

# Hydraulic Cylinder

for industrial  
automation

THM SERIES

 **SERVOCOMANDI**

Brand Incorporated by

**NEXOIL**

FLUID SYSTEMS MANUFACTURING

[www.nexoil.it](http://www.nexoil.it)

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**NEXOIL** products are warranted for a period of one year from date of shipment from our plant to be free from defects in workmanship and material under correct use, normal operating conditions and proper applications as specified on product technical documents. This warranty does not extend to goods damaged, or subjected to accident, abuse, or misuse after shipment from our factory, nor to goods altered or repaired by anyone other than authorized NEXOIL representatives. This one year limited warranty is the only warranty extended by NEXOIL in connection with any sale by NEXOIL. This warranty is in lieu of all other warranties, express or implied, including warranties of merchantability and fitness for a particular purpose. An affirmation of fact or promise made on behalf of NEXOIL shall not be deemed to create an express warranty that the goods shall conform to the affirmation of promise. NEXOIL's obligation upon breach of warranty shall be limited to replacing or repairing at our

option, only at our plant free of charge, but not including installation, dismantling, reassembling or any other charge. Written permission for any warranty claim return must be first obtained from authorized NEXOIL representatives. All returns must be accompanied with a complete written explanation of claimed defects and the circumstances of operational failure. Replacement of cylinders or parts repaired under this warranty shall be warranted under the terms of this warranty for the remainder of the term of the original warranty or for a period of six months after such repair or replacement, whichever is longer. Upon expiration of the warranty, all of NEXOIL obligations hereunder shall terminate.

**In no event shall NEXOIL have any liability for payment of any consequential, incidental, indirect, special, or tort damages of any kind including, but not limited to, any loss of profits.**

**The specifications indicated in this catalogue are subject to change, without prior notice, due to our policy of continuous product development.**



**NEXOIL srl - Servocomandi Division** offers to the Fluid Power Transmission Industry a wide range of high performing Hydraulic and Pneumatic cylinders and accessories. Our cylinders are both innovative and suitable for a great deal of applications. These products are the result of the company's vast experience and has acquired us our customers total confidence, these mostly being leaders in their own industry sector. Our ability for working in collaboration with our customers, placing the most successful and functional solutions at their disposal, has cemented and strengthened the existing mutual relationship.

**NEXOIL is the ideal partner, thanks to our reliability and confidence in our company.**

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Each NEXOIL cylinder has a label with part number and description for easy identification

Please always refer to cylinder part number when ordering spare parts and seal kits

Caratteristiche	ref.	Description	Example
<b>SERIES</b>	<b>THM</b>	ISO 6020/1 cylinder 16 MPa - Chromed piston rod Honed tube	<b>THM MT4 D X - 100 - 56 - M - 0.0 - L - AP - E1</b>
<b>STANDARD MOUNTINGS</b>	<b>MF1</b> <b>MF2</b> <b>MF3</b> <b>MF4</b> <b>MP5</b> <b>MT4</b>	Head rectangular flange Cap rectangular flange Head circular flange Cap circular flange Cap spherical bearing Intermediate fixed trunnion	
<b>DUBLE ROD</b>	<b>D</b>	Include ONLY for double-rod cylinder	
<b>SPECIAL MODIFICATIONS *</b> please include a drawing	<b>X</b>	Include ONLY if required	
<b>BORE</b>	<b>-</b>	Specify in mm	
<b>PISTON ROD DIAMETER</b>	<b>-</b>	Specify in mm	
<b>ROD END STYLE</b>	<b>M</b> <b>R</b> <b>F</b>	ISO male thread Optional male thread Female thread	
<b>STROKE</b>	<b>-</b>	Specify in mm	
<b>SEALS</b>	<b>L*</b> <b>V</b>	PISTON            ROD Nitrile            Polyurethane Viton              Viton	
<b>CUSHIONINGS</b>	<b>N</b> <b>A</b> <b>P</b> <b>AP</b>	No cushioning Head end cushioning Cap end cushioning Both ends cushioning	
<b>SERIAL NO.</b>	<b>E1</b>	To be always indicated	



