



# Pneumatic Cylinders

Ø10 to Ø25 mm P1A Series  
According to ISO 6432

Catalogue PDE2564TCUK



ENGINEERING YOUR SUCCESS.

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## P1A Pneumatic ISO Cylinders



### 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).



### WARNING

**FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.**

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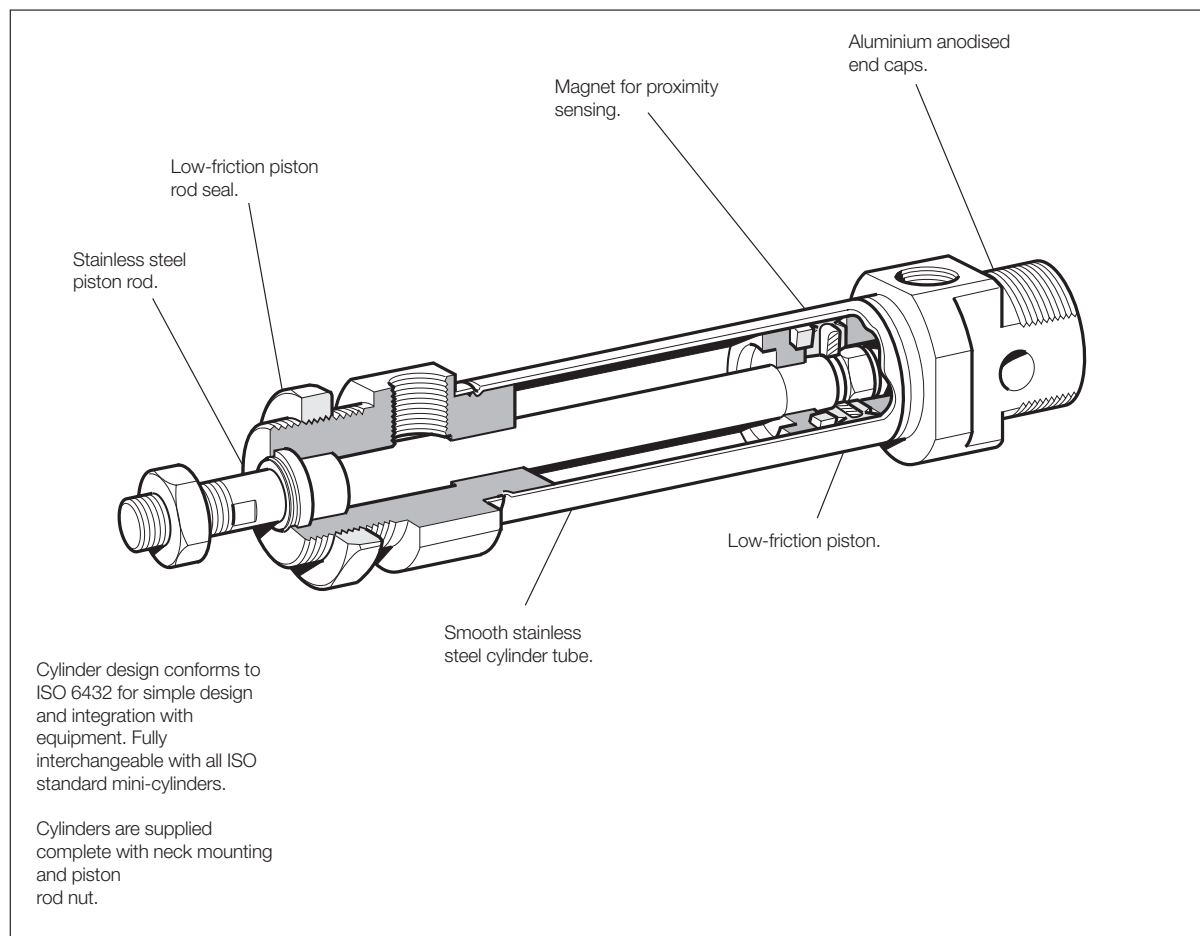
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## P1A Pneumatic ISO Cylinders



### Double and single-acting versions

The P1A range of cylinders is intended for use in a wide range of applications. The cylinders are particularly suitable for lighter duties in the packaging, food and textile industries.

Hygienic design, the use of corrosion-resistant materials and initial lubrication with our food-grade grease makes the cylinders suitable for food industry applications.

Careful design and high quality manufacture throughout ensure long service life and optimum economy.

Mounting dimensions fully in accordance with ISO 6432 and CETOP RP52P greatly simplifies installation and world-wide interchangeability.

The cylinders are available in bores of 10, 12, 16, 20 and 25 mm, with stroke lengths from 10 mm to 320 mm. Single-acting cylinders with spring return in the retract direction are available in stroke lengths up to 80 mm.

Single-acting cylinders with spring return in the advance direction are available in 16 mm, 20 mm and 25 mm bore sizes and with stroke lengths up to 50 and 80 mm.

### Double-acting cushioned cylinders

Adjustable pneumatic cushioning permits greater loads and higher operating speeds, making the cylinders suitable for more demanding duties.

These cylinders are available in bores of 16, 20 and 25 mm, with stroke lengths from 20 mm to 500 mm.

### Options

In addition to a wide range of standard cylinders, Mini ISO cylinders are available in several standard variants, such as non-standard stroke length, extended piston rods, double piston rods, high temperature versions etc. In addition, a complete range of sensors and mountings are available.

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## P1A Pneumatic ISO Cylinders

### Effective cushioning

The Mini ISO range is available with fixed end cushioning or with adjustable pneumatic cushioning, controlled by simple bleed screws for fine adjustment. The adjustable cushioned cylinders can be operated with higher mass loads and at higher speeds than those with fixed end cushioning, reducing overall cycle times.

### Smooth external design

There are no recesses or pockets in the end covers that could trap dirt or liquid, making cleaning simple and effective.

### Corrosion-resistant

Even the basic versions of the cylinders have good corrosion resistance through appropriate choice of materials and surface treatment, allowing them to be used in demanding environments.

### Stainless steel versions

The Mini ISO range is also available in an all-stainless version with piston rod, barrel and end covers of stainless steel for use in particularly severe environments. See separate brochure for cylinder series P1S.

### Proximity sensing

A complete range of sensors for proximity sensing is available as accessories: both reed switch and Hall effect sensors are available. They are supplied with either flying lead or cable plug connector.

### Complete mounting programme

A complete ISO compatible mounting programme with surface-treated/stainless steel piston rod and cylinder mountings for both pivoted and fixed operation are available.

### Variants

In addition to the basic versions, a number of standard variants of Parker Pneumatics cylinders are available to meet all demands on function and environmental adaptation:

Non-standard stroke lengths

Extended piston rods

Through piston rods

Single acting cylinder with spring return (in the retract direction).

Single acting cylinder with spring return in the advance direction (piston rod in extended position)

External guide, for controlled guidance of the piston rod

High-temperature cylinder versions for use in ambient temperatures ranging from -10 °C to +150 °C for bores 12, 16, 20 and 25 mm

Cylinders with outer sealings in fluorocarbon rubber FPM

Stainless steel cylinders, see brochure for series P1S.



Double-acting, cushioned stroke



Double-acting, adjustable cushioning



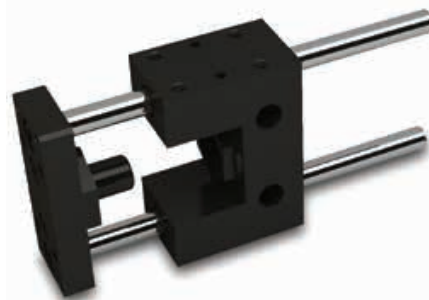
Double-acting, through piston rod



Single-acting, spring return



Single-acting, spring-extended



U and H guidance modules

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## P1A Pneumatic ISO Cylinders

### Cylinder forces, double acting variants

Cyl. bore/ pist. rod mm	Stroke	Pistonarea cm <sup>2</sup>	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
10/4	+	0.8	8	16	24	31	39	47	55	63	71	79
	-	0.7	7	13	20	26	33	40	46	53	59	66
12/6	+	1.1	11	23	34	45	57	68	79	90	102	113
	-	0.8	8	17	25	34	42	51	59	68	76	85
16/6	+	2.0	20	40	60	80	100	120	141	161	181	201
	-	1.7	17	35	52	69	86	104	121	138	156	173
20/8	+	3.1	31	63	94	126	157	188	220	251	283	314
	-	2.6	26	53	79	106	132	158	185	211	238	264
25/10	+	4.9	49	98	147	196	245	295	344	393	442	491
	-	4.1	41	82	124	165	206	247	289	330	371	412

