

**Pneumatic Cylinders**  
**ISO 6431, VDMA 24562 and NFE 49-003-1**  
**Non-magnetic and Magnetic Piston**  
**Double Acting**  
**Ø 32 to 320 mm**

- **Comprehensive range – for the utmost versatility**
- **Conforms to ISO 6431, VDMA 24562 and NFE 49-003-1**
- **High performance, stability and reliability – ideal for the demands of today**
- **Supplied complete with piston rod locknut**
- **Comprehensive range of standard mountings**


**Technical Data**
**Medium:**

Compressed air, filtered, lubricated or non-lubricated

**Standard:**

ISO 6431, VDMA 24562, NFE 49-003-1

**Operation:**

Double acting

RA/8000 Adjustable cushioning

RA/8000/M Magnetic piston, adjustable cushioning

**Operating Pressure:**

1 to 16 bar (1 to 10 bar for Ø 250 and 320 mm)

**Operating Temperature:**

-20°C\* to +80°C max. (Ø 32 to 125 mm)

-10°C\* to +80°C max. (Ø 160 to 320 mm)

\*Consult our Technical Service for use below +2°C

**Cylinder Diameters:**

32, 40, 50, 63, 80, 100, 125, 160, 200, 250, 320 mm

**Strokes:**

Standard, see page N 1.5.125.03

Non-standard strokes (10 to 3000 mm) available

**Materials:**

Barrel: Anodised aluminium

End covers: Pressure diecast aluminium

(Ø 200 to 320 mm gravity cast aluminium)

Piston rod: Stainless steel (Martensitic)

Piston rod seals: Polyurethane (Ø 125 to 320 mm nitrile rubber)

Piston seals: Polyurethane (Ø 125 to 320 mm nitrile rubber)

'O'-rings: Nitrile rubber

**Ordering Examples**

See page N 1.5.125.05

**Mountings and Switches**

See page N 1.5.125.04 and .05

**Guide Blocks**

QA/8000/51/\* – Plain Bearing

QA/8000/61/\* – Roller Bearing (long coupling)

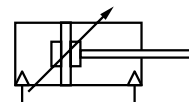
QA/8000/81/\* – Plain Bearing (long coupling)

QA/8000/85/\* – Plain Bearing (short coupling)

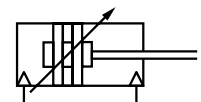
See page N 1.5.125.18 to 22

**Alternative Models**

Single acting cylinders see page N 1.4.101



Non-magnetic piston



Magnetic piston





## Cylinder Variants

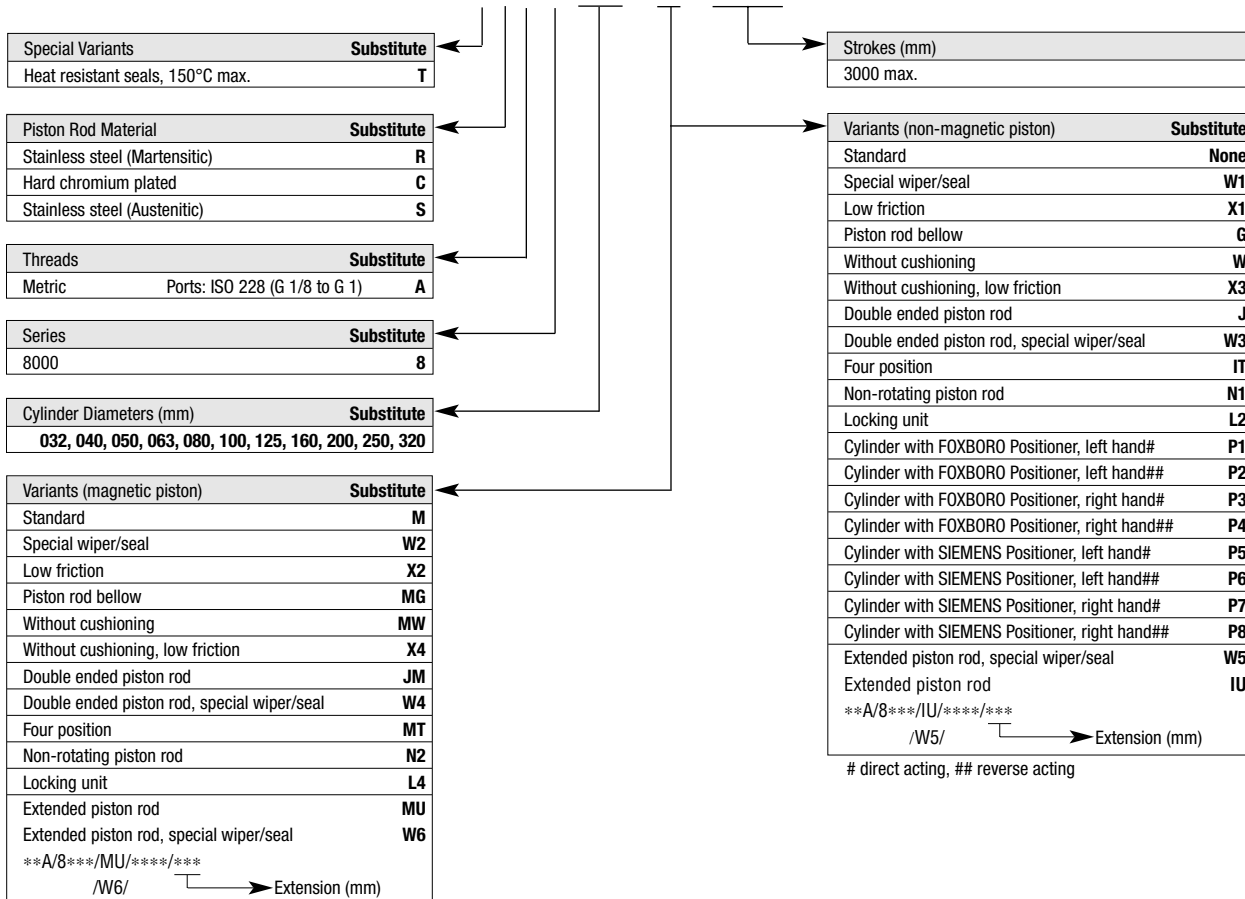
Symbol	Model Non-magnetic piston	Symbol	Model Magnetic piston	Description	Dimensions Page
	<b>RA/8000</b>		<b>RA/8000/M</b>	Standard cylinder	6
	CA/8000		CA/8000/M	Cylinder with hard chromium plated piston rod	6
	SA/8000		SA/8000/M	Cylinder with stainless steel piston rod (Austenitic)	6
	RA/8000/W1		RA/8000/W2	Cylinder with special wiper/seal (suitable for applications with cement, plaster (stucco), Arizona sand, hoar-frost or ice (∅ 32 to 125 mm))	6
	RA/8000/X1		RA/8000/X2	Low friction cylinders (∅ 32 to 200 mm) Medium: Compressed air, filtered and non-lubricated recommended (1 to 10 bar)	6
	TRA/8000		TRA/8000/M	Cylinder with heat resistant seals (150°C max.)	6
	RA/8000/IU		RA/8000/MU	Cylinder with extended piston rod	6
	RA/8000/W5		RA/8000/W6	Cylinder with extended piston rod and special wiper/seal (suitable for applications with cement, plaster (stucco), Arizona sand, hoar-frost or ice (∅ 32 to 125 mm)).	6
	RA/8000/G		RA/8000/MG	Cylinder with piston rod bellows	8
	TRA/8000/G		TRA/8000/MG	Cylinder with piston rod bellows and heat resistant seals (150°C max.)	8
	RA/8000/W		RA/8000/MW	Cylinder without cushioning	6
	RA/8000/X3		RA/8000/X4	Low friction cylinders without cushioning (∅ 32 to 200 mm) Medium: Compressed air, filtered and non-lubricated recommended (1 to 10 bar)	6
			HRA/8000/M	Cylinder with hydraulic (∅ 32 to 100 mm)	6
	RA/8000/J		RA/8000/JM	Cylinder with double ended piston rod	7
	RA/8000/W3		RA/8000/W4	Cylinder with double ended piston rod and special wiper/seal (suitable for applications with cement, plaster (stucco), Arizona sand, hoar-frost or ice (∅ 32 to 125 mm))	6
	RA/8000/IT		RA/8000/MT	Four position cylinders (∅ 32 to 200 mm)	7
	RA/8000/N1		RA/8000/N2	Cylinder with non-rotating piston rod (∅ 32 to 100 mm)	7
	RA/8000/L2		RA/8000/L4	Cylinders with locking unit (PASSIVE). Locking is achieved by spring force on removal of the signal to the unit. <b>Operating Pressure for locking unit: 4 to 10 bar</b>	8
	RA/8000/P1 to P8			Cylinder with Positioner (∅ 63 to 320 mm) Operation: The (electro-) pneumatic positioner is used for operating actuators by means of electrical/ pneumatic controllers with an analog output. Positioners: Electro Pneumatic Positioners*: Type: FOXBORO/ECKARDT, Basic-type SRI 986 SIEMENS, Basic-types 6DR3000-•N/E, 6DR4000-•N/E Pneumatic Positioner*: Type: FOXBORO/ECKARDT, Basic-type SRP 981 <b>* Consult our Technical Service for technical data</b> Operating Pressure: 2 to 6 bar Cylinder Diameters: 63, 80, 100, 125, 160, 200, 250, 320 mm Stroke Lengths: 100 to 600 mm <b>Attention: The useable force for cylinders RA/8000/P1 to /P8 is 50% of the theoretical force</b>	9 + 10

For combinations of cylinder variants consult our Technical Service.



**Model Codes**

**\*\*A/8\*\*\*/\*\*/\*\*\*\***























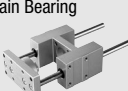
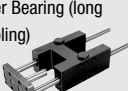
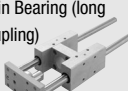
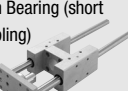

Note: If option is not required, disregard option position within part number eg. RA/8100/100.  
For combinations of cylinder variants consult our Technical Service.

**Standard Strokes**

Cylinder ∅	Strokes (mm)										
	25	50	80	100	125	160	200	250	320	400	500
32	●	●	●	●	●	●	●	●	●	●	●
40	●	●	●	●	●	●	●	●	●	●	●
50	●	●	●	●	●	●	●	●	●	●	●
63	●	●	●	●	●	●	●	●	●	●	●
80	●	●	●	●	●	●	●	●	●	●	●
100	●	●	●	●	●	●	●	●	●	●	●
125	●	●	●	●	●	●	●	●	●	●	●
160	●	●	●	●	●	●	●	●	●	●	●
200	●	●	●	●	●	●	●	●	●	●	●
250	●	●	●	●	●	●	●	●	●	●	●
320	●	●	●	●	●	●	●	●	●	●	●



