup>2</sup>	White (WH)	500	40 pcs.	164-40025
HTWD-FLEX-A-30	30	Screw Mounting and Adhesive	46 x 1.50 mm <sup>2</sup>	30 x 2.50 mm <sup>2</sup>	White (WH)	500	40 pcs.	164-40035
HTWD-FLEX-A-40	40	Screw Mounting and Adhesive	81 x 1.50 mm <sup>2</sup>	53 x 2.50 mm <sup>2</sup>	White (WH)	500	40 pcs.	164-40045

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.





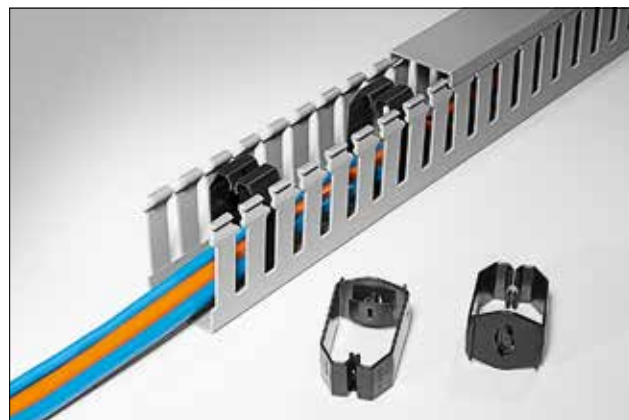
### For mounting prior to wiring

#### HelaDuct HTWD-BWR Wire Retainers

HelaDuct HTWD-BWR are anchored securely on the raised mounting points of HTWD-PN and HTWD-PW ducts to allow insertion of wires. Wires are held in place during wiring, for instance in a vertical position or during ceiling installation.

#### Features and benefits

- Quickly and easily fastened on raised mounting points with a 1/4 turn of a screwdriver
- Wires easily inserted and firmly held in place
- Anchor of retainer remains inside raised mounting point and does not protrude below surface of duct base
- Reduces strain on duct fingers especially at corners and eliminates bulging against sidewall
- Available for all duct sizes of width and height larger than 40
- Fits snugly in duct for minimal loss of installation space

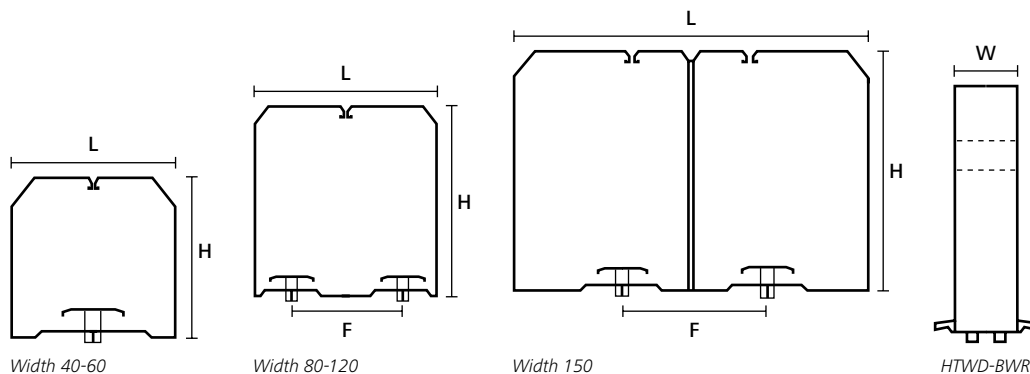


HTWD-BWR wire retainers are easy to mount and hold wires firmly during wiring.

<b>MATERIAL</b>	Acrylonitrile Butadiene Styrene alloyed with Polycarbonate (PC/ABS)
<b>Operating Temperature</b>	-5 °C to +85 °C
<b>Flammability</b>	UL94 HB

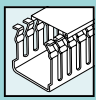
HF ✓

RoHS ✓



TYPE	Length (L)	Height (H)	Width (W)	Fixing Hole Centres (F)	Colour	Pack Cont.	Article-No.
HTWD-BWR-40X80	34	75	20	-	Black (BK)	20 pcs.	181-50480
HTWD-BWR-40X40	35	36	20	-	Black (BK)	40 pcs.	181-50440
HTWD-BWR-40X60	35	56	20	-	Black (BK)	40 pcs.	181-50460
HTWD-BWR-60X60	54	55	20	-	Black (BK)	20 pcs.	181-50660
HTWD-BWR-60X80	54	75	20	-	Black (BK)	20 pcs.	181-50680
HTWD-BWR-60X100	54	95	20	-	Black (BK)	20 pcs.	181-50690
HTWD-BWR-60X40	55	35	20	-	Black (BK)	40 pcs.	181-50640
HTWD-BWR-80X60	74	55	20	50	Black (BK)	10 pcs.	181-50860
HTWD-BWR-80X80	74	74	20	50	Black (BK)	10 pcs.	181-50880
HTWD-BWR-80X100	74	94	20	50	Black (BK)	30 pcs.	181-50890
HTWD-BWR-100X100	93	94	20	50	Black (BK)	5 pcs.	181-51090
HTWD-BWR-100X60	94	55	20	50	Black (BK)	10 pcs.	181-51060
HTWD-BWR-100X80	94	75	20	50	Black (BK)	10 pcs.	181-51080
HTWD-BWR-120X80	113	74	20	50	Black (BK)	10 pcs.	181-51280
HTWD-BWR-120X60	114	54	20	50	Black (BK)	10 pcs.	181-51260
HTWD-BWR-150X100	143	94	20	50	Black (BK)	5 pcs.	181-51590

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



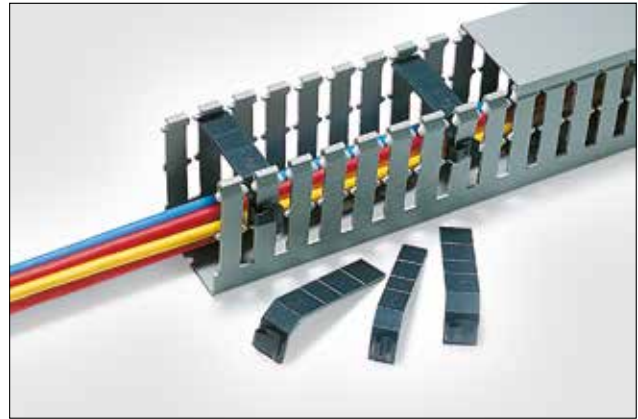
### For mounting to duct fingers

#### HelaDuct HTWD-NFWR and HTWD-WFWR Wire Retainers

HTWD-NFWR for the HTWD-PN ducts and HTWD-WFWR for HTWD-PW ducts are easily inserted onto fingers and hold wires securely into place when cover is removed.

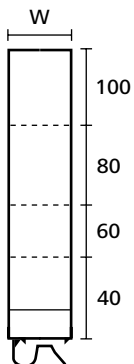
#### Features and benefits

- Prevents wires from falling out even when vertical routed
- Easily inserted onto single fingers of duct
- Height can be freely adjusted
- Does not block insertion of wirings into slots
- One retainer for all duct widths: length of retainer can be shortened at break-off points to duct width
- HTWD-NFWR for HTWD-PN ducts, HTWD-WFWR for HTWD-PW ducts



HTWD-NFWR and HTWD-WFWR hold wires in place even when cover is removed.

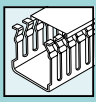
<b>MATERIAL</b>	Acrylonitrile Butadiene Styrene (ABS)
<b>Operating Temperature</b>	-40 °C to +80 °C
<b>Flammability</b>	UL94 V0



HTWD-NFWR, -WFWR

TYPE	For Wiring Ducts	Width (W)	Colour	Pack Cont.	Article-No.
HTWD-NFWR	HTWD-PN	14	Black (BK)	100 pcs.	181-10020
HTWD-WFWR	HTWD-PW	18	Black (BK)	100 pcs.	181-10010

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



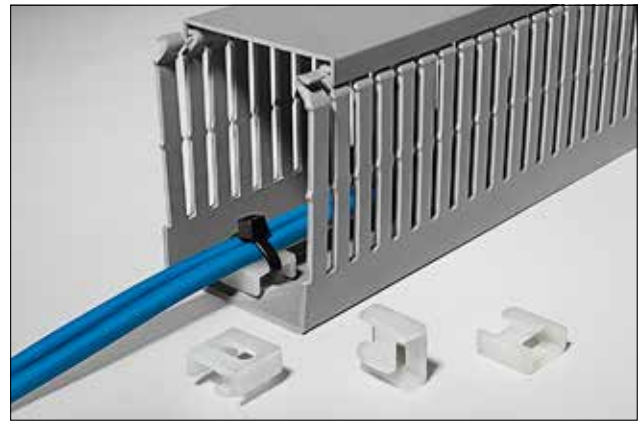
### For fastening components to base of ducts

#### HelaDuct HTWD-CTH and HTWD-TL Mounts

HelaDuct HTWD-CTH is used to anchor a cable tie securely to the base of a duct. The HTWD-TL is used to fix a HTWD-RB rail mounting block to duct or to fix smaller ducts inside larger ones.

#### Features and benefits

- Holds all components firmly in place
- Cable tie easily laced through HTWD-CTH
- Anchor of mount remains inside raised mounting point and does not protrude below surface of duct base

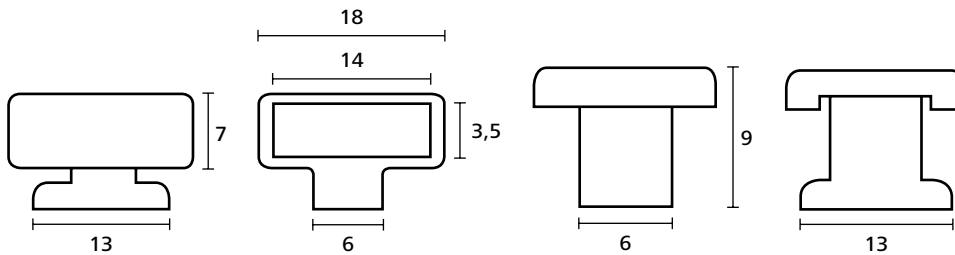


HTWD-CTH and HTWD-TL for mounting components to base of ducts.



For a unique solution for mounting wiring ducts to DIN rails, use HTWD-TL together with the HTWD-RB rail blocks on page 364.

<b>MATERIAL</b>	Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +80 °C
<b>Flammability</b>	UL94 V2

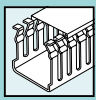


HTWD-CTH Mount

HTWD-TL Mount

TYPE	For Wiring Ducts	Colour	Pack Cont.	Article-No.
HTWD-CTH	HTWD-PN, HTWD-PW	White (WH)	50 pcs.	181-45029
HTWD-TL	HTWD-PN, HTWD-PW	White (WH)	100 pcs.	181-45019

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



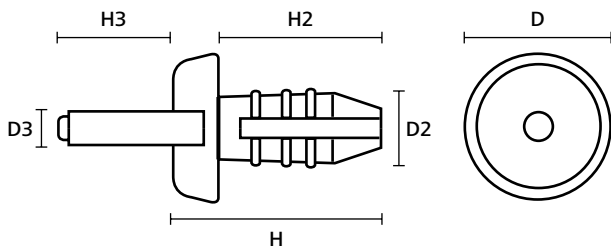
### For installing wiring ducts into fixing holes

#### HelaDuct HTWD-R4 and HTWD-R6 Rivets

HTWD-R4 and HTWD-R6 are used to rapidly mount and secure wiring ducts into fixing holes without the use of screws.

#### Features and benefits

- Very good mechanical properties
- Good resistance to vibration
- Easily and rapidly applied with HTWD-RT4 and HTWD-RT6 rivet tools
- Colour-coded for easy identification for use with rivet tools



HTWD-R4, -R6



HTWD-R4 and HTWD-R6 Rivet.

<b>MATERIAL</b>	Polyamide 6 (PA6)
<b>Operating Temperature</b>	-40 °C to +80 °C
<b>Flammability</b>	UL94 V2



TYPE	Height (H)	Height (H2)	Height (H3)	Ø (D)	Ø (D2)	Ø (D3)	Colour	Pack Cont.	Article-No.
HTWD-R4	14.0	12.0	11.5	9.0	5.0	4.0	Blue (BU)	1,000 pcs.	181-42400
HTWD-R6	16.0	12.7	13.0	11	6.0	3.0	Black (BK)	250 pcs.	181-42600
	16.0	14.0	13.5	11	7.5	6.0	Orange (OG)	500 pcs.	181-42500

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

### For inserting R4 and R6 rivets

#### HelaDuct HTWD-RT4 and HTWD-RT6 Rivet Tools

HelaDuct HTWD-RT4 and HTWD-RT6 tools are used to insert HTWD-R4 and HTWD-R6 rivets into fixing holes and thus mounting ducts without the use of screws.

#### Features and benefits

- Durable and reliable
- Long aluminum body enables insertion even into very high ducts
- Soft plastic ergonomic handle
- Colour-coded for easy identification for use with correct rivets



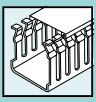
Rivet Tools HTWD-RT4, -RT6.

<b>MATERIAL</b>	Metal (MET), Plastic (PL)
-----------------	---------------------------



TYPE	For Wiring Duct Rivets	Weight	Colour	Article-No.
HTWD-RT4	R4	0.5 kg	Blue (BU)	181-41542
HTWD-RT6	R6	0.5 kg	Orange (OG)	181-41564

All dimensions in mm. Subject to technical changes.



### For mounting ducts to DIN rails

#### HelaDuct HTWD-RB Rail Mounting Blocks

HelaDuct HTWD-RB is used to fix wiring ducts or other elements firmly to DIN rail.

#### Features and benefits

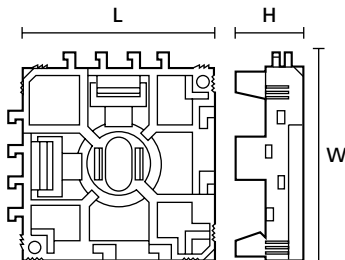
- Easily snapped onto DIN rail
- Rapidly fixed to wiring duct with a HTWD-TL mount
- Assembly direction of wiring duct can be either parallel or perpendicular to DIN rail



**For a unique solution for mounting wiring ducts to DIN rails, use HTWD-RB together with the HTWD-TL mounts on page 362.**



HTWD-RB rail mounting blocks for mounting ducts to DIN rails.



HTWD-RB Rail Mounting Block

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-40 °C to +80 °C
<b>Flammability</b>	UL94 V2

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RoHS ✓

TYPE	Width (W)	Length (L)	Height (H)	Colour	Pack Cont.	Article-No.
HTWD-RB	50	50	14	Black (BK)	25 pcs.	181-45130

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## More space for efficient panel building



For more information on our cable management solutions for panel building, please see our new brochure.

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Panel Building Brochure  
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### Edge protection for cut-out sections

Flexiform edge protection is used to protect cables and wires routed through sharp-edged cut-out sections.

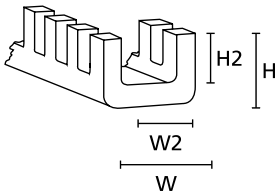
#### Features and benefits

- Very flexible
- Easily and securely applied without adhesives
- Provides effective, orderly-looking protection
- Flexiform G51P made of polyethylene offers general purpose edge protection
- Flexiform G51N made of PA6 offers very good abrasion resistance
- Flexiform G51T made of PTFE offers excellent resistance to high temperatures and most chemicals



Optimal protection of cables and wires at panel edges.

#### Flexiform G51P polyethylene grommet strip



<b>MATERIAL</b>	Polyethylene (PE)
<b>Operating Temperature</b>	-30 °C to +80 °C
<b>Flammability</b>	UL94 HB



Flexiform edge protection

TYPE	Panel Thickness	Width (W)	Width (W2)	Height (H)	Height (H2)	Material	Colour	Pack Cont.	Article-No.
G51PAA	0.4 - 0.9	2.3	0.9	2.7	1.8	PE	Natural (NA)	25 m	251-10009
G51PA	0.4 - 1.3	3.9	1.5	4.3	2.7	PE	Natural (NA)	25 m	251-10109
G51PB	1.3 - 2.1	4.6	2.4	4.3	2.7	PE	Natural (NA)	25 m	251-10209
G51PC	2.1 - 3.3	5.7	3.5	4.3	2.7	PE	Natural (NA)	25 m	251-10309
G51PD	3.3 - 4.8	8.4	5.1	6.2	4.3	PE	Natural (NA)	25 m	251-10409
G51PE	4.8 - 6.5	9.9	6.7	6.4	4.5	PE	Natural (NA)	25 m	251-10509
G51PF	6.5 - 8.1	11.4	8.3	6.8	4.8	PE	Natural (NA)	25 m	251-10609
G51PG	8.1 - 9.7	13.2	10.1	6.8	4.8	PE	Natural (NA)	25 m	251-10709
G51PH	9.7 - 12.9	16.4	13.2	6.8	4.8	PE	Natural (NA)	25 m	251-10809

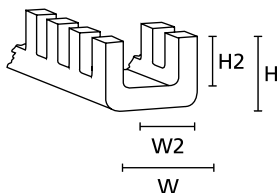
All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content. Flexiform grommet strips are not self-adhesive and therefore not suitable for outer edges.





### Edge protection for cut-out sections

#### Flexiform G51N polyamide 6 grommet strip



Flexiform edge protection

<b>MATERIAL</b>	Polyamide 6 (PA6)
<b>Operating Temperature</b>	-60 °C to +95 °C
<b>Flammability</b>	UL94 HB



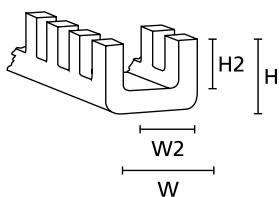
TYPE	Panel Thickness	Width (W)	Width (W2)	Height (H)	Height (H2)	Material	Colour	Pack Cont.	Article-No.
G51NA	0.4 - 1.3	3.9	1.5	4.3	2.7	PA6	Natural (NA)	25 m	251-21109
G51NB	1.3 - 2.1	4.6	2.4	4.3	2.7	PA6	Natural (NA)	25 m	251-21209
G51NC	2.1 - 3.3	5.7	3.5	4.3	2.7	PA6	Natural (NA)	25 m	251-21309
G51ND	3.3 - 4.8	8.4	5.1	6.2	4.3	PA6	Natural (NA)	25 m	251-21409
G51NE	4.8 - 6.5	9.9	6.7	6.4	4.5	PA6	Natural (NA)	25 m	251-21509
G51NF	6.5 - 8.1	11.4	8.3	6.8	4.8	PA6	Natural (NA)	25 m	251-21609
G51NG	8.1 - 9.7	13.2	10.1	6.8	4.8	PA6	Natural (NA)	25 m	251-21709
G51NH	9.7 - 12.9	16.4	13.2	6.8	4.8	PA6	Natural (NA)	25 m	251-21809

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content. Flexiform grommet strips are not self-adhesive and therefore not suitable for outer edges.



For product specific approvals and specifications please refer to the Appendix.

#### Flexiform G51T PTFE grommet strip



Flexiform edge protection

<b>MATERIAL</b>	Polytetrafluoroethylene (PTFE)
<b>Operating Temperature</b>	-60 °C to +260 °C, intermittent +350 °C
<b>Flammability</b>	UL94 V0



TYPE	Panel Thickness	Width (W)	Width (W2)	Height (H)	Height (H2)	Material	Colour	Pack Cont.	Article-No.
G51TA	0.4 - 1.3	3.9	1.5	4.3	2.7	PTFE	Natural (NA)	3 m	251-30109
G51TB	1.3 - 2.1	4.6	2.4	4.3	2.7	PTFE	Natural (NA)	3 m	251-30209
G51TC	2.1 - 3.3	5.7	3.5	4.3	2.7	PTFE	Natural (NA)	3 m	251-30309
G51TD	3.3 - 4.8	8.4	5.1	6.2	4.3	PTFE	Natural (NA)	3 m	251-30409
G51TE	4.8 - 6.5	9.9	6.7	6.4	4.5	PTFE	Natural (NA)	3 m	251-30509
G51TF	6.5 - 8.1	11.4	8.3	6.8	4.8	PTFE	Natural (NA)	3 m	251-30609
G51TG	8.1 - 9.7	13.2	10.1	6.8	4.8	PTFE	Natural (NA)	3 m	251-30709
G51TH	9.7 - 12.9	16.4	13.2	6.8	4.8	PTFE	Natural (NA)	3 m	251-30809

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content. Flexiform grommet strips are not self-adhesive and therefore not suitable for outer edges.



### Edge protection

#### EdgeGuard

EdgeGuard is used to cover panel edging to prevent chafing and provide an attractive finish.

#### Features and benefits

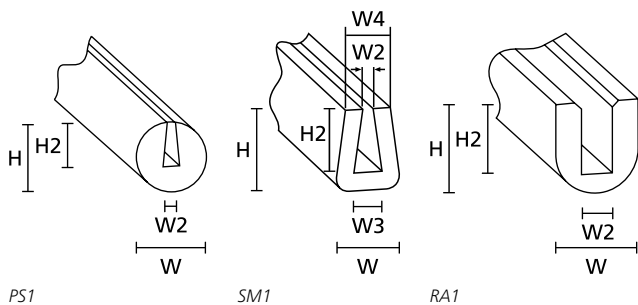
- Very flexible
- Easy to apply
- Protects cables from chafing on bulkheads



EdgeGuard protection against sharp panel edges.

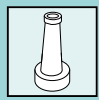
<b>MATERIAL</b>	Polyvinylchloride (PVC)
<b>Operating Temperature</b>	-65 °C to +105 °C
<b>Flammability</b>	UL94 HB

**RoHS** ✓



TYPE	Width (W)	Width (W2)	Width (W3)	Width (W4)	Height (H)	Height (H2)	Colour	Pack Cont.	Article-No.
PS1	1.2	0.6	-	-	5.0	3.2	Black (BK)	75 m	800-00200
SM1	5.0	1.0	1.8	4.2	6.3	4.9	Black (BK)	75 m	800-00004
RA1	6.4	2.4	-	-	7.1	5.6	Black (BK)	75 m	800-00001

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content.



## Bend and edge protection grommet set

### HOT Kit

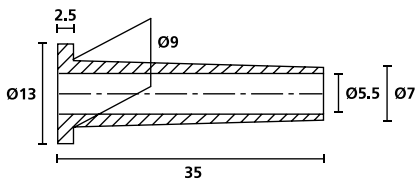
The practical mix of grommets for construction, repairs and home improvement.

#### Features and benefits

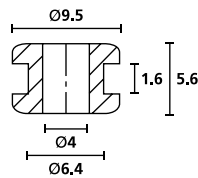
- Flexible and easy to apply
- High resistance to chemicals and environmental influences



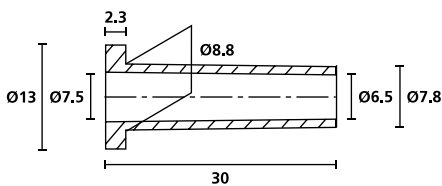
Small, but practical - the HOT Grommet Kit.



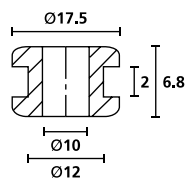
HV2101



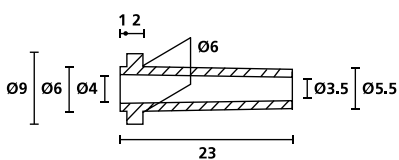
HV1201



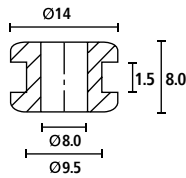
HV2210



HV1203



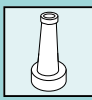
HV2213



HV1208

Description	Type	Content	Article-No.	Page
<b>Bend and edge protection grommet set</b>	<b>HOT Kit</b>	-	<b>639-60000</b>	
Bend Protection Grommets	HV2101	15	632-01010	372
	HV2210	15	632-02100	372
	HV2213	20	632-02130	372
Edge Protection Grommets	HV1201	20	633-02010	376
	HV1203	15	633-02030	376
	HV1208	15	633-02080	376

Minimum Order Quantity (MOQ) may differ from package content.



### For flat pin bushings

#### Push-on caps

The protective push-on caps and elbow grommets are specially constructed to insulate and protect flat pin bushings. They are used in all areas of automotive electronics and connection technology.

#### Features and benefits

- Protects effectively against spraying water
- Flexible and easy to apply
- High resistance to chemicals and environmental influences



Push-on caps and elbow grommets in various dimensions.

<b>MATERIAL</b>	Polyvinylchloride (PVC)	Polyvinylchloride, flame retardant (PVC-FR)	Polyethylene (PE)
<b>Operating Temperature</b>	-30 °C to +60 °C		-10 °C to +70 °C
<b>Shore Hardness A</b>	70±5	56±5	nom. 45
<b>Flammability</b>	UL94 HB	UL94 V0	UL94 HB

RoHS ✓

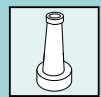
RoHS ✓

HF ✓

RoHS ✓

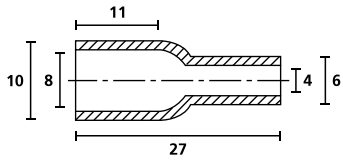
TYPE	Drawing	Material	Colour	Pack Cont.	Article-No.
HV4819		PVC-FR	Black (BK)	2,000 pcs.	631-08190
		PVC-FR	Natural (NA)	2,000 pcs.	631-08199
HV4820		PVC	Black (BK)	2,000 pcs.	631-08200
		PVC	Natural (NA)	2,000 pcs.	631-08209
HV4823		PVC	Black (BK)	2,000 pcs.	631-08230
		PVC	Natural (NA)	2,000 pcs.	631-08239
HV4825		PVC	Natural (NA)	2,000 pcs.	631-08259
OP4827		PE	Natural (NA)	2,000 pcs.	631-58279
OP4828		PE	Natural (NA)	2,000 pcs.	631-58289

All dimensions in mm. Subject to technical changes.

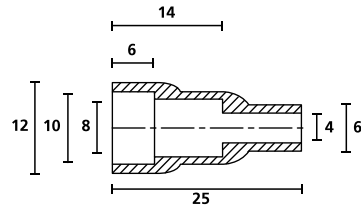


## For flat pin bushings

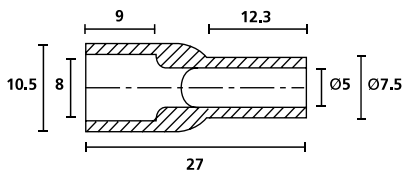
### Push-on caps



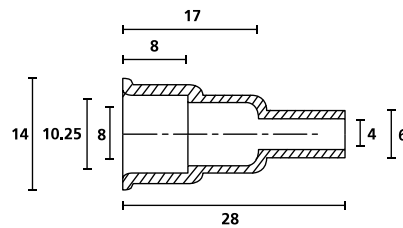
HV4819



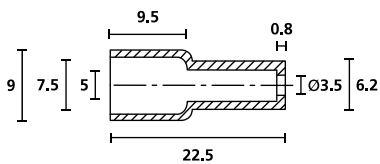
HV4820



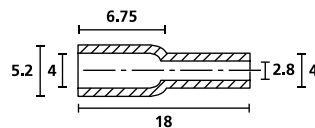
HV4823



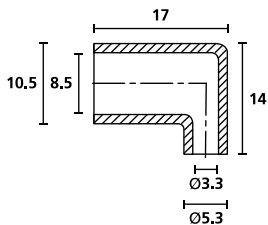
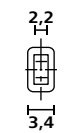
HV4825



OP4827



OP4828



HV4821



TYPE	Drawing	Material	Colour	Pack Cont.	Article-No.
HV4821		PVC-FR	Black (BK)	2,000 pcs.	631-08210
		PVC-FR	Natural (NA)	2,000 pcs.	631-08219

All dimensions in mm. Subject to technical changes.



### For strain relief

#### Bend protection grommets

Bend protection grommets are typically used to protect cables and wires at the apertures in casings.

#### Features and benefits

- Routes cables free of kinks and breakage
- Provides strain relief
- Flexible and easy to apply
- High resistance to chemicals und environmental influences



Protection and routing of cables free of kinks and breakage.

<b>MATERIAL</b>	Polyvinylchloride, flame retardant (PVC-FR)
<b>Operating Temperature</b>	-30 °C to +60 °C
<b>Shore Hardness A</b>	56±5
<b>Flammability</b>	UL94 V0

RoHS ✓

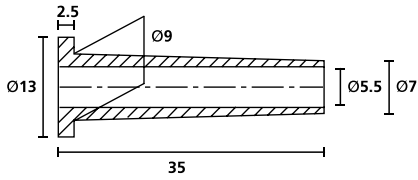
TYPE	Drawing	Colour	Pack Cont.	Article-No.
HV2101		Black (BK)	1,000 pcs.	632-01010
		Grey (GY)	1,000 pcs.	632-01017
		White (WH)	1,000 pcs.	632-01019
HV2101A		Black (BK)	1,000 pcs.	632-01020
HV2103		Black (BK)	1,000 pcs.	632-01030
HV2104		Black (BK)	1,000 pcs.	632-01040
HV2107		Black (BK)	200 pcs.	632-01070
HV2206		Black (BK)	500 pcs.	632-02060
HV2209		Black (BK)	1,000 pcs.	632-02090
HV2210		Black (BK)	1,000 pcs.	632-02100
HV2213		Black (BK)	2,000 pcs.	632-02130
HV2228		Black (BK)	500 pcs.	632-02280

All dimensions in mm. Subject to technical changes.

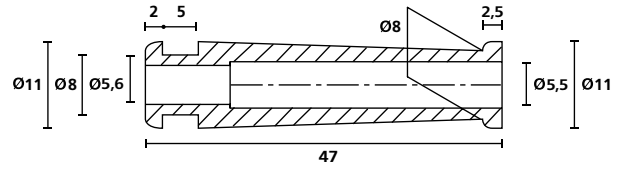


## For strain relief

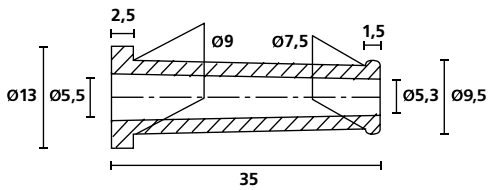
### Bend protection grommets



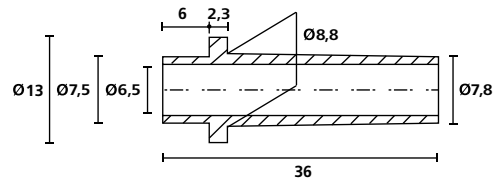
HV2101



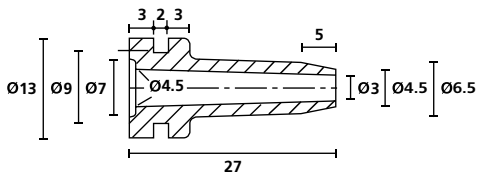
HV2206



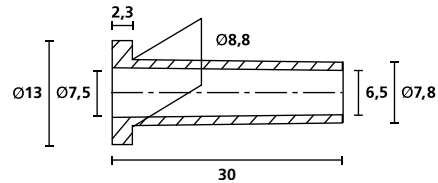
HV2101A



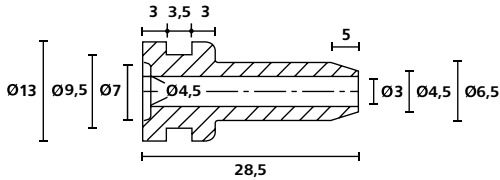
HV2209



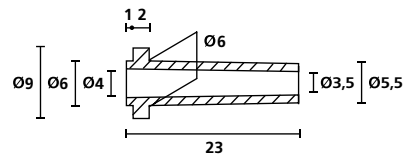
HV2103



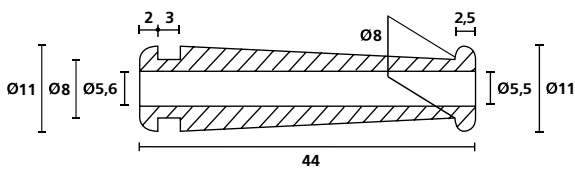
HV2210



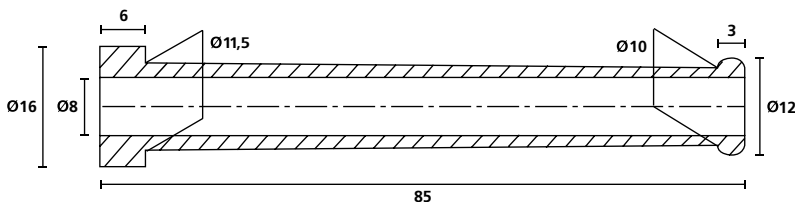
HV2104



HV2213

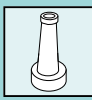


HV2228



HV2107





### For strain relief

#### Strain relief grommets

Straining relief grommets are used as protection for cables and wires from pulling. They are also used for bend protection in casing apertures.

#### Features and benefits

- Provides excellent strain relieve
- Flexible and easy to apply
- High resistance to chemicals and environmental influences



Strain protection grommets in various shapes and sizes.

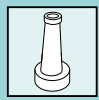
<b>MATERIAL</b>	Polyvinylchloride, flame retardant (PVC-FR)	Flexible Polyvinyl Chloride, cadmium free (PVC)
<b>Operating Temperature</b>	-30 °C to +60 °C	
<b>Shore Hardness A</b>	56±5	63±5
<b>Flammability</b>	UL94 V0	UL94 HB

RoHS ✓

RoHS ✓

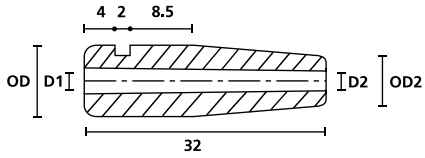
TYPE	Drawing	Outside Ø (OD)	Outside Ø (OD2)	Outside Ø (OD3)	Ø (D)	Ø (D2)	Material	Colour	Pack Cont.	Article-No.
H125		9.0	6.0	-	4.0	3.5	PVC	Black (BK)	1,000 pcs.	634-31250
H126		9.0	6.0	-	5.0	4.5	PVC	Black (BK)	1,000 pcs.	634-31260
		9.0	6.0	-	5.0	4.5	PVC	Grey (GY)	1,000 pcs.	634-31268
H321		8.5	7.0	8.5	6.0	5.5	PVC-FR	Black (BK)	200 pcs.	634-03210
H3A		9.0	5.0	8.0	4.5	3.0	PVC-FR	Black (BK)	2,000 pcs.	634-00310
H4202		-	-	-	-	-	PVC-FR	Black (BK)	1,000 pcs.	634-04200
H119		7.0	4.5	6.5	4.5	3.0	PVC-FR	Black (BK)	2,000 pcs.	634-01190
H120		8.0	6.0	8.0	4.5	3.0	PVC-FR	Black (BK)	500 pcs.	634-01200
H121		11.0	8.5	-	8.0	7.0	PVC-FR	Black (BK)	500 pcs.	634-01210

All dimensions in mm. Subject to technical changes.

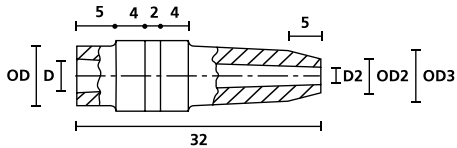


## For strain protection

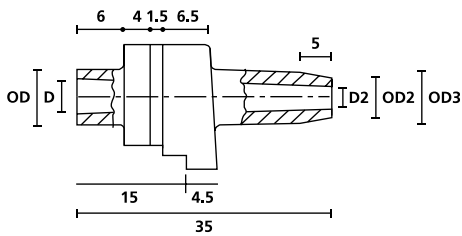
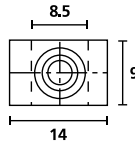
### Strain protection grommets



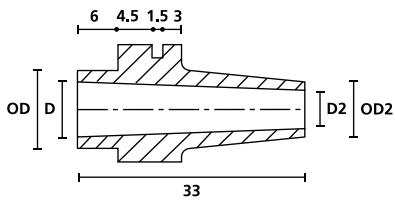
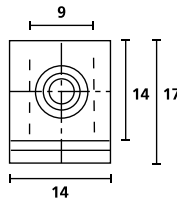
H125/H126



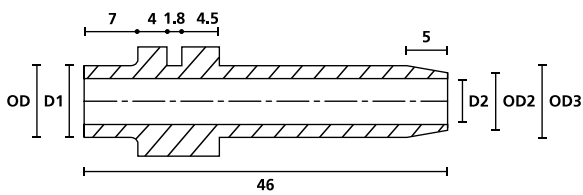
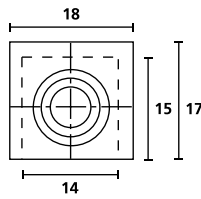
H119



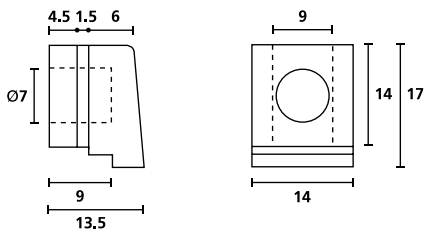
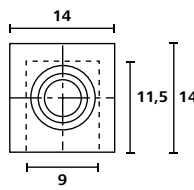
H120



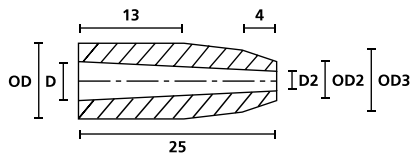
H121



H321



H4202



H3A



### For apertures

#### Edge protection grommets

Edge protection grommets are used wherever cable and wires are routed through apertures. HellermannTyton grommets offer excellent mechanical protection.

#### Features and benefits

- Protects cables from sharp edges
- Provides additional strain relief
- Flexible and easy to apply
- High resistance to chemicals and environmental influences

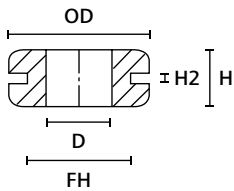


Edge protection grommets.

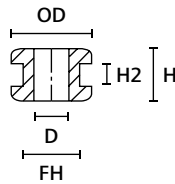
<b>MATERIAL</b>	Polyvinylchloride (PVC)	Polyvinylchloride, flame retardant (PVC-FR)
<b>Operating Temperature</b>	-30 °C to +60 °C	
<b>Shore Hardness A</b>	70±5	56±5
<b>Flammability</b>	UL94 HB	UL94 V0

RoHS ✓

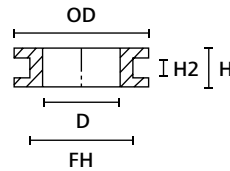
RoHS ✓



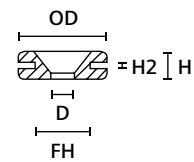
HV1101



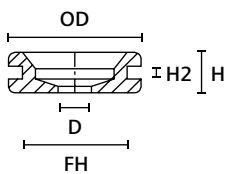
HV1201 to HV1218



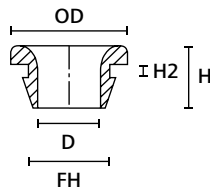
HV1301 to HV1305



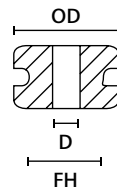
HV1401



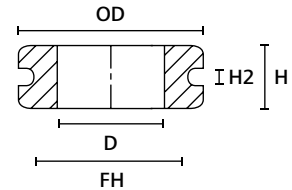
HV1402



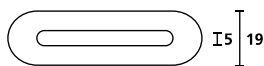
HV1502 to OP1503



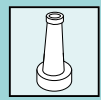
HV1606 to HV1608



HV1606 to HV1608



HV1606 to HV1608

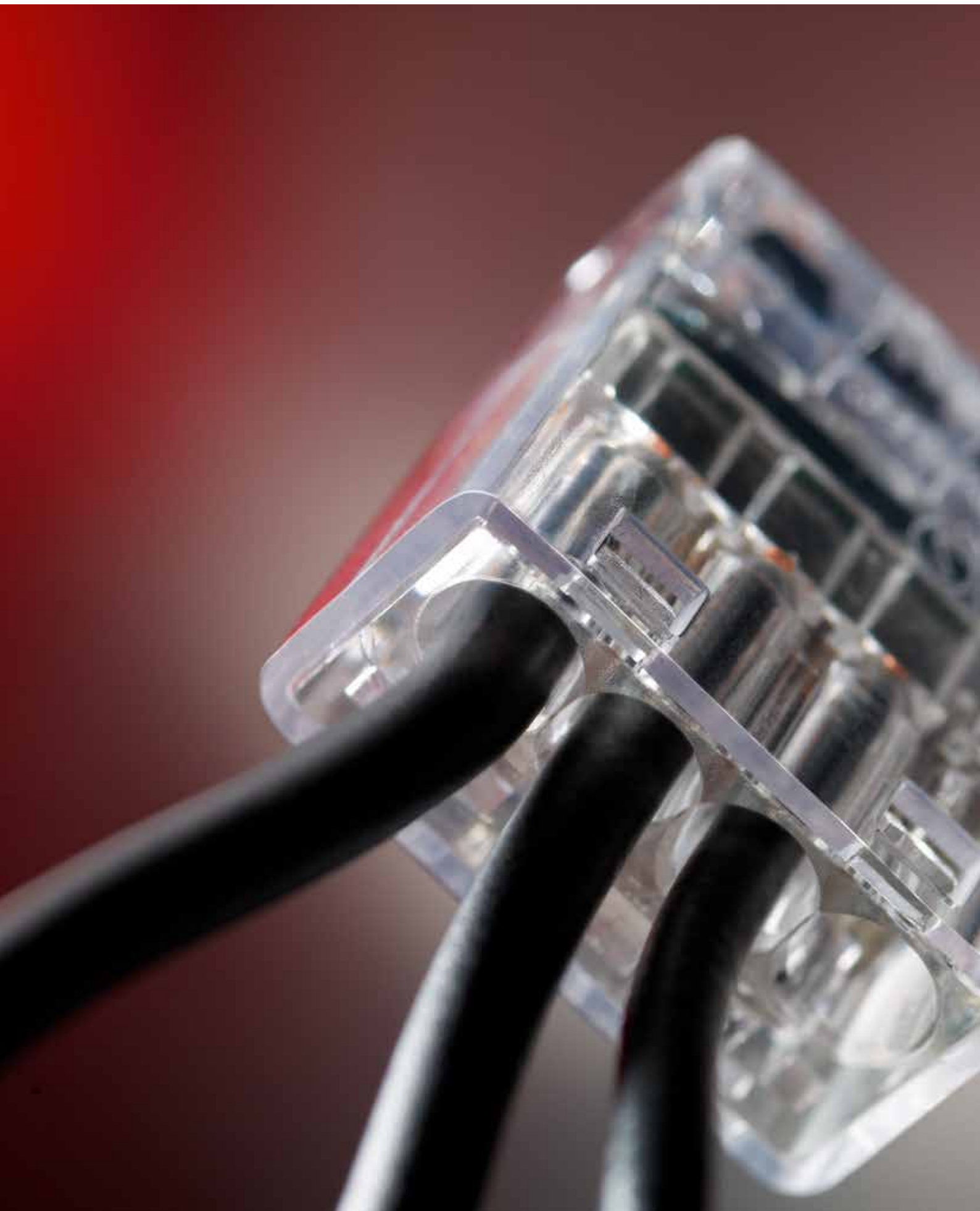


## For apertures

### Edge protection grommets

TYPE	Drawing	Outside Ø (OD)	Hole Ø (FH)	Ø (D)	Height (H)	Height (H2)	Material	Colour	Pack Cont.	Article-No.
HV1101		25.5	19,0	12.0	10.0	1.6	PVC-FR	Black (BK)	500 pcs.	633-01010
HV1212		9.0	6,0	4.0	7.0	1.0	PVC-FR	Black (BK)	2,000 pcs.	633-02120
HV1201		9.5	6,4	4.0	5.6	1.6	PVC-FR	Black (BK)	2,000 pcs.	633-02010
HV1201B		9.5	6,4	4.0	6.5	2.5	PVC-FR	Black (BK)	2,000 pcs.	633-02020
HV1215		10.0	8,0	6.0	5.0	1.0	PVC-FR	Black (BK)	2,000 pcs.	633-02150
HV1209		11.0	9,0	4.0	5.5	1.5	PVC-FR	Black (BK)	1,000 pcs.	633-02090
HV1208		14.0	9,5	8.0	8.0	1.5	PVC-FR	Black (BK)	1,000 pcs.	633-02080
HV1207		14.0	10,0	6.0	6.4	1.5	PVC-FR	Black (BK)	1,000 pcs.	633-02070
HV1218		14.0	10,0	6.0	9.0	4.0	PVC-FR	Black (BK)	1,000 pcs.	633-02180
HV1216		14.5	8,0	5.0	6.5	1.5	PVC-FR	Black (BK)	2,000 pcs.	633-02160
HV1210		15.0	9,0	6.0	10.5	2.0	PVC-FR	Black (BK)	1,000 pcs.	633-02100
HV1203		17.5	12,0	10.0	6.8	2.0	PVC-FR	Black (BK)	1,000 pcs.	633-02030
HV1204		17.5	12,0	10.0	8.8	4.0	PVC-FR	Black (BK)	1,000 pcs.	633-02040
HV1206		17.5	12,0	10.0	10.8	6.0	PVC-FR	Black (BK)	1,000 pcs.	633-02060
HV1205		17.5	13,5	10.0	8.7	4.0	PVC-FR	Black (BK)	1,000 pcs.	633-02050
HV1303		15.9	11,0	8.0	6.4	1.6	PVC-FR	Black (BK)	1,000 pcs.	633-03030
HV1301		15.9	11,0	8.0	7.0	1.0	PVC-FR	Black (BK)	1,000 pcs.	633-03010
HV1302		15.9	11,0	8.0	9.0	3.0	PVC-FR	Black (BK)	1,000 pcs.	633-03020
HV1304		15.9	11,0	8.0	10.8	6.0	PVC-FR	Black (BK)	1,000 pcs.	633-03040
HV1305		24.0	18,0	14.0	7.0	3.0	PVC-FR	Black (BK)	500 pcs.	633-03050
	24.0	18,0	14.0	7.0	3.0	PVC-FR	White (WH)	500 pcs.	633-03059	
HV1401		15.9	9,5	5.0	4.8	0.8	PVC-FR	Black (BK)	1,000 pcs.	633-04010
HV1402		23.0	18,5	6.0	7.0	2.0	PVC-FR	Black (BK)	1,000 pcs.	633-04020
HV1502		11.5	8,0	6.5	8.0	1.5	PVC	Black (BK)	2,000 pcs.	633-05020
HV1606		31.0	25,0	17.0	11.0	3.0	PVC-FR	Grey (GY)	500 pcs.	633-06068
HV1607		43.0	37,0	29.0	11.0	3.0	PVC-FR	Grey (GY)	250 pcs.	633-06078
HV1608		58.0	52,0	44.0	11.0	3.0	PVC-FR	Grey (GY)	250 pcs.	633-06088

All dimensions in mm. Subject to technical changes.



**Inspired by minimalism**

It's hard to imagine an electrical installation without connectors. But many of our customers want just that. A lack of space, limited accessibility and the sheer number of cables are time-consuming challenges faced in day-to-day working life. Our developers have kept reducing the size of our HelaCon connectors further and further in their search for the answer. The latest HelaCon Plus Mini connectors (see page 405) offer ease of use combined with high standards processing reliability.



## 4.1 Electrical and Technical Tapes

384



## 4.2 Wire Connectors

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## 4.3 Cast Resin Technology

410



## 4.4 Gel Technology

440



## 4.5 RELICON Accessories

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#### 4.1 Electrical and Technical Tapes

##### Vinyl Electrical Tapes

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For Higher Mechanical Requirements	HelaTape Flex 20	386
	HelaTape Flex 25	
Premium Electrical Tape	HelaTape Flex 1000+	387
Premium Heavy Duty Electrical Tape	HelaTape Flex 2000+	388
Corrosion Protection Tape	HelaTape Wrap 25	389

##### Conductive Tapes

Electrical Semi-Conducting Tape	HelaTape Shield 310	390
Electrical Shielding Tape	HelaTape Shield 320	

##### High Temperature Tapes

Arc and Fire Proofing Tape	HelaTape Power 410	391
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##### Self-amalgamating Tapes

Low Voltage Rubber Tape	HelaTape Power 600	391
Electrical Insulation Mastic	HelaTape Power 650	392
Rubber Mastic Tape	HelaTape Power 660 RM	393

Vinyl Mastic Tape	HelaTape Power 670 VM	394
	HelaTape Power 700	395
Medium Voltage Rubber Tape	HelaTape Power 715 (Linerless)	396
Silicone Rubber Tape	HelaTape Power 800	397
	HelaTape Power 810	398
High Voltage Rubber Tape	HelaTape Power 820 (Linerless)	399

##### Technical Tapes

Vinyl Bundling Tape	HelaTape Allround 1500	400
Cloth Tape	HelaTape Tex	401

##### Wire Harness Tape

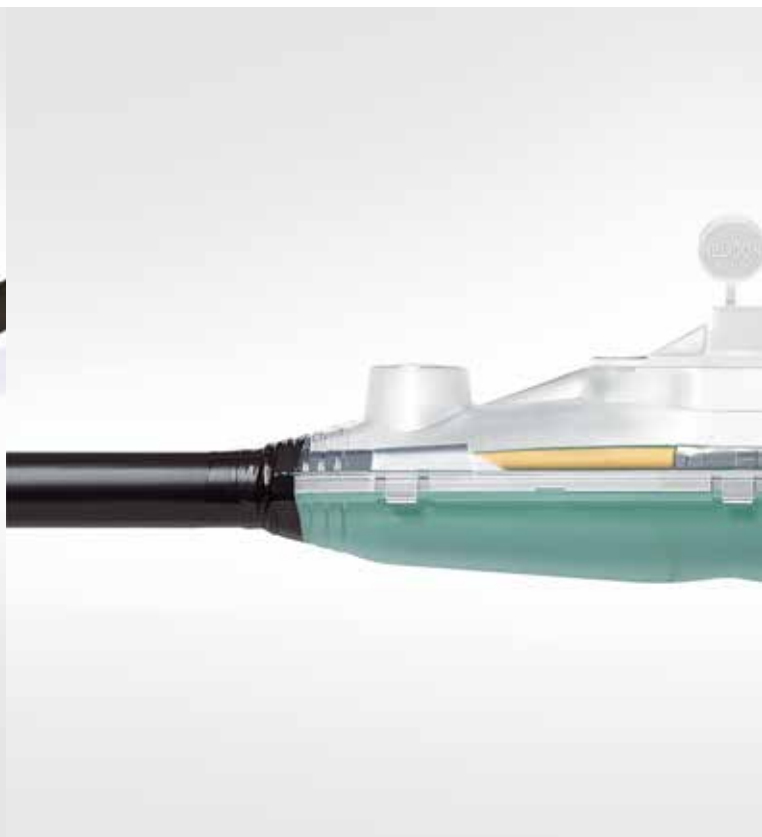
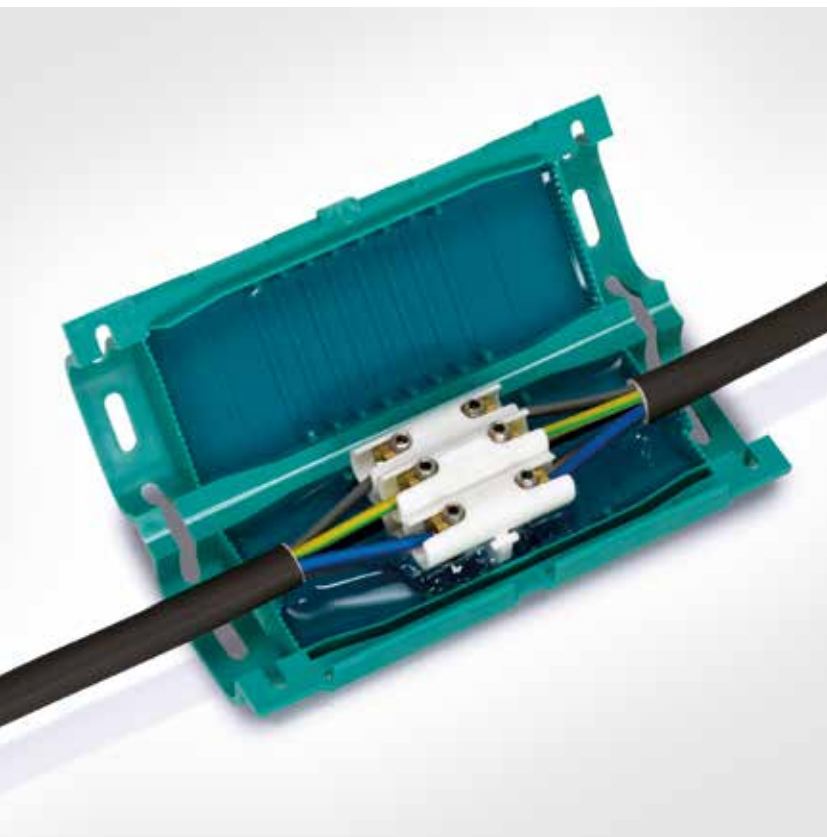
Hand-tearable Cloth Tape	Protect 180	402
Strong High Temperature Cloth Tape	Protect 250	
Soft and Flexible Fleece Tape	Protect 300	403
High Noise Reduction Tape	Protect 1500	





4.2 Wire Connectors

Connectors		
For Solid and Stranded Wires	HelaCon Plus	404
For Solid and Stranded Wires	HelaCon Plus Mini	405
For Solid Wires	HelaCon Easy	406
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### 4.3 Cast Resin Technology

#### Straight-through joint

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#### Flexible straight-through joint

RELICON F-Line SF	412
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#### Branch joints

RELICON Y-Line SF	413
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#### Flexible straight-through joint

	RELICON PAH-1	415
for house connections	RELICON PAH-2	416
	RELICON PAH-3	418
	RELICON PAH-4	420
	RELICON PAH-11	422
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#### Two-component polyurethane cast resin

RELICON PUR 33	430
RELICON PUR 66	431
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RELICON PUR 112 FR	434

#### Two-component epoxy resin

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RELICON EP 20	436

#### Two-component cold casting compound

RELICON Reliflex	437
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#### Two-component polyurethane sealing mastic

RELICON PUR DS	438
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### 4.4 Gel Technology

#### Gel cable joint with connector

RELICON Reliseal Overview	440
RELICON Reliseal V 56, V 510, V525	441
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RELICON Relilight V 2.75 I1	444
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RELICON Relilight V 32.5 I2	445
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#### Gel cable joint without connector

RELICON Relifix	450
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#### Gel cable joint with connector

RELICON Relifix V	451
RELICON Relifix VY	452

#### Gel accessories

RELICON Relifix ZE	453
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#### Two-component gel

RELICON KH 67	455
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#### Two-component silicone gel

RELICON Religel	456
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#### 4.5 RELICON Accessories

##### Hand cleaning tissues

RELICON Reliclean	458
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##### Connectors

Compression connector, tin-plated	with central buttmark for copper conductors	459
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Mechanical connector, tin-plated	with barrier and shear-off bolts for AI and CU connectors	460
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with blind hole for AI and CU conductors	461
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Tap connector, uninsulated	for copper conductors	462
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Tap connector, insulated	for insulated aluminium and copper conductors	463
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for insulated copper conductors	463
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##### Connectors block

RELICON Premium	462
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## HelaTape

HellermannTyton offers a comprehensive range of Vinyl, Rubber and Cloth Tapes for bundling, insulating, fixing, sealing and marking applications around all kinds of electrical applications. Vinyl electrical tapes are designed for low voltage applications and available in different dimensions and colours. Rubber tapes are suitable for sealing and insulating cables and splices in low, medium and high voltage applications. HelaTape Cloth tapes are extremely strong and ideal for identification, fixing, bundling and repair purposes. HelaTape Protect is used to build professional cable and wiring harnesses.

### Vinyl Electrical Tapes – Commercial Grade Vinyl Electrical Tape

#### HelaTape Flex 15

##### Features and benefits

- Vinyl electrical tape in many different colours
- Used for insulation, protection, fixing, maintenance, colour coding and more
- Good resistance to abrasion, sunlight, moisture, chemicals, and varying weather conditions
- Highly flexible with outstanding adhesion performance
- Harnessing of wires and cables
- Suitable for mechanical and electrical applications up to 1 kV
- VDE approved according to IEC 60454-3-1-6/F-PVCP/90
- Flame retardant according to IEC 60454-2



HelaTape Flex 15 is a commercial grade, weather resistant vinyl tape.



One Step to the Web!

<b>MATERIAL</b>	Polyvinylchloride (PVC)
<b>Dielectric Strength</b>	45 kV/mm
<b>Adhesion to Steel</b>	2.2 N/10 mm
<b>Adhesion to Backing</b>	2.0 N/10 mm
<b>Elongation at break</b>	200 %
<b>Breaking Strength</b>	28 N/10 mm
<b>Operating Temperature</b>	-10 °C to +90 °C

RoHS

TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
HTAPE-FLEX15-15x10	0.15	15.0	10.0 m	Black (BK)	710-00104
	0.15	15.0	10.0 m	Blue (BU)	710-00100
	0.15	15.0	10.0 m	Brown (BN)	710-00107
	0.15	15.0	10.0 m	Green (GN)	710-00103
	0.15	15.0	10.0 m	Green-Yellow (GNYE)	710-00106
	0.15	15.0	10.0 m	Grey (GY)	710-00108
	0.15	15.0	10.0 m	Orange (OG)	710-00110
	0.15	15.0	10.0 m	Red (RD)	710-00101
	0.15	15.0	10.0 m	Red (RD), Grey (GY), Yellow (YE), Green (GN), Blue (BU), Orange (OG), White (WH), Brown (BN), Black (BK), Green-Yellow (GNYE)	710-00146
	0.15	15.0	10.0 m	Transparent (CL)	710-00147
	0.15	15.0	10.0 m	Violet (VT)	710-00109
	0.15	15.0	10.0 m	White (WH)	710-00105
	0.15	15.0	10.0 m	Yellow (YE)	710-00102

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



## Vinyl Electrical Tapes – Commercial Grade Vinyl Electrical Tape

### HelaTape Flex 15

TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
<b>HTAPE-FLEX15-15x25</b>	0.15	15.0	25.0 m	Black (BK)	710-00115
<b>HTAPE-FLEX15-19x20</b>	0.15	19.0	20.0 m	Black (BK)	710-00155
	0.15	19.0	20.0 m	Blue (BU)	710-00151
	0.15	19.0	20.0 m	Brown (BN)	710-00158
	0.15	19.0	20.0 m	Green (GN)	710-00154
	0.15	19.0	20.0 m	Green-Yellow (GNYE)	710-00157
	0.15	19.0	20.0 m	Grey (GY)	710-00159
	0.15	19.0	20.0 m	Red (RD)	710-00152
	0.15	19.0	20.0 m	Violet (VT)	710-00160
	0.15	19.0	20.0 m	White (WH)	710-00156
	0.15	19.0	20.0 m	Yellow (YE)	710-00153
<b>HTAPE-FLEX15-19x25</b>	0.15	19.0	25.0 m	Black (BK)	710-00126
<b>HTAPE-FLEX15-25x25</b>	0.15	25.0	25.0 m	Black (BK)	710-00137
	0.15	25.0	25.0 m	Blue (BU)	710-00133
	0.15	25.0	25.0 m	Brown (BN)	710-00140
	0.15	25.0	25.0 m	Green (GN)	710-00136
	0.15	25.0	25.0 m	Green-Yellow (GNYE)	710-00139
	0.15	25.0	25.0 m	Grey (GY)	710-00141
	0.15	25.0	25.0 m	Red (RD)	710-00134
	0.15	25.0	25.0 m	White (WH)	710-00138
	0.15	25.0	25.0 m	Yellow (YE)	710-00135

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



### Vinyl Electrical Tapes – Insulating Tape for Higher Mechanical Requirements

#### HelaTape Flex 20



HelaTape Flex 20 - Higher thickness for quicker layering.

#### Features and benefits

- Vinyl electrical tape with strong rubber adhesive
- Suitable for mechanical and electrical applications up to 1000 Volt
- Additional thickness for quicker layering and higher abrasion resistance
- Weather resistant
- Flame retardant according to UL 510 Standard

<b>MATERIAL</b>	Polyvinylchloride (PVC)
<b>Dielectric Strength</b>	45 kV/mm
<b>Adhesion to Steel</b>	2.5 N/10 mm
<b>Adhesion to Backing</b>	2.5 N/10 mm
<b>Elongation at break</b>	260 %
<b>Breaking Strength</b>	40 N/10 mm
<b>Operating Temperature</b>	-10 °C to +90 °C

RoHS ✓

### Vinyl Electrical Tapes – Insulating Tape for Higher Mechanical Requirements

#### HelaTape Flex 25



HelaTape Flex 25 for higher abrasion resistance.

#### Features and benefits

- Vinyl film coated with high quality rubber adhesive
- Extra high material thickness
- Highly resistant to sun, water, oil, acids, alkalies, corrosive chemicals
- Used for insulation, protection, fixing, maintenance and more
- Superior vinyl tape with excellent all-weather performance
- Flame retardant according to UL 510 Standard

<b>MATERIAL</b>	Polyvinylchloride (PVC)
<b>Dielectric Strength</b>	45 kV/mm
<b>Adhesion to Steel</b>	2.6 N/10 mm
<b>Adhesion to Backing</b>	2.6 N/10 mm
<b>Elongation at break</b>	240 %
<b>Breaking Strength</b>	46 N/10 mm
<b>Operating Temperature</b>	-10 °C to +90 °C

RoHS ✓

#### HelaTape Flex 20

TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
HATAPE-FLEX20-19x20	0.20	19.0	20.0 m	Black (BK)	710-10300

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

#### HelaTape Flex 25

TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
HATAPE-FLEX25-19x33	0.25	19.0	33.0 m	Black (BK)	710-00450
HATAPE-FLEX25-38x33	0.25	38.0	33.0 m	Black (BK)	710-00451

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





### Vinyl Electrical Tapes – Premium Vinyl Electrical Tape

#### HelaTape Flex 1000+

##### Features and benefits

- All-weather, highly flexible, professional grade, self-adhesive vinyl electrical tape
- Excellent performance and durability over wide temperature range from -18°C to +105°C according to CSA C22.2
- VDE approved according to IEC 60454-3-1-7/F-PVCP/90
- Used for insulation, protection, fixing, maintenance, colour coding and more
- Pressure sensitive high quality rubber based adhesive
- Performs continuously at low temperature environment
- Excellent resistance to abrasion, moisture, chemicals, corrosion and UV exposure
- Primary electrical insulation for all wire and cable splices up to 1 kV
- Protective jacketing for low, medium and high voltage splices and repairs
- Flame retardant according to UL 510 Standard
- For indoor and outdoor applications
- Size 19 mm x 20 m is single packed in a plastic can, only 710-10601 comes in a pack of 10 pcs.



HelaTape Flex 1000+ provides excellent low temperature performance.

<b>MATERIAL</b>	Polyvinylchloride (PVC)
<b>Dielectric Strength</b>	45 kV/mm
<b>Adhesion to Steel</b>	3.0 N/10 mm
<b>Adhesion to Backing</b>	2.5 N/10 mm
<b>Elongation at break</b>	300 %
<b>Breaking Strength</b>	35 N/10 mm
<b>Operating Temperature</b>	-18 °C to +105 °C



TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
HTAPE-FLEX1000+19x6	0.18	19.0	6.0 m	Black (BK)	710-10600
HTAPE-FLEX1000+ 19x20 PACK	0.18	19.0	20.0 m	Black (BK)	710-10601
HTAPE-FLEX1000+19x20	0.18	19.0	20.0 m	Black (BK)	710-10602
HTAPE-FLEX1000+ C 19x20	0.18	19.0	20.0 m	Blue (BU)	710-10603
	0.18	19.0	20.0 m	Brown (BN)	710-10608
	0.18	19.0	20.0 m	Green (GN)	710-10606
	0.18	19.0	20.0 m	Green-Yellow (GNYE)	710-10612
HTAPE-FLEX1000+C 19x20	0.18	19.0	20.0 m	Grey (GY)	710-10609
	0.18	19.0	20.0 m	Red (RD)	710-10604
HTAPE-FLEX1000+ C 19x20	0.18	19.0	20.0 m	White (WH)	710-10607
HTAPE-FLEX1000+ C19x20	0.18	19.0	20.0 m	Yellow (YE)	710-10605
HTAPE-FLEX1000+19x33	0.18	19.0	33.0 m	Black (BK)	710-10610
HTAPE-FLEX1000+50x33	0.18	50.0	33.0 m	Black (BK)	710-10611

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.





### Vinyl Electrical Tapes – Premium Heavy Duty Vinyl Electrical Tape

#### HelaTape Flex 2000+

##### Features and benefits

- All-weather, highly flexible, professional grade, self-adhesive vinyl electrical tape with higher thickness for more mechanical and electrical protection
- Excellent performance and durability over wide temperature range from -18 °C to +105 °C according to CSA C22.2
- Pressure sensitive and aggressive high quality rubber based adhesive
- Performs continuously at low temperature environment
- Flame retardant according to UL 510 Standard
- Excellent resistance to abrasion, moisture, chemicals, corrosion and UV exposure
- Primary electrical insulation for all wire and cable splices up to 1 kV



*HelaTape Flex 2000+ is the best choice for professional installation.*

<b>MATERIAL</b>	Polyvinylchloride (PVC)
<b>Dielectric Strength</b>	48 kV/mm
<b>Adhesion to Steel</b>	3.1 N/10 mm
<b>Adhesion to Backing</b>	2.5 N/10 mm
<b>Elongation at break</b>	300 %
<b>Breaking Strength</b>	40 N/10 mm
<b>Operating Temperature</b>	-18 °C to +105 °C

**RoHS** ✓

TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
HTAPE-FLEX2000+19x20	0.21	19.0	20.0 m	Black (BK)	710-10701
HTAPE-FLEX2000+38x20	0.21	38.0	20.0 m	Black (BK)	710-10705

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## Vinyl Electrical Tapes – Vinyl Tape for Corrosion Protection

### Helatape Wrap 25

#### Features and benefits

- Special adhesive with excellent protection against corrosion
- Complete environmental, mechanical and electrical protection
- Highly resistant to UV, water, oil, most chemicals, bacteria and fungus
- Used for pipes, tubes, and conduits in outside and underground applications



Helatape Wrap 25 protects against all types of corrosion.

<b>MATERIAL</b>	Polyvinylchloride (PVC)
<b>Dielectric Strength</b>	40 kV/mm
<b>Adhesion to Steel</b>	2.4 N/10 mm
<b>Adhesion to Backing</b>	2.0 N/10 mm
<b>Elongation at break</b>	250 %
<b>Breaking Strength</b>	48 N/10 mm
<b>Operating Temperature</b>	-10 °C to +90 °C

RoHS

TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
HTAPE-WRAP25-25x30	0.25	25.0	30.0 m	Black (BK)	710-10800
HTAPE-WRAP25-50x30	0.25	50.0	30.0 m	Black (BK)	710-10802
HTAPE-WRAP25-100x30	0.25	100.0	30.0 m	Black (BK)	710-10803

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Conductive Tapes – Electrical Semi-Conducting Tape

#### HelaTape Shield 310



HelaTape Shield 310 self-amalgamating conducting tape for shielding high voltage splices and terminations.

#### Features and benefits

- Self-amalgamating conducting tape made from ethylene propylene rubber
- Provides good conducting properties
- Prevents partial discharges
- Moisture and UV-resistant and easy to apply
- Replacement for semiconducting layer underneath the metallic shield in case of repairs and connections of medium to high voltage cables

<b>MATERIAL</b>	Ethylene Propylene Rubber (EPR)
<b>Operating Temperature</b>	+90 °C
<b>Intermittent Operating Temperature</b>	+130 °C
<b>Water Absorption</b>	0.02 %
<b>Elongation at break</b>	500 %
<b>Volume Resistance</b>	870 Ω cm



### Conductive Tapes – Electrical Shielding Tape

#### HelaTape Shield 320



HelaTape Shield 320 provides good electromagnetic shielding.

#### Features and benefits

- Copper shielding braid, tin-plated
- Quick and easy to use due to copper knit-mesh design
- Excellent conformability
- Good electromagnetic properties
- Used for splices and terminations of shielded cables

<b>MATERIAL</b>	Tin-plated copper (TNCU)
<b>Elongation at break</b>	5 %



#### HelaTape Shield 310

TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
HTAPE-SHIELD310	0.76	19.0	4.6 m	Black (BK)	711-10000
	0.76	38.0	9.1 m	Black (BK)	711-10001

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

#### HelaTape Shield 320

TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
HTAPE-SHIELD320	0.45	25.0	4.6 m	Natural (NA)	711-10002

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### High Temperature Tapes – Arc and Fireproofing Tape

#### HelaTape Power 410



HelaTape Power 410 is an unsupported, linerless, elastomeric tape used for arc and flame protection.

#### Features and benefits

- Unsupported, linerless, elastomeric tape
- Superior arc and flame proofing for high voltage and communication cables
- For cable protection in cable trays, switch boxes, cable conduits and substations
- Excellent flexibility and conformability for easy application
- Creates insulating residue when exposed to severe flame conditions
- Passes flammability test according to Con-Ed EO 5343-14
- Withstands Bunsen burner flame for many minutes
- Water, chemical and UV resistant

<b>MATERIAL</b>	Elastomer (PM)
<b>Elongation at break</b>	300 %

**RoHS** ✓

#### HelaTape Power 410

TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
HTAPE-POWER410	0.76	38.0	6.0 m	Grey (GY)	711-10100

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

#### HelaTape Power 600

TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
HTAPE-POWER600-19x6.7	0.76	19.0	6.7 m	Black (BK)	711-10200
HTAPE-POWER600-38x6.7	0.76	38.0	6.7 m	Black (BK)	711-10201

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

### Self-amalgamating Tapes – Low Voltage Rubber Tape

#### HelaTape Power 600



HelaTape Power 600 is a self-amalgamating low voltage rubber tape.

