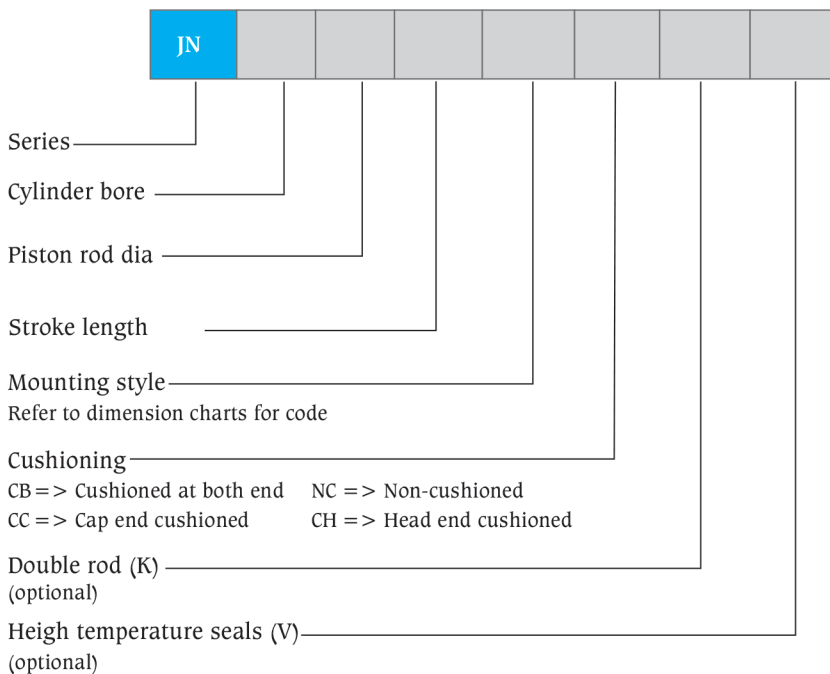




Cylinder selection guide

Operating pressure at kg/sq. cm				Theoretical forces (at mechanical efficiency = 100%)							
				50		80		100		160	
Piston dia mm	Rod dia mm	Piston area sq. cm	Rod area sq. cm	Push kgf	Pull kgf	Push kgf	Pull kgf	Push kgf	Pull kgf	Push kgf	Pull kgf
25	12	.91	1.13	245.47	188.91	392.75	302.26	490.94	377.83	785.5	604.52
	18		2.55		118.22		189.15		236.44		378.30
32	14	8.04	1.54	402.18	325.20	643.48	520.32	804.35	650.39	1286.96	1040.63
	22		3.80		212.09		339.34		424.17		678.67
40	18	12.57	2.55	628.4	501.15	1005.44	801.84	1256.8	1002.30	2010.88	1603.68
	28		6.16		320.48		512.77		640.97		1025.55
50	22	19.64	3.80	981.88	791.78	1571	1266.85	1963.75	1583.57	3142	2533.71
	36		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
	45		15.91		763.51		1221.61		1527.01		2443.22
80	36	50.27	10.18	2513.6	2004.60	4021.76	3207.35	5027.2	4009.19	8043.52	6414.71
	56		24.63		1281.94		2051.10		2563.87		4102.20
100	45	78.55	15.91	3927.5	3132.18	6284	5011.49	7855	6264.36	12568	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	19637.5	15696.18
	90		63.63		2955.44		4728.71		5910.89		9457.42
160	70	201.09	38.49	10054.4	8129.93	16087.04	13007.88	20108.8	16259.85	32174.08	26015.76
	110		95.05		5302.13		8483.4		10604.25		16966.8
200	90	314.2	63.63	15710	12528.73	25136	20045.96	31420	25057.45	50272	40091.92
	140		153.96		8012.1		12819.36		16024.2		25638.72

Ordering details of JN Series hydraulic cylinders



Example

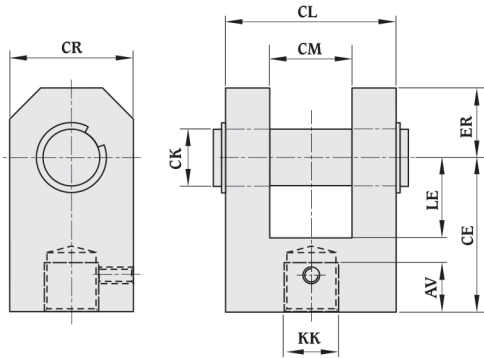
JN series hydraulic cylinder with bore 50mm, piston rod dia 22mm, stroke 100mm, mounting head rectangular and cushion at both ends will be specified as

JN	50	22	100	ME5	CB	-	-
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All dimensions are in millimeters unless otherwise stated.

