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

Pneumatic Cylinders

Series P1Q Compact - Ø12 to Ø100 mm

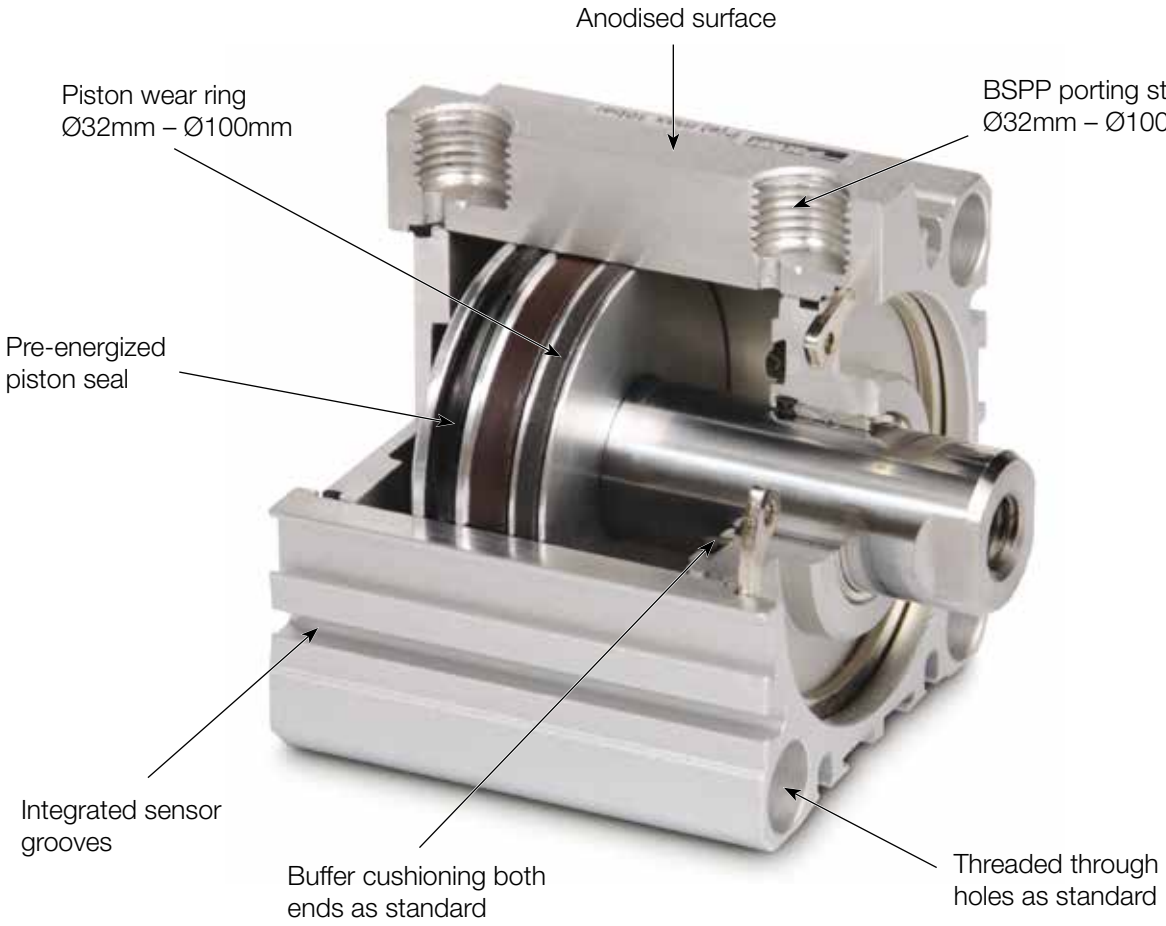
According to ISO 15524

Catalogue PDE2663TCUK February 2015

Parker

ENGINEERING YOUR SUCCESS.

ISO 15524 conformity
Ø20 to 100 mm
Ø12 & Ø16 mm not in the standard



P1Q Compact Cylinder

Parker's P1Q series cylinders provide an economical, compact design suited for a variety of applications. With its modular flexibility, the P1Q will provide the ideal solution machine builders need today.

The P1Q series is available in 10 bore sizes from 12 mm to 100 mm and standard strokes from 5 mm to 100 mm. The cylinder is supplied in a choice of magnetic or non-magnetic function, the non-magnetic version offers very short axial dimensions. For optimum compactness the P1Q range is supplied with female piston rod thread.

The P1Q provides quieter operation due to its built in buffer cushioning which is standard on all bore sizes. Included within the magnetic versions bores 32 - 100mm is a teflon piston wear ring providing superior life.

Sensors and Accessories

When position signals are needed anywhere along the stroke the integrated sensor grooves provide flexible mounting of any combination of PNP, NPN, reed sensors with flying leads and M8 cord options within the Parker P8S Global Sensor Family.

In addition to the compactness and modular design flexibility of P1Q are a range of cylinder mountings including flange, foot and clevis brackets to ease installation.

General technical data

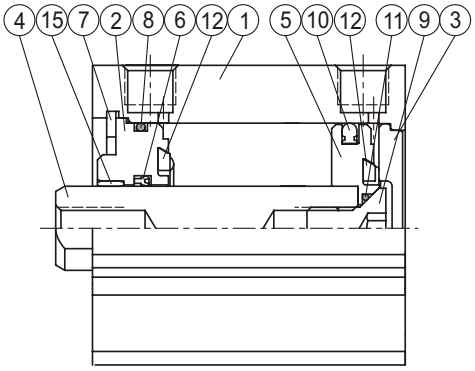
Product type		Compact
Bore size		12 - 100 mm
Stroke length		100 mm
Versions	P1Q...B	Double acting, Non magnetic
	P1Q...G	Double acting, Magnetic
Cushioning		Elastic cushioning
Position sensing		Proximity sensor
Installation	Direct	Through holes
		Female thread on front and rear end face
	Accessories	Cylinder mountings
Mounting position		Any

