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**Important**

Before attempting any external or internal work on the cylinder or any connected components, make sure the cylinder is vented and disconnect the air supply in order to ensure isolation of the air supply.

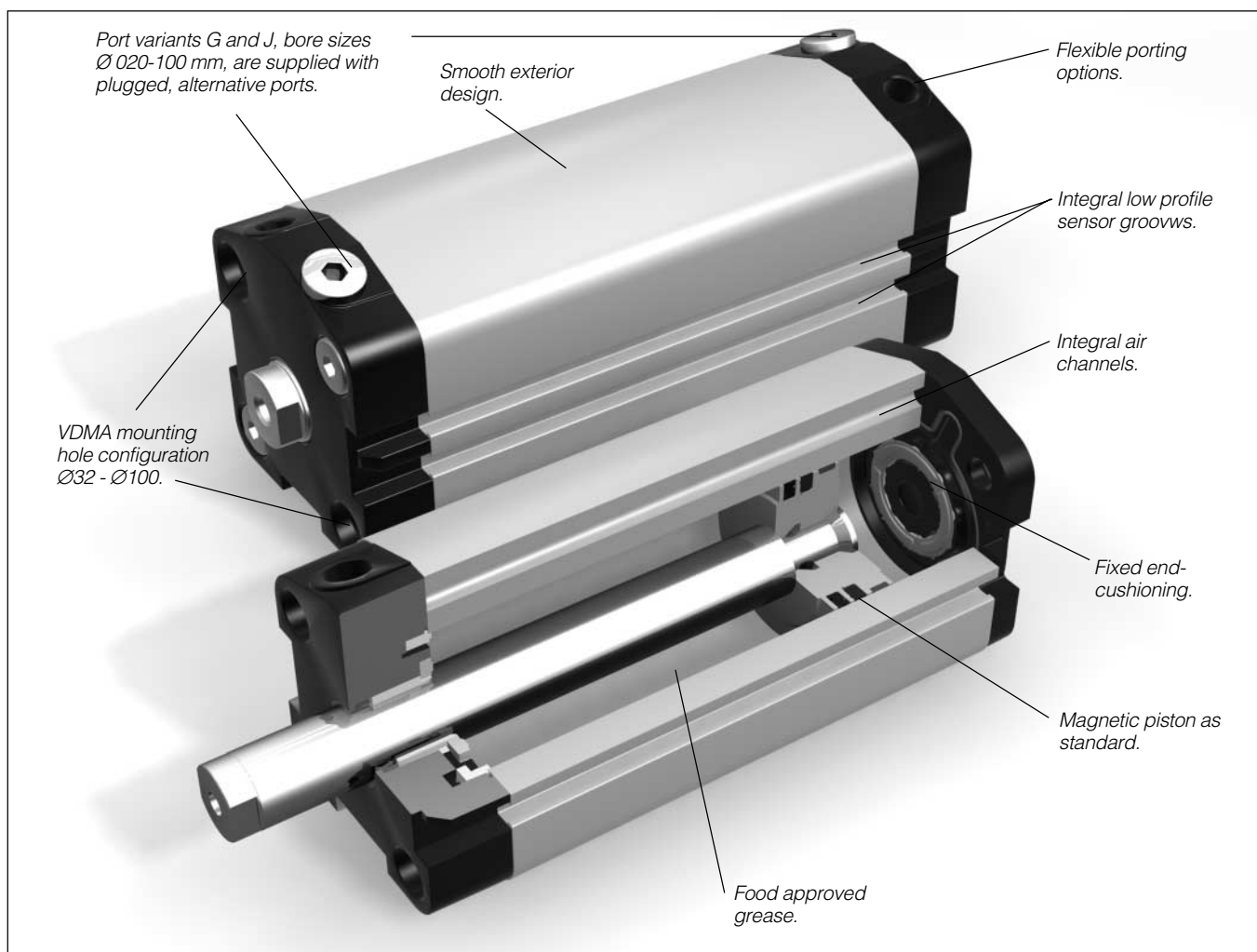


**Note**

**Air quality is essential for maximum cylinder service life (see ISO 8573).**

**Note**

**All technical data in this catalogue are typical data only.**



## Short Build Cylinders

Parker Pneumatic's versatile range of Short Build Cylinders, with unique porting options, integral sensor grooves and one of the shortest overall lengths on the market is suitable for a wide range of applications.

The range comprises ten cylinder bore sizes, 12 - 100 mm diameter, with stroke lengths from 5 to 500 mm and, as with other Parker cylinders, Short Build Cylinders are factory-lubricated with food grade grease (USDA).

The extremely small overall dimensions have been achieved through an entirely new design. Channels in the body supply air to either end of the cylinder. This means that the connection ports in the front or rear end walls can be configured to suit individual requirements. Port variants G and J, bore sizes Ø 020-100 mm, are also supplied with plugged, alternative ports, which permit a free choice of connections.

The flexible porting option, together with a choice of mounting methods, ensures that this range of cylinders can be used in variety of applications. It is especially suitable for use in applications where space is limited as, for example, in the packaging or electronic industries.

## Options

In addition to the basic version with stainless steel piston rod, magnetic piston and fixed end cushioning, the range will include several standard options that provide a wide range of choices.

Options include single acting cylinders, through rod and hollow through rod, male or female threaded rods and high-temperature versions.

## Sensors and accessories

The P1M-series incorporates a further unique feature: integral sensor grooves. The grooves are recessed into the barrel, enabling sensors to be quickly and easily fitted without increasing external dimensions. Double grooves allow sensors to be grouped together.

Hole patterns for the mountings, as for all the mounts in the complete range of mountings, comply with the VDMA-standards.

## Fixed-cushioning

Bumpers in Polyurethane as standard.

## Smooth external design

The end plates have no recesses or other grooves that could collect dirt or liquid. Cleaning is easy and effective.

## Flexible port location

The P1M is available with several different port locations. Both ports in the front end wall (H), which gives extremely short installation dimensions, both ports in the rear end wall (J), or one port in the front wall and one in the rear wall (G) as in a conventional cylinder.

Port variants G and J, bore sizes Ø 020-100 mm, are also supplied with plugged, alternative ports in the front and rear end walls, which permits a free choice of connections.

## Position sensing

All cylinders in normal temperature design are fitted with a magnet for position sensing. Electronic type sensors and reed switches are available. They are supplied with either flying lead or cable plug connector.

## Complete range of mountings

A complete range of mounting accessories is available.

## Variants

In addition to the basic design, several standard variants of these Short Built Cylinders are available to fulfill more demanding requirements in terms of performance and environmental conditions:

Cylinders with special stroke lengths

Cylinders with extended piston rods

Cylinders with male piston rod thread

Through piston rods

Through hollow piston rods

Single-acting cylinders with spring return, push and pull

Cylinders with axial connections.

High-temperature versions for operation in temperature range from -10 °C to +150 °C (not magnetic pistons, not bumpers)

Double acting, ports in front and rear plate



Double acting, both ports in front plate



Double acting, both ports in rear plate radially



Single acting



Through piston rod



Through hollow piston rod



Male rod end



## Main data: P1M

Cylinder designation	Cylinder		Piston rod				Total mass		Moving mass		Air consumption	Conn. thread
	bore	area	bore	area	thread (female)	thread (male)	at 0 mm stroke	addition per 10 mm stroke	at 0 mm stroke	addition per 10 mm stroke		
	mm	cm <sup>2</sup>	mm	cm <sup>2</sup>			kg	kg	kg	kg	litres	
P1M 012	<b>12</b>	1,13	6	0,28	M3	M6	0,060	0,016	0,010	0,002	0,0139 <sup>1)</sup>	M5
P1M 016	<b>16</b>	2,01	8	0,50	M4	M6	0,090	0,022	0,015	0,004	0,0246 <sup>1)</sup>	M5
P1M 020	<b>20</b>	3,14	10	0,78	M5	M8	0,150	0,032	0,025	0,006	0,0385 <sup>1)</sup>	M5
P1M 025	<b>25</b>	4,91	10	0,78	M6	M10x1,25	0,170	0,034	0,030	0,006	0,0633 <sup>1)</sup>	M5
P1M 032	<b>32</b>	8,0	12	1,1	M6	M10x1,25	0,260	0,044	0,050	0,009	0,1050 <sup>1)</sup>	G1/8
P1M 040	<b>40</b>	12,6	16	2,0	M6	M12x1,25	0,370	0,060	0,090	0,016	0,1620 <sup>1)</sup>	G1/8
P1M 050	<b>50</b>	19,6	20	3,1	M8	M16x1,5	0,570	0,085	0,140	0,025	0,2530 <sup>1)</sup>	G1/8
P1M 063	<b>63</b>	31,2	20	3,1	M8	M16x1,5	0,860	0,098	0,220	0,025	0,4140 <sup>1)</sup>	G1/8
P1M 080	<b>80</b>	50,3	25	4,9	M10	M20x1,5	1,460	0,146	0,380	0,039	0,6690 <sup>1)</sup>	G1/4
P1M 100	<b>100</b>	78,5	25	4,9	M12	M20x1,5	2,390	0,155	0,650	0,039	1,0430 <sup>1)</sup>	G1/4

1) Free air consumption per 10 mm stroke length for a double stroke at 6 bar

### Material specification

Piston rod	Stainless steel, DIN X 10 CrNiS 18 9
Piston rod seal	Polyurethane
Piston rod bearing	Multilayer PTFE/steel
End plates	Anodised aluminium
End cap screws	Zink plated steel
O-ring, internal	Nitrile rubber, NBR
Cylinder barrel	Anodised aluminium
Piston	Aluminium
Piston seal	Nitrile rubber, NBR
Piston bearing	UHMWPE-plastic
Magnet	Plastic-bound magnetic material
Bumpers	Polyurethane
Return spring	Surface-treated steel

### Variants:

#### High-temperature version, type G

Piston rod seal	Fluorocarbon rubber, FPM
Piston seal	Fluorocarbon rubber, FPM
O-ring	Fluorocarbon rubber, FPM

### Additional data

Working pressure	max 10 bar
Working temperature	max +80 °C min -20 °C

High-temperature version	max +150 °C min -10 °C
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Pre-lubricated, further lubrication is not normally necessary. If additional lubrication is introduced it must be continued.

