CA
CYLINDERS SERIES

STANDARD ISO 6020/1

GRICES HYDRAULIC CYLINDERS

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STANDARD ISO 6020/1

CA cylinders series follows international standard **ISO 6020/1**. The compact construction with round head fits to the most demanding and challenging industrial actuation requests with continuous nominal pressure up to **16 MPa**.

The choice of selected materials, the severe controls of 100% of all cylinders produced and the quality of the means of production, allow us to reach high standards of quality, reliability and enduring product performance.

The seals used, supplied by premium suppliers, grant high performance and international availability. The wide range of seals, allows us to offer cylinders for applications with different kinds of hydraulic fluids, speed, frequency and operating temperature. Our production includes the optional integration of position transducers (*see CAT series*).

Technical characteristics:

- Standard ISO 6020/1
- Nominal pressure 16 MPa (continuous operation)
- Maximum pressure 25 MPa
- Bore 40-320 mm
- Stroke up to 4000 mm
- Single or double rod
- Up to 2 rod diameter per bore
- 8 Mounting styles Ref. ISO MP3 - MF4 - MF3 - MS2 - MT4 - MF1 - MF2 - MP5
- Wide range of accessories for rod end and mounting styles

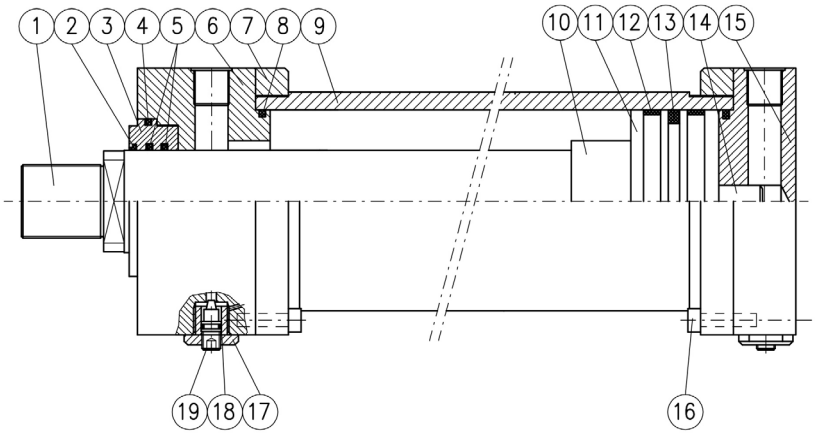
Options:

- Fixed or adjustable cushionings
- Wide range of seals to suit speed, frequency, temperature and fluid specification
- Proximity sensor integrated in cylinder heads
- Magnetostrictive position transducer integrated with analogue output signal (intensity or tension) or digital output signal (SSI, CAN-open, PRODIFUB-DP or IO/LINK) (see CAT series)
- Air bleeds
- Rod treatment : chromed, induction hardened and chromed, nickel-chromed, inox
- Subplate CETOP 03/05
- Drainage

Configuratore EPC

This is an innovative tool that allows the client to configure CA cylinders in a rapid and intuitive way, guiding the technician through the choices of all the options available.
Once the cylinder code is defined, the EPC software provides 2D, 3D and PDF drawings, and gives the user the possibility to save projects and request offers. With the complete access, reserved to the purchasing department, it is possible to make orders directly. For all orders received through EPC an extra discount will be applied.

Login at: http://configuratore.grices.it/



N°	ITEM	MATERIAL
1	Rod	Chromium-plated steel
2	Dust scraper	Polyurethane
3	Guide sleeve	Spheroidal cast iron
4	O-Ring + anti-extrusion	NBR + Polyurethane
5	Rod seal	NBR/PTFE
6	Front head	Steel
7	Counterflange	Steel
8	O-Ring + anti-extrusion	NBR + Polyurethane
9	Body	Steel
10	Front cushioning sleeve	Steel
11	Piston	Steel
12	Sliding guide	MCF80
13	Piston B seal	NBR/PTFE
14	Rear cushioning	Steel
15	Rear head	Steel
16	Cylindrical head screw	Steel
17	Safety plug	Steel
18	O-Ring	NBR
19	Adjustment needle	Steel

Mounting style

FA ISO MF3 | **FP** ISO MF4 | **QA** ISO MF1 | **QP** ISO MF2 | **CM** ISO MP3 | **CS** ISO MP5 | **OI** ISO MT4

PI ISO MS2

TECHNICAL CHARACTERISTICS

STANDARD ISO 6020/1

CHOOSING THE PRODUCTION SERIES

In order to identify the production series ensure that while the plant is working, the operating pressures indicated for each series are not exceeded. The general dimensioning of the cylinder ensures wide safety margins. Do not exceed the maximum pressure value that corresponds to the test pressure, considering also any overpressure caused by throttle valves in the circuits and/or by vertical loads with downward rods and end of stroke cushioning (*see paragraph 1.7*).

