aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding

Pneumatic Cylinders

Series P1D-B Basic Line - Ø32 to Ø125 mm
According to ISO 15552

PDE2659TCUK

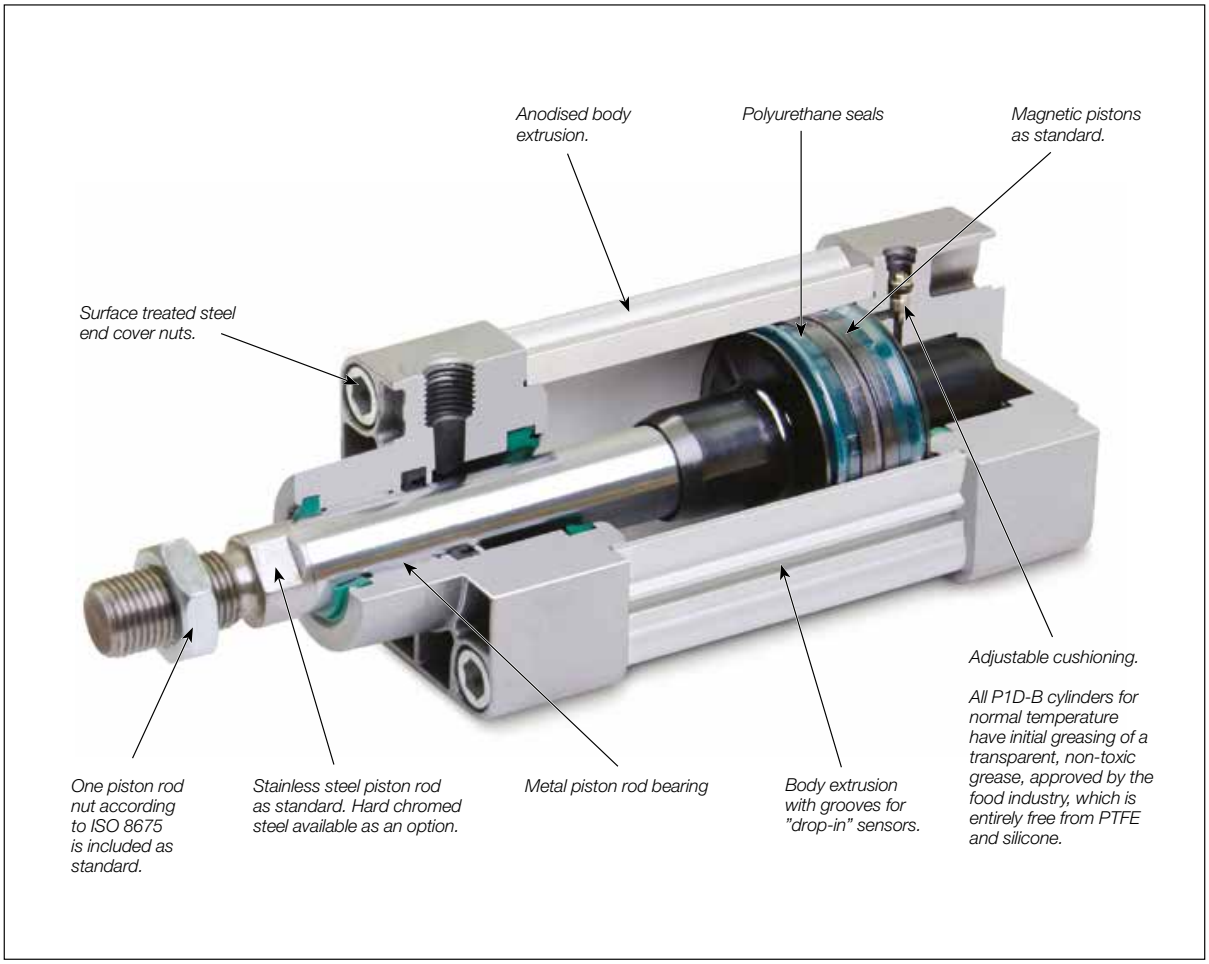
Parker

ENGINEERING YOUR SUCCESS.

Contents

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
All technical data in this catalogue are typical data only.
Air quality is essential for maximum cylinder service life (see ISO 8573).



Standard cylinders P1D-B, ISO 15552

Global product range

The P1D-B Series meets the specifications in the ISO 15552 standard. This means full interchangeability to any ISO 15552 cylinder anywhere around the globe. P1D-B will be available throughout the extensive worldwide Parker Hannifin organization – for the benefit to you and your customers.

Features

- ISO 15552 conformity.
- Bore sizes 32-125 mm.
- Corrosion resistant design with barrel in anodized aluminium and stainless steel piston rod.
- Polyurethane seal technology.
- Adjustable air cushioning.
- Range of mountings available.
- Drop in global P8S-G sensors.
- Metal piston rod bearing.

P1D-B Pneumatic ISO Cylinders

Cylinder forces, double acting variants

Cyl. bore/ pist. rod mm	Stroke	Piston cm²	Max theoretical force in N (bar) 1,0	2,0	3,0	4,0	5,0	6,0	7,0	8,0	9,0	10,0
32/12	+	8,0	80	161	241	322	402	**483**	563	643	724	804
	-	6,9	69	138	207	276	346	**415**	484	553	622	691
40/16	+	12,6	126	251	377	503	628	**754**	880	1005	1131	1257
	-	10,6	106	212	318	424	530	**636**	742	848	954	1060
50/20	+	19,6	196	393	589	785	982	**1178**	1374	1571	1767	1963
	-	16,5	165	330	495	660	825	**990**	1155	1319	1484	1649
63/20	+	31,2	312	623	935	1247	1559	**1870**	2182	2494	2806	3117
	-	28,0	280	561	841	1121	1402	**1682**	1962	2242	2523	2803
80/25	+	50,3	503	1005	1508	2011	2513	**3016**	3519	4021	4524	5027
	-	45,4	454	907	1361	1814	2268	**2721**	3175	3629	4082	4536
100/25	+	78,5	785	1571	2356	3142	3927	**4712**	5498	6283	7069	7854
	-	73,6	736	1473	2209	2945	3682	**4418**	5154	5890	6627	7363
125/32	+	122,7	1227	2454	3682	4909	6136	**7363**	8590	9817	11045	12272
	-	114,7	1147	2294	3440	4587	5734	**6881**	8027	9174	10321	11468

+ = Outward stroke
- = Return stroke

Note!
Select a theoretical force 50-100% larger than the force required

Main data: P1D-B

Cylinder designation	Cylinder bore mm	Cylinder area cm²	Piston rod dia. mm	Piston rod area cm²	Piston rod thread	Cushioning length mm	Connection sump-tion[2] litre	thread
P1D-B032••XXXX[1]	32	8,0	12	1,1	M10x1,25	17	0,105	G1/8
P1D-B040••XXXX[1]	40	12,6	16	2,0	M12x1,25	19	0,162	G1/4
P1D-B050••XXXX[1]	50	19,6	20	3,1	M16x1,5	20	0,253	G1/4
P1D-B063••XXXX[1]	63	31,2	20	3,1	M16x1,5	23	0,414	G3/8
P1D-B080••XXXX[1]	80	50,3	25	4,9	M20x1,5	23	0,669	G3/8
P1D-B100••XXXX[1]	100	78,5	25	4,9	M20x1,5	27	1,043	G1/2
P1D-B125••XXXX[1]	125	122,7	32	8,0	M27x2	30	1,662	G1/2

Total mass including moving parts

Cylinder designation	Total mass (kg) at 0 mm stroke	Total mass (kg) Supplement per 10 mm stroke
P1D-B032••XXXX[1]	0,55	0,023
P1D-B040••XXXX[1]	0,80	0,033
P1D-B050••XXXX[1]	1,20	0,048
P1D-B063••XXXX[1]	1,73	0,051
P1D-B080••XXXX[1]	2,45	0,075
P1D-B100••XXXX[1]	4,00	0,084
P1D-B125••XXXX[1]	6,87	0,138

Mass moving parts only (for cushioning calculation)

Cylinder designation	Mass moving parts (kg) at 0 mm stroke	Supplement per 10 mm stroke
P1D-B032••XXXX[1]	0,13	0,009
P1D-B040••XXXX[1]	0,24	0,016
P1D-B050••XXXX[1]	0,42	0,025
P1D-B063••XXXX[1]	0,50	0,025
P1D-B080••XXXX[1]	0,90	0,039
P1D-B100••XXXX[1]	1,10	0,039
P1D-B125••XXXX[1]	2,34	0,063

1) XXXX = stroke
2) Free air consumption per 10 mm stroke for a double stroke at 6 bar

Parker Hannifin Corporation
Pneumatic Division - Europe

PDE2659TCUK

P1D-B Pneumatic ISO Cylinders

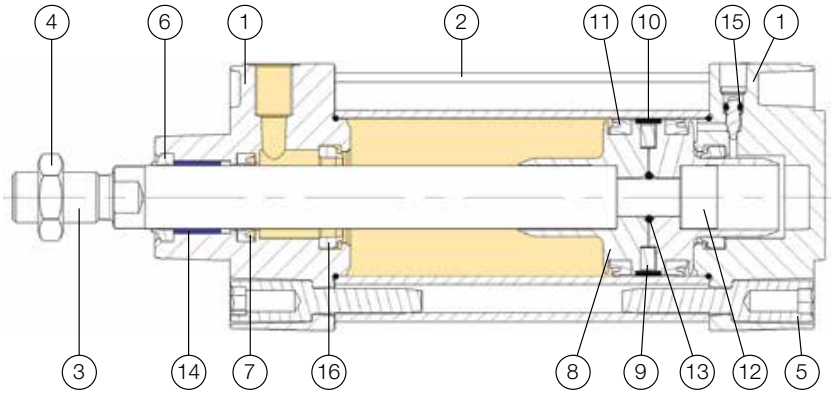
General technical data

Product type		Standard cylinder according to ISO 15552
Bore size		32 - 125 mm
Stroke length		5-2800 mm
Versions	P1D-B...MS	Double acting
Cushioning		Adjustable air cushioning
Position sensing		Proximity sensor
Installation		P1D cylinder and piston rod mountings
Mounting position		Any

Operating and environmental data

Operating medium	For best possible service life and trouble-free operation dry, filtered compressed air to ISO 8573-1:2010 quality class 3.4.3 should be used. This specifies a dew point of +3°C for indoor operation (a lower dew point should be selected for outdoor operation) and is in line with the air quality from most standard compressors with a standard filter.
Operating pressure	0,5 bar to 10 bar
Ambient temperature Standard version	 -20°C to +80°C
Pre-lubricated	Further lubrication is normally not necessary. If additional lubrication is introduced it must be continued.
Corrosion resistance	Resistance to corrosion and chemicals.

