

PROPORTIONAL PRESSURE REGULATOR AND PROPORTIONAL FLOW VALVE

SERIES MX-PRO

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

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

Valve: without pressure gauge



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

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.

General Data

	PROPORTIONAL PRESSURE REGULATOR	PROPORTIONAL FLOW VALVE
Construction	Modular, compact, diaphragm type	Modular, piston type
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
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. Compatible to work with Oxygen.	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. Compatible to work with Oxygen.
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	± 5% FS
Hysteresis	± 0,5% FS	± 8% FS
Repeatability [% FS]	± 0,5% FS	± 0,5% FS
Sensitiveness	0,3% FS	0,5% FS
Protection class	IP51	IP51

PROPORTIONAL PRESSURE REGULATOR AND PROPORTIONAL FLOW VALVE
SERIES MX-PRO - CODING EXAMPLES

Coding Example

MX	2	-	1/2	-	R	CV	2	0	4	-	LH	-	OX1
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) XV = Electrical command 0-10 V DC with external servo pilot supply with Oxygen XA = Electrical command 4-20 mA DC with external servo pilot supply with Oxygen 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 0,15 ÷ 3 bar 2 = Working pressure 0,5 ÷ 10 bar * 3 = Working pressure 0,05 ÷ 1 bar 4 = Working pressure 0,35 ÷ 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 (for OX1 version) 1 = With built – in pressure gauge 0-4 bar (regulator only) 2 = With built-in pressure gauge 0-6 bar (regulator only) 3 = With built-in pressure gauge 0-10 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												
OX1	= Suitable for use with oxygen												

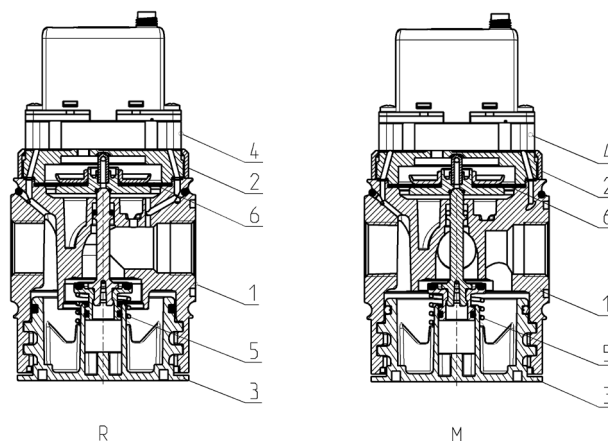
* For the configurations with the pressure regulation range of 10 bar in the OX1 version, the version with external servo pilot air supply is mandatory.
Further details about the assembly of a single component with fixing flanges or wall-mounting can be found in the AIR TREATMENT catalogue, section SERIES 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 (EPDM for version OX1)	NBR
Seals (FKM for version OX1)	NBR

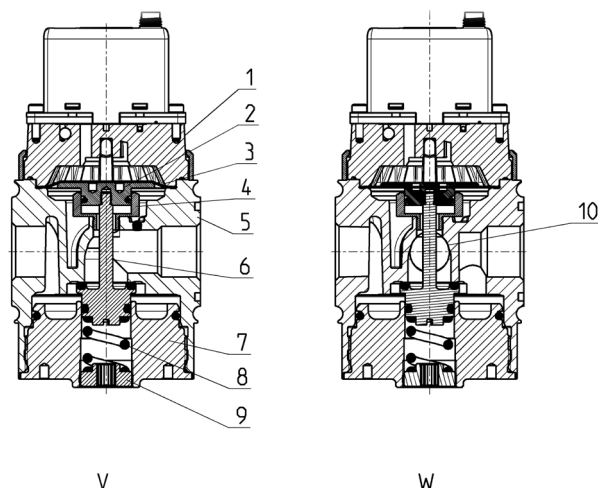


Series MX-PRO proportional flow valve - materials

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 (EPDM version XV and XA)
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



PROPORTIONAL PRESSURE REGULATOR AND PROPORTIONAL FLOW VALVE

SERIES MX-PRO - DIMENSIONS

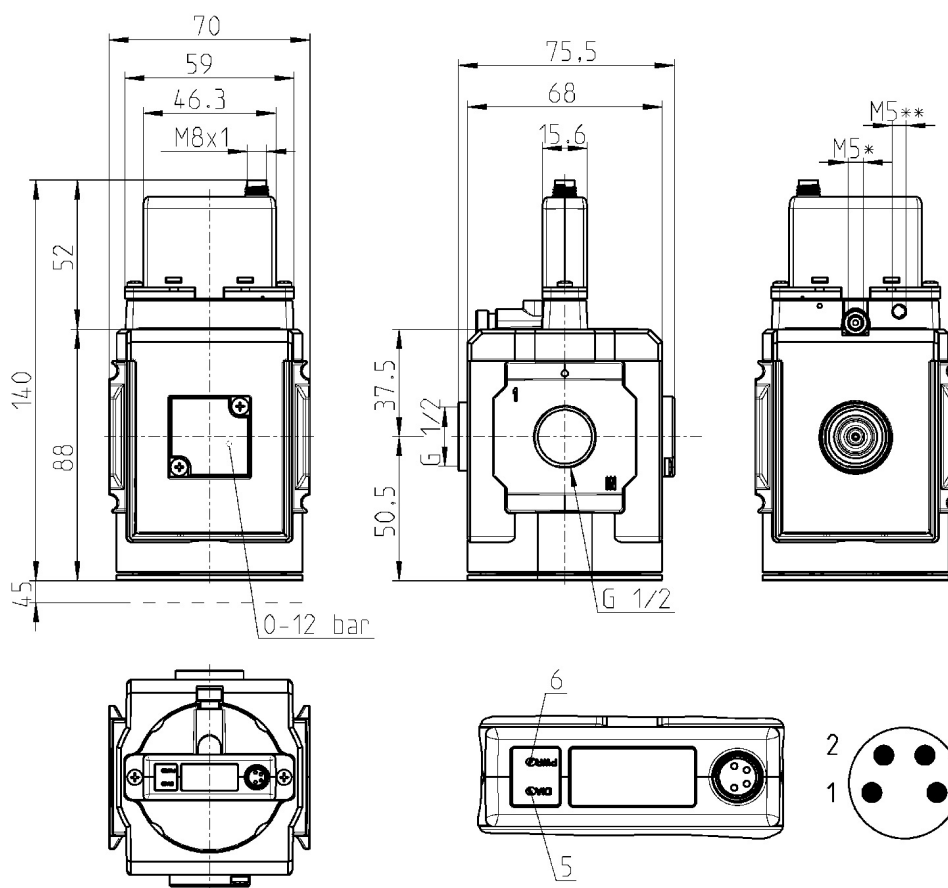
Series MX-PRO proportional pressure regulator - single version

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



* Only in the OX1 versions with relieving.

