



Mould Hydraulic Systems

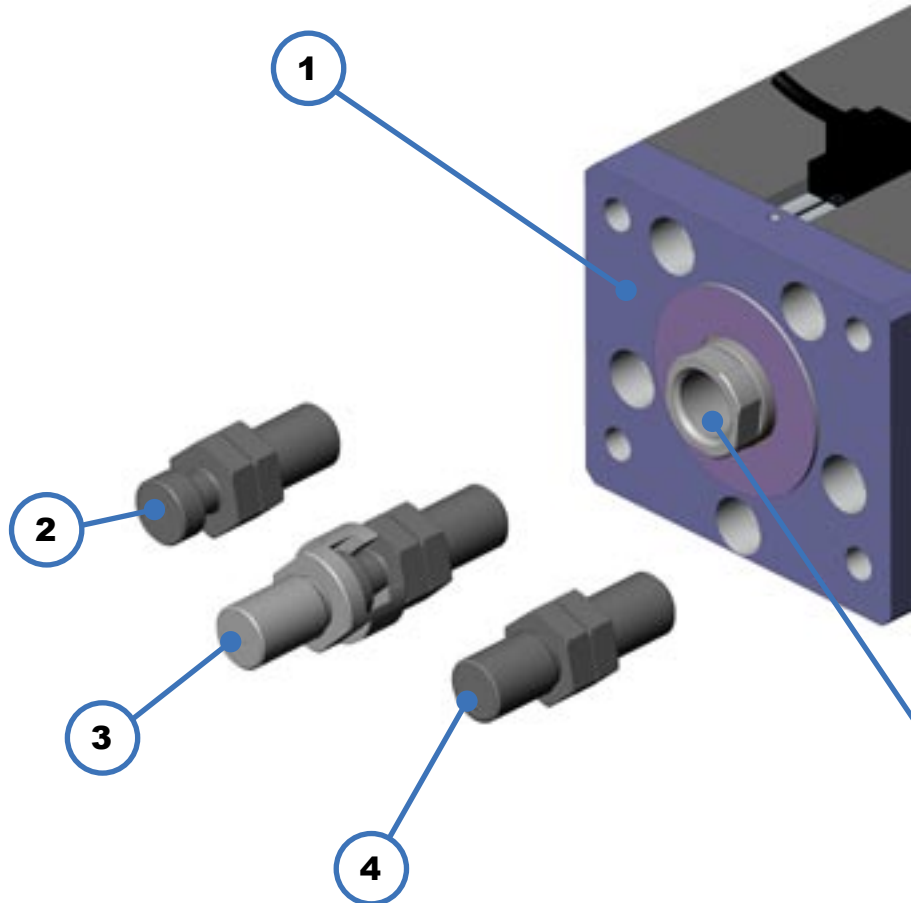
Compact hydraulic cylinders 220 bar



V220CBL

V220CBL

- 1 Steel cartridge integrated in the heads, with low friction seals in PTFE+Bronze and O-Rings in Viton®, together with piston guide bushes in special material, providing elevated mechanical resistance. Customisation option with 5 possible Clamping styleS (see page C/6 ÷ C/8).
- 2 Accessory:
Floating joint rod end with locknut (see accessory catalogue).
- 3 Accessory:
Floating joint rod end with locknut and female floating joint, providing an easier mounting of the cylinder on the mould (see accessory catalogue).
- 4 Accessory:
Male rod end with locknut (see accessory catalogue).
- 5 Chrome-plated steel rod, hardened or tempered and polished. Thickness of chromium plating 20 µm and surface finish 0.4 µm Ra, for a longer durability of the seals. Low friction piston seals in PTFE+Bronze and Viton® O-Rings. Piston connected to the rod through a large-sized thread. For greater safety, the piston is secured with Loctite® and is equipped with a safety screw.
- 6 Non-magnetic tube, highly resistant to heat, with extensive mechanical properties. Customisation option with 11 oil deliveries (see pages C/9 ÷ C/12).
- 7 Optional magnetic proximity switches (see page C/13).

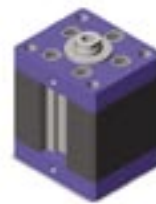
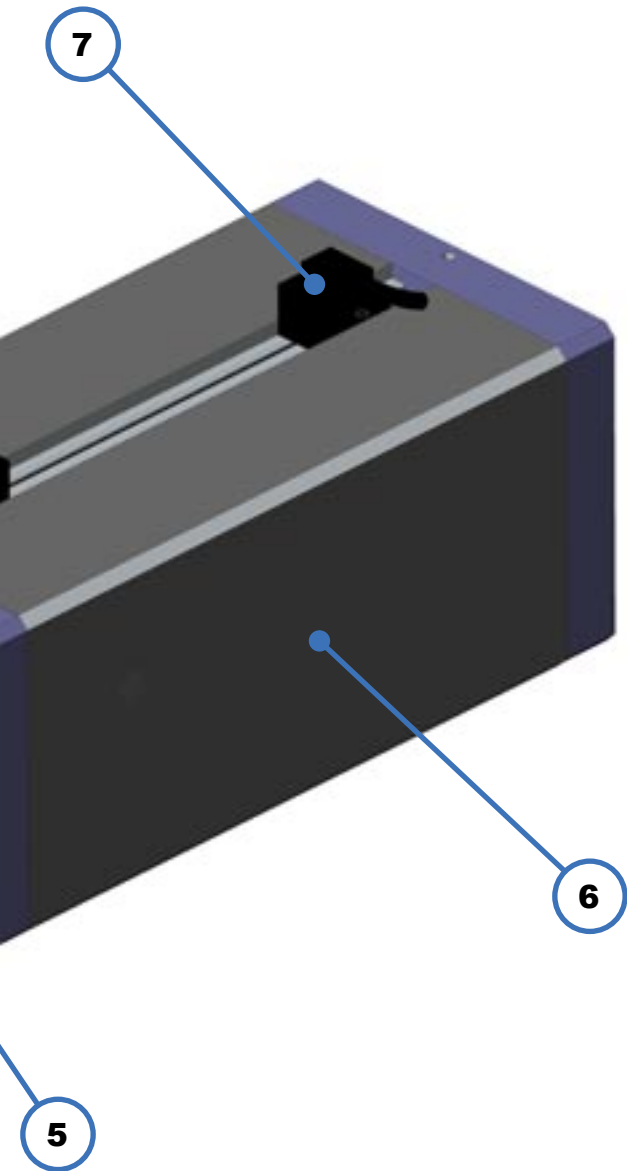