We recommend adopting strokes longer by a few millimetres than the working stroke, in order to prevent the use of the use of the cylinder's internal stops as a mechanical end of stroke. Also check that the expected working temperature and speed are consistent with the type of seals installed.

1.1 HYDRAULIC CYLINDERS – SERIES CA

The CA hydraulic cylinders are dimensioned according to standard ISO 6020/1;

- Manufactured according to CNC technology, with top-quality materials, they provide maximum reliability and duration.
- The use of standard components during assembly facilitates the replacement of any worn components.
- They can be equipped with progressive cushions of rear and front end of stroke, consisting of self-centering spurs that can slow-down gradually the masses concerned, even of considerable size.
- The seals used are standard, and provide reliability and easy availability on the market. The available seals selection fits different speed, frequency, temperature and fluid conditions

1.2 RANGE OF USE OF CA CYLINDER

Nominal pressure 16 Mpa
Maximal pressure 25 Mpa

1.3 CYLINDER BODY

The cylinder body is made up of a top-quality thick steel tube, either cold drawn or hot laminated, with elevated thickness and accurate internal surface (roughness RA ≤ 0.4 micron, diameter tolerance H8).

1.4 ROD

Rods are made with top-quality steel and coated with hard chrome. This surface treatment ensures proper protection against any damage and corrosion, favouring the seals' endurance. The minimum surface finish is 0.2 micron. Rods with strong chrome filling, induction-hardened, inox/chromed or made of special steel, can be manufactured on demand.

1.5 HEAD

Heads are made of steel and are manufactured to ensure perfect concentricity between the cylinder body, the rod bearing and the rod. Wide inner passages are manufactured to minimize any load loss when the fluid is conveyed.

1.6 PISTON

The piston is made with a special material, specially processed to ensure a concentric guide between rod cushioning sleeve, cylinder body and head cushioning sleeve. A large part of the radial surface is in contact with the cylinder body. This confers considerable stability, so that any rod bending, caused by external radial loads, is minimized.

1.7 END OF STROKE CUSHIONING

The end of stroke cushioning is usually adopted on all cylinders working at a speed > 0.1 m/sec., or when loads in vertical direction are activated. This cushioning is also a safety device in case of servo-systems control equipment failure. The ratio below makes it possible to promptly calculate, based on the cylinder bore (cushioning section), the supply pressure, the cushioning length and the working speed, as well as the mass that can be cushioned by every single cylinder. This reaction limits the overpressure value to 250 bar, protecting the cylinder's components that are under stress during braking.

$$M = \frac{(p_2 \cdot S - p_1 \cdot A) \cdot 2 \cdot L_f}{V_0^2} \cdot 10^{-2} \quad [kg]$$

P_1 - supply pressure (bar)
P_2 - maximum pressure 250 (bar)
V_0 - working speed (m/s)
S - cushioning section **S_1** or **S_2** (cm^2)
L_f - cushioning length **L_{f1}** or **L_{f2}** (mm)
A - piston area (cm^2)

The cushioned mass values obtained from this ratio are simply theoretical, and Grices accepts no responsibility for the use of this ratio. The data to be inserted in the ratio to calculate the mass that can be cushioned may be obtained from the following table.

Bore (mm)	40	50	63	80	100	125	160	200	250	320
S_1 (cm^2) rod forward	5,5	8,2	13,8	23,8	37,8	56	102	151	177	352
S_2 (cm^2) rod backward	11,4	18,5	29,1	46,4	73,2	114	189	294	471	748
L_f (mm)	28	30	30	30	32	32	40	46	95	100
A (cm^2)	17,6	19,6	31,2	50,3	78,5	122,7	201,1	314,2	490,6	803,8

The standard cushioning is in position 3 (figure A); is possible to request a different cushioning position.

1.8 CUSHIONING ADJUSTMENT

For a precise cushioning adjustment, both ends of the cylinder are equipped with control valves, as shown in figure on the right. These devices are equipped with a system that prevents their accidental removal. These devices are located on side 3.

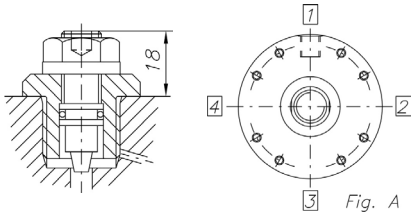


Fig. A

1.9 SPACERS

Cylinders with strokes > 1000mm should be equipped with spacers of adequate design that increase the rod and piston guide, in order to reduce any overload phenomena and premature wear.
The spacer allows increase of the contact surface between piston and cylinder body, improving the system rigidity.
The table below indicates the spacer length based on stroke; for the stroke values not included in the table, contact our technicians. As a general rule, spacers are not mounted on cylinders when strokes are < 1000mm and on cylinders subjected to only one pulling action.

