

# Series MX-PRO proportional pressure regulator and proportional flow valve

Regulator and valve ports (standard 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
- » Suitable for use with oxygen

**GENERAL DATA**

SERIES MX-PRO PROPORTIONAL REGULATOR AND VALVE

	PROPORTIONAL PRESSURE REGULATOR	PROPORTIONAL FLOW VALVE
<b>Construction</b>	modular, compact, diaphragm type	modular, piston type
<b>Materials</b>	see material tables on the following pages	see material tables on the following pages
<b>Ports</b>	G1/2	G1/2
<b>Mounting</b>	vertical in-line, wall-mounting (by means of clamps)	vertical in-line, wall-mounting (by means of clamps)
<b>Working pressure</b>	0°C ÷ 50°C	0°C ÷ 50°C
<b>Max inlet pressure</b>	11 bar (10 bar), 4 bar (3 bar), 1.5 bar (1 bar), 8 bar (7 bar)	6 bar
<b>Regulated pressure</b>	0.5 ÷ 10 bar, 0.15 ÷ 3 bar, 0.05 ÷ 1 bar, 0.35 ÷ 7	-
<b>Max servo-pilot pressure</b>	4 bar (3 bar), 11 bar (10 bar), 1.5 bar (1 bar), 8 bar (7 bar)	4 bar (essential for the proper functioning)
<b>Overpressure exhaust</b>	with Relieving (standard) or without Relieving	NO
<b>Nominal flow</b>	see flow diagrams on the following pages	see flow diagrams on the following pages
<b>Air specifications</b>	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.
<b>Pressure gauge</b>	with built-in pressure gauge (standard) with G1/8 port	without pressure gauge
<b>Analogical input</b>	0-10 V DC Ripple ≤ 0.2%; 4 – 20 mA	0-10 V DC Ripple ≤ 0.2%; 4 – 20 mA
<b>Analogical output</b>	0.5 - 9.5 V DC [ Feedback ]	not relevant
<b>Electrical supply</b>	24 V DC ±10%	24 V DC ±10%
<b>Electrical connection</b>	M8 4 Pin (Male)	M8 4 Pin (Male)
<b>Linearity</b>	≤ ± 1% FS	±4% FS
<b>Hysteresis</b>	±0.5% FS	±8% FS
<b>Repeatability</b>	±0.5% FS	±0.35% FS
<b>Sensitivity</b>	0.3% FS	5% FS
<b>Protection class</b>	IP51	IP51

**CODING EXAMPLE**

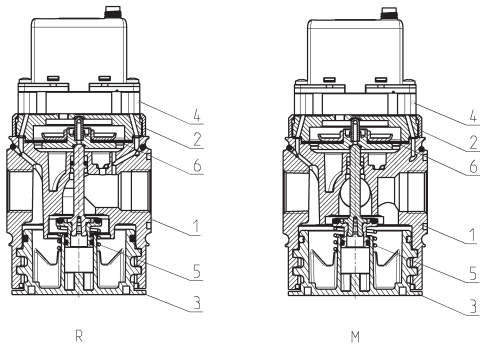
<b>MX</b>	<b>2</b>	<b>-</b>	<b>1/2</b>	<b>-</b>	<b>R</b>	<b>CV</b>	<b>2</b>	<b>0</b>	<b>4</b>	<b>-</b>	<b>LH</b>
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<b>MX</b>	SERIES
<b>2</b>	SIZE: 2 = G1/2
<b>1/2</b>	PORTS: 1/2 = G1/2
<b>R</b>	FUNCTIONING: R = pressure regulator M = Manifold pressure regulator  V = flow valve W = Manifold flow valve
<b>CV</b>	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
<b>2</b>	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: 8 = low flow 9 = high flow
<b>0</b>	DESIGN TYPE: 0 = relieving (regulator only) 1 = without relieving
<b>4</b>	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)
<b>LH</b>	FLOW DIRECTION: = from left to right (standard) LH = from right to left
<b>OX1</b>	VERSIONS: = standard OX1 = for use with oxygen (in compliance with ASTM G93-03 Level E), FKM seals

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

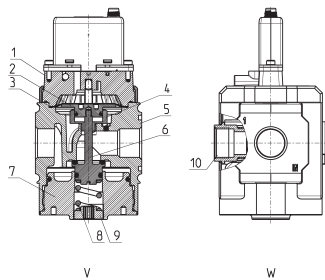
R = proportional pressure regulator  
 M = Manifold proportional pressure regulator



PARTS	MATERIALS, standard version	MATERIALS, oxygen version
<b>1 = Body</b>	Aluminium	Aluminium
<b>2 = Covering</b>	Polyacetal	PBT
<b>3 = Valve holder plug</b>	Polyacetal	PBT
<b>4 = Upper base</b>	Aluminium	Aluminium
<b>5 = Lower spring</b>	Stainless steel	Stainless steel
<b>6 = Diaphragm</b>	NBR	FKM
<b>Seals</b>	NBR	FKM

### Series MX-PRO proportional flow valve - materials

V = proportional flow valve  
 W = Manifold proportional flow valve



PARTS	MATERIALS, single version	MATERIALS, manifold version
<b>1 = Upper base</b>		
<b>2 = Piston</b>	Brass	Brass
<b>3 = Diaphragm</b>	NBR	NBR
<b>4 =</b>	Brass	Brass
<b>5 = Body</b>	Aluminium	Aluminium
<b>6 =</b>	Brass	Brass
<b>7 = plug</b>	Anodised aluminium	Anodised aluminium
<b>8 = spring</b>	Steel	Steel
<b>9 =</b>	Brass	Brass
<b>10 = Fittings</b>	-	nickel-plated brass
<b>Seals</b>	FKM/NBR	FKM/NBR