cylinders 220 bar

General Characteristics

- **Max. working pressure:** up to 220 bar (for details see page C/5).
- **Bore:** da \emptyset 32 a \emptyset 100 mm.
- **Rod diameter:** 18 ÷ 45 mm.
- **Stroke:** up to 500 mm. (according to Clamping styles see details page C/5).
- **Working temperature:**
 - Magnetic version:** da -20°C a $+80^{\circ}\text{C}$
 - Normal version:** da -20°C a $+120^{\circ}\text{C}$

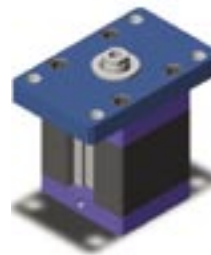
POSSIBLE CLAMPINGS (for details see pages C/6 ÷ C/8)



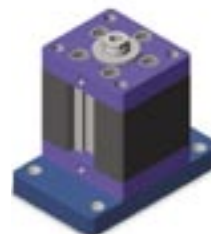
- Head and cap threaded holes (4+4)



- Lateral through holes with key-way (4)



- Head flange



- Cap flange



- Lateral through holes with key-way



ORDER COMPILATION SYMBOLS

(see page C/5)

Bore	032	040	050	063	080	100
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(see pages C/6 ÷ C/8)

Clamping style	B	C	F	G	E
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(see pages C/9 - C/11 - C/12)

Type of ports	G	N	O
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(see page C/10)

Position of ports	E	F	R	B	C	H
	M	N	P	Q	T	

CC **032** **E** **G** **B** **A** **M** **100,0** **090,0**

V220CBL

(see pages C/14 - C/15)

A	F	G	Rod end style
H	I		

(see page C/13)

M	N	Version
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(see page C/5)

....	Stroke
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(see page C/8)

Dimension X

Compact hydraulic cylinders 220 bar

BORE AND STROKE (expressed in mm.)

ORDER CODE :

CC

032

100,0

THRUST (P) and TRACTION FORCE (T) in Kg:

∅ Bore	∅ Rod	80 bar		120 bar		160 bar		200 bar		220 bar	
		P	T	P	T	P	T	P	T	P	T
032	18	643	440	965	659	1286	879	1608	1059	1768	1209
040	22	1005	701	1507	1051	2010	1402	2512	1752	2763	1927
050	28	1570	1078	2355	1616	3140	2155	3925	2694	4318	2964
063	36	2493	1679	3739	2518	4985	3357	6231	4197	6854	4616
080	36	4019	3205	6029	4808	8038	6411	10048	8013	11053	8815
100	45	6280	5008	9420	7512	12560	10017	15700	12521	17270	13775

STROKE in mm. (STANDARD stroke 80-100-150-200-250)

The intermediate strokes are available by request.

Mounting	Minimum Stroke			Maximum stroke			
	E		F-G-B-C	E		C	B-F-G
	∅ Bore	O-Ring oil ports		NPT-BSP oil ports	O-Ring oil ports			NPT-BSP oil ports
32	30	50	5	200	300	200	300
40	30	50	5	200	350	200	350
50	40	65	5	250	400	250	400
63	40	75	5	250	450	250	450
80	65	90	5	300	500	300	500
100	65	90	5	300	500	300	500

MAXIMUM WORKING PRESSURE AND FLOW

∅ Bore	Pressure Kg/cm ² with oil delivery		Flow l/min.
	O-Ring	NPT - BSP	
32	160	220	3
40	140	220	5
50	140	200	7
63	120	180	12
80	120	180	20
100	120	160	30

MAXIMUM PISTON SPEED

∅ Bore	32	40	50	63	80	100
Speed m/sec.	0,1					

- The maximum impact speed between the piston and the heads must never exceed 0.1 m/sec.
For any need, please contact our technical department.

Compact hydraulic cylinders 220 bar

CLAMPING STYLE

ORDER CODE :

CC

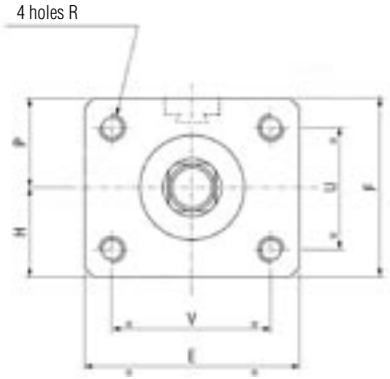
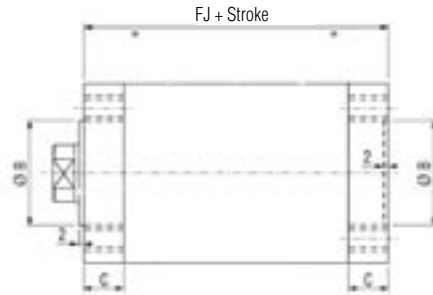
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B

