



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



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.

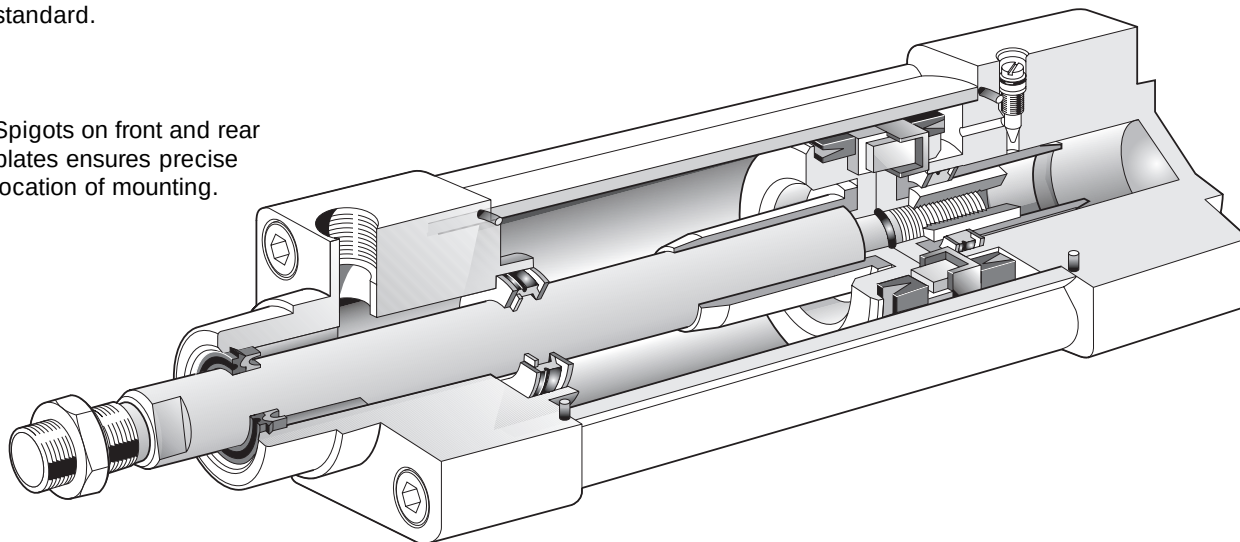
Aluminium tube to give high strength to weight ratio. Anodised as standard.

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°C to $+70^{\circ}\text{C}$, 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:

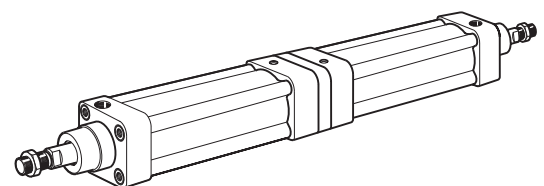
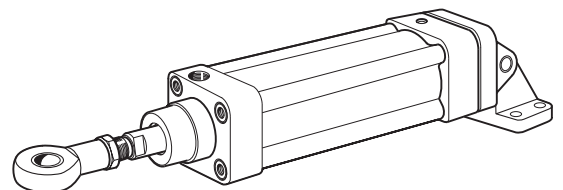
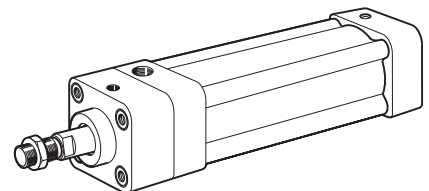
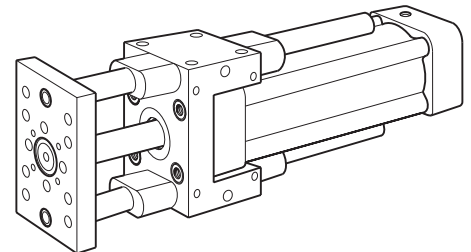
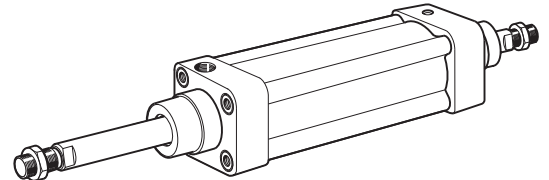
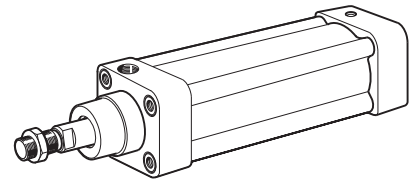
- Non-standard stroke lengths
- Choice of two different piston-rod materials
- Extended piston rods
- Double piston rods
- External guide, for controlled guidance of the piston rod
- Piston-rod locking device, which enables the piston rod to be locked in any position
- High temperature cylinder versions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



P1E Series ISO Cylinders

Technical information

Available cylinder thrust

Cylinder Bore	Piston Rod Ø	Piston Area cm ²		Effective Force (N) / Pressure (bar)							
		Extending	Retracting	1		2		3		4	
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

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

Pull/Retract

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

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)

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

For the instroke

Air consumption (l/s)

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

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

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

Where

F = force in (Newtons)

D = bore diameter (mm)

P = air pressure (bar)

L = stroke (mm)

T₀ = Time to outstroke (s)

T₁ = Time to instroke (s)

d = Piston rod diameter (mm)

Q₀ = air consumption outstroke (l)

Q₁ = air consumption instroke (l)

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

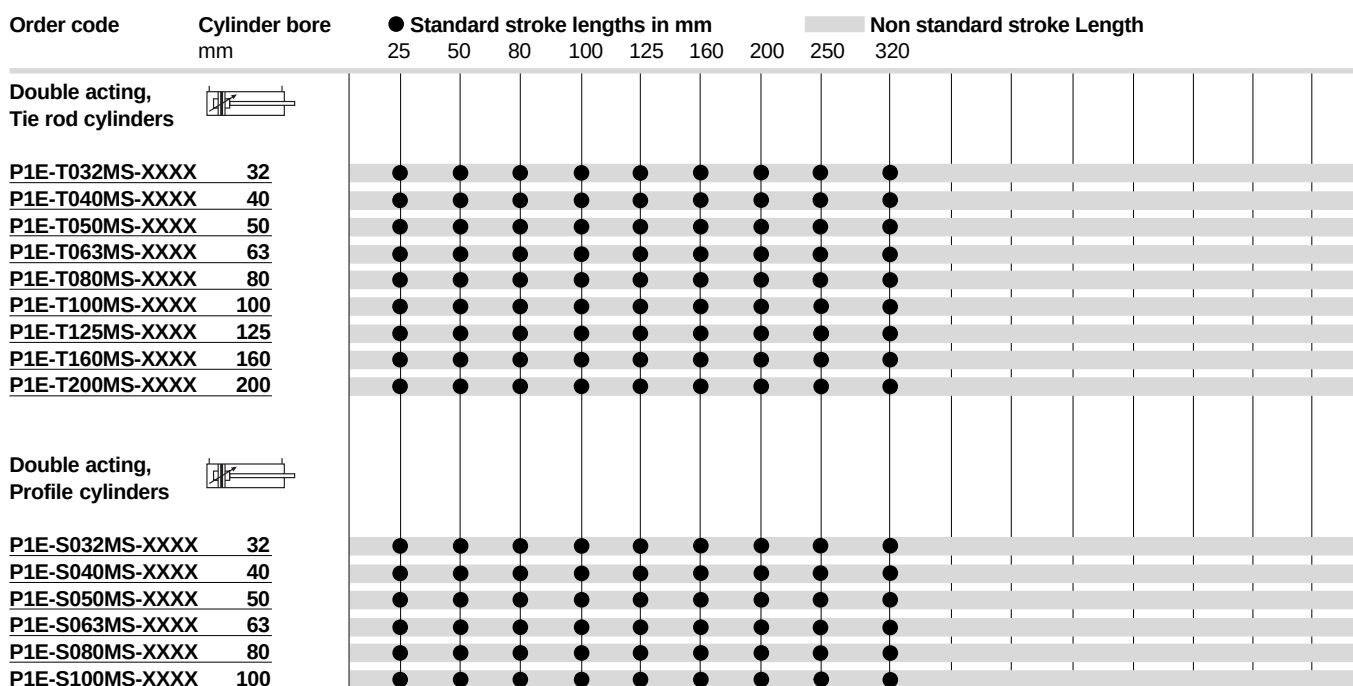
	Cylinder bore mm
	032
	040
	050
	063
	080
	100
	125
	160
	200

