

Hydraulic Cylinders

Double Acting



H160 Co Series

ISO 6020/2. DIN 24554.NF E 48.016 Compact

Maximum Service Pressure : 230 bar

Bore : Ø25 to 200 mm





GENERAL CHARACTERISTICS

Tie Rod Cylinders

ISO 6020/2, DIN 24554, NFE 48.016

- Dynamic Service Pressure : 160 bar maximum
- Test Pressure : 240 bar
- Fluids: Mineral Oil

Other fluids on request

- Temperature : 20 °C...+80 °C : Seals Type N
up to 200 °C : Seals Type V
Water-glycol up to 90°C : Seals Type G

- Filtration :
Oil pollution following classes 9...10 -
Without filter B25 = 75 (Seals type N-V-G)
Oil pollution following classes 7...8 -
Without filter B10 = 75 (P composite type of seals)
- Viscosity : 12 to 90 mm²/s
- Screw Sockets for connection :
DIN 3852/ CNOMO E0501180 N

Bore Ø	25			32			40			50			63			80			100			125			160			200		
Rod Ø	12	18	14	18	22	18	22	28	22	28	36	28	36	45	36	45	56	45	56	70	56	70	90	70	90	110	90	110	140	
Maximum radial forces sustain [N] on guiding ring					25	40	63		63	100		100	160		160	250		250	400		400	630		630	1000		1000	1600		1600
Movement speed (m/s)	N	0,5										0,4					0,25													
	P	1,00																												
Cushioning length La (mm)	front	19				20	24		25	25		28	28		27	27		31	31		25	25		30	30		28	50		45
	rear	16				16	26		26	26		26	26		26	29		29	29		29	29		29	40		40	53		53
Minimum stroke (mm)	no cushion	-				-	-		-	-		-	-		-	-		-	-		-	-		-	-		-	-		-
	with cushion	40				45			55			55			60			60			65			65			70			105
Recommended max stroke (mm) Other strokes available on request		250		300		400		500		600		700		800		1000		1100		1250										
Stroke tolerance	+ 2mm (acc. ISO 8131)																													

H160 Co Series

FORCES

• Forces developed while pushing (daN)

Bore Ø	Bore Section	Pressure in bar					
		30	60	90	120	140	160
25	4,90	147	294	441	588	686	784
32	8,04	241	482	723	964	1 120	1 286
40	12,56	376	753	1 130	1 500	1 750	2 009
50	19,63	589	1 170	1 766	2 350	2 740	3 140
63	31,17	935	1 870	2 805	3 740	4 363	4 987
80	50,26	1 507	3 015	4 523	6 031	7 036	8 040
100	78,54	2 356	4 712	7 065	9 420	10 995	12 565
125	122,72	3 681	7 363	11 045	14 725	17 180	19 635
160	201,06	6 030	12 060	18 095	24 125	28 145	32 170
200	314,16	9 420	18 845	28 275	37 695	43 980	50 265

All dimensions are in mm

• Forces developed while pulling (daN)

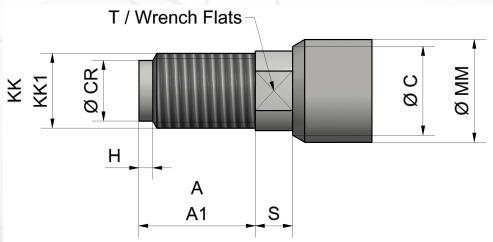
Bore Ø	Ø MM	Annular Section	Pressure in bar					
			30	60	90	120	140	160
25	12	3,77	113,10	226,20	339,30	452,40	527,80	605
	18	2,35	70,50	141	211,50	282	329	376
32	14	6,50	195	390	585	780	910	1 040
	18	5,50	165	330	495	660	770	880
	22	4,24	127	254	381	509	593	678
40	18	10,02	300	601	902	1 202	1 403	1 603
	22	8,76	262	525	788	1 051	1 226	1 401
	28	6,41	192	385	577	769	897	1 025
50	22	15,83	475	950	1 425	1 900	2 216	2 533
	28	13,48	404	808	1 212	1 616	1 887	2 156
	36	9,46	283	567	851	1 135	1 324	1 513
63	28	25,01	750	1 500	2 250	3 000	3 500	4 000
	36	20,99	629	1 259	1 888	2 517	2 938	3 358
	45	15,27	458	916	1 374	1 830	2 135	2 440
80	36	40,09	1 202	2 405	3 607	4 810	5 610	6 410
	45	34,36	1 030	2 060	3 090	4 120	4 810	5 497
	56	25,63	769	1 538	2 305	3 075	3 585	4 100
100	45	62,63	1 879	3 758	5 637	7 516	8 768	10 020
	56	53,92	1 617	3 234	4 852	6 469	7 548	8 627
	70	40,06	1 201	2 400	3 600	4 805	5 608	6 405
125	56	98,09	2 940	5 885	8 827	11 770	13 730	15 690
	70	84,24	2 527	5 054	7 581	10 108	11 793	13 478
	90	59,11	1 773	3 545	5 317	7 090	8 270	9 455
160	70	162,58	4 877	9 754	14 630	19 500	22 760	26 010
	90	137,44	4 123	8 246	12 369	16 492	19 241	21 990
	110	106,03	3 180	6 360	9 540	12 720	14 840	16 960
200	90	250,04	7 516	15 030	22 540	30 060	35 070	40 090
	110	219,13	6 573	13 147	19 720	26 293	30 678	35 060
	140	160,22	4 807	9 615	14 422	19 230	22 436	25 641

All dimensions are in mm

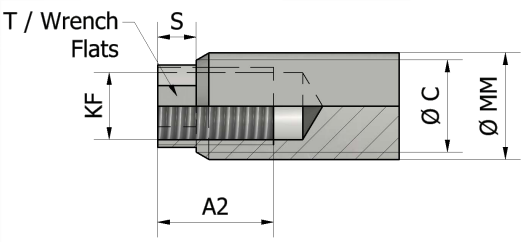
H160 Co Series

Rod End

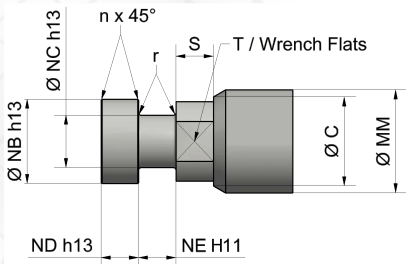
Exterior Thread (Code KK or KK1)



Interior Thread (Code KF)



TENON (Code T)



