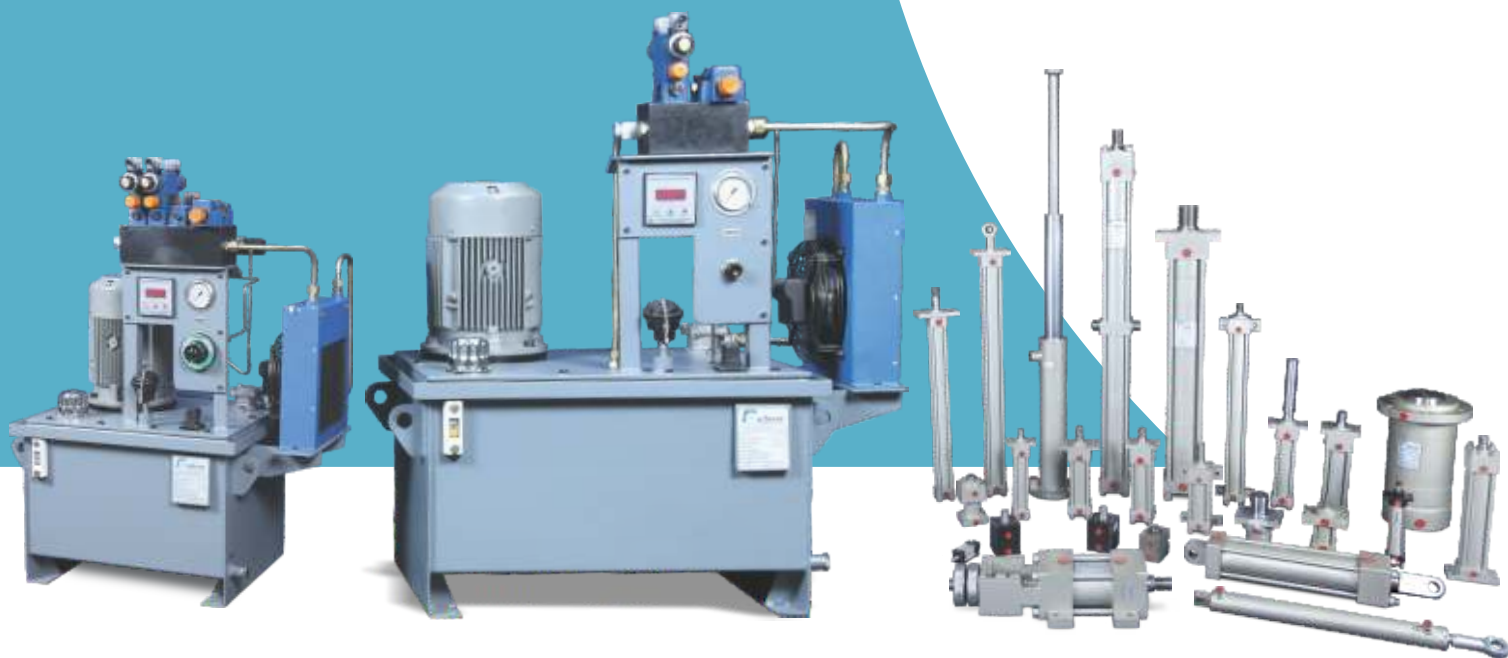
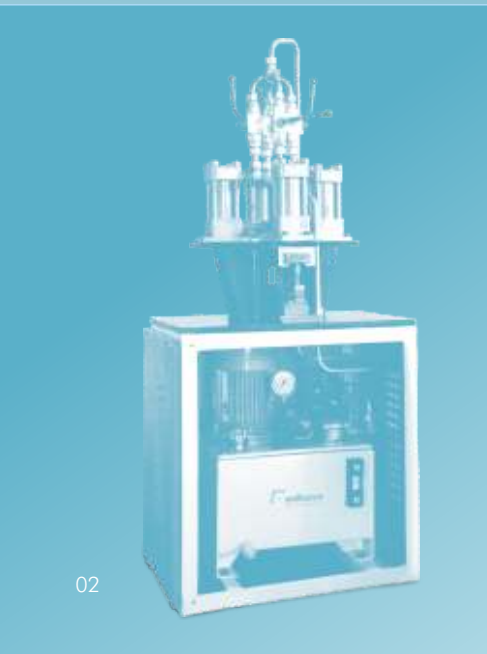
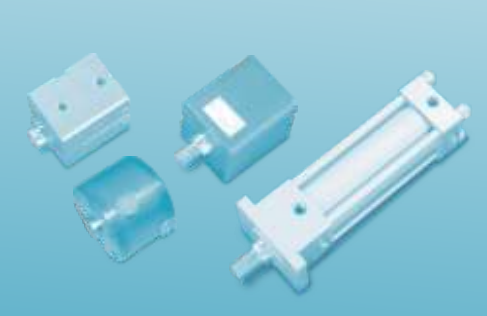


Trusted for reliability & service

Hydraulic : Cylinders, Power Packs, Presses, SPMs





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AHP Series WC up to 160 bar

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AHP STD Series

AHP 005/006/007

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AHP STD Series-007

Hydraulic Telescopic Cylinders

Single Acting/Double Acting 2, 3, 4 Stages

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Hydraulic Cylinders - How to order

AHP Series

Power Pack Units & Systems

From CEO's desk

Welcome to the world of high-quality and most reliable hydraulic and pneumatic products at Achieve. We laid its foundation in 2004 with the sole purpose of manufacturing and providing the products which would prove to be the best solutions to our customers' varied and exacting requirements in this particular field. Living up to our commitment, Achieve has been crossing milestones, one after the other.

We have always kept our product range expanding through research and development. As a result, we are able to cater to the changing demands of various customers and industries. You will find different models of Achieve hydraulic cylinders and power packs performing different applications and adding to your productivity.

Recently, we introduced a range of Achieve Hydraulic Power Pack Units which has received heartening response and appreciation from our customers, as the range is unmistakably characterized by the 'Achieve Quality and Reliability'. We have already begun to focus on developing hydraulic presses and SPMs in response to your demand. A few machines already commissioned will bring out our intent.

Achieve is dedicated to strive for highest customer satisfaction through product excellence and 'no-complaint' after-sales service in the years to come.

Sincerely yours,

R. P. Sonawane, CEO

About us

The year 2004 marked the moderate beginning of a big dream. R. P. Sonawane, a mechanical engineer, after gaining rich experience of about 12 years in the field, founded Achieve Hydraulics and Pneumatics. The objective well defined - To provide clients with highly reliable hydraulic and pneumatic cylinders and power packs at a competitive price and in the fastest possible time. Very soon, Achieve products started featuring as standard fitments in equipments of several reputed OEMs. Achieve specializes in providing customized solutions for hydraulic or pneumatic cylinders and

power packs. This development is undertaken at no additional cost for our clients. With our experience of over several years and a variety of application requirements, the time required for developments is very short. To ensure higher product quality and reliability, we employ latest machines, manufacturing techniques and quality systems. Every Achieve product undergoes a stringent performance test before it reaches you.

By being with us, you can achieve assured competitive edge - always.



Achieve Series Hydraulic Cylinders

Cylinders operable for pressure range
160, 210 & 350 kg/cm² in the following types

- Tie Rod Construction Cylinders
- Welded Construction Cylinders
- Compact Cylinders
- Clamping Cylinders
- Ram Type Cylinders
- Threaded Body Cylinders
- Tandem Type Cylinders
- Telescopic Cylinders
- Stroke Adjustable Cylinders

Applications served

- **Machine Tools**
 - Special Purpose Machines
 - CNC Machines
 - Hydraulic Presses
 - Hydraulic Broaching Machines
 - Hydraulic VMC & VTL Machines
 - Hydraulic Cutting Machines
 - Hydraulic Pick & Place Automation
 - Hydraulic Automation
- **Material Handling Equipments**
 - Hydraulic Conveyor Systems
 - Hydraulic Scissor Lifts
 - Hydraulic Lifts
 - Hydraulic Stackers
 - Small Hydraulic Cranes
- **Earth Moving Equipments**
 - Hydraulic Mobile Control Vehicles
- **Foundry Machines**
 - Furnaces
 - Die Casting Machines
- **Hydraulic Fixtures**
- **Hydraulic Test Rigs**
- **Hydraulically Operated Construction Machines**
- **Injection Molding Machines and many more...**



Achieve Hydraulic Power Packs

Features

- Use single or three phase electric motors
- Pressure range up to 400 bar (10,000psi)
- Fixed or variable delivery piston, vane pumps or gear
- Cater to most fluids such as mineral oil
- All valve configurations and operating modes supplied
- Good availability of spares and excellent service support

Achieve Series

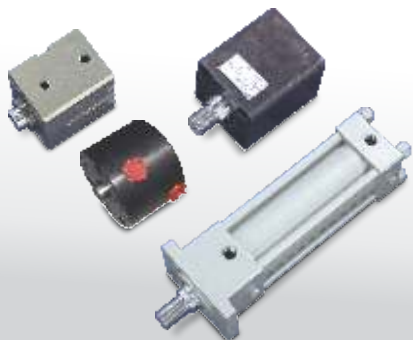
Hydraulic Cylinders



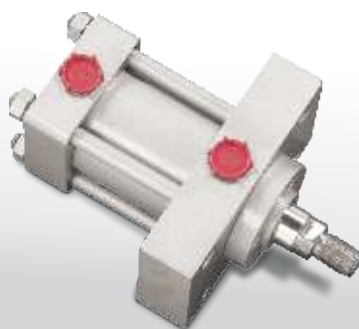
Heavy Duty Hydraulic Cylinder
For press application



Heavy Duty Hydraulic Cylinder
For scissor lift application and many more



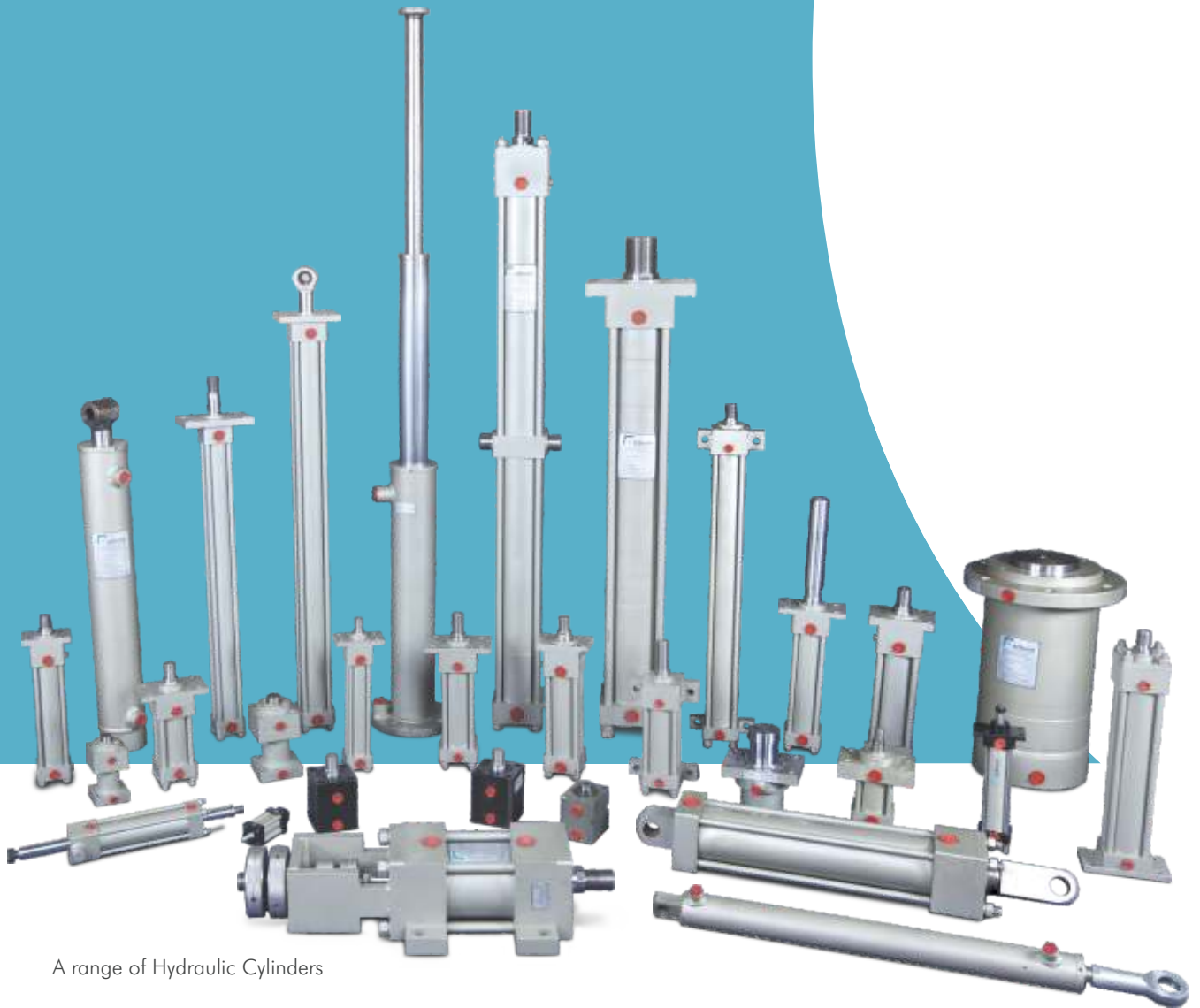
Compact Hydraulic Cylinder
Pressure : Up to 160kg/cm^2



Hydraulic Cylinder
Pressure : Up to 160kg/cm^2



Round Front Flange Tie-rod Type
Hydraulic Cylinder
Pressure : Up to 250kg/cm^2



A range of Hydraulic Cylinders



Adjustable Center Trunnion Mounting
Hydraulic Cylinder
Pressure : Up to 160kg/cm²



Welded Type Hydraulic Cylinder
Pressure : Up to 250kg/cm²



Heavy Duty High Pressure Hydraulic Cylinder
Pressure : Up to 700kg/cm²

Achieve Series

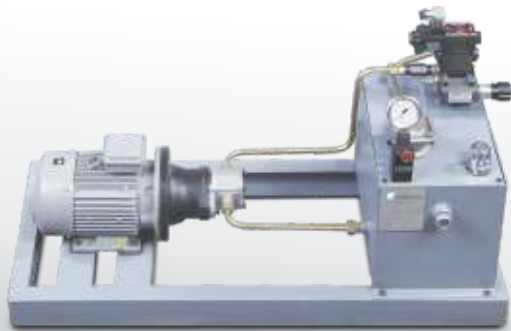
Power Pack Units



Press applications



With air-cooled heat exchanger



Compact design power pack



With Yuken components



With water-cooled heat exchanger



With Rexroth components



With accumulator and pressure switch



Hydraulic Press

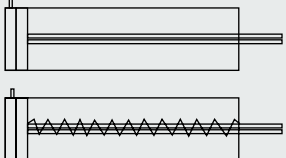

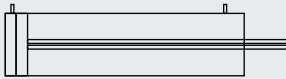


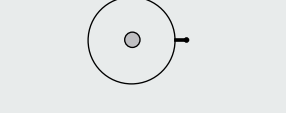


Hydraulic Punching Machine



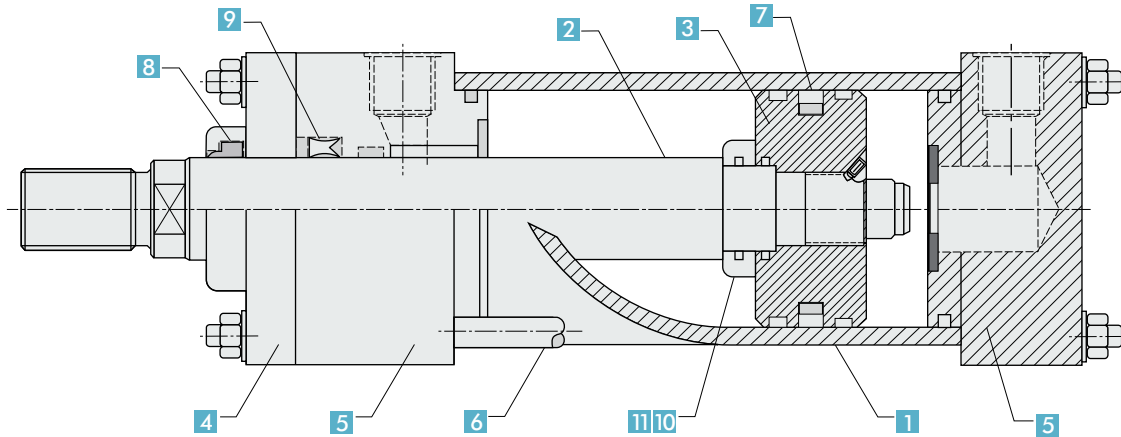
Pneumatic Cutting Machine

Symbols

Denomination	Applications	Symbol
Single acting cylinder	The fluid pressure is applied in one sense only (forward stroke) Back stroke: by undefined force By means of a spring	
Double acting cylinder	The fluid pressure is applied alternatively in two directions (forward and back stroke)	Single rod Double rod 
Differential cylinder	The ratio between the cylinder section and the ring section of the piston near the rod is essential for the cylinder operation Double rod	
Cylinder with non-adjustable cushion	Acting from one side only Acting from both sides	
Double acting telescopic cylinder	Cylinder with several pistons which enter into each other with forward and backward movement	
Hydraulic pressure source	Control pipe (straight line for simplified representations)	



Hydraulic Cylinders - Constructional Details



1 Cylinder Body

Strict quality control standards and precision manufacturing ensure that all tubes meet rigid standards of straightness, roundness and surface finish. The steel tubing is surface finished to minimize internal friction and prolong seal life.

2 Piston Rod

Gland seal life is maximized by manufacturing piston rods from precision ground, high tensile carbon alloy steel, hard chrome plated and polished to $0.2\mu\text{m}$ max. Piston rods are induction case hardened to Rockwell C54 minimum before chrome plating, resulting in a dent-resistant surface.

3 Piston

Wear-resistant cast iron piston rings are fitted as standard to 3L cylinders. Lip seal pistons are available to suit different applications. See 'Piston Seal'. All pistons are of one-piece type, and feature wide bearing surfaces to resist side loading. Long thread engagement secures the piston rod and for additional safety, the piston is secured by thread-locking adhesive and a locking pin.

4 Cover Plates

Made from mild steel and constructed with sturdy design to withstand high pressure load.

5 Caps

Made of mild steel, precision machined to assure perfect alignment of the piston rod and cylinder bore.

6 Tie Rods

Made from special alloy steel and are prestressed at assembly to minimize possible elongation.

7 Gland Seals

A variety of piston seal options are available to suit different applications. The seal option should be specified at the time of order.

8 Wiper Seals

Made of polyurethane rubber to prevent any dust particles from entering inside.

9 Rod Seals

The serrated lip seal has a series of sealing edges which take over successively as pressure increases, providing efficient sealing under all operating conditions. On the return stroke, the serrations act as a check valve, allowing the oil adhering to the rod to pass back into the cylinder.

The double-lip wiper seal acts as a secondary seal, trapping excess lubricating film in the chamber between the wiper and lip seals. Its outer lip prevents the ingress of dirt into the cylinder, extending the life of gland and seals.

Standard lip seals are manufactured from an enhanced polyurethane, giving efficient retention of pressurized fluid and service life of up to five times that of the traditional seal materials. Standard seals are suitable for speeds of up to 0.5m/s - special seal combinations including PTFE are available for higher speed applications.

10 Cushioning

Deceleration of a load attached to the piston rod is achieved by using built-in cushions at either or both ends of the cylinder. At the head end, a cushion sleeve is fitted, while the polished cap end spear is an integral part of the piston rod.

11 Floating Cushion Bushes and Sleeves

Closer tolerances - and therefore, more effective cushioning - are permitted by the use of a floating cushion sleeve at the head end of the cylinder and floating cushion bush at the cap end. A specially designed cushion sleeve on bore sizes up to 101.6mm (4") operates as a check valve. On larger bore sizes, a conventional ball check valve is used. The use of a check valve in the head and lifting of the bronze cushion bush in the cap provides minimum fluid flow restriction at the start of the return stroke. This allows full pressure to be applied over the whole area of the piston to provide full power and fast cycle times.

Cylinder Selection

Check List

The following check list indicates the principal factors which should be considered while selecting a hydraulic cylinder for a particular application. Further information is available on subsequent pages. If more information is required about any aspect of a cylinder specifications, please contact our design engineers.

Establish System Parameters

- Weight to be moved and force required
- Nominal operating pressure and range
- Distance to be traveled
- Average and maximum piston speed
- Fluid medium and temperature

Mounting Style

Select the appropriate style for the specific application.

- ME5 - Head Rectangular Flange
- MP3 - Cap Mounting Fixed Eye
- MT2 - Cap Trunnion mounting
- Tie Rod Extended Both Ends
- MX3 - Tie Rod Extended mounting
- ME6 - Cap Rectangular Flange
- MP1 - Cap Mounting Fixed Trunnion
- MT1 - Head Trunnion Mounting
- MX2 - Tie Rod Extended Cap Mounting
- MS2 - Side Lugs Mounting

Cylinder Bore and Operating Pressure

- Determine the bore and system pressure required to provide the necessary force.

Piston Rod

- Single or double rod
- Determine the minimum rod diameter required to withstand buckling forces.
- Is a stop tube required?
- Select a suitable rod end and rod end thread.
- Check pressure rating of selected cylinder and piston rod.

Piston

- Does the seal type suit the application?

Cushioning

- Select the cushioning requirement if applicable.

Ports

- Select suitable ports.
- Are they capable of the speed required?
- Are the standard positions acceptable?

Seals

- Select seals to suit the chosen fluid medium and temperature range.

Rod and Cap End Accessories

- Are rod end and/or cap end accessories required?

Operating Features

- Air bleeds, rod end bellows, etc.