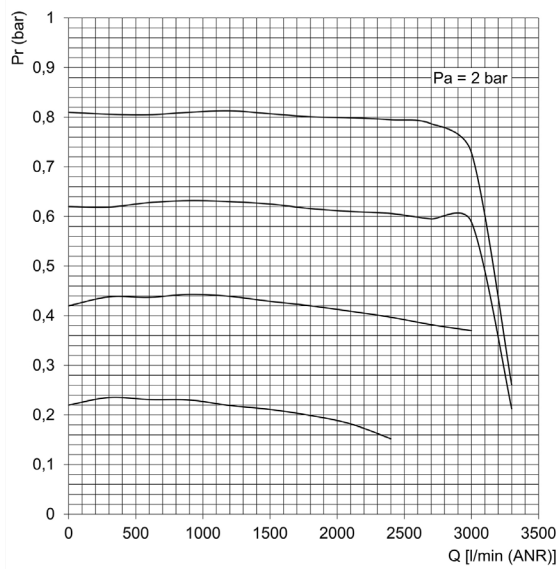
** In the versions with external servo pilot supply only (MX2-1/2-REV... and MX2-1/2-REA...).

Mod.	Electrical command	Setting range	Pressure gauge
MX2-1/2-R**1000X1	0-10 V DC/4-20 mA	0,15 ÷ 3 bar	Without pressure gauge
MX2-1/2-R**1#2	0-10 V DC/4-20 mA	0,15 ÷ 3 bar	With built-in pressure gauge 0-6
MX2-1/2-R**2#0	0-10 V DC/4-20 mA	0,5 ÷ 10 bar	Without pressure gauge
MX2-1/2-R**2#4	0-10 V DC/4-20 mA	0,5 ÷ 10 bar	With built-in pressure gauge 0-12
MX2-1/2-R**3#0	0-10 V DC/4-20 mA	0,05 ÷ 1 bar	Without pressure gauge
MX2-1/2-R**4#0	0-10 V DC/4-20 mA	0,35 ÷ 7 bar	Without pressure gauge
MX2-1/2-R**4#3	0-10 V DC/4-20 mA	0,15 ÷ 3 bar	With built-in pressure gauge 0-10
MX2-1/2-R**1000X1	0-10 V DC/4-20 mA	0,15 ÷ 3 bar	Without pressure gauge
MX2-1/2-R**3000X1	0-10 V DC/4-20 mA	0,05 ÷ 1 bar	Without pressure gauge
MX2-1/2-R**4000X1	0-10 V DC/4-20 mA	0,35 ÷ 7 bar	Without pressure gauge
MX2-1/2-RE*2000X1	0-10 V DC/4-20 mA	0,5 ÷ 10 bar	Without pressure gauge

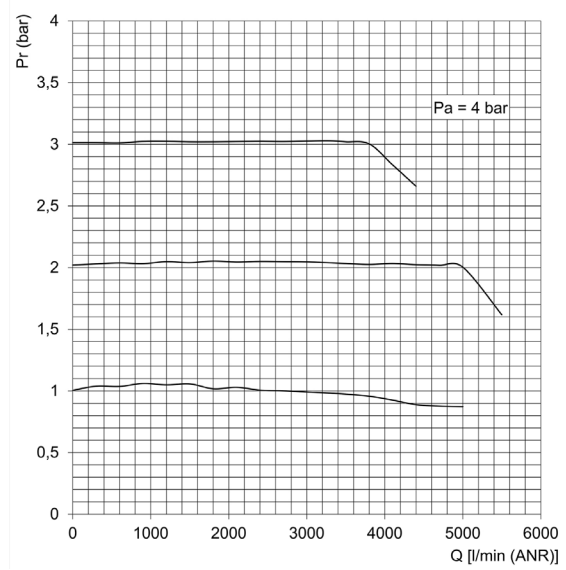
* Versions with or without external pilot supply.

Versions with or without relieving.

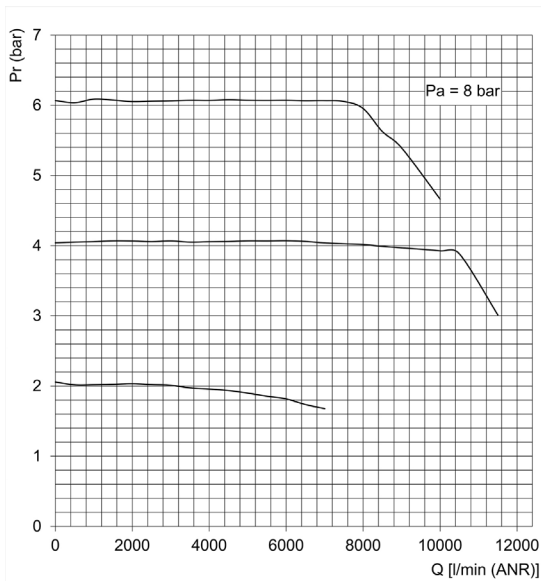
Add LH at the end of the code for air inlet from the right to the left.

