

CATALOGUE



PROPORTIONAL TECHNOLOGY



WELCOME TO CAMOZZI AUTOMATION

Camozzi Automation is a global leader in the design and production of motion and fluid control components, systems and technologies for Industrial automation, Transportation and Life science industries.



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1 Pneumatic actuation



- 1 International standard cylinders
- 2 Compact cylinders
- 3 Stainless steel cylinders
- 4 Guided cylinders
- 5 Cylinders not according standards
- 6 Rotary cylinders
- 7 Rodless cylinders
- 8 Proximity switches
- 9 Hydrochecks, Rod lock, Shock absorbers

2 Electric actuation



- 1 Electromechanical cylinders
- 2 Electromechanical axes
- 3 Drives
- 4 Motors and gearboxes

3 Handling



- 1 Grippers

4 Vacuum components



- 1 Suction pads
- 2 Ejectors
- 3 Vacuum accessories
- 4 Vacuum filters

5 Valves and solenoid valves



- 1 Direct and indirect acting 2/2, 3/2 solenoid valves
- 2 Solenoid, pneumatic and manifold valves
- 3 Mechanical and manual valves
- 4 Logic valves
- 5 Automatic valves
- 6 Flow control valves
- 7 Silencers

6 Fieldbus and multipole systems



- 1 Valve islands
- 2 Multi-serial modules

7 Proportional technology



- 1 Proportional valves
- 2 Proportional regulators

8 Air treatment



- 1 Series MX Modular FRL Units
- 2 Series MC Modular FRL Units
- 3 Series MD Modular FRL Units
- 4 Series N FRL Units
- 5 Pressure regulators
- 6 Pressure switches and vacuum switches
- 7 Accessories for air treatment

9 Fittings, connectors, tubing and accessories



- 1 Super-rapid fittings
- 2 Rapid fittings
- 3 Universal fittings
- 4 Fittings accessories
- 5 Quick-release couplings
- 6 Tubing, spirals and accessories
- 7 Fittings and accessories for applications of medical gases
- 8 Mini ball valves

General index

1 Proportional valves

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2 Proportional regulators

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Series AP directly operated proportional valves

2/2-way proportional valves, NC
Sizes: 16 - 22 mm



- » PWM or current operation
- » Open loop flow control
- » Also suitable for use with vacuum

Several versions available:

- » with body in PVDF (size 16mm only),
- » with rear flanged bodies
- » with lower flanged bodies,
- » suitable for use with oxygen
- » Seals in FKM, NBR and EPDM

Series AP directly operated 2/2-way proportional solenoid valves, NC, with nominal diameters range from 0.8 to 2.4 mm, can be used where an open loop flow control is required, with gas mixtures, to control free flows or blows, or emptying chambers using vacuum.

Series AP proportional valves have been manufactured to optimize and reduce friction and stick-slip effects. The output flow is proportional to the control signal. As they can work also in vacuum, a minimum working pressure is not required.

GENERAL DATA

Function	2/2 NC			
Operation	proportional directly operated			
Ports	M5 - G1/8 - with rear flanges - with lower flanges			
Hysteresis	Size 16mm: 12% FS - Size 22mm: 10% FS			
Repeatability	Size 16mm: 7% FS - Size 22mm: 7% FS			
Operating temperature	0 ÷ 60°C			
Medium	filtered compressed air, unlubricated, according to ISO 8573-1 class 3.4.3, inert gas. All the valves are suitable for use with oxygen.			
Installation	any position			
Materials	body = brass / PVDF (size 16mm only) seals = NBR, FKM, EPDM			
Nominal resistance	GP7	GPH	U711	U712
Rated current	193 ohm	48 ohm	85 ohm	22 ohm
	125 mA	250 mA	271 mA	542 mA

NOTE: Having a counterpressure on the outlet connection of at least 25% of the inlet pressure ensures the good functioning of the valve and improves its performance. Example: with inlet Pressure = 1 bar on the outlet connection, a min. counterpressure of 250 mbar is recommended.

CODING EXAMPLE

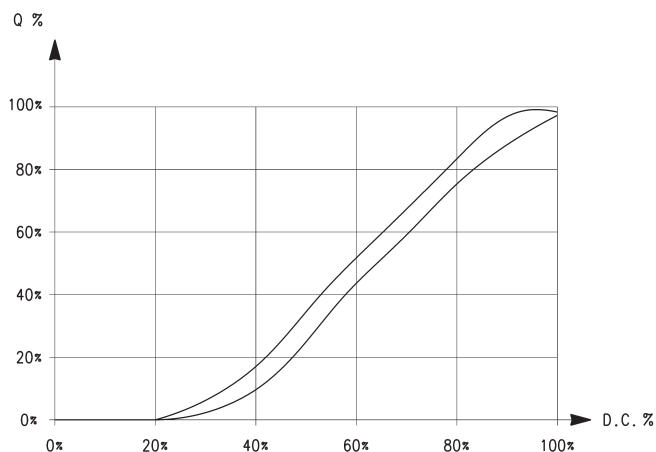
AP	-	7	2	1	1	-	L	R	2	-	U	7	11		OX2
----	---	---	---	---	---	---	---	---	---	---	---	---	----	--	-----

AP	SERIES														
7	BODY: 6 = size 16mm 7 = size 22mm														
2	NUMBER OF WAYS: 2 = 2-way														
1	VALVE FUNCTION: 1 = NC														
1	PORTS: 0 = M5 (size 16mm only) 1 = G1/8 (size 22mm only) 4 = with rear flanges (size 16mm only) 5 = with lower flanges L = male hose adaptor (for body in PVDF only, size 16mm)														
L	ORIFICE: D = $\varnothing$ 0.8 mm (size 16mm only) F = $\varnothing$ 1 mm H = $\varnothing$ 1.2 mm L = $\varnothing$ 1.6 mm N = $\varnothing$ 2 mm (size 22mm only) Q = $\varnothing$ 2.4 mm (size 22mm only)														
R	SEAL MATERIAL: R = NBR W = FKM E = EPDM														
2	BODY MATERIAL: 2 = brass 3 = PVDF (size 16mm only)														
U	ENCAPSULATING MATERIAL: G = PA (size 16mm only) U = PET (size 22mm only)														
7	SOLENOID DIMENSIONS: P = 16x26 DIN EN 175301-803-C (size 16mm only) 7 = 22x22 DIN 43650 B (size 22mm only)														
11	SOLENOID VOLTAGE: H = 12 V DC 3 W (size 16mm only) 7 = 24 V DC 3 W (size 16mm only) 11 = 24 V DC 6.5 W (size 22mm only) 12 = 12 V DC 6.5 W (size 22mm only)														
	COIL ORIENTATION: = fastons opposite to pneumatic ports/same side of the outlet 5 = fastons towards pneumatic ports/same side of the inlet														
OX2	VERSION: OX2 = version with ASTM G93-03 Certification Level B (FKM seals only) = non-certified version														

FLOW GRAPH

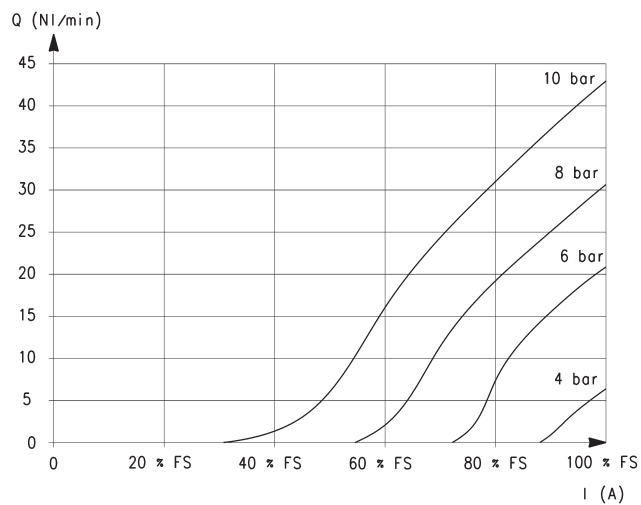
Flow characteristic curve of a proportional valve

Q = flow
D.C. = duty cycle



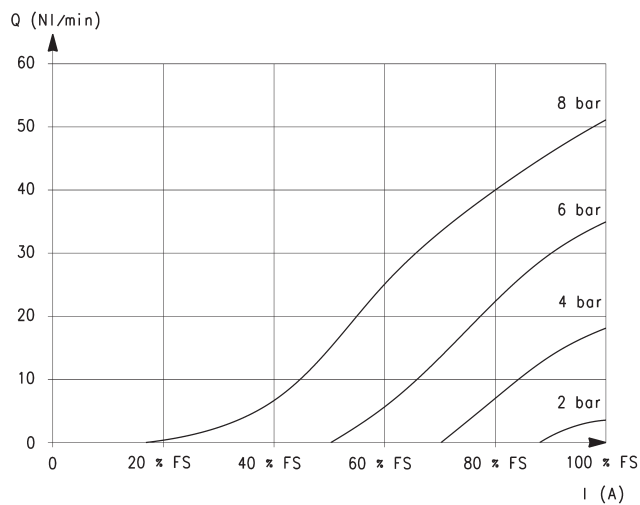
FLOW DIAGRAMS - size 16mm

SERIES AP PROPORTIONAL VALVES



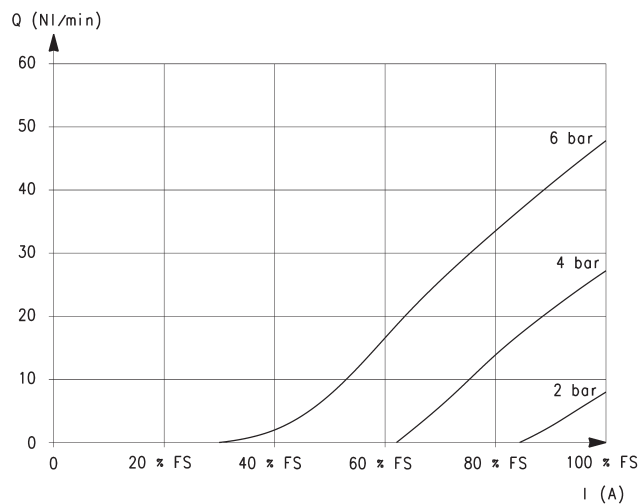
Nozzle 0.8mm

Q = Flow (NL/min)
I = Current (A)
FS = Full scale



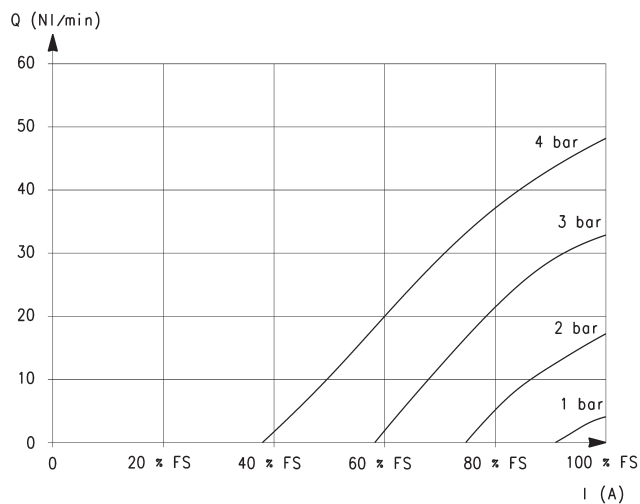
Nozzle 1mm

Q = Flow (NL/min)
I = Current (A)
FS = Full scale



Nozzle 1.2mm

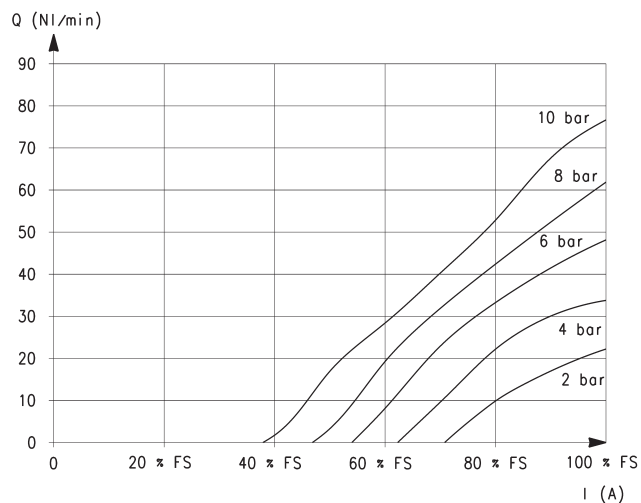
Q = Flow (NL/min)
I = Current (A)
FS = Full scale



Nozzle 1.6mm

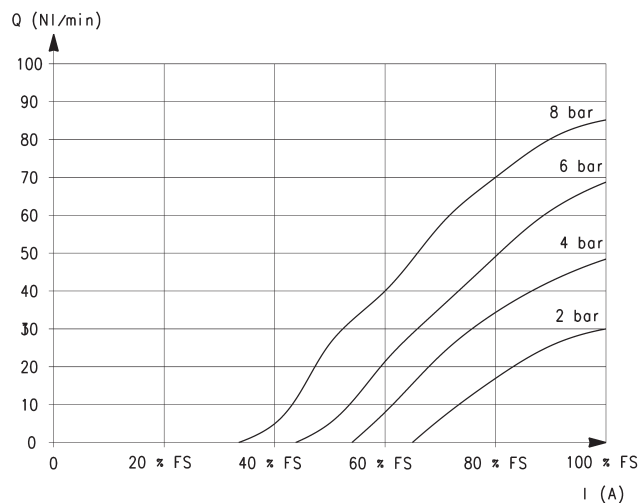
Q = Flow (NL/min)
I = Current (A)
FS = Full scale

FLOW DIAGRAMS - size 22mm



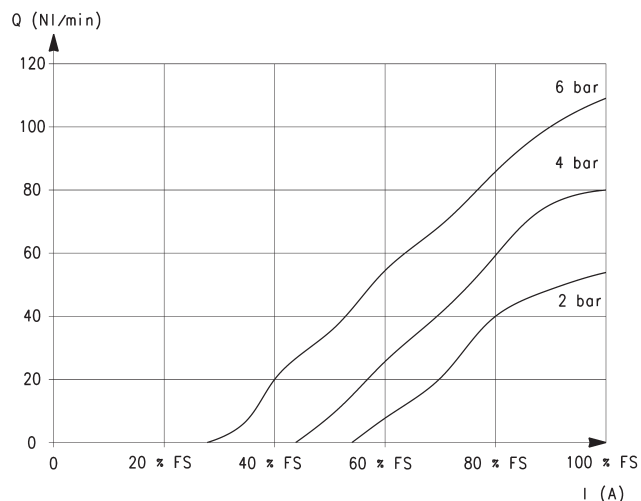
Nozzle 1mm

Q = Flow (NL/min)
I = Current (A)
FS = Full scale



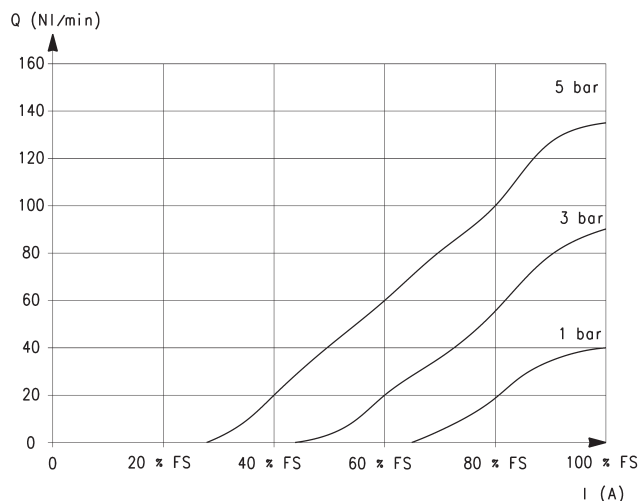
Nozzle 1.2mm

Q = Flow (NL/min)
I = Current (A)
FS = Full scale



Nozzle 1.6mm

Q = Flow (NL/min)
I = Current (A)
FS = Full scale

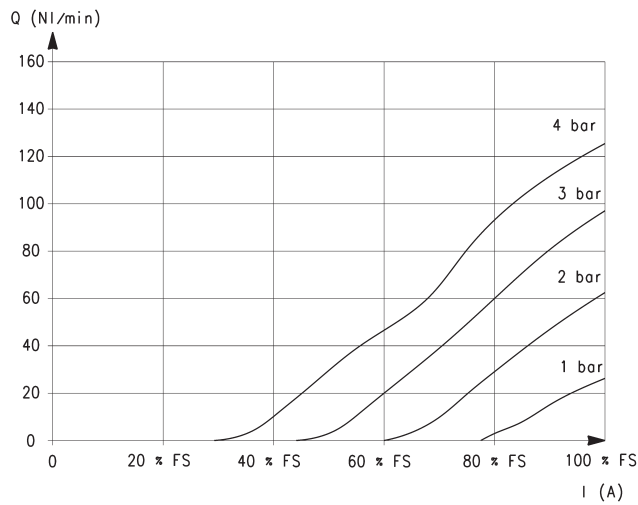


Nozzle 2mm

Q = Flow (NL/min)
I = Current (A)
FS = Full scale

FLOW DIAGRAM - size 22mm

SERIES AP PROPORTIONAL VALVES



Nozzle 2.4mm

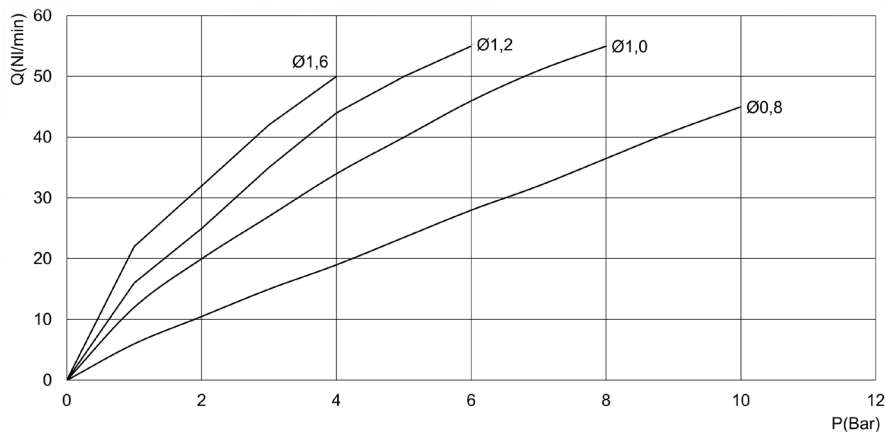
Q = Flow (NL/min)
I = Current (A)
FS = Full scale

MAXIMUM FLOW AND RESPONSE TIMES - size 16mm

Maximum flow according to the set pressure, for each orifice.

DIAGRAM LEGEND:

Q = flow (NL/min)
P = set pressure (bar)



RESPONSE TIMES calculated according to the maximum flow at each operating pressure. [Electromechanical response time: 10 ms]

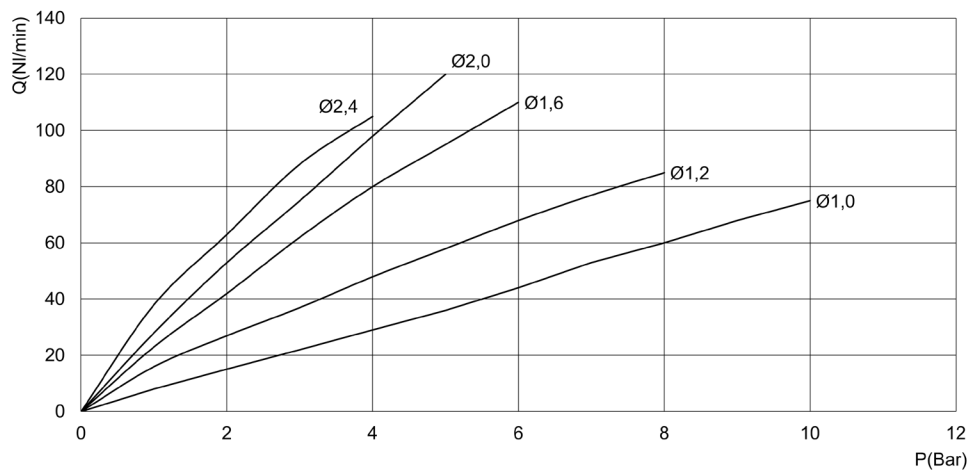
ø	Pin [bar]	Opening response time [ms]			Closing response time [ms]		
		0% - 10%	0% - 90%	10% - 90%	100% - 90%	100% - 10%	90% - 10%
0.8 mm	10	12	43	31	11	39	28
1 mm	8	12	42	30	11	38	27
1.2 mm	6	10	41	31	11	41	30
1.6 mm	4	10	40	30	11	40	29

MAXIMUM FLOW AND RESPONSE TIMES - size 22mm

Maximum flow according to the set pressure, for each orifice.

DIAGRAM LEGEND:

Q = flow (NL/min)
P = set pressure (bar)



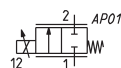
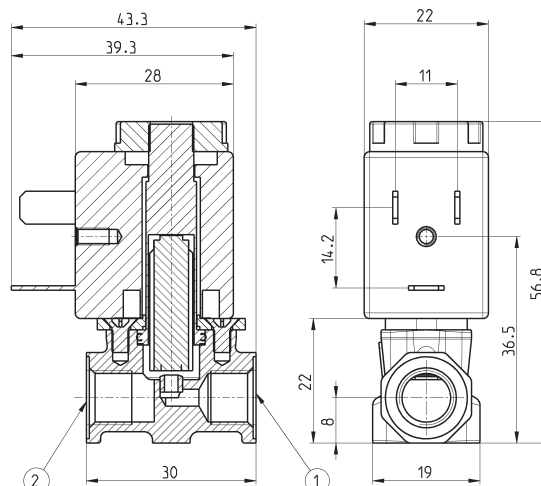
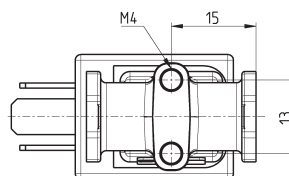
RESPONSE TIMES calculated according to the maximum flow at each operating pressure. [Electromechanical response time: 10 ms]

ø	Pin [bar]	Load response time [ms]			Exhaust response time [ms]		
		0% - 10%	0% - 90%	10% - 90%	100% - 90%	100% - 10%	90% - 10%
1 mm	10	10	36	26	10	36	26
1.2 mm	8	10	45	35	12	38	26
1.6 mm	6	12	45	33	12	40	28
2 mm	5	12	42	30	11	34	26
2.4 mm	4	11	45	34	12	44	32

Series AP proportional valves - 22mm, body with threaded ports



For the use with vacuum connect the line to port 2.



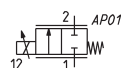
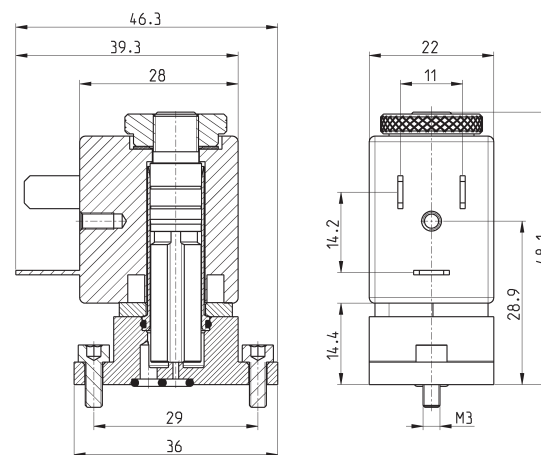
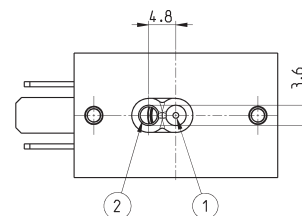
* choose the desired voltage

Mod.	Port 1	Port 2	Function	Orifice Ø (mm)	kv (l/min)	Max pressure (bar)	Max flow (NL/min)
AP-7211-FR2-U7*	G1/8	G1/8	2/2 NC	1	0.5	10	75
AP-7211-HR2-U7*	G1/8	G1/8	2/2 NC	1.2	0.7	8	85
AP-7211-LR2-U7*	G1/8	G1/8	2/2 NC	1.6	1.2	6	110
AP-7211-NR2-U7*	G1/8	G1/8	2/2 NC	2	1.7	5	135
AP-7211-QR2-U7*	G1/8	G1/8	2/2 NC	2.4	1.7	4	113
AP-7211-FW2-U7*OX2	G1/8	G1/8	2/2 NC	1	0.5	10	75
AP-7211-HW2-U7*OX2	G1/8	G1/8	2/2 NC	1.2	0.7	8	85
AP-7211-LW2-U7*OX2	G1/8	G1/8	2/2 NC	1.6	1.2	6	110
AP-7211-NW2-U7*OX2	G1/8	G1/8	2/2 NC	2	1.7	5	135
AP-7211-QW2-U7*OX2	G1/8	G1/8	2/2 NC	2.4	1.7	4	113

Series AP proportional valves - size 22mm, low flanged body



For the use with vacuum connect the line to port 2.



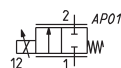
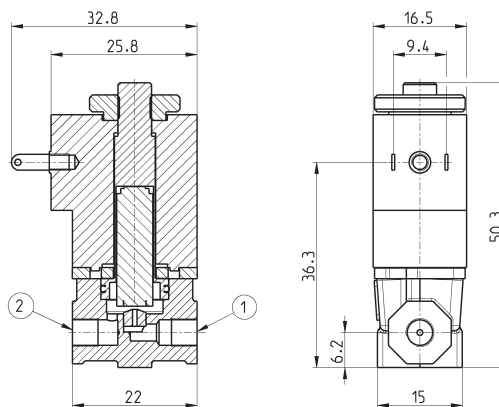
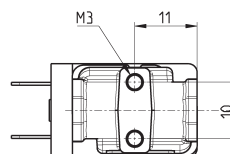
* choose the desired voltage

Mod.	Function	Orifice Ø (mm)	kv (l/min)	Max pressure (bar)	Max flow (NL/min)
AP-7215-FR2-U7*	2/2 NC	1	0.5	10	75
AP-7215-HR2-U7*	2/2 NC	1.2	0.7	8	85
AP-7215-LR2-U7*	2/2 NC	1.6	1.2	6	110
AP-7215-NR2-U7*	2/2 NC	2	1.7	5	135
AP-7215-QR2-U7*	2/2 NC	2.4	1.7	4	113
AP-7215-FW2-U7*OX2	2/2 NC	1	0.5	10	75
AP-7215-HW2-U7*OX2	2/2 NC	1.2	0.7	8	85
AP-7215-LW2-U7*OX2	2/2 NC	1.6	1.2	6	110
AP-7215-NW2-U7*OX2	2/2 NC	2	1.7	5	135
AP-7215-QW2-U7*OX2	2/2 NC	2.4	1.7	4	113

Series AP proportional valves - 16mm, body with threaded ports



For the use with vacuum connect the line to port 2.



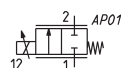
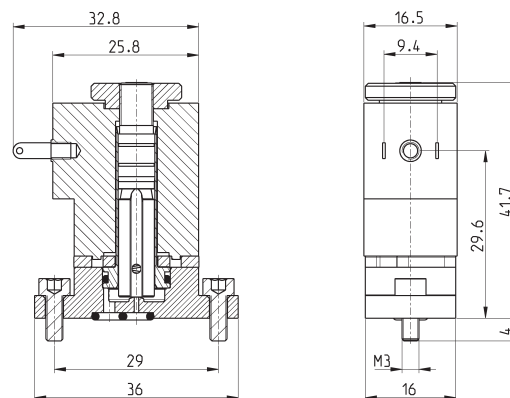
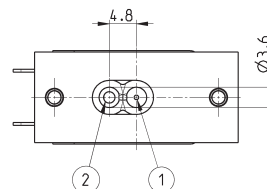
* choose the desired voltage

Mod.	Port 1	Port 2	Function	Orifice Ø (mm)	kv (l/min)	Max pressure (bar)	Max flow (NI/min)
AP-6210-DR2-GP*	M5	M5	2/2 NC	0.8	0.3	10	43
AP-6210-FR2-GP*	M5	M5	2/2 NC	1	0.45	8	53
AP-6210-HR2-GP*	M5	M5	2/2 NC	1.2	0.57	6	53
AP-6210-LR2-GP*	M5	M5	2/2 NC	1.6	0.78	4	52
AP-6210-DW2-GP*OX2	M5	M5	2/2 NC	0.8	0.3	10	43
AP-6210-FW2-GP*OX2	M5	M5	2/2 NC	1	0.45	8	53
AP-6210-HW2-GP*OX2	M5	M5	2/2 NC	1.2	0.57	6	53
AP-6210-LW2-GP*OX2	M5	M5	2/2 NC	1.6	0.78	4	52

Series AP proportional valves - 16mm, low flanged body



For the use with vacuum connect the line to port 2.