Mountings

Cylinder Ø	Style 'A'  Page 11	Style 'AK'  Page 17	Style 'B', 'G'  Page 11	Style 'C'  Page 11	Style 'D'  Page 13	Style 'D2'  Page 14	Style 'F'  Page 12
32	QM/8032/35	QM/8025/38	QA/8032/22	QA/8032/21	QA/8032/23	QA/8032/42	QM/8025/25
40	QM/8032/35	QM/8040/38	QA/8040/22	QA/8040/21	QA/8040/23	QA/8040/42	QM/8040/25
50	QM/8050/35	QM/8050/38	QA/8050/22	QA/8050/21	QA/8050/23	QA/8050/42	QM/8050/25
63	QM/8050/35	QM/8050/38	QA/8063/22	QA/8063/21	QA/8063/23	QA/8063/42	QM/8050/25
80	QM/8080/35	QM/8080/38	QA/8080/22	QA/8080/21	QA/8080/23	QA/8080/42	QM/8080/25
100	QM/8080/35	QM/8080/38	QA/8100/22	QA/8100/21	QA/8100/23	QA/8100/42	QM/8080/25
125	QM/8125/35	QM/8125/38	QM/8125/22	QM/8125/21	QM/8125/23	QA/8125/42	QM/8125/25
160	QM/8160/35	QM/8160/38	QM/8160/22	QM/8160/21	QM/8160/23	QA/8160/42	QM/8160/25
200	QM/8160/35	QM/8160/38	QM/8200/22	QM/8200/21	QM/8200/23	QA/8200/42	QM/8160/25
250	QM/8250/35	-	QM/8250/22	QM/8250/21	QM/8250/23	-	QM/8250/25
320	QM/8320/35	-	QM/8320/22	QM/8320/21	QM/8320/23	-	QM/8320/25
Cylinder Ø	Style 'FH'  Page 16	Style 'H'  Page 16	Style 'L'  Page 13	Style 'M'  Page 12	'Style 'R'  Page 15	Style 'S'  Page 16	Style 'SS'  Page 12
32	QA/8032/34	QA/8032/28	QA/8032/24	QM/8032/26	QA/8032/27	QA/8032/41	M/P19931
40	QA/8040/34	QA/8040/28	QA/8040/24	QM/8040/26	QA/8040/27	QA/8040/41	M/P19932
50	QA/8050/34	QA/8050/28	QA/8050/24	QM/8050/26	QA/8050/27	QA/8040/41	M/P19933
63	QA/8063/34	QA/8063/28	QA/8063/24	QM/8063/26	QA/8063/27	QA/8063/41	M/P19934
80	QA/8080/34	QA/8080/28	QA/8080/24	QM/8080/26	QA/8080/27	QA/8063/41	M/P19935
100	QA/8100/34	QA/8100/28	QA/8100/24	QM/8100/26	QA/8100/27	QA/8100/41	M/P19936
125	QA/8125/34	QM/8125/28	QM/8125/24	QM/8125/26	QM/8125/27	QA/8100/41	M/P19937
160	-	QM/8160/28	QM/8160/24	QM/8160/26	QM/8160/27	QA/8160/41	M/P19938
200	-	QM/8200/28	QM/8200/24	QM/8200/26	QM/8200/27	QA/8160/41	M/P19939
250	-	QM/8250/28	QM/8250/24	-	-	-	-
320	-	QM/8320/28	QM/8320/24	-	-	-	-
Cylinder Ø	Style 'SW'  Page 13	Style 'UF'  Page 17	Style 'UH'  Page 16	Style 'UL'  Page 14	Style 'UR'  Page 15	Style 'US'  Page 14	Guide Blocks Plain Bearing  Page 22
32	M/P19493	QM/8025/32	QA/8032/40	QA/8032/43	QA/8032/33	M/P40310	QA/8032/51/*
40	M/P19494	QM/8040/32	QA/8040/40	QA/8040/43	QA/8040/33	M/P40311	QA/8040/51/*
50	M/P19495	QM/8050/32	QA/8050/40	QA/8050/43	QA/8050/33	M/P40312	QA/8050/51/*
63	M/P19496	QM/8050/32	QA/8063/40	QA/8063/43	QA/8063/33	M/P40313	QA/8063/51/*
80	M/P19497	QM/8080/32	QA/8080/40	QA/8080/43	QA/8080/33	M/P40314	QA/8080/51/*
100	M/P19498	QM/8080/32	QA/8100/40	QA/8100/43	QA/8100/33	M/P40315	QA/8100/51/*
125	M/P19499	QM/8125/32	QA/8125/40	QA/8125/43	QM/8125/33	M/P71355	-
160	M/P19679	QM/8160/32	QA/8160/40	QA/8160/43	QM/8160/33	M/P71356	-
200	M/P19683	QM/8160/32	QA/8200/40	QA/8200/43	QM/8200/33	M/P71357	-
250	M/P19446	QM/8250/32	-	-	QM/8250/33	-	-
320	M/P19447	QM/8320/32	-	-	QM/8320/33	-	-
Cylinder Ø	Guide Blocks ** Roller Bearing (long coupling)  Page 18	Guide Blocks Plain Bearing (long coupling)  Page 20	Guide Blocks Plain Bearing (short coupling)  Page 20	Locking Unit ***  Page 8	Bracket for Switches # Page 23	Bracket for Switches ## Page 23	Bracket for Switches ### Page 23
32	QA/8032/61/*	QA/8032/81/*	QA/8032/85/*	QA/8032/59	QM/27/2/1	QM/31/032/22	QM/140/010/22
40	QA/8040/61/*	QA/8040/81/*	QA/8040/85/*	QA/8040/59	QM/27/2/1	QM/31/032/22	QM/140/010/22
50	QA/8050/61/*	QA/8050/81/*	QA/8050/85/*	QA/8050/59	QM/27/2/1	QM/31/032/22	QM/140/010/22
63	QA/8063/61/*	QA/8063/81/*	QA/8063/85/*	QA/8063/59	QM/27/2/1	QM/31/032/22	QM/140/010/22
80	QA/8080/61/*	QA/8080/81/*	QA/8080/85/*	QA/8080/59	QM/27/2/1	QM/31/080/22	QM/140/010/22
100	QA/8100/61/*	QA/8100/81/*	QA/8100/85/*	QA/8100/59	QM/27/2/1	QM/31/080/22	QM/140/010/22
125	-	-	-	QA/8125/59	QM/27/2/1	QM/31/080/22	-
160	-	-	-	-	QM/27/2/1	QM/31/160/22	-
200	-	-	-	-	QM/27/2/1	QM/31/160/22	-
250	-	-	-	-	-	QM/31/250/22	-
320	-	-	-	-	-	QM/31/320/22	-

# M/50, QM/34 or QM/134 ## QM/31, QM/32 or QM/132 ### QM/140

\* Insert standard stroke length (50, 100, 160, 200, 250, 320, 400, or 500) in mm. Consult our Technical Service for stroke lengths above 500 mm

\*\* For Locking Cartridge see page 18

\*\*\* For Locking Cartridge see page 8



## Switches

Model									
Reed	M/50/LSU/.. M/50/RAC/5V TM/50/RAU/2S	M/50/LSU/CP — —	QM/33 — TQM/33	QM/34 — —	QM/34/P — —	QM/31 — TQM/31	QM/32 — —	QM/32/P — —	— — —
Solid state	M/50/EAP/.. M/50/EAN/..	M/50/EAP/CP M/50/EAN/CP	—	QM/134	QM/134/P	—	QM/132	QM/132/P	—
Pneumatic	—	—	—	—	—	—	—	—	QM/140

Model	Reed	Solid State	Voltage V a.c.	V d.c.	Current Max.	Temperature °C	LED	Features	Cable Length	Cable Type	Plug-in Cable Straight	90°	Catalogue Page
M/50/LSU/**V	—	—	10 to 240	10 to 170	180 mA	-20° to +80°	●	—	2, 5, 10 m	PVC 2 x 0,25	—	—	N 4.3.005
M/50/LSU/5U	—	—	10 to 240	10 to 170	180 mA	-20° to +80°	●	—	5 m	PUR 2 x 0,25	—	—	N 4.3.005
M/50/RAC/5V	—	—	10 to 240	10 to 170	180 mA	-20° to +80°	—	Changeover	5 m	PVC 3 x 0,25	—	—	N 4.3.005
M/50/LSU/CP	—	—	10 to 60	10 to 75	180 mA	-20° to +80°	●	Plug M8x1	5 m	—	M/P73001/5	—	N 4.3.005
TM/50/RAU/2S	—	—	10 to 240	10 to 170	180 mA	-20° to +150°	—	—	2 m	Silicon 2 x 0,25	—	—	N 4.3.005
—	M/50/EAP/**V	—	—	10 to 30	150 mA	-20° to +80°	●	PNP	2, 5, 10 m	PVC 3 x 0,25	—	—	N 4.3.005
—	M/50/EAP/CP	—	—	10 to 30	150 mA	-20° to +80°	●	PNP, plug M8x1	5 m	—	M/P73001/5	—	N 4.3.005
—	M/50/EAN/**V	—	—	10 to 30	150 mA	-20° to +80°	●	NPN	2, 5, 10 m	PVC 3 x 0,25	—	—	N 4.3.005
—	M/50/EAN/CP	—	—	10 to 30	150 mA	-20° to +80°	●	NPN, plug M8x1	5 m	—	M/P73001/5	—	N 4.3.005
TQM/31/**	—	—	10 to 240	10 to 240	2 A	-20° to +150°	—	High Temperature	5 m	Silicone 2x0,75	—	—	N 4.3.021
QM/31/C/**	—	—	10 to 110	10 to 175	0,25 A	-20° to +80°	—	Changeover	5 m	PVC 3 x 0,5	—	—	N 4.3.021
QM/32/**	—	—	10 to 240	10 to 240	1 A	-20° to +80°	●	—	2, 5, 10 m	PVC 2 x 0,75	—	—	N 4.3.021
QM/32/P	—	—	10 to 240	10 to 240	1 A	-20° to +80°	●	—	5 m	PVC 3 x 0,34	M/P34692/5	—	N 4.3.021
TQM/33/**	—	—	10 to 30	10 to 30	1,5 A	-20° to +150°	—	High Temperature	5 m	Silicone 2x0,34	—	—	N 4.3.051
QM/33/C/**	—	—	10 to 110	10 to 175	0,25 A	-20° to +80°	—	Changeover	5 m	PVC 2 x 0,34	—	—	N 4.3.051
QM/34/**	—	—	—	10 to 30	1 A	-20° to +80°	●	Output: Positive	2, 5, 10 m	PVC 3 x 0,34	—	—	N 4.3.051
QM/34/P	—	—	—	10 to 30	1 A	-20° to +80°	●	Output: Positive	5 m	PVC 3 x 0,25	M/P34614/5	M/P34615/5	N 4.3.051
QM/34/S/**	—	—	10 to 240	10 to 240	0,5 A	-20° to +80°	●	—	2, 5, 10 m	PVC 2 x 0,34	—	—	N 4.3.051
QM/34/N/**	—	—	—	10 to 30	1 A	-20° to +80°	●	Output: Negative	2, 5 m	PVC 3 x 0,34	—	—	N 4.3.051
—	QM/132/**	—	—	10 to 30	0,2 A	-20° to +80°	●	PNP	2, 5, 10 m	PVC 3 x 0,35	—	—	N 4.3.025
—	QM/132/P	—	—	10 to 30	0,2 A	-20° to +80°	●	PNP	5 m	PVC 3 x 0,34	M/P34692/5	—	N 4.3.025
—	QM/132/E/**	—	—	10 to 30	0,2 A	-20° to +80°	●	Pulse stretcher	5 m	PVC 3 x 0,35	—	—	N 4.3.025
—	QM/134/**	—	—	10 to 30	0,2 A	-20° to +80°	●	PNP	2, 5 m	PVC 3 x 0,34	—	—	N 4.3.055
—	QM/134/P	—	—	10 to 30	0,2 A	-20° to +80°	●	PNP	5 m	PVC 3 x 0,25	M/P34614/5	M/P34615/5	N 4.3.055
—	QM/134/E/**	—	—	10 to 30	0,2 A	-20° to +80°	●	Pulse stretcher	5 m	PVC 3 x 0,34	—	—	N 4.3.055
—	QM/134/N/**	—	—	10 to 30	0,2 A	-20° to +80°	●	NPN	2, 5 m	PVC 3 x 0,34	—	—	N 4.3.055
—	QM/134/N/P	—	—	10 to 30	0,2 A	-20° to +80°	●	NPN	5 m	PVC 3 x 0,25	M/P34614/5	M/P34615/5	N 4.3.055
—	QM/134/X/**	—	—	8,2	2,2/1 mA	-25° to +75°	●	NAMUR	5 m	PVC 2 x 0,34	—	—	N 4.3.055

Pneumatic	Operating Pressure	Flow Rate	Orifice Size	Temperature	Active Spot	Connections	Catalogue Page
QM/140	2 to 6 bar	40 l/min	2 mm	+60 °C	●	For 3 mm I/D tubing	N 4.3.061

\*\* Insert cable length

Full information on switches (technical data, polyurethane cable, dimensions etc.) please refer to relevant catalogue pages

## Ordering Examples

### Cylinders

To order a basic 80 mm bore magnetic piston cylinder with a 50 mm stroke quote: **RA/8080/M/50**

### Mountings

To order a front flange mounting style 'G' for 80 mm bore cylinder quote: **QA/8080/22**

### Switches

To order a reed switch with LED and 2 m cable length quote: **M/50/LSU/2V**

### Brackets for switches

To order a bracket for magnetically operated switches M/50/LSU/2V; 80 mm bore cylinder quote: **QM/27/2/1**



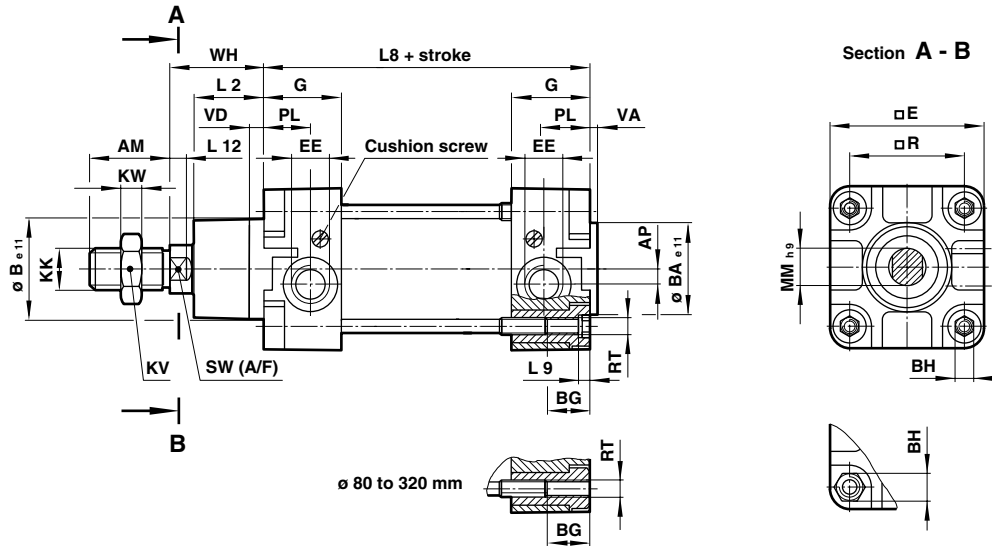
Theoretical Forces • Cushioning • Air Consumption

Cylinder Ø	Theoretical forces* (N) at 6 bar		Cushion length (mm)	Initial cushion volume (cm <sup>3</sup> )	Air consumption (l/cm stroke) at 6 bar	
	Outstroke	Instroke			Outstroke	Instroke
32	482	414	19	12,3	0,056	0,048
40	754	633	22	20,7	0,088	0,074
50	1178	990	24	36	0,137	0,114
63	1870	1680	24	64	0,218	0,195
80	3016	2722	27	116	0,35	0,32
100	4710	4416	34	242	0,55	0,51
125	7363	6882	41	451	0,86	0,79
160	12064	11310	45	816	1,41	1,32
200	18840	18090	45	1324	2,20	2,10
250	29436	28236	60	2900	3,44	3,30
320	48228	47292	65	5200	5,63	5,41

\*The useable force for cylinders RA/8000/P1 to P8 is 50% of the theoretical force.

