

Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89

Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Курган (3522)50-90-47
Липецк (4742)52-20-81

Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37

Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Саранск (8342)22-96-24
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97

Тверь (4822)63-31-35
Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93

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Технические характеристики на компактные пневмоцилиндры ISO Compact компании **IMI NORGREN**

Виды товаров: зажимные цилиндры одностороннего действия, с коротким ходом магнитные одностороннего и двухстороннего действия, компактные магнитные одностороннего действия, компактные магнитные двухстороннего действия.

RM/92000/M, Short stroke cylinder

Magnetic piston, double acting



- > Ø 12 ... 100 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:

Double acting, magnetic piston, non-cushioned

Operating pressure:

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

Cylinder diameters:

12, 16, 20, 25, 32, 40, 50, 63, 80, 100 mm

Standard Strokes:

See table below

Non-standard strokes:

200 mm Ø 16 ... 25 mm
250 mm Ø 32 & 40 mm
300 mm Ø 50 ... 100 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 ... 100 mm martensitic)
Seals: PUR and/or NBR

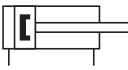
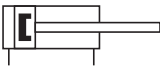
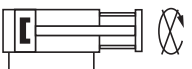
Technical data

Cylinder Ø (mm)	12	16	20	25	32	40	50	63	80	100
Port size	M 5	M 5	M 5	M 5	G 1/8	G 1/8	G 1/8	G 1/4	G 1/4	G 1/4
Piston rod Ø (mm)	6	8	10	12	16	16	20	20	25	25
Piston rod thread	M 3	M 4	M 5	M 6	M 8	M 8	M 10	M 12	M 16	M 16
Theoretical thrusts at 6 bar outstroke (N)	68	121	188	295	483	754	1178	1870	3016	4712
Theoretical thrusts at 6 bar instroke (N)	51	90	141	227	362	633	990	1682	2721	4418
Air consumption at 6 bar outstroke (l/cm)	0,008	0,014	0,022	0,035	0,056	0,088	0,138	0,218	0,352	0,55
Air consumption at 6 bar instroke (l/cm)	0,007	0,011	0,017	0,027	0,042	0,074	0,116	0,196	0,318	0,515

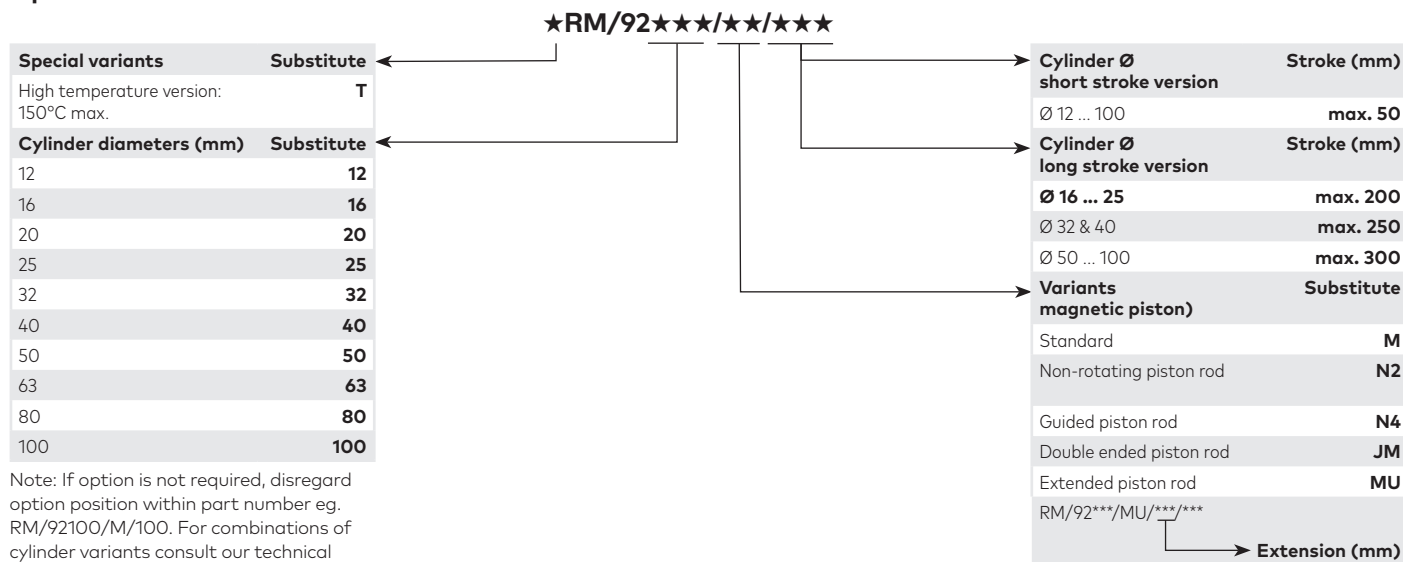
Standard strokes

Cylinder Ø (mm)	Stroke length (mm)										
	5	10	15	20	25	30	40	50	60	80	100
12	•	•	•	•	•	•	—	—	—	—	—
16	•	•	•	•	•	•	—	—	—	—	—
20	•	•	•	•	•	•	•	•	—	—	—
25	•	•	•	•	•	•	•	•	—	—	—
32	•	•	•	•	•	•	•	•	•	•	—
40	•	•	•	•	•	•	•	•	•	•	—
50	•	•	•	•	•	•	•	•	•	•	•
63	•	•	•	•	•	•	•	•	•	•	•
80	—	—	•	•	•	•	•	•	•	•	•
100	—	—	•	•	•	•	•	•	•	•	•

Cylinder variants

Symbol	Model with magnetic piston	Description	Dimensions Page
	RM/92000/M TRM/92000/M	Standard cylinder Cylinder with heat resistant seals, 150°C max. (Ø 32 ... 100 mm only)	4
	RM/92000/MU	Cylinder with extended piston rod (maximum extended piston up to 100 mm)	4
	RM/92000/JM	Cylinder with double ended piston rod Non-standard strokes available (minimal): 5 mm = Ø 16 ... 40 mm, 10 mm = Ø 50 & 100 mm	6
	RM/92000/N2	Cylinder with non-rotating piston rod (internal) Ø 16 ... 100 mm only	6
	RM/92000/N4	Cylinder with guiding, Ø 16 ... 100 mm only Non-standard strokes available (maximum): 50 mm = Ø 16 mm, 80 mm = Ø 20 & 25 mm 100 mm = Ø 32 ... 100 mm	6

Option selector

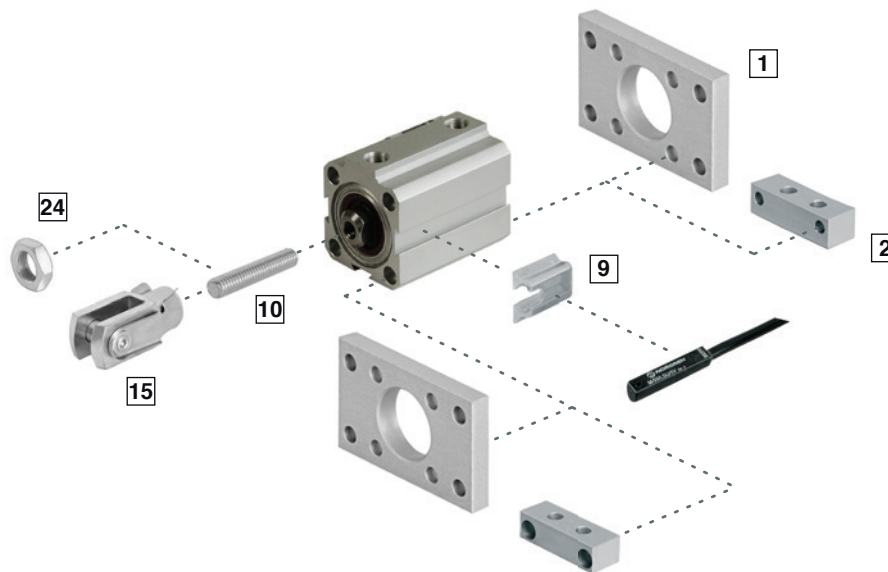


Note: If option is not required, disregard option position within part number eg. RM/92100/M/100. For combinations of cylinder variants consult our technical service.

Please note that heat resistant seals are not available for all variants.

This options selector explains only the cylinder variants. Additional variants/ options can not be derived from.

Mountings



Model	B, G	C	F	N	Stud	Adaptor	Assembly kit
							
Ø	1 Page 6	2 Page 6	15 Page 6	24 Page 6	10 Page 6	10 & 24 Page 6	Page 7
12	QM/90012/22	QM/90012/21	QM/57008/25	M/P1500/111	M/P1710/18	–	QM/92012/55
16	QM/90016/22	QM/90016/21	QM/8010/25	M/P1501/80	M/P1710/19	–	QM/92016/55
20	QM/90020/22	QM/90020/21	QM/92020/25	M/P1501/109	M/P1710/20	–	QM/92020/55
25	QM/90025/22	QM/90025/21	QM/57016/25	M/P1501/79	M/P1710/21	–	QM/92025/55
32	QM/90032/22	QM/90032/21	QM/57020/25	M/P1501/60	M/P1710/22	–	QM/92032/55
40	QM/90040/22	QM/90040/21	QM/57020/25	M/P1501/60	M/P1710/22	–	QM/92040/55
50	QM/90050/22	QM/90050/21	QM/57025/25	–	–	M/P71470/1	QM/92050/55
63	QM/90063/22	QM/90063/21	QM/57040/25	–	–	M/P71470/2	QM/92063/55
80	QM/90080/22	QM/90080/21	QM/57063/25	–	–	M/P71470/3	QM/92080/55
100	QM/90100/22	QM/90100/21	QM/57063/25	–	–	M/P71470/3	QM/92100/55

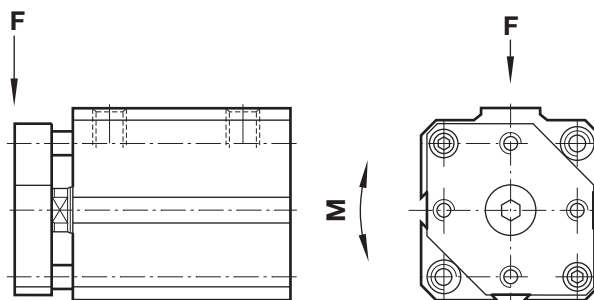
* For attaching F mounting to female piston rod thread.

Accessories

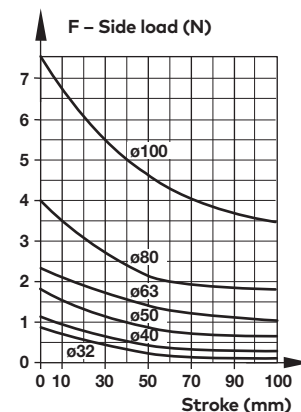
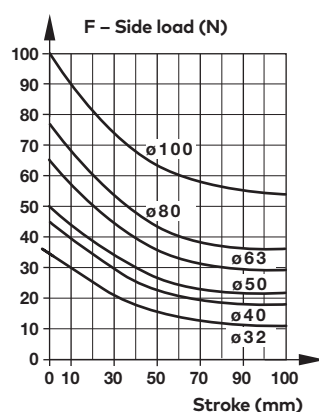
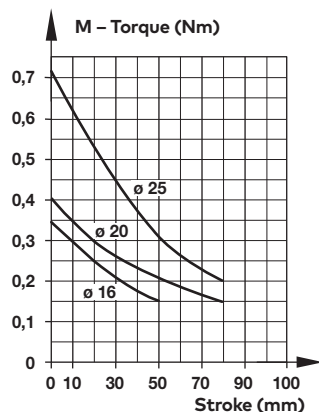
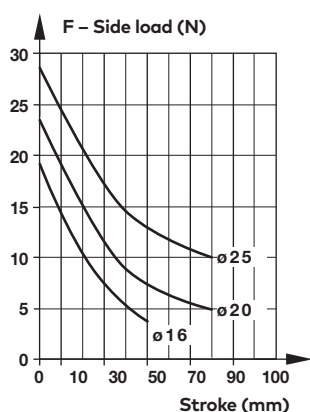
Model	Magnetically operated switches	Switch mounting bracket
		
Ø	Page 8 & 9	9
All		M/P72487

RM/92000/N4 – Cylinder with guide piston rod

Permissible load and torque



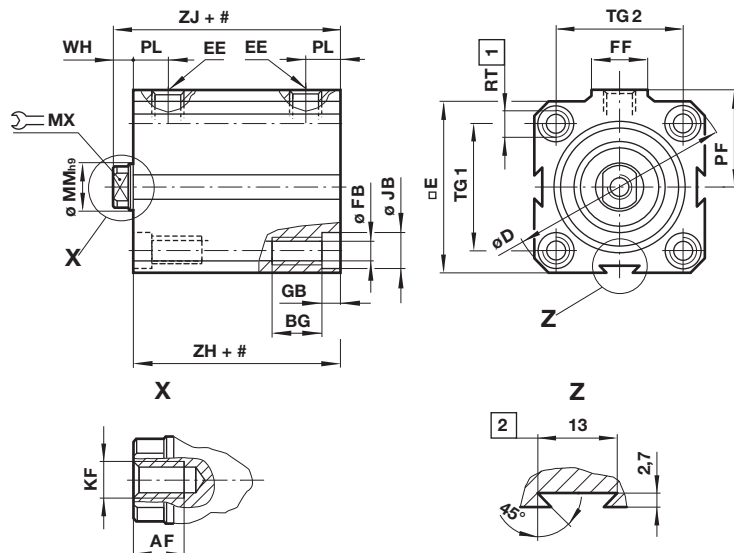
Permissible load and torque



Dimensions

RM/92000/M – Standard cylinder

Dimensions in mm
Projection/First angle



Stroke

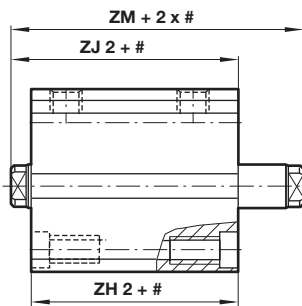
- 1 Only the 4 front holes are tapped on stroke lengths of less than:
 Ø 25 and 32 mm: 5 mm,
 Ø 40 and 63 mm: 15 mm (.../N2: 5 mm),
 Ø 50 and 80 mm: 10 mm, Ø 100 mm: 25 mm (.../N2: 15 mm).
- 2 Note: Ø 12 to 20 mm feature only two side dovetails.

Ø	AF	BG	Ø D	□ E	EE	Ø FB	FF	GB	Ø JB	KF	Ø MM _{h9}	MX	PF	PL	RT	TG 1	TG 2	WH	ZH	ZJ	at 0 mm	per 5 mm	Model
12	6	9	32,5	25	M 5	3,3	10	3,5	6	M 3	6	5	15	7	M 4	17	13	4,5	24	28,5	0,06 kg	0,04 kg	RM/92012/M/*
16	7	9	36,5	28	M 5	3,3	10	3,5	6	M 4	8	6	17	7,5	M 4	20	20	5,5	24,5	30	0,08 kg	0,04 kg	RM/92016/M/*
20	8	9	41,5	32	M 5	3,3	10	3,5	6	M 5	10	8	19,5	7,5	M 4	23	23	6	26	32	0,10 kg	0,06 kg	RM/92020/M/*
25	9	12	48	37	M 5	4,2	10	4,5	7,5	M 6	12	10	22	8	M 5	27	27	6,5	28,5	35	0,15 kg	0,07 kg	RM/92025/M/*
32	12	12	58	45	G1/8	4,2	18	4,5	7,5	M 8	16	13	27,5	9	M 5	33	33	6,5	29	35,5	0,25 kg	0,12 kg	RM/92032/M/*
40	12	16	71,5	55	G1/8	6,8	18	6,5	10,5	M 8	16	13	31,5	10	M 8	41	41	6,5	31,5	38	0,38 kg	0,15 kg	RM/92040/M/*
50	14	16	81	63	G1/8	6,8	18	6,5	10,5	M 10	20	17	37	10,5	M 8	48	48	8	35	43	0,45 kg	0,18 kg	RM/92050/M/*
63	16	20	104	80	G1/4	8,5	22	8,5	13,5	M 12	20	17	48	13	M 10	61	61	8	42,5	50,5	0,82 kg	0,26 kg	RM/92063/M/*
80	22	20	120	94	G1/4	8,5	22	8,5	13,5	M 16	25	22	57	14,5	M 10	73	73	9	47	56	1,20 kg	0,33 kg	RM/92080/M/*
100	22	25	148,5	116,5	G1/4	10,2	22	10,5	16,5	M 16	25	22	67	16	M 12	90,5	90,5	10	48,5	58,5	1,83 kg	0,42 kg	RM/92100/M/*

* Please insert standard stroke length.

*1) Plus ≤10 mm for stroke length > 50 mm

Alternative variants RM/92000/JM – Cylinder with double ended piston rod



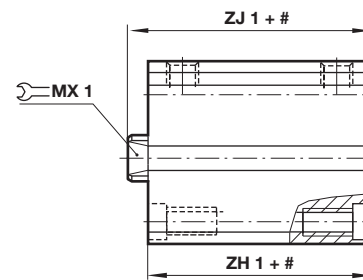
Stroke

Ø	ZH2	ZJ2	ZM	Model
16	29,5	35	41	RM/92016/JM/*
20	31,5	37,5	44	RM/92020/JM/*
25	34,5	41	48	RM/92025/JM/*
32	36,5	43	50	RM/92032/JM/*
40	39,5	46	53	RM/92040/JM/*
50	42	50	59	RM/92050/JM/*
63	52	60	69	RM/92063/JM/*
80	56	65	74	RM/92080/JM/*
100	58	68	78	RM/92100/JM/*

* Please insert standard stroke length.

RM/92000/N2 – Cylinder with non-rotating piston rod

Dimensions in mm
Projection/First angle

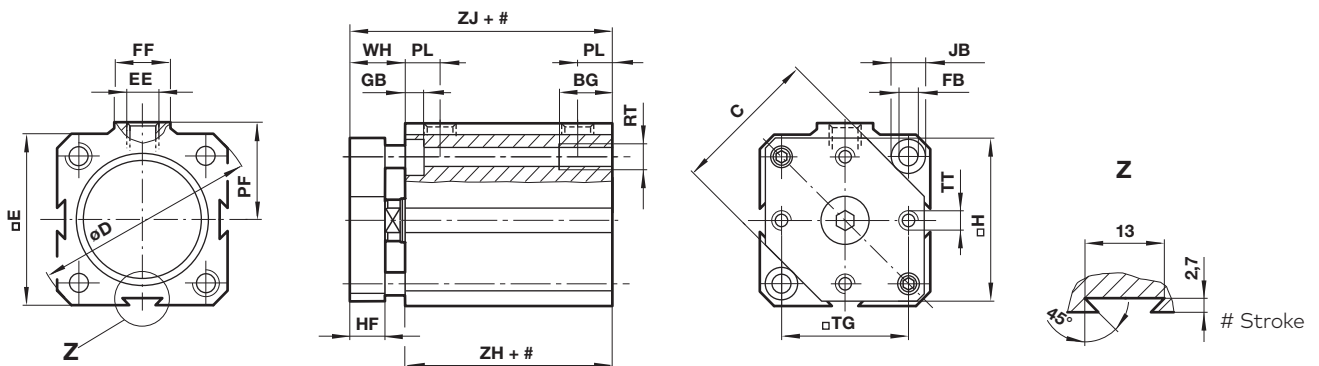


Stroke

Ø	MX1	ZH1	ZJ1	Torque max.	Model
16	6	34,5	40	0,15 Nm	RM/92016/N2/*
20	8	36	42	0,25 Nm	RM/92020/N2/*
25	10	38	45	0,4 Nm	RM/92025/N2/*
32	13	39	45,5	0,75 Nm	RM/92032/N2/*
40	13	41,5	48	0,75 Nm	RM/92040/N2/*
50	16	45	53	1,5 Nm	RM/92050/N2/*
63	16	52,5	60,5	1,5 Nm	RM/92063/N2/*
80	21	57	66	2,5 Nm	RM/92080/N2/*
100	21	58,5	68,5	2,5 Nm	RM/92100/N2/*

* Please insert standard stroke length.

RM/92000/N4 – Cylinder with guide piston rod



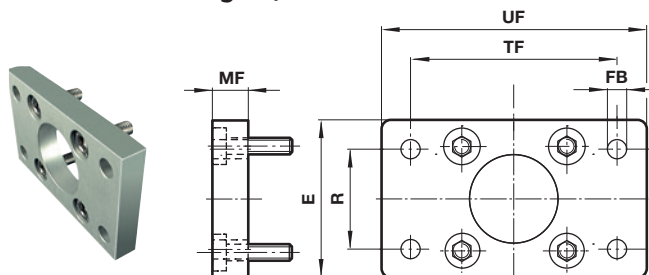
Ø	BG	C	Ø D	□ E	EE	Ø FB	FF	GB	□ H	HF	Ø JB	PF	PL	RT	□ TG	TT	WH	ZH *1)	ZJ *1)	at 0 mm	per 5 mm	Model
16	9	21	36,5	28	M 5	3,3	10	3,5	26,5	6	6	17	7,5	M 4	20	M 3	11,5	24,5	36	0,110 kg	0,050 kg	RM/92016/N4/*
20	9	25	41,5	32	M 5	3,3	10	3,5	30	8	6	19,5	7,5	M 4	23	M 3	14	26	40	0,130 kg	0,070 kg	RM/92020/N4/*
25	12	29,5	48	37	M 5	4,2	10	4,5	35	8	7,5	22	8	M 5	27	M 4	14,5	28,5	43	0,170 kg	0,100 kg	RM/92025/N4/*
32	12	38	58	45	G 1/8	4,2	18	4,5	43	10	7,5	27,5	9	M 5	33	M 4	16,5	29	45,5	0,280 kg	0,130 kg	RM/92032/N4/*
40	16	46,5	71,5	55	G 1/8	6,8	18	6,5	52	10	10,5	31,5	10	M 8	41	M 5	16,5	31,5	48	0,440 kg	0,150 kg	RM/92040/N4/*
50	16	56,5	81	63	G 1/8	6,8	18	6,5	60	12	10,5	37	10,5	M 8	48	M 6	20	35	55	0,500 kg	0,200 kg	RM/92050/N4/*
63	20	71	104	80	G 1/4	8,5	22	8,5	76	12	13,5	48	13	M 10	61	M 8	20	42,5	62,5	0,900 kg	0,300 kg	RM/92063/N4/*
80	20	89	120	94	G 1/4	8,5	22	8,5	90	16	13,5	57	14,5	M 10	73	M 10	25	47	72	1,350 kg	0,350 kg	RM/92080/N4/*
100	25	110	148,5	116,5	G 1/4	10,2	22	10,5	113	20	16,5	67	16	M 12	90,5	M 13	30	48,5	78,5	2,200 kg	0,600 kg	RM/92100/N4/*

* Please insert standard stroke length.

