

RM/91000/M; RM/93000/M, Short stroke cylinder Magnetic piston, single acting

- Ø 12 ... 63 mm
- One third the basic length of a corresponding ISO/VDMA model
- Low friction, long life seal design
- Fully non-corrodible specification
- Standard magnetic piston for full control system versatility



Technical features

Medium:

Compressed air, filtered, lubricated or non-lubricated

Operation:

Single acting, magnetic piston, non-cushioned
RM/91000/M: Sprung in
RM/93000/M: Sprung out

Operating pressure:

2 ... 10 bar (29 ... 145 psi)

Cylinder diameters:

12, 16, 20, 25, 32, 40, 50, 63 mm

Standard Strokes:

See table below

Non-standard strokes:

10 mm Ø 12 ... 16 mm
50 mm Ø 20 ... 63 mm

Operating temperature:

-5 ... +80°C max. (+23 ... +176°F)

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

Materials:

Barrel & end caps:
Anodised aluminium alloy
Piston rod: stainless steel
(Ø 12 ... 40 mm austenitic, Ø 50 ... 63 mm martensitic)
Seals: PUR and/or NBR

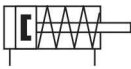
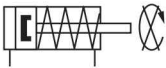
Technical data

Cylinder Ø (mm)	Version	12	16	20	25	32	40	50	63
Port size		M 5	M 5	M 5	M 5	G 1/8	G 1/8	G 1/8	G 1/4
Piston rod Ø (mm)		6	8	10	12	16	16	20	20
Piston rod thread		M 3	M 4	M 5	M 6	M 8	M 8	M 10	M 12
Theoretical thrusts at 6 bar outstroke (N)	RM/91000/M	57	103	161	264	432	687	1094	1770
F1 (N)	RM/91000/M	7	12,5	14,5	20	32	44	56,5	74,5
Air consumption at 6 bar outstroke (l/cm)	RM/91000/M	0,008	0,014	0,022	0,035	0,056	0,088	0,138	0,218
Theoretical thrusts at 6 bar instroke (N)	RM/93000/M	40	72	119	197	311	566	906	1582
F1 (N)	RM/93000/M	7	12,5	14,5	20	32	44	56,5	74,5
Air consumption at 6 bar instroke (l/cm)	RM/93000/M	0,006	0,011	0,017	0,027	0,042	0,074	0,116	0,196

Standard strokes

Cylinder Ø (mm)	Stroke length (mm)		
	5	10	25
12	•	•	—
16	•	•	—
20	•	•	—
25	•	•	—
32	—	•	•
40	—	•	•
50	—	•	•
63	—	•	•

Cylinder variants

Symbol	Model with magnetic piston	Description	Dimensions Page
	RM/91000/M	Standard cylinder, sprung in	4
	RM/91000/N2	Cylinder with non-rotating piston rod (internal) Ø 16 ... 63 mm only	4
	RM/93000/M	Cylinder, sprung out	4
	RM/93000/N2	Cylinder with non-rotating piston rod (internal) Ø 16 ... 63 mm only	4

