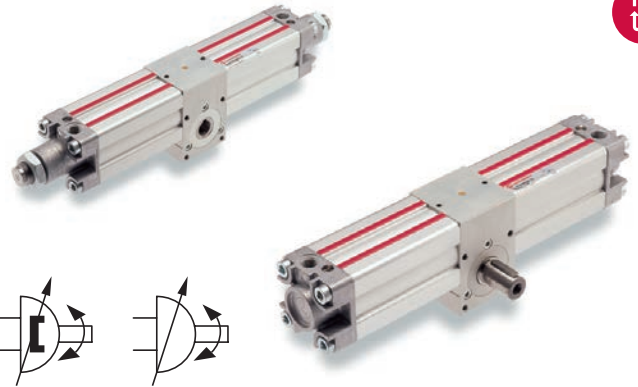


- > Ø 32 ... 125 mm
- > Torques from 1,2 ... 510 Nm
- > Rotation angles 90°, 180°, 270°, 360°
- > Reed or solid state switches can be mounted flush with the profile barrel

- > ISO 15552 pitch to use standard mountings



Technical features

Medium:

Compressed air, filtered, lubricated or non-lubricated

Operation:

M/162000: Double acting, non-magnetic piston, adjustable cushioning

M/162000/M: Double acting, magnetic piston, adjustable cushioning

Operating pressure:

1 ... 10 bar (14,5 ... 145 psi)

Rotation angles:

90, 180, 270, 360°

Fixed up to +8°

Adjustable ±5°

Additional angles on request

Operating temperature:

-5° ... 80°C (+23° ... +176°F)

Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F)

Materials:

Profile barrel: anodized aluminium

End covers: pressure diecast aluminium

Central body: anodized aluminium

Rack: normalized steel

Pinion: surface hardened high strength steel

Pinion bearings: ball bearings (Ø 32 PTFE bronze bearings)

Rack guide shoe: acetal resin

Piston seals: PUR

O-rings: NBR

Technical data, standard

Cylinder Ø (mm)	32	40	50	63	80	100	125
Theoretical torque (Nm) at 6 bar	7,2	13,8	23,4	43,8	94,2	157,8	306
Cushion length (mm)	19	22	24	24	27	34	41
Initial cushion volume (cm3)	12,3	20,7	36	64	11	24	45

Rotation angle

Ø	90°	180°	270°	360°
32	•	•	•	•
40	•	•	•	•
50	•	•	•	•
63	•	•	•	•
80	•	•	•	•
100	•	•	•	•
125	•	•	•	•

Cylinder variants

Symbol	Model with magnetic piston	Model with non-magnetic piston	Description	Dimensions Page	
	M/162000/MI		M/162000/II	Rotary cylinders with fixed angle (+8°) and male pinion	3
	M/162000/MIX		M/162000/IX	Rotary cylinders with fixed angle (+8°) and female pinion	3
	M/162000/ME		M/162000/IE	Rotary cylinders with adjustable angle (±5°) and male pinion	4
	M/162000/MEX		M/162000/IE	Rotary cylinders with adjustable angle (±5°) and female pinion	4

