

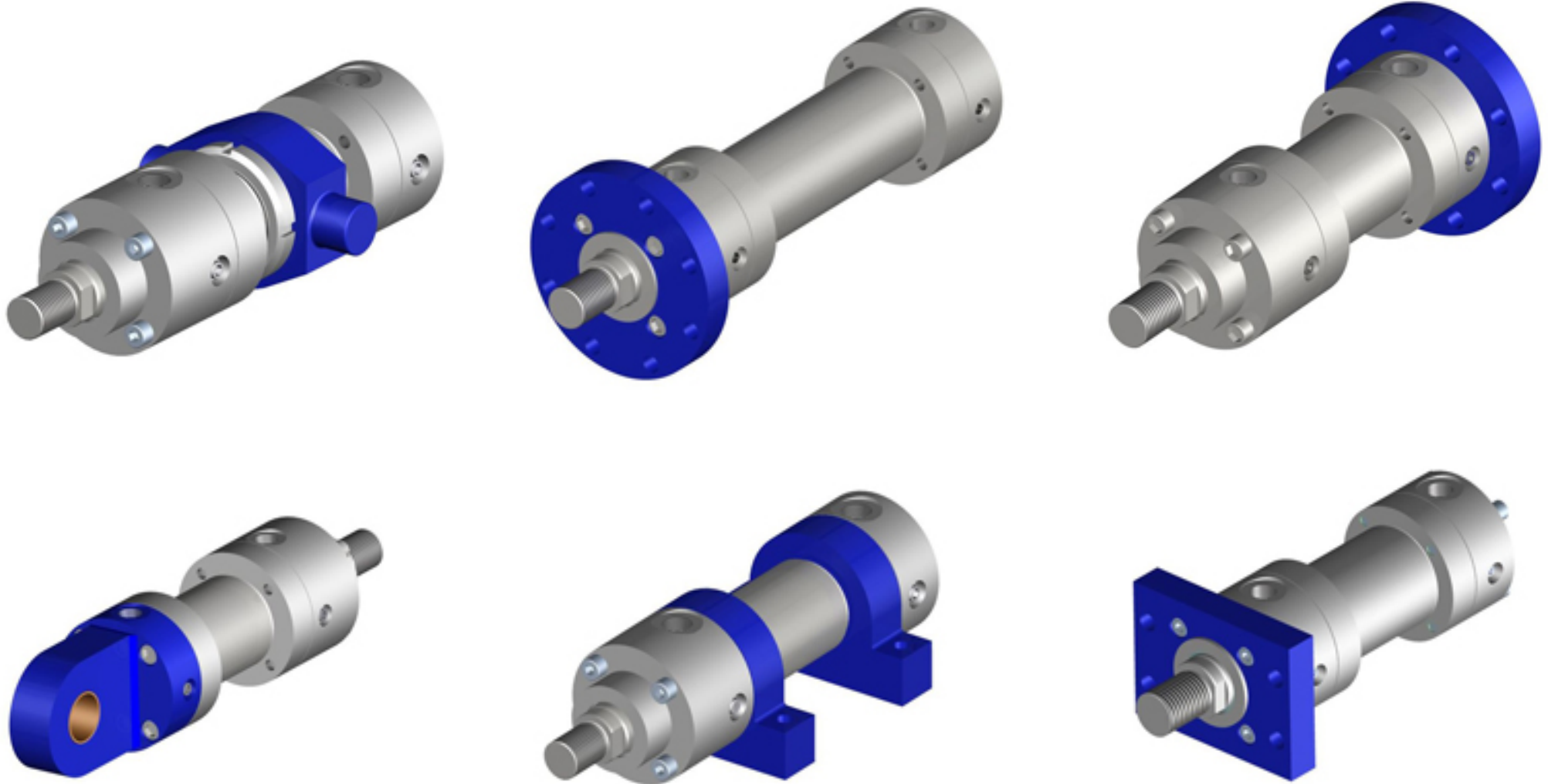
HM Series

ISO 6022 hydraulic cylinders - 250bar

MACRODYNE

Version 3.50 , 18.10.2021

www.macrodyne.cn



As the leader in the design and manufacture of Mill-Type cylinders, **HM Series** cylinders are designed to meet the requirements of ISO 6022.

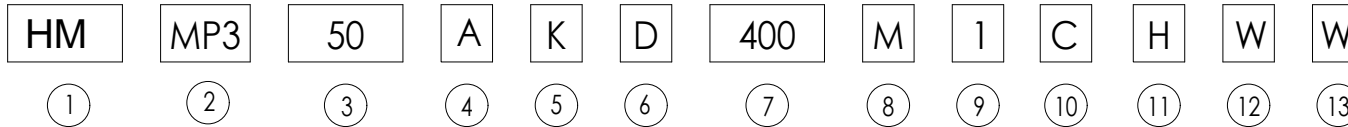
- 1) ISO 6022 mounting interchangeable
- 2) 6 standard mounting styles
- 3) Up to 2 rod sizes per bore
- 4) Up to 2 male and 2 female rod threads per bore
- 5) Bore sizes-50mm to 500mm
- 6) Piston rods-32mm to 360mm
- 7) Cushions available at either end
- 8) Temperature Range-20° to 300 ° C depending on seal type
- 9) Seal types to suit a wide variety of operating environments

The ISO 6022 hydraulic cylinders are designed for services in steel mills and in other arduous applications where a rugged, dependable cylinder is required. In addition to the standard cylinders features in this catalogue, FHM cylinders can be designed and manufactured to meet individual customer requirements. Our engineers will be pleased to discuss and advise on unique designs to meet specific applications.