	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	

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

Standard stroke lengths

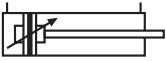
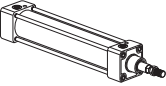


XXXX = Stroke

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

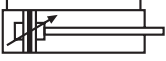
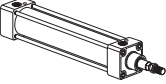
P1E Series ISO Cylinders

Main data for P1E cylinders

Symbol	Cyl. bore mm	Stroke mm	Weight Kg	Order code Tie rod cylinders	Order code Profile cylinders
Double acting Magnetic  	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
	Rod thread mm 12/M10x1,25	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
	Port size G1/8	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
	40	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
	Rod thread mm 16/M12x1,25	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
	Port size G1/4	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
	50	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
	Rod thread mm 20/M16x1,5	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
	63	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
	Rod thread mm 25/M20x1,5	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
	80	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
	Rod thread mm 25/M20x1,5	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
	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
	Port size G1/2	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

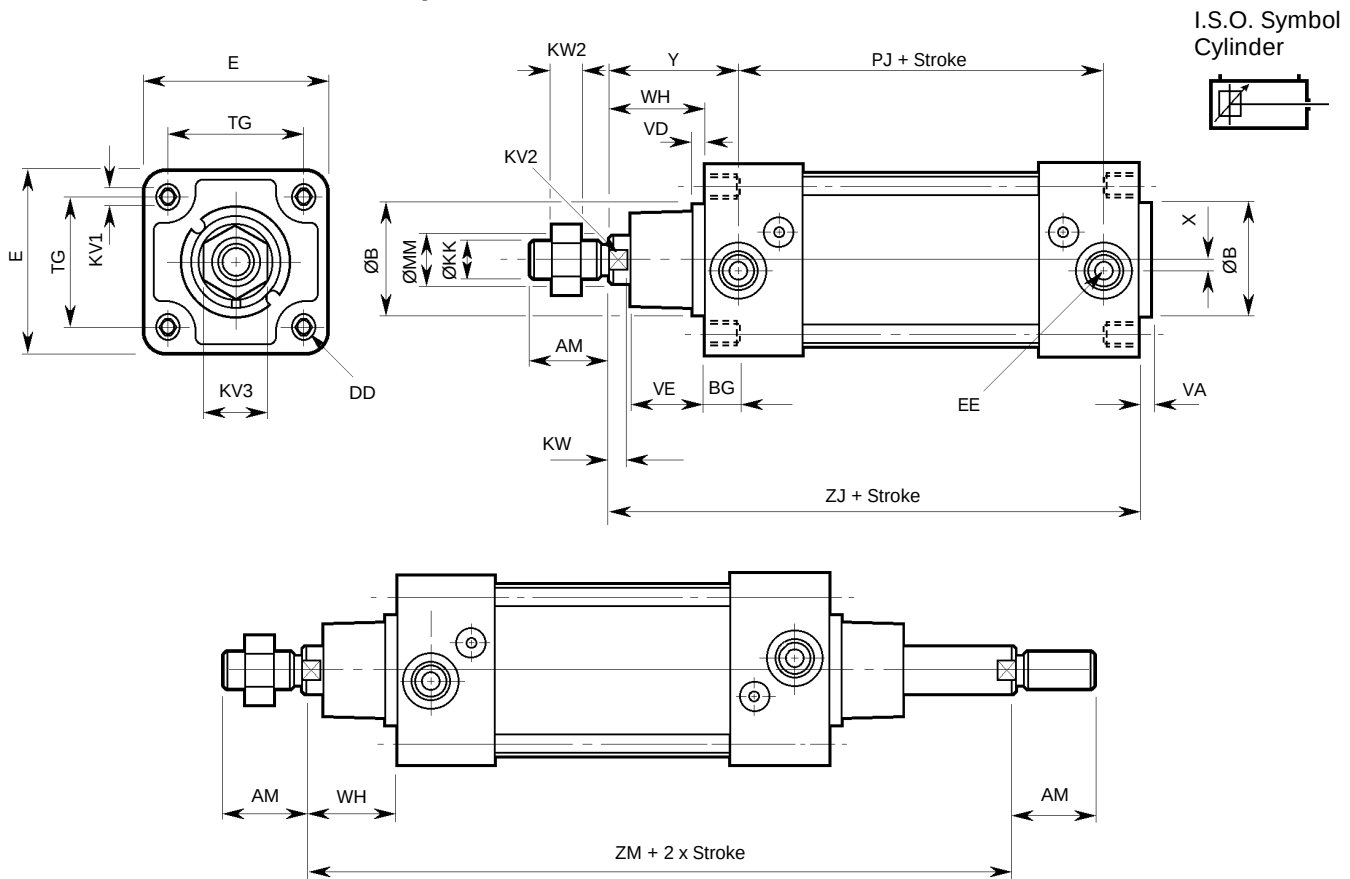
P1E Series ISO Cylinders

Symbol	Cyl. bore mm	Stroke mm	Weight Kg	Order code Tie rod cylinders
Double acting Magnetic  	125	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	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	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

P1E Series ISO Cylinders

Basic Tie Rod and Profile cylinders



Dimensions (mm)

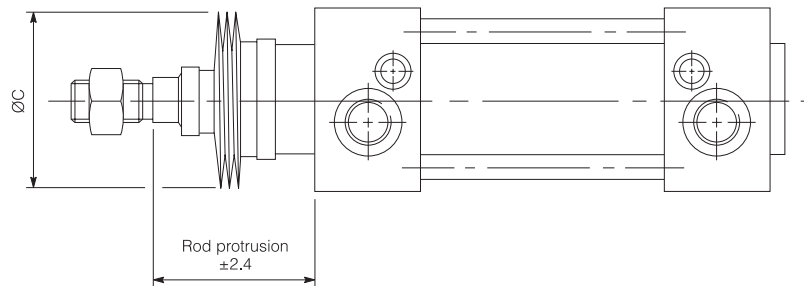
Bore Size	MM Ø	KK*	AM* +0/-2	ØB e11	WH	VD	VE	ZJ	VA	PJ	X	Y	KV3 A/F	KW2
32	12	M10x1,25	22	30	26	4	20	120	4	67	5	39,5	17	6
40	16	M12x1,25	24	35	30	4	21	135	4	75	6,5	45	19	7
50	20	M16x1,5	32	40	37	4	29	143	4	72	6,5	54	24	8
63	20	M16x1,5	32	45	37	4	29	158	4	89	0	53	24	8
80	25	M20x1,5	40	45	46	4	35	174	4	96	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	G ¹ / ₈	M6	6	16	10	6,0	47,5	32,5	146
40	G ¹ / ₄	M6	6	16	13	6,5	52	38	165
50	G ¹ / ₄	M8	8	16	16	6,5	65	46,5	180
63	G ³ / ₈	M8	8	16	16	6,5	75	56,5	195
80	G ³ / ₈	M10	10	16	21	10	98	72	220
100	G ¹ / ₂	M10	10	16	21	10	114,5	89	240
125	G ¹ / ₂	M12	24	20	27	13	140	110	290
160	G ³ / ₄	M16	30	24	36	16	179	140	340
200	G ³ / 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)

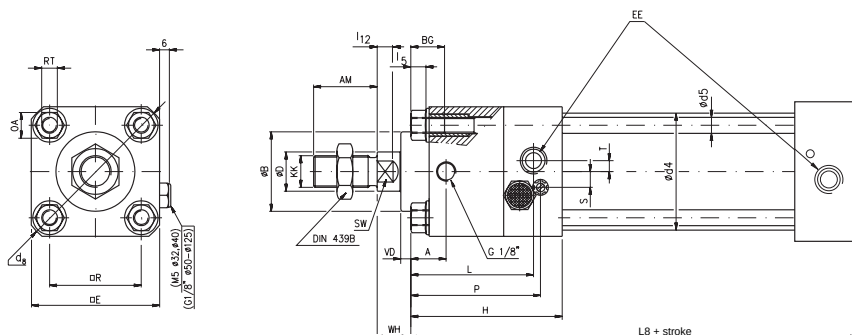
Bore size	$\varnothing C$		Stroke								
			25	50	80	100	125	160	200	250	320
32mm	70	Rod Protrusion	41	43	46	48	52	54	59	66	66
40mm	73	Rod Protrusion	45	47	49	52	56	58	63	70	70
50mm	75	Rod Protrusion	52	54	56	59	63	65	70	77	77
63mm	75	Rod Protrusion	52	54	56	59	63	65	70	77	77
80mm	80	Rod Protrusion	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.