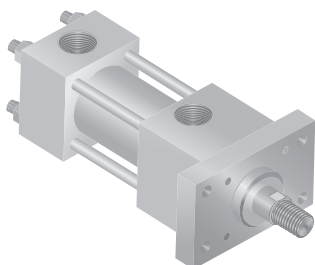


AHP STD Series up to 160 bar Tie Rod Type Cylinders

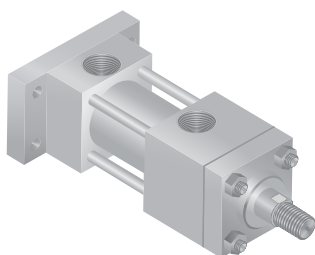


Tie Rod Type Cylinders

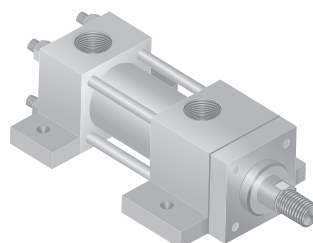
Types of mountings



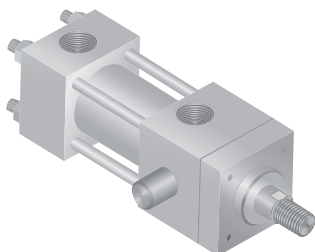
ME5-Head Rectangular Flange



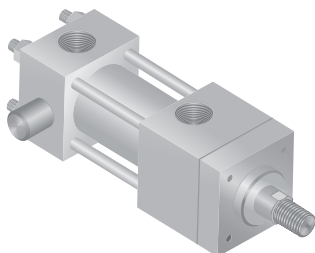
ME6-Cap Rectangular Flange



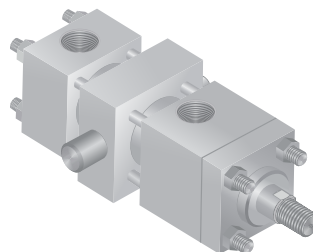
MS2-Side Lug Mounting



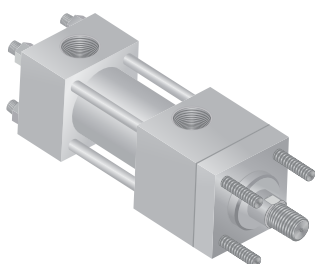
MT1-Head Trunnion Mounting



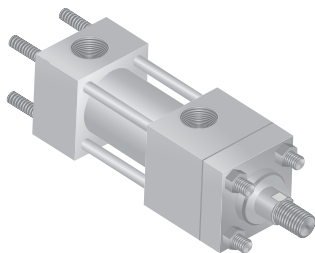
MT2-Cap Trunnion Mounting



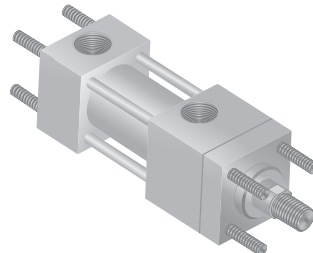
MT4-Intermediate Fixed Trunnion Mounting



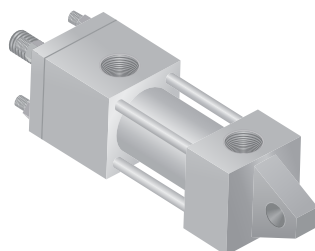
MX3-Tie Rods Extended Head Mounting



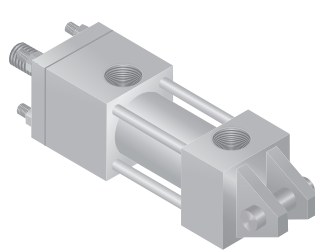
MX2-Tie Rods Extended Cap Mounting



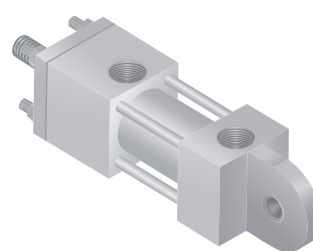
Tie Rods Extended Both Ends



MP3-Cap Mounting Fixed Eye



MP1-Cap Mounting Fixed Clevis

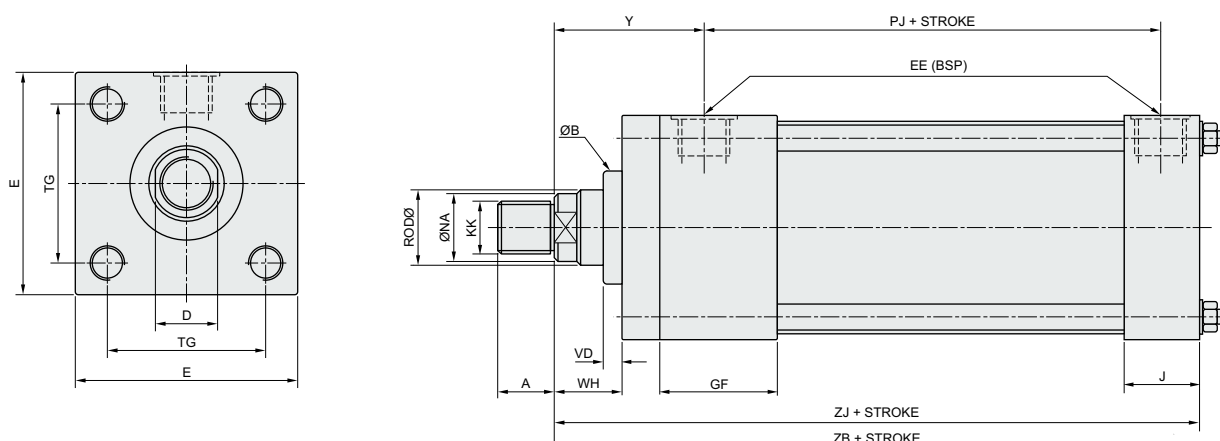


Cap Mounting Fixed Eye

Double Acting Hydraulic Cylinders

Specifications

- Max. pressure : 160 bar
- Max. reciprocating speed : 12m/min
- Breakaway pressure : 3 to 5 bar
- Standard cushioning length : 20mm
- Single and Double rod design
- Temperature Range : 20°C to 150°C depending on seal type
- Seal types to suit a wide variety of operating environment
- Cushion available at either end



Basic Dimensions

Dimensions

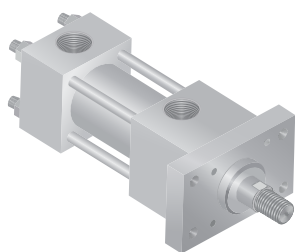
Bore	Rod Ø		A		B		D		E	EE	GF	J	KK		NA		PJ	TG	WH	Y	ZJ	VD	ZB	
25	12		14		24		10		40	1/4"	35.0	22	M 10 x 1.25		11		56.0		30	15.0	48.0	115.0	5.0	121.0
32	18	20	16	20	28	32	14	17	50	1/4"	40.0	25	M12X1.25	M16X1.5P	17	19	69.0	36	25.0	63.0	145.0	6.0	170.0	
40	18	25	18	28	30	40	15	21	63	1/4"	48.3	30	M14X1.5	M20X1.5P	17	24	88.0	44	23.6	67.9	171.9	9.6	185.9	
50	22	25	22	28	34	40	18	21	75	3/8"	45.6	30	M16X1.5	M20X1.5P	21	24	96.0	54	23.6	66.2	176.2	9.6	193.6	
63	28	35	28	36	42	55	22	30	90	3/8"	49.0	32	M20X1.5	M27X2P	26	33	97.4	64	21.6	66.4	179.6	9.6	199.6	
80	36	45	36	45	50	60	30	39	115	1/2"	58.0	38	M27X2P	M39X2P	34	42	101.0	83	20.6	75.6	196.6	5.6	216.6	
100	45	70	45	63	60	88	39	64	130	3/4"	77.0	50	M33X2P	M56X2P	43	67	115.0	97	32.2	104.2	244.2	3.2	269.2	
125	56	90	56	85	72	108	46	84	165	3/4"	77.3	50	M42X2P	M76X2P	54	87	130.0	126	30.7	113.0	268.0	5.2	298.0	
150	70	110	63	95	88	130	64	103	190	1"	80.5	51	M56X2P	M95X2P	68	107	131.0	146	25.0	109.5	266.5	5.2	296.5	
200	90	130	85	112	108	155	84	123	245	1-1/4"	90.0	60	M64X3P	M120X2P	88	127	142.0	190	39.0	133.0	309.0	14.6	320.0	

Note : Special orders as per customer specifications are also accepted.

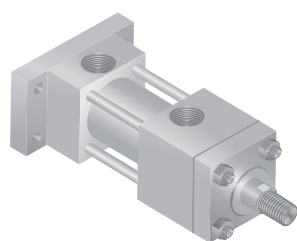
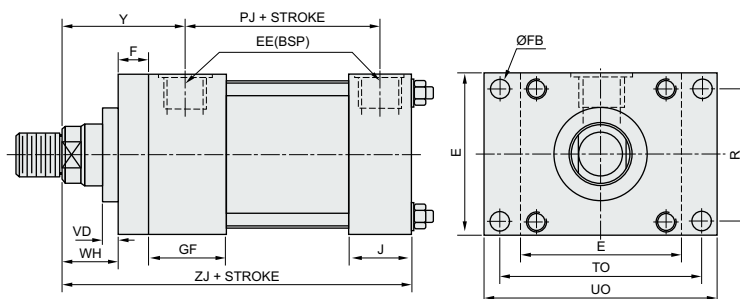
All dimensions in mm unless otherwise stated.

Tie Rod Type Cylinders

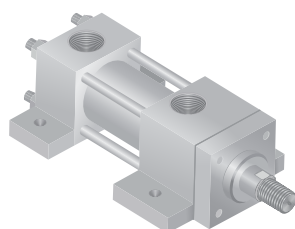
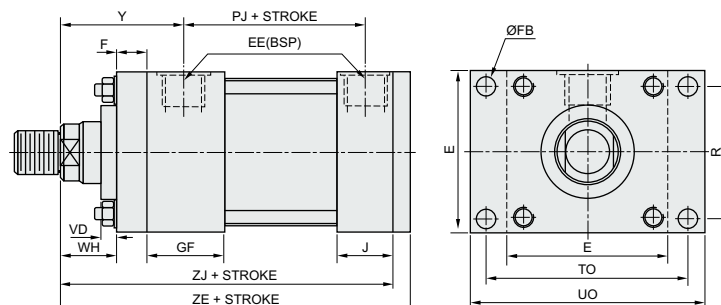
Flange and Side Lugs Mountings



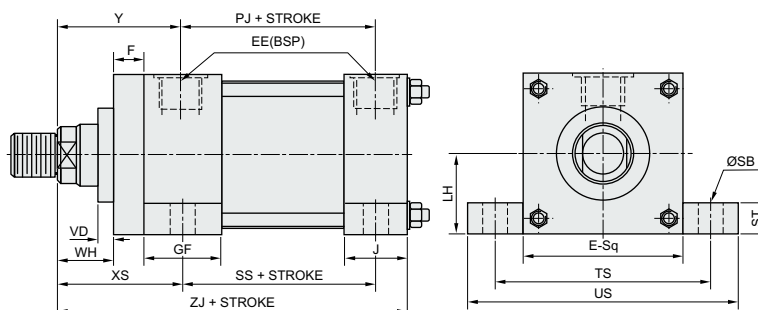
ME5-Head Rectangular Flange



ME6-Cap Rectangular Flange



MS2-Side Lugs Mounting



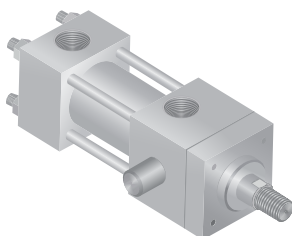
Dimensions

Bore	E	EE	F	FB	GF	J	LH	R	SB	ST	TO	TS	UO	US	XS	Y	+ Stroke			
																	PJ	SS	ZJ	ZE
25	40	1/4"	8	5.5	35.0	22	20.0	27	6.6	8.5	51	54	65	72	33.0	48.0	56	73.0	115.0	123.0
32	50	1/4"	10	9.0	40.0	25	25.0	30	10	10	70	70	90	90	48.0	63.0	69	84.5	145.0	155.0
40	63	1/4"	10	11.0	48.5	30	31.5	41	11	13	87	85	115	105	56.0	67.9	88	98.0	171.9	181.9
50	75	3/8"	12	13.5	45.6	30	37.5	52	14	19	105	102	142	127	56.0	66.2	96	100.0	176.2	188.7
63	90	3/8"	12	13.5	49.0	35	45.0	65	18	26	117	124	160	161	58.0	66.4	97	104.5	179.6	191.6
80	115	1/2"	15	17.5	58.0	35	57.5	83	18	26	149	149	190	186	64.6	75.6	101	111.5	196.6	211.6
100	130	3/4"	20	17.5	77.0	50	65.0	97	21	32	162	172	220	216	91.0	104.2	115	128.5	244.2	264.2
125	165	3/4"	30	22.0	77.3	50	82.5	126	26	32	208	210	260	254	89.0	113.0	130	148.5	268.0	298.0
150	190	1"	30	26.0	80.5	51	102.5	155	33	38	253	260	320	318	96.0	109.5	131	147.5	266.5	296.5
200	245	1-1/4"	30	33.0	90.0	60	122.5	190	39	44	300	311	380	381	116.0	133.0	142	167.0	309.0	339.0

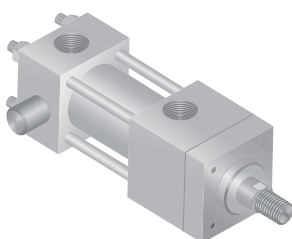
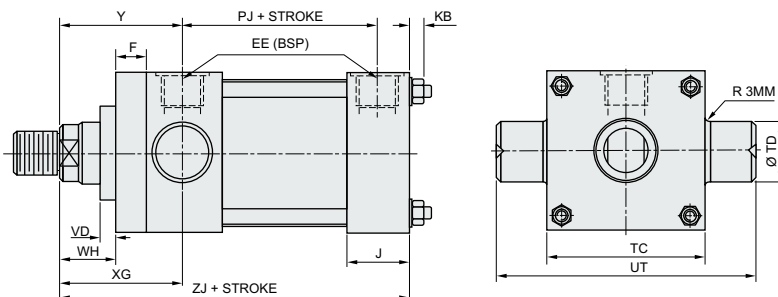
Note : Special orders as per customer specifications are also accepted.

All dimensions in mm unless otherwise stated.

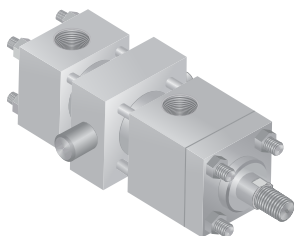
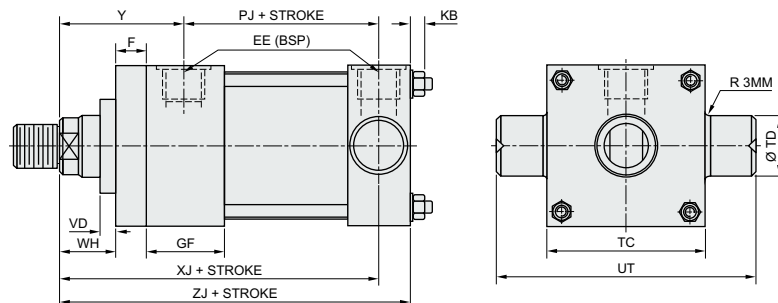
Standard Trunnion Mountings



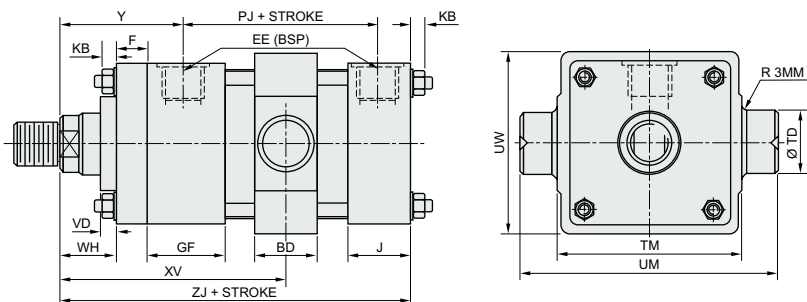
MT1-Head Trunnion Mounting



MT2-Cap Trunnion Mounting



**MT4-Intermediate
Fixed Trunnion Mounting**



Dimensions

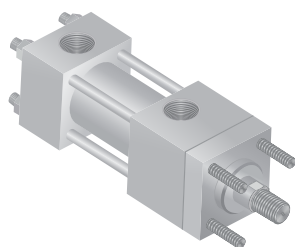
Bore	E	EE	F	TD	GF	J	XV	TM	UM	UW	WH	VD	XG	KB	BD	Y	TC	UT	+ Stroke		
																			PJ	XJ	ZJ
25	40	1/4"	08	12	35.0	22	To be specified	48	68	45	15.0	5.0	44.0	7	20	48.0	40	58	56.0	101.0	115.0
32	50	1/4"	10	16	40.0	25		55	79	54	25.0	6.0	54.0	8	25	63.0	44	68	69.0	133.0	145.0
40	63	1/4"	10	25	48.3	30		76	126	92	23.6	9.6	56.0	10	30	67.9	63	113	88.0	156.9	179.9
50	75	3/8"	12	25	45.6	30		89	139	112	23.6	9.6	56.0	15	30	66.2	75	125	96.0	161.2	176.2
63	90	3/8"	12	30	49.0	32		100	160	126	21.6	9.6	58.0	15	40	66.4	90	150	97.4	163.6	179.6
80	115	1/2"	15	35	58.0	38		127	197	260	20.6	5.6	64.6	18	45	75.6	115	185	101.0	177.6	196.6
100	130	3/4"	20	40	77.0	50		140	220	180	32.2	3.2	91.0	18	50	104.2	130	210	115.0	219.0	244.2
125	165	3/4"	30	42	77.3	50		178	262	215	30.7	5.2	91.0	22	52	113.0	165	249	130.0	243.0	268.0
150	190	1"	30	48	80.5	51		200	311	260	25.0	5.2	96.0	24	58	109.5	190	301	131.0	241.0	260.5
200	245	1-1/4"	30	54	90.0	60		279	387	355	39.0	14.6	116.0	28	64	133.0	245	353	142.0	279.0	309.0

Note : Special orders as per customer specifications are also accepted.

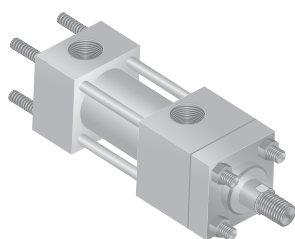
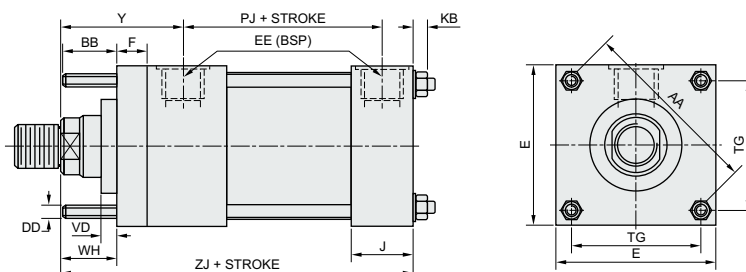
All dimensions in mm unless otherwise stated.

Tie Rod Type Cylinders

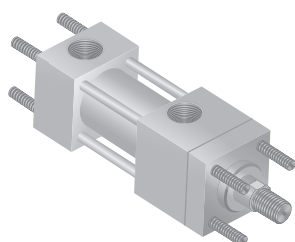
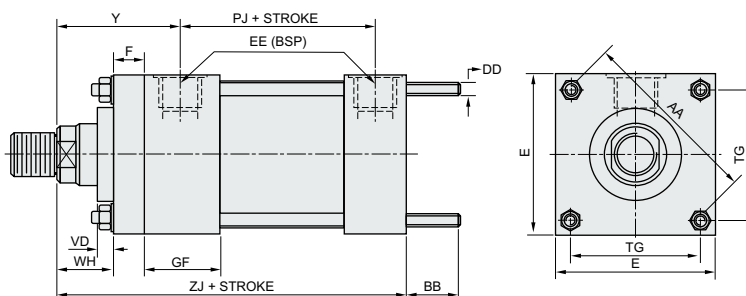
Extended Tie Rod Mountings



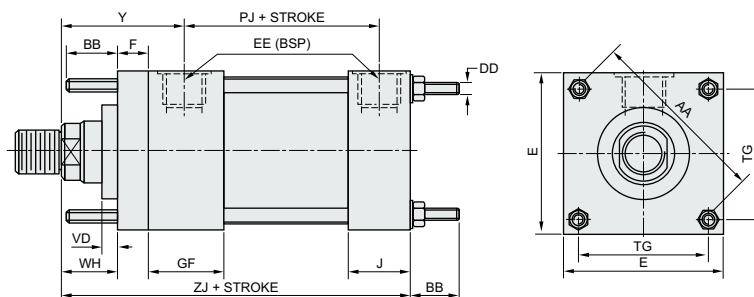
MX3-Tie Rod Extended Head End



MX2-Tie Rod Extended Cap End



Tie Rod Extended Both Ends



Dimensions

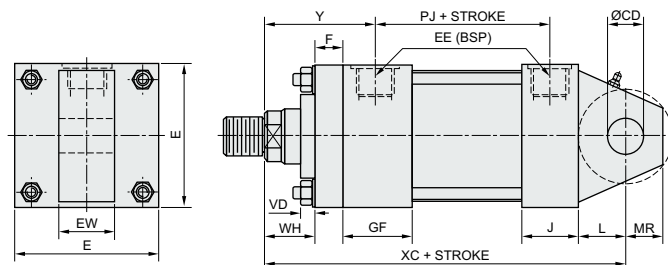
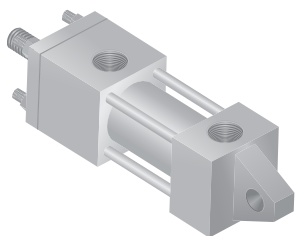
Bore	E	EE	F	BB	GF	J	TG	DD	AA	WH	VD	KB	Y	+ Stroke	
														PJ	ZJ
25	40	1/4"	08	19	35.0	22	30	M6	40.0	15.0	5.0	7.0	48.0	56.0	115.0
32	50	1/4"	10	24	40.0	25	36	M6	47.0	25.0	6.0	8.0	63.0	69.0	145.0
40	63	1/4"	10	35	48.3	30	44	M10	59.3	23.6	9.6	12.0	67.9	88.0	171.9
50	75	3/8"	12	46	45.6	30	54	M12	73.5	23.6	9.6	15.0	66.2	96.0	176.2
63	90	3/8"	12	46	49.0	32	64	M12	90.5	21.6	9.6	15.0	66.4	97.4	179.6
80	115	1/2"	15	59	58.0	38	83	M16	117.3	20.6	5.6	18.0	75.6	101.0	196.6
100	130	3/4"	20	59	77.0	50	97	M16	137.1	32.2	3.2	18.0	104.2	115.0	244.2
125	165	3/4"	30	81	77.3	50	126	M20	178.1	30.7	5.2	20.0	113.0	130.0	268.0
150	190	1"	30	92	80.5	50	146	M24	219.2	25.0	5.2	24.0	109.5	131.0	266.5
200	245	1-1/4"	30	115	90.0	60	190	M30	268.7	39.0	14.6	28.0	133.0	142.0	309.0

Note : Special orders as per customer specifications are also accepted.

