Pneumatic Cylinders
ISO 6431, VDMA 24562 and NFE 49-003-1
Magnetic Piston
Double Acting
Ø 32 to 100 mm

- **Corrosion resistant design**
- **Accepted in the Food Industry**
- **Conforms to ISO 6431, VDMA 24562 and NFE 49-003-1**
- **Supplied complete with piston rod locknut**
- **Lightweight profile design with concealed tie rods**

Technical Data

Medium:
Compressed air, filtered, lubricated or non-lubricated

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

Operation:
Double acting, magnetic piston, adjustable cushioning

Operating Pressure:
1 to 16 bar

Operating Temperature:
-20°C* to +80˚C max.
*Consult our Technical Service for use below +2°C

Cylinder Diameters:
32, 40, 50, 63, 80, 100 mm

Strokes:
Standard, see page N **1.5.**129.02
Non-standard strokes (10 to 3000 mm) available

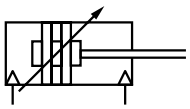
Materials:
Profile barrel: Clear anodised aluminium
End covers:Black anodised aluminium
Piston rod: X10 Cr Ni S 18 9 (1.4305, AISI 303)
Tie rods: X 5 Cr Ni Mo 17 12 2 (1.4401, AISI 316)
Tie rod nuts: Steel with certified protection for the food industry
Piston rod nut: X 10 Cr Ni S 18 9 (1.4305, AISI 303)
Cushion screws: X 10 Cr Ni S 18 9 (1.4305, AISI 303)
Piston and piston rod seals: Polyurethane
'O'-Rings: Nitrile rubber

Ordering Examples

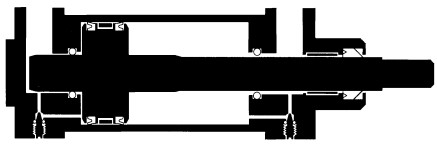
See page N **1.5.**129.02

Mountings and Switches

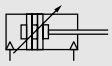
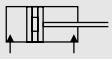
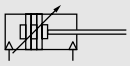
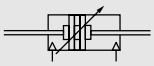
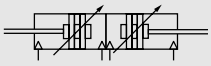
See page N **1.5.**129.03



Magnetic piston



Cylinder Variants

Symbol	Model Magnetic piston	Description	Dimensions Page
	**PVA/8000/M** PVA/8000/**W2** **T**PVA/8000/M	Standard cylinder Cylinder with special wiper/seal (suitable for applications with arizona sand, cement, plaster (stucco), hoar-frost or ice). Cylinder with heat resistant seal (150˚C max.)	4 4 4
	**H**PVA/8000/M	Hydraulic cylinder	4
	PVA/8000/**MU** PVA/8000/**W6**	Cylinder with extended piston rod Cylinder with extended piston rod and special wiper/seal (suitable for applications with arizona sand, cement, plaster (stucco), hoar-frost or ice).	4
	PVA/8000/**JM** PVA/8000/**W4**	Cylinder with double ended piston rod Cylinder with double ended piston rod and special wiper/seal (suitable for applications with arizona sand, cement, plaster (stucco), hoar-frost or ice).	5 5
	PVA/8000/**MT**	Four-position cylinders	5

For combinations of cylinder variants consult our Technical Service.

Model Codes

✶**PVA/8**✶✶✶**/**✶✶**/**✶✶✶✶

Special Variants	Substitute
Heat resistant seals, 150°C max.	**T**
Hydraulic	**H**

Cylinder Diameters (mm)	Substitute
032, 040, 050, 063, 080, 100	

Strokes (mm)
3000 max.

Variants **(magnetic piston)**	Substitute
Standard	**M**
Special wiper/seal	**W2**
Extended piston rod, special wiper/seal	**W6**
Double ended piston rod	**JM**
Double ended piston rod, special wiper/seal	**W4**
Four position	**MT**
Extended piston rod	**MU**

PVA/8✶✶✶/MU/✶✶✶/✶✶✶ → Extension (mm)

Note: If any option is not required, disregard option position within part number eg. PVA/8100/M/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	●	●	●	●	●	●	●	●	●	●	●

Ordering Examples

Cylinders
To order a basic 80 mm bore magnetic piston cylinder with a 50 mm stroke quote: **PVA/8080/M/50**
Mountings
To order a front flange mounting style ‘G’ for 80 mm bore cylinder quote: **PVQA/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 QM/34; 80 mm bore cylinder quote: **QM/33/P32/22**

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.