Material specification



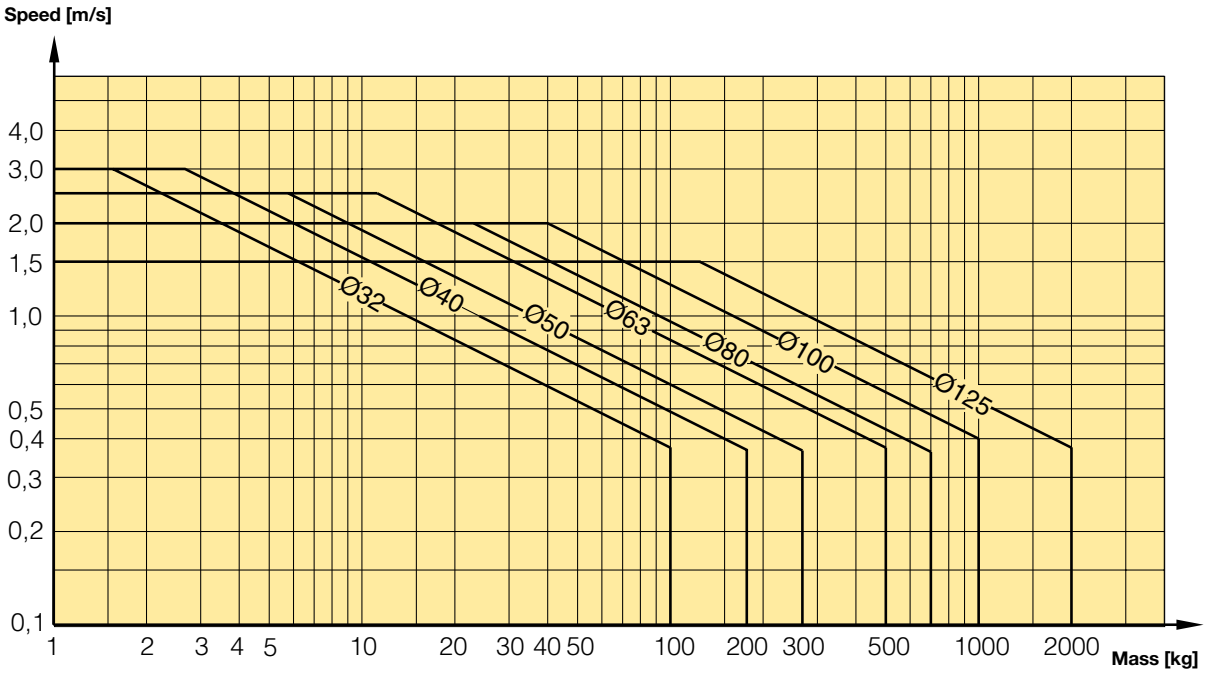
Pos	Part		Specification
1	End covers		Aluminium
2	Cylinder barrel		Anodised aluminium
3	Piston rod	Standard	Austenitic Stainless steel X8CRNIS18-9 (AISI303)
		Option	Hard-chromium plated austenitic steel NF EN 10083-1 C45E
4	Piston rod nut		Zinc plated steel
5	End cover screws		Zinc plated steel
6	Scraper ring		Polyurethane
7	Piston rod seal		Polyurethane
8	Piston		POM high tech polymer
9	Magnet		Plastic coated magnetic material
10	Piston bearing		POM high tech polymer
11	Piston seals		Polyurethane
12	Piston bolt		Zinc plated steel
13	O-rings		Nitrile rubber
14	Piston rod bearing		Multilayer PTFE/steel
15	Cushioning screws		Stainless steel, DIN X 10 CrNiS 18 n9
16	Cushioning seals		Polyurethane
	Note on materials		RoHS compliant

Cushioning characteristics

The diagram below is used for dimensioning of cylinders related to the cushioning capacity. The maximum cushioning capacity shown in the diagram assumes the following:

- Low load, i.e. low pressure drop across the piston
- Equilibrium speed
- Correctly adjusted cushioning screw
- 6 bar at cylinder port

The load is the sum of internal and external friction, plus any gravitational forces. At high relative load (pressure drop exceeding 1 bar), we recommend that for any given speed, the mass should be reduced by a factor of 2.5, or for a given mass, the speed should be reduced by a factor of 1.5. This is in relation to the maximum performance given in the diagram



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Pneumatic Division - Europe

Guide for selecting suitable tubing

The selection of the correct size of tubing is often based on experience, with no great thought to optimizing energy efficiency and cylinder velocity. This is usually acceptable, but making a rough calculation can result in worthwhile economic gains.

The following is the basic principle:

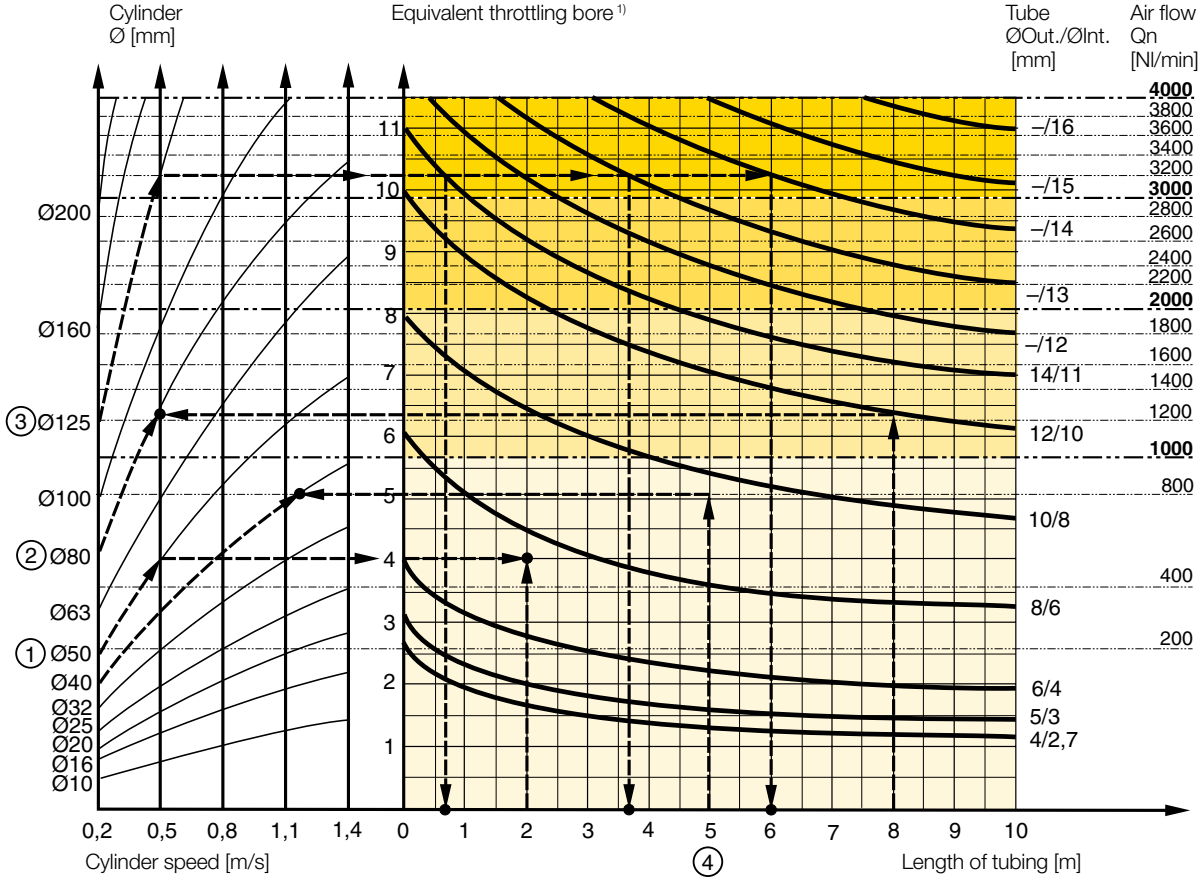
1. The primary line to the working valve could be over sized (this does not cause any extra air consumption and consequently does not create any extra costs in operation).
2. The tubes between the valve and the cylinder should, however, be optimized according to the principle that an insufficient bore throttles the flow and thus limits the cylinder speed, while an oversized pipe creates a dead volume which increases the air consumption and filling time.

The chart below is intended to help when selecting the correct size of tube to use between the valve and the cylinder.

The following prerequisites apply:

The *cylinder load should be about 50%* of the theoretical force (= normal load). A lower load gives a higher velocity and vice versa. The tube size is selected as a function of the *cylinder bore*, the desired *cylinder velocity* and the *tube length* between the valve and the cylinder.

If you want to use the capacity of the valve to its maximum, and obtain maximum speed, the tubing should be chosen so that they at least correspond with the equivalent restriction diameter (see description below), so that the tubing does not restrict the total flow. This means that a short tubing must have at least the equivalent restriction diameter. If the tubing is longer, choose it from the table below. Straight fittings should be chosen for highest flow rates. (Elbow and banjo fittings cause restriction.)



1) The "equivalent throttling bore" is a long throttle (for example a tube) or a series of throttles (for example, through a valve) converted to a short throttle which gives a corresponding flow rate. This should not be confused with the "orifice" which is sometimes specified for valves. The value for the orifice does not normally take account of the fact that the valve contains a number of throttles.

2) Qn is a measure of the valve flow capacity, with flow measured in litre per minute (l/min) at 6 bar(e) supply pressure and 1 bar pressure drop across the valve.

Example ①: Which tube diameter should be used?