All dimensions in mm unless otherwise stated.

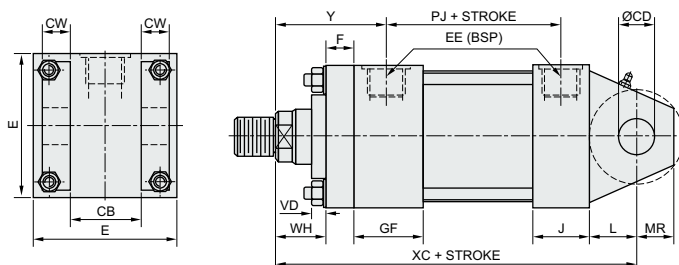
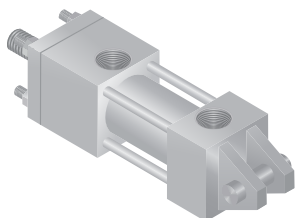
Pivot Mountings

1. Pivot pin not supplied



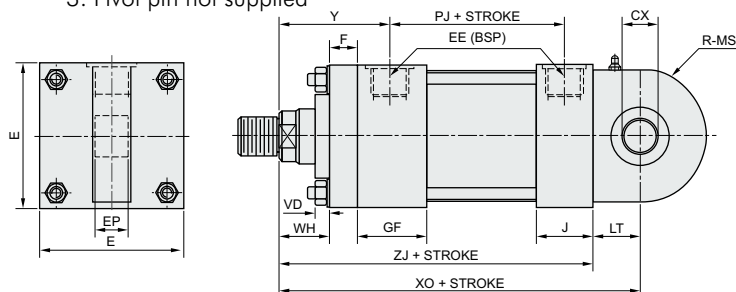
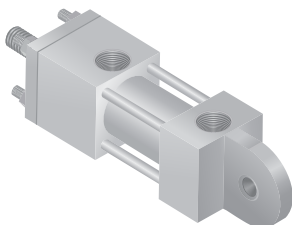
MP3-Cap Mounting Fixed Eye

2. Supplied complete with pivot pin



MP1-Cap Mounting Fixed Clevis

3. Pivot pin not supplied



Cap Mounting Fixed Eye

Dimensions

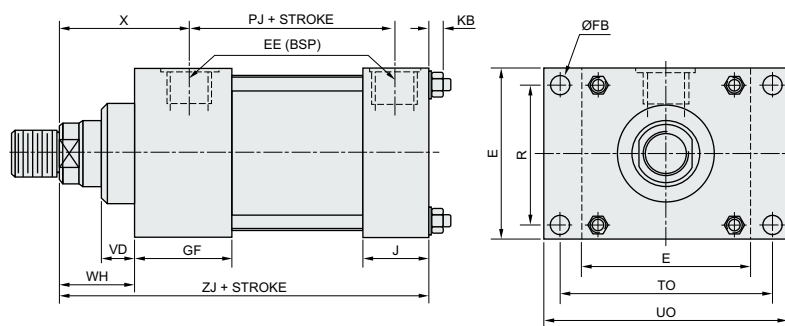
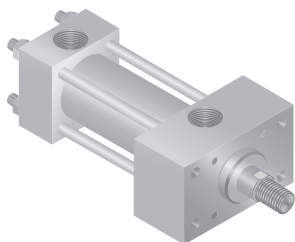
Bore	E	EE	F	CB	GF	J	CD	EP	CW	CX	EW	VD	L	MR	WH	Y	LT	MS	+ Stroke		
																			PJ	XO	XC
25	40	1/4"	8	12	35.0	22	10	8	6.0	12	12	5.0	13	12	15.0	48.0	16	15	56.0	131.0	128.0
32	50	1/4"	10	16	40.0	25	12	11	8.0	16	16	6.0	19	15	25.0	63.0	20	20	69.0	165.0	164.0
40	63	1/4"	10	20	48.3	30	14	13	10	20	20	9.6	19	17	23.6	67.9	25	29	88.0	196.9	190.9
50	75	3/8"	10	30	45.6	30	20	17	15	25	30	9.6	32	29	23.6	66.2	31	30	96.0	207.2	208.2
63	90	3/8"	12	30	49.0	32	20	19	15	30	30	9.6	32	29	21.6	66.4	38	40	97.4	217.6	211.6
80	115	1/2"	15	40	58.0	38	28	23	20	40	40	5.6	39	34	20.6	75.6	48	50	101.0	244.6	235.6
100	130	3/4"	20	50	77.0	50	36	30	25	50	50	3.2	54	50	32.2	104.2	58	60	115.0	302.2	298.2
125	165	3/4"	30	60	77.3	50	45	38	30	60	60	5.2	57	53	30.7	113.0	72	70	130.0	340.0	325.0
150	190	1"	30	80	80.5	51	70	47	40	80	70	5.2	63	59	25.0	109.5	92	90	131.0	352.5	323.5
200	245	1-1/4"	30	80	90.0	60	70	57	40	100	80	14.6	82	78	39.0	133.0	116	110	142.0	425.0	391.0

Note : Special orders as per customer specifications are also accepted.

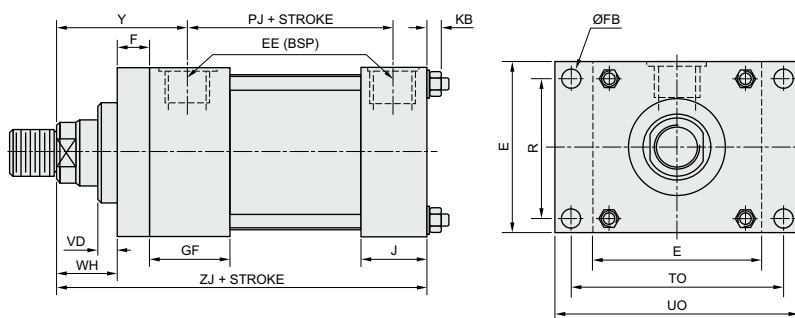
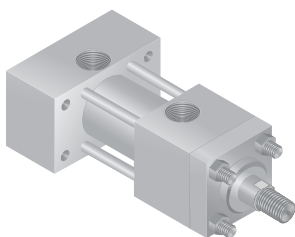
All dimensions in mm unless otherwise stated.

Tie Rod Type Cylinders

Head Rectangular & Cap Rectangular Flange Mountings



Style 1-Head Rectangular Flange Mounting



Style 2-Cap Rectangular Flange Mounting

Dimensions

Bore	E	EE	F	Ø FB	GF	J	R	TO	UO	X	Y	+ Stroke		
												PJ	ZP	ZJ
25	40	1/4"	8	5.5	35.0	22	27	51	65	40.0	48.0	56.0	107.0	115.0
32	50	1/4"	10	9.0	40.0	25	30	70	90	53.0	63.0	69.0	135.0	145.0
40	63	1/4"	10	11.0	48.3	30	41	87	115	57.9	67.9	88.0	161.9	171.9
50	75	3/8"	12	13.5	45.6	30	52	105	142	54.2	66.2	95.0	164.2	176.2
63	90	3/8"	12	13.5	49.0	32	65	117	160	54.4	66.4	97.4	167.6	179.6
80	115	1/2"	15	17.5	58.0	38	83	149	190	60.6	75.6	101.0	181.6	196.6
100	130	3/4"	20	17.5	77.0	50	97	162	220	84.2	104.2	115.0	224.2	244.2
125	165	3/4"	30	22.0	77.3	50	126	208	260	83.0	113.0	130.0	238.0	268.0
150	190	1"	30	26.0	80.5	51	155	253	320	79.5	109.5	131.0	230.5	260.5
200	245	1-1/4"	30	33.0	90.0	60	190	300	380	103.0	133.0	165.0	182.0	328.0

Note : Special orders as per customer specifications are also accepted.

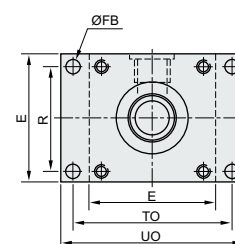
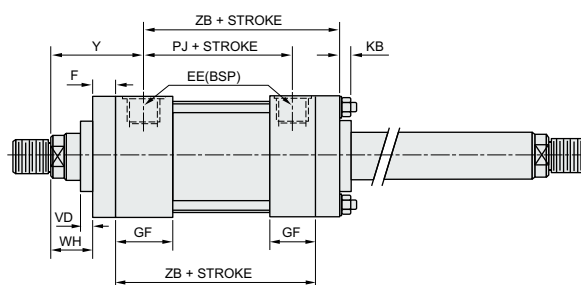
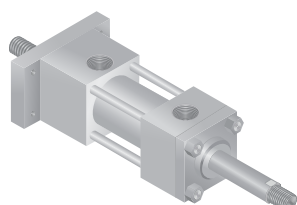
All dimensions in mm unless otherwise stated.

AHP STD Series up to 160 bar
**Double-Ended Hydraulic
Cylinders-003**

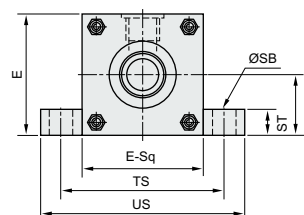
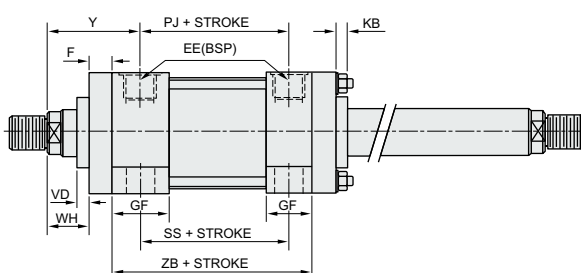
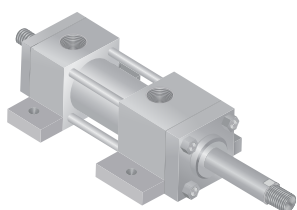


Double-Ended Hydraulic Cylinders-003

Double-Ended Hydraulic Cylinders-003

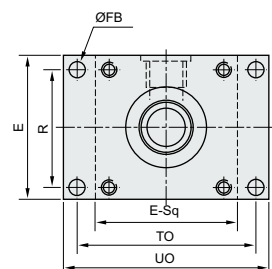
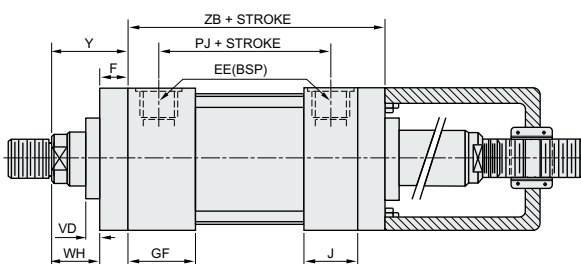


Head Rectangular Flange



Side Lugs Mounting

Adjustable Cylinder with Flange Mountings



Various types of mountings

- Flange Mountings
- Foot Mountings
- Trunnion Mountings
- Tie Rod Extended Mountings

- Also available in adjustable stroke with cushioning
- Double-ended cylinder with female threading at both ends of rods
- Double-ended cylinder with hollow piston rod
- Tandem type double-ended cylinder also available as per requirement

Dimensions

Dimensions

Bore		Rod		Add Stroke			Add 2 X Stroke	
Ø	No.	mm Ø	ZB	PJ	SS	ZJ		
25	1	12	104	53	88	154		
	2	18						
32	1	16	108	56	88	178		
	2	22						
40	1	20	125	73	105	195		
	2	25						
50	1	25	125	74	99	207		
	2	28						
	3	35						
63	1	28	127	80	93	223		
	2	35						
	3	45						
80	1	35	144	93	110	246		
	2	45						
	3	56						

Bore		Rod		Add Stroke			Add 2 X Stroke	
Ø	No.	mm Ø	ZB	PJ	SS	ZJ		
100	1	45	151	101	107	265		
	2	56						
	3	70						
125	1	56	175	117	131	289		
	2	70						
	3	90						
158	1	70	188	130	130	302		
	2	90						
	3	110						
200	1	110	242	160	172	356		
	2	130						
	3	140						

All dimensions in mm unless otherwise stated.

AHP STD Series up to 200 bar
Heavy Duty Cylinders-004

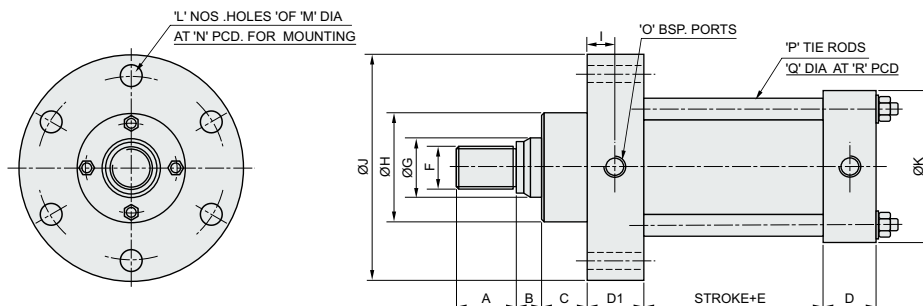


Heavy Duty Cylinders-004

Bore dia 40mm to 400mm, Stroke lengths up to 2,400mm for pressures up to 350kg/cm²

Round End Cylinder

Bore: Ø40 to 400mm
Stroke length: Up to 2400mm
Pressure: Up to 250kg/cm²



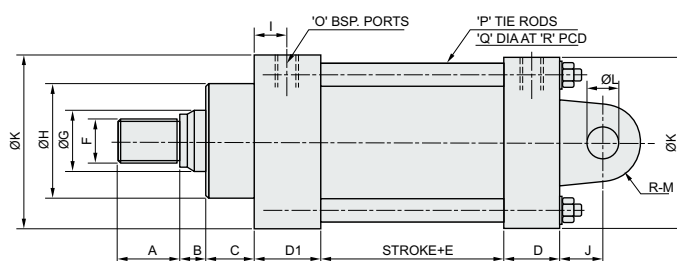
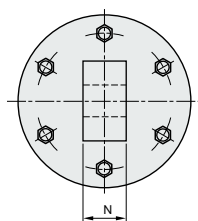
Dimensions

Pressure Rating : 200 kg/cm ²																				Tonnage at 135 kg/cm ²
Bore	A	B	C	D	D1	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	
40	26	16	47	24	32	65	M20x1.5P	25	68	17.0	115	77	6	9	96	1/4"	6	8	60.0	1.5
50	26	16	47	26	34	65	M20x1.5P	25	68	19.0	145	98	6	11	122	3/8"	6	10	77.0	2.8
63	32	19	47	32	41	77	M27x2P	35	77	22.0	157	110	6	11	135	1/2"	6	10	88.0	4.4
80	50	26	61	32	42	85	M39x2P	45	100	23.0	185	130	6	13	160	1/2"	6	12	105.0	6.4
100	50	26	60	45	56	92	M56x2P	70	115	27.5	265	180	6	22	225	3/4"	6	20	141.5	11.6
125	50	26	60	45	56	102	M76x2P	90	115	27.5	295	210	6	22	255	3/4"	6	20	172.5	17.6
150	64	30	60	45	58	107	M95x2P	110	146	29.5	350	251	6	26	305	3/4"	6	24	204.0	25.5
200	76	30	59	48	59	119	M120x2P	130	167	30.5	415	315	8	26	370	3/4"	8	24	267.0	45.2
250	80	30	59	48	59	129	M140x2.5P	150	195	30.5	480	380	10	26	435	3/4"	10	24	332.0	70.0
300	120	35	70	62	62	139	M150x3P	180	261	31.0	550	450	16	26	505	3/4"	16	24	403.0	100.2

- Piston and piston rod are supported with replaceable self-lubricating bronze lined PTFE bearings which provide accurate and smooth frictionless movement.
- End covers are all fabricated and are of robust design to withstand heavy forces. Cold phosphatizing is done for rust prevention prior to painting.
- Wide varieties of mounting styles are available.
- Tie rod design makes the cylinder rugged and maintenance easier.
- Inspection : Hydrostatic pressure testing of all hydraulic cylinders at maximum working pressure for leakages and guaranteed performance.
- Optional piston rod and threads may be offered on request.
- For special cylinders like double-ended cylinders, stroke adjustment cylinders and cylinders for mobile application, please contact our Sales Department.

Clevis End Cylinder

Bore: Ø40 to 400mm
Stroke length: Up to 2400mm
Pressure: Up to 250kg/cm²



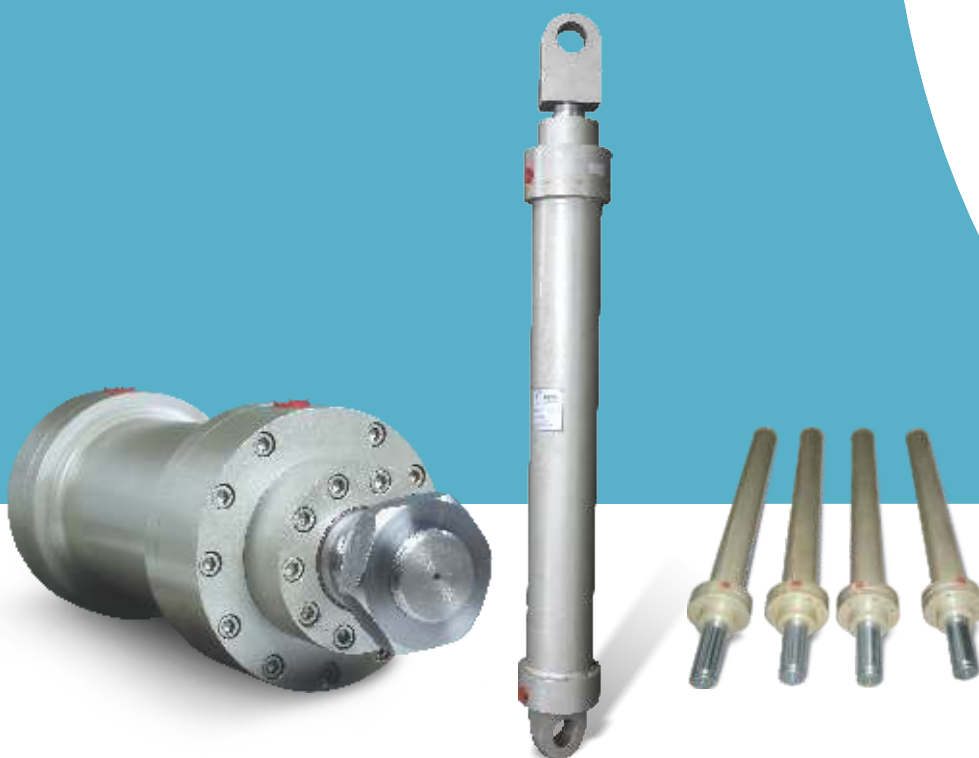
Dimensions

Pressure Rating : 200 kg/cm ²																				Tonnage at 135 kg/cm ²
Bore	A	B	C	D	D1	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	
40	50	16	47	24	32	65	M20x1.5P	25	68	17.0	30	77	15	18	20	1/4"	6	8	60.0	1.5
50	32	16	47	26	35	65	M20x1.5P	25	68	19.0	36	98	20	22	30	3/8"	6	10	77.0	2.8
63	26	19	47	32	41	77	M27x2P	35	77	22.0	36	110	20	22	30	1/2"	6	10	88.0	4.4
80	26	26	61	32	42	85	M39x2P	45	100	23.0	43	130	25	28	40	1/2"	6	12	105.0	6.4
100	50	26	60	45	50	92	M56x2P	70	115	27.5	62	180	35	40	50	3/4"	6	20	141.5	11.6
125	50	26	60	45	50	102	M76x2P	90	115	27.5	72	210	45	50	60	3/4"	6	20	172.5	17.6
150	64	30	60	45	52	107	M95x2P	110	146	29.5	85	251	50	55	65	3/4"	6	24	204.0	25.5
200	76	30	59	48	55	119	M120x2P	130	167	30.5	120	315	75	90	75	3/4"	8	24	267.0	45.2
250	80	30	59	48	55	129	M140x2.5P	150	195	30.5	150	380	100	120	100	3/4"	10	24	332.0	70.0
300	120	35	70	62	62	139	M150x3P	180	261	31.0	170	450	120	140	120	3/4"	16	24	403.0	100.2

Note : Special orders as per customer specifications are also accepted.

All dimensions in mm unless otherwise stated.

AHP Series MD up to 350 bar
Mill Duty Type Cylinders-004



Mill Duty Type Cylinders-004

Cylinders designed for extreme conditions

Mill type cylinders are designed for applications even under extreme conditions.