BASIC DIMENSIONS

RA/8000, RA/8000/M – Standard Cylinders



Cylinder Ø	AM	AP	Ø B e 11	Ø BA e 11	BG	BH (A/F)	□ E	EE	G	KK	KV (A/F)	KW	L2
32	22	3,5	30	30	18	6	47	G 1/8	27,5	M 10x1,25	17	5	20
40	24	4,5	35	35	18	6	53	G 1/4	32	M 12x1,25	19	6	22
50	32	6	40	40	18	8	65	G 1/4	31	M 16x1,5	24	8	27
63	32	10	45	45	17,5	8	75	G 3/8	33	M 16x1,5	24	8	29
80	40	8,5	45	45	21,5	19	95	G 3/8	33	M 20x1,5	30	10	33
100	40	9	55	55	21,5	19	115	G 1/2	37	M 20x1,5	30	10	36
125	54	10	60	60	30	24	140	G 1/2	46	M 27x2	41	13,5	45
160	72	18	65	65	28,5	32	183,5	G 3/4	50	M 36x2	55	18	58
200	72	18	75	75	28,5	32	224	G 3/4	50	M 36x2	55	18	67
250	84	22,5	90	90	35	36	280	G 1	58	M 42x2	65	21	80
320	96	22,5	110	110	30	46	350	G 1	60	M 48x2	75	24	90

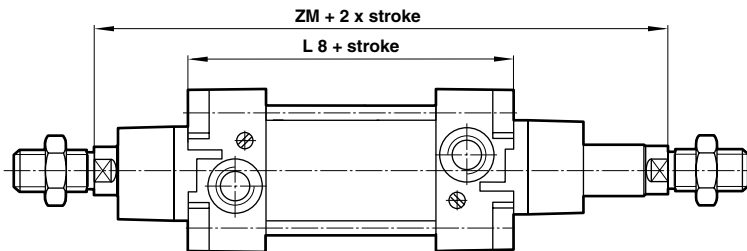
Cylinder Ø	L8	L9	L12	Ø MM h 9	PL	□ R	RT	SW (A/F)	VA	VD	WH	at 0 mm	per 25 mm
32	94	4	6	12	13	32,5	M 6	10	3	6	26	0,51 kg	0,06 kg
40	105	4	6,5	16	15	38	M 6	13	3,5	6	30	0,80 kg	0,08 kg
50	106	5	8	20	18,5	46,5	M 8	17	3,5	6	37	1,33 kg	0,12 kg
63	121	5	8	20	19	56,5	M 8	17	4	6	37	1,80 kg	0,13 kg
80	128	-	10	25	19	72	M 10	22	4	6	46	3,25 kg	0,20 kg
100	138	-	10	25	18	89	M 10	22	4	6	51	4,81 kg	0,23 kg
125	160	-	13	32	22,5	110	M 12	27	6	15,5	65	8,00 kg	0,33 kg
160	180	-	16	40	21	140	M 16	36	4	15	80	14,9 kg	0,55 kg
200	180	-	16	40	21	175	M 16	36	5	15	95	21,7 kg	0,60 kg
250	200	-	20	50	29	220	M 20	41	7	13	105	32,6 kg	0,92 kg
320	220	-	24	63	30	270	M 24	55	7	13	120	59,8 kg	1,46 kg



## CYLINDER VARIANTS

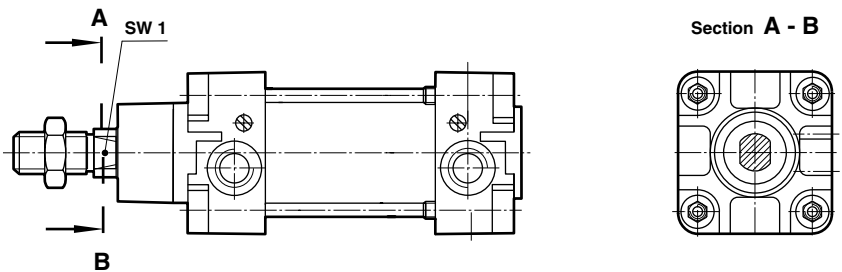
### RA/8000/J, RA/8000/JM – Cylinders with Double Ended Piston Rod

Cylinder Ø	ZM	L8
32	146	94
40	165	105
50	180	106
63	195	121
80	220	128
100	240	138
125	290	160
160	340	180
200	370	180

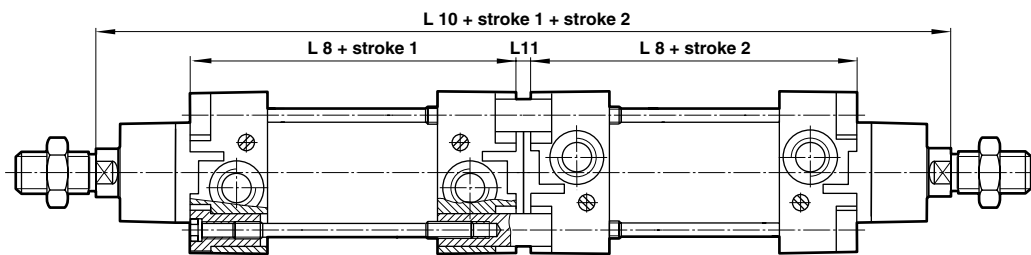


### RA/8000/N1 and RA/8000/N2 – Cylinders with Non-rotating Piston Rod

Cylinder Ø	SW1 (A/F)
32	10
40	13
50	16
63	16
80	21
100	21



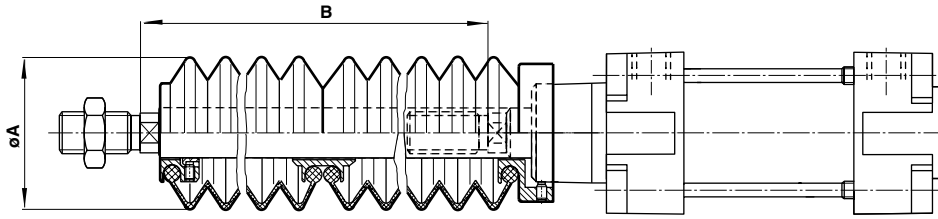
### RA/8000/IT and RA/8000/MT – Four-position Cylinders



Cylinder Ø	L 8	L 10	L 11
32	94	247	7
40	105	278	8
50	106	294	8
63	121	325	9
80	128	357	9
100	138	387	9
125	160	462	12
160	180	532	12
200	180	560	10

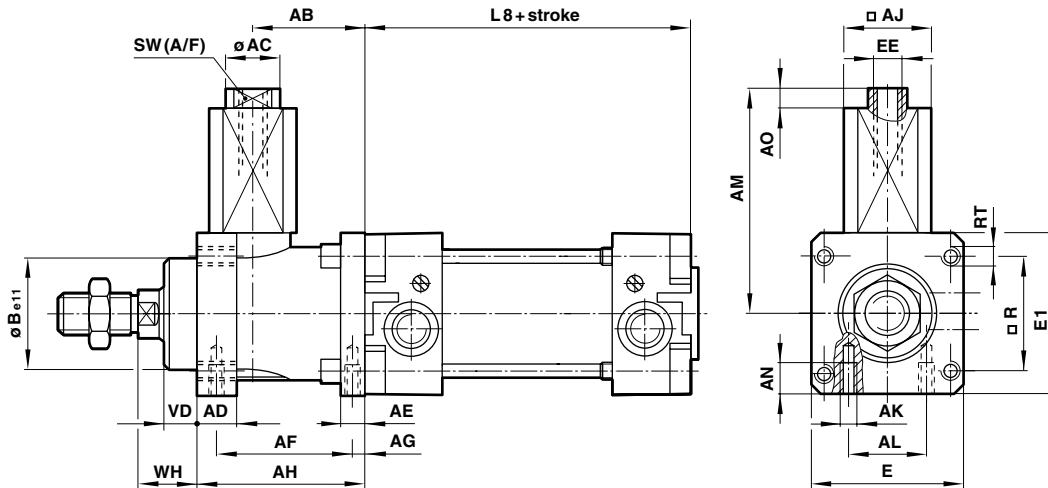


### RA/8000/G and RA/8000/MG – Cylinders with Piston Rod Bellows



Cylinder $\varnothing$	$\varnothing A$	Maximum stroke per bellow	Piston rod extension B	
			first bellow	further bellow
32	40	60	30	25
40	63	145	50	32
50	63	145	40	32
63	63	145	40	32
80	80	250	50	45
100	80	250	50	45
125	80	250	50	45
160	116	350	70	60
200	116	350	70	60
250	116	350	70	60
320	143	500	110	100

### RA/8000/L2, RA/8000/L4 – Cylinders with Locking Unit



Cylinder $\varnothing$	AB	$\varnothing AC$	AD	AE	AF	AG	AH	$\square AJ$	AK	AL	AM	AN
32	32	10	12	8	40	4,2	48	22,5	M 5	16	70,5	8
40	35.5	10	12	10	46	4,5	55	27,5	M 5	21	74,5	10
50	49	15	16	15	54	11,5	70	32,5	M 6	24	91,5	12
63	49	15	15	15	55	7,5	70	41	M 8	32	108,5	12
80	62	19	16	16	70	10	90	53	M 8	44	141,5	16
100	65	19	18	16	70	10	92	53	M 8	60	141,5	16
125	85	19	27	25	95	11	122	65	M 10	75	152	20

Cylinder $\varnothing$	AO	$\varnothing B_{e11}$	E	E 1	EE	L 8	$\square R$	RT	SW (A/F)	VD	WH	Forces *
32	4	30	48	50	M 5	94	32,5	M 6	8	10	16	600 N
40	4	35	56	58	M 5	105	38	M 6	8	10	18	1000 N
50	4	40	68	70	G 1/8	106	46,5	M 8	13	12	22	1500 N
63	4	45	82	85	G 1/8	121	56,5	M 8	13	12	20	2200 N
80	4	45	100	105	G 1/8	128	72	M 10	17	20	33	5000 N
100	4	55	120	130	G 1/8	138	89	M 10	17	23	38	5000 N
125	4	60	140	150	G 1/8	160	110	M 12	17	32	65	7000 N

### Separate Locking Cartridge

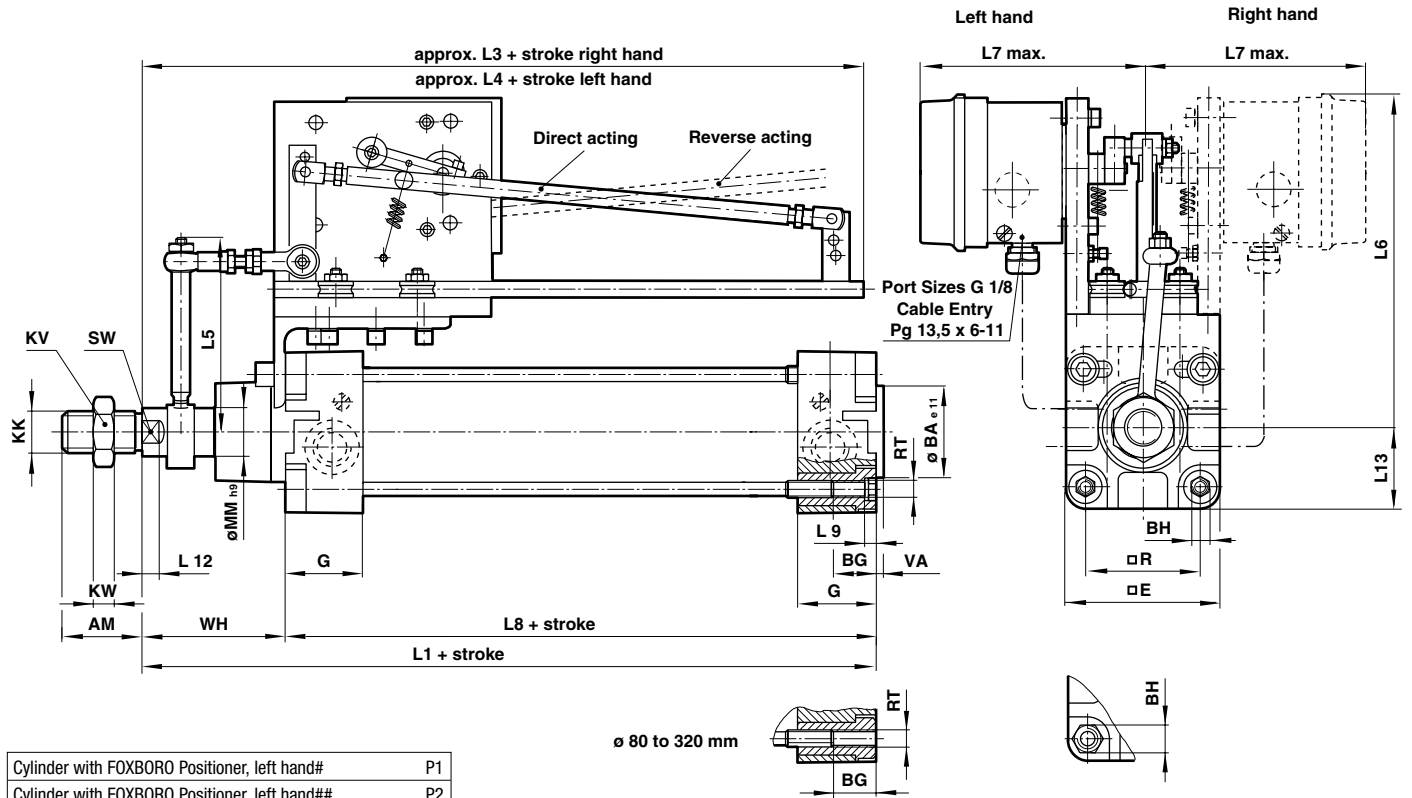
Cylinder $\varnothing$	Model	Forces *
32	QA/8032/63	600 N
40	QA/8040/63	1000 N
50	QA/8050/63	1500 N
63	QA/8063/63	2200 N
80	QA/8100/63	5000 N
100	QA/8100/63	5000 N
125	QA/8125/63	7000 N

\* Locking forces





**RA/8000/P1 to RA/8000/P4**  
**For Cylinders with FOXBORO/ECKARDT Positioner**  
**Ø 63 to 320 mm**



Cylinder with FOXBORO Positioner, left hand#	P1
Cylinder with FOXBORO Positioner, left hand##	P2
Cylinder with FOXBORO Positioner, right hand#	P3
Cylinder with FOXBORO Positioner, right hand##	P4