✓

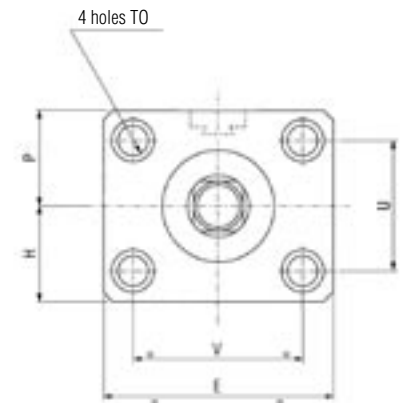
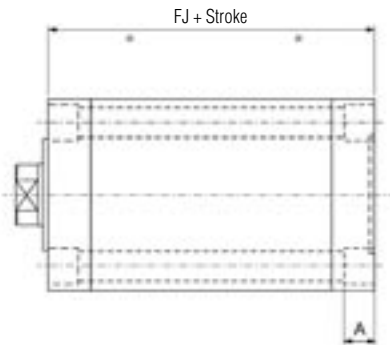
B

HEAD AND CAP THREADED HOLES (4+4)



C

LONGITUDINAL THROUGH HOLES (4)



Ø Bore	Ø Rod	A	B	C	E	F	FJ+	H	P	R	U	V	TO
32	18	9	32	15	75	65	86	32,5	32,5	M8×1,25	48	58	9
40	22	10,5	40	15	85	75	98,5	37,5	37,5	M10×1,5	55	65	11
50	28	13	50	19	100	87	106,5	43,5	43,5	M12×1,75	63	76	13,5
63	36	13	63	20	120	102	108,5	52	50	M12×1,75	78	96	13,5
80	36	17	70	27	150	125	122	65	60	M16×2	90	120	17,5
100	45	17	90	27	170	145	130	75	70	M16×2	104	134	17,5

Compact hydraulic cylinders 220 bar

CLAMPING STYLE

ORDER CODE :

CC

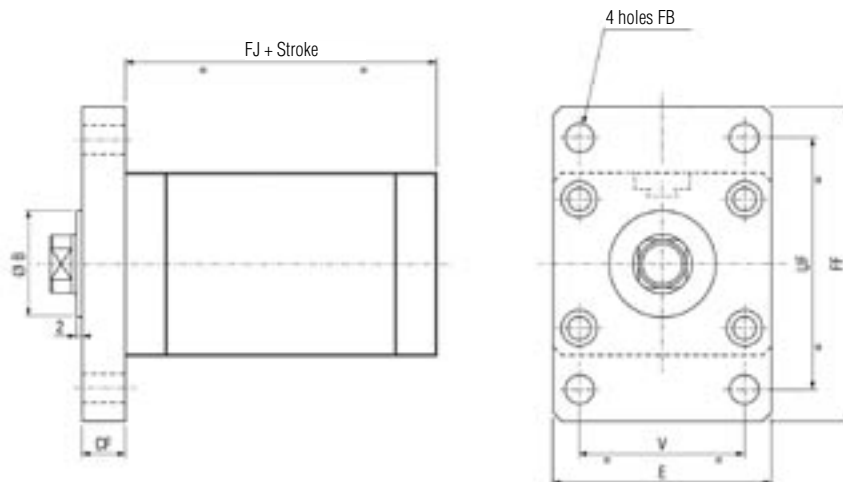
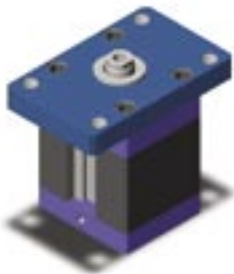
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F

✓

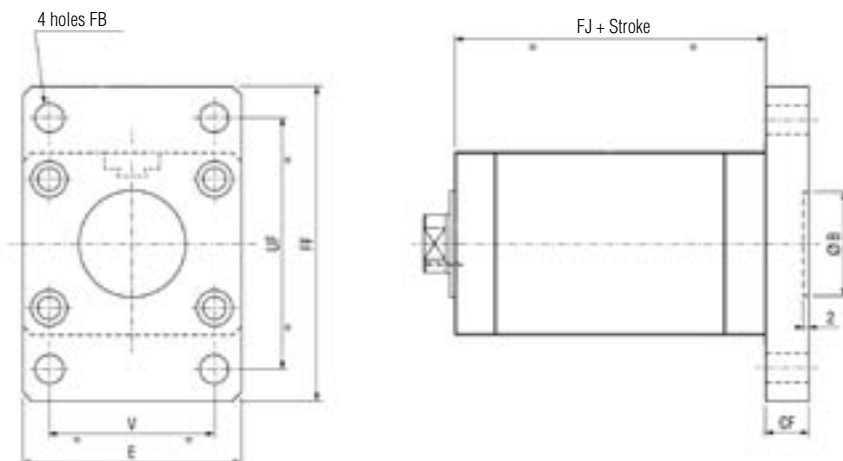
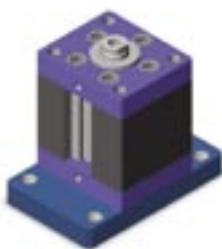
F

HEAD FLANGE



G

CAP FLANGE



Ø Bore	Ø Rod	B	CF	E	FB	FF	FJ+	UF	V
32	18	32	15	75	11	120	86	94	58
40	22	40	15	85	11	130	98,5	104	65
50	28	50	20	100	13	150	106,5	120	76
63	36	63	20	120	13	165	108,5	136	96
80	36	70	27	150	17,5	210	122	170	120
100	45	90	27	170	17,5	230	130	190	134