STROKE (mm)	1001 a 1500	1501 a 2000	2001 a 2500	2501 a 3000
Spacer symbol	1	2	3	4
Length (mm)	50	100	150	200

1.10 SEALS

On the basis of particular working conditions of the cylinders, such as speed, fluid used and temperature, the relevant seal shall be chosen in conformity with the manufacturer's recommendations.
Our cylinders feature low-friction seals with seats conforming to the provisions of ISO 7425, that allow our cylinders to work under the heaviest conditions, such as very low or high speed, high working frequency, mineral or synthetic fluids.
The type of seals to be used in the relevant working conditions are indicated below:

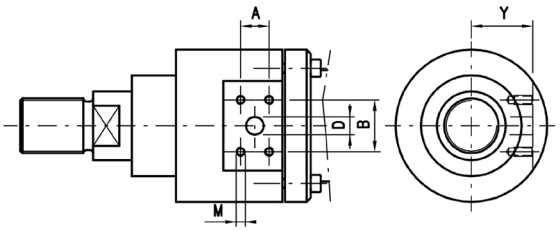
- **TYPE A: (STANDARD)** usually supplied in the absence of particular recommendations, considerable sealing at low pressure, to be used for speeds up to 0.5 m/sec., at temperatures ranging between –20 and +80°C, operation with mineral oil, air, nitrogen.
- **TYPE B: (NITRILE+PTFE)** anti-friction, not recommended when loads are to be held in position, and recommended at speeds ≤ 4 m/sec., at temperatures ranging between –10 and +75°C, operation with mineral oil or glycol water.
- **TYPE C: (VITON+PTFE)** anti-friction, not recommended when loads are to be held in position, for high-temperature fluids, up to+135°C, maximum speed 4m/sec. Can be used also with phosphoric esters.

1.11 OIL PORTS

Oil ports are BSP threaded, with boring conforming to DIN 3852/2, standard position 1 in figure A; other alternative positions can be provided on demand. Optional presetting for mounting SAE 6000 flanges (*contact our Technical Department*).
In order to reduce as much as possible any turbulence and water hammer in the cylinder's connecting pipes, the oil speed does not exceed 6 m/sec. The maximum flow rates that can be obtained with these criteria are shown in the table below.

OIL PORT Ø	1/2"	3/4"	1"	1 1/4"	1 1/2"
MAX. FLOW RATE (l/mm)	40	53	85	136	212

BORE	FLANGE SAE 3000					
	Flange DN	Y	A	B	D	M
100	19	71	22,2	47,6	19	M10x1,5
125		89				
160	25	110	26,2	52,4	25	
200		137				
250	32	177	30,2	58,7	32	
320		220				



1.12 AIR BLEEDS

Air bleeds are provided on demand on both ends of the cylinder. Bleeds are mounted inside the head and the bottom, so as to be protected from any accidental removal, as shown in the figure on the right.
Standard position: 2 in figure A; other alternative positions can be provided on demand.

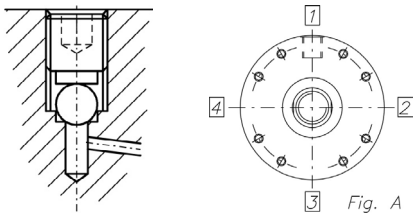


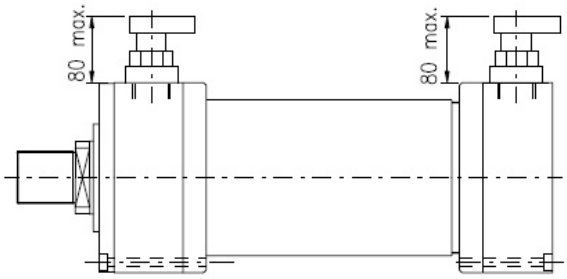
Fig. A

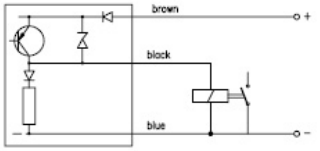
1.14 DRAINAGE

The drainage on the rod seal ensures better sealing at high speed, in particular in cylinders with strokes > 2000mm or in applications where the rod side chamber is constantly under pressure. The drainage port (1/8") is usually positioned on the same axis of the supply port and must be directly connected to the tank.
For any further explanations on this matter, please contact our Technical Department.

1.14 PROXIMITY SENSORS

When the piston position needs to be detected in any hydraulic system, proximity sensors can be mounted directly in the cylinder heads. The operating temperature is –25 to +80°C. Allowed dynamic pressure 350 bar.
The sensor is provided with a built-in amplifier, with direct supply (10 to 30Vdc)with an analog PNP output for 200mA max., supplied complete with connector with a 4m long cable. Sensors can be mounted on head and bottom, and are arranged on side 4 of the cylinder. It is possible to request a different positioning. Sensors offer the possibility to obtain an electric signal near the end of stroke positioning of the piston.