*1) Plus 10 mm for stroke length > 50 mm

Mountings

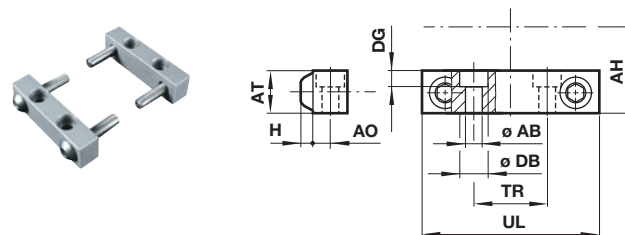
Front or rear flange B, G



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
80	95	77	8,5	12,5	128	146	0,41	QM/90080/22
100	118	98	11	12,5	156	176	0,72	QM/90100/22

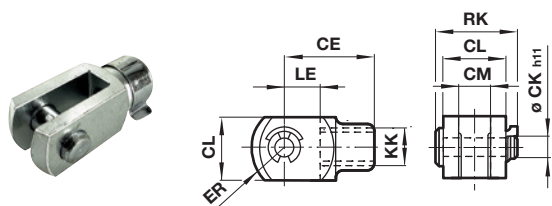
Foot C, ISO 6432

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
80	8,4	49	8	25,5	5,5	13,5	8,5	44	95	0,18	QM/90080/21
100	10,5	59,5	9	28,5	6,5	16,5	10,5	56	118	0,48	QM/90100/21

Piston rod clevis – F



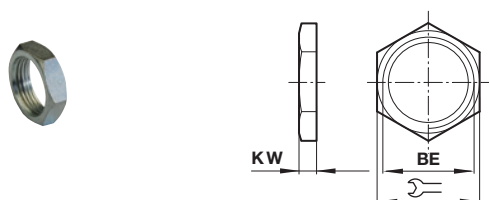
Ø	KK	CE	Ø CK	CL	CM	ER	LE	RK	kg	Model
12	M3	11	3 h9	6	3	4,5	5	10	0,01	QM/57008/25
16	M4	16	4	8	4	6,5	8	11,5	0,01	QM/8010/25
20	M5	20	5	10	5	8	10	14,5	0,01	QM/92020/25
25	M6	20	5	10	5	8	10	14,5	0,01	QM/57016/25
32 & 40	M8	24	6	12	6	9,5	12	17,5	0,02	QM/57020/25
50	M10x1,25	26	8	14	7	11,5	12	20,5	0,04	QM/57025/25
63	M12x1,25	40	10	20	11	16	20	29	0,09	QM/57040/25
80 & 100	M16x1,5	56	14	27	14	21	28	36,5	0,22	QM/57063/25

Stud



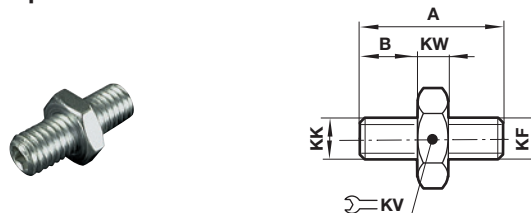
Ø	A	KF	kg	Model
12	12	M3	0,01	M/P1710/18
16	16	M4	0,01	M/P1710/19
20	20	M5	0,01	M/P1710/20
25	25	M6	0,01	M/P1710/21
32 & 40	25	M8	0,01	M/P1710/22

Nose nut N



Ø	BE	KW		kg	Model
12	M3	2	6	0,01	M/P1500/111
16	M4	2	7	0,01	M/P1501/80
20	M5	2,5	8	0,01	M/P1501/109
25	M6	3	10	0,01	M/P1501/79
32 & 40	M8	4	13	0,01	M/P1501/60

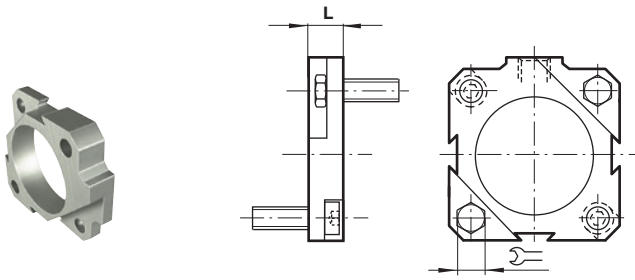
Adaptor



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
80 & 100	45	20	M16	M16x1,5	17	5	0,08	M/P71470/3

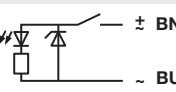
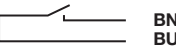
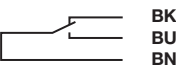
Assembly kit

Dimensions in mm
Projection/First angle



Ø	L		Type
12	10	7	QM/92012/55
16	10	7	QM/92016/55
20	10	7	QM/92020/55
25	10	8	QM/92025/55
32	10	8	QM/92032/55
40	15	13	QM/92040/55
50	15	13	QM/92050/55
63	20	17	QM/92063/55
80	20	17	QM/92080/55
100	25	19	QM/92100/55

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

Symbol	Voltage (V a.c.) (V d.c.)		Current maximum (mA)	Function	Operating temperature (°C)	LED	Protection class	Plug	Cable length (m)	Cable type	Weight (g)	Model
	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

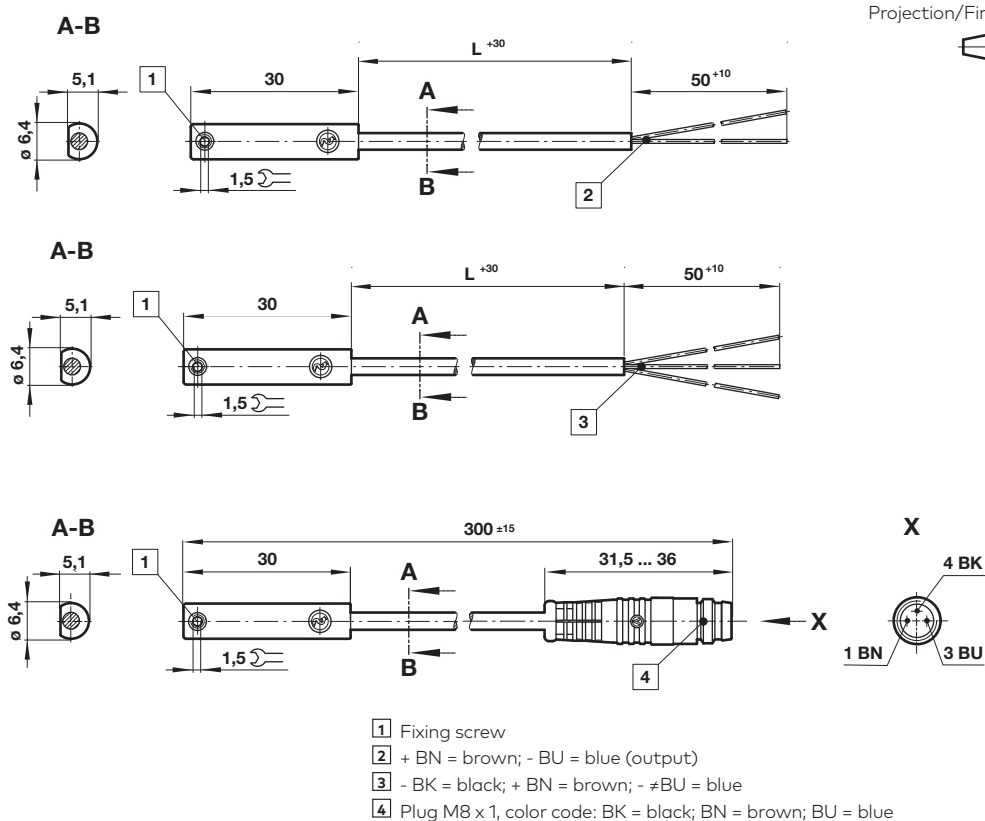
M/50/LSU/*V, M/50/LSU/5U,
TM/50/RAU/2S
Cable length L = 2, 5 or 10 m



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



M/50/LSU/CP



Accessories

Switch mounting bracket



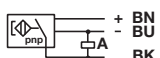
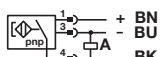
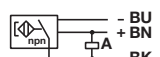
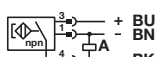
M/P72487

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)

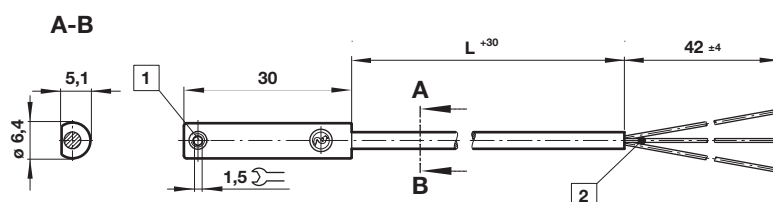
* Insert cable length; *1) Plug-in connector below; Color code: BK = black, BN = brown, BU = blue

Drawings

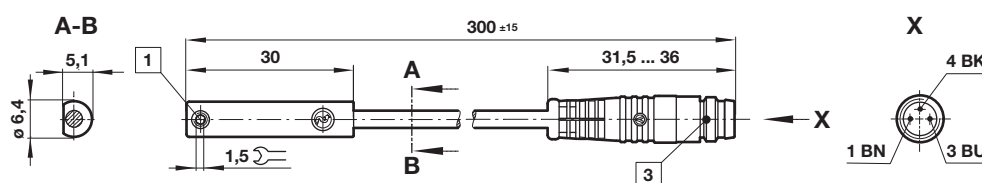
Dimensions in mm
Projection/First angle



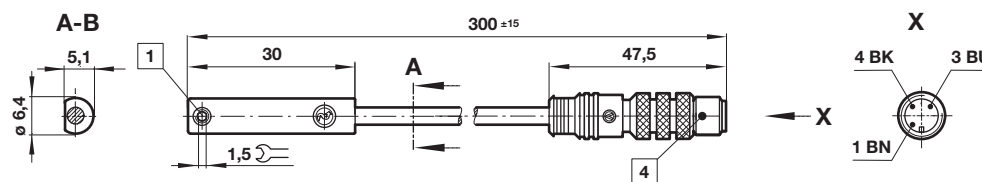
M/50/EAP/*V,
M/50/EAN/*V
Cable length L = 2, 5 or 10 m



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 Precision Engineering.

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.

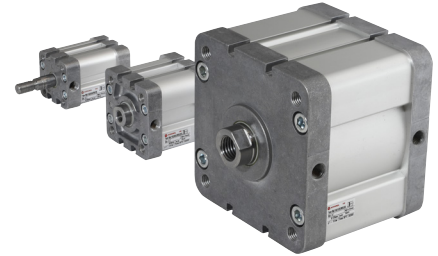
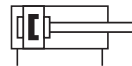
System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products.

RA/192000/M, ISO Compact cylinder

Magnetic piston, double acting



- > $\varnothing$ 20 ... 125 mm
- > Conforms to ISO 21287
- > M/50 switches can be mounted flush with the profile
- > Magnetic piston as standard
- > Seals ensure low friction operation and long life
- > Three different guiding systems:
RA/192000/N2, .../N4 or .../N6



Technical features

Medium:

Compressed air, filtered, lubricated or non-lubricated

Standard:

Based on ISO 21287

Operation:

RA/192000/M: Double acting, magnetic piston, male piston rod thread, buffer cushioning
RA/192000/MX: Double acting, magnetic piston, female piston rod thread, buffer cushioning

Operating pressure:

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

Ports:

M5, G1/8 ... G1/4

Cylinder diameters:

20, 25, 32, 40, 50, 63, 80, 100 and 125 mm

Standard Strokes:

See table below (standard stroke lengths)

Non-standard strokes:

$\varnothing$ 20 ... 25 mm (5 ... 200 mm)
 $\varnothing$ 32 ... 40 mm (5 ... 300 mm)
 $\varnothing$ 50 ... 63 mm (10 ... 400 mm)
 $\varnothing$ 80 ... 125 mm (15 ... 500 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:

Profile barrel: Anodized aluminium
End covers: Pressure diecast aluminium
Piston rod: Stainless steel
Piston rod seals: PUR
Piston seals: NBR
O-rings: NBR

Technical data

Cylinder $\varnothing$ (mm)	20	25	32	40	50	63	80	100	125
Port size	M 5	M 5	G 1/8	G 1/8	G 1/8	G 1/8	G 1/8	G 1/8	G 1/4
Piston rod $\varnothing$ (mm)	10	10	12	16	20	20	25	25	32
Piston rod thread	M8x1,25	M8x1,25	M10x1,25	M10x1,25	M12x1,25	M12x1,25	M16x1,5	M16x1,5	M27x2
Energy (J) max.	0,2	0,3	0,45	0,75	1,1	1,3	1,9	2,3	3
Theoretical thrusts at 6 bar outstroke (N)	188	294	482	754	1178	1870	3016	4710	7363
Theoretical thrusts at 6 bar instroke (N)	141	247	414	633	990	1680	2722	4416	6882
Air consumption at 6 bar outstroke (l/cm)	0,022	0,035	0,056	0,088	0,137	0,218	0,35	0,55	0,86
Air consumption at 6 bar instroke (l/cm)	0,016	0,028	0,048	0,074	0,114	0,195	0,32	0,51	0,79

Technical data, Tandem Cylinder (increased force), RA/1920xx/TM.

For Model only RA/1920xx/TM..	20	25	32	40	50	63	80	100
Energy (J) max.	0,2	0,3	0,45	0,75	1,1	1,3	1,9	2,3
Theoretical thrusts at 6 bar outstroke (N)	330	542	897	1387	2168	3552	5737	9130
Theoretical thrusts at 6 bar instroke (N)	141	247	414	633	990	1680	2722	4416
Air consumption at 6 bar outstroke (l/cm)	0,038	0,063	0,105	0,162	0,253	0,414	0,669	1,065
Air consumption at 6 bar instroke (l/cm)	0,016	0,028	0,048	0,074	0,114	0,195	0,32	0,51

Standard strokes

Cylinder $\varnothing$ (mm)	Stroke length (mm)										
	5	10	15	20	25	30	40	50	60	80	100
20	•	•	•	•	•	•	•	•	—	—	—
25	•	•	•	•	•	•	•	•	—	—	—
32	•	•	•	•	•	•	•	•	—	—	—
40	•	•	•	•	•	•	•	•	—	—	—
50	—	•	•	•	•	•	•	•	•	•	•
63	—	—	•	•	•	•	•	•	•	•	•
80	—	—	•	•	•	•	•	•	•	•	•
100	—	—	•	•	•	•	•	•	•	•	•
125	—	—	•	•	•	•	•	•	•	•	•

Design and sizing in pneumatics

Golden Rules

Design and sizing in pneumatics is often based upon experience coupled with an element of fear of under specifying crucial equipment. In an attempt to ensure enough power, engineers may select over sized cylinders and then select over sized valves to supply them with enough air. The same uncertainty can also lead to over sized specification of air line equipment, fittings and tubing.

The outcome is components larger than necessary that use too much compressed air and waste energy and money.

However when following some well proven golden rules and a few laws of pneumatics it is easy to achieve correctly sized pneumatic installations.

Basics to Consider

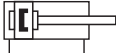
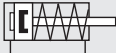
The force required, the pressure available, the speed of movement and air consumption. ISO and VDMA standard or compact style also cushioning and sensors. Cylinders are greased on assembly and operate under normal conditions without additional lubrication. However using a lubricator will extend the life of these products.

Golden Rule:

The theoretical force of the cylinder should be 25% extra for high speed, 50% extra for low speed and 100% extra for ultra low speed (positioning) applications.

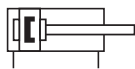
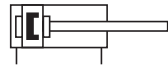
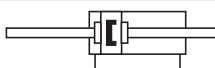
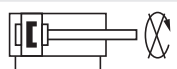
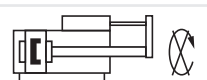
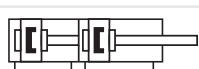
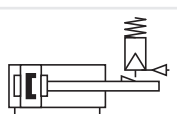
The correct sizing is based upon the required force and applied pressure. Go to page 1 for more information on cylinder sizing and air consumption.

Additional ISO 15552 Cylinder ranges (Cylinder ranges in the red frame are shown in this data sheet)

													
Symbols		Profile barrel	Round Barrel	Industrial Automation	Food & Beverage	Automotive	ATEX II 2GD	Rail (*)	CE-marked	ø (mm)	Range	Description	Datasheet
		•	•	•	•	•	•	•	•	20 ... 125	RA/192000	Double Acting Cylinder	de_1_5_084_RA_192000_M
										20 ... 125	RA/192000/M/EX		de_1_5_085_RA_192000_M_EX
		•	•	•	•	•				20 ... 63	RA/191000, RA/193000	Single Acting Cylinder	de_1_4_084_RA_191000_M

• Range available. For additional information please contact the technical service/ Rail Cylinder Shock and vibration tested to EN 61373 Category 1; Class A + B

Cylinder variants

Symbol	Versions	Piston Rod Material	Standard Model with	ø	Description	Page		
See the description below	T	R	S	Male Piston Rod Thread	Female Piston Rod Thread	(mm)		
	•	X	•	RA/192000/M	RA/192000/MX	20 ... 125	Standard Cylinder *1)	7
		X	•	RA/192000/W2	RA/192000/W2X	20 ... 25	Cylinder with Special Wiper - Seal	
		X	•	RA/192000/X4	RA/192000/X4X	32 ... 100	Low Friction Cylinder Operating pressure: 1 ... 10 bar, Medium: Compressed air, filtered and non-lubricated recommended	
		X	•	RA/192000/MU	RA/192000/MUX	20 ... 125	Cylinder with Extended Piston Rod ø 20 ... 25 mm (Stroke + Extension = 300 mm) ø 32 ... 40 mm (Stroke + Extension = 400 mm) ø 50 ... 63 mm (Stroke + Extension = 500 mm) ø 80 ... 125 mm (Stroke + Extension = 600 mm)	
	•	X	•	RA/192000/JM	RA/192000/JMX	20 ... 125	Cylinder with Double Ended Piston Rod *1)	
		X		RA/192000/N2	RA/192000/N2X	20 ... 100	Cylinder with Non-Rotating Piston Rod	
		X		RA/192000/N4		20 ... 100	Cylinder with guiding ø 20 ... 25 mm (max. Stroke = 80 mm) ø 32 ... 100 mm (max. Stroke = 100 mm)	
		X		RA/192000/N6		25 ... 32	Cylinder with External Guiding Standard Strokes 25, 50, 75 and 100 mm only	
		X	•	RA/192000/TM	RA/192000/TMX	20 ... 100	Tandem Cylinder (increased force)	
		X	•	RA/192000/SM	RA/192000/SMX	20 ... 100	Multi Position Cylinder	
		X	•	RA/192000/L4	RA/192000/L4X	32 ... 125	Cylinder with Locking unit (Passive) Spring force on removal of the signal to the unit. Operating pressure for locking unit: 4 ... 10 bar	

Alternative Variants without Magnet piston (ø 63 ... 125 mm) on request.

*1) Varinate T: ø 20 ... 100 mm; max. Stroke 200 mm

T = High temperature +150 °C (+302 °F); Piston Rod Material: R = Stainless steel martensitic; S = Stainless steel austenitic; X = Standard; • = Option

Option selector

Special variants	Substitute
High temperature version: 150 °C max.	T
Piston rod materials	Substitute
Stainless steel martensitic (1.4021)	R
Stainless steel austenitic (1.4305)	S
Cylinder ø (mm)	Substitute
20	020
25	025
32	032
40	040
50	050
63	063
80	080
100	100
125	125

Note: If option is not required, disregard option position within part number eg. RA/192100/M/100. For combinations of cylinder variants consult our technical service.

Please note that heat resistant seals are not available for all variants.

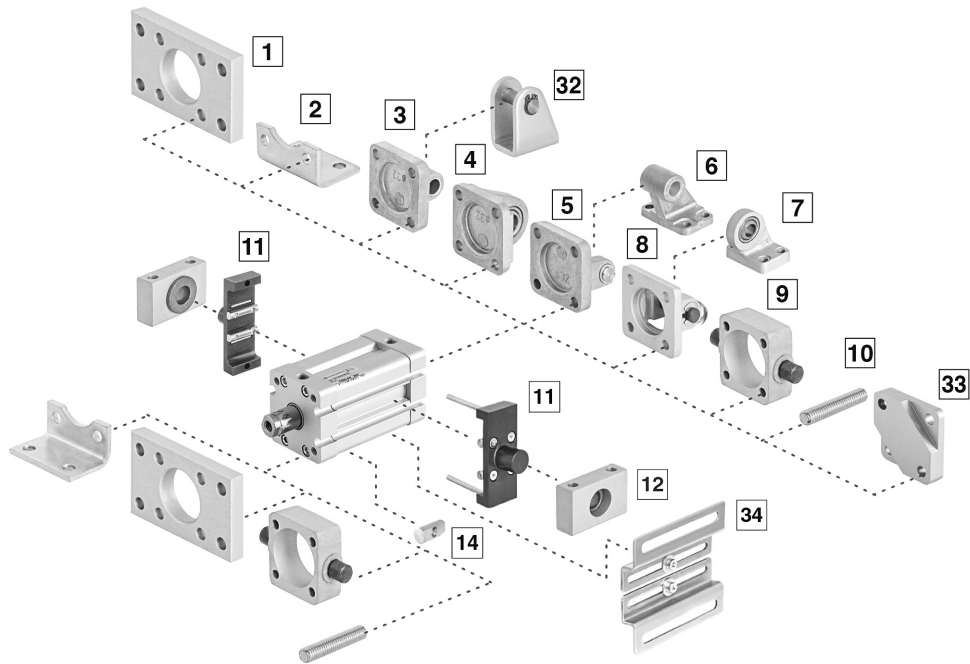
This options selector explains only the cylinder variants.

Additional variants/options can not be derived from.

