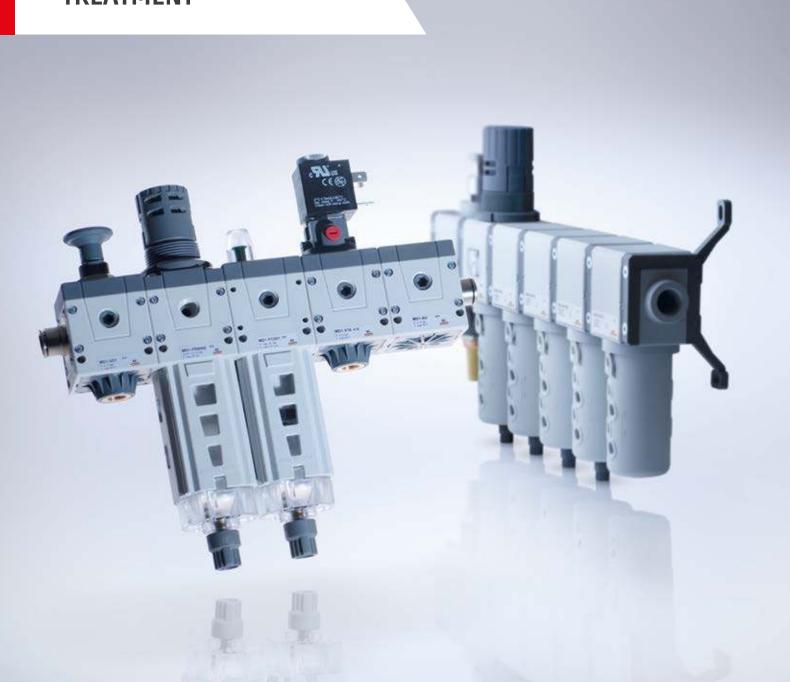


AIR TREATMENT



WELCOME TO CAMOZZI AUTOMATION

Camozzi Automation offers range of products including components, systems and technologies for the industrial automation sector, the control of fluids – both liquids and gases – and for applications dedicated to the transportation and health industries.



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Valve islands Multi-serial modules

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Proportional technology



Proportional valves Proportional regulators

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- Suction pads
- Ejectors
- Vacuum accessories
- Vacuum filters

Air treatment



- Series MX Modular FRL Units
- Series MC Modular FRL Units Series MD Modular FRL Units Series N FRL Units

- Pressure regulators
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- Directly and indirectly operated 2/2, 3/2 solenoid valves Solenoid valves, pneumatic valves Mechanical and manual valves

- Logic valves
- Automatic valves
- Flow control valves
- Silencers

Pneumatic connection



- Super-rapid fittings
- Rapid fittings Universal fittings
- Fittings accessories
 Quick-release couplings
- Tubing, spirals and accessories



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Series MX filters

New versions

MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1

Modular

Bowl with technopolymer cover and bayonet-type mounting



The Series MX air treatment components

are characterized by a modern, linear

performances. The perfect integration

between metal alloys and technopolymers has allowed the realization of a reliable

product, light and strong at the same time.

Thanks to a new concept of modularity,

moreover, the mounting of components

and compact design, offering high



The Series MX has been realized to offer a multi-sector solution that guarantees saving in terms of installation time, space and costs.

A special configurator, available on Camozzi website at http://catalogue.camozzi.com (Configurators section), allows the customer to choose the most suitable solution for his application, selecting single components or by configuring assembled FRLs.

- » Removal of impurities and condensate
- » High flow with minimum pressure decreases
- » Quality of delivered air according to ISO 8573-1:2010, Classes 7.8.4 and 6.8.4
- » Manual, automatic or depressuring drain
- » Polymer bowl locking system reducing the risk of accidents
- » Visual blockage indicator
- » Metal bowl also available

GENERAL DATA

has become easier.

Construction	modular, compact with filtering element in HDPE
Materials	see TABLE OF MATERIALS on the following page
Ports	MX2: G3/8 - G1/2 - G3/4 MX3: G3/4 - G1
Condensate capacity	MX2: 55 cm ³ MX3: 85 cm ³
Mounting	vertical in-line wall-mounting (by means of clamps)
Operating temperature	-5°C ÷ 50°C up to 16 bar (with the dew point of the fluid lower than 2°C at the min. working temperature) -5°C ÷ 60°C up to 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Quality of delivered air according to ISO 8573-1:2010	Class 6.8.4 with 5 μm filtering element Class 7.8.4 with 25 μm filtering element
Operating pressure	0.3 ÷ 16 bar (with automatic drain 1.5 ÷ 12 bar)
Nominal flow	see FLOW DIAGRAMS on the following pages
Fluid	compressed air



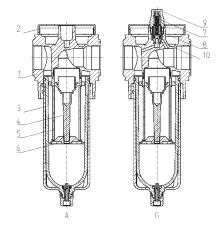
AIRTREATMENT 2019

MX	2 - 1/2 - F 0 0 M 1 - LH		
MX	SERIES		
2	SIZE: 2 = G3/8 - G1/2 - G3/4 3 = G3/4 - G1		
1/2	PORT: 3/8 = 63/8 1/2 = 61/2 3/4 = 63/4 1 = 61		
F	FILTER		
0	FILTERING ELEMENT: 0 = 25 μm (standard) 1 = 5 μm		
0	DRAINING OF CONDENSATE (further details in the dedicated section): 0 = semiautomatic-manual drain (standard - only for polymer bowl) 3 = automatic drain 5 = depressuring drain, protected (only for polymer bowl) 8 = without drain, with port G1/8		
М	TYPE OF BOWL: = polymer (standard) M = metal (only for MX2-1/2 and MX3-1)		
1	VISUAL BLOCKAGE INDICATOR: = not present 1 = present		
LH	FLOW DIRECTION: = from left to right (standard) LH = from right to left		

For the assembly of a single component with fixing flanges or wall-mounting, see the section "FRL Series MX Assembled"

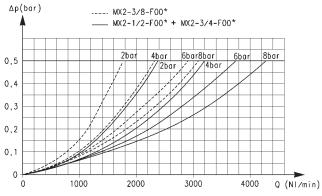
Filters Series MX - materials

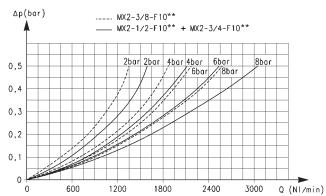
A = Filter B = Filter with visual blockage indicator



PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
3 = Bowl / bowl cover	Polycarbonate/Polyamide/Aluminium
4 = Valve-guide	Polyacetal
5 = Filtering element	Polyethylene
6 = Separation deflector	Polyacetal
7 = Upper spring	Stainless steel
8 = Piston	Anodized aluminium
9 = Visual blockage indicator	Polycarbonate
10 = Indicator body	Brass
Seals	NBR

MX2 FILTERS FLOW DIAGRAMS



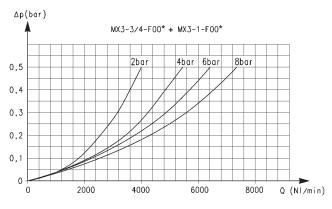


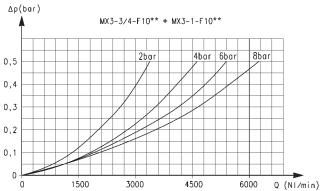
* Reference diagram for models with filtering element = 25 μm

Δp = Pressure drop (bar) Q = Flow (Nl/min) ** Reference diagram for models with filtering element = 5 μm

Δp = Pressure drop (bar) Q = Flow (Nl/min)

MX3 FILTERS FLOW DIAGRAMS





* Reference diagram for models with filtering element = 25 μ m

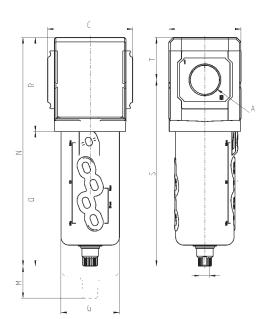
Δp = Pressure drop (bar) Q = Flow (Nl/min) ** Reference diagram for models with filtering element = $5 \mu m$

Δp = Pressure drop (bar) Q = Flow (Nl/min)

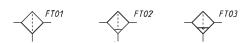
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Filters Series MX - dimensions





Mod.	Α	C	G	-1	L	М	N	0	R	S	T	Weight (Kg)
MX2-3/8-F00	G3/8	70	55.3	68	G1/8	57.5	212	127	85	174.5	37.5	0.5
MX2-1/2-F00	G1/2	70	55.3	68	G1/8	57.5	212	127	85	174.5	37.5	0.5
MX2-3/4-F00	G3/4	70	55.3	68	G1/8	57.5	212	127	85	174.5	37.5	0.5
MX3-3/4-F00	G3/4	89.5	61.5	76	G1/8	75	241	142	99	196.5	44.5	0.8
MX3-1-F00	G1	89.5	61.5	76	G1/8	75	241	142	99	196.5	44.5	0.8
MX2-1/2-F03M	G1/2	70	60	68	G1/8	57.5	205	120	85	167.5	37.5	0.6
MX3-1-F03M	G1	89.5	67	76	G1/8	75	233	134	99	188.5	44.5	0.8

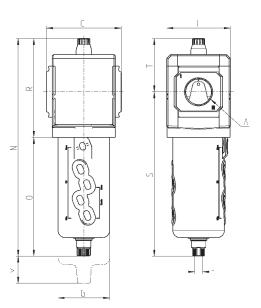


FT01 = filter with direct G1/8 exhaust FT02 = filter with semi-automatic manual drain

FT03 = filter with automatic/ depressuring drain

Filters Series MX - dimensions





Mod.	Α	С	G	ı	L	М	N	0	R	S	T	Weight (Kg)
MX2-3/8-F001	G3/8	70	55.3	68	G1/8	57.5	231	127	104	174.5	56.5	0.5
MX2-1/2-F001	G1/2	70	55.3	68	G1/8	57.5	231	127	104	174.5	56.5	0.5
MX2-3/4-F001	G3/4	70	55.3	68	G1/8	57.5	231	127	104	174.5	56.5	0.5
MX3-3/4-F001	G3/4	89.5	61.5	76	G1/8	75	260	142	118	196.5	63.5	0.8
MX3-1-F001	G1	89.5	61.5	76	G1/8	75	260	142	118	196.5	63.5	0.8
MX2-1/2-F03M1	G1/2	70	60	68	G1/8	57.5	224	120	104	167.5	56.5	0.6
MX3-1-F03M1	G1	89.5	67	76	G1/8	75	252	134	118	188.5	63.5	0.8







indicator FT07 = filter with automatic/ depressuring drain and visual blockage indicator



Series MX coalescing filters

New versions

MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1

Modular

Bowl with technopolymer cover and bayonet-type mounting





- » High performance and compressed air quality (according to ISO 8573-1)
- » Quality of delivered air according to ISO 8573-1:2010, Classes 1.8.1 and 2.8.2
- » Manual, automatic or depressing drain
- » Polymer bowl locking system
- » Visual blockage indicator
- » Metal bowl also available

The Series MX air treatment components are characterized by a modern, linear and compact design, offering high performances. The perfect integration between metal alloys and technopolymers has allowed the realization of a reliable product, light and strong at the same time. Thanks to a new concept of modularity, moreover, the mounting of components has become easier.

The Series MX has been realized to offer a multi-sector solution that guarantees saving in terms of installation time, space and costs.

A special configurator, available on Camozzi website at http://catalogue. camozzi.com (sec. Configurators), allows the customer to choose the most suitable solution for his application, selecting single components or by configuring assembled FRLs.

GENERAL DATA

Construction	modular compact
CONSTRUCTION	modular, compact
Materials	see TABLE OF MATERIALS on the following page
Ports	MX2: G3/8, G1/2, G3/4 - MX3: G3/4, G1
Condensate capacity	MX2: 55 cm³ - MX3: 85 cm³
Mounting	vertical in-line or wall-mounting (by means of clamps)
Operating temperature	-5°C \div 50°C up to 16 bar (with the dew point of the fluid lower than 2°C at the min. working temp.) -5°C \div 60°C up to 10 bar (with the dew point of the fluid lower than 2°C at the min. working temp.)
Draining of condensate	manual-semi automatic (standard), automatic, depressurization protected, direct G1/8 exhaust
Operating pressure	0.3 ÷ 16 bar (with automatic drain 1.5 ÷ 12 bar)
Nominal flow	see FLOW DIAGRAMS on the following pages
Quality of delivered air according to ISO 8573-1:2010	Class 2.8.2 with 1 μm filtering element; Class 1.8.1 with 0.01 μm filtering element
Residual oil content with inlet at 3 mg/m³	< 0.01mg/m³ < 0.1mg/m³
Oil retain efficiency	99.80% 97%
Particles retain efficiency	99.9999% 99.999%
Fluid	compressed air
Pre-filtering with filtering element of 1µm Pre-filtering with filtering element of 0.01µm	it is recommended to use a filter of 5μm it is recommended to use a filter of 1μm



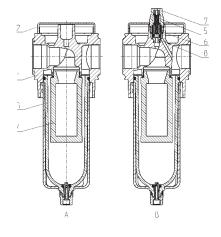
CODING EXAMPLE

	_	I	- /-					_		_			
MX	2	-	1/2	2	-	FC	0	0	М	1	-	LH	1
MX	SERIES												
2	SIZE: 2 = G3/8 - G 3 = G3/4 - G												
1/2	PORTS: 3/8 = G3/8 1/2 = G1/2 3/4 = G3/4 1 = G1												
FC	COALESCING	FILTER											
0	FILTERING EI 0 = 0,01 μm 1 = 1 μm												
0	0 = semiaut 3 = automa 5 = depressi	omatic-manu ic drain	E (further deta al drain (stand rotected (only ort G1/8	ard - only f	or polymer								
М	TYPE OF BOV = polymer (M = metal (standard)	./2 and MX3-1))									
1	VISUAL BLOC = not prese 1 = present	KAGE INDICAT	OR:										
LH	FLOW DIREC = from le LH = from ri	ft to right (sta	ndard)										

For the assembly of a single component with fixing flanges or wall-mounting, see the section "FRL Series MX Assembled"

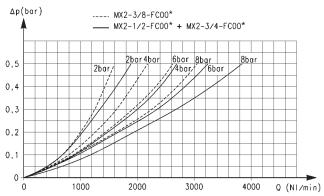
Coalescing filters Series MX - materials

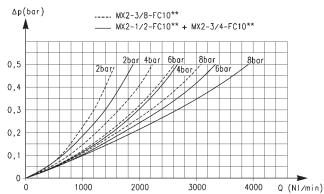
A = Filter B = Filter with visual blockage indicator



PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
3 = Bowl / bowl cover	Polycarbonate/Polyamide/Aluminium
4 = Filtering element	Borosilicate
5 = Upper spring	Stainless steel
6 = Piston	Anodized aluminium
7 = Visual blockage indicator	Polycarbonate
8 = Indicator body	Brass
Seals	NBR

MX2 COALESCING FILTERS FLOW DIAGRAMS



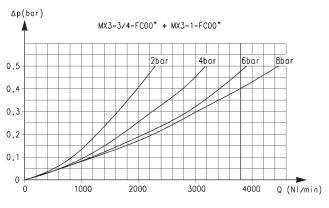


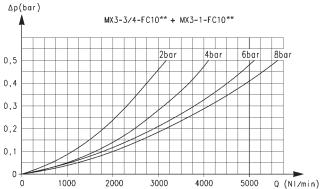
* Reference diagram for models with filtering element = 0.01 μm

Δp = Pressure drop (bar) Q = Flow (Nl/min) ** Reference diagram for models with filtering element = 1 μm

Δp = Pressure drop (bar) Q = Flow (Nl/min)

MX3 COALESCING FILTERS FLOW DIAGRAMS





* Reference diagram for models with filtering element = $0.01 \mu m$

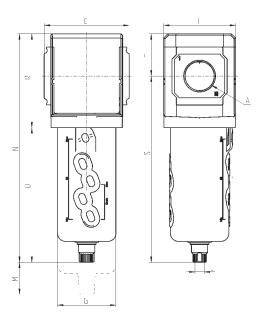
Δp = Pressure drop (bar) Q = Flow (Nl/min) ** Reference diagram for models with filtering element = $1 \mu m$

Δp = Pressure drop (bar) Q = Flow (Nl/min)

C₹ CAMOZZI

Coalescing filters Series MX - dimensions





Mod.	Α	C	G	1	L	М	N	0	R	S	T	Weight (Kg)
MX2-3/8-FC00	G3/8	70	55.3	68	G1/8	52	212	127	85	174.5	37.5	0.5
MX2-1/2-FC00	G1/2	70	55.3	68	G1/8	52	212	127	85	174.5	37.5	0.5
MX2-3/4-FC00	G3/4	70	55.3	68	G1/8	52	212	127	85	174.5	37.5	0.5
MX3-3/4-FC00	G3/4	89.5	61.5	76	G1/8	75	241	142	99	196.5	44.5	0.8
MX3-1-FC00	G1	89.5	61.5	76	G1/8	75	241	142	99	196.5	44.5	0.8
MX2-1/2-FC03M	G1/2	70	60	68	G1/8	52	205	120	85	167.5	37.5	0.6
MX3-1-FC03M	G1	89.5	67	76	G1/8	75	233	134	99	188.5	44.5	0.8



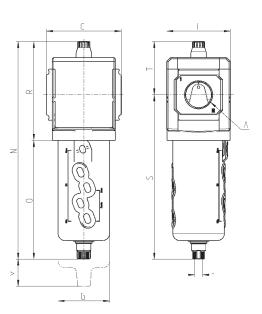
FA01 = coalescing filter without drain with port G1/8

FA03 = coalescing filter with automatic or depressuring drain

FA02 = coalescing filter with semi-automatic manual drain

Coalescing filters with visual blockage indicator Series MX - dimensions





Mod.	Α	С	G	-1	L	М	N	0	R	S	T	Weight (Kg)
MX2-3/8-FC001	G3/8	70	55.3	68	G1/8	52	231	127	104	174.5	56.5	0.5
MX2-1/2-FC001	G1/2	70	55.3	68	G1/8	52	231	127	104	174.5	56.5	0.5
MX2-3/4-FC001	G3/4	70	55.3	68	G1/8	52	231	127	104	174.5	56.5	0.5
MX3-3/4-FC001	G3/4	89.5	61.5	76	G1/8	75	260	142	118	196.5	63.5	0.8
MX3-1-FC001	G1	89.5	61.5	76	G1/8	75	260	142	118	196.5	63.5	0.8
MX2-1/2-FC03M1	G1/2	70	60	68	G1/8	52	224	120	104	167.5	56.5	0.6
MX3-1-FC03M1	G1	89.5	67	76	G1/8	75	252	134	118	188.5	63.5	0.8







FA04 = coalescing filter without drain, with port G1/8 and visual blockage indicator FA05 = coalescing filter with semi-automatic manual drain and visual

blockage indicator FA06 = coalescing filter with automatic or depressuring drain and visual blockage indicator

SERIES MX ACTIVATED CARBON FILTERS

Series MX activated carbon filters



MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1

Modular

Bowl with technopolymer cover and bayonet-type mounting





- » Removal of compressed air oil, liquid, and gas components through the actived carbon
- » Quality of delivered air according to ISO 8573-1:2010, Class 1.7.1
- » Bowl locking system reducing the risk of accidents
- » Visual blockage indicator
- » Metal bowl also available

MX is the new series of air treatment components realized by Camozzi, characterized by a modern, linear and compact design, offering high performances. The perfect integration between metal alloys and technopolymers has allowed the realization of a reliable product, light and strong at the same time. Thanks to a new concept of modularity, moreover, the mounting of components has become easier.

The Series MX has been realized to offer a multi-sector solution that guarantees saving in terms of installation time, space and costs.

A special configurator, available on Camozzi website at http://catalogue.camozzi.com (sec. Configurators), allows the customer to choose the most suitable solution for his application, selecting single components or by configuring assembled FRLs.

GENERAL DATA

C-------

Construction	modular, compact with activated carbon filtering element
Materials	see TABLE OF MATERIALS on the following page
Ports	MX2: G3/8 - G1/2 - G3/4 MX3: G3/4 - G1
Mounting	vertical in-line wall-mounting (by means of clamps)
Operating temperature	$10^{\circ}\text{C} \div 40^{\circ}\text{C} \text{ (t max = }60^{\circ}\text{C)}$
Quality of delivered air according to ISO 8573-1:2010	Class 1.7.1
Draining of condensate	No draining
Operating pressure	0.3 ÷ 16 bar
Nominal flow	see FLOW DIAGRAMS on the following pages
Filtering element	actived carbon
Residual oil content	< 0,003 mg/m³
Fluid	compressed air
Pre-filtering	it is recommended to use a filter with residual oil of 0,01mg/m³



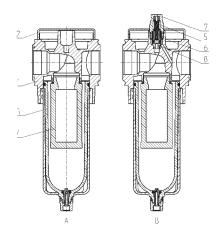
CODING EXAMPLE

MX	2	_	1/2	_	FCA	M	1	_	LH
MX	SERIES								
2	SIZE: 2 = G3/8 - G1/2 3 = G3/4 - G1	- G3/4							
1/2	PORT: 1/2 = G1/2 3/4 = G3/4 1 = G1								
FCA	ACTIVATED CARE	BON FILTER							
М	TYPE OF BOWL: = polymer (star M = metal (only	ndard) / for MX2-1/2 and	MX3-1)						
1	VISUAL BLOCKAG = not present 1 = present								
LH	FLOW DIRECTION = from left to LH = from right	right (standard)							

For the assembly of a single component with fixing flanges or wall-mounting, see the section "FRL Series MX Assembled"

Activated carbon filters Series MX - materials

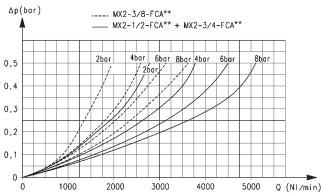
A = filter B = filter with visual blockage indicator

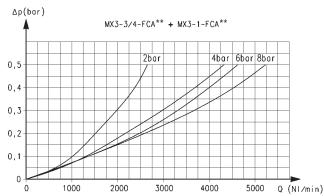


PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
3 = Bowl / bowl cover	Polycarbonate/Polyamide
4 = Filtering element	Activated carbon
5 = Upper spring	Stainless steel
6 = Piston	Anodized aluminium
7 = Viewer	Polycarbonate
8 = Indicator body	Brass
Seals	NBR

SERIES MX ACTIVATED CARBON FILTERS

FLOW DIAGRAMS





Reference diagram for MX2

Δp = Pressure drop (bar) Q = Flow (Nl/min) Reference diagram for MX3

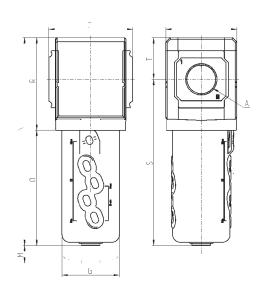
Δp = Pressure drop (bar) Q = Flow (Nl/min)

Activated carbon filters Series MX - dimensions



FC01 = activated carbon filter





Mod.	Α	C	G	I	M	N	0	R	S	T	Weight (Kg)
MX2-3/8-FCA	G3/8	70	55.3	68	89.5	189.5	104.5	85	152	37.5	0.5
MX2-1/2-FCA	G1/2	70	55.3	68	89.5	189.5	104.5	85	152	37.5	0.5
MX2-3/4-FCA	G3/4	70	55.3	68	89.5	189.5	104.5	85	152	37.5	0.5
MX3-3/4-FCA	G3/4	89.5	61.5	76	107	222	123	99	177.5	44.5	0.8
MX3-1-FCA	G1	89.5	61.5	76	107	222	123	99	177.5	44.5	0.8
MX2-1/2-FCAM	G1/2	70	60	68	89.5	191.5	106.5	85	154	37.5	0.6
MX3-1-FCAM	G1	89.5	67	76	107	221	122	99	176.5	44.5	0.8

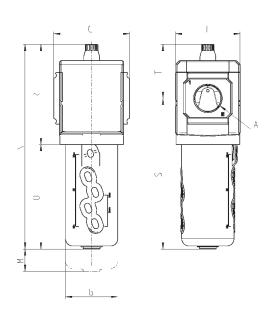
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Activated carbon filters Series MX - dimensions



FC02 = activated carbon filter with visual blockage indicator





Mod.	А	С	G	I	М	N	0	R	S	Т	Weight (Kg)
MX2-3/8-FCA1	G3/8	70	55.3	68	89.5	208.5	104.5	104	152	56.5	0.5
MX2-1/2-FCA1	G1/2	70	55.3	68	89.5	208.5	104.5	104	152	56.5	0.5
MX2-3/4-FCA1	G3/4	70	55.3	68	89.5	208.5	104.5	104	152	56.5	0.5
MX3-3/4-FCA1	G3/4	89.5	61.5	76	107	241	123	118	177.5	63.5	0.8
MX3-1-FCA1	G1	89.5	61.5	76	107	241	123	118	177.5	63.5	0.8
MX2-1/2-FCAM1	G1/2	70	60	68	89.5	210.5	106.5	104	154	56.5	0.6
MX3-1-FCAM1	G1	89.5	67	76	107	240	122	118	176.5	63.5	0.8



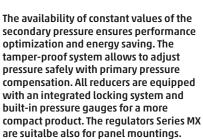
Series MX pressure regulators

MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1

Manifold ports: G1/2 (MX2 only)

Modular - Available with built-in pressure gauges or ports for gauges







The Series MX has been realized to offer a multi-sector solution that guarantees saving in terms of installation time, space and costs.

A special configurator, available on Camozzi website at http://catalogue.camozzi.com (sec. Configurators), allows the customer to choose the most suitable solution for his application, selecting single components or by configuring assembled FRLs.

- » Minimal pressure decreases
- » Knob with closure
- » Tamper-proof system (lockable regulator)
- » Integral return exhaust (relieving)
- » Available versions: Manifold, with by-pass valve

GENERAL DATA

Construction modular, compact, diaphragm type

Materials see TABLE OF MATERIALS on the following page

Ports MX2: G3/8 - G1/2 - G3/4 - MX3: G3/4 - G1
Manifold regulator: G1/2 (MX2 only)

Mounting vertical in-line, wall-mounting (by means of clamps), panel mounting

 $\textbf{Operating temperature} \quad \text{-} 5^\circ\text{C} \div 50^\circ\text{C up to 16 bar (with the dew point of the fluid lower than 2}^\circ\text{C at the min. working temperature)}$

-5°C ÷ 60°C up to 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)

Inlet pressure 0 ÷ 16 bar

Outlet pressure 0.5 ÷ 10 bar (standard)

0 ÷ 4 bar

0.5 ÷ 7 bar (MX2 only)

Overpressure exhaust with relieving (standard) or without relieving
Nominal flow see FLOW DIAGRAMS on the following pages

Fluid compressed air

Pressure gauge built-in pressure gauge (standard)

with G1/4 port (MX3 only) or G1/8 port (MX2 only)



CODING EXAMPLE

МХ	2 - 3/8 - R 0 0 4 - LH
MX	SERIES
2	SIZE: 2 = G3/8 - G1/2 - G3/4 3 = G3/4 - G1
3/8	PORTS: 3/8 = 63/8 1/2 = 61/2 3/4 = 63/4 1 = 61
R	TYPER OF REGULATOR: R = pressure regulator M = Manifold pressure regulator (MX2 - G1/2 only)
0	OPERATING PRESSURE (1 bar = 14,5 psi): 0 = 0.5 ÷ 10 bar (standard) 4 = 0 ÷ 4 bar 7 = 0.5 ÷ 7 bar (MX2 only)
0	DESIGN TYPE: 0 = relieving (standard) 1 = without relieving 2 = relieving, with by-pass valve (only regulator) 3 = without relieving, with by-pass valve (only regulator)

For the assembly of a single component with fixing flanges or wall-mounting, see the section ``FRL Series MX Assembled''

PRESSURE GAUGE:
0 = without pressure gauge (with threaded port for gauges)
2 = with built-in pressure gauge 0-6 and working pressure 0 ÷ 4 bar
3 = with built-in pressure gauge 0-10 and working pressure 0 ÷ 7 bar (MX2 only)
4 = with built-in pressure gauge 0-12 and working pressure 0.5 ÷ 10 bar (standard)

Pressure regulators Series MX - materials

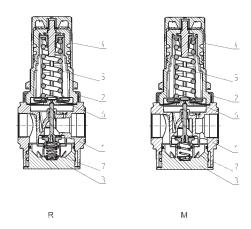
PRESSURE GALIGE:

FLOW DIRECTION: = from left to right (standard) LH = from right to left

4

LH

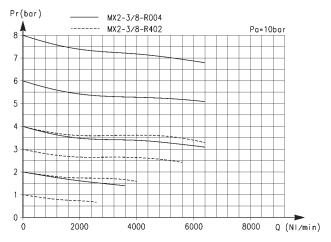
R = pressure regulator M = Manifold pressure regulator

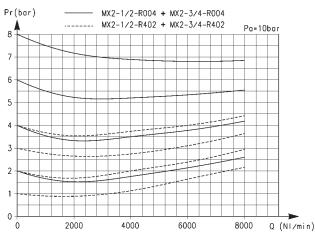


PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
3 = Valve holder plug	Polyacetal
4 = Regulator knob	Polyamide
5 = Upper spring	Zinc-plated steel
6 = Diaphragm	NBR
7 = Lower spring	Stainless steel
Seals	NBR

SERIES MX PRESSURE REGULATORS

MX2 PRESSURE REGULATORS FLOW DIAGRAMS





Pr = Regulated pressure (bar)

Q = Flow (Nl/min)

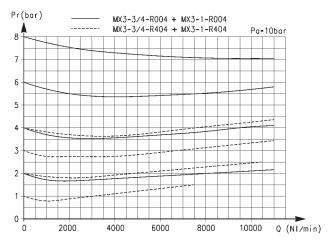
Pa = Inlet pressure (bar)

Pr = Regulated pressure (bar)

Q = Flow (Nl/min)

Pa = Inlet pressure (bar)

MX3 PRESSURE REGULATORS FLOW DIAGRAM AND PNEUMATIC SYMBOLS



















Pr = Regulated pressure (bar)

Q = Flow (Nl/min)

Pa = Inlet pressure (bar)

PR01 = regulator without relieving

PR02 = regulator with relieving

PR03 = regulator with relieving and by-pass valve

PRO4 = regulator without relieving with by-pass valve

PR05 = regulator without relieving and with pressure gauge

PRO6 = regulator with relieving and pressure gauge

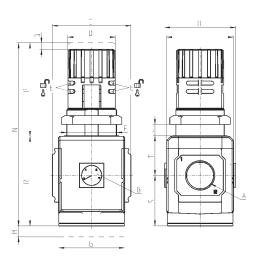
PR07 = regulator with relieving, by-pass valve and pressure gauge

PRO8 = reg. without reliev. with by-pass valve and pressure gauge

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Pressure regulators Series MX - dimensions

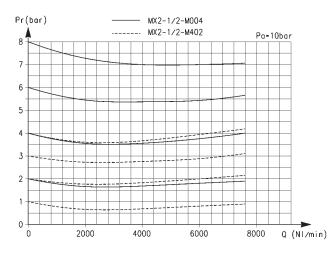


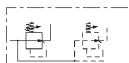


Mod.	Α	B (bar)	С	D	Е	F	G	Н	- 1	М	N	Р	Q	R	S	T	U	Weight (Kg)
MX2-3/8-R004	G3/8	0 ÷ 12	70	45	Ø 4	M47x1,5	70	74,5	68	45	166	78	5	88	50,5	37,5	0 ÷ 13	0.6
MX2-1/2-R004	G1/2	0 ÷ 12	70	45	Ø 4	M47x1,5	70	74,5	68	45	166	78	5	88	50,5	37,5	0 ÷ 13	0.6
MX2-3/4-R004	G3/4	0 ÷ 12	70	45	Ø 4	M47x1,5	70	74,5	68	45	166	78	5	88	50,5	37,5	0 ÷ 13	0.6
MX3-3/4-R004	G3/4	0 ÷ 12	89,5	54	Ø 4	M57x1,5	75	81	76	45	206	104	5	102	57,5	44,5	0 ÷ 20	1
MX3-1-R004	G1	0 ÷ 12	89.5	54	Ø 4	M57x1.5	75	81	76	45	206	104	5	102	57.5	44.5	0 ÷ 20	1



MANIFOLD REGULATOR - FLOW DIAGRAM and PNEUMATIC SYMBOLS









Pr = Regulated pressure (bar) Q = Flow (Nl/min)

Pa = Inlet pressure (bar)

FR19 = Manifold reg. with relieving and without pressure gauge

FR20 = Manifold reg. with relieving and pressure gauge

FR21 = Manifold reg. without relieving or pressure gauge

FR22 = Manifold reg. without relieving and with pressure gauge

MANIFOLD pressure regulator Series MX - dimensions

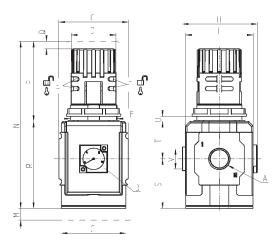


The picture on the left side shows that it is possibile to assembly a certain numer of regulators with the same inlet pressure using proper mounting

kits, with or without terminals.

The regulation of the outlet pressure (OUT port) of each regulator can be set up rotating the knob clockwise or anticlockwise until the desired pressure is reached.
This regulation has no effect on pressures of previous or following

regulators.



Mod.	Α	B (bar)	С	D	Е	F	G	Н	- 1	М	N	Р	Q	R	S	T	U	V (OUT)	Weight (Kg)
MX2-1/2-M004	G1/2	0 ÷ 12	70	45	Ø 4	M47x1,5	70	75,5	68	45	166	78	5	88	50,5	37,5	0 ÷ 13	G1/2	0,6

CAMOZZI Automation

Series MX pneumatic pilot operated pressure regulators



Ports: G3/8, G1/2, G3/4

Modular - Available with built-in pressure gauges or ports for gauges



- » Pneumatically operated regulation
- » Minimal pressure decreases
- » Integral return exhaust (relieving)

The availability of constant values of the secondary pressure ensures performance optimization and energy saving.
All regulators are equipped with an integrated locking system and built-in pressure gauges for a more compact product.

The Series MX has been realized to offer a multi-sector solution that guarantees saving in terms of installation time, space and costs.

A special configurator, available on Camozzi website at http://catalogue.camozzi.com (sec. Configurators), allows the customer to choose the most suitable solution for his application, selecting single components or by configuring assembled FRLs.

GENERAL DATA

Construction modular, compact, diaphragm type

Materials see TABLE OF MATERIALS on the following page

Ports G3/8 - G1/2 - G3/4

Mounting vertical in-line

wall-mounting (by means of clamps)

Operating temperature $-5^{\circ}\text{C} \div 50^{\circ}\text{C}$ up to 16 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)

-5°C ÷ 60°C up to 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)

Inlet pressure 0 ÷ 16 bar
Outlet pressure 10 bar

Overpressure exhaust with relieving (standard)

without relieving

Nominal flow see FLOW DIAGRAMS on the following pages

Fluid compressed air

Pressure gauge built-in pressure gauge (standard)

with G1/8 port

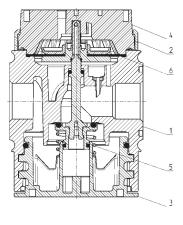


CODING EXAMPLE

MX	2	-	1/2	-	R	СР	0	0	4	-	LH
MX	SERIES										
2	SIZE: 2 = G3/8 - G1	L/2 - G3/4									
1/2	PORTS: 3/8 = G3/8 1/2 = G1/2 3/4 = G3/4										
R	TYPER OF REC										
СР		MAND/PILOT S atic pilot supp									
0	OPERATING F 0 = 0.5 ÷ 10										
0	DESIGN TYPE 0 = relieving 1 = without	(standard)									
4		pressure gaug	ge (with threaded port gauge 0-12 and worki		5 ÷ 10 bar (stan	dard)					
LH	FLOW DIRECT = from let LH = from rig	ft to right (star	ndard)								

For the assembly of a single component with fixing flanges or wall-mounting, see the section "FRL Series MX Assembled"

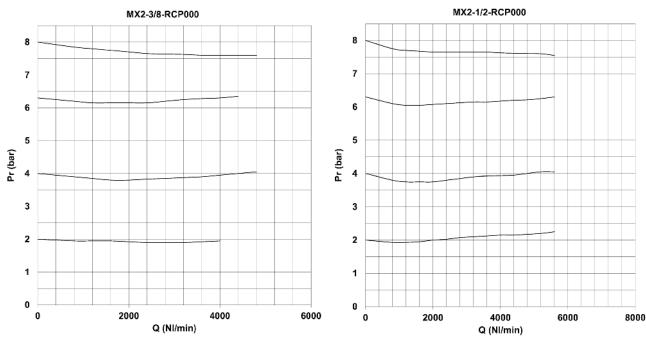
Pneumatic pilot operated pressure regulators Series MX - materials



PARTS	MATERIALS
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

CAMOZZI Automation

DIAGRAMS OF PNEUMATIC PILOT OPERATED PRESSURE REGULATORS

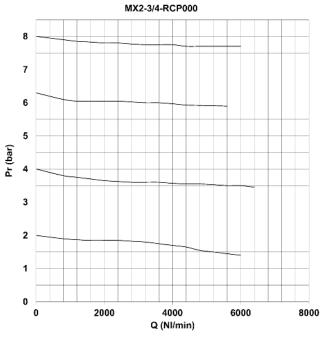


Pr = Regulated pressure (bar) Q = Flow (Nl/min)

Inlet pressure = 10bar

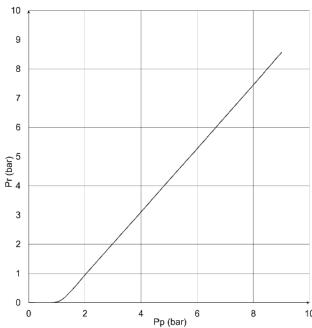
Pr = Regulated pressure (bar) Q = Flow (Nl/min)

Inlet pressure = 10bar



Pr = Regulated pressure (bar) Q = Flow (Nl/min)

Inlet pressure = 10bar



ADJUSTMENT CURVE

Pr = regulated pressure (bar) Pp = pilot pressure (bar)

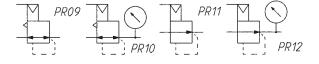
Inlet pressure = 10bar

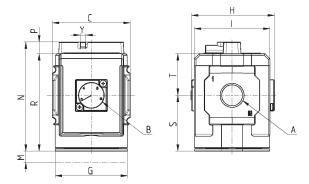


Pneumatic pilot operated pressure regulators Series MX - dimensions



PR09 = reg. with relieving PR10 = regulator with relieving and pressure gauge PR11 = regulator without relieving PR12 = regulator without relieving and with pressure gauge





Mod.	Α	B (bar)	C	G	Н	I	М	Y (Pilot supply)	N	P	R	S	T	Weight (Kg)
MX2-3/8-RCP004	G3/8	0 ÷ 12	70	65	74.5	68	45	M5	98	10	88	50.5	37.5	0.5
MX2-1/2-RCP004	G1/2	0 ÷ 12	70	65	74.5	68	45	M5	98	10	88	50.5	37.5	0.5
MX2-3/4-RCP004	G3/4	0 ÷ 12	70	65	74.5	68	45	M5	98	10	88	50.5	37.5	0.5



Series MX lubricators

New versions

MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1

Modular

Bowl with technopolymer cover and bayonet-type mounting



- » Regulation screw
- » Ability to refill the oil even with system under pressure
- » High flow
- » Check of the oil level through plastic cover openings
- » Bowl locking system reducing the risk of accidents
- » Metal bowl also available

MX is the new series of air treatment components realized by Camozzi, characterized by a modern, linear and compact design, offering high performances. The perfect integration between metal alloys and technopolymers has allowed the realization of a reliable product, light and strong at the same time. Thanks to a new concept of modularity, moreover, the mounting of components has become easier.

These proportional lubricators enable a precision metering.

The Series MX has been realized to offer a multi-sector solution that guarantees saving in terms of installation time, space and costs.

A special configurator, available on Camozzi website at http://catalogue.camozzi.com (sec. Configurators), allows the customer to choose the most suitable solution for his application, selecting single components or by configuring assembled FRLs.

GENERAL DATA

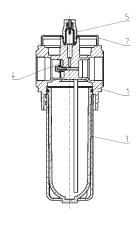
Construction	modular, compact
Materials	see TABLE OF MATERIALS on the following page
Ports	MX2: G3/8 - G1/2 - G3/4 MX3: G3/4 - G1
Oil capacity	MX2: 118 cm ³ MX3: 170 cm ³
Oil refilling	even during use
Mounting	vertical in-line wall-mounting (by means of clamps)
Operating temperature	-5°C ÷ 50°C up to 16 bar (with the dew point of the fluid lower than 2°C at the min. working temperature) -5°C ÷ 60°C up to 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Oil for lubrication	use ISO VG32 oils. Once applied, the lubrication should never be interrupted.
Operating pressure	0 ÷ 16 bar
Min. air consumption for lubrication at 1 bar	MX2: 17 NI/min MX3: 50 NI/min
Min. air consumption for lubrication at 6 bar	MX2: 38 NI/min MX3: 90 NI/min
Nominal flow	see FLOW DIAGRAMS on the following pages

CODING EXAMPLE

MX	2 - 1/2 - L 00 M - LH
МХ	SERIES
2	SIZE: 2 = G3/8 - G1/2 - G3/4 3 = G3/4 - G1
1/2	PORT: 1/2 = G1/2 3/4 = G3/4 1 = G1
L	LUBRICATOR
00	DESIGN TYPE: 00 = atomized oil
М	TYPE OF BOWL: = polymer (standard) M = metal (for MX2-1/2 and MX3-1 only)
LH	FLOW DIRECTION: = from left to right (standard) LH = from right to left

For the assembly of a single component with fixing flanges or wall-mounting, see the section "FRL Series MX Assembled"

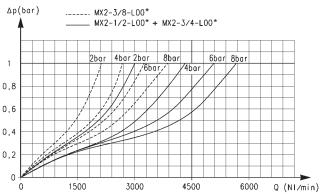
Lubricators Series MX - materials

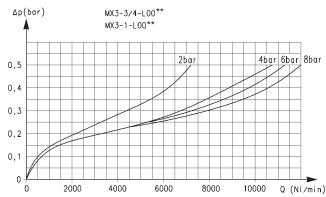


PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
3 = Bowl / bowl cover	Polycarbonate/Polyamide/Aluminium
4 = Diaphragm	NBR
5 = Visual indicator	Polyamide
Seals	NBR

SERIES MX LUBRICATORS

FLOW DIAGRAMS





Reference diagram for MX2

Δp = Pressure drop (bar) Q = Flow (Nl/min) Reference diagram for MX3

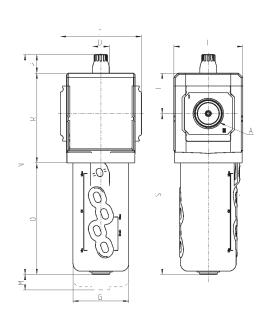
Δp = Pressure drop (bar) Q = Flow (Nl/min)

Lubricators Series MX - dimensions



LU0 = lubricator





Mod.	Α	С	D	G	I	М	N	0	Р	R	S	Т	Weight (Kg)
MX2-3/8-L00	G3/8	70	18.5	55.5	68	84.5	210	104.5	20.5	85	152	37.5	0.5
MX2-1/2-L00	G1/2	70	18.5	55.5	68	84.5	210	104.5	20.5	85	152	37.5	0.5
MX2-3/4-L00	G3/4	70	18.5	55.5	68	84.5	210	104.5	20.5	85	152	37.5	0.5
MX3-3/4-L00	G3/4	89.5	18.5	61.5	76	100	243	123	21	99	178	44.5	0.8
MX3-1-L00	G1	89.5	18.5	61.5	76	100	243	123	21	99	178	44.5	0.8
MX2-1/2-L00M	G1/2	70	18.5	60	68	84.5	212	106.5	20.5	85	154	37.5	0.6
MX3-1-L00M	G1	89.5	18.5	67	76	100	242	122	21	99	177	44.5	0.8

Series MX filter-regulators

New versions

MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1

Modular

Bowl with technopolymer cover and bayonet-type mounting



and did a comment with filtering along set in UDDE

- » Quality of delivered air according to ISO 8573-1:2010, Classes 7.8.4 and 6.8.4
- » With built-in pressure gauge or with ports for pressure gauge
- » Lockable knob
- » Polymer bowl locking system reducing the risk of accidents
- » Metal bowl also available

Series MX filter-regulators integrate filter and pressure reducer in one unit. They are, therefore, compact and suitable for prefiltering functions.

Available with or without draining (relieving), they are equipped with a valve diaphragm for a direct pressure regulation and with an integrated condensate drainer, manual or automatic. Moreover, they are equipped with a built-in pressure gauge.

The Series MX has been realized to offer a multi-sector solution that guarantees saving in terms of installation time, space and costs.

A special configurator, available on Camozzi website at http://catalogue. camozzi.com (sec. Configurators), allows the customer to choose the most suitable solution for his application, selecting single components or by configuring assembled FRLs.

