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Parker

# Pneumatic cylinders

***Series P1J***

***Compact cylinders***

*Catalogue PDE2561TCUK-ul*
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Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

PDE2561TCUK-ul

# Compact Cylinders - P1J

| Features | Air cylinder | Hydraulic cylinder | Electro mechanical actuators |
|---|---|---|---|
| Overload safe | *** | *** | * |
| Easy to limit force | *** | *** | * |
| Easy to vary speed | *** | *** | * |
| Speed | *** | ** | ** |
| Reliability | *** | *** | *** |
| Robustness | *** | *** | * |
| Installation cost | *** | * | ** |
| Ease of service | *** | ** | * |
| Safety in damp environments | *** | *** | * |
| Safety in explosive atmospheres | *** | *** | * |
| Safety risk with electrical installations | *** | *** | * |
| Risk of oil leak | *** | * | *** |
| Clean, hygienic | *** | ** | * |
| Standardised measurements | *** | *** | * |
| Service life | *** | *** | * |
| Hydraulic system required | *** | * | *** |
| Weight | *** | ** | ** |
| Purchase price | *** | ** | * |
| Power density | ** | *** | * |
| Noise level during operation | ** | *** | ** |
| High force for size | ** | *** | * |
| Positioning possibilities | * | *** | *** |
| Total energy consumption | * | ** | *** |
| Service interval | * | ** | *** |
| Compressor capacity required | * | *** | *** |

* = good, **=average, ***=excellent

**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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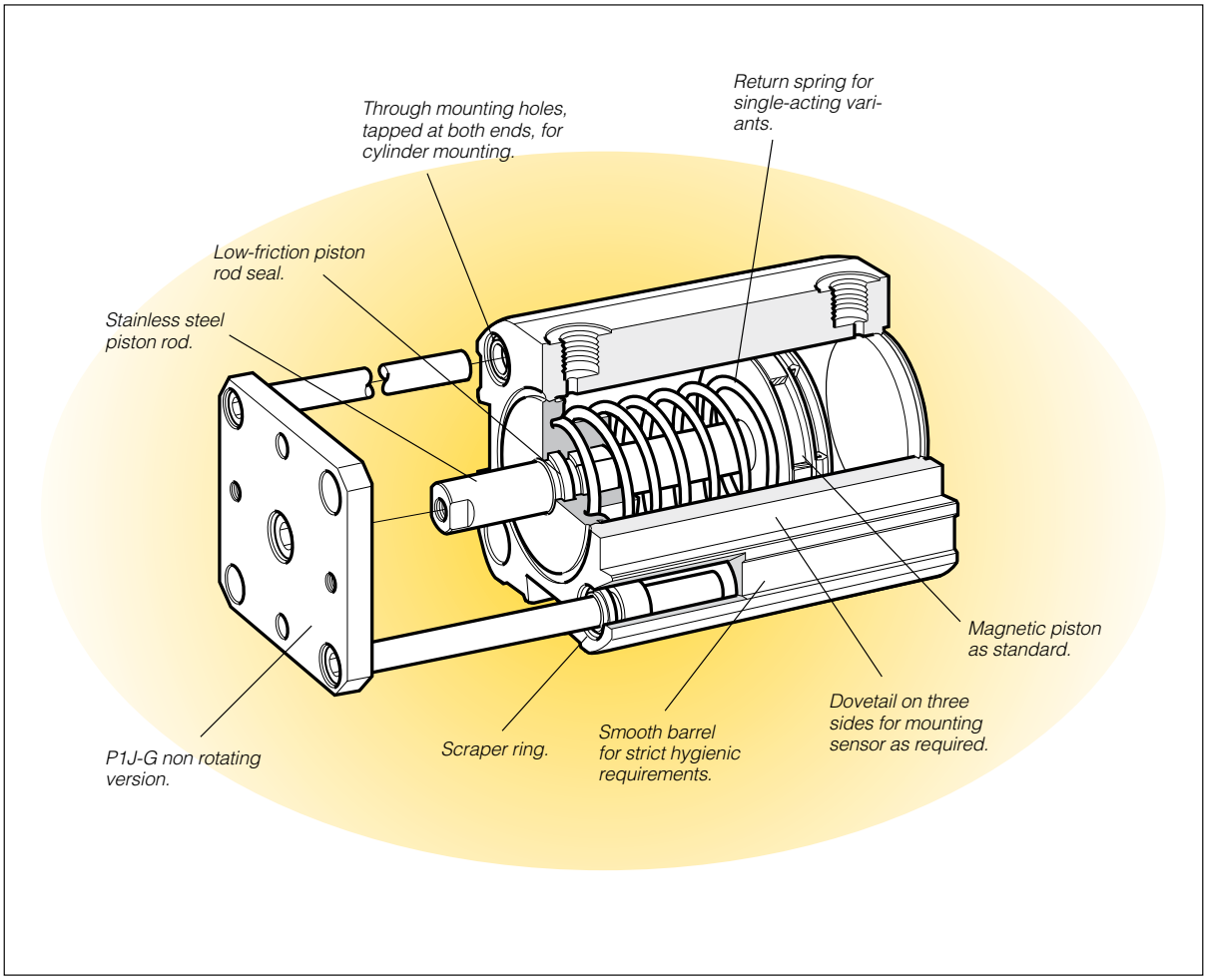
# Compact Cylinders - P1J




## Single acting and double acting versions

The P1J range of cylinders is intended for use in a wide range of applications. These cylinders are particularly suitable in applications such as packaging, the food industry and the textile industry.

Careful design and high quality throughout ensure long, trouble free service life.

The compact design, with through mounting holes that are countersunk and tapped at both ends, make the cylinders easy to mount, with or without mountings.

They are available in diameters of 12, 20, 25, 32, 40, 50 and 63 mm, with stroke lengths up to 100 mm.

The single acting version is available in the same bore size as the double acting version and with stroke lengths up to 50 mm. All cylinder types have magnetic pistons as standard, and are initially lubricated with our food-grade grease. Reed switch and solid state sensors are available as accessories, and can be fitted in the dove-tail slots on three of the sides of the cylinder body.

## External guide device

The cylinder can be supplied with an external guide unit to prevent the piston from turning. It guides the piston rod and enables the cylinder to resist turning moments on the piston rod and/or transverse forces. The device consists of a substantial mounting plate and two guides that run along the sides of the cylinder in two bearing-support guide sleeves. The plate has pre-drilled mounting holes to aid assembly.

## Options

In addition to a large selection of standard cylinders, the P1J is available in several standard variants, such as custom stroke length, extended piston rods, double piston rods etc.

Additionally, a complete range of sensor and mounting devices is available.

# Compact Cylinders - P1J

### 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.
As the end face of the cylinders is not fully anodised in the standard version, extra anodising can be specified when ordering to provide extra corrosion protection.

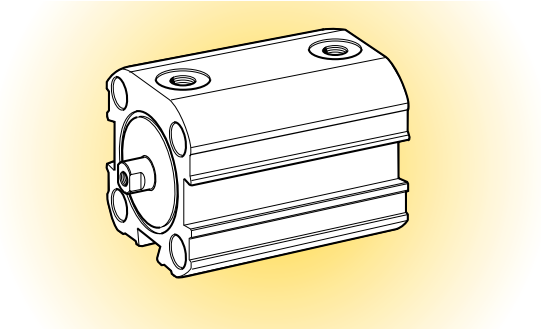
### Piston sensing
A complete range of sensors for piston sensing is available as accessories: both reed switch and solid state sensors are available. They are supplied with either a flying lead or with a cable plug connector, with a moulded cable.

### Mounting
A range of mountings with appropriate surface finish is available as accessories.

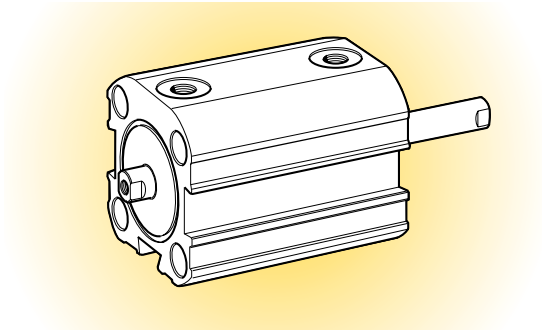
### Variants
In addition to the basic versions, P1J cylinders are available in several standard variants:

Cylinders with non-standard stroke lengths
Cylinders with extended piston rods
Cylinders with through piston rod
Cylinders with through, hollow piston rod
Single-acting cylinders
Cylinders with anodised end faces
Cylinders with piston rod guides

