Pneumatic Cylinders

Ø10 to Ø25 mm P1A Series
According to ISO 6432

Catalogue PDE2564TCUK

Parker

ENGINEERING YOUR SUCCESS.

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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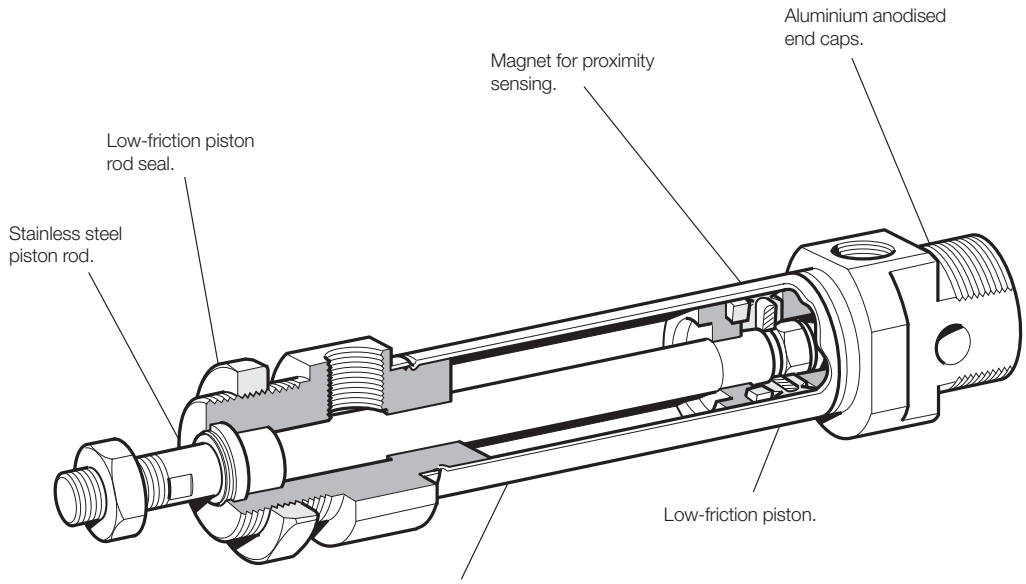

Cylinder design conforms to ISO 6432 for simple design and integration with equipment. Fully interchangeable with all ISO standard mini-cylinders.

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

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 swich 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 operationare available.

Variants
In addition to the basic versions, a number of standard variants of Parker Pnematics 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.

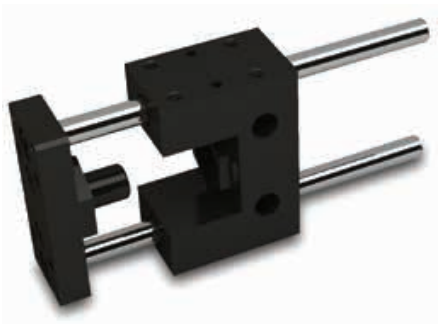
Double-acting, cushioned stroke

Double-acting, adjustable cushioning

Double-acting, through piston rod

Single-acting, spring return

Single-acting, spring-extended



U and H guidance modules

Cylinder forces, double acting variants

Cyl. bore/ pist. rod mm	Stroke	Pistonarea 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
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		Spring retraction	
	Nmax	Nmin	Nmax	Nmin
Single acting. spring return				
P1A-S010SS-0010	38	36	10	8.5
P1A-S010SS-0015	38	36	10	7.8
P1A-S010SS-0025	39	36	10	6.6
P1A-S010SS-0040	38	34	13	9
P1A-S010SS-0050	39	34	13	8
P1A-S010SS-0080	39	34	12	7
P1A-S012SS-0010	53	51	16	14.4
P1A-S012SS-0015	53	51	16	13.6
P1A-S012SS-0025	55	51	16	12
P1A-S012SS-0040	52	48	19	13.4
P1A-S012SS-0050	53	48	19	12
P1A-S012SS-0080	55	48	21.4	12
P1A-S016SS-0010	102	99	22.3	20.2
P1A-S016SS-0015	103	99	22.3	19
P1A-S016SS-0025	105	99	22.3	17
P1A-S016SS-0040	106	95	22.3	14
P1A-S016SS-0050	108	95	22.3	12
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

Order code	Theoretical piston force at 6 bar		Spring retraction	
	Nmax	Nmin	Nmax	Nmin
Single acting. spring-extended				
P1A-S016TS-0010	85	84	22.3	20.2
P1A-S016TS-0015	86	84	22.3	19
P1A-S016TS-0025	88	84	22.3	17
P1A-S016TS-0040	90	84	22.3	14
P1A-S016TS-0050	91	84	22.3	12
P1A-S020TS-0010	132	130	30	28
P1A-S020TS-0015	133	130	30	27
P1A-S020TS-0025	135	130	30	25
P1A-S020TS-0040	138	130	30	22
P1A-S020TS-0050	140	130	30	20
P1A-S020TS-0080	139	108	31	17
P1A-S025TS-0010	205	203	38.5	36
P1A-S025TS-0015	207	203	38.5	34.7
P1A-S025TS-0025	210	203	38.5	32
P1A-S025TS-0040	214	203	38.5	28.5
P1A-S025TS-0050	217	203	38.5	26
P1A-S025TS-0080	223	206	36	21