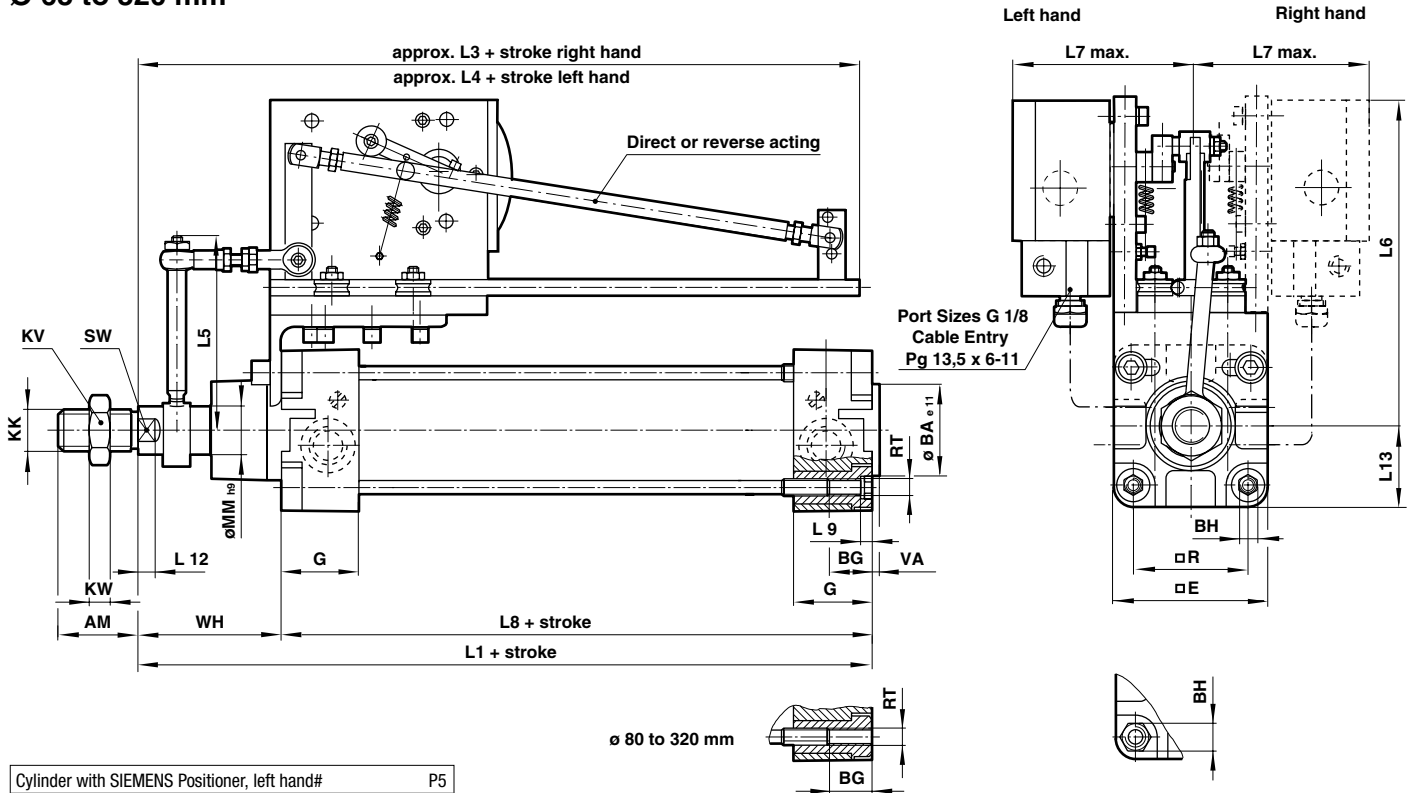
# direct acting, ## reverse acting

**Attention: The useable force for cylinders RA/8000/P1 to P4 is 50% of the theoretical force – see table on page N 1.5.125.06**

Model	8063/P1 to ../P4	8080/P1 to ../P4	8100/P1 to ../P4	8125/P1 to ../P4	8160/P1 to ../P4	8200/P1 to ../P4	8250/P1 to ../P4	8320/P1 to ../P4
Ø	63	80	100	125	160	200	250	320
AM	32	40	40	54	72	72	84	96
Ø BA e 11	45	45	55	60	65	75	90	110
BG	17,5	21,5	21,5	32	28,5	28,5	35	30
BH (A/F)	8	19	19	24	32	32	36	46
□ E	75	95	115	140	180	220	280	350
G	33	33	37	46	50	50	58	60
KK	M 16 x 1,5	M 20 x 1,5	M 20 x 1,5	M 27 x 2	M 36 x 2	M 36 x 2	M 42 x 2	M 48 x 2
KV (A/F)	24	30	30	41	55	55	65	75
KW	8	10	10	13,5	18	18	21	24
L1	218	229	239	275	300	310	365	380
L3	235	240	240	253	258	265	300	295
L4	245	250	250	263	268	275	310	305
L5	132,5	134,5	144,5	159	174	202	228	265
L6	232	239	248	262	277	305	327	357
L7 (max.)	219	219	219	219	219	248	274	309
L8	121	128	138	160	180	180	200	220
L9	5	-	-	-	-	-	-	-
L12	8	10	10	13	16	16	20	24
L13	37,5	47,5	57,5	70	90	110	140	175
Ø MM h 9	20	25	25	32	40	40	50	63
□ R	56,5	72	89	110	140	175	220	270
RT	M 8	M 10	M 10	M 12	M 16	M 16	M 20	M 24
SW (A/F)	17	22	22	27	36	36	41	55
VA	4	4	4	6	4	5	7	7
WH	97	101	101	115	120	130	165	160
at 0 mm	6,1 kg	7,6 kg	9,2 kg	13,0 kg	20,5 kg	29,3 kg	42,3 kg	70,7 kg
per 25 mm	0,36 kg	0,41 kg	0,44 kg	0,59 kg	0,77 kg	0,95 kg	1,1 kg	1,45 kg



**RA/8000/P5 to RA/8000/P8**  
**For Cylinders with SIEMENS Positioner**  
**Ø 63 to 320 mm**



Cylinder with SIEMENS Positioner, left hand#	P5
Cylinder with SIEMENS Positioner, left hand##	P6
Cylinder with SIEMENS Positioner, right hand#	P7
Cylinder with SIEMENS Positioner, right hand##	P8

# direct acting, ## reverse acting

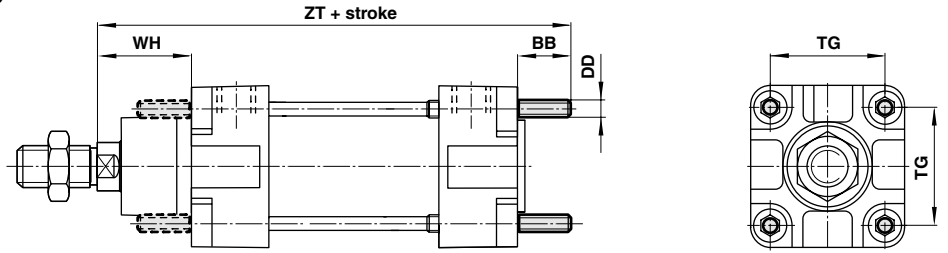
**Attention: The usable force for cylinders RA/8000/P5 to P8 is 50% of the theoretical force – see table on page N 1.5.125.06**

Model	8063/P5 to ../P8	8080/P5 to ../P8	8100/P5 to ../P8	8125/P5 to ../P8	8160/P5 to ../P8	8200/P5 to ../P8	8250/P5 to ../P8	8320 /P5 to ../P8
Ø	63	80	100	125	160	200	250	320
AM	32	40	40	54	72	72	84	96
Ø BA e11	45	45	55	60	65	75	90	110
BG	17,5	21,5	21,5	32	28,5	28,5	35	30
BH (A/F)	8	19	19	24	32	32	36	46
□ E	75	95	115	140	180	220	280	350
G	33	33	37	46	50	50	58	60
KK	M 16 x 1,5	M 20 x 1,5	M 20 x 1,5	M 27 x 2	M 36 x 2	M 36 x 2	M 42 x 2	M 48 x 2
KV (A/F)	24	30	30	41	55	55	65	75
KW	8	10	10	13,5	18	18	21	24
L1	218	229	239	275	300	310	365	380
L3	235	240	240	253	258	265	300	295
L4	245	250	250	263	268	275	310	305
L5	132,5	134,5	144,5	159	174	202	228	265
L6	230	237	246	260	275	303	325	355
L7 (max.)	155	155	155	155	155	184	210	245
L8	121	128	138	160	180	180	200	220
L9	5	-	-	-	-	-	-	-
L12	8	10	10	13	16	16	20	24
L13	37,5	47,5	57,5	70	90	110	140	175
Ø MM h9	20	25	25	32	40	40	50	63
□ R	56,5	72	89	110	140	175	220	270
RT	M 8	M 10	M 10	M 12	M 16	M 16	M 20	M 24
SW (A/F)	17	22	22	27	36	36	41	55
VA	4	4	4	6	4	5	7	7
WH	97	101	101	115	120	130	165	160
at 0 mm	6,1 kg	7,6 kg	9,2 kg	13,0 kg	20,5 kg	29,3 kg	42,3 kg	70,7 kg
per 25 mm	0,36 kg	0,41 kg	0,44 kg	0,59 kg	0,77 kg	0,95 kg	1,1 kg	1,45 kg



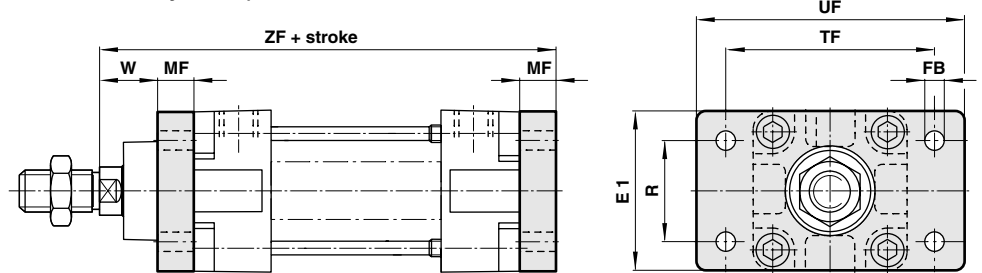
**MOUNTINGS**

**QM/8000/35 – Front or Rear Stud Mounting Style ‘A’**  
(Corresponds to DIN ISO 6431, Style MX1)

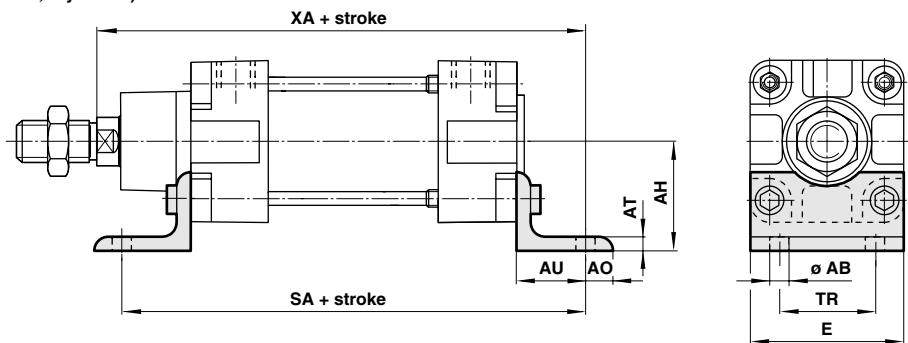


**Q./8000/22 – Rear Flange Mounting Style ‘B’**  
(Corresponds to DIN ISO 6431 and VDMA 24562 Part 2, Style MF2)

**Q./8000/22 – Front Flange Mounting Style ‘G’**  
(Corresponds to DIN ISO 6431 and VDMA 24562 Part 2, Style MF1)



**Q./8000/21 - Foot Mounting Style ‘C’**  
(Corresponds to DIN ISO 6431 and VDMA 24562 Part 2, Style MS1)

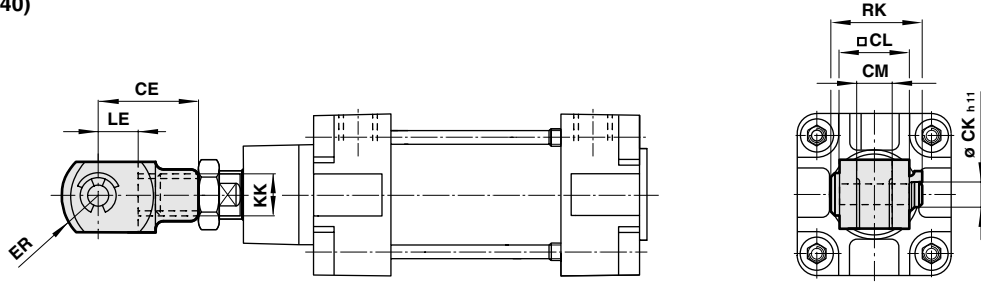


Cylinder Ø	Ø AB	AH	AO	AT	AU	BB	DD	E	E1	Ø FB	MF	R	SA
32	7	32	8	4	24	17	M 6	48	50	7	10	32	142
40	9	36	9	4	28	17	M 6	53	55	9	10	36	161
50	9	45	10	5	32	23	M 8	64	65	9	12	45	170
63	9	50	12	5	32	23	M 8	74	75	9	12	50	185
80	12	63	19	5	41	28	M 10	98	100	12	16	63	210
100	14	71	19	5	41	28	M 10	115	120	14	16	75	220
125	16	90	20	9	45	34	M 12	140	140	16	20	90	250
160	18	115	20	8	60	42	M 16	180	180	18	20	115	300
200	22	135	30	9	70	42	M 16	220	220	22	25	135	320
250	26	165	35	10	75	50	M 20	280	280	26	25	165	350
320	33	200	45	16	85	60	M 24	350	350	33	30	200	390