#### Features and benefits

- Self-amalgamating low voltage rubber tape
- Primary insulation at not more than 1 kV
- Easily suitable to irregular shapes and surfaces
- Compatible with all extruded dielectric cable insulations
- Weather resistant and flame retardant according to UL 510
- Recommended use in conjunction with HelaTape Flex for mechanical protection

<b>MATERIAL</b>	Natural Rubber (NR)
<b>Operating Temperature</b>	+80 °C
<b>Intermittent Operating Temperature</b>	+95 °C
<b>Tensile Strength</b>	2 N/mm <sup>2</sup>
<b>Elongation at break</b>	300 %
<b>Dielectric Strength</b>	14 kV/mm

**HF** ✓

**RoHS** ✓



### Self-amalgamating Tapes – Electrical Insulation Mastic

#### HelaTape Power 650

#### Features and benefits

- Self-amalgamating insulation compound for sealing and padding cable jackets up to 1 kV
- Easily moulded by hand to conform to irregular shapes even during low temperatures
- Permanently elastic and resistant to aging
- Perfect adhesion to metal and all types of cable insulations and jackets
- Provides excellent moisture sealing
- Resistant to salt water, ozone, oil and corrosive chemicals
- Recommended use with HelaTape Flex vinyl electrical tape for mechanical protection



*HelaTape Power 650 self-amalgamating mastic is highly flexible.*

<b>MATERIAL</b>	Isobutene-Isoprene-Rubber (butyl rubber) (IIR)
<b>Operating Temperature</b>	+90 °C
<b>Intermittent Operating Temperature</b>	+130 °C
<b>Water Absorption</b>	0.1 %
<b>Volume Resistance</b>	10 <sup>15</sup> Ω cm
<b>Dielectric Strength</b>	19.7 kV/mm



TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
HTAPE-POWER650	3.20	38.0	1.5 m	Black (BK)	711-10300

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Self-amalgamating Tapes – Rubber Mastic Tape

#### HelaTape Power 660 RM

##### Features and benefits

- Self-amalgamating rubber mastic tape
- EPR backing coated with a tacky, temperature-stable mastic adhesive
- Designed for electrical insulating and moisture sealing applications
- Can be used as cable jacket replacement
- Perfect adhesion and sealing for copper and aluminium wires
- Easily suitable to irregular shapes and surfaces
- Compatible with all extruded cable insulations
- UV, moisture, corrosion, and chemical resistant
- Primary electrical insulation for bus bar connections rated up to 35 kV
- Recommended use with HelaTape Flex vinyl electrical tape for mechanical protection



*HelaTape Power 660 is a very flexibel rubber mastic sealing and padding tape.*

<b>MATERIAL</b>	Ethylene Propylene Rubber (EPR), Isobutene-Isoprene-Rubber (butyl rubber) (IIR)
<b>Operating Temperature</b>	+90 °C
<b>Intermittent Operating Temperature</b>	+130 °C
<b>Water Absorption</b>	0.1 %
<b>Tensile Strength</b>	1.5 N/mm <sup>2</sup>
<b>Dielectric Strength</b>	19.7 kV/mm



TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
HTAPE-POWER660-RM	1.65	50.8	3.0 m	Black (BK)	711-00307

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## Self-amalgamating Tapes – Vinyl Mastic Tape

### HelaTape Power 670 VM

#### Features and benefits

- Easy to apply vinyl mastic tape
- Self-adhesive application - without stretching
- Mastic layer is very sticky and provides excellent moisture sealing
- Vinyl top layer provides additional protection
- Performs continuously at low temperature environment
- Primary insulation up to 1 kV
- Compatible with all extruded cable insulations
- UV and weather resistant



*HelaTape Power 670 provides additional vinyl film protection to the mastic compound.*

<b>MATERIAL</b>	Polyvinylchloride (PVC), Isobutene-Isoprene-Rubber (butyl rubber) (IIR)
<b>Operating Temperature</b>	+80 °C
<b>Intermittent Operating Temperature</b>	+95 °C
<b>Water Absorption</b>	0.9 %
<b>Tensile Strength</b>	16 N/mm <sup>2</sup>
<b>Elongation at break</b>	200 %
<b>Volume Resistance</b>	10 <sup>12</sup> Ω cm
<b>Dielectric Strength</b>	19.7 kV/mm

HF ✓

RoHS ✓

TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
HTAPE-POWER670-VM	1.20	100.0	3.0 m	Black (BK)	711-00304

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





### Self-amalgamating Tapes – Medium Voltage Rubber Tape

#### HelaTape Power 700

#### Features and benefits

- Polyisobutylene-based self-amalgamating medium voltage tape
- Insulating and jacketing power cables up to 46 kV
- Provides electrical stability and permanent moisture sealing
- Perfect stretching properties allows fast and uniform application
- Excellent UV, moisture, corrosion and chemical resistance
- Temperature range from -40 °C to +90 °C
- Compatible with all extruded cable insulation materials



*HelaTape Power 700 is a self-amalgamating medium voltage rubber tape.*

<b>MATERIAL</b>	Polyisobutylene Rubber (PIBR)
<b>Operating Temperature</b>	+90 °C
<b>Water Absorption</b>	0.02 %
<b>Tensile Strength</b>	2.4 N/mm <sup>2</sup>
<b>Elongation at break</b>	700 %
<b>Volume Resistance</b>	10 <sup>13</sup> Ω cm
<b>Dielectric Strength</b>	35 kV/mm



TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
HTAPE-POWER700-PIB	0.50	19.0	10.0 m	Black (BK)	711-00308

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Self-amalgamating Tapes – Medium Voltage Rubber Tape (Linerless)

#### HelaTape Power 715

The rubber-based self-amalgamating linerless tape is used for electrical insulation, protection, sealing, splicing and termination of cables up to 35 kV. The special material comes without a separating liner and reduces therefore the time required to apply the tape. It features with excellent UV, moisture, corrosion, ozone and chemical resistance. HelaTape Power 715 is compatible with all extruded dielectric cable insulations.

#### Features and benefits

- Rubber-based self-amalgamating linerless tape
- Used for waterproof sealing and corrosion protection of cables
- Excellent electrical insulation and weather protection
- Time saving application without liner
- Easy to apply and very flexible



*HelaTape Power 715 allows quicker layering due to the linerless composition.*

<b>MATERIAL</b>	Ethylene Propylene Rubber (EPR)
<b>Operating Temperature</b>	+90 °C
<b>Intermittent Operating Temperature</b>	+130 °C
<b>Water Absorption</b>	0.06 %
<b>Tensile Strength</b>	2.1 N/mm <sup>2</sup>
<b>Elongation at break</b>	700 %
<b>Volume Resistance</b>	10 <sup>16</sup> Ω cm
<b>Dielectric Strength</b>	30 kV/mm

HF ✓

RoHS ✓

TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
HTAPE-POWER715-19x5	0.50	19.0	5.0 m	Black (BK)	711-00310
HTAPE-POWER715-19x10	0.50	19.0	10.0 m	Black (BK)	711-00311
HTAPE-POWER715-25x10	0.50	25.0	10.0 m	Black (BK)	711-00312

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Self-amalgamating Tapes – Silicone Rubber Tape

#### HelaTape Power 800

#### Features and benefits

- Self-amalgamating and self-cleaning, chemically cross-linked silicone rubber tape
- Triangular cross-section with centre line for precise half-overlapping
- Resistant to creepage and surface erosion
- Fuses into solid mass after application
- Weather, UV and oil resistant
- Recommended use for high temperature silicone insulated cables and outdoor machinery and transformers



HelaTape Power 800 is a silicone rubber tape with triangular cross-section.

<b>MATERIAL</b>	Silicone (SI)
<b>Operating Temperature</b>	+180 °C
<b>Tensile Strength</b>	7 N/mm <sup>2</sup>
<b>Elongation at break</b>	400 %
<b>Volume Resistance</b>	10 <sup>14</sup> Ω cm
<b>Dielectric Strength</b>	23.5 kV/mm

HF ✓

RoHS ✓

TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
HTAPE-POWER800	0.51	25.0	9.1 m	Grey (GY)	711-10400

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Self-amalgamating Tapes – High Voltage Rubber Tape

#### HelaTape Power 810

#### Features and benefits

- Self-amalgamating tape for insulating and jacketing splices up to 69 kV
- Halogen-free with outstanding corona, ozone and UV-resistance
- Ideal for sealing of terminations, electrical connections, and cable jacket repair
- Void-free, electrically stable layering
- Protects bus bar components
- Excellent moisture, corrosion and chemical resistance
- Compatible with all extruded cable insulations



*HelaTape Power 810 for primary insulation up to 69 kV.*

<b>MATERIAL</b>	Ethylene Propylene Rubber (EPR)
<b>Operating Temperature</b>	+90 °C
<b>Intermittent Operating Temperature</b>	+130 °C
<b>Water Absorption</b>	0.06 %
<b>Tensile Strength</b>	2.4 N/mm <sup>2</sup>
<b>Elongation at break</b>	750 %
<b>Volume Resistance</b>	10 <sup>16</sup> Ω cm
<b>Dielectric Strength</b>	30 kV/mm

HF ✓

RoHS ✓

TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
HTAPE-POWER810	0.76	19.0	9.1 m	Black (BK)	711-10401

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Self-amalgamating Tapes – High Voltage Rubber Tape (Linerless)

#### HelaTape Power 820

#### Features and benefits

- Self-amalgamating, linerless tape for insulating and jacketing splices up to 69 kV
- Excellent electrical, chemical and physical properties
- Building stress cones and jacketing of terminations, bus bars and joints
- Quicker application due to linerless design
- Uniform and void-free layering
- Very flexible to conform to the most complex shapes
- Compatible with all extruded cable insulations



*HelaTape Power 820 provides substantial time saving due to the linerless design.*

<b>MATERIAL</b>	Ethylene Propylene Rubber (EPR)
<b>Operating Temperature</b>	+90 °C
<b>Intermittent Operating Temperature</b>	+130 °C
<b>Water Absorption</b>	0.06 %
<b>Tensile Strength</b>	2.8 N/mm <sup>2</sup>
<b>Elongation at break</b>	750 %
<b>Volume Resistance</b>	10 <sup>16</sup> Ω cm
<b>Dielectric Strength</b>	31.5 kV/mm

**RoHS** ✓

TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
<b>HTAPE-POWER820</b>	0.76	19.0	9.1 m	Black (BK)	711-10402

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Technical Tapes – Vinyl Bundling Tape

#### HelaTape Allround 1500

Allround 1500 - Electricians Duct Tape is designed for bundling, holding, fixing and maintenance applications. It can be also used as temporary surface protection of steel and aluminium parts.

#### Features and benefits

- Vinyl film coated with high quality rubber adhesive
- Excellent performance and durability
- Easy to tear
- No cloth – does not absorb water
- Used for bundling, holding, fixing and maintenance
- This product has no electrical insulating properties



*HelaTape Allround 1500 - Universal and very strong vinyl bundling tape.*

<b>MATERIAL</b>	Polyvinylchloride (PVC)
<b>Adhesion to Steel</b>	1.5 N/10 mm
<b>Adhesion to Backing</b>	1.5 N/10 mm
<b>Elongation at break</b>	150 %
<b>Breaking Strength</b>	18 N/10 mm

**RoHS** ✓

TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
HTAPE-ALLROUND1500	0.15	51.0	46.0 m	Grey (GY)	710-01000

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Technical Tapes – Cloth Tape

#### Helatape Tex

#### Features and benefits

- High quality PE-coated cloth tape with good weather resistance
- Total thickness of 0.31 mm for high tensile strength
- Highly tear-resistant in longitudinal direction
- Easy to tear-off by hand in transverse direction
- Matt surface finish for use in stage constructions and for exhibitions to avoid light reflections
- Useful for various applications like bundling, fixing, identification, marking and protection
- Helatape Tex can be removed without residues due to high quality rubber based adhesive



Helatape Tex is available in various colours and sizes.

<b>MATERIAL</b>	Cotton (CO)
<b>Operating Temperature</b>	-30 °C to +80 °C
<b>Adhesion to Backing</b>	3 N/10 mm
<b>Elongation at break</b>	10 %
<b>Breaking Strength</b>	64 N/10 mm



TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
HTAPE-TEX-19x10	0.31	19.0	10.0 m	Black (BK)	712-00204
	0.31	19.0	10.0 m	Blue (BU)	712-00200
	0.31	19.0	10.0 m	Green (GN)	712-00203
	0.31	19.0	10.0 m	Grey (GY)	712-00206
	0.31	19.0	10.0 m	Red (RD)	712-00201
	0.31	19.0	10.0 m	White (WH)	712-00205
	0.31	19.0	10.0 m	Yellow (YE)	712-00202
HTAPE-TEX-19x50	0.31	19.0	50.0 m	Black (BK)	712-00504
	0.31	19.0	50.0 m	Blue (BU)	712-00500
	0.31	19.0	50.0 m	Green (GN)	712-00503
	0.31	19.0	50.0 m	Grey (GY)	712-00506
	0.31	19.0	50.0 m	Red (RD)	712-00501
	0.31	19.0	50.0 m	White (WH)	712-00505
	0.31	19.0	50.0 m	Yellow (YE)	712-00502
HTAPE-TEX-50x50	0.31	50.0	50.0 m	Black (BK)	712-00904
	0.31	50.0	50.0 m	Blue (BU)	712-00900
	0.31	50.0	50.0 m	Green (GN)	712-00903
	0.31	50.0	50.0 m	Grey (GY)	712-00906
	0.31	50.0	50.0 m	Red (RD)	712-00901
	0.31	50.0	50.0 m	White (WH)	712-00905
	0.31	50.0	50.0 m	Yellow (YE)	712-00902

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





### Wire Harness Tape – Hand-tearable Cloth Tape

#### HelaTape Protect 180



HelaTape Protect 180 is very flexible and used for cable harnessing.

#### Features and benefits

- High quality Polyester Fabric harnessing tape
- Rubber-based adhesive offers very good heat and media resistance
- High temperature stability from -40 °C to +125 °C
- Temperature resistance tested according to LV312
- Very good resistance against abrasion
- Material is very flexible and tearable by hand
- Provides long term reliability under varying and extreme environmental conditions
- Excellent ageing resistance, stable against rotting

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-40 °C to +125 °C
<b>Adhesion to Steel</b>	3 N/10 mm
<b>Adhesion to Backing</b>	3 N/10 mm
<b>Elongation at break</b>	15 %
<b>Breaking Strength</b>	65 N/10 mm

HF ✓ RoHS ✓

#### HelaTape Protect 180

TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
HATAPE-PROTECT180	0.18	19.0	25.0 m	Black (BK)	712-10002

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

#### HelaTape Protect 250

TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
HATAPE-PROTECT250	0.25	19.0	25.0 m	Black (BK)	712-10003

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

### Wire Harness Tape – Strong, High Temperature Cloth Tape

#### HelaTape Protect 250



HelaTape Protect 250 is designed for cable harnessing and offers a very high temperature resistance.

#### Features and benefits

- High temperature Polyester Fabric harnessing tape
- Special acrylate-based adhesive offers very good heat and media resistance
- Very high temperature stability from -40 °C to +150 °C
- Temperature and humidity resistance tested according to LV312
- Very good resistance against abrasion
- Material is very flexible and easy to handle
- Excellent ageing resistance, stable against rotting

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Adhesion to Steel</b>	2.5 N/10 mm
<b>Adhesion to Backing</b>	2 N/10 mm
<b>Elongation at break</b>	15 %
<b>Breaking Strength</b>	180 N/10 mm

HF ✓ RoHS ✓



### Wire Harness Tape – Soft and Flexible Fleece Tape

#### HelaTape Protect 300



HelaTape Protect 300 provides high noise reduction and media resistance.

#### Features and benefits

- Soft Polyester Fleece harnessing tape
- High noise reduction and very high resistance against abrasion
- Synthetic rubber based adhesive offers good heat and media resistance
- High temperature stability from -40 °C to +105 °C
- Material is very flexible and tearable by hand
- Excellent ageing resistance and stable against rotting

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-40 °C to +105 °C
<b>Adhesion to Steel</b>	2 N/10 mm
<b>Adhesion to Backing</b>	2 N/10 mm
<b>Elongation at break</b>	10 %
<b>Breaking Strength</b>	30 N/10 mm



### Wire Harness Tape – High Noise Reduction Tape

#### HelaTape Protect 1500



HelaTape Protect 1500 is extremely soft and offers very high noise reduction.

#### Features and benefits

- High quality Polyamide Velours harnessing tape
- Highest noise reduction and very high resistance against abrasion
- Acrylate based adhesive offers very good heat and media resistance
- High temperature stability from -40 °C to +130 °C
- Material is extremely soft and very flexible
- Excellent ageing resistance, stable against rotting

<b>MATERIAL</b>	Polyamide (PA)
<b>Operating Temperature</b>	-40 °C to +130 °C
<b>Adhesion to Steel</b>	2.5 N/10 mm
<b>Adhesion to Backing</b>	2 N/10 mm
<b>Elongation at break</b>	50 %
<b>Breaking Strength</b>	100 N/10 mm



#### HelaTape Protect 300

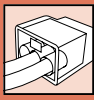
TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
HTAPE-PROTECT300	0.30	19.0	25.0 m	Black (BK)	712-10001

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

#### HelaTape Protect 1500

TYPE	Thickness (T)	Width (W)	Length (L)	Colour	Article-No.
HTAPE-PROTECT1500	1.50	25.0	4.0 m	Black (BK)	712-10000

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Connectors

#### HelaCon Plus

The HelaCon connectors are used for fast, easy and reliable connection and distribution of cable and conductors in the field of electrical housing applications. The connectors can be used in all kinds of junction boxes either on-wall or flush-mounted. HelaCon Plus offers the best possible solution when convenient processing and maximum safety is required.

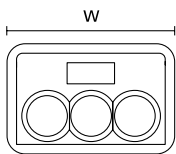
#### Features and Benefits

- Sophisticated push-in wire connector
- For professional cable connections in electrical housing
- Double spring for easy processing
- Supports installers in difficult situations like overhead work
- For proper fixing that can be visually checked through transparent housing
- Different colour codes for comfortable identification
- Separate voltage test entry on front
- Safe application, installation and maintenance

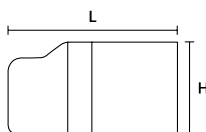


Connectors of the HelaCon Plus family offering multiple sizes and colours.

<b>MATERIAL</b>	Polycarbonate (PC)
<b>Max Current</b>	24 A
<b>Max Voltage</b>	450 V
<b>Wire Range (VDE)</b>	0.5 to 2.5 mm <sup>2</sup> solid / stranded (max. 7 cores)
<b>Stripping Length</b>	11 mm
<b>Flammability</b>	UL94 V2
<b>Operating Temperature</b>	-30 °C to +105 °C
<b>Specifications</b>	CE, cULus, DEMKO, ENEC, FIMKO, GL, KEMA-KEUR, NEMKO, SEMKO, VDE



HelaCon Plus front view



HelaCon Plus side view



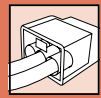
One Step to the Web!



TYPE	Drawing	Number of Conductors	Colour	Width (W)	Height (H)	Depth (D)	Pack Cont.	Article-No.
HECP-2		2	Transparent (CL), Yellow (YE)	11.8	10.5	19.0	100 pcs.	148-90000
HECP-3		3	Transparent (CL), Orange (OG)	15.9	10.5	19.0	100 pcs.	148-90001
HECP-4		4	Transparent (CL)	20.1	10.5	19.0	75 pcs.	148-90002
HECP-5		5	Transparent (CL), Blue (BU)	24.2	10.5	19.0	50 pcs.	148-90003
HECP-6		6	Transparent (CL), Violet (VT)	28.4	10.5	19.0	50 pcs.	148-90004
HECP-8		8	Transparent (CL), Grey (GY)	36.7	10.5	19.0	40 pcs.	148-90005

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





### Connectors - For Solid and Stranded Wires

#### HelaCon Plus Mini

HelaCon connectors are used for fast, easy and reliable connection and distribution of cable and conductors in electrical installation applications. The new generation of HelaCon Plus Mini wire connectors can be applied tool-free using the push-in technology. HelaCon Plus Mini uses a double spring which is approved for solid and stranded wires.

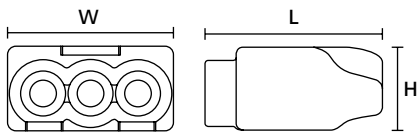
#### Features and benefits

- 40% smaller – Space saving design
- Low insertion force – Easy to use, saves time on installation
- Easy access to voltage test entry and innovative port shape design
- Correct installation can be visually checked through transparent housing
- Different colour codes for easy identification of size
- Allows different conductor diameters in each entry
- Safe application, installation and maintenance
- Practical Variobox with 350 pcs. of selected HCPM wire connectors available (148-90046)



HelaCon Plus Mini fits perfect in every space limited situation.

<b>MATERIAL</b>	Polycarbonate (PC)
<b>Max Current</b>	24 A
<b>Max Voltage</b>	450 V
<b>Wire Range (VDE)</b>	0.5 to 2.5 mm <sup>2</sup> solid wires / 1.0 to 2.5 mm <sup>2</sup> stranded wires
<b>Stripping Length</b>	11 mm
<b>Flammability</b>	UL94 V0
<b>Operating Temperature</b>	-30 °C to +85 °C



HelaCon Plus Mini front view

HelaCon Plus Mini side view



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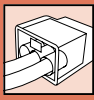


TYPE	Drawing	Number of Conductors	Colour	Width (W)	Height (H)	Length (L)	Pack Cont.	Article-No.
HCPM-2		2	Yellow (YE)	10.8	7.7	16.5	150 pcs.	148-90036
HCPM-3		3	Orange (OG)	15.1	7.7	16.5	100 pcs.	148-90037
HCPM-4		4	Transparent (CL)	19.4	7.7	16.5	100 pcs.	148-90038
HCPM-5		5	Blue (BU)	23.7	7.7	16.5	75 pcs.	148-90039
HCPM-6		6	Violet (VT)	28.0	7.7	16.5	50 pcs.	148-90040
HCPM-8		8	Black (BK)	36.6	7.7	16.5	50 pcs.	148-90041
HCPM Variobox 350		-	Transparent (CL)	-	7.7	16.5	350 pcs.	148-90046

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



### Connectors - For Solid Wires

#### HelaCon Easy

The compact connector size fits perfect in tight spaces and it can generally be used in all kinds of junction boxes either on-wall or flush-mounted. HelaCon Easy is used to connect solid wires in the field of electrical installation.

#### Features and benefits

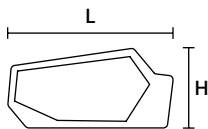
- Fast, easy, reliable push-in wire connectors for solid wires
- For connection and distribution of conductors in electrical housing
- Variety of input poles for flexible application
- Wire diameters from 1.0 up to 2.5 mm<sup>2</sup>
- Smaller diameters from 0.5 up to 1.5 mm<sup>2</sup> possible with HECE 1.5



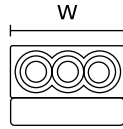
The compact design of HelaCon Easy fits perfectly in tight spaces.



One Step to the Web!



HelaCon Easy wire connector side view



HelaCon Easy wire connector front view

<b>MATERIAL</b>	Polyamide 6.6 (PA66)	
<b>Wire Range (VDE)</b>	0.5 - 1.5 mm <sup>2</sup> solid	1.0 - 2.5 mm <sup>2</sup> solid
<b>Max Current</b>	17.5 A	24 A
<b>Max Voltage</b>	450 V	
<b>Stripping Length</b>	11 mm	
<b>Flammability</b>	UL94 V2	
<b>Operating Temperature</b>	-30 °C to +110 °C (VDE), -30 °C to +105 °C (cULus)*	



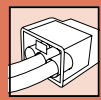
TYPE	Drawing	Wire Range (VDE) in mm <sup>2</sup>	Number of Conductors	Colour	Width (W)	Height (H)	Length (L)	Pack Cont.	Article-No.
HECE-2		1.0 - 2.5 solid	2	Grey (GY)	10.5	9.5	19.5	100 pcs.	148-90006
HECE-3		1.0 - 2.5 solid	3	Grey (GY)	13.5	9.5	19.7	100 pcs.	148-90035
HECE-4		1.0 - 2.5 solid	4	Grey (GY)	17.2	9.5	19.7	100 pcs.	148-90008
HECE-5		1.0 - 2.5 solid	5	Grey (GY)	21.1	9.5	19.7	100 pcs.	148-90009
HECE-8		1.0 - 2.5 solid	8	Grey (GY)	17.8	14.5	17.8	50 pcs.	148-90010
HECE-3x1.5		0.5 - 1.5 solid	3	Grey (GY)	11.4	8.8	18.5	100 pcs.	148-90013
HECE-5x1.5		0.5 - 1.5 solid	5	Grey (GY)	17.2	8.8	18.5	100 pcs.	148-90015
HECE-8x1.5		0.5 - 1.5 solid	8	Grey (GY)	26.0	8.8	18.5	75 pcs.	148-90018

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. \* Deviating value for Article-No.148-90010: -30 °C to +85 °C (CULus).



For product specific approvals and specifications please refer to the Appendix.



### Connectors - For Lighting Installation

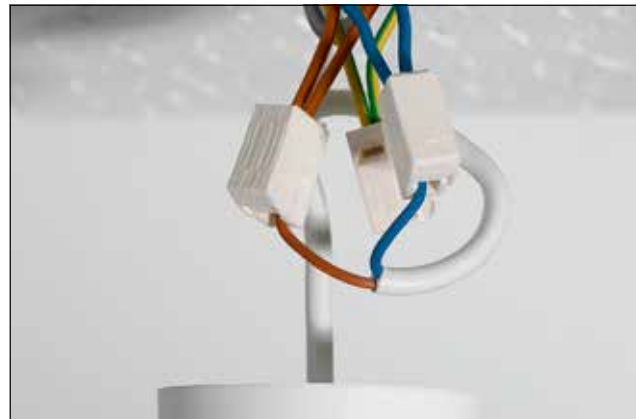
#### HelaCon Lux

The typical application is lighting installation, where the solid conductor from concealed cabling has to be connected to a flexible cable for lighting or other device. The 2/1 variant allows the looping through of the supply lines for additional devices.

There are two types of cable insertion port on each side of the HelaCon Lux connector, one is a conventional push in wire type suitable for solid cable, whilst the other side is suitable for flexible cable and is inserted by pressing the locking mechanism and can be released in the same way at any time. The lighting side can accept any kind of conductor and makes HelaCon Lux connectors also useful to connect devices that use flexible connecting cables such as control devices for smart home applications e.g. for blinds, fans, heating & cooling.

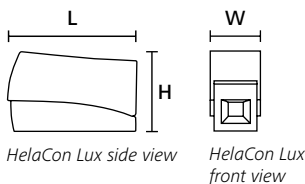
#### Features and benefits

- Best suitable to connect solid with flexible wire
- Combines push-in connector with lock / unlock spring mechanism
- For solid, stranded and fine-stranded conductors at lighting input from 0.5 to 2.5 mm<sup>2</sup>
- For solid wires from 0.75 up to 2.5 mm<sup>2</sup> on the installation side
- Use with typical housing current of 450 V / 24 A
- Either one or two inputs for solid conductor on installation side
- Very flexible application
- Tool-free application for easy, time-saving, safe connection
- Especially for overhead work and when wires are difficult to access



Quick installation and release of lights with HelaCon Lux.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Max Current</b>	24 A
<b>Max Voltage</b>	450 V
<b>Wire Range (VDE)</b>	0.5 - 2.5 mm <sup>2</sup>
<b>Flammability</b>	UL94 V2
<b>Operating Temperature</b>	-5 °C to +100 °C



HelaCon Lux side view

HelaCon Lux front view



One Step to the Web!

TYPE	Drawing	Number of Conductors	Colour	Width (W)	Height (H)	Length (L)	Pack Cont.	Article-No.
HECL-1/1		2	Grey (GY)	8.1	15.8	20.8	100 pcs.	148-90022
HECL-2/1		3	White (WH)	9.5	15.8	20.8	100 pcs.	148-90023

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.





## RELICON cast resin technology by HellermannTyton

Cast resin cable joints are applied wherever cable and wiring connections are submersed or buried underground.

Cast resin joints are exposed to high stress, so the cured two-component cast resin must deliver reliable long-term mechanical protection against external influences on the cable connection.

RELICON cast resin cable joints create reliable connections in the ground. They protect cables from thermal stress, moisture and dust. They are resistant to all environmental influences and are ecologically safe. RELICON supplies polyurethane (PUR) cable joints suitable for universal use in the majority of applications scenarios. Epoxy resin (EP) cable joints are available for chemical and oil processing industries.



*One Step to the Web!*



*RELICON Safe Filling (SF) technology.*



# RELICON by HellermannTyton



## RELICON SF technology: safe and easy filling

The special "Safe Filling" (SF) system makes RELICON cast resin joint products a pleasure to work with.

When followed correctly, SF ensures that any hazardous contact with the cast resin can be avoided and the fitter has visual control of the mixing and filling steps at all times.

Resin and hardener are mixed in a transparent double-chamber pouch. The mixture can be easily poured into the joint sleeve once the supplied nozzle is securely pressed onto the adapter ring in the pouch. The transparent cable joint parts guarantee that the fitter can visually control the entire filling process. The hydrophobic (dewatering) cast resin is environmentally safe. The mixture can be disposed of as regular household waste.

Excellent hydrolytic stability makes RELICON cast resins particularly suitable for reliable long-term applications.



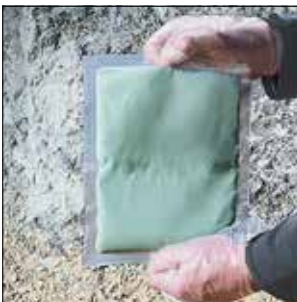
*Transparent 2-chamber pouch for an optimized visual inspection of the mixing process.*



*The middle cold seal between the resin and hardener component opens by means of pressure.*



*Simple mixing of the two components.*



*The patented color change gives the correct mixing process.*



*Automatic and leakproof opening of the pouch through installation of the filling nozzle.*



*The filling nozzle in combination with the adapter makes filling the joint very easy and efficient.*



### Straight-through joint without connectors

#### RELICON i-Line SF

RELICON straight-through joints are made for installations in low-voltage electrical networks. They are suitable for jointing on polymeric cables and wires made of PVC, XLPE, PE, EPR and utility cables.

Application: Underground, submerged, outdoor, indoor and wiring ducts.

#### Features and Benefits

- Two-part, impact-proof, transparent moulding shells
- Compact, optimized dimensions
- Standard cable diameters indicated on the shells
- Safe-Filling system (SF)
- Immediately ready for use
- Longitudinally and transversely watertight
- Joint can be cast under influence of water

#### Content of Set / Kit

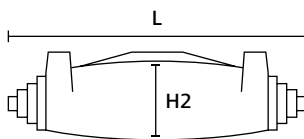
- Cast resin PUR 33
- Two-chamber pouch, transparent
- Moulding shells, transparent
- SF-system and nozzle
- Protective gloves, emery cloth, installation instructions
- HelaTape PVC insulating tape
- Spacer for max. 5 core cable (i-1 to i-4)



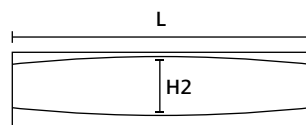
Straight-through joint i-Line SF (safe filling).

<b>MATERIAL</b>	Polyurethane resin 33 (PUR33)
<b>Colour</b>	Green (GN)
<b>Operating Temperature</b>	-25 °C to +120 °C
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	48 months

RoHS



i-Line (i-0 - i-6)



i-Line (i-7)

Without connector!



One Step to the Web!

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup>		Length (L)	Height (H2)	Resin Quantity	Article-No.
		min	max				
i-0 / SF EMEA	7-16	3 x 1.5	5 x 2.5	182.0	25.0	95 ml / 130 g	435-12019
i-1 / SF EMEA	8-24	3 x 1.5	4 x 10 / 5 x 6	190.0	36.0	165 ml / 226 g	435-12000
i-1.5 / SF EMEA	8-24	3 x 1.5	4 x 16 / 5 x 10	215.0	39.0	220 ml / 301 g	435-12001
i-2 / SF EMEA	14-30	5 x 1.5	4 x 25 / 5 x 16	276.0	49.0	400 ml / 548 g	435-12002
i-3 / SF EMEA	23-35	5 x 10	4 x 50 / 5 x 35	360.0	54.0	655 ml / 897 g	435-12003
i-4 / SF EMEA	28-47	4 x 25	4 x 95	400.0	69.0	1140 ml / 1562 g	435-12004
i-5 / SF EMEA	33-55	4 x 50	4 x 150	520.0	100.0	2 x 1450 ml / 1987 g	435-12005
i-6 / SF EMEA	48-70	4 x 150	4 x 240	700.0	128.0	4 x 1640 ml / 2247 g	435-12006
i-7 / SF EMEA	55-77	4 x 185	4 x 400	870.0	140.0	5 x 1950 ml / 2672 g	435-12007

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## Straight-through joint with connectors

### RELICON i-Line Premium SF

RELICON Premium straight-through joints are provided with an integrated connector block and made for low-voltage electrical networks. They are suitable for jointing on polymeric cables and wires made of PVC, XLPE, PE, EPR and utility cables.

Application: Underground, submerged, outdoor, indoor and wiring ducts.

#### Features and Benefits

- Two-part, impact-proof, transparent moulding shells
- Compact, optimized dimensions
- Standard cable diameters indicated on the shells
- Safe-Filling system (SF)
- Immediately ready for use
- Longitudinally and transversely watertight
- Joint can be cast under influence of water
- Connectors for aluminium and copper conductors
- Safe connection for up to 5 core cables

#### Content of Set / Kit

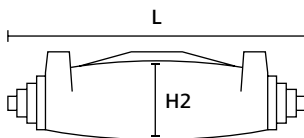
- Cast resin PUR 33
- Two-chamber pouch, transparent
- Moulding shells, transparent
- SF-system and nozzle
- Protective gloves, emery cloth, installation instructions
- HelaTape PVC insulating tape
- Connector block with 5 screw connectors incl. allen key



Straight-through joint i-Line SF (safe filling).

<b>MATERIAL</b>	Polyurethane resin 33 (PUR33)
<b>Colour</b>	Green (GN)
<b>Operating Temperature</b>	-25 °C to +120 °C
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	48 months

RoHS



i-Line Premium

With connector!

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup>		Length (L)	Height (H2)	Resin Quantity	Article-No.
		min	max				
<b>i-1 Premium SF EMEA</b>	8-24	3 x 1.5	5 x 6	190.0	36.0	165 ml / 226 g	435-12020
<b>i-2 Premium SF EMEA</b>	14-30	5 x 1.5	5 x 16	276.0	49.0	400 ml / 548 g	435-12021
<b>i-3 Premium SF EMEA</b>	23-35	5 x 6	5 x 35	360.0	54.0	655 ml / 897 g	435-12022

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Flexible straight-through joint

#### RELICON F-Line SF

The flexible RELICON F-Line straight-through joint for low voltage applications can be used to repair and connect flexible cables made of PVC, PUR, EPR like H05RR-F, H07RN-F, etc.

Application: Cable drum, underground, submerged, outdoor, indoor and wiring ducts.

#### Features and Benefits

- Reelable and permanently flexible also at sub-zero temperatures
- Very good adhesion even under permanent bending stress
- Quick and easy installation
- Immediately ready for use
- Longitudinally and transversely watertight
- High abrasion resistance
- Resistant to alkaline earths, chemical influences and UV-radiation

#### Content of Set / Kit

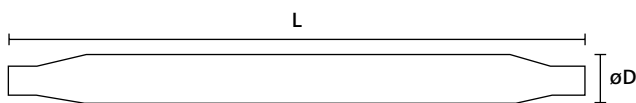
- PUR 44 Flex cast resin
- Two-chamber pouch, transparent
- Moulding shells with accessories
- SF-nozzle
- Protective gloves, emery cloth, installation instructions
- HelaTape self-amalgamating tape
- Cleaning cloth, plastic fabric strips



Flexible straight-through joint F-Line.

<b>MATERIAL</b>	Polyurethane resin 44 Flex (PUR44 Flex)
<b>Colour</b>	Black (BK)
<b>Operating Temperature</b>	-25 °C to +120 °C
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	24 months

**RoHS** ✓



F-Line

**i** Without connector!

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup>		Length (L)	Ø D	Resin Quantity	Article-No.
		min	max				
<b>F-11 / SF</b>	11-16	4 x 1.5	5 x 4	375.0	31.0	250 ml / 300 g	435-00200
<b>F-12 / SF</b>	17-20	4 x 4	5 x 6	375.0	34.0	350 ml / 420 g	435-00201
<b>F-13 / SF</b>	21-27	4 x 10	5 x 16	450.0	42.0	400 ml / 480 g	435-00202
<b>F-14 / SF</b>	25-32	4 x 16	5 x 25	450.0	42.0	600 ml / 720 g	435-00203
<b>F-15 / SF</b>	30-38	4 x 25	5 x 35	440.0	46.0	655 ml / 786 g	435-00204

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## Branch joints

### RELICON Y-Line SF

RELICON branch joints are made for installations in low-voltage electrical networks. They are suitable for jointing on polymeric cables and wires made of PVC, XLPE, PE, EPR and utility cables.

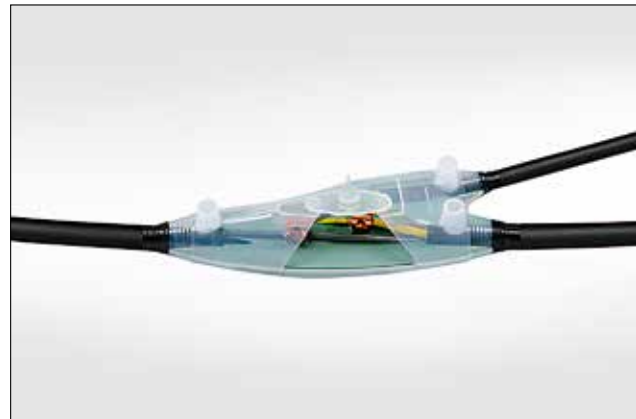
Application: Underground, submerged, outdoor, indoor and wiring ducts.

### Features and Benefits

- Two-part, impact-proof, transparent moulding shells
- Compact, optimized dimensions
- Standard cable diameters indicated on the shells
- SF-system
- Immediately ready for use
- Longitudinally and transversely watertight
- Joint can be cast under influence of water

### Content of Set / Kit

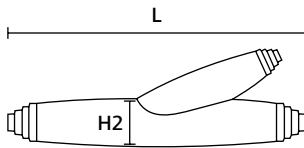
- Cast resin PUR 33
- Two-chamber pouch, transparent
- Moulding shells, transparent
- SF-system and nozzle
- Protective gloves, emery cloth, installation instructions
- HelaTape PVC insulating tape



Branch joint Y-Line SF (safe filling).

<b>MATERIAL</b>	Polyurethane resin 33 (PUR33)
<b>Colour</b>	Green (GN)
<b>Operating Temperature</b>	-25 °C to +120 °C
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	48 months

**RoHS** ✓



Y-Line

**i** Without branch connector!

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup>		Ø Branch Cable	Angle	Branch Cable mm <sup>2</sup>		Length (L)	Height (H2)	Resin Quantity	Article-No.
		min - max	min - max			min - max	min - max				
Y-1 / SF	8-22	3 x 1.5	5 x 10	10-22	30 °	3 x 1.5	5 x 6	205.0	70.0	490 ml / 671 g	435-12009
Y-0 / SF	10-24	3 x 1.5	4 x 10	10-24	30 °	3 x 1.5	4 x 4	190.0	60.0	240 ml / 329 g	435-12008
Y-3 / SF	10-40	4 x 16	5 x 16	13-28	20 °	4 x 10	5 x 10	330.0	90.0	955 ml / 1308 g	435-12023
Y-2 / SF	25-33	4 x 16	5 x 25	15-30	20 °	4 x 6	5 x 16	350.0	98.0	1445 ml / 1980 g	435-12010
Y-6 / SF	30-55	4 x 95	4 x 185	17-40	20 °	4 x 10	4 x 70	430.0	130.0	-	435-12012
Y-5 / SF	35-51	4 x 25	4 x 150	17-33	15 °	4 x 10	4 x 50	298.0	120.0	2045 ml / 2802 g	435-12011

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Branch joints

#### RELICON T-Line SF

RELICON branch joints are made for installations in low-voltage electrical networks. They are suitable for jointing on polymeric cables and wires made of PVC, XLPE, PE, EPR and utility cables.

Application: Underground, submerged, outdoor, indoor and wiring ducts.

#### Features and Benefits

- Two-part, impact-proof, transparent moulding shells
- Compact, optimized dimensions
- Standard cable diameters indicated on the shells
- SF-system
- Immediately ready for use
- Longitudinally and transversely watertight
- Joint can be cast under influence of water

#### Content of Set / Kit

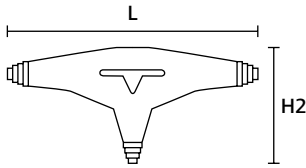
- Cast resin PUR 33
- Two-chamber pouch, transparent
- Moulding shells, transparent
- SF-system and nozzle
- Protective gloves, emery cloth, installation instructions
- HelaTape PVC insulating tape



Branch joint T-Line SF (safe filling).

<b>MATERIAL</b>	Polyurethane resin 33 (PUR33)
<b>Colour</b>	Green (GN)
<b>Operating Temperature</b>	-25 °C to +120 °C
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	48 months

**RoHS** ✓



T-Line



**Without  
branch connector!**

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup> min - max		Ø Branch Cable	Angle	Branch Cable mm <sup>2</sup> min - max		Length (L)	Height (H2)	Resin Quantity	Article-No.
<b>T-1 / SF EMEA</b>	16-26	5 x 1.5	5 x 10	10-24	90 °	3 x 1.5	5 x 6	276.0	177.0	455 ml / 623 g	435-12024
<b>T-2 / SF EMEA</b>	25-32	5 x 6	5 x 16	18-25	90 °	5 x 1.5	5 x 10	380.0	225.0	2045 ml / 2802 g	435-12025
<b>T-3 / SF EMEA</b>	29-40	5 x 10	5 x 50	20-30	90 °	5 x 6	5 x 16	520.0	205.0	2 x 1450 ml / 1987 g	435-12026

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





## Parallel branch joint house connections

### RELICON PAH-1

The parallel branch joint PAH is a universal straight-through and branch joint. Depending on the connector, it can be used for single and double branches. They are suitable for jointing on polymeric cables and wires made of PVC, XLPE, PE, EPR and utility cables.

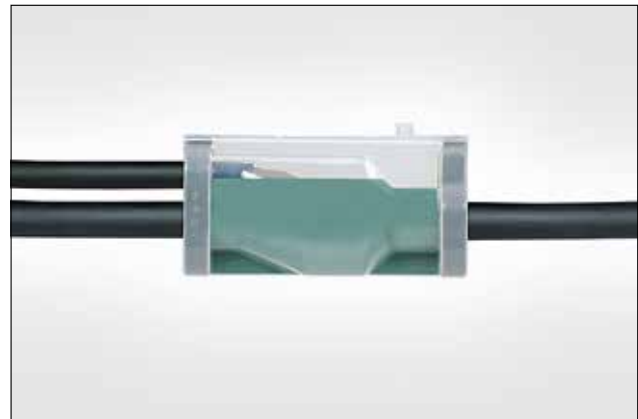
Application: In low-voltage electrical networks as branch joint for building connections. Underground, submerged, outdoor, indoor.

#### Features and Benefits

- Impact-proof, transparent moulding shell
- Compact, optimized dimensions
- Longitudinally and transversely watertight
- SF-system
- Joint can be cast under influence of water
- Immediately ready for use
- Suitable for all compact tap connectors

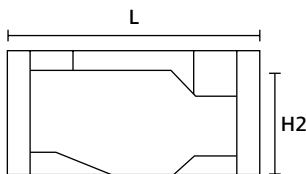
#### Content of Set / Kit

- Cast resin PUR 33, 1900 ml/2603 g
- In a two-chamber pouch or in cans
- Transparent moulding shell
- Foam seal, protective gloves, emery cloth
- Cleaning cloth, cable kit, installation instructions
- SF-nozzle (two-chamber pouch)
- Mixing stick (can)



Parallel branch joint PAH-1 120/290, house connector set.

<b>MATERIAL</b>	Polyurethane resin 33 (PUR33)
<b>Colour</b>	Green (GN)
<b>Operating Temperature</b>	-25 °C to +120 °C
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	48 months



PAH-1

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup>		Ø Branch Cable	Branch Cable mm <sup>2</sup>		Length (L)	Height (H2)	Connector	Pack	Article-No.
		min - max	min - max		min - max	min - max					
PAH-1-120/290-B-SF	30-50	4 x 16	4 x 150	18-33	4 x 35	4 x 150	290.0	120.0	none	Bag	435-00153
PAH-1-120/290-C-S	30-50	4 x 35	4 x 95	18-33	4 x 16	4 x 50	290.0	120.0	Isicompact-S	Can	435-00167
PAH-1-120/290-B-SF-S	30-50	4 x 35	4 x 95	18-33	4 x 16	4 x 50	290.0	120.0	Isicompact-S	Bag	435-00173
PAH-1-120/290-C	30-50	4 x 35	4 x 150	18-33	4 x 16	4 x 50	290.0	120.0	none	Can	435-00159
PAH-1-120/290-C-M	30-50	4 x 35	4 x 150	18-33	4 x 16	4 x 50	290.0	120.0	Isicompact-M	Can	435-00164
PAH-1-120/290-B-SF-M	30-50	4 x 35	4 x 150	18-33	4 x 16	4 x 50	290.0	120.0	Isicompact-M	Bag	435-00170

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





### Parallel branch joint house connections

#### RELICON PAH-2

The parallel branch joint PAH is a universal straight-through and branch joint. Depending on the connector, it can be used for single and double branches. They are suitable for jointing on polymeric cables and wires made of PVC, XLPE, PE, EPR and utility cables.

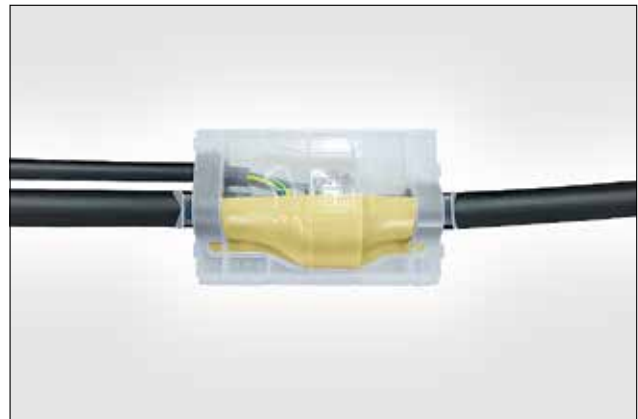
Application: In low-voltage electrical networks as branch joint for building connections. Underground, submerged, outdoor, indoor.

#### Features and Benefits

- Impact-proof, transparent moulding shell
- Compact, optimized dimensions
- Longitudinally and transversely watertight
- SF-system
- Joint can be cast under influence of water
- Immediately ready for use
- Suitable for all compact tap connectors

#### Content of Set / Kit

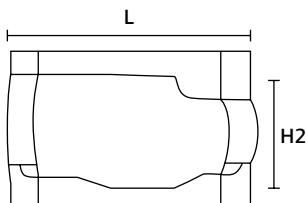
- Cast resin Reliflex, 1950 ml/2379 g, non-toxic
- In a two-chamber pouch or in cans
- Transparent moulding shell
- Foam seal, protective gloves, emery cloth
- Cleaning cloth, cable kit, installation instructions
- SF-nozzle (two-chamber pouch)
- Mixing stick (can)



Parallel branch joint PAH-2 130/300, house connector set.

<b>MATERIAL</b>	Cold sealing compound Reliflex (Reliflex)
<b>Colour</b>	Yellow (YE)
<b>Operating Temperature</b>	-40 °C to +90 °C
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	36 months

RoHS



PAH-2

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup> min - max		Ø Branch Cable	Branch Cable mm <sup>2</sup> min - max		Length (L)	Height (H2)	Connector	Pack	Article-No.
PAH-2-130/300-C-S	27-49	4 x 35	4 x 95	15-33	4 x 6	4 x 70	300.0	130.0	Isicompact-S	Can	435-00864
PAH-2-130/300-B-SF-S	27-49	4 x 35	4 x 95	15-33	4 x 6	4 x 70	300.0	130.0	Isicompact-S	Bag	435-00868
PAH-2-130/300-B-SF	27-49	4 x 35	4 x 150	15-33	4 x 6	4 x 70	300.0	130.0	none	Bag	435-00855
PAH-2-130/300-C	27-49	4 x 35	4 x 150	15-33	4 x 6	4 x 70	300.0	130.0	none	Can	435-00858
PAH-2-130/300-C-M	27-49	4 x 35	4 x 150	15-33	4 x 6	4 x 70	300.0	130.0	Isicompact-M	Can	435-00862
PAH-2-130/300-B-SF-M	27-49	4 x 35	4 x 150	15-33	4 x 6	4 x 70	300.0	130.0	Isicompact-M	Bag	435-00866

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Parallel branch joint house connections

#### RELICON PAH-2

The parallel branch joint PAH is a universal straight-through and branch joint. Depending on the connector, it can be used for single and double branches. They are suitable for jointing on polymeric cables and wires made of PVC, XLPE, PE, EPR and utility cables.

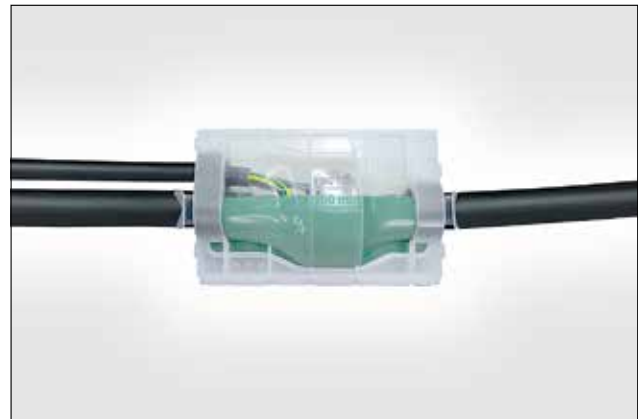
Application: In low-voltage electrical networks as branch joint for building connections. Underground, submerged, outdoor, indoor.

#### Features and Benefits

- Impact-proof, transparent moulding shell
- Compact, optimized dimensions
- Longitudinally and transversely watertight
- SF-system
- Joint can be cast under influence of water
- Immediately ready for use
- Suitable for all compact tap connectors

#### Content of Set / Kit

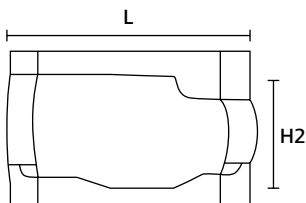
- Cast resin PUR 33, 1950 ml/2672 g
- In a two-chamber pouch or in cans
- Transparent moulding shell
- Foam seal, protective gloves, emery cloth
- Cleaning cloth, cable kit, installation instructions
- SF-nozzle (two-chamber pouch)
- Mixing stick (can)



Parallel branch joint PAH-2 130/300, house connector set.

<b>MATERIAL</b>	Polyurethane resin 33 (PUR33)
<b>Colour</b>	Green (GN)
<b>Operating Temperature</b>	-25 °C to +120 °C
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	48 months

**RoHS** ✓



PAH-2

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup> min - max		Ø Branch Cable	Branch Cable mm <sup>2</sup> min - max		Length (L)	Height (H2)	Connector	Pack	Article-No.
PAH-2-130/300-C-S	27-49	4 x 35	4 x 95	15-33	4 x 6	4 x 70	300.0	130.0	Isicompact-S	Can	435-00168
PAH-2-130/300-B-SF-S	27-49	4 x 35	4 x 95	15-33	4 x 6	4 x 70	300.0	130.0	Isicompact-S	Bag	435-00174
PAH-2-130/300-B-SF	27-49	4 x 35	4 x 150	15-33	4 x 6	4 x 70	300.0	130.0	none	Bag	435-00154
PAH-2-130/300-C	27-49	4 x 35	4 x 150	15-33	4 x 6	4 x 70	300.0	130.0	none	Can	435-00160
PAH-2-130/300-C-M	27-49	4 x 35	4 x 150	15-33	4 x 6	4 x 70	300.0	130.0	Isicompact-M	Can	435-00165
PAH-2-130/300-B-SF-M	27-49	4 x 35	4 x 150	15-33	4 x 6	4 x 70	300.0	130.0	Isicompact-M	Bag	435-00171

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Parallel branch joint house connections

#### RELICON PAH-3 non-toxic

The parallel branch joint PAH is a universal straight-through and branch joint. Depending on the connector, it can be used for single and double branches. They are suitable for jointing on polymeric cables and wires made of PVC, XLPE, PE, EPR and utility cables.

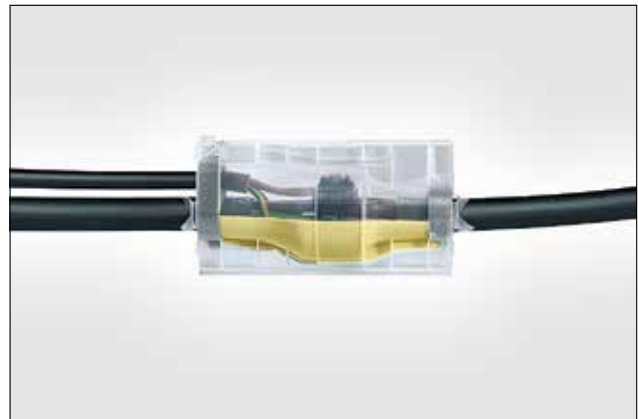
Application: In low-voltage electrical networks as branch joint for building connections. Underground, submerged, outdoor, indoor.

#### Features and Benefits

- Impact-proof, transparent moulding shell
- Compact, optimized dimensions
- Longitudinally and transversely watertight
- SF-system
- Joint can be cast under influence of water
- Immediately ready for use
- Suitable for all compact tap connectors

#### Content of Set / Kit

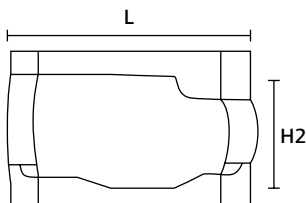
- Cast resin Reliflex, 2800 ml/3416 g, non-toxic
- In a two-chamber pouch or in cans
- Transparent moulding shell
- Foam seal, protective gloves, emery cloth
- Cleaning cloth, cable kit, installation instructions
- SF-nozzle (two-chamber pouch)
- Mixing stick (can)



Parallel branch joint PAH-3 135/360, house connector set.

<b>MATERIAL</b>	Cold sealing compound Reliflex (Reliflex)
<b>Colour</b>	Yellow (YE)
<b>Operating Temperature</b>	-40 °C to +90 °C
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	36 months

RoHS



PAH-3

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup> min - max		Ø Branch Cable	Branch Cable mm <sup>2</sup> min - max		Length (L)	Height (H2)	Connector	Pack	Article-No.
PAH-3-135/360-B-SF	27-49	4 x 35	4 x 95	15-33	4 x 6	4 x 70	360.0	135.0	none	Bag	435-00856
PAH-3-135/360-C-S	27-49	4 x 35	4 x 95	15-33	4 x 6	4 x 70	360.0	135.0	Isicompact-S	Can	435-00865
PAH-3-135/360-B-SF-S	27-49	4 x 35	4 x 95	15-33	4 x 6	4 x 70	360.0	135.0	Isicompact-S	Bag	435-00869
PAH-3-135/360-C	27-49	4 x 35	4 x 185	15-33	4 x 6	4 x 70	360.0	135.0	none	Can	435-00859
PAH-3-135/360-C-M	27-49	4 x 35	4 x 185	15-33	4 x 6	4 x 70	360.0	135.0	Isicompact-M	Can	435-00863
PAH-3-135/360-B-SF-M	27-49	4 x 35	4 x 185	15-33	4 x 6	4 x 70	360.0	135.0	Isicompact-M	Bag	435-00867

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

## Parallel branch joint house connections

### RELICON PAH-3

The parallel branch joint PAH is a universal straight-through and branch joint. Depending on the connector, it can be used for single and double branches. They are suitable for jointing on polymeric cables and wires made of PVC, XLPE, PE, EPR and utility cables.

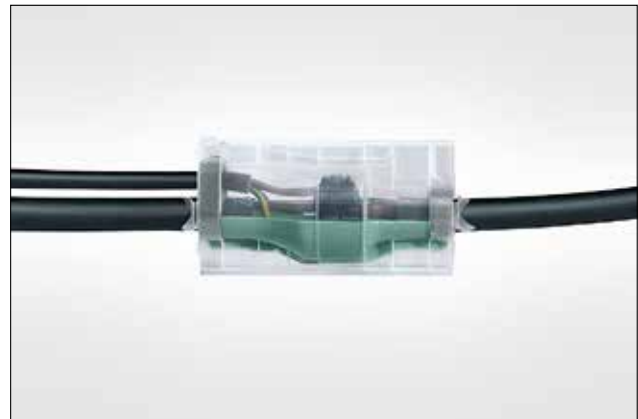
Application: In low-voltage electrical networks as branch joint for building connections. Underground, submerged, outdoor, indoor.

#### Features and Benefits

- Impact-proof, transparent moulding shell
- Compact, optimized dimensions
- Longitudinally and transversely watertight
- SF-system
- Joint can be cast under influence of water
- Immediately ready for use
- Suitable for all compact tap connectors

#### Content of Set / Kit

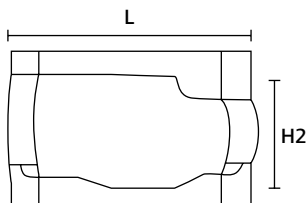
- Cast resin PUR 33, 2800 ml/3836 g
- In a two-chamber pouch or in cans
- Transparent moulding shell
- Foam seal, protective gloves, emery cloth
- Cleaning cloth, cable kit, installation instructions
- SF-nozzle (two-chamber pouch)
- Mixing stick (can)



Parallel branch joint PAH-3 135/360, house connector set.

<b>MATERIAL</b>	Polyurethane resin 33 (PUR33)
<b>Colour</b>	Green (GN)
<b>Operating Temperature</b>	-25 °C to +120 °C
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	48 months

**RoHS** 



PAH-3

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup> min - max		Ø Branch Cable	Branch Cable mm <sup>2</sup> min - max		Length (L)	Height (H2)	Connector	Pack	Article-No.
PAH-3-135/360-C-S	27-49	4 x 35	4 x 70	15-33	4 x 6	4 x 95	360.0	135.0	Isicompact-S	Can	435-00169
PAH-3-135/360-B-SF-S	27-49	4 x 35	4 x 95	15-33	4 x 6	4 x 70	360.0	135.0	Isicompact-S	Bag	435-00175
PAH-3-135/360-B-SF	27-49	4 x 35	4 x 185	15-33	4 x 6	4 x 70	360.0	135.0	none	Bag	435-00155
PAH-3-135/360-C	27-49	4 x 35	4 x 185	15-33	4 x 6	4 x 70	360.0	135.0	none	Can	435-00161
PAH-3-135/360-C-M	27-49	4 x 35	4 x 185	15-33	4 x 6	4 x 70	360.0	135.0	Isicompact-M	Can	435-00166
PAH-3-135/360-B-SF-M	27-49	4 x 35	4 x 185	15-33	4 x 6	4 x 70	360.0	135.0	Isicompact-M	Bag	435-00172

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Parallel branch joint house connections

#### RELICON PAH-4

The parallel branch joint PAH is a universal straight-through and branch joint. Depending on the connector, it can be used for single and double branches. They are suitable for jointing on polymeric cables and wires made of PVC, XLPE, PE, EPR and utility cables.

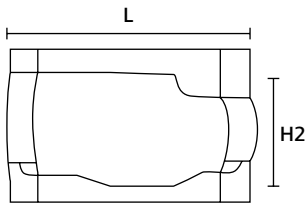
Application: In low-voltage electrical networks as branch joint for building connections. Underground, submerged, outdoor, indoor.

#### Features and Benefits

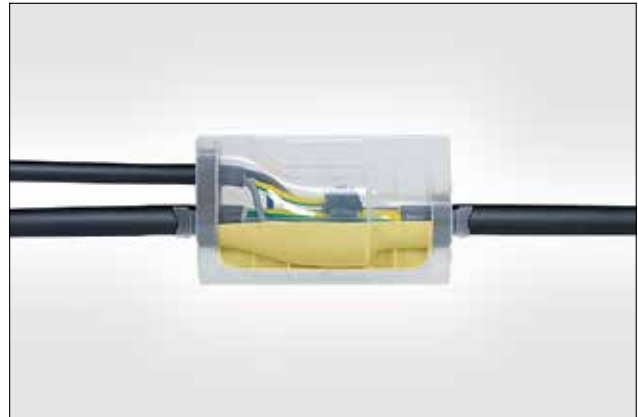
- Impact-proof, transparent moulding shell
- Compact, optimized dimensions
- Longitudinally and transversely watertight
- SF-system
- Joint can be cast under influence of water
- Immediately ready for use
- Suitable for all compact tap connectors

#### Content of Set / Kit

- Cast resin Reliflex, 3900 ml/4758 g, non-toxic
- In a two-chamber pouch or in cans
- Transparent moulding shell
- Foam seal, protective gloves, emery cloth
- Cleaning cloth, cable kit, installation instructions
- SF-nozzle (two-chamber pouch)
- Mixing stick (can)



PAH-4



Parallel branch joint PAH-4 140/420, house connector set.

<b>MATERIAL</b>	Cold sealing compound Reliflex (Reliflex)
<b>Colour</b>	Yellow (YE)
<b>Operating Temperature</b>	-40 °C to +90 °C
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	36 months

RoHS



**Without branch connector!**

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup>		Ø Branch Cable	Branch Cable mm <sup>2</sup>		Length (L)	Height (H2)	Connector	Pack	Article-No.
		min	max		min	max					
PAH-4-140/420-B-SF	27-58	4 x 70	4 x 240	15-49	4 x 70	4 x 240	420.0	140.0	none	Bag	435-00857
PAH-4-140/420-C	27-58	4 x 70	4 x 240	15-49	4 x 70	4 x 240	420.0	140.0	none	Can	435-00860

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Parallel branch joint house connections

#### RELICON PAH-4

The parallel branch joint PAH is a universal straight-through and branch joint. Depending on the connector, it can be used for single and double branches. They are suitable for jointing on polymeric cables and wires made of PVC, XLPE, PE, EPR and utility cables.

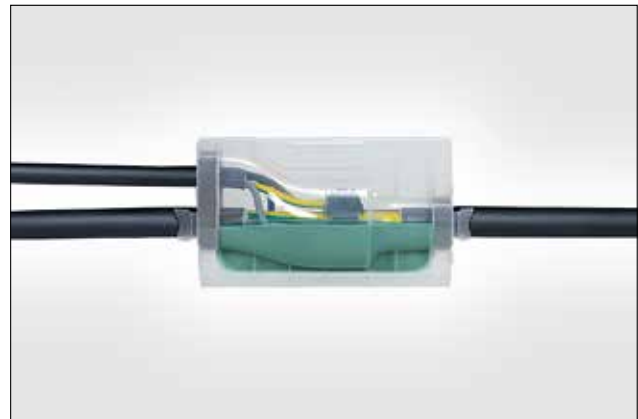
Application: In low-voltage electrical networks as branch joint for building connections. Underground, submerged, outdoor, indoor.

#### Features and Benefits

- Impact-proof, transparent moulding shell
- Compact, optimized dimensions
- Longitudinally and transversely watertight
- SF-system
- Joint can be cast under influence of water
- Immediately ready for use
- Suitable for all compact tap connectors

#### Content of Set / Kit

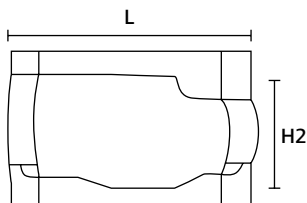
- Cast resin PUR 33, 3900 ml/5343 g
- In a two-chamber pouch or in cans
- Transparent moulding shell
- Foam seal, protective gloves, emery cloth
- Cleaning cloth, cable kit, installation instructions
- SF-nozzle (two-chamber pouch)
- Mixing stick (can)



Parallel branch joint PAH-4 140/420, house connector set.

<b>MATERIAL</b>	Polyurethane resin 33 (PUR33)
<b>Colour</b>	Green (GN)
<b>Operating Temperature</b>	-25 °C to +120 °C
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	48 months

**RoHS** ✓



PAH-4

**i** Without branch connector!

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup> min - max		Ø Branch Cable	Branch Cable mm <sup>2</sup> min - max		Length (L)	Height (H2)	Connector	Pack	Article-No.
<b>PAH-4-140/420-B-SF</b>	27-58	4 x 70	4 x 240	15-49	4 x 70	4 x 240	420.0	140.0	none	Bag	435-00156
<b>PAH-4-140/420-C</b>	27-58	4 x 70	4 x 240	15-49	4 x 70	4 x 240	420.0	140.0	none	Can	435-00162

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Parallel branch joint

#### RELICON PA-11, non-toxic

The parallel branch joint PA is a universal straight-through and branch joint. Depending on the connector, it can be used for single and double branches. They are suitable for jointing on polymeric cables and wires made of PVC, XLPE, PE, EPR and utility cables.

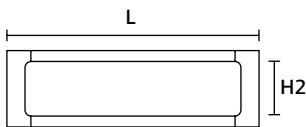
Application: In low-voltage electrical networks as well as for signal and communication cables. For power supply lines for outdoor lighting and for cable repairs. Underground, submerged, outdoor, indoor and wiring ducts.

#### Features and Benefits

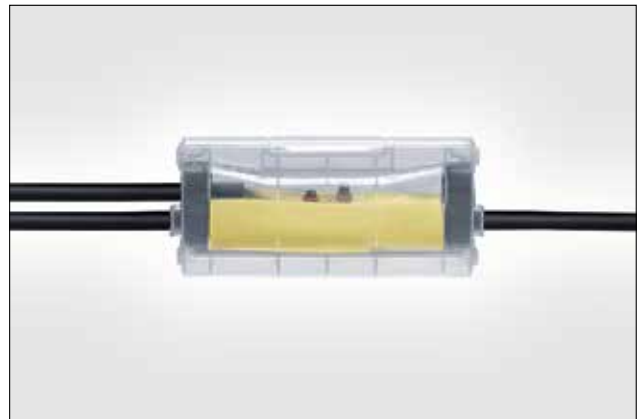
- One-piece, impact-proof, transparent moulding shell
- Captive lids
- Compact, optimized dimensions
- Longitudinally and transversely watertight
- Joint can be cast under influence of water
- Immediately ready for use

#### Content of Set / Kit

- Cast resin Reliflex, non-toxic
- In a two-chamber pouch or in cans
- Transparent, one-piece moulding shell
- Foam seal, protective gloves, emery cloth
- Cleaning cloth, installation instructions
- SF-nozzle (two-chamber pouch)
- Mixing stick (can)



PA-11



Parallel branch joint PA-11 58/230.

<b>MATERIAL</b>	Cold sealing compound Reliflex (Reliflex)
<b>Colour</b>	Yellow (YE)
<b>Operating Temperature</b>	-40 °C to +90 °C
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	36 months

RoHS

**i** Without branch connector!

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup> min - max		Ø Branch Cable	Branch Cable mm <sup>2</sup> min - max		Length (L)	Height (H2)	Resin Quantity	Pack	Article-No.
PA-11-58/230-B-SF	13-21	4 x 1.5	5 x 10	13-21	4 x 1.5	5 x 10	230.0	58.0	490 ml / 598 g	Bag	435-00850
PA-11-58/230-C	13-21	4 x 1.5	5 x 10	13-21	4 x 1.5	5 x 10	230.0	58.0	490 ml / 598 g	Can	435-00853

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





## Parallel branch joint

### RELICON PA-11

The parallel branch joint PA is a universal straight-through and branch joint. Depending on the connector, it can be used for single and double branches. They are suitable for jointing on polymeric cables and wires made of PVC, XLPE, PE, EPR and utility cables.

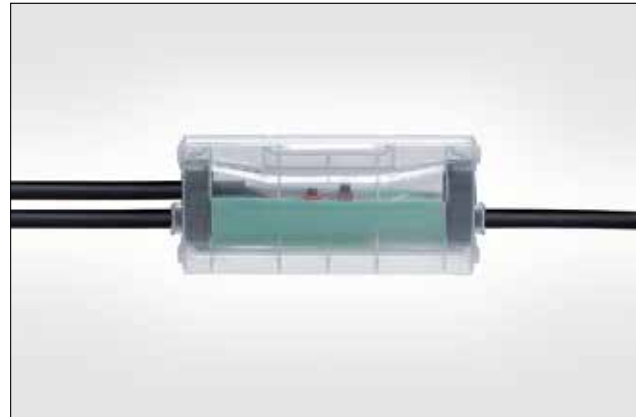
Application: In low-voltage electrical networks as well as for signal and communication cables. For power supply lines for outdoor lighting and for cable repairs. Underground, submerged, outdoor, indoor and wiring ducts.

### Features and Benefits

- One-piece, impact-proof, transparent moulding shell
- Captive lids
- Compact, optimized dimensions
- Longitudinally and transversely watertight
- Joint can be cast under influence of water
- Immediately ready for use

### Content of Set / Kit

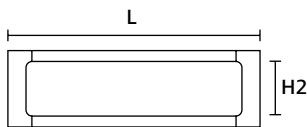
- Cast resin PUR 33
- In a two-chamber pouch or in cans
- Transparent, one-piece moulding shell
- Foam seal, protective gloves, emery cloth
- Cleaning cloth, installation instructions
- SF-nozzle (two-chamber pouch)
- Mixing stick (can)



Parallel branch joint PA-11 58/230.

<b>MATERIAL</b>	Polyurethane resin 33 (PUR33)
<b>Colour</b>	Green (GN)
<b>Operating Temperature</b>	-25 °C to +120 °C
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	48 months

**RoHS** ✓



PA-11

**i** Without branch connector!

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup> min - max		Ø Branch Cable	Branch Cable mm <sup>2</sup> min - max		Length (L)	Height (H2)	Resin Quantity	Pack	Article-No.
PA-11-58/230-B-SF	13-21	4 x 1.5	5 x 10	13-21	4 x 1.5	5 x 10	230.0	58.0	490 ml / 671 g	Bag	435-00150
PA-11-58/230-C	13-21	4 x 1.5	5 x 10	13-21	4 x 1.5	5 x 10	230.0	58.0	490 ml / 671 g	Can	435-00157

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Parallel branch joint

#### RELICON PA-12, non-toxic

The parallel branch joint PA is a universal straight-through and branch joint. Depending on the connector, it can be used for single and double branches. They are suitable for jointing on polymeric cables and wires made of PVC, XLPE, PE, EPR and utility cables.

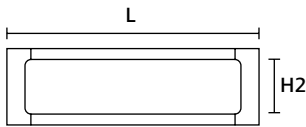
Application: In low-voltage electrical networks as well as for signal and communication cables. For power supply lines for outdoor lighting and for cable repairs. Underground, submerged, outdoor, indoor and wiring ducts.

#### Features and Benefits

- One-piece, impact-proof, transparent moulding shell
- Captive lids
- Compact, optimized dimensions
- Longitudinally and transversely watertight
- Joint can be cast under influence of water
- Immediately ready for use

#### Content of Set / Kit

- Cast resin Reliflex, non-toxic
- In a two-chamber pouch or in cans
- Transparent, one-piece moulding shell
- Foam seal, protective gloves, emery cloth
- Cleaning cloth, installation instructions
- SF-nozzle (two-chamber pouch)
- Mixing stick (can)



PA-12



Parallel branch joint PA-12 75/300.

<b>MATERIAL</b>	Cold sealing compound Reliflex (Reliflex)
<b>Colour</b>	Yellow (YE)
<b>Operating Temperature</b>	-40 °C to +90 °C
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	36 months

RoHS

**i** Without branch connector!

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup>		Ø Branch Cable	Branch Cable mm <sup>2</sup>		Length (L)	Height (H2)	Resin Quantity	Pack	Article-No.
		min - max	min - max		min - max	min - max					
PA-12-75/300-B-SF	17-29	4 x 16	5 x 25	13-22	4 x 6	5 x 16	300.0	75.0	955 ml / 1165 g	Bag	435-00851
PA-12-75/300-C	17-29	4 x 16	5 x 25	13-22	4 x 6	5 x 16	300.0	75.0	955 ml / 1165 g	Can	435-00854

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## Parallel branch joint

### RELICON PA-12

The parallel branch joint PA is a universal straight-through and branch joint. Depending on the connector, it can be used for single and double branches. They are suitable for jointing on polymeric cables and wires made of PVC, XLPE, PE, EPR and utility cables.

Application: In low-voltage electrical networks as well as for signal and communication cables. For power supply lines for outdoor lighting and for cable repairs. Underground, submerged, outdoor, indoor and wiring ducts.

#### Features and Benefits

- One-piece, impact-proof, transparent moulding shell
- Captive lids
- Compact, optimized dimensions
- Longitudinally and transversely watertight
- Joint can be cast under influence of water
- Immediately ready for use

#### Content of Set / Kit

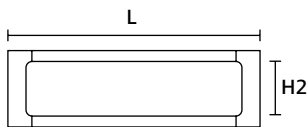
- Cast resin PUR 33
- In a two-chamber pouch or in cans
- Transparent, one-piece moulding shell
- Foam seal, protective gloves, emery cloth
- Cleaning cloth, installation instructions
- SF-nozzle (two-chamber pouch)
- Mixing stick (can)



Parallel branch joint PA-12 75/300.