Technical data of the sensor:

Working temperature	–25 +80 °C
Supply voltage	10–30 V cc
Load	200 mA
Execution	PNP
Output type	NA

BORES	DB max (mm)	Dcmax (mm)
40	81	72
50	77	65
63	72	55
80	70	51
100	63	52
125	57	35
160	44	22
200	51	0
250	32	0
320	10	0

For a definition of all possible combinations of placement of power supplies, cushioning, air bleeds and sensors, refer to the configurator.
Login at: http://configuratore.grices.it/

1.15 STROKE TOLERANCE

STROKE	mm	0-500	501-1500	1501-3000	3000+
TOLERANCE	mm	±1	±2	±3	±4,5

1.16 TIE RODS TORQUE

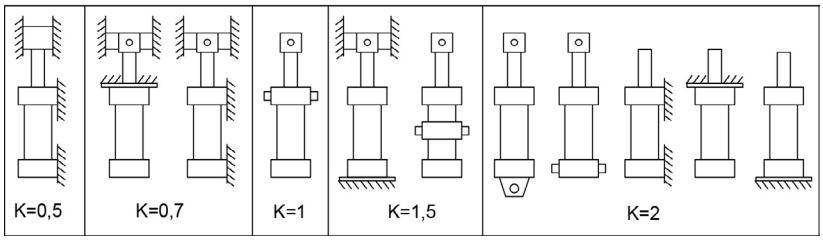
BORE	**mm**	**40**	**50**	**63**	**80**	**100**	**125**	**160**	**200**	**250**	**320**
TIE ROD	mm	M6	M8	M10	M8	M10	M12	M12	M16	M20	M24
TORQUE	Nm	6	12	23	22	60	100	100	260	500	640

2.1 PEAK LOAD

When the cylinder is working under compression, check the rod diameter at peak load. **Table 1** shows the most common types of restriction. Each of them is associated to a coefficient **K**. The maximum stroke of cylinder **L** multiplied by coefficient **K** produces the **LV** value (virtual length, **LV = L*K**). **Graph 2** indicates the rod's minimum diameter, based on load.
The point of intersection between **LV** in mm. and pushing force **F** in **KN** must be below the characteristic curve of the rod to be checked.

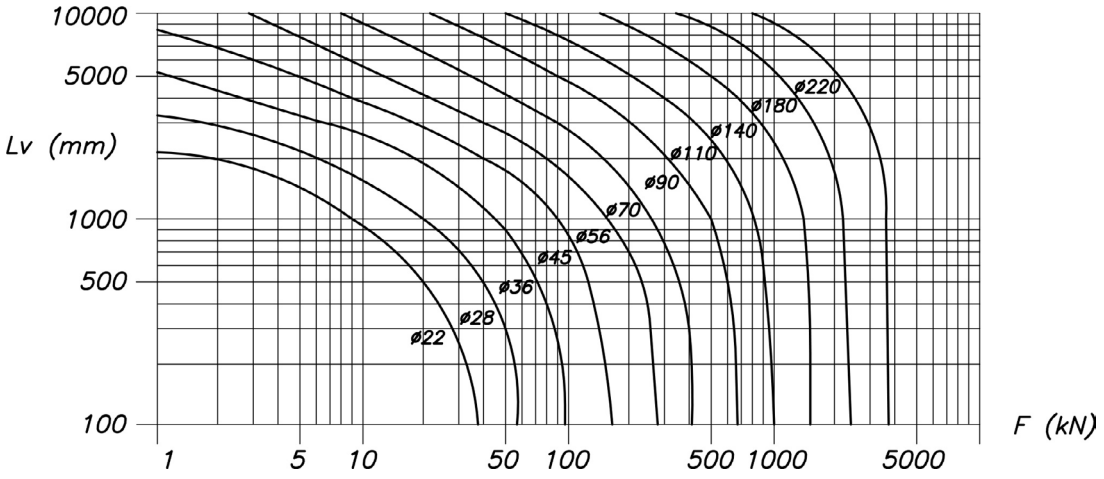
Example: cylinder **CA63/28/750/FA/00B** (front flange) employs a **55 KN** load.
Table 1 shows coefficient **K**, determined by the type of restriction **K = 2**, the virtual length is **LV = L*K LV = 750*2 = 1500 mm**.

Table 1



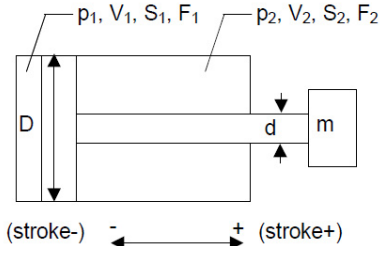
In **graph 2** you can check whether the point of intersection between **LV** and **F** is below the curve of rod Ø 45.
Once the stability condition has been met the rod Ø 45 can be adopted. If the result was negative (intersection point of **LV** and **F** over the curve) you should choose a cylinder with a larger rod.

