UNIVER®

K | **ISO 15552** Cylinders

KL NEW

CLEAN PROFILE
Easier to clean

QUICK INSTALLATION
Sensors and connections on one side

UNIVER TECHNOLOGY
Strong and Reliable

ISO 15552
Interchangeability

KE

Ø 32 ÷ 125 mm

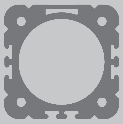
KL

Ø 32 ÷ 125 mm

NEW **CLEAN** PROFILE

KD

Ø 32 ÷ 125 mm



K 160/200

Ø 160 - 200 mm

KIT **Assembly Kit**
available for all series

NEW - KL

Ø 32 ÷ 125 mm - ISO 15552 Pneumatic Cylinders
CLEAN PROFILE

CHARACTERISTICS

Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air, with or without lubrication
Working pressure	1,5 ÷ 10 bar
End-caps	die-cast aluminium
Barrel	anodized aluminium
Piston	die-cast aluminium
Guide slide	acetalic resin
Piston rod	chromium-plated steel, stainless steel upon request
Piston seal	NBR
Guide bush for piston rod	UNIVER Original self-lubricating and self-aligning
Shock absorber seals	NBR
Cushionings	pneumatic adjustable
Other available versions	tandem, two-position tandem, opposed, with common piston rod

CODIFICATION KEY

K	L	2	0	0	0	3	2	0	0	5	0		M
1		2	3		4				5			6	7

1 Series

KL = Ø 32÷125 mm - ISO 15552 Pneumatic Cylinders

Magnetic version standard supplied

2 Type

1 = Stainless steel piston rod
2 = Chromium-plated steel piston rod

3 Version

00 = **D.A.** Standard version
01 = **D.A.** Through piston rod
60 = **S.A.** Retracted piston rod Max stroke 50 mm
70 = **S.A.** Extended piston rod Max stroke 50 mm

D.A. = Double acting
S.A. = Single acting

4 Bore (mm)

032 = Ø32
040 = Ø40
050 = Ø50
063 = Ø63
080 = Ø80
100 = Ø100
125 = Ø125

5 Stroke (mm)

0025 = 25
0050 = 50
0075 = 75
0080 = 80
0100 = 100
0125 = 125
0150 = 150
0160 = 160
0175 = 175
0200 = 200
0250 = 250
0300 = 300
0320 = 320
0350 = 350
0400 = 400
0450 = 450
0500 = 500
0600 = 600
0700 = 700
0800 = 800
0900 = 900
1000 = 1000

6 Option

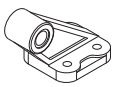
F = Preset for locking unit reduced protrusion
G = Preset for locking unit ISO protrusion

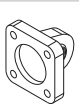
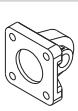
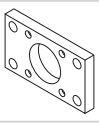
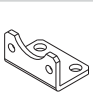
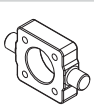
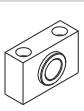
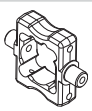
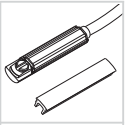
7 Magnetic

M = Magnetic version standard supplied

KL190 and KL290 versions with high temperature seals (Max 120°C) and version with low temperature seals (Max -40°C) available upon request

FIXING ELEMENTS AND ACCESSORIES

Ø	Female fork with clips	Articulated self-lubricating fork	Fork with axially mounted articulated pin	Fork with angle mounted articulated pin	Floating joint	Female rear hinge with pin	Counter hinge 90° (CETOP)	Counter hinge 90°	Counter hinge 90° (CNOMO)	Narrow female hinge with pin	Articulated counter hinge
											
