Parker
Pneumatic

P1E Series
ISO VDMA Cylinders

Ø32, 40, 50, 63, 80, 100, 125,
160 and 200mm bore sizes
Tie rod and Smooth profile options

Catalogue 2112GB-ca

Home

P1E Series ISO Cylinders

High fibre nitrile piston rod seal and polyurethane wiper ring.

Combined cushion/ non return seal for fast breakaway speed of the piston.

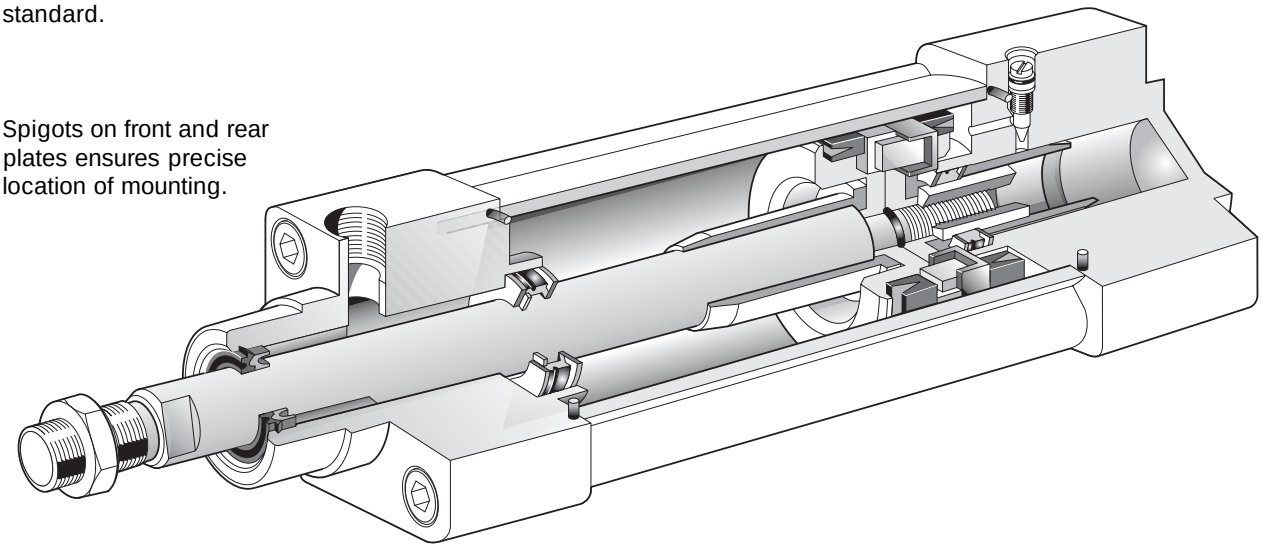
Aluminium tube to give high strength to weight ratio. Anodised as standard.

Zinc diecast end plates on 32, 40 & 50mm bore cylinders. On bore sizes above 63mm weight saving aluminium diecastings are used.

Retained cushion adjusting screw allows a high degree of control over the cushion and will not blow out during adjustment.

Stainless steel piston rod as standard.

Spigots on front and rear plates ensures precise location of mounting.



Oil retaining bronze bearing ensures extreme piston rod accuracy.

Extra long acetal cushion sleeves for improved life and long cushion length.

Polyurethane piston seals prelubricated for outstanding non-lube operation.

Acetal wear strip on piston aids smooth operation. A magnetic strip is housed within the wear strip as standard.

P1E Series ISO Cylinders

The P1E Series range of I.S.O. cylinders are precision made to the most exacting standards to provide the finest pneumatic cylinders available with the widest choice of options.

Standardized installation

Complying with I.S.O. 6431, VDMA 24562 and DIN 24335, the exacting standard demanded by European automotive manufacturers, the design of the P1E Series I.S.O. cylinders far exceeds the quality and performance offered with ordinary pneumatic cylinders.

Quality right from the start

Quality starts with the design brief, and remains the top priority throughout the design stages. Quality is also prioritized in planning, purchasing, production, distribution and service.
Parker Pneumatic meets the quality assurance standards of ISO 9001.

Adaptability for use with electronics

P1E Cylinders are equipped as standard with magnetic pistons for proximity position sensing. A full range of sensors enables the cylinders to be integrated into the most advanced automation systems. The sensors can be fitted at any position along the cylinder stroke.

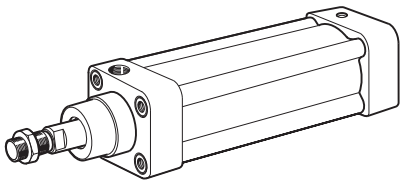
Design

In the development of P1E cylinders, great emphasis was placed on the importance of long service life, and operation with unlubricated air characteristics essential for applications in demanding environments.

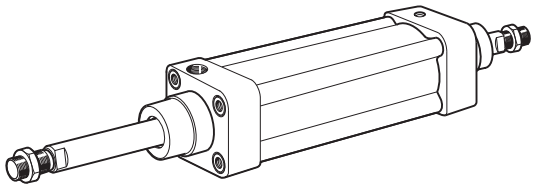
Long service life

Proven sealing systems and pre-lubricated bearings, together with surface smoothness and precise tolerances in all constituent parts, provide long, safe and reliable service life.

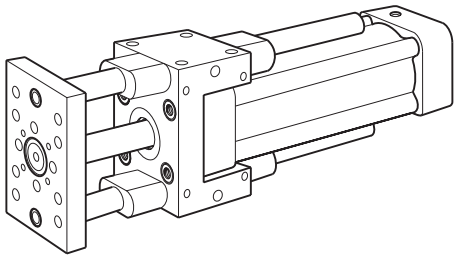
Effective cushioning
A long cushioning zone and simple, adjustable cushion screw facilitates fine adjustment and permits a large mass, high velocity and short cycle time.



Hard anodised cylinder tube
The basic P1E Series cylinder features hard anodised cylinder tube as standard and is pre lubricated on assembly, the tube finish and seal quality is such that in most applications they can operate without lubrication for the normal service life of a pneumatic cylinder. This coating to the tube produces unrivalled low friction operation particularly in low speed applications.

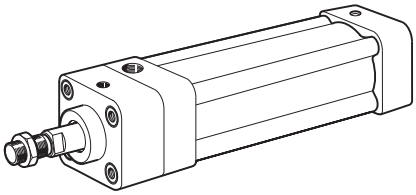


High temperature cylinders
For high temperature applications Viton high quality seals and P.T.F.E. wear strips can be incorporated.
The basic temperature range is -10^{0}C to + 70^{0}C, for applications above this temperature please consult Technical Sales.

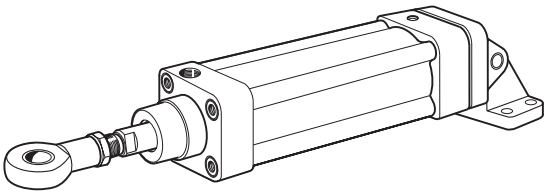


Magnetic cylinders
Available for use with reed switches or with specified induction sensors, the magnetic versions feature a encapsulated polymer magnetic.
This protects the magnet from wear and maintains the low stiction qualities of the cylinder.

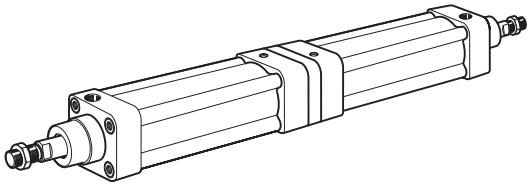
Variants
In addition to the basic versions, a number of special variants of the Parker P1E cylinders are available.
The special variants are designed to meet the most exacting demands.
The available options include:



- Non-standard stroke lengths
- Choice of two different piston-rod materials
- Extended piston rods
- Double piston rods
- External guide, for controlled guidance of the piston rod
- Piston-rod locking device, which enables the piston rod to be locked in any position
- High temperature cylinder versions for use in ambient temperatures up to +180^{0}C
- Factory fitted mountings
- Rod gaiter fitted.



Operation with proximity position sensing
A complete range of sensors for proximity position sensing is available. The sensors are of the reed and solid state type. They can be supplied with flying leads, or with connector plugs.



Complete range of mountings
A complete range of surface-treated mountings according to ISO, VDMA and AFNOR are available as accessories.

Technical information

Available cylinder thrust

Cylinder Bore	Piston Rod Ø	Piston Area cm²		Effective Force (N) / Pressure (bar)							
				1		2		3		4	
		Extending	Retracting								
32	12	8,0	5,9	64	55	129	100	193	166	257	221
40	16	12,6	10,6	100	87	200	174	300	262	400	349
50	20	19,6	16,5	157	137	314	274	470	410	627	547
63	20	31,1	28,0	249	218	498	437	746	655	995	875
80	25	50,0	45,3	402	371	803	742	1205	1114	1606	1485
100	25	78,5	73,6	628	564	1256	1128	1884	1692	2512	2320
125	32	122,66	114,62	962	899	1925	1798	2887	2698	3849	3597
160	40	200,96	188,40	1577	1478	3153	2956	4730	4434	6307	5912
200	40	314,00	301,44	2464	2365	4927	4730	7391	7095	9854	9460

Cylinder Bore	Effective Force (N) / Pressure (bar)											
	5		6		7		8		9		10	
32	332	276	386	322	450	387	515	442	579	498	643	553
40	500	436	600	523	700	610	800	698	900	785	1000	872
50	784	684	941	821	1098	958	1254	1094	1411	1231	1508	1368
63	1244	1092	1493	1310	1742	1529	1990	1747	2239	1966	2488	2184
80	2008	1856	2410	2227	2811	2598	3212	2970	3614	3341	4016	3712
100	3140	2884	3768	3448	4396	4012	5024	4640	5652	5268	6080	5896
125	4812	4496	5774	5395	6736	6295	7698	7194	8661	8093	9623	8992
160	7883	7391	9460	8869	11037	10347	12613	11825	14190	13303	15767	14781
200	12318	11825	14781	14190	17245	16555	19708	18920	22172	21285	24635	23650

Note: The above thrust chart determines practical thrusts, assuming a cylinder efficiency of 80%

Useful Calculations:

Theoretical Force

Push/Extend

$$F = \frac{x\ D^2 \times P}{40}$$

Pull/Retract

$$F = \frac{(D^2 - d^2) \times P}{40}$$

Internal friction and losses must be taken into account which will reduce the available force by typically 20%. For fast cycling applications, the effective force should be reduced by 30%.

Theoretical Air Consumption

For the outstroke
Air consumption (l/s)

$$Q_0 = \frac{\Pi\ x\ D^2 \times L \times (P + 1{,}013)}{4052}$$

For the instroke
Air consumption (l/s)

$$Q_1 = \frac{\Pi\ x\ (D^2 - d^2) \times L \times (P + 1{,}013)}{4052}$$

Total air consumption per cycle of cylinder = $Q_0 + Q_1$ (l)

$$\text{Average air flow required} = \frac{Q_0 + Q_1}{T_u + T_1}\ (l/s)$$

Where
F = force in (Newtons)
D = bore diameter (mm)
P = air pressure (bar)
L = stroke (mm)
T_0 = Time to outstroke (s)
T_1 = Time to instroke (s)
d = Piston rod diameter (mm)
Q_0 = air consumption outstroke (1)
Q_1 = air consumption instroke (1)

Technical Information

General

Temperature Range	-10°C to +70°C Polyurethane -10°C to +180°C Viton
Pressure Range	Air: 0 to 10 bar Max.

Materials

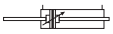
Piston Rod:	Stainless Steel to BS 970:303S31 Chrome rod for rod locking cylinders.
Tubing:	Hard anodised aluminium Alloy to BS 1471:6063
Piston:	Ø32 - Ø100 Zinc Die Casting to BS1004A Ø125 - Ø160 Aluminium Alloy BS1490:LM4
End Plates:	Ø32 - Ø50 Zinc Die Casting to BS1004A Ø63 - Ø100 Aluminium Alloy BS 1490:LM24 Ø125 - Ø160 Aluminium Alloy BS1490:LM4
Seals:	Polyurethane Viton Option
Neck Bearing:	Oil Retaining Bronze
Wear Strip:	Polyacetal
Tie Rods:	Zinc Plated Steel to BS 970:220M07
Tie Rod Nuts:	Zinc Plated Steel to BS 970:050A20

How to order standard cylinders

P 1 E - T 0 3 2 M S - 0 2 5 0

	Bore size	Cylinder version
S	32-100	Smooth profile
T	32-200	Tie rod
C	32-100	Centre trunnion, smooth profile
D	32-200	Centre trunnion, tie rod
Chrome rod		
L	32-100	Rod locking smooth profile
M	32-125	Rod locking tie rod
A	32-100	Centre trunnion, rod locking smooth profile
E	32-125	Centre trunnion, rod locking tie rod

Cylinder bore mm
032
040
050
063
080
100
125
160
200

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

	Sealing/material
S	Standard seals, magnetic piston
A	Standard seals, non magnetic piston
F	High temperature seals, non magnetic piston
E	Rod gaiter fitted, standard seals, magnetic piston
Selected with rod locking	
C	Standard seal, magnetic piston chrome rod
T	Standard seals non magnetic piston chrome rod

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

Standard stroke lengths

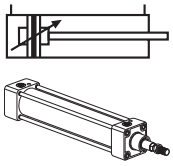
Order code	Cylinder bore mm	● Standard stroke lengths in mm 25	50	80	100	125	160	200	250	320	Non standard stroke Length
Double acting, Tie rod cylinders 											
P1E-T032MS-XXXX	32	●	●	●	●	●	●	●	●	●	
P1E-T040MS-XXXX	40	●	●	●	●	●	●	●	●	●	
P1E-T050MS-XXXX	50	●	●	●	●	●	●	●	●	●	
P1E-T063MS-XXXX	63	●	●	●	●	●	●	●	●	●	
P1E-T080MS-XXXX	80	●	●	●	●	●	●	●	●	●	
P1E-T100MS-XXXX	100	●	●	●	●	●	●	●	●	●	
P1E-T125MS-XXXX	125	●	●	●	●	●	●	●	●	●	
P1E-T160MS-XXXX	160	●	●	●	●	●	●	●	●	●	
P1E-T200MS-XXXX	200	●	●	●	●	●	●	●	●	●	
Double acting, Profile cylinders 											
P1E-S032MS-XXXX	32	●	●	●	●	●	●	●	●	●	
P1E-S040MS-XXXX	40	●	●	●	●	●	●	●	●	●	
P1E-S050MS-XXXX	50	●	●	●	●	●	●	●	●	●	
P1E-S063MS-XXXX	63	●	●	●	●	●	●	●	●	●	
P1E-S080MS-XXXX	80	●	●	●	●	●	●	●	●	●	
P1E-S100MS-XXXX	100	●	●	●	●	●	●	●	●	●	

XXXX = Stroke

Note: Non standard stroke lengths are avialable in 5mm increments.