GENERAL DATA

C-------

Construction	modular, compact with filtering element in HDPE
Materials	see TABLE OF MATERIALS on the following page
Ports	MX2: G3/8 - G1/2 - G3/4 - MX3: G3/4 - G1
Condensate capacity	MX2: 55 cc - MX3: 85 cc
Mounting	vertical in-line, wall-mounting (by means of clamps), panel mounting
Operating temperature	-5°C \div 50°C up to 16 bar (with the dew point of the fluid lower than 2°C at the min. working temperature) -5°C \div 60°C up to 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Quality of delivered air according to ISO 8573-1:2010	Class 6.8.4 with 5 µm filtering element Class 7.8.4 with 25 µm filtering element
Draining of condensate	MX2: manual-semi automatic (standard), automatic, depressurization protected, direct G1/8 exhaust MX3: manual-semi automatic (standard), automatic, direct G1/8 exhaust
Inlet pressure	$0.3 \div 16$ bar (with automatic drain $1.5 \div 12$)
Nominal flow	see FLOW DIAGRAMS on the following pages
Fluid	compressed air
Pressure gauge	built-in pressure gauge (standard) with G1/4 port (MX3 only) or G1/8 port (MX2 only)

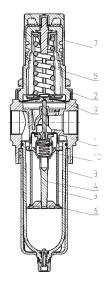


CODING EXAMPLE

МХ	2 - 1/2 - FR 0 0 0 4 M - LH						
МХ	SERIES						
2	SIZE: 2 = G3/8 - G1/2 - G3/4 3 = G3/4 - G1						
1/2	PORT: 3/8 = G3/8 1/2 = G1/2 3/4 = G3/4 1 = G1						
FR	FILTER-REGULATOR						
0	FILTERING ELEMENT WITH DESIGN TYPE: 0 = 25 µm with relieving (standard) 1 = 5 µm with relieving 2 = 25 µm with relieving (with semiautomatic-manual drain only) 3 = 5 µm without relieving (with semiautomatic-manual drain only) 4 = 25 µm with relieving and by-pass valve 5 = 5 µm with relieving and by-pass valve 6 = 25 µm without relieving, with by-pass valve 7 = 5 µm without relieving, with by-pass valve						
0	DRAINING OF CONDENSATE (further details in the dedicated section): 0 = semiautomatic-manual drain (standard - only for polymer bowl) 3 = automatic drain 5 = depressuring drain, protected (only for polymer bowl) 8 = without drain, with port 61/8						
0	OPERATING PRESSURE: 0 = 0.5 ÷ 10 bar (standard) 4 = 0 ÷ 4 bar 7 = 0.5 ÷ 7 bar (MX2 only)						
4	PRESSURE GAUGE: 0 = without pressure gauge (with threaded port) 2 = with built-in pressure gauge 0-6 and working pressure 0 ÷ 4 bar 3 = with built-in pressure gauge 0-10 and working pressure 0 ÷ 7 bar (MXZ only) 4 = with built-in pressure gauge 0-12 and working pressure 0.5 ÷ 10 bar (standard)						
М	TYPE OF BOWL: = polymer (standard) M = metal (only for MX2-1/2 and MX3-1)						
LH	FLOW DIRECTION: = from left to right (standard) LH = from right to left						

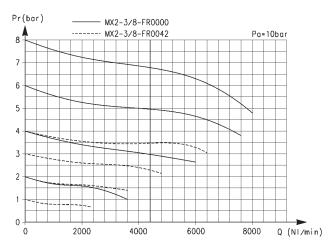
For the assembly of a single component with fixing flanges or wall-mounting, see the section "FRL Series MX Assembled"

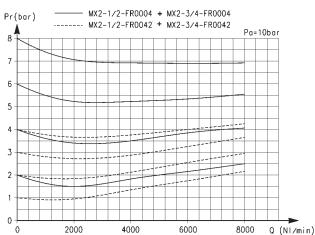
Filter-regulators Series MX - materials



PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
3 = Bowl / bowl cover	Polycarbonate/Polyamide/Aluminium
4 = Valve guide	Polyacetal
5 = Filtering element	Polyethylene
6 = Separation deflector	Polyacetal
7 = Knob	Polyamide
8 = Upper spring	Zinc-plated steel
9 = Diaphragm	NBR
10 = Lower spring	Stainless steel
Seals	NBR

MX2 FILTER REGULATORS FLOW DIAGRAMS





Pr = Regulated pressure

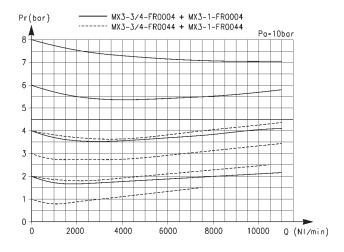
Q = Flow

Pa = Inlet pressure

Pr = Regulated pressure Q = Flow

Pa = Inlet pressure

MX3 FILTER-REGULATORS FLOW DIAGRAM



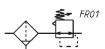
Pr = Regulated pressure

Q = Flow

Pa = Inlet pressure

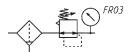
C CAMOZZI

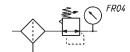
PNEUMATIC SYMBOLS

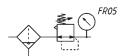


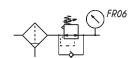














FR07 = filter-reg. with rel., pres. gauge, dir. exh. and by-pass valve

FR18 = filter-reg. with relieving and automatic drain

FR22 = filter-reg. without relieving, with pressure gauge,

automatic-depressurisation drain and by-pass valve

FR24 = filter-reg. with rel. and man/semiaut drain and bypass valve

FR25 = filter-reg. with relieving, direct exhaust and by-pass valve

FR26 = filter-reg. without relieving, automatic-depressurisation

drain and by-pass valve

FR01 = filter-reg. with relieving and manual/semiautomatic drain

FR02 = filter-reg. with relieving and direct exhaust

FR03 = filter-reg. with relieving, pressure gauge and manual/ semiautomatic drain

FR04 = filter-reg. with relieving, pressure gauge and direct exhaust

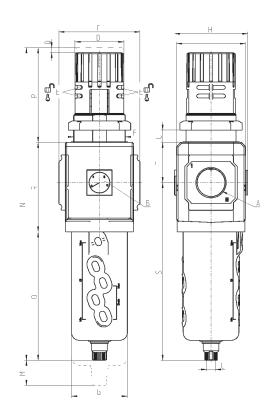
FR05 = filter-reg. with relieving, pressure gauge and automatic drain

FR06 = filter-reg. with relieving, pressure gauge, manual/

semiautomatic drain and by-pass valve

Filter-regulators Series MX - dimensions





Mod.	Α	B (bar)	C	D	Ε	F	G	Н	I	L	М	N	0	Р	Q	R	S	T	U	Weight (Kg)
MX2-3/8-FR0004	G3/8	0 ÷ 12	70	45	Ø 4.7	M47x1.5	55.5	74.5	68	G1/8	66	290	127	78	5	85	174.5	37.5	0 ÷ 16	0.8
MX2-1/2-FR0004	G1/2	0 ÷ 12	70	45	Ø 4.7	M47x1.5	55.5	74.5	68	G1/8	66	290	127	78	5	85	174.5	37.5	0 ÷ 16	0.8
MX2-3/4-FR0004	G3/4	0 ÷ 12	70	45	Ø 4.7	M47x1.5	55.5	74.5	68	G1/8	66	290	127	78	5	85	174.5	37.5	0 ÷ 16	0.8
MX3-3/4-FR0004	G3/4	0 ÷ 12	89.5	54	Ø 4	M57x1.5	61.5	81	76	G1/8	75	345	142	104	5	99	196.5	44.5	0 ÷ 20	1.3
MX3-1-FR0004	G1	0 ÷ 12	89.5	54	Ø 4	M57x1.5	61.5	81	76	G1/8	75	345	142	104	5	99	196.5	44.5	0 ÷ 20	1.3
MX2-1/2-FR0304M	G1/2	0 ÷ 12	70	45	Ø 4.7	M47x1.5	60	74.5	68	G1/8	66	283	120	78	5	85	167.5	37.5	0 ÷ 16	0.9
MX3-1-FR0304M	G1	0 ÷ 12	89.5	54	Ø 4	M57x1.5	67	81	76	G1/8	75	337	134	104	5	99	188.5	44.5	0 ÷ 20	1.3



Series MX lockable isolation 3/2-way valves

MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1

Modular

Manual, electro-pneumatic, servo-pilot and pneumatic control







- » Standard tamperproof lock-out (manual valve)
- » One/more locks for the lockout feature (manual valve)
- » Actuation at 24 V, 110 V or 230 V
- » Exhaust in atmosphere

Manual isolation valves are ideal to allow an easy access to the FRL group. The system is depressurized with the de-activation of the valve.

Electropneumatic isolation valves: ideal where manual access is difficult, they allow a maximum positioning flexibility and are designed to pressurize or depressurize pneumatic systems. The built-in manual override guarantees security in case of an emergency.

The Series MX has been realized to offer a multi-sector solution that guarantees saving in terms of installation time, space and costs.

A special configurator, available on Camozzi website at http://catalogue.camozzi.com (sec. Configurators), allows the customer to choose the most suitable solution for his application, selecting single components or by configuring assembled FRLs.

GENERAL DATA

Construction	modular, compact, spool-type
Materials	see TABLE OF MATERIALS on the following page
Ports	MX2: G3/8 - G1/2 - G3/4 MX3: G3/4 - G1
Mounting	in-line wall-mounting (by means of clamps)
Operating temperature	-5°C ÷ 50°C up to 16 bar (with the dew point of the fluid lower than 2°C at the min. working temperature) -5°C ÷ 60°C up to 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Operating pressure	Manual valve: -0,8 bar ÷ 10 bar Electro-pneumatic valve: 2 bar ÷ 10 bar Servopilot or pneumatic valve: -0,8 bar ÷ 10 bar (with pilot 3.5 ÷ 10 bar)
Nominal flow	see FLOW DIAGRAMS on the following pages
Nominal exhaust flow at 6 bar with $\Delta p = 1$ bar	MX2: 6000 Nl/min MX3: 9200 Nl/min
Fluid	compressed air

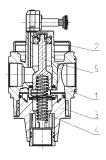


CODING EXAMPLE

MX	2	-	3/8	_	V	01	-	LH
MX	SERIES							
2	SIZE: 2 = G3/8 - G1/2 - G 3 = G3/4 - G1	3/4						
3/8	PORT: 3/8 = G3/8 1/2 = G1/2 3/4 = G3/4 1 = G1							
V	3/2-WAY VALVE							
01	DESIGN TYPE: 01 = lockable mar 16 = electro-pneu 17 = servo-pilot co 36 = pneumatic co	matic control ontrol						
LH	FLOW DIRECTION: = from left to ri LH = from right to							

For the assembly of a single component with fixing flanges or wall-mounting, see the section "FRL Series MX Assembled"

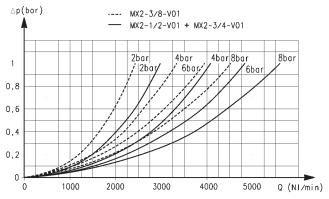
Lockable isolation 3/2-way valves Series MX - materials



PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
3 = Valve holder plug	Polyacetal
4 = Lower spring	Zinc-plated steel
5 = Spool	Stainless steel (MXV16 - V17 - V36) Aluminium (MXV01)
Seals	NBR

SERIES MX 3/2-WAY ISOLATION VALVES

NOMINAL FLOW DIAGRAM FOR VALVES Mod. MX...V01



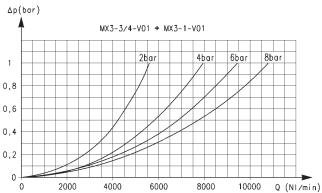


Diagram for lockable manual control valves MX2

Δp = Pressure drop (bar) Q = Flow (Nl/min) Diagram for lockable manual control valves MX3

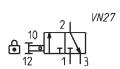
Δp = Pressure drop Q = Flow

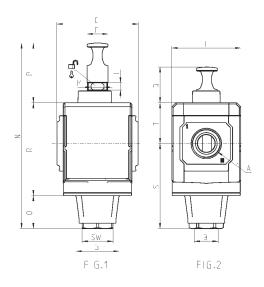
Lockable manual valves Series MX - dimensions



Fig. 1 = closed valve Fig. 2 = open valve



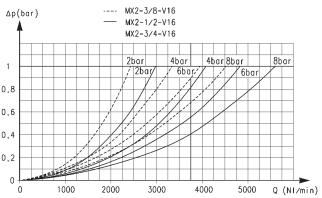




Mod.	Α	В	С	F	G	- 1	L	М	N	0	Р	Q	R	S	SW	T	Weight (Kg)
MX2-3/8-V01	G3/8	G 1/2	70	18	34,5	68	9	8	152	13	51	31	88	63,5	27	37,5	0.5
MX2-1/2-V01	G 1/2	G 1/2	70	18	34,5	68	9	8	152	13	51	31	88	63,5	27	37,5	0.5
MX2-3/4-V01	G3/4	G 1/2	70	18	34,5	68	9	8	152	13	51	31	88	63,5	27	37,5	0.5
MX3-3/4-V01	G3/4	G3/4	89,5	23	48	76	8	14,5	205,5	37	66,5	40	102	94,5	34	44,5	0.9
MX3-1-V01	G1	G3/4	89,5	23	48	76	8	14,5	205,5	37	66,5	40	102	94,5	34	44,5	0.9

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NOMINAL FLOW DIAGRAMS FOR VALVES Mod. MX...V16



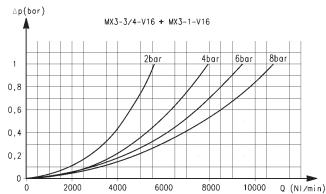


Diagram for electro-pneumatic control valves MX2

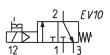
Δp = Pressure drop (bar) Q = Flow (Nl/min) Diagram for electro-pneumatic control valves MX3

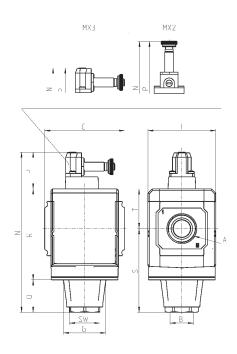
Δp = Pressure drop (bar) Q = Flow (Nl/min)

Series MX electro-pneumatically operated valves - dimensions



EV10 = solenoid valve, 3/2 NC, monostable, with bistable manual override





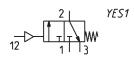
Mod.	А	В	С	G	I	N	0	Р	R	S	SW	T	Weight (Kg)
MX2-3/8-V16	G3/8	G1/2	70	34.5	68	171	13	70	88	63.5	34	37.5	0.5
MX2-1/2-V16	G1/2	G1/2	70	34.5	68	171	13	70	88	63.5	34	37.5	0.5
MX2-3/4-V16	G3/4	G1/2	70	34.5	68	171	13	70	88	63.5	34	37.5	0.5
MX3-3/4-V16	G3/4	G3/4	89.5	48	76	180.5	37	41.5	102	94.5	34	44.5	0.9
MX3-1-V16	G1	G3/4	89.5	48	76	180.5	37	41.5	102	94.5	34	44.5	0.9

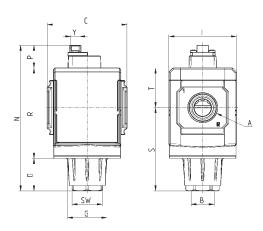


Series MX pneumatically operated valves - dimensions



YES1 = pneumatically operated valve, 3/2, monostable, mechanical spring

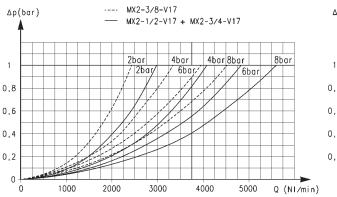




Mod.	А	В	С	G	I	N	0	Р	R	S	SW	T	Y (pilot supply)	Weight (Kg)
MX2-3/8-V36	G3/8	G1/2	70	34.5	68	122	13	21	88	63.5	34	37.5	G1/8	0.5
MX2-1/2-V36	G1/2	G1/2	70	34.5	68	122	13	21	88	63.5	34	37.5	G1/8	0.5
MX2-3/4-V36	G3/4	G1/2	70	34.5	68	122	13	21	88	63.5	34	37.5	G1/8	0.5
MX3-3/4-V36	G3/4	G3/4	89.5	48	76	164	37	25.5	102	94.5	34	44.5	G1/8	0.9
MX3-1-V36	G1	G3/4	89.5	48	76	164	37	25.5	102	94.5	34	44.5	G1/8	0.9

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FLOW DIAGRAM for valves Mod. MX...V17



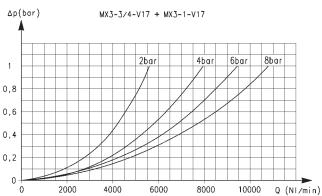


Diagram for servo-pilot control valves MX2

Δp = Pressure drop (bar) Q = Flow (Nl/min)

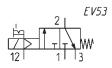
Diagram for servo-pilot control valves MX3

Δp = Pressure drop (bar) Q = Flow (Nl/min)

Series MX servo-pilot valves - dimensions



EV53 = solenoid valve, 3/2, monostable, solenoid pilot with separate air supply and bistable manual override



MX V′7	1
MX3	VX2
z c z c	
	- -
Z Z Z	X A

Mod.	Α	В	С	G	I	N	0	Р	R	S	SW	T	Χ	Weight (Kg)
MX2-3/8-V17	G3/8	G1/2	70	34,5	68	171	13	70	88	63,5	34	37,5	M5	0.5
MX2-1/2-V17	G1/2	G1/2	70	34,5	68	171	13	70	88	63,5	34	37,5	M5	0.5
MX2-3/4-V17	G3/4	G1/2	70	34,5	68	171	13	70	88	63,5	34	37,5	M5	0.5
MX3-3/4-V17	G3/4	G3/4	89,5	48	76	180,5	37	41,5	102	94,5	34	44,5	M5	0.9
MX3-1-V17	G1	G3/4	89,5	48	76	180,5	37	41,5	102	94,5	34	44,5	M5	0.9



Series MX soft start valves

MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1

Modular



- » Opening of the main air path at about 50% of the value of the inlet pressure
- » Pressure switches available on request

These soft start valves allow a gradual increase of the pressure in pneumatic systems. The pressure increases slowly according to the set regulation until it reaches half of the set value, then it increases rapidly. The valve poppet shifts slowly and securely to the open position to prevent sudden and unsafe movements of the pneumatic components in the system.

The Series MX has been realized to offer a multi-sector solution that guarantees saving in terms of installation time, space and costs.

A special configurator, available on Camozzi website at http://catalogue. camozzi.com (sec. Configurators), allows the customer to choose the most suitable solution for his application, selecting single components or by configuring assembled FRLs.

GENERAL DATA

Construction	modular, compact, poppet-type
Materials	see TABLE OF MATERIALS on the following page
Ports	MX2: G3/8 - G1/2 - G3/4 MX3: G3/4 - G1
Mounting	in-line wall-mounting (by means of clamps)
Operating temperature	-5°C ÷ 50°C up to 16 bar (with the dew point of the fluid lower than 2°C at the min. working temperature) -5°C ÷ 60°C up to 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Operating pressure	2 ÷ 16 bar
Nominal flow (at 6 bar with ΔP 1 bar)	MX2: 5800 l/min (G1/2, G3/4) MX2: 4500 l/min (G3/8) MX3: 8500 l/min
Fluid	compressed air

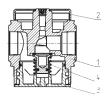


CODING EXAMPLE

MX	2	-	3/8	-	AV	-	LH
MX	SERIES						
2	SIZE: 2 = G3/8 - G1/2 - G3/4 3 = G3/4 - G1	·					
3/8	PORT: 3/8 = G3/8 1/2 = G1/2 3/4 = G3/4 1 = G1						
AV	SOFT START VALVE						
LH	FLOW DIRECTION: = from left to right LH = from right to left						

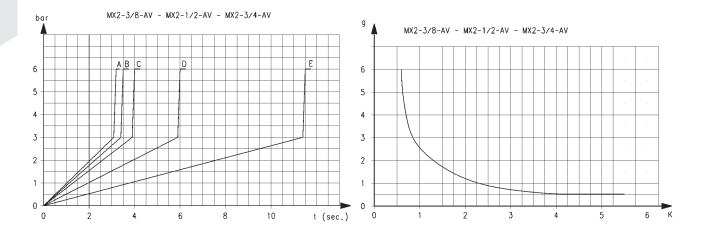
For the assembly of a single component with fixing flanges or wall-mounting, see the section "FRL Series MX Assembled"

Soft start valves Series MX - materials



PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
3 = Valve holder plug	Polyacetal
4 = Lower spring	Stainless steel
Seals	NBR

MX2 DIAGRAMS FOR PRESSURISATION TIMES



Pressurisation times as to the number of turns of the regulation screw, with downstream volume of 5 litres. A = 5 turns - B = 4 turns - C = 3 turns - D = 2 turns - E = 1 turn. K = number of turns of the regulation screw required to obtain the required pressurisation time with an inlet pressure of 6 bar. Variations of the inlet pressure can cause deviations of the pressure time by ± 20%. K = t/V where: V = volume of the downstream system in litres; t = desired pressuring time in seconds.

EXAMPLE:

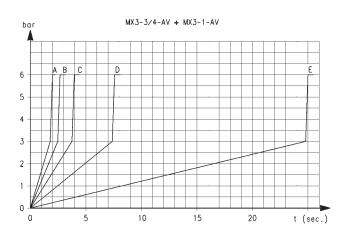
V = 5 litres

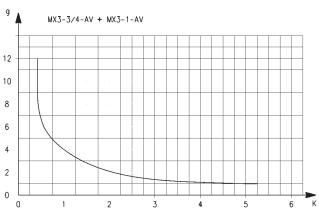
t = 16 seconds

K = 16/5 = 3,2

Using in the graph this value K, the number of turns of the regulation screw will be approx. 0,8.

MX3 DIAGRAMS FOR PRESSURISATION TIMES





Pressurisation times as to the number of turns of the regulation screw, with downstream volume of 5 litres. A = 5 turns - B = 4 turns - C = 3 turns - D = 2 turns - E = 1 turn. K = number of turns of the regulation screw required to obtain the required pressurisation time with an inlet pressure of 6 bar. Variations of the inlet pressure can cause deviations of the pressure time by ± 20%. K = t/V where: V = volume of the downstream system in litres; t = desired pressuring time in seconds.

EXAMPLE: V = 5 litres

t = 16 seconds

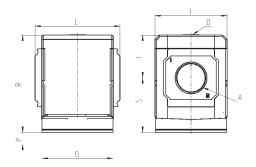
K = 16/5 = 3,2

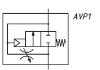
Using in the graph this value K, the number of turns of the regulation screw will be approx. 1,8.

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Soft start valves Series MX - dimensions







Mod.	Α	В	С	G	I	М	R	S	T	Weight (Kg)
MX2-3/8-AV	G3/8	G1/8	70	65	68	46,5	88	50,5	37,5	0.4
MX2-1/2-AV	G1/2	G1/8	70	65	68	46,5	88	50,5	37,5	0.4
MX2-3/4-AV	G3/4	G1/8	70	65	68	46,5	88	50,5	37,5	0.4
MX3-3/4-AV	G3/4	G1/8	89,5	75	76	48	102	57,5	44,5	0.7
MX3-1-AV	G1	G1/8	89,5	75	76	48	102	57,5	44,5	0.7

AVP1 = soft start valve

9

Series MX take-off blocks

MX2 port: G1/2 - MX3 port: G1

Modular



- » Compact design
- » Available with or without VNR (no return valve)
- » Pressure switches available on request

The Take-off blocks, when equipped with a no return valve, can be used to bleed non lubricated air.

The Series MX has been realized to offer a multi-sector solution that guarantees saving in terms of installation time, space and costs.

A special configurator, available on Camozzi website at http://catalogue.camozzi.com (sec. Configurators), allows the customer to choose the most suitable solution for his application, selecting single components or by configuring assembled FRLs.

GENERAL DATA

Construction	modular, compact, diaphragm-type
Materials	see TABLE OF MATERIALS on the following page
Ports	MX2: G1/2 MX3: G1
Take-off ports	MX2: G1/2 MX3: G1
Mounting	in-line wall-mounting (by means of clamps)
Operating temperature	-5°C \div 50°C up to 16 bar (with the dew point of the fluid lower than 2°C at the min. working temperature) -5°C \div 60°C up to 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Operating pressure	0 ÷ 16 bar
Nominal flow at 6 bar with $\Delta p = 1$ bar	MX2-1/2-B00 = 6800 Nl/min MX2-1/2-B01 = 5700 Nl/min MX3-1-B00 = 14500 Nl/min MX3-1-B01 = 10500 Nl/min
Fluid	compressed air

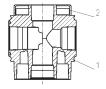


CODING EXAMPLE

MX	2	-	1/2	-	В	00	-	LH
MX	SERIES							
2	SIZE: 2 = G1/2 3 = G1							
1/2	PORT: 2 = G1/2 3 = G1							
В	TAKE-OFF BLOCK							
00	01 = with no retur	eturn valve (standar n valve eturn valve, with do						
LH	FLOW DIRECTION: = from left to ri LH = from right to							

For the assembly of a single component with fixing flanges or wall-mounting, see the section "FRL Series MX Assembled"

Take-off blocks Series MX - materials



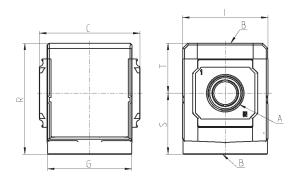
PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
Seals	NBR

TAKE-OFF BLOCKS

Series MX take-off blocks - dimensions



TABLE NOTE:
* to complete the code see
the CODING EXAMPLE







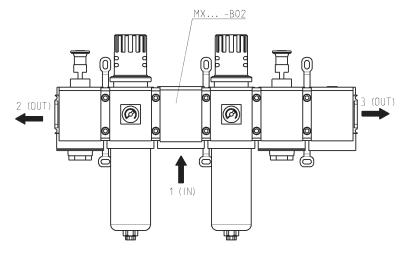
Mod. В Weight (Kg) Α С G R S Т MX2-1/2-B* G1/2 G1/2 70 65 68 86 47,5 38,5 0.4 MX3-1-B* 99 G1 G1 89,5 75 76 54,5 44,5 0.6

BL01 = take-off block

BL02 = take-off block with VNR

Use of the take-off block MX...- B02

The take-off block with double 0-ring seat is particularly suitable when Series MX modules have to be supplied through the same pressure source.
The modules which are connected to the left side are of LH kind.



ACCESSORIES FOR SERIES MX



Rapid clamps



Rapid clamps with brackets



Terminal flanges (IN/OUT)



Fixing brackets for regulators



Block for pressure gauge fixing



Assembly O-ring



MX built-in pressure gauge



Systems of rapid connections designed to make mounting easier.

ESSORIES FOR SERIES M

Rapid clamp kit Mod. MX2-... and MX3...

The kit MX2-X is supplied with: 1 rapid clamp, 1 0-ring OR 3125 *, 2 exagonal nuts M5, 2 screws M5x69.

The kit MX2-Z is supplied with: 1 rapid clamp, 1 0-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)

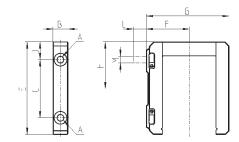
The kit MX3-X is supplied with: 1 rapid clamp, 1 O-ring OR 38X2,8 **, 2 square nuts M6, 2 screws M6x75.

The kit MX3-Z is supplied with: 1 rapid clamp, 1 0-ring OR 38X2,8 **, 1 square nut M6, 1 screw M6X75, 1 screw M6X90 for wall fixing.

** it can be ordered separately (OR 38X2,8 NBR)

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

See the positioning scheme in the section "Series MX assembled FRL"



DIMENSIO	DIMENSIONS										
Mod.	Α	В	С	D	E	F	G	Н	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
МХЗ-Х	6.2	14	54	16.5	86	40	77	43.5	-	-	
MX3-Z	6.2	14	54	16.5	86	40	77	43.5	13	M6	kit with wall fixing screw

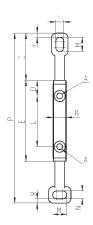
Rapid clamp kit with wall fixing brackets - size 2

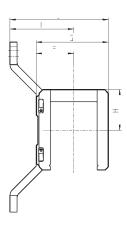


The kit MX2-Y is supplied with: 1 wall rapid clamp, 1 O-ring OR 3125 **, 2 exagonal nuts, 2 screws M5x69.

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

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





Mod.	Α	В	С	D	Е	F	G	Н	- 1	L	М	N	0	Р	R
MX2-Y	5,2	12	46	14	73,5	32,5	70,5	37	70,5	103	12	6,5	42	152	4

See the positioning scheme in the section "Series MX assembled FRL"

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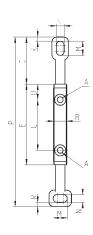
Rapid clamp kit with wall fixing brackets - size 3

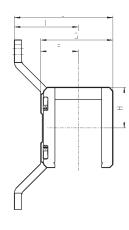


The kit MX3-Y is supplied with: 1 wall rapid clamp, 1 0-ring 38X2,8 **, 2 square nuts M6, 2 screws M6x75

** it can be also separately ordered (OR 38X2,8 NBR)

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





Mod.	А	В	С	D	Е	F	G	Н	- 1	L	М	N	0	Р	R
МХЗ-Ү	6,2	14	54	16,5	86	40	77	43,5	68	105	15	8,4	50,5	181	4,5

See the positioning scheme in the section "Series MX assembled FRL"

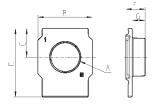
Terminal flanges (IN/OUT)



The kit is supplied with:

- 1 flange INLET side
- 1 flange OUTLET side

Materials: painted aluminium flanges.

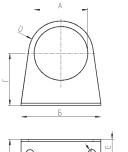


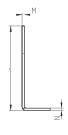
Mod.	А	В	С	D	E	G
MX2-3/8-FL	G3/8	50	26,5	63,5	17	11
MX2-1/2-FL	G1/2	50	26,5	63,5	17	11
MX2-3/4-FL	G3/4	50	26,5	63,5	17	11
MX3-3/4-FL	G3/4	58	30,5	73	20,5	13,5
MX3-1-FL	G1	58	30,5	73	20,5	13,5

Fixing bracket for regulators



The kit is supplied with 1 zinc-plated steel bracket





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Mod.	Α	В	С	D	Е	F	G	Н	L	М	N
MX2-S	Ø 47,2	73	60,5	R29,5	54	25	15	Ø 6,2	90	2,5	2,5
MX3-S	Ø 57,2	85	55,5	R34,5	66	30	15	Ø 8,2	90	2,5	2,5

Rapid clamps kit + flanges



Mod.	The kit is supplied with:
MX2-3/8-HH	1x MX2-3/8-FL + 2x MX2-X
MX2-1/2-HH	1x MX2-1/2-FL + 2x MX2-X
MX2-3/4-HH	1x MX2-3/4-FL + 2x MX2-X
MX2-3/8-JJ	1x MX2-3/8-FL + 2x MX2-Z
MX2-1/2-JJ	1x MX2-1/2-FL + 2x MX2-Z
MX2-3/4-JJ	1x MX2-3/4-FL + 2x MX2-Z
MX3-3/4-HH	1x MX3-3/4-FL + 2x MX3-X
MX3-1-HH	1x MX3-1-FL + 2x MX3-X
MX3-3/4-JJ	1x MX3-3/4-FL + 2x MX3-Z
MX3-1-JJ	1x MX3-1-FL + 2x MX3-Z

Rapid clamps kit with wall fixing brackets + flanges



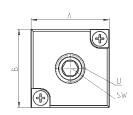
Mod.	The kit is supplied with:	
MX2-3/8-KK	1x MX2-3/8-FL + 2x MX2-Y	
MX2-1/2-KK	1x MX2-1/2-FL + 2x MX2-Y	
MX2-3/4-KK	1x MX2-3/4-FL + 2x MX2-Y	
MX3-3/4-KK	1x MX3-3/4-FL + 2x MX3-Y	
MX3-1-KK	1x MX3-1-FL + 2x MX3-Y	

Block for pressure gauge fixing



The kit is supplied with: 1 block

- 1 grain
- 2 screws
- 1 seal





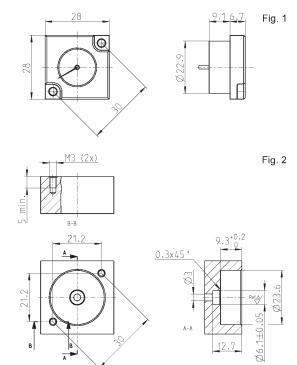
DIMENSIONS							
Mod.	Α	В	L	М	Р	U	SW
MX2-R26/1-P	28	28	16.5	5	M3X7	1/8	5
MX3-R26/1-P	28	28	16.5	5	M3X7	1/4	6

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MX built-in pressure gauge



The kit is supplied with: 1 pressure gauge 1 seal 2 screws

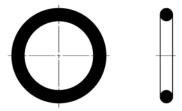


Mod.	Range	
MX3-R30/W-P	0 ÷ 2.5 bar	
MX3-R31/W-P	0 ÷ 6 bar	
MX3-R32/W-P	0 ÷ 10 bar	
MX3-R33/W-P	0 ÷ 12 bar	

Fig. 1 = pressure gauge Fig. 2 = seat

O-ring for assembling





Mod.	0-ring	For assembly	
160-39-11/19	OR 3125	MX2	
OR 38X2,8 NBR	OR 38X2,8	MX3	



Series MX assembled FRL

MX2 ports: G3/8, G1/2, G3/4 - MX3 ports: G3/4, G1

Assembly through rapid clamps



- » Compact design
- » Dimensions optimization
- » Great reliability
- » Easy and quick maintenance
- » Reduced weight

Series MX FRL can be easily assembled through rapid clamps which allow the connection among single components creating an unlimited number of compositions.

The FRL groups Series MX are also available in the already mounted version (with a single code).

The use of three different types of rapid clamps (standard, with wall fixing screws or with brackets) allows an easy mounting of the assembled groups and to carry out maintenance operations on the single components with no need to disassemble the group.

GENERAL DATA

Construction modular, compact

Materials see catalogue pages referring to the single component

Ports MX2: G3/8 - G1/2 - G3/4 MX3: G3/4 - G1

vertical in-line Mounting

wall-mounting (by means of clamps)

panel mounting

Operating temperature -5°C ÷ 50°C up to 16 bar (according to the single component characteristics)

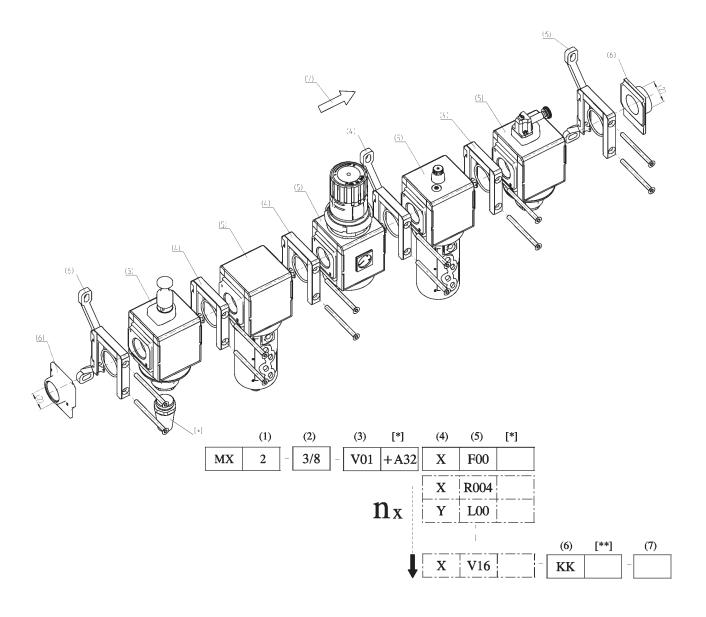
-5°C ÷ 60°C up to 10 bar (according to the single component characteristics)

CONFIGURATION OF ASSEMBLED GROUPS SERIES MX

TO CONFIGURE THE ASSEMBLED GROUPS SERIES MX, USE THE HERE BELOW EXAMPLE AND THE RELATED LEGEND ON THE FOLLOWING PAGE.

Configuration of the assembled group in the drawing below:

MX2-3/8-V01+A32XF00XR004YL00XV16-KK





CONFIGURATOR OF ASSEMBLED GROUPS SERIES MX

MX 2 - 3/8 - V01 X F00 -	KK - LH
--------------------------	---------

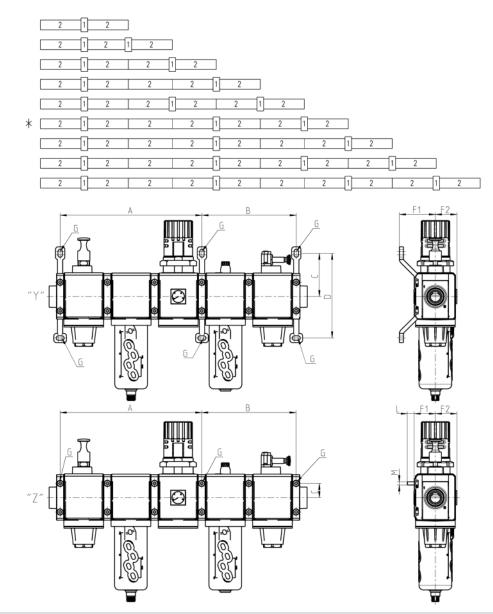
MX		SERIES	
2	(1)	SIZE: 2 = G3/8 - G1/2 - G3/4 3 = G3/4 - G1	
-			
3/8	(2)	IN / OUT THREADS: 3/8 = G3/8 1/2 = G1/2 3/4 = G3/4 1 = G1	
-	(7)	MODULE + [*] (to configure the modules, see the single components pages):	
V01	[*]	F = Filter FC = Coalescing filter FCA = Activated carbons filter R = Pressure regulator L = Lubricator FR = Filter-Regulator V = Lockable isolation valve AV = Soft start valve B = Take-off block (MX2: G1/2 only - MX3: G1 only) The following ACCESSORIES can be added after every single module:	
		REGULATOR AND FILTER-REGULATOR MX2 +A56 = M053-P06 (Pressure gauge) +A57 = M053-P10 (Pressure gauge) +A58 = M063-P12 (Pressure gauge) LOCKABLE ISOLATION VALVE MX2 +A30 = 2901 1/2" (Silencier) +A31 = 2921 1/2" (Silencier) +A32 = 2931 1/2" (Silencier) +A33 = 2938 1/2" (Silencier) SOFT START VALVE +A00 = PM11-NA (Pressure switch, normally open) +A01 = PM11-NC (Pressure switch, normally closed)	REGULATOR AND FILTER-REGULATOR MX3 +A60 = M063-P06 (Pressure gauge) +A61 = M063-P12 (Pressure gauge) LOCKABLE ISOLATION VALVE MX3 +A34 = 2901 3/4" (Silencier) +A35 = 2921 3/4" (Silencier) +A36 = 2931 3/4" (Silencier)
		TAKE-OFF BLOCK MX2 +A08 = PM11-NA (normally open pressure switch) with fitting for fixing to the module +A09 = PM11-NC (normally closed pressure switch) with fitting for fixing to the module +A03 = PM11-SC with fitting for fixing to the module Example: MX2-3/8-V01+A32XF00-KK-LH	TAKE-OFF BLOCK MX3 +A06 = PM11-NA (normally open pressure switch) with fitting for fixing to the module +A07 = PM11-NC (normally closed pressure switch) with fitting for fixing to the module +A02 = PM11-SC with fitting for fixing to the module Example: MX3-3/4-V01+A36XF00-KK-LH
X	(4)	MODULES CONNECTION (according to the positioning scheme on the following page): X = Rapid clamp kit Z = Rapid clamp kit with wall fixing screw Y = Rapid clamp kit with wall fixing brackets	
F00	(5)+[*]	see MODULE (3)	
_			
KK	(6)	TERMINAL CONNECTIONS + [**] (according to the positioning scheme on the following page): = no terminal connection HH = n° 1 rapid clamp kit with flanges (IN / OUT) JJ = n° 1 rapid clamp kit with wall fixing screws + flanges (IN / OUT) KK = n° 1 rapid clamp kit with wall fixing brackets + flanges (IN / OUT)	
	[**]	WALL CONNECTION: REGULATOR and FILTER-REGULATOR S = Bracket (only with clamps mod. X o HH) Codes examples: MX3-1-RXVS; MX3-1-RXVHSH	
-	(7)	FLOW DIRECTION	
LH	(7)	FLOW DIRECTION: = from left to right (standard) LH = from right to left	
	(4) + (5)+[*]	REPEATABLE COMBINATION for a "n" number of times	
	(4) + (5)+[]	RELEASED COMMISSION FOR A THIRD INDICES	



Wall fixing - mounting dimensions and positioning scheme

- Legend of the POSITIONING SCHEME: 1 = rapid clamp with wall fixing screw or with wall fixing bracket 2 = module / flange
- $\mbox{\ensuremath{^{\#}}}$ POSITIONING SCHEME referring to drawings " Y " and " Z ".

- Legend of the ASSEMBLED GROUPS DRAWINGS:
 "Y" = with rapid clamps with wall fixing brackets (MX...-Y)
 "Z" = with rapid clamp with wall fixing screws (MX...-Z)
 G = fixing point



Mod.	Α	В	С	D	F1	F2	L	М
MX2-Y	210	140	68,5	134,5	70	37	-	-
MX2-Z	210	140	23	-	37,5	37	13,5	M5
МХЗ-Ү	267	178	82	160	68	40,5	-	-
MX3-Z	267	178	27	-	40,5	40,5	13	M6

CODING EXAMPLE

MX	2	_	3/8	_	01
			-		

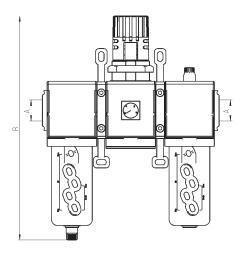
MX	SERIES
2	SIZE: 2 = G3/8 - G1/2 - G3/4 3 = G3/4 - G1
3/8	PORTS: \$\frac{3}{8} = 6\frac{5}{2} \\ \frac{1}{2} = 6\frac{1}{2} \\ \frac{3}{4} = 6\frac{3}{4} \\ \frac{1}{2} = 6\frac{1}{2}
000001	GROUP COMPOSITION: 000001 = F10 + R004 + L00 000002 = FR1004 + L00 000003 = V01 + FR1004 + L00 000004 = V01 + FR1004 000005 = FR1004 + V16 + AV 000006 = FR1004 + V16 + AV 000007 = V01 + FR1004 + V16 + AV 000008 = V01 + FR1004 + V16 + AV + PRESS. NO 000009 = V01 + FR1004 + L00 + V16 + AV + PRESS. NC 000010 = V01 + FR1004 + V16 + AV + PRESS. NC 000011 = V01 + FR1004 + V16 + AV + PRESS. NO 000012 = F13 + FC03
	WARNING:
	IN THE PRESENCE OF METAL PIPES, THE USE OF CONNECTION FLANGES MAKE THE MAINTENANCE ACTIVITIES EASIER. INITIALLY PROCEED BY ASSEMBLING THE PIPES ON THE FLANGES, THEN FIX THE TREATMENT UNIT TO THE WALL THROUGH THE PROPER FIXING BRACKETS.