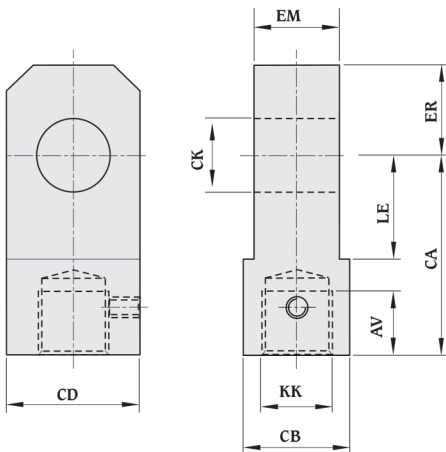
Accessories

Piston rod clevis



Model No.	Thread KK	AV	CE	CK Ø	CL	CM	CR	ER	LE
RC-H160-M10x1.25	M10x1.25	14	32	10	26	12	20	12	14
RC-H160-M12x1.25	M12x1.25	16	36	12	34	16	32	17	19
RC-H160-M14x1.5	M14x1.5	18	38	14	42	20	32	17	19
RC-H160-M16x1.5	M16x1.5	22	54	20	62	30	50	29	32
RC-H160-M20x1.5	M20x1.5	28	60	20	62	30	50	29	32
RC-H160-M27x2	M27x2	36	75	28	83	40	60	34	39
RC-H160-M33x2	M33x2	45	99	36	103	50	80	50	54
RC-H160-M42x2	M42x2	56	113	45	123	60	102	53	57
RC-H160-M48x2	M48x2	63	126	56	143	70	112	59	63
RC-H160-M64x3	M64x3	85	168	70	163	80	146	78	83

Piston rod plain rod eye



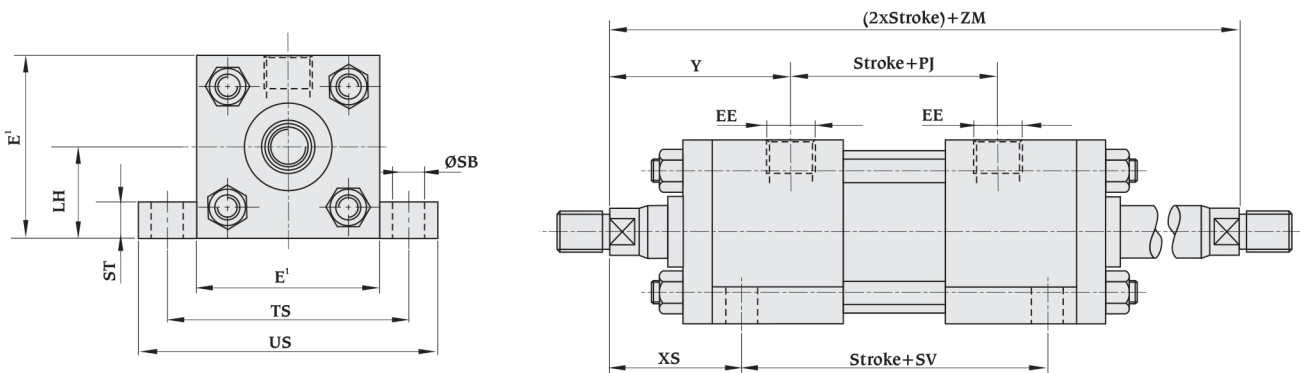
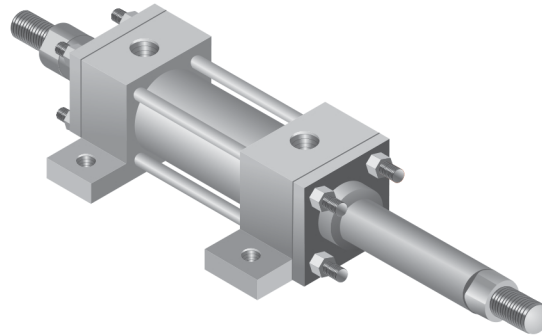
Model No.	Thread KK	AW	CA	CB	CD	CK Ø	EM	ER	LE
PRE-H160-M10x1.25	M10x1.25	14	32	18	18	10	12	12	13
PRE-H160-M12x1.25	M12x1.25	16	36	22	22	12	16	17	19
PRE-H160-M14x1.5	M14x1.5	18	38	25	25	14	20	17	19
PRE-H160-M16x1.5	M16x1.5	22	54	30	35	20	300	29	32
PRE-H160-M20x1.5	M20x1.5	28	60	30	40	20	30	29	32
PRE-H160-M27x2	M27x2	36	75	40	50	28	40	34	39
PRE-H160-M33x2	M33x2	45	99	50	70	36	50	50	54
PRE-H160-M42x2	M42x2	56	113	65	100	45	60	53	57
PRE-H160-M48x2	M48x2	63	126	90	112	56	70	59	63
PRE-H160-M64x3	M64x3	85	168	110	140	70	80	78	83

All dimensions are in millimeters unless otherwise stated.