Main data for P1E cylinders

Double acting
Magnetic

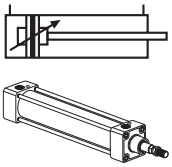


Rod thread mm
12/M10x1,25

Port size
G1/8

Symbol	Cyl. bore mm	Stroke mm	Weight Kg	Order code Tie rod cylinders	Order code Profile cylinders
	32	25	1,00	**P1E-T032MS-0025**	**P1E-S032MS-0025**
		50	1,10	**P1E-T032MS-0050**	**P1E-S032MS-0050**
		80	1,22	**P1E-T032MS-0080**	**P1E-S032MS-0080**
		100	1,30	**P1E-T032MS-0100**	**P1E-S032MS-0100**
		125	1,40	**P1E-T032MS-0125**	**P1E-S032MS-0125**
		160	1,54	**P1E-T032MS-0160**	**P1E-S032MS-0160**
		200	1,70	**P1E-T032MS-0200**	**P1E-S032MS-0200**
		250	1,90	**P1E-T032MS-0250**	**P1E-S032MS-0250**
		320	2,18	**P1E-T032MS-0320**	**P1E-S032MS-0320**
	40	25	1,08	**P1E-T040MS-0025**	**P1E-S040MS-0025**
		50	1,20	**P1E-T040MS-0050**	**P1E-S040MS-0050**
		80	1,35	**P1E-T040MS-0080**	**P1E-S040MS-0080**
		100	1,45	**P1E-T040MS-0100**	**P1E-S040MS-0100**
		125	1,57	**P1E-T040MS-0125**	**P1E-S040MS-0125**
		160	1,75	**P1E-T040MS-0160**	**P1E-S040MS-0160**
		200	1,95	**P1E-T040MS-0200**	**P1E-S040MS-0200**
		250	2,20	**P1E-T040MS-0250**	**P1E-S040MS-0250**
		320	2,59	**P1E-T040MS-0320**	**P1E-S040MS-0320**
	50	25	2,06	**P1E-T050MS-0025**	**P1E-S050MS-0025**
		50	2,19	**P1E-T050MS-0050**	**P1E-S050MS-0050**
		80	2,35	**P1E-T050MS-0080**	**P1E-S050MS-0080**
		100	2,46	**P1E-T050MS-0100**	**P1E-S050MS-0100**
		125	2,59	**P1E-T050MS-0125**	**P1E-S050MS-0125**
		160	2,78	**P1E-T050MS-0160**	**P1E-S050MS-0160**
		200	3,00	**P1E-T050MS-0200**	**P1E-S050MS-0200**
		250	3,27	**P1E-T050MS-0250**	**P1E-S050MS-0250**
		320	3,65	**P1E-T050MS-0320**	**P1E-S050MS-0320**
	63	25	2,10	**P1E-T063MS-0025**	**P1E-S063MS-0025**
		50	2,25	**P1E-T063MS-0050**	**P1E-S063MS-0050**
		80	2,43	**P1E-T063MS-0080**	**P1E-S063MS-0080**
		100	2,53	**P1E-T063MS-0100**	**P1E-S063MS-0100**
		125	2,70	**P1E-T063MS-0125**	**P1E-S063MS-0125**
		160	2,91	**P1E-T063MS-0160**	**P1E-S063MS-0160**
		200	3,15	**P1E-T063MS-0200**	**P1E-S063MS-0200**
		250	3,45	**P1E-T063MS-0250**	**P1E-S063MS-0250**
		320	3,87	**P1E-T063MS-0320**	**P1E-S063MS-0320**
	80	25	3,25	**P1E-T080MS-0025**	**P1E-S080MS-0025**
		50	3,46	**P1E-T080MS-0050**	**P1E-S080MS-0050**
		80	3,71	**P1E-T080MS-0080**	**P1E-S080MS-0080**
		100	3,38	**P1E-T080MS-0100**	**P1E-S080MS-0100**
		125	4,09	**P1E-T080MS-0125**	**P1E-S080MS-0125**
		160	4,38	**P1E-T080MS-0160**	**P1E-S080MS-0160**
		200	4,72	**P1E-T080MS-0200**	**P1E-S080MS-0200**
		250	5,14	**P1E-T080MS-0250**	**P1E-S080MS-0250**
		320	5,73	**P1E-T080MS-0320**	**P1E-S080MS-0320**
	100	25	4,30	**P1E-T100MS-0025**	**P1E-S100MS-0025**
		50	4,57	**P1E-T100MS-0050**	**P1E-S100MS-0050**
		80	4,90	**P1E-T100MS-0080**	**P1E-S100MS-0080**
		100	5,12	**P1E-T100MS-0100**	**P1E-S100MS-0100**
		125	5,39	**P1E-T100MS-0125**	**P1E-S100MS-0125**
		160	5,78	**P1E-T100MS-0160**	**P1E-S100MS-0160**
		200	6,22	**P1E-T100MS-0200**	**P1E-S100MS-0200**
		250	6,77	**P1E-T100MS-0250**	**P1E-S100MS-0250**
		320	7,54	**P1E-T100MS-0320**	**P1E-S100MS-0320**

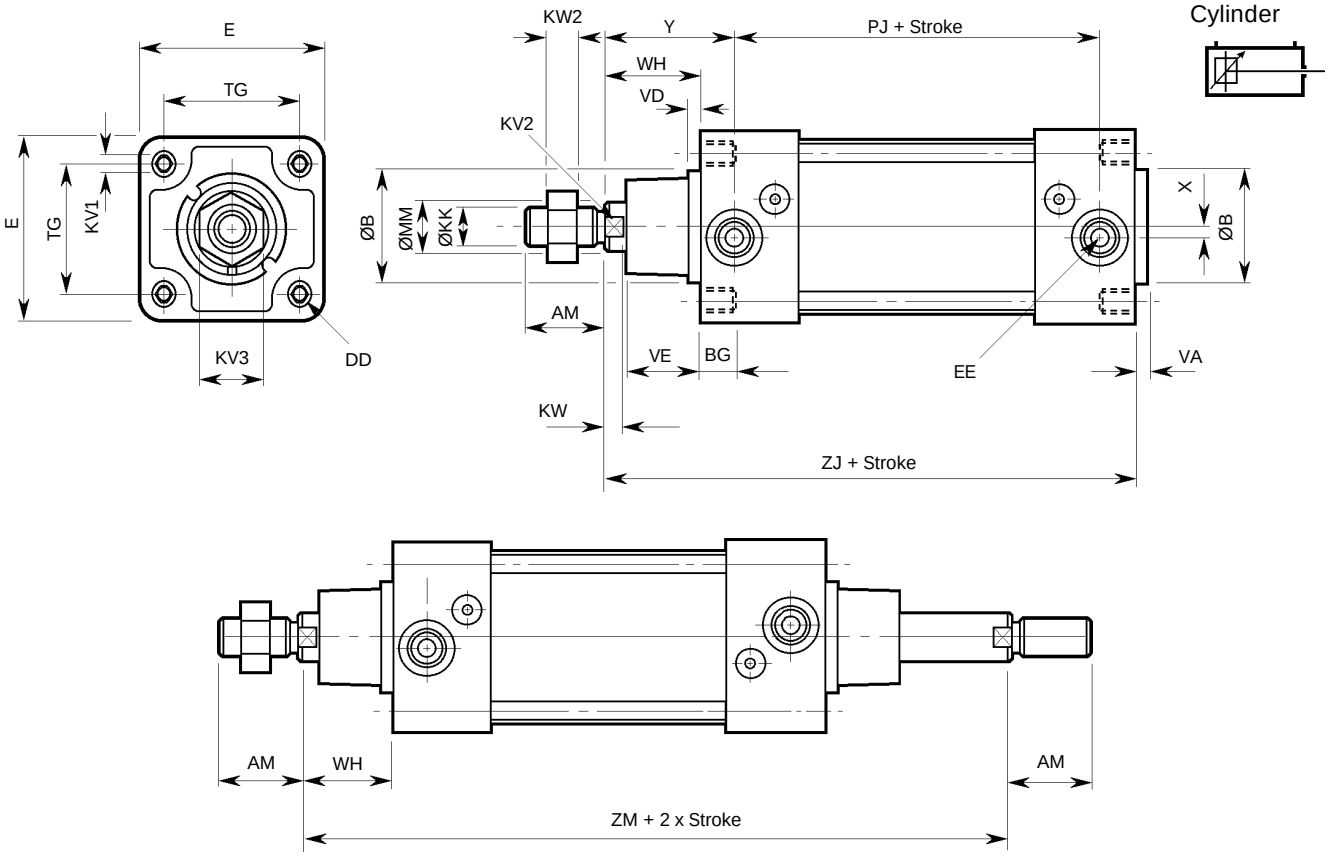
Non standard strokes on request

Symbol	Cyl. bore mm	Stroke mm	Weight Kg	Order code Tie rod cylinders
Double acting **Magnetic** 	125 Rod thread mm 32/M27x2 Port size G1/2	25	7,35	**P1E-T125MS-0025**
		50	7,61	**P1E-T125MS-0050**
		80	8,10	**P1E-T125MS-0080**
		100	8,38	**P1E-T125MS-0100**
		125	8,73	**P1E-T125MS-0125**
		160	9,21	**P1E-T125MS-0160**
		200	9,76	**P1E-T125MS-0200**
		250	10,45	**P1E-T125MS-0250**
		320	11,42	**P1E-T125MS-0320**
	160 Rod thread mm 40/M36x2 Port size G3/4	25	12,28	**P1E-T160MS-0025**
		50	12,85	**P1E-T160MS-0050**
		80	13,53	**P1E-T160MS-0080**
		100	13,99	**P1E-T160MS-0100**
		125	14,56	**P1E-T160MS-0125**
		160	15,36	**P1E-T160MS-0160**
		200	16,27	**P1E-T160MS-0200**
		250	17,41	**P1E-T160MS-0250**
		320	19,01	**P1E-T160MS-0320**
	200 Rod thread mm 40/M36x2 Port size G3/4	25	16,08	**P1E-T200MS-0025**
		50	16,71	**P1E-T200MS-0050**
		80	17,47	**P1E-T200MS-0080**
		100	17,97	**P1E-T200MS-0100**
		125	18,60	**P1E-T200MS-0125**
		160	19,48	**P1E-T200MS-0160**
		200	20,49	**P1E-T200MS-0200**
		250	21,75	**P1E-T200MS-0250**
		320	23,51	**P1E-T200MS-0320**

Non standard strokes on request

Basic Tie Rod and Profile cylinders

I.S.O. Symbol Cylinder



Dimensions (mm)

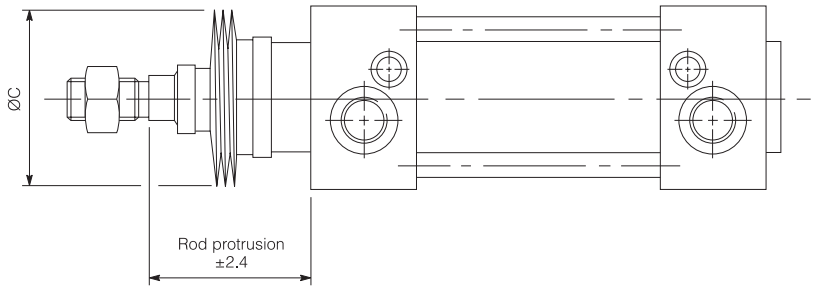
Bore Size	MM Ø	KK*	AM* +0/-2	ØB e11	WH	VD	VE	ZJ	VA	PJ	X	Y	KV3 A/F	KW2
32	12	M10x1,25	22	30	26	4	20	120	4	67	5	39,5	17	6
40	16	M12x1,25	24	35	30	4	21	135	4	75	6,5	45	19	7
50	20	M16x1,5	32	40	37	4	29	143	4	72	6,5	54	24	8
63	20	M16x1,5	32	45	37	4	29	158	4	89	0	53	24	8
80	25	M20x1,5	40	45	46	4	35	174	4	96	0	62	30	9
100	25	M20x1,5	40	55	51	4	35	189	4	102	0	69	30	9
125	32	M27x2	54	60	65	7	41	225	5	120	0	85	41	12
160	40	M36x2	72	65	80	7	52	260	5	132	0	104	55	14
200	40	M36x2	72	75	95	7	60	275	5	132	0	119	55	14

Bore Size	EE	DD	KV1 A/F	BG min	KV2 A/F	KW	E	TG	ZM
32	G1/8	M6	6	16	10	6,0	47,5	32,5	146
40	G1/4	M6	6	16	13	6,5	52	38	165
50	G1/4	M8	8	16	16	6,5	65	46,5	180
63	G3/8	M8	8	16	16	6,5	75	56,5	195
80	G3/8	M10	10	16	21	10	98	72	220
100	G1/2	M10	10	16	21	10	114,5	89	240
125	G1/2	M12	24	20	27	13	140	110	290
160	G3/4	M16	30	24	36	16	179	140	340
200	G3/4	M16	30	24	36	16	216	175	370