P1E Series ISO Cylinders

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	I 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

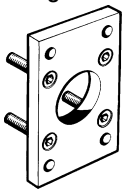
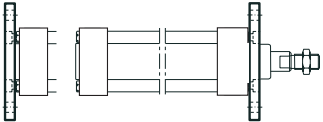
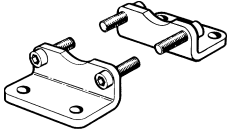
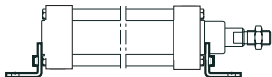
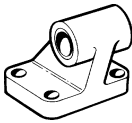
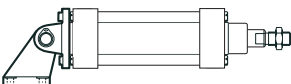
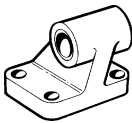
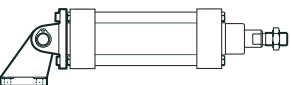
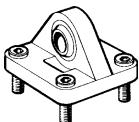
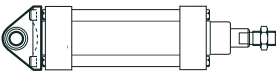
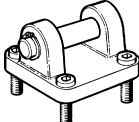
Holding forces at 0 bar signal pressure to locking device.

Bore size	Holding force (N)
32	550
40	860
50	1345
63	2140
80	3450
100	5390
125	8425

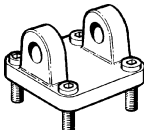
Material specifications, piston-rod locking device

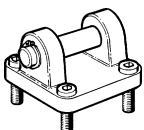
Housing/end cover	Black anodized aluminium
Locking sleeve/plunger	Hardened steel
Springs	Stainless steel
Seals, O-rings	Nitrile rubber, NBR
Scraper ring	UHMWPE-plastic
Air filter	Brass/sintered bronze
Piston rod	Chrome plated rod

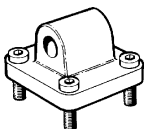
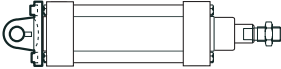
Cylinder mountings

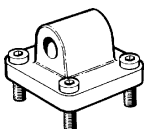
	Material	Cyl. bore mm	Pin mm	Weight Kg	Order code
Flange MF1 and MF2  	Surface treated steel	32		0,23	P1C-4KMB
		40		0,28	P1C-4LMB
		50		0,53	P1C-4MMB
		63		0,71	P1C-4NMB
		80		1,59	P1C-4PMB
		100		2,19	P1C-4QMB
		125		3,78	P1C-4RMB
		160		6,00	P1C-4SMB
		200		8,00	P1C-4TMB
Foot bracket MS1  	Surface 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

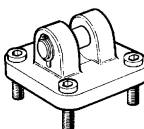
P1E Series ISO Cylinders

	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

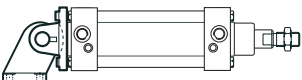
Clevis bracket MP2  	Cast iron Surface treated steel screws Stainless steel treated pin	32	10	0,15	P1E-4KMT
		40	12	0,22	P1E-4LMT
		50	12	0,39	P1E-4MMT
		63	16	0,53	P1E-4NMT
		80	16	1,19	P1E-4PMT
		100	20	1,80	P1E-4QMT
		125	25	4,85	P1E-4RMT
		160	30	6,46	P1E-4SMT
		200	30	9,20	P1E-4TMT

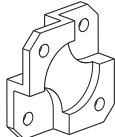
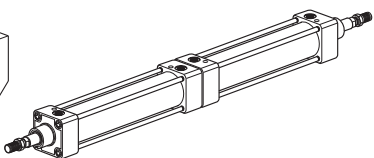
Clevis bracket MP4  	Surface treated aluminium Surface treated steel screws	32	10	0,09	P1C-4KME
		40	12	0,13	P1C-4LME
		50	12	0,17	P1C-4MME
		63	16	0,36	P1C-4NME
		80	16	0,46	P1C-4PME
		100	20	0,83	P1C-4QME
		125	25	1,53	P1C-4RME

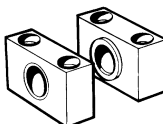
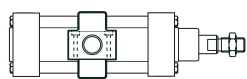
Clevis bracket MP4  	Cast iron Surface treated steel screws	32	10	0,19	P1E-4KME
		40	12	0,23	P1E-4LME
		50	12	0,40	P1E-4MME
		63	16	0,61	P1E-4NME
		80	16	1,25	P1E-4PME
		100	20	1,90	P1E-4QME
		125	25	4,85	P1E-4RME
		160	30	6,46	P1E-4SME
		200	30	9,20	P1E-4TME

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

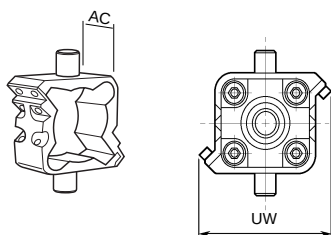
P1E Series ISO Cylinders

	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

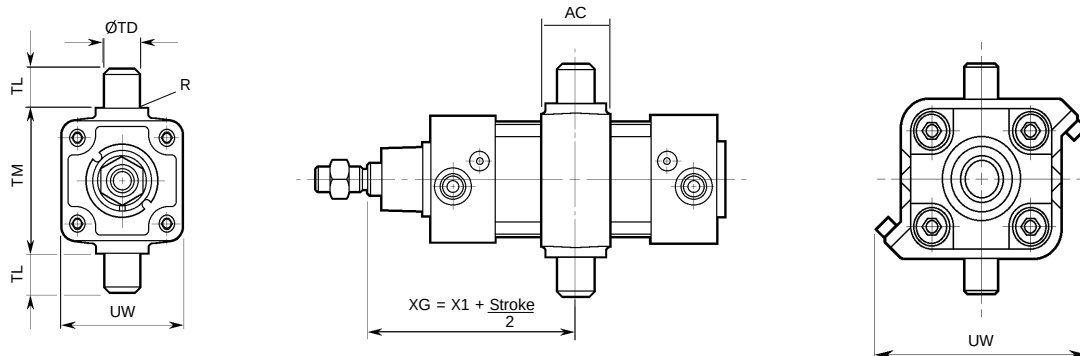
Note: Kit contains centre trunnion, 4 fixing screws, 2 positioning screws and 4 spring guide pins.

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.

