North America

Filter, Regulator & Lubricator Catalog

Edition 8.5

CAMOZZI

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WELCOME TO THE WORLD OF CAMOZZI.

Welcome to the world of Camozzi and our new **FRL Air-Preparation Catalog.**
As a part of our ongoing effort in continued product development, Camozzi is launching this new, improved and updated catalog designed with an easy-to-use and practical format, which offers a comprehensive and innovative range of air-preparation components.

The catalog includes clear and technical images, drawings, dimension tables, technical specifications and new tools that will provide you with a better understanding of our **FRL and Air-Treatment** product line.

The new layout and design is organized by product family from the smaller size units to the larger size ports. We have also divided each major product family into chapters that better reflect the general classifications of FRL units by their type of modularity and overall component assembly and design. Several of our air-treatment accessories are in the final chapters. While the very back of the catalog contains all spare parts and seal kits generally available at the time of printing.

We hope you find the new catalog and its overall design changes to be helpful to you and your customers.

UNI EN ISO 9001 (ISO 9001)
DNV
Quality System Certificate

UNI EN
ISO 9001

Day by day we try to improve ourselves, to extend our competence and our professionalism in a constant way.

UNI EN ISO 14001 (ISO 14001)
DNV
Quality System Certificate

UNI EN
ISO 14001

Minimize the consumption of energy, water, raw material and the production of waste, and focus on recycling wherever possible.

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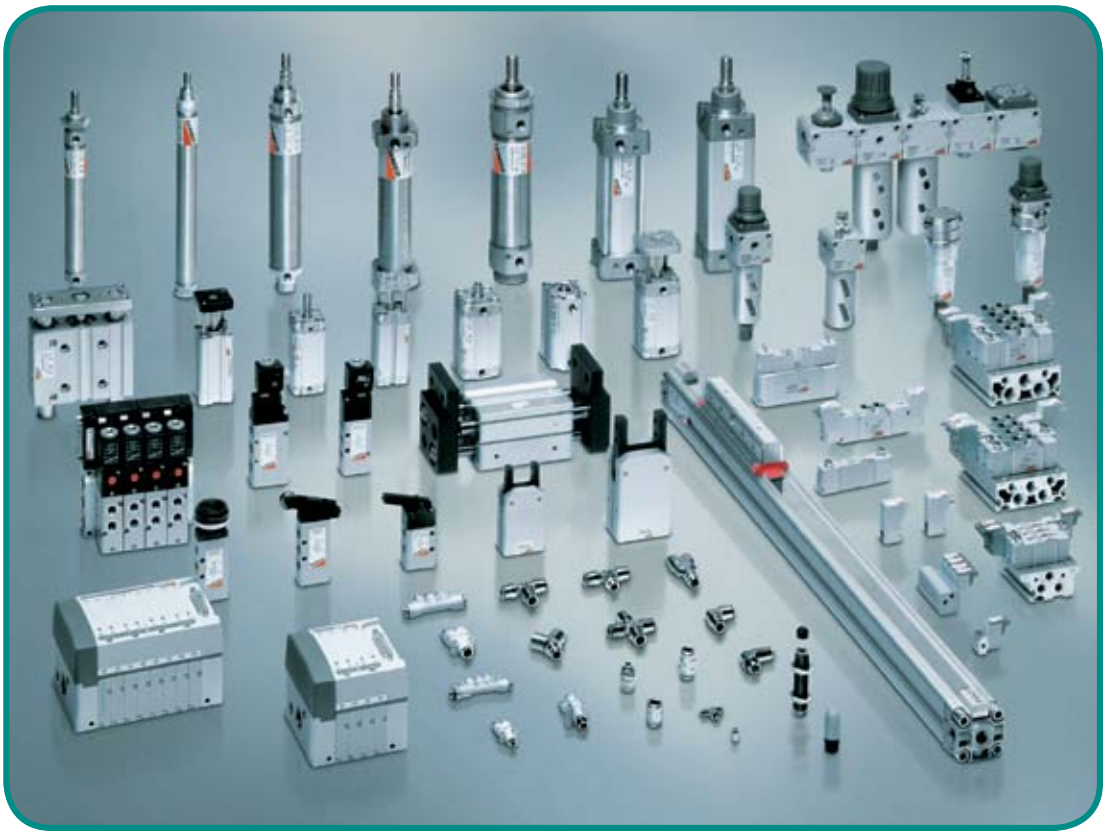

Everybody talks about quality.
We prefer to talk about the many components that work together to create a quality system that ensures excellence, not only in the final product but throughout the entire business process.
Research, technological innovation, training, respect for personnel, employee and environmental safety, and total customer care are all factors that Camozzi considers strategic in the achievement of quality reflecting an unyielding commitment to the pursuit of excellence.

In 2009 Camozzi renewed from Det NorskeVeritas the certifications for the Quality Management Systems regarding UNI EN ISO 9001:2008 and for the Environmental Management Systems as UNI EN ISO 14001:2004.
One of Camozzi's main goals, equal to quality and safety, is the protection of the environment and compatibility of our activities with the territorial context in which they are performed.

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4 Additional Products & Accessories

5 Spare Parts & Seal Kits

6 Marketing Materials

Selection Guide

Characteristics of identification			Threaded ports						Operating pressure				Construction type			Relief Flow/ Rapid Exhaust Flow	
Series	Function/ type *	Body Size - General	1/8"	1/4"	3/8"	1/2"	3/4"	1"	0 - 2 bar (0 - 29 psi)	0 - 4 bar (0 - 58 psi)	0.5 - 7 bar (7.25 - 103 psi)	0.5 - 10 bar (7.25 - 145 psi)	self relieving (standard)	non-relieving	precise relieving	without "VS" option	with "VS" option
MC	F	1															
		2															
	FB	1															
		2															
	R	1															
		2															
	L	1															
		2															
	D	1															
		2															
	V01	1															
		2															
	V16	1															
		2															
	V36	1															
		2															
	AV	1															
		2															
	B	1															
		2															
	M	1															
MX	F	2, 3															
	FB	2, 3															
	R	2, 3															
	L	2, 3															
	D	2, 3															
	V00	2, 3															
	AV	2, 3															
	V16	2, 3															
	V36	2, 3															
N	F	1															
	FB	1															
	R	1															
	L	1															
	D	1															
M	R	1															

* Key for all components listed (function/type)

F = Filter
FB = Coalescing Filter
R = Regulator
L = Lubricator
D = Filter-Regulator Combo Unit
V01 = Isolation Valve with Manual Command (Manual Lock-Out/Tag-Out)
V16 = Electropneumatic Isolation Valve (Shut-Off, Solenoid Pilot)
V36 = Pneumatic Isolation Valve (Shut-Off, Air-Pilot)
AV = Soft Start Valve
B = Take-Off Block
M = Manifold Regulator
AV.P = Shut-Off Valve and Soft-Start Valve Combo

Characteristics of identification			Filtering Element					Draining of condensate					Bowl Type			Version			Command	
Series	Func. /type *	Size/ Dim.	0.01 µm	5 µm	25 µm	1 µm	Active Carbon	Manual - Semi-automatic	Automatic "Float Drain"	Depressurization "Spitter"	Depressurization protected "Spitter with Filter"	Port 1/8 (no drain)	metallic bowl / Bowl guard	normal bowl	small bowl	W/ Check-Valve	W/O Check-Valve	Manual Lockable	Electro-pneum.	Pneum.
MC	F	1																		
		2																		
	FB	1																		
		2																		
	R	1																		
		2																		
	L	1																		
		2																		
	D	1																		
		2																		
	V01	1																		
		2																		
	V16	1																		
		2																		
	V36	1																		
		2																		
	AV	1																		
		2																		
	B	1																		
		2																		
	M	1																		
MX	F	2, 3																		
	FB	2, 3																		
	R	2, 3																		
	L	2, 3																		
	D	2, 3																		
	V00	2, 3																		
	AV	2, 3																		
	V16	2, 3																		
	V36	2, 3																		
N	F	1																		
	FB	1																		
	R	1																		
	L	1																		
	D	1																		
M	R	1																		

Product Guide

Pressure Microregulator Series M

Page 6

Ports 1/8”, 1/4” NPTF
Nipple type

Pressure Microregulators Series T

Page 8

Ports 1/8” and 1/4” NPTF

Adjustable Pressure Relief Valve Series VMR

Page 14

Valve with adjustable exhaust Mod. VMR

Filter and Coalescing Filter Series N

Page 14

Ports 1/8”, 1/4” NPTF
with threaded transparent bowl (Nylon - Grilamid)

Pressure Regulator Series N

Page 18

Ports 1/8”, 1/4” NPTF
Nipple type

Lubricator Series N

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Ports 1/8”, 1/4” NPTF, (Nylon - Grilamid)
with threaded transparent bowl
Nipple type

Filter/Regulator Series N

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Ports 1/8”, 1/4” NPTF
with threaded transparent bowl, (Nylon - Grilamid)

Accessories for Series N and M

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Filters Series MC

Page 30

Port 1/4”, 3/8”, 1/2” NPTF
Modular with metal bowl guard and bayonet-type mounting

Coalescing Filters Series MC

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Port 1/4”, 3/8” & 1/2” NPTF
Modular with metal bowl guard and bayonet-type mounting

Pressure Regulators Series MC

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Port 1/4”, 3/8”, 1/2” NPTF
Modular

Manifold Pressure Regulators Series MC

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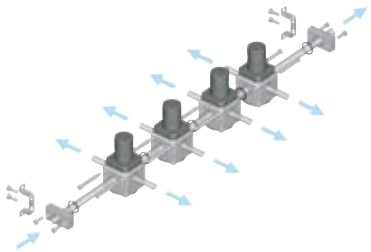
Inlet port 1/4” NPTF, full Inlet pressure (non-cascading),
2 outlets per unit.
Modular

Manifold Regulators Series MC
Assembly Hardware Kits (1/4” only — MC1)

Page 44



Port 1/4" NPTF. Brackets; Flanges; O-Rings,
Screws — male or female; Tie-Rods — male/female, female/female

Lubricators Series MC

Page 46

Port 1/4”, 3/8”, 1/2” NPTF
Modular with metal bowl guard and
bayonet-type mounting

Filter/Regulator Series MC

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Port 1/4”, 3/8”, 1/2” NPTF
Modular with metal bowl guard and bayonet-type mounting

Lockable Isolation 3/2-Way Valve Series MC (Lock-out/ Tag-out)

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Port 1/4”, 3/8”, 1/2” NPTF
Modular

Electropneumatic/Pneumatic
Isolation Valve Series MC (Shut-off)

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Port 1/4”, 3/8”, 1/2” NPTF:
Model ‘-V16’ has Solenoid Pilot
Model ‘-V36’ has Air Pilot
Modular

Soft Start Valve Series MC

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Innovative modular clamping system
Ports 1/4”, 3/8”, 1/2” NPTF

Take-Off Blocks, (Distribution-Block)

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Ports 1/4”, (3/8”), 1/2” NPTF
Modular, with or without internal Check-Valve

Solenoids U7* - U7*EX - G7* - A8* - H8*

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Version A and B
Connection according to DIN 43650 and DIN 40050 standards

Pressure switches, Transducers and Pressure Indicators

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Series PM: adjustable-diaphragm pressure switches, with visual scale, with exchange contacts (SPST, SPDT)
Series TRP: electro-pneumatic transducers
Series 2950: pressure indicators, ports M5

FRL Series MC - Completed Assemblies (Single Part Number Code)

Page 74

Ports 1/4”, 3/8”, 1/2” NPTF

FRL Series MC Assembly Kits Guide

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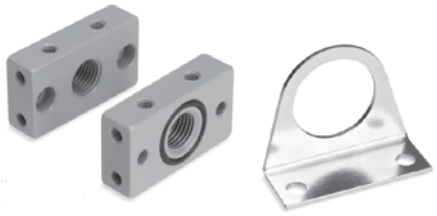
Port 1/4", 3/8", 1/2" NPTF. Brackets; Flanges; O-Rings, Screws — male or female; Tie-Rods — male/female, female/female

Mounting Brackets, Accessories and Kits - Series MC

Page 84



Ports 1/4", 3/8", 1/2" NPTF
Innovative modular clamping system
Composite Bowl w/ Metal Shroud & bayonet-type mounting

Functioning Condensate Drains Series N, MC and MX

Page 88

Semi-automatic - manual drain - option Type “F*0”
Automatic drain - option Type “F*3”
Depressurization drain (“spitter” drain) - option Type “F*4”
Depressurization drain, filtered drain orifice - option Type “F*5”
1/8” port (without drain) - option Type “F*8”

Filters Series MX

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Ports 3/8” - 1” NPTF

Coalescing Filters Series MX

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Ports 3/8” - 1” NPTF

Activated Carbon Filters Series MX

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Ports 3/8” - 1” NPTF

Pressure Regulators Series MX

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Ports 3/8” - 1” NPTF
Innovative modular clamping system
Available with built-in pressure gauges or with front & rear ports for gauges

Lubricators Series MX

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Ports 3/8” - 1” NPTF

Filter-Regulators Series MX

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Ports 3/8” - 1” NPTF

Lockable Isolation 3/2 Way Valves Series MX

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Ports 3/8” - 1” NPTF

Soft Start Valves Series MX

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Ports 3/8” - 1” NPTF

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Ports 3/8” - 1” NPTF

Solenoids U7* - U7*EX - G7* - A8* - H8*

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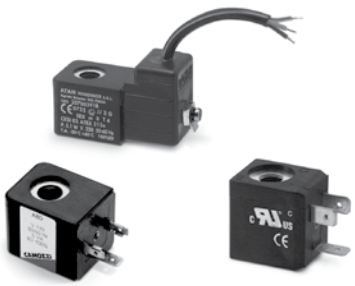

Version A and B
Connection according to DIN 43650 and DIN 40050 standards

Pressure switches, Transducers and Pressure Indicators

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Series PM: adjustable-diaphragm pressure switches, with visual scale, with exchange contacts (SPST, SPDT)
Series TRP: electro-pneumatic transducers
Series 2950: pressure indicators, ports M5

FRL Series MX Pre-Assembled

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Ports 3/8” - 1” NPTF

Pressure Gauges and Accessories for Series MX

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Various pressure ranges
Various connections: radial, rear, for panel mounting
Precision classes: CL1,6 and CL2,5 (maximum permissible error as percentage of full span)

Digital Electro-pneumatic Regulator Series ER100

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Port G1/4

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Port G1/4, G3/8

Electronic proportional micro regulator Series K8P

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Proportional regulator for pressure control

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Inch Tube OD & Metric mm Tube OD

PRODUCT GUIDE

ISO Sandwich Regulators For Solenoid and Air-Pilot Operated Valves

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(VDMA 24563)
ISO 15407-1, Size 26mm (size 01)

Pressure Regulation at ports A, B, AB or P
(Valves and Manifolds ordered separately - see Valve Catalog)

ISO Sandwich Regulators For Solenoid and Air-Pilot Operated Valves

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Assembly with sub-base (ISO 5599/1 Standards)
non-plug-in
Sizes 1, 2 and 3
Pressure Regulation at ports A, B, AB or P (Valves and Manifolds ordered separately - see Valve Catalog)

Pressure Gauges

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Various pressure ranges
Various connections: radial, rear, for panel mounting
Precision classes: CL1,6 and CL2,5 (maximum permissible error as percentage of full span)

Mounting Brackets, Accessories and Kits - Series M, N, and T

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Mounting Brackets, Accessories and Kits - Series MC

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Mounting Brackets, Accessories and Kits - Series MX

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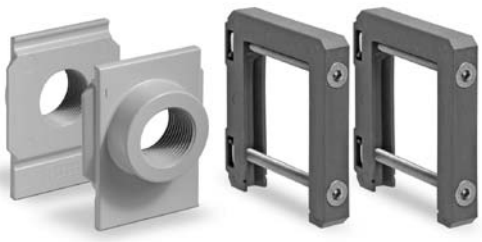

Solenoids U7* - U7*EX - G7* - A8* - H8*

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Version A and B
Connection according to DIN 43650 and DIN 40050 standards

Pressure switches, Transducers and Pressure Indicators

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Series PM: adjustable-diaphragm pressure switches, with visual scale, with exchange contacts (SPST, SPDT)
Series TRP: electro-pneumatic transducers
Series 2950: pressure indicators, ports M5

Spare Parts and Seal Kits

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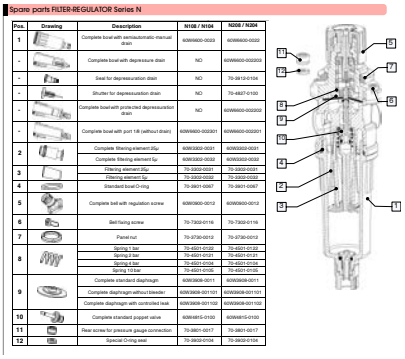


Spare parts FILTER-REGULATOR Series N

Pos.	Drawing	Description	N108 / N104	N208 / N204
1		Complete bowl with semiautomatic-manual drain	60N9600-0020	60N9600-0020
-		Complete bowl with depressure drain	NO	60N9600-002003
-		Seal for depressurization drain	NO	70-3912-0104
-		Shutter for depressurization drain	NO	70-4927-0100
-		Complete bowl with protected depressurization drain	NO	60N9600-002002
-		Complete bowl with port 1/8 (without drain)	60N9600-003001	60N9600-003001
2		Complete filtering element 25µ	60N3002-0031	60N3002-0031
		Complete filtering element 5µ	60N3002-0032	60N3002-0032
3		Filtering element 25µ	70-3002-0031	70-3002-0031
		Filtering element 5µ	70-3002-0032	70-3002-0032
4		Standard bowl O-ring	70-3901-0067	70-3901-0067
5		Complete bell with regulation screw	60N3900-0012	60N3902-0012
6		Bell fixing screw	70-7302-0116	70-7302-0116
7		Panel nut	70-3730-0012	70-3730-0012
8		Spring 1 bar	70-4501-0139	70-4501-0139
		Spring 2 bar	70-4501-0131	70-4501-0131
		Spring 4 bar	70-4501-0134	70-4501-0134
		Spring 10 bar	70-4501-0135	70-4501-0135
9		Complete standard diaphragm	60N3908-0011	60N3908-0011
		Complete diaphragm without bleeder	60N3908-001101	60N3908-001101
		Complete diaphragm with controlled leak	60N3908-001102	60N3908-001102
10		Complete standard poppet valve	60N9915-0100	60N9915-0100
11		Rear screw for pressure gauge connection	70-3901-0017	70-3901-0017
12		Special O-ring seal	70-3902-0104	70-3902-0104

1 Non-Modular FRL Series M, T & N 1/8” & 1/4” NPTF

Summary and Features

Series M, N & T FRL 1/8" & 1/4" NPTF

Regulator
- Four Pressure Range Options
- Relieving, Non-Relieving & High Response Diaphragm Options
- Factory Pressure Presets Available
- Tamper-Proof Available
- Locking, Non-Rising Knob Standard
- Front & Rear Gauge Ports
- Convertible To “Piggy-Back” Filter/Reg Combo (Series N Only)

Pressure microregulator Series T

Pressure microregulator Series M

Optional Gauges
- Various Pressure Ranges Available
- Panel-Mount Nut Standard

Filter
- Coalescing, 5 & 25 Micron Elements Available
- Threaded Bowl Design
- Grilamid (Nylon Composite) Bowl Standard
- Four Drain Options Available
- Available In ‘Piggy-Back" Filter-Regulator Combos

Optional Wallmount Brackets
- Rotatable 90° for Panel Mounting Assembly

Lubricator
- Venturi Design With 2 Micron Drop Size
- Flow Adjustment Built Into Droplet Indicator
- Threaded Bowl Design With O-Ring Seal
- Grilamid (Nylon Composite) Bowl Material

Standard Features
- Inlet Pressure 0.3 – 16 Bar (4.25 – 232 Psi)
- Operating Temp -5° C - 50° C, (23° F - 122° F), With Dew Point Of Air At Least 2° C (4° F) Below The Min Working Temperature
- Custom Assemblies Available From Mckinney, Tx
- Low Temp Versions Available (-23°C/-90° F, With Dew Point 2° Below Operating Temperature)
- Nickel-Plated Brass Construction On Bodies
- Grilamid (Nylon Composite) Bowls Available In 0.5 Oz & 1.0 Oz Sizes For Filters And Lubricators
- Versatile Mounting: Stand-Alone, Panel-Mount, Or Pipe-Nipple
- Single Part Number System For Standard Pre-Assemblies From Mckinney, Tx

Pressure Microregulator Series M

Regulator calibrated or blocked upon request

Ports 1/8", 1/4" NPTF
Nipple type

The Series "M" pressure regulator is available with 1/8" and 1/4" NPTF ports. Its design incorporates a relieving diaphragm so as to allow incremental adjustments as well.