Operating and environmental data

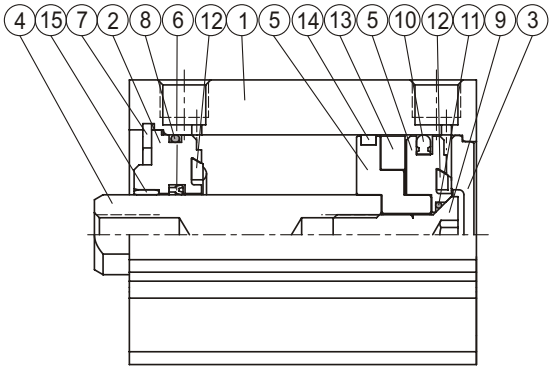
Operating medium	For best possible service life and trouble-free operation it is recommended to use dry, filtered compressed air to ISO 8573-1:2010 quality class 3.4.3. This specifies a dew point of +3°C for indoor operation (a lower dew point should be selected for outdoor operation) and is in line with the air quality from most standard compressors with a standard filter. Refer to page 22.
Operating pressure	0.5 bar to 10 bar
Ambient temperature	-5°C to +60°C
Pre-lubricated	Further lubrication is normally not necessary. If additional lubrication is introduced it must be continued.
Corrosion resistance	High resistance to corrosion and chemicals. Materials and surface treatment have been selected for industrial applications where solvents and detergents are frequently used.

Material specification

Non magnetic



Magnetic



No	Part name / bore	12 - 25	32	40 - 100
1	Body	Hard anodised aluminium alloy		
2	Front cover	Hard anodised aluminium alloy		Anodised aluminium alloy
3	Rear cover	Anodised aluminium alloy		
4	Piston rod	Stainless steel		Medium carbor steel
5	Piston	Anodised aluminium alloy		
6	Piston rod seal	NBR		
7	Circlip	Stainless steel		Spring steel
8	O ring	NBR		
9	Piston bolt	Stainless steel		SCM
10	Piston seal	NBR		
11	Piston gasket	NBR		
12	Buffer	NBR		
13	Magnet	Plastic		
14	Wear ring	-	Teflon	
15	Bush	-	-	Bearing alloy

Main data: P1Q

Cylinder designation	Cylinder bore mm	area cm²	Piston rod area mm	cm²	Thread (female)	at 0 mm stroke kg	addition per 5 mm stroke kg	Air consumption litres	Port size
P1Q012	12	1.1	6	0.28	M3 x 0.5	0.06	0.01	0.0139 [1]	M5
P1Q016	16	2.0	8	0.50	M4 x 0.7	0.07	0.02	0.0246 [1]	M5
P1Q020	20	3.1	10	0.79	M5 x 0.8	0.09	0.03	0.0385 [1]	M5
P1Q025	25	4.9	12	1.1	M6 x 1.0	0.13	0.03	0.0633 [1]	M5
P1Q032	32	8.0	16	2.0	M8 x 1.25	0.19	0.03	0.1050 [1]	G1/8
P1Q040	40	12.6	16	2.0	M8 x 1.25	0.25	0.03	0.1620 [1]	G1/8
P1Q050	50	19.6	20	3.1	M10 x 1.5	0.45	0.04	0.2530 [1]	G1/4
P1Q063	63	31.2	20	3.1	M10 x 1.5	0.68	0.05	0.4140 [1]	G1/4
P1Q080	80	50.3	25	4.9	M16 x 2.0	1.25	0.07	0.6690 [1]	G3/8
P1Q100	100	78.5	30	7.0	M20 x 2.5	1.93	0.15	1.0430 [1]	G3/8

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

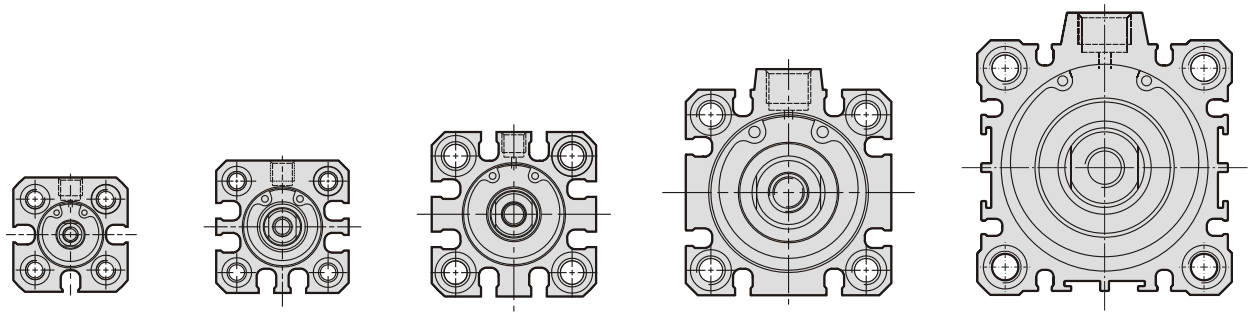
Cylinder forces, double acting variants

Cyl. bore/ pist. rod mm	Stroke	Piston area 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
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
16/8	+	2.0	20	40	60	80	101	**121**	141	161	181	201
	-	1.5	15	30	45	60	75	**90**	106	121	136	151
20/10	+	3.1	31	63	94	126	157	**188**	220	251	283	314
	-	2.4	24	47	71	94	118	**141**	165	188	212	236
25/12	+	4.9	49	98	147	196	245	**295**	344	393	442	491
	-	3.8	38	76	113	151	189	**227**	264	302	340	378
32/16	+	8.0	80	161	241	322	402	**483**	563	643	724	804
	-	6.0	60	121	181	241	302	**362**	422	483	543	603
40/16	+	12.6	126	251	377	503	628	**754**	880	1005	1131	1257
	-	10.6	106	211	317	422	528	**633**	739	844	950	1056
50/20	+	19.6	196	393	589	785	982	**1178**	1374	1571	1767	1963
	-	16.5	165	330	495	660	825	**990**	1155	1319	1484	1649
63/20	+	31.2	312	623	935	1247	1559	**1870**	2182	2494	2806	3117
	-	28.0	280	561	841	1121	1402	**1682**	1962	2242	2523	2803
80/25	+	50.3	503	1005	1508	2011	2513	**3016**	3519	4021	4524	5027
	-	45.4	454	907	1361	1814	2268	**2721**	3175	3629	4082	4536
100/30	+	78.5	785	1571	2356	3142	3927	**4712**	5498	6283	7069	7854
	-	71.5	715	1430	2145	2860	3575	**4290**	5005	5720	6435	7150

\+ = Outward stroke
\- = Return stroke

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

Front profiles by bore sizes



Ø12 **Ø16** **Ø20, Ø25** **Ø32, Ø40** **Ø50 to Ø100**

Selecting Pneumatic System Components

Cylinder to Valve: The below chart contains recommendations for selecting air valve products based on 5.5 bar with a 0.35 bar pressure drop. The values within the chart show the corresponding Cv values.