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Main data

Cylinder designation	Cylinder bore	area	Piston rod bore	area	thread	Total mass at 0 mm stroke	addition per 10 mm stroke	Air consumption -	Conn. thread
	mm	cm^2	mm	cm^2		kg	kg	litres	
Double acting. cushioned stroke									
P1A-S010D	10	0.78	4	0.13	M4	0.04	0.003	0.0100 [1)]	M5
P1A-S012D	12	1.13	6	0.28	M6	0.07	0.004	0.0139 [1)]	M5
P1A-S016D	16	2.01	6	0.28	M6	0.09	0.005	0.0262 [1)]	M5
P1A-S020D	20	3.14	8	0.50	M8	0.18	0.007	0.0405 [1)]	G1/8
P1A-S025D	25	4.91	10	0.78	M10x1.25	0.25	0.011	0.0633 [1)]	G1/8
Double acting. adjustable cushioning									
P1A-S016M	16	2.01	6	0.28	M6	0.09	0.005	0.0262 [1)]	M5
P1A-S020M	20	3.14	8	0.50	M8	0.18	0.007	0.0405 [1)]	G1/8
P1A-S025M	25	4.91	10	0.78	M10x1.25	0.25	0.011	0.0633 [1)]	G1/8
Single acting. spring return									
P1A-S010SS	10	0.78	4	0.13	M4	0.04	0.003	0.0055 [1)]	M5
P1A-S012SS	12	1.13	6	0.28	M6	0.08	0.004	0.0079 [1)]	M5
P1A-S016SS	16	2.01	6	0.28	M6	0.10	0.005	0.0141 [1)]	M5
P1A-S020SS	20	3.14	8	0.50	M8	0.18	0.007	0.0220 [1)]	G1/8
P1A-S025SS	25	4.91	10	0.78	M10x1.25	0.26	0.011	0.0344 [1)]	G1/8
Single acting. spring-extended									
P1A-S016TS	16	2.01	6	0.28	M6	0.10	0.005	0.0141 [1)]	M5
P1A-S020TS	20	3.14	8	0.50	M8	0.18	0.007	0.0220 [1)]	G1/8
P1A-S025TS	25	4.91	10	0.78	M10x1.25	0.26	0.011	0.0344 [1)]	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^3, which is what a standard compressor with a standard filter gives.

ISO 8573-1 quality classes

Quality class	Pollution		Water	Oil
	particle size (µm)	max con-centration (mg/m^3)	max press dew point (°C)	max con-centration (mg/m^3)
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	-

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.

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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 fluorcarbon, type V:

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

Spare part = new cylinder

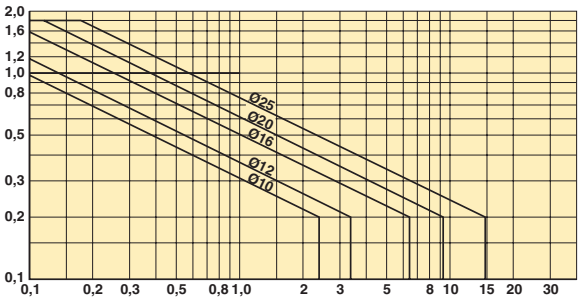
Cushioning diagram

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:

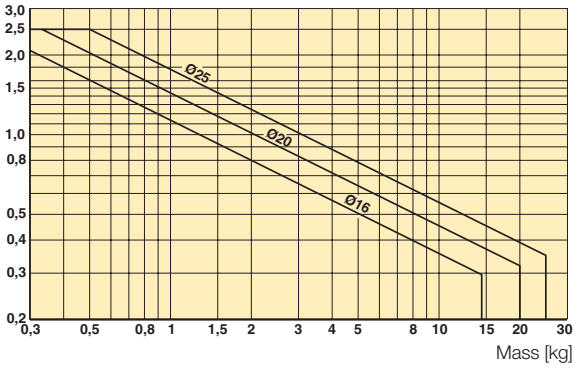
- Low load, i.e. low pressure drop across the piston
- Steady-state piston speed
- Correctly adjusted cushioning screw

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]

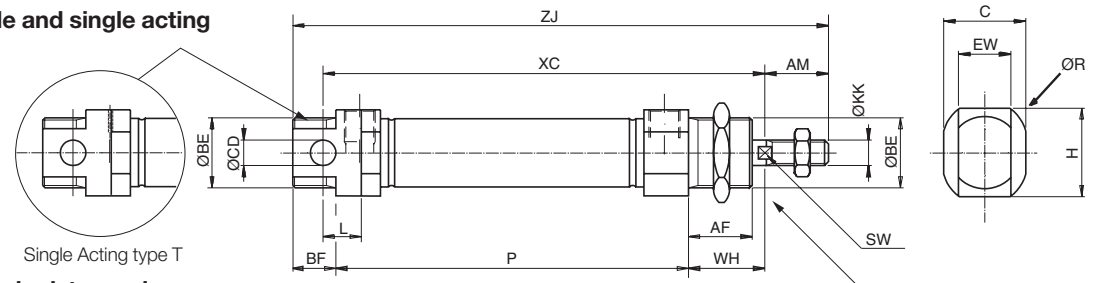


Adjustable pneumatic end-cushioning
Speed [m/s]

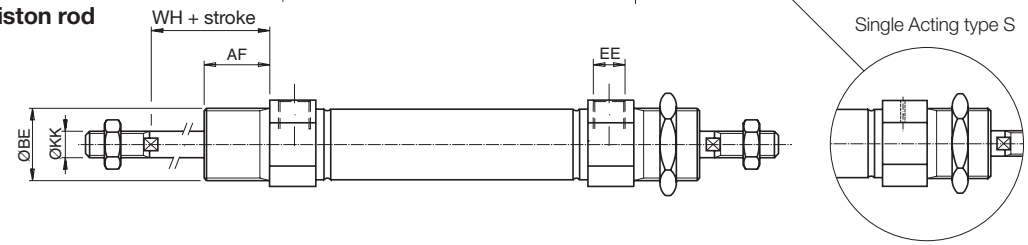


Dimensions

Double and single acting



Through piston rod



Cylinder bore	EE	Ø BE	Ø CD H9	BF	L	AF	WH ±1,2	AM 0/-2	Ø KK	SW	C	EW	H	Ø R
mm		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	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 [1]	M5	M16x1,50	6	13	9	18	22	16	M6	5	23,8	12	23,4	27,0
16 [2]	M5	M16x1,50	6	13	9	18	22	16	M6	5	17,8	12	17,5	20,0
20 [1]	G1/8	M22x1,50	8	14	12	20	24	20	M8	7	23,9	16	23,9	28,0
20 [2]	G1/8	M22x1,50	8	14	12	20	24	20	M8	7	23,8	16	23,4	27,0
25 [1]	G1/8	M22x1,50	8	14	12	22	28	22	M10x1,25	9	26,9	16	26,9	31,5
25 [2]	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	ZJ	XC	P
mm	mm	mm	mm
10	84 + stroke	64 + stroke	46 + stroke
12	99 + stroke	75 + stroke	48 + stroke
16 [2]	104 + stroke	82 + stroke	53 + stroke
20 [2]	125 + stroke	95 + stroke	67 + stroke
25 [2]	132 + stroke	104 + stroke	68 + stroke

Single-acting. spring return. type S

Stroke/	10	15	25	40	50	80	10	15	25	40	50	80	10	15	25	40	50	80
Cylinder bore	XC	XC	XC	XC	XC	XC	ZJ	ZJ	ZJ	ZJ	ZJ	ZJ	P	P	P	P	P	P
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
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/	10	15	25	40	50	80	10	15	25	40	50	80	10	15	25	40	50	80
Cylinder bore	XC[3]	XC[3]	XC[3]	XC[3]	XC[3]	XC[3]	ZJ[3]	ZJ[3]	ZJ[3]	ZJ[3]	ZJ[3]	ZJ[3]	P	P	P	P	P	P
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
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.