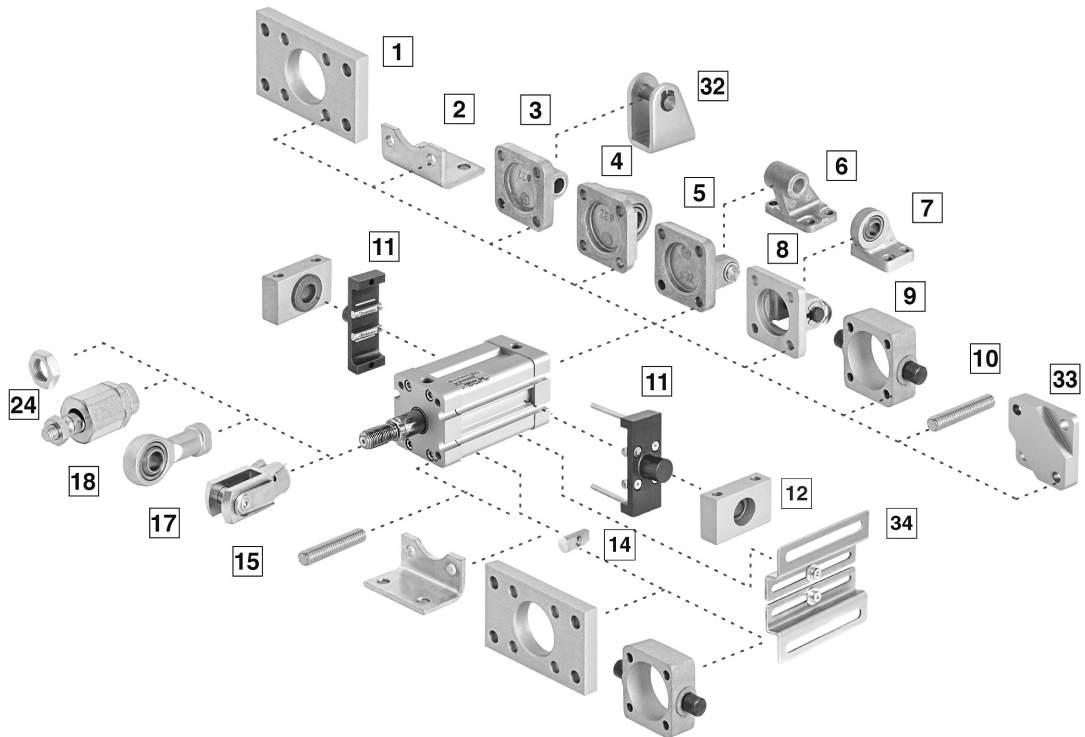
★★A/192★★/★★/★★

Strokes (mm)	Substitute
ø 20 and 25	5 < 200
ø 32 and 40	5 < 300
ø 50 and 63	10 < 400
ø 80 to 125	15 < 500
Piston rod thread	Substitute
Female	X
Male	None
Variants (magnetic piston)	Substitute
Standard	M
Double ended piston rod	JM
Non-rotating piston rod (internal)	N2
Guiding	N4
Special wiper/seal	W2
Locking unit	L4
External guiding	N6
Extended piston rod	MU
RA/192**/MU*/**/*	
	→ Extension (mm)
Low friction	X4
Tandem cylinder	TM
Multi-position cylinder	SM
RA/192**/SM*/**/*	
	→ Rear cylinder stroke
	→ Front cylinder stroke

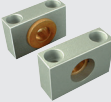
Series RA/192000/MX



Series RA/192000/M

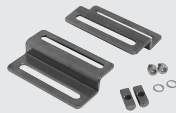


Mountings

Model	A	B, G	C	D	D2	FH	L2
							
	10	1	2	5	8	9	32
ø	Page 11	Page 11	Page 11	Page 12	Page 12	Page 12	Page 13
20	—	QA/192020/22	QM/192020/21	—	—	—	QM/8020/44
25	—	QA/192025/22	QM/192025/21	—	—	—	QM/8020/44
32	QM/8032/35	QA/8032/22	QA/192032/21	QA/8032/23	QA/8032/42	QA/8032/34	—
40	QM/8032/35	QA/8040/22	QA/192040/21	QA/8040/23	QA/8040/42	QA/8040/34	—
50	QM/8050/35	QA/8050/22	QA/192050/21	QA/8050/23	QA/8050/42	QA/8050/34	—
63	QM/8050/35	QA/8063/22	QA/192063/21	QA/8063/23	QA/8063/42	QA/8063/34	—
80	QM/8080/35	QA/8080/22	QA/192080/21	QA/8080/23	QA/8080/42	QA/8080/34	—
100	QM/8080/35	QA/8100/22	QA/192100/21	QA/8100/23	QA/8100/42	QA/8100/34	—
125	QM/8125/35	QM/8125/22	QM/8125/21	QM/8125/23	QA/8125/42	QA/8125/34	—
Model	R	S	SW	UH	UR	US	Assembly Kit
							
	3	12	6	11	4	7	33
ø	Page 12	Page 13	Page 14	Page 13	Page 13	Page 14	Page 15
20	QM/192020/27	—	—	—	—	—	QA/192020/55
25	QM/192025/27	—	—	—	—	—	QA/192025/55
32	QA/8032/27	QA/8032/41	M/P19493	PQA/182032/40	QA/8032/33	M/P40310	QA/192032/55
40	QA/8040/27	QA/8040/41	M/P19494	PQA/182040/40	QA/8040/33	M/P40311	QA/192040/55
50	QA/8050/27	QA/8040/41	M/P19495	PQA/182050/40	QA/8050/33	M/P40312	QA/192050/55
63	QA/8063/27	QA/8063/41	M/P19496	PQA/182063/40	QA/8063/33	M/P40313	QA/192063/55
80	QA/8080/27	QA/8063/41	M/P19497	PQA/182080/40	QA/8080/33	M/P40314	QA/192080/55
100	QA/8100/27	QA/8100/41	M/P19498	PQA/182100/40	QA/8100/33	M/P40315	QA/192100/55
125	QM/8125/27	QA/8100/41	M/P19499	PQA/182125/40	QM/8125/33	M/P71355	QA/192125/55

For cylinders with male piston rod thread

Accessories

Model	AK	F	N2	UF	Groove cover	Magnetically operated switches	Groove key	Valve mounting kit
								
	18	15	24	17			14	34
ø	Page 11	Page 12	Page 13	Page 12	Page 15	Page 16 & 17	Page 15	Page 15
20	QM/8020/38	QM/8020/25	M/P1501/60	QM/8020/32	M/P72725/1000		M/P72816	—
25	QM/8020/38	QM/8020/25	M/P1501/60	QM/8020/32	M/P72725/1000		M/P72816	—
32	QM/8025/38	QM/8025/25	M/P1501/89	QM/8025/32	M/P72725/1000		M/P72816	—
40	QM/8025/38	QM/8025/25	M/P1501/89	QM/8025/32	M/P72725/1000		M/P72816	—
50	QM/8040/38	QM/8040/25	M/P1501/90	QM/8040/32	M/P72725/1000		M/P72816	QA/180050/22/54
63	QM/8040/38	QM/8040/25	M/P1501/90	QM/8040/32	M/P72725/1000		M/P72816	QA/180050/22/54
80	QM/8050/38	QM/8050/25	M/P1501/91	QM/8050/32	M/P72725/1000		M/P72816	QA/180080/22/54
100	QM/8050/38	QM/8050/25	M/P1501/91	QM/8050/32	M/P72725/1000		M/P72816	QA/180080/22/54
125	QM/8125/38	QM/8125/25	M/P1501/105	QM/8125/32	M/P72725/1000		M/P72816	QA/180080/22/54

Pos.	Style	Standard	Pos.	Style	Standard	Pos.	Style	Standard
1	B, G	Clear anodised aluminium	7	US	Coatet cast iron Inner ring: steel, Outer ring: brass	15	F	Galvanized steel, Bolt: galvanized steel, Circlip: Galvanized steel
2	C	Coated steel (ø 20 ... 125 mm)	8	D2	Die-cast aluminium (ø 32 ... 125 mm) Bolt: stainless steel (martensitic), Circlip: galvanized steel	17	UF	Galvanized steel, Inner ring: steel, Outer ring: brass
3	R	Die-cast aluminium (ø 20 ... 100 mm) Coated cast iron (ø 125 mm)	9	FH	Coated cast iron	18	AK	Galvanized steel
4	UR	Die-cast aluminium (ø 32 ... 100 mm) Coated cast iron (ø 125 mm) Inner ring: steel, Outer ring: brass	10	A	Galvanized steel	24	N2	Galvanized steel
5	D	Die-cast aluminium (ø 32 ... 125 mm) Bolt: galvanized steel (martensitic) Circlip: galvanized steel	11	UH	Anodised aluminium	32	L2	Galvanized steel
6	SW	Die-cast aluminium (ø 32 ... 100 mm) Coated cast iron (ø 125 mm)	12	S	Clear anodised aluminium Bearing: brass	33		Anodised aluminium
			14	Groove key	Steel	34	Valve mounting kit	Galvanized steel

Spares kit for profile barrel

(wearing parts to be replaced are: piston seals, barrel seals, damping seals and piston rod seals as well as the wear ring)



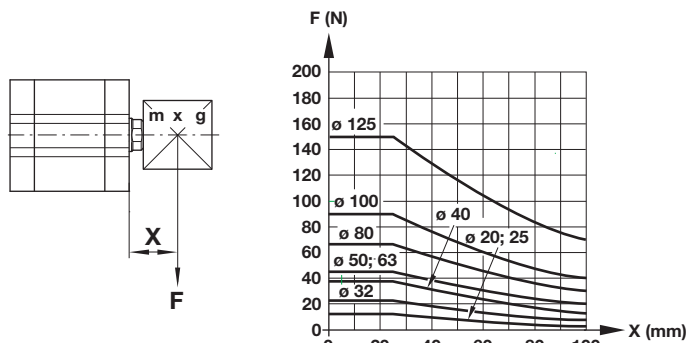
Spares kit			Option				
Piston rod thread	Male thread		M / MU / JM / L4 / N4 / N6	W2	N2	X4	TM / SM
	Female thread		MX / MUX / JMX / L4X	W2X	N2X	X4X	TMX / SMX
Standard	Model	ø	Standard temperature (-5 °C ... +80 °C)				
	RA/192*** SA/192***	020	QM/192020/00	QM/192020/W2/00	QM/192020/N2/00	-	2x QM/192020/00
		025	QM/192025/00	QM/192025/W2/00	QM/192025/N2/00	-	2x QM/192025/00
		032	QM/192032/00	-	QM/192032/N2/00	QM/192032/X4/00	2x QM/192032/00
		040	QM/192040/00	-	QM/192040/N2/00	QM/192040/X4/00	2x QM/192040/00
		050	QM/192050/00	-	QM/192050/N2/00	QM/192050/X4/00	2x QM/192050/00
		063	QM/192063/00	-	QM/192063/N2/00	QM/192063/X4/00	2x QM/192063/00
		080	QM/192080/00	-	QM/192080/N2/00	QM/192080/X4/00	2x QM/192080/00
		100	QM/192100/00	-	QM/192100/N2/00	QM/192100/X4/00	2x QM/192100/00
		125	QM/192125/00	-	-	-	2x QM/192125/00
	Model	ø	High temperature (0 °C ... +150 °C)				
Special option	TRA/192*** TSA/192***	020	TQM/192020/00	-	-	-	-
		025	TQM/192025/00	-	-	-	-
		032	TQM/192032/00	-	-	-	-
		040	TQM/192040/00	-	-	-	-
		050	TQM/192050/00	-	-	-	-
		063	TQM/192063/00	-	-	-	-
		080	TQM/192080/00	-	-	-	-
		100	TQM/192100/00	-	-	-	-
		125	-	-	-	-	-

*** = Stroke

RA/192000/M. – Standard cylinder

RA/192000/N2. – Cylinder with non-rotating piston rod

Side load

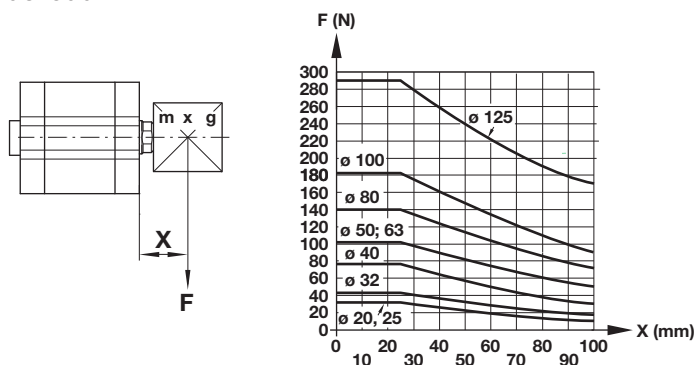


Special variant: TRA/192000
F x 0,5

ϕ	Torque max. (Nm)	Model
20	0,15	RA/192020/M. RA/192020/N2.
25	0,25	RA/192025/M. RA/192025/N2.
32	0,4	RA/192032/M. RA/192032/N2.
40	0,75	RA/192040/M. RA/192040/N2.
50	1,5	RA/192050/M. RA/192050/N2.
63	1,5	RA/192063/M. RA/192063/N2.
80	2,5	RA/192080/M. RA/192080/N2.
100	2,5	RA/192100/M. RA/192100/N2.

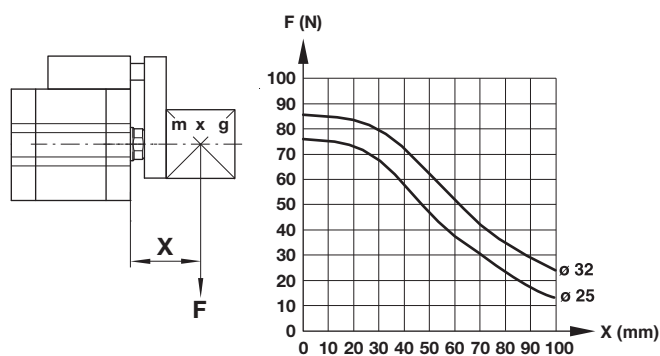
RA/192000/JM – Cylinder with double ended piston rod

Side load



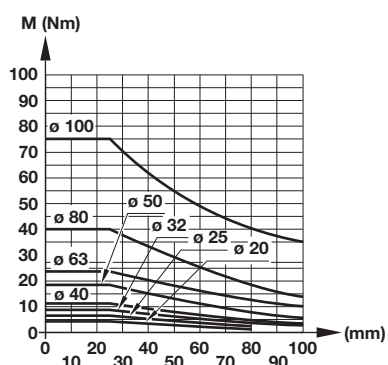
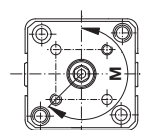
RA/192000/N6 – Cylinder with external guiding

Side load

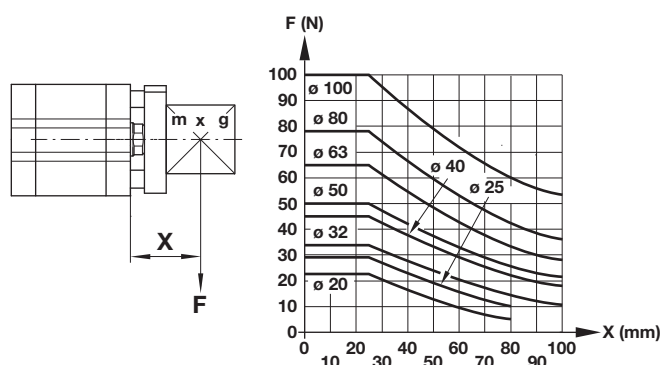


RA/192000/N4 – Cylinder with guiding

Torque moment

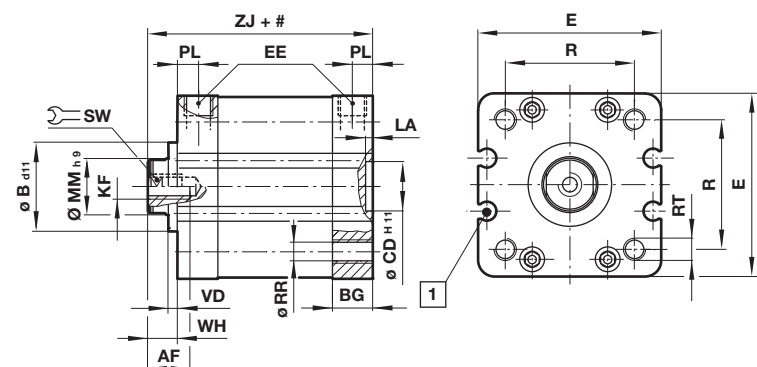


Side load



Dimensions

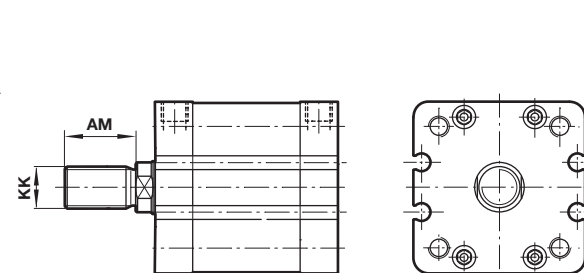
RA/192000/MX – Standard cylinder With female piston rod thread



Dimensions

RA/192000/M – Standard cylinder With male piston rod thread

Dimensions in mm
Projection/First angle



Stroke

1 M/50 switches can be mounted flush with the profile

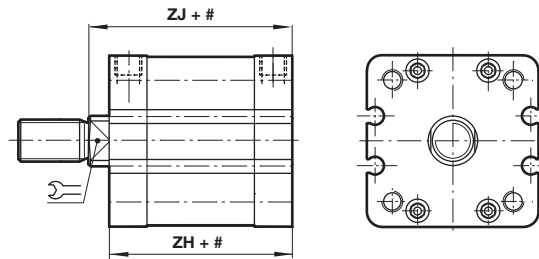
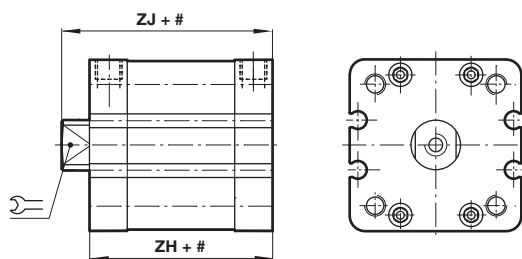
ø	AF	AM	ø B d11	BG	ø CD H11	□ E	EE	KF	KK	LA	ø MM h9	PL
20	10	16	—	12	10	37	M 5	M6	M8x1,25	2,5	10	7
25	10	16	—	13	10	41	M 5	M6	M8x1,25	2,5	10	7
32	12	19	—	14,5	14	48	G 1/8	M8	M10x1,25	2,5	12	7,5
40	12	19	—	14,5	14	54,5	G 1/8	M8	M10x1,25	2,5	16	7,5
50	16	22	—	14	18	66	G 1/8	M10	M12x1,25	2,5	20	7,5
63	16	22	—	14	18	76	G 1/8	M10	M12x1,25	2,5	20	7,5
80	20	28	—	15,5	23	96	G 1/8	M12	M16x1,5	3	25	7,5
100	20	28	—	21,5	26	116	G 1/8	M12	M16x1,5	3	25	10,5
125	30	54	60	20,5	28	142	G 1/4	M20	M27x2	3	32	10,5
ø	□ R	ø RR	RT	 SW	VD	WH	ZJ	kg at 0 mm		kg per 5 mm		Model
20	22	4,3	M5	8	—	6	43	0,12		0,01		RA/192020/M./*
25	26	4,3	M5	8	—	6	45	0,15		0,01		RA/192025/M./*
32	32,5	5,3	M6	10	—	7	51	0,23		0,02		RA/192032/M./*
40	38	5,3	M6	13	—	7	52	0,30		0,02		RA/192040/M./*
50	46,5	6,8	M8	17	—	8	53	0,46		0,03		RA/192050/M./*
63	56,5	6,8	M8	17	—	8	57	0,70		0,03		RA/192063/M./*
80	72	8,6	M10	22	—	10	64	1,23		0,04		RA/192080/M./*
100	89	8,6	M10	22	—	10	77	2,20		0,05		RA/192100/M./*
125	110	10,6	M12	27	4	18	89	3,60		0,07		RA/192125/M./*

* Please insert standard stroke length.

Cylinder variants

RA/192000/N2X – Cylinder with non-rotating piston rod With female piston rod thread

RA/192000/N2 – Cylinder with non-rotating piston rod With male piston rod thread



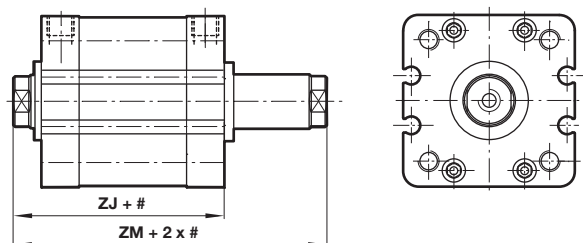
Stroke

ø	SW	ZH	ZJ	kg at 0 mm	kg per 5 mm	Model
20	8	47	53	0,12	0,01	RA/192020/N2./*
25	8	49	55	0,15	0,01	RA/192025/N2./*
32	10	54	61	0,23	0,02	RA/192032/N2./*
40	13	55	62	0,30	0,02	RA/192040/N2./*
50	16	55	63	0,46	0,03	RA/192050/N2./*
63	16	59	67	0,70	0,03	RA/192063/N2./*
80	21	64	74	1,23	0,04	RA/192080/N2./*
100	21	77	87	2,20	0,05	RA/192100/N2./*

Note: The basic length of the RA/192000/N2 version is slightly longer than the standard.

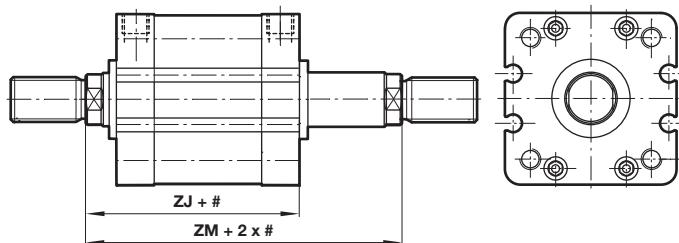
RA/192000/JMX

**Cylinder with double ended piston rod
With female piston rod thread**


RA/192000/JM

**Cylinder with double ended piston rod
With male piston rod thread**

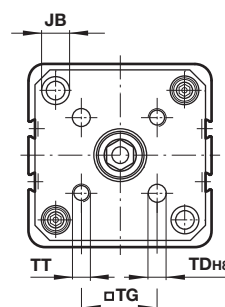
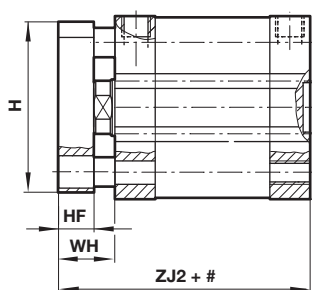
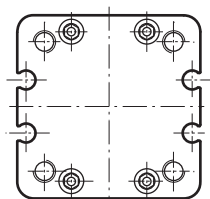
Dimensions in mm
Projection/First angle



ø	ZJ	ZM	kg at 0 mm	kg per 5 mm	Model
20	43	49	0,15	0,01	RA/192020/JM./*
25	45	51	0,18	0,01	RA/192025/JM./*
32	51	58	0,28	0,02	RA/192032/JM./*
40	52	59	0,35	0,02	RA/192040/JM./*
50	53	61	0,52	0,03	RA/192050/JM./*
63	57	65	0,76	0,03	RA/192063/JM./*
80	64	74	1,30	0,04	RA/192080/JM./*
100	77	87	2,30	0,05	RA/192100/JM./*
125	89	107	3,75	0,07	RA/192125/JM./*

Stroke

* Please insert standard stroke length.

RA/192000/N4 – Cylinder with guiding


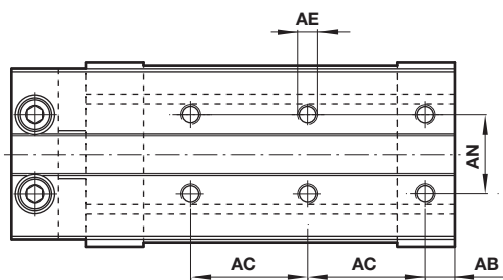
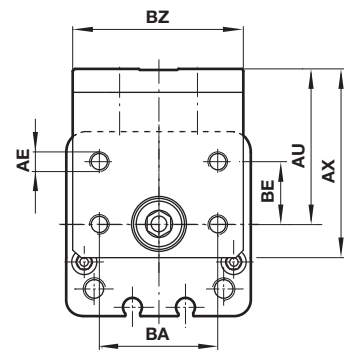
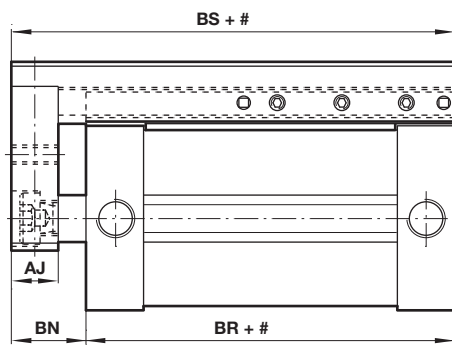
Stroke

ø	H	HF	ø JB	ø TDH8	... TG	TT	WH	ZJ2	kg at 0 mm	kg per 5 mm	Model
20	34	8	7,5	4	12	M4	14	51	0,17	0,01	RA/192020/N4./*
25	38	8	7,5	5	15,6	M5	14	53	0,23	0,01	RA/192025/N4./*
32	45	10	9	5	19,8	M5	17	61	0,33	0,02	RA/192032/N4./*
40	51	10	9	5	23,3	M5	17	62	0,45	0,02	RA/192040/N4./*
50	62,5	12	11	6	29,7	M6	20	65	0,65	0,03	RA/192050/N4./*
63	72	12	11	6	35,4	M6	20	69	0,95	0,03	RA/192063/N4./*
80	92	15	15	8	46	M8	25	79	1,70	0,04	RA/192080/N4./*
100	112	15	15	10	56,5	M10	25	92	3,10	0,05	RA/192100/N4./*

* Please insert standard stroke length.

RA/192000/N6 – Cylinder with external guiding

Dimensions in mm
Projection/First angle



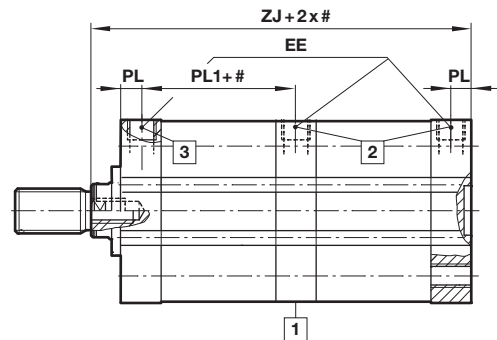
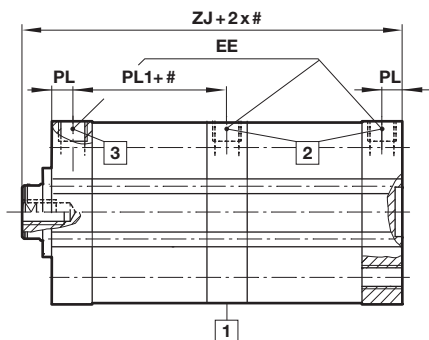
Standard strokes 25, 50, 75 and 100 mm only

ø	AB	AC	AE	AJ	AN	AU	AX	BA	BE	BN	BR	BS	BZ	at 0 mm	per 5 mm	Model
25	7,5	30	M5	12	20	37,5	44	30	16	18	39	57	43,5	0,31 kg	0,09 kg	RA/192025/N6/*
32	7,5	30	M5	12	20	40,5	48,5	30	16	19	44	63	43,5	0,44 kg	0,12 kg	RA/192032/N6/*

* Please insert standard stroke length.