32	KF-15032	KF-17032	KF-22032	KF-23032	KF-24032	KF-10032A	KF-19032CTA	KF-19032	KF-19032CN	KF-10032AS	KF-19032SC
40	KF-15040	KF-17040	KF-22040	KF-23040	KF-24040	KF-10040A	KF-19040CTA	KF-19040	KF-19040050CN	KF-10040AS	KF-19040SC
50	KF-15050	KF-17050	KF-22050	KF-23050	KF-24050	KF-10050A	KF-19050CTA	KF-19050	KF-19040050CN	KF-10050AS	KF-19050SC
63	KF-15050	KF-17050	KF-22050	KF-23050	KF-24050	KF-10063A	KF-19063CTA	KF-19063	KF-19063080CN	KF-10063AS	KF-19063SC
80	KF-15080	KF-17080	KF-22080	KF-23080	KF-24080	KF-10080A	KF-19080CTA	KF-19080	KF-19063080CN	KF-10080AS	KF-19080SC
100	KF-15080	KF-17080	KF-22080	KF-23080	KF-24080	KF-10100A	KF-19100CTA	KF-19100	KF-19100125CN	KF-10100AS	KF-19100SC
125	KF-15125	KF-17125	-	-	-	KF-10125A	KF-19125CTA	-	KF-19100125CN	KF-10125AS	KF-19125SC

Ø	Articulated rear male hinge	Rear male hinge	Front/rear flange	Angle bracket	Front/rear hinge with floating pin	Hinge support	ISO intermediate hinge	DF sensor and DHF covering strip
								
32	KF-11032S	KF-11032	KF-12032	KF-13032	KF-14032AP	KF-41032	KLF-14032	
40	KF-11040S	KF-11040	KF-12040	KF-13040	KF-14040AP	KF-41040050	KLF-14040	
50	KF-11050S	KF-11050	KF-12050	KF-13050	KF-14050AP	KF-41040050	KLF-14050	
63	KF-11063S	KF-11063	KF-12063	KF-13063	KF-14063AP	KF-41063080	KLF-14063	DF DHF-0020100
80	KF-11080S	KF-11080	KF-12080	KF-13080	KF-14080AP	KF-41063080	KLF-14080	
100	KF-11100S	KF-11100	KF-12100	KF-13100	KF-14100AP	KF-41100125	KLF-14100	
125	KF-11125S	KF-11125	KF-12125	KF-13125	KF-14125AP	KF-41100125	KLF-14125	

Tube profile with integrated sensor grooves
UNIVER Original since 2005

Recessed sensor
DF series

Magnetic piston
standard supplied

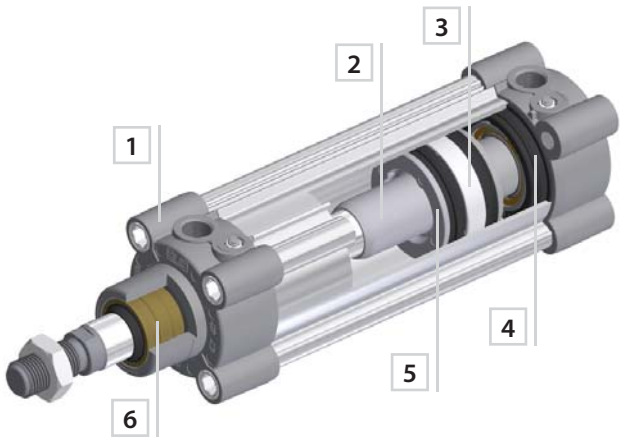
Fixing screws integrated in the end-cap profile

Sensor grooves available in different positions

Possibility to mount DH sensors with brackets

Intermediate hinge with locking system guaranteed by UNIVER AUTOMOTIVE expertise

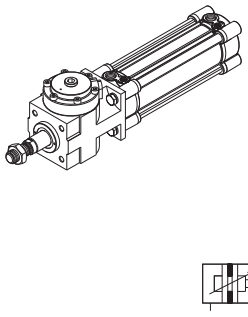
Standard fixing elements
UNIVER Original