Option selector

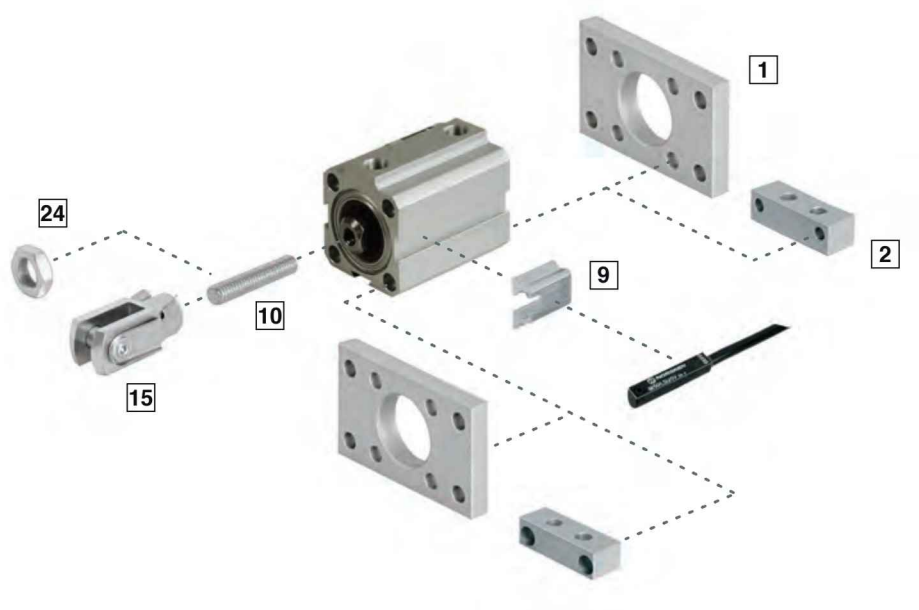
Function	Substitute
Sprung in	1
Sprung out	3
Cylinder diameters (mm)	Substitute
12	012
16	016
20	020
25	025
32	032
40	045
50	050
63	063

Note: If option is not required, disregard option position within part number eg. RM/91025/M/5. For combinations of cylinder variants consult our technical service.

RM/9****/**/**

Cylinder Ø	Stroke (mm)
Ø 12 ... 16	max. 10
Ø 20 ... 63	max. 50
Variants (magnetic piston)	Substitute
Standard	M
Non-rotating piston rod	N2

Mountings



Model	B, G	C	F	N	Stud	Adaptor	Assembly kit
							
Ø	1 Page 5	2 Page 5	15 Page 5	24 Page 5	10 Page 5	10 & 24 Page 5	Page 6
12	QM/90012/22	QM/90012/21	QM/57008/25	M/P1500/111	M/P1710/18	–	QM/90012/55
16	QM/90016/22	QM/90016/21	QM/8010/25	M/P1501/80	M/P1710/19	–	QM/90016/55
20	QM/90020/22	QM/90020/21	QM/92020/25	M/P1501/109	M/P1710/20	–	QM/90020/55
25	QM/90025/22	QM/90025/21	QM/57016/25	M/P1501/79	M/P1710/21	–	QM/90025/55
32	QM/90032/22	QM/90032/21	QM/57020/25	M/P1501/60	M/P1710/22	–	QM/90032/55
40	QM/90040/22	QM/90040/21	QM/57020/25	M/P1501/60	M/P1710/22	–	QM/90040/55
50	QM/90050/22	QM/90050/21	QM/57025/25	–	–	M/P71470/1	QM/90050/55
63	QM/90063/22	QM/90063/21	QM/57040/25	–	–	M/P71470/2	QM/90063/55

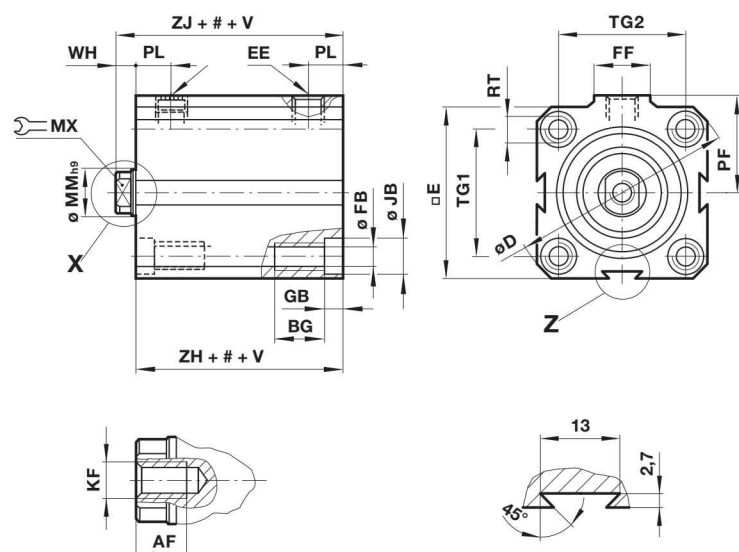
* For attaching F mounting to female piston rod thread.