Pressure regulator flow diagrams - single version


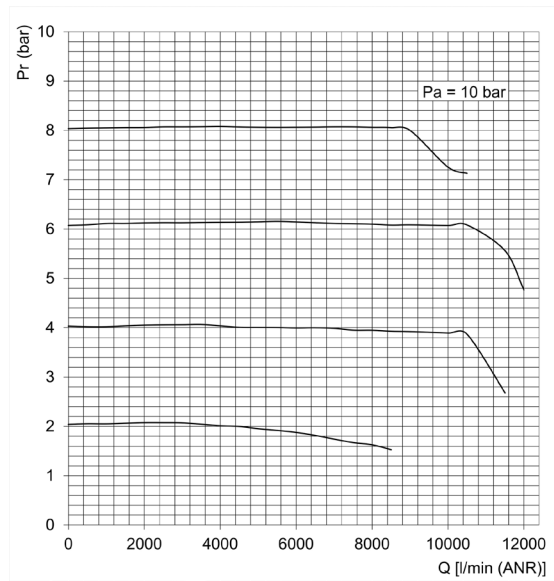
Pr = Regulated pressure
Q = Flow
Pa = Inlet pressure



Pr = Regulated pressure
Q = Flow
Pa = Inlet pressure

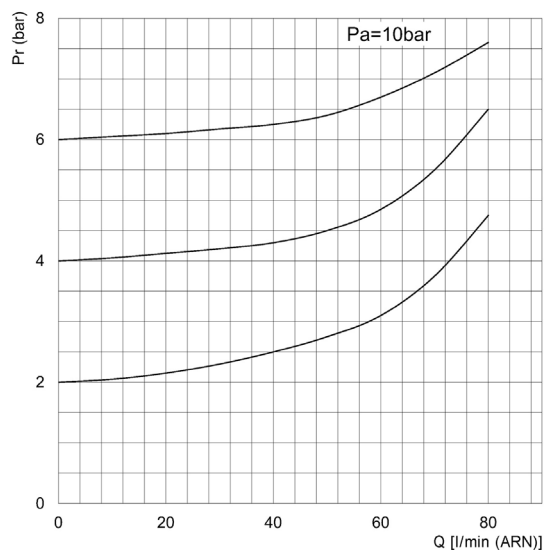


Pr = Regulated pressure
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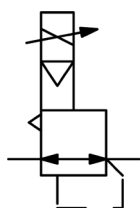
Exhaust flow diagram and pneumatic symbols - single version



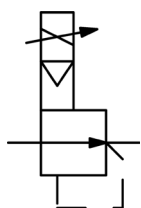
Pr = Regulated pressure
l/min = Flow
Pa = Inlet pressure

Pneumatic symbols - single version

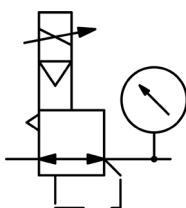
K801



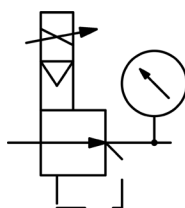
K802



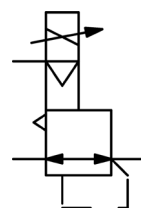
K803



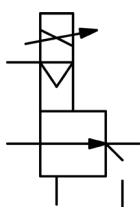
K804



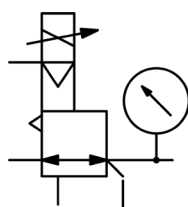
K809



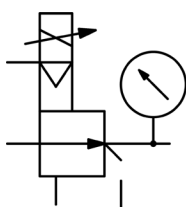
K810



K811



K812

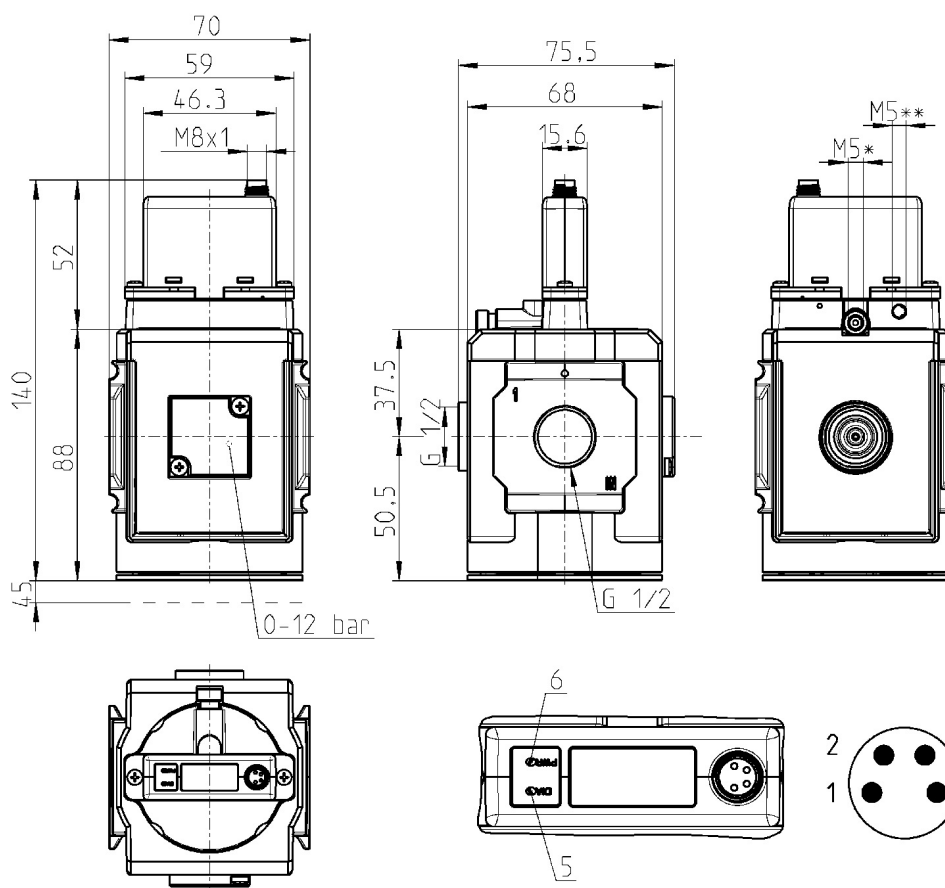


K801 = Relieving, electrical command
K802 = NO relieving, electrical command
K803 = Relieving, electrical command, built-in pressure gauge
K804 = NO relieving, electrical command, built-in pressure gauge
K809 = Relieving, electrical command, ext. servo pilot supply
K810 = NO relieving, electrical command,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

Series MX-PRO proportional pressure regulator - Manifold version
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



* Only in the OX1 versions with relieving.