Specifications	
<ul style="list-style-type: none"> <li>• Heavy duty metric hydraulic cylinder</li> <li>• Nominal pressure: 160 bar</li> <li>• In accordance with CETOP RP58H, ISO 6020/1 standards</li> <li>• Security factor 4:1 at nominal pressure and with reference to min. breaking point</li> <li>• Hydraulic mineral oil - other fluids available upon request</li> <li>• Temperature range for standard seals: from -20°C to +80°C</li> </ul>	<ul style="list-style-type: none"> <li>• Construction: head and cap bolted to heavy steel flanges Cushionings: optional both ends</li> <li>• Bore sizes: 40 mm to 200 mm</li> <li>• Piston rod diameters: 22 mm to 140 mm</li> <li>• Special modifications to customer's requirements</li> </ul>

**DESIGN FEATURES****1. Piston rod**

It is manufactured from high tensile carbon alloy steel, hard chrome plated and polished to maximum surface finishing of 0,2  $\mu\text{m}$ .

**2. Rod seals**

Standard low-friction heavy duty poliurethane lip seals provide long life sealing together with high wear resistance. Standard rod seal temperature range is from  $-20^{\circ}$  to  $+80^{\circ}$ . Viton seals are also available for higher temperatures (up to  $150^{\circ}$ ). Other seals to customer's requirements.

**3. Cylinder body**

The cylinder body is made from high resistance steel, honed to 0,4 Ra finishing.

**4. Head & cap ends**

These are machined from steel and located into the cylinder body's internal diameter for added strength and precise alignment of tube and rod cartridge.

**5. Cushioning**

Optional cushionings at the head and cap end are available upon request. They provide controlled deceleration that reduces noise and shock loading and prolongs machine life. Our patented cushioning system is operative on both ends.

**6. Piston and piston seals**

The standard piston is of one-piece steel construction, and is piloted to the rod for concentricity. The standard piston seal consists of an elastomeric sealing element, two wear resistant rings, and two heavy duty anti-friction rings. Temperature range of standard piston seal is from  $-20^{\circ}$  to  $+80^{\circ}$ . Low-friction and viton seals are also available upon request. Other seals on customer's requirements.

**7. Long strokes**

When considering the use of long stroke cylinders (more than 1000 mm) the use of stop tubes is highly recommended to reduce piston and cartridge wear. For selection of stop tube in connection with cylinder stroke please refer to the following chart:

	1001	1501	2001	2501
stroke (mm)	÷	÷	÷	÷
	1500	2000	2500	3000
stop tube length (mm)	50	100	150	200

**SPECIAL MODIFICATIONS****1. Air bleeds**

Available as an option at both ends.

**2. Rod end bellow**

A rod end bellow is recommended to protect the rod surface from external contamination and dust. Additional rod length is required to accommodate the collapsed length. For further information please contact our Technical Department.

**3. Drainback**

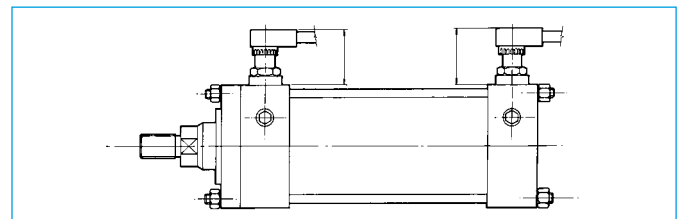
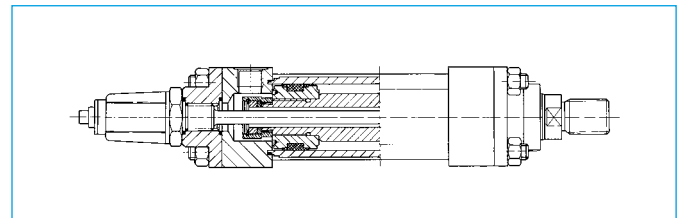
A 1/8 BSPP drainback port can be provided to drain off any accumulation of fluid. This can happen on long stroke cylinders, cylinders with constant back pressure, cylinders with in/out speed rating more than 2:1.

**4. Low-friction seals**

Their use is recommended when cylinder works with high frequencies. **They are not suitable for applications where the cylinder has to hold loads in position.**

**5. MT4 mounting**

XV dimension must be included between XV min and XV max + stroke, and must always be specified while ordering a cylinder with MT4 mounting. If the required cylinder stroke is lesser than the min. XV dimension outlined in the chart, spacers will be eventually used (please consider them in the cylinder overall length).