- Service-friendly modular system
- Various types of mounting
- Interchangeability, thanks to standardization
- Industry-specific and project-related cylinders on enquiry

Heavy Duty Mill Type Cylinder

Series 1X/2X

Features

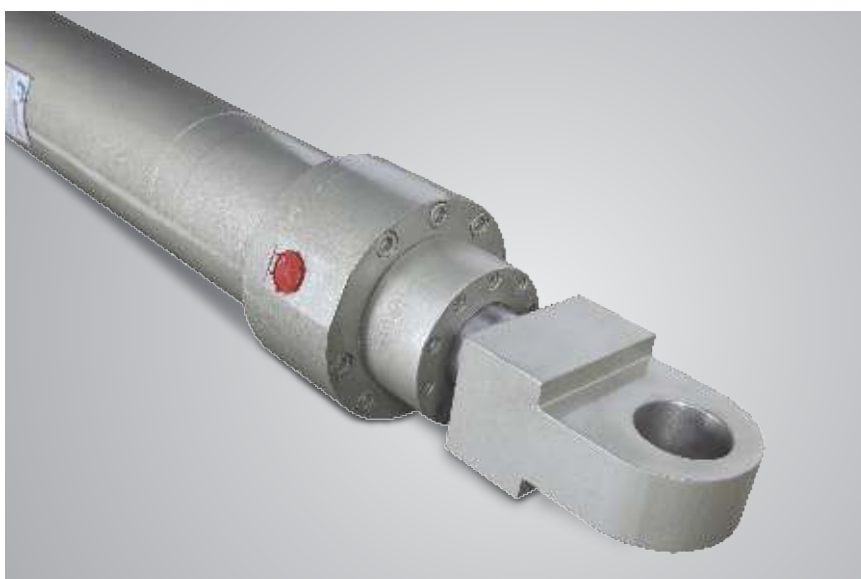
- Nominal pressure : 250 bar
- Piston Ø : 40 to 320mm
- Piston rod Ø : 22 to 220mm
- Mounting types : 6
- Max. stroke length : 6000mm
- Max. stroke speed : 0.5m/s



ISO 6022 Mill Type Cylinder Series 1X

Features

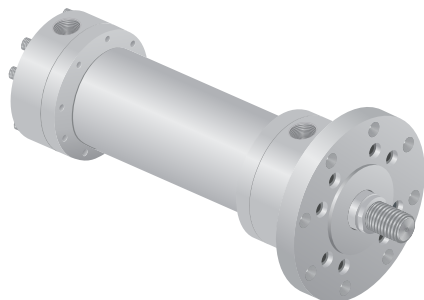
- Nominal pressure : 250 to 350 bar
- Piston Ø : 40 to 320mm
- Piston rod Ø : 25 to 220mm
- Mounting types : 6
- Max. stroke length : 6000mm
- Max. stroke speed : 0.5m/s



*Note : Special orders as per customer specifications are also accepted.
For detailed information of cylinder or to order, contact our Sales Department.*

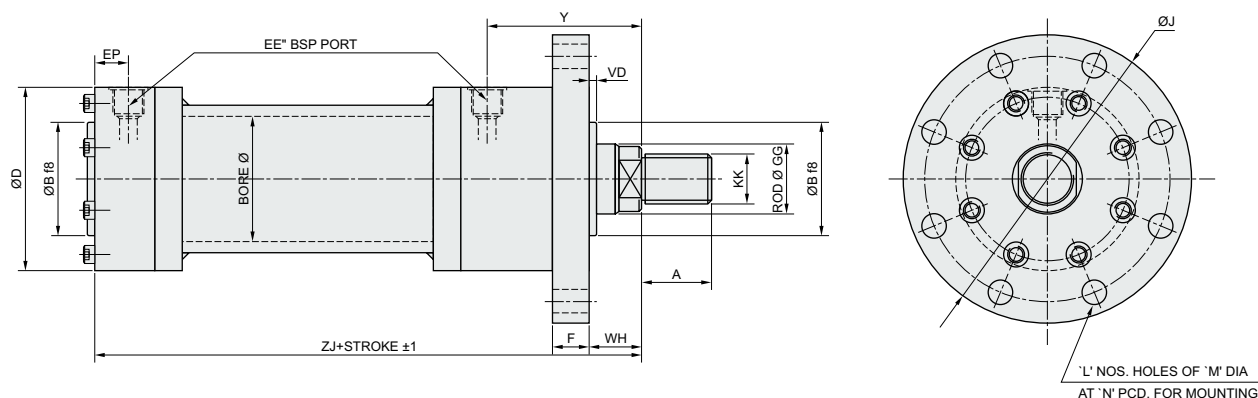
ISO 6022 - Front Circular Flange Mounting - Style MF3

Ordering code
AHP - MD - MF2 - Bore x Rod x Stroke



Hydraulic Cylinder Specifications

Bore	ØBmm
Stroke	< 1000 ±1mm
Rod	Rod Ømm Hardchrome Plated 25µ thk
Mounting	Front Circular Flange MF3 Mounting
Working pressure	160 bar
Design	Mill Duty Double Acting
Max. speed	0.5m/sec.
Test pressure	210 bar
Medium	Hydraulic Mineral Oil



Dimensions

Bore dia	Rod dia	Rod thd	Thd lg	Port	Spigot OD	Dist	Spigot	Mfg hole Pcd	Mfg hole	Flange	End port	Gland port	Cyl OD	Hole nos.	Total lg
H8	GG f8	KK	A	EE"BSP	B f8	WH	Width VD	Ø N ±0.2	M	J	F	EP	Y	ØD	ZJ
32	18	M14x1.5	18	3/8"	40	16	3	92	9.0	110	16	17	64	67	170
32	22	M16x1.5	22	3/8"	40	16	3	92	9.0	110	16	17	64	67	170
40	22	M16x1.5	22	1/2"	50	16	3	106	9.0	125	16	22	71	78	190
40	28	M20x1.5	28	1/2"	50	16	3	106	9.0	125	16	22	71	78	190
50	28	M20x1.5	28	1/2"	60	18	4	126	11.0	150	20	22	72	95	205
50	36	M27x2	36	1/2"	60	18	4	126	11.0	150	20	22	72	95	205
63	36	M27x2	36	3/4"	70	20	4	145	13.5	170	25	25	82	116	224
63	45	M33x2	45	3/4"	70	20	4	145	13.5	170	25	25	82	116	224
80	45	M33x2	45	3/4"	85	22	4	165	17.5	195	32	25	91	130	250
80	56	M42x2	56	3/4"	85	22	4	165	17.5	195	32	25	91	130	250
100	56	M42x2	56	1"	106	25	5	200	22.0	240	32	30	108	158	300
100	70	M48x2	63	1"	106	25	5	200	22.0	240	32	30	108	158	300
125	70	M48x2	63	1"	132	28	5	235	22.0	275	32	30	121	192	325
125	90	M64x3	85	1"	132	28	5	235	22.0	275	32	30	121	192	325
160	90	M64x3	85	1-1/4"	160	30	5	280	22.0	320	36	36	143	238	370
160	110	M80x3	95	1-1/4"	160	30	5	280	22.0	320	36	36	143	238	370
200	110	M80x3	95	1-1/4"	200	35	5	340	26.0	385	40	36	190	285	450
200	140	M100x3	112	1-1/4"	200	35	5	340	26.0	385	40	36	190	285	450
250	140	M100x3	112	1-1/2"	250	40	8	420	33.0	490	56	40	210	365	550
250	180	M125x4	125	1-1/2"	250	40	8	420	33.0	490	56	40	210	365	550

Note : Special orders as per customer specifications are also accepted.

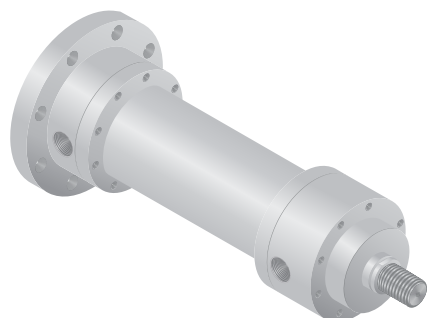
All dimensions in mm unless otherwise stated.

Mill Duty Type Cylinders-004

ISO 6022 - Rear Circular Flange Mounting - Style MF4

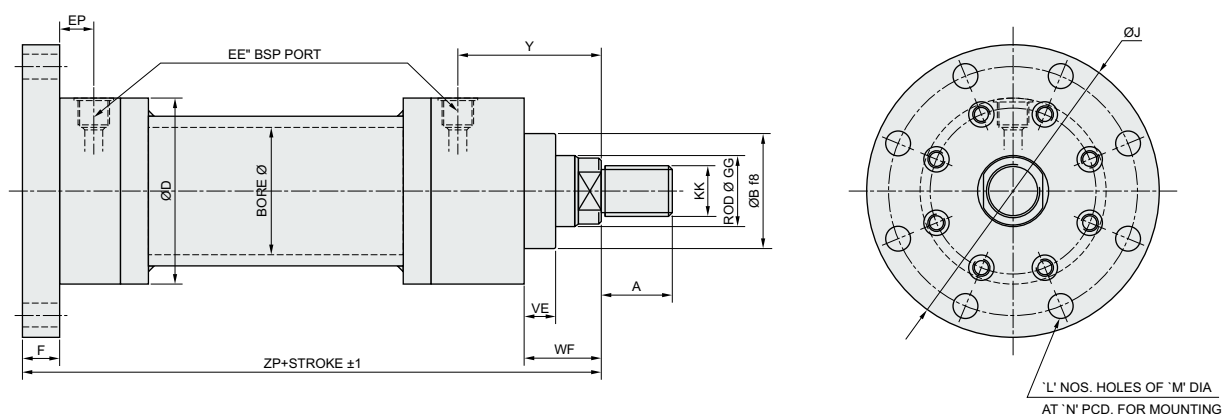
Ordering code

AHP - MD - MF4 - Bore x Rod x Stroke



Hydraulic Cylinder Specifications

Bore	ØBmm
Stroke	< 1000 ±1mm
Rod	Rod Ømm Hardchrome Plated 25µ thk
Mounting	Rear Circular Flange MF4 Mounting
Working pressure	160 bar
Design	Mill Duty Double Acting
Max. speed	0.5m/sec.
Test pressure	210 bar
Medium	Hydraulic Mineral Oil



Dimensions

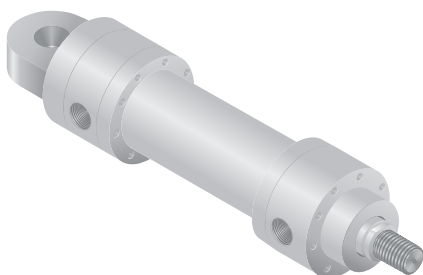
Bore dia	Rod dia	Rod thd	Thd lg	Port	Spigot OD	Dist	Spigot	Mtg hole Pcd	Mtg hole	Flange	End port	Gland port	Cyl OD	Hole nos.	Total lg
H8	GG f8	KK	A	EE\"BSP	B f8	WF	VE	Ø N ±0.2	M	J	F	EP	Y	ØD	ZP
32	18	M14x1.5	18	3/8"	40	32	19	92	9.0	110	16	17	64	67	170
32	22	M16x1.5	22	3/8"	40	32	19	92	9.0	110	16	17	64	67	170
40	22	M16x1.5	22	1/2"	50	32	19	106	9.0	125	16	22	71	78	190
40	28	M20x1.5	28	1/2"	50	32	19	106	9.0	125	16	22	71	78	190
50	28	M20x1.5	28	1/2"	60	38	24	126	11.0	150	20	22	72	95	205
50	36	M27x2	36	1/2"	60	38	24	126	11.0	150	20	22	72	95	205
63	36	M27x2	36	3/4"	70	45	29	145	13.5	170	25	25	82	116	224
63	45	M33x2	45	3/4"	70	45	29	145	13.5	170	25	25	82	116	224
80	45	M33x2	45	3/4"	85	54	36	165	17.5	195	32	25	91	130	250
80	56	M42x2	56	3/4"	85	54	36	165	17.5	195	32	25	91	130	250
100	56	M42x2	56	1"	106	57	37	200	22.0	240	32	30	108	158	300
100	70	M48x2	63	1"	106	57	37	200	22.0	240	32	30	108	158	300
125	70	M48x2	63	1"	132	60	37	235	22.0	275	32	30	121	192	325
125	90	M64x3	85	1"	132	60	37	235	22.0	275	32	30	121	192	325
160	90	M64x3	85	1-1/4"	160	66	41	280	22.0	320	36	36	143	238	370
160	110	M80x3	95	1-1/4"	160	66	41	280	22.0	320	36	36	143	238	370
200	110	M80x3	95	1-1/4"	200	75	45	340	26.0	385	40	36	190	285	450
200	140	M100x3	112	1-1/4"	200	75	45	340	26.0	385	40	36	190	285	450
250	140	M100x3	112	1-1/2"	250	96	64	420	33.0	490	56	40	210	365	550
250	180	M125x4	125	1-1/2"	250	96	64	420	33.0	490	56	40	210	365	550

Note : Special orders as per customer specifications are also accepted.

All dimensions in mm unless otherwise stated.

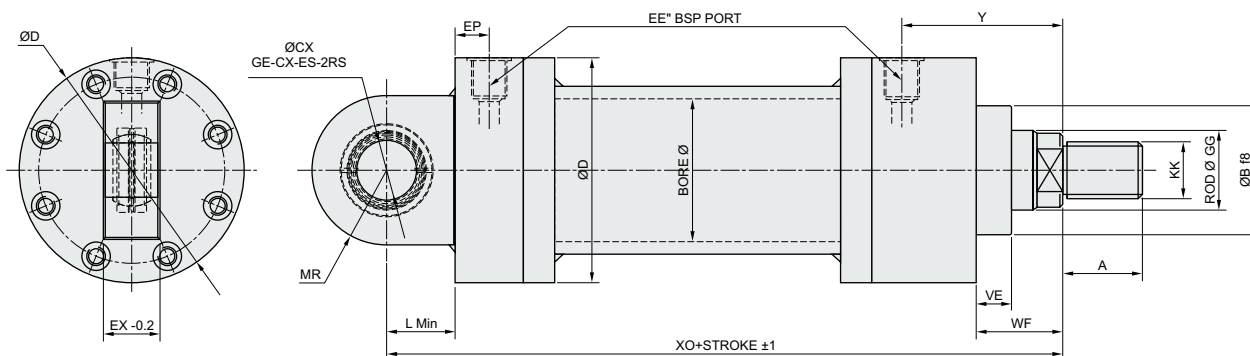
ISO 6022 - Rear Pivot Mounted Hydraulic Cylinders with Spherical Bearing - Style MP6

Ordering code
AHP - MD - MP6 - Bore x Rod x Stroke



Hydraulic Cylinder Specifications

Bore	ØBmm
Stroke	< 1000 ±1mm
Rod	Rod Ømm Hardchrome Plated 25µ thk
Mounting	Rear Pivot Mounting MF6
Working pressure	160 bar
Design	Mill Duty Double Acting
Max. speed	0.5m/sec.
Test pressure	210 bar
Medium	Hydraulic Mineral Oil



Dimensions

Bore dia	Rod dia	Rod thd	Thd lg	Port	Spigot OD	Dist	Spigot	Clevis dist	Bearing dia	Clevis radius	End port	Gland port	Cyl OD	Clevis thk	Total lg
H8	GG f8	KK	A	EE"BSP	B f8	WF	VE	L min	CX	MR	EP	Y	ØD	EX -0.2	XO
32	18	M14x1.5	18	3/8"	40	32	19	20	16	20	17	64	67	16	170
32	22	M16x1.5	22	3/8"	40	32	19	20	16	20	17	64	67	16	170
40	22	M16x1.5	22	1/2"	50	32	19	25	20	25	22	71	78	20	190
40	28	M20x1.5	28	1/2"	50	32	19	25	20	25	22	71	78	20	190
50	28	M20x1.5	28	1/2"	60	38	24	32	25	32	22	72	95	25	205
50	36	M27x2	36	1/2"	60	38	24	32	25	32	22	72	95	25	205
63	36	M27x2	36	3/4"	70	45	29	40	32	40	25	82	116	32	224
63	45	M33x2	45	3/4"	70	45	29	40	32	40	25	82	116	32	224
80	45	M33x2	45	3/4"	85	54	36	50	40	50	25	91	130	40	250
80	56	M42x2	56	3/4"	85	54	36	50	40	50	25	91	130	40	250
100	56	M42x2	56	1"	106	57	37	63	50	63	30	108	158	50	300
100	70	M48x2	63	1"	106	57	37	63	50	63	30	108	158	50	300
125	70	M48x2	63	1"	132	60	37	71	63	71	30	121	192	63	325
125	90	M64x3	85	1"	132	60	37	71	63	71	30	121	192	63	325
160	90	M64x3	85	1-1/4"	160	66	41	90	80	90	36	143	238	80	370
160	110	M80x3	95	1-1/4"	160	66	41	90	80	90	36	143	238	80	370
200	110	M80x3	95	1-1/4"	200	75	45	112	100	112	36	190	285	100	450
200	140	M100x3	112	1-1/4"	200	75	45	112	100	112	36	190	285	100	450
250	140	M100x3	112	1-1/2"	250	96	64	160	125	160	40	210	365	125	550
250	180	M125x4	125	1-1/2"	250	96	64	160	125	160	40	210	365	125	550

Note : Special orders as per customer specifications are also accepted.

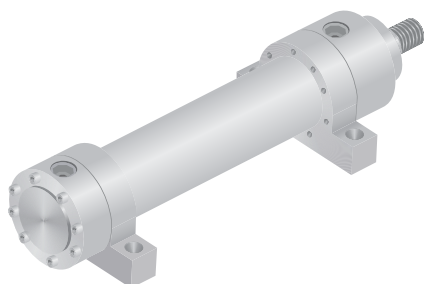
All dimensions in mm unless otherwise stated.

Mill Duty Type Cylinders-004

ISO 6022 - Side Lugs Mounting - Style MS2

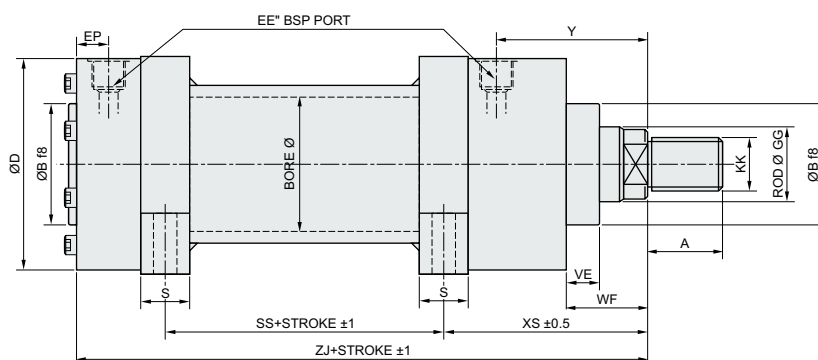
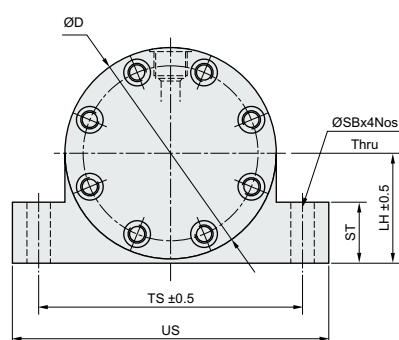
Ordering code

AHP - MD - MS2 - Bore x Rod x Stroke



Hydraulic Cylinder Specifications

Bore	ØBmm
Stroke	< 1000 ± 1mm
Rod	Rod Ømm Hardchrome Plated 25µ thk
Mounting	Side Lugs Mounting MS2
Working pressure	160 bar
Design	Mill Duty Double Acting
Max. speed	0.5m/sec.
Test pressure	210 bar
Medium	Hydraulic Mineral Oil



Dimensions

Bore dia	Rod dia	Rod thd	Thd lg	Port	Spigot OD	Dist	Spigot	Side lugs Mtg. details								End port	Gland port	Cyl OD	Total lg
H8	GG f8	KK	A	EE*BSP	B f8	WF	VE	TS ±0.5	US	LH ±0.5	ST	ØSB	SS ±1	XS ±0.5	S	EP	Y	ØD	ZJ
32	18	M14x1.5	18	3/8"	40	32	19	90	110	38	25	11	40	88.5	25	17	64	67	170
32	22	M16x1.5	22	3/8"	40	32	19	90	110	38	25	11	40	88.5	25	17	64	67	170
40	22	M16x1.5	22	1/2"	50	32	19	100	120	43	30	11	44	97.5	25	22	71	78	190
40	28	M20x1.5	28	1/2"	50	32	19	100	120	43	30	11	44	97.5	25	22	71	78	190
50	28	M20x1.5	28	1/2"	60	38	24	120	145	52	40	14	51	102.0	32	22	72	95	205
50	36	M27x1.5	36	1/2"	60	38	24	120	145	52	40	14	51	102.0	32	22	72	95	205
63	36	M27x1.5	36	3/4"	70	45	29	150	180	62	45	18	51	115.0	32	25	82	116	224
63	45	M33x1.5	45	3/4"	70	45	29	150	180	62	45	18	51	115.0	32	25	82	116	224
80	45	M33x1.5	45	3/4"	85	54	36	170	210	70	50	22	60	128.0	40	25	91	130	250
80	56	M42x1.5	56	3/4"	85	54	36	170	210	70	50	22	60	128.0	40	25	91	130	250
100	56	M42x1.5	56	1"	106	57	37	205	250	82	60	26	70	154.0	50	30	108	158	300
100	70	M48x1.5	63	1"	106	57	37	205	250	82	60	26	70	154.0	50	30	108	158	300
125	70	M48x1.5	63	1"	132	60	37	245	300	100	70	33	76	170.0	56	30	121	192	325
125	90	M64x1.5	85	1"	132	60	37	245	300	100	70	33	76	170.0	56	30	121	192	325
160	90	M64x1.5	85	1-1/4"	160	66	41	295	350	119	80	33	79	199.0	60	36	143	238	370
160	110	M80x1.5	95	1-1/4"	160	66	41	295	350	119	80	33	79	199.0	60	36	143	238	370
200	110	M80x1.5	95	1-1/4"	200	75	45	350	415	145	100	39	100	252.0	72	36	190	285	450
200	140	M100x1.5	112	1-1/4"	200	75	45	350	415	145	100	39	100	252.0	72	36	190	285	450
250	140	M100x1.5	112	1-1/2"	250	96	64	450	525	190	140	45	154	288.0	80	40	210	365	550
250	180	M125x1.5	125	1-1/2"	250	96	64	450	525	190	140	45	154	288.0	80	40	210	365	550

Note : Special orders as per customer specifications are also accepted.

All dimensions in mm unless otherwise stated.