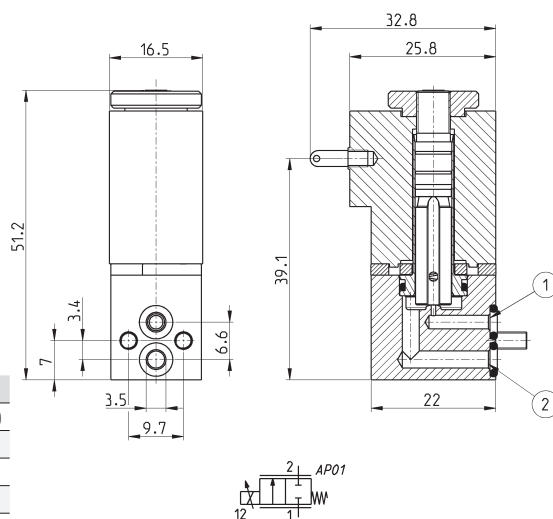
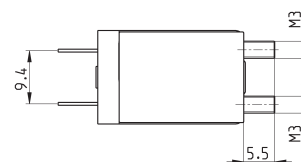
* choose the desired voltage

Mod.	Function	Orifice Ø (mm)	kv (l/min)	Max pressure (bar)	Max flow (NI/min)
AP-6215-DR2-GP*	2/2 NC	0.8	0.3	10	43
AP-6215-FR2-GP*	2/2 NC	1	0.45	8	53
AP-6215-HR2-GP*	2/2 NC	1.2	0.57	6	53
AP-6215-LR2-GP*	2/2 NC	1.6	0.78	4	52
AP-6215-DW2-GP*OX2	2/2 NC	0.8	0.3	10	43
AP-6215-FW2-GP*OX2	2/2 NC	1	0.45	8	53
AP-6215-HW2-GP*OX2	2/2 NC	1.2	0.57	6	53
AP-6215-LW2-GP*OX2	2/2 NC	1.6	0.78	4	52

Series AP proportional valves - 16mm, rear flanged body



For the use with vacuum connect the line to port 2.



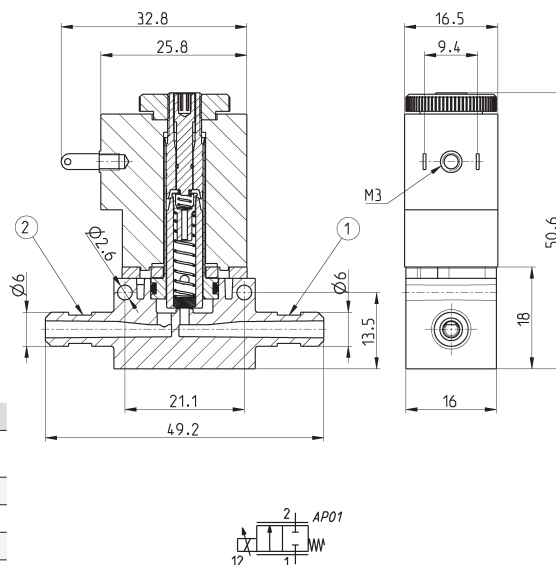
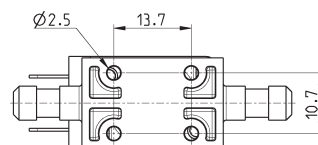
* choose the desired voltage

Mod.	Function	Orifice Ø (mm)	kv (l/min)	Max pressure (bar)	Max flow (NL/min)
AP-6214-DR2-GP*	2/2 NC	0.8	0.3	10	43
AP-6214-FR2-GP*	2/2 NC	1	0.45	8	53
AP-6214-HR2-GP*	2/2 NC	1.2	0.57	6	53
AP-6214-LR2-GP*	2/2 NC	1.6	0.78	4	52
AP-6214-DW2-GP*OX2	2/2 NC	0.8	0.3	10	43
AP-6214-FW2-GP*OX2	2/2 NC	1	0.45	8	53
AP-6214-HW2-GP*OX2	2/2 NC	1.2	0.57	6	53
AP-6214-LW2-GP*OX2	2/2 NC	1.6	0.78	4	52

Series AP proportional valves, size 16mm - body in PVDF



For the use with vacuum connect the line to port 2.



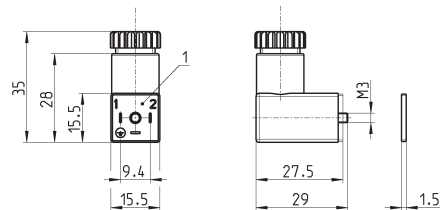
* choose the desired voltage
** pneumatic connection with tube and clamps

Mod.	Port 1	Port 2	Function	Orifice Ø (mm)	kv (l/min)	Max pressure (bar)	Max flow (NL/min)
AP-6211L-DR3-GP*	Ø6 **	Ø6 **	2/2 NC	0.8	0.3	10	43
AP-6211L-FR3-GP*	Ø6 **	Ø6 **	2/2 NC	1	0.45	8	53
AP-6211L-HR3-GP*	Ø6 **	Ø6 **	2/2 NC	1.2	0.57	6	53
AP-6211L-LR3-GP*	Ø6 **	Ø6 **	2/2 NC	1.6	0.78	4	52
AP-6211L-DW3-U7*OX2	Ø6 **	Ø6 **	2/2 NC	0.8	0.3	10	43
AP-6211L-FW3-U7*OX2	Ø6 **	Ø6 **	2/2 NC	1	0.45	8	53
AP-6211L-HW3-U7*OX2	Ø6 **	Ø6 **	2/2 NC	1.2	0.57	6	53
AP-6211L-LW3-U7*OX2	Ø6 **	Ø6 **	2/2 NC	1.6	0.78	4	52

Connector Mod. 125-800 DIN 43650 pitch 9.4 mm



For size 16 mm only



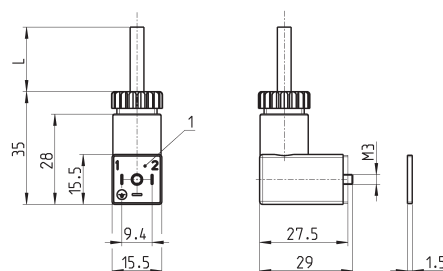
Mod.	description	colour	working voltage	cable gland	tightening torque
125-800	connector, without electronics	black	-	PG7	0.3 Nm

1 = 90° adjustable connector

Connector Mod. 125-550- DIN 43650 pitch 9.4 mm with cable



For size 16 mm only

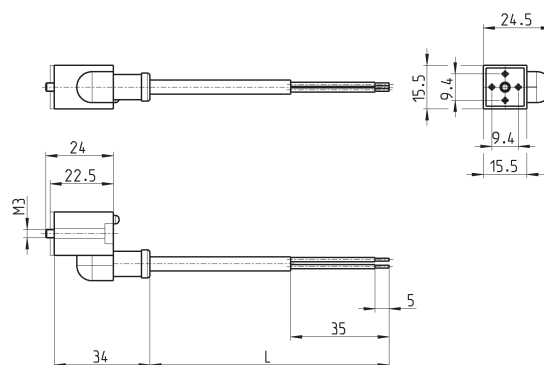


Mod.	description	colour	working voltage	cable length [L]	cable gland	tightening torque
125-550-1	moulded cable, without electronics	black	-	1000 mm	-	0.3 Nm

1 = 90° adjustable connector

In-line connectors with cable Mod. 125-553

For size 16 mm only



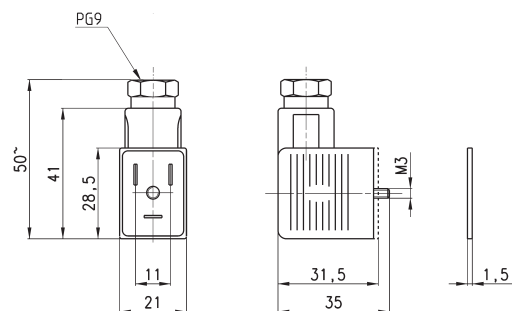
Mod.	description	colour	working voltage	cable length [L]	cable gland	tightening torque
125-553-2	in-line moulded cable, without electronics	black	-	2000 mm	-	0.3 Nm
125-553-5	in-line moulded cable, without electronics	black	-	5000 mm	-	0.3 Nm

Connectors Mod. 122-800 DIN 43650



For size 22 mm only

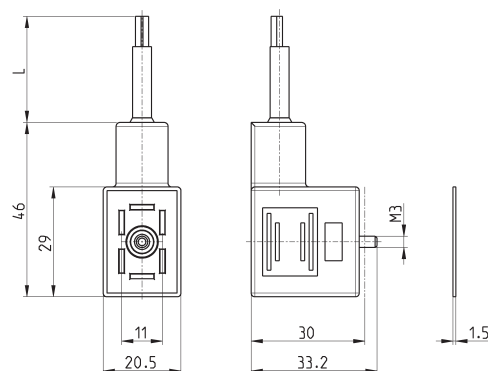
Mod. 122-800EX:
for ATEX certified solenoids Mod. U7*EX,
with anti-screwing off screw Mod. TORX.



Mod.	description	colour	working voltage	cable gland	tightening torque
122-800	connector, without electronics	black	-	PG9	0.5 Nm
122-800EX	connector, without electronics	black	-	PG9	0.5 Nm

Connectors Mod. 122-550 DIN 43650 with cable

For size 22 mm only



Mod.	description	colour	working voltage	cable length [L]	cable gland	tightening torque
122-550-1	moulded cable, without electronics	black	-	1000 mm	-	0.5 Nm
122-550-5	moulded cable, without electronics	black	-	5000 mm	-	0.5 Nm

Series CP directly operated and pressure compensated proportional solenoid valves

New models

Function: 2/2-way NC
 Sizes: 16 and 20 mm



- » High flow and great precision
- » Low hysteresis
- » Cartridge body
- » Pressure compensated version available
- » Suitable to work also with oxygen

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.

GENERAL DATA

TECHNICAL FEATURES	Size 16mm, 2/2 NC	Size 16mm, 2/2 NC pressure compensated	Size 20mm, 2/2 NC	Size 20mm, 2/2 NC pressure compensated
Operation	proportional directly operated	proportional pressure compensated	proportional directly operated	proportional pressure compensated
Pneumatic connections	cartridge	cartridge	cartridge	cartridge
Nominal diameters	1 mm - 1.5 mm - 2 mm	4.4 mm	3 mm - 3.5 mm	4.4 mm
Free flow capacity	70 l/min - 80 l/min - 90 l/min	120 l/min	130 l/min - 150 l/min	200 l/min
Operating pressure	3 bar - 5 bar - 8 bar	2 bar (max pressure 7 bar)	2.8 bar - 2 bar	2.8 bar (max pressure 6 bar)
Max overpressure	16 bar	10 bar	16 bar	16 bar
Linearity (5-95%)	3% FS	<7% FS	5% FS	2% FS
Hysteresis	10% FS	<20% FS	15% FS	15% FS
Repeatability	5% FS	<5% FS	5% FS	5% FS
Operating temperature	10°C ÷ 50°C	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.	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	in any position
MATERIALS IN CONTACT WITH THE MEDIUM				
Body	brass, stainless steel, PPS	stainless steel, PPS	brass, stainless steel, PPS	brass, stainless steel, PPS
Seals	FKM	FKM (FDA, BAM)	FKM	FKM
ELECTRICAL FEATURES				
Operation	PWM > 1000 Hz or current control	PWM > 1000 Hz or current control	PWM > 500 Hz or current control	PWM > 1000 Hz or current control
Operation voltage	6 V DC, 12 V DC, 24 V DC	6 V DC, 12 V DC, 24 V DC	6 V DC, 12 V DC, 24 V DC	6 V DC, 12 V DC, 24 V DC
Max power consumption	3.1 W	3 W (Nominal power 2 W)	3.7 W	4.2 W
Nominal resistance	11.8 Ohm - 37.6 Ohm - 184.7 Ohm	11.8 Ohm - 47.7 Ohm - 184.7 Ohm	6.4 Ohm - 25.1 Ohm - 102.1 Ohm	6.4 Ohm - 25.1 Ohm - 102.1 Ohm
Rated current	410 mA, 238 mA, 103 mA	410 mA, 205 mA, 103 mA	615 mA, 313 mA, 154 mA	700 mA, 350 mA, 175 mA
Duty cycle	100% with air flow	100% with air flow	100% with air flow	100% with air flow
Electrical connection	cable 300mm AWG24	cable 300 mm AWG 24	IP00 / IP40	cable 300mm AWG24
Protection class	IP00 / IP40	IP00 / IP40	50000000	IP00 / IP40
Average lifecycles	50000000	50000000	recommended PWM: 500 Hz	50000000
Command signal	recommended PWM: 1000 Hz	recommended PWM: 1000 Hz		recommended PWM: 1000 Hz

Versions available on demand 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 8 = size 16 pressure compensated 9 = size 20 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 = Ø 3 mm (size 20 mm only) P = Ø 3.5 mm (size 20 mm only) T = Ø 4.4 mm (pressure compensated only)												
W	SEAL MATERIAL: W = FKM												
2	BODY MATERIAL: 2 = Brass x = Stainless steel												
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 16 mm only) 2 = 12 V DC 4.3 W (size 20 mm only) 3 = 24 V DC 3.1 W (size 16 mm only) 4 = 24 V DC 4.3 W (size 20 mm only) 5 = 12 V DC 3.1 W (size 16 mm only) 6 = 6 V DC 4.3 W (size 20 mm only) 10 = 6 V DC 4.2 W (size 20 mm only, pressure compensated) 11 = 24 V DC 4.2 W (size 20 mm only, pressure compensated) 12 = 12 V DC 4.2 W (size 20 mm only, pressure compensated) 13 = 6 V DC 3 W (size 16 mm only, pressure compensated) 14 = 12 V DC 3 W (size 16 mm only, pressure compensated) 15 = 24 V DC 3 W (size 16 mm only, pressure compensated)												

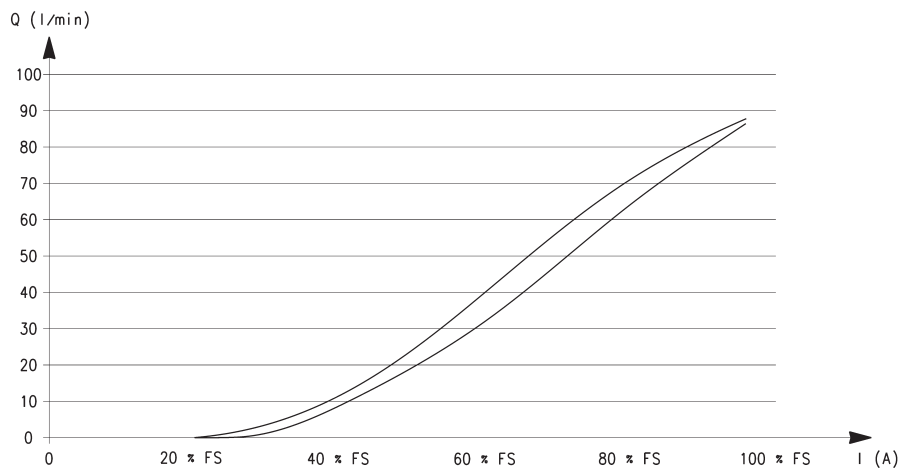
HYSTERESIS AND RESPONSE TIMES

DIAGRAM LEGEND:

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

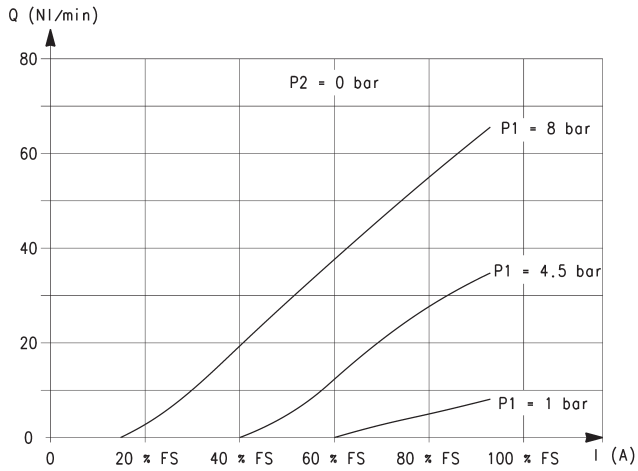
NOTE TO THE TABLE:

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



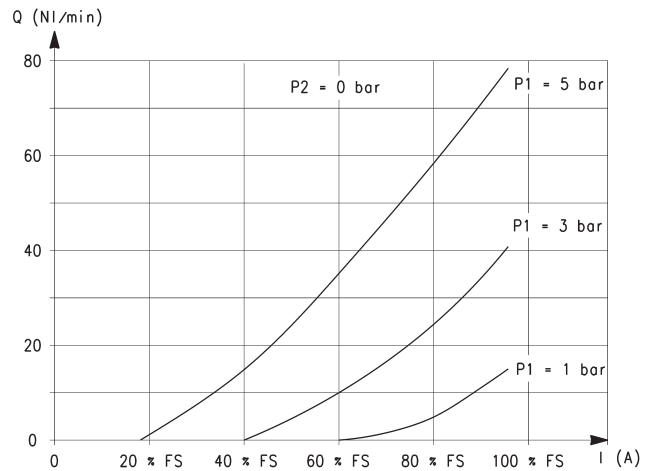
RESPONSE TIMES calculated according to the maximum flow at each operating pressure. [Electromechanical response time: 10 ms]							
Ø	Inlet pressure (bar)	Load response time (ms)			Exhaust response time (ms)		
		0% - 10%	0% - 90%	10% - 90%	100% - 90%	100% - 10%	90% - 10%
1 mm	8	12	42	30	9	33	24
1.5 mm	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

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)
FS = full scale of the command signal

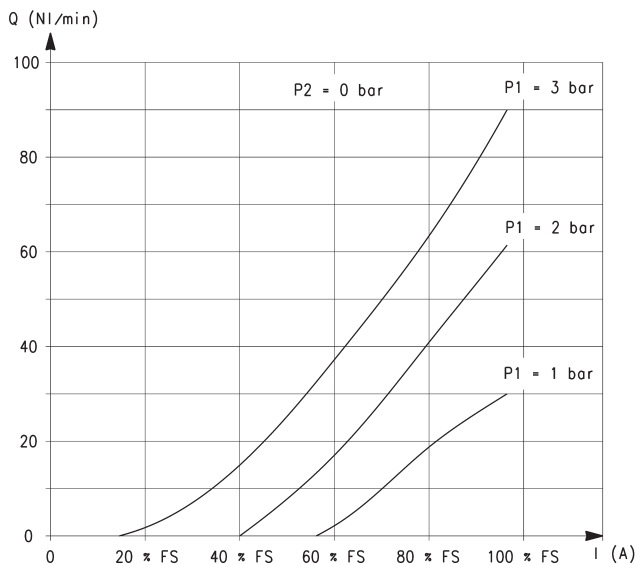


Nominal diameter 1.5mm

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

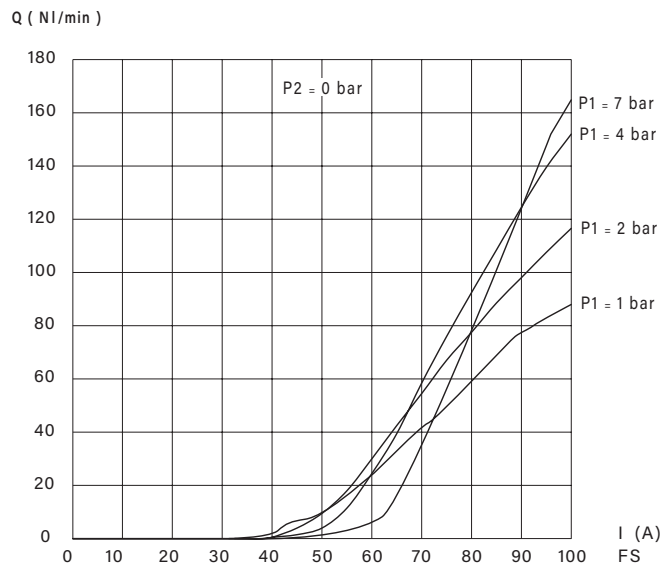
SERIES CP PROPORTIONAL SOLENOID VALVES

FLOW DIAGRAMS - Size 16 mm pressure compensated



Nominal diameter 2mm

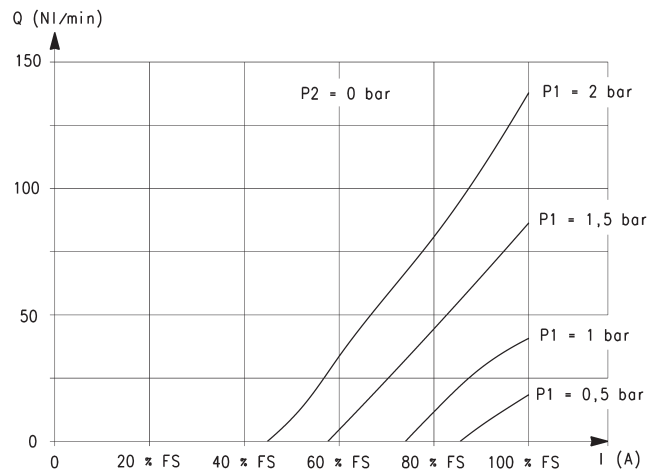
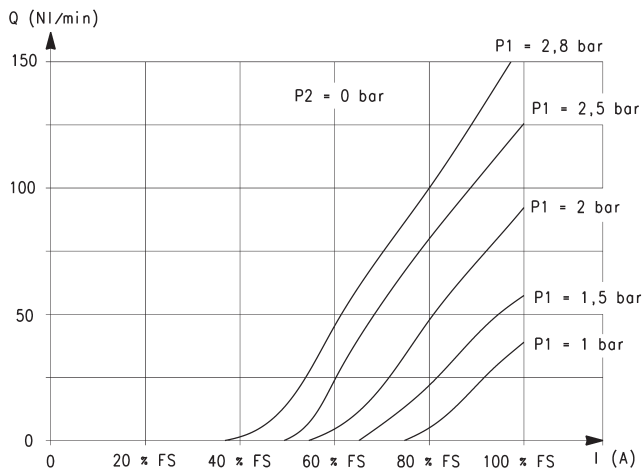
Q = flow (l/min)
I = current (A)
P1 = pressure in load (bar)
P2 = 0 [free flow pressure] (bar)
FS = full scale of the command signal



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 of the command signal

FLOW DIAGRAMS - Size 20mm



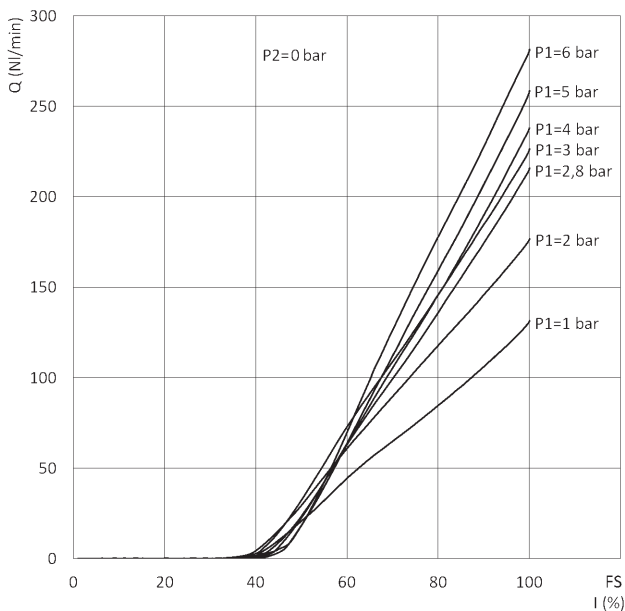
Nominal diameter 3mm

Q = flow (l/min)
 I = current (A)
 P_1 = pressure in load (bar)
 $P_2 = 0$ [free flow pressure] (bar)
 FS = full scale of the command signal

Nominal diameter 3.5mm

Q = flow (l/min)
 I = current (A)
 P_1 = pressure in load (bar)
 $P_2 = 0$ [free flow pressure] (bar)
 FS = full scale of the command signal

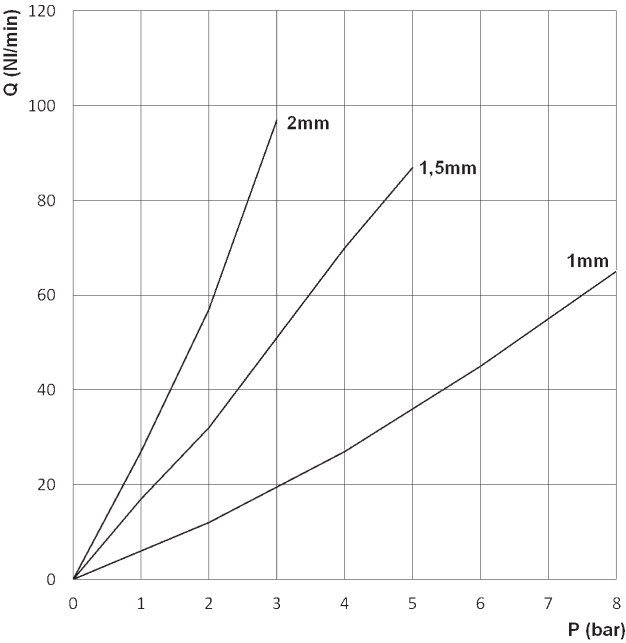
FLOW DIAGRAMS - Size 20mm pressure compensated



Nominal diameter 4.4mm

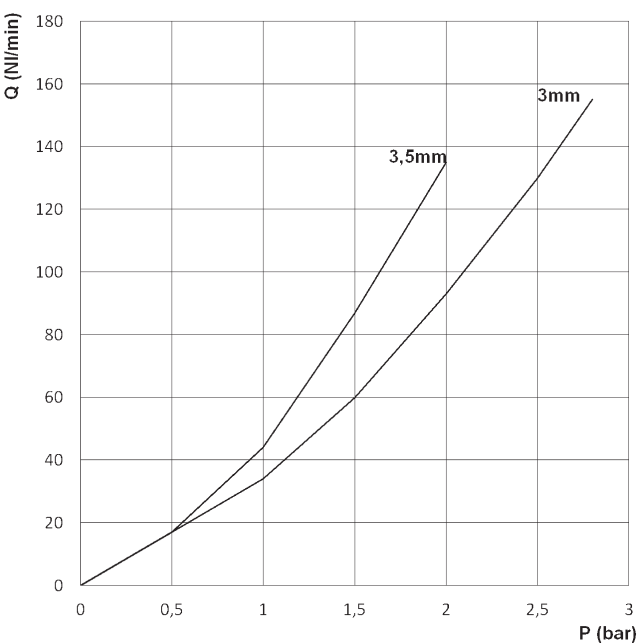
Q = flow (l/min)
 I = current (A)
 P_1 = pressure in load (bar)
 $P_2 = 0$ [free flow pressure] (bar)
 FS = full scale of the command signal

MAXIMUM FLOW ACCORDING TO THE INLET PRESSURE



Size 16 mm

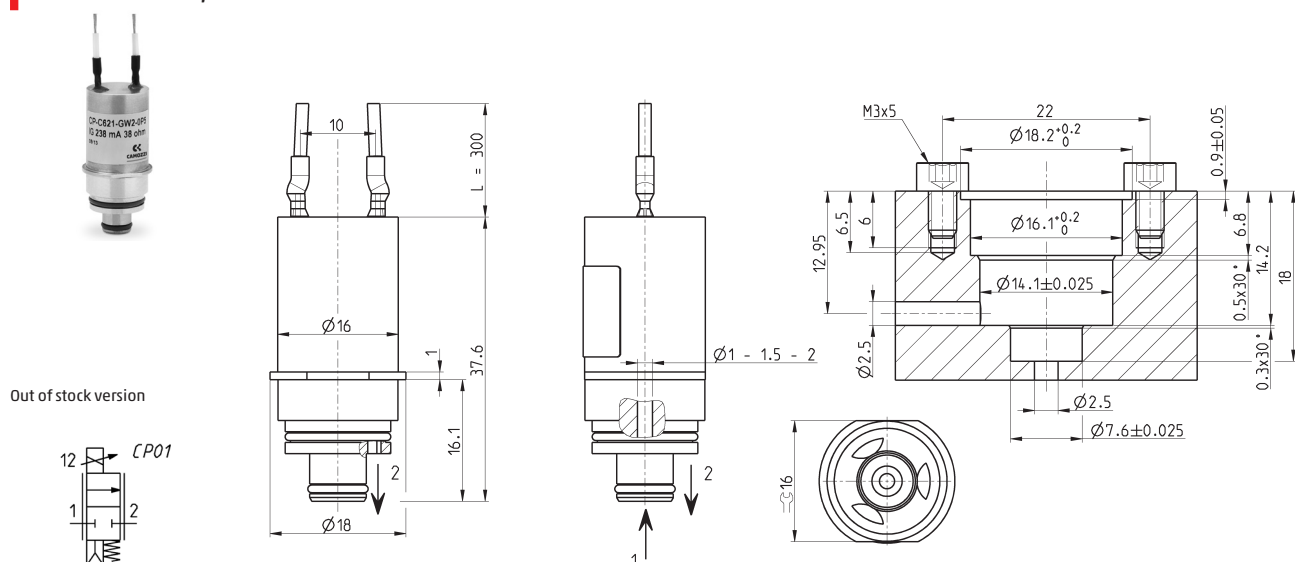
Q = Flow (NL/min)
P = Inlet pressure (bar)