Compact hydraulic cylinders 220 bar

CLAMPING STYLE

ORDER CODE :

CC



E



090,0

E

LATERAL THROUGH HOLES (4) WITH KEY-WAY

DIMENSION X				
Ø Bore	O-Ring		NPT - BSP	
	Min. dimension X	Max. dimension X + Stroke	Min. dimension X	Max. dimension X + Stroke
32	68	38	78	28
40	73	43	87	37
50	86	46	99	34
63	91	51	107	32
80	108	43	121	31
100	118	53	131	41

Ø Bore	Ø Rod	FJ+	H	XA	XB	Q	R	ST
32	18	86	32,5	50	58	10	5	10,5
40	22	98,5	37,5	60	65	12	5	10,5
50	28	106,5	43,5	70	75	15	5	12,5
63	36	108,5	52	70	90	15	5	12,5
80	36	122	65	80	110	20	5	17
100	45	130	75	80	130	20	5	17

Compact hydraulic cylinders 220 bar

TYPE OF PORTS

ORDER CODE : **CC** **G**

G

BSP OIL DELIVERY (GAS)

SEE PAGE C/10 FOR OIL PORT POSITION

N

NPT OIL DELIVERY (Standard USA)

Ø Bore	Ø Rod	FJ+	L	PJ+	H	G	P	N	Y		E
									NPT	BSP	
32	18	86	24	38	32,5	8	32,5	14	1/4"	1/4"	75
40	22	98,5	27	44,5	37,5	10	37,5	17	1/4"	1/4"	85
50	28	106,5	34	38,5	43,5	10	43,5	20	1/4"	1/4"	100
63	36	108,5	35	38,5	52	10	50	22	1/4"	1/4"	120
80	36	122	44	34	65	20	60	25	3/8"	3/8"	150
100	45	130	47	36	75	20	70	30	3/8"	3/8"	170

Compact hydraulic cylinders 220 bar

OIL DELIVERY PORT POSITION

ORDER CODE :

CC

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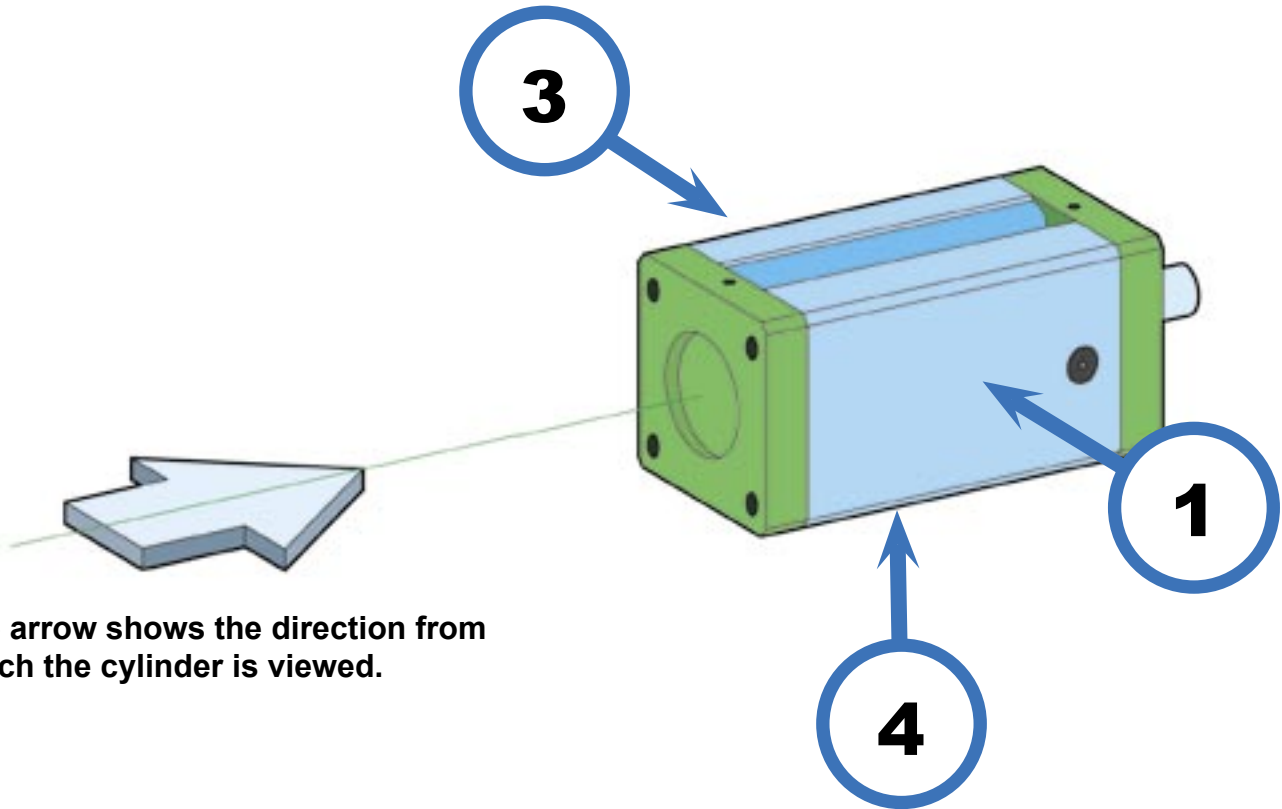
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H

✓

✓



The arrow shows the direction from which the cylinder is viewed.

The table shows the position of the cylinder oil delivery ports, misaligned in relation to the centre.