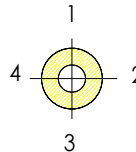
**FOR MORE INFORMATION, PLEASE CONSULT FACTORY FOR AVAILABILITY
AND CAPABILITY.**

Hydraulic Cylinder How to Order



Item	Name	Description	Mark					
①	Cylinder Code	HM : ISO 6022(DIN 24 333) HG : ISO 6022(DIN 24 333) (DOUBLE ROD CYLINDER)	Note:(6)					
②	Mounting Style	MP3: Plain rear clevis mounting MP5: Self-aligning rear clevis mounting MF3: Round front flange mounting MF4: Round rear flange mounting MT4: Trunnion mounting MS2: Foot mounting			⑤	Seal Version		
③	Cylinder Bore(mm)	Piston Ø (50~500mm)			⑥	Cushion Style		
④	Design Principle	A: Head and rear flanged			⑦	Stroke Length(mm)		
							<p>Suitable for mineral oil to DIN 51 524 HL, HLP and HFA</p> <p>M: Standard seal system T: Servo quality/reduced friction A: Chevron seal kits K: Standard seal system for ceramic</p> <p>Suitable for phosphate ester HFD-R</p> <p>S: Servo quality/reduced friction B: Chevron seal kits C: Standard seal system for ceramic</p> <p>U: Without D: On both ends ,self-regulating E: On both ends, adjustable</p>	Note:(2)
								Note:(5)

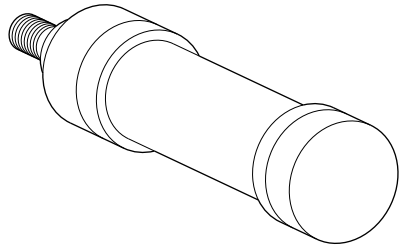
Hydraulic Cylinder How to Order

Item	Name	Description	Mark
8	Connection Port /Version	B: Pipe thread to ISO 228/1 M: Metric ISO thread	
9	Connection Ports / Position At Cylinder Head And Rear	1,2,3,4  View to piston rod	
10	Piston Rod Version	C: Hard chromium-plated H: Hardened and hard chromium-plated N: Nickel plated and hard chromium-plated K: Ceramax,ceramic coating (only with seal version K or C)	Note:(2) Note:(1)
11	Piston Rod End	H: Thread for self-aligning clevis CGKD F: With self-aligning clevis CGKD mounted	

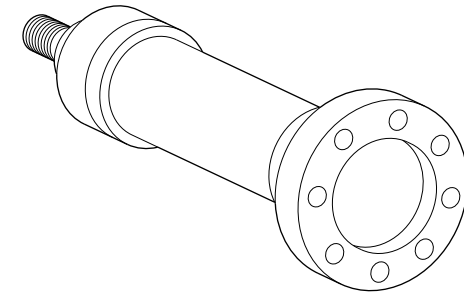
12	Option 1	A: Minimes fitting on both ends T: Position measuring system (magnetostrictive) F: Guide rings W: Without option	Note:(3)
13	Option 2	B: Flanged grease nipple C: Analog output; 4 to 20 mA F: Analog output; 0 to 10 V D: Digital output ;SSI V: Please enter trunnion displacement XV in clear text in mm Y: Please enter piston rod extension LY in clear text in mm W: Without option	Note:(4) Note:(4) Note:(4)

Note:

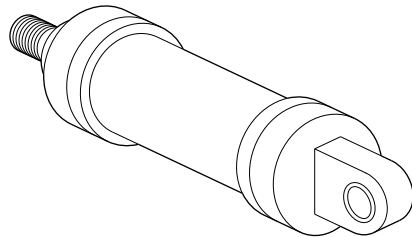
- (1): Only piston rod Ø 32 to 140 mm
- (2): Only piston Ø 50 to 320 mm
- (3): On enquiry
- (4): Only in conjunction with position measuring system T
- (5): Only piston Ø 63 to 320 mm
- (6): Only MF3; MT4; MS2



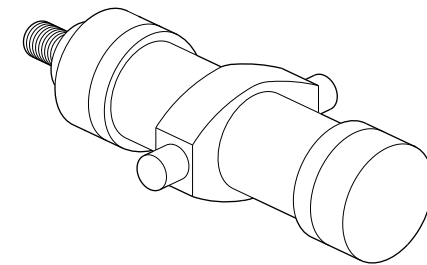
BASIC
Page-P5



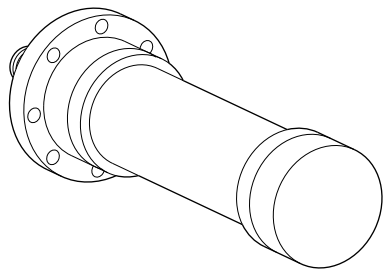
MF4
Page-P8



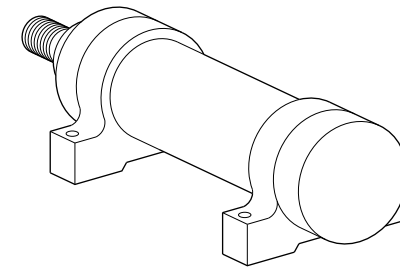
MP3,MP5
Page-P6



MT4
Page-P9

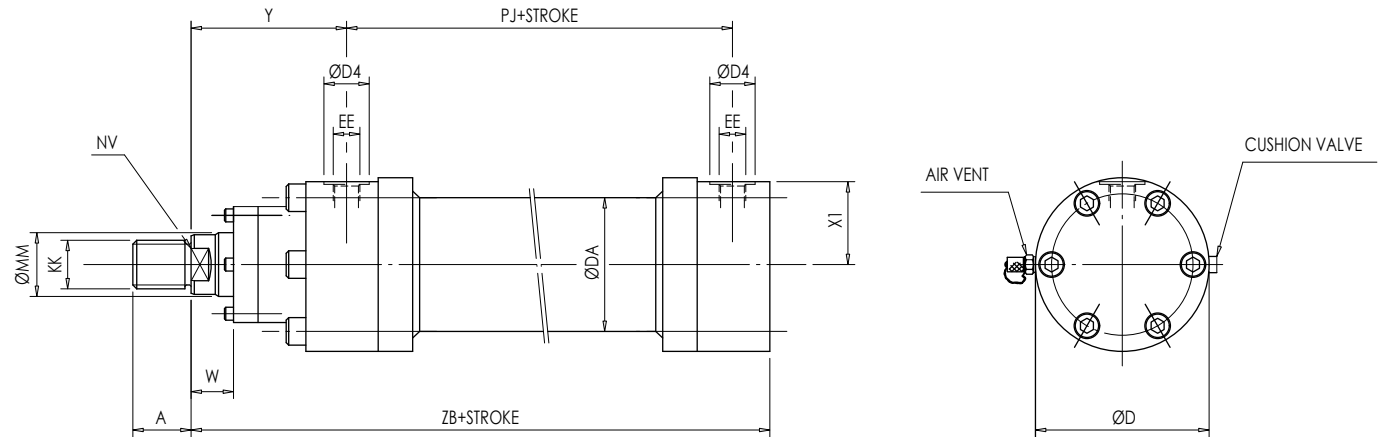
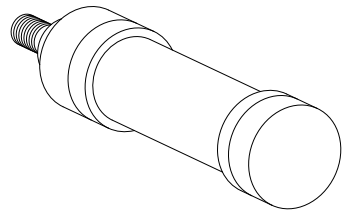


