FOX-VPS LTD

HYDRAULIC CYLINDERS

cylinders - specifications - sizes - stainless steel

HOME
MACHINING
CASTINGS
HYDRAULIC CYLINDERS
FIRE EQUIPMENT
DESIGN
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VACANCIES
CONTACT

HYDRAULIC CYLINDERS: **FOX-VPS** has nearly forty years experience in the manufacture of hydraulic cylinders and in the design of hydraulic systems that satisfy a wide variety of installations. These range from the harsh environment typical of civil engineering applications through mechanical handling equipment and on to high quality applications in fire fighting vehicles and hovercrafts.

HYDRAULIC CYLINDERS TYPES:

- Single & double-acting cylinders
- Double-ended through rod cylinders
- Displacement cylinders
- Telescopic and full free lift cylinders
- Position sensing cylinders
- Stainless steel cylinders
- Rotary distribution couplings

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DESIGN: Specifications for the **FOX-VPS** designed range of hydraulic cylinders can be found here, also available as a downloadable PDF file. **FOX-VPS** design specialist cylinders to meet the ever-increasing demands from our customers needs. Our designs are covered by design development process under our ISO9001:2000 Certification. We can accept most CAD formats and can export in DRG, DWG, DXF and PDF.
[top]

CAPABILITIES: Our standard range of cylinders goes from 40mm to 200mm bore and strokes up to 2000mm. Our specially designed cylinders range from 15mm to 600mm bore and stroke lengths up to 6000mm with materials to suit most environmental conditions along with special finishes. Working pressures can range up to 700 Bar. We also offer a range of standard Stainless Steel Cylinders for harsh environments, offshore, chemical and food industries.
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ENQUIRIES

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cylinders - specifications - sizes - stainless steel

SPECIFICATIONS:
Below is a list of the basic cylinder specifications and terminology used, made with reference to the drawing on the right.
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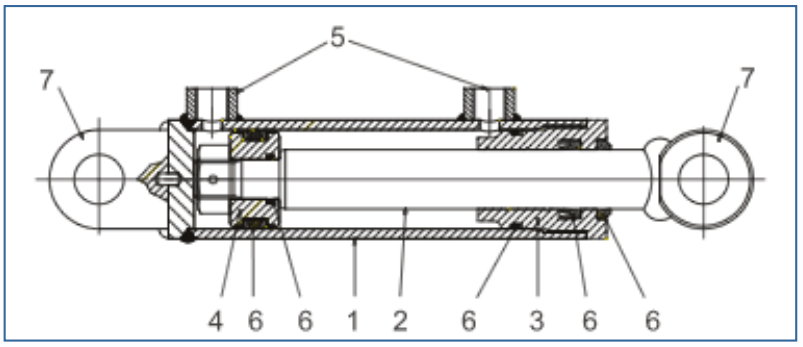

1. CYLINDER TUBE
ASTM A513 Grade 1026 and DIN 2393 ST52-3 BK with a finish of 0.4UM Ra Max. Other material and finishes are available.
[top]

2. PISTON ROD
High quality chrome of a thickness to meet or exceed Class 9 (ISO 4540) after exposure for a minimum of 40 hrs (salt spray test ISO3768). Induction hardened steel or stainless steel to BS 970 Part 1 421S29 or 316S31 and Chrome with Nickel underlay are offered as options.
[top]

3. NECK GLAND
High quality cast iron to BS1452: 1990 Grade 250 or Phosphor Bronze to BS140 PB1, PB2 and BS970 Part 1: 080A42 with PTFE insets. The glands are designed to be fully lubricated to ensure long service life.
[top]

4. PISTON
One piece steel design of robust construction. For heavy-duty applications an additional bearing ring may be added.
[top]

5. OIL INLET
BSP female connections are standard but we offer male BSP, JIC and Metric alternatives. Also offered are elbows and pipes to manifold blocks.
[top]

6. SEALS
We take great care to match the seal material and design to the customer's requirements and take into account the maximum surface speed, the life expectation and the environment in which the cylinder operates. The selection of the correct seal is vital to the successful operation of our cylinders.
[top]

7. MOUNTINGS
A wide range from simple pins, to specialist self-aligning bearings, to trunnion and flange mountings to suit individual needs.
[top]

8. WORKING PRESSURE
Our standard working pressure range is up to 206 Bar (3000 PSI). Please consult our technical department if you need to operate at higher pressures of up to 700 Bar (10,000 PSI).

[top]

9. TESTING

All cylinders are subjected to a static pressure test 50% above the maximum working pressure. They are stamped with a serial number. Full traceability is ensured through our recorded test/ inspection sheets.
[top]

10. FINISH

Cylinders are sprayed with a black oxide primer ready for your topcoat. Other finishes are available on request.
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OPTIONAL FEATURES

VALVES

Pilot operated check valves and hose burst valves can be built into the cylinders for safety critical applications. Over-centre and check valves can also be fitted into external manifold blocks.
[top]

CUSHIONING

Simple or fully adjustable cushioning can be provided at one or both ends of the cylinder stroke. A check valve can be incorporated into the cylinder design to allow unrestricted starting on the return stroke. Cushioning features will affect cylinder length depending on the rate of deceleration required. Contact our technical department for details.
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BLEED SCREWS

These can be provided and their location relative to the inlet connections should form part of the specification.
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View Hydraulic Cylinders Gallery

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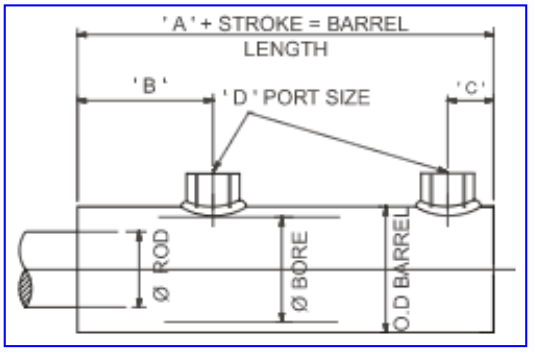
cylinders - specifications - sizes - stainless steel

DOUBLE ACTING CYLINDERS - BASIC SIZES



Dimension 'A' (Body Length) may increase dependent on stroke and application. For cylinders other than stated in the table please consult our technical department.