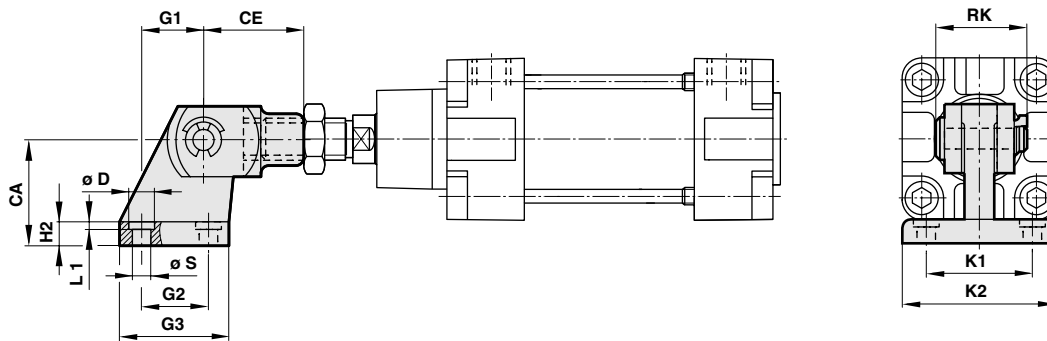
Cylinder Ø	TF	TG	TR	UF	W	WH	XA	ZF	ZT	Style ‘A’	Style ‘B’, ‘G’	Style ‘C’
32	64	32,5	32	80	16	26	144	130	137	0,02 kg	0,25 kg	0,15 kg
40	72	38	36	90	20	30	163	145	152	0,02 kg	0,35 kg	0,18 kg
50	90	46,5	45	110	25	37	175	155	166	0,05 kg	0,70 kg	0,30 kg
63	100	56,5	50	125	25	37	190	170	181	0,05 kg	0,80 kg	0,39 kg
80	126	72	63	154	30	46	215	190	202	0,08 kg	1,35 kg	0,80 kg
100	150	89	75	186	35	51	230	205	217	0,08 kg	2,20 kg	0,95 kg
125	180	110	90	224	45	65	270	245	259	0,14 kg	1,70 kg	2,40 kg
160	230	140	115	280	60	80	320	280	302	0,31 kg	3,10 kg	3,50 kg
200	270	175	135	320	70	95	345	300	317	0,31 kg	4,60 kg	5,25 kg
250	330	220	165	395	80	105	380	330	355	0,92 kg	7,40 kg	9,50 kg
320	400	270	200	475	90	120	425	370	400	1,46 kg	13,6 kg	22,0 kg



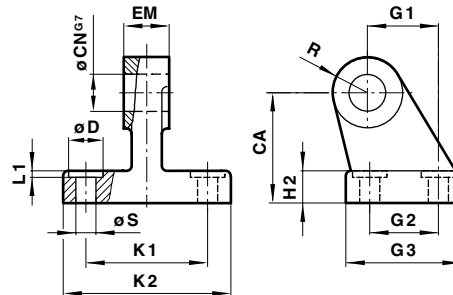
**QM/8000/25 – Piston Rod Clevis Mounting Style ‘F’**  
(Corresponds to DIN ISO 8140)



**QM/8000/26 – Front Hinge Mounting Style ‘M’**



**M/P199 . . – Bracket for Clevis Mounting Style ‘SS’**



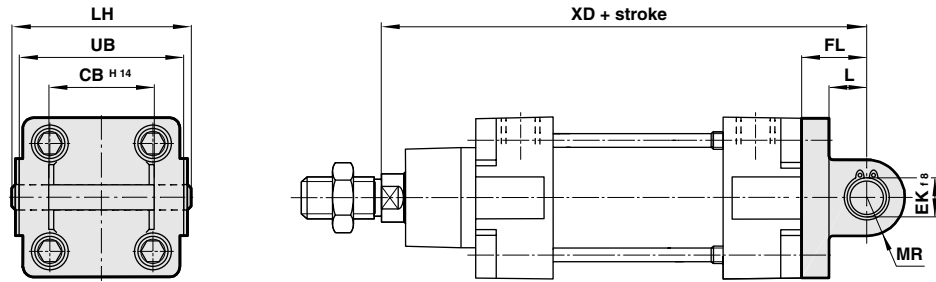
Cylinder Ø	CA	CE	Ø CK h11	□ CL	CM	Ø CN G7	Ø D	EM	ER	G 1	G 2	G 3
32	32	40	10	20	10	10	11	10	16	21	18	31
40	36	48	12	24	12	12	11	12	19	24	22	35
50	45	64	16	32	16	16	15	16	25	33	30	45
63	50	64	16	32	16	16	15	16	25	37	35	50
80	63	80	20	40	20	20	18	20	32	47	40	60
100	71	80	20	40	20	20	18	20	32	55	50	70
125	90	110	30	55	30	30	20	30	45	70	60	90
160	115	144	35	70	35	35	20	35	57	97	88	126
200	135	144	35	70	35	35	24	35	57	105	90	130
250	–	168	40	85	40	–	–	–	68	–	–	–
320	–	192	50	96	50	–	–	–	85	–	–	–

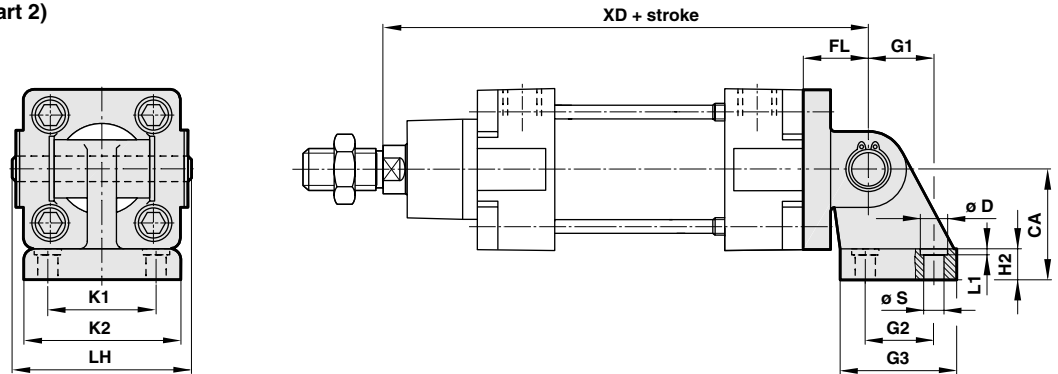
Cylinder Ø	H 2	KK	K 1	K 2	L 1	LE	R	RK	Ø S	Style 'F'	Style 'M'	Style 'SS'
32	8	M10x1,25	38	51	1,6	20	10	28	6,6	0,09 kg	0,24 kg	0,15 kg
40	10	M12x1,25	41	54	1,6	24	11	32	6,6	0,13 kg	0,33 kg	0,20 kg
50	12	M16x1,5	50	65	1,6	32	13	41,5	9	0,33 kg	0,81 kg	0,48 kg
63	12	M16x1,5	52	67	1,6	32	15	41,5	9	0,33 kg	0,83 kg	0,50 kg
80	14	M20x1,5	66	86	2,5	40	15	50	11	0,67 kg	1,42 kg	0,75 kg
100	15	M20x1,5	76	96	2,5	40	19	50	11	0,67 kg	1,87 kg	1,20 kg
125	20	M27x2	94	124	3,2	54	22	62	14	1,35 kg	3,85 kg	2,50 kg
160	25	M36x2	118	156	4	72	31	95	14	3,00 kg	9,00 kg	6,00 kg
200	30	M36x2	122	162	4	72	31	95	18	3,00 kg	10,60 kg	7,60 kg
250	–	M42x2	–	–	–	84	–	106	–	6,40 kg	–	–
320	–	M48x2	–	–	–	96	–	121	–	8,70 kg	–	–



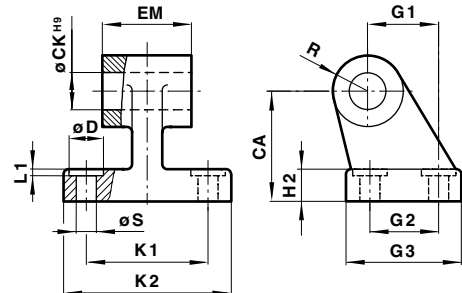
**Q./8000/23 – Rear Clevis Mounting Style ‘D’**  
(Corresponds to DIN ISO 6431 and VDMA 24562 Part 2, Style MP2)



**Q./8000/24 – Rear Hinge Mounting Style ‘L’**  
(Corresponds to VDMA 24562 Part 2)



**M/P19 . . . – Bracket for Clevis Mounting (wide clevis) Style ‘SW’**  
(Corresponds to VDMA 24562, Part 2)



Cylinder Ø	CA	CB H14	ø CK H9	ø D	ø EK f8	EM	FL	G 1	G 2	G 3	H 2	K 1
32	32	26	10	11	10	26	22	21	18	31	8	38
40	36	28	12	11	12	28	25	24	22	35	10	41
50	45	32	12	15	12	32	27	33	30	45	12	50
63	50	40	16	15	16	40	32	37	35	50	12	52
80	63	50	16	18	16	50	36	47	40	60	14	66
100	71	60	20	18	20	60	41	55	50	70	15	76
125	90	70	25	20	25	70	50	70	60	90	20	94
160	115	90	30	20	30	90	55	97	88	126	25	118
200	135	90	30	24	30	90	60	105	90	130	30	122
250	165	110	40	33	40	110	70	128	110	160	35	150
320	200	120	45	40	45	120	80	150	122	186	40	170

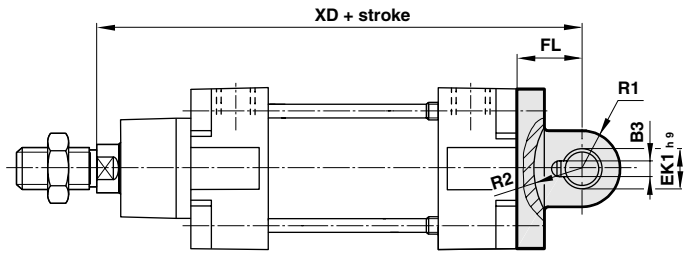
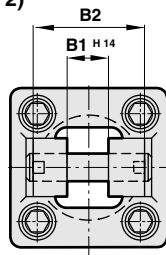
  

Cylinder Ø	K 2	L	L 1	LH	MR	R	ø S	UB	XD	Style ‘D’	Style ‘L’	Style ‘SW’
32	51	13	1,6	52	9	10	6,6	45	142	0,11 kg	0,16 kg	0,05 kg
40	54	16	1,6	60	12	11	6,6	52	160	0,16 kg	0,23 kg	0,07 kg
50	65	17	1,6	68	12	13	9	60	170	0,22 kg	0,36 kg	0,14 kg
63	67	22	1,6	79	15	15	9	70	190	0,34 kg	0,52 kg	0,18 kg
80	86	22	2,5	99	15	15	11	90	210	0,54 kg	0,82 kg	0,28 kg
100	96	27	2,5	119	20	19	11	110	230	0,90 kg	1,32 kg	0,42 kg
125	124	31	3,2	139	25	22	14	130	275	2,70 kg	5,40 kg	2,70 kg
160	156	35,5	4	181	30	31	14	170	315	4,30 kg	10,6 kg	6,30 kg
200	162	36	4	181	30	31	18	170	335	6,10 kg	14,1 kg	8,00 kg
250	200	45	2	218	40	40	22	200	375	19,0 kg	32,4 kg	13,4 kg
320	234	50	2	238	45	45	26	220	420	30,5 kg	52,5 kg	22,0 kg



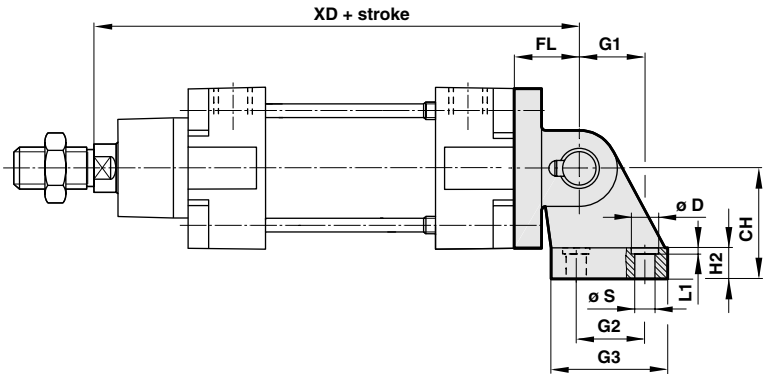
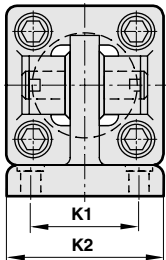
**QA/8000/42 – Rear Clevis Mounting Style ‘D2’**

(Corresponds to VDMA 24562 Part 2)



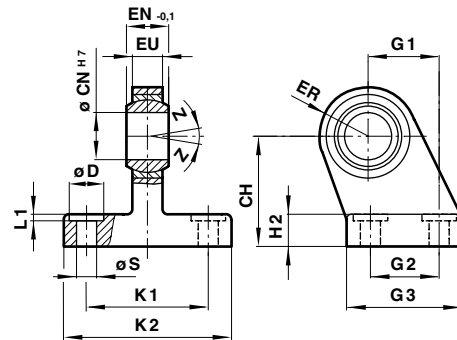
**QA/8000/43 – Universal Rear Hinge Mounting Style ‘UL’**

(Corresponds to VDMA 24562 Part 2)