Clamping style		B - C - G - F - E									E
PORTS	CUP	1	1	1	4	4	4	3	3	3	4
	HEAD	1	4	3	1	4	3	1	4	3	4
ORDER CODE		H	C	B	Q	E	T	N	P	M	E

Compact hydraulic cylinders 220 bar

OIL DELIVERY PORTS (TYPE AND POSITION)

ORDER CODE :

CC



O

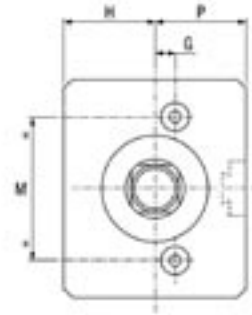
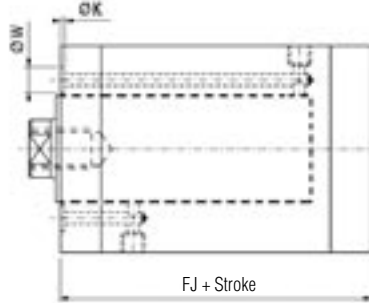
F



OF

Available only with Clamping styles « B - C - G »

FRONTAL OIL DELIVERY WITH O-RINGS

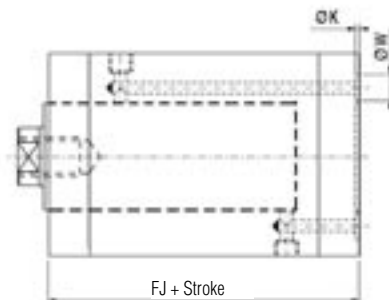


Max bore of the plate oil delivery port: mm. 3 Max. (\varnothing 32-50); mm. 5 Max. (\varnothing 63-100).
Max. eccentricity mm. 0,5. O-Rings in Viton® included in the supply.

OR

Available only with Clamping styles « B - C - F »

BACK OIL DELIVERY WITH O-RINGS



Max bore of the plate oil delivery port: mm. 3 Max. (\varnothing 32-50); mm. 5 Max. (\varnothing 63-100).
Max. eccentricity mm. 0,5. O-Rings in Viton® included in the supply.

\varnothing Bore	\varnothing Rod	FJ+	W	K	G	H	P	M
32	18	86	10	1,9	8	32,5	32,5	51
40	22	98,5	10	1,9	10	37,5	37,5	57
50	28	106,5	10	1,9	10	43,5	43,5	68
63	36	108,5	13	1,9	10	52	50	90
80	36	122	13	1,9	20	65	60	105
100	45	130	13	1,9	20	75	70	124

Compact hydraulic cylinders 220 bar

OIL DELIVERY PORTS (type and position)

ORDER CODE :

CC

✓

✓

O

E

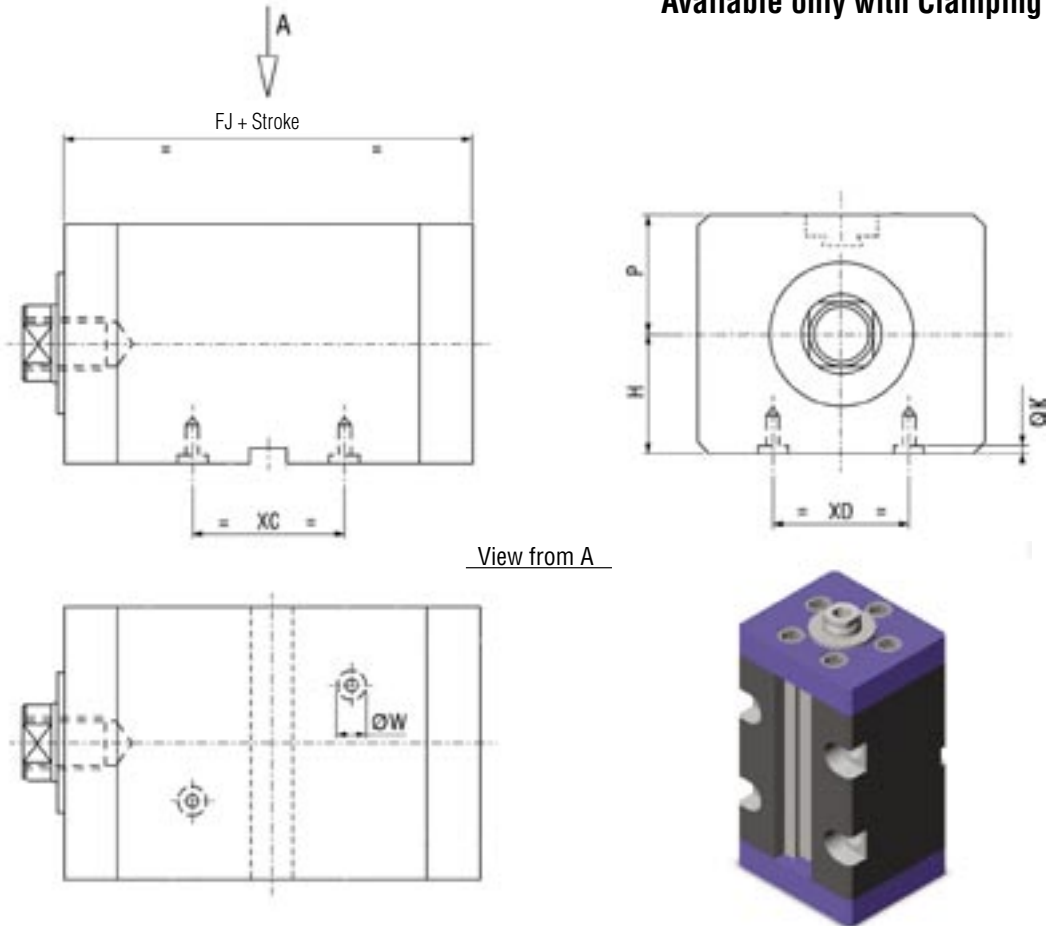
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OE

LATERAL OIL DELIVERY PORTS WITH O-RINGS

Available only with Clamping style « E »



Max bore of the plate oil delivery port: mm. 3 Max. (\varnothing 32-50); mm. 5 Max. (\varnothing 63-100).
Max. eccentricity mm. 0,5. O-Rings in Viton® included in the supply.