MF3
Page-P7



MS2
Page-P10

Hydraulic Cylinder (ISO 6022) Mounting Style - BASIC

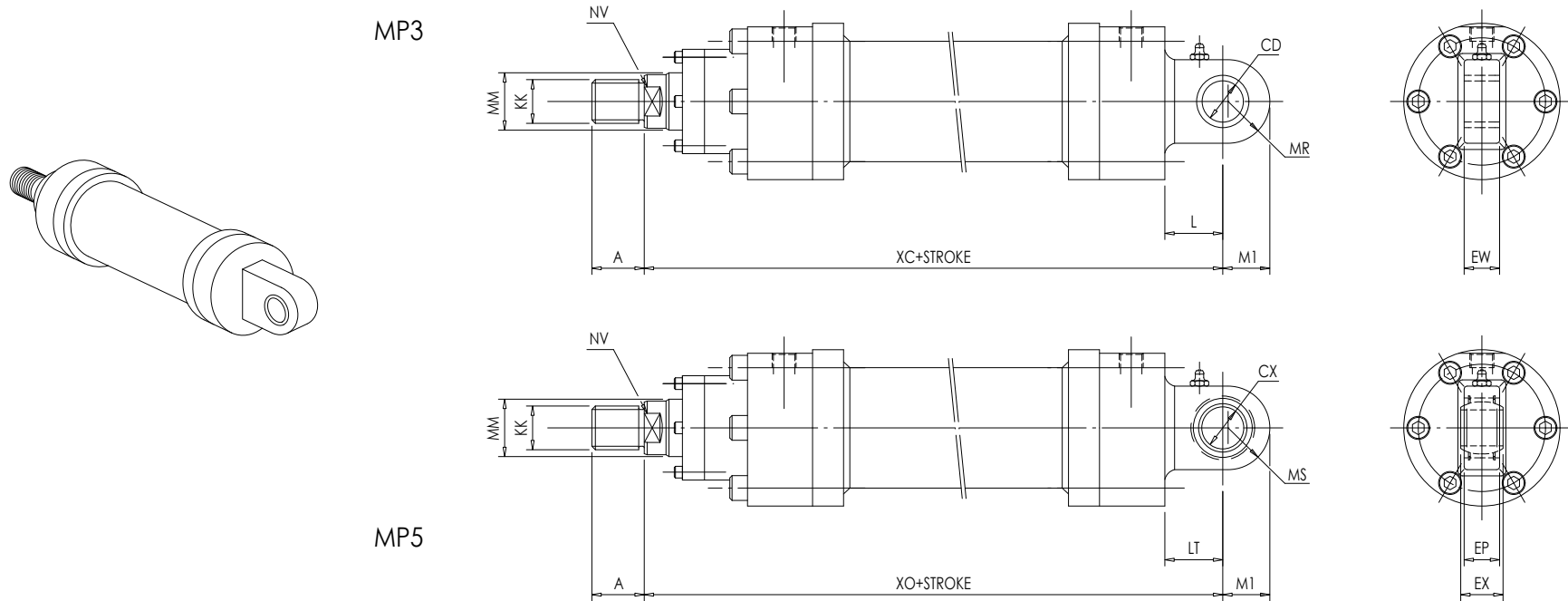


NOTE : $\text{Ø D4 MAX. 0.5mm DEEP}$

Units: mm

BORE Ø	MARK	ROD A		ROD B		KK	A	D	DA	D4	EE		PJ	W	X1	Y	ZB	DWG.NO
		MM	NV	MM	NV													
Ø50		Ø32	27	Ø36	30	M27X2	36	102	60	34	G1/2"	M22X1.5	120	18	48.5	98	244	G2*-BAS- 50 A(B)
Ø63		Ø40	32	Ø45	36	M33X2	45	120	78	42	G3/4"	M27X2	133	21	56.5	112	274	G2*-BAS- 63 A(B)
Ø80		Ø50	41	Ø56	46	M42X2	56	145	95	42	G3/4"	M27X2	155	24	69.5	120	305	G2*-BAS- 80 A(B)
Ø100		Ø63	50	Ø70	60	M48X2	63	170	120	47	G1"	M33X2	171	27	82	134	340	G2*-BAS- 100 A(B)
Ø125		Ø80	65	Ø90	75	M64X3	85	206	150	47	G1"	M33X2	205	31	100.5	153	396	G2*-BAS- 125 A(B)
Ø140		Ø90	75	Ø100	85	M72X3	90	226	170	58	G1-1/4"	M42X2	219	31	109.5	166	431	G2*-BAS- 140 A(B)
Ø160		Ø100	85	Ø110	95	M80X3	95	265	190	58	G1-1/4"	M42X2	235	35	129.5	185	467	G2*-BAS- 160 A(B)
Ø180		Ø110	95	Ø125	110	M90X3	105	292	210	58	G1-1/4"	M42X2	264	40	143.5	194	510	G2*-BAS- 180 A(B)
Ø200		Ø125	100	Ø140	120	M110X3	112	306	235	58	G1-1/4"	M42X2	278	40	150.5	220	550	G2*-BAS- 200 A(B)
Ø250		Ø160	--	Ø180	--	M125X4	125	--	--	65	G1-1/4"	M48X2	--	42	--	--	652	G2*-BAS- 250 A(B)
Ø320		Ø200	--	Ø220	--	M160X4	160	--	--	65	G2	M66X2	--	48	--	--	764	G2*-BAS- 320 A(B)
Ø400		Ø250	--	Ø280	--	M200X4	200	--	--	65	G2	M66X2	--	53	--	--	775	G2*-BAS- 400 A(B)
Ø500		Ø320	--	Ø360	--	M250X6	250	--	--	65	G2	M66X2	--	60	--	--	932	G2*-BAS- 500 A(B)