Moduflex Valve System

- Stand-alone valves, short-build valve manifold, or large valve manifold configurations available
- Cv range from 0.18 – 0.80
- Peripheral modules available— flow control, pressure regulation, P.O. check valves and vacuum generators

Cylinder speed (mm/s)	Cylinder bore size									
	12	16	20	25	32	40	50	63	80	100
50	0.004	0.01	0.01	0.02	0.03	0.04	0.06	0.10	0.16	0.26
100	0.01	0.01	0.02	0.03	0.05	0.08	0.13	0.20	0.33	0.51
150	0.01	0.02	0.03	0.05	0.08	0.12	0.19	0.30	0.49	0.77
200	0.01	0.03	0.04	0.06	0.10	0.16	0.26	0.41	0.65	1.02
250	0.02	0.03	0.05	0.08	0.13	0.20	0.32	0.51	0.82	1.28
300	0.02	0.04	0.06	0.10	0.16	0.25	0.38	0.61	0.98	1.53
350	0.03	0.05	0.07	0.11	0.18	0.29	0.45	0.71	1.15	1.79
400	0.03	0.05	0.08	0.13	0.21	0.33	0.51	0.81	1.31	2.04
450	0.03	0.06	0.09	0.14	0.24	0.37	0.58	0.91	1.47	2.30
500	0.04	0.07	0.10	0.16	0.26	0.41	0.64	1.01	1.64	2.56
	Size 1					Size 2		See Larger valve system		

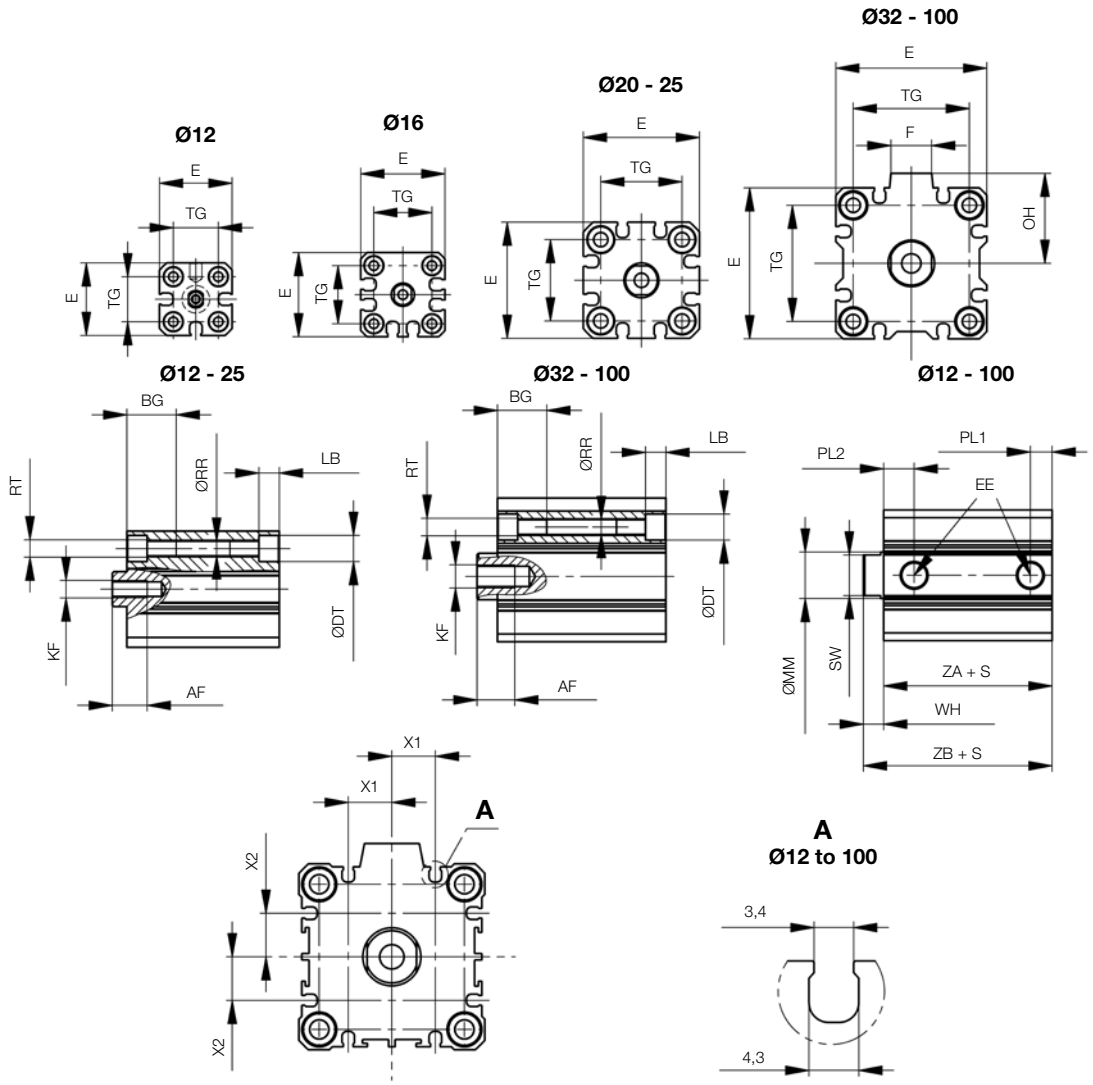
Isys Micro / ISO Valve System

- Isys Micro Cv range 0.30 – 0.35
- IsysNet system fieldbus, Turck system fieldbus, 25 pin D-sub, or low cost Moduflex fieldbus options available
- Isys ISO offers 5 sizes with Cv range 0.55 – 6.0