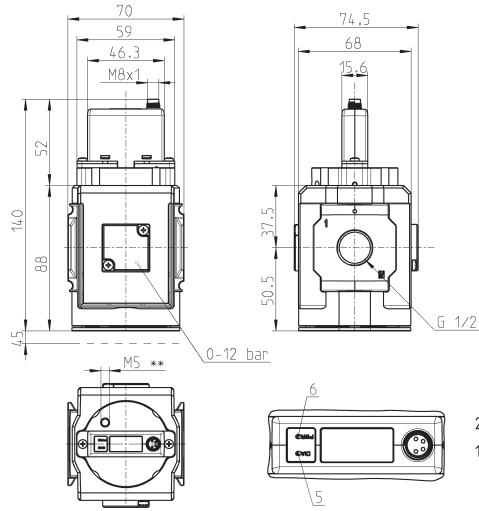
## Series MX-PRO proportional pressure regulator



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 <sup>2</sup> V1**0	0-10 V DC	0 ÷ 3 bar	without pressure gauge
MX2-1/2-R <sup>2</sup> V1**2	0-10 V DC	0 ÷ 3 bar	with built-in pressure gauge 0-6
MX2-1/2-R <sup>2</sup> V2**0	0-10 V DC	0 ÷ 10 bar	without pressure gauge
MX2-1/2-R <sup>2</sup> V2**4	0-10 V DC	0 ÷ 10 bar	with built-in pressure gauge 0-12
MX2-1/2-R <sup>2</sup> V3**0	0-10 V DC	0 ÷ 1 bar	without pressure gauge
MX2-1/2-R <sup>2</sup> V3**1	0-10 V DC	0 ÷ 1 bar	with built-in pressure gauge 0-2,5
MX2-1/2-R <sup>2</sup> V4**0	0-10 V DC	0 ÷ 7 bar	without pressure gauge
MX2-1/2-R <sup>2</sup> V4**3	0-10 V DC	0 ÷ 7 bar	with built-in pressure gauge 0-10
MX2-1/2-R <sup>2</sup> A1**0	4-20 mA	0 ÷ 3 bar	without pressure gauge
MX2-1/2-R <sup>2</sup> A1**2	4-20 mA	0 ÷ 3 bar	with built-in pressure gauge 0-6
MX2-1/2-R <sup>2</sup> A2**0	4-20 mA	0 ÷ 10 bar	without pressure gauge
MX2-1/2-R <sup>2</sup> A3**0	4-20 mA	0 ÷ 1 bar	without pressure gauge
MX2-1/2-R <sup>2</sup> A3**1	4-20 mA	0 ÷ 1 bar	with built-in pressure gauge 0-2,5
MX2-1/2-R <sup>2</sup> A4**0	4-20 mA	0 ÷ 7 bar	without pressure gauge
MX2-1/2-R <sup>2</sup> A4**3	4-20 mA	0 ÷ 7 bar	with built-in pressure gauge 0-10
MX2-1/2-R <sup>2</sup> V1**0-OX1	0-10 V DC	0 ÷ 3 bar	without pressure gauge
MX2-1/2-R <sup>2</sup> V4**0-OX1	0-10 V DC	0 ÷ 7 bar	without pressure gauge
MX2-1/2-R <sup>2</sup> A3**0-OX1	4-20 mA	0 ÷ 1 bar	without pressure gauge
MX2-1/2-R <sup>2</sup> A4**0-OX1	4-20 mA	0 ÷ 7 bar	without pressure gauge