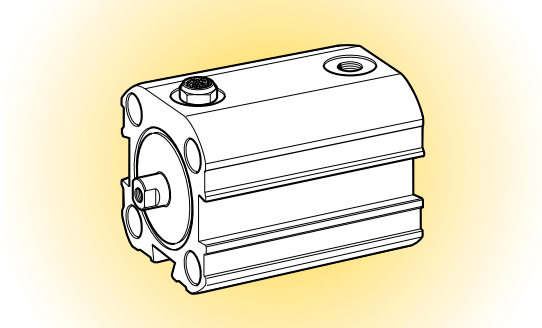
Double acting



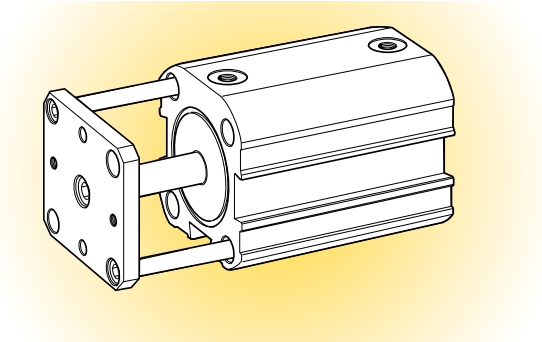
Double acting, through piston rod



Single acting, spring return



Double acting, guided piston rod



# Compact Cylinders - P1J

## 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 |
| **20/10** | + | 3,1 | 31 | 63 | 94 | 126 | 157 | **188** | 220 | 251 | 283 | 314 |
| | - | 2,3 | 23 | 46 | 69 | 92 | 115 | **138** | 161 | 184 | 207 | 231 |
| **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 |
| **32/12** | + | 8,0 | 80 | 161 | 241 | 322 | 402 | **483** | 563 | 643 | 724 | 804 |
| | - | 6,9 | 69 | 138 | 207 | 276 | 346 | **415** | 484 | 553 | 622 | 691 |
| **40/12** | + | 12,6 | 126 | 251 | 377 | 503 | 628 | **754** | 880 | 1005 | 1131 | 1257 |
| | - | 11,4 | 114 | 229 | 343 | 457 | 572 | **686** | 800 | 915 | 1029 | 1144 |
| **50/16** | + | 19,6 | 196 | 393 | 589 | 785 | 982 | **1178** | 1374 | 1571 | 1767 | 1963 |
| | - | 17,6 | 176 | 352 | 529 | 705 | 881 | **1057** | 1234 | 1410 | 1586 | 1762 |
| **63/16** | + | 31,2 | 312 | 623 | 935 | 1247 | 1559 | **1870** | 2182 | 2494 | 2806 | 3117 |
| | - | 29,2 | 292 | 583 | 875 | 1166 | 1548 | **1750** | 2041 | 2333 | 2625 | 2916 |

+ = 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 + stroke Nmax | Nmin | Spring retraction Nmax | Nmin |
|---|---|---|---|---|
| **Single acting,** | | | | |
| P1J-S012SS-0005 | 59 | 58 | 9 | 8 |
| P1J-S012SS-0010 | 60 | 58 | 9 | 7 |
| P1J-S012SS-0015 | 61 | 58 | 9 | 6 |
| P1J-S020SS-0005 | 159 | 156 | 32 | 29 |
| P1J-S020SS-0010 | 161 | 156 | 32 | 27 |
| P1J-S020SS-0015 | 164 | 156 | 32 | 24 |
| P1J-S020SS-0020 | 166 | 156 | 32 | 22 |
| P1J-S020SS-0025 | 169 | 156 | 32 | 19 |
| P1J-S020SS-0030 | 172 | 156 | 32 | 16 |
| P1J-S025SS-0005 | 265 | 262 | 32 | 29 |
| P1J-S025SS-0010 | 267 | 262 | 32 | 27 |
| P1J-S025SS-0015 | 270 | 262 | 32 | 24 |
| P1J-S025SS-0020 | 272 | 262 | 32 | 22 |
| P1J-S025SS-0025 | 275 | 262 | 32 | 19 |
| P1J-S025SS-0030 | 278 | 262 | 32 | 16 |
| P1J-S025SS-0040 | 272 | 262 | 32 | 22 |
| P1J-S025SS-0050 | 275 | 262 | 32 | 19 |
| P1J-S032SS-0005 | 439 | 436 | 46 | 43 |
| P1J-S032SS-0010 | 442 | 436 | 46 | 40 |
| P1J-S032SS-0015 | 445 | 436 | 46 | 37 |
| P1J-S032SS-0020 | 447 | 436 | 46 | 35 |
| P1J-S032SS-0025 | 450 | 436 | 46 | 32 |
| P1J-S032SS-0030 | 453 | 436 | 46 | 29 |
| P1J-S032SS-0040 | 447 | 436 | 46 | 35 |
| P1J-S032SS-0050 | 450 | 436 | 46 | 32 |

| Order code | Theoretical piston force at 6 bar + stroke Nmax | Nmin | Spring retraction Nmax | Nmin |
|---|---|---|---|---|
| **Single acting,** | | | | |
| P1J-S040SS-0005 | 704 | 701 | 53 | 50 |
| P1J-S040SS-0010 | 706 | 701 | 53 | 48 |
| P1J-S040SS-0015 | 709 | 701 | 53 | 45 |
| P1J-S040SS-0020 | 712 | 701 | 53 | 42 |
| P1J-S040SS-0025 | 715 | 701 | 53 | 39 |
| P1J-S040SS-0030 | 718 | 701 | 53 | 36 |
| P1J-S040SS-0040 | 712 | 701 | 53 | 42 |
| P1J-S040SS-0050 | 715 | 701 | 53 | 39 |
| P1J-S050SS-0005 | 1088 | 1079 | 99 | 90 |
| P1J-S050SS-0010 | 1096 | 1079 | 99 | 82 |
| P1J-S050SS-0015 | 1105 | 1079 | 99 | 73 |
| P1J-S050SS-0020 | 1114 | 1079 | 99 | 64 |
| P1J-S050SS-0025 | 1123 | 1079 | 99 | 55 |
| P1J-S050SS-0030 | 1131 | 1079 | 99 | 47 |
| P1J-S050SS-0040 | 1114 | 1079 | 99 | 64 |
| P1J-S050SS-0050 | 1123 | 1079 | 99 | 55 |
| P1J-S063SS-0005 | 1774 | 1767 | 103 | 96 |
| P1J-S063SS-0010 | 1780 | 1767 | 103 | 90 |
| P1J-S063SS-0015 | 1786 | 1767 | 103 | 84 |
| P1J-S063SS-0020 | 1793 | 1767 | 103 | 77 |
| P1J-S063SS-0025 | 1799 | 1767 | 103 | 71 |
| P1J-S063SS-0030 | 1806 | 1767 | 103 | 64 |
| P1J-S063SS-0040 | 1793 | 1767 | 103 | 77 |
| P1J-S063SS-0050 | 1799 | 1767 | 103 | 71 |

# Compact Cylinders - P1J

## Main data

| Cylinder designation | Cylinder Bore mm | Area $cm^2$ | Piston rod Diam. mm | Area $cm^2$ | Thread (female) | Basic weight at 0 mm stroke kg | addition per 10 mm stroke kg | Guided weight at 0 mm stroke kg | addition per 10 mm stroke kg | Air con-sump-tion Litre | Port thread |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Double acting** | | | | | | | | | | | |
| P1J-S 012 DS | 12 | 1,13 | 6 | 0,28 | M3 | 0,06 | 0,016 | - | - | 0,0139 [1] | M5 |
| P1J-S 020 DS | 20 | 3,14 | 10 | 0,78 | M5 | 0,13 | 0,030 | 0,17 | 0,033 | 0,0385 [1] | M5 |
| P1J-S 025 DS | 25 | 4,91 | 10 | 0,78 | M5 | 0,15 | 0,035 | 0,21 | 0,038 | 0,0633 [1] | M5 |
| P1J-S 032 DS | 32 | 8,04 | 12 | 1,13 | M6 | 0,20 | 0,044 | 0,27 | 0,050 | 0,1050 [1] | G1/8 |
| P1J-S 040 DS | 40 | 12,6 | 12 | 1,13 | M6 | 0,29 | 0,054 | 0,40 | 0,058 | 0,1680 [1] | G1/8 |
| P1J-S 050 DS | 50 | 19,6 | 16 | 2,01 | M8 | 0,50 | 0,070 | 0,65 | 0,080 | 0,2610 [1] | G1/8 |
| P1J-S 063 DS | 63 | 31,2 | 16 | 2,01 | M8 | 0,77 | 0,100 | 1,08 | 0,110 | 0,4220 [1] | G1/8 |
| **Single acting** | | | | | | | | | | | |
| P1J-S 012 SS | 12 | 1,13 | 6 | 0,28 | M3 | 0,06 | 0,016 | - | - | 0,0079 [1] | M5 |
| P1J-S 020 SS | 20 | 3,14 | 10 | 0,78 | M5 | 0,13 | 0,030 | 0,17 | 0,033 | 0,0220 [1] | M5 |
| P1J-S 025 SS | 25 | 4,91 | 10 | 0,78 | M5 | 0,16 | 0,035 | 0,22 | 0,038 | 0,0344 [1] | M5 |
| P1J-S 032 SS | 32 | 8,04 | 12 | 1,13 | M6 | 0,21 | 0,044 | 0,28 | 0,050 | 0,0563 [1] | G1/8 |
| P1J-S 040 SS | 40 | 12,6 | 12 | 1,13 | M6 | 0,30 | 0,054 | 0,41 | 0,058 | 0,0882 [1] | G1/8 |
| P1J-S 050 SS | 50 | 19,6 | 16 | 2,01 | M8 | 0,52 | 0,070 | 0,67 | 0,080 | 0,1372 [1] | G1/8 |
| P1J-S 063 SS | 63 | 31,2 | 16 | 2,01 | M8 | 0,80 | 0,100 | 1,11 | 0,110 | 0,2184 [1] | G1/8 |

1) Free air consumption per 10 mm stroke length for a double stroke at a pressure of 600 kPa (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 particle size (µm) | Pollution max. concentration ($mg/m^3$) | Water max. press. dew point (°C) | Oil max. concentration ($mg/m^3$) |
|---|---|---|---|---|
| **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 | - |