Max working pressures 206 Bar. Hydraulic Cylinder Sizes

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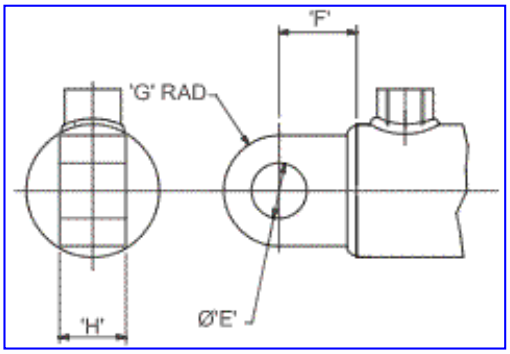

CYLINDER BODY MOUNTING PLAIN PIN HOLE TYPE

Hydraulic Cylinder Sizes

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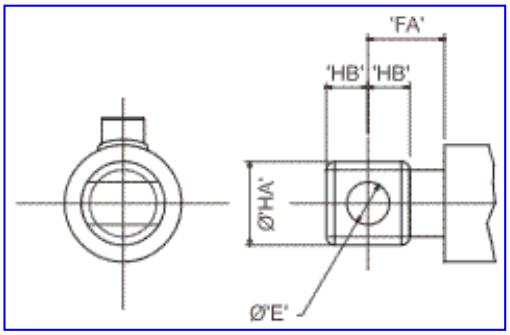

CYLINDER ROD MOUNTING PLAIN PIN HOLE - TYPE 1

Hydraulic Cylinder Sizes

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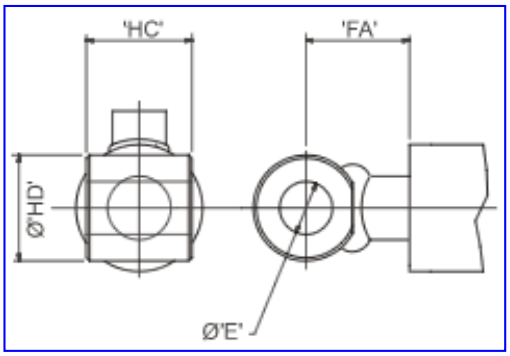

CYLINDER ROD MOUNTING PLAIN PIN HOLE - TYPE 2

Hydraulic Cylinder Sizes

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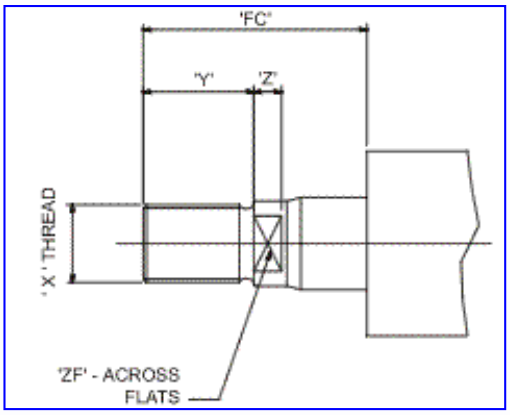

CYLINDER ROD MOUNTING ROD END THREADS

Hydraulic Cylinder Sizes

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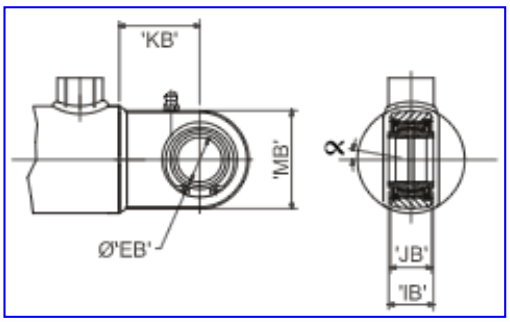

CYLINDER BODY MOUNTING REAR BALL JOINT HEAVY DUTY

Hydraulic Cylinder Sizes

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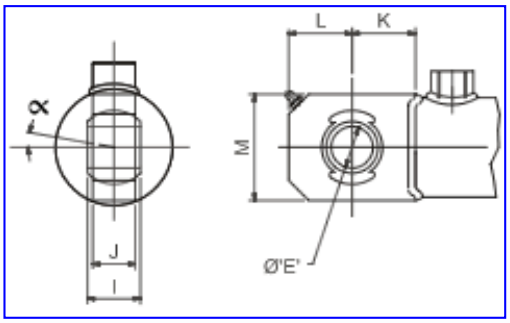

CYLINDER BODY MOUNTING REAR BALL JOINT TYPE - LIGHT DUTY

Hydraulic Cylinder Sizes

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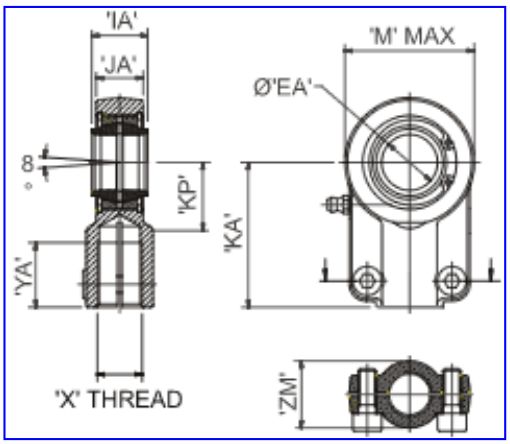