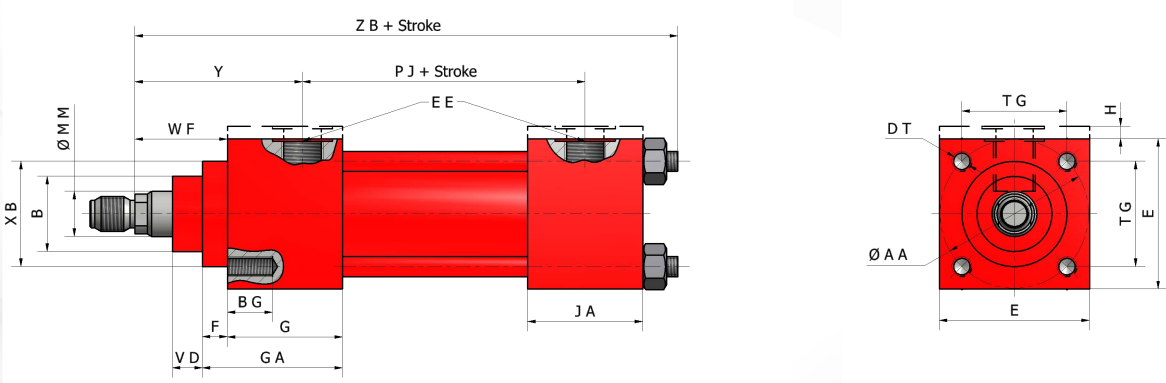
Ø Bore	Ø MM	KK1 DIN 24554	A	KK ISO 6982	A1	KF	A2	Ø C	S	T-0.7	Ø CR	h	Ø NB	Ø NC	ND-NE	n	r
25	12	-	-	M10X1,25	14	M8X1	14	11	5	10	7,5	1	-	-	-	-	-
	18	M10X1,25	14	M14X1,5	18	M12X1,25	18	15	5	13	7,5	1	16	10	6	0,2	0,5
32	14	-	-	M12X1,25	16	M10X1,25	16	13	5	12	9,5	2	-	-	-	-	-
	18	M12X1,25	16	M14X1,5	18	M12X1,25	20	15	5	13	9,5	2,5	16	10	6	0,2	0,5
	22			M16X1,5	22	M16X1,5	22	19	5	17			18	11,2	8	0,2	0,5
40	18	-	-	M14X1,5	18	M12X1,25	18	15	5	13	11	2	16	10	6	0,2	0,5
	22	-	-	M16X1,5	22	M16X1,5	24	19	5	17			18	11,2	8	0,2	0,5
	28	M14X1,5	18	M20X1,5	28	M20X1,5	28	25	5	22			22,4	14	10	0,2	0,5
50	22	-	-	M16X1,5	22	M16X1,5	22	19	5	17	13	3	18	11,2	8	0,2	0,5
	28	M16X1,5	22	M20X1,5	28	M20X1,5	28	25	5	22			22,4	14	10	0,2	0,5
	36			M27X2	36	M27X2	36	33	8	30			28	18	12,5	0,3	0,8
63	28	-	-	M20X1,5	28	M20X1,5	28	25	7	22	17	3	22,4	14	10	0,2	0,5
	36	M20X1,5	28	M27X2	36	M27X2	36	33	7	30			28	18	12,5	0,3	0,8
	45			M33X2	45	M33X2	45	42	10	36			35,5	22,4	16	0,3	0,8
80	36	-	-	M27X2	36	M27X2	36	33	8	30	23,5	3	28	18	12,5	0,3	0,8
	45	M27X2	36	M33X2	45	M33X2	45	42	8	36			35,5	22,4	16	0,3	0,8
	56			M42X2	56	M42X2	56	53	10	46			45	28	20	0,5	1,2
100	45	-	-	M33X2	45	M33X2	45	42	10	36	29,5	4	35,5	22,4	16	0,3	0,8
	56	M33X2	45	M42X2	56	M42X2	56	53	10	46			45	28	20	0,5	1,2
	70			M48X2	63	M48X2	63	67	15	60			56	35,5	25	0,5	1,2
125	56	-	-	M42X2	56	M42X2	56	53	10	46	38,5	5	45	28	20	0,5	1,2
	70	M42X2	56	M48X2	63	M48X2	63	67	10	60			56	35,5	25	0,5	1,2
	90			M64X3	85	M64X3	85	86	15	75			78	45	30	0,5	1,5
160	70	-	-	M48X2	63	M48X2	63	67	15	60	44,5	3	56	35,5	25	0,5	1,2
	90	M48X2	63	M64X3	85	M64X3	85	86	15	75			78	45	30	0,5	1,5
	110			M80X3	95	M80X3	95	106	18	92			96	55	35	0,5	1,5
200	90	-	-	M64X3	85	M64X3	85	86	15	75	59	4,5	78	45	30	0,5	1,5
	110	M64X3	85	M80X3	95	M80X3	95	106	15	92			96	55	35	0,5	1,5
				M100X3	112	M100X3	112	136	18	125			136	70	45	0,5	1,5

All dimensions are in mm

Not accordingly standards NF E 48016 and ISO 6020/2

H160 Co Series

MX5 Mounting - Inside thread on the head



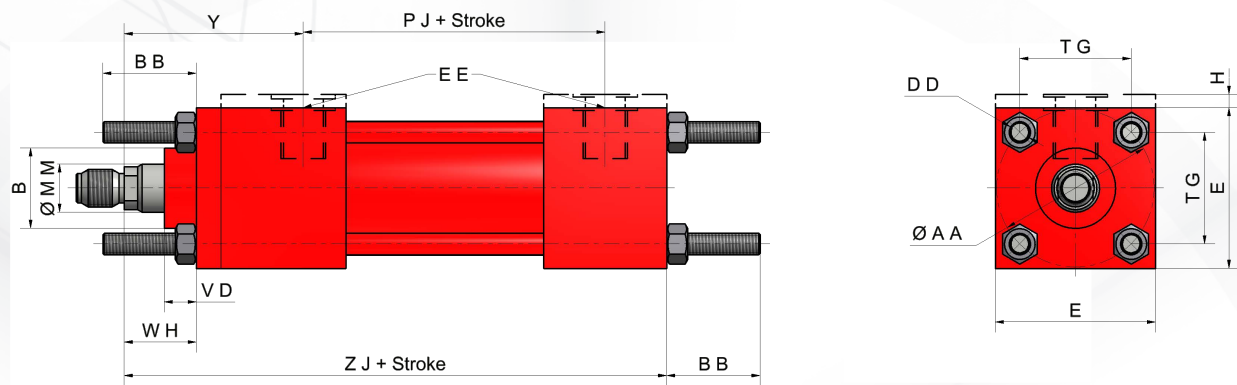
dimension H = 5 for bore Ø 25 and 32

Ø Bore	Ø MM	Ø AA	B	BG	DT	E	EE	F	G	GA	JA	PJ	TG	VD Max.	WF	XB	Y	ZB
25	12	40	24	12	M5X0,8	40	G 1/4	10	32	42	32	49*	28	6	25	30	45*	121+
	18		30															
32	14	47	26	15	M6X1	45	G 1/4	10	36	46	36	47*	33	12	35	34	58*	138+
	18		30															
	22		34															
40	18	59	30	18	M8X1,25	60	G 3/8	10	46	56	46	58*	42	12	35	42	65*	166+
	22		34															
	28		42															
50	22	74	34	18	M12X1,75	75	G 1/2	16	45	61	45	62*	52	9	41	50	69*	176+
	28		42															
	36		50															
63	28	91	42	18	M12X1,75	90	G 1/2	16	45	61	45	64*	64	13	48	60	76*	185+
	36		50															
	45		60															
80	36	117	50	24	M16X2	115	G 3/4	20	52	72	52	77*	83	9	51	72	82*	213+
	45		60															
	56		72															
100	45	137	60	24	M16X2	130	G 3/4	22	55	77	55	78*	97	10	57	88	91*	226+
	56		72															
	70		88															
125	56	178	72	30	M22X2,5	165	G 1"	0	87	65	117	126	10	35	-	86	262+	
	70		88															
	90		108															
160	70	219	88	35	M27X3	200	G 1"	0	95	70	130	155	7	32	-	86	280+	
	90		108															
	110		133															
200	90	269	108	35	M30X3,5	245	G 1 1/4	0	115	92	165	190	7	32	-	98	336+	
	110		133															
	140		163															

All dimensions are in mm

*Non conform standard ISO 6020/2
Missing dimensions see rod end

■ MX1 Mounting -Front and Rear Studs or Tie Rods



Dimension H = 5 for bore Ø 25 and 32

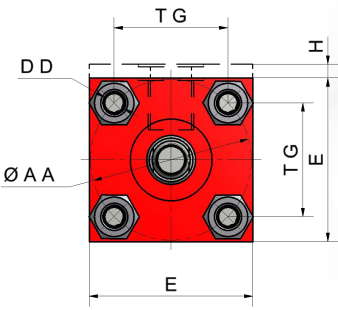
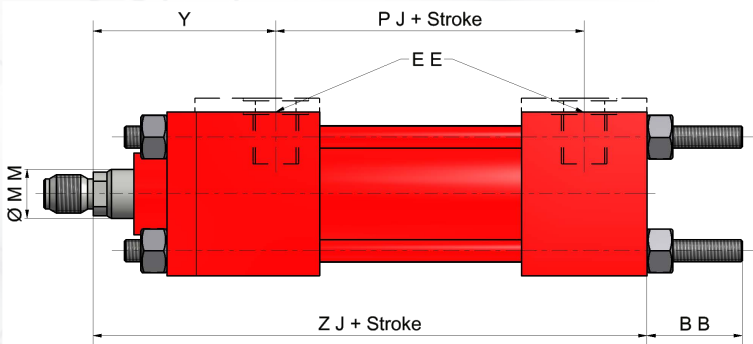
Ø Bore	Ø MM	Ø AA	B	BB	DD	E	EE	PJ	TG	VD Max.	WH	Y	ZJ
25	12	40	24	19	M5X0,8	40	G 1/4	49*	28,3	6	15	45*	114+
	18		30										
32	14	47	26	24	M6X1	45	G 1/4	47*	33,2	12	25	58*	128+
	18		30										
	22		34										
40	18	59	30	35	M8X1	60	G 3/8	58*	41,7	12	25	65*	153+
	22		34										
	28		42										
50	22	74	34	46	M12X1,25	75	G 1/2	62*	52,3	9	25	69*	159+
	28		42										
	36		50										
63	28	91	42	46	M12X1,25	90	G 1/2	64*	64,3	13	32	76*	168+
	36		50										
	45		60										
80	36	117	50	59	M16X1,5	115	G 3/4	77*	82,7	9	31	82*	190+
	45		60										
	56		72										
100	45	137	60	59	M16X1,5	130	G 3/4	78*	96,9	10	35	91*	203+
	56		72										
	70		88										
125	56	178	72	81	M22X1,5	165	G 1"	117	125,9	10	35	86	232+
	70		88										
	90		108										
160	70	219	88	92	M27X2	200	G 1"	130	154,9	7	32	86	245+
	90		108										
	110		133										
200	90	269	108	115	M30X3	245	G 1"1/4	165	190,2	7	32	98	299+
	110		133										
	140		163										