RA/192000/TMX – Tandem cylinder with female piston rod thread

RA/192000/TM – Tandem cylinder with male piston rod thread



ø	EE	PL	PL1	ZJ	kg at 0 mm	kg per 5 mm	Model
20	M5	7	25,5	68	0,21	0,01	RA/192020/TM./*
25	M5	7	26,5	71	0,26	0,01	RA/192025/TM./*
32	G 1/8	7,5	30	81	0,39	0,02	RA/192032/TM./*
40	G 1/8	7,5	31	83	0,51	0,02	RA/192040/TM./*
50	G 1/8	7,5	31	85	0,78	0,03	RA/192050/TM./*
63	G 1/8	7,5	36	94	1,21	0,03	RA/192063/TM./*
80	G 1/8	7,5	40	104	2,11	0,04	RA/192080/TM./*
100	G 1/8	10,5	45,5	122	3,68	0,05	RA/192100/TM./*

* Please insert standard stroke length.

Stroke

1 Exhaust port

Note: Do not cover this area!

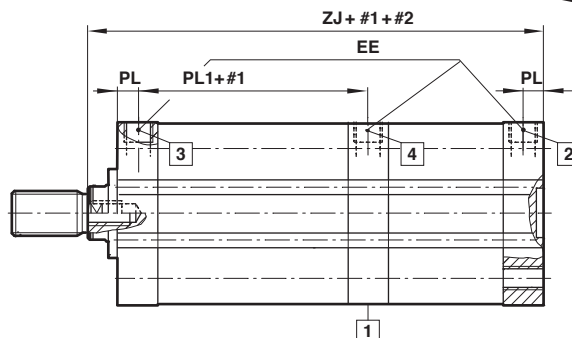
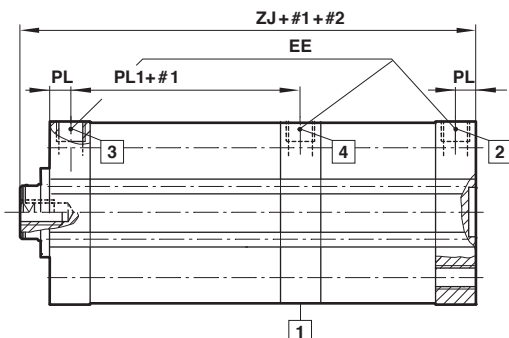
2 Pressure »outstroke«

3 Pressure »instroke«

RA/192000/SMX – Multi position cylinder with female piston rod thread

RA/192000/SM – Multi position cylinder with male piston rod thread

Dimensions in mm
Projection/First angle



ø	EE	PL	PL1	ZJ	kg at 0 mm	kg per 5 mm	Model
20	M5	7	25,5	68	0,21	0,01	RA/192020/SM./*
25	M5	7	26,5	71	0,26	0,01	RA/192025/SM./*
32	G 1/8	7,5	30	81	0,39	0,02	RA/192032/SM./*
40	G 1/8	7,5	31	83	0,51	0,02	RA/192040/SM./*
50	G 1/8	7,5	31	85	0,78	0,03	RA/192050/SM./*
63	G 1/8	7,5	36	94	1,21	0,03	RA/192063/SM./*
80	G 1/8	7,5	40	104	2,11	0,04	RA/192080/SM./*
100	G 1/8	10,5	45,5	122	3,68	0,05	RA/192100/SM./*

* Please insert standard stroke length.

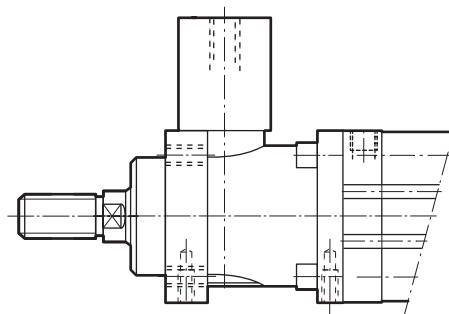
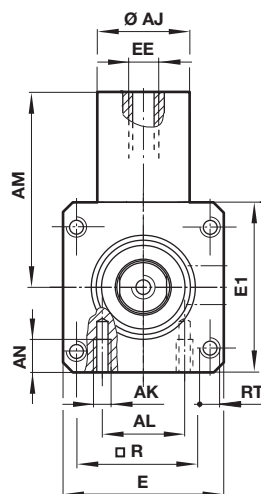
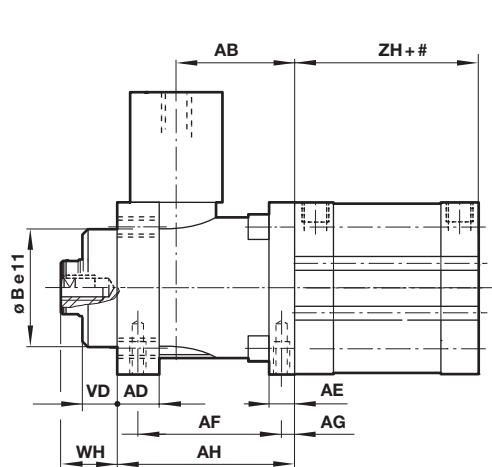
1 Exhaust port
Note: Do not cover this area!

#1 Stroke front cylinder
#2 Stroke rear cylinder
Note: Stroke (#1) > stroke (#2)

2 Pressure »outstroke« rear cylinder
3 Pressure »instroke«
4 Pressure »outstroke« front cylinder

RA/192000/L4X – Cylinder with locking unit female piston rod thread

RA/192000/L4 – Cylinder with locking unit male piston rod thread



Stroke

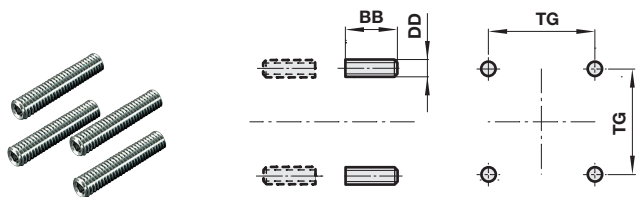
ø	AB	AD	AE	AF	AG	AH	ø AJ	AK	AL	AM	AN	Be11	E	E 1
32	32	12	8	40	4,2	48	25	M5	16	49	8	30	48	50
40	35,5	12	10	46	4,5	55	24	M5	21	61,5	10	35	56	58
50	49	16	15	54	11,5	70	30	M6	24	75	12	40	68	70
63	49	15	15	55	7,5	70	38	M8	32	86	12	45	82	85
80	62	16	16	70	10	90	53	M8	44	119	16	45	100	105
100	65	18	16	70	10	92	48	M8	60	119	16	55	120	130
125	85	27	25	95	11	122	65	M10	75	140	20	60	140	150
ø	EE	R	RT	VD	WH	ZH	Locking force		kg at 0 mm		kg per 5 mm		Model	
32	M 5	32,5	M 6	10	16	44	600 N		0,53		0,02		RA/192032/L4./*	
40	G 1/8	38	M 6	10	18	45	1000 N		0,70		0,02		RA/192040/L4./*	
50	G 1/8	46,5	M 8	12	22	45	1500 N		1,26		0,03		RA/192050/L4./*	
63	G 1/8	56,5	M 8	12	20	49	2200 N		1,90		0,03		RA/192063/L4./*	
80	G 1/8	72	M 10	20	33	54	5000 N		3,80		0,04		RA/192080/L4./*	
100	G 1/8	89	M 10	23	38	67	5000 N		5,90		0,05		RA/192100/L4./*	
125	G 1/8	110	M 12	32	65	71	7000 N		10,10		0,07		RA/192125/L4./*	

* Please insert standard stroke length.

Mountings

Front or rear stud mounting A

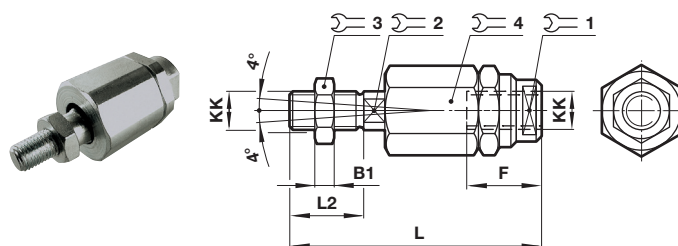
Conforms to ISO 15552, type MX1



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
125	34	M12	110	0,14	QM/8125/35

Piston rod swivel AK

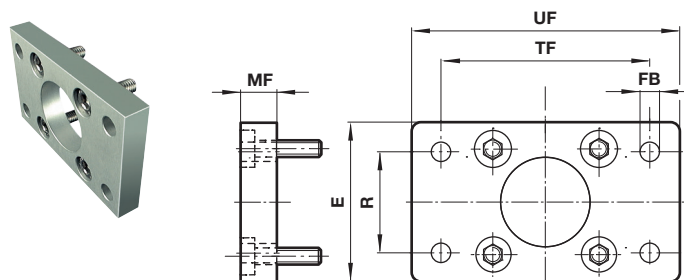
Dimensions in mm
Projection/First angle



ø	KK	B1	F	L	L2	1	2	3	4	kg	Model (AK)
20/25	M8x1,25	4	18	55	16	10	7	13	17	0,05	QM/8020/38
32/40	M10x1,25	5	26	73	20	19	12	17	30	0,20	QM/8025/38
50/63	M12x1,25	6	26	77	24	19	12	19	30	0,20	QM/8040/38
80/100	M16x1,5	8	34	106	32	30	19	24	42	0,65	QM/8050/38
125	M27x2	13,5	40	147	54	40	24	41	55	1,70	QM/8125/38

Front flange B, Front flange G

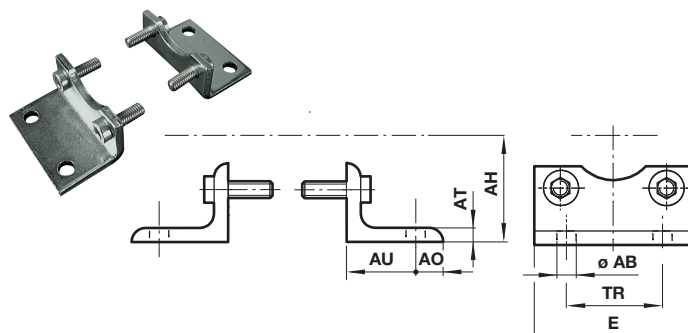
Conforms to ISO 21 287 (ø 20 and 25 mm) and
ISO 15552 (ø 32 to 125 mm), type MF1 and MF2



ø	E	ø FB	MF	R	TF	UF	kg	Model (B/G)
20	36	6,6	8	-	55	70	0,16	QA/192020/22
25	40	6,6	8	-	60	76	0,2	QA/192025/22
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	0,7	QA/8050/22
63	75	9	12	50	100	125	0,8	QA/8063/22
80	100	12	16	63	126	154	1,35	QA/8080/22
100	120	14	16	75	150	186	2,2	QA/8100/22
125	140	16	20	90	180	224	2,7	QM/8125/22

Foot C

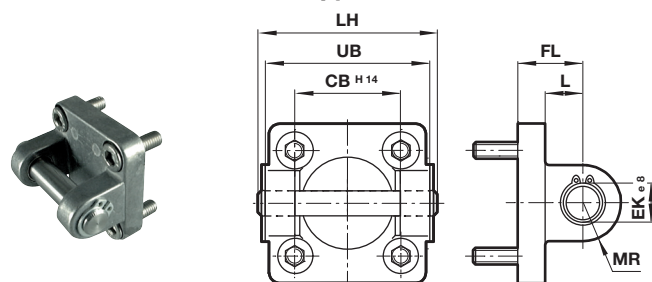
Conforms to ISO 15552, type MS1



ø	ø AB	AH	AO	AT	AU	E	TR	kg	Model (C)
20	7	27	6	4	16	36	22	0,03	QM/192020/21
25	7	29	7	4	16	40	26	0,04	QM/192025/21
32	7	33,5	7	4	16	48	32	0,15	QA/192032/21
40	10	38	9	4	18	54,5	36	0,18	QA/192040/21
50	10	45	9	5	21	66	45	0,3	QA/192050/21
63	10	50	9	5	21	76	50	0,39	QA/192063/21
80	12	63	11	6	26	96	63	0,8	QA/192080/21
100	14,5	74	13	6	27	116	75	0,95	QA/192100/21
125	16	90	20	9	45	140	90	2,4	QM/8125/21

Rear clevis D

Conforms to ISO 15552, type MP2

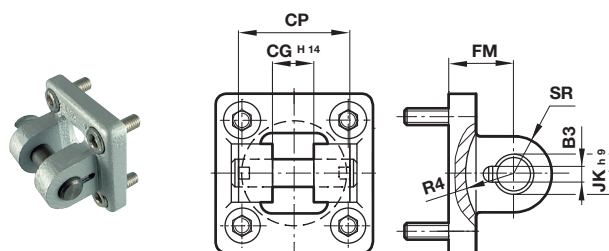


ø	CB H14	ø EK e8	FL	L	LH	MR	UB	kg	Model (D)
32	26	10	22	13	52	9	45	0,11	QA/8032/23
40	28	12	25	16	60	12	52	0,16	QA/8040/23
50	32	12	27	17	68	12	60	0,22	QA/8050/23
63	40	16	32	22	79	15	70	0,34	QA/8063/23
80	50	16	36	22	99	15	90	0,54	QA/8080/23
100	60	20	41	27	119	20	110	0,90	QA/8100/23
125	70	25	50	31	139	25	130	2,70	QM/8125/23

Rear clevis D2

Conforms to ISO 15552, type AB6

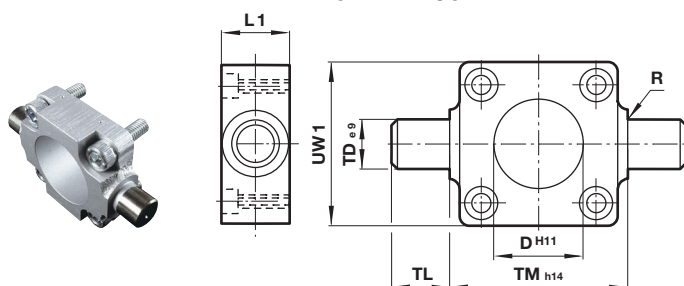
Dimensions in mm
Projection/First angle



ø	B1 H14	B2	B3	ø EK h9	FL	R1	R2	kg	Model (D2)
32	14	34	3,3	10	22	11	17	0,20	QA/8032/42
40	16	40	4,3	12	25	12	20	0,23	QA/8040/42
50	21	45	4,3	16	27	14,5	22	0,36	QA/8050/42
63	21	51	4,3	16	32	18	25	0,55	QA/8063/42
80	25	65	4,3	20	36	22	30	0,90	QA/8080/42
100	25	75	4,3	20	41	22	32	1,45	QA/8100/42
125	37	97	6,3	30	50	30	42	2,7	QA/8125/42

Front or rear detachable trunnion FH

Conforms to VDMA 24562 part 2, type MT 5/6

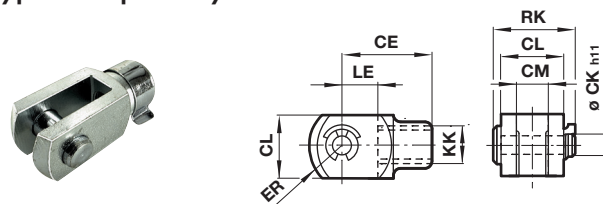


ø	ø D h11	L1	R	ø TD e9	TL	TM h14	UW1	kg	Model (FH)
32	30	16	1	12	12	50	45	0,20	QA/8032/34
40	35	20	1,6	16	16	63	55	0,38	QA/8040/34
50	40	24	1,6	16	16	75	65	0,60	QA/8050/34
63	45	24	1,6	20	20	90	75	1,10	QA/8063/34
80	45	28	1,6	20	20	110	100	1,90	QA/8080/34
100	55	38	2	25	25	132	120	3,50	QA/8100/34
125	60	50	2	25	25	160	145	6,50	QA/8125/34

Piston rod clevis F

Conforms to DIN ISO 8140

For cylinders with male piston rod thread order nut,
Type N2 separately

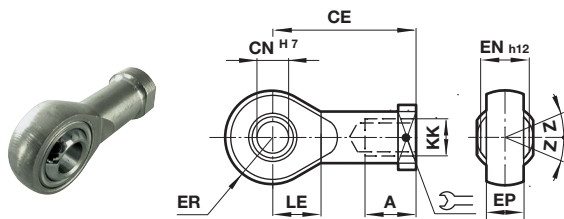


ø	KK	CE	ø CK h11	CL	CM	ER	LE	RK	kg	Model (F)
20/25	M8x1,25	32	8	16	8	13	16	22	0,06	QM/8020/25
32/40	M10x1,25	40	10	20	10	16	20	28	0,09	QM/8025/25
50/63	M12x1,25	48	12	24	12	19	24	32	0,13	QM/8040/25
80/100	M16x1,5	64	16	32	16	25	32	41,5	0,33	QM/8050/25
125	M27x2	110	30	55	30	45	54	62	1,35	QM/8125/25

Universal piston rod eye UF

Conforms to DIN ISO 8139

For cylinders with male piston rod thread order nut, Type N2 separately

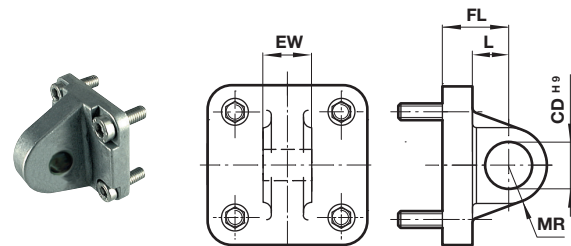


ø	Thread KK	AX	CE	ø CN H7	EN -0,1	ER	LE	Z	kg	Model (UF)
20/25	M8x1,25	16	36	8	12	11	13	5 °	0,05	QM/8020/32
32/40	M10x1,25	20	43	10	14	14	15	13 °	0,09	QM/8025/32
50/63	M12x1,25	22	50	12	16	16	17	13 °	0,13	QM/8040/32
80/100	M16x1,5	28	64	16	21	21	22	15 °	0,33	QM/8050/32
125	M27x2	51	110	30	37	35	36	15 °	1,35	QM/8125/32

Rear eye R

Conforms to ISO 21 287 (ø 20 and 25 mm) and ISO 15552 (ø 32 to 125 mm), type MP4

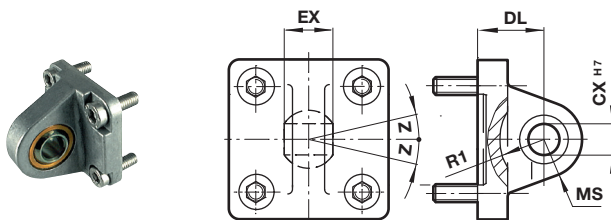
Dimensions in mm
Projection/First angle



ø	øCDH9	EW	FL	L	MR	kg	Model (R)
20	8	15,8	20	14	8	0,02	QM/192020/27
25	8	15,8	20	14	8	0,03	QM/192025/27
32	10	25,8	22	13	9	0,09	QA/8032/27
40	12	27,8	25	16	12	0,11	QA/8040/27
50	12	31,7	27	17	12	0,17	QA/8050/27
63	16	39,7	32	22	15	0,24	QA/8063/27
80	16	49,7	36	22	15	0,37	QA/8080/27
100	20	59,7	41	27	20	0,59	QA/8100/27
125	25	69,7	50	33	25	3,2	QM/8125/27

Universal rear eye UR

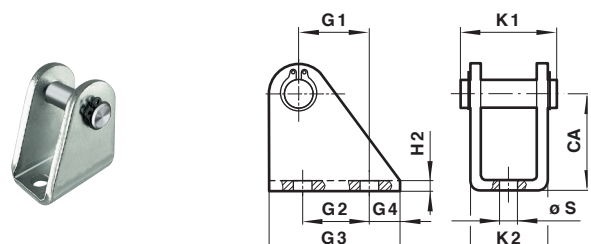
Conforms to ISO 15552, type MP6



ø	ø CN H7	EN	ER	FL	R	Z	kg	Model (UR)
32	10	14	16	22	14,5	13 °	0,15	QA/8032/33
40	12	16	18	25	18	13 °	0,25	QA/8040/33
50	16	21	21	27	19	15 °	0,40	QA/8050/33
63	16	21	23	32	24	15 °	0,55	QA/8063/33
80	20	25	28	36	24	15 °	0,90	QA/8080/33
100	20	25	30	41	29	15 °	1,50	QA/8100/33
125	30	37	40	50	36	15 °	2,70	QM/8125/33

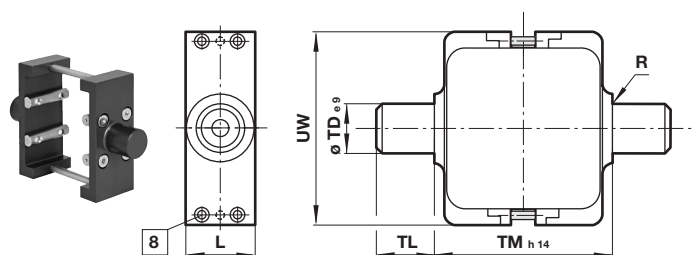
Bracket hinge L2

For rear eye mounting R



ø	CA	G1	G2	G3	G4	H2	K1	K2	ø S	kg	Model(L2)
20/25	30	16	20	32	6	4	29,5	24	6,6	0,08	QM/8020/44

Adjustable trunnion mounting UH Conforms to ISO 15552, type MT4

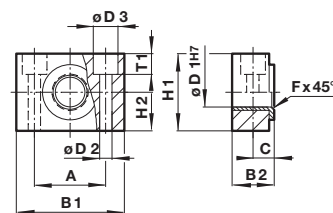


ø	L	R	ø De9	TL	TM h14	UW	Torque max. (Nm)	kg	Model (UH)
32	25	1	12	12	50	58	2	0,16	PQA/182032/40
40	28	1,6	16	16	63	65	3,5	0,35	PQA/182040/40
50	28	1,6	16	16	75	80	3,5	0,65	PQA/182050/40
63	36	1,6	20	20	90	96	5	0,85	PQA/182063/40
80	36	1,6	20	20	110	116	6	1,20	PQA/182080/40
100	48	2	25	25	132	140	6	2,30	PQA/182100/40
125	48	2	25	25	160	163	6	3,30	PQA/182125/40

Note: Style UH: It is most important that the locking screws which secure the mounting to the cylinder barrel are tightened to the torque figures shown in the table. For maximum energy input, consult our Technical Service.