Mountings

Cylinder ∅	Style 'B', 'G'  Page 05	Style 'D'  Page 07	Style 'F'  Page 06	Style 'L'  Page 07	'Style 'R'  Page 08	Style 'SW'  Page 07	Style 'UF'  Page 06	Style 'UR'  Page 08	Bracket for Switches #  Page 08
32	PVQA/8032/22	PVQA/8032/23	PVQM/8032/25	PVQA/8032/24	PVQA/8032/27	M/P40459	PVQM/8032/32	PVQA/8032/33	QM/33/P32/22
40	PVQA/8040/22	PVQA/8040/23	PVQM/8040/25	PVQA/8040/24	PVQA/8040/27	M/P40460	PVQM/8040/32	PVQA/8040/33	QM/33/P32/22
50	PVQA/8050/22	PVQA/8050/23	PVQM/8050/25	PVQA/8050/24	PVQA/8050/27	M/P40461	PVQM/8050/32	PVQA/8050/33	QM/33/P32/22
63	PVQA/8063/22	PVQA/8063/23	PVQM/8050/25	PVQA/8063/24	PVQA/8063/27	M/P40462	PVQM/8050/32	PVQA/8063/33	QM/33/P32/22
80	PVQA/8080/22	PVQA/8080/23	PVQM/8080/25	PVQA/8080/24	PVQA/8080/27	M/P40463	PVQM/8080/32	PVQA/8080/33	QM/33/P32/22
100	PVQA/8100/22	PVQA/8100/23	PVQM/8080/25	PVQA/8100/24	PVQA/8100/27	M/P40464	PVQM/8080/32	PVQA/8100/33	QM/33/P32/22

M/50, QM/33, QM/34 or QM/134

If stainless steel mountings are required, please see catalogue sheet No. N 1.5.127.03

Materials and Surface Treatment of Mountings

Style 'B', 'G'	Flange mounting: Clear anodised aluminium. Screws: A2
Style 'D'	Clevis mounting: Black corrosion protected diecast aluminium, certified for the food industry. Bolt: X 10 Cr Ni S 18 9 (1.4305, AISI 303) Circlip: Stainless steel (Martensitic). Screws: A2
Style 'F'	Piston rod clevis mounting: Nickel plated steel. Circlip: X 10 Cr Ni S 18 9 (1.4305, AISI 303). Bolt: X 10 Cr Ni S 18 9 (1.4305, AISI 303)
Style 'L'	Clevis mounting and bracket: Black corrosion protected diecast aluminium, certified for the food industry. Bolt: X 10 Cr Ni S 18 9 (1.4305, AISI 303) Circlip: Stainless steel (Martensitic). Screws: A2
Style 'R'	Rear eye mounting: Black corrosion protected diecast aluminium, certified for the food industrie. Screws: A2
Style 'SW'	Bracket for clevis mounting: Black corrosion protected diecast aluminium, certified for the food industry.
Style 'UF'	Universal piston rod eye mounting: Nickel plated steel. Inner ring: stainless steel (Austenitic). Outer ring: nickel plated hardened steel.
Style 'UR'	Rear eye mounting: Black corrosion protected diecast aluminium, certified for the food industry. Inner ring: Stainless Steel (Austenitic). Outer ring: Nickel plated hardened steel.