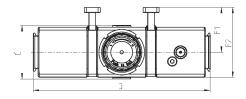
C₹ CAMOZZI

Composition of the assembled group 000001



Components: Filter Regulator Lubricator





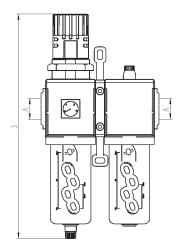
Mod.	Α	В	С	D	F1	F2
MX2-3/8-000001	G3/8	289	74,5	210	70	104,5
MX2-1/2-000001	G1/2	289	74,5	210	70	104,5
MX2-3/4-000001	G3/4	289	74,5	210	70	104,5
MX3-3/4-000001	G3/4	345	81	268,5	68	106
MX3-1-000001	G1	345	81	268,5	68	106

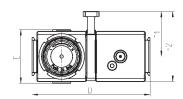


Composition of the assembled group 000002



Components: Filter-regulator Lubricator





Mod.	Α	В	C	D	F1	F2
MX2-3/8-000002	G3/8	289	74,5	140	70	104,5
MX2-1/2-000002	G1/2	289	74,5	140	70	104,5
MX2-3/4-000002	G3/4	289	74,5	140	70	104,5
MX3-3/4-000002	G3/4	345	81	179	68	106
MX3-1-000002	G1	345	81	179	68	106

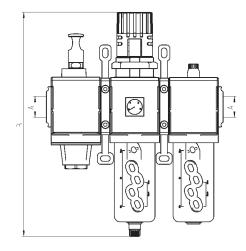


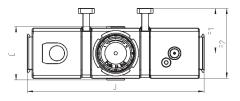
SERIES MX ASSEMBLED FRL

Composition of the assembled group 000003

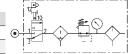


Components: Lockable isolation 3/2-way valve Filter-regulator Lubricator





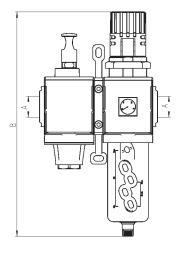
Mod.	Α	В	С	D	F1	F2	
MX2-3/8-000003	G3/8	289	74,5	210	70	104,5	
MX2-1/2-000003	G1/2	289	74,5	210	70	104,5	
MX2-3/4-000003	G3/4	289	74,5	210	70	104,5	
MX3-3/4-000003	G3/4	345	81	268,5	68	106	
MX3-1-000003	G1	345	81	268,5	68	106	Ī

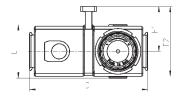


Composition of the assembled group 000004

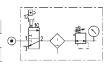


Components: Lockable isolation 3/2-way valve Filter-regulator





Mod.	Α	В	С	D	F1	F2
MX2-3/8-000004	G3/8	289	74,5	140	70	104,5
MX2-1/2-000004	G1/2	289	74,5	140	70	104,5
MX2-3/4-000004	G3/4	289	74,5	140	70	104,5
MX3-3/4-000004	G3/4	345	81	179	68	106
MX3-1-000004	G1	345	81	179	68	106

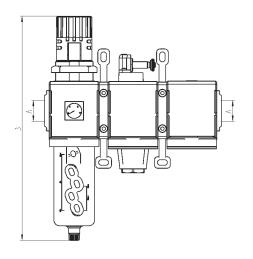


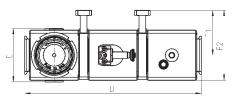
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Composition of the assembled group 000005

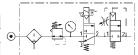


Components: Filter-regulator Lockable isolation 3/2-way valve Soft start valve





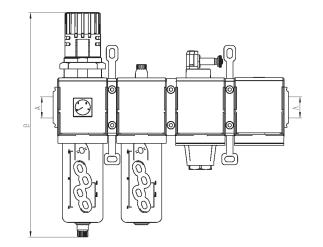
Mod.	Α	В	С	D	F1	F2	
MX2-3/8-000005	G3/8	289	74,5	210	70	104,5	
MX2-1/2-000005	G1/2	289	74,5	210	70	104,5	
MX2-3/4-000005	G3/4	289	74,5	210	70	104,5	Ī
MX3-3/4-000005	G3/4	345	81	268,5	68	106	
MX3-1-000005	G1	345	81	268,5	68	106	Ī

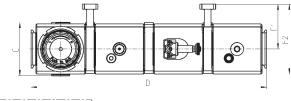


Composition of the assembled group 000006

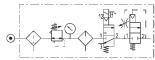


Components:
Filter-regulator
Lubricator
Lockable isolation 3/2-way valve
Soft start valve





Mod.	Α	В	С	D	F1	F2
MX2-3/8-000006	G3/8	289	74,5	280	70	104,5
MX2-1/2-000006	G1/2	289	74,5	280	70	104,5
MX2-3/4-000006	G3/4	289	74,5	280	70	104,5
MX3-3/4-000006	G3/4	345	81	358	68	106
MX3-1-000006	G1	345	81	358	68	106

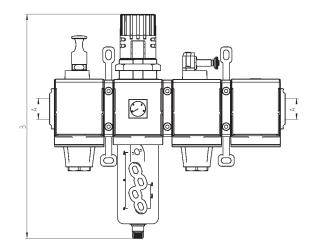


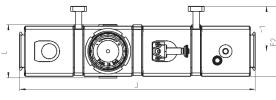
SERIES MX ASSEMBLED FRL

Composition of the assembled group 000007



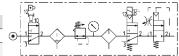
Components: Lockable isolation 3/2-way valve Filter-regulator Lockable isolation 3/2-way valve Soft start valve





Mod.	Α	В	С	D	F1	F2	(
MX2-3/8-000007	G3/8	289	74,5	280	70	104,5	
MX2-1/2-000007	G1/2	289	74,5	280	70	104,5	
MX2-3/4-000007	G3/4	289	74,5	280	70	104,5	
MX3-3/4-000007	G3/4	345	81	358	68	106	

81



Composition of the assembled group 000008

345

G1



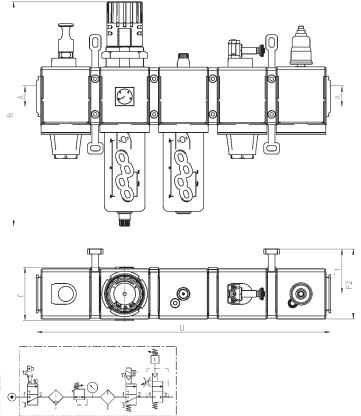
MX3-1-000007

Components:
Lockable isolation 3/2-way valve
Filter-regulator
Lubricator
Lockable isolation 3/2-way valve
Soft start valve + pressure switch
(NO)

358

68

106



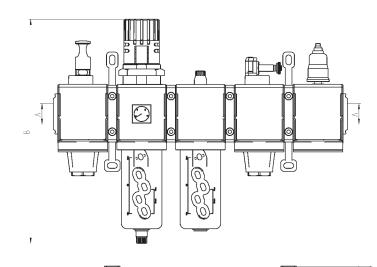
Mod.	Α	В	С	D	F1	F2
MX2-3/8-000008	G3/8	289	74,5	350	70	104,5
MX2-1/2-000008	G1/2	289	74,5	350	70	104,5
MX2-3/4-000008	G3/4	289	74,5	350	70	104,5
MX3-3/4-000008	G3/4	345	81	447,5	68	106
MX3-1-000008	G1	345	81	447,5	68	106

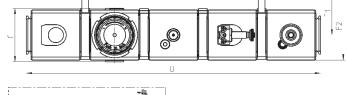
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Composition of the assembled group 000009



Components:
Lockable isolation 3/2-way valve
Filter-regulator
Lubricator
Lockable isolation 3/2-way valve
Soft start valve + pressure switch
(NC)





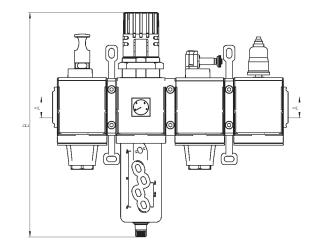
5	12 10 10 10 10 10 10 10 10 10 10 10 10 10	**************************************
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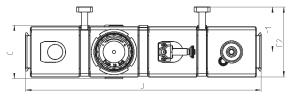
Mod.	Α	В	С	D	F1	F2	(
MX2-3/8-000009	G3/8	289	74,5	350	70	104,5	
MX2-1/2-000009	G1/2	289	74,5	350	70	104,5	
MX2-3/4-000009	G3/4	289	74,5	350	70	104,5	Ī
MX3-3/4-000009	G3/4	345	81	447,5	68	106	
MX3-1-000009	G1	345	81	447,5	68	106	Ī

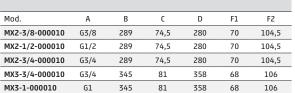
Composition of the assembled group 000010

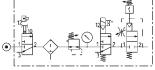


Components: Lockable isolation 3/2-way valve Filter-regulator Lockable isolation 3/2-way valve Soft start valve + pressure switch (NO)







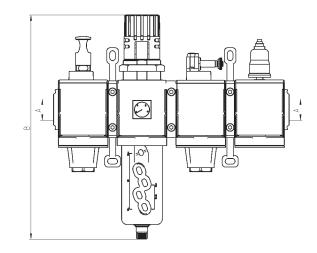


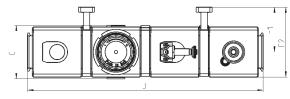
SERIES MX ASSEMBLED FRL

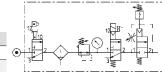
Composition of the assembled group 000011



Components: Lockable isolation 3/2-way valve Filter-regulator Lockable isolation 3/2-way valve Soft start valve + pressure switch (NC)





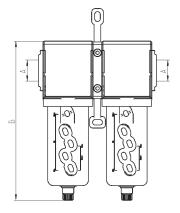


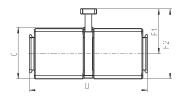
Mod.	Α	В	С	D	F1	F2	_ (
MX2-3/8-000011	G3/8	289	74,5	280	70	104,5	
MX2-1/2-000011	G1/2	289	74,5	280	70	104,5	
MX2-3/4-000011	G3/4	289	74,5	280	70	104,5	
MX3-3/4-000011	G3/4	345	81	358	68	106	
MX3-1-000011	G1	345	81	358	68	106	

Composition of the assembled group 000012



Components: Filter Coalescing filter





Mod.	Α	В	С	D	F1	F2
MX2-3/8-000012	G3/8	210	72	140	70	104,5
MX2-1/2-000012	G1/2	210	72	140	70	104,5
MX2-3/4-000012	G3/4	210	72	140	70	104,5
MX3-3/4-000012	G3/4	231	78	179	68	106
MX3-1-000012	G1	231	78	179	68	106





Ports G1/4, G3/8 and G1/2 Modular Metal bowl and bayonet-type mounting





- » Removal of impurities and condensate
- » Quality of delivered air according to ISO 8573-1:2010, Classes 7.8.4 and 6.8.4
- » Manual, automatic or depressuring drain

Series MC filters are available with ports G1/4, G3/8 and G1/2. Bowls are made of metal with a transparent sight glass and have a condensate drain valve which can provide either a manual or semi-automatic function.

GENERAL DATA

compact modular with filtering element in HDPE
zama, NBR, tecnopolymer
G1/4 G3/8 G1/2
cm ³ 28 cm ³ 72 cm ³ 72
kg 0,339 kg 0,718 kg 0,688
vertical in-line or wall-mounting
$-5^{\circ}\text{C} \div 50^{\circ}\text{C}$ at 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Class 6.8.4 with 5µm filtering element Class 7.8.4 with 25µm filtering element
semi-automatic manual, automatic protected depressurisation, direct G1/8 exhaust
enamelled
with standard drain and protected depressurisation 0.3 \div 16 bar with depressurisation 0.3 \div 10 bar with automatic drain 1.5 \div 12 bar for G3/8 and G1/2
see FLOW DIAGRAMS on the following pages
compressed air



CODING EXAMPLE

MC	2	02	-	F	0	0
----	---	----	---	---	---	---

SERIES MC

SIZE: 2

1 = G1/4 2 = G3/8 - G1/2

PORTS: 04 = G1/4 38 = G3/8 02 = G1/2 02

F = FILTER F

FILTERING ELEMENT: 0 0 = 25μm (standard) 1 = 5μm

DRAINING OF CONDENSATE (further details in the dedicated section):
0 = normal - semiautomatic (standard)
3 = automatic drain (only for G3/8 and G1/2)
4 = depressurisation (only G1/4)
5 = depressurisation, protected 0

8 = no drain, port 1/8

Filters Series MC

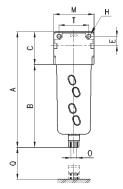


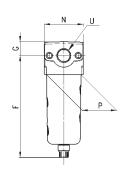
FT01 = filter without drain with threaded port FT02 = filter with semiautomatic manual drain

FT03 = filter with automatic drain





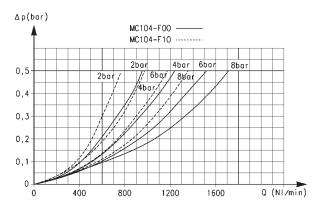


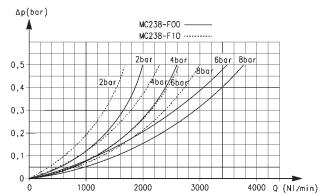


DIMENSIONS														
Mod.	Α	В	С	E	F	G	Н	М	N	0	Р	Q	T	U
MC104-F00	143	102	41	11	126,5	16,5	4,5	45	45	G1/8	37	58	35	G1/4
MC238-F00	184	133	51	14	163	21	5,5	62	60	G1/8	53	72	46	G3/8
MC202-F00	184	133	51	14	163	21	5,5	62	60	G1/8	53	72	46	G1/2

FLOW DIAGRAMS FOR FILTERS SERIES MC, G1/4 - G3/8 PORTS





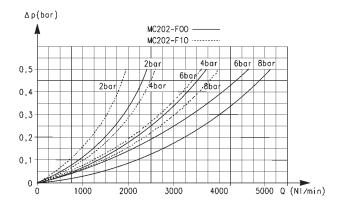


Flow diagram for models: MC238-F00 and MC238-F10

ΔP = Pressure drop (bar) Q = Flow (Nl/min) Flow diagram for models: MC104-F00 and MC104-F10

ΔP = Pressure drop (bar) Q = Flow (Nl/min)

FLOW DIAGRAM FOR FILTERS SERIES MC, G1/2 PORTS



Flow diagram for models: MC202-F00 and MC202-F10

ΔP = Pressure drop (bar) Q = Flow (Nl/min)

Series MC coalescing filters

Ports G1/4, G3/8 and G1/2 Modular Metal bowl and bayonet-type mounting





- » Quality of delivered air according to ISO 8573-1:2010, Class 1.8.1
- » Manual, automatic or depressuring drain

Series MC coalescing filters are available with G1/4, G3/8 and G1/2 ports. The bowls of these filters are made of metal with a transparent sight glass and may have a condensate drain valve which can provide either a manual or semi-automatic function.

GENERAL DATA

Construction	modular, coalescing elements
Materials	zama, NBR, technopolymer
Ports	G1/4 G3/8 G1/2
Weight	kg 0.342 0.718 0.688
Mounting	vertical in line or wall-mounting
Operating temperature	$-5^{\circ}\text{C} \div 50^{\circ}\text{C}$ at 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Quality of delivered air according to ISO 8573-1:2010	Class 1.8.1 with 0.01 µm filtering element
Draining of condensate	manual - semi-automatic (standard), automatic, with depressurisation, protected depressurisation, without drain with port ${\sf G1/8}$
Finish	enamelled
Operating pressure	with standard drain and protected depressurisation 0.3 \div 16 bar with depressurisation 0.3 \div 10 bar with automatic drain 1.5 \div 12 bar for G3/8 and G1/2
Residual oil content with inlet at 3 mg/m³	< 0.01mg/m³
Oil retain efficiency	99.80%
Particles retain efficiency	99.99999%
Nominal flow	see FLOW DIAGRAMS on the following pages
Fluid	compressed air

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SERIES MC COALESCING FILTERS

CODING EXAMPLE

MC 2 02 -	F B	0
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SERIES MC SIZE: 2 1 = G1/4 2 = G3/8 - G1/2 PORTS: 02 04 = G1/4 38 = G3/8 02 = G1/2 F = FILTER FILTERING ELEMENT: B = 0,01μm В DRAINING OF CONDENSATE (further details in the dedicated section): 0 0 = manual - semi-automatic 3 = automatic (only for G3/8 and G1/2) 4 = depressurisation (only G1/4) 5 = depressurisation, protected 8 = no drain, port 1/8

Coalescing filters Series MC

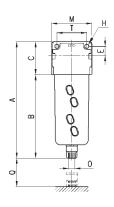


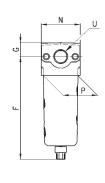
FA01 = coalescing filter without drain with threaded port FA02 = coalescing filter with semi-automatic manual drain FA03 = coalescing filter with automatic drain





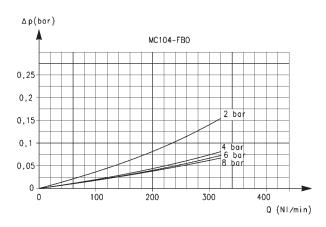


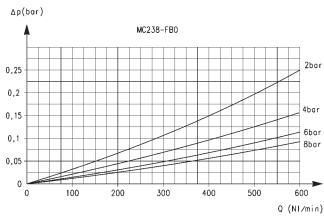




DIMENSIONS														
Mod.	Α	В	С	Е	F	G	Н	М	N	0	Р	Q	T	U
MC104-FB0	143	102	41	11	126,5	16,5	4,5	45	45	G1/8	37	54	35	G1/4
MC238-FB0	184	133	51	14	163	21	5,5	62	60	G1/8	53	73	46	G3/8
MC202-FB0	184	133	51	14	163	21	5,5	62	60	G1/8	53	73	46	G1/2

FLOW DIAGRAMS





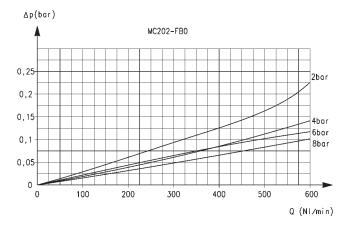
Flow diagram for model: MC104-FB0 ΔP = Pressure drop (bar) Q = Flow (Nl/min)

In order to guarantee the indicated performances, the maximum flow of the filter must be the one indicated in the graph. A higher flow rate is possible but the same performances are not guarenteed.

Flow diagram for model: MC238-FB0 ΔP = Pressure drop (bar) Q = Flow (Nl/min)

In order to guarantee the indicated performances, the maximum flow of the filter must be the one indicated in the graph. A higher flow rate is possible but the same performances are not guarenteed.

FLOW DIAGRAM



Flow diagram for model: MC202-FB0 ΔP = Pressure drop (bar) Q = Flow (Nl/min)

In order to guarantee the indicated performances, the maximum flow of the filter must be the one indicated in the graph. A higher flow rate is possible but the same performances are not guarenteed.

CAMOZZI Automation

Series MC activated carbon filters



Ports: G1/4, G3/8 e G1/2

Modular

Metal bowl and bayonet-type mounting



- » Removal of oil, liquid and gaseous components from compressed air through the actived carbon
- » Quality of delivered air according to ISO 8573-1:2010, Class 1.7.1

The activated carbon filters Serie MC are available with port G1/4, G3/8 and G1/2.
The bowls of these filters are made of metal with a transparent sight glass

GENERAL DATA							
Construction	modular, compact with activated carbon filtering element						
Materials	zama, NBR, tecnopolymer, activated carbon						
Ports		G1/4	G3/8	G1/2			
Weight	Kg	0,342	0,718	0,688			
Mounting	vertical in line or wall-mounting						
Operating temperature	$10^{\circ}\text{C} \div 40^{\circ}\text{C} \text{ (t max = }60^{\circ}\text{C)}$						
Quality of delivered air according to ISO 8573-1:2010	0 Class 1.7.1						
Condensate drain	not present						
Mounting	vertical in-line; wall-mounting by means of through holes in the body or with a support bracket						
Operating pressure	0.3 ÷ 16 bar						
Nominal flow	see FLOW DIAGRAMS on the following pages						
Filtering element	active carbon						
Residual oil content	< 0.003 mg/m³						
Fluid	compressed air						
Pre-filtering	it is recommended to use a filter with residual oil of 0,01mg/m³						

SERIES MC ACTIVATED CARBON FILTERS

CODING EXAMPLE

MC	2	02	-	F	CA
----	---	----	---	---	----

MC SERIES

SIZE: 1 = G1/4 2 = G3/8 - G1/2

PORTS: 04 = G1/4 38 = G3/8 02 = G1/2

F FILTER

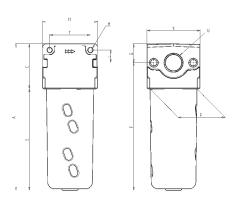
CA CA = Actived carbon

Series MC activated carbon filters



FC01 = Absorption function without bowl hole

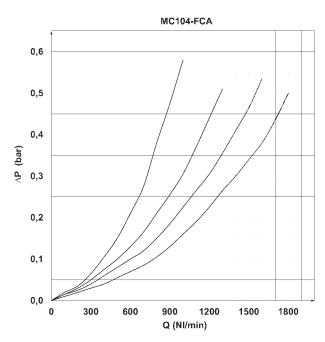


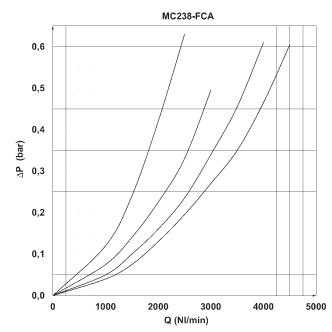


Mod.	Α	В	С	E	F	G	Н	M	N	Р	T	U
MC104-FCA	124	83	41	11	107,5	16,5	4,5	45	45	37	35	G1/4
MC238-FCA	166	115	51	14	145	21	5,5	62	60	53	46	G3/8
MC202-FCA	166	115	51	14	145	21	5,5	62	60	53	46	G1/2



FLOW DIAGRAMS





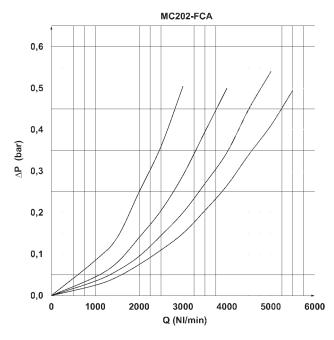
Flow diagram for model: MC104-FCA ΔP = Pressure drop (bar) Q = Flow (NI/min)

In order to guarantee the indicated performances, the maximum flow of the filter must be the one indicated in the graph. A higher flow rate is possible but the same performances are not guarenteed.

Flow diagram for model: MC238-FCA ΔP = Pressure drop (bar) Q = Flow (NI/min)

In order to guarantee the indicated performances, the maximum flow of the filter must be the one indicated in the graph. A higher flow rate is possible but the same performances are not guarenteed.

FLOW DIAGRAM



Flow diagram for model: MC202-FCA ΔP = Pressure drop (bar) Q = Flow (Nl/min)

In order to guarantee the indicated performances, the maximum flow of the filter must be the one indicated in the graph. A higher flow rate is possible but the same performances are not guarenteed.



Series MC pressure regulators

Ports G1/4, G3/8 and G1/2 Modular



- » Minimal pressure decreases
- » Lockable knob with closure
- » Integral return exhaust (relieving)
- » Versions available: with by-pass valve or Manifold

Series MC pressure regulators are available with ports G1/4, G3/8 and G1/2. Versions with secondary pressure relieving are usually available and all regulators can be panel mounted.

GENERAL DATA	
Construction	modular, compact, diaphragm type
Materials	zama, brass, NBR, technopolymer
Ports	G1/4 G3/8 G1/2
Weight	kg 0,323 0,644 0,624
Mounting	in-line, wall or panel mounting (in any position)
Operating temperature	-5°C ÷ 50°C (with the dew point of the fluid lower than 2°C at the min. working temperature)
Finishing	enamelled
Inlet pressure	0 ÷ 16 bar
Outlet pressure	0.5 ÷ 10 bar (standard) or 0 ÷ 2 bar; 0 ÷ 4 bar and 0.5 ÷ 7 bar
Nominal flow	see FLOW DIAGRAMS on the following pages
Secondary pressure (relieving)	with relieving (standard) without relieving
Fluid	compressed air



CODING EXAMPLE



SERIES MC SIZE: 2 1 = G1/4

2 = G3/8 - G1/2 PORTS: 02 04 = G1/4 38 = G3/8 02 = G1/2

REGULATOR R

WORKING PRESSURE Т $0 = 0.5 \div 10 \text{ bar (standard)}$ $1 = 0 \div 4 \text{ bar}$ 2 = 0 ÷ 2 bar (only G1/4) 7 = 0,5 ÷ 7 bar (only G1/4) T = calibrated*

CONSTRUCTION: 0 0 = self-relieving (standard) 1 = non-relieving 5 = precise relieving

B = locked*

PRESSURE GAUGE: ** 2 = without pressure gauge (standard)

1 = with pressure gauge 0-2.5, with working pressure 0 ÷ 2 bar

2 = with pressure gauge 0-6, with working pressure 0 ÷ 4 bar

3 = with pressure gauge 0-10, with working pressure 0.5 ÷ 7 bar

4 = with pressure gauge 0-12, with working pressure 0.5 ÷ 10 bar

TIPO DI REGOLAZIONE: **VS** = without by-pass valve (standard) VS = with by-pass valve (solo G1/4)

*** NOTE: IF THE REGULATOR IS CALIBRATED OR LOCKED, AFTER THE PORTS ADD THE INLET PRESSURE "■" AND THE OUTLET PRESSURE "●"

INLET PRESSURE:

= enter the SUPPLY pressure value
OUTLET PRESSURE:

• = enter the OUTLET pressure value for the LOCKED regulator or the maximum value of the ADJUSTABLE pressure for the CALIBRATED regulator

Example of a calibrated regulator with Inlet Pressure = 6.3 bar and Outlet Pressure = 4.5 bar Complete part number: MC104-MT03-6.3-4.5

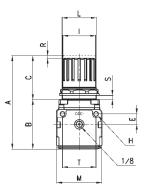
** the pressure gauges are supplied disassembly for size 1 pressure gauge mod. M043-P.. for size 2 pressure gauge mod.M053-P..

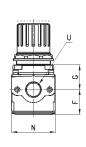
SERIES MC PRESSURE REGULATORS



Pressure regulators Series MC

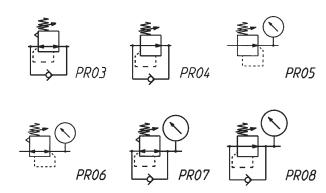






DIMENSIONS															
Mod.	Α	В	С	E	F	G	Н	I	L	M	N	R	S	T	U
MC104-R00	94	56	38	11	28,5	27,5	4,5	28	30X1,5	45	45	3	0÷6	35	G1/4
MC238-R00	127	67	60	14	34	35	5,5	45	47X1,5	62	60	3,5	0÷9	46	G3/8
MC202-R00	127	67	60	14	34	35	5,5	45	47X1,5	62	60	3,5	0÷9	46	G1/2

Pneumatic symbols



PR03 = Regulator with relieving and by-pass valve

PRO4 = Regulator without relieving and with by-pass valve

PR05 = Regulator without relieving and with pressure gauge

PR06 = Regulator with relieving and pressure gauge

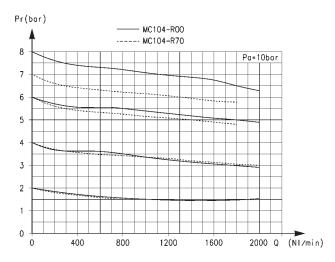
PR07 = Regulator with relieving, by-pass valve and pressure gauge

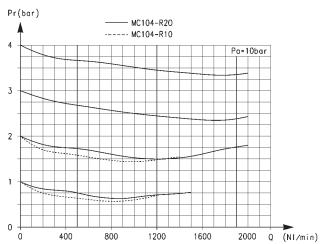
PR08 = Regulator without relieving with by-pass valve and pressure

gauge

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FLOW DIAGRAMS





Flow diagrams for models: MC104-R00 and MC104-R70

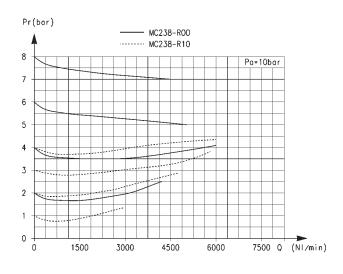
Pa = Inlet pressure (bar) Pr = Regulated pressure (bar)

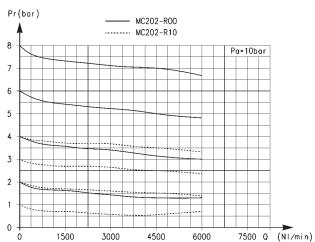
Q = Flow (Nl/min)

Flow diagrams for models: MC104-R10 and MC104-R20

Pa = Inlet pressure (bar) Pr = Regulated pressure (bar) Q = Flow (Nl/min)

FLOW DIAGRAMS





Flow diagrams for models: MC238-R00 and MC238-R10

Pa = Inlet pressure (bar) Pr = Regulated pressure (bar) Q = Flow (Nl/min)

Flow diagrams for models: MC202-R00 and MC202-R10

Pa = Inlet pressure (bar) Pr = Regulated pressure (bar) Q = Flow (Nl/min)



Series MC lubricators

Ports G1/4, G3/8 and G1/2 Modular with metal bowl and bayonet-type mounting



- » Adjustment screw
- » Check of the oil level through plastic cover openings

Series MC lubricators are available with ports G1/4, G3/8 and G1/2. The bowls of these lubricators are made of metal and are equipped with a transparent viewer. The oil flow can be monitored through the small transparent cap and regulated by means of the proper adjusting screw.

GENERAL DATA

Construction	modular compact
Materials	zama, NBR, technopolymer
Ports	G1/4 G3/8 G1/2
Oil capacity	cm³ 37 170 170
Weight	kg 0,338 0,712 0,674
Mounting	vertical in-line or wall-mounting
Operating temperature	$-5^{\circ}\text{C} \div 50^{\circ}\text{C}$ at 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Oil refilling	without pressure (G1/4) also during use (G3/8 - G1/2)
Oil for lubrication	use ISO VG32 oils. Once applied, the lubrication should never be interrupted.
Finishing	enamelled
Operating pressure	0 ÷ 16 bar
Min. air consumption for lubr (Nl/min) at 1 bar at 6 bar	G1/4 - G3/8 - G1/2 8 - 8 - 8,5 15 - 17,5 - 15,5
Nominal flow	see FLOW DIAGRAMS on the following pages
Fluid	compressed air

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MC 2 02 - L	00
-------------	----

M SERIES

2 SIZE
1 = G1/4
2 = G3/8 - G1/2

02 PORTS
04 = G1/4
38 = G3/8
02 = G1/2

L = LUBRICATOR

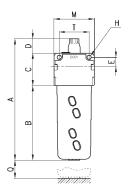
DESIGN TYPE
00 = atomized oil

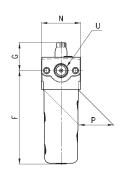
Lubricators Series MC



LU0 = Lubricator

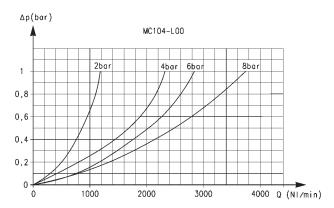


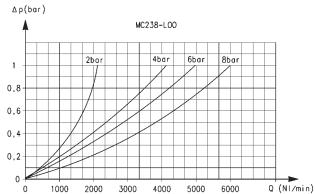




DIMENSIONS														
Mod.	Α	В	С	D	E	F	G	Н	М	N	Р	Q	T	U
MC104-L00	148	83	40	25	11	107	41	4,5	45	45	37	84	35	G1/4
MC238-L00	187	115	50	22	14	144	43	5,5	62	60	53	117	46	G3/8
MC202-L00	187	115	50	22	14	144	43	5,5	62	60	53	117	46	G1/2

FLOW DIAGRAMS



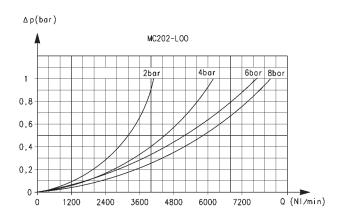


Flow diagram for model: MC104-L00

ΔP = Pressure drop (bar) Q = Flow (Nl/min) Flow diagram for model: MC238-L00

ΔP = Pressure drop (bar) Q = Flow (Nl/min)

FLOW DIAGRAM



Flow diagram for model: MC202-L00

ΔP = Pressure drop (bar) Q = Flow (Nl/min)



Series MC filter-regulators

Ports G1/4, G3/8 and G1/2 Modular Metal bowl and bayonet-type mounting



- » Quality of delivered air according to ISO 8573-1:2010, Classes 7.8.4 and 6.8.4
- » Minimal pressure decreases
- » Knob with closure
- » Integral return exhaust (relieving)
- » Available versions: with by-pass valve

Series MC filter regulators are available with ports G1/4, G3/8 and G1/2. They combine the features of the filters and regulators and have smaller overall dimensions than the two separate components.

GENERAL DATA	
Construction	compact modular with filtering element in HDPE
Materials	zama, NBR, technopolymer
Ports	G1/4 G3/8 G1/2
Condensate capacity	cm³ 28 72 72
Weight	kg 0,443 0,948 0,928
Mounting	vertical in-line or wall-mounting
Operating temperature	$-5^{\circ}\text{C} \div 50^{\circ}\text{C}$ at 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Quality of delivered air according to ISO 8573-1:2010	Class 6.8.4 with 5µm filtering element Class 7.8.4 with 25µm filtering element
Draining of condensate	semi-automatic manual (standard), automatic, with depressurisation, protected depressurisation, without drain with port G1/8
Finishing	enamelled
Inlet pressure	with standard drain and protected depressurisation 0,3 \div 16 bar with depressurisation 0,3 \div 10 bar with automatic drain 1,5 \div 12 bar for G3/8 and G1/2
Outlet pressure	0.5 ÷ 10 bar(standard), 0 ÷ 2 bar; 0 ÷ 4 bar e 0.5 ÷ 7 bar
Nominal flow	see FLOW DIAGRAMS on the following pages
Fluid	compressed air

SERIES MC FILTER-REGULATORS

CODING EXAMPLE

MC 2 02 - D 0 0 2 - 4 -

SERIES MC

SIZE: 2 1 = G1/4

2 = G3/8 - G1/2

PORTS: 02 04 = G1/4 38 = G3/8

02 = G1/2

D = FILTER-REGULATOR D

FILTERING ELEMENT: 0 0 = 25μm (standard) 1 = 5μm

DRAINING OF CONDENSATE (further details in the dedicated section): 0

0 = manual semiautomatic, self-relieving 1 = manual semiautomatic, non relieving 3 = automatic, self-relieving (only for G3/8 and G1/2) 4 = depressurisation, self-relieving (only G1/4)

5 = depressurisation, protected, self-relieving 8 = no drain, port G1/8, self-relieving

PRESSURE GAUGE: ** 2

= without pressure gauge (standard)

1 = with pressure gauge 0-2.5, with working pressure 0 ÷ 2 bar 2 = with pressure gauge 0-6, with working pressure 0 ÷ 4 bar

3 = with pressure gauge 0-10, with working pressure $0.5 \div 7$ bar

4 = with pressure gauge 0-12, with working pressure 0.5 \div 10 bar

WORKING PRESSURE 4

 $= 0.5 \div 10$ 2 = 0 ÷ 2 (only G1/4)

 $4 = 0 \div 4$ 7 = 0,5 ÷ 7 (only G1/4)

REGULATION TYPE: VS

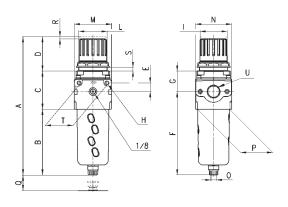
= without by-pass valve (standard) VS = with by-pass valve (only G1/4)

** the pressure gauges are supplied disassembly for size 1 pressure gauge mod. M043-P..

for size 2 pressure gauge mod. M053-P...

Filter-regulators Series MC

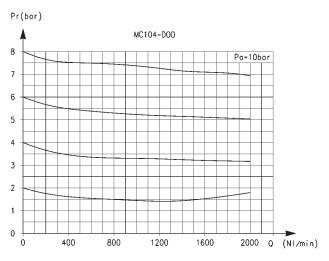


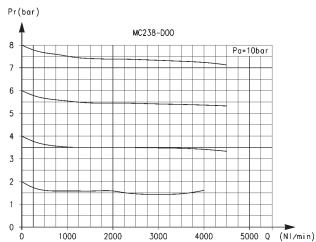


DIMENSIONS																			
Mod.	А	В	С	D	Е	F	G	Н	I	L	M	N	0	Р	Q	R	S	T	U
MC104-D00	190,5	102	52	38	11	126,5	27,5	4,5	28	M30x1,5	45	45	G1/8	37	58	3	0 ÷ 6	35	G1/4
MC238-D00	256,5	133	64	59	14	162	35	5,5	45	M47x1,5	62	59	G1/8	53	72	3,5	0 ÷ 9	46	G3/8
MC202-D00	256,5	133	64	59	14	162	35	5,5	45	M47x1,5	62	59	G1/8	53	72	3,5	0 ÷ 9	46	G1/2

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FLOW DIAGRAMS



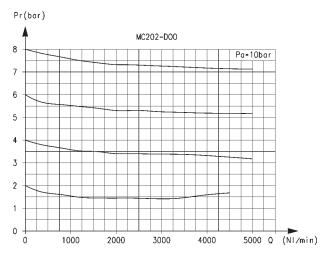


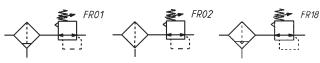
Pa = Inlet pressure (bar) Pr = Regulated pressure (bar) Q = Flow (Nl/min)

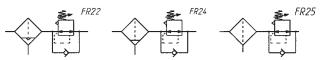
NOTE: on the filter-regulator the different air quality characteristics that can be reached through the filtering elements options don't affect the flow values shown in the diagram.

Pa = Inlet pressure (bar) Pr = Regulated pressure (bar) Q = Flow (Nl/min)

FLOW DIAGRAM AND PNEUMATIC SYMBOLS







Pa = Inlet pressure (bar) Pr = Regulated pressure (bar) Q = Flow (bar)

NOTE: on the filter-regulator the different air quality characteristics that can be reached through the filtering elements options don't affect the flow values shown in the diagram.

FR01 = filter-reg. with relieving and manual/semiautomatic drain

FR02 = filter-reg. with relieving and direct exhaust

FR18 = filter-reg. with relieving and automatic drain

FR22 = filter-reg. without relieving, with pressure gauge,

automatic-depressurisation drain and by-pass valve

FR24 = filter-reg. with relieving and manual/semiautomatic drain and bypass valve

FR25 = filter-reg. with relieving, direct exhaust and by-pass valve



Series MC lockable isolation 3/2-way valves

Electropneumatic, pneumatic and manual version Ports G1/4, G3/8 and G1/2 Modular





- » Standard tamperproof lock-out (manual valve)
- » Actuation at 24 V, 110 V or 230 V
- » Exhaust in atmosphere

The 3-way lockable isolation valves are available in the electropneumatic, pneumatic and manual version and are designed to block the air inlet of the FRL group and so pressurise and depressurise the equipment.

Positioning of these valves is often before the FRL unit.

The lockable isolation valves are available with ports G1/4, G3/8 and G1/2 and can be panel mounted.

GENERAL DATA

<u></u>	
Construction	modular compact, poppet-type
Materials	zama, NBR, technopolymer
Ports	G1/4; G3/8; G1/2
Weight	kg 0.277 kg 0.536 kg 0.514
Mounting	in- line, wall or panel mounting (in any position)
Operating temperature	-5°C \div 50°C (with the dew point of the fluid lower than 2°C at the min. working temperature)
Finishing	enamelled
Operating pressure	Manual valve: -0.8 bar \div 10 bar Electro-pneumatic valve: 2 bar \div 10 bar Pneumatic valve: -0.8 bar \div 10 bar (with pilot $2 \div 10$ bar)
Nominal exhaust flow at 6 bar with Δp = 1 bar	G1/4 = 1080 Nl/min G3/8 = 2380 Nl/min G1/2 = 2380 Nl/min
Nominal flow	see FLOW DIAGRAMS on the following pages

compressed air

Fluid

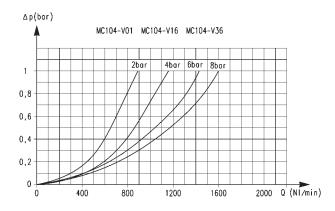


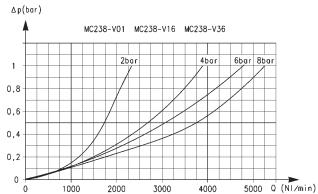
CODING EXAMPLE

MC	2	02	-	V	16
MC	SERIES				
2	SIZE: 1 = G1/4 2 = G3/8 - G1/2				
02	PORTS: 04 = G1/4 38 = G3/8 02 = G1/2				
V	V = 3/2-WAY VALVE				
16	DESIGN TYPE: 16 = electropneumatic 36 = pneumatic 01 = padlock valve (manual comm	nand)			

SERIES MC LOCKABLE ISOLATION VALVES

FLOW DIAGRAMS





Flow diagram for models:

MC104-V01

MC104-V16

MC104-V36

 $\Delta p = Pressure drop (bar)$

Q = Flow (Nl/min)

Flow diagram for models:

MC238-V01

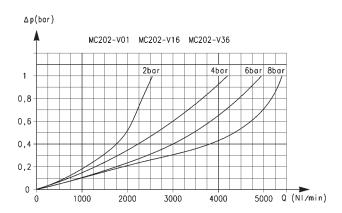
MC238-V16

MC238-V36

 $\Delta p = Pressure drop (bar)$

Q = Flow (Nl/min)

FLOW DIAGRAM



Flow diagram for models:

MC202-V01

MC202-V16

MC202-V36

Δp = Pressure drop (bar) Q = Flow (Nl/min)

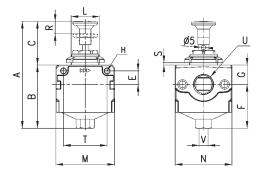


Lockable isolation valves Series MC - manual version



Actuating force at 6 bar:
- MC104-V01 = 29N
- MC238-V01 = 31N
- MC202-V01 = 31N





DIMENSIONS															
Mod.	Α	В	С	Е	F	G	Н	L	М	N	R	S	T	U	V
MC104-V01	96,5	54,5	42	11	38,5	16	4,5	M30x1,5	45	45	9	0 ÷ 6	35	G1/4	G1/8
MC238-V01	113	67	46	14	46,5	20,5	5,5	M30x1,5	62	60	13	0 ÷ 6	46	G3/8	G1/4
MC202-V01	113	67	46	14	46,5	20,5	5,5	M30x1,5	62	60	13	0 ÷ 6	46	G1/2	G1/4

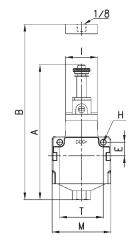
Lockable isolation valves Series MC - electro-/pneumatic version

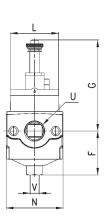


EV10 = solenoid valve, 3/2 NC, monostable, with bistable manual override YES1 = pneumatically operated valve, 3/2, monostable, mechanical spring









DIMENSIONS														
Mod.	А	В	E	F	G	Н	I	L	М	N	T	U	V	Symbol
MC104-V16	120	-	11	38,5	81,5	4,5	22	32	45	45	35	G1/4	G1/8	EV10
MC238-V16	142,5	-	14	46,5	96	5,5	33,5	51	62	60	46	G3/8	G1/4	EV10
MC202-V16	142,5	-	14	46,5	96	5,5	33,5	51	62	60	46	G1/2	G1/4	EV10
MC104-V36	-	77,5	11	38,5	-	4,5	22	32	45	45	35	G1/4	G1/8	VP01
MC238-V36	-	93,5	14	46,5	-	5,5	33,5	51	62	60	46	G3/8	G1/4	VP01
MC202-V36	-	93,5	14	46,5	-	5,5	33,5	51	62	60	46	G1/2	G1/4	VP01



Series MC soft start valves

Ports G1/4, G3/8 and G1/2 Modular



- » Safety function to maintain the command sequence
- » Opening of the main seat at about 50% of the inlet pressure

Series MC soft start valves are used to avoid damages to people or equipment when pressurising pneumatic systems containing cylinders.

The features of these components allow to pressurise an equipment up to 50% of the indicated pressure, after which 100% is reached rapidly.

The usual location of the soft start valve is after the FRL unit; in fact the modular design allows for perfect adaptability with all Series MC.

A pressure switch can be mounted into the upper part of the unit after removal of the S2610 G1/8 plug.

An electrical or pneumatic 3 way valve

An electrical or pneumatic 3 way valve should be installed at the bottom of the unit to allow depressurisation.

GENERAL DATA

Construction	modular, compact, poppet type					
Materials	zama, NBR, technopolymer					
Ports	G1/4 G3/8 G1/2					
Weight	Kg 0,275 0,566 0,544					
Mounting	in-line wall or panel mounting (in any position)					
Operating temperature	$-5^{\circ}\text{C} \div 50^{\circ}\text{C}$ (with the dew point of the fluid lower than 2°C at the min. working temperature)					
Finishing	enamelled					
Operating pressure	2 ÷ 10 bar					
Nominal flow (determined at 6 bar with Δ P1)) G1/4 = 1850 Nl/min, G3/8 = 4000 Nl/min, G1/2 = 4350 Nl/min					
Fluid	compressed air					



CODING EXAMPLE

MC	2	02	-	AV
MC	SERIES			
2	SIZE: 1 = G1/4 2 = G3/8 - G1/2			
02	PORTS: 04 = G1/4 38 = G3/8 02 = G1/2			
AV	AV = SOFT START VALVE			

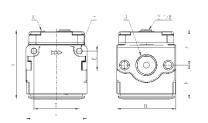
Soft start valve Series MC

HCDT-AV

X = adjustment screw

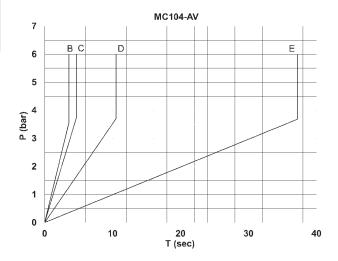
AVP1 = Soft start valve

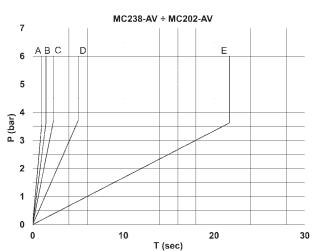




DIMENSIONS									
Mod.	Α	E	F	G	Н	М	N	T	U
MC104-AV	58,5	11	28,5	30	4,5	45	45	35	G1/4
MC238-AV	70	14	34	36	5,5	62	60	46	G3/8
MC202-AV	70	14	34	36	5,5	62	60	46	G1/2

DIAGRAMS FOR PRESSURISATION TIMES

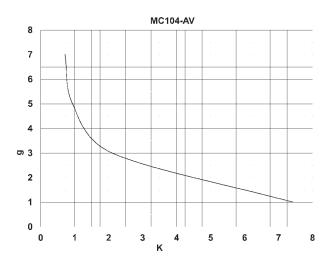




Pressurisation times as to the n° of turns of the regulation screw, with downstream volume of 5 litres. A = 5 turns - B = 4 turns - C = 3 turns - D = 2 turns - E = 1 turn. "K" = n° of turns of the regulation screw required to obtain the required pressurisation time with an inlet pressure of 6 bar. Variations of the inlet pressure can cause deviations of the pressure time by \pm 20%. K = t/V where: V = volume of the downstream system in litres; t = desired pressuring time in seconds.