Microregulators are available with optional regulation types: relieving, non-relieving, very sensitive self-relieving (constant air leak) and VS (valve with rapid reverse flow).

The regulator with sensitive self-relieving holds pressure regulation setting with less hysteresis around set point.

The regulator with the "VS" option offers quicker response in the reverse flow direction, as is typically required when a regulator is mounted between a valve and a cylinder.

These regulators, which have very small dimensions, may be mounted directly on pipes or on a console.

TECHNICAL SPECIFICATIONS

Construction	Diaphragm type - nipple type
Materials	Nickel-Plated brass, body, Buna-N seals, Nylon knob, internals in brass
Threaded ports	1/8", 1/4" NPTF
Weight	Kg 0.235 = .5 lbs
Pressure gauge port	1/8" NPTF
Type of mounting	In-line or panel mounting (in any position)
Operating temperature	-5° C - 50° C, (23° F - 122° F), with Dew Point of air at least 2° C (4° F) below the min working temperature

PNEUMATIC DATA

Inlet pressure	0 — 16 bar (0 — 232 psi)
Outlet pressure	0.5 —10 bar (7.25 — 145 psi), optional outlet pressure ranges offered
Nominal flow	See graph
Secondary pressure relieving	Standard = self relieving, non-relieving, and fast-response control relieving

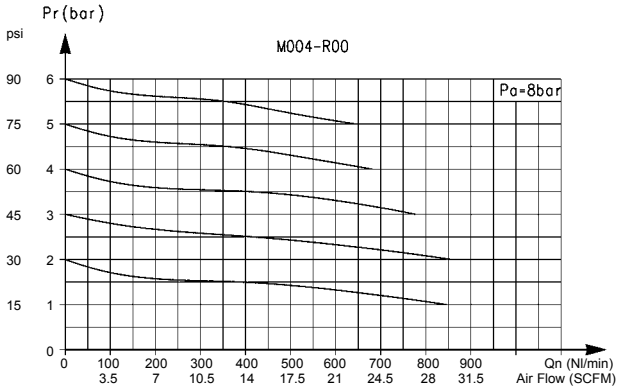
CODING EXAMPLE

M	0	04	-	R	0	0		TF

M	SERIES
0	SIZE
04	PORTS: 08 = 1/8 04 = 1/4
R	REGULATOR
0	OPERATING PRESSURE: 0 = 0.5 — 10 bar (7.25 - 145 psi) 1 = 0 — 4 bar (0 - 58 psi) 2 = 0 — 2 bar (0 - 29 psi) 7 = 0.5 — 7 bar (7.25 - 103 psi)
0	DESIGN TYPE: 0 = self relieving diaphragm 1 = non relieving 5 = fast-response control, (metal-to-metal seat),relieving
	REGULATION TYPE "Blank" = without high relief flow VS = high relief flow, rapid reverse flow
TF	PORT TF = NPTF Blank = BSPP thread ports

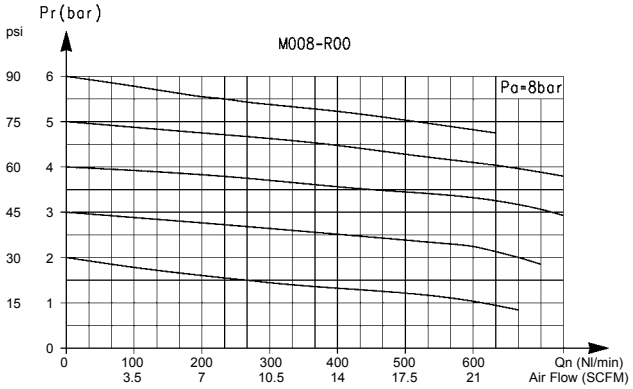
FLOW DIAGRAMS

M004-R00TF - 1/4" Model



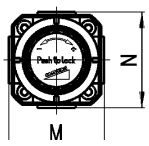
Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow

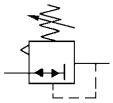
M008-R00TF - 1/8" Model

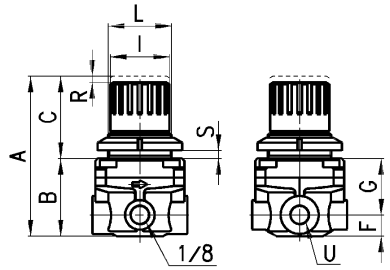


Qn = Flow

Microregulator, Series M







DIMENSIONS (in inches)

Mod.	A	B	C	F	G	I	L	M	N	R	S	U
M008-R00TF	2.992	1.457	1.535	.394	1.063	1.102	30x1.5	1.772	1.772	.118	0 - .236	1/8" NPTF
M004-R00TF	2.992	1.457	1.535	.394	1.063	1.102	30x1.5	1.772	1.772	.118	0 - .236	1/4" NPTF

Pressure Microregulators Series T

Ports 1/8" and 1/4" NPTF

Series T pressure regulators are available with 1/8 and 1/4 brass connections.

A self-relieving piston has been incorporated into the standard design.

Non-relieving versions are also available.

All models are equipped with a valve enabling rapid reverse flow (VS) which is useful when a regulator should be inserted between the valve and cylinder (or volume chamber) without any negative influence on the normal exhaust.

TECHNICAL SPECIFICATIONS

Construction	piston -type regulation, (not diaphragm)
Materials	Nylon Composite Body, Buna-N seals, Nylon knob, internals in brass
Threaded ports	1/8", 1/4" NPTF
Weight	g 95 , 0.2 lbs
Pressure gauge port	1/8" NPTF
Type of mounting	In-line or panel mounting (in any position)
Operating temperature	-5° C - 50° C, (23° F - 122° F), with Dew Point of air at least 2° C (4° F) below the min working temperature

PNEUMATIC DATA

Inlet pressure	0 - 12 bar , 0 - 175 psi
Outlet pressure	0.5 —10 bar (7.25 — 145 psi), optional outlet pressure ranges offered
Nominal flow	See graph
Secondary pressure relieving	Standard = self relieving, non-relieving, and fast-response control relieving

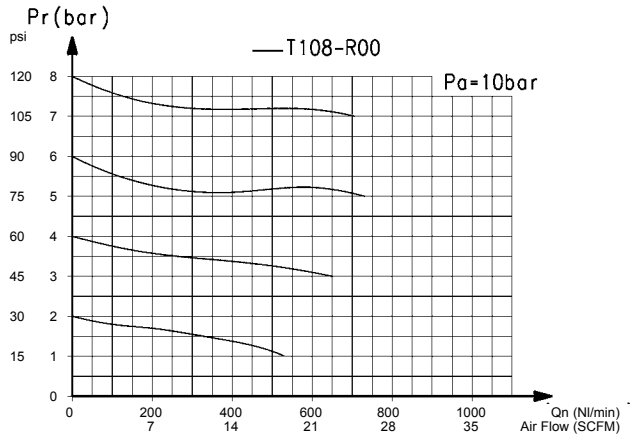
CODING EXAMPLE

T	1	08	-	R	0	0	TF

T	SERIES
1	SIZE
08	PORTS: 08 = 1/8 04 = 1/4
R	REGULATOR
0	OPERATING PRESSURE: 0 = 0,5 - 10 (7.25 - 145 psi) 1 = 0 - 4 (0 - 58 psi) 2 = 0 - 2 (0 - 29 psi) 7 = 0 - 7 (0 - 103 psi)
0	DESIGN TYPE: 0 = self-relieving 1 = non relieving
TF	PORT TF = NPTF Blank = BSPP thread ports

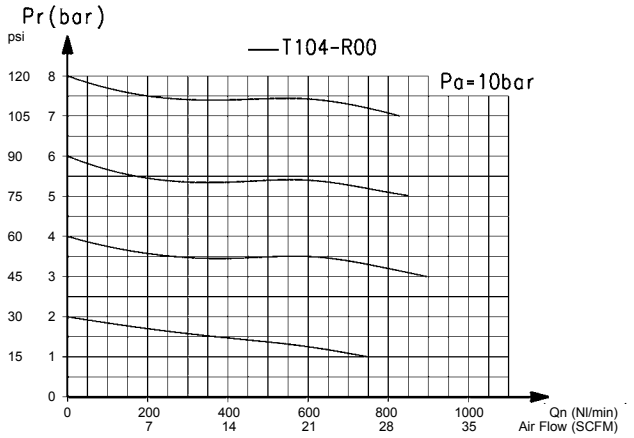
FLOW DIAGRAMS

T108-R00TF



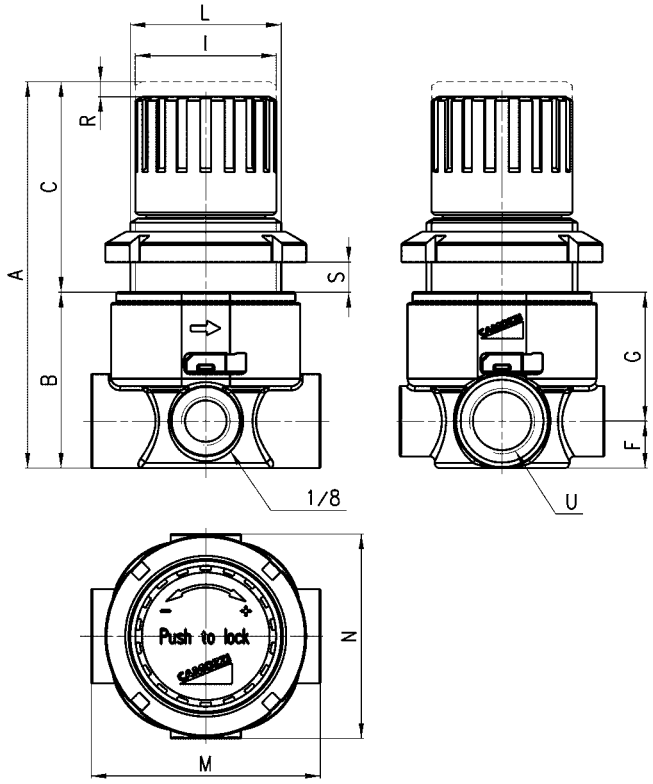
Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow

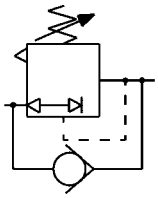
T104-R00TF



Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow

Pressure microregulator Series T





DIMENSIONS (in inches)

Mod.	A	B	C	F	G	I	L	M	N	R	S	U (NPTF)
T108-R00TF	3.032	1.378	1.654	0.375	1.00	1.102	M30X1,5	1.811	1.614	0.118	0.276	1/8
T104-R00TF	3.032	1.378	1.654	0.375	1.00	1.102	M30X1,5	1.811	1.614	0.118	0.276	1/4

Adjustable Pressure Relief Valve Series VMR

New model

Valve with adjustable exhaust Mod. VMR

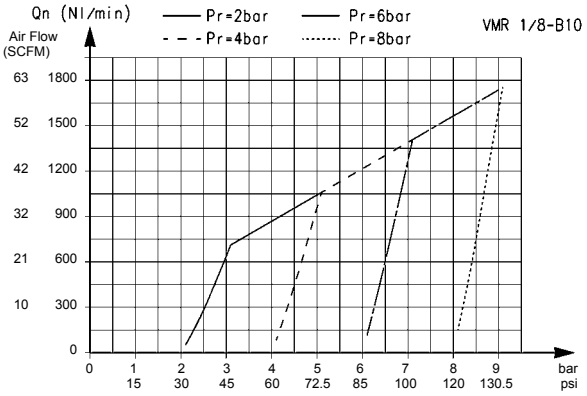
» Mod. VMR: maintains system pressure at a constant set point. In case of system, tank or line over-pressure state, will rapidly exhaust to atmosphere until set point is reached thereby closing off exhaust flow from the VMR relief valve

The adjustable valves Mod. VMR 1/8-B10 allow to maintain tank/capacity at a constant pressure value and thus enable a quick exhaust to atmosphere in case of an internal overpressure.

GENERAL DATA

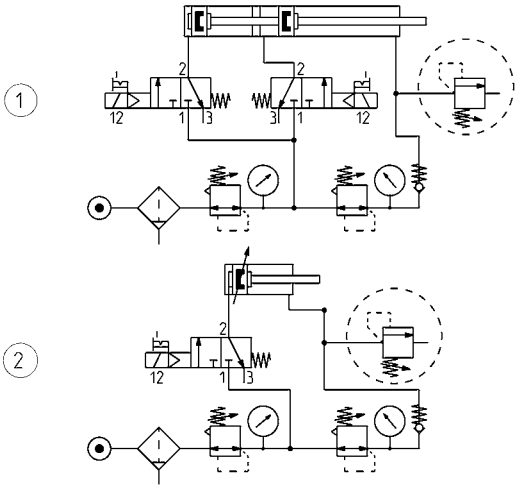
Valve group	automatic valves
Construction	Mod. VMR: diaphragm type
Materials	Mod. VMR: brass body - zinc-plated steel spring - NBR seals
Mounting	in any position
Ports	1/8” G (BSPP) , NPTF available upon special order
Operating temperature	Mod. VMR: -5°C - 50°C (23 deg F - 122 deg F), with Dew Point of air at least 2° C (4° F) below the min working temperature
Fluid	filtered air, without lubrication. If lubricated air is used, it is recommended to use ISO VG32 oil. Once applied the lubrication should never be interrupted.

VALVE Mod. VMR 1/8-B10 - FLOW DIAGRAM and FUNCTIONING SCHEMES



FLOW DIAGRAM

Pa = Inlet pressure (i.e line pressure from cylinder or tank)
Pr = Regulated pressure (i.e. set point for desired exhaust limit)
Qn = Flow (i.e. exhaust that develops as system line pressure exceeds set point maximum desired)

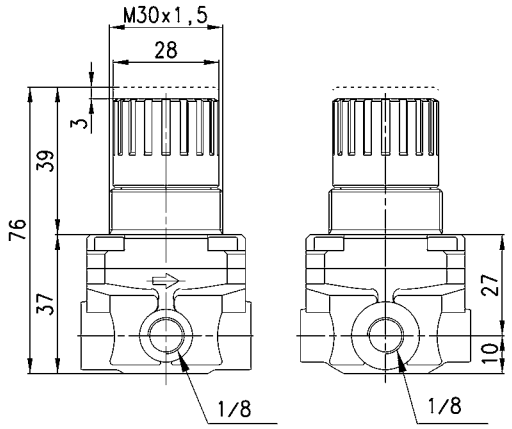


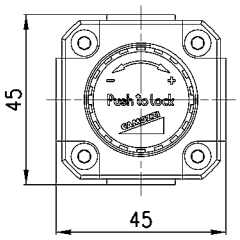
FUNCTIONING SCHEME 1: overpressure exhaust in a cylinder chamber or in a tank when the set value has been exceeded.

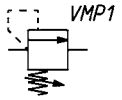
FUNCTIONING SCHEME 2: VMR valve with maximum adjustable pressure allows pressure in a cylinder chamber or in tank to exhaust in the atmosphere every time the set regulation value is exceeded.

Valve with maximum adjustable pressure Mod. VMR 1/8-B10

Working pressure: 1 bar - 8 bar







Mod.
VMR 1/8-B10

Filter and Coalescing Filter Series N

Ports 1/8", 1/4" NPTF
with threaded transparent bowl (Nylon - Grilamid)

The Series N filter is available with 1/8" and 1/4" NPTF ports.

The bowl, which is transparent (Grilamid), makes monitoring of the condensate levels very easy and is equipped with manual and semiautomatic drain (plus 3 new drain options).

The models are available with 3 different filtering elements: 25µm, 5µm and 0.01µm coalescing.