## Material specification

**Double and single-acting**

| | |
|---|---|
| Piston rod | Stainless steel, DIN X10 CrNiS 18 9 |
| Piston rod seal | Nitrile rubber, NBR |
| Piston rod bearing, Ø20-Ø63 mm | Multi-layer PTFE/bronze/steel |
| Piston bearing, Ø20-Ø63 mm | UHMWPE plastic |
| A-cover, Ø12 mm | Brass |
| End cover | Aluminium |
| Locking ring, Ø12 mm | Surface-finished steel |
| O-ring, cover, Ø12 mm | Nitrile rubber, NBR |
| Barrel | Anodised aluminium |
| Piston, Ø12 mm | Brass |
| Piston, Ø20-Ø63 mm | Aluminium |
| Piston seal | Nitrile rubber, NBR |
| Return spring, Ø12 mm | Stainless steel |
| Return spring, Ø20-Ø63 mm | Surface-treated steel |

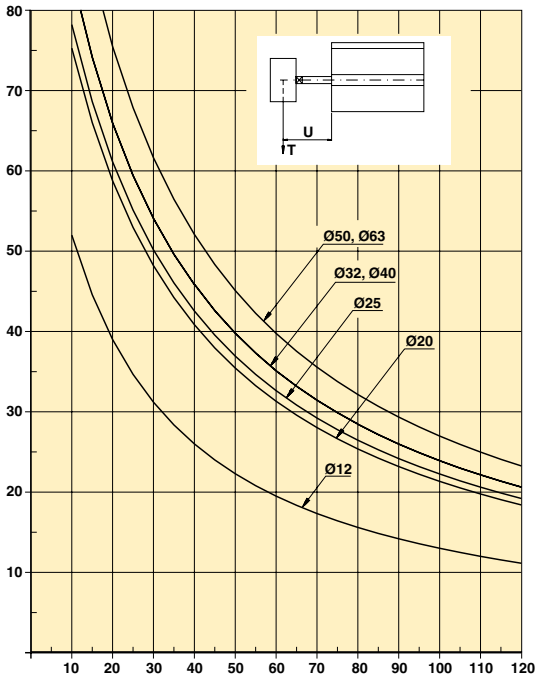
## Other data

| | |
|---|---|
| Working pressure | Max. 10 bar |
| Working temperature | Max +80 °C |
| | Min –20 °C |

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

## Side load force diagram

Permissible side loading as a function of piston rod extension.
Side load [N]




Piston rod extension [mm]

## Guide for selecting suitable tubing

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

### The following is the basic principle:

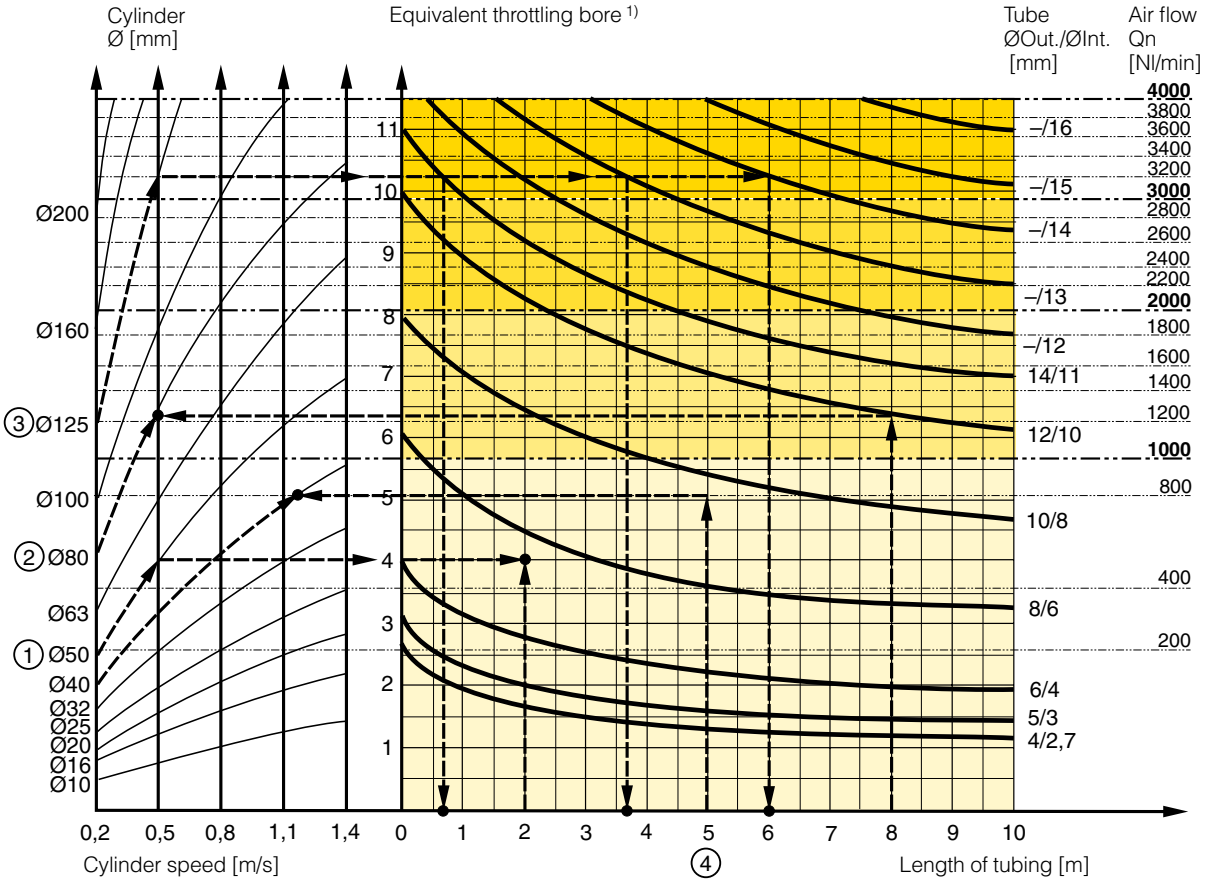
1. The primary line to the working valve could be over sized (this does not cause any extra air consumption and consequently does not create any extra costs in operation).
2. The tubes between the valve and the cylinder should, however, be optimized according to the principle that an insufficient bore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

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

### The following prerequisites apply:

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

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




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

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



**Parker Hannifin Corporation**
Pneumatic Division - Europe

Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

### Example ① : Which tube diameter should be used?

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

### Example ②: What cylinder velocity will be obtained?

A 80 mm bore cylinder will be used, connected by 8 m 12/10 tube to a P2L-B valve. What cylinder velocity will we get? We refer to the diagram and follow the line from 8 mm tube length up to the curve for 12/10 tube. From there, we go horizontally to the curve for the Ø80 cylinder. We find that the velocity will be about 0.5 m/s.

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

For a application a 125 mm bore cylinder will be used. Maximum velocity of piston rod is 0.5 m/s. The cylinder will be controlled by a P2L-D valve. What diameter of tube can be used and what is maximum lenght of tube.
We refer to the diagram. We start at the left side of the diagram cylinder Ø125. We follow the line until the intersection with the velocity line of 0.5 m/s. From here we draw a horizontal line in the diagram. This line shows us we need an equivalent throttling bore of approximately 10 mm. Following this line horizontally we cross a few intersections. These intersections shows us the minimum inner diameter (rightside diagram) in combination with the maximum length of tube (bottomside diagram).

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

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

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

### Valve series with respective flows in Nl/minute

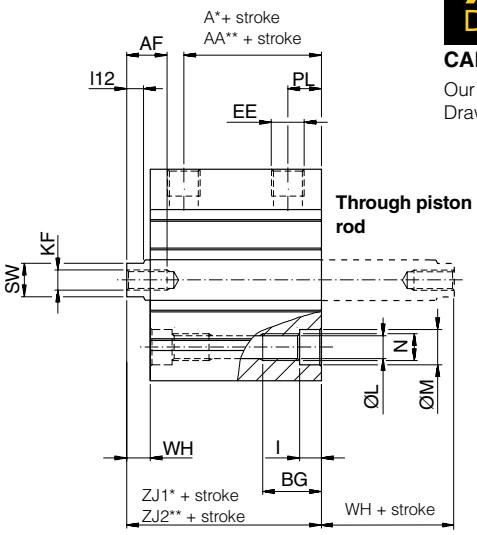
| Valve series | Qn in Nl/Min |
|---|---|
| Valvetronic Solstar | 33 |
| Interface PS1 | 100 |
| Valvetronic Interface 2000 | 100 |
| B2 Series | 168 |
| Adex A05 | 173 |
| Moduflex size 1, (2 x 3/2) | 220 |
| Valvetronic PVL-B 5/3 closed centre, 6 mm push in | 290 |
| Moduflex size 1, (4/2) | 320 |
| B43 Manual and mechanical | 340 |
| Valvetronic PVL-B 2 x 2/3, 6 mm push in | 350 |
| Valvetronic PVL-B 5/3 closed centre, G1/8 | 370 |
| Compact Isomax DX02 | 385 |
| Valvetronic PVL-B 2 x 3/2 G1/8 | 440 |
| Valvetronic PVL-B 5/2, 6 mm push in | 450 |
| Valvetronic PVL-B 5/3 vented centre, 6 mm push in | 450 |
| Moduflex size 2, (2 x 3/2) | 450 |
| Flowstar P2V-A | 520 |
| Valvetronic PVL-B 5/3 vented centre, G1/8 | 540 |
| Valvetronic PVL-B 5/2, G1/8 | 540 |
| Valvetronic PVL-C 2 x 3/2, 8 mm push in | 540 |
| Adex A12 | 560 |
| Valvetronic PVL-C 2 x 3/2 G1/8 | 570 |
| Compact Isomax DX01 | 585 |
| Valvetronic PVL-C 5/3 closed centre, 8 mm push in | 700 |
| Valvetronic PVL-C 5/3 vented centre, G1/4 | 700 |
| VIKING P2L-A | 760 |
| B3 Series | 780 |
| Valvetronic PVL-C 5/3 closed centre, G1/4 | 780 |
| Moduflex size 2, (4/2) | 800 |
| Valvetronic PVL-C 5/2, 8 mm push in | 840 |
| Valvetronic PVL-C 5/3 vented centre, 8 mm push in | 840 |
| Valvetronic PVL-C 5/2, G1/4 | 840 |
| VIKING P2L-B | 1020 |
| Flowstar P2V-B | 1090 |
| ISOMAX DX1 | 1150 |
| B53 Manual and mechanical | 1160 |
| B4 Series | 1170 |
| Airline Isolator Valve VE22/23 | 1470 |
| ISOMAX DX2 | 2330 |
| VIKING P2L-D | 2880 |
| ISOMAX DX3 | 4050 |
| Airline Isolator Valve VE42/43 | 5520 |
| Airline Isolator Valve VE82/83 | 13680 |