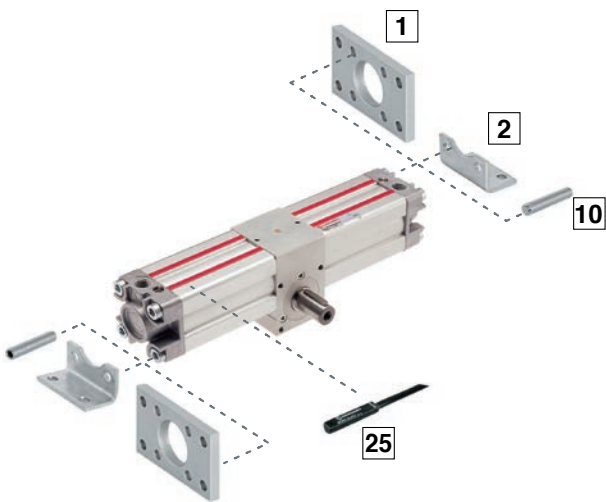
Option selector

M/162**/****/******

Cylinder diameters (mm)	Substitute	Standard rotation angle	Substitute
32	032	90°	90
40	040	180°	180
50	050	270°	270
63	063	360°	360
80	080	Pinion variants	Substitute
100	100	Male pinion	None
125	125	Female pinion	X
Cylinder variants	Substitute	Tolerances of rotation angle	Substitute
Non-magnetic piston	I	Adjustable ± 5°	E
Magnetic piston	M	Fixed up to +8°	I

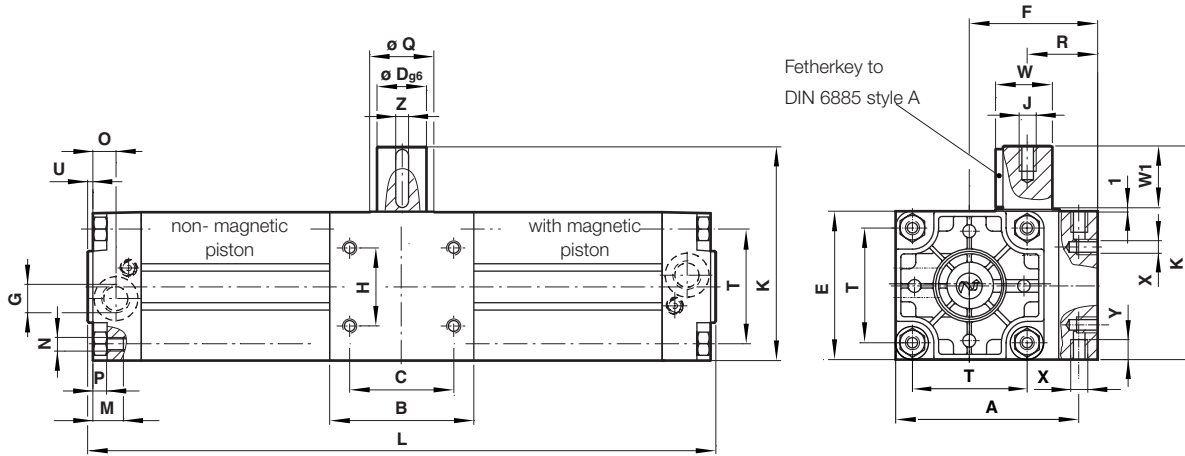
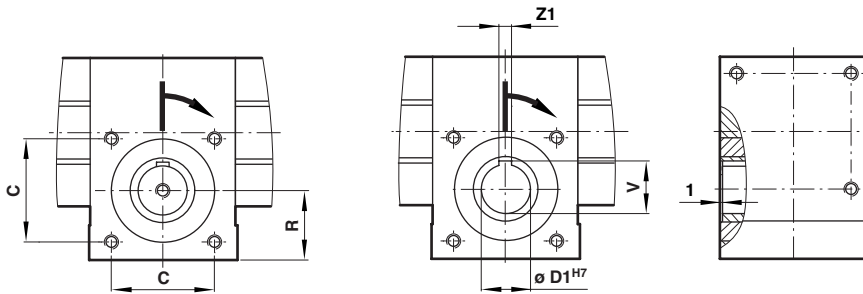
Note: If option is not required, disregard option position within part number eg. M/162100/ME/90 This options selector explains only the cylinder variants. Additional variants/options are not possible

Mountings



Cyl. Ø	A	B, G	C	Groove key	Magnetically operated switches
	10	1	2		Page 6 & 7
	Page 5	Page 5	Page 5	Page 5	
32	QM/8032/35	QA/8032/22	QA/8032/21	M/P72816	
40	QM/8032/35	QA/8040/22	QA/8040/21	M/P72816	
50	QM/8050/35	QA/8050/22	QA/8050/21	M/P72816	
63	QM/8050/35	QA/8063/22	QA/8063/21	M/P72816	
80	QM/8080/35	QA/8080/22	QA/8080/21	M/P72816	
100	QM/8080/35	QA/8100/22	QA/8100/21	M/P72816	
125	QM/8125/35	QM/8125/22	QM/8125/21	M/P72816	