A 50 mm bore cylinder is to be operated at 0.5 m/s. The tube length between the valve and cylinder is 2 m. In the diagram we follow the line from 50 mm bore to 0.5 m/s and get an “equivalent throttling bore“ of approximately 4 mm. We continue out to the right in the chart and intersect the line for a 2 m tube between the curves for 4 mm (6/4 tube) and 6 mm(8/6 tube). This means that a 6/4 tube throttles the velocity somewhat, while an 8/6 tube is a little too large. We select the 8/6 tube to obtain full cylinder velocity.

Example ②: What cylinder velocity will be obtained?

A 80 mm bore cylinder will be used, connected by 8 m 12/10 tube to a valve with Qn 1200 Nl/min. What cylinder velocity will we get? We refer to the diagram and follow the line from 8 mm tube length up to the curve for 12/10 tube. From there, we go horizontally to the curve for the Ø80 cylinder. We find that the velocity will be about 0.5 m/s.

Example ③: What is the minimum inner diameter and maximum lenght of tube?

For a application a 125 mm bore cylinder will be used. Maximum velocity of piston rod is 0.5 m/s. The cylinder will be controlled by a valve with Qn 3200 Nl/min. What diameter of tube can be used and what is maximum lenght of tube.
We refer to the diagram. We start at the left side of the diagram cylinder Ø125. We follow the line until the intersection with the velocity line of 0.5 m/s. From here we draw a horizontal line in the diagram. This line shows us we need an equivalent throttling bore of approximately 10 mm. Following this line horizontally we cross a few intersections. These intersections shows us the minimum inner diameter (rightside diagram) in combination with the maximum length of tube (bottomside diagram).

For example:
Intersection one: When a tube (14/11) will be used, the maximum length of tube is 0.7 meter.
Intersection two: When a tube (—/13) will be used, the maximum length of tube is 3.7 meter.
Intersection three: When a tube (—/14) will be used, the maximum length of tube is 6 meter.

Example ④: Determining tube size and cylinder velocity with a particular cylinder and valve?

For an application using a 40 mm bore cylinder with a valve with Qn=800 Nl/min. The distance between the cylinder and valve has been set to 5 m.
Tube dimension: What tube bore should be selected to obtain the maximum cylinder velocity? Start at pipe length 5 m, follow the line up to the intersection with 800 Nl/min. Select the next largest tube diameter, in this case Ø10/8 mm.
Cylinder velocity: What maximum cylinder velocity will be obtained? Follow the line for 800 Nl/min to the left until it intersects with the line for the Ø40 mm cylinder. In this example, the speed is just above 1.1 m/s.

Valve series with respective flows in Nl/minute

Valve series	Qn in Nl/Min
Interface PS1	120
Moduflex Size 1 - Double 4/2 single solenoid	165
Adex A05	173
H Series Micro - Single 5/3 APB	228
Moduflex Size 1 - Single or Double 3/2	235
H Series Micro - Double 3/2	276
H Series Micro - Single 5/2	282
Moduflex Size 1 - Single 4/2	310
ISOMAX DX02	378
H Series ISO HB	390
Moduflex Size 2 - Single or Double 3/2	440
PVL-B stackable inline valve	540
Adex A12	560
ISOMAX DX01	588
Viking Xtrem P2LAX - G1/8"	660
Moduflex Size 2 - Single 4/2	800
H Series ISO HA	918
ISOMAX DX1 & DX Rail	1032
PVL-C stackable inline valve	1100
H Series ISO H1	1248
Viking Xtrem P2LBX - G1/4"	1290
ISOMAX DX2 & DX Rail	2298
Viking Xtrem P2LCX - G3/8"	2460
H Series ISO H2	2520
Viking Xtrem P2LDX - G1/2"	2658
ISOMAX DX3 & DX Rail	3840
H Series ISO H3	5022

Order Key Code (* 20 digits used only for the trunnion option)

15 digit order code

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
P	1	D	–	B	0	3	2	M	S	–	0	1	0	0

20 digit order code *

16	17	18	19	20
N	D	N	N	N

Cylinder version

B	Basic Line

Stroke (mm)
e.g. 0100 = 100 mm

Optional stroke lengths up to 2800 mm. Standard strokes see table page 9

Cylinder bore mm

032
040
050
063
080
100
125

	Scraper	Function
M	Standard	Double acting

	Piston rod material	Seals
S	Stainless steel	Standard -20°C to +80°C
C	Chrome plated steel	Standard -20°C to +80°C

Intermediate trunnion mounting

90°	0°	See page 17 for orientation details
D	6	Centre trunnion MT4, mid position NNN digits 18-19-20
G	7	Trunnion MT4, following XV measure digits 18-19-20 Free trunnion 000 digits 18-19-20

Standard strokes

Standard strokes for all P1D-B cylinders comply with ISO 4393 (with the exception of stroke 40 mm).
Special strokes up to 2800 mm.

Order no XXXX = Stroke	Cylinder bore (mm)	● = Standard stroke (mm) / = Stroke to special order															
		25	40	50	80	100	125	160	200	250	320	400	500	600	700	800	2800
P1D-B																	
P1D-B032MS-XXXX	32	●	●	●	●	●	●	●	●	●	●	●	●				//
P1D-B040MS-XXXX	40	●	●	●	●	●	●	●	●	●	●	●	●				//
P1D-B050MS-XXXX	50	●	●	●	●	●	●	●	●	●	●	●	●				//
P1D-B063MS-XXXX	63	●	●	●	●	●	●	●	●	●	●	●	●				//
P1D-B080MS-XXXX	80	●	●	●	●	●	●	●	●	●	●	●	●				//
P1D-B100MS-XXXX	100	●	●	●	●	●	●	●	●	●	●	●	●				//
P1D-B125MS-XXXX	125	●	●	●	●	●	●	●	●	●	●	●	●				//

PDE2659TCUK

P1D-B Pneumatic ISO Cylinders

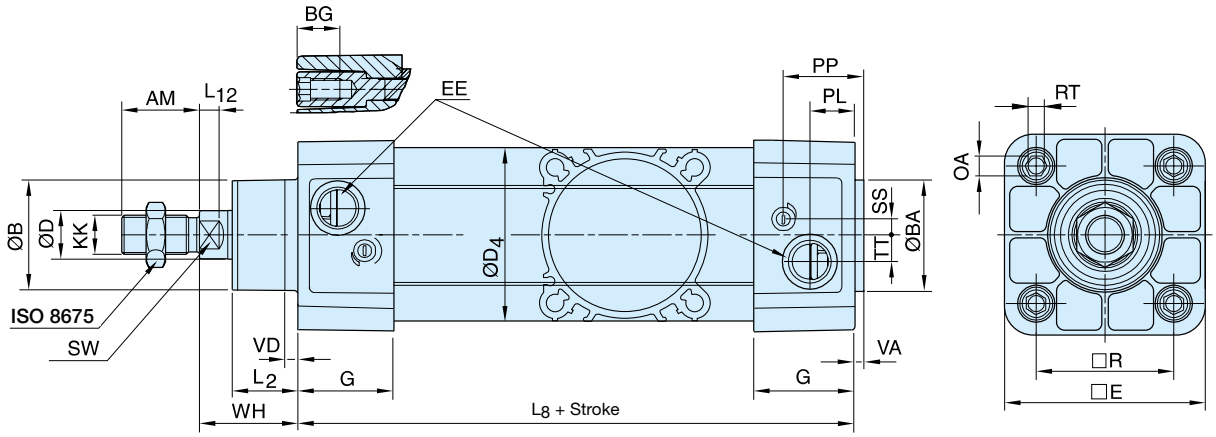
Double acting with stainless steel piston rod

- Conforms to ISO 15552.
- Bore 32-125 mm.
- Double acting.
- Stainless steel piston rod.
- Robust design.
- Adjustable air cushioning.
- Retained stainless steel cushioning screws.
- Wide range of mountings and drop-in sensors

Cyl. bore mm	Stroke mm	Order code
32 Conn. G1/8	25	**P1D-B032MS-0025**
	40	**P1D-B032MS-0040**
	50	**P1D-B032MS-0050**
	80	**P1D-B032MS-0080**
	100	**P1D-B032MS-0100**
	125	**P1D-B032MS-0125**
	160	**P1D-B032MS-0160**
	200	**P1D-B032MS-0200**
	250	**P1D-B032MS-0250**
	320	**P1D-B032MS-0320**
	400	**P1D-B032MS-0400**
	500	**P1D-B032MS-0500**
40 Conn. G1/4	25	**P1D-B040MS-0025**
	40	**P1D-B040MS-0040**
	50	**P1D-B040MS-0050**
	80	**P1D-B040MS-0080**
	100	**P1D-B040MS-0100**
	125	**P1D-B040MS-0125**
	160	**P1D-B040MS-0160**
	200	**P1D-B040MS-0200**
	250	**P1D-B040MS-0250**
	320	**P1D-B040MS-0320**
	400	**P1D-B040MS-0400**
	500	**P1D-B040MS-0500**
50 Conn. G1/4	25	**P1D-B050MS-0025**
	40	**P1D-B050MS-0040**
	50	**P1D-B050MS-0050**
	80	**P1D-B050MS-0080**
	100	**P1D-B050MS-0100**
	125	**P1D-B050MS-0125**
	160	**P1D-B050MS-0160**
	200	**P1D-B050MS-0200**
	250	**P1D-B050MS-0250**
	320	**P1D-B050MS-0320**
	400	**P1D-B050MS-0400**
	500	**P1D-B050MS-0500**
63 Conn. G3/8	25	**P1D-B063MS-0025**
	40	**P1D-B063MS-0040**
	50	**P1D-B063MS-0050**
	80	**P1D-B063MS-0080**
	100	**P1D-B063MS-0100**
	125	**P1D-B063MS-0125**
	160	**P1D-B063MS-0160**
	200	**P1D-B063MS-0200**
	250	**P1D-B063MS-0250**
	320	**P1D-B063MS-0320**
	400	**P1D-B063MS-0400**
	500	**P1D-B063MS-0500**