TECHNICAL SPECIFICATIONS

Construction	HDPE filtering element
Materials	Nickel-Plated brass body, Buna-N seals, Grilamid bowl, brass internals, filtering element in HDPE
Threaded ports	1/8", 1/4" NPTF
Max. condensate capacity cm3	Size 1 = .4 oz Size 2 = 1 oz
Weight	Kg 0.220 = .5 lbs
Type of mounting	Vertical, in-line
Operating temperature	-5°C - 50°C, (23°F - 122°F), with Dew Point of air at least 2°C (4°F) below the min working temperature
Porosity of filtering element	25 µm, standard; 5 µm and 0.01µm available
Draining of condensate	Standard semiautomatic/manual; see code key for options

PNEUMATIC DATA

Operating pressure	0.3 — 16 bar (4.35 psi - 232 psi) (Maximum pressure 10 bar/145 psi with depressurization drains)
Nominal flow	See chart

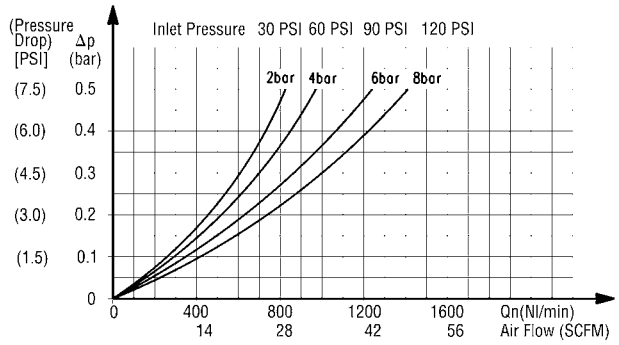
CODING EXAMPLE

N	2	04	-	F	0	0	TF

N	SERIES
2	SIZE 1 = small bowl 2 = normal bowl
04	PORTS: 08 = 1/8" 04 = 1/4"
F	FILTER
0	FILTERING ELEMENT 0 = 25µm 1 = 5µm B = 0.01µm, coalescing type
0	DRAINING OF CONDENSATE: 0 = manual - semiautomatic 4 = depressurization ("spitter type") - only normal bowl (Size 2) 5 = depressurization, filtered drain orifice - only normal bowl (Size 2) 8 = port 1/8" female (free flow) Condensate drains (see Accessories section at back of catalog)
TF	PORT TF = NPTF Blank = BSPP thread ports

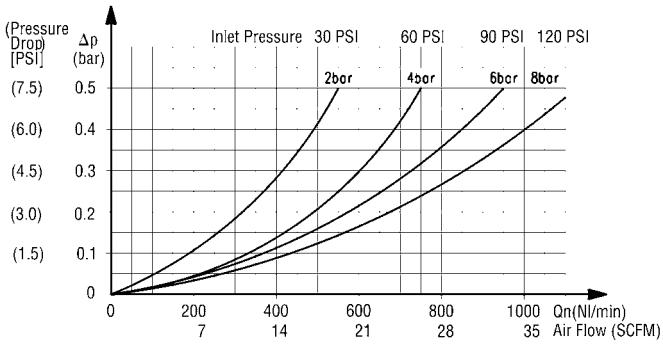
FLOW DIAGRAMS

N204-F00TF



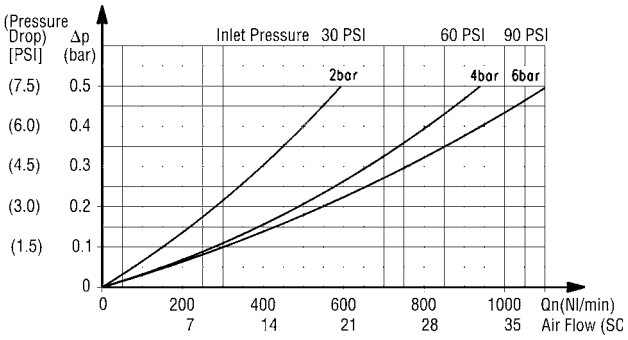
Pa = Inlet pressure
ΔP = Pressure Drop
Qn = Flow

N204-F10TF



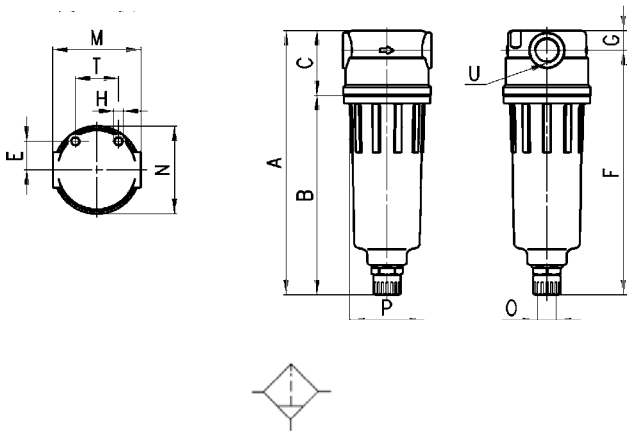
Pa = Inlet pressure
ΔP = Pressure Drop
Qn = Flow

N204-FB0TF



Pa = Inlet pressure
ΔP = Pressure Drop
Qn = Flow

Filters Series N



DIMENSIONS (in inches)

Mod.	A	B	C	E	F	G	H	M	N	O	P	T	U (NPTF)
N108-F00TF	4.37	3.07	1.299	.570	3.976	.394	M5	1.772	1.751	1/8"	1.496	.866	1/8"
N104-F00TF	4.37	3.07	1.299	.570	3.976	.394	M5	1.772	1.751	1/8"	1.496	.866	1/4"
N208-F00TF	5.315	4.016	1.299	.570	4.921	.394	M5	1.772	1.751	1/8"	1.496	.866	1/8"
N204-F00TF	5.315	4.016	1.299	.570	4.921	.394	M5	1.772	1.751	1/8"	1.496	.866	1/4"

Pressure Regulator Series N

Ports 1/8", 1/4" NPTF
Nipple type

The Series N pressure regulator is available with 1/4" and 1/8" NPTF ports.

Its design incorporates a self relieving diaphragm so as to allow incremental adjustments.

This compact regulator may be mounted directly on pipes or onto a console.

TECHNICAL SPECIFICATIONS

Construction	Diaphragm type - nipple type
Materials	Nickel-Plated brass, brass body, Buna-N seals, Nylon knob, internals in brass
Threaded ports	1/8", 1/4" NPTF
Weight	Kg 0.316 = .7 lbs
Pressure gauge port	1/8" NPTF
Type of mounting	In-line or console (in any position)
Operating temperature	-5° C - 50° C, (23° F - 122° F), with Dew Point of air at least 2° C (4° F) below the min working temperature

PNEUMATIC DATA

Inlet pressure	0 — 16 bar (0 — 232 psi)
Outlet pressure	0.5 — 10 bar (7.25 — 145 psi), Optional outlet ranges offered
Nominal flow	See graph
Secondary pressure relieving	Standard

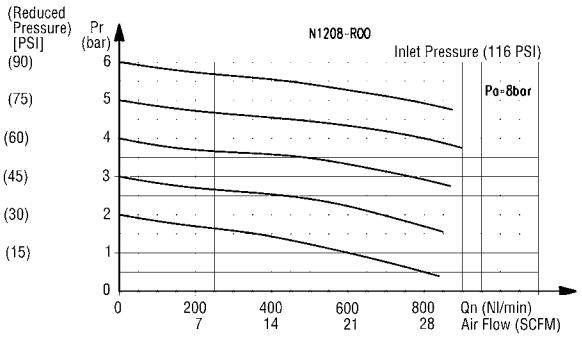
CODING EXAMPLE

N	2	04	-	R	0	0	TF

N	SERIES
2	SIZE 1 = small bowl 2 = normal bowl
04	PORTS: 08 = 1/8" 04 = 1/4"
R	REGULATOR
0	OPERATING PRESSURE 0 = 0.5 — 10 bar (7.25 - 145 psi) 1 = 0 — 4 bar (0 - 58 psi) 2 = 0 — 2 bar (0 - 29 psi) 7 = 0.5 — 7 bar (7.25 - 103 psi)
0	DESIGN TYPE 0 = self-relieving diaphragm 1 = non-relieving, diaphragm
TF	PORT TF = NPTF Blank = BSPP thread ports

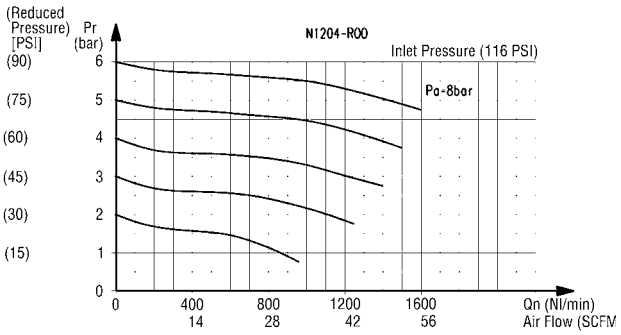
FLOW DIAGRAMS

N208-R00TF, 1/8" Model



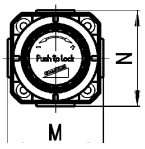
Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow

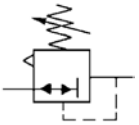
N 204-R00TF, 1/4" Model

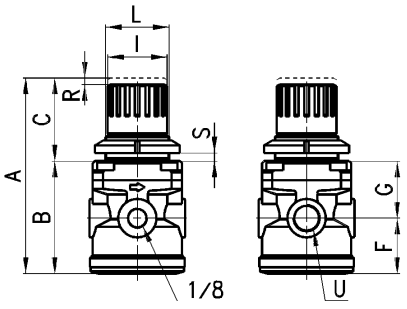


Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow

Pressure regulator, Series N







DIMENSIONS (in inches)

Mod.	A	B	C	F	G	I	L	M	N	R	S	U
N208-R00TF	3.622	2.086	1.535	1.023	1.063	1.102	M30x1.5	1.772	1.772	.118	0 - .236	1/8" NPTF
N204-R00TF	3.622	2.086	1.535	1.023	1.063	1.102	M30x1.5	1.772	1.772	.118	0 - .236	1/4" NPTF

Lubricator Series N

Ports 1/8", 1/4" NPTF, (Nylon - Grilamid) with threaded transparent bowl Nipple type

The Series "N" lubricator is available with 1/4" and 1/8" NPTF ports.

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

The body of the lubricator is made of Nickel-Plated brass, while the bowl is transparent, (Nylon - Grilamid).

TECHNICAL SPECIFICATIONS

Construction	Venturi Design
Materials	Nickel-Plated brass, body Buna-N seals, Nylon - Grilamid bowl, internals in brass
Threaded ports	1/8", 1/4" NPTF
Weight	Kg 0.288 = .63 lbs
Oil capacity cm3	26 cm3 = size 1 (.9 oz) 37 cm3 = size 2 (1.28 oz)
Type of mounting	Vertical, in-line
Operating temperature	-5° C - 50° C, (23° F - 122° F), with Dew Point of air at least 2° C (4° F) below the min working temperature
Oil refilling	Without pressure required, can be filled via bowl or cap screw in head
Oil for lubrication	from 3° - 10° E (ask our engineers for types) (approx. 32 centistrokes)
Oil consumption	recommendation 1 - 5 drops every 1000 Nl of air consumed (35 SCFM) (10 drops = 1cm3)
Droplet size	approx. 2µm

PNEUMATIC DATA

Operating pressure	0 — 16 bar (0 - 232 psi)
Nominal flow	See graph
Minimum air consumption for lubrication	At 1 bar = 7.5 Nl/min (14.5 psi = .26 SCFM) At 6 bar = 11 Nl/min (87 psi = .38 SCFM)

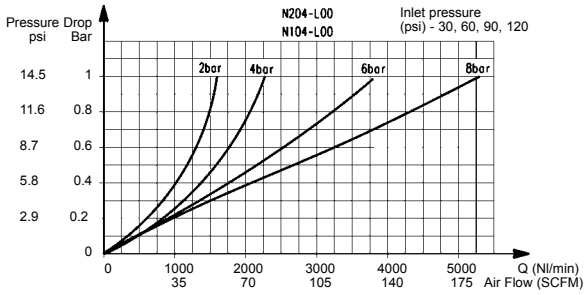
CODING EXAMPLE

N	2	04	-	L	00	TF

N	SERIES
2	SIZE 1 = small bowl 2 = normal bowl
04	PORTS: 08 = 1/8" 04 = 1/4"
L	LUBRICATOR
00	DESIGN TYPE 00 = atomized oil, approx. 2 microns
TF	PORT TF = NPTF Blank = BSPP thread ports

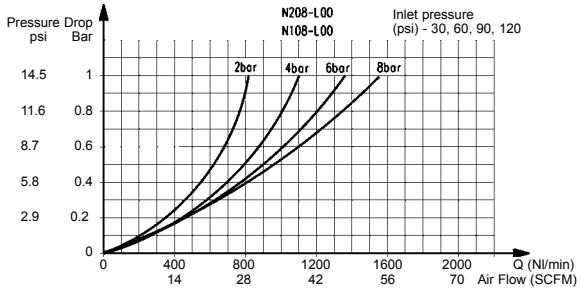
FLOW DIAGRAMS

N204-L00TF - 1/4" Model



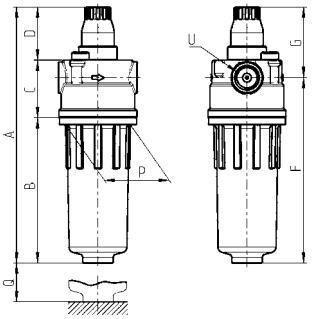
Pa = Inlet pressure
ΔP = Pressure Drop
Qn = Flow

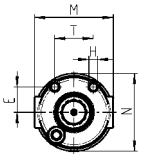
N208-L00TF - 1/8" Model



Pa = Inlet pressure
ΔP = Pressure Drop
Qn = Flow

Lubricator, Series N





DIMENSIONS (in inches)

Mod.	A	B	C	D	E	F	G	H	M	N	O	P	Q	T	U (NPTF)
N108-L00TF	4.82	2.32	1.29	1.20	.57	2.97	1.57	M5	1.77	1.77	1.75	1.49	1.83	.86	1/8"
N104-L00TF	4.82	2.32	1.29	1.20	.57	2.97	1.57	M5	1.77	1.77	1.75	1.49	1.83	.86	1/4"
N208-L00TF	5.76	3.26	1.29	1.20	.57	4.17	1.57	M5	1.77	1.77	1.75	1.49	1.83	.86	1/8"
N204-L00TF	5.76	3.26	1.29	1.20	.57	4.17	1.57	M5	1.77	1.77	1.75	1.49	1.83	.86	1/4"

Filter/Regulator Series N

Ports 1/8", 1/4" NPTF
with threaded transparent bowl, (Nylon - Grilamid)

The Series N filter/regulator is available with 1/4", 1/8" NPTF ports.

The regulator's design incorporates a self relieving diaphragm.

The filter bowl which is transparent allows easy monitoring of the condensate levels.

There are four (4) total drain options available standard.

TECHNICAL SPECIFICATIONS

Construction	HDPE filtering element
Materials	Nickel-Plated brass, body, Buna-N seals, Nylon - Grilamid bowl, internals in brass, filter element in HDPE
Threaded ports	1/8", 1/4" NPTF
Weight	0.370 Kg = .8 lbs
Max. condensate capacity	28 cm3 = 1 oz (size 2 bowl); or 11 cm3 = 0.4 oz (size 1)
Pressure gauge port	1/8" NPTF
Type of mounting	Vertical, in-line
Operating temperature	-5° C - 50° C, (23° F - 122° F), with Dew Point of air at least 2° C (4° F) below the min working temperature
Porosity of filtering element	25 µm; 5 µm, available options
Draining of condensate	Standard semiautomatic, manual - see Code Key for optional drain styles

PNEUMATIC DATA

Inlet pressure	0 — 16 bar (0 — 232 psi)
Outlet pressure	0.5 — 10 bar (7.25 — 145 psi), optional pressure outlet ranges available
Nominal flow	See graph
Secondary pressure relieving	Standard relieving and non-relieving available

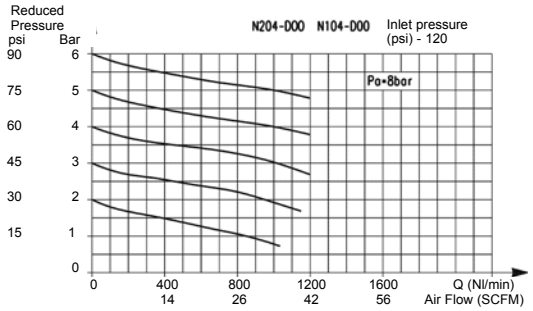
CODING EXAMPLE

N	2	04	-	D	0	0	-		TF

N	SERIES
2	SIZE 1 = small bowl 2 = normal bowl
04	PORTS: 08 = 1/8" 04 = 1/4"
D	FILTER-REGULATOR
0	FILTER DESIGN 0 = 25 µm HDPE element 1 = 5 µm HDPE element Condensate drains (see Accessories section at back of catalog)
0	DESIGN TYPE / DRAINS TYPE 0= self-relieving, Manual/Semi-Automatic 1 = non-relieving, Manual/Semi-Automatic 4 = depressurization, self-relieving - “spitter type” (Sz bowl 2 ONLY) 5 = depressurization, protected with relieving, “spitter-type w/ filtered drain orifice” (Sz 2 bowl ONLY) 8 = port 1/8 female thread, self-relieving
	OPERATING PRESSURE (bar) Blank = 0.5 - 10 (7.25 - 145 psi) 4 = 0 - 4 (0 - 58 psi) 2 = 0 - 2 (only 1/4") (0 - 29 psi) 7 = 0.5 - 7 (only 1/4”) (7.25 - 103 psi)
TF	PORT TF = NPTF Blank = BSPP thread ports

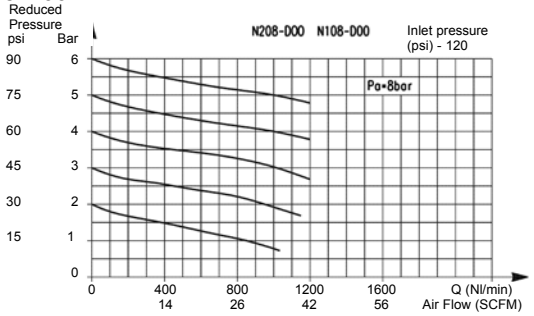
FLOW DIAGRAMS

N204-D00TF



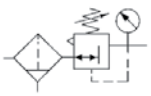
Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow

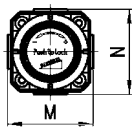
N208-D00TF

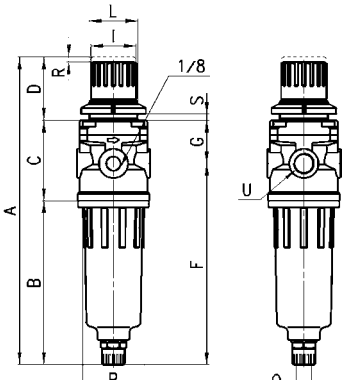


Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow

Filter/regulator, Series N







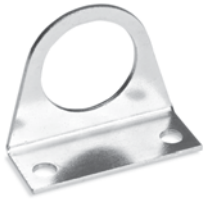
DIMENSIONS (IN INCHES)