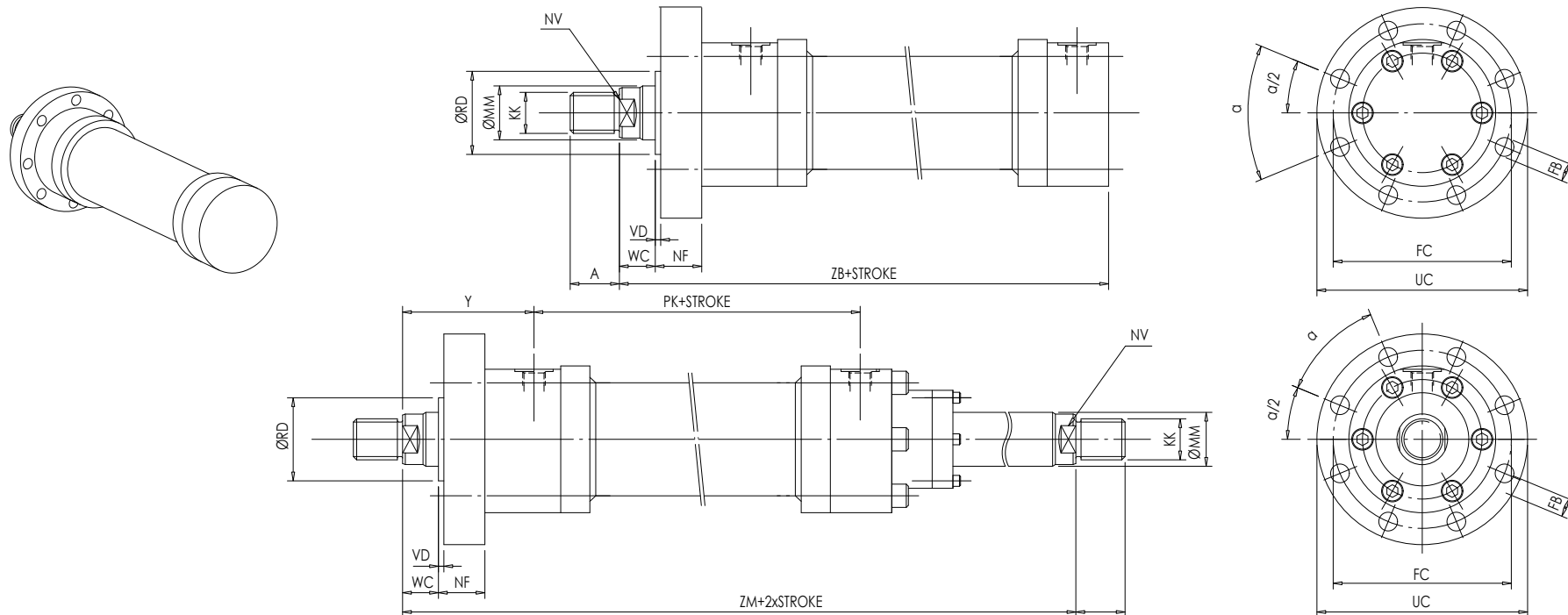
Hydraulic Cylinder (ISO 6022) Mounting Style - MP3,MP5



Units: mm

MARK BORE Ø	ROD A		ROD B		KK	A	CD	CX	EP	EW	EX	L	LT	MR	MS	M1	XC	XO	DWG.NO
	MM	NV	MM	NV															
Ø50	Ø32	27	Ø36	30	M27X2	36	32 H9	32 H7	27	32 h12	32 h12	61	61	40	40	40	305	305	G2*-MP3(5)- 50 A(B)
Ø63	Ø40	32	Ø45	36	M33X2	45	40 H9	40 H7	32	40 h12	40 h12	74	74	50	50	50	348	348	G2*-MP3(5)- 63 A(B)
Ø80	Ø50	41	Ø56	46	M42X2	56	50 H9	50 H7	40	50 h12	50 h12	90	90	63	63	63	395	395	G2*-MP3(5)- 80 A(B)
Ø100	Ø63	50	Ø70	60	M48X2	63	63 H9	63 H7	52	63 h12	63 h12	102	102	71	71	71	442	442	G2*-MP3(5)- 100 A(B)
Ø125	Ø80	65	Ø90	75	M64X3	85	80 H9	80 H7	66	80 h12	80 h12	124	124	90	90	90	520	520	G2*-MP3(5)- 125 A(B)
Ø140	Ø90	75	Ø100	85	M72X3	90	90 H9	90 H7	72	90 h12	90 h12	149	149	101	101	101	580	580	G2*-MP3(5)- 140 A(B)
Ø160	Ø100	85	Ø110	95	M80X3	95	100 H9	100 H7	84	100 h12	100 h12	150	150	112	112	112	617	617	G2*-MP3(5)- 160 A(B)
Ø180	Ø110	95	Ø125	110	M90X3	105	110 H9	110 H7	88	110 h12	110 h12	180	180	129	129	129	690	690	G2*-MP3(5)- 180 A(B)
Ø200	Ø125	100	Ø140	120	M110X3	112	125 H9	125 H7	102	125 h12	125 h12	206	206	145	145	145	756	756	G2*-MP3(5)- 200 A(B)
Ø250	Ø160	--	Ø180	--	M125X4	125	160 H9	160 H7	130	160 h12	160 h12	251	251	200	200	200	903	903	G2*-MP3(5)- 250 A(B)
Ø320	Ø200	--	Ø220	--	M160X4	160	200 H9	200 H7	162	200 h12	200 h12	316	316	250	250	250	1080	1080	G2*-MP3(5)- 320 A(B)
Ø400	Ø250	--	Ø280	--	M200X4	200	250 H9	250 H7	--	250 h12	250 h12	--	320	320	320	320	1075	1075	G2*-MP3(5)- 400 A(B)
Ø500	Ø320	--	Ø360	--	M250X6	250	320 H9	320 H7	--	320 h12	320 h12	--	375	375	375	375	1275	1275	G2*-MP3(5)- 500 A(B)

