



# HYDRAULIC CYLINDERS

## ISO 6022 - CG Series

The double-acting "CG" cylinders featured in this catalog have been developed for industrial applications in accordance with ISO 6022 manufacturing standards. The care taken in selecting the materials and seals used, the attention to detail required at every stage of production and inspection, combined with rigorous final testing, make these hydraulic actuators an excellent choice for any application requiring maximum reliability and repeatability.

### GENERAL CONSTRUCTION NOTES

- Compact design with rounded ends and threaded locking rings
- Custom steel components designed with high safety factors
- Bore sizes and shank diameters in accordance with standards
- Strokes available up to 3000 mm for any practical application
- Chrome plated rods, bolted and secured to the pistons, and manufactured to design specifications
- Optional drain on the front head to drain fluid accumulated between the gaskets
- Optional adjustable front and/or rear end-of-travel brakes
- Standard low-friction gaskets even for high-temperature applications

### TECHNICAL SPECIFICATIONS

Reference legislation	ISO 6022 DIN 24333
Piston diameter [mm]	50 - 63 - 80 - 100 - 125 - 140 - 160 - 180 - 200 - 250 - 320
Shaft diameter [mm]	Standard and intermediate sizes (see tables)
Operating pressure [bar / psi]	250 / 3625,94 (continuous service)
Maximum pressure [bar / psi]	320 / 4641,21 (peak pressure)
Operating temperature [°C]	From -20°C to +100°C
Translation speed [m/s]	Up to 15 m/s
Working fluid	Mineral oil compliant with ISO 6743/4
Degree of contamination	Class 20/18/15 according to ISO 4406:1999

