

Heavy duty cylinder ideal for a wide range of rail applications

Extensive range of mountings

Rugged, reliable long established design

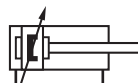
Magnetic piston as standard

Mounting bracket for low temperature

M/50 series solid state switches

Wide temperature range

Shock and vibration tested to EN 61373,
Category 1, class A and B



Technical features

Medium:

Compressed air, filtered,
lubricated or non-lubricated

Operation:

Double acting,
adjustable cushioning
and magnetic piston

Operating pressure:

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

Operating temperature:

-40 ... +80°C (-40 ... +176°F)
Air supply must be dry enough
to avoid ice formation at
temperatures below
+2°C (+35°F).

Cylinder diameters:

1 1/4, 1 3/4, 2, 2 1/2,
3 and 4 inches

Stroke length:

Up to 15 times
cylinder diameter

Air ports:

ISO G parallel

Materials:

Barrel: anodized aluminium
End cover: diecast aluminium
Bearing housing: brass for
1 1/4" ... 3", aluminium alloy
for 4"
Piston: aluminium
Piston rod and tie rods: stainless
steel (Martensitic)
Seals and 'O'-rings: nitrile rubber

Technical data

Cylinder Ø (inch)	1 1/4	1 3/4	2	2 1/2	3	4
Air ports	G 1/8	G 1/4	G 1/4	G 3/8	G 3/8	G 3/8
Piston rod Ø (mm)	12	16	20	25	25	32
Piston rod thread	M10x1,5	M12x1,75	M16x2	M22x2,5	M22x2,5	M24x3
Cushion length mm (inch)	20 (.79)	20 (.79)	20 (.79)	21 (.83)	29 (1.14)	38 (1.5)
Theoretical thrusts at 6 bar (87 psi) outstroke N (lb)	482 (108)	933 (210)	1225 (275)	1930 (434)	2721 (612)	4902 (1102)
Theoretical thrusts at 6 bar (87 psi) instroke N (lb)	406 (91)	812 (183)	1055 (237)	1626 (366)	2417 (543)	4420 (994)
Air consumption at 6 bar (87 psi) outstroke l/cm (inch ³ /inch)	0,056 (8,7)	0,109 (16,9)	0,143 (22,2)	0,225 (35)	0,318 (49,5)	0,572 (88,9)
Air consumption at 6 bar (87 psi) instroke l/cm (inch ³ /inch)	0,047 (7,1)	0,095 (14,8)	0,124 (19,3)	0,190 (29,5)	0,282 (43,9)	0,516 (80,2)

Option selector

★M/9★/★/★/★/★

Piston rod material	Substitute
Stainless steel martensitic (standard)	R
Stainless steel austenitic (option)	S

Cylinder Ø (inch)	Substitute
1 1/4	125
1 3/4	175
2	20
2 1/2	25
3	30
4	40









Strokes (mm)
Max. stroke = 15 x cylinder Ø









Variants (magnetic piston)	Substitute
Standard	M
Double ended piston rod	JM

Standard strokes


Cylinder Ø (inch)	Strokes (mm)							
	50	75	100	150	200	225	250	300
1 1/4	•	•	•	•	•	•	•	•
1 3/4	•	•	•	•	•	•	•	•
2	•	•	•	•	•	•	•	•
2 1/2	•	•	•	•	•	•	•	•
3	•	•	•	•	•	•	•	•
4	•	•	•	•	•	•	•	•

Mountings and service kit

Model	B	B+G	C	D	F	G	H	K
								
Ø inch	Page 4	Page 4	Page 4	Page 4	Page 6	Page 4	Page 6	Page 5
1 1/4	M/P6938	QM/819	QM/754	M/P6937	QM/402	M/P6938	M/P14001	M/P6937
1 3/4	QM/888	QM/1181	QM/753	M/P7457	QM/404	QM/986	M/P11224	M/P7457
2	QM/875	QM/1182	QM/752	M/P10228	QM/405	QM/871	M/P8635	QM/962
2 1/2	QM/876	QM/1184	QM/748	M/P10311	QM/407	QM/877	M/P8636	QM/964
3	QM/878	QM/1185	QM/983	M/P10229	QM/407	QM/984	M/P8637	QM/966
4	QM/887	QM/1187	QM/982	QM/758	QM/408	QM/987	M/P8638	QM/758