Switches

Model	Cable  ∅ 8 mm	Plug (M8x1)  ∅ 8 mm	Without LED  ∅ 8 mm	With LED  ∅ 8 mm	With LED (plug in connector) 
Reed	M/50/LSU/..	M/50/LSU/CP	QM/33/C	QM/34	QM/34/P
	M/50/RAC/5V	—	—	—	—
Solid state	M/50/EAP/..	M/50/EAP/CP	—	QM/134	QM/134/P
	M/50/EAN/..	M/50/EAN/CP	—	—	—

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
—	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
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/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

** Insert cable length

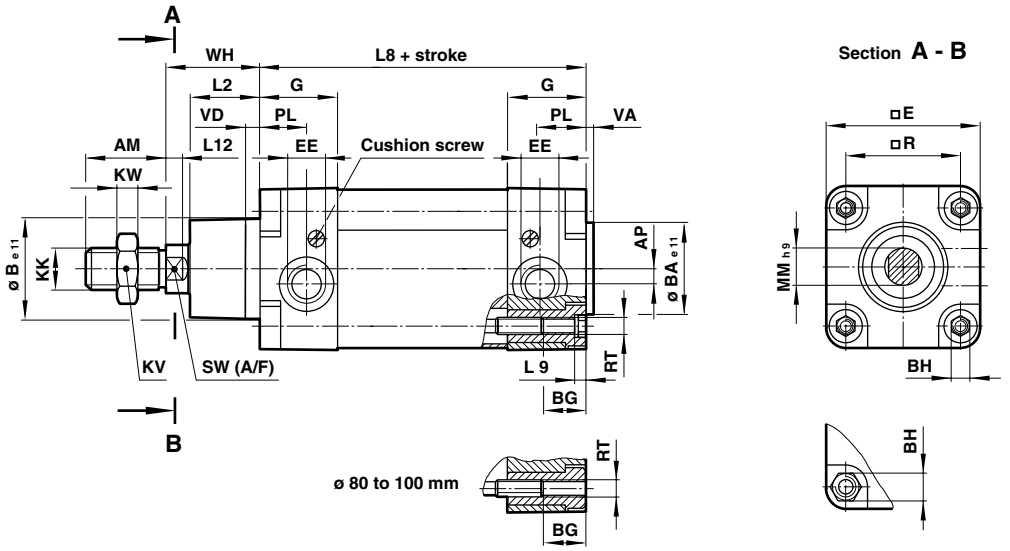
Full information on switches (technical data, polyurethane cable, dimensions etc.) please see catalogue pages

Theoretical Forces • Cushioning • Air Consumption

Cylinder ∅	Theoretical forces (N) at 6 bar Outstroke	Instroke	Cushion length (mm)	Initial cushion volume (cm^3)	Air consumption (l/cm stroke) at 6 bar 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

BASIC DIMENSIONS

PVA/8000/M — Standard Cylinders



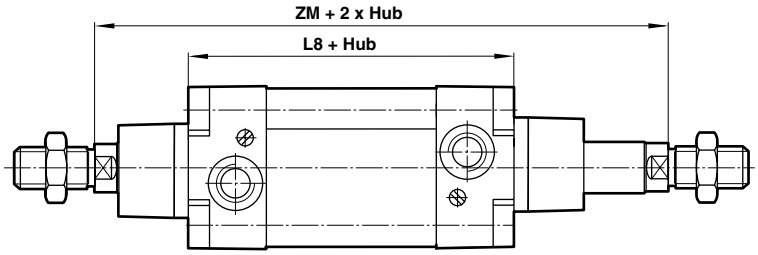
Cylinder ∅	AM	AP	∅ B e 11	∅ BA e 11	BG	BH (A/F)	❑ E	EE	G	KK	KV (A/F)	KW	L2
32	22	3,5	30	30	18	6	47	G 1/8	27,5	M 10 x 1,25	17	5	20
40	24	4,5	35	35	18	6	53	G 1/4	32	M 12 x 1,25	19	6	22
50	32	6	40	40	18	8	65	G 1/4	31	M 16 x 1,5	24	8	27
63	32	10	45	45	17,5	8	75	G 3/8	33	M 16 x 1,5	24	8	29
80	40	8,5	45	45	21,5	19	95	G 3/8	33	M 20 x 1,5	30	10	33
100	40	9	55	55	21,5	19	115	G 1/2	37	M 20 x 1,5	30	10	36