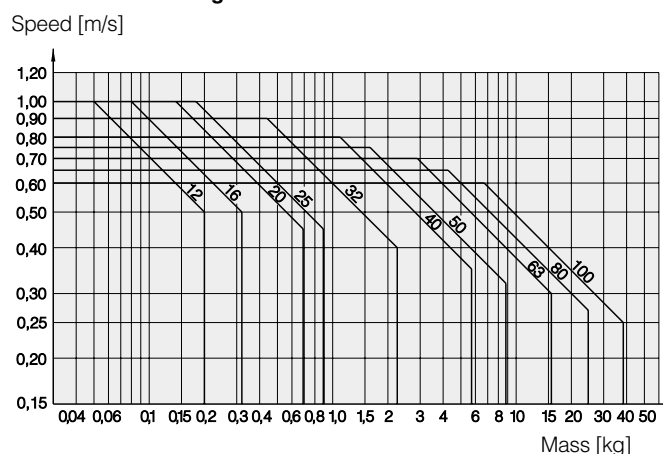
### Cushioning diagram

Use the diagram below to determine the necessary size of cylinder to provide the requisite cushioning performance. The maximum cushioning performance, as indicated in the diagram, is based on the following assumptions:

- Low load, i.e. low pressure drop across the piston
- Steady-state piston speed

The load is the sum of the internal and external friction, together with any gravity forces. At high relative loading it is recommended that, for a given speed, the load should be reduced by a factor of 2.5, or that, for a given mass, the speed should be reduced by a factor of 1.5. These factors apply in relation to the maximum performance as shown in the diagram.

### Fixed end-cushioning



## Cylinder forces

Indicated cylinder forces are theoretical and should be reduced according to the working conditions.

Cylinder designation	Cylinder bore mm	Theoretical cylinder force at 6 bar	
		exp. stroke N	retraction stroke N
<b>Double acting</b>			
P1M 012 VD	12	67	50
P1M 016 VD	16	120	91
P1M 020 VD	20	188	142
P1M 025 VD	25	294	247
P1M 032 VD	32	482	414
P1M 040 VD	40	754	633
P1M 050 VD	50	1178	989
P1M 063 VD	63	1870	1681
P1M 080 VD	80	3016	2721
P1M 100 VD	100	4712	4417

Cylinder designation	Theoretical cylinder force at 6 bar			
	expanding stroke		spring retraction	
	Nmax	Nmin	Nmax	Nmin

### Single acting, spring return for retract stroke

P1M 012 VR•A•• 005	59	55	12	8
P1M 012 VR•A•• 010	63	55	12	4
P1M 016 VR•A•• 005	107	102	18	13
P1M 016 VR•A•• 010	111	102	18	9
P1M 020 VR•A•• 005	176	169	17	12
P1M 020 VR•A•• 010	180	169	17	8
P1M 025 VR•A•• 005	276	271	23	18
P1M 025 VR•A•• 010	281	271	23	13
P1M 032 VR•A•• 005	464	453	29	18
P1M 032 VR•A•• 010	469	453	29	13
P1M 040 VR•A•• 005	726	720	34	28
P1M 040 VR•A•• 010	732	720	34	22
P1M 050 VR•A•• 010	1126	1115	63	52
P1M 050 VR•A•• 025	1141	1105	73	37
P1M 063 VR•A•• 010	1818	1807	63	52
P1M 063 VR•A•• 025	1833	1797	73	37
P1M 080 VR•A•• 010	2910	2888	128	106
P1M 080 VR•A•• 025	2942	2888	128	74
P1M 100 VR•A•• 010	4606	4548	128	106
P1M 100 VR•A•• 025	4638	4548	128	74

Cylinder designation	Theoretical cylinder force at 6 bar			
	expanding stroke Nmax	Nmin	spring retraction Nmax	Nmin
<b>Single acting, spring return for advanced stroke</b>				
P1M 012 VE•A•• 005	43	36	14	7
P1M 012 VE•A•• 010	45	40	10	5
P1M 016 VE•A•• 005	80	69	22	11
P1M 016 VE•A•• 010	84	75	16	7
P1M 020 VE•A•• 005	129	123	19	13
P1M 020 VE•A•• 010	130	119	23	12
P1M 025 VE•A•• 005	232	224	23	15
P1M 025 VE•A•• 010	233	217	30	14
P1M 032 VE•A•• 005	387	379	35	27
P1M 032 VE•A•• 010	395	379	35	19
P1M 040 VE•A•• 005	587	577	56	46
P1M 040 VE•A•• 010	598	577	56	35
P1M 050 VE•A•• 010	951	928	61	38
P1M 050 VE•A•• 025	947	901	88	42
P1M 063 VE•A•• 010	1643	1625	56	38
P1M 063 VE•A•• 025	1639	1593	88	42
P1M 080 VE•A•• 010	2593	2525	196	128
P1M 080 VE•A•• 025	2621	2531	190	100
P1M 100 VE•A•• 010	4289	4221	196	128
P1M 100 VE•A•• 025	4317	4227	190	100

## Order key

P1M
032
V
D
M
A
7
H
025

Cylinder bore mm
012
016
020
025
032
040
050
063
080
100

Cylinder type/Function	
<b>D</b>	Double acting
<b>K</b>	Double acting, through rod
<b>H</b>	Double acting, through hollow rod, Ø20-100. Max stroke 125 (Only Piston rod threads 7)
<b>R</b>	Single acting, spring return (Only Port Position G)
<b>E</b>	Single acting, spring extend (Only Port Position G)

Piston rod threads	
<b>7</b>	Female
<b>8</b>	Male

Sealing material/Magnet	
<b>M</b>	Standard sealing -20 °C to +80 °C
<b>G</b>	High temperature -10 °C to +150 °C None magnetic piston

Stroke in mm	
E.g. <b>025</b> = 25 mm	
For standard stroke length and max length, see table below	

Port Position	
<b>H</b>	Both in front plate
<b>G</b>	Front and rear plate
<b>J</b>	Both in rear plate, radial

## Standard stroke length in mm

Cylinder designation    Cylinder bore    Standard stroke lengths in mm according to ISO 4393

### Double acting

Cylinder designation	Cylinder bore	5	10	15	25	40	50	80	100
P1M 012 VD	12	•	•	•	•	•	•		
P1M 016 VD	16	•	•	•	•	•	•		
P1M 020 VD	20	•	•	•	•	•	•	•	
P1M 025 VD	25	•	•	•	•	•	•	•	
P1M 032 VD	32	•	•	•	•	•	•	•	•
P1M 040 VD	40	•	•	•	•	•	•	•	•
P1M 050 VD	50		•	•	•	•	•	•	•
P1M 063 VD	63		•	•	•	•	•	•	•
P1M 080 VD	80		•	•	•	•	•	•	•
P1M 100 VD	100		•	•	•	•	•	•	•

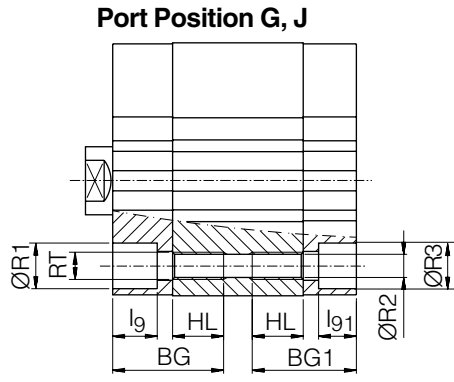
### Single acting, spring return

P1M 012 VR	12	•	•						
P1M 016 VR	16	•	•						
P1M 020 VR	20	•	•						
P1M 025 VR	25	•	•						
P1M 032 VR	32	•	•						
P1M 040 VR	40	•	•						
P1M 050 VR	50		•		•				
P1M 063 VR	63		•		•				
P1M 080 VR	80		•		•				
P1M 100 VR	100		•		•				