All dimensions are in mm

*non-conform standard ISO 6020/2
Missing dimensions see rod end

SERIE H160 Co

MX2 Mounting -Rear Studs or Tie Rods



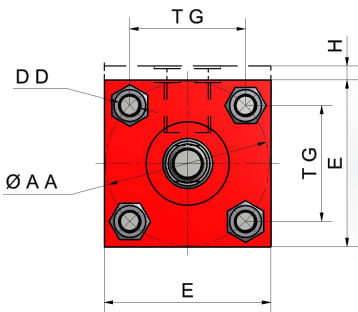
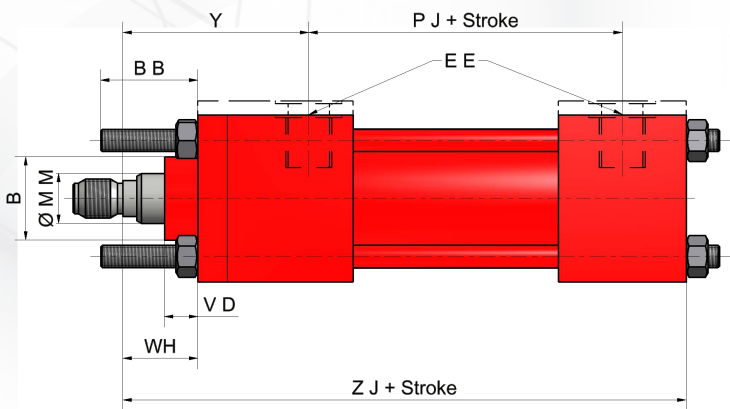
Dimension H = 5 for bore Ø 25 and 32

Ø Bore	Ø MM	Ø AA	BB	DD	E	EE	PJ	TG	Y	ZJ
25	12	40	19	M5X0,8	40	G 1/4	49*	28,3	45*	114+
	18									
32	14	47	24	M6X1	45	G 1/4	47*	33,2	58*	128+
	18									
	22									
40	18	59	35	M8X1	60	G 3/8	58*	41,7	65*	153+
	22									
	28									
50	22	74	46	M12X1,25	75	G 1/2	62*	52,3	69*	159+
	28									
	36									
63	28	91	46	M12X1,25	90	G 1/2	64*	64,3	76*	168+
	36									
	45									
80	36	117	59	M16X1,5	115	G 3/4	77*	82,7	82*	190+
	45									
	56									
100	45	137	59	M16X1,5	130	G 3/4	78*	96,9	91*	203+
	56									
	70									
125	56	178	81	M22X1,5	165	G 1"	117	125,9	86	232+
	70									
	90									
160	70	219	92	M27X2	200	G 1"	130	154,9	86	245+
	90									
	110									
200	90	269	115	M30X3	245	G 1"1/4	165	190,2	98	299+
	110									

All dimensions are in mm

* Non-conform standard ISO 6020/2
Missing dimensions see rod end

■ MX3 Mounting - Front Studs or Tie Rods



Dimension H = 5 for bore Ø 25 and 32

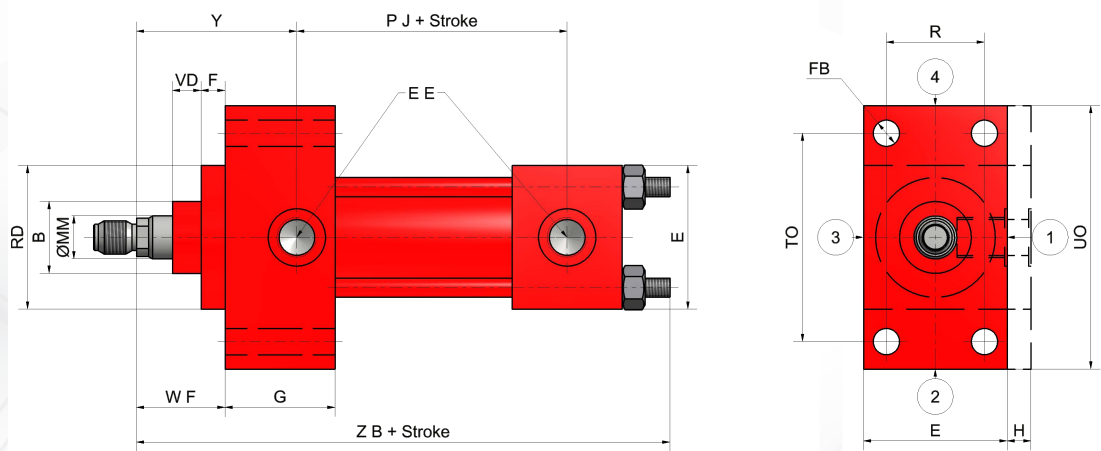
Ø Bore	Ø MM	Ø AA	B	BB	DD	E	EE	PJ	TG	VD Max.	WH	Y	ZJ
25	12	40	24	19	M5	40	G 1/4	49*	28,3	6	15	45*	114+
	18		30										
32	14	47	26	24	M6	45	G 1/4	47*	33,2	12	25	58*	128+
	18		30										
	22		34										
40	18	59	30	35	M8X1	60	G 3/8	58*	41,7	12	25	65*	153+
	22		34										
	28		42										
50	22	74	34	46	M12X1,25	75	G 1/2	62*	52,3	9	25	69*	159+
	28		42										
	36		50										
63	28	91	42	46	M12X1,25	90	G 1/2	64*	64,3	13	32	76*	168+
	36		50										
	45		60										
80	36	117	50	59	M16X1,5	115	G 3/4	77*	82,7	9	31	82*	190+
	45		60										
	56		72										
100	45	137	60	59	M16X1,5	130	G 3/4	78*	96,9	10	35	91*	203+
	56		72										
	70		88										
125	56	178	72	81	M22X1,5	165	G 1"	117	125,9	10	35	86	232+
	70		88										
	90		108										
160	70	219	88	92	M27X2	200	G 1"	130	154,9	7	32	86	245+
	90		108										
	110		133										
200	90	269	108	115	M30X3	245	G 1"1/4	165	190,2	7	32	98	299+
	110		133										
			163										