**6. Linear position transducers and proximity sensors available upon request**

**For any further information please do not hesitate to contact our Technical Department.**

**MOUNTING INFORMATION**

• **Flange mounted cylinders**

This type of mounting is suitable for use on straight line force transfer applications. Four mounting styles are available, with flanges at the head (MF1/MF3) or cap (MF2/MF4). Cap mounts are most appropriate for compression-type applications (push), MF1/MF3 should be used for tension-type applications (pull).

• **Clevis mounted cylinders**

Cylinders with this type of mounting, which absorb forces on their centreline, should be used for applications where the item to be moved travels in a curved path. They can be used for tension (pull) or compression (push) applications. The spherical bearing mounting MP5 is highly recommended in those applications where the piston rod will travel in a path either side of the true plane of motion.

• **Trunnion mounted cylinders**

Cylinders with this type of mounting are designed to absorb forces on their centre-lines. They are suitable for tension (pull) or compression (push) applications, and may be used where the machine member to be moved travels in a curved path in a single plane. Trunnion pins have been designed for shear loads only, and should be subject to the minimum bending stress.

**ROD END STYLES**

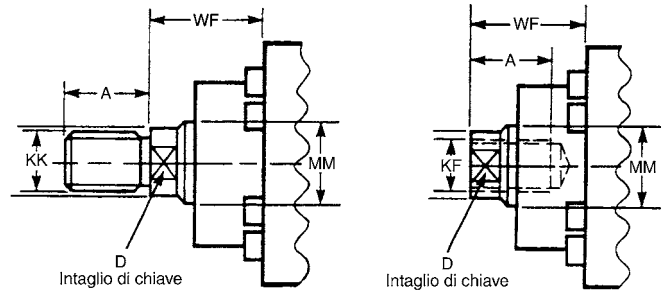
THM series cylinders are available in their standard execution with both male and female rod end, according to the following dimension chart. Non-standard rod end styles are available on customer's requirements too. A drawing with all dimensional details should be attached to the order. Please contact our Technical Department for further information.

**M and R rod end style**

A choice of two different rod end male threads is available on each bore size. See the following chart for more details.

**F rod end style**

A female thread is available on each piston rod diameter.



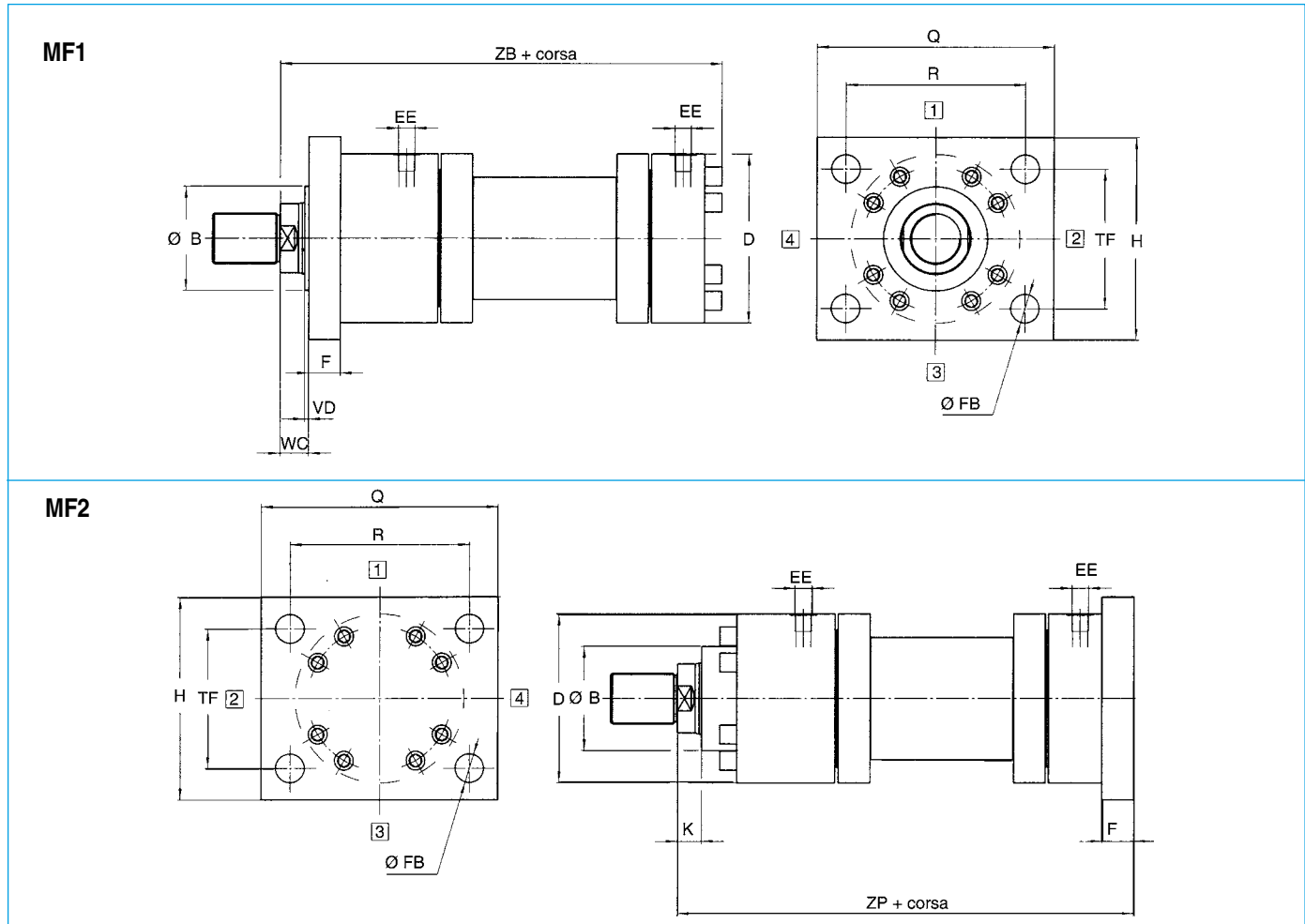
Nr. 4 spanner holes may be used instead of wrench flats on 90 mm piston rod diameter and larger.

