CAMOZZI
Automation

SERIES CP
PROPORTIONAL SOLENOID VALVES

Series CP directly operated proportional solenoid valves can be used where an open loop flow control is required, with gas mixtures or to control flows. Their cartridge design makes them particularly compact, thus they can be mounted directly near the workstation.

Series CP valves have been designed to optimize dimensions and reduce friction and stick-slip effects. The output flow is proportional to the control signal. Apart from the pressure compensated version, these valves can work also in vacuum.
A minimum working pressure is thus not required.

2/2-way NC
Sizes: 16 and 20 mm
High flow and great precision
Low hysteresis
Cartridge body
Pressure compensated version (size 20mm only) available
Suitable to work also with oxygen

General data

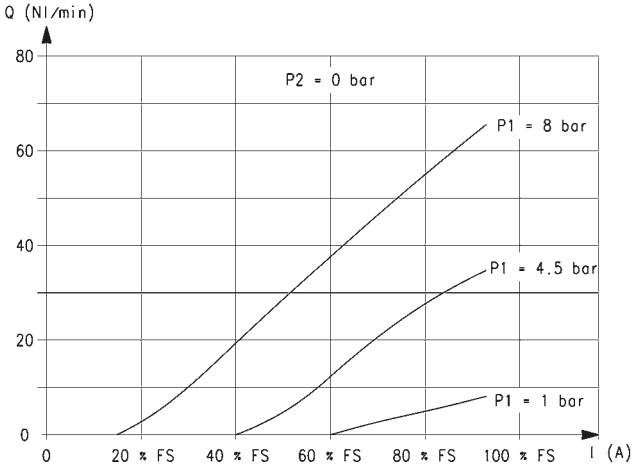
TECHNICAL FEATURES	Size 16mm, 2/2 NC	Size 20mm, 2/2 NC	Size 20mm, 2/2 NC pressure compensated
Operation	proportional directly operated	proportional directly operated	proportional pressure compensated
Pneumatic connections	cartridge	cartridge	cartridge
Nominal diameters	1 - 1.5 - 2 mm	3 - 3.5 mm	4.4 mm
Free flow capacity	70 - 80 - 90 l/min	130 Nl/min - 150 Nl/min 180 Nl/min	200 l/min
Operating pressure	2.8 - 2 bar	2.8 - 2 bar	2.8 bar (max pressure 6 bar)
Max overpressure	16 bar	16 bar	16 bar
Linearity (5-95%)	3% FS	5% FS	2% FS
Hysteresis	10% FS	15% FS	15% FS
Repeatibility	5% FS	5% FS	5% FS
Operating temperature	10°C ÷ 50°C	10°C ÷ 50°C	10°C ÷ 50°C
Media	filtered compressed air, unlubricated, according to ISO 8573-1 class 7.4.4, inert gas.	filtered compressed air, unlubricated, according to ISO 8573-1 class 7.4.4, inert gas.	filtered compressed air, unlubricated, according to ISO 8573-1 class 7.4.4, inert gas.
Installation	in any position	in any position	in any position
MATERIALS IN CONTACT WITH THE MEDIUM			
Body	brass, stainless steel, PPS	brass, stainless steel, PPS	brass, stainless steel, PPS
Seals	FKM	FKM	FKM
ELECTRICAL FEATURES			
Operation	PWM > 1000 Hz or current control	PWM > 500 Hz or current control	PWM > 1000 Hz or current control
Recommended PWM command signal	1000 Hz	500 Hz	1000 Hz
Operation voltage	6 - 12 - 24 V DC	6 - 12 - 24 V DC	6 - 12 - 24 V DC
Max power consumption	3.1W	5 - 3.7 W	4.2 W
Nominal resistance	11.8 - 37.6 - 184.7 Ohm	5.4 - 21.6 - 86.4 - 6.4 - 25.1 - 102.1 Ohm	6.4 - 25.1 - 102.1 Ohm
Rated current	410 - 238 - 103 mA	820 - 410 - 205 mA	700 - 350 - 175 mA
Duty cycle	100% with air flow	100% with air flow	100% with air flow
Electrical connection	cable 300mm AWG24	cable 300mm AWG24	cable 300mm AWG24
Protection class	IP00 / IP40	IP00 / IP40	IP00 / IP40
Average lifecycles	50000000	50000000	50000000
Versions available on demand	base with 1/8 - 1/4 ports	base with 1/8 - 1/4 ports	