Cylinder speed (mm/s)	Cylinder bore size										Valve range
	12	16	20	25	32	40	50	63	80	100	
50	0.004	0.01	0.01	0.02	0.03	0.04	0.06	0.10	0.16	0.26	Isys Micro
100	0.01	0.01	0.02	0.03	0.05	0.08	0.13	0.20	0.33	0.51	HB
150	0.01	0.02	0.03	0.05	0.08	0.12	0.19	0.30	0.49	0.77	HA
200	0.01	0.03	0.04	0.06	0.10	0.16	0.26	0.41	0.65	1.02	
250	0.02	0.03	0.05	0.08	0.13	0.20	0.32	0.51	0.82	1.28	H1
300	0.02	0.04	0.06	0.10	0.16	0.25	0.38	0.61	0.98	1.53	H2
350	0.03	0.05	0.07	0.11	0.18	0.29	0.45	0.71	1.15	1.79	
400	0.03	0.05	0.08	0.13	0.21	0.33	0.51	0.81	1.31	2.04	
450	0.03	0.06	0.09	0.14	0.24	0.37	0.58	0.91	1.47	2.30	
500	0.04	0.07	0.10	0.16	0.26	0.41	0.64	1.01	1.64	2.56	

Dimensions (mm)

Double acting, non magnetic piston, elastic cushioning, piston rod with internal thread



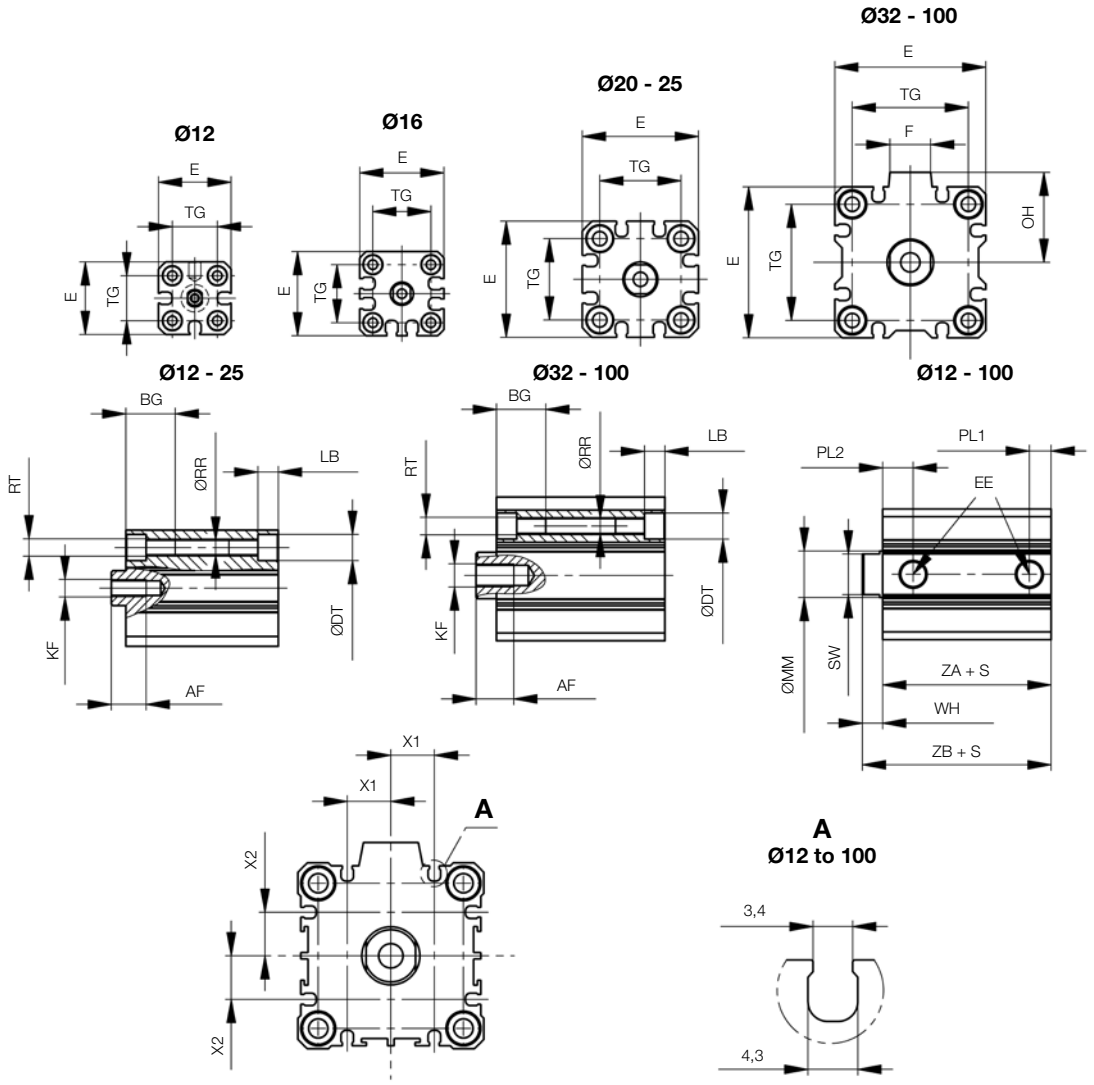
The non magnetic version is not in the ISO standard, ZA and ZB could be different depending on the cylinder's manufacturer
WH and ZB are without pressure in the cylinder, deformation of elastic bumpers under pressure gives different dimensions

Bore size Ø (mm)	E	TG	F	OH	RT 6H	BG	KF	AF	ØRR	LB	ØDT	ØMM f8	SW	PL1	PL2	EE	X1	X2	WH	ZA		ZB	
																				5 to 50mm	75 to 100mm	5 to 50mm	75 to 100mm
12	25	15,5 ±0,3	-	12,5	M4	11,0	M3	6	3,5	4,0	6,5	6	5	5,0	7,5	M5	0	0	3,5 ±1,5	17,0	-	20,5	-
16	29	20 ±0,3	-	14,5	M4	11,0	M4	8	3,5	4,0	6,5	8	6	5,0	7,5	M5	3,5	3,5	3,5 ±1,5	17,0	-	20,5	-
20	36	25,5 ±0,3	7,6	18,0	M6	17.0	M5	7	5,4	7,0	9,0	10	8	5,5	9,0	M5	5,5	5,5	4,5 ±1,5	19,5	-	24,0	-
25	40	28 ±0,3	16,4	20,0	M6	17,0	M6	12	5,4	7,0	9,0	12	10	5,5	11,0	M5	6,5	6,5	5 ±1,5	22,5	-	27,5	-
32	45	34 ±0,3	14,0	27,0	M6	17,0	M8	13	5,5	7,0	9,0	16	14	7,5	10,5	G1/8	10,0	10,0	7 ±2	23,0	33,0	30,0	40,0
40	52	40 ±0,3	14,0	31,0	M6	17,0	M8	13	5,5	7,0	9,0	16	14	8,0	11,0	G1/8	11,0	11,0	7 ±2	29,5	39,5	36,5	46,5
50	64	50 ±0,5	26,0	39,0	M8	22,0	M10	15	6,6	8,0	11,0	20	17	10,5	10,5	G1/4	15,0	15,0	8 ±2	30,5	40,5	38,5	48,5
63	77	60 ±0,5	19,0	44,5	M10	28,5	M10	15	9,0	10,5	14,0	20	17	10,5	15,0	G1/4	18,0	18,0	8 ±2	36,0	46,0	44,0	54,0
80	98	77 ±0,5	26,0	55,0	M12	35,5	M16	21	11,0	13,5	17,5	25	22	12,5	16,0	G3/8	22,0	22,0	10 ±2	43,5	53,5	53,5	63,5
100	117	94 ±0,5	26,0	65,0	M12	35,5	M20	27	11,0	13,5	17,5	30	27	13,0	23,0	G3/8	22,0	22,0	12 ±2,5	53,0	63,0	65,0	75,0