Graph 2



2.2 PRACTICAL UNIT OF MEASUREMENT

DESCRIPTION	SYMBOL	UNIT OF MEASURE
Section	S	cm^2
Pressure	p	bar
Ø piston	D	mm
Ø rod	d	mm
Speed	V	m/s
Capacity	Q	l/min
Load	m	kg



PUSHING FORCE (STROKE +)
$F_1=(p_1 \cdot S_1)$ (Kg)

PULLING FORCE (STROKE -)
$F_2=(p_2 \cdot S_2)$ (Kg)

PUSHING SPEED (STROKE +)
$V_1=Q/(6 \cdot S_1)$ (m/s)

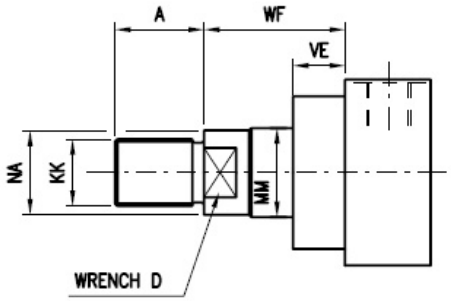
PULLING SPEED (STROKE -)
$V_2=Q/(6 \cdot S_2)$ (m/s)

$$S_1 = \frac{\pi \bullet D^2}{4 \bullet 100} \ (cm^2)$$

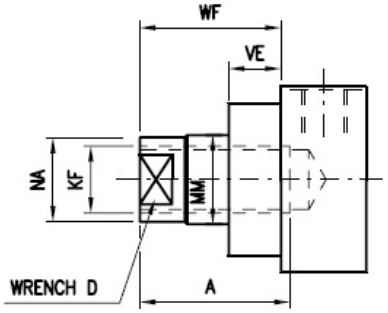
$$S_2 = \frac{\pi \bullet (D^2 - d^2)}{4 \bullet 100} \ (cm^2)$$

DIMENSIONS OF THE ROD END

Rod end type M and D

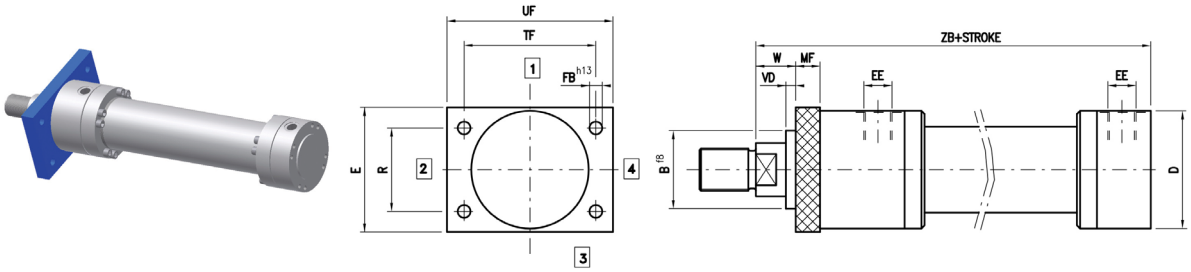


Rod end type M and F



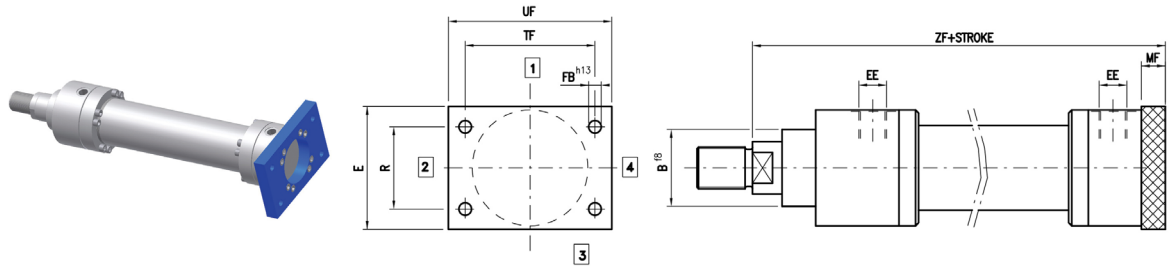
BORE	N° rod	MM rod	Type M ISO 6020/1		Type D		Type F		D	NA	WH	VE
			KK	A	KK	A	KF	A				
40	1	22	M16x1,5	22	-	-	M16x1,5	22	18	21	32	19
	2	28	M20x1,5	28	M16x1,5	22	M20x1,5	28	22	26	32	19
50	1	28	M20x1,5	28	-	-	M20x1,5	28	22	26	38	24
	2	36	M27x2	36	M20x1,5	28	M27x2	36	30	34	38	24
63	1	36	M27x2	36	-	-	M27x2	36	30	34	45	29
	2	45	M33x2	45	M27x2	36	M33x2	45	39	43	45	29
80	1	45	M33x2	45	-	-	M33x2	45	39	43	54	36
	2	56	M42x2	56	M33x2	45	M42x2	56	48	54	54	36
100	1	56	M42x2	56	-	-	M42x2	56	48	54	57	37
	2	70	M48x2	63	M42x2	56	M48x2	63	62	68	57	37
125	1	70	M48x2	63	-	-	M48x2	63	62	68	60	37
	2	90	M64x3	85	M48x2	63	M64x3	85	80	88	60	37
160	1	90	M64x3	85	-	-	M64x3	85	80	88	66	41
	2	110	M80x3	95	M64x3	85	M80x3	95	100	108	66	41
200	1	110	M80x3	95	-	-	M80x3	95	100	108	75	45
	2	140	M100x3	112	M80x3	95	M100x3	112	128	138	75	45
250	1	140	M100x3	112	-	-	M100x3	112	128	138	96	64
	2	180	M125x4	125	M100x3	112	M125x4	125	n°4 holes Ø 10	175	96	64
320	1	180	M125x4	125	-	-	M125x4	125	n°4 holes Ø 10	175	108	71
	2	220	M160x4	160	M125x4	125	M160x4	160	n°4 holes Ø 10	214	108	71