**M/P . . . . . – Bracket Hinge for Clevis Mounting Style ‘US’**

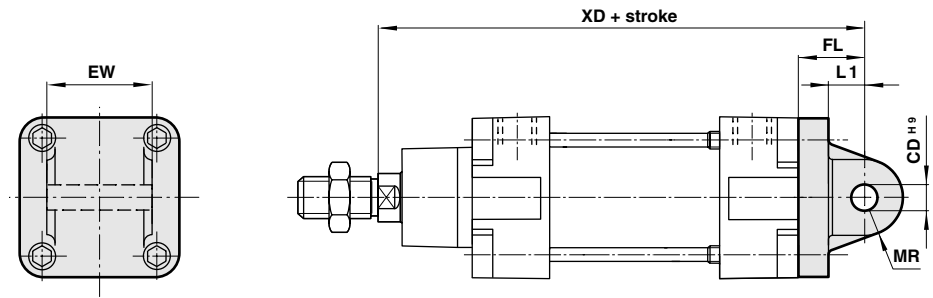
(Corresponds to VDMA 24562 Part 2)



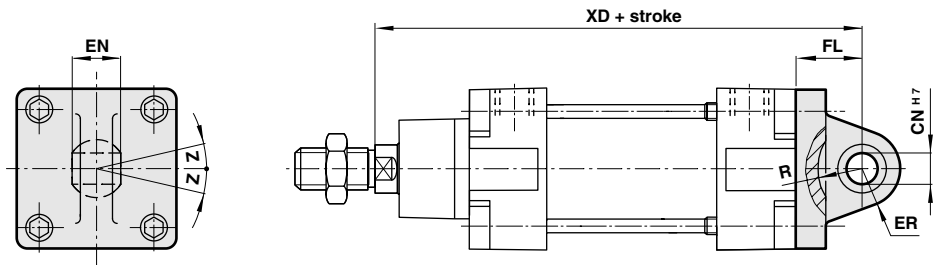
Cylinder $\varnothing$	B1 H14	B2	B3	CH	$\varnothing$ CN H7	$\varnothing$ D	$\varnothing$ EK h9	EN -0,1	ER	EU	FL	G 1	G 2
32	14	34	3,3	32	10	11	10	14	16	10,5	22	21	18
40	16	40	4,3	36	12	11	12	16	19	12	25	24	22
50	21	45	4,3	45	16	15	16	21	21	15	27	33	30
63	21	51	4,3	50	16	15	16	21	24	15	32	37	35
80	25	65	4,3	63	20	18	20	25	28	18	36	47	40
100	25	75	4,3	71	20	18	20	25	30	18	41	55	50
125	37	97	6,3	90	30	20	30	37	40	25	50	70	60
160	43	122	6,3	115	35	20	35	43	44	28	55	97	88
200	43	122	6,3	135	35	24	35	43	48	28	60	105	90
Cylinder $\varnothing$	G 3	H 2	K 1	K 2	L 1	R 1	R 2	$\varnothing$ S	XD	Z	Style 'D2'	Style 'UL'	Style 'US'
32	31	8	38	51	1,6	11	17	6,6	142	13°	0,20 kg	0,39 kg	0,19 kg
40	35	10	41	54	1,6	12	20	6,6	160	13°	0,23 kg	0,47 kg	0,24 kg
50	45	12	50	65	1,6	14,5	22	9	170	13°	0,36 kg	0,82 kg	0,46 kg
63	50	12	52	67	1,6	18	25	9	190	15°	0,55 kg	1,14 kg	0,59 kg
80	60	14	66	86	2,5	22	30	11	210	15°	0,90 kg	1,93 kg	1,03 kg
100	70	15	76	96	2,5	22	32	11	230	15°	1,45 kg	2,85 kg	1,40 kg
125	90	20	94	124	3,2	30	42	14	275	15°	2,70 kg	5,80 kg	3,10 kg
160	126	25	118	156	4	36	46	14	315	15°	4,30 kg	10,70 kg	6,40 kg
200	130	30	122	162	4	38	49	18	335	15°	6,10 kg	15,20 kg	9,10 kg



**Q./8000/27 – Rear Eye Mounting Style ‘R’**  
 (Corresponds to DIN ISO 6431 and VDMA 24562 Part 2, Style MP4)



**QA/8000/33 – Universal Rear Eye Mounting Style ‘UR’**  
 (Corresponds to VDMA 24562 Part 2)



Cylinder Ø	Ø CD H9	Ø CN H7	EN	ER	EW	FL	L1	MR	R	XD	Z	Style ‘R’	Style ‘UR’
32	10	10	14	16	25,8	22	13	9	14,5	142	13°	0,09 kg	0,17 kg
40	12	12	16	19	27,8	25	16	12	18	160	13°	0,11 kg	0,25 kg
50	12	16	21	21	31,7	27	17	12	19	170	13°	0,17 kg	0,40 kg
63	16	16	21	24	39,7	32	22	15	24	190	15°	0,24 kg	0,55 kg
80	16	20	25	28	49,7	36	22	15	24	210	15°	0,37 kg	0,90 kg
100	20	20	25	30	59,7	41	27	20	29	230	15°	0,59 kg	1,50 kg
125	25	30	37	40	69,7	50	33	25	36	275	15°	3,20 kg	2,70 kg
160	30	35	43	44	89,7	55	35,5	30	41	315	16°	6,10 kg	4,60 kg
200	30	35	43	48	89,7	60	37	30	42	335	16°	6,80 kg	7,30 kg
250	-	40	49	50	-	70	-	-	47	375	10°	-	16,5 kg
320	-	50	60	58	-	80	-	-	52	420	8°	-	26,0 kg

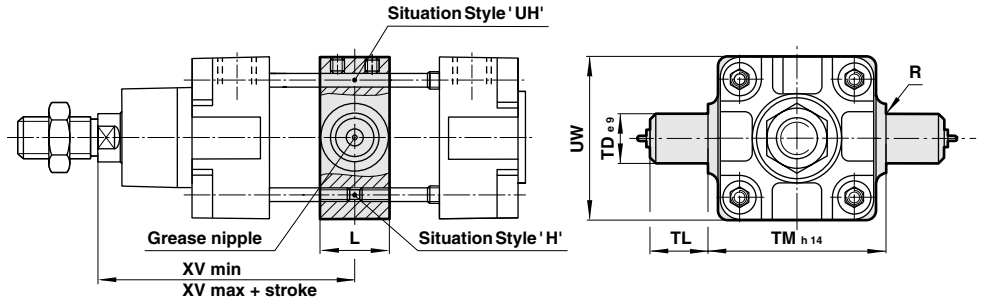


**Q./8000/28 – Centre Trunnion Mounting Style ‘H’**

(Corresponds to DIN ISO 6431 and VDMA 24562 Part 2, Style MT4)

**QA/8000/40 – Adjustable Intermediate Trunnion Mounting Style ‘UH’**

(Corresponds to DIN ISO 6431 and VDMA 24562 Part 2, Style MT4)



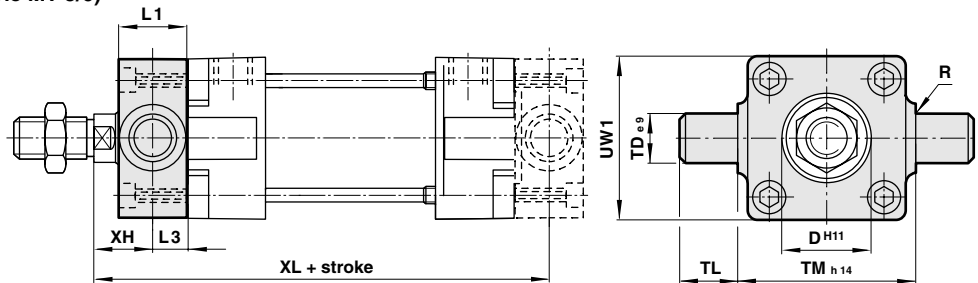
Note:

Style ‘H’: 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 125 mm to 320 mm bore.

Style ‘UH’: It is most important that the locking screws which secure the mounting to the tie rod are tightened to the torque figures shown in the table below. For maximum energy input, consult our Technical Service. Grease nipple supplied as standard on cylinders 125 mm to 200 mm

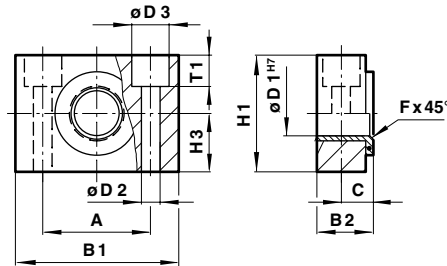
**QA/8000/34 – Front or Rear Detachable Trunnion Mounting Style ‘FH’**

(Corresponds to VDMA 24562 Part 2, Style MT 5/6)



**QA/8000/41 – Swivel Bearing Style ‘S’**

For Trunnion Mountings Style ‘H’, ‘FH’, ‘UH’



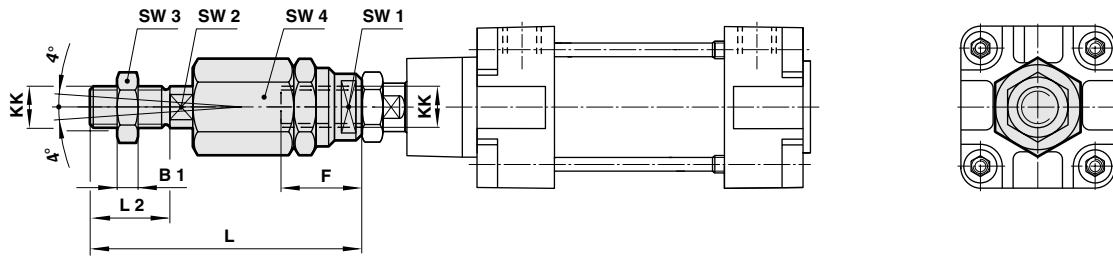
Cylinder Ø	A	B 1	B 2	C	Ø D <sup>H11</sup>	Ø D <sup>1 h7</sup>	Ø D 2	Ø D 3	F x 45°	H 1	H 3	L	L 1	L 3	R
32	32	46	18	10,5	30	12	6,6	11	1	30	15	20	16	8	1
40	36	55	21	12	35	16	9	15	1,6	36	18	24	20	10	1,6
50	36	55	21	12	40	16	9	15	1,6	36	18	28	24	12	1,6
63	42	65	23	13	45	20	11	18	1,6	40	20	28	24	12	1,6
80	42	65	23	13	45	20	11	18	1,6	40	20	28	28	14	1,6
100	50	75	28,5	16	55	25	14	20	2	50	25	38	38	19	2
125	50	75	28,5	16	60	25	14	20	2	50	25	50	50	25	2
160	60	92	39	21,5	–	32	18	26	2,5	60	30	50	–	–	2,5
200	60	92	39	21,5	–	32	18	26	2,5	60	30	50	–	–	2,5
250	–	–	–	–	–	–	–	–	–	–	–	60	–	–	3,2
320	–	–	–	–	–	–	–	–	–	–	–	70	–	–	3,2

Cylinder Ø	Ø TD <sup>e9</sup>	TL	TM <sup>h14</sup>	T 1	UW	UW 1	XH	XL	XV min.	XV max.	Torque	Style ‘FH’	Style ‘H’	Style ‘UH’	Style ‘S’
32	12	12	50	6,8	50	50	18	128	63,5	82,5	4 Nm	0,20 kg	0,16 kg	0,16 kg	0,11 kg
40	16	16	63	9	58	55	20	145	74	91	4 Nm	0,38 kg	0,35 kg	0,35 kg	0,16 kg
50	16	16	75	9	70	65	25	155	82	98	8 Nm	0,60 kg	0,65 kg	0,65 kg	0,16 kg
63	20	20	90	11	80	75	25	170	84	111	8 Nm	1,10 kg	0,85 kg	0,85 kg	0,23 kg
80	20	20	110	11	100	100	32	188	93	127	15 Nm	1,90 kg	1,20 kg	1,20 kg	0,23 kg
100	25	25	132	13	126	120	32	208	107	133	20 Nm	3,50 kg	2,30 kg	2,30 kg	0,42 kg
125	25	25	160	13	152	145	40	250	136	154	25 Nm	6,50 kg	3,30 kg	3,30 kg	0,42 kg
160	32	32	200	15,5	192	–	–	–	155	185	40 Nm	–	5,30 kg	5,30 kg	0,84 kg
200	32	32	250	15,5	240	–	–	–	170	200	40 Nm	–	9,40 kg	9,40 kg	0,84 kg
250	40	40	320	–	318	–	–	–	193	217	–	–	18,0 kg	–	–
320	50	50	400	–	400	–	–	–	215	245	–	–	30,0 kg	–	–