Double rod cylinders

Available mounting styles

MX3, MS2 & Mt1

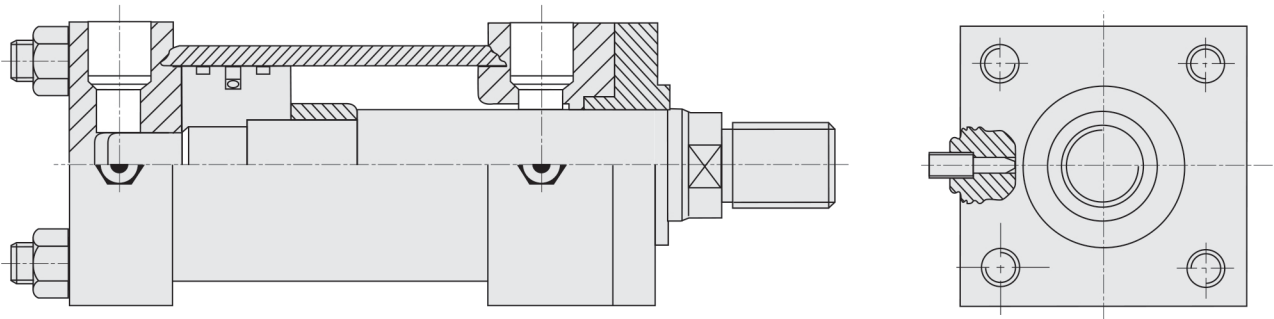


■ Head depth increased by 5mm to accommodate port on 25mm and 32mm bore cylinder-See page 22

Dimensions – ME5, ME6 & MS2. Also see rod end dimensions-page 22

Bore Ø	E	EE BSP	LH	SB	ST	TS	US	XS	Y	Stroke+		
										PJ	SV	ZM
25	40 ¹	1/4"	19	6.5	8.5	54	72	33	50	53	88	154
32	45 ¹	1/4"	22	9	12.5	63	84	45	60	56	88	178
40	63	3/8"	31	11	12.5	83	103	45	62	73	105	195
50	75	1/2"	37	14	19	102	127	54	67	74	99	207
63	90	1/2"	44	18	26	124	161	65	71	80	93	223
80	115	3/4"	57	18	26	149	186	68	77	93	110	246
100	130	3/4"	63	26	32	172	216	79	82	101	107	265
125	165	1"	82	26	32	210	254	79	86	117	131	289
160	205	1"	101	33	38	260	318	86	86	130	130	302
200	245	1-1/4"	122	39	44	311	381	92	98	165	172	356

All dimensions are in millimeters unless otherwise stated.



Design features and benefits

Piston rods

Made from medium carbon Steel. Precision ground, hard chrome-plated and polished to ensure smooth, dent & rust resistant surface for best sealing and long life.

Barrel

Made from cold drawn seamless Steel tubes. Honed to 0.4 micron and higher surface finish to minimize internal friction and longer seal life and performance.

Cover plates

Fine machined from Steel and constructed with a sturdy design to withstand high pressure loads.

Piston rod gland

Made from Turcite T47 material. Non-metallic wear rings are used in the cylinder head for precisely guiding the piston rod of the working cylinder and absorbing lateral forces which occur. At the same time, metallic contact between the sliding parts of the cylinder, e.g. piston rod and cylinder head must be prevented. Non-metallic wear rings offer major benefits compared to metallic guides.

Tie rods

Made from high tensile Steel rods tightened with hexagonal nuts for easy maintenance.

Cushioning

Self-aligning cushioning bush ensures alignment of the rod movement inside the cushioning chamber, providing accurate damping action at the end of stroke.

Cushioning adjustment

For fine adjustment of cushioning movement.

Piston seal

Provided with low friction single piston seal design for no stick-slip effect in rotated two wear strips. This design provides smooth operation, long bearing life and high load carrying capacity.

Rod seal

Polyurethane U-cup seal is used which has double lip design for good sealing effect & maximum flexibility.