Cyl. bore mm	Stroke mm	Order code
80 Conn. G3/8	25	**P1D-B080MS-0025**
	40	**P1D-B080MS-0040**
	50	**P1D-B080MS-0050**
	80	**P1D-B080MS-0080**
	100	**P1D-B080MS-0100**
	125	**P1D-B080MS-0125**
	160	**P1D-B080MS-0160**
	200	**P1D-B080MS-0200**
	250	**P1D-B080MS-0250**
	320	**P1D-B080MS-0320**
	400	**P1D-B080MS-0400**
	500	**P1D-B080MS-0500**
100 Conn. G1/2	25	**P1D-B100MS-0025**
	40	**P1D-B100MS-0040**
	50	**P1D-B100MS-0050**
	80	**P1D-B100MS-0080**
	100	**P1D-B100MS-0100**
	125	**P1D-B100MS-0125**
	160	**P1D-B100MS-0160**
	200	**P1D-B100MS-0200**
	250	**P1D-B100MS-0250**
	320	**P1D-B100MS-0320**
	400	**P1D-B100MS-0400**
	500	**P1D-B100MS-0500**
125 Conn. G1/2	25	**P1D-B125MS-0025**
	40	**P1D-B125MS-0040**
	50	**P1D-B125MS-0050**
	80	**P1D-B125MS-0080**
	100	**P1D-B125MS-0100**
	125	**P1D-B125MS-0125**
	160	**P1D-B125MS-0160**
	200	**P1D-B125MS-0200**
	250	**P1D-B125MS-0250**
	320	**P1D-B125MS-0320**
	400	**P1D-B125MS-0400**
	500	**P1D-B125MS-0500**

P1D-B Basic



Dimensions (mm)

Cylinder bore mm	AM mm	B mm	BA mm	BG mm	D mm	D4 mm	E mm	EE mm	G mm	KK	L2 mm	L8 mm	L12 mm
32	22	30	30	16	12	45,0	48,0	G1/8	28,5	M10x1,25	16,8	94	6,0
40	24	35	35	16	16	52,0	53,5	G1/4	33,0	M12x1,25	19,0	105	6,5
50	32	40	40	16	20	60,7	65,2	G1/4	33,5	M16x1,5	24,0	106	8,0
63	32	45	45	16	20	71,5	75,5	G3/8	39,5	M16x1,5	24,3	121	8,0
80	40	45	45	17	25	86,7	95,0	G3/8	39,5	M20x1,5	30,0	128	10,0
100	40	55	55	17	25	106,7	114,0	G1/2	44,5	M20x1,5	34,0	138	14,0
125	54	60	60	20	32	134,0	139,0	G1/2	51,0	M27x2	45,0	160	18,0

Cylinder bore mm	OA mm	PL mm	PP mm	R mm	RT	SS mm	SW mm	TT mm	VA mm	VD mm	WH mm
32	6,0	14,0	24,2	32,5	M6	5,5	10	4,2	3,5	4,5	26
40	6,0	16,0	27,5	38,0	M6	8,0	13	5,5	3,5	4,5	30
50	8,0	14,0	29,3	46,5	M8	9,0	17	7,5	3,5	4,5	37
63	8,0	16,6	30,8	56,5	M8	6,5	17	10,0	3,5	4,5	37
80	6,0	16,8	33,5	72,0	M10	0	22	11,5	3,5	4,5	46
100	6,0	20,5	37,5	89,0	M10	0	22	14,5	3,5	4,5	51
125	8,0	23,3	45,8	110,0	M12	0	27	15,0	5,5	6,5	65

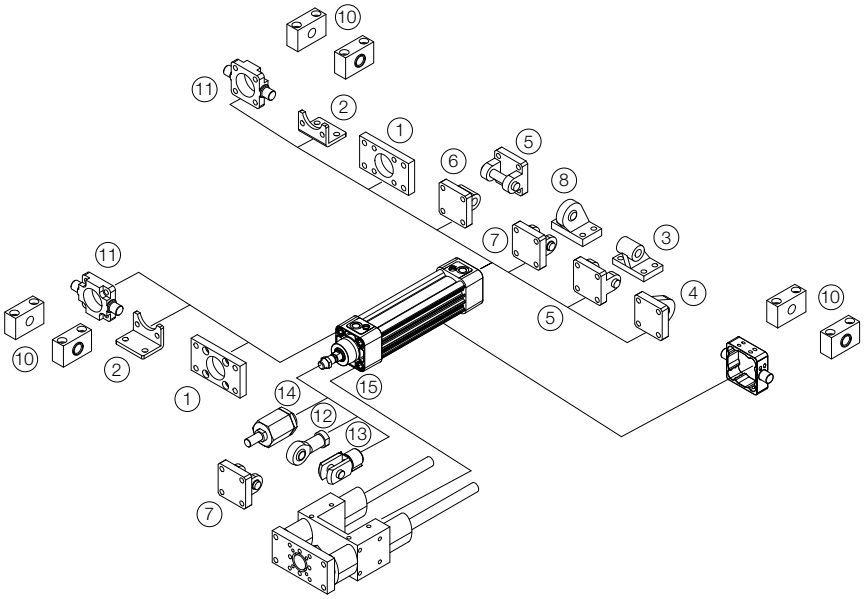
Tolerances (mm)

Cylinder bore mm	B	BA	L_8 mm	L_9 mm	R mm	Stroke tolerance up to stroke 500 mm	Stroke tolerance for stroke over 500 mm
32	d11	d11	±0,4	±2	±0,5	+0,3/+2,0	+0,3/+3,0
40	d11	d11	±0,7	±2	±0,5	+0,3/+2,0	+0,3/+3,0
50	d11	d11	±0,7	±2	±0,6	+0,3/+2,0	+0,3/+3,0
63	d11	d11	±0,8	±2	±0,7	+0,3/+2,0	+0,3/+3,0
80	d11	d11	±0,8	±3	±0,7	+0,3/+2,0	+0,3/+3,0
100	d11	d11	±1,0	±3	±0,7	+0,3/+2,0	+0,3/+3,0
125	d11	d11	±1,0	±3	±1,1	+0,3/+2,0	+0,3/+3,0

	Flange MF1/MF2 [1]	Foot brackets MS1 [2]	Pivot bracket with rigid bearing AB7 [3]	Swivel eye bracket MP6 [4]	Clevis bracket MP2 [5]
					
Ø 32	P1C-4KMB	P1C-4KMF	P1C-4KMDB	PD23843	P1C-4KMTB
Ø 40	P1C-4LMB	P1C-4LMF	P1C-4LMDB	PD23844	P1C-4LMTB
Ø 50	P1C-4MMB	P1C-4MMF	P1C-4MMDB	PD23845	P1C-4MMTB
Ø 63	P1C-4NMB	P1C-4NMF	P1C-4NMDB	PD23846	P1C-4NMTB
Ø 80	P1C-4PMB	P1C-4PMF	P1C-4PMDB	PD23847	P1C-4PMTB
Ø 100	P1C-4QMB	P1C-4QMF	P1C-4QMDB	PD23848	P1C-4QMTB
Ø 125	P1C-4RMB	P1C-4RMF	P1C-4RMDB	PD23849	P1C-4RMTB

	Clevis bracket MP4 [6]	Clevis bracket AB6 [7]	Pivot bracket with swivel bearing CS7 [8]	3 and 4 positions flange JP1	Pivot brackets AT4 [10] for MT* trunnion
					
Ø 32	PD23412	P1C-4KMCB	KC5130	P1E-6KB0	PD23381
Ø 40	PD23413	P1C-4LMCB	KC5131	P1E-6LB0	PD23382
Ø 50	PD23414	P1C-4MMCB	KC5132	P1E-6MB0	PD23382
Ø 63	PD23415	P1C-4NMCB	KC5133	P1E-6NB0	PD23383
Ø 80	PD23416	P1C-4PMCB	KC5134	P1E-6PB0	PD23383
Ø 100	PD23417	P1C-4QMCB	KC5135	P1E-6QB0	PD23384
Ø 125	PD23418	P1C-4RMCB	KC5136		PD23384

	Flange trunnion MT5/MT6 [11]	Swivel rod eye AP6 [12]	Clevis AP2 [13]	Flexo coupling PM5 [14]	Zinc-plated nut MR9 [15] (pack of 10)
					
Ø 32	P1D-4KMYF	P1C-4KRS	P1C-4KRC	P1C-4KRF	P14-4KRPZ
Ø 40	P1D-4LMYF	P1C-4LRS	P1C-4LRC	P1C-4LRF	P14-4LRPZ
Ø 50	P1D-4MMYF	P1C-4MRS	P1C-4MRC	P1C-4MRF	P14-4MRPZ
Ø 63	P1D-4NMYF	P1C-4MRS	P1C-4MRC	P1C-4MRF	P14-4MRPZ
Ø 80	P1D-4PMYF	P1C-4PRS	P1C-4PRC	P1C-4PRF	P14-4PRPZ
Ø 100	P1D-4QMYF	P1C-4PRS	P1C-4PRC	P1C-4PRF	P14-4PRPZ
Ø 125		P1C-4RRS	P1C-4RRC	P1C-4RRF	P14-4RRPZ

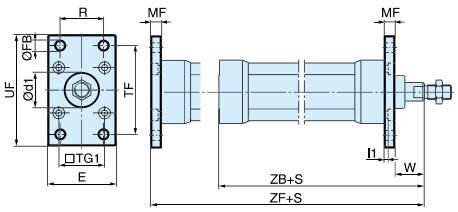


Flange MF1/MF2 ①

Intended for fixed mounting of cylinder. Flange can be fitted to front or rear end cover of cylinder.

Materials
Flange: Surface-treated steel
Mounting screws acc. to DIN 6912: Zinc-plated steel 8.8

Supplied complete with mounting screws for attachment to cylinder.



Cyl. bore mm	d1 H11 mm	FB H13 mm	TG1 mm	E mm	R JS14 mm	MF JS14 mm	TF JS14 mm	UF mm	l1 -0,5 mm	W* mm	ZF* mm	ZB* mm	Weight (kg)	Order code
32	30	7	32,5	45	32	10	64	80	5,0	16	130	123,5	0,23	**P1C-4KMB**
40	35	9	38,0	52	36	10	72	90	5,0	20	145	138,5	0,28	**P1C-4LMB**
50	40	9	46,5	65	45	12	90	110	6,5	25	155	146,5	0,53	**P1C-4MMB**
63	45	9	56,5	75	50	12	100	120	6,5	25	170	161,5	0,71	**P1C-4NMB**
80	45	12	72,0	95	63	16	126	150	8,0	30	190	177,5	1,59	**P1C-4PMB**
100	55	14	89,0	115	75	16	150	170	8,0	35	205	192,5	2,19	**P1C-4QMB**
125	60	16	110,0	140	90	20	180	205	10,5	45	245	230,5	3,78	**P1C-4RMB**

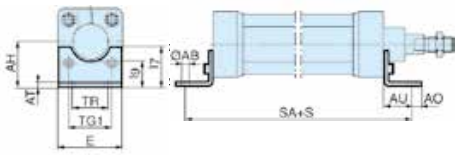
S = Stroke length

Foot brackets MS1 ②

Intended for fixed mounting of cylinder. Foot bracket can be fitted to front and rear end covers of cylinder.