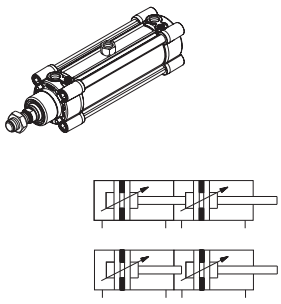
1	Die-cast end-caps in aluminium
2	Die-cast piston in aluminium
3	Guide slide in acetalic resin with integrated magnetic ring
4	Wear-resistant shock absorber seals in nitrilic rubber compound
5	Lip piston seals in nitrile rubber compound
6	**UNIVER Original** self-aligning and self-lubricating guide bush for piston rod

Further available versions

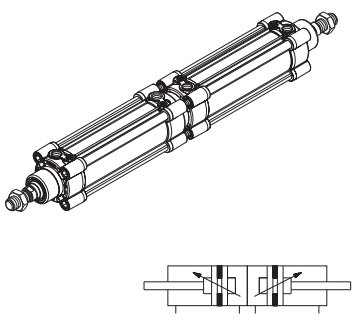
- Cylinder with L1-N locking unit



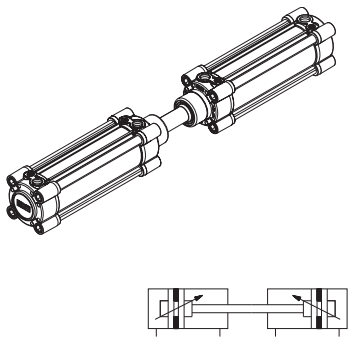
- Tandem cylinder
  Two-position tandem cylinder



- Opposed cylinders



- Cylinders with common piston rod



UNIVER®

CLEAN PROFILE

KL

ISO 15552 Cylinders

Ø 32 ÷ 125 mm

NEW

KL

ISO 15552 Cylinders

Ø 32 ÷ 125 mm

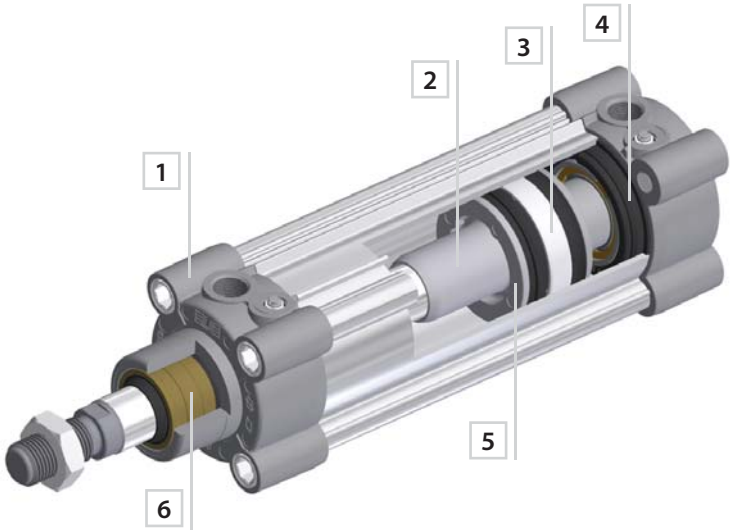
CLEAN PROFILE
Easier to clean

QUICK INSTALLATION
Sensors and connections on one side

UNIVER TECHNOLOGY
Strong and reliable

ISO 15552 STANDARD
Interchangeability

Constructive characteristics



1. Die-cast end caps in aluminium alloy
2. Die-cast piston in aluminium alloy
3. Guide slide in acetalic resin with integrated magnetic ring
4. Wear-resistant cushion seals in nitrilic rubber compound
5. Lip piston seals in nitrile rubber compound
6. **UNIVER Original** self-aligning and self-lubricating guide bush for piston rod