** In the versions with external servo pilot supply only (MX2-1/2-REV... and MX2-1/2-REA...).

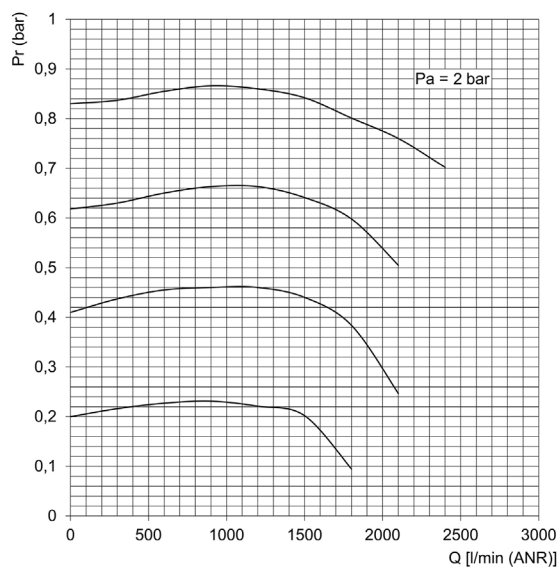
Mod.	Electrical command	Setting range	Pressure gauge
MX2-1/2-M**1#0	0-10 V DC	0,15 ÷ 3 bar	Without pressure gauge
MX2-1/2-M**1#2	0-10 V DC	0,15 ÷ 3 bar	With built-in pressure gauge 0-6
MX2-1/2-M**2#0	0-10 V DC	0,5 ÷ 10 bar	Without pressure gauge
MX2-1/2-M**2#4	0-10 V DC	0,5 ÷ 10 bar	With built-in pressure gauge 0-12
MX2-1/2-M**3#0	0-10 V DC	0,05 ÷ 1 bar	Without pressure gauge
MX2-1/2-M**4#0	0-10 V DC	0,35 ÷ 7 bar	Without pressure gauge
MX2-1/2-M**1000X1	0-10 V DC/4-20 mA	0,15 ÷ 3 bar	Without pressure gauge
MX2-1/2-M**3000X1	0-10 V DC/4-20 mA	0,05 ÷ 1 bar	Without pressure gauge
MX2-1/2-M**4000X1	0-10 V DC/4-20 mA	0,35 ÷ 7 bar	Without pressure gauge
MX2-1/2-ME*2000X1	0-10 V DC/4-20 mA	0,5 ÷ 10 bar	Without pressure gauge

* Versions with or without external pilot supply.

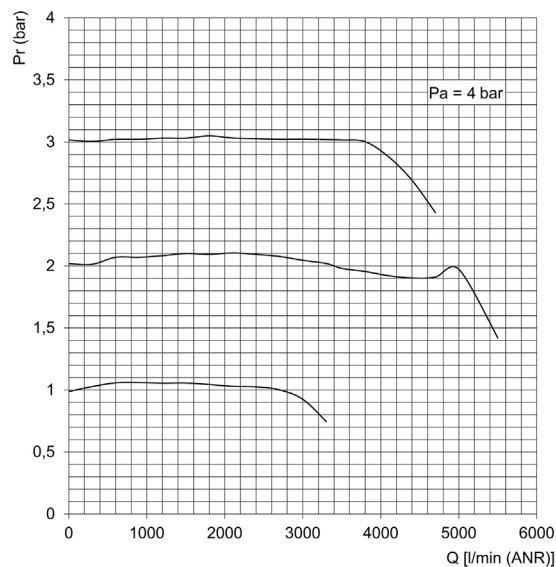
Versions with our without relieving.

Add LH at the end of the code for air inlet from the right to the left.

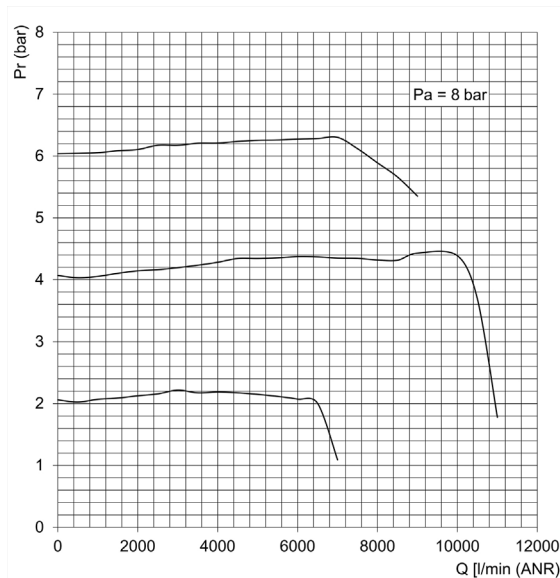
Pressure regulator flow diagrams - Manifold version



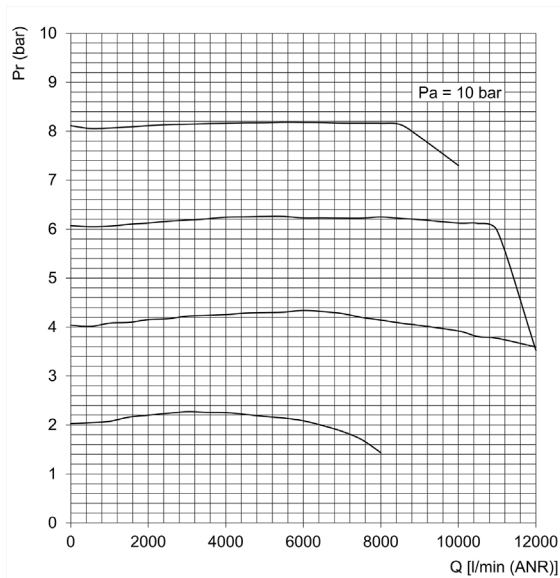
P_r = Regulated pressure
 Q = Flow
 P_a = Inlet pressure



