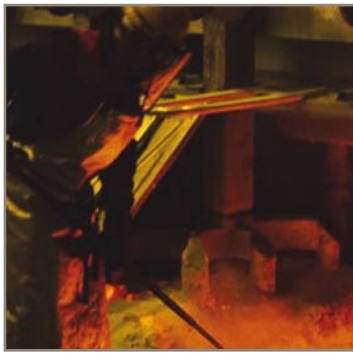
aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding

Pneumatic Cylinders

Series C41
According to ISO



Parker

ENGINEERING YOUR SUCCESS.

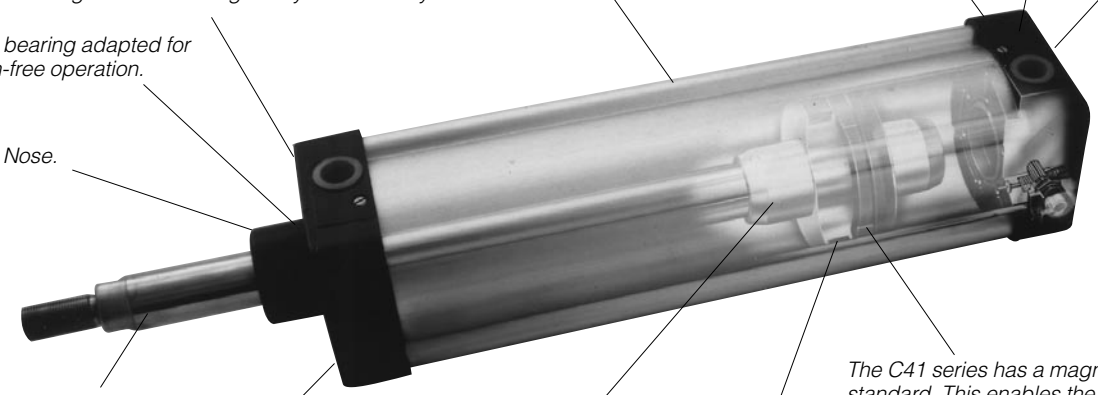
Features	Air cylinder	Hydraulic cylinder	Electro mechanical actuators
Overload safe	***	***	*
Easy to limit force	***	***	*
Easy to vary speed	***	***	*
Speed	***	**	**
Reliability	***	***	***
Robustness	***	***	*
Installation cost	***	*	**
Ease of service	***	**	*
Safety in damp environments	***	***	*
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).

Contents **Page**



The C41 Cylinder Series

The Parker C41 cylinder series, manufactured to ISO standard specifications, featrures double-acting pneumatic cylinders with adjustable cushioning at the end positions.

The C41 cylinders are available with bores of 160 and 200 mm and with strokes up to 2700 mm. The series has been designed to meet industrial working conditions and needs. No additional lubrication is required. The standard version of the C41 is provided with a magnetic piston. This means they are ready for use with electronic control systems.

Standardised installation

The installation dimensions meet ISO 6431 specifications, thus enabling C41 cylinders to be used with the standard range of ISO mountings.

Adapted for electronic applications

With a magnetic piston as standard the C41 cylinder can be used for proximity position sensing. A wide ranges of sensors with LED indicators, connected by means of a flying lead or a connecting plug are available.

Long service life

Lubricant filled piston rod bearing, high quality seals and the cylinder design makes the C41 series suitable for operation without additional lubrication. Lubrication-free operation provides a better working environment, simplifies installation and minimises maintenance and service needs.

The built-in adjustable cushioning is gentle on the cylinder and prevents metallic stops at the end position.

In addition to the basic model, the C41 cylinders are available in several special models.

- Piston rod of stainless steel for corrosive environments.
- Thanks to the through piston rod, the C41 cylinder can absorb greater lateral loads and offers a wider choice of location for external position sensors.
- Cylinder end covers without recesses facilitate cleaning. These end covers, combined with the integrated tie rods in the barrel, provide a cylinder that is suitable in applications with strict hygiene requirements.
- A high-temperature model for ambient temperatures of up to + 150 °C is available for the C41 cylinders in the 160 and 200 mm bore range.
- 3-position cylinders.
- 4-position cylinders.

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
160/40	+	201,1	2011	4021	6032	8042	10053	**12064**	14074	16085	18096	20106
	-	188,5	1885	3770	5655	5740	9425	**11310**	13195	15080	16965	18850
200/40	+	314,2	3142	6283	9425	12566	15708	**18850**	21991	25133	28274	31416
	-	301,6	3016	6032	9048	12064	15080	**18096**	21112	24127	27043	30159

+ = Outward stroke
- = Return stroke

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

Main data: C41

Cylinder beteckning	Cylinder bore	Cylinder area	Piston rod dia.	Piston rod area	Piston rod thread	Total mass at 0 mm stroke	Total mass Supplement per 10 mm stroke	Mass moving parts at 0 mm stroke	Mass moving parts Supplement per 10 mm stroke	Air consumption	Conn. thread
	mm	cm²	mm	cm²		kg	kg	kg	kg	litre	
C41-160	**160**	201,1	40	12,6	M36x2	12,0	0,162	5,00	0,098	2,814 1)	G3/4
C41-200	**200**	314,2	40	12,6	M36x2	16,2	0,183	6,75	0,098	4,396 1)	G3/4

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

Material specifications

Cylinder barrel	Natural anodised aluminium
End covers	Black anodised aluminium
End-cap screws	Zinc plated steel
Tie rods	Zinc plated steel
Piston	Aluminium
Piston rod	Hard-chromium plated steel, Fe 490-2 FN
Bearings	HDPE plastic
Seals	Nitrile rubber, NBR
Cushioning screws	Zinc plated steel
Cushioning-seals	Polyurethane

High-temperature versions

Sealings/scraper ring	Fluorocarbon rubber, FPM
Piston	Aluminium
Piston bearing	Graphite-filled PTFE
Piston rod bearing	Acetal plastic/Bronze/Steel
Cusioning seals	PTFE

Options

Stainless steel piston rod	X 10 CrNiS 18 9

Operation data

Working pressure	Max 10 bar
Working temperature	max +70 °C min –20 °C
High temp version	max +180 °C min 0 °C

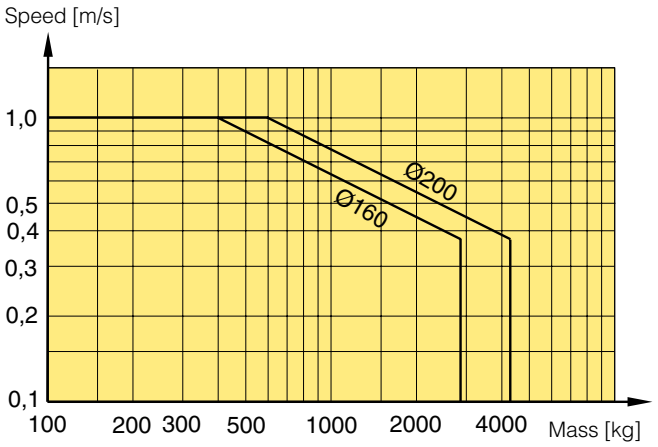
Important!
Greased for life, does not normally need additional lubrication. If extra lubrication is given, this must always be continued.