Trunnion support S Conforms to ISO 15552, type AT4

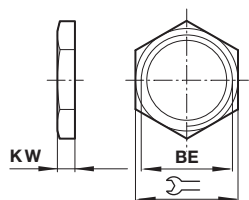
Dimensions in mm
Projection/First angle



ø	A	B1	B2	C	ø D1h7	ø D1	ø D3	F x 45°	H1	H2	T1	kg	Model (S)
32	32	46	18	10,5	12	6,6	11	1	30	15,3	6,8	0,11	QA/8032/41
40/50	36	55	21	12	16	9	15	1,6	36	18	9	0,16	QA/8040/41
63/80	42	65	23	13	20	11	18	1,6	40	20	11	0,23	QA/8063/41
100/125	50	75	28,5	16	25	14	20	2	50	25	13	0,42	QA/8100/41

Nut N2

For cylinder with male piston rod thread

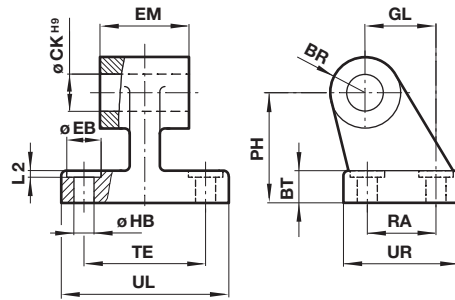


ø	BE	KW	⌀	kg	Model(N2)
20/25	M8x1,25	4	13	0,01	M/P1501/60
32/40	M10x1,25	5	17	0,01	M/P1501/89
50/63	M12x1,25	6	19	0,01	M/P1501/90
80/100	M16x1,5	8	24	0,02	M/P1501/91
125	M27x2	13,5	41	0,09	M/P1501/105

Wide hinge SW

Conforms to ISO 15552, type AB7

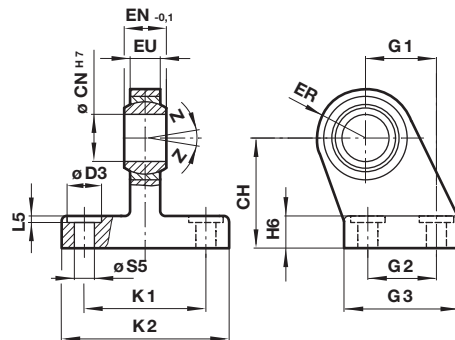
Dimensions in mm
Projection/First angle



ø	CA	ø CK H9	ø D	H2	EM	G1	G2	G3	K1	K2	L1	R	ø S	kg	Model (SW)
32	32	10	11	7	25,5	21	18	31	38	50	1,6	10	6,6	0,05	M/P19493
40	36	12	11	9	27,5	24	22	35	41	54	1,6	11	6,6	0,07	M/P19494
50	45	12	15	11	31,5	33	30	45	50	65	1,6	13	9	0,14	M/P19495
63	50	16	15	12	39,5	37	35	50	52	67	1,6	15	9	0,18	M/P19496
80	63	16	18	14	49,5	47	40	60	66	84	2,5	15	11	0,28	M/P19497
100	71	20	18	15	59,5	55	50	70	76	94	2,5	19	11	0,42	M/P19498
125	90	25	20	20	70,5	70	60	90	94	124	3,2	22	14	2,70	M/P19499

Swivel hinge US

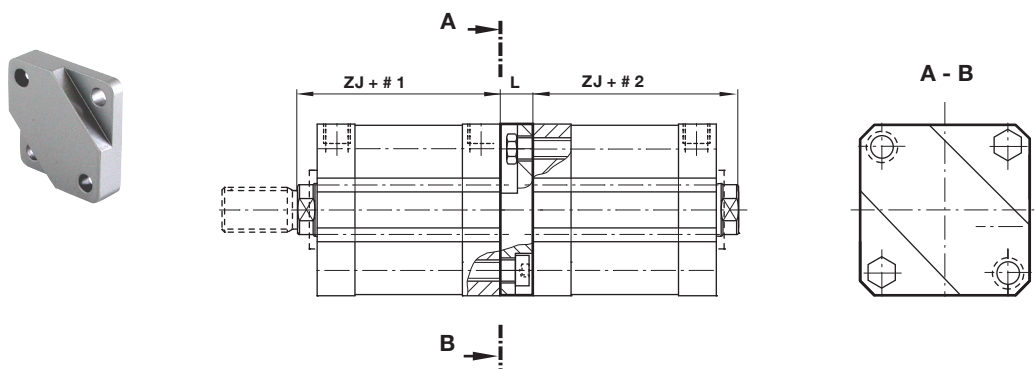
Conforms to VDMA 24562 part 2



ø	CH	ø CN H7	ø D	EN -0,1	ER	EU	G1	G2	G3	H2	K1	K2	L1	ø S	Z	kg	Model (US)
32	32	10	11	14	16	10,5	21	18	31	10	38	51	1,6	6,6	13 °	0,19	M/P40310
40	36	12	11	16	18	12	24	22	35	10	41	54	1,6	6,6	13 °	0,24	M/P40311
50	45	16	15	21	21	15	33	30	45	12	50	65	1,6	9	13 °	0,46	M/P40312
63	50	16	15	21	23	15	37	35	50	12	52	67	1,6	9	15 °	0,59	M/P40313
80	63	20	18	25	28	18	47	40	60	14	66	86	2,5	11	15 °	1,03	M/P40314
100	71	20	18	25	30	18	55	50	70	15	76	96	2,5	11	15 °	1,4	M/P40315
125	90	30	20	37	40	25	70	60	90	20	94	124	3,2	14	15 °	3,10	M/P71355

Assembly kit for four position cylinders

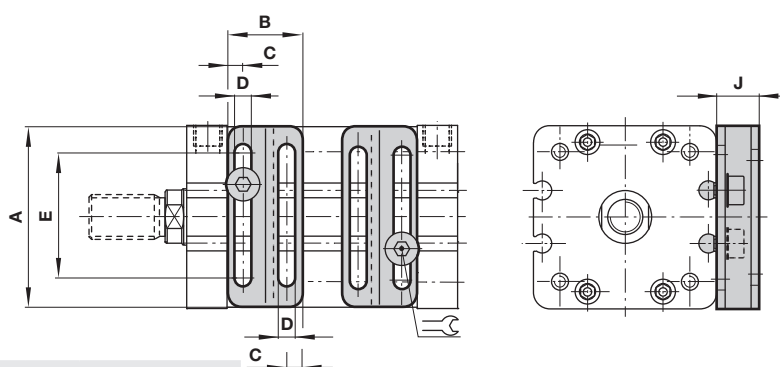
Dimensions in mm
Projection/First angle



Stroke

ø	L	ZJ	max. Hublänge = #1 + #2	kg	Model
20	10	43	400	0,03	QA/192020/55
25	10	45	400	0,04	QA/192025/55
32	12,5	51	600	0,07	QA/192032/55
40	12,5	52	600	0,09	QA/192040/55
50	15	53	800	0,14	QA/192050/55
63	15	57	800	0,19	QA/192063/55
80	20	64	1000	0,35	QA/192080/55
100	20	77	1000	0,72	QA/192100/55
125	25	89	1000	1,03	QA/192125/55

Valve mounting kit



ø	A	B	C	D	E	F	G	H	J	kg	Model
50/63	60	37	7	4,5	46	8,5	5,5	2	12	0,02	QA/180050/22/54
80/100/125	90	37	7	4,5	76	8,5	6,5	2	12	0,02	QA/180080/22/54

Groove key

Model: M/P72816

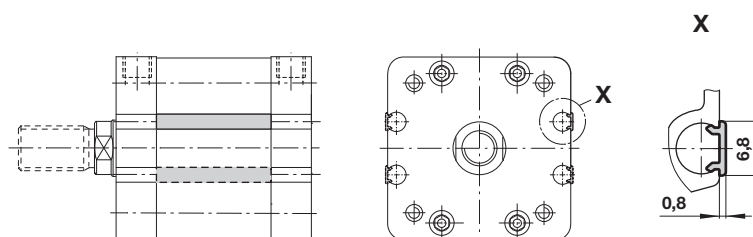
Weight: 0,01 kg



Groove cover M/P72725/1000

Model: M/P72725/1000

(length: 1m)



- > **Magnetically operating reed switch - Round style**
- > **Suitable for all cylinder ranges with magnetic piston**
- > **Switches can be mounted flush with the delivered special adaptor**
- > **LED indicator on LSU models**
- > **Alternative variants allows a wide range of application**



Technical features

Operation:

M/50/LSU Normally open with LED (yellow)

Switching voltage (Ub):

10 ... 240 V a.c./170 V d.c.

Switching voltage output:

Ub - 2,7 V

Switching current

(see graph overleaf):

0,18 A max.

Switching power:

10 W/10 VA max.

Contact resistance:

150 mΩ

Response time:

1,8 ms

Operating temperature:

-25 ... +80 °C (-13 ... +176 °F)

High temperature version:

+150 °C max. (+302 °F)

Protection rating (EN 60529):

IP66

Shock resistance:

50 g (during 11 ms)

Vibration resistance:

35 g (at 2000 Hz)

Cable type:

2 x 0,25: PVC, PUR or silicone

3 x 0,25 PVC

Cable length:

2, 5 or 10 m

Electromagnetic compatibility

according to:

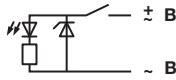
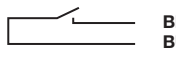
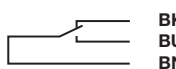
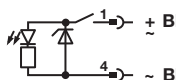
EN 60947-5-2

Materials:

Body: plastic

Cable: see table below

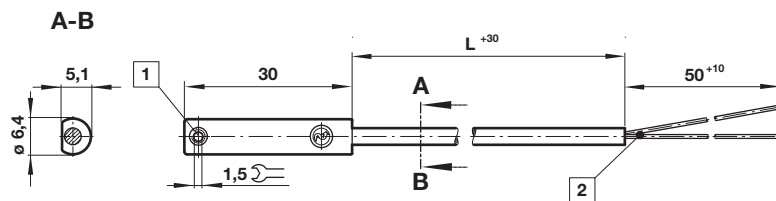
Technical data - Reed switches - additional information see data sheet en 4.3.005

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	Normally open	-25 ... +80	•	IP 66	—	2, 5 or 10	PVC 2 x 0,25	37	M/50/LSU/*V
	10 ... 240	10 ... 170	180	Normally open	-25 ... +80	•	IP 66	—	5	PUR 2 x 0,25	37	M/50/LSU/5U
	10 ... 240	10 ... 170	180	Normally open	-25 ... +150	—	IP 66	—	2	Silicon 2 x 0,25	37	TM/50/RAU/2S
	10 ... 240	10 ... 170	180	Changeover	-25 ... +80	—	IP 66	—	5	PVC 3 x 0,25	37	M/50/RAC/5V
	10 ... 60	10 ... 60	180	Normally open	-25 ... +80	•	IP 66	M8x1	0,3	PVC 3 x 0,25	16	M/50/LSU/CP *1)
	10 ... 60	10 ... 60	180	Normally open	-25 ... +80	•	IP 66	M12x1	0,3	PVC 3 x 0,25	16	M/50/LSU/CC *1)

* Insert cable length; *1) Plug-in connector see page 12

Dimensions

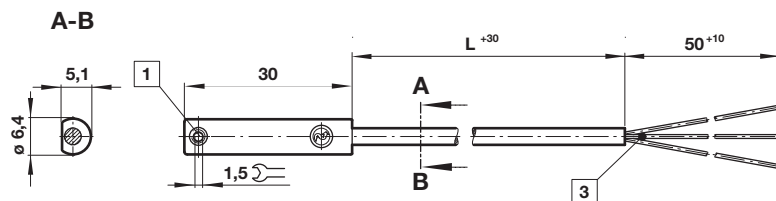
M/50/LSU/*V, M/50/LSU/5U,
TM/50/RAU/2S
Cable length L = 2, 5 or 10 m



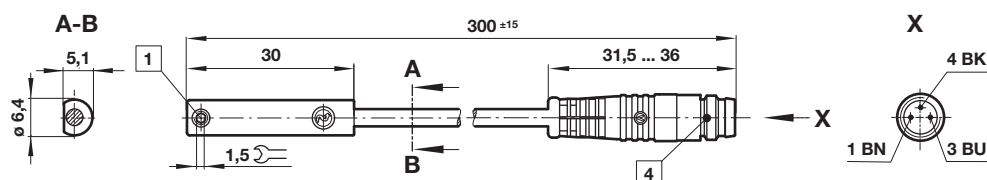
Dimensions in mm
Projection/First angle



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



M/50/LSU/CP
M/50/LSU/CC



1 Fixing screw

2 + BN = brown; - BU = blue (output)

3 - BK = black; + BN = brown; - BU = blue

4 Version CP: Plug M8 x 1, color code: BK = +; BN = -; BU = output

Version CC: Plug M12 x 1, color code: BK = +; BN = -; BU = output

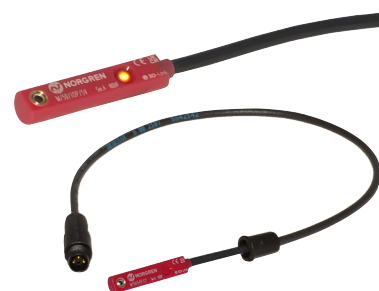
Accessories

Plug-in connector cable with nut



Outer cover	Cable length (m)	Weight (kg)	Connector	Connector
PVC 3 x 0,25	5	0,18	M8 x 1 straight connector	M/P73001/5
PUR 3 x 0,25	5	0,18	M8 x 1 straight connector	M/P73002/5
PVC 3 x 0,25	5	0,18	angled connector 90°	M/P34615/5
PUR 3 x 0,25	5	0,18	angled connector 90°	M/P34596/5
PUR 3 x 0,34	5	0,21	M12 x 1 straight connector	M/P34594/5

- > Magnetically operated switch, solid state - round style
- > IO-Link version available
- > Suitable for all cylinder ranges with magnetic piston
- > Switches can be mounted flush in all profile cylinders
- > Reliable switching with a very fast reponse time
- > Particularly suited for use in high levels of vibration
- > LED indicator as standard
- > UL listed



Technical features

Operation:

PNP / NPN (see table)
Output with LED (yellow)
Normally open (standard)

Switching voltage (U_b):

10 ... 30 V d.c.
("supply class 2" acc. to cULus)

Voltage drop at output:

< 2,5 V

Residual current:

< 0,5 mA

Switching current

(see graph):

100 mA max. (standard)
300 mA max. (M/50/EHP)

Switching power:

3,0 W max. (standard)
9,0 W max. (M/50/EHP)

Response time:

< 0,1 ms (standard)
< 5 ms (M/50/IOP)

Operating frequency:

1 kHz (standard)
200 Hz (M/50/IOP)

Responsiveness:

2,8 mT

Hysteresis:

0,5 ... 1,5 mT
0,2 mT (M/50/IOP)

Repeatability:

< 0,1 mT

Protection rating (EN 60529):

IP67 (standard)
IP68 (M/50/EAP/5U, M/50/EHP/5U)

Operating temperature:

-40 ... +80 °C (-40 ... 176 °F)
(permanently fixed cable)
-25 ... +80 °C (-13 ... 176 °F)
(moving cable)

Cable type:

PVC 3 x 0,14 mm² (standard)
PUR 3 x 0,14 mm² (M/50/E*P/*U
and all variants with connector)

Cable length:

2, 5 and 10 m

Electromagnetic compatibility according to:

EN 60947-5-2

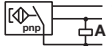
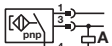
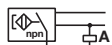
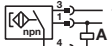
Materials:

Housing: plastic
Thread insert: brass
Set screw: stainless steel
Cable: see table below

Mounting type:

Flush mountable

Technical data - Solid state - additional information see data sheet en 4.3.007

Symbol	Voltage (V DC)	Current maximum (mA)	Function	IO-Link *1)	Operating temperature (°C)	LED	Protection class	Connector	Cable length (m)	Cable type	Weight (g)	Model
	10 ... 30	100	PNP		-40 ... +80	•	IP67	---	2	PVC 3 x 0,14	23	M/50/EAP/2V
	10 ... 30	100	PNP		-40 ... +80	•	IP67	---	5	PVC 3 x 0,14	56	M/50/EAP/5V
	10 ... 30	100	PNP		-40 ... +80	•	IP67	---	10	PVC 3 x 0,14	102	M/50/EAP/10V
	10 ... 30	100	PNP / NPN	•	-40 ... +80	•	IP67	---	5	PVC 3 x 0,14	56	M/50/IOP/5V
	10 ... 30	100	PNP		-40 ... +80	•	IP68	---	5	PUR 3 x 0,14	56	M/50/EAP/5U
	10 ... 30	100	PNP		-40 ... +80	•	IP67	---	10	PUR 3 x 0,14	102	M/50/EAP/10U
	10 ... 30	300	PNP		-40 ... +80	•	IP67	---	2	PVC 3 x 0,14	23	M/50/EHP/2V
	10 ... 30	300	PNP		-40 ... +80	•	IP67	---	5	PVC 3 x 0,14	56	M/50/EHP/5V
	10 ... 30	300	PNP		-40 ... +80	•	IP67	---	10	PVC 3 x 0,14	102	M/50/EHP/10V
	10 ... 30	300	PNP		-40 ... +80	•	IP68	---	5	PUR 3 x 0,14	56	M/50/EHP/5U
	10 ... 30	100	PNP		-40 ... +80	•	IP67	M8 x 1	0,3	PUR 3 x 0,14	7	M/50/EAP/CP
	10 ... 30	100	PNP / NPN	•	-40 ... +80	•	IP67	M8 x 1	0,3	PUR 3 x 0,14	7	M/50/IOP/CP
	10 ... 30	100	PNP		-40 ... +80	•	IP67	M12 x 1	0,3	PUR 3 x 0,14	16	M/50/EAP/CC
	10 ... 30	100	PNP		-40 ... +80	•	IP67	M12 x 1	2	PUR 3 x 0,14	35	M/50/EAP/CC/2
	10 ... 30	100	PNP / NPN	•	-40 ... +80	•	IP67	M12 x 1	0,3	PUR 3 x 0,14	16	M/50/IOP/CC
	10 ... 30	300	PNP		-40 ... +80	•	IP67	M8 x 1	0,3	PUR 3 x 0,14	7	M/50/EHP/CP
	10 ... 30	100	NPN		-40 ... +80	•	IP67	---	2	PVC 3 x 0,14	23	M/50/EAN/2V
	10 ... 30	100	NPN		-40 ... +80	•	IP67	---	5	PVC 3 x 0,14	56	M/50/EAN/5V
	10 ... 30	100	NPN		-40 ... +80	•	IP67	---	10	PVC 3 x 0,14	102	M/50/EAN/10V
	10 ... 30	100	NPN		-40 ... +80	•	IP67	M8 x 1	0,3	PUR 3 x 0,14	7	M/50/EAN/CP

Color code: see next page

*1) IO-Link functionality: see next page

IO-Link Switch conforming to IEC 61131-9

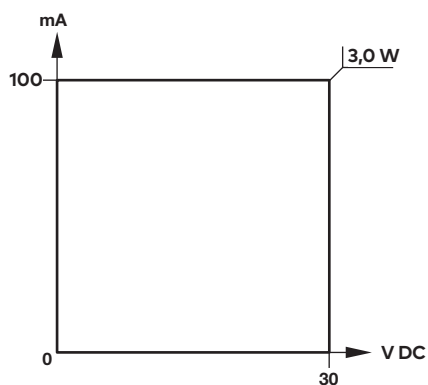
Properties and Functionality	M/50/EAP, M/50/EAN M/50/EHP	M/50/IOP
Operating Mode	Standard	Standard
Power LED		• •
LED sensor signal	•	• •
Normally open (delivery status)	•	• •
Normally closed		○ •
Delay mode		○ •
Installation aid		• •
Temperature measurement		•
Detection counter		•
Teach functionality		•
Responsiveness adjustment		•

• = included

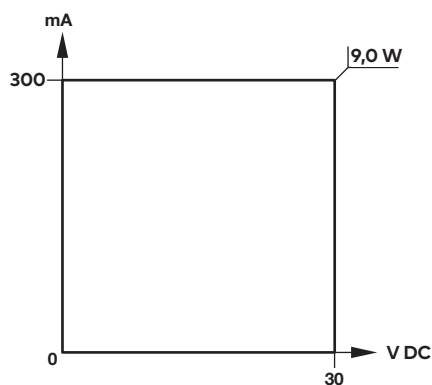
○ = optional (manufacture pre-setting required)

Switching current and switching voltage

M/50/EAP, M/50/EAN, M/50/IOP



M/50/EHP



Dimensions

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



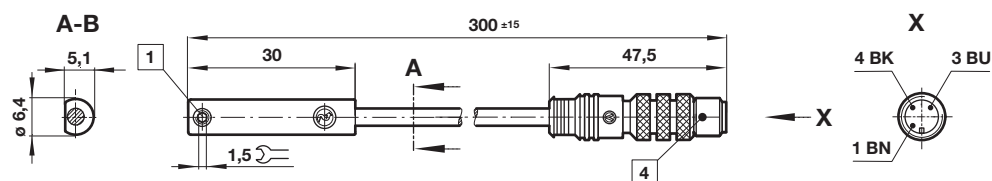
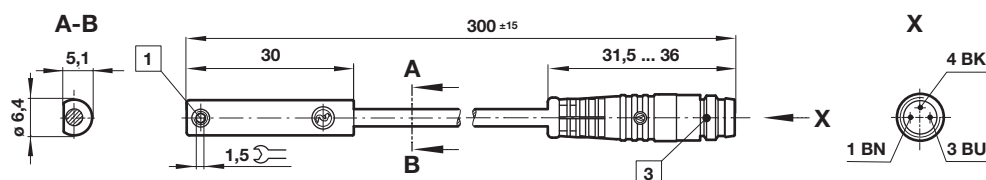
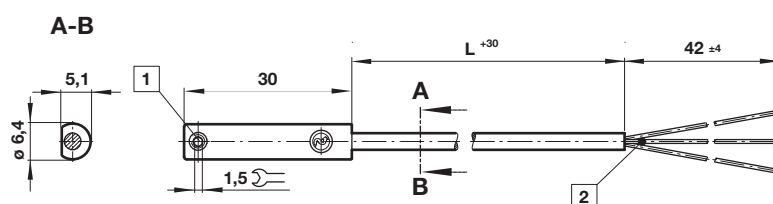
M/50/EAP/CP,
M/50/EAN/CP,
M/50/IOP/CP,
M/50/EHP/CP



M/50/EAP/CC,
M/50/IOP/CC,
M/50/EHP/CC



Dimensions in mm
Projection/First angle



1 Fixing screw

2 Color code: BK = black (output); BN = brown (+); BU = blue (-)

3 Connector M8 x 1; 1 BN = +; 3 BU = -; 4 BK = output

4 Connector M12 x 1; 1 BN = +; 3 BU = -; 4 BK = output

Accessories

Plug-in connector cable with nut



Dimensions in mm
Projection/First angle



Outer cover	Cable length (m)	Weight (kg)	Connector	Connector
PVC 3 x 0,25	5	0,18	M8 x 1 straight connector	M/P73001/5
PUR 3 x 0,25	5	0,18	M8 x 1 straight connector	M/P73002/5
PVC 3 x 0,25	5	0,18	angled connector 90°	M/P34615/5
PUR 3 x 0,25	5	0,18	angled connector 90°	M/P34596/5
PUR 3 x 0,34	5	0,21	M12 x 1 straight connector	M/P34594/5

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 GmbH.

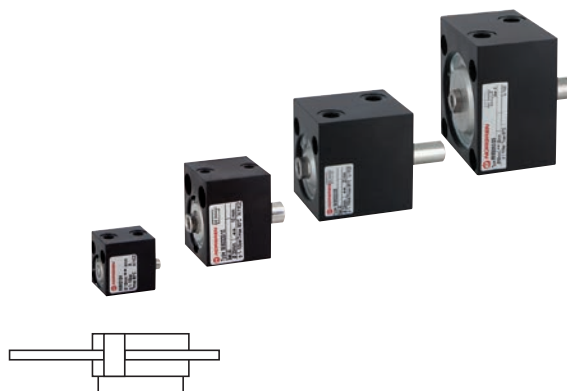
Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes.

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.