All dimensions are in mm

*non-conform standard ISO 6020/2

Missing dimensions see rod end

ME5 Mounting - RECTANGULAR HEAD



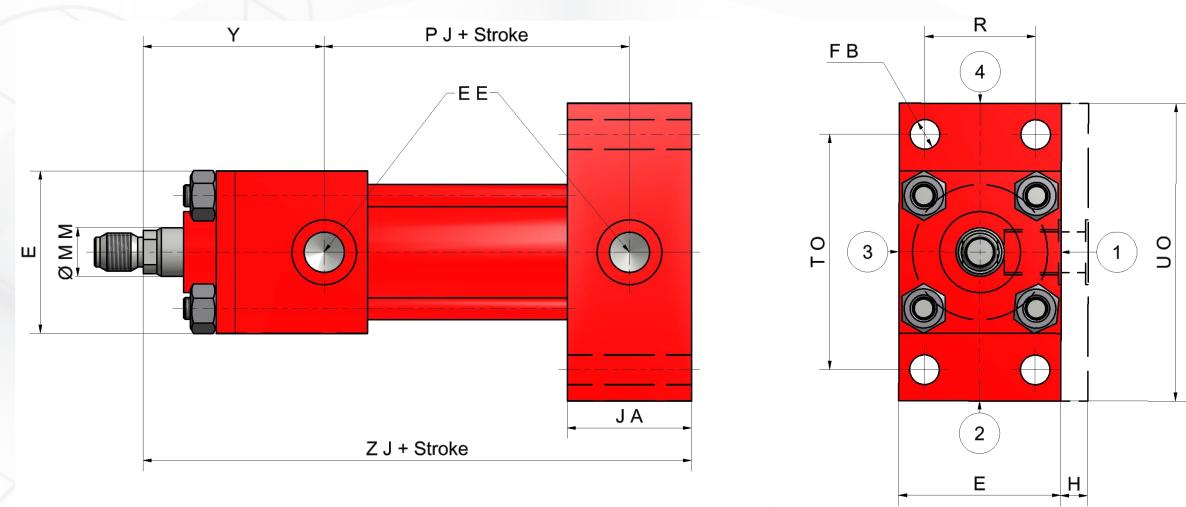
Dimension H = 5 for bore Ø 25 and 32

Ø Bore	Ø MM	B	E	EE	F	FB	G	PJ	R	RD	TO	UO	VD Max.	WF	Y	ZB
25	12	24	40	G 1/4	10	5,5	32	49*	27	38	51	65	6	25	45*	121+
	18	30														
32	14	26	45	G 1/4	10	6,5	35,5	47*	33	42	58	70	12	35	58*	138+
	18	30														
	22	34														
40	18	30	60	G 3/8	10	11	46	58*	41	62	87	110	12	35	65*	166+
	22	34														
	28	42														
50	22	34	75	G 1/2	16	14	45	62*	52	74	105	130	9	41	69*	176+
	28	42														
	36	50														
63	28	42	90	G 1/2	16	14	45	64*	65	75	117	145	13	48	76*	185+
	36	50								88						
	45	60														
80	36	50	115	G 3/4	20	18	52	77*	83	82	149	180	9	51	82*	213+
	45	60								105						
	56	72														
100	45	60	130	G 3/4	22	18	55	78*	97	92	162	200	10	57	91*	226+
	56	72								125						
	70	88														
125	56	72	165	G 1"	22	22	65	117	126	105	208	250	10	57	86	262+
	70	88								150						
	90	108														
160	70	88	200	G 1"	25	26	70	130	155	125	253	300	7	57	86	280+
	90	108								170						
	110	133														
200	90	108	245	G 1"1/4	25	33	92	165	190	150	300	360	7	57	98	336+
	110	133								210						
	140	163														

All dimensions are in mm

*non-conform à ISO 6020/2
Missing dimensions see rod end

ME6 Mounting - RECTANGULAR Bottom



Dimension H = 5 for bore Ø 25 to 32

Ø Bore	Ø MM	E	EE	FB	JA	PJ	R	TO	UO	Y	ZJ
25	12	40	G 1/4	5,5	32	49*	27	51	65	45*	114+
	18										
32	14	45	G 1/4	6,5	35,5	47*	33	58	70	58*	128+
	18										
	22										
40	18	60	G 3/8	11	46	58*	41	87	110	65*	153+
	22										
	28										
50	22	75	G 1/2	14	45	62*	52	105	130	69*	159+
	28										
	36										
63	28	90	G 1/2	14	45	64*	65	117	145	76*	168+
	36										
	45										
80	36	115	G 3/4	18	52	77*	83	149	180	82*	190+
	45										
	56										
100	45	130	G 3/4	18	55	78*	97	162	200	91*	203+
	56										
	70										
125	56	165	G 1"	22	65	117	126	208	250	86	232+
	70										
	90										
160	70	200	G 1"	26	70	130	155	253	300	86	245+
	90										
	110										
200	90	245	G 1 1/4	33	92	165	190	300	360	98	299+
	110										
	140										

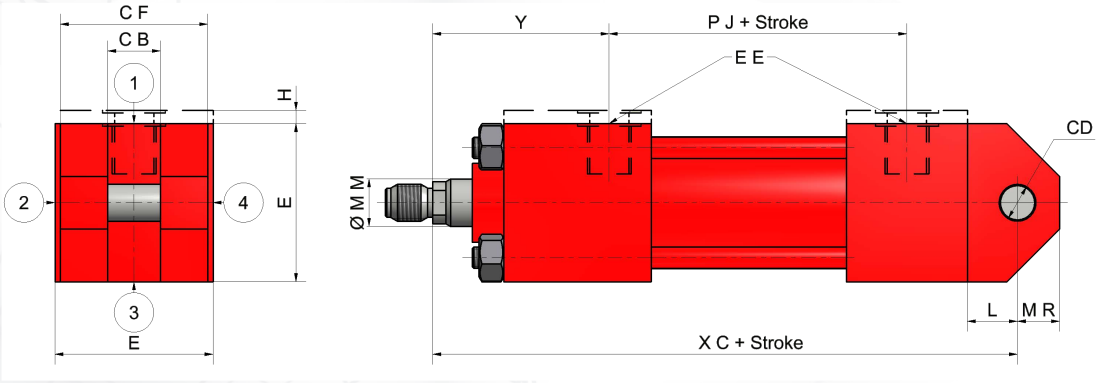
All dimensions are in mm

*non-conform standard ISO 6020/2

Missing dimensions see rod end

H160 Co Series

MP1 Mounting - Rear Plate



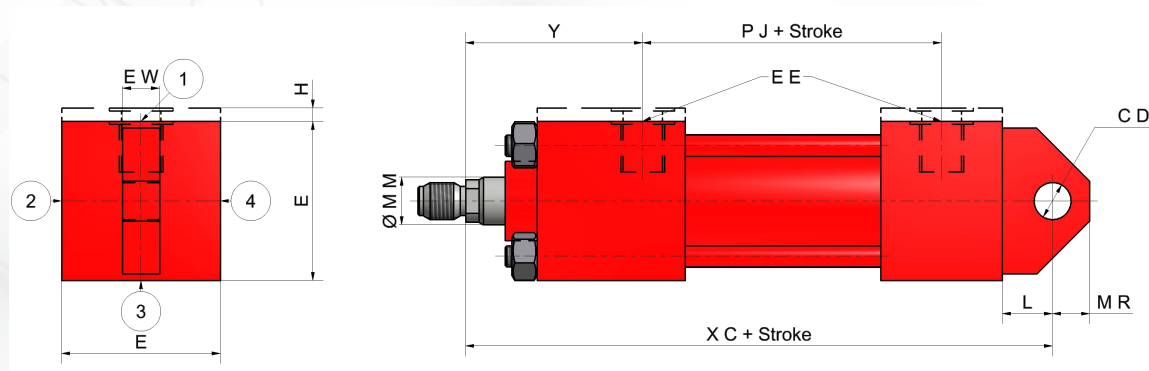
Dimension H = 5 for Ø 25 and 32

Ø Bore	Ø MM	CB	CD	CF	E	EE	L	MR	PJ	XC	Y
25	12	16	10	40	40	G 1/4	13	12	49*	127+	45*
	18										
32	14	16	12	45	45	G 1/4	19	11	47*	147+	58*
	18										
	22										
40	18	20	14	60	60	G 3/8	19	16	58*	172+	65*
	22										
	28										
50	22	30	20	74	75	G 1/2	32	18	62*	191+	69*
	28										
	36										
63	28	30	20	90	90	G 1/2	32	18	64*	200+	76*
	36										
	45										
80	36	40	28	110	115	G 3/4	39	31	77*	229+	82*
	45										
	56										
100	45	50	36	130	130	G 3/4	54	46	78*	257+	91*
	56										
	70										
125	56	60	45	164	165	G 1"	57	43	117	289+	86
	70										
	90										
160	70	70	56	200	200	G 1"	63	57	130	308+	86
	90										
	110										
200	90	80	70	240	245	G 1 1/4"	82	68	165	381+	98
	110										
	140										

All dimensions are in mm

*non-conform standard ISO 6020/2
Missing dimensions see rod end

■ MP3 Mounting -Rear Flat TENON



Dimension **H = 5** for bore **Ø 25** and **32**

Ø Bore	Ø MM	CD	E	EE	EW	L	MR	PJ	XC	Y
25	12	10	40	G 1/4	12	13	12	49*	127+	45*
	18									
32	14	12	45	G 1/4	16	19	11	47*	147+	58*
	18									
	22									
40	18	14	60	G 3/8	20	19	16	58*	172+	65*
	22									
	28									
50	22	20	75	G 1/2	30	32	18	62*	191+	69*
	28									
	36									
63	28	20	90	G 1/2	30	32	18	64*	200+	76*
	36									
	45									
80	36	28	115	G 3/4	40	39	31	77*	229+	82*
	45									
	56									
100	45	36	130	G 3/4	50	54	46	78*	257+	91*
	56									
	70									
125	56	45	165	G 1"	60	57	43	117	289+	86
	70									
	90									
160	70	56	200	G 1"	70	63	57	130	308+	86
	90									
	110									
200	90	70	245	G 1 1/4	80	82	68	165	381+	98
	110									
	140									