### Single acting, spring extended

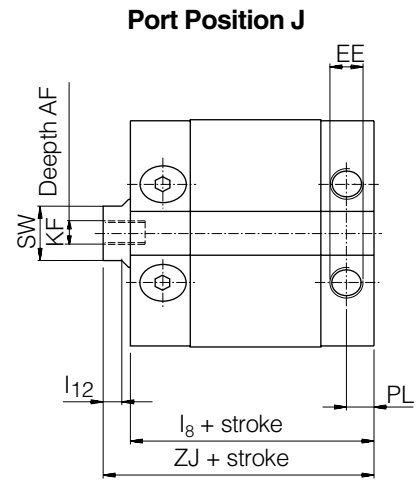
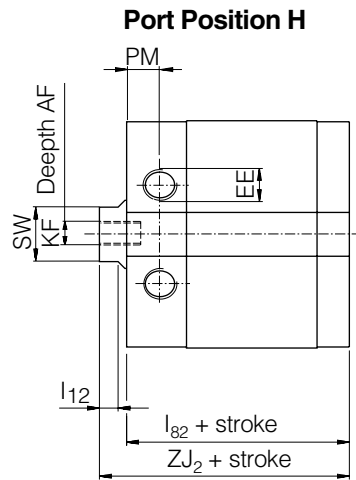
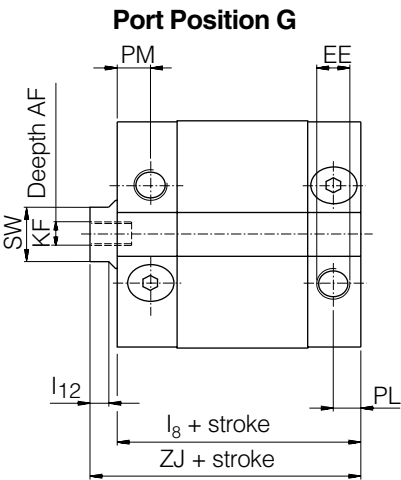
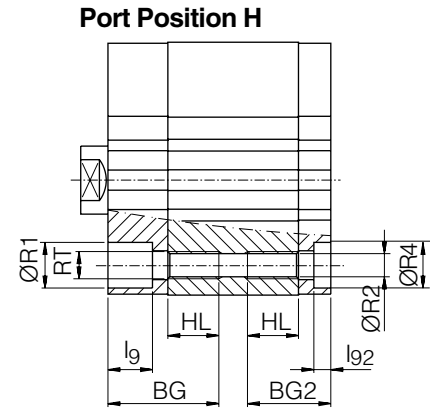
P1M 012 VE	12	•	•						
P1M 016 VE	16	•	•						
P1M 020 VE	20	•	•						
P1M 025 VE	25	•	•						
P1M 032 VE	32	•	•						
P1M 040 VE	40	•	•						
P1M 050 VE	50		•		•				
P1M 063 VE	63		•		•				
P1M 080 VE	80		•		•				
P1M 100 VE	100		•		•				

Dimensions



**Important!**

Please note the modifications to the countersunk fixing holes for dimensions Ø25-Ø63. (bold face in the table) The change will be introduced, one size at a time, as from May 2002. This can mean that longer through-going installation screws might be needed



Dimensions

Cylinder designation	AF mm	BG mm	BG1 mm	BG2 mm	EE	HL mm	l8 mm	l9* mm	l12 mm	l82 mm	l91* mm	l92* mm	KF
P1M 012	6	25,5	20,5	15,5	M5	12	40,0	3,5	3,0	35,0	3,5	3,5	M3
P1M 016	8	26,0	21,0	15,5	M5	12	41,5	5,5	3,0	36,5	3,0	4,0	M4
P1M 020	10	32,5	27,0	22,0	M5	18	42,5	10,5	4,0	37,5	5,0	4,5	M5
P1M 025	12	32,5	29,0	23,0	M5	18	44,5	<b>4,1</b> (10,5)	4,0	38,5	<b>4,1</b> (7,0)	5,0	M6
P1M 032	12	41,5	39,0	31,0	G1/8	24	49,0	<b>4,5</b> (14,5)	5,0	41,0	<b>4,5</b> (12,5)	4,0	M6
P1M 040	12	41,5	39,5	31,0	G1/8	24	50,5	<b>7,2</b> (14,0)	5,5	42,5	<b>5,2</b> (12,0)	<b>3,5</b> (4,0)	M6
P1M 050	12	42,5	40,5	34,5	G1/8	25	51,0	<b>5,2</b> (13,0)	5,5	44,5	<b>5,2</b> (11,0)	5,0	M8
P1M 063	12	43,5	40,5	35,0	G1/8	25	55,5	6,5	5,5	50,0	6,5	<b>4,0</b> (6,5)	M8
P1M 080	14	51,0	51,0	42,0	G1/4	30	63,5	9,5	6,0	54,5	9,5	8,5	M10
P1M 100	16	52,0	52,0	43,5	G1/4	30	72,5	9,5	6,0	64,0	9,5	8,5	M12

Cylinder designation	PL mm	PM mm	R1* mm	R2 mm	R3* mm	R4* mm	RT mm	SW	ZJ mm	ZJ2 mm
P1M 012	5,0	8,0	6,0	3,5	6,0	6,0	M4	5	43,5	38,5
P1M 016	5,0	9,0	7,5	3,5	6,0	6,0	M4	7	45,0	40,0
P1M 020	5,0	9,0	10,5	5,0	9,0	9,0	M6	9	47,0	42,0
P1M 025	7,0	9,0	10,5	5,0	9,0	9,0	M6	9	49,5	43,5
P1M 032	8,0	10,5	10,5	5,0	<b>9,5</b> (10,5)	<b>9,5</b> (10,5)	M6	10	57,0	48,5
P1M 040	7,5	9,5	10,5	5,0	10,5	10,5	M6	13	58,5	50,5
P1M 050	8,0	10,0	<b>14,5</b> (13,5)	7,0	<b>14,5</b> (13,5)	<b>11,0</b> (13,5)	M8	16	59,0	52,5
P1M 063	8,0	11,0	10,5	7,0	10,5	10,5	M8	16	63,5	58,0
P1M 080	11,5	11,5	14,0	8,5	14,0	14,0	M10	21	73,5	64,5
P1M 100	12,0	12,0	14,0	8,5	14,0	14,0	M10	21	84,5	76,0

Length tolerances ±1 mm  
Stroke length tolerances +1,5/0 mm

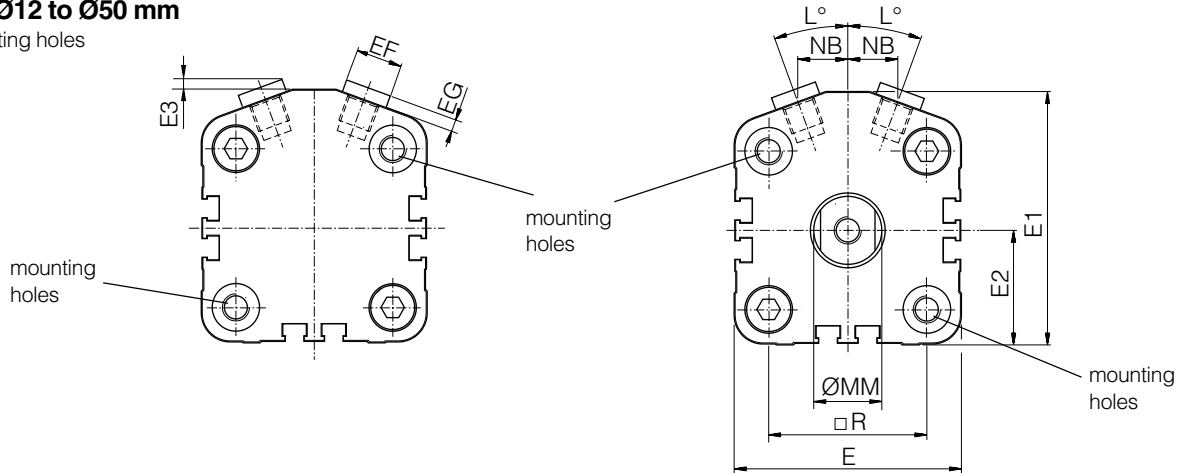
\* NOTE! New dimensions in bold face, dimensions in brackets refer to the previous version.