Model	L	M	N	R	UF	UR	Switch mounting	Service kit
								
Ø inch	Page 5	Page 6	Page 5	Page 7	Page 7	Page 7	Page 8	
1 1/4	QM/394	QM/393	M/P11716	M/P11966	QM/1141	QM/1161	QM/27/2/1	QM/9125/00
1 3/4	QM/922	QM/923	M/P7955	M/P11219	QM/1142	QM/1162	QM/27/2/1	QM/9175/00
2	QM/909	QM/908	M/P9969	M/P10349	QM/1143	QM/1163	QM/27/2/1	QM/920/00
2 1/2	QM/910	QM/901	M/P9905	M/P10351	QM/1144	QM/1164	QM/27/2/1	QM/925/00
3	QM/911	QM/901	M/P9905	M/P10353	QM/1144	QM/1165	QM/27/2/1	QM/930/00
4	QM/912	QM/902	QM/1475*	QM/763	QM/1146	QM/1166	QM/27/2/1	QM/940/00

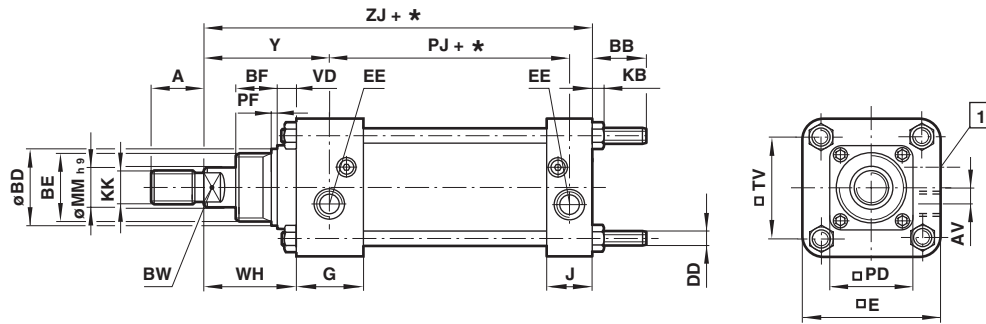
Electronically switches

								
Voltage V d.c.	Current max.	Temperature	LED	Features	Cable length	Cable type	Protection class	Model
10 ... 30	150 mA	-40 ... +80°C [-40 ... 176°F]	•	PNP	2, 5, 10 m	PVC 3 x 0,25	IP65	M/50/EAP/*V
10 ... 30	150 mA	-40 ... +80°C [-40 ... 176°F]	•	NPN	2, 5, 10 m	PVC 3 x 0,25	IP65	M/50/EAN/*V

* Please insert the cable length 2, 5 or 10 m.

Basic dimensions

Dimensions shown in mm
Projection/First angle



* stroke (mm)

1 Cushion screw Ø 1 1/4 ... 4 inch

Ø inch	A	AV	BB	Ø BD	BE	BF	BW	DD	E	EE	G	J	KB	KK
1 1/4	14,5	6	22	22	M 22 x 2	19	10	M 6	45	G 1/8	25	22	5	M10x1,5
1 3/4	19	8,5	26,5	27	M 27 x 2	19	12	M 8	57	G 1/4	29	25	6,5	M12x1,75
2	24	7,5	25	34	M 33 x 2	20	17	M 8	63,5	G 1/4	29,5	24	6,5	M16x2
2 1/2	33,5	8	25	40	M 39 x 2	25,5	22	M 8	74,5	G 3/8	30	25	6,5	M22x2,5
3	33,5	7	33	40	M 39 x 2	25,5	22	M 10	91	G 3/8	35	35	8	M22x2,5
4	38	12	32	-	Ø 43	-	27	M 10	114	G 3/8	35	35	8	M24x3