+ = Outward stroke  
- = Return stroke

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

### Cylinder forces single acting variants

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

Order code	Theoretical piston force at 6 bar				Order code	Theoretical piston force at 6 bar			
	Nmax	Nmin	Spring retraction Nmax	Nmin		Nmax	Nmin	Spring retraction Nmax	Nmin
<b>Single acting. spring return</b>					<b>Single acting. spring-extended</b>				
P1A-S010SS-0010	38	36	10	8.5	P1A-S016TS-0010	85	84	22.3	20.2
P1A-S010SS-0015	38	36	10	7.8	P1A-S016TS-0015	86	84	22.3	19
P1A-S010SS-0025	39	36	10	6.6	P1A-S016TS-0025	88	84	22.3	17
P1A-S010SS-0040	38	34	13	9	P1A-S016TS-0040	90	84	22.3	14
P1A-S010SS-0050	39	34	13	8	P1A-S016TS-0050	91	84	22.3	12
P1A-S010SS-0080	39	34	12	7					
P1A-S012SS-0010	53	51	16	14.4	P1A-S020TS-0010	132	130	30	28
P1A-S012SS-0015	53	51	16	13.6	P1A-S020TS-0015	133	130	30	27
P1A-S012SS-0025	55	51	16	12	P1A-S020TS-0025	135	130	30	25
P1A-S012SS-0040	52	48	19	13.4	P1A-S020TS-0040	138	130	30	22
P1A-S012SS-0050	53	48	19	12	P1A-S020TS-0050	140	130	30	20
P1A-S012SS-0080	55	48	21.4	12	P1A-S020TS-0080	139	108	31	17
					P1A-S025TS-0010	205	203	38.5	36
P1A-S016SS-0010	102	99	22.3	20.2	P1A-S025TS-0015	207	203	38.5	34.7
P1A-S016SS-0015	103	99	22.3	19	P1A-S025TS-0025	210	203	38.5	32
P1A-S016SS-0025	105	99	22.3	17	P1A-S025TS-0040	214	203	38.5	28.5
P1A-S016SS-0040	106	95	22.3	14	P1A-S025TS-0050	217	203	38.5	26
P1A-S016SS-0050	108	95	22.3	12	P1A-S025TS-0080	223	206	36	21
P1A-S016SS-0080	107	95	22.5	12					
P1A-S020SS-0010	163	161	30	28					
P1A-S020SS-0015	164	161	30	27					
P1A-S020SS-0025	167	161	30	25					
P1A-S020SS-0040	166	159	30	22					
P1A-S020SS-0050	168	159	30	20					
P1A-S020SS-0080	170	161	29.4	18					
P1A-S025SS-0010	256	253	44.3	41.4					
P1A-S025SS-0015	258	253	44.3	40					
P1A-S025SS-0025	262	253	44.3	37					
P1A-S025SS-0040	261	250	44.3	32					
P1A-S025SS-0050	264	250	44.3	30					
P1A-S025SS-0080	264	251	44.4	30					



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## P1A Pneumatic ISO Cylinders

### Main data

Cylinder designation	Cylinder bore		Piston rod		thread	Total mass		Air consumption -	Conn. thread
	mm	cm <sup>2</sup>	mm	cm <sup>2</sup>		at 0 mm stroke kg	addition per 10 mm stroke kg		
<b>Double acting, cushioned stroke</b>									
P1A-S010D	10	0.78	4	0.13	M4	0.04	0.003	0.0100 <sup>1)</sup>	M5
P1A-S012D	12	1.13	6	0.28	M6	0.07	0.004	0.0139 <sup>1)</sup>	M5
P1A-S016D	16	2.01	6	0.28	M6	0.09	0.005	0.0262 <sup>1)</sup>	M5
P1A-S020D	20	3.14	8	0.50	M8	0.18	0.007	0.0405 <sup>1)</sup>	G1/8
P1A-S025D	25	4.91	10	0.78	M10x1.25	0.25	0.011	0.0633 <sup>1)</sup>	G1/8
<b>Double acting, adjustable cushioning</b>									
P1A-S016M	16	2.01	6	0.28	M6	0.09	0.005	0.0262 <sup>1)</sup>	M5
P1A-S020M	20	3.14	8	0.50	M8	0.18	0.007	0.0405 <sup>1)</sup>	G1/8
P1A-S025M	25	4.91	10	0.78	M10x1.25	0.25	0.011	0.0633 <sup>1)</sup>	G1/8
<b>Single acting, spring return</b>									
P1A-S010SS	10	0.78	4	0.13	M4	0.04	0.003	0.0055 <sup>1)</sup>	M5
P1A-S012SS	12	1.13	6	0.28	M6	0.08	0.004	0.0079 <sup>1)</sup>	M5
P1A-S016SS	16	2.01	6	0.28	M6	0.10	0.005	0.0141 <sup>1)</sup>	M5
P1A-S020SS	20	3.14	8	0.50	M8	0.18	0.007	0.0220 <sup>1)</sup>	G1/8
P1A-S025SS	25	4.91	10	0.78	M10x1.25	0.26	0.011	0.0344 <sup>1)</sup>	G1/8
<b>Single acting, spring-extended</b>									
P1A-S016TS	16	2.01	6	0.28	M6	0.10	0.005	0.0141 <sup>1)</sup>	M5
P1A-S020TS	20	3.14	8	0.50	M8	0.18	0.007	0.0220 <sup>1)</sup>	G1/8
P1A-S025TS	25	4.91	10	0.78	M10x1.25	0.26	0.011	0.0344 <sup>1)</sup>	G1/8

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

### Working medium, air quality

Working medium Dry, filtered compressed air to ISO 8573-1 class 3.4.3.

#### Recommended air quality for cylinders

For best possible service life and trouble-free operation, ISO 8573-1 quality class 3.4.3 should be used. This means 5 µm filter (standard filter) dew point +3 °C for indoor operation (a lower dew point should be selected for outdoor operation) and oil concentration 1.0 mg oil/m<sup>3</sup>, which is what a standard compressor with a standard filter gives.

### Additional data

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

High-temperature version max +150 °C  
min -10 °C

Prelubricated, further lubrication is not normally necessary. If additional lubrication is introduced it must be continued.

#### ISO 8573-1 quality classes

Quality class	Pollution		Water	Oil
	particle size (µm)	max concentration (mg/m <sup>3</sup> )	max press dew point (°C)	max concentration (mg/m <sup>3</sup> )
1	0.1	0.1	-70	0.01
2	1	1	-40	0.1
3	5	5	-20	1.0
4	15	8	+3	5.0
5	40	10	+7	25.
6	-	-	+10	-

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## P1A Pneumatic ISO Cylinders

### Material specification

Piston rod	Stainless steel, DIN X 10 CrNiS 18 9
Piston rod bearing	Multilayer PTFE/steel
End covers	Anodized aluminium
Cylinder barrel	Stainless steel, DIN X 5 CrNi 18 10
Magnet holder	Thermoplastic elastomer
Magnet	Plastic-coated magnetic material
Return spring	Surface-treated steel
Cushioning screw	Stainless steel, DIN X 10 CrNiS 18 9

### Variants Mini ISO:

#### Standard-temperature version, type S:

Piston rod seal	Nitrile rubber, NBR
Piston complete	Nitrile rubber, NBR/steel

#### High-temperature version, type F:

Piston rod seal	Fluorocarbon rubber, FPM
Piston complete	HNBR/steel

#### Cylinders with outer sealings in fluorocarbon, type V:

Piston rod seal/	
Scraper ring	Fluorocarbon rubber, FPM
Piston complete	Nitrile rubber, NBR/steel

Spare part = new cylinder

### Cushioning diagram

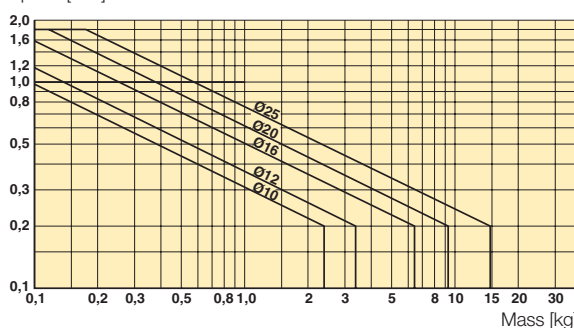
Use the diagram below to determine the necessary size of cylinder to provide the requisite cushioning performance. The maximum cushioning performance, as indicated in the diagram, is based on the following assumptions:

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

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.

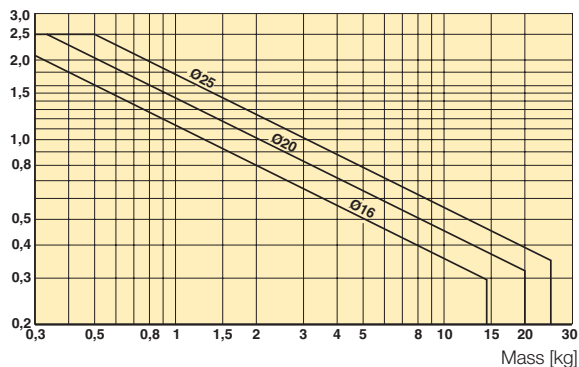
Fixed end-cushioning

Speed [m/s]



Adjustable pneumatic end-cushioning

Speed [m/s]

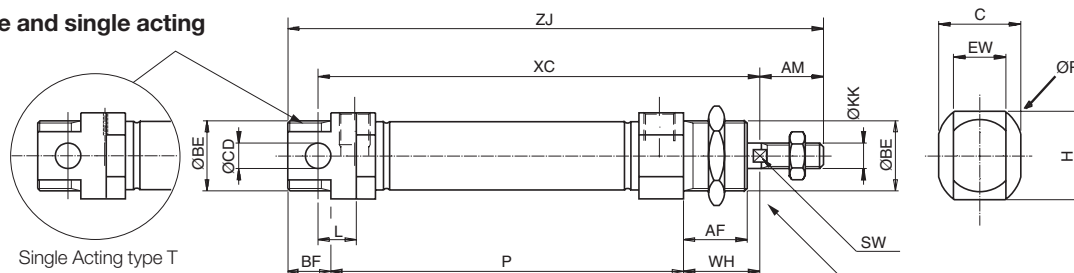


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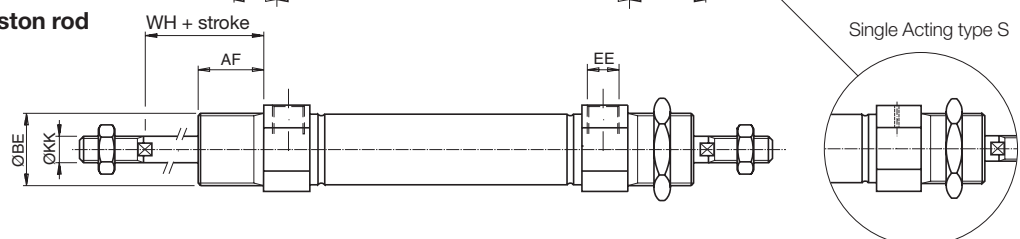
## P1A Pneumatic ISO Cylinders