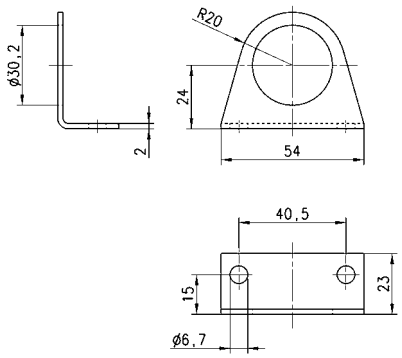
Mod.	A	B	C	D	F	G	I	L	M	N	GAUGE PORT O	P	R	S	OUTLET PORT U
N108-D00TF	6.574	3.070	1.968	1.535	3.976	1.063	1.102	M30x1.5	1.772	1.772	1/8" NPTF	1.496	.118	0 - .236	1/8" NPTF
N104-D00TF	6.574	3.070	1.968	1.535	3.976	1.063	1.102	M30x1.5	1.772	1.772	1/8" NPTF	1.496	.118	0 - .236	1/4" NPTF
N208-D00TF	7.519	4.016	1.968	1.535	4.921	1.063	1.102	M30x1.5	1.772	1.772	1/8" NPTF	1.496	.118	0 - .236	1/8" NPTF
N204-D00TF	7.519	4.016	1.968	1.535	4.921	1.063	1.102	M30x1.5	1.772	1.772	1/8" NPTF	1.496	.118	0 - .236	1/4" NPTF

Accessories for Series N and M

Mounting bracket, Series MC-M-N-T

Mounting bracket for Regulators and Filter-Regulators (1/8 & 1/4) - zinc-plated steel bracket

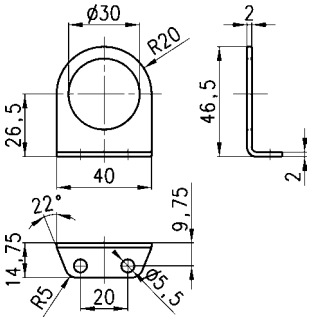




Mod.
C114-ST

Mounting bracket, Series MC-M-N-T

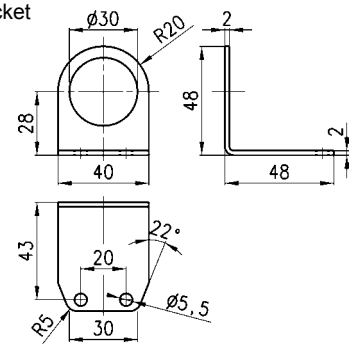
Mounting bracket for Regulators and Filter-Regulators (1/8 & 1/4) - zinc-plated steel bracket



Mod. (dimensions in mm)
C114-ST/1

Mounting bracket Series MC-M-N-T

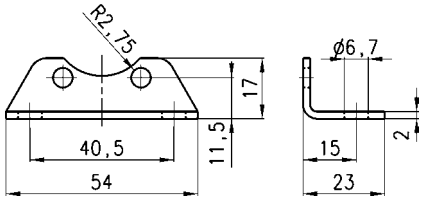
Mounting bracket for Regulators and Filter-Regulators, (1/8 & 1/4) - zinc-plated steel bracket



Mod. (dimensions in mm)
C114-ST/2

Mounting bracket Series Series N

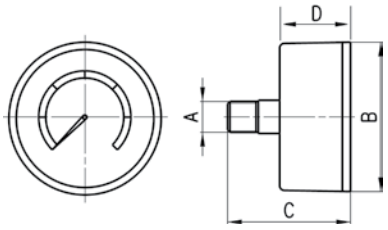
Mounting bracket
(for N204 Filters and Lubricators)
(complete with 2 screws M5x6 and bracket, zinc-plated steel).



Mod. (dimensions in mm)
N204-ST

Pressure gauges
Mod. M043-P04TF (0 - 60 psi)

Nominal face size 1 1/2”

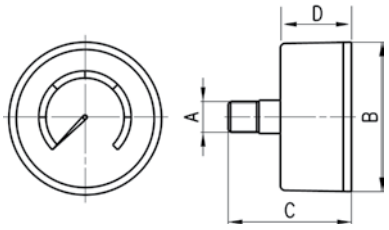


DIMENSIONS (in inches)

Mod.	A	B	C	D
M043-P04TF	1/8" NPTF	1.655	1.600	0.950

Pressure gauges
Mod. M043-P10TF (0 - 160 psi)

Nominal face size 1 1/2”



DIMENSIONS (in inches)

Mod.	A	B	C	D
M043-P10TF	1/8" NPTF	1.655	1.600	0.950

2 Modular FRL Series MC 1/4”, 3/8”, & 1/2” NPTF

Summary and Features

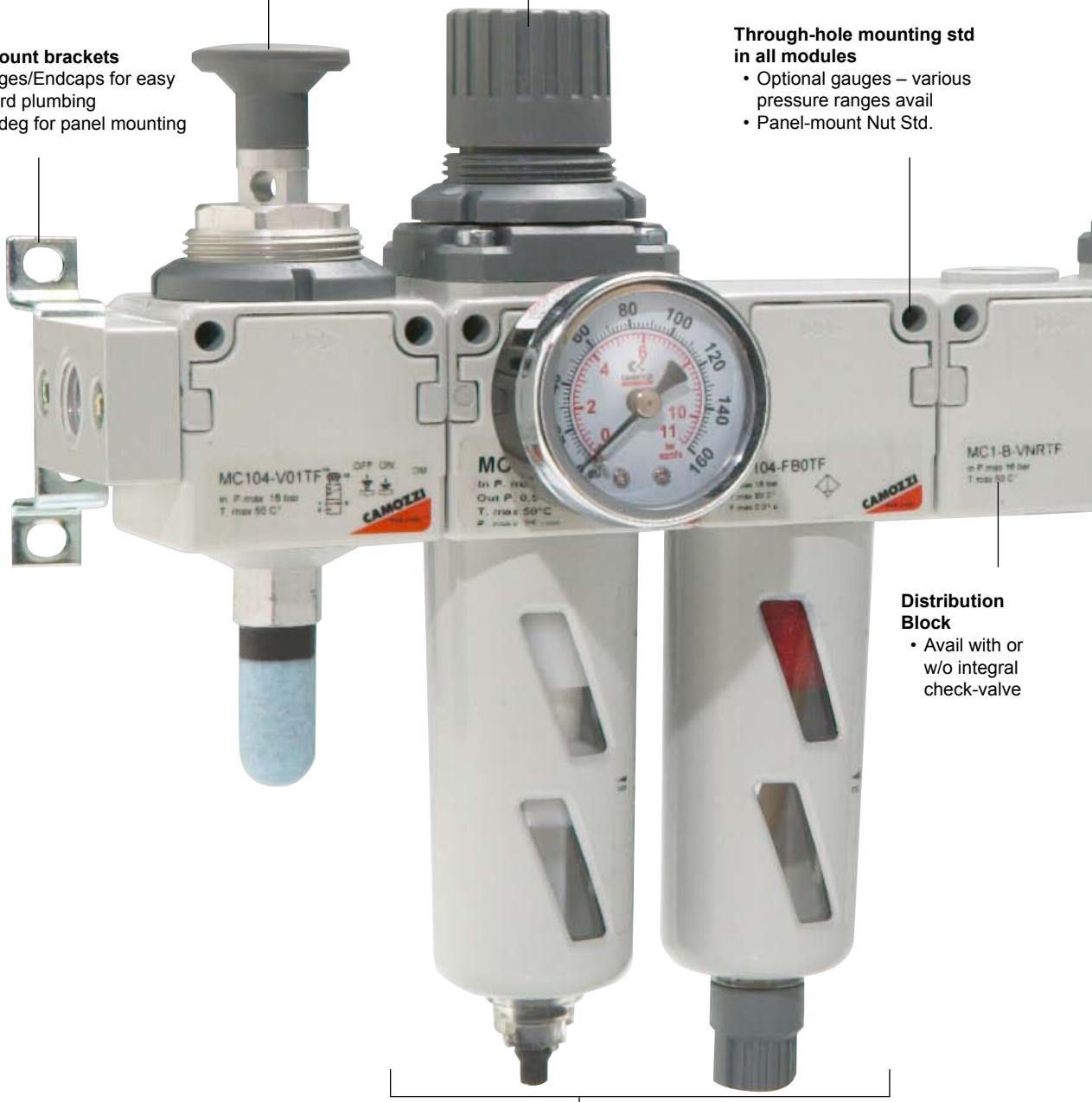
Series MC Modular FRL 1/4", 3/8", 1/2" NPTF

Regulator
- Four Pressure range options
- Relieving, Non-Relieving & High Response diaphragm options
- Factory Pressure presets avail.
- Tamper-proof avail.
- Locking, Non-rising knob std.
- Parallel-Circuit, Manifold Regulators – Full pressure & flow
- Front & Rear gauge ports

Manual Shut-Off Valve w/ Lock-Out, Tag-Out
- Downstream quick-dump feature
- 8mm (0.315") diam hole for most locks and hasps in use

Optional Wallmount brackets
- Optional Flanges/Endcaps for easy removal of hard plumbing
- Rotatable 90 deg for panel mounting assy.

Through-hole mounting std in all modules
- Optional gauges – various pressure ranges avail
- Panel-mount Nut Std.



Distribution Block
- Avail with or w/o integral check-valve

Filter
- Coalescing, 5 & 25 micron elements avail.
- Quick-Release bayonet bowls
- Grilamid (Nylon Composite) bowl w/ metal bowl shroud std.
- Five Drain Options available
- Available in 'Piggy-back" Filter-Regulator combos

Lubricator
- Venturi Design w/ 2 micron drop size, Refillable under pressure in 3/8" & 1/2" sizes
- Flow adjustment built into droplet indicator
- Quick-release bayonet bowl
- Grilamid (Nylon Composite) bowl material w/ metal shroud std.

Soft-Start Valve
- Fully adjustable pressure ramp-up during start-up
- Port tap for electronic pressure switch (PM11)
- For assembly with or w/o Isolation Valve
- Poppet valve design

Isolation Valve (Shut-Off Valve)
- Solenoid or Air-Pilot activated
- Downstream quick-dump feature
- Spool valve design

Standard Features
- Inlet Pressure 0.3 – 16 bar (4.25 – 232 psi)
- Operating Temp -5°C - 50°C, (23°F - 122°F), with Dew Point of air at least 2°C (4°F) below the min working temperature
- Custom Assemblies available from McKinney, TX
- Low Temp versions available
- Aluminum construction with Polyester Epoxy / Polyurethane Enamel finish
- Modular Design with Tie-Rod Assembly system
- Single Part Number system for standard Pre-Assemblies from McKinney, TX.
- Optional accessories shown include, gauges, silencers, solenoid coil operators, and pressure switches.

Filters Series MC

Port 1/4", 3/8", 1/2" NPTF
Modular with metal bowl guard and bayonet-type mounting

The Series MC filters are available with port 1/4", 3/8" or 1/2" NPTF.

The bowls of these filters are made of Nylon - Grilamid with an aluminum bowl guard and have a condensate drain valve in five (5) different options.

On request it is possible to order filters with filtering elements in different filtration ranges than those listed standard in the code key.

TECHNICAL SPECIFICATIONS

Construction	compact modular with filtering element in HDPE			
Materials	Body - Aluminum alloy, Bowl - Grilamid TR 55 (Nylon compound), Seals - Buna-N, internals in brass			
Port	NPTF	1/4"	3/8"	1/2"
Max condensate capacity	oz	1	2.43	2.43
Weight	lbs	.75	1.58	1.52
Mounting	vertical in-line or wall-mounting			
Operating temperature	-5° C - 50° C, (23° F - 122° F), with Dew Point of air at least 2° C (4° F) below the min working temperature			
Porosity of filtering element	25 µm & 5 µm upon request			
Draining of condensate	manual - semi automatic standard, other options available in code key			
Finishing	Chromate treatment undercoat; Bodies - polyurethane enamel & oven-cured; Bowls - electrostatic coating of polyester epoxy & oven cured			

PNEUMATIC DATA

Operating pressure	0.3 - 16 bar, (with depressurizing drain P Max. of 10 bar) : 4.25 - 232 psi, (P Max 145 psi w/ depressurizing drain) - 1.5 - 1.5 -12 bar for Full Automatic float drain, (22 - 175 psi), 3/8" & 1/2" models only
Nominal flow	see graph

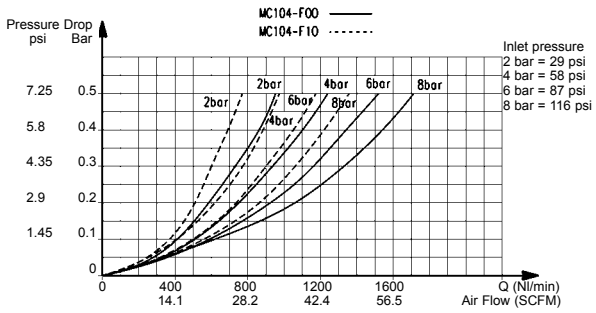
CODING EXAMPLE

MC	1	04	-	F	0	0	TF

MC	SERIES
1	SIZE 1 = 1/4" 2 = 3/8" or 1/2"
04	PORTS: 04 = 1/4" NPTF 38 = 3/8" NPTF 02 = 1/2" NPTF
F	FILTER
0	FILTERING ELEMENT 0 = 25µm 1 = 5µm
0	DRAINING OF CONDENSATE 0 = normal - semiautomatic 3 = Fully automatic, Float-Drain, 3/8" & 1/2" 4 = depressurization, "Spitter-Type", 1/4" ONLY 5 = depressurization, protected, "Spitter-Type" w/ filtered drain orifice 8 = port 1/8" female, free-flow
TF	PORT TF = NPTF Blank = BSPP thread ports

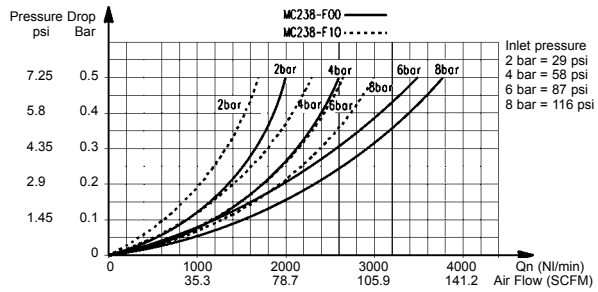
FLOW DIAGRAMS

MC104-F00TF and MC104-F10TF - 1/4" Models



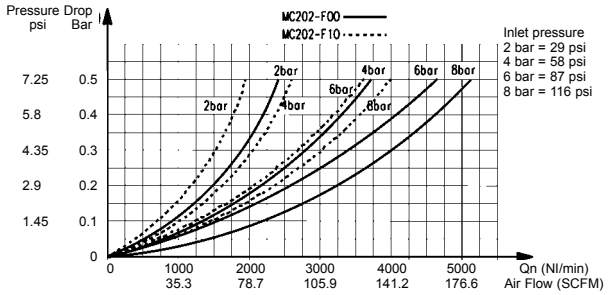
Pa = Inlet pressure
ΔP = Pressure Drop
Qn = Flow

MC238-F00TF and MC238-F10TF - 3/8" Models



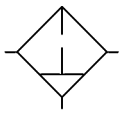
Pa = Inlet pressure
ΔP = Pressure Drop
Qn = Flow

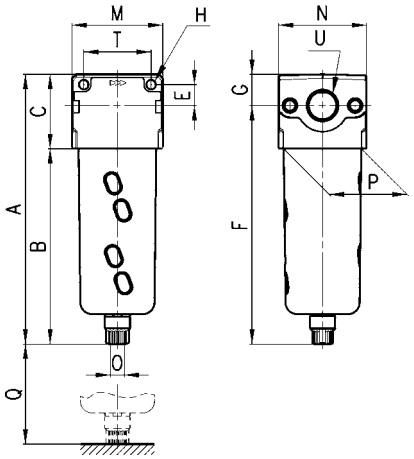
MC202-F00TF and MC202-F10TF - 1/2" Models



Pa = Inlet pressure
ΔP = Pressure Drop
Qn = Flow

Filters Series MC





DIMENSIONS (in inches)

Mod.	A	B	C	E	F	G	H	M	N	DRAIN NPTF O	P	Q	T	NPTF PORTS U
MC104-F00TF	5.630	4.016	1.614	.433	4.980	.650	.177	1.772	1.772	1/8	1.457	2.23	1.378	1/4
MC238-F00TF	7.244	5.236	2.008	.551	6.417	.827	.217	2.441	2.362	1/8	2.087	2.835	1.811	3/8
MC202-F00TF	7.244	5.236	2.008	.551	6.417	.827	.217	2.441	2.362	1/8	2.087	2.835	1.811	1/2

Coalescing Filters Series MC

Port 1/4", 3/8" & 1/2" NPTF
Modular with metal bowl guard and bayonet-type mounting

The Series MC coalescing filters are available with 1/4", 3/8", 1/2" NPTF port.

The bowls of these filters are made of Nylon-Grilamid with an aluminum bowl guard and have a condensate drain valve in five (5) different options.