QA ISO type MF1



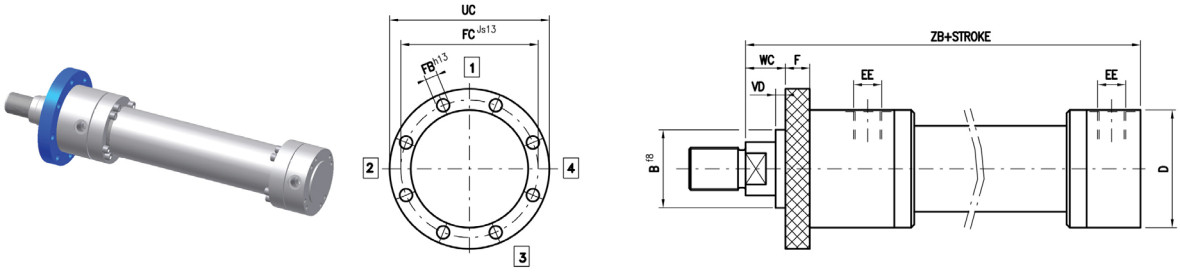
Available for bores up to 125

QP ISO type MF2



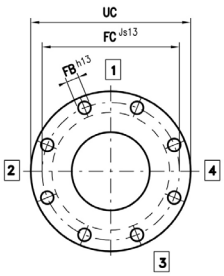
Available for bores up to 125

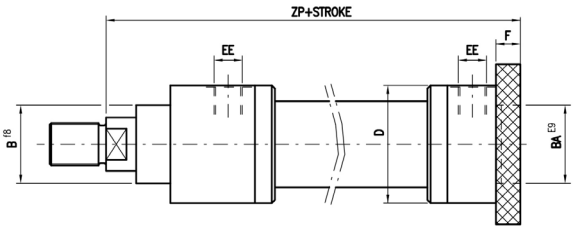
FA ISO type MF3



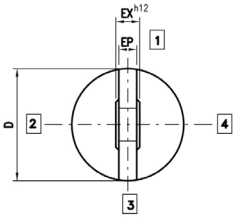
BORE	B	D	E	EE	F	FB	FC	MF	R	TF	UC	UF	VD	WF	ZB	ZF	VA
40	50	78	80	1/2"	16	9	106	16	40,6	98	125	115	3	16	190	206	4
50	60	95	100	1/2"	20	11	126	20	48,2	116,4	148	140	4	18	205	225	7
63	70	116	120	3/4"	25	13,5	145	25	55,5	134	170	160	4	20	224	249	5
80	85	130	135	3/4"	32	17,5	165	32	63,1	152,5	195	185	4	22	250	282	5
100	106	158	160	1"	32	22	200	32	76,5	184,8	238	225	5	25	300	332	5
125	132	192	195	1"	32	22	235	32	90,2	217,1	272	255	5	28	325	357	6
160	160	232	-	1 1/4"	36	22	280	-	-	-	316	-	5	30	370	-	10
200	200	285	-	1 1/4"	40	26	340	-	-	-	385	-	5	35	450	-	10
250	250	365	-	1 1/2"	56	33	420	-	-	-	500	-	8	40	550	-	10
320	320	450	-	1 1/2"	63	39	520	-	-	-	620	-	8	45	660	-	10