Dimensions
M/162000/*I*/Angle - Rotary cylinders with fixed angle (up to +8°)

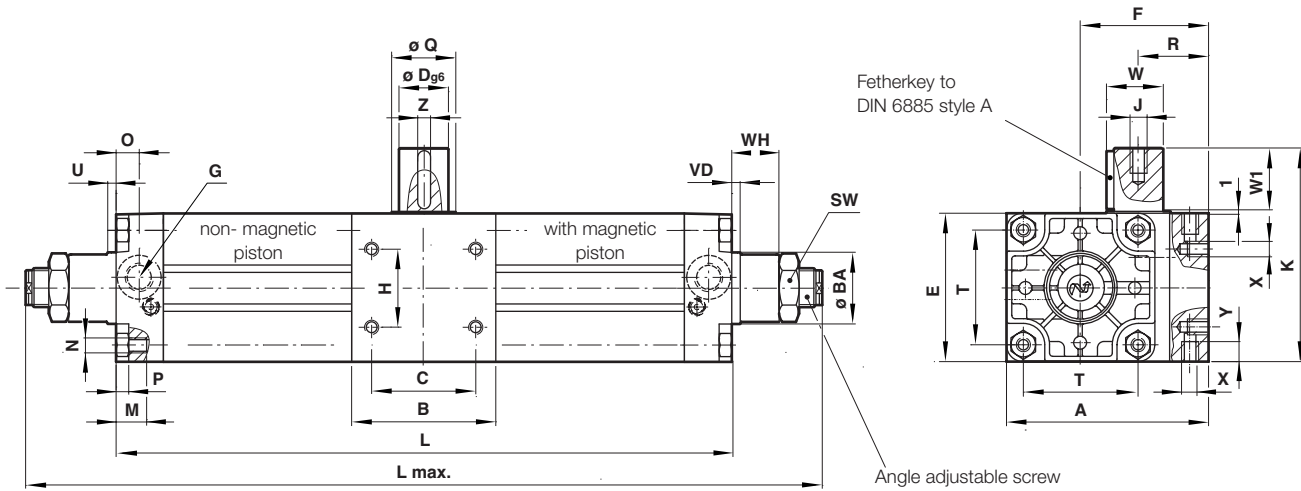
 Dimensions in mm
Projection/First angle

Rotary cylinders with male pinion
Rotary cylinders with female pinion


Ø	A	B	C	Ø Dg6	Ø D1H7	E	F	G	H	J	K	L (90°)	(180°)	(270°)	(360°)	Model
32	71,5	50	33	14	14	50	46,5	G 1/8	18	M 5	81	227	274	321	368,5	M/162032/.
40	82	60	40	14	14	60	54,5	G 1/4	22	M 5	91	266	323	379,5	436	M/162040/.
50	94	70	50	19	19	65	60,5	G 1/4	25	M 6	106	282	345	408	471	M/162050/.
63	110	75	60	24	19	75	71	G 3/8	35	M 8	116	331	406	480,5	555	M/162063/.
80	142	99	80	28	24	99	93,5	G 3/8	50	M 8	150	396	495	594	693	M/162080/.
100	156,5	115	80	38	28	115	99	G 1/2	60	M 10	166	414	521	628	735	M/162100/.
125	188	125	90	38	28	140	118	G 1/2	70	M 10	191	483,5	615,5	747,5	879,5	M/162125/.
Ø	M	N	O	P	Ø Q	R	T	U	V	W	W1	X	Y	Z	Z1	Models
32	18	M 6	13	4	25	25	32,5	3	16,3	16	30	M 6	10	5	5	M/162032/.
40	18	M 6	15	4	25	30	38	3,5	16,3	16	30	M 6	10	5	5	M/162040/.
50	18	M 8	18,5	5	30	32,5	46,5	3,5	21,8	21,5	40	M 8	13	6	6	M/162050/.
63	17,5	M 8	19	5	30	37	56,5	4	21,8	27	40	M 8	13	8	6	M/162063/.
80	21,5	M 10	19	-	45	50	72	4	27,3	31	50	M 10	16	8	8	M/162080/.
100	21,5	M 10	18	-	50	54	89	4	31,3	41	50	M 10	16	10	8	M/162100/.
125	32	M 12	20	-	60	60	110	6	31,3	41	50	M 12	20	10	8	M/162125/.