The absence of "sharp" edges ensures **maximum safety** during installation

Accurate design of end caps in line with tube profile

Versions available upon request

Metallic rod scraper

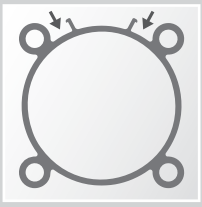
Low friction

+120°C

High temperature seals

-40°C

Low temperature seals



Tube profile with integrated sensor grooves
UNIVER Original since 2005

Recessed sensor DF series

Magnetic piston standard supplied

Fixing screws integrated in the end cap profile

Sensor grooves available in different positions

Possibility to mount DH sensors with brackets

Intermediate hinge with locking system guaranteed by UNIVER AUTOMOTIVE expertise

Standard fixing elements
UNIVER Original

KIT **Assembly kit**

KL Ø 32 ÷ 125 mm

- New design of the profile for easier cleaning
- Grooves for recessed sensors and connections on one side for easy installation
- Traditional UNIVER technology to ensure strength and reliability
- Dimensions complying with international standards for a full interchangeability

TECHNICAL CHARACTERISTICS

Ambient temperature	-20 ÷ 80 °C
Fluid	filtered air with or without lubrication
Working pressure	1,5 ÷10 bar
Bores	Ø 32 - 40 - 50 - 63 - 80 - 100 - 125 mm
Cushionings	pneumatic and adjustable on both sides

CONSTRUCTIVE CHARACTERISTICS

End caps	die-cast in aluminium alloy
Barrel	profiled and anodized aluminium
Piston	die-cast in aluminium alloy
Guide slide	acetalic resin
Piston Rod	chromium-plated steel standard, stainless steel upon request
Piston Seal	lip seal in nitrilic resin
Guide bush for rod	UNIVER Original self-lubricating and self-aligning
Cushion seals	nitrilic rubber
Magnet	standard supplied

CODIFICATION KEY

K	L	2	0	0	0	3	2	0	0	5	0		M
1		2	3		4			5				6	7

1 Series

KL = Pneumatic cylinders ISO 15552 Ø 32 ÷ 125 mm
Standard Magnetic

2 Type

1 = Stainless steel rod
2 = Chromium-plated steel rod

3 Version

00 = **D.A.** Standard
01 = **D.A.** Through rod
40 = **D.A.** Reinforced bushing
60 = **S.A.** Retracted rod Max stroke 50 mm
70 = **S.A.** Extended rod Max stroke 50 mm
90 = **D.A.** High temperature seals +120 °C

4 Bore

032 = Ø32
040 = Ø40
050 = Ø50
063 = Ø63
080 = Ø80
100 = Ø100
125 = Ø125

5 Stroke (mm)

0025 - 0050 - 0075 - 0080 - 0100 - 0125 - 0150 - 0160
0175 - 0200 - 0250 - 0300 - 0320 - 0350 - 0400 - 0450
0500 - 0600 - 0700 - 0800 - 0900 - 1000

6 Option

F = Preset for locking unit - reduced protrusion
G = Preset for locking unit - ISO protrusion
K = Metallic rod scraper

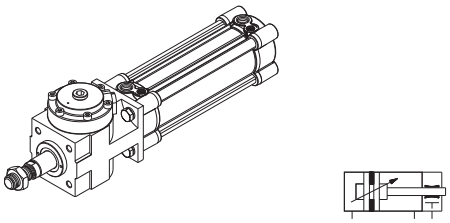
7 Magnetic

M = Magnetic version (standard supplied)

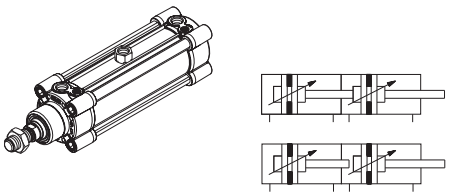
D.A. = Double-acting **S.A. =** Single-acting