Coding example

CP	-	C	6	2	1	-	G	W	2	-	0	P	3

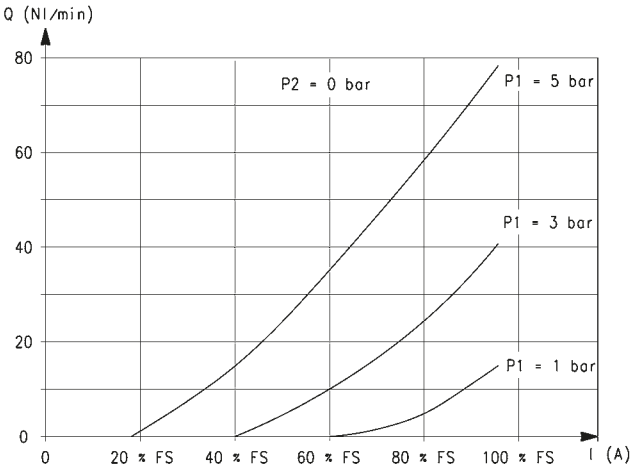
CP	SERIES
C	PORTS: C = cartridge S = subbase
6	BODY SIZE: 6 = size 16mm 7 = size 20mm 9 = size 20mm pressure compensated
2	NUMBER OF PORTS: 2 = 2-way
1	FUNCTION: 1 = NC
G	ORIFICE DIAMETRES: F = 1mm (size 16mm only) G = 1.5mm (size 16mm only) N = 2mm (size 16mm only) M = 3mm (size 20mm only) P = 3.5mm (size 20mm only) T = ø 4.4 mm (size 20mm only, pressure compensated)
W	SEAL MATERIAL: W = FKM
2	BODY MATERIAL: 2 = brass
0	OVERMOULDING MATERIAL OF COIL: 0 = cartridge
P	COIL DIMENSIONS: P = ø 16 7 = ø 20
3	VOLTAGE: 1 = 6 V DC 3.1 W (size 16mm only) 3 = 24 V DC 3.1 W (size 16mm only) 5 = 12 V DC 3.1 W (size 16mm only) 2 = 12 V DC 4.3 W (size 20mm only) 4 = 24 V DC 4.3 W (size 20mm only) 6 = 6 V DC 4.3 W (size 20mm only) 7 = 6 V 4.8 W (only Ø 3.5, size 20mm) 8 = 12 V 4.8 W (only Ø 3.5, size 20mm) 9 = 24 V 4.8 W (only Ø 3.5, size 20mm) 10 = 6 V DC 4.2 W (size 20mm only, pressure compensated) 11 = 24 V DC 4.2 W (size 20mm only, pressure compensated) 12 = 12 V DC 4.2 W (size 20mm only, pressure compensated)

FLOW DIAGRAMS - size 16mm



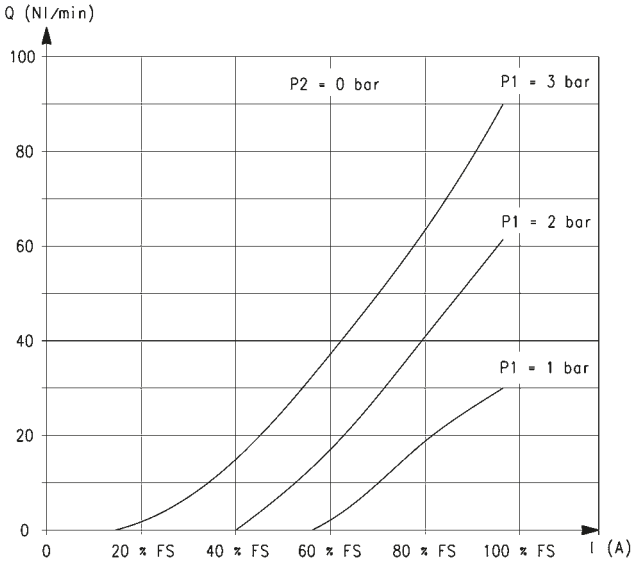
Nominal diameter 1mm

Q = flow (l/min)
I = current (A)
P1 = pressure in load (bar)
P2 = 0 [free flow pressure] (bar)