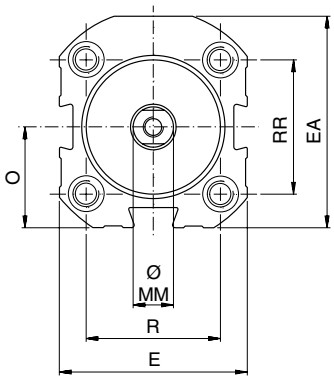


Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

# Compact Cylinders - P1J

**Double and single acting cylinders**



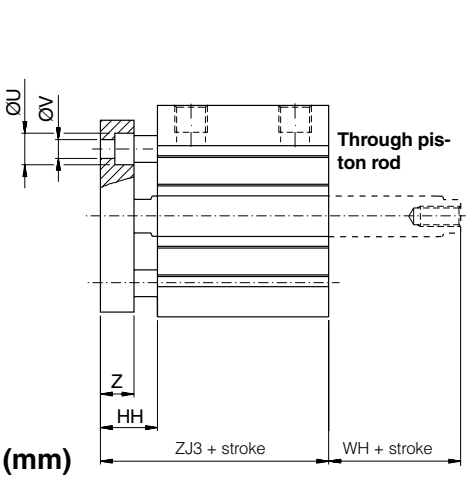



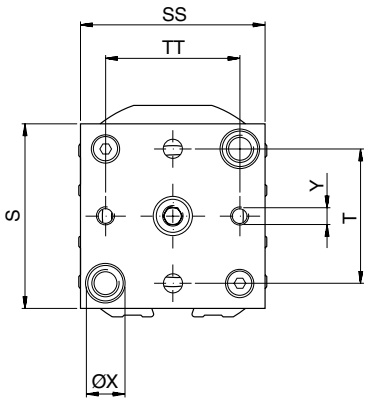

**AirCad™ Drawing Library**

**CAD drawings on the Internet**

Our home page www.parker.com/euro_pneumatic includes the AirCad Drawing. Library with 2D and 3D drawings for the main versions.

**Guided cylinder**




## Dimensions (mm)

| Cylinder bore | A* | AA** | AF | BG | E | EA | EE | HH | I | KF | L | I12 | M | MM | N | O | PL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 | 25,0 | - | 5 | 9 | 26 | 30,0 | M5 | - | 3,5 | M3 | 3,4 | 3,0 | 6,1 | 6 | M4 | 15,0 | 6,5 |
| 20 | 31,5 | - | 10 | 15 | 33 | 43,0 | M5 | 14,8 | 5,5 | M5 | 5,3 | 4,5 | 9,2 | 10 | M6 | 21,5 | 6,5 |
| 25 | 32,5 | 47,5 | 10 | 15 | 40 | 44,5 | M5 | 16,0 | 5,5 | M5 | 5,3 | 4,5 | 9,2 | 10 | M6 | 22,5 | 6,5 |
| 32 | 32,6 | 50,6 | 12 | 15 | 46 | 54,0 | G1/8 | 15,7 | 5,5 | M6 | 5,3 | 5,0 | 9,2 | 12 | M6 | 25,5 | 10,0 |
| 40 | 34,0 | 52,0 | 12 | 18 | 56 | 63,0 | G1/8 | 17,0 | 6,5 | M6 | 6,9 | 5,0 | 10,5 | 12 | M8 | 30,0 | 10,0 |
| 50 | 38,5 | 56,5 | 12 | 18 | 66 | 73,0 | G1/8 | 19,0 | 6,5 | M8 | 6,9 | 5,5 | 10,5 | 16 | M8 | 35,0 | 10,0 |
| 63 | 40,0 | 60,0 | 12 | 25 | 83 | 87,5 | G1/8 | 20,0 | 9,0 | M8 | 9,3 | 5,5 | 15,0 | 16 | M10 | 41,5 | 10,0 |

| Cylinder bore | R | RR | S | SS | SW | T | TT | U | V | WH | X | Y | Z | ZJ1* | ZJ2** | ZJ3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 | 13 | 18 | - | - | 5 | - | - | - | - | 4,0 | - | - | - | 38,0 | - | - |
| 20 | 20 | 30 | 42 | 32 | 8 | 22 | 22 | 8,0 | 4,5 | 4,8 | 9,4 | M4 | 10 | 42,8 | - | 52,8 |
| 25 | 27 | 27 | 40 | 39 | 8 | 28 | 26 | 8,0 | 4,5 | 6,0 | 9,4 | M4 | 10 | 45,0 | 60,0 | 45,5 |
| 32 | 32 | 36 | 48 | 45 | 10 | 36 | 32 | 9,4 | 5,5 | 5,7 | 9,4 | M4 | 10 | 45,5 | 63,5 | 55,5 |
| 40 | 40 | 40 | 55 | 55 | 10 | 40 | 40 | 9,4 | 5,5 | 7,0 | 11,5 | M5 | 10 | 47,0 | 65,0 | 57,0 |
| 50 | 50 | 50 | 65 | 65 | 13 | 50 | 50 | 11,5 | 6,5 | 7,0 | 11,5 | M6 | 12 | 53,0 | 71,0 | 65,0 |
| 63 | 62 | 62 | 80 | 80 | 13 | 62 | 62 | 14,5 | 9,0 | 8,0 | 14,5 | M6 | 12 | 57,0 | 77,0 | 69,0 |

* A and ZJ1 = Double acting cylinders and single acting cylinders up to stroke length 30 mm
** AA and ZJ2 = Single acting cylinders, stroke length 31 to 50 mm
Length tolerances ±1 mm
Stroke length tolerances +1.5/0 mm



**Parker Hannifin Corporation**
Pneumatic Division - Europe

Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

# Compact Cylinders - P1J

## Order key

| P | 1 | J | – | S | | 0 | 3 | 2 | | D | | S | | – | | 0 | 0 | 2 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Cylinder bore mm**

| |
|---|
| 012 |
| 020 |
| 025 |
| 032 |
| 040 |
| 050 |
| 063 |

**Cylindertype/Function**

| | | |
|---|---|---|
| D | | Double-acting, Ø12 - Ø63 |
| K | | Double-acting, through piston rod, Ø20 - Ø63 |
| P | | Double-acting, through piston rod hollow, Ø20 - Ø63, Not cylinder version **G** |
| S | | Single-acting, spring return for retract stroke, Ø12 - Ø63 |

**Stroke length mm**

E.g. **0025** = 25 mm

For standard stroke length and max length see tabel below.

**Sealing material**

| | |
|---|---|
| S | Standard seals, -20 °C to +80 °C<br>Stainless steel piston rod<br>Magnetic piston |

**Cylinder version**

| | | |
|---|---|---|
| S | | Standard cylinder |
| K | | Cylinder with end cover in anodised aluminium. |
| G | | Cylinder with mounted guide unit, Ø20 - Ø63. |

## Standard stroke length

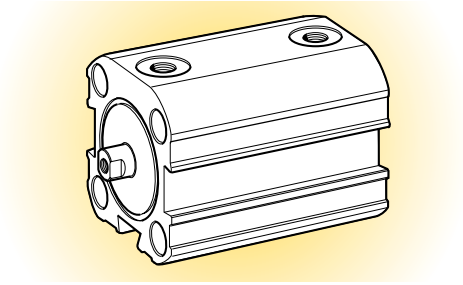
| Cylinder designation | Cylinder bore | ● Standard stroke length in mm<br>5 | 10 | 15 | 20 | 25* | 30 | 40 | 50* | 80* | 100* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Double acting:** | | | | | | | | | | | |
| P1J-S012D | 12 | ● | ● | ● | ● | ● | | | | | |
| P1J-S020D | 20 | ● | ● | ● | ● | ● | ● | ● | ● | | |
| P1J-S025D | 25 | ● | ● | ● | ● | ● | ● | ● | ● | | |
| P1J-S032D | 32 | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| P1J-S040D | 40 | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| P1J-S050D | 50 | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| P1J-S063D | 63 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **Double acting with guide unit:** | | | | | | | | | | | |
| P1J-G020D | 20 | ● | ● | ● | ● | ● | ● | ● | ● | | |
| P1J-G025D | 25 | ● | ● | ● | ● | ● | ● | ● | ● | | |
| P1J-G032D | 32 | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| P1J-G040D | 40 | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| P1J-G050D | 50 | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| P1J-G063D | 63 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| **Single acting:** | | | | | | | | | | | |
| P1J-S012S | 12 | ● | ● | ● | | | | | | | |
| P1J-S020S | 20 | ● | ● | ● | ● | ● | ● | | | | |
| P1J-S025S | 25 | ● | ● | ● | ● | ● | ● | ● | ● | | |
| P1J-S032S | 32 | ● | ● | ● | ● | ● | ● | ● | ● | | |
| P1J-S040S | 40 | ● | ● | ● | ● | ● | ● | ● | ● | | |
| P1J-S050S | 50 | ● | ● | ● | ● | ● | ● | ● | ● | | |
| P1J-S063S | 63 | ● | ● | ● | ● | ● | ● | ● | ● | | |