<b>MATERIAL</b>	Polyurethane resin 33 (PUR33)
<b>Colour</b>	Green (GN)
<b>Operating Temperature</b>	-25 °C to +120 °C
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	48 months

RoHS



PA-12

Without branch connector!

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup> min - max		Ø Branch Cable	Branch Cable mm <sup>2</sup> min - max		Length (L)	Height (H2)	Resin Quantity	Pack	Article-No.
PA-12-75/300-B-SF	17-29	4 x 16	5 x 25	13-22	4 x 6	5 x 16	300.0	75.0	955 ml / 1308 g	Bag	435-00151
PA-12-75/300-C	17-29	4 x 16	5 x 25	13-22	4 x 6	5 x 16	300.0	75.0	955 ml / 1308 g	Can	435-00158

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Parallel branch joint

#### RELICON PA-13, non-toxic

The parallel branch joint PA is a universal straight-through and branch joint. Depending on the connector, it can be used for single and double branches. They are suitable for jointing on polymeric cables and wires made of PVC, XLPE, PE, EPR and utility cables.

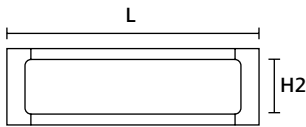
Application: In low-voltage electrical networks as well as for signal and communication cables. For power supply lines for outdoor lighting and for cable repairs. Underground, submerged, outdoor, indoor and wiring ducts.

#### Features and Benefits

- One-piece, impact-proof, transparent moulding shell
- Captive lids
- Compact, optimized dimensions
- Longitudinally and transversely watertight
- Joint can be cast under influence of water
- Immediately ready for use

#### Content of Set / Kit

- Cast resin Reliflex, non-toxic
- In a two-chamber pouch or in cans
- Transparent, one-piece moulding shell
- Foam seal, protective gloves, emery cloth
- Cleaning cloth, installation instructions
- SF-nozzle (two-chamber pouch)
- Mixing stick (can)



PA-13



Parallel branch joint PA-13 95/420.

<b>MATERIAL</b>	Cold sealing compound Reliflex (Reliflex)
<b>Colour</b>	Yellow (YE)
<b>Operating Temperature</b>	-40 °C to +90 °C
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	36 months

RoHS

**i** Without branch connector!

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup> min - max		Ø Branch Cable	Branch Cable mm <sup>2</sup> min - max		Length (L)	Height (H2)	Resin Quantity	Pack	Article-No.
PA-13-95/420-B-SF	27-35	4 x 10	5 x 35	21-30	4 x 25	5 x 35	420.0	95.0	2240 ml / 2733 g	Bag	435-00852
PA-13-95/420-C	27-35	4 x 10	5 x 35	21-30	4 x 25	5 x 35	420.0	95.0	2240 ml / 2733 g	Can	435-00861

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## Parallel branch joint

### RELICON PA-13

The parallel branch joint PA is a universal straight-through and branch joint. Depending on the connector, it can be used for single and double branches. They are suitable for jointing on polymeric cables and wires made of PVC, XLPE, PE, EPR and utility cables.

Application: In low-voltage electrical networks as well as for signal and communication cables. For power supply lines for outdoor lighting and for cable repairs. Underground, submerged, outdoor, indoor and wiring ducts.

### Features and Benefits

- One-piece, impact-proof, transparent moulding shell
- Captive lids
- Compact, optimized dimensions
- Longitudinally and transversely watertight
- Joint can be cast under influence of water
- Immediately ready for use

### Content of Set / Kit

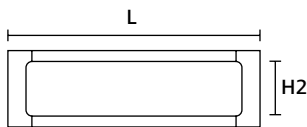
- Cast resin PUR 33
- In a two-chamber pouch or in cans
- Transparent, one-piece moulding shell
- Foam seal, protective gloves, emery cloth
- Cleaning cloth, installation instructions
- SF-nozzle (two-chamber pouch)
- Mixing stick (can)



Parallel branch joint PA-13 95/420.

<b>MATERIAL</b>	Polyurethane resin 33 (PUR33)
<b>Colour</b>	Green (GN)
<b>Operating Temperature</b>	-25 °C to +120 °C
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	48 months

**RoHS** ✓



PA-13

**i** Without branch connector!

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup> min - max		Ø Branch Cable	Branch Cable mm <sup>2</sup> min - max		Length (L)	Height (H2)	Resin Quantity	Pack	Article-No.
PA-13-95/420-B-SF	27-35	4 x 10	5 x 35	21-30	4 x 25	5 x 35	420.0	95.0	2240 ml / 3069 g	Bag	435-00152
PA-13-95/420-C	27-35	4 x 10	5 x 35	21-30	4 x 25	5 x 35	420.0	95.0	2240 ml / 3069 g	Can	435-00163

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

# RELICON expertise for cast resins and gels: Choose the right product for your application.

PRODUCT FAMILY	Pot Life	Shore Hardness A	Shore Hardness D	Operating Temperature	Dielectric Strength	Shelf Life	Exothermicity max.	Removable	
<b>Two-component polyurethane cast resin</b>									
RELICON PUR 33	43 min. 5 °C, 15 min. 23 °C, 8 min. 40 °C	–	65±5	-25 °C to +120 °C	38 kV/mm	48 months	+71 °C	–	
RELICON PUR 66	43 min. 5 °C, 15 min. 23 °C, 8 min. 40 °C	–	68±5	-25 °C to +120 °C	38 kV/mm	48 months	+71 °C	–	
RELICON PUR 661 LP	130 min. 5 °C, 40 min. 23 °C, 20 min. 40 °C	–	56±5	-25 °C to +120 °C	>20 kV/mm	48 months	+58 °C	–	
RELICON PUR 771	50 min. 5 °C, 15 min. 23 °C, 5 min. 40 °C	–	56±5	-25 °C to +130 °C	>20 kV/mm	36 months	+71 °C	–	
RELICON PUR 44 Flex	35 min. 5 °C, 15 min. 23 °C, 6 min. 40 °C	60±5	–	-25 °C to +120 °C	20 kV/mm	24 months	+80 °C	–	
RELICON PUR 112 FR	50 min. 5 °C, 15 min. 23 °C, 5 min. 40 °C	–	80±5	-25 °C to +130 °C	>20 kV/mm	36 months	+71 °C	–	
<b>Two-component cold casting compound</b>									
RELICON Reliflex	40 min. 5 °C, 20 min. 23 °C, 10 min. 40 °C	20±5	–	-40 °C to +90 °C	>10 kV/mm	36 months	–	Yes	
<b>Two-component epoxy resin</b>									
RELICON EP 64	32 min. 5 °C, 13 min. 23 °C, 8 min. 35 °C	–	80±5	-20 °C to +140 °C	>20 kV/mm	48 months	+140 °C	–	
RELICON EP 20	8 min. 40 °C, 18 min. 23 °C, 35 min. 5 °C	–	70±5	-20 °C to +140 °C	>20 kV/mm	48 months	+100 °C	–	
<b>Two-component gel</b>									
RELICON KH 100	40 min. 23 °C	–	–	-40 °C to +90 °C	>20 kV/mm	18 months	–	Yes	
RELICON KH 67	40 min. 23 °C	–	–	-40 °C to +90 °C	>15 kV/mm	36 months	–	Yes	
<b>Two-component silicone gel</b>									
RELICON Religel	10 min. 23 °C	–	–	-40 °C to +140 °C	>20 kV/mm	Unlimited	–	Yes	



# RELICON by HellermannTyton



	Flexible	Vibrations absorbing	Colour	Viscosity
	–	–	Green (GN)	4500 mPa*s, 5 °C (EN ISO 2555), 3000 mPa*s, 23 °C (EN ISO 2555)
	–	–	Black (BK)	4500 mPa*s, 5 °C (EN ISO 2555), 3000 mPa*s, 23 °C (EN ISO 2555)
	–	–	Black (BK)	4000 mPa*s, 5 °C (EN ISO 2555), 2000 mPa*s, 23 °C (EN ISO 2555)
	–	–	Black (BK)	4000 mPa*s, 5 °C (EN ISO 2555), 2000 mPa*s, 23 °C (EN ISO 2555)
	Yes	Yes	Black (BK)	2500 mPa*s, 23 °C (EN ISO 2555)
	–	–	Beige (BGE)	1500 mPa*s, 23 °C (EN ISO 2555), 3000 mPa*s, 5 °C (EN ISO 2555)
	–	Yes	Yellow (YE)	5000 mPa*s, 5 °C (EN ISO 2555), 3300 mPa*s, 23 °C (EN ISO 2555)
	–	–	Black (BK)	3700 mPa*s, 23 °C (EN ISO 2555)
	–	–	Yellow (YE)	2000 mPa*s, 23 °C (EN ISO 2555)
	Yes	Yes	Transparent (CL)	2000 mPa*s, 5 °C (EN ISO 2555), 1500 mPa*s, 23 °C (EN ISO 2555)
	Yes	Yes	Transparent (CL), Yellow (YE)	3000 mPa*s, 5 °C (EN ISO 2555), 2000 mPa*s, 23 °C (EN ISO 2555)
	Yes	Yes	Transparent (CL), Green (GN)	1000 mPa*s, 23 °C (EN ISO 2555), 1500 mPa*s, 5 °C (EN ISO 2555)





### Two-component polyurethane cast resin

#### RELICON PUR 33

The RELICON PUR 33 cast resin has been created for the electrical insulation and mechanical protection of cable connections in low-voltage electrical networks. Also suitable as mechanical and moisture protection on medium-voltage cable connections.

Application: For indoor and outdoor use.

#### Features and Benefits

- In a practical, transparent two-chamber pouch
- Colour changes from blue to green whilst mixing
- Safe-Filling system (SF)
- Excellent flow properties, low volume shrinkage
- Cold curing and very hydrophobic, to cast under the influence of water
- High hydrolytic stability and good curing at low temperatures
- UV, ageing and weather resistant
- Outstanding impact strength and resistance to moisture and atmospheric corrosion
- Excellent adhesion to polymeric cables and wires made of PVC, XLPE, PE, EPR
- SVHC-free, contains no hazardous substances, the cured product can be disposed of with house hold waste
- Halogen free



Two-component polyurethane cast resin PUR 33.

<b>MATERIAL</b>	Polyurethane resin 33 (PUR33)
<b>Colour</b>	Green (GN)
<b>Operating Temperature</b>	-25 °C to +120 °C
<b>Mixing Ratio (weight)</b>	100:26
<b>Exothermicity max.</b>	+71 °C
<b>Gel Time</b>	48 min. 5 °C, 20 min. 23 °C, 9 min. 40 °C
<b>Pot Life</b>	43 min. 5 °C, 15 min. 23 °C, 8 min. 40 °C
<b>Dielectric Strength</b>	38 kV/mm
<b>Viscosity</b>	4500 mPa*s, 5 °C (EN ISO 2555), 3000 mPa*s, 23 °C (EN ISO 2555)
<b>Impact Strength</b>	26 kJ/m <sup>2</sup>
<b>Shore Hardness D</b>	65±5
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	48 months



TYPE	Resin Quantity	Article-No.
Resin-33-B-SF	95 ml / 130 g	435-00250
	240 ml / 329 g	435-00251
	490 ml / 671 g	435-00252
	655 ml / 897 g	435-00253
	955 ml / 1308 g	435-00254
	1140 ml / 1562 g	435-00255
	1445 ml / 1980 g	435-00256
	1640 ml / 2247 g	435-00257
	1950 ml / 2672 g	435-00258
	2045 ml / 2802 g	435-00259

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

## Two-component polyurethane cast resin

### RELICON PUR 66

The RELICON PUR 66 cast resin has been created for the electrical insulation and mechanical protection of cable connections in medium-voltage electrical networks.

Application: For indoor and outdoor use.

#### Features and Benefits

- In a practical, transparent two-chamber pouch
- Safe-Filling system (SF)
- Excellent flow properties, low volume shrinkage
- Cold curing and very hydrophobic, to cast under the influence of water
- High hydrolytic stability and good curing at low temperatures
- UV, ageing and weather resistant
- Outstanding impact strength and resistance to moisture and atmospheric corrosion
- Excellent adhesion to polymeric cables and wires made of PVC, XLPE, PE, EPR
- SVHC-free, contains no hazardous substances, the cured product can be disposed of with house hold waste
- Halogen free



Two-component polyurethane cast resin PUR 66.

<b>MATERIAL</b>	Polyurethane resin 66 (PUR66)
<b>Colour</b>	Black (BK)
<b>Operating Temperature</b>	-25 °C to +120 °C
<b>Mixing Ratio (weight)</b>	100:26
<b>Exothermicity max.</b>	+71 °C
<b>Gel Time</b>	48 min. 5 °C, 9 min. 40 °C
<b>Pot Life</b>	43 min. 5 °C, 15 min. 23 °C, 8 min. 40 °C
<b>Dielectric Strength</b>	38 kV/mm
<b>Viscosity</b>	4500 mPa*s, 5 °C (EN ISO 2555), 3000 mPa*s, 23 °C (EN ISO 2555)
<b>Impact Strength</b>	26 kJ/m <sup>2</sup>
<b>Shore Hardness D</b>	68±5
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	48 months



TYPE	Resin Quantity	Article-No.
Resin-66-B-SF	95 ml / 130 g	435-00300
	165 ml / 226 g	435-00301
	220 ml / 301 g	435-00302
	240 ml / 329 g	435-00303
	400 ml / 548 g	435-00304
	455 ml / 623 g	435-00305
	490 ml / 671 g	435-00306
	655 ml / 897 g	435-00307
	955 ml / 1308 g	435-00308
	1140 ml / 1562 g	435-00309
	1445 ml / 1980 g	435-00310
	1640 ml / 2247 g	435-00311
	1950 ml / 2672 g	435-00312
2045 ml / 2802 g	435-00313	

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Two-component polyurethane cast resin

#### RELICON PUR 771

The RELICON PUR 771 cast resin has been created for the electrical insulation and mechanical protection of cable connections in low-voltage electrical networks. Also suitable as mechanical and moisture protection on medium-voltage cable connections.

Application: For indoor and outdoor use.

#### Features and Benefits

- In a practical, transparent two-chamber pouch
- Safe-Filling system (SF)
- Excellent flow properties, low volume shrinkage
- Cold curing and very hydrophobic, to cast under the influence of water
- High hydrolytic stability and good curing at low temperatures
- UV, ageing and weather resistant
- Outstanding impact strength and resistance to moisture and atmospheric corrosion
- Excellent adhesion to polymeric cables and wires made of PVC, XLPE, PE, EPR
- SVHC-free, contains no hazardous substances, the cured product can be disposed of with house hold waste
- Halogen free



Two-component polyurethane cast resin PUR 771.

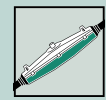
<b>MATERIAL</b>	Polyurethane resin 771 (PUR771)
<b>Colour</b>	Black (BK)
<b>Operating Temperature</b>	-25 °C to +130 °C
<b>Mixing Ratio (weight)</b>	100:22
<b>Exothermicity max.</b>	+71 °C
<b>Gel Time</b>	70 min. 5 °C, 20 min. 23 °C, 8 min. 40 °C
<b>Pot Life</b>	50 min. 5 °C, 15 min. 23 °C, 5 min. 40 °C
<b>Dielectric Strength</b>	>20 kV/mm
<b>Viscosity</b>	4000 mPa*s, 5 °C (EN ISO 2555), 2000 mPa*s, 23 °C (EN ISO 2555)
<b>Impact Strength</b>	16 kJ/m <sup>2</sup>
<b>Shore Hardness D</b>	56±5
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	36 months

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RoHS ✓

TYPE	Resin Quantity	Article-No.
Resin-771-B-SF	95 ml / 130 g	435-01214
	240 ml / 329 g	435-01215
	490 ml / 671 g	435-01216
	655 ml / 897 g	435-01217
	955 ml / 1308 g	435-01218
	1140 ml / 1562 g	435-01219
	1445 ml / 1980 g	435-01220
	1640 ml / 2247 g	435-01221
	1950 ml / 2672 g	435-01222
	2045 ml / 2802 g	435-01223

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## Two-component polyurethane cast resin

### RELICON PUR 44 Flex

The RELICON PUR 44 Flex cast resin has been created for the electrical insulation, mechanical protection and repair of flexible cable connections for the low-voltage electrical network.

Application: For indoor and outdoor use.

#### Features and Benefits

- In a practical, transparent two-chamber pouch
- Safe-Filling system (SF)
- Excellent flow properties, cold curing
- Resistance to moisture and atmospheric corrosion
- Vibration absorbing, abrasion and chemical resistant
- UV, ageing and weather resistant
- Reelable and permanently flexible, even at sub-zero temperatures
- Excellent adhesion to polymeric cables and wires made of PVC, XLPE, PE, EPR
- SVHC-free, contains no hazardous substances, the cured product can be disposed of with house hold waste
- Halogen free



Two-component polyurethane cast resin PUR 44 Flex.

<b>MATERIAL</b>	Polyurethane resin 44 Flex (PUR44 Flex)
<b>Colour</b>	Black (BK)
<b>Operating Temperature</b>	-25 °C to +120 °C
<b>Mixing Ratio (weight)</b>	100:22
<b>Exothermicity max.</b>	+80 °C
<b>Gel Time</b>	35 min. 5 °C, 15 min. 23 °C, 6 min. 40 °C
<b>Pot Life</b>	35 min. 5 °C, 15 min. 23 °C, 6 min. 40 °C
<b>Dielectric Strength</b>	20 kV/mm
<b>Viscosity</b>	2500 mPa*s, 23 °C (EN ISO 2555)
<b>Shore Hardness A</b>	60±5
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	24 months



TYPE	Resin Quantity	Article-No.
Resin-44Flex-B-SF	95 ml / 114 g	435-00350
	165 ml / 198 g	435-00351
	220 ml / 264 g	435-00352
	240 ml / 288 g	435-00353
	400 ml / 480 g	435-00354
	455 ml / 546 g	435-00355
	490 ml / 588 g	435-00356
	655 ml / 786 g	435-00357
	955 ml / 1146 g	435-00358
	1140 ml / 1368 g	435-00359
	1445 ml / 1734 g	435-00360
	1640 ml / 1968 g	435-00361
	1950 ml / 2340 g	435-00362
2045 ml / 2454 g	435-00363	

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Two-component polyurethane cast resin

#### RELICON PUR 112 FR

The RELICON PUR 112 FR cast resin is flame retardant according to UL94 V0 and is used in areas with increased fire protection requirements. It has been created for electrical insulation and mechanical protection of cable connections in the low- and medium-voltage range.

Application: For indoor and outdoor use.

#### Features and Benefits

- In a practical, transparent two-chamber pouch
- Safe-Filling system (SF)
- Excellent flow properties, low volume shrinkage
- Flame retardant according to UL94 V0
- Cold curing and very hydrophobic, to cast under the influence of water
- High hydrolytic stability and good curing at low temperatures
- UV, ageing and weather resistant
- Outstanding impact strength and resistance to moisture and atmospheric corrosion
- Excellent adhesion to polymeric cables and wires made of PVC, XLPE, PE, EPR
- SVHC-free, contains no hazardous substances, the cured product can be disposed of with house hold waste
- Halogen free



Two-component polyurethane cast resin PUR 112 FR.

<b>MATERIAL</b>	Polyurethane resin 112 FR (PUR112 FR)
<b>Colour</b>	Beige (BGE)
<b>Operating Temperature</b>	-25 °C to +130 °C
<b>Mixing Ratio (weight)</b>	100:22
<b>Gel Time</b>	70 min. 5 °C, 20 min. 23 °C, 8 min. 40 °C
<b>Pot Life</b>	50 min. 5 °C, 15 min. 23 °C, 5 min. 40 °C
<b>Dielectric Strength</b>	>20 kV/mm
<b>Impact Strength</b>	> 8 kJ/m <sup>2</sup>
<b>Shore Hardness D</b>	80±5
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	36 months



TYPE	Resin Quantity	Article-No.
Resin-112FR-B-SF	95 ml / 144 g	435-01100
	165 ml / 251 g	435-01101
	220 ml / 334 g	435-01102
	240 ml / 365 g	435-01103
	400 ml / 608 g	435-01104
	455 ml / 692 g	435-01105
	490 ml / 745 g	435-01106
	655 ml / 996 g	435-01107
	955 ml / 1452 g	435-01108
	1140 ml / 1733 g	435-01109
	1445 ml / 2196 g	435-01110
	1640 ml / 2493 g	435-01111
	1950 ml / 2964 g	435-01112
2045 ml / 3108 g	435-01113	

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

## Two-component epoxy resin

### RELICON EP 64

The RELICON EP 64 epoxy resin has been created for use in low- and medium-voltage electrical networks, especially in the chemical and oil refining industry.

Application: For indoor and outdoor use.

#### Features and Benefits

- In a practical, transparent two-chamber pouch
- Safe-Filling system (SF)
- Very hydrophobic, to cast under the influence of water
- High hydrolytic stability and good curing at low temperatures
- UV, ageing and weather resistant
- Excellent adhesion to polymeric cables and wires made of PVC, XLPE, PE, EPR
- Very high mechanical, thermal and chemical resistance
- Outstanding impact strength and resistance to moisture and atmospheric corrosion
- Halogen free



Two-component epoxy resin EP64.

<b>MATERIAL</b>	Epoxy resin EP64 (EP64)
<b>Colour</b>	Black (BK)
<b>Operating Temperature</b>	-20 °C to +140 °C
<b>Mixing Ratio (weight)</b>	100:36
<b>Exothermicity max.</b>	+140 °C
<b>Pot Life</b>	32 min. 5 °C, 13 min. 23 °C, 8 min. 35 °C
<b>Dielectric Strength</b>	>20 kV/mm
<b>Viscosity</b>	3700 mPa*s, 23 °C (EN ISO 2555)
<b>Shore Hardness D</b>	80±5
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	48 months



TYPE	Resin Quantity	Article-No.
<b>Resin-64-B-SF</b>	95 ml / 107 g	435-00400
	165 ml / 186 g	435-00401
	220 ml / 249 g	435-00402
	240 ml / 271 g	435-00403
	400 ml / 452 g	435-00404
	455 ml / 514 g	435-00405
	490 ml / 554 g	435-00406
	655 ml / 740 g	435-00407
	955 ml / 1079 g	435-00408
	1140 ml / 1288 g	435-00409
	1445 ml / 1633 g	435-00410
	1640 ml / 1853 g	435-00411
	1950 ml / 2204 g	435-00412
2045 ml / 2311 g	435-00413	

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Two-component epoxy resin

#### RELICON EP 20

The RELICON EP 20 epoxy resin has been created for use in low- and medium-voltage electrical networks. It is cold curing, highly impact-resistant and the low exothermic reaction makes it possible to cast even larger volumes.

Application: For indoor and outdoor use.

#### Features and Benefits

- In a practical, transparent two-chamber pouch
- Safe-Filling system (SF)
- Low exothermic reaction
- Very hydrophobic, to cast under the influence of water
- High hydrolytic stability and good curing at low temperatures
- UV, ageing and weather resistant
- Excellent adhesion to polymeric cables and wires made of PVC, XLPE, PE, EPR
- Very high thermal and chemical resistance
- Outstanding impact strength and resistance to moisture and atmospheric corrosion
- Halogen free



Two-component epoxy resin EP20.

<b>MATERIAL</b>	Epoxy resin EP20 (EP20)
<b>Colour</b>	Yellow (YE)
<b>Operating Temperature</b>	-20 °C to +140 °C
<b>Mixing Ratio (weight)</b>	100:65
<b>Exothermicity max.</b>	+100 °C
<b>Pot Life</b>	8 min. 40 °C, 18 min. 23 °C, 35 min. 5 °C
<b>Dielectric Strength</b>	>20 kV/mm
<b>Viscosity</b>	2000 mPa*s, 23 °C (EN ISO 2555)
<b>Shore Hardness D</b>	70±5
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	48 months



TYPE	Resin Quantity	Article-No.
Resin-20-B-SF	95 ml / 103 g	435-00450
	165 ml / 178 g	435-00451
	220 ml / 238 g	435-00452
	240 ml / 259 g	435-00453
	400 ml / 432 g	435-00454
	455 ml / 491 g	435-00455
	490 ml / 529 g	435-00456
	655 ml / 707 g	435-00457
	955 ml / 1031 g	435-00458
	1140 ml / 1231 g	435-00459
	1445 ml / 1561 g	435-00460
	1640 ml / 1771 g	435-00461
	1950 ml / 2106 g	435-00462
	2045 ml / 2209 g	435-00463

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## Two-component cold casting compound

### RELICON Reliflex

The RELICON Reliflex cast resin is a non-toxic cold casting compound based on hydrocarbon resins for the low-voltage electrical networks. The very hydrophobic resin has been created for electrical insulation and moisture protection of cable connections. After curing, Reliflex is extremely resistant to moisture and has excellent insulating properties.

Application: For indoor and outdoor use.

#### Features and Benefits

- In a practical, transparent two-chamber pouch
- Colour changes from beige to yellow whilst mixing
- Safe-Filling system (SF)
- Excellent flow properties, low volume shrinkage
- Fast gelling, curing without developing heat
- Cold curing and very hydrophobic, to cast under the influence of water
- High hydrolytic stability and good curing at low temperatures
- UV, ageing and weather resistant
- Excellent adhesion to polymeric cables and wires made of PVC, XLPE, PE, EPR
- Resistance to moisture and atmospheric corrosion
- Soft elastic, vibration absorbing, removable
- Non-toxic, free of silicone and isocyanate
- SVHC-free, contains no hazardous substances, the cured product can be disposed of with house hold waste



Two-component cold casting compound Reliflex.

<b>MATERIAL</b>	Cold sealing compound Reliflex (Reliflex)
<b>Colour</b>	Yellow (YE)
<b>Operating Temperature</b>	-40 °C to +90 °C
<b>Mixing Ratio (weight)</b>	100:40
<b>Exothermicity max.</b>	-
<b>Gel Time</b>	45 min. 5 °C, 25 min. 23 °C, 14 min. 40° C
<b>Pot Life</b>	40 min. 5 °C, 20 min. 23 °C, 10 min. 40 °C
<b>Dielectric Strength</b>	>10 kV/mm
<b>Viscosity</b>	5000 mPa*s, 5 °C (EN ISO 2555), 3300 mPa*s, 23 °C (EN ISO 2555)
<b>Shore Hardness A</b>	20±5
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	36 months



TYPE	Resin Quantity	Article-No.
Resin-RF-B-SF	95 ml / 116 g	435-00550
	165 ml / 201 g	435-00551
	220 ml / 268 g	435-00552
	240 ml / 293 g	435-00553
	400 ml / 488 g	435-00554
	455 ml / 555 g	435-00555
	490 ml / 598 g	435-00556
	655 ml / 799 g	435-00557
	955 ml / 1165 g	435-00558
	1140 ml / 1391 g	435-00559
	1445 ml / 1763 g	435-00560
	1640 ml / 2001 g	435-00561
	1950 ml / 2379 g	435-00562
	2045 ml / 2495 g	435-00563

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Two-component polyurethane sealing mastic

#### RELICON PUR DS

The RELICON PUR DS cast resin is a chemically thixotropic, universal polyurethane sealing mastic. It is ideal for sealing wall feed-throughs as well as other filling and sealing applications.

#### Features and Benefits

- In a practical, transparent two-chamber pouch
- Colour changes from black to grey whilst mixing
- Safe-Filling system (SF)
- Very thixotropic and high stability
- Gas and water tight to 1.5 bar
- Excellent adhesion to concrete and stone. Also on polymeric cables and wires made of PVC, XLPE, PE, EPR
- Soft elastic
- Spatula included
- SVHC-free, contains no hazardous substances, the cured product can be disposed of with house hold waste
- Halogen free



Two-component polyurethane cast resin PUR DS.

<b>MATERIAL</b>	Polyurethane (PUR)
<b>Colour</b>	Grey (GY)
<b>Operating Temperature</b>	-25 °C to +110 °C
<b>Mixing Ratio (weight)</b>	100:52
<b>Pot Life</b>	15 min. 23 °C
<b>Shore Hardness D</b>	30±5
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	24 months



TYPE	Resin Quantity	Article-No.
Resin-DS-B-SF	250 ml / 275 g	435-00600
	490 ml / 539 g	435-00601

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## RELICON: expertise based on experience

Innovative cast resin and gel systems for reliable connections.

HellermannTyton is one of the leading suppliers of products for fastening, fixing, identifying and protecting cables and their connecting components.

We also develop pioneering systems in the field of data and network technology.

Our corporate philosophy focuses on customers and their need for the best possible solutions around cable management. RELICON branded cast resin and gel systems are highly innovative premium products designed to fulfil the highest expectations. RELICON products extend HellermannTyton's insulation and protection portfolio with leading cable connection technology. RELICON products deliver outstanding performance with quality you can rely on.

Part of what makes HellermannTyton a market leader is our pioneering spirit coupled with the technical expertise to continuously anticipate future demands and to answer these challenges with optimal product solutions.

## RELICON Reliseal gel cable joints: for connections under extreme conditions

Reliseal gel cable joints are designed for reliability and robustness under the toughest conditions. They are tested to IP 68 (waterproof to 10 Meters) and feature an integrated strain relief mechanism that ensures maximum protection, insulation and sealing of cable connections in extreme environments.

Ready-to-use out of the box, fitting is quick and easy.

Reliseal gel cable joints are system- tested according to DIN EN 50393 and DIN 60529 and are flame retardant according to DIN EN 60695-2-11.





## Gel cable joint with connector

### RELICON Reliseal

Reliseal gel cable joints are suitable for cable connections under extreme conditions, outdoors and underground. They are universal straight-through joints with a protection class IP68 and consist of a solid polypropylene shell (PP) filled with RELICON gel. They can be used for jointing on polymeric cables and wires made of PVC, XLPE, PE, EPR, etc. Reliseal fulfils the highest requirements for electrical installations and offers mechanical protection, insulation and sealing in one work step. The installer saves time and requires no special installation tools.

Application: In low-voltage electrical networks as straight-through joint. Underground, submerged, outdoor, indoor and in wiring ducts.

### Features and Benefits

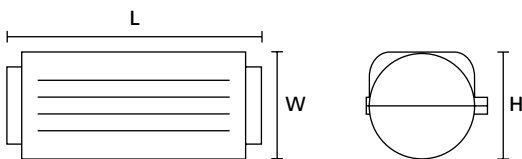
- Moulding shell: one piece, re-openable, impact-proof, flame retardant (UL94 V0)
- Perfect strain relief provided by patented cable gland system
- Protection class IP68, 10 m
- Filled with RELICON non-toxic gel, high dielectric strength
- No mixing, easy to install
- UV, ageing and weather resistant
- Unlimited shelf life
- With connector, ready to assembly
- Certified according to :
  - DIN EN 60529 protection classes through outer sleeve shell
  - DIN EN 50393 type approval tests for cable accessories
  - DIN EN 60695-2-11 glow-wire test for flammability of end products

### Content of Set / Kit

- Moulding shells filled with RELICON gel
- Cable gland system for strain relief and transverse waterproofing
- Adapter seal for different cable diameters
- Installation instructions
- Connector

**With connector!**

**IP68, 10 meter**



Reliseal V



Reliseal gel cable joint, available in three sizes.



Gel cable joint Reliseal V 56.



Gel cable joint Reliseal V 510.



Gel cable joint Reliseal V 525.



One Step to the Web!

<b>MATERIAL</b>	Polypropylene (PP), Silicone Rubber (SIR)
<b>Colour</b>	Green (GN)
<b>Operating Temperature</b>	-20 °C to +90 °C
<b>Shelf Life</b>	Unlimited

**RoHS** ✓

TYPE	Main Cable mm <sup>2</sup> min - max		Length (L)	Width (W)	Height (H)	E-number	Article-No.
<b>Reliseal V56</b>	3 x 2.5	5 x 6	190.0	60.0	47.0	00 000 00	435-01660
<b>Reliseal V510</b>	3 x 4	5 x 10	235.0	69.0	49.0	00 000 00	435-01661
<b>Reliseal V525</b>	3 x 10	5 x 25	310.0	88.0	60.0	00 000 00	435-01662

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## RELICON Relilight gel cable joints: specially designed for the needs of lighting installers to connect and branch small conductor cross-sections

Relilight gel cable joints are designed for safely connecting and branching off the small cable cross-sections now commonly used in lighting installations. Relilight's compact dimensions, integrated strain relief and IP68 safety class make it an ideal product for reliable connections in confined spaces and under wet or dusty conditions.

RELICON Relilight is tested to DIN EN 60998-2-1:2004. It is resistant to ageing and weathering and withstands temperatures from -30 to +130 °C.





### Gel cable joint with connector

#### RELICON Relilight

Relilight gel cable joints are designed for light installations, especially LED lighting. They are tested according to DIN EN 60998-2-1: 2004 and offer IP68 protection class. The moulding shells are also flame retardant according to UL94 V0. Depending on the connector type, Relilight can be used either for straight-through or as branch joints. They are suitable for joining on polymeric cables and wires made of PVC, XLPE, PE, EPR etc. The silicone-based RELICON gel in the Relilight cable joints provides insulation, sealing and mechanical protection in one step. Furthermore, they reduce the workload and total cost of installation.

Application: In low-voltage electrical networks as straight-through or branch joints, e.g. for outdoor light installations, underground, submerged, outdoor, indoor and in wiring ducts.



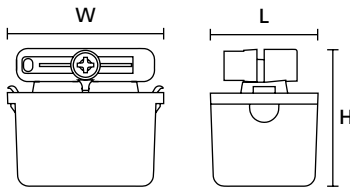
Relilight gel cable joint.

#### Features and Benefits

- Moulding shell: two piece, black, re-openable, with strain relief, flame retardant (UL94 V0), protection class IP68, 1.3 m
- Filled with Relicon non-toxic gel, high dielectric strength >1kV,
- No mixing, ready to assembly
- UV, ageing and weather resistant
- Compact dimensions, with connector
- Unlimited shelf life
- Certified according to DIN EN 60998-2-1:2004

#### Content of Set / Kit

- Moulding shells filled with RELICON gel
- Adapter for strain relief (not for No. 435-01650)
- Installation instructions, connector block, screws
- Wire guide (only No. 435-01654)



<b>MATERIAL</b>	Polyamide 6.6 V0 (PA66V0), Silicone Rubber (SIR)
<b>Colour</b>	Black (BK)
<b>Operating Temperature</b>	-30 °C to +130 °C
<b>Shelf Life</b>	Unlimited
<b>Flammability</b>	UL94 V0

RoHS

**With connector block!**

**IP68, 1.3 meter**

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup> min - max		Branch Cable mm <sup>2</sup> min - max		Voltage range	Length (L)	Width (W)	Height (H)	Article-No.
Relilight V2.75 I1	4.8-6	2 x 0.35	2 x 0.75	-	-	250V, 6A	44.0	18.0	17.5	435-01650
Relilight V32.5 I2	6.5-12	3 x 0.5	3 x 2.5	-	-	250V, 16A	100.0	24.0	29.0	435-01651
Relilight V32.5 P1	6.5-12	3 x 0.5	3 x 2.5	3 x 0.5	3 x 2.5	250V, 16A	105.0	44.0	24.0	435-01655
Relilight V41.5 P1	6.5-12	4 x 0.5	4 x 1.5	4 x 0.5	4 x 1.5	250V, 16A	105.0	44.0	24.0	435-01656
Relilight V61.5 I2	6.5-12	6 x 0.5	6 x 1.5	-	-	12V - 24V	100.0	24.0	29.0	435-01652
Relilight V34 P2	7.5-16	3 x 1.5	3 x 4	3 x 1.5	3 x 4	450V, 25A	138.0	78.0	35.0	435-01657
Relilight V36 P2	7.5-16	3 x 1.5	3 x 6	3 x 1.5	3 x 6	450V, 25A	138.0	78.0	35.0	435-01658
Relilight V31.5 U1	8.0-10	3 x 0.5	3 x 1.5	-	-	250V, 16A	38.0	42.5	29.5	435-01653
Relilight V41 U1	8.0-10	4 x 0.5 / 6 x 0.35	4 x 1 / 6 x 0.5	-	-	12V - 24V	38.0	42.5	29.5	435-01654

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

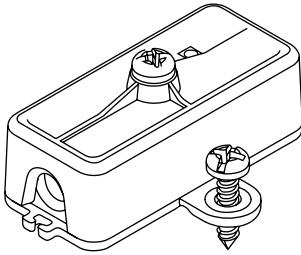




## RELICON Relilight V 2.75 I1

### Content of Set / Kit

- Moulding shells filled with RELICON gel
- Installation instructions
- Connector block 2 x 0.35 mm<sup>2</sup> to 2 x 0.75 mm<sup>2</sup>
- Screw



Relilight V 2.75 I1



Gel cable joint Relilight V 2.75 I1.

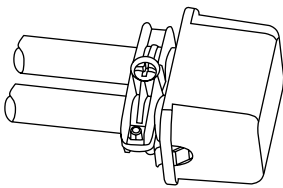
TYPE	Ø Main Cable	Main Cable mm <sup>2</sup> min - max		Voltage range	Length (L)	Width (W)	Height (H)	Article-No.
Relilight V2.75 I1	4.8-6	2 x 0.35	2 x 0.75	250V, 6A	44.0	18.0	17.5	435-01650

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

## RELICON Relilight V 31.5 U1

### Content of Set / Kit

- Moulding shells filled with RELICON gel
- Installation instructions
- Connector block 3 x 0.5 mm<sup>2</sup> to 3 x 1.5 mm<sup>2</sup>
- Screw



Relilight V 31.5 U1



Gel cable joint Relilight V 31.5 U1.

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup> min - max		Voltage range	Length (L)	Width (W)	Height (H)	Article-No.
Relilight V31.5 U1	8.0-10	3 x 0.5	3 x 1.5	250V, 16A	38.0	42.5	29.5	435-01653

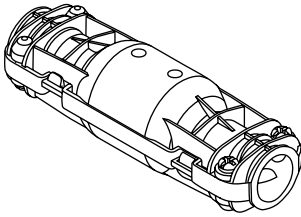
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## RELICON Relilight V 32.5 I2

### Content of Set / Kit

- Moulding shells filled with RELICON gel
- Adapter for strain relief
- Installation instructions
- Connector block 3 x 0.5 mm<sup>2</sup> to 3 x 2.5 mm<sup>2</sup>
- Screws



Relilight V 61.5 I2



Gel cable joint Relilight V 32.5 I2.

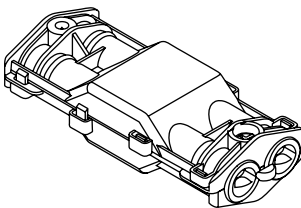
TYPE	Ø Main Cable	Main Cable mm <sup>2</sup> min - max		Voltage range	Length (L)	Width (W)	Height (H)	Article-No.
		3 x 0.5	3 x 2.5					
Relilight V32.5 I2	6.5-12	3 x 0.5	3 x 2.5	250V, 16A	100.0	24.0	29.0	435-01651

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

## RELICON Relilight V 32.5 P1

### Content of Set / Kit

- Moulding shells filled with RELICON gel
- Adapter for strain relief
- Installation instructions
- Connector block 3 x 0.5 mm<sup>2</sup> to 3 x 2.5 mm<sup>2</sup>
- Screws



Relilight V 32.5 P1



Gel cable joint Relilight V 32.5 P1.

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup> min - max		Branch Cable mm <sup>2</sup> min - max		Voltage range	Length (L)	Width (W)	Height (H)	Article-No.
		3 x 0.5	3 x 2.5	3 x 0.5	3 x 2.5					
Relilight V32.5 P1	6.5-12	3 x 0.5	3 x 2.5	3 x 0.5	3 x 2.5	250V, 16A	105.0	44.0	24.0	435-01655

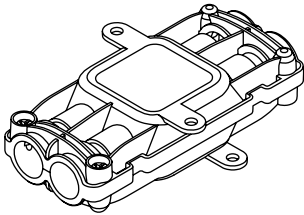
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### RELICON Relilight V 34 P2

#### Content of Set / Kit

- Moulding shells filled with RELICON gel
- Adapter for strain relief
- Installation instructions
- Connector block 3 x 1.5 mm<sup>2</sup> to 3 x 4 mm<sup>2</sup>
- Screws



Relilight V 34 P2



Gel cable joint Relilight V 34 P2.

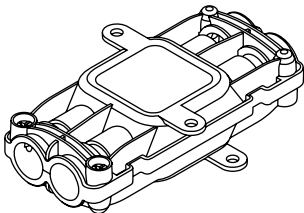
TYPE	Ø Main Cable	Main Cable mm <sup>2</sup> min - max		Branch Cable mm <sup>2</sup> min - max		Voltage range	Length (L)	Width (W)	Height (H)	Article-No.
		3 x 1.5	3 x 4	3 x 1.5	3 x 4					
Relilight V34 P2	7.5-16	3 x 1.5	3 x 4	3 x 1.5	3 x 4	450V, 25A	138.0	78.0	35.0	435-01657

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

### RELICON Relilight V 36 P2

#### Content of Set / Kit

- Moulding shells filled with RELICON gel
- Adapter for strain relief
- Installation instructions
- Connector block 3 x 1.5 mm<sup>2</sup> to 3 x 6 mm<sup>2</sup>
- Screws



Relilight V 36 P2



Gel cable joint Relilight V 36 P2.

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup> min - max		Branch Cable mm <sup>2</sup> min - max		Voltage range	Length (L)	Width (W)	Height (H)	Article-No.
		3 x 1.5	3 x 6	3 x 1.5	3 x 6					
Relilight V36 P2	7.5-16	3 x 1.5	3 x 6	3 x 1.5	3 x 6	450V, 25A	138.0	78.0	35.0	435-01658

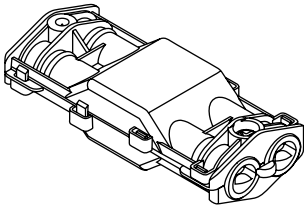
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## RELICON Relilight V 41.5 P1

### Content of Set / Kit

- Moulding shells filled with RELICON gel
- Adapter for strain relief
- Installation instructions
- Connector block 4 x 0.5 mm<sup>2</sup> to 4 x 1.5 mm<sup>2</sup>
- Screws



Relilight V 41.5 P1



Gel cable joint Relilight V 41,5 P1.

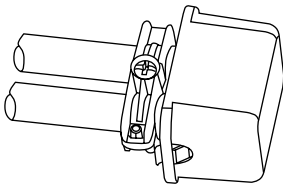
TYPE	Ø Main Cable	Main Cable mm <sup>2</sup> min - max		Branch Cable mm <sup>2</sup> min - max		Voltage range	Length (L)	Width (W)	Height (H)	Article-No.
		4 x 0.5	4 x 1.5	4 x 0.5	4 x 1.5					
Relilight V41.5 P1	6.5-12	4 x 0.5	4 x 1.5	4 x 0.5	4 x 1.5	250V, 16A	105.0	44.0	24.0	435-01656

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

## RELICON Relilight V 41 U1

### Content of Set / Kit

- Moulding shells filled with RELICON gel
- Installation instructions
- Connector block 4 x 0.5 mm<sup>2</sup> to 4 x 1 mm<sup>2</sup>
- Wire guide 6 x 0.35 mm<sup>2</sup> to 6 x 0.5 mm<sup>2</sup> (solder)
- Screw



Relilight V 41 U1



Gel cable joint Relilight V 41 U1.

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup> min - max		Voltage range	Length (L)	Width (W)	Height (H)	Article-No.
		4 x 0.5 / 6 x 0.35	4 x 1 / 6 x 0.5					
Relilight V41 U1	8.0-10	4 x 0.5 / 6 x 0.35	4 x 1 / 6 x 0.5	12V - 24V	38.0	42.5	29.5	435-01654

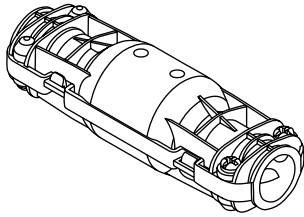
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## RELICON Relilight V 61.5 I2

### Content of Set / Kit

- Moulding shells filled with RELICON gel
- Adapter for strain relief
- Installation instructions
- Connector block 6 x 0.5 mm<sup>2</sup> to 6 x 1.5 mm<sup>2</sup>
- Screws



Relilight V 61.5 I2



Gel cable joint Relilight V 61.5 I2.

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup> min - max		Voltage range	Length (L)	Width (W)	Height (H)	Article-No.
		6 x 0.5	6 x 1.5					
Relilight V61.5 I2	6.5-12	6 x 0.5	6 x 1.5	12V - 24V	100.0	24.0	29.0	435-01652

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

## RELICON Relifix gel cable joints: quick and effortless application

RELICON gel cable joints, which are used for cable connections above and below ground, consist of a robust polypropylene sleeve plus RELICON gel. RELICON gel products comply with the highest electrical engineering requirements and provide mechanical protection, insulation and sealing in a single work step. The fitter saves time and needs no special installation tools. RELICON gel cable joints can be used up to conductor temperatures of +90 °C. The material is non-hazardous and has an unlimited shelf-life. RELICON gel cable joints are suitable for straight-through or branch connections. They are available in different sizes, covering the common range of conductor cross sections. The products comply with the major European standards DIN EN 50393 (corresponding to DIN VDE 0278) and DIN EN 60695-2-11.





### Gel cable joint without connector

#### RELICON Relifix

RELICON Relifix gel technology offers several advantages. It is quick and easy to install. The moulding shells are provided with a film hinge and are made from thick-walled, tough and impact resistant polypropylene (PP). The Relicon gel in the shells insulates and seals the complete connection as the joint is closed. Depending on the connector type, Relifix can be used as a universal straight-through or branch joint. It is suitable for jointing on polymeric cables and wires made of PVC, XLPE, PE, EPR etc.

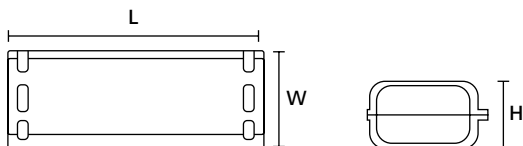
Application: In low-voltage electrical networks as straight-through and/or branch joint, e.g. underground, submerged, outdoor, indoor and wiring ducts.

#### Features and Benefits

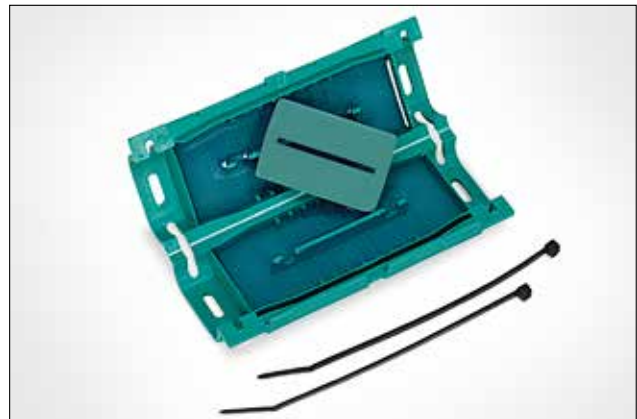
- Moulding shell: One piece, coloured, re-openable, impact-proof, flame retardant (UL94 V0)
- Filled with Relicon non-toxic gel, high dielectric strength
- No mixing, easy to install
- UV, ageing and weather resistant
- Unlimited shelf life
- Certified according to:
  - DIN EN 50393 (corresponds to DIN VDE 0278-393)
  - DIN EN 60695-2-11 (corresponds to VDE 0471-2-11)

#### Content of Set / Kit

- Moulding shells filled with RELICON gel
- Installation instructions
- Separator plate
- Cable ties



Relifix 410, 416



Gel cable joint Relifix 410, 416.

<b>MATERIAL</b>	Polypropylene (PP), Silicone Rubber (SIR)
<b>Colour</b>	Green (GN)
<b>Operating Temperature</b>	-20 °C to +90 °C
<b>Shelf Life</b>	Unlimited

RoHS ✓

**i** Without connector block!

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup> min - max		Branch Cable mm <sup>2</sup> min - max		Length (L)	Width (W)	Height (H)	Article-No.
		3 x 1.5	4 x 10	3 x 1.5	4 x 2.5				
<b>Relifix 410</b>	9-20	3 x 1.5	4 x 10	3 x 1.5	4 x 2.5	146.0	55.0	35.0	435-00652
<b>Relifix 416</b>	9-22	3 x 1.5	4 x 16	3 x 1.5	4 x 4	180.0	69.0	40.0	435-00653

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





### Gel cable joint with connector

#### RELICON Relifix V

RELICON Relifix gel technology offers several advantages. It is quick and easy to install. The moulding shells are provided with a film hinge and are made from thick-walled, tough and impact resistant polypropylene (PP). The Relicon gel in the shells insulates and seals the complete connection as the joint is closed. Depending on the connector type, Relifix can be used as a universal straight-through or branch joint. It is suitable for jointing on polymeric cables and wires made of PVC, XLPE, PE, EPR etc.

Application: In low-voltage electrical networks as straight-through and/or branch joint, e.g. underground, submerged, outdoor, indoor and wiring ducts.



Relicon Relifix V gel cable joints.

#### Features and Benefits

- Moulding shell: One piece, coloured, re-openable, impact-proof, flame retardant (UL94 V0)
- Filled with Relicon non-toxic gel, high dielectric strength
- No mixing, easy to install
- UV, ageing and weather resistant
- Unlimited shelf life
- With connector, ready for assembly
- Certified according to:
  - DIN EN 50393 (corresponds to DIN VDE 0278-393)
  - DIN EN 60695-2-11 (corresponds to VDE 0471-2-11)

#### Content of Set / Kit

- Moulding shells filled with RELICON gel
- Installation instructions
- Connector
- Cable ties
- Allen key (not for type V31,5)



Gel cable joint Relifix V 31,5.



Gel cable joint Relifix V 150.



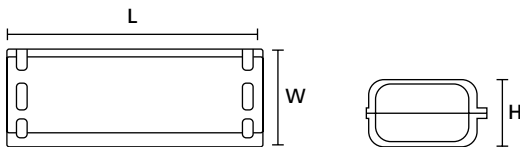
Gel cable joint Relifix V 56, V516.



Gel cable joint Relifix V 525.



**With connector block!**



Relifix V

<b>MATERIAL</b>	Polypropylene (PP), Silicone Rubber (SIR)
<b>Colour</b>	Green (GN)
<b>Operating Temperature</b>	-20 °C to +90 °C
<b>Shelf Life</b>	Unlimited



TYPE	Ø Main Cable	Main Cable mm <sup>2</sup> min - max		Branch Cable mm <sup>2</sup> min - max		Length (L)	Width (W)	Height (H)	Article-No.
<b>Relifix V150</b>	9-16	1 x 10	1 x 50	1 x 2.5	1 x 6	86.0	47.0	27.0	435-00651
<b>Relifix V31.5</b>	9-16	3 x 0.5	3 x 2.5	-	-	86.0	47.0	27.0	435-00650
<b>Relifix V56</b>	9-20	3 x 1.5	5 x 6	-	-	146.0	55.0	35.0	435-00654
<b>Relifix V516</b>	9-22	3 x 6	5 x 16	-	-	180.0	69.0	40.0	435-00655
<b>Relifix V525</b>	9-30	3 x 16	5 x 25	-	-	240.0	75.0	48.0	435-00656

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Gel cable joint with connector

#### RELICON Relifix VY

RELICON Relifix gel technology offers several advantages. It is quick and easy to install. The moulding shells are provided with a film hinge and are made from thick-walled, tough and impact resistant polypropylene (PP). The Relicon gel in the shells insulates and seals the complete connection as the joint is closed. Depending on the connector type, Relifix can be used as a universal straight-through or branch joint. It is suitable for jointing on polymeric cables and wires made of PVC, XLPE, PE, EPR etc.

Application: In low-voltage electrical networks as straight-through and/or branch joint, e.g. underground, submerged, outdoor, indoor and wiring ducts.

#### Features and Benefits

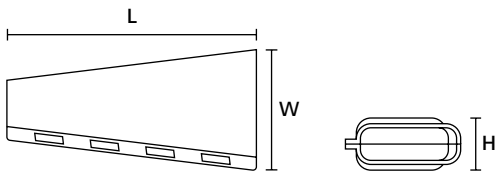
- Moulding shell: One piece, coloured, re-openable, impact-proof, flame retardant (UL94 V0)
- Filled with Relicon non-toxic gel, high dielectric strength
- No mixing, easy to install
- UV, ageing and weather resistant
- Unlimited shelf life
- With connector, ready for assembly
- Certified according to:
  - DIN EN 50393 (corresponds to DIN VDE 0278-393)
  - DIN EN 60695-2-11 (corresponds to VDE 0471-2-11)

#### Content of Set / Kit

- Moulding shells filled with RELICON gel
- Installation instructions
- Connector
- Cable ties
- Allen key



**With connector block!**



Relifix VY



Relicon Relifix VY gel cable joint.



Gel cable joint Relifix V 135Y.



Gel cable joint Relifix V 506Y.



Gel cable joint Relifix V 525Y.

<b>MATERIAL</b>	Polypropylene (PP), Silicone Rubber (SIR)
<b>Colour</b>	Green (GN)
<b>Operating Temperature</b>	-20 °C to +90 °C
<b>Shelf Life</b>	Unlimited

**RoHS** ✓

TYPE	Ø Main Cable	Main Cable mm <sup>2</sup>		Branch Cable mm <sup>2</sup>		Length (L)	Width (W)	Height (H)	Article-No.
		min	max	min	max				
Relifix V 135Y	9-16	1 x 10	1 x 35	1 x 2,5	1 x 2,5	145.0	70.0	32.0	435-00657
Relifix V 506Y	9-20	3 x 6	5 x 6	3 x 2,5	5 x 6	220.0	110.0	53.0	435-00658
Relifix V 525Y	9-30	3 x 16	5 x 25	3 x 2,5	5 x 2,5	260.0	130.0	65.0	435-00659

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## Gel accessories

### RELICON Relifix ZE

Relifix ZE is an optional accessory providing strain relief when using cable joints Relifix 416, Relifix V516 and Relifix V525. Suitable for conductor cross-sections from 6 mm<sup>2</sup> to 25 mm<sup>2</sup>.

#### Features and Benefits

- Releasable strain relief
- Quick and easy installation
- Only for Relifix 416, V516, V525
- For conductor cross-sections of 6 -25 mm<sup>2</sup>

#### Content of Set / Kit

- 2 Relifix ZE each with two fixing screws
- Installation instructions



Gel accessory Relifix ZE.

TYPE	Article-No.
Relifix ZE	435-00700

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

<b>MATERIAL</b>	Polypropylene (PP)
<b>Colour</b>	Grey (GY)
<b>Operating Temperature</b>	-20 °C to +90 °C
<b>Shelf Life</b>	Unlimited









## Two-component gel

### RELICON KH 67

RELICON KH 67 is a transparent, removable, saltwater resistant, flexible two-component gel based on hydrocarbon resins. It is especially suitable for use with junction boxes in low-voltage networks, located in a humid area or in the ground. After curing, RELICON KH 67 is characterised by its excellent resistance to moisture and very good insulating properties as well as good chemical resistance.

Application: Electrical insulation and moisture protection in the low-voltage networks. Particularly suitable for filling of cable junction boxes.

#### Features and Benefits

- A practical, transparent two-chamber pouch
- Safe-Filling system (SF)
- Excellent flow properties
- Soft elastic, vibration absorbing, removable
- Outstanding insulating properties
- Cures without developing heat
- Saltwater resistant
- Non-toxic, free of silicone and isocyanate
- SVHC-free, contains no hazardous substances, the cured product can be disposed of with house hold waste
- Halogen free



Two-component gel KH 67.

<b>MATERIAL</b>	Gel KH67 (KH67)
<b>Colour</b>	Transparent (CL), Yellow (YE)
<b>Operating Temperature</b>	-40 °C to +90 °C
<b>Mixing Ratio (weight)</b>	100:67
<b>Pot Life</b>	40 min. 23 °C
<b>Density</b>	0.95 g/cm <sup>3</sup> , 20 °C (DIN EN ISO 2811-2)
<b>Dielectric Strength</b>	>15 kV/mm
<b>Viscosity</b>	3000 mPa*s, 5 °C (EN ISO 2555), 2000 mPa*s, 23 °C (EN ISO 2555)
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	36 months



**Silicon free!**



TYPE	Pack Cont.	Article-No.
<b>Gel-67-B-SF</b>	180 ml	435-00800
	250 ml	435-00801
	600 ml	435-00802
	750 ml	435-00803
	1,200 ml	435-00804

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Two-component silicone gel

#### RELICON Religel

RELICON Religel is a transparent, elastic two-component silicone gel. It is delivered in practical transparent bottles or canisters. It is particularly suited to fill junction boxes in low-voltage applications. After curing, RELICON Religel gives excellent resistance to moisture, has high insulating properties and very good chemical resistance.

Application: Electrical insulation and moisture protection for low-voltage applications, particularly suitable for insulating cables and wires in junction boxes.

#### Features and Benefits

- Bottles or canisters incl. measuring cup and mixing stick
- Homogenous mixture indicated by green-coloured component B
- Can be used flexibly, in smaller quantities, mixing ratio 1:1
- Excellent flow properties
- Soft elastic, vibration absorbing, removable
- Outstanding insulating properties
- Non-toxic, free of isocyanate
- SVHC-free, contains no hazardous substances, the cured product can be disposed of with house hold waste
- Halogen free



Two-component silicone gel Religel.



Two-component silicone gel Religel.

<b>MATERIAL</b>	Silicone gel Religel (SIG)
<b>Colour</b>	Transparent (CL), Green (GN)
<b>Operating Temperature</b>	-40 °C to +140 °C
<b>Mixing Ratio (weight)</b>	100:100
<b>Gel Time</b>	20 min. 23 °C
<b>Pot Life</b>	10 min. 23 °C
<b>Density</b>	0.97 g/cm <sup>3</sup> , 20 °C (DIN EN ISO 2811-2)
<b>Dielectric Strength</b>	>20 kV/mm
<b>Viscosity</b>	1000 mPa*s, 23 °C (EN ISO 2555), 1500 mPa*s, 5 °C (EN ISO 2555)
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	Unlimited



TYPE	Pack Cont.	Article-No.
Religel	1,000 ml	435-00750
	10,000 ml	435-00751

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



### Two-component gel

#### RELICON KH 100

RELICON KH 100 is a transparent, removable, saltwater resistant, flexible two-component gel based on hydrocarbon resins in trade standard cartridges. It is especially suitable for use with junction boxes in the low-voltage range, located in a humid area or in the ground. After curing, RELICON KH 100 is characterised by its excellent resistance to moisture and very good insulating properties as well as good chemical resistance. Application: Electrical insulation and moisture protection for the low-voltage networks. Particularly suitable for filling of cable junction boxes.

#### Features and Benefits

- Cartridge with mixing nozzle for use with standard cartridge applicator gun
- Excellent flow properties
- Soft elastic, vibration absorbing, removable
- Outstanding insulating properties
- Cures without developing heat
- Saltwater resistant
- Non-toxic, free of silicone and isocyanate
- SVHC-free, contains no hazardous substances, the cured product can be disposed of with house hold waste
- Halogen free



Two-component gel KH 100.

<b>MATERIAL</b>	Gel KH100 (KH100)
<b>Colour</b>	Transparent (CL)
<b>Operating Temperature</b>	-40 °C to +90 °C
<b>Mixing Ratio (weight)</b>	1:1
<b>Pot Life</b>	40 min. 23 °C
<b>Density</b>	0.95 g/cm <sup>3</sup> , 20 °C (DIN EN ISO 2811-2)
<b>Dielectric Strength</b>	>20 kV/mm
<b>Viscosity</b>	2000 mPa*s, 5 °C (EN ISO 2555), 1500 mPa*s, 23 °C (EN ISO 2555)
<b>Storage Temperature</b>	+4 °C to +40 °C
<b>Shelf Life</b>	18 months



**Silicon free!**



TYPE	Pack Cont.	Article-No.
Gel-100 Mixing-Nozzle	10 pcs.	435-00806
Gel-100	250 ml	435-00805
	600 ml	435-00807

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





## Hand cleaning tissues

### RELICON Reliclean

RELICON Reliclean is an antibacterial, degreasing and quickly drying hand cleaning tissue. Suitable especially for workshops, industry and areas where hands and surfaces are strongly soiled. Ideal for cleaning heavily soiled hands, tools and equipment. Removes e.g. polyurethane, grease, oils, glue, bitumen, wax, soot, ink, sealants, paints, brake dust, coal dust etc.

#### Features and Benefits

- Tissue size 27 x 31 cm
- Strong one-step cleaning action
- Easily removes stubborn dirt
- Binds dirt without leaving any residue
- Reliclean restores natural oils and dries quickly
- Tissue are biodegradable
- Antibacterial, non-toxic and non-irritating
- Free of harmful substances



*Cleaning cloths Reliclean.*

TYPE	Pack Cont.	Article-No.
Reliclean	35 pcs.	435-01600
	70 pcs.	435-01601

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## Connectors

### Compression connector, tin-plated, with central buttmark for copper conductors

Galvanised compression connectors are suitable for stranded and solid copper conductors and provided with central buttmarks for precise conductor insertion.

#### Features and Benefits

- Suitable for copper conductors
- Optimal material and compress properties because of the annealed material
- Precise end machining for easy cable insertion
- Tin-plated connector body
- With central buttmarks for precise core insertion



Compression connector, tin-plated, with central buttmark for copper conductors

TYPE	Inside Ø (ID)	Outside Ø (OD)	Length (L)	Pack Cont.	Article-No.
Compression connector 1.5	1.8	3.3	25.0	1 pc.	435-01450
Compression connector 2.5	2.3	4.2	25.0	1 pc.	435-01451
Compression connector 4	3	5	25.0	1 pc.	435-01452
Compression connector 6	3.5	6.5	25.0	1 pc.	435-01453
Compression connector 10	4.5	7	30.0	1 pc.	435-01454
Compression connector 16	5.5	8.5	35.0	1 pc.	435-01455
Compression connector 25	7	10	40.0	1 pc.	435-01456
Compression connector 35	8.5	12	45.0	1 pc.	435-01457
Compression connector 50	10	14	50.0	1 pc.	435-01458
Compression connector 70	12	16.5	55.0	1 pc.	435-01459
Compression connector 95	13.5	18	60.0	1 pc.	435-01460
Compression connector 120	15	19.5	65.0	1 pc.	435-01461
Compression connector 150	16.5	21	70.0	1 pc.	435-01462
Compression connector 185	19	24	75.0	1 pc.	435-01463
Compression connector 240	21	26	85.0	1 pc.	435-01464
Compression connector 300	23.5	29.5	100.0	1 pc.	435-01465
Compression connector 400	27	34	100.0	1 pc.	435-01466

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## Connectors

### Mechanical connector, tin-plated, with barrier and shear-off bolts for Al and CU conductors

Galvanised mechanical connector provided with barrier and shear-off bolts. Suitable for stranded and solid aluminium and copper conductors in all kind of cable accessories. They also comply with DIN 4740 requirements for shrinking technology.

#### Features and Benefits

- For connecting different conductor cross-sections
- Suitable for aluminium and copper conductors
- Tin-plated connector body with barrier and shear-off bolts



*Mechanical connectors with barrier.*

TYPE	Conductor Size Range mm <sup>2</sup>	Ø D	Length (L)	Nut Size (NS)	Pack Cont.	Article-No.
<b>Mechanical connector 1050</b>	10 - 50	18.0	40.0	4	1 pc.	435-01503
<b>Mechanical connector 2595</b>	25 - 95	25.0	55.0	8	1 pc.	435-01504
<b>Mechanical connector 2515</b>	25 - 150	28.0	60.0	8	1 pc.	435-01505
<b>Mechanical connector 9524</b>	95 - 240	35.0	128.0	8	1 pc.	435-01506

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## Connectors

### Mechanical connector, tin-plated, with blind hole for Al and CU conductors

Galvanised mechanical connector provided with a blind hole and suitable for stranded and solid aluminium and copper conductors in all kind of cable accessories. They also comply with DIN 4740 requirements for shrinking technology.

#### Features and Benefits

- For connecting different conductor cross-sections
- Suitable for aluminium and copper conductors
- With blind hole for precise conductor insertion
- Tin-plated connector body and hexagon socket screws



Mechanical connectors without barrier.

TYPE	Conductor Size Range mm <sup>2</sup>	Ø D	Length (L)	Nut Size (NS)	Pack Cont.	Article-No.
Mechanical connector 1506	1.5 - 6	7.0	-	1.5	1 pc.	435-01500
Mechanical connector 1516	1.5 - 16	10.0	30.0	2.5	1 pc.	435-01501
Mechanical connector 635	6 - 35	14.0	40.0	4	1 pc.	435-01502

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## Connector blocks

### RELICON Premium

The connector block is made of transparent polymeric material and assembled with 5 mechanical connectors inside. An allen key is included. The three different sizes are adapted to the right core cross sections and spaces that are needed for each joint. All connectors are suitable for aluminium and copper conductors as well. This makes the connection reliable and easy.

#### Features and Benefits

- Transparent, polymeric material
- 5 mechanical connectors including allen key
- 3 sizes available
- For Al and Cu conductors



SV-Connector blocks.

TYPE	Conductor Size Range mm <sup>2</sup>	Article-No.
SV1	1.5 - 6	435-01400
SV2	1.5 - 16	435-01401
SV3	6 - 35	435-01402

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

## Connectors

### Tap connector, uninsulated, for copper conductors

Bright finished tap connector for screwing stranded and solid copper conductors according to VDE 0295 Class 1 and 2.

#### Features and Benefits

- For connecting conductors to VDE 0295 Class 1 and 2
- One bolt type, bright finished, uninsulated



Tap connectors, uninsulated, for copper conductors.

TYPE	Conductor Size Range mm <sup>2</sup>	Length (L)	Width (W)	Mounting Screw Type	Pack Cont.	Article-No.
Tap connector 2516	2.5 - 16	16.0	19.5	M5	1 pc.	435-01550
Tap connector 2525	2.5-25.0	18.0	25.0	M6	1 pc.	435-01551
Tap connector 6035	6.0-35.0	20.0	28.0	M7	1 pc.	435-01552
Tap connector 6050	6.0-50.0	24.0	32.5	M7	1 pc.	435-01553
Tap connector 10070	10.0-70.0	24.0	37.5	M8	1 pc.	435-01554
Tap connector 25095	25.0-95.0	31.0	45.0	M10	1 pc.	435-01555

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



## Connectors

### Tap connector, insulated, for insulated aluminium and copper conductors

Insulated tap connector for screwing stranded and solid insulated aluminium and copper conductors.

#### Features and Benefits

- Suitable for insulated aluminium and copper conductors
- One bolt type, insulated



Tap connector, insulated, for copper and aluminium conductors.

TYPE	Conductor Size Range mm <sup>2</sup>	Width (W)	Mounting Screw Type	Pack Cont.	Article-No.
Tap connector 1516	1.5-16.0	26.0	M6	1 pc.	435-01557

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

## Connectors

### Tap connector, insulated, for insulated copper conductors

Insulated tap connector for screwing stranded and solid insulated copper conductors.

#### Features and Benefits

- Suitable for insulated copper conductors
- One bolt type, insulated



Tap connector, insulated, for copper conductors.

TYPE	Conductor Size Range mm <sup>2</sup>	Width (W)	Mounting Screw Type	Pack Cont.	Article-No.
Tap connector 1510	1.5-10.0	23.0	M5	1 pc.	435-01556

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.





### Inspired by downsizing

M-BOSS Compact allows stainless steel to be embossed in a way that is practical for office use. Its innovative embossing system applies pressure from both above and below, making it much quieter than hammering and also saving considerable space. Measuring just 480 mm in width, M-BOSS Compact is not much larger than a desktop printer and can be deployed virtually anywhere. It offers just enough space to rest a laptop on it. The print speed is no less impressive, with the M-BOSS Compact (see page 563) can emboss one character per second in SS316 stainless steel.

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## 5.1 Wire and Cable Markers

### Shrinkable markers "Continuous Tube", thermal transfer

TCGT - 3:1 Commercial Grade Tubing	484
TULT - 3:1 Military and Electronics	486
TLFX - 2:1 Rail Limited Fire Hazard	492
TDRT - 3:1/2:1 Rail Diesel Resistant	496
THTT - 2:1 Aerospace High Temperature	501

### Shrinkable markers "Ladder Style", thermal transfer

TULT DS - 3:1 Military and Electronics	488
HST - 3:1 Military and Electronics	490
TLFX DS - 2:1 Rail Limited Fire Hazard	494
TDRT DS - 3:1/2:1 Rail Diesel Resistant	497
TLFD DS - 2:1 Fire Hazard, Fluid Resistant	499
THTT DS - 2:1 Aerospace High Temperature	503

### Identification tags for cable bundle, thermal transfer

TIPTAG - Limited Fire Hazard Tiptags, Halogen free	505
TIPTAG - UV-stabilised Tiptags, Polyurethane	506
TIPTAG - Metal Content Tiptags	507

### Identification tags for cable bundle "Ladder Style", thermal transfer

TAGUL - Standard Tiptags "Ladder Style"	508
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TAGPU - UV-stabilised Tiptags "Ladder Style"	509
TAGLF - Limited Fire Hazard Tiptags "Ladder Style"	510
TAGDR - Diesel Resistant Tiptags "Ladder Style"	511
TAGHT - High Temperature Tiptags "Ladder Style"	512

### Self-laminating labels, thermal transfer

Helatag 1209 (White-Transparent)	513
Helatag 323 (White-Transparent), high temperature	515

### Self-laminating labels, laser

Helatag 1104 (White-Transparent)	516
Helatag 1105 (White-Transparent)	517

### Self-laminating labels, dot matrix

Helatag 101 (White-Transparent)	518
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### Self-laminating labels, manual marking

RiteOn, Material 1401 Dispenser	519
HELASIGN, Material 1402, Booklet	520

### Pre-printed cable markers

Helagrip, slide on, chevron cut	521
Ovalgrip, slide on, straight cut	524
WIC, snap on	526

### Identification for marking cable bundles

Arrowtag - Identification plates	529
Q-tags - Identification plates	530
IMP and IT Plates - Identification plates	531
IT Ties - Identification ties	532

### Adhesive labels for ties, plates and tags, thermal transfer

Helatag 892 (White)	534
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### Carrier marking system, laser

Helafix HC and HCR Carriers	535
Helafix HFX Labels	536

## 5.2 Control Panel Labelling

### Labels for control panel identification, thermal transfer

Helatag 880 (Yellow matt), removable	537
Helatag 1211 (Yellow gloss)	538
Helatag 1216 (White) for rough surfaces	538

### Labels for control panel identification, laser

Helatag 1102 (Yellow)	539
Helatag 1101 (White)	540

### Cotton cloth labels, manual marking

HELASIGN, Material 270 (Yellow), Booklet	541
HELASIGN, Material 270 (Yellow), A4 Sheets	542



### 5.3 Industrial Identification

#### Panel plate labels, thermal transfer

Helatag 1220 (White)	543
Helatag 1221 (Silver)	544

#### Type label identification, thermal transfer

Helatag 1204 (Silver)	545
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#### Asset identification label, thermal transfer

Helatag 1206 (White)	546
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#### Type label identification, laser

Helatag 1103 (Silver)	548
Helatag 1102 (Yellow)	549
Helatag 1101 (White)	550

#### Warehouse and pipe labelling, thermal transfer

Helatag 1213 (Various colours)	551
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#### Circuit board labels (ESD), thermal transfer

Helatag 823 (White), PCB labelling	552
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### 5.4 RFID Cable Ties and Accessories

#### Cable ties with integrated RFID transponder

T50RFID - Low Frequency (LF) and High Frequency (HF)	553
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#### Detectable cable ties with integrated RFID transponder

MCTRFID - Low Frequency (LF) and High Frequency (HF)	554
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#### Stainless steel ties with RFID transponder

MBTRFID - High Frequency (HF) and Ultra High Frequency (UHF)	555
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#### Accessories with RFID transponder

HEXTAG - High Frequency (HF)	556
CRADLE - High Frequency (HF)	557

#### RFID Readers

RFID Handheld Reader	558
RFID Desktop Reader	559

### 5.5 Security Labelling

#### Tamper-evident security labelling, thermal transfer

Helatag 1203 (Silver)	560
Helatag 1208 (White), fragmenting	561
Helatag 951 (Silver, Transparent), 2 parts	562

### 5.6 Hazardous Area Identification

### Stainless steel printing system

M-BOSS Compact Printer	563
M-BOSS Compact Markers	564
eKUBE Printer and Markers	566

### Stainless steel pre-embossed marking system, manual

Hellermark SSC	
Hellermark SSM	565

### Protective laminates, thermal transfer

Helatag 323 (Transparent), high temperature	567
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### 5.7 Printers and Software

#### Labelling software

TagPrint Pro 3.0	568
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#### Thermal transfer printer

TTE420S, small to medium volume printing	569
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#### Thermal transfer printer accessories and spare parts

TTE420S accessories and spare parts	569
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#### Thermal transfer printer

TT430, Small to medium volume printing	570
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#### Thermal transfer printer accessories and spare parts

TT430 accessories and spare parts	570
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#### Thermal transfer printer

TT4030, High volume printing	571
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#### Thermal transfer printer accessories and spare parts

TT4030 accessories and spare parts	571
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#### Thermal transfer printer

TrakMark DS - Double sided printer	572
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#### Thermal transfer printer accessories

TrakMark DS accessories and spare parts	572
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#### Thermal transfer printer

TTP80 portable thermal transfer printer	573
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#### Thermal transfer printer consumables

TTP80 consumables	574
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Selection matrix: materials and ribbons	577
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#### Thermal transfer ribbons for

Adhesive Labels	578
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#### Thermal printer ribbons for

Heatshrink and TipTags	579
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## Label and marker selection guide

Use our flowchart to find the right label or identification material.