P_r = Regulated pressure
 Q = Flow
 P_a = Inlet pressure

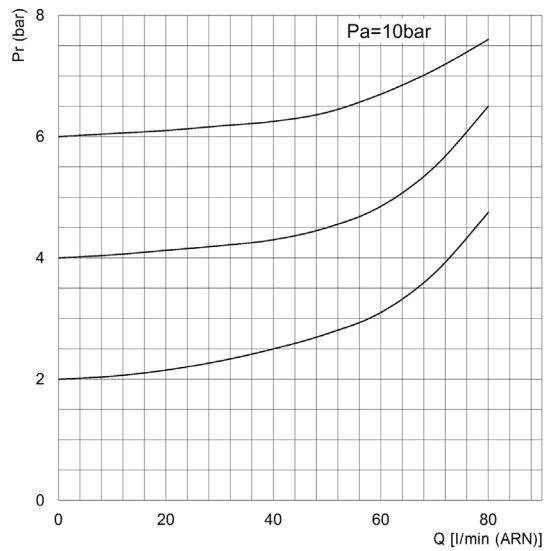


P_r = Regulated pressure
 Q = Flow
 P_a = Inlet pressure



P_r = Regulated pressure
 Q = Flow
 P_a = Inlet pressure

Exhaust flow diagram - single version



Pr = Regulated pressure
 l/min = Flow
 Pa = Inlet pressure

Pneumati symbols - Manifold version

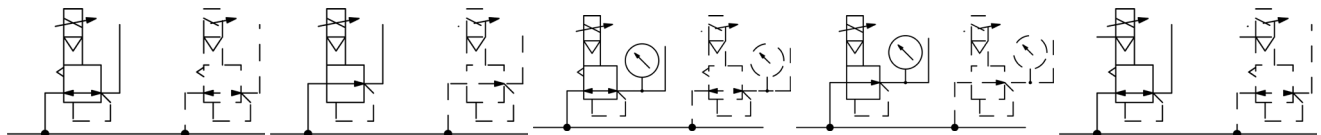
K805

K806

K807

K808

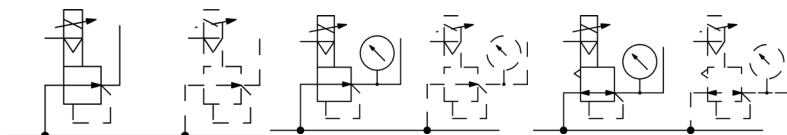
K813



K814

K815

K816



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

PROPORTIONAL PRESSURE REGULATOR AND PROPORTIONAL FLOW VALVE
SERIES MX-PRO - DIMENSIONS

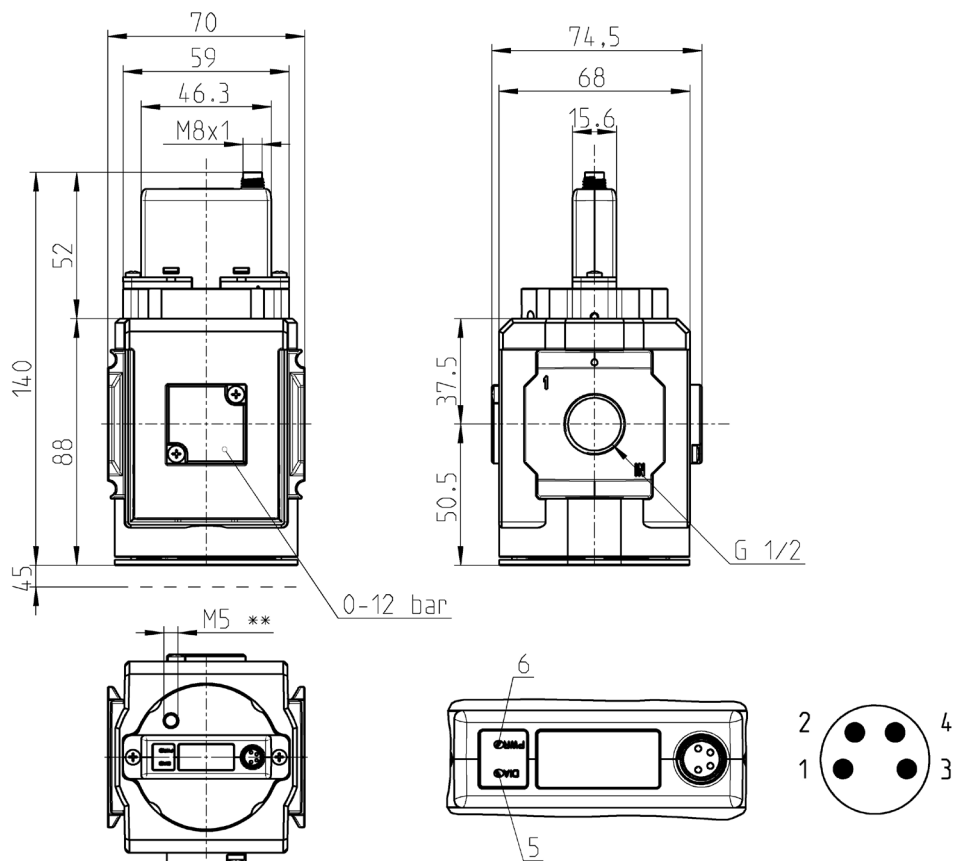
Series MX-PRO proportional flow valve - single version



M8 4-POLE MALE CONNECTOR

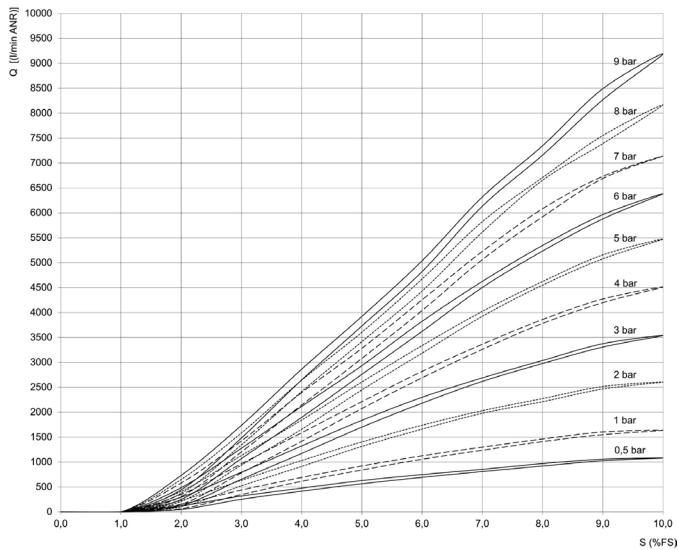
- Pin 1: +24 V DC (Power supply)
- Pin 2: Command analogical signal 0-10 V DC or 4-20 mA
- Pin 3: 0 V (Ground) common also for the command signal
- Pin 4: Output analogical signal (according to the regulated pressure)