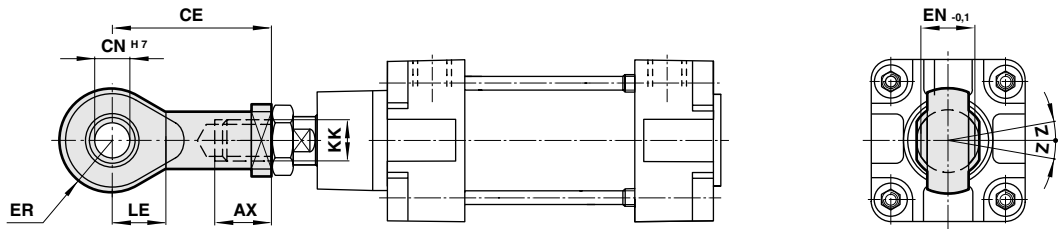




**QM/8000/38 – Piston Rod Swivel Mounting Style ‘AK’**



**QM/8000/32 – Universal Piston Rod Eye Mounting Style ‘UF’**  
(Corresponds to DIN ISO 8139)



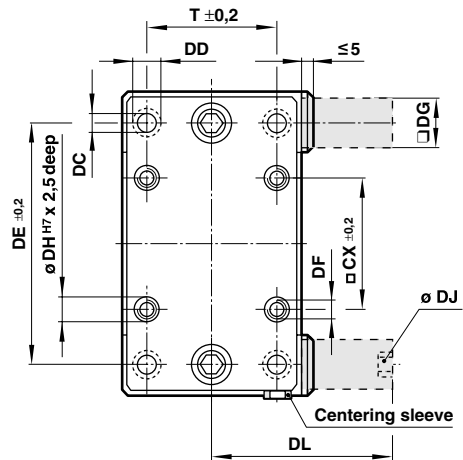
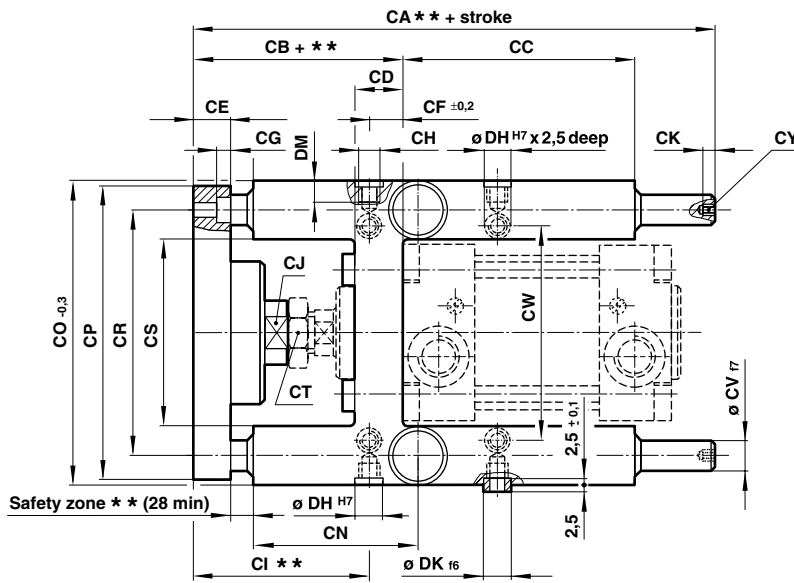
Cylinder Ø	AX	B1	CE	Ø CN H7	EN -0,1	ER	F	KK	L
32	20	5	43	10	14	14	26	M 10 x 1,25	73
40	22	6	50	12	16	16	26	M 12 x 1,25	77
50	28	8	64	16	21	21	34	M 16 x 1,5	106
63	28	8	64	16	21	21	34	M 16 x 1,5	106
80	33	10	77	20	25	25	42	M 20 x 1,5	122
100	33	10	77	20	25	25	42	M 20 x 1,5	122
125	51	13,5	110	30	37	35	40	M 27 x 2	147
160	56	18	125	35	43	40	78	M 36 x 2	251
200	56	18	125	35	43	40	78	M 36 x 2	251
250	60	–	142	40	49	45	–	M 42 x 2	–
320	65	–	160	50	60	58	–	M 48 x 2	–

Cylinder Ø	L 2	LE	SW 1 (A/F)	SW 2 (A/F)	SW 3 (A/F)	SW 4 (A/F)	Z	Style ‘AK’	Style ‘F’
32	20	15	19	12	17	30	13°	0,20 kg	0,09 kg
40	24	17	19	12	19	30	13°	0,20 kg	0,13 kg
50	32	22	30	19	24	42	15°	0,65 kg	0,33 kg
63	32	22	30	19	24	42	15°	0,65 kg	0,33 kg
80	40	26	30	19	30	42	15°	0,72 kg	0,67 kg
100	40	26	30	19	30	42	15°	0,72 kg	0,67 kg
125	54	36	40	24	41	55	15°	1,70 kg	1,35 kg
160	72	41	50	36	55	75	16°	5,40 kg	3,00 kg
200	72	41	50	36	55	75	16°	5,40 kg	3,00 kg
250	–	46	–	–	–	–	17°	–	6,40 kg
320	–	59	–	–	–	–	12°	–	8,70 kg



QA/8000/61/\* – Guide Blocks with Roller Bearings (long coupling)



\*\* = Notice adjustment range

Separate Locking Cartridge

Cylinder Ø	Model	Forces *
32	QA/8032/63	600 N
40	QA/8040/63	1000 N
50	QA/8050/63	1500 N
63	QA/8050/63	1500 N
80	QA/8080/63	3000 N
100	QA/8080/63	3000 N

\* Locking forces per piece

BLANKING PLUG  
(remove when using locking cartridge)

Cylinder Ø	CA**	CB + **	CC	CD	CE	CF ±0,2	CG	CH	CI**	CJ (A/F)	CK	CN	CO -0,3
32	177	100 + 5	65	28	12	15,3	6,5	M6	84,5	13	5	60,5	97
40	192	111 + 5	69	33	12	23	6,5	M6	88	15	6	67	115
50	237	128 + 10	65	40	15	33,8	9	M8	94	22	6	75,5	137
63	237	128 + 10	97	40	15	29,3	9	M8	98,5	22	6	80	152
80	280	151 + 10	112	50	20	37	11	M10	114	27	7	92	189
100	280	156 + 10	112	55	20	40,5	11	M10	115,5	27	7	93	213

Cylinder Ø	CP	CR	CS	CT (A/F)	Ø CV 17	CW	□ CX ±0,2	CY (A/F)	CZ	DA -0,3	DB ±0,3	Ø DC	Ø DD
32	90	74	50,5	17	12	61	32,5	5	125	50	45	6,6	11
40	110	87	58,5	19	16	69	38	6	140	58	54	6,6	11
50	130	104	70,5	24	20	85	46,5	6	150	70	63	9	15
63	145	119	85,5	24	20	100	56,5	6	182	85	80	9	15
80	180	148	105,5	30	25	130	72	8	215	105	100	11	18
100	200	172	130,5	30	25	150	89	8	220	130	120	11	18

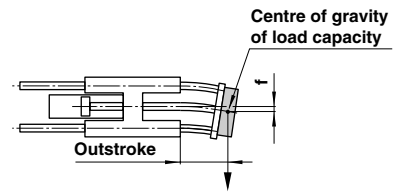
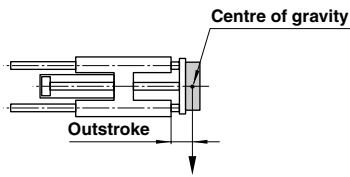
Cylinder Ø	DE ±0,2	DF	□ DG	Ø DH H7	DJ	Ø DK 16	DL	DM	T ±0,2	at 0 mm	per 100 mm
32	78	M 6	22,5	9	M 5	9	70,5	14	32,5	1,20 kg	0,18 kg
40	84	M 6	27,5	9	M 5	9	74,5	14	38,0	2,20 kg	0,32 kg
50	100	M 8	32,5	11	G 1/8	11	91,5	16	46,5	3,60 kg	0,49 kg
63	105	M 8	41	11	G 1/8	11	91,5	16	56,5	4,60 kg	0,49 kg
80	130	M 10	53	13	G 1/8	13	141,5	20	72,0	8,70 kg	0,77 kg
100	150	M 10	53	13	G 1/8	13	141,5	20	89,0	11,0 kg	0,77 kg

\*\* Notice adjustment range

Note: Supplied complete with mounting screws for cylinders and two centering sleeves.



**Maximum load for QA/8000/61/\***

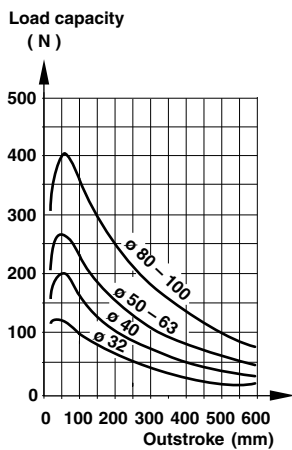


Max. load capacity is dependent on the outstroke of a horizontally installed guide unit. In the case of short stroke operation, the load capacity figures taken from the diagram must be multiplied by the correction factor (diagram 2). In the curves of load capacity (diagram 1), the short stroke corrections have already been taken into account for an outstroke > 60 mm.

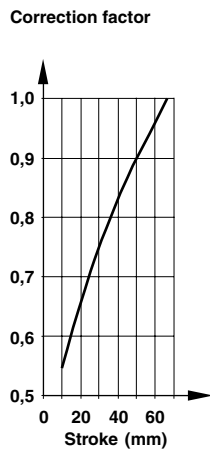
The total deflection of guide rods will be determined by the addition of the amount of deflection caused by own weight (according to diagram 3) plus the amount of deflection due to load capacity (according to diagram 4).

**Max. load capacity depending on outstroke**

(diagram 1)



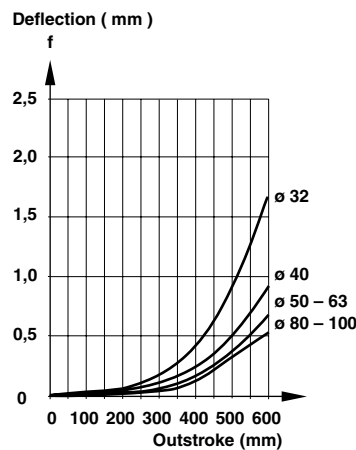
(diagram 2)



Reduction of load capacity for short-stroke operation

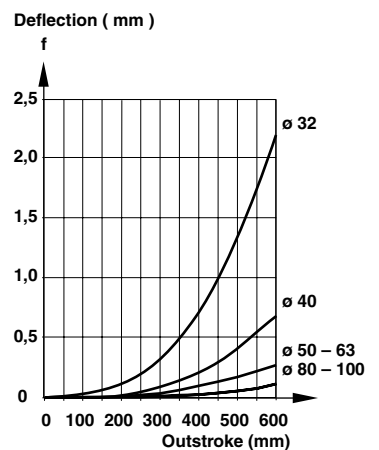
**Deflection caused by own weight**

(diagram 3)



**Deflection caused by a load of 10 N**

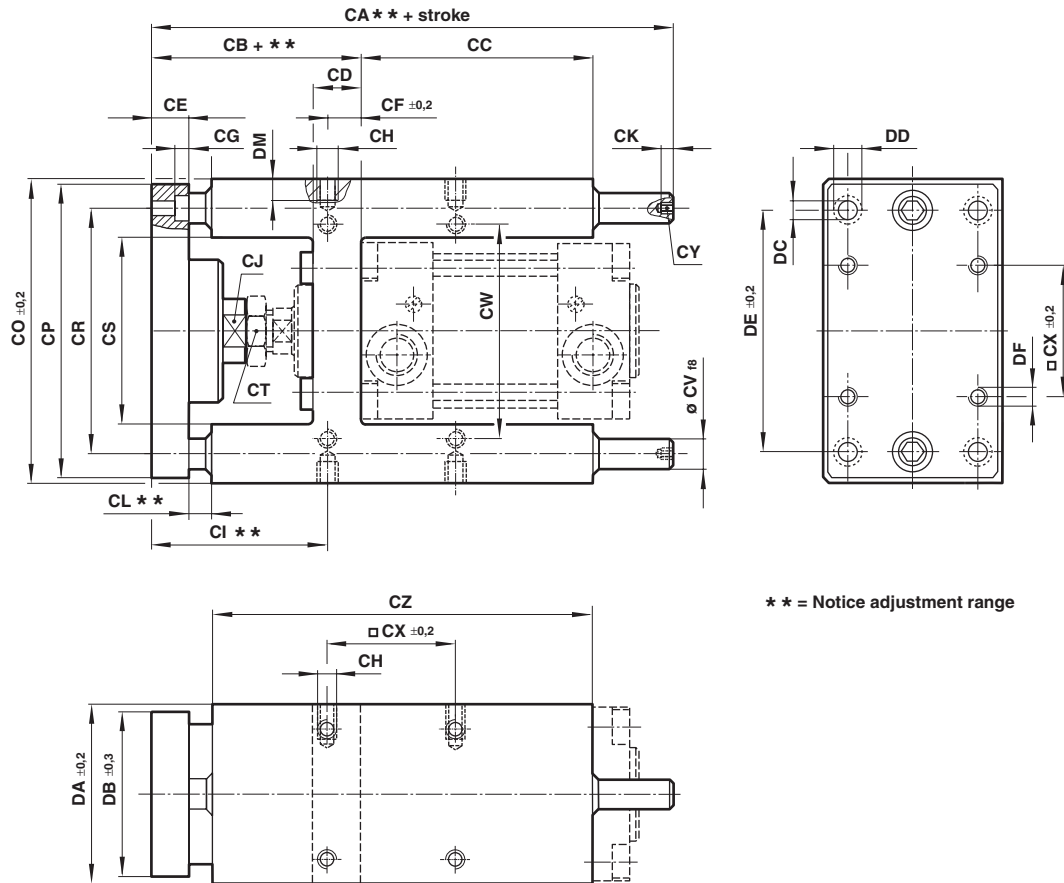
(diagram 4)



In the case of shock load applications, the figures given in the diagrams above must be reduced by a factor of 2.