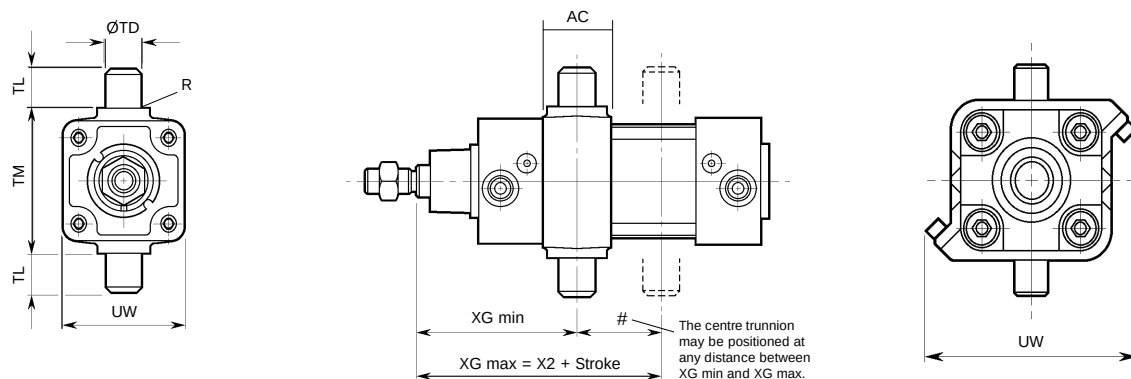
P1E Series ISO Cylinders

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



Bore size	AC		UW		R*	ØTD* e9	TL* h14	TM* h14	X1
	Tie rod	Profile	Tie rod	Profile					
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

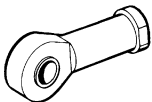
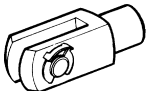
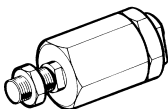
Off-set Centre Trunnion



Bore size	AC		UW		R*	ØTD* e9	TL* h14	TM* h14	XG min.		X2 max.		Minimum Stroke*
	Tie rod	Profile	Tie rod	Profile					Tie rod	Profile	Tie rod	Profile	
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

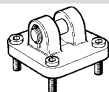
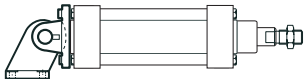
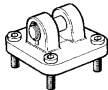
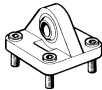
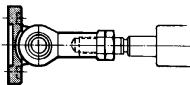
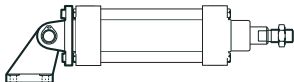
Piston rod mountings

	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.

P1E Series ISO Cylinders

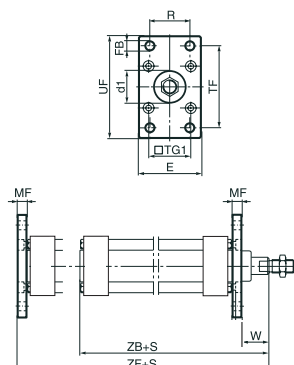
Combination Mountings (Aluminium)

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

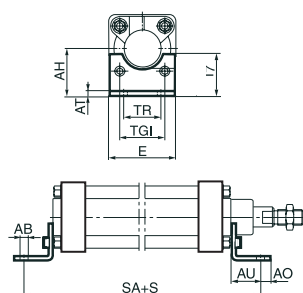
All dimensions in mm unless otherwise stated

Flange MF1/MF2



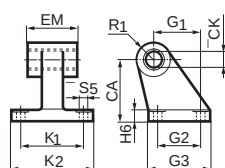
Cyl. bore	d1 H11	FB H13	TG1	E	R JS14	MF JS14	TF JS14	UF	W	ZF
32	30	7	32,5	45	32	10	64	80	16	130
40	35	9	38,0	52	36	10	72	90	20	145
50	40	9	46,5	65	45	12	90	110	25	155
63	45	9	56,5	75	50	12	100	120	25	170
80	45	12	72,0	95	63	16	126	150	30	190
100	55	14	89,0	115	75	16	150	170	35	205
125	60	16	110,0	140	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



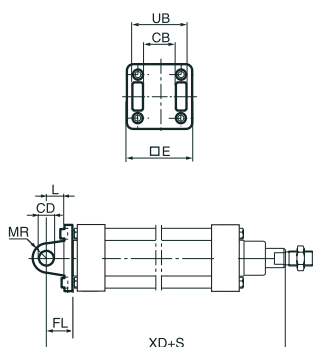
Cyl. bore	AB H14	TG1	E	TR JS14	AO	AU	AH JS15	I ₇	AT	SA
32	7	32,5	45	32	10	24	32	30	3	142
40	9	38,0	52	36	8	28	36	30	3	161
50	9	46,5	65	45	13	32	45	36	3	70
63	9	56,5	75	50	13	32	50	35	3	186
80	12	72,0	95	63	14	41	63	49	4	210
100	14	89,0	115	75	15	41	71	54	4	220
125	16	110,0	140	90	22	45	90	71	4,75	250
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	6,6	38	51	21	18	25,5	31	32	8	10,0
40	12	6,6	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

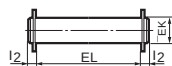
Clevis bracket MP2



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

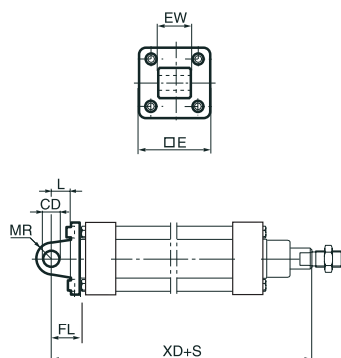
P1E Series ISO Cylinders

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

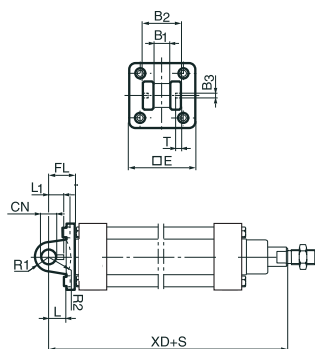
Clevis bracket MP4



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

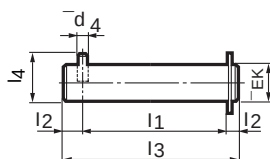
Clevis bracket GA



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

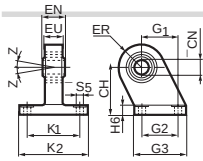
Pin set GA



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

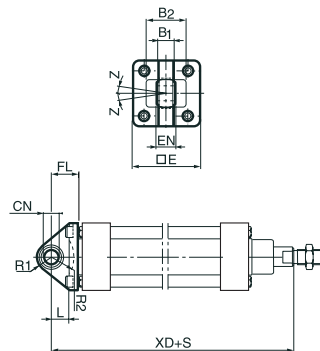
P1E Series ISO Cylinders

Pivot bracket with swivel bearing



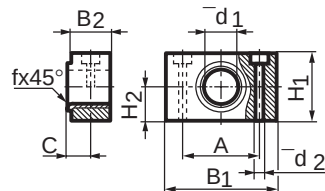
Cyl. bore	CN H7	S5 H13	K1 JS14	K2	EU	G1 JS14	G2 JS14	EN	G3	CH JS15	H6	ER	Z
32	10	6,6	38	51	10,5	21	18	14	31	32	10	16	4°
40	12	6,6	41	54	12,0	24	22	16	35	36	10	18	4°
50	16	9,0	50	65	15,0	33	30	21	45	45	12	21	4°
63	16	9,0	52	67	15,0	37	35	21	50	50	12	23	4°
80	20	11,0	66	86	18,0	47	40	25	60	63	14	28	4°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

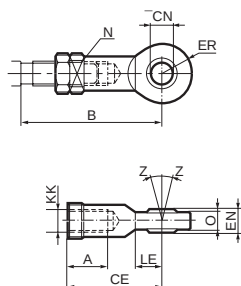
Pivot bracket for MT4



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

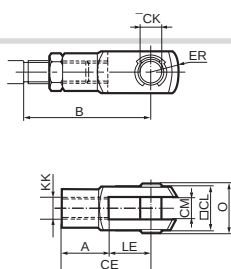
P1E Series ISO Cylinders

Swivel rod eye



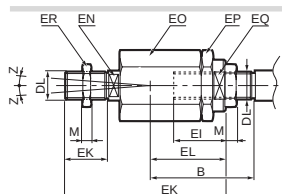
Cyl. bore	A	B min	B max	CE	CN H9	EN h12	ER	KK	LE min	N	O	Z
32	20	49,0	55	43	10	14	14	M10x1,25	15	17	10,5	12°
40	22	57,0	62	50	12	16	16	M12x1,25	17	19	12,0	12°
50	28	72,0	80	64	16	21	21	M16x1,5	22	22	15,0	15°
63	28	72,0	80	64	16	21	21	M16x1,5	22	22	15,0	15°
80	33	86,0	97	77	20	25	25	M20x1,5	26	32	18,0	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