Ø inch	Ø MMh9	PD	PF	PJ	TV	VD	WH	Y	ZJ	at 0 mm	per 25 mm	Model
1 1/4	12	-	-	69	30,5	8	37	49,5	125,5	0,47 kg	0,06 kg	RM/9125/M/*
1 3/4	16	-	-	70	43	8	37	52	132,5	0,91 kg	0,10 kg	RM/9175/M/*
2	20	-	3	67	47,5	9,5	46	60,5	137	1,15 kg	0,13 kg	RM/920/M/*
2 1/2	25	-	3	73	55,5	8	53	68,5	152,5	1,93 kg	0,17 kg	RM/925/M/*
3	25	59	3	95	66,5	13	56,5	71	179,5	3,02 kg	0,20 kg	RM/930/M/*
4	32	63,5	-	97	89	13	64	77,5	187,5	4,01 kg	0,26 kg	RM/940/M/*

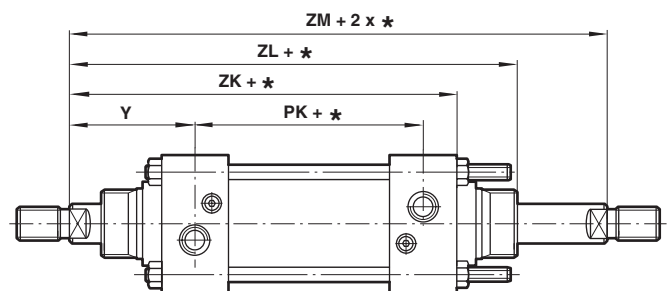
* Please insert standard stroke length (mm).

Cylinder variants

RM/900/JM – Double ended piston rod

Ø inch	PK	ZK	ZL	ZM	Y	at 0 mm	per 25 mm	Model
1 1/4	66,5	128,5	155,5	165,5	49,5	0,65 kg	0,08 kg	RM/9125/JM/*
1 3/4	69,5	136,5	163,5	173,5	52	1,21 kg	0,13 kg	RM/9175/JM/*
2	67	142,5	172	187,5	60,5	1,66 kg	0,19 kg	RM/920/JM/*
2 1/2	72,5	157	190,5	210	68,5	2,82 kg	0,27 kg	RM/925/JM/*
3	95	179,5	218	237	71	3,86 kg	0,30 kg	RM/930/JM/*
4	96,5	187,5	232	251,5	77,5	5,31 kg	0,41 kg	RM/940/JM/*

* Please insert standard stroke length.



* stroke

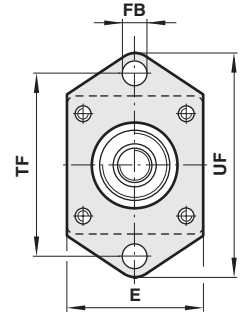
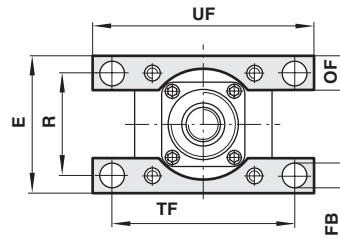
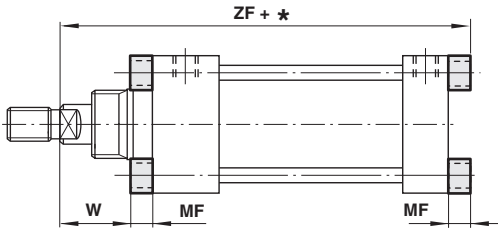
Mountings

**Front flange B or rear flange G
Front and rear flange BG**

Dimensions shown in mm
Projection/First angle



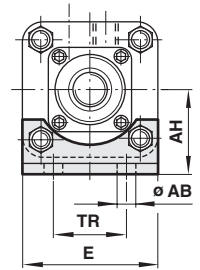
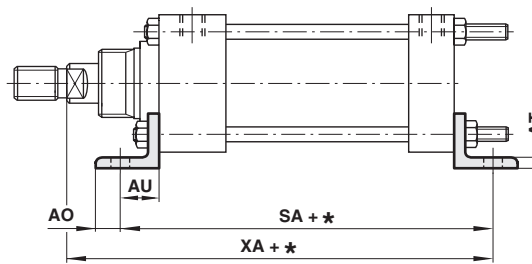
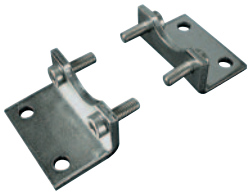
For 9125 cylinder only