CYLINDER ROD MOUNTING ROD END SCREW-ON TYPE - HEAVY DUTY

Hydraulic Cylinder Sizes

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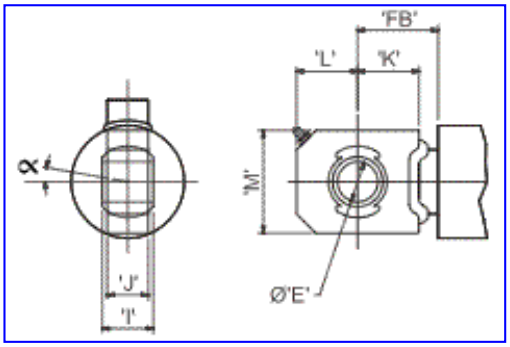

CYLINDER ROD MOUNTING ROD BALL JOINT - LIGHT DUTY

Hydraulic Cylinder Sizes

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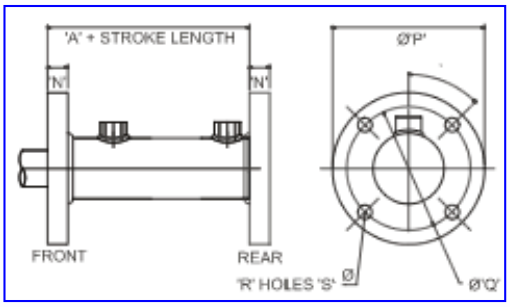

CYLINDER BODY MOUNTING FLANGE TYPE

Hydraulic Cylinder Sizes

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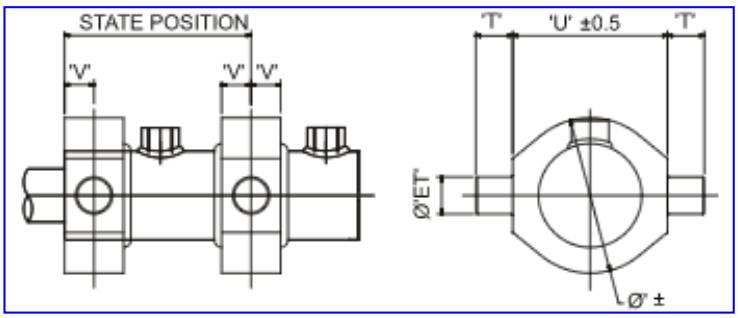

CYLINDER BODY MOUNTING TRUNNION MOUNTING TYPE

Hydraulic Cylinder Sizes

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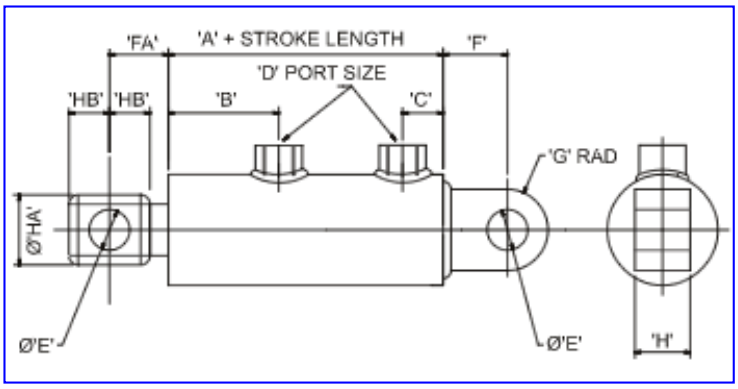
cylinders - specifications - sizes - stainless steel



STAINLESS STEEL HYDRAULIC CYLINDERS BASIC SIZES

This new range of Stainless Steel hydraulic cylinders has been added due to the increase in demand for corrosion-resistant hydraulics. These cylinders can be used with normal hydraulic oil where external environmental conditions are not suitable for mild steel cylinders. Due to the internals being made completely from stainless steel, these cylinders are suitable to work with water.

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CYLINDER BASIC SPECIFICATION

Hydraulic Cylinder Sizes

Tube – BS970 – 304S15 – AISI 304
Rod – BS970 – 431S29 – AISI 431 (Rods can also be supplied in BS970 – 316S31)
Internal Parts – BS970 303S21 – AISI 303
External Parts – BS970 304S15 – AISI 304

For strokes longer than stated in the table, consult our technical department.
Max working pressures 206 Bar.

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cylinders - specifications - sizes - stainless steel

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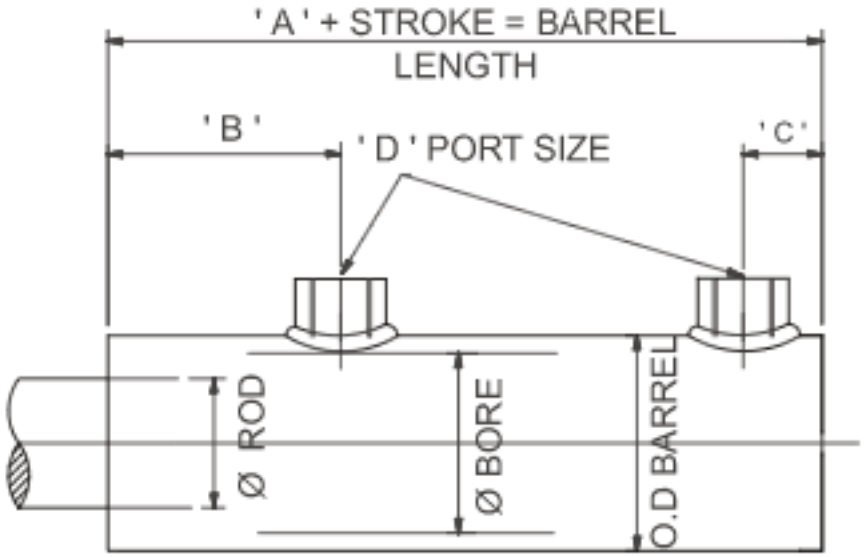
FOX-VPS designed range of hydraulic cylinders