Select the object to be identified (flat or curved surface) and its surface quality (smooth or rough). Depending on what you require from our identification systems, you will be guided through the flowchart to the end. Please note that we have highlighted the respective printer technology (thermal transfer, matrix or laser printer, etc.) in colour.

When selecting the material, the general rule is that a higher quality material can of course be used for lower requirements (e.g. a material for operating temperatures of over +90 °C can also be used for temperatures below +90 °C). And you can, of course, always ring us on our usual telephone numbers.

Labels - surface smooth					
Temperature	Attributes	Certifications	Material Code	Page	
up to +90 °C	permanent		892	496	
			1211	499	
			1213	513	
			1216	500	
			1220*	505	
			1221*	506	
			270	503/504	
over +90 °C	permanent	UL	1101	502/512	
			1102	501/511	
			1103*	510	
			1204*	507/508	
			1206*	508/509	
			323	528	
		special UV-stabilised ESD safe tamper evident	UL UL/CSA	823	514
				951*	524
				1203*	522
				1208*	523

Labels - surface rough				
Temperature	Attributes	Certifications	Material Code	Page
up to +90 °C	permanent		892	496
			1211	499
			1213	513
			1216	500
			1220*	505
			1221*	506
			270	503/504
			880	499
	removable			

**Labelling material for:**

- TT printer
- Laser printer
- Matrix printer
- Handwritten identification

**Approvals:**

1. UL: Underwriter Laboratories
2. CSA: Canadian Standards Association
3. NF F: Norme Française Ferroviaire
4. EN: European Normative

\* For this labelling material you can also use laser beam.

Labels - cables/tubes smooth				
Temperature	Attributes	Certifications	Material Code	Page
up to +90 °C	permanent		101	480
			1209*	475/476
	removable		1401	481
			1402	482
over +90 °C	permanent		270	503/504
			323*	477
			1104	478
			1105	479

Heat shrink marker				
Temperature	Attributes/Application	Certifications	Material Code	Page
over +90 °C	for Electronics	UL/CSA/MIL STD	TCGT*	448/449
			TULT*	450/451
			TULT DS*	452/453
	for Rail	EN45545-2	TLFX*	454/455
			TLFX DS*	456/457
			TLFD DS	461/462
		EN50343	TDRT*	458
			TDRT DS*	459/460
			THTT*	463/464
	for Aerospace high temperature		THTT DS*	465/466

TIPTAG				
Temperature	Attributes/Application	Certifications	Material Code	Page
over +90 °C	special UV-stabilised		TIPTAG PU*	468
	for Electronics		TAGUL*	470
	for Rail	EN45545-2	TAGLF*	472
			TAGDR*	473
	for Aerospace high temperature	NF F 00-608/ EN50343	TAGHT*	474
	up to +90 °C	for Rail	EN45545-2	TIPTAG HF*
for Food and Pharma			TIPTAG MC	469
special UV-stabilised			TAGPU*	471



## Bonding properties of labels

The great variety of places where adhesive labels can be used require a broad range of different materials and adhesives. The information given below will explain all the important aspects of this adhesion.

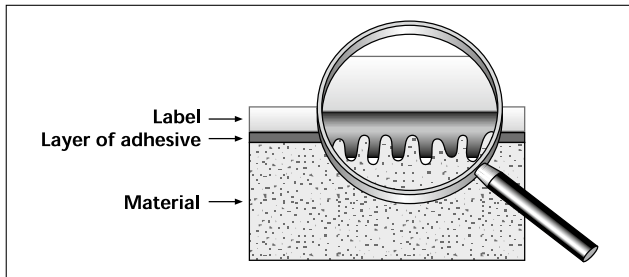
To enable you to make the right choice for your particular application quickly and efficiently, we have set out the most important selection criteria diagrammatically in our flowchart.

### Initial and final bonding

In principle there are two different bonding conditions for labels: The initial bonding which occurs immediately after the label and surface are brought together and the final bonding which represents the permanent bonding status between label and surface following the application, pressing on and curing of the adhesive. The bonding of labels is measured in a defined test process (FINAT FTM) and stated in N/mm.

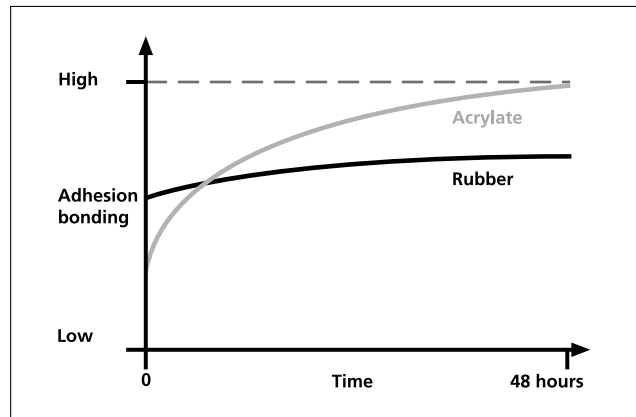
The initial bonding (or tack) describes the bonding ability of the label after it has been applied to the surface, without being pressed down.

The final bonding of labels is ultimately affected by the combined factors of material quality, adhesive basis, curing time, pressure applied and surface tension.



### Adhesion: powers of attraction between two materials

Adhesion can be described, in principle, as the ability of the adhesive to form a bond with the substrate; the substrate is the surface of the material you need the label applied to. The influencing factors for optimum bonding are the quality of the material's surface and the creep ability of the adhesive. The crucial factor is the proportion of the surface which is actually to be 'wetted' by the adhesive. Most surfaces appear – from a microscopic point of view – like a mountain range with peaks and valleys; i.e. the effective surface is much bigger than that seen by the naked eye. No matter how smooth and flat a substrate may appear to be, there is always some roughness. The better the adhesive flows into the valleys, the more bonding points it can form and the better the adhesive will bond to the surface. A thicker layer of adhesive does allow these uneven areas to be filled in better, but a thicker coat of adhesive has negative effects when labels are processed by machine (e.g. leakage of the adhesive or limited storage life).



### Adhesive basis

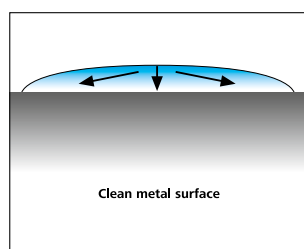
HellermannTyton currently uses acrylate and synthetic rubber as adhesive bases. Acrylate adhesives belong to the family of thermoplastic resins and at normal temperatures they provide high and lasting adhesion. When considering the final bonding of acrylate adhesives, however, it must be noted that the relatively high final bonding is only attained after a certain curing period. This is especially true of labelling materials which may be used for rating plates. Normally you must wait for at least 48 hours in a dry office environment.

Synthetic rubber-based adhesives, unlike acrylate-based adhesives, are distinguished by their high initial bonding. But this adhesive technology does not achieve a final bonding comparable to acrylate adhesives (see graph). Special mixtures of synthetic rubber are used in labelling technology, for example for removable labels, e.g. HellermannTyton material type 270.

## Effect of surface energy on bonding properties

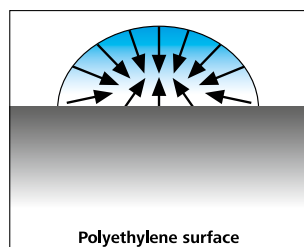
The surface energy (also known as surface tension) is an important factor in the selection of the right adhesive. Because of their chemical formulation, all surfaces have their own polarity and surface tension. The cause of surface tensions is the tendency of liquids to reduce their surface as far as possible, thus to form drops. When a surface which is to be marked (substrate) is wetted with an adhesive, in addition to the adhesive formulation and the surface quality (material, roughness, dampness etc.) the surface energy is also a decisive factor in the maximum attainable bonding force of the adhesive.

As a basic rule, it can be noted that the surface energy of the adhesive must be less than the surface energy of the material to be bonded (substrate). The adhesive should completely wet the substrate and not form any drops.



### Flat drops

- High surface energy
- Good wetting
- Good bonding properties



### Rounded drops

- Low surface energy
- Poor wetting
- Weak bonding properties

### The material combination is the decisive factor

An acrylate-based adhesive is polar and therefore has a relatively high surface energy. Acrylate-based adhesives achieve optimum final bonding on polar substrates (e.g. glass or metals) with a high surface energy. More critical is the application of labels using acrylate-based adhesives on materials with low surface energy (apolar substrates) such as, for example, silicone, polyethylene and polypropylene. The surface tensions of an acrylate-based adhesive can be reduced for particular applications by the addition of specific additives. However, this step brings with it some drawbacks, for example, a free-flowing adhesive and thus a limited life and storage ability of the labels.

The lower bonding force of low-energy surfaces must therefore be taken into account of when considering the end use. For optimum marking using acrylate-based adhesive labels, HellermannTyton uses an improved adhesive formulation, which is co-ordinated to the most common materials in industry. In most cases it is possible to guarantee very good application of these labels. In borderline cases, a modified adhesive formulation may be necessary.

Talk to us, we'll be delighted to advise you.

MATERIAL	Surface energy [mN/m]*
Polytetrafluorethylene (PTFE)	18
Silicon (Si)	24
Polyvinyl fluoride (PVF)	25
Natural rubber (CR)	25
Polypropylene (PP)	29
Polyethylene (PE)	35
Polymethyl methacrylate, Acryl (PMMA)	36
Epoxy (EP)	36
Polyoxymethylene, Acetal (POM)	36
Polystyrene (PS)	38
Polyvinyl chloride (PVC)	39
Vinylidene chloride (VC)	40
Polyester (PET)	41
Polyimide (PI)	41
Polyarylsulfone (PAS)	41
Phenolic resin	42
Polyurethane (PUR)	43
Polyamide 6 (PA 6)	43
Polycarbonate (PC)	46
Lead (Pb)	450
Aluminium (Al)	840
Copper (Cu)	1100
Chromium (Cr)	2400
Iron (Fe)	2550



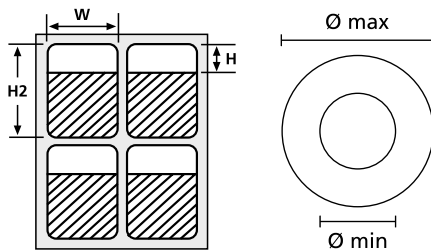
## Instructions for using labels with protective laminate

Labels with protective laminate (also known as cable laminators) have a white or coloured label field which can be written on either manually using a marker pen (see RiteOn and HELASIGN) or using a matrix, laser or thermal transfer printer (see Helatag). Depending on the design for the respective type of printing, the title block has a special surface finish to achieve the optimum print anchorage to the label substrate. This results in long-lasting, clear, sharp writing with text, graphics or barcode. A special feature is that most of the HellermannTyton protective laminate labels come with rounded corners. This achieves greater final adhesion of the protective laminate and counteracts any undesirable removal of the label, especially with cables of small diameter and in heavy-duty applications.

When calculating the minimum and maximum diameters, the following formula has been used:

$$\text{Diameter} = \frac{\text{Length of laminate}}{\pi}$$

Pi ( $\pi$ ) is the constant 3.14.



Helatag self-laminating labels.

### Minimum diameter:

To save time, when wrapping the cable with the cable laminator, a limit of max. 2 windings has been set. The protective laminate length is calculated from: Height  $H_2$  – height  $H$

By applying the “diameter” formula this produces the approx. minimum diameter:

$$\text{Diameter}_{\min} = \frac{H_2 - H}{2 \cdot \pi}$$

Example: TAG136LA4 ( $H = 19.05$  mm;  $H_2 = 67.7$  mm)

$$\text{Diameter}_{\min} = \frac{67.7 - 19.05}{2 \cdot 3.14}$$

### Maximum diameter:

In this case the minimum requirement is complete coverage of the label field with the protective laminate with a single winding. The length of the protective laminate is again obtained from the formula:  $H_2 - H$ .

By applying the “diameter” formula this produces the approx. maximum diameter, which also corresponds to double the minimum diameter:

$$\text{Diameter}_{\max} = \frac{H_2 - H}{\pi} = 2 \cdot \text{Diameter}_{\min}$$

Example: TAG136LA4 ( $H = 19.05$  mm;  $H_2 = 67.7$  mm)

$$\text{Diameter}_{\max} = \frac{67.7 - 19.05}{3.14} = 2 \cdot \text{Diameter}_{\min}$$

## Interesting facts about thermal transfer films (colour ribbons)

The thermal transfer ribbon is perhaps the most important consumable that is used in this printing system - using the right ribbon for a particular application is extremely important.

Not every transfer ribbon is equally suited to any purpose. Depending on the printing requirements (e.g. smudge or scratchproof) to be met, what type of labels will be used, an appropriate thermal transfer ribbon must be used.

Another important consideration for the thermal transfer ribbon is the electrostatic charging which can arise during the printing process. Some transfer ribbons become statically charged during the printing process, which can damage an ESD-sensitive printer head in the long run.

To clarify: The thermal transfer printer head is in physical contact with the back of the thermal transfer ribbon and consists solely of electronic, voltage-sensitive elements, which are known as dots.

These can become damaged when the thermal transfer ribbon causes discharges, which usually results in dot drop-outs. At points where the print head is damaged, no more colour is transferred. This leaves gaps on the label.

Thermal transfer films usually consist of three layers:

- A polyester strip as supporting material
- A protective, gliding backing layer on one side
- A colour layer on the other side.

The colour remains solid at room temperature, but liquefies under the effect of heat. To manufacture the colour ribbons, the polyester ribbon is coated with a special backing and then the respective coloured ink is applied. Print characteristics and bonding ability on various materials depend mainly on the chemical composition of this colour ink.

The main distinguishing feature of thermal transfer ribbons is the so-called quality of the coating. There are two basic types of thermal transfer ribbons:

### Wax-resin-based films – good synthesis

With this quality of a wax-resin mixture, the good print characteristics of the wax are essentially retained, but the resin content increases mechanical strength. The print image produced has high resistance to heat, solvents, abrasion and scratching and high print quality, e.g. for barcodes. These colour ribbons are suitable for use on synthetic materials. They can be used for most applications at standard print temperatures.

- TT932DOUT
- TT822OUT8

### Resin-based films – for very heavy-duty purposes

The colour layer at this quality level is based entirely on synthetic resins, developed for industrial applications and extreme conditions. Resin-based colour ribbons guarantee maximum readability, even on the most difficult materials (e.g. barcodes). Depending on the backing material, medium to high print temperatures and slow print speeds are necessary when using these thermal transfer films. In return, a print image is obtained which stands out for its high resistance to abrasion and scratching and great solvent and heat resistance.

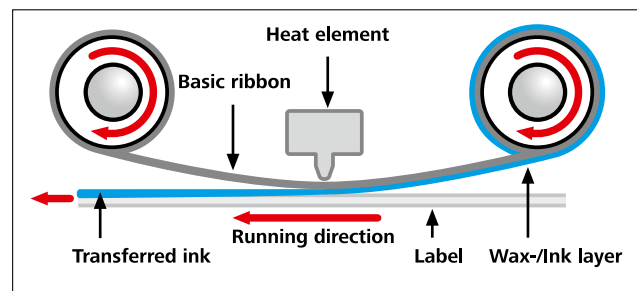
- TT822OUT
- TTRW
- TTRH
- TTRC+
- TTRR
- TT122OUT

## Interesting facts about thermal transfer printing

Thermal transfer printing plays a central role, especially in the field of printing variable data, single-proofs and even for small series. This is largely due to the fact that thermal transfer printing is a non-impact printing (NIP) process. Unlike traditional printing processes, such as offset-printing, a NIP printing process does not require a fixed printing block and can therefore print out different data with consistent quality from print to print.

Due to the increasing spread and importance of one and two-dimensional barcodes in goods inventory systems, logistics and in the field of component identification, the market potential of thermal transfer printing is growing all the time. The same is also true of incremental serial numbers, inventory designations, entrance tickets, rating plates, wine labels and many more.

Good print quality, high print speeds and the option of printing almost all backing materials permanently – these are the critical advantages of thermal transfer printing. It's good readability, resistance and abrasion resistance allow thermal transfer printing to be put to use in applications where the print results from laser, inkjet or dot matrix printers are not satisfactory.



Heated dots strike a special colour ribbon, the thermal transfer film, which transfers liquefied colour ink at exactly that point onto the backing material (labels, tubes, rating plates). Our modern printers use what is known as "thin film technology", in which the very brief liquid phase of the ink produces faster print speeds and better and more precise images than with the "thick film technology" formerly used.

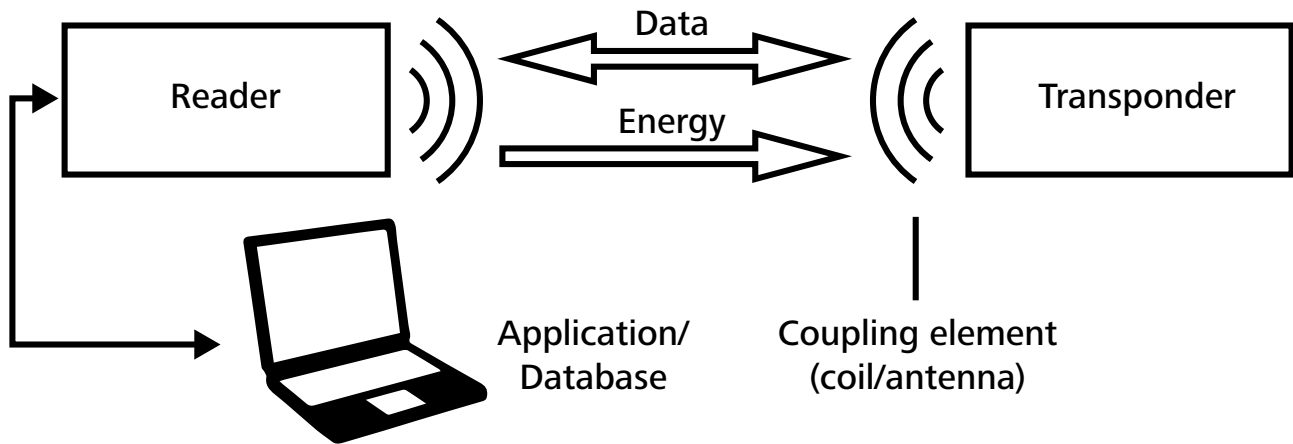
Moreover, the linear orientation of the labels or of the heatshrink tubing makes it possible to print on demand. The printing is then carried out as required. This is especially useful in the production of rating plates in series production.

In thermal transfer printing, the print image is defined by the three components: printer, label material and thermal transfer film (colour ribbon).

### The advantages at a glance:

- High print quality with a resolution of 8-12 dots/mm (12 dots/mm corresponds to approx. 300 dpi)
- Barcode printing in excellent quality, hence good optical readability
- High print speeds of between 30mm/sec and 150mm/sec
- Individual graphics capability
- Problem free and rapid realisation of self designed drafts
- Quiet and service friendly printers
- Prints are UV fast and permanent with high definition and contrast and good resistance to mechanical and chemical influences.

### What is RFID?



Radio frequency identification, for short RFID, simply means the identification by radio waves. The data transfer is affected by means of electromagnetic waves. This technology allows a contactless storing and reading of data and makes a communication between devices possible. There are several methods of identification, but the most common is

to store a serial number that identifies a person or object, and perhaps other information, on a microchip that is attached to an antenna (the chip and the antenna together are called an RFID transponder or an RFID tag). With an RFID reader the stored information can be evaluated.

HellermannTyton offers a range of RFID cable ties complete with choice of transponders which can be read with HellermannTyton RFID readers to deliver quick and accurate reporting.

RFID (Radio Frequency Identification) is a digital system to manage equipment inspections and reporting for business that are still using paper based systems and wants to improve resource performance.

#### The benefits of RFID cable ties and accessories are:

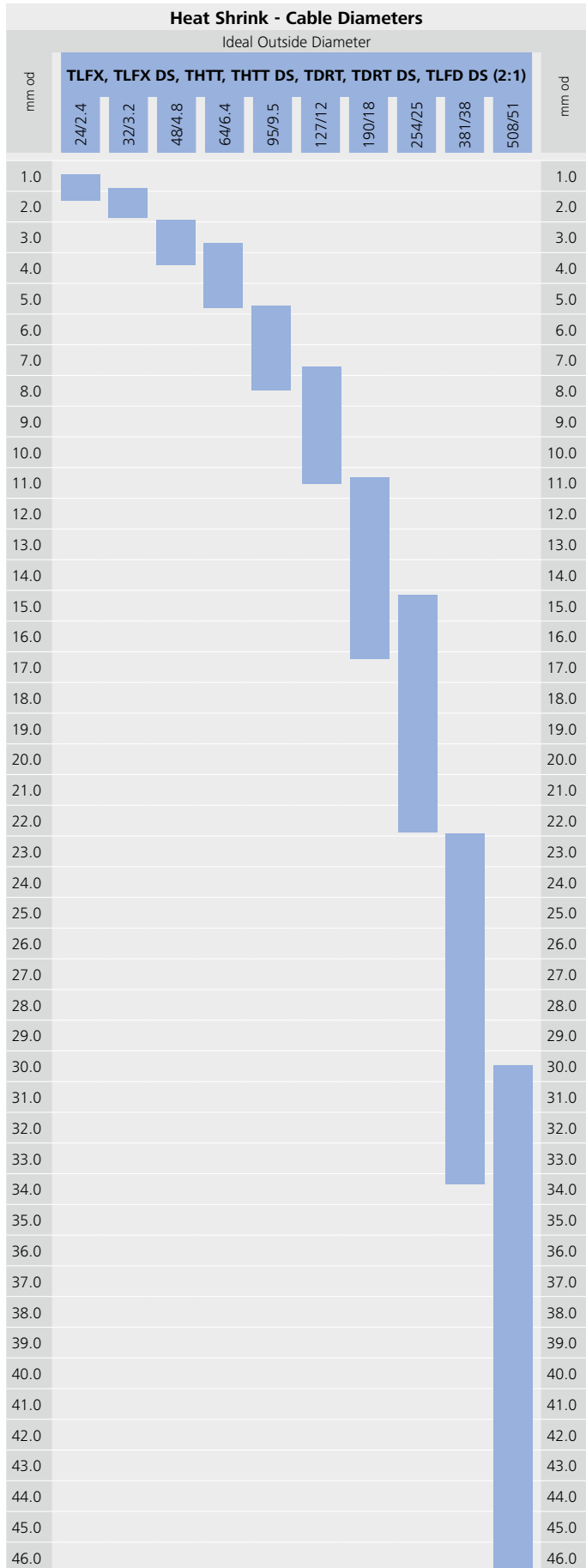
- Fast and paperless data collection
- Elimination of typing errors in reports
- Reduction of working hours due to reduction of paper work
- Controlled administration of devices and warehouse
- Comply with legislation
- Easy to share up-to-date information
- Reliable operation in harsh environments, for example wet, dusty, dirty conditions; corrosive environments; vibration and shock
- No need for contact or line-of-sight

HellermannTyton has developed a range of cable ties to host RFID transponders to enable users to easily fix the RFID tag to equipment that needs to carry a serial number for tracking and identification purposes.

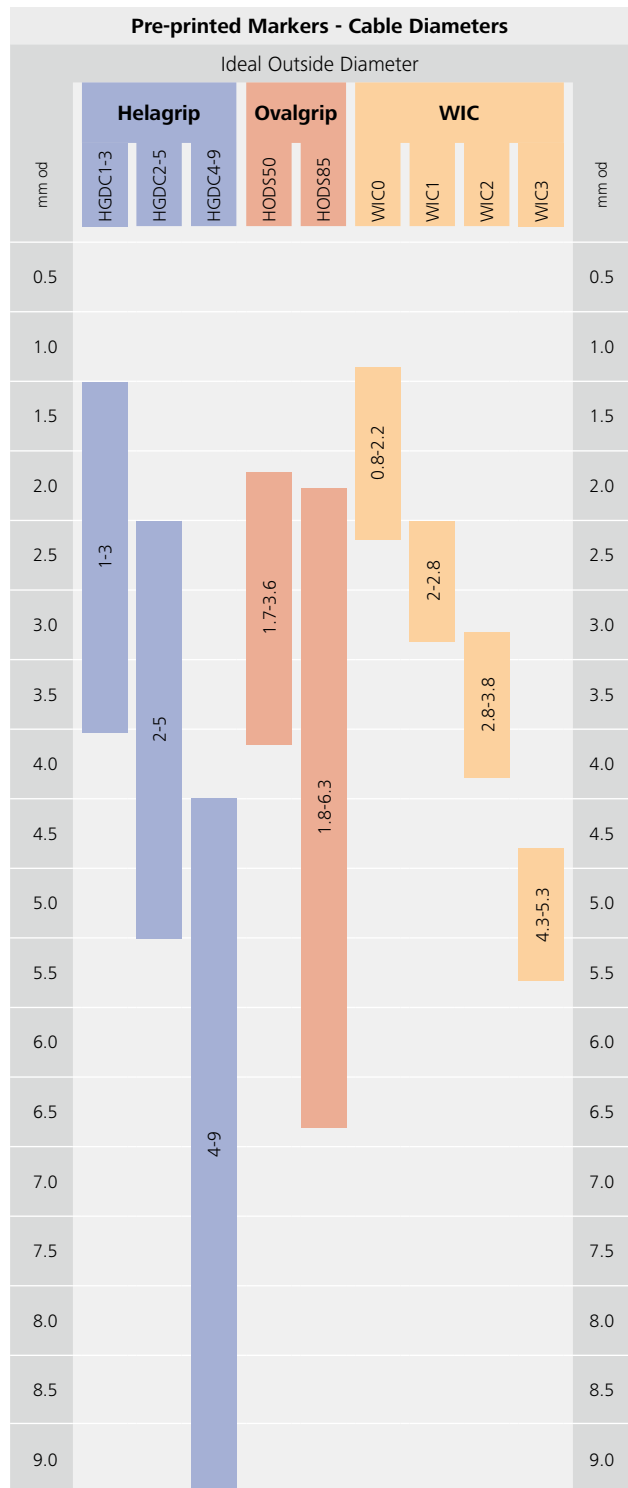
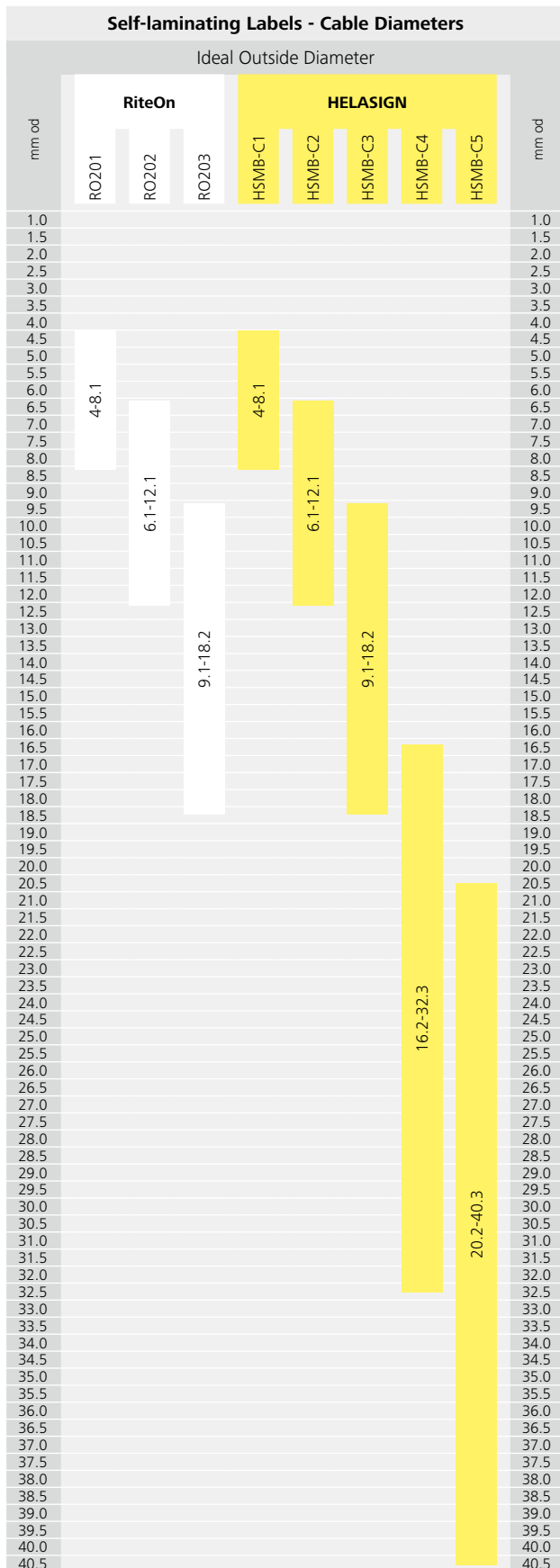
Applications for RFID include:

- Resource and asset management
- Theft preventing and traceability
- Security tagging
- Essential maintenance
- Attendance verification and time recording
- Leak detection
- Baggage tagging
- Vehicle identification
- Automation processes

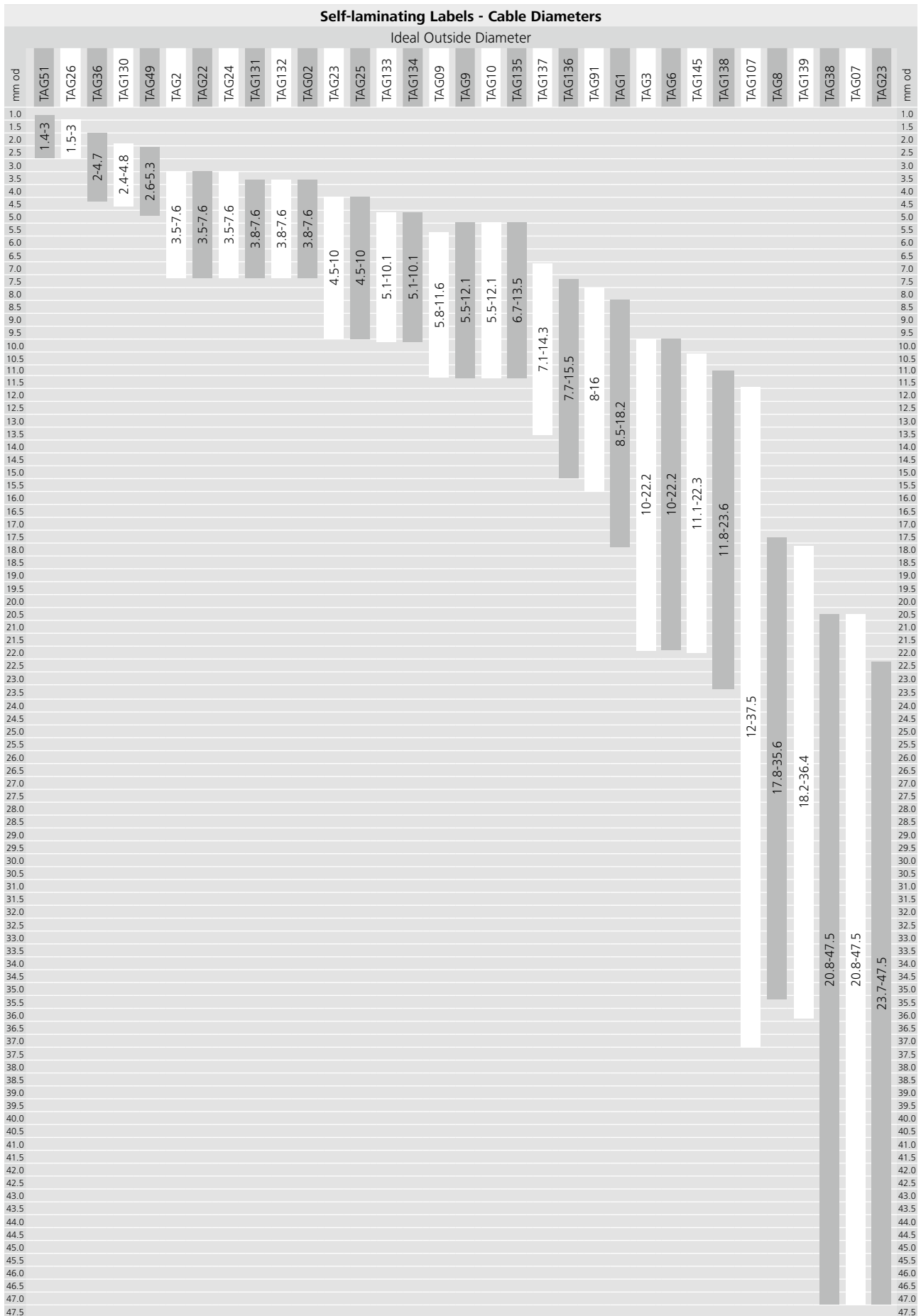
## Size Selection Guide



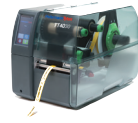
## Size Selection Guide



## Size Selection Guide



## Printing chart



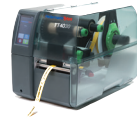
Material	Label type	Printing method	TrakMark DS (Double sided printing)	TT4030 TagPrint Pro 3.0	TT430	Ribbon	Page
TCGT			•	•	•	TTRC+ TTDTHOUT TTRW TT822OUT8	484/485
TULT			•	•	•	TTRC+ TTDTHOUT TTRW TT822OUT8	486/487
TULT DS			•	•	•	TTDTHOUT	488/489
TLFX			•	•	•	TTDTHOUT	492-493
TLFX DS			•	•	•	TTDTHOUT	494/495
TDRT			•	•	•	TTDTHOUT	496
TDRT DS			•	•	•	TTDTHOUT	497/498
THTT			•	•	•	TTRHT	501/502
THTT DS			•	•	•	TTRHT	503/504
TLFD DS			•	•	•	TTDTHOUT	499/500
TIPTAG HF			-	•	•	TTDTHOUT	505
TIPTAG PU			-	•	•	TTRC+	506
TIPTAG MC			-	•	•	TTDTHOUT TTRW	507
TAGUL			-	•	•	TTDTHOUT	508
TAGPU			-	•	•	TTRHT	509
TAGLF			-	•	•	TTDTHOUT	510
TAGDR			-	•	•	TTDTHOUT	511
TAGHT			-	•	•	TTRHT	512
Helatag 1209			-	•	•	TT932DOUT	513/514
Helatag 323			-	•	•	TT932DOUT	515
Helatag 323			-	•	•	TT822OUT	567
Helatag 892			-	•	•	TT822OUT	534
Helatag 1211			-	•	•	TT822OUT	537



## Printing chart



**TrakMark DS**  
(Double sided printing)



**TT4030**



**TT430**

Material	Label type	Printing method	TagPrint Pro 3.0		Ribbon	Page
			TrakMark DS (Double sided printing)	TT4030		
Helatag 880			-	•	TT822OUT	537
Helatag 1216			-	•	TT822OUT	538
Helatag 1220			-	•	TT822OUT TT122OUT	543
Helatag 1221			-	•	TT822OUT TT122OUT	544
Helatag 1204			-	•	TT822OUT	545/546
Helatag 1206			-	•	TT822OUT	546/547
Helatag 1213			-	•	TT822OUT TTRW	551
Helatag 823			-	•	TT822OUT	552
Helatag 1203			-	•	TT822OUT	560
Helatag 1208			-	•	TT822OUT	561
Helatag 951			-	•	TT822OUT	562

Material	Label type	Printing method	Page	Material	Label type	Printing method	Page
Helatag 1104			516	Helatag 1103			548
Helatag 1105			517	Helatag 101			518
Helafix HFX			536	RiteOn material 1401			519
Helatag 1102			539/549	Helasign material 1402			520
Helatag 1101			540/550	Helasign material 270			541/542

Thermal printing process  
 Laser printing  
 Laser beam  
 Dot matrix printing  
 Manual writing/marking

Self-lamination label  
 Plain label  
 Continuous roll  
 Shrinkable marker  
 Identification tag

## Label Material Specifications

### Laser printer



Material	1101	1102	1103	1104	1105
<b>Material Description</b>	Polyester, white (WH)	Polyester, yellow (YE)	Polyester, silver (SR)	Polyester self-laminating, transparent with white write on area (WHCL)	
<b>Material Application</b>	Permanent identification of assets and components, particularly suitable for identification of switch panels.		Permanent identification of assets and components. Particularly suitable for type- and nameplates.	Self-laminating wire and cable marking, also suitable for flat cables.	
<b>Thickness of Foil (TF)</b>	60 µm			25 µm	50 µm
<b>Operating Temperature</b>	-40 °C to +150 °C				
<b>Curing Temperature</b>	from 0 °C			from +10 °C	from +5 °C
<b>Adhesive</b>	Acrylic				
<b>Material Durability</b>	2 years external weathering (central European climate)				
<b>Label Type</b>					
<b>Certification / Specification</b>					
<b>Page</b>	540, 550	539, 549	548	516	517

### Dot-matrix



Material	101
<b>Material Description</b>	A self-laminating transparent vinyl material with acrylic adhesive. Write on area is white (WHCL).
<b>Material Application</b>	Used for wire marking round and flat ribbon cable.
<b>Thickness of Foil (TF)</b>	80 µm
<b>Operating Temperature</b>	-40 °C to +80 °C
<b>Curing Temperature</b>	from +10 °C
<b>Adhesive</b>	Acrylic
<b>Material Durability</b>	2 years external weathering (central European climate)
<b>Label Type</b>	
<b>Page</b>	518



Plain labels





Self-laminating labels

### Label Material Specifications




#### Manual



Material	270	1401	1402
<b>Material Description</b>	Type 270, yellow cotton cloth material (YE)	Self-laminating super transparent vinyl with write on area	
<b>Material Application</b>	Temporary/permanent identification of assets and components, particularly suitable for switch panels.	Self-laminating cable and wire marking (also suitable for flat ribbon cables).	
<b>Thickness of Foil (TF)</b>	150 µm	80 µm	
<b>Operating Temperature</b>	-29 °C to +80 °C	-40 °C to +80 °C	
<b>Curing Temperature</b>	from +10 °C		from +8 °C
<b>Adhesive</b>	Synthetic rubber	Acrylic	
<b>Material Durability</b>	1 year external weathering (central European climate)	2 years external weathering (central European climate)	3 years external weathering (central European climate)
<b>Label Type</b>			
<b>Page</b>	541, 542	519	520

#### Thermal transfer



Material	323	823	880	
<b>Material Description</b>	Polyvinylidene Fluoride, transparent with white or yellow write on area (WHCL/YECL), chemical resistant	Transparent polyvinylidene fluoride foil. The foil is excellent resistant against a big variety of chemicals and solvents.	Type 823 is a white label material (WH) suitable for printing with thermal transfer printers.	Vinyl, matt yellow (YE)
<b>Material Application</b>	Self-laminating wire and cable identification for extremely dirty environments.	Protective laminate for labels in extreme dirty environments. Especially designed for military and aeronautic applications.	Electrostatic sensitive applications.	General identification. Suitable for temporary and permanent identification.
<b>Mech. Material Properties</b>	Permanent adhesive, extremely scratch resistant	Use as protective over-laminate or clear printable label.	According to ESD requirements of EIA 625 and 541.	Adhesive removable without traces.
<b>Thickness of Foil (TF)</b>	25 µm	51 µm	80 µm	
<b>Operating Temperature</b>	-40 °C to +140 °C	-40 °C to +150 °C	-40 °C to +80 °C	
<b>Curing Temperature</b>	from +10 °C			
<b>Adhesive</b>	Acrylic			
<b>Material Durability</b>	5 years external weathering (central European climate). Excellent indoor use.	2 years external weathering (central European climate). Foil becomes slightly yellow when exposed to direct sunlight.	2 years external weathering (central European climate)	
<b>Label Type</b>				
<b>Certification / Specification</b>				
<b>Page</b>	515	567	552	537

## Label Material Specifications

## Thermal transfer



Material	892	951	1203
<b>Material Description</b>	A smooth, white (WH) vinyl foil. Adhesive suitable for critical surfaces.	Polyester, silver (SR), tamper-proof (951A) and polyester, transparent (CL) as overlamine (951B). Set out of 2 materials.	Polyester, silver (SR), tamper-proof, adhesive suitable for critical surfaces
<b>Material Application</b>	Use with IT identification ties, Q-tags and AT/IMP plates.	For automotive and electric industries for tamper-proof applications. Particularly suitable as type label according to norms of German Kraftfahrtbundesamt (KBA).	Electro and electronic identification. Security and warranty identification of components, housings and name plates.
<b>Mech. Material Properties</b>	Permanent adhesive, suitable for critical surfaces like low energy surfaces.	Tamper-proof identification, leaves small checkboard traces.	
<b>Thickness of Foil (TF)</b>	83 µm	36 µm, 25 µm	53 µm
<b>Operating Temperature</b>	-40 °C to +80 °C	-40 °C to +150 °C	-40 °C to +120 °C
<b>Curing Temperature</b>	from 0 °C	from 0 °C (label), from +4 °C (lamine)	from +7 °C
<b>Adhesive</b>	Acrylic		
<b>Material Durability</b>	3 years external weathering (central European climate)	2 years external weathering (central European climate)	
<b>Label Type</b>			
<b>Certification / Specification</b>			
<b>Page</b>	534	562	560




Material	1204	1206	1208	1209
<b>Material Description</b>	Polyester, silver-aluminised (SR), temperature resistant	Polyester, white (WH), temperature resistant with high adhesiveness	Acetate foil, white (WH), tamper-proof	Vinyl, transparent with white write on area (WHCL)
<b>Material Application</b>	Electro and electronic identification. Permanent identification of components and housings with type labels.	Electro and electronic identification. Permanent identification of components with type labels.	General identification with need of manipulation detection.	Self-laminating cable and wire identification, also suitable for flat ribbon cables.
<b>Mech. Material Properties</b>	Adhesive suitable for critical surfaces.		Tamper-proof, material will easily fragment if removed.	Due to its flexibility particularly suitable for identification of cables.
<b>Thickness of Foil (TF)</b>	55 µm	50 µm	56 µm	90 µm
<b>Operating Temperature</b>	-40 °C to +150 °C			-20 °C to +80 °C
<b>Curing Temperature</b>	from 0 °C		from +4 °C	from 0 °C
<b>Adhesive</b>	Acrylic			
<b>Material Durability</b>	2 years external weathering (central European climate)			
<b>Label Type</b>				
<b>Certification / Specification</b>				
<b>Page</b>	545, 546	546, 547	561	513, 514


## Label Material Specifications

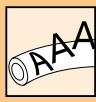
### Thermal transfer



Material	1211	1213
<b>Material Description</b>	A smooth, gloss yellow (GSYE) painted vinyl foil. Adhesive suitable for critical surfaces.	Type 1213 is a coloured and very smooth vinyl material with excellent outdoor properties. It has nearly endless shelf life when used indoors.
<b>Material Application</b>	Identification of control panels.	General identification (e.g. warehouse labelling or pipemarking).
<b>Mech. Material Properties</b>	Permanent adhesive, suitable for critical surfaces.	Due to its flexibility and adhesiveness the material is also suitable for rough surfaces.
<b>Thickness of Foil (TF)</b>	83 µm	66 µm
<b>Operating Temperature</b>	-20 °C to +80 °C	-40 °C to +90 °C
<b>Curing Temperature</b>	from +5 °C	from +8 °C
<b>Adhesive</b>	Acrylic	
<b>Material Durability</b>	2 years external weathering (central European climate)	7 years external weathering (central European climate)
<b>Label Type</b>		
<b>Page</b>	537	551



Material	1216	1220	1221
<b>Material Description</b>	Polyethylene, matt white (WH)	A white (WH), glossy polyester label mounted with a compressible foam carrier	A silver (SR), polyester label mounted with a compressible foam carrier
<b>Material Application</b>	Permanent identification of components and preassembled units within electrical industry as well as asset identification.	Suitable for indoor and outdoor applications on smooth and slightly rough surfaces. Especially used for the identification of electrical cabinets and electrical components.	
<b>Mech. Material Properties</b>	Permanent adhesive, suitable for critical surfaces.	Permanent adhesive with an elastic foam carrier.	
<b>Thickness of Foil (TF)</b>	110 µm	625 µm	
<b>Operating Temperature</b>	-30 °C to +60 °C	-40 °C to +90 °C	
<b>Curing Temperature</b>	from 0 °C	from +4 °C	
<b>Adhesive</b>	Acrylic		
<b>Material Durability</b>	2 years external weathering (central European climate)		
<b>Label Type</b>			
<b>Page</b>	538	543	544



## Shrinkable markers, "Continuous Tube", thermal transfer

### TCGT - 3:1 Commercial Grade

TCGT is a commercial grade 3:1 heat shrink marker material supplied as a continuous tube and printable on both sides. TCGT's polyolefin compound has good mechanical strength and resistance to organic solvents and chemicals. The surface of the tubing has been especially prepared so that print performance is excellent at all times. HellermannTyton's printer range allow users to create a high quality print. In addition it is possible to either perforate the tubing at pre-determined lengths or fully sever the markers.

#### Features and benefits

- Shrink ratio 3:1
- Available in black, blue, red, white and yellow
- Cable range from 39 mm to 1 mm
- Good mechanical strength and resistance to organic solvents and chemicals
- Highly flexible
- Delivery in convenient storage boxes



TCGT – 5 colours of printable tube to cover a wide range of diameters.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Min. Shrink Temperature</b>	+90 °C
<b>Shrink Ratio</b>	3:1
<b>Recommended Ribbon Type</b>	TTRC+, TTDTHOUT, TTRW, TT822OUT8
<b>Thermal Transfer Printer</b>	TT430, TT4030, TRAKMARK DS

RoHS



For size matrix please refer to page 475.

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Pack Cont.	Colour	Article-No.
TCGT3-1BK	3.0	1.0	0.60	176 m	Black (BK)	553-30352
TCGT3-1BU	3.0	1.0	0.60	176 m	Blue (BU)	553-30353
TCGT3-1RD	3.0	1.0	0.60	176 m	Red (RD)	553-30354
TCGT3-1WH	3.0	1.0	0.60	176 m	White (WH)	553-30351
TCGT3-1YE	3.0	1.0	0.60	176 m	Yellow (YE)	553-30350
TCGT4.8-1.6BK	4.8	1.6	0.65	110 m	Black (BK)	553-30452
TCGT4.8-1.6BU	4.8	1.6	0.65	110 m	Blue (BU)	553-30453
TCGT4.8-1.6RD	4.8	1.6	0.65	110 m	Red (RD)	553-30454
TCGT4.8-1.6WH	4.8	1.6	0.65	110 m	White (WH)	553-30451
TCGT4.8-1.6YE	4.8	1.6	0.65	110 m	Yellow (YE)	553-30450
TCGT6-2BK	6.0	2.0	0.70	110 m	Black (BK)	553-30652
TCGT6-2BU	6.0	2.0	0.70	110 m	Blue (BU)	553-30653
TCGT6-2RD	6.0	2.0	0.70	110 m	Red (RD)	553-30654

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available. More colours on request.



For product specific approvals and specifications please refer to the Appendix.

### Shrinkable markers, "Continuous Tube", thermal transfer

#### TCGT - 3:1 Commercial Grade



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Pack Cont.	Colour	Article-No.
TCGT6-2WH	6.0	2.0	0.70	110 m	White (WH)	553-30651
TCGT6-2YE	6.0	2.0	0.70	110 m	Yellow (YE)	553-30650
TCGT9-3BK	9.0	3.0	0.80	72 m	Black (BK)	553-30952
TCGT9-3BU	9.0	3.0	0.80	72 m	Blue (BU)	553-30953
TCGT9-3RD	9.0	3.0	0.80	72 m	Red (RD)	553-30954
TCGT9-3WH	9.0	3.0	0.80	72 m	White (WH)	553-30951
TCGT9-3YE	9.0	3.0	0.80	72 m	Yellow (YE)	553-30950
TCGT12-4BK	12.0	4.0	0.85	54 m	Black (BK)	553-31252
TCGT12-4BU	12.0	4.0	0.85	54 m	Blue (BU)	553-31253
TCGT12-4RD	12.0	4.0	0.85	54 m	Red (RD)	553-31254
TCGT12-4WH	12.0	4.0	0.85	54 m	White (WH)	553-31251
TCGT12-4YE	12.0	4.0	0.85	54 m	Yellow (YE)	553-31250
TCGT18-6BK	18.0	6.0	1.00	26 m	Black (BK)	553-31852
TCGT18-6BU	18.0	6.0	1.00	26 m	Blue (BU)	553-31853
TCGT18-6RD	18.0	6.0	1.00	26 m	Red (RD)	553-31854
TCGT18-6WH	18.0	6.0	1.00	26 m	White (WH)	553-31851
TCGT18-6YE	18.0	6.0	1.00	26 m	Yellow (YE)	553-31850
TCGT24-8BK	24.0	8.0	1.20	26 m	Black (BK)	553-32452
TCGT24-8BU	24.0	8.0	1.20	26 m	Blue (BU)	553-32453
TCGT24-8RD	24.0	8.0	1.20	26 m	Red (RD)	553-32454
TCGT24-8WH	24.0	8.0	1.20	26 m	White (WH)	553-32451
TCGT24-8YE	24.0	8.0	1.20	26 m	Yellow (YE)	553-32450
TCGT39-13BK	39.0	13.0	1.25	10 m	Black (BK)	553-33952
TCGT39-13BU	39.0	13.0	1.25	10 m	Blue (BU)	553-33953
TCGT39-13RD	39.0	13.0	1.25	10 m	Red (RD)	553-33954
TCGT39-13WH	39.0	13.0	1.25	10 m	White (WH)	553-33951
TCGT39-13YE	39.0	13.0	1.25	10 m	Yellow (YE)	553-33950

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available. More colours on request.



For product specific approvals and specifications please refer to the Appendix.





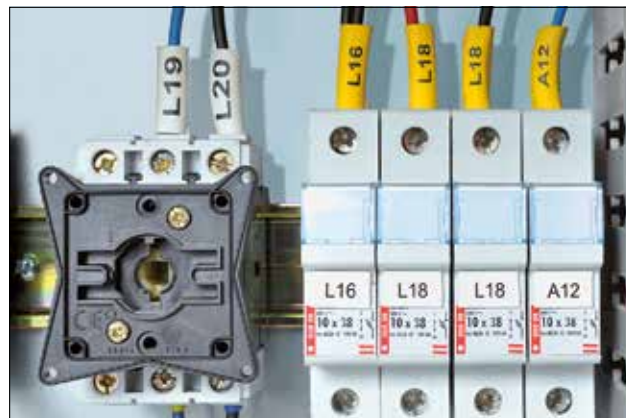
## Shrinkable markers "Continuous Tube", thermal transfer

### TULT - 3:1 Military and Electronics

TULT is a UL recognized 3:1 heat shrink marker material supplied as a continuous tube and printable on both sides. TULT's polyolefin compound has good mechanical strength and resistance to organic solvents and chemicals. The surface of the tubing has been especially prepared so that print performance is excellent at all times. HellermannTyton's printer range allow users to create a high quality print. In addition it is possible to either perforate the tubing at pre-determined lengths or fully sever the markers.

#### Features and benefits

- Shrink ratio 3:1
- Available in black, blue, red, white and yellow
- Cable range from 39 mm to 1 mm
- Good mechanical strength and resistance to organic solvents and chemicals
- Highly flexible
- Delivery in convenient storage boxes



TULT – 5 colours of UL recognised printable tube to cover a wide range of diameters.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Min. Shrink Temperature</b>	+90 °C
<b>Shrink Ratio</b>	3:1
<b>Recommended Ribbon Type</b>	TTRC+, TTDTHOUT, TTRW, TT822OUT8
<b>Thermal Transfer Printer</b>	TT430, TT4030, TRAKMARK DS

RoHS



For size matrix please refer to page 475.

TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Pack Cont.	Colour	Article-No.
TULT3-1BK	3.0	1.0	0.60	176 m	Black (BK)	553-40352
TULT3-1BU	3.0	1.0	0.60	176 m	Blue (BU)	553-40353
TULT3-1RD	3.0	1.0	0.60	176 m	Red (RD)	553-40354
TULT3-1WH	3.0	1.0	0.60	176 m	White (WH)	553-40351
TULT3-1YE	3.0	1.0	0.60	176 m	Yellow (YE)	553-40350
TULT4.8-1.6BK	4.8	1.6	0.65	110 m	Black (BK)	553-40452
TULT4.8-1.6BU	4.8	1.6	0.65	110 m	Blue (BU)	553-40453
TULT4.8-1.6RD	4.8	1.6	0.65	110 m	Red (RD)	553-40454
TULT4.8-1.6WH	4.8	1.6	0.65	110 m	White (WH)	553-40451
TULT4.8-1.6YE	4.8	1.6	0.65	110 m	Yellow (YE)	553-40450
TULT6-2BK	6.0	2.0	0.70	110 m	Black (BK)	553-40652
TULT6-2BU	6.0	2.0	0.70	110 m	Blue (BU)	553-40653
TULT6-2RD	6.0	2.0	0.70	110 m	Red (RD)	553-40654
TULT6-2WH	6.0	2.0	0.70	110 m	White (WH)	553-40651
TULT6-2YE	6.0	2.0	0.70	110 m	Yellow (YE)	553-40650
TULT9-3BK	9.0	3.0	0.80	72 m	Black (BK)	553-40952

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. More colours on request.



For product specific approvals and specifications please refer to the Appendix.

### Shrinkable markers "Continuous Tube", thermal transfer

TULT - 3:1 Military and Electronics

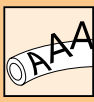


TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Pack Cont.	Colour	Article-No.
TULT9-3BU	9.0	3.0	0.80	72 m	Blue (BU)	553-40953
TULT9-3RD	9.0	3.0	0.80	72 m	Red (RD)	553-40954
TULT9-3WH	9.0	3.0	0.80	72 m	White (WH)	553-40951
TULT9-3YE	9.0	3.0	0.80	72 m	Yellow (YE)	553-40950
TULT12-4BK	12.0	4.0	0.85	54 m	Black (BK)	553-41252
TULT12-4BU	12.0	4.0	0.85	54 m	Blue (BU)	553-41253
TULT12-4RD	12.0	4.0	0.85	54 m	Red (RD)	553-41254
TULT12-4WH	12.0	4.0	0.85	54 m	White (WH)	553-41251
TULT12-4YE	12.0	4.0	0.85	54 m	Yellow (YE)	553-41250
TULT18-6BK	18.0	6.0	1.00	26 m	Black (BK)	553-41852
TULT18-6BU	18.0	6.0	1.00	26 m	Blue (BU)	553-41853
TULT18-6RD	18.0	6.0	1.00	26 m	Red (RD)	553-41854
TULT18-6WH	18.0	6.0	1.00	26 m	White (WH)	553-41851
TULT18-6YE	18.0	6.0	1.00	26 m	Yellow (YE)	553-41850
TULT24-8BK	24.0	8.0	1.20	26 m	Black (BK)	553-42452
TULT24-8BU	24.0	8.0	1.20	26 m	Blue (BU)	553-42453
TULT24-8RD	24.0	8.0	1.20	26 m	Red (RD)	553-42454
TULT24-8WH	24.0	8.0	1.20	26 m	White (WH)	553-42451
TULT24-8YE	24.0	8.0	1.20	26 m	Yellow (YE)	553-42450
TULT39-13BK	39.0	13.0	1.25	10 m	Black (BK)	553-43952
TULT39-13BU	39.0	13.0	1.25	10 m	Blue (BU)	553-43953
TULT39-13RD	39.0	13.0	1.25	10 m	Red (RD)	553-43954
TULT39-13WH	39.0	13.0	1.25	10 m	White (WH)	553-43951
TULT39-13YE	39.0	13.0	1.25	10 m	Yellow (YE)	553-43950

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. More colours on request.



For product specific approvals and specifications please refer to the Appendix.



### Shrinkable markers "Ladder Style", thermal transfer

#### TULT DS - 3:1 Military and Electronics

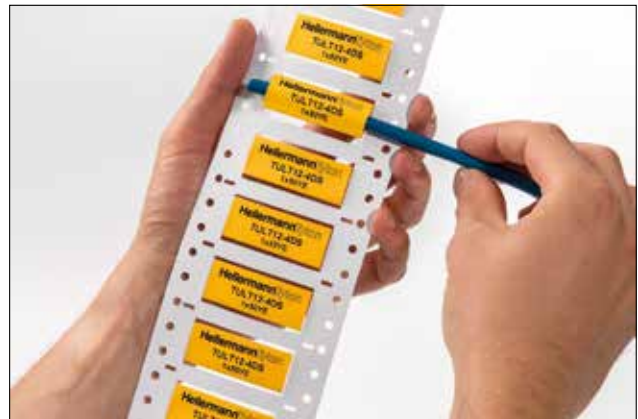
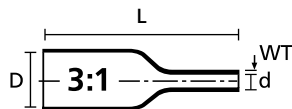
TULT DS is a UL recognised 3:1 heat shrink marker material pre-cut and formatted into a convenient "ladder" system. This pre-cut format not only allows printing on both sides of the marker but the user can also easily choose and pick each required marker. TULT's polyolefin compound has good mechanical strength and resistance to organic solvents and chemicals. The surface of the tubing has been especially prepared so that print performance is excellent at all times using HellermannTyton's printer range.

#### Features and benefits

- Shrink ratio 3:1
- 50 mm, 25 mm and 16 mm pre-cut marker options as standard, other lengths available on request
- Available in white or yellow
- Good mechanical strength and resistance to organic solvents and chemicals
- Highly flexible
- Delivery in convenient storage boxes



One Step to the Web!



Shrinkable markers TULT DS for military and electronics industry.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Min. Shrink Temperature</b>	+90 °C
<b>Shrink Ratio</b>	3:1
<b>Recommended Ribbon Type</b>	TTDTHOUT
<b>Thermal Transfer Printer</b>	TT430, TT4030, TRAKMARK DS



For size matrix please refer to page 475.

TYPE	Supplied Ø D min.	Recov. Ø d max.	Length (L)	Wall (WT)	Pack Cont.	Colour	Article-No.
TULT2.4-0.8DS-2x25WH	2.4	0.8	25.0	0.73	2,000 pcs.	White (WH)	553-71002
TULT2.4-0.8DS-2x25YE	2.4	0.8	25.0	0.73	2,000 pcs.	Yellow (YE)	553-71003
TULT2.4-0.8DS-1x50WH	2.4	0.8	50.0	0.73	1,000 pcs.	White (WH)	553-71000
TULT2.4-0.8DS-1x50YE	2.4	0.8	50.0	0.73	1,000 pcs.	Yellow (YE)	553-71001
TULT3-1DS-2x25WH	3.0	1.0	25.0	0.60	2,000 pcs.	White (WH)	553-71008
TULT3-1DS-2x25YE	3.0	1.0	25.0	0.60	2,000 pcs.	Yellow (YE)	553-71009
TULT3-1DS-1x50WH	3.0	1.0	50.0	0.60	1,000 pcs.	White (WH)	553-71006
TULT3-1DS-1x50YE	3.0	1.0	50.0	0.60	1,000 pcs.	Yellow (YE)	553-71007

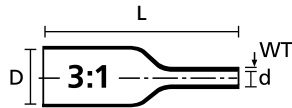
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.

### Shrinkable markers "Ladder Style", thermal transfer

**TULT DS - 3:1 Military and Electronics**

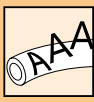


TYPE	Supplied Ø D min.	Recov. Ø d max.	Length (L)	Wall (WT)	Pack Cont.	Colour	Article-No.
TULT4.8-1.6DS-2x25WH	4.8	1.6	25.0	0.66	2,000 pcs.	White (WH)	553-71014
TULT4.8-1.6DS-2x25YE	4.8	1.6	25.0	0.66	2,000 pcs.	Yellow (YE)	553-71015
TULT4.8-1.6DS-1x50WH	4.8	1.6	50.0	0.66	1,000 pcs.	White (WH)	553-71012
TULT4.8-1.6DS-1x50YE	4.8	1.6	50.0	0.66	1,000 pcs.	Yellow (YE)	553-71013
TULT6-2DS-2x25WH	6.0	2.0	25.0	0.69	2,000 pcs.	White (WH)	553-71020
TULT6-2DS-2x25YE	6.0	2.0	25.0	0.69	2,000 pcs.	Yellow (YE)	553-71021
TULT6-2DS-1x50WH	6.0	2.0	50.0	0.69	1,000 pcs.	White (WH)	553-71018
TULT6-2DS-1x50YE	6.0	2.0	50.0	0.69	1,000 pcs.	Yellow (YE)	553-71019
TULT9-3DS-2x25WH	9.0	3.0	25.0	0.79	1,000 pcs.	White (WH)	553-71026
TULT9-3DS-2x25YE	9.0	3.0	25.0	0.79	1,000 pcs.	Yellow (YE)	553-71027
TULT9-3DS-1x50WH	9.0	3.0	50.0	0.79	500 pcs.	White (WH)	553-71024
TULT9-3DS-1x50YE	9.0	3.0	50.0	0.79	500 pcs.	Yellow (YE)	553-71025
TULT12-4DS-2x25WH	12.0	4.0	25.0	0.84	1,000 pcs.	White (WH)	553-71032
TULT12-4DS-2x25YE	12.0	4.0	25.0	0.84	1,000 pcs.	Yellow (YE)	553-71033
TULT12-4DS-1x50WH	12.0	4.0	50.0	0.84	500 pcs.	White (WH)	553-71030
TULT12-4DS-1x50YE	12.0	4.0	50.0	0.84	500 pcs.	Yellow (YE)	553-71031
TULT18-6DS-2x25WH	18.0	6.0	25.0	1.00	1,000 pcs.	White (WH)	553-71038
TULT18-6DS-2x25YE	18.0	6.0	25.0	1.00	1,000 pcs.	Yellow (YE)	553-71039
TULT18-6DS-1x50WH	18.0	6.0	50.0	1.00	500 pcs.	White (WH)	553-71036
TULT18-6DS-1x50YE	18.0	6.0	50.0	1.00	500 pcs.	Yellow (YE)	553-71037
TULT24-8DS-2x25WH	24.0	8.0	25.0	1.20	500 pcs.	White (WH)	553-71044
TULT24-8DS-2x25YE	24.0	8.0	25.0	1.20	500 pcs.	Yellow (YE)	553-71045
TULT24-8DS-1x50WH	24.0	8.0	50.0	1.20	250 pcs.	White (WH)	553-71042
TULT24-8DS-1x50YE	24.0	8.0	50.0	1.20	250 pcs.	Yellow (YE)	553-71043
TULT39-13DS-2x25WH	39.0	13.0	25.0	1.25	500 pcs.	White (WH)	553-71050
TULT39-13DS-2x25YE	39.0	13.0	25.0	1.25	500 pcs.	Yellow (YE)	553-71051
TULT39-13DS-1x50WH	39.0	13.0	50.0	1.25	250 pcs.	White (WH)	553-71048
TULT39-13DS-1x50YE	39.0	13.0	50.0	1.25	250 pcs.	Yellow (YE)	553-71049

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



### ShrinkTrak heat shrinkable markers, thermal transfer

#### HST - 3:1 Military and Electronics

HellermannTyton's ShrinkTrak heat shrinkable markers make it easy to mark wire, cable and other components. The military approved heat shrink tubing is flattened and assembled in a ladder style carrier system for easy printing using a thermal transfer printer. The ladder system creates a kit of markers that can be sorted, removed and applied in any order thus saving time, labor and speeding production

#### Features and benefits

- Slide Slit and optional center slits for easy wire insertion
- Smooth surface for clean and legible printing
- Supplied on a ladder style carrier so that markers can be kitted after printing
- A 3:1 shrink ratio means fewer skews as each marker covers a wider range of wire diameters

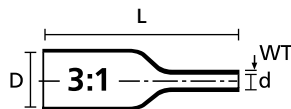


Shrinkable markers HST for military and electronics industry.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Min. Shrink Temperature</b>	+90 °C
<b>Shrink Ratio</b>	3:1
<b>Recommended Ribbon Type</b>	TTDTHOUT, TT822OUT
<b>Thermal Transfer Printer</b>	TT430, TT4030, TRAKMARK DS



One Step to the Web!



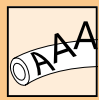
For size matrix please refer to page 475.

TYPE	Supplied Ø D min.	Recov. Ø d max.	Length (L)	Height (H)	Wall (WT)	Pack Cont.	Colour	Article-No.
HST3-1BK	3.0	1.1	48.0	5.97	0.53	250 pcs.	Black (BK)	553-50001
HST3-1WH	3.0	1.1	48.0	5.97	0.53	250 pcs.	White (WH)	553-50002
HST3-1YE	3.0	1.1	48.0	5.97	0.53	250 pcs	Yellow (YE)	553-50005
HST4.8-1.6BK	4.5	1.6	48.0	7.92	0.53	250 pcs	Black (BK)	553-50008
HST4.8-1.6WH	4.5	1.6	48.0	7.92	0.53	250 pcs	White (BK)	553-50009
HST4.8-1.6YE	4.5	1.6	48.0	7.92	0.53	250 pcs	Yellow (YE)	553-50012
HST6-2BK	6.0	2.2	48.0	10.67	0.71	250 pcs	Black (BK)	553-50015
HST6-2WH	6.0	2.2	48.0	10.67	0.71	250 pcs	White (WH)	553-50016
HST6-2YE	6.0	2.2	48.0	10.67	0.71	250 pcs	Yellow (YE)	553-50020

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

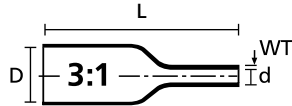


For product specific approvals and specifications please refer to the Appendix.



### ShrinkTrak heat shrinkable markers, thermal transfer

#### HST - 3:1 Military and Electronics

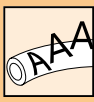


TYPE	Supplied Ø D min.	Recov. Ø d max.	Length (L)	Height (H)	Wall (WT)	Pack Cont.	Colour	Article-No.
HST9-3BK	9.0	3.1	48.0	15.16	0.79	250 pcs	Black (BK)	553-50023
HST9-3WH	9.0	3.1	48.0	15.16	0.79	250 pcs	White (WH)	553-50024
HST9-3YE	9.0	3.1	48.0	15.16	0.79	250 pcs	Yellow (YE)	553-50026
HST12-4BK	11.9	4.2	48.0	19.55	0.84	250 pcs	Black (BK)	553-50028
HST12-4WH	11.9	4.2	48.0	19.55	0.84	250 pcs	White (WH)	553-50029
HST12-4YE	11.9	4.2	48.0	19.55	0.84	250 pcs	Yellow (YE)	553-50031
HST18-6BK	18.6	6.35	48.0	30.48	0.91	250 pcs	Black (BK)	553-50033
HST18-6WH	18.6	6.35	48.0	30.48	0.91	250 pcs	White (WH)	553-50034
HST18-6BK	18.6	6.35	48.0	30.48	0.91	250 pcs	Yellow (YE)	553-50036
HST24-8BK	26.0	8.4	48.0	42.93	0.99	250 pcs	Black (BK)	553-50038
HST24-8WH	26.0	8.4	48.0	42.93	0.99	250 pcs	White (WH)	553-50039
HST24-8YE	26.0	8.4	48.0	42.93	0.99	250 pcs	Yellow (YE)	553-50041
HST39-13WH	38.1	13.0	48.0	57.40	1.01	150 pcs	White (WH)	553-50209
HST39-13YE	38.1	13.0	48.0	57.40	1.01	150 pcs	Yellow (YE)	553-50225

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



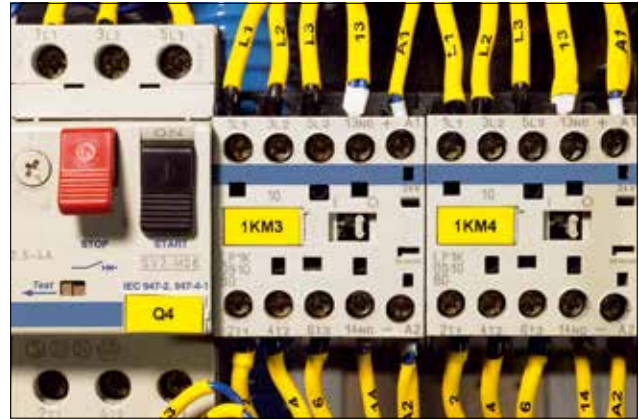
### Shrinkable markers "Continuous Tube", thermal transfer

#### TLFX - 2:1 Rail Limited Fire Hazard

TLFX is a halogen free European rail approved 2:1 heat shrink marker material supplied as a continuous tube and printable on both sides. Special material properties show low smoke propagation, density and toxicity. The tubing has been especially prepared so that print performance is excellent at all times. HellermannTyton's printer range allow users to create a high quality print. In addition it is possible to either perforate the tubing at pre-determined lengths or fully sever the markers.

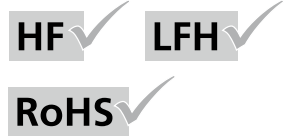
#### Features and benefits

- Shrink ratio 2:1
- Halogen Free
- Low smoke propagation, density and toxicity
- High Oxygen Index value (36.5 %)
- Available in yellow or white
- Cable range 50.8 mm to 1.2 mm
- Delivery in convenient storage boxes



TLFX- high performance halogen free heatshrink tubing.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-55 °C to +105 °C
<b>Min. Shrink Temperature</b>	+100 °C
<b>Shrink Ratio</b>	2:1
<b>Recommended Ribbon Type</b>	TTDTHOUT
<b>Thermal Transfer Printer</b>	TT430, TT4030, TRAKMARK DS



TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Pack Cont.	Colour	Article-No.
TLFX24WH	2.4	1.2	0.57	144 m	White (WH)	554-51000
TLFX24YE	2.4	1.2	0.57	144 m	Yellow (YE)	554-51001
TLFX32WH	3.2	1.6	0.58	126 m	White (WH)	554-51100
TLFX32YE	3.2	1.6	0.58	126 m	Yellow (YE)	554-51101
TLFX48WH	4.8	2.4	0.61	108 m	White (WH)	554-51200
TLFX48YE	4.8	2.4	0.61	108 m	Yellow (YE)	554-51201

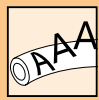
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

EN 45545-2

NF F

For product specific approvals and specifications please refer to the Appendix.