Pressurisation times as to the n° of turns of the regulation screw, with downstream volume of 5 litres. A = 9 turns - B = 7 turns - C = 5 turns - D = 3 turns - E = 1 turn. "K" = n° of turns of the regulation screw required to obtain the required pressurisation time with an inlet pressure of 6 bar. Variations of the inlet pressure can cause deviations of the pressure time by \pm 20%. K = t/V where: V = volume of the downstream system in litres; t = desired pressuring time in seconds.

VARIATION IN PRESSURISATION - Example





Example: MC104-AV

V = 5 litres

t = 16 seconds

K = 16/5 = 3,2

g = number of turns

Using in the graph this value K, the number of turns of the regulation screw will be approx. 2,5.

Example: MC238-AV - MC202-AV

V = 5 litres

t = 16 seconds

K = 16/5 = 3,2

g = number of turns

Using in the graph this value K, the number of turns of the regulation screw will be approx. 1,6.



Series MC take-off blocks

Ports G1/4 and G1/2 Modular



- » Compact design
- » Available with or without VNR (no return valve)

The take-off blocks, when equipped with a no return valve, allow the use of non lubricated air and should be inserted between the regulator and the lubricator. If mounted as last element, they should be assembled with terminal flanges.

GENERAL DATA	
Construction	modular, compact
Materials	zama, NBR, technopolymer
Ports	G1/4 G1/2
Weight	kg 0,232 kg 0,379
Take off ports	G1/4 G1/2
Mounting	in-line or wall mounting (in any position)
Operating temperature	-5°C ÷ 50°C (with the dew point of the fluid lower than 2°C at the min. working temperature)
Finishing	enamelled
Operating pressure	0 ÷ 16 bar
Nominal flow (6 bar ΔP 1bar)	MC1-B = 4080 Nl/min MC1-B-VNR = 2350 Nl/min MC2-B = 8400 Nl/min MC2-B-VNR = 5600 Nl/min
Fluid	Compressed air



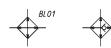
CODING EXAMPLE

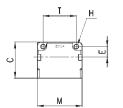
MC	2	-	В	-	VNR
MC	SERIES				
2	SIZE: 1 = G1/4 2 = G1/2				
В	B = TAKE OFF BLOCK				
VNR	VERSION: = standard VNR = with no return valve				

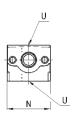
Take off blocks Series MC



BL01 = take-off block BL02 = take-off block with VNR







Mod.	С	Н	E	M	N	T	U
MC1-B	43	4,5	11	45	45	35	G1/4
MC1-B-VNR	43	4,5	11	45	45	35	G1/4
MC2-B	50	5,5	14	62	60	46	G1/2
MC2-B-VNR	50	5,5	14	62	60	46	G1/2





Terminal flanges (kit A)



Mounting brackets (kit B)



Mounting bracket Mod. C114-ST



Mounting bracket Mod. C114-ST/1



Mounting bracket Mod. C114-ST/2



Mounting bracket Mod. C238-ST/1



Mounting bracket Mod. MX2-S



Tie-rods for assembling (kit C)



Tie-rods for assembling (kit D)



Screws for assembling (kit E)



Screws for assembling (kit F)



Screws for assembling (kit G)



Assembly O-ring



Systems of rapid connections designed to make mounting easier.

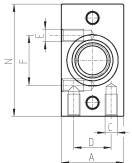
ACCESSORIES FOR SERIES MC

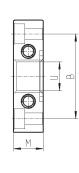
Terminal flanges (kit A)



The kit MC104-FL is supplied with: 1x left flange; 1x right flange; 4x screws M4x14; 2x O-Ring 2068. Each of the kits MC202-FL and MC238-FL is supplied with: 1x left flange; 1x right flange; 4x screws M5x14; 2x O-Ring 3100.

Materials: painted aluminium flanges, zinc-plated steel screws and NBR O-ring.





DIMENSION	DIMENSIONS									
Mod.	Α	В	С	D	E	F	N	М	U	size
MC104-FL	25	34	M5	15	M5	20	45	12	G1/4	1
MC238-FL	35	44,5	M5	20	-	-	60	14	G3/8	2
MC202-FL	35	44,5	M5	20	-	-	60	14	G1/2	2

Mounting bracket for (kit B)

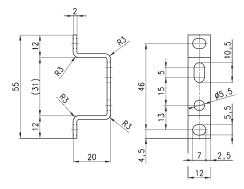




The kit MC104-ST is supplied with:

- 2x terminal brackets
- 4x screws M5x10

Materials: zinc-plated steel brackets and screws.



DIMENSIONS Mod.

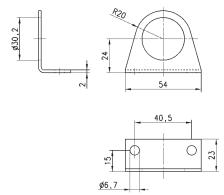
MC104-ST

Mounting bracket Mod. C114-ST

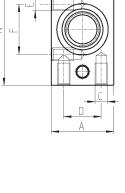


For regulators and filter-regulators (G1/4 - G1/8)

The kit is supplied with: 1x zinc-plated steel bracket.



Mod. C114-ST



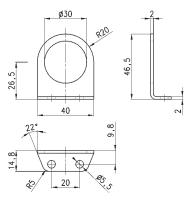
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Mounting bracket Mod. C114-ST/1



For regulators and filter-regulators (G1/4 - G1/8)

The kit is supplied with 1 zinc-plated steel bracket.



Mod.

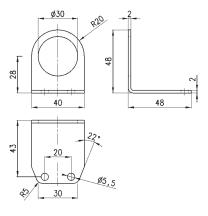
C114-ST/1

Mounting bracket Mod. C114-ST/2



For regulators and filter-regulators (G1/4 - G1/8)

The kit is supplied with 1 zinc-plated steel bracket.



Mod.

C114-ST/2

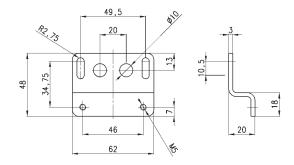
Mounting bracket Mod. C238-ST/1



for MC238 and MC202

The kit is supplied with: 1 bracket; 2 screws M5X65

Materials: zinc-plated steel bracket and screws.



Mod.

C238-ST/1

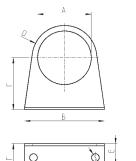
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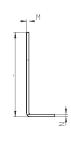
Fixing bracket Mod. MX2-S



for regulators Mod. MC238 and MC202

The kit is supplied with 1 zinc-plated steel bracket





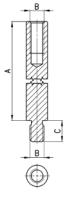
Mod.	Α	В	С	D	Ε	F	G	Н	L	M	N
MX2-S	Ø 47,2	73	60,5	R29,5	54	25	15	Ø 6,2	90	2,5	2,5

Tie-rods for assembling (kit C)



The kit MC1-TMF is supplied with: 2 male/female tie-rods; 1 0-ring 2068. The kit MC2-TMF is supplied with: 2 male/female tie-rods; 1 0-ring 3100.

Materials: nickel-plated steel tie-rods and NBR 0-ring.



Mod.	А	В	С	
MC1-TMF	45	M4	6	1
MC2-TMF	62	M5	6	2

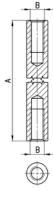
Tie-rods for assembling (kit D)



The kit MC1-TFF is supplied with 2 female tie-rods.

The kit MC2-TFF is supplied with 2 female tie-rods.

Materials: nickel-plated steel tie-rods.



DIMENSIONS			
Mod.	А	В	size
MC1-TFF	44	M4	1
MC2-TFF	61	M5	2

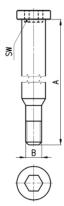
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Screws for assembling (kit E)



The kit MC1-VM is supplied with: 2 male screws; 1 0-ring 2068. The kit MC2-VM is supplied with: 2 male screws; 1 0-ring 3100

Materials: zinc-plated steel screws and NBR O-ring.



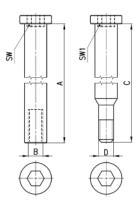
Mod.	А	В	SW	size
MC1-VM	48,5	M4	3	1
MC2-VM	65,5	M5	4	2

Screws for assembling (kit F)



The kit is supplied with: 2 male screws; 2 female screws; 1 0-ring (OR 2068 for MC1-VMF; OR 3100 for MC2-VMF).

Materials: zinc-plated steel male screws, nickel-plated steel female screws and NBR O-ring.



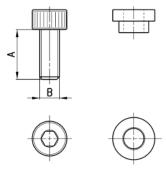
DIMENSIONS	5						
Mod.	Α	В	С	D	SW	SW1	size
MC1-VMF	42	M4	48,5	M4	3	3	1
MC2-VMF	59	M5	68,5	M5	4	4	2

Screws (kit G) to assemble 2 bodies type "M"



The kit MC1-VMD is supplied with: 4 screws M4X10; 4 spacers; 2 0-ring 2068. The kit MC2-VMD is supplied with: 4 screws M5X12; 4 spacers; 2 0-ring 3100.

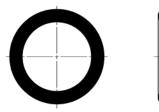
Materials: zinc-plated steel screws, brass spacers and NBR O-ring.



Mod.	А	В	size	
MC1-VMD	10	M4	1	*
MC2-VMD	12	M5	2	*

O-ring for assembling





Mod.	0-ring	For assembly	
458-33/1	OR 2068	MC104	
80-26-11/4T	OR 3100	MC238, MC202	*

* spare parts only

Series MC assembled FRL

Ports G1/4, G3/8 and G1/2



- » Clean design
- » Great modularity
- » Easy maintenance

The FRL Series MC in the assembled version can be easily assembled by means of modular tie rods on which it is possible to mount the single elements without any limits in the composition.

The FRL groups Series MC are available already mounted (with a single code).

The connections can be made directly on the elements or on the terminal flanges (Kit A) with the advantage that in case of maintenance the group can be extracted without disconnecting the tubing. The version with flanges is supplied without tie-rods.

GENERAL DATA

Constructionmodular, compactMaterialszama, NBR, technopolymerPortsG1/4 - G3/8 - G1/2

Mounting vertical, in-line or wall-mounting

 $\textbf{Operating temperature} \quad -5^{\circ}\text{C} \div 50^{\circ}\text{C at 10 bar} \ (with the dew point of the fluid lower than 2^{\circ}\text{C at the min. working temperature})$

Finish enamelled

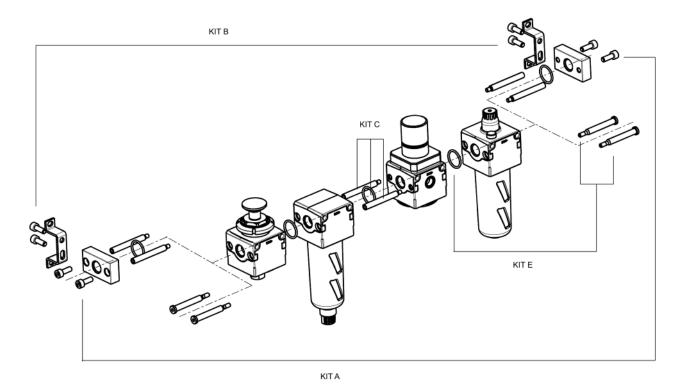
Flow determined at 6 bar inlet supply with ΔP 1 bar (ΔP 0,5 only for FRL)

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COMPOSITION OF THE KITS

- EXAMPLE BODY TYPE [${\tt M}$] with female no through threads: - regulator - filter-regulator - Manifold regulator group, an assembly of more manifold regulators counts as a body type "M".
- EXAMPLE BODY TYPE [P] with through holes:
- filter lubricator soft start valve take off block isolation valve

The "x" in the codes in the following table refer to the size, see $\ensuremath{\mathsf{MC}}$ Accessories in the section 3/2.44.

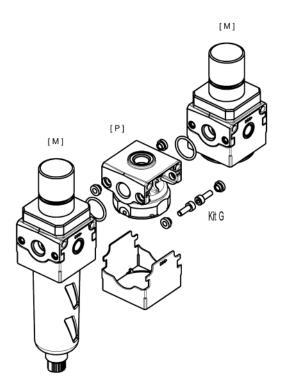


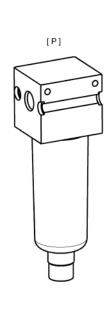
Mod.	Description	Supplied with:
MCxxx-FL	Kit A	1 right flange 1 left flange 4 screws - 2 0-ring
MCxxx-ST	Kit B	2 brackets + 4 screws
MCx-TMF	Kit C	2 tie rods male-female 1 O-ring
MCx-TFF	Kit D	2 tie rods female-female
MCx-VM	Kit E	2 male screws 1 0-ring
MCx-VMF	Kit F	2 male screws 2 female screws 1 0-ring
MCx-VMD	Kit G	4 screws 4 spacers + 2 O-ring To be used on a body type "P" positioned in between two body types "M".

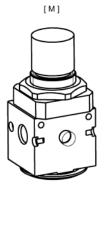
SERIES MC ASSEMBLED FRL

ASSEMBLY EXAMPLE WITH AND WITHOUT TERMINAL FLANGES

- the body types [M] are with female no through threads
- the body types [P] are with through holes







Assembly between types P and M	KIT for ass. without terminal flanges	KIT for ass. with terminal flanges
P + M	1 kit E	1 Kit A + 1 Kit C
M + P	1 kit E	1 Kit A + 1 Kit C
P + P	1 Kit F	1 Kit A + 1 Kit C + 1 Kit D
P + M + P	2 Kit E	1 Kit A + 2 Kit C
P + P + P	1 Kit F + 1 Kit C	1 Kit A + 2 Kit C + 1 Kit D
M + P + P	1 Kit E + 1 Kit C	1 Kit A + 2 Kit C
M + P + M	1 Kit G	1 Kit A + 1 Kit G
P + M + P + P	2 Kit E + 1 Kit C	1 Kit A + 3 Kit C
P + P + M + P + P	2 Kit E + 2 Kit C	1 Kit A + 4 Kit C

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MC = SERIES MC

SIZE 2 1 = G1/4 2 = G3/8 - G1/2

PORT 02 04 = G1/4 38 = G3/8 02 = G1/2

ASSEMBLY GROUP C ASSEMBLY GROUP

C = D + L

E = V01 + D + L

FRL = F + R + L

GN = D + L + V16 + AV + PRESS NO

HNC = V01 + D + L + V16 + AV + PRESS NC

N = V01 + D + N + V16 + AV

N = V01 + D + V16 + AV QN = V01 + D + V16 + AV TN = V01 + D + L + V16 + AV U = F13 + FB3 (only for 3/8 - 1/2) ZNA = V01 + D + V16 + AV + PRESS NO ZNC = V01 + D + V16 + AV + PRESS NC

FILTERING ELEMENT 5 = 5 μm (standard) 5 25 = 25 μm (upon request)

FL FL = with terminal flanges (without brackets)

De Filter-regulator 0.5-10 bar, semi-automatic-manual drain with relieving, filtering element 5 μm or 25 μm L= Lubricator

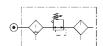
VO1 = 3/2-way manually operated valve
F = Filter 5 μm or 25 μm
R = Regulator 0.5-10 bar with relieving
V16 = 3/2-way electropneumatically operated valve
AV = Soft start valve

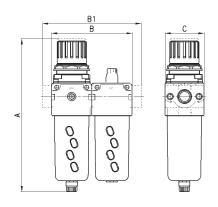
PRESS NO = Pressure switch, Normally Open PRESS NC = Pressure switch, Normally Closed

F13 = Filter 5 μm with automatic drain FB3 = Coalescing filter 0.01 μm with automatic drain

Assembly group C

Components: Filter-regulator Lubricator





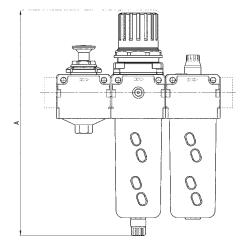
DIMENSIONS					
Mod.	А	В	B1	С	Flow rate (Nl/min)
MC104-C-5	193,5	90	-	45	1450
MC238-C-5	256,5	124	-	60	4800
MC202-C-5	256,5	124	-	60	4900
MC104-C-5-FL	193,5	-	114	45	1450
MC238-C-5-FL	256,5	-	152	60	4800
MC202-C-5-FL	256,5	-	152	60	4900

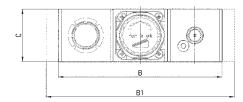
SERIES MC ASSEMBLED FRL

Assembly group E

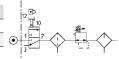


Components: Lockable isolation 3/2-way valve Filter-regulator Lubricator





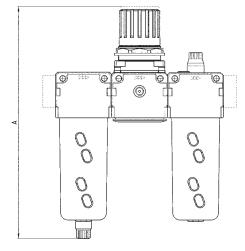
DIMENSIONS					
Mod.	Α	В	B1	С	Flow rate (Nl/min)
MC104-E-5	193,5	135	-	45	1450
MC238-E-5	256,5	186	-	60	4800
MC202-E-5	256,5	186	-	60	4950
MC104-E-5-FL	193,5	-	159	45	1450
MC238-E-5-FL	256,5	-	214	60	4800
MC202-E-5-FL	256,5	-	214	60	4950

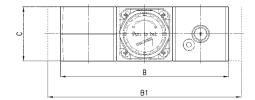


Assembly group FRL

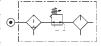


Components: Filter Regulator Lubricator





DIMENSIONS					
Mod.	Α	В	B1	С	Flow rate (NI/min)
MC104-FRL-5	193	135	-	45	1450
MC238-FRL-5	256,5	186	-	60	4800
MC202-FRL-5	256,5	186	-	60	4900
MC104-FRL-5-FL	193,5	-	159	45	1450
MC238-FRL-5-FL	256,5	-	214	60	4800
MC202-FRL-5-FL	256,5	-	214	60	4900

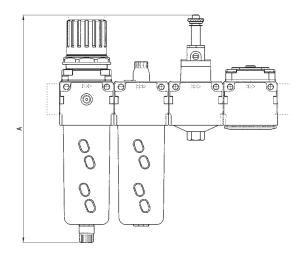


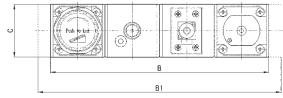
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Assembly group GN

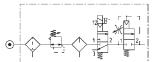


Components: Filter-regulator Lubricator Lockable isolation 3/2-way valve Soft start valve





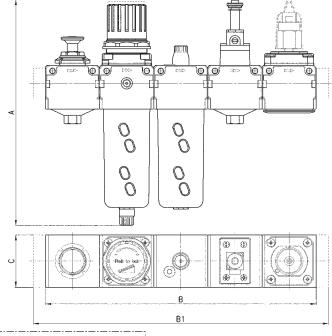
DIMENSIONS					
Mod.	Α	В	B1	С	Flow rate (NI/min)
MC104-GN-5	208	180	-	45	1450
MC238-GN-5	259	248	-	60	4800
MC202-GN-5	259	248	-	60	4900
MC104-GN-5-FL	208	-	204	45	1450
MC238-GN-5-FL	259	-	276	60	4800
MC202-GN-5-FL	259	-	276	60	4950



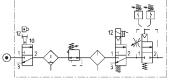
Assembly group HN...



Components:
Lockable isolation 3/2-way valve
Filter-regulator
Lubricator
Lockable isolation 3/2-way valve
Soft start valve + pressure switch
(NC)



DIMENSIONS					
Mod.	Α	В	B1	С	Flow rate (NI/min)
MC104-HN5	208	225	-	45	1450
MC238-HN5	259	310	-	60	4800
MC202-HN5	259	310	-	60	4950
MC104-HN5-FL	208	-	249	45	1450
MC238-HN5-FL	259	-	338	60	4800
MC202-HN5-FL	259	-	338	60	4950

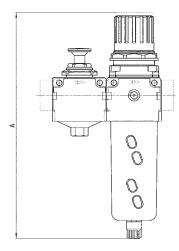


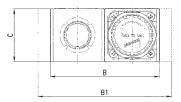
SERIES MC ASSEMBLED FRL

Assembly group N



Components: Lockable isolation 3/2-way valve Filter-regulator





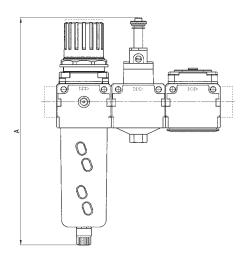
DIMENSIONS					
Mod.	Α	В	B1	С	Flow rate (NI/min)
MC104-N-5	193,5	90	-	45	1450
MC238-N-5	256,5	124	-	60	4800
MC202-N-5	256,5	124	-	60	4950
MC104-N-5-FL	193,5	-	114	45	1450
MC238-N-5-FL	256,5	-	152	60	4800
MC202-N-5-FL	256,5	-	152	60	4950

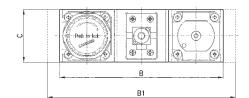


Assembly group PN

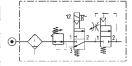


Components: Filter-regulator Lockable isolation 3/2-way valve Soft start valve





DIMENSIONS					
Mod.	Α	В	B1	С	Flow rate (NI/min)
MC104-PN-5	208	135	-	45	1450
MC238-PN-5	259	186	-	60	4800
MC202-PN-5	259	186	-	60	4950
MC104-PN-5-FL	208	-	159	45	1450
MC238-PN-5-FL	259	-	214	60	4800
MC202-PN-5-FL	259	-	214	60	4950

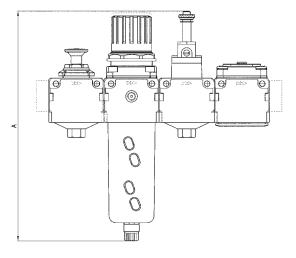


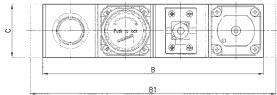
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Assembly group QN

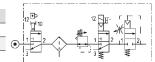


Components: Lockable isolation 3/2-way valve Filter-regulator Lockable isolation 3/2-way valve Soft start valve





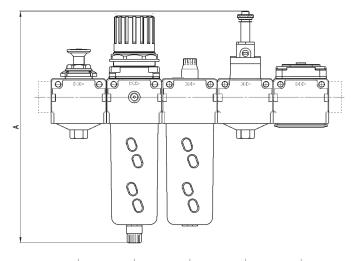
DIMENSIONS					
Mod.	Α	В	B1	С	Flow rate (NI/min)
MC104-QN-5	208	180	-	45	1450
MC238-QN-5	259	248	-	60	4800
MC202-QN-5	259	248	-	60	4950
MC104-QN-5-FL	208	-	204	45	1450
MC238-QN-5-FL	259	-	276	60	4800
MC202-ON-5-FL	259	-	276	60	4950

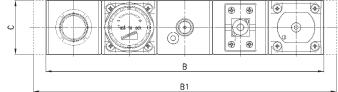


Assembly group TN

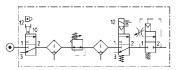


Components: Lockable isolation 3/2-way valve Filter-regulator Lubricator Lockable isolation 3/2-way valve Soft start valve





DIMENSIONS					
Mod.	Α	В	B1	С	Flow rate (NI/min)
MC104-TN-5	208	225	-	45	1450
MC238-TN-5	259	310	-	60	4800
MC202-TN-5	259	310	-	60	4950
MC104-TN-5-FL	208	-	249	45	1450
MC238-TN-5-FL	259	-	338	60	4800
MC202-TN-5-FL	259	-	338	60	4950

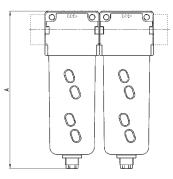


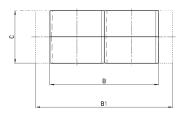
SERIES MC ASSEMBLED FRL

Assembly group U



Components: Filter Coalescing filter



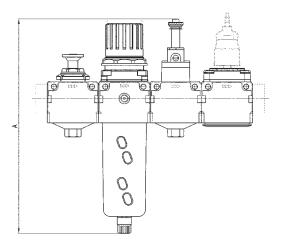


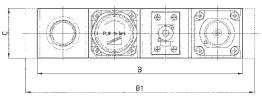
DIMENSIONS					
Mod.	Α	В	B1	С	Flow rate (NI/min)
MC238- U-5	180	124	-	60	2050
MC202- U-5	180	124	-	60	2300
MC238-U-5-FL	180	-	152	60	2050
MC202-U-5-FL	180	-	152	60	2300



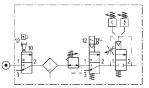
Assembly group ZN...

Components: Lockable isolation 3/2-way valve Filter-regulator Lockable isolation 3/2-way valve Soft start valve + pressure switch (NO or NC)





DIMENSIONS					
Mod.	Α	В	B1	С	Flow rate (NI/min)
MC104-ZN5	208	180	-	45	1450
MC238-ZN5	259	248	-	60	4800
MC202-ZN5	259	248	-	60	4950
MC104-ZN5-FL	208	-	204	45	1450
MC238-ZN5-FL	259	-	276	60	4800
MC202-7N -5-FI	250		276	60	4950





Series MC manifold pressure regulators

Ports G1/4 Modular



- » Minimal pressure decreases
- » Knob with closure
- » Integral return exhaust (relieving)

The manifold pressure regulators with ports G1/4 are available with a second pressure relieving and can be in-line or panel mounted.

GENERAL DATA

 Construction
 compact modular, diaphragm type

 Materials
 zama, NBR, technopolymer

 Port
 G1/4

 Weight
 kg 0,320

 Pressure gauge ports / outlet
 G1/8

Mounting in-line, wall or panel mounting (in any position)

Operating temperature $-5^{\circ}\text{C} \div 50^{\circ}\text{C}$ (with the dew point of the fluid lower than 2°C at the min. working temperature)

 Finishing
 enamelled

 Inlet pressure
 0 ÷ 16 bar

 Outlet pressure
 0.5 ÷ 10 bar or

 Outlet pressure
 0.5 ÷ 10 bar or 0 ÷ 4 bar

 Flow
 see the FLOW DIAGRAM on the following page

Secondary pressure relieving standard

Products designed for industrial applications.
General terms and conditions for sale are available on www.camozzi.com.



CODING EXAMPLE

MC 1 04 - M T 0 2 - ■ -	MC	04 -	- M	T 0	2 -		-
--	----	------	-----	-----	-----	--	---

SERIES MC SIZE: 1 1 = G1/4PORT: 04 04 = G1/4 MANIFOLD REGULATOR M

OPERATING PRESSURE T 0 = 0.5 ÷ 10 bar (standard) 1 = 0 ÷ 4 bar 2 = 0.5 ÷ 2 bar 7 = 0.5 ÷ 7 bar

CONSTRUCTION: 0 0 = self-relieving (standard) 1 = non-relieving 5 = precise relieving

PRESSURE GAUGE 2 = without pressure gauge (standard)

1 = with pressure gauge 0-2.5 with working pressure 0+2 bar

2 = with pressure gauge 0-6 with working pressure 0+4 bar 3 = with pressure gauge 0-10 with working pressure 0,5÷7 bar 4 = with pressure gauge 0-12 with working pressure 0,5÷10 bar

** NOTE: IF THE REGULATOR IS CALIBRATED OR LOCKED, AFTER THE PORTS ADD THE INLET PRESSURE "=" AND THE OUTLET PRESSURE " • "

INLET PRESSURE:

■ = enter the SUPPLY pressure value

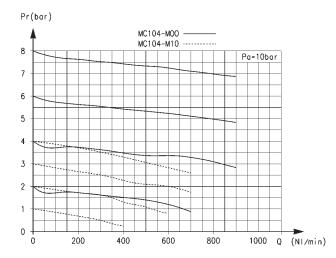
OUTLET PRESSURE:

 = enter the OUTLET pressure value for the LOCKED regulator or the maximum value of the ADJUSTABLE pressure for the CALIBRATED regulator

Example of a calibrated regulator with Inlet Pressure = 6.3 bar and Outlet Pressure = 4.5 bar Complete part number: MC104-MT03-6.3-4.5

** the pressure gauges are supplied disassembly for size 1 pressure gauge mod. M043-P.. for size 2 pressure gauge mod.M053-P..

FLOW DIAGRAM



Flow diagram for model: MC104-M00

Pa = Inlet pressure (bar) Pr = Regulated pressure (bar)

Q = Flow (Nl/min)

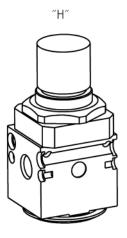
CAMOZZI Automation

Assembly

EXAMPLE BODY TYPE [H]:

Manifold regulator with through holes on top (used to mount the manifold regulators to each other).

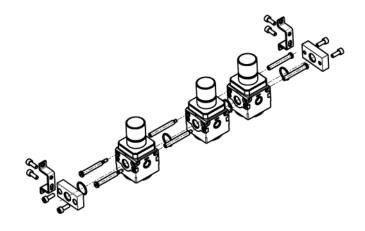
N.B.: Once a group of manifolds has been assembled, it can be inserted in a FRL group. In this case the manifold regulator assembly alone would be defined as body type M.



Assembly kits

- Kit A: 1 right flange + 1 left flange + 4 screws + 2 O-ring.
- Kit B: 2 brackets + 4 screws.
- Kit C: 2 tie rods male-female + 1 O-ring.
- Kit D: 2 tie rods female-female.
- Kit E: 2 male screws + 1 O-ring.
- Kit F: 2 male screws + 2 female screws + 1 O-ring.
- Kit G: 4 screws + 4 spacers + 2 O-ring, to be used on a body type "P" positioned between two body types "M".

N.B. for configurations which differ from the ones described, you can only add only bodies type "H" and for every part added you should add a Kit "C".

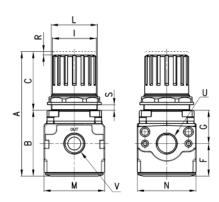


C CAMOZZI



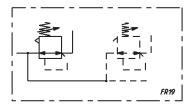
Manifold pressure regulators Series MC

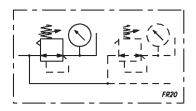




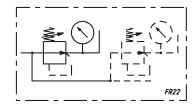
DIMENSIONS													
Mod.	A	В	С	F	G	Ī	L	М	N	R	S	U	V
MC104-M00	94	55	39	28	28	28	30X1.5	45	45	3	0 ÷ 6	G1/4	G1/8

Pneumatic symbols









FR19 = Manifold regulator with relieving and without pressure gauge

FR20 = Manifold regulator with relieving and pressure gauge

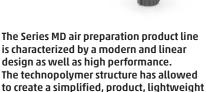
FR21 = Manifold regulator without relieving and pressure gauge FR22 = Manifold regulator without relieving and with pressure gauge



Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with \emptyset 6, 8 and 10 mm. Modular assembly

Bowl with technopolymer cover and bayonet-type mounting





and robust at the same time.



Thanks to the solution adopted for the pneumatic connection, it is possible to equip the same element with interchangeable cartridges that can either be threaded, or with an integrated super-rapid fitting, both types available in different sizes. Intermediate cartridges can be also integrated to join multiple functions or with derivation to draw air. An additional air intake, with the same characteristic of the outlet air, is available on the front side and on the rear one. This intake can be used by utilities with limited consumption.

- » Removal of impurities and condensate
- » Visual blockage indicator
- » Condensate drain options: semi-automatic manual, automatic protected depressurisation, direct G1/8 exhaust
- » Bowl locking system reducing the risk of accidents
- » Additional air intakes with the same characteristics of the outlet air (line)

GENERAL DATA

nodular, compact with filtering element in HDPE
see TABLE OF MATERIALS on the following page
with interchangeable cartridges: $1/8$, $1/4$ and $3/8$ threaded or integrated with super-rapid fitting for ube with \emptyset 6, 8 and 10 mm
24 cm ³
vertical in-line; wall-mounting by means of through holes in the body or with a support bracket
5°C ÷ 50°C up to 16 bar
semi-automatic manual, automatic protected depressurisation, direct G1/8 exhaust
Class 6.8.4 with 5 µm filtering element Class 7.8.4 with 25 µm filtering element
0.3 ÷ 16 bar
see FLOW DIAGRAMS on the following pages
compressed air
20/00/20/20/20/20/20/20/20/20/20/20/20/2

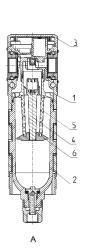
CODING EXAMPLE

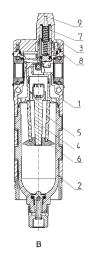
	MD	1	_	F	0	0	0	-	1/8
--	----	---	---	---	---	---	---	---	-----

MD	SERIES
1	DIMENSION: 1 = 42 mm
F	FILTER
0	FILTERING ELEMENT (further details in the dedicated section): $0=25\mu m$ $1=5\mu m$
0	DRAINING OF CONDENSATE (further details in the dedicated section): 0 = semiautomatic-manual drain 5 = automatic drain, protected depressurisation 8 = direct G1/8 exhaust
0	VISUAL BLOCKAGE INDICATOR: 0 = not present 1 = present
1/8	PORTS (IN - OUT)*: = without cartridges 1/8 = G1/8 1/4 = G1/4 3/8 = G3/8 6 = tube Ø6 8 = tube Ø8 10 = tube Ø10 * NOTE: if the inlet (IN) cartridge is different from the outlet (OUT) cartridge, both dimensions shall be indicated.

Filters Series MD - materials

A = filter B = filter with visual blockage indicator

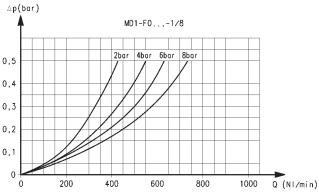


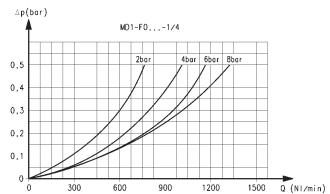


PARTS	MATERIALS	
1 = Body	Polyamide	
2 = Tank	Polycarbonate	
3 = Covering	Polyamide	
4 = Valve-guide	Polyacetal	
5 = Filtering element	Polyethylene	
6 = Separation deflector	Polyacetal	
7 = Upper spring	Stainless steel	
8 = Piston	Anodized aluminium	
9 = Visual blockage indicator	Polycarbonate	
Seals	NBR	

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FLOW DIAGRAMS for models with 25 μm filtering element



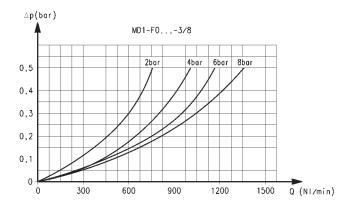


Ports with interchangeable 1/8 threaded cartridges

Δp = Pressure drop (bar) Q = Flow (Nl/min) Ports with interchangeable 1/4 threaded cartridges

Δp = Pressure drop (bar) Q = Flow (Nl/min)

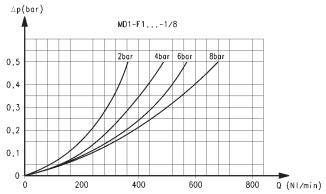
FLOW DIAGRAM for models with 25 μm filtering element

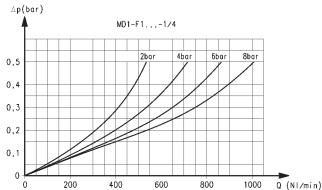


Ports with interchangeable 3/8 threaded cartridges

Δp = Pressure drop (bar) Q = Flow (Nl/min)

FLOW DIAGRAMS for models with 5 µm filtering element



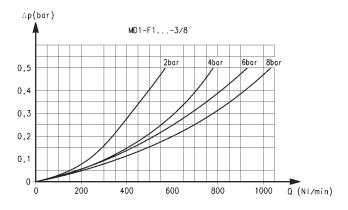


Ports with interchangeable 1/8 threaded cartridges

Δp = Pressure drop (bar) Q = Flow (Nl/min) Ports with interchangeable 1/4 threaded cartridges

Δp = Pressure drop (bar) Q = Flow (Nl/min)

FLOW DIAGRAM for models with 5 μm filtering element



Ports with interchangeable 3/8 threaded cartridges

Δp = Pressure drop (bar) Q = Flow (Nl/min)

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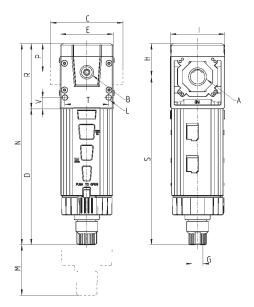
Series MD filters - dimensions



FT01 = filter with direct G1/8 exhaust

FT02 = filter with semi-automatic manual drain

FT03 = filter with automatic/depressuring drain



	\wedge	FTC
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	<:∕	

DIMENSIONS																	
Mod.	Α	В	С	Е	G	Н	I	L	М	N	0	Р	R	S	T	V	Weight (Kg)
MD1-F000	-	G1/8	42	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2
MD1-F000-1/8	G1/8	G1/8	42	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2
MD1-F000-1/4	G1/4	G1/8	42	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2
MD1-F000-3/8	G3/8	G1/8	42	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2
MD1-F000-6	Ø6	G1/8	47	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2
MD1-F000-8	Ø8	G1/8	62	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2
MD1-F000-10	Ø10	G1/8	67	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2

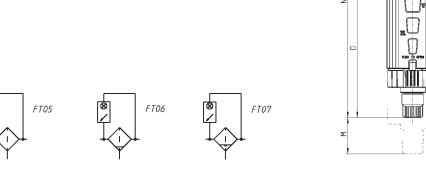
Series MD filters with visual blockage indicator - dimensions



FT05 = filter with direct G1/8 exhaust and visual blockage indicator FT06 = filter with semi-automatic manual drain

and visual blockage indicator

FT07 = filter with automatic/depressuring drain and visual blockage indicator



DIMENSIONS																	
Mod.	Α	В	С	Е	G	Н	I	L	М	N	0	Р	R	S	T	V	Weight (Kg)
MD1-F001	-	G1/8	42	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2
MD1-F001-1/8	G1/8	G1/8	42	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2
MD1-F001-1/4	G1/4	G1/8	42	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2
MD1-F001-3/8	G3/8	G1/8	42	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2
MD1-F001-6	Ø6	G1/8	47	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2
MD1-F001-8	Ø8	G1/8	62	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2
MD1-F001-10	Ø10	G1/8	67	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2



Series MD coalescing filters

Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with \emptyset 6, 8 and 10 mm. Modular assembly

Bowl with technopolymer cover and bayonet-type mounting



The coalescing filter is a fine oil separator filter that removes the solids with dimensions from 0.1 to 5 μm and oil vapours with a concentration from 0.01 to 0.1 mg/m³. For a correct fucntioning they require a pre-filtering. Given the characteristic of this filter, it is recommended to replace the filter element at least every 12 months or 8000 working hours.



Thanks to the solution adopted for the pneumatic connection, it is possible to equip the same element with interchangeable cartridges that can either be threaded, or with an integrated super-rapid fitting, both types available in different sizes. Intermediate cartridges can be also integrated to join multiple functions or with derivation to draw air. An additional air intake, with the same characteristic of the outlet air, is available on the front side and on the rear one. This intake can be used by utilities with limited consumption.

- » High performance and high purity compressed air
- » Air quality according to ISO 8573-1:2010 standard, Classes 1.8.1 and 2.8.2
- » Visual blockage indicator
- » Condensate drain options: semi-automatic manual, automatic protected depressurisation, direct G1/8 exhaust
- » Bowl locking system reducing the risk of accidents
- » Additional air intakes with the same characteristics of the inlet air (line)

GENERAL DATA

Construction	modular, compact with filtering element in BOROSILICATE
Materials	see TABLE OF MATERIALS on the following page
Ports	with interchangeable cartridges: $1/8$, $1/4$ and $3/8$ threaded or integrated with super-rapid fitting for tube with \emptyset 6, 8 and 10 mm
Condensate capacity	24 cm ³
Fixing	vertical in-line; wall-mounting by means of through holes in the body or with a support bracket
Operating temperature	-5°C ÷ 50°C up to 16 bar
Condensate drain	semi-automatic manual, automatic protected depressurisation, direct G1/8 exhaust
Quality of delivered air according to ISO 8573-1:2010	Class 2.8.2 with 1 µm filtering element (pre-filtering with Class 6.8.4 is recommended) Classe 1.8.1 with 0.01 µm filtering element (pre-filtering with Classe 2.8.2 is recommended)
Operating pressure	0.3 ÷ 16 bar
Nominal flow	see FLOW DIAGRAMS on the following pages
Oil retain efficiency	99.80% (0.01μm) 97% (1μm)
Particles retain efficiency	99.99999% (0.01μm) 99.999% (1μm)
Fluid	compressed air

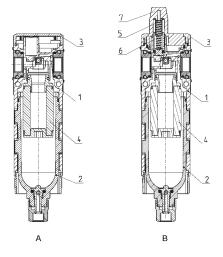


CODING EXAMPLE

MD	1	-	FC	0	0	0	-	1/8
MD	SERIES							
1	DIMENSION: 1 = 42 mm							
FC	COALESCING FILTER							
0	FILTERING ELEMENT 0 = 0,01 μm 1 = 1 μm	(further details in th	ne dedicated section):					
0	0 = semiautomatic	-manual drain n, protected depress	ails in the dedicated secti urisation	on):				
0	VISUAL BLOCKAGE IN 0 = not present 1 = present	NDICATOR:						
1/8	PORTS (IN - OUT)*: = without cartric 1/8 = G1/8 1/4 = G1/4 3/8 = G3/8 6 = tube Ø6 8 = tube Ø8 10 = tube Ø10 * NOTE: if the inlet Example: MD1-FC	(IN) cartridge is diffe	erent from the outlet (OU	T) cartridge, both dir	nensions shall be ind	icated.		

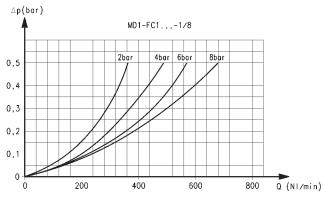
Series MD coalescing filters - materials

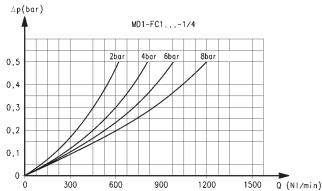
A = filter B = filter with visual blockage indicator



PARTS	MATERIALS	
1 = Body	Polyamide	
2 = Tank	Polycarbonate	
3 = Covering	Polyamide	
4 = Filtering element	Borosilicate	
5 = Upper spring	Stainless steel	
6 = Piston	Anodized aluminium	
7 = Visual blockage indicator	Polycarbonate	
Seals	NBR	

FLOW DIAGRAMS for models with 1 µm filtering element



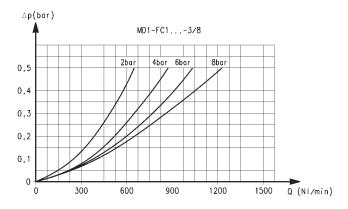


Ports with interchangeable 1/8 threaded cartridges

Δp = Pressure drop (bar) Q = Flow (Nl/min) Ports with interchangeable 1/4 threaded cartridges

Δp = Pressure drop (bar) Q = Flow (Nl/min)

FLOW DIAGRAM for models with 1 μm filtering element

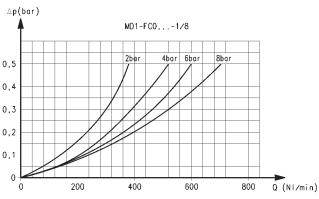


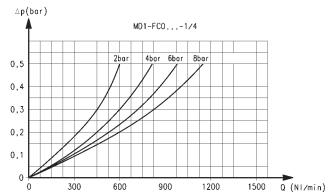
Ports with interchangeable 3/8 threaded cartridges

Δp = Pressure drop (bar) Q = Flow (Nl/min)

FLOW DIAGRAMS for models with 0.01 μm filtering element





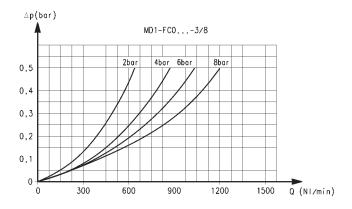


Ports with interchangeable 1/8 threaded cartridges

Δp = Pressure drop (bar) Q = Flow (Nl/min) Ports with interchangeable 1/4 threaded cartridges

Δp = Pressure drop (bar) Q = Flow (Nl/min)

FLOW DIAGRAM for models with 0.01 μm filtering element



Ports with interchangeable 3/8 threaded cartridges

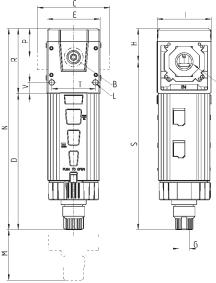
Δp = Pressure drop (bar) Q = Flow (Nl/min) SERIES MD COALESCING FILTERS

Series MD coalescing filters - dimensions



FA01 = coalescing filter with direct G1/8 exhaust FA02 = coalescing filter with semi-automatic manual drain

FA03 = coalescing filter with automatic/depressuring







DIMENSIONS																	
Mod.	Α	В	С	Е	G	Н	- 1	L	М	N	0	Р	R	S	T	V	Weight (Kg)
MD1-FC000	-	G1/8	42	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2
MD1-FC000-1/8	G1/8	G1/8	42	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2
MD1-FC000-1/4	G1/4	G1/8	42	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2
MD1-FC000-3/8	G3/8	G1/8	42	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2
MD1-FC000-6	Ø6	G1/8	47	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2
MD1-FC000-8	Ø8	G1/8	62	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2
MD1-FC000-10	Ø10	G1/8	67	42	G1/8	26.2	43	Ø4	90	159.4	107.7	22.7	51.7	133.2	34.6	9	0.2

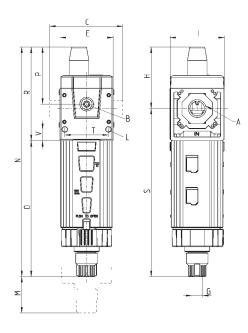
Series MD coalescing filters with visual indicator - dimensions



FA04 = coalescing filter with direct G1/8 exhaust

and visual blockage indicator
FAO5 = coalescing filter with semi-automatic manual drain and visual blockage indicator

FA06 = coalescing filter with automatic/depressuring drain and visual blockage indicator

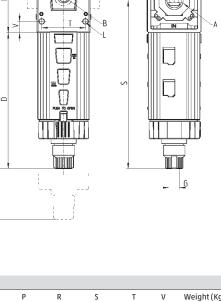








DIMENSIONS																	
Mod.	Α	В	C	E	G	Н	- 1	L	М	N	0	P	R	S	T	V	Weight (Kg)
MD1-FC001	-	G1/8	42	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2
MD1-FC001-1/8	G1/8	G1/8	42	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2
MD1-FC001-1/4	G1/4	G1/8	42	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2
MD1-FC001-3/8	G3/8	G1/8	42	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2
MD1-FC001-6	Ø6	G1/8	47	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2
MD1-FC001-8	Ø8	G1/8	62	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2
MD1-FC001-10	Ø10	G1/8	67	42	G1/8	48.7	43	Ø4	90	181.9	107.7	45.2	74.2	133.2	34.6	9	0.2





Series MD activated carbon filters

Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm Modular assembly

Bowl with technopolymer cover and bayonet-type mounting



Within a battery of filters the activated carbon version is placed at the end

Given the characteristic of this filter, it

is recommended to replace the filter

element at least every 6 months or 1000

because it requires a pre-filtering like the





The operating principle is based on the adsorption characteristic of the filtering element which is composed of extremely porous fibers placed on different layers. These fibers create a cross-linked and are thus able to adsorb wet parts and contaminants remaining in the passing air, for example oil vapours/smokes, as well as odours generated from these contaminants.