Materials
Foot bracket: Surface-treated steel
Mounting screws acc. to DIN 912: Zinc-plated steel 8.8

Supplied in pairs with mounting screws for attachment to cylinder.



Cyl. bore mm	AB H14 mm	TG1 mm	E mm	TR JS14 mm	AO mm	AU mm	AH JS15 mm	l7 mm	AT mm	l9 JS14 mm	SA* mm	Weight (kg)	Order code
32	7	32,5	45	32	10	24	32	30	4,5	17,0	142	0,06**	**P1C-4KMF**
40	9	38,0	52	36	8	28	36	30	4,5	18,5	161	0,08**	**P1C-4LMF**
50	9	46,5	65	45	13	32	45	36	5,5	25,0	170	0,16**	**P1C-4MMF**
63	9	56,5	75	50	13	32	50	35	5,5	27,5	185	0,25**	**P1C-4NMF**
80	12	72,0	95	63	14	41	63	49	6,5	40,5	210	0,50**	**P1C-4PMF**
100	14	89,0	115	75	15	41	71	54	6,5	43,5	220	0,85**	**P1C-4QMF**
125	16	110,0	140	90	22	45	90	71	8,0	60,0	250	1,48**	**P1C-4RMF**

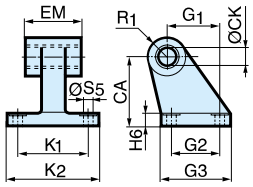
** Weight per item

S = Stroke length

Pivot bracket with rigid bearing AB7 ③

Intended for flexible mounting of cylinder. The pivot bracket can be combined with clevis bracket MP2.

Material:
Pivot bracket: Aluminium
Bearing: Sintered oil-bronze bushing



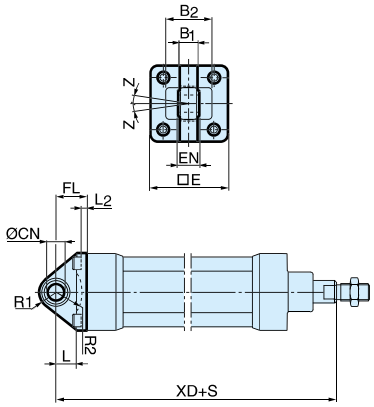
Cyl. bore mm	CK H9 mm	S5 H13 mm	K1 JS14 mm	K2 mm	G1 JS14 mm	G2 JS14 mm	EM mm	G3 mm	CA JS15 mm	H6 mm	R1 mm	Weight (kg)	Order code
32	10	6,6	38	51	21	18	25,5	31	32	8	10,0	0,06	**P1C-4KMDB**
40	12	6,6	41	54	24	22	27,0	35	36	10	11,0	0,08	**P1C-4LMDB**
50	12	9,0	50	65	33	30	31,0	45	45	12	13,0	0,15	**P1C-4MMDB**
63	16	9,0	52	67	37	35	39,0	50	50	12	15,0	0,20	**P1C-4NMDB**
80	16	11,0	66	86	47	40	49,0	60	63	14	15,0	0,33	**P1C-4PMDB**
100	20	11,0	76	96	55	50	59,0	70	71	15	19,0	0,49	**P1C-4QMDB**
125	25	14,0	94	124	70	60	69,0	90	90	20	22,5	1,02	**P1C-4RMDB**

Swivel eye bracket MP6 ④

Intended for use together with clevis bracket GA

Material:
Bracket: Aluminium
Swivel bearing acc. to DIN 648K: Hardened steel

Supplied complete with mounting screws for attachment to cylinder.



Cyl. bore mm	E mm	B1 mm	B2 mm	EN mm	R1 mm	R2 mm	FL mm	l2 mm	L mm	CN H7 mm	XD mm	Z	Weight (kg)	Order code
32	47	10,5	-	14	16	12	22	6.0	12	10	142	4°	0,08	**PD23843**
40	55	12,0	-	16	21	14	25	6.0	15	12	160	4°	0,11	**PD23844**
50	65	12,0	51	16	23	16	27	7.0	15	12	170	4°	0,20	**PD23845**
63	78	15,0	-	21	27	19	32	7.0	20	16	190	4°	0,27	**PD23846**
80	95	15,0	-	21	29	21	36	10.0	20	16	210	4°	0,52	**PD23847**
100	115	18,0	-	25	34	24	41	10.0	25	20	230	4°	0,72	**PD23848**
125	140	22,0	-	31	40	30	50	10.5	30	25	275	4°	1,53	**PD23849**

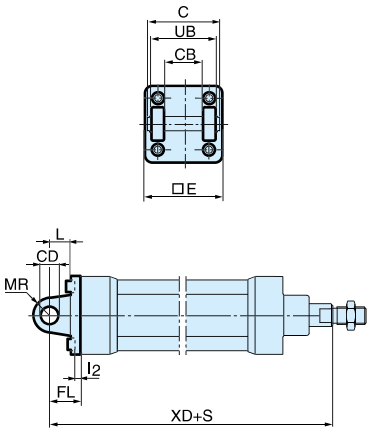
S = Stroke length

Clevis bracket MP2 ⑤

Intended for flexible mounting of cylinder. Clevis bracket MP2 can be combined with clevis bracket MP4.

Material:
Clevis bracket: Aluminium
Pin: Surface hardened steel
Circlips according to DIN 471: Spring steel
Mounting screws acc. to DIN 912: Zinc-plated steel 8.8

Supplied complete with mounting screws for attachment to cylinder.



Cyl. bore mm	C mm	E mm	UB h14 mm	CB H14 mm	FL ±0,2 mm	L mm	l2 mm	CD H9 mm	MR mm	XD mm	Weight (kg)	Order code
32	53	47	45	26	22	13	6,0	10	10	142	0,08	**P1C-4KMTB**
40	60	55	52	28	25	16	6,0	12	12	160	0,11	**P1C-4LMTB**
50	68	65	60	32	27	16	7,0	12	12	170	0,14	**P1C-4MMTB**
63	78	78	70	40	32	21	7,0	16	16	190	0,29	**P1C-4NMTB**
80	98	95	90	50	36	22	10,0	16	16	210	0,36	**P1C-4PMTB**
100	118	115	110	60	41	27	10,5	20	20	230	0,64	**P1C-4QMTB**
125	139	140	130	70	50	30	10,5	25	25	275	1,17	**P1C-4RMTB**

S = Stroke length

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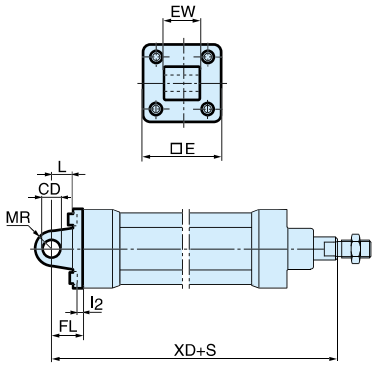
Clevis bracket MP4 ⑥

Intended for flexible mounting of cylinder. Clevis bracket MP4 can be combined with clevis bracket MP2.

Material:
Clevis bracket: Aluminium
Mounting screws acc. to DIN 912: Zinc-plated steel 8.8

Supplied complete with mounting screws for attachment to cylinder.



Cyl. bore mm	E mm	EW mm	FL mm	L ±0,2 mm	l2 mm	CD mm	MR H9 mm	XD mm	Weight (kg)	Order code
32	47	26	22	13	6,0	10	10	142	0,09	**PD23412**
40	55	28	25	16	6,0	12	12	160	0,13	**PD23413**
50	65	32	27	16	7,0	12	12	170	0,17	**PD23414**
63	78	40	32	21	7,0	16	16	190	0,36	**PD23415**
80	95	50	36	22	10,0	16	16	210	0,46	**PD23416**
100	115	60	41	27	10,5	20	20	230	0,83	**PD23417**
125	140	70	50	30	10,5	25	25	275	1,53	**PD23418**

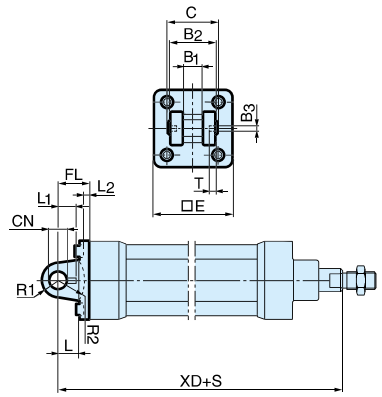
S = Stroke length

Clevis bracket AB6 ⑦

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.

Material:
Clevis bracket: Surface-treated aluminium
Pin: Surface hardened steel
Locking pin: Spring steel
Circlips according to DIN 471: Spring steel
Mounting screws acc. to DIN 912: Zinc-plated steel 8.8

Supplied complete with mounting screws for attachment to cylinder.



Cyl. bore mm	C mm	E mm	B2 d12 mm	B1 H14 mm	T mm	B3 mm	R2 mm	L1 mm	FL ±0,2 mm	l2 mm	L mm	CN F7 mm	R1 mm	XD* mm	Weight (kg)	**Order code**
32	41	45	34	14	3	3,3	17	11,5	22	5,5	12	10	11	142	0,09	**P1C-4KMCB**
40	48	52	40	16	4	4,3	20	12,0	25	5,5	15	12	13	160	0,13	**P1C-4LMCB**
50	54	65	45	21	4	4,3	22	14,0	27	6,5	17	16	18	170	0,17	**P1C-4MMCB**
63	60	75	51	21	4	4,3	25	14,0	32	6,5	20	16	18	190	0,36	**P1C-4NMCB**
80	75	95	65	25	4	4,3	30	16,0	36	10,0	20	20	22	210	0,58	**P1C-4PMCB**
100	85	115	75	25	4	4,3	32	16,0	41	10,0	25	20	22	230	0,89	**P1C-4QMCB**
125	110	140	97	37	6	6,3	42	24,0	50	10,0	30	30	30	275	1,75	**P1C-4RMCB**

S = Stroke length

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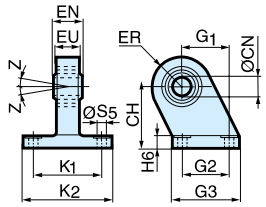
Pivot bracket with swivel bearing CS7 (8)

Intended for use together with clevis bracket GA.