* Standard stroke length in mm according to ISO 4393

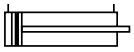
# Compact Cylinders - P1J

## Data

| | |
|---|---|
| Working pressure | Max. 10 bar |
| Working temperature | Max. +80 °C |
| | Min. –20 °C |

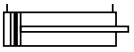


## Double acting



| Cyl. bore mm | Stroke mm | Order code |
|---|---|---|
| **12** M5 thread | 05 | **P1J-S012DS-0005** |
| | 10 | **P1J-S012DS-0010** |
| | 15 | **P1J-S012DS-0015** |
| | 20 | **P1J-S012DS-0020** |
| | 25 | **P1J-S012DS-0025** |
| **20** M5 thread | 05 | **P1J-S020DS-0005** |
| | 10 | **P1J-S020DS-0010** |
| | 15 | **P1J-S020DS-0015** |
| | 20 | **P1J-S020DS-0020** |
| | 25 | **P1J-S020DS-0025** |
| | 30 | **P1J-S020DS-0030** |
| | 40 | **P1J-S020DS-0040** |
| | 50 | **P1J-S020DS-0050** |
| **25** M5 thread | 05 | **P1J-S025DS-0005** |
| | 10 | **P1J-S025DS-0010** |
| | 15 | **P1J-S025DS-0015** |
| | 20 | **P1J-S025DS-0020** |
| | 25 | **P1J-S025DS-0025** |
| | 30 | **P1J-S025DS-0030** |
| | 40 | **P1J-S025DS-0040** |
| | 50 | **P1J-S025DS-0050** |
| **32** G1/8 thread | 05 | **P1J-S032DS-0005** |
| | 10 | **P1J-S032DS-0010** |
| | 15 | **P1J-S032DS-0015** |
| | 20 | **P1J-S032DS-0020** |
| | 25 | **P1J-S032DS-0025** |
| | 30 | **P1J-S032DS-0030** |
| | 40 | **P1J-S032DS-0040** |
| | 50 | **P1J-S032DS-0050** |
| | 80 | **P1J-S032DS-0080** |

## Double acting

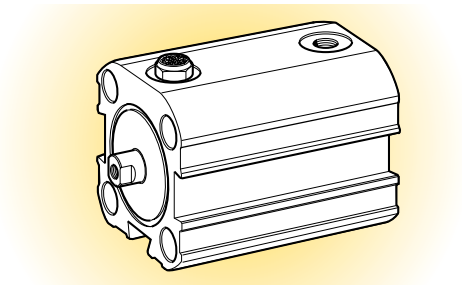


| Cyl. bore mm | Stroke mm | Order code |
|---|---|---|
| **40** G1/8 thread | 05 | **P1J-S040DS-0005** |
| | 10 | **P1J-S040DS-0010** |
| | 15 | **P1J-S040DS-0015** |
| | 20 | **P1J-S040DS-0020** |
| | 25 | **P1J-S040DS-0025** |
| | 30 | **P1J-S040DS-0030** |
| | 40 | **P1J-S040DS-0040** |
| | 50 | **P1J-S040DS-0050** |
| | 80 | **P1J-S040DS-0080** |
| **50** G1/8 thread | 05 | **P1J-S050DS-0005** |
| | 10 | **P1J-S050DS-0010** |
| | 15 | **P1J-S050DS-0015** |
| | 20 | **P1J-S050DS-0020** |
| | 25 | **P1J-S050DS-0025** |
| | 30 | **P1J-S050DS-0030** |
| | 40 | **P1J-S050DS-0040** |
| | 50 | **P1J-S050DS-0050** |
| | 80 | **P1J-S050DS-0080** |
| **63** G1/8 thread | 05 | **P1J-S063DS-0005** |
| | 10 | **P1J-S063DS-0010** |
| | 15 | **P1J-S063DS-0015** |
| | 20 | **P1J-S063DS-0020** |
| | 25 | **P1J-S063DS-0025** |
| | 30 | **P1J-S063DS-0030** |
| | 40 | **P1J-S063DS-0040** |
| | 50 | **P1J-S063DS-0050** |
| | 80 | **P1J-S063DS-0080** |
| | 100 | **P1J-S063DS-0100** |

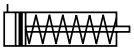
# Compact Cylinders - P1J

## Data

| | |
|---|---|
| Working pressure | Max. 10 bar |
| Working temperature | Max. +80 °C |
| | Min. –20 °C |

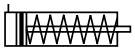


## Single acting



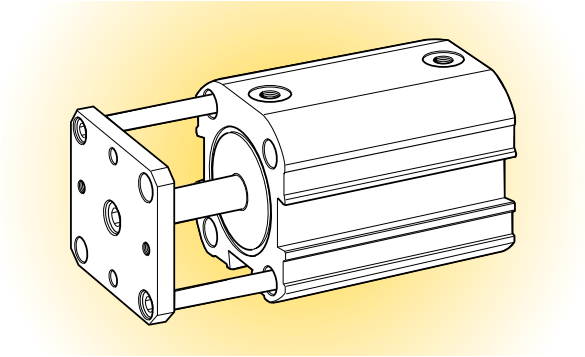
| Cyl. bore mm | Stroke mm | Order code |
|---|---|---|
| **12** M5 thread | 05 | **P1J-S012SS-0005** |
| | 10 | **P1J-S012SS-0010** |
| | 15 | **P1J-S012SS-0015** |
| **20** M5 thread | 05 | **P1J-S020SS-0005** |
| | 10 | **P1J-S020SS-0010** |
| | 15 | **P1J-S020SS-0015** |
| | 20 | **P1J-S020SS-0020** |
| | 25 | **P1J-S020SS-0025** |
| | 30 | **P1J-S020SS-0030** |
| **25** M5 thread | 05 | **P1J-S025SS-0005** |
| | 10 | **P1J-S025SS-0010** |
| | 15 | **P1J-S025SS-0015** |
| | 20 | **P1J-S025SS-0020** |
| | 25 | **P1J-S025SS-0025** |
| | 30 | **P1J-S025SS-0030** |
| | 40 | **P1J-S025SS-0040** |
| | 50 | **P1J-S025SS-0050** |
| **32** G1/8 thread | 05 | **P1J-S032SS-0005** |
| | 10 | **P1J-S032SS-0010** |
| | 15 | **P1J-S032SS-0015** |
| | 20 | **P1J-S032SS-0020** |
| | 25 | **P1J-S032SS-0025** |
| | 30 | **P1J-S032SS-0030** |
| | 40 | **P1J-S032SS-0040** |
| | 50 | **P1J-S032SS-0050** |

## Single acting



| Cyl. bore mm | Stroke mm | Order code |
|---|---|---|
| **40** G1/8 thread | 05 | **P1J-S040SS-0005** |
| | 10 | **P1J-S040SS-0010** |
| | 15 | **P1J-S040SS-0015** |
| | 20 | **P1J-S040SS-0020** |
| | 25 | **P1J-S040SS-0025** |
| | 30 | **P1J-S040SS-0030** |
| | 40 | **P1J-S040SS-0040** |
| | 50 | **P1J-S040SS-0050** |
| **50** G1/8 thread | 05 | **P1J-S050SS-0005** |
| | 10 | **P1J-S050SS-0010** |
| | 15 | **P1J-S050SS-0015** |
| | 20 | **P1J-S050SS-0020** |
| | 25 | **P1J-S050SS-0025** |
| | 30 | **P1J-S050SS-0030** |
| | 40 | **P1J-S050SS-0040** |
| | 50 | **P1J-S050SS-0050** |
| **63** G1/8 thread | 05 | **P1J-S063SS-0005** |
| | 10 | **P1J-S063SS-0010** |
| | 15 | **P1J-S063SS-0015** |
| | 20 | **P1J-S063SS-0020** |
| | 25 | **P1J-S063SS-0025** |
| | 30 | **P1J-S063SS-0030** |
| | 40 | **P1J-S063SS-0040** |
| | 50 | **P1J-S063SS-0050** |

# Compact Cylinders - P1J



## Technical data

| | |
|---|---|
| Working medium | Dry, filtered compressed air |
| Working pressure | Max. 10 bar |
| Working temperature | –20 °C to +80 °C |

## Materials, external guide device

| | |
|---|---|
| Mounting plate | Anodised aluminium |
| Guides | Stainless steel, DIN X 10 CrNiS 18 9 |
| Sleeves | Multi-layer, PTFE/bronze/steel |
| Securing bolts | Surface-finished steel |

Other data as for the basic cylinder.