All dimensions are in mm

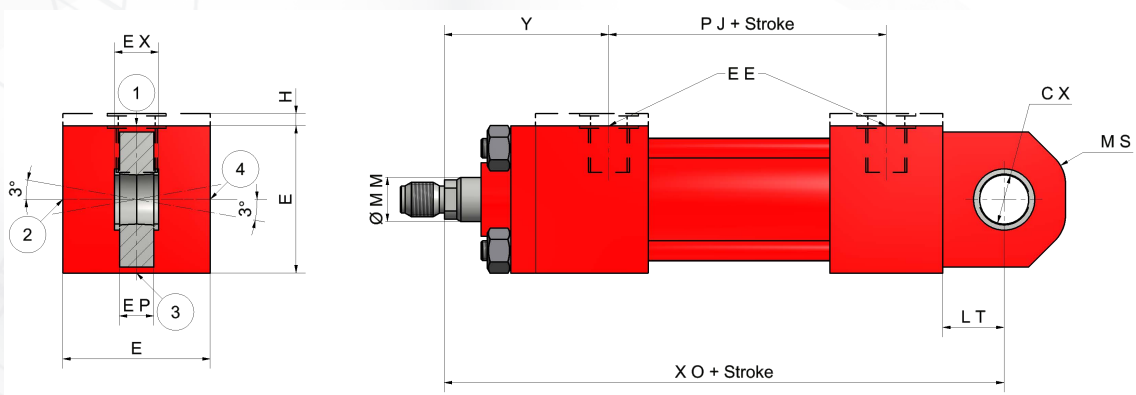
*non-conform standards ISO 6020/2

Missing dimensions see rod end

H160 Co Series

MP5 Mounting

- TENON with ball joint on the back



Dimension H = 5 for bore Ø 25 and 32

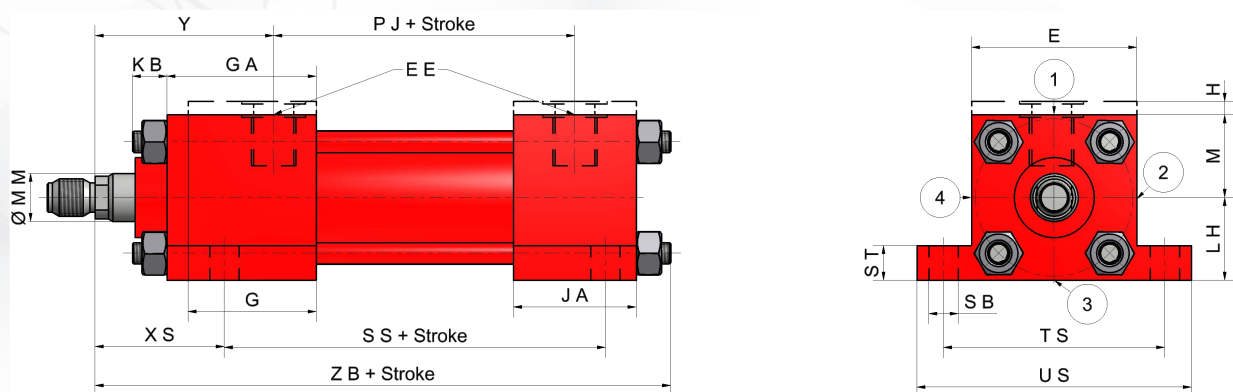
Ø Bore	Ø MM	CX	E	EE	EP	EX	LT	MS	PJ	XO	Y
25	12	12	40	G 1/4	9	10	16	20	49*	130	45*
	18										
32	14	16	45	G 1/4	12	14	20	25	47*	148	58*
	18										
	22										
40	18	20	60	G 3/8	14	16	25	30	58*	178	65*
	22										
	28										
50	22	25	75	G 1/2	18	20	31	35	62*	190	69*
	28										
	36										
63	28	30	90	G 1/2	20	22	38	40	64*	206	76*
	36										
	45										
80	36	40	115	G 3/4	24	28	48	55	77*	238	82*
	45										
	56										
100	45	50	130	G 3/4	30	35	58	65	78*	261	91*
	56										
	70										
125	56	60	165	G 1"	38	44	72	90	117	304	86
	70										
	90										
160	70	80	200	G 1"	47	55	92	100	130	337	86
	90										
	110										
200	90	100	245	G 1 1/4	58	70	116	135	165	415	98
	110										
	140										

All dimensions are in mm

*non-conform standard ISO 6020/2
Missing dimensions see rod end

Remember ball joint lubrication on the fixation axe

■ MS2 Mounting - Lugs on the side



Dimension H = 5 for bore $\varnothing 25$ and 32

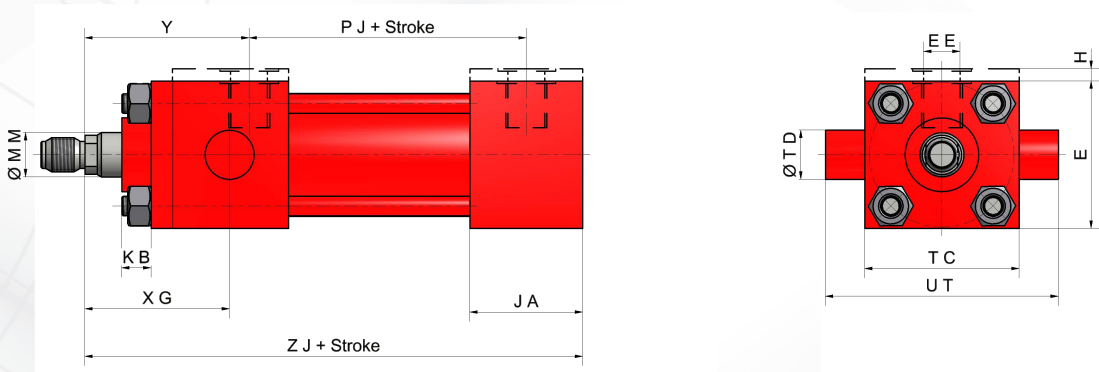
$\varnothing$ Bore	$\varnothing$ MM	E	EE	G	GA	JA	KB	LH	M	PJ	SB	SS	ST	TS	US	XS	Y	ZB
25	14	40	G 1/4	32	42	32	7	19	20	49*	6,5	73	10*	54	72	33	45*	121+
	18																	
32	14	45	G 1/4	35,5	46	36	10	22	23	47*	9	73	13	63	84	45	58*	138+
	18																	
	22																	
40	18	60	G 3/8	46	56	46	13	31	31	58*	11	98	13	83	103	45	65*	166+
	22																	
	28																	
50	22	75	G 1/2	45	61	45	17	37	38	62*	14	92	19	102	127	54	69*	176+
	28																	
	36																	
63	28	90	G 1/2	45	61	45	17	44	45	64*	18	86	26	124	161	65	76*	185+
	36																	
	45																	
80	36	115	G 3/4	52	72	52	23	57	57,5	77*	18	105	26	149	186	68	82*	213+
	45																	
	56																	
100	45	130	G 3/4	55	77	55	23	63	63	78*	26	102	32	172	216	79	91*	226+
	56																	
	70																	
125	56	165	G 1"	87	87	65	30	82	82,5	117	26	131	32	210	254	79	86	262+
	70																	
	90																	
160	70	200	G 1"	95	95	70	35	101	100	130	33	130	38	260	318	86	86	280+
	90																	
	110																	
200	90	245	G 1 1/4	117	117	92	37	122	123	165	39	172	44	311	381	92	98	336+
	140																	