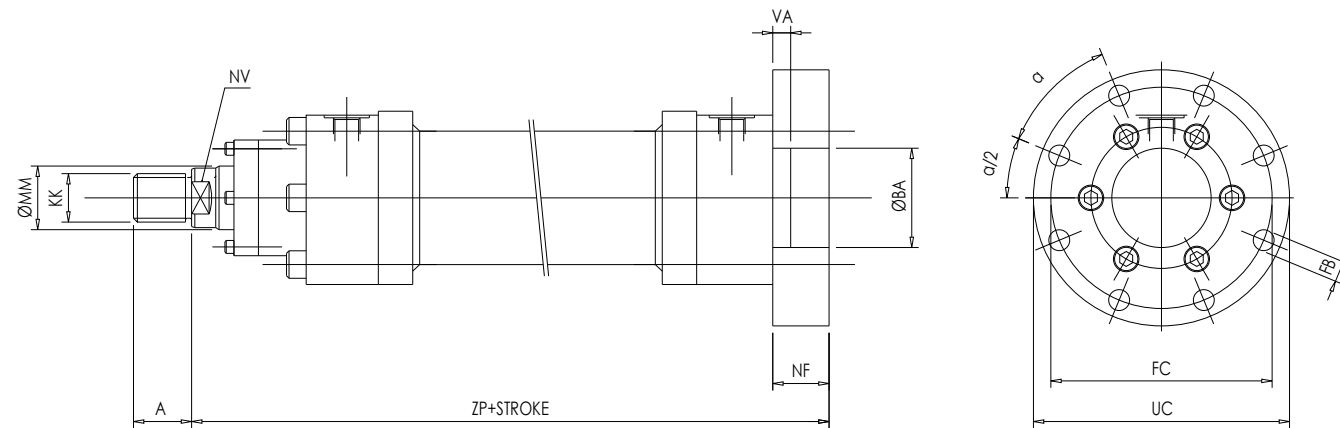
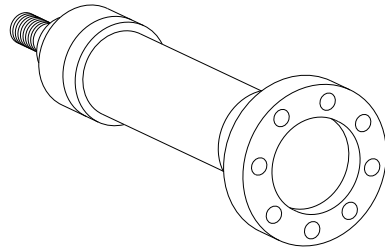
Hydraulic Cylinder (ISO 6022) Mounting Style – MF3



Units: mm

BORE Ø	MARK	ROD A		ROD B		KK	A	RD	FB	FC	NF	PK	UC	VD	WC	Y	ZB	ZM	α	DWG.NO
		MM	NV	MM	NV															
Ø50		Ø32	27	Ø36	30	M27X2	36	63 ^{FB}	13.5 ^{H13}	132	25	120	155	4	22	98	244	316	45°	G2*-MF3- 50 A(B)
Ø63		Ø40	32	Ø45	36	M33X2	45	75 ^{FB}	13.5 ^{H13}	150	28	133	175	4	25	112	274	357	45°	G2*-MF3- 63 A(B)
Ø80		Ø50	41	Ø56	46	M42X2	56	90 ^{FB}	17.5 ^{H13}	180	32	155	210	4	28	120	305	395	45°	G2*-MF3- 80 A(B)
Ø100		Ø63	50	Ø70	60	M48X2	63	110 ^{FB}	22 ^{H13}	212	36	171	250	5	32	134	340	493	45°	G2*-MF3-100 A(B)
Ø125		Ø80	65	Ø90	75	M64X3	85	132 ^{FB}	22 ^{H13}	250	40	205	290	5	36	153	396	511	45°	G2*-MF3-125 A(B)
Ø140		Ø90	75	Ø100	85	M72X3	90	145 ^{FB}	26 ^{H13}	280	40	219	325	5	36	166	431	551	45°	G2*-MF3-140 A(B)
Ø160		Ø100	85	Ø110	95	M80X3	95	160 ^{FB}	26 ^{H13}	315	45	235	360	5	40	185	467	605	45°	G2*-MF3-160 A(B)
Ø180		Ø110	95	Ø125	110	M90X3	105	185 ^{FB}	33 ^{H13}	350	50	264	405	5	45	194	510	652	45°	G2*-MF3-180 A(B)
Ø200		Ø125	100	Ø140	120	M110X3	112	200 ^{FB}	33 ^{H13}	385	56	278	440	5	45	220	550	718	45°	G2*-MF3-200 A(B)
Ø250		Ø160	--	Ø180	--	M125X4	125	250 ^{FB}	39 ^{H13}	475	63	--	540	8	50	--	652	--	45°	G2*-MF3-250 A(B)
Ø320		Ø200	--	Ø220	--	M160X4	160	320 ^{FB}	45 ^{H13}	600	80	--	675	8	56	--	764	--	45°	G2*-MF3-320 A(B)
Ø400		Ø250	--	Ø280	--	M200X4	200	400 ^{FB}	45 ^{H13}	720	100	--	--	10	63	--	775	--	30°	G2*-MF3-400 A(B)
Ø500		Ø320	--	Ø360	--	M250X6	250	500 ^{FB}	52 ^{H13}	840	125	--	--	10	70	--	932	--	30°	G2*-MF3-500 A(B)