Bore Size	Weight (kg) 0mm stroke	5mm stroke
32	0,90	0,020
40	0,95	0,025
50	1,92	0,027
63	1,95	0,030
80	3,04	0,042
100	4,02	0,055
125	7,00	0,069
160	11,71	0,114
200	15,45	0,126

* To ISO 6431

Basic Tie Rod and Profile cylinders with Rod Gaiter fitted



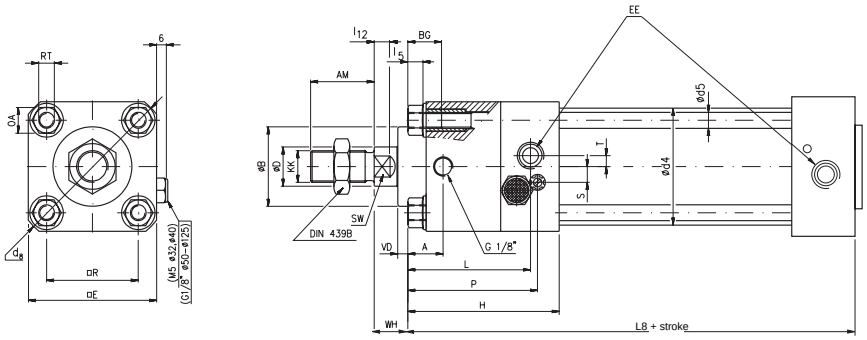
Dimensions (mm)

			Stroke								
Bore size	Ø C		25	50	80	100	125	160	200	250	320
32mm	70	Rod Protrusion	41	43	46	48	52	54	59	66	66
40mm	73	Rod Protrusion	45	47	49	52	56	58	63	70	70
50mm	75	Rod Protrusion	52	54	56	59	63	65	70	77	77
63mm	75	Rod Protrusion	52	54	56	59	63	65	70	77	77
80mm	80	Rod Protrusion	61	63	65	68	72	74	79	86	86
100mm	80	Rod Protrusion	66	68	70	73	77	79	84	91	91
125mm	89	Rod Protrusion	80	82	84	87	91	93	98	105	105
160mm	98	Rod Protrusion	95	97	100	102	106	108	113	120	120
200mm	98	Rod Protrusion	110	112	115	117	121	123	128	135	135

For non standard stroke lengths contact Technical Sales.

Dimensions, cylinder with rod locking device

All dimensions in mm unless otherwise stated



Cylinder bore	B	RT	d_8	WH	R	BG	VD	L8	H	E	L	P
32	30	M6	62	15	32,5	16	4,5	132,5	69,0	50	51,0	59,0
40	35	M6	70	16	38,0	16	4,5	146,0	74,0	55	53,5	63,0
50	40	M8	84	17	46,5	16	5,0	146,5	76,5	65	62,0	65,0
63	45	M8	98	17	56,5	16	5,0	172,0	91,5	75	72,0	82,0
80	45	M10	124	20	72,0	16	4,0	195,0	106,0	95	85,0	98,0
100	55	M10	148	20	89,0	16	4,0	222,0	128,0	110	107,0	117,0
125	60	M12	184	27	110,0	20	6,0	250,5	138,5	140	115,5	123,5

Cylinder bore	A	l_{12}	SW	KK	AM	EE	S	T	OA	D
32	16	6,0	10	M10X1,25	22	G1/8	3,0	4,5	10	12
40	16	6,5	13	M12X1,25	24	G1/4	7,0	3,0	10	16
50	18	8,0	16	M16X1,5	32	G1/4	8,0	5,5	13	20
63	26	8,0	16	M16X1,5	32	G3/8	8,5	3,0	13	20
80	35	10,0	21	M20X1,5	40	G3/8	9,0	6,0	16	25
100	50	10,0	21	M20X1,5	40	G1/2	12,0	6,0	16	25
125	60	13,0	27	M27X2	54	G1/2	14,0	6,0	18	32

S = Stroke length

Note: Smooth profile cylinder up to 100mm bore only

P1E with piston-rod locking device

The P1E series cylinders may be supplied with a powerful piston-rod locking device, which enables the piston rod to be locked in any position. The locking device is of the air/spring activated type, and is integrated into the front end cover of the cylinder.
In the absence of signal pressure, full holding force is applied to the piston rod. The locking device is released at a signal pressure of 4 bar.

The locking device is available for cylinder bores from 32 to 125mm (Tie rod only).

Features

A holding force corresponding to a pressure of 7 bar.

A clean design, with the front end-cover and locking device built into a common block for compact installation.

The exhaust air from the locking device can be ducted away when there are high demands on the external environment.

Connection

The signal air for the locking device can be obtained directly from a mains air supply, or from the air supply serving the valve that controls the cylinder itself. For controlled ON/OFF operation of the locking device, a separate quick-venting valve is used.
N.B.
The piston rod should not be moved when the locking device is activated. The locking device is not intended to brake a movement in repeated sequences.

Technical data

Working medium	dry, filtered compressed air
Working pressure	max. 10 bar
Working temperature	-10°C to +70°C
Locking pressure	min. 4 bar ±10%

1) Signal pressure to connection port on locking device.

Holding forces

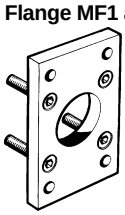
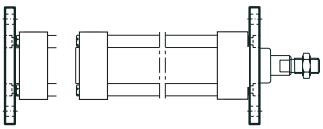
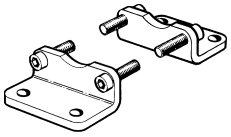
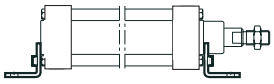
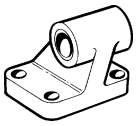
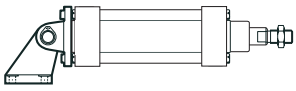
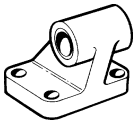
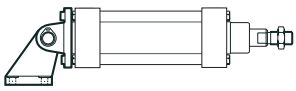
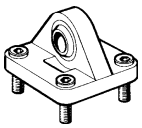
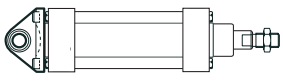
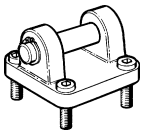
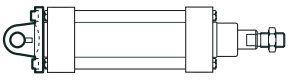
Holding forces at 0 bar signal pressure to locking device.

Bore size	Holding force (N)
32	550
40	860
50	1345
63	2140
80	3450
100	5390
l25	8425

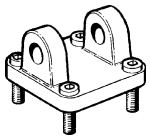
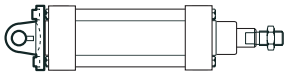
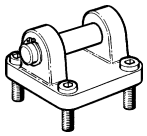
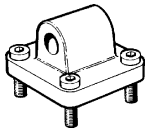
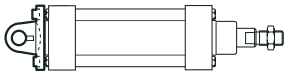
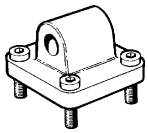
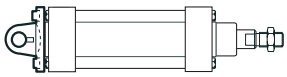
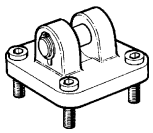
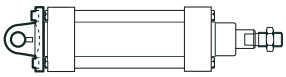
Material specifications, piston-rod locking device

Housing/end cover	Black anodized aluminium
Locking sleeve/plunger	Hardened steel
Springs	Stainless steel
Seals, 0-rings	Nitrile rubber, NBR
Scraper ring	UHMWPE-plastic
Air filter	Brass/sintered bronze
Piston rod	Chrome plated rod

Cylinder mountings

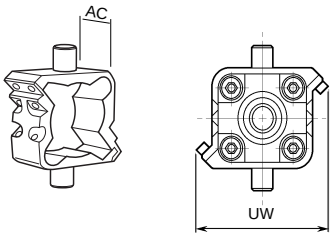
	Material	Cyl. bore mm	Pin mm	Weight Kg	Order code
Flange MF1 and MF2	Surface treated steel				
 		32		0,23	**P1C-4KMB**
		40		0,28	**P1C-4LMB**
		50		0,53	**P1C-4MMB**
		63		0,71	**P1C-4NMB**
		80		1,59	**P1C-4PMB**
		100		2,19	**P1C-4QMB**
		125		3,78	**P1C-4RMB**
		160		6,00	**P1C-4SMB**
		200		8,00	**P1C-4TMB**
Foot bracket MS1	Surface treated steel				
 		32		0,06	**P1C-4KMF**
		40		0,08	**P1C-4LMF**
		50		0,16	**P1C-4MMF**
		63		0,25	**P1C-4NMF**
		80		0,50	**P1C-4PMF**
		100		0,85	**P1C-4QMF**
		125		1,48	**P1C-4RMF**
		160		1,60	**P1C-4SMF**
		200		4,40	**P1C-4TMF**
Pivot bracket with rigid bearing CETOP RP 107 P	Anodised aluminium/ sintered oil-bronze bushing				
 		32	10	0,06	**P1C-4KMD**
		40	12	0,08	**P1C-4LMD**
		50	12	0,15	**P1C-4MMD**
		63	16	0,20	**P1C-4NMD**
		80	16	0,33	**P1C-4PMD**
		100	20	0,49	**P1C-4QMD**
		125	25	1,02	**P1C-4RMD**
Pivot bracket with rigid bearing CETOP RP 107 P	Cast iron/ sintered oil-bronze bushing				
 		32	10	0,06	**P1E-4KMD**
		40	12	0,08	**P1E-4LMD**
		50	12	0,15	**P1E-4MMD**
		63	16	0,20	**P1E-4NMD**
		80	16	0,33	**P1E-4PMD**
		100	20	0,49	**P1E-4QMD**
Swivel eye bracket	Surface treated aluminium				
 		32	10	0,20	**P1C-4KMS**
		40	12	0,30	**P1C-4LMS**
		50	12	0,50	**P1C-4MMS**
		63	16	0,70	**P1C-4NMS**
		80	16	1,20	**P1C-4PMS**
		100	20	1,60	**P1C-4QMS**
		125	25	1,80	**P1C-4RMS**
Clevis bracket MP2	Surface treated aluminium Surface treated steel screw Stainless steel treated pin				
 		32	10	0,08	**P1C-4KMT**
		40	12	0,11	**P1C-4LMT**
		50	12	0,14	**P1C-4MMT**
		63	16	0,29	**P1C-4NMT**
		80	16	0,36	**P1C-4PMT**
		100	20	0,64	**P1C-4QMT**
		125	25	1,17	**P1C-4RMT**

P1E Series ISO Cylinders

	Material	Cyl. bore mm	Pin mm	Weight Kg	Order code
Clevis bracket MP7	Cast iron Surface treated steel screws				
		32	10	0,15	**P1E-4KMJ**
		40	12	0,22	**P1E-4LMJ**
		50	12	0,39	**P1E-4MMJ**
		63	16	0,53	**P1E-4NMJ**
		80	16	1,19	**P1E-4PMJ**
		100	20	1,80	**P1E-4QMJ**
Clevis bracket MP2	Cast iron Surface treated steel screws Stainless steel treated pin				
		32	10	0,15	**P1E-4KMT**
		40	12	0,22	**P1E-4LMT**
		50	12	0,39	**P1E-4MMT**
		63	16	0,53	**P1E-4NMT**
		80	16	1,19	**P1E-4PMT**
		100	20	1,80	**P1E-4QMT**
		125	25	4,85	**P1E-4RMT**
		160	30	6,46	**P1E-4SMT**
		200	30	9,20	**P1E-4TMT**
Clevis bracket MP4	Surface treated aluminium Surface treated steel screws				
		32	10	0,09	**P1C-4KME**
		40	12	0,13	**P1C-4LME**
		50	12	0,17	**P1C-4MME**
		63	16	0,36	**P1C-4NME**
		80	16	0,46	**P1C-4PME**
		100	20	0,83	**P1C-4QME**
		125	25	1,53	**P1C-4RME**
Clevis bracket MP4	Cast iron Surface treated steel screws				
		32	10	0,19	**P1E-4KME**
		40	12	0,23	**P1E-4LME**
		50	12	0,40	**P1E-4MME**
		63	16	0,61	**P1E-4NME**
		80	16	1,25	**P1E-4PME**
		100	20	1,90	**P1E-4QME**
		125	25	4,85	**P1E-4RME**
		160	30	6,46	**P1E-4SME**
		200	30	9,20	**P1E-4TME**
Clevis bracket GA	Surface treated steel Surface treated steel screws Zinc plated				
		32	10	0,22	**P1C-4KMC**
		40	12	0,29	**P1C-4LMC**
		50	16	0,48	**P1C-4MMC**
		63	16	0,68	**P1C-4NMC**
		80	20	1,39	**P1C-4PMC**
		100	20	2,04	**P1C-4QMC**
		125	30	4,05	**P1C-4RMC**

	Material	Cyl. bore mm	Pin mm	Weight Kg	Order code
Pivot bracket with swivel bearing	Anodised aluminium/ Hardened steel swivel bearings				
		32	10	0,18	**P1C-4KMA**
		40	12	0,25	**P1C-4LMA**
		50	16	0,47	**P1C-4MMA**
		63	16	0,57	**P1C-4NMA**
		80	20	1,05	**P1C-4PMA**
		100	20	1,42	**P1C-4QMA**
		125	30	3,10	**P1C-4RMA**
Mounting kit, Back to back mounted cylinders					
		32		0,060	**P1E-6KB0**
		40		0,078	**P1E-6LB0**
		50		0,162	**P1E-6MB0**
		63		0,194	**P1E-6NB0**
		80		0,450	**P1E-6PB0**
		100		0,672	**P1E-6QB0**
Pivot bracket for MT4	Anodised aluminium/ sintered oil-bushing				
		32	12	0,04	**9301 0542-61**
		40	16	0,07	**9301 0542-62**
		50	16	0,07	**9301 0542-62**
		63	20	0,12	**9301 0542-64**
		80	20	0,12	**9301 0542-64**
		100	25	0,21	**9301 0542-66**
		125	25	0,21	**9301 0542-66**
		160	32		**9301 0542-68**
		200	32		**9301 0542-68**