### Shrinkable markers "Continuous Tube", thermal transfer

TLFX - 2:1 Rail Limited Fire Hazard



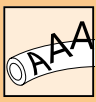
TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Pack Cont.	Colour	Article-No.
TLFX64WH	6.4	3.2	0.61	90 m	White (WH)	554-51300
TLFX64YE	6.4	3.2	0.61	90 m	Yellow (YE)	554-51301
TLFX95WH	9.5	4.8	0.66	72 m	White (WH)	554-51400
TLFX95YE	9.5	4.8	0.66	72 m	Yellow (YE)	554-51401
TLFX127WH	12.7	6.4	0.68	54 m	White (WH)	554-51500
TLFX127YE	12.7	6.4	0.68	54 m	Yellow (YE)	554-51501
TLFX190WH	19.0	9.5	0.69	30 m	White (WH)	554-51600
TLFX190YE	19.0	9.5	0.69	30 m	Yellow (YE)	554-51601
TLFX254WH	25.4	12.7	0.69	30 m	White (WH)	554-51700
TLFX254YE	25.4	12.7	0.69	30 m	Yellow (YE)	554-51701
TLFX381WH	38.1	19.0	0.70	13 m	White (WH)	554-51800
TLFX381YE	38.1	19.0	0.70	13 m	Yellow (YE)	554-51801
TLFX508WH	50.8	25.4	0.73	10 m	White (WH)	554-50900
TLFX508YE	50.8	25.4	0.73	10 m	Yellow (YE)	554-50901

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

**EN 45545-2**

**NF F**

For product specific approvals and specifications please refer to the Appendix.



### Shrinkable markers "Ladder Style", thermal transfer

#### TLFX DS - 2:1 Rail Limited Fire Hazard

TLFX DS is a halogen free European rail approved 2:1 heat shrink marker material supplied pre-cut and formatted into a convenient "ladder" system. Special material properties show low smoke propagation, density and toxicity. This pre-cut format not only allows printing on both sides of the marker but the user can also easily choose and pick each required marker. Special material properties show low smoke propagation, density and toxicity. The tubing has been especially prepared so that the print performance is excellent at all times using HellermannTyton's printer range.

#### Features and benefits

- Shrink ratio 2:1
- Halogen Free
- Low smoke propagation, density and toxicity
- High Oxygen Index value (35.4%)
- 50 mm, 25 mm and 16 mm pre-cut marker options as standard, other lengths available on request
- Available in yellow or white
- Cable range 38.1 mm to 1.2 mm
- Delivery in convenient storage boxes

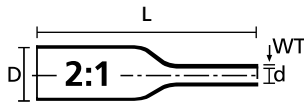
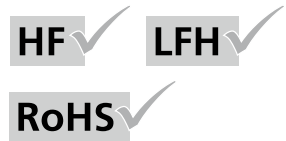


Shrinkable rail approved markers TLFX DS.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-55 °C to +105 °C
<b>Min. Shrink Temperature</b>	+100 °C
<b>Shrink Ratio</b>	2:1
<b>Recommended Ribbon Type</b>	TTDTHOUT
<b>Thermal Transfer Printer</b>	TT430, TT4030, TRAKMARK DS



One Step to the Web!



For size matrix please refer to page 475.

TYPE	Supplied Ø D min.	Recov. Ø d max.	Length (L)	Wall (WT)	Pack Cont.	Colour	Article-No.
TLFX24DS-2x25WH	2.4	1.2	25.0	0.52	10,000 pcs.	White (WH)	553-60020
TLFX24DS-2x25YE	2.4	1.2	25.0	0.52	10,000 pcs.	Yellow (YE)	553-60029
TLFX24DS-1x50WH	2.4	1.2	50.0	0.52	5,000 pcs.	White (WH)	553-60000
TLFX24DS-1x50YE	2.4	1.2	50.0	0.52	5,000 pcs.	Yellow (YE)	553-60010
TLFX32DS-2x25WH	3.2	1.6	25.0	0.64	10,000 pcs.	White (WH)	553-60021
TLFX32DS-2x25YE	3.2	1.6	25.0	0.64	10,000 pcs.	Yellow (YE)	553-60030
TLFX32DS-1x50WH	3.2	1.6	50.0	0.64	5,000 pcs.	White (WH)	553-60001
TLFX32DS-1x50YE	3.2	1.6	50.0	0.64	5,000 pcs.	Yellow (YE)	553-60011
TLFX48DS-2x25WH	4.8	2.4	25.0	0.64	10,000 pcs.	White (WH)	553-60022
TLFX48DS-2x25YE	4.8	2.4	25.0	0.64	10,000 pcs.	Yellow (YE)	553-60031
TLFX48DS-1x50WH	4.8	2.4	50.0	0.64	5,000 pcs.	White (WH)	553-60002

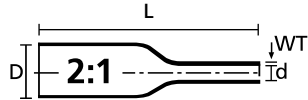
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.

### Shrinkable markers "Ladder Style", thermal transfer

TLFX DS - 2:1 Rail Limited Fire Hazard



TYPE	Supplied Ø D min.	Recov. Ø d max.	Length (L)	Wall (WT)	Pack Cont.	Colour	Article-No.
TLFX48DS-1x50YE	4.8	2.4	50.0	0.64	5,000 pcs.	Yellow (YE)	553-60012
TLFX64DS-2x25WH	6.4	3.2	25.0	0.73	6,000 pcs.	White (WH)	553-60023
TLFX64DS-2x25YE	6.4	3.2	25.0	0.73	6,000 pcs.	Yellow (YE)	553-60032
TLFX64DS-1x50WH	6.4	3.2	50.0	0.73	3,000 pcs.	White (WH)	553-60003
TLFX64DS-1x50YE	6.4	3.2	50.0	0.73	3,000 pcs.	Yellow (YE)	553-60013
TLFX95DS-2x25WH	9.5	4.8	25.0	0.70	5,000 pcs.	White (WH)	553-60024
TLFX95DS-2x25YE	9.5	4.8	25.0	0.70	5,000 pcs.	Yellow (YE)	553-60033
TLFX95DS-1x50WH	9.5	4.8	50.0	0.70	2,500 pcs.	White (WH)	553-60004
TLFX95DS-1x50YE	9.5	4.8	50.0	0.70	2,500 pcs.	Yellow (YE)	553-60014
TLFX127DS-2x25WH	12.7	6.4	25.0	0.70	3,000 pcs.	White (WH)	553-60025
TLFX127DS-2x25YE	12.7	6.4	25.0	0.70	3,000 pcs.	Yellow (YE)	553-60034
TLFX127DS-1x50WH	12.7	6.4	50.0	0.70	1,500 pcs.	White (WH)	553-60005
TLFX127DS-1x50YE	12.7	6.4	50.0	0.70	1,500 pcs.	Yellow (YE)	553-60015
TLFX190DS-2x25WH	19.0	9.5	25.0	0.78	3,000 pcs.	White (WH)	553-60026
TLFX190DS-2x25YE	19.0	9.5	25.0	0.78	3,000 pcs.	Yellow (YE)	553-60035
TLFX190DS-1x50WH	19.0	9.5	50.0	0.78	1,500 pcs.	White (WH)	553-60006
TLFX190DS-1x50YE	19.0	9.5	50.0	0.78	1,500 pcs.	Yellow (YE)	553-60016
TLFX254DS-2x25WH	25.4	12.7	25.0	0.93	2,000 pcs.	White (WH)	553-60027
TLFX254DS-2x25YE	25.4	12.7	25.0	0.93	2,000 pcs.	Yellow (YE)	553-60036
TLFX254DS-1x50WH	25.4	12.7	50.0	0.93	1,000 pcs.	White (WH)	553-60007
TLFX254DS-1x50YE	25.4	12.7	50.0	0.93	1,000 pcs.	Yellow (YE)	553-60017
TLFX381DS-2x25WH	38.1	19.1	25.0	0.98	1,000 pcs.	White (WH)	553-60028
TLFX381DS-2x25YE	38.1	19.1	25.0	0.98	1,000 pcs.	Yellow (YE)	553-60037
TLFX381DS-1x50WH	38.1	19.1	50.0	0.98	500 pcs.	White (WH)	553-60008
TLFX381DS-1x50YE	38.1	19.1	50.0	0.98	500 pcs.	Yellow (YE)	553-60018

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

**EN 45545-2** **ASTM** **NF F** **UNI CEI**

For product specific approvals and specifications please refer to the Appendix.



## Shrinkable markers "Continuous Tube", thermal transfer

### TDRT - 2:1 Rail Diesel Resistant

TDRT is a diesel resistant 2:1 heat shrink material which is rail approved. It is supplied as a continuous tube and printable on both sides.

The TDRT material is ideal where resistance to diesel, organic fluids, common fuels, lubricants and solvents properties are required, e.g. in mass transit, aerospace, marine and industrial installations. The tubing has been especially prepared so that the print performance is excellent at all times using HellermannTyton's printer range. In addition it is possible to either perforate the tubing at pre-determined lengths or fully sever the markers.

The material is also especially formulated to be printable with laser beam printers.

### Features and benefits

- Shrink ratio 2:1
- Resistant to diesel and common fluids
- Available in yellow as standard and white on request
- Delivery in convenient storage boxes



Certified diesel resistant heatshrink markers TDRT.

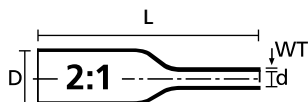
<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Min. Shrink Temperature</b>	+120 °C
<b>Shrink Ratio</b>	2:1
<b>Recommended Ribbon Type</b>	TTDTHOUT
<b>Thermal Transfer Printer</b>	TT430, TT4030, TRAKMARK DS



For size matrix please refer to page 475.

LFH ✓

RoHS ✓

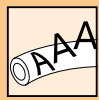


TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Pack Cont.	Colour	Article-No.
TDRT2.4YE	2.8	1.2	0.49	110 m	Yellow (YE)	553-62020
TDRT3.2YE	3.6	1.6	0.51	110 m	Yellow (YE)	553-62021
TDRT4.8YE	5.3	2.4	0.54	110 m	Yellow (YE)	553-62022
TDRT6.4YE	6.9	3.2	0.56	110 m	Yellow (YE)	553-62023
TDRT9.5YE	10.2	4.8	0.59	72 m	Yellow (YE)	553-62024
TDRT12YE	13.5	6.4	0.60	54 m	Yellow (YE)	553-62030
TDRT18YE	20.1	9.5	0.62	26 m	Yellow (YE)	553-62031
TDRT25YE	26.7	12.7	0.63	26 m	Yellow (YE)	553-62032
TDRT38YE	39.8	19.1	0.64	13 m	Yellow (YE)	553-62033
TDRT51YE	53.8	25.4	0.64	10 m	Yellow (YE)	553-62034

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

NF F EN 50343 App. H

For product specific approvals and specifications please refer to the Appendix.



### Shrinkable markers "Ladder Style", thermal transfer

#### TDRT DS - 2:1 Rail Diesel Resistant

TDRT DS is a diesel resistant 2:1 heat shrink material which is rail approved. The material is pre-cut and formatted into a convenient "ladder" system that allows printing on both sides of the marker.

The TDRT DS material is ideal where resistance to diesel, organic fluids, common fuels, lubricants and solvents properties are required, e.g. in mass transit, aerospace, marine and industrial installations. This pre-cut format not only allows printing on both sides of the marker but the user can also easily choose and pick each required marker. The tubing has been especially prepared so that the print performance is excellent at all times using HellermannTyton's printer range.

The material is also especially formulated to be printable with laser beam printers.

#### Features and benefits

- Shrink ratio 2:1
- Resistant to diesel and common fluids
- 50 mm and 25 mm lengths are standard, other lengths available on request
- Available in yellow as standard and white on request
- Delivery in convenient storage boxes



Shrinkable rail diesel resistant markers TDRT DS.

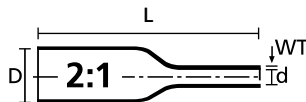
<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Min. Shrink Temperature</b>	+120 °C
<b>Shrink Ratio</b>	2:1
<b>Recommended Ribbon Type</b>	TTDTHOUT
<b>Thermal Transfer Printer</b>	TT430, TT4030, TRAKMARK DS

LFH ✓

RoHS ✓



For size matrix please refer to page 475.



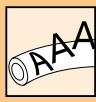
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TYPE	Supplied Ø D min.	Recov. Ø d max.	Length (L)	Wall (WT)	Pack Cont.	Colour	Article-No.
TDRT2.4DS-2X25YE	2.8	1.2	25.0	0.49	10,000 pcs.	Yellow (YE)	553-70101
TDRT2.4DS-1X50YE	2.8	1.2	50.0	0.49	5,000 pcs.	Yellow (YE)	553-70100
TDRT3.2DS-2X25YE	3.6	1.6	25.0	0.51	10,000 pcs.	Yellow (YE)	553-70103
TDRT3.2DS-1X50YE	3.6	1.6	50.0	0.51	5,000 pcs.	Yellow (YE)	553-70102
TDRT4.8DS-2X25YE	5.3	2.4	25.0	0.54	10,000 pcs.	Yellow (YE)	553-70105
TDRT4.8DS-1X50YE	5.3	2.4	50.0	0.54	5,000 pcs.	Yellow (YE)	553-70104
TDRT6.4DS-2X25YE	6.9	3.2	25.0	0.56	6,000 pcs.	Yellow (YE)	553-70107
TDRT6.4DS-1X50YE	6.9	3.2	50.0	0.56	3,000 pcs.	Yellow (YE)	553-70106
TDRT9.5DS-2X25YE	10.2	4.8	25.0	0.59	5,000 pcs.	Yellow (YE)	553-70109
TDRT9.5DS-1X50YE	10.2	4.8	50.0	0.59	2,500 pcs.	Yellow (YE)	553-70108

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

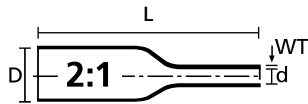
**NF F** **EN 50343 App. H**

For product specific approvals and specifications please refer to the Appendix.



### Shrinkable markers "Ladder Style", thermal transfer

**TDRT DS - 2:1 Rail Diesel Resistant**

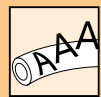


TYPE	Supplied Ø D min.	Recov. Ø d max.	Length (L)	Wall (WT)	Pack Cont.	Colour	Article-No.
TDRT12DS-2X25YE	13.5	6.4	25.0	0.60	3,000 pcs.	Yellow (YE)	553-70111
TDRT12DS-1X50YE	13.5	6.4	50.0	0.60	1,500 pcs.	Yellow (YE)	553-70110
TDRT18DS-2X25YE	20.1	9.5	25.0	0.62	3,000 pcs.	Yellow (YE)	553-70113
TDRT18DS-1X50YE	20.1	9.5	50.0	0.62	1,500 pcs.	Yellow (YE)	553-70112
TDRT25DS-2X25YE	26.7	12.7	25.0	0.63	2,000 pcs.	Yellow (YE)	553-70115
TDRT25DS-1X50YE	26.7	12.7	50.0	0.63	1,000 pcs.	Yellow (YE)	553-70114
TDRT38DS-2X25YE	39.8	19.1	25.0	0.64	1,000 pcs.	Yellow (YE)	553-70117
TDRT38DS-1X50YE	39.8	19.1	50.0	0.64	500 pcs.	Yellow (YE)	553-70116
TDRT51DS-2X25YE	53.8	25.4	25.0	0.64	1,000 pcs.	Yellow (YE)	553-70119
TDRT51DS-1X50YE	53.8	25.4	50.0	0.64	500 pcs.	Yellow (YE)	553-70118

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

**NF F** **EN 50343 App. H**

For product specific approvals and specifications please refer to the Appendix.



### Shrinkable markers: "Ladder Style", thermal transfer

#### TLFD DS- 2:1 Rail Limited Fire Hazard, fluid resistant

TLFD DS is an innovative 2:1 heat shrink marker which is halogen free, low fire hazard and fluid resistant. This rail and EN approved material is supplied pre-cut and formatted into a convenient "ladder" system.

The TLFD DS marker's material properties are ideal for applications where fire protection is of great importance. TLFD DS shows low smoke propagation, density and toxicity and is also ideal for applications where resistance to organic fluids, common fuels, lubricants and solvents properties are required.

The pre-cut format not only allows printing on both sides of the marker but the user can also easily choose and pick each required marker. The tubing has been especially prepared so that the print performance is excellent at all times using HellermannTyton's printer range.

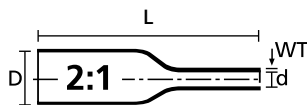
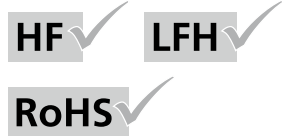
#### Features and benefits

- Shrink ratio 2:1
- Halogen free and fluid resistant
- Low smoke propagation and toxicity
- Fluid resistant
- "Ladder Style" format for ease of use
- Available in yellow and white
- 50 mm and 25 mm pre-cut markers as standard



TLFD DS shrinkable markers – Halogen-free and fluid resistant.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-55 °C to +125 °C
<b>Min. Shrink Temperature</b>	+120 °C
<b>Shrink Ratio</b>	2:1
<b>Recommended Ribbon Type</b>	TTDTHOUT
<b>Thermal Transfer Printer</b>	TT430, TT4030, TRAKMARK DS



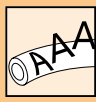
TYPE	Supplied Ø D min.	Recov. Ø d max.	Length (L)	Wall (WT)	Pack Cont.	Colour	Article-No.
TLFD24DS-2X25WH	2.4	1.2	25.0	0.49	10,000 pcs.	White (WH)	533-65001
TLFD24DS-2X25YE	2.4	1.2	25.0	0.49	10,000 pcs.	Yellow (YE)	533-65019
TLFD24DS-1X50WH	2.4	1.2	50.0	0.49	5,000 pcs.	White (WH)	533-65000
TLFD24DS-1X50YE	2.4	1.2	50.0	0.49	5,000 pcs.	Yellow (YE)	533-65018
TLFD32DS-2X25WH	3.2	1.6	25.0	0.51	10,000 pcs.	White (WH)	533-65003
TLFD32DS-2X25YE	3.2	1.6	25.0	0.51	10,000 pcs.	Yellow (YE)	533-65021
TLFD32DS-1X50WH	3.2	1.6	50.0	0.51	5,000 pcs.	White (WH)	533-65002
TLFD32DS-1X50YE	3.2	1.6	50.0	0.51	5,000 pcs.	Yellow (YE)	533-65020
TLFD48DS-2X25WH	4.8	2.4	25.0	0.54	10,000 pcs.	White (WH)	533-65005
TLFD48DS-2X25YE	4.8	2.4	25.0	0.54	10,000 pcs.	Yellow (YE)	533-65023
TLFD48DS-1X50WH	4.8	2.4	50.0	0.54	5,000 pcs.	White (WH)	533-65004
TLFD48DS-1X50YE	4.8	2.4	50.0	0.54	5,000 pcs.	Yellow (YE)	533-65022
TLFD64DS-2X25WH	6.4	3.2	25.0	0.56	6,000 pcs.	White (WH)	533-65007
TLFD64DS-2X25YE	6.4	3.2	25.0	0.56	6,000 pcs.	Yellow (YE)	533-65025
TLFD64DS-1X50WH	6.4	3.2	50.0	0.56	3,000 pcs.	White (WH)	533-65006
TLFD64DS-1X50YE	6.4	3.2	50.0	0.56	3,000 pcs.	Yellow (YE)	533-65024
TLFD95DS-2X25WH	9.5	4.8	25.0	0.59	5,000 pcs.	White (WH)	533-65009

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

**EN 45545-2** **EN 50343 App. H**

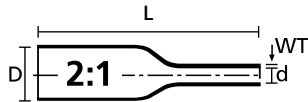
For product specific approvals and specifications please refer to the Appendix.





### Shrinkable markers: "Ladder Style", thermal transfer

**TLFD DS- 2:1 Rail Limited Fire Hazard, fluid resistant**



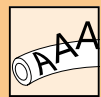
TYPE	Supplied Ø D min.	Recov. Ø d max.	Length (L)	Wall (WT)	Pack Cont.	Colour	Article-No.
TLFD95DS-2X25YE	9.5	4.8	25.0	0.59	5,000 pcs.	Yellow (YE)	533-65027
TLFD95DS-1X50WH	9.5	4.8	50.0	0.59	2,500 pcs.	White (WH)	533-65008
TLFD95DS-1X50YE	9.5	4.8	50.0	0.59	2,500 pcs.	Yellow (YE)	533-65026
TLFD127DS-2X25WH	12.7	6.4	25.0	0.60	3,000 pcs.	White (WH)	533-65011
TLFD127DS-2X25YE	12.7	6.4	25.0	0.60	3,000 pcs.	Yellow (YE)	533-65029
TLFD127DS-1X50WH	12.7	6.4	50.0	0.60	1,500 pcs.	White (WH)	533-65010
TLFD127DS-1X50YE	12.7	6.4	50.0	0.60	1,500 pcs.	Yellow (YE)	533-65028
TLFD190DS-2X25WH	19.0	9.5	25.0	0.62	3,000 pcs.	White (WH)	533-65013
TLFD190DS-2X25YE	19.0	9.5	25.0	0.62	3,000 pcs.	Yellow (YE)	533-65031
TLFD190DS-1X50WH	19.0	9.5	50.0	0.62	1,500 pcs.	White (WH)	533-65012
TLFD190DS-1X50YE	19.0	9.5	50.0	0.62	1,500 pcs.	Yellow (YE)	533-65030
TLFD254DS-2X25WH	25.4	12.7	25.0	0.63	2,000 pcs.	White (WH)	533-65015
TLFD254DS-2X25YE	25.4	12.7	25.0	0.63	2,000 pcs.	Yellow (YE)	533-65033
TLFD254DS-1X50WH	25.4	12.7	50.0	0.63	1,000 pcs.	White (WH)	533-65014
TLFD254DS-1X50YE	25.4	12.7	50.0	0.63	1,000 pcs.	Yellow (YE)	533-65032
TLFD381DS-2X25WH	38.1	19.1	25.0	0.64	1,000 pcs.	White (WH)	533-65017
TLFD381DS-2X25YE	38.1	19.1	25.0	0.64	1,000 pcs.	Yellow (YE)	533-65035
TLFD381DS-1X50WH	38.1	19.1	50.0	0.64	500 pcs.	White (WH)	533-65016
TLFD381DS-1X50YE	38.1	19.1	50.0	0.64	500 pcs.	Yellow (YE)	533-65034

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

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For product specific approvals and specifications please refer to the Appendix.



### Shrinkable markers "Continuous Tube", thermal transfer

#### THTT - 2:1 Aerospace High Temperature

THTT is a 2:1 high temperature, flame retardant heat shrink marker supplied in continuous tube and on convenient reels that allows printing on both sides if required. The printed marker is ideal for use in applications where high temperature and exposure to aggressive solutions are found. The tubing has been especially prepared so that the print performance is excellent at all times using HellermannTyton's printer range. A standard heat gun with reflector is used to shrink the sleeves onto the wire or cable to achieve a permanent mark. In addition it is possible to either perforate the tubing at pre-determined lengths or fully sever the markers.

The material is also especially formulated to be printable with laser beam printers.

#### Features and benefits

- Shrink ratio 2:1
- PVDFX high temperature tube
- Thermal transfer or laser beam printable
- Available in white and black as standard
- Good mechanical strength and highly flexible
- Delivery in convenient storage boxes



THTT - High temperature tube in black and white.

<b>MATERIAL</b>	Polyvinylidene Fluoride cross-linked (PVDFX)
<b>Operating Temperature</b>	-55 °C to +225 °C
<b>Min. Shrink Temperature</b>	+120 °C
<b>Shrink Ratio</b>	2:1
<b>Recommended Ribbon Type</b>	TTRHT
<b>Thermal Transfer Printer</b>	TT430, TT4030, TRAKMARK DS



For size matrix please refer to page 475.

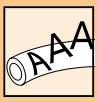


TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Pack Cont.	Colour	Article-No.
THTT24BK	2.4	1.2	0.41	110 m	Black (BK)	551-41109
THTT24WH	2.4	1.2	0.41	110 m	White (WH)	551-41100
THTT32BK	3.2	1.6	0.27	110 m	Black (BK)	551-41110
THTT32WH	3.2	1.6	0.27	110 m	White (WH)	551-41101
THTT48BK	4.8	2.4	0.27	110 m	Black (BK)	551-41111
THTT48WH	4.8	2.4	0.27	110 m	White (WH)	551-41102
THTT64BK	6.4	3.2	0.33	110 m	Black (BK)	551-41112
THTT64WH	6.4	3.2	0.33	110 m	White (WH)	551-41103
THTT95BK	9.5	4.8	0.33	72 m	Black (BK)	551-41113
THTT95WH	9.5	4.8	0.33	72 m	White (WH)	551-41104
THTT127BK	12.7	6.4	0.33	54 m	Black (BK)	551-41114

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



### Shrinkable markers "Continuous Tube", thermal transfer

**THTT - 2:1 Aerospace High Temperature**

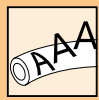


TYPE	Supplied Ø D min.	Recov. Ø d max.	Wall (WT)	Pack Cont.	Colour	Article-No.
THTT127WH	12.7	6.4	0.33	54 m	White (WH)	551-41105
THTT190BK	19.0	9.5	0.43	26 m	Black (BK)	551-41115
THTT190WH	19.0	9.5	0.43	26 m	White (WH)	551-41106
THTT254BK	25.4	12.7	0.48	26 m	Black (BK)	551-41116
THTT254WH	25.4	12.7	0.48	26 m	White (WH)	551-41107
THTT381BK	38.1	19.1	0.50	10 m	Black (BK)	551-41117
THTT381WH	38.1	19.1	0.50	10 m	White (WH)	551-41108

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



### Shrinkable markers "Ladder Style", thermal transfer

#### THTT DS - 2:1 Aerospace High Temperature

THTT is a 2:1 high temperature, flame retardant heat shrink marker. The material is pre-cut and formatted into a convenient "ladder" system that allows printing on both sides of the marker.

The printed marker is ideal for use in applications where high temperature and exposure to aggressive solutions are found. The pre-cut format not only allows printing on both sides of the marker but the user can also easily choose and pick each required marker. The tubing has been especially prepared so that the print performance is excellent at all times using HellermannTyton's printer range.

The material is also especially formulated to be printable with laser beam printers.

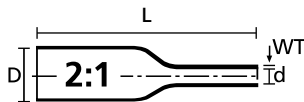
#### Features and benefits

- Shrink ratio 2:1
- PVDFX high temperature marker
- Thermal transfer or laser beam printable
- 50 mm and 25 mm pre-cut marker options as standard, other lengths available on request
- Available in black and white as standard
- Good mechanical strength and highly flexible
- Delivery in convenient storage boxes



THTT DS - High temperature heatshrink printable marker.

<b>MATERIAL</b>	Polyvinylidene Fluoride cross-linked (PVDFX)
<b>Operating Temperature</b>	-55 °C to +225 °C
<b>Min. Shrink Temperature</b>	+120 °C
<b>Shrink Ratio</b>	2:1
<b>Recommended Ribbon Type</b>	TTRHT
<b>Thermal Transfer Printer</b>	TT430, TT4030, TRAKMARK DS



For size matrix please refer to page 475.

TYPE	Supplied Ø D min.	Recov. Ø d max.	Length (L)	Wall (WT)	Pack Cont.	Colour	Article-No.
THTT24DS-2X25BK	2.4	1.2	25.0	0.41	2,000 pcs.	Black (BK)	553-72519
THTT24DS-2X25WH	2.4	1.2	25.0	0.41	2,000 pcs.	White (WH)	553-72501
THTT24DS-1X50BK	2.4	1.2	50.0	0.41	1,000 pcs.	Black (BK)	553-72518
THTT24DS-1X50WH	2.4	1.2	50.0	0.41	1,000 pcs.	White (WH)	553-72500
THTT32DS-2X25BK	3.2	1.6	25.0	0.27	2,000 pcs.	Black (BK)	553-72521
THTT32DS-2X25WH	3.2	1.6	25.0	0.27	2,000 pcs.	White (WH)	553-72503
THTT32DS-1X50BK	3.2	1.6	50.0	0.27	1,000 pcs.	Black (BK)	553-72520
THTT32DS-1X50WH	3.2	1.6	50.0	0.27	1,000 pcs.	White (WH)	553-72502

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

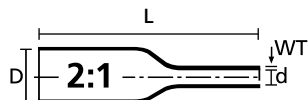


For product specific approvals and specifications please refer to the Appendix.



### Shrinkable markers "Ladder Style", thermal transfer

#### THTT DS - 2:1 Aerospace High Temperature



TYPE	Supplied Ø D min.	Recov. Ø d max.	Length (L)	Wall (WT)	Pack Cont.	Colour	Article-No.
THTT48DS-2X25BK	4.8	2.4	25.0	0.27	2,000 pcs.	Black (BK)	553-72523
THTT48DS-2X25WH	4.8	2.4	25.0	0.27	2,000 pcs.	White (WH)	553-72505
THTT48DS-1X50BK	4.8	2.4	50.0	0.27	1,000 pcs.	Black (BK)	553-72522
THTT48DS-1X50WH	4.8	2.4	50.0	0.27	1,000 pcs.	White (WH)	553-72504
THTT64DS-2X25BK	6.4	3.2	25.0	0.33	2,000 pcs.	Black (BK)	553-72525
THTT64DS-2X25WH	6.4	3.2	25.0	0.33	2,000 pcs.	White (WH)	553-72507
THTT64DS-1X50BK	6.4	3.2	50.0	0.33	1,000 pcs.	Black (BK)	553-72524
THTT64DS-1X50WH	6.4	3.2	50.0	0.33	1,000 pcs.	White (WH)	553-72506
THTT95DS-2X25BK	9.5	4.8	25.0	0.33	1,000 pcs.	Black (BK)	553-72527
THTT95DS-2X25WH	9.5	4.8	25.0	0.33	1,000 pcs.	White (WH)	553-72509
THTT95DS-1X50BK	9.5	4.8	50.0	0.33	500 pcs.	Black (BK)	553-72526
THTT95DS-1X50WH	9.5	4.8	50.0	0.33	500 pcs.	White (WH)	553-72508
THTT127DS-2X25BK	12.7	6.4	25.0	0.33	1,000 pcs.	Black (BK)	553-72529
THTT127DS-2X25WH	12.7	6.4	25.0	0.33	1,000 pcs.	White (WH)	553-72511
THTT127DS-1X50BK	12.7	6.4	50.0	0.33	500 pcs.	Black (BK)	553-72528
THTT127DS-1X50WH	12.7	6.4	50.0	0.33	500 pcs.	White (WH)	553-72510
THTT190DS-2X25BK	19.1	9.5	25.0	0.43	1,000 pcs.	Black (BK)	553-72531
THTT190DS-2X25WH	19.1	9.5	25.0	0.43	1,000 pcs.	White (WH)	553-72513
THTT190DS-1X50BK	19.1	9.5	50.0	0.43	500 pcs.	Black (BK)	553-72530
THTT190DS-1X50WH	19.1	9.5	50.0	0.43	500 pcs.	White (WH)	553-72512
THTT254DS-2X25BK	25.4	12.7	25.0	0.48	600 pcs.	Black (BK)	553-72533
THTT254DS-2X25WH	25.4	12.7	25.0	0.48	600 pcs.	White (WH)	553-72515
THTT254DS-1X50BK	25.4	12.7	50.0	0.48	300 pcs.	Black (BK)	553-72532
THTT254DS-1X50WH	25.4	12.7	50.0	0.48	300 pcs.	White (WH)	553-72514
THTT381DS-2X25BK	38.1	19.1	25.0	0.50	200 pcs.	Black (BK)	553-72535
THTT381DS-2X25WH	38.1	19.1	25.0	0.50	200 pcs.	White (WH)	553-72517
THTT381DS-1X50BK	38.1	19.1	50.0	0.50	100 pcs.	Black (BK)	553-72534
THTT381DS-1X50WH	38.1	19.1	50.0	0.50	100 pcs.	White (WH)	553-72516

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



### Identification tags for cable bundle, thermal transfer

#### TIPTAG HF- Rail Limited Fire Hazard, Halogen free

The Tiptag HF cable markers have designed to identify larger wires and cable bundles not only in the electronics and general cabling environments but also in the railway industry. Tiptag HF is halogen free and its material properties show low smoke propagation, density and toxicity. Tiptags are presented in a special perforated format which include fastening slots for cable ties. They are also suitable for retrofit purposes.

Print from the reel with HellermannTyton's premium range of thermal transfer printers and ribbons for optimum print quality and longevity.

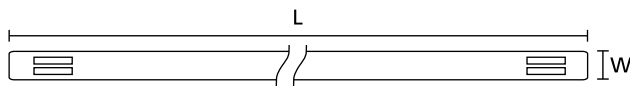
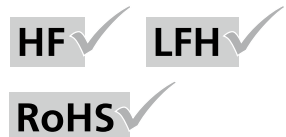
#### Features and benefits

- Ideal for marking larger wire and cable bundles
- Halogen free
- Low smoke propagation and toxicity
- Perforated format that includes fastening slots for cable ties
- Available in white, yellow, blue and red



TIPTAG - High performance cable bundle marking.

<b>MATERIAL</b>	Polyolefin (PO)
<b>Operating Temperature</b>	-40 °C to +90 °C
<b>Flammability</b>	Limited Fire Hazard, low generation of toxic gases and corrosive acid, low smoke generation, halogen free
<b>Recommended Ribbon Type</b>	TTDTHOUT
<b>Thermal Transfer Printer</b>	TT430, TT4030



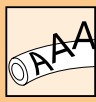
TYPE	Length (L)	Width (W)	Pack Cont.	Colour	Article-No.
TIPTAG11X65BU	65.0	11.0	190 pcs.	Blue (BU)	556-20066
TIPTAG11X65RD	65.0	11.0	190 pcs.	Red (RD)	556-20062
TIPTAG11X65WH	65.0	11.0	190 pcs.	White (WH)	556-20069
TIPTAG11X65YE	65.0	11.0	190 pcs.	Yellow (YE)	556-20064
TIPTAG15X65WH	65.0	15.0	190 pcs.	White (WH)	556-21069
TIPTAG15X65YE	65.0	15.0	190 pcs.	Yellow (YE)	556-21064
TIPTAG11X100BU	100.0	11.0	120 pcs.	Blue (BU)	556-20080
TIPTAG11X100RD	100.0	11.0	120 pcs.	Red (RD)	556-20091
TIPTAG11X100WH	100.0	11.0	120 pcs.	White (WH)	556-20079
TIPTAG11X100YE	100.0	11.0	120 pcs.	Yellow (YE)	556-20074
TIPTAG15X100RD	100.0	15.0	120 pcs.	Red (RD)	556-21096
TIPTAG15X100WH	100.0	15.0	120 pcs.	White (WH)	556-21079
TIPTAG15X100YE	100.0	15.0	120 pcs.	Yellow (YE)	556-21074

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available. More colours on request.

**EN 45545-2**

For product specific approvals and specifications please refer to the Appendix.



## Identification tags for cable bundle, thermal transfer

### TIPTAG - UV-stabilised Tiptags, Polyurethane

The Tiptag PU cable markers consist of a robust and flexible polyurethane material. It is especially suited for harsh environments where the material is exposed to chemical, fluids or abrasion. Tiptag PUs are presented in a special perforated format which include fastening slots for easy fitting with cable ties. They are also suitable for retrofit purposes.

Print from the reel with HellermannTyton's premium range of thermal transfer printers.

A special ribbon has been developed for Tiptag PU to create a "tattoo" effect so that the marking cannot be rubbed off and is particularly durable and resistant to harsh abrasion.

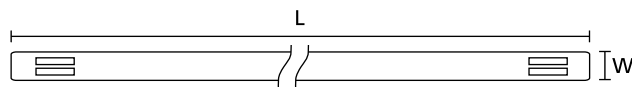
#### Features and benefits

- Durable and robust polyurethane material
- For large cable bundles and wires
- Flame retardant
- Weather resistant
- Abrasion resistant
- Good resistance to chemicals
- Available in white and yellow as standard
- Perforated format with fastening slots for cable ties



TIPTAG PU - The printed mark has a tattoo-like permanency.

<b>MATERIAL</b>	Polyurethane resin DS (PUR DS)
<b>Operating Temperature</b>	-65 °C to +120 °C, intermittent +150 °C
<b>Flammability</b>	self-extinguishing, UL 94 V0 (3mm)
<b>Recommended Ribbon Type</b>	TTRC+
<b>Thermal Transfer Printer</b>	TT430, TT4030

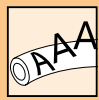


TYPE	Length (L)	Width (W)	Pack Cont.	Colour	Article-No.
TTAGPU11X65WH	65.0	11.0	190 pcs.	White (WH)	556-25012
TTAGPU11X65YE	65.0	11.0	190 pcs.	Yellow (YE)	556-25019
TTAGPU15X65WH	65.0	15.0	190 pcs.	White (WH)	556-25007
TTAGPU15X65YE	65.0	15.0	190 pcs.	Yellow (YE)	556-25011
TTAGPU11X100WH	100.0	11.0	125 pcs.	White (WH)	556-25021
TTAGPU11X100YE	100.0	11.0	125 pcs.	Yellow (YE)	556-25020
TTAGPU15X100WH	100.0	15.0	125 pcs.	White (WH)	556-25006
TTAGPU15X100YE	100.0	15.0	125 pcs.	Yellow (YE)	556-25010

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available. More colours on request.





### Identification tags for cable bundles, thermal transfer

#### TIPTAG MC - Metal content

The Tiptag MC cable markers have been especially designed for applications where materials need to be metal detectable. Small metal particles have been included into the entire length of the marker making it ideal for marking larger cables, wires and bundles in the food and pharmaceutical industries. Tiptag MCs come in a special perforated format that includes holes for fastening with cables ties (MCT).

Print from the reel with HellermannTyton's premium range of thermal transfer printers.

#### Features and benefits

- Metal detectable
- For marking larger cables in food and pharma industries
- Outstanding chemical resistance
- High temperature resistant
- Non-burning

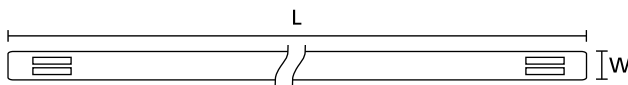


**Can support quality assurance in the production of food stuffs, for example HACCP.**



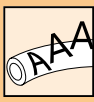
*Metal content identification tags TIPTAG MC for a safe and clean production process.*

<b>MATERIAL</b>	Polyolefin (PO), Metal (MET)
<b>Operating Temperature</b>	-40 °C to +85 °C
<b>Recommended Ribbon Type</b>	TTDTHOUT, TTRW
<b>Thermal Transfer Printer</b>	TT430, TT4030



TYPE	Length (L)	Width (W)	Pack Cont.	Colour	Article-No.
TTAGMC11BEX65S	65.0	11.0	190 pcs.	Blue (BU)	556-26500
TTAGMC15BEX65S	65.0	15.0	190 pcs.	Blue (BU)	556-26502
TTAGMC11BEX100S	100.0	11.0	120 pcs.	Blue (BU)	556-26501
TTAGMC15BEX100S	100.0	15.0	120 pcs.	Blue (BU)	556-26503

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available. More colours on request.



### Identification tags for cable bundle "Ladder Style", thermal transfer

#### TAGUL - Standard Tiptags "Ladder Style"

The TAGUL cable markers have been designed to identify larger wires and cable bundles in the electronics and general cabling environments and is supplied pre-cut and formatted into a convenient "ladder" system. The labels are applied to cables and harness assemblies with cable ties, and are also suitable for retrofit purposes. The material has been conditioned for printing on both thermal transfer and laser beam printers. Simply print and press out the required Tiptag and apply with cable ties.

Print with HellermannTyton's premium range of thermal printers and ribbons or a laser beam marking device.

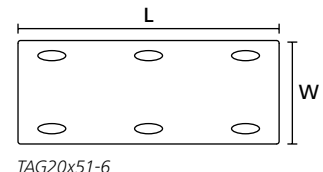
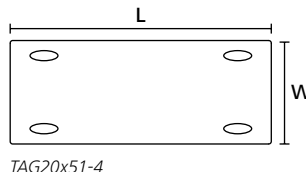
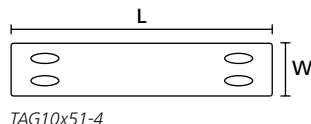
#### Features and benefits

- General purpose cable marker
- For larger cables and wires
- Convenient "Ladder Style" format
- Good mechanical strength and highly flexible
- Delivered in convenient storage boxes



Identification tags TAGUL for electronics and general cabling environments.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Flammability</b>	ASTM D2671 B
<b>Recommended Ribbon Type</b>	TTDTHOUT
<b>Thermal Transfer Printer</b>	TT430, TT4030



TYPE	Length (L)	Width (W)	Pack Cont.	Colour	Article-No.
TAGUL10X51-4WH	51.0	10.0	400 pcs.	White (WH)	556-82010
	51.0	10.0	2,000 pcs.	White (WH)	556-82000
TAGUL10X51-4YE	51.0	10.0	400 pcs.	Yellow (YE)	556-82011
	51.0	10.0	2,000 pcs.	Yellow (YE)	556-82001
TAGUL20X51-4WH	51.0	20.0	200 pcs.	White (WH)	556-82012
	51.0	20.0	1,000 pcs.	White (WH)	556-82005
TAGUL20X51-4YE	51.0	20.0	200 pcs.	Yellow (YE)	556-82013
	51.0	20.0	1,000 pcs.	Yellow (YE)	556-82004
TAGUL20X51-6WH	51.0	20.0	200 pcs.	White (WH)	556-82014
	51.0	20.0	1,000 pcs.	White (WH)	556-82002
TAGUL20X51-6YE	51.0	20.0	200 pcs.	Yellow (YE)	556-82015
	51.0	20.0	1,000 pcs.	Yellow (YE)	556-82003

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. More colours on request.



For product specific approvals and specifications please refer to the Appendix.



### Identification tags for cable bundle, "Ladder Style", thermal transfer

#### TAGPU - UV-stabilised Tiptags "Ladder Style"

TAGPU is a specially designed cable marker for identifying larger wire and cable bundles, where a permanently legible and UV resistant marking is required. The cable markers consist of a robust and flexible polyurethane material and are especially suited for harsh environments. They are supplied pre-cut and have been formatted into a convenient "ladder" system. The markers are applied to cable and harness assemblies with cable ties, and are also suitable for retrofit purposes. The material has been conditioned for printing on both thermal transfer and laser beam printers. Simply print and press out the required TAGPU and apply with cable ties.

Print with HellermannTyton's premium range of thermal printers and ribbons or a laser beam marking device.

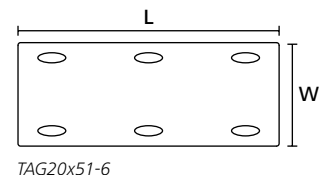
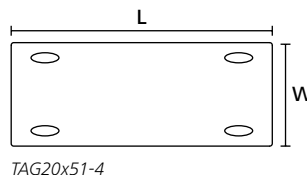
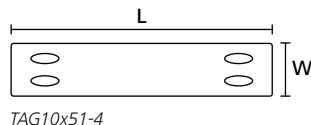
#### Features and benefits

- UV-stabilised
- For larger cables and wires, bundles
- Robust and flexible material
- Thermal transfer or laser beam printable
- Available in white or yellow
- Halogen Free
- Good mechanical strength and highly flexible
- Delivery in convenient storage boxes



TAGPU - Tiptags "Ladder Style".

<b>MATERIAL</b>	Polyurethane (PUR)
<b>Operating Temperature</b>	-25 °C to +80 °C
<b>Recommended Ribbon Type</b>	TTRHT
<b>Thermal Transfer Printer</b>	TT430, TT4030



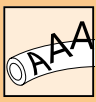
TYPE	Length (L)	Width (W)	Pack Cont.	Colour	Article-No.
TAGPU10X51-4WH	51.0	10.0	400 pcs.	White (WH)	556-80506
	51.0	10.0	2,000 pcs.	White (WH)	556-80500
TAGPU10X51-4YE	51.0	10.0	400 pcs.	Yellow (YE)	556-80507
	51.0	10.0	2,000 pcs.	Yellow (YE)	556-80501
TAGPU20X51-4WH	51.0	20.0	200 pcs.	White (WH)	556-80508
	51.0	20.0	1,000 pcs.	White (WH)	556-80504
TAGPU20X51-4YE	51.0	20.0	200 pcs.	Yellow (YE)	556-80509
	51.0	20.0	1,000 pcs.	Yellow (YE)	556-80505
TAGPU20X51-6WH	51.0	20.0	200 pcs.	White (WH)	556-80510
	51.0	20.0	1,000 pcs.	White (WH)	556-80502
TAGPU20X51-6YE	51.0	20.0	200 pcs.	Yellow (YE)	556-80511
	51.0	20.0	1,000 pcs.	Yellow (YE)	556-80503

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available. More colours on request.



For product specific approvals and specifications please refer to the Appendix.



### Identification tags for cable bundle "Ladder Style", thermal transfer

#### TAGLF - Rail - Limited Fire Hazard Tiptags "Ladder Style"

TAGLF is a halogen free cable marker for mass transit applications specifically in the railway industry or for all areas where limited fire hazard material is needed. TAGLF's material properties show low smoke propagation, density and toxicity. They are supplied pre-cut and have been formatted into a convenient "ladder" system. Simply print and press out the required TAGLF and apply with cable ties, they are also suitable for retrofit purposes.

Print with HellermannTyton's premium range of thermal printers and ribbons or a laser beam marking device.

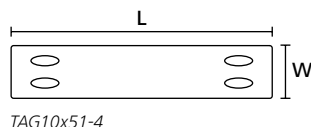
#### Features and benefits

- Limited fire hazard cable marker
- Halogen free
- For larger cables and wires, bundles
- Thermal transfer or laser beam printable
- Good mechanical strength and highly flexible
- Delivered on reel in convenient storage boxes

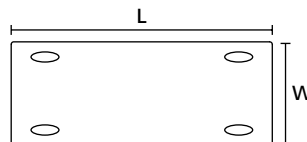


Limited fire hazard identification tags TAGLF.

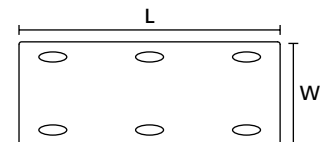
<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-40 °C to +105 °C
<b>Flammability</b>	self-extinguishing
<b>Recommended Ribbon Type</b>	TTDTHOUT
<b>Thermal Transfer Printer</b>	TT430, TT4030
<b>Oxygen Index (%)</b>	34.4 %



TAG10x51-4



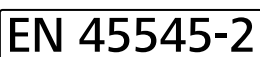
TAG20x51-4



TAG20x51-6

TYPE	Length (L)	Width (W)	Pack Cont.	Colour	Article-No.
TAGLF10X51-4WH	51.0	10.0	2,000 pcs.	White (WH)	556-83000
	51.0	10.0	400 pcs.	White (WH)	556-83006
TAGLF10X51-4YE	51.0	10.0	400 pcs.	Yellow (YE)	556-83007
	51.0	10.0	2,000 pcs.	Yellow (YE)	556-83001
TAGLF20X51-4WH	51.0	20.0	200 pcs.	White (WH)	556-83008
	51.0	20.0	1,000 pcs.	White (WH)	556-83002
TAGLF20X51-4YE	51.0	20.0	200 pcs.	Yellow (YE)	556-83009
	51.0	20.0	1,000 pcs.	Yellow (YE)	556-83003
TAGLF20X51-6WH	51.0	20.0	200 pcs.	White (WH)	556-83010
	51.0	20.0	1,000 pcs.	White (WH)	556-83004
TAGLF20X51-6YE	51.0	20.0	200 pcs.	Yellow (YE)	556-83011
	51.0	20.0	1,000 pcs.	Yellow (YE)	556-83005

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



### Identification tags for cable bundle "Ladder Style", thermal transfer

#### TAGDR - Rail - Diesel Resistant Tiptags "Ladder Style"

TAGDR is a cable marker designed for environments where identification is exposed to organic fluids and oils for long periods at high temperatures. The diesel resistant marker is ideal for rail applications. They are supplied pre-cut and have been formatted into a convenient "ladder" system. Simply print and press out the required TAGDR and apply to cables and harness assemblies with cable ties, they are also suitable for retrofit purposes.

Print with HellermannTyton's premium range of thermal printers and ribbons or a laser beam marking device.

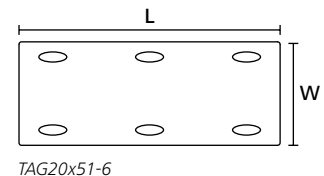
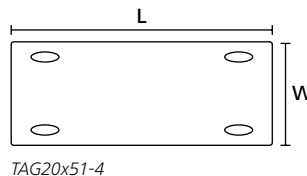
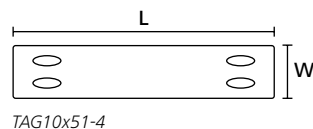
#### Features and benefits

- Fluid resistant cable marker
- For larger cables and wires, bundles
- Thermal transfer or laser beam printable
- Good mechanical strength and highly flexible
- Delivered on reel in convenient storage boxes



TAGDR.

<b>MATERIAL</b>	Polyolefin, cross-linked (PO-X)
<b>Operating Temperature</b>	-55 °C to +135 °C
<b>Flammability</b>	ASTM D2671 B
<b>Recommended Ribbon Type</b>	TTDTHOUT, TTDTHOUTSM, TT822OUT, TT822OUTSM
<b>Thermal Transfer Printer</b>	TT430, TT4030

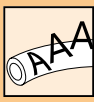


TYPE	Length (L)	Width (W)	Pack Cont.	Colour	Article-No.
TAGDR10X51-4WH	51.0	10.0	2,000 pcs.	White (WH)	556-83500
TAGDR10X51-4YE	51.0	10.0	2,000 pcs.	Yellow (YE)	556-83501
TAGDR20X51-4WH	51.0	20.0	1,000 pcs.	White (WH)	556-83504
TAGDR20X51-4YE	51.0	20.0	1,000 pcs.	Yellow (YE)	556-83505
TAGDR20X51-6WH	51.0	20.0	1,000 pcs.	White (WH)	556-83502
TAGDR20X51-6YE	51.0	20.0	1,000 pcs.	Yellow (YE)	556-83503

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



### Identification tags for cable bundle "Ladder Style", thermal transfer

#### TAGHT - Aerospace - High Temperature Tiptags "Ladder Style"

TAGHT is a high temperature, flame retardant cable marker used to identify larger cables and wire harnesses. The marker is ideal for applications where high temperatures and exposure to aggressive solutions are found, e.g. in the aerospace industry. They are supplied pre-cut and have been formatted into a convenient "ladder" system. Simply print and press out the required TAGHT and apply to cables and harness assemblies with cable ties, they are also suitable for retrofit purposes.

Print with HellermannTyton's premium range of thermal printers and ribbons or a laser beam marking device.

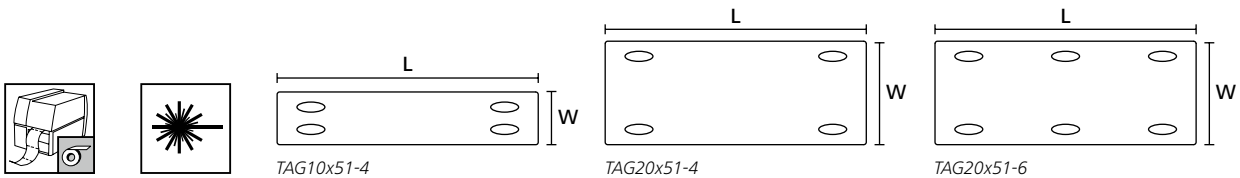
#### Features and benefits

- High temperature cable marker
- For larger cables, bundles and harnesses
- Thermal transfer or laser beam printable
- Good mechanical strength and highly flexible
- Delivery in convenient storage boxes



TAGHT - High temperature tag to identify cables and wire harnesses.

<b>MATERIAL</b>	Polyvinylidene Fluoride cross-linked (PVDFX)
<b>Operating Temperature</b>	-55 °C to +225 °C
<b>Flammability</b>	UL 224 VW-1
<b>Recommended Ribbon Type</b>	TTRHT
<b>Thermal Transfer Printer</b>	TT430, TT4030



TYPE	Length (L)	Width (W)	Pack Cont.	Colour	Article-No.
TAGHT10X51-4WH	51.0	10.0	2,000 pcs.	White (WH)	556-80000
TAGHT20X51-4WH	51.0	20.0	1,000 pcs.	White (WH)	556-80004
TAGHT20X51-6WH	51.0	20.0	1,000 pcs.	White (WH)	556-80002

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.



For product specific approvals and specifications please refer to the Appendix.



### Self-laminating labels, thermal transfer

#### Helatag 1209 (White-Transparent)

These labels are ideal identifying cables and wire. They consist of a printable area plus a lamination function for protection of print text against humidity, dirt, debris and mechanical abrasion. Due to its flexibility these labels are also suitable for flat ribbon cables.

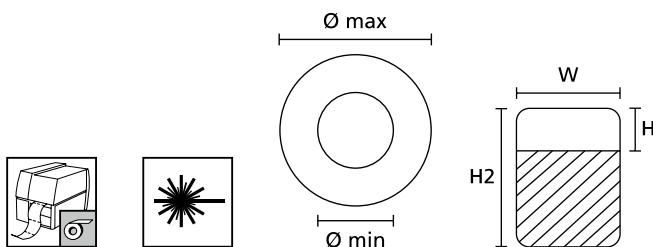
#### Features and benefits

- High-quality self-laminating labels
- Suitable for marking of wires and cables
- Laminating function gives excellent protection against humidity and mechanical abrasion
- Rounded edge design gives additional bonding strength



Self-laminating labels offer an excellent protection against abrasion and environmental impact.

<b>MATERIAL</b>	Type 1209, Vinyl (PVC), white-transparent (WH/CL)
<b>Operating Temperature</b>	-20 °C to +80 °C
<b>Curing Temperature</b>	from 0 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	90 µm
<b>Chem. Material Properties</b>	Resistant to water, alcohol, most oils, greases, fuel, aliphatic solvents, weak acids, salts and alkalis.
<b>Recommended Ribbon Type</b>	TT932DOUT
<b>Thermal Transfer Printer</b>	TT430, TT4030

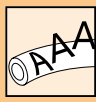


TYPE	Bundle Ø min.	Bundle Ø max.	Width (W)	Height (H)	Height (H2)	Width of Liner (WL)	Labels per Row	Pack Cont.	Colour	Article-No.
TAG51TD3-1209-WHCL	1.4	3.0	25.4	8.8	19.1	85.0	3 pcs.	5,000 pcs.	White (WH), Transparent (CL)	596-12091
TAG26TD6-1209-WHCL	1.5	3.0	12.7	9.5	19.1	85.0	6 pcs.	10,000 pcs.	White (WH), Transparent (CL)	596-12096
TAG36TD7-1209-WHCL	2.0	4.7	12.7	9.0	23.8	95.0	7 pcs.	10,000 pcs.	White (WH), Transparent (CL)	596-12097
TAG2TD6-1209-WHCL	3.5	7.6	12.7	12.7	36.5	82.0	6 pcs.	5,000 pcs.	White (WH), Transparent (CL)	596-61209
TAG22TD3-1209-WHCL	3.5	7.6	25.4	12.7	36.5	82.0	3 pcs.	2,500 pcs.	White (WH), Transparent (CL)	596-32091
TAG24TD1-1209-WHCL	3.5	7.6	50.8	12.7	36.5	55.0	1 pc.	1,000 pcs.	White (WH), Transparent (CL)	596-12094
TAG23TD5-1209-WHCL	4.5	10.0	19.1	12.7	44.5	101.6	5 pcs.	5,000 pcs.	White (WH), Transparent (CL)	596-12095
TAG25TD3-1209-WHCL	4.5	10.0	25.4	12.7	44.5	82.0	3 pcs.	2,500 pcs.	White (WH), Transparent (CL)	596-51209

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available. More colours on request.

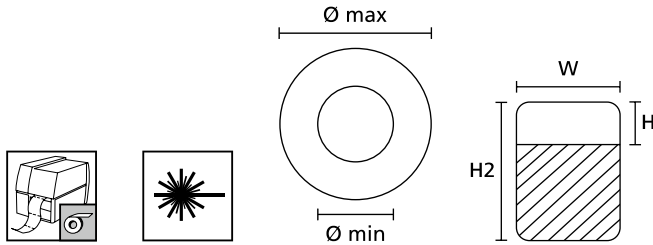






## Self-laminating labels, thermal transfer

## Helatag 1209 (White-Transparent)



TYPE	Bundle Ø min.	Bundle Ø max.	Width (W)	Height (H)	Height (H2)	Width of Liner (WL)	Labels per Row	Pack Cont.	Colour	Article-No.
TAG9TD3-1209-WHCL	5.5	12.1	25.4	19.1	57.1	82.0	3 pcs.	2,500 pcs.	White (WH), Transparent (CL)	596-91209
TAG10TD2-1209-WHCL	5.5	12.1	49.5	19.1	57.1	101.6	2 pcs.	1,000 pcs.	White (WH), Transparent (CL)	596-12090
TAG91TD1-1209-WHCL	8.0	16.0	70.0	35.0	85.0	74.0	1 pc.	500 pcs.	White (WH), Transparent (CL)	596-41209
TAG1TD2-1209-WHCL	8.5	18.2	48.2	19.1	79.2	101.6	2 pcs.	1,000 pcs.	White (WH), Transparent (CL)	596-21209
TAG3TD3-1209-WHCL	10.0	22.2	25.4	25.4	95.3	82.0	3 pcs.	1,000 pcs.	White (WH), Transparent (CL)	596-31209
TAG6TD1-1209-WHCL	10.0	22.2	50.8	25.4	95.3	55.0	1 pc.	500 pcs.	White (WH), Transparent (CL)	596-11209
TAG107TD3-1209-WHCL	12.0	37.5	25.4	31.8	149.9	82.0	3 pcs.	1,000 pcs.	White (WH), Transparent (CL)	596-01209
TAG38TD3-1209-WHCL	20.8	47.5	25.4	38.1	187.2	82.0	3 pcs.	1,000 pcs.	White (WH), Transparent (CL)	596-12098
TAG07TD1-1209-WHCL	20.8	47.5	50.8	25.4	187.2	55.0	1 pc.	250 pcs.	White (WH), Transparent (CL)	596-71209

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available. More colours on request.

### Self-laminating labels, thermal transfer

#### Helatag 323 (White-Transparent), high temperature

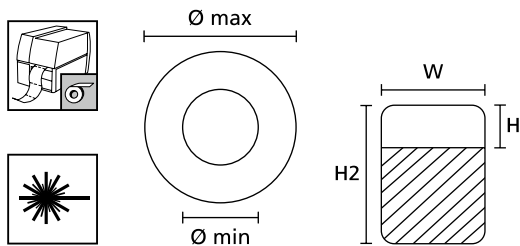
This self-laminating label consists of a printable area plus a lamination function for protection of print text against humidity, dirt, debris and mechanical abrasion. It is ideally suited for wire and cable marking in both high temperature and outside environments, particular used in industry as well as military technology.

#### Features and benefits

- High temperature self-laminating labels with an inscription field
- Extremely scratch and chemical resistant
- Protective laminating foil ensures optimal protection against humidity, dirt, debris, and mechanical abrasion
- Survives 5 years external weathering in central European climate



Easy marking of flexible, semi-rigid and rigid cables and wires.



<b>MATERIAL</b>	Type 323, Polyvinylidene Fluoride (PVDF), white/transp. (WH/CL), yellow/transp. (YE/CL)
<b>Operating Temperature</b>	-40 °C to +140 °C
<b>Curing Temperature</b>	from +10 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	25 µm
<b>Chem. Material Properties</b>	Excellent resistance against water, UV radiation, weather influence and solvents based on petroleum.
<b>Recommended Ribbon Type</b>	TT932DOUT
<b>Thermal Transfer Printer</b>	TT430, TT4030



TYPE	Bundle Ø min.	Bundle Ø max.	Width (W)	Height (H)	Height (H2)	Width of Liner (WL)	Labels per Row	Pack Cont.	Colour	Article-No.
TAG51TD3-323-WHCL	1.4	3.0	25.4	8.8	19.1	85.0	3 pcs.	5,000 pcs.	White (WH), Transparent (CL)	596-51320
TAG26TD6-323-WHCL	1.5	3.0	12.7	9.5	19.1	85.0	6 pcs.	10,000 pcs.	White (WH), Transparent (CL)	596-26320
TAG36TD7-323-WHCL	2.0	4.7	12.7	9.0	23.8	95.0	7 pcs.	10,000 pcs.	White (WH), Transparent (CL)	596-36320
TAG2TD6-323-WHCL	3.5	7.6	12.7	12.7	36.5	82.0	6 pcs.	5,000 pcs.	White (WH), Transparent (CL)	596-02320
TAG22TD3-323-WHCL	3.5	7.6	25.4	12.7	36.5	82.0	3 pcs.	2,500 pcs.	White (WH), Transparent (CL)	596-22320
TAG24TD1-323-WHCL	3.5	7.6	50.8	12.7	36.5	55.0	1 pc.	1,000 pcs.	White (WH), Transparent (CL)	596-24320
TAG23TD5-323-WHCL	4.5	10.0	19.1	12.7	44.5	101.6	5 pcs.	5,000 pcs.	White (WH), Transparent (CL)	596-23320
TAG25TD3-323-WHCL	4.5	10.0	25.4	12.7	44.5	82.0	3 pcs.	2,500 pcs.	White (WH), Transparent (CL)	596-25320
TAG9TD3-323-WHCL	5.5	12.1	25.4	19.1	57.1	82.0	3 pcs.	2,500 pcs.	White (WH), Transparent (CL)	596-09320
TAG10TD2-323-WHCL	5.5	12.1	49.5	19.1	57.1	101.6	2 pcs.	1,000 pcs.	White (WH), Transparent (CL)	596-10320
TAG1TD2-323-WHCL	8.5	18.2	48.2	19.1	79.2	101.6	2 pcs.	1,000 pcs.	White (WH), Transparent (CL)	596-01320
TAG3TD3-323-WHCL	10.0	22.2	25.4	25.4	95.3	82.0	3 pcs.	1,000 pcs.	White (WH), Transparent (CL)	596-03320
TAG6TD1-323-WHCL	10.0	22.2	50.8	25.4	95.3	55.0	1 pc.	500 pcs.	White (WH), Transparent (CL)	596-06320
TAG107TD3-323-WHCL	12.0	37.5	25.4	31.8	149.9	82.0	3 pcs.	1,000 pcs.	White (WH), Transparent (CL)	596-10732
TAG38TD3-323-WHCL	20.8	47.5	25.4	38.1	187.2	82.0	3 pcs.	1,000 pcs.	White (WH), Transparent (CL)	596-38320
TAG07TD1-323-WHCL	20.8	47.5	50.8	25.4	187.2	55.0	1 pc.	250 pcs.	White (WH), Transparent (CL)	596-07320

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



## Self-laminating labels, laser printer

### Helatag 1104 (White-Transparent)

A specially developed material for use in labels required to wrap around cables and wires. The conformable structure of the label ensures that once the label is applied to the wire it remains in place without lifting. The rounded edge construction gives additional bonding features not found in straight edge label designs.

The information is printed onto the white inscription area. The printed information area is placed onto the wire and the transparent tail is wrapped around the wire and covers the text; this gives excellent protection from abrasion, dust and debris.

TagPrint Pro labelling program comes pre-loaded with all our labels. Designing labels is simply done; just choose inbuilt graphics or download your own and add data from ERP system or standard office programs such as Excel. Barcodes are created in a couple of clicks.

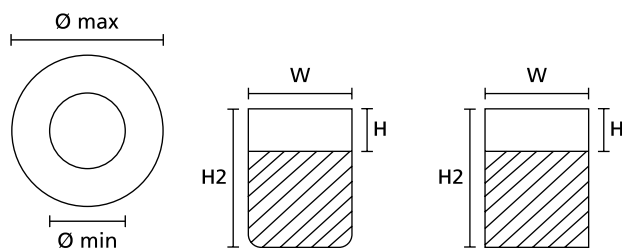
#### Features and benefits

- High-quality self-laminating labels
- Suitable for marking of wires and cables
- Laminating function gives excellent protection against humidity and mechanical abrasion
- Rounded edge design gives additional bonding strength
- Standard material (25 micron) for standard labels
- Simple and efficient label design and printing with TagPrint Pro labelling software
- Templates available from [www.hellermannnyton.com](http://www.hellermannnyton.com) for those wishing to use MS Word
- Clear protective box to ensure labels stay as good as new



Laminating the mark gives long-term print survivability.

<b>MATERIAL</b>	Type 1104, Polyester (PET), white-transparent (WH/CL), self-laminating
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Curing Temperature</b>	from +10 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	25 µm
<b>Chem. Material Properties</b>	Excellent resistance to alcohol, gasoline, cleaning solvents, butanol, ethyl and Butylcellosolve solvent, battery acid.



Only 594-11041 and 594-11040



**Software TagPrint Pro for troublefree printing see page 568. For MS-Windows Word design templates for simple applications please refer to [www.HellermannTyton.com](http://www.HellermannTyton.com) (downloadzone).**

TYPE	Bundle Ø min.	Bundle Ø max.	Width (W)	Height (H)	Height (H2)	Labels per Sheet	Pack Cont.	Colour	Article-No.
TAG26LA4-1104-WHCL	1.5	3.0	12.7	9.5	19.1	180 pcs.	5,000 pcs.	White (WH), Transparent (CL)	594-11041
TAG130LA4-1104-WHCL	2.4	4.8	12.7	9.0	24.0	165 pcs.	5,000 pcs.	White (WH), Transparent (CL)	594-21104
TAG49LA4-1104-WHCL	2.6	5.3	25.4	8.8	25.4	70 pcs.	2,500 pcs.	White (WH), Transparent (CL)	594-11042
TAG131LA4-1104-WHCL	3.8	7.6	12.7	12.7	36.5	105 pcs.	2,500 pcs.	White (WH), Transparent (CL)	594-31104
TAG132LA4-1104-WHCL	3.8	7.6	20.3	12.7	36.5	63 pcs.	2,500 pcs.	White (WH), Transparent (CL)	594-41104
TAG02LA4-1104-WHCL	3.8	7.6	25.4	12.7	36.5	49 pcs.	2,450 pcs.	White (WH), Transparent (CL)	594-01104
TAG133LA4-1104-WHCL	5.1	10.1	19.1	12.7	44.5	60 pcs.	2,500 pcs.	White (WH), Transparent (CL)	594-51104
TAG134LA4-1104-WHCL	5.1	10.1	25.4	12.7	44.5	42 pcs.	1,000 pcs.	White (WH), Transparent (CL)	594-61104
TAG09LA4-1104-WHCL	5.8	11.6	25.4	19.1	55.5	35 pcs.	1,000 pcs.	White (WH), Transparent (CL)	594-11104
TAG135LA4-1104-WHCL	6.7	13.5	48.5	12.7	55.0	20 pcs.	500 pcs.	White (WH), Transparent (CL)	594-71104
TAG137LA4-1104-WHCL	7.1	14.3	31.8	22.9	67.7	24 pcs.	1,000 pcs.	White (WH), Transparent (CL)	594-91104
TAG136LA4-1104-WHCL	7.7	15.5	25.4	19.1	67.7	28 pcs.	1,000 pcs.	White (WH), Transparent (CL)	594-81104
TAG145LA4-1104-WHCL	11.1	22.3	25.4	25.4	95.3	21 pcs.	1,000 pcs.	White (WH), Transparent (CL)	594-11040

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Self-laminating labels, laser printer

#### Helatag 1105 (White-Transparent)

These labels are ideal for marking cables of a larger diameter. The type 1105 self-laminating labels exceed the length of 100 mm and are made of a thicker material than type 1104.

Because of its greater material rigidity these labels can be easily removed from the sheet and applied by hand to larger cables and hoses.

#### Features and benefits

- High-quality self-laminating labels
- Suitable for marking of wires and cables
- Laminating function gives excellent protection against humidity and mechanical abrasion
- Rounded edge design gives additional bonding strength
- Thicker material (50 micron) for longer labels
- Simple and efficient label design and printing with TagPrint Pro labelling software
- Templates available from [www.hellermannTyton.com](http://www.hellermannTyton.com) for those wishing to use MS Word
- Clear protective box to ensure labels stay as good as new



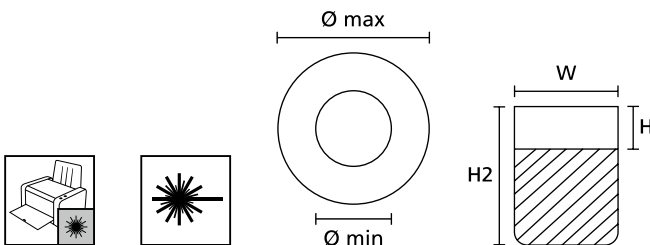
Laminating the mark gives long-term print survivability.

<b>MATERIAL</b>	Type 1105, Polyester (PET), white-transparent (WH/CL), self-laminating
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Curing Temperature</b>	from +5 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	50 µm
<b>Chem. Material Properties</b>	Excellent resistance to alcohol, gasoline, cleaning solvents, butanol, ethyl and Butylcellosolve solvent, battery acid.



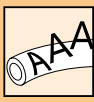
**Software TagPrint Pro for troublefree printing see page 568.**

For MS-Windows Word design templates for simple applications please refer to [www.HellermannTyton.com](http://www.HellermannTyton.com) (downloadzone).



TYPE	Bundle Ø min.	Bundle Ø max.	Width (W)	Height (H)	Height (H2)	Labels per Sheet	Pack Cont.	Colour	Article-No.
<b>TAG138LA4-1105-WHCL</b>	11.8	23.6	38.1	19.1	93.1	15 pcs.	500 pcs.	White (WH), Transparent (CL)	594-13876
<b>TAG139LA4-1105-WHCL</b>	18.2	36.4	38.1	25.4	139.7	10 pcs.	500 pcs.	White (WH), Transparent (CL)	594-13976

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Self-laminating labels, dot matrix

#### Helatag 101 (White-Transparent)

Helatag self-laminating wire markers are used in industries ranging from automotive for wire and pipe identification to electrical panels.

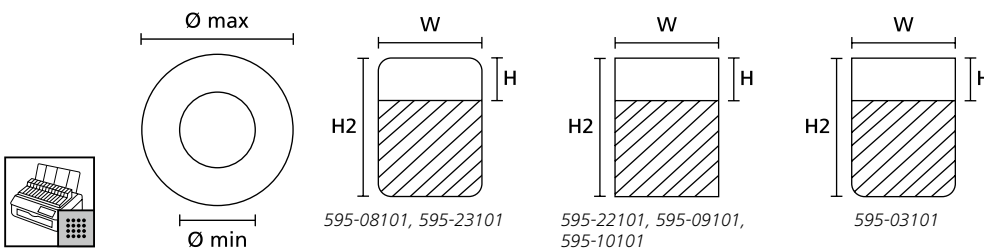
#### Features and benefits

- Print industrial grade labels using standard dot matrix printers
- For low to medium print volumes
- Self-laminating wire markers for automotive and other industries
- Simple and efficient label design and printing with TagPrint Pro software
- Clear protective box to ensures labels stay as good as new



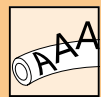
Unique packaging ensures outstanding label protection.

<b>MATERIAL</b>	Type 101, Vinyl (PVC), white-transparent (WH/CL), self-laminating
<b>Operating Temperature</b>	-40 °C to +80 °C
<b>Curing Temperature</b>	from +10 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	80 µm
<b>Chem. Material Properties</b>	Good resistance to water, oils and many solvents.