Nominal diameter 1.5mm

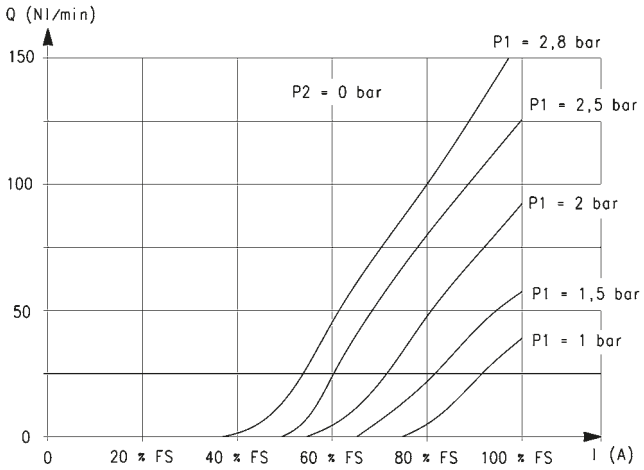
Q = flow (l/min)
I = current (A)
P1 = pressure in load (bar)
P2 = 0 [free flow pressure] (bar)



Nominal diameter 2mm

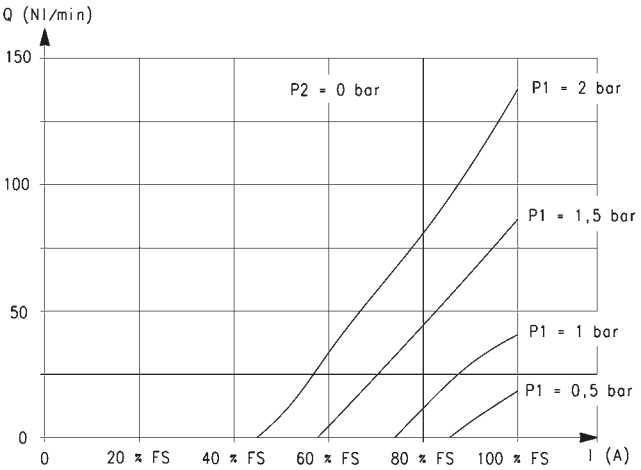
Q = flow (l/min)
I = current (A)
P1 = pressure in load (bar)
P2 = 0 [free flow pressure] (bar)

FLOW DIAGRAMS - Size 20mm



Nominal diameter 3mm

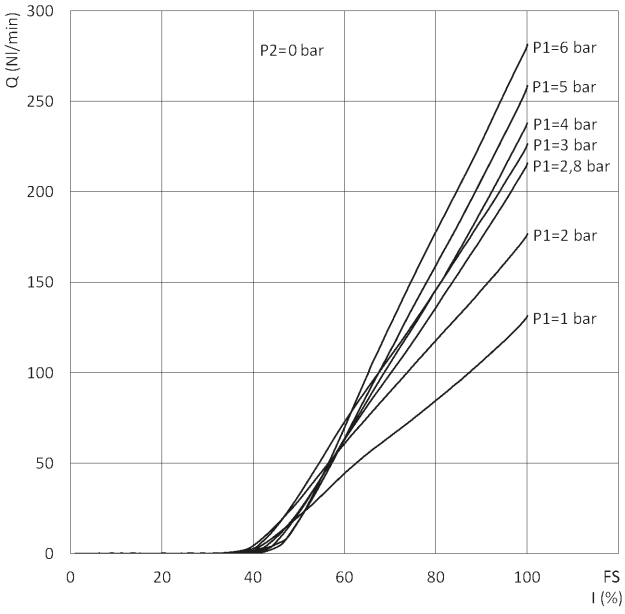
Q = flow (l/min)
I = current (A)
P1 = pressure in load (bar)
P2 = 0 [free flow pressure] (bar)



Nominal diameter 3.5mm

Q = flow (l/min)
I = current (A)
P1 = pressure in load (bar)
P2 = 0 [free flow pressure] (bar)

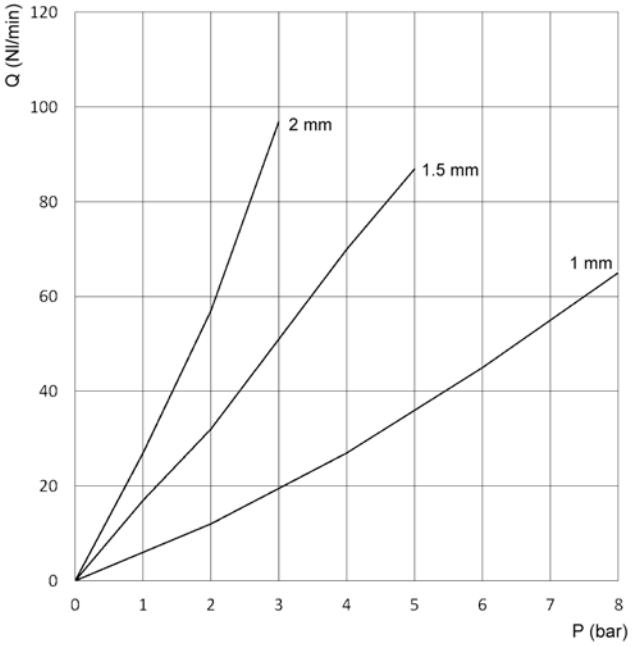
FLOW DIAGRAM - Size 20mm pressure compensated