Centre trunnion mounted I.S.O. mounted code MT4
Profile cylinders



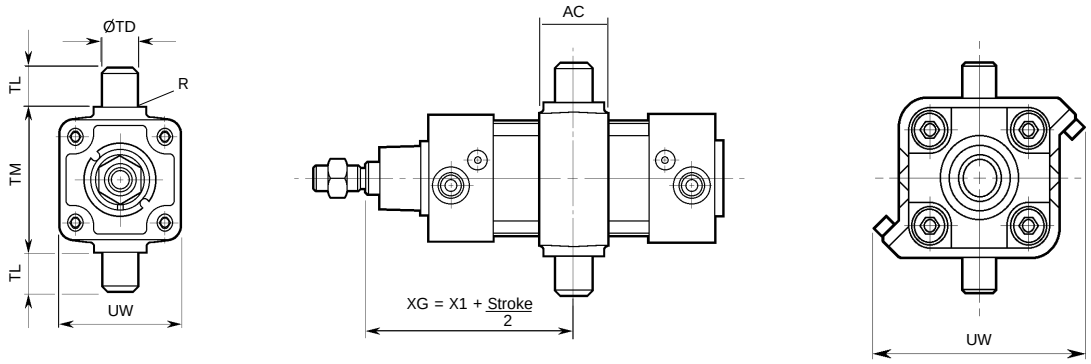
Bore size	Centre Trunnion	AC	UW	Weight (g)
32	**PIC-4KMY**	25	65	200
40	**PIC-4LMY**	25	75	450
50	**PIC-4MMY**	30	95	600
63	**PIC-4NMY**	35	105	1050
80	**PIC-4PMY**	40	130	1300
100	**PIC-4QMY**	45	145	2000

Note: Kit contains centre trunnion, 4 fixing screws, 2 positioning screws and 4 spring guide pins.

Material: Aluminium bronze.

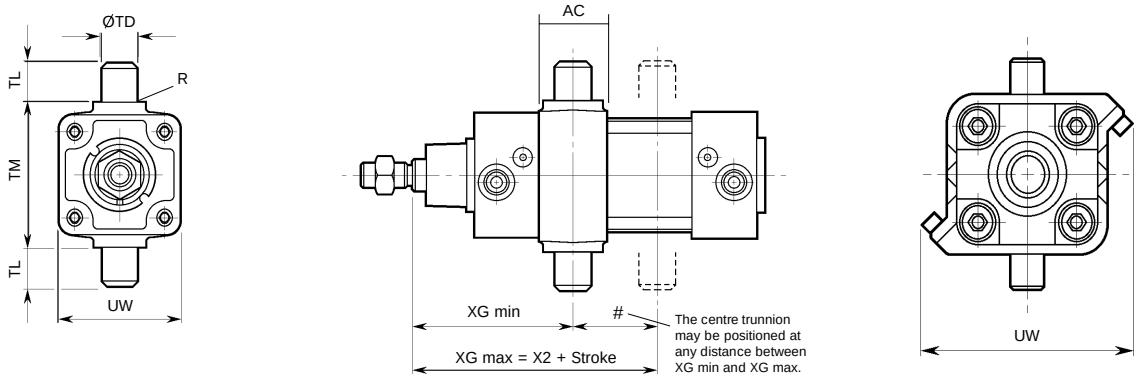
The centre trunnion kit for profile cylinders can be broken down into 2 parts and re-assembled in any position along the profile cylinder tube. All other dimensions as tie bar centre trunnion.

Centre trunnion mounted I.S.O. mounted code MT4



Bore size	AC Tie rod	AC Profile	UW Tie rod	UW Profile	R*	ØTD* e9	TL* h14	TM* h14	X1
32	22	25	46	65	1.0	12	12	50	73
40	30	25	58	75	1.5	16	16	63	82
50	30	30	68	95	1.6	16	16	75	90
63	35	35	84	105	1.6	20	20	90	97
80	35	40	102	130	1.6	20	20	110	110
100	40	45	124	145	2.0	25	25	132	120
125	48	n/a	150	n/a	2.0	25	25	160	145
160	70	n/a	190	n/a	2.5	32	32	200	170
200	70	n/a	242	n/a	2.5	32	32	250	185

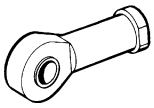
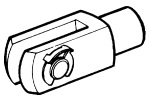
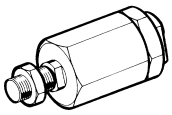
Off-set Centre Trunnion



Bore size	AC Tie rod	AC Profile	UW Tie rod	UW Profile	R*	ØTD* e9	TL* h14	TM* h14	XG min. Tie rod	XG min. Profile	X2 max. Tie rod	X2 max. Profile	Minimum Stroke*
32	22	25	46	65	1.0	12	12	50	66	82,5	80	63,5	20
40	30	25	58	75	1.5	16	16	63	75	86,5	90	78,5	10
50	30	30	68	95	1.6	16	16	75	84	107,0	96	73,0	35
63	35	35	84	105	1.6	20	20	90	94	110,0	102	86,0	25
80	35	40	102	130	1.6	20	20	110	103	131,5	118	89,5	45
100	40	45	124	145	2.0	25	25	132	117	140,5	127	103,5	40
125	48	n/a	150	n/a	2.0	25	25	160	134	n/a	156	n/a	n/a
160	70	n/a	190	n/a	2.5	32	32	200	169	n/a	171	n/a	n/a
200	70	n/a	242	n/a	2.5	32	32	250	184	n/a	186	n/a	n/a

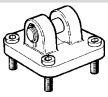
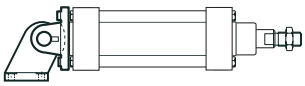
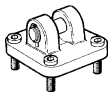
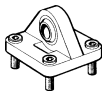
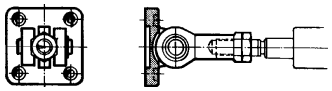
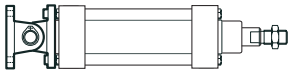
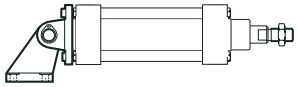
* Minimum stroke required to be able to fit a centre trunnion to a profile cylinder

Piston rod mountings

	Material	Cyl. bore mm	Pin mm	Thread	Weight Kg	Order code
Swivel rod eye ISO 8139	Zinc-plated steel					
		32	10	M10x1,25	0,08	**P1C-4KRS**
		40	12	M12x1,25	0,12	**P1C-4LRS**
		50	16	M16x1,5	0,25	**P1C-4MRS**
		63	16	M16x1,5	0,25	**P1C-4MRS**
		80	20	M20x1,5	0,46	**P1C-4PRS**
		100	20	M20x1,5	0,46	**P1C-4PRS**
		125	30	M27x2	1,28	**P1C-4RRS**
		160	35	M36x2	2,00	**P1C-4SRS**
		200	35	M36x2	2,00	**P1C-4SRS**
Clevis ISO 8140	Zinc-plated steel					
		32	10	M10x1,25	0,09	**P1C-4KRC**
		40	12	M12x1,25	0,15	**P1C-4LRC**
		50	16	M16x1,5	0,35	**P1C-4MRC**
		63	16	M16x1,5	0,35	**P1C-4MRC**
		80	20	M20x1,5	0,75	**P1C-4PRC**
		100	20	M20x1,5	0,75	**P1C-4PRC**
		125	30	M27x2	2,10	**P1C-4RRC**
		160	35	M36x2	4,30	**P1C-4SRC**
		200	35	M36x2	4,30	**P1C-4SRC**
Flexocoupling	Zinc-plated steel/ hardened steel					
		32		M10x1,25	0,21	**P1C-4KRF**
		40		M12x1,25	0,22	**P1C-4LRF**
		50		M16x1,5	0,67	**P1C-4MRF**
		63		M16x1,5	0,67	**P1C-4MRF**
		80		M20x1,5	0,72	**P1C-4PRF**
		100		M20x1,5	0,72	**P1C-4PRF**
		125		M27x2	1,80	**P1C-4RRF**
Piston rod nut* DIN 439 B	Zinc-plated steel					
		32		M10x1,25	0,007	**9128 9856-01**
		40		M12x1,25	0,010	**0261 1099-10**
		50		M16x1,5	0,021	**9128 9856-03**
		63		M16x1,5	0,021	**9128 9856-03**
		80		M20x1,5	0,040	**0261 1099-11**
		100		M20x1,5	0,040	**0261 1099-11**
		125		M27x2	0,100	**0261 1099-12**
		160		M36x2	0,110	**9128 9856-06**
		200		M36x2	0,110	**9128 9856-06**

* Cylinders supplied with zinc plated nut.

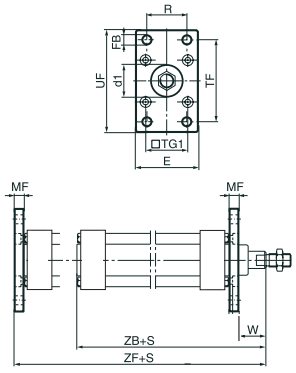
Combination Mountings (Aluminium)

Type	Cyl. bore mm	Weight Kg	Order code
  Clevis bracket GA; Pivot bracket with swivel bearing 	32	0,40	**P1C-4KMQ**
	40	0,54	**P1C-4LMQ**
	50	0,95	**P1C-4MMQ**
	63	1,25	**P1C-4NMQ**
	80	2,44	**P1C-4PMQ**
	100	3,46	**P1C-4QMQ**
	125	7,15	**P1C-4RMQ**
  Clevis bracket GA; Swivel eye bracket 	32	0,42	**P1C-4KMM**
	40	0,59	**P1C-4LMM**
	50	0,98	**P1C-4MMM**
	63	1,38	**P1C-4NMM**
	80	2,59	**P1C-4PMM**
	100	3,64	**P1C-4QMM**
	125	5,85	**P1C-4RMM**
  Clevis bracket GA; Swivel rod eye 	32	0,30	**P1C-4KRV**
	40	0,41	**P1C-4LRV**
	50	0,73	**P1C-4MRV**
	63	0,93	**P1C-4NRV**
	80	1,85	**P1C-4PRV**
	100	2,50	**P1C-4QRV**
	125	5,33	**P1C-4RRV**
  Clevis bracket MP4; Clevis bracket MP2 	32	0,17	**P1C-4KML**
	40	0,24	**P1C-4LML**
	50	0,31	**P1C-4MML**
	63	0,65	**P1C-4NML**
	80	0,82	**P1C-4PML**
	100	1,47	**P1C-4QML**
	125	2,70	**P1C-4RML**
  Clevis bracket MP2; Pivot bracket with rigid bearing 	32	0,14	**P1C-4KMP**
	40	0,19	**P1C-4LMP**
	50	0,29	**P1C-4MMP**
	63	0,49	**P1C-4NMP**
	80	0,69	**P1C-4PMP**
	100	1,13	**P1C-4QMP**
	125	2,83	**P1C-4RMP**

Dimensions, mountings

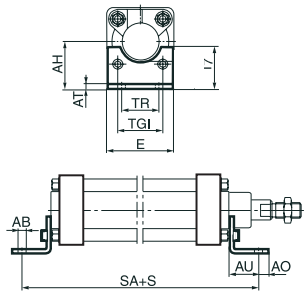
All dimensions in mm unless otherwise stated

Flange MF1/MF2



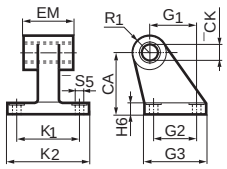
Cyl. bore	d1 H11	FB H13	TG1	E	R JS14	MF JS14	TF JS14	UF	W	ZF
32	30	7	32,5	45	32	10	64	80	16	130
40	35	9	38,0	52	36	10	72	90	20	145
50	40	9	46,5	65	45	12	90	110	25	155
63	45	9	56,5	75	50	12	100	120	25	170
80	45	12	72,0	95	63	16	126	150	30	190
100	55	14	89,0	115	75	16	150	170	35	205
125	60	16	110,0	140	90	20	180	205	45	245
160	65	18	140	190	115	20	230	275	60	280
200	75	22	175	225	135	25	270	318	70	300

Foot bracket MS1



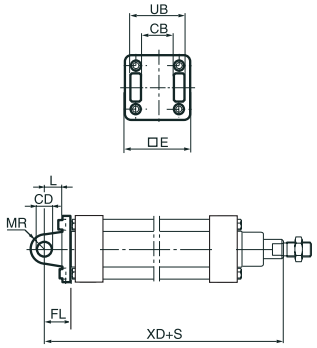
Cyl. bore	AB H14	TG_1	E	TR JS14	AO	AU	AH JS15	l_7	AT	SA
32	7	32,5	45	32	10	24	32	30	3	142
40	9	38,0	52	36	8	28	36	30	3	161
50	9	46,5	65	45	13	32	45	36	3	70
63	9	56,5	75	50	13	32	50	35	3	186
80	12	72,0	95	63	14	41	63	49	4	210
100	14	89,0	115	75	15	41	71	54	4	220
125	16	110,0	140	90	22	45	90	71	4,75	250
160	18	140	177	115	24	60	115		4,75	300
200	22	175	214	135	30	70	135		8	320