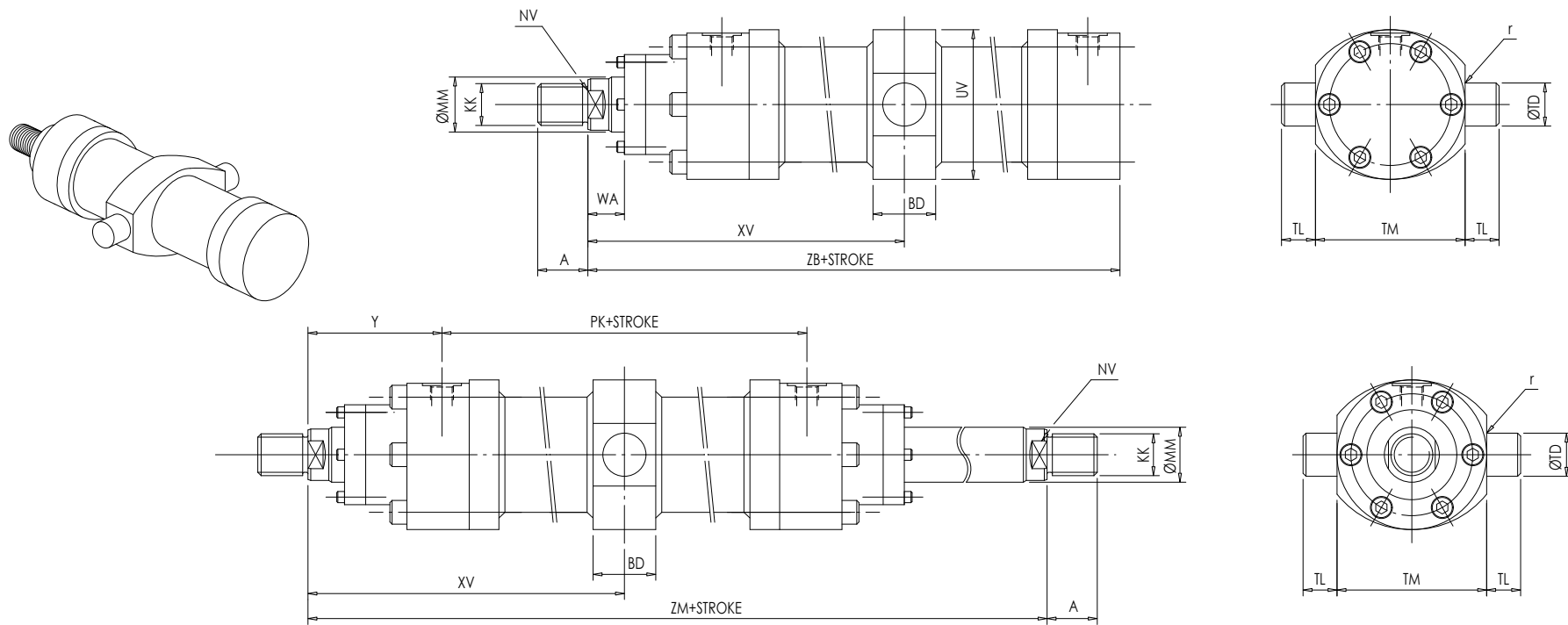
Hydraulic Cylinder (ISO 6022) Mounting Style - MF4



Units: mm

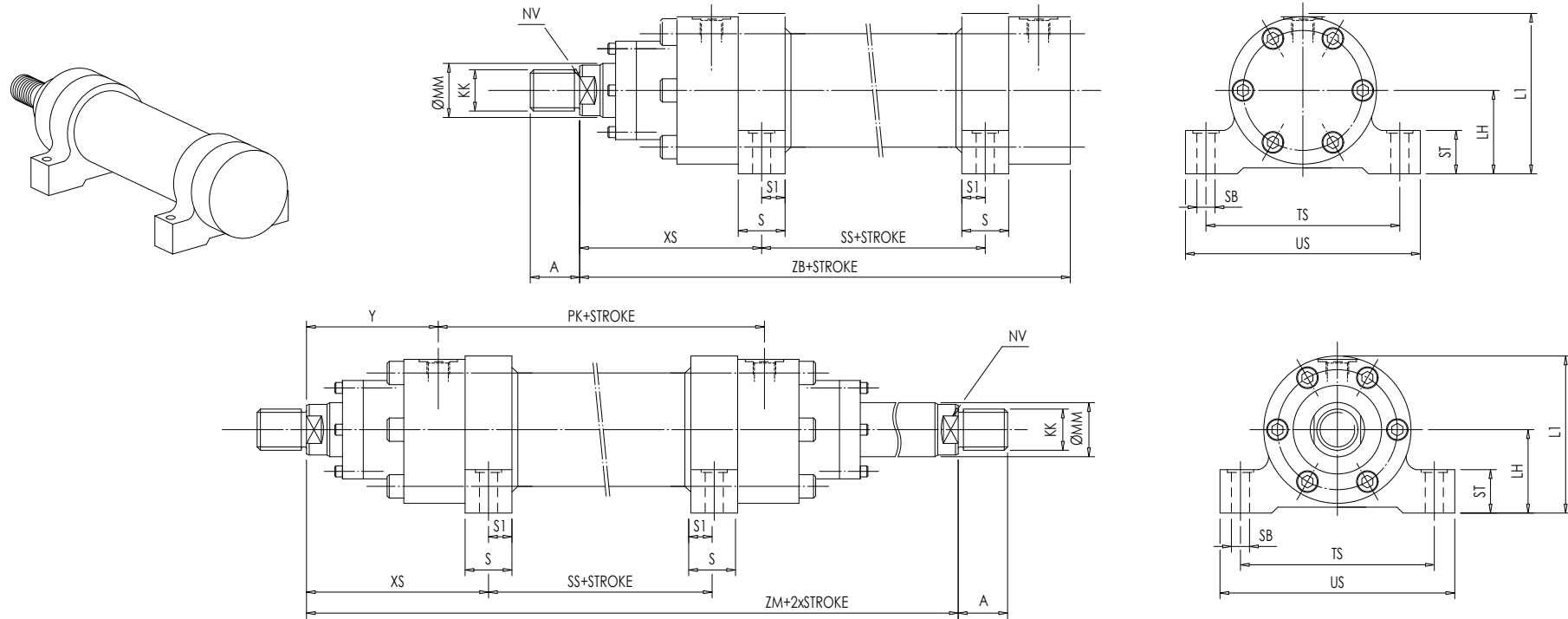
BORE Ø	MARK	ROD A		ROD B		KK	A	ØBA	FB	FC	NF	VA	UC	ZP	α	DWG.NO
		MM	NV	MM	NV											
Ø50		Ø32	27	Ø36	30	M27X2	36	63 ^{H8}	9 ^{H13}	108	30	4	155	265	45°	G2*-MF4- 50 A(B)
Ø63		Ø40	32	Ø45	36	M33X2	45	75 ^{H8}	13.5 ^{H13}	150	28	4	175	298	45°	G2*-MF4- 63 A(B)
Ø80		Ø50	41	Ø56	46	M42X2	56	90 ^{H8}	17.5 ^{H13}	180	32	5	210	332	45°	G2*-MF4- 80 A(B)
Ø100		Ø63	50	Ø70	60	M48X2	63	110 ^{H8}	22 ^{H13}	212	36	5	250	371	45°	G2*-MF4- 100 A(B)
Ø125		Ø80	65	Ø90	75	M64X3	85	132 ^{H8}	22 ^{H13}	250	40	6	290	430	45°	G2*-MF4- 125 A(B)
Ø140		Ø90	75	Ø100	85	M72X3	90	145 ^{H8}	26 ^{H13}	280	40	6	325	465	45°	G2*-MF4- 140 A(B)
Ø160		Ø100	85	Ø110	95	M80X3	95	160 ^{H8}	26 ^{H13}	315	45	7	360	505	45°	G2*-MF4- 160 A(B)
Ø180		Ø110	95	Ø125	110	M90X3	105	185 ^{H8}	33 ^{H13}	350	50	10	405	596	45°	G2*-MF4- 180 A(B)
Ø200		Ø125	100	Ø140	120	M110X3	112	200 ^{H8}	33 ^{H13}	385	56	10	440	703	45°	G2*-MF4- 200 A(B)
Ø250		Ø160	--	Ø180	--	M125X4	125	250 ^{H8}	39 ^{H13}	475	63	12	540	830	45°	G2*-MF4- 250 A(B)
Ø320		Ø200	--	Ø220	--	M160X4	160	320 ^{H8}	45 ^{H13}	600	80	14	675	855	45°	G2*-MF4- 320 A(B)
Ø400		Ø250	--	Ø280	--	M200X4	200	400 ^{H8}	45 ^{H13}	720	100	20	--	855	30°	G2*-MF4- 400 A(B)
Ø500		Ø320	--	Ø360	--	M250X6	250	500 ^{H8}	52 ^{H13}	840	125	32	--	550	30°	G2*-MF4- 500 A(B)