TECHNICAL SPECIFICATIONS

Construction	modular, coalescing elements			
materials	Body - Aluminum alloy, Bowl - Grilamid TR 55 (Nylon compound), Seals - Buna-N, internals in brass			
Port	NPTF:	1/4"	3/8"	1/2"
Max. condensate capacity	oz	.95	2.64	2.64
Weight	lbs	.75	1.52	1.52
Mounting	vertical in line or wall-mounting			
Operating temperature	-5° C - 50° C, (23° F - 122° F), with Dew Point of air at least 2° C (4° F) below the min working temperature			
porosity of filtering element	0,01µm, standard (other options available on request)			
Draining of condensate	manual - semi-automatic standard, (other options available in code Key)			
finish	Chromate treatment undercoat; Bodies - polyurethane enamel & oven-cured; Bowls - electrostatic coating of polyester epoxy & oven cured			

PNEUMATIC DATA

Operating pressure	0.3 - 16 bar, (with depressurizing drain P Max. of 10 bar) : 4.35 - 232 psi, (P Max 145 psi w/ depressurizing drain) - 1.5 - 12 bar for Full Automatic float drain, (22 - 175 psi), 3/8" & 1/2" models only
Nominal flow	see graph

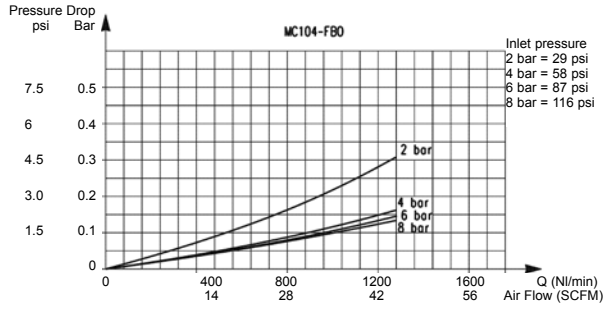
CODING EXAMPLE

MC	1	04	-	F	B	0	TF

MC	SERIES
1	SIZE 1 = 1/4" 2 = 3/8" or 1/2"
04	PORTS: 04 = 1/4" NPTF 38 = 3/8" NPTF 02 = 1/2" NPTF
F	FILTER
B	FILTERING ELEMENT B = 0,01 µm coalescing
0	DRAINING OF CONDENSATE 0 = normal - semiautomatic 3 = Fully automatic, Float-Drain, 3/8" & 1/2" 4 = depressurization, "Spitter-Type", 1/4" ONLY 5 = depressurization, protected, "Spitter-Type" w/ filtered drain orifice 8 = port 1/8" female, free-flow
TF	PORT TF = NPTF Blank = BSPP thread ports

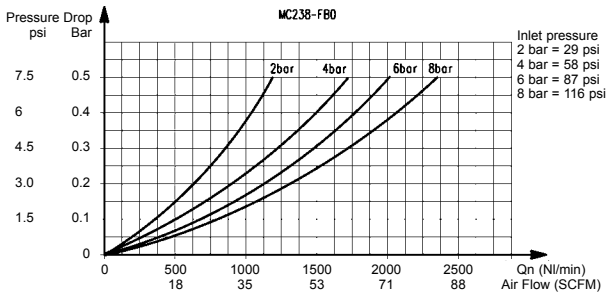
FLOW DIAGRAMS

MC104-FB0TF - 1/4" Models



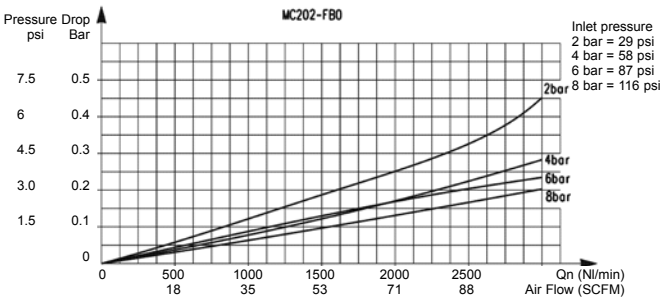
Pa = Inlet pressure
ΔP = Pressure Drop
Qn = Flow

MC238-FB0TF - 3/8" Models



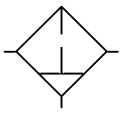
Pa = Inlet pressure
ΔP = Pressure Drop
Qn = Flow

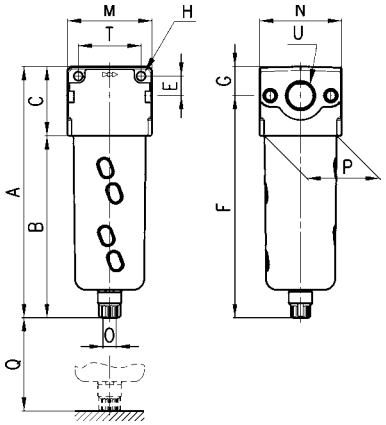
MC202-FB0TF - 1/2" Models



Pa = Inlet pressure
ΔP = Pressure Drop
Qn = Flow

Coalescing filters Series MC





DIMENSIONS (in inches)

Mod.	A	B	C	E	F	G	H	M	N	DRAIN PORT NPTF O	P	Q	T	PORTS U (NPTF)
MC104-FB0TF	5.630	4.016	1.614	.433	4.980	.650	.177	1.772	1.772	1/8	1.457	2.126	1.378	1/4"
MC238-FB0TF	7.244	5.236	2.008	.551	6.417	.827	.217	2.441	2.362	1/8	2.087	2.874	1.811	3/8"
MC202-FB0TF	7.244	5.236	2.008	.551	6.417	.827	.217	2.441	2.362	1/8	2.087	2.874	1.811	1/2"

Pressure Regulators Series MC

Port 1/4", 3/8", 1/2" NPTF
Modular

The Series MC pressure regulators are available with port 1/4", 3/8", 1/2" NPTF.

Relieving diaphragms are standard.
Non-Relieving and Fast-Response Relieving diaphragms are optional, as called out in the code key.

All versions can be panel mounted.

TECHNICAL SPECIFICATIONS

Construction	modular, compact, diaphragm type			
Materials	Aluminum Body, Buna-N Seals,Nylon-Grilamid Knob, Brass internals			
Port	NPTF	1/4"	3/8"	1/2"
Weight	lbs	.71	1.42	1.42
Pressure gauge port	1/8" NPTF			
Mounting	in-line wall or console mounting (in any position)			
Operating temperature	-5° C - 50° C, (23° F - 122° F), with Dew Point of air at least 2° C (4° F) below the min working temperature			
Finishing	Chromate treatment undercoat; Bodies - polyurethane enamel & oven-cured; Bowls - electrostatic coating of polyester epoxy & oven cured			

PNEUMATIC DATA

Inlet pressure	0 — 16 bar (0 - 232 psi)
Outlet pressure	0.5 — 10 bar or 0 — 4 bar (7.25 - 145 psi or 0 - 58 psi)
Nominal flow	see graph
Secondary pressure relieving	standard, Non-Relieving and Sensitive Control Relieving available

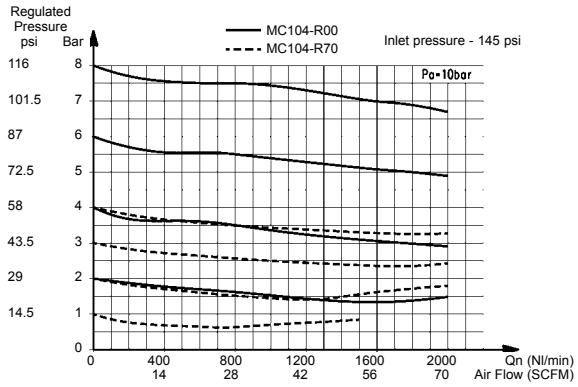
CODING EXAMPLE

MC	1	04	-	R	0	0	VS	TF

MC	SERIES
1	SIZE 1 = 1/4" 2 = 3/8" or 1/2"
04	PORTS: 04 = 1/4" NPTF 38 = 3/8" NPTF 02 = 1/2" NPTF
R	REGULATOR
0	OPERATING PRESSURE 0 = 0.5 - 10 bar (standard) (7.25 - 145 psi) 1 = 0 - 4 bar (0 - 58 psi) 2 = 0 - 2 bar (0 - 29 psi), 1/4" ONLY 7 = 0.5 - 7 bar (7.25 - 102 psi), 1/4" ONLY
0	DESIGN TYPE 0 = self-relieving 1 = non-relieving 5 = fast-response control, (metal-to-metal seat), relieving - 1/4" ONLY
VS	Blank = without high-relief flow VS = with high-relief flow, rapid reverse flow (1/4" units only)
TF	PORT TF = NPTF Blank = BSPP thread ports

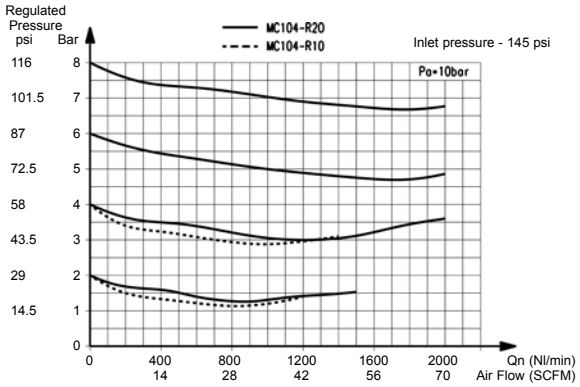
FLOW DIAGRAMS

MC104-R00TF and MC104-R70TF



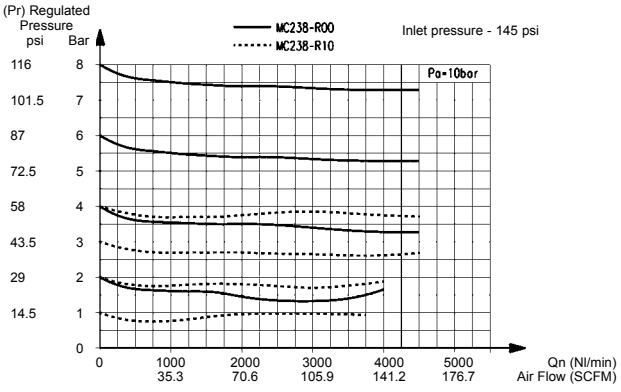
Pa = Inlet pressure Pr = Regulated pressure Qn = Flow

MC104-R20TF and MC104-R10TF



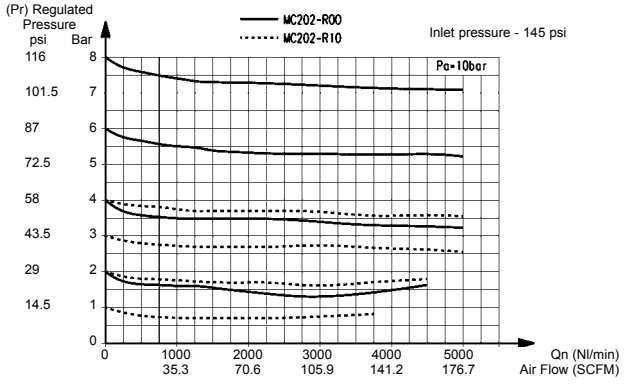
Pa = Inlet pressure Pr = Regulated pressure Qn = Flow

MC238-R00TF and MC238-R10TF



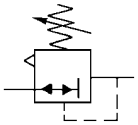
Pa = Inlet pressure Pr = Regulated pressure Qn = Flow

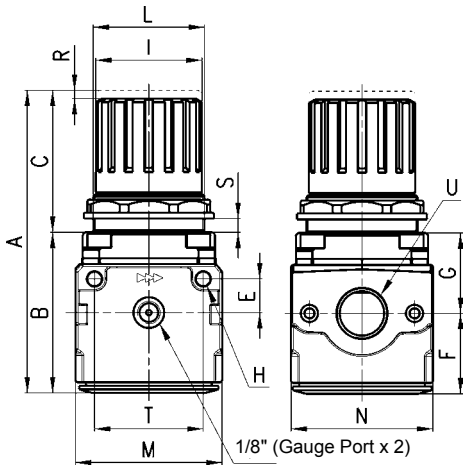
MC202-R00TF AND MC202-R10TF



Pa = Inlet pressure Pr = Regulated pressure Qn = Flow

Pressure regulators Series MC





DIMENSIONS (in inches)

Mod.	A	B	C	E	F	G	H	I	L	M	N	O	R	S	T	U (NPTF)
MC104-R00TF	3.701	2.205	1.496	.433	1.122	1.083	.177	1.102	M30x1.5	1.772	1.772	1.772	.118	.236	1.378	1/4"
MC238-R00TF	5.000	2.638	2.362	.551	1.339	1.378	.217	1.772	M47x1.5	2.441	2.441	2.362	.138	.354	1.811	3/8"
MC202-R00TF	5.000	2.638	2.362	.551	1.339	1.378	.217	1.772	M47x1.5	2.441	2.441	2.362	.138	.354	1.811	1/2"

Manifold Pressure Regulators Series MC

Inlet port 1/4" NPTF, full Inlet pressure (non-cascading), 2 outlets per unit. Modular

The manifold pressure regulators are available with port 1/4" NPTF.

Normally they are available with relieving diaphragm as standard and can be panel mounted.

TECHNICAL SPECIFICATIONS

Construction	compact modular, diaphragm type
Materials	Body - Aluminum alloy, Cover/Head - Grilamid TR 55 (Nylon compound), Seals - Buna-N, internals in brass
Port (Inlet/Outlet)	1/4" NPTF / 1/8" NPTF
Weight	kg 0,320 = .70 lbs
Pressure gauge port / outlet	1/8" NPTF
Mounting	in-line ;, wall or panel mounting (in any position)
Operating temperature	-5° C - 50° C, (23° F - 122° F), with Dew Point of air at least 2° C (4° F) below the min working temperature
Finish	Chromate treatment undercoat; Bodies - polyurethane enamel & oven-cured; Bowls - electrostatic coating of polyester epoxy & oven cured

PNEUMATIC DATA

Inlet pressure	0 — 16 bar (0 - 232 psi)
Outlet pressure	0.5 — 10 bar or 0 — 4 bar (7.25 - 145 psi or 0 - 58 psi)
Flow	see graph
Secondary pressure relieving	standard

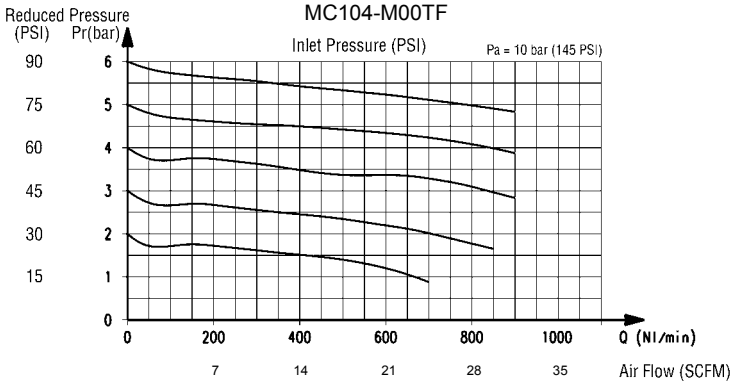
CODING EXAMPLE

MC	1	04	-	M	0	0	TF

MC	SERIES
1	SIZE 1 = 1/4" NPTF
04	PORT (Inlet/Outlet) 04 = 1/4" NPTF / 1/8" NPTF
M	MANIFOLD REGULATOR
0	OPERATING PRESSURE 0 = 0.5 — 10 bar (7.25 - 145 psi) 1 = 0 — 4 bar (0 - 58 psi) 2 = 0 — 2 bar (0 - 29 psi) 7 = 0.5 — 7 bar (7.25 - 103 psi)
0	CONSTRUCTION 0 = self-relieving 1 = non-relieving 5 = fast-response control, (metal-to-metal seat),relieving
TF	PORT TF = NPTF Blank = BSPP thread ports

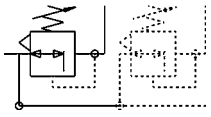
FLOW DIAGRAM

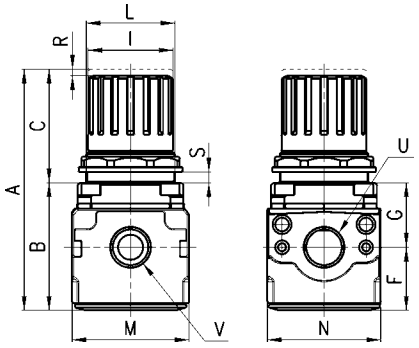
MC104-M00TF



Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow

Manifold pressure regulators Series MC



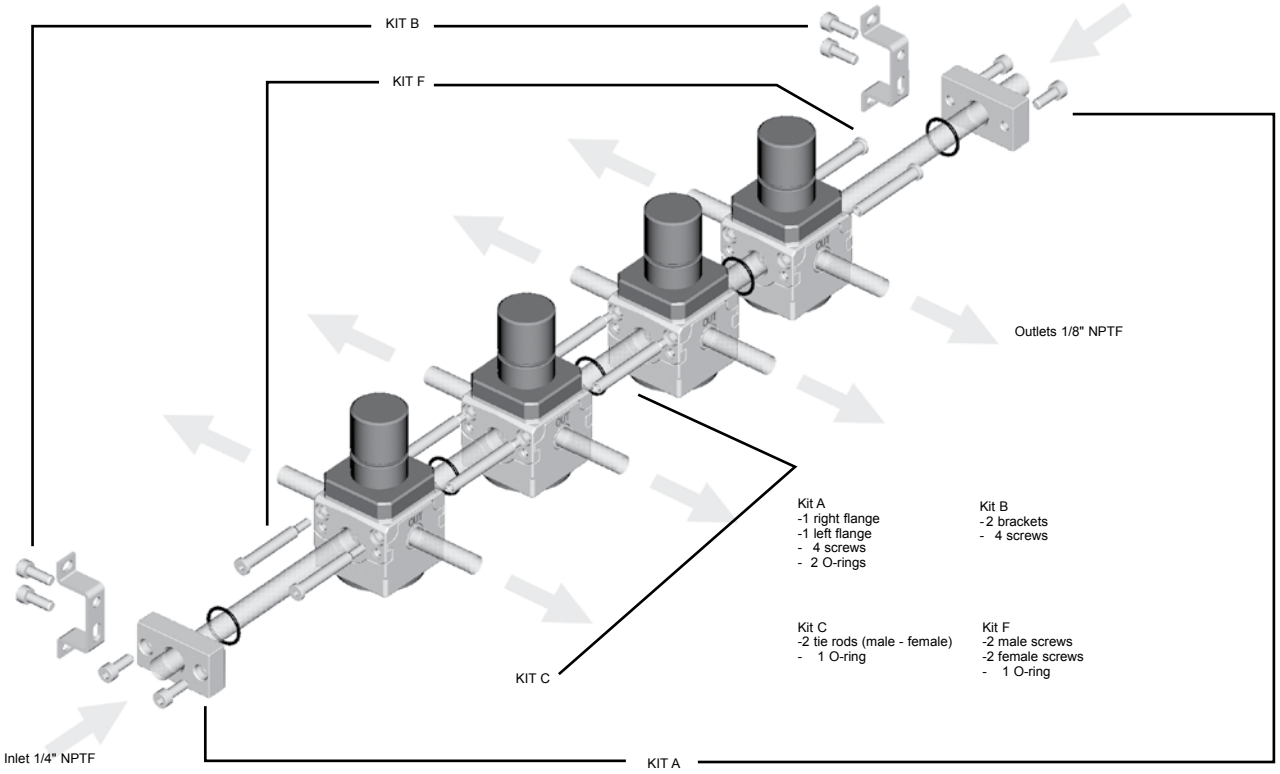


DIMENSIONS (in inches)

Mod.	A	B	C	F	G	I	L	M	N	R	S	T	U NPTF	V NPTF
MC104-M00TF	3.700	2.165	1.535	1.102	1.102	1.102	M30x1.5	1.772	1.772	.118	0-.236	1.378	1/4"	1/8"

Manifold Regulators Series MC
Assembly Hardware Kits (1/4" only — MC1)

Examples assembly hardware kits



Assembly without end plates

Body	Kit
H + H	1 Kit “F”
H + H + H	1 Kit “F” + 1 Kit “C”
H + H + H + H	1 Kit “F” + 2 Kit “C”
H + H + H + H + H	1 Kit “F” + 3 Kit “C”

Assembly with end plates

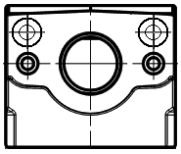
Body	Kit
H + H	1 Kit “A” + 1 Kit “F”
H + H + H	1 Kit “A” + 1 Kit “F” + 1 Kit “C”
H + H + H + H	1 Kit “A” + 1 Kit “F” + 2 Kit “C”
H + H + H + H + H	1 Kit “A” + 1 Kit “F” + 3 Kit “C”

Types Kit

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”.