Cushioning characteristics

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

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

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



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 con-centration (mg/m³)	Water max. press. dew point (°C)	Oil max con-centration (mg/m³)
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	-

Order key

C 4 1 - T | 1 6 0 | M | S | - | 0 2 5 0

	Cylinder version
T	Tie rod
D	Centre trunnion, tie rod

Cylinder bore mm
160
200

	Cylinder type/function
M	Double acting cushioned
F	Double acting, through rod cushioned

Material piston rod: Stainless steel	Material piston rod: Hard chromed steel	Material piston rod: Acid-proof steel	Type of sealing
S	C	*	Standard -20 °C to +70 °C, magnetic
F	G	*	High temperature version -10 °C to +150 °C, non magnetic

Stroke length
0025
0050
0080
0100
0125
0160
0200
0250
0320
Standard stroke length in mm

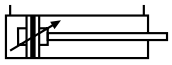
*** For this option contact customer service.**

Stroke length

Standard stroke lengths in mm according to ISO 4393. Special stroke lengths up to 2700 mm

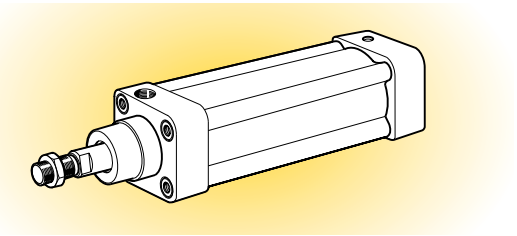
Cylinder designation	Cylinder bore	● Standard stroke length in mm: 25	50	80	100	125	160	200	250	320
Double acting										
C41-T160MS-xxxx	160	●	●	●	●	●	●	●	●	●
C41-T200MS-xxxx	200	●	●	●	●	●	●	●	●	●

Double-acting C41-T



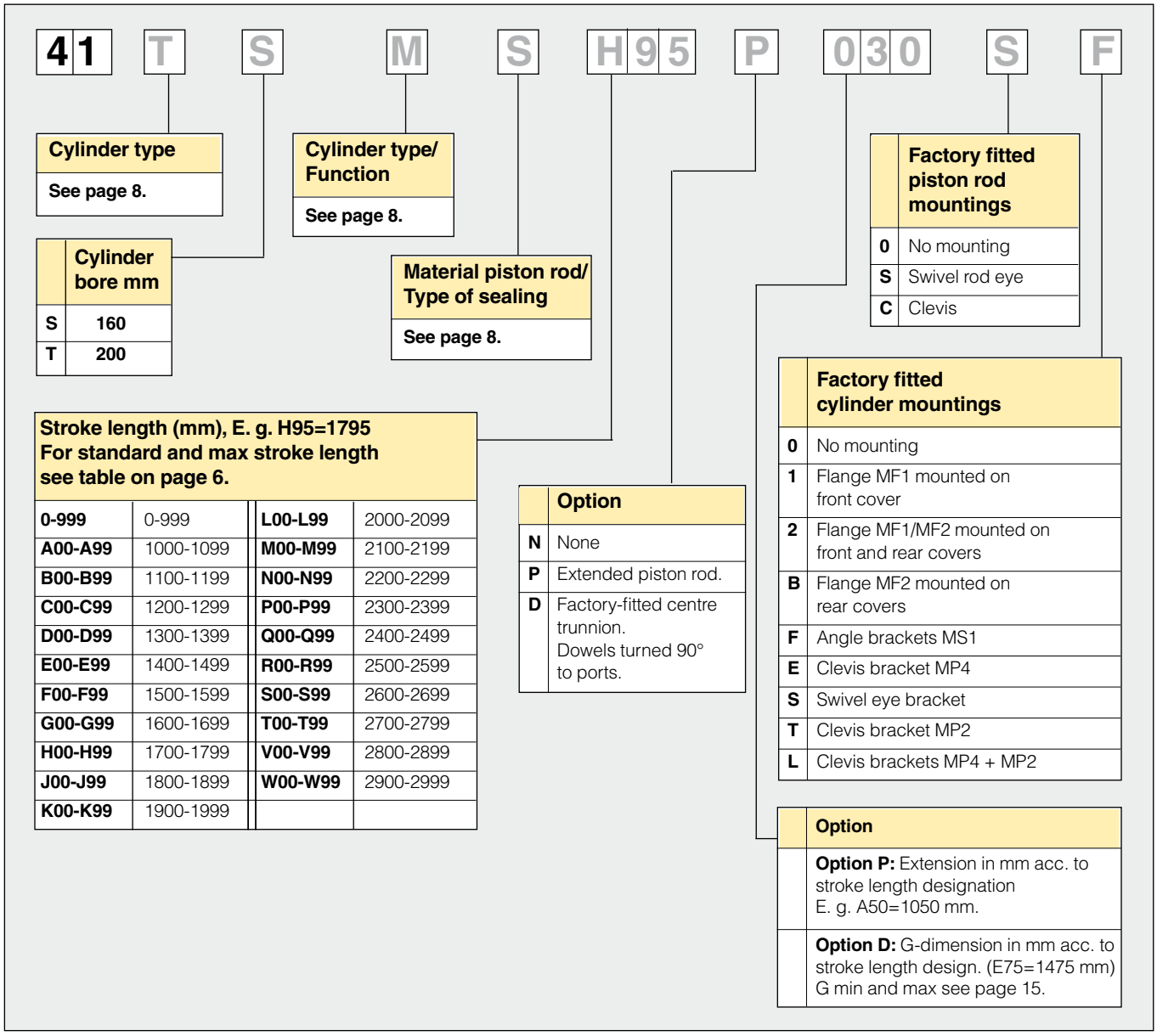
Piston rod Ø40 mm, thread M36x2

Cyl.bore mm	Stroke mm	Weight kg	Order code
160 Ansl G3/4	25	12,28	**C41-T160MS-0025**
	50	12,85	**C41-T160MS-0050**
	80	13,53	**C41-T160MS-0080**
	100	13,99	**C41-T160MS-0100**
	125	14,56	**C41-T160MS-0125**
	160	15,36	**C41-T160MS-0160**
	200	16,27	**C41-T160MS-0200**
	250	17,41	**C41-T160MS-0250**
	320	19,01	**C41-T160MS-0320**
200 Ansl G3/4	25	16,08	**C41-T200MS-0025**
	50	16,71	**C41-T200MS-0050**
	80	17,47	**C41-T200MS-0080**
	100	17,97	**C41-T200MS-0100**
	125	18,60	**C41-T200MS-0125**
	160	19,48	**C41-T200MS-0160**
	200	20,49	**C41-T200MS-0200**
	250	21,75	**C41-T200MS-0250**
	320	23,51	**C41-T200MS-0320**