Pivot bracket with rigid bearing



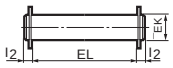
Cyl. bore	CK H9	S_5 H13	K_1 JS14	K_2	G_1 JS14	G_2 JS14	EM	G_3	CA JS15	H_6	R_1
32	10	5.5	38	51	21	18	25,5	31	32	8	10,0
40	12	5.5	41	54	24	22	27,0	35	36	10	11,0
50	12	9,0	50	65	33	30	31,0	45	45	12	13,0
63	16	9,0	52	67	37	35	39,0	50	50	12	15,0
80	16	11,0	66	86	47	40	49,0	60	63	14	15,0
100	20	11,0	76	96	55	50	59,0	70	71	15	19,0
125	25	14,0	94	124	70	60	69,0	90	90	20	22,5

Clevis bracket MP2



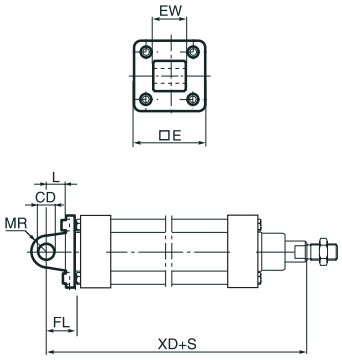
Cyl. bore	E	UB h14	CB H14	FL ±0,2	L	CD H9	MR	XD
32	45	45	26	22	13	10	10	142
40	52	52	28	25	16	12	12	160
50	65	60	32	27	16	12	12	170
63	75	70	40	32	21	16	16	190
80	95	90	50	36	22	16	16	210
100	115	110	60	41	27	20	20	230
125	140	130	70	50	30	25	25	275
160	177	170	90	55	35	30	30	315
200	214	170	90	60	36	30	30	335

Pin set, clevis bracket MP2



Cyl. bore	EK e8	EL	l_2
32	10	46	3,0
40	12	53	3,0
50	12	61	3,0
63	16	71	3,0
80	16	91	3,0
100	20	111	3,0
125	25	132	2,5

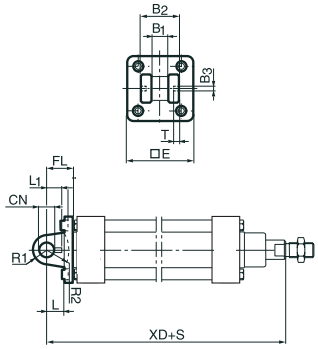
Clevis bracket MP4



Cyl. bore	E	EW	FL ±0,2	L	CD H9	MR	XD
32	45	26	22	13	10	10	142
40	52	28	25	16	12	12	160
50	65	32	27	16	12	12	170
63	75	40	32	21	16	16	190
80	95	50	36	22	16	16	210
100	115	60	41	27	20	20	230
125	140	70	50	30	25	25	275
160	177	90	55	35	30	30	315
200	214	90	60	35	30	30	335

S = Stroke length

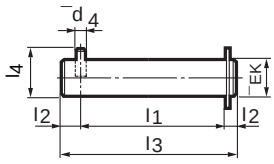
Clevis bracket GA



Cyl. bore	E	B_2 d12	B_1 H14	T	B_3	R_2	L_1	FL ±0,2	L	CN	R_1 F7	XD
32	45	34	14	3	3,3	17	11,5	22	12	10	11	142
40	52	40	16	4	4,3	20	12,0	25	15	12	13	160
50	65	45	21	4	4,3	22	14,0	27	17	16	18	170
63	75	51	21	4	4,3	25	14,0	32	20	16	18	190
80	95	65	25	4	4,3	30	16,0	36	20	20	22	210
100	115	75	25	4	4,3	32	16,0	41	25	20	22	230
125	140	97	37	6	6,3	42	24,0	50	30	30	30	275

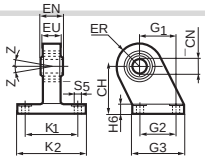
S = Stroke length

Pin set GA



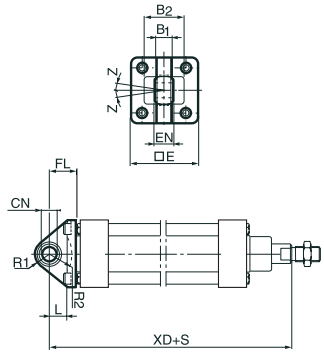
Cyl. bore	EK h9	d4 H12	l1	l2	l3	l4
32	10	3	32,5	4,5	41	14
40	12	4	38,0	6,0	48	16
50	16	4	43,0	6,0	54	20
63	16	4	49,0	6,0	60	20
80	20	4	63,0	6,0	75	24
100	20	4	73,0	6,0	85	24
125	30	6	94,0	9,0	110	36

Pivot bracket with swivel bearing



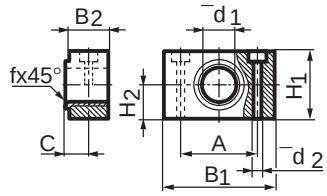
Cyl. bore	CN H7	S5 H13	K1 JS14	K2	EU	G1 JS14	G2 JS14	EN	G3	CH JS15	H6	ER	Z
32	10	6,6	38	51	10,5	21	18	14	31	32	10	16	4°
40	12	6,6	41	54	12,0	24	22	16	35	36	10	18	4°
50	16	9,0	50	65	15,0	33	30	21	45	45	12	21	4°
63	16	9,0	52	67	15,0	37	35	21	50	50	12	23	4°
80	20	11,0	66	86	18,0	47	40	25	60	63	14	28	4°
100	20	11,0	76	96	18,0	55	50	25	70	71	15	30	4°
125	30	14,0	94	124	25,0	70	60	37	90	90	20	40	4°

Swivel eye bracket



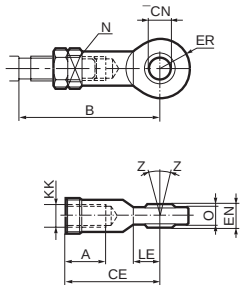
Cyl. bore	E	B1	B2	EN	R1	R2	FL	L	CN	XD H7	Z
32	45	10,5	38	14	16	14	22	12	10	142	4°
40	52	12,0	44	16	18	16	25	15	12	160	4°
50	65	15,0	51	21	21	19	27	15	16	170	4°
63	75	15,0	56	21	23	22	32	20	16	190	4°
80	95	18,0	72	25	29	25	36	20	20	210	4°
100	115	18,0	82	25	31	27	41	25	20	230	4°
125	140	25,0	109	37	40	34	50	30	30	275	4°

Pivot bracket for MT4



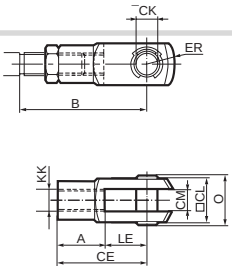
Cyl. bore	B_1	B_2	A	C	d_1	d_2 H13	H_1	H_2	fx45° min
32	46	18,0	32	10,5	12	6,6	30	15	1,0
40	55	21,0	36	12,0	16	9,0	36	18	1,6
50	55	21,0	36	12,0	16	9,0	36	18	1,6
63	65	23,0	42	13,0	20	11,0	40	20	1,6
80	65	23,0	42	13,0	20	11,0	40	20	1,6
100	75	28,5	50	16,0	25	14,0	50	25	2,0
125	75	28,5	50	16,0	25	14,0	50	25	2,0
160	92	40,0	60	22,5	32	18,0	60	30	2,5
200	92	40	60	22,5	32	18,0	60	30	2,5

Swivel rod eye



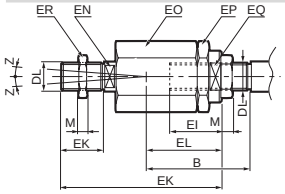
Cyl. bore	A	B min	B max	CE	CN H9	EN h12	ER	KK	LE min	N	O	Z
32	20	49,0	55	43	10	14	14	M10x1,25	15	17	10,5	12°
40	22	57,0	62	50	12	16	16	M12x1,25	17	19	12,0	12°
50	28	72,0	80	64	16	21	21	M16x1,5	22	22	15,0	15°
63	28	72,0	80	64	16	21	21	M16x1,5	22	22	15,0	15°
80	33	86,0	97	77	20	25	25	M20x1,5	26	32	18,0	15°
100	33	86,0	97	77	20	25	25	M20x1,5	26	32	18,0	15°
125	51	122,0	137	110	30	37	35	M27x2	36	41	25,0	15°
160	56	139,0	161	125	35	43	40	M36x2	41	14	28	15°
200	56	139	161	125	35	43	40	M36x2	41	14	28	15°

Clevis



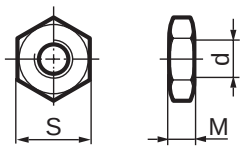
Cyl. bore	A	B min	B max	CE	CK h11/E9	CL	CM	ER	KK	LE	O
32	20	46,0	52	40	10	20	10	16	M10x1,25	20	28,0
40	24	55,0	60	48	12	24	12	19	M12x1,25	24	32,0
50	32	72,0	80	64	16	32	16	25	M16x1,5	32	41,5
63	32	72,0	80	64	16	32	16	25	M16x1,5	32	41,5
80	40	89,0	100	80	20	40	20	32	M20x1,5	40	50,0
100	40	89,0	100	80	20	40	20	32	M20x1,5	40	50,0
125	56	122,0	137	110	30	55	30	45	M27x2	54	72,0
160	72	158,0	180	144	35	50	35	50	M36x2	72	83,0
200	72	158,0	180	144	35	50	35	50	M36x2	72	83,0

Flexocoupling



Cyl. bore	B min	B max	DL	EH	EI	EK	EL	EN	EO	EP	EQ	M	Z
32	36,0	43	M10x1,25	20	23	70	31	12	30	30	19	5,0	4°
40	37,0	43	M12x1,25	23	23	67	31	12	30	30	19	6,0	4°
50	53,0	61	M16x1,5	40	32	112	45	19	41	41	30	8,0	4°
63	53,0	61	M16x1,5	40	32	112	45	19	41	41	30	8,0	4°
80	57,0	67	M20x1,5	39	42	122	56	19	41	41	30	10,0	4°
100	57,0	67	M20x1,5	39	42	122	56	19	41	41	30	10,0	4°
125	75,5	89	M27x2	48	48	145	60	24	55	55	32	13,5	4°

Nut

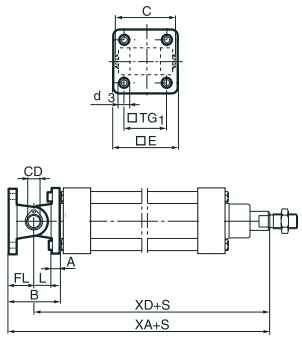


Cyl. bore	d	M	S
32	M10x1,25	5,0	17
40	M12x1,25	6,0	19
50	M16x1,5	8,0	24
63	M16x1,5	8,0	24
80	M20x1,5	10,0	30
100	M20x1,5	10,0	30
125	M27x2	13,5	41
160	M36x2	14,0	55
200	M36x2	14,0	55

Dimensions, combinations

All dimensions in mm unless otherwise stated

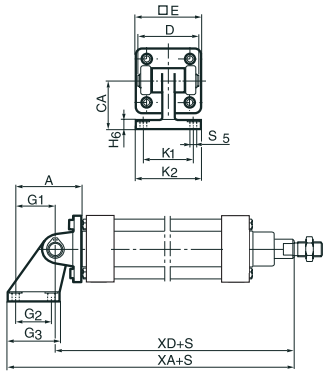
Clevis bracket MP4, Clevis bracket MP2 and Pin set MP2



Cyl. bore	A	B	C	CD H9	d3 H13	E	FL ±0,2	L	TG_1	XA	XD
32	9	44	52	10	6,6	45	22	13	32,5	164	142
40	9	50	59	12	6,6	52	25	16	38,0	185	160
50	11	54	67	12	9,0	65	27	16	46,5	197	170
63	11	64	77	16	9,0	75	32	21	56,5	222	190
80	14	72	97	16	11,0	95	36	22	72,0	246	210
100	14	82	117	20	11,0	115	41	27	89,0	271	230
125	20	100	137	25	13,5	140	50	30	110,0	325	275

S = Stroke length

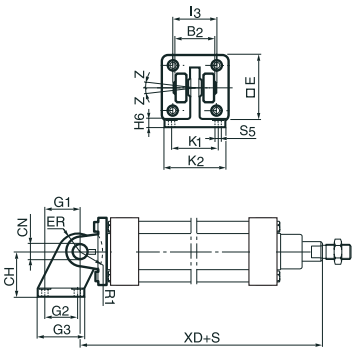
Clevis bracket MP2, Pivot bracket with rigid bearing and Pin set MP2



Cyl. bore	A	CA JS15	D	E	G_1 JS14	G_2 JS14	G_3	H_6	k_1 JS14	k_2	S_5 H13	XA	XD
32	43	32	52	45	21	18	31	8	38	51	6,6	169,5	142
40	49	36	59	52	24	22	35	10	41	54	6,6	190,5	160
50	60	45	67	65	33	30	45	12	50	65	9	210,5	170
63	69	50	77	75	37	35	50	12	52	67	9	234,5	190
80	83	63	97	95	47	40	60	14	66	86	11	267,0	210
100	96	71	117	115	55	50	70	15	76	96	11	295,0	230
125	120	90	137	140	70	60	90	20	94	124	14	360,0	275