Material:
Pivot bracket: Surface-treated steel
Swivel bearing acc. to DIN 648K: Hardened steel

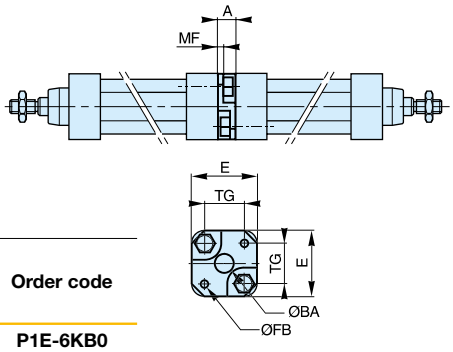


Cyl. bore mm	CN H7 mm	S5 H13 mm	K1 JS14 mm	K2 mm	EU mm	G1 JS14 mm	G2 JS14 mm	EN mm	G3 mm	CH JS15 mm	H6 mm	ER mm	Z	Order code
32	10	6.6	38	51	10.5	21	18	14	31	32	10	16	4°	**KC5130**
40	12	6.6	41	54	12	24	22	16	35	36	10	18	4°	**KC5131**
50	16	9.0	50	65	15	33	30	21	45	45	12	21	4°	**KC5132**
63	16	9.0	52	67	15	37	35	21	50	50	12	23	4°	**KC5133**
80	20	11	66	86	18	47	40	25	60	63	14	28	4°	**KC5134**
100	20	11	76	96	18	55	50	25	70	71	15	30	4°	**KC5135**
125	30	14	94	124	25	70	60	27	90	90	20	40	4°	**KC5136**

3 and 4 positions flange JP1 (9)

Mounting kit for back to back mounted cylinders, 3 and 4 position cylinders.

Material:
Mounting: Aluminium
Mounting screws: Zinc-plated steel 8.8



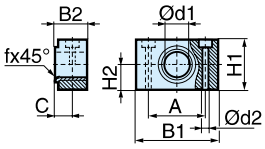
Cyl. bore mm	E mm	TG mm	ØFB mm	MF mm	A mm	ØBA mm	Weight (kg)	Order code
32	50	32.5	6.5	5	16	30	0.060	**P1E-6KB0**
40	60	38.0	6.5	5	16	35	0.078	**P1E-6LB0**
50	66	46.5	8.5	6	20	40	0.162	**P1E-6MB0**
63	80	56.5	8.5	6	20	45	0.194	**P1E-6NB0**
80	100	72.0	10.5	8	25	45	0.450	**P1E-6PB0**
100	118	89.0	10.5	8	25	55	0.672	**P1E-6QB0**

Pivot brackets AT4 for trunnion MT* (10)

Intended for use together with centre trunnion MT4.

Material:
Pivot bracket: Aluminium
Bearing: Composite

Supplied in pairs.



Cyl. bore mm	B1 mm	B2 mm	A mm	C mm	d1 mm	d2 H13 mm	H1 mm	H2 mm	Weight (kg)	Order code
32	55	20	36	10.5	12	8.4	26	13	0.06	**PD23381**
40	55	20	36	12	16	8.4	26	13	0.06	**PD23382**
50	55	20	36	12	16	8.4	26	13	0.06	**PD23382**
63	65	25	42	13	20	10.5	30	15	0.10	**PD23383**
80	65	25	42	13	20	10.5	30	15	0.10	**PD23383**
100	75	28	50	16	25	13	40	20	0.175	**PD23384**
125	75	28	50	16	25	13	40	20	0.175	**PD23384**

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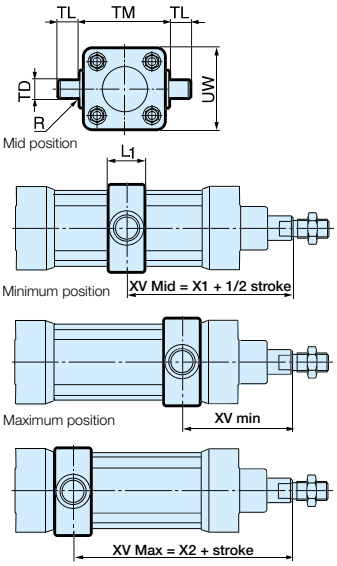
Intermediate trunnion MT4

Intended for articulated mounting of cylinder. The trunnion is factory-fitted in the centre of the cylinder or at an optional location specified by the XV-measure – Combined with pivot brackets for MT4.
Material: zinc plated steel.

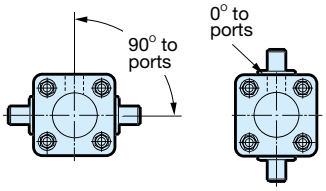
Trunnion with optional postion XV measure
The intermediate trunnion for the P1D-B is ordered with a letter D in position 17 and desired XV-measure (3-digits measure in mm) in positions 18-20.

Free trunnion
The centre trunnion for the P1D-B can also be ordered with the intermediate trunnion loosely fitted to the cylinder (not fixed in position). This allows the position to be established at the time of installation.
Ordered with a letter G in position 17 and 000 in positions 18-20.
Digits 17: G letters mean shafts at 90° to air ports
Digits17: 7 numbers mean shafts in line with air ports



Cyl. bore mm	L1 P1D-B mm	TL h14 mm	TM h14 mm	Ø TD e9 mm	R mm	UW mm	XV min mm	X1 P1D-B mm	X2 mm
32	18	12	50	12	1,0	52	89	73.0	57
40	20	16	63	16	1,6	59	95	82.5	70
50	20	16	75	16	1,6	71	113	90.0	67
63	26	20	90	20	1,6	84	118	97.5	77
80	26	20	110	20	1,6	105	132	110.0	88
100	32	25	132	25	2,0	129	140	120.0	100
125	33	25	180	25	2,0	159	168	145.0	122

Orientation



Important: If the cylinder is ordered with a piston rod protusion (WH dimension), please add this extra length to XVmin, XV and XVmax.

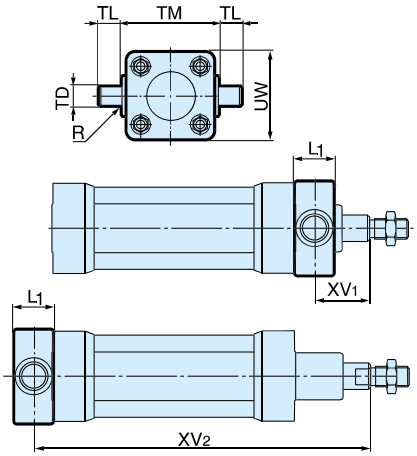
S = Stroke length, does not apply to cylinders with lock unit or with protusion of the piston rod

Flange trunnion (11)
MT5/MT6

Intended for articulated mounting of cylinder. This trunnion can be flange mounted on the front or rear end cover of all P1D cylinders.
Individual trunnions have order code as shown to the right.

Material:
Trunnion: zinc plated steel
Screws: zinc plated steel, 8.8

Delivered complete with mounting screws for attachment to the cylinder

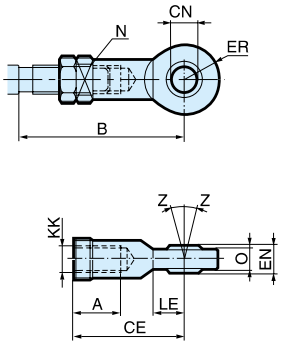


Cyl. bore mm	TM H14 mm	TL H14 mm	TD E9 mm	R mm	UW mm	L1 mm	XV1 mm	XV2 mm	Weight (kg)	**Order code**
32	50	12	12	1.0	46	14	19.5	127.0	0.17	**P1D-4KMYF**
40	63	16	16	1.6	59	19	21.0	144.5	0.43	**P1D-4LMYF**
50	75	16	16	1.6	69	19	28.0	152.5	0.55	**P1D-4MMYF**
63	90	20	20	1.6	84	24	25.5	170.0	1.10	**P1D-4NMYF**
80	110	20	20	1.6	102	24	34.5	186.0	1.66	**P1D-4PMYF**
100	132	25	25	2.0	125	29	37.0	203.5	3.00	**P1D-4QMYF**

Swivel rod eye AP6 (12)

Swivel rod eye for articulated mounting of cylinder.
Can be combined with clevis bracket GA.
Maintenance-free.

Materials
Swivel rod eye: Zinc-plated steel
Swivel bearing according to DIN 648K: Hardened steel



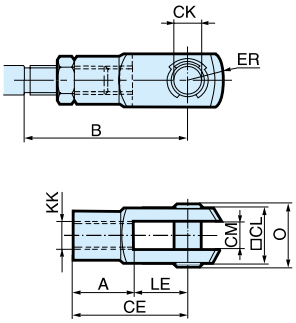
According to ISO 8139

Cyl. bore mm	A mm	B min mm	B max mm	CE mm	CN H9 mm	EN H12 mm	ER mm	KK	LE	N min mm	O mm	Z mm	Weight (kg)	Order code
32	20	48.0	55	43	10	14	14	M10 x 1.25	15	17	10.5	12°	0.08	**P1C-4KRS**
40	22	56.0	62	50	12	16	16	M12 x 1.25	17	19	12.0	12°	0.12	**P1C-4LRS**
50	28	72.0	80	64	16	21	21	M16 x 1.5	22	22	15.0	15°	0.25	**P1C-4MRS**
63	28	72.0	80	64	16	21	21	M16 x 1.5	22	22	15.0	15°	0.25	**P1C-4MRS**
80	33	87.0	97	77	20	25	25	M20 x 1.5	26	32	18.0	15°	0.46	**P1C-4PRS**
100	33	87.0	97	77	20	25	25	M20 x 1.5	26	32	18.0	15°	0.46	**P1C-4PRS**
125	51	123.5	137	110	30	37	35	M27 x 2	36	41	25.0	15°	1.28	**P1C-4RRS**

Clevis AP2 (13)

Clevis for articulated mounting of cylinder.