Hydraulic Cylinder (ISO 6022) Mounting Style - MT4



MARK BORE Ø	ROD A		ROD B		KK	A	BD	PK	r	TD	TL	TM	UV	STROKE MIN.	XV STANDARD	XV MIN.	XV MAX	Y	ZB	ZM	DWG.NO
	MM	NV	MM	NV																	
Ø50	Ø32	27	Ø36	30	M27X2	36	38	120	0.8	32 ^{fs}	25 ^{β16}	112 ^{h13}	102	23	158+ ^{1/2} STROKE	174	151+ ^{STROKE}	98	244	316	G2*-MT4- 50 A(B)
Ø63	Ø40	32	Ø45	36	M33X2	45	48	133	1	40 ^{fs}	32 ^{β16}	125 ^{h13}	102	35	178.5+ ^{1/2} STROKE	202	167+ ^{STROKE}	112	274	357	G2*-MT4- 63 A(B)
Ø80	Ø50	41	Ø56	46	M42X2	56	58	155	1	50 ^{fs}	40 ^{β16}	150 ^{h13}	150	46	197.5+ ^{1/2} STROKE	226.5	180.5+ ^{STROKE}	120	305	395	G2*-MT4- 80 A(B)
Ø100	Ø63	50	Ø70	60	M48X2	63	78	171	1.2	63 ^{fs}	50 ^{β16}	180 ^{h13}	175	64	219.5+ ^{1/2} STROKE	259	195+ ^{STROKE}	134	340	493	G2*-MT4-100 A(B)
Ø125	Ø80	65	Ø90	75	M64X3	85	98	205	1.2	80 ^{fs}	63 ^{β16}	224 ^{h13}	220	76	255.5+ ^{1/2} STROKE	301	225+ ^{STROKE}	153	396	511	G2*-MT4-125 A(B)
Ø140	Ø90	75	Ø100	85	M72X3	90	118	219	1.5	90 ^{fs}	70 ^{β16}	265 ^{h13}	240	106	275.5+ ^{1/2} STROKE	336	230+ ^{STROKE}	166	431	551	G2*-MT4-140 A(B)
Ø160	Ø100	85	Ø110	95	M80X3	95	128	235	1.5	100 ^{fs}	80 ^{β16}	280 ^{h13}	270	122	302.5+ ^{1/2} STROKE	373.5	251.5+ ^{STROKE}	185	467	605	G2*-MT4-160 A(B)
Ø180	Ø110	95	Ø125	110	M90X3	105	138	264	1.5	110 ^{fs}	90 ^{β16}	320 ^{h13}	310	138	326+ ^{1/2} STROKE	405	267+ ^{STROKE}	194	510	652	G2*-MT4-180 A(B)
Ø200	Ø125	100	Ø140	120	M110X3	112	178	278	1.5	125 ^{fs}	100 ^{β16}	335 ^{h13}	320	184	359+ ^{1/2} STROKE	461	277+ ^{STROKE}	220	550	718	G2*-MT4-200 A(B)
Ø250	Ø160	--	Ø180	--	M125X4	125	--	--	--	160 ^{fs}	125 ^{β16}	425 ^{h13}	--	--	--	--	--	--	652	--	G2*-MT4-250 A(B)
Ø320	Ø200	--	Ø220	--	M160X4	160	--	--	--	200 ^{fs}	160 ^{β16}	530 ^{h13}	--	--	--	--	--	--	764	--	G2*-MT4-320 A(B)
Ø400	Ø250	--	Ø280	--	M200X4	200	--	--	--	250 ^{fs}	200 ^{β16}	630 ^{h13}	--	--	--	--	--	--	775	--	G2*-MT4-400 A(B)
Ø500	Ø320	--	Ø360	--	M250X6	250	--	--	--	320 ^{fs}	250 ^{β16}	760 ^{h13}	--	--	--	--	--	--	932	--	G2*-MT4-500 A(B)