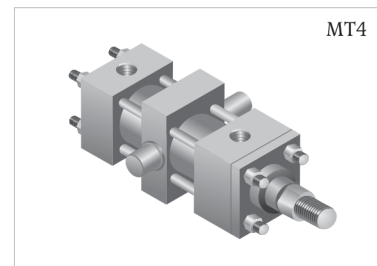
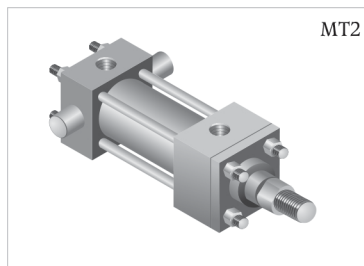
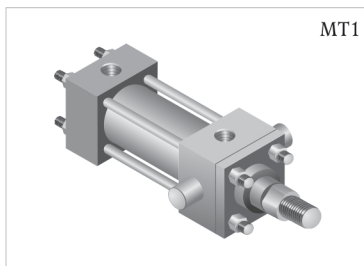
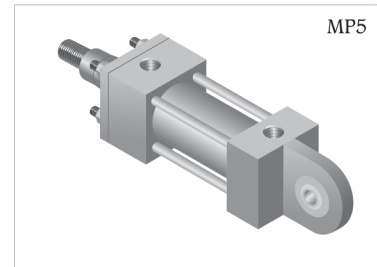
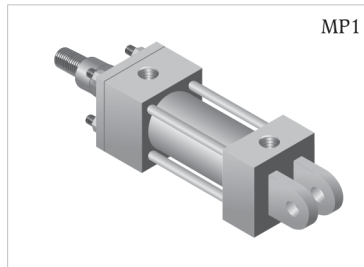
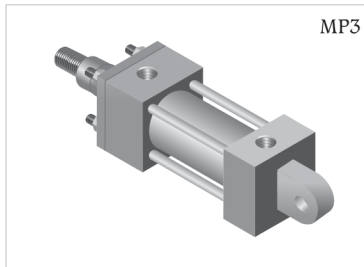
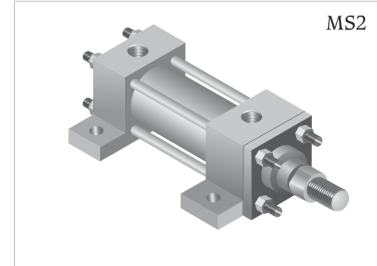
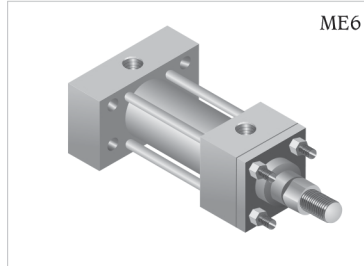
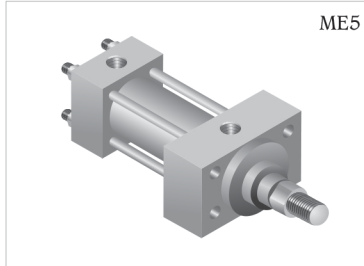
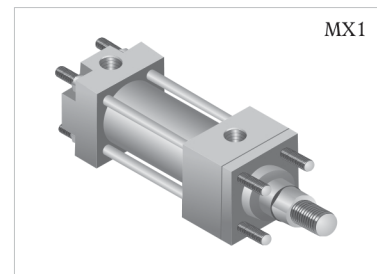
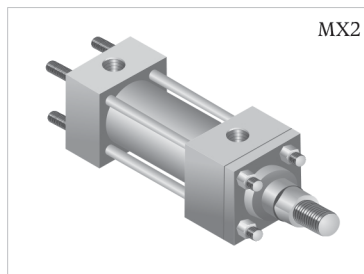
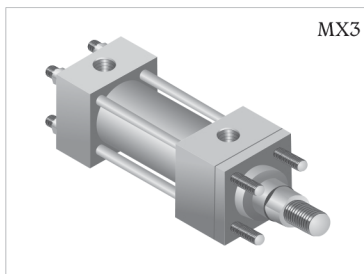
Wiper seal

The wiper is a double working nitrile wiper seal. The wiper lips are designed to wipe off dust and provide light sealing. It has advantage of radial tension to wipe off particles, dust and water.

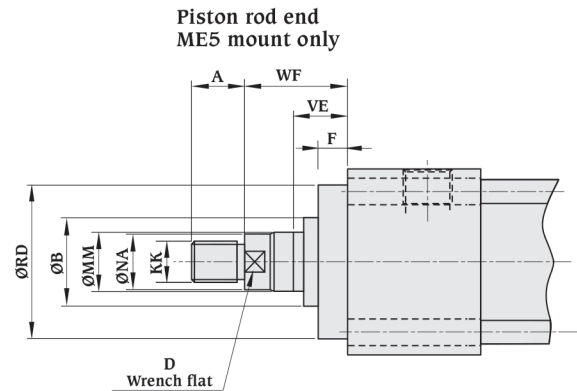
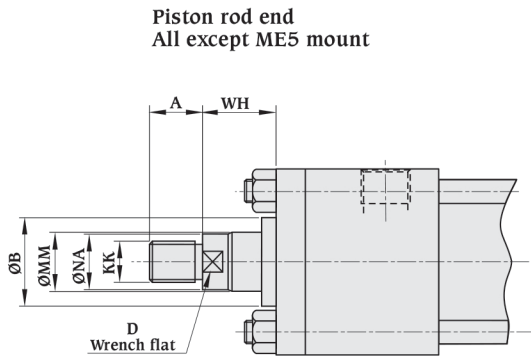
Features and Specifications

- Interchangeable mountings
- 12 Standard mounting styles
- Provision for smaller as well as bigger rod diameter for each bore size
- Wide range of mounting accessories
- Bore sizes - 25mm to 200mm
- Available in any practical stroke length
- Maximum working pressure 160 bar
- Piston rods - 12mm to 140mm
- Single and double rod design
- Cushioning available from 63mm bore onwards
- Cushions available at either ends
- Temperature range : - 20°C to +80°C (standard)
- 20°C to +150°C (optional)
- Seal types to suit a wide variety of applications
- Standard fluid : Mineral oil, DIN 51524 (HL, HLP)