Accessories

Model	Magnetically operated switches	Switch bracket
		
Ø	Page 7 & 8	9
All		M/P72487

Dimensions

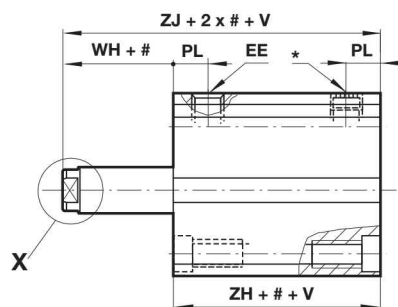
RM/91000/M – Standard cylinder (sprung in)



Dimensions

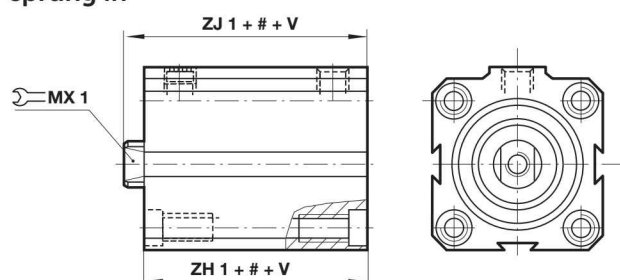
RM/93000/M – Cylinder (sprung out)

Dimensions in mm
Projection/First angle

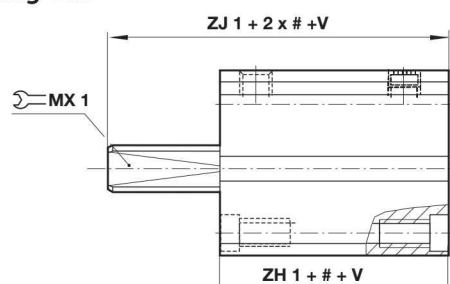


Cylinder variants

RM/91000/N2 – Cylinders with non-rotating piston rod sprung in



RM/93000/N2 – Cylinder with non-rotating piston rod sprung out



Stroke

- 1 Only the 4 front holes are tapped on stroke lengths of less than:
 Ø 25 and 32 mm: 5 mm, s
 Ø 40 and 63 mm: 15 mm (.../N2: 5 mm),
 Ø 50: 10 mm

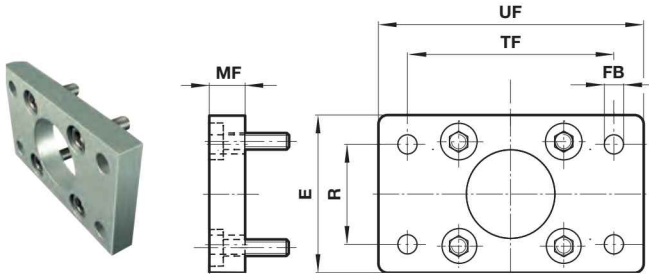
- 2 Note: Ø 12 to 20 mm feature only two side dovetails.