### Dimensions

#### Double and single acting



#### Through piston rod



Cylinder bore mm	EE	Ø BE mm	Ø CD H9 mm	BF mm	L mm	AF mm	WH ±1,2 mm	AM 0/-2 mm	Ø KK mm	SW mm	C mm	EW mm	H mm	Ø R mm
10	M5	M12x1,25	4	10	6	12	16	12	M4	-	13,0	8	13,5	16,0
12	M5	M16x1,50	6	13	9	18	22	16	M6	5	17,8	12	17,4	20,0
16 <sup>1)</sup>	M5	M16x1,50	6	13	9	18	22	16	M6	5	23,8	12	23,4	27,0
16 <sup>2)</sup>	M5	M16x1,50	6	13	9	18	22	16	M6	5	17,8	12	17,5	20,0
20 <sup>1)</sup>	G1/8	M22x1,50	8	14	12	20	24	20	M8	7	23,9	16	23,9	28,0
20 <sup>2)</sup>	G1/8	M22x1,50	8	14	12	20	24	20	M8	7	23,8	16	23,4	27,0
25 <sup>1)</sup>	G1/8	M22x1,50	8	14	12	22	28	22	M10x1,25	9	26,9	16	26,9	31,5
25 <sup>2)</sup>	G1/8	M22x1,50	8	14	12	22	28	22	M10x1,25	9	26,8	16	26,6	31,0

1) SS / TS single acting 2) DS / MS double acting

#### Double acting cylinders

Cylinder bore mm	ZJ mm	XC mm	P mm
10	84 + stroke	64 + stroke	46 + stroke
12	99 + stroke	75 + stroke	48 + stroke
16 <sup>2)</sup>	104 + stroke	82 + stroke	53 + stroke
20 <sup>2)</sup>	125 + stroke	95 + stroke	67 + stroke
25 <sup>2)</sup>	132 + stroke	104 + stroke	68 + stroke

#### Single-acting, spring return, type S

Stroke/ Cylinder bore mm	XC	XC	XC	XC	XC	XC	ZJ	ZJ	ZJ	ZJ	ZJ	ZJ	P	P	P	P	P	P
10	74	79	89	126	136	174	94	99	109	146	156	194	56	61	71	108	118	156
12	85	90	100	132	142	185	109	114	124	156	166	209	58	63	73	105	115	158
16	92	97	107	122	132	184	114	119	129	144	154	206	63	68	78	93	103	155
20	105	110	120	135	145	191	135	140	150	165	175	221	77	82	92	107	117	163
25	114	119	129	144	154	201	142	147	157	172	182	229	78	83	93	108	118	165

#### Single-acting, spring-extended, type T

Stroke/ Cylinder bore mm	XC <sup>3)</sup>	XC <sup>3)</sup>	XC <sup>3)</sup>	XC <sup>3)</sup>	XC <sup>3)</sup>	XC <sup>3)</sup>	ZJ <sup>3)</sup>	ZJ <sup>3)</sup>	ZJ <sup>3)</sup>	ZJ <sup>3)</sup>	ZJ <sup>3)</sup>	ZJ <sup>3)</sup>	P	P	P	P	P	P
16	107	112	122	137	147	-	129	134	144	159	169	-	78	83	93	108	118	-
20	120	125	135	150	160	195	150	155	165	180	190	225	92	97	107	122	132	167
25	129	134	144	159	169	205	157	162	172	187	197	233	93	98	108	123	133	169

3) With piston rod retracted, as shown in the dimension drawing

Length tolerances

±1 mm

Stroke length tolerances

+1.5/0 mm

Cylinders are supplied complete with mounting and adjusting nuts.

Cylinders with through piston rod are supplied complete with two adjusting nuts and one mounting nut.



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## P1A Pneumatic ISO Cylinders

### Order key

<b>P1A</b>	<b>-S</b>	<b>016</b>	<b>M</b>	<b>S</b>	<b>-</b>	<b>0025</b>																							
<b>Cylinder bore mm</b> <table border="1"> <tr><td>010</td></tr> <tr><td>012</td></tr> <tr><td>016</td></tr> <tr><td>020</td></tr> <tr><td>025</td></tr> </table>		010	012	016	020	025	<b>Cylinder type / function</b> <table border="1"> <tr> <td><b>M</b></td> <td></td> <td>Double-acting, adjustable cushioning. Ø16-25 mm. Not for sealing material type F.</td> </tr> <tr> <td><b>D</b></td> <td></td> <td>Double-acting, non-adjustable cushioning, Ø10 - Ø25</td> </tr> <tr> <td><b>F</b></td> <td></td> <td>Double-acting, adjustable cushioning, thru-rod, Ø16-25 mm. Not for sealing material type F.</td> </tr> <tr> <td><b>K</b></td> <td></td> <td>Double-acting, non-adjustable cushioning, thru-rod, Ø10 - Ø25</td> </tr> <tr> <td><b>S</b></td> <td></td> <td>Single-acting, non-adjustable cushioning, spring return for retract stroke, Ø10-25 mm. Not for sealing material type F.</td> </tr> <tr> <td><b>T</b></td> <td></td> <td>Single-acting, non-adjustable cushioning, spring return for advance stroke, Ø16-25 mm. Not for sealing material type F.</td> </tr> </table>		<b>M</b>		Double-acting, adjustable cushioning. Ø16-25 mm. Not for sealing material type F.	<b>D</b>		Double-acting, non-adjustable cushioning, Ø10 - Ø25	<b>F</b>		Double-acting, adjustable cushioning, thru-rod, Ø16-25 mm. Not for sealing material type F.	<b>K</b>		Double-acting, non-adjustable cushioning, thru-rod, Ø10 - Ø25	<b>S</b>		Single-acting, non-adjustable cushioning, spring return for retract stroke, Ø10-25 mm. Not for sealing material type F.	<b>T</b>		Single-acting, non-adjustable cushioning, spring return for advance stroke, Ø16-25 mm. Not for sealing material type F.	<b>Stroke length, mm</b> E.g. 0025 = 25 mm For standard stroke length and max length see table below.		
010																													
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<b>Sealing material</b> <table border="1"> <tr> <td><b>S</b></td> <td>Standard, -20 °C to +80 °C. Magnetic piston</td> </tr> <tr> <td><b>F</b></td> <td>High temperature, Ø12, 16, 20 and 25 mm -10 °C to +150 °C. Non-magnetic piston</td> </tr> <tr> <td><b>V</b></td> <td>External seals of fluorinated rubber. -20 °C to +80 °C. Magnetic piston</td> </tr> </table>							<b>S</b>	Standard, -20 °C to +80 °C. Magnetic piston	<b>F</b>	High temperature, Ø12, 16, 20 and 25 mm -10 °C to +150 °C. Non-magnetic piston	<b>V</b>	External seals of fluorinated rubber. -20 °C to +80 °C. Magnetic piston																	
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**Note:** P1A Series also available with end caps made of stainless steel - replace P1A with P1S in the order code key.

### Stroke length

Cylinder designation	Cylinder bore	● Standard stroke length in mm							■ Non standard stroke length									
		10	15	20	25*	30	40	50*	80*	100*	125*	160*	200*	250*	320*	400*	500*	
<b>Double acting with fixed end-cushioning:</b>																		
P1A-S010D	10	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
P1A-S012D	12	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
P1A-S016D	16	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
P1A-S020D	20	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
P1A-S025D	25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
<b>Double acting with adjustable end-cushioning:</b>																		
P1A-S016M	16	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
P1A-S020M	20	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
P1A-S025M	25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
<b>Single acting, spring return:</b>																		
P1A-S010SS	10	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
P1A-S012SS	12	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
P1A-S016SS	16	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
P1A-S020SS	20	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
P1A-S025SS	25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
<b>Single acting, spring-extended:</b>																		
P1A-S016TS	16	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
P1A-S020TS	20	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
P1A-S025TS	25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

\* Standard stroke lengths in mm according to ISO 4393

\*\* Max stroke 1000 mm

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## P1A Pneumatic ISO Cylinders

### Data

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



### Single-acting spring return



Fixed end cushioning

Cyl.bore mm	Stroke mm	Order code
<b>10</b> Conn. M5	10	P1A-S010SS-0010
	15	P1A-S010SS-0015
	25	P1A-S010SS-0025
	40	P1A-S010SS-0040
	50	P1A-S010SS-0050
	80	P1A-S010SS-0080
<b>12</b> Conn. M5	10	P1A-S012SS-0010
	15	P1A-S012SS-0015
	25	P1A-S012SS-0025
	40	P1A-S012SS-0040
	50	P1A-S012SS-0050
	80	P1A-S012SS-0080
<b>16</b> Conn. M5	10	P1A-S016SS-0010
	15	P1A-S016SS-0015
	25	P1A-S016SS-0025
	40	P1A-S016SS-0040
	50	P1A-S016SS-0050
	80	P1A-S016SS-0080
<b>20</b> Conn. G1/8	10	P1A-S020SS-0010
	15	P1A-S020SS-0015
	25	P1A-S020SS-0025
	40	P1A-S020SS-0040
	50	P1A-S020SS-0050
	80	P1A-S020SS-0080
<b>25</b> Conn. G1/8	10	P1A-S025SS-0010
	15	P1A-S025SS-0015
	25	P1A-S025SS-0025
	40	P1A-S025SS-0040
	50	P1A-S025SS-0050
	80	P1A-S025SS-0080

### Single-acting spring-extended



Fixed end cushioning

Cyl.bore mm	Stroke mm	Order code
<b>16</b> Conn. M5	10	P1A-S016TS-0010
	15	P1A-S016TS-0015
	25	P1A-S016TS-0025
	40	P1A-S016TS-0040
	50	P1A-S016TS-0050
	80	P1A-S016TS-0080
<b>20</b> Conn. G1/8	10	P1A-S020TS-0010
	15	P1A-S020TS-0015
	25	P1A-S020TS-0025
	40	P1A-S020TS-0040
	50	P1A-S020TS-0050
	80	P1A-S020TS-0080
<b>25</b> Conn. G1/8	10	P1A-S025TS-0010
	15	P1A-S025TS-0015
	25	P1A-S025TS-0025
	40	P1A-S025TS-0040
	50	P1A-S025TS-0050
	80	P1A-S025TS-0080

Cylinders are supplied complete with neck mounting and piston rod nuts.