Cylinder ∅	L8	L9	L12	∅ 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	0,64 kg	0,06 kg
40	105	4	6,5	16	15	38	M 6	13	3,5	6	30	0,95 kg	0,08 kg
50	106	5	8	20	18,5	46,5	M 8	17	3,5	6	37	1,51 kg	0,12 kg
63	121	5	8	20	19	56,5	M 8	17	4	6	37	2,10 kg	0,13 kg
80	128	-	10	25	19	72	M 10	22	4	6	46	3,75 kg	0,20 kg
100	138	-	10	25	18	89	M 10	22	4	6	51	5,61 kg	0,23 kg

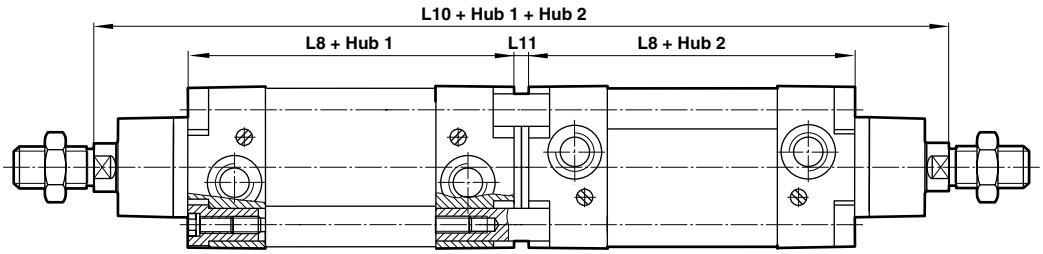
CYLINDER VARIANTS

PVA/8000/JM — Cylinders with Double Ended Piston Rod

Cylinder ∅	ZM	L8
32	146	94
40	165	105
50	180	106
63	195	121
80	220	128
100	240	138



PVA/8000/MT - Four-position Cylinders

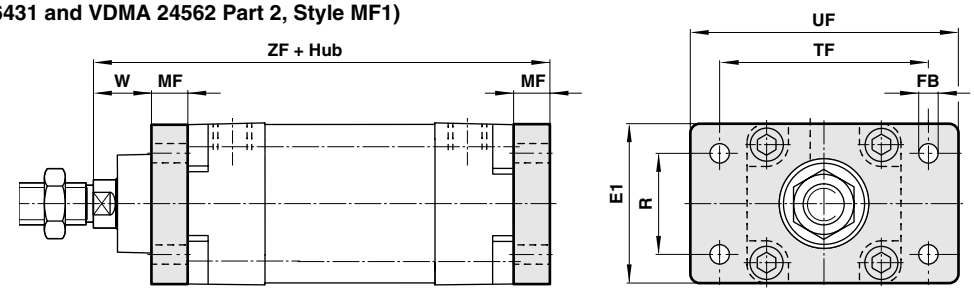


Cylinder ∅	L8	L10	L11
32	94	247	7
40	105	278	8
50	106	294	8
63	121	325	9
80	128	357	9
100	138	387	9

MOUNTINGS

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

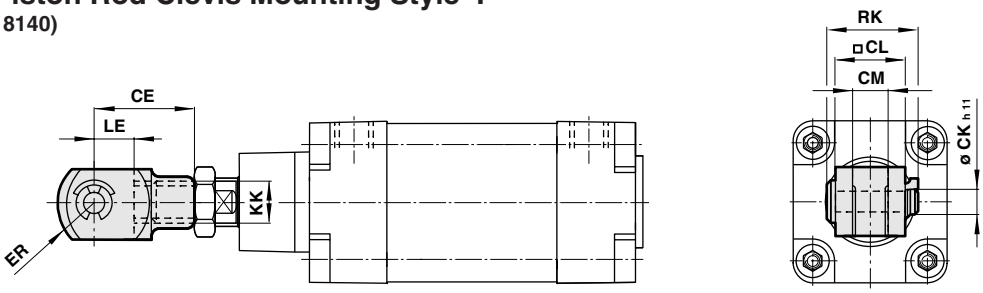
PVQA/8000/22 — Front Flange Mounting Style ‘G’
(Corresponds to DIN ISO 6431 and VDMA 24562 Part 2, Style MF1)