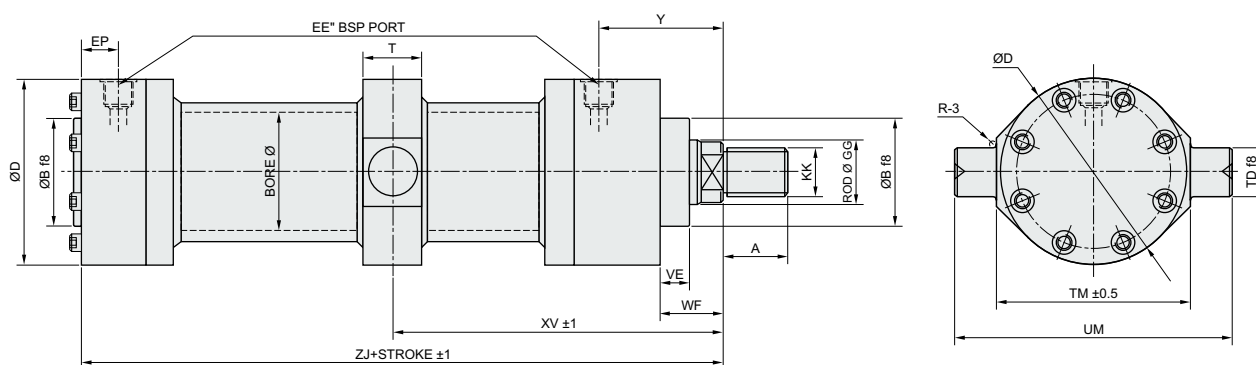
ISO 6022 - Intermediate Trunnion Mounting - Style MT4

Ordering code
AHP - MD - MT4 - Bore x Rod x Stroke



Hydraulic Cylinder Specifications

Bore	ØBmm
Stroke	< 1000 ± 1mm
Rod	Rod Ømm Hardchrome Plated 25µ thk
Mounting	Intermediate Trunnion Mounting MT4
Working pressure	160 bar
Design	Mill Duty Double Acting
Max. speed	0.5m/sec.
Test pressure	210 bar
Medium	Hydraulic Mineral Oil



Dimensions

Bore dia	Rod dia	Rod thd	Thd lg	Port	Spigot OD	Dist	Spigot	Trunnion Mtg. details				Trunnion dist.	End port	Gland port	Cyl OD	Total lg
H8	GG f8	KK	A	EE"BSP	B f8	WF	VE	TM ±0.5	UM	ØTD f8	T	XV ±0.5	EP	Y	ØD	ZJ
32	18	M14x1.5	18	3/8"	40	32	19	75	99	16	26	155	17	64	67	170
32	22	M16x1.5	22	3/8"	40	32	19	75	99	16	26	155	17	64	67	170
40	22	M16x1.5	22	1/2"	50	32	19	90	122	20	30	170	22	71	78	190
40	28	M20x1.5	28	1/2"	50	32	19	90	122	20	30	170	22	71	78	190
50	28	M20x1.5	28	1/2"	60	38	24	105	145	25	35	175	22	72	95	205
50	36	M27x2	36	1/2"	60	38	24	105	145	25	35	175	22	72	95	205
63	36	M27x2	36	3/4"	70	45	29	120	170	32	42	195	25	82	116	224
63	45	M33x2	45	3/4"	70	45	29	120	170	32	42	195	25	82	116	224
80	45	M33x2	45	3/4"	85	54	36	135	199	40	50	210	25	91	130	250
80	56	M42x2	56	3/4"	85	54	36	135	199	40	50	210	25	91	130	250
100	56	M42x2	56	1"	106	57	37	160	240	50	60	240	30	108	158	300
100	70	M48x2	63	1"	106	57	37	160	240	50	60	240	30	108	158	300
125	70	M48x2	63	1"	132	60	37	195	295	63	73	260	30	121	192	325
125	90	M64x3	85	1"	132	60	37	195	295	63	73	260	30	121	192	325
160	90	M64x3	85	1-1/4"	160	66	41	240	366	80	90	305	36	143	238	370
160	110	M80x3	95	1-1/4"	160	66	41	240	366	80	90	305	36	143	238	370
200	110	M80x3	95	1-1/4"	200	75	45	295	455	100	110	365	36	190	285	450
200	140	M100x3	112	1-1/4"	200	75	45	295	455	100	110	365	36	190	285	450
250	140	M100x3	112	1-1/2"	250	96	64	370	570	125	135	410	40	210	365	550
250	180	M125x4	125	1-1/2"	250	96	64	370	570	125	135	410	40	210	365	550

Note : Special orders as per customer specifications are also accepted.

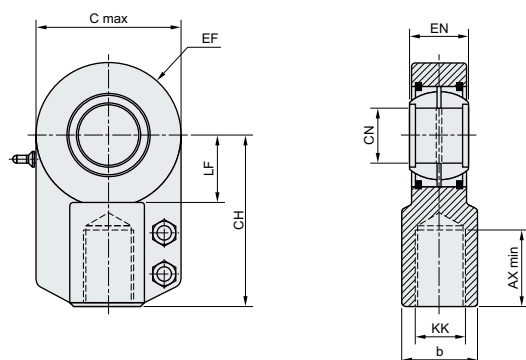
All dimensions in mm unless otherwise stated.

Mill Duty Type Cylinders-004

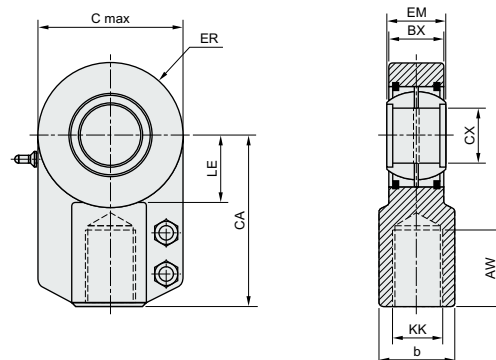
ISO 6022 - Rod End Accessories

Rear Pivot Mounted Hydraulic Cylinders with Spherical Bearing

Rod eye with spherical bearing
ISO 6982



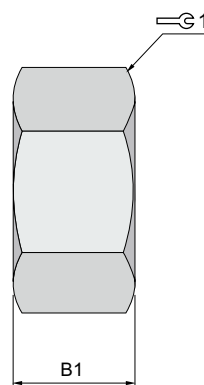
Rod eye with plain bearing
ISO 6981



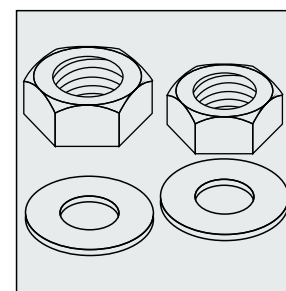
Dimensions

Bore Ø	KK	Spherical bearing part no.	Plain bearing part No.	AX and AW min	b	BX	C Max	CA & CH	CK H9 & CN H7	EF & ER	EM h12 & EN h12	LE & LF	Nominal force kn	Mass kg
40	M16x1.5P	145239	148729	23	25	17	47	52	20	25	20	22	20	0.4
50	M20x1.5P	145240	148730	29	30	21	58	65	25	32	25	27	32	0.7
63	M27x2P	145241	145231	37	38	27	70	80	32	40	32	32	50	1.2
80	M33x2P	145242	145232	46	47	32	89	97	40	50	40	40	80	2.1
100	M42x2P	145243	145233	57	58	40	108	120	50	63	50	50	125	4.4
125	M48x2P	145244	145234	64	70	52	132	140	63	71	63	62	200	7.6
160	M63x2P	145245	145235	86	90	66	168	180	80	90	80	78	320	14.5
200	M80x3P	148724	148737	96	110	84	210	210	100	112	100	98	500	28.0
250	M100x3P	148726	148739	113	135	102	260	260	125	160	125	120	800	43.0
320	M125x4P	148727	148740	126	165	130	360	310	160	250	160	150	1250	80.0

KK	B-1	⌀1	KK	B-1	⌀1
M4	3.2	7	M16x1.5	8.0	24
M5	3.2	8	M18	9.0	28
M6	3.2	10	M20x1.5P	10.0	30
M8	4.0	13	M20x2.5P	12.0	34
M10	5.0	16	M22	12.0	35
M10x1.25P	5.0	17	M24x2P	13.5	38
M12	6.0	18	M27x2P	13.5	41
M12x1.25P	6.0	19	M30x2P	16.0	50
M14	7.0	21	M36x2P	18.0	55
M14x1.5P	8.0	21	M42x2P	21.0	65
M14x1.25P	7.0	22	M46x2P	24.0	70
M16	8.0	24	M48x2P	24.0	75



Nuts for Rod Clevis and Rod end attachments



Note : Special orders as per customer specifications are also accepted.

All dimensions in mm unless otherwise stated.

AHP Series WC up to 160 bar
Welded Type Cylinders-004

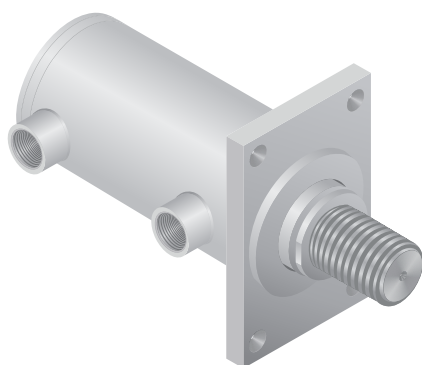


Welded Type Cylinders-004

Front Rectangular Flange Mounting - Style ME5

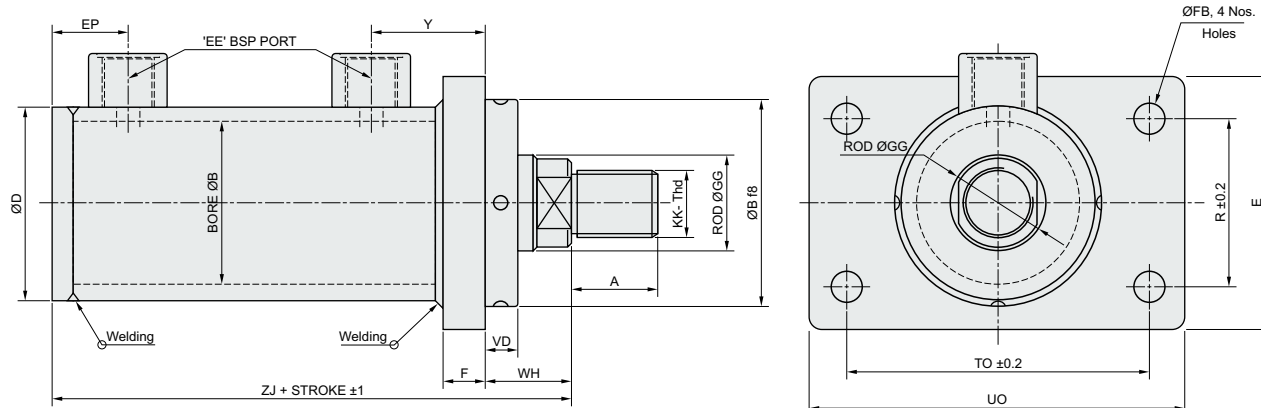
Ordering code

AHP - WC - ME5 - Bore x Rod x Stroke



Hydraulic Cylinder Specifications

Bore	ØBmm
Stroke	< 1000 ±1mm
Rod	Rod Ømm Hardchrome Plated 25µ thk
Mounting	Front Rectangular Flange ISO ME5 Mounting
Working pressure	160 bar
Design	Welded/Double Acting
Max. speed	0.1m/sec.
Test pressure	210 bar
Medium	Hydraulic Mineral Oil



Dimensions

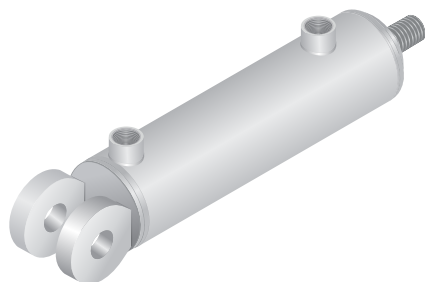
Bore dia	Rod dia	Rod thd	Thd lg	Port	Spigot OD	Dist	Spigot	Mfg hole center		Mfg hole	Flange			Tube OD	Gland port	End port	Total lg
H8	GG f8	KK	A	EE"BSP	B f8	WH	width VD	R ±0.2	TO ±0.2	FB H13	E	UO	F	D	Y	EP	ZJ
40	18	M14x1.5	18	3/8"	54	25	12	41	87	11	63	110	10	50	40	29	135
40	28	M20x1.5	28	3/8"	54	25	12	41	87	11	63	110	10	50	40	29	135
50	22	M16x1.5	22	1/2"	64	25	12	52	105	14	75	130	16	60	43	29	141
50	36	M27x2	36	1/2"	64	25	12	52	105	14	75	130	16	60	43	29	141
63	28	M20x1.5	28	1/2"	80	32	13	65	117	14	90	145	16	75	44	29	149
63	45	M33x2	45	1/2"	80	32	13	65	117	14	90	145	16	75	44	29	149
80	36	M27x2	36	3/4"	100	31	13	83	149	18	115	180	20	95	59	35	182
80	56	M42x2	56	3/4"	100	31	13	83	149	18	115	180	20	95	59	35	182
100	45	M33x2	45	3/4"	120	35	14	97	162	18	130	200	22	115	73	35	200
100	56	M48x2	63	3/4"	120	35	14	97	162	18	130	200	22	115	73	35	200
125	70	M42x2	56	1"	145	35	14	126	208	22	165	250	22	145	75	44	218
125	56	M64x3	85	1"	145	35	14	126	208	22	165	250	22	145	75	44	218
160	90	M48x2	63	1"	185	32	12	155	253	26	205	300	25	190	95	63	280
160	110	M80x3	95	1"	185	32	12	155	253	26	205	300	25	190	95	63	280

Note : Special orders as per customer specifications are also accepted.

All dimensions in mm unless otherwise stated.

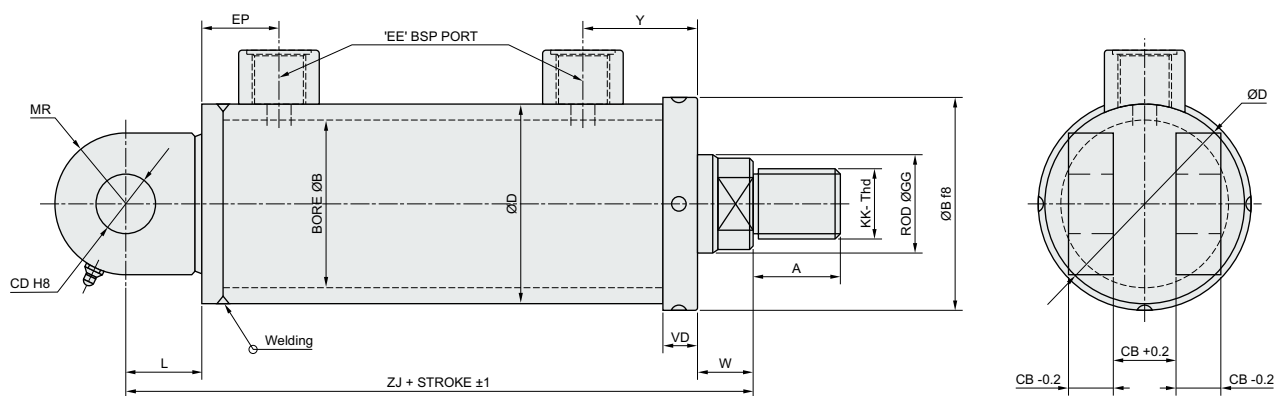
Rear Female Clevis Mounting - Style MP1

Ordering code
AHP - WC - MP1 - Bore x Rod x Stroke



Hydraulic Cylinder Specifications

Bore	ØBmm
Stroke	< 1000 ±1mm
Rod	Rod Ømm Hardchrome Plated 25µ thk
Mounting	Rear Female Clevis ISO MP1 Mounting
Working pressure	160 bar
Design	Welded/Double Acting
Max. speed	0.2m/sec.
Test pressure	210 bar
Medium	Hydraulic Mineral Oil



Dimensions

Bore dia B H8	Rod dia GG f8	Rod thd KK	Thd lg A	Port EE"BPS	Spigot OD B f8	Spigot width VD	Dist L	Hole CD-H8	Radius MR	MP1 CB-02	MP1 CW-02	Rod extn W	Tube OD D	Gland port Y	End port EP	Total lg ZJ
40	18	M14x1.5	18	3/8"	54	12	19	14	16	20	10	33	50	50	29	172
40	28	M20x1.5	28	3/8"	54	12	19	14	16	20	10	33	50	50	29	172
50	22	M16x1.5	22	1/2"	64	12	32	20	20	30	15	29	60	57	29	191
50	36	M27x 2	36	1/2"	64	12	32	20	20	30	15	29	60	57	29	191
63	28	M20x1.5	28	1/2"	80	13	32	25	25	30	15	35	75	60	29	200
63	45	M33x2	45	1/2"	80	13	32	25	25	30	15	35	75	60	29	200
80	36	M27x2	36	3/4"	100	13	39	30	35	40	20	20	95	78	35	229
80	56	M42x2	56	3/4"	100	13	39	30	35	40	20	20	95	78	35	229
100	45	M33x2	45	3/4"	120	14	54	35	40	50	25	20	115	91	35	257
100	70	M48x2	63	3/4"	120	14	54	35	40	50	25	20	115	91	35	257
125	56	M42x2	56	1"	145	14	57	45	45	60	30	29	140	95	44	289
125	90	M64x3	85	1"	145	14	57	45	45	60	30	29	140	95	44	289
160	70	M48x2	63	1"	185	12	63	60	60	70	35	20	180	105	63	308
160	110	M80x3	95	1"	185	12	63	60	60	70	35	20	180	105	63	308

Note : Special orders as per customer specifications are also accepted.

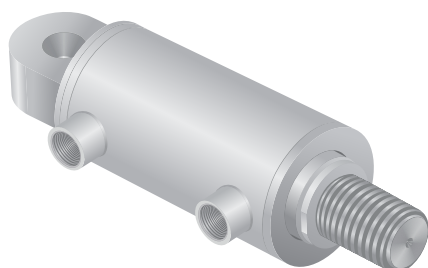
All dimensions in mm unless otherwise stated.

Welded Type Cylinders-004

Rear Male Clevis Mounting - Style MP3

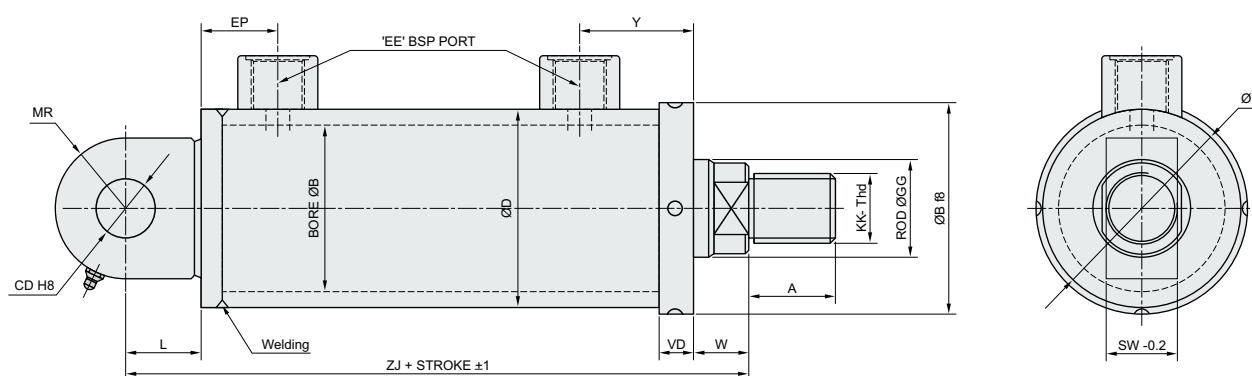
Ordering code

AHP - WC - MP3 - Bore x Rod x Stroke



Hydraulic Cylinder Specifications

Bore	ØBmm
Stroke	< 1000 ±1mm
Rod	Rod Ømm Hardchrome Plated 25µ thk
Mounting	Side Lugs Mounting MS2
Working pressure	160 bar
Design	Mill Duty Double Acting
Max. speed	0.5m/sec.
Test pressure	210 bar
Medium	Hydraulic Mineral Oil



Dimensions

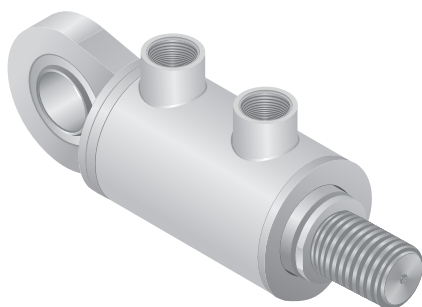
Bore dia H8	Rod dia GG f8	Rod thd KK	Thd lg A	Port EE"BSP	Spigot OD B f8	Spigot width VD	Dist L	Hole r CD-H8	Radius MR	MP3 SW-02	Rod extn W	Tube OD D	Gland port Y	End port EP	Total lg ZJ
40	18	M14x1.5	18	3/8"	54	12	19	14	16	20	33	50	50	29	172
40	28	M20x1.5	22	3/8"	54	12	19	14	16	20	33	50	50	29	172
50	22	M16x1.5	22	1/2"	64	12	32	20	20	30	29	60	57	29	191
50	36	M27x2	36	1/2"	64	12	32	20	20	30	29	60	57	29	191
63	28	M20x1.5	28	1/2"	80	13	32	25	25	30	35	75	60	29	200
63	45	M33x2	45	1/2"	80	13	32	25	25	30	35	75	60	29	200
80	36	M27x2	36	3/4"	100	13	39	30	35	40	20	95	78	35	229
80	56	M42x2	56	3/4"	100	13	39	30	35	40	20	95	78	35	229
100	45	M33x2	45	3/4"	120	14	54	35	40	50	20	115	91	35	257
100	70	M48x2	63	3/4"	120	14	54	35	40	50	20	115	91	35	257
125	56	M42x2	56	1"	145	14	57	45	45	60	29	140	95	44	289
125	90	M64x3	85	1"	145	14	57	45	45	60	29	140	95	44	289
160	70	M48x2	63	1"	185	12	63	60	60	70	20	180	105	63	308
160	110	M80x3	95	1"	185	12	63	60	60	70	20	180	105	63	308

Note : Special orders as per customer specifications are also accepted.

All dimensions in mm unless otherwise stated.