Nominal diameter 4.4mm

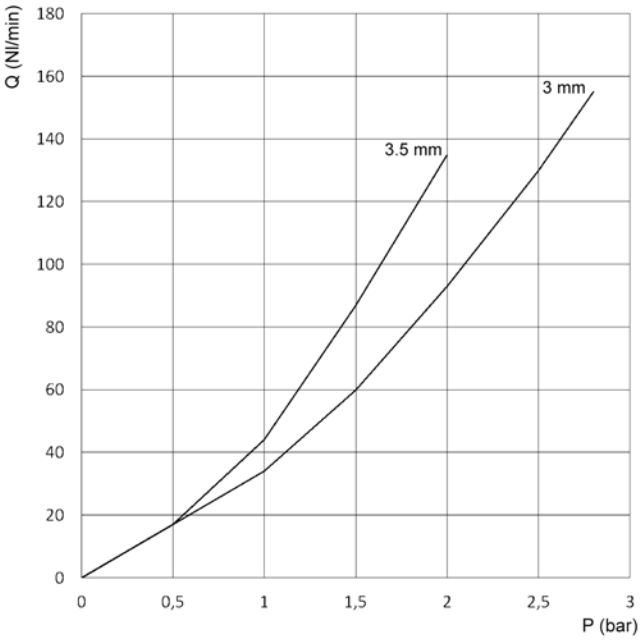
Q = flow (l/min)
I = current (A)
P1 = pressure in load (bar)
P2 = 0 [free flow pressure] (bar)
FS = full scale

MAXIMUM FLOW ACCORDING TO THE INLET PRESSURE



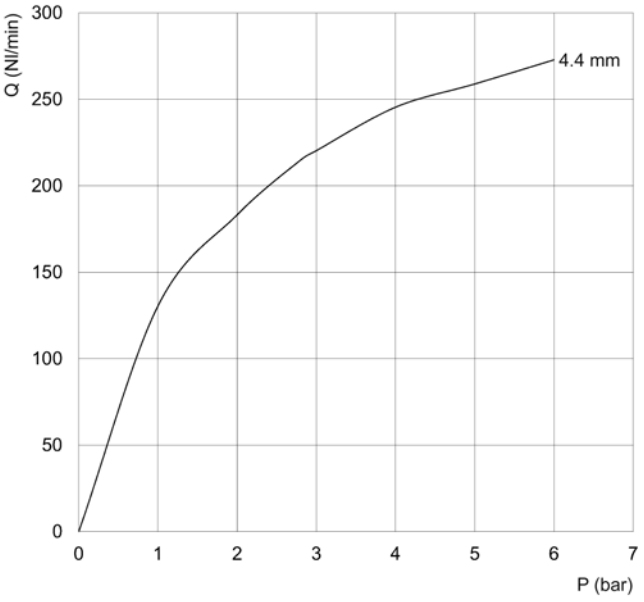
Size 16 mm

Q = Flow (Nl/min)
P = Inlet pressure (bar)



Size 20 mm

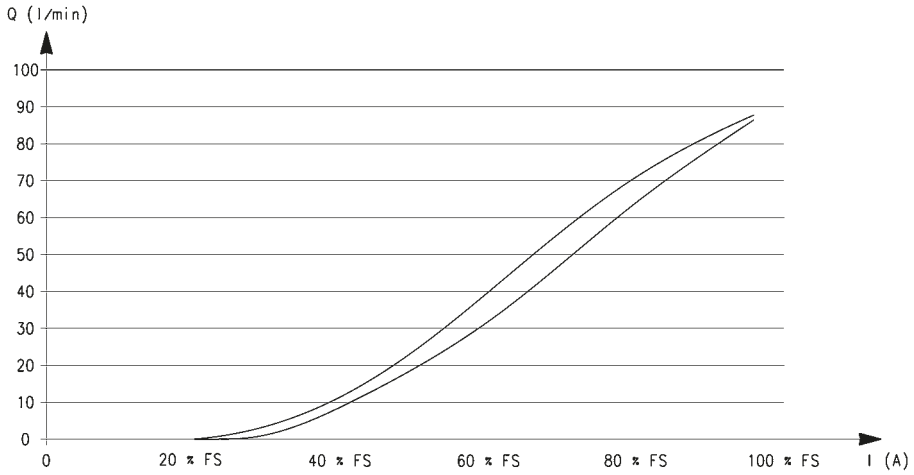
Q = Flow (Nl/min)
P = Inlet pressure (bar)