Further available versions

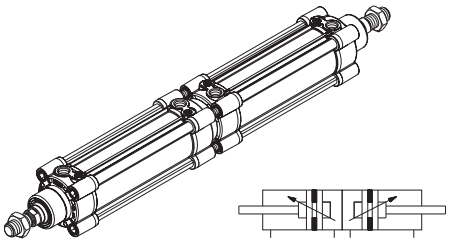
Cylinder with L1-N locking unit



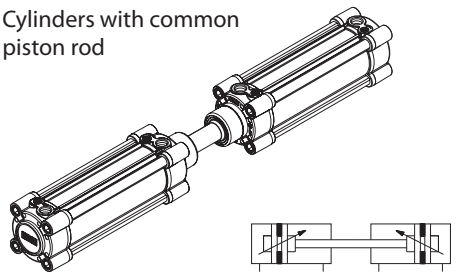
Tandem cylinder
Two-position tandem cylinder



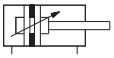
Opposed cylinders

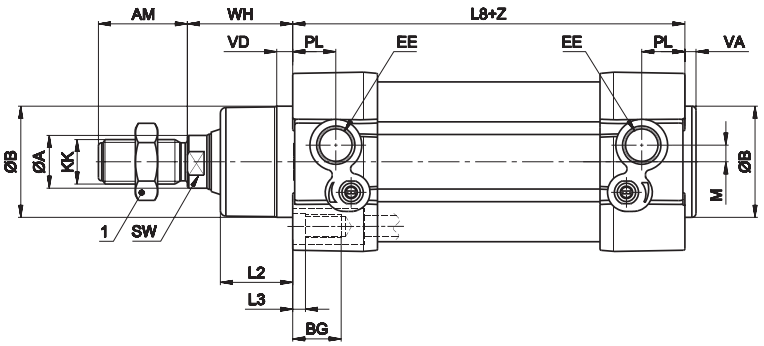


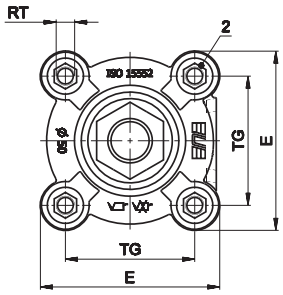
Cylinders with common piston rod



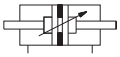
Standard version

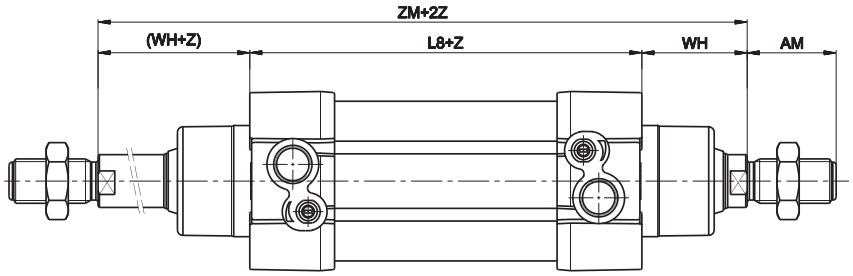






Through rod version





Z= stroke

Overall Dimensions

Ø	ØA	AM	ØB	BG	E+0,5	KK	L2	L3	L8		PL	RT	SW	TG		VA	VD	WH	EE	M	1	2	ZM	
									nom.	tol.				nom.	tol.								nom.	tol.
32	12	22	30	16	46,5	M10x1,25	16	5	94	±0,4	14	M6	10	32,5	±0,5	3,5	5	26	G1/8	4,4	17	6	146	+3,0 -1,5
40	16	24	35	16	52	M12x1,25	20	5	105	±0,7	16	M6	13	38	±0,5	4	5,5	30	G1/4	5	19	6	165	+3,0 -1,5
50	20	32	40	17	64,5	M16x1,5	26	6	106	±0,7	15,5	M8	17	46,5	±0,6	4	6	37	G1/4	6	24	8	180	+3,0 -1,5
63	20	32	45	18	76,5	M16x1,5	26	6	121	±0,8	17,5	M8	17	56,5	±0,7	4	6	37	G3/8	8	24	8	195	+3,0 -1,5
80	25	40	45	20	95	M20x1,5	32	7	128	±0,8	20	M10	22	72	±0,7	4	8	46	G3/8	7,5	30	10	220	+3,0 -1,5
100	25	40	55	20	114	M20x1,5	35	7	138	±1	20,5	M10	22	89	±0,7	4	8	51	G1/2	9	30	10	240	+3,5 -2,0
125	32	54	60	24	140	M27x2	45	8	160	±1	20,5	M12	27	110	±1,1	5,5	10	65	G1/2	11	41	12	290	+3,5 -2,0