P1A Pneumatic ISO Cylinders

Order key

P1A – S 016 M S – 0025

Cylinder bore mm
010
012
016
020
025

	Cylinder type / function
M	Double-acting, adjustable cushioning. Ø16-25 mm. Not for sealing material type F.
D	Double-acting, non-adjustable cushioning, Ø10 - Ø25
F	Double-acting, adjustable cushioning, thru-rod, Ø16-25 mm. Not for sealing material type F.
K	Double-acting, non-adjustable cushioning, thru-rod, Ø10 - Ø25
S	Single-acting, non-adjustable cushioning, spring return for retract stroke, Ø10-25 mm. Not for sealing material type F.
T	Single-acting, non-adjustable cushioning, spring return for advance stroke, Ø16-25 mm. Not for sealing material type F.

Stroke length, mm

E.g. 0025 = 25 mm
For standard stroke length and max length see table below.

	Sealing material
S	Standard, -20 °C to +80 °C. Magnetic piston
F	High temperature, Ø12, 16, 20 and 25 mm -10 °C to +150 °C. Non-magnetic piston
V	External seals of fluorinated rubber. -20 °C to +80 °C. Magnetic piston

Note: P1A Series also available with end caps made of stainless steel - replace P1A with P1S in the order code key.

Stroke length

● Standard stroke length in mm ▭ Non standard stroke length

Cylinder designation	Cylinder bore	10	15	20	25*	30	40	50*	80*	100*	125*	160*	200*	250*	320*	400*	500*
Double acting with fixed end-cushioning:																	
P1A-S010D	10	●	●	●	●	●	●	●	●	●	●						
P1A-S012D	12	●	●	●	●	●	●	●	●	●	●	●	●				
P1A-S016D	16	●	●	●	●	●	●	●	●	●	●	●	●				
P1A-S020D	20	●	●	●	●	●	●	●	●	●	●	●	●	●	●		**
P1A-S025D	25	●	●	●	●	●	●	●	●	●	●	●	●	●	●		**
Double acting with adjustable end-cushioning:																	
P1A-S016M	16			●	●	●	●	●	●	●	●	●	●	●	●	●	
P1A-S020M	20			●	●	●	●	●	●	●	●	●	●	●	●	●	**
P1A-S025M	25			●	●	●	●	●	●	●	●	●	●	●	●	●	**
Single acting, spring return:																	
P1A-S010SS	10	●	●		●		●	●	●								
P1A-S012SS	12	●	●		●		●	●	●								
P1A-S016SS	16	●	●		●		●	●	●								
P1A-S020SS	20	●	●		●		●	●	●								
P1A-S025SS	25	●	●		●		●	●	●								
Single acting, spring-extended:																	
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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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
10 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**
12 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**
16 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**
20 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**
25 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**

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

Single-acting spring-extended

Fixed end cushioning

Cyl.bore mm	Stroke mm	Order code
16 Conn. M5	10	**P1A-S016TS-0010**
	15	**P1A-S016TS-0015**
	25	**P1A-S016TS-0025**
	40	**P1A-S016TS-0040**
	50	**P1A-S016TS-0050**
20 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**
25 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.

Parker Hannifin Corporation
Pneumatic Division - Europe

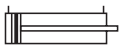
P1A Pneumatic ISO Cylinders

Data

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

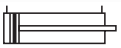
Double-acting

Fixed end cushioning



Cyl.bore mm	Stroke mm	Order code
10 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**
Max stroke 500 mm	125	**P1A-S010DS-0125**
12 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**
Max stroke 500 mm	200	**P1A-S012DS-0200**
16 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**
Max stroke 500 mm	200	**P1A-S016DS-0200**

Fixed end cushioning



Cyl.bore mm	Stroke mm	Order code
20 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**
Max stroke 1000 mm	320	**P1A-S020DS-0320**
25 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**
Max stroke 1000 mm	320	**P1A-S025DS-0320**

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.

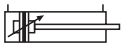
P1A Pneumatic ISO Cylinders

Data

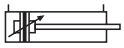
Working pressure	max. 10 bar
Working temperature	max. +80 °C
	min. –20 °C

Double-acting

Adjustable cushioning



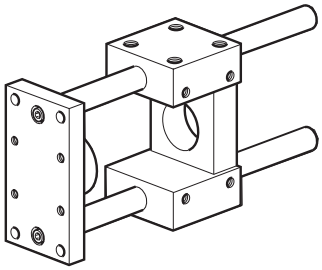
Cyl.bore mm	Stroke mm	Order code
16 Conn. M5	20	**P1A-S016MS-0020**
	25	**P1A-S016MS-0025**
	30	**P1A-S016MS-0030**
	40	**P1A-S016MS-0040**
	50	**P1A-S016MS-0050**
	80	**P1A-S016MS-0080**
	100	**P1A-S016MS-0100**
	125	**P1A-S016MS-0125**
	160	**P1A-S016MS-0160**
	200	**P1A-S016MS-0200**
	250	**P1A-S016MS-0250**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



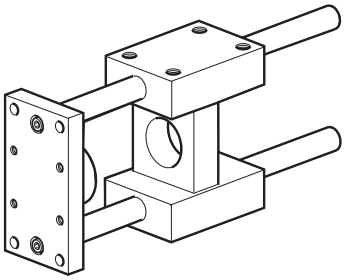
Cyl.bore mm	Stroke mm	Order code
25 Conn. G1/8	20	**P1A-S025MS-0020**
	25	**P1A-S025MS-0025**
	30	**P1A-S025MS-0030**
	40	**P1A-S025MS-0040**
	50	**P1A-S025MS-0050**
	80	**P1A-S025MS-0080**
	100	**P1A-S025MS-0100**
	125	**P1A-S025MS-0125**
	160	**P1A-S025MS-0160**
	200	**P1A-S025MS-0200**
	250	**P1A-S025MS-0250**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

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.