* stroke

Ø inch	E	FB	MF	OF	R	TF	UF	W	ZF	Weight	Model B	Model BG	Model G
1 1/4	45	8	9,5	-	-	63,5	79	27,5	135	0,15 kg	M/P6938	QM/819	M/P6938
1 3/4	59	9	10	16	43	81	98,5	27	142,5	0,20 kg	QM/888	QM/1181	QM/986
2	64	9	10	16	47,5	85,5	105	35,5	147	0,20 kg	QM/875	QM/1182	QM/871
2 1/2	75,5	9	10	20	55,5	93,5	113	43	162,5	0,25 kg	QM/876	QM/1184	QM/877
3	88,5	11,5	16	22	66,5	111	133,5	41,5	195,5	0,45 kg	QM/878	QM/1185	QM/984

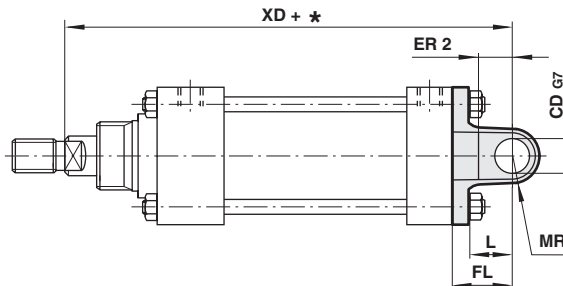
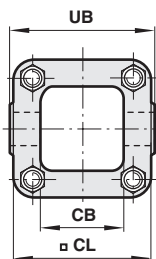
Foot mounting C



* stroke

Ø inch	Ø AB	AH	AO	AT	AU	E	SA	TR	XA	Weight	Model
1 1/4	6,8	24	6,5	6,5	14,5	45	117	-	139,5	0,06 kg	QM/754
1 3/4	10,5	37,5	11	5	19	57	133,5	-	151,5	0,20 kg	QM/753
2	13	40	11	5	19	63	129,5	-	156	0,20 kg	QM/752
2 1/2	13	46,5	11	5	19	74	137,5	30	171,5	0,25 kg	QM/748
3	13	52,5	11	5	19	91	160	28,5	198,5	0,30 kg	QM/983
4	13,5	70	24,5	8	25,5	114	174	51	212,5	0,65 kg	QM/982

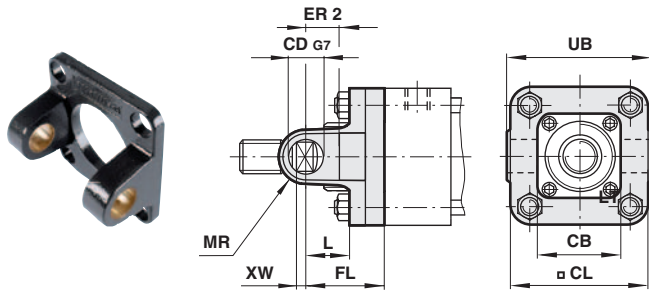
Rear clevis D



* stroke

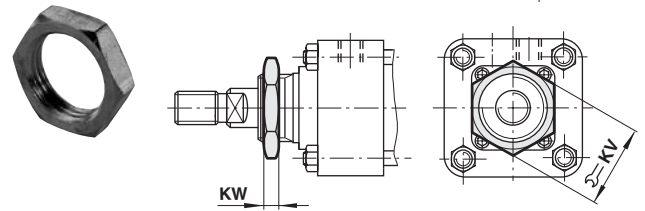
Ø inch	CB	Ø CDG7	CL	ER 2	FL	L	MR	UB	XD	Weight	Model
1 1/4	25,4	6	44,5	9,5	14,5	9,5	6,5	-	139,5	0,08 kg	M/P6937
1 3/4	34,9	12	57	14,5	19	14,5	10	-	151,5	0,15 kg	M/P7457
2	34,9	16	62,5	20,5	28,5	20,5	13	-	165,5	0,25 kg	M/P10228
2 1/2	42,9	16	74	20,5	28,5	20,5	13	-	181	0,25 kg	M/P10311
3	44,5	20	88	25,5	35	25,5	14	-	214,5	0,75 kg	M/P10229
4	69,9	22	114,5	36,5	57	38	19	-	244,5	1,25 kg	QM/758