Size 20 mm

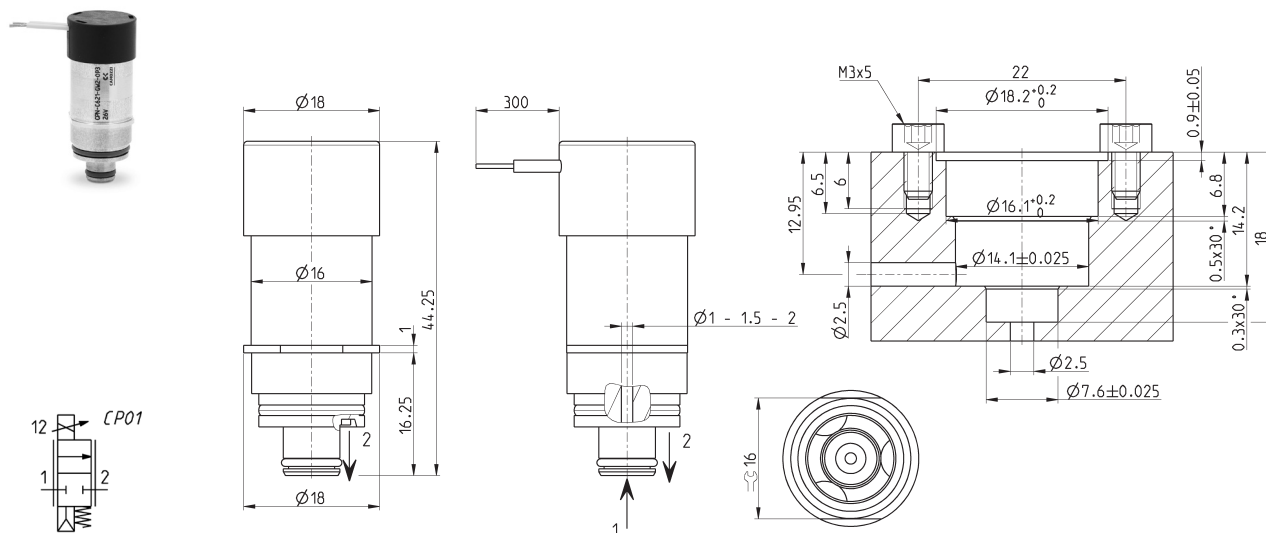
Q = Flow (NL/min)
P = Inlet pressure (bar)

Solenoid valves, size 16mm



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-C621-FW2-0P1	1	8	70	0.55	6	410
CP-C621-GW2-0P1	1.5	5	80	0.88	6	410
CP-C621-NW2-0P1	2	3	90	1.42	6	410
CP-C621-FW2-0P3	1	8	70	0.55	24	103
CP-C621-GW2-0P3	1.5	5	80	0.88	24	103
CP-C621-NW2-0P3	2	3	90	1.42	24	103
CP-C621-FW2-0P5	1	8	70	0.55	12	238
CP-C621-GW2-0P5	1.5	5	80	0.88	12	238
CP-C621-NW2-0P5	2	3	90	1.42	12	238

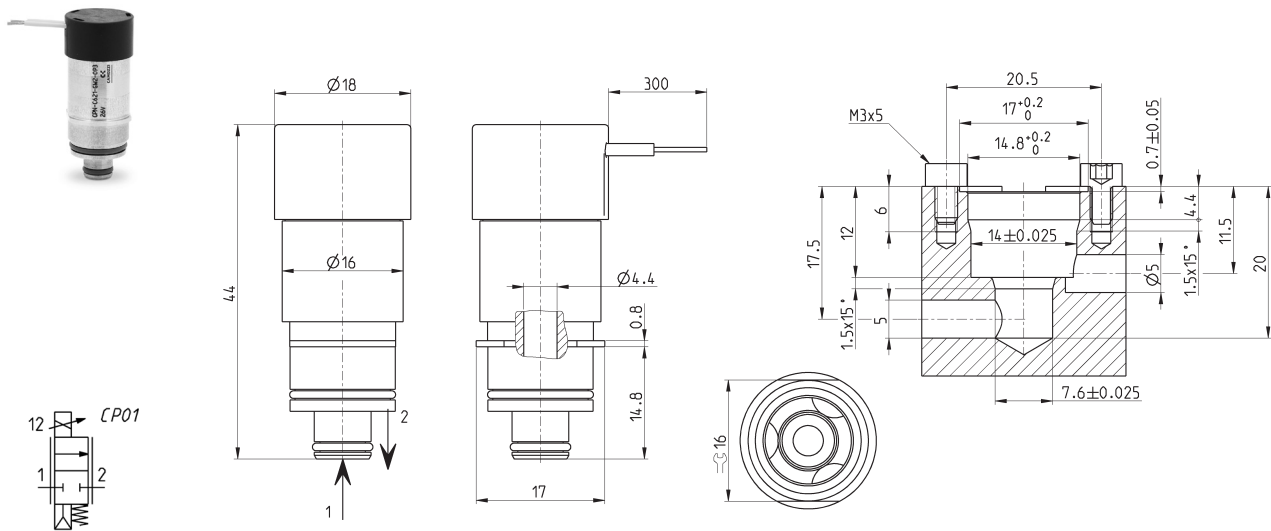
Solenoid valves, size 16mm



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

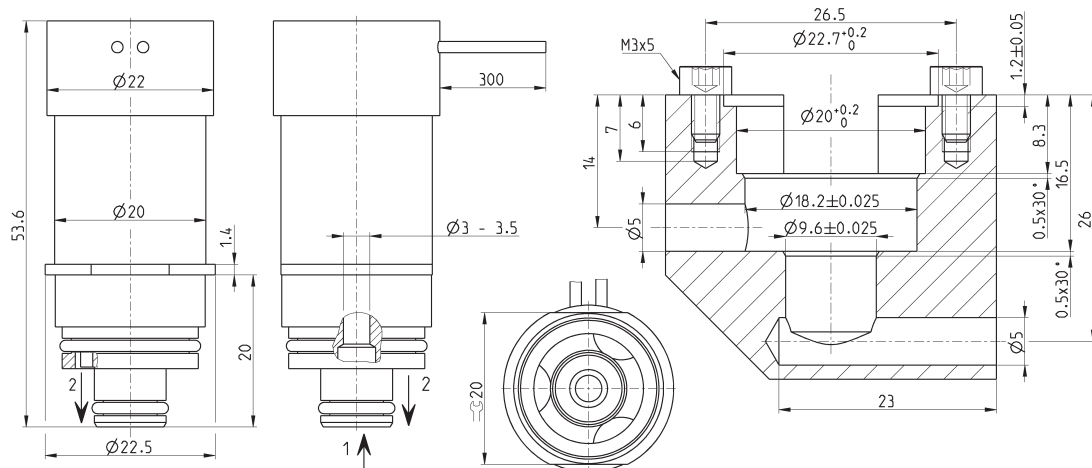
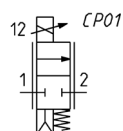
Solenoid valves, size 16m pressure compensated

New



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-C821-TWX-0P13	4.4	7	160	-	6	410
CP-C821-TWX-0P14	4.4	7	160	-	12	205
CP-C821-TWX-0P15	4.4	7	160	-	24	103

Solenoid valves, size 20mm

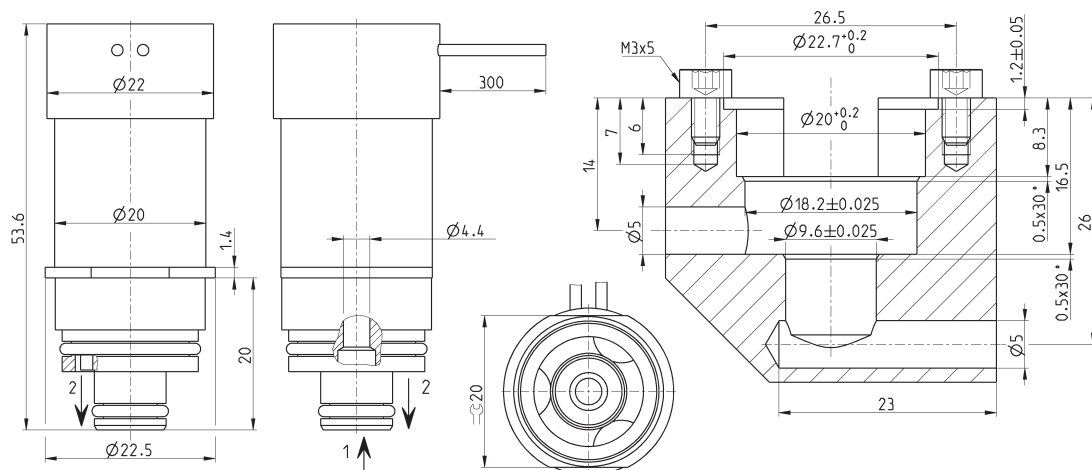
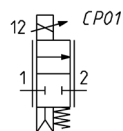


Mod.	Orifice Ø (mm)	Max operating pressure (bar)	Max flow (NL/min)	Max flow kv (l/min)	Operation voltage (V DC)	Max current (mA)
CP-C721-MW2-072	3	2.8	150	2.8	12	313
CP-C721-MW2-074	3	2.8	150	2.8	24	154
CP-C721-MW2-076	3	2.8	150	2.8	6	615
CP-C721-PW2-072	3.5	2	130	3	12	313
CP-C721-PW2-074	3.5	2	130	3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

Solenoid valves, size 20mm pressure compensated

New

Working nominal pressure: 2.8 bar



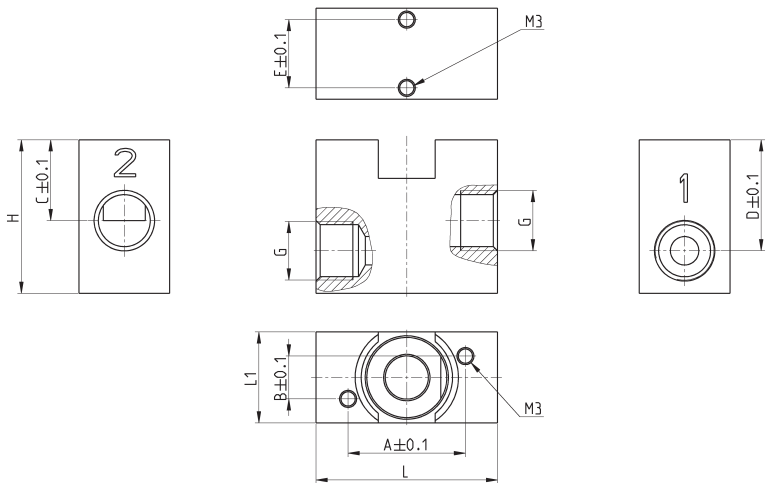
Mod.	Orifice Ø (mm)	Max operating pressure (bar)	Max flow (NL/min)	Max flow kv (l/min)	Operation voltage (V DC)	Max current (mA)
CP-C921-TW2-0710	4.4	6	200	4	6	700
CP-C921-TW2-0711	4.4	6	200	4	24	175
CP-C921-TW2-0712	4.4	6	200	4	12	350

Sub-base

New



CP-S6 = for 16 mm versions
 CP-C6... and CPN-C6...
 CP-S8 = only for 16 mm
 versions CP-C8...
 CP-S7 = for 20 mm versions
 CP-C7... and CPN-C9...



Mod.	Ø	A	B	C	D	E	G	H	L	L1
CP-S6	16	20.7	7.5	14.2	19.5	12	G1/8	27	32	16
CP-S7	20	25.2	8	14	22.5	15	G1/4	31.5	45	22
CP-S8	16	17.75	10.25	13.2	17.5	12	G1/8	27	32	16

Series 130 electronic control device for proportional valves

PWM control device, with current control system for directly operated proportional valves



- » Closed loop current control (max current that can be provided = 1A)
- » Management of up and down ramp
- » Command signal 0-10V and 4-20mA
- » Regulation of min and max current (Span and Offset)

Series 130 electronic control device allows to pilot any proportional valve with a maximum current of 1 A.

It turns a standard inlet signal (0-10V or 4-20 mA) into a PWM signal to obtain at the solenoid outlet a current which is proportional to the inlet signal.

A control system of the provided current allows to compensate variations due to heating of the solenoid or to the variation of the supply voltage. It is possible to adjust the maximum and minimum current provided to the solenoid. The outlet signal can have a ramp progress that is adjustable between 0 and 5 s. The device has a firmware dedicated to the proportional valve to pilot in order to guarantee the best performance.

GENERAL DATA

Material of container	Polycarbonate
Electrical connections	screw
Environmental temperature	0 ÷ 50°C
Mounting	in any position
Power supply	6 V ÷ 24 V DC (± 10%)
Consumption	0.4 W (without valve)
Analogical input	0 ÷ 10 V 4 ÷ 20 mA
Input impedance	>30 Kohm with inlet under voltage <200 ohm with inlet under current
Output PWM	120 Hz ÷ 11.7 KHz (fixed, according to the valve chosen)
Maximum current (valve)	1 A
Protection	Polarity inversion, short circuit of the outlet
External diameter of cable jacket	5 ÷ 7.5 mm with seal only 4 ÷ 6 mm with reducer and seal
Conductor section	26 ÷ 16 AWG / 0,13 ÷ 1,5 mm ²
Maximum length supply/signal cable	10 m
Maximum length valve cable	5 m
IP protection class according to EN 60529	IP 54
Ramp function	Adjustable time from 0 to 5 s
Regulation min. current (Offset)	0% ÷ 40% F.S.
Regulation maximum current	50% ÷ 100% F.S.

CODING EXAMPLE

130	-	2	2	2
130	SERIES			
2	VOLTAGE: 2 = 24 V DC (max power 24 W) 3 = 12 V DC (max power 12 W) 4 = 6 V DC (max power 6 W) 5 = 11 V DC (max power 11 W)			
2	POWER: 1 = 3 W 2 = 6.5 W 3 = 3.2 W 4 = 4.3 W 5 = 10 W 6 = 4.2 W 7 = 2.5 W			
2	PWM FREQUENCY: 2 = 500 Hz 3 = 1 KHz			

NOTE: it is possible to realize configurations with voltage, power and PWM frequency values that are not yet foreseen in the coding example.
For further information we suggest you to contact our technical department.

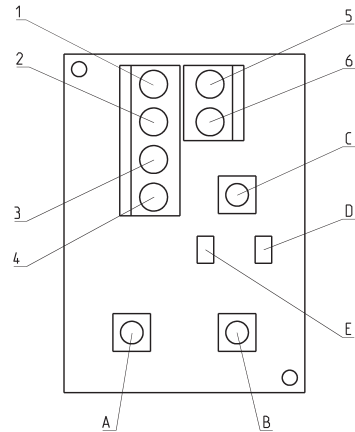
ELECTRICAL CONNECTIONS AND SETTINGS

DRAWING LEGEND:

- 1 = 6 ÷ 24 V DC (supply)
- 2 = 0 V (Ground) common also for the reference signal
- 3 = analogical reference signal 0 ÷ 10V DC
- 4 = analogical reference signal 4 ÷ 20 mA
- A = regulation of min. current (OFFSET)
- B = regulation of max. current (SPAN)
- C = regulation of the PWM outlet up and down ramp
- D = red LED
- E = yellow LED

Note 1: the GND of the reference signal and the GND of supply have to be linked together.

Note 2: For the valve connection use a connector without protection - diodes, varistors, etc... - as these might alter the regulation of the device.

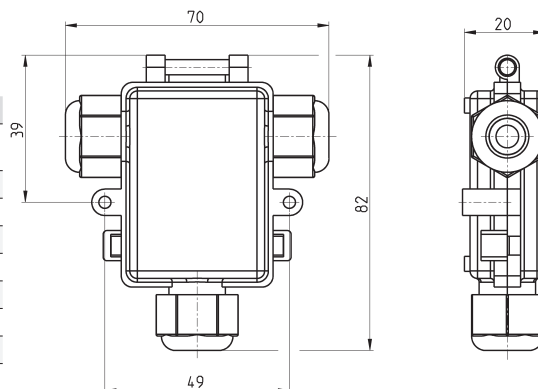


Series 130 electronic control device

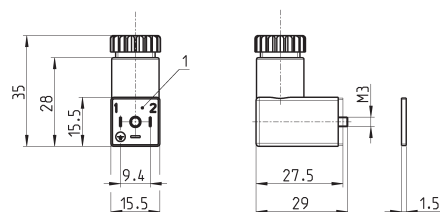


NOTE: it is possible to realize configurations with voltage, power and PWM frequency values that are not shown in the table below. For further information we suggest you to contact our technical department.

Mod.	Matching valve family	Valve voltage (Output)	Adjusted power	Adjusted frequency
130-222	Series AP - size 22 mm	24 V DC	6.5 W	500 Hz
130-322	Series AP - size 22 mm	12 V DC	6.5 W	500 Hz
130-252	Series AP - size 22 mm	24 V DC	10 W	500 Hz
130-352	Series AP - size 22 mm	12 V DC	10 W	500 Hz
130-213	Series AP - size 16 mm	24 V DC	3 W	1000 Hz
130-313	Series AP - size 16 mm	12 V DC	3 W	1000 Hz
130-433	Series CP - size 16 mm	6 V DC	3.2 W	1000 Hz
130-533	Series CP - size 16 mm	11 V DC	3.2 W	1000 Hz
130-233	Series CP - size 16 mm	24 V DC	3.2 W	1000 Hz
130-442	Series CP - size 20 mm	6 V DC	4.3 W	500 Hz
130-342	Series CP - size 20 mm	12 V DC	4.3 W	500 Hz
130-242	Series CP - size 20 mm	24 V DC	4.3 W	500 Hz
130-463	Series CP pressure compensated - size 20 mm	6 V	4.2 W	1000 Hz
130-363	Series CP pressure compensated - size 20 mm	12 V	4.2 W	1000 Hz
130-263	Series CP pressure compensated - size 20 mm	24 V	4.2 W	1000 Hz
130-473	Series CP pressure compensated - size 16 mm	6 V	2.5 W	1000 Hz
130-373	Series CP pressure compensated - size 16 mm	12 V	2.5 W	1000 Hz
130-273	Series CP pressure compensated - size 16 mm	24 V	2.5 W	1000 Hz



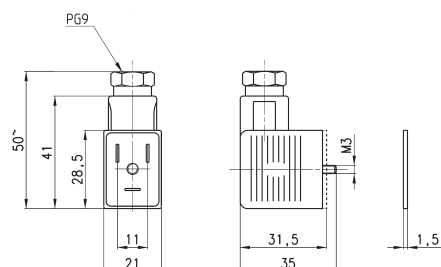
Connector Mod. 125-800 DIN 43650 pin spacing 9,4mm



Mod.
125-800

1 = 90° adjustable connector

Connector Mod. 122-800 DIN 43650 (PG)



Mod.	Torque (Nm)
122-800	0.5

Series LR digital proportional servo valves

3/3-way directly operated servo valves for the flow (LRWD2), pressure (LRPD2) and position (LRXD2) control



Series LR digital proportional servo valves are direct driven 3/3-way valves with a patented rotating spool system with closed loop control circuit. The electronic board is integrated into the valve's body ready to connect.

Series LR*D2 digital proportional servo valve has been designed to be as compact as possible in order to save space and to be mounted on a DIN-rail. Thanks to this new digital version, the valve can be configured through a USB connection according to different requirements.

- » Digital version which is completely configurable through micro USB
- » Rotating spool system with a metal to metal seal
- » High flow rate
- » Electronic control to ensure high precision in the flow control
- » 3-way-function with 4 - 6 mm nominal diameters
- » Compact version for cabinet mounting on DIN-rail
- » Position control version

GENERAL DATA

Power supply	24 V DC +/- 10%, max absorption 1.5 A
Command signal	+/- 10 V 0-10 V 4-20 mA
Hysteresis	1% FS LRWD2 - 0,2% FS LRPD2
Linearity	1% FS LRWD2 - 0.3% FS LRPD2
Switching time	see the following pages
Working temperature	from 0 to 50° C
Relative humidity of air	max. 90%
Direction of assembly	any
Maximum flow	see the diagrams on the following pages
Medium	filtered compressed air, unlubricated, according to ISO 8573-1 class 3.4.3, inert gas
Supply pressure	-0.9 to 10 bar
Leakage	< 1% of maximum flow rate
Electrical connection	male connector M12 8 poles
Hardware configuration port	micro USB

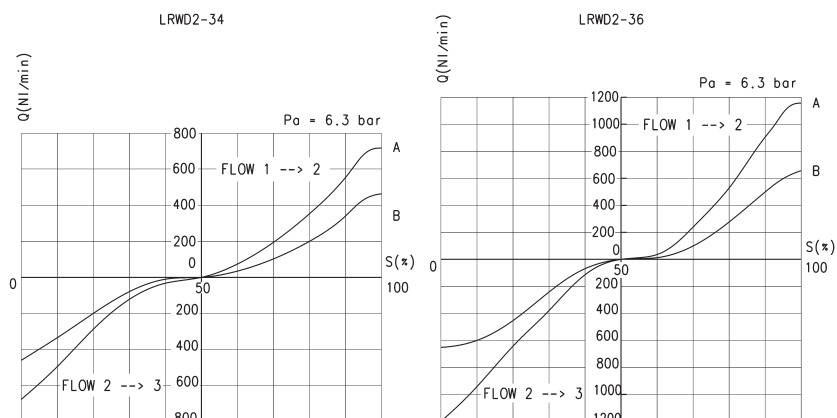
CODING EXAMPLE

L	R	W	D	2	-	3	4	-	1	-	A	-	00
L	SERIES: L = proportional servo valves												
R	TECHNOLOGY: R = rotating spool												
W	VERSION: W = flow control P = pressure control X = position control												
D	ELECTRONICS: D = digital												
2	MODEL: 2 = compact DIN-RAIL												
3	FUNCTION: 3 = 3/3-way												
4	NOMINAL DIAMETER: 4 = 4 mm 6 = 6 mm												
1	COMMAND SIGNAL (Setpoint): 1 = +/- 10 V 2 = 0 - 10 V 5 = 4 - 20 mA												
A	INPUT SIGNAL: 2 = 0 - 10 V (LRPD2 and LRXD2 only) 4 = 0 - 5V (LRPD2 and LRXD2 only) 5 = 4 - 20mA (LRPD2 and LRXD2 only)												
00	CABLE: 00 = no cable 2F = straight cable of 2 m 2R = 90° cable of 2 m 5F = straight cable of 5 m 5R = 90° cable of 5 m												

FLOW DIAGRAMS FOR VALVES LRWD2-34 AND LRWD2-36

LEGEND:

A = free flow
 B = $\Delta P1$
 Q = flow (NL/min)
 S = set point (%)
 Pa = inlet pressure (bar)

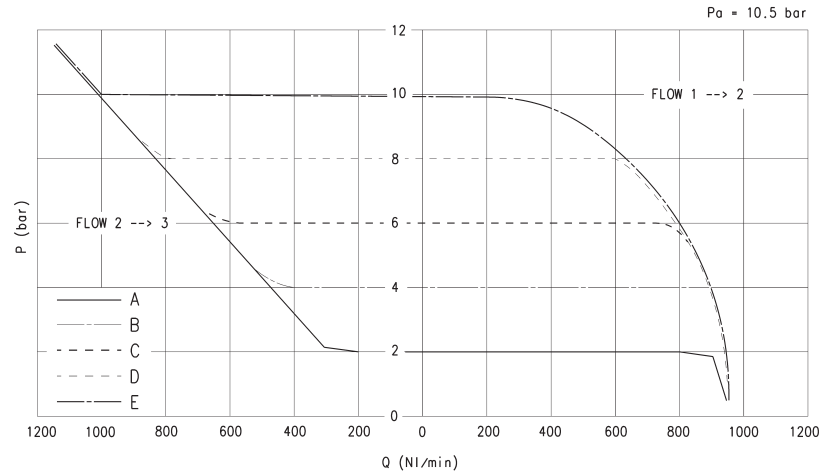


RESPONSE TIMES ACCORDING TO THE COMMAND SIGNAL IN COMPLIANCE WITH THE ISO 10094-2 STANDARD							
COMMAND SIGNAL	-5% ÷ +5%	+5% ÷ -5%	-25% ÷ +25%	+25% ÷ -25%	-90% ÷ +90%	+90% ÷ -90%	
Time [ms] LRWD2-34	4	5	6	9	10	10	
Time [ms] LRWD2-36	5	5	6	6	10	10	

* closed valve with SET POINT = 0
 loaded valve with SET POINT = +
 exhaust valve with SET POINT = -

FLOW DIAGRAMS FOR VALVE LRPD2-34

LEGEND:
P = regulated pressure (bar)
F = flow (NL/min)
Pa = inlet pressure (bar)



RESPONSE TIMES WITH COMMAND SIGNAL BETWEEN 0% AND 100% IN COMPLIANCE WITH ISO 10094-2 STANDARD

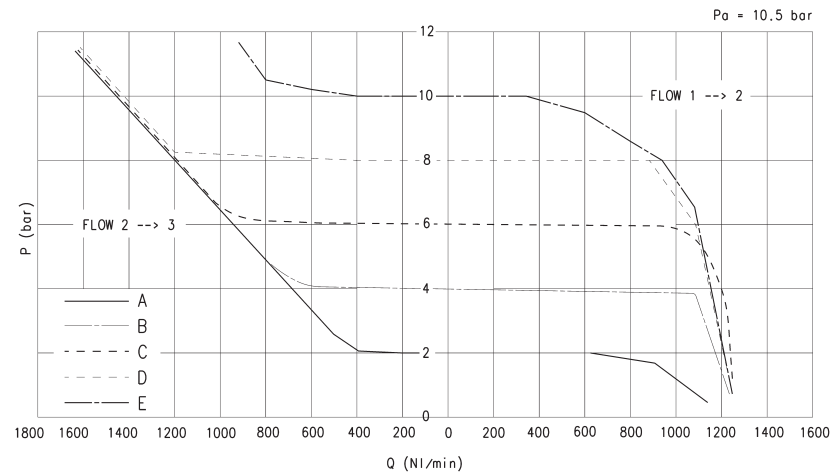
	Without volume	Volume 0,5 l	Volume 2 l
Filling [ms]	24	313	1841
Exhaust [ms]	35	663	3640

valve with SET POINT = 0% and regulated pressure = 0 bar

valve with SET POINT = 100% and regulated pressure = maximum pressure
(example: 10 - 1 bar or 250 mbar)

FLOW DIAGRAMS FOR VALVE LRPD2-36

LEGEND:
P = regulated pressure (bar)
F = flow (NL/min)
Pa = inlet pressure (bar)



RESPONSE TIMES WITH COMMAND SIGNAL BETWEEN 0% AND 100% IN COMPLIANCE WITH ISO 10094-2 STANDARD

	Without volume	Volume 0,5 l	Volume 2 l
Filling [ms]	20	263	1560
Exhaust [ms]	32	357	1905

valve with SET POINT = 0% and regulated pressure = 0 bar

valve with SET POINT = 100% and regulated pressure = maximum pressure
(example: 10 - 1 bar or 250 mbar)

Series LRXD2 - pneumatic and electrical schemes for the installation

The LRXD2 servo valves are proportional valves with a high-precision integrated control for the positioning of pneumatic cylinders. The valves include a patented 3-way system based on the rotating spool principle with electronic control of the spool position. The servo pneumatic closed loop system allows the control of the position through the feedback of the external positioning sensor or of the Camozzi 6PF cylinder with the integrated linear transducer.

The electronic board which is integrated in the valve body manages speed and acceleration directly.

The Master valve Mod. LRXD2 is equipped with a proper signal to command a LRXD2 valve that will work as a slave-valve.

Configuration for the position control with two valves (Fig. 1)

A = Slave LRXD2-3*-2-A-00 - B = Master LRXD2-3*-4-00 - C = 6PF cylinder...

Configuration for the position control with a LRXD2 valve (Fig. 2)

A = Master LRXD2-3*-4-00 - B = PR104-... - C = 6PF cylinder...