## Dimensions

### Port Position G, H, J

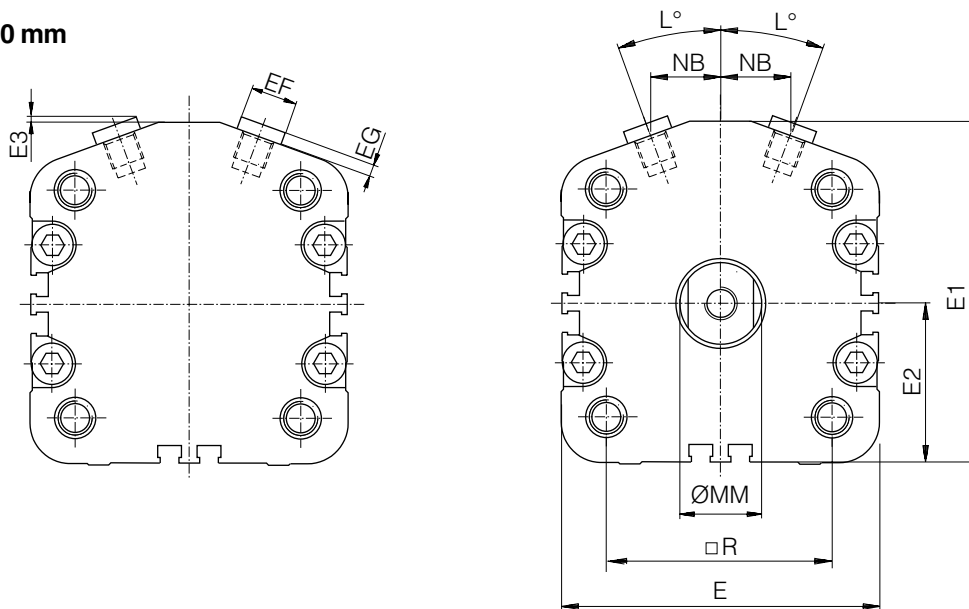
#### Bore Ø12 to Ø50 mm

2 mounting holes



#### Bore Ø63 to Ø100 mm

4 mounting holes



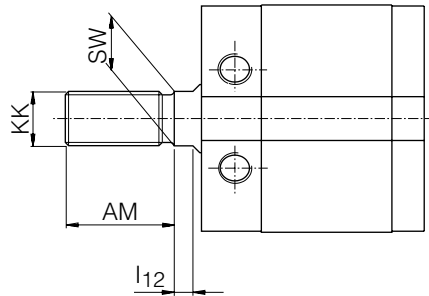
## Dimensions

Cylinder designation	E mm	E1 mm	E2 mm	E3 mm	EE mm	EF mm	EG mm	L	MM mm	NB mm	R mm
P1M 012	27,0	31,0	14,0	-	M5	-	-	26°	6	5,5	15,5
P1M 016	31,5	35,0	16,0	-	M5	-	-	20°	8	6,5	20,0
P1M 020	38,5	42,5	19,5	3,5	M5	7*	4,5	20°	10	7,5	25,5
P1M 025	41,5	45,5	21,0	3,5	M5	7*	4,5	20°	10	8,5	28,0
P1M 032	48,0	56,0	24,0	3,0	G1/8	14	2,5	25°	12	9,5	32,5
P1M 040	56,0	62,5	28,0	3,0	G1/8	14	2,5	20°	16	11,5	38,0
P1M 050	67,0	74,5	33,5	3,0	G1/8	14	2,5	20°	20	14,5	46,5
P1M 063	82,0	86,0	40,5	2,5	G1/8	14	2,5	20°	20	17,5	56,5
P1M 080	98,0	106,5	48,5	2,5	G1/4	17	3,0	20°	25	25,5	72,0
P1M 100	119,0	126,5	59,5	2,5	G1/4	17	3,0	20°	25	31,5	89,0

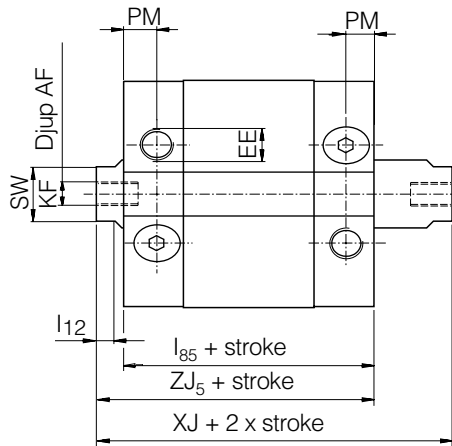
\* Hexagon head screw

## Dimensions Cylindervarianter

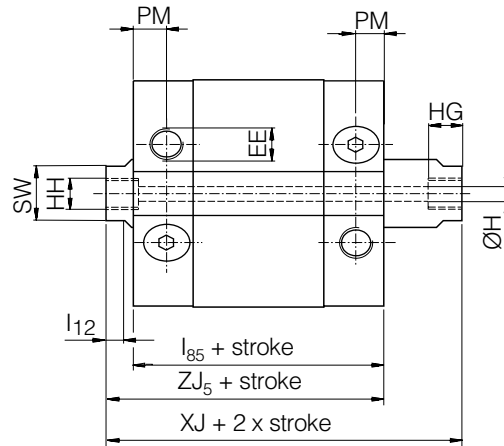
### Piston rod thread 8 (external)



### Cylinder type K (through piston rod)



### Cylinder type H (hollow, through piston rod)

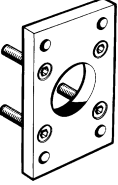


## Dimensions

Cylinder designation	AF	AM mm	H* mm	HG mm	HH mm	l12 mm	l85 mm	KF mm	KK	PM	SW mm	XJ mm	ZJ5 mm	mm
P1M 012	6	16	-	-	-	3,0	46,0	M3	M6	8,0	5	54,0	50,0	
P1M 016	8	20	-	-	-	3,0	47,5	M4	M6	9,0	7	54,5	51,5	
P1M 020	10	22	3	7	M5	4,0	49,5	M5	M8	9,0	9	58,5	54,0	
P1M 025	12	22	3	7	M5	4,0	49,5	M6	M10X1,25	9,0	9	60,0	55,0	
P1M 032	12	22	3	7	G1/8	5,0	51,5	M6	M10X1,25	10,5	10	67,5	59,5	
P1M 040	12	24	4	8	G1/8	5,5	52,5	M6	M12X1,25	9,5	13	69,0	60,5	
P1M 050	12	32	5	8	G1/8	5,5	53,0	M8	M16X1,5	10,0	16	69,0	61,0	
P1M 063	12	32	5	8	G1/8	5,5	58,5	M8	M16X1,5	11,0	16	75,0	66,5	
P1M 080	14	40	6	11	G1/4	6,0	63,5	M10	M20X1,5	11,5	21	84,0	73,5	
P1M 100	16	40	6	11	G1/4	6,0	72,5	M12	M20X1,5	12,0	21	97,0	84,5	

\* Dimension H only for cylinder H  
Length tolerances  $\pm 1$  mm  
Stroke length tolerances  $+1,5/0$  mm

## Cylinder mountings

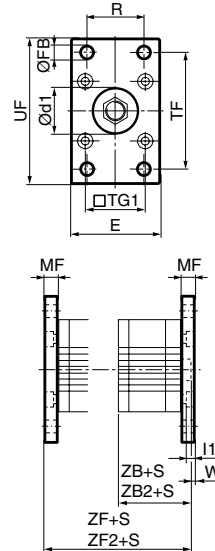
Type	Description	Cyl. bore Ø mm	Mass kg	Order code
<b>Flange MF1/MF2</b> 	Intended for fixed mounting of cylinder. Flange can be fitted to front- or rear end-plates of cylinder.  Materials Flange: Surface-treated steel, black Mounting screws according to DIN 6912: Zinc-plated steel 8.8  Supplied complete with mounting screws for attachment to cylinder.	12	0,08	<b>P1M-4DMB</b>
		16	0,10	<b>P1M-4FMB</b>
		20	0,16	<b>P1M-4HMB</b>
		25	0,20	<b>P1M-4JMB</b>
		32	0,23	<b>P1C-4KMB</b>
		40	0,28	<b>P1C-4LMB</b>
		50	0,53	<b>P1C-4MMB</b>
		63	0,71	<b>P1C-4NMB</b>
		80	1,59	<b>P1C-4PMB</b>
		100	2,19	<b>P1C-4QMB</b>

Ø32-100 according to ISO MF1/MF2, VDMA, AFNOR

Cyl. bore mm	d1 mm	FB mm	TG1 mm	E mm	R mm	MF mm	TF mm	UF mm	I1 mm	W mm	ZF* mm	ZB* mm	ZF2* mm	ZB2* mm
	H11	H13			JS14	JS14	JS14		-0,5					
12	9,0	4,5	15,5	25	-	5,5	45,0	55	3,0	2,0	44,0	38,5	49,0	43,5
16	11,5	4,5	20,0	30	-	5,5	45,0	55	3,0	2,0	45,5	40,0	50,5	45,0
20	14,0	6,6	25,5	39	-	8,0	50,5	62	4,2	4,5	49,0	41,0	54,0	46,0
25	14,0	6,6	28,0	42	-	8,0	53,0	65	4,2	3,0	51,5	43,5	56,5	49,5
32	30,0	7,0	32,5	45	32	10,0	64,0	80	5,0	2,0	58,5	48,5	67,0	57,0
40	35,0	9,0	38,0	52	36	10,0	72,0	90	5,0	2,0	60,5	50,5	68,5	58,5
50	40,0	9,0	46,5	65	45	12,0	90,0	110	6,5	4,0	64,5	52,5	71,0	59,0
63	45,0	9,0	56,5	75	50	12,0	100,0	120	6,5	4,0	70,0	58,0	75,5	63,5
80	45,0	12,0	72,0	95	63	16,0	126,0	150	8,0	6,0	80,5	64,5	89,5	73,5
100	55,0	14,0	89,0	115	75	16,0	150,0	170	8,0	4,0	92,0	76,0	100,5	84,5

S = Stroke length

\* ZF, ZB for cylinders with both ports in front end (type H)  
ZF2, ZB2 for all other cylinders (type G, J, K)



## Angle bracket MS1

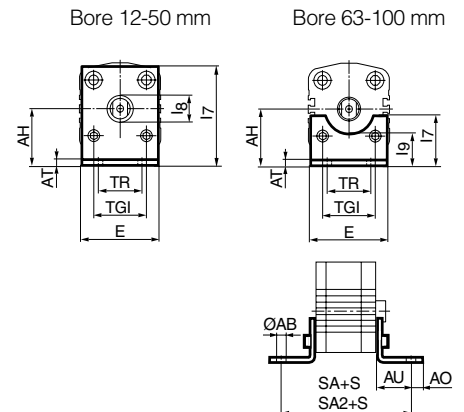
Cyl. bore mm	AB mm	TG1 mm	E mm	TR mm	AO mm	AU mm	AH mm	I7 mm	AT mm	I9 mm	I8 mm	SA* mm	SA2* mm
	H14			JS14			JS15			JS14			
12	4,5	15,5	44	35	5,5	8,0	17	29,5	2	-	8	51,0	56,0
16	4,5	20,0	48	39	6,0	8,0	19	33,5	2	-	10	52,5	57,5
20	6,6	25,5	62	50	7,5	9,0	24	42,0	3,2	-	12	59,5	64,5
25	6,6	28,0	66	52	7,5	10,5	26	46,0	3,2	-	12	59,5	65,5
32	7,0	32,5	45	32	11,0	24,0	32	54,5	8,0	-	30	88,5	97,0
40	9,0	38,0	52	36	7,0	28,0	36	62,0	8,0	-	35	98,5	106,5
50	9,0	46,5	65	45	13,0	32,0	45	77,5	10,0	-	40	108,5	115,0
63	9,0	56,5	75	50	13,0	32,0	50	35,0	5,5	27,5	-	114,0	119,5
80	12,0	72,0	95	63	14,0	41,0	63	49,0	6,5	40,5	-	136,5	145,5
100	14,0	89,0	115	75	15,0	41,0	71	54,0	6,5	43,5	-	146,0	154,5