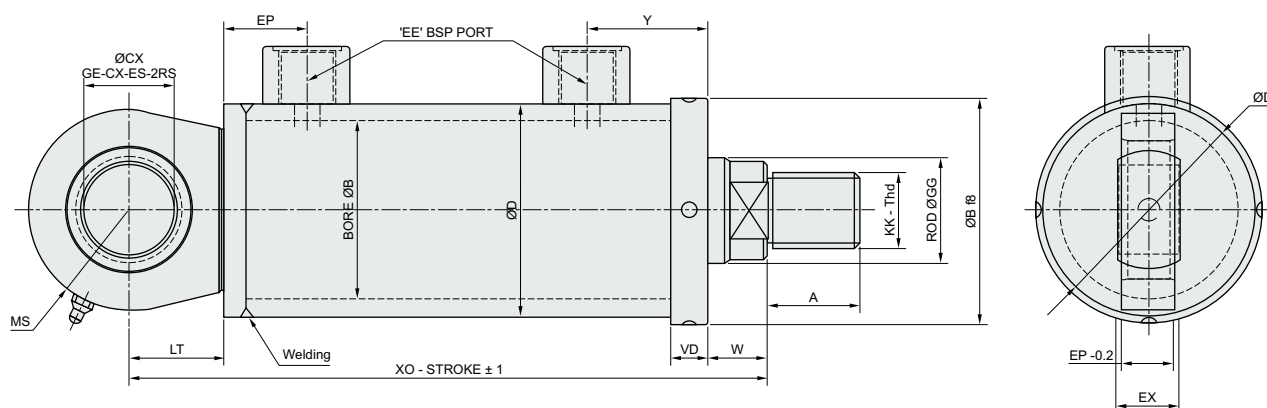
Rear Clevis with Spherical Bearing Mounting - Style MP5

Ordering code
AHP - WC - MP5 - Bore x Rod x Stroke



Hydraulic Cylinder Specifications

Bore	ØBmm
Stroke	< 1000 ±1mm
Rod	Rod Ø mm Hardchrome Plated 25µ thk.
Mounting	Rear Clevis with Spherical Bearing Mounting
Working pressure	160 bar
Design	Welded/Double Acting
Max. speed	0.2m/sec.
Test pressure	210 bar
Medium	Hydraulic Mineral Oil



Dimensions

Bore dia	Rod dia	Rod thd	Thd lg	Port	Spigot OD	Spigot	Dist	Clevis thk	Bearing	Bearing	Radius	Rod	Tube OD	Gland port	End port	Total lg
B H8	GG f8	KK	A	EE"BPS	B f8	width VD	LT	EP - 0 2	thk EX	dia CX - H7	MS	extn W	D	Y	EP	XO
40	18	M14x1.5	18	3/8"	54	12	25	13	16	20	29	33	50	50	29	178
40	28	M20x1.5	28	3/8"	54	12	25	13	16	20	29	33	50	50	29	178
50	22	M16x1.5	22	1/2"	64	12	31	17	20	25	33	29	60	57	29	191
50	36	M27x2	36	1/2"	64	12	31	17	20	25	33	29	60	57	29	191
63	28	M20x1.5	28	1/2"	80	13	38	19	22	30	40	35	75	60	29	206
63	45	M33x2	45	1/2"	80	13	38	19	22	30	40	35	75	60	29	206
80	36	M27x2	36	3/4"	100	13	48	23	28	40	50	20	95	78	35	238
80	56	M42x2	56	3/4"	100	13	48	23	28	40	50	20	95	78	35	238
100	45	M33x2	45	3/4"	120	14	58	30	35	50	62	20	115	91	35	261
100	70	M48x2	63	3/4"	120	14	58	30	35	50	62	20	115	91	35	261
125	56	M42x2	56	1"	145	14	72	38	44	60	80	29	140	95	44	304
125	90	M64x3	85	1"	145	14	72	38	44	60	80	29	140	95	44	304
160	70	M48x2	63	1"	185	12	92	47	55	80	92	20	180	105	63	337
160	110	M80x3	95	1"	185	12	92	47	55	80	92	20	180	105	63	337

Note : Special orders as per customer specifications are also accepted.

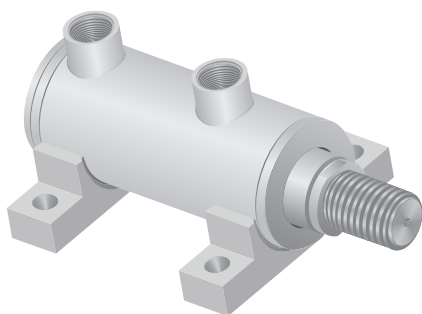
All dimensions in mm unless otherwise stated.

Welded Type Cylinders-004

Side Lugs Mounting - Style MS2

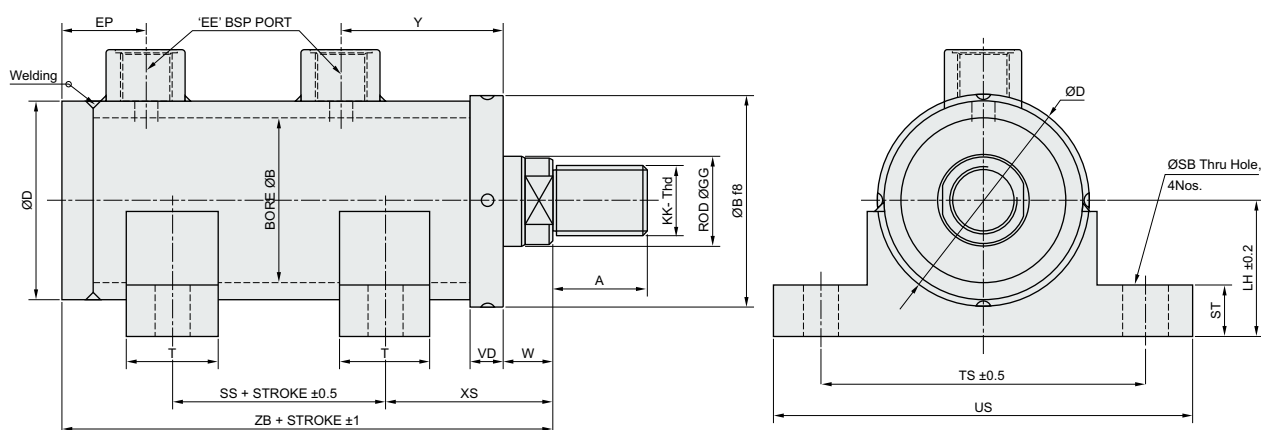
Ordering code

AHP - WC - MS2 -Bore x Rod x Stroke



Hydraulic Cylinder Specifications

Bore	ØBmm
Stroke	< 1000 ± 1mm
Rod	Rod Ømm Hardchrome Plated 25µ thk
Mounting	Side Lugs Mounting as per ISO MS2
Working pressure	160 bar
Design	Welded/Double Acting
Max. speed	0.2m/sec.
Test pressure	210 bar
Medium	Hydraulic Mineral Oil



Dimensions

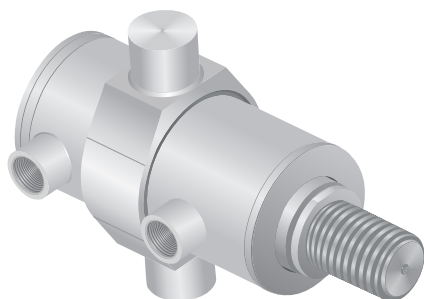
Bore	Rod	Rod thd	Thd lg	Port	Spigot OD	Width	Dist	CCD	CCD	Dist	Centre	Leg thk	Hole dia	Leg width	Rod extn	Tube OD	Gd port	End port	Total lg
B H8	GG f8	KK	A	EE"BPS	OD B f8	VD	XS	SS	TS	US	dist LH	ST	SB	T	W	D	Y	EP	ZB
40	18	M14x1.5	18	3/8"	54	12	45	98	83	103	31	12.5	11	24	23	50	50	29	167
40	28	M20x1.5	28	3/8"	54	12	45	98	83	103	31	12.5	11	24	23	50	50	29	167
50	22	M16x1.5	22	1/2"	64	12	54	92	102	127	37	19	14	30	25	60	57	29	173
50	36	M27x2	36	1/2"	64	12	54	92	102	127	37	19	14	30	25	60	57	29	173
63	28	M20x1.5	28	1/2"	80	13	65	86	124	161	44	26	18	36	31	75	60	29	181
63	45	M33x2	45	1/2"	80	13	65	86	124	161	44	26	18	36	31	75	60	29	181
80	36	M27x2	36	3/4"	100	13	68	105	149	186	57	26	18	40	29	95	78	35	208
80	56	M42x2	56	3/4"	100	13	68	105	149	186	57	26	18	40	29	95	78	35	208
100	45	M33x2	45	3/4"	120	14	79	102	172	216	63	32	26	48	37	115	91	35	220
100	70	M48x2	63	3/4"	120	14	79	102	172	216	63	32	26	48	37	115	91	35	220
125	56	M42x2	56	1"	145	14	79	131	210	254	82	32	26	50	34	140	95	44	253
125	90	M64x3	85	1"	145	14	79	131	210	254	82	32	26	50	34	140	95	44	253
160	70	M48x2	63	1"	185	12	86	130	260	318	101	38	33	60	34	180	105	63	289
160	110	M80x3	95	1"	185	12	86	130	260	318	101	38	33	60	34	180	105	63	289

Note : Special orders as per customer specifications are also accepted.

All dimensions in mm unless otherwise stated.

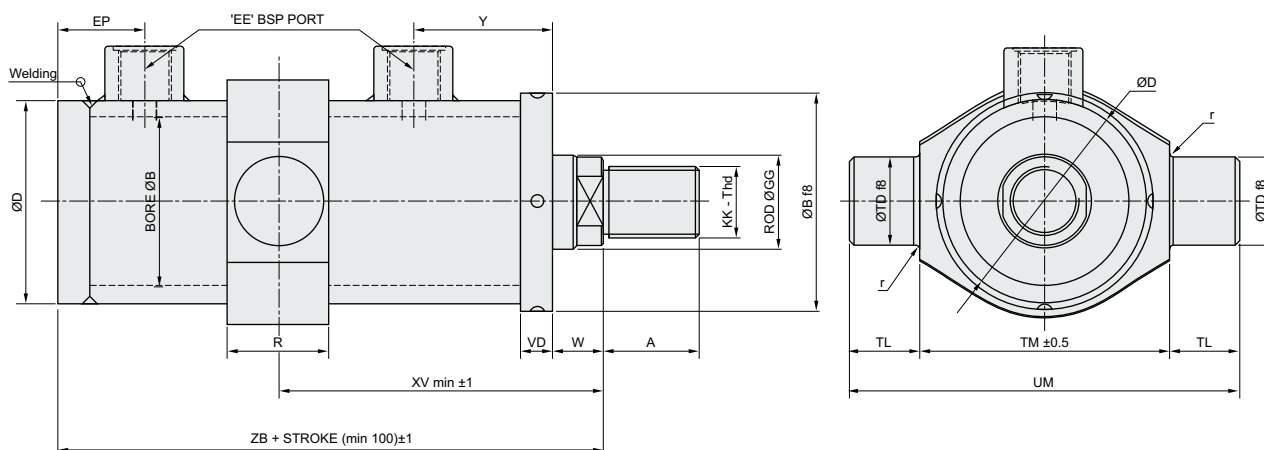
Intermediate Trunnion Mounting - Style MT4

Ordering code
AHP - WC - MT4 - Bore x Rod x Stroke (min 100mm)



Hydraulic Cylinder Specifications

Bore	ØBmm
Stroke	< 1000 ±1mm
Rod	Rod Ømm Hardchrome Plated 25µ thk
Mounting	Intermediate Trunnion Mounting
Working pressure	160 bar
Design	Welded/Double Acting
Max. speed	0.2m/sec.
Test pressure	210 bar
Medium	Hydraulic Mineral Oil



Dimensions

Bore	Rod	Rod thd	Thd lg	Port	Spigot OD	Width	Trunnion						Trun dist	Rod extn	Tube OD	GD port	End port	Total lg
B H8	GG f8	KK	A	EE" BSP	B f8	VD	TM ±0.5	UM	TL	TD f8	R	r	XV min	W	D	Y	EP	ZB
40	18	M14x1.5	18	3/8"	54	12	76	108	16	20	32	1.5	117	13	50	50	29	233
40	28	M20x1.5	28	3/8"	54	12	76	108	16	20	32	1.5	117	13	50	50	29	233
50	22	M16x1.5	22	1/2"	64	12	89	129	20	25	38	1.5	127	16	60	57	29	246
50	36	M27x2	36	1/2"	64	12	89	129	20	25	38	1.5	127	16	60	57	29	246
63	28	M20x1.5	28	1/2"	80	13	100	150	25	32	45	2.0	146	19	75	60	29	252
63	45	M33x2	45	1/2"	80	13	100	150	25	32	45	2.0	146	19	75	60	29	252
80	36	M27x2	36	3/4"	100	13	127	191	32	40	57	2.5	163	22	95	78	35	292
80	56	M42x2	56	3/4"	100	13	127	191	32	40	57	2.5	163	22	95	78	35	292
100	45	M33x2	45	3/4"	120	14	140	220	40	50	64	2.5	186	25	115	91	35	308
100	70	M48x2	63	3/4"	120	14	140	220	40	50	64	2.5	186	25	115	91	35	308
125	56	M42x2	56	1"	145	14	178	278	50	63	83	3.0	202	25	140	95	44	328
125	90	M64x3	85	1"	145	14	178	278	50	63	83	3.0	202	25	140	95	44	328
160	70	M48x3	63	1"	185	12	215	341	63	80	102	3.0	224	25	180	105	63	380
160	110	M80x3	95	1"	185	12	215	341	63	80	102	3.0	224	25	180	105	63	380

Note : Special orders as per customer specifications are also accepted.

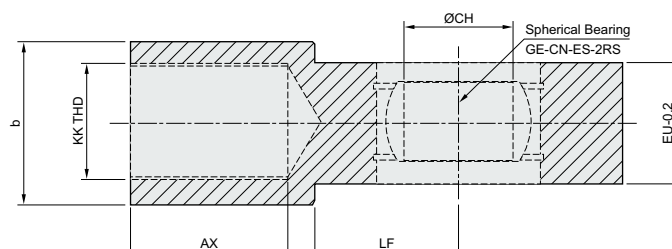
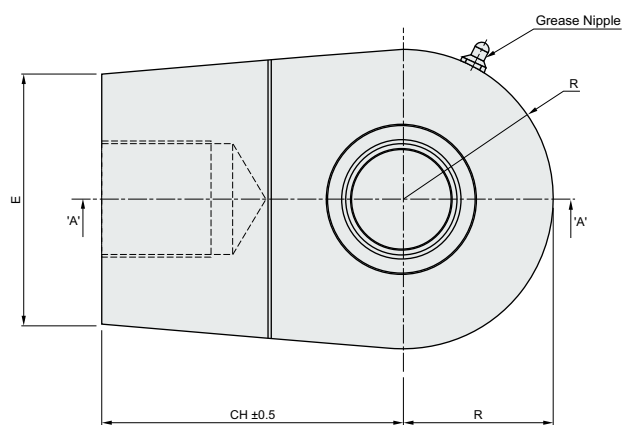
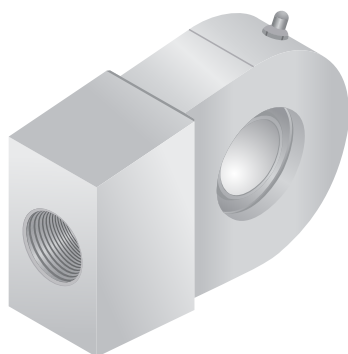
All dimensions in mm unless otherwise stated.

Welded Type Cylinders-004

Rod End Eye

Ordering code

AHP - WC - Rod Eye -Bore x Rod x Stroke



SECTION - 'A-A'

Dimensions

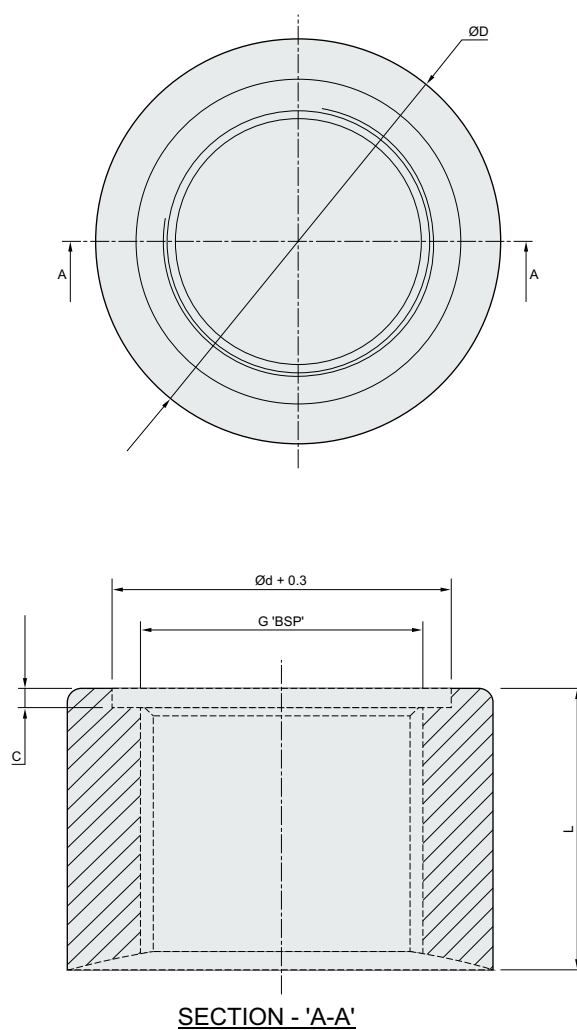
Bore dia B H8	Rod dia GG f8	Rod thd KK	Thd lg AX	Thick b	Radius R	Dist CH ±0.5	Bearing ID CN	Eye thick EU-0.2	Dist LF	Width E
40	18	M14x1.5	19	30	31	65	20	21	27	22
40	28	M20x1.5	29	30	31	65	20	21	27	22
50	22	M16x1.5	23	38	38	80	25	27	32	28
50	36	M27x2	37	38	38	80	25	27	32	28
63	28	M20x1.5	29	47	48	97	30	32	41	38
63	45	M33x2	46	47	48	97	30	32	41	38
80	36	M27x2	37	58	59	120	40	40	50	49
80	36	M42x2	57	58	59	120	40	40	50	49
100	45	M33x2	46	70	71	140	50	52	62	61
100	70	M48x2	64	70	71	140	50	52	62	61
125	56	M42x2	57	90	90	180	60	66	78	80
125	90	M64x3	86	90	90	180	60	66	78	80
160	70	M48x2	64	110	112	210	80	84	98	100
160	110	M80X3	96	110	112	210	80	84	98	100
200	90	M64X3	86	135	145	260	100	102	120	125
200	140	M100X3	113	135	145	260	100	102	120	125

Note : Special orders as per customer specifications are also accepted.

All dimensions in mm unless otherwise stated.

AHP STD Adaptor

As per ISO Standards



Dimensions

Port size G" BSP	Stud OD D	Stud length L	Spotface dia $d+0.3$	Spotface deep C
1/8"	25	15	18	2.0
1/4"	30	20	23	2.0
3/8"	30	20	26	2.5
1/2"	35	20	31	2.5
3/4"	40	25	37	2.5
1"	50	30	45	3.0
1-1/4"	65	35	55	3.0
1-1/2"	65	35	61	3.0
2"	85	45	75	3.0

Note : Special orders as per customer specifications are also accepted.

All dimensions in mm unless otherwise stated.

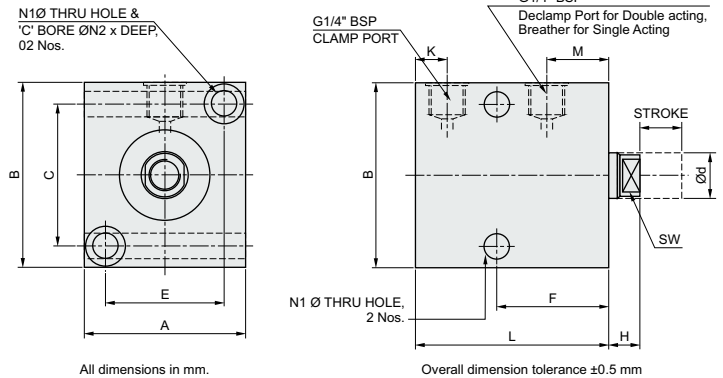
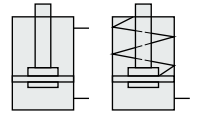
Thrust Chart

Theoretical Push & Pull Force Chart

Operating pressure at kg/sq. cm				Theoretical force (at Mechanical efficiency = 100%)							
Piston dia mm	Rod dia mm	Piston area sq. cm	Rod area sq. cm	50		80		100		160	
				Push kgf	Pull kgf	Push kgf	Pull kgf	Push kgf	Pull kgf	Push kgf	Pull kgf
25	12	4.91	1.13	245.47	188.91	392.75	302.26	490.94	377.83	785.50	604.52
	16		2.55		118.22		189.15		236.44		378.30
32	18	8.04	1.54	402.18	325.20	643.48	520.32	804.35	650.39	1286.96	1040.63
	20		3.80		212.09		339.34		424.17		678.67
40	18	12.57	2.55	628.40	501.15	1005.44	801.842	1256.80	1002.30	2010.88	1603.68
	25		6.16		320.48		512.77		640.97		1025.55
50	22	19.64	3.80	981.88	791.78	1571.00	1266.85	1963.75	1583.57	3142.00	2533.71
	25		10.18		472.87		756.59		945.74		1513.19
63	28	31.18	6.16	1558.82	1250.91	2494.12	2001.45	3117.65	2501.82	4988.24	4002.91
	35		15.91		763.51		1221.61		1527.01		2443.22
80	36	50.27	10.18	2513.60	2004.60	4021.76	3207.35	5027.20	4009.19	8043.52	6414.71
	45		24.63		1281.94		2051.10		2563.87		4102.20
100	45	78.55	15.91	3927.50	3132.18	6284.00	5011.49	7855.00	6264.36	12568.00	10022.98
	70		38.49		2003.03		3204.84		4006.05		6409.68
125	56	122.73	24.63	6136.72	490.51	9818.75	7848.09	12273.44	9810.11	19637.50	15696.18
	90		63.63		2955.44		4728.71		5910.89		9457.42
160	70	201.09	38.49	10054.40	8129.93	16087.04	13007.88	20108.80	16259.85	32174.08	26015.76
	110		95.05		5302.13		8483.40		10604.25		16966.80
200	90	314.20	63.63	15710.00	12528.73	25136.00	20045.96	31420.00	25057.45	50272.00	40091.92
	130		153.96		8012.10		12819.36		16024.20		25638.72

AHP STD Series
AHP-005/006/007



Block Cylinder**Double Acting / Single Acting (Spring Return), Push Type****Description**

Block cylinders are widely used in work holding fixtures and other short stroke applications.

Advantages

As compared to the tie rod construction cylinders, these cylinders are very compact, due to the internal construction. These cylinders are versatile, i.e. they can be mounted in many different ways.

Versions

Two versions are available in all models.