**Rod end dimensions**

Bore Ø	Rod mm Ø	M style		R style		F style		D	WF
		KK	A	KK	A	KF	A		
40	22	M16x1.5	22	-	-	M16x1.5	22	18	32
	28	M20x1.5	28	M16x1.5	22	M20x1.5	28		
50	28	M20x1.5	28	-	-	M20x1.5	28	22	38
	36	M27x2	36	M20x1.5	28	M27x2	36		
63	36	M27x2	36	-	-	M27x2	36	30	45
	45	M33x2	45	M27x2	36	M33x2	45		
80	45	M33x2	45	-	-	M33x2	45	39	54
	56	M42x2	56	M33x2	45	M42x2	56		
100	56	M42x2	56	-	-	M42x2	56	48	57
	70	M48x2	63	M42x2	56	M48x2	63		
125	70	M48x2	63	-	-	M48x2	63	62	60
	90	M64x3	85	M48x2	63	M64x3	85		
160	90	M64x3	85	-	-	M64x3	85	80	66
	110	M80x3	95	M64x3	85	M80x3	95		
200	110	M80x3	95	-	-	M80x3	95	100	75
	140	M100x3	112	M80x3	95	M100x3	112		



**Rectangular flange mountings**



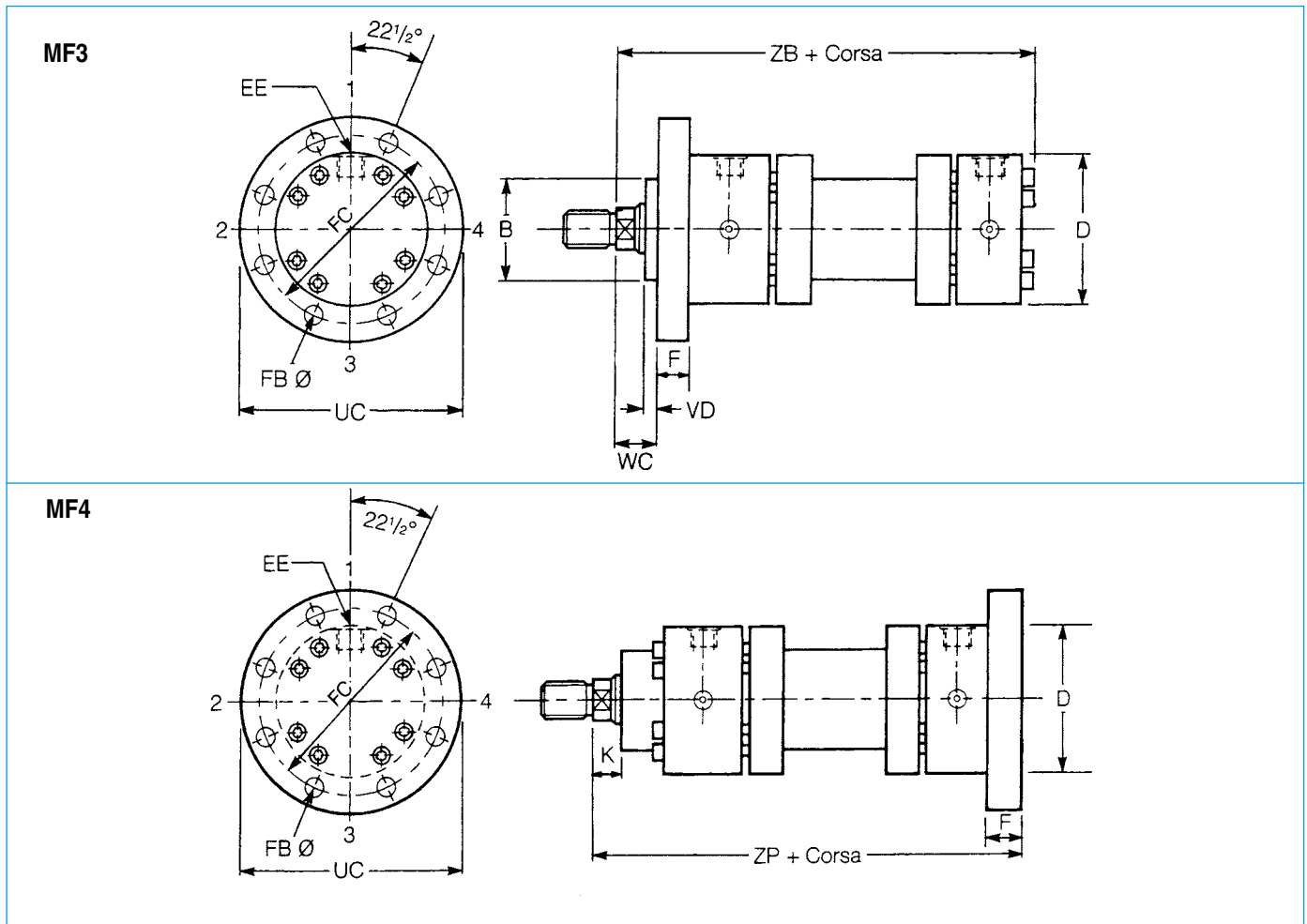
**Dimensions - MF1 & MF2**

Bore Ø	Rod MM Ø	B f8	D max	EE BSP/G	F	FB h13	K	TF	VD min	WC	R	+ Stroke			
												H	Q	ZB	ZP
40	22 28	50	78	1/2"	16	9	13	98	3	16	40,6	120	80	198	206
50	28 36	60	95	1/2"	20	11	14	116,4	4	18	48,2	140	95	213	225
63	36 45	70	116	3/4"	25	13.5	16	134	4	20	55,5	160	115	234	249
80	45 56	85	130	3/4"	32	17.5	18	152,5	4	22	65,1	185	130	260	282
100	56 70	106	158	1"	32	22	20	184,8	5	25	76,5	225	160	310	332
125	70 90	132	192	1"	32	22	23	217,1	5	28	90,2	260	190	335	357

All dimensions are in millimeters unless otherwise stated.