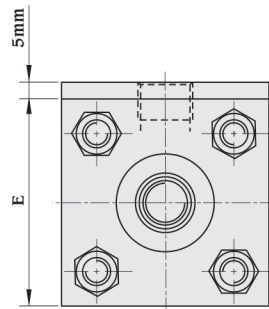
Available Mountings



Piston rod end data and threads



25 & 32mm bore cylinders



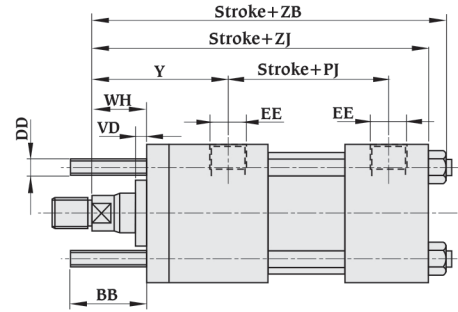
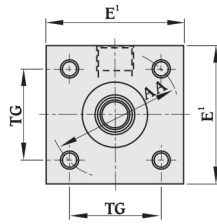
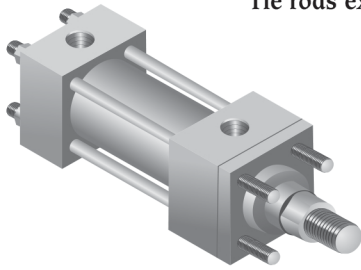
5mm extra height applies to port face at head end only

Piston rod end dimensions

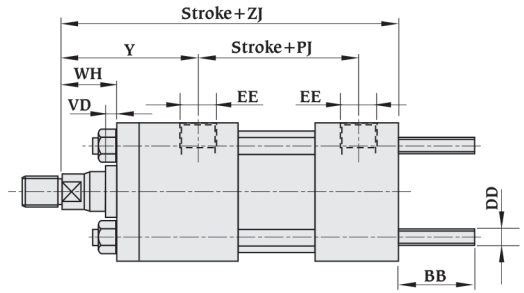
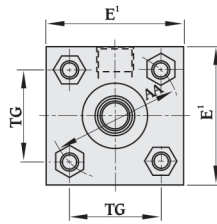
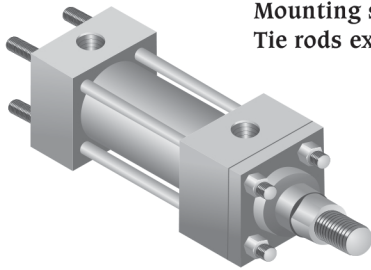
Bore dia	Rod dia mm	KK	A	B f9	D	NA	WH	RD f8	ME5 mount only		
									VE	WF	F
25	12	M10x1.25	14	24	10	11	15	38	16	25	10
	18	M14x1.5	18	30	15	17		38			
32	14	M12x1.25	16	26	12	13	25	42	22	35	10
	22	M16x1.5	22	34	18	21		42			
40	18	M14x1.5	18	30	15	17	25	62	22	35	10
	28	M20x1.5	28	42	22	26		62			
50	22	M16x1.5	22	34	18	21	25	74	25	41	16
	36	M27x2	36	50	30	34		74			
63	28	M20x1.5	28	42	22	26	32	75	29	48	16
	45	M33x2	45	60	39	43		88			
80	36	M27x2	36	50	30	34	31	82	29	51	20
	56	M42x2	56	72	48	54		105			
100	45	M33x2	45	60	39	43	35	92	32	57	22
	70	M48x2	63	88	62	68		125			
125	56	M42x2	56	72	48	54	35	105	32	57	22
	90	M64x3	85	108	80	88		150			
160	70	M48x2	63	88	62	68	32	125	32	57	25
	110	M80x3	95	133	100	108		170			
200	90	M64x3	85	108	80	88	32	150	32	57	25
	140	M100x3	112	163	128	138		210			

All dimensions are in millimeters unless otherwise stated.

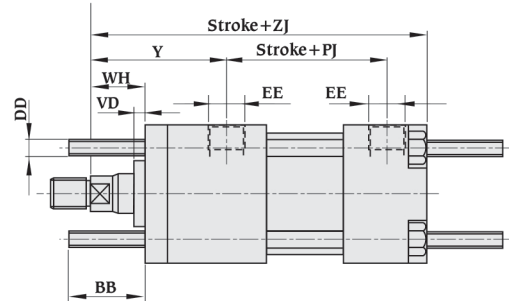
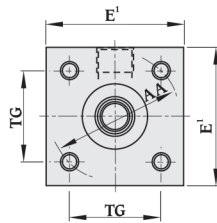
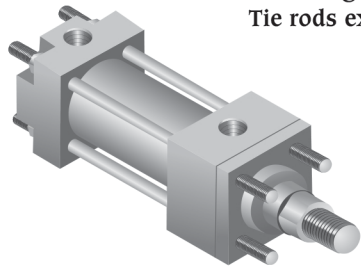
Mounting style
Tie rods extended head end (MX3)



Mounting style
Tie rods extended cap end (MX2)



Mounting style
Tie rods extended both ends (MX1)