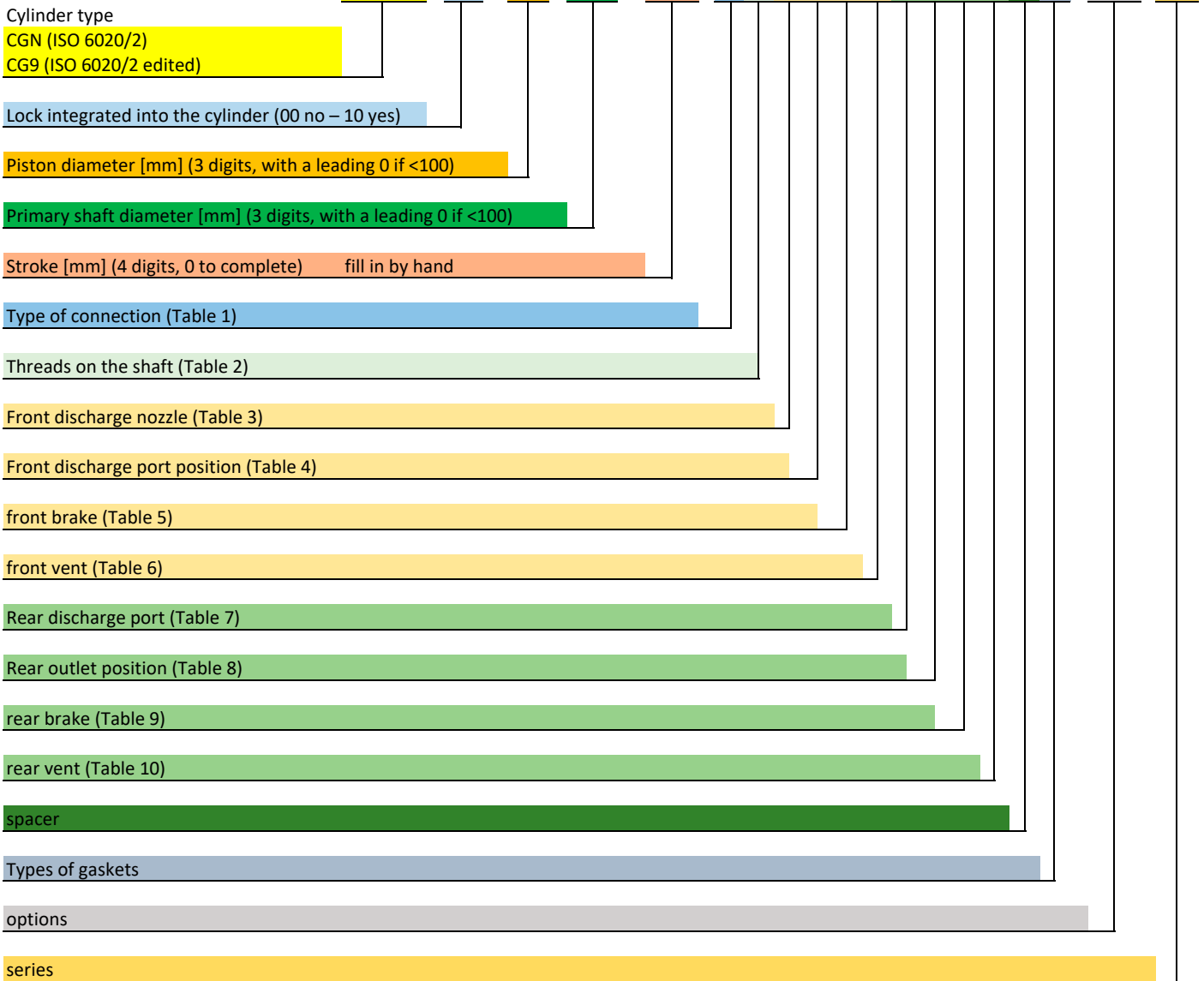
### CYLINDER TYPE

<i>Tabella 1</i>	
CIL CG	Standard cylinders
CIL CG9	Special cylinders

## CODING EXAMPLE

CIL CG9 / 00 - 050 / 032 X 500 - XX M G 1 0 0 G 1 0 0 2 2 - / . 10

### Encoding



STANDARD FINISH BLACK PAINT RAL 9005

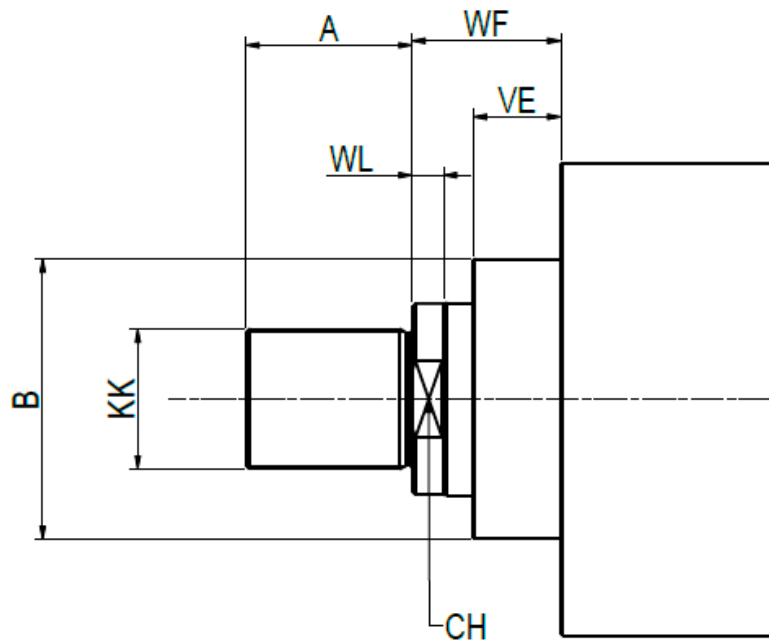
table 1	DESCRIPTION
F3	Front flange (ISO MF3)
F4	Rear flange (ISO MF4)
P5	Rear male hinge with a joint ( ISO MP5)
T4	Center pivot hinge (ISO Mt4)
C1	Stands ( NO ISO)

Special fasteners can be manufactured upon request.

## DIMENSIONS TIP OF THE STEM

The stem ends can be made with a "male" connection or according to the following diagram

table 2	THREADING ON THE SHAFT
M	Standard male (standard configuration)
X	Special