Material
Clevis, clip: Galvanized steel
Pin: Hardened steel



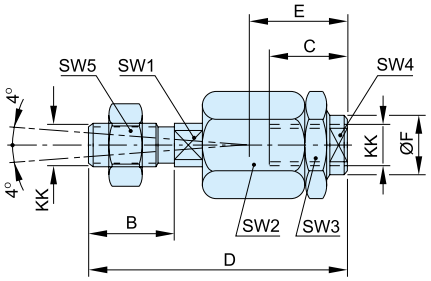
Cyl. bore mm	A mm	B min mm	B max mm	CE mm	CK H9 / 11 mm	CL mm	CM mm	KK	LE	O mm	Weight (kg)	Order code
32	20	45.0	52	40	10	20	10	M10 x 1.25	20	28.0	0.09	**P1C-4KRC**
40	24	54.0	60	48	12	24	12	M12 x 1.25	24	32.0	0.15	**P1C-4LRC**
50	32	72.0	80	64	16	32	16	M16 x 1.5	32	41.5	0.35	**P1C-4MRC**
63	32	72.0	80	64	16	32	16	M16 x 1.5	32	41.5	0.35	**P1C-4MRC**
80	40	90.0	100	80	20	40	20	M20 x 1.5	40	50.0	0.75	**P1C-4PRC**
100	40	90.0	100	80	20	40	20	M20 x 1.5	40	50.0	0.75	**P1C-4PRC**
125	56	123.5	137	110	30	55	30	M27 x 2	54	72.0	2.10	**P1C-4RRC**

Flexo coupling PM5 (14)

Flexo coupling for articulated mounting of piston rod. Flexo fitting is intended to take up axial angle errors within a range of ±4°.

Material
Flexo coupling, nut: Zinc-plated steel

Supplied complete with galvanized adjustment nut.

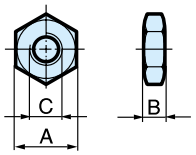


Cyl. bore mm	KK	B mm	C mm	D mm	E mm	ØF mm	SW1 mm	SW2 mm	SW3 mm	SW4	SW5	Weight (kg)	**Order code**
32	M10 x 1.25	20	23	73	31	21	12	30	30	19	17	0.21	**P1C-4KRF**
40	M12 x 1.25	24	23	77	31	21	12	30	30	19	19	0.22	**P1C-4LRF**
50	M16 x 1.5	32	32	108	45	33.5	19	41	41	30	24	0.67	**P1C-4MRF**
63	M16 x 1.5	32	32	108	45	33.5	19	41	41	30	24	0.67	**P1C-4MRF**
80	M20 x 1.5	40	42	122	56	33.5	19	41	41	30	30	0.72	**P1C-4PRF**
100	M20 x 1.5	40	42	122	56	33.5	19	41	41	30	30	0.72	**P1C-4PRF**
125	M27 x 2	54	48	147	51	39	24	55	55	32	41	1.80	**P1C-4RRF**

Nut MR9 (15)

Intended for fixed mounting of accessories to the piston rod.
Material: Zinc-plated steel

All P1D cylinders are delivred with a zinc-plated steel piston rod nut, except P1D Ultra Clean, which is delivered with a stainless steel piston rod nut instead.



According to DIN 439 B

Cyl. bore mm	A mm	B mm	C	Weight ** (kg)	**Order code Nut MR9**
32	17	5,0	M10x1,25	0,007	**P14-4KRPZ**
40	19	6,0	M12x1,25	0,010	**P14-4LRPZ**
50	24	8,0	M16x1,5	0,021	**P14-4MRPZ**
63	24	8,0	M16x1,5	0,021	**P14-4MRPZ**
80	30	10,0	M20x1,5	0,040	**P14-4PRPZ**
100	30	10,0	M20x1,5	0,040	**P14-4PRPZ**
125	41	13,5	M27x2	0,100	**P14-4RRPZ**

* Supplied as pack of 10 off

** Weight per item

Drop-in sensors

The P1D sensors can easily be installed from the side in the sensor groove, at any position along the piston stroke.
The sensors are completely recessed and thus mechanically protected. Choose between electronic or reed sensors and several cable lengths and 8 mm and M12 connectors.
The same standard sensors are used for all P1D versions.

Electronic sensors

The electronic sensors are "Solid State", i.e. they have no moving parts at all. They are provided with short-circuit protection and transient protection as standard. The built-in electronics make the sensors suitable for applications with high on and off switching frequency, and where very long service life is required.

Technical data

Design	GMR (Giant Magnetic Resistance) magneto-resistive function
Installation	From side, down into the sensor groove, so-called drop-in
Outputs	PNP, normally open (also available in NPN design, normally closed, on request)
Voltage range	10-30 VDC 10-18 V DC, ATEX sensor
Ripple	max 10%
Voltage drop	max 2,5 V
Load current	max 100 mA
Internal consumption	max 10 mA
Actuating distance	min 9 mm
Hysteresis	max 1,5 mm
Repeatability accuracy	max 0,2 mm
On/off switching frequency	max 5 kHz
On switching time	max 2 ms
Off switching time	max 2 ms
Encapsulation	IP 67 (EN 60529)
Temperature range	–25 °C to +75 °C –20 °C to +45 °C, ATEX sensor
Indication	LED, yellow
Material housing	PA 12
Material screw	Stainless steel
Cable	PVC or PUR 3x0.25 mm^2 see order code respectively

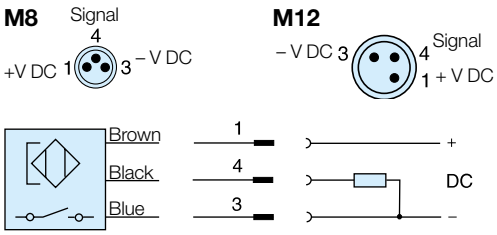
Reed sensors

The sensors are based on proven reed switches, which offer reliable function in many applications. Simple installation, a protected position on the cylinder and clear LED indication are important advantages of this range of sensors.

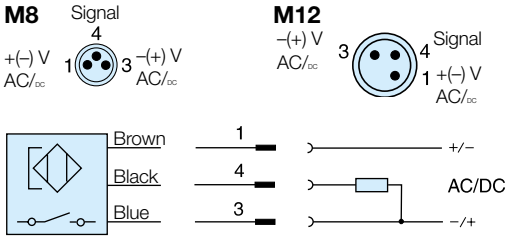
Technical data

Design	Reed element
Mounting	From side, down into the sensor groove, so-called drop-in
Output	Normally open , or normally closed
Voltage range	10-30 V AC/DC or 10-120 V AC/DC 24-230 V AC/DC
Load current	max 500 mA for 10-30 V or max 100 mA for 10-120 V max 30 mA for 24-230 V
Breaking power (resistive)	max 6 W/VA
Actuating distance	min 9 mm
Hysteresis	max 1,5 mm
Repeatability accuracy	0,2 mm
On/off switching frequency	max 400 Hz
On switching time	max 1,5 ms
Off switching time	max 0,5 ms
Encapsulation	IP 67 (EN 60529)
Temperature range	–25 °C to +75 °C
Indication	LED, yellow
Material housing	PA12
Material screw	Stainless steel
Cable	PVC or PUR 3x0.14 mm^2 see order code respectively

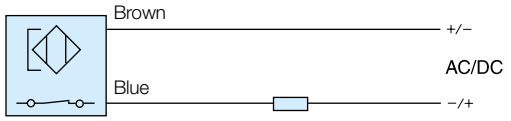
Electronic sensors



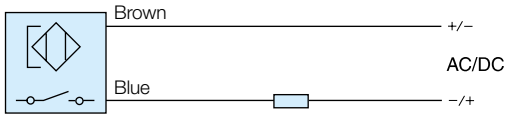
Reed sensors



P8S-GCFPX

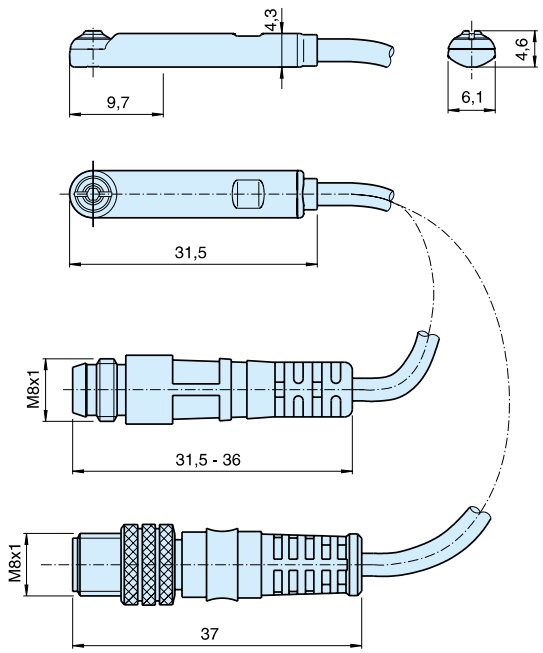


P8S-GRFLX / P8S-GRFLX2

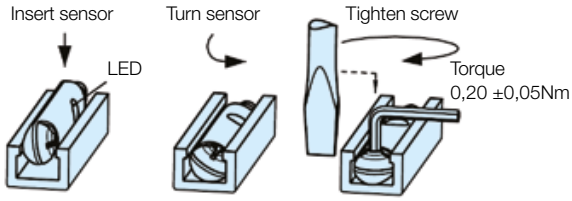


Dimensions

Sensors



Sensor Installation



Ordering data

Output/function	Cable/connector	Weight kg	Order code
Electronic sensors , 10-30 V DC			
PNP type, normally open	0,27 m PUR-cable and 8 mm snap-in male connector	0,007	**P8S-GPSHX**
PNP type, normally open	0,27 m PUR-cable and M12 screw male connector	0,015	**P8S-GPMHX**
PNP type, normally open	3 m PVC-cable without connector	0,030	**P8S-GPFLX**
PNP type, normally open	10 m PVC-cable without connector	0,110	**P8S-GPFTX**
Reed sensors , 10-30 V AC/DC			
Normally open	0,27 m PUR-cable and 8 mm snap-in male connector	0,007	**P8S-GSSHX**
Normally open	0,27 m PUR-cable and M12 screw male connector	0,015	**P8S-GSMHX**
Normally open	3 m PVC-cable without connector	0,030	**P8S-GSFLX**
Normally open	10 m PVC-cable without connector	0,110	**P8S-GSFTX**
Normally closed	5m PVC-cable without connector [1]	0,050	**P8S-GCFPX**
Reed sensors, 10-120 V AC/DC			
Normally open	3 m PVC-cable without connector	0,030	**P8S-GRFLX**
Reed sensorer, 24-230 V AC/DC			
Normally open	3 m PVC-cable without connector	0,030	**P8S-GRFLX2**

1) Without LED

Connecting cables with one connector

The cables have an integral snap-in female connector.