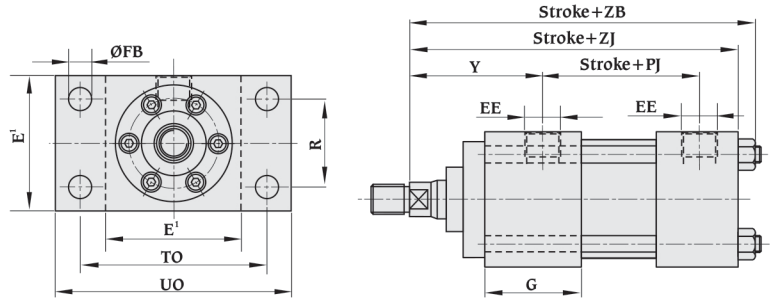
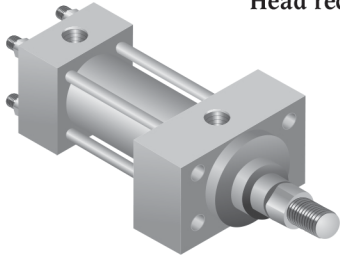
■ Head depth increased by 5mm to accommodate port on 25mm and 32mm bore cylinder-see page 22

Dimensions - MX3, MX2 & MX1. Also see rod end dimensions-page 22

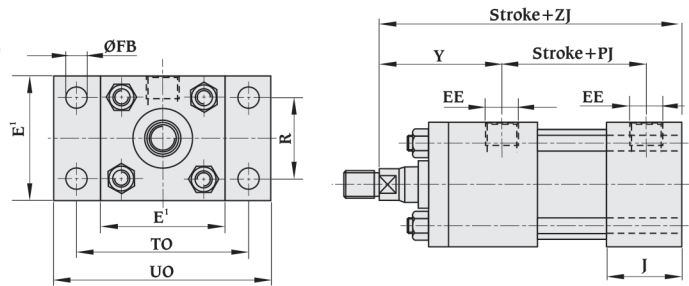
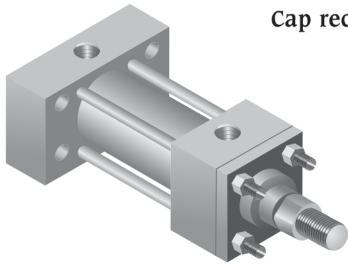
Bore Ø	AA	BB	DD	E	EE BSP	TG	WH	VD	Y	Stroke+		
										PJ	ZJ	ZB
25	40	19	M5x0.8	40 ¹	1/4"	28.3	15	5	50	53	114	121
32	47	24	M6x1	45 ¹	1/4"	33.2	25	5	60	56	128	137
40	59	35	M8x1	63	3/8"	41.7	25	5	62	73	153	166
50	74	46	M12x1.25	75	1/2"	52.3	25	5	67	74	159	176
63	91	46	M12x1.25	90	1/2"	64.3	32	5	71	80	168	185
80	117	59	M16x1.5	115	3/4"	82.7	31	5	77	93	190	212
100	137	59	M16x1.5	130	3/4"	96.9	35	5	82	101	203	225
125	178	81	M22x1.5	165	1"	125.9	35	5	86	117	232	260
160	219	92	M27x2	205	1"	154.9	32	5	86	130	245	279
200	269	115	M30x2	245	1-1/4"	190.2	32	5	98	165	299	336

All dimensions are in millimeters unless otherwise stated.

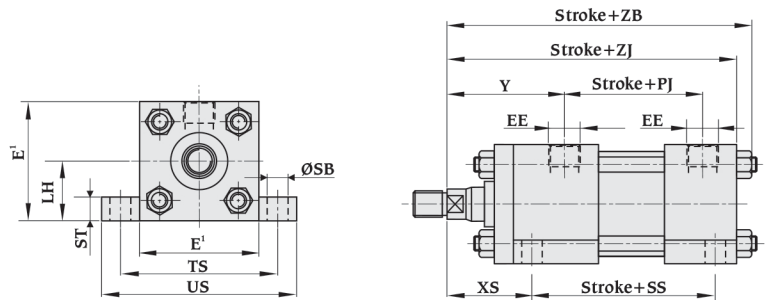
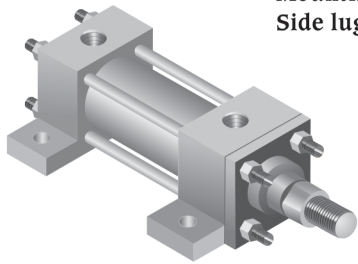
Mounting style
Head rectangular flange (ME5)



Mounting style
Cap rectangular flange (ME6)



Mounting style
Side lugs (MS2)



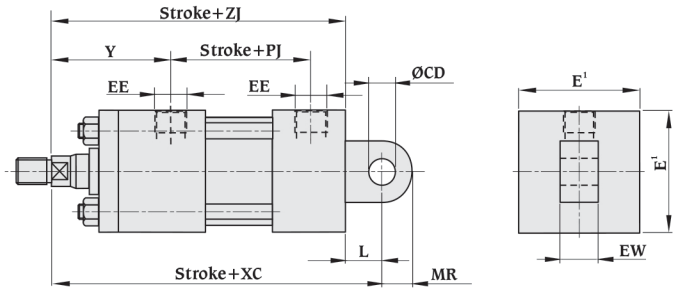
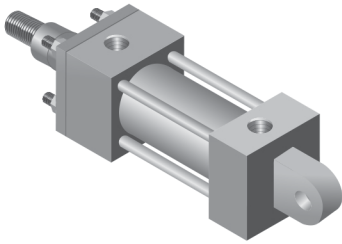
■ Head depth increased by 5mm to accommodate port on 25mm and 32mm bore cylinder-see page 22