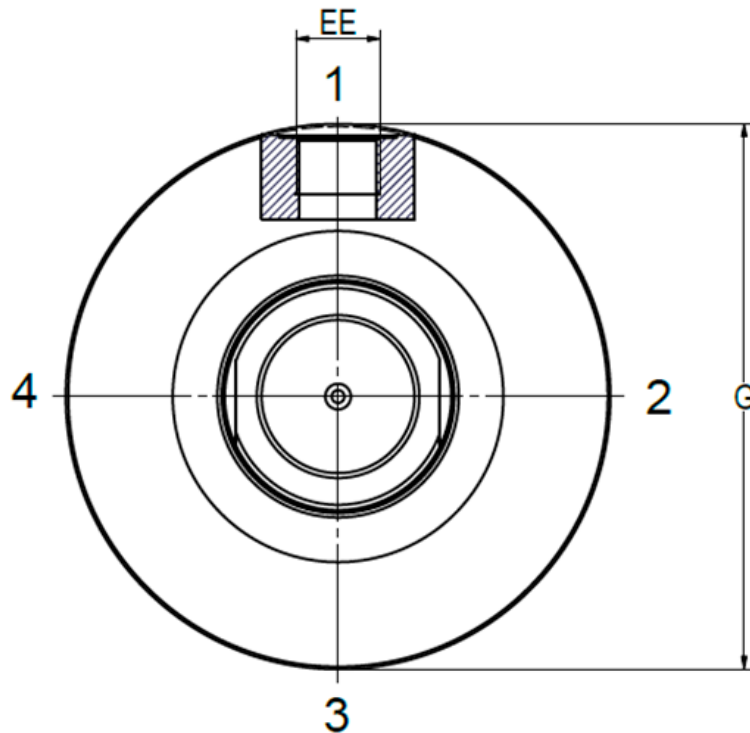
Ø PISTON	Ø STEM	KK 6g	B f8	A	WF	WL Min	VE Max	CH
50	32	M27x2	63	36	47	8	29	30
	36							
63	40	M33x2	75	45	53	10	32	39
	45							
80	50	M42x2	90	56	60	10	36	48
	56							
100	63	M48x2	110	63	68	10	41	62
	70							
125	80	M64x3	132	85	76	15	45	80
	90							
140	90	M72x3	145	90	76	15	45	75
	100							
160	100	M80x3	160	95	85	15	50	100
	110							
180	110	M90x3	185	105	95	15	55	100
	125							
200	125	M100x3	200	112	101	15	61	128
	140							
250	160	M124x4	250	125	113	-	71	15 *
	180							
320	200	M160x4	320	160	136	-	88	20 *
	220							

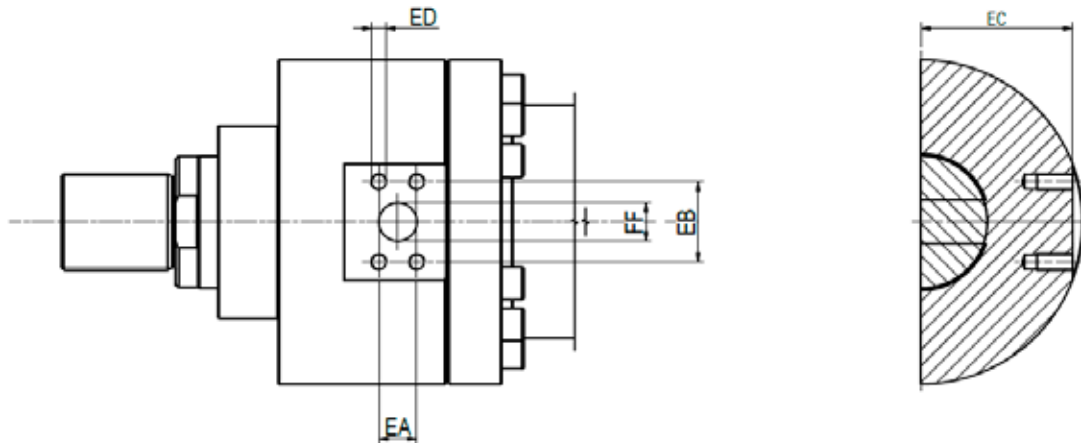
(\*) N°2 holes for a key

table 3	FRONT INLET
G	GAS
S	SAE Rectangular ISO 6162-1 (SAE 6000)
X	Special

table 6	BOCCA DI MANDATA POSTERIORE
G	GAS
S	SAE Rectangular ISO 6162-1 (SAE 6000)
X	Special

### LOCATION OF VENTS, BRAKE VENTS, AND AIR VENTS





Ø PISTON	Ø STEM	G	EE	DN	EC	EA ±0.25	EB ±0.25	ED 6g	FF (0/-1.5)
50 *	32	108	G 1/2	13	46	18,2	40,5	M8x1,25	13
	36								
63 *	40	124	G 3/4	19	51	23,8	50,8	M10x1,5	19
	45				65				
80	50	148			77				
	56				99				
100	63	175	G 1	25	77	27,8	57,2	M12x17,5	25
125	70								
	140	80	214	G 1 1/4	32	118	31,6	66,6	M14x2 **
160		90							
	180	100	150						
200		110	158						
	250	125	330	G 1 1/2	38	195	36,7	79,3	M16x2,5
140		245							
320	160	412	51	51	245	44,5	96,8	M20x2,5	51
	180								
	200	510							
	220								

(\*) SAE flange not available for connection B (ISO MF4)

(\*\*) Not required by law ISO 6162-2

It is advisable not to use the cylinder heads as end stops for the moving mass. In this regard, we recommend the use of brakes—adjustable via a pin—designed to slow the load’s speed as it approaches the end of its travel.