- » Removal of oil, liquid and gaseous components from compressed air through the active carbons
- » Air quality in compliance with ISO 8573-1 standard, Class 1.7.1
- » Visual blockage indicator
- » Bowl locking system reducing the risk of accidents
- » Additional air intakes with the same characteristics of the inlet air (line)

GENERAL DATA

coalescing filter.

working hours.

Construction	modular, compact with activated carbon filtering element
Materials	see TABLE OF MATERIALS on the following page
Ports	With interchangeable cartridges: $1/8$, $1/4$ and $3/8$ threaded or integrated with super-rapid fitting for tube with \emptyset 6, 8 and 10 mm
Mounting	vertical in-line; wall-mounting by means of through holes in the body or with a support bracket
Operating temperature	$10^{\circ}\text{C} \div 40^{\circ}\text{C} \text{ (t max = }60^{\circ}\text{C)}$
Condensate drain	not present
Quality of delivered air according to ISO 8573-1:2010	Class 1.7.1 (pre-filtering in Class 1.8.1 is recommended)
Operating pressure	0.3 ÷ 16 bar
Nominal flow	see FLOW DIAGRAMS on the following pages
Filtering element	actived carbon
Residual oil content	< 0.003 mg/m³
Fluid	compressed air

SERIES MD ACTIVATED CARBON FILTERS

CODING EXAMPLE

SERIES MD

DIMENSION: 1 = 42 mm 1

ACTIVATED CARBON FILTER **FCA**

VISUAL BLOCKAGE INDICATOR: 0 = not present 0

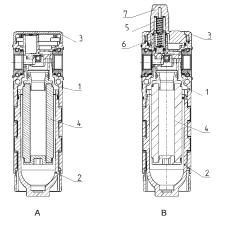
1 = present 1/8

PORTS (IN - OUT)*: = without cartridges 1/8 = G1/8 1/4 = G1/4 3/8 = G3/8 6 = tube Ø6 8 = tube Ø8 10 = tube Ø10

* NOTE: if the inlet (IN) cartridge is different from the outlet (OUT) cartridge, both dimensions shall be indicated. Example: MD1-FCA1-1/4-10

Series MD activated carbon filters - materials

A = filter B = filter with visual blockage indicator

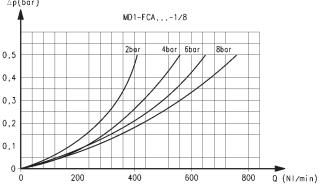


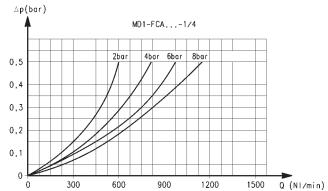
PARTS	MATERIALS	
1 = Body	Polyamide	
2 = Tank	Polycarbonate	
3 = Covering	Polyamide	
4 = Filtering element	Active carbons	
5 = Upper spring	Stainless steel	
6 = Piston	Anodized aluminium	
7 = Visual blockage indicator	Polycarbonate	
Seals	NBR	

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FLOW DIAGRAMS





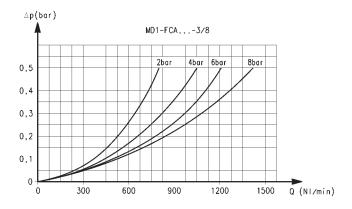


Ports with interchangeable 1/8 threaded cartridges

Δp = Pressure drop (bar) Q = Flow (Nl/min) Ports with interchangeable 1/4 threaded cartridges

Δp = Pressure drop (bar) Q = Flow (Nl/min)

FLOW DIAGRAM



Ports with interchangeable 3/8 threaded cartridges

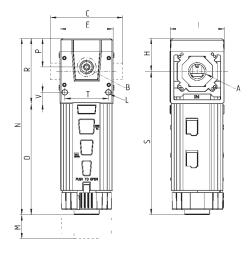
Δp = Pressure drop (bar) Q = Flow (Nl/min) SERIES MD ACTIVATED CARBON FILTERS

Series MD activated carbon filters - dimensions



FC01 = activated carbon filter





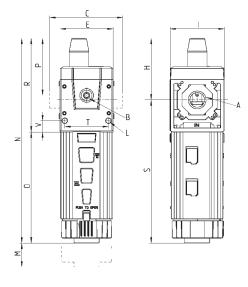


DIMENSIONS																
Mod.	Α	В	С	E	Н	I	L	М	N	0	Р	R	S	T	V	Weight (Kg)
MD1-FCA0	-	G1/8	42	42	26.2	43	Ø4	90	139.7	88	22.7	51.7	113.5	34.6	9	0.2
MD1-FCA0-1/8	G1/8	G1/8	42	42	26.2	43	Ø4	90	139.7	88	22.7	51.7	113.5	34.6	9	0.2
MD1-FCA0-1/4	G1/4	G1/8	42	42	26.2	43	Ø4	90	139.7	88	22.7	51.7	113.5	34.6	9	0.2
MD1-FCA0-3/8	G3/8	G1/8	42	42	26.2	43	Ø4	90	139.7	88	22.7	51.7	113.5	34.6	9	0.2
MD1-FCA0-6	Ø6	G1/8	47	42	26.2	43	Ø4	90	139.7	88	22.7	51.7	113.5	34.6	9	0.2
MD1-FCA0-8	Ø8	G1/8	62	42	26.2	43	Ø4	90	139.7	88	22.7	51.7	113.5	34.6	9	0.2
MD1-FCA0-10	Ø10	G1/8	67	42	26.2	43	Ø4	90	139.7	88	22.7	51.7	113.5	34.6	9	0.2

Series MD activated carbon filters with visual indicator - dimensions



FC02 = activated carbon filter with visual blockage indicator





DIMENSIONS																
Mod.	Α	В	С	E	Н	1	L	М	N	0	Р	R	S	T	V	Weight (Kg)
MD1-FCA1	-	G1/8	42	42	48.7	43	Ø4	90	162.2	88	45.2	74.2	113.5	34.6	9	0.2
MD1-FCA1-1/8	G1/8	G1/8	42	42	48.7	43	Ø4	90	162.2	88	45.2	74.2	113.5	34.6	9	0.2
MD1-FCA1-1/4	G1/4	G1/8	42	42	48.7	43	Ø4	90	162.2	88	45.2	74.2	113.5	34.6	9	0.2
MD1-FCA1-3/8	G3/8	G1/8	42	42	48.7	43	Ø4	90	162.2	88	45.2	74.2	113.5	34.6	9	0.2
MD1-FCA1-6	Ø6	G1/8	47	42	48.7	43	Ø4	90	162.2	88	45.2	74.2	113.5	34.6	9	0.2
MD1-FCA1-8	Ø8	G1/8	62	42	48.7	43	Ø4	90	162.2	88	45.2	74.2	113.5	34.6	9	0.2
MD1-FCA1-10	Ø10	G1/8	67	42	48.7	43	Ø4	90	162.2	88	45.2	74.2	113.5	34.6	9	0.2



Series MD pressure regulators

Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with \emptyset 6, 8 and 10 mm Versions: single, combined with other functions, Manifold





- » Minimal pressure decreases
- » Knob with position lock
- » Tamper-proof system (lockable regulator)
- » With or without overpressure exhaust (relieving)
- » Available versions: Manifold, with by-pass valve, calibrated, locked.

Thanks to the flexibility given by the connection inserts, the regulator can be adjusted within a treatment group so that the regulation knob is in the front or lower position. Once the regulation is locked, it is possible to insert as many security locks through the 4 holes.

The by-pass valve allows the fast exhaust of the air introduced.

The different springs enable a more accurate adjustment of the pressure.

The Series MD offers multi-sector solutions that ensure saving in terms of installation time, space and costs. Thanks to the solution adopted for the pneumatic connection, it is possible to equip the same element with interchangeable cartridges that can either be threaded, or with an integrated super-rapid fitting, both types available in different sizes. Intermediate cartridges can be also integrated to join multiple functions or with derivation to draw air.

GENERAL DATA

Construction modular, compact with pre-formed diaphragm

Materials see TABLE OF MATERIALS on the following page

Ports with interchangeable cartridges: 1/8, 1/4 and 3/8 threaded or integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm

Fixing in-line

wall-mounting by means of through holes in the body or with a support bracket;

panel mounting

Operating temperature -5°C ÷ 50°C up to 16 bar

Inlet pressure 0 ÷ 16 bar

Overpressure exhaust

 Outlet pressure
 0 ÷ 2 bar
 0 ÷ 4 bar

 0.5 ÷ 7 bar
 0.5 ÷ 10 bar

with relieving without relieving

Nominal flow see FLOW DIAGRAMS on the following pages

Fluid compressed air

SERIES MD REGULATORS

CODING EXAMPLE

	MD	1	_	R	Т	0	0	-	1/4	-		-	•
--	----	---	---	---	---	---	---	---	-----	---	--	---	---

SERIES MD SIZE: 1 1 = 42 mm

TYPE OF REGULATOR: R R = pressure regulator M = Manifold pressure regulator

OPERATING PRESSURE (1 bar = 14,5 psi): T

0 = 0,5 ÷ 10 bar 2 = 0 ÷ 2 bar 4 = 0 ÷ 4 bar 7 = 0.5 ÷ 7 bar T = calibrated *** B = locked **

DESIGN TYPE: 0 0 = with relieving 1 = without relieving 2 = with relieving and by-pass valve (only for R regulator)
3 = without relieving, with by-pass valve (only for R regulator)

PRESSURE GAUGE: 0 0 = without pressure gauge (with 1/8 port)

PORTS (IN - OUT)*: 1/4 = without cartridges 1/8 = G1/8 1/4 = G1/4 3/8 = G3/8

6 = tube Ø6 8 = tube Ø8 10 = tube Ø10

* NOTE: if the inlet (IN) cartridge is different from the outlet (OUT) cartridge, both dimensions shall be indicated. Example: MD1-R020-1/4-10

** NOTE: IF THE REGULATOR IS CALIBRATED OR LOCKED, AFTER THE PORTS ADD THE INLET PRESSURE "=" AND THE OUTLET PRESSURE " - "

INLET PRESSURE:

= enter the SUPPLY pressure value

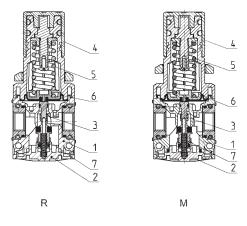
OUTLET PRESSURE:

= enter the OUTLET pressure value for the LOCKED regulator or the maximum value of the ADJUSTABLE pressure for the CALIBRATED regulator

Example of a calibrated regulator with Inlet Pressure = 6.3 bar and Outlet Pressure = 4.5 bar Complete part number: MD1-RT00-1/4-6.3-4.5

Pressure regulators Series MD - materials

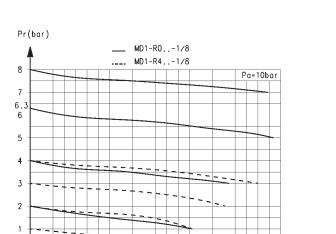
R = pressure regulator M = Manifold pressure regulator



PARTS	MATERIALS	
1 = Body	Polyamide	
2 = Valve holder plug	Polyamide	
3 = Poppet	Brass	
4 = Knob	Polyamide	
5 = Upper spring	Zinc-plated steel	
6 = Diaphragm	NBR	·
7 = Lower spring	Stainless steel	
Seals	NBR	

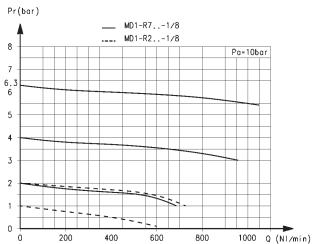
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FLOW DIAGRAMS for regulators with working pressures of 2, 4, 7, 10 bar



600

800



Ports with interchangeable 1/8 threaded cartridges

400

Pr = Regulated pressure (bar) Q = Flow (Nl/min)

200

Pa = Inlet pressure (bar)

0

Ports with interchangeable 1/8 threaded cartridges

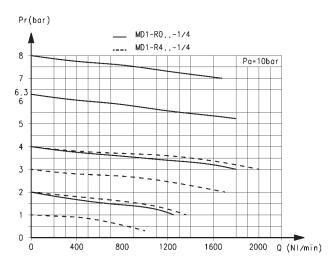
Pr = Regulated pressure (bar)

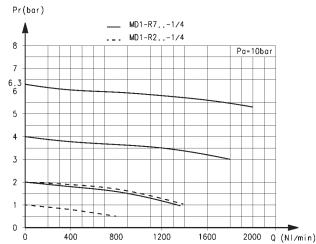
Q = Flow (Nl/min)

1000 Q (NI/min)

Pa = Inlet pressure (bar)

FLOW DIAGRAMS for regulators with working pressures of 2, 4, 7, 10 bar





Ports with interchangeable 1/4 threaded cartridges

Pr = Regulated pressure

Q = Flow

Pa = Inlet pressure

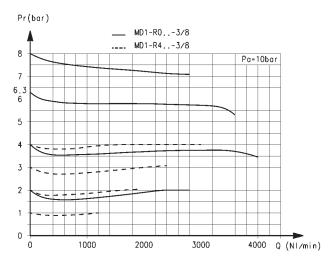
Ports with interchangeable 1/4 threaded cartridges

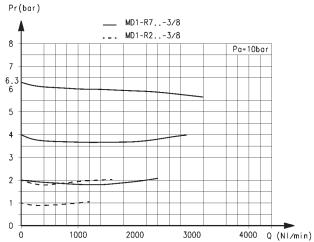
Pr = Regulated pressure

Q = Flow

Pa = Inlet pressure

FLOW DIAGRAMS for regulators with working pressures of 2, 4, 7, 10 bar





Ports with interchangeable 3/8 threaded cartridges

Pr = Regulated pressure (bar) Q = Flow (Nl/min)

Pa = Inlet pressure (bar)

Ports with interchangeable 3/8 threaded cartridges

Pr = Regulated pressure (bar)

Q = Flow (Nl/min)

Pa = Inlet pressure (bar)

Series MD pressure regulators - dimensions

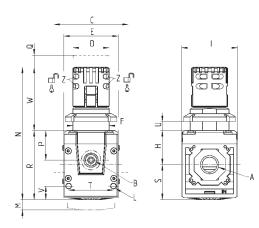


PR01 = regulator without relieving PR02 = regulator with relieving

PRO2 = regulator with relieving

and by-pass valve

PR04 = regulator without relieving and with by-pass valve







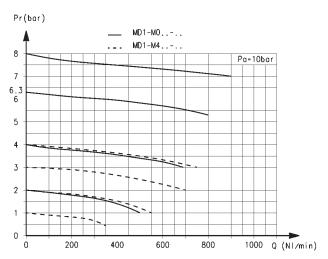


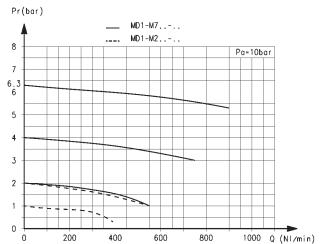


Mod.	Α	В	C	D	Е	F	Н	- 1	L	M	N	Р	Q	R	S	T	U	V	W	Z	Weight (Kg)
MD1-R000	-	G1/8	42	Ø28	42	M28X1,5	26.2	43	Ø4	16	102	22.7	4	53.2	27	34.6	0 ÷ 11	10.5	48.8	Ø3.2	0.2
MD1-R000-1/8	G1/8	G1/8	42	Ø28	42	M28X1,5	26.2	43	Ø4	16	102	22.7	4	53.2	27	34.6	0 ÷ 11	10.5	48.8	Ø3.2	0.2
MD1-R000-1/4	G1/4	G1/8	42	Ø28	42	M28X1,5	26.2	43	Ø4	16	102	22.7	4	53.2	27	34.6	0 ÷ 11	10.5	48.8	Ø3.2	0.2
MD1-R000-3/8	G3/8	G1/8	42	Ø28	42	M28X1,5	26.2	43	Ø4	16	102	22.7	4	53.2	27	34.6	0 ÷ 11	10.5	48.8	Ø3.2	0.2
MD1-R000-6	Ø6	G1/8	47	Ø28	42	M28X1,5	26.2	43	Ø4	16	102	22.7	4	53.2	27	34.6	0 ÷ 11	10.5	48.8	Ø3.2	0.2
MD1-R000-8	Ø8	G1/8	62	Ø28	42	M28X1,5	26.2	43	Ø4	16	102	22.7	4	53.2	27	34.6	0 ÷ 11	10.5	48.8	Ø3.2	0.2
MD1-R000-10	Ø10	G1/8	67	Ø28	42	M28X1,5	26.2	43	Ø4	16	102	22.7	4	53.2	27	34.6	0 ÷ 11	10.5	48.8	Ø3.2	0.2

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FLOW DIAGRAMS for Manifold regulators with working pressures of 2, 4, 7, 10 bar





Pr = Regulated pressure (bar)

Q = Flow (Nl/min)

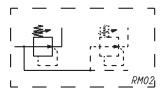
Pa = Inlet pressure (bar)

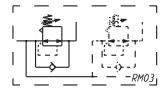
Pr = Regulated pressure (bar) Q = Flow (Nl/min)

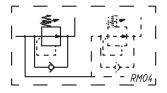
Pa = Inlet pressure (bar)

MANIFOLD REGULATOR - PNEUMATIC SYMBOLS









RM01 = Manifold regulator with relieving

RM02 = Manifold regulator without relieving

RM03 = Manifold regulator with relieving and by-pass valve

RM04 = Manifold regulator without relieving,

with by-pass valve

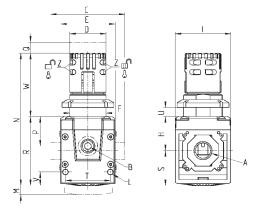
Series MD pressure regulators - dimensions



With the Manifold version it is possible to realize a battery of regulators which are fed by a single source of inlet pressure.

Each regulator can be set up at any pressure (lower than the inlet pressure). The front or rear connection of each regulator allows to draw air at the pressure value set on the regulator itself.

There is no limit to the number of regulators that can be connected.



Mod.	Α	В	C	D	E	F	Н	- 1	L	М	N	Р	Q	R	S	T	U	V	W	Z	Weight (Kg)
MD1-M000	-	G1/8	42	Ø28	42	M28X1,5	26.2	43	Ø4	16	102	22.7	4	53.2	27	34.6	0 ÷ 11	10.5	48.8	Ø3.2	0.2



Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with \emptyset 6, 8 and 10 mm Modular assembly

Bowl with technopolymer cover and bayonet-type mounting



- » Regulation screw
- » Ability to refill the oil even with system under pressure
- » High flow
- » Check of the oil level through plastic cover openings
- » Bowl locking system reducing the risk of accidents
- » Additional air intakes with the same characteristics of the outlet air (line)

The lubricator allows the nebulization of lubricating oil which is necessary to the functioning of components in specific conditions of use.

By means of a regulation screw the amount of oil can be properly adjusted in order to avoid unnecessary overdoses.

GENERAL DATA

Construction	modular, compact
Materials	see TABLE OF MATERIALS on the following page
Ports	with interchangeable cartridges: $1/8$, $1/4$ and $3/8$ threaded or integrated with super-rapid fitting for tube with \emptyset 6, 8 and 10 mm
Oil capacity	40 cm ³
Oil refilling	even during use
Mounting	in vertical position by means of through holes in the body
Operating temperature	-5°C ÷ 50°C up to 16 bar
Oil for lubrication	use ISO VG32 oils. Once applied, the lubrication should never be interrupted.
Operating pressure	0 ÷ 16 bar
Min. air consumption for lubrication at 1 bar $$	15 Nl/min
Min. air consumption for lubrication at 6 bar	25 Nl/min
Nominal flow	see FLOW DIAGRAMS on the following pages
fluid	compressed air

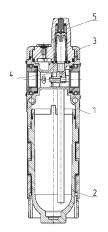


CODING EXAMPLE

MD	1	-	L	0	0	-	1/8
----	---	---	---	---	---	---	-----

					•	
MD	SERIES					
1	DIMENSION: 1 = 42 mm					
L	LUBRICATOR					
00	DESIGN TYPE: 00 = oil mist with refill 10 = oil mist without re					
1/8	PORTS (IN - OUT)*: = without ports 1/8 = 61/8 1/4 = 61/4 3/8 = 63/8 6 = tube Ø6 8 = tube Ø8 10 = tube Ø10					
	* NOTE: if the inlet (IN) Example: MD1-L00-1	om the outlet (OUT) cartr	idge, both dimensions sh	nall be indicated.		

Series MD lubricators - materials

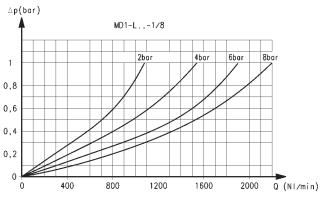


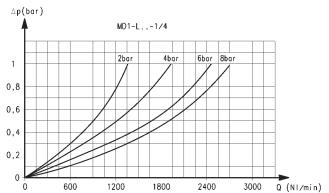
PARTS	MATERIALS	
1 = Body	Polyamide	
2 = Tank	Polycarbonate	
3 = Covering	Polyamide	
4 = Diaphragm	NBR	
5 = Visual blockage indicator	Polycarbonate	
Seals	NBR	

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FLOW DIAGRAMS







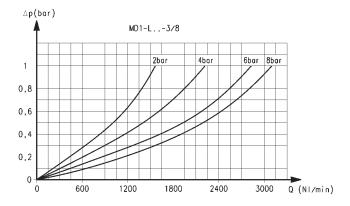
Ports with interchangeable 1/8 threaded cartridges

 $\Delta p = Pressure drop (bar)$ Q = Flow (Nl/min)

Ports with interchangeable 1/4 threaded cartridges

 $\Delta p = Pressure drop (bar)$ Q = Flow (Nl/min)

FLOW DIAGRAM



Ports with interchangeable 3/8 threaded cartridges

 $\Delta p = Pressure drop (bar)$ Q = Flow (Nl/min)

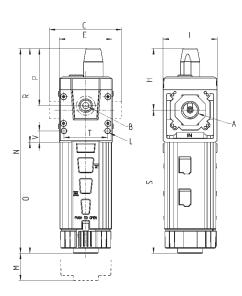
SERIES MD LUBRICATORS

Series MD lubricators - dimensions



LU0 = Lubricator





DIMENSIONS	DIMENSIONS															
Mod.	Α	В	С	Е	Н	ı	L	М	N	0	Р	R	S	T	V	Weight (Kg)
MD1-L00	-	G1/8	42	42	48.7	43	Ø4	75	162.2	88	45.2	74.2	113.5	34.6	9	0.2
MD1-L00-1/8	G1/8	G1/8	42	42	48.7	43	Ø4	75	162.2	88	45.2	74.2	113.5	34.6	9	0.2
MD1-L00-1/4	G1/4	G1/8	42	42	48.7	43	Ø4	75	162.2	88	45.2	74.2	113.5	34.6	9	0.2
MD1-L00-3/8	G3/8	G1/8	42	42	48.7	43	Ø4	75	162.2	88	45.2	74.2	113.5	34.6	9	0.2
MD1-L00-6	Ø6	G1/8	47	42	48.7	43	Ø4	75	162.2	88	45.2	74.2	113.5	34.6	9	0.2
MD1-L00-8	Ø8	G1/8	62	42	48.7	43	Ø4	75	162.2	88	45.2	74.2	113.5	34.6	9	0.2
MD1-L00-10	Ø10	G1/8	67	42	48.7	43	Ø4	75	162.2	88	45.2	74.2	113.5	34.6	9	0.2



Series MD pressure filter-regulators

Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with \emptyset 6, 8 and 10 mm Modular assembly

Bowl with technopolymer cover and bayonet-type mounting



- » Filtering between 25 μm or 5 μm
- » Minimum pressure drops
- » Knob with position lock
- » Tamper-proof system (lockable regulator)
- » Bowl locking system reducing the risk of accidents

Series MD filter-regulators integrate filter and pressure reducer in one unit, thus reducing their dimensions.

The by-pass valve allows the fast exhaust of the air introduced. The different springs enable a more accurate adjustment of the pressure.

Thanks to the solution adopted for the pneumatic connection, it is possible to equip the same element with interchangeable cartridges that can either be threaded, or with an integrated super-rapid fitting, both types available in different sizes. Intermediate cartridges can be also integrated to join multiple functions or with derivation to draw air.

GENERAL DATA

Construction	modular, compact with filtering element in HDPE
Materials	see TABLE OF MATERIALS on the following page
Ports	with interchangeable cartridges: $1/8$, $1/4$ and $3/8$ threaded or integrated with super-rapid fitting for tube with diameters of 6, 8 and 10 mm
Condensate capacity	24 cm ³
Mounting	in-line; wall-mounting by means of through holes in the body or with a support bracket; panel mounting
Operating temperature	-5°C \div 50°C up to 16 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Condensate drain	semi-automatic manual, automatic protected depressurisation, direct G1/8 exhaust
Quality of delivered air according to ISO 8573-1 2010	Class 6.8.4 with 5 µm filtering element Class 7.8.4 with 25 µm filtering element
Inlet pressure	0.3 ÷ 16 bar
Nominal flow	see FLOW DIAGRAMS on the following pages
Fluid	compressed air



CODING EXAMPLE

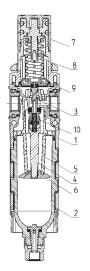
MD	1 - FR 0 0 0 0 - 1/8
MD	SERIES
1	DIMENSION: 1 = 42 mm
FR	FILTER-REGULATOR
0	FILTERING ELEMENT (further details in the dedicated section) AND DESIGN TYPE: 0 = 25
0	DRAINING OF CONDENSATE (further details in the dedicated section): 0 = semiautomatic-manual drain 5 = automatic drain, protected depressurisation 8 = direct G1/8 exhaust
0	OPERATING PRESSURE (1 bar = 14,5 psi): 0 = 0,5 ÷ 10 bar 2 = 0 ÷ 2 bar 4 = 0 ÷ 4 bar 7 = 0.5 ÷ 7 bar
0	PRESSURE GAUGE: 0 = without pressure gauge (with 1/8 port)

* NOTE: if the inlet (IN) cartridge is different from the outlet (OUT) cartridge, both dimensions shall be indicated. Example: MD1-FR0000-1/4-1/8

Series MD filter-regulators - materials

PORTS (IN - OUT)*:
= without cartridges
1/8 = G1/8
1/4 = G1/4
3/8 = G3/8
6 = tube Ø6
8 = tube Ø8
10 = tube Ø10

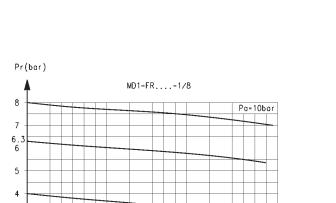
1/8



PARTS	MATERIALS	
1 = Body	Polyamide	
2 = Tank	Polycarbonate	
3 = Poppet	Brass	
4 = Valve guide	Polyacetal	
5 = Filtering element	Polyethylene	
6 = Separation deflector	Polyacetal	
7 = Knob	Polyamide	
8 = Upper spring	Zinc-plated steel	
9 = Diaphragm	NBR	
10 = Lower spring	Stainless steel	
Seals	NBR	

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FLOW DIAGRAMS

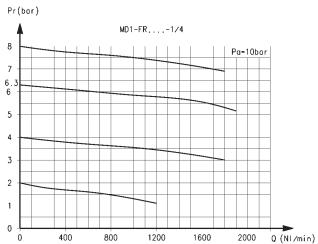


600

1000

Q (NI/min)

800



Ports with interchangeable G1/8 threaded cartridges

400

Pr = Regulated pressure (bar)

200

Q = Flow (Nl/min)

3

2

0

Pa = Inlet pressure (bar)

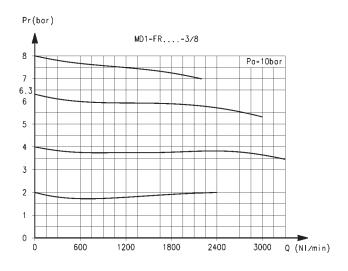
Ports with interchangeable G1/4 threaded cartridges

Pr = Regulated pressure (bar)

Q = Flow (Nl/min)

Pa = Inlet pressure (bar)

FLOW DIAGRAM



Ports with interchangeable G3/8 threaded cartridges

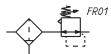
Pr = Regulated pressure (bar)

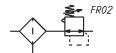
Q = Flow (Nl/min)

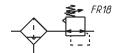
Pa = Inlet pressure (bar)

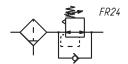
SERIES MD FILTER-REGULATORS

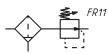
PNEUMATIC SYMBOLS

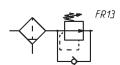


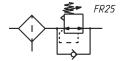


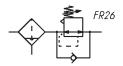












FR01 = filter-regulator with relieving and semi-automatic manual drain

FR02 = filter-regulator with relieving and direct G1/8 exhaust

FR11 = filter-regulator without relieving, with semi-automatic manual drain

FR13 = filter-regulator without relieving, with by-pass valve and semi-automatic manual drain

FR18 = filter-regulator with relieving and automatic/depressuring drain

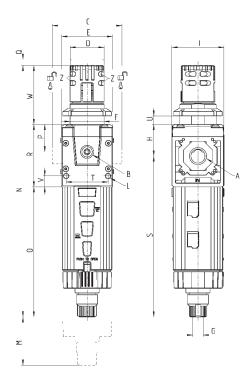
FR24 = filter-regulator with relieving, by-pass valve and semi-automatic manual drain

FR25 = filter-regulator with relieving, by-pass valve and direct G1/8 exhaust

FR26 = filter-regulator with relieving, by-pass valve and automatic/depressuring drain

Series MD filter-regulators - dimensions





Mod.	Α	В	С	D	Е	F	G	Н	- 1	L	М	N	0	Р	Q	R	S	T	U	V	W	Z	Weight (Kg)
MD1-FR0000	-	G1/8	42	Ø28	42	M28X1,5	G1/8	26.2	43	Ø4	110	208.2	107.7	22.7	4	51.7	133.2	34.6	0 ÷ 11	9	48.8	Ø3.2	0.2
MD1-FR0000-1/8	G1/8	G1/8	42	Ø28	42	M28X1,5	G1/8	26.2	43	Ø4	110	208.2	107.7	22.7	4	51.7	133.2	34.6	0 ÷ 11	9	48.8	Ø3.2	0.2
MD1-FR0000-1/4	G1/4	G1/8	42	Ø28	42	M28X1,5	G1/8	26.2	43	Ø4	110	208.2	107.7	22.7	4	51.7	133.2	34.6	0 ÷ 11	9	48.8	Ø3.2	0.2
MD1-FR0000-3/8	G3/8	G1/8	42	Ø28	42	M28X1,5	G1/8	26.2	43	Ø4	110	208.2	107.7	22.7	4	51.7	133.2	34.6	0 ÷ 11	9	48.8	Ø3.2	0.2
MD1-FR0000-6	Ø6	G1/8	47	Ø28	42	M28X1,5	G1/8	26.2	43	Ø4	110	208.2	107.7	22.7	4	51.7	133.2	34.6	0 ÷ 11	9	48.8	Ø3.2	0.2
MD1-FR0000-8	Ø8	G1/8	62	Ø28	42	M28X1,5	G1/8	26.2	43	Ø4	110	208.2	107.7	22.7	4	51.7	133.2	34.6	0 ÷ 11	9	48.8	Ø3.2	0.2
MD1-FR0000-10	Ø10	G1/8	67	Ø28	42	M28X1,5	G1/8	26.2	43	Ø4	110	208.2	107.7	22.7	4	51.7	133.2	34.6	0 ÷ 11	9	48.8	Ø3.2	0.2



Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with \emptyset 6, 8 and 10 mm Modular

Manual, electro-pneumatic, servo-pilot and pneumatic control







- » Standard tamperproof lock-out (manual valve)
- » 24 V, 110 V or 230 V coils
- » Solenoid valve with or without manual override available in different types
- » Additional air intakes with the same characteristics of the inlet air (line)

The Series MD offers multi-sector solutions that ensure saving in terms of installation time, space and costs.

Series MD lockable isolation valves allow the inlet and exhaust of compressed air from the plant and can meet several application requirements. The electric version can be equipped with different options of manual override (Push & Turn, Push-in, retaining lever). Moreover, a version without override is also available.

The manually operated valve can be locked thanks to the use of padlocks.

GENERAL DATA

Construction	modular, compact, spool-type
Materials	see TABLE OF MATERIALS on the following page
Ports	with interchangeable cartridges: 1/8, 1/4 and 3/8 threaded, integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm
Fixing	in-line; wall-mounting by means of through holes in the body or with a support bracket; panel-mounting (for manually operated version only)
Operating temperature	-5°C ÷ 50°C up to 16 bar
Operating pressure	Manual valve: -0.8 bar ÷ 10 bar Electro-pneumatic valve: 2 bar ÷ 10 bar Servopilot or pneumatic valve: -0.8 bar ÷ 10 bar (with pilot 2 ÷ 10 bar)
Nominal flow	see FLOW DIAGRAMS on the following pages
Nominal exhaust flow at 6 bar with Δp = 1 bar	850 Nl/min
Fluid	compressed air



CODING EXAMPLE

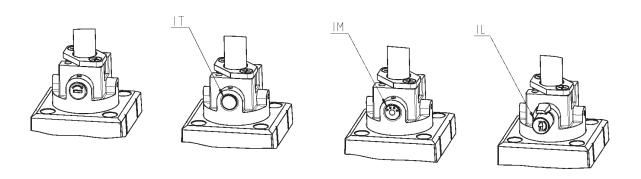
MD 1 - V 01 - 1/8	MD	1	_	V	01	-	1/8
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MD	SERIES			
1	DIMENSION: 1 = 42 mm			
V	3/2-WAYVALVE			
01	DESIGN TYPE: 01 = lockable manual control 16 = electro-pneumatic control, Push & Turn manual ove 16IL = electro-pneumatic control, bistable manual ove		natic control, monostable m atic control without manual ol	
1/8	PORTS (IN - OUT) *: = without cartridges 1/8 = G1/8 1/4 = G1/4 3/8 = G3/8 6 = tube Ø6 8 = tube Ø8 10 = tube Ø10			

^{*} NOTE: if the inlet (IN) cartridge is different from the outlet (OUT) cartridge, both dimensions shall be indicated.

Example: MD1-V01-1/4-1/8

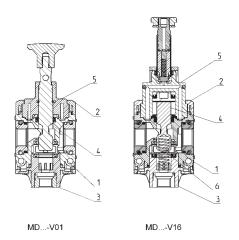
TYPES OF MANUAL OVERRIDE



Push & Turn manual override

IT = without manual override IL = bistable manual override, lever type IM = monostable manual override

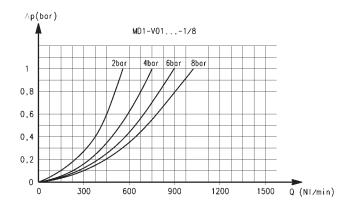
Series MD lockable isolation 3/2-way valves - materials

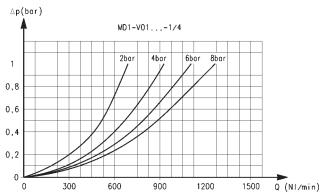


PARTS	MATERIALS	
1 = Body	Polyamide	
2 = Covering	Polyamide	
3 = Plug	Polyamide	
4 = Spool	Anodized aluminium	
5 = End-cover	Polyamide	
6 = Lower spring	Stainless steel	
Seals	NBR	

CAMOZZI Automation

FLOW DIAGRAMS for manually operated models



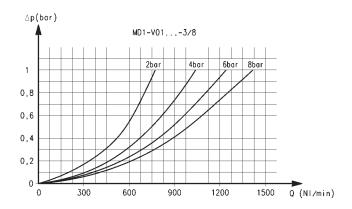


Ports with interchangeable G1/8 threaded cartridges

Δp = Pressure drop (bar) Q = Flow (Nl/min) Ports with interchangeable G1/4 threaded cartridges

Δp = Pressure drop (bar) Q = Flow (Nl/min)

FLOW DIAGRAM for manually operated models

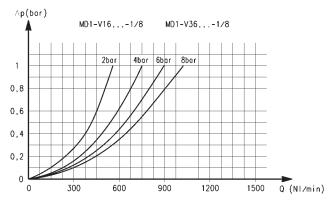


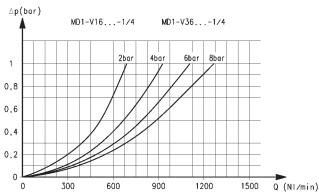
Ports with interchangeable G3/8 threaded cartridges

Δp = Pressure drop (bar) Q = Flow (Nl/min)



FLOW DIAGRAMS for electro-pneumatically or pneumatically operated models



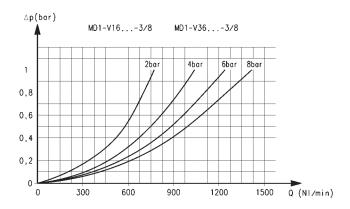


Ports with interchangeable G1/8 threaded cartridges

Δp = Pressure drop (bar) Q = Flow (Nl/min) Ports with interchangeable G1/4 threaded cartridges

Δp = Pressure drop (bar) Q = Flow (Nl/min)

FLOW DIAGRAM for electro-pneumatically or pneumatically operated models



Ports with interchangeable G3/8 threaded cartridges

Δp = Pressure drop (bar) Q = Flow (Nl/min)

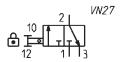
CAMOZZI Automation

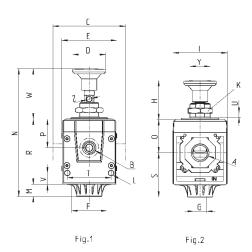
Manually operated valves - dimensions



Fig. 1 = closed valve Fig. 2 = open valve

VN27 = Lockable bistable manual valve 3/2



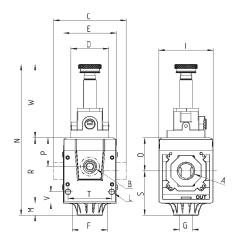


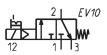
Mod.	Α	В	С	D	E	F	G	Н	- 1	K	L	M	N	0	Р	R	S	T	U	V	W	Υ	Z	Weight (Kg)
MD1-V01	-	G1/8	42	Ø26	42	28.5	G1/8	31	43	19	Ø4	9.5	101	26.2	22.7	51.7	35.1	34.6	0-8	9	39.8	M16X1	Ø4	0.2
MD1-V01-1/8	G1/8	G1/8	42	Ø26	42	28.5	G1/8	31	43	19	Ø4	9.5	101	26.2	22.7	51.7	35.1	34.6	0-8	9	39.8	M16X1	Ø4	0.2
MD1-V01-1/4	G1/4	G1/8	42	Ø26	42	28.5	G1/8	31	43	19	Ø4	9.5	101	26.2	22.7	51.7	35.1	34.6	0-8	9	39.8	M16X1	Ø4	0.2
MD1-V01-3/8	G3/8	G1/8	42	Ø26	42	28.5	G1/8	31	43	19	Ø4	9.5	101	26.2	22.7	51.7	35.1	34.6	0-8	9	39.8	M16X1	Ø4	0.2
MD1-V01-6	Ø6	G1/8	47	Ø26	42	28.5	G1/8	31	43	19	Ø4	9.5	101	26.2	22.7	51.7	35.1	34.6	0-8	9	39.8	M16X1	Ø4	0.2
MD1-V01-8	Ø8	G1/8	62	Ø26	42	28.5	G1/8	31	43	19	Ø4	9.5	101	26.2	22.7	51.7	35.1	34.6	0-8	9	39.8	M16X1	Ø4	0.2
MD1-V01-10	Ø10	G1/8	67	Ø26	42	28.5	G1/8	31	43	19	Ø4	9.5	101	26.2	22.7	51.7	35.1	34.6	0-8	9	39.8	M16X1	Ø4	0.2

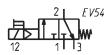
Electro-pneumatically operated valves - dimensions

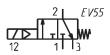


- * = add:
- IL for the version with bistable manual override, lever type (EV10)
- IM for the version with monostable manual override (EV54)
- IT for the version without manual override (EV55)









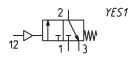
Mod.	Α	В	С	D	E	F	G	I	L	М	N	0	Р	R	S	T	V	W	Weight (Kg)
MD1-V16*	-	G1/8	42	Ø30	42	28.5	G1/8	43	Ø4	9.5	119.4	26.2	22.7	51.7	35.1	34.6	9	58.2	0.2
MD1-V16*-1/8	G1/8	G1/8	42	Ø30	42	28.5	G1/8	43	Ø4	9.5	119.4	26.2	22.7	51.7	35.1	34.6	9	58.2	0.2
MD1-V16*-1/4	G1/4	G1/8	42	Ø30	42	28.5	G1/8	43	Ø4	9.5	119.4	26.2	22.7	51.7	35.1	34.6	9	58.2	0.2
MD1-V16*-3/8	G3/8	G1/8	42	Ø30	42	28.5	G1/8	43	Ø4	9.5	119.4	26.2	22.7	51.7	35.1	34.6	9	58.2	0.2
MD1-V16*-6	Ø6	G1/8	47	Ø30	42	28.5	G1/8	43	Ø4	9.5	119.4	26.2	22.7	51.7	35.1	34.6	9	58.2	0.2
MD1-V16*-8	Ø8	G1/8	62	Ø30	42	28.5	G1/8	43	Ø4	9.5	119.4	26.2	22.7	51.7	35.1	34.6	9	58.2	0.2
MD1-V16*-10	Ø10	G1/8	67	Ø30	42	28.5	G1/8	43	Ø4	9.5	119.4	26.2	22.7	51.7	35.1	34.6	9	58.2	0.2

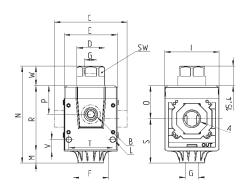


Pneumatically operated valves - dimensions



YES1 = pneumatically operated valve, 3/2, monostable, mechanical spring





Mod.	Α	В	С	D	Е	F	G	- 1	L	М	N	0	Р	R	S	T	V	W	SW	Weight (Kg)
MD1-V36	-	G1/8	42	Ø22	42	28.5	G1/8	43	Ø4	9.5	76.6	26.2	22.7	51.7	35.1	34.6	9	15.4	20	0.2
MD1-V36-1/8	G1/8	G1/8	42	Ø22	42	28.5	G1/8	43	Ø4	9.5	76.6	26.2	22.7	51.7	35.1	34.6	9	15.4	20	0.2
MD1-V36-1/4	G1/4	G1/8	42	Ø22	42	28.5	G1/8	43	Ø4	9.5	76.6	26.2	22.7	51.7	35.1	34.6	9	15.4	20	0.2
MD1-V36-3/8	G3/8	G1/8	42	Ø22	42	28.5	G1/8	43	Ø4	9.5	76.6	26.2	22.7	51.7	35.1	34.6	9	15.4	20	0.2
MD1-V36-6	Ø6	G1/8	47	Ø22	42	28.5	G1/8	43	Ø4	9.5	76.6	26.2	22.7	51.7	35.1	34.6	9	15.4	20	0.2
MD1-V36-8	Ø8	G1/8	62	Ø22	42	28.5	G1/8	43	Ø4	9.5	76.6	26.2	22.7	51.7	35.1	34.6	9	15.4	20	0.2
MD1-V36-10	Ø10	G1/8	67	Ø22	42	28.5	G1/8	43	Ø4	9.5	76.6	26.2	22.7	51.7	35.1	34.6	9	15.4	20	0.2



Series MD soft start valves

Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm Modular assembly



- » Security function to maintain the command sequence
- » Opening of the main air path at about 50% of the value of the inlet pressure
- » Upper air intake to connect a pressure switch or to extend switching time
- » Additional air intakes with the same characteristics of the outlet air (line)

The soft start valves are used to avoid the sudden movement of pneumatic actuators. Feeding them pneumatically is enough to begin the phase of the pressure gradual increase in the system. By means of a regulation screw, it is possible to determine the time the valve needs to reach the 50% of the inlet pressure. Once this value is reached, the valve opens completely the passage.