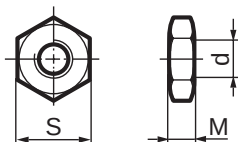
Cyl. bore	A	B min	B max	CE	CK h11/E9	CL	CM	ER	KK	LE	O
32	20	46,0	52	40	10	20	10	16	M10x1,25	20	28,0
40	24	55,0	60	48	12	24	12	19	M12x1,25	24	32,0
50	32	72,0	80	64	16	32	16	25	M16x1,5	32	41,5
63	32	72,0	80	64	16	32	16	25	M16x1,5	32	41,5
80	40	89,0	100	80	20	40	20	32	M20x1,5	40	50,0
100	40	89,0	100	80	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

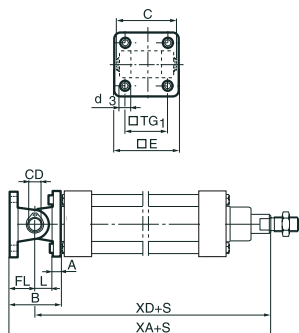


Cyl. bore	d	M	S
32	M10x1,25	5,0	17
40	M12x1,25	6,0	19
50	M16x1,5	8,0	24
63	M16x1,5	8,0	24
80	M20x1,5	10,0	30
100	M20x1,5	10,0	30
125	M27x2	13,5	41
160	M36x2	14,0	55
200	M36x2	14,0	55

Dimensions, combinations

All dimensions in mm unless otherwise stated

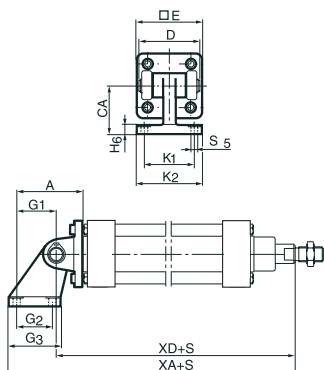
Clevis bracket MP4, Clevis bracket MP2 and Pin set MP2



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

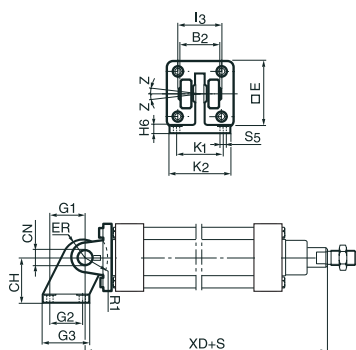
Clevis bracket MP2, Pivot bracket with rigid bearing and Pin set MP2



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

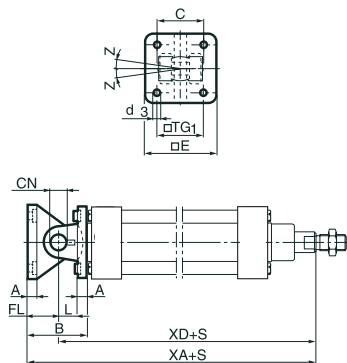
Clevis bracket GA, Pivot bracket with swivel bearing, Pin set GA



Cyl. bore	CH JS15	E	ER	G ₁ JS14	G ₂ JS14	G ₃	H ₆	k ₁ JS14	k ₂	I ₃	S ₅ 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°

P1E Series ISO Cylinders

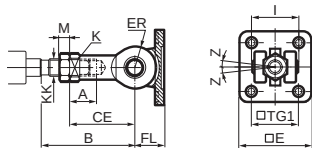
Clevis bracket GA, Swivel eye bracket and Pin set GA



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°

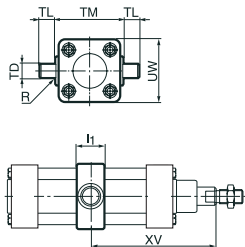
S = Stroke length

Swivel rod eye, Clevis bracket GA and Pin set GA



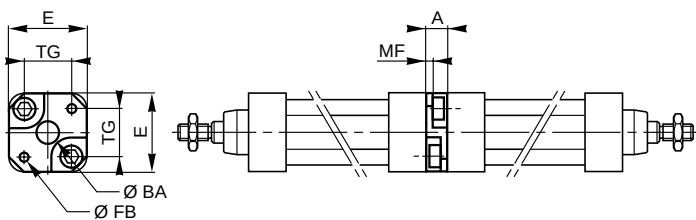
Cyl.	A	B _{min}	B _{max}	CE	E	ER	FL	K	KK	M	I	TG1	Z
32	20	48,0	55	43	45	14	22	17	M10x1,25	5,0	41	32,5	4°
40	22	56,0	62	50	52	16	25	19	M12x1,25	6,0	48	38,0	4°
50	28	72,0	80	64	65	21	27	22	M16x1,5	8,0	54	46,5	4°
63	28	72,0	80	64	75	21	32	22	M16x1,5	8,0	60	56,5	4°
80	33	87,0	97	77	95	25	36	32	M20x1,5	10,0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



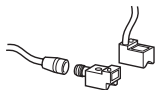
Cyl. bore	A	B1	B2	d ₂	E	F	H1	H2	UW	UW	I ₁	I1	XV _{min}	XV _{min}
32	32	46	18,0	6,6	86	71	30	15	48	55	15	25	59,5	96
40	36	55	21,0	9,0	105	87	36	18	60	65	20	25	70,0	100
50	36	55	21,0	9,0	117	99	36	18	68	75	23	30	78,0	120
63	42	65	23,0	11,0	136	116	40	20	82	90	35	35	89,0	125
80	42	65	23,0	11,0	156	136	40	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

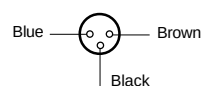
Mountings and cables

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

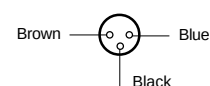
Mountings for tie rod cylinders				
	125/160/200		0,030	PAX-ZAF2125200

Cables with 8 mm round connector for sensor				
	3		0,06	9126 3443-41
	10		0,18	9126 3443-42

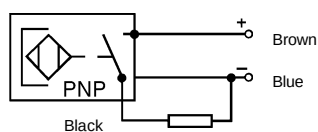
P1A-2XJH



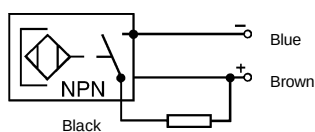
P1A-2XFH



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

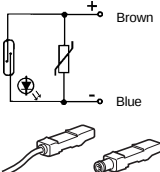


P1A-2XLK, P1A-2XEK, P1A-2XFH



P1E Series ISO Cylinders

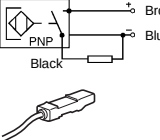
Reed switch sensor

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**

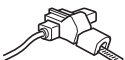
* Cable with 8 mm plug must be ordered separately

** With LED indication

Solid state sensor, With LED indication

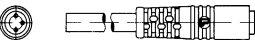
Type/Symbol	For cyl. mm	Contact-function	Cable length m	Voltage range VDC	Current max A	Capacity max, W	Weight Kg	Order code
	32-200	PNP NO	3	10-28	0,4	12	0,05	4630A**

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 Polyurethane	0,01	9126 3443-45
	10 m Polyurethane	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