Size 20mm pressure compensated

Q = Flow (Nl/min)
P = Inlet pressure (bar)

HYSTERESIS AND RESPONSE TIMES

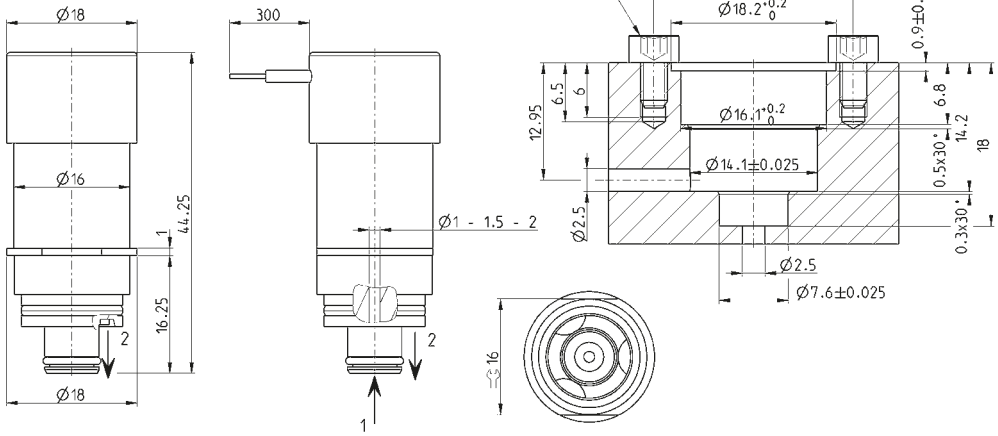


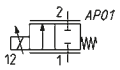
Q = flow (l/min)
I = current (A)
FS = full scale

RESPONSE TIMES calculated according to the maximum flow at each operating pressure. [Electromechanical response time: 10 ms]							
ø	Inlet pressure (bar)	Load response time (ms)			Exhaust response time (ms)		
		0% - 10%	0% - 90%	10% - 90%	100% - 90%	100% - 10%	90% - 10%
1 mm	8	12	42	30	9	33	24
1.5 mm	5	12	39	27	9	33	24
2 mm	3	11	39	28	9	33	26
3 mm	2.8	13	29	16	14	28.5	14.5
3.5 mm	2	15	31	16	12.5	27.5	15
4.4 mm *	2.8	13	52	49	10	37	27

* in the pressure compensated version the counter pressure at the valve outlet must be always lower than 15-20% of the inlet pressure.