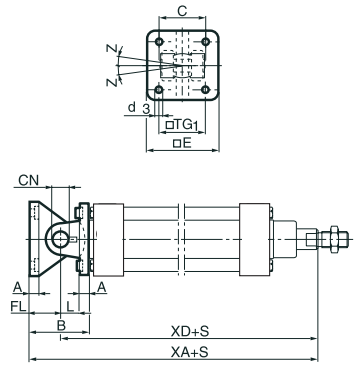
S = Stroke length

Clevis bracket GA, Pivot bracket with swivel bearing, Pin set GA



Cyl. bore	CH JS15	E	ER	G1 JS14	G2 JS14	G3	H6	k1 JS14	k2	l3	S5 H13	XD	Z
32	32	45	16	21	18	31	10	38	51	41	6,6	142	4°
40	36	52	18	24	22	35	10	41	54	48	6,6	160	4°
50	45	65	21	33	30	45	12	50	65	54	9,0	170	4°
63	50	75	23	37	35	50	12	52	67	60	9,0	190	4°
80	63	95	28	47	40	60	14	66	86	75	11,0	210	4°
100	71	115	30	55	50	70	15	76	96	85	11,0	230	4°
125	90	140	40	70	60	90	20	94	124	110	14,0	275	4°

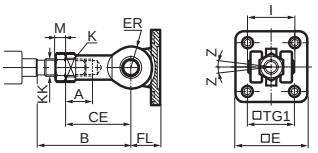
Clevis bracket GA, Swivel eye bracket and Pin set GA



Cyl. bore	A	B	C	CN h9	d3 H13	E	FL ±0,2	L	TG_1	XA	XD	Z
32	10	44	41	10	6,6	45	22	12	32,5	164	142	4°
40	10	50	48	12	6,6	52	25	15	38,0	185	160	4°
50	10	54	54	16	9,0	65	27	17	46,5	197	170	4°
63	12	64	60	16	9,0	75	32	20	56,5	222	190	4°
80	16	72	75	20	11,0	95	36	20	72,0	246	210	4°
100	16	82	85	20	11,0	115	41	25	89,0	271	230	4°
125	20	100	110	30	13,5	140	50	30	110,0	325	275	4°

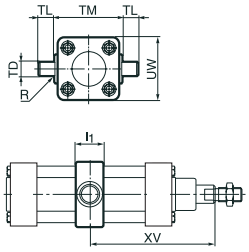
S = Stroke length

Swivel rod eye, Clevis bracket GA and Pin set GA



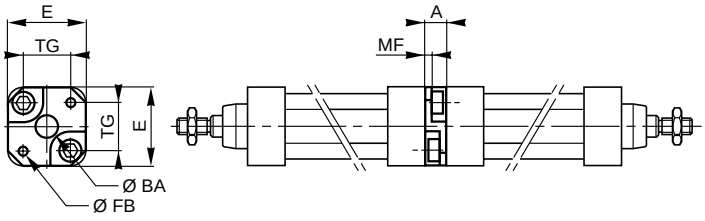
Cyl.	A	B_{min}	B_{max}	CE	E	ER	FL	K	KK	M	I	TG1	Z
32	20	48,0	55	43	45	14	22	17	M10x1,25	5,0	41	32,5	4°
40	22	56,0	62	50	52	16	25	19	M12x1,25	6,0	48	38,0	4°
50	28	72,0	80	64	65	21	27	22	M16x1,5	8,0	54	46,5	4°
63	28	72,0	80	64	75	21	32	22	M16x1,5	8,0	60	56,5	4°
80	33	87,0	97	77	95	25	36	32	M20x1,5	10,0	75	72,0	4°
100	33	87,0	97	77	115	25	41	32	M20x1,5	10,0	85	89,0	4°
125	51	123,5	137	110	140	35	50	41	M27x2	13,5	110	110,0	4°

Centre trunnion MT4 C52M and Pivot bracket for MT4



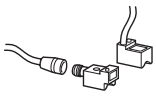
Cyl. bore	A	B1	B2	d_2	E	F	H1	H2	UW	UW	l_1	I1	XV_{min}	XV_{min}
32	32	46	18,0	6,6	86	71	30	15	48	55	15	25	59,5	96
40	36	55	21,0	9,0	105	87	36	18	60	65	20	25	70,0	100
50	36	55	21,0	9,0	117	99	36	18	68	75	23	30	78,0	120
63	42	65	23,0	11,0	136	116	40	20	82	90	35	35	89,0	125
80	42	65	23,0	11,0	156	136	40	20	99	110	35	40	98,5	150
100	50	75	28,5	14,0	189	164	50	25	121	132	45	45	113,5	158
125	50	75	28,5	14,0	217	192	50	25	148	160	48	55	133,5	191

Mounting kit, Back to Back mounted cylinders



Ø	E	TG	ØFB	MF	A	ØBA
32	50	32,5	6,5	5	16	30
40	60	38,0	6,5	5	16	35
50	66	46,5	8,5	6	20	40
63	80	56,5	8,5	6	20	45
80	100	72,0	10,5	8	25	45
100	118	89,0	10,5	8	25	55

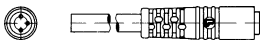
Solid state sensors



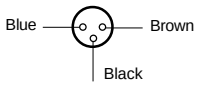
Type/Symbol	For cyl. mm	Contact-function	Cable length m	Voltage range VDC	Current max mA	Capacity W	Weight Kg	Order code
	32	PNP, NO, 90°	2	10-30	150	6	0,04	**P1A-2XMK**
	40	NPN, NC, 90°	2	10-30	150	6	0,04	**P1A-2XLK**
	50	PNP, NO	2	10-30	100	6	0,01	**P1A-2XHK**
	63	NPN, NC	2	10-30	100	6	0,01	**P1A-2XEK**
	80	PNP, NO	*	10-30	100	6	0,02	**P1A-2XJH**
	100	NPN, NC	*	10-30	100	6	0,02	**P1A-2XFH**

* Mini "in-line" 8 mm plug, cable with 8 mm round connector must be ordered separately

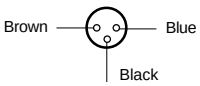
Mountings and cables

Type	For cyl. mm	Cable length m	Weight Kg	Order code
Mountings for profile cylinders				
	32/40		0,030	**PAX-ZAE13240**
	50/63		0,030	**PAX-ZAE15063**
	80/100		0,030	**PAX-ZAE180100**
Mountings for tie rod cylinders				
	125/160/200		0,030	**PAX-ZAF2125200**
Cables with 8 mm round connector for sensor				
		3	0,06	**9126 3443-41**
		10	0,18	**9126 3443-42**

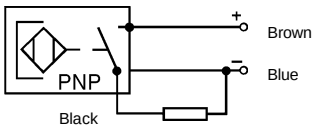
P1A-2XJH



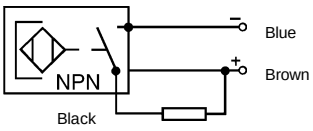
P1A-2XFH



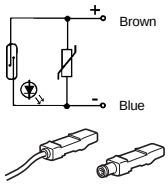
P1A-2XMK, P1A-2XHK, P1A-2XJH



P1A-2XLK, P1A-2XEK, P1A-2XFH

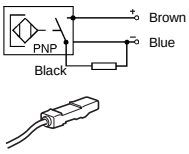


Reed switch sensor

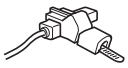
Type/Symbol	For cyl. mm	Contact-function	Cable length m	Voltage range	Current max A	Capacity max, W	Weight Kg	Order code
	32-200	NO	3	10-240 AC/300 DC	0,50	50	0,04	**4620A**
	32-200	NO	3	10-240 AC/300 DC	0,38	50	0,04	**4621A****
	32-200	NO	*	10-240 AC/300 DC	0,50	50	0,01	**4622A**
	32-200	NO	*	10-240 AC/300 DC	0,38	50	0,01	**4623A****
	32-200	NO	*	10-60 AC/DC	0,38	50	0,02	**4631A****

* Cable with 8 mm plug must be ordered separately
** With LED indication

Solid state sensor, With LED indication

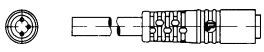
Type/Symbol	For cyl. mm	Contact-function	Cable length m	Voltage range VDC	Current max A	Capacity max, W	Weight Kg	Order code
	32-200	PNP NO	3	10-28	0,4	12	0,05	**4630A****

Mountings

	For cyl. bore	Weight Kg	Order Code
For profile cylinders*			
	32/63	0,02	**873**
	80/100	0,02	**874**
For tie rod cylinders*			
	32/200	0,02	**4624A**

* For reed- and solid state sensors

Cables

	Type	Weight Kg	Order Code
Cables complete with 8 mm round connections			
	3 m Flex PVC	0,07	**9126 3443-41**
	10 m Flex PVC	0,21	**9126 3443-42**
	3 m Super Flex PVC	0,07	**9126 3443-43**
	10 m Super Flex PVC	0,21	**9126 3443-44**
	3 m Polyurethene	0,01	**9126 3443-45**
	10 m Polyurethene	0,20	**9126 3443-46**

Features

Three versions of the Piston Rod Guidance modules are available. For standard applications, units with plain PTFE coated bearings are available but for more demanding applications with greater loadings, versions featuring 4 linear ball bearings provide excellent stability and rigidity.

Anti-rotation

Anti-rotation is achieved by twin guide bars. The piston rod is attached to the end plate by a self aligning coupling.

High loading torque

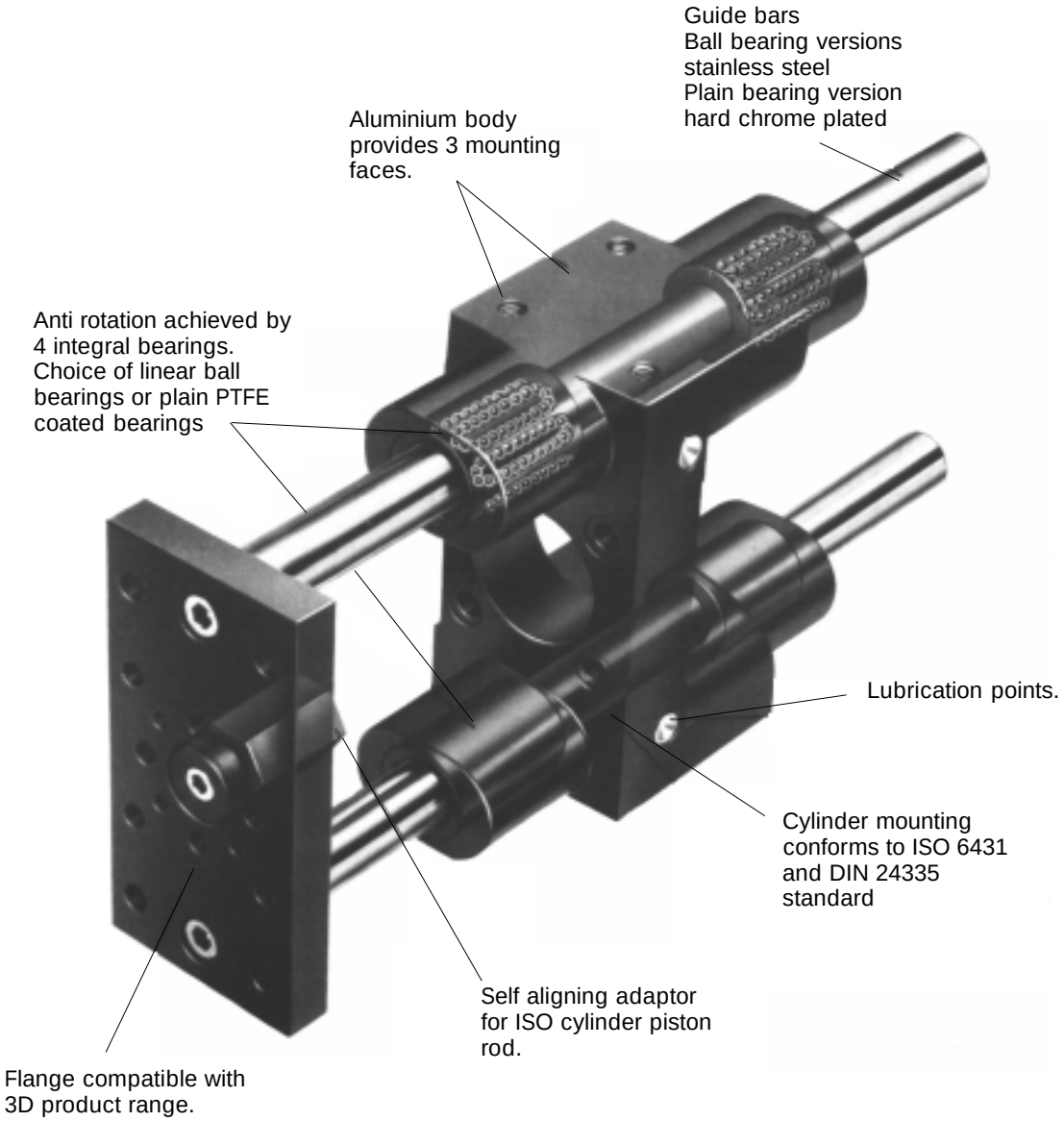
The units provide high resistance to torque loading and greatly increased linear load bearing capacity.

Light weight

The cast aluminium body is of a compact and light design, providing mounting in vertical or horizontal positions. The flange plate mounting holes are fully compatible with the 3D manipulators and short stroke modules, providing even greater flexibility.

Long life

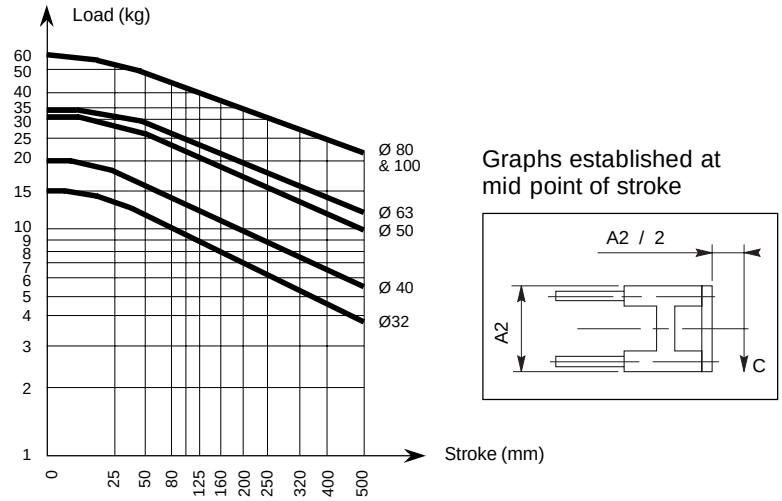
Sealed linear ball bearings are greased for life.