Ø32-100 according to ISO MS1, VDMA, AFNOR

Cyl. bore mm	AB mm	TG1 mm	E mm	TR mm	AO mm	AU mm	AH mm	I7 mm	AT mm	I9 mm	I8 mm	SA* mm	SA2* mm
12	4,5	15,5	44	35	5,5	8,0	17	29,5	2	-	8	51,0	56,0
16	4,5	20,0	48	39	6,0	8,0	19	33,5	2	-	10	52,5	57,5
20	6,6	25,5	62	50	7,5	9,0	24	42,0	3,2	-	12	59,5	64,5
25	6,6	28,0	66	52	7,5	10,5	26	46,0	3,2	-	12	59,5	65,5
32	7,0	32,5	45	32	11,0	24,0	32	54,5	8,0	-	30	88,5	97,0
40	9,0	38,0	52	36	7,0	28,0	36	62,0	8,0	-	35	98,5	106,5
50	9,0	46,5	65	45	13,0	32,0	45	77,5	10,0	-	40	108,5	115,0
63	9,0	56,5	75	50	13,0	32,0	50	35,0	5,5	27,5	-	114,0	119,5
80	12,0	72,0	95	63	14,0	41,0	63	49,0	6,5	40,5	-	136,5	145,5
100	14,0	89,0	115	75	15,0	41,0	71	54,0	6,5	43,5	-	146,0	154,5

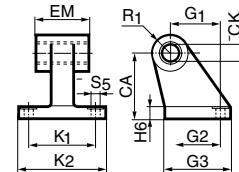
S = Stroke length

\* SA for cylinders with both ports in front end (type H)  
\* SA2 for all other cylinders (type G, J, K)



## Cylinder mountings

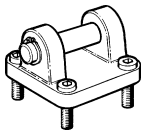
Type	Description	Cyl. bore Ø mm	Mass kg	Order code
<b>Pivot bracket with rigid bearing</b>	Intended for flexible mounting of cylinder. The pivot bracket can be combined with clevis bracket MP2.  Materials Pivot bracket: Surface-treated aluminium, black Bearing: Sintered oil-bronze bushing	32	0,06	<b>P1C-4KMD</b>
		40	0,08	<b>P1C-4LMD</b>
		50	0,15	<b>P1C-4MMD</b>
		63	0,20	<b>P1C-4NMD</b>
		80	0,33	<b>P1C-4PMD</b>
		100	0,49	<b>P1C-4QMD</b>



Ø32-100 according to CETOP RP 107 P, VDMA, AFNOR

Cyl. bore mm	CK	S5	K1	K2	G1	G2	EM	G3	CA	H6	R1
	H9 mm	H13 mm	JS14 mm	mm	JS14 mm	JS14 mm	mm	mm	JS15 mm	mm	mm
32	10	6,6	38	51	21	18	25,5	31	32	8	10
40	12	6,6	41	54	24	22	27,0	35	36	10	11
50	12	9,0	50	65	33	30	31,0	45	45	12	13
63	16	9,0	52	67	37	35	39,0	50	50	12	15
80	16	11,0	66	86	47	40	49,0	60	63	14	15
100	20	11,0	76	96	55	50	59,0	70	71	15	19

## Clevis bracket MP2

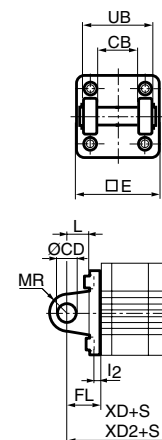


Intended for flexible mounting of cylinder. Clevis bracket MP2 can be combined with clevis bracket MP4.  Materials Clevis bracket: Surface-treated aluminium, black Mounting screws according to DIN 912: Zinc-plated steel 8.8 Pin: surface treated steel	12	0,02	<b>P1M-4DMT</b>
	16	0,03	<b>P1M-4FMT</b>
	20	0,05	<b>P1M-4HMT</b>
	25	0,06	<b>P1M-4JMT</b>
	32	0,08	<b>P1C-4KMT</b>
	40	0,11	<b>P1C-4LMT</b>
Supplied complete with mounting screws for attachment to cylinder.	50	0,14	<b>P1C-4MMT</b>
	63	0,29	<b>P1C-4NMT</b>
	80	0,36	<b>P1C-4PMT</b>
	100	0,64	<b>P1C-4QMT</b>

Ø32-100 according to ISO MP2, VDMA, AFNOR

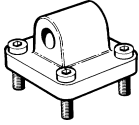
Cyl. bore mm	E	UB	CB	FL	L	I2	CD	MR	XD*	XD2*
	mm	h14 mm	H14 mm	±0,2 mm	mm	mm	H9 mm	mm	mm	mm
12	27,0	10	5,2	14	7	-	5	6	52,5	57,5
16	31,5	12	6,7	15	10	-	5	6	55,0	60,0
20	38,5	16	8,2	18	12	-	8	9	59,0	65,0
25	41,0	20	10,2	20	14	-	10	10	63,5	69,5
32	45,0	25	12,2	22	16	5,5	10	10	70,5	79,0
40	52,0	32	15,2	25	18	6,5	12	12	75,5	83,5
50	65,0	40	19,2	27	20	6,5	12	12	79,5	86,0
63	75,0	50	24,2	32	24	6,5	16	16	90,0	95,5
80	95,0	60	30,2	36	28	10,0	16	16	100,5	109,5
100	115,0	75	37,2	41	33	10,0	20	20	117,0	125,5

S = Stroke length



\* XD for cylinders with both ports in front end (type H)  
XD2 for all other cylinders (type G, J, K)

## Cylinder mountings

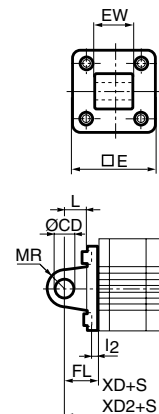
Type	Description	Cyl. bore Ø mm	Mass kg	Order code
<b>Clevis bracket MP4</b> 	Intended for flexible mounting of cylinder. Clevis bracket MP4 can be combined with clevis bracket MP2.	12	0,02	<b>P1M-4DME</b>
		16	0,03	<b>P1M-4FME</b>
	Materials Clevis bracket: Surface-treated aluminium, black Mounting screws according to DIN 912: Zinc-plated steel 8.8  Supplied complete with mounting screws for attachment to cylinder.	20	0,05	<b>P1M-4HME</b>
		25	0,07	<b>P1M-4JME</b>
		32	0,09	<b>P1C-4KME</b>
		40	0,13	<b>P1C-4LME</b>
		50	0,17	<b>P1C-4MME</b>
		63	0,36	<b>P1C-4NME</b>
		80	0,46	<b>P1C-4PME</b>
		100	0,83	<b>P1C-4QME</b>

Ø32-100 according to ISO MP4, VDMA, AFNOR

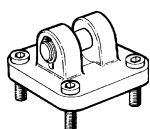
Cyl. bore mm	E mm	EW mm	FL mm ±0,2	L mm	I2 mm	CD mm H9	MR mm	XD* mm	XD2* mm
12	27,0	4,7	14	7	-	5	6	52,5	57,5
16	31,5	6,2	15	10	-	5	6	55,0	60,0
20	38,5	7,7	18	12	-	8	9	59,0	65,0
25	41,0	9,7	20	14	-	10	10	63,5	69,5
32	45,0	26,0	22	13	5,5	10	10	70,5	79,0
40	52,0	28,0	25	16	5,5	12	12	75,5	83,5
50	65,0	32,0	27	16	6,5	12	12	79,5	86,0
63	75,0	40,0	32	21	6,5	16	16	90,0	95,5
80	95,0	50,0	36	22	10,0	16	16	100,5	109,5
100	115,0	60,0	41	27	10,0	20	20	117,0	125,5

S = Stroke length

\* XD for cylinders with both ports in front end (type H)  
XD2 for all other cylinders (type G, J, K)



## Clevis bracket GA



Intended for flexible mounting of cylinder. Clevis bracket GA can be combined with pivot bracket with swivel bearing, swivel eye bracket and swivel rod eye.	32	0,22	<b>P1C-4KMC</b>
	40	0,29	<b>P1C-4LMC</b>
	50	0,48	<b>P1C-4MMC</b>
	63	0,68	<b>P1C-4NMC</b>
	80	1,39	<b>P1C-4PMC</b>
Materials Clevis bracket: Surface-treated steel, black Mounting screws according to DIN 912: Zinc-plated steel 8.8	100	2,04	<b>P1C-4QMC</b>

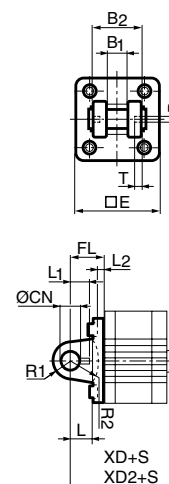
Supplied complete with mounting screws for attachment to cylinder.