Cylinders are supplied complete with neck mounting and piston rod nuts.

PDE2564TCUK  
**P1A Pneumatic ISO Cylinders**

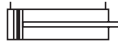
**Data**

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



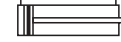
**Double-acting**

**Fixed end cushioning**



Cyl.bore mm	Stroke mm	Order code	
<b>10</b> Conn. M5	10	P1A-S010DS-0010	
	15	P1A-S010DS-0015	
	20	P1A-S010DS-0020	
	25	P1A-S010DS-0025	
	30	P1A-S010DS-0030	
	40	P1A-S010DS-0040	
	50	P1A-S010DS-0050	
	80	P1A-S010DS-0080	
	100	P1A-S010DS-0100	
	125	P1A-S010DS-0125	
Max stroke 500 mm			
<b>12</b> Conn. M5	10	P1A-S012DS-0010	
	15	P1A-S012DS-0015	
	20	P1A-S012DS-0020	
	25	P1A-S012DS-0025	
	30	P1A-S012DS-0030	
	40	P1A-S012DS-0040	
	50	P1A-S012DS-0050	
	80	P1A-S012DS-0080	
	100	P1A-S012DS-0100	
	125	P1A-S012DS-0125	
	160	P1A-S012DS-0160	
	200	P1A-S012DS-0200	
Max stroke 500 mm			
<b>16</b> Conn. M5	10	P1A-S016DS-0010	
	15	P1A-S016DS-0015	
	20	P1A-S016DS-0020	
	25	P1A-S016DS-0025	
	30	P1A-S016DS-0030	
	40	P1A-S016DS-0040	
	50	P1A-S016DS-0050	
	80	P1A-S016DS-0080	
	100	P1A-S016DS-0100	
	125	P1A-S016DS-0125	
	160	P1A-S016DS-0160	
	200	P1A-S016DS-0200	
	Max stroke 500 mm		

**Fixed end cushioning**



Cyl.bore mm	Stroke mm	Order code
<b>20</b> Conn. G1/8	10	P1A-S020DS-0010
	15	P1A-S020DS-0015
	20	P1A-S020DS-0020
	25	P1A-S020DS-0025
	30	P1A-S020DS-0030
	40	P1A-S020DS-0040
	50	P1A-S020DS-0050
	80	P1A-S020DS-0080
	100	P1A-S020DS-0100
	125	P1A-S020DS-0125
	160	P1A-S020DS-0160
	200	P1A-S020DS-0200
250	P1A-S020DS-0250	
320	P1A-S020DS-0320	
Max stroke 1000 mm		
<b>25</b> Conn. G1/8	10	P1A-S025DS-0010
	15	P1A-S025DS-0015
	20	P1A-S025DS-0020
	25	P1A-S025DS-0025
	30	P1A-S025DS-0030
	40	P1A-S025DS-0040
	50	P1A-S025DS-0050
	80	P1A-S025DS-0080
	100	P1A-S025DS-0100
	125	P1A-S025DS-0125
	160	P1A-S025DS-0160
	200	P1A-S025DS-0200
	250	P1A-S025DS-0250
	320	P1A-S025DS-0320
Max stroke 1000 mm		

Cylinders are supplied complete with neck mounting and piston rod nuts.  
 Cylinders with Through piston rods are supplied with two piston rod nuts  
 and one neck mounting nut.

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## P1A Pneumatic ISO Cylinders

### Data

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



### Double-acting

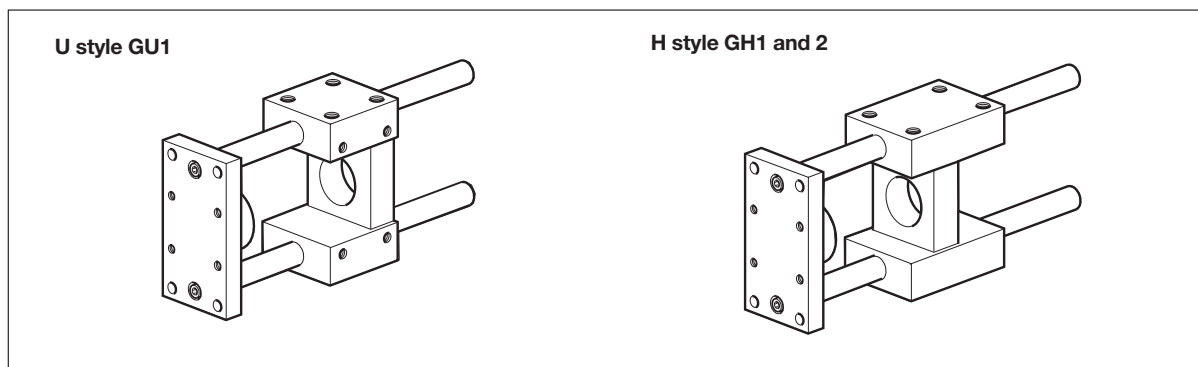
#### Adjustable cushioning



Cyl.bore mm	Stroke mm	Order code
<b>16</b> Conn. M5	20	P1A-S016MS-0020
	25	P1A-S016MS-0025
	30	P1A-S016MS-0030
	40	P1A-S016MS-0040
	50	P1A-S016MS-0050
	80	P1A-S016MS-0080
	100	P1A-S016MS-0100
	125	P1A-S016MS-0125
	160	P1A-S016MS-0160
	200	P1A-S016MS-0200
	250	P1A-S016MS-0250
	320	P1A-S016MS-0320
	400	P1A-S016MS-0400
	500	P1A-S016MS-0500
	Max stroke 500 mm	
<b>20</b> Conn. G1/8	20	P1A-S020MS-0020
	25	P1A-S020MS-0025
	30	P1A-S020MS-0030
	40	P1A-S020MS-0040
	50	P1A-S020MS-0050
	80	P1A-S020MS-0080
	100	P1A-S020MS-0100
	125	P1A-S020MS-0125
	160	P1A-S020MS-0160
	200	P1A-S020MS-0200
	250	P1A-S020MS-0250
	320	P1A-S020MS-0320
	400	P1A-S020MS-0400
	500	P1A-S020MS-0500
	Max stroke 1000 mm	

Cyl.bore mm	Stroke mm	Order code
<b>25</b> Conn. G1/8	20	P1A-S025MS-0020
	25	P1A-S025MS-0025
	30	P1A-S025MS-0030
	40	P1A-S025MS-0040
	50	P1A-S025MS-0050
	80	P1A-S025MS-0080
	100	P1A-S025MS-0100
	125	P1A-S025MS-0125
	160	P1A-S025MS-0160
	200	P1A-S025MS-0200
	250	P1A-S025MS-0250
	320	P1A-S025MS-0320
	400	P1A-S025MS-0400
	500	P1A-S025MS-0500
	Max stroke 1000 mm	

Cylinders are supplied complete with neck mounting and piston rod nuts.  
Cylinders with Through piston rods are supplied with two piston rod nuts  
and one neck mounting nut.



**P1A with rod guidance modules**

The P1A series cylinders can be equipped with an external guiding device to prevent the piston rod from turning. When fitted the guide provides a guided piston movement enabling the cylinder to resist turning moments on the piston rod, as well as greater transverse forces. Rod guides are available with plain bearings as U style or linear ball bearings as H style.

The bracket, which has pre-drilled mounting holes, is connected to the piston rod by means of a flexocoupling, which prevents the build-up of stress in the cylinder.

P1A cylinders with guiding device are available with bores from 12 to 25 mm, and stroke lengths up to 250 mm. Separate guiding device kits can be supplied on request according to the order key below.

**Technical data**

Working temperature -20 °C to +80 °C

**Material specifications, guidance modules**

Body	Anodised aluminium
Guide bars, H style	Hardened stainless steel
Front plate	Anodised aluminium
Guide bars, U style	Stainless steel
Front plate	Zinc-plated steel
Plain bearings	Bronze

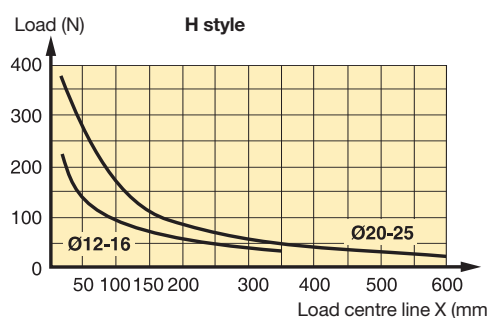
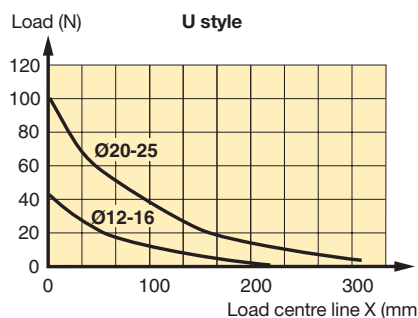
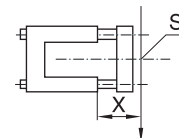
Other data as standard cylinder.