5 Red LED
6 Green LED



Mod.	Electrical command	Setting range
MX2-1/2-VEV710	0-10 V DC	0-6500 l/min (ARN)
MX2-1/2-VEA710	4-20 mA	0-6500 l/min (ARN)
MX2-1/2-VEV710-LH	0-10 V DC	0-6500 l/min (ARN)
MX2-1/2-VEA710-LH	4-20 mA	0-6500 l/min (ARN)
MX2-1/2-VEV7100X1	0-10 V DC	0-6500 l/min (ARN)
MX2-1/2-VEA7100X1	4-20 mA	0-6500 l/min (ARN)
MX2-1/2-VEV710-LH0X1	0-10 V DC	0-6500 l/min (ARN)
MX2-1/2-VEA710-LH0X1	4-20 mA	0-6500 l/min (ARN)
MX2-1/2-VXV7100X1	0-10 V DC	0-6500 l/min (ARN)
MX2-1/2-VXA7100X1	4-20 mA	0-6500 l/min (ARN)
MX2-1/2-VXV710-LH0X1	0-10 V DC	0-6500 l/min (ARN)
MX2-1/2-VXA710-LH0X1	4-20 mA	0-6500 l/min (ARN)

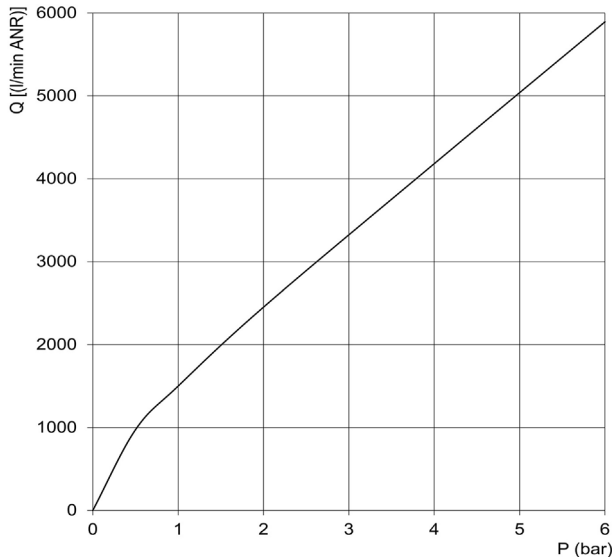
Valve flow diagrams - single version



Q = Flow
S = Full scale command signal

Valve maximum flow and response times - single version

Maximum flow according to the inlet pressure.



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

PROPORTIONAL PRESSURE REGULATOR AND PROPORTIONAL FLOW VALVE

SERIES MX-PRO - DIMENSIONS

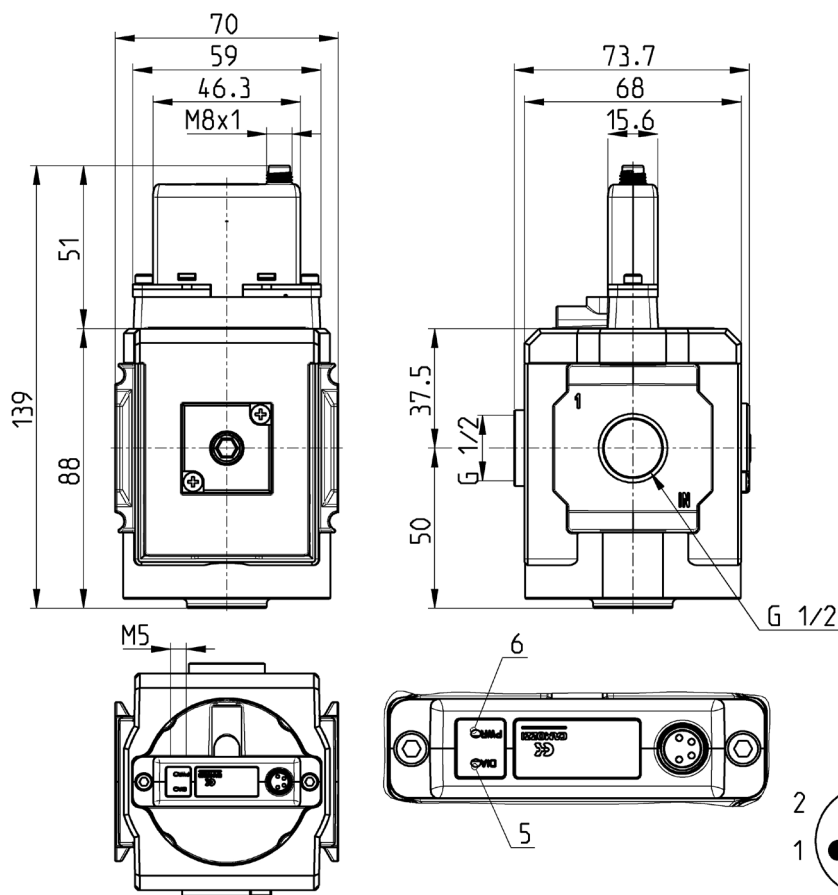
Series MX-PRO Manifold proportional flow valve - Manifold version

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



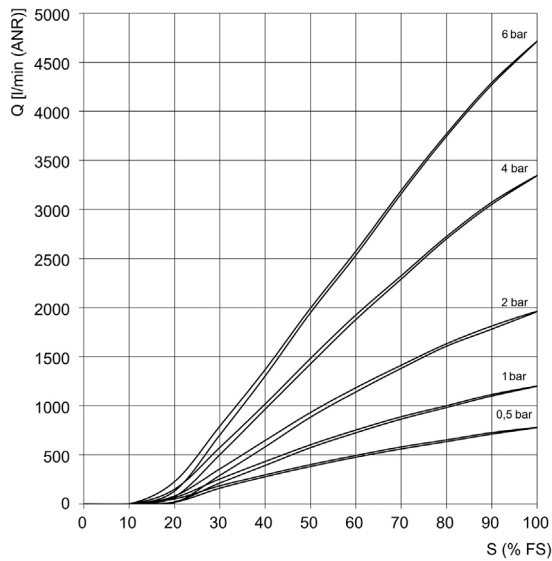
* Only in the OX1 versions with relieving.