Mass

Ø	Cylinder - stroke 0	Increase per mm stroke	Moving element - stroke 0	Moving element	Thrust (N)	Traction (N)
	Kg	gr	Kg	increase gr/mm	6 bar	6 bar
32	0,48	2,05	0,13	0,9	482	414
40	0,71	3,06	0,25	1,6	754	633
50	1,18	4,28	0,44	2,5	1178	990
63	1,74	4,91	0,55	2,5	1869	1680
80	2,74	7,20	0,97	3,8	3014	2722
100	3,92	8,00	1,19	3,8	4710	4416
125	6,83	12,40	2,20	6,2	7359	6882

Through rod cylinder mass

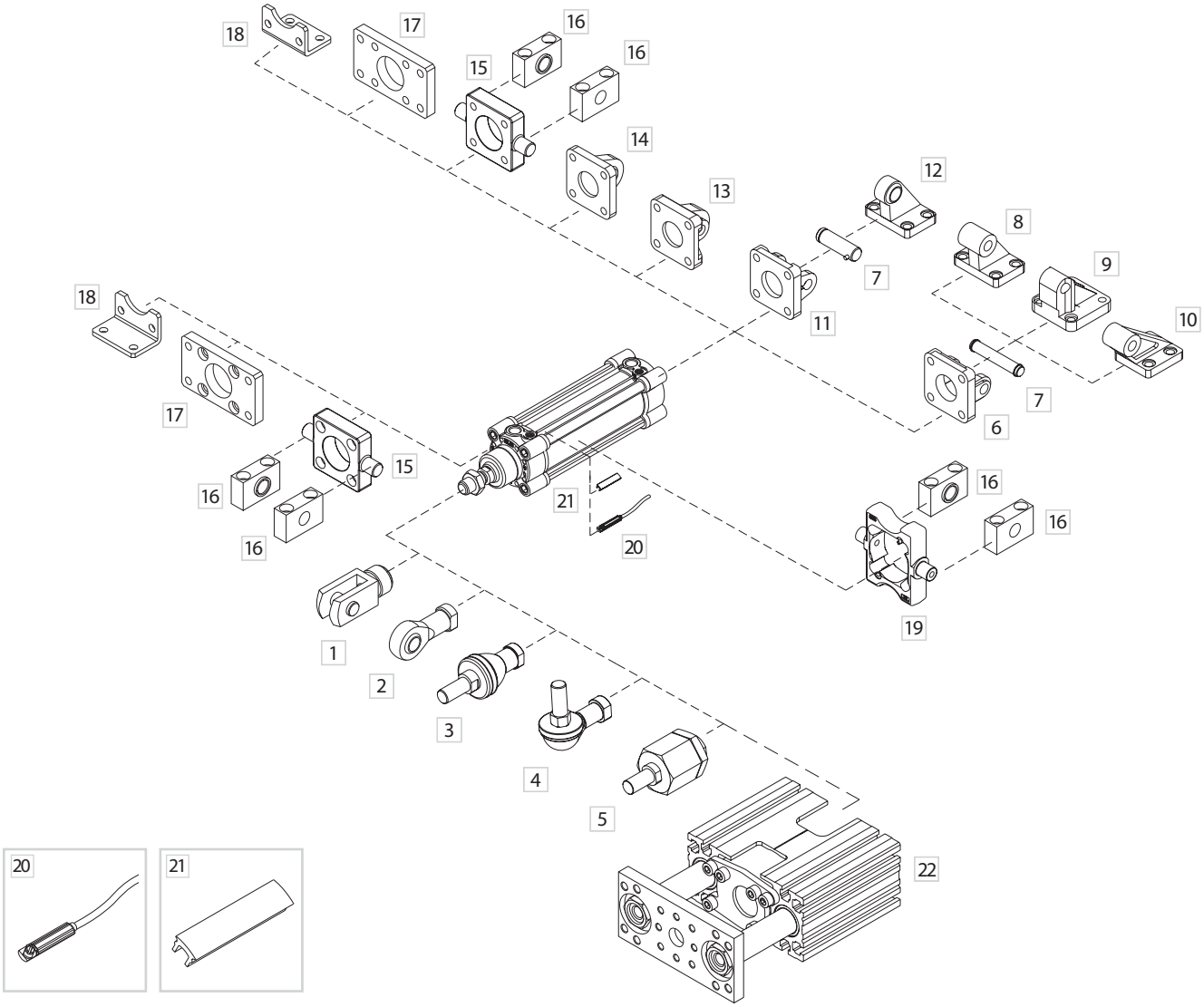
Ø	Cylinder - stroke 0	Increase per mm stroke	Moving element - stroke 0	Moving element
	Kg	gr	Kg	increase gr/mm
32	0,55	2,92	0,19	1,8
40	0,85	4,62	0,36	3,2
50	1,44	6,72	0,64	4,9
63	2,01	7,36	0,74	4,9
80	3,19	11,0	1,35	7,6
100	4,46	11,8	1,57	7,6
125	7,81	18,53	3,05	12,4