Hydraulic Cylinder (ISO 6022) Mounting Style - MS2

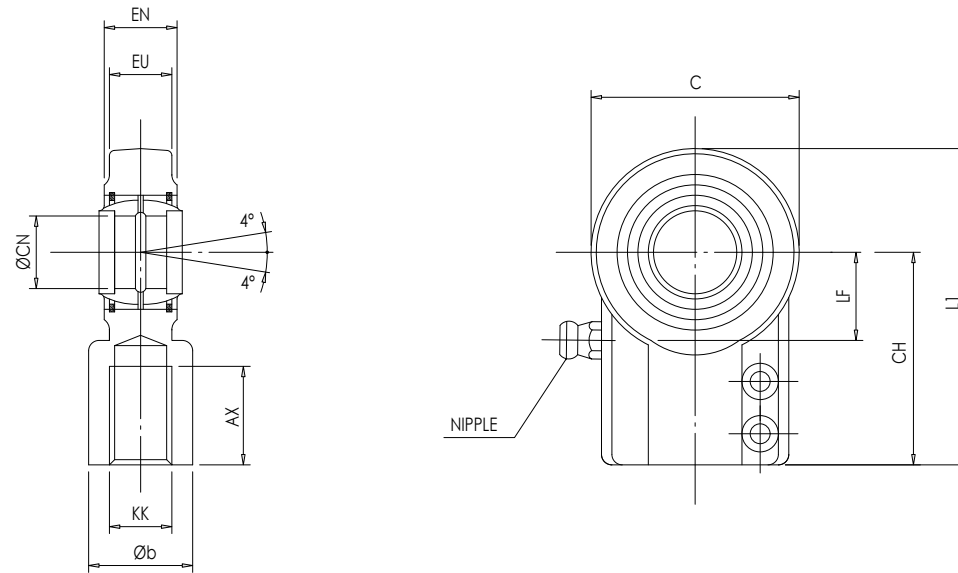


Units: mm

BORE Ø	MARK		ROD A		ROD B		KK	A	LH	L1	PK	S	S1	SB	SS	ST	TS	US	STROKE min.	XS	Y	ZB	ZM	DWG.NO
	MM	NV	MM	NV																				
Ø50	Ø32	27	Ø36	30	M27X2	36	55	106	120	35	17.5	11 ^{H13}	45	37	130	155	--	135.5	98	244	316	G2*-MS2- 50 A(B)		
Ø63	Ø40	32	Ø45	36	M33X2	45	65	125	133	40	20	13.5 ^{H13}	49	42	150	180	--	154	112	274	357	G2*-MS2- 63 A(B)		
Ø80	Ø50	41	Ø56	46	M42X2	56	75	147.5	155	50	25	17.5 ^{H13}	52	47	180	220	2	171.5	120	305	395	G2*-MS2- 80 A(B)		
Ø100	Ø63	50	Ø70	60	M48X2	63	90	175	171	60	30	22 ^{H13}	61	57	210	255	3	189	134	340	493	G2*-MS2-100 A(B)		
Ø125	Ø80	65	Ø90	75	M64X3	85	105	208	205	70	35	26 ^{H13}	75	67	255	305	--	218	153	396	511	G2*-MS2-125 A(B)		
Ø140	Ø90	75	Ø100	85	M72X3	90	115	228	219	85	42.5	30 ^{H13}	70	72	290	350	19	240.5	166	431	551	G2*-MS2-140 A(B)		
Ø160	Ø100	85	Ø110	95	M80X3	95	135	267.5	235	105	52.5	33 ^{H13}	65	77	330	400	44	270	185	467	605	G2*-MS2-160 A(B)		
Ø180	Ø110	95	Ø125	110	M90X3	105	150	296	264	115	57.5	40 ^{H13}	69	92	360	440	50	291.5	194	510	652	G2*-MS2-180 A(B)		
Ø200	Ø125	100	Ø140	120	M110X3	112	160	313	278	125	62.5	40 ^{H13}	73	97	385	465	56	322.5	220	550	718	G2*-MS2-200 A(B)		
Ø250	Ø160	--	Ø180	--	M125X4	125	--	--	--	--	--	--	--	--	--	--	--	--	--	652	--	G2*-MS2-250 A(B)		
Ø320	Ø200	--	Ø220	--	M160X4	160	--	--	--	--	--	--	--	--	--	--	--	--	--	764	--	G2*-MS2-320 A(B)		
Ø400	Ø250	--	Ø280	--	M200X4	200	--	--	--	--	--	--	--	--	--	--	--	--	--	775	--	G2*-MS2-400 A(B)		
Ø500	Ø320	--	Ø360	--	M250X6	250	--	--	--	--	--	--	--	--	--	--	--	--	--	932	--	G2*-MS2-500 A(B)		

Hydraulic Cylinder (ISO 6022) ROD-END

AL-Ø50-320 mm



Units: mm

BORE Ø	MARK	ROD A	ROD B	Typ	AX	b	C	CH	CN	EN	EU	KK	L1	LF
		MM	MM		1.5			js16	h7	h12				
Ø50		Ø32	Ø36	CGKD32	37	38	70	80	32	32	27	M27x2	118	32
Ø63		Ø40	Ø45	CGKD40	46	47	89	97	40	40	32	M33x2	145.5	41
Ø80		Ø50	Ø56	CGKD50	57	58	108	120	50	50	40	M42x2	179	50
Ø100		Ø63	Ø70	CGKD63	64	70	132	140	63	63	52	M48x2	211	62
Ø125		Ø80	Ø90	CGKD80	86	90	168	180	80	80	66	M64x3	270	78
Ø140		Ø90	Ø100	CGKD90	9	100	185	195	90	90	72	M72x3	296	85
Ø160		Ø100	Ø110	CGKD100	96	110	210	210	100	100	84	M80x3	322	98
Ø180		Ø110	Ø125	CGKD110	106	125	235	235	110	110	88	M90x3	364	105
Ø200		Ø125	Ø140	CGKD125	113	135	262	262	125	125	102	M100x3	405	120
Ø250		Ø160	Ø180	CGKD160	126	165	326	326	160	160	130	M125x4	488	150
Ø320		Ø200	Ø220	CGKD200	161	215	418	418	200	200	130	M160x4	620	195