Non-standard stroke lengths on request

Order key, special versions



Guide for selecting suitable tubing

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

The following is the basic principle:

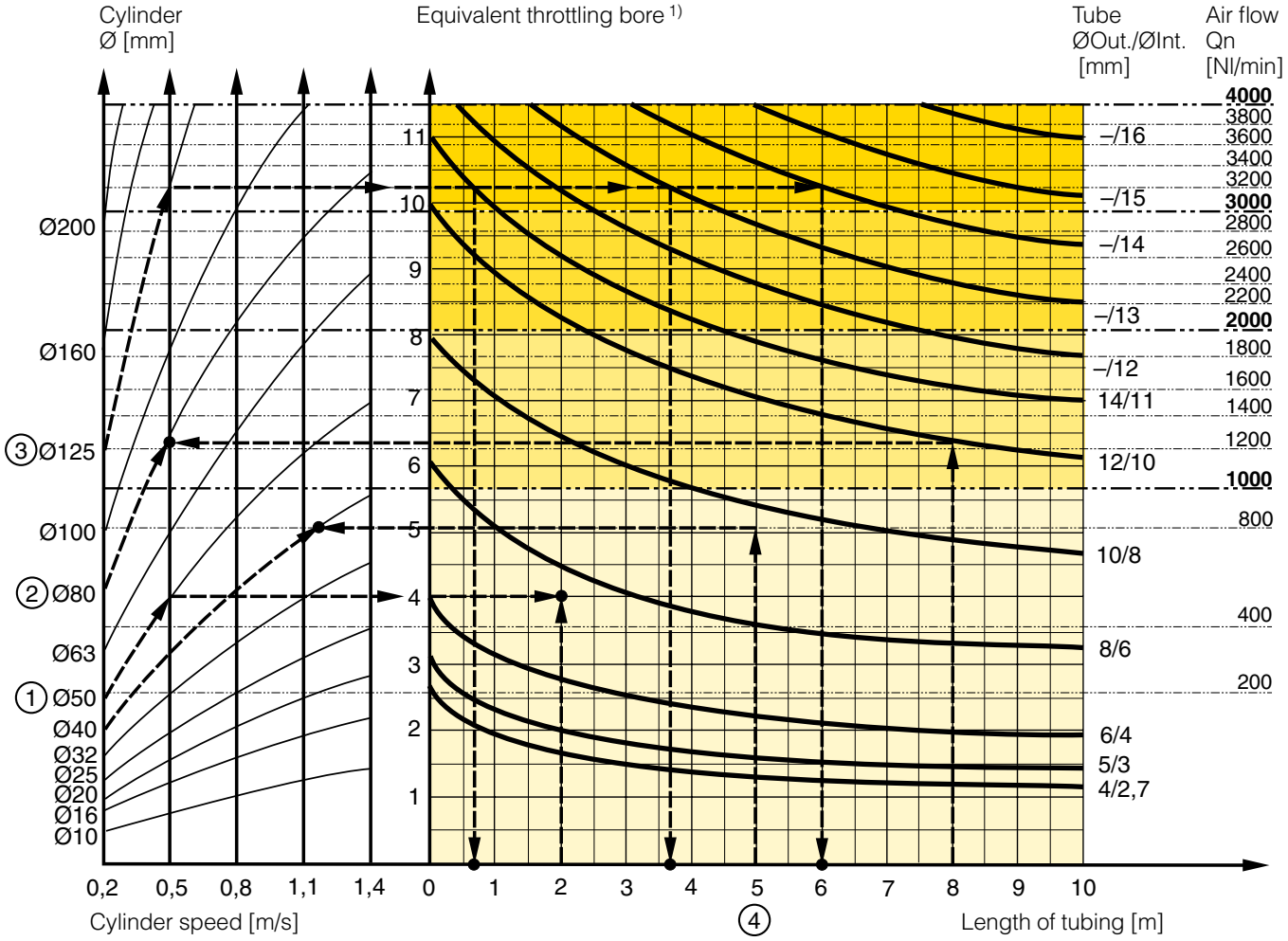
1. The primary line to the working valve could be over sized (this does not cause any extra air consumption and consequently does not create any extra costs in operation).
2. The tubes between the valve and the cylinder should, however, be optimized according to the principle that an insufficient bore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

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

The following prerequisites apply:

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

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



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

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

Example ① : Which tube diameter should be used?

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

Example ②: What cylinder velocity will be obtained?

A 80 mm bore cylinder will be used, connected by 8 m 12/10 tube to a 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
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
VIKING Xtreme P2LAX	660
Valvetronic PVL-C 5/3 closed centre, 8 mm push in	700
Valvetronic PVL-C 5/3 vented centre, G1/4	700
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
Flowstar P2V-B	1090
ISOMAX DX1	1150
B53 Manual and mechanical	1160
B4-Series	1170
VIKING Xtreme P2LBX	1290
B5-Series, G1/4	1440
Airline Isolator Valve VE22/23	1470
ISOMAX DX2	2330
VIKING Xtreme P2LCX, G3/8	2460
VIKING Xtreme P2LDX, G1/2	2660
ISOMAX DX3	4050
Airline Isolator Valve VE42/43	5520
Airline Isolator Valve VE82/83	13680

Options

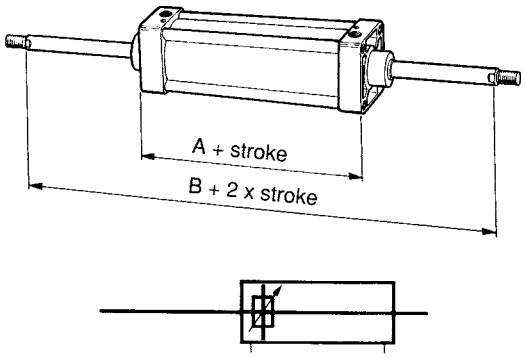
A number of special cylinders for various requirements can be achieved with the C40/C41 M cylinders as a base.

Cylinders with stainless steel piston rod

All cylinders of C41 type can be supplied with a stainless steel piston rod.

Cylinders with through piston rod

All cylinders of C41 type are available with through piston rods. This type of cylinder has equal push and pull force.