**Order key**

<b>P1A</b>	-	<b>4DRH</b>	-	<b>XXXX</b>
<b>Cylinder version</b>	<b>Bore size mm</b>	<b>Guide module type</b>	<b>Stroke length (mm)</b>	
A   Mini ISO cylinders	D   12, 16 H   20 J   25	H   H style, ball bearings K   U style, plain bearings	Same as for the cylinder	

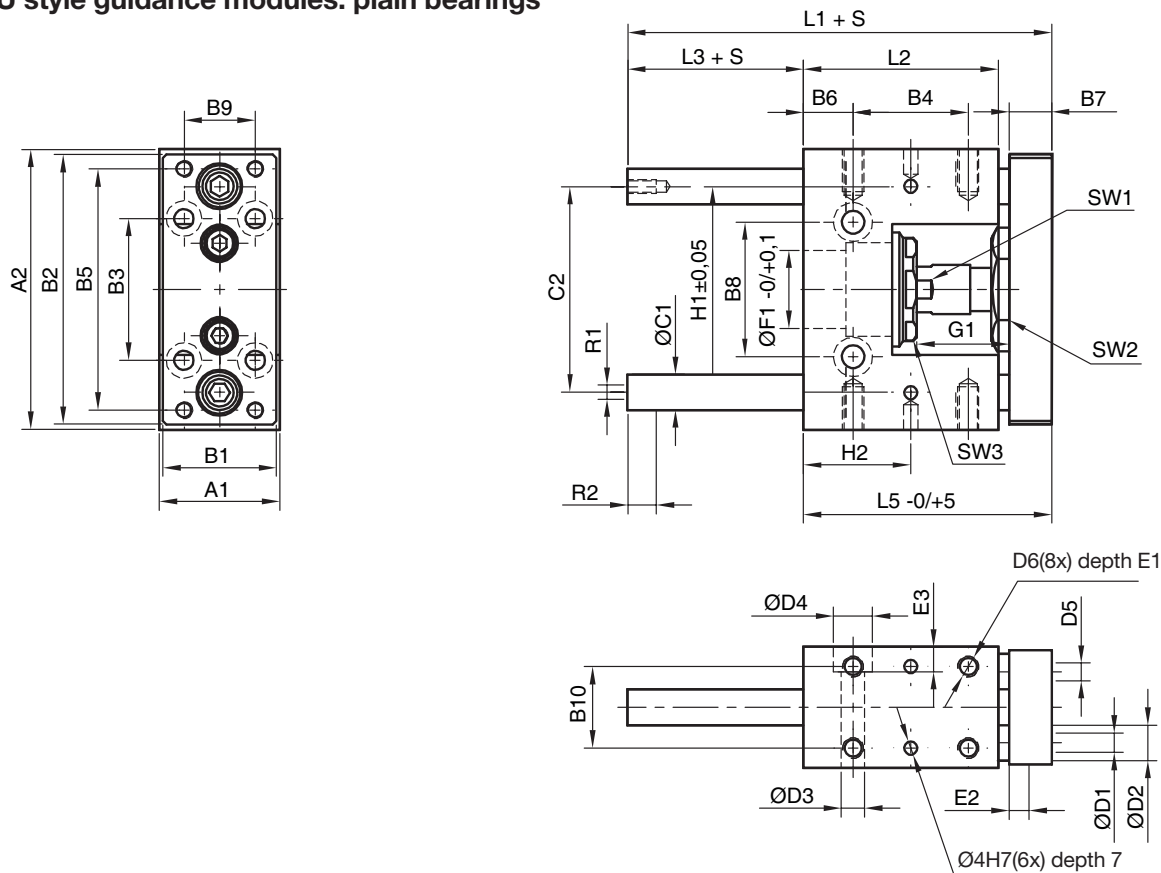
**Transverse force as a function of load distance**

S = Load centre line  
X = Load distance (mm)



**Dimensions (mm)**

**U style guidance modules. plain bearings**



Cyl. bore	A1	A2	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	C1	C2	D1	D2	D3	D4
12/16	30	65	27	63	32	25,0	54	7,5	10	24	15	22	8	46	4,5	8,0	5,5	-
20	34	79	32	76	40	32,5	68	14,0	12	38	20	23	10	58	5,5	10,5	6,5	11
25	34	79	32	76	40	32,5	68	14,0	12	38	20	23	10	58	5,5	10,5	6,5	11

Cyl. bore	D5	D6	E1	E2	E3	F1	G1	L1	L2	L3	L5	SW1	SW2	SW3	R1	R2	H1	H2
12/16	M4	M4	8	4,6	-	16	16	69	39	17	52	22	8	19	M4	8	46	20
20	M5	M6	12	5,6	7	22	30	85	55	15	70	30	13	27	M6	11	58	30
25	M5	M6	12	5,6	7	22	23	85	55	15	70	30	13	27	M6	11	58	30

Cyl.bore	Weight stroke 0 mm kg	Additional weight per 10 mm stroke kg
12/16	0,26	0,0078
20	0,47	0,1233
25	0,47	0,1233

S = Stroke

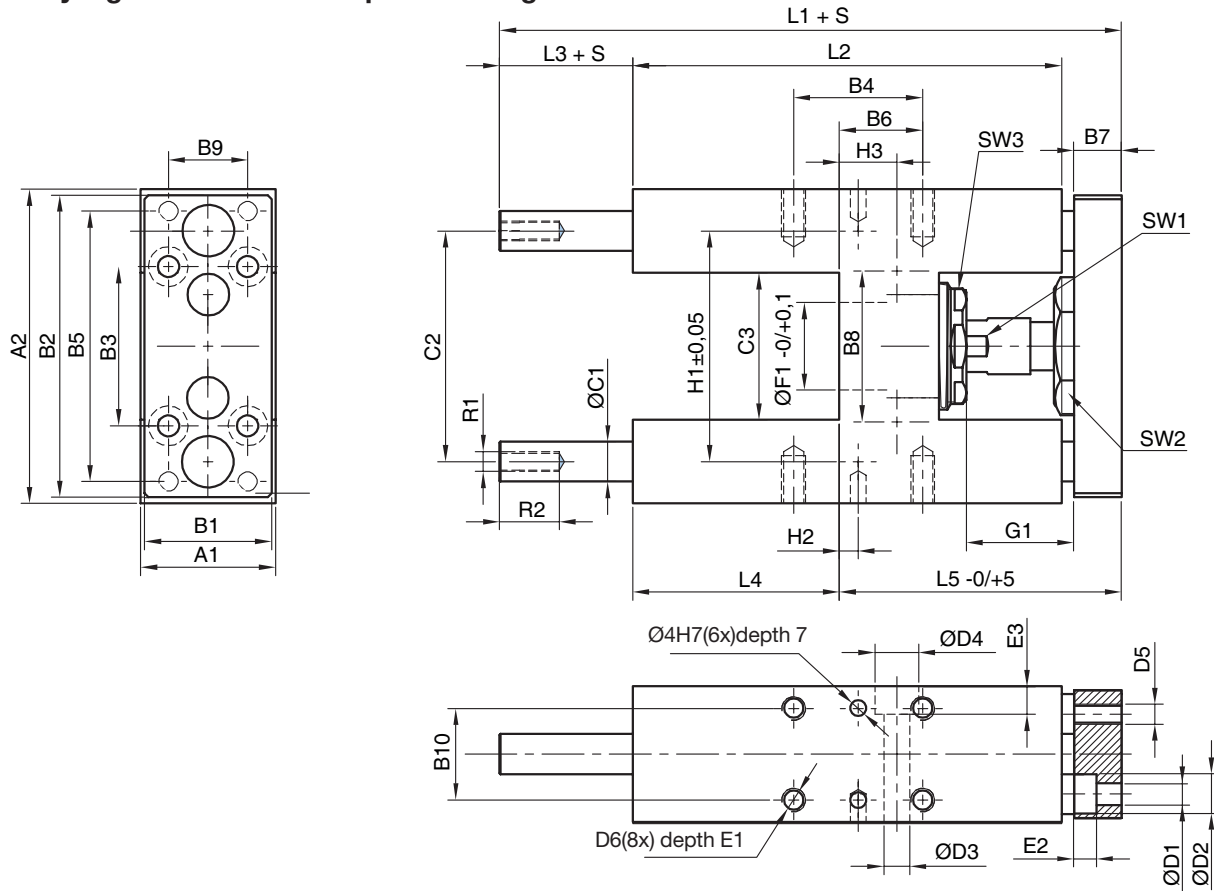
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**P1A Pneumatic ISO Cylinders**

**Rod Guidance Modules**

**Dimensions (mm)**

**H style guidance modules. plain bearings**



Cyl. bore	A1	A2	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	C1	C2	C3	D1	D2	D3
12/16	30	65	27	63	32	32,5	54	13	10	24	15	22	8	46	27	4,5	8,0	5,5
20	34	79	32	76	40	32,5	68	21	12	38	20	23	10	58	37	5,5	10,5	6,5
25	34	79	32	76	40	32,5	68	21	12	38	20	23	10	58	37	5,5	10,5	6,5

Cyl. bore	D4	D5	D6	E1	E2	E3	F1	G1	L1	L2	L3	L4	L5	SW1	SW2	SW3	R1	R2
12/16	9	M4	M4	8	4,6	6	16	16	130	75	44	35	51	22	8	19	M4	8
20	11	M5	M6	12	5,6	7	22	30	160	108	43	52	65	30	13	27	M6	11
25	11	M5	M6	12	5,6	7	22	23	160	108	43	52	65	30	13	27	M6	11

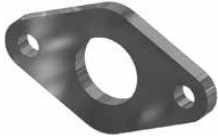
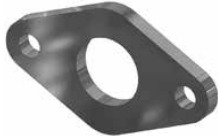
Cyl. bore	H1	H2	H3
12/16	46	-3,25	8,5
20	58	4,75	15,0
25	58	4,75	15,0

Cyl. bore	Weight stroke 0 mm kg	Additional weight per 10 mm stroke kg
12/16	0,43	0,0078
20	0,77	0,1233
25	0,77	0,1233