## Guide unit

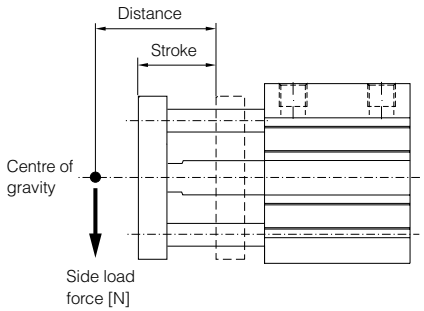
The P1J cylinders can be fitted with an external guide unit to prevent the piston rod from turning. It guides the piston rod and enables the cylinder to resist turning torques on the piston rod and/or transverse forces.

The device consists of a substantial mounting plate and twin guide rods that run in two support bearings. The mounting plate, which has pre-drilled mounting holes, is connected to the piston rod.

The device is available for 20, 25, 32, 40, 50 and 63 mm diameter cylinders, with stroke lengths from 5 to 100 mm. Order codes on Pages 6 and 10.

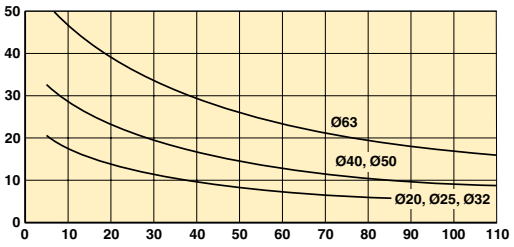
## Permissible side loading

Permissible side loading as a function of the load distance as shown below.




## Side load diagram

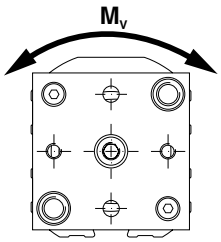
Side load force [N]




Distance [mm]

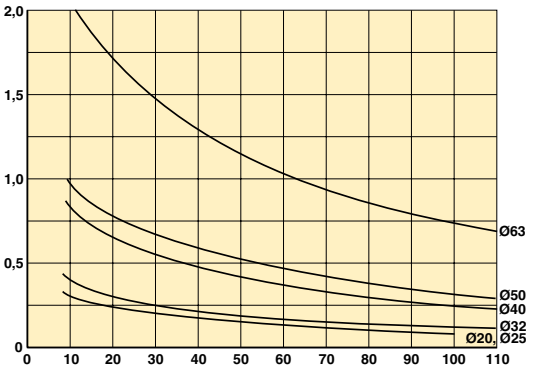
## Permissible Torque

Permissible torque as shown below as a function of the load distance as shown in the load figure above.




## Torque diagram

Torque [Nm]

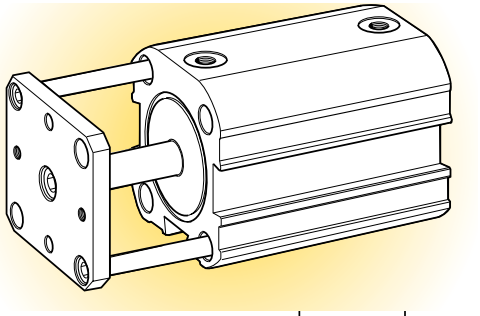



Distance [mm]

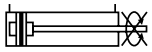
# Compact Cylinders - P1J

## Data

| | |
|---|---|
| Working pressure | Max. 10 bar |
| Working temperature | Max. +80 °C |
| | Min. –20 °C |

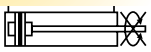


## Double acting, guided



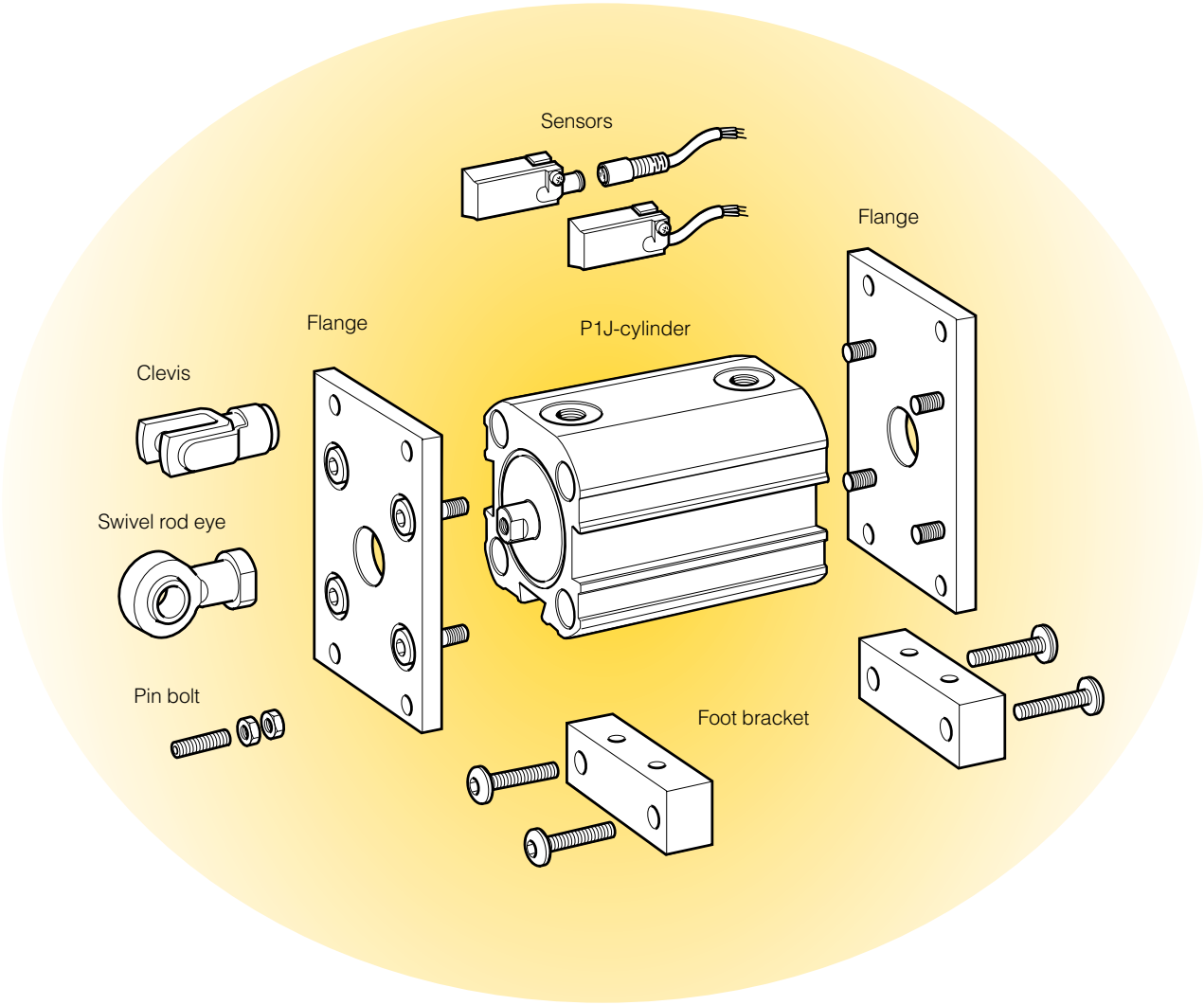
| Cyl. bore mm | Stroke mm | Order code |
|---|---|---|
| **20** M5 thread | 05 | **P1J-G020DS-0005** |
| | 10 | **P1J-G020DS-0010** |
| | 15 | **P1J-G020DS-0015** |
| | 20 | **P1J-G020DS-0020** |
| | 25 | **P1J-G020DS-0025** |
| | 30 | **P1J-G020DS-0030** |
| | 40 | **P1J-G020DS-0040** |
| | 50 | **P1J-G020DS-0050** |
| **25** M5 thread | 05 | **P1J-G025DS-0005** |
| | 10 | **P1J-G025DS-0010** |
| | 15 | **P1J-G025DS-0015** |
| | 20 | **P1J-G025DS-0020** |
| | 25 | **P1J-G025DS-0025** |
| | 30 | **P1J-G025DS-0030** |
| | 40 | **P1J-G025DS-0040** |
| M5 thread | 50 | **P1J-G025DS-0050** |
| **32** G1/8 thread | 05 | **P1J-G032DS-0005** |
| | 10 | **P1J-G032DS-0010** |
| | 15 | **P1J-G032DS-0015** |
| | 20 | **P1J-G032DS-0020** |
| | 25 | **P1J-G032DS-0025** |
| | 30 | **P1J-G032DS-0030** |
| | 40 | **P1J-G032DS-0040** |
| | 50 | **P1J-G032DS-0050** |
| | 80 | **P1J-G032DS-0080** |

## Double acting, guided



| Cyl. bore mm | Stroke mm | Order code |
|---|---|---|
| **40** G1/8 thread | 05 | **P1J-G040DS-0005** |
| | 10 | **P1J-G040DS-0010** |
| | 15 | **P1J-G040DS-0015** |
| | 20 | **P1J-G040DS-0020** |
| | 25 | **P1J-G040DS-0025** |
| | 30 | **P1J-G040DS-0030** |
| | 40 | **P1J-G040DS-0040** |
| | 50 | **P1J-G040DS-0050** |
| | 80 | **P1J-G040DS-0080** |
| **50** G1/8 thread | 05 | **P1J-G050DS-0005** |
| | 10 | **P1J-G050DS-0010** |
| | 15 | **P1J-G050DS-0015** |
| | 20 | **P1J-G050DS-0020** |
| | 25 | **P1J-G050DS-0025** |
| | 30 | **P1J-G050DS-0030** |
| | 40 | **P1J-G050DS-0040** |
| | 50 | **P1J-G050DS-0050** |
| | 80 | **P1J-G050DS-0080** |
| **63** G1/8 thread | 05 | **P1J-G063DS-0005** |
| | 10 | **P1J-G063DS-0010** |
| | 15 | **P1J-G063DS-0015** |
| | 20 | **P1J-G063DS-0020** |
| | 25 | **P1J-G063DS-0025** |
| | 30 | **P1J-G063DS-0030** |
| | 40 | **P1J-G063DS-0040** |
| | 50 | **P1J-G063DS-0050** |
| | 80 | **P1J-G063DS-0080** |
| | 100 | **P1J-G063DS-0100** |

## Combinations



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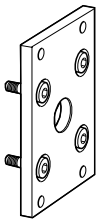
# Compact Cylinders - P1J

**Flange, MF1**

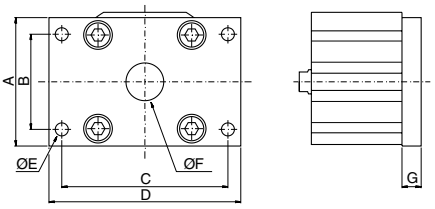


Intended for fixed mounting of cylinder. This bracket can be fitted to front or rear end covers.