Fig.1

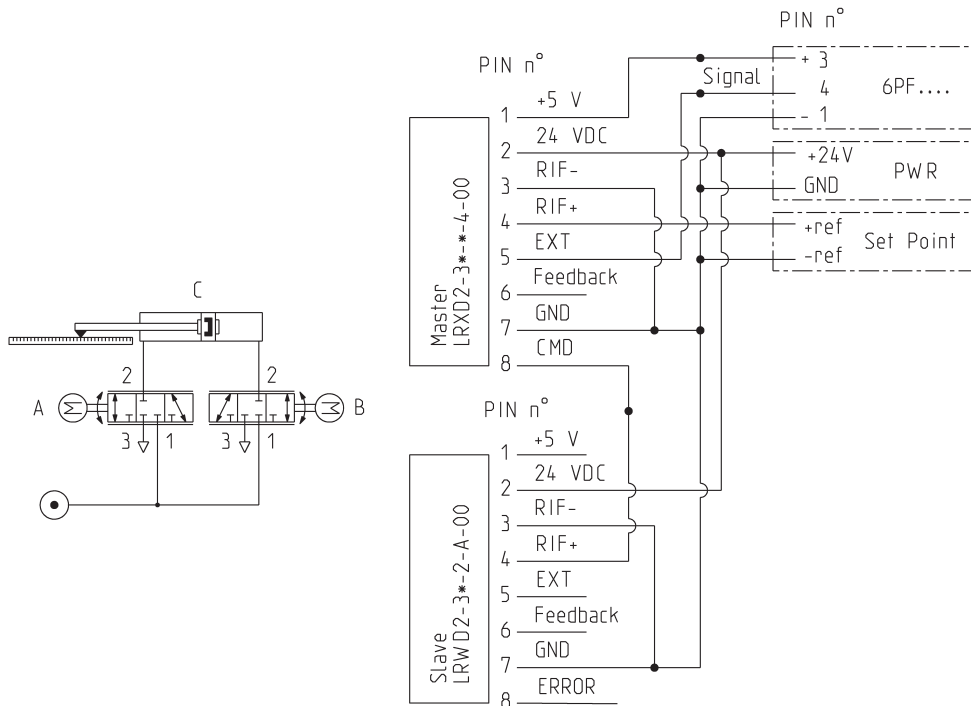
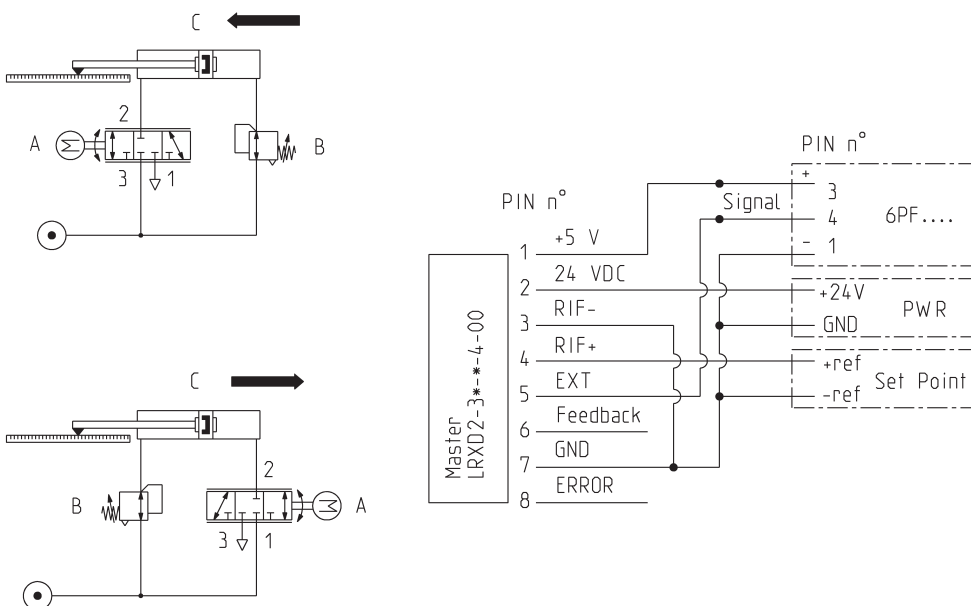


Fig.2



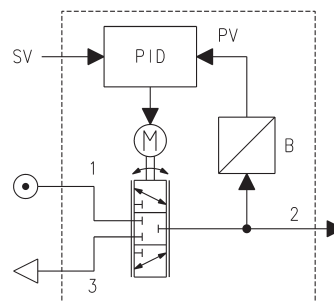
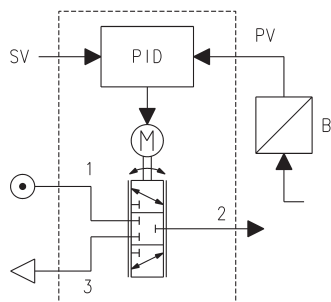
Series LRPD2 - pneumatic scheme for the installation

SV = setpoint value

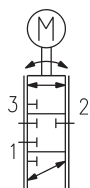
PV = process value

B = sensor

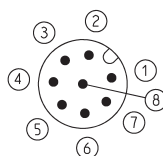
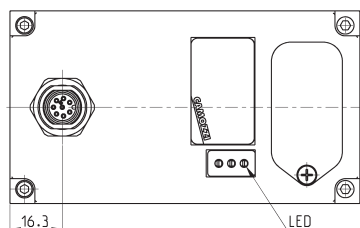
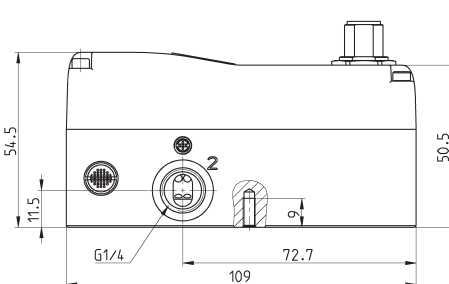
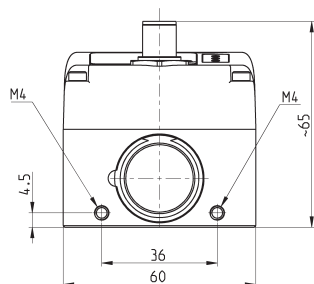
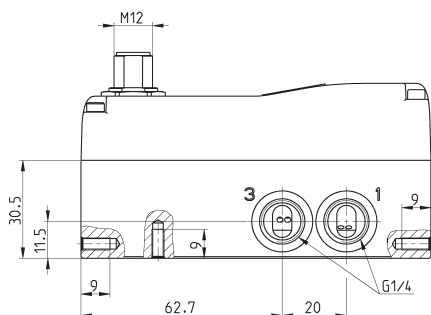
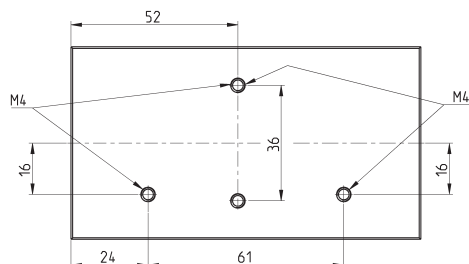
PID = proportional control, integrative, derivative



Series LR digital proportional servo valves - dimensions



The detailed user and maintenance manual and the Hardware configuration Software of the valve is available online at <http://catalogue.camozzi.com>.



PIN	SIGNAL	DESCRIPTION
1	+5V	+5V power supply for external potentiometer transducer (ref. GND). If used, it is necessary to connect RIF- with GND.
2	24 V DC	24V DC power supply (logic and motor): connect to the positive pole of the 24V DC power supply (ref. GND)
3	RIF-	GND reference or NEGATIVE pole of the command signal (0-10V / 4-20mA / ±10V)
4	RIF+	POSITIVE reference of the command signal (0-10V / 4-20mA / ±10V)
5	EXT	for LRWD valve: not used for LRXD valve: feedback signal of the external transducer 0-5V / 0-10V / 4-20mA (ref. RIF-) for LRPD valve: feedback signal of the external transducer 0-5V / 0-10V / 4-20mA (ref. RIF-). To be used only with LRPD2 valve versions with external sensor.
6	FBK	feedback signal 0-10V / 4-20mA (ref. GND)
7	GND	common (reference pin 1 and 2): connect to the negative pole of the 24V DC power supply (compulsory)
8	ERR	for LRWD and LRPD valve: error signal (output) 0-24V (ref. GND) for LRXD valve: command signal 0-10V for slave valve (ref. GND)

Series LR digital proportional servo valves - technical characteristics



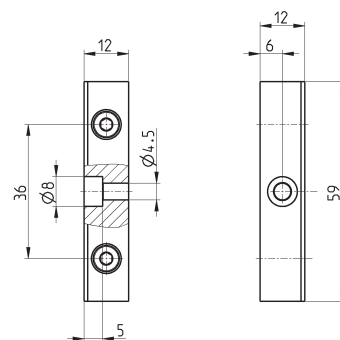
* To order the complete code, please replace the asterisk with 4 or 6 according to the desired nominal diameter.

Mod.	Control	Command/Input signal	Sensor/External signal	
LRWD2-3*-1-A-00	flow	+/- 10 V	-	
LRWD2-3*-2-A-00	flow	0-10 V	-	
LRWD2-3*-5-A-00	flow	4..20 mA	-	
LRPD2-3*-1-2-00	pressure	+/- 10 V	0..10 V	
LRPD2-3*-2-2-00	pressure	0-10 V	0..10 V	
LRPD2-3*-5-2-00	pressure	4..20 mA	0..10 V	
LRPD2-3*-1-4-00	pressure	+/- 10 V	0 - 5 V	
LRPD2-3*-2-4-00	pressure	0-10 V	0 - 5 V	
LRPD2-3*-5-4-00	pressure	4..20 mA	0 - 5 V	
LRPD2-3*-1-5-00	pressure	+/- 10 V	4..20 mA	
LRPD2-3*-2-5-00	pressure	0-10 V	4..20 mA	
LRPD2-3*-5-5-00	pressure	4..20 mA	4..20 mA	
LRPD2-3*-1-B-00	pressure	+/- 10 V	1 bar internal	
LRPD2-3*-2-B-00	pressure	0-10 V	1 bar internal	
LRPD2-3*-5-B-00	pressure	4..20 mA	1 bar internal	
LRPD2-3*-1-D-00	pressure	+/- 10 V	10 bar internal	
LRPD2-3*-2-D-00	pressure	0-10 V	10 bar internal	
LRPD2-3*-5-D-00	pressure	4..20 mA	10 bar internal	
LRPD2-3*-1-E-00	pressure	+/- 10 V	250 mbar internal	
LRPD2-3*-2-E-00	pressure	0-10 V	250 mbar internal	
LRPD2-3*-5-E-00	pressure	4..20 mA	250 mbar internal	
LRPD2-3*-1-F-00	pressure	+/- 10 V	+1/-1 bar internal	
LRPD2-3*-2-F-00	pressure	0-10 V	+1/-1 bar internal	
LRPD2-3*-5-F-00	pressure	4..20 mA	+1/-1 bar internal	
LRXD2-3*-1-4-00	position	+/- 10 V	0-5 V	suitable to work with the 6PF cylinder (see the PNEUMATIC ACTUATION catalogue)
LRXD2-3*-2-4-00	position	0-10 V	0-5 V	suitable to work with the 6PF cylinder (see the PNEUMATIC ACTUATION catalogue)
LRXD2-3*-5-4-00	position	4..20 mA	0-5 V	suitable to work with the 6PF cylinder (see the PNEUMATIC ACTUATION catalogue)
LRXD2-3*-1-2-00	position	+/- 10 V	0-10 V	
LRXD2-3*-2-2-00	position	0-10 V	0-10 V	
LRXD2-3*-5-2-00	position	4..20 mA	0-10 V	
LRXD2-3*-1-5-00	position	+/- 10 V	4..20mA	
LRXD2-3*-2-5-00	position	0-10 V	4..20mA	
LRXD2-3*-5-5-00	position	4..20mA	4..20mA	

Fixing foot Mod. LRADB



Supplied with:
2x feet
4x screws



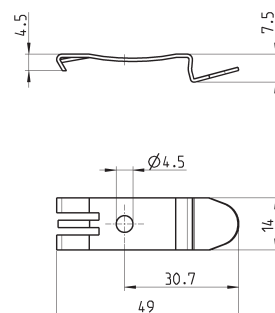
Mod.
LRADB

Mounting brackets for DIN-rail Mod. PCF-EN531



DIN EN 50022 (7,5mm x 35mm - width 1)

Supplied with:
2x mounting brackets
2x screws M4x6 UNI 5931
2x nuts

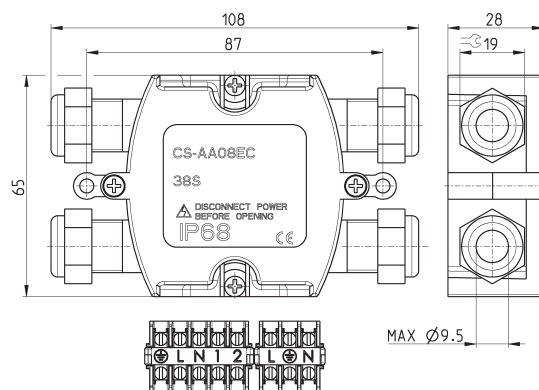


Mod.
PCF-EN531

Electrical tee box Mod. CS-AA08EC



Connection valve-PLC-external transducer

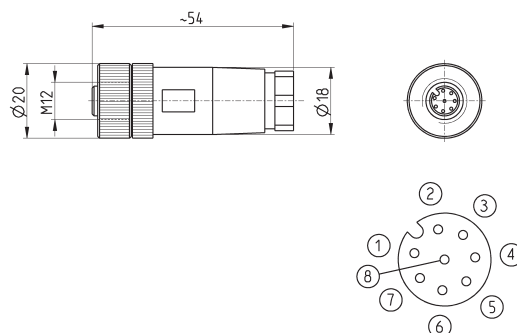


Mod.
CS-AA08EC

Straight female connector M12 8 poles

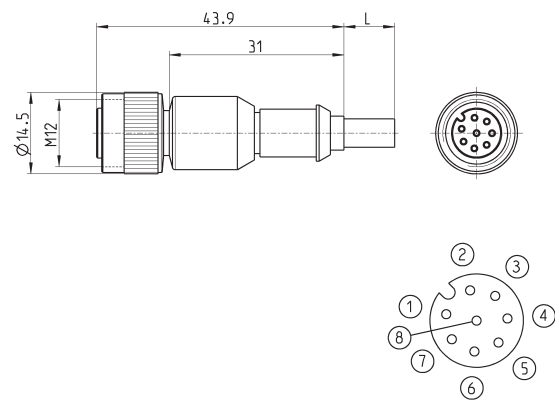


For electric supply and commands



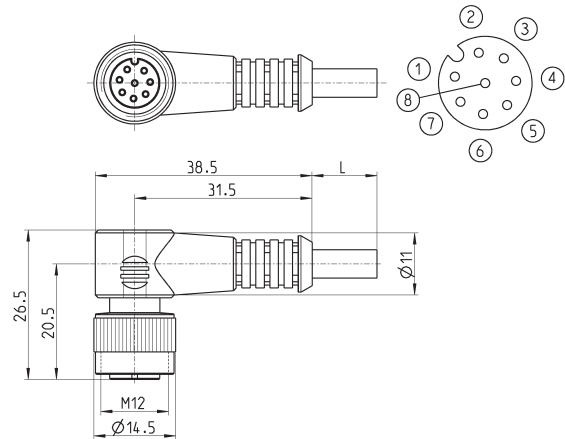
Mod.
CS-LF08HC

Cable with straight female connector M12 8 poles
For electrical supply and commands



Mod.	Cable length (m)
CS-LF08HB-C200	2
CS-LF08HB-C500	5

Cable with angular (90°) female connector M12 8 poles
For electric supply and commands

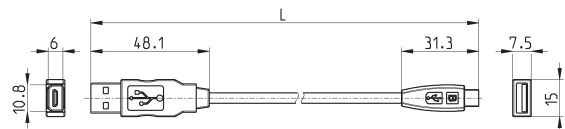


Mod.	Cable length (m)
CS-LR08HB-C200	2
CS-LR08HB-C500	5

USB to Micro USB cable Mod. G11W-G12W-2



For the hardware configuration
of the Camozzi products



Mod.	description	connections	material for outer sheath	cable length "L" (m)
G11W-G12W-2	black shielded cable 28 AWG	standard USB to Micro USB	PVC	2

Open Frame Controller

Modular proportional regulator

Modular system for proportional control of pressure, flow and position.

OPEN FRAME



The Open Frame Controller can be easily configured to meet specific application needs, to provide the most efficient, turnkey solutions, this reducing assembly times and system complexity. The different Master and Slave modules can be combined and driven through simple serial communications, making the control of complex applications easier. Typical applications could include the mixing of different gases, piloting different pressures in different parts of the machine.

- » Closed loop flow control
- » Compatible to be used with oxygen
- » Composed of two base modules: Master and Slave
- » Customised, turnkey solutions
- » Analog, CanOpen or IO-Link interface

The new "Open Frame Controller" system is a platform for providing closed loop control of flow, pressure and position and is suitable for Industry 4.0 applications. The system is composed of two base modules: Master and Slave.

GENERAL DATA

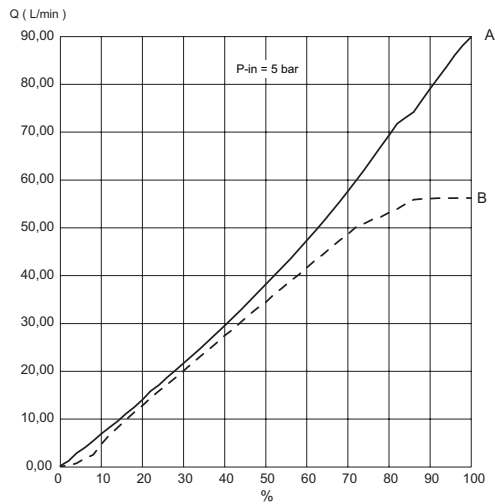
Construction	modular, compact, directly operated
Number of ways	2/2-way 3/3-way Parallel
Flow	max. 90 NL/min
Media	compressed air, inert gases and oxygen. Filtering according to ISO 8573-1 class 7.4.4
Supply pressure	-1 ÷ 10 bar
Operating pressure	-1 ÷ 10 bar
Ports	G1/8
Materials	seals: NBR, FKM, EPDM
Mounting position	any position
Analogical input	0-10 V or 4-20 mA
Analogical output	0-10 V
Supply voltage	24 VDC +/-10% o 12 VDC +/-5%
Current absorbed	0,3 A (Master module) 0,3 A (Slave module)
Control interface	CANopen CiA 301 RS485, RS232 IO-Link (connection type portclass B)
Protection class	IP20
Hysteresis	Pressure control version <= 3%FS; Flow control version <= 2%FS
Repeatability	Pressure control version <= 1%FS for pressures less than 1 Bar <=2%FS; Flow control version <= 2%FS
Resolution	Flow control version <= 2%FS
Environmental temperature (min and max °C)	0 ÷ 60°C For low temperature on request.
PWM frequency	1 kHz settable
Weight	300 g
Linearity	Pressure control version <= 2%FS; Flow control version <= 5%FS

CODING EXAMPLE

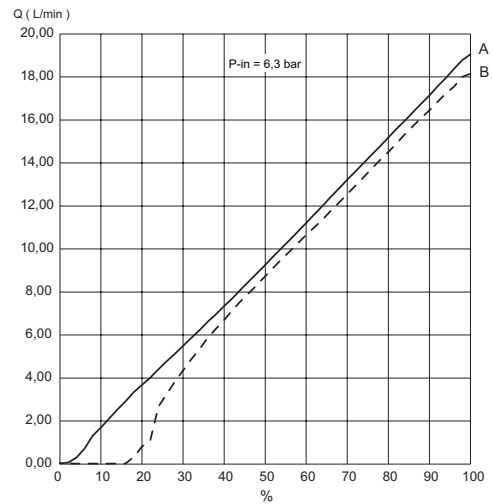
OF	-	0	P	1	1	-	L	L	W	2	-	D	-	A	-	04	-	OX2	-	CAC0001
----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	----	---	-----	---	---------

OF	SERIES: Open Frame	
0	ELECTRICAL INTERFACE: 0 = 0..10V analog / 24V supply 1 = CAN Open / 24 V supply 2 = IOLink -> CAN / 24V supply Portclass B compatible 8 = 4..20mA analog / 24V supply 9 = no header / 24V 4 = 0..10V analog / 12V supply 5 = CAN Open / 12 V supply 7 = 4..20mA analog / 12 V supply	A = no header/ 12V 3 = RS485 -> CAN / 24V supply T = TTL -> CAN / 24V E = Ethercat / 24V supply P = ProfiNet / 24V supply R = RS232 / 24V supply S = RS232 / 12V supply
P	CONTROL FUNCTION: = header only A = Open loop (flow 2-way) Master B = Open loop (flow 3-way) Master & Slave Q = Flow 2- way closed loop Master C = Flow 3 way closed loop Master & Slave H = high flow 2-way pressure control (parallel) Master & Slave	N = pressure 2-way closed loop P = pressure 3-way closed loop Master & Slave W = position Controller single ended function Master & Slave X = position Controller A-side double ended function Master & Slave Y = position Controller B-side double ended function Master & Slave S = Slave only
1	SIZE: = header only 1 = SIZE 37 mm	
1	PNEUMATIC PORT: = header only 1 = G1/8	
L	MASTER VALVE SIZE: = header only 0 = mandatory for slaves F = Ø 1 mm H = Ø 1,2 mm L = Ø 1,6 mm N = Ø 2 mm Q = Ø 2,4 mm	
L	SLAVE VALVE SIZE: = header only 0 = mandatory for masters F = Ø 1 mm H = Ø 1,2 mm L = Ø 1,6 mm N = Ø 2 mm Q = Ø 2,4 mm	
W	SEALS MATERIAL: = header only W = FKM R = NBR E = EPDM	
2	BODY MATERIAL: = header only 2 = brass / aluminum	
D	MAX. PRESSURE (RELATIVE SENSOR) ONLY FOR MASTERS: = header only 0 = no relative pressure sensor; mandatory for Slaves B = 0,2 bar C = 1 bar D = 2 bar E = 7bar F = 10 bar G = +/- 1 bar	
A	MAX. PRESSURE (DIFFERENTIAL SENSOR) ONLY FOR MASTER: = header only 0 = no dp sensor A = 50mbar B = 200mbar C = 1bar	
04	NOZZLE SIZE FOR MASTER ONLY: = header only 00 = no nozzle 04 = 0,4 mm 06 = 0,6 mm 07 = 0,7 mm 09 = 0,9 mm 12 = 1,2 mm 14 = 1,4 mm	16 = 1,6 mm 18 = 1,8 mm 20 = 2,0 mm 23 = 2,3 mm 28 = 2,8 mm
OX2	CERTIFICATION: OX2 = Certification for Oxygen ASTM G93-03 Level B.	
CAC0001	Application code: increasing number for each special customized version	

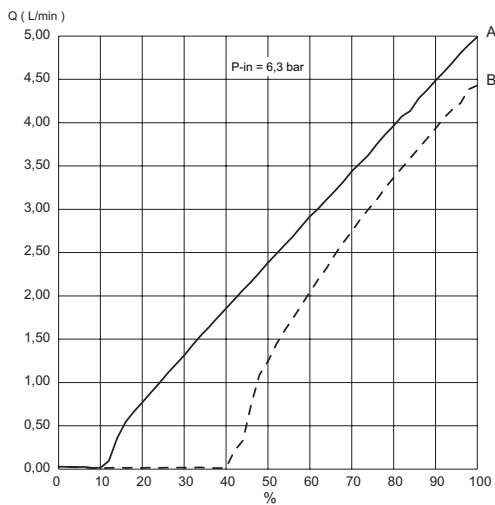
Flow diagrams Open Frame - Closed loop flow control valve version



Q = Flow (l/min)
% = Percentage of the command signal
A = P out flow = P atmosphere
B = Delta flow P 1 bar



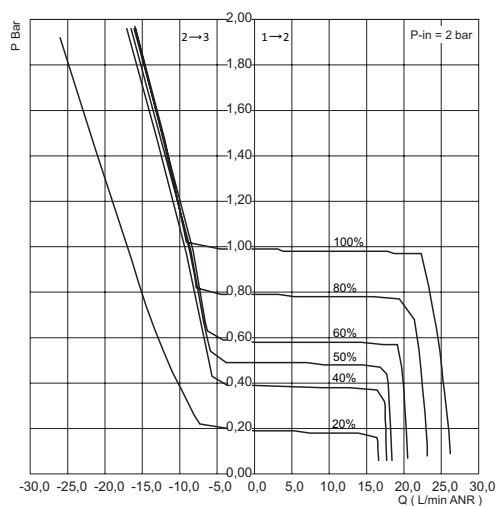
Q = Flow (l/min)
% = Percentage of the command signal
A = P out flow = P atmosphere
B = Delta flow P 1 bar



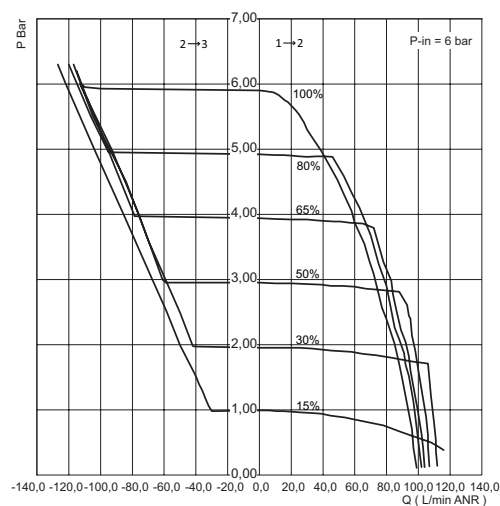
Q = Flow (l/min)
% = Percentage of the command signal
A = P out flow = P atmosphere
B = Delta flow P 1 bar

Nota 1: The graphs shown above are for reference only. Thanks to the high flexibility of the Open Frame, the different modules will be calibrated accurately according to the specifications of each application, exploiting the product in the best way possible.

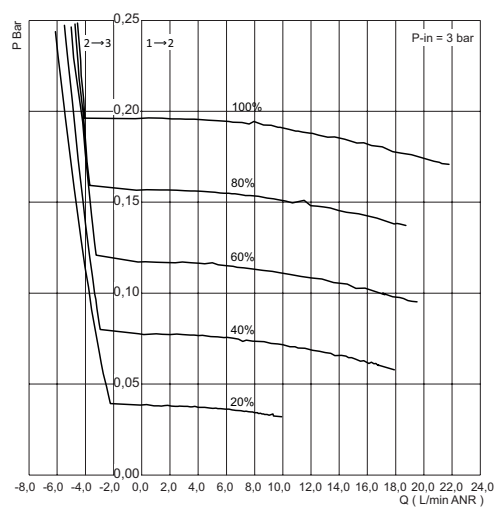
Flow diagrams Open Frame – 3-way and 2-way Pressure regulator version



Operating pressure 1 bar



Operating pressure 6 bar

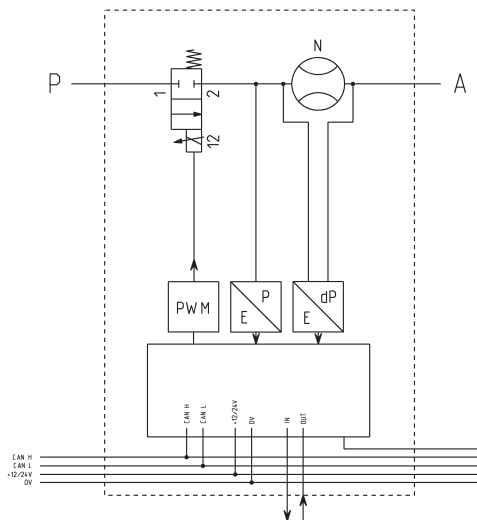


Operating pressure 0.2 bar

Nota 1: Regarding the pressure regulation graphs shown above, please do not consider the negative values when you refer to the 2-way regulator, as these values relate to the exhaust flow which is absent in the 2-way version.

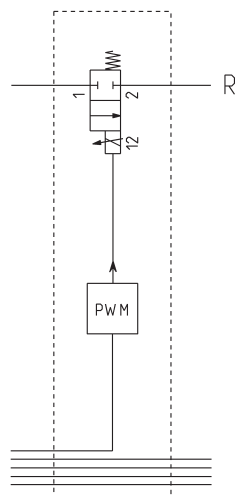
Nota 2: The graphs shown above are for reference only. Thanks to the high flexibility of the Open Frame, the different modules will be calibrated accurately according to the specifications of each application, exploiting the product in the best way possible.