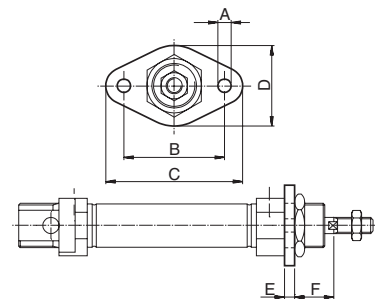
S = Stroke





**Cylinder mountings**

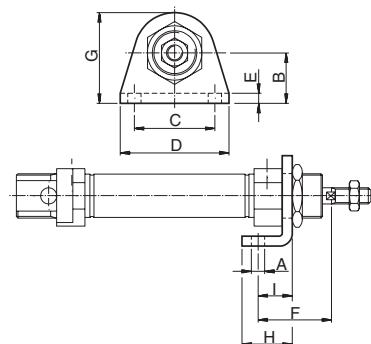
Type	Description	Cyl. bore Ø mm	Weight kg	Order code
<b>Flange-MF8</b> 	Intended for fixed attachment of the cylinder. The flange is designed for mounting on the front or rear end-covers.  Material: Surface-treated steel	10	0,012	<b>P1A-4CMB</b> <b>P1A-4DMB</b> <b>P1A-4HMB</b>
		12-16	0,025	
		20-25	0,045	
<b>Stainless Flange-MF8</b> 	Intended for fixed attachment of the cylinder. The flange is designed for mounting on the front or rear end-covers.  Material: Stainless steel, DIN X 10 CrNiS 18 9	10	0,012	<b>P1S-4CMB</b> <b>P1S-4DMB</b> <b>P1S-4HMB</b>
		12-16	0,025	
		20-25	0,045	

Cylinder Ø mm	A mm	B mm	C mm	D mm	E mm	F mm
10	4.5	30	40	22	3	13
12-16	5.5	40	52	30	4	18
20	6.5	50	66	40	5	19
25	6.5	50	66	40	5	23



<b>Foot-MS3</b> 	Intended for fixed attachment of the cylinder. The bracket is designed for mounting on the front or rear end covers.  Material: Surface-treated steel	10	0,020	<b>P1A-4CMF</b> <b>P1A-4DMF</b> <b>P1A-4HMF</b>
		12-16	0,040	
		20-25	0,080	
<b>Stainless Foot-MS3</b> 	Intended for fixed attachment of the cylinder. The bracket is designed for mounting on the front or rear end covers.  Material: Stainless steel, DIN X 10 CrNiS 18 9	10	0,020	<b>P1S-4CMF</b> <b>P1S-4DMF</b> <b>P1S-4HMF</b>
		12-16	0,040	
		20-25	0,080	

Cylinder Ø mm	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm
10	4.5	16	25	35	3	24	26.0	16	11
12-16	5.5	20	32	42	4	32	32.5	20	14
20	6.6	25	40	54	5	36	45.0	25	17
25	6.6	25	40	54	5	40	45.0	25	17



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## P1A Pneumatic ISO Cylinders

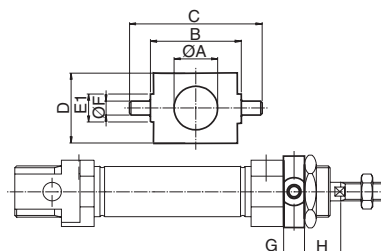
## Mountings

### Cylinder mountings

Type	Description	Cyl. bore Ø mm	Weight kg	Order code
<b>Cover trunnion</b>	Intended for articulated mounting of the cylinder. The flange is designed for mounting on the front or rear end covers.  Material: Surface-treated steel	10	0.014	<b>P1A-4CMJZ</b> <b>P1A-4DMJZ</b> <b>P1A-4HMJZ</b>
		12-16	0.033	
		20-25	0.037	



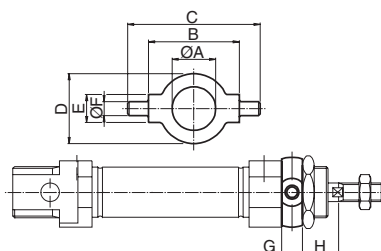
Cylinder Ø mm	A mm	B h14 mm	C mm	D mm	E1 mm	F e9 mm	G mm	H mm
10	12.5	26	38	20	9	4	6	10
12-16	16.5	38	58	25	13	6	8	14
20	22.5	46	66	30	13	6	8	16
25	22.5	46	66	30	13	6	8	20



<b>Stainless Cover trunnion</b>	Intended for articulated mounting of the cylinder. The flange is designed for mounting on the front or rear end covers.  Material: Stainless steel, DIN X 10 CrNiS 18 9	10	0.014	<b>P1A-4CMJ</b> <b>P1A-4DMJ</b> <b>P1A-4HMJ</b>
		12-16	0.033	
		20-25	0.037	



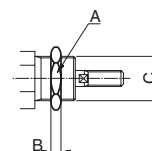
Cylinder Ø mm	A mm	B h14 mm	C mm	D mm	E mm	F e9 mm	G mm	H mm
10	12.5	26	38	20	8	4	6	10
12-16	16.5	38	58	25	10	6	8	14
20	22.5	46	66	30	10	6	8	16
25	22.5	46	66	30	10	6	8	20



<b>Stainless Neck nut MR3</b>	Intended for fixed mounting of the cylinder. Cylinders are supplied complete with one mounting nut.  Material: Stainless steel, DIN X 5 CrNi 18 10	10	0.009	<b>9126725405</b> <b>9126725406</b> <b>9126725407</b>
		12-16	0.018	
		20-25	0.042	



Cylinder Ø mm	A mm	B mm	C
10	17	5	M12x1.25
12-16	24	8	M16x1.50
20-25	27	5	M22x1.50



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## P1A Pneumatic ISO Cylinders

## Mountings

### Cylinder mountings

Type	Description	Cyl. bore Ø mm	Weight kg	Order code
<b>Clevis bracket AB3</b>	Intended for articulated mounting of the cylinder. Supplied with shaft for mounting on the rear end cover.  Material: Bracket: surface-treated steel, black Pin: surface hardened steel Circlips: according to DIN 471: Stainless steel	10	0.020	<b>P1A-4CMT</b> <b>P1A-4DMT</b> <b>P1A-4HMT</b>
		12-16	0.040	
		20-25	0.080	

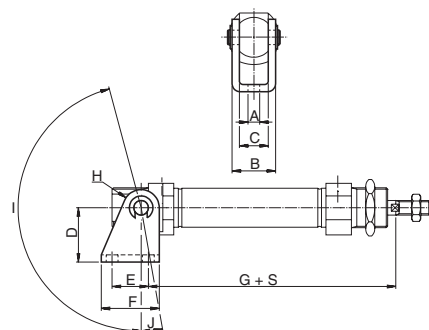


<b>Stainless Clevis bracket AB3</b>	Intended for articulated mounting of the cylinder. Supplied with shaft for mounting on the rear end cover.  Material: Bracket: stainless steel, DIN X 5 CrNi 18 10 Pin: tempered stainless steel, DIN X 20 Cr 13 Locking rings: stainless steel, DIN X 5 CrNi 18 10	10	0.020	<b>P1S-4CMT</b> <b>P1S-4DMT</b> <b>P1S-4HMT</b>
		12-16	0.040	
		20-25	0.080	



Cylinder Ø mm	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I °	J °
10	4.5	13	8.1	24	12.5	20	65.3	5	160	17
12	5.5	18	12.1	27	15.0	25	73.0	7	170	15
16	5.5	18	12.1	27	15.0	25	80.0	7	170	15
20	6.6	24	16.1	30	20.0	32	91.0	10	165	10
25	6.6	24	16.1	30	20.0	32	100.0	10	165	10

S=stroke



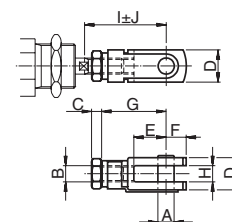
<b>Clevis AP2</b>	According to ISO 8140 Intended for articulated mounting of the cylinder. This mounting is adjustable in the axial direction. Supplied complete with pin.  Material: Galvanized steel	10	0.007	<b>P1A-4CRC</b> <b>P1A-4DRC</b> <b>P1A-4HRC</b> <b>P1A-4JRC</b>
		12-16	0.022	
		20	0.045	
		25	0.095	



<b>Stainless Clevis AP2</b>	According to ISO 8140 Intended for articulated mounting of the cylinder. This mounting is adjustable in the axial direction. Supplied complete with pin.  Material: Stainless steel, DIN X 5 CrNi 18 10	10	0.007	<b>P1S-4CRD</b> <b>P1S-4DRD</b> <b>P1S-4HRD</b> <b>P1S-4JRD</b>
		12-16	0.022	
		20	0.045	
		25	0.095	



Cylinder Ø mm	A mm	B	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm
10	4	M4	2.2	8	8	5	16	4	22.0	2.0
12-16	6	M6	3.2	12	12	7	24	6	31.0	3.0
20	8	M8	4.0	16	16	10	32	8	40.5	3.5
25	10	M10x1.25	5.0	20	20	12	40	10	49.0	3.0





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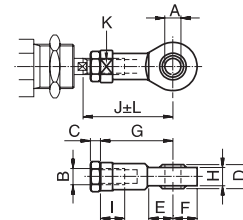
## P1A Pneumatic ISO Cylinders


Sensors

### Cylinder mountings

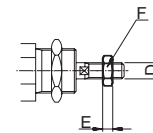
Type	Description	Cyl. bore Ø mm	Weight kg	Order code
<b>Swivel rod eye AP6</b> 	According to ISO 8139 Intended for articulated mounting of the cylinder. This mounting is adjustable in the axial direction.  Material: Swivel rod eye: Galvanized steel Ball: hardened steel	10	0.017	<b>P1A-4CRS</b> <b>P1A-4DRS</b> <b>P1A-4HRS</b> <b>P1A-4JRS</b>
		12-16	0.025	
		20	0.045	
		25	0.085	
<b>Stainless Swivel rod eye AP6</b> 	According to ISO 8139 Intended for articulated mounting of the cylinder. This mounting is adjustable in the axial direction.  Material: Swivel rod eye: stainless steel, DIN X 5 CrNi 18 10 Ball: hardened stainless steel, DIN X 5 CrNi 18 10	10	0.017	<b>P1S-4CRT</b> <b>P1S-4DRT</b> <b>P1S-4HRT</b> <b>P1S-4JRT</b>
		12-16	0.025	
		20	0.045	
		25	0.085	