U style GU1



H style GH1 and 2



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

P1A - 4DRH - XXXX

	Cylinder version
A	Mini ISO cylinders

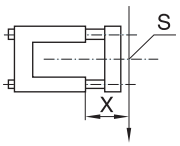
Bore size mm	
D	12, 16
H	20
J	25

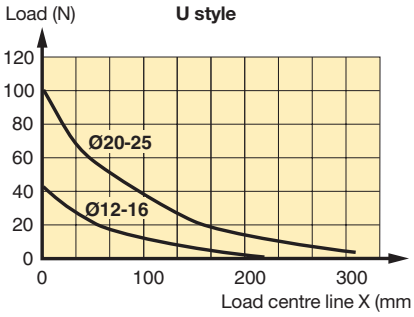
	Guide module type
H	H style, ball bearings
K	U style, plain bearings

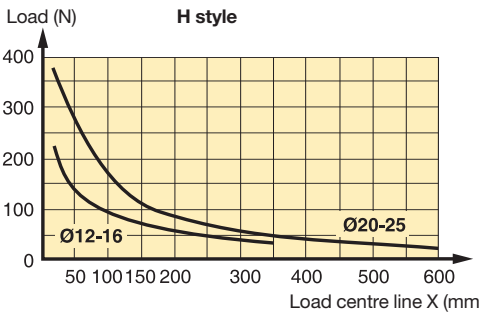
Stroke length (mm)
Same as for the cylinder

Transverse force as a function of load distance

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

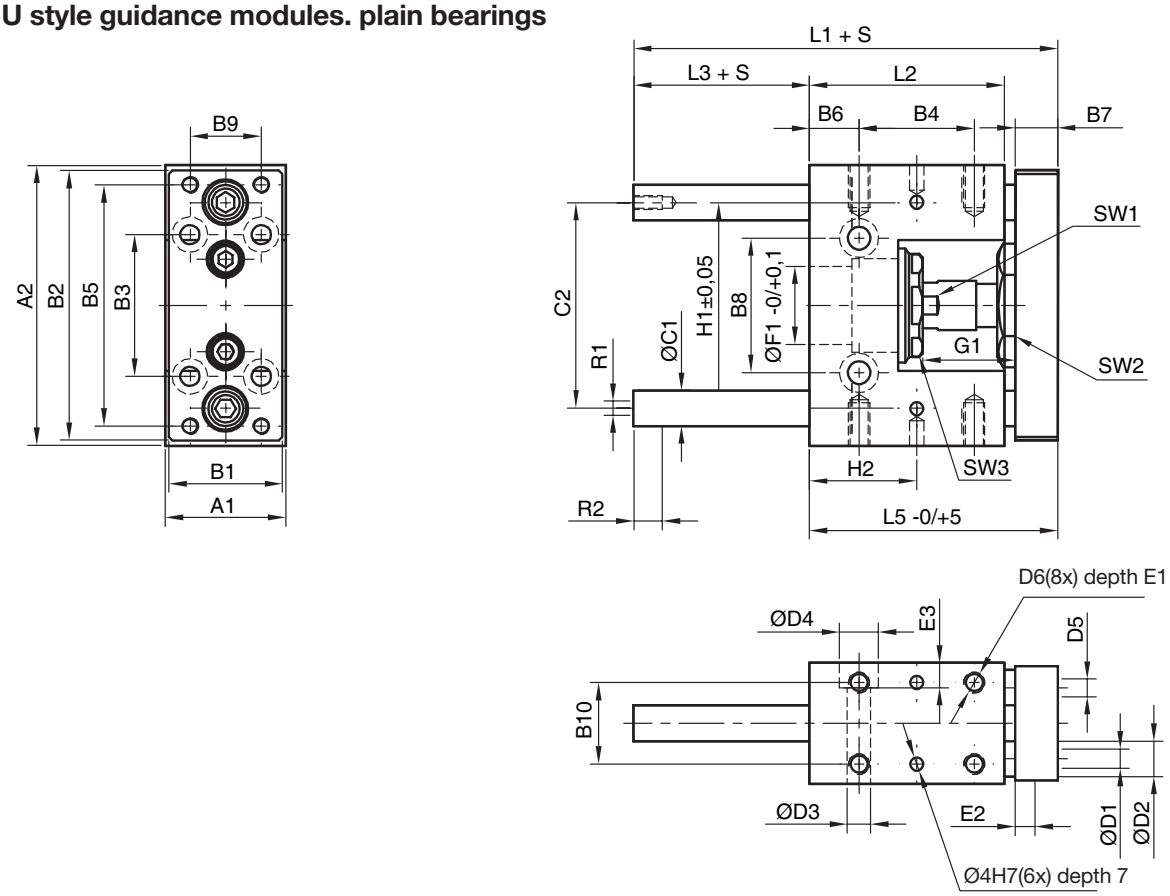






Dimensions (mm)