**QA/8000/81/\* — Guide Blocks with Plain Bearings (long coupling)**  
**QA/8000/85/\* — Guide Blocks with Plain Bearings (short coupling)**



\*\* = Notice adjustment range

Cylinder Ø	CA**/81	CA**/85	CB + **/81	CB + **/85	CC	CD	CE	CF ±0.2	CG	CH	CI**/81	CI**/85
32	174	149	89 + 5	64 + 5	75	24	12	4,3	6,5	M 6	84,7	59,7
40	189	164	99 + 5	74 + 5	80	28	12	11	6,5	M 6	88	63
50	210	181	113 + 10	88 + 10	78	34	15	18,8	8,5	M 8	94,2	69,2
63	235	210	114 + 10	89 + 10	106	34	15	15,3	9	M 8	98,7	73,7
80	265	240	139 + 10	114 + 10	111	50	20	25	11	M 10	114	89
100	288	265	145 + 10	120 + 10	128	55	20	30	11	M 10	115	90
Cylinder Ø	CJ	CK	CL/81	CL/85	CO ±0.2	CP	CR	CS	CT	Ø CV f8	CW	□CX ±0.2
32	15	5	27	2	97	93	74	51	17	12	61	32,5
40	15	6	27	2	115	112	87	58,2	19	16	69	38
50	20	6	28	3	137	134	104	70,2	24	20	85	46,5
63	20	6	27	2	152	147	119	85,2	24	20	100	56,5
80	26	7	35	10	189	180	148	105,5	30	25	130	72
100	26	7	35	10	213	206	173	130,5	30	25	150	89
Cylinder Ø	CY	CZ	DA ±0.2	DB ±0.3	Ø DC	Ø DD	DE ±0.2	DF	DM	at 0 mm/81	at 0 mm/85	per 100 mm
32	5	125	49	45	6,6	11	78	M 6	12	1,20 kg	1,15 kg	0,18 kg
40	6	140	58	55	6,6	11	84	M 6	12	2,20 kg	2,15 kg	0,32 kg
50	6	148	70	65	9	15	100	M 8	16	3,60 kg	3,55 kg	0,49 kg
63	6	178	85	80	9	15	105	M 8	16	4,60 kg	4,55 kg	0,49 kg
80	8	195	105	100	11	18	130	M 10	20	8,70 kg	8,65 kg	0,77 kg
100	8	218	130	120	11	18	150	M 10	20	11,0 kg	10,95 kg	0,77 kg

\*\* Notice adjustment range

Note: Supplied complete with mounting screws for cylinder



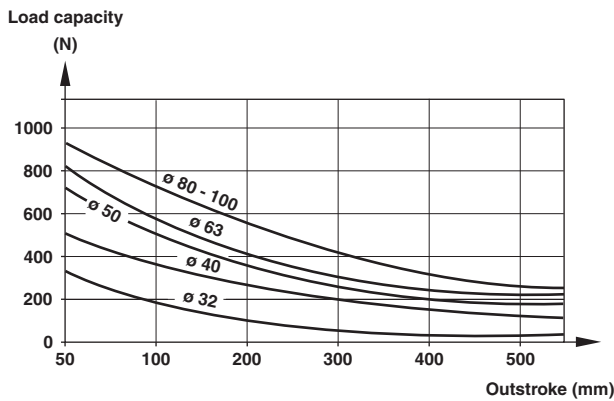
### Maximum load for QA/8000/81/\* and /85/\*



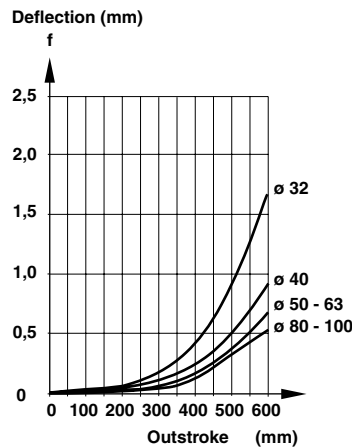
Max. load capacity (diagram 1) is dependent on the outstroke of a horizontally installed guide unit.

The total deflection of guide rods will be determined by the addition of the amount of deflection caused by own weight (according to diagram 2) plus the amount of deflection due to load capacity (according to diagram 3).

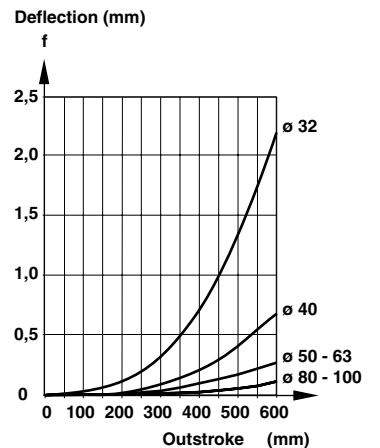
### Max. load capacity depending on outstroke (diagram 1)



### Deflection caused by own weight (diagram 2)



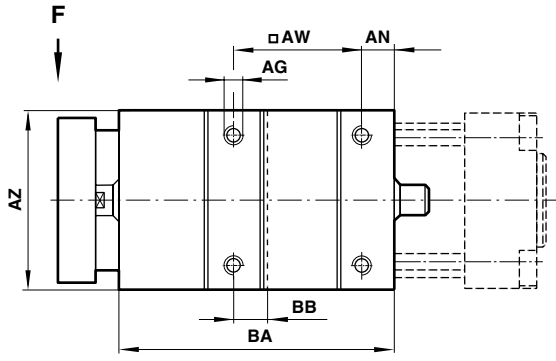
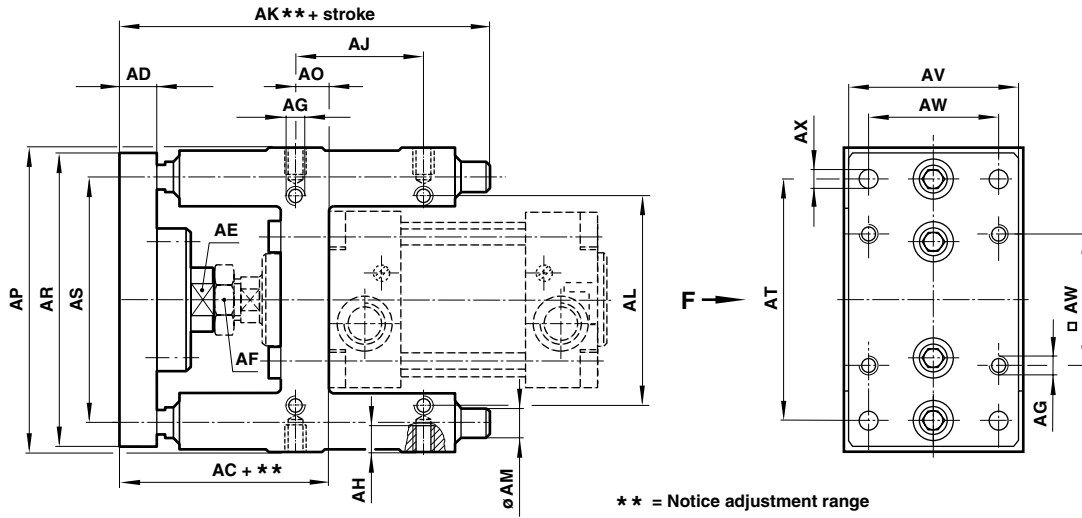
### Deflection caused by a load of 10 N (diagram 3)



In the case of shock load applications, the figures given in the diagrams above must be reduced by a factor of 2.



QA/8000/51/\* – Guide Blocks with Plain Bearings



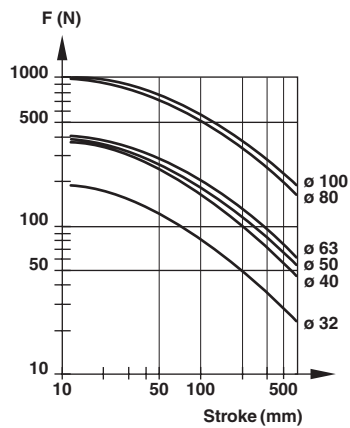
Cylinder Ø	AC + **	AD	AE (A/F)	AF (A/F)	AG	AH	AJ	AK**	AL	Ø AM	AN	AO
32	69 + 2	12	15	17	M 6	10	32,5	110	58	10	6	9
40	74 + 2	12	15	19	M 6	10	38	122	64	12	6	11
50	91,5 + 4	15	22	24	M 8	12	46,5	135	80	12	6	19
63	92 + 4	15	22	24	M 8	12	56,5	153	95	12	7	15
80	106 + 6	15	27	30	M 10	15	50	180	130	16	9	14
100	111 + 6	15	27	30	M 10	17	70	199	150	16	9	19

Cylinder Ø	AP	AR	AS	AT	AV	□ AW	Ø AX	AZ	BA	BB	at 0 mm	per 100 mm
32	100	90	74	78	45	32,5	6,6	48	76	9	1,00 kg	0,06 kg
40	106	100	80	84	50	38	6,6	56	85	11	1,20 kg	0,09 kg
50	125	120	96	100	60	46,5	9	66	99	19	1,80 kg	0,09 kg
63	132	125	104	105	70	56,5	9	76	114	15	2,20 kg	0,09 kg
80	165	155	130	130	90	72	11	98	134,5	25	4,10 kg	0,16 kg
100	185	175	150	150	110	89	11	118	153,5	28,5	5,80 kg	0,16 kg

\*\* Notice adjustment range  
 Note: Supplied complete with mounting screws for cylinder

Maximum load for QM/8000/51/\*



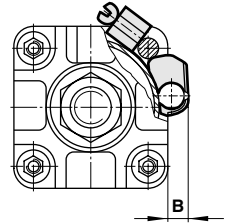
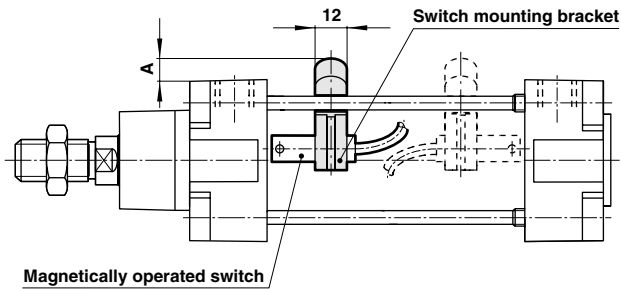


## SWITCH MOUNTING BRACKETS

### QM/27/2/1 – Bracket

Switches: M/50, QM/34 and QM/134 (Ø 8 mm)

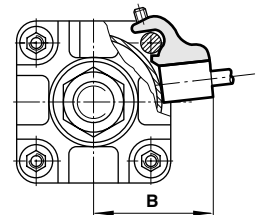
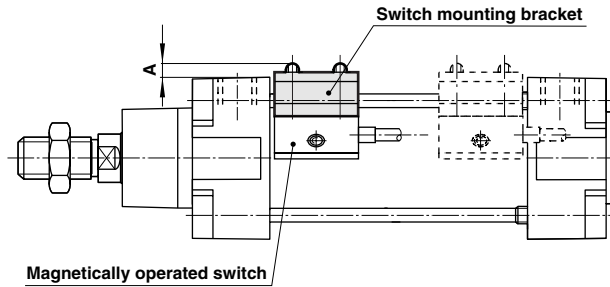
Cylinder Ø	A	B	Weight
32	9	7	0,010 kg
40	8	8	0,010 kg
50	7	5	0,010 kg
63	7	7	0,010 kg
80	7	4	0,010 kg
100	2	2	0,010 kg
125	- 4	- 3	0,010 kg
160	- 10	- 9	0,010 kg
200	- 17	- 14	0,010 kg



### QM/31/000/22 – Bracket

Switches: QM/31, QM/32 and QM/132

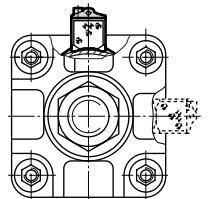
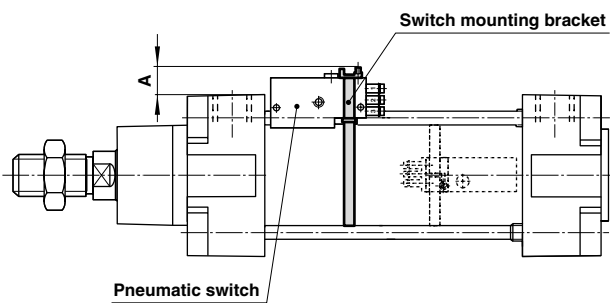
Cylinder Ø	A	B	Weight
32	4,5	38	0,026 kg
40	5,5	43	0,026 kg
50	4,5	48	0,026 kg
63	4,5	53	0,026 kg
80	1,5	61	0,028 kg
100	0,5	68	0,028 kg
125	- 1	79	0,028 kg
160	0	91,5	0,023 kg
200	- 4	106	0,023 kg
250	- 3	138	0,041 kg
320	- 21	154	0,080 kg



### QM/140/010/22 – Bracket with Holding Strap

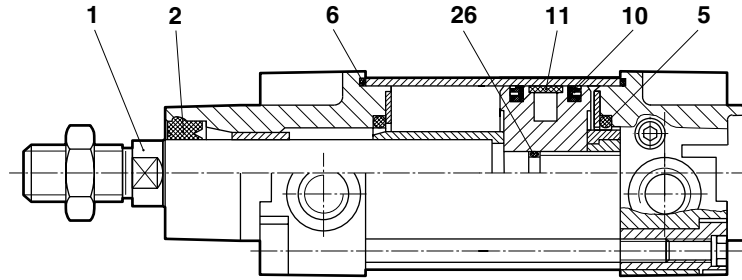
Switch: QM/140

Cylinder Ø	A	Weight
32	31,5	0,020 kg
40	30,5	0,020 kg
50	31,5	0,020 kg
63	29,5	0,020 kg
80	30,5	0,020 kg
100	30	0,020 kg





SPARES



Cylinder Ø	Model	Spares kit	Comprising Item	Description	Quantity	Piston rod Item 1
32	RA/8032	QA/8032/00	2	Piston rod seal	1	RM/P19966/*
32	RA/8032/M	QA/8032/00	5	Cushion seal	2	SM/P19966/*
40	RA/8040, RA/8040/M	QA/8040/00	6	Sealing ring	2	RM/P19967/*
50	RA/8050, RA/8050/M	QA/8050/00	10	Piston seal	2	RM/P19968/*
63	RA/8063, RA/8063/M	QA/8063/00	11	Wear ring	1	RM/P19969/*
80	RA/8080, RA/8080/M	QA/8080/00	26	'O'-ring (Ø 32 to 100 mm)	1	RM/P19970/*
100	RA/8100, RA/8100/M	QA/8100/00				RM/P19971/*
125	RA/8125, RA/8125/M	QA/8126/00				RM/P30988/*
160	RA/8160, RA/8160/M	QA/8160/00				RM/P30989/*
200	RA/8200, RA/8200/M	QA/8200/00				RM/P30990/*
250	RA/8250, RA/8250/M	QA/8250/00				RM/P19374/*
320	RA/8320, RA/8320/M	QA/8320/00				RM/P19392/*

\* Insert stroke length

Note: Please quote the cylinder type number when ordering spares kits and piston rods.

**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 Data'.

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

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

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

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

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