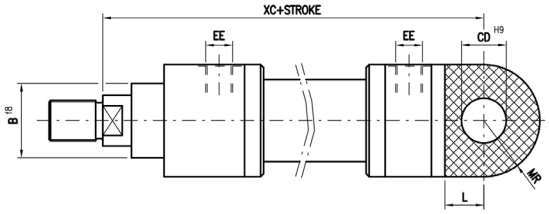
FP ISO type MF4



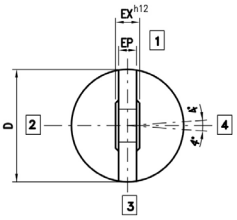


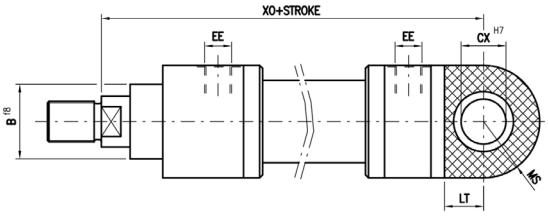
CM ISO type MP3





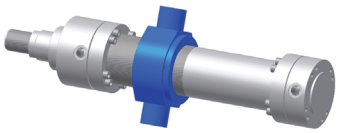
CS ISO type MP5

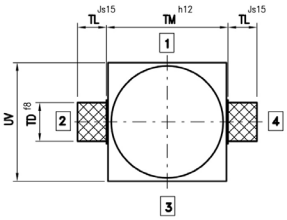


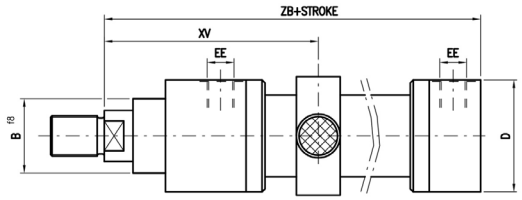


BORE	B	BA	CD	CX	D	EE	EX	EP	F	FB	FC	L	LT	MS	MR	UC	ZP	XC	XO
40	50	50	20	20	78	1/2"	20	18	16	9	106	38	38	25	25	125	206	231	231
50	60	60	25	25	95	1/2"	25	22	20	11	126	45	45	27,5	27,5	148	225	257	257
63	70	70	32	32	116	3/4"	32	27	25	13,5	145	65	65	35	35	170	249	289	289
80	85	85	40	40	130	3/4"	40	35	32	17,5	165	82	82	50	50	195	282	332	332
100	106	106	50	50	158	1"	50	40	32	22	200	95	95	63	63	238	332	395	395
125	132	132	63	63	192	1"	63	52	32	22	235	103	103	72,5	72,5	272	357	428	428
160	160	160	80	80	232	1 1/4"	80	66	36	22	280	135	135	90	90	316	406	505	505
200	200	200	100	100	285	1 1/4"	100	84	40	26	340	165	165	112	112	385	490	615	615
250	250	250	125	125	365	1 1/2"	125	102	56	33	420	223	223	160	160	500	606	773	773
320	320	320	160	160	450	1 1/2"	160	130	63	39	520	270	270	200	200	620	723	930	930

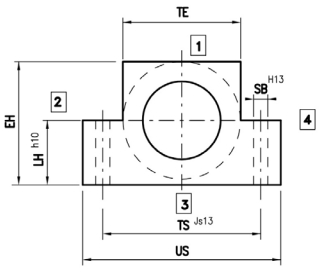
OI ISO type MT4

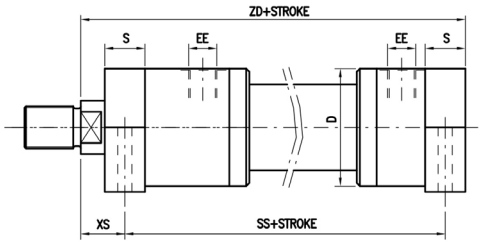






PI ISO type MS2





Available for bores up to 200

BORE	B	D	EE	EH	LH	S	SB	SS	TD	TE	TL	TM	TS	UV	US	ZB	ZD	XS	XV min	XV max	VA
40	50	78	1/2"	82	43	25	11	183	20	78	16	90	100	78	120	194	215	19,5	130	93 + stroke	4
50	60	95	1/2"	100	52	32	14	199	25	95	20	105	120	95	145	205	237	22	142	102 + stroke	7
63	70	116	3/4"	120	62	32	18	211	32	116	25	120	150	116	180	224	256	29	160	107 + stroke	5
80	85	130	3/4"	135	70	40	22	236	40	130	32	135	170	130	210	250	290	34	180	122 + stroke	5
100	106	158	1"	161	82	50	26	293	50	158	40	160	205	158	250	300	350	32	210	152 + stroke	5
125	132	192	1"	196	100	56	33	321	63	192	50	195	245	195	300	325	381	32	235	157 + stroke	6
160	160	232	1 1/4"	238	119	60	33	364	80	232	63	240	295	240	350	370	430	36	273	177 + stroke	10
200	200	285	1 1/4"	288	145	72	39	447	100	285	80	295	350	390	415	450	522	39	337	267 + stroke	10
250	250	365	1 1/2"	-	-	-	-	-	125	-	100	370	-	480	-	550	-	-	393	298 + stroke	10
320	320	450	1 1/2"	-	-	-	-	-	160	-	125	470	-	600	-	660	-	-	486	370 + stroke	10

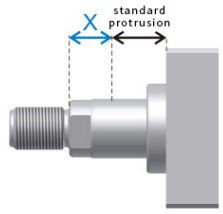
EXAMPLE OF ORDER ACRONYM

CA/50/28/530/OI00A0I000Q1324R13240XV...