\varnothing Bore	\varnothing Rod	FJ+	W	K	H	P	XC	XD
32	18	86	10	1,9	32,5	32,5	30	36
40	22	98,5	10	1,9	37,5	37,5	35	40
50	28	106,5	10	1,9	43,5	43,5	40	46
63	36	108,5	13	1,9	52	50	40	50
80	36	122	13	1,9	65	60	45	70
100	45	130	13	1,9	75	70	45	80

Compact hydraulic cylinders 220 bar

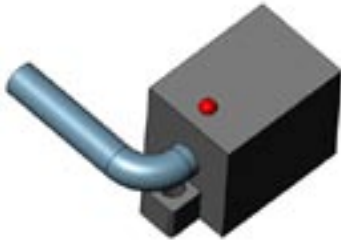
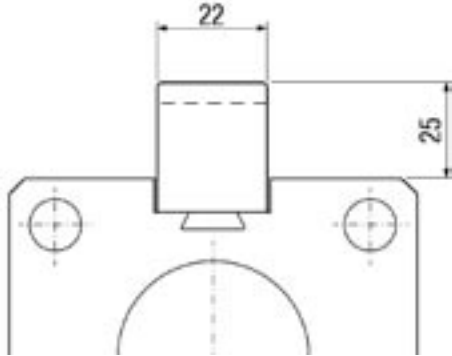
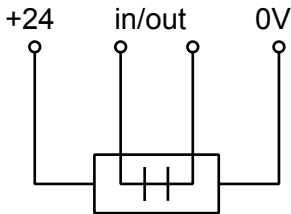
CYLINDER VERSION

ORDER CODE : **CC** ✓ ✓ ✓ ✓ **M** ✓ ✓

M WITH PRESET FOR MAGNETIC SWITCHES **N** WITHOUT PRESET FOR MAGNETIC SWITCHES

MAGNETIC PROXIMITY SWITCH (to be ordered separately)

ORDER CODE : **MSU4** For cylinders with magnetic switches the minimum stroke required is 65 mm.

Wire colours
 Brown = +24 V DC
 Blue = 0V DC
 Black = in/out contact
 White = in/out contact

TECHNICAL DATA		
Dimensions	mm.	39×24×28
Contact	N.O.	Relay normally open
Voltage rating	V	from 18 to 30 ripple Max. 10%
Max. switching voltage	V	300 DC
Max. current (resistive load)	mA	800
Max. switching power	W	20
Extraflex armoured cable. With transparent PVC external sheath	mm.	Ø6×3000
Cable length	mt.	3
Max. switching frequency	Hz	60
24 volt disconnection delay	msec.	15
Cable outlet with mechanical clamp	-	right or left positioned
Mounting on tie rods or dovetail joint	-	with bracket
Working temperature	°C	-20 / +80
Signal	Led	red
Degree of protection	-	IP 67 (DIN 40050)
Hysteresis	mm.	0,6 typical ±0,02
Repeatability	mm.	0,05 ±0,02
Max. flow speed	m/sec.	15
Sensor type	-	magnet-resistive
Electric life at rated power (operations)	n°	10.000.000

Compact hydraulic cylinders 220 bar

ROD END STYLES

ORDER CODE :

CC

✓

✓

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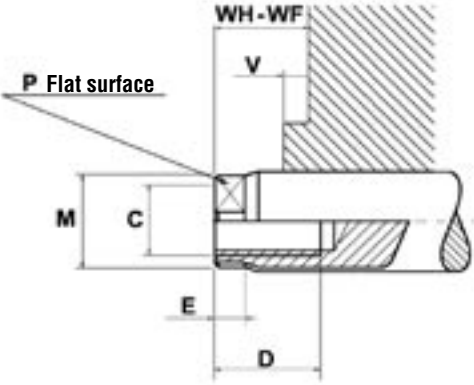
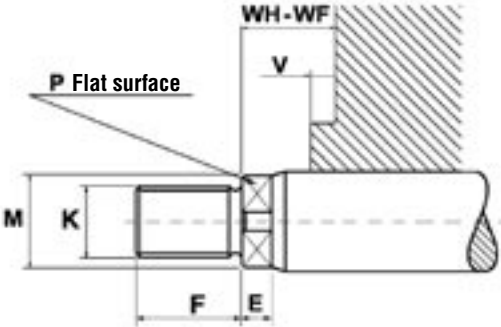
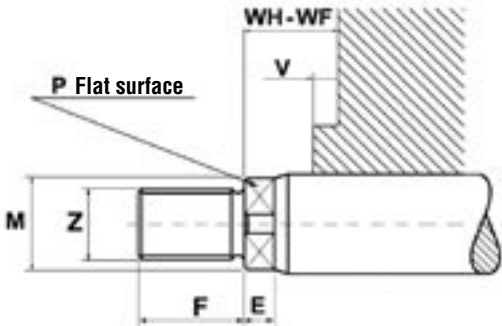
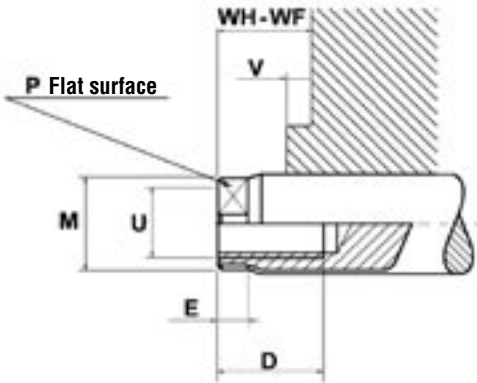
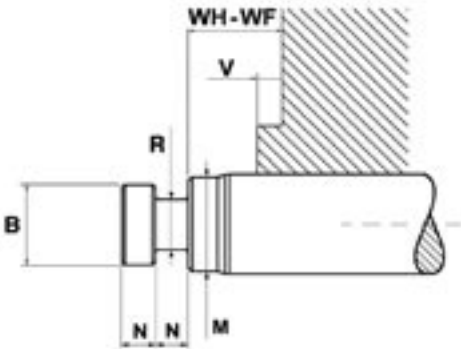
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G