According to VDMA, AFNOR

Cyl. bore mm	E mm	B2 mm d12	B1 mm H14	T mm	B3 mm	R2 mm	L1 mm	FL mm ±0,2	I2 mm	L mm	CN mm F7	R1 mm	XD* mm	XD2* mm
32	45	34	14	3	3,3	17	11,5	22	5,5	12	10	11	70,5	79,0
40	52	40	16	4	4,3	20	12,0	25	5,5	15	12	13	75,5	83,5
50	65	45	21	4	4,3	22	14,0	27	6,5	17	16	18	79,5	86,0
63	75	51	21	4	4,3	25	14,0	32	6,5	20	16	18	90,0	95,5
80	95	65	25	4	4,3	30	16,0	36	10,0	20	20	22	100,5	109,5
100	115	75	25	4	4,3	32	16,0	41	10,0	25	20	22	117,0	125,5

S = Stroke length

\* XD for cylinders with both ports in front end (type H)  
XD2 for all other cylinders (type G, J, K)



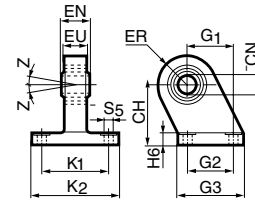
## Cylinder mountings

Type	Description	Cyl. bore Ø mm	Mass kg	Order code
<b>Pivot bracket with swivel bearing</b>	Intended for use together with clevis bracket GA.	32	0,18	<b>P1C-4KMA</b>
		40	0,25	<b>P1C-4LMA</b>
	Material	50	0,47	<b>P1C-4MMA</b>
	Pivot bracket: Surface-treated steel, black	63	0,57	<b>P1C-4NMA</b>
	Swivel bearing according to DIN 648K: Hardened steel	80	1,05	<b>P1C-4PMA</b>
		100	1,42	<b>P1C-4QMA</b>



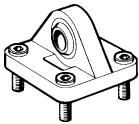
According to VDMA, AFNOR

Cyl. bore mm	CN H7 mm	S5 H13 mm	K1 JS14 mm	K2 mm	EU mm	G1 JS14 mm	G2 JS14 mm	EN mm	G3 mm	CH JS15 mm	H6 mm	ER mm	Z mm
32	10	6,6	38	51	10,5	21	18	14	31	32	10	16	4°
40	12	6,6	41	54	12,0	24	22	16	35	36	10	18	4°
50	16	9,0	50	65	15,0	33	30	21	45	45	12	21	4°
63	16	9,0	52	67	15,0	37	35	21	50	50	12	23	4°
80	20	11,0	66	86	18,0	47	40	25	60	63	14	28	4°
100	20	11,0	76	96	18,0	55	50	25	70	71	15	30	4°



## Swivel eye bracket

<b>Swivel eye bracket</b>	Intended for use together with clevis bracket GA.	32	0,20	<b>P1C-4KMS</b>
		40	0,30	<b>P1C-4LMS</b>
	Material	50	0,50	<b>P1C-4MMS</b>
	Bracket: Surface-treated steel, black	63	0,70	<b>P1C-4NMS</b>
	Swivel bearing according to DIN 648K: Hardened steel	80	1,20	<b>P1C-4PMS</b>
		100	1,60	<b>P1C-4QMS</b>

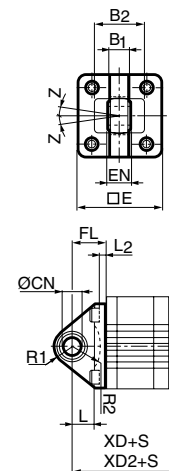


According to VDMA, AFNOR

Cyl. bore mm	E mm	B1 mm	B2 mm	EN mm	R1 mm	R2 mm	FL mm	I2 mm	L mm	CN H7 mm	XD* mm	XD2* mm	Z mm
32	45	10,5	38	14	16	14	22	5,5	12	10	70,5	79,0	4°
40	52	12,0	44	16	18	16	25	5,5	15	12	75,5	83,5	4°
50	65	15,0	51	21	21	19	27	6,5	15	16	79,5	86,0	4°
63	75	15,0	56	21	23	22	32	6,5	20	16	90,0	95,5	4°
80	95	18,0	72	25	29	25	36	10,0	20	20	100,5	109,5	4°
100	115	18,0	82	25	31	27	41	10,0	25	20	117,0	125,5	4°

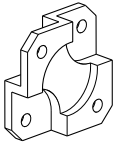
S=Stroke length

\* XD for cylinders with both ports in front end (type H)  
XD2 for all other cylinders (type G, J, K)

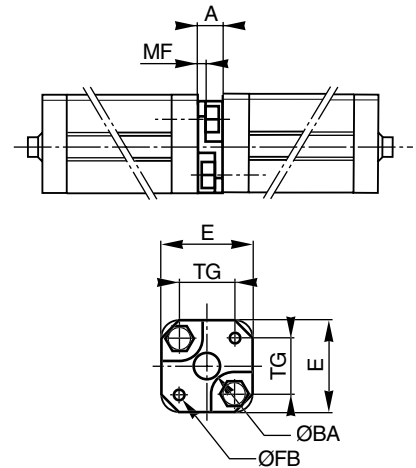


## Cylinder mountings

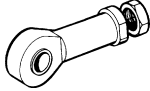
Type	Description	Cyl. bore Ø mm	Mass kg	Order code
<b>Mounting kit</b>	Mounting kit for back to back mounted cylinders, 3 and 4 position cylinders.  Material: Mounting, Aluminium Mounting screws, Zinc-plated steel 8.8	32	0,060	<b>P1E-6KB0</b>
		40	0,078	<b>P1E-6LB0</b>
		50	0,162	<b>P1E-6MB0</b>
		63	0,194	<b>P1E-6NB0</b>
		80	0,450	<b>P1E-6PB0</b>
		100	0,672	<b>P1E-6QB0</b>



Cyl. bore mm	E mm	TG mm	ØFB mm	MF mm	A mm	ØBA mm
32	50	32,5	6,5	5	16	30
40	60	38,0	6,5	5	16	35
50	66	46,5	8,5	6	20	40
63	80	56,5	8,5	6	20	45
80	100	72,0	10,5	8	25	45
100	118	89,0	10,5	8	25	55

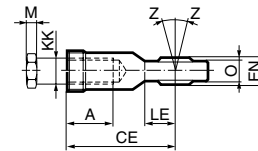
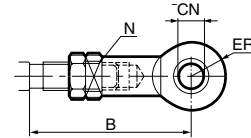


## Cylinder mountings

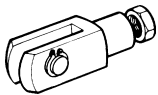
Type	Description	Cyl. bore Ø mm	Mass kg	Order code
<b>Swivel rod eye</b> 	Swivel rod eye for articulated mounting of cylinder. Swivel rod eye can be combined with clevis bracket GA. Maintenance-free.  Materials Swivel rod eye, nut: Galvanized steel Swivel bearing according to DIN 648K: Hardened steel	12	0,03	<b>P1A-4DRS</b>
		16	0,03	<b>P1A-4DRS</b>
		20	0,05	<b>P1A-4HRS</b>
		25	0,07	<b>P1A-4JRS</b>
		32	0,08	<b>P1C-4KRS</b>
		40	0,12	<b>P1C-4LRS</b>
		50	0,25	<b>P1C-4MRS</b>
		63	0,25	<b>P1C-4MRS</b>
		80	0,46	<b>P1C-4PRS</b>
		100	0,46	<b>P1C-4PRS</b>

According to ISO 8139

Cyl. bore mm	A mm	B min mm	B max mm	CE mm	CN H9 mm	EN h12 mm	ER mm	KK mm	LE min mm	M mm	N mm	O mm	Z °
12	9	37	40	30	6	9	10	M6	10	3,2	10	6,8	10°
16	9	37	40	30	6	9	10	M6	10	3,2	10	6,8	10°
20	12	44	48	36	8	12	12	M8	12	4,0	13	9,0	12°
25	15	48	55	43	10	14	14	M10X1,25	14	5,0	17	10,5	12°
32	20	48	55	43	10	14	14	M10x1,25	15	5,0	17	10,5	12°
40	22	56	62	50	12	16	16	M12x1,25	17	6,0	19	12,0	12°
50	28	72	80	64	16	21	21	M16x1,5	22	8,0	22	15,0	15°
63	28	72	80	64	16	21	21	M16x1,5	22	8,0	22	15,0	15°
80	33	87	97	77	20	25	25	M20x1,5	26	10,0	32	18,0	15°
100	33	87	97	77	20	25	25	M20x1,5	26	10,0	32	18,0	15°



## Clevis



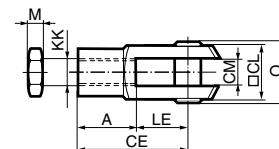
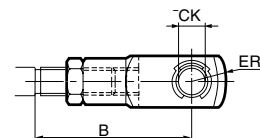
Clevis for articulated mounting of cylinder.