Cylinder bore mm	A mm	B mm
160	176	340
200	180	370

See standard cylinder for other dimensions

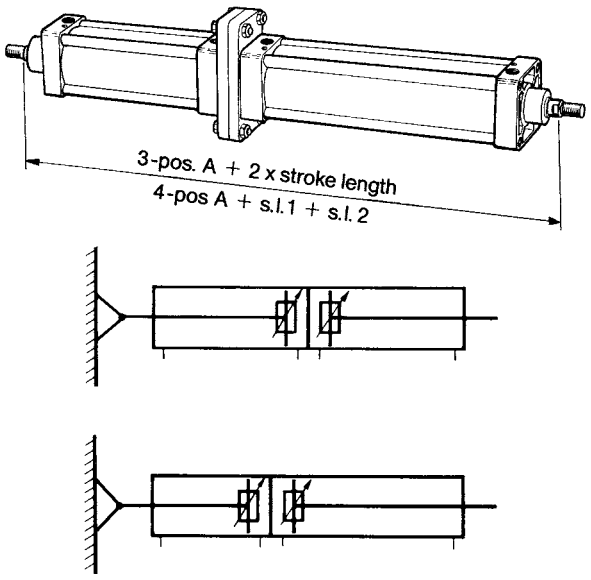
Cylinders for high ambient temperatures

C41 cylinders can be provided with special seals for ambient temperatures of up to + 150 °C. The cylinders are lubricated initially with a special grease.

3-position cylinders and 4-position cylinders

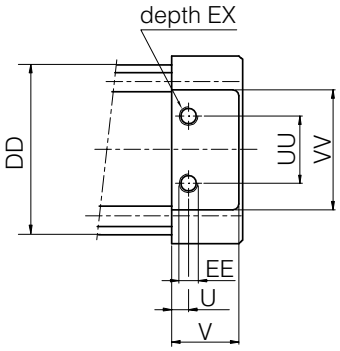
The 3-position cylinder consists of two cylinders with equal strokes. The rear end covers are connected to each other by means of the rear flanges. The home position of the cylinder is with the piston rods in both cylinders retracted. The next position occurs when one piston rod has moved out. The third position occurs when both piston rods are extended. The component cylinders of the 3-position cylinder must be arranged so that they can move in the lengthways direction of the piston rods. Order two separate cylinders and two rear flange fittings.

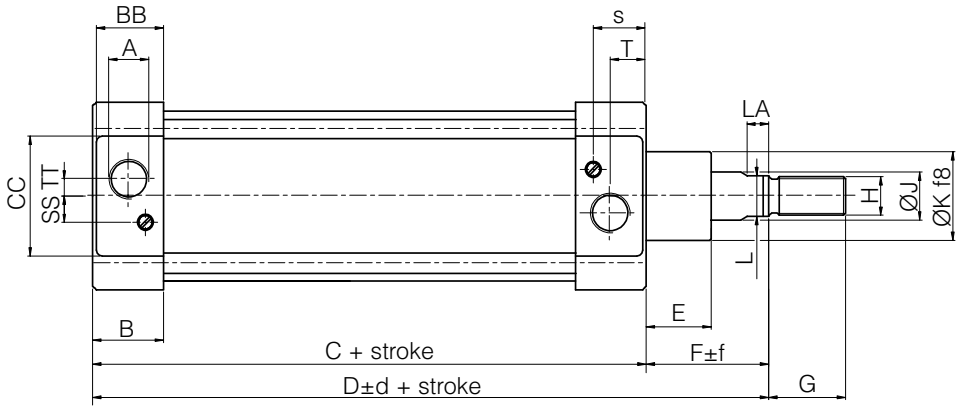
The 4-position cylinder is constructed in the same way as the 3-position cylinder, but in this case two cylinders with different strokes are used. The cylinder is in the home position when both the piston rods are retracted. The next position occurs when the short cylinder's piston rod has moved out. The third position occurs when the short cylinder's piston rod is retracted and the long cylinder's piston rod is extended. The fourth and last position occurs when both the piston rods are extended. The component cylinders of a 4-position cylinder must be arranged so that they can move in the lengthways direction of the piston rods. Order two separate cylinders and two rear flange fittings.

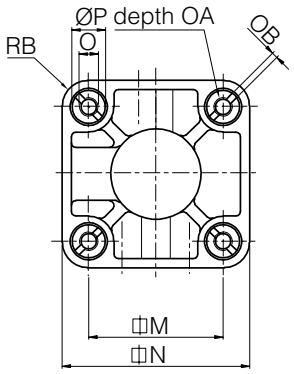


Cylinder bore mm	A mm
160	560
200	600

NOTE:
The mounting holes are located on the contact face opposite the connection ports.







Dimensions

Cylinder bore mm	A	B mm	C mm	D mm	E mm	F mm	G mm	H	J mm	K mm	L mm	M mm	N mm	0	P mm	S mm	T mm
160	G3/4	55,0	176	258	50	82	72	M36x2	40	87	36	134,4	178	M16	27	43,0	30,0
200	G3/4	57,0	180	275	50	95	72	M36x2	40	87	36	163,3	216	M16	27	45,0	32,0

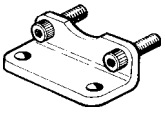
Cylinder bore mm	U mm	V mm	BB mm	CC mm	DD mm	EE	MM mm	SS mm	TT mm	UU mm	VV mm	EX mm	LA mm	OA mm	OB mm	RB mm
160	15,0	43	44	74	172	M16	16	16,0	18,0	64	110	24	18	21,0	4,0	22,0
200	20,0	48	44	74	213	M16	16	16,0	18,0	96	140	24	18	21,0	4,0	26,0

Tolerances

Cylinder bore mm	Installation dim. d mm	f mm	Stroke 0-500 mm	(500) - 1000 mm
160	1,5	1,8	+4,0	+5,0
200	1,5	1,8	+4,0	+5,0

Cylinder mountings

Foot bracket MS1

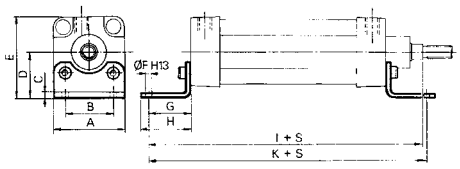


Intended for fixed mounting of cylinder. This bracket can be fitted to front and rear end covers.

Material
Body galvanized steel.

These brackets are supplied in pairs, complete with mounting screws for attachment to cylinder.