To avoid damaging the cylinder, it is always advisable to use external mechanical stops.

<b>table 4</b>	<b>FRONT BRAKE</b>
0	not present
1	position 1 looking at the cylinder from the stem
2	position 2 looking at the cylinder from the stem
3	position 3 looking at the cylinder from the stem (standard position)
4	position 4 looking at the cylinder from the stem

<b>table 7</b>	<b>REAR BRAKE</b>
0	not present
1	position 1 looking at the cylinder from the stem
2	position 2 looking at the cylinder from the stem
3	position 3 looking at the cylinder from the stem (standard position)
4	position 4 looking at the cylinder from the stem

## VENTILATION

Vent holes are a practical way to remove air from inside the cylinder during installation. They come standard with brakes or are available as an option upon request.

<b>table 8</b>	<b>REAR VENT</b>
0	not present
1	position 1 looking at the cylinder from the stem
2	position 2 looking at the cylinder from the stem
3	position 3 looking at the cylinder from the stem (standard position)
4	position 4 looking at the cylinder from the stem

<b>table 5</b>	<b>FRONT VENT</b>
0	assente
1	position 1 looking at the cylinder from the stem
2	position 2 looking at the cylinder from the stem
3	position 3 looking at the cylinder from the stem (standard position)
4	position 4 looking at the cylinder from the stem

## SPACER

When using cylinders with a stroke > 1000 mm, it is recommended to use spacers to improve rod guidance and prevent jamming.

Keep in mind that the overall length of the cylinder will increase depending on the number of spacers inserted.

<b>table 9</b>	<b>SPACER</b>
0	without
1	25 mm
2	50 mm
3	75 mm
4	100 mm
5	125 mm
6	150 mm
7	175 mm
8	200 mm
X	more than 200 mm

## GASKET MATERIALS

The materials used in "CG" cylinder seals meet the operational requirements of most industrial applications.

Our standard gaskets are characterized by low friction coefficients and the absence of sliding vibrations (stick-slip effect).

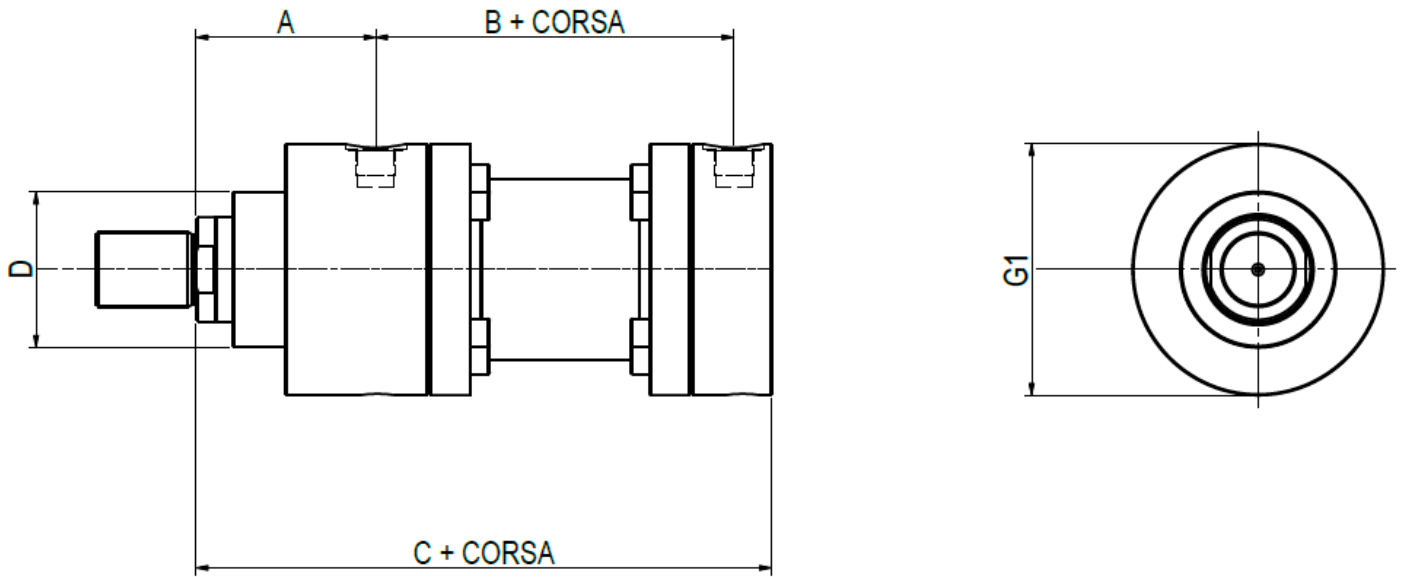
Gaskets are also available for high-temperature operating conditions.