Components & Part number	
Kit A: MC104-FL-TF	1 right flange + 1 left flange + 4 screws + 1 O-ring
	2 brackets + 4 screws
Kit C: MC1-TMF	2 tie rods male - female + 1 O-ring
Kit F: MC1-VMF	2 male screws + 2 female screws + 1 O-ring

Example body “Manifold” regulator type H



With through holes on top (used to mount the manifold regulators to each other)
With female no through threads
- manifold regulator

N.B. Once a group of manifold regulators 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 (see page 82)

Lubricators Series MC

Port 1/4", 3/8", 1/2" NPTF
Modular with metal bowl guard and bayonet-type mounting

The Series MC lubricators are available with port 1/4", 3/8", 1/2" NPTF.

The bowls of these lubricators are made of metal and are equipped with a transparent viewer. The oil flow can be monitored via the small transparent cap and regulated by means of the special adjusting screw.

In the 3/8" and 1/2" models, oil can be refilled while unit is under pressure by first removing the oil fill cap plug. Oil can be directly filled via cap plug. In addition, once cap plug is removed, the entire bowl may be removed for direct filling while system remains pressurized.

TECHNICAL SPECIFICATIONS

Construction	modular compact			
Materials	Body - Aluminum alloy, Bowl - Grilamid TR 55 (Nylon compound), Seals - Buna-N			
Port	NPTF:	1/4"	3/8"	1/2"
Oil capacity	oz	1.25	5.75	5.75
Weight	lbs	.75	1.65	1.49
Mounting	vertical in-line or wall-mounting			
Operating temperature	-5° C - 50° C, (23° F - 122° F), with Dew Point of air at least 2° C (4° F) below the min working temperature			
Oil refilling	without pressure only in 1/4" Size : While pressurized for 3/8" & 1/2"			
Oil for lubrication	from 3° - 10° E (ask our engineers for types) (approx. 32 centistrokes)			
Oil consumption	recommendation 2 - 5 drops every 1000 Nl of air consumed (35 SCFM)			
Droplet size	> 2µm (10 drops = 1cm3)			
Finish	Chromate treatment undercoat; Bodies - polyurethane enamel & oven-cured; Bowls - electrostatic coating of polyester epoxy & oven cured			

PNEUMATIC DATA

Operating pressure	0 — 16 bar (0 - 232 psi)
Nominal flow	see graphs
Min. air consumption for lubr. (Nl/min)	1/4", 3/8", 1/2" NPTF
at 1 bar (14.5 psi)	8 Nl/min (.28 SCFM)
at 6 bar (87 psi)	15 Nl/min (.53 SCFM)

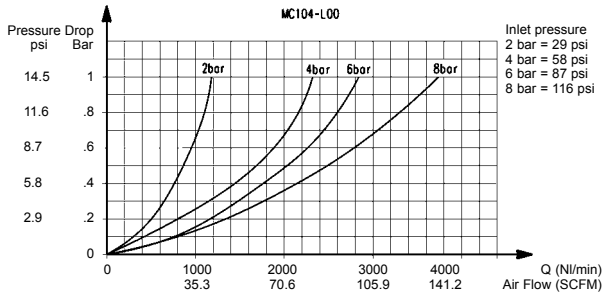
CODING EXAMPLE

MC	1	04	-	L	00	TF

MC	SERIES
1	SIZE 1 = 1/4" 2 = 3/8" or 1/2"
04	PORTS: 04 = 1/4" NPTF 38 = 3/8" NPTF 02 = 1/2" NPTF
L	LUBRICATOR
00	DESIGN TYPE 00 = atomized oil, (approx. 2 microns) 01 = optional, low-flow orifice for low air consumption requiring lubrication (3/8" & 1/2" ONLY)
TF	PORT TF = NPTF Blank = BSPP thread ports

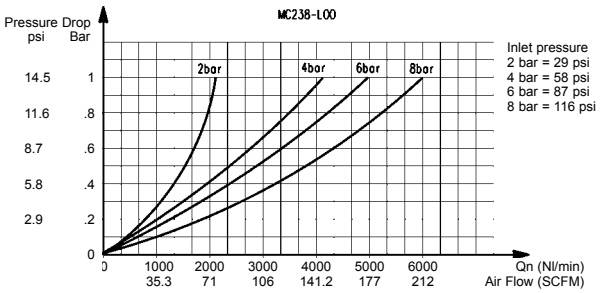
FLOW DIAGRAMS

MC104-L00TF



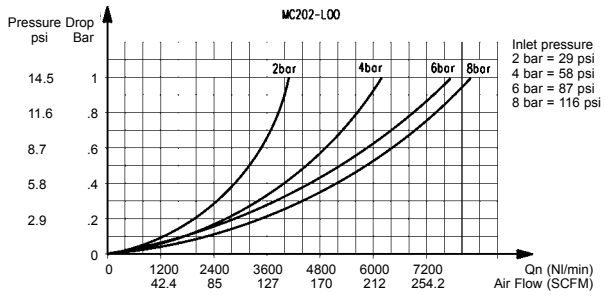
Pa = Inlet pressure
ΔP = Pressure Drop
Qn = Flow

MC238-L00TF



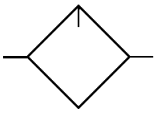
Pa = Inlet pressure
ΔP = Pressure Drop
Qn = Flow

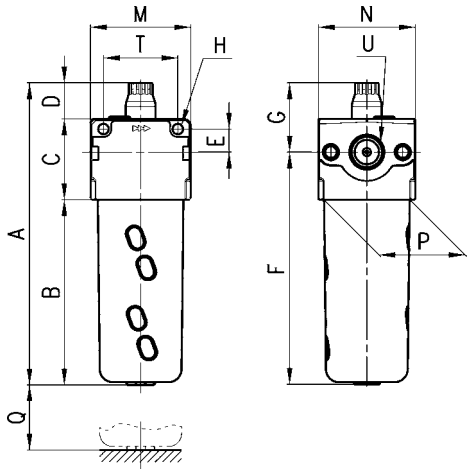
MC202-L00TF



Pa = Inlet pressure
ΔP = Pressure Drop
Qn = Flow

Lubricators Series MC





DIMENSIONS (in inches)

Mod.	A	B	C	D	E	F	G	H	M	N	P	Q	T	NPTF U
MC104-L00TF	5.827	3.268	1.575	.984	.433	4.213	1.614	.177	1.772	1.772	1.457	3.307	1.378	1/4
MC238-L00TF	7.362	4.528	1.969	.866	.551	5.670	1.693	.217	2.441	2.362	2.087	4.606	1.811	3/8
MC202-L00TF	7.362	4.528	1.969	.866	.551	5.670	1.693	.217	2.441	2.362	2.087	4.606	1.811	1/2

Filter/Regulator Series MC

Port 1/4", 3/8", 1/2" NPTF
Modular with metal bowl guard and bayonet-type mounting

The filter regulators Series MC are available with port 1/4", 3/8", 1/2" NPTF.

They combine the features of the filters and regulators and have smaller overall dimensions than the two separate components.

TECHNICAL SPECIFICATIONS

Construction	compact modular with filtering element in HDPE - diaphragm type			
Materials	Body - Aluminum alloy, Bowl - Grilamid TR 55 (Nylon compound), Seals - Buna-N			
Port	NPTF:	1/4"	3/8"	1/2"
Condensate capacity	oz	1	2.4	2.4
Weight	lbs	.98	2.09	2.05
Pressure gauge port	1/8" NPTF			
Mounting	vertical in-line or wall-mounting			
Operating temperature	-5° C - 50° C, (23° F - 122° F), with Dew Point of air at least 2° C (4° F) below the min working temperature			
Porosity of filtering element	25 µm standard - 5 µm upon request			
Draining of condensate	manual - semi-automatic standard, optional drains available, see code key			
Finish	Chromate treatment undercoat; Bodies - polyurethane enamel & oven-cured; Bowls - electrostatic coating of polyester epoxy & oven cured			

PNEUMATIC DATA

Inlet pressure	0.3 - 16 bar, (with depressurizing drain P Max. of 10 bar) : 4.25 - 232 psi, (P Max 145 psi w/ depressurizing drain) - “Spitter-Type” 1.5 - 15 bar for Full Automatic float drain, (22 - 220 psi), 3/8” & 1/2” models only
Outlet pressure	0.5 — 10 bar (7.25 - 145 psi), see code key for optional spring ranges
Nominal flow	see graph
Secondary pressure relieving	standard

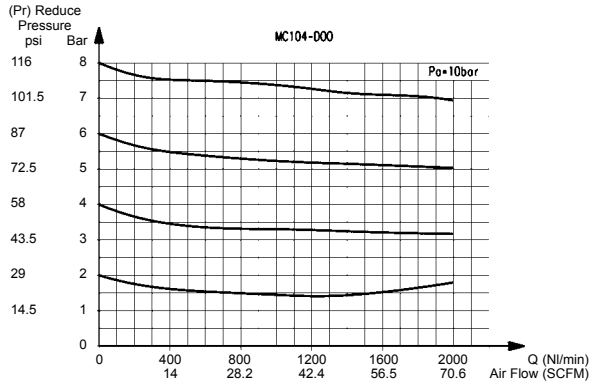
CODING EXAMPLE

MC	1	04	-	D	0	0	-		TF

MC	SERIES
1	SIZE 1 = 1/4" NPTF 2 = 3/8", 1/2" NPTF
04	port 04 = 1/4" NPTF 38 = 3/8" NPTF 02 = 1/2" NPTF
D	FILTER-REGULATOR
0	FILTERING ELEMENT 0 = 25µm 1 = 5µm
0	DRAINING OF CONDENSATE 0 = semiautomatic. self-relieving 1 = semiautomatic. non-relieving 3 = automatic, self-relieving (only for 3/8" and 1/2") 4 = depressurization 5 = depressurization, orifice filter, self-relieving 8 = port 1/8"
	OPERATING PRESSURE (bar) Blank = 0.5 - 10 (7.25 - 145 psi) 2 = 0 - 2 (only 1/4") (0 - 29 psi) 4 = 0 - 4 (0 - 58 psi) 7 = 0.5 - 7 (only 1/4") (7.25 - 103 psi)
TF	PORT TF = NPTF Blank = BSPP thread ports

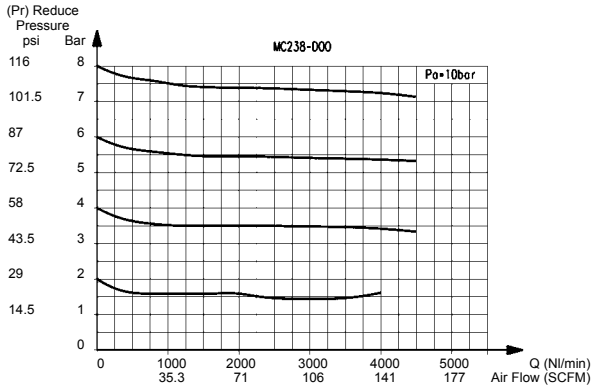
FLOW DIAGRAMS

MC104-D00TF



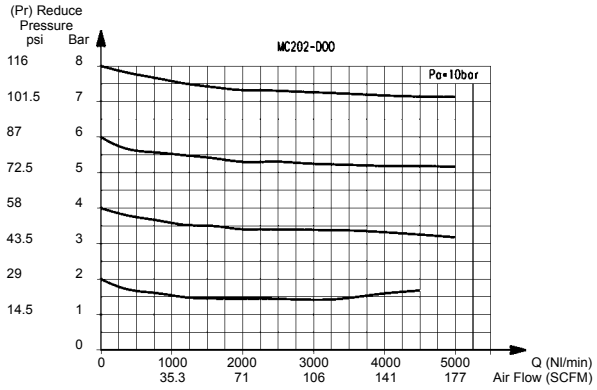
Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow

MC238-D00TF



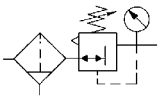
Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow

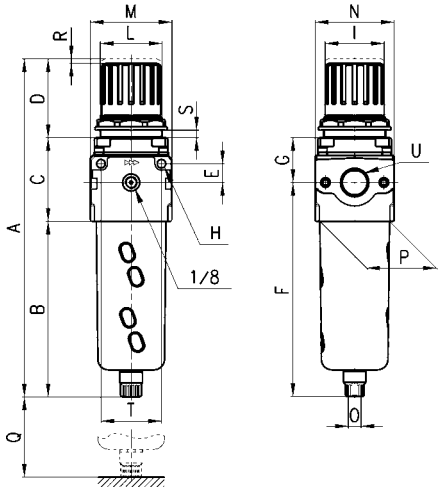
MC202-D00TF



Pa = Inlet pressure
Pr = Regulated pressure
Qn = Flow

Filter regulators Series MC





DIMENSIONS (in inches)

Mod.	A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R	S	T	NPTF U
MC104 -D00TF	7.500	4.016	2.047	1.496	.433	4.980	1.083	.177	1.102	M30x1.5	1.772	1.772	1/8	1.457	2.283	.118	.024	1.378	1/4
MC238 -D00TF	10.098	5.236	2.520	2.323	.551	6.378	1.378	.217	1.772	M47x1.5	2.441	2.323	1/8	2.087	2.835	.138	.035	1.811	3/8
MC202 -D00TF	10.098	5.236	2.520	2.323	.551	6.378	1.378	.217	1.772	M47x1.5	2.441	2.323	1/8	2.087	2.835	.138	.035	1.811	1/2

Lockable Isolation 3/2-Way Valve Series MC (Lock-out/Tag-out)

Port 1/4", 3/8", 1/2" NPTF
Modular

The valves are designed so that the downstream air pressure can be vented and the valve locked in the non passing condition to allow work to be carried out with greater safety on pneumatically actuated equipment.

Positioning of these valves is often before the FRL unit. Pulling Manual handle in the "UP" direction shuts off inlet flow and exhausts all downstream pressure via the threaded port in the bottom of the unit. (Silencers can be installed to minimize noise).

With handle extended "UP", lock-out hole (0.315" OD), is exposed in handle spool for locks or hasps. (Valve shown in illustration in "DOWN" position for normal inlet flow to pass.)

TECHNICAL SPECIFICATIONS

Construction	modular assembly, compact, poppet type			
Materials	Body - Aluminum alloy, Bowl - Grilamid TR 55 (Nylon compound), Seals - Buna-N			
Port	NPTF:	1/4"	3/8"	1/2"
Weight	lbs	.61	1.2	1.13
Mounting	in-line, wall or panel mounting (in any position)			
Operating temperature	-5° C - 50° C, (23° F - 122° F), with Dew Point of air at least 2° C (4° F) below the min working temperature			
Finish	Chromate treatment undercoat; Bodies - polyurethane enamel & oven-cured; Bowls - electrostatic coating of polyester epoxy & oven cured			

PNEUMATIC DATA

Operating pressure	0 — 16 bar (0 - 232 psi)
Nominal flow	see graph
Nominal flow in the exhausted direction	Nominal Flow in the Exhausting Direction, 1/4" NPTF - 1080 Nl/min, (38 SCFM, 3/8" & 1/2" - 2380 Nl/min (83 SCFM))
	flow determined at 6 bar with DP= 1 bar (Flow at 87 psi with Pressure Drop of 14.5 psi)

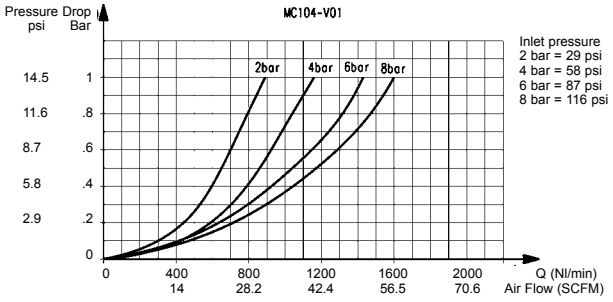
CODING EXAMPLE

MC	1	04	-	V	01	TF

MC	SERIES
1	SIZE 1 = 1/4" NPTF 2 = 3/8", 1/2" NPTF
04	port 04 = 1/4" NPTF 38 = 3/8" NPTF 02 = 1/2" NPTF
V	V = 3-way/2-position valve, Lock-Out/Tag-Out
01	DESIGN TYPE 01 = padlock valve (manual command, "UP" = off and downstream flow exhausting, "DOWN" = on and inlet flow passing)
TF	PORT TF = NPTF Blank = BSPP thread ports

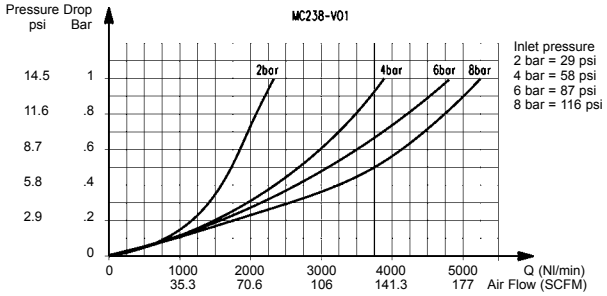
FLOW DIAGRAMS

MC104-V01TF



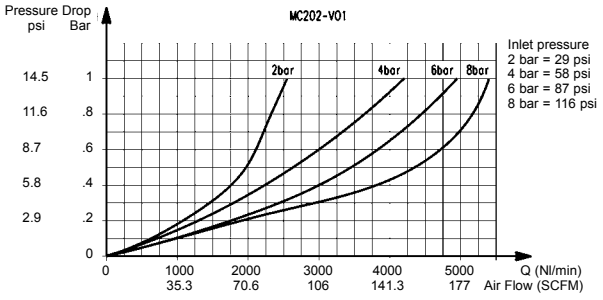
Pa = Inlet pressure
ΔP = Pressure Drop
Qn = Flow

MC238-V01TF



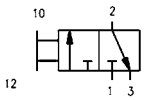
Pa = Inlet pressure
ΔP = Pressure Drop
Qn = Flow

MC202-V01TF

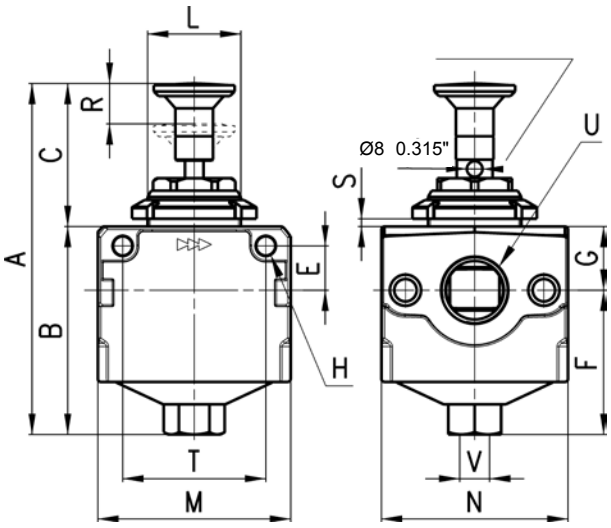


Pa = Inlet pressure
ΔP = Pressure Drop
Qn = Flow

Lockable isolation valve Series MC



Look-Out hole exposed in '"UP"/OFF position



DIMENSIONS (in inches)

Mod.	A	B	C	E	F	G	H	L	M	N	R	S	T	NPTF U	NPTF V	Actuation Force (at 85 psi)
MC104-V01TF	3.866	2.14	1.713	.43	1.51	.629	.177	M30x1.5	1.77	1.77	.354	0-.236	1.377	1/4"	1/8"	6.5 lbs
MC238-V01TF	4.44	2.63	1.81	.55	1.83	.807	.217	M30x1.5	2.44	2.36	.518	0-.236	1.81	3/8"	1/4"	7.0 lbs
MC202-V01TF	4.44	2.63	1.81	.55	1.83	.807	.217	M30x1.5	2.44	2.36	.518	0-.236	1.81	1/2"	1/4"	7.0 lbs

Electropneumatic/Pneumatic Isolation Valve Series MC (Shut-off)

Port 1/4", 3/8", 1/2" NPTF:
Model '-V16' has Solenoid Pilot
Model '-V36' has Air Pilot
Modular

These 3/2 way valves are designed to block the air at the inlet of the FRL group to pressurize or depressurize the equipment. The valves can either be electropneumatically or pneumatically operated and can be supplied with port 1/4", 3/8", 1/2" NPTF.