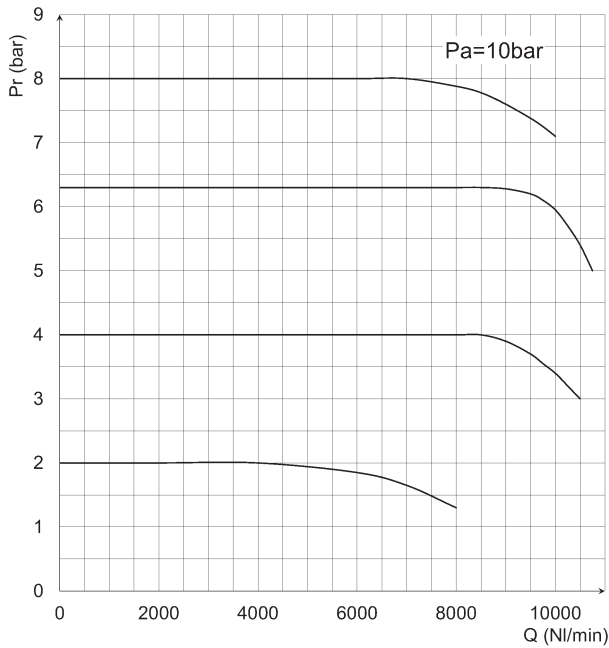
**TABLE NOTES:**

\* = versions with or without external pilot supply

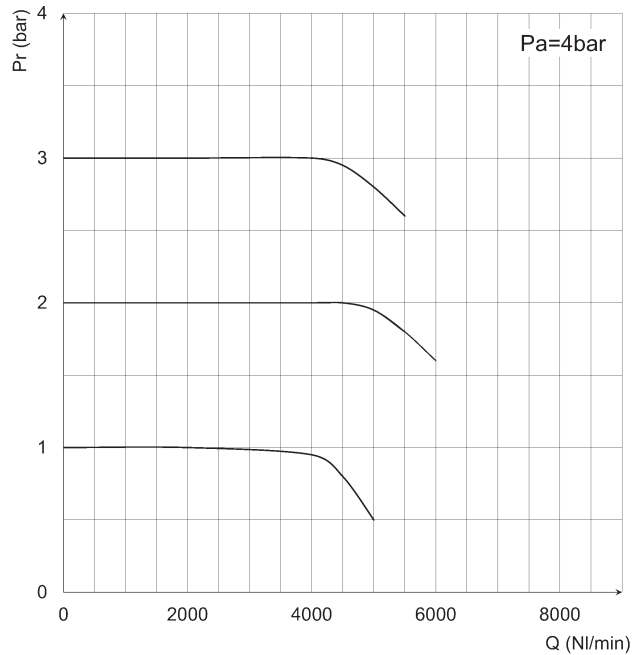
# = versions with our without relieving

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

**PRESSURE REGULATOR FLOW DIAGRAMS - STANDARD VERSION**



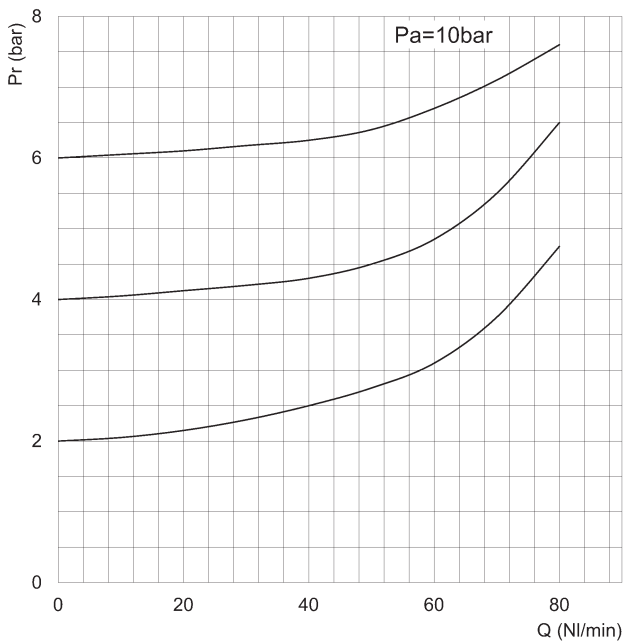
Pr = Regulated pressure  
 Q = Flow  
 Pa = Inlet pressure



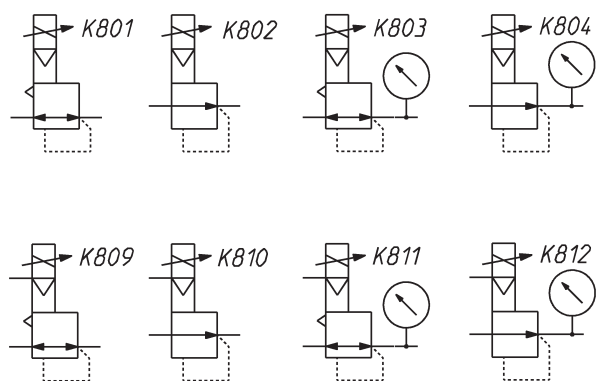
Pr = Regulated pressure  
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SERIES MX-PRO PROPORTIONAL REGULATOR AND VALVE

**EXHAUST FLOW DIAGRAM AND PNEUMATIC SYMBOLS**



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 reliev., electrical command, ext. servo pilot supply
- K811 = reliev., el. com., built-in pr. gauge, ext. servo pilot supply
- K812 = NO reliev., el. com., built-in pr. gauge, ext. servo pilot sup.

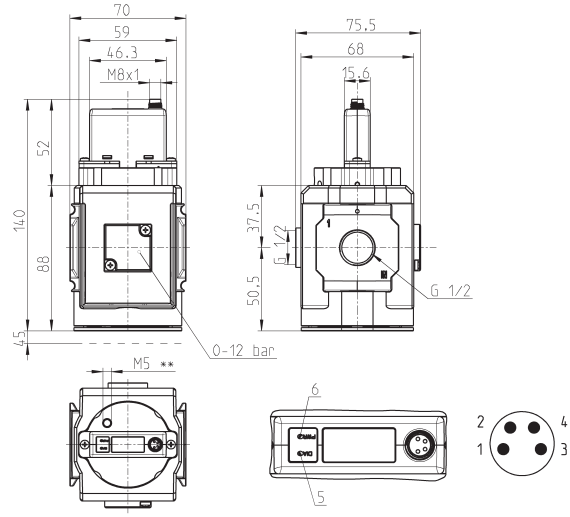
## Series MX-PRO proportional pressure regulator



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...)