Double Acting Cylinders - Basic Sizes

Type	Bore	O.D Barrel	Rod Dia	Max Stroke	A +1.5 - 1.5	B	C	D BSP
40M	40	50	22	360	122	55	19	1/4
50M	50	60	28	480	134	60	22	1/4
63M	63	73	36	650	146	65	27	3/8
70M	70	80	40	750	155	70	27	3/8
80M	80	92	45	820	177	82	32	3/8
90M	90	105	50	900	190	88	32	1/2
100M	100	115	56	1005	210	98	32	1/2
125M	125	145	70	1270	247	103	38	3/4
150M	150	170	80	1350	273	120	41	3/4
160M	160	190	90	1600	273	120	41	3/4
180M	180	210	100	1800	312	135	50	1
200M	200	230	110	2000	320	150	60	1

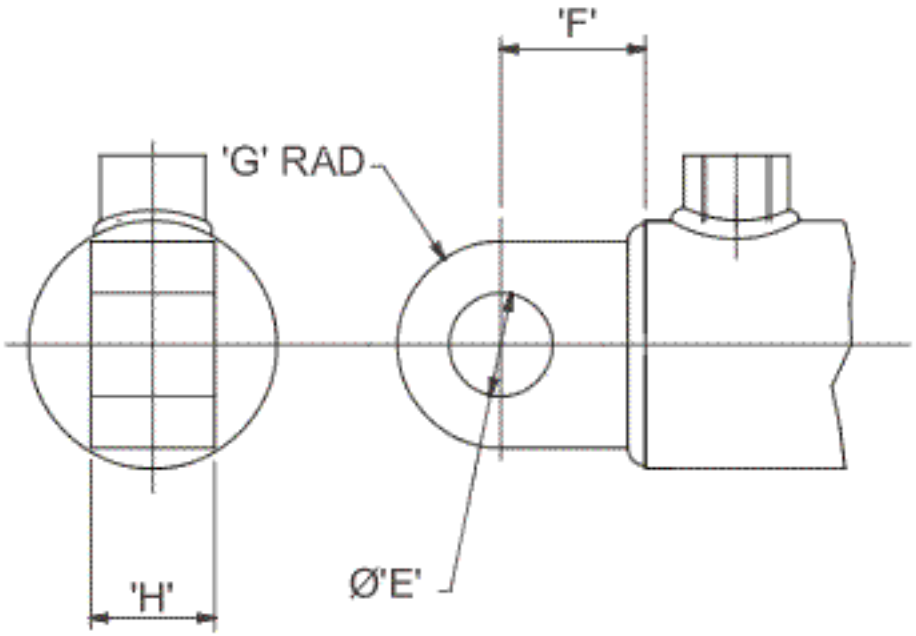
Double Acting Cylinders
Basic Sizes



Cylinder Body Mounting - Plain Pin Hole Type

Type	E H12	F +0.25 - 0.25	G	H +0.0 -1.0
40M	20	20	20	20
50M	22	32	22	32
63M	25	38	25	38
70M	25	40	25	40
80M	32	45	32	45
90M	40	50	40	50
100M	45	55	45	55
125M	50	65	50	65
150M	63	80	63	80
160M	70	90	70	90
180M	80	100	80	100
200M	100	125	100	125

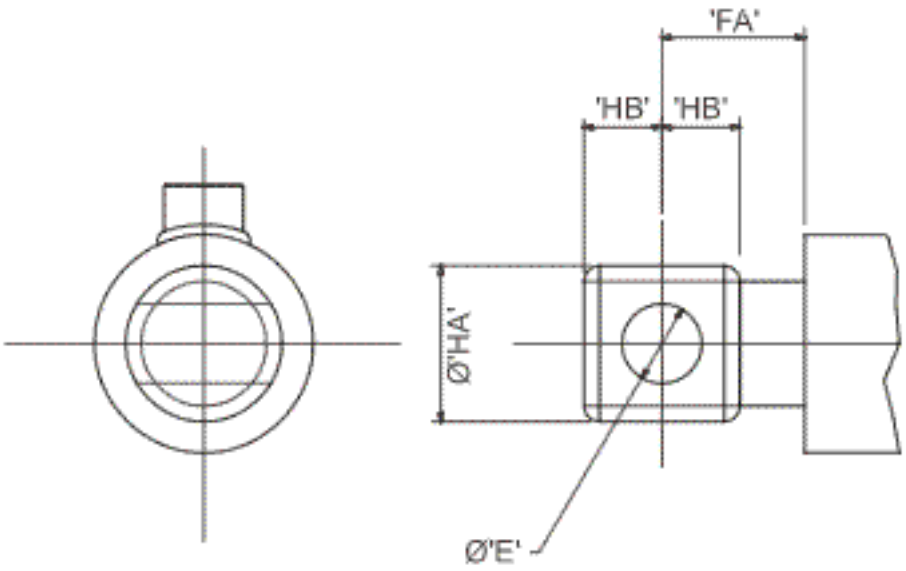
Cylinder Body Mounting
Plain Pin Hole Type