** In the versions with external servo pilot supply only (MX2-1/2-REV... and MX2-1/2-REA...).

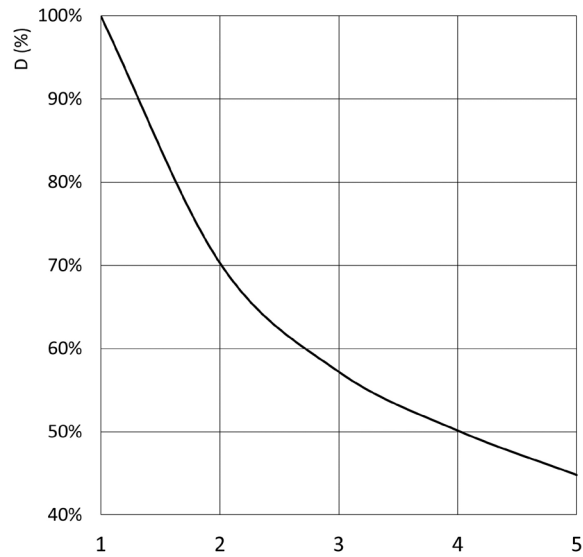
Mod.	Electrical command	Setting range
MX2-1/2-WEV710	0-10 V DC	0-6100 l/min (ANR)
MX2-1/2-WEA710	4-20 mA	0-6100 l/min (ANR)
MX2-1/2-WEV710-LH	0-10 V DC	0-6100 l/min (ANR)
MX2-1/2-WEA710-LH	4-20 mA	0-6100 l/min (ANR)
MX2-1/2-WEV710OX1	0-10 V DC	0-6100 l/min (ARN)
MX2-1/2-WEA710OX1	4-20 mA	0-6100 l/min (ARN)
MX2-1/2-WEV710-LH0X1	0-10 V DC	0-6100 l/min (ARN)
MX2-1/2-WEA710-LH0X1	4-20 mA	0-6100 l/min (ARN)
MX2-1/2-WXV710OX1	0-10 V DC	0-6100 l/min (ANR)
MX2-1/2-WXA710OX1	4-20 mA	0-6100 l/min (ANR)
MX2-1/2-WXV710-LH0X1	0-10 V DC	0-6100 l/min (ANR)
MX2-1/2-WXA710-LH0X1	4-20 mA	0-6100 l/min (ANR)

Pneumatic symbols - Manifold version

Valve flow diagrams - Manifold version

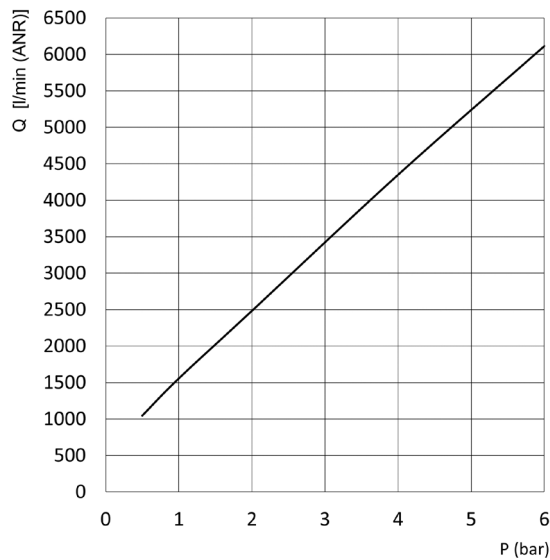


Decay factor - Manifold version



Valve maximum flow and response times - Manifold version

Maximum flow according to the inlet pressure.



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	130 290	116 605

PROPORTIONAL PRESSURE REGULATOR AND PROPORTIONAL FLOW VALVE
SERIES MX-PRO - ACCESSORIES

Rapid clamp kit

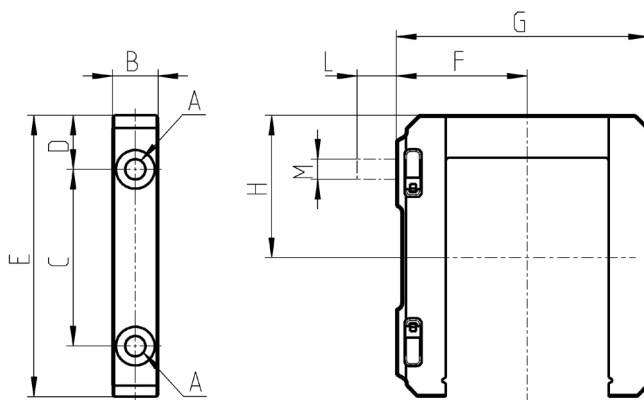


Materials:
technopolymer clamp, NBR
O-ring, zinc-plated steel
nuts and screws.

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

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

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



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

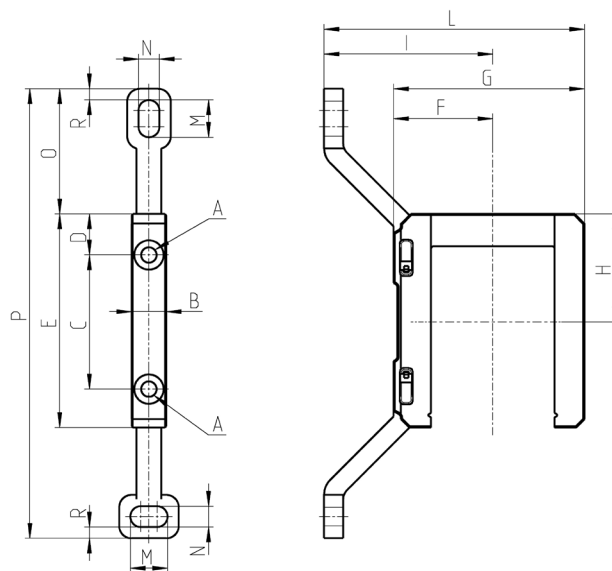
Rapid clamp kit with wall fixing brackets



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

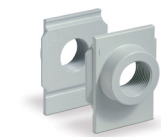
The MX2-Y kit is supplied
with:
1x rapid wall clamp;
1x O-ring OR 3125 **;
2x hexagonal nuts;
2x screws M5x69.