Front clevis K



Ø inch	CB	Ø CDG7	CL	ER 2	FL	L	MR	UB	XW	Weight	Model
1 1/4	25,4	6	44,5	9,5	14,5	9,5	6,5	-	22,5	0,08 kg	M/P6937
1 3/4	34,9	12	57	14,5	19	14,5	10	-	18	0,15 kg	M/P7457
2	34,9	16	62,5	20,5	28,5	20,5	13	-	7,5	0,25 kg	QM/962
2 1/2	42,9	16	74	20,5	28,5	20,5	13	-	16,5	0,25 kg	QM/964
3	44,5	20	88	25,5	35	25,5	14	-	6,5	0,75 kg	QM/966
4	69,9	22	114,5	36,5	57	38	19	122,5	7	1,25 kg	QM/758

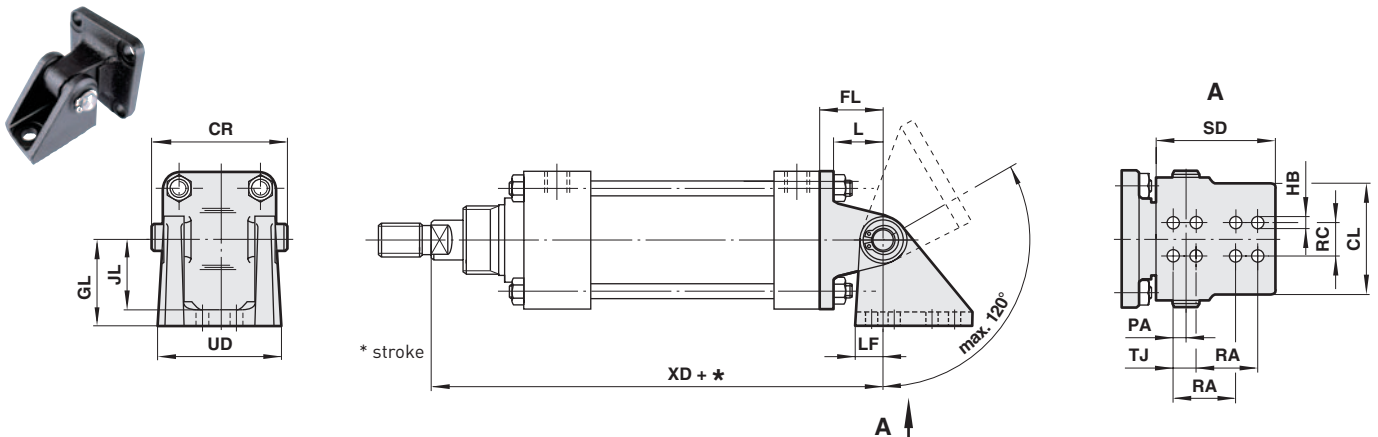
Nose mounting N



Ø inch	KV	KW	Weight	Model
1 1/4	28	6,5	0,02 kg	M/P11716
1 3/4	38	8	0,04 kg	M/P7955
2	43	8	0,04 kg	M/P9969
2 1/2	48	8	0,04 kg	M/P9905
3	48	8	0,04 kg	M/P9905
4	57	8	0,06 kg	QM/1475*

* These cannot be supplied separately. If a spare Nose Mounting is required, specify basic cylinder reference with 'Q' prefix and -/06 suffix, e.g. QM/940/N/06.