SERIES OPEN FRAME - PNEUMATIC SCHEME



MASTER MODULE SCHEME

P= pressure inlet master
A= use of master
N= calibrated nozzle



SLAVE MODULE SCHEME

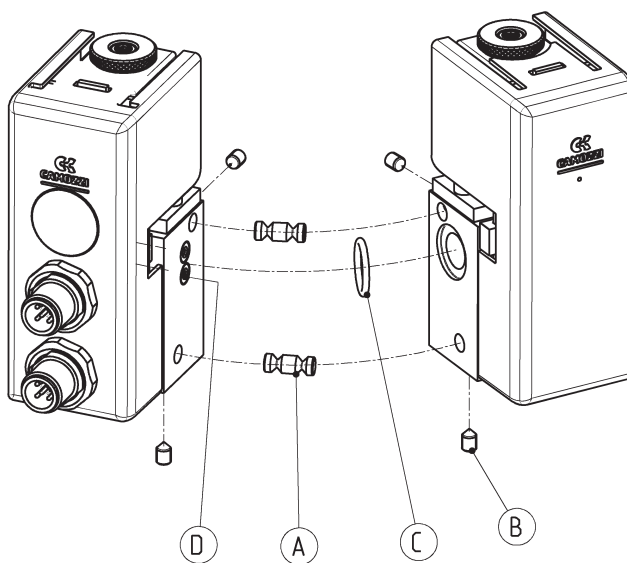
R= slave exhaust

MOUNTING EXAMPLE

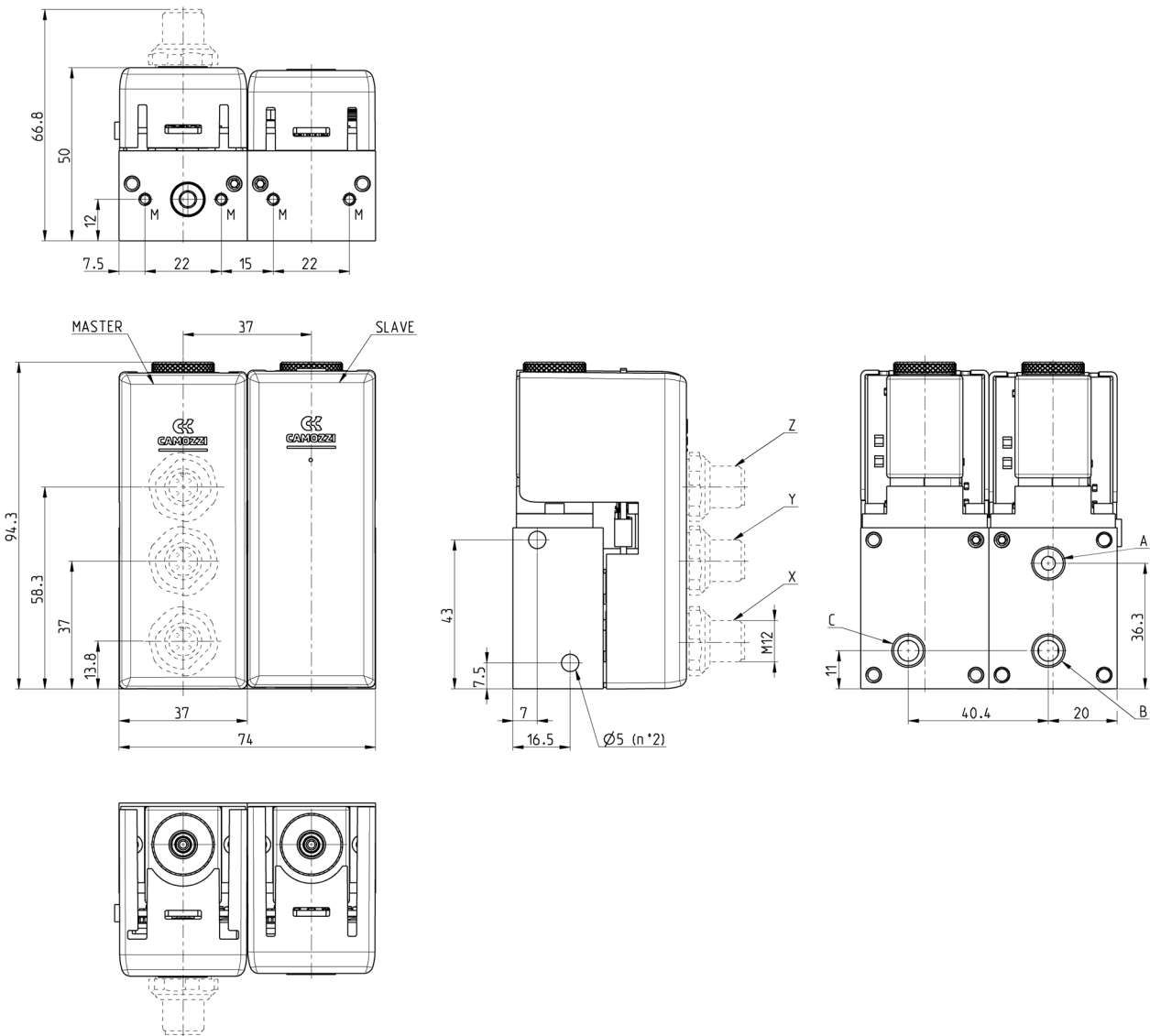
To correctly mount the modular MASTER and SLAVE components, insert the fixing elements (A) in the special seats between the two bodies and the O-Ring (C) in the seat on the SLAVE body.

Join the two bodies and fix them into position with the fixing nuts (B), close to the side in contact.

The positions of the covers (D), prepared at the factory, cannot be changed.

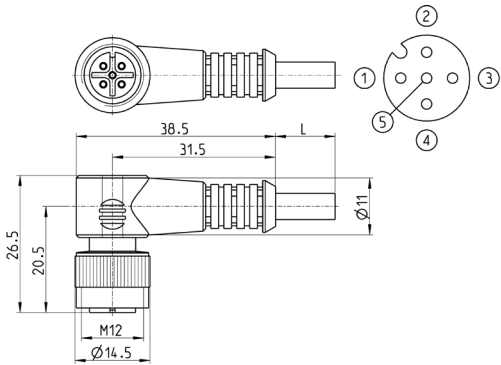


Open Frame proportional controller - dimensions



Mod.	X	Y	Z	A	B	C	M
OF-2	M12 5 PIN (Male)	M12 5 PIN (Male)	Micro USB	G1/8	G1/8	G1/8	M3 thread for mounting

Cable with M12 5 pin connector straight, female, not shielded

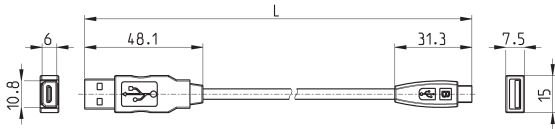


Mod.	Cable length (m)
CS-LR05HB-D200	2
CS-LR05HB-D500	5

USB to Micro USB cable Mod. G11W-G12W-2



For the hardware configuration
of the Camozzi products



Mod.	description	connections	material for outer sheath	cable length "L" (m)
G11W-G12W-2	black shielded cable 28 AWG	standard USB to Micro USB	PVC	2

Series K8P electronic proportional micro regulator

Proportional regulator for the pressure control



- » High precision
- » Reduced response times
- » Minimum consumption
- » Self-regulation function
- » Flexibility of use
- » Compact design
- » Suitable for use with oxygen

Series K8P electronic proportional micro regulators have evolved from our Series K8 mini-solenoid valves. Series K8P regulators guarantee excellent pressure regulation, fast response times, self-regulation and low energy consumption. Series K8P is a high performance proportional pressure regulator which is suitable for use in all applications where high precision, quick response times and low consumption are required.

The K8P regulator adjusts the outlet pressure through the operation of two K8 monostable valves according to the inlet signal and to the retroactivity of the internal pressure sensor. A self-adjusting function has been integrated into the regulator control algorithm to guarantee the highest levels of performance apart from the volume connected.

GENERAL DATA

Fluids	filtered compressed air, unlubricated, according to ISO 8573-1 class 7.4.4, oxygen, inert gases (argon, molecular nitrogen)		
Pressures	Regulated pressure		Max inlet pressure
	0.5 ÷ 10 bar		11 bar
	0.15 ÷ 3 bar		4 bar
	0.35 ÷ 7 bar		8 bar
	0.05 ÷ 1 bar		1.5 bar
Working temperature	0 ÷ 50°C		
Analogical input	0-10 V DC	4-20 mA	Ripple ≤ 0,2%
Analogical output	0.5 - 9.5 V [Feedback]		
Analog input impedance	20.000 Ω for versions 0-10 V 250 Ω for versions 4-20 mA		
Maximum flow	12 l/min with regulated pressure = 6 bar (IN Pres. 10 bar)		
	6 l/min with regulated pressure = 3 bar (IN Pres. 4 bar)		
	8 l/min with regulated pressure = 7 bar (IN Pres. 8 bar)		
	2 l/min with regulated pressure = 1 bar (IN Pres. 1.5 bar)		
Supply / Use	24 V ~ 1 W		
Function	3/2 NC		
Linearity	≤ ±1% FS		
Hysteresis	±0.5% FS		
Resolution	±0.5% FS (referred to the command signal)		
Repeatability	±0.5% FS		
Minimal set point change	50 mV => 50 mB (10 bar)		
	100 mV => 30 mB (3 bar)		
Electrical connection	M8 4 Pin (Male)		
Protection class	IP65 (with standard sub-base or with single use)		
	IP51 (with Light sub-base and Light Sub-base for the pressure remote reading)		

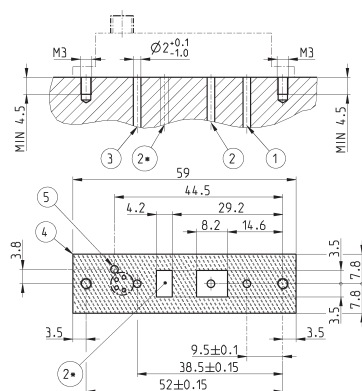
In compliance with the European Directive 2004/108/EC

CODING EXAMPLE

K8P	-	0	-	D	5	2	2	-	0	
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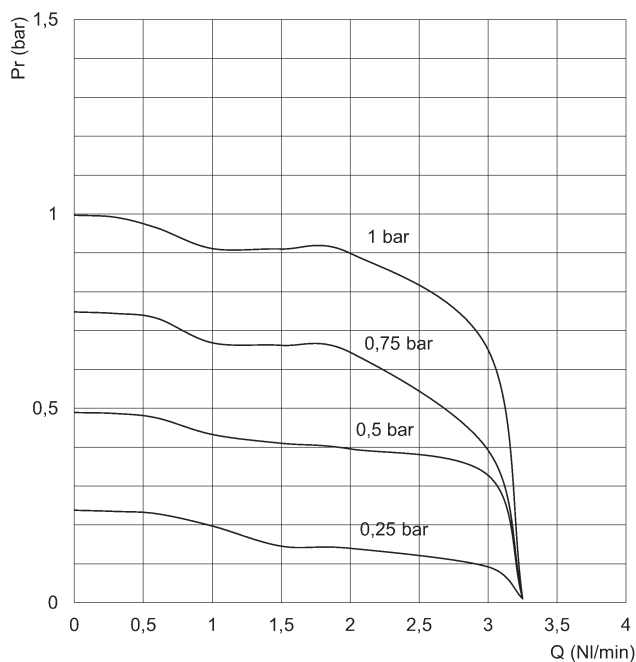
K8P	SERIES
0	BODY DESIGN: 0 = Stand alone S = Standard Sub-base L = Light Sub-base T = Light Sub-base for the pressure remote reading
D	WORKING PRESSURE: D = 0 - 10 bar E = 0 - 3 bar F = 0 - 7 bar B = 0 - 1 bar
5	VALVE FUNCTIONS: 5 = 3/2-way NC
2	COMMAND: 2 = 0-10 V DC 3 = 4-20 mA
2	OUTPUT SIGNAL: 2 = 0-10 V
0	CABLE LENGTH: 0 = without cable 2F = straight cable, 2 m 2R = right angle cable (90 degrees), 2 m 5F = straight cable, 5 m 5R = right angle cable (90 degrees), 5 m
OX1	VERSIONS: = standard OX1 = for use with oxygen (in compliance with ASTM G93-03 Level E)
APPLICATIONS The K8P proportional regulator can be used as a pilot valve to control the opening of high flow valves or to check the high flow pressure regulators proportionally (version with sub-base for the pressure remote reading). It enables proportional control of power in lifting systems and can be used with inert gas to maintain a constant pressure in pneumatic cylinders or expansion valve chambers. It has also been designed to maintain a constant pressure during the pulling power applied to the wires in winding machines, to modulate pressure during the smoothing process in woodworking machines or to adjust the opening of diaphragm valves.	

Interface for single use without sub-base



DRAWING LEGEND	
	Notes
1 = Inlet pressure	Pneumatic connection
2 = Outlet pressure	Pneumatic connection
2° = area for possible positioning of outlet port 2	Do not exceed the indicated outline
3 = Exhaust	Pneumatic connection
4 = OUTLET DIMENSION	
5 = VENT PORT FOR IP65	Optional when a OR seal is mounted

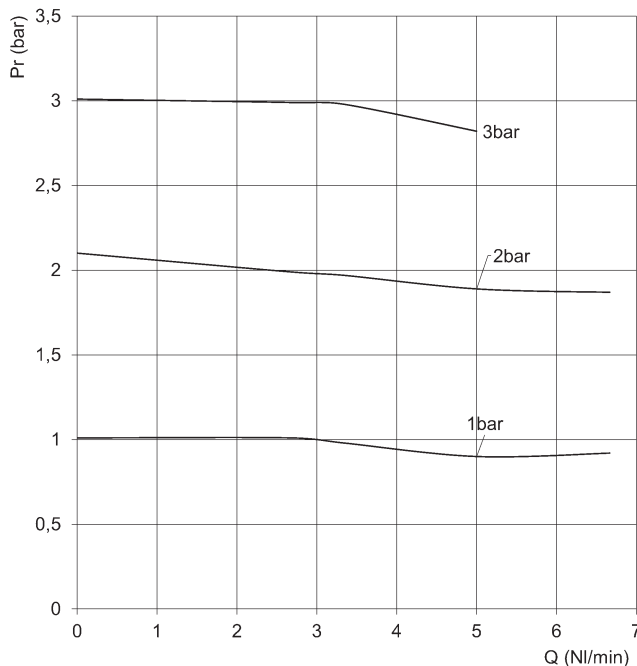
FLOW DIAGRAMS



0-1 bar version

Pr = Outlet pressure (bar)*
Q = Flow (NL/min)*

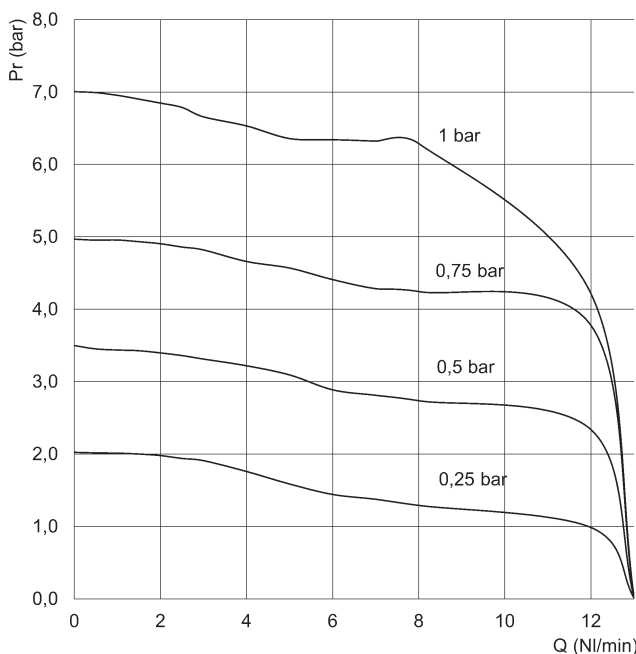
* = Inlet pressure 2 bar



0-3 bar version

Pr = Outlet pressure (bar)*
Q = Flow (NL/min)*

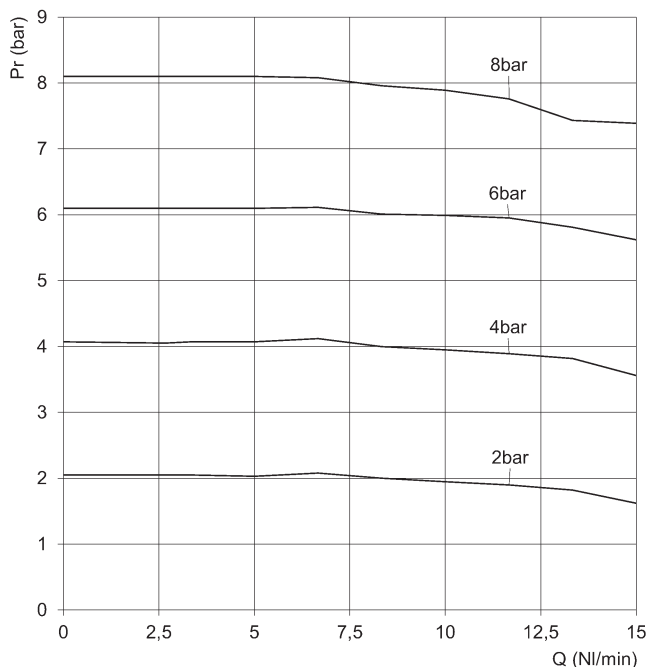
* = Inlet pressure 4 bar



0-7 bar version

Pr = Outlet pressure (bar)*
Q = Flow (NL/min)*

* = Inlet pressure 8 bar



0-10 bar version

Pr = Outlet pressure (bar)*
Q = Flow (NL/min)*

* = Inlet pressure 10 bar

Series K8P electronic proportional micro regulator

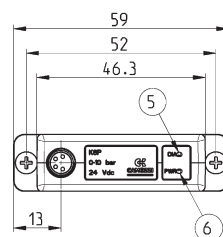
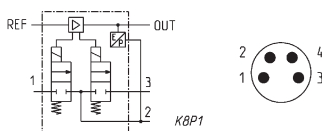
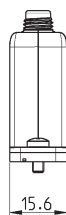
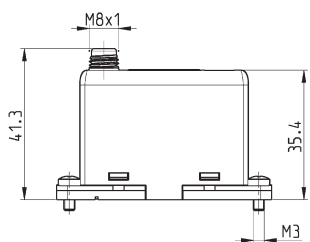
* = sub-bases and single use can be supplied for all versions.
** = all the cables can be supplied for all versions.



M8 4-pole male connector

Pin 1: +24 V DC (Power supply)
Pin 2: Command analogical signal 0-10 V DC or 4-20 mA
Pin 3: 0 V (Ground) common also for the command signal
Pin 4: Output analogical signal (according to the regulated pressure)

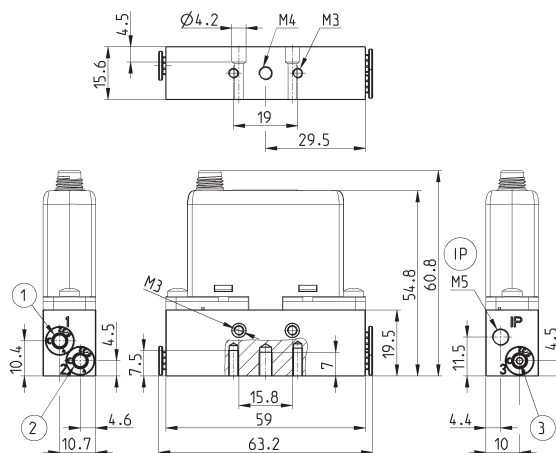
5 red LED
6 green LED



Mod.	Working pressure	Use with oxygen	Command
K8P- [*] -D522- ^{**}	0-10 bar	no	0-10 V DC
K8P- [*] -E522- ^{**}	0-3 bar	no	0-10 V DC
K8P- [*] -D532- ^{**}	0-10 bar	no	4-20 mA
K8P- [*] -E532- ^{**}	0-3 bar	no	4-20 mA
K8P- [*] -B522- ^{**}	0-1 bar	no	0-10 V DC
K8P- [*] -F522- ^{**}	0-7 bar	no	0-10 V DC
K8P- [*] -B532- ^{**}	0-1 bar	no	4-20 mA
K8P- [*] -F532- ^{**}	0-7 bar	no	4-20 mA
K8P- [*] -B522- ^{**} OX1	0-1 bar	yes	0-10 V DC
K8P- [*] -F522- ^{**} OX1	0-7 bar	yes	0-10 V DC
K8P- [*] -E522- ^{**} OX1	0-3 bar	yes	0-10 V DC
K8P- [*] -B532- ^{**} OX1	0-1 bar	yes	4-20 mA
K8P- [*] -F532- ^{**} OX1	0-7 bar	yes	4-20 mA
K8P- [*] -E532- ^{**} OX1	0-3 bar	yes	4-20 mA

Standard Sub-base

The use of a silencer (Mod. 2939 4) on the exhaust is recommended.



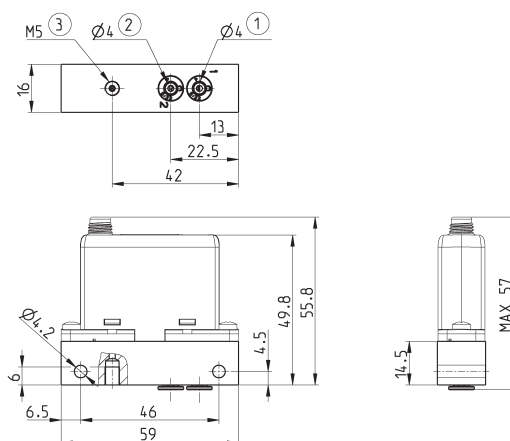
Mod.
K8P-AS

1 = Inlet pressure
2 = Outlet pressure
3 = Exhaust

IP = IP65 connection

Light Sub-base

The use of a silencer (Mod. 2931 M5, 2938 M5, 2901 M5) on the exhaust is recommended.

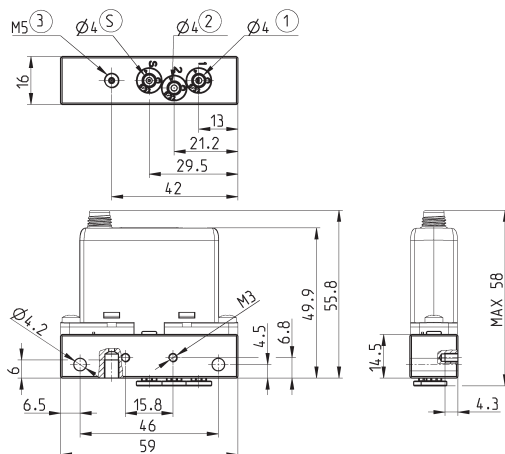


Mod.
K8P-AL

1 = Inlet pressure
2 = Outlet pressure
3 = Exhaust

Light Sub-base for the pressure remote reading

The use of a silencer (Mod. 2931 M5, 2938 M5, 2901 M5) on the exhaust is recommended.



Mod.
K8P-AT

1 = Inlet pressure
2 = Outlet pressure
3 = Exhaust

S = remote-mounted sensor

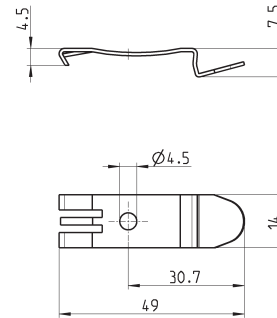
Mounting bracket for DIN rail

DIN EN 50022 (7,5mm x 35mm - width 1)



Supplied with:
1x mounting bracket
1x screw M4x6 UNI 5931

This accessory cannot be used
with the Light sub-base.

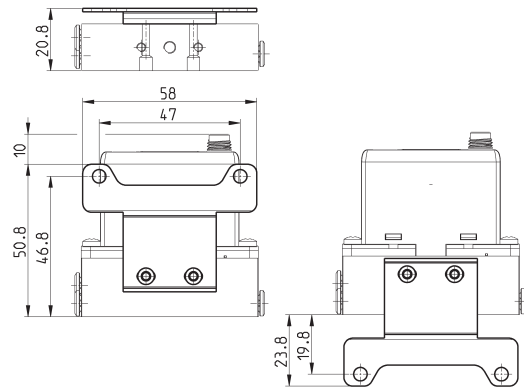


Mod.
PCF-K8P

Bracket for horizontal mounting, for standard sub-base



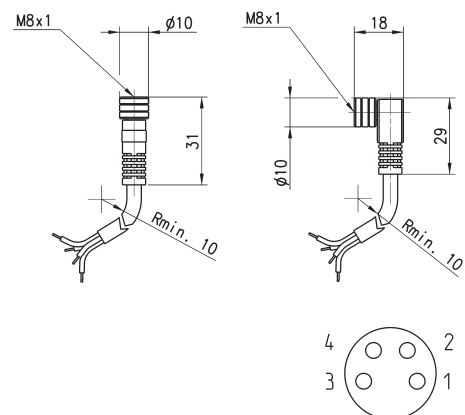
Supplied with:
1x mounting bracket
2x screws M3x8 UNI 5931



Mod.
K8P-B1

Circular M8 4-pole connectors, Female

With PU sheathing, non shielded cable.
Protection class: IP65



Mod.	Type of connector	Cable length (m)
CS-DF04EG-E200	straight	2
CS-DF04EG-E500	straight	5
CS-DR04EG-E200	right angle (90 degrees)	2
CS-DR04EG-E500	right angle (90 degrees)	5



Series MX-PRO proportional pressure regulator and proportional flow valve

Regulator and valve ports (Single and Manifold): G1/2

Regulator: with built-in pressure gauge or G1/8 threaded ports

Valve: without pressure gauge



Series MX-PRO electronic proportional pressure regulator is the result of combining advanced technology of Series K8P electronic proportional micro regulator, with reliability and high performance of Series MX2 modular regulators.

This new regulator ensures high precision in pressure regulation, high flow rate and low consumption. Moreover, it can take the most of Series MX ease of assembly to provide particularly compact Manifolds.

- » High precision
- » Low electric consumption
- » High exhaust flow
- » Modular with Series MX
- » MANIFOLD and external servo pilot supply versions available

SERIES MX-PRO PROPORTIONAL REGULATOR AND VALVE

GENERAL DATA

	PROPORTIONAL PRESSURE REGULATOR	PROPORTIONAL FLOW VALVE
Construction	modular, compact, diaphragm type	modular, piston type
Materials	see material tables on the following pages	see material tables on the following pages
Ports	G1/2	G1/2
Mounting	vertical in-line, wall-mounting (by means of clamps)	vertical in-line, wall-mounting (by means of clamps)
Working pressure	0°C ÷ 50°C	0°C ÷ 50°C
Max inlet pressure	11 bar (10 bar), 4 bar (3 bar), 1.5 bar (1 bar), 8 bar (7 bar)	6 bar
Regulated pressure	0.5 ÷ 10 bar, 0.15 ÷ 3 bar, 0.05 ÷ 1 bar, 0.35 ÷ 7	-
Max servo-pilot pressure	4 bar (3 bar), 11 bar (10 bar), 1.5 bar (1 bar), 8 bar (7 bar)	4 bar (essential for the proper functioning)
Overpressure exhaust	with Relieving (standard) or without Relieving	NO
Nominal flow	see flow diagrams on the following pages	see flow diagrams on the following pages
Air specifications	filtered compressed air, non lubricated, class 7.4.4 according to ISO 8573.1 standard. If lubrication is necessary, please use only oils with maximum viscosity of 32 Cst and the version with external servo-pilot supply. The servo-pilot supply air quality class must be 7.4.4 according to ISO 8573.1 standard.	filtered compressed air, non lubricated, class 7.4.4 according to ISO 8573.1 standard. If lubrication is necessary, please use only oils with maximum viscosity of 32 Cst and the version with external servo-pilot supply. The servo-pilot supply air quality class must be 7.4.4 according to ISO 8573.1 standard.
Pressure gauge	with built-in pressure gauge (standard) with G1/8 port	without pressure gauge
Analogical input	0-10 V DC Ripple ≤ 0.2%; 4 – 20 mA	0-10 V DC Ripple ≤ 0.2%; 4 – 20 mA
Analogical output	0.5 - 9.5 V DC [Feedback]	not relevant
Electrical supply	24 V DC ±10%	24 V DC ±10%
Electrical connection	M8 4 Pin (Male)	M8 4 Pin (Male)
Linearity	≤ ± 1% FS	±2% FS
Hysteresis	0.5% FS	3% FS
Repeatability	±0.5% FS	±0.5% FS
Sensitivity	0.3% FS	0.5% FS
Protection class	IP51	IP51

CODING EXAMPLE

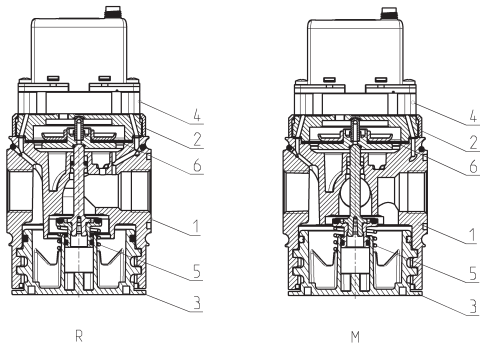
MX	2	-	1/2	-	R	CV	2	0	4	-	LH
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MX	SERIES
2	SIZE: 2 = G1/2
1/2	PORTS: 1/2 = G1/2
R	FUNCTIONING: R = pressure regulator M = Manifold pressure regulator V = flow valve W = Manifold flow valve
CV	COMMAND: CV = electrical command 0-10 V DC (regulator only) CA = electrical command 4-20 mA (regulator only) EV = electrical command 0-10 V DC with external servo pilot supply EA = electrical command 4-20 mA with external servo pilot supply
2	REGULATOR SETTING RANGE: 1 = working pressure 0 ÷ 3 bar 2 = working pressure 0 ÷ 10 bar 3 = working pressure 0 ÷ 1 bar 4 = working pressure 0 ÷ 7 bar VALVE SETTING RANGE: 7 = flow valve
0	DESIGN TYPE: 0 = relieving (regulator only) 1 = without relieving
4	PRESSURE GAUGE: 0 = without pressure gauge, with threaded port for gauges 2 = with built-in pressure gauge 0-6 bar (regulator only) 4 = with built-in pressure gauge 0-12 bar (regulator only)
LH	FLOW DIRECTION: = from left to right (standard) LH = from right to left

Further details about the assembly of a single component with fixing flanges or wall-mounting can be found in the AIR TREATMENT catalogue, section SERIES MX ASSEMBLED FRL.