In case of a solenoid valve use coil type U7… or G7… and the coil is ordered as a separate item.

TECHNICAL SPECIFICATIONS

Construction	compact, poppet-type			
Materials	Body - Aluminum alloy, Bowl - Grilamid TR 55 (Nylon compound), Seals - Buna-N			
Port	NPTF:	1/4"	3/8"	1/2"
Weight	lbs	.69	1.53	1.48
Mounting	in-line wall or panel mounting (in any position)			
Operating temperature	-5° C - 50° C, (23° F - 122° F), with Dew Point of air at least 2° C (4° F) below the min working temperature			
Finish	Chromate treatment undercoat; Bodies - polyurethane enamel & oven-cured; Bowls - electrostatic coating of polyester epoxy & oven cured			

PNEUMATIC DATA

Operating pressure	2 — 10 bar (29 -145 psi)
Nominal flow	see graph
Outlet flow	Nominal Flow in the Exhausting Direction, 1/4" NPTF - 1080 Nl/min, (38 SCFM, 3/8" & 1/2" - 2380 Nl/min (83 SCFM))
Flows determined	at 6 bar with DP = 1 bar (Flow at 87 psi with pressure drop of 14.5 psi)

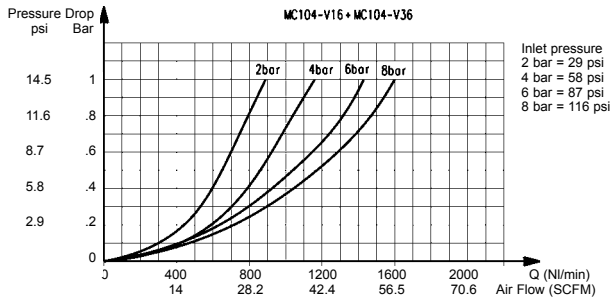
CODING EXAMPLE

MC	1	04	-	V	1	6	TF

MC	SERIES
1	SIZE 1 = 1/4" 2 = 3/8" or 1/2"
04	PORTS: 04 = 1/4" NPTF 38 = 3/8" NPTF 02 = 1/2" NPTF
V	V = 3-way/2-position valve
16	CONSTRUCTION 16 = electropneumatic — Solenoid Pilot* (*Note: Solenoid coil is ordered as a separate item. See following pages for part number selection. 36 = pneumatic — Air Pilot
TF	PORT TF = NPTF Blank = BSPP thread ports

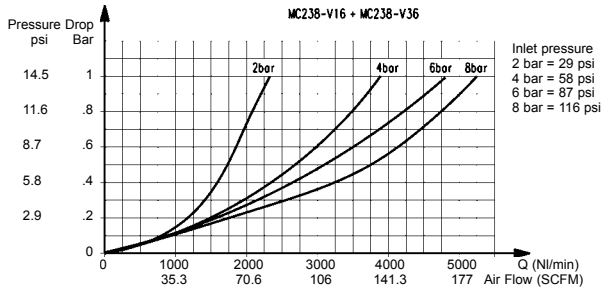
FLOW DIAGRAMS

MC104-V16TF OR V36TF



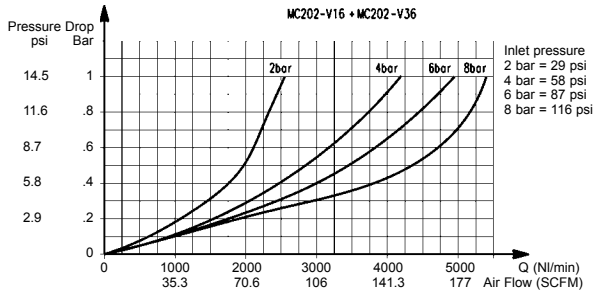
Pa = Inlet pressure
ΔP = Pressure Drop
Qn = Flow

MC238-V16TF OR V36TF



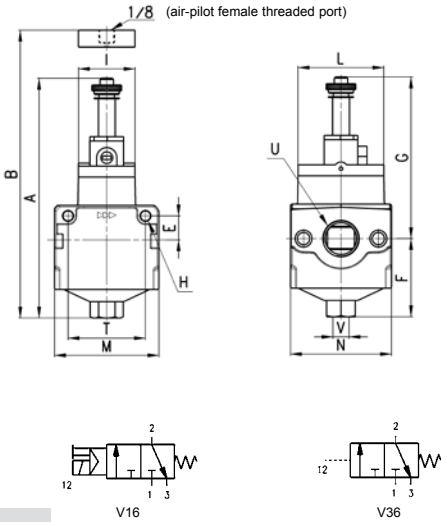
Pa = Inlet pressure
ΔP = Pressure Drop
Qn = Flow

MC202-V16TF OR V36TF



Pa = Inlet pressure
ΔP = Pressure Drop
Qn = Flow

Lockable isolation valve Series MC



DIMENSIONS (in inches)

Mod.	A	B	E	F	G	H	I	L	M	N	T	PORT U (NPTF)	EXHAUST V
MC104-V16TF	4.724	-	.433	1.515	3.208	.177	.866	1.259	1.771	1.771	1.377	1/4"	1/8"
MC238-V16TF	5.610	-	.551	1.830	3.779	.217	1.319	2.007	2.440	2.362	1.811	3/8"	1/4"
MC202-V16TF	5.610	-	.551	1.830	3.779	.217	1.319	2.007	2.440	2.362	1.811	1/2"	1/4"
MC104-V36TF	-	3.05	.433	1.515	-	.177	.866	1.259	1.771	1.771	1.377	1/4"	1/8"
MC238-V36TF	-	3.68	.551	1.830	-	.217	1.319	2.007	2.440	2.362	1.811	3/8"	1/4"
MC202-V36TF	-	3.68	.551	1.830	-	.217	1.319	2.007	2.440	2.362	1.811	1/2"	1/4"

Soft Start Valve Series MC

Innovative modular clamping system
Ports 1/4", 3/8", 1/2" NPTF

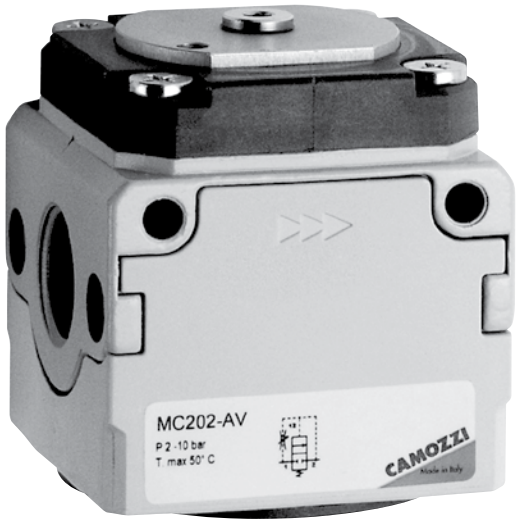
The Series MC sort start valve is used to avoid damaging people or equipment when pressurizing pneumatic systems containing cylinders.

The features of these components allows one to pressurize equipment up to 50% of the set outlet reduced pressure, after which 100% is reached rapidly.

The usual location of the soft start valve is after the FRL. 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 1/8 plug.
An electrical or pneumatic 3-way/2-pos. Shut-Off valve may or may not be installed before the unit to allow Depressurization.

The brass adjustment screw in the head cap varies the timing constant and the pressure ramp-up rate.



TECHNICAL SPECIFICATIONS

Construction	modular, compact, poppet type			
Materials	Body - Aluminum, Cover - Nylon, Seals - Buna-N, internals in brass			
Ports	NPTF	1/4"	3/8"	1/2"
Weight	lbs	.06	1.250	1.25
Mounting	in-line wall or panel mounting (in any position)			
Operating temperature	-5° C - 50° C, (23° F - 122° F), with Dew Point of air at least 2° C (4° F) below the min working temperature			
Finish	Chromate treatment undercoat; Bodies - polyurethane enamel & oven-cured; Bowls - electrostatic coating of polyester epoxy & oven cured			

PNEUMATIC DATA

Operating pressure	2 - 10 bar (29 - 145 psi)
Nominal flow (determined at 6 bar with DP1)	1/4" - 1850 Nl/min (64.7 SCFM), 3/8" - 4000 Nl/min (140 SCFM), 1/2" - 4350 Nl/min (152 SCFM)

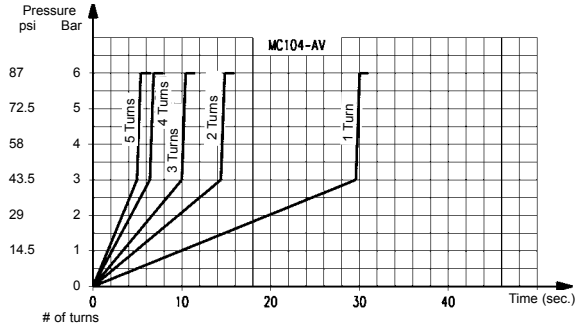
CODING EXAMPLE

MC	2	02	-	AV	TF

MC	SERIES
2	SIZE 1 = 1/4" 2 = 3/8" - 1/2"
02	ports 04 = 1/4" 38 = 3/8" 02 = 1/2"
AV	AV = soft start valve
TF	PORT TF = NPTF Blank = BSPP thread ports

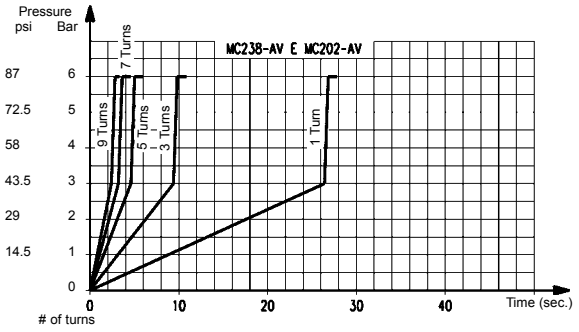
VARIATION IN PRESSURIZATION

MC104-AVTF



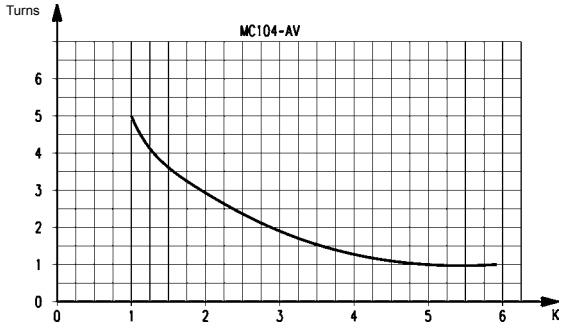
pressurization time by n° of turns of the regulation screw.
Based on a downstream volume of 5 liters, (.177 FT³)

MC238-AVTF and MC202-AVTF

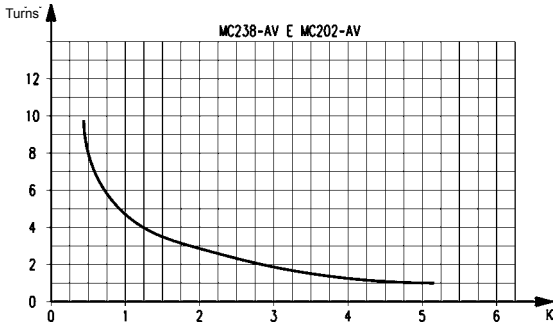


pressurization time by n° of turns of the regulation screw.
Based on a downstream volume of 5 liters, (.177 FT³)

MC104-AVTF



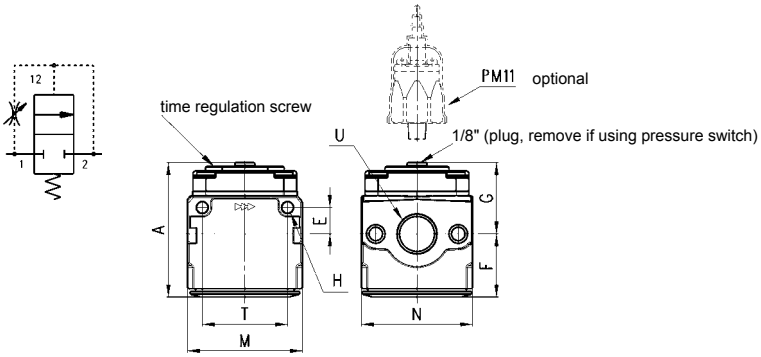
MC238-AVTF and MC202-AVTF



Constant “K” on the above graphs indicates the number of turns, (open from dead bottom closed), of the regulation screw required to obtain the required pressurization time with an inlet pressure of 87 psi. 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 Liters ; t = desired pressuring time in seconds

Example: V = 5 Liters 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 turns open from dead bottom closed.

Soft start valve Series MC



DIMENSIONS (in inches)

Mod.	A	E	F	G	H	M	N	T	NPTF U
MC104-AVTF	2.343	.433	1.122	1.220	.177	1.772	1.772	1.378	1/4
MC238-AVTF	2.854	.551	1.339	1.516	.217	2.441	2.362	1.811	3/8
MC202-AVTF	2.854	.551	1.339	1.516	.217	2.441	2.362	1.811	1/2

Take-Off Blocks, (Distribution-Block) Series MC

Ports 1/4", (3/8"), 1/2" NPTF
Modular, with or without internal Check-Valve

The take-off blocks when equipped with a check-valve, allow the use of non lubricated air from the vertical outlets if inserted between the regulator and the lubricator. Otherwise, the check-valve prevents downstream lubrication from siphoning back upstream where non-lube components may be required.

If mounted as last component in a completed assembly, the distribution block requires the use of end-plates since its main horizontal flow path ports are non-threaded. Meaning, no direct threaded components can be assembled in the left-to-right flow path. ONLY end-plates can be used, unless otherwise in the middle of a typical FRL assembly.

TECHNICAL SPECIFICATIONS

Construction	modular, compact, diaphragm type with or without internal VNR check-valve			
Materials	Body - Aluminum, Seals - Buna-N, internals in brass			
Ports	NPTF	1/4"	1/2"	(3/8" assemblies utilize the larger 1/2" model)
Weight	lbs	.511	.836	
Outlet ports	NPTF	1/4"	1/2", (Threaded outlet ports only, along vertical axis. Horizontal flow-path ports are un-threaded and require assembly within an existing assembly or terminal end-plates kits.)	
Mounting	in-line wall or panel mounting (in any position)			
Operating temperature	-5° C - 50° C, (23° F - 122° F), with Dew Point of air at least 2° C (4° F) below the min working temperature			
Finish	Chromate treatment undercoat; Bodies - polyurethane enamel & oven-cured; Bowls - electrostatic coating of polyester epoxy & oven cured			

PNEUMATIC DATA

Operating pressure	0 - 16 bar (0 - 235 psi)
Nominal flow (determined at 87 psi with a pressure drop of 14.5 psi)	MC1-B = 144 SCFM; MC1-B-VNR = 83 SCFM, (with VNR check-valve) MC2-B = 297 SCFM; MC2-B-VNR = 198 SCFM, (with VNR check-valve)

CODING EXAMPLE

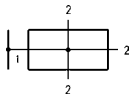
MC	2	-	B	-	VNR	TF

MC	SERIES
2	SIZE 1 = 1/4" outlets 2 = 1/2" outlets, (used on 3/8" models also)
B	B = take off block
VNR	OPTIONS “Blank” = standard VNR = with check valve built in
TF	PORT TF = NPTF Blank = BSPP thread ports

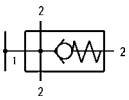
Take off blocks Series MC

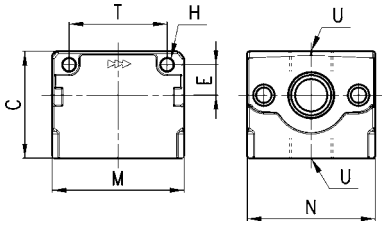
**NOTE: Inlet and Outlet are not threaded. ONLY vertical ports “U” are threaded. MUST be used with flanges or intermediate within assembly.

MC-1 - B
MC-2 - B



MC-1-B-VNR
MC-2-B-VNR



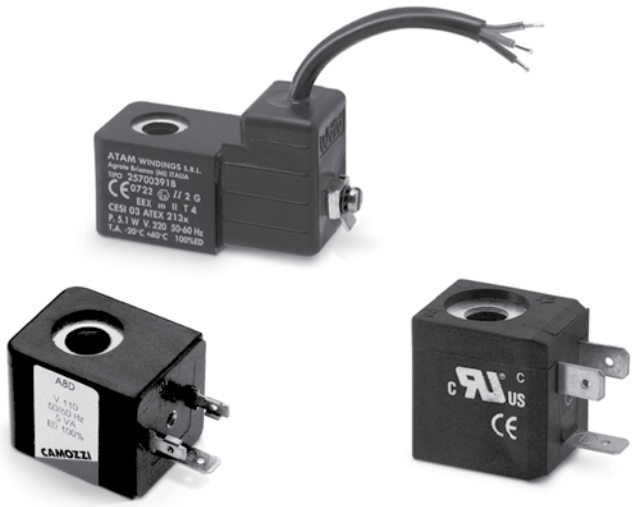


DIMENSIONS (in inches)

Mod.	C	H	E	M	N	T	NPTF U	size
MC1-B	1.693	.177	.433	1.772	1.772	1.378	1/4"	1
MC1-B-VNR	1.693	.177	.433	1.772	1.772	1.378	1/4"	1
MC2-B	1.969	.217	.551	2.441	2.362	1.811	1/2	2
MC2-B-VNR	1.969	.217	.551	2.441	2.362	1.811	1/2	2

Solenoids U7* - U7*EX - G7* - A8* - H8*

Version A and B
Connection according to DIN 43650 and DIN 40050 standards



The mechanical part of the tube in the solenoid Shut-Off valves - V16, Series A, 3, 4, 9 and NA allows the mounting of various types of solenoids.