- > Ø 8 ... 63 mm
- > Enable high thrusts to be achieved in restricted space
- > Compact design



Technical features

Medium:

Compressed air, filtered and lubricated

Operation:

Double acting

Operating pressure:

1,5 ... 10 bar (21... 145 psi)

Cylinder diameters:

8, 12, 20, 32, 50, 63 mm

Standard strokes:

4 ... 25 mm

Operating temperature:

-10 ... +70°C max (+14 ... +158°F)

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

Materials:

Piston rod: stainless steel (austenitic)

Body: anodized aluminium

Seals: NBR

Technical data

Model	M/50208/*		M/50212/*		M/50220/*		M/50232/*			M/50250/*		M/50263/*	
Cylinder Ø (mm)	8/4	8/10	12/4	12/10	20/4	20/10	32/5	32/10	32/25	50/10	50/25	63/10	63/25
Port size	M5	M5	M5	M5	M5	M5	G1/8	G1/8	G1/8	G1/4	G1/4	G1/4	G1/4
Piston rod Ø (mm)	4	4	5	5	10	10	12	12	12	16	16	16	16
Piston rod thread	-	-	-	-	M5	M5	M6	M6	M6	M8	M8	M8	M8
Theoretical thrusts at 6 bar (N)	23	23	55	55	138	138	406	406	406	1037	1037	1715	1715
Air consumption at 6 bar outstroke (l/cm)	0,003	0,003	0,007	0,007	0,017	0,017	0,044	0,044	0,044	0,123	0,123	0,204	0,204

* Please insert standard stroke length.

Standard strokes

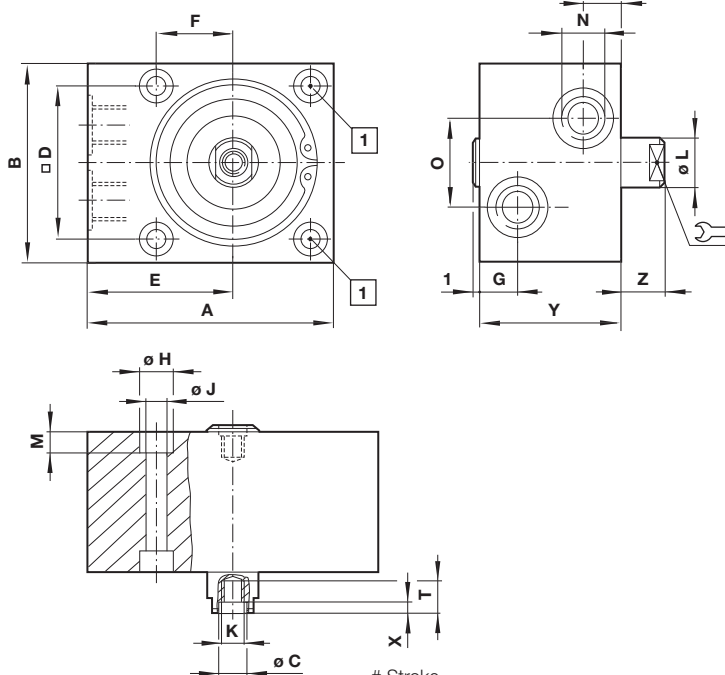
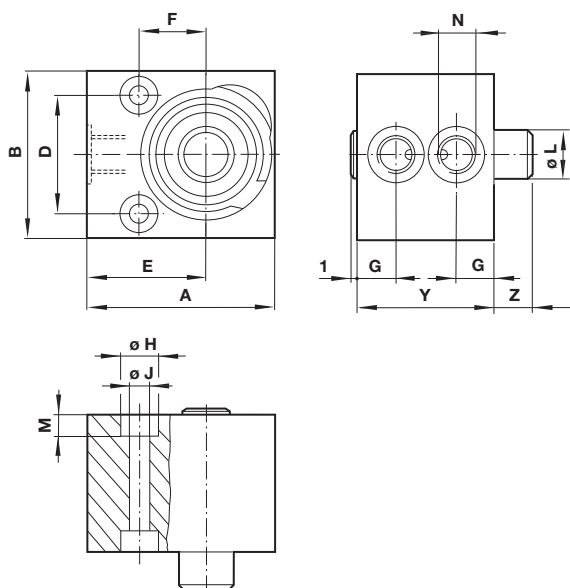
Cylinder Ø (mm)	Strokes (mm)			
	4	5	10	25
8	•	—	•	—
12	•	—	•	—
20	•	—	•	—
32	—	•	•	•
50	—	—	•	•
63	—	—	•	•

Dimensions

M/50208 ... M/50212

M/50220 ... M/50263

Dimensions in mm
 Projection/First angle



Stroke
 1 Ø 20 and 32 mm, without bores

Ø	A	B	Ø C	D	E	F	G	Ø H	Ø J	K	Ø L	M	N	O	T	X	Model
8	20	18	–	11	13,5	8	5	6	3,4	–	4	3,2	M 5	–	–	–	M/50208/*
12	25	20	–	13	16	9	5	6	3,4	–	5	3,4	M 5	–	–	–	M/50212/*
20	40	32	5,3	20	24	15	5	10	5,5	M5	10	5,5	M 5	–	8	8	M/50220/*
32	55	45	6,4	32	32	18	10	10	5,5	M6	12	5,5	G 1/8	20	10	14,5	M/50232/*
50	80	65	8,4	50	47,5	–	12	11	6,6	M8	16	6,8	G 1/4	30	13	15	M/50250/*
63	90	80	8,4	62	50	–	12	15	9	M8	16	9	G 1/4	30	13	15	M/50263/*

Ø	Stroke	Y	Z	kg	Model
8	4	22	5	0,03	M/50208/4
8	10	28	11	0,03	M/50208/10
12	4	24	5	0,04	M/50212/4
12	10	30	11	0,05	M/50212/10
20	4	25	8	0,10	M/50220/4
20	10	31	14	0,11	M/50220/10
32	5	33,5	10	0,25	M/50232/5
32	10	38,5	15	0,30	M/50232/10
32	25	53,5	30	0,42	M/50232/25
50	10	36,5	15	0,60	M/50250/10
50	25	51,5	30	0,68	M/50250/25
63	10	41,5	15	0,90	M/50263/10
63	25	56,5	30	1,16	M/50263/25

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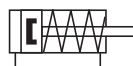
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System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products.

- > 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

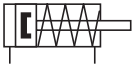
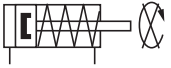
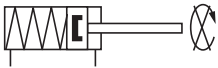
Technical data

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

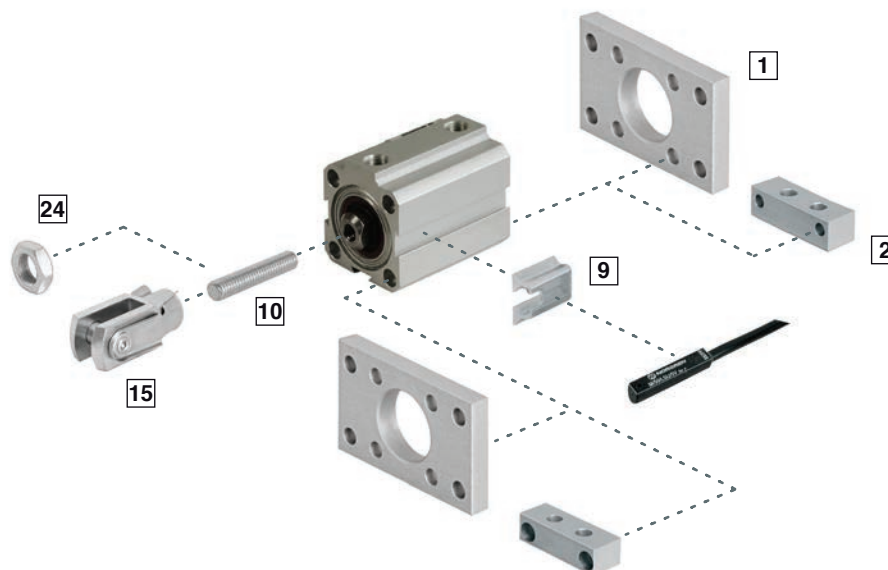
RM/9★★★★/★★/★★

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

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

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.

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

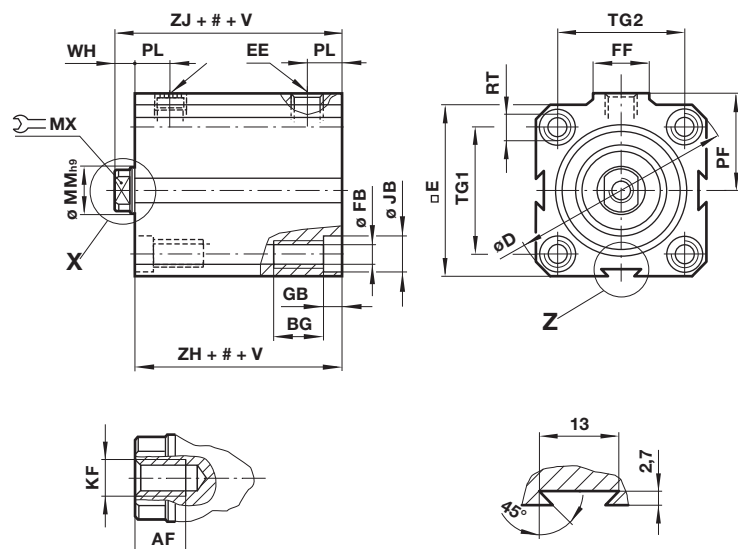
* For attaching F mounting to female piston rod thread.

Accessories

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

Dimensions

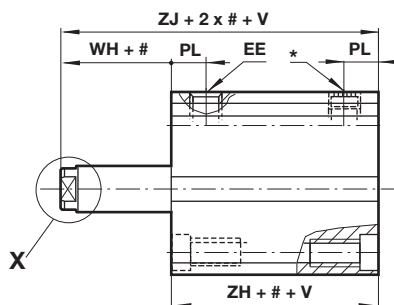
RM/91000/M – Standard cylinder (sprung in)



Dimensions

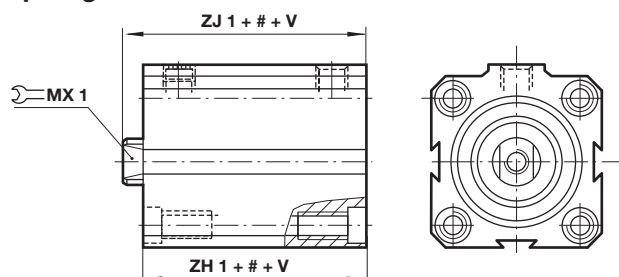
RM/93000/M – Cylinder (sprung out)

Dimensions in mm
Projection/First angle

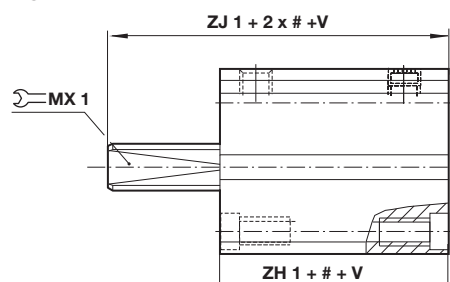


Cylinder variants

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

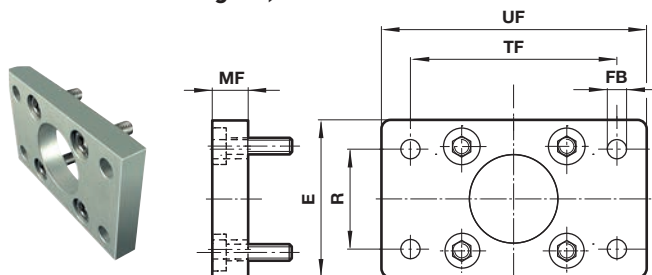
2 Note: Ø 12 to 20 mm feature only two side dovetails.

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

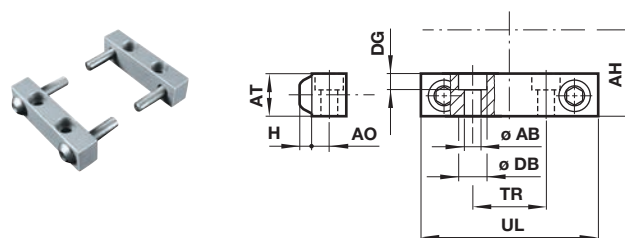
Front or rear flange B, G



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

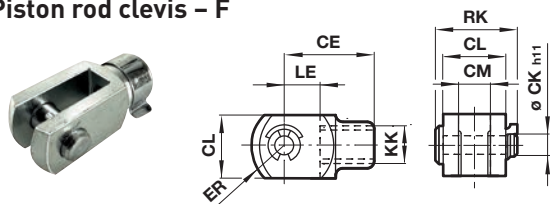
Foot C, ISO 6432

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



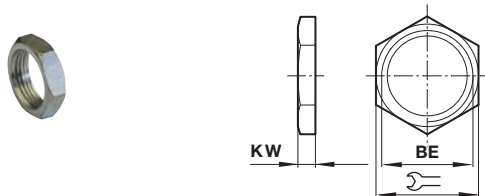
Ø	KK	CE	Ø CK h11	CL	CM	ER	LE	RK	kg	Model
12	M3	11	3 h9	6	3	4,5	5	10	0,01	QM/57008/25
16	M4	16	4	8	4	6,5	8	11,5	0,01	QM/8010/25
20	M5	20	5	10	5	8	10	14,5	0,01	QM/92020/25
25	M6	20	5	10	5	8	10	14,5	0,01	QM/57016/25
32 & 40	M8	24	6	12	6	9,5	12	17,5	0,02	QM/57020/25
50	M10x1,25	26	8	14	7	11,5	12	20,5	0,04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

Stud



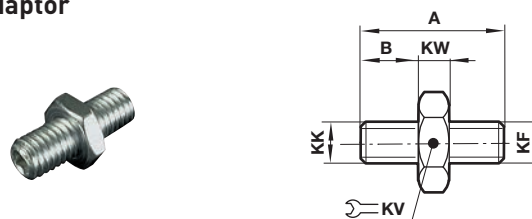
Ø	A	KF	kg	Model
12	12	M3	0,01	M/P1710/18
16	16	M4	0,01	M/P1710/19
20	20	M5	0,01	M/P1710/20
25	25	M6	0,01	M/P1710/21
32 & 40	25	M8	0,01	M/P1710/22

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

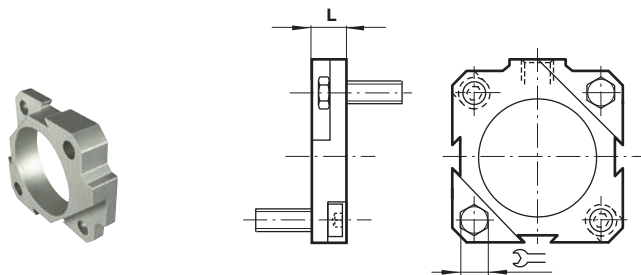
Adaptor



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

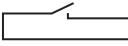
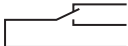
Assembly kit

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

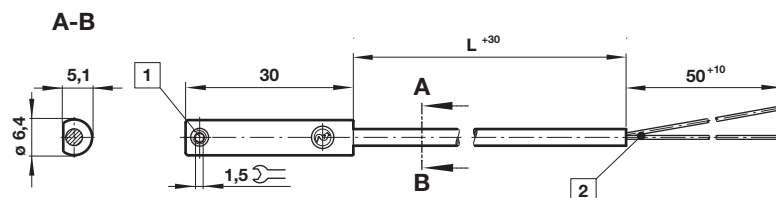
Technical data - Reed switches - additional informations see data sheet N/en 4.3.005

Symbol	Voltage		Current maximum (mA)	Function	Operating 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 page 11; Color code: BK = black, BN = brown, BU = blue

Drawings

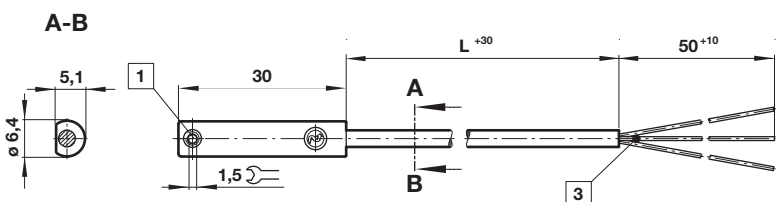
M/50/LSU/~V, M/50/LSU/5U,
TM/50/RAU/2S
Cable length L = 2, 5 or 10 m



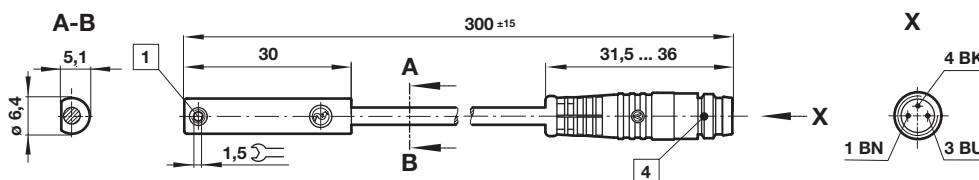
Dimensions in mm
Projection/First angle



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

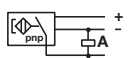
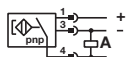
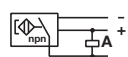
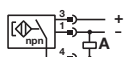
Accessories

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	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

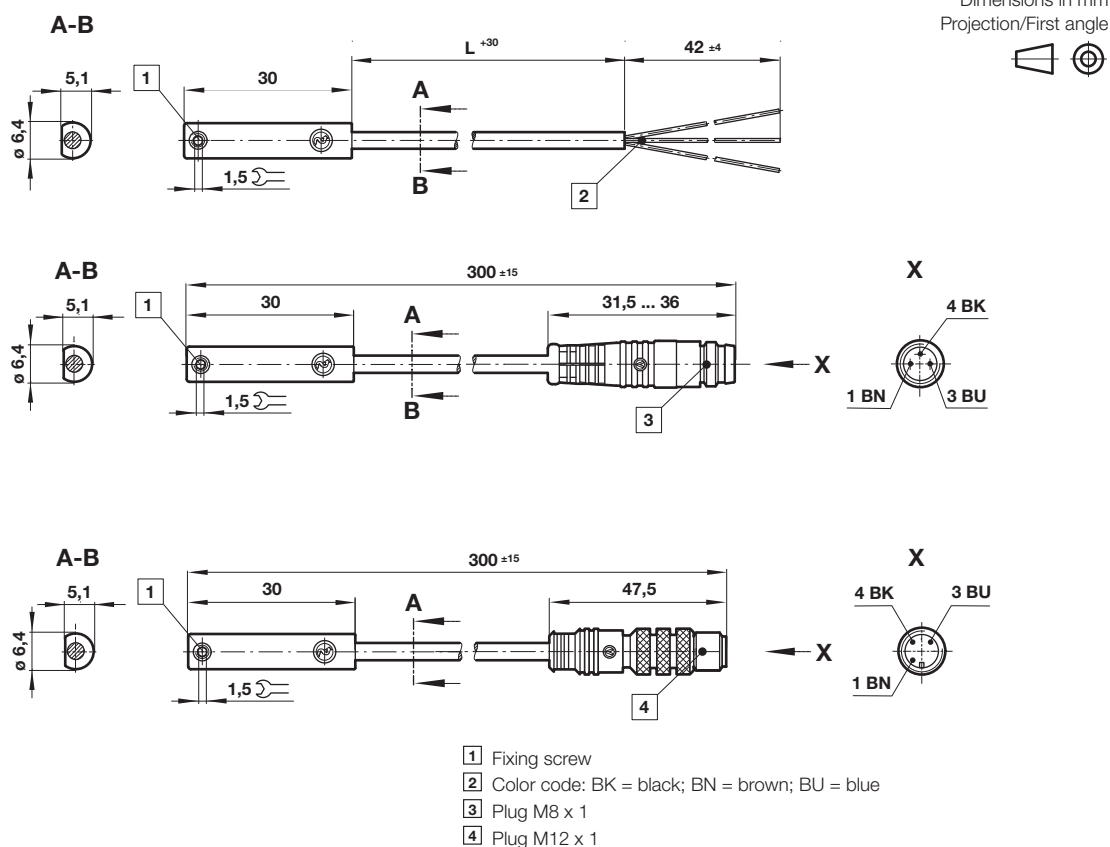
M/50/EAP/*V,
M/50/EAN/*V
Cable length L = 2, 5 or 10 m



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



M/50/EAP/CC



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 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.

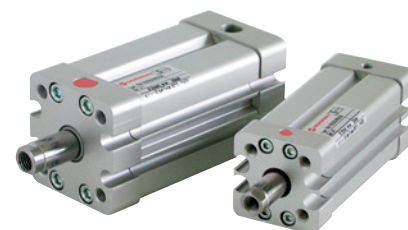
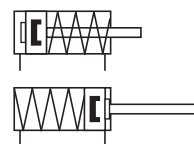
System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided.

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

RA/191000/M, .../MX; RA/193000/M, .../MX, Compact cylinder Magnetic piston, single acting



- > Ø 20 ... 63 mm
- > Conforms to ISO 21287
- > M/50 switches can be mounted flush with the profile
- > Magnetic piston as standard
- > Seals ensure low friction operation and long life



Technical features

Medium:

Compressed air, filtered, lubricated or non-lubricated

Standard:

Based on ISO 21287

Note: The basic length of the single acting version is slightly longer than its double acting equivalent

Operation:

RA/191000/M: Single acting, sprung in, magnetic piston, male piston rod thread, buffer cushioning

RA/191000/MX: Single acting, sprung in, magnetic piston, female piston rod thread, buffer cushioning

RA/193000/M: Single acting, sprung out, magnetic piston, male piston rod thread, buffer cushioning

RA/193000/MX: Single acting, sprung out, magnetic piston, female piston rod thread, buffer cushioning

Operating pressure:

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

Port size:

M5, G1/8

Cylinder diameters:

20, 25, 32, 40, 50 and 63

Standard strokes:

Standard: 5, 10 and 25 mm
Non-standard strokes available (50 mm max.)

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:

Materials:
Profile barrel: Anodized aluminium
End covers: Pressure diecast aluminium
Piston rod: Stainless steel
Piston rod seals: PUR
Piston seals: NBR
O-rings: NBR

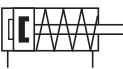
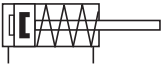
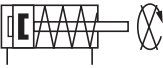
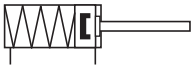
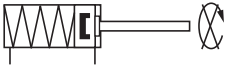
Technical data

Cylinder Ø (mm)	20	25	32	40	50	63
Port size	M 5	M 5	G 1/8	G 1/8	G 1/8	G 1/8
Piston rod Ø (mm)	10	10	12	16	20	20
Piston rod thread	M8x1,25	M8x1,25	M10x1,25	M10x1,25	M12x1,25	M12x1,25
Energy (J) max.	0,20	0,30	0,45	0,75	1,10	1,30
RA/1910**/*						
Theoretical thrusts at 6 bar outstroke (N)	161	264	432	687	1043	1770
Theoretical thrusts F1 instroke (N)	14,5	20	32	44	56,5	74,5
Air consumption at 6 bar outstroke (l/cm)	0,022	0,035	0,056	0,088	0,138	0,218
RA/1930**/*						
Theoretical thrusts at 6 bar instroke (N)	119	197	311	566	906	1582
Theoretical thrusts at F1 bar outstroke (N)	14,5	20	32	44	56,5	74,5
Air consumption at 6 bar instroke (l/cm)	0,017	0,027	0,042	0,074	0,116	0,196

Standard strokes

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

Cylinder variants

Symbol	S	Model with magnetic piston	Description	Dimensions	Page
	•	RA/191000/M	Standard cylinder, male piston rod thread	5	
	•	RA/191000/MX	Standard cylinder, female piston rod thread	5	
	•	RA/191000/MU	Cylinder with extended piston rod, male piston rod thread	5	
	•	RA/191000/MUX	Cylinder with extended piston rod, female piston rod thread	5	
		RA/191000/N2	Cylinder with non-rotating piston rod, male piston rod thread	6	
		RA/191000/N2X	Cylinder with non-rotating piston rod, female piston rod thread	6	
	•	RA/193000/M	Standard cylinder, male piston rod thread	5	
	•	RA/193000/MX	Standard cylinder, female piston rod thread	5	
	•	RA/193000/MU	Cylinder with extended piston rod, male piston rod thread	5	
	•	RA/193000/MUX	Cylinder with extended piston rod, female piston rod thread	5	
		RA/193000/N2	Cylinder with non-rotating piston rod, male piston rod thread	6	
		RA/193000/N2X	Cylinder with non-rotating piston rod, female piston rod thread	6	

For cylinder variants S see options selector

Option selector

Piston rod materials

Stainless steel martensitic (1.4021)

Stainless steel austenitic (1.4305)

Operation

Sprung in

Sprung out

Cylinder Ø (mm)

20

25

32

40

50

63

Substitute

R

S

Substitute

1

3

Substitute

020

025

032

040

050

063

★A/19★★★★/★★★/★★★

Strokes (mm)

50 max

Piston rod thread

Female

Male

Variants (magnetic piston)

Standard

Non-rotating piston rod (internal)

Extended piston rod

RA/192*** /MU* /*** /***

extension (mm)

Substitute

X

None

Substitute

M

N2

MU

Note: If option is not required, disregard option position within part number eg. RA/191032/M/25. For combinations of cylinder variants consult our technical service.