- Double-acting
- Single-acting push type with spring return

Installation

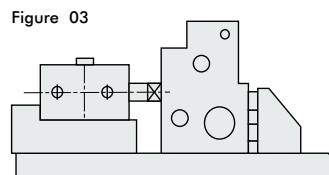
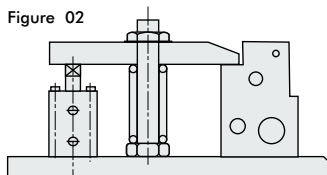
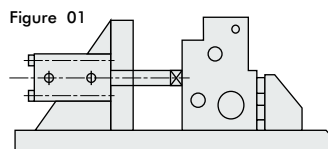
The cylinder can be mounted on the front side (rod side), rear side and side faces, as shown in figures.

Specifications

Maximum operating pressure - 200 bar

Note

- For side mounting, positive stopper should be provided to reduce the load on the clamping bolts (fig.3).
- For the single-acting, spring return cylinder a breather is provided. It should be protected from cutting liquids and coolants.
- For ordering the seal kit, add the prefix 's' to the part number.



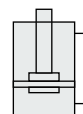
Note : Special orders as per customer specifications are also accepted.

Force Push	7.5kn	19kn	46.5kn
Force Full	4.5kn	11.5kn	28kn
A	45	62	95
B	65	85	120
C	50	63	90
D	16	25	40
E	30	40	65
F	39.5	48.5	65.5
H	12	15	20
J	M10 x 15 Deep	M16 x 30 Deep	M24 x 30 Deep
K	11	11.5	15
M	22	27	39.5
N1	9	11	17
N2	14	17.5	25
P	9	11	17
SW	13	20	32

Double-acting cylinder						
Part No.	2110100	2110200	2120100	2120200	2130100	2130200
Stroke ±1	20	50	20	50	20	50
L	68	98	81	111	105	135
Oil Vol. Push	10 cc	25 cc	25 cc	63 cc	63 cc	156 cc
Oil Vol. Pull	6 cc	15 cc	15 cc	38 cc	37 cc	93 cc
Weight	1.5kg	2.3kg	2.5kg	3.5kg	9.6kg	12.3kg

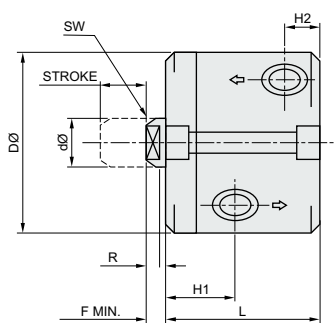
Single-acting push type spring return cylinder						
Part No.	2310100	2310200	2320100	2320200	2330100	2330200
Stroke ±1	15	30	15	30	15	30
L	68	98	81	111	105	135
Oil Vol. Push	8 cc	15 cc	19 cc	38 cc	48 cc	95 cc
Spring Force	110 N	100 N	300 N	280 N	425N	400 N
Weight	1.5kg	2.3kg	2.5kg	3.5kg	9.6kg	12.3kg

All dimensions in mm unless otherwise stated.

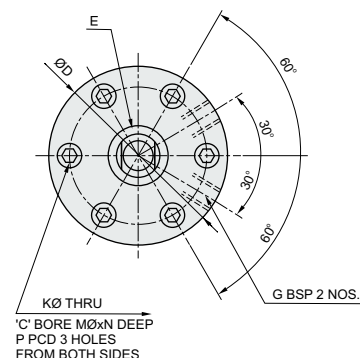


Compact Cylinder

Double Acting / Single Acting Rod End



All dimensions in mm



Overall dimension tolerance ± 0.5 mm

Description

Compact cylinders are solid piston, double acting cylinders and are very compact in the axial direction.

Advantages

- These cylinders are used where height is a constraint.
- Mounting of the cylinder is very easy.

Specifications

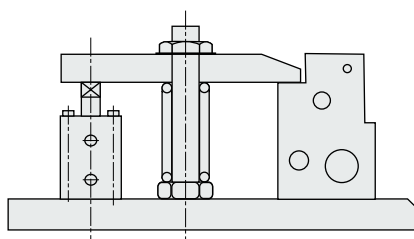
- Maximum operating pressure - 150 bar
- Double rod end cylinders can be available on request.

Note

- Due to compact design, port thread depth is short. Reduce the standard connector thread length to suit the port depth.
- For ordering the seal kit, add the prefix 's' to the part number.

Force Push	4.7kn	12kn	19kn	29kn
Force Pull	3kn	9kn	14kn	22kn
Bore Ø	20	32	40	50
E	M6 x 10 deep	M10 x 18 deep	M12 x 20 deep	M16 x 25 deep
F	5	5	6	6
d	12	16	20	25
D	45	65	76	95
G	1/8"	1/8"	1/4"	1/4"
SW	10	14	17	22
H1	15	17	22	26
H2	9	9	12	12
R	3.5	3.5	4	4
K	4.5	6.6	9	11
M	8	11	14	17.5
N	4.4	6.5	8.6	10.8
P	35	50	60	75

Application example



Part No.	2710100	2720100	2730100	2740100
Stroke ± 1	10	10	10	10
L	36	42	50	56
Oil Vol. Push	3 cc	8 cc	13 cc	20 cc
Oil Vol. Pull	2 cc	15 cc	10 cc	15 cc
Weight	0.5kg	1kg	1.5kg	2kg

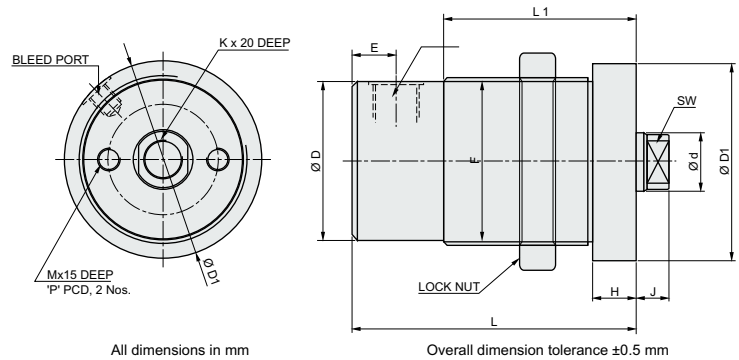
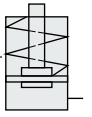
Part No.	2710200	2720200	2730200	2740200
Stroke ± 1	25	25	25	25
L	51	57	65	71
Oil Vol. Push	8 cc	206 cc	31 cc	49 cc
Oil Vol. Pull	5 cc	15 cc	24 cc	37 cc
Weight	0.6kg	1.5kg	2kg	3.5kg

Note : Special orders as per customer specifications are also accepted.

All dimensions in mm unless otherwise stated.

Threaded Body Cylinder

Single Acting (Spring Return), Push Type



All dimensions in mm

Overall dimension tolerance ± 0.5 mm

Description

Solid piston threaded body cylinder is single acting, spring return cylinder, suitable to use with hydro-pneumatic intensifier.

Advantages

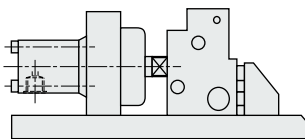
- The cylinder is most simple in construction and very easy for maintenance.
- The piston force can be directly used for clamping (fig.1) The piston force can be increased by using a clamping strap leverage (fig.2)

Installation

The cylinder can be mounted in two ways

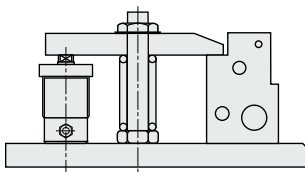
1. Against front collar with thread lock nut - Front mounting

Figure 01



2. With back mounting holes - Rear mounting

Figure 02



Specifications

- Maximum oil pressure 200 bar
- Return spring back pressure @ 1 bar

Note

- As the cylinder is single acting spring return, a breather is provided. It should be protected from cutting fluid and coolant.
- Heavy extensions to piston rod can influence return stroke of the cylinder.
- Lock nut has to be ordered separately.
- For ordering the seal kit, add the prefix 's' to the part number.

Note : Special orders as per customer specifications are also accepted.

Force	3kn	5kn	10kn	18kn	30kn	30kn	50kn
Ø Bore	16	20	30	40	50	50	65
D	21.8	27.5	43.5	54.5	67.5	67.5	83
d	9.52	11.09	15.87	20.6	25.4	25.4	34.9
D1	30	36	56	65	78	78	96
E	9	10	12	12	14	14	14
F	M24x2P	M30x2P	M46x2P	M57x2P	M70x2P	M70x2P	M86x2P
G	1/8"	1/8"	1/4"	1/4"	3/8"	3/8"	3/8"
H	12	12	12	12	12	12	15
J	7	8	9	13	15	15	20
K	M6	M6	M10	M12	M16	M16	M16
M	—	M6	M6	M8	M10	M10	M12
P	—	20	30	36	48	48	56
SW	8	10	13	18	21	21	30

Part No.	1710100	1720100	1730100	1740100	1750100	1750100	1760100
Stroke ± 1	15	10	10	10	10	50	25
L	78	70	72	77	81	160	110
L1	58	49	47	52	54	90	83
Min. Spring Force	79.8N	131N	197N	265N	461N	321.8N	516.3N
Oil Vol. Pull	3 cc	3 cc	7 cc	13 cc	20 cc	100 cc	84 cc
Weight	0.25kg	0.5kg	1kg	1.5kg	2kg	3.5kg	4.8kg

Part No.	—	1720200	1730200	1740200	1750200	1750200	1760200
Stroke ± 1	—	25	25	25	25	100	50
L	—	98	102	105	110	260	160
L1	—	65	77	80	83	140	90
Min. Spring Force	—	110.38N	179.0N	245.5N	404N	269N	529.7N
Oil Vol. Pull	—	8 cc	18 cc	31 cc	50 cc	200 cc	166 cc
Weight	—	0.7kg	1.25kg	2kg	3kg	5.2kg	6.5kg

Lock Nut (Accessory) To be ordered separately



Part No.	1802300	1802400	1802500	1802600	1802700	1802700	1802800
D2	36 hex	46 hex	Ø60	Ø75	Ø90	Ø90	Ø119
W	10	10	10	10	12	12	15

All dimensions in mm unless otherwise stated.

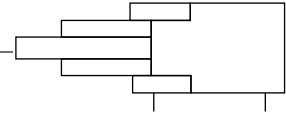


AHP STD Series-007
**Hydraulic
Telescopic Cylinders**
Single Acting/Double Acting
2, 3, 4 Stages



Hydraulic Telescopic Cylinders

Hydraulic Telescopic Cylinders Single Acting/Double Acting 2, 3, 4 Stages



Introduction

Telescopic cylinders are specially designed hydraulic cylinders that provide an exceptionally long output travel from a very compact retracted length. Typically, the collapsed length of a telescopic cylinder is 20% to 40% of the fully extended length depending on the number of stages.

- This feature is very special for machine design engineers when a conventional single-stage rod-style actuator does not fit in an application to produce the required output stroke.
- Telescopic cylinders are usually powered by hydraulics, but some special light duty designs are powered by compressed air.
- Telescopic cylinders are referred to as single-stage telescopic cylinders and multi-stage telescopic cylinders. A common application for telescopic cylinders on a construction site is that of the dumping on a dump truck. In order to empty the load of gravel completely, the dump body must be raised to an angle of about 60°. To accomplish this long travel with a conventional hydraulic cylinder is very difficult considering that the collapsed length of a single-stage rod cylinder is approximately 110% of its output stroke.
- It would be very challenging for the design engineer to fit the single-stage cylinder into the chassis of the dump truck with the dump body in the horizontal rest position. This task is easily accomplished, however, using a telescopic style multi-stage cylinder.

Design and Technical Terminology

Showing the telescopic principle, an object collapsed (top) and extended (bottom), providing more reach. Telescopic cylinders are designed with a series of steel tubes of progressively smaller diameters nested within each other. The largest diameter sleeve is called the main or barrel. The smaller inner sleeves are called the stages. The smallest stage is often called the plunger. The cylinders are usually mounted in machinery by pivot mounts welded to the end or outer body of the barrel as well as on the end of the plunger.

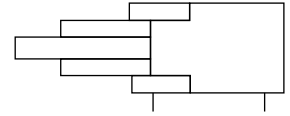
Telescopic cylinders can be built with as many as 6 stages. Six stages seem to be a practical design limit as stability problems become more difficult with larger numbers of stages. Telescopic cylinders require a careful design as they are subjected to large side forces especially at full extension. The weight of the steel bodies and the hydraulic oil contained within the actuator create moment loads on the bearing surfaces between stages. These forces, combined with the load being pushed, threaten to bind or even buckle the telescopic assembly. Sufficient bearing surfaces must only be used in machinery as a device for providing force and travel. Side forces and moment loads must be minimized. Telescopic cylinders should not be used to stabilize a structural component.

Telescopic cylinders are often limited to a maximum hydraulic pressure of 2000-3000 psi. This is because the outward forces produced by internal hydraulic pressure tend to expand the steel sleeve sections. Too much pressure will cause the nested sleeves to balloon outward, bind the mechanism and stop moving. The danger exists that a permanent deformation of the outer diameter of a sleeve could occur, thus ruining a telescopic actuator. For this reason, care must be taken to avoid shock pressures in a hydraulic system using telescopic cylinders. Often such hydraulic systems are equipped with shock suppressing components such as hydraulic accumulators to absorb pressure spikes.



Hydraulic Telescopic Cylinders

Single Acting/Double Acting 2, 3, 4 Stages



Basic Design - Types of Telescopic Cylinders

Telescopic cylinders can usually be classified into two basic designs: Single acting and double acting. A number of other special designs also exist including a hybrid single / double acting design and a constant speed, constant thrust design.

• Single Acting

Single acting telescopic cylinders are the simplest and most common design. As with a single acting rod style cylinder the single acting telescopic cylinder is extended using hydraulic pressure, but retracts using external forces when the hydraulic pressure is removed and relieved to the reservoir. This external retraction force is usually gravity acting on the weight of the load. This external weight must obviously be sufficient to overcome the friction and mechanical losses within the machine design even after the work portion of the machine cycle has been accomplished. In the example above of the dump truck, the weight of the dump body now raised at an angle of 60°, but empty of the load, must be enough to force the un-pressurized hydraulic fluid out of the cylinder and cause it to retract to the fully collapsed position.

• Double Acting

A double acting cylinder is extended and retracted using hydraulic pressure in both directions. Double acting telescopic cylinders are thus much more complex in design than the single acting type. This additional complexity is due to the requirement of adding retracting piston faces to all of the cylinder stages and the difficulty in supplying pressurized fluid to the retraction pistons of the intermediate stages.

To accomplish the double acting feature, additional hydraulic seals are added to internally seal off the individual stages. In addition, internal oil passageways are machined, so that as each stage completes retracting, an oil passage is opened to supply the next stage with pressurized fluid to retract. Thus, a double acting telescopic actuator usually retracts starting from the smallest diameter stage to finish with the largest stage retracting lastly. Because the seals used to accomplish this must pass over these internally machined fluid transfer holes, the seals are usually made from hard materials to resist wear and abrasion. They are often iron rings or glass reinforced nylon seals.

The extension and retraction fluid supply ports on double acting telescopic cylinders are usually located at the opposite ends of the cylinder's assembly. The extension port is mounted at the base of the outer barrel and the retraction port is mounted in the end of the plunger section. This can, in some applications, prove to be very difficult to connect with hydraulic hoses due to the distance between these ports at full extension. In such a circumstance, both ports can be located in the barrel. An internal passageway must be fitted however, so that the retracting fluid is supplied to the plunger

section at full extension. This special passageway is in itself a telescopic assembly that extends with the cylinder and is outfitted with seals on the various stages.

This additional complexity makes double acting telescopic cylinders very expensive. They are usually custom-designed for each application. Typical applications of double acting telescopic cylinders include the packer-ejector cylinders in garbage trucks and transfer trailers, horizontal compactors, telescopic excavator shovels and roll-on/roll-off trucks. In all of these applications, the cylinder operates near horizontally and thus is usually not available to retract the actuator. A double acting design is, therefore, required to both push and pull the telescoping mechanism.

Care must be taken when controlling most double acting telescopic cylinders. The effective retraction area is often much less than the extension area. Thus, if the hydraulic fluid return line is blocked during extension, a pressure-intensifying effect can occur, causing seal failure or even causing the metal sleeve to balloon outward. The cylinder could thus be rendered unable to retract because of failed seals or jam in position due to binding.

Another problem can occur if a double acting telescopic cylinder encounters a load that pulls on the actuator during extension such as when a tilting load goes over center and opens the cylinder beyond the internal volume of the hydraulic oil. When the piston face catches up again and strikes the oil column a pressure spike occurs which can damage the actuator.

Single/Double Acting Combination

In some unique applications, a single acting telescopic cylinder is adequate to accomplish the work except for one stage that is required to be double acting.

An example of this is erecting the mast of a large mobile drilling rig. The mast is erected to the vertical position using a telescopic cylinder. However, to lower the mast gravity is not available for the initial tilt back from the vertical position. Thus, the plunger stage only of the telescopic actuator is equipped as a double acting cylinder to provide the initial force to pull the mast back from vertical. Once the tilt back has been initiated, then gravity takes over and supplies the force to complete the full cylinder retraction. The remaining stages, therefore, are single acting. This special combination is much less complex and much less costly than using an entirely double acting design.

Constant Thrust Constant Speed

In some applications, a telescopic cylinder is required to extend with a constant force or constant speed. To accomplish this, the cylinder is designed so that all the stages extend at the same time. This can also be accomplished in a double acting design by matching the extension and retraction areas of the pistons on all the stages.

Piston Rod Sizes & Stop Tube

Piston Rod Sizes and Stop Tube

Piston Rod Size Selection

The selection of a piston rod for thrust (push) conditions requires the following steps to be carried out:

- Determine the type of cylinder mounting style and rod end connection to be used. Consult the Stroke Factor table and determine which factor corresponds to the application.
- Using the appropriate stroke factor, determine the 'basic length' from the equation : Basic Length = Net Stroke Factor
(The graph is prepared for standard rod extensions beyond the face of the gland retainers. For rod extensions greater than standard, add the increases to the net stroke to arrive at the 'basic length'.)
- Calculate the load imposed for the thrust application by multiplying the full bore area of the cylinder by the system pressure, or by referring to the Push and Pull Force charts
- Using the graph below, look along the values of 'basic length' and 'thrust' as found in 2 and 3 above, and note the point of intersection.

Note - When considering the use of long stroke cylinders, the piston rod should be of sufficient diameter to provide the necessary column strength.

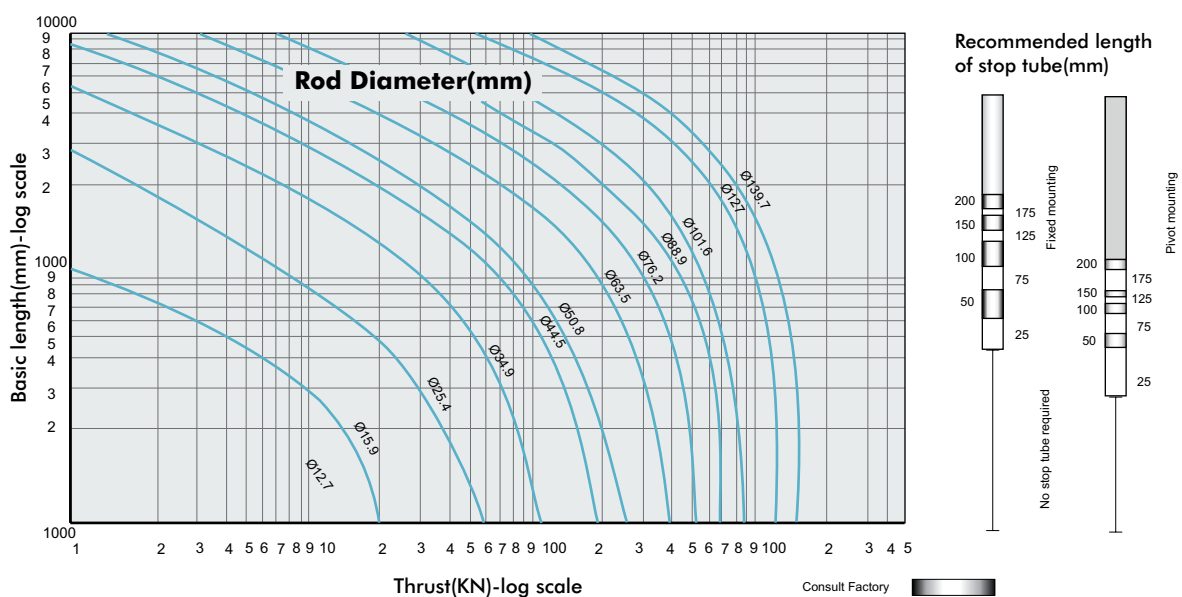
Stop Tube

Stop tubes prevent the cylinder from completing its full stroke, to provide a spread between the piston and the rod bearing at full extension. Note that stop tube requirements differ for fixed and pivot mounting cylinders. The required length of stop tube, where necessary, is read from the vertical columns on the right of the graph by following the horizontal band within which the point of intersection lies. If the required length of stop tube is in the region labeled 'consult factory', please supply the following:

- Cylinder mounting style
- Rod end connection and method of guiding load
- Bore required, stroke, length of rod extension.
- Mounting position of cylinder. (Note if at an angle or vertical and specify the direction of the piston rod.)
- Operating pressure of cylinder, if limited to less than the standard pressure for the cylinder selected.

The correct piston rod size is read from the diagonally curved lines labeled Rod Diameter above the point of intersection.

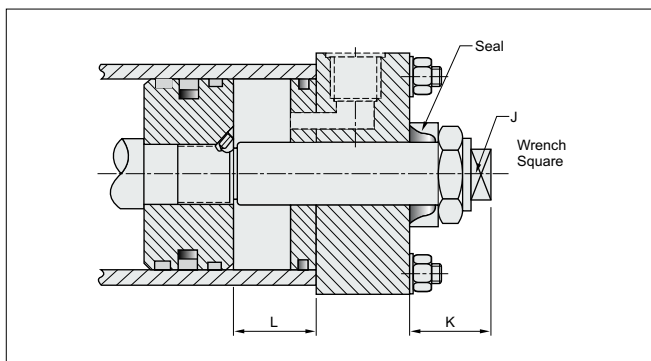
Piston rod selection chart



Optional Features

Air Bleeds

The option of bleed screws, illustrated below, is available at either or both ends of the cylinder, at any position except in the port face. The selected positions should be shown in the order code.