Type of cable	Cable/connector	Weight kg	Order code
Cables for sensors, complete with one female connector			
Cable, Flex PVC	3 m, 8 mm Snap-in connector	0,07	**9126344341**
Cable, Flex PVC	10 m, 8 mm Snap-in connector	0,21	**9126344342**
Cable, Polyurethane	3 m, 8 mm Snap-in connector	0,01	**9126344345**
Cable, Polyurethane	10 m, 8 mm Snap-in connector	0,20	**9126344346**
Cable, Polyurethane	5 m, M12 screw connector	0,07	**9126344348**
Cable, Polyurethane	10 m, M12 screw connector	0,20	**9126344349**

Male connectors for connecting cables

Cable connectors for producing your own connecting cables. The connectors can be quickly attached to the cable without special tools. Only the outer sheath of the cable is removed. The connectors are available for M8 and M12 screw connectors and meet protection class IP 65.

Technical data

Operating voltage	max. 32 V AC/DC
Operating current per contact	max. 4 A
Connection cross section	0.25...0.5mm^2 (conductor diameter min 0.1mm)
Protection	IP65 and IP67 when plugged and screwed down (EN 60529)
Temperature range	-25...+85 °C

Connector	Weight kg	Order code
M8 screw connector	0,017	**P8CS0803J**
M12 screw connector	0,022	**P8CS1204J**

P1D-B Seal kits

Complete seal kits consisting of:
Piston seals
Cushioning seals
Piston rod seal
O-rings
Scraper ring

Material specification, see page 5

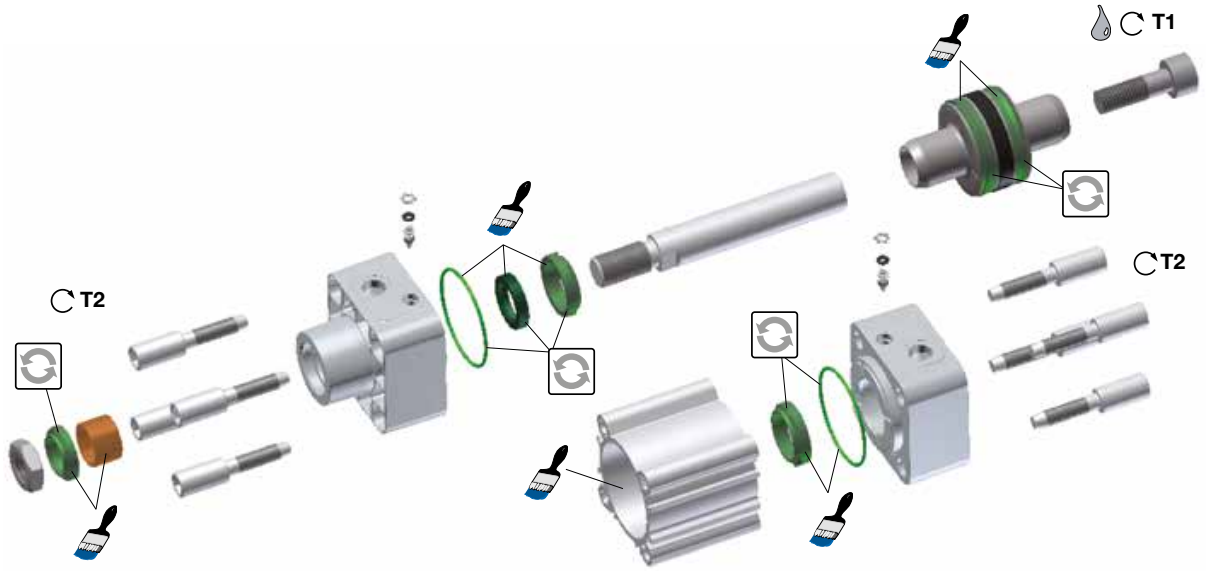
Order codes

Cyl.bore mm	P1D cylinder version Standard P1D-B
32	**P1D-6KRNB**
40	**P1D-6LRNB**
50	**P1D-6MRNB**
63	**P1D-6NRNB**
80	**P1D-6PRNB**
100	**P1D-6QRNB**
125	**P1D-6RRNB**

Order codes

Standard	30g	**9127394541**

Seal kits



= Included in seal kit
= Socket head
= Tightening torque
= Lubricated with grease
= Locking fluid

Loctite 270 or Loctite 2701 locking fluid must be used

Cyl.-dia mm	Plastic piston T1 Nm	NV mm	T2 Nm	NV mm
32	4,5	6	8	6
40	11	8	8	6
50	20	10	20	8
63	20	10	20	8
80	40	14	20	6
100	120	14	20	6
125	120	14	70	8

Order code key, spare parts

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
P	1	D	–	8	0	3	2	D	G	–	0	1	0	0

8	Spare parts

Cylinder dia. mm
032
040
050
063
080
100
125

Piston rod	
D	Standard external thread
G	Standard internal thread
Cylinder barrel	
A	Standard profile

Piston rod	
G	Stainless steel
H	Hard-chromium plated
Cylinder barrel	
A	Aluminium

Stroke** (mm) e.g. 0100 = 100 mm
Any stroke up to max. 2800 mm.

** When ordering piston rods for cylinders with an extended piston rod, add together the stroke and the extension in the order key.
For example, a cylinder with stroke 100 mm and a piston rod extension of 25 mm is ordered with 0125 in the order number.

P1D with standard profile

Specifying air quality (purity) in accordance with ISO8573-1:2010, the international standard for Compressed Air Quality

ISO8573-1 is the primary document used from the ISO8573 series as it is this document which specifies the amount of contamination allowed in each cubic metre of compressed air.

ISO8573-1 lists the main contaminants as Solid Particulate, Water and Oil. The purity levels for each contaminant are shown separately in tabular form, however for ease of use, this document combines all three contaminants into one easy to use table.

ISO8573-1:2010 CLASS	Solid Particulate				Water		Oil
	Maximum number of particles per m^3			Mass Concentration mg/m^3	Vapour Pressure Dewpoint	Liquid g/m^3	Total Oil (aerosol liquid and vapour)
	0,1 - 0,5 micron	0,5 - 1 micron	1 - 5 micron				mg/m^3
0	As specified by the equipment user or supplier and more stringent than Class 1						
1	≤ 20 000	≤ 400	≤ 10	-	≤ -70 °C	-	0,01
2	≤ 400 000	≤ 6 000	≤ 100	-	≤ -40 °C	-	0,1
3	-	≤ 90 000	≤ 1 000	-	≤ -20 °C	-	1
4	-	-	≤ 10 000	-	≤ +3 °C	-	5
5	-	-	≤ 100 000	-	≤ +7 °C	-	-
6	-	-	-	≤ 5	≤ +10 °C	-	-
7	-	-	-	5 - 10	-	≤ 0,5	-
8	-	-	-	-	-	0,5 - 5	-
9	-	-	-	-	-	5 - 10	-
X	-	-	-	> 10	-	> 10	> 10

Specifying air purity in accordance with ISO8573-1:2010

When specifying the purity of air required, the standard must always be referenced, followed by the purity class selected for each contaminant (a different purity class can be selected for each contamination if required).

An example of how to write an air quality specification is shown below:

ISO 8573-1:2010 Class 1.2.1

ISO 8573-1:2010 refers to the standard document and its revision, the three digits refer to the purity classifications selected for solid particulate, water and total oil. Selecting an air purity class of 1.2.1 would specify the following air quality when operating at the standard's reference conditions :

Class 1 - Particulate

In each cubic metre of compressed air, the particulate count should not exceed 20,000 particles in the 0.1 - 0.5 micron size range, 400 particles in the 0.5 - 1 micron size range and 10 particles in the 1 - 5 micron size range.

Class 2 - Water

A pressure dewpoint (PDP) of -40°C or better is required and no liquid water is allowed.

Class 1 - Oil

In each cubic metre of compressed air, not more than 0.01mg of oil is allowed. This is a total level for liquid oil, oil aerosol and oil vapour.

ISO8573-1:2010 Class zero

- **Class 0 does not mean zero contamination.**
- **Class 0 requires the user and the equipment manufacturer to agree contamination levels as part of a written specification.**
- **The agreed contamination levels for a Class 0 specification should be within the measurement capabilities of the test equipment and test methods shown in ISO8573 Pt 2 to Pt 9.**
- **The agreed Class 0 specification must be written on all documentation to be in accordance with the standard.**
- **Stating Class 0 without the agreed specification is meaningless and not in accordance with the standard.**
- **A number of compressor manufacturers claim that the delivered air from their oil-free compressors is in compliance with Class 0.**
- **If the compressor was tested in clean room conditions, the contamination detected at the outlet will be minimal. Should the same compressor now be installed in typical urban environment, the level of contamination will be dependent upon what is drawn into the compressor intake, rendering the Class 0 claim invalid.**
- **A compressor delivering air to Class 0 will still require purification equipment in both the compressor room and at the point of use for the Class 0 purity to be maintained at the application.**
- **Air for critical applications such as breathing, medical, food, etc typically only requires air quality to Class 2.2.1 or Class 2.1.1.**
- **Purification of air to meet a Class 0 specification is only cost effective if carried out at the point of use.**

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