This options selector explains only the cylinder variants.

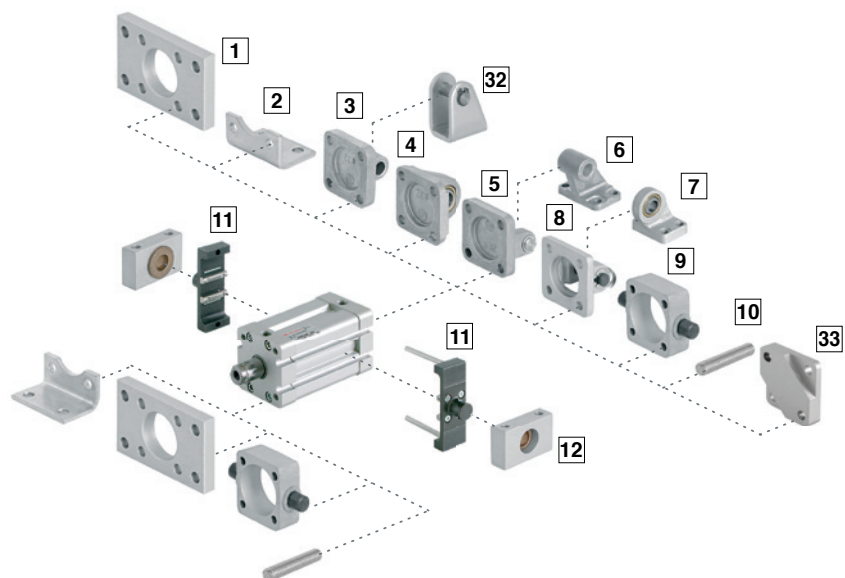
Additional variants/options can not be derived from.

en 1.4.084.02

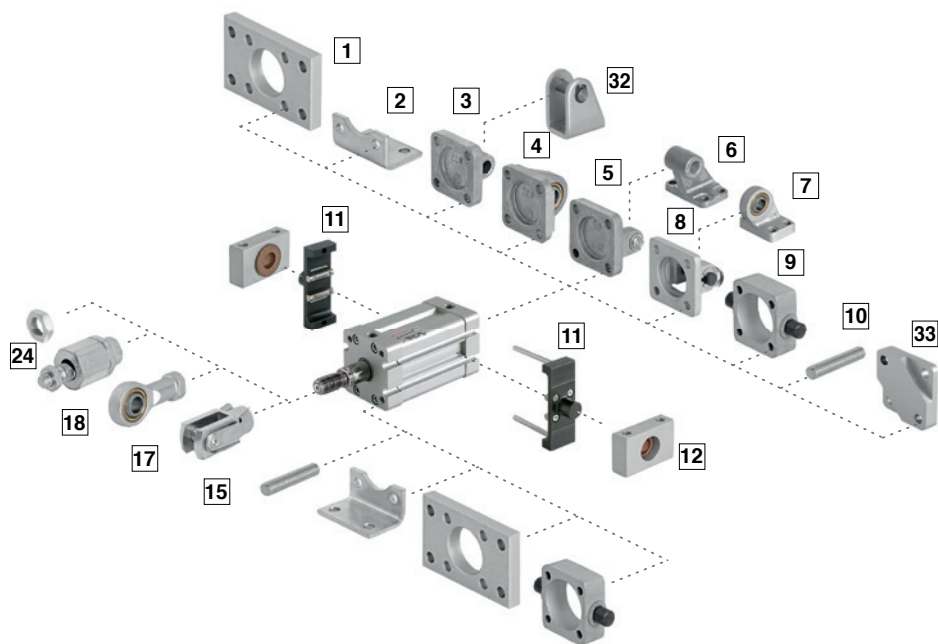
Our policy is one of continued research and development. We therefore reserve the right to amend, without notice, the specifications given in this document. (2005 - 1009c) © 2015 Norgren GmbH

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Series RA/191000/MX



Series RA/191000/M



Mountings

Model	A	B, G	C	D	D2	FH	L2
							
	10	1	2	5	8	9	32
Ø	Page 7	Page 7	Page 7	Page 7	Page 7	Page 8	Page 9
20	—	QA/192020/22	QM/192020/21	—	—	—	QM/8020/44
25	—	QA/192025/22	QM/192025/21	—	—	—	QM/8020/44
32	QM/8032/35	QA/8032/22	QA/192032/21	QA/8032/23	QA/8032/42	QA/8032/34	—
40	QM/8032/35	QA/8040/22	QA/192040/21	QA/8040/23	QA/8040/42	QA/8040/34	—
50	QM/8050/35	QA/8050/22	QA/192050/21	QA/8050/23	QA/8050/42	QA/8050/34	—
63	QM/8050/35	QA/8063/22	QA/192063/21	QA/8063/23	QA/8063/42	QA/8063/34	—

Model	R	S	SW	UH	UR	US	Assembly Kit
							
	3	12	6	11	4	7	33
Ø	Page 8	Page 9	Page 9	Page 8	Page 8	Page 10	Page 10
20	QM/192020/27	—	—	—	—	—	QA/192020/55
25	QM/192025/27	—	—	—	—	—	QA/192025/55
32	QA/8032/27	QA/8032/41	M/P19493	PQA/182032/40	QA/8032/33	M/P40310	QA/192032/55
40	QA/8040/27	QA/8040/41	M/P19494	PQA/182040/40	QA/8040/33	M/P40311	QA/192040/55
50	QA/8050/27	QA/8040/41	M/P19495	PQA/182050/40	QA/8050/33	M/P40312	QA/192050/55
63	QA/8063/27	QA/8063/41	M/P19496	PQA/182063/40	QA/8063/33	M/P40313	QA/192063/55

For cylinders with male piston rod thread

Accessories

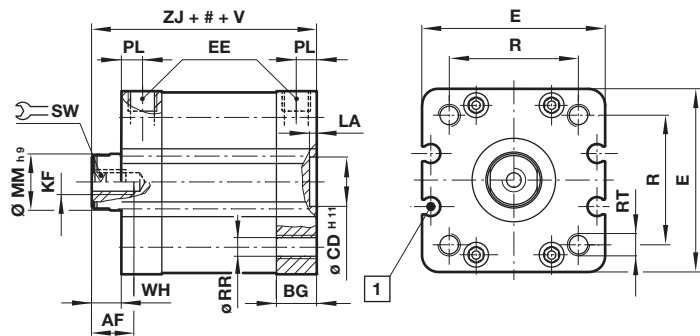
Model	AK	F	N2	UF	Groove cover	Magnetically operated switches	Groove key
							
	18	15	24	17			
Ø	Page 7	Page 8	Page 9	Page 8	Page 10	Page 11 & 12	Page 10
20	QM/8020/38	QM/8020/25	M/P1501/60	QM/8020/32	M/P72725/1000		M/P72816
25	QM/8020/38	QM/8020/25	M/P1501/60	QM/8020/32	M/P72725/1000		M/P72816
32	QM/8025/38	QM/8025/25	M/P1501/89	QM/8025/32	M/P72725/1000		M/P72816
40	QM/8025/38	QM/8025/25	M/P1501/89	QM/8025/32	M/P72725/1000		M/P72816
50	QM/8040/38	QM/8040/25	M/P1501/90	QM/8040/32	M/P72725/1000		M/P72816
63	QM/8040/38	QM/8040/25	M/P1501/90	QM/8040/32	M/P72725/1000		M/P72816

Service kit

Service kit			
			
Ø	Ø	Model	
20	40	QM/192020/00	QM/192040/00
25	50	QM/192025/00	QM/192050/00
32	63	QM/192032/00	QM/192063/00

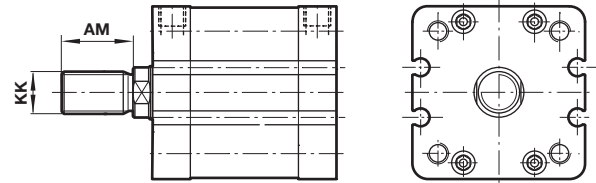
Dimensions

RA/191000/MX – Standard cylinders Sprung in with female piston rod thread



RA/191000/M – Standard cylinders Sprung in with male piston rod thread

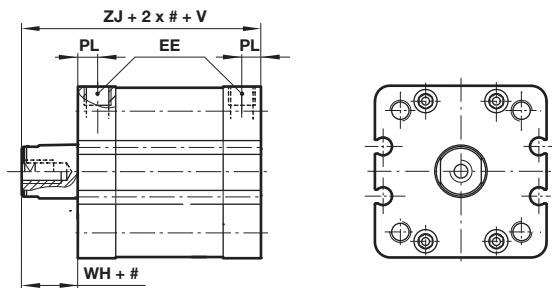
Dimensions in mm
Projection/First angle



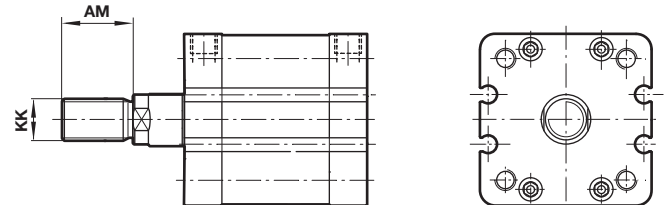
Stroke

1 M/50 – Switches can be mounted flush with the profile

RA/193000/MX – Standard cylinders Sprung out with female piston rod thread



RA/193000/M – Standard cylinders Sprung out with male piston rod thread



Stroke

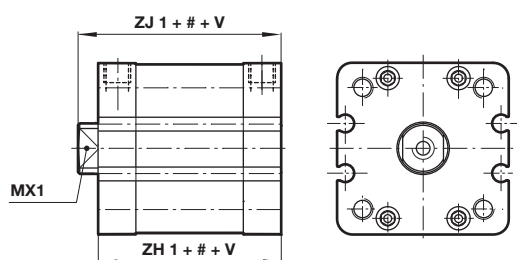
Ø	AF	AM	BG	Ø CD H11	□ E	EE	KF	KK	LA	Ø MM h ₉	PL
20	10	16	12	10	37	M5	M6	M8 x 1,25	2,5	10	7
25	10	16	13	10	41	M5	M6	M8 x 1,25	2,5	10	7
32	12	19	14,5	14	48	G1/8	M8	M10 x 1,25	2,5	12	7,5
40	12	19	14,5	14	54,5	G1/8	M8	M10 x 1,25	2,5	16	7,5
50	16	22	14	18	66	G1/8	M10	M12 x 1,25	2,5	20	7,5
63	16	22	14	18	76	G1/8	M10	M12 x 1,25	2,5	20	7,5

Ø	□ R	Ø RR	RT	SW	V mm stroke		WH	ZJ	kg at 0 mm	kg per 5 mm	Model
					0 ... 25	26 ... 50					
20	22	4,3	M5	8	17	34	6	43	0,17 kg	0,01 kg	RA/19.020/M.
25	26	4,3	M5	8	18	36	6	45	0,20 kg	0,01 kg	RA/19.025/M.
32	32,5	5,3	M6	10	19	38	7	51	0,30 kg	0,02 kg	RA/19.032/M.
40	38	5,3	M6	13	20	40	7	52	0,40 kg	0,02 kg	RA/19.040/M.
50	46,5	6,8	M8	17	30	60	8	53	0,65 kg	0,03 kg	RA/19.050/M.
63	56,5	6,8	M8	17	30	60	8	57	0,90 kg	0,03 kg	RA/19.063/M.

Cylinder variants

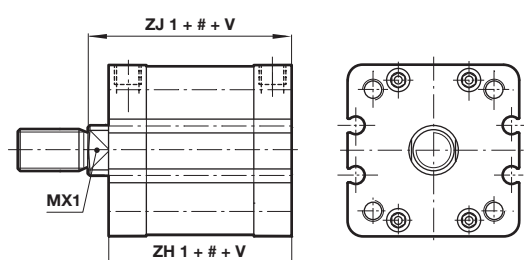
RA/191000/N2X

Cylinder with non-rotating piston rod
Sprung in with female piston rod thread



RA/191000/N2

Cylinder with non-rotating piston rod
Sprung in with male piston rod thread

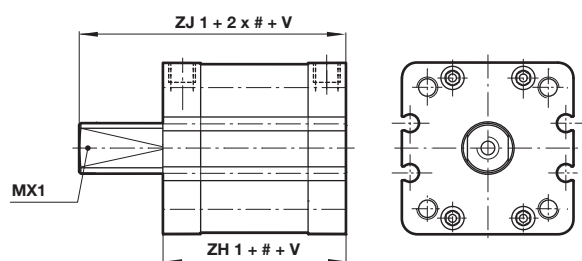


Dimensions in mm
Projection/First angle



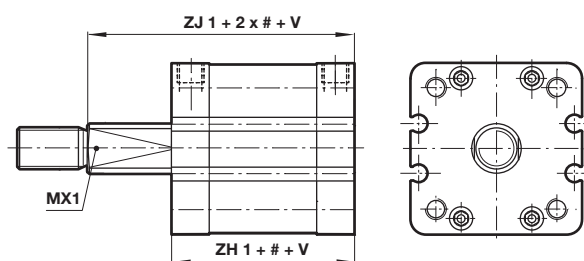
RA/193000/N2X

Cylinder with non-rotating piston rod
Sprung out with female piston rod thread



RA/193000/N2

Cylinder with non-rotating piston rod
Sprung out with male piston rod thread



Missing cylinder dimensions, see previous page 5

Ø	MX1	V mm stroke		ZH1	ZJ1	Weight		Model
		0 ... 25	26 ... 50			at 0 mm	per 5 mm	
20	8	17	34	47	53	0,17 kg	0,01 kg	RA/19.020/N2.
25	8	18	36	49	55	0,20 kg	0,01 kg	RA/19.025/N2.
32	10	19	38	54	61	0,30 kg	0,02 kg	RA/19.032/N2.
40	13	20	40	55	62	0,40 kg	0,02 kg	RA/19.040/N2.
50	16	30	60	55	63	0,65 kg	0,03 kg	RA/19.050/N2.
63	16	30	60	59	67	0,90 kg	0,03 kg	RA/19.063/N2.

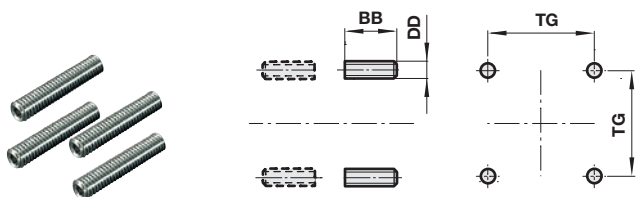
Torque for cylinders RA/19.000/N2.

Ø	Torque max. (Nm)	Model
20	0,15	RA/19*020/N2.
25	0,25	RA/19*025/N2.
32	0,40	RA/19*032/N2.
40	0,75	RA/19*040/N2.
50	1,50	RA/19*050/N2.
63	1,50	RA/19*063/N2.

Mountings

Front or rear stud mounting A

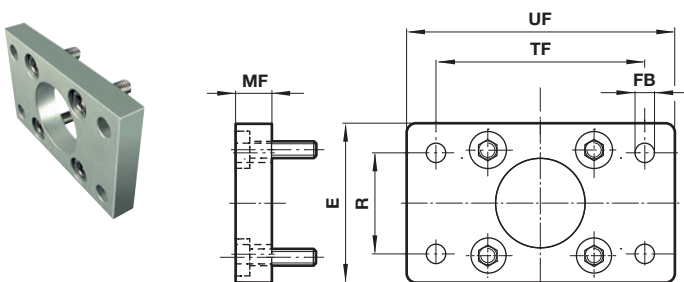
Conforms to ISO 6431, type MX1



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

Front flange B, Front flange G

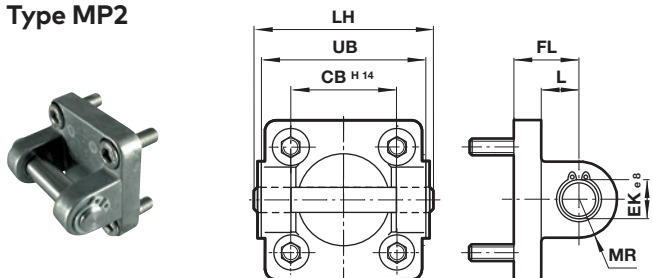
Conforms to ISO 21 287 (Ø 20 and 25 mm) and
DIN ISO 6431 or VDMA 24562 Part 2
(Ø 32 to 63 mm), Type MF1 and MF2



Ø	E	Ø FB	MF	R	TF	UF	kg	Model (B/G)
20	36	6,6	8	–	55	70	0,16	QA/192020/22
25	40	6,6	8	–	60	76	0,2	QA/192025/22
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	0,7	QA/8050/22
63	75	9	12	50	100	125	0,8	QA/8063/22

Rear clevis D

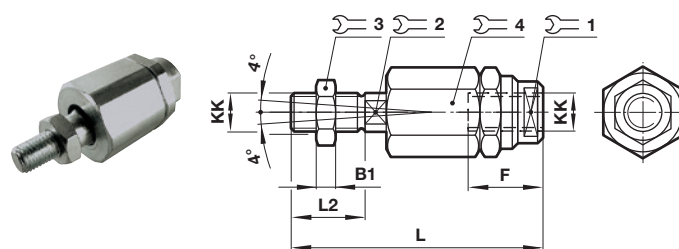
Conforms to DIN ISO 6431 and VDMA 24562 Part 2,
Type MP2



Ø	CB H14	Ø EK e8	FL	L	LH	MR	UB	kg	Model (D)
32	26	10	22	13	52	9	45	0,11	QA/8032/23
40	28	12	25	16	60	12	52	0,16	QA/8040/23
50	32	12	27	17	68	12	60	0,22	QA/8050/23
63	40	16	32	22	79	15	70	0,34	QA/8063/23

Piston rod swivel AK

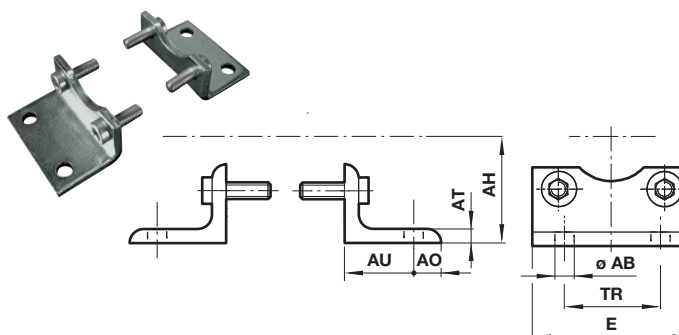
Dimensions in mm
Projection/First angle



Ø	KK	B1	F	L	L2	1	2	3	4	kg	Model (AK)
20/25	M8x1,25	4	18	55	16	10	7	13	17	0,05	QM/8020/38
32/40	M10x1,25	5	26	73	20	19	12	17	30	0,2	QM/8025/38
50/63	M12x1,25	6	26	77	24	19	12	19	30	0,2	QM/8040/38

Foot C

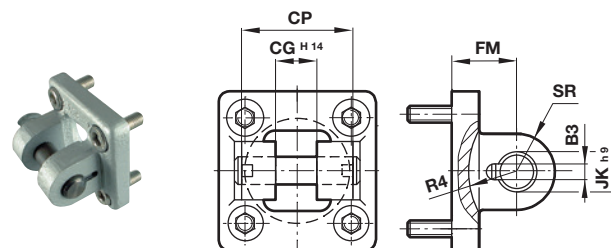
Conforms to ISO 21287, type MS1



Ø	Ø AB	AH	AO	AT	AU	E	TR	kg	Model (C)
20	7	27	6	4	16	36	22	0,03	QM/192020/21
25	7	29	7	4	16	40	26	0,04	QM/192025/21
32	7	33,5	7	4	16	48	32	0,15	QA/192032/21
40	10	38	9	4	18	54,5	36	0,18	QA/192040/21
50	10	45	9	5	21	66	45	0,3	QA/192050/21
63	10	50	9	5	21	76	50	0,39	QA/192063/21

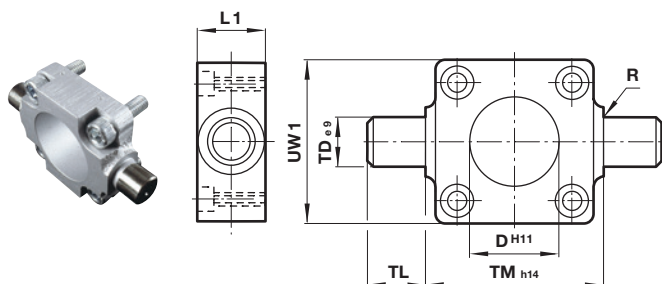
Rear clevis D2

Conforms to VDMA 24562 Part 2



Ø	B1 H14	B2	B3	Ø EK h9	FL	R1	R2	kg	Model (D2)
32	14	34	3,3	10	22	11	17	0,20	QA/8032/42
40	16	40	4,3	12	25	12	20	0,23	QA/8040/42
50	21	45	4,3	16	27	14,5	22	0,36	QA/8050/42
63	21	51	4,3	16	32	18	25	0,55	QA/8063/42

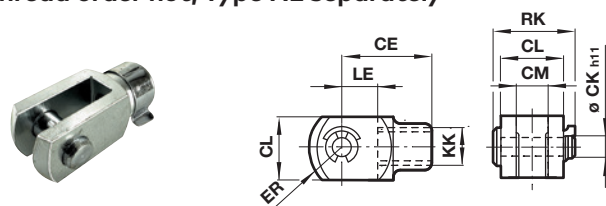
Front or rear detachable trunnion FH
Conforms to VDMA 24562 part 2, type MT 5/6



Ø	Ø D _{h11}	L1	R	Ø TD _{e9}	TL	TM _{h14}	UW1	kg	Model (FH)
32	30	16	1	12	12	50	45	0,20	QA/8032/34
40	35	20	1,6	16	16	63	55	0,38	QA/8040/34
50	40	24	1,6	16	16	75	65	0,60	QA/8050/34
63	45	24	1,6	20	20	90	75	1,10	QA/8063/34

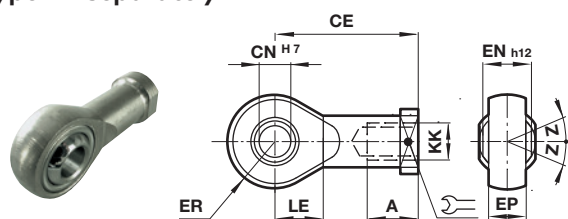
Piston rod clevis F
Conforms to DIN ISO 8140
For cylinders with male piston rod
thread order nut, Type N2 separately