All dimensions are in mm

*non-conform standards ISO 6020/2
Missing dimensions see rod end

H160 Co Series

■ FIXATION MT1 - Front MALE TRUNNIONS



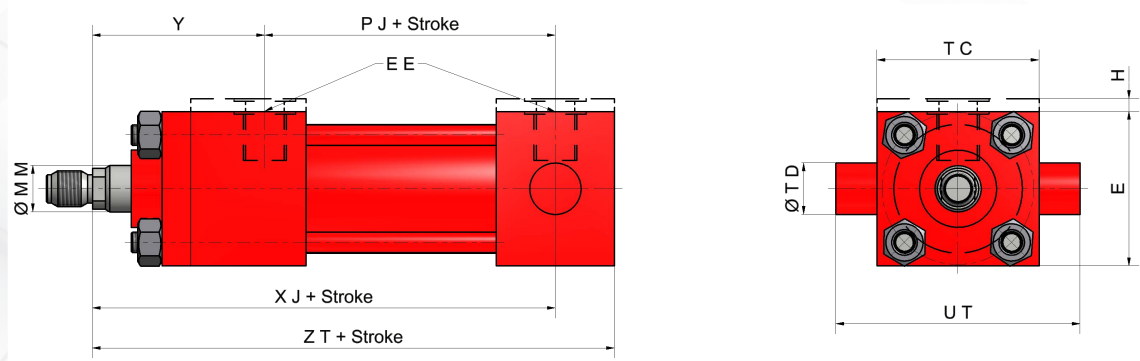
Dimension H = 5 for bore Ø 25 and 32

Ø Bore	Ø MM	E	EE	JA	KB	PJ	TC	TD	UT	XG	Y	ZJ
25	14	40	G 1/4	32	7	49*	38	12	58	44	45*	114+
	18											
32	14	45	G 1/4	36	10	47*	44	16	68	54	58*	128+
	18											
	22											
40	18	60	G 3/8	46	13	58*	63	20	95	57	65*	153+
	22											
	28											
50	22	75	G 1/2	45	17	62*	76	25	116	64	69*	159+
	28											
	36											
63	28	90	G 1/2	45	17	64*	89	32	139	70	76*	168+
	36											
	45											
80	36	115	G 3/4	52	23	77*	114	40	178	76	82*	190+
	45											
	56											
100	45	130	G 3/4	55	23	78*	127	50	207	83*	91*	203+
	56											
	70											
125	56	165	G 1"	65	30	117	165	63	265	75	86	232+
	70											
	90											
160	70	200	G 1"	70	35	130	203	80	329	75	86	245+
	90											
	110											
200	90	245	G 1 1/4	92	37	165	241	100	401	85	98	299+
	110											
	140											

All dimensions are in mm

*non-conform standard ISO 6020/2
Missing dimensions see rod end

■ **FIXATION MT2**
- Rear MALE TRUNNIONS



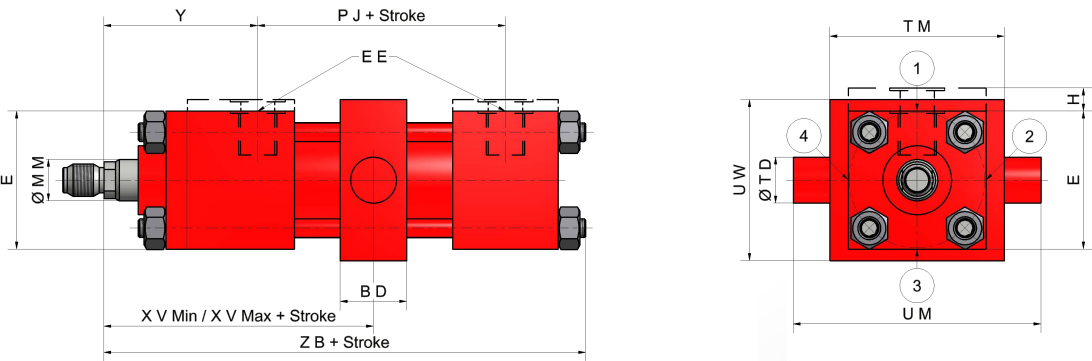
Dimension **H** = 5 for bore **Ø 25** and **32**

Ø Bore	Ø MM	E	EE	PJ	TC	TD	UT	XJ	Y	ZT
25	12	40	G 1/4	49*	38	12	58	95*+	45*	114+
	18									
32	14	45	G 1/4	47*	44	16	68	109*+	58*	128+
	18									
	22									
40	18	60	G 3/8	58*	63	20	95	131*+	65*	153+
	22									
	28									
50	22	75	G 1/2	62*	76	25	116	136*+	69*	159+
	28									
	36									
63	28	90	G 1/2	64*	89	32	139	146*+	76*	168+
	36									
	45									
80	36	115	G 3/4	77*	114	40	178	165*+	82*	190+
	45									
	56									
100	45	130	G 3/4	78*	127	50	207	177*+	91*	203+
	56									
	70									
125	56	165	G 1"	117	165	63	265	209+	86	254+
	70									
	90									
160	70	200	G 1"	130	203	80	329	227+	86	270+
	90									
	110									
200	90	245	G 1 1/4	165	241	100	401	271+	98	354+
	110									
	140									

All dimensions are in mm

*non-conform standards ISO 6020/2
Missing dimensions see rod end

■ MT4 Mounting
- MALE TRUNNIONS ON THE MIDDLE



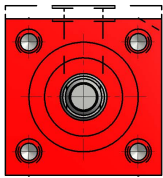
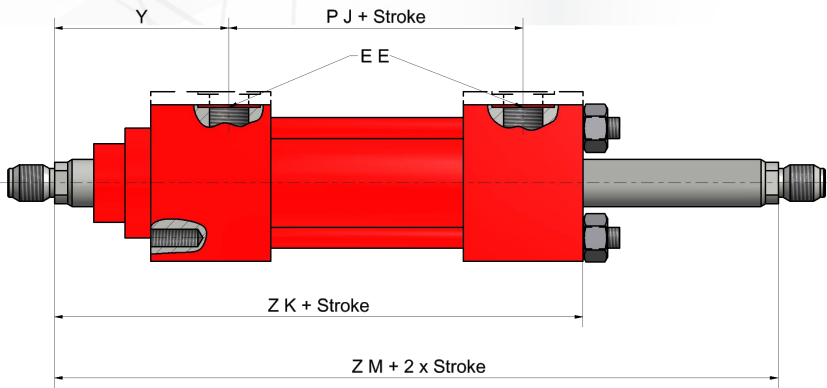
Dimension H = 5 for bore Ø 25 and 32

Ø Bore	Ø MM	BD	E	EE	PJ	Ø TD	TM	UM	UW	XV		Y	ZB	Course mini
										Min	Max			
25	12	20	40	G 1/4	49*	12	48	68	45	67	72+	45*	121+	5
	18													
32	14	25	45	G 1/4	47*	16	55	79	50	83	80+	58*	138+	5
	18													
	22													
40	18	29	60	G 3/8	58*	20	76	108	70	96	92+	65*	166+	5
	22													
	28													
50	22	38	75	G 1/2	62*	25	89	129	90	106	94+	69*	176+	15
	28													
	36													
63	28	48	90	G 1/2	64*	32	100	150	100	118	98+	76*	185+	20
	36													
	45													
80	36	58	115	G 3/4	77*	40	127	191	130	133	108+	82*	213+	25
	45													
	56													
100	45	68	130	G 3/4	78*	50	140	220	140	147	113+	91*	226+	35
	56													
	70													
125	56	88	165	G 1"	117	63	178	278	180	166	123+	86	262+	45
	70													
	90													
160	70	108	200	G 1"	130	80	215	341	260 Max	182	120+	86	280+	94
	90													
	110													
200	90	125	245	G 1 1/4	165	100	279	439	355	213	142+	98	336+	96
	110													
	140													

All dimensions in mm

*non-conform standard ISO 6020/2
Missing dimensions see rod end

DOUBLE Rod Cylinder



For mounting positions :