The blanked connection on the upper side allows either the time increase to fill the system through a small additional volume or the connection of a pressure switch.

GENERAL DATA

Construction modular, compact, poppet-type Materials see TABLE OF MATERIALS on the following page Ports with interchangeable cartridges: 1/8, 1/4 and 3/8 threaded, integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm Fixing in-line; wall-mounting by means of through hole in the body or with a support bracket Operating temperature -5°C ÷ 50°C

Operating pressure 2 ÷ 10 bar

Nominal flow at 6 bar with ΔP 1 bar MD1-AV-1/8 = 1000 Nl/min

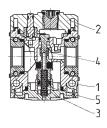
MD1-AV-1/4 = 1350 Nl/min MD1-AV-3/8 = 1500 Nl/min

Fluid compressed air

CODING EXAMPLE

MD	1	-	AV	-	1/8
MD	SERIES				
1	DIMENSION: 1 = 42 mm				
AV	SOFT START VALVE				
1/8	PORTS (IN - OUT)*: = without cartridges 1/8 = G1/8 1/4 = G1/4 3/8 = G3/8 6 = tube Ø6 8 = tube Ø8 10 = tube Ø10 * NOTE: if the inlet (IN) cartridge Example: MD1-AV-1/4-1/8	e is different from the outlet (OUT	r) cartridge, both dimensions shall be	indicated.	

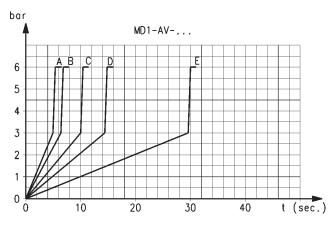
Series MD soft start valves - materials

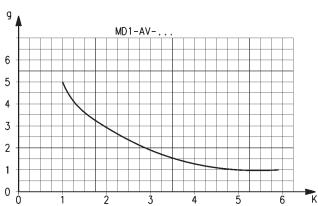


PARTS	MATERIALS	
1 = Body	Polyamide	
2 = Covering	Polyamide	
3 = Plug	Polyamide	
4 = Poppet	Brass	
5 = Spring	Stainless steel	
Seals	NBR	

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MD1 DIAGRAMS FOR PRESSURISATION TIMES





Pressurisation times as to the number of turns of the regulation screw, with downstream volume of 5 litres. A = 5 turns - B = 4 turns - C = 3 turns - D = 2 turns - E = 1 turn. K = number of turns of the regulation screw required to obtain the required pressurisation time with an inlet pressure of 6 bar. Variations of the inlet pressure can cause deviations of the pressure time by \pm 20%. K = \pm 1/V where: V = volume of the downstream system in litres; t = desired pressuring time in seconds.

EXAMPLE:

V = 5 litres

t = 16 seconds

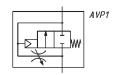
K = 16/5 = 3.2

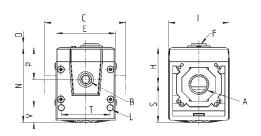
Using in the graph this value K, the number of turns of the regulation screw will be approx. 0,8.

Series MD soft start valves - dimensions



AVP1 = Soft start valve





Mod.	Α	В	C	E	F	Н	I	L	N	0	Р	S	T	V	Weight (Kg)
MD1-AV	-	G1/8	42	42	G1/8	26.2	43	Ø4	53.2	2.5	22.7	27	34.6	10.5	0.2
MD1-AV-1/8	G1/8	G1/8	42	42	G1/8	26.2	43	Ø4	53.2	2.5	22.7	27	34.6	10.5	0.2
MD1-AV-1/4	G1/4	G1/8	42	42	G1/8	26.2	43	Ø4	53.2	2.5	22.7	27	34.6	10.5	0.2
MD1-AV-3/8	G3/8	G1/8	42	42	G1/8	26.2	43	Ø4	53.2	2.5	22.7	27	34.6	10.5	0.2
MD1-AV-6	Ø6	G1/8	47	42	G1/8	26.2	43	Ø4	53.2	2.5	22.7	27	34.6	10.5	0.2
MD1-AV-8	Ø8	G1/8	62	42	G1/8	26.2	43	Ø4	53.2	2.5	22.7	27	34.6	10.5	0.2
MD1-AV-10	Ø10	G1/8	67	42	G1/8	26.2	43	Ø4	53.2	2.5	22.7	27	34.6	10.5	0.2



Series MD take-off blocks

Module with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with \emptyset 6, 8 and 10 mm (4 outlets) Intermediate junction cartridge (2 outlets) Intermediate junction cartridge with non-return valve







- » Compact design
- » Utilities orientation
- » Cartridge with nonreturn valve function
- » Power supply block for treatment units mounted on opposite sides

The take-off block can be positioned as desired among the other blocks of the air treatment unit and allows to draw in air from different sides.

The intermediate cartridge, that can also be supplied with a non-return valve, enables to draw in a reduced quantity of air. The take-off block enables to connect two air treatment units that can be mounted on both sides of the block

GENERAL DATA

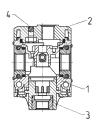
Construction	modular, compact
Materials	see TABLE OF MATERIALS on the following page
Ports - Take-off block	with interchangeable cartridges: $1/8$, $1/4$ and $3/8$ threaded or integrated with super-rapid fitting for tube with \emptyset 6, 8 and 10 mm
Ports - Joining cartridge with derivation Ports - Joining cartridge with VNR	3/8 3/8
Derivations - Take-off block Derivations - Joining cartridge	4x 1/8 2x 1/8
Fixing - Take-off block	in-line; wall-mounting by means of through holes in the body or with a support bracket
Operating temperature	-5°C ÷ 50°C
Operating pressure	0 ÷ 16 bar
Nominal flow at 6 bar with $\Delta p = 1$ bar	MD1-B00-1/8 = 1300 Nl/min MD1-B00-1/4 = 2300 Nl/min MD1-B00-3/8 = 3400 Nl/min
Fluid	compressed air



CODING EXAMPLE

MD	1	-	В	00	-	1/8
MD	SERIES					
1	DIMENSION: 1 = 42 mm					
В	TAKE-OFF BLOCK					
00	DESIGN TYPE: 00 = standard derivation 02 = bidirectional derivation	on				
1/8	PORTS (IN - OUT)*: = without cartridges 1/8 = 61/8 1/4 = 61/4 3/8 = 63/8 6 = tube Ø6 8 = tube Ø8 10 = tube Ø10					
	* NOTE: if the inlet (IN) car Example: MD1-B00-3/8-		outlet (OUT) cartridge, both	dimensions shall be indicat	ed.	

Series MD take-off block - materials



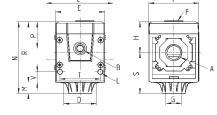
PARTS	MATERIALS	
1 = Body	Polyamide	
2 = Covering	Polyamide	
3 = Plug	Polyamide	
4 = Sphere	Stainless steel	
Seals	NBR	

SERIES MD TAKE-OFF BLOCKS

Series MD take-off block - dimensions



BL01 = Take-off block



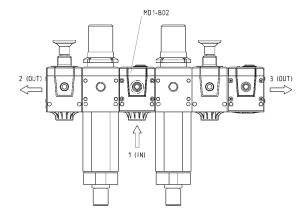


Mod.	Α	В	С	D	E	F	G	Н	I	L	М	N	Р	R	S	T	V	Weight (Kg)
MD1-B00	-	G1/8	42	28.5	42	G1/8	G1/8	26.2	43	Ø4	9.5	61.2	22.7	51.7	35.1	34.6	9	0.2
MD1-B00-1/8	G1/8	G1/8	42	28.5	42	G1/8	G1/8	26.2	43	Ø4	9.5	61.2	22.7	51.7	35.1	34.6	9	0.2
MD1-B00-1/4	G1/4	G1/8	42	28.5	42	G1/8	G1/8	26.2	43	Ø4	9.5	61.2	22.7	51.7	35.1	34.6	9	0.2
MD1-B00-3/8	G3/8	G1/8	42	28.5	42	G1/8	G1/8	26.2	43	Ø4	9.5	61.2	22.7	51.7	35.1	34.6	9	0.2
MD1-B00-6	Ø6	G1/8	47	28.5	42	G1/8	G1/8	26.2	43	Ø4	9.5	61.2	22.7	51.7	35.1	34.6	9	0.2
MD1-B00-8	Ø8	G1/8	62	28.5	42	G1/8	G1/8	26.2	43	Ø4	9.5	61.2	22.7	51.7	35.1	34.6	9	0.2
MD1-B00-10	Ø10	G1/8	67	28.5	42	G1/8	G1/8	26.2	43	Ø4	9.5	61.2	22.7	51.7	35.1	34.6	9	0.2
MD1-B02	-	G1/8	42	28.5	42	G1/8	G1/4	26.2	43	Ø4	9.5	61.2	22.7	51.7	35.1	34.6	9	0.2

Use of the take-off block MD1-B02

The take-off block MD1-B02 is particularly suitable when Series MD1 modules have to be supplied through the same pressure source.

The modules which are connected to the left side are of LH kind.



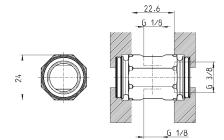
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Intermediate joining cartridge with derivation Mod. MD1-B



The kit is supplied with:

1x intermediate joining cartridge with derivation
4x zinc-plated white special screws Ø4,5 TC/RC



Mod.

MD1-B

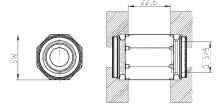
Intermediate joining cartridge with non return valve Mod. MD1-VNR



The kit is supplied with:

1x intermediate joining cartridge
with non return valve

4x zinc-plated white special screws Ø4,5 TC/RC



Mod.

MD1-VNR

ACCESSORIES FOR SERIES MD

ACCESSORIES FOR SERIES MD



Threaded cartridges



Integrated cartridges with super-rapid fitting cartridge Mod. MD1-C





Screws for wall mounting Mod. MD1-D



Rear bracket Mod. MD1-ST/1



Mounting bracket Mod. C114-ST



Mounting bracket Mod. C114-ST/1



Mounting bracket Mod. C114-ST/2



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Threaded cartridges Mod. MD1-A-...



The kit is supplied with: 2x nickel-plated threaded cartridges 4x special white zinc-plated screws Ø4,5 TC/RC





DIMENSIONS		
Mod.	A	
MD1-A-1/8	G1/8	
MD1-A-1/4	G1/4	
MD1-A-3/8	G3/8	

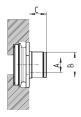
Integrated cartridges with super-rapid fitting Mod. MD1-A-...



The kit is supplied with: 2x integrated nickel-plated cartridges with superrapid fitting

4x special white zinc-plated screws Ø4,5 TC/RC





DIMENSIONS										
Mod.	А	В	С							
MD1-A-6	Ø6	12.7	8.5							
MD1-A-8	Ø8	14.2	10							
MD1-A-10	Ø10	16.5	12.5							

Intermediate joining cartridge Mod. MD1-C



The kit is supplied with: 1x intermediate joining cartridge 4x special white zinc-plated screws Ø4,5 TC/RC





Mod.

MD1-C

ACCESSORIES FOR SERIES MD

Screws for wall mounting Mod. MD1-D

The kit is supplied with: 2x white zinc-plated screws M4x50

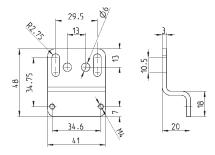


Mod.

Rear bracket Mod. MD1-ST/1



The kit is supplied with: 1x zinc-plated bracket 2x white zinc-plated screws M4x50



Mod.

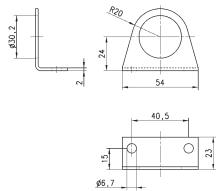
MD1-ST/1

Mounting bracket Mod. C114-ST



For regulators and filter-regulators (G1/4 - G1/8)

The kit is supplied with: 1x zinc-plated steel bracket



Mod.

z //O //Z

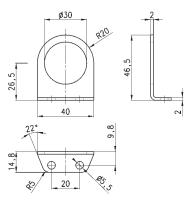
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Mounting bracket Mod. C114-ST/1



For regulators and filter-regulators (G1/4 - G1/8)

The kit is supplied with: 1x zinc-plated steel bracket



Mod.

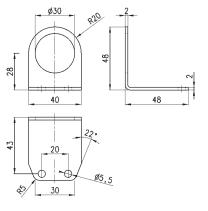
C114-ST/1

Mounting bracket Mod. C114-ST/2



For regulators and filter-regulators (G1/4 - G1/8)

The kit is supplied with: 1x zinc-plated steel bracket



Mod.

C114-ST/2



Series MD assembled FRL

Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm Modular assembly



- » Compact design
- » Optimized dimensions
- » Great reliability
- » Easy and quick maintenance
- » Reduced weight
- » Quick fixing
- » Wide range of functions
- » Additional air intakes

The Series MD offers multi-sector solutions that ensure saving in terms of installation time, space and costs.

The various functions can be connected by means of intermediate junctioning cartridges.

The regulator and the valves can be adjusted so as to have the regulation devices or the actuation in front or lower

There are different types of wall mounting available.

Thanks to the solution adopted for the pneumatic connection, it is possible to equip the same element with interchangeable cartridges that can either be threaded, or with an integrated super-rapid fitting, both types available in different sizes. Intermediate cartridges can be also integrated to join multiple functions or with derivation to draw air.

GENERAL DATA

Construction	modular, compact
Materials	see catalogue pages referring to the single component
Ports	with interchangeable cartridges: $1/8$, $1/4$ and $3/8$ threaded or integrated with super-rapid fitting for tube with Ø 6, 8 and 10 mm
Fixing	vertical in-line; wall-mounting by means of through holes in the body or with a support bracket; panel mounting
Operating temperature	-5°C ÷ 50°C up to 16 bar (according to the single component characteristics)

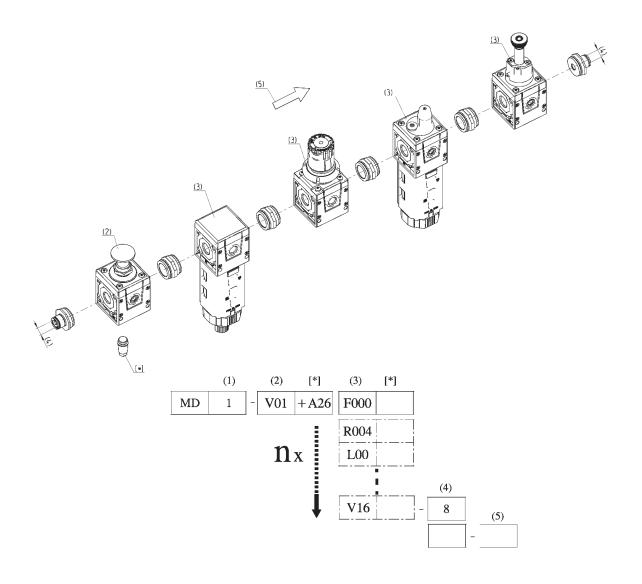


CONFIGURATION OF SERIES MD ASSEMBLED GROUPS

TO CONFIGURE THE SERIES MD ASSEMBLED GROUPS, USE THE HERE BELOW EXAMPLE AND THE RELATED LEGEND ON THE FOLLOWING PAGE.

Configuration of the assembled group in the drawing below:

MD1-V01+A26F000R000L00V16-8



CONFIGURATOR OF SERIES MD ASSEMBLED GROUPS

MD	1	_	V01	F000	R000	L00	V16	-	8	_	LH
----	---	---	-----	------	------	-----	-----	---	---	---	----

MD		SERIES	
1	(1)	DIMENSION:	
-		1 = 42 mm	
V01	(2)	MODULE + [*] (to configure the modules, see the single components pages): F = Filter FC = Coalescing filter FCA = Activated carbons filter R = Pressure regulator L = Lubricator FR = Filter-Regulator V = Lockable isolation valve AV = Soft start valve B = Take-off block	
	[*]	The following ACCESSORIES can be added after every single module: REGULATOR, FILTER-REGULATOR AND MANIFOLD REGULATOR +A01 = M043-P04 (pressure gauge) +A02 = M043-P06 (pressure gauge) +A03 = M043-P10 (pressure gauge) +A04 = M043-P12 (pressure switch) +A06 = SWCN-P10-P4-2 (pressure switch) +A06 = SWCN-P10-P4-2 (pressure switch) +A07 = SWCN-P10-P4-M (pressure switch) +A08 = PG010-PB-1/8 (pressure gauge) LOCKABLE ISOLATION VALVEV01 / V16 / V36 +A25 = 2901 1/8 (silencier) +A26 = 2921 1/8 (silencier) +A26 = 2921 1/8 (silencier) +A27 = 2931 1/8 (silencier) +A01 = M043-P16 (pressure gauge) +A02 = M043-P10 (pressure gauge) +A03 = M043-P10 (pressure gauge) +A03 = M043-P12 (pressure gauge) +A04 = M043-P12 (pressure switch) +A06 = SWCN-P10-P4-2 (pressure switch) +A07 = SWCN-P10-P4-P4-M (pressure switch) +A08 = PG010-PB-1/8 (pressure gauge) SOFT START VALVE AND 5-WAY TAKE-OFF BLOCK +A15 = PM11-NC (pressure switch mounted on top) +A16 = PM11-NA (pressure switch mounted on top) +A19 = PM681-3 (pressure switch mounted on top) +A19 = PM11-SC + S2520 1/8-1/4 (pressure switch) +A06 = SWCN-P10-P4-P4- (front mounted pressure switch) +A07 = SWCN-P10-P3-P4- (front mounted pressure switch) +A08 = PG010-PB-1/8 (front mounted pressure switch) HA08 = PG010-PB-1/8 (front mounted pressure switch) HA09 = SWCN-P10-P4-M (front mounted pressure switch) HA08 = PG010-PB-1/8 (front mounted pressure switch) HA08 = PG010-PB-1/8 (front mounted pressure switch) HA08 = PG010-PB-1/8 (front mounted pressure switch)	LOCKABLE ISOLATION VALVEV16 +A35 = U7H (coils 12V DC) +A36 = U77 (coils 24V DC) +A37 = U79 (coils 48V DC) +A39 = U7K (coils 110V AC) +A39 = U7J (coils 230V AC) +A40 = G7H (coils 12V DC) +A41 = G77 (coils 24V DC) +A42 = G79 (coils 48V DC) +A44 = G7J (coils 230V AC) +A44 = G7J (coils 230V AC)
F000	(3)	+A18 = PM681-3 (pressure switch mounted on top) see MODULE(2) + [*]	
R000	(3)	see MODULE (2) + [*]	
L00	(3)	see MODULE (2) + [*]	
V16	(3)	see MODULE (2) + [*]	
-			
8	(4)	PORTS (IN - OUT) **: = without cartridges 1/8 = 61/8 1/4 = 61/4 3/8 = 63/8 6 = tube Ø6 8 = tube Ø8 10 = tube Ø10	
-			
LH	(5)	FLOW DIRECTION: = from left to right (standard) LH = from right to left	

nx = the combination "(3) + (*)" can be repeated an odd ("n") number of times

^{**} NOTE: if the inlet (IN) cartridge is different from the outlet (OUT) cartridge, both dimensions shall be indicated. Example: MD1-V01F000R000-3/8-8

New versions



Series N filters, coalescing filters and actived carbon filters

Ports: G1/8, G1/4



Series N filters are available with G1/8 and G1/4 gas ports. The models are available with 3 different filtering elements: 25, 5, 0.01 μ m and actived carbon.

- » Available with: transparent PA12 bowl or nickelplated brass bowl for the small version (N1)
- » Quality of delivered air according to ISO 8573-1:2010 from Class 7.8.4 to Class 1.7.1

The version with semi-automatic manual drain is equipped with a transparent bowl that makes the monitoring of the condensate level very easy.

The version with metal bowl is particularly suitable for applications subject to impacts or in the presence of aggressive agents that could damage the PA12 bowl.

GENERAL DATA

Construction	HDPE, coalescing and actived carbon filtering element
Materials	brass, transparent PA12 or nickel-plated brass, NBR
Ports	G1/8 - G1/4
Max. condensate capacity	11 cm³ (bowl size = 1) 28 cm³ (bowl size = 2)
Weight	0.220 kg
Mounting	vertical, inline
Operating temperature	-5°C ÷ 50°C at 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Quality of delivered air according to ISO 8573-1 2010	Class 7.8.4 with 25 µm filtering element Class 6.8.4 with 5 µm filtering element Class 1.8.1 with 0.01 µm filtering element Classe 1.7.1 with actived carbon filtering element
Draining of condensate	see the coding example
Operating pressure	0.3 ÷ 16 bar (with depressurisation max 10 bar)
Nominal flow	see FLOW DIAGRAMS on the following pages
Fluid	Compressed air
Pre-filtering	it is recommended to use a filter with residual oil of 0.01mg/m³

CODING EXAMPLE

N 2 04 - F 0 0 -

SERIES N

SIZE: 2

1 = small bowl (11 cm³) 2 = normal bowl (28 cm³)

PORTS: 04

08 = G1/8 04 = G1/4

F = FILTER F

FILTERING ELEMENT: 0

0 = 25μm (standard) 1 = 5μm

B = 0.01μm

CA = actived carbon (without drain, only closed bowl size 2)

DRAINING OF CONDENSATE (further details in the dedicated section): 0

0 = semi-automatic manual drain 4 = depressurisation (normal bowl only) 5 = protected depressurisation (normal bowl only)

8 = no drain, direct G1/8 exhaust

BOWL MATERIAL:

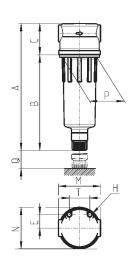
= transparent PA12 (standard)
TM = nickel-plated brass (only in the small size with semi-automatic manual drain or without drain, port 1/8)

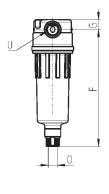
Filters Series N



FT01 = filter without drain with threaded port FT02 = filter with semiautomatic manual drain

FAO1 = coalescing filter without drain with threaded port FAO2 = coalescing filter with semi-automatic manual drain FCO1 = absorption function without bowl hole



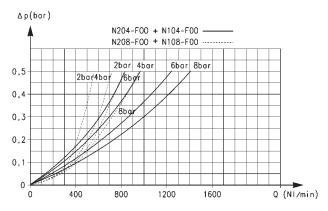


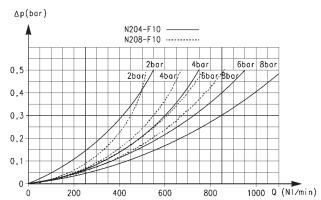


DIMENSIONS														
Mod.	Α	В	С	E	F	G	Н	М	N	0	Р	Q	T	U
N108-F00	111	78	33	14.5	101	10	M5	45	44.5	G1/8	38	40	22	G1/8
N104-F00	111	78	33	14.5	101	10	M5	45	44.5	G1/8	38	40	22	G1/4
N208-F00	135	102	33	14.5	125	10	M5	45	44.5	G1/8	38	40	22	G1/8
N204-F00	135	102	33	14.5	125	10	M5	45	44.5	G1/8	38	40	22	G1/4
N208-FCA	117	84	33	14.5	107	10	M5	45	44.5	G1/8	38	69	22	G1/8
N204-FCA	117	84	33	14.5	107	10	M5	45	44.5	G1/8	38	69	22	G1/4

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FLOW DIAGRAMS





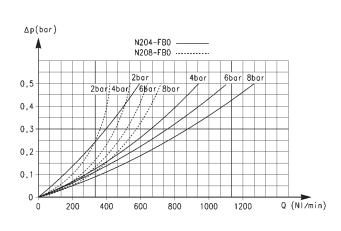
Flow diagram for models: N204-F00 - N104-F00 = _____ N208-F00 - N108-F00 = -----

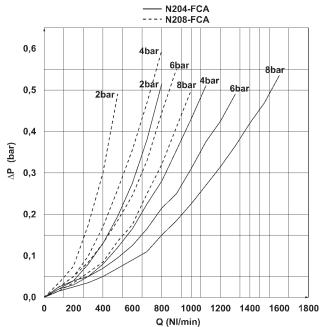
ΔP = Pressure drop (bar) Q = Flow (Nl/min) Flow diagram for models: N204-F10 = _____

N204-F10 = _____ N208-F10 = -----

ΔP = Pressure drop (bar) Q = Flow (Nl/min)

FLOW DIAGRAMS





Flow diagram for models: N204-FB0 = ____

N208-FB0 = ----

ΔP = Pressure drop (bar) Q = Flow (Nl/min) Flow diagram for models: N204-FCA = ____ N208-FCA = - - - -

ΔP = Pressure drop (bar) Q = Flow (Nl/min)



Series N pressure regulators

Ports G1/8, G1/4



- » Knob with closure
- » Integral return exhaust (relieving)

Series N pressure regulators are available with G1/4 and G1/8 ports.
Their design incorporates a self relieving diaphragm so as to allow decremental adjustments.

GENERAL DATA

Construction diaphragm type Materials brass, technopolymer, NBR Ports G1/8 - G1/4 Weight Kg 0.316 Pressure gauge ports in - line or console (in any position) Mounting Operating temperature -5°C ÷ 50°C (with the dew point of the fluid lower than 2°C at the min. working temperature) Inlet pressure Outlet pressure 0.5 ÷ 10 bar(standard), 0 ÷ 2 bar; 0 ÷ 4 bar e 0.5 ÷ 7 bar Nominal flow see FLOW DIAGRAMS on the following pages Secondary pressure relieving with relieving (standard) without relieving Fluid compressed air

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N 12 04 T 0

SERIES N

SIZE: 12 12

PORTS: 08 = G1/8 04 = G1/4

R = REGULATOR R

OPERATING PRESSURE: T

0 = 0.5 ÷ 10 bar (standard) 1 = 0 ÷ 4 bar 2 = 0 ÷ 2 bar 7 = 0.5 ÷ 7 bar

T = calibrated *
B = locked *

DESIGN TYPE: 0

0 = self-relieving 1 = non-relieving

* NOTE: IF THE REGULATOR IS CALIBRATED OR LOCKED, AFTER THE DESIGN TYPE ADD THE INLET PRESSURE " • " AND THE OUTLET PRESSURE " • "

INLET PRESSURE:

■ = enter the SUPPLY pressure value

OUTLET PRESSURE:

• = enter the OUTLET pressure value for the LOCKED regulator or the maximum value of the ADJUSTABLE pressure for the CALIBRATED regulator

Example of a calibrated regulator with Inlet Pressure = 6.3 bar and Outlet Pressure = 4.5 bar Complete part number: N1204-RTO-6.3-4.5

Pressure regulators Series N

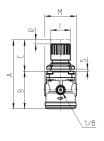


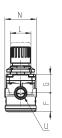
Calibrated or blocked regulators on request

PR01 = regulator without relieving PR02 = regulator with relieving





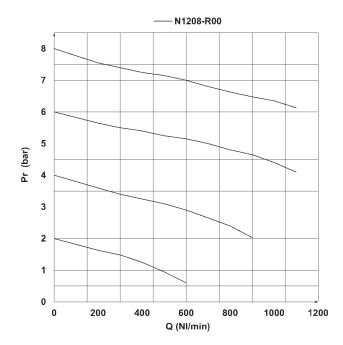


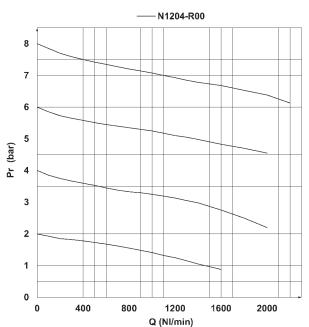


DIMENSIONS												
Mod.	А	В	С	F	G	I	L	М	N	R	S	U
N1208-R00	92	53	39	26	27	28	30X1,5	45	45	3	0÷6	G1/8
N1204-R00	92	53	39	26	27	28	30X1,5	45	45	3	0÷6	G1/4

SERIES N PRESSURE REGULATORS

FLOW DIAGRAMS





Flow diagram for model: N1208-R00

Pa = Inlet pressure (bar) Pr = Regulated pressure (bar) Q = Flow (Nl/min)

Pa = Inlet pressure (bar) Pr = Regulated pressure (bar) Q = Flow (Nl/min)

Flow diagram for model: N1204-R00

New version

Series N **lubricators**

Ports G1/8, G1/4





» Available with: transparent PA12 bowl or nickelplated brass bowl for the small version (N1)

Series N lubricators are available with G1/4 and G1/8 ports.

The special type of design allows a vast range of applications in relation to the amount of atomized oil and the air consumed.

The body is made of brass, whilst the bowl can be in transparent PA12 or in nickelplated brass.

The version with metal bowl is particularly suitable for applications subject to impacts or in the presence of aggressive agents that could damage the PA12 bowl.

GENERAL DATA

Construction	modular, compact
Materials	brass, transparent PA12 or nickel-plated brass, NBR
Ports	G1/8 - G1/4
Oil capacity	26 cm³ (bowl size = 1) 37 cm³ (bowl size = 2)
Weight	0.240 kg
Mounting	vertical, inline
Operating temperature	-5°C ÷ 50°C at 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Oil refilling	without pressure
Oil for lubricator	use ISO VG32 oils. Once applied, the lubrication should never be interrupted
Operating pressure	1 ÷ 16 bar
Nominal flow	see FLOW DIAGRAMS on the following pages
Min. air consumption for lubrication	at 1 bar = 7.5 Nl/min at 6 bar = 11 Nl/min
Fluid	compressed air

CODING EXAMPLE

N	2	04	-	L	00	_	
---	---	----	---	---	----	---	--

SERIES N

2

SIZE: 1 = small bowl (26 cm³) 2 = normal bowl (37 cm³)

PORTS: 08 = G1/8 04= G1/4 04

L = LUBRICATOR

L DESIGN TYPE: 00 = atomized oil 00

BOWL MATERIAL:
= transparent PA12 (standard)
TM = nickel-plated brass (only in the small size)

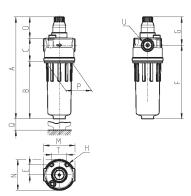
Lubricators Series N





LU0 = Lubricator

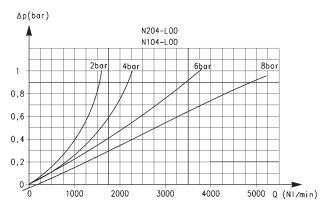


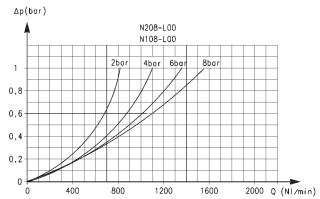


DIMENSIONS														
Mod.	Α	В	С	D	Е	F	G	Н	М	N	Р	Q	T	U
N108-L00	122.5	59	33	30.5	14.5	82	40.5	M5	45	44.5	38	46.5	22	G1/8
N104-L00	122.5	59	33	30.5	14.5	82	40.5	M5	45	44.5	38	46.5	22	G1/4
N208-L00	146.5	83	33	30.5	14.5	106	40.5	M5	45	44.5	38	46.5	22	G1/8
N204-L00	146.5	83	33	30.5	14.5	106	40.5	M5	45	44.5	38	46.5	22	G1/4

FLOW DIAGRAMS







Flow diagrams for models: N204-L00 and N104-L00

ΔP = Pressure drop (bar) Q = Flow (Nl/min) Flow diagrams for models: N208-L00 and N108-L00

ΔP = Pressure drop (bar) Q = Flow (Nl/min)



Series N filter-regulators

New version

Ports G1/8, G1/4



» Available with: transparent PA12 bowl or nickelplated brass bowl for the small version (N1)

Series N filter-regulator is available with G1/4 and G1/8 ports. Its design incorporates a self relieving diaphragm. The transparent filter bowl allows an easy monitoring of the condensate level. The semi-automatic manual drain makes both the manual and automatic condensate exhaust easier when there is no pressure.

The version with metal bowl is particularly suitable for applications subject to impacts or in the presence of aggressive agents that could damage the PA12 bowl.

GENERAL DATA

Construction	HDPE and coalescing filtering element
Materials	brass body and poppet stainless steel spring NBR O-ring HDPE filtering element transparent PA12 or nickel-plated bowl others: PA
Ports	G1/8 - G1/4
Max. condensate capacity	11 cm³ (bowl size = 1) 28 cm³ (bowl size = 2)
Weight	0.370 Kg
Pressure gauge ports	G1/8
Mounting	vertical, in-line
Operating temperature	$-5^{\circ}\text{C} \div 50^{\circ}\text{C}$ a 10 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Quality of delivered air according to ISO 8573-1 2010	Class 7.8.4 with 25 µm filtering element Class 6.8.4 with 5 µm filtering element
Draining of condensate	see the coding example
Inlet pressure	with standard drain and protected depressurisation 0.3 ÷ 16 bar
Outlet pressure	with depressurisation drain 0.3 ÷ 10 bar
Nominal flow	see FLOW DIAGRAMS on the following pages
Secondary pressure relieving	with relieving (standard) without relieving
Fluid	compressed air

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N	2	04	-	D	0	0	-	4	-	
	_	.		_		_		•		

SERIES N

SIZE: 2

 $1 = \text{small bowl } (11 \text{ cm}^3)$

2 = normal bowl (28 cm³)

PORTS: 04 08 = G1/8 04= G1/4

 $\mathsf{D} = \mathsf{FILTER}\text{-}\mathsf{REGULATOR}$ D

FILTERING ELEMENT: 0 0 = 25μm (standard)

1 = 5µm

DRAINING OF CONDENSATE (further details in the dedicated section) AND DESIGN TYPE: 0

1 = semi-automatic manual drain with self-relieving
1 = semi-automatic manual drain with self-relieving
4 = depressurisation with self-relieving (with normal bowl only)
5 = protected depressurisation with self-relieving (with normal bowl only)
8 = no drain (direct port 1/8), with self-relieving

OPERATING PRESSURE: 4

= 0.5 ÷ 10 bar (standard) 2 = 0 ÷ 2 bar 4 = 0 ÷ 4 bar

 $7 = 0.5 \div 7 \text{ bar}$

BOWL MATERIAL:

= transparent PA12 (standard) TM = nickel-plated brass (only in the small size with semi-automatic manual drain or without drain)

Series N filter-regulators



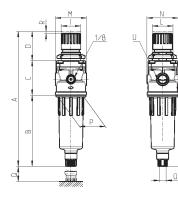
FR01 = filter-regulator with relieving and manual drain FR02 = FR with relieving and without drain

FR11 = FR with manual drain and wiithout relieving





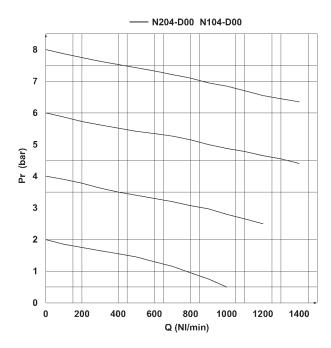


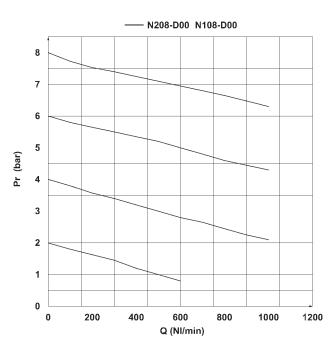


Mod. A	В	С	D	F	G	I	L	M	N	0	Р	Q	R	S	U
N108-D00 167	78	50	39	101	27	28	M30x1,5	45	45	G1/8	38	40	3	0 ÷ 6	G1/8
N104-D00 167	78	50	39	101	27	28	M30x1,5	45	45	G1/8	38	40	3	0 ÷ 6	G1/4
N208-D00 191	102	50	39	125	27	28	M30x1,5	45	45	G1/8	38	40	3	0 ÷ 6	G1/8
N204-D00 191	102	50	39	125	27	28	M30x1,5	45	45	G1/8	38	40	3	0 ÷ 6	G1/4

SERIES N FILTER-REGULATORS

FLOW DIAGRAMS





Flow diagrams for models: N204-D00 - N104-D00

Pa = Inlet pressure (bar) Pr = Regulated pressure (bar) Qn = Flow (Nl/min) Flow diagrams for models: N208-D00 - N108-D00

Pa = Inlet pressure (bar) Pr = Regulated pressure (bar) Qn = Flow (Nl/min)

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ACCESSORIES FOR SERIES N



Mounting bracket Mod. C114-ST



Mounting bracket Mod. C114-ST/1



Mounting bracket Mod. C114-ST/2



Mounting bracket Mod. N204-ST



Systems of rapid connections designed to make mounting easier.

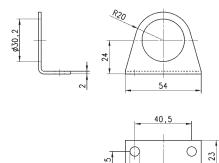
ACCESSORIES FOR SERIES N

Mounting bracket Mod. C114-ST



For regulators and filter-regulators (G1/4 - G1/8)

The kit is supplied with: 1x zinc-plated steel bracket.



Ø6,7

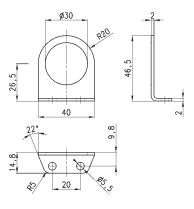
Mod. C114-ST

Mounting bracket Mod. C114-ST/1



For regulators and filter-regulators (G1/4 - G1/8)

The kit is supplied with 1 zinc-plated steel bracket.



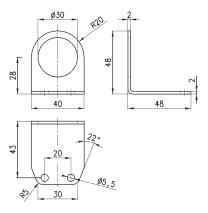
Mod. C114-ST/1

Mounting bracket Mod. C114-ST/2



For regulators and filter-regulators (G1/4 - G1/8)

The kit is supplied with 1 zinc-plated steel bracket.



Mod. C114-ST/2

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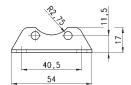
Mounting bracket Mod. N204-ST



For filters and lubricators

The kit is supplied with: 1 bracket 2 screws M5X6

Materials: zinc-plated steel bracket and screws.





Mod.

N204-ST

Series CLR micro pressure regulators



Ports G1/4, G1/8 With banjo stem with or without relieving Available with or without banjo







Series CLR micro pressure regulators are available with G1/8 and G1/4 connections. A piston with or without relieving and VS function (by-pass valve) has been incorporated into its design. The body is in brass, while the connection fitting is in technopolymer which guarantees maximum lightness. They can be supplied with or without banjo and can be console mounted.

With a threaded top part of the body both direct mounting to a valve outlet (1/8 and 1/4 threads) and console mounting are easily facilitated.

The pressure is precisely regulated simply by turning the polymer knob with a locking nut available to set the desired output.

- » Extremely lightweight
- » Compact
- » In-line or console mounting

GENERAL DATA

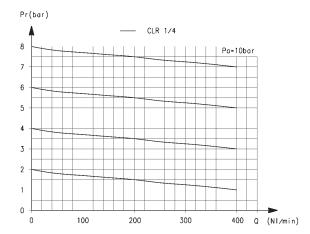
Construction	piston
Materials	brass body, technopolymer banjo, stainless steel spring; NBR O-ring
Ports	G1/8 - G1/4
Weight	Kg 0,035
Mounting	in-line or panel mounting (in any position)
Operating temperature	-5°C ÷ 50°C (with the dew point of the fluid lower than 2°C at the min. working temperature)
Inlet pressure	2 ÷ 10 bar
Outlet pressure	0,5 ÷ 10 bar
Nominal flow	see FLOW DIAGRAMS on the following pages
Secondary pressure (relieving)	with relieving (standard) without relieving (all regulators are provided with high relief flow VS function)
Fluid	compressed air

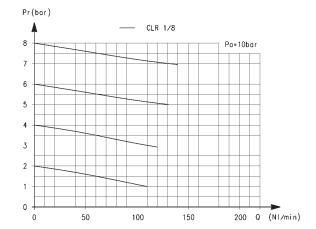


CODING EXAMPLE

CL	R		1/8	-	01	-	4				
CL	SERIES:										
R	R = REGULATOR										
1/8	PORTS: 1/8 = G1/8 1/4 = G1/4										
01	DESIGN TYPE: = with relieving 01 = without relieving										
4	6 = single technopoly 8 = single technopoly 1/8L = single metal b	ymer banjo with tu ymer banjo with tu anjo with thread G	be diameter Ø8 mm	/8)							

FLOW DIAGRAMS at 6 bar with $\Delta P1$





Pa = Inlet pressure (bar) Pr = Regulated pressure (bar)

Q = Flow (Nl/min)

CLR 1/4-6 = 209 Nl/min CLR 1/4-8 = 310 Nl/min

Pa = Inlet pressure (bar) Pr = Regulated pressure (bar) Q = Flow (Nl/min)

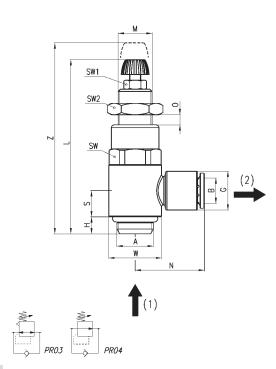
CLR 1/8-4 = 90 Nl/min CLR 1/8-6 = 120 Nl/min CLR 1/8-8 = 120 Nl/min

SERIES CLR MICRO PRESSURE REGULATORS

Series CLR Micro pressure regulators with banjo







Mod.	Α	В	G	Н	L	M	N	0	S	W	SW	SW1	SW2	Z
CLR 1/8-4	G1/8	4	11.6	5	52	M11x1	21	0 ÷ 6.5	7.75	14	14	7	14	59
CLR 1/8-6	G1/8	6	11.6	5	52	M11x1	21	0 ÷ 6.5	7.75	14	14	7	14	59
CLR 1/8-8	G1/8	8	13.9	5	52	M11x1	22.5	0 ÷ 6.5	7.75	14	14	7	14	59
CLR 1/4-6	G1/4	6	13.9	6	59.5	M12x1	24.5	0 ÷ 8	9.25	18.6	17	7	17	68
CLR 1/4-8	G1/4	8	13.9	6	59.5	M12x1	24.5	0 ÷ 8	9.25	18.6	17	7	17	68

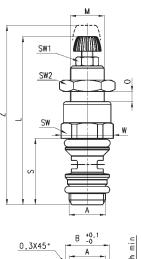
DRAWING NOTE

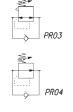
(1) = inlet pressure (2) = regulated pressure

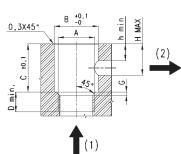
PR03 = Regulator with relieving and by-pass valve PR04 = Regulator without relieving and with by-pass valve

Series CLR Micro pressure regulators without banjo









		DIMENSIONS													
Mod. A	В	С	D min	G	h min	н мах	L	М	0	S	W	SW	SW1	SW2	Z
CLR 1/8 G1/	3 11	15.5	6	1	5.5	10	52	M11x1	0÷6.5	20.5	15.2	14	7	14	59
CLR 1/4 G1/	4 15.65	18.5	7	1.25	7	12	59.5	M12x1	0÷8	24.5	18.5	17	7	17	68

- DRAWING NOTE
 (1) = inlet pressure
 (2) = regulated pressure

PR03 = Regulator with relieving and by-pass valve
PR04 = Regulator without relieving
and with by-pass valve

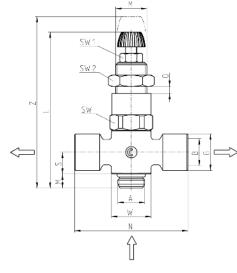
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SERIES CLR MICRO PRESSURE REGULATORS

Series CLR Micro pressure regulators with double banjo









Mod.	Α	В	G	Н	L	M	N	0	S	W	SW	SW1	SW2	Z
CLR 1/8-1/8D	G1/8	G1/8	13	5	52	M11x1	40	0 ÷ 6.5	7.75	14	14	7	14	59

DRAWING NOTE

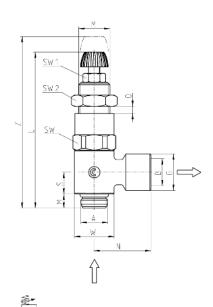
- (1) = inlet pressure (2) = regulated pressure

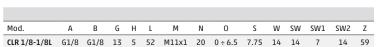
PR03 = Regulator with relieving and by-pass valve PR04 = Regulator without relieving and with by-pass valve

Series CLR Micro pressure regulators with banjo









DRAWING NOTE

- (1) = in (2) = re

PR03 = Regulator with relieving and tor without relieving and with by-pass valve

nlet pressure	by-pass valve
egulated pressure	PR04 = Regulato



Series TC pressure microregulators

For applications with oxygen, without relieving Ports: cartridge construction, G1/8 and 1/8 NPTF





- » Compact design
- » High performance
- » Easy to install
- » Materials suitable with several gases

The Series TC pressure regulator has been designed to be used for all the applications and equipment where it is needed to insert the single component in customized integrated pneumatic circuits (manifolds) or collectors.