S = stroke, following ISO tolerance on ZB is ±2, bore sizes 12 and 16 mm are not in the ISO standard

Dimensions (mm)

Double acting, magnetic piston, elastic cushioning, piston rod with internal thread

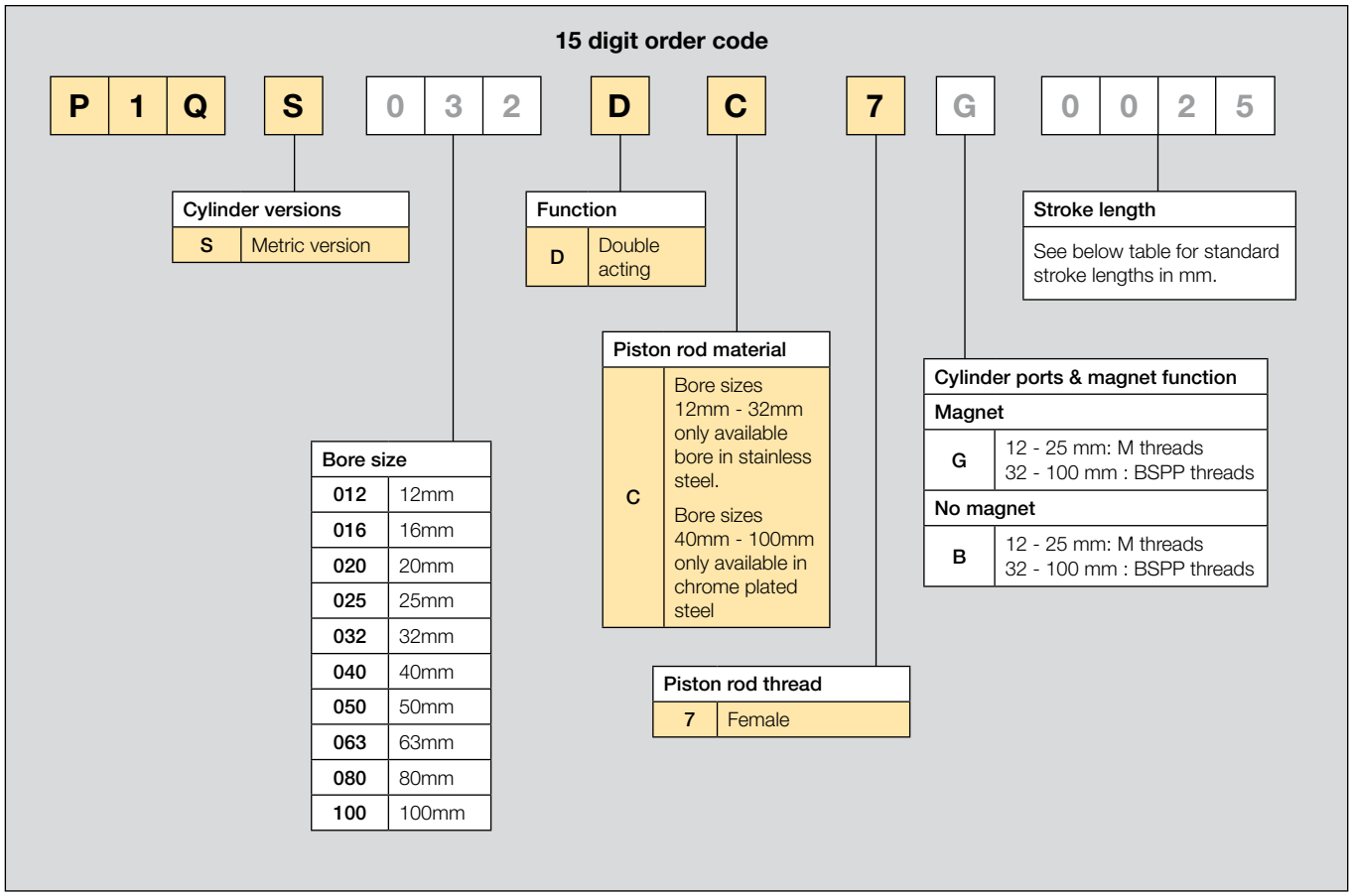


WH and ZB are without pressure in the cylinder, deformation of elastic bumpers under pressure gives different dimensions