Ø	AF	BG	Ø D	□ E	EE	Ø FB	FF	GB	Ø JB	KF	Ø MM h9	MX	MX1	PF	PL
12	6	9	32,5	25	M 5	3,3	10	3,5	6	M 3	6	5	–	15	7
16	7	9	36,5	28	M 5	3,3	10	3,5	6	M 4	8	6	6	17	7,5
20	8	9	41,5	32	M 5	3,3	10	3,5	6	M 5	10	8	8	19,5	7,5
25	9	12	48	37	M 5	4,2	10	4,5	7,5	M 6	12	10	10	22	8
32	12	12	58	45	G 1/8	4,2	18	4,5	7,5	M 8	16	13	13	27,5	9
40	12	16	71,5	55	G 1/8	6,8	18	6,5	10,5	M 8	16	13	13	31,5	10
50	14	16	81	63	G 1/8	6,8	18	6,5	10,5	M 10	20	17	16	37	10,5
63	16	20	104	80	G 1/4	8,5	22	8,5	13,5	M 12	20	17	16	48	13
Ø	RT	TG 1	TG 2	V (strokes) 0 ... 25 mm	26 ... 50 mm	WH	ZH	ZH1	ZJ	ZJ1	at 0 mm	per 5 mm	Model		
12	M 4	17	13	14	–	4,5	24	–	28,5	–	0,07 kg	0,02 kg	RM/9.012/M/*	RM/9.012/N2/*	
16	M 4	20	20	15	–	5,5	24,5	34,5	30	40	0,09 kg	0,02 kg	RM/9.016/M/*	RM/9.016/N2/*	
20	M 4	23	23	17	34	6	26	36	32	42	0,12 kg	0,02 kg	RM/9.020/M/*	RM/9.020/N2/*	
25	M 5	27	27	18	36	6,5	28,5	38,5	35	45	0,17 kg	0,03 kg	RM/9.025/M/*	RM/9.025/N2/*	
32	M 5	33	33	19	38	6,5	29	39	35,5	45,5	0,28 kg	0,05 kg	RM/9.032/M/*	RM/9.032/N2/*	
40	M 8	41	41	20	40	6,5	31,5	41,5	38	48	0,44 kg	0,06 kg	RM/9.040/M/*	RM/9.040/N2/*	
50	M 8	48	48	30	60	8	35	45	43	53	0,50 kg	0,08 kg	RM/9.050/M/*	RM/9.050/N2/*	
63	M 10	61	61	30	60	8	42,5	52,5	50,5	60,5	0,90 kg	0,11 kg	RM/9.063/M/*	RM/9.063/N2/*	

* Insert standard stroke length

Mountings

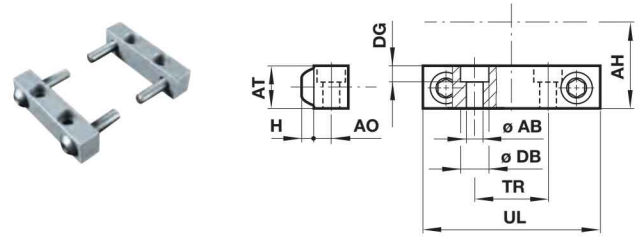
Front or rear flange B, G



Ø	E	R	Ø FB	MF	TF	UF	kg	Model (B,G)
12	26	18	3,5	5	38	46	0,02	QM/90012/22
16	30	22	3,5	5	42	50	0,02	QM/90016/22
20	33	25	3,5	5	48	56	0,02	QM/90020/22
25	38	28	4,5	6,5	54	64	0,04	QM/90025/22
32	46	36	4,5	6,5	66	76	0,06	QM/90032/22
40	57	43	6,5	9,5	78	92	0,15	QM/90040/22
50	64	50	6,5	9,5	90	104	0,17	QM/90050/22
63	81	63	9,5	12,5	110	128	0,33	QM/90063/22

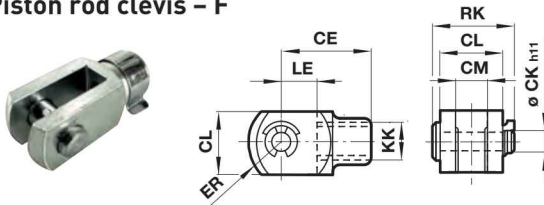
Foot C, ISO 6432

Dimensions in mm
Projection/First angle



Ø	Ø AB	AH	AO	AT	H	Ø DB	DG	TR	UL	kg	Model (C)
12	3,4	13,5	4	9,5	2	6	3,5	25	33	0,02	QM/90012/21
16	3,4	15	4	9,5	2	6	3,5	32	40	0,02	QM/90016/21
20	3,4	16,5	4	9,5	2	6	3,5	35	43	0,02	QM/90020/21
25	4,3	20	5	12,5	3	7,5	4,5	41	51	0,04	QM/90025/21
32	4,3	23	5	12,5	3	7,5	4,5	19	46	0,04	QM/90032/21
40	6,4	28,5	6,5	16	4,5	10,5	6,5	21	56	0,1	QM/90040/21
50	6,4	32	6,5	16	4,5	10,5	6,5	27	64	0,11	QM/90050/21
63	8,4	41,5	8	22	5,5	13,5	8,5	34	81	0,13	QM/90063/21