Dimensions - ME5, ME6 & MS2. Also see rod end dimensions-page 22

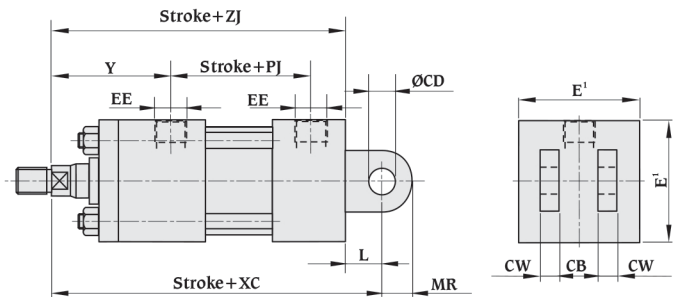
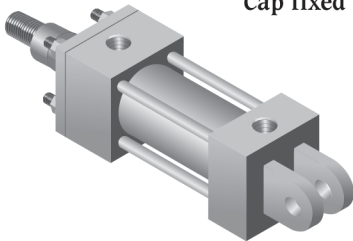
Bore Ø	E	EE BSP	FB	G	J	LH	R	SB	ST	TO	TS	UO	US	XS	Y	Stroke+			
																PJ	SS	ZJ	ZB
25	40 ¹	1/4"	5.5	36	22	19	27	6.5	8.5	51	54	65	72	33	50	53	72	114	121
32	45 ¹	1/4"	6.5	36	23	22	33	9	12.5	58	63	70	84	45	60	56	72	128	137
40	63	3/8"	11	41	32	31	41	11	12.5	87	83	110	103	45	62	73	97	153	166
50	75	1/2"	14	42	34	37	52	14	19	105	102	130	127	54	67	74	91	159	176
63	90	1/2"	14	40	34	44	65	18	26	117	124	145	161	65	71	80	85	168	185
80	115	3/4"	18	46	41	57	83	18	26	149	149	180	186	68	77	93	104	190	212
100	130	3/4"	18	47	42	63	97	26	32	162	172	200	216	79	82	101	101	203	225
125	165	1"	22	55	55	82	126	26	32	208	210	250	254	79	86	117	130	232	260
160	205	1"	26	57	57	101	155	33	38	253	260	300	318	86	86	130	129	245	279
200	245	1-1/4"	33	76	73	122	190	39	44	300	311	360	381	92	98	165	171	299	336

All dimensions are in millimeters unless otherwise stated.

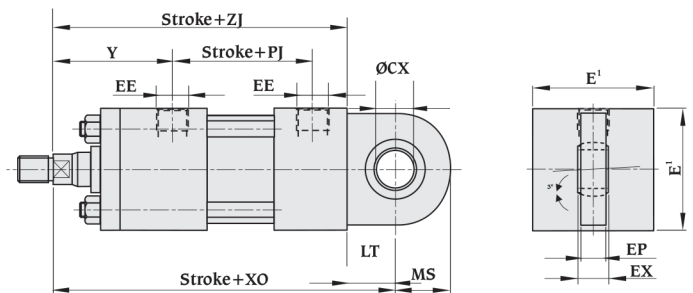
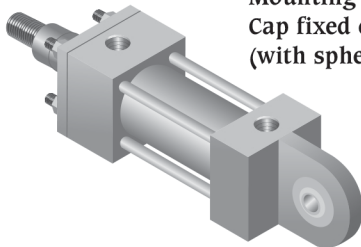
Mounting style
Cap fixed eye (MP3)



Mounting style
Cap fixed clevis (MP1)



Mounting style
Cap fixed eye
(with spherical bearing) (MP5)



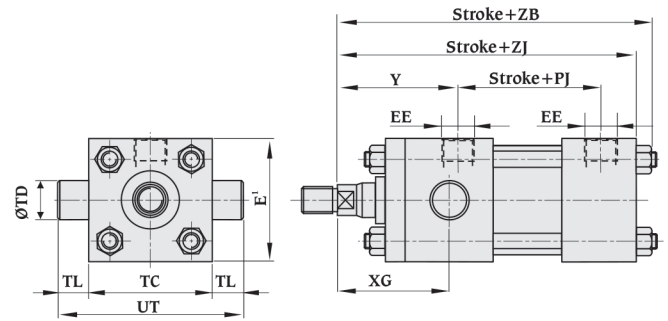
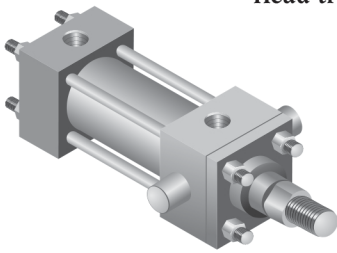
■ Head depth increased by 5mm to accommodate port on 25mm and 32mm bore cylinder-see page 22