Dimensions in mm
 Projection/First angle



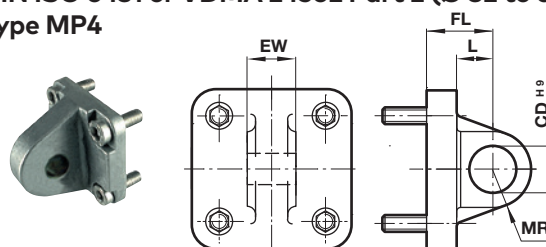
Ø	KK	CE	Ø CK _{h11}	CL	CM	ER	LE	RK	kg	Model (F)
20/25	M8x1,25	32	8	16	8	13	16	22	0,06	QM/8020/25
32/40	M10x1,25	40	10	20	10	16	20	28	0,09	QM/8025/25
50/63	M12x1,25	48	12	24	12	19	24	32	0,13	QM/8040/25

Universal piston rod eye UF
Conforms to DIN ISO 8139
For cylinders with male piston rod thread order nut,
Type N2 separately



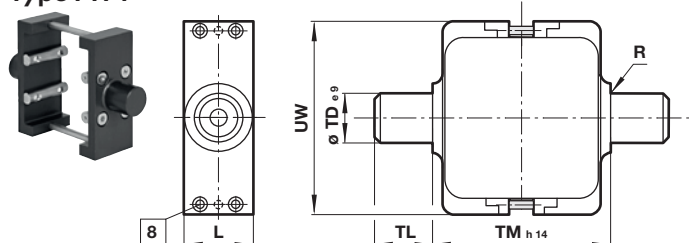
Ø	Thread KK	AX	CE	Ø CN _{H7}	EN _{-0,1}	ER	LE	Z	kg	Model (UF)
20/25	M8x1,25	16	36	8	12	11	13	5°	0,05	QM/8020/32
32/40	M10x1,25	20	43	10	14	14	15	13°	0,09	QM/8025/32
50/63	M12x1,25	22	50	12	16	16	17	13°	0,13	QM/8040/32

Rear eye R
Conforms to ISO 21 287 (Ø 20 and 25 mm) and
DIN ISO 6431 or VDMA 24562 Part 2 (Ø 32 to 63 mm),
Type MP4



Ø	Ø CD _{H9}	EW	FL	L	MR	kg	Model (R)
20	8	15,8	20	14	8	0,02	QM/192020/27
25	8	15,8	20	14	8	0,03	QM/192025/27
32	10	25,8	22	13	9	0,09	QA/8032/27
40	12	27,8	25	16	12	0,11	QA/8040/27
50	12	31,7	27	17	12	0,17	QA/8050/27
63	16	39,7	32	22	15	0,24	QA/8063/27

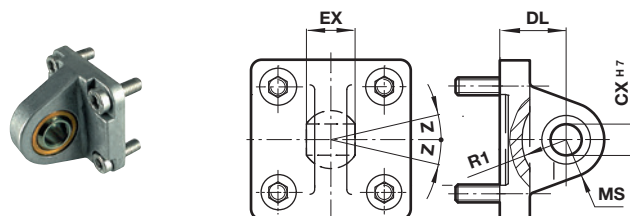
Adjustable trunnion mounting UH
Conforms to DIN ISO 6431 and VDMA 24562 Part 2,
Type MT4



Ø	L	R	Ø De9	TL	TM _{h14}	UW	Torque max. (Nm)	kg	Model (UH)
32	25	1	12	12	50	58	2	0,16	PQA/182032/40
40	28	1,6	16	16	63	65	3,5	0,35	PQA/182040/40
50	28	1,6	16	16	75	80	3,5	0,65	PQA/182050/40
63	36	1,6	20	20	90	96	5	0,85	PQA/182063/40

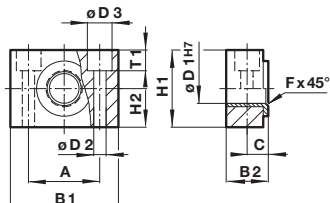
Note: Style UH: It is most important that the locking screws which secure the mounting to the cylinder barrel are tightened to the torque figures shown in the table. For maximum energy input, consult our Technical Service.

Universal rear eye UR
Conforms to VDMA 24562 Part 2



Ø	Ø CN _{H7}	EN	ER	FL	R	Z	kg	Model (UR)
32	10	14	16	22	14,5	13°	0,15	QA/8032/33
40	12	16	18	25	18	13°	0,25	QA/8040/33
50	16	21	21	27	19	15°	0,40	QA/8050/33
63	16	21	23	32	24	15°	0,55	QA/8063/33

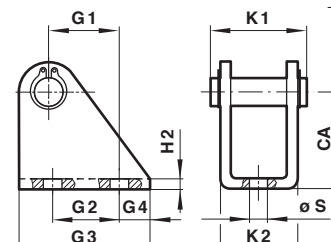
Trunnion support S Conforms to VDMA 24562 Part 2



Ø	A	B1	B2	C	Ø D1H7	Ø D1	Ø D3	F x 45°	H1	H2	T1	kg	Model (S)
32	32	46	18	10,5	12	6,6	11	1	30	15,3	6,8	0,11	QA/8032/41
40/50	36	55	21	12	16	9	15	1,6	36	18	9	0,16	QA/8040/41
63	42	65	23	13	20	11	18	1,6	40	20	11	0,23	QA/8063/41

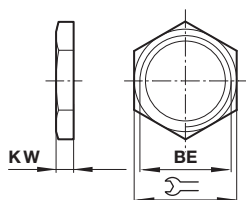
Bracket hinge L2 For rear eye mounting R

Dimensions in mm
Projection/First angle



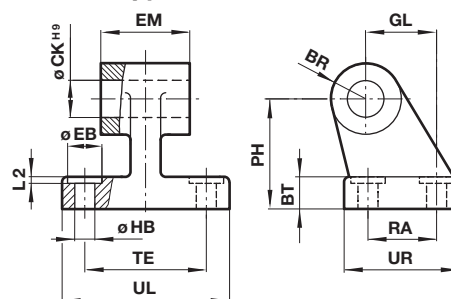
Ø	CA	G1	G2	G3	G4	H2	K1	K2	Ø S	kg	Model(L2)
20/25	30	16	20	32	6	4	29,5	24	6,6	0,08	QM/8020/44

Nut N2 For cylinder with male piston rod thread



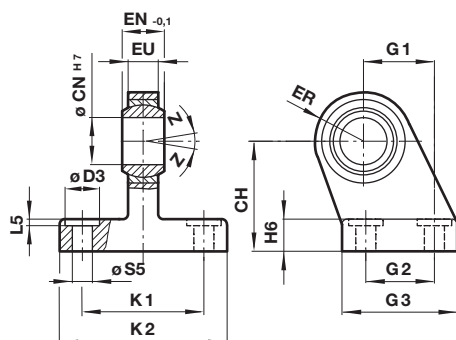
Ø	BE	KW	kg	Model(N2)
20/25	M8x1,25	4	0,01	M/P1501/60
32/40	M10x1,25	5	0,01	M/P1501/89
50/63	M12x1,25	6	0,01	M/P1501/90

Wide hinge SW Conforms to ISO 15552, type AB7



Ø	CA	Ø CKH9	Ø D	H2	EM	G1	G2	G3	K1	K2	L1	R	Ø S	kg	Model (SW)
32	32	10	11	7	25,5	21	18	31	38	50	1,6	10	6,6	0,05	M/P19493
40	36	12	11	9	27,5	24	22	35	41	54	1,6	11	6,6	0,07	M/P19494
50	45	12	15	11	31,5	33	30	45	50	65	1,6	13	9	0,14	M/P19495
63	50	16	15	12	39,5	37	35	50	52	67	1,6	15	9	0,18	M/P19496

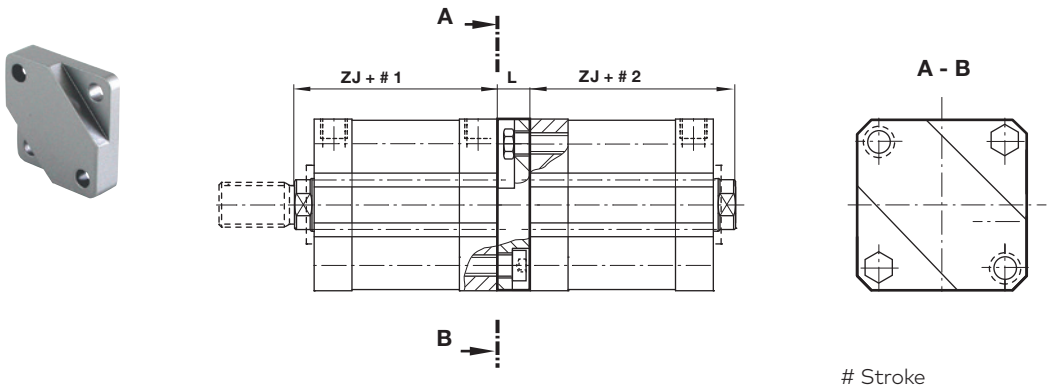
Swivel hinge US Conforms to VDMA 24562 part 2



Ø	CH	Ø CN H7	Ø D	EN -0,1	ER	EU	G1	G2	G3	H2	K1	K2	L1	Ø S	Z	kg	Model (US)
32	32	10	11	14	16	10,5	21	18	31	10	38	51	1,6	6,6	13°	0,19	M/P40310
40	36	12	11	16	18	12	24	22	35	10	41	54	1,6	6,6	13°	0,24	M/P40311
50	45	16	15	21	21	15	33	30	45	12	50	65	1,6	9	13°	0,46	M/P40312
63	50	16	15	21	23	15	37	35	50	12	52	67	1,6	9	15°	0,59	M/P40313

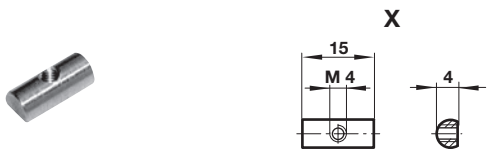
Assembly kit for four position cylinders

Dimensions in mm
Projection/First angle

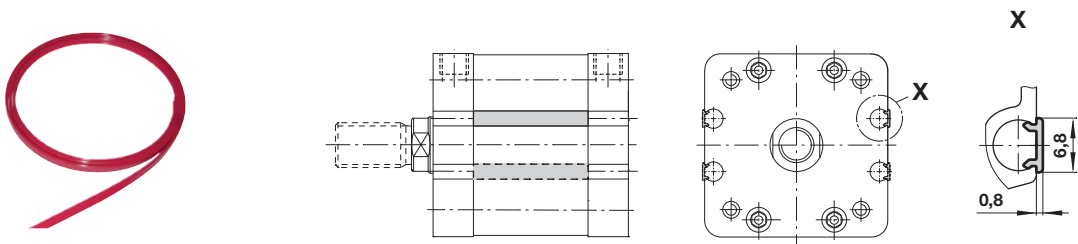


Ø	L	ZJ	kg	Model
20	10	43	0,03	QA/192020/55
25	10	45	0,04	QA/192025/55
32	12,5	51	0,07	QA/192032/55
40	12,5	52	0,09	QA/192040/55
50	15	53	0,14	QA/192050/55
63	15	57	0,19	QA/192063/55

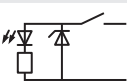
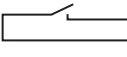
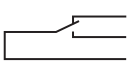
Groove key M/P72816
Weight: 0,01 kg



Groove cover M/P72725/1000



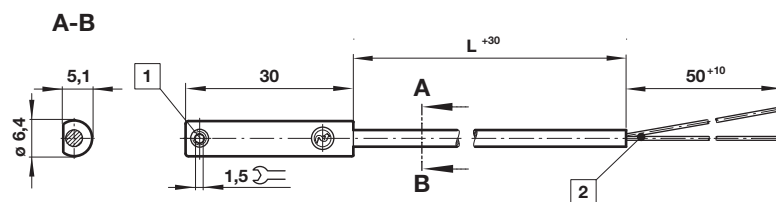
Technical data - Reed switches - additional informations see data sheet N/en 4.3.005

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

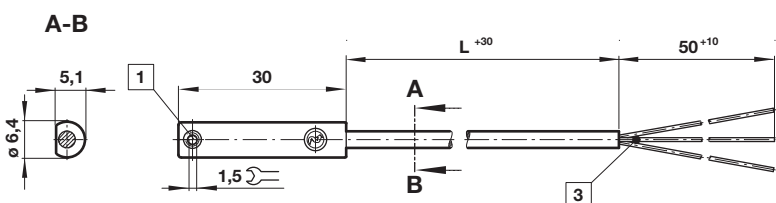
M/50/LSU/*V, M/50/LSU/5U,
TM/50/RAU/2S
Cable length L = 2, 5 or 10 m



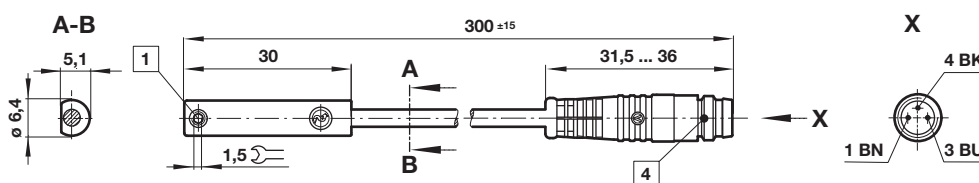
Dimensions in mm
Projection/First angle



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

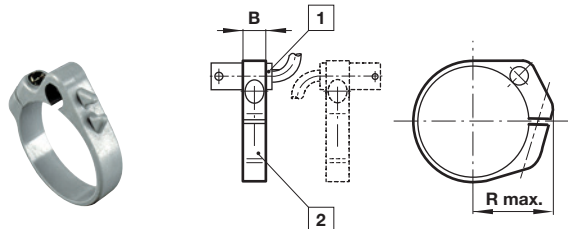


M/50/LSU/CP



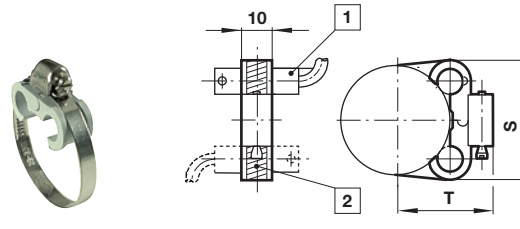
- 1 Fixing screw
- 2 + BN = brown; - BU = blue (output)
- 3 - BK = black; + BN = brown; - BU = blue
- 4 Plug M8 x 1, color code: BK = black; BN = brown; BU = blue

Switch mounting brackets - Brackets > 15 mm stroke



- 1 Magnetically operated switch
- 2 Switch mounting bracket

Switch mounting brackets - Brackets < 15 mm stroke

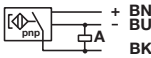
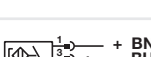
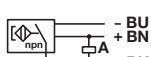
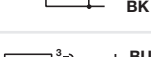
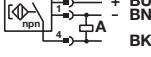


- 1 Magnetically operated switch
- 2 Switch mounting bracket

Ø	B	R max.	kg	Model
10	8	16	0,01	QM/33/010/22
12	8	18	0,01	QM/33/012/22
16	10	20	0,01	QM/33/016/22
20	10	22	0,01	QM/33/020/22
25	10	24	0,01	QM/33/025/22

Ø	S	T	kg	Model
10	27,5	19,5	0,01	QM/33/010/23
12	28,5	21,5	0,01	QM/33/016/23
16	29,5	23,5	0,01	QM/33/016/23
20	29,5	26	0,01	QM/33/020/23
25	31,5	28,5	0,01	QM/33/025/23

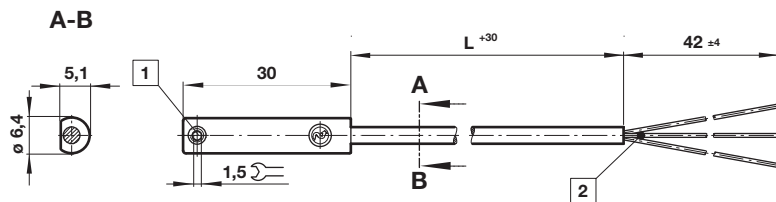
Technical data - Solid state - additional informations see data sheet N/en 4.3.007

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

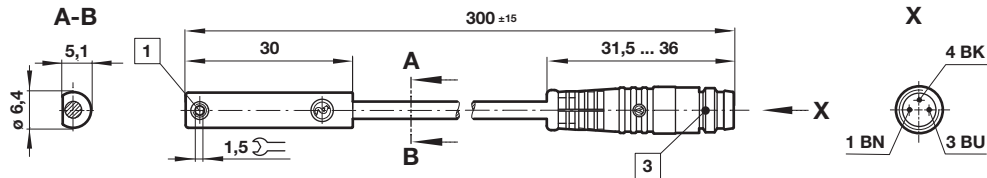
M/50/EAP/*V,
M/50/EAN/*V
Cable length L = 2, 5 or 10 m



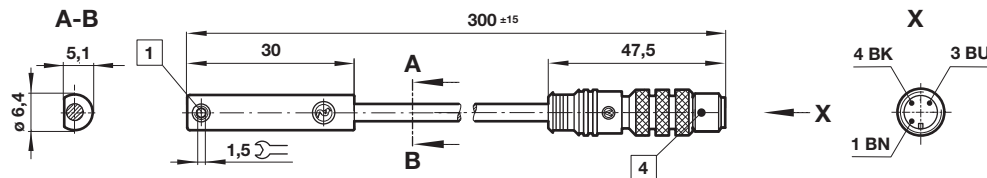
Dimensions in mm
Projection/First angle



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

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

Warning

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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 Precision Engineering.

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.

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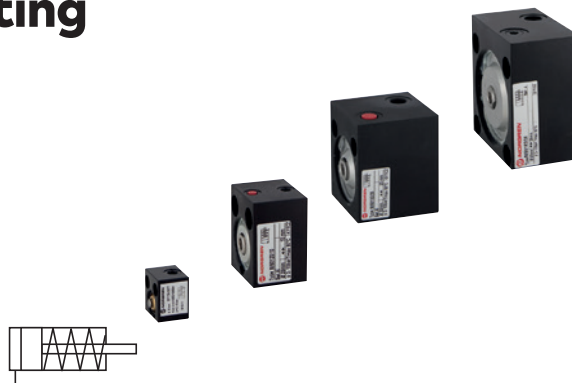
System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products.

M/50100

Clamping cylinders, single acting



- > Ø 8 ... 63 mm
- > Enable high thrusts to be achieved in restricted space
- > Compact design



Technical features

Medium:

Compressed air,
filtered and lubricated

Operation:

Single acting

Operating pressure:

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

Cylinder diameters:

8, 12, 20, 32, 50, 63 mm

Standard strokes:

4 ... 25 mm

Operating temperature:

-10 ... +70°C max (+14 ... +158°F)

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

Materials:

Piston rod: stainless steel
(austenitic)
Body: anodized aluminium
Seals: NBR

Technical data

Model	M/50108/*	M/50112/*	M/50120/*	M/50132/*	M/50150/*	M/50163/*						
Cylinder Ø (mm)/	8/4	12/4	12/10	20/4	20/10	32/5	32/10	32/25	50/10	50/25	63/10	63/25
Port size	M5	M5	M5	M5	M5	G1/8	G1/8	G1/8	G1/4	G1/4	G1/4	G1/4
Piston rod Ø (mm)	4	5	5	10	10	12	12	12	16	16	16	16
Piston rod thread	-	-	-	M5	M5	M6	M6	M6	M8	M8	M8	M8
Theoretical thrusts at 6 bar (N)	25	55	55	165	165	445	445	445	1100	1100	1760	1760
Return spring forces F1 instroke (N)	3,4	5,6	5,4	13,2	9,6	25,2	22,3	13,7	36,3	25,5	52,5	41,1
Air consumption at 6 bar outstroke (l/cm)	0,002	0,003	0,008	0,009	0,022	0,028	0,056	0,141	0,138	0,344	0,218	0,546

* Please insert standard stroke length.

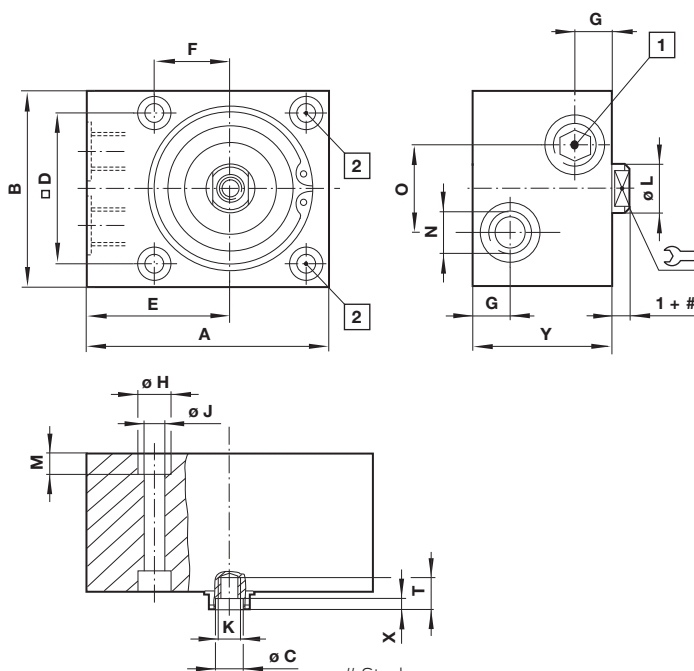
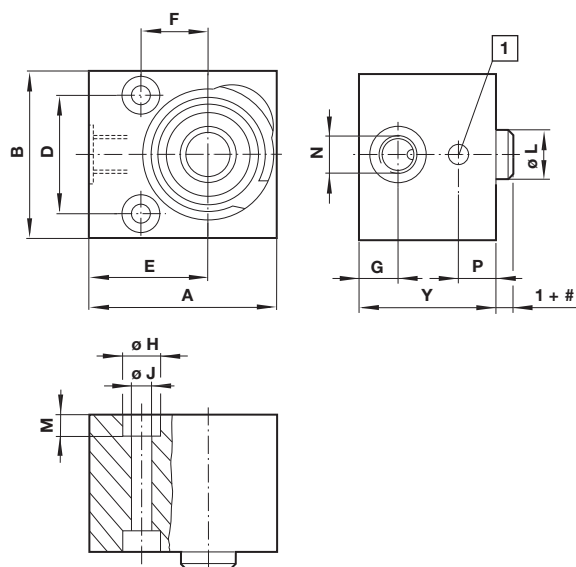
Standard strokes

Cylinder Ø (mm)	Strokes (mm)			
	4	5	10	25
8	•	—	—	—
12	•	—	•	—
20	•	—	•	—
32	—	•	•	•
50	—	—	•	•
63	—	—	•	•

Basic dimensions M/50108 ... M/50112

M/50120 ... M/50163

Dimensions in mm
Projection/First angle



Stroke

1 Exhaust position, do not obstruct

2 Ø 20 and 32 mm, without bores

Ø	A	B	Ø C	D	E	F	G	Ø H	Ø J	K	Ø L	M	N	O	P	T	X	Model
8	20	18	-	11	13,5	8	5	6	3,4	-	4	3,2	M5	-	5	-	-	M/50108/*
12	25	20	-	13	16	9	5	6	3,4	-	5	3,4	M5	-	4,5	-	-	M/50112/*
20	40	32	5,3	20	24	15	5	10	5,5	M5	10	5,5	M5	-	4,5	8	8	M/50120/*
32	55	45	6,4	32	32	18	10	10	5,5	M6	12	5,5	G1/8	20	-	10	14,5	M/50132/*
50	80	65	8,4	50	47,5	25	12	11	6,6	M8	16	6,8	G1/4	30	-	13	15	M/50150/*
63	90	80	8,4	62	50	31	12	15	9	M8	16	9	G1/4	30	-	13	15	M/50163/*

Ø	Stroke	Y	kg	Model
8	4	15	0,02	M/50108/4
12	4	15	0,03	M/50112/4
12	10	23	0,04	M/50112/10
20	4	20	0,1	M/50120/4
20	10	26	0,1	M/50120/10
32	5	26	0,22	M/50132/5
32	10	31	0,25	M/50132/10
32	25	46	0,31	M/50132/25
50	10	30	0,5	M/50150/10
50	25	45	0,6	M/50150/25
63	10	35	0,8	M/50163/10
63	25	50	1,05	M/50163/25

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