Piston rod clevis – F



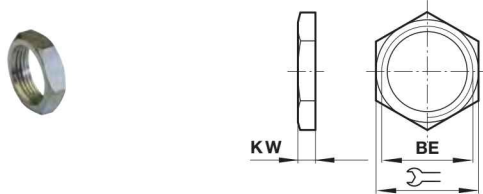
Ø	KK	CE	Ø CK h11	CL	CM	ER	LE	RK	kg	Model
12	M3	11	3 h9	6	3	4,5	5	10	0,01	QM/57008/25
16	M4	16	4	8	4	6,5	8	11,5	0,01	QM/8010/25
20	M5	20	5	10	5	8	10	14,5	0,01	QM/92020/25
25	M6	20	5	10	5	8	10	14,5	0,01	QM/57016/25
32 & 40	M8	24	6	12	6	9,5	12	17,5	0,02	QM/57020/25
50	M10x1,25	26	8	14	7	11,5	12	20,5	0,04	QM/57025/25
63	M12x1,25	40	10	20	11	16	20	29	0,09	QM/57040/25

Stud



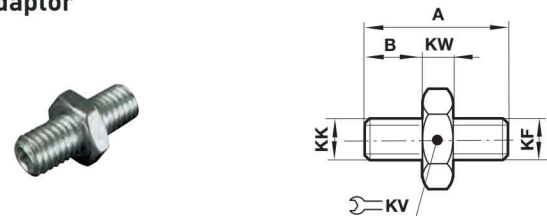
Ø	A	KF	kg	Model
12	12	M3	0,01	M/P1710/18
16	16	M4	0,01	M/P1710/19
20	20	M5	0,01	M/P1710/20
25	25	M6	0,01	M/P1710/21
32 & 40	25	M8	0,01	M/P1710/22

Nose nut N



Ø	BE	KW	kg	Model
12	M3	2	0,01	M/P1500/111
16	M4	2	0,01	M/P1501/80
20	M5	2,5	0,01	M/P1501/109
25	M6	3	0,01	M/P1501/79
32 & 40	M8	4	0,01	M/P1501/60

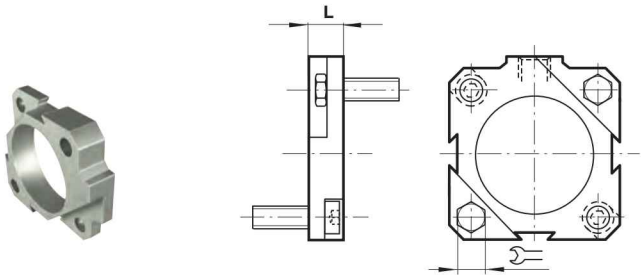
Adaptor



Ø	A	B	KF	KK	KV	KW	kg	Model
50	29	12	M10	M10x1,25	12	5	0,02	M/P71470/1
63	35	15	M12	M12x1,25	13	5	0,04	M/P71470/2

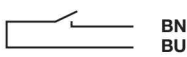
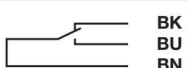
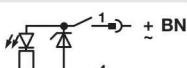
Assembly kit

Dimensions in mm
Projection/First angle



Ø	L		Type
12	10	7	QM/90012/55
16	10	7	QM/90016/55
20	10	7	QM/90020/55
25	10	8	QM/90025/55
32	10	8	QM/90032/55
40	15	13	QM/90040/55
50	15	13	QM/90050/55
63	20	17	QM/90063/55

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

Symbol	Voltage		Current maximum	Function	Operating temperature	LED	Protection class	Plug	Cable length	Cable type	Weight	Model
	(V a.c.)	(V d.c.)	(mA)		(°C)				(m)		(g)	
	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 page 11; Color code: BK = black, BN = brown, BU = blue