Dimensions

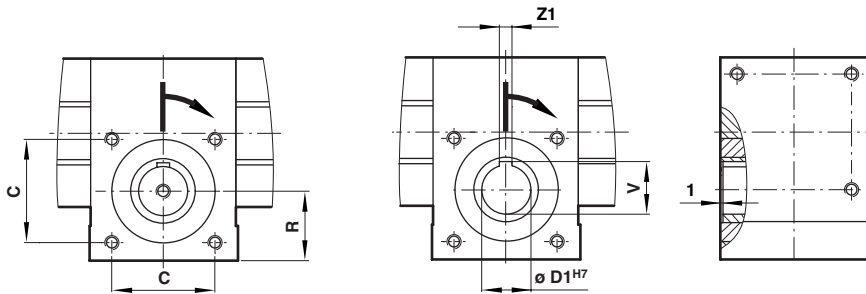
M/162000/*E*/Angle - Rotary cylinders with adjustable angle ($\pm 5^\circ$)

Dimensions in mm
Projection/First angle

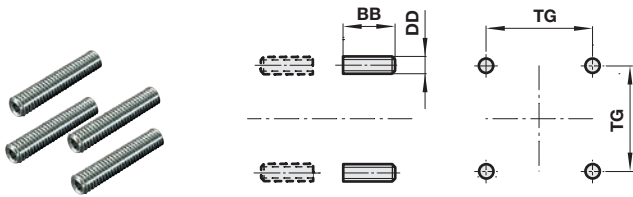


Rotary cylinders with male pinion

Rotary cylinders with female pinion

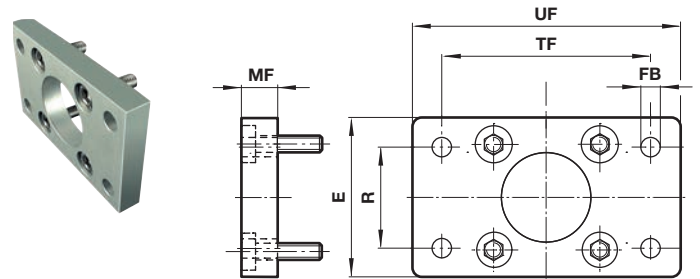


Ø	A	B	Ø BA	C	Ø Dg6	Ø D1H7	E				J	K	L max.				Model				
							(90°)	(180°)	(270°)	(360°)			(90°)	(180°)	(270°)	(360°)					
32	71,5	50	30	33	14	14	50	46,5	G 1/8	18	M 5	81	221	268	315	362,5	303	350	397	444,5	M/162032/.
40	82	60	35	40	14	14	60	54,5	G 1/4	22	M 5	91	259	316	372,5	429	350	407	463,5	519	M/162040/.
50	94	70	40	50	19	19	65	60,5	G 1/4	25	M 6	106	275	338	401	464	379	442	505	568	M/162050/.
63	110	75	45	60	24	19	75	71	G 3/8	35	M 8	116	323	398	472,5	555	431	506	580,5	655	M/162063/.
80	142	99	45	80	28	24	99	93,5	G 3/8	50	M 8	150	388	487	586	685	514	613	712	811	M/162080/.
100	156,5	115	55	80	38	28	115	99	G 1/2	60	M 10	166	406	513	620	727	540	647	754	861	M/162100/.
125	188	125	60	90	38	28	140	118	G 1/2	70	M 10	191	471,5	603,5	735,5	867,5	631,5	763,5	895,5	1027,5	M/162125/.
Ø	M	N	O	P	Ø Q	R	SW	SW1	T	V	VD	W	W1	WH	X	Y	Z	Z1	Model		
32	18	M 6	13	4	25	25	30	17	32,5	16,3	6	16	30	20	M 6	10	5	5	M/162032/.		
40	18	M 6	15	4	25	30	32	19	38	16,3	6	16	30	22	M 6	10	5	5	M/162040/.		
50	18	M 8	18,5	5	30	32,5	41	24	46,5	21,8	6	21,5	40	27	M 8	13	6	6	M/162050/.		