Series MX-PRO proportional pressure regulator - materials

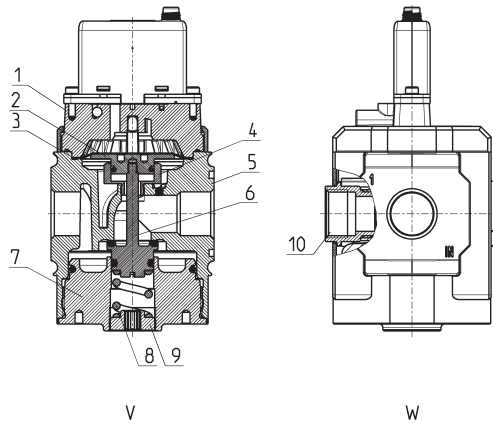
R = proportional pressure regulator
M = Manifold proportional pressure regulator



PARTS		MATERIALS, Single and manifold version
1 = Body		Aluminium
2 = Covering		Polyacetal
3 = Valve holder plug		Polyacetal
4 = Upper base		Polyamide
5 = Lower spring		Stainless steel
6 = Diaphragm		NBR
Seals		NBR

Series MX-PRO proportional flow valve - materials

V = proportional flow valve
W = Manifold proportional flow valve



PARTS		MATERIALS, Single and Manifold version
1 = Upper base		Polyamide
2 = Piston		Brass
3 = Diaphragm		NBR
4 = Valve guide		Brass
5 = Body		Aluminium
6 = Poppet		Brass
7 = plug		Anodised aluminium
8 = spring		Steel
9 = spring guide		Brass
10 = Manifold output connection		nickel-plated brass
Seals		FKM/NBR

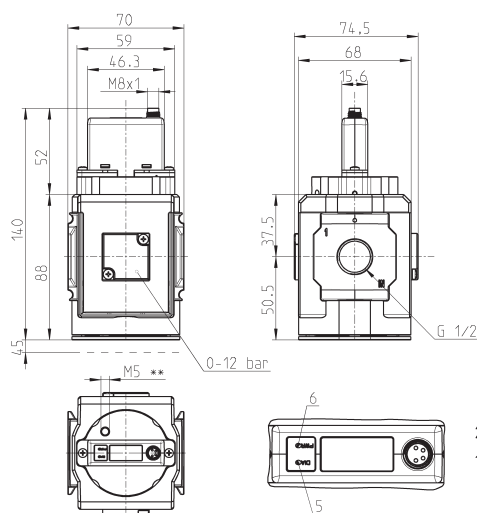
Series MX-PRO proportional pressure regulator - Single version



Male connector M8 4 poles
Pin 1: +24 V DC (Power supply)
Pin 2: Command analogical signal
0-10 V DC or 4-20 mA
Pin 3: 0 V (Ground) common also for
the command signal
Pin 4: Output analogical signal
(according to the regulated
pressure)

5 red LED
6 green LED

DRAWING NOTE:
** = in the versions with external servo pilot
supply only (MX2-1/2-REV... and MX2-1/2-REA...)



Mod.	Electrical command	Setting range	Pressure gauge
MX2-1/2-R*V1#0	0-10 V DC	0 ÷ 3 bar	without pressure gauge
MX2-1/2-R*V1#2	0-10 V DC	0 ÷ 3 bar	with built-in pressure gauge 0-6
MX2-1/2-R*V2#0	0-10 V DC	0 ÷ 10 bar	without pressure gauge
MX2-1/2-R*V2#4	0-10 V DC	0 ÷ 10 bar	with built-in pressure gauge 0-12
MX2-1/2-R*V3#0	0-10 V DC	0 ÷ 1 bar	without pressure gauge
MX2-1/2-R*V4#0	0-10 V DC	0 ÷ 7 bar	without pressure gauge
MX2-1/2-R*V4#3	0-10 V DC	0 ÷ 7 bar	with built-in pressure gauge 0-10
MX2-1/2-R*A1#0	4-20 mA	0 ÷ 3 bar	without pressure gauge
MX2-1/2-R*A1#2	4-20 mA	0 ÷ 3 bar	with built-in pressure gauge 0-6
MX2-1/2-R*A2#0	4-20 mA	0 ÷ 10 bar	without pressure gauge
MX2-1/2-R*A2#4	4-20 mA	0 ÷ 10 bar	with built-in pressure gauge 0-12
MX2-1/2-R*A3#0	4-20 mA	0 ÷ 1 bar	without pressure gauge
MX2-1/2-R*A4#0	4-20 mA	0 ÷ 7 bar	without pressure gauge
MX2-1/2-R*A4#3	4-20 mA	0 ÷ 7 bar	with built-in pressure gauge 0-10

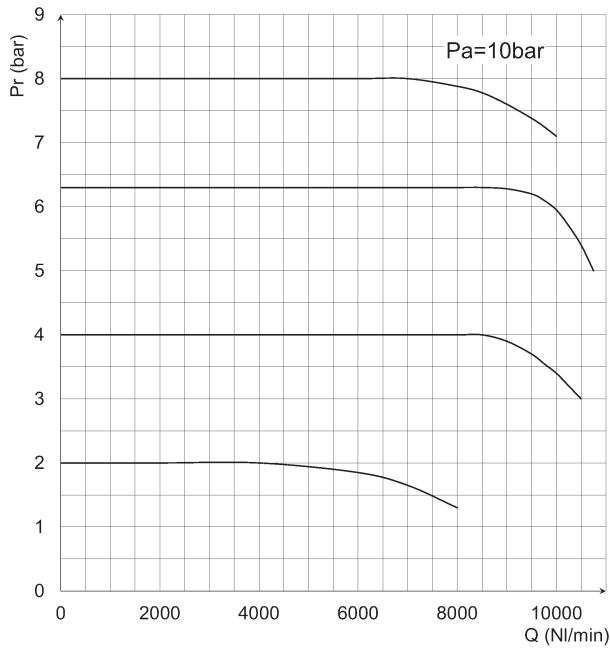
TABLE NOTES:

* = versions with or without external pilot supply

= versions with or without relieving

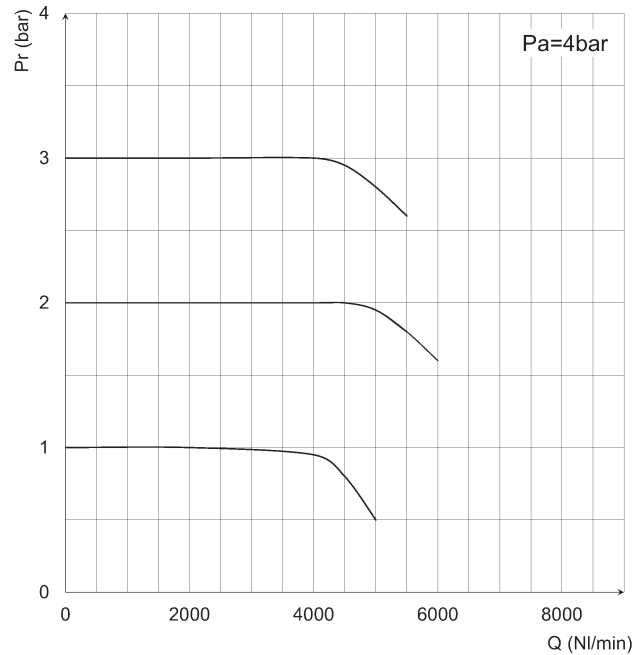
LH = add LH at the end of the code for air inlet from the right to the left

PRESSURE REGULATOR FLOW DIAGRAMS - SINGLE VERSION



Pr = Regulated pressure
Q = Flow

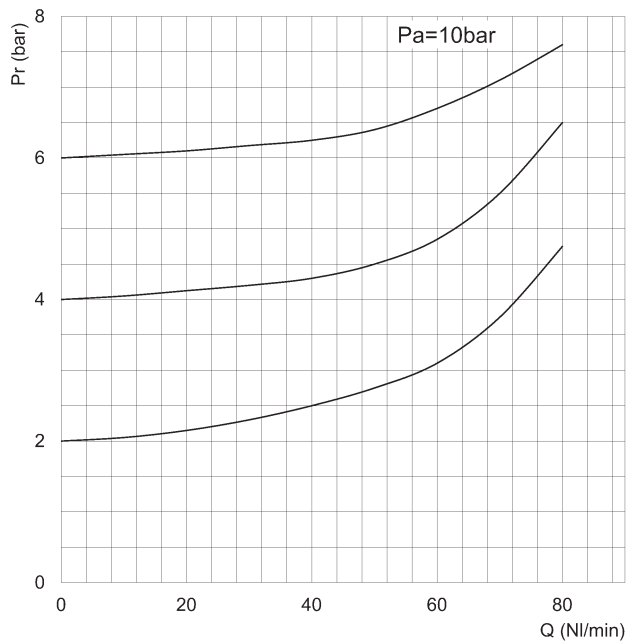
Pa = Inlet pressure



Pr = Regulated pressure
Q = Flow

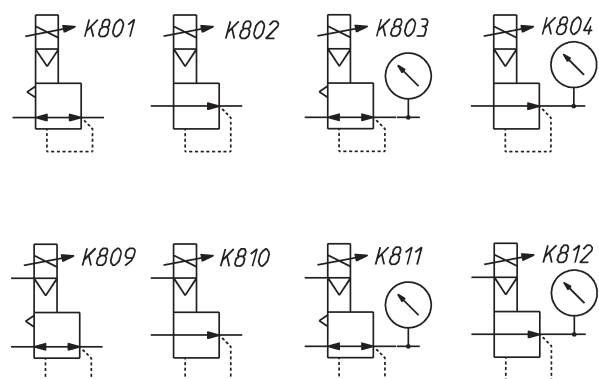
Pa = Inlet pressure

EXHAUST FLOW DIAGRAM AND PNEUMATIC SYMBOLS - SINGLE VERSION



Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure



K801 = relieving, electrical command
K802 = NO relieving, electrical command
K803 = relieving, electrical command, built-in pressure gauge
K804 = NO relieving, electrical command, built-in pressure gauge
K809 = relieving, electrical command, ext. servo pilot supply
K810 = NO relieving, electrical command, ext. servo pilot supply
K811 = relieving, el. com., built-in pr. gauge, ext. servo pilot supply
K812 = NO relieving, el. com., built-in pr. gauge, ext. servo pilot sup.

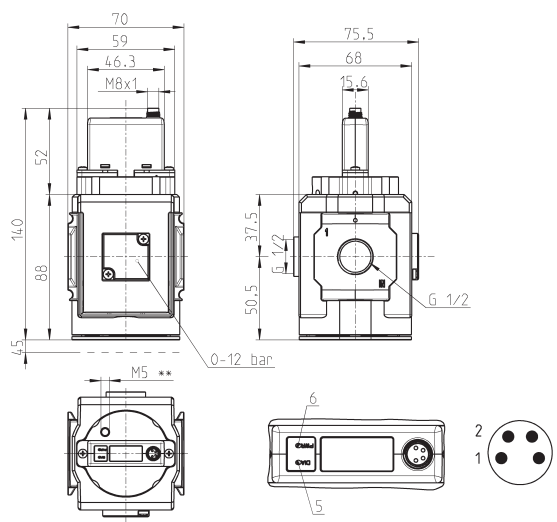
Series MX-PRO proportional pressure regulator - Manifold version



Male connector M8 4 poles
Pin 1: +24 V DC (Power supply)
Pin 2: Command analogical signal
0-10 V DC or 4-20 mA
Pin 3: 0 V (Ground) common also for
the command signal
Pin 4: Output analogical signal
(according to the regulated
pressure)

5 red LED
6 green LED

DRAWING NOTE:
** = in the versions with external servo pilot
supply only (MX2-1/2-REV... and MX2-1/2-REA...)



Mod.	Electrical command	Setting range	Pressure gauge
MX2-1/2-M*V1#0	0-10 V DC	0 ÷ 3 bar	without pressure gauge
MX2-1/2-M*V1#2	0-10 V DC	0 ÷ 3 bar	with built-in pressure gauge 0-6
MX2-1/2-M*V2#0	0-10 V DC	0 ÷ 10 bar	without pressure gauge
MX2-1/2-M*V2#4	0-10 V DC	0 ÷ 10 bar	with built-in pressure gauge 0-12
MX2-1/2-M*V3#0	0-10 V DC	0 ÷ 1 bar	without pressure gauge
MX2-1/2-M*V4#0	0-10 V DC	0 ÷ 7 bar	without pressure gauge
MX2-1/2-M*A1#0	4-20 mA	0 ÷ 3 bar	without pressure gauge
MX2-1/2-M*A1#2	4-20 mA	0 ÷ 3 bar	with built-in pressure gauge 0-6
MX2-1/2-M*A2#0	4-20 mA	0 ÷ 10 bar	without pressure gauge
MX2-1/2-M*A2#4	4-20 mA	0 ÷ 10 bar	with built-in pressure gauge 0-12
MX2-1/2-M*A3#0	4-20 mA	0 ÷ 1 bar	without pressure gauge
MX2-1/2-M*A4#0	4-20 mA	0 ÷ 7 bar	without pressure gauge
MX2-1/2-M*A4#3	4-20 mA	0 ÷ 7 bar	with built-in pressure gauge 0-10

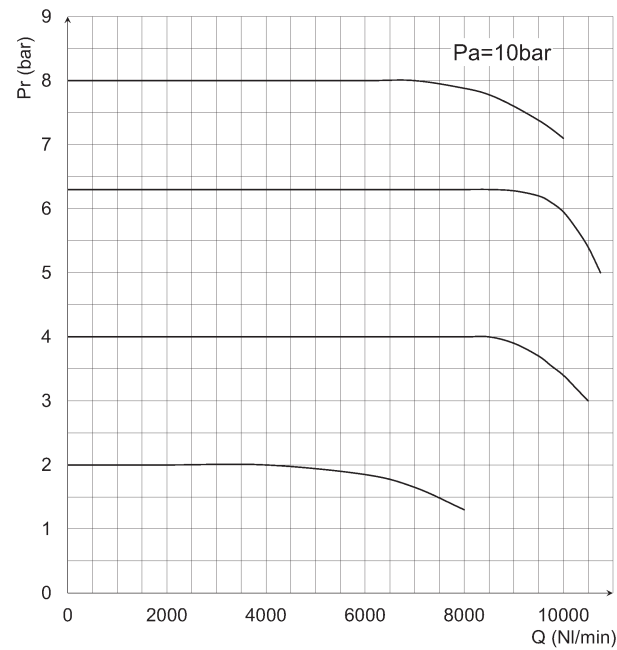
TABLE NOTES:

* = versions with or without external pilot supply

= versions with or without relieving

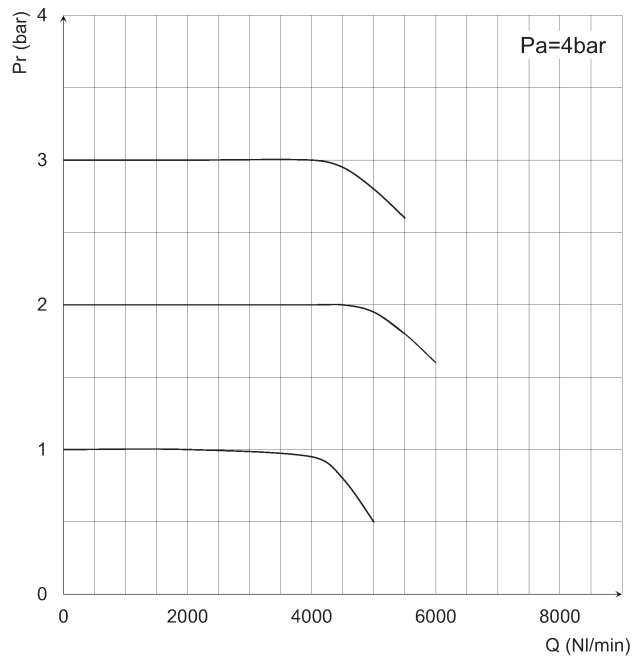
LH = add LH at the end of the code for air inlet from the right to the left

PRESSURE REGULATOR FLOW DIAGRAMS - MANIFOLD VERSION



Pr = Regulated pressure
Q = Flow

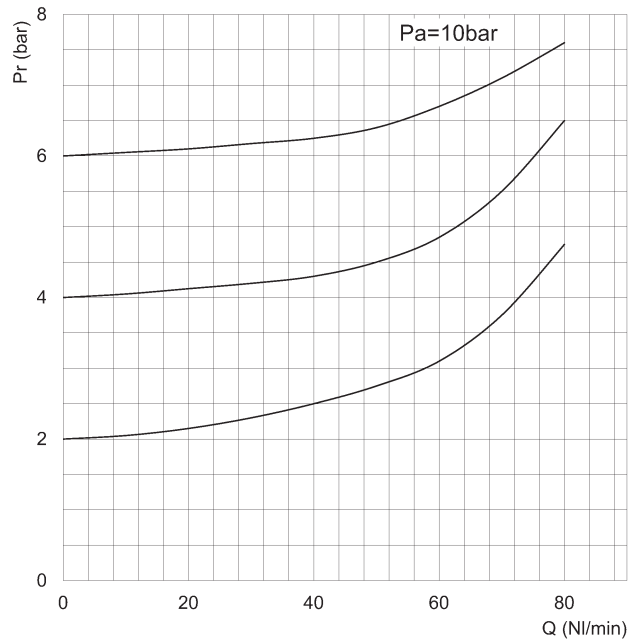
Pa = Inlet pressure



Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

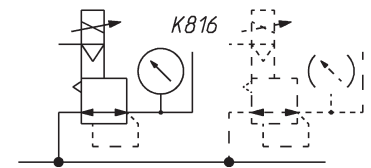
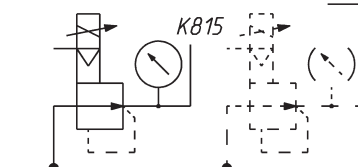
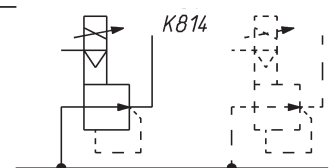
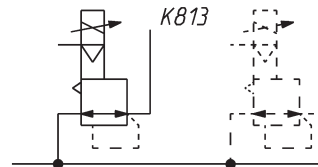
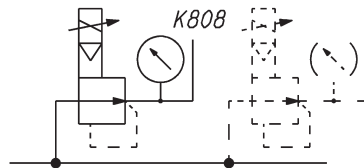
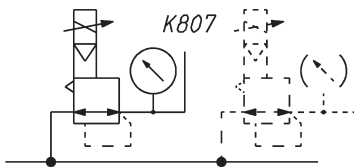
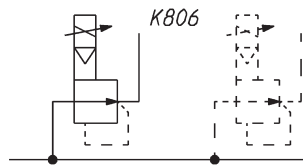
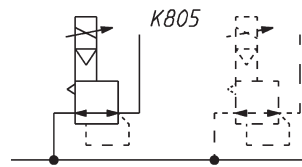
EXHAUST FLOW DIAGRAM - MANIFOLD VERSION



Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

PNEUMATIC SYMBOLS - MANIFOLD VERSION



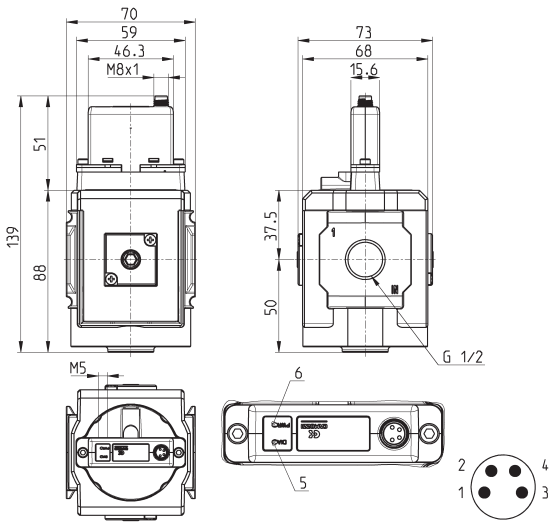
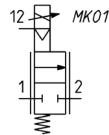
- K805 = MANIFOLD reg., relieving, electrical command
- K806 = MANIFOLD reg., NO relieving, electrical command
- K807 = MANIFOLD reg., relieving, electrical command and built-in pressure gauge
- K808 = MANIFOLD reg., NO relieving, electrical command and built-in pressure gauge

- K813 = MANIFOLD reg., relieving, electrical command, and external servo pilot supply
- K814 = MANIFOLD reg., NO relieving, electrical command, and external servo pilot supply
- K815 = MANIFOLD reg., relieving, electrical command, built-in pressure gauge and external servo pilot supply
- K816 = MANIFOLD reg., NO relieving, electrical command, built-in pressure gauge and external servo pilot supply

Series MX-PRO proportional flow valve - Single version

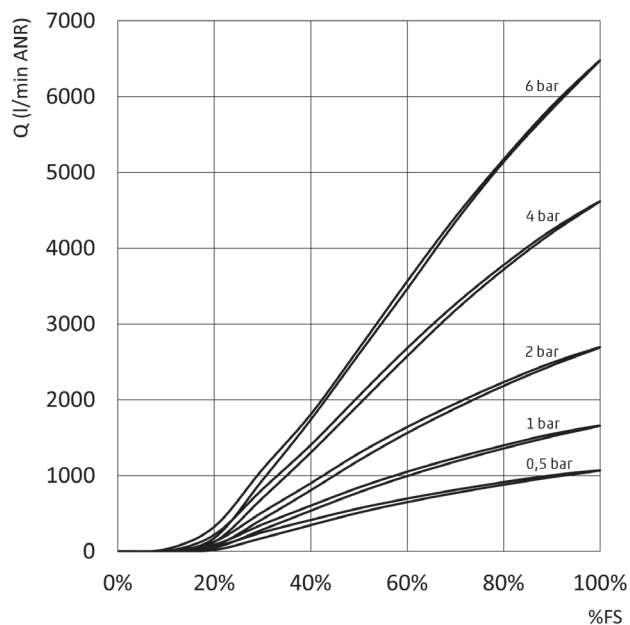


- Male connector M8 4 poles
- Pin 1: +24 V DC (Power supply)
- Pin 2: Command analogical signal
0-10 V DC or 4-20 mA
- Pin 3: 0 V (Ground) common also
for the command signal
- Pin 4: Output analogical signal
(according to the
regulated pressure)
- 5 red LED
- 6 green LED



Mod.	Electrical command	Setting range
MX2-1/2-VEV710	0-10 V DC	0-6500 L/min
MX2-1/2-VEA710	4-20 mA	0-6500 L/min
MX2-1/2-VEV710-LH	0-10 V DC	0-6500 L/min
MX2-1/2-VEA710-LH	4-20 mA	0-6500 L/min

VALVE FLOW DIAGRAMS - SINGLE VERSION



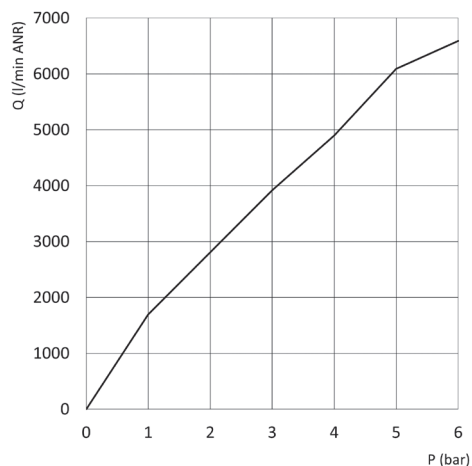
Q = flow
FS = full scale command signal

Valve maximum flow and response times - Single version

Maximum flow according to the inlet pressure

DIAGRAM LEGEND:

Q = flow
P = inlet pressure



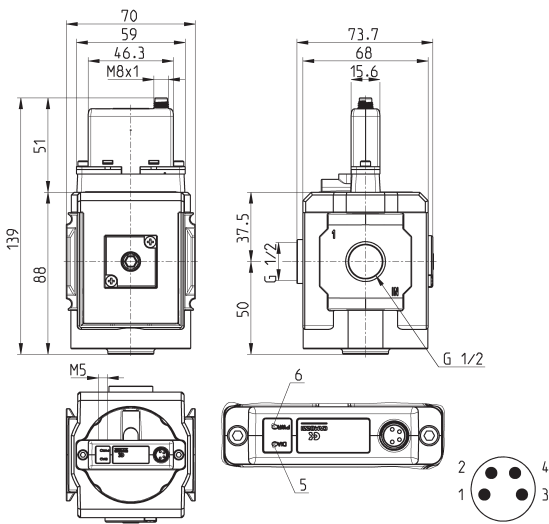
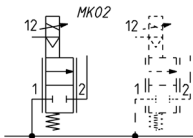
RESPONSE TIME measured with the maximum flow at the operating pressure [Elettromechanical response time: 90 ms]

Pin (bar)	Opening response time [ms]		Closing response time [ms]	
	0%-10%	10%-90%	100%-90%	100%-10%
6	117	266	106	553

Series MX-PRO Manifold proportional flow valve - Manifold version

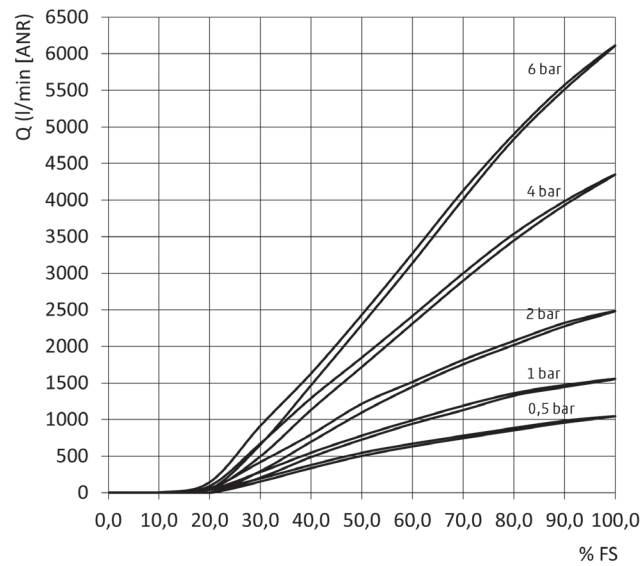


- Male connector M8 4 poles
- Pin 1: +24 V DC (Power supply)
- Pin 2: Command analogical signal
0-10 V DC or 4-20 mA
- Pin 3: 0 V (Ground) common also
for the command signal
- Pin 4: Output analogical signal
(according to the
regulated pressure)
- 5 red LED
- 6 green LED



Mod.	Electrical command	Setting range
MX2-1/2-WEV710	0-10 V DC	0-6100 L/min ANR
MX2-1/2-WEA710	4-20 mA	0-6100 L/min ANR
MX2-1/2-WEV710-LH	0-10 V DC	0-6100 L/min ANR
MX2-1/2-WEA710-LH	4-20 mA	0-6100 L/min ANR

VALVE FLOW DIAGRAMS - MANIFOLD VERSION

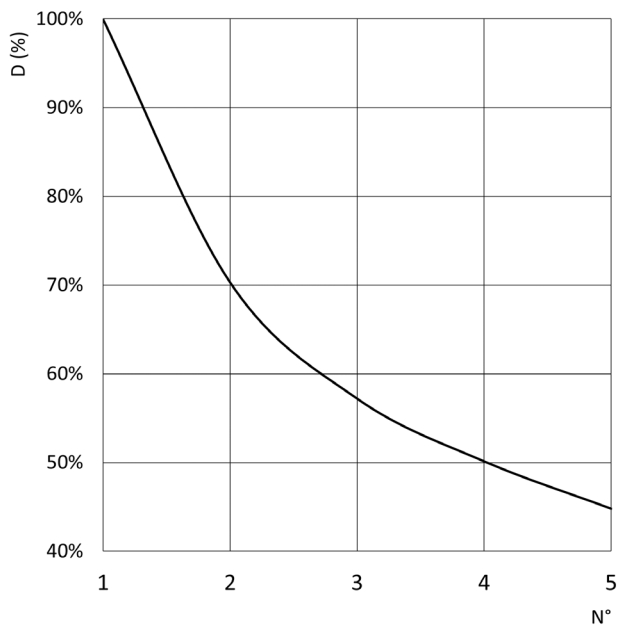


Low flow version

Q = flow

FS = full scale command signal

DECAY FACTOR - MANIFOLD VERSION



N° = number of valves in manifold configuration

D(%) = relative percentage decay of the maximum flow rate

Note: the air inlet is only from one side, in case it should be on the right and on the left, only consider the positions as from 1 ÷ 3.