Rear hinge mounting L

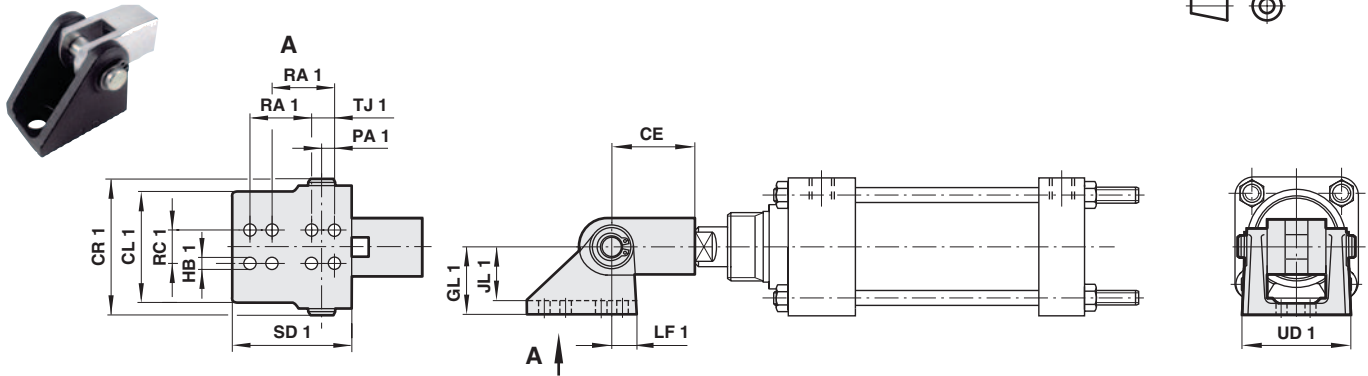


Ø inch	CL	CR	FL	GL	Ø HB	JL	L	LF	PA	RA	RC	SD	TJ	UD	XD	Weight	Model
1 1/4	31	39,5	25,5	28,5	7,2	20,5	19	9,5	1,5	25,5	-	41,5	-	-	151	0,25 kg	QM/394
1 3/4	32	44,5	32	32	8,7	25,5	24	13	5	32	-	47,5	-	-	164,5	1,10 kg	QM/922
2	60	73	35	47,5	8,5	39,5	25,5	15,5	6,5	47,5	19	66,5	-	68,5	172	1,20 kg	QM/909
2 1/2	60	73	35	47,5	8,5	39,5	25,5	15,5	6,5	47,5	19	66,5	-	68,5	187,5	1,25 kg	QM/910
3	60	73	35	47,5	8,5	39,5	25,5	15,5	6,5	47,5	19	66,5	-	68,5	214,5	1,50 kg	QM/911
4	70	82,5	51	74,5	12	65	30	23,5	11	76	22	101,5	-	82,5	238	3,50 kg	QM/912

Rear hinge mounting M

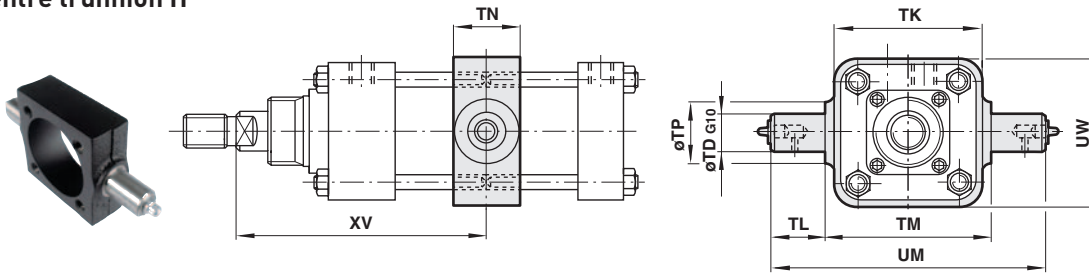
Dimensions shown in mm

Projection/First angle



Ø inch	CE	CL 1	CR 1	GL 1	Ø HB 1	JL 1	LF 1	PA 1	RA 1	RC 1	SD 1	TJ 1	UD 1	Weight	Model
1 1/4	25,5	31	39,5	28,5	7,2	20,5	9,5	1,5	25,5	-	41,5	-	-	0,17 kg	QM/393
1 3/4	33,5	32	44,5	32	8,7	25,5	13	5	32	-	47,5	-	-	0,30 kg	QM/923
2	41,5	43	54	32	8,5	24	14	5	32	-	51	-	49	0,40 kg	QM/908
2 1/2	58,5	60	73	47,5	8,5	39,5	16	6,5	47,5	19	67	-	68,5	1,00 kg	QM/901
3	58,5	60	73	47,5	8,5	39,5	16	6,5	47,5	19	67	-	68,5	1,00 kg	QM/901
4	66,5	70	82,5	74,5	12	65	24	11	76	22	102	-	82,5	2,00 kg	QM/902