U style guidance modules. plain bearings



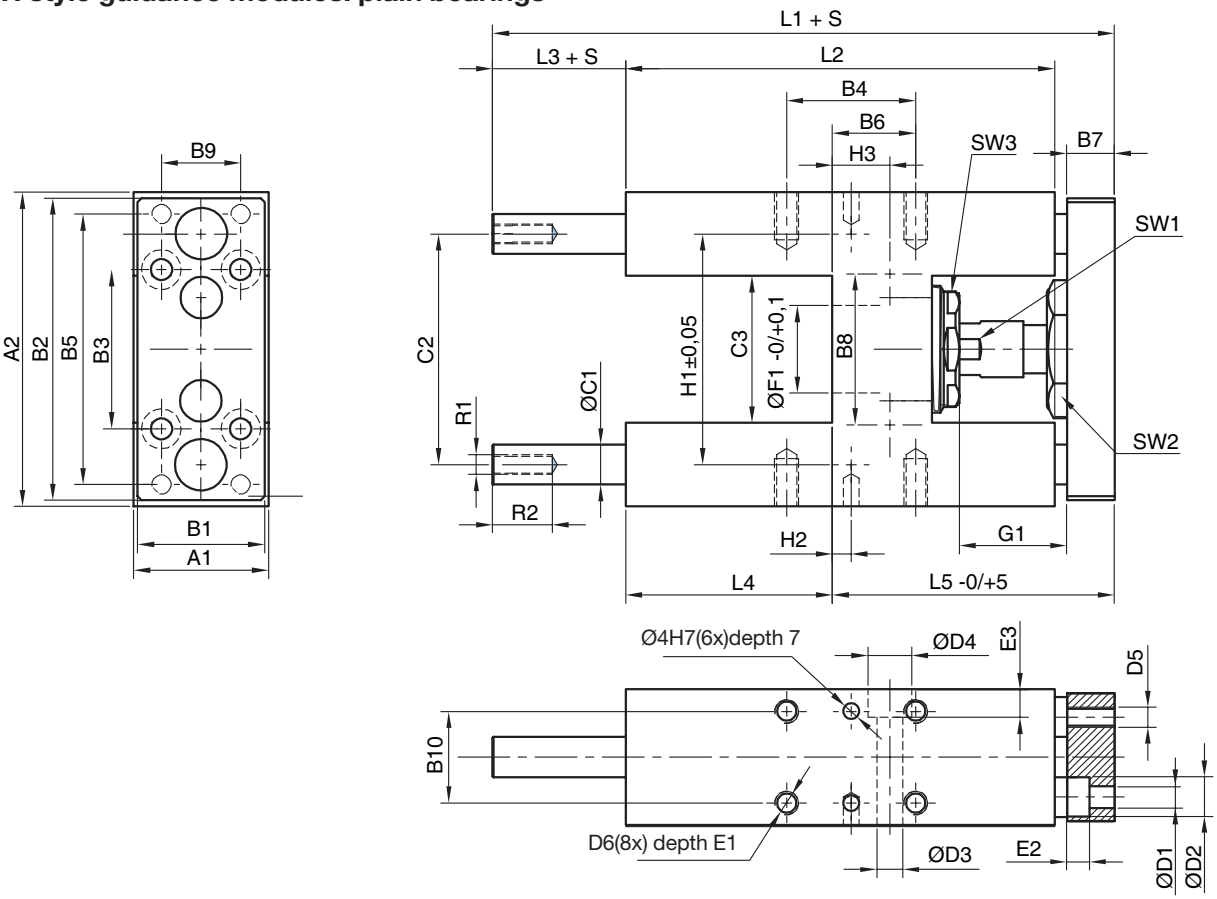
Cyl. bore	A1	A2	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	C1	C2	D1	D2	D3	D4
12/16	30	65	27	63	32	25,0	54	7,5	10	24	15	22	8	46	4,5	8,0	5,5	-
20	34	79	32	76	40	32,5	68	14,0	12	38	20	23	10	58	5,5	10,5	6,5	11
25	34	79	32	76	40	32,5	68	14,0	12	38	20	23	10	58	5,5	10,5	6,5	11

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

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

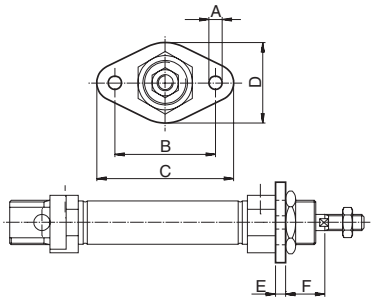
Cyl. bore	H1	H2	H3
12/16	46	-3,25	8,5
20	58	4,75	15,0
25	58	4,75	15,0

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

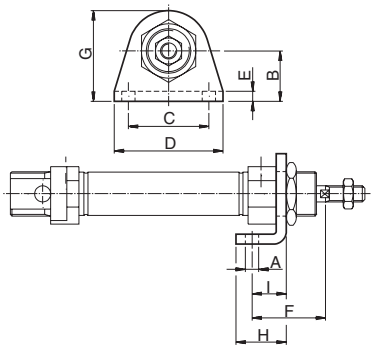
Cylinder mountings

Type	Description	Cyl. bore Ø mm	Weight kg	Order code
Flange-MF8 	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 12-16 20-25	0,012 0,025 0,045	**P1A-4CMB** **P1A-4DMB** **P1A-4HMB**
Stainless Flange-MF8 	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 12-16 20-25	0.012 0.025 0.045	**P1S-4CMB** **P1S-4DMB** **P1S-4HMB**



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

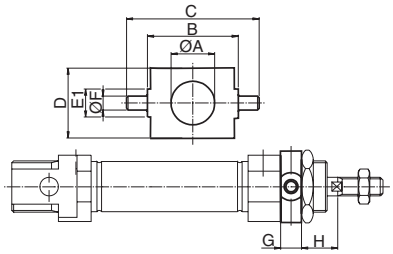
Foot-MS3 	Intended for fixed attachement of the cylinder. The bracket is designed for mounting on the front or rear end covers. Material: Surface-treated steel	10 12-16 20-25	0.020 0.040 0.080	**P1A-4CMF** **P1A-4DMF** **P1A-4HMF**
Stainless Foot-MS3 	Intended for fixed attachement of the cylinder. The bracket is designed for mounting on the front or rear end covers. Material: Stainless steel, DIN X 10 CrNiS 18 9	10 12-16 20-25	0.020 0.040 0.080	**P1S-4CMF** **P1S-4DMF** **P1S-4HMF**



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

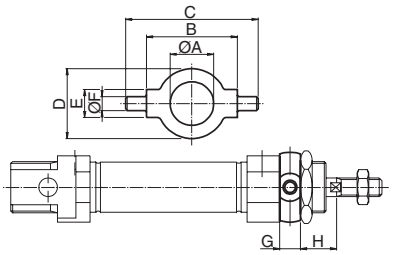
Cylinder mountings

Type	Description	Cyl. bore Ø mm	Weight kg	Order code
Cover trunnion 	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 12-16 20-25	0.014 0.033 0.037	**P1A-4CMJZ** **P1A-4DMJZ** **P1A-4HMJZ**