Cylinder ∅	E1	∅ FB	MF	R	TF	UF	W	ZF	Style ‘B’, ‘G’
32	50	7	10	32	64	80	16	130	0,25 kg
40	55	9	10	36	72	90	20	145	0,35 kg
50	65	9	12	45	90	110	25	155	0,70 kg
63	75	9	12	50	100	125	25	170	0,80 kg
80	100	12	16	63	126	154	30	190	1,35 kg
100	120	14	16	75	150	186	35	205	2,20 kg

PVQM/8000/25 — Piston Rod Clevis Mounting Style ‘F’

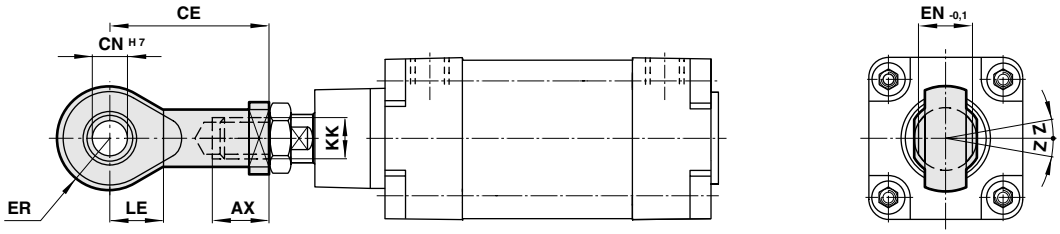
(Corresponds to DIN ISO 8140)



Cylinder ∅	CE	∅ CK h11	❑ CL	CM	ER	KK	LE	RK	Style ‘F’
32	40	10	20	10	16	M10x1,25	20	28	0,09 kg
40	48	12	24	12	19	M12x1,25	24	32	0,13 kg
50	64	16	32	16	25	M16x1,5	32	41,5	0,33 kg
63	64	16	32	16	25	M16x1,5	32	41,5	0,33 kg
80	80	20	40	20	32	M20x1,5	40	50	0,67 kg
100	80	20	40	20	32	M20x1,5	40	50	0,67 kg

PVQM/8000/32 — Universal Piston Rod Eye Mounting Style ‘UF’

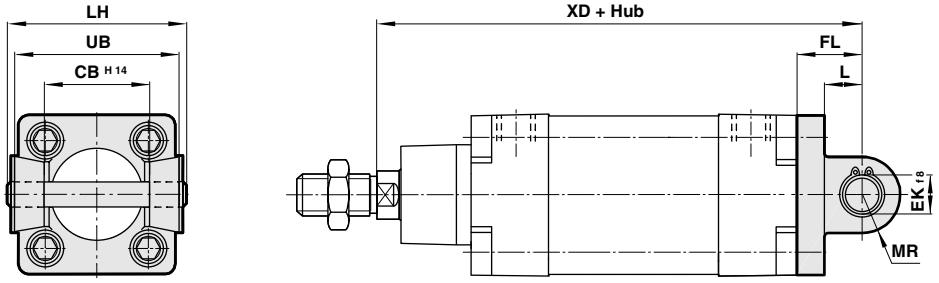
(Corresponds to DIN ISO 8139)



Cylinder ∅	AX	CE	∅ CN H7	EN -0,1	ER	KK	LE	Z	Style ‘UF’
32	20	43	10	14	14	M 10 x 1,25	15	13°	0,09 kg
40	22	50	12	16	16	M 12 x 1,25	17	13°	0,13 kg
50	28	64	16	21	21	M 16 x 1,5	22	15°	0,33 kg
63	28	64	16	21	21	M 16 x 1,5	22	15°	0,33 kg
80	33	77	20	25	25	M 20 x 1,5	26	15°	0,67 kg
100	33	77	20	25	25	M 20 x 1,5	26	15°	0,67 kg