63	17,5	M 8	19	5	30	37	41	24	56,5	21,8	6	27	40	29	M 8	13	8	6	M/162063/.		
80	21,5	M 10	19	-	45	50	46	27	72	27,3	6	31	50	33	M 10	16	8	8	M/162080/.		
100	21,5	M 10	18	-	50	54	46	27	89	31,3	6	41	50	36	M 10	16	10	8	M/162100/.		
125	32	M 12	20	-	60	60	55	32	110	31,3	15,5	41	50	45	M 12	20	10	8	M/162125/.		

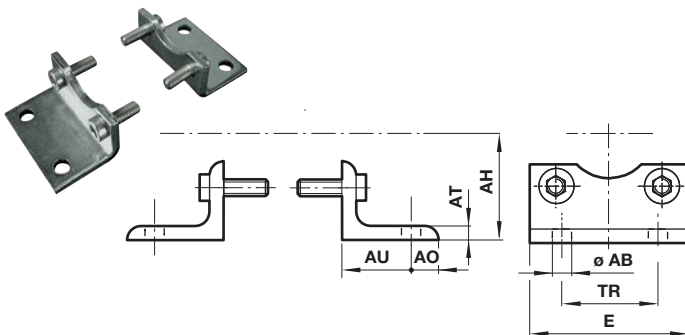
Mountings
Front or rear stud mounting A
Conforms to ISO 15552, type MX1


Ø	BB	DD	TG	kg	Model (A)
32/40	17	M6	32,5/38	0,02	QM/8032/35
50/63	23	M8	46,5/56,5	0,05	QM/8050/35
80/100	28	M10	72/89	0,08	QM/8080/35

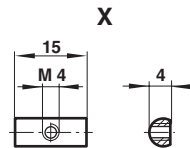
Front flange B, G
Conforms to ISO 15552, type MF1 and MF2

 Dimensions in mm
Projection/First angle


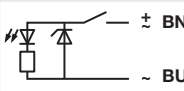
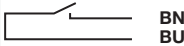

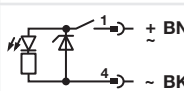
Ø	E	Ø FB	MF	R	TF	UF	kg	Model (B, G)
32	50	7	10	32	64	80	0,25	QA/8032/22
40	55	9	10	36	72	90	0,35	QA/8040/22
50	65	9	12	45	90	110	0,70	QA/8050/22
63	75	9	12	50	100	125	0,80	QA/8063/22
80	100	12	16	63	126	154	1,35	QA/8080/22
100	120	14	16	75	150	186	2,20	QA/8100/22

Foot mounting C
Conforms to ISO 15552, type MS1


Ø	Ø AB	AH	AO	AT	AU	E	TR	kg	Model (C)
32	7	32	8	4	24	48	32	0,15	QA/8032/21
40	10	36	9	4	28	53	36	0,18	QA/8040/21
50	10	45	10	5	32	64	45	0,30	QA/8050/21
63	10	50	12	5	32	74	50	0,39	QA/8063/21
80	12	63	19	5	41	98	63	0,80	QA/8080/21
100	14	71	19	5	41	115	75	0,95	QA/8100/21