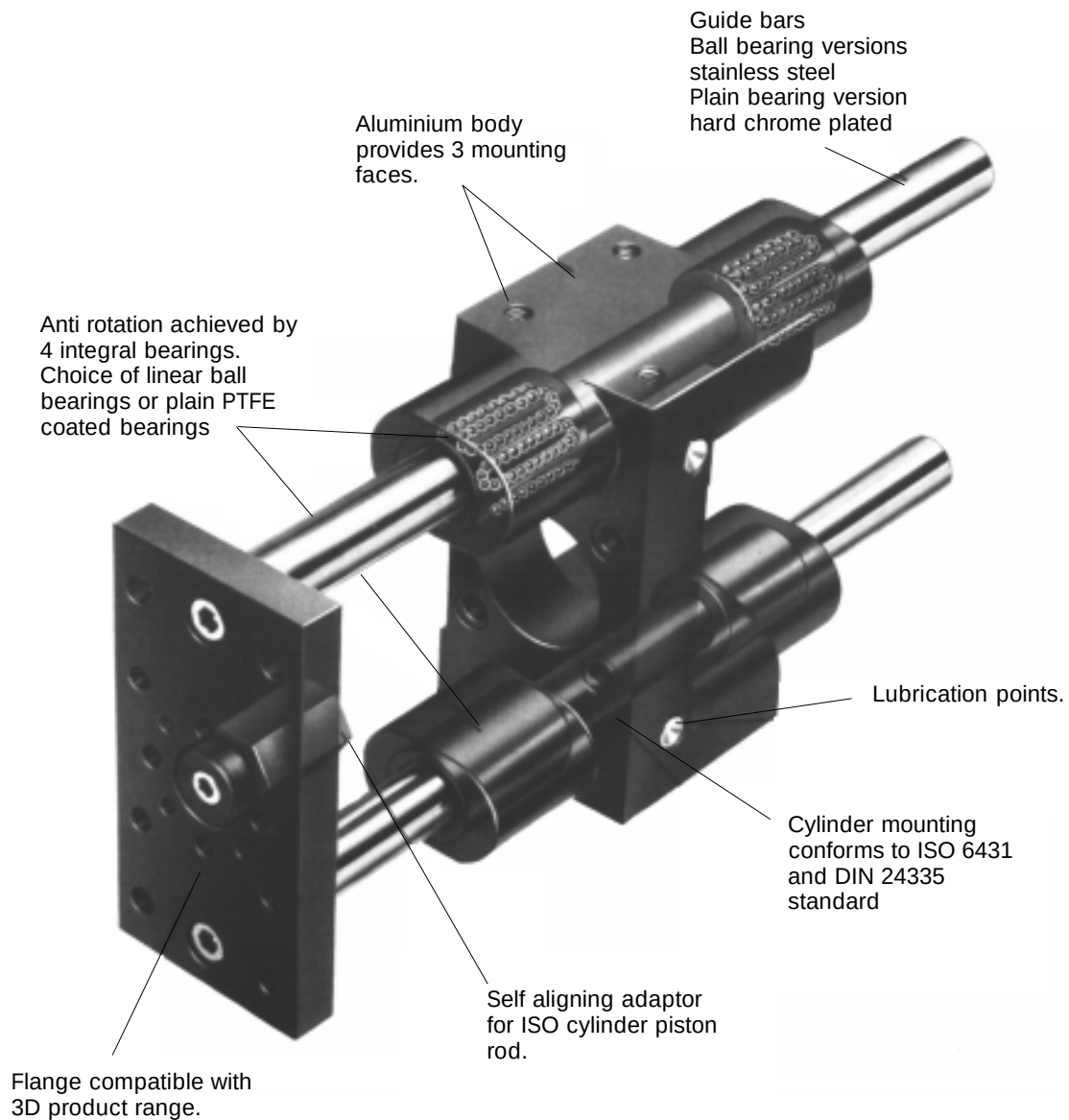
The units provide high resistance to torque loading and greatly increased linear load bearing capacity.

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.

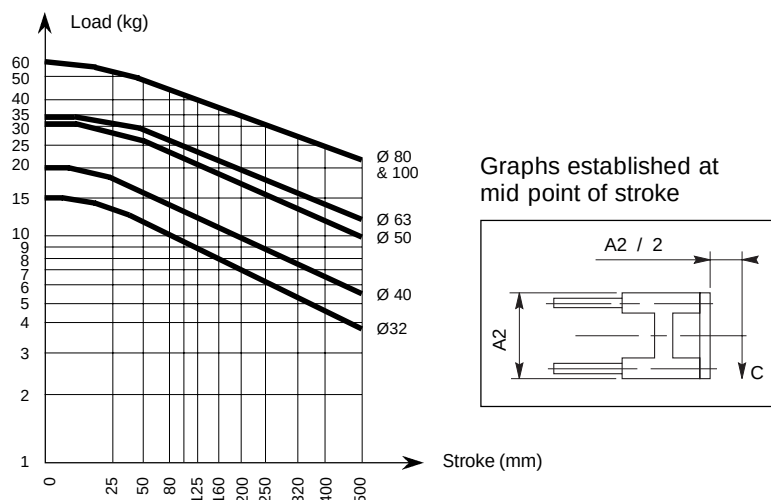


P1E Series ISO Cylinders

Technical information 'H style'