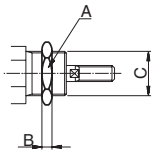
Cylinder Ø mm	A mm	B h14 mm	C mm	D mm	E1 mm	F e9 mm	G mm	H mm
10	12.5	26	38	20	9	4	6	10
12-16	16.5	38	58	25	13	6	8	14
20	22.5	46	66	30	13	6	8	16
25	22.5	46	66	30	13	6	8	20

Type	Description	Cyl. bore Ø mm	Weight kg	Order code
Stainless Cover trunnion 	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 12-16 20-25	0.014 0.033 0.037	**P1A-4CMJ** **P1A-4DMJ** **P1A-4HMJ**



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

Type	Description	Cyl. bore Ø mm	Weight kg	Order code
Stainless Neck nut MR3 	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 12-16 20-25	0.009 0.018 0.042	**9126725405** **9126725406** **9126725407**



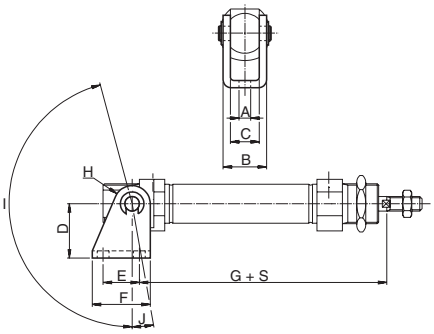
Cylinder Ø mm	A mm	B mm	C
10	17	5	M12x1.25
12-16	24	8	M16x1.50
20-25	27	5	M22x1.50

Cylinder mountings

Type	Description	Cyl. bore Ø mm	Weight kg	Order code
Clevis bracket AB3 	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 12-16 20-25	0.020 0.040 0.080	**P1A-4CMT** **P1A-4DMT** **P1A-4HMT**
Stainless Clevis bracket AB3 	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 12-16 20-25	0.020 0.040 0.080	**P1S-4CMT** **P1S-4DMT** **P1S-4HMT**

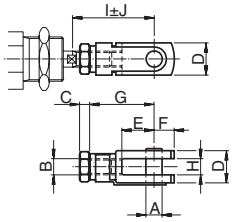
Cylinder Ø mm	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I °	J °
10	4.5	13	8.1	24	12.5	20	65.3	5	160	17
12	5.5	18	12.1	27	15.0	25	73.0	7	170	15
16	5.5	18	12.1	27	15.0	25	80.0	7	170	15
20	6.6	24	16.1	30	20.0	32	91.0	10	165	10
25	6.6	24	16.1	30	20.0	32	100.0	10	165	10

S=stroke



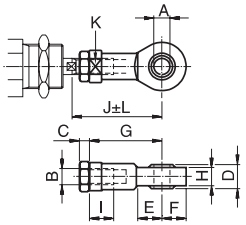
Type	Description	Cyl. bore Ø mm	Weight kg	Order code
Clevis AP2 	According to ISO 8140 Intended for articulated mounting of the cylinder. This mounting is adjustable in the axial direction. Supplied complete with pin. Material: Galvanized steel	10 12-16 20 25	0.007 0.022 0.045 0.095	**P1A-4CRC** **P1A-4DRC** **P1A-4HRC** **P1A-4JRC**
Stainless Clevis AP2 	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 12-16 20 25	0.007 0.022 0.045 0.095	**P1S-4CRD** **P1S-4DRD** **P1S-4HRD** **P1S-4JRD**

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



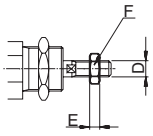
Cylinder mountings

Type	Description	Cyl. bore Ø mm	Weight kg	Order code
Swivel rod eye AP6 	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 12-16 20 25	0.017 0.025 0.045 0.085	**P1A-4CRS** **P1A-4DRS** **P1A-4HRS** **P1A-4JRS**
Stainless Swivel rod eye AP6 	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 12-16 20 25	0.017 0.025 0.045 0.085	**P1S-4CRT** **P1S-4DRT** **P1S-4HRT** **P1S-4JRT**



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

Stainless Rod nut MR9 	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 12-16 20 25	0.001 0.002 0.005 0.007	**9127385121** **9127385122** **9127385123** **9126725404**



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

Parker Hannifin Corporation
Pneumatic Division - Europe

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 additio
nal brackets. For direct mounting the sensor is positioned within the cylinder sensor groove, offering mechanical protection, then securely clamped into postion 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 connnector 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.

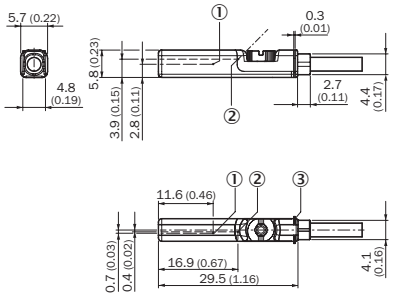
Technical Data

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

	Electronic PNP | NPN	Electric Reed
Cylinder type:	Profile with T-slot	
Cylinder type with adaptor:	Profile with S-slot (dovetail) | Tie rods | Round cylinders	
Installation:	Quarter turn, fixed by allen key 2.5 mm or flathead screwdriver	
Housing length:	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
Output Type:	PNP | NPN	Reed
Switching (on/off) switching frequency:	± 1,000 Hz	± 400 Hz
Output Function:	Normally Open (NO) | Normally Closed (NC) 3-wire	Normally Open (NO) | Normally Closed (NC) 2-wire Normally Open (NO) 3-wire
Enclosure rating:	IP67	
	IP67 (NAMUR ATEX)	
Supply Voltage:	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
Power consumption:	<= 8 mA	-
	<= 10 mA (NAMUR, ATEX)	-
Voltage drop:	<= 2 V	<= 3.5 V 2-wire | <= 0.1 V 3-wire
	<= 2.2 V (NAMUR, ATEX)	-
Continuous output current Ia:	<= 100 mA	<= 100 mA 3-wire
	<= 60 mA (NAMUR) | <= 50 mA (ATEX)	<= 500 mA (DC) | <= 300 mA (AC)
Switching capacity:	-	<= 6 W
Protection class:	III	III | II 2-wire depending on type
		III 3-wire
Response sensitivity:	2.6 to 3.3 mT	2.1 to 3.4 mT
	2.8 mT (NAMUR, ATEX)	-
Overrun distance:	10 mm	
	9 mm (NAMUR, ATEX)	-
Hysteresis:	<= 0.8 mT	-
	<= 0.5 mT (NAMUR, ATEX)	-
Repetability:	<= 0.1 mT	
Reverse polarity protection:	Yes	No 2-wire
	-	Yes 3-wire
Short circuit protection:	Yes	-
Power-up pulse protection:	Yes (NAMUR, ATEX)	-
Ambiant operating temperature range:	-30 to +80 °C (PUR cable) | -30 to +70°C (PVC cable)	
	-25 to +80 °C (NAMUR 1GD) | -20 to +50°C (ATEX 3GD)	
Shock and vibration resistance:	30 g 11 ms / 10 … 55 Hz, 1 mm	
EMC:	According to EN 60947-5-2	
International standard:	CE | C UL US | RoHs | Ex | IEC | IEC Ex	
Housing material:	Plastic polyamid PA12	
Screw material:	Stainless steel	
Cable material:	PUR (Polyurethane) | PVC (Polyvinyl Chloride)	
Conductor cross-section:	0.14 mm² | 0,12 mm² depending on type 0.14 mm² (NAMUR, ATEX)	
Indication LED colour:	Yellow, no LED reed NC	
Connector:	M8R (knurled nuts) | None (Flying lead)	