Material  
Clevis, clip, nut: Galvanized steel  
Pin: Hardened steel

12	0,02	<b>P1A-4DRC</b>
16	0,02	<b>P1A-4DRC</b>
20	0,05	<b>P1A-4HRC</b>
25	0,09	<b>P1A-4JRC</b>
32	0,09	<b>P1C-4KRC</b>
40	0,15	<b>P1C-4LRC</b>
50	0,35	<b>P1C-4MRC</b>
63	0,35	<b>P1C-4MRC</b>
80	0,75	<b>P1C-4PRC</b>
100	0,75	<b>P1C-4PRC</b>

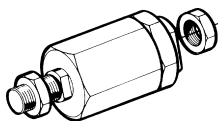
According to ISO 8140

Cyl. bore mm	A mm	B min mm	B max mm	CE mm	CK h11/E9 mm	CL mm	CM mm	ER mm	KK mm	LE mm	M mm	O mm
12	12	28	34	24	6	12	6	7	M6	12	3,2	17,0
16	12	28	34	24	6	12	6	7	M6	12	3,2	17,0
20	16	37	44	32	8	16	8	10	M8	16	4,0	22,0
25	20	45	52	40	10	20	10	12	M10X1,25	20	5,0	28,0
32	20	45	52	40	10	20	10	16	M10x1,25	20	5,0	28,0
40	24	54	60	48	12	24	12	19	M12x1,25	24	6,0	32,0
50	32	72	80	64	16	32	16	25	M16x1,5	32	8,0	41,5
63	32	72	80	64	16	32	16	25	M16x1,5	32	8,0	41,5
80	40	90	100	80	20	40	20	32	M20x1,5	40	10,0	50,0
100	40	90	100	80	20	40	20	32	M20x1,5	40	10,0	50,0



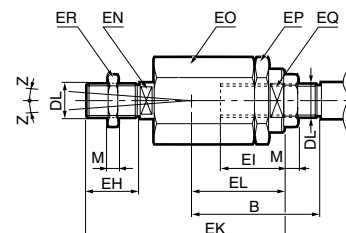
## Cylinder mountings

Type	Description	Cyl. bore Ø mm	Mass kg	Order code
<b>Flexocoupling</b>	Flexocoupling for articulated mounting of piston rod. Flexocoupling is intended to take up axial angle errors within a range of ±4°.	32	0,21	<b>P1C-4KRF</b>
		40	0,22	<b>P1C-4LRF</b>
		50	0,67	<b>P1C-4MRF</b>
		63	0,67	<b>P1C-4MRF</b>
		80	0,72	<b>P1C-4PRF</b>
		100	0,72	<b>P1C-4PRF</b>



Material  
Flexocoupling, nut: Galvanized steel  
Socket: Hardened steel

Supplied complete with galvanized adjustment nut.

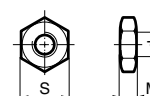


Cyl. bore mm	B min mm	B max mm	DL	EH	EI	EK	EL	EN	EO	EP	EQ	M	Z
				mm	mm	mm	mm	mm	mm	mm	mm	mm	
32	36	43	M10x1,25	20	23	70	31	12	30	30	19	5	4°
40	37	43	M12x1,25	23	23	67	31	12	30	30	19	6	4°
50	53	61	M16x1,5	40	32	112	45	19	41	41	30	8	4°
63	53	61	M16x1,5	40	32	112	45	19	41	41	30	8	4°
80	57	67	M20x1,5	39	42	122	56	19	41	41	30	10	4°
100	57	67	M20x1,5	39	42	122	56	19	41	41	30	10	4°

<b>Nut</b>	Intended for fixed mounting of accessories to the piston rod.	Cyl. bore mm	Material:	Galvanized steel	(Cylinders supplied with galvanized nut)		Mass kg	Order code
		12				0,002	<b>0261210800</b>	
		16				0,002	<b>0261210800</b>	
		20				0,005	<b>0261211000</b>	
		25				0,007	<b>9128985601</b>	
		32				0,007	<b>9128985601</b>	
		40				0,010	<b>0261109910</b>	
		50				0,021	<b>9128985603</b>	
		63				0,021	<b>9128985603</b>	
		80				0,040	<b>0261109911</b>	
		100				0,040	<b>0261109911</b>	

According to DIN 439 B

Cyl. bore mm	d	M	S
12	M6	3,2	10
16	M6	3,2	10
20	M8	4,0	13
25	M10x1,25	5,0	17
32	M10x1,25	5,0	17
40	M12x1,25	6,0	19
50	M16x1,5	8,0	24
63	M16x1,5	8,0	24
80	M20x1,5	10,0	30
100	M20x1,5	10,0	30



**Reed switch sensors**

The reed switch sensors incorporate a well-proven, universal-voltage, compact reed switch element, making them suitable for a wide range of applications. They can work with electronic control systems or conventional relay systems. No environment is too severe.

**Technical data**

Design	Reed
Output	Making
Voltage range	10 to 120 VAC/VDC
Max permissible ripple	10%
Max voltage drop	3 V
Max load current	100 mA
Max breaking power (resistive)	10 W
Min actuating distance	5 mm
Hysteresis	≤1,0 mm
Repeatability accuracy	≤0,2 mm
Max on/off switching frequency	400 Hz
Max on/off switching time	1 ms
Encapsulation	IP 67
Temperature range	-25 °C to +75 °C
Indication	LED, yellow
Shock resistance	30 g
Material, housing	PA 12
Material, mould	Epoxy
Cable	PVC 3x0,14 mm <sup>2</sup>
Cable incl. female part connector	PVC 3x0,14 mm <sup>2</sup>
Mounting	T slot
Connector	Diam. 8 mm snap on

**Electronic sensors**

These sensors are of solid-state type, with no moving parts. Short-circuit and transient protection is incorporated as standard. The integral electronics make these sensors suitable for applications with very high switching frequencies.

**Technical data**

Design	Hall element
Output	PNP resp. NPN, N.O.
Voltage range	10-30 VDC
Max permissible ripple	10%
Max voltage drop	≤2 V
Max load current	150 mA
Max breaking power (resistive)	6 W
Internal consumption	15 mA
Min actuating distance	5 mm
Hysteresis	≤1,5 mm
Repeatability accuracy	≤0,2 mm
Max on/off switching frequency	
P1M 2XHL, -HT, -JH, EL, -ET, -FH	5 kHz
P1M 2XML, -MT, -PH	50 Hz
Max on/off switching time	0,8/3,0 ms
Encapsulation	IP 67
Temperature range	-25 °C to +75 °C
Indication	LED, yellow
Shock resistance	30 g
Material, housing	PA 12
Material, mould	Epoxy
Cable	PVC 3x0,14 mm <sup>2</sup>
Cable incl. female part connector	PVC 3x0,14 mm <sup>2</sup>
Connector	Diam. 8 mm snap on
Mounting	T slot

**Ordering data**

Order code	Output	Cable connection	Cable length	Weight kg
<b>Reed sensors</b>				
<b>P8S-TRFLX</b>	making	straight	3,0 m	0,030
<b>P8S-TRFTX</b>	making	straight	10,0 m	0,110
<b>P8S-TRSHX</b>	making	straight	0,3 m*	0,005
<b>P8S-SRELX</b>	making	90°	3,0 m	0,030
<b>P8S-SRETX</b>	making	90°	10,0 m	0,110
<b>P8S-SRTHX</b>	making	90°	0,3 m*	0,005
<b>Cables for sensors</b>				
<b>9126344341**</b>			3 m	0,055
<b>9126344342**</b>			10 m	0,175

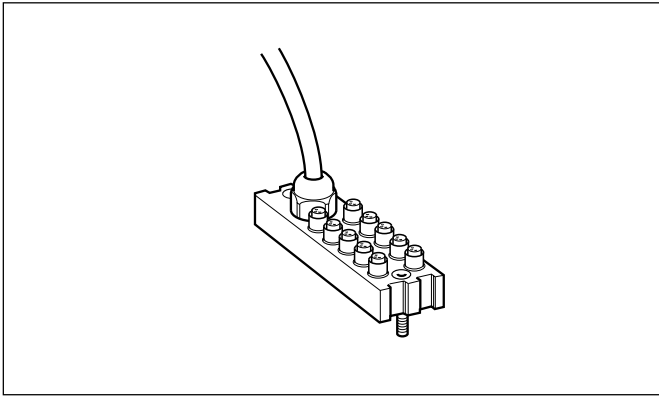
\*) Cable shall be ordered separately.

\*\*) Cable including female part connector, for sensor.

**Ordering data**

Order code	Output	Cable connection	Cable length	Weight kg
<b>Electronic sensors</b>				
<b>P8S-TPFLX</b>	PNP, N.O.	straight	3,0 m	0,030
<b>P8S-TPFTX</b>	PNP, N.O.	straight	10,0 m	0,110
<b>P8S-TPSHX</b>	PNP, N.O.	straight	0,3 m*	0,005
<b>P8S-TNFLX</b>	NPN, N.O.	straight	3,0 m	0,030
<b>P8S-TNFTX</b>	NPN, N.O.	straight	10,0 m	0,110
<b>P8S-TNSHX</b>	NPN, N.O.	straight	0,3 m*	0,005
<b>P8S-SPELXD</b>	PNP, N.O.	90°	3,0 m	0,030
<b>P8S-SPETXD</b>	PNP, N.O.	90°	10,0 m	0,110
<b>P8S-SPTHXD</b>	PNP, N.O.	90°	0,3 m*	0,005
<b>P8S-SNELX</b>	NPN, N.O.	90°	3,0 m	0,030
<b>P8S-SNETX</b>	NPN, N.O.	90°	10,0 m	0,110
<b>P8S-SNTHX</b>	NPN, N.O.	90°	0,3 m*	0,005
<b>Cables for sensors</b>				
<b>9126344341**</b>			3 m	0,055
<b>9126344342**</b>			10 m	0,175





**Technical data, Valvetronic 110**

**Connections:**

Ten 3-pole numbered 8 mm round snap-in female contacts  
Input block



- Pin 1 Common, +24 VDC
- Pin 2 Input signal
- Pin 3 Common, 0V



- Output block
- Pin 1 Common, GND
- Pin 2 Output signal
- Pin 3 Common, 0V

**Mechanical data**

Enclosure IP 67, DIN 40050 with fitted contacts and/or blanking plugs.  
Temperature -20 to +70 °C

**Material**

Body PA 6,6 VD according to UL 94  
Contact holder PBTP  
Snap-in ring LDPE  
Moulding mass Epoxy  
Seal NBR  
Screws Plated steel

**Cable:**

Length 3 m or 10 m  
Type of cable LifYY11Y  
Conductor 12  
Area 0.34 mm<sup>2</sup>  
Colour marking According to DIN 47 100

**Electrical data:**

Voltage 24 VDC (max. 60 V AC/75 V DC)  
Insulation group according to DIN 0110 class C  
Load max. 1 A per connection  
total max. 3 A

**The Valvetronic 110 connection block**

The Valvetronic 110 is a connection block that can be used for collecting signals from sensors at various points on a machine and connecting them to the control system via a multicore cable. It can also be used as a central point for connecting a multicore cable to the outputs of a control system, to provide a common point from where the output signals can be connected. The block has ten 8 mm snap-in round contacts and a 3 or 10 m multicore cable. The connections on the block are numbered from 1 to 10. Blanking plugs are available for unused connections, as labels for marking the connections of each block.