Groove key
Weight: 0,01 kg


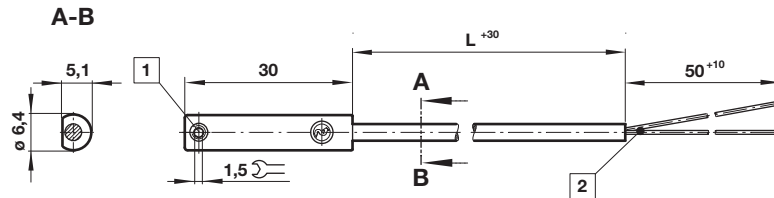
Technical data - Reed switches - additional informations see data sheet N/en 4.3.005

Symbol	Voltage		Current maximum (mA)	Function	Temperature (°C)	LED	Protection class	Plug	Cable length (m)	Cable type	Weight (g)	Model
	(V a.c.)	(V d.c.)										
	10 ... 240	10 ... 170	180	Closer	-25 ... +80	•	IP66	—	2, 5 or 10	PVC 2 x 0,25	37	M/50/LSU/*V
	10 ... 240	10 ... 170	180	Closer	-25 ... +80	•	IP66	—	5	PUR 2 x 0,25	37	M/50/LSU/5U
	10 ... 240	10 ... 170	180	Closer	-25 ... +150	—	IP66	—	2	Silicon 2 x 0,25	37	TM/50/RAU/2S
	10 ... 240	10 ... 170	180	Changeover	-25 ... +80	—	IP66	—	5	PVC 3 x 0,25	37	M/50/RAC/5V
	10 ... 60	10 ... 60	180	Closer	-25 ... +80	•	IP66	M8 x 1	0,3	PVC 3 x 0,25	16	M/50/LSU/CP *1)

* Insert cable length; *1) Plug-in connector see below; Color code: BK = black, BN = brown, BU = blue

Drawings

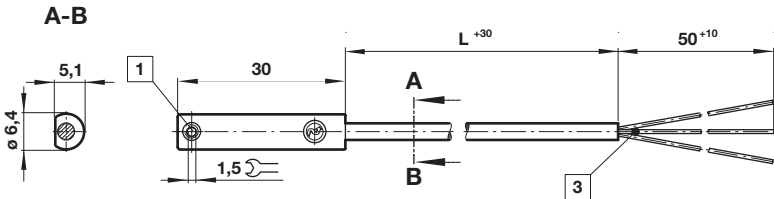
M/50/LSU/*V, M/50/LSU/5U,
TM/50/RAU/2S
Cable length L = 2, 5 or 10 m



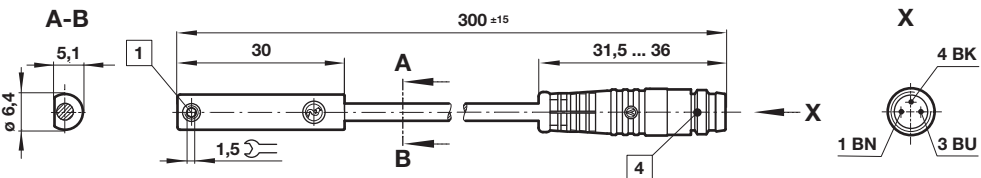
Dimensions in mm
Projection/First angle



M/50/RAC/5V
Cable length L = 5 m



M/50/LSU/CP



- 1 Fixing screw
- 2 + BN = brown; - BU = blue (output)
- 3 - BK = black; + BN = brown; - ≠BU = blue
- 4 Plug M8 x 1, color code: BK = black; BN = brown; BU = blue

Accessories

Plug-in connector cable with nut



Outer cover	Cable length (m)	Weight (kg)	Connector	Connector
PVC 3 x 0,25	5 m	0,18	M8 x 1	M/P73001/5
PUR 3 x 0,25	5 m	0,18	M8 x 1	M/P73002/5
PUR 3 x 0,34	5 m	0,21	M12 x 1	M/P34594/5