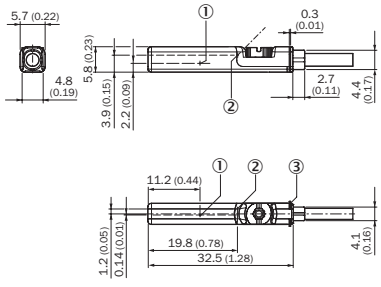
Dimensions in mm (inch)

PNP, NPN Output 10 to 30 V DC



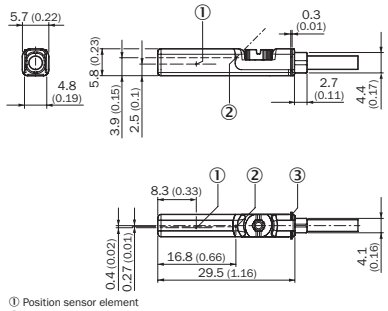
① Position sensor element
② Indication LED
③ Retaining ribs

Reed Output 5 to 230 V AC/DC



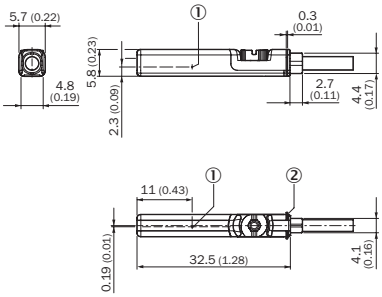
① Position sensor element
② Indication LED
③ Retaining ribs

Reed Output 5 to 30 V AC/DC



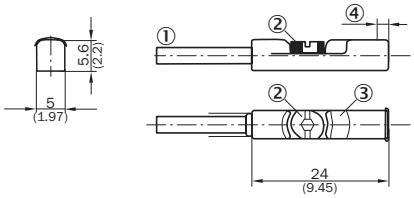
① Position sensor element
② Indication LED
③ Retaining ribs

Reed Output 5 to 120 V AC/DC



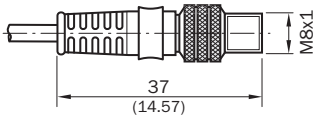
① Position sensor element
② Retaining ribs

NAMUR 1G, 1D

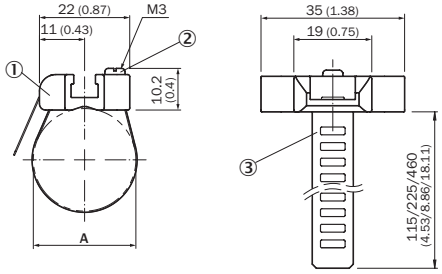


① Connection
② Fixing screw
③ Indication LED
④ Position of sensor element; short overrun distance: 2 mm;
long overrun distance: 1.7 mm