Cylinder Ø mm	A mm	B	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	K mm	L mm
10	5	M4	2,2	8	10	9	27	6,0	8	33,0	9	2,0
12-16	6	M6	3,2	9	10	10	30	6,8	9	38,5	11	1,5
20	8	M8	4,0	12	12	12	36	9,0	12	46,0	14	2,0
25	10	M10x1,25	5,0	14	14	14	43	10,5	15	52,5	17	2,5



<b>Stainless Rod nut MR9</b> 	Intended for fixed mounting on the piston rod. Cylinders are supplied complete with one rod nut. (cylinders with through piston rod are supplied with two rod nuts.)  Material: Stainless steel, DIN X 5 CrNi 18 10	10	0.001	<b>9127385121</b> <b>9127385122</b> <b>9127385123</b> <b>9126725404</b>
		12-16	0.002	
		20	0.005	
		25	0.007	

Cylinder Ø mm	D	F mm	E mm
10	M4	7	2.2
12-16	M6	10	3.2
20	M8	13	4.0
25	M10x1,25	17	5.0



### **P8S Electronic and Reed Sensors**

The P8S Series magnetic cylinder sensor enables quick, precise and contactless sensing of the piston's position in cylinders. It is easy to mount, can be used in numerous applications and offers an outstanding price-performance ratio.



#### **Product Overview**

As the term magnetic switch suggests, these are operated by magnetic fields; another description widely used is magnetic „SENSOR“. As our eyes sense change of light, our ears sense the change of sound, magnetic sensors / switches sense the change of magnetic flux in pneumatic and hydraulic cylinders. When magnetic sensors sense a magnetic field it will give a switching signal, through a control circuit, allowing sensing or control operation to be achieved.

Because of the characteristics of magnetic sensors they can sense a change of magnetic field relative to the position of the magnet, such as in a pneumatic or hydraulic cylinder, whereby the magnet is attached to a moving piston and thus the position of the moving part (ie Piston) can be detected.

The magnet is mounted on the piston of the cylinder and thus moves with the piston.

The magnetic sensor (switch) is fixed either directly to the cylinder or with an additional mounting bracket. When the piston (magnet) moves to the position under a magnetic sensor, the switch will operate due to the change of the magnetic field and give a switching signal.

Thus the position of the piston can be identified and a resulting signal generated to continue the sequence of a circuit.

Magnetic sensors available can be classified into two different groups, they are sensors with contacts which are called mechanically operated or reed sensors and the other type is sensors without contacts and are called solid state type or electronic.

Parker P8S Series sensors are suitable for use with a large range of Sensors. They can either be inserted directly into the cylinder tube extrusion or mounted using additional brackets. For direct mounting the sensor is positioned within the cylinder sensor groove, offering mechanical protection, then securely clamped into position by a simple turn of a screw. For other cylinder versions there are a number of optional sensors brackets that clamp to the cylinder and offer other mounting positions. To easy installation there

are several cable lengths available with either M8 connector or flying lead. The electronic sensors are "Solid State", i.e. they have no moving parts. 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 where long service life is required.

Please note that for low temperature applications sensors are normally specified for full performance down to -30°C only. High temperature cylinders do not have a magnetic piston and therefore cannot be used with sensors.

**Technical Data**

Square body design, insert straight in T-slot, screw 1/4 turn

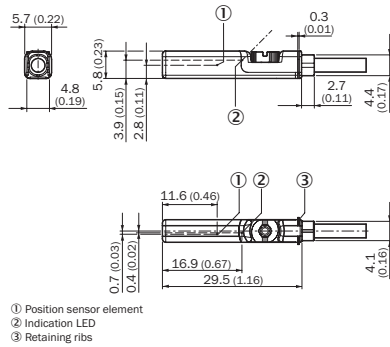
	Electronic PNP   NPN	Electric Reed
<b>Cylinder type:</b>	Profile with T-slot	
<b>Cylinder type with adaptor:</b>	Profile with S-slot (dovetail)   Tie rods   Round cylinders	
<b>Installation:</b>	Quarter turn, fixed by allen key 2.5 mm or flathead screwdriver	
<b>Housing length:</b>	29.5 mm 10 - 30 V DC	29.5 mm 5 - 30 V AC/DC
	24 mm (NAMUR ATEX)	29.5 mm 5 - 120 V AC/DC
	29,5 mm ATEX	32.5 mm 5 - 230 V AC/DC
<b>Output Type:</b>	PNP   NPN	Reed
<b>Switching (on/off) switching frequency:</b>	± 1,000 Hz	± 400 Hz
<b>Output Function:</b>	Normally Open (NO)   Normally Closed (NC) 3-wire	Normally Open (NO)   Normally Closed (NC) 2-wire Normally Open (NO) 3-wire
<b>Enclosure rating:</b>	IP67	
	IP67 (NAMUR ATEX)	
<b>Supply Voltage:</b>	10 to 30 V DC	
	8.2 to 20 V DC (NAMUR 1GD)  10 to 26 V DC (ATEX 3GD)	5 to 30   5 to 120   5 to 230 V AC/DC 2-wire, 3-wire depending on type
<b>Power consumption:</b>	≤ 8 mA	-
	≤ 10 mA (NAMUR, ATEX)	-
<b>Voltage drop:</b>	≤ 2 V	≤ 3.5 V 2-wire   ≤ 0.1 V 3-wire
	≤ 2.2 V (NAMUR, ATEX)	-
<b>Continuous output current I<sub>a</sub>:</b>	≤ 100 mA	≤ 100 mA 3-wire
	≤ 60 mA (NAMUR)   ≤ 50 mA (ATEX)	≤ 500 mA (DC)   ≤ 300 mA (AC)
<b>Switching capacity:</b>	-	≤ 6 W
<b>Protection class:</b>	III	III   II 2-wire depending on type III 3-wire
<b>Response sensitivity:</b>	2.6 to 3.3 mT	2.1 to 3.4 mT
	2.8 mT (NAMUR, ATEX)	-
<b>Overrun distance:</b>		10 mm
	9 mm (NAMUR, ATEX)	-
<b>Hysteresis:</b>	≤ 0.8 mT	-
	≤ 0.5 mT (NAMUR, ATEX)	-
<b>Repeatability:</b>	≤ 0.1 mT	
<b>Reverse polarity protection:</b>	Yes	No 2-wire
	-	Yes 3-wire
<b>Short circuit protection:</b>	Yes	-
<b>Power-up pulse protection:</b>	Yes (NAMUR, ATEX)	-
<b>Ambiant operating temperature range:</b>	-30 to +80 °C (PUR cable)   -30 to +70°C (PVC cable)	
	-25 to +80 °C (NAMUR 1GD)   -20 to +50°C (ATEX 3GD)	
<b>Shock and vibration resistance:</b>	30 g 11 ms / 10 ... 55 Hz, 1 mm	
<b>EMC:</b>	According to EN 60947-5-2	
<b>International standard:</b>	CE   C UL US   RoHs   Ex   IEC   IEC Ex	
<b>Housing material:</b>	Plastic polyamid PA12	
<b>Screw material:</b>	Stainless steel	
<b>Cable material:</b>	PUR (Polyurethane)   PVC (Polyvinyl Chloride)	
<b>Conductor cross-section:</b>	0.14 mm <sup>2</sup>   0,12 mm <sup>2</sup> depending on type	
	0.14 mm <sup>2</sup> (NAMUR, ATEX)	
<b>Indication LED colour:</b>	Yellow, no LED reed NC	
<b>Connector:</b>	M8R (knurled nuts)   None (Flying lead)	

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**P1A Pneumatic ISO Cylinders**

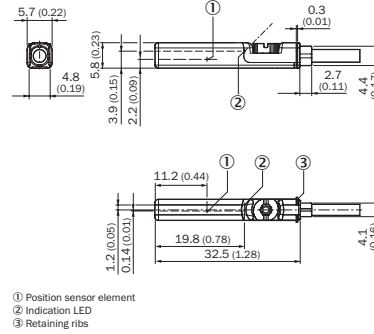
Sensors

**Dimensions in mm (inch)**

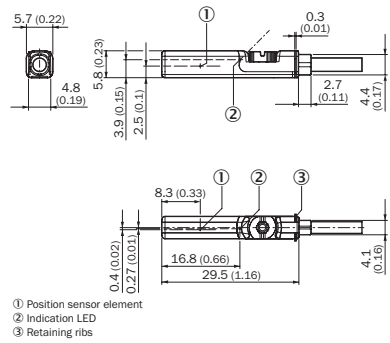
**PNP, NPN Output 10 to 30 V DC**



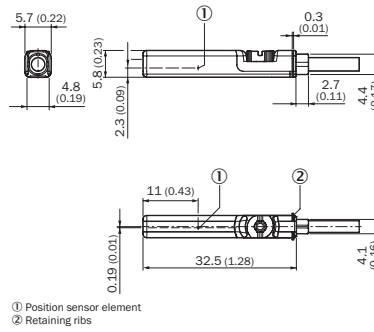
**Reed Output 5 to 230 V AC/DC**



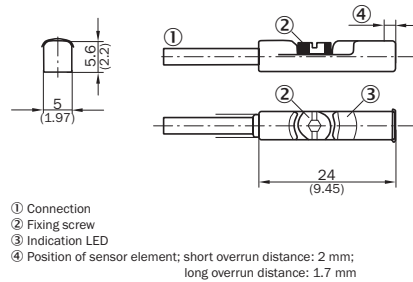
**Reed Output 5 to 30 V AC/DC**



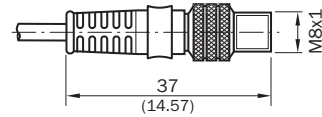
**Reed Output 5 to 120 V AC/DC**



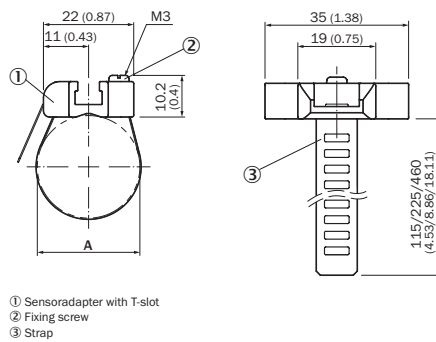
**NAMUR 1G, 1D**



**Connector M8R**



**P8S-TMC01**

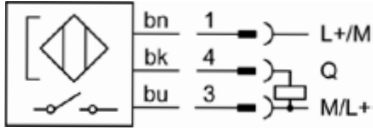


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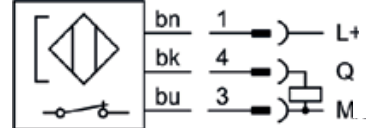
## P1A Pneumatic ISO Cylinders