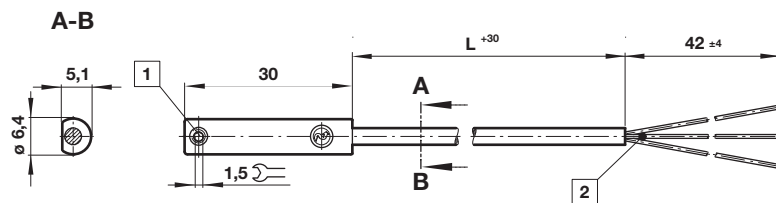
Technical data - Solid state - additional informations see data sheet N/en 4.3.007

Symbol	Voltage (V d.c.)	Current maximum (mA)	Function	Temperature (°C)	LED	Protection class	Plug	Cable length (m)	Cable type	Weight (g)	Model
	10 ... 30	150	PNP	-40 ... +80	•	IP67	—	2, 5 or 10	PVC 3 x 0,12	37	M/50/EAP/*V
	10 ... 30	150	PNP	-40 ... +80	•	IP68	—	5	PUR 3 x 0,14	37	M/50/EAP/5U
	10 ... 30	150	PNP	-40 ... +80	•	IP67	M8 x 1	0,3	PVC 3 x 0,14	16	M/50/EAP/CP *1)
	10 ... 30	150	PNP	-40 ... +80	•	IP67	M12 x 1	0,3	PVC 3 x 0,14	16	M/50/EAP/CC *1)
	10 ... 30	150	NPN	-40 ... +80	•	IP67	—	2, 5 or 10	PVC 3 x 0,12	37	M/50/EAN/*V
	10 ... 30	150	Closer	-40 ... +80	•	IP67	M8 x 1	0,3	PVC 3 x 0,14	16	M/50/EAN/CP *1)

* Insert cable length; *1) Plug-in connector see page 6; Color code: BK = black, BN = brown, BU = blue

Drawings

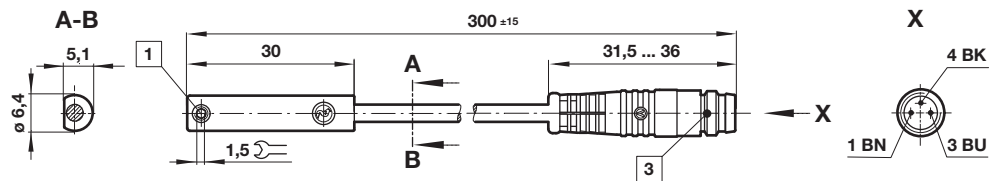
M/50/EAP/*V,
M/50/EAN/*V
Cable length L = 2, 5 or 10 m



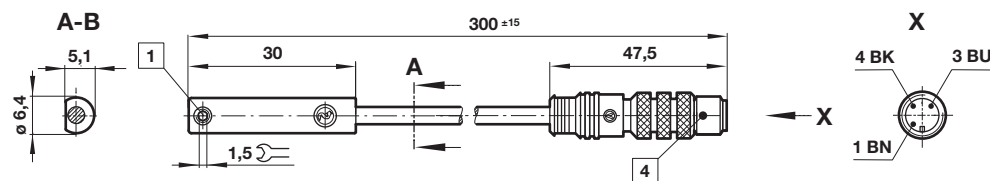
Dimensions in mm
Projection/First angle



M/50/EAP/CP,
M/50/EAN/CP



M/50/EAP/CC



- 1 Fixing screw
- 2 Color code: BK = black; BN = brown; BU = blue
- 3 Plug M8 x 1
- 4 Plug M12 x 1

Warning

These products are intended for use in industrial compressed air systems only. Do not use these products where pressures and temperatures can exceed those listed under

»**Technical features/data**«.

Before using these products with fluids other than those specified, for non-industrial applications, life-support systems or other applications not within published specifications, consult IMI NORGRN.

Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes.

The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure.

System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided.

System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products.