Connector M8R



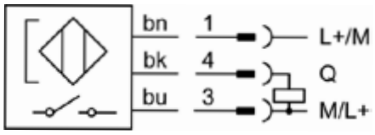
P8S-TMC01



① Sensoradapter with T-slot
② Fixing screw
③ Strap

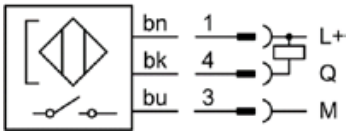
Connection type and diagram

PNP NO

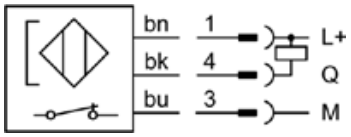


PNP NC

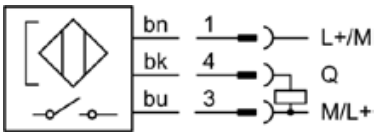
NPN NO



NPN NC

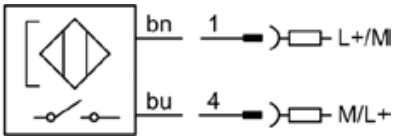


Reed NO 3-wire

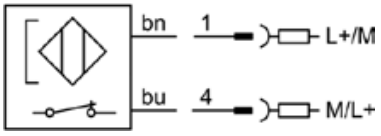


bn: brown
bk: black
bu: blue
Q: load
M: Mass
L+: Power

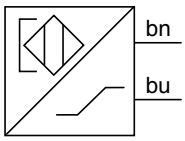
Reed NO 2-wire



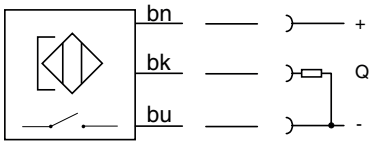
Reed NC 2-wire



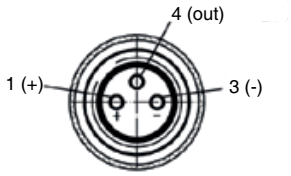
NAMUR NO ATEX 1G, 1D



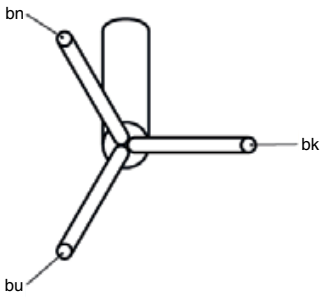
PNP NO ATEX 3G, 3D



Pin assignment, M8 with knurled nut



Flying leads



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
With flying leads, PUR cable IP67			
Electronic PNP-NC, with LED, 3-wire, 3 meter, 10-30 V DC	**P8SAGQFAX**	35	All Series
Electronic PNP-NC, with LED, 3-wire, 10 meter, 10-30 V DC	**P8SAGQFDX**	105	All Series
Electronic PNP-NO, with LED, 3-wire, 3 meter, 10-30 V DC	**P8SAGPFAX**	35	All Series
Electronic PNP-NO, with LED, 3-wire, 10 meter, 10-30 V DC	**P8SAGPFDX**	105	All Series
Electronic NPN-NC, with LED, 3-wire, 3 meter, 10-30 V DC	**P8SAGMFAX**	35	All Series
Electronic NPN-NC, with LED, 3-wire, 10 meter, 10-30 V DC	**P8SAGMFDX**	105	All Series
Electronic NPN-NO, with LED, 3-wire, 3 meter, 10-30 V DC	**P8SAGNFAX**	35	All Series
Electronic NPN-NO, with LED, 3-wire, 10 meter, 10-30 V DC	**P8SAGNFDX**	105	All Series
Electric Reed-NO, with LED, 3-wire, 3 meter, 5-30 V AC/DC	**P8SAGSFAX**	35	All Series
Electric Reed-NO, with LED, 3-wire, 10 meter, 5-30 V AC/DC	**P8SAGSFDX**	105	All Series
Electric Reed-NO, with LED, 2-wire, 3 meter, 5-30 V AC/DC	**P8SAGRFAX**	35	All Series
Electric Reed-NO, with LED, 2-wire, 10 meter, 5-230 V AC/DC	**P8SAGRFDX2**	105	All Series
Electric Reed-NC, No LED, 2-wire, 10 meter, 5-120 V AC/DC	**P8SAGEFRX1**	105	All Series
Electric Reed-NC, No LED, 2 wire, 10 meter, 5-30V AC/DC	**P8SSAGEFRX**	105	All Series
With flying leads, PVC cable IP67			
Electric Reed-NO, with LED, 3-wire, 3 meter, 5-30 V AC/DC	**P8SAGSFLX**	35	All Series
Electric Reed-NO, with LED, 2-wire, 3 meter, 5-120 V AC/DC	**P8SAGRFLX1**	35	All Series
Electric Reed-NO, with LED, 2-wire, 3 meter, 5-230 V AC/DC	**P8SAGRFLX2**	35	All Series
Electronic PNP-NC, with LED, 3-wire, 3 meter, 10-30 V DC	**P8SAGQFLX**	35	All Series
Electronic PNP-NO, with LED, 3-wire, 3 meter, 10-30 V DC	**P8SAGPFLX**	35	All Series
Electronic PNP-NO, with LED, 3-wire, 10 meter, 10-30 V DC	**P8SAGPFTX**	105	All Series
Electric Reed-NO, with LED, 2-wire, 10 meter, 5-120 V AC/DC	**P8SAGRFTX1**	105	All Series
Electric Reed-NO, with LED, 3-wire, 10 meter, 10-30 V AC/DC	**P8SAGSFTX**	105	All Series
With M8 knurled screw, PUR cable IP67			
Electronic PNP-NC, with LED, 3-wire, 0,3 meter, 10-30 V DC	**P8SAGQCHX**	15	All Series
Electronic PNP-NO, with LED, 3-wire, 0,3 meter, 10-30 V DC	**P8SAGPCHX**	15	All Series
Electronic NPN-NC, with LED, 3-wire, 0,3 meter, 10-30 V DC	**P8SAGMCHX**	15	All Series
Electronic NPN-NO, with LED, 3-wire, 0,3 meter, 10-30 V DC	**P8SAGNCHX**	15	All Series
Electric Reed-NO, with LED, 3-wire, 0,3 meter, 5-30 V AC/DC	**P8SAGSCHX**	15	All Series
Electric Reed-NC, No LED, 2-wire, 0,3 meter, 5-30 V AC/DC	**P8SAGECNX**	15	All Series
Electric Reed-NO, with LED, 2-wire, 0,3 meter, 5-30 V AC/DC	**P8SAGRCHX**	15	All Series
For ATEX IP67			
Electronic PNP-NO, with LED, 3-wire, 3 meter, 10-26 V DC, PUR	**P8SAGPFAXS**	35	ATEX Series 3G, 3D
NAMUR-NO, with LED, 2-wire, 5 meter, 8,2-20 V DC, PVC	**P8SAGDFMXW** *	55	ATEX Series 1G, 1D
NAMUR-NO, with LED, 2-wire, 10 meter, 8,2-20 V DC, PVC	**P8SAGDFTXW** *	105	ATEX Series 1G, 1D

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

Male connectors for connecting cables

Cable connectors for producting your own connecting cables.
The conncectors 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

Operating voltage:	max. 32 V AC/DC
Opertaing current per contact:	max. 4 A
Connection cross section:	0.25... 0.5 mm² (conductor diameter min 0.1 mm)
Protection class:	IP65 and IP67 when plugged and screwed down (EN 60529)
Temperature range:	- 25... + 85°C

Connector	Weight [kg]	**Order Code**
M8 screw connector		**P8CS0803J**
M12 screw connector	0.022	**P8CS1204J**

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	**9126344341**	70	P8S Sensors with M8
Cable flex PVC 10 meter with 8mm snap-in connector / flying leads	**9126344342**	210	P8S Sensors with M8
Cable PUR 3 meter with 8mm snap-in femelle connector / flying leads	**9126344345**	70	P8S Sensors with M8
Cable flex PUR 10 meter with 8mm snap-in connector / flying leads	**9126344346**	210	P8S Sensors with M8
Cable PVC 2.5 meter with M8 screw connector / flying leads	**KC3102**	60	P8S Sensors with knurled M8
Cable PVC 5 meter with M8 screw femelle connector / flying leads	**KC3104**	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				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) mg/m^3
	0,1 - 0,5 micron	0,5 - 1 micron	1 - 5 micron				
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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