Cylinder Rod Mounting - Plain Pin Hole - Type 1

Type	E H12	FA +0.5 - 0.5	HA	HB	HC +0.0 - 0.5	HD +0.0 - 0.5
40M	20	32	-	-	30	40
50M	22	32	38	22	-	-
63M	25	38	50	25	-	-
70M	25	38	55	25	-	-
80M	32	45	60	32	-	-
90M	40	50	65	38	-	-
100M	45	50	70	38	-	-
125M	50	65	-	-	90	100
150M	63	80	-	-	100	126
160M	70	90	-	-	110	140
180M	80	100	-	-	110	160
200M	100	135	-	-	130	200

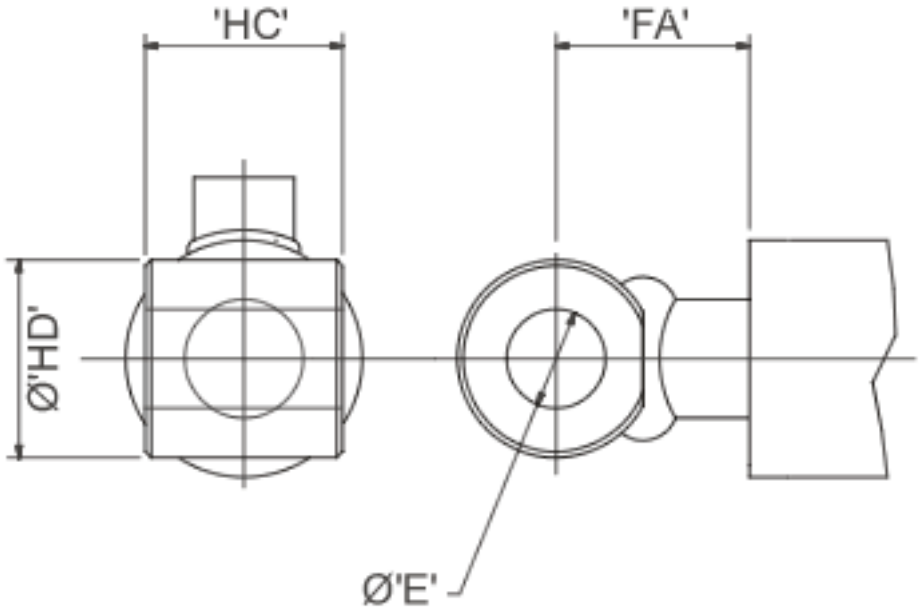
Cylinder Rod Mounting
Plain Pin Hole - Type 1



Cylinder Rod Mounting - Plain Pin Hole - Type 2

Type	E H12	FA +0.5 - 0.5	HA	HB	HC +0.0 - 0.5	HD +0.0 - 0.5
40M	20	32	-	-	30	40
50M	22	32	38	22	-	-
63M	25	38	50	25	-	-
70M	25	38	55	25	-	-
80M	32	45	60	32	-	-
90M	40	50	65	38	-	-
100M	45	50	70	38	-	-
125M	50	65	-	-	90	100
150M	63	80	-	-	100	126
160M	70	90	-	-	110	140
180M	80	100	-	-	110	160
200M	100	135	-	-	130	200

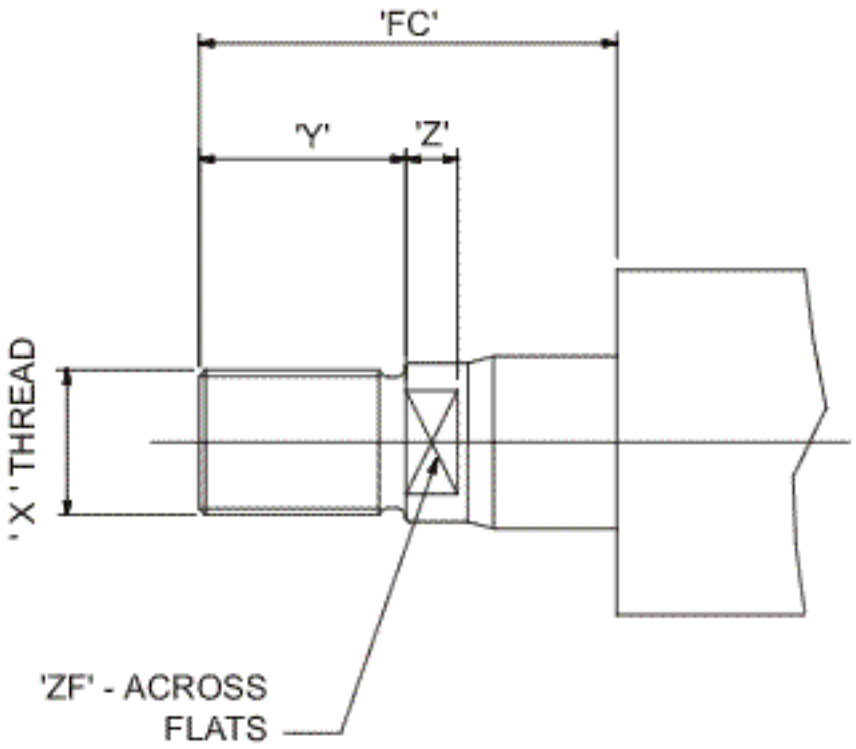
Cylinder Rod Mounting
Plain Pin Hole - Type 2