If special fluids are used or specific operating conditions are required, specially designed gaskets are available.

<b>table 10</b>	<b>GASKET MATERIAL</b>
0	special
1	NBR + polyurethane
2	NBR + PTFE (standard material)
3	VITON + PTFE

## OPTIONS

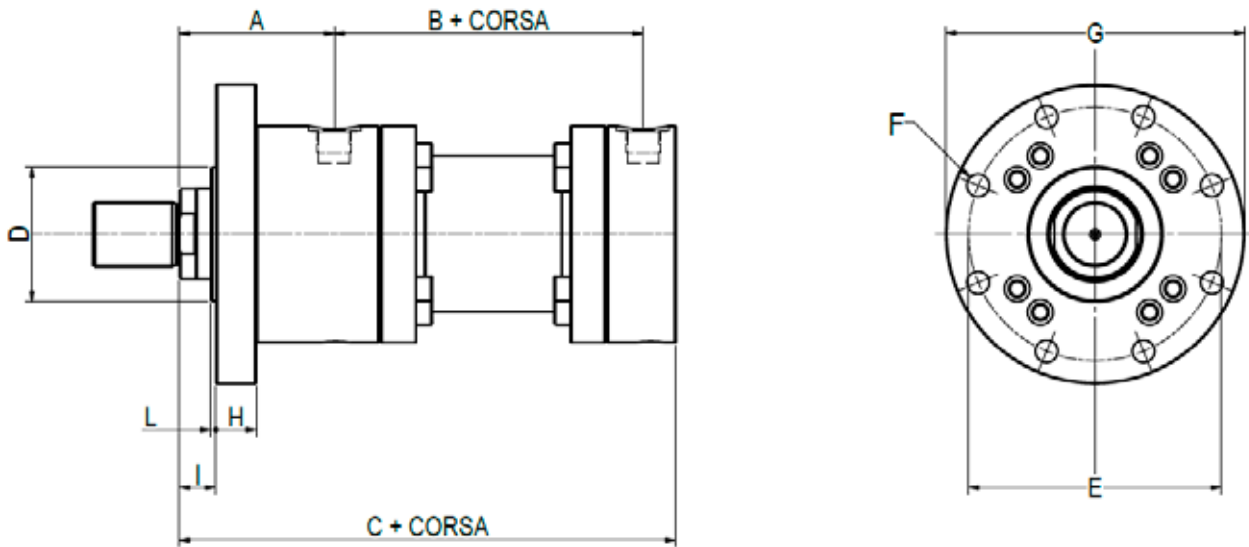
<b>table 11</b>	<b>OPTIONS</b>
/	Nothing
L	Anterior drainage
K	Nickel and chrome-plated stem (Nicrom)
T	Tempered stem 42CrMo4
S	Front proximity sensor + position sensor
R	Rear proximity sensor + position sensor
P	Position sensor



Ø PISTON	Ø STEM	A ± 2	B	C	D f8/H8	G1
50	32	98	120	244	63	108
	36					
63	40	112	133	274	75	124
	45					
80	50	120	155	305	90	148
	56					
100	63	134	171	340	110	175
	70					
125	80	153	205	396	132	214
	90					
140	90	181	208	430	145	255
	100					
160	100	125	235	467	160	270
	110					
180	110	205	250	505	185	315
	125					
200	125	220	278	550	200	330
	140					
250	160	260	325	652	250	412
	180					
320	200	310	350	764	320	510
	220					

Dimensions in [mm]