SERIES MX-PRO PROPORTIONAL REGULATOR AND VALVE

Mod.	Electrical command	Setting range	Pressure gauge
MX2-1/2-M <sup>*</sup> V1 <sup>**</sup> 0	0-10 V DC	0 ÷ 3 bar	without pressure gauge
MX2-1/2-M <sup>*</sup> V1 <sup>**</sup> 2	0-10 V DC	0 ÷ 3 bar	with built-in pressure gauge 0-6
MX2-1/2-M <sup>*</sup> V2 <sup>**</sup> 0	0-10 V DC	0 ÷ 10 bar	without pressure gauge
MX2-1/2-M <sup>*</sup> V2 <sup>**</sup> 4	0-10 V DC	0 ÷ 10 bar	with built-in pressure gauge 0-12
MX2-1/2-M <sup>*</sup> V3 <sup>**</sup> 0	0-10 V DC	0 ÷ 1 bar	without pressure gauge
MX2-1/2-M <sup>*</sup> V3 <sup>**</sup> 1	0-10 V DC	0 ÷ 1 bar	with built-in pressure gauge 0-2,5
MX2-1/2-M <sup>*</sup> V4 <sup>**</sup> 0	0-10 V DC	0 ÷ 7 bar	without pressure gauge
MX2-1/2-M <sup>*</sup> A1 <sup>**</sup> 0	4-20 mA	0 ÷ 3 bar	without pressure gauge
MX2-1/2-M <sup>*</sup> A1 <sup>**</sup> 2	4-20 mA	0 ÷ 3 bar	with built-in pressure gauge 0-6
MX2-1/2-M <sup>*</sup> A2 <sup>**</sup> 0	4-20 mA	0 ÷ 10 bar	without pressure gauge
MX2-1/2-M <sup>*</sup> A2 <sup>**</sup> 4	4-20 mA	0 ÷ 10 bar	with built-in pressure gauge 0-12
MX2-1/2-M <sup>*</sup> A3 <sup>**</sup> 0	4-20 mA	0 ÷ 1 bar	without pressure gauge
MX2-1/2-M <sup>*</sup> A3 <sup>**</sup> 1	4-20 mA	0 ÷ 1 bar	with built-in pressure gauge 0-2,5
MX2-1/2-M <sup>*</sup> A4 <sup>**</sup> 0	4-20 mA	0 ÷ 7 bar	without pressure gauge
MX2-1/2-M <sup>*</sup> A4 <sup>**</sup> 3	4-20 mA	0 ÷ 7 bar	with built-in pressure gauge 0-10
MX2-1/2-M <sup>*</sup> V1 <sup>**</sup> 0-OX1	0-10 V DC	0 ÷ 3 bar	without pressure gauge
MX2-1/2-M <sup>*</sup> V3 <sup>**</sup> 0-OX1	0-10 V DC	0 ÷ 1 bar	without pressure gauge
MX2-1/2-M <sup>*</sup> V4 <sup>**</sup> 0-OX1	0-10 V DC	0 ÷ 7 bar	without pressure gauge
MX2-1/2-M <sup>*</sup> A1 <sup>**</sup> 0-OX1	4-20 mA	0 ÷ 3 bar	without pressure gauge
MX2-1/2-M <sup>*</sup> A3 <sup>**</sup> 0-OX1	4-20 mA	0 ÷ 1 bar	without pressure gauge
MX2-1/2-M <sup>*</sup> A4 <sup>**</sup> 0-OX1	4-20 mA	0 ÷ 7 bar	without pressure gauge

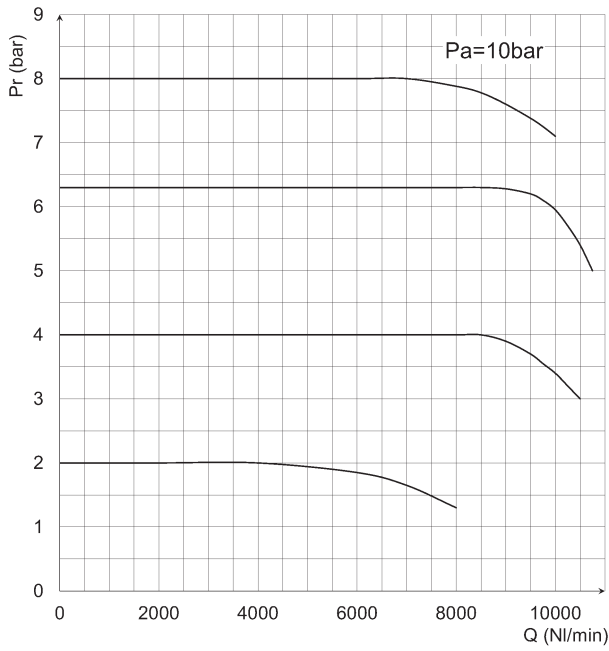
TABLE NOTES:

\* = versions with or without external pilot supply

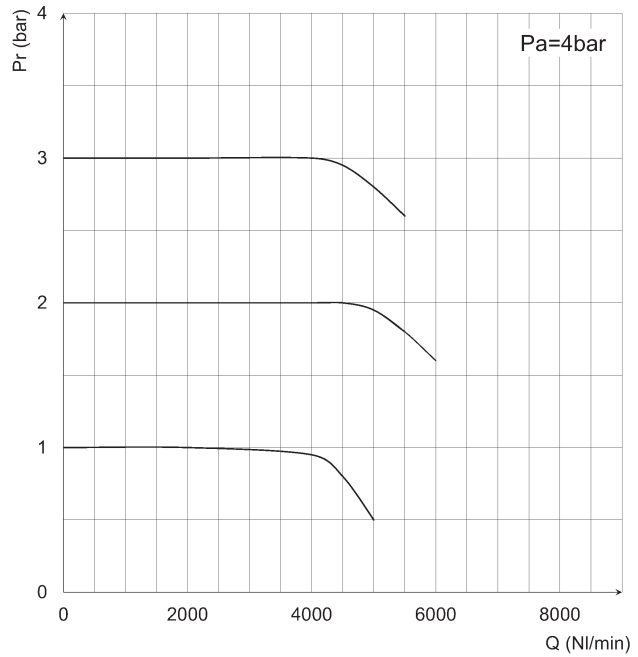
\*\* = versions with or without relieving