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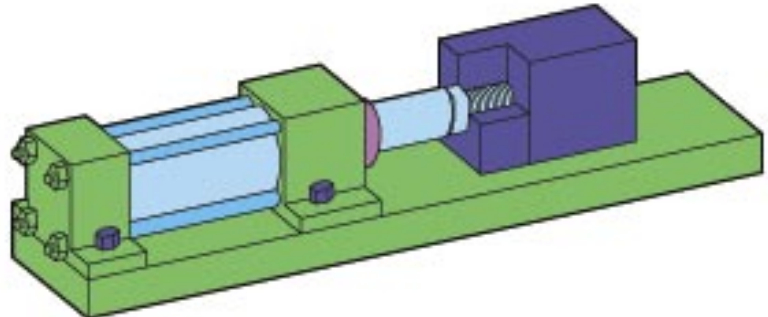
<p>G</p> <p>METRIC FEMALE THREAD</p>	<p>STANDARD</p> 	<p>A</p> <p>METRIC MALE THREAD</p> 
<p>H</p> <p>UNF-UNEF MALE THREAD</p>		<p>I</p> <p>UNF-UNEF FEMALE THREAD</p> 
<p>F</p> <p>FLOATING JOINT</p>		

Compact hydraulic cylinders 220 bar

The end and the length of the rod can be supplied differently from the options shown in this catalogue. In such a case, the customer should specify the code "S" (special) when placing the order, and forward the required dimensions of the rod accompanied by a sketch.

Once a Clamping style is chosen, it is important to make the most suitable assessment between the piston rod and the part to be actuated. This is due to the fact that technical and practical considerations (such as inclined planes, die pins, die cheeks, extractor carriages, etc.) frequently

THREADED ROD

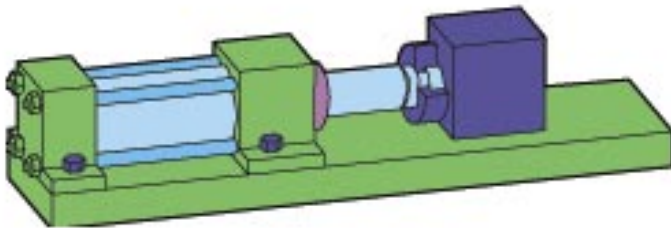


make it impossible to achieve a correct alignment between the piston rod movement axis and the actuated mechanical part.

A simple corrective system is to fit a floating joint rod end "F" which, unlike a threaded attachment system, allows a radial clearance between the rod and the moving part.

As an alternative, you might use a female floating joint on the female thread "G"; in such a case, see the page concerning the ACCESSORIES.

FLOATING JOINT



∅ Bore	∅ Rod	B	C	D	E	F	M	N	K	P	R	U	V	Z	WH
32	18	16	M10×1,5	20	6	18	17	7	M14×1,5	15	10	3/8-24	2	9/16-18	10
40	22	18	M12×1,75	20	8	22	21	8	M16×1,5	18	11	1/2-20	2	5/8-18	11,5
50	28	22	M20×2,5	30	8	28	27	10	M20×1,5	24	14	3/4-16	2	3/4-16	13
63	36	28	M27×3	40	11	36	35	12,5	M27×2	32	18	1-12	2	1-12	15
80	36	28	M27×3	40	11	36	35	12,5	M27×2	32	18	1-12	2	1-12	15
100	45	35	M33×3,5	50	12	45	44	16	M33×2	40	22	1-5/16-18	2	1-5/16-18	21

Compact hydraulic cylinders 220 bar

Spare Parts

ORDER CODE	Type	Bore	Article code	Port position	Additional set code	Stroke	Dimension X	Description	Quantity
	RC	032	1910	B	A	...	...
	RC	...	6010	A				Rod seal kit	1
	RC	...	6020	A				Piston seal kit	5
	RC	...	6050					Permanent magnet	6
	RC	...	6030					Integrated oil delivery with O-Rings in Viton®	-
	RC	...	1510	A				Magnetic piston with seals	4+5+6
	RC	...	1520	A				Non-magnetic piston with seals	4 + 5

RC	...	1910			Body for Clamping style « B », BSP threaded holes	3
RC	...	1911	...		...			Body for Clamping style « B », NPT threaded holes
RC	...	1912	...		...			Body for Clamping style « B », integrated ports with O-Rings
RC	...	1920	...		...			Body for Clamping style « C », BSP threaded holes
RC	...	1921	...		...			Body for Clamping style « C », NPT threaded holes
RC	...	1922	...		...			Body for Clamping style « C », integrated ports with O-Rings
RC	...	1940	...		...	...		Body for Clamping style « E », BSP threaded holes
RC	...	1941	...		...	...		Body for Clamping style « E », NPT threaded holes
RC	...	1930		Body for Clamping style « E », integrated ports with O-Rings	