## MOUNTING TYPES: FRONT FLANGE MOUNT TYPE "F3" (ISO MF3)

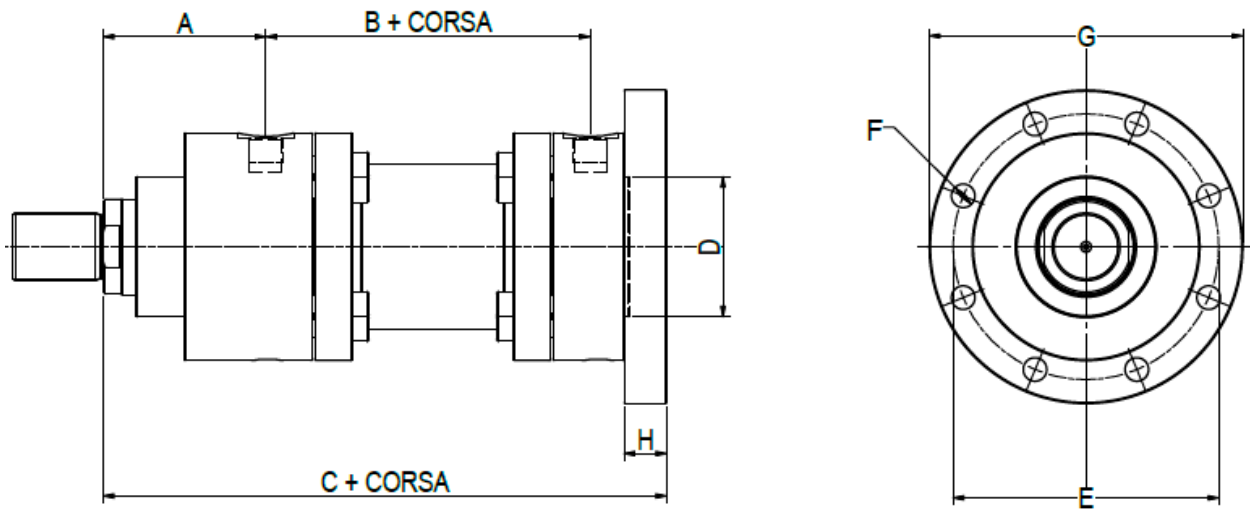


Ø PISTON	Ø STEM	A ± 2	B	C	D f8/H8	E js13	F H13	G	H js13	I	L
50	32	98	120	244	63	132	13,5	160	25	22	4
	36										
63	40	112	133	274	75	150	13,5	180	28	25	4
	45										
80	50	120	155	305	90	180	17,5	215	32	28	4
	56										
100	63	134	171	340	110	212	22	260	36	32	5
	70										
125	80	153	205	396	132	250	22	300	40	36	5
	90										
140	90	181	208	430	145	300 *	26	340	40	36	5
	100										
160	100	185	235	467	160	315	26	370	45	40	5
	110										
180	110	205	250	505	185	365 *	33	425	50	45	5
	125										
200	125	220	278	550	200	385	33	455	56	45	5
	140										
250	160	260	325	652	250	475	39	545	63	50	8
	180										
320	200	310	350	764	320	600	45	680	80	56	8
	220										

Dimensions in [mm]