Stroke Limiters

Where absolute precision in stroke length is required, a screwed adjustable stop can be supplied at the cap end. Several types are available - the illustration shows a design suitable for infrequent adjustment of an uncushioned cylinder. Please contact the factory, specifying details of the application and the adjustment required.

Bore dia B H8	J	K min.	L max.
40	11	85	127.0
50	17	85	127.0
63	17	85	203.2
80	17	85	203.2
100	17	85	203.2
125	17	85	228.6
150	22	85	228.6
200	22	85	458.0

Rod Locking Device

These units provide positive locking of the piston rod. They require hydraulic pressure to release, while loss of pressure causes the clamp to operate, allowing them to be used as a fail-safe device. Please consult the factory for further information.

Single Acting Cylinders

Standard AHP series cylinders are of the double acting type. They are also suitable for use as single acting cylinder, where the load or other external force is used to return the piston after the pressure stroke. Cast iron piston rings should not be used with single acting cylinder.

Spring-Return, Single Acting Cylinders

Series AHP single acting cylinders can be supplied with an internal spring to return the piston after the pressure stroke. Please supply details of load conditions and friction factors, and

advise whether the spring is required to extend or return the piston rod.

On spring-return cylinders, it is recommended that tie rod extensions be specified on the cylinder end in which the spring is located to allow the spring to be 'backed-off' until compression is relieved.

Tie rod nuts should be welded to the tie rods at the opposite end of the cylinder, to further assure safe disassembly.

Please consult the factory when ordering spring-return cylinders.

Multiple Stroke Positioning

To obtain linear force in one plane with controlled stopping at intermediate points, several designs are available. For three stopped positions, it is a common practice to mount two standard single rod Style H cylinders back-to-back, or to use through-tie rods. By extending or retracting the stroke of each cylinder independently, it is possible to achieve three positions at the piston end. An alternative technique is to use a tandem cylinder with an independent piston rod in the cap section. Please consult the factory for further details.

Rod End Bellows

Unprotected piston rod surfaces which are exposed to contaminants with air hardening properties should be protected by rod end bellows. Longer rod extension are required to accommodate the collapsed length of the bellows. Please consult the factory for further information.

Metallic Rod Wipers

Metallic rod wipers replace the standard wiper seal, and are recommended where dust, ice or splashing might damage the wiper seal material. Metallic rod wipers do not affect cylinder dimensions.

Position Switches

These can be fitted to give reliable end of stroke signals.

Position Feedback

Linear position transducers of various types are available for AHP series cylinders. Please consult the factory for further details.



How to order

Ordering details of AHP Series Hydraulic Cylinders

AHP	HD	100	70	400	K	F	C	L	C	L	T	00
Series	Type of duty	Bore dia	Rod dia	Stroke	Mounting style	Cushion head	Temp-erature	Piston seal	Working pressure	Ports	Modification	
Heavy duty-HD Mill duty-MD				Single acting cylinder Double acting cylinder								
Specify bore dia in mm 25, 32, 40, 50, 63, 80 100, 125, 160, 200												
In mm												
200, 400, 600, 800, 1000, 1500, 2000, 2500 in mm												
Use 'K' only if a double & single acting cylinder is required.												
ME = Basic ME5 = Head rectangular flange ME6 = Cap rectangular flange MS2 = Side lug mounting MT1 = Head trunnion mounting MT2 = Cap trunnion mounting MT4 = Intermediate fixed trunnion mounting												
Mx3 = Tie rods ext. head mounting Mx2 = Tie rods ext. cap = Tie rods ext. both ends MP3 = Cap mounting fixed eye MP1 = Cap mounting fixed clevis cap mounting fixed eye with bearing X other =												
Use 'c' only if head and cushion is required CB-Cushioned at both end NC-Non-cushioned CC-Cap end cushioned CH-Head end cushioned												
L = Low up to - 60°C M = Medium up to - 120°C H = High up to - 220°C												
C = Ring packed piston L = Lip seal piston K = Hi load piston F = Low friction S = Spring loaded PTFE piston seals												
1 = Magnetic piston, stainless steel cylinder body, single bi-directional piston seal 2 = Magnetic piston, carbon steel body, single bi-directional piston seal												
L = Low up to 70 bar M = Medium up to 160 bar H = High up to 350 bar												
T = SAE straight thread O-ring (std) U = NPTE ports (dry seal pipe thread) R = BSP ports (parallel thread ISO 228) P = SAE 4-bolt flange ports (3000psi)												
B = BPST ports (taper thread) G = Metric thread ports Y = Metric thread ports per ISO 6149 M = Used only for manifold port O-ring seal. M option must be specified (mounting modification), applies to mounting style C only.												
1X												

Sample order: AHP / HD / 100 / 70 / 600 / K / ME5 / GB / L / C / M / R

AHP Series Power Pack Units & Systems



Power Pack Units & Systems



- Achieve specializes in developing hydraulic systems from enquiry to final commissioning and after-sales service.
- Achieve uses only top-quality components.
- Achieve hydraulic power packs and hydraulic systems are fully tested and documented before delivery.

Hydraulic Power Packs

Features

- Use single or three phase electric motors
- Pressures range up to 400 bar (10,000psi)
- Fixed or variable delivery piston, vane pumps or gear
- Cater to most fluids such as mineral oil
- All valve configurations and operating modes supplied
- Good availability of spares and excellent service support

Hydraulic Power Packs and Systems Applications

- Special Purpose Machinery manufacturers
- Building material manufacturers
- University test equipment
- Foundries
- Maintenance of electrical power lines
- Production and maintenance of gas and water pipes and many more...

Achieve offers

- Special requirement power packs
- Installation and commissioning of new hydraulic systems
- Refurbishment of existing hydraulic systems
- Efficient, friendly service

General guidelines for Hydraulic Power Packs

All Achieve Hydraulic Power Pack Units are made as per standard or our customers' normally accepted requirements. High performance, compactness and easy maintenance are the main features of these Power Pack Units. The figure below shows the general layout of a Hydraulic Power Unit and the elements indicated are required in every Power Unit for proper functioning of the system.

Engineering Guidelines

- These units are of a modular design. For further information, please contact our sales office.

Commissioning Guidelines

General

- The power units supplied by us have been tested for function and performance. Changes in any form of manner to the power units are not permitted as this would also invalidate any guarantee claims.
- Repairs may only be carried out by the manufacturer or authorized agent. No guarantee will be accepted for commissioning carried out by third parties.

Commissioning

- Only fill the pressure fluid via a filter which has the necessary retention rate.
- Take into account the direction of rotation arrow when connecting the electric motor.

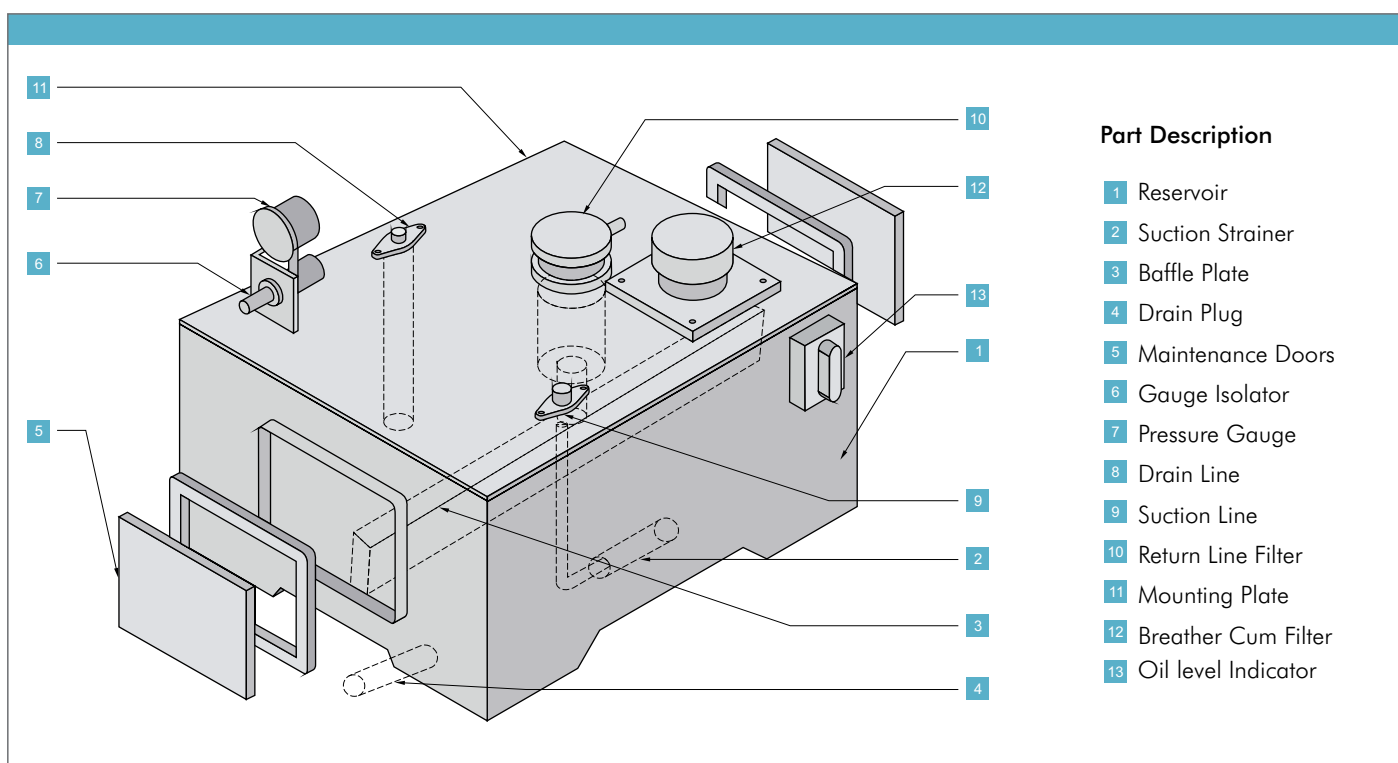
- Start the pump without load and let it displace oil without pressure for a few seconds in order to provide sufficient lubrication.
- Never run the pump without oil.
- If the pump, after approx 20 seconds, does not displace oil without any bubbles, then the system has to be rechecked.
- After the operating valves have been reached, check the pipe connection for leakage and check the operating temperature.

Bleeding

- Before commissioning, the pump housing must be filled with oil.

Important Notice

- Assembly, maintenance and servicing of the power unit must only be carried out by authorized and trained personnel.
- The power unit must be operated within the permissible limits. When carrying out any work on the power unit, switch the system to zero pressure. Unauthorized conversions and modifications which affect the safety and function are not permitted.
- Provide protective measures and do not remove any existing protective devices.
- Ensure that the fixing bolts are correctly fitted (take into account the prescribed tightening torque).
- The general valid safety and accident prevention regulations must be adhered to.
- Reservoir nominal size 100 has to be filled with a minimum of 130 liters.



Part Description

- 1 Reservoir
- 2 Suction Strainer
- 3 Baffle Plate
- 4 Drain Plug
- 5 Maintenance Doors
- 6 Gauge Isolator
- 7 Pressure Gauge
- 8 Drain Line
- 9 Suction Line
- 10 Return Line Filter
- 11 Mounting Plate
- 12 Breather Cum Filter
- 13 Oil level Indicator

Note : Special orders as per customer specifications are also accepted.

All dimensions in mm unless otherwise stated.

Power Pack Units



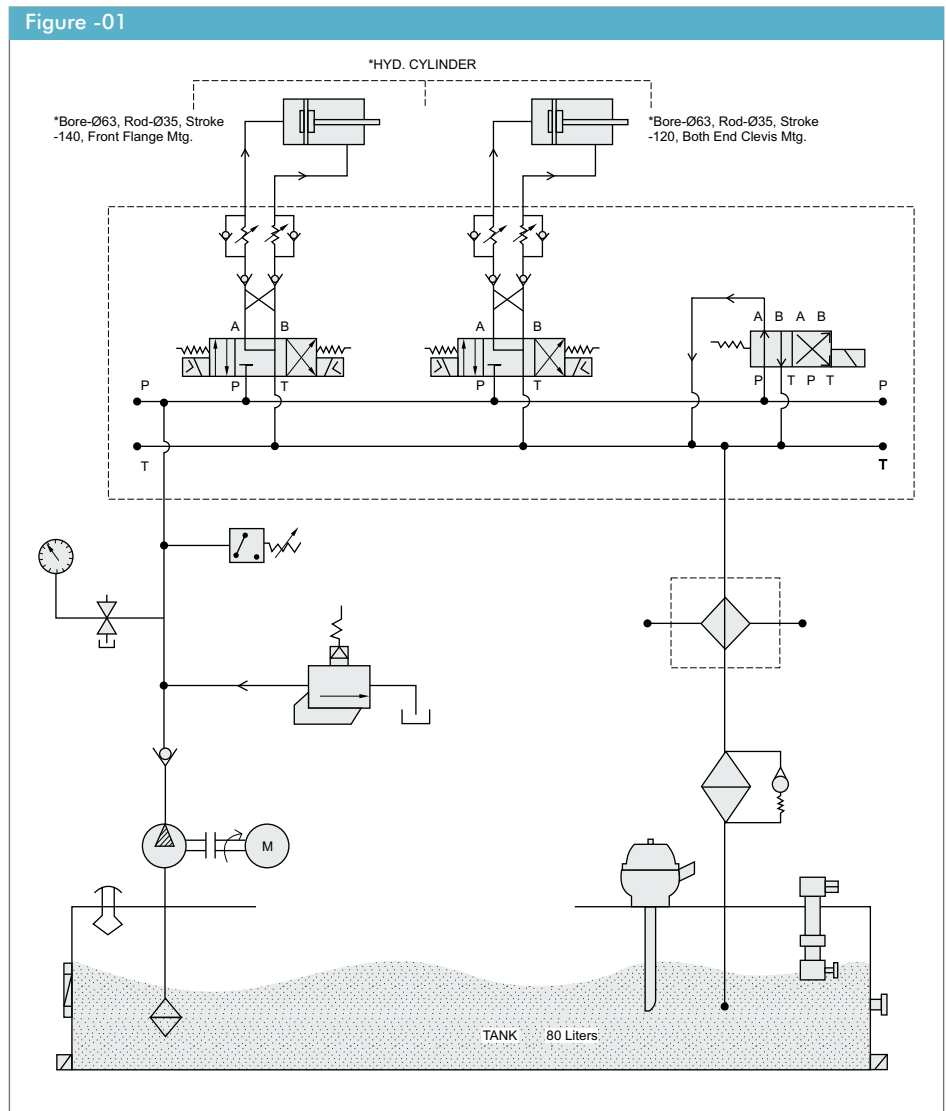
Specifications

- Tank capacity : 80 liters
- Pump : Gear pump 9 lpm, at 1500rpm
- Motor : 3 HP, 3-phase
- Direction Control Valve :
Cetop - 3 mounting, 3 position
- Solenoid Valves : Direct acting,
puppet type
- Operating pressure : 200 bar
- Maximum oil pressure : 250 bar

Product Description

- This hydraulic power unit suitable to operate all clamping cylinders is parallel in clamping mode, after reaching the set pressure, which is sensed by a pressure switch, direction control valve shifts to the center position, unloading pump delivery to the tank. In case of pressure drop, the direction control valve operates to increase pressure, to the set pressure.
- In unclamp mode, direction control valve moves to the unloading position, after the set delay.
- The system includes all relevant electrical and mechanical accessories. Pendant with clamp / unclamp push buttons is provided along with the switch.

Figure -01



Note : Special orders as per customer specifications are also accepted.

All dimensions in mm unless otherwise stated.

Power Pack Units



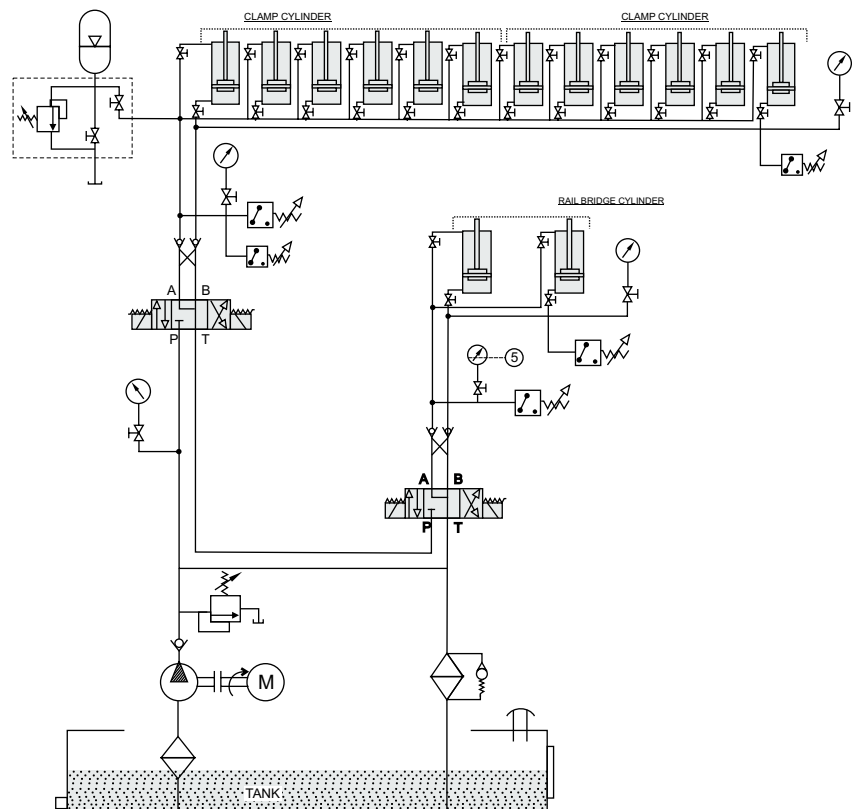
Specification

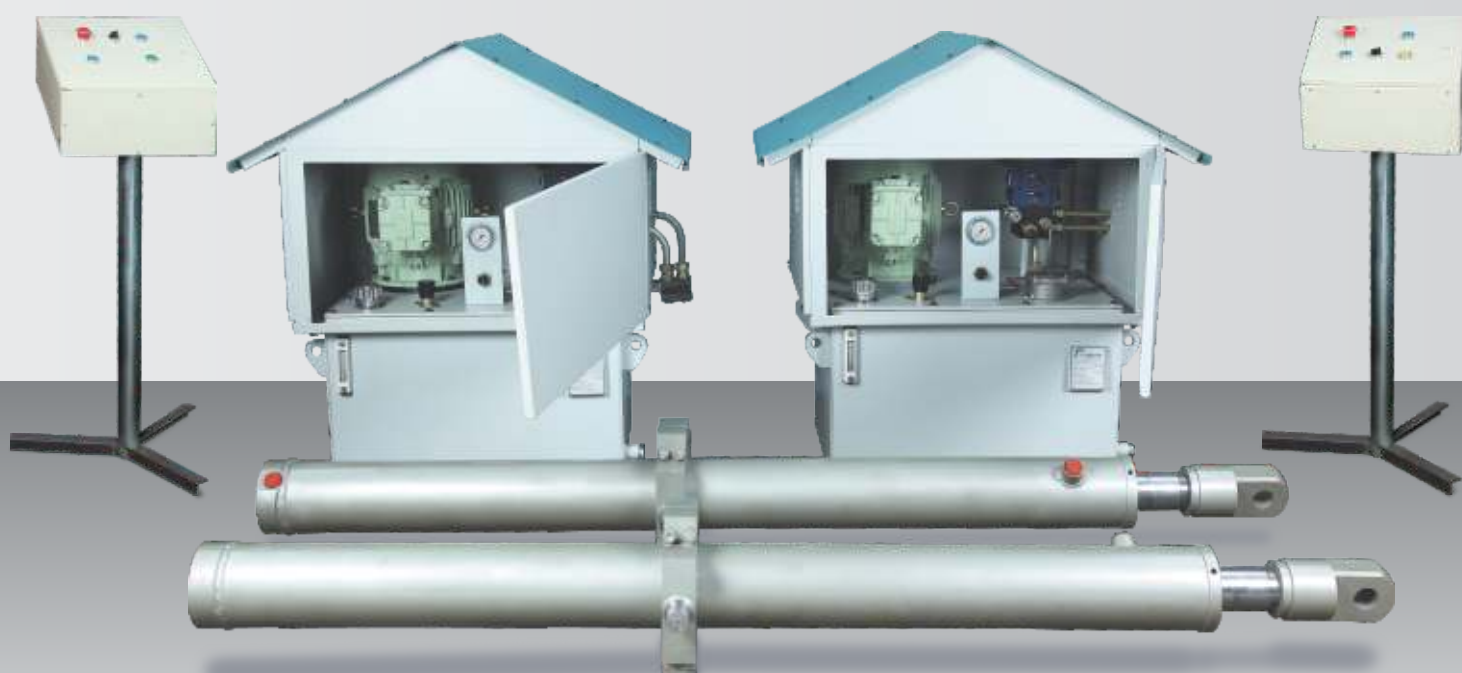
- Tank capacity : 12.5 liters
- Pump : Radial Piston Pump, 5.0 liters/min. at 1450 rpm
- Motor : 2hp, 3-phase 1450 rpm
- Accumulator : 2.5 liters
- Solenoid operated : Direction Control valve
- Operating pressure : 150 bar
- Maximum oil pressure : 200 bar
- Pressure switch : 0-200 bar

Salient Features

- Modular construction - There are four separate manifolds, two for the top die and two for the bottom die. A Separate manifold is provided for the die lifters. All these manifolds are mounted on the base manifold, which includes pressure switches, accumulator, pressure relief valve, and check valves the tandem clamping ensures positive clamping.
- The pump is put 'ON' and 'OFF' by differential pressure switches that give feedback and stop the press.
- Accumulator is fitted to compensate leakage in case of power failure.
- Direction control valve allows the operation of either die clamp or die lifters.

Circuit Diagram





We also undertake the development of special purpose hydraulic systems for unique applications.

One such system has been supplied to a thermal power plant for coal transfer and conveying lines. Using this system, the hopper beneath the wagon tippler can be located / relocated to different positions to feed multiple belt conveyors.

The specialties of this systems are its completely dust-free enclosure and use of flame-proof motors to avoid possibility of fire. The use of high-quality flame-proof motors suitable to work in gas group II C ensures safe working. Also, hydraulic oil is completely protected from dust contamination for which a special dust-free enclosure for the entire system is provided. We have designed manufactured and installed complete systems comprising hydraulic cylinders, power packs, piping and control panel.

Notes



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