Bore size Ø (mm)	E	TG	F	OH	RT 6H	BG	KF	AF	ØRR	LB	ØDT	ØMM f8	SW	PL1	PL2	EE	X1	X2	WH	ZA	ZB
12	25	15,5 ±0,3	-	12,5	M4	11,0	M3	6	3,5	4,0	6,5	6	5	5,0	7,5	M5	0	0	3,5 ±1,5	22,0	25,5
16	29	20 ±0,3	-	14,5	M4	11,0	M4	8	3,5	4,0	6,5	8	6	5,0	7,5	M5	3,5	3,5	3,5 ±1,5	22,0	25,5
20	36	25,5 ±0,3	7,6	18,0	M6	17.0	M5	7	5,4	7,0	9,0	10	8	5,5	9,0	M5	5,5	5,5	4,5 ±1,5	29,5	34,0
25	40	28 ±0,3	16,4	20,0	M6	17,0	M6	12	5,4	7,0	9,0	12	10	5,5	11,0	M5	6,5	6,5	5 ±1,5	32,5	37,5
32	45	34 ±0,3	14,0	27,0	M6	17,0	M8	13	5,5	7,0	9,0	16	14	7,5	10,5	G1/8	10,0	10,0	7 ±2	33,0	40,0
40	52	40 ±0,3	14,0	31,0	M6	17,0	M8	13	5,5	7,0	9,0	16	14	8,0	11,0	G1/8	11,0	11,0	7 ±2	39,5	46,5
50	64	50 ±0,5	26,0	39,0	M8	22,0	M10	15	6,6	8,0	11,0	20	17	10,5	10,5	G1/4	15,0	15,0	8 ±2	40,5	48,5
63	77	60 ±0,5	19,0	44,5	M10	28,5	M10	15	9,0	10,5	14,0	20	17	10,5	15,0	G1/4	18,0	18,0	8 ±2	46,0	54,0
80	98	77 ±0,5	26,0	55,0	M12	35,5	M16	21	11,0	13,5	17,5	25	22	12,5	16,0	G3/8	22,0	22,0	10 ±2	53,5	63,5
100	117	94 ±0,5	26,0	65,0	M12	35,5	M20	27	11,0	13,5	17,5	30	27	13,0	23,0	G3/8	22,0	22,0	12 ±2,5	63,0	75,0

S = stroke, following ISO tolerance on ZB is ±2, bore sizes 12 and 16 mm are not in the ISO standard

Order Code Key



Standard strokes (mm)

Bore size mm	5	10	15	20	25	30	40	50	75	100
12 - 16	•	•	•	•	•	•				
20 - 25		•	•	•	•	•	•	•		
32		•	•	•	•	•	•	•	•	•
40 - 50			•	•	•	•	•	•	•	•
63 - 100			•	•	•	•	•	•	•	

Double Acting/Non Magnetic - Female Threaded Piston Rod

ISO 15524 - Ø20 to 100

Ø12 & 16 not in the ISO standard

12mm

Stroke (mm)	Order Code
5	P1QS012DC7B0005
10	P1QS012DC7B0010
15	P1QS012DC7B0015
20	P1QS012DC7B0020
25	P1QS012DC7B0025
30	P1QS012DC7B0030

16mm

5	P1QS016DC7B0005
10	P1QS016DC7B0010
15	P1QS016DC7B0015
20	P1QS016DC7B0020
25	P1QS016DC7B0025
30	P1QS016DC7B0030

20mm

10	P1QS020DC7B0010
15	P1QS020DC7B0015
20	P1QS020DC7B0020
25	P1QS020DC7B0025
30	P1QS020DC7B0030
40	P1QS020DC7B0040
50	P1QS020DC7B0050

25mm

10	P1QS025DC7B0010
15	P1QS025DC7B0015
20	P1QS025DC7B0020
25	P1QS025DC7B0025
30	P1QS025DC7B0030
40	P1QS025DC7B0040
50	P1QS025DC7B0050

32mm

Stroke (mm)	Order Code
10	P1QS032DC7B0010
15	P1QS032DC7B0015
20	P1QS032DC7B0020
25	P1QS032DC7B0025
30	P1QS032DC7B0030
40	P1QS032DC7B0040
50	P1QS032DC7B0050
75	P1QS032DC7B0075
100	P1QS032DC7B0100

40mm

15	P1QS040DC7B0015
20	P1QS040DC7B0020
25	P1QS040DC7B0025
30	P1QS040DC7B0030
40	P1QS040DC7B0040
50	P1QS040DC7B0050
75	P1QS040DC7B0075
100	P1QS040DC7B0100

50mm

15	P1QS050DC7B0015
20	P1QS050DC7B0020
25	P1QS050DC7B0025
30	P1QS050DC7B0030
40	P1QS050DC7B0040
50	P1QS050DC7B0050
75	P1QS050DC7B0075
100	P1QS050DC7B0100

63mm

Stroke (mm)	Order Code
15	P1QS063DC7B0015
20	P1QS063DC7B0020
25	P1QS063DC7B0025
30	P1QS063DC7B0030
40	P1QS063DC7B0040
50	P1QS063DC7B0050
75	P1QS063DC7B0075

80mm

15	P1QS080DC7B0015
20	P1QS080DC7B0020
25	P1QS080DC7B0025
30	P1QS080DC7B0030
40	P1QS080DC7B0040
50	P1QS080DC7B0050
75	P1QS080DC7B0075

100mm

15	P1QS100DC7B0015
20	P1QS100DC7B0020
25	P1QS100DC7B0025
30	P1QS100DC7B0030
40	P1QS100DC7B0040
50	P1QS100DC7B0050
75	P1QS100DC7B0075

Double Acting/Magnetic - Female Threaded Piston Rod

ISO 15524 - Ø20 to 100

Ø12 & 16 not in the ISO standard

12mm

Stroke (mm)	Order Code
5	P1QS012DC7G0005
10	P1QS012DC7G0010
15	P1QS012DC7G0015
20	P1QS012DC7G0020
25	P1QS012DC7G0025
30	P1QS012DC7G0030

16mm

5	P1QS016DC7G0005
10	P1QS016DC7G0010
15	P1QS016DC7G0015
20	P1QS016DC7G0020
25	P1QS016DC7G0025
30	P1QS016DC7G0030

20mm

10	P1QS020DC7G0010
15	P1QS020DC7G0015
20	P1QS020DC7G0020
25	P1QS020DC7G0025
30	P1QS020DC7G0030
40	P1QS020DC7G0040
50	P1QS020DC7G0050

25mm

10	P1QS025DC7G0010
15	P1QS025DC7G0015
20	P1QS025DC7G0020
25	P1QS025DC7G0025
30	P1QS025DC7G0030
40	P1QS025DC7G0040
50	P1QS025DC7G0050

32mm

Stroke (mm)	Order Code
10	P1QS032DC7G0010
15	P1QS032DC7G0015
20	P1QS032DC7G0020
25	P1QS032DC7G0025
30	P1QS032DC7G0030
40	P1QS032DC7G0040
50	P1QS032DC7G0050
75	P1QS032DC7G0075
100	P1QS032DC7G0100

40mm

15	P1QS040DC7G0015
20	P1QS040DC7G0020
25	P1QS040DC7G0025
30	P1QS040DC7G0030
40	P1QS040DC7G0040
50	P1QS040DC7G0050
75	P1QS040DC7G0075
100	P1QS040DC7G0100