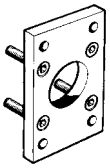
Type	Cyl. bore Ø mm	Weight kg	Order code
Foot bracket MS1	160	2,80	**9121644808**
	200	4,70	**9121644809**



Cylinder bore mm	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	K mm
160	175	115	15,5	115	204	18	62	87	320	300
200	212	135	16,0	135	243	22	70	100	345	320

S = Stroke length

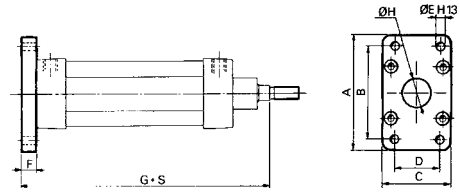
Flange MF1 and MF2



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

Material
Diam. 32 -63 mm: flange anodised aluminium
Diam. 80 - 200 mm: flange galvanized steel
The flange is supplied complete with screws for mounting on the cylinder.

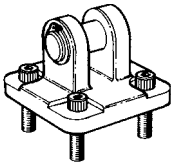
Type	Cyl. bore Ø mm	Weight kg	Order code
Flange MF1 and MF2	160	4,40	**9121569307**
	200	6,00	**9121569308**



Cylinder bore mm	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm
160	280	230	175	115	18	22	280	92
200	320	270	212	135	22	25	300	92

S = Stroke length

Clevis bracket MP4



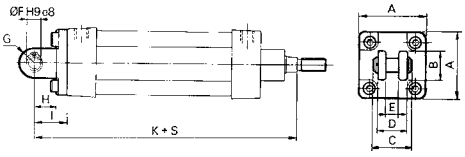
Intended for flexible mounting of cylinder. This bracket can be combined with clevis bracket MP2, swivel rod bracket and swivel rod eye.

Materials:
Body: zink-plated spheroidal graphite iron.
Shaft of hardened steel.

The mount is supplied complete with shaft and mounting screws for attachment to cylinder.

According to ISO

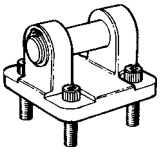
Type	Cyl. bore Ø mm	Weight kg	Order code
Clevis bracket MP4	160	5,90	**9121644608**
	200	10,20	**9121644609**



Cylinder bore mm	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	K mm
160	175	92	97	90	30	30	31	39,0	57	315
200	212	117	97	90	30	30	31	40,0	60	335

S = Stroke length

Clevis bracket MP2



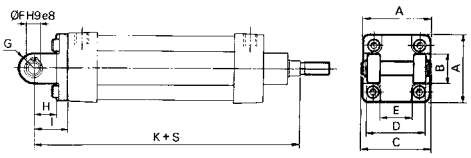
Intended for flexible mounting of cylinder. This bracket can be combined with clevis bracket MP4.

Materials:
Body: zink-plated spheroidal graphite iron.
Shaft of hardened steel.

The mount is supplied complete with shaft and mounting screws for attachment to cylinder.

According to ISO

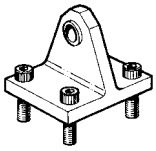
Type	Cyl. bore Ø mm	Weight kg	Order code
Clevis bracket MP2	160	6,90	**9121644708**
	200	11,00	**9121644709**

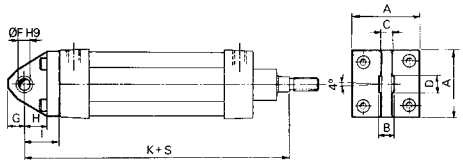


Cylinder bore mm	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	K mm
160	175	92	177	170	90	30	31	39,0	57	315
200	212	117	177	170	90	30	31	40,0	60	335

S = Stroke length

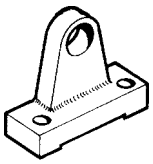
Cylinder mountings

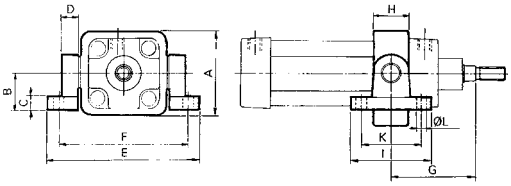
Type	Description	Cyl. bore Ø mm	Weight kg	Order code
Swivel rod bracket 	Intended for flexible mounting of cylinder. The swivel rod permits lateral articulation. The bracket can be combined with clevis bracket MP4 Materials: Body: zink-plated spheroidal graphite iron. Swivel bearing of hardened steel. Supplied complete with mounting screws for attachment to cylinder.	160 200	4,80 7,00	**9121568608** **9121568609**



Cylinder bore mm	A mm	B mm	c mm	D mm	F mm	G mm	H mm	I mm	K mm
160	175	30	25,0	34,0	30	35,0	39,0	57	315
200	212	30	25,0	34,0	30	35,0	40,0	60	335

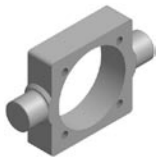
S = Stroke length

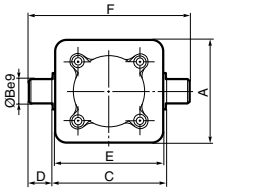
Type	Description	Cyl. bore Ø mm	Weight kg	Order code
Bearing bracket 	Intended for use with centre trunnion MT4. Material Body: galvanized cast iron The bearingbrackets are supplied in pairs. *Weight per two pieces.	160 200	4,40 6,00	**9121569307** **9121569308**

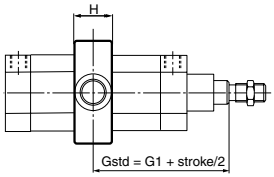


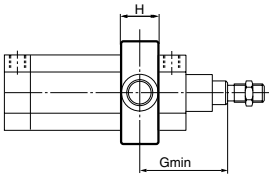
Cylinder bore mm	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	K mm	L mm
160	200	57	28	32	308	278	166,0	58	142	114	13,0
200	250	70	32	32	356	322	184,0	64	172	140	17,0

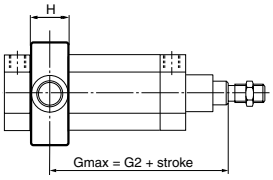
Measure G see page 17.