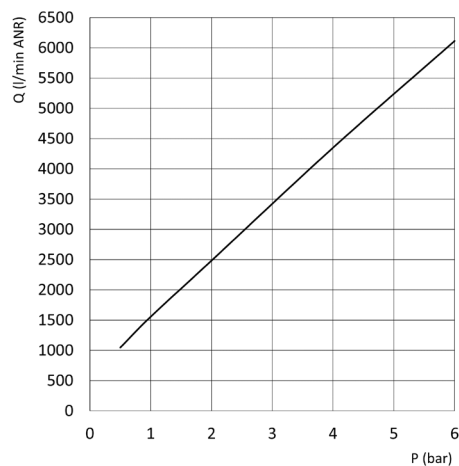
Valve maximum flow and response times - Manifold version

Maximum flow according to the inlet pressure

DIAGRAM LEGEND:

Q = flow

P = inlet pressure



RESPONSE TIME measured with the maximum flow at the operating pressure [Elettromechanical response time: 90 ms]

Pin (bar)	Opening response time [ms]		Closing response time [ms]	
	0%-10%	10%-90%	100%-90%	100%-10%
6	130	296	116	605

Rapid clamp kit

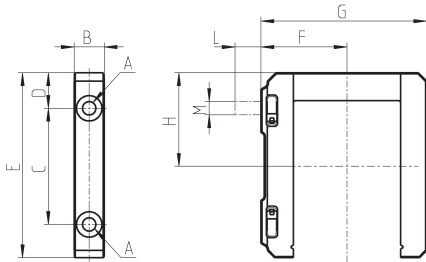


The kit MX2-X is supplied with:
1 rapid clamp, 1 O-ring OR 3125 *,
2 exagonal nuts M5, 2 screws M5x69.

The kit MX2-Z is supplied with:
1 rapid clamp, 1 O-ring OR 3125 *,
1 exagonal nut M5, 1 screw M5x69,
1 screw M5x85 for wall fixing.

* it can be ordered separately (cod. 160-39-11/19)

Materials: technopolymer clamp, NBR O-ring,
zinc-plated steel nuts and screws.



DIMENSIONS											
Mod.	A	B	C	D	E	F	G	H	L	M	Notes
MX2-X	5.2	12	46	14	73.5	37.5	70.5	37	-	-	
MX2-Z	5.2	12	46	14	73.5	37.5	70.5	37	14	M5	kit with wall fixing screw

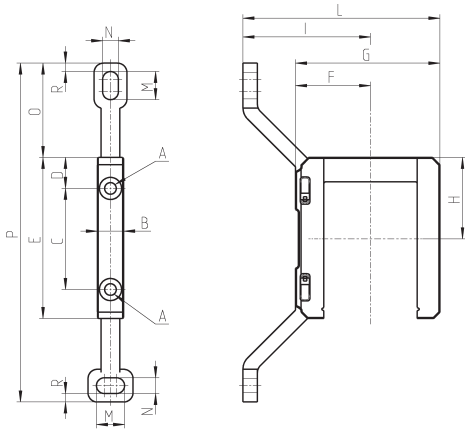
Rapid clamp kit with wall fixing brackets



The kit MX2-Y is supplied with:
1 wall rapid clamp, 1 O-ring OR 3125 **, 2 exagonal
nuts, 2 screws M5x69.

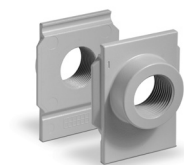
** it can be separately ordered (cod. 160-39-11/19)

Materials: technopolymer clamp, NBR O-ring,
zinc-plated steel nuts and screws.



Mod.	A	B	C	D	E	F	G	H	I	L	M	N	O	P	R
MX2-Y	5,2	12	46	14	73,5	32,5	70,5	37	70,5	103	12	6,5	42	152	4

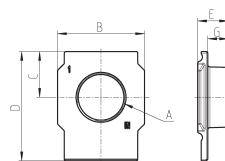
Terminal flanges (IN/OUT)



The kit is supplied with:

- 1 flange INLET side
- 1 flange OUTLET side

Materials: painted aluminium flanges.



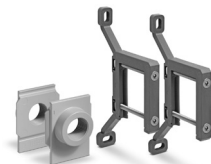
Mod.	A	B	C	D	E	G
MX2-1/2-FL	G1/2	50	26,5	63,5	17	11

Rapid clamps kit + flanges



Mod.	The kit is supplied with:
MX2-1/2-HH	1x MX2-1/2-FL + 2x MX2-X
MX2-1/2-JJ	1x MX2-1/2-FL + 2x MX2-Z

Rapid clamps kit with wall fixing brackets + flanges



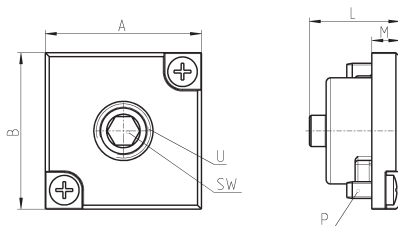
Mod.	The kit is supplied with:
MX2-1/2-KK	1x MX2-1/2-FL + 2x MX2-Y

Block for pressure gauge fixing



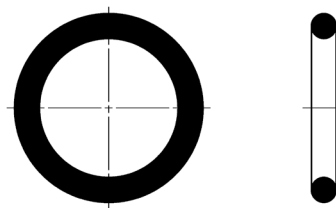
The kit is supplied with:

- 1 block
- 1 grain
- 2 screws
- 1 seal



DIMENSIONS							
Mod.	A	B	L	M	P	U	SW
MX2-R26/1-P	28	28	16.5	5	M3X7	1/8	5

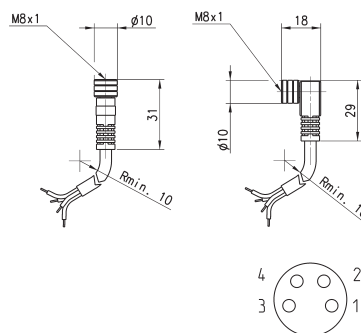
O-ring for assembling



Mod.	O-ring	For assembly
160-39-11/19	OR 3125	MX2

Circular M8 4-pole connectors, Female

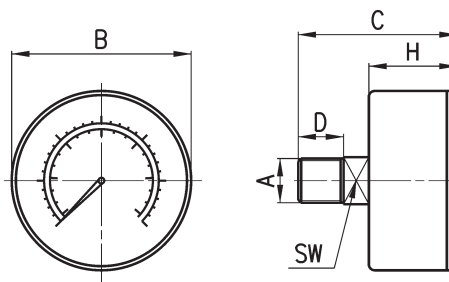
With PU sheathing, non shielded cable.
Protection class: IP65



Mod.	Type of connector	Cable length (m)
CS-DF04EG-E200	straight	2
CS-DF04EG-E500	straight	5
CS-DR04EG-E200	right angle (90 degrees)	2
CS-DR04EG-E500	right angle (90 degrees)	5

Pressure gauges with rear connection

Precision class CL1,6



DIMENSIONS							
Mod.	A	B	C	D	H	SW	Range
M043-P02,5	R1/8	Ø 38.8	41	10	25	14	0 ÷ 2.5 bar
M043-P04	R1/8	Ø 38.8	41	10	25	14	0 ÷ 4 bar
M043-P06	R1/8	Ø 38.8	41	10	25	14	0 ÷ 6 bar
M043-P10	R1/8	Ø 38.8	41	10	25	14	0 ÷ 10 bar
M043-P12	R1/8	Ø 38.8	41	10	25	14	0 ÷ 12 bar
M053-P04	R1/8	Ø 50	41.5	10	25	14	0 ÷ 4 bar
M053-P06	R1/8	Ø 50	41.5	10	25	14	0 ÷ 6 bar
M053-P10	R1/8	Ø 50	41.5	10	25	14	0 ÷ 10 bar
M053-P12	R1/8	Ø 50	41.5	10	25	14	0 ÷ 12 bar

Series PRE proportional pressure regulator with CoilVision technology

Two sizes available: PRE1 and PRE2
Ports G1/4 - G3/8 - 1/4NPTF

COILVISION
TECHNOLOGY



The Series PRE proportional pressure regulator is equipped with a new technology, CoilVision, which constantly monitors the operation of the solenoids in the regulator to assess their health status.

All data generated by the regulator can be transmitted wirelessly, for logging, aggregation and analysis and can be viewed through the UVIX software, downloadable from the Camozzi Catalogue website.

The Series PRE is available in two sizes and in different configurations, including IO-Link connectivity. As well as the standard options with and without display, there is a version with an integral exhaust valve, which enables the system to exhaust even without a power supply.

A manifold version enables the control of several outlets with only one inlet, while a version with an additional external sensor connection enables pressure control at any point in the system.

- » "CoilVision technology" for diagnostics and health status analysis
- » Compatible with OXYGEN
- » Control parameters can be customised
- » Configuration flexibility
- » IO-Link version
- » Version with and without display
- » Manifold version
- » Version with integrated exhaust valve UL CSA certificate
- » 5 bit PreSet version for a maximum of 32 different pressures
- » Modular with Series MD

GENERAL DATA

Standard of reference	CE; Rosh; UL-CSA		
Controlled quantity	Pressure		
Number of ways	3		
Flow (Qn)	PRE104 - 1100 NI/min		PRE238 - 4600 NI/min
Media	Filtered and non-lubricated compressed air of class 7.4.4 according to ISO 8573.1. Inert gases and oxygen		
Min & max regulated pressure (bar)	0 - 1 bar (0-14,5 PSI)(B) 0,03 - 4 bar (0,43-58 PSI) (E)	0,05 - 10,3 bar (0,72-150 PSI)(D) 0,05 - 7 bar (0,72-101,5 PSI) (G)	0,05 - 6 bar (0,72-87 PSI)(F)
Maximum inlet pressure	2 bar (B)	5 bar (E)	11 bar (D); (G) ed (F)
External sensor (optional)	input signal 0-10 V DC or 4-20 mA		
Resolution (% FS)	0,3 (Size 1) 0,6 (Size 2)		
Fluid temperature (min and max °C)	0 - 50 °C		
Environmental temperature (min and max °C)	0 - 50 °C		
Pneumatic ports	G1/4 - G3/8 - 1/4NPTF		
Materials	body: aluminium - cover: technopolymer - seals: NBR or FKM		
Supply voltage (V)	24 V DC		
Command signal	0-10V (2); 4-20 mA (4); 5 bit Digital (D); IO-Link (I)		
Hysteresis (% FS)	0,5% (Size 1) 0.7% (Size 2)		
Power consumption	Max 0,5A (Envisage a power supply of at least 1A)		
Type of electrical connection	M12 5 Pin Male (IO-Link) M12 8 Pin Male (Analog and PreSet) M12 12 Pin Male (version with external sensor)		
IP protection class	IP65		
Repeatability (% FS)	0,4		
Linearity (% FS)	0,4		
Modularity	with Series MD		
PRE in IO-Link version	V1.1 according to standard IEC 61131-9 / 61131-2		
Feedback signal	0-5 V DC and 4-20 mA (always present in the version with analog command signal (2) (4))		

CODING EXAMPLE

PRE	1	04	-	D	D	5	I	2	E	-	00		
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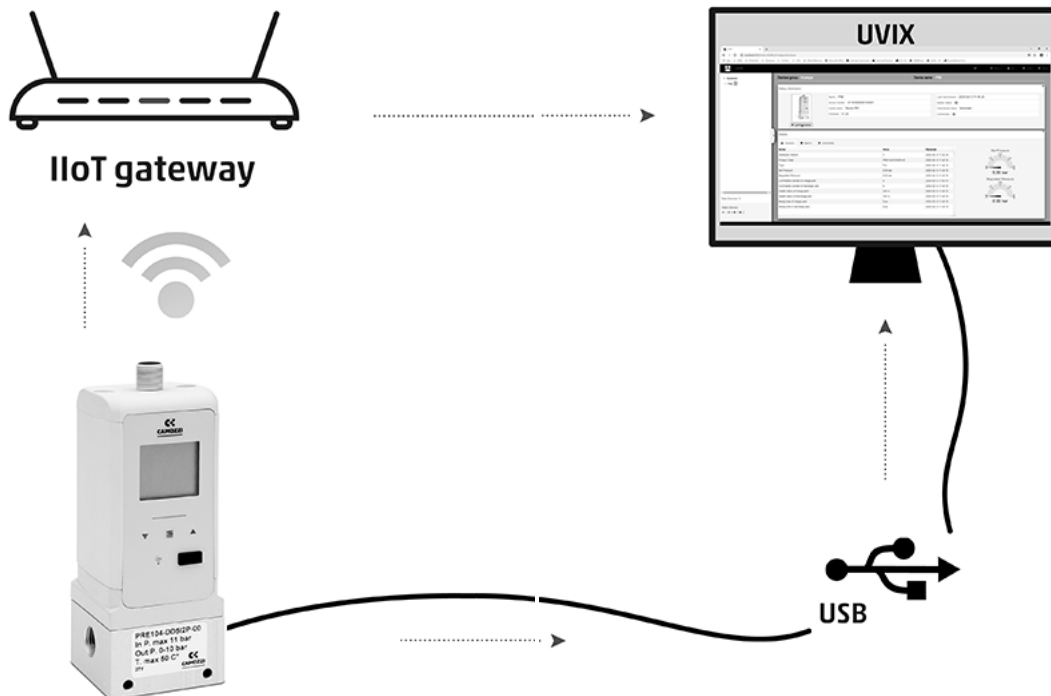
PRE	SERIES
1	Size: 1 = Size 1 2 = Size 2
04	CONNECTION PORTS: 04 = G1/4 38 = G3/8 (only size 2) M4 = G1/4 Manifold 14 = NPTF 1/4 (only size 1) N4 = 1/4 NPTF Manifold
D	DISPLAY: E = without display D = with display
D	WORKING PRESSURE (1 bar = 14,5 psi): B = 0-1 bar E = 0-4 bar F = 0-6 bar G = 0-7 bar D = 0-10,3 bar 2 = external sensor 0-10 or 4-20 mA (only with command signal 2 or 4) The external sensor is not included with the regulator. It must be bought separately.
5	VALVE FUNCTIONS: 5 = 3 ways (standard) 6 = integrated exhaust valve (maximum working pressure B, E, F or G) 7 = 3 ways (connection 3 conveyable, optional for size 1, standard for size 2) 8 = integrated exhaust valve (connection 3 conveyable, optional for size 1, standard for size 2. Maximum working pressure B, E, F or G)
I	PILOT SUPPLY: I = Internal E = External
2	COMMAND SIGNAL: 2 = 0-10 V 4 = 4-20 mA D = 5 bit Preset for 32 different pressure values I = IO-Link
E	DIGITAL FEEDBACK SIGNAL: E = error signal (only with command signal 2, 4, D) P = pressure switch (only with command signal 2, 4, D) W = window (only with command signal 2, 4, D) N = no digital output (only with IO-Link version)
00	CABLE LENGTH: 00 = no cable 2F = 2 mt straight 2R = 2 mt 90° 5F = 5 mt straight 5R = 5 mt 90° 2FC = 2 mt straight shielded 2RC = 2 mt 90° shielded 5FC = 5 mt straight shielded 5RC = 5 mt 90° shielded
	ACCESSORY DIAGNOSTICS: = without diagnostics (only with command signal 2, 4, D) 0D = with Basic diagnostics (only with command signal 2, 4, D) 0W = Wireless connection (only with command signal 2, 4, D) DW = Wireless connection+ CoilVision diagnostics (only with command signal 2, 4, D) 1D = IO-Link + CoilVision diagnostics (only with IO-Link version)
	CERTIFICATIONS: = no certification OX1 = suitable for use with oxygen, available in the "Operating pressure" versions B, E, F and with "Valve function" 7, 8.

SERIES PRE - COILVISION DIAGNOSTICS



The CoilVision function, (optional in the Series PRE proportional regulators), has the aim to constantly monitor the operation of the individual solenoids in the regulator, this is possible thanks to specific electronics and algorithms patented by Camozzi.

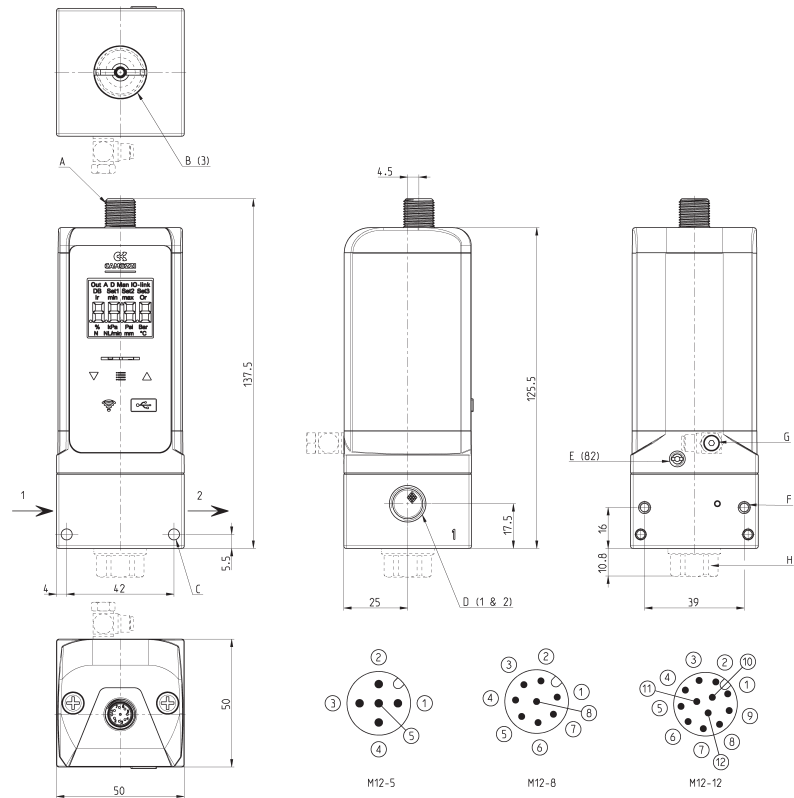
This option allows to monitor the health and operating status of the pilot solenoids, indicating any discrepancies compared to the ideal operating conditions. The information obtained allows the user to plan, in advance, any interventions on the most essential devices.



Through this function, you also have control over the internal temperature and the actual working hours of the regulator. All these indications can be read by the "UVIX" supervisor software, that can be downloaded free of charge from the Camozzi website in the products section.

Thanks to UVIX, data can be read via USB port or via wireless connection, where present. Devices equipped with an IO-Link connection can also make the data available to the PLC through the IO-Link master.

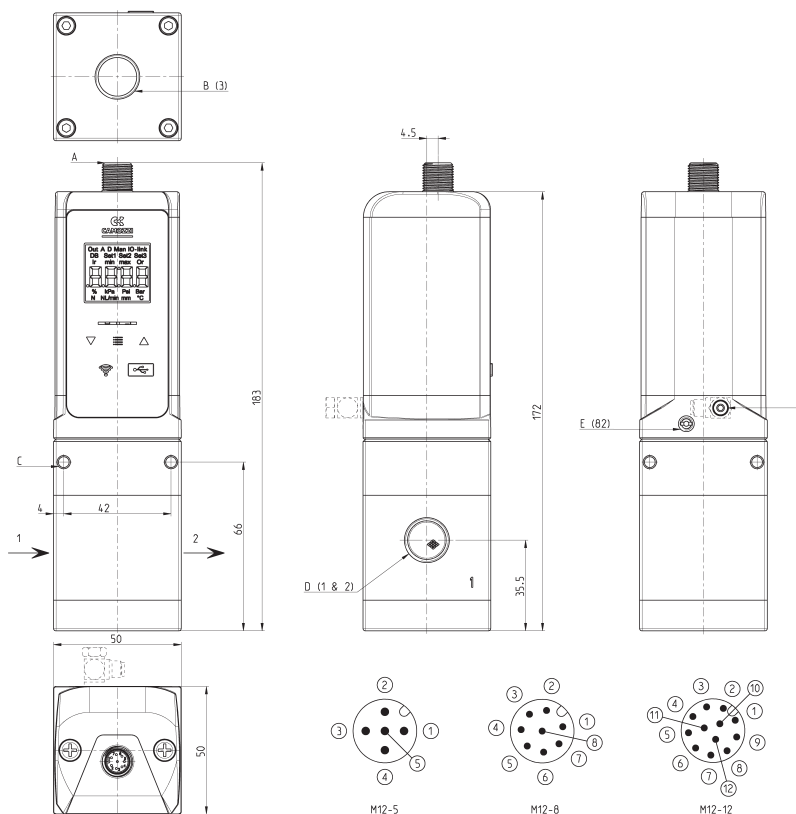
DIMENSIONAL CHARACTERISTICS SERIES PRE SIZE 1



Mod.	A	B (3)	C	D (1 & 2)	E (82)	F	G	H
PRE 1	Electrical connection M12	Regulator exhaust	Fixing holes Ø4,3	Port 1/4 or NPTF	(GAS Exhaust of pilot solenoids M5	Fixing holes M4	External servo-pilot M5	Valve function (7 - 8) G 1/4

M12 - 5 (pin male) for I/O Link version	M12 - 8 (pin male) for analog version	M12 - 12 (pin male) for version with external sensor connection
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DIMENSIONAL CHARACTERISTICS SERIES PRE SIZE 2



Mod.	A	B (3)	C	D (1 & 2)	E (82)	F
PRE 2	Electrical Connection M12	Regulator exhaust G3/8	Fixing holes Ø4,3	Ports G 3/8 or G 1/4	Exhaust of pilot solenoids M5	External servo-pilot M5

M12 - 5 (pin male)

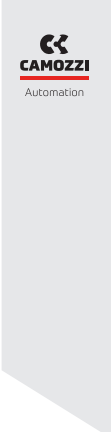
for I/O Link version

M12 - 8 (pin male)

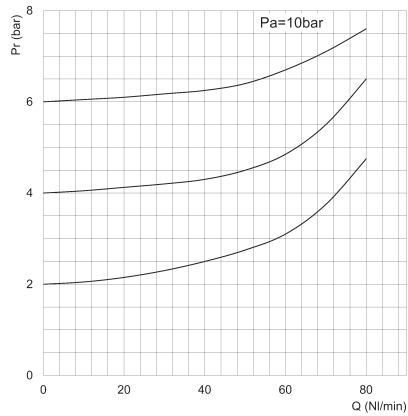
for analog version

M12 - 12 (pin male)

for version with external sensor connection

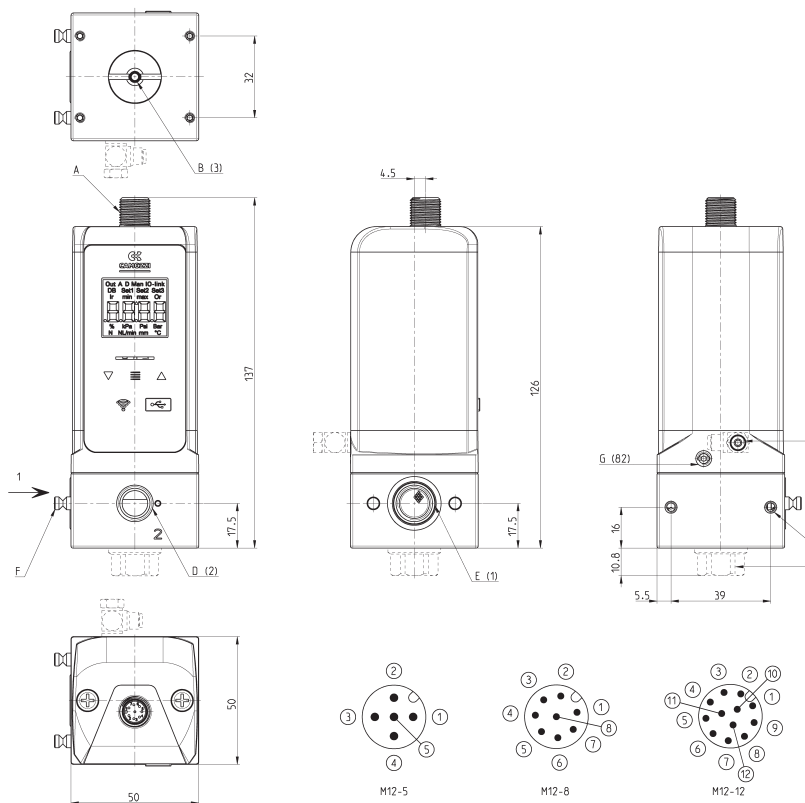


EXHAUST FLOW DIAGRAM - MANIFOLD VERSION



Pr = Regulated pressure
Q = Flow
Pa = Inlet pressure

DIMENSIONAL CHARACTERISTICS SERIES PRE SIZE 1 MANIFOLD



Mod.	A	B (3)	C	D (2)	E (1)	F	G (82)	H
PRE 1	Electrical connection M12	Regulator exhaust G3/8	Fixing holes Ø4.3	Outlet G 1/4	Ports G 1/4	Connection pin	Exhaust of pilot solenoids M5	External servo-pilot M5

M12 - 5 (pin male)

for I/O Link version

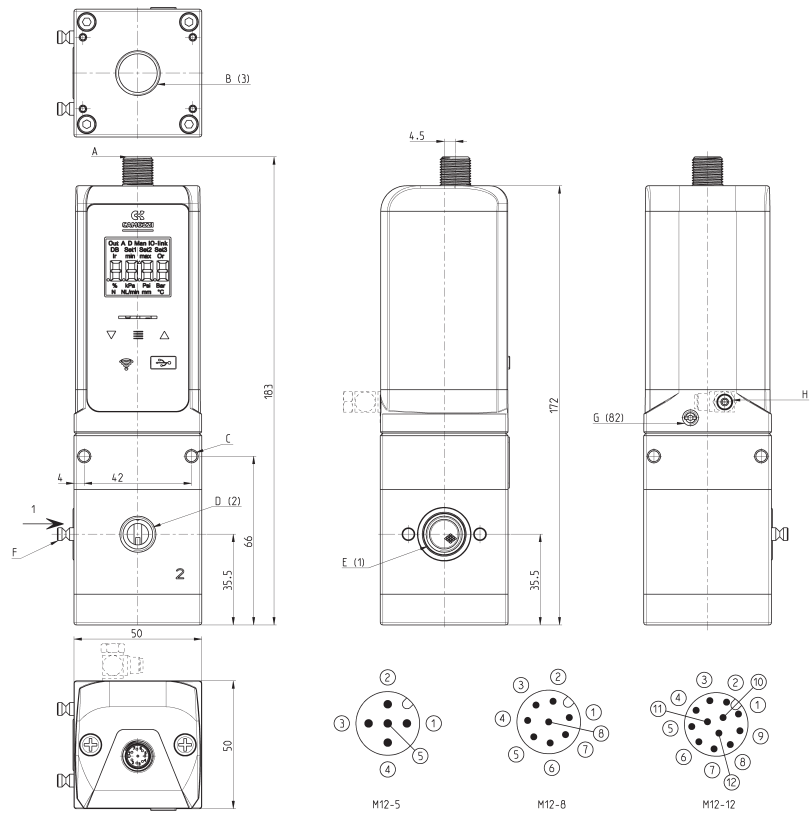
M12 - 8 (pin male)

for analog version

M12 - 12 (pin male)

for version with external sensor connection

DIMENSIONAL CHARACTERISTICS SERIES PRE SIZE 2 MANIFOLD



Mod.	A	B (3)	C	D (2)	E (1)	F	G (82)	H	I
PRE 2	Electrical Connection M12	Regulator exhaust	Fixing holes M3	Outlet 1/4 (GAS or NPTF)	Ports 1/4 (GAS or NPTF)	Connection pin	Exhaust of pilot solenoids M5	External servo-pilot M5	Valve function (7 - 8) G 1/4