The cartridge design and the compact size allow the regulator to be plugged in a proper seat, making the installation easier and reducing the assembly time. To produce the new TC regulator, materials have been analized and chosen on the basis of their suitability with the contact medium. The body in PPS and the seals in FKM ensure thus full compatibility with a wide range of gaseous fluids.

GENERAL DATA

Construction compact with pre-formed diaphragm

Materials see the TABLE OF MATERIALS on the following page

Ports cartridge construction in manifold - G1/8 or 1/8NPTF (aluminium body version only)

Mounting in-line or cartridge (any position)

Operating temperature $-5^{\circ}\text{C} \div 50^{\circ}\text{C}$ Inlet pressure $0 \div 10 \text{ bar}$

Outlet pressure 0 ÷ 0.5 bar; 0 ÷ 2 bar; 0 ÷ 3 bar; 0 ÷ 4 bar

Overpressure exhaust without relieving

 Nominal flow
 see FLOW DIAGRAMS on the following pages

 Medium
 air, inert and medical gases, OXYGEN

Repeatability ±0.2% FS

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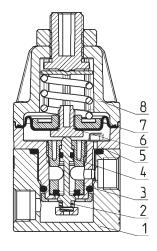


CODING EXAMPLE

TC	1	_	R	3	1	_	С	-	V	-	OX2
TC	SERIES										

TC	SERIES
1	SIZE
R	REGULATOR
3	WORKING PRESSURE: $1=0 \div 0.5 \text{bar}$ $2=0 \div 2 \text{bar}$ $3=0 \div 3 \text{bar}$ $4=0 \div 4 \text{bar}$
1	TYPE OF CONSTRUCTION: 1 = without relieving
С	PORTS: C = Cartridge 1/8 = G1/8 1/8TF = 1/8NPTF
V	SEALS MATERIAL: V = FKM
OX2	VERSIONS: 0X1 = for oxygen (non-volatile residue lower than 550 mg/m²) 0X2 = for oxygen (non-volatile residue lower than 33 mg/m²)

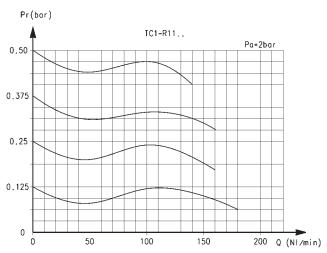
$Series\ TC\ pressure\ microregulators\ -\ materials$

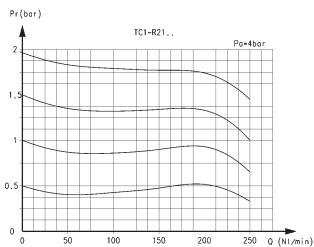


PARTS	MATERIALS	
1. Base body	Anodized aluminium	
2. Lower spring	Stainless steel	
3. Insert	PPS	
4. Poppet	Stainless steel	
5. Body	PPS	
6. Valve guide	PPS	
7. Diaphragm	FKM	
8. Bell	Polyamide	
Seals	FKM	

SERIES TC MICROREGULATORS

FLOW DIAGRAMS - 0.5 and 2 bar working pressure





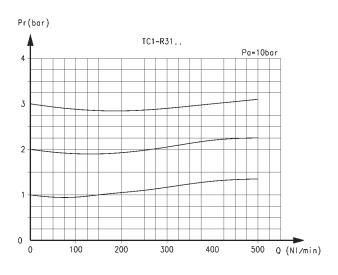
Pr = Regulated pressure (bar) Q = Flow (Nl/min)

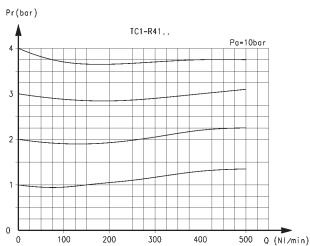
Pa = Inlet pressure (bar)

Pr = Regulated pressure (bar) Q = Flow (Nl/min)

Pa = Inlet pressure (bar)

FLOW DIAGRAMS - 3 and 4 bar working pressure





Pr = Regulated pressure (bar)

Q = Flow (Nl/min)

Pa = Inlet pressure (bar)

Pr = Regulated pressure (bar)

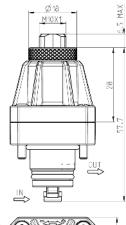
Q = Flow (Nl/min)

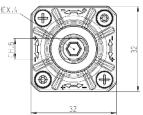
Pa = Inlet pressure (bar)

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Series TC cartridge pressure microregulators







Mod.

TC1-R11-C-V-OX1

TC1-R11-C-V-OX2

TC1-R21-C-V-OX1
TC1-R21-C-V-OX2

TC1-R31-C-V-OX1

TC1-R31-C-V-OX2

TC1-R41-C-V-OX1

TC1-R41-C-V-OX2

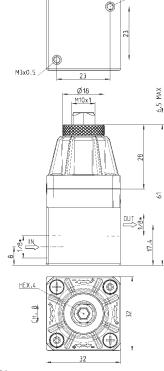


PR01 = regulator without relieving

Series TC pressure microregulators with aluminium body



* to choose the type of thread (G1/8 or 1/8 NPTF) see the Coding example



M3x0.5



PR01 = regulator without relieving

TC1-R11-*-V-OX1
TC1-R11-*-V-OX2
TC1-R21-*-V-OX1
TC1-R21-*-V-OX2

Mod.

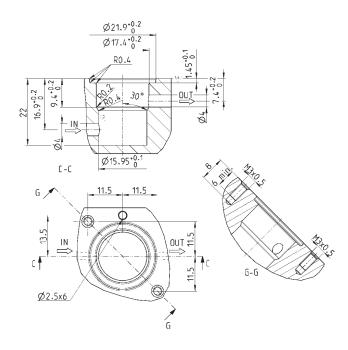
TC1-R31-*-V-OX1

TC1-R31-*-V-0X2

TC1-R41-*-V-OX1

SERIES TC MICROREGULATORS

Seat dimensions for cartridge version





Series M pressure microregulators

Ports G1/8, G1/4



- » Versions with calibrated or blocked regulators are available
- » Versions with certified diaphragms and seals materials are available on request

Series M pressure regulator is available with G1/8 and G1/4 ports. Its design incorporates a diaphragm and relieving so as to allow decremental adjustments as well.

Microregulators are available with different regulation types: non-relieving, very sensitive self-relieving (through a light air leak) and VS (valve with fast draining).

The VS version is used when a regulator should be inserted between the valve and cylinder, or capacity, without any negative influence on the exhaust.

GENERAL DATA

Construction	diaphragm type
Materials	brass body, stainless steel spring, NBR O-ring
Ports	G1/8 - G1/4
Weight	Kg 0.235
Pressure gauge ports	G1/8
Mounting	in-line or panel mounting (in any position)
Operating temperature	-5° C \div 50° C (with the dew point of the fluid lower than 2° C at the min. working temperature)
Inlet pressure	0 ÷ 16 bar
Outlet pressure	0.5 ÷ 10 bar (standard) 0 ÷ 2 bar 0 ÷ 4 bar 0.5 ÷ 7 bar
Nominal flow	see FLOW DIAGRAMS on the following pages
Secondary pressure relieving	with relieving (standard) without relieving
Fluid	compressed air

SERIES M PRESSURE MICROREGULATORS

CODING EXAMPLE

М	0	04	-	R	Т	0	2	_	VS	_	_	•
	_	.				_	_					_

SERIES М

SIZE 0

PORTS: 04 08 = G1/8 04 = G1/4

REGULATOR R

T

OPERATING PRESSURE: 0 = 0.5 ÷ 10 bar (standard)

1 = 0 ÷ 4 bar

2 = 0 ÷ 2 bar 7 = 0.5 ÷ 7 bar

T = calibrated

B = locked *

DESIGN TYPE: 0

0 = self relieving 1 = non relieving

5 = precise setting

PRESSURE GAUGE 2

= without pressure gauge (standard)

1 = with pressure gauge 0-2.5 with working pressure 0÷2 bar

2 = with pressure gauge 0-6 with working pressure 0÷4 bar 3 = with pressure gauge 0-10 with working pressure 0,5÷7 bar

4 = with pressure gauge 0-12 with working pressure $0.5 \div 10$ bar

REGULATION TYPE: VS

= without high relief flow (standard) VS = high relief flow

* NOTE: IF THE REGULATOR IS CALIBRATED OR LOCKED, AFTER THE REGULATION TYPE ADD THE INLET PRESSURE " \blacksquare " AND THE OUTLET PRESSURE " \blacksquare "

INLET PRESSURE:

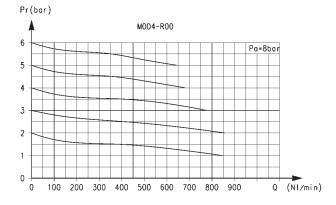
= enter the SUPPLY pressure value

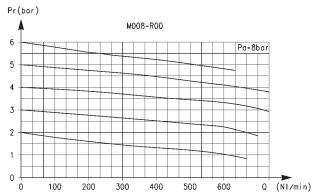
OUTLET PRESSURE:

= enter the OUTLET pressure value for the LOCKED regulator or the maximum value of the ADJUSTABLE pressure for the CALIBRATED regulator

Example of a calibrated regulator with Inlet Pressure = 6.3 bar and Outlet Pressure = 4.5 bar Complete part number: M04-RT0-6.3-4.5

FLOW DIAGRAMS





 $\ensuremath{^{**}}$ the pressure gauges are supplied disassembly mod. M043-P..

Flow diagram for models: M004-R00

Pa = Inlet pressure (bar) Pr = Regulated pressure (bar)

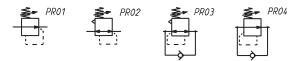
Qn = Flow (Nl/min)

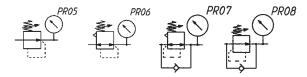
Flow diagram for models: M008-R00 Pa = Inlet pressure (bar) Pr = Regulated pressure (bar)

Qn = Flow (Nl/min)

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PR01 = reg. without relieving

PR02 = reg. with relieving

PR03 = reg. with relieving and by-pass valve

PR04 = reg. without relieving with by-pass valve

PR05 = reg. without relieving with pressure gauge

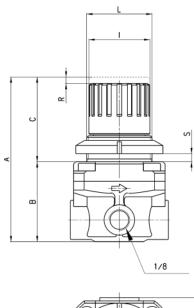
PR06 = reg. with relieving and pressure gauge

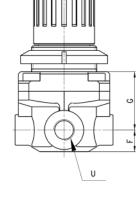
PR07 = reg. with relieving, by-pass valve and pressure gauge

PR08 = reg. without relieving with by-pass valve and pressure gauge

Series M pressure microregulator







Pash to lock	- z	
M		

DIMENSIONS													
Mod.	Α	В	С	F	G	1	L	М	N	R	S	U	
M008-R00	76	37	39	10	27	28	M30x1,5	45	45	3	0 ÷ 6	G1/8	
M004-R00	76	37	39	10	27	28	M30x1,5	45	45	3	0 ÷ 6	G1/4	



Series T pressure microregulators

Ports G1/8 and G1/4



Series T pressure regulators are available with G1/8 and G1/4 brass connections. A self-relieving piston has been incorporated into the design to allow decreasing adjustments. Non-relieving versions are also available.

- » Extremely lightweight
- » Compact
- » In-line or console mounting

All models are equipped with a by-pass valve which is useful when a regulator should be inserted between the valve and cylinder (or capacity) without any negative influence on the exhaust.

GENERAL DATA

Construction	piston
Materials	technopolymer body and piston, stainless steel spring, brass inserts, NBR O-ring and poppet
Ports	G1/8 - G1/4
Weight	g 95
Pressure gauge ports	G1/8
Mounting	in-line or panel mounting (in any position)
Operating temperature	-5°C ÷ 50°C (with the dew point of the fluid lower than 2°C at the min. working temperature)
Inlet pressure	0 ÷ 12 bar
Outlet pressure	0.5 ÷ 10 bar (standard) 0 ÷ 2 bar 0 ÷ 4 bar 0.5 ÷ 7 bar
Nominal flow	see FLOW DIAGRAMS on the following pages
Secondary pressure relieving	with relieving (standard) without relieving (all regulators are provided with high relief flow VS function)
fluid	compressed air



CODING EXAMPLE

T	1	08	-	R	0	0	2
Т	SERIES						
1	SIZE						

PORTS: 08 = G1/8 80 REGULATOR R

OPERATING PRESSURE: 0

 $0 = 0.5 \div 10$ $1 = 0 \div 4$ 2 = 0 ÷ 2 7 = 0 ÷ 7 (standard)

DESIGN TYPE: 0 = self-relieving; 1 = non relieving 0

2

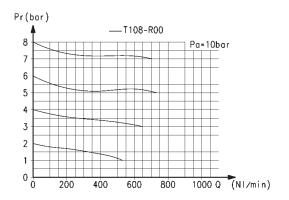
MANOMÈTRES: **
= sans manomètre (standard)

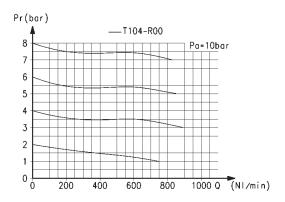
1 = avec manomètre 0-2,5, avec pression de travail 0÷2 bar 2 = with pressure gauge 0-6, with working pressure 0÷4 bar 3 = with pressure gauge 0-10, with working pressure 0,5÷7 bar 4 = with pressure gauge 0-12, with working pressure 0,5÷10 bar

04 = G1/4

** les manomètres sont fournis démontage manomètres mod. M043-P ..

FLOW DIAGRAMS





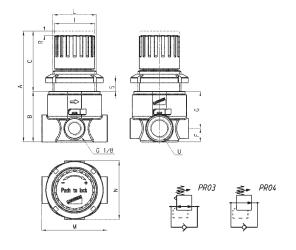
Flow diagram for model: T108-R00 Pa = Inlet pressure (bar) Pr = Regulated pressure (bar)

Q = Flow (Nl/min)

Flow diagram for model: T104-R00 Pa = Inlet pressure (bar) Pr = Regulated pressure (bar) Q = Flow (Nl/min)

Series T pressure microregulator





DIMENSIONS												
Mod.	Α	В	С	F	G	- 1	L	М	N	R	S	U
T108-R00	77	35	42	9.5	25.5	28	M30X1.5	46	41	3	7	G1/8
T104-R00	77	35	42	9.5	25.5	28	M30X1.5	46	41	3	7	G1/4

PR04 = regulator without relieving and with by-pass valve

PR03 = regulator with relieving and by-pass valve

ACCESSORIES FOR SERIES M AND T MICROREGULATORS

ACCESSORIES FOR SERIES M AND T MICROREGULATORS



Mounting bracket Mod. C114-ST



Mounting bracket Mod. C114-ST/1



Mounting bracket Mod. C114-ST/2





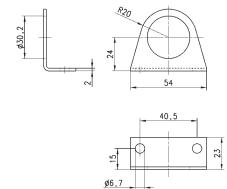
Systems of rapid connections designed to make mounting easier.

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Mounting bracket Mod. C114-ST



The kit is supplied with: 1x zinc-plated steel bracket.



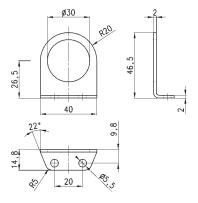
Mod.

C114-ST

Mounting bracket Mod. C114-ST/1



The kit is supplied with 1 zinc-plated steel bracket.



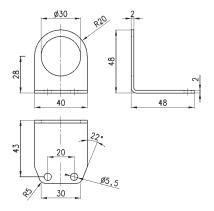
Mod.

C114-ST/1

Mounting bracket Mod. C114-ST/2



The kit is supplied with 1 zinc-plated steel bracket.



Mod.

C114-ST/2



Series PR precision regulators with manual override

Size 1 ports: G1/4

Size 2 ports: G1/4, G3/8





- » High precision adjustment
- » Multi-diaphragm construction to reach the highest stability
- » Adjustment lock
- » Compact dimensions
- » Removable adjustment knob

The Series PR precision pressure regulators are ideal for applications that require a precise and stable air pressure control. The operating principle using multiple diaphragms allows the Series PR to react to even the smallest pressure variations that may occur during use.

GENERAL DATA

Construction	compact, multi-diaphragm type
Materials	see the following page
Ports	Size 1: G1/4 Size 2: G1/4, G3/8
Mounting	vertical in-line, wall or panel mounting (in any position)
Working temperature	0°C ÷ 50°C
Inlet pressure	0.1 ÷ 12 bar
Outlet pressure	0.05 ÷ 2 bar 0.05 ÷ 4 bar 0.05 ÷ 7 bar 0.05 ÷ 10 bar
Overpressure exhaust	with relieving (standard)
Nominal flow	see FLOW DIAGRAMS on the following pages
Media	filtered and not lubricated compressed air according to DIN ISO 8573-1 Classes 1-3-2
Hysteresis	20mbar

Repeatability

Bleed air consumption ≤ 5 l/min

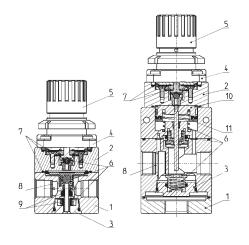
±0.2% FS



CODING EXAMPLE

PR	1	04	-	M	07
PR	SERIES				
1	SIZE: 1 = size 1 2 = size 2				
04	PORTS: 04 = G1/4 38 = G3/8 (size 2 only)				
M	TYPE OF ADJUSTMENT: M = manual				
07	OPERATING PRESSURE (1 bar = 14, 02 = 0.05 ÷ 2 bar 04 = 0.05 ÷ 4 bar 07 = 0.05 ÷ 7 bar 00 = 0.05 ÷ 10 bar	5 psi):			

Series PR precision regulators - materials



PARTS	MATERIALS	
1 = Body	Anodized aluminium	
2 = Intermediate body	Aluminium	
3 = Valve holder plug	Brass	
4 = Bell	Polyamide	
5 = Regulator knob	Polyamide	
6 = Springs	Stainless steel	
7 = Diaphragms	NBR	
8= Filters	Stainless steel	
9 = Seals	NBR	
10 = Piston	Aluminium	
11 = Rod	Stainless steel	
O-ring	NBR	

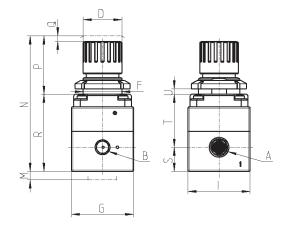
SERIES PR PRECISION REGULATORS

Series PR precision regulators - size 1



* to complete the code, add the OPERATING PRESSURE (see the CODING EXAMPLE)

PR02 = Regulator with relieving



\$	PR02
-	-
	-

DIMENSIONS															
Mod.	Α	В	D	F	G	I	М	N	Р	Q	R	S	T	U	Weight (Kg)
PR104-M*	G1/4	G1/8	28	30	45	45	25	96	40	2	56	17.5	38.5	0-6	0.35

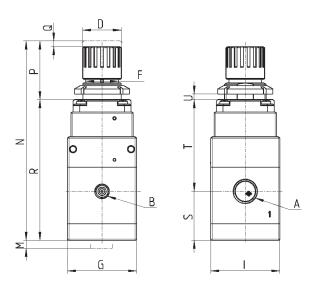
Series PR precision regulators - size 2



* to complete the code, add the OPERATING PRESSURE (see the CODING EXAMPLE)

PR02 = Regulator with relieving

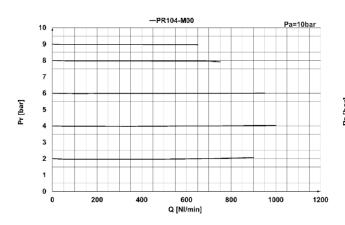


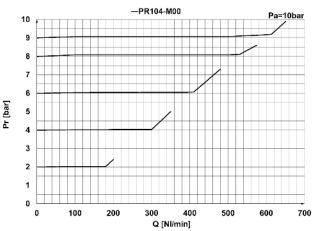


DIMENSIONS															
Mod.	Α	В	D	F	G	I	М	N	Р	Q	R	S	T	U	Weight (Kg)
PR204-M*	G1/4	G1/8	28	30	50	50	25	140	40	2	101.8	35.5	66.3	0-6	0.645
PR238-M*	G3/8	G1/8	28	30	50	50	25	140	40	2	101.8	35.5	66.3	0-6	0.645

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FLOW DIAGRAMS Mod. PR104-M00

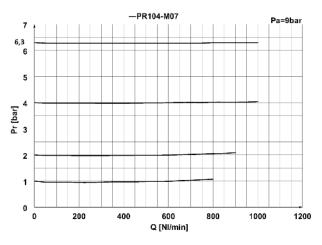


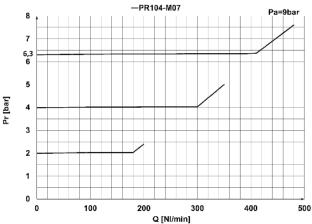


Pr = Regulated pressure (bar) Q = Flow (Nl/min) Pa = Inlet pressure (bar) Pr = Regulated pressure (bar) Q = Flow (Nl/min) Pa = Inlet pressure (bar)

EXHAUST FLOW

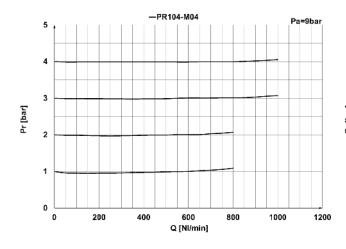
FLOW DIAGRAMS Mod. PR104-M07

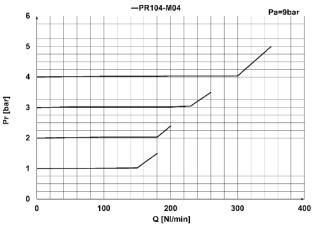




Pr = Regulated pressure (bar) Q = Flow (Nl/min) Pa = Inlet pressure (bar) EXHAUST FLOW
Pr = Regulated pressure (bar)
Q = Flow (Nl/min)
Pa = Inlet pressure (bar)

FLOW DIAGRAMS Mod. PR104-M04

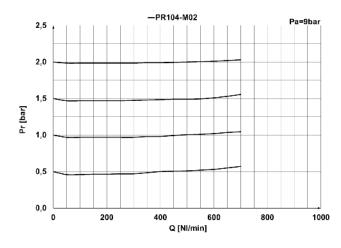


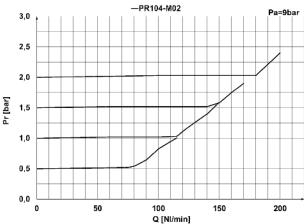


Pr = Regulated pressure (bar) Q = Flow (Nl/min) Pa = Inlet pressure (bar) EXHAUST FLOW
Pr = Regulated pressure (bar)
Q = Flow (Nl/min)
Pa = Inlet pressure (bar)

SERIES PR PRECISION REGULATORS

FLOW DIAGRAMS Mod. PR104-M02

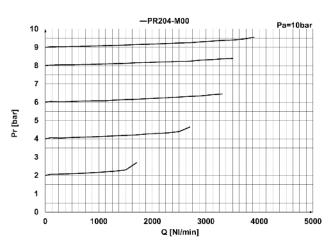


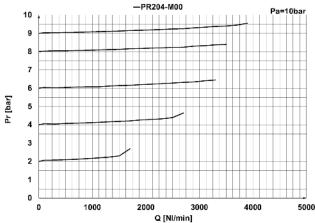


Pr = Regulated pressure (bar) Q = Flow (Nl/min) Pa = Inlet pressure (bar) Pr = Regulated pressure (bar) Q = Flow (Nl/min) Pa = Inlet pressure (bar)

EXHAUST FLOW

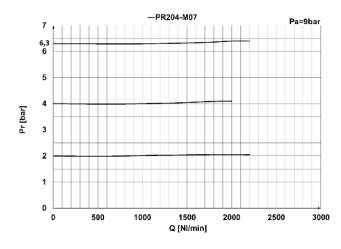
FLOW DIAGRAMS Mod. PR204-M00

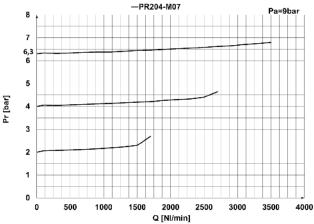




Pr = Regulated pressure (bar) Q = Flow (Nl/min) Pa = Inlet pressure (bar) EXHAUST FLOW
Pr = Regulated pressure (bar)
Q = Flow (Nl/min)
Pa = Inlet pressure (bar)

FLOW DIAGRAMS Mod. PR204-M07

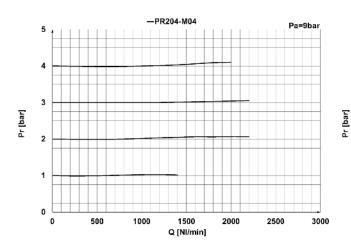


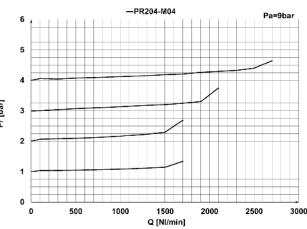


Pr = Regulated pressure (bar) Q = Flow (Nl/min) Pa = Inlet pressure (bar) EXHAUST FLOW
Pr = Regulated pressure (bar)
Q = Flow (NL/min)
Pa = Inlet pressure (bar)

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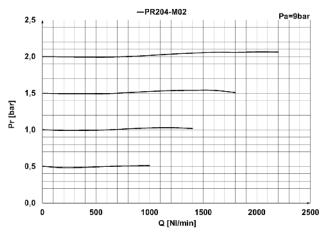
FLOW DIAGRAMS Mod. PR204-M04

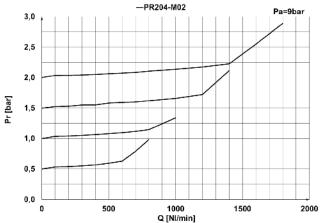




Pr = Regulated pressure (bar) Q = Flow (Nl/min) Pa = Inlet pressure (bar) EXHAUST FLOW
Pr = Regulated pressure (bar)
Q = Flow (Nl/min)
Pa = Inlet pressure (bar)

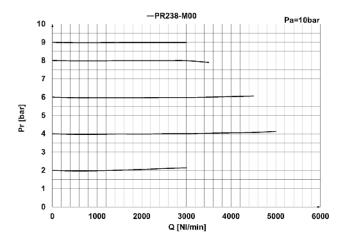
FLOW DIAGRAMS Mod. PR204-M02

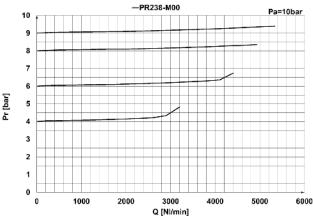




Pr = Regulated pressure (bar) Q = Flow (Nl/min) Pa = Inlet pressure (bar) EXHAUST FLOW
Pr = Regulated pressure (bar)
Q = Flow (Nl/min)
Pa = Inlet pressure (bar)

FLOW DIAGRAMS Mod. PR238-M00

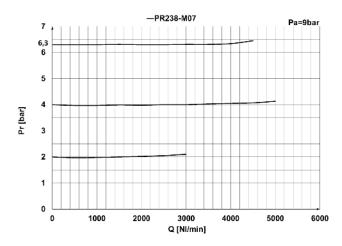


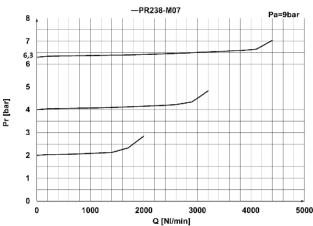


Pr = Regulated pressure (bar) Q = Flow (Nl/min) Pa = Inlet pressure (bar) EXHAUST FLOW
Pr = Regulated pressure (bar)
Q = Flow (NI/min)
Pa = Inlet pressure (bar)

SERIES PR PRECISION REGULATORS

FLOW DIAGRAMS Mod. PR238-M07

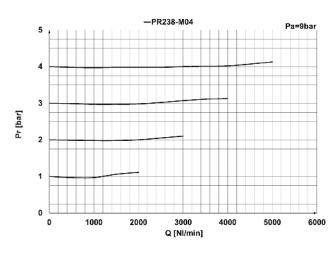


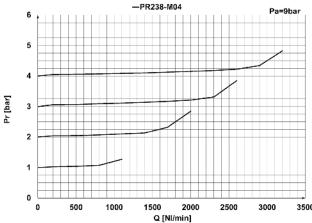


Pr = Regulated pressure (bar) Q = Flow (Nl/min) Pa = Inlet pressure (bar)

EXHAUST FLOW
Pr = Regulated pressure (bar)
Q = Flow (Nl/min)
Pa = Inlet pressure (bar)

FLOW DIAGRAMS Mod. PR238-M04

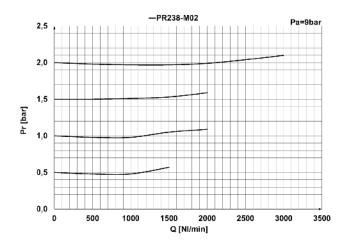


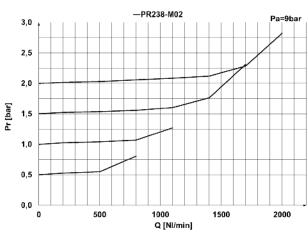


Pr = Regulated pressure (bar) Q = Flow (Nl/min) Pa = Inlet pressure (bar)

EXHAUST FLOW
Pr = Regulated pressure (bar)
Q = Flow (Nl/min)
Pa = Inlet pressure (bar)

FLOW DIAGRAMS Mod. PR238-M02





Pr = Regulated pressure (bar) Q = Flow (Nl/min) Pa = Inlet pressure (bar)

EXHAUST FLOW
Pr = Regulated pressure (bar)
Q = Flow (Nl/min)
Pa = Inlet pressure (bar)

5.15.07



Pressure switches, Transducers, Pressure indicators

Series PM: adjustable-diaphragm pressure switches, with setting visual scale, with exchange contacts Series TRP: electro-pneumatic transducers

Series 2950: pressure indicators, ports M5









Series PM diaphragm pressure switches are available with NC (normally closed) contacts and with NO (normally open) contacts.

Series PM681 pressure switches with setting visual scale comply with EN60730 standards and are suitable for signaliing pressure through a normally closed Reed contact.

A regulating screw, which can be adjusted using a small screwdriver, allows the switch to be set to the required pressure. The calibrated diaphragm enables an electrical signal to be generated or inhibited depending on the pressure set.

GENERAL DATA

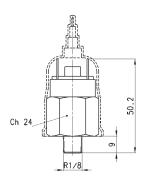
Construction	with adjustable diaphragm
Ports	R1/8, G1/4 (Serie PM) tube 4/2 (Series TRP) M5 (Series 2950)
Mounting	using thread in body
Max. nr. of pulses per 1'	200
Pressure	1 ÷ 10 bar max.
Operating temperature	-5°C ÷ +60°C
Max. power	100 VA
Voltage	220 V
Isolation voltage	1500 V
Max current	0.5 A
Pressure switches protection class	IP40 (Mod. PM681-1, PM681-3) IP54 (Mod. PM11-NC, PM11-NA) IP65 (Mod. PM11-SC)

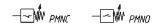
PRESSURE SWITCHES, TRANSDUCERS, PRESSURE INDICATORS

Series PM adjustable-diaphragm pressure switches



Supplied with a rubber cap providing protection class





Mod.	Function	Max Voltage	Max Power	Service Type	Insulation voltage	Symbol
PM11-NC	NC = normally closed	48 V AC DC	24 VA	Heavy	500 V	PMNC
PM11-NA	NA = normally open	48 V AC DC	24 VA	Heavy	500 V	PMNO

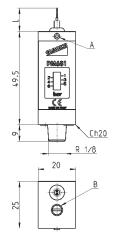
PMNC = normally closed PMNO = normally open

Series PM681-... - pressure switches with setting visual scale



In compliance with EN60730 standard Protection class IP40 Electric connection: PVC cable 2 x 0.22 mm Electric contact: Reed SPST NO Body in anodized aluminium and threaded fitting in

Hysteresis: 0.8 bar max



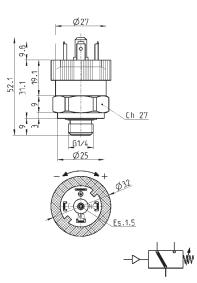
	12
A = SETTING GRAIN LOCKING	B = ADJUSTMENT SCREW

Mod.	L	Max switch voltage	Max switch current	Max switch capacity	Max fluid temperature	Max pressure	Setting range	Weight
PM681-1	1 m	48 V	0.5 A	10 W	60°C	20 bar	1 ÷ 6 bar	95 g
PM681-3	3 m	48 V	0.5 A	10 W	60°C	20 bar	1 ÷ 6 bar	95 g

Pressure switch with exchange contacts Mod. PM11-SC



Protection class IP65 (with connector Mod. 124-830)



DIMENSIC	DIMENSIONS								
Mod.	Function	Max Voltage	Operating Temperature	Actuation time	Setting range	Max Hysteresis			
PM11-SC	SC (*)	250V AC - 30V DC	-25°C +85°C	> 0,1 ms	2 ÷ 10 bar	0.8 bar			

(*) SC = exchange contacts

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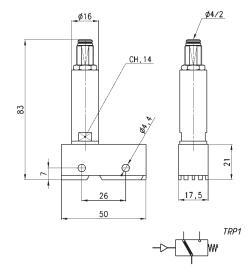
Electro-pneumatic transducer Series TRP



Series TRP electro-pneumatic transducer is particularly suitable to convert a pneumatic signal into an electrical signal.

The contacts are NC (normally closed) or NO (normally open), thus making it possible to generate or eliminate current when the pneumatic signal is present.

Minimum operating pressure 2,5 bar.

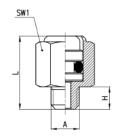


Mod.

Pressure indicators Series 2950



The pressure indicator Mod. 2950-M5 is passive element (no spring, red colour). It is useful for detecting pressure manually without having to remove the connections.

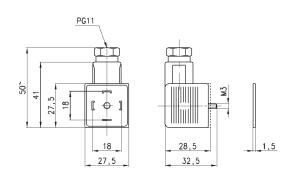




DIMENSIONS				
Mod.	Α	Н	L	SW1
2950 M5	M5	4	13.5	8

3-pole connector Mod. 124-830 for pressure switch Mod. PM11-SC





Mod.	description	colour	working voltage	cable holding	tightening torque
124-830	three-pole connector without electronics	black	-	PG9/PG11	0.5 Nm
124-830EX	three-pole ATEX connector without electronics	black	-	PG9/PG11	0.5 Nm

SERIES SWMN PRESSURE/VACUUM SWITCHES

Series SWMN electronic vacuum/pressure switches in mini format

Ports: G1/8, M5 thread or Ø 4, 6 mm plug-in tube Measuring range: $0 \div -1$ bar, $0 \div 1$ bar with analog output, 0 ÷ -1 bar, 0 ÷ 6 bar with digital PNP output



The Series SWMN vacuum/pressure switches can be installed directly at the measuring point or pressure/vacuum determination point in handling systems, thanks to its highly compact dimensions.

Its reduced weight (only 50 grams with a 2 meter cable) and robust construction allow its installation on applications with high accelerations.

The four types of connection enable a high flexibility and an easy installation inside machines or pneumatic cabinets.

- » Minimum dimensions
- » Reduced weight
- » Available with analog or digital output
- » High measuring precision

GENERAL DATA

Operating pressure range $-1 \div 0$ bar; $0 \div 10$ bar; $-1 \div 10$ bar Medium filtered air and inert gases

12 ÷ 24 V DC Supply voltage

Maximum load 80 mA (SWMN-AP/AV/PN/PP)

40 mA (SWMN-NO/NC) 0.8 V (SWMN-AP/AV/PN/PP)

Voltage drop 5 V (SWMN-NO/NC)

Short circuit protection models SWMN-AP/AV/PN/PP Response time about 1 msec

Repeatibility ±1% F.S. Hysteresis 3% F.S. (SWMN-AP/AV/PN/PP)

4% F.S. (SWMN-NO/NC)

Protection class IP40 Operating temperature

Connection cable oil resistant, 2 or 3-wire cable (according to the model), outer sheath Ø 2.6 mm



CODING EXAMPLE

SWMN	-	AP	-	Т	-	2
SWMN	SERIES					
AP	OUTPUT SIGNAL:	- vacuum				

AV = analog output signal - vacuum
AP = analog output signal - pressure
NO = normally open
NC = normally closed
PN = PNP output - vacuum
PP = PNP output - pressure

TYPE OF CONNECTION:

T = Ø 6 tube

U = Ø 4 tube

G = G1/8 thread

M = M5 thread

ELECTRIC CONNECTION: 2 = cable of 2 meters M = M8 3 pin connector

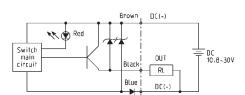
TECHNICAL DATA

Mod.	SWMN-PN	SWMN-PP	VA-MWW2	SWMN-AP	SWMN-NO	SWMN-NC
Medium	air, non-corrosive and non-flammable gases					
Operating pressure range	-1 ÷ 0 bar	0 ÷ 6 bar	-1 ÷ 0 bar	0 ÷ 10 bar	-1 ÷ 4 bar	-1 ÷ 4 bar
Precision	±1% operating range					
Max overpressure	6 bar	15 bar	2 bar	15 bar	10 bar	10 bar
Output signal	PNP	PNP	1 ÷ 5 V ≤±1% F.S. Linearity ≤±0.5% F.S.	1 ÷ 5 V ≤±1% F.S. Linearity ≤±0.5% F.S.	NO	NC
Hysteresis	3% F.S.	3% F.S.	-	-	≤4% F.S.	≤4% F.S.
Maximum output current	80 mA	80 mA	-	-	5 ÷ 40 mA	5 ÷ 40 mA
Voltage	10.8 ÷ 30 V DC	10.8 ÷ 30 V DC	12 ÷ 24 V DC	12 ÷ 24 V DC	12 ÷ 24 V DC	12 ÷ 24 V DC
Voltage drop	≤0.8 V	≤0.8 V	≤0.8 V	≤0.8 V	≤5 V	≤5 V
Protection class	IP40	IP40	IP40	IP40	IP40	IP40
Short circuit protection	yes	yes	yes	yes	-	-
Temperature effect (temperature range between 0 and 50°C)	±3% F.S.	±3% F.S.	±2% F.S.	±2% F.S.	±2% F.S.	±2% F.S.
Response time	1 ms	1 ms	-	-	1 ms	1 ms
Environmental temperature	0 ÷ 60°C	0 ÷ 60°C	0 ÷ 50°C	0 ÷ 50°C	0 ÷ 60°C	0 ÷ 60°C
Repeatibility	≤±1% F.S.	≤±1% F.S.	-	-	≤±1% F.S.	≤±1% F.S.
Indication	LED	LED	-	-	LED	LED
Electric connection	cable or M8 3 pin female connector					
Cable (oil resistant)	3 wires 0.28 mm², Ø 2.6 mm	2 wires 0.28 mm², Ø 2.6 mm	2 wires 0.28 mm², Ø 2.6 mm			
Weight (with 3-meter cable)	50 g	50 g	50 g	50 g	38 g	38 g

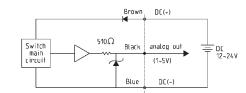


CONNECTION CIRCUIT

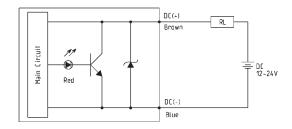
SWMN-PN / SWMN-PP



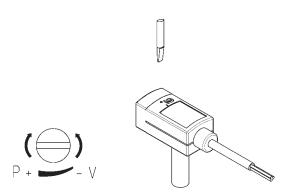
SWMN-AV / SWMN-AP



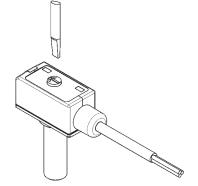
SWMN-NO / SWMN-NC



PRESSURE ADJUSTMENT







For models SWMN-NO and SWMN-NC

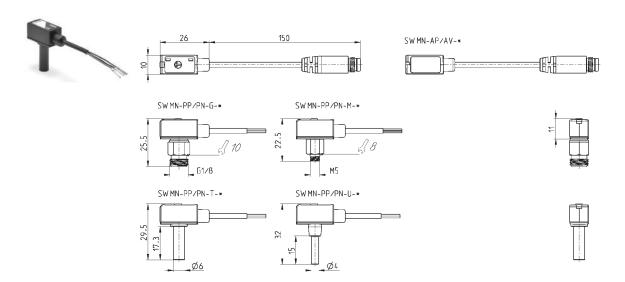
Rotate clockwise to increase the opening pressure of the contact for NC versions and the closing for NO versions.

For models SWMN-PN and SWMN-PP

Rotate clockwise to increase the opening pressure of the contact for NC versions and the closing for NO versions.



Vacuum/pressure switches Mod. SWMN-AV/AP/PN/PP



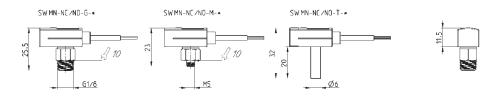
Mod.	Output signal	Type of connection	Electric connection
SWMN-AV-T-2	analog output signal - vacuum	Ø 6 tube	cable of 2 meters
SWMN-AV-M-2	analog output signal - vacuum	M5 thread	cable of 2 meters
SWMN-AV-U-2	analog output signal - vacuum	Ø 4 tube	cable of 2 meters
SWMN-AV-G-2	analog output signal - vacuum	G1/8 thread	cable of 2 meters
SWMN-AV-T-M	analog output signal - vacuum	Ø 6 tube	M8 3 pin connector
SWMN-AV-M-M	analog output signal - vacuum	M5 thread	M8 3 pin connector
SWMN-AV-U-M	analog output signal - vacuum	Ø 4 tube	M8 3 pin connector
WMN-AV-G-M	analog output signal - vacuum	G1/8 thread	M8 3 pin connector
WMN-AP-T-2	analog output signal - pressure	Ø 6 tube	cable of 2 meters
WMN-AP-M-2	analog output signal - pressure	M5 thread	cable of 2 meters
SWMN-AP-U-2	analog output signal - pressure	Ø 4 tube	cable of 2 meters
SWMN-AP-G-2	analog output signal - pressure	G1/8 thread	cable of 2 meters
WMN-AP-T-M	analog output signal - pressure	Ø 6 tube	M8 3 pin connector
WMN-AP-M-M	analog output signal - pressure	M5 thread	M8 3 pin connector
WMN-AP-U-M	analog output signal - pressure	Ø 4 tube	M8 3 pin connector
WMN-AP-G-M	analog output signal - pressure	G1/8 thread	M8 3 pin connector
WMN-PN-T-2	PNP output - vacuum	Ø 6 tube	cable of 2 meters
WMN-PN-M-2	PNP output - vacuum	M5 thread	cable of 2 meters
WMN-PN-U-2	PNP output - vacuum	Ø 4 tube	cable of 2 meters
SWMN-PN-G-2	PNP output - vacuum	G1/8 thread	cable of 2 meters
WMN-PN-T-M	PNP output - vacuum	Ø 6 tube	M8 3 pin connector
SWMN-PN-M-M	PNP output - vacuum	M5 thread	M8 3 pin connector
SWMN-PN-U-M	PNP output - vacuum	Ø 4 tube	M8 3 pin connector
SWMN-PN-G-M	PNP output - vacuum	G1/8 thread	M8 3 pin connector
WMN-PP-T-2	PNP output - pressure	Ø 6 tube	cable of 2 meters
WMN-PP-M-2	PNP output - pressure	M5 thread	cable of 2 meters
WMN-PP-U-2	PNP output - pressure	Ø 4 tube	cable of 2 meters
WMN-PP-G-2	PNP output - pressure	G1/8 thread	cable of 2 meters
SWMN-PP-T-M	PNP output - pressure	Ø 6 tube	M8 3 pin connector
SWMN-PP-M-M	PNP output - pressure	M5 thread	M8 3 pin connector
SWMN-PP-U-M	PNP output - pressure	Ø 4 tube	M8 3 pin connector
SWMN-PP-G-M	PNP output - pressure	G1/8 thread	M8 3 pin connector



Vacuum/pressure switches Mod. SWMN-NO/NC







Mod.	Output signal	Type of connection	Electrical connection	Operating pressure range	Range of adjustment
SWMN-NO-T-2	NO	Ø 6 tube	cable of 2 meters	-1 ÷ 10 bar	-1 ÷ 4 bar
SWMN-NO-M-2	NO	M5 thread	cable of 2 meters	-1 ÷ 10 bar	-1 ÷ 4 bar
SWMN-NO-G-2	NO	G1/8 thread	cable of 2 meters	-1 ÷ 10 bar	-1 ÷ 4 bar
SWMN-NO-T-M	NO	Ø 6 tube	M8 3 pin connector	-1 ÷ 10 bar	-1 ÷ 4 bar
SWMN-NO-M-M	NO	M5 thread	M8 3 pin connector	-1 ÷ 10 bar	-1 ÷ 4 bar
SWMN-NO-G-M	NO	G1/8 thread	M8 3 pin connector	-1 ÷ 10 bar	-1 ÷ 4 bar
SWMN-NC-T-2	NC	Ø 6 tube	cable of 2 meters	-1 ÷ 10 bar	-1 ÷ 4 bar
SWMN-NC-M-2	NC	M5 thread	cable of 2 meters	-1 ÷ 10 bar	-1 ÷ 4 bar
SWMN-NC-G-2	NC	G1/8 thread	cable of 2 meters	-1 ÷ 10 bar	-1 ÷ 4 bar
SWMN-NC-T-M	NC	Ø 6 tube	M8 3 pin connector	-1 ÷ 10 bar	-1 ÷ 4 bar
SWMN-NC-M-M	NC	M5 thread	M8 3 pin connector	-1 ÷ 10 bar	-1 ÷ 4 bar
SWMN-NC-G-M	NC	G1/8 thread	M8 3 pin connector	-1 ÷ 10 bar	-1 ÷ 4 bar



Series SWDN electronic vacuum/pressure switches

With digital display High precision, easy to use



- » Compact and lightweight
- » Digital indicator: precision electronic insertion with two separated switch outputs
- » Switching point and hysteresis can be programmed with a membrane keypad.