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



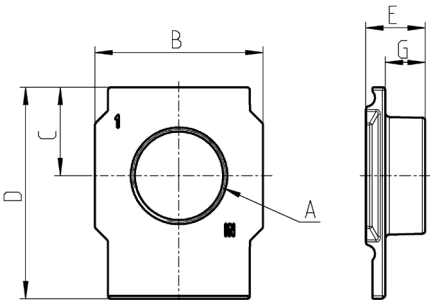
Mod.	A	B	C	D	E	F	G	H	I	L	M	N	O	P	R
MX2-Y	5,2	12	46	14	73,5	32,5	70,5	37	70,5	103	12	6,5	42	152	4

Terminal flanges (IN/OUT)



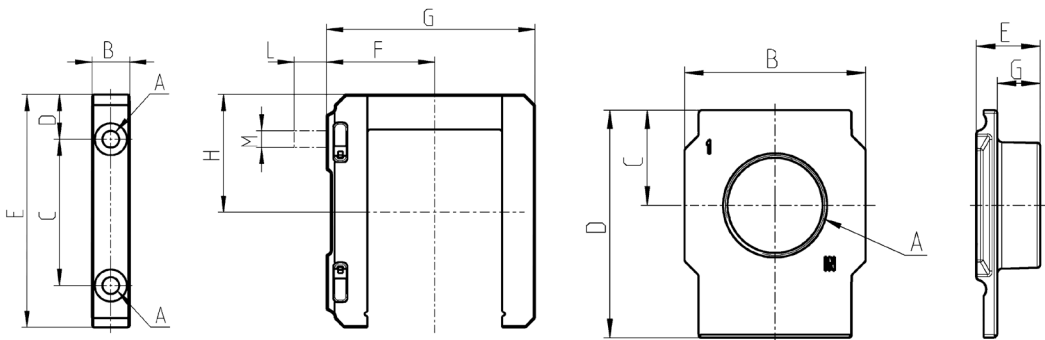
Materials:
painted aluminium flanges.

Supplied with:
1x flange INLET side
1x flange OUTLET side



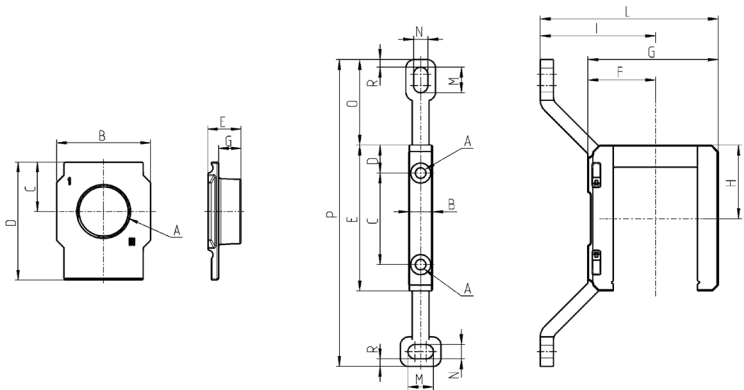
Mod.	A	B	C	D	E	G
MX2-1/2-FL	G1/2	50	26,5	63,5	17	11

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

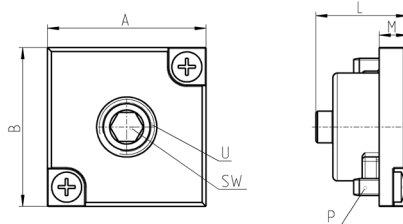


Mod.	The kit is supplied with:
MX2-1/2-KK	1x MX2-1/2-FL + 2x MX2-Y

Block for pressure gauge fixing

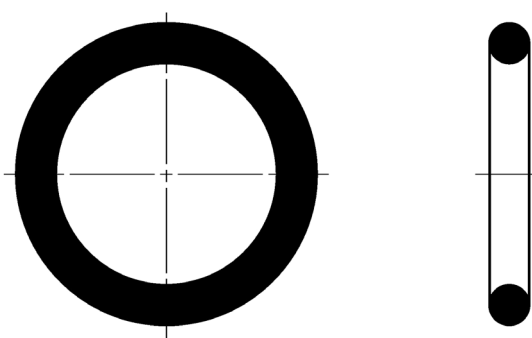


Supplied with:
1x block
1x grain
2x screws
1x seal



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

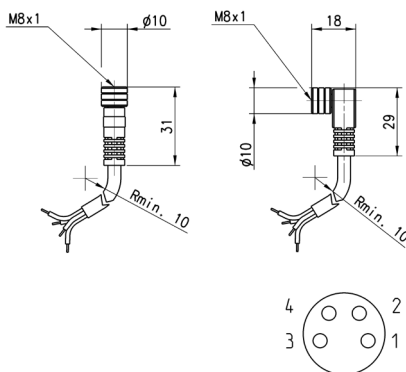


Mod.	O-ring	For assembly
160-39-11/19	OR 3125	MX2

Circular M8 4-pole connectors, female



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

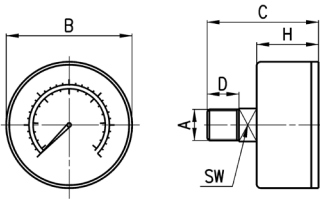


Mod.	Type of connector	Cable length [m]
CS-DF04EG-E200	Straight	2
CS-DF04EG-E500	Straight	5
CS-DR04EG-E200	90°	2
CS-DR04EG-E500	90°	5

Pressure gauges with rear connection



Precision class CL2,5
* Not compatible with oxygen.



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