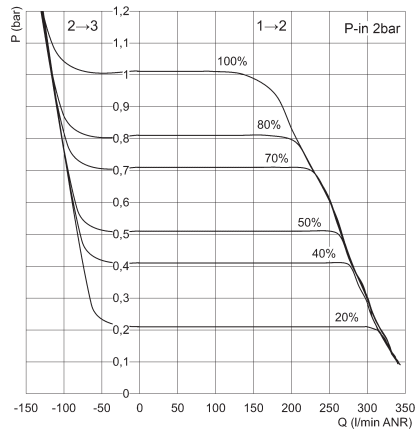
M12 - 5 (pin male)
for I/O Link version

M12 - 8 (pin male)
for analog version

M12 - 12 (pin male)
for version with external sensor connection

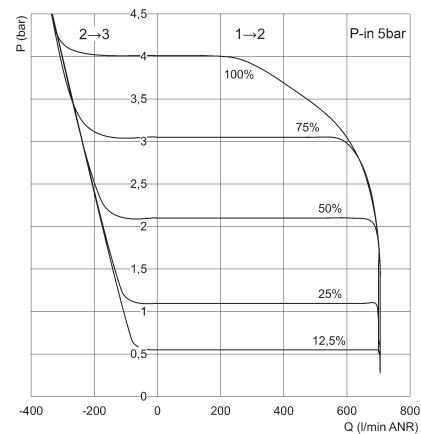
FLOW CHARTS SIZE 1 - Standard version (1/4G)

Working pressure 1 bar



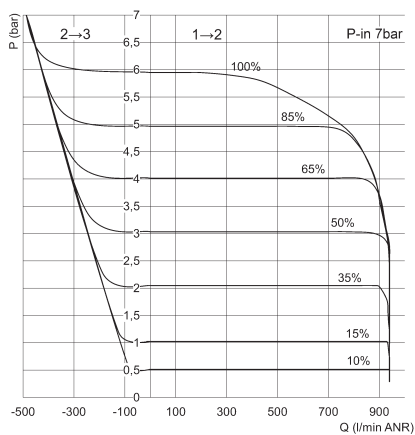
P = Regulated outlet pressure and exhaust pressure
Q = Flow
% = Percentage of the command signal

Working pressure 4 bar



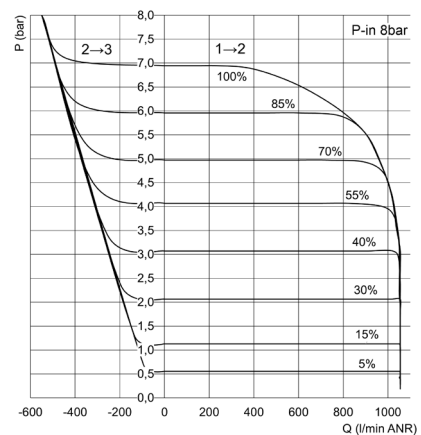
P = Regulated outlet pressure and exhaust pressure
Q = Flow
% = Percentage of the command signal

Working pressure 6 bar



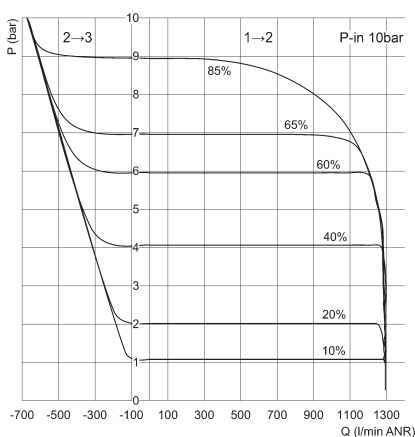
P = Regulated outlet pressure and exhaust pressure
Q = Flow
% = Percentage of the command signal

Working pressure 7 bar



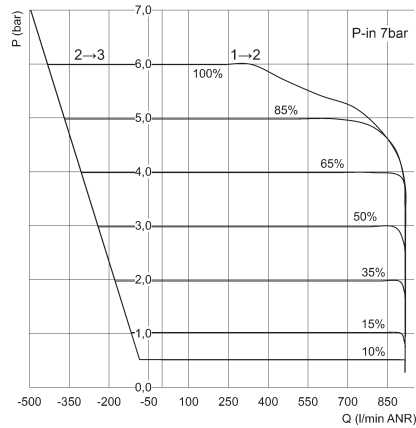
P = Regulated outlet pressure and exhaust pressure
Q = Flow
% = Percentage of the command signal

Working pressure 10.3 bar



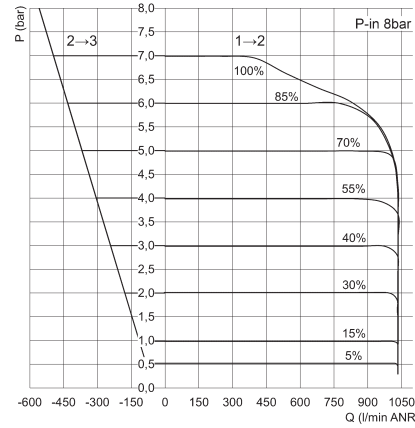
P = Regulated outlet pressure and exhaust pressure
Q = Flow
% = Percentage of the command signal

Working pressure 6 bar



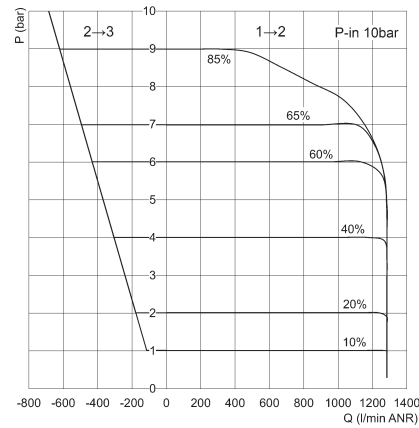
P = Regulated outlet pressure and exhaust pressure
Q = Flow
% = Percentage of the command signal

Working pressure 7 bar



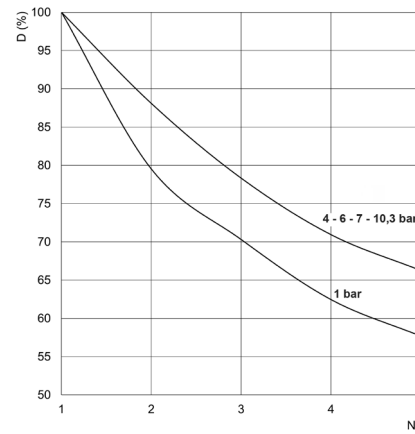
P = Regulated outlet pressure and exhaust pressure
Q = Flow
% = Percentage of the command signal

Working pressure 10.3 bar



P = Regulated outlet pressure and exhaust pressure
Q = Flow
% = Percentage of the command signal

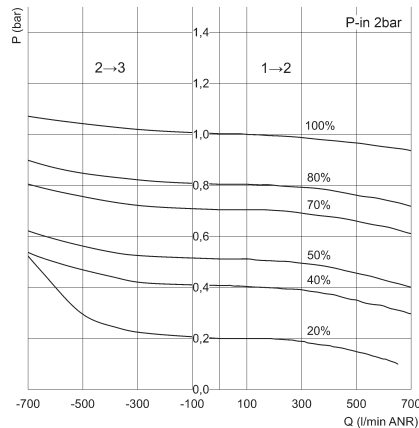
DECAY FACTOR FOR MANIFOLD REGULATORS SIZE 1



N° = number of regulators in manifold configuration
D(%) = relative percentage decay of the maximum flow rate
Note: the air inlet is only from one side, in case it should be on the right and on the left, only consider the positions as from 1 ÷ 3.

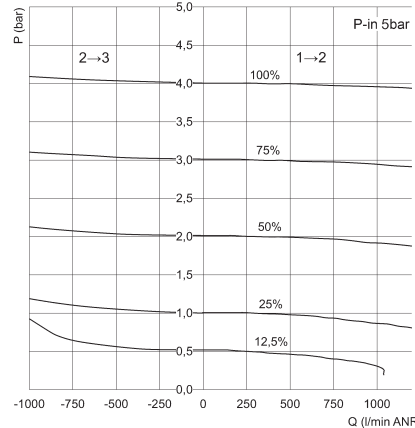
FLOW CHARTS SIZE 2 - Standard version (1/4G)

Working pressure 1 bar



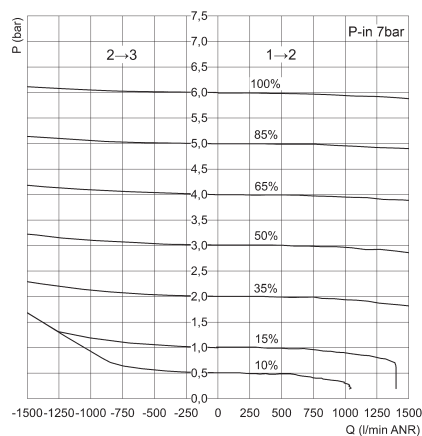
P = Regulated outlet pressure and exhaust pressure
Q = Flow
% = Percentage of the command signal

Working pressure 4 bar



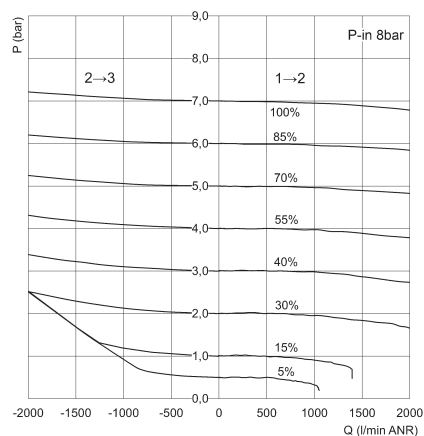
P = Regulated outlet pressure and exhaust pressure
Q = Flow
% = Percentage of the command signal

Working pressure 6 bar



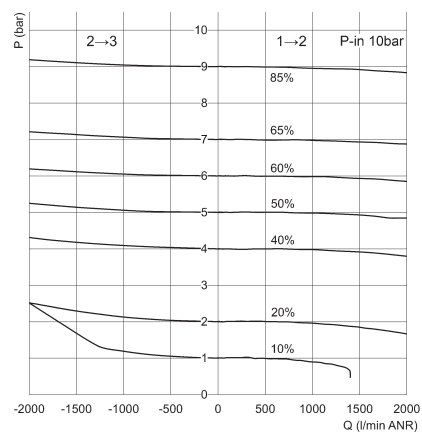
P = Regulated outlet pressure and exhaust pressure
Q = Flow
% = Percentage of the command signal

Working pressure 7 bar



P = Regulated outlet pressure and exhaust pressure
Q = Flow
% = Percentage of the command signal

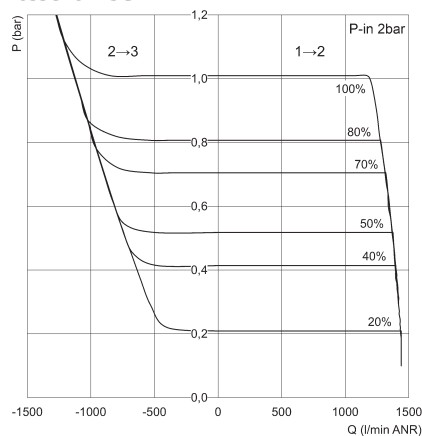
Working pressure 10.3 bar



P = Regulated outlet pressure and exhaust pressure
Q = Flow
% = Percentage of the command signal

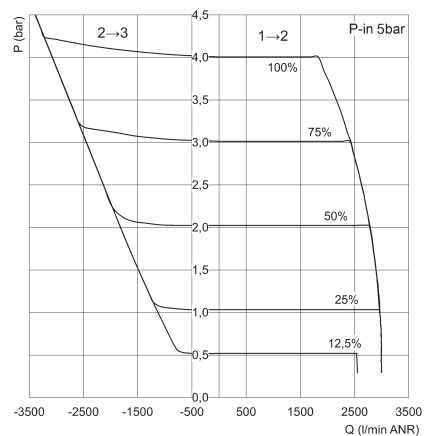
FLOW CHARTS SIZE 2 - Standard version (3/8G)

Working pressure 1 bar



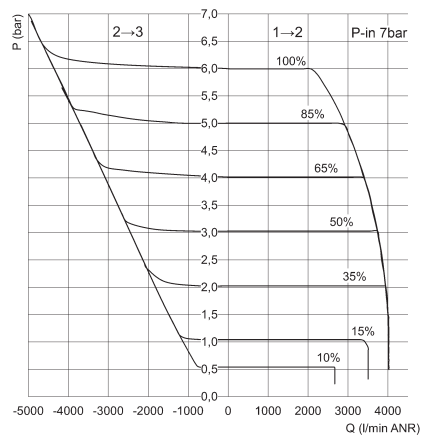
P = Regulated outlet pressure and exhaust pressure
Q = Flow
% = Percentage of the command signal

Working pressure 4 bar



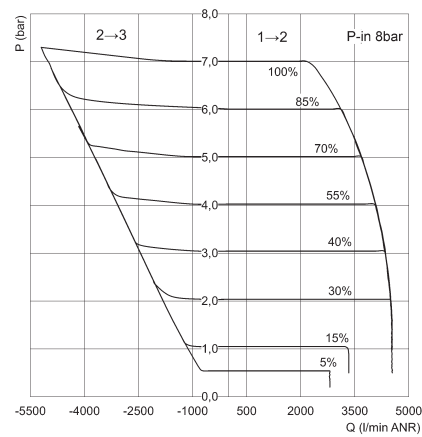
P = Regulated outlet pressure and exhaust pressure
Q = Flow
% = Percentage of the command signal

Working pressure 6 bar



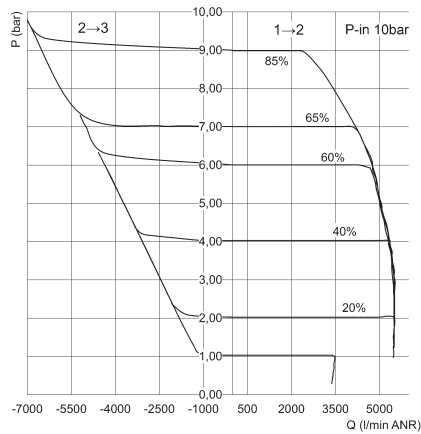
P = Regulated outlet pressure and exhaust pressure
Q = Flow
% = Percentage of the command signal

Working pressure 7 bar



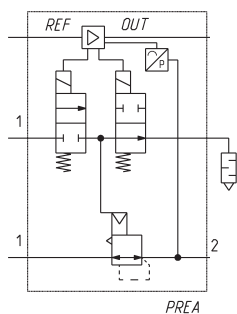
P = Regulated outlet pressure and exhaust pressure
Q = Flow
% = Percentage of the command signal

Working pressure 10.3 bar

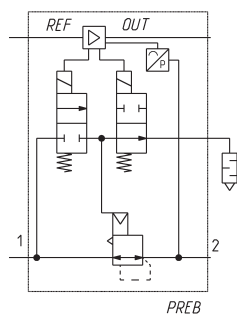


P = Regulated outlet pressure and exhaust pressure
Q = Flow
% = Percentage of the command signal

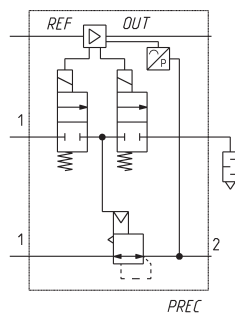
PNEUMATIC SYMBOLS



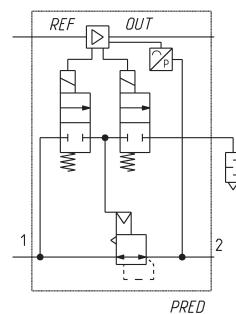
Version with integrated exhaust valve and external servo-pilot supply



Version with integrated exhaust valve and internal servo-pilot supply



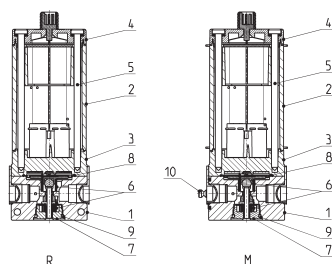
3 ways N.C. version with external servo-pilot supply



3 ways N.C. version with internal servo-pilot supply

SIZE 1 - MATERIALS

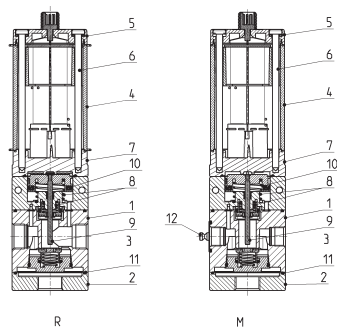
R = Proportional regulator
M = Proportional regulator - manifold version



PARTS	MATERIALS, standard version	MATERIALS, oxygen version
1 = body	Anodised aluminium	Anodised aluminium
2 = cover	PA6 CM 30%	PA6 CM 30%
3 = valve body	PARA GF50%	PARA GF50%
4 = cap	PA6 CM 30%	PA6 CM 30%
5 = screws	stainless steel	stainless steel
6 = springs	stainless steel	stainless steel
7 = plug	nickel-plated brass	nickel-plated brass
8 = diaphragm	NBR	FKM
9 = seals and O-Ring	NBR	FKM
10 = pin for manifold version stainless steel only for manifold version stainless steel only for manifold version		

SIZE 2 - MATERIALS

R = Proportional regulator
M = Proportional regulator - manifold version

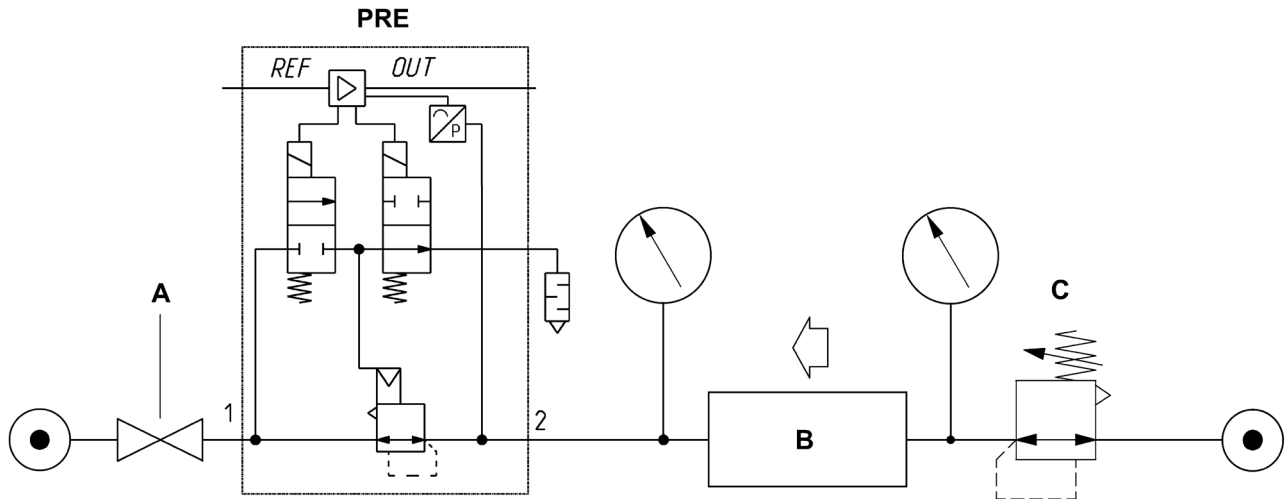


PARTS	MATERIALS, standard version	MATERIALS, oxygen version
1 = body	Anodised aluminium	Anodised aluminium
2 = end cover	Anodised aluminium	Anodised aluminium
3 = plug	brass	brass
4 = cover	PA6 CM 30%	PA6 CM 30%
5 = cap	PA6 CM 30%	PA6 CM 30%
6 = screws	stainless steel	stainless steel
7 = valve body	PARA GF50%	PARA GF50%
8 = springs	stainless steel	stainless steel
9 = piston rod	stainless steel	stainless steel
10 = piston seal	NBR	NBR
11 = seals and O-Ring	NBR	FKM
12 = pin for manifold version stainless steel only for manifold version stainless steel only for manifold version		

MEASURING THE EXHAUST FLOW RATE OF SERIES PRE REGULATOR

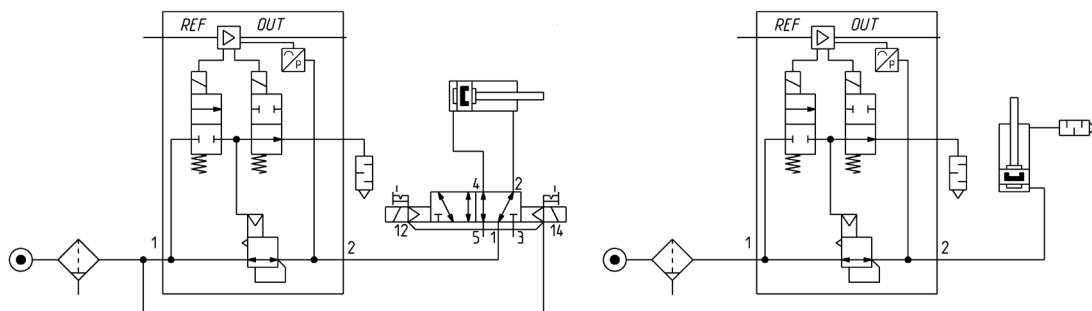
Measuring the exhaust flow rate: inlet pressure 9 bar, outlet pressure 4 bar. With the pressure regulator opposite the PRE (C), connected as shown in the diagram, the pressure rises progressively from a minimum value of 4 bar and with the flowmeter (B) the exhaust flow rate is measured from the exhaust port.

A = Ball valve
B = Flowmeter
C = Back pressure regulator



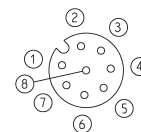
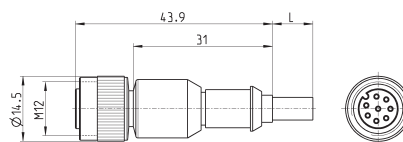
PNEUMATIC DIAGRAM FOR INSTALLATION

PRE version with integrated exhaust valve. We suggest to make a pneumatic diagram in order to create a pneumatic circuit that allows to discharge the regulated pressure in absence of power supply.



Cable with M12 8 pin straight connector, female

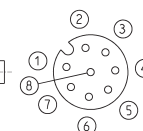
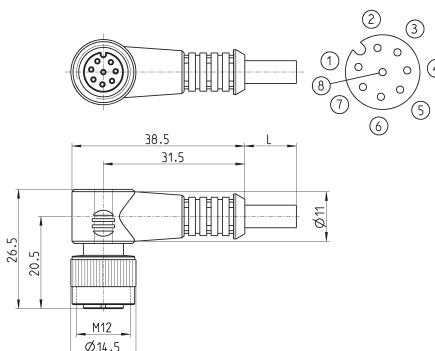
For power supply, analog
command signal and PreSet



Mod.	Cable length (m)	
CS-LF08HB-H200	2	Unshielded
CS-LF08HB-H500	5	Unshielded
CS-LF08HC-G200	2	Shielded
CS-LF08HC-G500	5	Shielded

Cable with M12 8 pin connector, 90°, female

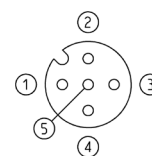
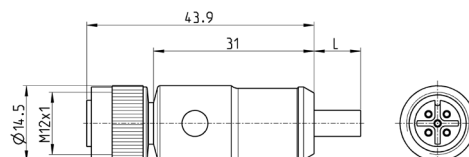
For power supply, analog
command signal and PreSet



Mod.	Cable length (m)	
CS-LR08HB-H200	2	Unshielded
CS-LR08HB-H500	5	Unshielded
CS-LR08HC-G200	2	Shielded
CS-LR08HC-G500	5	Shielded

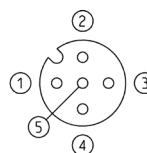
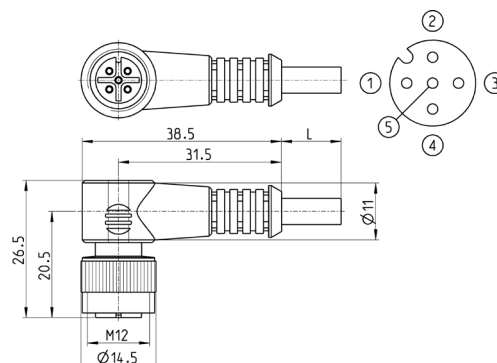
Cable with M12 5 pin connector, 90°, female, not shielded

For power supply and
IO-Link command signal



Mod.	Cable length (m)	
CS-LF05HB-D200	2	
CS-LF05HB-D500	5	

Cable with M12 5 pin connector straight, female, not shielded

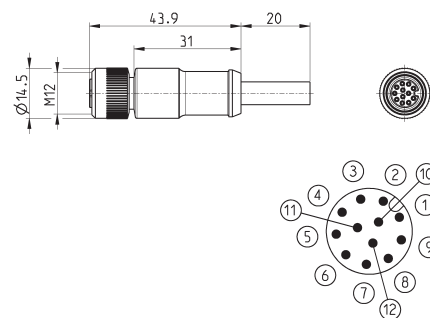


Mod.	Cable length (m)	
CS-LR05HB-D200	2	
CS-LR05HB-D500	5	

Cable with M12, 12 pin connector, straight, female, not shielded



For power supply and analog command signal with external sensor

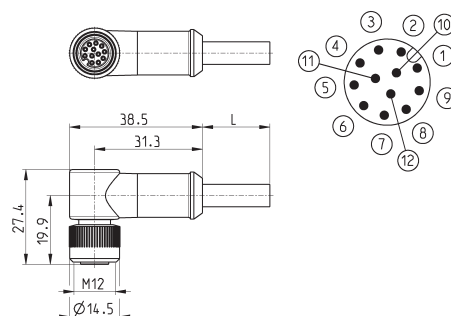


Mod.	Cable length (m)
CS-LF12HC-D200	2
CS-LF12HC-D500	5

Cable with M12 12 pin connector, 90°, female, not shielded



For electric supply and commands

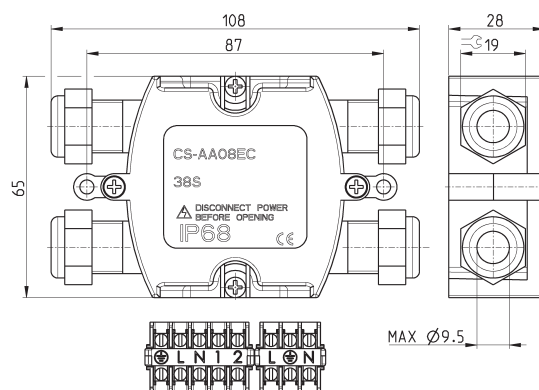


Mod.	Cable length (m)
CS-LR12HC-D200	2
CS-LR12HC-D500	5

Electrical tee box Mod. CS-AA08EC



To connect the external transducer, power supply and command signal



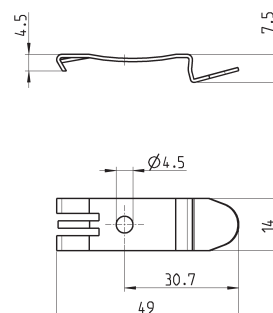
CS-AA08EC

Mounting brackets for DIN-rail Mod. PCF-EN531



DIN EN 50022 (7,5mm x 35mm - width 1)

Supplied with:
2x mounting brackets
2x screws M4x6 UNI 5931
2x nuts

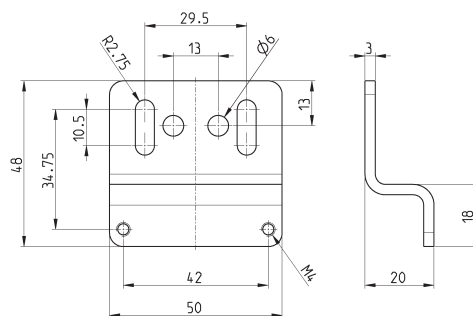


Mod.
PCF-EN531

Rear bracket Mod. PRE-ST



The kit includes
1x zinc-plated bracket
2x M4x55 white zinc-plated screws

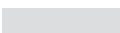
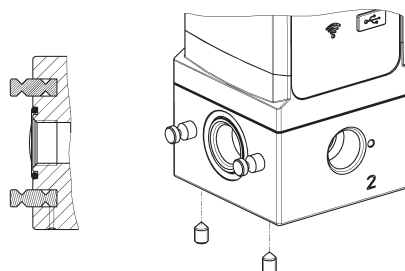


PRE-ST

Fixing kit for manifold version: PRE-M-PIN-1-2



The kit includes:
2x shaped steel pins
4x steel grub screws
1x O-Ring

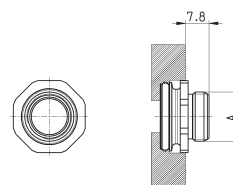


PRE-M-PIN-1-2

Fixing kit for Series MD: PRE

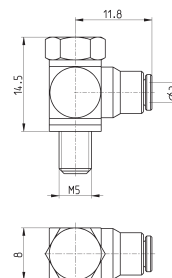


The kit includes:
1x bushing
1x O-Ring
2x special Ø4.5x34 white zinc-plated screws



DIMENSIONS	
Mod.	A
PRE-1/4-C	G1/4
PRE-3/8-C	G3/8

Fittings for external pilot supply



6625 3-M5

Contacts

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