Thread on the head

Rectangular head on the front

MDX5

MDE5

Lugs on the side

Male trunnions on the middle

MDS2

MDT4

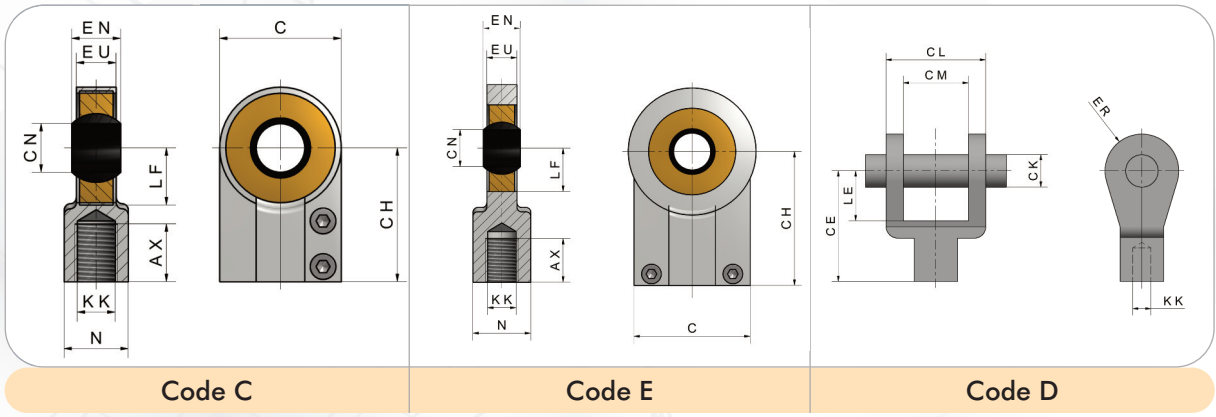
Ø Bore	Ø MM	EE	PJ	Y	ZK	ZM
25	12	G 1/4	49*	45*	124+	139+
	18					
32	14	G 1/4	47*	58*	138+	163+
	18					
	22					
40	18	G 3/8	58*	65*	163+	188+
	22					
	28					
50	22	G 1/2	62*	69*	175+	200+
	28					
	36					
63	28	G 1/2	64*	76*	184+	216+
	36					
	45					
80	36	G 3/4	77*	82*	210+	241+
	45					
	56					
100	45	G 3/4	78*	91*	225	260+
	56					
	70					
125	56	G 1"	117	86	254+	289+
	70					
	90					
160	70	G 1"	130	86	270+	302+
	90					
	110					
200	90	G 1 1/4	165	98	324+	356+
	110					
	140					

All dimensions are in mm

*non-conform standard ISO 6020/2



Rod ACCESSORIES



Code C	Codification for ball joint tenon (ISO 6982)								
	CS 12125	CS 1415	CS 1615	CS 2015	CS 272	CS 332	CS 422	CS 482	CS 643
C	32	40	47	58	70	89	108	132	168
CH	38	44	52	65	80	97	120	140	180
EN	12	16	20	25	32	40	50	63	80
EU	10,5	13	17	21	27	32	40	52	66
CN	12	16	20	25	32	40	50	63	80
LF	14	18	22	27	32	41	50	62	78
AX	17	19	23	29	37	46	57	64	86
KK	M12x1,25	M14x1,5	M16x1,5	M20x1,5	M27x2	M33x2	M42x2	M48x2	M64x3
N	16	21	25	30	38	47	58	70	90
Charge DYN	10,8 KN	17,6 KN	30 KN	48 KN	67 KN	100 KN	156 KN	255 KN	400 KN
Charge STAT.	24,5 KN	36,5 KN	48 KN	78 KN	114 KN	204 KN	310 KN	430 KN	695 KN

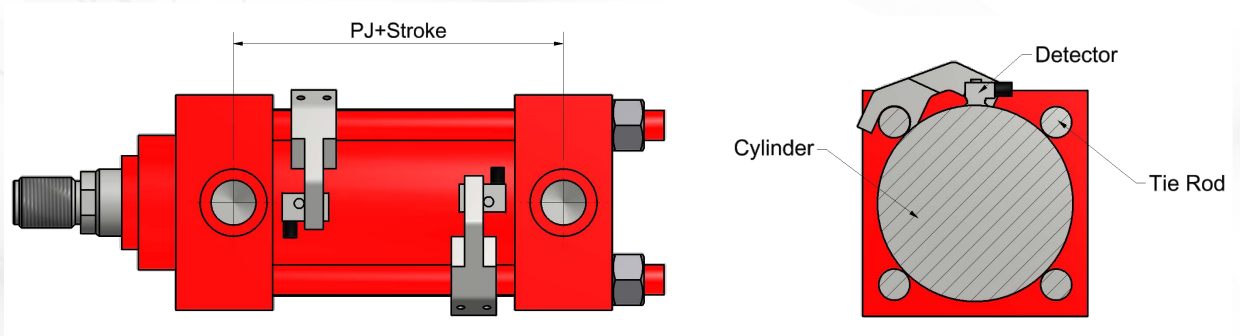
Code E	Codification for ball joint tenon (DIN 24555)									
	TS 10125	TS 12125	TS 1415	TS 1615	TS 2015	TS 272	TS 332	TS 422	TS 482	TS 463
C	32	42	50	62	76	96	116	150	195	235
CH	42	48	58	68	85	105	130	150	185	240
EN	10	14	16	20	22	28	35	44	55	70
EU	8	11	13	17	19	23	30	38	47	57
CN	12	16	20	25	30	40	50	60	80	100
LF	18	22	28	34	38	48	62	74	98	122
AX	15	17	19	23	29	37	46	57	64	86
KK	M10x1,25	M12x1,25	M14x1,5	M16x1,5	M20x1,5	M27x2	M33x2	M42x2	M48x2	M64x3
N	17	21	25	30	36	45	55	68	78	100
Charge DYN	10,8 KN	21,1 KN	30 KN	48 KN	62 KN	100 KN	156 KN			
Charge STAT.	17 KN	28,5 KN	42,5 KN	67 KN	108 KN	156 KN	156 KN			

Code D	Codification for plate with axe (ISO 8133)									
	CF 10125	CF 12125	CF 1415	CF 1615	CF 2015	CF 272	CF 332	CF 422	CF 482	CF 463
CE	32	36	38	54	60	75	99	113	126	168
CK	10	12	14	20	20	28	36	45	56	70
CL	25	35	40	60	60	80	100	120	140	160
CM	12	16	20	30	30	40	50	60	70	80
ER	12	17	17	29	29	34	50	53	59	78
KK	M10x1,25	M12x1,25	M14x1,5	M16x1,5	M20x1,5	M27x2	M33x2	M42x2	M48x2	M64x3
LE	13	19	19	32	32	39	54	57	63	83

All dimensions are in mm

H160 Co Series

■ MAGNETIC DETECTION - OPTION DM



Note : Requires at least stroke 50mm. Not feasible for type MT4.

ATTENTION !!!

- To prevent measurement errors no magnetic field greater than 1 Ka/m is allowed around the cylinder
- No ferric chips are allowed in the vicinity of the magnetic sensors
- Protection against ferric chips is highly recommended
- Operating temperature should be below + 85 °C.

TECHNICAL CHARACTERISTICS

PNP
Contact on closing / positive communication

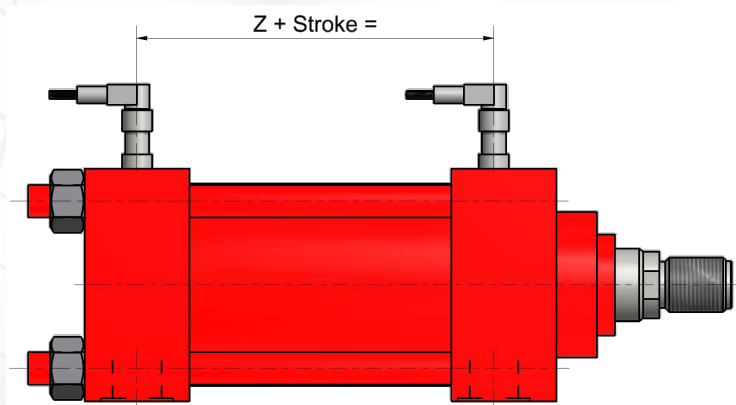
Operating Tension U_B	10...30 V DC
Drop Tension U_d	$\leq 3.1V$
Nominal Insulation Tension U_i	75 V DC
Nominal Operating Current I_o	200 mA
Current I_o max.	< 30 mA
Protection against polarity inversion	Yes
Protection against short circuits	Yes
Protection against intervention	Yes
Communication Intensity - nominal $ H_n $	1,2 kA/m
Working Intensity $ H_o $	≥ 2 kA/m
Hysteresis of $ H_n $	$< 45\%$
Temperature Drift $ H_n $	$\leq 0,3\% / ^\circ C$
Operating Temperature T_o	-25 ... +85 $^\circ C$
Class of protection according CEI 60529	IP67
Homologation	CE, cULus
Housing material	Aluminium Connectors
Connection	M8, 3 wires