Cylinder Rod Mounting - Rod End Threads

Type	X THREAD	Y +1.5 - 0.0	Z	ZF	FC +0.5 - 0.5
40M	M16-1.5	22	6	17	38
50M	M20-1.5	28	6	22	44
63M	M27-2.0	36	6	28	54
70M	M27-2.0	36	6	28	54
80M	M33-2.0	45	8	36	68
90M	M42-2.0	56	10	46	81
100M	M42-2.0	56	10	46	81
125M	M48-2.0	63	12	60	95
150M	M64-3.0	85	15	70	120
160M	M72-3.0	85	20	75	130
180M	M80-3.0	95	20	80	145
200M	M90-3.0	106	20	100	156

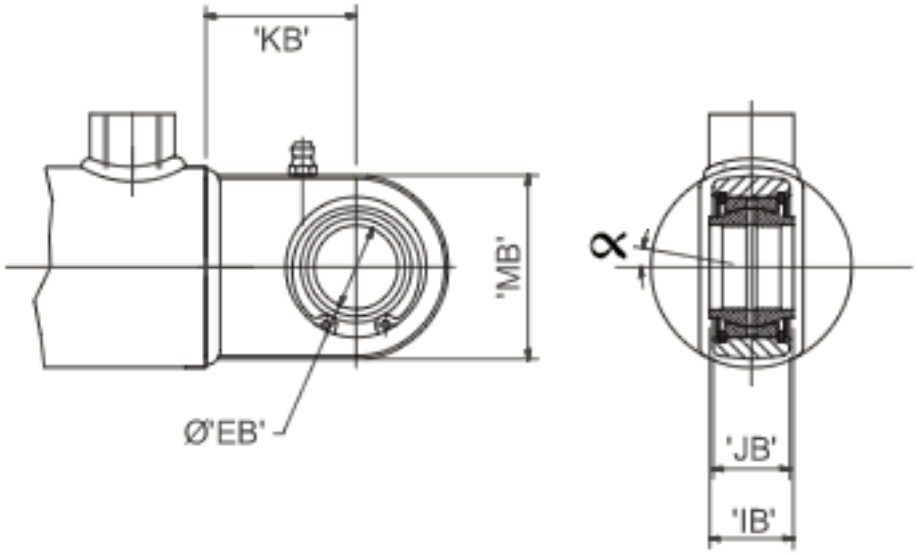
Cylinder Rod Mounting
Rod End Threads



Cylinder Body Mounting - Rear Ball Joint Heavy Duty

Type	EB		KB	IB		JB	MB	∝
40M	20	+0.021 (-0.0)	38	20	+0.021 (-0.0)	19	50	4
50M	25	+0.021 (-0.0)	45	25	+0.021 (-0.0)	23	55	4
63M	32	+0.025 (-0.0)	65	32	+0.025 (-0.0)	27	70	4
70M	32	+0.025 (-0.0)	65	32	+0.025 (-0.0)	27	70	4
80M	40	+0.025 (-0.0)	69	40	+0.025 (-0.0)	35	100	4
90M	50	+0.025 (-0.0)	88	50	+0.025 (-0.0)	40	123	4
100M	50	+0.025 (-0.0)	88	50	+0.025 (-0.0)	40	123	4
125M	63	+0.030 (-0.0)	107	63	+0.030 (-0.0)	50	145	4
150M	80	+0.030 (-0.0)	141	80	+0.030 (-0.0)	60	180	4
160M	90	+0.035 (-0.0)	150	90	+0.035 (-0.0)	65	226	4
180M	100	+0.035 (-0.0)	170	100	+0.035 (-0.0)	70	250	4
200M	110	+0.035 (-0.0)	185	110	+0.035 (-0.0)	80	295	4

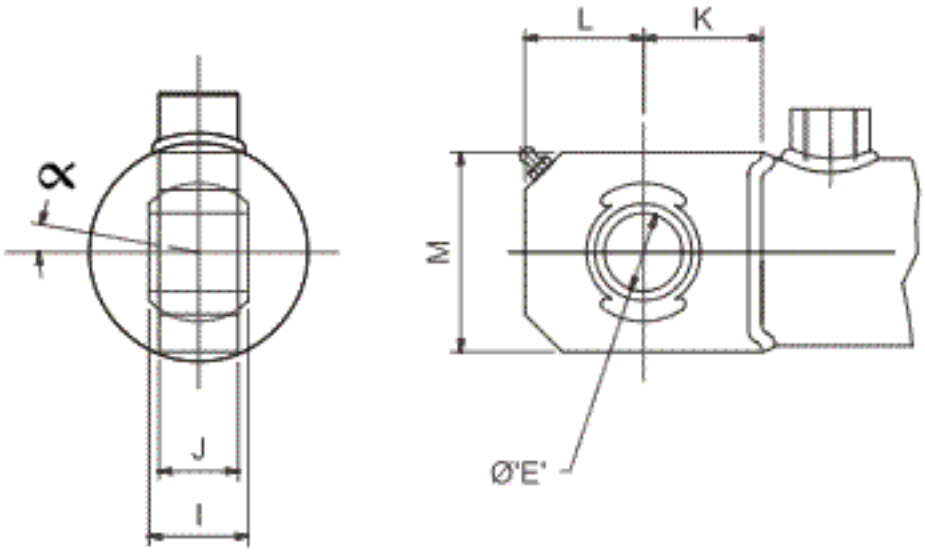
Cylinder Body Mounting
Rear Ball Joint Heavy Duty



Cylinder Body Mounting - Rear Ball Joint Type - Light Duty

Type	E +0.05 - 0.00	I	J	K +0.25 - 0.25	L	M	∝
40M	20	22.23	19	32	32	51	10
50M	22	25.40	22.23	32	32	57	10
63M	25	31.75	25.40	38	38	64	10
70M	25	31.75	25.40	38	38	64	10
80M	32	38.10	28.58	45	45	76	10
90M	40	41.28	31.75	50	55	100	10
100M	50	48.25	38.10	63	63	115	10
125M	50	50.10	44.45	63	63	115	10