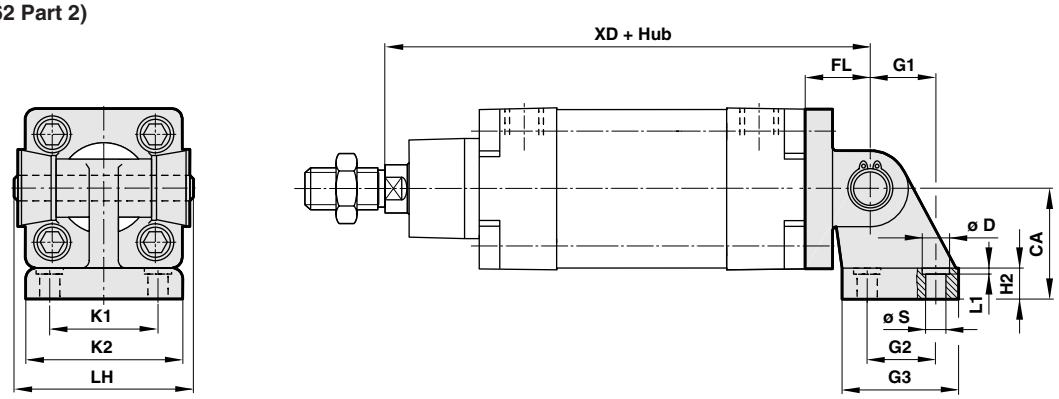
PVQA/8000/23 — Rear Clevis Mounting Style ‘D’

(Corresponds to DIN ISO 6431 and VDMA 24562 Part 2, Style MP2)



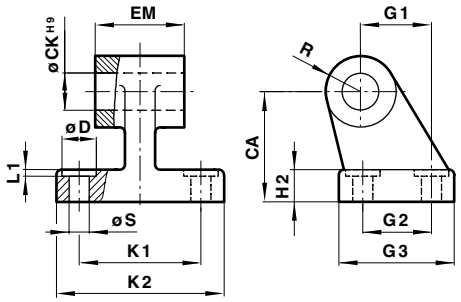
PVQA/8000/24 — Rear Hinge Mounting Style ‘L’

(Corresponds to VDMA 24562 Part 2)



M/P19 . . . — Bracket for Clevis Mounting (wide clevis) Style ‘SW’

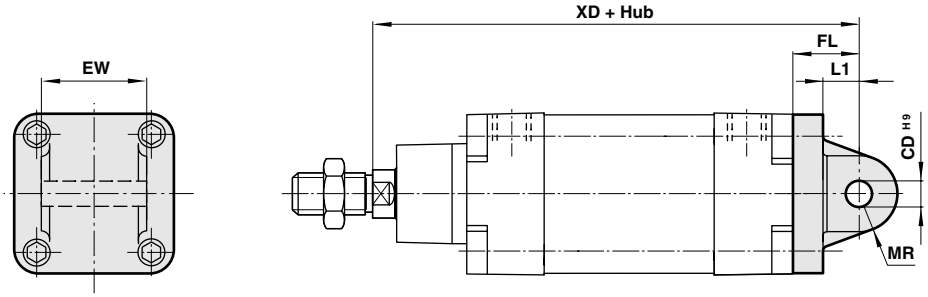
(Corresponds to VDMA 24562, Part 2)



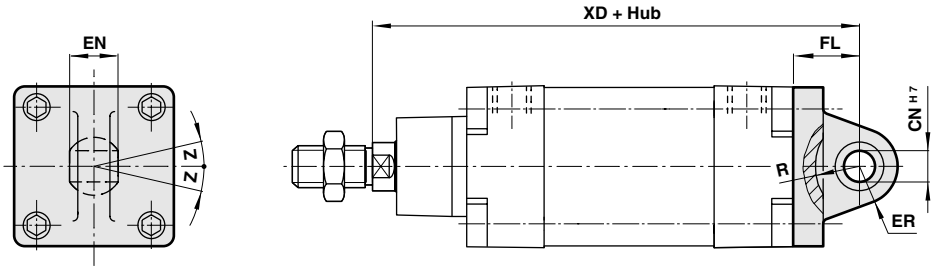
Cylinder ∅	CA	CB H14	∅ CK H9	∅ D	∅ EK f8	EM	FL	G 1	G 2	G 3	H 2	K 1
32	32	26	10	11	10	26	22	21	18	31	8	38
40	36	28	12	11	12	28	25	24	22	35	10	41
50	45	32	12	15	12	32	27	33	30	45	12	50
63	50	40	16	15	16	40	32	37	35	50	12	52
80	63	50	16	18	16	50	36	47	40	60	14	66
100	71	60	20	18	20	60	41	55	50	70	15	76