TYPE	Bundle Ø min.	Bundle Ø max.	Width (W)	Height (H)	Height (H2)	Labels per Sheet	Pack Cont.	Colour	Article-No.
TAG22-101-WHCL	3.5	7.6	25.4	12.7	36.5	64 pcs.	2,500 pcs.	White (WH), Transparent (CL)	595-22101
TAG9-101-WHCL	5.5	12.1	25.4	19.1	57.2	32 pcs.	1,000 pcs.	White (WH), Transparent (CL)	595-09101
TAG10-101-WHCL	5.5	12.1	50.8	19.1	57.2	20 pcs.	1,000 pcs.	White (WH), Transparent (CL)	595-10101
TAG3-101-WHCL	10.0	22.2	25.4	25.4	95.3	24 pcs.	1,000 pcs.	White (WH), Transparent (CL)	595-03101
TAG8-101-WHCL	17.8	35.6	25.4	38.1	149.8	14 pcs.	500 pcs.	White (WH), Transparent (CL)	595-08101
TAG23-101-WHCL	23.7	47.5	25.4	38.1	187.9	7 pcs.	250 pcs.	White (WH), Transparent (CL)	595-23101

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Self-laminating labels, manual marking

#### RiteOn, Starter Pack, Material 1401 Dispenser

A specially developed material for use in labels required to wrap around cables and wires. The conformable structure of the label ensures that once the label is applied to the wire it remains in place without lifting. The SPRO200-1401-WH Starter Pack contains all you need to start work identifying your wires,

- 1 x RiteOn dispenser
- 1 x RO202 reel of 150 self-laminating labels for cable diameters ranging from 6 mm to 12 mm
- 1 x T82S-BK black indelible ink marker pen

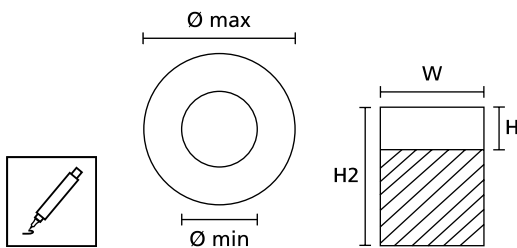
#### Features and benefits

- Palm sized hand held self-laminating label dispenser
- Easy to write on and dispense labels
- Wide range of wire diameters covered as standard
- Ideal for low volume maintenance and repair work
- Write text with specially formulated fast-drying ink T82 pens



Easy to write and dispense labels with RiteOn label dispenser.

<b>MATERIAL</b>	Type 1401, Vinyl (PVC)
<b>Operating Temperature</b>	-40 °C to +80 °C
<b>Curing Temperature</b>	from +10 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	80 µm
<b>Chem. Material Properties</b>	Resistant to water, oil and many solvents.



Application video:  
RiteOn

TYPE	Description	Bundle Ø min.	Bundle Ø max.	Width (W)	Height (H)	Height (H2)	Pack Cont.	Colour	Article-No.
RO201-1401-WH	Filled dispenser	4.0	8.1	12.7	12.7	38.1	200 pcs.	White (WH), Transparent (CL)	550-14011
RO202-1401-WH		6.1	12.1	19.1	12.7	50.8	150 pcs.	White (WH), Transparent (CL)	550-14012
RO203-1401-WH		9.1	18.2	19.1	25.4	76.2	100 pcs.	White (WH), Transparent (CL)	550-14013
RO201REF-1401-WH	Refill packs	4.0	8.1	12.7	12.7	38.1	200 pcs.	White (WH), Transparent (CL)	550-14014
RO202REF-1401-WH		6.1	12.1	19.1	12.7	50.8	150 pcs.	White (WH), Transparent (CL)	550-11401
RO203REF-1401-WH		9.1	18.2	19.1	25.4	76.2	100 pcs.	White (WH), Transparent (CL)	550-71401
SPRO200-1401-WH	Starter pack	6.1	12.1	19.1	12.7	50.8	150 pcs.	White (WH), Transparent (CL)	550-14010

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available. More colours on request.

TYPE	Description	Pack Cont.	Colour	Article-No.
T82S-BK	Indelible Marker Pen	2 pcs.	Black (BK)	500-50820
T82R-RD	Indelible Marker Pen	2 pcs.	Red (RD)	500-50822

Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.





## Self-laminating labels, manual marking

### HELASIGN, Material 1402, Booklet

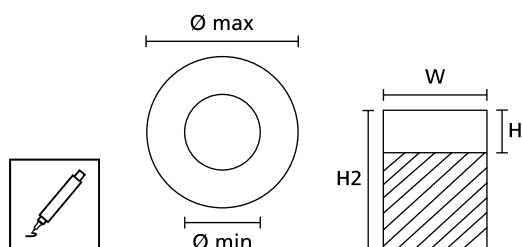
A quick and simple on-site solution, for either permanent or temporary marking of wires, cables and pipes.

#### Features and benefits

- Self-laminating labels supplied in handy pocket-sized booklets
- Booklet cover protects labels when stored
- Ideal for low volume maintenance and repair work
- Easy to write on and dispense labels
- Laminating function gives excellent protection against humidity and mechanical abrasion
- Applicator tool for clean application enclosed
- Write text with specially formulated fast-drying ink T82 pens



Always on hand: Labels in a convenient, pocket sized and lightweight booklet.



<b>MATERIAL</b>	Type 1402, Vinyl (PVC)
<b>Operating Temperature</b>	-40 °C to +80 °C
<b>Curing Temperature</b>	from +8 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	80 µm
<b>Chem. Material Properties</b>	Resistant to water, oil and many solvents.



TYPE	Bundle Ø min.	Bundle Ø max.	Width (W)	Height (H)	Height (H2)	Pack Cont.	Colour	Article-No.
HSMB-C1-1402-BU	4.0	8.1	12.7	12.7	38.1	240 pcs.	Blue (BU), Transparent (CL)	598-14025
HSMB-C1-1402-GN	4.0	8.1	12.7	12.7	38.1	240 pcs.	Green (GN), Transparent (CL)	598-14024
HSMB-C1-1402-OG	4.0	8.1	12.7	12.7	38.1	240 pcs.	Orange (OG), Transparent (CL)	598-14022
HSMB-C1-1402-RD	4.0	8.1	12.7	12.7	38.1	240 pcs.	Red (RD), Transparent (CL)	598-14021
HSMB-C1-1402-WH	4.0	8.1	12.7	12.7	38.1	240 pcs.	White (WH), Transparent (CL)	598-14020
HSMB-C1-1402-YE	4.0	8.1	12.7	12.7	38.1	240 pcs.	Yellow (YE), Transparent (CL)	598-14023
HSMB-C2-1402-BU	6.1	12.1	19.1	12.7	50.8	120 pcs.	Blue (BU), Transparent (CL)	598-11402
HSMB-C2-1402-GN	6.1	12.1	19.1	12.7	50.8	120 pcs.	Green (GN), Transparent (CL)	598-01402
HSMB-C2-1402-OG	6.1	12.1	19.1	12.7	50.8	120 pcs.	Orange (OG), Transparent (CL)	598-14028
HSMB-C2-1402-RD	6.1	12.1	19.1	12.7	50.8	120 pcs.	Red (RD), Transparent (CL)	598-14027
HSMB-C2-1402-WH	6.1	12.1	19.1	12.7	50.8	120 pcs.	White (WH), Transparent (CL)	598-14026
HSMB-C2-1402-YE	6.1	12.1	19.1	12.7	50.8	120 pcs.	Yellow (YE), Transparent (CL)	598-14029
HSMB-C3-1402-BU	9.1	18.2	25.4	19.1	76.2	60 pcs.	Blue (BU), Transparent (CL)	598-71402
HSMB-C3-1402-GN	9.1	18.2	25.4	19.1	76.2	60 pcs.	Green (GN), Transparent (CL)	598-61402
HSMB-C3-1402-OG	9.1	18.2	25.4	19.1	76.2	60 pcs.	Orange (OG), Transparent (CL)	598-41402
HSMB-C3-1402-RD	9.1	18.2	25.4	19.1	76.2	60 pcs.	Red (RD), Transparent (CL)	598-31402
HSMB-C3-1402-WH	9.1	18.2	25.4	19.1	76.2	60 pcs.	White (WH), Transparent (CL)	598-21402
HSMB-C3-1402-YE	9.1	18.2	25.4	19.1	76.2	60 pcs.	Yellow (YE), Transparent (CL)	598-51402
HSMB-C4-1402-WH	16.2	32.3	25.4	25.4	127.0	30 pcs.	White (WH), Transparent (CL)	598-40402
HSMB-C5-1402-WH	20.2	40.3	25.4	25.4	152.4	30 pcs.	White (WH), Transparent (CL)	598-50402

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available. More colours on request.

TYPE	Description	Pack Cont.	Colour	Article-No.
T82S-BK	Indelible Marker Pen	2 pcs.	Black (BK)	500-50820
T82R-RD	Indelible Marker Pen	2 pcs.	Red (RD)	500-50822

Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.





### Pre-printed cable markers

#### Helagrip, slide on, chevron cut

The Helagrip range consists of pre-printed markers that slide easily onto cables and wires. The anti-skew chevron-cut ensures that markers are locked together and stay in place.

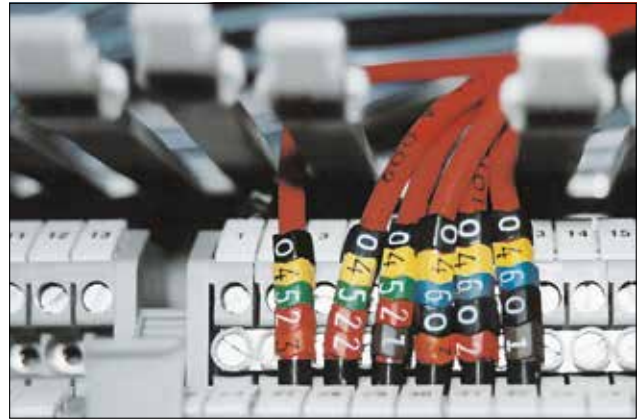
The markers are ideally suited for panel building, mass transit, utilities, telecommunications and electrical contracting.

Markers are available as standard in international resistor colour code and yellow material marked in black. White material marked in black is available to special order.

Characters are 0-9, A-Z and standard electrical symbols.

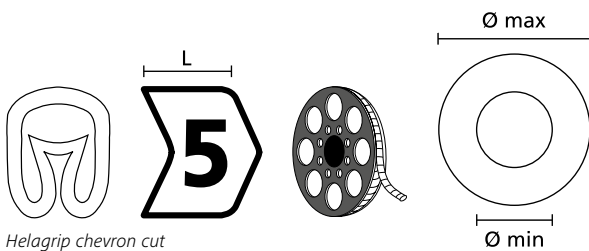
#### Features and benefits

- Easily apply one size marker to wide range of cables
- Markers are applied before termination takes place
- Chevron cut to lock markers together ensuring text remains in place
- Traditional wire marking available in yellow, white and colour code
- Flexible material so product returns securely on the wire
- Applicator tool TJC available



Clearly a better way to identify in confined spaces.

<b>MATERIAL</b>	Flexible Polyvinyl Chloride, cadmium free (PVC)
<b>Operating Temperature</b>	-65 °C to +105 °C, intermittent +135 °C
<b>Flammability</b>	UL94 V0 (3mm)



Helagrip chevron cut

**i** The products have been tested in-house according to UL224.

TYPE	Bundle Ø min.	Bundle Ø max.	Length (L)	Pack Cont.
HGDC1-3	1.0	3.0	3.5	1,000 pcs.
HGDC2-5	2.0	5.0	3.5	1,000 pcs.
HGDC4-9	4.0	9.0	5.0	250 pcs.

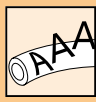
All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available. More colours on request.

TYPE	Description	For Size	Article-No.
TJC1-3	Applicator tool TJC1-3	Helagrip 1-3	518-00113
TJC2-5	Applicator tool TJC2-5	Helagrip 2-5	518-00125
TJC4-9	Applicator tool TJC4-9	Helagrip 4-9	518-00149

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content.



## Pre-printed cable markers

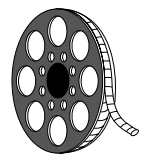
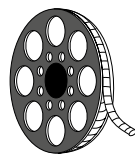
Helagrip, slide on, chevron cut

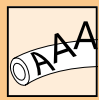
HGDC1-3	
	Article-No.
A	515-01014
B	515-01024
C	515-01034
D	515-01044
E	515-01054
F	515-01064
G	515-01074
H	515-01084
I	515-01094
J	515-01104
K	515-01114
L	515-01124
M	515-01134
N	515-01144
O	515-01154
P	515-01164
Q	515-01174
R	515-01184
S	515-01194
T	515-01204
U	515-01214
V	515-01224
W	515-01234
X	515-01244
Y	515-01254
Z	515-01264

HGDC1-3	
	Article-No.
0	515-01604
1	515-01614
2	515-01624
3	515-01634
4	515-01644
5	515-01654
6	515-01664
7	515-01674
8	515-01684
9	515-01694
+	515-01704
→	515-01714
↓	515-01724
↑	515-01734
•	515-01804
⊙	515-01600
⊠	515-01611
⊡	515-01622
⊢	515-01633
⊣	515-01644
⊤	515-01655
⊥	515-01666
⊦	515-01677
⊧	515-01688
⊨	515-01699

HGDC2-5	
	Article-No.
A	515-02014
B	515-02024
C	515-02034
D	515-02044
E	515-02054
F	515-02064
G	515-02074
H	515-02084
I	515-02094
J	515-02104
K	515-02114
L	515-02124
M	515-02134
N	515-02144
O	515-02154
P	515-02164
Q	515-02174
R	515-02184
S	515-02194
T	515-02204
U	515-02214
V	515-02224
W	515-02234
X	515-02244
Y	515-02254
Z	515-02264

HGDC2-5	
	Article-No.
0	515-02604
1	515-02614
2	515-02624
3	515-02634
4	515-02644
5	515-02654
6	515-02664
7	515-02674
8	515-02684
9	515-02694
+	515-02704
→	515-02714
↓	515-02715
↑	515-02724
•	515-02734
⊙	515-02600
⊠	515-02611
⊡	515-02622
⊢	515-02633
⊣	515-02644
⊤	515-02655
⊥	515-02666
⊦	515-02677
⊧	515-02688
⊨	515-02699





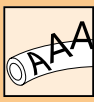
### Pre-printed cable markers

Helagrip, slide on, chevron cut

HGDC4-9	
	Article-No.
A	515-03014
B	515-03024
C	515-03034
D	515-03044
E	515-03054
F	515-03064
G	515-03074
H	515-03084
I	515-03094
J	515-03104
K	515-03114
L	515-03124
M	515-03134
N	515-03144
O	515-03154
P	515-03164
Q	515-03174
R	515-03184
S	515-03194
T	515-03204
U	515-03214
V	515-03224
W	515-03234
X	515-03244
Y	515-03254
Z	515-03264

HGDC4-9	
	Article-No.
0	515-03604
1	515-03614
2	515-03624
3	515-03634
4	515-03644
5	515-03654
6	515-03664
7	515-03674
8	515-03684
9	515-03694
+	515-03704
>	515-03714
∟	515-03724
•	515-01946
+	515-01947
D	515-03600
1	515-03611
2	515-03622
3	515-03633
4	515-03644
5	515-03655
6	515-03666
7	515-03677
8	515-03688
9	515-03699





## Pre-printed cable markers

### Ovalgrip, slide on, straight cut

The Ovalgrip range consists of pre-printed markers that slide easily onto cables and wires. The markers are ideally suited to panel building, mass transit, utilities, telecommunications and electrical contracting.

These markers are supplied as standard on a disk / reel.

They are available as a standard in yellow material marked in black, and international resistor colour code. Characters are 0-9, A-Z and standard electrical symbols.

White material marked in black available on special request.

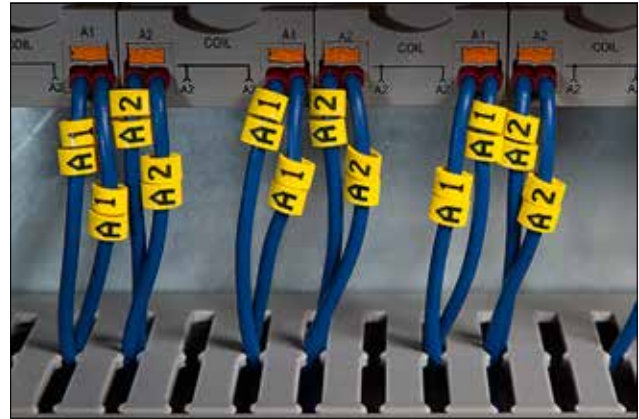
AT1 Arrowtags will fit 7 size 50 markers.

AT2 Arrowtags will fit 8 size 85 markers.

AT3 Arrowtags will fit 14 size 85 markers.

### Features and benefits

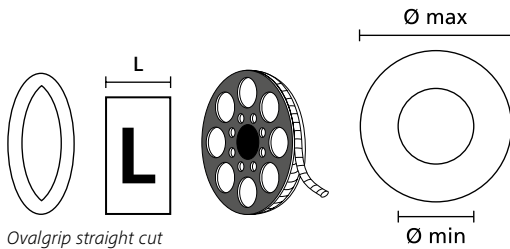
- Oval shaped markers designed to fit AT1, AT2 or AT3 (depends on Ovalgrip size)
- Ideal for use in maintenance and repair and fixed with cable ties
- Direct application to wire and cable before termination is also recommended
- Traditional wire marking available in yellow, white and colour code



A simple idea for complex marking needs.

<b>MATERIAL</b>	Flexible Polyvinyl Chloride, cadmium free (PVC)
<b>Operating Temperature</b>	-65 °C to +105 °C, intermittent +135 °C
<b>Flammability</b>	UL 94 V0 (3 mm)

RoHS



Ovalgrip straight cut



The products have been tested in-house according to UL224.

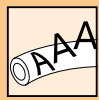


For details on Arrowtags please see page 529.

TYPE	Bundle Ø min.	Bundle Ø max.	Length (L)	Pack Cont.	For Size
HODS50	1.7	3.6	4.0	1,000 pcs.	AT1
HODS85	1.8	6.3	4.5	1,000 pcs.	AT2/AT3

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available. More colours on request.



### Pre-printed cable markers

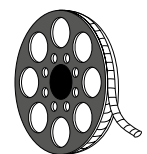
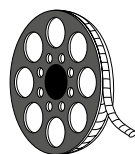
Ovalgrip, slide on, straight cut

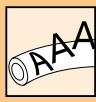
HODS50	
	Article-No.
A	531-15014
B	531-15024
C	531-15034
D	531-15044
E	531-15054
F	531-15064
G	531-15074
H	531-15084
I	531-15094
J	531-15104
K	531-15114
L	531-15124
M	531-15134
N	531-15144
O	531-15154
P	531-15164
Q	531-15174
R	531-15184
S	531-15194
T	531-15204
U	531-15214
V	531-15224
W	531-15234
X	531-15244
Y	531-15254
Z	531-15264

HODS50	
	Article-No.
0	531-15274
1	531-15284
2	531-15294
3	531-15304
4	531-15314
5	531-15324
6	531-15334
7	531-15344
8	531-15354
9	531-15364
.	531-00174
/	531-00175
⊥	531-00176
+	531-00451
-	531-00452
0	531-15365
1	531-15366
2	531-15367
3	531-15368
4	531-15314
5	531-15370
6	531-15371
7	531-15372
8	531-15373
9	531-15374

HODS85	
	Article-No.
A	531-07935
B	531-07936
C	531-07937
D	531-07938
E	531-07939
F	531-07940
G	531-07941
H	531-07942
I	531-07943
J	531-07944
K	531-07945
L	531-07946
M	531-07947
N	531-07948
O	531-07949
P	531-07950
Q	531-07951
R	531-07952
S	531-07953
T	531-07954
U	531-07955
V	531-07956
W	531-07957
X	531-07958
Y	531-07959
Z	531-07960

HODS85	
	Article-No.
0	531-07925
1	531-07926
2	531-07927
3	531-07928
4	531-07732
5	531-07930
6	531-07931
7	531-07932
8	531-07933
9	531-07934
.	531-00384
/	531-07961
⊥	531-00386
+	531-07924
-	531-07923
0	531-07728
1	531-07729
2	531-07730
3	531-07731
4	531-07732
5	531-07733
6	531-07734
7	531-07735
8	531-07736
9	531-07737





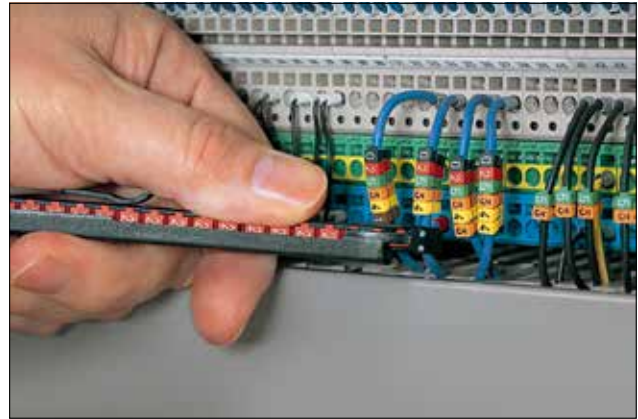
## Pre-printed cable markers

### WIC, snap on

The WIC range of pre-printed cable markers easily snap onto cables and wires. The WIC tool ensures an easy application of the markers – simply insert the markers into the tool, slide down and press the markers onto the wire while twisting. Markers for fibre cables should be applied by hand. All markers come with a locking mechanism to ensure perfect text alignment. The two WICA accessories are ideal for marking cables of larger diameters (6 mm-95 mm<sup>2</sup>).

### Features and benefits

- Fast and easy to use pre-printed nylon snap-on marker
- Ideal where termination is completed or for maintenance and repair
- Markers lock together to give perfect text alignment
- Vibration resistant markers, WIC markers lock onto wire and cable tightly
- WIC tool holds 20 WIC markers in all four sizes
- Gripping system locks markers onto wire and resists rotation
- Available in yellow, white and international resistor colour code
- Popular 2 digit markings such as L1, L2, L3, PE are available in yellow or colour code
- Dispenser colour denotes marker size: WIC0 (green), WIC1 (red), WIC2 (blue), WIC3 (yellow)
- Two accessories available to identify cables from 6 mm<sup>2</sup> up to 25 mm<sup>2</sup> (WICA-AC10-25) and up to 95 mm<sup>2</sup> (WICA-ACT-BK)

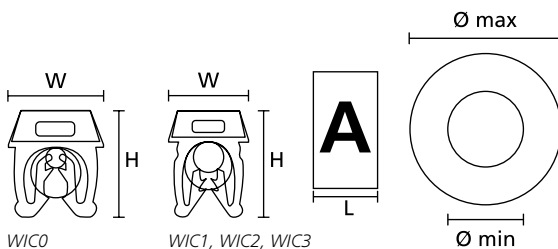


Use the applicator to simply snap the marker onto your cable.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-40 °C to +85 °C, (+105 °C, 500 h)
<b>Flammability</b>	UL 94 V0



### Customized marking on request



Application video:  
WIC

TYPE	Bundle Ø min.	Bundle Ø max.	Width (W)	Height (H)	Length (L)	Wire Size Range (mm <sup>2</sup> )	Pack Cont.	Application Tool
WIC0	0.80	2.20	5.0	5.5	3.0	0.15-0.75 <sup>2</sup>	1,000 pcs.	WIC Tool
WIC1	2.00	2.80	5.0	6.4	3.0	0.50-1.50 <sup>2</sup>	1,000 pcs.	
WIC2	2.80	3.80	5.6	7.1	3.0	1.50-2.50 <sup>2</sup>	1,000 pcs.	
WIC3	4.30	5.30	8.0	9.6	3.0	4.00-6.00 <sup>2</sup>	500 pcs.	

All dimensions in mm. Subject to technical changes.

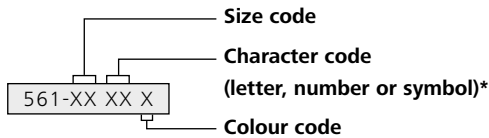
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available. More colours on request.



### Pre-printed cable markers

#### WIC, snap on

Use our coding system, to easily order the markers suitable for your use.



\* For the assortment and the symbols please use the code with three digits.

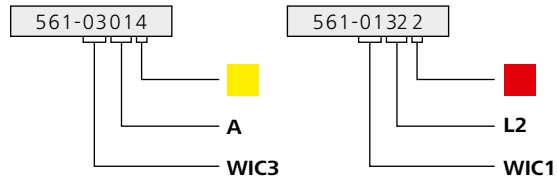


WIC - pre-printed wire and cable markers.

#### Step 1: Choose your size.

SIZE	WIC0	WIC1	WIC2	WIC3
Code	00	01	02	03

Example:



#### Step 2: Choose your letter, symbol, number or assortment.

LETTER	A	B	C	D	E	F	G	H	I	J	K
Code	01	02	03	04	05	06	07	08	09	10	11
LETTER	L	M	N	O	P	Q	R	S	T	U	V
Code	12	13	14	15	16	17	18	19	20	21	22
LETTER	W	X	Y	Z							
Code	23	24	25	26							

SYMBOL	L1	L2	L3	PE	+	-	/	⏚	.
Code	31	32	33	34	70	71	72	73	74
SYMBOL									
Code	75	76	77	000	001				

NUMBER	0	1	2	3	4	5	6	7	8	9
Code	60	61	62	63	64	65	66	67	68	69

ASSORTMENT	0	1	2	3	4	5	6	7	8	9
Code	100									
ASSORTMENT	A	E	L	N	R	S	T	+	-	
Code	994									
ASSORTMENT	G	H	Y	Z	O	Q	J	K	X	L
Code	003									
ASSORTMENT	L1	L1	L2	L2	L3	L3	N	N	⏚	⏚
Code	300									
ASSORTMENT	L1	L1	L2	L2	L3	L3	N	N	⏚	⏚
Code	302									

ASSORTMENT	0	1	2	3	4	5	6	7	8	9
Code	101									
ASSORTMENT	B	C	U	V	W	P	D	F	I	M
Code	002									
ASSORTMENT	.	/	⏚	⏚	+	-	~	=	*	
Code	004									
ASSORTMENT	L1	L1	L2	L2	L3	L3	N	N	⏚	⏚
Code	301									
ASSORTMENT	L1	L1	L2	L2	L3	L3	N	N	⏚	⏚
Code	303									

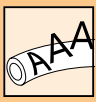
#### Step 3: Choose your colour.

COLOUR										
Code	0	1	2	3	4	5	6	7	8	9



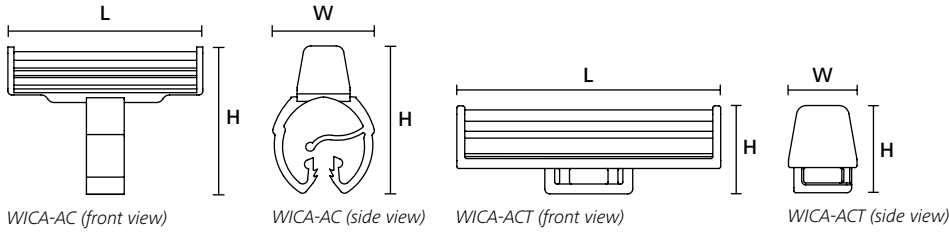
Customized marking on request



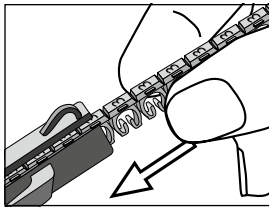


#### Pre-printed cable markers

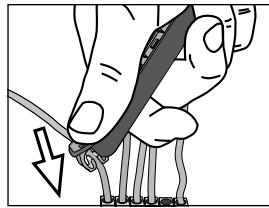
##### WIC Tool and accessories



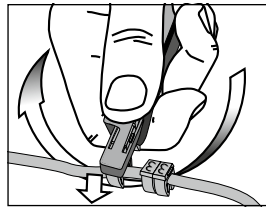
TYPE	Description	Bundle Ø min.	Bundle Ø max.	Width (W)	Height (H)	Length (L)	Marker tiles per carrier	Pack Cont.	Article-No.
WICA-AC10-25	Snap-on accessory	5.5	9.5	13.5	19.4	25.8	8	100 pcs.	561-06001
WICA-ACT-BK	WIC adapter set for fixing with cable ties	3.0	38.0	7.0	8.9	26.7	8	100 pcs.	561-06000
WIC Tool	Applicator	-	-	-	-	-	-	5 pcs.	561-00001



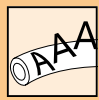
Step 1



Step 2



Step 3



### Identification ties and plates for marking cable bundles

#### Arrowtag

The plates are suitable for applying to larger pipes and cables before or after termination has taken place.

They can be marked with Ovalgrip markers or manually using the T82 series of indelible markers pens.

#### Features and benefits

- Blank nylon arrowhead shape plate fixed with a cable tie
- Identify with a T82 pen or Ovalgrip markers
- AT1 for 7 size 50 Ovalgrip markers
- AT2 for 8 size 85 Ovalgrip markers
- AT3 for 14 size 85 Ovalgrip markers
- Custom printed plaques are available on request



A clearly better way of identifying cables and pipes.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-40 °C to +85 °C, (+105 °C, 500 h)
<b>Flammability</b>	UL94 V2



AT1



AT2



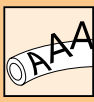
AT3

TYPE	Length (L)	Width (W)	Strap Width max. (G)	Pack Cont.	Colour	Article-No.
AT1	62.5	4.7	7.4	100 pcs.	Black (BK)	151-41110
	62.5	4.7	7.4	100 pcs.	Natural (NA)	151-41119
AT2	63.0	9.0	6.4	100 pcs.	Black (BK)	151-41210
	63.0	9.0	6.4	100 pcs.	Natural (NA)	151-41219
AT3	100.0	9.0	6.4	100 pcs.	Black (BK)	151-41310
	100.0	9.0	6.4	100 pcs.	Natural (NA)	151-41319

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

TYPE	Description	Pack Cont.	Colour	Article-No.
<b>T82S-BK</b>	Indelible Marker Pen	2 pcs.	Black (BK)	500-50820
<b>T82R-RD</b>	Indelible Marker Pen	2 pcs.	Red (RD)	500-50822

Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Identification tags for marking cable bundles

#### Q-tags

Q-tags are used to identify a cable or a cable bundle and are secured with a Q-tie. The Q-tag's flag design allows the user to quickly read or scan the printed information.

#### Features and benefits

- Identify cable or cable bundle
- Quickly read or scan printed information
- Mark by hand with T82 series marker pen or use printed adhesive label
- HellermannTyton offers complete printing solution (printers, labels, ribbons)
- Perfect combination with Q-ties to safely secure and mark cables with highly visible text



The flagged orientation of Q-tags ensures that printed texts are easily visible.

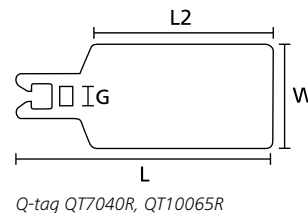
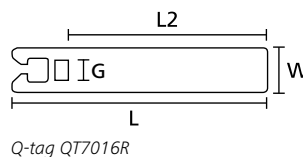
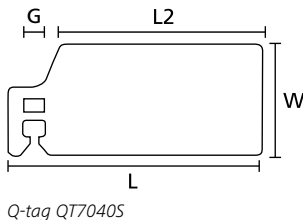
<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-40 °C to +85 °C
<b>Flammability</b>	UL94 V2



Application video:  
Q-Series



Please find more Q-Series products for your system solution on page 51 and 139.



TYPE	Length (L)	Length (L2)	Width (W)	Strap Width max. (G)	Pack Cont.	Colour	Recommended Labels	Article-No.
QT7040S	88.0	70.0	42.0	3.6	50 pcs.	White (WH)	TAG63TD1	151-10952
QT7016R	100.0	70.0	18.0	4.7	50 pcs.	White (WH)	TAG68-16TD1	151-10950
QT7040R	100.0	70.0	42.0	4.7	50 pcs.	White (WH)	TAG63TD1	151-10951
QT10065R	135.0	100.0	67.0	4.7	25 pcs.	White (WH)	TAG102-64TD1	151-10953

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

TYPE	Description	Pack Cont.	Colour	Article-No.
T82S-BK	Indelible Marker Pen	2 pcs.	Black (BK)	500-50820
T82R-RD	Indelible Marker Pen	2 pcs.	Red (RD)	500-50822

Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

### Identification ties and plates for marking cable bundles

#### IMP and IT Plates

The IMP and IT range of marker plates are suitable for applying to large cable bundles before or after termination has taken place. The marker plates can also be riveted if required.

They are secured with cable ties of any length with a maximum width of 4.8 mm.

They can be written on by hand using either a black or red T82 indelible marker pen.

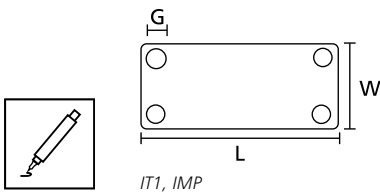
#### Features and benefits

- IT and IMP plates for identifying large cable bundles or flat surfaces
- Mark IT and IMP plates with printable labels or T82 pens
- Fix with cable ties or rivets
- Custom printed plaques are available on request



Unlimited cable bundle diameters can be securely identified.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-40 °C to +85 °C, (+105 °C, 500 h)
<b>Flammability</b>	UL94 V2



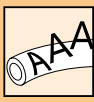
Please find the corresponding labels on page 534.

TYPE	Length (L)	Width (W)	Strap Width max. (G)	Pack Cont.	Colour	Recommended Labels	Article-No.
IMP1.5	38.1	19.1	4.8	100 pcs.	White (WH)	TAG18-16TD1	151-42159
IT1	44.0	19.0	4.8	100 pcs.	Natural (NA)	TAG28-16TD1	151-42119
IMP2	50.8	19.1	4.8	100 pcs.	White (WH)	TAG28-16TD1	151-42229
IMP2.5	63.5	19.1	4.8	100 pcs.	White (WH)	TAG43-16TD1	151-42259
	63.5	44.4	4.8	100 pcs.	White (WH)	TAG43-41TD1	151-42269
IMP3.5	88.9	19.1	4.8	100 pcs.	White (WH)	TAG68-16TD1	151-42359

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

TYPE	Description	Pack Cont.	Colour	Article-No.
T82S-BK	Indelible Marker Pen	2 pcs.	Black (BK)	500-50820
T82R-RD	Indelible Marker Pen	2 pcs.	Red (RD)	500-50822

Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Identification ties and plates for marking cable bundles

#### IT-Ties

One of the major benefits is the ability to both secure and identify cable bundles at different times.

#### Features and benefits

- Identification ties made of Polyamide 6.6
- For simple identification and securing of cable bundles in one step
- Printable labels are available for a professional finish
- Manual or temporary marking is possible with an indelible pen (T82S-BK / T82R-RD)



One operation with two user benefits.

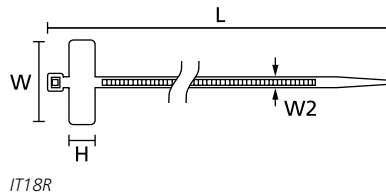
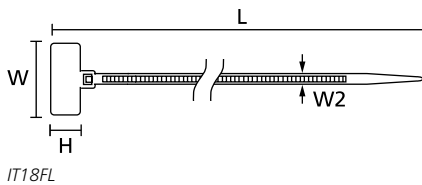


Please find the corresponding labels on page 534.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Operating Temperature</b>	-40 °C to +85 °C
<b>Flammability</b>	UL94 V2

HF ✓

RoHS ✓



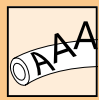
TYPE	Bundle Ø min.	Bundle Ø max.	Width (W)	Height (H)	Length (L)	Width (W2)		Recommended Labels	Pack Cont.	Colour	Article-No.
IT18FL	1.5	19.0	20.5	9.0	110.0	2.5	80	TAG18-07TD1	100 pcs.	Natural (NA)	111-81919
IT18R	6.0	22.0	25.0	8.0	100.0	2.3	80	TAG23-06TD1	100 pcs.	Natural (NA)	111-81821

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

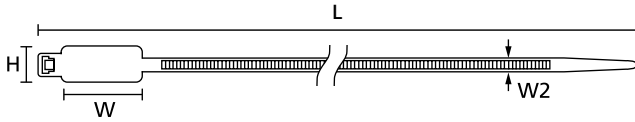


= Minimum Loop Tensile Strength for Cable Ties (Newton)

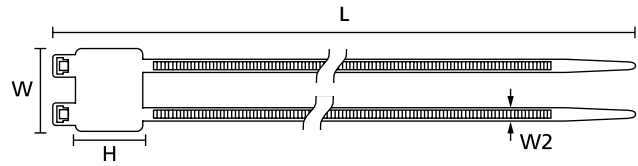


### Identification ties and plates for marking cable bundles

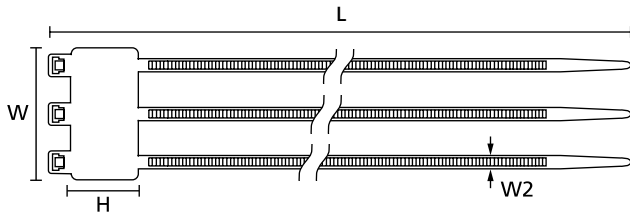
#### IT-Ties



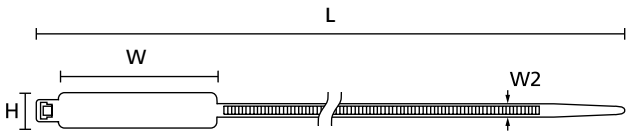
IT50R



IT50RD



IT50RT



IT50L



TYPE	Bundle Ø min.	Bundle Ø max.	Width (W)	Height (H)	Length (L)	Width (W2)		Recommended Labels	Pack Cont.	Colour	Article-No.
IT50R	9.5	44.5	28.0	12.9	203.0	4.6	225	TAG23-10TD1	100 pcs.	Natural (NA)	111-85019
IT50RD	10.0	44.0	29.0	26.3	205.0	4.7	225	TAG26-21TD1	50 pcs.	Natural (NA)	111-85219
IT50RT	10.0	44.0	46.0	26.3	205.0	4.7	225	TAG43-21TD1	50 pcs.	Natural (NA)	111-85119
IT50L	19.0	100.0	56.0	12.8	390.0	4.7	225	TAG52-10TD1	100 pcs.	Natural (NA)	111-85319

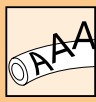
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

TYPE	Description	Pack Cont.	Colour	Article-No.
T82S-BK	Indelible Marker Pen	2 pcs.	Black (BK)	500-50820
T82R-RD	Indelible Marker Pen	2 pcs.	Red (RD)	500-50822

Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



For product specific approvals and specifications please refer to the Appendix.



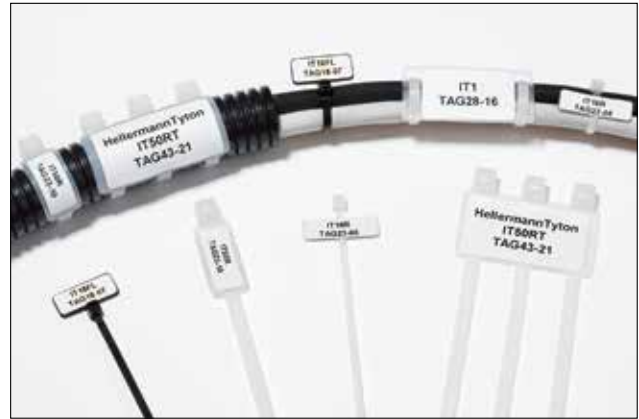
## Labels for IT ties, IMP plates and Q-tags, thermal transfer

### Helatag 892 (White)

These labels are specially tailored to the sizes used in the IT marking tie and IMP/IT as well as Q-tag range. The flexible material sticks to the marking tie or tag, even on rounded surfaces. Print with HellermannTyton's premium range of thermal transfer printers and ribbons for optimum print results. Using unique numbering, graphics or barcodes the labels give excellent asset identification possibilities. This solution produces professional marking of tubes, pipes, cables and other parts.

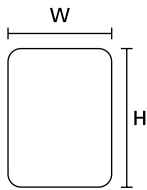
#### Features and benefits

- Suited to the slightly rough surfaces of Q-tags, IT ties and IMP/IT plates
- Adheres to rounded surfaces
- Rounded corners ensure better long term durability of adhesion
- White labels give excellent contrast



Identification ties and tags.

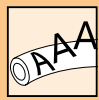
<b>MATERIAL</b>	Type 892, Vinyl (PVC), white (WH)
<b>Operating Temperature</b>	-40 °C to +80 °C
<b>Curing Temperature</b>	from 0 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	83 µm
<b>Chem. Material Properties</b>	Good resistance against water, oils and most solvents.
<b>Recommended Ribbon Type</b>	TT822OUT
<b>Thermal Transfer Printer</b>	TT430, TT4030



TYPE	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row	For Size	Pack Cont.	Colour	Article-No.
TAG18-07TD1-892-WH	18.0	7.0	24.0	1 pc.	IT18FL	5,000 pcs.	White (WH)	596-12253
TAG18-16TD1-892-WH	18.0	16.0	24.0	1 pc.	IMP1.5	2,500 pcs.	White (WH)	596-12254
TAG23-06TD1-892-WH	23.0	6.0	30.0	1 pc.	IT18R	5,000 pcs.	White (WH)	596-12255
TAG23-10TD1-892-WH	23.0	10.0	30.0	1 pc.	IT50R	5,000 pcs.	White (WH)	596-12256
TAG26-21TD2-892-WH	26.0	21.0	57.0	2 pcs.	IT50RD	2,500 pcs.	White (WH)	596-12257
TAG28-16TD1-892-WH	28.0	16.0	34.0	1 pc.	IT1, IMP2	2,500 pcs.	White (WH)	596-12258
TAG43-16TD1-892-WH	43.0	16.0	50.0	1 pc.	IMP2.5	2,500 pcs.	White (WH)	596-12259
TAG43-21TD1-892-WH	43.0	21.0	50.0	1 pc.	IT50RT	2,500 pcs.	White (WH)	596-12260
TAG43-41TD1-892-WH	43.0	41.0	50.0	1 pc.	IMP2.5W1.75	1,000 pcs.	White (WH)	596-12261
TAG52-10TD1-892-WH	52.0	10.0	58.0	1 pc.	IT50L	5,000 pcs.	White (WH)	596-12262
TAG63TD1-892-WH	63.5	38.1	70.0	1 pc.	QT7040R, QT7040S	1,000 pcs.	White (WH)	596-12263
TAG68-16TD1-892-WH	68.0	16.0	74.0	1 pc.	IMP3.5, QT7016R	2,500 pcs.	White (WH)	596-12264
TAG102-64TD1-892-WH	102.0	64.0	106.0	1 pc.	QT10065R	250 pcs.	White (WH)	596-12265

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.





### Carrier marking system, laser printer

#### Helafix HC and HCR Carriers

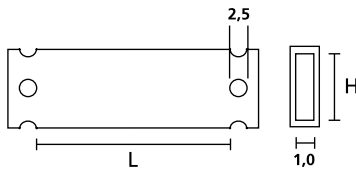
Marking of cable looms, cables, pipes, transport systems, valves, sensors, for inventory marking on machines or other parts.

#### Features and benefits

- Versatile transparent carriers for HFX labels used for temporary or permanent marking
- Fixed in place using T18 series cable ties, screws or rivets (carrier HC06, no rivet hole)
- Protects inserted HFX label against damp, dirt, damage and UV radiation
- Helafix HC supplied as cut lengths in bags, pre-cut and pre-punched rivet hole (carrier HC06 has no punched hole)
- Helafix HCR supplied in continuous tube format and can be cut to size with HCT tool
- Helafix HFX labels designed to fit into HC and HCR carriers



Multi-purpose identification potential: Helafix HC and HCR.



<b>MATERIAL</b>	Polyethylene, UV-resistant (PEUV)
<b>Operating Temperature</b>	-60 °C to +65 °C
<b>Flammability</b>	UL94 HB
<b>Chem. Material Properties</b>	Resistance to UV light, water and a variety of solvents.

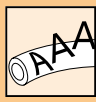


TYPE	Length (L)	Height (H)	Reel Length	Pack Cont.	Recommended Labels	Tools	Article-No.
HCR06	-	7.0	25 m	25 m	-	-	525-07003
HCR09	-	10.0	25 m	25 m	HFX9	50	525-10003
HCR12	-	13.0	25 m	25 m	HFX12	51	525-13003
HCR18	-	19.0	25 m	25 m	-	-	525-19003
HCR24	-	25.0	25 m	25 m	-	-	525-25003
HC06-17	17.5	7.0	-	50 pcs.	-	-	525-07173
HC09-17	17.5	10.0	-	50 pcs.	HFX9-17P	-	525-10173
HC12-17	17.5	13.0	-	50 pcs.	-	-	525-13173
HC06-35	35.0	7.0	-	50 pcs.	-	-	525-07353
HC09-35	35.0	10.0	-	50 pcs.	HFX9-35P	-	525-10353
HC12-35	35.0	13.0	-	50 pcs.	HFX12-35P	-	525-13353
HC18-35	35.0	19.0	-	50 pcs.	-	-	525-19353
HC09-52	52.0	10.0	-	50 pcs.	HFX9-52P	-	525-10523
HC12-52	52.0	13.0	-	50 pcs.	HFX12-52P	-	525-13523
HC18-52	52.0	19.0	-	50 pcs.	-	-	525-19523
HC24-52	52.0	25.0	-	50 pcs.	-	-	525-25523
HC12-70	70.0	13.0	-	50 pcs.	-	-	525-13703
HC18-70	70.0	19.0	-	50 pcs.	-	-	525-19703
HC24-70	70.0	25.0	-	50 pcs.	-	-	525-25703

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools		
	50	51
	HCT1	HCT2
	573	573

For more information on toolings please refer to the Application Tooling chapter.



## Carrier marking system, laser printer

### Helafix HFX Labels

Use marking pen T82 or print the labels with laser printer. For indoor use in bundle applications in machines, panel building or wherever flexible self marked marking is needed.

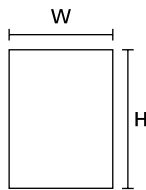
#### Features and benefits

- Laser printable non-adhesive labels for Helafix carrier strip (HC and HCR) range
- Every sheet in two colours (front yellow, back white)
- A4 format
- Simple and efficient label design and printing with TagPrint Pro software
- Mark manually with T82 series indelible markers pens
- Templates available from [www.hellermannntyton.com](http://www.hellermannntyton.com) for those wishing to use MS Word



A precise match for Helafix, for permanent identification coding.

<b>MATERIAL</b>	Polyester (SP)
<b>Operating Temperature</b>	-70 °C to +125 °C
<b>Chem. Material Properties</b>	Resistance to a variety of solvents. Good UV light resistance.



TYPE	Width (W)	Height (H)	Labels per Sheet	Sheets per Pack	Carton Quantity	Colour	Article-No.
HFX9-17P	17.5	9.0	319 pcs.	20 pcs.	6,380 pcs.	Yellow (YE), White (WH)	526-01014
HFX9-35P	35.0	9.0	145 pcs.	20 pcs.	2,900 pcs.	Yellow (YE), White (WH)	526-01514
HFX12-35P	35.0	12.0	110 pcs.	20 pcs.	2,200 pcs.	Yellow (YE), White (WH)	526-01714
HFX9-52P	52.5	9.0	124 pcs.	20 pcs.	2,480 pcs.	Yellow (YE), White (WH)	526-02014
HFX12-52P	52.5	12.0	92 pcs.	20 pcs.	1,840 pcs.	Yellow (YE), White (WH)	526-02214
HFX12-105P	105.0	12.0	44 pcs.	20 pcs.	880 pcs.	Yellow (YE), White (WH)	526-02514
HFX24-105P	105.0	24.0	22 pcs.	20 pcs.	440 pcs.	Yellow (YE), White (WH)	526-03014
HFX12-210P	210.0	12.0	22 pcs.	20 pcs.	440 pcs.	Yellow (YE), White (WH)	526-05014
HFX24-210P	210.0	24.0	11 pcs.	20 pcs.	220 pcs.	Yellow (YE), White (WH)	526-05514

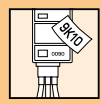
All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

TYPE	Description	Pack Cont.	Colour	Article-No.
T82S-BK	Indelible Marker Pen	2 pcs.	Black (BK)	500-50820
T82R-RD	Indelible Marker Pen	2 pcs.	Red (RD)	500-50822

Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Labels for control panel identification, thermal transfer

**Helatag 880 (Yellow matt), removable**

**Helatag 1211 (Yellow gloss)**

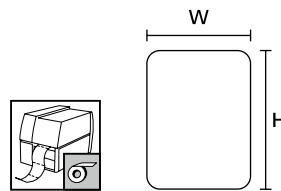
These labels are suitable for the permanent identification of components and preassembled units within electrical industry as well as asset identification. Print with HellermannTyton's premium range of thermal transfer printers and ribbons for optimum print results. They can also be used in the design and setup as well as in the repair and expansion of control cabinets and control units. Due to the structure of the vinyl label they are suitable for rougher surfaces.

#### Features and benefits

- Suited to labelling electrical panels
- Where high label visibility is required
- Partially suitable for critical surfaces
- Rounded corners ensure better long term durability of adhesion



Switchgear application.



<b>MATERIAL</b>	Type 880, Vinyl (PVC), yellow matt (MTYE), removable
<b>Operating Temperature</b>	-40 °C to +80 °C
<b>Curing Temperature</b>	from +10 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	80 µm
<b>Chem. Material Properties</b>	Good resistance to water, oil and most solvents.
<b>Recommended Ribbon Type</b>	TT822OUT
<b>Thermal Transfer Printer</b>	TT430, TT4030

<b>MATERIAL</b>	Type 1211, Vinyl (PVC), yellow gloss (GSYE)
<b>Operating Temperature</b>	-20 °C to +80 °C
<b>Curing Temperature</b>	from +5 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	83 µm
<b>Chem. Material Properties</b>	Resistant to water, alcohol, most oils, greases, fuel, aliphatic solvents, weak acids, salts and alkalis.
<b>Recommended Ribbon Type</b>	TT822OUT
<b>Thermal Transfer Printer</b>	TT430, TT4030

RoHS ✓

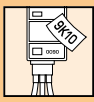
RoHS ✓

TYPE	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row	Pack Cont.	Colour	Article-No.
TAG15-09TE-880-YE	15.0	9.0	89.0	5 pcs.	10,000 pcs.	Yellow matt (MTYE)	596-12174
TAG16-06TE-880-YE	16.5	6.0	101.6	5 pcs.	20,000 pcs.	Yellow matt (MTYE)	596-12172
TAG19-11TE-880-YE	19.0	11.0	89.0	4 pcs.	10,000 pcs.	Yellow matt (MTYE)	596-12175
TAG20-08TE-880-YE	20.0	8.0	101.6	4 pcs.	10,000 pcs.	Yellow matt (MTYE)	596-12173
TAG38-11TE-880-YE	38.0	11.0	85.1	2 pcs.	5,000 pcs.	Yellow matt (MTYE)	596-12176
TAG56-22TE-880-YE	56.0	22.0	62.0	1 pc.	2,000 pcs.	Yellow matt (MTYE)	596-12177

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

TYPE	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row	Pack Cont.	Colour	Article-No.
TAG15-09TE-1211-YE	15.0	9.0	89.0	5 pcs.	10,000 pcs.	Yellow gloss (GSYE)	596-21211
TAG16-06TE-1211-YE	16.5	6.0	101.6	5 pcs.	20,000 pcs.	Yellow gloss (GSYE)	596-01211
TAG20-08TE-1211-YE	20.0	8.0	101.6	4 pcs.	10,000 pcs.	Yellow gloss (GSYE)	596-11211
TAG38-11TE-1211-YE	38.0	11.0	85.1	2 pcs.	5,000 pcs.	Yellow gloss (GSYE)	596-41211
TAG56-22TE-1211-YE	56.0	22.0	62.0	1 pc.	2,000 pcs.	Yellow gloss (GSYE)	596-51211

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Labels for control panel identification, thermal transfer

#### Helatag 1216 (White) for rough surfaces

These labels are suitable for the permanent identification of components and preassembled units within electrical industry as well as asset identification. Print with HellermannTyton's premium range of thermal transfer printers and ribbons for optimum print results. They can also be used in the design and setup as well as in the repair and expansion of control cabinets and control units.

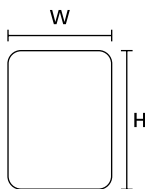
#### Features and benefits

- Suited to labelling electrical panels
- White labels give excellent contrast
- Also suitable for critical surfaces
- Rounded corners ensure better long term durability of adhesion



Clear and permanent identification of switch gears.

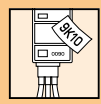
<b>MATERIAL</b>	Type 1216, Polyethylene (PE), white (WH)
<b>Operating Temperature</b>	-30 °C to +60 °C
<b>Curing Temperature</b>	from 0 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	110 µm
<b>Chem. Material Properties</b>	Resistant to water, alcohol, most oils, greases, fuel, aliphatic solvents, weak acids, salts and alkalis.
<b>Recommended Ribbon Type</b>	TT822OUT
<b>Thermal Transfer Printer</b>	TT430, TT4030



TYPE	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row	Pack Cont.	Colour	Article-No.
TAG05-08TC-1216-WH	5.0	8.0	85.0	16 pcs.	25,000 pcs.	White (WH)	596-12147
TAG05-15TC-1216-WH	5.0	15.0	85.0	16 pcs.	25,000 pcs.	White (WH)	596-12151
TAG06-10TC-1216-WH	6.0	10.0	85.0	13 pcs.	25,000 pcs.	White (WH)	596-12149
TAG08-15TC-1216-WH	8.0	15.0	85.0	10 pcs.	25,000 pcs.	White (WH)	596-12152

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Labels for control panel identification, laser printer

#### Helatag 1102 (Yellow)

These yellow labels come in various sizes and are ideal for marking flat surfaces inside control panels to ensure easy wire and cable management. The labels can be easily printed with office laser printers. All label templates are already stored in HellermannTyton's Tagprint Pro 3.0 software so label design including barcodes or logos has been made easy even with office printers.

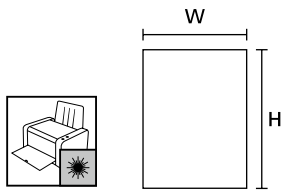
#### Features and benefits

- Yellow rating labels for component marking and control cabinets
- For use on flat and smooth surfaces
- Crisp and clear text, barcodes and graphics
- Simple and efficient label design and printing with TagPrint Pro labelling software
- Templates available from [www.hellermanntyton.com](http://www.hellermanntyton.com) for those wishing to use MS Word
- Clear protective box to ensures labels stay as good as new



Clearly identified labels ensure easy network wire and cable management.

<b>MATERIAL</b>	Type 1102, Polyester (PET), yellow (YE)
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Curing Temperature</b>	from 0 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	60 µm
<b>Chem. Material Properties</b>	Excellent resistance against water, alcohol, most oils, lubricants, fuels, aliphatic solvents, weak acid, salts, alkalis and UV light.



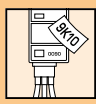
TYPE	Width (W)	Height (H)	Labels per Sheet	Sheets per Pack	Pack Cont.	Colour	Article-No.
TAG122LA4-1102-YE	15.0	9.0	372 pcs.	27 pcs.	10,000 pcs.	Yellow (YE)	594-21102
TAG120LA4-1102-YE	15.2	6.4	528 pcs.	19 pcs.	10,000 pcs.	Yellow (YE)	594-01102
TAG154LA4-1102-YE	17.0	9.0	341 pcs.	30 pcs.	10,000 pcs.	Yellow (YE)	594-51102
TAG124LA4-1102-YE	19.0	11.0	260 pcs.	20 pcs.	5,000 pcs.	Yellow (YE)	594-41102
TAG13LA4-1102-YE	19.1	6.4	440 pcs.	23 pcs.	10,000 pcs.	Yellow (YE)	594-31102
TAG121LA4-1102-YE	20.0	8.0	315 pcs.	32 pcs.	10,000 pcs.	Yellow (YE)	594-11102
TAG62LA4-1102-YE	31.8	9.5	180 pcs.	28 pcs.	5,000 pcs.	Yellow (YE)	594-81102

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



For product specific approvals and specifications please refer to the Appendix.



### Labels for control panel identification, laser printer

#### Helatag 1101 (White)

These white labels come in various sizes and are ideal for marking flat surfaces inside control panels to ensure easy wire and cable management. The labels can be easily printed with office laser printers. All label templates are already stored in HellermannTyton's Tagprint Pro 3.0 software so label design including barcodes or logos has been made easy even with office printers.

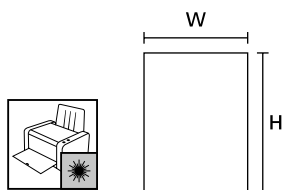
#### Features and benefits

- White rating labels for component marking as well as for control cabinets
- For use on flat and smooth surfaces
- Crisp and clear text, barcodes and graphics
- Simple and efficient label design and printing with TagPrint Pro labelling software
- Templates available from [www.hellermanntyton.com](http://www.hellermanntyton.com) for those wishing to use MS Word
- Clear protective box to ensures labels stay as good as new



Clearly identified labels ensure easy network wire and cable management.

<b>MATERIAL</b>	Type 1101, Polyester (PET), white (WH)
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Curing Temperature</b>	from 0 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	60 µm
<b>Chem. Material Properties</b>	Excellent resistance against water, alcohol, most oils, lubricants, fuels, aliphatic solvents, weak acid, salts, alkalis and UV light.



HF ✓

RoHS ✓

TYPE	Width (W)	Height (H)	Labels per Sheet	Sheets per Pack	Pack Cont.	Colour	Article-No.
TAG156LA4-1101-WH	10.2	10.2	532 pcs.	19 pcs.	10,000 pcs.	White (WH)	594-81101
TAG122LA4-1101-WH	15.0	9.0	372 pcs.	27 pcs.	10,000 pcs.	White (WH)	594-31101
TAG120LA4-1101-WH	15.2	6.4	528 pcs.	19 pcs.	10,000 pcs.	White (WH)	594-11101
TAG111LA4-1101-WH	16.5	5.1	605 pcs.	17 pcs.	10,000 pcs.	White (WH)	594-01101
TAG154LA4-1101-WH	17.0	9.0	341 pcs.	30 pcs.	10,000 pcs.	White (WH)	594-61101
TAG124LA4-1101-WH	19.0	11.0	260 pcs.	20 pcs.	5,000 pcs.	White (WH)	594-11017
TAG13LA4-1101-WH	19.1	6.4	440 pcs.	23 pcs.	10,000 pcs.	White (WH)	594-41101
TAG121LA4-1101-WH	20.0	8.0	315 pcs.	32 pcs.	10,000 pcs.	White (WH)	594-21101
TAG155LA4-1101-WH	25.4	8.5	231 pcs.	22 pcs.	5,000 pcs.	White (WH)	594-71101
TAG15LA4-1101-WH	25.4	12.7	154 pcs.	33 pcs.	5,000 pcs.	White (WH)	594-91101
TAG162LA4-1101-WH	38.1	12.7	110 pcs.	23 pcs.	2,500 pcs.	White (WH)	594-11010

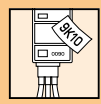
All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



For product specific approvals and specifications please refer to the Appendix.





### Cotton cloth labels, manual marking

#### HELASIGN, Material 270 (Yellow), Booklet

These handwritten labels are made of yellow fabric and have been designed for fast on-site identification of component parts, switching devices and other operating equipment. The synthetic rubber adhesive allows the easy removal or repositioning of the label when needed. For professional handwriting we recommend the marking pen T82, equipped with a fast-drying and UV-resistant ink.

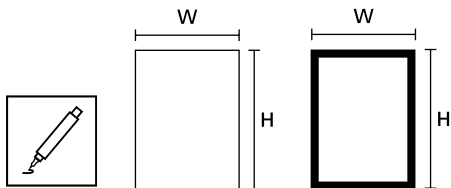
#### Features and benefits

- Yellow fabric adhesive labels
- Supplied in handy pocket-sized booklets
- Booklet cover protects labels when stored
- Easily remove or reposition labels as required
- No sticky residue on removal
- Labels available with or without black border
- Also suitable for difficult surfaces
- Use T82 marker pen for market leading mark endurance



Always on hand: Labels in a convenient, pocket sized and lightweight booklet.

<b>MATERIAL</b>	Type 270, Cotton cloth, yellow (YE)
<b>Operating Temperature</b>	-29 °C to +80 °C
<b>Curing Temperature</b>	from +10 °C
<b>Adhesive</b>	Synthetic rubber
<b>Thickness of Foil (µm)</b>	150 µm
<b>Chem. Material Properties</b>	Good resistance against water, oils and most solvents.



**RoHS** ✓

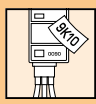
TYPE	Drawing	Width (W)	Height (H)	Labels per Sheet	Pack Cont.	Colour	Article-No.
<b>TAG122B-270-YE</b>		15.0	9.0	70 pcs.	700 pcs.	Yellow (YE)	598-12227
<b>TAG120B-270-YE</b>		15.0	6.0	105 pcs.	1,050 pcs.	Yellow (YE)	598-12027
<b>TAG124B-270-YE</b>		19.0	11.0	44 pcs.	440 pcs.	Yellow (YE)	598-12427
<b>TAG121B-270-YE</b>		20.0	8.0	60 pcs.	600 pcs.	Yellow (YE)	598-12127
<b>TAG122FB-270-YE</b>		15.0	9.0	70 pcs.	700 pcs.	Yellow (YE)	598-92227
<b>TAG124FB-270-YE</b>		19.0	11.0	44 pcs.	440 pcs.	Yellow (YE)	598-92427
<b>TAG121FB-270-YE</b>		20.0	8.0	60 pcs.	600 pcs.	Yellow (YE)	598-92127
<b>TAG125FB-270-YE</b>		38.0	11.0	22 pcs.	220 pcs.	Yellow (YE)	598-92527

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

TYPE	Description	Pack Cont.	Colour	Article-No.
<b>T82S-BK</b>	Indelible Marker Pen	2 pcs.	Black (BK)	500-50820
<b>T82R-RD</b>	Indelible Marker Pen	2 pcs.	Red (RD)	500-50822

Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.





### Cotton cloth labels, manual marking

**HELASIGN, Material 270 (Yellow), A4 Sheets**

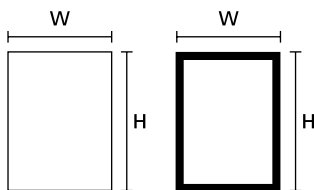
These handwritten labels are made of yellow fabric and have been designed for fast on-site identification of component parts, switching devices and other operating equipment. The synthetic rubber adhesive allows the easy removal or repositioning of the label when needed. For professional handwriting we recommend the marking pen T82, equipped with a fast-drying and UV-resistant ink.

#### Features and benefits

- Yellow fabric adhesive labels
- A4 sheets
- Easily remove or reposition labels as required
- No sticky residue on removal
- Labels available with or without black border
- Also suitable for difficult surfaces
- Use T82 marker pen for market leading mark endurance



**Please note: These labels are not suitable for laser printing.**



Cotton fabric labels will adhere to most surfaces and are repositionable.

<b>MATERIAL</b>	Type 270, Cotton cloth, yellow (YE)
<b>Operating Temperature</b>	-29 °C to +80 °C
<b>Curing Temperature</b>	from +10 °C
<b>Adhesive</b>	Synthetic rubber
<b>Thickness of Foil (µm)</b>	150 µm
<b>Chem. Material Properties</b>	Good resistance against water, oils and most solvents.

**RoHS** ✓

TYPE	Drawing	Width (W)	Height (H)	Labels per Sheet	Pack Cont.	Colour	Article-No.
TAG120A4-270-YE		15.0	6.0	611 pcs.	15,275 pcs.	Yellow (YE)	597-12027
TAG122A4-270-YE		15.0	9.0	348 pcs.	9,300 pcs.	Yellow (YE)	597-12227
TAG124A4-270-YE		19.0	11.0	240 pcs.	6,000 pcs.	Yellow (YE)	597-12427
TAG121A4-270-YE		20.0	8.0	315 pcs.	7,875 pcs.	Yellow (YE)	597-12127
TAG123A4-270-YE		26.0	10.0	196 pcs.	4,900 pcs.	Yellow (YE)	597-12327
TAG126A4-270-YE		30.0	20.0	36 pcs.	2,100 pcs.	Yellow (YE)	597-12627
TAG125A4-270-YE		38.0	11.0	130 pcs.	3,250 pcs.	Yellow (YE)	597-12527
TAG127A4-270-YE		56.0	22.0	39 pcs.	975 pcs.	Yellow (YE)	597-12727
TAG128A4-270-YE		60.0	35.0	24 pcs.	600 pcs.	Yellow (YE)	597-12827
TAG122FA4-270-YE		15.0	9.0	348 pcs.	9,300 pcs.	Yellow (YE)	597-92227
TAG124FA4-270-YE		19.0	11.0	240 pcs.	6,000 pcs.	Yellow (YE)	597-92427
TAG121FA4-270-YE		20.0	8.0	315 pcs.	7,875 pcs.	Yellow (YE)	597-92127
TAG125FA4-270-YE		38.0	11.0	130 pcs.	3,250 pcs.	Yellow (YE)	597-92527
TAG127FA4-270-YE		56.0	22.0	39 pcs.	975 pcs.	Yellow (YE)	597-92727
TAG128FA4-270-YE		60.0	35.0	24 pcs.	600 pcs.	Yellow (YE)	597-92827

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

TYPE	Description	Pack Cont.	Colour	Article-No.
T82S-BK	Indelible Marker Pen	2 pcs.	Black (BK)	500-50820
T82R-RD	Indelible Marker Pen	2 pcs.	Red (RD)	500-50822

Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Panel plate labels, thermal transfer

#### Helatag 1220 (White)

Panel labels are durable adhesive labels especially made from a thick material that is designed to replace traditional engraved plastic plates. The white glossy colour is suited to industrial control panels, switchgear, data racks and general equipment labelling.

Create crisp and clear professional looking labels by printing with HellermannTyton thermal transfer printers and ribbons.

Simple label design creation is easily achieved using TagPrint Pro.

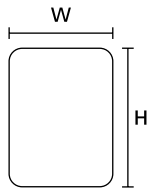
#### Features and benefits

- Cost-effective replacement for engraved plastic plates, no need for additional label holder
- High performance adhesive and compressible foam backing ensures optimal adhesion to uneven surfaces if required
- Rounded corners ensure better long term durability of adhesion
- Print high contrast text and barcodes
- Print 'On Site' not order 'Off Site'
- Special sizes and colours are possible on request
- For outstanding chemical resistance use TT1220OUT



Panel labels are an ideal replacement for engraved plates.

<b>MATERIAL</b>	Type 1220, Polyester (PET), white (WH)
<b>Operating Temperature</b>	-40 °C to +90 °C
<b>Curing Temperature</b>	from +4 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	625 µm
<b>Chem. Material Properties</b>	Excellent resistance to ageing, weathering and UV-radiation. Extensive resistance to the influence of chemicals and solvents.
<b>Recommended Ribbon Type</b>	TT1220OUT, TT8220OUT
<b>Thermal Transfer Printer</b>	TT430, TT4030



One Step to the Web!



TYPE	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row	Pack Cont.	Colour	Article-No.
TAG13-07TDK1-1220-WH	13.0	7.0	21.0	1 pc.	1,000 pcs.	White (WH)	596-00560
TAG22-22TDK1-1220-WH	22.0	22.0	28.0	1 pc.	1,000 pcs.	White (WH)	596-00561
TAG27-08TDK1-1220-WH	27.0	8.0	33.0	1 pc.	1,000 pcs.	White (WH)	596-00562
TAG27-12.5TDK1-1220-WH	27.0	12.5	33.0	1 pc.	1,000 pcs.	White (WH)	596-00558
TAG27-15TDK1-1220-WH	27.0	15.0	33.0	1 pc.	1,000 pcs.	White (WH)	596-00563
TAG27-18TDK1-1220-WH	27.0	18.0	33.0	1 pc.	1,000 pcs.	White (WH)	596-00564
TAG27-27TDK1-1220-WH	27.0	27.0	33.0	1 pc.	1,000 pcs.	White (WH)	596-00565
TAG35-18TDK1-1220-WH	35.0	18.0	41.0	1 pc.	1,000 pcs.	White (WH)	596-00566
TAG45-15TDK1-1220-WH	45.0	15.0	51.0	1 pc.	1,000 pcs.	White (WH)	596-00567
TAG45-25TDK1-1220-WH	45.0	25.0	51.0	1 pc.	1,000 pcs.	White (WH)	596-00568
TAG60-30TDK1-1220-WH	60.0	30.0	66.0	1 pc.	500 pcs.	White (WH)	596-00569
TAG90-45TDK1-1220-WH	90.0	45.0	96.0	1 pc.	500 pcs.	White (WH)	596-00570
TAG100-30TDK1-1220-WH	100.0	30.0	106.0	1 pc.	250 pcs.	White (WH)	596-00571
TAG100-70TDK1-1220-WH	100.0	70.0	106.0	1 pc.	250 pcs.	White (WH)	596-00572

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



## Panel plate labels, thermal transfer

### Helatag 1221 (Silver)

Panel labels are durable adhesive labels especially made from a thick material that is designed to replace traditional engraved plastic plates. The silver colour is suited to industrial control panels, switchgear, data racks and general equipment labelling.

Create crisp and clear professional looking labels by printing with HellermannTyton thermal transfer printers and ribbons.

Simple label design creation is easily achieved using TagPrint Pro.

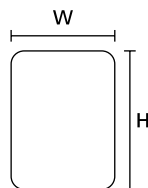
#### Features and benefits

- Cost-effective replacement for engraved plastic plates, no need for additional label holder
- High performance adhesive and compressible foam backing ensures optimal adhesion to uneven surfaces if required
- Rounded corners ensure better long term durability of adhesion
- Print high contrast text and barcodes
- Print 'On Site' not order 'Off Site'
- Special sizes and colours are possible on request
- For outstanding chemical resistance use TT122OUT



Panel labels are an ideal replacement for engraved plates.

<b>MATERIAL</b>	Type 1221, Polyester (PET), silver (SR)
<b>Operating Temperature</b>	-40 °C to +90 °C
<b>Curing Temperature</b>	from +4 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	625 µm
<b>Chem. Material Properties</b>	Excellent resistance to ageing, weathering and UV-radiation. Extensive resistance to the influence of chemicals and solvents.
<b>Recommended Ribbon Type</b>	TT122OUT, TT822OUT
<b>Thermal Transfer Printer</b>	TT430, TT4030



TYPE	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row	Pack Cont.	Colour	Article-No.
TAG13-07TDK1-1221-SR	13.0	7.0	21.0	1 pc.	1,000 pcs.	Silver (SR)	596-00573
TAG22-22TDK1-1221-SR	22.0	22.0	28.0	1 pc.	1,000 pcs.	Silver (SR)	596-00574
TAG27-08TDK1-1221-SR	27.0	8.0	33.0	1 pc.	1,000 pcs.	Silver (SR)	596-00575
TAG27-12.5TDK1-1221-SR	27.0	12.5	33.0	1 pc.	1,000 pcs.	Silver (SR)	596-00576
TAG27-15TDK1-1221-SR	27.0	15.0	33.0	1 pc.	1,000 pcs.	Silver (SR)	596-00577
TAG27-18TDK1-1221-SR	27.0	18.0	33.0	1 pc.	1,000 pcs.	Silver (SR)	596-00578
TAG27-27TDK1-1221-SR	27.0	27.0	33.0	1 pc.	1,000 pcs.	Silver (SR)	596-00579
TAG35-18TDK1-1221-SR	35.0	18.0	41.0	1 pc.	1,000 pcs.	Silver (SR)	596-00580
TAG45-15TDK1-1221-SR	45.0	15.0	51.0	1 pc.	1,000 pcs.	Silver (SR)	596-00581
TAG45-25TDK1-1221-SR	45.0	25.0	51.0	1 pc.	1,000 pcs.	Silver (SR)	596-00582
TAG60-30TDK1-1221-SR	60.0	30.0	66.0	1 pc.	500 pcs.	Silver (SR)	596-00583
TAG90-45TDK1-1221-SR	90.0	45.0	96.0	1 pc.	500 pcs.	Silver (SR)	596-00584
TAG100-30TDK1-1221-SR	100.0	30.0	106.0	1 pc.	250 pcs.	Silver (SR)	596-00585
TAG100-70TDK1-1221-SR	100.0	70.0	106.0	1 pc.	250 pcs.	Silver (SR)	596-00586

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Type label identification, thermal transfer

#### Helatag 1204 (Silver-matt)

This silver-matt label is scratch-resistant and is ideal for usage as identification or name plate in industrial environments. The high temperature range suits a wide range of applications on flat surfaces. The adhesive is also suitable for critical surfaces like plastic and paint. Designing and printing labels is simple and users can quickly print out professional labels in a matter of moments when using TagPrint Pro labelling software.