50mm

15	P1QS050DC7G0015
20	P1QS050DC7G0020
25	P1QS050DC7G0025
30	P1QS050DC7G0030
40	P1QS050DC7G0040
50	P1QS050DC7G0050
75	P1QS050DC7G0075
100	P1QS050DC7G0100

63mm

Stroke (mm)	Order Code
15	P1QS063DC7G0015
20	P1QS063DC7G0020
25	P1QS063DC7G0025
30	P1QS063DC7G0030
40	P1QS063DC7G0040
50	P1QS063DC7G0050
75	P1QS063DC7G0075

80mm

15	P1QS080DC7G0015
20	P1QS080DC7G0020
25	P1QS080DC7G0025
30	P1QS080DC7G0030
40	P1QS080DC7G0040
50	P1QS080DC7G0050
75	P1QS080DC7G0075

100mm

15	P1QS100DC7G0015
20	P1QS100DC7G0020
25	P1QS100DC7G0025
30	P1QS100DC7G0030
40	P1QS100DC7G0040
50	P1QS100DC7G0050
75	P1QS100DC7G0075

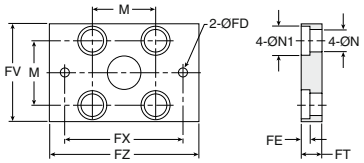
Flange

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

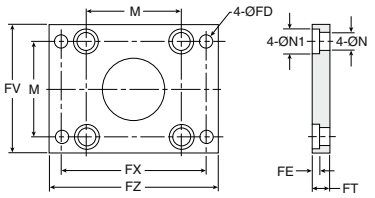
Material
Flange: surface treated steel

Supplied complete with mounting screws for attachment to cylinder.

Ø12 to Ø25



Ø32 to Ø100



Bore mm	FD mm	FT mm	FV mm	FX mm	FZ mm	M mm	N mm	N1 mm	Weight kg	Part number
12	4.5	5.5	25	45	55	15.5	4.5	7.5	0.08	**P1Q-4DMB**
16	4.5	5.5	30	45	55	20	4.5	7.5	0.10	**P1Q-4FMB**
20	6.5	8	39	48	60	25.5	6.5	10.5	0.16	**P1Q-4HMB**
25	6.5	8	42	52	64	28	6.5	10.5	0.20	**P1Q-4JMB**
32	5.5	8	48	56	65	34	6.5	10.5	0.23	**P1Q-4KMB**
40	5.5	8	54	62	72	40	6.5	10.5	0.28	**P1Q-4LMB**
50	6.5	9	67	76	89	50	8.5	13.5	0.53	**P1Q-4MMB**
63	9	9	80	92	108	60	10.5	16.5	0.71	**P1Q-4NMB**
80	11	11	99	116	134	77	12.5	18.5	1.59	**P1Q-4PMB**
100	11	11	117	136	154	94	12.5	18.5	2.19	**P1Q-4QMB**

Foot brackets MS9

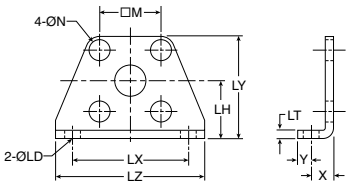
Intended for fixed mounting of cylinder. Angle bracket can be fitted to front and rear of cylinder.

Material
Angle bracket: surface treated steel

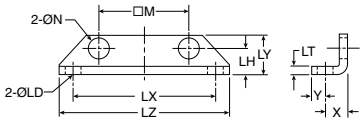
Supplied in pairs with mounting screws for attachment to cylinder.

* Weight per item

Ø12 to Ø25



Ø32 to Ø100



Bore mm	LD mm	LH mm	LT mm	LX mm	LY mm	LZ mm	X mm	Y mm	M mm	N mm	Weight kg	Part number
12	4.5	17	2	34	29.5	44	8	4.5	15.5	4.5	0.02*	**P1Q-4DMF**
16	4.5	19	2	38	33.5	48	8	5	20	4.5	0.02*	**P1Q-4FMF**
20	6.5	24	3.2	48	42	62	9.2	5.8	25.5	6.5	0.04*	**P1Q-4HMF**
25	6.5	26	3.2	52	46	66	10.7	5.8	28	6.5	0.05*	**P1Q-4JMF**
32	6.5	13	3.2	57	20	71	11.2	5.8	34	6.5	0.06*	**P1Q-4KMF**
40	6.5	13	3.2	64	20	78	11.2	7	40	6.5	0.08*	**P1Q-4LMF**
50	8.5	14	3.2	79	22	95	12.2	8	50	8.5	0.16*	**P1Q-4MMF**
63	10.5	16	3.2	95	26	113	13.7	9	60	10.5	0.25*	**P1Q-4NMF**
80	13	20.5	4.5	118	32	140	16.5	11	77	13	0.50*	**P1Q-4PMF**
100	13	24	6	137	36	162	23	11.5	94	13	0.85*	**P1Q-4QMF**

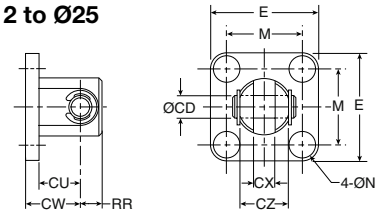
Clevis bracket

Intended for flexible mounting of cylinder. Clevis bracket can be fitted to the rear of cylinder.

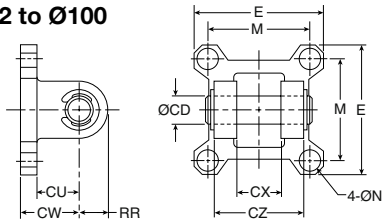
Material
Clevis bracket: surface treated steel, black

Supplied complete with mounting screws for attachment to cylinder.