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

**PRESSURE REGULATOR FLOW DIAGRAMS - MANIFOLD VERSION**



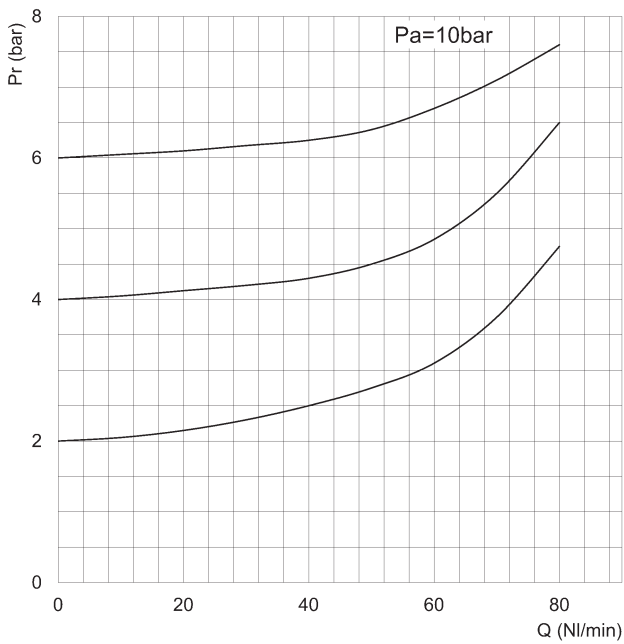
Pr = Regulated pressure  
 Q = Flow  
 Pa = Inlet pressure



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 Q = Flow  
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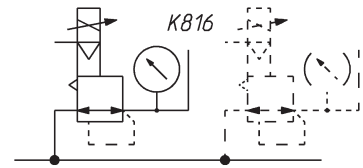
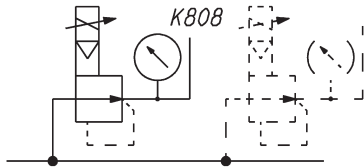
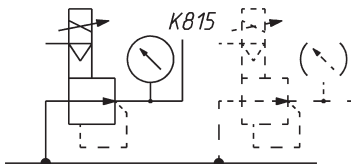
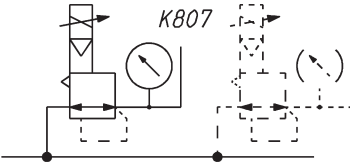
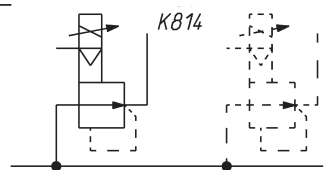
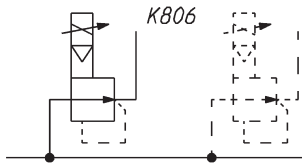
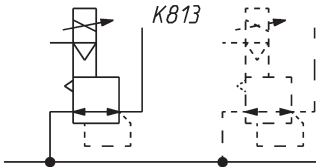
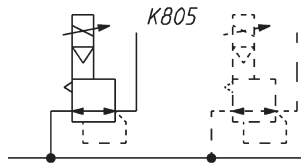
SERIES MX-PRO PROPORTIONAL REGULATOR AND VALVE

**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

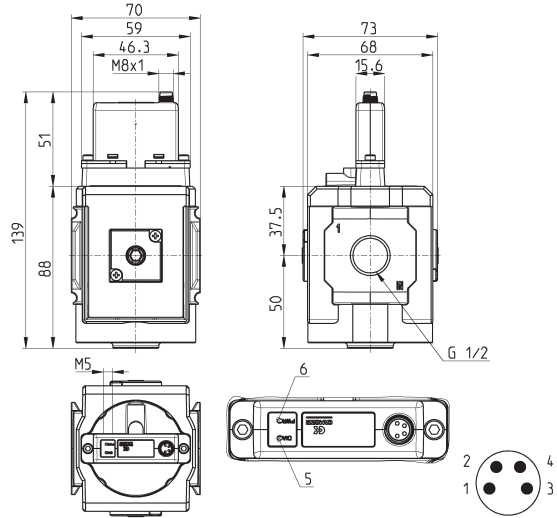
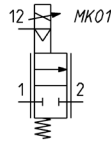
SERIES MX-PRO PROPORTIONAL REGULATOR AND VALVE