Drawings

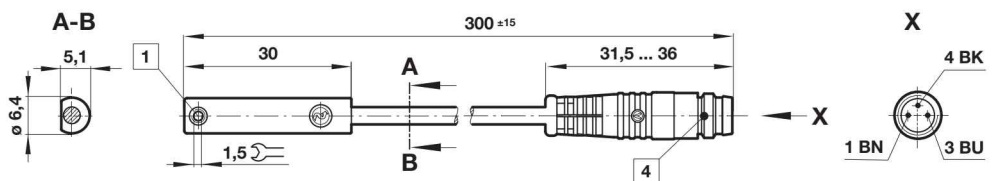
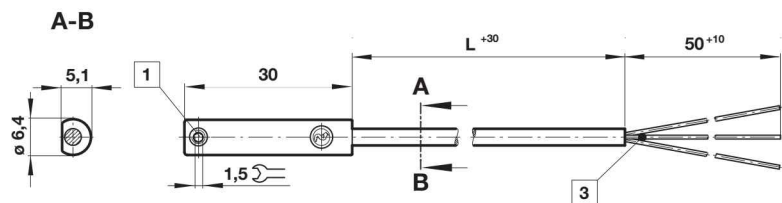
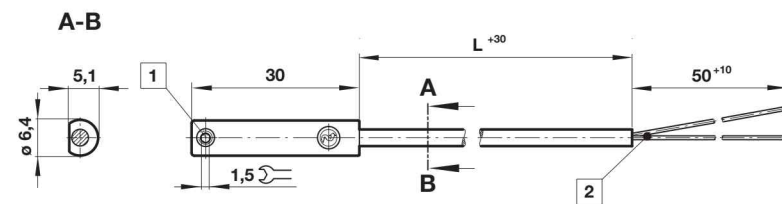
M/50/LSU/*V, M/50/LSU/5U,
TM/50/RAU/2S
Cable length L = 2, 5 or 10 m



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

Dimensions in mm
Projection/First angle



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

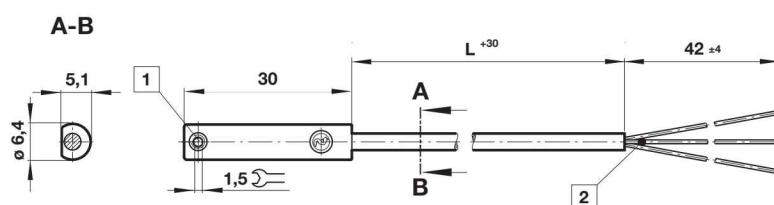
Technical data - Solid state - additional informations see data sheet N/en 4.3.007

Symbol	Voltage (V d.c.)	Current maximum (mA)	Function	Operating 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 below; Color code: BK = black, BN = brown, BU = blue

Drawings

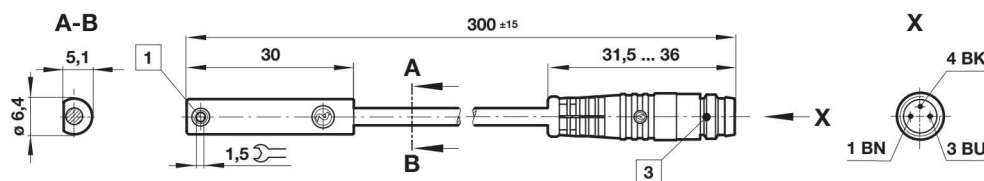
M/50/EAP/*V,
M/50/EAN/*V
Cable length L = 2, 5 or 10 m



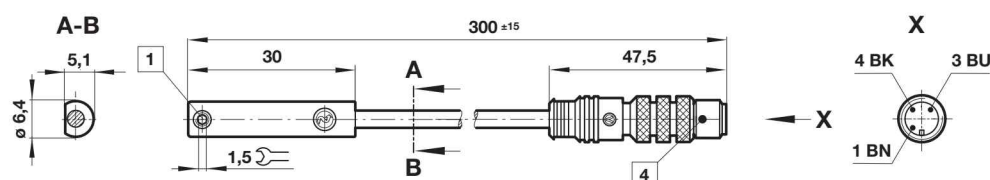
Dimensions in mm
Projection/First angle



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 Norgren.

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.