APPLICATIONS:

- electronic vacuum/pressure switch for safety monitoring, optimization of cycle times or energy saving devices;
- it can be installed directly on the gripping point of a handling system;
- setting of the limit vacuum value and continuous vacuum control;
- perfectly suitable for customer needs.

ELECTRIC CONNECTION:

the device is available with hardwired cable of 2 meters or can be supplied with M8 connector.

Accessories and extensions have to be ordered separately. Codes can be found at the end of this section.

GENERAL DATA

Type of pressure/vacuum switch electronic with polycarbonate housing

Port with external thread G1/8 and internal thread M5

Display 3 digit display with membrane keypad for the values set up

LED integrated LED indicators for switching state

Electric connection with M8 4-pole connector or pre-wired cable of 2 meters

SERIES SWDN ELECTRONIC VACUUM/PRESSURE SWITCHES

CODING EXAMPLE

SWDN	-	V01	-	Р3	-	2
------	---	-----	---	----	---	---

SWDN	SERIES
V01	SET PRESSURE RANGE: V01 = from -1 bar to 1 bar P10 = from 0 bar to 10 bar
Р3	TYPE OF ELECTRIC CONNECTION: P3 = 2 PNP outputs + 1 analog output 1 - 5 V DC (this version is available with 5-pole cable only) P4 = 2 PNP outputs
2	ELECTRIC CONNECTION: 2 = cable of 2 meters M = M8 4 pin connector

Vacuum/Pressure switch Series SWDN

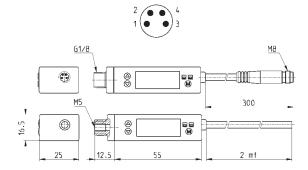


1 = brown (+) 2 = white (OUT 2)

3 = blue (-)

4 = black (OUT 1)

Analogic output = orange



Mod.

SWDN-V01-P3-2

SWDN-V01-P4-2

SWDN-V01-P4-M SWDN-P10-P3-2

SWDN-P10-P4-2

SWDN-P10-P4-M



TECHNICAL DATA

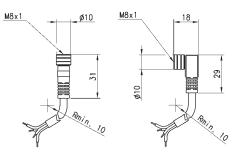
CHARACTERISTICS					
	SWDN-V01 SWDN-P10				
Rated pressure range (set-value)	-1 ÷ 1 bar 0 ÷ 10 bar				
Setting pressure range (it can be displayed on the screen)	-1 ÷ 1 bar -1 ÷ 10 bar				
Nithstand (Maximum) pressure	3 bar 15 bar				
iluid	Air, non-corrosive gases, incombustible gases				
Set pressure resolution: kPa	0,1 -				
MPa	- 0,001				
Kgf/cm² bar	$egin{array}{ccc} 0,001 & 0,$				
Psi	0,01 0,1				
InHg	0,1				
mmHg mmH2O	1 - 0,1 -				
ower supply voltage	12-24 VDC ± 10%, ripple (P-P) 10% or less				
urrent consumption	≤ 55mA				
PNP switch output	2 outputs with open collector				
	max. load current of 100mA max. power supply voltage of 24VDC				
	residual voltage ≤ 1V (with load current of 80mA)				
Repeatibility (switch output)	≤ ± 0,2% F.S. ± 1 digit				
nalog output (where foreseen)	1 - 5V ± 5% F.S. 1 - 5V ± 2,5% F.S.				
	(within the linear range: ≤ ± 1% F.S.)				
lysteresis: Hysteresis mode Window comparator mode	Adjustable Fixed (3 digits)				
Response time	≤ 2,5ms (chattering-proof function: 24ms, 192ms and 768ms)				
Output short circuit protection	YES				
segment LED display	3 ½ digit (sampling rate of 5 times/sec)				
ndicator accuracy	≤ ± 2% F.S. ± 1 digit (ambient temperature: 25 ± 3°C)				
ndicator	green LED (OUT1), red LED (OUT2)				
nvironment: Protection class	IP40				
Temperature	Operation: 0 ÷ 50°C				
·	Storage: -20 ÷ 60°C				
	(without condensation or freezing)				
Relative humidity	Operation/Storage: 35 ÷ 85%				
	(without condensation)				
Withstand (Max.) voltage	1000 VAC in 1 min (between case and lead wire)				
Insulation resistance	$50M\Omega$ min. (at $500VDC$ between case and lead wire)				
Vibration	Total amplitude 1.5 mm				
	10Hz-55Hz-10Hz scan for 1 minute				
	2 hours each direction of X, Y and Z				
Shock	980 m/s² (100G)				
	3 times each direction of X, Y and Z				
changes due to temperature	\leq ± 2% F.S. of detected pressure (25°C) within the operating temperature range				
ort size	G1/8 - M5				
ead wire	Oil-resistance cable (0,15 mm²)				
Neight	About 67 g for the version with 2-meter lead wire				
	About 35 g for the version with male connector				



Circular M8 4-pole connectors, Female

Protection class: IP65 Materials: PU non shielded cable







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



Series SWCN electronic vacuum/pressure switches

With digital display High precision, easy to use



- » Compact and lightweight
- » Digital indicator: precised electronic insertion with two separated switch outputs
- » Switching point and hysteresis can be programmed with a membrane keypad
- » Upper and lower limit values can be programmed through two PNP switch outputs

APPLICATIONS:

- electronic vacuum/pressure switch for safety monitoring, optimization of cycle times or energy saving devices;
- it can be installed directly on the gripping point of a handling system;
- setting of the limit vacuum value and continuous vacuum control;
- perfectly suitable for customer needs.

ELECTRIC CONNECTION:

the device is available with hardwired cable of 2 meters or can be supplied with M8 connector.

Accessories and extensions have to be ordered separately. Codes can be found at the end of this section.

GENERAL DATA

Type of pressure/vacuum switch
Port with external thread G1/8 and internal thread M5
Display 3 digit display with membrane keypad for the values set up
LED integrated LED indicators for switching state
Electric connection with M8 4-pole connector or pre-wired cable of 2 meters



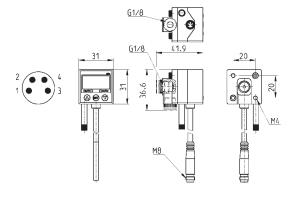
CODING EXAMPLE

SWCN	-	V01	-	Р3	-	2
SWCN	SERIES					
V01	SET PRESSURE RANGE: V01 = from -1 bar to 1 ba P10 = from 0 bar to 10 ba					
Р3	TYPE OF ELECTRIC CONNECTION: P3 = 2 PNP outputs + 1 analog output 1 - 5 V DC (this version is available with 5-pole cable only) P4 = 2 PNP outputs					
2	ELECTRIC CONNECTION: 2 = cable of 2 meters M = M8 4 pin connector					

Vacuum/Pressure switch Series SWCN



1 = brown (+) 2 = white (OUT 2) 3 = blue (-) 4 = black (OUT 1) Analogic output = orange



Mod.

SWCN-V01-P3-2

SWCN-V01-P4-2

SWCN-V01-P4-M

SWCN-P10-P3-2

SWCN-P10-P4-2

SWCN-P10-P4-M



TECHNICAL DATA

CHARACTERISTICS	
	SWCN-V01 SWCN-P10
Rated pressure range (set-value)	-1 ÷ 1 bar 0 ÷ 10 bar
Setting pressure range (it can be displayed on the screen)	-1 ÷ 1 bar -1 ÷ 10 bar
Withstand (Maximum) pressure	3 bar 15 bar
Fluid	Air, non-corrosive gases, incombustible gases
Set pressure resolution: kPa	0,1 -
MPa Kqf/cm²	- 0,001 0,001 0,01
bar	0,001 0,01
Psi InHg	0,01 0,1 0,1 -
mmHg	1 -
mmH20	0,1 -
Power supply voltage	12-24 VDC ± 10%, ripple (P-P) 10% or less
Current consumption	≤55mA
PNP switch output	2 outputs with open collector max. load current of 80mA
	max. power supply voltage of 24VDC
	residual voltage ≤ 1V (with load current of 80mA)
Repeatibility (switch output)	≤±0,2% F.S.±1 digit
Analog output (where foreseen)	$1-5V\pm5\%$ F.S. $1-5V\pm2,5\%$ F.S. ((within the linearity range: $\leq\pm1\%$ F.S.)
Hysteresis: Hysteresis mode Window comparator mode	Adjustable Fixed (3 digits)
Response time	≤ 2,5ms (chattering-proof function: 24ms, 192ms and 768ms)
Output short circuit protection	YES
7 segment LED display	3 ⅓ digit (sampling rate of 5 times/sec)
Indicator accuracy	≤±2% F.S.±1 digit (ambient temperature: 25±3°C)
Indicator	green LED (OUT1), red LED (OUT2)
Environment: Protection class	IP65
Temperature	Operation: 0 ÷ 50°C
	Storage: -20 ÷ 60°C (without condensation or freezing)
Relative humidity	Operation/Storage: 35 ÷ 85%
	(without condensation)
Withstand (Max.) voltage	1000 VAC in 1 min ((between case and lead wire)
Insulation resistance	$50M\Omega$ min. (at $500VDC$ between case and lead wire)
Vibration	Total amplitude 1.5 mm 10Hz-55Hz-10Hz scan for 1 minute
	2 hours each direction of X, Y and Z
Shock	980 m/s² (100G) 3 times each direction of X, Y and Z
Changes due to temperature	≤ ± 2% F.S. of detected pressure (25°C) within the operating temperature range
Port size	G1/8 - M5
Lead wire	Oil-resistance cable(0,15 mm²)
Weight	About 105 g for the version with 2-meter lead wire
	About 71 g for the version with male connector

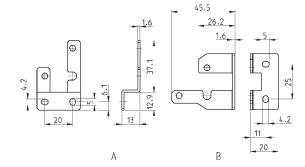
SERIES SWCN ELECTRONIC VACUUM/PRESSURE SWITCHES

Mounting bracket Mod. SWCN-B



Supplied with:

- 4 fixing screws M4x5 ISO 724 (fine pitch)
- 1 fixing bracket for surface mounting (A)
- 1 fixing bracket for wall mounting (B)



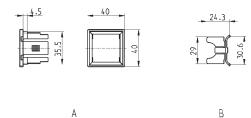
Mod. SWCN-B

Panel mounting set Mod. SWCN-F



Supplied with:

- 1 pressure switch holder (A)
- 2 panel mounting brackets (B)

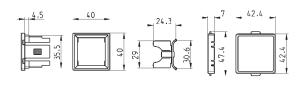


Mod. SWCN-F

Panel mounting set + transparent cover Mod. SWCN-FP



- Supplied with:
 1 pressure switch holder (A)
- 2 panel mounting brackets (B)
- 1 transparent cover (C)



Α

В

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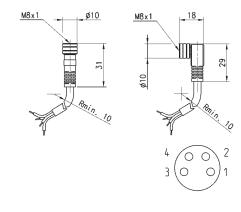
Mod. SWCN-FP

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
	•	

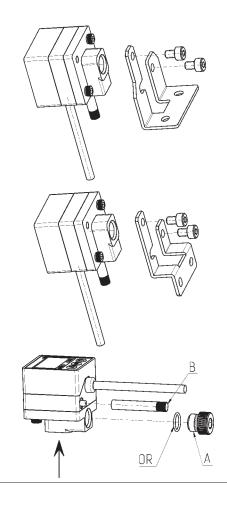


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Example of mounting with bracket Mod. SWCN-B and standard accessories

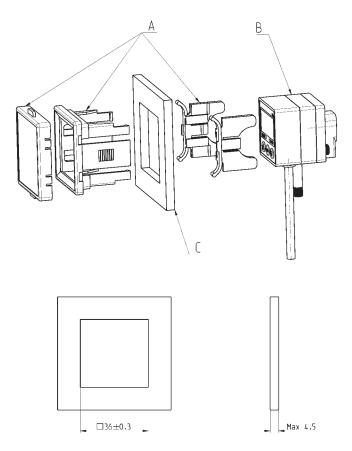
A: ADDITIONAL POWER SUPPLY In case of use, please unscrew plug A from one side and mount it on the other one.

B: Use of the AIR FILTER TUBE to reach the IP 65 protection class.



Example of mounting with panel mounting set Mod. SWCN-F

- A = PANEL MOUNTING SET MOD. SWCN-F B = PRESSURE SWITCH MOD. SWCN-...
- C = PANEL



Pressure gauges





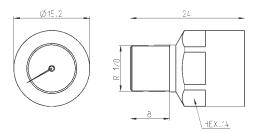
- » Radial connection
- » Rear connection
- » Panel mounting

To select the most suitable pressure gauge, the measurement range should be chosen considering the type of application according to the following criteria:

- 1. Constant pressure or pressure with slow fluctuations should be within 75% of the maximun scale value.
- 2. Pulsing pressure or rapid fluctuations should be within 65% of the maximum scale value.
- 3. Pressure peaks should never exceed the maximum scale value.

Miniature pressure gauge



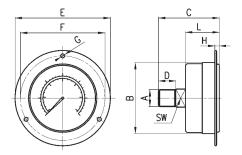


Mod.	Range	
M015-P08	0 ÷ 8 bar	

Pressure gauges for panel mounting



Precision class CL1,6

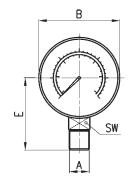


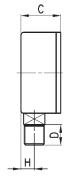
DIMENSIONS											
Mod.	Α	В	С	D	Е	F	G	Н	L	SW	Range
M043-F04	R1/8	Ø 40.5	43	10	61	51	Ø 3.5	4	27	12	0-4 bar
M043-F06	R1/8	Ø 40.5	43	10	61	51	Ø 3.5	4	27	12	0-6 bar
M043-F10	R1/8	Ø 40.5	43	10	61	51	Ø 3.5	4	27	12	0-10 bar
M043-F12	R1/8	Ø 40.5	43	10	61	51	Ø 3.5	4	27	12	0-12 bar
M063-F12	R1/4	Ø 63	54	12	85	75	Ø 3.5	4.5	30.5	14	0-12 bar

Pressure gauges with radial connection



Precision class CL1,6



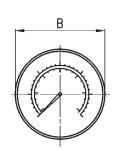


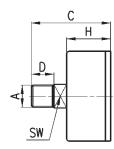
DIMENSIONS								
Mod.	Α	В	С	D	E	Н	SW	Range
M043-R06	R1/8	Ø 38.8	24.2	10	35.2	9	12	0-6 bar
M043-R12	R1/8	Ø 38.8	24.2	10	35.2	9	12	0-12 bar
M053-R12	R1/8	Ø 48.8	27.5	10	43	10	14	0-12 bar
M063-R12	R1/4	Ø 63	28.8	12	50	10	14	0-12 bar



Precision class CL1,6







DIMENSIONS								
Mod.	А	В	С	D	Н	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	
M063-P04	R1/4	Ø 63	40.5	12	25	14	0 ÷ 4 bar	
M063-P06	R1/4	Ø 63	40.5	12	25	14	0 ÷ 6 bar	
M063-P12	R1/4	Ø 63	40.5	12	25	14	0 ÷ 12 bar	

Built-in pressure gauge

Precision class CL4,0

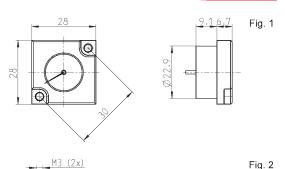


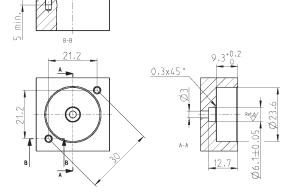
Supplied with: 1x pressure gauge 1x seal 2x screws

Fig. 1 = pressure gauge Fig. 2 = seat

New model

Fig. 2





Mod.	Range	
MX3-R30/W-P	0 ÷ 2.5 bar	
MX3-R31/W-P	0 ÷ 6 bar	
MX3-R32/W-P	0 ÷ 10 bar	
MX3-R33/W-P	0 ÷ 12 bar	



Series PG digital pressure gauges

Possibility of a direct mounting with rear or panel connection





- » Pressure unit on display
- » Battery-powered / with cable
- » Easy and fast read out with digital display
- » 4 user programmable pressure units available
- » Power saving mode
- » Back light
- » Dust-proof and splash-proof (IP65 protection class)

The new Series PG digital pressure gauges meet the need of an even more precise pressure adjustment, above all in proportional control.

Thanks to the IP65 protection class these

Thanks to the IP65 protection class these pressure gauges are particularly suitable for applications where the highest environmental protection is required.



TECHNICAL DATA

CHARACTERISTICS				
	Vacuum Pressure			
	PGVB PGPB			
Pressure units	psi, bar, mmHg, kPa psi, bar, kgf/cm², MPa programmable by the user programmable by the user			
Rated pressure range	0 ÷ -1 bar 0 ÷ 10 bar			
Display pressure range	0.1 ÷ -1 bar -0.1 ÷ 10 bar 3 bar 15 bar			
Withstand pressure				
Repeatability	$\leq \pm 1\%$ F.S. ± 1 digit $\leq \pm 0.2\%$ F.S. ± 1 digit			
Resolution: kPa MPa	1 - 0.001			
kqf/cm²	0.001			
bar	0.01 0.01			
psi	0.1 0.1			
Indicator accuracy	≤±2% F.S.±1 digit (ambient temperature: 25±3°C)			
Medium	Filtered air, incombustible and non-corrosive gases			
Back light	Yes			
Sample rate	2 Hz (2 times/second)			
LCD display	3 ½ digit, 7 segment			
Environment: Protection class	IP65 (an air tube must be installed to maintain this grade)			
Temperature	Operation: 0 ÷ 50°C			
Temperature	Storage: -10 ÷ 60°C			
	(no condensation or freezing)			
Relative humidity	Operation/storage: 35 ÷ 85% RH			
Relative Hamilarly	(no condensation)			
Vibrations	Total amplitude 1.5mm or 10G			
VIDIATIONS	10Hz-55Hz-10Hz scan for 1 minute			
	2 hours for each direction of X, Y and Z			
Shock	100 m/s² (10G)			
JIIOLK	3 times for each direction of X, Y and Z			
Changes due to temperature	≤ ± 2% F.S. of detected pressure (25°C) within the operating temperature range			
Pneumatic connections ports	G1/4 - M5 or G1/8 - M5			
FOR BATTERY-POWERED PRESSURE GAUGES ONLY				
Battery: Type	CR 2032 lithium			

Battery: Type	CR 2032 lithium	
Life	1 year (5 times/day)	
Low-power indicator	Yes	
Replacement	Yes	
Turn-on interval	Display turns off after 60 seconds	

FOR PRESSURE GAUGES WITH POWER SUPPLY CABLE ONLY

Supply voltage	from 12 to 28 V DC±10% Ripple
Power consumption	10 mA
Maximum voltage	1000V AC in 1-min (between the casing and the cables)
Isolation resistance	50 Mohm min (at 500 V DC, between the casing and the cables)
Electrical connection: for pressure gauges PG2	Unshielded 2-pole cable, length 2 m
for pressure gauges PGM	Connection with M8 4-pole connector

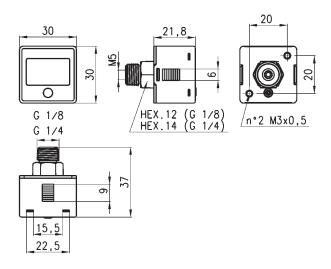


CODING EXAMPLE

PG	010	-	P	В	-	1/8	-	2	
PG	SERIES								
010	BOTTOM SCALE: 010 = 10 bar 001 = -1 bar	010 = 10 bar							
Р	PRESSURE RANGE: P = pressure V = vacuum	P = pressure							
В	LIGHTING: B = back light								
1/8	1/8 = G 1/8 BSPP; M5	PNEUMATIC CONNECTIONS: 1/8 = G 1/8 BSPP; M5 1/4 = G 1/4 BSPP; M5 (for battery-powered version only)							
2	ELECTRICAL CONNECTION 2 = with unshielded 2-p M = with cable of 150 m	oole cable of 2 m							

Series PG digital pressure gauges - battery-powered





Mod.

PG010-PB-1/8

PG001-VB-1/8

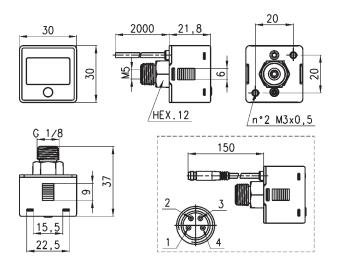
PG010-PB-1/4

PG001-VB-1/4

SERIES PG DIGITAL PRESSURE GAUGES

Series PG digital pressure gauges - with cable





Mod.

PG010-PB-1/8-2

PG001-VB-1/8-2

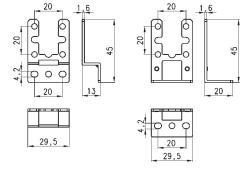
PG010-PB-1/8-M

PG001-VB-1/8-M

Mounting brackets Mod. PG-B



Supplied with: 1x bracket type A 1x bracket type B 2x screws M3x6

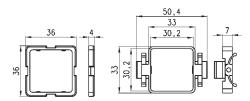


Mod.

Panel mounting adapter Mod. PG-F



Supplied with: 1x adapter type A 1x adapter type B



Mod.



Condensate drains Filtering elements

Semi-automatic manual drain; Automatic drain; Depressurisation drain; Depressurisation drain, protected Ports: 1/8 (without drain)



The filters are used to remove impurities in the compressed air, which must then be removed from the pneumatic circuit. The filters can be equipped with different types of drainings of condensate, both automatic and manual.

The correct combination and the functioning is reported in the table and in the descriptions on the following pages.

Different requirements of the air quality determine the use of different types of filtering elements, which retain the impurities during their working, thus clogging and reducing the amount of air in the passage. For this reason it is suggested to replace them once a year at least.



COMBINATION OF FILTERS / BOWL WITH DRAIN / FILTERING ELEMENT

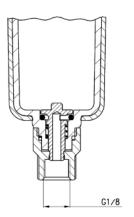
* for Series MD the "bowl with drain" is supplied complete with the filtering element

Mod. filter	bowl with semi- automatic manual drain	bowl with automatic drain	bowl with depressurization drain	bowl with depressurization drain, protected	bowl without drain (1/8 port)	closed bowl	filtering element 25 μ	filtering element 5 μ	filtering element 1 µ	filtering element 0.01 µ	activated carbon
N10F	N1-F71				N1-F71-1/8		C104-F20/3	C104-F21/3			
N10D	N1-F71				N1-F71-1/8		C104-F20/3	C104-F21/3			
N10FB	N1-F71				N1-F71-1/8					MX1-F10	
N20F	N2-F71		N2-F71/2	N2-F71/1	N2-F71-1/8		C104-F20/3	C104-F21/3			
N20D	N2-F71		N2-F71/2	N2-F71/1	N2-F71-1/8		C104-F20/3	C104-F21/3			
N20FB	N2-F71		N2-F71/2	N2-F71/1	N2-F71-1/8					MX1-F10	
N20FCA						N2-L71					MX1-F11
MC104-F	MC1-F71		MC1-F71/2	MC1-F71/1	MC1-F71-1/8		C104-F20/3	C104-F21/3			
MC104-D	MC1-F71		MC1-F71/2	MC1-F71/1	MC1-F71-1/8		C104-F20/3	C104-F21/3			
MC104-FB	MC1-F71		MC1-F71/2	MC1-F71/1	MC1-F71-1/8					MX1-F10	
MC104-FCA						MC1-L71					MX1-F11
MC202-F	MC2-F71	MC2-F71/3		MC2-F71/1	MC2-F71-1/8		C238-F11/3	C238-F12/3			
MC202-D	MC2-F71	MC2-F71/3		MC2-F71/1	MC2-F71-1/8		C238-F11/3	C238-F12/3			
MC202-FB	MC2-F71	MC2-F71/3		MC2-F71/1	MC2-F71-1/8					MX2-F10	
MC202-FCA						MC2-L71					MX2-F11
MC238-F	MC2-F71	MC2-F71/3		MC2-F71/1	MC2-F71-1/8		C238-F11/3	C238-F12/3			
MC238-D	MC2-F71	MC2-F71/3		MC2-F71/1	MC2-F71-1/8		C238-F11/3	C238-F12/3			
MC238-FB	MC2-F71	MC2-F71/3		MC2-F71/1	MC2-F71-1/8					MX2-F10	
MC238-FCA						MC2-L71					MX2-F11
MX2F	MX2-F2-P	MX2-F2/1-P		MX2-F2/3-P	MX2-F2/2-P		C238-F11/3	C238-F12/3			
MX2FR	MX2-F2-P	MX2-F2/1-P		MX2-F2/3-P	MX2-F2/2-P		C238-F11/3	C238-F12/3			
MX2FC	MX2-F2-P	MX2-F2/1-P		MX2-F2/3-P	MX2-F2/2-P				MX2-F9	MX2-F10	
MX2FCA						MX2-L2-P					MX2-F11
MX3F	MX3-F2-P	MX3-F2/1-P		MX3-F2/3-P	MX3-F2/2-P		MX3-F7	MX3-F8			
MX3FR	MX3-F2-P	MX3-F2/1-P		MX3-F2/3-P	MX3-F2/2-P		MX3-F7	MX3-F8			
MX3FC	MX3-F2-P	MX3-F2/1-P		MX3-F2/3-P	MX3-F2/2-P				MX3-F9	MX3-F10	
MX3FCA						MX3-L2-P					MX3-F11
MD1-F0*	MD1-FSP01			MD1-FSP03	MD1-FSP02		C104-F20/3				
MD1-F1*	MD1-FSP04			MD1-FSP06	MD1-FSP05			C104-F21/3			
MD1-FR0*	MD1-FSP01			MD1-FSP03	MD1-FSP02		C104-F20/3				
MD1-FR1*	MD1-FSP04			MD1-FSP06	MD1-FSP05			C104-F21/3			
MD1-FC0*	MD1-FCSP01			MD1-FCSP03	MD1-FCSP02					MD1-F10	
MD1-FC1*	MD1-FCSP04			MD1-FCSP06	MD1-FCSP05				MD1-F9		
MD1-FCA*						MD1- FCASP01					MD1-F11



Semi-automatic manual drain (Type 0 and 1)

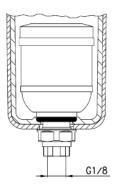
Functioning: with the operator mechanism turned clockwise, each time the pressure falls below 0.3 bar, the draining of condensate will be released; when resetting the pressure, the drain will close again. The release can also be carried out manually; when the bowl is pressurised, the operator mechanism is pushed upwards.



To avoid the discharge of condensate, the drain. the operator mechanism should be turned clockwise to completely close

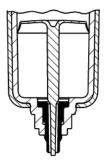
Automatic drain (Type 3)

Functioning: the presence of liquid inside the bowl raises the float, thus opening the exhaust valve.



Depressurisation drain (Type 4)

Functioning: each time air is required from the inlet, a slight difference of pressure is created between the upper part and lower part of the drain that rises, thus opening the exhaust valve.

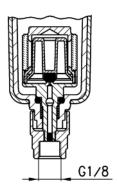




Depressurisation drain, protected (Type 5)

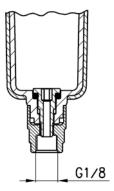
Solution similar to the Type 4 but requiring a ΔP = 1 bar.

Functioning: this version has a filtering element which prevents any impurities from clocking the exhaust hole.

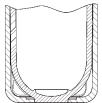


Bowl without drain (Type 8)

The solution with port G1/8 is used to assemble the items to the bowl which is realized with a through hole of ø3 mm and a threaded port G1/8.



Closed bowl



CAMOZZI
Automation

NOTES	

OTES



Quality: our priority commitment

Research, technological innovation, training, respect for personnel, employee and environmental safety and total customer care are all factors that Camozzi considers strategic in the achievement of quality.

To Camozzi quality is a system that ensures excellence, not only of the final product but throughout the entire business process.



Our certifications

Camozzi's main goals include quality and safety, the protection of the environment and compatibility of our activities with the territories in which they are performed.

Since 1993 Camozzi has been certified in accordance with the ISO 9001 standard for quality management. In 2003 the company obtained ISO 14001 certification for environmental management.

In the same year, DNV, the global quality assurance and risk management company, certified Camozzi's Integrated Management System, which includes both ISO 9001 and ISO 14001 standards. Furthermore, in 2013 Camozzi obtained ISO/TS 16949 certification for the Series C-Truck and Series 9000 fuel fittings, then transitioned to the new edition of the IATF 16949 standard in 2018.

From 1 July 2003, all products sold in the European Union and destined to be used in potentially explosive areas, had to be approved according directive 94/9/CE, also known as ATEX.

This directive covered both electrical and non-electrical parts, including for instance pneumatic power and control equipment.

Mandatory directives

- Directive 99/34/EC concerning liability for defective products modified by Legislative Decree 02/02/01 n° 25. - Directive 2014/35/EU "Equipment designed for use within certain
- voltages
- Directive 2014/30/EU "Electromagnetic Compatibility EMC" and relative additions
- Directive 2014/34/EU "Atex".
- Directive 2014/34/EU * Alex .
 Directive 2006/42/EC "Machinery".
 Directive 2014/68/EU "Pressure Equipment Directive".
 Directive 2001/95/EC "General product safety".
- Regulation 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

Technical standards

- ISO 4414 - Pneumatic fluid power - General rules and safety requirements for systems and their components

Environmental notes

- Packaging: we respect the environment, so use materials which can be recycled, including recyclable PE and paper.
- Green Design Project: in the study of new products, the environmental impact is always taken into consideration (real project, elaboration, etc.).



Information for the use of Camozzi products

In order to ensure proper functioning of Camozzi products these general guidelines should be noted.

Air quality

While resources such as electricity, water and gas are normally supplied by external companies to guaranteed standards, compressed air is produced from the ambient atmosphere. It is therefore the user that has to guarantee compressed air quality.

High quality air is essential for proper functioning of pneumatic systems. One cubic metre of air at atmospheric pressure typically contains the following:

- more than 150 million solid particles with dimensions
- from 0,01 μm to 100 μm,
- fumes due to combustion,
- water vapour, with volume depending on temperature; at 30° there are about 30 g/m³ of water
- oil, up to about 0,03 mg
- micro organisms
- plus a variety of chemical contaminants, odours etc ...

The further the air is compressed, the higher the air quantity in the same volume and therefore the higher the amount of contaminants.

In order to reduce unwanted contents, compressors are fitted with filters, driers and oil separators at the inlet and outlet.

In spite of these precautions, the air, during its passage along pipes and tubes or while in storage tanks, can collect contaminants such as flakes of rust. Further, water vapour contained in the air can cool down and liquefy, then absorb and retain oil fumes.

For this reason it is advisable to fit compressed air systems and pneumatic machinery with air treatment equipment.

Air treatment: classi	fication according to ISO	8573-1-2010 standard

Solid particles					Wa	ter	Oil
ISO 8573-1-2010		ımber of Particle:	1.	Max Concentration	Water pressure dew point	Liquid	Total content
Class	0,1 - 0,5 μm	0,5 - 1 μm	1 - 5 μm	mg/m ³	°C	g/m³	(liquid, aerosol and vapour) mg/m³
0			More stric	t than class 1, defir	ned by the device	user	
1	≤ 20,000	≤ 400	≤ 10	-	≤ - 70°	-	≤ 0,01
2	≤ 400,000	≤ 6,000	≤ 100	-	≤ - 40°	-	≤ 0,1
3	-	≤ 90,000	≤ 1,000	-	≤ - 20°	-	≤ 1
4	-	-	≤ 10,000	-	≤ + 3°	-	≤ 5
5	-	-	≤ 100,000	-	≤ + 7°	-	-
6	-	-	-	≤ 5	≤ + 10°	-	-
7	-	-	-	5 - 10	-	≤ 0,5	-
8	-	-	-	-	-	0,5 - 5	-
9	-	-	-	-	-	5 - 10	-
Χ	-	-	-	> 10	-	> 10	-

Different types of air treatment equipment have different functions: isolation valves, pressure regulators, soft-start valves and of course filters. In some applications lubricators are still used, but this is increasingly unusual. Regarding filtering, there are international standards, such as ISO 8573-1-2010, that classify air according to its quality.

ISO 8573-1-2010 classifies compressed air according to the presence of three contaminating categories: solid particles, water or water vapour, and concentration of micro mist or oil vapours. In general, if not specified otherwise in the characteristics of the single component, Camozzi products require an ISO 8573-1-2010 class 7-4-4 air quality.

- class 7 = air has a maximum concentration of SOLID PARTICLES of 5 mg/m³. The filtering elements are designed to separate solid particles with a dimension of more than 25 μ m.

The air exiting from our filters and therefore the air at the inlet of all other components can contain solid particles with a maximum concentration of 5 mg/m3 and with a maximum dimension of 25 μ m.

- class 4 = the compressed AIR temperature has to be \leq 3°C in order for entrained water vapour to condense and become liquid.

Conventional filters have characteristics that separate the humidity in the air only if it is in a liquid or near-liquid state.

It is the cooling of the air that enables condensation and removal of water vapour.

The air flow entering the bowl of the filter sustains a minimum expansion phase, (according to the Gas Law when gas suddenly expands, its temperature drops) followed by a vortex, this enables the heavier particles and the water vapour (condensing due to the expansion) to adhere to the sides of the bowl and slide down towards the drain.

Except for specific versions, users of Camozzi filters have to install driers in their compressed air production systems that, by cooling the air, dehumidify it.

- class 4 = the concentration of OIL PARTICLES must be of maximum 5 mg/m³. It should be noted that compressors use oil for lubrication and that this can be carried into the compressed air system in the form of aerosol, vapour or limit.

This oil, as with all other contaminants, can be transported by the air into the pneumatic circuit. It can then contact the seals of the components and subsequently pass into the environment through the outlets of the solenoid valves. In this case coalescing filters are used to aggregate those micro-molecules of oil suspended in the air and remove them.

The use of Camozzi coalescing filters enable to reach classes 2 and 1. It is important to keep in mind that best performance is reached only by means of a multi-phase filtering process with subsequent phases.

As illustrated, different filters have different characteristics - a very efficient filter for a certain contaminant may not be so effective for other contaminants.

The filtering elements determine the class of the filters, these elements should be replaced after a specified period or after a specified number of working hours. These parameters vary according to the characteristics of the incoming air.

Camozzi filters are subdivided into different groups:

- Filtering element of 25 μm, class 7-8-4
- Filtering element of 5 μm, class 6-8-4
- Filtering element of 1 μm, class 2-8-2
- with pre-filter class 6-8-4
- Filtering element of 0,01 μ m, class 1-8-1
- with pre-filter class 6-8-4 residual oil content of 0,01 mg/m³
- Activated carbon, class 1-7-1
- with pre-filter class 1-8-1 residual oil content of 0,003 mg/m³

The components are factory greased with special products and do not need an additional lubrication. In case it should be necessary, use ISO VG 32 oil. The quantity of oil introduced into the circuit depends on the applications. Camozzi suggests a maximum dosage of three drops per minute.

Pneumatic cylinders

The choice of the correct cylinder mounting and also that of the rod attachment to any moving parts, are as important as the control of parameters relating to speed, mass and radial loads.

The control of these parameters has to be guaranteed by the user.

The location of position sensors (reed switches), and their switching response times to magnetic fields, is dependent upon the type and bore size of the cylinder and the appropriate precautions need to be taken when fixing these items. (see notes on the pages about sensors).

We do not advise the use of a cylinder as a shock absorber or for pneumatic cushioning. If used at the maximum speed, we recommend gradual deceleration to avoid a violent impact between piston and the cylinder end cover.

As a general value, we calculate a maximum average speed of $1\,\text{m/sec}$. In this case no lubrication is required as the lubrication introduced during assembly is sufficient to guarantee good operation.

If faster speeds are required, we suggest lubrication in the quantities described above.



Directive ATEX 2014/34/EU: Products classified for the use in potentially explosive atmospheres



Since 19 April 2016 all products which are sold in the European Union and destined to be used in **potentially explosive atmospheres** have had to be approved according to new Directive 2014/34/EU, also known as ATEX. This Directive applies to both electrical and non-electric items, such as pneumatic drives.

Main changes introduced by Directive 2014/34/EU:

- Non-electric apparatus and devices, such as pneumatic cylinders, have to comply with the Directive.
- Equipment is classified into different categories, which identifies the potentially explosive zones in which they may be used.
- The products are identified with the CE mark Ex.
- The instructions for use and the declarations of conformity should be supplied with each product that is to be used in potentially explosive zones.
- The Directive applies to products intended to be used in zones that are potentially explosive due to the presence of dust as well as to zones where potentially explosive gases may be present.

A potentially explosive atmosphere could be composed of gas, mist, steam or dust, which may be present constantly, intermittently or created by processes conducted within the zone. An explosion can occur when there are one or more inflammable substances plus an ignition source present.

An ignition source could be:

- Electrical (electric arcs, induced current, heat generated by the Joule effect, i.e. heat created when an electric current flows through a resistance.)
- Mechanical (heat between surfaces caused by friction, sparks generated by the collision of metallic bodies, electrostatic discharges, adiabatic compression, i.e. compression of an atmosphere causing a temperature rise)
- Chemical (exothermic reactions between materials)
- Naked flames. The products which are subject to approval are those which, during their normal use or because of a malfunction, present one or more ignition sources within a potentially explosive atmosphere.

The manufacturer has to guarantee that the product conforms to the declarations and carries the appropriate markings. Moreover, the product should always be accompanied by the appropriate instructions.

The maker and/or user of the equipment should identify the risk zone(s), as defined by Directive 99/92/CE, in which the products are to be used and ensure all instructions are followed.

In the case where a product is made up of two or more components with different markings, the component which is classified in the lowest category defines the class to which the complete product belongs.

Example:

solenoid suitable for Category 3 marked ... Ex - II 3 Ex...

and valve suitable for Category 2 \dots

Ex - II 2 Ex...

The valve unit with solenoid can be used only in Category 3 or Zone 2/22.

Zones, groups and categories

In the places and for the types of equipment subject to Directive 99/92/CE, the user should identify the classification of the zones in relation to the danger of the creation of explosive atmospheres because of the presence of gas or dust.

Apparatus and equipment for the use in potentially explosive zones are divided in groups:

Group I > apparatus used in mines

Group II > apparatus used in installations above ground

Group I: Apparatus used in mines	
CATEGORY M1 Functioning in explosive atmospheres	
CATEGORY M2 Non-supplied equipment in explosive atmospheres	

Group II: Apparatus for installations above ground						
Product category	Gas	Dust				
1	Zone 0	Zone 20				
2	Zone 1	Zone 21				
3	Zone 2	Zone 22				

Classification of zones according to Directive 99/92/CE

Category 1 Zone 0 - Area in which (permanently, for long periods or often) an explosive atmosphere is present, consisting of a mixture of air and inflammables in the form of gas, vapour or mist.

Zone 20 - Area in which (permanently, for long periods or often) an explosive atmosphere is present in the form of a dust/powder cloud which is combustible in air.

Category 2 Zone 1 - Area in which, during normal activities, the formation of an explosive atmosphere is probable, consisting of a mixture of air and inflammables in the form of gas, vapours or mist.

Zone 21 - Area in which occasionally during normal activities the formation of an explosive atmosphere is probable, in the form of a dust cloud which is combustible in air.

Category 3 Zone 2 - Area in which, during normal activities, the formation of an explosive atmosphere, consisting of a mixture of air and inflammables in the form of gas, vapour or mist is not probable and, whenever this should occur, it is only of a short duration.

Zone 22 - Area in which, during normal activities, the formation of an explosive atmosphere in the form of a combustible dust cloud is not probable and, whenever this should occur, it is only of a short duration.



Example of Marking: ⟨⟨⟨x⟩| II 2 GD c T100°C (T5) -20°C≤Ta≤60°C

II Group: Devices which are to be used in spaces exposed to risks of an explosive atmosphere, different from underground spaces, mines, tunnels, etc., classified according to the criteria in Annex I of the Directive 2014/34/EU (ATEX).

Category: Devices designed to function in compliance with the operational parameters determined by the manufacturer and guarantee a high protection level.

GD Qualification gas and dusts: Protected against gas (G) and explosive dusts (D).

c Non-electrical devices: Non-electrical devices for potentially explosive atmospheres. Protection through constructive security.

T 100°C Max. temperature for components for dusts:

Max. superf. temp. of 100°C regarding potential hazards resulting from striking within the vicinity of hazardous dusts.

T5 Max. temperature for components for gas:

Max. superf. temp. of 100°C regarding potential hazards which may result from striking within gas environments.

Ta Environmental temperature: -20°C≤Ta≤60°C. Environmental temperature range (with dry air)

Group I: Temperature classes

Temperature = 150°C or = 450°C according to the level of dust on the apparatus.

Group II: Temperature classes					
Temp. classes for gas (G)	Admissible surface temperatures				
T1	450°C				
T2	300°C				
T3	200°C				
T4	135°C				
T5	100°C				
_T6	85°C				

ATEX certified Camozzi products

APPARATUS classified as ATEX Group II

Cylinders			
Series	Category	Zone	Gas/Dust
16*	2 DE-3 SE	1/21 DE -2/22 SE	G/D
24*	2 DE-3 SE	1/21 DE-2/22SE	G/D
25*	2 DE-3 SE	1/21 DE-2/22SE	G/D
31-32	2 DE-3 SE	1/21DE-2/22SE	G/D
31-32 Tandem/multi-position	2 DE	1/21 DE	G/D
40*	2 DE	1/21 DE	G/D
41*	2 DE	1/21 DE	G/D
61*	2 DE-3 SE	1/21 DE-2/22 SE	G/D
63*	2 DE-3 SE	1/21 DE-2/22 SE	G/D
6PF*	2 DE	1/21 DE	G/D
27	2 DE	1/21 DE	G/D
QP-QPR	2 DE-3 SE	1/21 DE-2/22 SE	G/D
QN	3 SE	2/22 SE	G/D
42	2 DE-3 SE	1/21 DE-2/22 SE	G/D
ARP	2	1/21	G/D
QCT-QCB-QXT-QXB	2	1/21	G/D

Proximity switches			
Series	Category	Zone	Gas/Dust
CSH/CST/CSV	3	2/22	G/D
CSG	3	2/22	G/D
Valves			
Series	Category	Zone	Gas/Dust
P	3	2/22	G/D
W	3	2/22	G/D
Υ	3	2/22	G/D
Solenoids			
Series	Category	Zone	Gas/Dust
U70	3	2/22	G/D
H80I**	2	1/21	G/D
Pressure switches			
Series	Category	Zone	Gas/Dust
PM 11**	1	0/20	G/D

Freely installable **COMPONENTS** classified as ATEX Group II

Category	Zone	Gas/Dust
2	1/21	G/D
	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2 1/21 2 1/21 2 1/21 2 1/21 2 1/21 2 1/21 2 1/21

Valves			
Series	Category	Zone	Gas/Dust
9#*	2	1/21	G/D
A#	2	1/21	G/D
2	2	1/21	G/D
3#	2	1/21	G/D
4#	2	1/21	G/D
NA (NAMUR) #	2	1/21	G/D
E (pneumatic)	2	1/21	G/D

FRL			
Series	Category	Zone	Gas/Dust
MC#	2	1/21	G/D
N	2	1/21	G/D
MX#	2	1/21	G/D
T	2	1/21	G/D
CLR	2	1/21	G/D
M	2	1/21	G/D
MD#	2	1/21	G/D

Without solenoid

» The order code number of the certified products is obtained by adding "EX" to the standard article number

Es. 358-015 standard solenoid valve
Es. 358-015EX ATEX certified solenoid valve

Accessories available in Category 2 Zone 1/21: couplings, junctions, brackets, piston rod nuts, nuts, counter brackets, bushings, pins, clevis pins, caps, gaskets, diaphragm, sub-bases, plates, feet, hand operated valves, flow valves, flanges, screw, tie rods, automatic and blocking valves, silencers and pressure gauge, connector kits, clamps, rapid and super rapid push-in fittings, hoses, sealing rings, locking nuts. Accessories available in Category 3, Zone 2/22: adaptors, slot covers, extensions, connectors. For more information on this kind of products see the website:

http://catalogue.camozzi.com within the section: Downloads > Certifications > ATEX Directive 2014/34/EU > List of products excluded from the directive 2014/34/EU ATEX.

^{*} According to ISO standard

^{**} Products with ATEX and IECEX certification



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