**Valvetronic 110**

Designation	Weight kg	Order code
Valvetronic 110 with 3 m cable	0,32	<b>9121719001</b>
Valvetronic 110 with 10 m cable	0,95	<b>9121719002</b>
Blanking plugs (pack of 10)	0,02	<b>9121719003</b>
Labels (pack of 10)	0,02	<b>9121719004</b>

**Industrial durability**

Good chemical and oil resistance. Tests should be performed in aggressive environments.



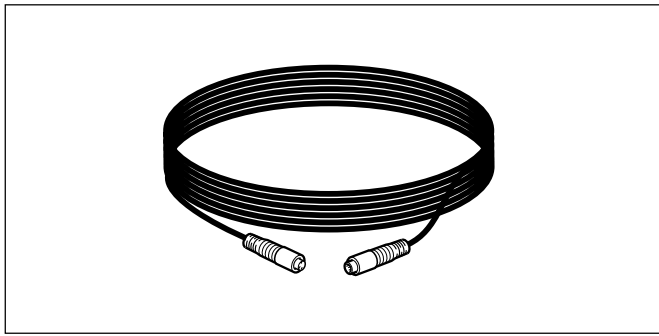
Use **blanking plugs** to close unused connections.



**White labels** to insert in grooves on the side of the connection

**Dimensions and wiring diagrams**

Conductor	Colour	Input	Output
1	Pink	Signal 1	Signal 1
2	Grey	Signal 2	Signal 2
3	Yellow	Signal 3	Signal 3
4	Green	Signal 4	Signal 4
5	White	Signal 5	Signal 5
6	Red	Signal 6	Signal 6
7	Black	Signal 7	Signal 7
8	Violet	Signal 8	Signal 8
9	Grey-Pink	Signal 9	Signal 9
10	Red-Blue	Signal 10	Signal 10
A	Blue	0 V	0 V
B	Brown	+24 V	PE



**Technical data**

**Contacts**

Mould-fitted 8 mm snap-in male/female contacts.  
Enclosure IP67

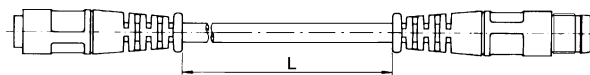
**Cable**

Conductor 3x0,25 mm<sup>2</sup> (32x0,10 mm<sup>2</sup>)  
Sheath PVC/PUR  
Colour Black

**Ready-to-use cables**

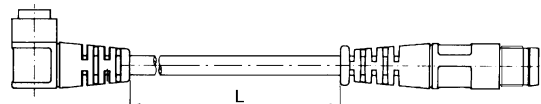
Cables with mould-fitted 8 mm snap-in round contacts in both ends, The cables are available in two types, one with a straight male and female connectors respectively., and one with a straight 3-pole male connector in one end and an angled 3-pole female connector in the other end.

Cables with mould-fitted 8 mm snap-in round contacts in both ends, straight male and female connectors respectively.



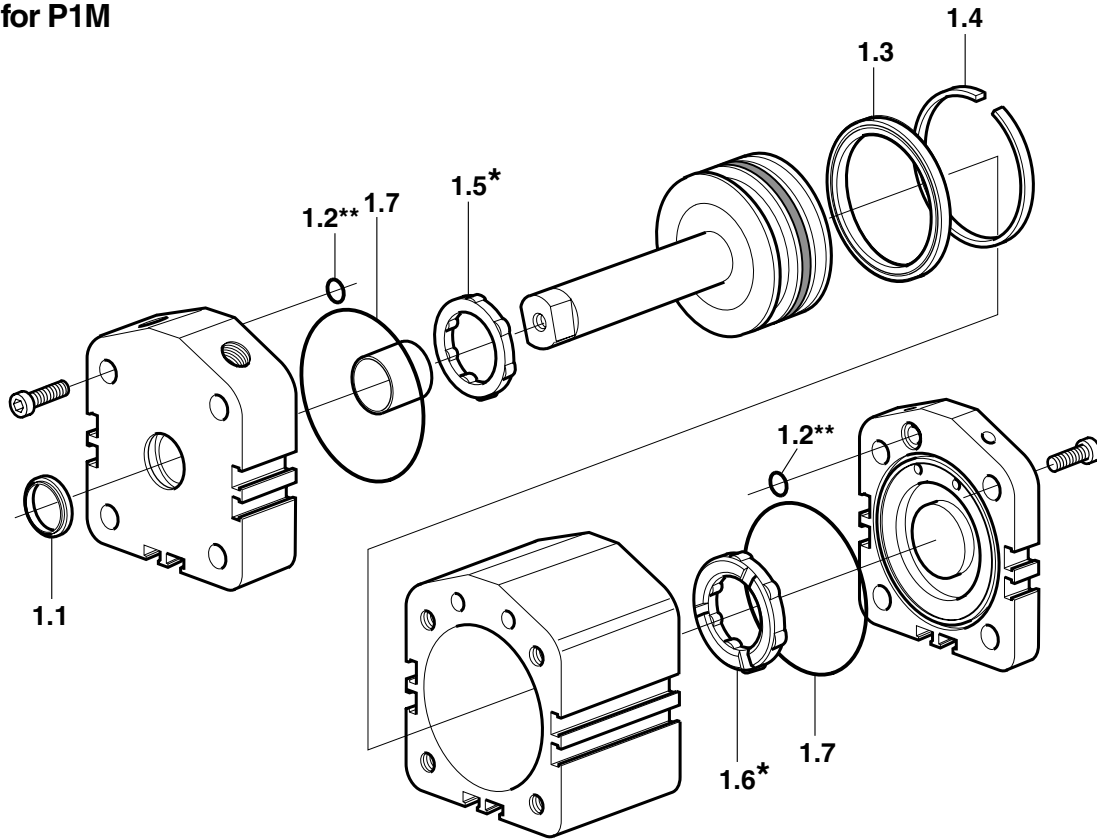
Designation	Weight kg	Order code
Cable with straight contacts, 0,2 m	0,02	<b>9121717014</b>
Cable with straight contacts, 0,3 m	0,02	<b>9121717015</b>
Cable with straight contacts, 0,5 m	0,03	<b>9121717016</b>
Cable with straight contacts, 1,0 m	0,03	<b>9121717017</b>
Cable with straight contacts, 2,0 m	0,05	<b>9121717018</b>
Cable with straight contacts, 3,0 m	0,07	<b>9121717019</b>
Cable with straight contacts, 5,0 m	0,12	<b>9121717020</b>
Cable with straight contacts, 10,0 m	0,23	<b>9121717021</b>

Cables with a straight 3-pole male connector in one end and an angled 3-pole female connector in the other end.



Designation	Weight kg	Order code
Cable with:		
straight and angled connectors, 0,2 m	0,02	<b>9121717022</b>
straight and angled connectors, 0,3 m	0,02	<b>9121717023</b>
straight and angled connectors, 0,5 m	0,03	<b>9121717024</b>
straight and angled connectors, 1,0 m	0,03	<b>9121717025</b>
straight and angled connectors, 2,0 m	0,05	<b>9121717026</b>
straight and angled connectors, 3,0 m	0,07	<b>9121717027</b>
straight and angled connectors, 5,0 m	0,12	<b>9121717028</b>
straight and angled connectors, 10,0 m	0,23	<b>9121717029</b>

## Seal kits for P1M



### Seal kits for P1M

No	Qty	Part
1.1	1	Scraper ring/Piston rod seal
1.2	2	O-ring
1.3	1	Piston seals
1.4	1	Piston bearing
1.5	1	Front end bumper
1.6	1	Rear end bumper
1.7	2	O-ring

Material specification, see page 5

\* Bumpers 1.5 and 1.6 not valid for high-temperature version, type G.

\*\* Quantity and design vary, depending on the cylinder variant and model.

### Seal kits for complete P1M cylinder

Cyl. bore mm	Option	
	Standard	High Temp
12	<b>P1M-6DRN</b>	<b>P1M-6DRV</b>
16	<b>P1M-6FRN</b>	<b>P1M-6FRV</b>
20	<b>P1M-6HRN</b>	<b>P1M-6HRV</b>
25	<b>P1M-6JRN</b>	<b>P1M-6JRV</b>
32	<b>P1M-6KRN</b>	<b>P1M-6KRV</b>
40	<b>P1M-6LRN</b>	<b>P1M-6LRV</b>
50	<b>P1M-6MRN</b>	<b>P1M-6MRV</b>
63	<b>P1M-6NRN</b>	<b>P1M-6NRV</b>
80	<b>P1M-6PRN</b>	<b>P1M-6PRV</b>
100	<b>P1M-6QRN</b>	<b>P1M-6QRV</b>

### Grease for P1M



Weight g	Option	
	Standard	High Temp
30	<b>9127394541</b>	<b>9127394521</b>



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