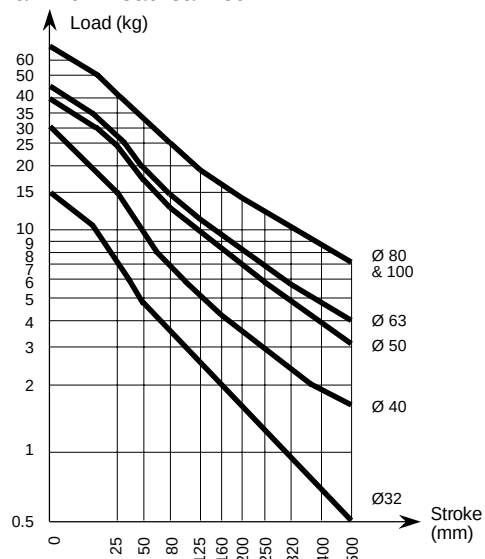
Rod guide with ball bearings

Maximum load carried

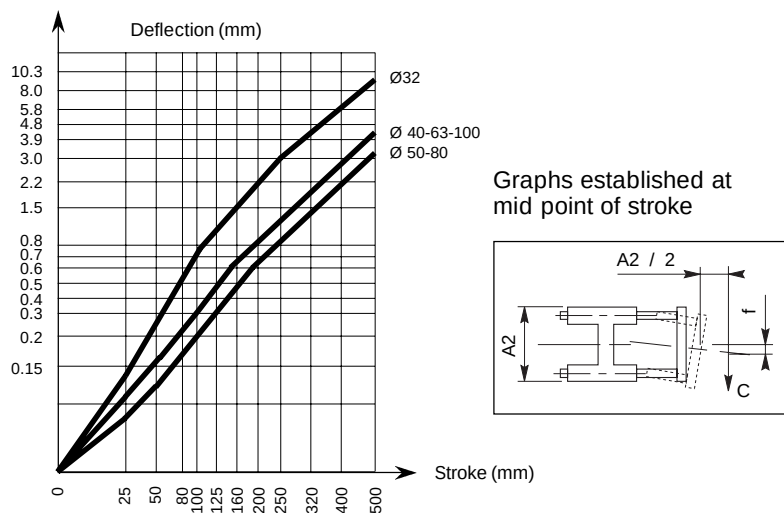


Rod guide with plain bearings

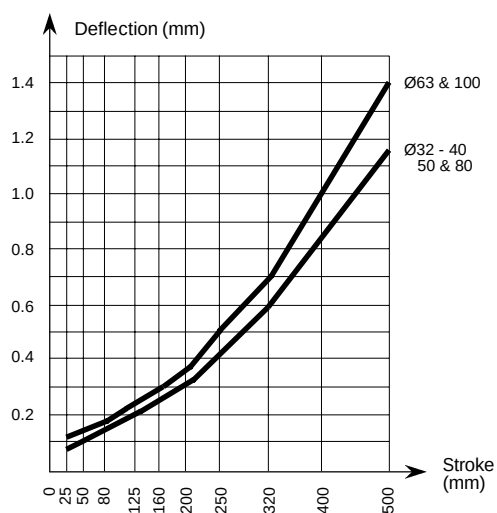
Maximum load carried



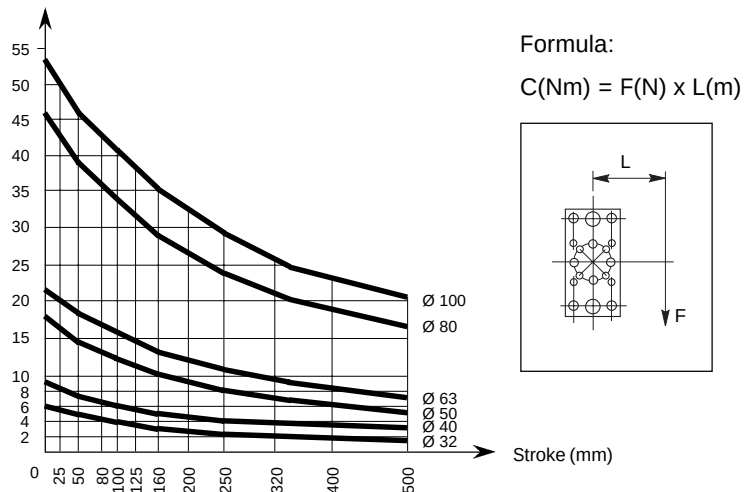
Maximum deflection/max load



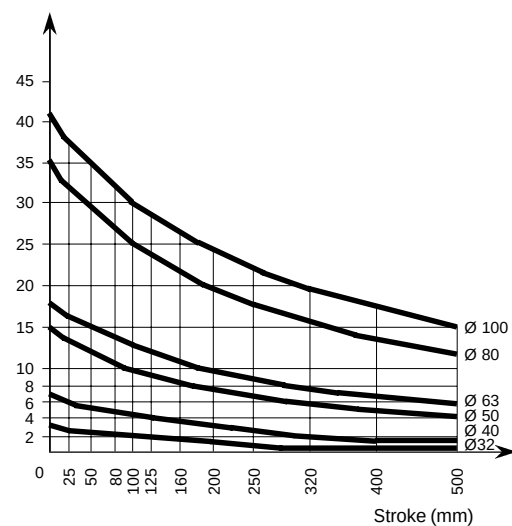
Maximum deflection/max load



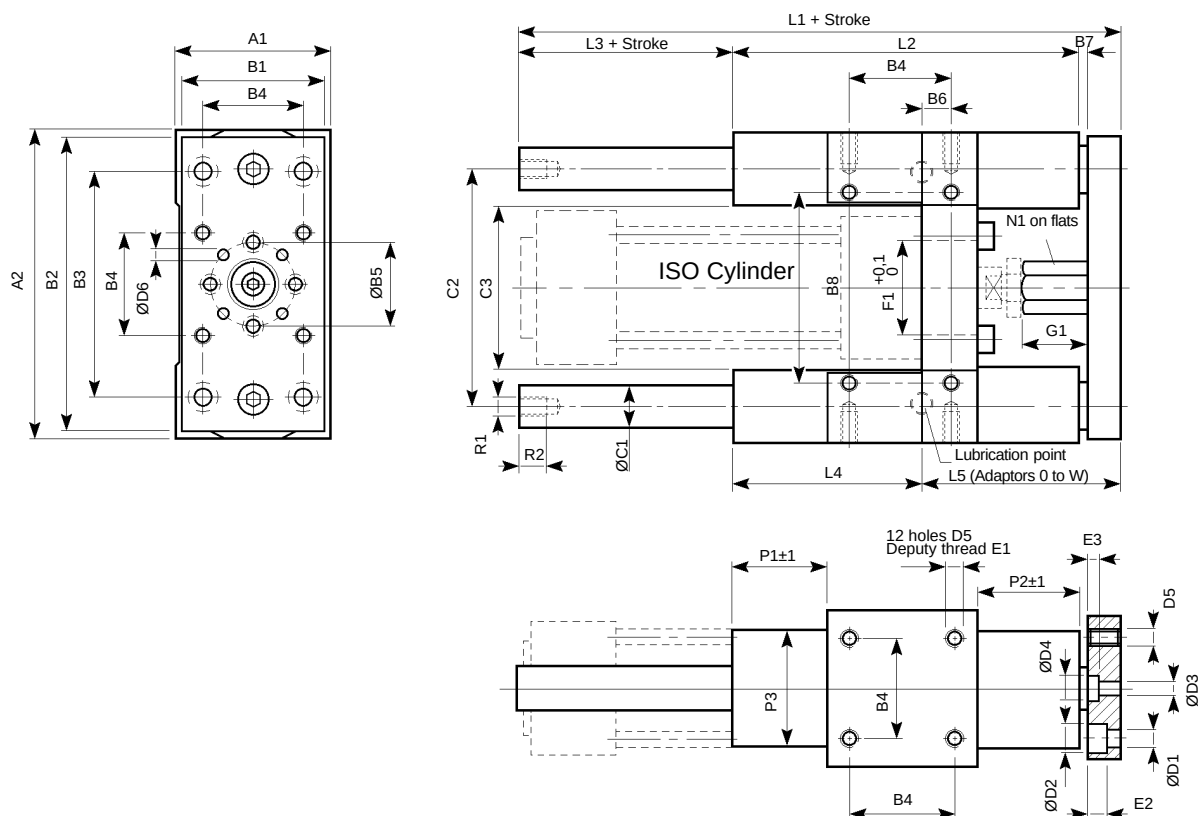
Maximum permissible torque (Nm)



Maximum permissible torque (Nm)



Dimensions, H style, Rod Guidance Modules



Dimensions (mm)

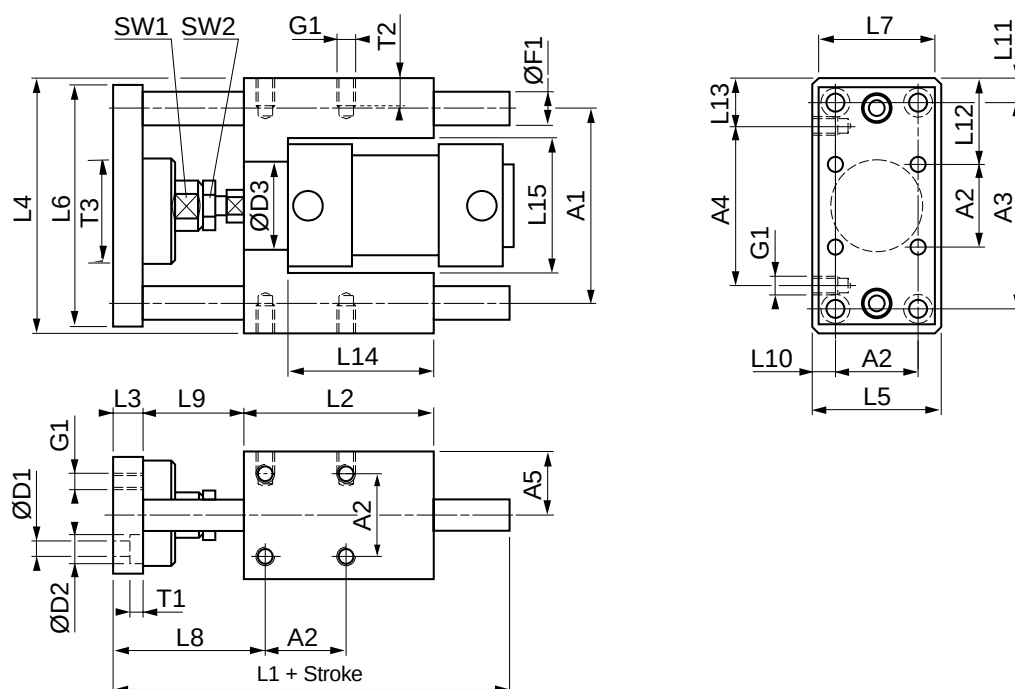
Bore	A1	A2	B1	B2	B3	B4	B5	B6	B7	B8	C1	C2	C3	D1	D2	D3	D4	D5	D6	E1
32	50	97	45	90	78	32,5	31,5	4	12	61	12	73,5	50	6,6	11	5,2	9	M6	4	12
40	58	115	54	110	84	38	31,5	11	12	69	16	86,5	58	6,6	11	5,2	9	M6	4	12
50	70	137	63	130	100	46,5	50	19	15	85	20	103,5	70	9	14	6,4	11	M8	4	16
63	85	152	80	145	105	56,5	50	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	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