Cylinder ∅	K 2	L	L 1	LH	MR	R	∅ 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

PVQA/8000/27 — Rear Eye Mounting Style 'R'
(Corresponds to DIN ISO 6431 and VDMA 24562 Part 2, Style MP4)



PVQA/8000/33 — Universal Rear Eye Mounting Style 'UR'
(Corresponds to VDMA 24562 Part 2)



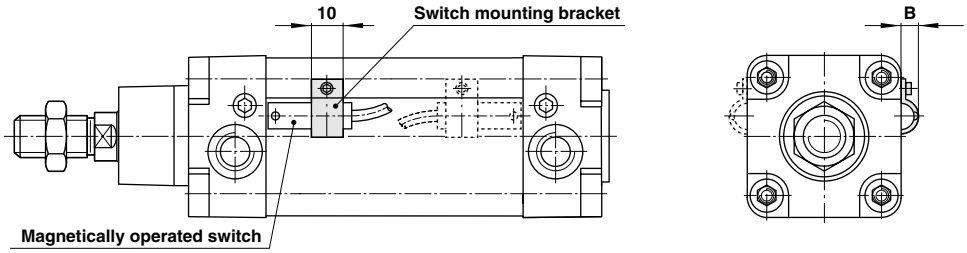
Cylinder ∅	∅ CD H9	∅ CN H7	EN	ER	EW	FL	L1	MR	R	XD	Z	Style 'R'	Style'UR'
32	10	10	14	16	25,8	22	13	9	14,5	142	13°	0,09 kg	0,17 kg
40	12	12	16	19	27,8	25	16	12	18	160	13°	0,11 kg	0,25 kg
50	12	16	21	21	31,7	27	17	12	19	170	13°	0,17 kg	0,40 kg
63	16	16	21	24	39,7	32	22	15	24	190	15°	0,24 kg	0,55 kg
80	16	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

SWITCH MOUNTING BRACKETS

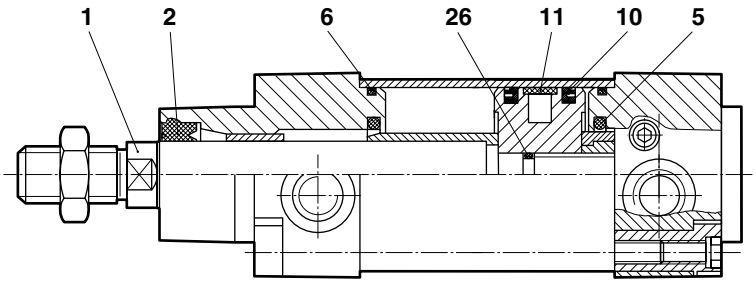
QM/33/P32/22 — Bracket

Switches: M/50, QM/33, QM/34 and QM/134 (Ø 8 mm)

Cylinder ∅	B	Weight	
32	5,5	0,003 kg	
40	6,5	0,003 kg	
50	5,5	0,003 kg	
63	6,5	0,003 kg	
80	3,5	0,003 kg	
100	1,5	0,003 kg	



SPARES



Cylinder ∅	Model	Spares kit	Comprising Item	Description	Quantity	Piston rod Item 1
32	PVA/8032/M	QA/8032/00	2	Piston rod seal	1	SM/P19966/*
40	PVA/8040/M	QA/8040/00	5	Cushion seal	2	SM/P19967/*
50	PVA/8050/M	QA/8050/00	6	Sealing ring	2	SM/P19968/*
63	PVA/8063/M	QA/8063/00	10	Piston seal	2	SM/P19969/*
80	PVA/8080/M	QA/8080/00	11	Wear ring	1	SM/P19970/*
100	PVA/8100/M	QA/8100/00	26	‘O’-ring	1	SM/P19971/*

* Insert stroke length

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