Nominal stroke tolerance

Cushion

Ø	Strokes up to 500	Strokes from 501 to 1000	Length	Kinetic energy absorption
	mm	mm	mm	Nm
32	+2 - 0	+3,2 - 0	18	1,8
40	+2 - 0	+3,2 - 0	24	2,5
50	+2 - 0	+3,2 - 0	24	4,5
63	+2,5 - 0	+4 - 0	30	8
80	+2,5 - 0	+4 - 0	30	12
100	+2,5 - 0	+4 - 0	35	21
125	+4 - 0	+5 - 0	35	36

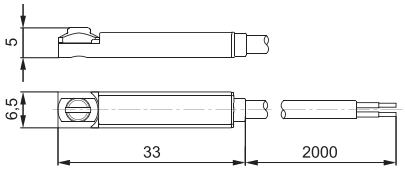
Fixing elements and accessories



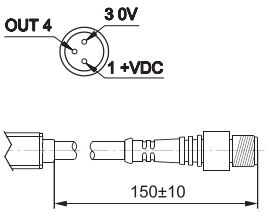
	DESCRIPTION	NOTE	PART NO.
1	Female fork with clips	Zinc-plated steel	**KF-15 _ _ _**
2	Articulated self-lubricating fork	Zinc-plated steel	**KF-17 _ _ _**
3	Fork with axially mounted articulated pin	Zinc-plated steel	**KF-22 _ _ _**
4	Fork with angle-mounted articulated pin	Zinc-plated steel	**KF-23 _ _ _**
5	Floating joint	Aluminium (steel upon request)	**KF-24 _ _ _**
6	Female hinge	Aluminium	**KF-10 _ _ _ A**
7	Pin	Aluminium (steel upon request)	**KF-18 _ _ _**
8	90° counter-hinge (CETOP)	Aluminium	**KF-19 _ _ _ CTA**
9	90° counter-hinge	Aluminium	**KF-19 _ _ _**
10	90° counter-hinge (CNOMO)	Aluminium	**KF-19 _ _ _ CN**
11	Narrow female hinge with pin	Aluminium (steel upon request)	**KF-10 _ _ _ AS**
12	Articulated counter-hinge	Steel	**KF-19 _ _ _ SC**
13	Articulated male rear hinge	Aluminium (steel upon request)	**KF-11 _ _ _ S**
14	Male rear hinge	Zinc-plated steel	**KF-11 _ _ _**
15	Front/rear hinge with floating pin	Zinc-plated steel	**KF-14 _ _ _ AP**
16	Support for hinges	Zinc-plated steel	**KF-41 _ _ _**
17	Front flange (MF1) - rear flange (MF2)	Zinc-plated steel	**KF-12 _ _ _**
18	Angle bracket (MS1)	Zinc-plated steel	**KF-13 _ _ _**
19	Intermediate hinge	Zinc-plated steel	**KLF-14 _ _ _**
20	Magnetic sensor DF series	-	**DF- _ _ _**
21	Strip for covering DF sensor wires	Nitrilic rubber	**DHF-0020100**
22	Slide unit	-	**J12**