P1E Series ISO Cylinders

Dimensions, U style, Rod Guidance Modules



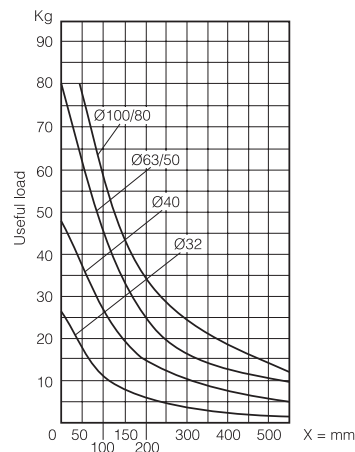
Cyl. bore mm	A1	A2	A3	A4	A5	D1	D2	D3	F1	G1	L1	L2	L3	L4	L5
32	74	32,5	78	61	25,0	6,6	11	30	12	M6	133	72	12	97	50
40	87	38,0	84	69	29,0	6,6	11	35	16	M6	149	84	12	115	58
50	104	46,5	100	85	35,0	9,0	15	40	20	M8	175	100	15	137	70
63	119	56,5	105	100	42,5	9,0	15	45	20	M8	190	115	15	152	85
80	148	72,0	130	130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

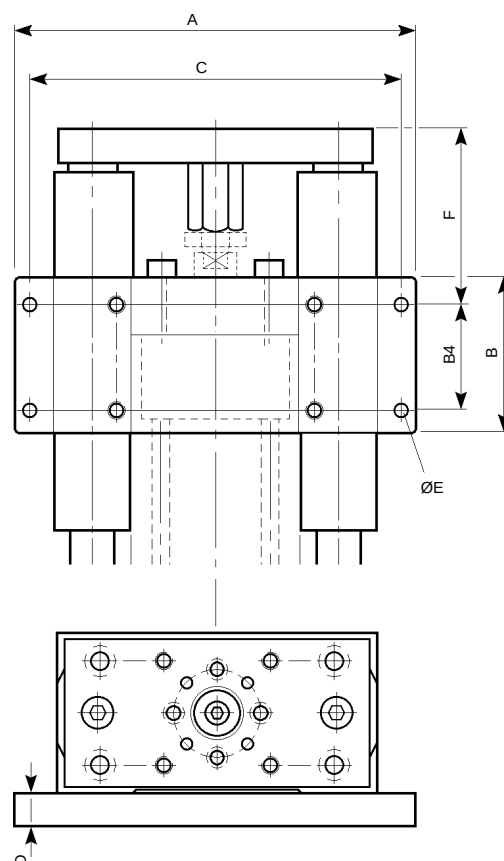
Bore size	Part nos. Plain bearing	Weights (g)	
		0mm stroke	per 100mm extra
32	P1E-4KRK-XXX		
40	P1E-4LRK-XXX		
50	P1E-4MRK-XXX		
63	P1E-4NRK-XXX		
80	P1E-4PRK-XXX		
100	P1E-4QRK-XXX		

'U' style max load



Mounting kits

Horizontal mounting (1)

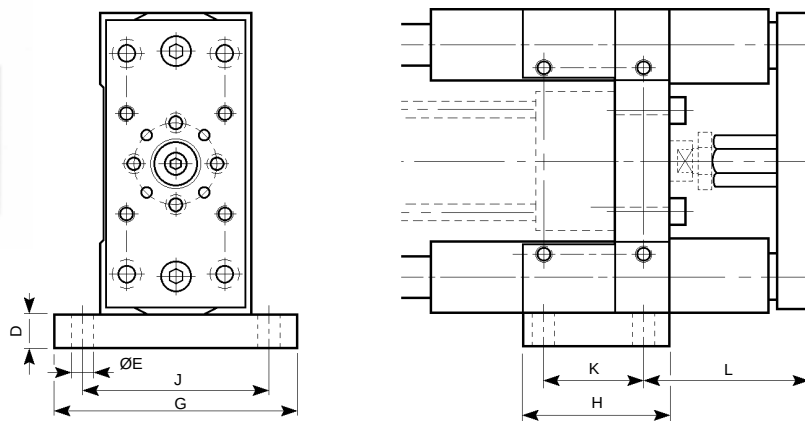


Raw material: Galvanised steel

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

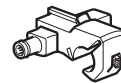
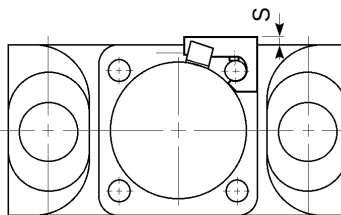
P1E Series ISO Cylinders

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	874
80	
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

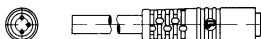
** With LED indication

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**

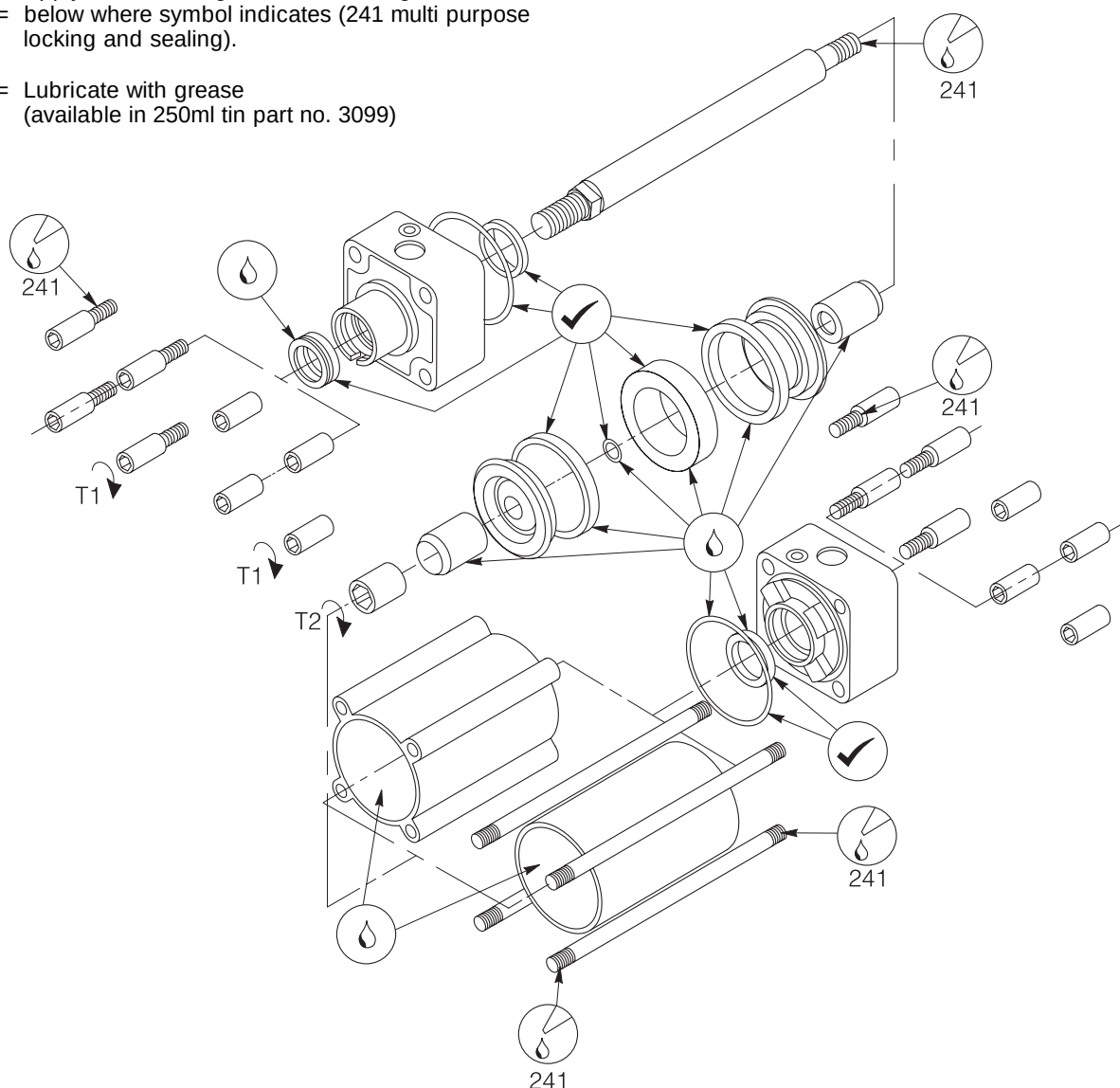
Cables

	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 Polyurethane	0,01	9126 3443-45
	10 m Polyurethane	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