Type	Description	Cyl. bore Ø mm	Order code
Centre trunnion MT4 	Intended for moveable cylinder mounting. Note that the mount is fitted to the cylinder at a distance G_{std} as shown in the drawing. A fitted trunnion mount cannot be moved. If a different G dimension is required, or if the mount is to be supplied separately, this must be stated. See order key on page 9 This mounting can be combined with pivot bracket or bearing bracket. Material Body: galvanized steel Screws and taps: stainless steel	160 200	**See order key on page 9**





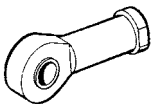


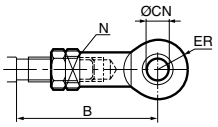


Cylinder bore mm	A mm	B mm	C mm	D mm	E mm	F mm	Gmin* mm	G1* mm	G2* mm	H mm
160	200	32	200	32	196	264	167	170,0	173	58
200	250	32	250	32	246	314	188	185,0	185	64

* Tolerance = ±2

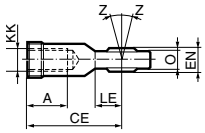
Piston rod mountings

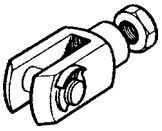
Type	Description	Cyl. bore Ø mm	Weight kg	Order code
Swivel rod eye 	Swivel rod eye for articulated mounting of cylinder. Swivel rod eye can be combined with clevis bracket GA. Maintenance-free. Materials Swivel rod eye: Zinc-plated steel Swivel bearing according to DIN 648K: Hardened steel	160 200	2,00 2,00	**P1C-4SRS** **P1C-4SRS**

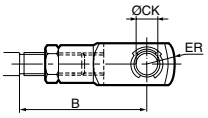


According to ISO 8139

Cyl. bore mm	A mm	B min mm	B max mm	CE mm	CN H9 mm	EN h12 mm	ER mm	KK	LE min mm	N mm	O mm	Z mm
160	56	139	161	125	35	43	40	M36x2	41	14	28	15°
200	56	139	161	125	35	43	40	M36x2	41	14	28	15°

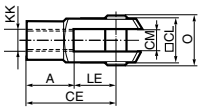


Clevis 	Clevis for articulated mounting of cylinder. Material Clevis, clip: Galvanized steel Pin: Hardened steel	160 200	4,30 4,30	**P1C-4SRC** **P1C-4SRC**



According to ISO 8140

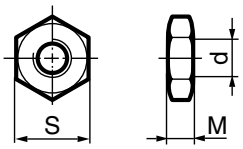
Cyl. bore mm	A mm	B min mm	B max mm	CE mm	CK h11/E9 mm	CL mm	CM mm	ER mm	KK	LE mm	O mm
160	72	158	180	144	35	70	35	50	M36x2	72	83
200	72	158	180	144	35	70	35	50	M36x2	72	83



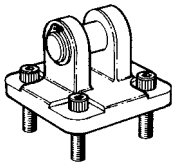
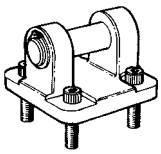
Nut 	Intended for fixed mounting of accessories to the piston rod. Material: Zinc-plated steel The cylinders are delivred with a zinc-plated steel piston rod nut	160 200	0,110 0,110	**9128985606** **9128985606**

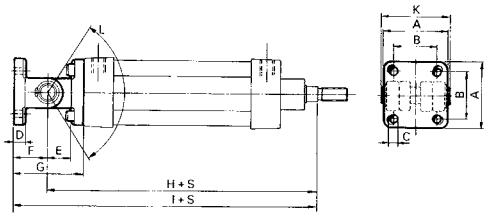
According to DIN 439 B

Cyl. bore mm	d	M mm	S mm
160	M36x2	14	55
200	M36x2	14	55



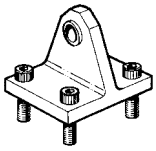
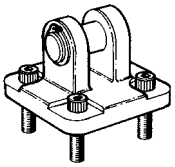
Combinations

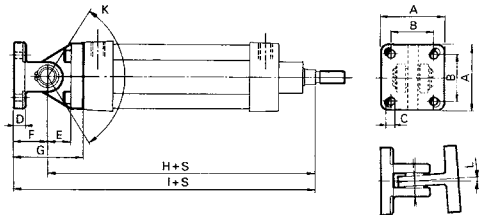
Type		Description	Cyl. bore Ø mm	Order code	
Clevis bracket MP4	**Clevis bracket MP2**	In this combination the clevis bracket MP4 is attached to the indicated cylinder.		MP4*	MP2
			160 200	**9121644608** **9121644609**	**9121644708** **9121644709**



Cylinder bore mm	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	K mm	L
160	175	134,4	18,0	18,0	39,0	57	114	315	372	177	64°
200	212	163,3	18,0	20,0	40,0	60	120	335	395	177	56°

S = stroke

Type		Description	Cyl. bore Ø mm	Order code	
Swivel rod bracket	**Clevis bracket MP4**	In this combination the swivel rod bracket is attached to the indicated cylinder.		Swivel eye bracket	MP4
			160 200	**9121568608** **9121568609**	**9121644608** **9121644609**



Cylinder bore mm	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	K	L
160	175	134,4	18,0	18,0	39,0	57	114	315	372	64°	3,6°
200	212	163,3	18,0	20,0	40,0	60	120	335	395	56°	3,5°

S = stroke

New drop-in sensors

The completely new ”drop-in” P1D sensors can easily be installed from the side in the sensor groove, at any position along the piston stroke. The sensors are completely recessed and thus mechanically protected. Choose between electronic or reed sensors and several cable lengths and 8 mm and M12 connectors. The same standard sensors are used for all P1D versions, i.e. even for P1D Clean with the patent applied system of integrated sensors. Please note that the sensors with 8 mm and M12 connector should have cable lengths 1 m for P1D Clean to allow flexible positioning of the sensors, including longer stroke lengths. There is a double jointed adapter for the tie-rod version, which offers simple and flexible use of standard sensors.