Magnetic sensor DF series

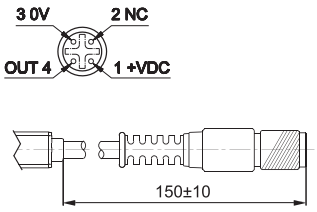
Cable version



M08 version



M12 version

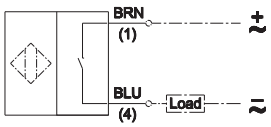


CHARACTERISTICS	TYPE	ELECTROMECHANICAL			ELECTRONIC
		DF-220 2 wires NO	**DF-330** 3 wires PNP NO	**DF-440** 3 wires PNP NC	**DF-770** 3 wires PNP NO
Working voltage	V AC/DC	5÷30 V AC/DC	5÷30 V AC/DC	5÷30 V AC/DC	5÷30 V DC
Max switching current	mA	100	100	100	100
Max switching power	W/VA	3	3	3	3
Max voltage drop	V AC/DC	<3,5V	0,1V	0,1V	0,7V
Minimum magnetic field	gauss	60	60	60	30
Opening response time	ms	< 0,5	< 0,5	< 0,5	0,08
Closing response time	ms	< 1	< 1	< 1	0,03
Electric life with resistive load	cycles	$>10^7$	$>10^7$	$>10^7$	$>10^9$
State indicator	LED	red	red	red	red
Cable number and section	mmq	2 x 0,14	3 x 0,14	3 x 0,14	3 x 0,14
Electric circuit	-	A	C	D	C
Protection degree	EN60529	IP67			
Working temperature	°C	-20 ÷ +80 °C			

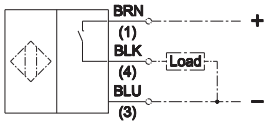
For version with connector M8 and M12 add M08 or M12 at the end of the part no.
Example: **DF-770M08** or **DF-770M12**

Electric circuits

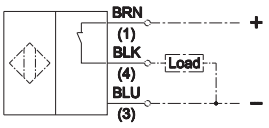
A **AC/DC 2** wires **NO**



C **DC 3** wires **PNP NO**



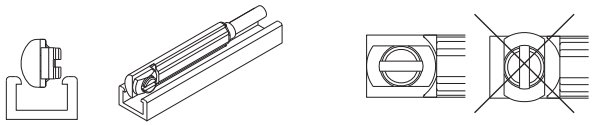
D **DC 3** wires **PNP NC**



BRN = brown **BLK** = black **BLU** = blue

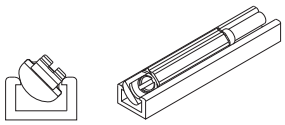
Assembly scheme

1



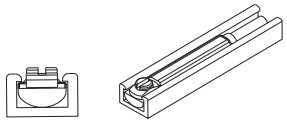
Put the sensor in the proper groove and make sure that the fastening plate has the slot for screwdriver along the sensor axis

2



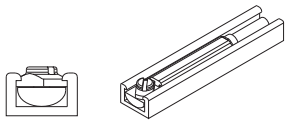
Turn the sensor inside its groove and make sure that the fastening plate is on the open part of the groove

3



Check the correct position of the sensor in the groove. Turn it to the wished position for detection

4



Keep the sensor in its position and screw the fastening plate to fix the sensor in the groove
Max torque: 0,5 ÷ 1 Nm