Dimensions – MP3, MP1 & MP5. Also see rod end dimensions-page 22

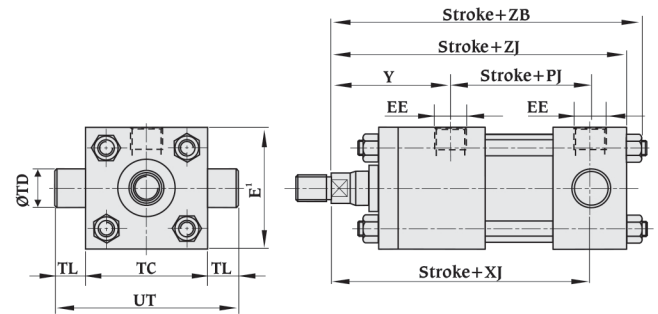
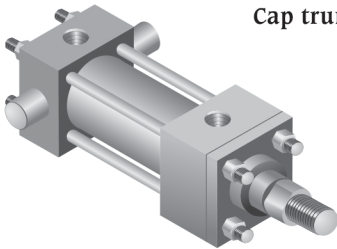
Bore Ø	CB	CD	CW	CX	E	EE BSP	EP	EW	EX	L	LT	MR	MS	Y	Stroke+			
															PJ	XC	XO	ZJ
25	12	10	6	12	40 ¹	1/4"	8	12	10	13	16	12	20	50	53	127	130	114
32	16	12	8	16	45 ¹	1/4"	11	16	14	19	20	17	22.5	60	56	147	148	128
40	20	14	10	20	63	3/8"	13	20	16	19	25	17	29	62	73	172	178	153
50	30	20	15	25	75	1/2"	17	30	20	32	31	29	33	67	74	191	190	159
63	30	20	15	30	90	1/2"	19	30	22	32	38	29	40	71	80	200	206	168
80	40	28	20	40	115	3/4"	23	40	28	39	48	34	50	77	93	229	238	190
100	50	36	25	50	130	3/4"	30	50	35	54	58	50	62	82	101	257	261	203
125	60	45	30	60	165	1"	38	60	44	57	72	53	80	86	117	289	304	232
160	70	56	35	80	205	1"	47	70	55	63	92	59	100	86	130	308	337	245299
200	80	70	40	100	245	1-1/4"	57	80	70	82	116	78	120	98	165	381	415	

All dimensions are in millimeters unless otherwise stated.

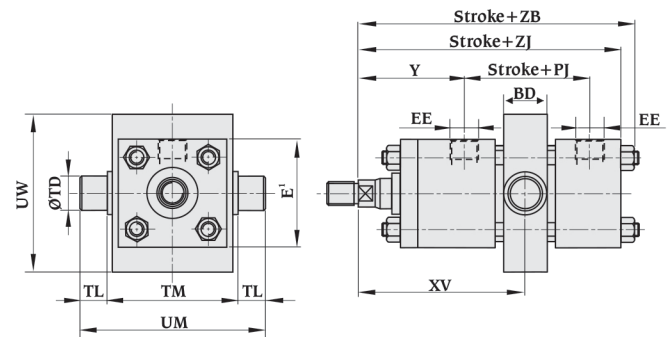
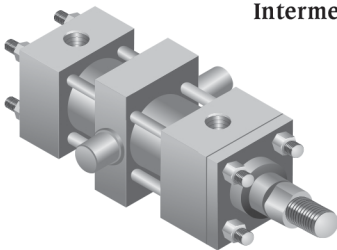
Mounting style
Head trunnion (MT1)



Mounting style
Cap trunnion (MT2)



Mounting style
Intermediate fixed trunnion (MT4)



■ Head depth increased by 5mm to accommodate port on 25mm and 32mm bore cylinder-see page 22

Dimensions – MT1, MT2 & MT4. Also see rod end dimensions-page 22

Bore Ø	BD	E	EE BSP	TC	TD f8	TL	TM	UM	UT	UW	XG ±2	Y	Stroke+				
													PJ	XJ ±1.5	XV ±2	ZJ	ZB
25	20	40 ¹	1/4"	38	12	10	48	68	58	63	44	50	53	101	Dimensions to be specified by customer	114	121
32	25	45 ¹	1/4"	44	16	12	55	79	68	75	54	60	56	115		128	137
40	30	63	3/8"	63	20	16	76	108	95	92	57	62	73	134		153	166
50	40	75	1/2"	76	25	20	89	129	116	112	64	67	74	140		159	176
63	40	90	1/2"	89	32	25	100	150	139	126	70	71	80	149		168	185
80	50	115	3/4"	114	40	32	127	191	178	160	76	77	93	168		190	212
100	60	130	3/4"	127	50	40	140	220	207	180	71	82	101	187		203	225
125	73	165	1"	165	63	50	178	278	265	215	75	86	117	209		232	260
160	90	205	1"	203	80	63	215	341	329	260	75	86	130	230		245	279
200	110	245	1-1/4"	241	100	80	279	439	401	355	85	98	165	276		299	336

All dimensions are in millimeters unless otherwise stated.