CHARACTERISTIC	DECRIPTION	SYM.	EXAMPLE
SERIES	Execution ISO 6020/1	CA	**CA**
BORE	Indicate in mm		CA/**50**/
ROD	Indicate in mm		CA/50/**28**/
STROKE	Indicate in mm		CA/50/28/**530**/
EXECUTION	Square front flange	QA	CA/50/28/530/**OI**
	Square rear flange	QP	
	Front flange	FA	
	Rear flange	FP	
	Male hinge	CM	
	Joint hinge	CS	
	Intermediate trunnion	OI	
	Feet	PI	
CUSHIONING	None	0	CA/50/28/530/OI**0**
	Front cushioning	1	
	Rear cushioning	2	
	Fron + rear cushioning	3	
SPACER	None	0	CA/50/28/530/OI0**0**
	50 mm	1	
	100 mm	2	
	150 mm	3	
	200 mm	4	
SEALS	Polyurethane (standard)	A	CA/50/28/530/OI00**A**
	Nitrile + ptfe (anti-friction) standard	B	
	Viton + ptfe (high temperatures)	C	
ROD END	Type M (standard)	0	CA/50/28/530/OI00A**0**
	Type D	D	
	Type F	F	
AIR BLEEDS	None	0	CA/50/28/530/OI00A0**I**
	Front	G	
	Rear	H	
	Front + rear	I	
DRAINAGE	None	0	CA/50/28/530/OI00A0I**0**
	Rod side	W	
ROD TREATMENT	Standard chromium-plated	0	CA/50/28/530/OI00A0I0**0**
	Heavy chromium-plated, 0.045mm thick, 100h salt mist ISO 3768	P	
	Hardening and chromium-plating	T	
	Ni-CROMAX30 chromium-plated, nickelplated, ASTM B 117 1000h	N	
PROXIMITY SENSOR	None	0	CA/50/28/530/OI00A0I00**0**
	Front	X1	
	Rear	X2	
	Front + rear	X3	

CHARACTERISTIC	DESCRIPTION				SYM.	EXAMPLE
FRONT HEAD						
POS. OIL PORTS	Side **1**	Side **2**	Side **3**	Side **4**		CA/50/28/530/OI00A0I000**Q1**
POS. CUSHIONING	**0** if not requested					CA/50/28/530/OI00A0I000Q1**3**
	Side **1**	Side **2**	Side **3**	Side **4**		
POS. AIR BLEED	**0** if not requested					CA/50/28/530/OI00A0I000Q13**2**
	Side **1**	Side **2**	Side **3**	Side **4**		
POS. SENSOR	**0** if not requested					CA/50/28/530/OI00A0I000Q132**4**
	Side **1**	Side **2**	Side **3**	Side **4**		
REAR HEAD						
POS. OIL PORTS	Side **1**	Side **2**	Side **3**	Side **4**		CA/50/28/530/OI00B0I000Q1324**R1**
POS. CUSHIONING	**0** if not requested					CA/50/28/530/OI00B0I000Q1324R1**3**
	Side **1**	Side **2**	Side **3**	Side **4**		
POS. AIR BLEED	**0** if not requested					CA/50/28/530/OI00B0I000Q1324R13**2**
	Side **1**	Side **2**	Side **3**	Side **4**		
POS. SENSOR	**0** if not requested					CA/50/28/530/OI00B0I000Q1324R132**4**
	Side **1**	Side **2**	Side **3**	Side **4**		
***EXTRA ROD X QUOTE**	Indicate mm					CA/50/28/530/OI00B0I000Q1324R1324**0**
XV QUOTE	Indicate mm (only version MT4)					CA/50/28/530/OI00B0I000Q1324R13240**XV...**
OPTIONS						
OIL PORTS	SAE 3000				**Y**	*if requested, indicate at the end of the code* CA/50/28/530/OI00B0I000Q1324R13240XV.../**Y**

**Specify the possible extra-rod (X) size in addition to the standard rod protrusion:*



Login at: http://configuratore.grices.it/
Configure your cylinder in a quick and intuitive way choosing all the available options.

Note

The indicated operating pressures are efficient for smooth applications without blows. For extreme loads or high operating pressures with high frequency, is necessary to use mounting styles and thread-rod links designed to be stress-resistant.
For further information contact our Technical Department.