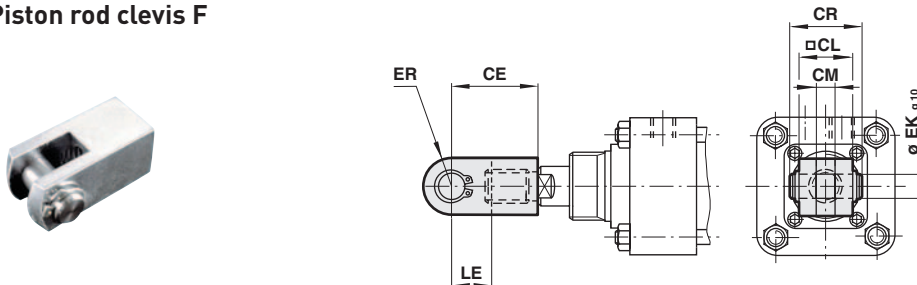
Centre trunnion H



Ø inch	Ø TDg10	TK	TL	TM	TN	Ø TP	UM	UW	XV min	XV max	Weight	Model
1 1/4	12	45	17,5	50,5	20,5	18	85,5	45	72,5	93	0,16 kg	M/P14001
1 3/4	16	65	24	73	25,5	22	120,5	65	79	94,5	0,50 kg	M/P11224
2	18	70	25,5	79,5	32	29	130	70	90,5	97	0,60 kg	M/P8635
2 1/2	22	81	32	90,5	38	35	154	81	102	108,5	0,90 kg	M/P8636
3	25	95	38	108	38	38	184	95	111,5	125,5	1,25 kg	M/P8637
4	32	127	41,5	139,5	44,5	44,5	222,5	127	121,5	130	2,50 kg	M/P8638

Note: These mountings are only supplied assembled complete with the cylinder. Unless otherwise specified, units will be supplied with dimension 'XV' plus half the stroke length. Grease nipple supplied as standard on cylinders 9175 to 940.

Piston rod clevis F

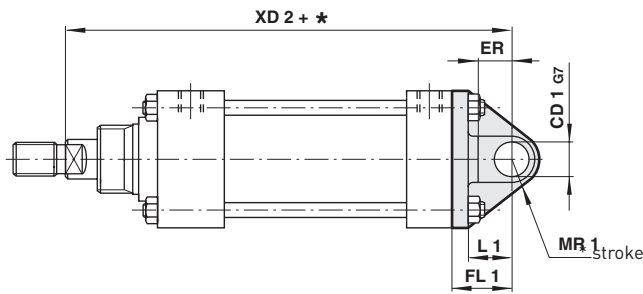
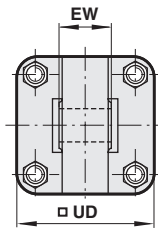


Ø inch	CE	CL	CM	CR	Ø EKg10	ER	LE	Weight	Model
1 1/4	25,5	12,5	6,4	18	6	6,5	11	0,03 kg	QM/402
1 3/4	33,5	19	10	26	10	10	12,5	0,05 kg	QM/404
2	41,5	25,5	11	33	12	13	19	0,10 kg	QM/405
2 1/2	58,5	38	14	47	16	19	25,5	0,40 kg	QM/407
3	58,5	38	14	47	16	19	25,5	0,40 kg	QM/407
4	66,5	44,5	16	53	18	22	28,5	0,90 kg	QM/408

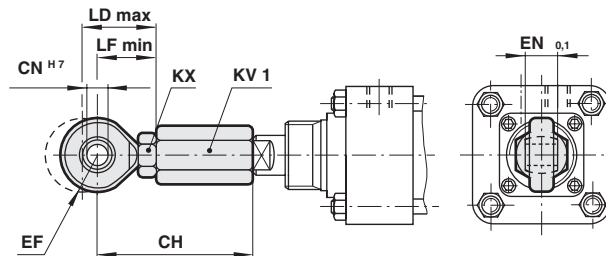
Rear eye R

Dimensions shown in mm

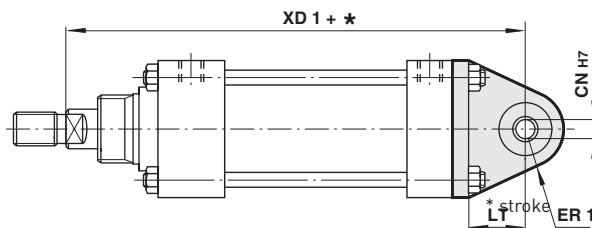
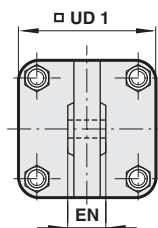
Projection/First angle