Electronic sensors

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

Technical data

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

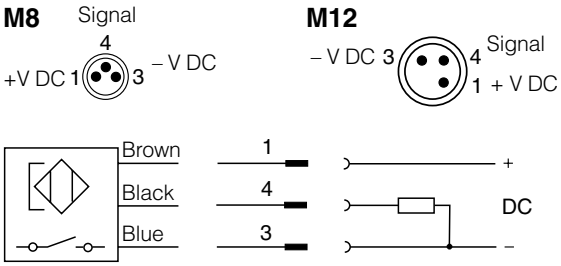
Reed sensors

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

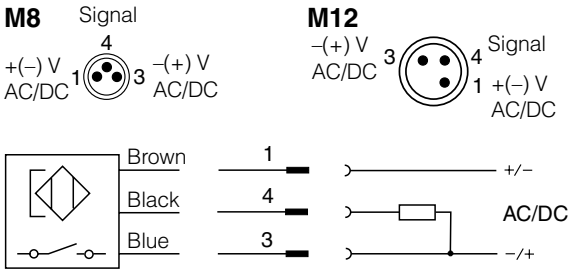
Technical data

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

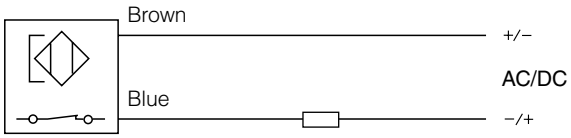
Electronic sensors



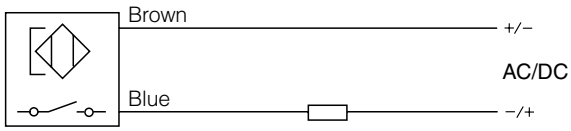
Reed sensors



P8S-GCFPX

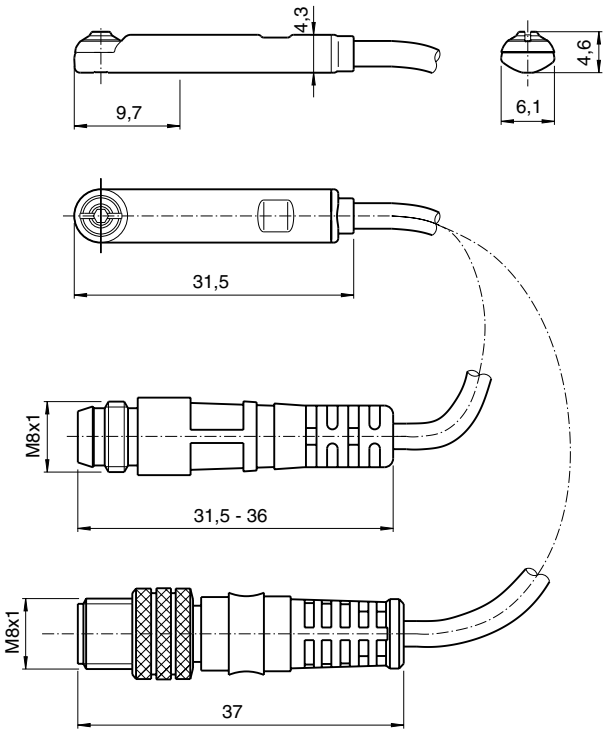


P8S-GRFLX / P8S-GRFLX2

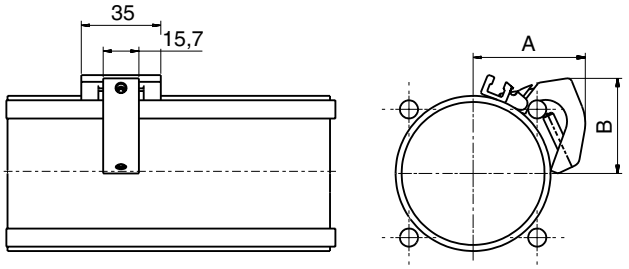


Dimensions

Sensors



Adapter for C41



Cyl. bore mm	A mm	B mm
160	95	90
200	112	107

Ordering data

Output/function	Cable/connector	Weight kg	Order code
Electronic sensors , 10-30 V DC			
PNP type, normally open	0,27 m PUR-cable and 8 mm snap-in male connector	0,007	**P8S-GPSHX**
PNP type, normally open	1,0 m PUR-cable and 8 mm snap-in male connector	0,013	**P8S-GPSCX**
PNP type, normally open	1,0 m PUR-cable and M8 screw male connector	0,013	**P8S-GPCCX**
PNP type, normally open	0,27 m PUR-cable and M12 screw male connector	0,015	**P8S-GPMHX**
PNP type, normally open	3 m PVC-cable without connector	0,030	**P8S-GPFLX**
PNP type, normally open	10 m PVC-cable without connector	0,110	**P8S-GPFTX**
Electronic sensor 18-30 V DC ATEX-certified			
CE Ex **II3G EEx nA II T4X II3D 135 °C IP67**	**See ATEX information in P1D catalogue**		
Type PNP , normally open	3 m PVC-cable without connector	0,030	**P8S-GPFLX/EX**
Reed sensors , 10-30 V AC/DC			
Normally open	0,27 m PUR-cable and 8 mm snap-in male connector	0,007	**P8S-GSSHX**
Normally open	1,0 m PUR-cable and 8 mm snap-in male connector	0,013	**P8S-GSSCX**
Normally open	1,0 m PUR-cable and M8 male connector	0,013	**P8S-GSCCX**
Normally open	0,27 m PUR-cable and M12 screw male connector	0,015	**P8S-GSMHX**
Normally open	1,0 m PUR-cable and M12 screw male connector	0,023	**P8S-GSMCX**
Normally open	3 m PVC-cable without connector	0,030	**P8S-GSFLX**
Normally open	10 m PVC-cable without connector	0,110	**P8S-GSFTX**
Normally closed	5m PVC-cable without connector [1]	0,050	**P8S-GCFPX**
Reed sensors, 10-120 V AC/DC			
Normally open	3 m PVC-cable without connector	0,030	**P8S-GRFLX**
Reed sensorer, 24-230 V AC/DC			
Normalt öppen	3 m PVC-kabel utan kontakt	0,030	**P8S-GRFLX2**

1) Without LED

Adapter for tie-rod design

Description	Weight kg	Order code
Double jointed adapter for cylinder C41	0,07	**P8S-TMA0X**

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	**P8CS0803J**
M12 screw connector	0,022	**P8CS1204J**

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

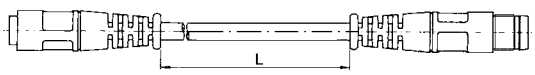
Moulded 8 mm snap-in male/female contacts.

Enclosure	IP67

Cable

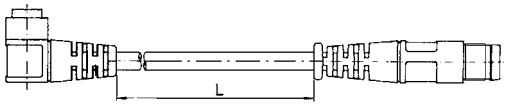
Conductor	3x0,25 mm^2 (32x0,10 mm^2)
Sheath	PVC/PUR
Colour	Black

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**

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 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

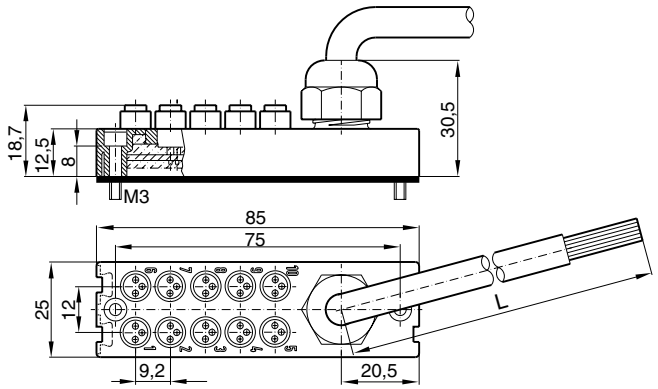
Industrial durability

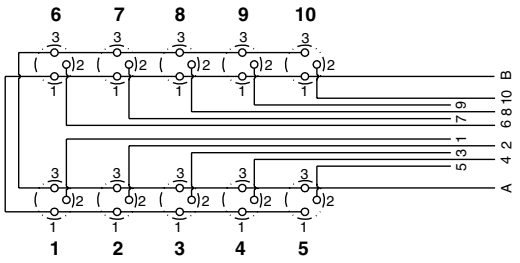
Good chemical and oil resistance. Tests should be performed in aggressive environments.