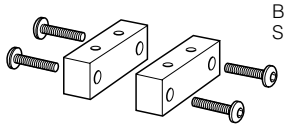
Material:
Bracket: Anodised aluminium
Screws: Zinc plated steel

| | | |
|---|---|---|
| 12 | 0,012 | **P1J-4DMB** |
| 20 | 0,031 | **P1J-4HMB** |
| 25 | 0,036 | **P1J-4JMB** |
| 32 | 0,052 | **P1J-4KMB** |
| 40 | 0,124 | **P1J-4LMB** |
| 50 | 0,151 | **P1J-4MMB** |
| 63 | 0,306 | **P1J-4NMB** |

| Cyl. Ø mm | A mm | B mm | C mm | D mm | E mm | F mm | G mm |
|---|---|---|---|---|---|---|---|
| 12 | 25,4 | 18 | 38 | 46,0 | 3,6 | 10 | 4,8 |
| 20 | 38,0 | 24 | 50 | 58,0 | 3,6 | 15 | 6,0 |
| 25 | 40,0 | 28 | 54 | 63,5 | 4,6 | 15 | 6,0 |
| 32 | 48,0 | 36 | 66 | 76,0 | 4,6 | 15 | 6,0 |
| 40 | 63,5 | 42 | 78 | 92,0 | 6,6 | 20 | 9,5 |
| 50 | 70,0 | 50 | 90 | 102,0 | 6,6 | 25 | 9,5 |
| 63 | 85,0 | 63 | 110 | 127,0 | 8,6 | 25 | 12,7 |




**Foot bracket**

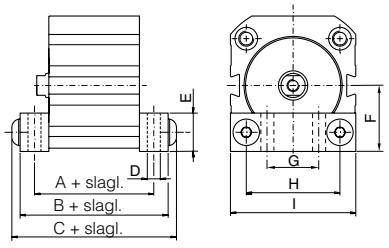


Intended for fixed mounting of cylinder. This bracket can be fitted to front or rear end covers.

Material:
Bracket: Anodised aluminium
Screws: Zinc plated steel

| | | |
|---|---|---|
| 12 | 0,015 | **P1J-4DMF** |
| 20 | 0,016 | **P1J-4HMF** |
| 25 | 0,034 | **P1J-4JMF** |
| 32 | 0,030 | **P1J-4KMF** |
| 40 | 0,060 | **P1J-4LMF** |
| 50 | 0,072 | **P1J-4MMF** |
| 63 | 0,178 | **P1J-4NMF** |

| Cyl. Ø mm | A1* mm | A2** mm | B1* mm | B2** mm | C1* mm | C2** mm | D mm | E mm | F mm | G mm | H mm | I mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 | 42,0 | - | 50,0 | - | 54,4 | - | 3,5 | 12,7 | 17,0 | 25 | 13 | 33 |
| 20 | 44,5 | - | 51,0 | - | 57,5 | - | 3,5 | 12,7 | 22,0 | 35 | 20 | 43 |
| 25 | 48,5 | 63,5 | 58,0 | 73,0 | 64,5 | 79,5 | 4,5 | 16,0 | 23,0 | 41 | 27 | 51 |
| 32 | 49,3 | 67,3 | 58,7 | 76,7 | 65,3 | 83,3 | 4,5 | 16,0 | 27,0 | 19 | 32 | 46 |
| 40 | 53,7 | 71,7 | 66,5 | 84,5 | 75,2 | 93,2 | 6,5 | 19,0 | 31,5 | 21 | 40 | 56 |
| 50 | 58,7 | 76,7 | 71,5 | 89,5 | 80,3 | 98,3 | 6,5 | 19,0 | 37,0 | 27 | 50 | 66 |
| 63 | 69,0 | 89,0 | 88,0 | 108,0 | 99,0 | 119,0 | 8,5 | 25,4 | 43,0 | 34 | 62 | 83 |



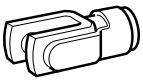

* Double acting cylinders and single acting cylinders up to stroke length 30 mm
** Single acting cylinders, stroke length 31 to 50 mm



Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

# Compact Cylinders - P1J

**Clevis**

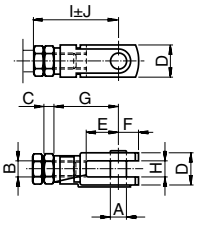


According to ISO 8140
Intended for articulated mounting of the cylinder. This mounting is adjustable in the axial direction, and is supplied complete with shaft. Intended for use with the pin bolt.

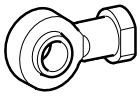
Material:
Zinc plated steel

| Cyl. Ø mm | A mm | B | C mm | D mm | E mm | F mm | G mm | H mm | I mm | J mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 5 | M5 | 2,5 | 10 | 10 | 6 | 20 | 5 | 25 | 2,0 |
| 25 | 5 | M5 | 2,5 | 10 | 10 | 6 | 20 | 5 | 25 | 2,0 |
| 32 | 6 | M6 | 3,0 | 12 | 12 | 7 | 24 | 6 | 30 | 3,0 |
| 40 | 6 | M6 | 3,0 | 12 | 12 | 7 | 24 | 6 | 30 | 3,0 |
| 50 | 8 | M8 | 5,0 | 16 | 16 | 10 | 32 | 8 | 42 | 3,5 |
| 63 | 8 | M8 | 5,0 | 16 | 16 | 10 | 32 | 8 | 42 | 3,5 |

| | | |
|---|---|---|
| 20 | 0,011 | **P1J-4HRC** |
| 25 | 0,011 | **P1J-4HRC** |
| 32 | 0,022 | **P1A-4DRC** |
| 40 | 0,022 | **P1A-4DRC** |
| 50 | 0,045 | **P1A-4HRC** |
| 63 | 0,045 | **P1A-4HRC** |




**Swivel rod eye**

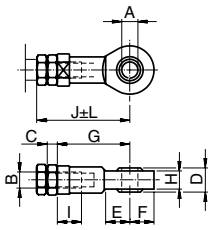


According to ISO 8139
Intended for articulated mounting of the cylinder. This mounting is adjustable in the axial direction.

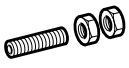
Material:
Swivel rod eye: Zinc plated steel
Swivel: tempered steel

| Cyl. Ø mm | A mm | B | C mm | D mm | E mm | F mm | G mm | H mm | I mm | J mm | L mm |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 | 3 | M3 | 1,6 | 6 | 10 | 7 | 21 | 4,5 | 4,5 | 24,2 | 1,0 |
| 20 | 5 | M5 | 2,5 | 8 | 10 | 9 | 27 | 6,0 | 7,5 | 34,5 | 1,0 |
| 25 | 5 | M5 | 2,5 | 8 | 10 | 9 | 27 | 6,0 | 7,5 | 34,5 | 1,0 |
| 32 | 6 | M6 | 3,0 | 9 | 10 | 10 | 30 | 6,8 | 9,0 | 38,5 | 1,5 |
| 40 | 6 | M6 | 3,0 | 9 | 10 | 10 | 30 | 6,8 | 9,0 | 38,5 | 1,5 |
| 50 | 8 | M8 | 5,0 | 12 | 12 | 12 | 36 | 9,0 | 12,0 | 49,0 | 2,0 |
| 63 | 8 | M8 | 5,0 | 12 | 12 | 12 | 36 | 9,0 | 12,0 | 49,0 | 2,0 |

| | | |
|---|---|---|
| 12 | 0,008 | **P1J-4DRS** |
| 20 | 0,019 | **P1J-4HRS** |
| 25 | 0,019 | **P1J-4HRS** |
| 32 | 0,025 | **P1A-4DRS** |
| 40 | 0,025 | **P1A-4DRS** |
| 50 | 0,045 | **P1A-4HRS** |
| 63 | 0,045 | **P1A-4HRS** |




**Pin bolt**

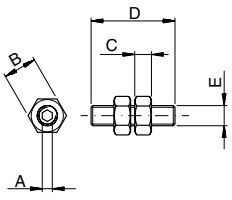


Intended for securing to the piston rod. The bolt can be combined with the swivel mount or clevis mount.