Circular flange mountings



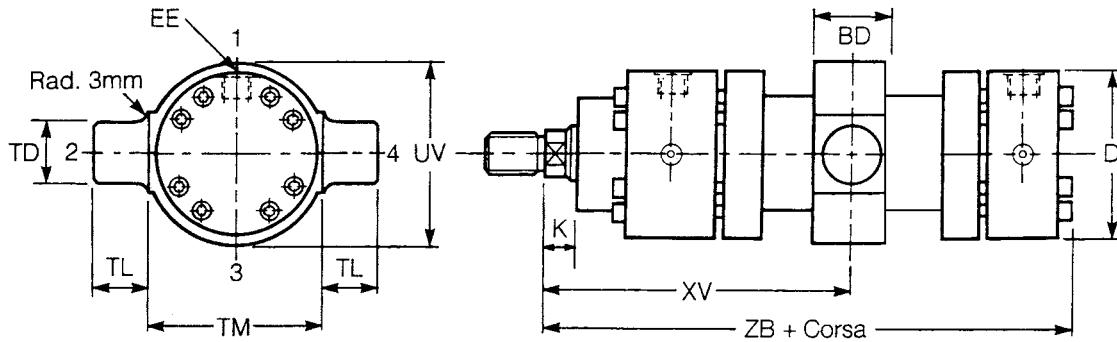
THM

Dimensions - MF3 & MF4

Bore Ø	Rod MM Ø	B f8	D max	EE BSP/G	F	FB h13	FC Js13	K	UC max	VD min	WC	+ Stroke	
												ZB	ZP
40	22 28	50	78	1/2"	16	9	106	13	125	3	16	198	206
50	28 36	60	95	1/2"	20	11	126	14	148	4	18	213	225
63	36 45	70	116	3/4"	25	13.5	145	16	170	4	20	234	249
80	45 56	85	130	3/4"	32	17.5	165	18	195	4	22	260	282
100	56 70	106	158	1"	32	22	200	20	238	5	25	310	332
125	70 90	132	192	1"	32	22	235	23	272	5	28	335	357
160	90 110	160	232	1.1/4"	36	22	280	25	316	5	30	380	406
200	110 140	200	285	1.1/4"	40	26	340	30	385	5	35	480	490

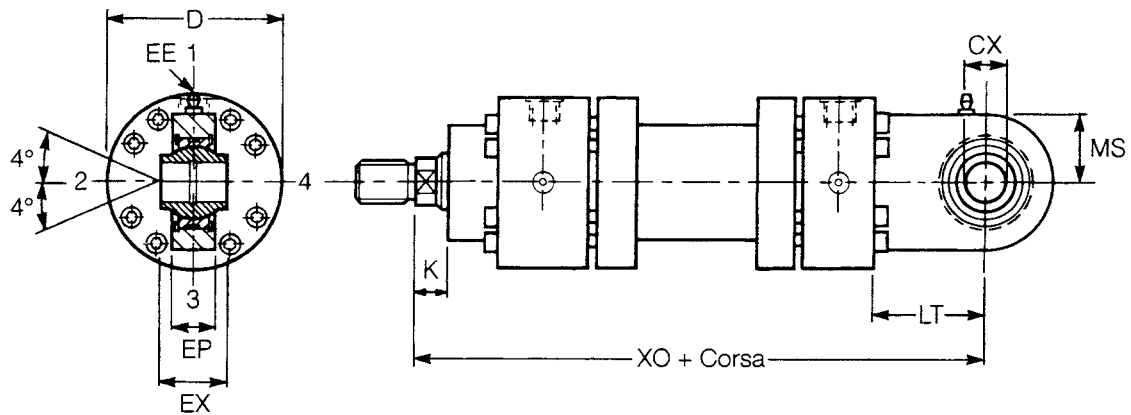
All dimensions are in millimetres unless otherwise stated.

**MT4**



XV dimension to be specified by customer. Where minimum dimension is unacceptable, please contact our Technical Department.

**MP5**



**Dimensions - MT4 & MP5**

Bore Ø	Rod MM Ø	EP	CX H7	D max	EE BSP/G	EX h12	K	LT	MS	+ stroke		BD max	TD f8	TL Js15	TM h12	UV max	Stroke min. MT4	XV min	+ stroke	
										XO	XO								XV max	ZB max
40	22 28	18	20	78	1/2"	20	13	41	25	231	36	20	16	90	86	100	170	70	198	
50	28 36	22	25	95	1/2"	25	14	52	32	257	45	25	20	105	100	125	190	65	213	
63	36 45	27	32	116	3/4"	32	16	65	40	289	55	32	25	120	126	130	205	75	234	
80	45 56	35	40	130	3/4"	40	18	82	50	332	65	40	32	135	145	145	230	85	260	
100	56 70	40	50	158	1"	50	20	95	63	395	80	50	40	160	175	165	270	105	310	
125	70 90	52	63	192	1"	63	23	103	71	428	100	63	50	195	215	190	300	110	335	
160	90 110	66	80	232	1.1/4"	80	25	135	90	505	110	80	63	240	250	210	340	130	380	
200	110 140	84	100	285	1.1/4"	100	30	165	112	615	140	100	80	295	390	240	420	180	480	

All dimensions are in millimetres unless otherwise stated.

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FLUID SYSTEMS MANUFACTURING

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