### Connection type and diagram

#### PNP NO



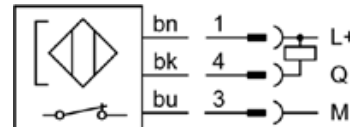
#### PNP NC



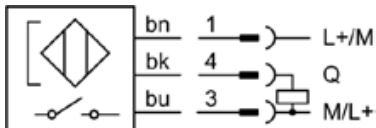
#### NPN NO



#### NPN NC

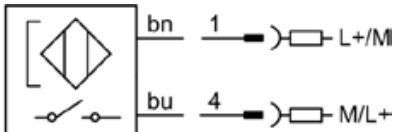


#### Reed NO 3-wire

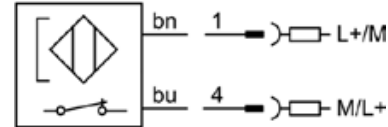


bn: brown  
 bk: black  
 bu: blue  
 Q: load  
 M: Mass  
 L+: Power

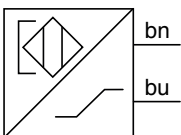
#### Reed NO 2-wire



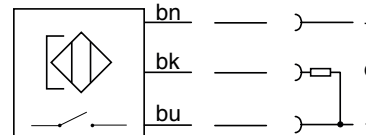
#### Reed NC 2-wire



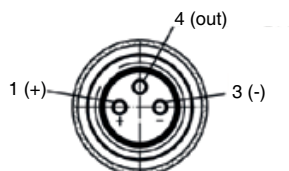
#### NAMUR NO ATEX 1G, 1D



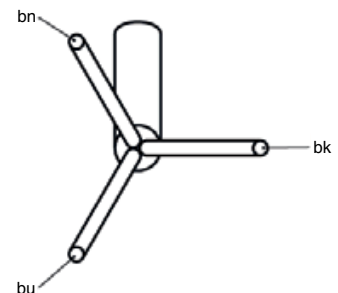
#### PNP NO ATEX 3G, 3D



#### Pin assignment, M8 with knurled nut



#### Flying leads



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## P1A Pneumatic ISO Cylinders

### Ordering Data

Square body design, instert straight in T-slot, screw 1/4 turn

Output, Function, Cable & Supply Voltage	Order Code	Weight [g]	For Product Series
<b>With flying leads, PUR cable IP67</b>			
Electronic PNP-NC, with LED, 3-wire, 3 meter, 10-30 V DC	<b>P8SAGQFAX</b>	35	All Series
Electronic PNP-NC, with LED, 3-wire, 10 meter, 10-30 V DC	<b>P8SAGQFDX</b>	105	All Series
Electronic PNP-NO, with LED, 3-wire, 3 meter, 10-30 V DC	<b>P8SAGPFAX</b>	35	All Series
Electronic PNP-NO, with LED, 3-wire, 10 meter, 10-30 V DC	<b>P8SAGPFDX</b>	105	All Series
Electronic NPN-NC, with LED, 3-wire, 3 meter, 10-30 V DC	<b>P8SAGMFAX</b>	35	All Series
Electronic NPN-NC, with LED, 3-wire, 10 meter, 10-30 V DC	<b>P8SAGMFDX</b>	105	All Series
Electronic NPN-NO, with LED, 3-wire, 3 meter, 10-30 V DC	<b>P8SAGNFAX</b>	35	All Series
Electronic NPN-NO, with LED, 3-wire, 10 meter, 10-30 V DC	<b>P8SAGNFDX</b>	105	All Series
Electric Reed-NO, with LED, 3-wire, 3 meter, 5-30 V AC/DC	<b>P8SAGSFAX</b>	35	All Series
Electric Reed-NO, with LED, 3-wire, 10 meter, 5-30 V AC/DC	<b>P8SAGSFDX</b>	105	All Series
Electric Reed-NO, with LED, 2-wire, 3 meter, 5-30 V AC/DC	<b>P8SAGRFAFAX</b>	35	All Series
Electric Reed-NO, with LED, 2-wire, 10 meter, 5-230 V AC/DC	<b>P8SAGRFDX2</b>	105	All Series
Electric Reed-NC, No LED, 2-wire, 10 meter, 5-120 V AC/DC	<b>P8SAGEFRX1</b>	105	All Series
Electric Reed-NC, No LED, 2 wire, 10 meter, 5-30V AC/DC	<b>P8SSAGEFRX</b>	105	All Series
<b>With flying leads, PVC cable IP67</b>			
Electric Reed-NO, with LED, 3-wire, 3 meter, 5-30 V AC/DC	<b>P8SAGSFLX</b>	35	All Series
Electric Reed-NO, with LED, 2-wire, 3 meter, 5-120 V AC/DC	<b>P8SAGRFLX1</b>	35	All Series
Electric Reed-NO, with LED, 2-wire, 3 meter, 5-230 V AC/DC	<b>P8SAGRFLX2</b>	35	All Series
Electronic PNP-NC, with LED, 3-wire, 3 meter, 10-30 V DC	<b>P8SAGQFLX</b>	35	All Series
Electronic PNP-NO, with LED, 3-wire, 3 meter, 10-30 V DC	<b>P8SAGPFLX</b>	35	All Series
Electronic PNP-NO, with LED, 3-wire, 10 meter, 10-30 V DC	<b>P8SAGPFTX</b>	105	All Series
Electric Reed-NO, with LED, 2-wire, 10 meter, 5-120 V AC/DC	<b>P8SAGRFTX1</b>	105	All Series
Electric Reed-NO, with LED, 3-wire, 10 meter, 10-30 V AC/DC	<b>P8SAGSFTX</b>	105	All Series
<b>With M8 knurled screw, PUR cable IP67</b>			
Electronic PNP-NC, with LED, 3-wire, 0,3 meter, 10-30 V DC	<b>P8SAGQCHX</b>	15	All Series
Electronic PNP-NO, with LED, 3-wire, 0,3 meter, 10-30 V DC	<b>P8SAGPCHX</b>	15	All Series
Electronic NPN-NC, with LED, 3-wire, 0,3 meter, 10-30 V DC	<b>P8SAGMCHX</b>	15	All Series
Electronic NPN-NO, with LED, 3-wire, 0,3 meter, 10-30 V DC	<b>P8SAGNCHX</b>	15	All Series
Electric Reed-NO, with LED, 3-wire, 0,3 meter, 5-30 V AC/DC	<b>P8SAGSCHX</b>	15	All Series
Electric Reed-NC, No LED, 2-wire, 0,3 meter, 5-30 V AC/DC	<b>P8SAGECNX</b>	15	All Series
Electric Reed-NO, with LED, 2-wire, 0,3 meter, 5-30 V AC/DC	<b>P8SAGRCHX</b>	15	All Series
<b>For ATEX IP67</b>			
Electronic PNP-NO, with LED, 3-wire, 3 meter, 10-26 V DC, PUR	<b>P8SAGPFAXS</b>	35	ATEX Series 3G, 3D
NAMUR-NO, with LED, 2-wire, 5 meter, 8,2-20 V DC, PVC	<b>P8SAGDFMXW *</b>	55	ATEX Series 1G, 1D
NAMUR-NO, with LED, 2-wire, 10 meter, 8,2-20 V DC, PVC	<b>P8SAGDFTXW *</b>	105	ATEX Series 1G, 1D

**Note:**

-30 to +80 °C (PUR cable) | -30 to + 70 °C (PVC cable) | -25 to +80 °C (NAMUR 1GD) | -20 to +50 °C (ATEX 3GD)  
 All sensors are with an adaptor for S-dovetail Parker type OSP grooves.

\* with an aluminium adaptor

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## P1A Pneumatic ISO Cylinders

### 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 screw connector and meet protection class IP65.

#### Technical Data

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

Connector	Weight [kg]	Order Code
M8 screw connector		<b>P8CS0803J</b>
M12 screw connector	0.022	<b>P8CS1204J</b>



### Cables to extend cable sensor lengths with M8\*

Description	Order Code	Weight [g]	For Product Series
Cable flex PVC 3 meter with 8mm snap-in connector / flying leads	<b>9126344341</b>	70	P8S Sensors with M8
Cable flex PVC 10 meter with 8mm snap-in connector / flying leads	<b>9126344342</b>	210	P8S Sensors with M8
Cable PUR 3 meter with 8mm snap-in femelle connector / flying leads	<b>9126344345</b>	70	P8S Sensors with M8
Cable flex PUR 10 meter with 8mm snap-in connector / flying leads	<b>9126344346</b>	210	P8S Sensors with M8
Cable PVC 2.5 meter with M8 screw connector / flying leads	<b>KC3102</b>	60	P8S Sensors with knurled M8
Cable PVC 5 meter with M8 screw femelle connector / flying leads	<b>KC3104</b>	120	P8S Sensors with knurled M8

\*Note: not applicable for P8S CPS Sensors as no cable available

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