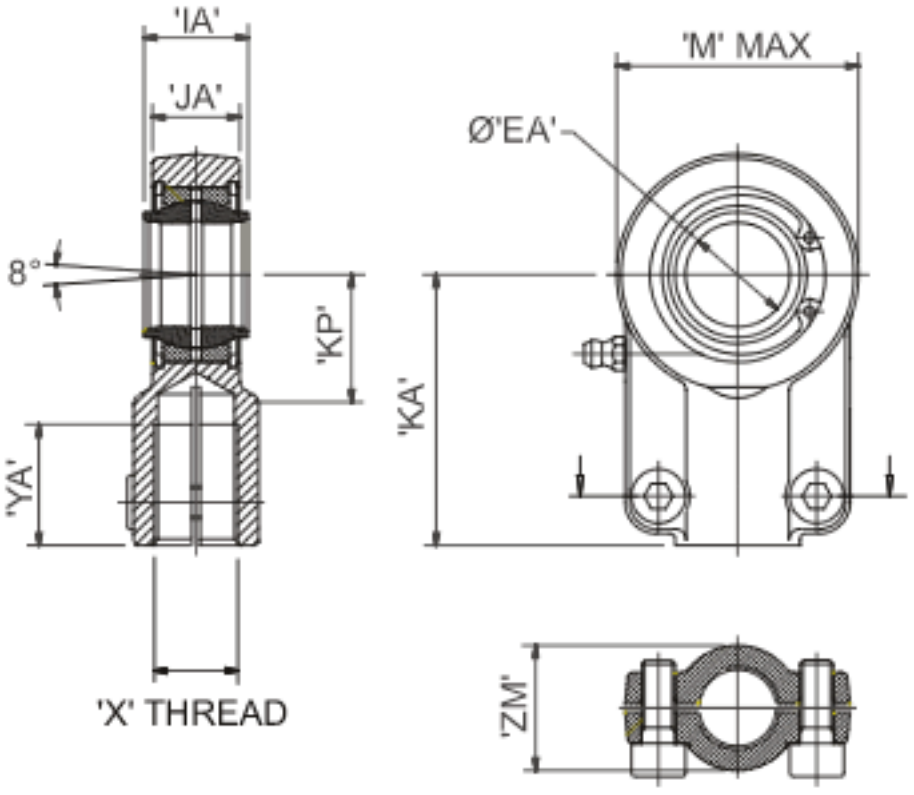
Cylinder Body Mounting
Rear Ball Joint Type - Light Duty



Cylinder Rod Mounting - Rod End Screw-On Type - Heavy Duty

Type	EA		KA	KP	IA		JA	M	X Thread	YA	ZM
40M	20	+0.02	52	22	20	+0.021	17	47	M16-1.5	23	25
50M	25	+0.02	65	27	25	+0.021	21	58	M20-1.5	29	30
63M	32	+0.025	80	32	32	+0.025	27	70	M27-2.0	37	38
70M	32	+0.025	80	32	32	+0.025	27	70	M27-2.0	37	38
80M	40	+0.025	97	41	40	+0.025	32	89	M33-2.0	46	47
90M	50	+0.025	120	50	50	+0.025	40	108	M42-2.0	57	58
100M	50	+0.025	120	50	50	+0.025	40	108	M42-2.0	57	58
125M	63	+0.030	140	62	63	+0.030	52	132	M48-2.0	64	70
150M	80	+0.030	180	78	80	+0.030	66	168	M64-3.0	86	90
160M	90	+0.035	195	85	90	+0.035	72	185	M72-3.0	91	100
180M	100	+0.035	210	98	100	+0.035	84	210	M80-3.0	96	110
200M	110	+0.035	235	105	110	+0.035	88	235	M90-3.0	106	125

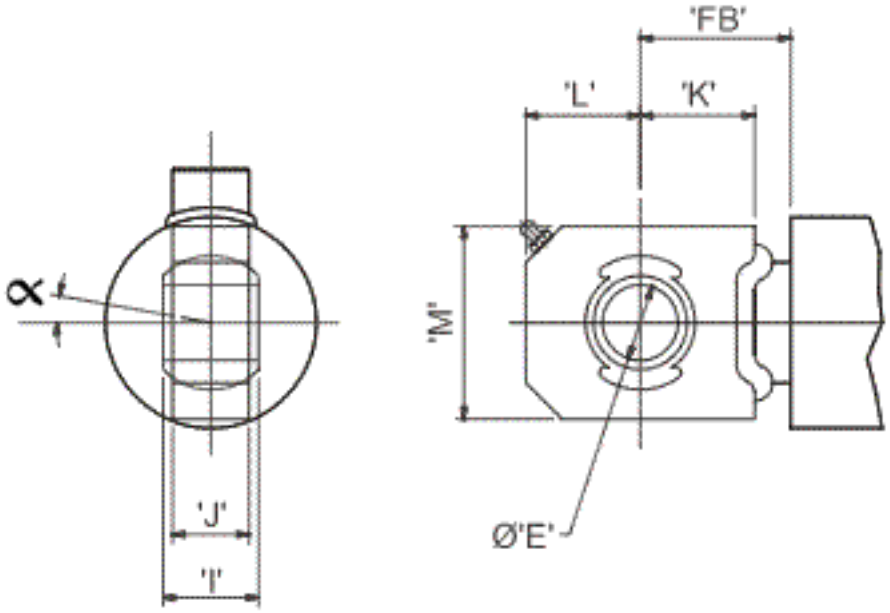
Cylinder Rod Mounting
Rod End Screw-On Type -
Heavy Duty