## Series MX-PRO proportional flow valve



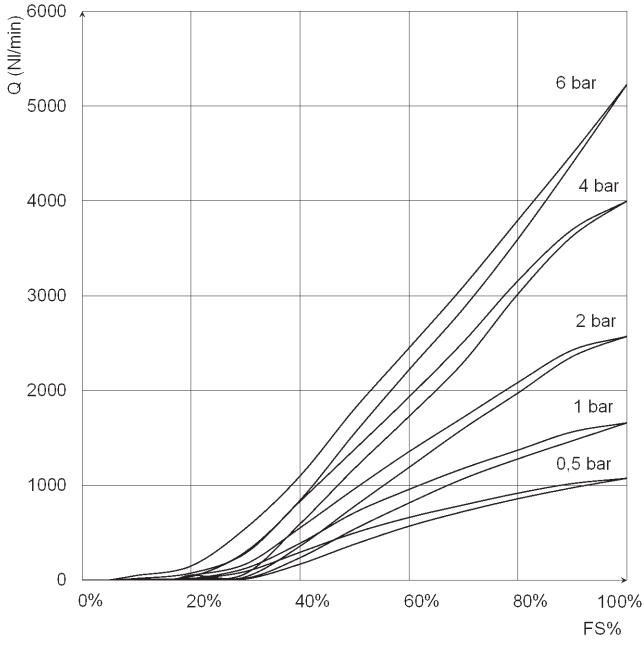
- Male connector M8 4 poles
- Pin 1: +24 V DC (Power supply)
- Pin 2: Command analogical signal  
0-10 V DC or 4-20 mA
- Pin 3: 0 V (Ground) common also  
for the command signal
- Pin 4: Output analogical signal  
(according to the  
regulated pressure)
- 5 red LED
- 6 green LED



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
MX2-1/2-VEV7100X1	0-10 V DC	0-6500 L/min
MX2-1/2-VEA7100X1	4-20 mA	0-6500 L/min
MX2-1/2-VEV710-LHOX1	0-10 V DC	0-6500 L/min
MX2-1/2-VEA710-LHOX1	4-20 mA	0-6500 L/min

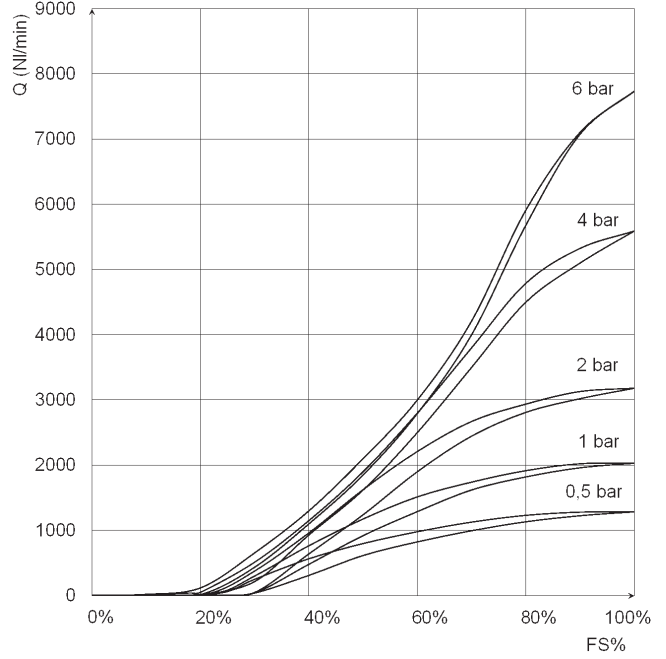
**VALVE FLOW DIAGRAMS**

SERIES MX-PRO PROPORTIONAL REGULATOR AND VALVE



**Low flow version**

Q (NL/min) = flow  
FS% = full scale command signal



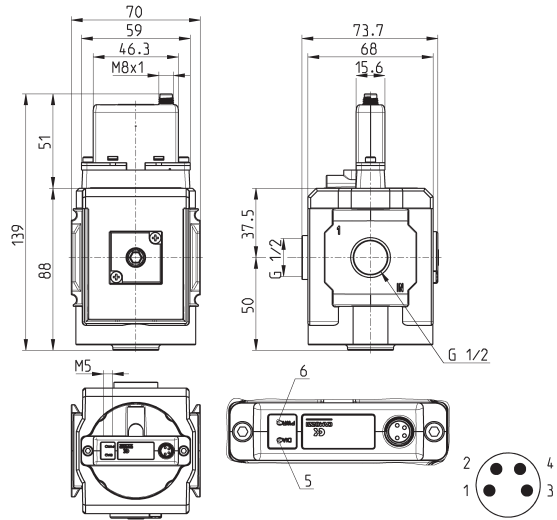
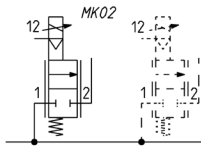
**High flow**

Q (NL/min) = flow  
FS% = full scale command signal

**Series MX-PRO Manifold proportional flow valve**



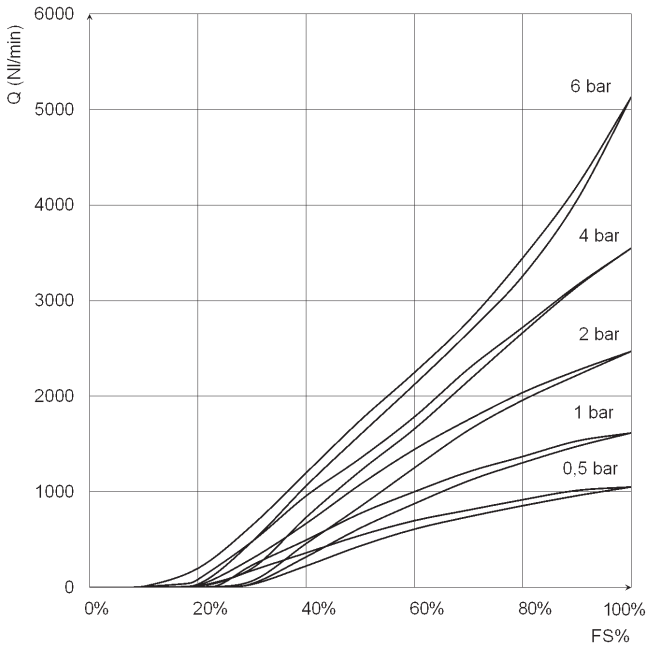
- Male connector M8 4 poles
- Pin 1: +24 V DC (Power supply)
- Pin 2: Command analogical signal  
0-10 V DC or 4-20 mA
- Pin 3: 0 V (Ground) common also  
for the command signal
- Pin 4: Output analogical signal  
(according to the  
regulated pressure)
- 5 red LED
- 6 green LED