Ordering data

	Designation	Weight kg	Order code
	Connection block Valvetronic 110 with 3 m cable Connection block Valvetronic 110 with 10 m cable	0,32 0,95	**9121719001** **9121719002**
	Blanking plugs (pack of 10) Use blanking plugs to close unused connections.	0,02	**9121719003**
	Labels (pack of 10) 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

Tightening torques

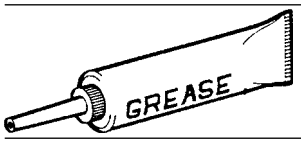
Tightening torques to assemble the cylinder after repair/service

Cylinder bore mm	Plastic piston to rod Nm	Alu piston to rod Nm	Endcover screws Nm
32	4,5+-0,5	15+-1,5	4,5+-0,5
40	11+-1	30+-3	8+-0,8
50	20+-2	40+-4	8+-0,8
63	20+-2	40+-4	20+-2
80	-	120+-12	40+-4
100	-	250+-25	40+-4
125	-	250+-25	70+-7
160	-	700+-70	110+-11
200	-	700+-70	110+-11

Seal kits for complete C41 cylinder

Cyl. bore			Option		
	Standard	High temp	Low pressure hydraulic	Through rod	Tandem
32	**9121565201**	**9122298611**	**9123981801**	**9121565251**	**9121659781**
40	**9121565202**	**9122298612**	**9123981802**	**9121565252**	**9121659782**
50	**9121565203**	**9122298613**	**9123981803**	**9121565253**	**9121659783**
63	**9121565204**	**9122298614**	**9123981804**	**9121565254**	**9121659784**
80	**9121565205**	**9122298615**	**9123981805**	**9121565255**	**9121659785**
100	**9121565206**	**9122298616**	**9123981806**	**9121565256**	**9121659786**
125	**9121565207**	**9122298617**	**9123981807**	**9121565257**	**9121659787**
160	**9121565208**	**9122298618**	**-**	**9121565258**	**9121659788**
200	**9121565209**	**9122298619**	**-**	**9121565259**	**9121659789**

Grease for C41



Standard	30g	**9127394541**
High temperature	30g	**9127394521**

Sales Offices

AE – United Arab Emirates,
Abu Dhabi
Tel: +971 2 67 88 587

AR – Argentina, Buenos Aires
Tel: +54 3327 44 4129

AT – Austria, Wiener Neustadt
Tel: +43 (0)2622 23501-0

AT – Austria, Wiener Neustadt
(Eastern Europe)
Tel: +43 (0)2622 23501 970

AU – Australia, Castle Hill
Tel: +61 (0)2-9634 7777

AZ – Azerbaijan, Baku
Tel: +994 50 2233 458

BE – Belgium, Nivelles
Tel: +32 (0)67 280 900

BR – Brazil, Cachoeirinha RS
Tel: +55 51 3470 9144

BY – Belarus, Minsk
Tel: +375 17 209 9399

CA – Canada, Milton, Ontario
Tel: +1 905 693 3000

CH – Switzerland
See Germany

CN – China, Shanghai
Tel: +86 21 5031 2525

CN – China, Beijing
Tel: +86 10 6561 0520

CZ – Czech Republic, Klecany
Tel: +420 284 083 111

DE – Germany, Kaarst
Tel: +49 (0)2131 4016 0

DK – Denmark, Ballerup
Tel: +45 43 56 04 00

ES – Spain, Madrid
Tel: +34 902 33 00 01

FI – Finland, Vantaa
Tel: +358 (0)20 753 2500

FR – France,
Contamine-sur-Arve
Tel: +33 (0)4 50 25 80 25

GR – Greece, Athens
Tel: +30 210 933 6450

HK – Hong Kong
Tel: +852 2428 8008

HU – Hungary, Budapest
Tel: +36 1 220 4155

IE – Ireland, Dublin
Tel: +353 (0)1 466 6370

IN – India, Mumbai
Tel: +91 22 6513 7081-85

IT – Italy, Corsico (MI)
Tel: +39 02 45 19 21

JP – Japan, Fujisawa
Tel: +(81) 4 6635 3050

KR – South Korea, Seoul
Tel: +82 2 559 0400

KZ – Kazakhstan, Almaty
Tel: +7 3272 505 800

LV – Latvia, Riga
Tel: +371 74 52601

MX – Mexico, Apodaca
Tel: +52 81 8156 6000

MY – Malaysia, Subang Jaya
Tel: +60 3 5638 1476

NL – The Netherlands,
Oldenzaal
Tel: +31 (0)541 585 000

NO – Norway, Ski
Tel: +47 64 91 10 00

NZ – New Zealand, Mt Wellington
Tel: +64 9 574 1744

PL – Poland, Warsaw
Tel: +48 (0)22 573 24 00

PT – Portugal, Leca
da Palmeira
Tel: +351 22 999 7360

RO – Romania, Bucharest
Tel: +40 21 252 1382

RU – Russia, Moscow
Tel: +7 495 645-2156

SE – Sweden, Spånga
Tel: +46 (0)8 59 79 50 00

SG – Singapore
Tel: +65 6887 6300

SL – Slovenia, Novo Mesto
Tel: +386 7 337 6650

SK – Slovakia
See Czech Republic

TH – Thailand, Bangkok
Tel: +662 717 8140

TR – Turkey, Merter/Istanbul
Tel: +90 212 482 91 06 or 07

TW – Taiwan, Taipei
Tel: +886 2 2298 8987

UA – Ukraine, Kyiv
Tel +380 44 494 2731

UK – United Kingdom,
Warwick
Tel: +44 (0)1926 317 878

US – USA, Cleveland
(Industrial)
Tel: +1 216 896 3000

US – USA, Lincolnshire
(Mobile)
Tel: +1 847 821 1500

US – USA, Miami
(Pan American Division)
Tel: +1 305 470 8800

VE – Venezuela, Caracas
Tel: +58 212 238 5422

ZA – South Africa,
Kempton Park
Tel: +27 (0)11 961 0700

HYGE Ed. 2007-08-16

Catalogue PDE2581TCUK-ul. XM 01/2008 XX

Parker Hannifin Ltd
Tachbrook Park Drive
Tachbrook Park, Warwick CV34 6TU
United Kingdom
Tel.: +44 (0) 1926 317 878
Fax: +44 (0) 1926 317 855
www.parker.com/eu

Your local authorized Parker distributor