(\*) Dimension not compliant with ISO 6022

## MOUNTING TYPES: REAR FLANGE MOUNT TYPE "F4" (ISO MF4)

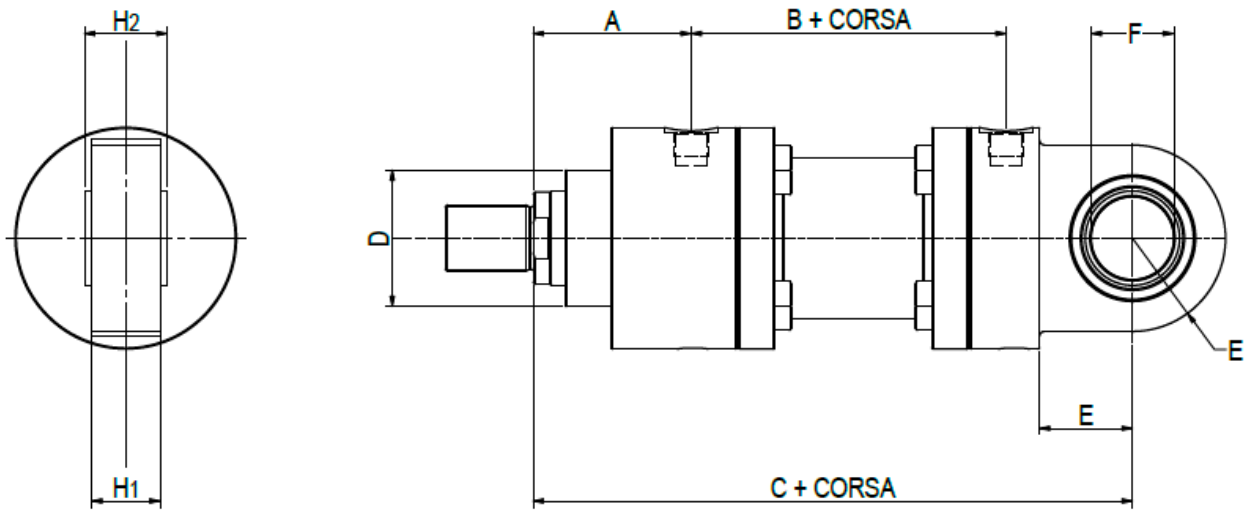


Ø PISTON	Ø STEM	A ± 2	B	C	D f8/H8	E js13	F H13	G	H js13
50	32	98	120	265	63	132	13,5	160	25
	36								
63	40	112	133	298	75	150	13,5	180	28
	45								
80	50	120	155	332	90	180	17,5	215	32
	56								
100	63	134	171	371	110	212	22	260	36
	70								
125	80	153	205	430	132	250	22	300	40
	90								
140	90	181	208	465	145	300 *	26	340	40
	100								
160	100	185	235	505	160	315	26	370	45
	110								
180	110	205	250	550	185	365 *	33	425	50
	125								
200	125	220	278	596	200	385	33	455	56
	140								
250	160	260	325	703	250	475	39	545	63
	180								
320	200	310	350	830	320	600	45	680	80
	220								

Dimensions in [mm]

(\*) Dimension not compliant with ISO 6022

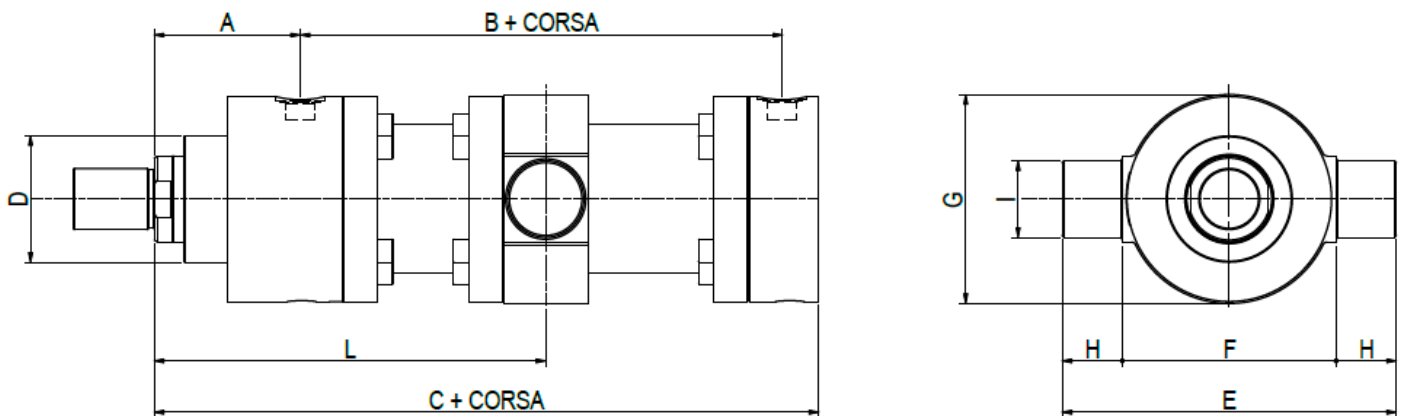
## TYPES OF MOUNTING: HINGE WITH JOINT TYPE "P5" (ISO MP5)



Ø PISTON	Ø STEM	A ± 2	B	C	D f8/H8	E	F H7	H1	H2 h12
50	32	98	120	305	63	61	32	27	32
	36								
63	40	112	133	348	75	74	40	35	40
	45								
80	50	120	155	395	90	90	50	40	50
	56								
100	63	134	171	442	110	107	63	52	63
	70								
125	80	153	205	520	132	124	80	66	80
	90								
140	90	181	208	580	145	150	90	65	90
	100								
160	100	185	235	617	160	150	100	84	100
	110								
180	110	205	250	690	185	185	110	88	110
	125								
200	125	220	278	756	200	206	125	102	125
	140								
250	160	260	325	903	250	251	160	130	160
	180								
320	200	310	350	1080	320	322	200	162	200
	220								

Dimensions in [mm]