Without flange	With flange
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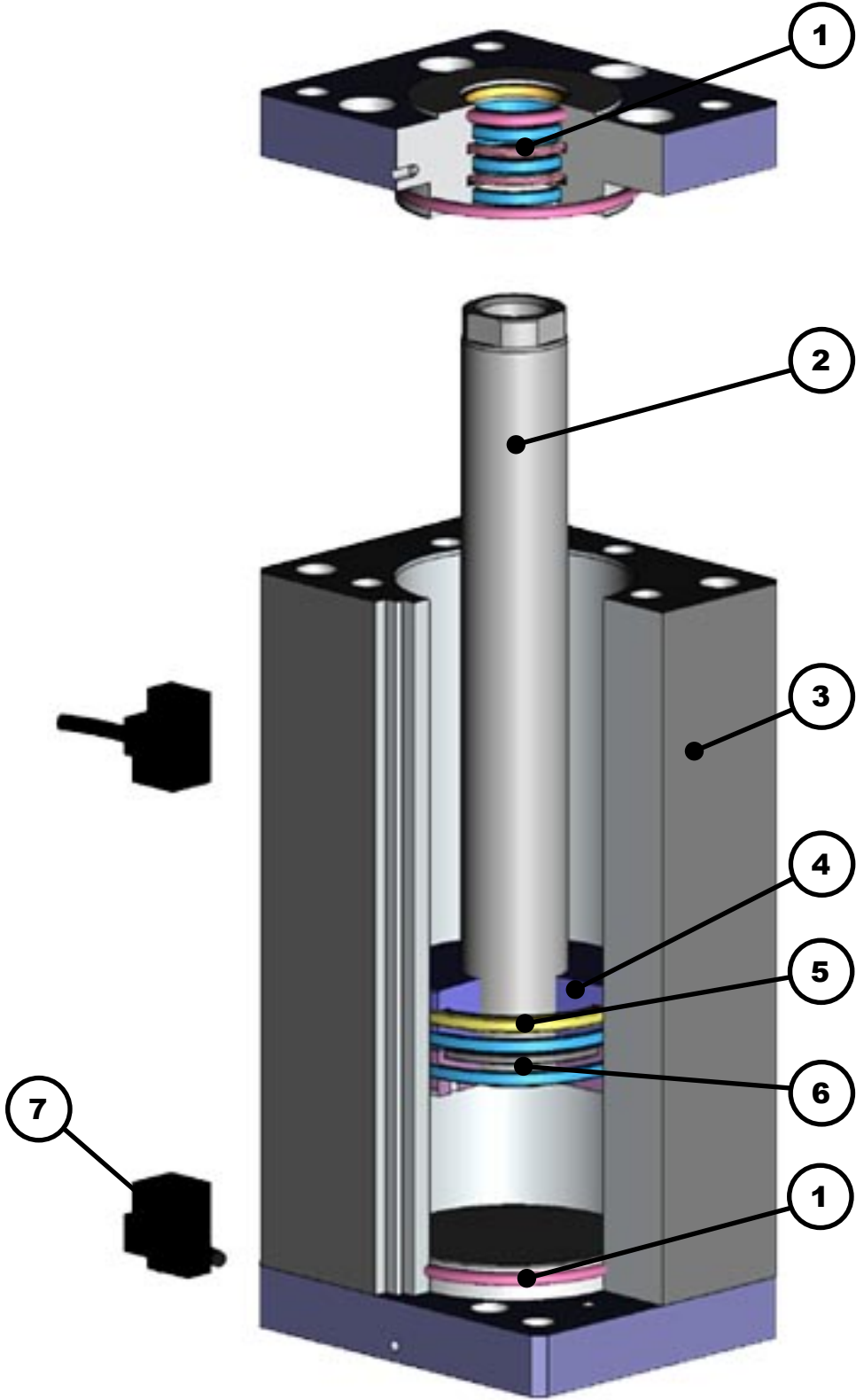
The rods for the **FLANGED** version are longer and the order code is different

RC	...	1120	1122			...		Rod with rod end style « G »	2
RC	...	1121	1123			...		Rod with rod end style « I »	
RC	...	1110	1112			...		Rod with rod end style « A »	
RC	...	1111	1113			...		Rod with rod end style « H »	
RC	...	1130	1131			...		Rod with rod end style « F »	
RC	...	1550	1552	A		...		Magnetic rod-piston group with rod end style « G »	2+4+5+6
RC	...	1551	1553	A		...		Magnetic rod-piston group with rod end style « I »	
RC	...	1530	1532	A		...		Magnetic rod-piston group with rod end style « A »	
RC	...	1531	1533	A		...		Magnetic rod-piston group with rod end style « H »	
RC	...	1570	1571	A		...		Magnetic rod-piston group with rod end style « F »	2+4+5
RC	...	1560	1562	A		...		Non-magnetic rod-piston group with rod end style « G »	
RC	...	1561	1563	A		...		Non-magnetic rod-piston group with rod end style « I »	
RC	...	1540	1542	A		...		Non-magnetic rod-piston group with rod end style « A »	
RC	...	1541	1543	A		...		Non-magnetic rod-piston group with rod end style « H »	
RC	...	1580	1581	A		...		Non-magnetic rod-piston group with rod end style « F »	

		MSU4						Magnetic switch with bracket	7
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Compact hydraulic cylinders 220 bar

- 1 Rod seals (kit)
- 2 Rod
- 3 Body
- 4 Piston
- 5 Piston seals (kit)
- 6 Magnetic ring
- 7 Switch



Mould Hydraulic Systems

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