Ø12 to Ø25



Ø32 to Ø100



Bore mm	CD mm	CU mm	CW mm	CX mm	CZ mm	N mm	RR mm	M mm	E mm	Weight kg	Part number
12	5	9.5	14	5.3	9.8	4.5	6	15.5	25	0.02	**P1Q-4DMT**
16	5	10.5	15	6.8	11.8	4.5	6	20	29	0.03	**P1Q-4FMT**
20	8	12.5	18	8.3	15.8	6.5	9	25.5	36	0.05	**P1Q-4HMT**
25	10	14.5	20	10.3	19.8	6.5	10	28	40	0.06	**P1Q-4JMT**
32	10	14.5	20	18.3	35.8	6.5	10	34	45.5	0.08	**P1Q-4KMT**
40	10	15	22	18.3	35.8	6.5	10	40	53.5	0.11	**P1Q-4LMT**
50	14	20	28	22.3	43.8	8.5	14	50	64.5	0.14	**P1Q-4MMT**
63	14	21	30	22.3	43.8	10.5	14	60	77.5	0.29	**P1Q-4NMT**
80	18	28	38	28.3	55.8	12.5	18	77	98.5	0.36	**P1Q-4PMT**
100	22	32	45	32.3	63.8	12.5	22	94	117.5	0.64	**P1Q-4QMT**

Global P8S Sensor Series

The P8S family of sensors provides a broad range of reed and solid state sensor types with flying lead or M8 options available. Mounting on all cylinders is within the integrated sensor grooves allowing for compact installation. For 12mm and 16mm bores the sensors can be mounted on 3 sides and on 20mm to 100mm bores on four sides for flexible mounting and ease of installation.

Electronic Sensors

The electronic sensors utilise “Solid State” technology, providing operation with no moving parts. These switches are available in NPN and PNP type, both provide built in short circuit and transient protection as standard. The solid state operation allows for high switching on off frequency, ideal for applications where long service life is required.

Technical data

Design	GMR (Giant Magnetic Resistance) magneto-resistive function
Installation	Mounts within cylinder switch Groove
Outputs	PNP or NPN, normally open
Voltage range	5-30 V DC
Voltage drop	1.5 V max
Switching Current	50 mA max
Switch Rating	1.5 W max
Leakage current	0.01 mA max
Internal consumption	10 mA max (NPN) 12 mA max (PNP)
On/off switching frequency	1000 Hz max
Encapsulation	IP67 (NEMA 6)
Temperature range	–10 °C to +70 °C
Indication	LED Red (NPN)
	LED Green (PNP)
Cable	Polyurethane

Reed Sensors

Reed type sensors are based on proven reed switch technology and provide reliable function in many applications. Simple installation and the available AC voltage range are advantages for this range of sensors.

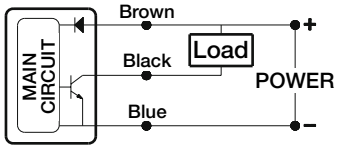
Technical data

Design	Reed element
Installation	Mounts within cylinder switch Groove
Output	Normally open
Voltage range	5-120 V DC/AC
Voltage Drop	2.5 V max
Switching Current	100 mA max
Switch Rating	10 W max
Encapsulation	IP67 (NEMA 6)
Temperature range	–10 °C to +70 °C
Indication	LED Red
Cable	Polyurethane

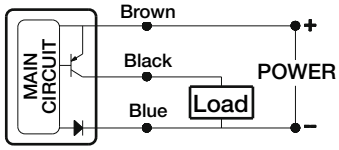
Electronic sensors

Schematic

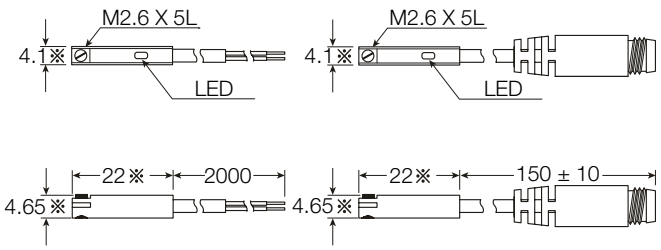
NPN type



PNP type



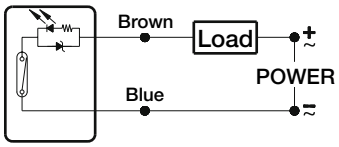
Dimensions



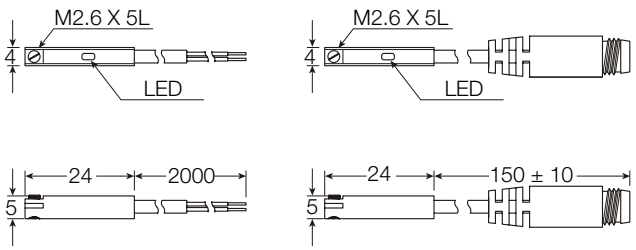
Reed sensors

Schematic

Reed type



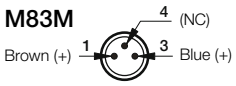
Dimensions



M8 Quick Connector

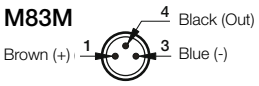
2 wire QC wiring

M83M



3 wire QC wiring

M83M



Electronic and Reed Sensors

Size	Description	Order code
Flush Mount Style		
PNP Type, normally open	0.165 m cable and M8 screw male connector	**P8S-EPSUS**
PNP Type, normally open	2 m PUR cable without connector	**P8S-EPFXS**
NPN Type, normally open	0.165 m cable and M8 screw male connector	**P8S-ENSUS**
NPN Type, normally open	2 m PUR cable without connector	**P8S-ENFXS**
Reed Type, normally open	0.15 m cable and M8 screw male connector	**P8S-ERSUS**
Reed Type, normally open	2 m PUR cable without connector	**P8S-ERFXS**

Connecting cables with one connector

The cables have an integral snap-in female connector.

Type of cable	Cable/connector	Weight kg	Order code
Cables for sensors, complete with one female connector			
Cable, Flex PVC	3 m, 8 mm Snap-in connector	0,07	**9126344341**
Cable, Flex PVC	10 m, 8 mm Snap-in connector	0,21	**9126344342**
Cable, Super Flex PVC	3 m, 8 mm Snap-in connector	0,07	**9126344343**
Cable, Super Flex PVC	10 m, 8 mm Snap-in connector	0,21	**9126344344**
Cable, Polyurethane	3 m, 8 mm Snap-in connector	0,01	**9126344345**
Cable, Polyurethane	10 m, 8 mm Snap-in connector	0,20	**9126344346**

Male connectors for connecting cables

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

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

Technical data

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

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

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

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

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

Specifying air purity in accordance with ISO8573-1:2010

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

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

ISO 8573-1:2010 Class 1.2.1

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

Class 1 - Particulate

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

Class 2 - Water

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

Class 1 - Oil

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

ISO8573-1:2010 Class zero

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

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