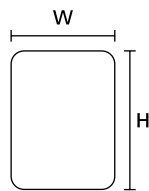
#### Features and benefits

- Replacement option for aluminium plates
- For applications on flat surfaces
- Allows the identification on critical surfaces, e.g. paints and plastic variants
- Print labels with customer unique references
- Use text, graphics and barcodes as required



Professional type plate on a heating unit.

<b>MATERIAL</b>	Type 1204, Polyester (PET)
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Curing Temperature</b>	from 0 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	55 µm
<b>Chem. Material Properties</b>	Excellent resistance to water, alcohol, most oils, greases, fuel, aliphatic solvents, weak acids, salts and alkalis.
<b>Recommended Ribbon Type</b>	TT822OUT
<b>Thermal Transfer Printer</b>	TT430, TT4030



TYPE	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row	Pack Cont.	Colour	Article-No.
TAG71TD6-1204-SR	12.7	11.1	101.6	6 pcs.	15,000 pcs.	Silver-matt (MTSR)	596-12071
TAG13TD4-1204-SR	19.1	6.4	101.6	4 pcs.	10,000 pcs.	Silver-matt (MTSR)	596-12043
TAG34TD3-1204-SR	25.4	9.5	85.1	3 pcs.	7,500 pcs.	Silver-matt (MTSR)	596-34120
TAG15TD3-1204-SR	25.4	12.7	85.1	3 pcs.	7,500 pcs.	Silver-matt (MTSR)	596-12045
TAG35TD3-1204-SR	31.8	9.5	101.6	3 pcs.	7,500 pcs.	Silver-matt (MTSR)	596-12035
TAG17TD2-1204-SR	38.1	6.4	85.1	2 pcs.	5,000 pcs.	Silver-matt (MTSR)	596-12047
TAG27TD2-1204-SR	38.1	19.1	85.1	2 pcs.	5,000 pcs.	Silver-matt (MTSR)	596-27120
TAG67TD2-1204-SR	38.1	31.8	85.1	2 pcs.	1,000 pcs.	Silver-matt (MTSR)	596-12067
TAG69TD2-1204-SR	40.6	22.9	89.0	2 pcs.	2,500 pcs.	Silver-matt (MTSR)	596-12069
TAG77TD1-1204-SR	50.8	22.9	55.0	1 pc.	2,000 pcs.	Silver-matt (MTSR)	596-12077
TAG73TD1-1204-SR	50.8	25.4	55.0	1 pc.	2,000 pcs.	Silver-matt (MTSR)	596-73124
TAG66TD1-1204-SR	50.8	36.5	56.8	1 pc.	1,000 pcs.	Silver-matt (MTSR)	596-12066
TAG63TD1-1204-SR	63.5	38.1	70.0	1 pc.	1,000 pcs.	Silver-matt (MTSR)	596-12063
TAG76TD1-1204-SR	63.5	50.8	70.0	1 pc.	500 pcs.	Silver-matt (MTSR)	596-12076
TAG72TD1-1204-SR	69.9	31.8	76.0	1 pc.	1,000 pcs.	Silver-matt (MTSR)	596-12072

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

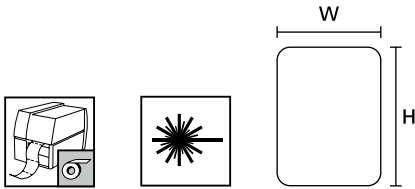


For product specific approvals and specifications please refer to the Appendix.



## Type label identification, thermal transfer

### Helatag 1204 (Silver-matt)



TYPE	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row	Pack Cont.	Colour	Article-No.
TAG65TD1-1204-SR	76.2	36.5	82.0	1 pc.	1,000 pcs.	Silver-matt (MTSR)	596-12065
TAG62TD1-1204-SR	76.2	50.8	82.0	1 pc.	500 pcs.	Silver-matt (MTSR)	596-12062
TAG64TD1-1204-SR	88.9	36.5	95.0	1 pc.	1,000 pcs.	Silver-matt (MTSR)	596-12064
TAG97TD1-1204-SR	101.6	74.0	106.0	1 pc.	500 pcs.	Silver-matt (MTSR)	596-71204
TAG02TD1-1204-SR	104.0	12.0	104.0	1 pc.	5,000 pcs.	Silver-matt (MTSR)	596-21204
TAGR3TD1-1204-SR	104.0	75,000.0	108.0	1 pc.	75.0 m	Silver-matt (MTSR)	596-31204

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



For product specific approvals and specifications please refer to the Appendix.

## Asset identification label, thermal transfer

### Helatag 1206 (White gloss)

This white label is scratch-resistant and is ideal for usage as identification or name plate in industrial environments. The high temperature range suits a wide range of applications on flat surfaces. The adhesive is also suitable for critical surfaces like plastic and paint.

Designing and printing labels is simple and users can quickly print out professional labels in a matter of moments when using TagPrint Pro labelling software.

#### Features and benefits

- Ideal for machinery operating in high temperature areas (up to +150 °C)
- For applications on flat surfaces
- Chemical resistant polyester foil
- For permanent and ageing-resistant identification
- Barcodes and alphanumeric text remain pin sharp on this high quality material
- White colour guarantees a suitable contrast for all barcode scanners to read printed barcodes



Helatag labels for permanent asset identification.

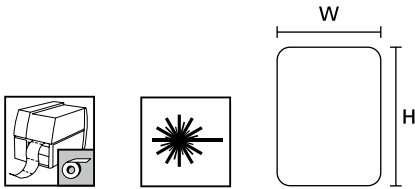
<b>MATERIAL</b>	Type 1206, Polyester (PET), white gloss (GSWH)
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Curing Temperature</b>	from 0 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	50 µm
<b>Chem. Material Properties</b>	Excellent resistance to water, alcohol, most oils, greases, fuel, aliphatic solvents, weak acids, salts and alkalis.
<b>Recommended Ribbon Type</b>	TT822OUT
<b>Thermal Transfer Printer</b>	TT430, TT4030





### Asset identification label, thermal transfer

Helatag 1206 (White gloss)



TYPE	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row	Pack Cont.	Colour	Article-No.
TAG71TD6-1206-WH	12.7	11.1	101.6	6 pcs.	15,000 pcs.	White gloss (GSWH)	596-12671
TAG13TD4-1206-WH	19.1	6.4	101.6	4 pcs.	10,000 pcs.	White gloss (GSWH)	596-12061
TAG16TD3-1206-WH	22.9	6.4	80.0	3 pcs.	10,000 pcs.	White gloss (GSWH)	596-12616
TAG61TD3-1206-WH	25.4	4.8	89.0	3 pcs.	10,000 pcs.	White gloss (GSWH)	596-12661
TAG01TD3-1206-WH	25.4	6.4	89.0	3 pcs.	7,500 pcs.	White gloss (GSWH)	596-01120
TAG34TD3-1206-WH	25.4	9.5	85.1	3 pcs.	7,500 pcs.	White gloss (GSWH)	596-12634
TAG15TD3-1206-WH	25.4	12.7	85.1	3 pcs.	7,500 pcs.	White gloss (GSWH)	596-12615
TAG31TD3-1206-WH	25.4	19.1	85.1	3 pcs.	5,000 pcs.	White gloss (GSWH)	596-12631
TAG35TD3-1206-WH	31.8	9.5	101.6	3 pcs.	7,500 pcs.	White gloss (GSWH)	596-12635
TAG17TD2-1206-WH	38.1	6.4	85.1	2 pcs.	5,000 pcs.	White gloss (GSWH)	596-12617
TAG27TD2-1206-WH	38.1	19.1	85.1	2 pcs.	2,500 pcs.	White gloss (GSWH)	596-12627
TAG67TD2-1206-WH	38.1	31.8	85.1	2 pcs.	2,500 pcs.	White gloss (GSWH)	596-12667
TAG69TD2-1206-WH	40.6	22.9	89.0	2 pcs.	2,500 pcs.	White gloss (GSWH)	596-12669
TAG77TD1-1206-WH	50.8	22.9	55.0	1 pc.	2,000 pcs.	White gloss (GSWH)	596-71206
TAG73TD1-1206-WH	50.8	25.4	55.0	1 pc.	2,000 pcs.	White gloss (GSWH)	596-12673
TAG68TD1-1206-WH	63.5	25.4	69.0	1 pc.	2,000 pcs.	White gloss (GSWH)	596-12668
TAG63TD1-1206-WH	63.5	38.1	70.0	1 pc.	1,000 pcs.	White gloss (GSWH)	596-12663
TAG76TD1-1206-WH	63.5	50.8	70.0	1 pc.	500 pcs.	White gloss (GSWH)	596-61206
TAG4TD1-1206-WH	65.0	20.0	70.0	1 pc.	2,500 pcs.	White gloss (GSWH)	596-41206
TAG72TD1-1206-WH	69.9	31.8	76.0	1 pc.	1,000 pcs.	White gloss (GSWH)	596-12672
TAG65TD1-1206-WH	76.2	36.5	82.0	1 pc.	1,000 pcs.	White gloss (GSWH)	596-12665
TAG62TD1-1206-WH	76.2	50.8	82.0	1 pc.	500 pcs.	White gloss (GSWH)	596-12662
TAG64TD1-1206-WH	88.9	36.5	95.0	1 pc.	1,000 pcs.	White gloss (GSWH)	596-12664

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



For product specific approvals and specifications please refer to the Appendix.





## Type label identification, laser printer

### Helatag 1103 (Silver)

These silver labels come in various sizes and are ideal for the identification of industrial assets.

The labels can be easily printed with office laser printers. All label templates are already stored in HellermannTyton's Tagprint Pro 3.0 software so label design including barcodes or logos has been made easy even with office printers.

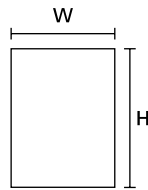
#### Features and benefits

- Matt-silver rating labels for component marking
- For use on flat and smooth surfaces
- Simple and efficient label design and printing with TagPrint Pro labelling software
- Templates available from [www.hellermanntyton.com](http://www.hellermanntyton.com) for those wishing to use MS Word
- Clear protective box to ensure labels stay as good as new



Highly visible and clearly printed labels identify quality assets.

<b>MATERIAL</b>	Type 1103, Polyester (PET), silver (SR)
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Curing Temperature</b>	from 0 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	60 µm
<b>Chem. Material Properties</b>	Excellent resistance against water, alcohol, most oils, lubricants, fuels, aliphatic solvents, weak acid, salts, alkalis and UV light.



TYPE	Width (W)	Height (H)	Labels per Sheet	Sheets per Pack	Pack Cont.	Colour	Article-No.
TAG155LA4-1103-SR	25.4	8.5	231 pcs.	22 pcs.	5,000 pcs.	Silver (SR)	594-01103
TAG151LA4-1103-SR	25.4	12.7	154 pcs.	33 pcs.	5,000 pcs.	Silver (SR)	594-11103
TAG162LA4-1103-SR	38.1	12.7	110 pcs.	23 pcs.	2,500 pcs.	Silver (SR)	594-21103
TAG165LA4-1103-SR	48.3	21.2	52 pcs.	20 pcs.	1,000 pcs.	Silver (SR)	594-31103
TAG169LA4-1103-SR	48.3	33.9	32 pcs.	32 pcs.	1,000 pcs.	Silver (SR)	594-41103
TAG170LA4-1103-SR	63.5	33.9	24 pcs.	21 pcs.	500 pcs.	Silver (SR)	594-51103
TAG171LA4-1103-SR	210.0	297.0	1 pc.	25 pcs.	25 pcs.	Silver (SR)	594-61103

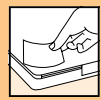
All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



For product specific approvals and specifications please refer to the Appendix.





### Type label identification, laser printer

#### Helatag 1102 (Yellow)

These yellow labels come in various sizes and are ideal for the identification of industrial assets.

The labels can be easily printed with office laser printers. All label templates are already stored in HellermannTyton's Tagprint Pro 3.0 software so label design including barcodes or logos has been made easy even with office printers.

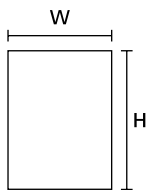
#### Features and benefits

- Yellow rating labels for component marking and control cabinets
- For use on flat and smooth surfaces
- Crisp and clear text, barcodes and graphics
- Simple and efficient label design and printing with TagPrint Pro labelling software
- Templates available from [www.hellermanntyton.com](http://www.hellermanntyton.com) for those wishing to use MS Word
- Clear protective box to ensure labels stay as good as new



Optimal print results with a range of office laser printers.

<b>MATERIAL</b>	Type 1102, Polyester (PET), yellow (YE)
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Curing Temperature</b>	from 0 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	60 µm
<b>Chem. Material Properties</b>	Excellent resistance against water, alcohol, most oils, lubricants, fuels, aliphatic solvents, weak acid, salts, alkalis and UV light.



TYPE	Width (W)	Height (H)	Labels per Sheet	Sheets per Pack	Pack Cont.	Colour	Article-No.
TAG156LA4-1102-YE	10.2	10.2	532 pcs.	19 pcs.	10,000 pcs.	Yellow (YE)	594-61102
TAG122LA4-1102-YE	15.0	9.0	372 pcs.	27 pcs.	10,000 pcs.	Yellow (YE)	594-21102
TAG120LA4-1102-YE	15.2	6.4	528 pcs.	19 pcs.	10,000 pcs.	Yellow (YE)	594-01102
TAG154LA4-1102-YE	17.0	9.0	341 pcs.	30 pcs.	10,000 pcs.	Yellow (YE)	594-51102
TAG124LA4-1102-YE	19.0	11.0	260 pcs.	20 pcs.	5,000 pcs.	Yellow (YE)	594-41102
TAG13LA4-1102-YE	19.1	6.4	440 pcs.	23 pcs.	10,000 pcs.	Yellow (YE)	594-31102
TAG121LA4-1102-YE	20.0	8.0	315 pcs.	32 pcs.	10,000 pcs.	Yellow (YE)	594-11102
TAG62LA4-1102-YE	31.8	9.5	180 pcs.	28 pcs.	5,000 pcs.	Yellow (YE)	594-81102
TAG171LA4-1102-YE	210.0	297.0	1 pc.	25 pcs.	25 pcs.	Yellow (YE)	594-71102

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



For product specific approvals and specifications please refer to the Appendix.



## Type label identification, laser printer

### Helatag 1101 (White)

These white labels come in various sizes and are ideal for the identification of industrial assets.

The labels can be easily printed with office laser printers. All label templates are already stored in HellermannTyton's Tagprint Pro 3.0 software so label design including barcodes or logos has been made easy even with office printers.

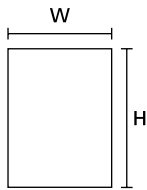
#### Features and benefits

- White rating labels for component marking as well as for control cabinets
- For use on flat and smooth surfaces
- Crisp and clear text, barcodes and graphics
- Simple and efficient label design and printing with TagPrint Pro labelling software
- Templates available from [www.hellermanntyton.com](http://www.hellermanntyton.com) for those wishing to use MS Word
- Clear protective box to ensure labels stay as good as new



Helatag label for permanent asset identification.

<b>MATERIAL</b>	Type 1101, Polyester (PET), white (WH)
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Curing Temperature</b>	from 0 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	60 µm
<b>Chem. Material Properties</b>	Excellent resistance against water, alcohol, most oils, lubricants, fuels, aliphatic solvents, weak acid, salts, alkalis and UV light.



TYPE	Width (W)	Height (H)	Labels per Sheet	Sheets per Pack	Pack Cont.	Colour	Article-No.
TAG156LA4-1101-WH	10.2	10.2	532 pcs.	19 pcs.	10,000 pcs.	White (WH)	594-81101
TAG122LA4-1101-WH	15.0	9.0	372 pcs.	27 pcs.	10,000 pcs.	White (WH)	594-31101
TAG120LA4-1101-WH	15.2	6.4	528 pcs.	19 pcs.	10,000 pcs.	White (WH)	594-11101
TAG11LA4-1101-WH	16.5	5.1	605 pcs.	17 pcs.	10,000 pcs.	White (WH)	594-01101
TAG154LA4-1101-WH	17.0	9.0	341 pcs.	30 pcs.	10,000 pcs.	White (WH)	594-61101
TAG124LA4-1101-WH	19.0	11.0	260 pcs.	20 pcs.	5,000 pcs.	White (WH)	594-11017
TAG13LA4-1101-WH	19.1	6.4	440 pcs.	23 pcs.	10,000 pcs.	White (WH)	594-41101
TAG121LA4-1101-WH	20.0	8.0	315 pcs.	32 pcs.	10,000 pcs.	White (WH)	594-21101
TAG155LA4-1101-WH	25.4	8.5	231 pcs.	22 pcs.	5,000 pcs.	White (WH)	594-71101
TAG15LA4-1101-WH	25.4	12.7	154 pcs.	33 pcs.	5,000 pcs.	White (WH)	594-91101
TAG62LA4-1101-WH	31.8	9.5	180 pcs.	28 pcs.	5,000 pcs.	White (WH)	594-11016
TAG162LA4-1101-WH	38.1	12.7	110 pcs.	23 pcs.	2,500 pcs.	White (WH)	594-11010
TAG150LA4-1101-WH	48.3	8.5	132 pcs.	19 pcs.	2,500 pcs.	White (WH)	594-51101
TAG163LA4-1101-WH	48.3	12.7	88 pcs.	29 pcs.	2,500 pcs.	White (WH)	594-11011
TAG165LA4-1101-WH	48.3	21.2	52 pcs.	20 pcs.	1,000 pcs.	White (WH)	594-11012
TAG169LA4-1101-WH	48.3	33.9	32 pcs.	32 pcs.	1,000 pcs.	White (WH)	594-11013
TAG170LA4-1101-WH	63.5	33.9	24 pcs.	21 pcs.	500 pcs.	White (WH)	594-11014
TAG171LA4-1101-WH	210.0	297.0	1 pc.	25 pcs.	25 pcs.	White (WH)	594-11015

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



For product specific approvals and specifications please refer to the Appendix.



### Warehouse and pipe labelling, thermal transfer

#### Helatag 1213 (Various colours)

These coloured labels are used to identify storage systems with barcode and location information. They are also suitable for general marking of parts and components, samples and blocked goods in quality assurance, storage boxes and barrels.

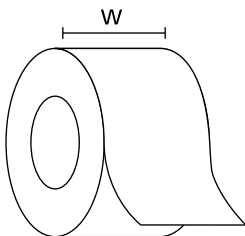
#### Features and benefits

- Pipe, warehouse and shelving label
- Supplied on a continuous roll and cut by hand or automated with printer cutters
- Also for rough surfaces
- Good resistance in outdoor applications



Large and highly visible pipe marking.

<b>MATERIAL</b>	Type 1213, Vinyl (PVC), glossy colours
<b>Operating Temperature</b>	-40 °C to +90 °C
<b>Curing Temperature</b>	from +8 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	66 µm
<b>Chem. Material Properties</b>	Resistant to water, alcohol, most oils, greases, fuel, aliphatic solvents, weak acids, salts and alkalis.
<b>Recommended Ribbon Type</b>	TT822OUT, TTRW
<b>Thermal Transfer Printer</b>	TT430, TT4030



TYPE	Width (W)	Width of Liner (WL)	Pack Cont.	Colour	Article-No.
TAGR4TD1-1213-YE	25.0	25.0	50 m	Yellow gloss (GSYE)	596-03103
TAG108TD1-1213-BU	40.0	40.0	50 m	Blue (BU)	596-12181
TAG108TD1-1213-GY	40.0	40.0	50 m	Grey (GY)	596-12188
TAG108TD1-1213-PK	40.0	40.0	50 m	Pink (PK)	596-00971
TAG108TD1-1213-YE	40.0	40.0	50 m	Yellow gloss (GSYE)	596-12167
TAG108TD1-1213-GN	40.0	40.0	50 m	Green (GN)	596-12166
TAGR1TD-1213-GN	101.6	101.6	50 m	Green (GN)	596-12170
TAGR1TD-1213-RD	101.6	101.6	50 m	Red (RD)	596-12168
TAGR1TD-1213-WH	101.6	101.6	50 m	White (WH)	596-12171
TAGR1TD-1213-YE	101.6	101.6	50 m	Yellow gloss (GSYE)	596-12169

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Printed circuit board labels (ESD), thermal transfer

#### Helatag 823 (White), PCB labelling

Helatag 823 labels have been designed to fit all areas when it comes to marking components on PCBs. The specially formulated adhesive labels give the highest quality print clarity when printed on thermal transfer printers. Designing and printing labels is simple and users can quickly print out professional labels in a matter of moments when using TagPrint Pro labelling software.

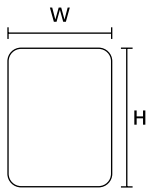
#### Features and benefits

- Labels for printed circuit boards
- Voltage rejecting adhesive properties
- Permanent and durable identification
- For electrostatic sensitive applications



Secure identification of component parts and circuit boards with Helatag.

<b>MATERIAL</b>	Type 823, Polyester (PET), white (WH)
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Curing Temperature</b>	from +10 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	51 µm
<b>Chem. Material Properties</b>	Excellent resistance against alcohol, petrol, solvents, butanol, etyl- and butylcellosolve solvents, battery acid.
<b>Recommended Ribbon Type</b>	TT822OUT
<b>Thermal Transfer Printer</b>	TT430, TT4030



TYPE	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row	Pack Cont.	Colour	Article-No.
TAG16TD3-823-WH	22.9	6.4	80.0	3 pcs.	10,000 pcs.	White (WH)	596-16823
TAG61TD3-823-WH	25.4	4.8	89.0	3 pcs.	10,000 pcs.	White (WH)	596-61823
TAG29TD3-823-WH	25.4	6.4	89.0	3 pcs.	7,500 pcs.	White (WH)	596-29823
TAG34TD3-823-WH	25.4	9.5	85.1	3 pcs.	7,500 pcs.	White (WH)	596-34823
TAG35TD3-823-WH	31.8	9.5	101.6	3 pcs.	7,500 pcs.	White (WH)	596-35823
TAG17TD2-823-WH	38.1	6.4	85.1	2 pcs.	5,000 pcs.	White (WH)	596-17823

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Cable ties complete with integrated RFID transponder

#### T50RFID - Low Frequency (LF) and High Frequency (HF)

RFID cable ties provide an innovative solution for clear and rapid product identification. The nylon cable ties are equipped with an RFID transponder and therefore combine the numerous advantages of a regular cable tie with RFID technology. The ties are especially suited for securing, serialisation, tracking and identification of products in the areas of resource management, electrical inspection, inventory, distribution and rental services as well as for easy management of maintenance and repair routines.

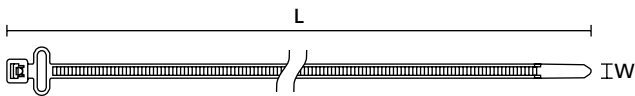
#### Features and benefits

- Flexible, contactless data communication
- Clear identification of objects through unique numbering
- Faster data management compared to paper solution
- More accurate documentation processes – prevention of human errors
- Robust and resistant to harsh environments and cleaning processes
- Low frequency (LF – 125 kHz) - Read only
- High frequency (HF – 13.56 MHz) - Rewritable



T50RFID – Cable ties with RFID transponder.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)	
<b>Frequency</b>	125 kHz (LF)	13.56 MHz (HF)
<b>Idle Temperature</b>	-40 °C to +85 °C	
<b>Operating Temperature</b>	-40 °C to +85 °C	-25 °C to +85 °C
<b>Flammability</b>	UL94 V2	



T50RFID, MCTRIFID

TYPE	Frequency	Bundle Ø min.	Bundle Ø max.	Width (W)	Length (L)	N	Colour	Pack Cont.	Tools	Article-No.
T50RFIDCLA	125 kHz (LF)	1.5	50.0	4.6	200.0	225	Yellow (YE)	100 pcs.	6;54	111-01638
T50RFIDCHA	13.56 MHz (HF)	1.5	50.0	4.6	200.0	225	Yellow (YE)	100 pcs.	6;52-53	111-01639
	13.56 MHz (HF)	1.5	50.0	4.6	200.0	225	Black (BK)	100 pcs.	6;52-53	111-01591
	13.56 MHz (HF)	1.5	50.0	4.6	200.0	225	Light Blue (LTBU)	100 pcs.	6;52-53	111-01673

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.  
More colours on request.

= Minimum Loop Tensile Strength for Cable Ties (Newton)

Recommended Tools				
	6	52	53	54
	EVO7	RFID-DT22-HF	RFID-HS9BT-HF	RFID-HS9BT-LF
	554	521	520	520

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



### Detectable cable ties with integrated RFID transponder

#### MCTRFID - Low Frequency (LF) and High Frequency (HF)

Metal content RFID cable ties offer an innovative solution for unique and fast product identification thanks to the fitting of a transponder directly to the cable tie. The metal content RFID cable ties are made with a percentage of a metallic trace element (magnet/X-Ray) and have been especially developed for industries where the potential for foreign body contamination is a problem. The ties can be used for securing, serialisation, tracking and identification of products e.g. in the food processing or pharmaceutical industry to support quality control effort.

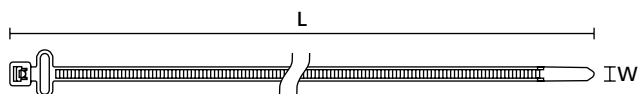
#### Features and benefits

- Magnetic or X-Ray detectable RFID cable ties (detection level depending on specific application)
- Total metal dispersion throughout the tie
- For safe handling of production processes
- Blue colour for easy visual detection
- Flexible, contactless data communication
- Clear identification of objects through unique numbering
- Faster data management compared to paper solution
- More accurate documentation processes – prevention of human errors
- Robust and resistant to harsh environments and cleaning processes
- Low frequency (LF – 125 kHz) - Read only
- High frequency (HF – 13.56 MHz) - Rewritable



MCTRFID – Detectable cable ties (metal content) with RFID transponder.

<b>MATERIAL</b>	Polyamide 6.6, with metal particles (PA66MP)	
<b>Frequency</b>	125 kHz (LF)	13.56 MHz (HF)
<b>Idle Temperature</b>	-40 °C to +85 °C	
<b>Operating Temperature</b>	-40 °C to +85 °C	-25 °C to +85 °C
<b>Flammability</b>	UL94 HB	



T50RFID, MCTRFID

TYPE	Frequency	Bundle Ø min.	Bundle Ø max.	Width (W)	Length (L)	N	Colour	Pack Cont.	Tools	Article-No.
MCTRFIDCLA	125 kHz (LF)	1.5	50.0	4.6	200.0	225	Blue (BU)	100 pcs.	6;54	111-01976
MCTRFIDCHA	13.56 MHz (HF)	1.5	50.0	4.6	200.0	225	Blue (BU)	100 pcs.	6;52-53	111-01676

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

= Minimum Loop Tensile Strength for Cable Ties (Newton)

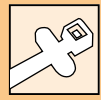
Recommended Tools				
	6	52	53	54
	EVO7	RFID-DT22-HF	RFID-HS9BT-HF	RFID-HS9BT-LF
	554	521	520	520

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.





### Stainless steel ties with RFID transponder

#### MBTRFID – High Frequency (HF) and Ultra High Frequency (UHF)

Stainless steel RFID cable ties are fitted with a slide-on carrier for a high frequency (HF) or an ultra-high frequency (UHF) RFID transponder. These ties are ideal for product identification in all areas of harsh environment where high tensile strength and durability is of importance. The ties are especially suited for securing, serialisation, tracking and identification of products in the areas of resource management, electrical inspection, inventory, distribution and rental services as well as for easy management of maintenance and repair routines.

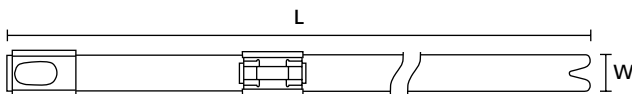
#### Features and benefits

- MBT stainless steel (316) tie complete with RFID transponder
- Especially suited for applications in harsh environments
- Patented non-releasable locking feature
- Flexible, contactless data communication
- Clear identification of objects through unique numbering
- Faster data management compared to paper solution
- More accurate documentation processes – prevention of human errors
- High frequency (HF – 13.56 MHz)
- Ultra high frequency (UHF – 869 MHz)
- Rewritable
- Standard colour red, black coating is also available as a special




MBTRFID – Stainless steel RFID cable ties for product identification in harsh environments.

<b>MATERIAL</b>	Stainless Steel (SS316), Polyester (SP)	
<b>Frequency</b>	13.56 MHz (HF)	869 MHz (UHF)
<b>Idle Temperature</b>	-25 °C to +70 °C	-40 °C to +85 °C
<b>Operating Temperature</b>	-25 °C to +70 °C	-40 °C to +85 °C
<b>Flammability</b>	non-burning (except coating)	




MBTRFID

TYPE	Frequency	Bundle Ø min.	Bundle Ø max.	Width (W)	Length (L)		Colour	Pack Cont.	Tools	Article-No.
MBT8HFCRFID	13.56 MHz (HF)	12.0	17.0	7.9	201.0	1,020	Red (RD)	50 pcs.	15-18;53	156-01167
MBT14HFCRFID	13.56 MHz (HF)	17.0	102.0	7.9	362.0	1,020	Red (RD)	50 pcs.	15-18;53	111-01586
MBT20HFCRFID	13.56 MHz (HF)	17.0	152.0	7.9	521.0	1,020	Red (RD)	50 pcs.	15-18;53	111-01587
MBT27HFCRFID	13.56 MHz (HF)	17.0	203.0	7.9	681.0	1,020	Red (RD)	50 pcs.	15-18;53	111-01588
MBT33HFCRFID	13.56 MHz (HF)	17.0	254.0	7.9	838.0	1,020	Red (RD)	50 pcs.	15-18;53	111-01589
MBT8HHFRFID	869 MHz (UHF)	12.0	17.0	7.9	201.0	1,020	Red (RD)	50 pcs.	15-18;53	156-01565
MBT14HHFRFID	869 MHz (UHF)	12.0	102.0	7.9	362.0	1,020	Red (RD)	50 pcs.	15-18;53	156-01566
MBT20HHFRFID	869 MHz (UHF)	12.0	152.0	7.9	521.0	1,020	Red (RD)	50 pcs.	15-18;53	156-01567
MBT27HHFRFID	869 MHz (UHF)	12.0	203.0	7.9	681.0	1,020	Red (RD)	50 pcs.	15-18;53	156-01568
MBT33HHFRFID	869 MHz (UHF)	12.0	254.0	7.9	838.0	1,020	Red (RD)	50 pcs.	15-18;53	156-01569

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

 = Minimum Loop Tensile Strength for Cable Ties (Newton)

Recommended Tools					
	15	16	17	18	53
	MK9SST	MK9PSST	HDT16	KST-STG200	RFID-HS9BT-HF
	560	560	561	561	520

For more information on toolings please refer to the Application Tooling chapter.





### Accessories with RFID transponder

#### HEXTAG – High Frequency (HF)

The HEXTAG made from PA66 is equipped with a transponder of HF frequency. The central hole allows a simple mounting in applications where a RFID cable tie solution is not suitable. All HellermannTyton RFID products can be used for securing, serialisation, tracking and identification of products in the areas of resource management, electrical inspection, inventory, distribution and rental services as well as for easy management of maintenance and repair routines.

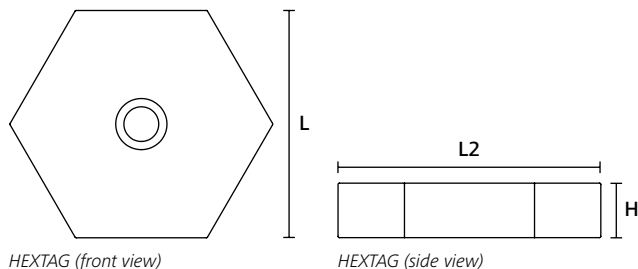
#### Features and benefits

- Can be fitted using a chosen fixing element through the centre hole
- Flexible, contactless data communication
- Clear identification of objects through unique numbering
- Faster data management compared to paper solution
- More accurate documentation processes – prevention of human errors
- Robust and resistant to harsh environments and cleaning processes
- High frequency (HF - 13.56 MHz)
- Rewritable
- Yellow colour for easy visual detection



RFID HEXTAG – For applications where a RFID cable tie solution is not suitable.

<b>MATERIAL</b>	Polyamide 6.6 (PA66)
<b>Frequency</b>	13.56 MHz (HF)
<b>Idle Temperature</b>	-40 °C to +85 °C
<b>Operating Temperature</b>	-40 °C to +85 °C
<b>Flammability</b>	UL 94 V2



TYPE	Frequency	Height (H)	Length (L)	Length (L2)	Colour	Pack Cont.	Tools	Article-No.
RFID HEXTAG	13.56 MHz (HF)	8.0	33.4	38.39	Yellow (YE)	100 pcs.	52-53	151-01582

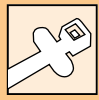
All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools		
	52	53
	RFID-DT22-HF	RFID-HS9BT-HF
	521	520

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.



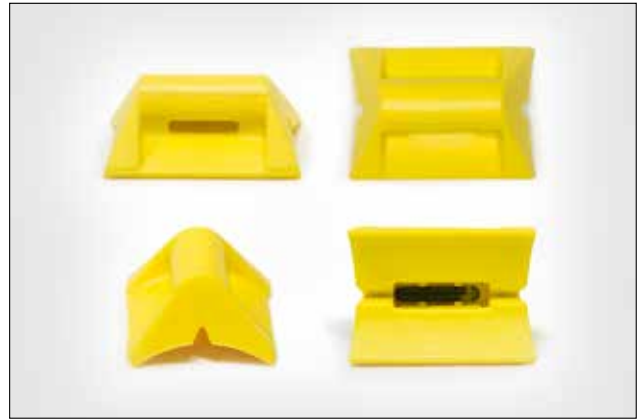
### Accessories with RFID transponder

#### RFID Desktop Reader

The CRADLE equipped with a HF transponder can be used with standard HellermannTyton cable ties. All RFID products can be used for securing, serialisation, tracking and identification of products in the areas of resource management, electrical inspection, inventory, distribution and rental services as well as for easy management of maintenance and repair routines.

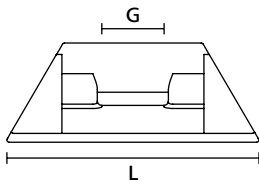
#### Features and benefits

- Cable tie slot to suit HellermannTyton's standard cable ties up to 7.9 mm wide
- Made from durable TPU and is suitable to be used in salt water conditions
- Flexible, contactless data communication
- Clear identification of objects through unique numbering
- Faster data management compared to paper solution
- More accurate documentation processes – prevention of human errors
- Robust and resistant to harsh environments and cleaning processes
- Date on RFID chip can be reprogrammed (HF) – no waste
- Yellow colour for easy visual detection
- Other colours and frequencies are available on request
- High frequency (HF – 13.56 MHz)
- Rewritable

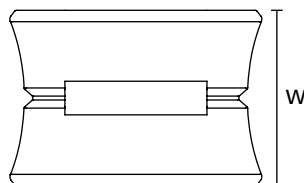


RFID CRADLE – Can be used with a standard HellermannTyton cable tie.

<b>Operating Temperature</b>	-25 °C to +60 °C
<b>Interfaces</b>	USB, HID
<b>L x W x H</b>	110 mm x 110 mm x 30 mm



CRADLE (front view)



CRADLE (rear view)



CRADLE (side view)

TYPE	Frequency	Width (W)	Length (L)	Strap Width max. (G)	Colour	Pack Cont.	Tools	Article-No.
RFID CRADLE	13.56 MHz (HF)	19.8	27.9	7.9	Yellow (YE)	100 pcs.	52-53	151-01472

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

Recommended Tools		
	52	53
	RFID-DT22-HF	RFID-HS98T-HF
	521	520

For more information on toolings please refer to the Application Tooling chapter.



## RFID Readers

### RFID Handheld Reader

The HS9 handheld RFID readers are designed to read LF transponders and read/write to HF transponders fitted to HellermannTyton RFID cable ties and accessories. The readers act as an interface between the RFID transponder and computer systems or databases. Radio waves transmit the data from the RFID transponder to the reader, so that contactless reading and/or writing of information is possible. The HS9 reader is available for low frequency (LF, 125 kHz, read-only) and for high-frequency (HF, 13.56 MHz, read and write) transponders. RFID system solutions can make a significant contribution to improving the process reliability and quality in a variety of industries.

#### Features and benefits

- RFID handheld reader
- Rewrite function on request
- Low frequency (LF - 125 kHz)
- High frequency (HF - 13.56 MHz)
- USB, HID interface
- Wireless transmission via Bluetooth
- Operator convenience
- Lightweight and handy design
- Compatible with Android- and iOS-devices
- 9V alkaline battery included

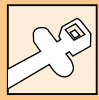


RFID-HS9 – Handheld readers for low frequency (LF) and high frequency (HF) transponders.

<b>Operating Temperature</b>	0 °C to +55 °C
<b>Interfaces</b>	USB, Bluetooth, HID
<b>L x W x H</b>	135 mm x 70 mm x 24 mm

TYPE	Frequency	Weight	Article-No.
<b>RFID-HS9BT-LF</b>	125 kHz (LF)	165 g	556-00701
<b>RFID-HS9BT-HF</b>	13.56 MHz (HF)	185 g	556-00700

Subject to technical changes.



### RFID Readers

#### RFID Desktop Reader

The RFID-DT22 desktop reader for stationary use has been designed to read and write from/to high frequency (HF 13.56 MHz) transponders fitted to HellermannTyton RFID cable ties and accessories. The reader acts as an interface to computer systems and databases. Radio waves transmit the data from the transponder to the reader, so that contactless reading of information is possible. RFID system solutions can make a significant contribution to improving the process reliability and quality in a variety of industries.

#### Features and benefits

- RFID desktop reader
- High frequency (HF - 13.56 MHz)
- For reading and writing of data
- USB, HID interface
- Operator convenience
- Lightweight and handy design

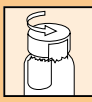


RFID-DT22 – Desktop reader for high frequency (HF) transponders.

<b>Operating Temperature</b>	-25 °C to +60 °C
<b>Interfaces</b>	USB, HID
<b>L x W x H</b>	110 mm x 110 mm x 30 mm

TYPE	Frequency	Weight	Article-No.
RFID-DT22-HF	13.56 MHz (HF)	200 g	556-00702

Subject to technical changes.



## Tamper-evident security labelling, thermal transfer

### Helatag 1203 (Silver)

These labels are ideal for tamper-proof marking of valuable inventory items as well as for type labels, security and guarantee labels for components and housings.

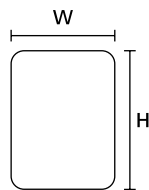
#### Features and benefits

- Tamper-evident labels leave clear reminder that label has been removed
- Mark assets securely and unambiguously
- Print labels with customer unique references
- Use text, graphics and barcodes as required
- Adhesive must set sufficiently long before a manipulation attempt can take place



Highly visible tamper evidence.

<b>MATERIAL</b>	Type 1203, Polyester (PET), silver matt (SR), tamper-proof
<b>Operating Temperature</b>	-40 °C to +120 °C
<b>Curing Temperature</b>	from +7 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	53 µm
<b>Chem. Material Properties</b>	Excellent resistance to water, alcohol, most oils, greases, fuel, freezing fluid, brake fluid, aliphatic solvents, weak acids, salts and alkalis.
<b>Recommended Ribbon Type</b>	TT822OUT
<b>Thermal Transfer Printer</b>	TT430, TT4030



TYPE	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row	Pack Cont.	Colour	Article-No.
TAG71TD6-1203-SR	12.7	11.1	101.6	6 pcs.	15,000 pcs.	Silver (SR)	596-71120
TAG15TD3-1203-SR	25.4	12.7	85.1	3 pcs.	7,500 pcs.	Silver (SR)	596-51203
TAG27TD2-1203-SR	38.1	19.1	85.1	2 pcs.	2,500 pcs.	Silver (SR)	596-71203
TAG67TD2-1203-SR	38.1	31.8	85.1	2 pcs.	1,000 pcs.	Silver (SR)	596-67120
TAG73TD1-1203-SR	50.8	25.4	55.0	1 pc.	2,000 pcs.	Silver (SR)	596-73120
TAG66TD1-1203-SR	50.8	36.5	56.8	1 pc.	1,000 pcs.	Silver (SR)	596-66120
TAG68TD1-1203-SR	63.5	25.4	69.0	1 pc.	2,000 pcs.	Silver (SR)	596-68120
TAG63TD1-1203-SR	63.5	38.1	70.0	1 pc.	1,000 pcs.	Silver (SR)	596-63120
TAG76TD1-1203-SR	63.5	50.8	70.0	1 pc.	500 pcs.	Silver (SR)	596-76120
TAG62TD1-1203-SR	76.2	50.8	82.0	1 pc.	500 pcs.	Silver (SR)	596-21203
TAG64TD1-1203-SR	88.9	36.5	95.0	1 pc.	1,000 pcs.	Silver (SR)	596-64120
TAG98TD1-1203-SR	101.0	160.0	105.0	1 pc.	250 pcs.	Silver (SR)	596-98120
TAG97TD1-1203-SR	101.6	74.0	106.0	1 pc.	500 pcs.	Silver (SR)	596-97120

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



For product specific approvals and specifications please refer to the Appendix.



### Tamper-evident security labelling, thermal transfer

#### Helatag 1208 (White), fragmenting

These special labels are optimally suited for tamper-proof identification of valuable inventory items as well as a security and guarantee seal for components and housings.

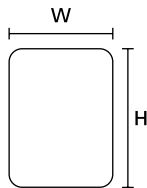
#### Features and benefits

- A security label that fragments on removal
- Designed weak spots makes label removal time consuming
- Adhesive must set sufficiently long before a manipulation attempt can take place



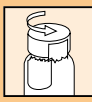
A secure way of identifying if an asset label has been tampered with.

<b>MATERIAL</b>	Type 1208, Acetate foil (CA), white (WH), tamper-proof
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Curing Temperature</b>	from +4 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	56 µm
<b>Chem. Material Properties</b>	Resistant to oils, water and solvents.
<b>Recommended Ribbon Type</b>	TT822OUT
<b>Thermal Transfer Printer</b>	TT430, TT4030



TYPE	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row	Pack Cont.	Colour	Article-No.
TAG71TD6-1208-WH	12.7	11.1	101.6	6 pcs.	15,000 pcs.	White (WH)	596-20871
TAG15TD3-1208-WH	25.4	12.7	85.1	3 pcs.	7,500 pcs.	White (WH)	596-12080
TAG27TD2-1208-WH	38.1	19.1	85.1	2 pcs.	2,500 pcs.	White (WH)	596-12082
TAG67TD2-1208-WH	38.1	31.8	85.1	2 pcs.	2,500 pcs.	White (WH)	596-12087
TAG69TD2-1208-WH	40.6	22.9	89.0	2 pcs.	2,500 pcs.	White (WH)	596-12089
TAG73TD1-1208-WH	50.8	25.4	55.0	1 pc.	2,000 pcs.	White (WH)	596-31208
TAG66TD1-1208-WH	50.8	36.5	56.8	1 pc.	1,000 pcs.	White (WH)	596-12086

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Tamper-evident security labelling, thermal transfer

#### Helatag 951 (Silver, Transparent), 2 parts

These labels are primarily used for tamper-proof type label applications in the automotive and electrical industries.

They are ideally suited for labelling flat surfaces, e.g. on vehicle frames and can be used as a replacement for conventional aluminium plates.

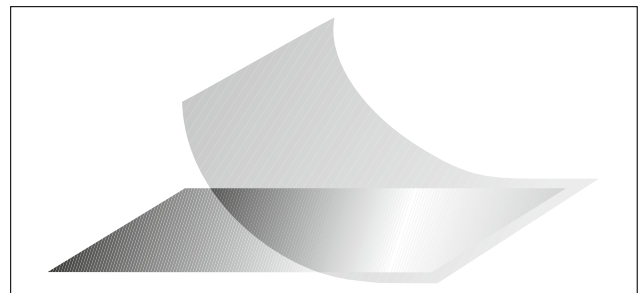
The transparent protective laminate guarantees good resistance to dirt and abrasion and can be easily applied by hand.

#### Features and benefits

- 2-part label, delivered on reel together with the protective label
- Designed for highly visible and rugged identification on trucks and trailers
- Tamper-evident, when pulled off a checkered pattern will be visible as evident
- High durability in outside use
- Meets requirements of the KBA (Kraftfahrtbundesamt [German Federal Motor Transport Authority])
- Thickness of 951A label 36 µm and 951B laminate 25 µm
- Particularly suitable as type label for vehicles



Type plate of an HGV trailer with protective laminate.

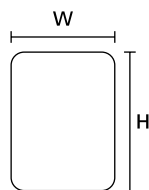


The printed silver type plate (Mat. 951A) is protected by the transparent laminate (Mat. 951B).



**Tested according to German Federal Motor Transport Authority (KBA) technical bulletin 412-205 (Testing of factory plates made of foil and the affixing thereof with adhesive).**

<b>MATERIAL</b>	Type 951, Polyester (PET), silver (SR) and Polyester (PET), transparent (CL)
<b>Operating Temperature</b>	-40 °C to +150 °C
<b>Curing Temperature</b>	from 0 °C (label), from +4 °C (laminate)
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	36 µm, 25 µm
<b>Chem. Material Properties</b>	Excellent resistance to water, alcohol, most oils, greases, fuel, aliphatic solvents, weak acids, salts and alkalis.
<b>Recommended Ribbon Type</b>	TT822OUT
<b>Thermal Transfer Printer</b>	TT430, TT4030



TYPE	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row	Pack Cont.	Colour	Article-No.
<b>TAG25.4-12.7TD1-951 SET</b>	25.4	12.7	31.5	1 pc.	1,000 pcs.	Silver (SR)	596-44951
<b>TAG50.8-25.4TD1-951 SET</b>	50.8	25.4	56.8	1 pc.	1,000 pcs.	Silver (SR)	596-43951
<b>TAG63.5-50.8TD1-951 SET</b>	63.5	50.8	69.5	1 pc.	500 pcs.	Silver (SR)	596-42951
<b>TAG101-74TD1-951 SET</b>	101.6	74.0	107.0	1 pc.	250 pcs.	Silver (SR)	596-41951
<b>TAG101-160TD1-951 SET</b>	101.6	160.0	105.8	1 pc.	250 pcs.	Silver (SR)	596-40951

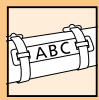
All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



For product specific approvals and specifications please refer to the Appendix.





### Stainless steel embossing system

#### M-BOSS Compact

M-BOSS Compact is a quiet easy-to-use metal plate embossing printer with a small production footprint. It is simple to install and operate and only needs a standard electrical supply and a PC. Texts are created with Tagprint Pro 3.0. Simply open the easy to use program to create print lists. Improved cooling system now ensures a continuous operation between 8-10 hours. Marker plates are attached to pipes and cables using 4.6 mm width MBT cable ties and a MK9SST hand tool.

#### Features and benefits

- Small and easy to use metal plate embosser
- Quiet embossing mechanism suited to production and office environments
- Embossed characters have been tested to withstand 1.5 million strikes each
- Improved cooling systems allows 8-10 hours continuous printing
- Use Tagprint Pro 3.0 labelling software with pre-loaded templates to simplify print jobs
- 45 piece character set as standard - can be upgraded to 60 characters
- Letters: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
- Numbers: 0 1 2 3 4 5 6 7 8 9
- Symbols: & - / . , ' Ä, Ö, Ü
- Other symbols available on request



A quiet, durable, and easy to use metal plate embossing printer.

<b>Print Method</b>	Embossed
<b>Power Supply</b>	110 Volt AC- 240 Volt AC 50/60 Hz
<b>Cycle Time</b>	1 second per character
<b>Interfaces</b>	USB 2.0
<b>System Requirements</b>	MS Windows XP SP3, Vista SP1, Win7, Win8
<b>Dimensions W x H x D</b>	480 mm x 360 mm x 570 mm
<b>Weight</b>	41 kg



**For problem-free printing we recommend TagPrint Pro, page 568.**

**RoHS** ✓

TYPE	Article-No.
<b>M-BOSS Compact</b>	544-20000

Subject to technical changes.



**1.5 million strikes per character without maintenance**

#### M-BOSS Compact including Organiser

The M-BOSS Compact with included Organiser system gives the added advantage of a self-contained storage system within the print unit.

The organiser is a 10 container carousel storage system that can be programmed to hold either an individual or a pre-defined set of marker plates. This means that users have the flexibility to manage how they work with the printed output. A simple input screen on the top of the machine is used to specify the quantity per container within the carousel. The carousel drawer when opened extends 430 mm from the front of the printer.

#### Features and benefits

- Ability to manage how the printed marker plates are organised
- Carousel system under the printer has 10 removable marker plate containers
- Flexible output means all marker plates or a set amount can be sent to each container
- Carousel system will hold up to 400 markers
- Each container can hold 40 marker plates



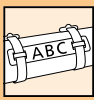
A simple solution to managing your printer output.

TYPE	Article-No.
<b>M-BOSS Compact Organiser</b>	544-21000

Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



### Stainless steel printing system

#### M-BOSS Compact Markers

M-BOSS Markers are used in all areas where severe mechanical or chemical conditions occur e.g. offshore industry, marine engineering, petrochemical industry, mining, underground or on radio and cellular masts where mark permanence is critical.

The raised surface of the embossed print ensures that the text remains visible even with dirt, grease, and paint cover the marker. The physical characteristics of the metal and the height of the embossed mark allows users to apply a stiff or metallic brush to the surface and remove excess layers of paint or grease without damaging the integrity of the text.

#### Features and benefits

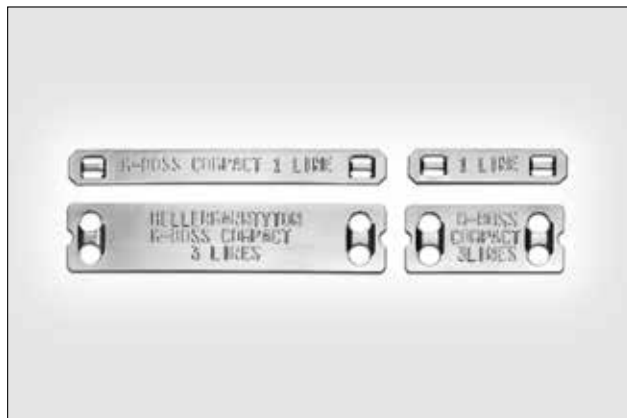
- Raised marking ensure text visibility even when covered in dust, debris, grease and oil
- Stainless steel grade SS316 is suited for use in harsh environments
- Marker plates are designed for use with stainless steel cable ties with a 4.6 mm strap width
- Apply ties with a MK9SST



One Step to the Web!

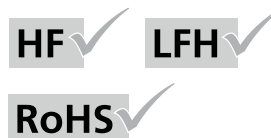
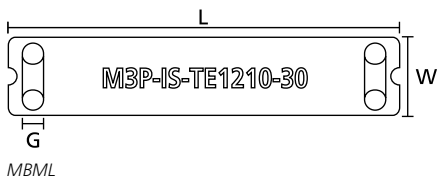


Marker plates designed to survive the harshest environments.



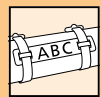
A range of metal plate sizes to suit your needs.

<b>MATERIAL</b>	Stainless Steel (SS316)
<b>Operating Temperature</b>	-80 °C to +538 °C



TYPE	Strap Width max. (G)	Number of lines	Characters per line	Number of characters	Width (W)	Length (L)	Pack Cont.	Article-No.
MBML10X45	4.6	1	8	8	10.0	45.0	1,000 pcs.	544-80101
MBML10X90	4.6	1	23	23	10.0	90.0	500 pcs.	544-80102
MBML20X45	4.6	3	8	24	20.0	45.0	1,000 pcs.	544-80201
MBML20X90	4.6	3	23	69	20.0	90.0	500 pcs.	544-80202

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Stainless steel pre-embossed marking system, manual

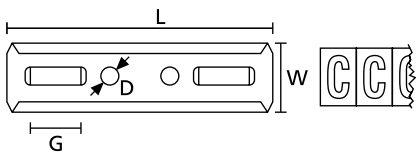
#### Hellermark SSC

#### Hellermark SSM

Hellermark is used in the rail, marine, offshore, petrochemical, food and construction industries, for the identification of cables, pipes and other equipment in harsh environments.

#### Features and benefits

- Stainless steel pre-embossed marker tiles
- Use in harsh and hazardous conditions
- Made of grade SS316 stainless steel for ideal use in aggressive environments
- Insert marker tiles (SSM) into fitting carrier (SSC) and close ends with pliers
- Fasten carriers using stainless steel cable ties with max. strap width of 8 mm
- Carrier can be riveted or screw-fixed using two 3 mm holes at each end



Hellermark SSC and SSM.

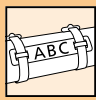
TYPE	Marking Text	Pack Cont.	Article-No.
SSM	+	200 pcs.	540-01700
	-	200 pcs.	540-01703
	,	200 pcs.	540-01702
	.	200 pcs.	540-01701
	/	200 pcs.	540-01720
	0	200 pcs.	540-01600
	1	200 pcs.	540-01610
	2	200 pcs.	540-01620
	3	200 pcs.	540-01630
	4	200 pcs.	540-01640
	5	200 pcs.	540-01650
	6	200 pcs.	540-01660
	7	200 pcs.	540-01670
	8	200 pcs.	540-01680
	9	200 pcs.	540-01690
	±	200 pcs.	540-01730

TYPE	Marking Text	Pack Cont.	Article-No.
SSM	A	200 pcs.	540-01010
	B	200 pcs.	540-01020
	C	200 pcs.	540-01030
	D	200 pcs.	540-01040
	E	200 pcs.	540-01050
	F	200 pcs.	540-01060
	G	200 pcs.	540-01070
	H	200 pcs.	540-01080
	I	200 pcs.	540-01090
	J	200 pcs.	540-01100
	K	200 pcs.	540-01110
	L	200 pcs.	540-01120
	M	200 pcs.	540-01130
	N	200 pcs.	540-01140
	O	200 pcs.	540-01150
	P	200 pcs.	540-01160
	Q	200 pcs.	540-01170
	R	200 pcs.	540-01180
	S	200 pcs.	540-01190
	T	200 pcs.	540-01200
	U	200 pcs.	540-01210
	V	200 pcs.	540-01220
	W	200 pcs.	540-01230
	X	200 pcs.	540-01240
	Y	200 pcs.	540-01250
	Z	200 pcs.	540-01260

Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

TYPE	Width (W)	Length (L)	Strap Width max. (G)	Ø (D)	Marker tiles per carrier	Pack Cont.	Article-No.
SSC46	11.0	46.0	7.9	3.0	5	10 pcs.	540-01046
SSC56	11.0	56.0	7.9	3.0	7	10 pcs.	540-01056
SSC82	11.0	82.0	7.9	3.0	11	10 pcs.	540-01082
SSC106	11.0	106.0	7.9	3.0	15	10 pcs.	540-01106
SSC134	11.0	134.0	7.9	3.0	20	10 pcs.	540-01134
SSC286	11.0	286.0	7.9	3.0	45	10 pcs.	540-01286
SSCPP (Plastic)	11.0	7.0	7.9	3.0	-	100 pcs.	540-02011

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Stainless steel embossing system

#### eKUBE Printer and Markers

The eKUBE features a silent processing embossing mechanism that can be placed in any industrial or office environment without disturbing employees. It is equipped with an automatic indexing loader and finished markers are ejected through a side slot.

Built-in software provides easy user interface. Data entry is via a portable storage media or wireless LAN.

#### Features and Benefits

- Fuss free and easy to use
- Easy input using Bluetooth keyboard and monitor
- Autonomous embossing
- Small area required for setup
- Ideal for small/office environment
- Better magazine design with no adjustment to screws or dials
- Low cost of ownership
- Eco-friendly

Embossing drum configuration:

- embossing drum - 60 characters
- standard type (alphanumeric)
- 4 mm emboss character size
- Letters **A to Z**, Numbers **0 to 9**, Symbols **() . , ' / # & - +**

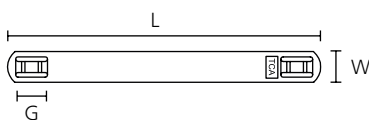


The portable embossing machine eKUBE: Patent Number: SG2013/000083

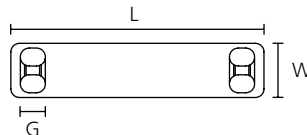
<b>Power Supply</b>	230VAC 50/60Hz
<b>Cycle Time</b>	up to 120 markers/hour
<b>Printer Interfaces</b>	portable storage media or wireless LAN
<b>Dimensions W x H x D</b>	420 mm x 320 mm x 420 mm
<b>Weight</b>	34 kg

TYPE	Article-No.
eKUBE Marking Machine	920-90001

Subject to technical changes.



MBM10X100L



MBM19X90L



Marker Plates for the eKUBE

#### eKUBE Markers

TYPE	Material	Pack Cont.	Article-No.
MBM19x90L	SS316	400	920-90305
MBM10x60L	SS316	500	920-90301
MBM10x80L	SS316	500	920-90302
MBM10x100L	SS316	500	920-90303
MBM14x100L	SS316	500	920-90304

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

#### eKUBE Magazines

TYPE	Article-No.
MAG10x60L	920-90002
MAG10x80L	920-90003
MAG10x100L	920-90004
MAG14x100L	920-90005
MAG19x90L	920-90006

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



### Protective laminates, thermal transfer

#### Helatag 323 (Transparent), high temperature

Protective laminates are used for the additional protection of printed type labels, for example in the automotive sector and for other outdoor installations. The protective laminates are also used if the contours of a label, for example on glass surfaces or backlit objects, should not be visible (no-label look).

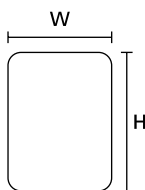
#### Features and benefits

- High temperature transparent material
- Ideal as a protective laminate or as a printed label
- The barrier label needs to overlap the covered label
- Survives 5 years external weathering in central European climate
- Provides additional protection against chemicals for the underlying label



Helatag protective laminates.

<b>MATERIAL</b>	Type 323, Polyvinylidene Fluoride (PVDF), transparent (CL)
<b>Operating Temperature</b>	-40 °C to +140 °C
<b>Curing Temperature</b>	from +10 °C
<b>Adhesive</b>	Acrylic
<b>Thickness of Foil (µm)</b>	25 µm
<b>Chem. Material Properties</b>	Excellent resistance against water, UV radiation, weather influence and solvents based on petroleum.
<b>Recommended Ribbon Type</b>	TT822OUT
<b>Thermal Transfer Printer</b>	TT430, TT4030



TYPE	Width (W)	Height (H)	Width of Liner (WL)	Labels per Row	Pack Cont.	Colour	Article-No.
<b>TAG0638TL2-323-CL</b>	43.2	11.4	94.9	2 pcs.	5,000 pcs.	Transparent (CL)	596-38321
<b>TAG1351TL1-323-CL</b>	55.9	17.8	62.0	1 pc.	2,000 pcs.	Transparent (CL)	596-51321
<b>TAG2551TL1-323-CL</b>	55.9	30.5	62.0	1 pc.	1,000 pcs.	Transparent (CL)	596-52321
<b>TAG3863TL1-323-CL</b>	68.6	43.2	75.0	1 pc.	1,000 pcs.	Transparent (CL)	596-63321

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.



For product specific approvals and specifications please refer to the Appendix.



### Labelling software

#### TagPrint Pro 3.0

TagPrint Pro 3.0 is the easy-to-use label/marker design and printing software in the HellermannTyton printing. Compatible with Windows® 7, Vista and XP as well as future operating systems such as Windows® 8, TagPrint Pro 3.0 delivers an individualised, task-based experience that enables a user to easily develop print templates including bar codes, text and graphics to meet numerous applications. TagPrint Pro 3.0 streamlines labeling production by offering a user full control over the importing or entering of data, advanced security features, the option to group label designs under a single file name or job number, and the ability to batch print to either one or more printers at the same time.

#### Features and benefits

- Easy and intuitive label/marker template design
- WYSIWYG
- Print to multiple printers at one time
- Save jobs in a queue and print all at one time with "Print later" function
- Connect or import directly from other databases including Excel, Access, text files
- Text, graphics and barcode functionalities
- Full text editing functions
- Inverse, flip, and mirror image options for graphic images
- Print log available

TYPE	Article-No.
TagPrint Pro 3.0 EMEA	556-00051

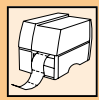
Subject to technical changes.



The easy to use software speeds up production of markers, labels and identification tags.

System Requirements	
	TagPrint Pro Standalone/TagPrint Pro Client PC running Microsoft Windows XP SP3, Vista SP1 or later, Windows 7, 8, 10 .NET Framework 4 512 MB RAM (XP SP3) 1.0 GB RAM (Vista/Windows 7, 8, 10) 500 MB available hard disk space.
	TagPrint Pro Server PC running Microsoft Windows 7,8,10, Windows Server 2008 .NET Framework 4 Microsoft SQL Server Express Edition 2008 1.0 GB RAM 500 MB available hard disk space





## Thermal Transfer Printer

### TTE420S

The TTE420S printer is ideal for use where low to medium print volumes are needed. Due to its excellent value it is also suitable as a short-term replacement or back up printer to our range of high volume industrial thermal printers that use either adhesive labels or heat shrinkable sleeves.

As it is small and light, it can also be moved from workstation to workstation with no difficulty.

### Features and Benefits

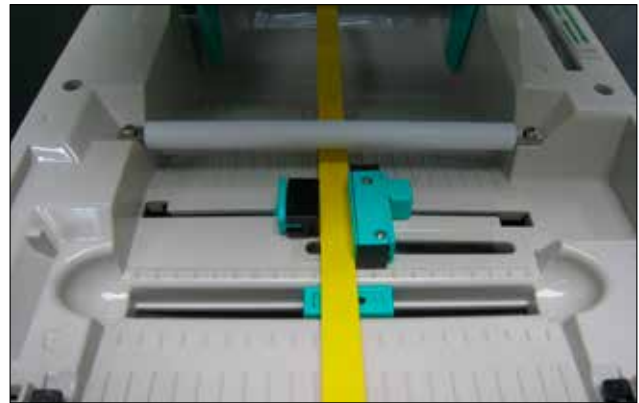
- Thermal transfer printer, for low and medium printing volumes
- Lightweighting, solid housing, very easy to transport
- Print head resolution: 300 dpi
- Perfect use for printing standard bar codes, numbers and text
- Materials to print on: adhesive labels and ladder style pre-cut 3:1 heatshrink markers (ShrinkTrak) and TIPTAG markers

### Application

The printer is virtually limitless when it comes to suitable applications. It can be used for identification of goods in the logistics area and marking of cables in the electrical industry.



Thermal transfer printer (TTE420S)



TT420+ Adapter Kit allows the printing of narrow sleeves, using external roll support shaft and guide blocks.

<b>Print Method</b>	Thermal Transfer
<b>Print Head Type</b>	300dpi
<b>Print Speed</b>	127mm/s
<b>Max. Print Width</b>	108 mm
<b>Label Height Max (metric)</b>	13 mm
<b>Printer Interfaces</b>	serial port, parallel port, USB
<b>Supported Barcodes, Printer</b>	Standard and 2D
<b>Printer Memory</b>	24 MB RAM
<b>Dimensions W x H x D</b>	213 mm x 188 mm x 314 mm
<b>Weight</b>	2.80 kg



TYPE	Description	Article-No.
TTE420S	TTE420S Printer	556-00501
TT420+ Adapter Kit	Adapter Kit for TTE420S	556-00429





## Thermal transfer printer

### TT430

The TT430 thermal transfer printer is perfect for printing on HellermannTyton materials such as self-adhesive labels, shrinkable tubing and identification tags. Thanks to its low weight and compact construction, the TT430 integrates seamlessly into any workstation. It is easy to use due to its intuitive touch display and clear status messages which can be shown in multiple languages. The optional cutter and perforator make this printer ideal for a wide range of applications. 300 dpi resolution ensures that barcodes, warning symbols, logos and text are as sharp as they can be.

#### Features and benefits

- Medium volume single sided printing
- Print on HellermannTyton cable markers and labels
- Uses standard ribbons
- Barcodes: standard and 2D
- Print speed up to 125 mm/s (30mm/s recommended for Ladder Style products and tubing)
- Adjustable label sensor
- Multiple language selection
- Windows drivers: 32/64 bit for Windows XP, Windows Vista, Windows 7 and Windows 8



One Step to the Web!



TT430 thermal transfer printer.

<b>Print Method</b>	Thermal Transfer
<b>Print Head Type</b>	300 dpi, flat type
<b>Print Speed</b>	up to 125 mm/s
<b>Max. Print Width</b>	106 mm
<b>Label Height Max (metric)</b>	1,000 mm
<b>Interfaces</b>	USB 2.0, Ethernet 10/100 Base T
<b>Supported Barcodes, Printer</b>	Standard and 2D
<b>Printer Memory</b>	64 MB RAM
<b>Dimensions W x H x D</b>	253 mm x 189 mm x 322 mm
<b>Weight</b>	4 kg

RoHS

TYPE	Article-No.
TT430	556-00450

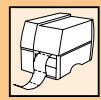
Subject to technical changes.

TYPE	Description	Article-No.
S430 Cutter	Cutter for TT430	556-00452
P430 Perforator	Perforator for TT430	556-00456
TT External Reel Holder	External Reel Holder	556-00451
TT430 300dpi Printhead	Printhead for TT430	556-00453
TT430 Print Roller	Print Roller for TT430	556-00454

Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



## Thermal transfer printer

### TT4030

HellermannTyton's premium printer TT4030 is specifically designed for medium and heavy duty industrial applications. The 300 dpi print head fulfils all standard requirements for printing bar codes, warning signs, logos and written information. Optional premium quality accessories such as a perforator and cutter are designed to work seamlessly with the printer and will suit the most demanding needs.

Printing high definition graphics such as 2d barcodes, standard bar codes, numbers and text on adhesive labels, thermo plastics such as heat shrink and cable markers (Tiptags) is easily done.

A colour LCD Touchscreen with modern user interface helps intuitive operation.

Creation of professional looking industrial identification is simplified by the use of HellermannTyton's label creation software TagPrint Pro 3.0.

Whether in stand-alone mode, as a PC application or in a network - the robust TT4030 printers can meet every requirement.

### Features and benefits

- High volume single sided printing
- Print on HellermannTyton heatshrink tubing, cable markers and labels
- Uses standard 300 m ribbons
- Barcodes: standard and 2D
- Print speed up to 300 mm/s (30 mm/s recommended for ladder style products and tubing)
- Multiple language selection
- Windows drivers: 32 / 64 bit for Windows XP, Windows Vista, Windows 7 and Windows 8



TT4030 thermal transfer printer for high volumes.

<b>Print Method</b>	Thermal transfer
<b>Print Head Type</b>	300 dpi, flat type
<b>Print Speed</b>	up to 300mm/s
<b>Max. Print Width</b>	105.70 mm
<b>Label Height Max (metric)</b>	2,000 mm
<b>Interfaces</b>	RS232 C, USB 2.0, Ethernet 10/100 Base T
<b>Supported Barcodes, Printer</b>	Standard, 2D
<b>Printer Memory</b>	256 MB RAM
<b>Dimensions W x H x D</b>	252 mm x 288 mm x 460 mm
<b>Weight</b>	10 kg



TYPE	Article-No.
TT4030	556-04037

Subject to technical changes.

TYPE	Description	Article-No.
<b>P4030 Perforator</b>	Perforator for TT4030	556-04051
<b>Printer Roller for TT4030</b>	Printer Roller for TT4030	556-04053
<b>Printhead for TT4030</b>	Printhead for TT4030	556-04052
<b>S4030 Cutter</b>	S4030 Cutter for TT4030	556-04050
<b>TT External Reel Holder</b>	External Reel Holder	556-00451

Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



## Thermal transfer printer

### TrakMark DS, Double Sided

The TrakMark DS is a high-performance printer for double-sided printing. This printer is perfect for double-sided printing on HellermannTyton shrinkable tubing. With two print heads mounted one on top of the other, the TrakMark DS prints onto both sides of the material at the same time. High reliability and multiple peripherals enable applications and solutions tailored to specific customer requirements. It is easy to use thanks to its display and clear status messages which can be shown in multiple languages. 300 dpi resolution ensures that barcodes, warning symbols, logos and text are as sharp as they can be.

#### Features and benefits

- High volume double sided printing
- Prints perfectly on HellermannTyton heatshrink ladder style products
- Uses standard 300 m ribbons
- Barcodes: standard and 2D
- Print speed up to 125 mm/s (30 mm/s recommended for ladder style products and tubing)
- Multiple language selection
- Windows drivers: 32/64 bit for Windows XP, Windows Vista, Windows 7 and Windows 8



One Step to the Web!

TYPE	Article-No.
TRAKMARK DS	556-05000

Subject to technical changes.

TYPE	Description	Article-No.
S4000 Cutter	S4000 Cutter for TT4000+ and TrakMark DS	556-04025
P4000 Perforator	Perforator for TT4000+ and TrakMark DS	556-04024
TT External Reel Holder	External Reel Holder	556-00451

Subject to technical changes.

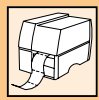


TrakMark DS printer.

<b>Print Method</b>	Thermal Transfer
<b>Print Head Type</b>	300 dpi, flat type
<b>Print Speed</b>	30, 40, 50, 75, 100, 125 mm/s
<b>Max. Print Width</b>	105.6 mm
<b>Label Height Max (metric)</b>	2,000 mm
<b>Interfaces</b>	RS232 C, USB 2.0, Ethernet 10/100 Base T
<b>Supported Barcodes, Printer</b>	Standard, 2D
<b>Printer Memory</b>	64 MB RAM
<b>Dimensions W x H x D</b>	248 mm x 395 mm x 554 mm
<b>Weight</b>	21 kg



For product specific approvals and specifications please refer to the Appendix.



## Portable Thermal Transfer Printer

### TTP80 Printer

#### Features and Benefits

- Portable - only 2.0kg
- Automatically prints and cuts to your desired tag length
- Large screen, 3-lines input and display, more than 10 functions displayed
- User friendly
- QWERT style keyboard allows fast entry
- Robust internal memory to store up to 10 files, allowing saving and editing in any location

3 modes of operation:

- direct print via USB connection with a Windows PC
- keying the data directly
- data transfer via thumb drive
- Enhanced model from the existing brands available in the market
- Resolution: 300dpi
- Printed character height: 1.3 to 8.0mm

Consumables:

- Sleeves (PVC/POX) size ø2.0 to 6.0mm
- Labels 6.0 / 9.0 / 12.0mm height
- ID Strip 4.0 / 9.0 / 12.0mm height (similar to Carrimark System)
- Ribbons 80m length (Black/White)



Portable thermal transfer printer TTP80.