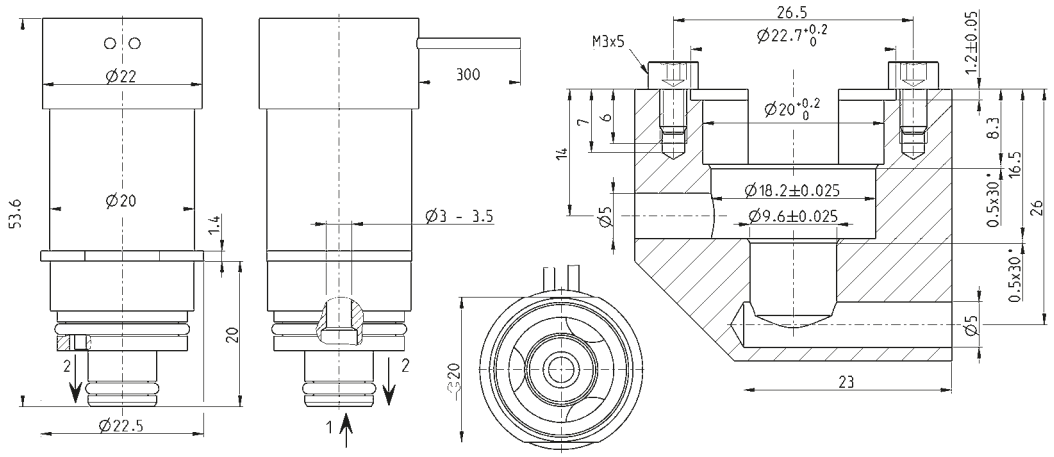
Solenoid valves, size 16mm - dimensions

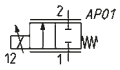




Mod.	Orifice Ø (mm)	Max operating pressure (bar)	Max flow (Nl/min)	Max flow kv (l/min)	Operation voltage (V DC)	Max current (mA)
CPN-C621-FW2-0P1	1	8	70	0.55	6	410
CPN-C621-GW2-0P1	1.5	5	80	0.88	6	410
CPN-C621-NW2-0P1	2	3	90	1.42	6	410
CPN-C621-FW2-0P3	1	8	70	0.55	24	103
CPN-C621-GW2-0P3	1.5	5	80	0.88	24	103
CPN-C621-NW2-0P3	2	3	90	1.42	24	103
CPN-C621-FW2-0P5	1	8	70	0.55	12	238
CPN-C621-GW2-0P5	1.5	5	80	0.88	12	238
CPN-C621-NW2-0P5	2	3	90	1.42	12	238

Solenoid valves, size 20mm - dimensions

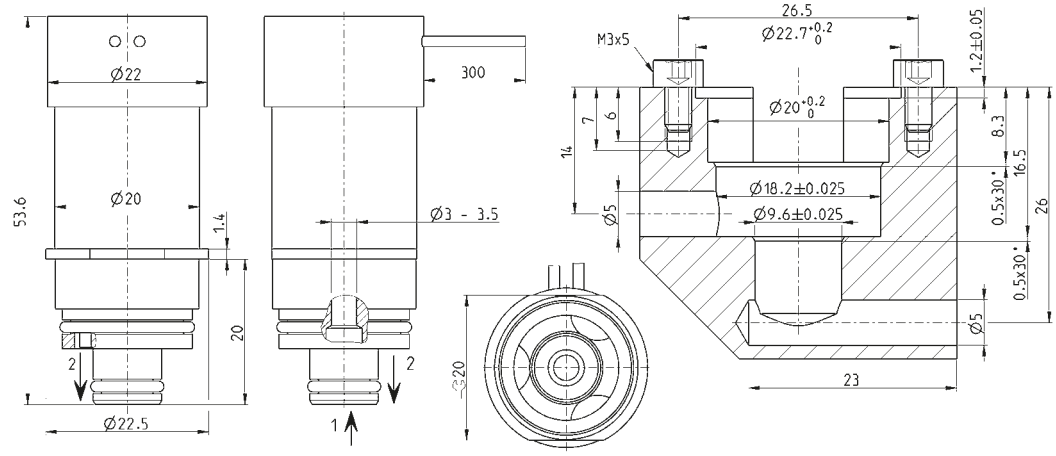


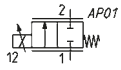


Mod.	Orifice Ø (mm)	Max operating pressure (bar)	Max flow (Nl/min)	Max flow kv (l/min)	Operation voltage (V DC)	Max current (mA)
CP-C721-MW2-072	3	2.8	150	2.8	12	313
CP-C721-MW2-074	3	2.8	150	2.8	24	154
CP-C721-MW2-076	3	2.8	150	2.8	6	615
CP-C721-PW2-072	3.5	2	130	3	12	313
CP-C721-PW2-074	3.5	2	130	3	24	154
CP-C721-PW2-076	3.5	2	130	3	6	615
CP-C721-PW2-077	3.5	2	180	4.5	6	820
CP-C721-PW2-078	3.5	2	180	4.5	12	410
CP-C721-PW2-079	3.5	2	180	4.5	24	205

Solenoid valves, size 20mm pressure compensated - dimensions

Working nominal pressure: 2.8 bar





Mod.	Orifice Ø (mm)	Max operating pressure (bar)	Max flow (Nl/min)	Max flow kv (l/min)	Operation voltage (V DC)	Max current (mA)
CP-C921-TW2-0710	4.4	6	200	4	6	700
CP-C921-TW2-0711	4.4	6	200	4	24	175
CP-C921-TW2-0712	4.4	6	200	4	12	350

MIX COMUNICAZIONE - MI

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93-1005-0GB090 07/2020

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