Mod.	Electrical command	Setting range
MX2-1/2-WEV710	0-10 V DC	0-6500 L/min
MX2-1/2-WEA710	4-20 mA	0-6500 L/min
MX2-1/2-WEV710-LH	0-10 V DC	0-6500 L/min
MX2-1/2-WEA710-LH	4-20 mA	0-6500 L/min
MX2-1/2-WEV710OX1	0-10 V DC	0-6500 L/min
MX2-1/2-WEA710OX1	4-20 mA	0-6500 L/min
MX2-1/2-WEV710-LHOX1	0-10 V DC	0-6500 L/min
MX2-1/2-WEA710-LHOX1	4-20 mA	0-6500 L/min

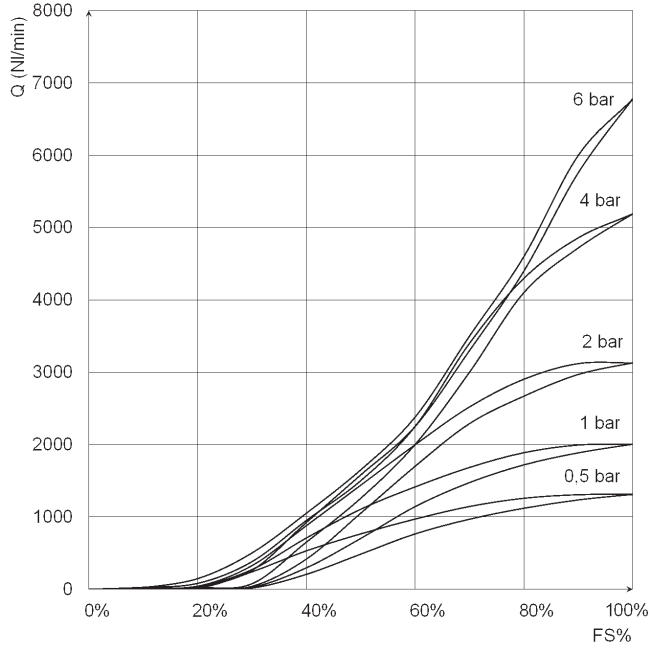
**VALVE FLOW DIAGRAMS - MANIFOLD VERSION**

SERIES MX-PRO PROPORTIONAL REGULATOR AND VALVE



Low flow version

Q (NL/min) = flow  
FS% = full scale command signal

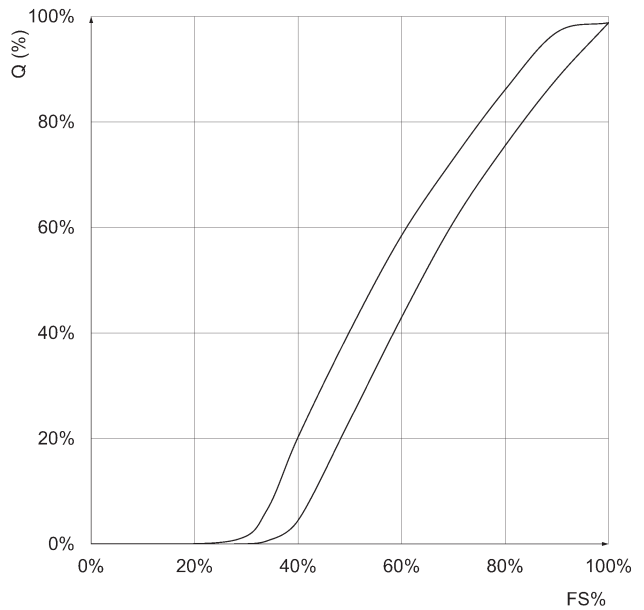


High flow version

Q (NL/min) = flow  
FS% = full scale command signal

**Flow characteristic curve of a proportional valve**

Q% = flow  
FS% = full scale command signal

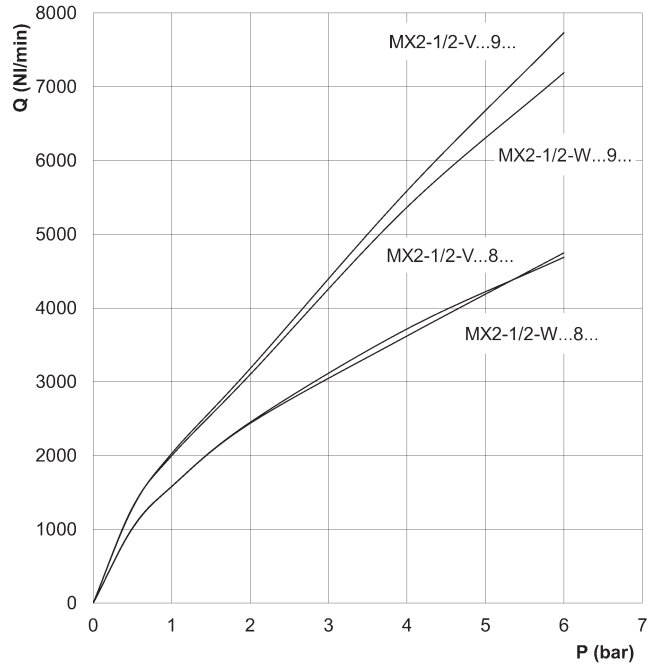


## Valve maximum flow and response times

Maximum flow according to the inlet pressure

DIAGRAM LEGEND:

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



Pin	Type	Flow at steady speed [NL/min]	Command [V]		Load response time (ms)				Exhaust response time (ms)			
					0-10%	0-50%	0-90%	0-99%	0-10%	0-50%	0-90%	0-99%
2 bar	Low flow	Standard	915	6	351	452.4	967.2	6240	171.6	284.7	487.5	624
		Manifold	1000	6.3	327.6	421.2	951.6	6162	249.6	366.6	577.2	780
	High flow	Standard	960	4.7	331.5	444.6	1279.2	6942	245.7	329.16	526.5	702
		Manifold	960	4.2	313	420	1156	9700	200	340	540	800
4 bar	Low flow	Standard	952	5.4	319.8	436.8	1029.6	7410	187.2	304.2	491.4	624
		Manifold	925	5.3	284.7	408.72	1474.2	6240	237.9	370.5	557.7	897
	High flow	Standard	970	4.4	279.24	429	1177.8	7878	225	351	526.5	741
		Manifold	940	3.8	230	400	1680	8500	175	360	580	900

Set flow: about 1000 NL/min

## Rapid clamp kit

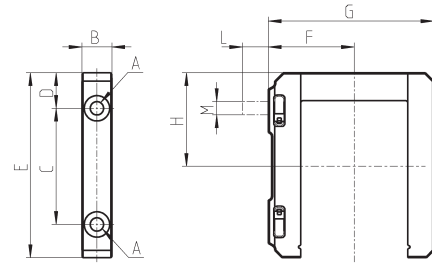


The kit MX2-X is supplied with:  
1 rapid clamp, 1 O-ring OR 3125 \*,  
2 exagonal nuts M5, 2 screws M5x69.

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

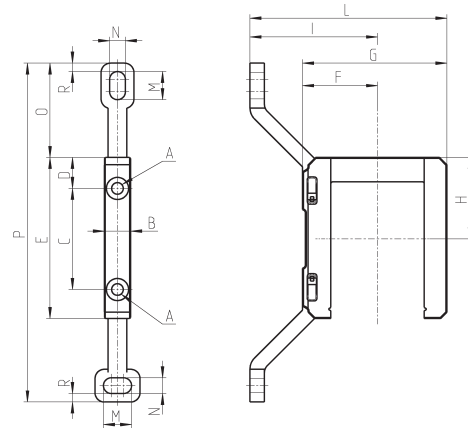
## Rapid clamp kit with wall fixing brackets



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

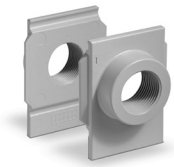
\*\* it can be separately ordered (cod. 160-39-11/19)

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



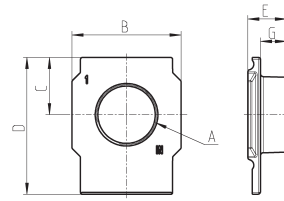
Mod.	A	B	C	D	E	F	G	H	I	L	M	N	O	P	R
MX2-Y	5,2	12	46	14	73,5	32,5	70,5	37	70,5	103	12	6,5	42	152	4

### Terminal flanges (IN/OUT)



The kit is supplied with:  
 - 1 flange INLET side  
 - 1 flange OUTLET side

Materials: painted aluminium flanges.



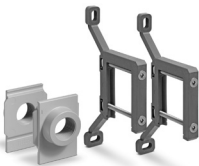
Mod.	A	B	C	D	E	G
MX2-1/2-FL	G1/2	50	26,5	63,5	17	11

### 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

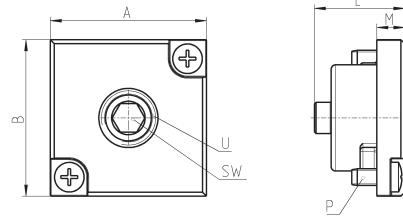


Mod.	The kit is supplied with:
MX2-1/2-KK	1x MX2-1/2-FL + 2x MX2-Y

### Block for pressure gauge fixing

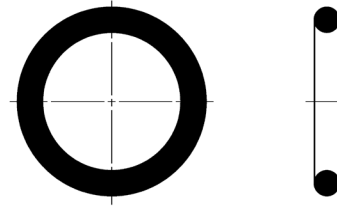


The kit is supplied with:  
1 block  
1 grain  
2 screws  
2 seals  
1 seal



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

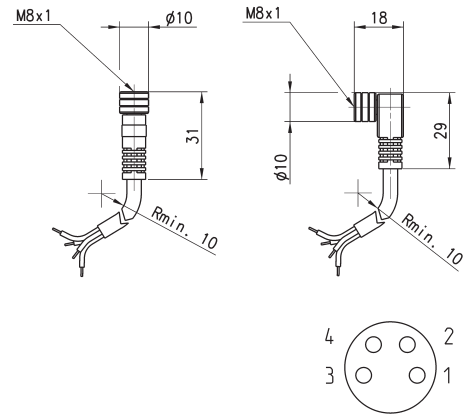


Mod.	O-ring	For assembly
160-39-11/19	OR 3125	MX2

### 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