<b>Print Method</b>	Thermal Transfer
<b>Print Head Type</b>	Thermal Transfer
<b>Print Speed</b>	11.5mm/sec
<b>Printer Interfaces</b>	USB
<b>Supported Barcodes, Printer</b>	NO
<b>Printer Memory</b>	100 MB RAM
<b>Dimensions W x H x D</b>	350 mm x 95 mm x 290 mm

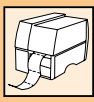
TYPE	Description	Weight	Article-No.
TTP80	Portable Thermal Transfer Printer TTP80	2.00kg	920-90400

Subject to technical changes.

### Accessories for Printer TTP80

TYPE	Description	Weight	Article-No.
C80	Cutter Holder and Blade for TTP80	10g	920-90402
PB80	External Battery Pack for TTP80	500g	920-90401
TTP80 Caddy	Transport Caddy for TTP80	500g	920-90403

Subject to technical changes.



## Consumables for TTP80

### Heatshrink Tube



Heatshrink tube for the TTP80

#### Features and Benefits

- Thin walled general purpose polyolefin tubing
- UV resistant
- Good electrical, chemical and mechanical features
- Fast shrinking
- Suitable for a wide range of applications such as electrical insulation, mechanical protection and cable bundling

<b>MATERIAL</b>	Polyolefin (PO)
<b>Operating Temperature</b>	-40 °C to +90 °C
<b>Min. Shrink Temperature</b>	+90 °C
<b>Shrink Ratio</b>	2:1
<b>Recommended Ribbon Type</b>	PR80B, PR80DTH

## Consumables for TTP80

### TTP80 Strip Cassette



Strip Cassette for TTP80

#### Features and Benefits

- Versatile transparent carrier for strip cassette used for temporary or permanent marking
- Supplied in continuous roll format and can be cut to size
- Resistant to water, sunlight and chemicals
- Suitable for marking of cable looms, cables, pipes, transport system, valves, sensors, for inventory marking on machines or other parts.

<b>MATERIAL</b>	Polyvinylchloride (PVC)
<b>Operating Temperature</b>	-10 °C to +80 °C
<b>Recommended Ribbon Type</b>	PR80B

### Heatshrink Tube

TYPE	Supplied Ø D min.	Recov. Ø D min.	Pack Cont.	Colour	Article-No.
PHST30W	3.0	1.5	5	White (WH)	920-90428
PHST52W	5.2	2.6	5	White (WH)	920-90429
PHST68W	6.8	3.4	5	White (WH)	920-90430
PHST30YE	3.0	1.5	5	Yellow (YE)	920-90431
PHST52YE	5.2	2.6	5	Yellow (YE)	920-90432
PHST68YE	6.8	3.4	5	Yellow (YE)	920-90433

Subject to technical changes.

### TTP80 Strip Cassette

TYPE	Pack Cont.	Colour	Article-No.
PIDS504W	5	White (WH)	920-90413
PIDS509W	5	White (WH)	920-90414
PIDS502W	5	White (WH)	920-90415
PIDS504YE	5	Yellow (YE)	920-90416
PIDS509YE	5	Yellow (YE)	920-90417
PIDS5012YE	5	Yellow (YE)	920-90418

Subject to technical changes.



## Consumables for TTP80

### TTP80 Label Cassette



TTP80 Label Cassette for TTP80

#### Features and Benefits

- Variety of colours and sizes
- Supplied on a continuous roll of 20m
- Resistant to water, sunlight and chemicals
- No sticky residue when removed
- Suitable for a wide range of applications such as cable marking, wire marking and other tube marking.

<b>MATERIAL</b>	Polyester (PET)
<b>Operating Temperature</b>	-10 °C to +80 °C
<b>Recommended Ribbon Type</b>	PR80B

## Consumables for TTP80

### TTP80 Ribbon



TTP80 Ribbons are available in different colours

#### Features and Benefits

- Variety of colours (Black, Red, White)
- Supplied on a continuous roll of 80m
- Resistant to water, sunlight and chemicals
- Suitable for extreme condition industries such as oil and gas sector, petrochemicals and warehouse.

### TTP80 Label Cassette

TYPE	Pack Cont.	Colour	Article-No.
PL506SL	5	Silver (SR)	920-90425
PL509SL	5	Silver (SR)	920-90426
PL512SL	5	Silver (SR)	920-90427
PL506W	5	White (WH)	920-90419
PL509W	5	White (WH)	920-90420
PL512W	5	White (WH)	920-90421
PL506YE	5	Yellow (YE)	920-90422
PL509YE	5	Yellow (YE)	920-90423
PL512YE	5	Yellow (YE)	920-90424

Subject to technical changes.

### TTP80 Ribbon

TYPE	Colour	Material	Article-No.
PR80B	Black (BK)	PolyesterFilm	920-90404
PR80DTH	Black (BK)	Polyolefin (PO)	920-90407
PR80R	Red (RD)	Polyester Film	920-90406
PR80W	White (WH)	Polyolefin Film	920-90405

Subject to technical changes.



## Consumables for TTP80

### White PVC Marker Sleeve

Suitable for insulation purpose of electronics, automobile, small electrical parts, lead wires of toy motors and transformers etc.

#### Features and Benefits

- Good electrical, chemical and mechanical features
- Resistant to corrosion



PVC Marker Sleeve for TTP80

<b>MATERIAL</b>	Polyvinylchloride (PVC)
<b>Operating Temperature</b>	-10 °C to +80 °C
<b>Recommended Ribbon Type</b>	PR80B

TYPE	Pack Cont.	Colour	Article-No.
PT2.0W	44	White (WH)	920-90434
PT2.5W	36	White (WH)	920-90435
PT3.0W	36	White (WH)	920-90436
PT3.2W	36	White (WH)	920-90437
PT3.5W	28	White (WH)	920-90438
PT3.6W	28	White (WH)	920-90439
PT4.0W	24	White (WH)	920-90440
PT4.2W	24	White (WH)	920-90441
PT4.5W	24	White (WH)	920-90442
PT5.0W	24	White (WH)	920-90443
PT5.2W	24	White (WH)	920-90444
PT5.5W	24	White (WH)	920-90445
PT6.0W	24	White (WH)	920-90446
PT7.0W	24	White (WH)	920-90447
PT8.0W	24	White (WH)	920-90448
PT10.W	20	White (WH)	920-90449

Subject to technical changes.

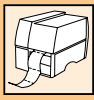


## Selection matrix: materials and ribbons

Use this selection matrix to find the right combination of material and ribbon to suit your application.

Material (Page)	TT ribbon	Resistance to							Market (suggested)						
		Smudgeproof	Scratchproof	Partly smudgeproof	Oils / benzenes	Alcoholic solvents	Etching	Approved	Aerospace	Automotive	Electronics	Machine Building	Military	Process Control	Rail
323 (477/528), 1209 (475)	TT822OUT	●	●	—	●	—	—	—	—	—	●	●	—	●	—
	TT932DOUT	●	—	—	—	—	—	—	—	—	●	●	—	●	—
823 (514)	TT822OUT	●	●	—	●	—	—	—	—	—	●	●	—	●	—
1206 (568)	TT822OUT	●	●	—	●	—	—	●	—	—	●	●	—	●	—
880 (499)	TT822OUT	●	●	—	●	—	—	—	—	—	—	●	—	●	—
892 (469)	TT822OUT	●	●	—	●	—	—	—	—	—	—	●	—	●	—
951 (524)	TT822OUT	●	●	—	●	—	—	●	—	●	●	—	—	—	—
1203 (522)	TT822OUT	●	●	—	●	—	—	●	—	—	●	●	—	●	—
1204 (507)	TT822OUT	●	●	—	●	—	—	●	—	●	●	—	—	●	—
1208 (523)	TT822OUT	●	●	—	●	—	—	—	—	—	●	—	—	—	—
1211 (499)	TT822OUT	●	●	—	●	—	—	—	—	—	—	●	—	●	—
1213 (513)	TT822OUT	●	●	—	●	—	—	—	—	—	—	●	—	●	—
1216 (500)	TT822OUT	●	●	—	●	—	—	—	—	—	●	—	—	—	—
1220 (505) 1221 (506)	TT122OUT	●	●	—	●	●	—	—	—	—	●	●	—	●	—
	TT822OUT	●	●	—	●	—	—	—	—	—	●	●	—	●	—
TCGT (448), TULT (450)	TT822OUT8	—	—	●	—	—	—	—	—	●	—	●	●	●	—
	TTDTHOUT	●	●	—	●	●	—	—	—	●	●	●	●	●	—
	TTRC+	●	●	—	●	●	●	—	—	●	—	—	●	●	—
	TTRW	—	—	●	—	—	—	—	—	●	—	●	●	●	—
TULT DS (452), TAGUL (470)	TTDTHOUT	●	●	—	●	●	—	—	—	●	●	●	●	●	—
TLFX (454), TLFX DS (456), TLFD DS (461), TAGLF (472), TIPTAG HF (467)	TTDTHOUT	●	●	—	●	●	—	—	—	—	—	—	●	—	●
THTT (463), THTT DS (465), TAGHT (474)	TTRHT	●	●	—	●	●	—	—	—	●	—	—	—	●	—
TDRT (458), TDRT DS (459), TAGDR (473)	TTDTHOUT	●	●	—	●	●	—	—	—	—	—	—	—	—	●
TAGPU (471)	TTRHT	●	●	—	●	●	—	—	—	—	—	●	●	—	●
TIPTAG PU (468)	TTRC+	●	●	—	●	●	●	—	—	—	—	●	●	—	●

- yes
- no



## Thermal transfer ribbons for

### Adhesive Labels

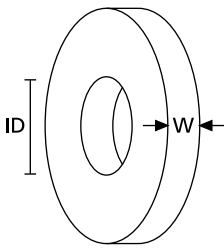
The thermal transfer print technology is based on heating up certain dots in the print head. This transfers the ink very precisely from the ribbon onto the surface of the printed material. All HellermannTyton ribbons consist of a special resin composition to maximise print performance. In combination with HellermannTyton printers the ribbons ensure the highest of print quality on all HellermannTyton thermal printable identification materials.

### Features and benefits

- Thermal transfer ribbons for highest quality and performance of printed labels
- Ribbons are specifically designed to maximise print performance for the recommended material



Ribbons for printing on Adhesive Labels.



**ID:** The standard inside core diameter is 25.4 mm.

TYPE	Recommended Material	Colour	Width (W)	Reel Length	Article-No.
TT822OUT 60MM	323/823/880/892/951/1203/1204/1206/1208/1210/1211/1213/1216/1220/1221	Black (BK)	60.0	300 m	556-00111
TT822OUT 110MM	323/823/880/892/951/1203/1204/1206/1208/1210/1211/1213/1216/1220/1221	Black (BK)	110.0	300 m	556-00101
TT932DOUT 85MM	323/1209	Black (BK)	85.0	300 m	556-00117
TT932DOUT 110MM	323/1209	Black (BK)	110.0	300 m	556-00118
TT122OUT 60mm	1220/1221	Black (BK)	60.0	300 m	556-00060
TT122OUT 110mm	1220/1221	Black (BK)	110.0	300 m	556-00061
TTRR 110	Labels/1220/1221	Red (RD)	110.0	300 m	556-00208

All dimensions in mm. Subject to technical changes.

RoHS



For product specific approvals and specifications please refer to the Appendix.



## Thermal printer ribbons for

### Heatshrink and Tiptags

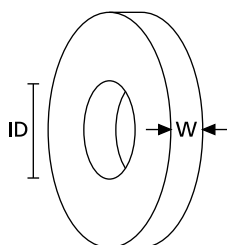
The thermal transfer print technology is based on heating up certain dots in the print head. This transfers the ink very precisely from the ribbon onto the surface of the printed material. All HellermannTyton ribbons consist of a special resin composition to maximise print performance. In combination with HellermannTyton printers the ribbons ensure the highest of print quality on all HellermannTyton thermal printable identification materials.

### Features and benefits

- Thermal transfer ribbons for high quality print results on heatshrink tubing and Tiptag identification tags
- Ribbons are specifically designed to maximize print performance for the recommended material



Ribbons for printing on Tubing and TipTags.



**ID: The standard inside core diameter is 25.4 mm.**

TYPE	Recommended Material	Colour	Width (W)	Reel Length	Article-No.
<b>TT822OUT8 110MM</b>	TCGT/TULT	Silver (SR)	110.0	300 m	556-00161
<b>TTRW 30MM</b>	TCGT/TULT(DS)	White (WH)	30.0	300 m	556-00125
<b>TTRW 60MM</b>	TCGT/TULT(DS)	White (WH)	60.0	300 m	556-00137
<b>TTDTHOUT 40MM</b>	TCGT/TULT(DS)/TLFX(DS)/TDRT(DS)/TLFD(DS)/TIPTAG	Black (BK)	40.0	300 m	556-00139
<b>TTDTHOUT 60MM</b>	TCGT/TULT(DS)/TLFX(DS)/TDRT(DS)/TLFD(DS)/TIPTAG	Black (BK)	60.0	300 m	556-00140
<b>TTDTHOUT 100MM</b>	TCGT/TULT(DS)/TLFX(DS)/TDRT(DS)/TLFD(DS)/TIPTAG	Black (BK)	100.0	300 m	556-00141
<b>TTRHTBK 70MM</b>	THTT/THTT DS/TAGHT	Black (BK)	70.0	300 m	556-00204
<b>TTRHTBK 100mm</b>	THTT/THTT DS/TAGHT	Black (BK)	100.0	300 m	556-00210
<b>TTRHTWH 70mm</b>	THTT/THTT DS/TAGHT	White (WH)	70.0	300 m	556-00209
<b>TTRHTWH 100mm</b>	THTT/THTT DS/TAGHT	White (WH)	100.0	300 m	556-00211
<b>TTRC+ 30MM</b>	TIPTAG PU/TCGT/TULT	Black (BK)	30.0	300 m	556-00114
<b>TTRC+ 60MM</b>	TIPTAG PU/TCGT/TULT	Black (BK)	60.0	300 m	556-00115
<b>TTRC+ 100MM</b>	TIPTAG PU/TCGT/TULT	Black (BK)	100.0	300 m	556-00103

All dimensions in mm. Subject to technical changes.





**Inspired by automation**

Highly automated production processes you can count on, which is why our employers have systematically enhanced our automated bundling techniques. The current top model is the Autotool 2000 CPK (see page 584). It offers high reproducibility and binding results, individual control and complete documentation.

Bulk quantities - such as in cable confectioning, the automotive industry and the packaging sector - can be processed more quick and reliably as a result.



6.1 Automatic Cable Tying System

584



6.2 Application Tooling for Cable Ties

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6.3 Application Tooling for

Snappers

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Heat Shrinkable Tubing

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Non Shrinkable Tubing

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Identification

615





## 6.1 Automatic Cable Tying System

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<b>Waste-free bundling up to Ø 80 mm</b>	
Autotool System 3080	587
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## 6.2 Application Tooling for Cable Ties

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MTT4	607



### 6.3 Application Tooling for Snappers

#### Manual Tool

ASNP, MSNP snapper tools	609
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### 6.3 Application Tooling for Heat Shrinkable Tubing

#### Gas powered Hot Air Tool

E4500	610
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#### Electrical Hot Air Tool

H5002 - handy tool	611
H5004 - for professional use	

### 6.3 Application Tooling for Non Shrinkable Tubing

#### Three-Pronged Pliers for Sleeves and Grommets

NA	612
VA2.5/5 - Reinforced	613
K, S, SS	614

### 6.3 Application Tooling for Braided Sleeves

#### Helagaine Braided Slewing

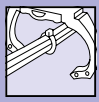
HSG0 hot cutting tool	614
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### 6.3 Application Tooling for Identification

#### Manual Tool for Helafix HCR

Helafix HCT Application tool	615
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### Automatic bundling up to Ø 20 mm

#### Autotool 2000 CPK

The Autotool 2000 CPK is an electrically operated and automated cable tying system. It has been developed to speed up bundling processes and to make the production more efficient. Besides the high speed bundling, this cable tying system is characterized by its simple operation and user-friendly ergonomics. The Autotool 2000 CPK offers a display for the settings and user information in 20 languages. One main feature of the Autotool 2000 CPK is the software "HT Data Management CPK".

This feature enables the easy parameterization of the tool for customers applications. The parameterization can easily be carried out via computer. Additionally the "HT Data Management CPK" offers an export function for the saved manufacturing data as well as further service functions. Therefore it ensures a consistent documentation for every binding process through the tool. The Autotool 2000 CPK is ideally suited for handling high volume applications in wire harness facilities, automotive and industrial companies and in the packaging sector. With either the Bench mount kit CPK or the Overhead suspension CPK, the Autotool 2000 CPK is suitable for both stationary and flexible applications.

By using the optional Power pack CPK with control box the Autotool 2000 CPK can be integrated into fully automated production lines through a serial interface. Due to the removable handle less assembly space is needed.

Bandoleers of 50 cable ties as well as reels of 3,500 cable ties can be used.

#### Features and benefits

- Electrically operated cable tying system (Power pack CPK or Power pack CPK with control box necessary)
- Cycle time 0.8-1.2 sec. depending on quality and force
- Stationary and flexible use with devices possible
- Integration into fully automated production lines (Power pack CPK with control box necessary)
- HT Data Management CPK software (included) - for extensive data evaluation and monitoring of the tensioning process
- User-friendly menu in various languages included
- Process-reliable, constant and reproducible bundling and cutting up to Ø 20 mm
- Removable handle for space-saving integration



One Step to the Web!



Autotool 2000 CPK.



HT Data Management CPK - software for Autotool 2000 CPK.

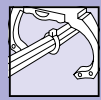


Power pack CPK for Autotool 2000 CPK.

TYPE	Article-No.
Autotool 2000 CPK	106-00000

Subject to technical changes.

Power Supply	Electronically operated
Cycle Time	0.8-1.2 sec. depending on quality and force
Weight	1.8 kg
Tension Force	Adjustable



### Automatic bundling up to Ø 20 mm

#### Accessories for Autotool 2000 CPK

#### Features and benefits

- Bench mount kit CPK for stationary use
- Overhead suspension CPK for flexible use
- Power pack CPK with control box for fully automated production lines
- Power pack CPK - Input: 100-240 V a.c., 50/60 Hz; Output: 25.2 V d.c., max. 150 W
- Wire retainer HH20 raises the bundle off the harness board at optimum height and allows the operator to eliminate handling the bundle when applying ties
- Force measurement device CPK to measure the linear tensile force of the Autotool 2000 CPK. Available with grip mount or robot adapter



Bench mount kit CPK with foot pedal (also shown: Autotool 2000 CPK, Power pack CPK and T18RA3500).

TYPE	Article-No.
Bench mount kit CPK	106-00040
Force measurement device with grip mount CPK	106-29010
Force measurement device with robot adapter CPK	106-29011
HH20	120-00080
Overhead suspension CPK	106-00050
Power pack CPK	106-00100
Power pack CPK with control box	106-00110

Subject to technical changes.



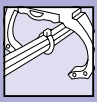
Overhead suspension CPK (also shown: Autotool 2000 CPK, Power pack CPK and T18RA3500).



Harness board accessory HH20.



Application with the Bench mount kit CPK.



### Automatic bundling up to Ø 20 mm

#### Cable ties for Autotool 2000 systems

The inside-serrated cable ties are designed for use specifically in the automatic cable tying systems. The Autotool 2000 CPK is ideally suited for handling high volumes applications in wire harness facilities, automotive and industrial companies as well as the packaging sector.

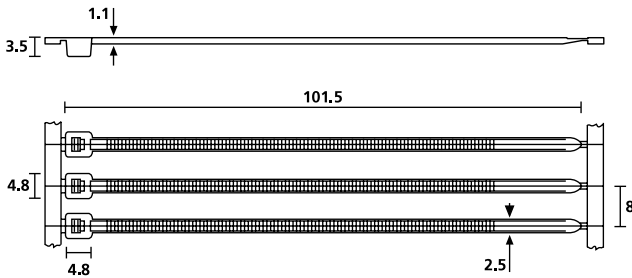
#### Features and benefits

- Available in bandoleers of 50 cable ties or reels of 3,500 cable ties
- Available in natural and black
- Repetitive tension on the bundles
- Easily recyclable



Cable ties for Autotool 2000 systems.

<b>MATERIAL</b>	Polyamide 6.6, heat stabilised (PA66HS)	Polyamide 6.6, heat and UV-resistant (PA66HSW)	Polyamide 4.6 (PA46)
<b>Operating Temperature</b>	-40 °C to +105 °C, (+145 °C, 500 h)		-40 °C to +150 °C, (+195 °C, 500 h)
<b>Flammability</b>	UL94 V2		



Bandoleer T18RA



Please find the corresponding Bundling Clips on page 180.

TYPE	Bundle Ø max.	N	Colour	Material	Pack Cont.	Article-No.
T18RA50	20.0	80	Black (BK)	PA66HSW	2,000 pcs.	120-40020
T18RA3500	20.0	80	Black (BK)	PA66HSW	3,500 pcs.	120-50010
	20.0	80	Natural (NA)	PA46	3,500 pcs.	120-46009
T18RA50	20.0	80	Natural (NA)	PA66HS	2,000 pcs.	120-40019
T18RA3500	20.0	80	Natural (NA)	PA66HS	3,500 pcs.	120-50009

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content. More colours on request. Please contact us.

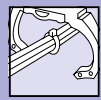
Halogen-free according to the interdictions of the GADSL list and compulsory registration of the SVHC list.



= Minimum Loop Tensile Strength for Cable Ties (Newton)



For product specific approvals and specifications please refer to the Appendix.



### Waste-free bundling up to Ø 80 mm

#### Autotool System 3080

The Autotool System 3080 is an automated and electric cable tying system. It has been developed to speed up bundling processes and operates waste-free.

The advantage of three quick-changeable jaw sizes allows the Autotool System 3080 to adapt perfectly to different bundle diameters up to Ø 80 mm.

With either the Bench mount kit 3080 or the Overhead suspension 3080, the Autotool System 3080 is suitable for both stationary and flexible applications. The Autotool System 3080 can also be integrated into fully automated production lines.

Custom designed jaws are available to enable bundling of foot parts on production lines.

#### Features and benefits

- Electrically operated cable tying system (Power pack 3080 necessary)
- High quality, waste-free bundling up to Ø 80 mm with flush cut off
- Jaws with diameters of 30, 50 and 80 mm - included in delivery
- Cycle time 1.1-2.4 seconds depending on bundle diameter
- Bundle diameter mechanically detected
- Integration into Bench mount kit 3080 or Overhead suspension 3080 possible
- Integration into fully automated production lines possible
- Foot part bundling with custom jaw design Ø 50 mm



Autotool System 3080.



Autotool System 3080 with three different jaws - to optimize the cycle time for different bundle diameters.



One Step to the Web!

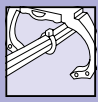


Power pack 3080.

TYPE	Article-No.
Autotool System 3080	102-00000

Subject to technical changes.

<b>Power Supply</b>	Electrically operated
<b>Cycle Time</b>	1.1-2.4 sec. depending on bundle diameter
<b>Weight</b>	1.9 kg
<b>Tension Force</b>	Adjustable



### Waste-free bundling up to Ø 80 mm

#### Accessories for Autotool System 3080

#### Features and benefits

- Bench mount kit automatic 3080 in fully automated production lines
- Bench mount kit horizontal 3080 for horizontal use in fully automated production lines
- Bench mount kit 3080 for stationary use, foot pedal included
- Overhead suspension 3080 for flexible use
- Power pack 3080 - Input: 240/150 V a.c., 50/60 Hz; Output: 48 V d.c., max. 150 W



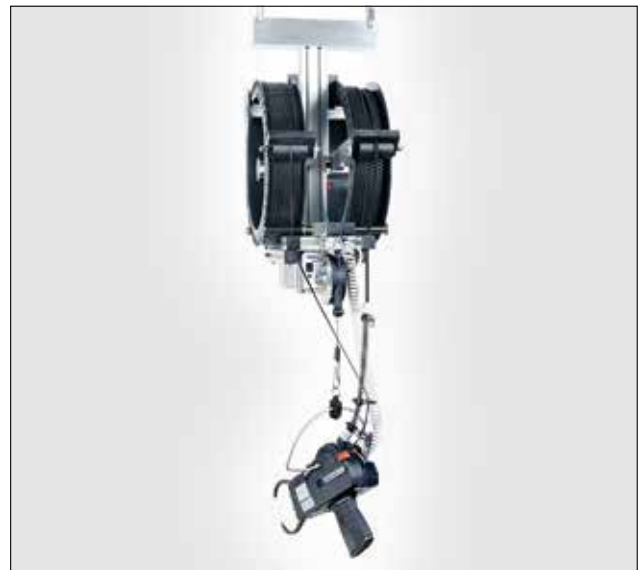
Bench mount kit 3080 with foot pedal (also shown: Autotool System 3080, Power pack 3080 and consumables).



Optional: Bench mount kit 3080 with table board.



Packaging application with Bench mount kit horizontal 3080.

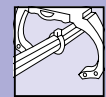


Overhead suspension 3080 (also shown: Autotool System 3080 and consumables).

TYPE	Article-No.
Bench mount kit 3080	102-00040
Bench mount kit automatic 3080	102-00042
Bench mount kit horizontal 3080	102-00041
Overhead suspension 3080	102-00050
Power pack 3080	102-00100

Subject to technical changes.





### Waste-free bundling up to Ø 80 mm

#### Cable ties for Autotool System 3080

The outside serrated strap is perfectly suitable for sensitive surfaces and can be used for bundling and fixing of cables, pipes and hoses, as well as for bag sealing. The materials are particularly appropriate for high volume bundling applications in cable assembly, automotive, industrial and packaging applications.

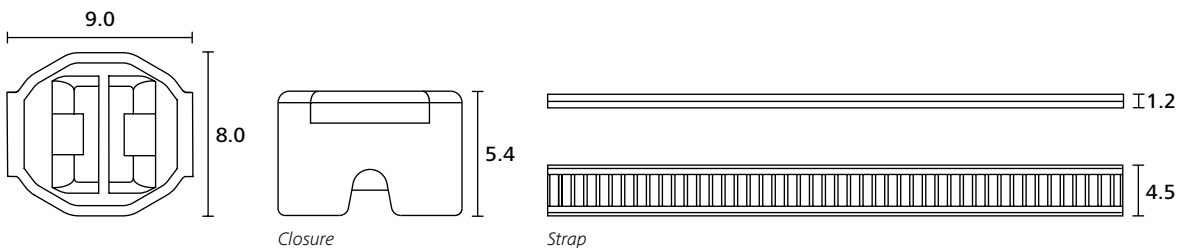
#### Features and benefits

- Innovative two-piece consumables: closure and strap
- Outside serrated strap protects the bundle
- Available on reels of 500 m strap and 5,000 pcs. closures



Closures and strap for Autotool System 3080.

<b>MATERIAL</b>	Polyamide 6.6, high impact modified, heat and UV stabilised (PA66HIRHSUV)	Polyamide 6.6, heat and UV stabilised (PA66HSUV)
<b>Operating Temperature</b>	-40 °C to +95 °C, (+105 °C, 5000 h; +145 °C, 500 h)	-40 °C to +105 °C, (+145 °C, 500 h)
<b>Flammability</b>	UL94 HB	UL94 V2



TYPE	Description	Bundle Ø max.	N	Colour	Material	Pack Cont.	Article-No.
<b>Closures Black ATS3080</b>	Closures Black ATS3080	80.0	225	Black (BK)	PA66HSUV	5,000 pcs.	102-66210
<b>Closures Natural ATS3080</b>	Closures Natural ATS3080	80.0	225	Natural (NA)	PA66HSUV	5,000 pcs.	102-66209
<b>Strap Black ATS3080</b>	Strap Black ATS3080	80.0	225	Black (BK)	PA66HIRHSUV	500 m	102-66110
<b>Strap Natural ATS3080</b>	Strap Natural ATS3080	80.0	225	Natural (NA)	PA66HIRHSUV	500 m	102-66109

All dimensions in mm. Subject to technical changes.  
Minimum Order Quantity (MOQ) may differ from package content.

= Minimum Loop Tensile Strength for Cable Ties (Newton)



Please find the corresponding Bundling Clips on page 180.

**Tensioning Tools for Cable Ties**



MK10-SB.  
See page 595

1



MK20, MK21.  
See page 595

2, 3



MK3SP.  
See page 596

4



MK3PNSP2.  
See page 596

5



EVO7/EVO7SP.  
See page 598

6



EVO9/EVO9SP.  
See page 599

10



EVO9HT.  
See page 599

11



MK7P  
See page 601

8



MK6  
See page 600

9



MK9P  
See page 602

12

**Tensioning Tools for Cable Ties KR-Series**



KR6/8.  
See page 603

13

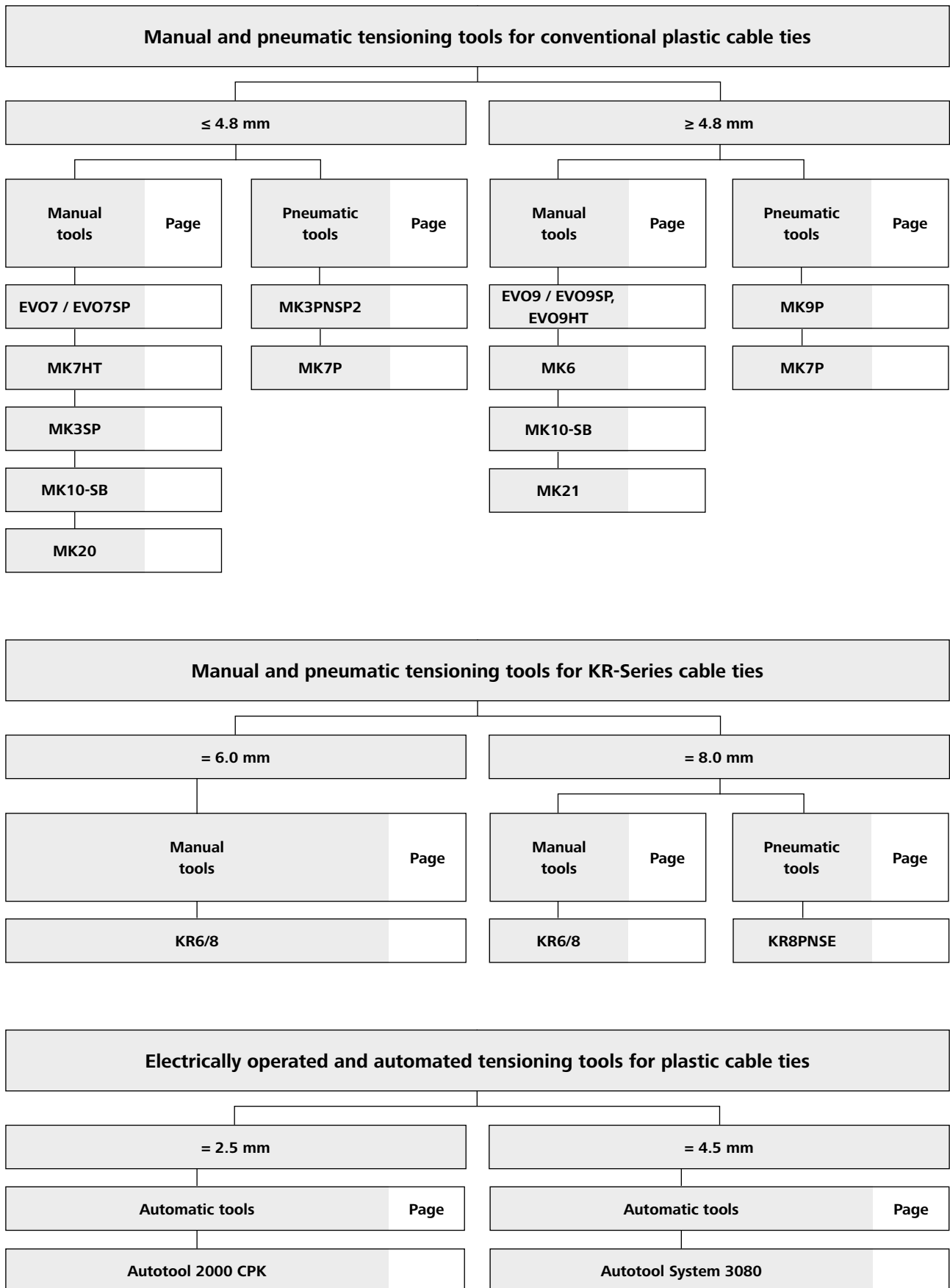


KR8PNSE.  
See page 603

14



Flowchart for optimum tool selection



Tensioning Tools for Metal Ties



MK9SST.  
See page 604

15



MK9PSST.  
See page 604

16



HDT16.  
See page 605

17



KST-STG200.  
See page 605

18



MST6.  
See page 606

19



MST9.  
See page 606

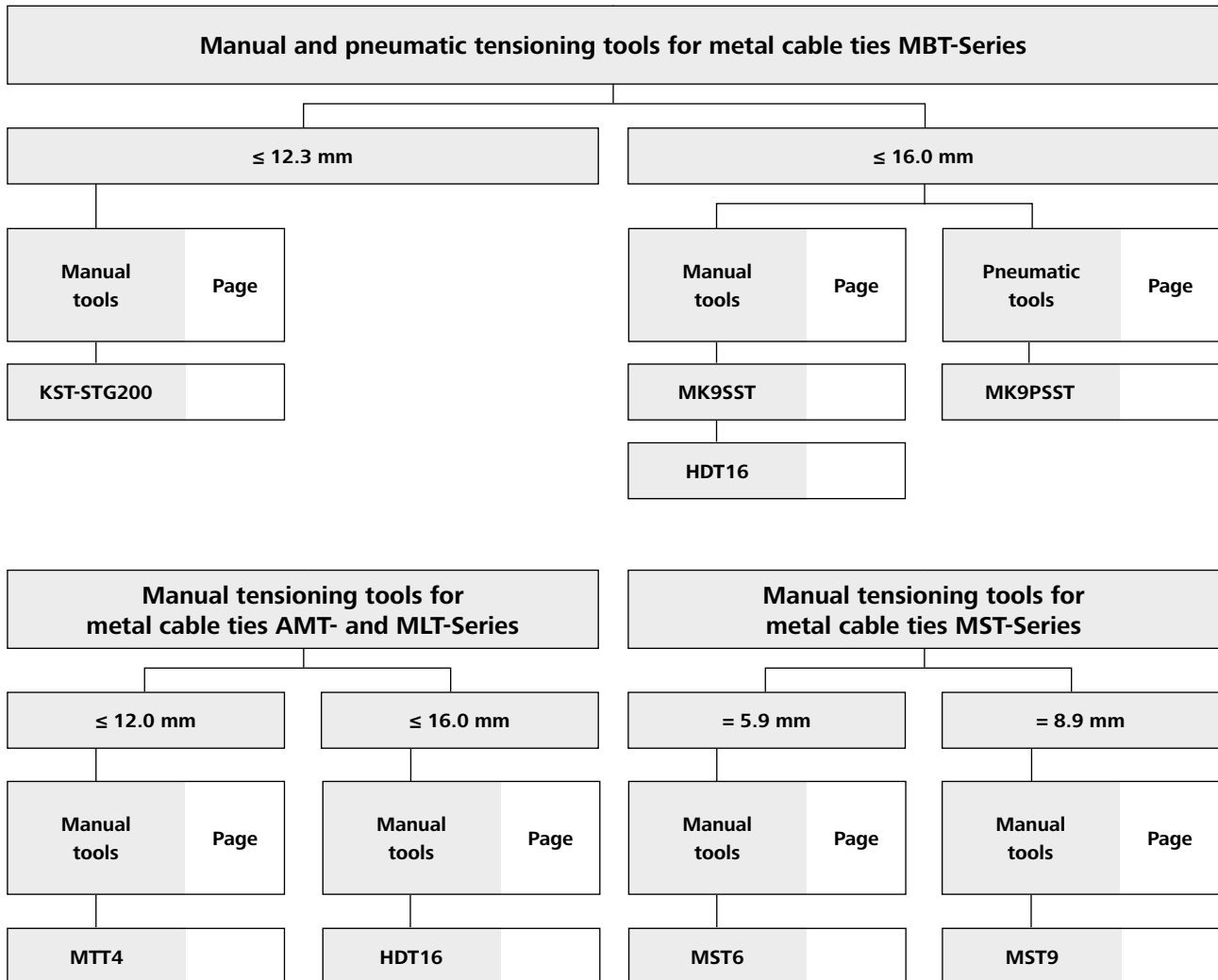
20



MTT4.  
See page 607

21

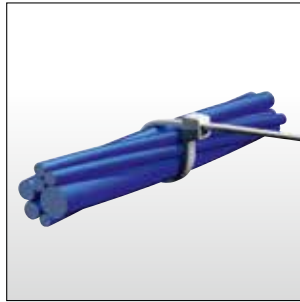
Flowchart for optimum tool selection



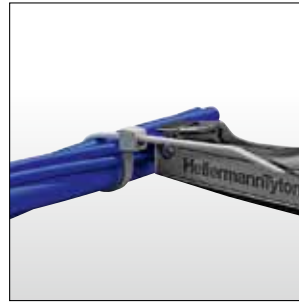
### How to use a cable tie tool (using an EVO7 as an example)



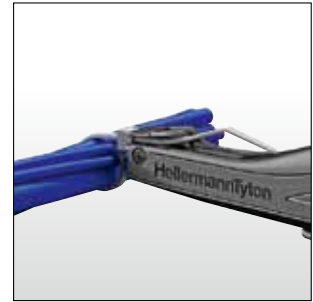
1. Use tension adjustment knob to select your desired tension setting.



2. Cinch a nylon HellermannTyton cable tie around the bundle.



3. Insert strap of cable ties through side opening of nosepiece.



4. Place front of nosepiece flush to the head of the cable tie.



5. Pull trigger until cable tie tensions and cuts.

### Tool testing - Determination of tensions

To date, no generally applicable test method has been established on the market. The companies within the HellermannTyton group work with an usual force meter with minimum 10 kHz frequency of data sampling to determine the tensile forces of the tools and to guarantee the quality of the tools.

It is more difficult to test cable tie tools than would appear at first glance. It is of supreme importance to comply with a standardised test procedure and consistent test conditions. This means for instance the size and thus the cross-section of the cable ties, but also the water content of the tie. A test using different ties and / or different conditioning can easily lead to different values.

In general, the speed of cut-off, the position of the tool with respect to the cable tie, the condition of the wearing parts in the tool and the state of the cable tie play a fundamental role in the determination of tensile forces.

Therefore we must point out that any values we provide must only ever be regarded as guide values for your information. The values cannot be transferred into practice "one for one".

In our user instructions, we specify an adjustment range for each type of cable tie. If tension values must be documented or comply with a specification, we recommend that you adjust them with the aid of the

force meter. Also, as a guideline, half the minimum holding strength of the cable tie should be used as tensile force.

The minimum tensile strength (also referred to as minimum unlocking strength) is the least force which the cable tie can withstand before it tears or stretches. This strength is determined using a threaded tie, hence the following formula should be used for guidance as to the correct tensile force of the tool:

$$\frac{\text{Min. tensile strength}}{2} = \text{recommended tensile force}$$

#### Example:

$$T50R = \frac{225 \text{ N minimum tensile strength}}{2}$$

$$\frac{225 \text{ N}}{2} = 112.5 \text{ N recommended tensile force according to formula}$$

The tensile force can of course be adjusted up or down, in line with the corresponding application.

Please bear in mind that this statement applies only to HellermannTyton products. Cable ties from other manufacturers may require a higher or lower force setting.

In order to secure the device after it has been adjusted using the force meter against manipulation or unintentional maladjustment, HellermannTyton offers an adjustment safety cap (Art. No.: 110-07200 for MK7HT, MK7P, MK9SST, MK9P) which you can push onto the device

after removing the adjustment unit (loosening a screw is all it takes to remove).

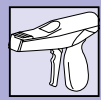
After a period of time, to be defined, you test the device again and if necessary re-adjust it. The problem of determination of forces depends on the individual case and has no direct connection with the quality of our product. An exact value for each setting (e. g. in Newtons), without stating a tolerance, cannot be confirmed.

### Test set-up with a usual force meter and EVO7 cable tie tool.



The following describes how to check the tension force of a manual tensioning tool.

1. Lay the cable tie (green) into the fixture (A).
2. Bring the nose piece of the tensioning tool (B) flush to the test block (C).
3. Insert the strap of the cable tie into the tensioning tool and pull the strap flush against the fixture (A).
4. Re-set the force meter (D) to zero.
5. Pull the trigger of the tensioning tool continuously until the cable tie is cut.
6. The tension force achieved at the cut off point is determined.



### Manual tensioning tool for cable ties with low profile head

**MK10-SB up to 9.5 mm strap width**

#### Features and benefits

- Ideal for easy handling of entire HellermannTyton RPE, PE and LPH series
- Tensions and cuts off prelooped cable ties flush at the head



MK10-SB.

TYPE	Strap Width max.	Strap Thickness max.	Weight	Article-No.
MK10-SB	9.5	2.5	0.33 kg	110-10001

All dimensions in mm. Subject to technical changes.

### Manual tensioning tool for cable ties, simple version

**MK20 up to 4.8 mm strap width**

**MK21 up to 7.6 mm strap width**

#### Features and benefits

- Lightweight, ergonomic tools
- For tensioning and cutting standard cable ties 4.8 - 7.6 mm width
- MK20 and MK21 ideal for on-site assembly
- Mounted and pretensioned ties are cut off by twisting tool
- Simply apply cable tie, tension and twist to cut



MK20, MK21.

TYPE	Strap Width max.	Strap Thickness max.	Weight	Article-No.
MK20	4.8	1.5	0.05 kg	110-20006
MK21	7.6	2.5	0.05 kg	110-21016

All dimensions in mm. Subject to technical changes.



### Manual tensioning tool metal housing

#### MK3SP up to 4.8 mm strap width

This tough metal tool MK3SP is used by harness makers for automotive industry and white goods as well as in the aerospace, railway and medical industry.

#### Features and benefits

- Tough metal tool for HellermannTyton plastic cable ties up to 4.8 mm width
- For consistent tensioning and automatically flush cutting
- Infinitely adjustable tension force
- Reliable and low maintenance



MK3SP.

TYPE	Description	Strap Width max.	Strap Thickness max.	Weight	Article-No.
MK3SP	MK3SP	4.8	1.5	0.33 kg	110-03500
SP MK3SP replacement blade	Replacement Blade	-	-	0.01 kg	110-03524

All dimensions in mm. Subject to technical changes.

### Pneumatic tensioning tool metal housing

#### MK3PNSP2 up to 4.8 mm strap width

#### Features and benefits

- Pneumatic tensioning tool
- Tough metal housing
- For cable ties up to 4.8 mm width
- For consistent tensioning and automatically flush cutting
- Infinitely adjustable tension force
- High application speed
- Reliable and low maintenance



The pneumatic tensioning tool MK3PNSP2 for plastic cable ties with max. width of 4,8 mm.

<b>Air Supply</b>	non oiled / oiled
<b>Air Pressure (min.)</b>	3 Bar
<b>Air Pressure (max.)</b>	6 Bar
<b>Hose Internal Diameter</b>	4.0 mm
<b>L x H x W</b>	approx. 225 x 140 x 40 mm



TYPE	Description	Strap Width max.	Strap Thickness max.	Weight	Article-No.
MK3PNSP2	MK3PNSP2	4.8	1.5	0.56 kg	110-03400
SP MK3PNSP2 air hose 3 meters	Air hose, complete	-	-	0.35 kg	110-30002
SP MK3PNSP2 cutting blade	Replacement Blade	-	-	0.01 kg	110-30101

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



## The EVO family delivers maximum performance whilst protecting muscles and joints.

### The next generation of application tools impresses with its advanced technology.

With the EVO family, HellermannTyton has developed a truly ergonomic cable tie application tool that is unique in the market, perfectly combining convenience with function. **The heart of the EVO family is the innovative and patent-pending TLC technology (Tension / Lock / Cut).** This is designed to revolutionise the application of cable ties by reducing the effort required for cutting. The EVO family cuts cable ties with ease, delivering a flush clean finish with no excess strap, whilst significantly reducing physical strain on the user.



### The patent-pending TLC technology delivers increased productivity:

- Application force and effort is significantly reduced
- Precise cutting of the cable tie right at the head
- Smooth fastening of the cable tie without recoil
- Reduced long-term health issues due to lower recoil shock on the operator and reduced effort

### Perfect cutting made easy with the EVO family:

From precise preliminary settings to the perfect cut, the EVO family allows for an even lighter, gentler and easier cable tie application than ever before. The patent-pending TLC technology makes all the difference!



#### 1. Tension

Tension the cable tie as usual. Use the tension adjustment knob to select the desired tension setting.



#### 2. Lock

The patent-pending locking mechanism detects when the desired tension is reached, locking the tie in place prior to cutting. No manual pressure is required to hold the cable tie in place.



#### 3. Cut

For the final cut, very little effort is needed. By simply pulling the trigger enough to cut the tie, a precise finish can be achieved without excessive strain on the user.



One Step to the Web!





### Manual tensioning tool plastic housing

#### EVO7 up to 4.8 mm strap width

HellermannTyton's EVO7 mechanical hand tool was ergonomically designed to reduce the risks of repetitive stress injuries to operators while concurrently increasing productivity. The EVO7 Tension/Lock/Cut Technology delivers performance, safety and comfort for the operators. Available in a standard grip span (EVO7) or short grip span (EVO7SP), for smaller hands. Additional accessories are available.

#### Features and benefits

- Ergonomic, slip-proof handle for a comfortable and secure grip
- Extremely low maintenance
- Fast and precise application with minimum effort (TLC mechanism)
- Convenient and simple tension adjustment
- Extended, slim nose for use in narrow spaces
- Housing made of resilient and lightweight glass fibre-reinforced polyester
- Standard grip span (90 mm) and short grip span (80 mm) available



*The EVO7: Maximum performance with minimum effort.*

TYPE	Description	Strap Width max.	Strap Thickness max.	Weight	Article-No.
EVO7	EVO7	4.8	1.5	0.28 kg	110-70129
EVO7SP	EVO7SP	4.8	1.5	0.28 kg	110-70130
BLADEKIT	Blade-Kit	-	-	-	110-70106

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



### Manual tensioning tool plastic housing

#### EVO9 up to 13 mm strap width

The EVO9 is available in a standard grip span 90 mm (EVO9) or short grip span 80 mm (EVO9SP), for smaller hands. Both tools perform between 53N and 307N. The EVO9HT is the “high tension” version of the EVO9 family. Developed for maximum tensile strength this tool performs between 120N and more than 516N. The EVO9 family was designed to apply HellermannTyton cable ties with a maximum width of 13 mm.

#### Features and benefits

- Standard grip span (90 mm) and short grip span (80 mm) available
- Ergonomic, slip-proof handle for a comfortable and secure grip
- Extremely low maintenance
- Fast and precise application with minimum effort (TLC mechanism)
- Convenient and simple tension adjustment
- Integrated 3 position quick adjustment override
- Housing made of resilient and lightweight glass fibre-reinforced polyester



The EVO9 with TLC-Technology.



The EVO9HT with TLC-Technology.

TYPE	Description	Strap Width max.	Strap Thickness max.	Weight	Article-No.
EVO9	EVO9	13.0	2.0	0.36 kg	110-80002
EVO9SP	EVO9SP	13.0	2.0	0.36 kg	110-80003
EVO9HT	EVO9HT	13.0	2.0	0.36 kg	110-80017
<b>Replacement Blade</b>	EVO9 Blade	-	-	-	110-80037

All dimensions in mm. Subject to technical changes.



### Manual tensioning tool metal housing

**MK6 up to 9.0 mm strap width**

#### Features and benefits

- Tough metal tool
- For cable ties up to 9.0 mm width
- For consistent tensioning and automatically flush cutting
- Infinitely adjustable tension force
- Reliable and low maintenance



MK6.

TYPE	Description	Strap Width max.	Strap Thickness max.	Weight	Article-No.
<b>MK6</b>	MK6	9.0	2.0	0.52 kg	110-06000
<b>SP MK6 replacement blade</b>	Replacement Blade	-	-	0.01 kg	110-06026

All dimensions in mm. Subject to technical changes.



### Pneumatic tensioning tool plastic housing

#### MK7P up to 4.8 mm strap width

The MK7P pneumatic bundling tool sets a new benchmark for the rational application of ties in the industrial production process. Improved compressed air supply moves the tensioning piston faster than in comparable tools.

#### Features and benefits

- Pneumatic tensioning tool
- Light glass-fibre-reinforced housing
- For cable ties up to 4.8 mm width
- For consistent tensioning and automatically flush cutting
- Infinitely adjustable tension force
- High application speed



The pneumatic tensioning tool MK7P for plastic cable ties with max. width of 4,8 mm.



The easy to use quick-set-knob.

<b>Air Supply</b>	non oiled / oiled
<b>Air Pressure (min.)</b>	3 Bar
<b>Air Pressure (max.)</b>	6 Bar
<b>Hose Internal Diameter</b>	4.0 mm
<b>L x H x W</b>	approx. 220 x 170 x 40 mm

**RoHS** ✓

TYPE	Description	Strap Width max.	Strap Thickness max.	Weight	Article-No.
<b>MK7P</b>	MK7P	4.8	1.5	0.43 kg	110-07100
<b>SP MK3PNSP2 air hose 3 meters</b>	Air hose, complete	-	-	0.35 kg	110-30002
<b>SP MK7P replacement blade</b>	Replacement Blade	-	-	0.01 kg	110-07111
<b>SP lock cap tensioning knob</b>	Lock cap tensioning knob	-	-	0.01 kg	110-07200

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



### Pneumatic tensioning tool plastic housing

#### MK9P up to 13.5 mm strap width

The MK9P is constructed with heavy duty parts to ensure optimum performance. It is ideally designed to apply heavy-duty ties like they are used in vehicle construction like trucks, busses and railways.

#### Features and benefits

- Pneumatic tensioning tool
- Glass-fibre-reinforced housing
- For cable ties up to 13.5 mm width
- For consistent tensioning and automatically flush cutting
- Infinitely adjustable tension force
- High application speed
- Holding ring for a balancer
- Optional with lower or upper air attachment



The pneumatic tensioning tool MK9P for plastic cable ties with max. width of 13,5 mm.



MK9P is also available with upper air attachment.

<b>Air Supply</b>	non oiled / oiled
<b>Air Pressure (min.)</b>	3 Bar
<b>Air Pressure (max.)</b>	6 Bar
<b>Hose Internal Diameter</b>	4.0 mm
<b>L x H x W</b>	approx. 280 x 200 x 55 mm

RoHS

TYPE	Description	Strap Width max.	Strap Thickness max.	Weight	Air att. Position	Article-No.
MK9P	MK9P	13.5	2.5	0.91 kg	lower air connection	110-09100
	MK9P	13.5	2.5	0.91 kg	top air connection	110-09110
<b>SP MK3PNSP2 air hose 3 meters</b>	Air hose, complete	-	-	0.35 kg	-	110-30002
<b>SP lock cap tensioning knob</b>	Lock cap tensioning knob	-	-	0.01 kg	-	110-07200
<b>SP MK9P replacement blade</b>	Replacement Blade	-	-	0.01 kg	-	110-09111

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



### Manual tensioning tool for KR-Series

#### KR6/8

Application tool KR6/8 crimps the glass-fibre-reinforced locking pin of the KR seal and leads to plastic deformation of the tie ends. This produces a very proof permanent connection. In combination with KR cable ties this system offers high vibration resistance. One reason for customers in the railway and automotive industry to take this system as a preferred solution.

#### Features and benefits

- Tough metal tool for applying KR cable ties only
- For tensioning, fixing and cutting KR cable ties
- Simply change the front plate to apply 6 mm or 8 mm straps



The manual tensioning tool KR6/8 for KR-Series cable ties.

TYPE	Description	For Ties	Strap Width max.	Weight	Article-No.
KR6/8	KR6/8	KR6, KR8	8.0	0.52 kg	121-00680
SP KR6/8 replacement blade	Replacement blade	KR6, KR8	-	0.01 kg	122-68019

All dimensions in mm. Subject to technical changes.

### Pneumatic tensioning tool for KR8-Series

#### KR8PNSE

Application tool KR8PNSE crimps the glass-fibre-reinforced locking pin of the KR seal and leads to plastic deformation of the tie ends. This produces a very proof permanent connection.

#### Features and benefits

- Pneumatic tool with tough metal housing
- For applying KR8 cable ties only
- For tensioning, fixing and automatically cutting KR8 cable ties
- Tension force can be adapted in reliance on air pressure
- Holding ring for a balancer



The pneumatic tensioning tool KR8PNSE for KR-Series cable ties.

<b>Air Supply</b>	non oiled / oiled
<b>Air Pressure (min.)</b>	3 Bar
<b>Air Pressure (max.)</b>	4 Bar
<b>Hose Internal Diameter</b>	6.0 mm
<b>L x H x W</b>	approx. 320 x 210 x 50 mm

RoHS

TYPE	Description	For Ties	Strap Width max.	Weight	Article-No.
KR8PNSE	KR8PNSE	KR8	8.0	1.56 kg	121-00889
SP KR8PNSE replacement blade	Replacement Blade	KR8	-	0.01 kg	122-80032

All dimensions in mm. Subject to technical changes.



For product specific approvals and specifications please refer to the Appendix.



### Manual tensioning tool for metal ties MBT-Series

#### MK9SST up to 16.0 mm strap width

The MK9SST is constructed with heavy duty parts to ensure optimum performance. It is designed to apply our MBT cable ties with a strap width of up to 16 mm. The tool is ideally suited for use in most arduous environments such as found on board ships, oil rigs, constructions or in nuclear power stations.

#### Features and benefits

- Glass-fibre-reinforced housing
- Ergonomic design
- Consistent tensioning and automatically cutting of metal ties MBT-Series
- Infinitely adjustable tension force combined with two-step quick adjustment



MK9SST.

TYPE	Description	Strap Width max.	Strap Thickness max.	Weight	Article-No.
MK9SST	MK9SST	16.0	0.5	0.60 kg	110-95000
SP MK9SST replacement blade	Replacement Blade	-	-	0.01 kg	110-95273

All dimensions in mm. Subject to technical changes.

### Pneumatic tensioning tool for metal ties MBT-Series

#### MK9PSST up to 16.0 mm strap width

The MK9PSST pneumatic stainless steel tool is constructed with heavy-duty parts to ensure optimum performance in demanding environments. It is ideally designed to apply stainless steel metal ball tie series (MBT) up to 16.0 mm width.

#### Features and benefits

- Unique levels of repeatability and accuracy
- High application speed and low maintenance
- Improved compressed air supply for faster tensioning piston movement
- Shorter processing time and greater volume of connecting tie application
- Ergonomic design
- Automatic ejection of cut-off cable tie end
- Ideally designed to apply stainless steel MBT-Series up to 16.0 mm width
- On air pressure between 3 and 6 bar



MK9PSST.

<b>Air Supply</b>	non oiled / oiled
<b>Air Pressure (min.)</b>	3 Bar
<b>Air Pressure (max.)</b>	6 Bar
<b>Hose Internal Diameter</b>	4.0 mm
<b>L x H x W</b>	approx. 280 x 200 x 55 mm

RoHS

TYPE	Description	Strap Width max.	Strap Thickness max.	Weight	Article-No.
MK9PSST	MK9PSST	16.0	0.5	0.91 kg	110-95350
SP MK9PSST replacement blade	Replacement Blade	-	-	0.01 kg	110-95307
SP lock cap tensioning knob	Lock cap tensioning knob	-	-	0.01 kg	110-07200

All dimensions in mm. Subject to technical changes.





### Manual tensioning tool for metal ties MBT-, MLT- and AMT-Series

#### HDT16 up to 16.0 mm strap width

The HDT16 application tool is designed for installing heavy duty stainless steel cable ties within a range of industries such as shipbuilding, oil rigs, mining and mass transit. The tool can easily be adjusted making it suitable for applying both MBT, MLT and AMT cable ties with a strap width of up to 16 mm.

#### Features and benefits

- Two way nose piece for use with MBT-Series and AMT-, MLT-Series stainless steel cable ties
- Easy adjustment of the handles to ensure the most ergonomic position for the operator
- Integrated cutting mechanism delivering a flush cut and professional finish every time
- The ideal tool for achieving a perfect installation of MBT, MLT and AMT cable ties



HDT16.



Application video: HDT16 Tool

TYPE	Strap Width max.	Strap Thickness max.	Weight	Article-No.
HDT16	16.0	0.8	1.00 kg	110-40000

All dimensions in mm. Subject to technical changes.

### Manual tensioning tool for metal ties MBT-Series

#### KST-STG200 up to 12.3 mm strap width

The KST-STG200 application tool is designed for installing heavy duty stainless steel cable ties within a range of industries such as shipbuilding, oil rigs, mining and mass transit. The tensioning strength can be adjusted while pulling the trigger. The tool is easy to handle and far more reliable than trying to tension the ties by hand.

#### Features and benefits

- Tough metal tool
- Operator controlled tensioning
- Cut off by pulling the hand lever



KST-STG200.

TYPE	Strap Width max.	Strap Thickness max.	Weight	Article-No.
KST-STG200	12.3	0.3	0.56 kg	110-09950

All dimensions in mm. Subject to technical changes.



### Manual tensioning tool for metal ties MST-Series

#### MST6 for 5.9 mm strap width

The MST6 tool has been specially developed for reliably applying HellermannTyton metal cable ties of the MST-S series. Due to the punch-lock mechanism the tie is mechanically crimped and leads to metal deformation of the tie ends. This punch-lock mechanism ensures a reliable bundling with perfect resistance to vibration. The tension force is freely adjustable by the operator.

#### Features and benefits

- Tough metal tool
- Ergonomic design
- Consistent tensioning and automatically cutting of metal ties
- Designed for use with MST-S Series ties (5.9 mm)
- For tensioning, fixing and cutting MST-S metal ties only



MST6.

TYPE	Description	Strap Width max.	Strap Thickness max.	Weight	Article-No.
MST6	MST6	5.9	0.3	0.53 kg	110-61000
SP MST6-P29 (Blade)	Replacement Blade	-	-	0.01 kg	110-61001
SP MST6-P30 (Punch)	Replacement Punch	-	-	0.01 kg	110-61002

All dimensions in mm. Subject to technical changes.



One Step to the Web!

### Manual tensioning tool for metal ties MST-Series

#### MST9 for 8.9 mm strap width

The MST9 tool has been specially developed for reliably applying HellermannTyton metal cable ties of the MST-M series. Due to the punch-lock mechanism the tie is mechanically crimped and leads to metal deformation of the tie ends. This punch-lock mechanism ensures a reliable bundling with perfect resistance to vibration. The tension force is freely adjustable by the operator.

#### Features and benefits

- Tough metal tool
- Ergonomic design
- Consistent tensioning and automatically cutting of metal ties
- Designed for use with MST-M Series ties (8.9 mm)
- For tensioning, fixing and cutting MST-M metal ties only



MST9.

TYPE	Description	Strap Width max.	Strap Thickness max.	Weight	Article-No.
MST9	MST9	8.9	0.4	0.54 kg	110-13000
SP MST9-P29 (Blade)	Replacement Blade	-	-	0.01 kg	110-13001
SP MST9-P30 (Punch)	Replacement Punch	-	-	0.01 kg	110-13002

All dimensions in mm. Subject to technical changes.



## Manual tensioning tool for metal ties MLT-Series

### MTT4 up to 12.0 mm strap width

The MTT4 tensioning tool is a lightweight manual processing tool which is easy to use for application of the MLT (releasable) series. The extended nose piece ensures the fixing length of the MLT cable tie. While using the ratchet system, the operator can easily cut off the tie on the correct length with the long cutter lever.

#### Features and benefits

- Tough metal tool
- Simple ratchet operation, easy to use
- Operator controlled tensioning and cutting facility



MTT4.

TYPE	Strap Width max.	Strap Thickness max.	Weight	Article-No.
MTT4	12.0	0.7	0.78 kg	110-04000

All dimensions in mm. Subject to technical changes.

## Application Tooling for Snappers



MSNP, ASNP.  
See page 609



ASNP.  
See page 609

## Application Tooling for Heat Shrinkable Tubing



H5002.  
See page 611

30



H5004.  
See page 611

31



E4500.  
See page 610

32

## Application Tooling for Non Shrinkable Tubing



NA.  
See page 612

35-38



VA.  
See page 613

39-41



K, S, SS.  
See page 614

## Application Tooling for Braided Sleeves



HSG0.  
See page 614

45

## Application Tooling for Identification



HCT1, HCT2.  
See page 615

50-51



### Snapper Tools

**MSNP1-70 for Snapper Size 1 to 70**

**ASNP2-22 for Snapper Size 2 to 22**

**ASNP24-70 for Snapper Size 24 to 70**

#### Features and benefits

- For efficient fixing of the snapper hose clips
- MSNP tool: handy for installation on site
- ASNP tool: suitable for series production. Retaining screw limits the draw-in area prevents overstretching of the snapper



Snapper Application Tools MSNP1-70 and ASNP24-70.



**Pneumatic Tools for Snapper are available on request. Contact us!**



**Snapper hose clips for tubes and harnesses see page 203.**



Snapper Application Tool ASNP2-22.

TYPE	Application	Weight	Material	Colour	Article-No.
<b>MSNP1-70</b>	SNP-Series 1 up to 70	0.18 kg	Metal (MET), Plastic (PL)	Yellow (YE)	191-01700
<b>ASNP2-22</b>	SNP-Series 2 up to 22	0.20 kg	Metal (MET), Plastic (PL)	Blue (BU)	191-02220
<b>ASNP24-70</b>	SNP-Series 24 up to 70	0.25 kg	Metal (MET), Plastic (PL)	Red (RD)	191-24700

Subject to technical changes.



## Gas powered hot air tool

### E4500

The E4500 hot air gun starter kit is ideal for working in cramped spaces or where there is no power supply. The kit includes a E4500 hot air tool with protective spring, gas cartridge P445, reflector nozzle Z2 and flat nozzle Z3. The hot air tool is suitable for shrinking all types of heat shrink products including tubing, shapes and cable repair sleeves. It can also be used for the bending and shaping of PVC pipes, soft soldering of copper pipes, drying, defrosting (of locks), heating and paint stripping.

#### Features and benefits

- Cordless hot air gun works with special gas cartridge
- Does not need any power supply
- Suitable for outdoor use
- Designed for heat shrink tubing, end caps and moulded shapes
- Supplied with protective spring, two nozzles and a gas cartridge
- Allows precise working in any position even in restricted spaces
- Can be operated on its stand for hands free use
- Light weight tool
- Operating time of cartridge: approx. 1.5 hours
- With easy Piezo ignition



One Step to the Web!



E4500 with heat protecting spring.



Practical hot air gun kit E4500 with accessories.



Gas cartridge P445.

TYPE	Description	Article-No.
E4500	Hot air gun with protective spring incl. gas cartridge, reflector nozzle Z2 and flat nozzle Z3	391-90002
P445	P445 Refill Gas Cartridge (Butane, Propane, Propene)	391-90101

Subject to technical changes.



### Electrical hot air tool

#### H5002 - handy tool

For applying heat shrinkable products like thin wall shrink tubing and Moulded Shapes.

#### Features and benefits

- Lightweight and compact hot air tool
- Enables comfortable, fatigue-free work
- Temperature electronically controlled from 100-600 °C, cold air step of 50 °C
- Air-flow regulation adjusted in two stages (300 l/min and 500 l/min)



H5002 - The light, convenient hot air tool.

TYPE	Air Flow l/min	Operating Temperature	Standby Temp. °C	Wattage	Operational Voltage	Weight	Article-No.
H5002	300 - 500 l/min	+100 °C to +600 °C	50 °C	2,000 W	230 V AC ~ / 230-240 V	0.9 kg	391-50200

Subject to technical changes.

### Electrical hot air tool

#### H5004 - for professional use

H5004 electrical hot air tool is designed for shrinking down many heat shrinkable products like thin wall tubing, with and without adhesive, end caps and moulded shapes.

#### Features and benefits

- Professional hot air gun
- Temperature electronically controlled
- Air flow regulation
- Equipped with LED temperature indication enabling precise temperature adjustment



H5004 - for professional use.

TYPE	Air Flow l/min	Operating Temperature	Standby Temp. °C	Wattage	Operational Voltage	Weight	Article-No.
H5004	150 - 500 l/min	+50 °C to +650 °C	50 °C	2,300 W	230-240V, 50Hz	1.13 kg	391-50400

Subject to technical changes.





### Three-pronged pliers for sleeves and grommets

**NA**

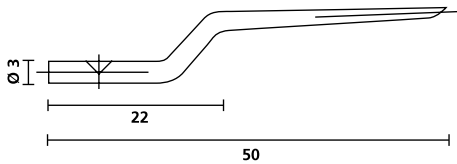
Three-pronged expansion tools are used to ensure speedy and precise application of expandable markers and sleeves.

#### Features and benefits

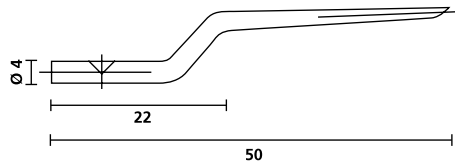
- To easily affix expandable sleeves of every type onto cables/connectors
- Push pliers and pull over cable
- Close pliers, sleeve is placed easily
- Hellerrine lubricant recommended for easy operation



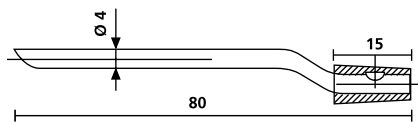
Fast, secure application with the NA three-pronged pliers.



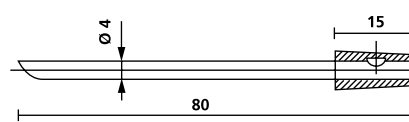
Replacement prong NA0/1



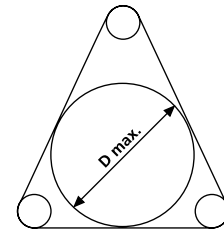
Replacement prong NA1K/3



Replacement prong NA4/5



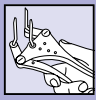
Replacement prong NA8/10



Three-prong pliers D = max. application diameter

TYPE	Description	Bundle Ø min.	Bundle Ø max.	Ø D max.	Max. length of marker	Article-No.
NA0/1	Expansion tool NA0/1	1.3	1.8	10.5	28	621-10001
NA1K/3	Expansion tool NA1/3	2.5	5.0	11.0	28	621-10103
NA4/5	Expansion tool NA4/5	7.5	10.0	15.5	50	621-10405
NA8/10	Expansion tool NA8/10	12.0	17.0	25.5	60	621-10810
NA0/1 PRONG	Replacement prongs for NA0/1	1.3	1.8	-	28	621-60001
NA1K/3 PRONG	Replacement prongs for NA1K/3	2.5	5.0	-	28	621-60103
NA4/5 PRONG	Replacement prongs for NA4/5	7.5	10.0	-	50	621-60405
NA8/10 PRONG	Replacement prongs for NA8/10	12.0	17.0	-	60	621-60810

All dimensions in mm. Subject to technical changes.



### Three-pronged pliers for sleeves and grommets

#### VA2.5/5 - reinforced

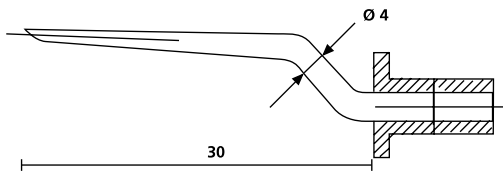
Expansion tools are used to ensure speedy and precise application of expandable markers and sleeves.

#### Features and benefits

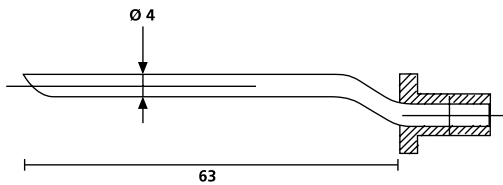
- Suitable for expanding tubing cut lengths and rubber parts
- Withstands high loading
- Set of 3 2.5/5 pins
- Replacement pins available in sizes 8 and 18



VA2.5/5.



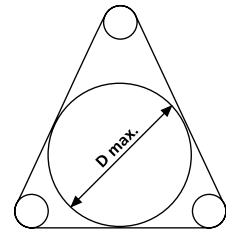
Replacement prong size 2.5/5



Replacement prong size 8



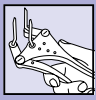
Replacement prong size 18



Three-prong pliers D = max. application diameter

TYPE	Description	Bundle Ø min.	Bundle Ø max.	Ø D max.	Article-No.
VA2.5/5	Expansion tool VA2.5/5	2.5	5.0	26.0	621-00200
VA-2.5/5 PRONG	Replacement prongs size 2.5/5	2.5	5.0	26.0	621-01200
VA2.5/5 PRONG 8	Replacement prongs size 8	8.0	10.0	28.0	621-02200
VA2.5/5 PRONG 18	Replacement prongs size 18	18.0	20.0	30.0	621-03200

All dimensions in mm. Subject to technical changes.



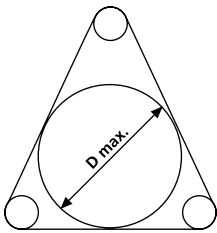
### Three-pronged pliers for sleeves and grommets

**K, S, SS**

Three-pronged expansion tools are used to ensure speedy and precise application of expandable markers and sleeves.

#### Features and benefits

- For speedy application of markers and sleeves
- Hellerine lubricant recommended for easy operation
- Handy D KIT contains a tool body, a range of prongs and small bottle of Hellerine lubricant.



Three-prong pliers D = max. application diameter



Fast, secure application with the three-pronged expansion tools.

TYPE	Bundle Ø min.	Bundle Ø max.	Ø D max.	Max. length of marker	Article-No.
SS TOOL	1.2	2.0	15.0	20	621-80008
S TOOL	2.5	4.0	15.0	20	621-80009
K TOOL	5.0	10.0	17.0	32	621-80007
D KIT	1.2	11.5	17.0	32	621-80005

All dimensions in mm. Subject to technical changes.

### Hot cutting tool

**HSG0**

The HSG0 hand tool is used to cut braided sleeving cleanly and without fraying.

#### Features and benefits

- Light and sturdy
- Heats up quickly with the press of button and cuts in seconds
- The yarn melts and fuses together
- No fraying of the sleeving



The HSG0 hot cutting tool prevents the braided sleeving from fraying.

TYPE	Description	Weight	Colour	Article-No.
HSG0	Hot cutting tool	1.15 kg	Blue (BU)	170-99001
HSG0BLADE	Replacement blade	0.027 kg	Metal (ML)	170-99002

Subject to technical changes.



## Helafix Tool

**HCT1 for carrier size HCR09**

**HCT2 for carrier size HCR12**

HCT1 and HCT2 tools are ideal for cleanly cutting the carrier strip as well as punching out the securing holes. For HCR06, HCR18 and HCR24, the front part of the pliers can be used. To fix the character holders HC and HCR simply use the T18 range of cable ties, fixings or rivets.

### Features and benefits

- Cleanly cut Helafix HCR carrier tubing
- Punch securing holes on edges of HCR09 (HCT1) and HCR12 (HCT2)
- Apply punched HCR09 and HCR12 with T18 range of cable ties
- Suitable for punching rivet holes in HCR06, HCR18 and HCR24 tubing
- Punch hole diameter 2.5 mm
- Fix with T18 range of cable ties or suitable rivets



*Any length can be used...*



*...just cut to suit.*

TYPE	For Carrier Width	For Size	Ø (D)	Article-No.
HCT1	10.0	HCR09	2.5	525-00010
HCT2	13.0	HCR12	2.5	525-00013

All dimensions in mm. Subject to technical changes.

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