Elbow Connector - 3 m of cable casted in the mass

LED Yellow : Indicates detection
Green : Indicates tension

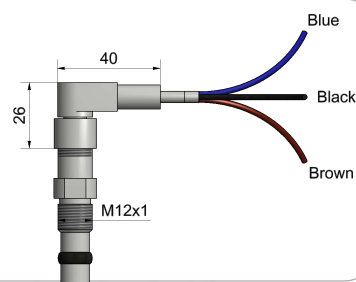
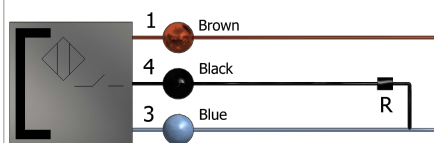
H160 Co Series

INDUCTIVE SENSORS - OPTION DI



TECHNICAL CHARACTERISTICS

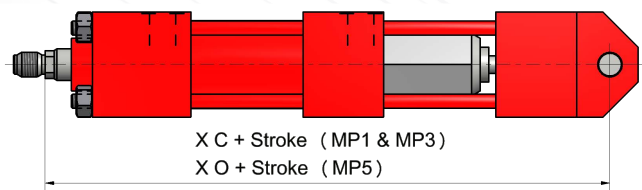
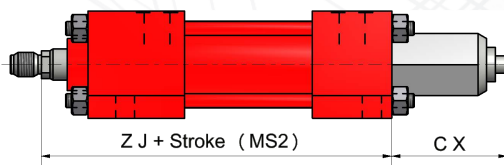
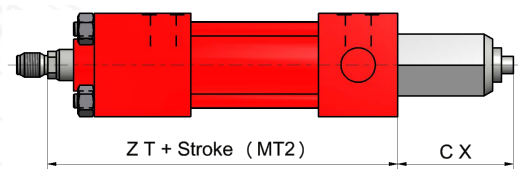
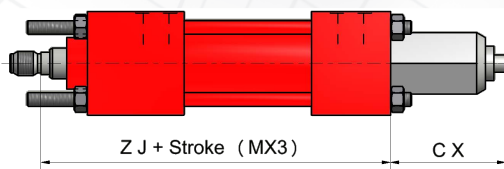
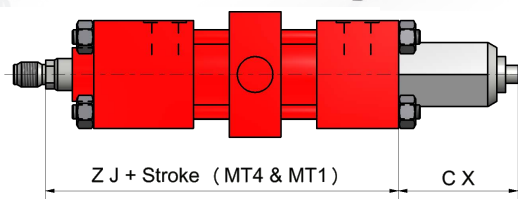
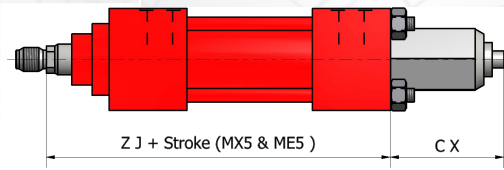
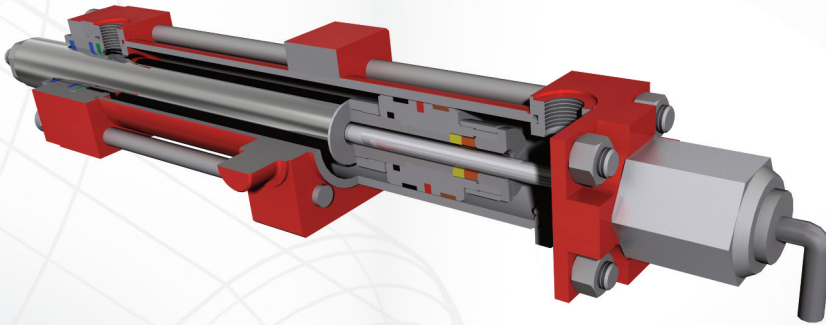
PNP
Contact on closing /
positive communication



Operating Tension U_b	10...30 V DC
Drop Tension U_d	2,5V
Nominal Insulation Tension U_i Nominal	75 V DC
Operating Current I_e	200 mA
Exit Resitance R_a	33 k Ω
Protection against polarity inversion	Yes
Protection against short circuits	Yes
Protection against intervention	Yes
Communication Frequency - f max	2 kHz
Operating Temperature T_a	-25 ... +120 °C
Class of protection according CEI 60529	IP 68 selon BWN PR. 20
Homologation	CE
Housing material	Stainless Steel
Connection	Connector M12, 4 wires

H160 Co Series

Linear movement detector - OPTION CL



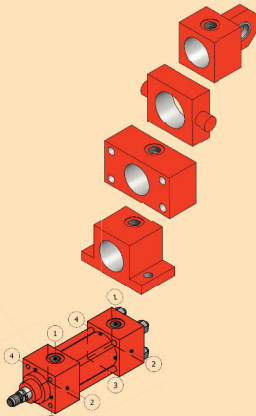
Nota : Technical data upon demand

Ø Bore	Ø MM	CX	XC	XO	ZJ	ZT	Pressure Max. of service (Bar)
40	28	120	-	-	163	163	210
50	28	120	411	410	169	169	180
	36						210
63	28	120	420	426	178	178	110
	36						210
	45						210
80	36	120	447	456	200	200	130
	45						210
	56						210
100	45	120	475	479	213	213	130
	56						210
	70						210
125	56	120	514	529	242	264	210
	70						210
	90						210
160	70	120	541	570	255	280	180
	90						210
	110						210
200	90	120	632	666	309	364	140
	110						210
	140						210

All dimensions in mm



HOW TO ORDER

Série		Vérin																								H160 C0					
Ø Alésage		25	32	40	50	63	80	100	125	160	200	***																			
Ø Tige		12	18	14	18	22	18	22	28	22	28	36	28	36	45	36	45	56	45	56	70	56	70	90	70	90	110	90	110	140	***
Fixation	Simple tige	Taraudage dans la tête																								MX5					
		Tirants dépassant de chaque extrémité																								MX1					
		Tirants dépassant du fond																								MX2					
		Tirants dépassant de la tête																								MX3					
		Tête rectangulaire																								ME5					
		Fond rectangulaire																								ME6					
		Chape arrière																								MP1					
		Tenon arrière trou lisse																								MP3					
		Tenon arrière fixe avec rotule																								MP5					
		Pattes sur côté																								MS2					
		Tourillon mâle avant																								MT1					
		Tourillon mâle arrière																								MT2					
		Tourillon mâle intermédiaire																								MT4					
		Double tige	Taraudage dans la tête																								MDX5				
	Tête rectangulaire																								MDE5						
	Pattes sur côté																								MDS2						
	Tourillon mâle intermédiaire																								MDT4						
	Étanchéité	Joints standard, +80° maxi																								N					
		Joints Viton, +200° maxi																								V					
Eau glycol, +90° maxi																								G							
Étanchéité du piston	Joint à double effet																								D						
	Joint composite																								P						
Étanchéité tige	Joint garniture simple à lèvre																								J						
	Joint composite																								P						
Mode de fonctionnement	Sans amortissement																								0						
	Amortissement avant																								1						
	Amortissement arrière																								2						
	Amortissement avant arrière																								3						
Orifices	Filetage intérieur Gaz																								G						
Course	Indiquer la course en mm																								***						
Entretoise pour course longue	Avec entretoise (sur demande)																								E						
	Sans entretoise																								S						
Extrémité de tige	Filetage extérieur ISO 6982																								KK						
	Filetage extérieur DIN 24554																								KK1						
	Taraudée																								KF						
	Tenon																								T						
	Filetage extérieur avec tenon à rotule ISO 6982																								C						
	Filetage extérieur avec tenon à rotule DIN 24555																								E						
	Filetage extérieur avec chape																								D						
Position des orifices d'alimentation			Alésage	Ø 25 et 32		Ø 40 à 200		Positions 1,2,3,4 Tête *** Fond ***																							
				Tête	Fond	Tête	Fond																								
			ME5	1	1	1 ou 3	1,2,3 ou 4																								
			MT1																												
			ME6																												
			MP1	1	1	1,2,3 ou 4	1 ou 3																								
MP5																															
MT2																															
MS2	1	1	1	1																											
MP3																															
MT4	1	1	1,2,3 ou 4	1,2,3 ou 4																											
MX2																															
MX5																															
Position des fixations variables	MT4 - Indiquer la valeur XV en mm																								***						



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