Technical information 'H style'

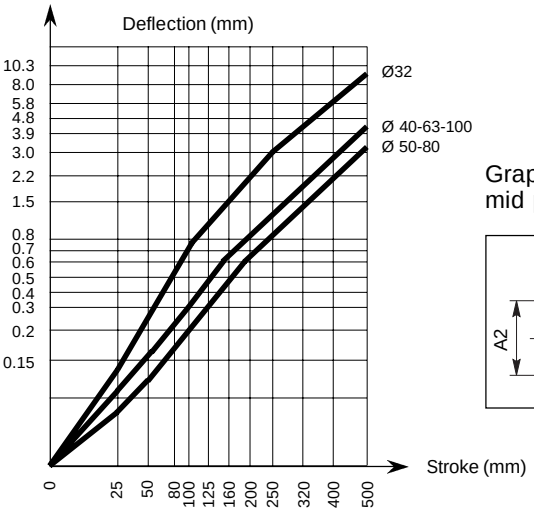
Rod guide with ball bearings

Maximum load carried

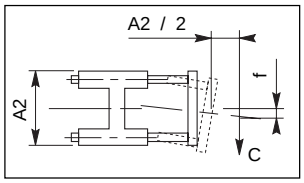


Graphs established at mid point of stroke

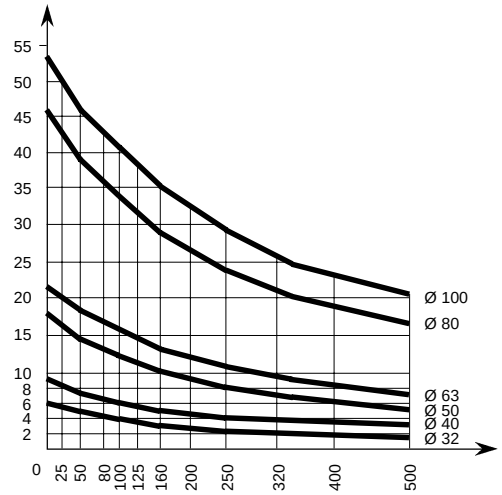
Maximum deflection/max load



Graphs established at mid point of stroke

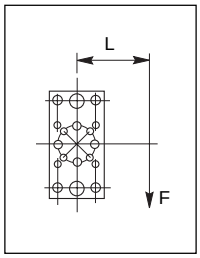


Maximum permissible torque (Nm)



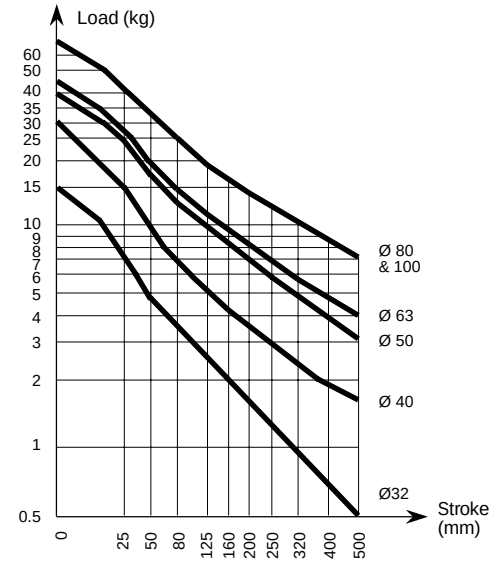
Formula:

C(Nm) = F(N) x L(m)

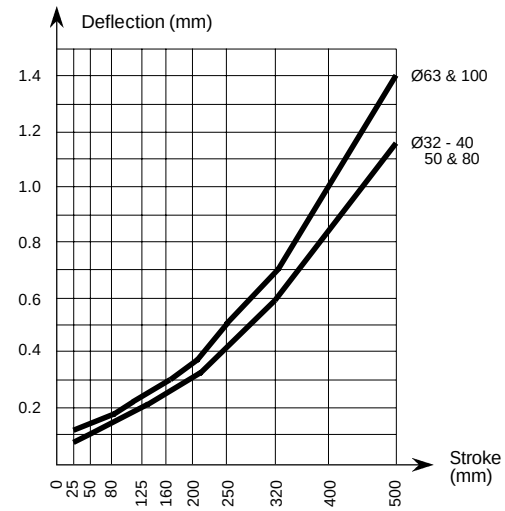


Rod guide with plain bearings

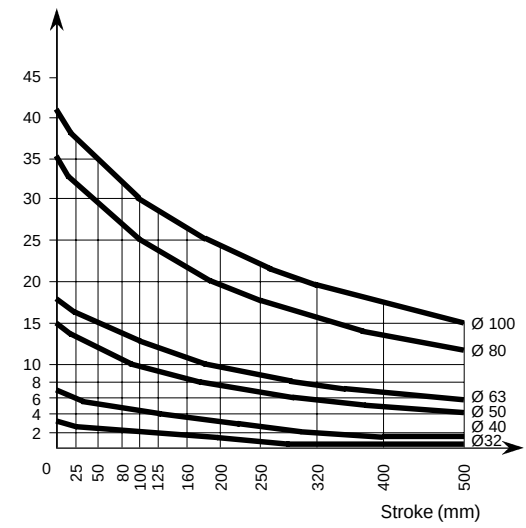
Maximum load carried



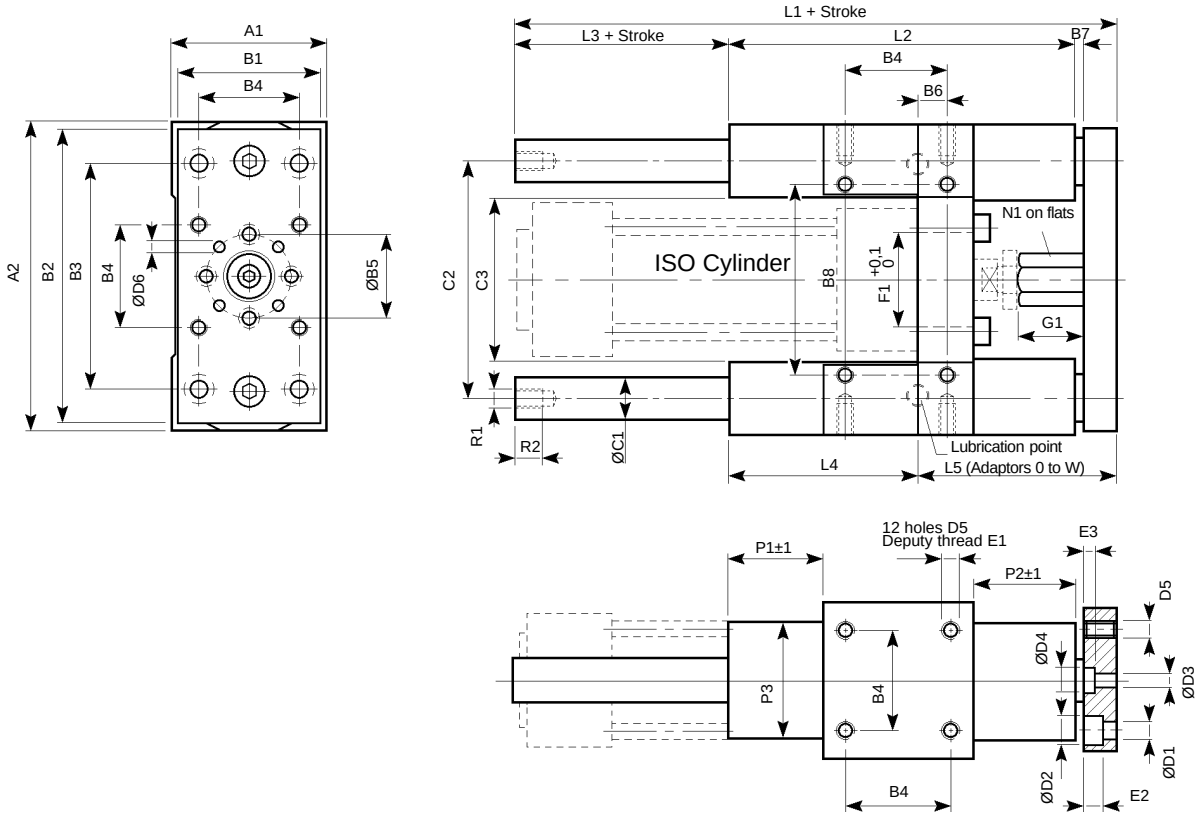
Maximum deflection/max load



Maximum permissible torque (Nm)



Dimensions, H style, Rod Guidance Modules



Dimensions (mm)

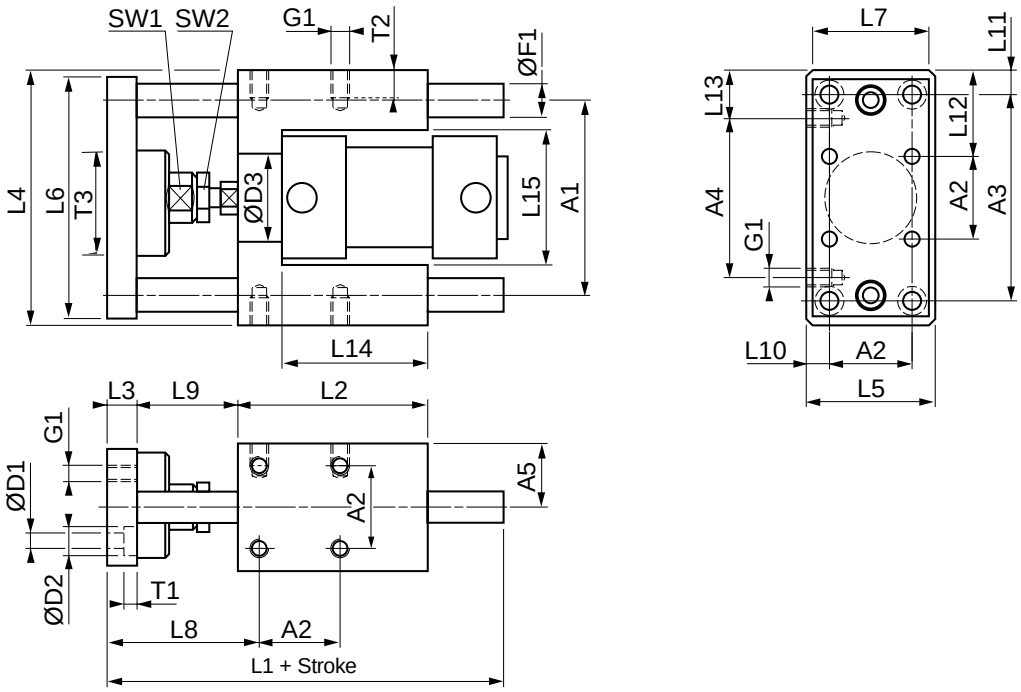
Bore	A1	A2	B1	B2	B3	B4	B5	B6	B7	B8	C1	C2	C3	D1	D2	D3	D4	D5	D6	E1
32	50	97	45	90	78	32,5	31,5	4	12	61	12	73,5	50	6,6	11	5,2	9	M6	4	12
40	58	115	54	110	84	38	31,5	11	12	69	16	86,5	58	6,6	11	5,2	9	M6	4	12
50	70	137	63	130	100	46,5	50	19	15	85	20	103,5	70	9	14	6,4	11	M8	4	16
63	85	152	80	145	105	56,5	50	15	15	100	20	118,5	85	9	14	6,4	11	M8	4	16
80	105	189	10	180	130	72	76	21	20	130	25	147	105	11	17	8,4	14	M10	6	20
100	130	213	120	200	150	89	76	24,5	20	150	25	171,5	130	11	17	8,4	14	M10	6	20

Bore	E2	E3	F1	G1	L1	L2	L3	L4	L5	N1	P1	P2	P3	R1	R2	S	W
32	7	4	30	17	150	120	15	71	64	17	36	31	40	M6	11	6	5
40	7	4	35	24	170	130	25	71	74	17	36	36	44	M6	11	5	6
50	9	9	40	27	192	150	24	79	89	24	42	33	50	M8	16	3,5	8
63	9	9	45	27	222	180	24	109	89	24	58	44	60	M8	16	1,5	8
80	11	5	45	32	247	200	24	113	110	30	50	52	70	M10	16	0	10
100	11	5	55	32	267	220	24	128	115	30	49	51	70	M10	16	-4	10

H style order codes and weights (g)

Bore size	Part nos. Ball bearing	Part nos. Plain bearing	Weights (g) 0mm stroke	Weights (g) per 100mm extra
32	**P1E-4KRH-XXX**	**P1E-4KRJ-XXX**	970	175
40	**P1E-4LRH-XXX**	**P1E-4LRJ-XXX**	1550	315
50	**P1E-4MRH-XXX**	**P1E-4MRJ-XXX**	2560	495
63	**P1E-4NRH-XXX**	**P1E-4NRJ-XXX**	3570	495
80	**P1E-4PRH-XXX**	**P1E-4PRJ-XXX**	6530	770
100	**P1E-4QRH-XXX**	**P1E-4QRJ-XXX**	8760	770