Material:
Zinc plated steel

| Cyl. Ø mm | A mm | B mm | C mm | D mm | E |
|---|---|---|---|---|---|
| 12 | 1,5 | 5,5 | 1,6 | 10 | M3 |
| 20 | 2,5 | 8,0 | 2,5 | 20 | M5 |
| 25 | 2,5 | 8,0 | 2,5 | 20 | M5 |
| 32 | 3,0 | 10,0 | 3,0 | 25 | M6 |
| 40 | 3,0 | 10,0 | 3,0 | 25 | M6 |
| 50 | 4,0 | 13,0 | 5,0 | 25 | M8 |
| 63 | 4,0 | 13,0 | 5,0 | 25 | M8 |

| | | |
|---|---|---|
| 12 | 0,002 | **P1J-6DS0** |
| 20 | 0,005 | **P1J-6HS0** |
| 25 | 0,005 | **P1J-6HS0** |
| 32 | 0,008 | **P1J-6KS0** |
| 40 | 0,008 | **P1J-6KS0** |
| 50 | 0,014 | **P1J-6MS0** |
| 63 | 0,014 | **P1J-6MS0** |



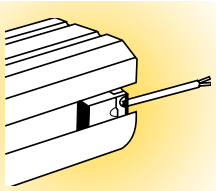



**Parker Hannifin Corporation**
Pneumatic Division - Europe

Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

# Compact Cylinders - P1J

**P8S-DRFLX**
**P8S-DPFLX**



## Reed switch sensors

These sensors are based on a thoroughly proven reed switch, suitable for use at a wide range of voltages. This, together with the compact size and simple dovetail mounting, makes these sensors suitable for a wide range of applications. They can interface with electronic control systems, relay systems or conventional valves.

## Technical data

| Specification | P8S-DRFLX, 3 m<br>P8S-DRSHX |
|---|---|
| Type | Reed switch |
| Output | Normally open |
| Voltage range, P8S-DRFLX | 0-110 VAC/VDC |
| Voltage range, P8S-DRSHX | 0-60 VAC/VDC |
| Maximum voltage drop | 2,8 V |
| Maximum load current | 380 mA |
| Maximum interrupting capacity (resistive) | 10 W |
| Minimum activation distance | 11 mm |
| Repetition accuracy | ±0,1 mm |
| Maximum operating frequency | 500 Hz |
| Maximum response time | 1 ms |
| Protection class | IP 67 |
| Operating temperature range | –10 °C to +70 °C |
| Indication | LED, red |
| Material, sensor casing | Polyamide |
| Cable | PVC 2x0,2 mm² |
| Cable including female connector | PVC 3x0,2 mm² |
| Weight, sensor with 3 m cable | 55 g |
| Weight, sensor with male connector | 8 g |
| Weight, cable with connector, 3 m | 90 g |
| Weight, cable with connector, 5 m | 146 g |
| Weight, cable with connector, 10 m | 286 g |
| Fitting | Dovetail |

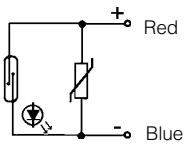
## Ordering data

| Output | Cable length | Order code |
|---|---|---|
| **Reed switch sensors** | | |
| Normally open | 3 m* | **P8S-DRFLX** |
| Normally open | ** | **P8S-DRSHX** |

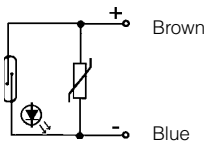
* Moulded cable
** Cable must be ordered separately.

## Symbols

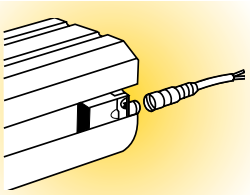
P8S-DRFLX




P8S-DRSHX




**P8S-DRSHX**
**P8S-DPSHX**



## Electronic sensors

The electronic sensors are solid state sensors with no moving parts, and include squelch and transient protection circuitry as standard. The integral electronics make these sensors suitable for use in applications with very high switching frequencies.

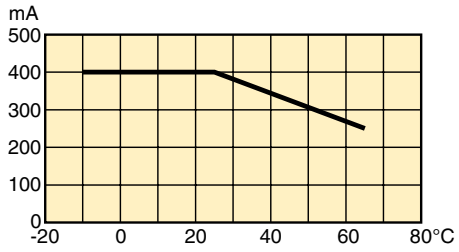
## Technical data

| Specification | P8S-DPFLX, 3 m<br>P8S-DPSHX |
|---|---|
| Type | Hall element |
| Output | PNP, N.O. |
| Voltage range | 10-28 VDC |
| Maximum voltage drop | 1 V |
| Maximum load current | See diagram below |
| Maximum interrupting capacity (resistive) | 12 W |
| Minimum activation distance | 12 mm |
| Repetition accuracy | ±0,1 mm |
| Maximum operating frequency | 1 kHz |
| Maximum response time | 0,01 ms |
| Protection class | IP 67 |
| Operating temperature range | –10 °C to +70 °C |
| Indication | LED, red |
| Material, sensor casing | Polyamide |
| Cable | PVC 2x0,2 mm² |
| Cable including female connector | PVC 3x0,2 mm² |
| Weight, sensor with 3 m cable | 55 g |
| Weight, sensor with male connector | 8 g |
| Weight, cable with connector, 3 m | 90 g |
| Weight, cable with connector, 5 m | 146 g |
| Weight, cable with connector, 10 m | 286 g |
| Fitting | Dovetail |

## Ordering data

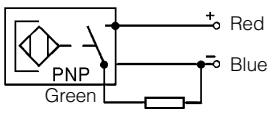
| Output | Cable length | Order code |
|---|---|---|
| **Electronic sensors** | | |
| PNP, NO | 3 m* | **P8S-DPFLX** |
| PNP, NO | ** | **P8S-DPSHX** |

**Maximum load current**

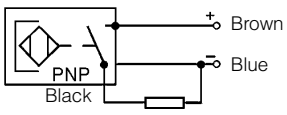



## Symbols

P8S-DPFLX




P8S-DPSHX



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Pneumatic Division - Europe

## 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** |
| Cable, Polyurethane | 5 m, M12 screw connector | 0,07 | **9126344348** |
| Cable, Polyurethane | 10 m, M12 screw connector | 0,20 | **9126344349** |

## Male connectors for connecting cables

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

| Connector | Weight kg | Order code |
|---|---|---|
| M8 screw connector | 0,017 | **P8SCS0803J** |
| M12 screw connector | 0,022 | **P8SCS1204J** |

## Ready to use connecting cables with connectors at each end

As accessories the system comprises a large number of different cables in order to meet all requirements that may arise and to make the installation simple, fast and reliable.

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

### Technical data

#### Contacts

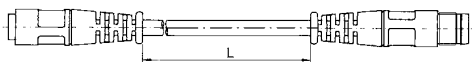
Moulded 8 mm snap-in male/female contacts.

| | |
|---|---|
| Enclosure | IP67 |

#### Cable

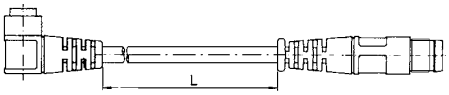
| | |
|---|---|
| Conductor | 3x0,25 mm² (32x0,10 mm²) |
| Sheath | PVC/PUR |
| Colour | Black |

Cables with straight 3-pole male and female connectors respectively.




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

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




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



**Parker Hannifin Corporation**
Pneumatic Division - Europe

Tel: +45 63 12 83 00 | Email: ps@hymatik.com | www.hymatik.com | Hvidkaervej 27a, DK-5250 Odense SV, Denmark

## Connection block Valvetronic 110

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

## Technical data

### Connections:

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

Input block

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

Output block

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

### Electrical data:

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

### Cable:

| | |
|---|---|
| Length | 3 m or 10 m |
| Type of cable | LifYY11Y |
| Conductor | 12 |
| Area | 0.34 mm$^2$ |
| Colour marking | According to DIN 47 100 |

### Mechanical data

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

### Material

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

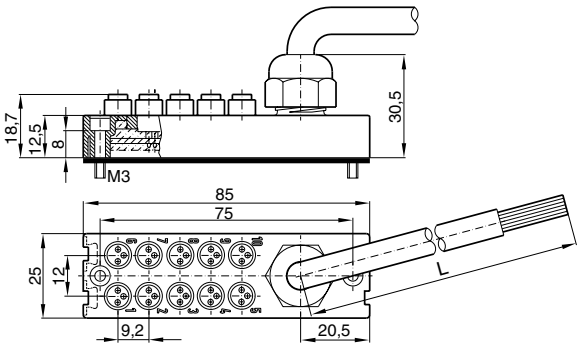
### Industrial durability

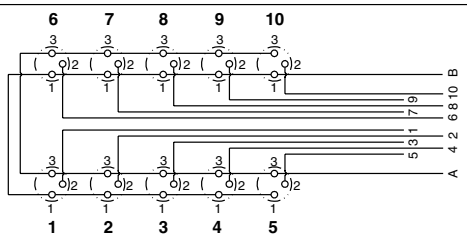
Good chemical and oil resistance. Tests should be performed in aggressive environments.

### Ordering data

| | Designation | Weight kg | Order code |
|---|---|---|---|
| | Connection block Valvetronic 110 with 3 m cable<br>Connection block Valvetronic 110 with 10 m cable | 0,32<br>0,95 | **9121719001**<br>**9121719002** |
| | Blanking plugs (pack of 10)<br>Use blanking plugs to close unused connections. | 0,02 | **9121719003** |
| | Labels (pack of 10)<br>White labels to insert in grooves on the side of the connection | 0,02 | **9121719004** |

### Dimensions and wiring diagrams




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



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Notes



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Subject to Change