Ø inch	Ø CD 1G7	ER	EW	FL 1	L 1	MR 1	UD	XD 2	Weight	Model
1 1/4	6	19	19	25,5	19	9	45	151	0,10 kg	M/P11966
1 3/4	10	14,5	19	32	24	10	57	164,5	0,26 kg	M/P11219
2	16	19	38,1	35	25,5	14	62	172	0,55 kg	M/P10349
2 1/2	16	19	38,1	35	25,5	14	74	187,5	0,80 kg	M/P10351
3	16	19	38,1	35	25,5	16	87,5	214,5	0,90 kg	M/P10353
4	18	25,5	44,5	51	30	21	112,5	238	2,60 kg	QM/763

Universal piston rod eye UF


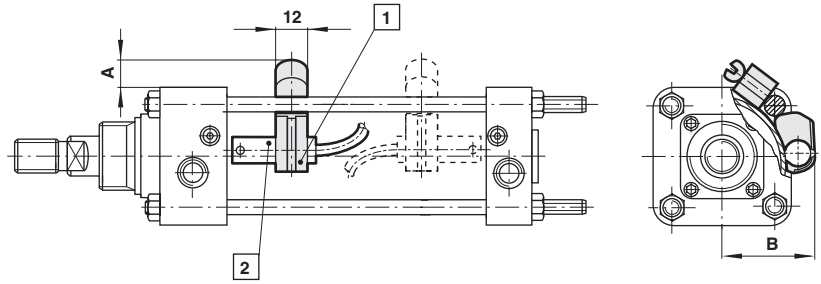
Ø inch	CH	Ø CNH7	EF	EN-0,1	KV 1	KX	LD max.	LF min.	Z	Weight	Model
1 1/4	59	8	13	12	14	13	30	24	17°	0,07 kg	QM/1141
1 3/4	74	10	15	14	17	17	33	28	16°	0,13 kg	QM/1142
2	74	10	15	14	22	17	33	28	16°	0,17 kg	QM/1143
2 1/2	96,5	14	19	19	32	22	39	36	18°	0,43 kg	QM/1144
3	96,5	14	19	19	32	22	39	36	18°	0,43 kg	QM/1144
4	101	14	19	19	32	22	39	36	18°	0,44 kg	QM/1146

Universal rear eye UR


Ø inch	Ø CNH7	EN	ER 1	LT	UD 1	XD 1	Z	Weight	Model
1 1/4	8	12	16	19	44,5	151,5	13°	0,18 kg	QM/1161
1 3/4	10	14	18	26	56,5	166,5	12°	0,30 kg	QM/1162
2	10	14	18	27	63	172	12°	0,43 kg	QM/1163
2 1/2	14	19	26	26	73	187,5	12°	0,60 kg	QM/1164
3	14	19	26	26	87,5	214,5	12°	0,75 kg	QM/1165
4	14	19	26	30	114	238	12°	2,40 kg	QM/1166
5	25	31	36	36	138	279	12°	2,70 kg	QM/950/33
6	30	37	43	39	176	290	12°	4,60 kg	QM/960/33
8	30	37	48	42	216	337	12°	7,30 kg	QM/980/33

Switch mounting
QM/27/2/1

Cylinder Ø	A	B	Weight
1 1/4	9	30,5	0,010 kg
1 3/4	8	35,5	0,010 kg
2	7	38	0,010 kg
2 1/2	7	44,5	0,010 kg
3	4	49,5	0,010 kg
4	2	59	0,010 kg



1 Bracket

2 Switch

Warning

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

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

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

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

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

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