Dimensions, U style, Rod Guidance Modules



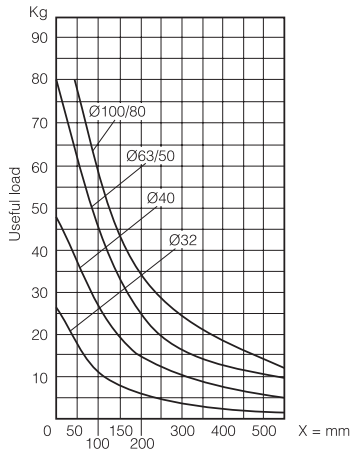
Cyl. bore mm	A1	A2	A3	A4	A5	D1	D2	D3	F1	G1	L1	L2	L3	L4	L5
32	74	32,5	78	61	25,0	6,6	11	30	12	M6	133	72	12	97	50
40	87	38,0	84	69	29,0	6,6	11	35	16	M6	149	84	12	115	58
50	104	46,5	100	85	35,0	9,0	15	40	20	M8	175	100	15	137	70
63	119	56,5	105	100	42,5	9,0	15	45	20	M8	190	115	15	152	85
80	148	72,0	130	130	52,0	11,0	18	45	25	M10	238	150	20	189	105
100	172	89,0	150	150	65,0	11,0	18	55	25	M10	249	165	20	213	130

Cyl. bore mm	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	SW1	SW2	T1	T2	T3
32	90	45	$60,5^{+2/0}$	$35^{+2/0}$	8,75	9,5	32,25	18,0	44	50,2	13	17	6,5	10	HEX30
40	110	54	$63,5^{+2/0}$	$41^{+2/0}$	10,00	15,5	38,50	23,0	51	58,2	15	19	6,5	10	Ø45
50	130	63	$76,0^{+5/0}$	$48^{+4/0}$	11,75	18,5	45,25	26,0	60	70,2	22	24	9,0	13	Ø54
63	145	80	$76,0^{+5/0}$	$48^{+4/0}$	14,25	23,5	47,75	26,0	75	85,2	22	24	9,0	13	Ø54
80	180	100	$93,0^{+6/0}$	$56^{+6/0}$	16,50	29,5	58,50	29,5	116	105,4	27	30	11,0	16	Ø60
100	200	120	$95,5^{+6/0}$	$56^{+6/0}$	20,50	31,5	62,00	31,5	126	130,4	27	30	11,0	16	Ø60

U style order codes and weights (g)

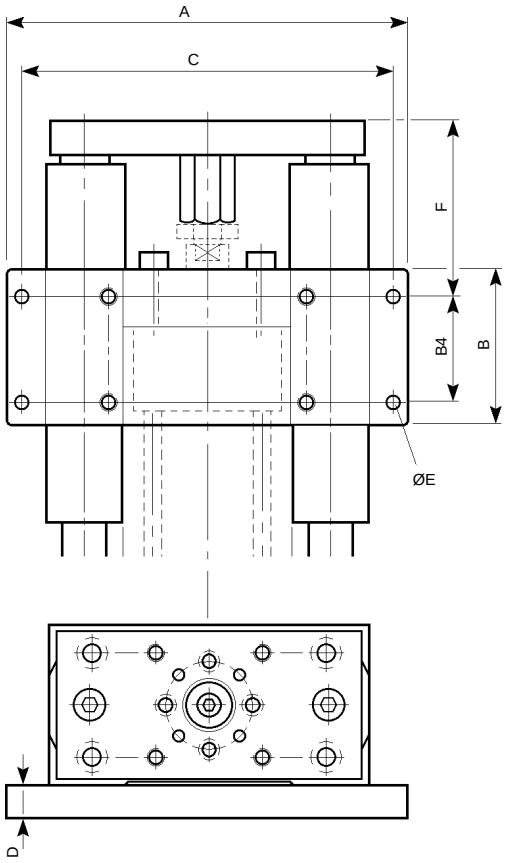
Bore size	Part nos. Plain bearing	Weights (g) 0mm stroke	Weights (g) per 100mm extra
32	**P1E-4KRK-XXX**		
40	**P1E-4LRK-XXX**		
50	**P1E-4MRK-XXX**		
63	**P1E-4NRK-XXX**		
80	**P1E-4PRK-XXX**		
100	**P1E-4QRK-XXX**		

'U' style max load



Mounting kits

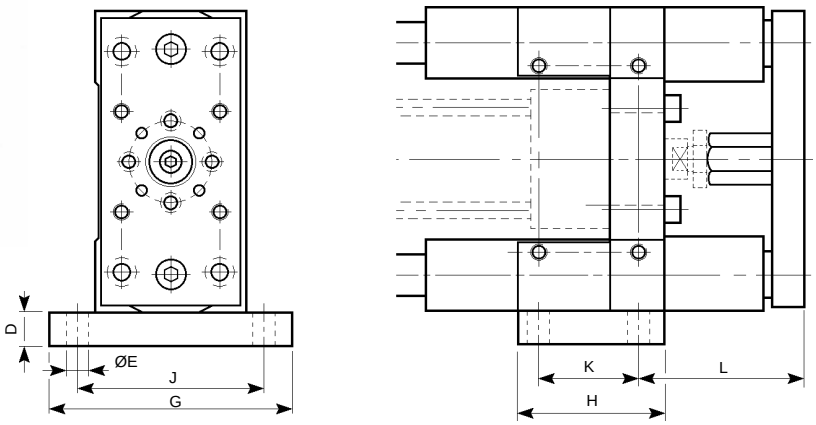
Horizontal mounting (1)



Raw material: Galvanised steel
Note: Mounting kits include 4 fixing screws

Vertical mounting (2)

Mounting kits conform to ISO 6431
and DIN 24335 standard.



Raw material: Galvanised steel
Note: Mounting kits include 4 fixing screws

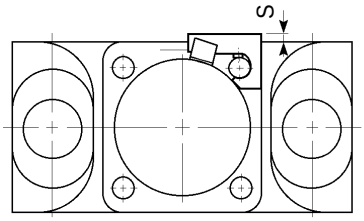
Part nos. dimensions (mm) - Weights

Bore size	Mounting (1) horizontal	Mounting (2) vertical	A	B	B4	C	D	E	F	G	H	J	K	L	Weight (g) (1)	(2)
32	**32-2801R**	**PIC-4KMB**	128	50	32,5	116	10	6,6	60	80	47	64	32	60	500	230
40	**40-2801R**	**PIC-4LMB**	155	55	38	140	10	9	63	92	53	72	36	64	700	280
50	**50-2801R**	**PIC-4MMB**	175	70	46,5	160	12	9	70	113	65	90	45	71	1180	530
63	**63-2801R**	**PIC-4NMB**	190	80	56,5	175	12	9	74	129	74	100	50	77	1450	710
80	**80-2801R**	**PIC-4PMB**	240	100	72	218	16	11	89	153	97	126	63	93,5	3000	1590
100	**100-2801R**	**PIC-4QMB**	270	120	89	245	16	13	90,5	186	111	150	75	97,5	4100	2190

Sensor clamps for tie bar cylinders used with guidance modules

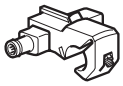
Reed Switch or Solid State sensors are used in conjunction with the bolt on modular Piston Rod Guidance units.

Assembly:
Simply hook the bracket over the cylinder tie rods making sure the switch is in contact with the cylinder tube and lock in place with integral grub screw.



Tie bar mounting bracket

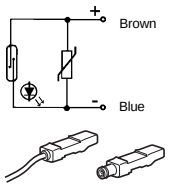
Bore size	Part no.	S Dim
32	4637	6
40		5
50	4638	3,5
63		1,5
80	4639	0
100		-4



Smooth profile mounting bracket

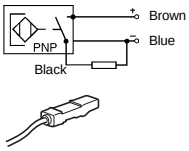
Bore size	Part no.
32	873
40	
50	
63	
80	874
100	

Reed switch sensor

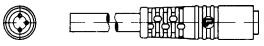
Type/Symbol	For cyl. mm	Contact-function	Cable length m	Voltage range	Current max A	Capacity max, W	Weight Kg	Order code
	32-200	NO	3	10-240 AC/300 DC	0,50	50	0,04	**4620A**
	32-200	NO	3	10-240 AC/300 DC	0,38	50	0,04	**4621A****
	32-200	NO	*	10-240 AC/300 DC	0,50	50	0,01	**4622A**
	32-200	NO	*	10-240 AC/300 DC	0,38	50	0,01	**4623A****
	32-200	NO	*	10-60 AC/DC	0,38	50	0,02	**4631A****

* Cable with 8 mm plug must be ordered separately
** With LED indication

Solid state sensor, With LED indication

Type/Symbol	For cyl. mm	Contact-function	Cable length m	Voltage range VDC	Current max A	Capacity max, W	Weight Kg	Order code
	32-200	PNP NO	3	10-28	0,4	12	0,05	**4630A****

Cables

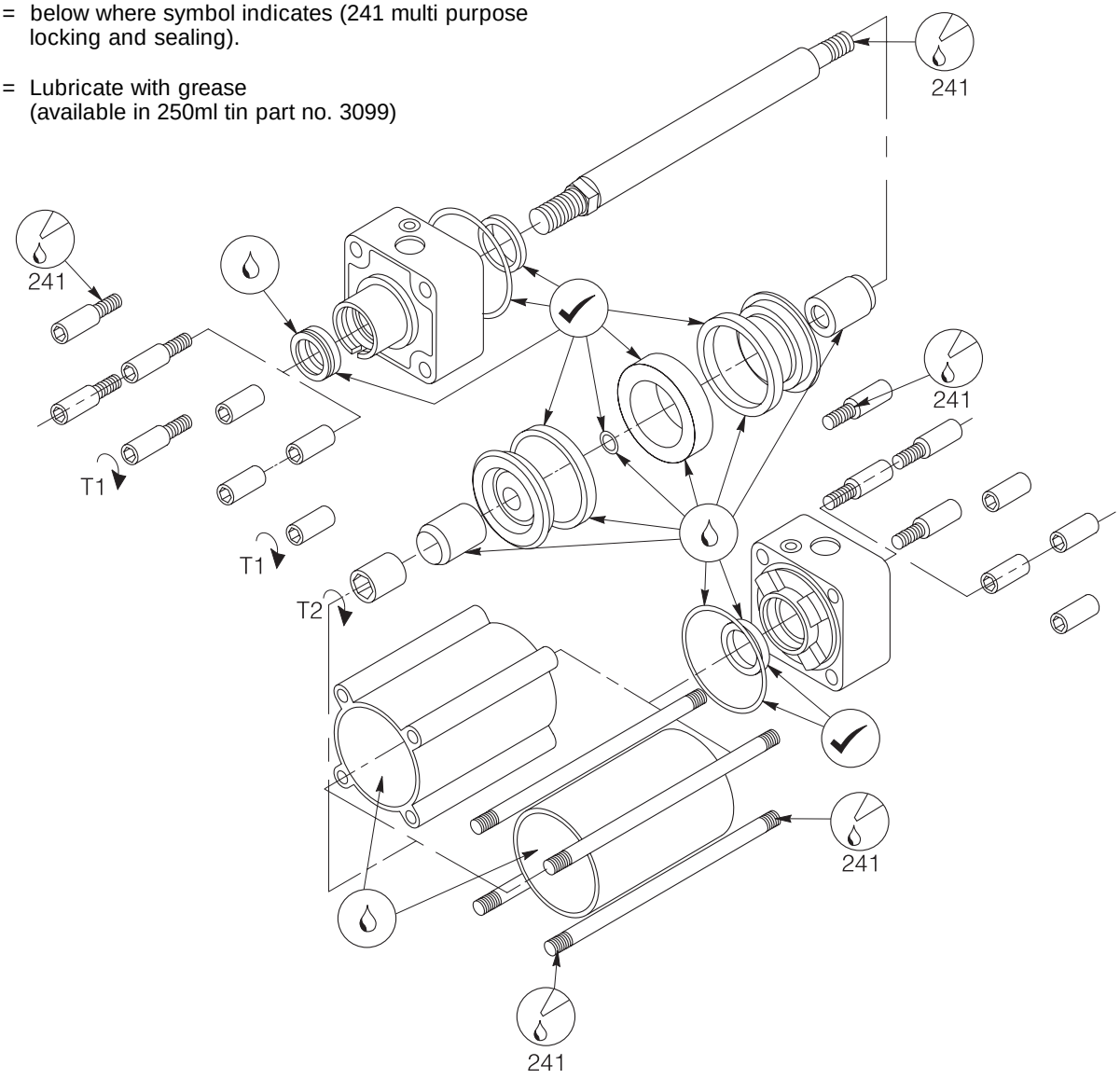
	Type	Weight Kg	Order Code
Cables complete with 8 mm round connections	3 m Flex PVC	0,07	**9126 3443-41**
	10 m Flex PVC	0,21	**9126 3443-42**
	3 m Super Flex PVC	0,07	**9126 3443-43**
	10 m Super Flex PVC	0,21	**9126 3443-44**
	3 m Polyurethene	0,01	**9126 3443-45**
	10 m Polyurethene	0,20	**9126 3443-46**

Repair kits

= Included in repair kit

= Apply threadlocking adhesive to the grade stated below where symbol indicates (241 multi purpose locking and sealing).

= Lubricate with grease (available in 250ml tin part no. 3099)



	Repair kit	
Ø	Standard	Viton High temperature
32	**P1E-6KRM**	**P1E-6KRV**
40	**P1E-6LRM**	**P1E-6LRV**
50	**P1E-6MRM**	**P1E-6MRV**
63	**P1E-6NRM**	**P1E-6NRV**
80	**P1E-6PRM**	**P1E-6PRV**
100	**P1E-6QRM**	**P1E-6QRV**
125	**P1E-6RRM**	**P1E-6RRV**
160	**P1E-6SRM**	**P1E-6SRV**
200	**P1E-6TRM**	**P1E-6TRV**

Ø	T1 Nm		T2 Nm	
32	4-5	6	9-10	5
40	4-5	6	9-10	6
50	9-10	8	28-30	12
63	9-10	8	28-30	12
80	18-20	10	80-85	12
100	18-20	10	80-85	12