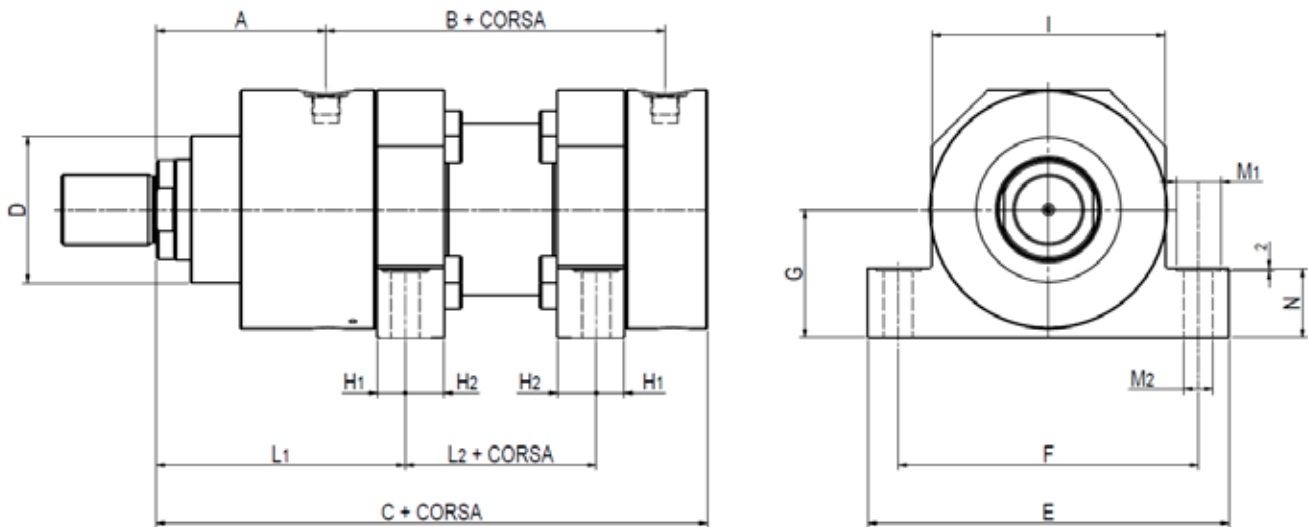
## TYPES OF FASTENING: FASTENING WITH A "T4" TYPE INTERMEDIATE CLAMP (ISO MT4)



Ø Piston	Ø STEM	A ± 2	B	C	D f8/H8	E	F h12	G	H js13	I f8	L		
											Minimum stroke	min	Max
50	32	98	120	244	63	162	112	108	25	32	175	260	85 + stroke
	36												
63	40	112	133	274	75	189	125	124	32	40	185	285	100 + stroke
	45												
80	50	120	155	305	90	230	150	150	40	50	150	290	140 + stroke
	56												
100	63	134	171	340	110	280	180	180	50	63	160	320	160 + stroke
	70												
125	80	153	205	396	132	350	224	219	63	80	245	410	165 + stroke
	90												
140	90	181	208	430	145	405	265	260	70	90	250	440	190 + stroke
	100												
160	100	185	235	467	160	440	280	280	80	100	260	465	205 + stroke
	110												
180	110	205	250	505	185	500	320	315	90	110	350	540	190 + stroke
	125												
200	125	220	278	550	200	535	335	333	100	125	390	590	200 + stroke
	140												
250	160	260	325	652	250	675	425	412	125	160	460	690	230 + stroke
	180												
320	200	310	350	764	320	850	530	510	160	200	560	820	260 + stroke
	220												

Dimensions in [mm]

## TYPES OF MOUNTING: FOOT MOUNT TYPE "C1" (ISO MS2)



Ø PISTON	Ø STEM	A ± 2	B	C	D f8/H8	E	F	G h10	H1	H2	I	L1	L2	M1	M2 H13	N
50	32	98	120	244	63	160	135	60	15,5	20,5 *	105	130	55	18	11	32
	36															
63	40	112	133	274	75	185	155	68	17,5	24,5 *	122	147,5	55	20	13,5	37
	45															
80	50	120	155	305	90	225	185	80	22,5	22,5	145	170,5	55	26	17,5	42
	56															
100	63	134	171	340	110	265	220	95	27,5	27,5	175	192,5	55	33	22	52
	70															
125	80	153	205	396	132	325	270	115	30	30	210	230	60	40	26	62
	90															
140	90	181	208	430	145	390	325	135	35,5	35,5	255	254,5	61	48	30	77
	100															
160	100	185	235	467	160	405	340	145	37,5	37,5	270	265,5	79	48	33	77
	110															
180	110	205	250	505	185	465	390	165	42,5	42,5	315	287,5	85	60	40	87
	125															
200	125	220	278	550	200	480	405	170	45	47 *	330	315	90	60	40	87
	140															
250	160	260	325	652	250	620	520	215	50	52 *	410	360	120	76	52	112
	180															
320	200	310	350	764	320	740	620	260	60	62 *	510	425	120	110	62	152
	220															

Dimensions in [mm]

(\*) Mounting holes offset from the centerline



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System Certificate  
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