Cylinder Rod Mounting - Rod Ball Joint - Light Duty

Type	E +0.05 - 0.00	FB +0.5 - 0.5	I	J	K	L	M	∝
40M	20	45	22.23	19	32	32	51	10
50M	22	45	25.40	22.23	32	32	57	10
63M	25	50	31.75	25.40	38	38	64	10
70M	25	50	31.75	25.40	38	38	64	10
80M	32	58	38.10	28.58	45	45	76	10
90M	40	63	41.28	31.75	50	55	100	10
100M	45	80	48.25	37.10	63	63	115	10
125M	50	80	50.10	49.45	63	63	115	10

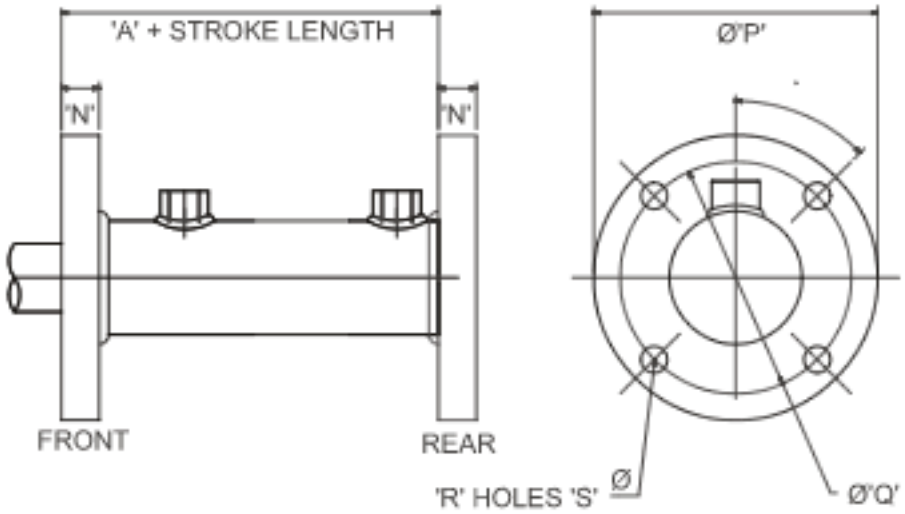
Cylinder Rod Mounting
Rod Ball Joint - Light Duty



Cylinder Body Mounting - Flange Type

Type	N +0 -1	P +3 -3	Q +0.25 -0.25	R - Qty	S H12	∝
40M	16	125	97	4	14	45
50M	20	150	122	4	14	45
63M	25	175	139	4	18	45
70M	32	200	165	6	18	45
80M	32	200	165	6	18	45
90M	32	235	198	6	18	30
100M	32	245	200	6	22	30
125M	32	280	235	8	22	22.5
150M	36	320	270	8	22	22.5
160M	36	330	280	8	22	22.5
180M	40	360	310	8	22	22.5
200M	40	390	340	8	26	22.5

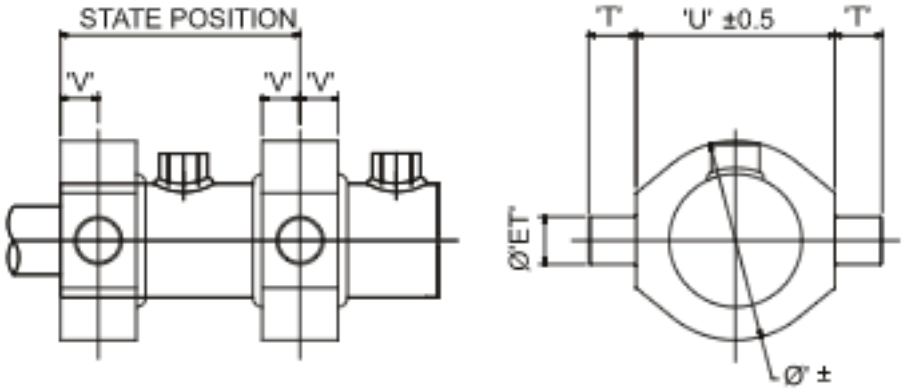
Cylinder Body Mounting
Flange Type



Cylinder Body Mounting - Trunnion Mounting Type

Type	ET 'e9'	T +0.5 - 0.0	U	V
40M	20	20	90	17.5
50M	25	25	105	20.0
63M	32	32	120	25.0
70M	32	32	130	25.0
80M	40	40	135	32.5
90M	40	40	145	32.5
100M	50	50	160	40.0
125M	63	63	195	50
150M	63	63	220	50
160M	80	80	240	50
180M	80	80	270	55
200M	100	100	300	60

Cylinder Body Mounting
Trunnion Mounting Type



Stainless Steel Hydraulic - Cylinders Basic Sizes

Type	Bore	O.D Barrel	Rod Dia	Max Stroke	A +1.5 - 1.5	B	C	D BSP	E H12	F +0.25 - 0.25	FA +0.5 - 0.5	G	H +0.0 - 1.0	HA	HB
40M	40	50	22	360	122	55	19	1/4	20	20	32	20	20	35	18
50M	50	60	28	480	134	60	22	1/4	22	32	32	22	32	38	22
60M	60	70	36	650	146	65	27	3/8	25	38	38	25	38	50	25
70M	70	80	40	750	155	70	27	3/8	25	40	38	25	40	55	32

Stainless Steel Hydraulic Cylinders Basic Sizes