Mod. H8...: explosion-proof solenoids suitable for potentially explosive ambients (ATEX).

Mod. U7...: solenoids available also with ATEX certification.

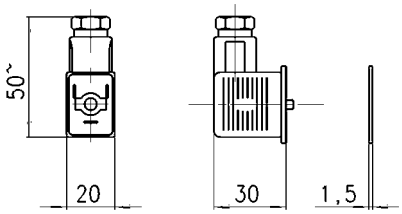
GENERAL DATA

Wire insulation	U7... / G7... / G93 = class F (155° C) A8... = class H (180° C) B... / H8... = class H (200° C)
Protection class	U7... / G7... / G93 = IP54 - DIN 40050 IP65 (with connector Mod. 122-800 and Mod. 122-800EX) A8... / B... = IP54 - DIN 40050 IP65 (with connector Mod. 124-800) H8... = IP64
Operation	ED 100%
Tolerance V AC	Mod. A and U: -15% / +10%
Tolerance V DC	Mod. A and U: ±10%

DIN Connector for U7x and G7x Coils

EN 175301-803 Form B Industrial

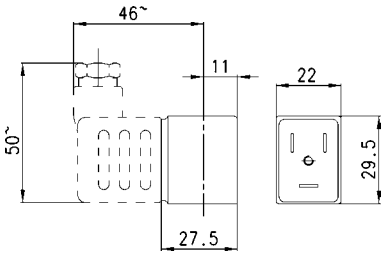
Mod. 122-800



Mod.	
122-800	DIN 43650 (PG9)
122-800EX	DIN 43650 (PG9) with TORX SCREW anti-tampering
122-701-2	24V w/ LED, varistor surge suppression and 2m molded cable
122-702-3	110V w/ LED, varistor surge suppression and 3m molded cable

Solenoids for Mod. U70/ / U7*EX / G70 (EN 175301-803 Form B Industrial)

The U7* series of solenoid coils complies with both standards UL and CSA, and the marking we will apply on the solenoids is cURus (standards UL 429 and CSA 22.2 n. 139).
The U7* coil series is also available in an ATEX explosion rated version. Mod. U7*EX is marked II 3 GD Eex nA T4.
NOTE: to order the ATEX version of hte U7* coil it is necessary to add the EX suffix at the end of the code.



Nominal dimensions:	22x22
Protection class:	IP54 - DIN 40050 IP65 (with connector Mod. 122-800)
Insulation:	Class H (180°C)
Connections:	Bipolar plus earth DIN 43650 (version B)
Voltage tolerance:	AC +10% - 15% DC ±10%
Continuous operation:	ED 100%
Protection:	U70 PET G70 Nylon

Solenoid Voltages U70 (UL and CSA approved)

Mod.			
	24V	50/60 Hz	3,5VA
U7H	12V	DC	3,1W
U7K	110V	AC 50/60 Hz	4,3VA
	125V	AC 50/60 Hz	5,5VA
U7J	230V	50/60 Hz	3,5VA
	240V	50/60 Hz	4VA
U79	48V	DC	3,1W
U710	110V	DC	3,2W

Mod.			
	24V	DC	3,1W
U77	48V	50/60 Hz	3,5VA
U7F	380V	50/60 Hz	7VA
U72	12V	DC	5W
U73	24V	DC	5W
U74	48V	DC	5W
U76	110V	DC	5W

Solenoid Voltages G70

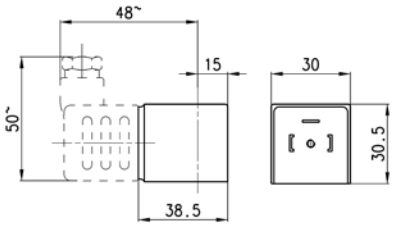
Mod.			
	24V	50/60 Hz	3,5VA
G7H	12V	DC	3,1W
G7K	110V	AC 50/60 Hz	4,3VA
	125V	AC 50/60 Hz	5,5VA
G7J	230V	50/60 Hz	3,5VA
	240V	50/60 Hz	4VA
G79	48V	DC	3,1W
G710	110V	DC	3,2W

Mod.			
	24V	DC	3,1W
G77	48V	50/60 Hz	3,5VA
G7F	380V	50/60 Hz	7VA
G72	12V	DC	5W
G73	24V	DC	5W
G74	48V	DC	5W
G76	110V	DC	5W

Dimensions in millimeters (mm)

Solenoids Mod. A8..

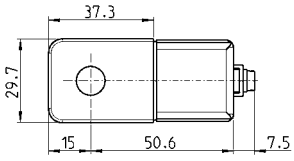
Connections: Bipolar plus earth DIN 43650
(version A) (EN 175301-803 Form A / ISO 4400)

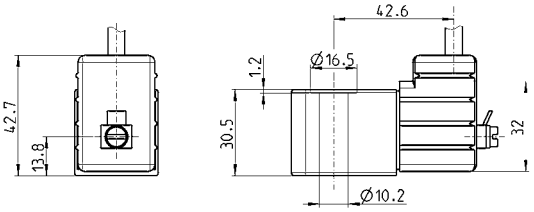


Mod.	Solenoid voltage	Power absorption
A8B	24 V - 50/60 Hz	5 VA
A8D	110 V - 50/60 Hz	5 VA
A8E	220 V - 50/60 Hz	5 VA
A83	24 V - DC	4 W

Solenoid Mod. H8.. for potentially explosive ambients (ATEX)

Class F according to the standard VDE0580
Operating temperature: -20°C + 40°C
Connections: tripolar cable 3 mt (standard)
Conformity certificate to the standard CEI 31-8 (EN 50014) and CEI 31-13 (EN50028) marked EEx m IIT4.
Incapsulating: self-extinguishing PA.



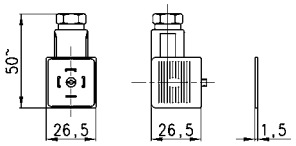


Mod.	Solenoid voltage	Power absorption
H83	24 V - DC	5,4 W
H8B	24 V - 50/60 Hz	5,3 VA
H8C	48 V - 50/60 Hz	5,3 VA
H8D	110 V - 50/60 Hz	5,3 VA
H8E	230 V - 50/60 Hz	5,3 VA

For Series NA use plate mod. NA54-PC.

Connectors for solenoids Mod. A8 and Mod. B8... / B9...

According to DIN 43650 (PG) standard
(EN 175301-803 Form A / ISO 4400)



Mod.	Torque (Nm)
124-800	0.5

Dimensions in millimeters (mm)

Pressure switches, Transducers and Pressure Indicators

Series PM: adjustable-diaphragm pressure switches, with visual scale, with exchange contacts (SPST, SPDT)
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.

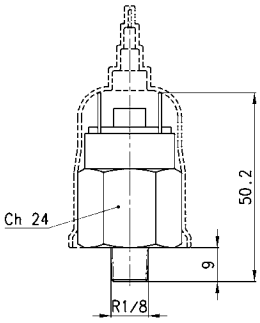
Series PM681 pressure switches with setting visual scale comply with EN60730 standards and are suitable for signaliing pressure through a normally open Reed contact.

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.

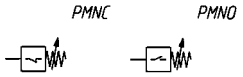
GENERAL DATA

Construction	with adjustable diaphragm
Mounting	using thread in body
Ports	R1/8, G1/4 (serie PM) - tube 4/2 (series TRP) - M5 (series 2950)
Operating temperature	-5° - +60°C, (23 - 140 deg F)
Pressure	1 - 10 bar max.
Voltage	220 V
Max. power	100 VA
Protection class	IP54
Max. nr. of pulses per 1'	200
Lifetime	106
Max current	0.5 A
Isolation voltage	1500 V

Series PM - adjustable-diaphragm pressure switches



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

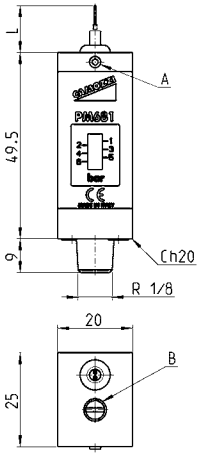


PMNC = normally closed
PMNO = normally open

Series PM681-... - pressure switches with setting visual scale

New

In compliance with EN60730 standards
Electric connection: PVC cable 2 x 0.22 mm
Electric contact: Reed SPST Normally Open Contact
Body in anodized aluminium and threaded fitting in brass
Hysteresis: 0.8 bar max

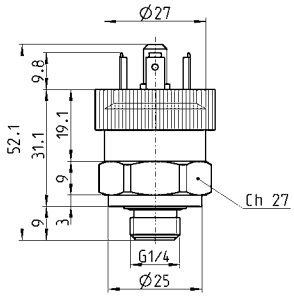


Mod.	L	Max switch voltage	Max switch current	Max switch capacity	Max fluid temperature	Max pressure	Setting range	Weight
PM681-1	1 m	48 V	0.5 A	10 W	60°C	20 bar	1 - 6 bar	95 g
PM681-3	3 m	48 V	0.5 A	10 W	60°C	20 bar	1 - 6 bar	95 g

A = LOCKING SET SCREW

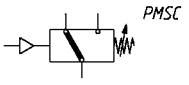
B = PRESSURE ADJUSTMENT SCREW

Series PM - pressure switch with exchange contacts (SPDT contacts)



DIMENSIONS

Mod.	Function	Max Voltage	Operating Temperature	Actuation time	Setting range	Max Hysteresis
PM11-SC	SC (*)	250 V AC 30 V DC	- 25 C° + 85 C°	> 0,1 ms	2 - 10 bar	0.8 bar

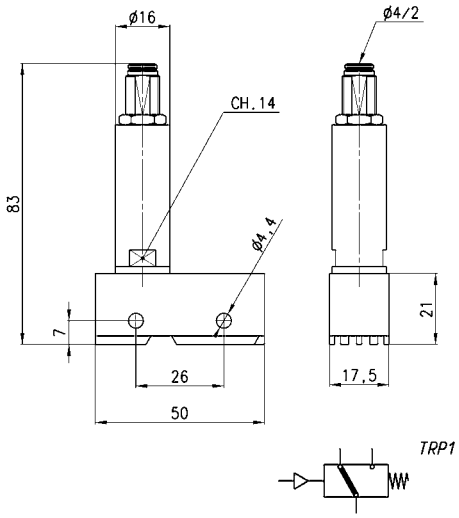


(*) SC = exchange contacts

Dimensions in millimeters (mm)

Electro-pneumatic transducer Series TRP

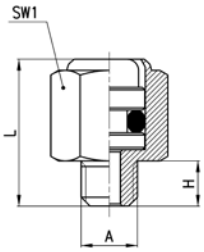
The TRP Series transducer is specially designed to convert a pneumatic signal into an electrical signal. The contacts are NC (normally closed) or NO (normally open), thus making it possible to generate or eliminate current when the pneumatic signal is present.
Minimum operating pressure 2,5 bar.

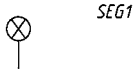


Mod.
TRP-8

Pressure indicators Series 2950

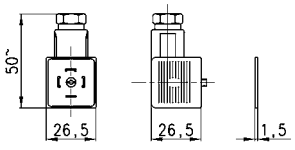
The pressure indicator Mod. 2950-M5 is passive element (no spring, red colour).
It is useful for detecting pressure manually without having to remove the connections.





Mod.	A	H	L	SW1
2950 M5	M5	4	13.5	8

Three-pole connector 124-830 for Pressure switch SC



Mod.
124-830

Dimensions in millimeters (mm)

FRL Series MC - Completed Assemblies (Single Part Number Code)

Ports 1/4", 3/8", 1/2" NPTF

The FRL Series MC Fully Assembled version are easier to order using one single part number code and to mount.

The version with end-plate kit flanges is supplied without rear mounting bracket assembly, KIT B, (sold separately).

TECHNICAL SPECIFICATIONS

Construction	modular, compact, either with or without end-plate flange kits.
Materials	Body - Aluminum, Heads/Covers - Nylon, Bowls - Nylon (Grilamid), Bowl Guard - Aluminum, Seals - Buna-N, internals in brass
Ports	1/4" - 3/8" - 1/2" NPTF
Mounting	vertical, in-line or wall-mounting
Finish	Chromate treatment undercoat; Bodies - polyurethane enamel & oven-cured; Bowls - electrostatic coating of polyester epoxy & oven cured

PNEUMATIC DATA

Operating pressure	-5° C - 50° C, (23° F - 122° F), with Dew Point of air at least 2° C (4° F) below the min working temperature
Flow	determined at 87 psi inlet supply with pressure drop of 14.5 psi (Pressure drop of 7.25 for FRL assembly group utilizing “R00”, instead of “D00” models.)

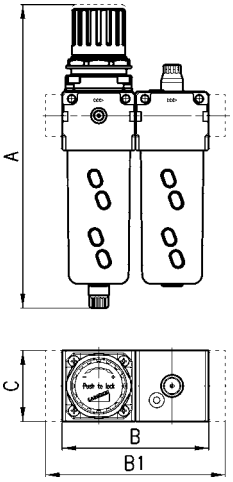
CODING EXAMPLE

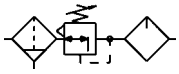
MC	2	02	-	C	-	5	-	FL	TF

MC	SERIES
2	SIZE 1 = 1/4" 2 = 3/8" or 1/2"
02	PORTS: 04 = 1/4" NPTF 38 = 3/8" NPTF 02 = 1/2" NPTF
C	ASSEMBLY GROUP** C = D + L E = V01 + D + L FRL = F + R + L GN = D + L + V16 + AV HNA = V01 + D + L + V16 + AV + PRESS N.A. HNC = V01 + D + L + V16 + AV + PRESS N.C. N = V01 + D
5	FILTERING ELEMENT 5 = 5 MM 25 = 25 MM
FL	FL = WITH END-PLATE FLANGES "BLANK" = NO END-PLATES ON ASSEMBLY
TF	PORT TF = NPTF Blank = BSPP thread ports

** Assembly group KEY for Code Abbreviations	
D	MC***-D00 Filter-regulator 0-10 bar semi-automatic manual drain filtering element 5µm or 25µm
V01	MC***-V01 Lock-Out Valve 3/2 way manually operated
V16	MC***-V16 Shut-Off Valve 3/2 way electropneumatically operated, (coils sold separately, not included in assemblies)
L	MC***-L00 Lubricator
F	MC***-F00 Filter 5 µm or 25 µm
R	MC***-R00 Regulator 0 - 10 bar (0 - 145 psi)
AV	MC***-AV Soft start valve
PRESS	PM11-NA or NC, Pressure switches (define if NC or NO)

Assembly group C





D + L

DIMENSIONS (in inches)

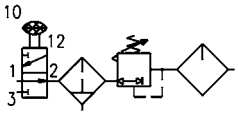
Mod.	A	B	C	Flow Nl/min	SCFM
MC104-C-5TF	7.618	3.543	1.772	1450	51.2
MC238-C-5TF	10.098	4.882	2.362	4800	169.5
MC202-C-5TF	10.098	4.882	2.362	4900	173

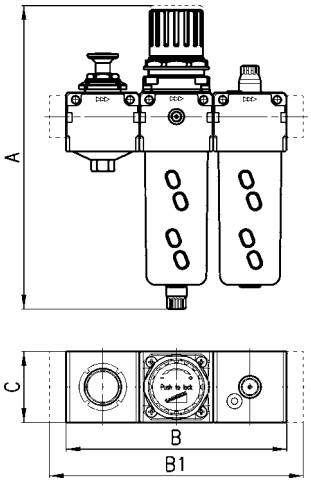
DIMENSIONS (in inches)

Mod.	A	B1	Flow Nl/min	SCFM
MC104-C-5-FLTF	7.618	4.488	1450	51.2
MC238-C-5-FLTF	10.098	5.984	4800	169.5
MC202-C-5-FLTF	10.098	5.984	4900	173

Assembly group E

V01 + D + L





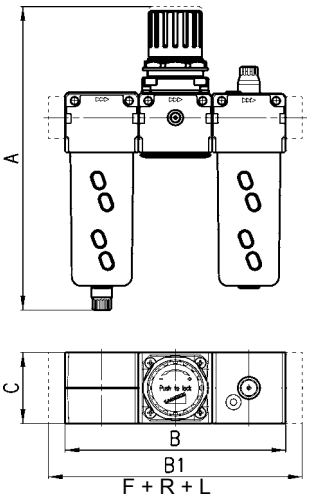
DIMENSIONS (in inches)

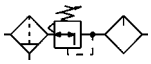
Mod.	A	B	C	Flow Nl/min	SCFM
MC104-E-5TF	7.618	5.315	1.772	1450	51.2
MC238-E-5TF	10.098	7.323	2.362	4800	169.5
MC202-E-5TF	10.098	7.323	2.362	4950	175

DIMENSIONS (in inches)

Mod.	A	B1	C	Flow Nl/min	SCFM
MC104-E-5-FLTF	7.618	6.260	1.772	1450	51.2
MC238-E-5-FLTF	10.098	8.425	2.362	4800	169.5
MC202-E-5-FLTF	10.098	8.425	2.362	4950	175

Assembly group FRL

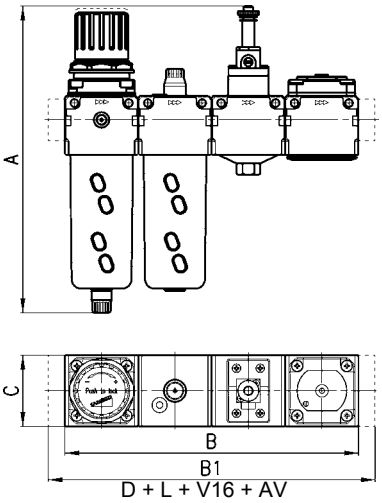


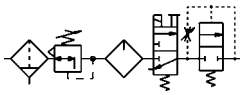


DIMENSIONS (in inches)					
Mod.	A	B	C	Flow Nl/min	SCFM
MC104-FRL-5TF	7.618	5.315	1.772	1450	51.2
MC238-FRL-5TF	10.098	7.323	2.362	4800	169.5
MC202-FRL-5TF	10.098	7.323	2.362	4900	173

DIMENSIONS (in inches)					
Mod.	A	B1	C	Flow Nl/min	SCFM
MC104-FRL-5-FLTF	7.618	6.260	1.772	1450	51.2
MC238-FRL-5-FLTF	10.098	8.425	2.362	4800	169.5
MC202-FRL-5-FLTF	10.098	8.425	2.362	4900	173

Assembly group GN

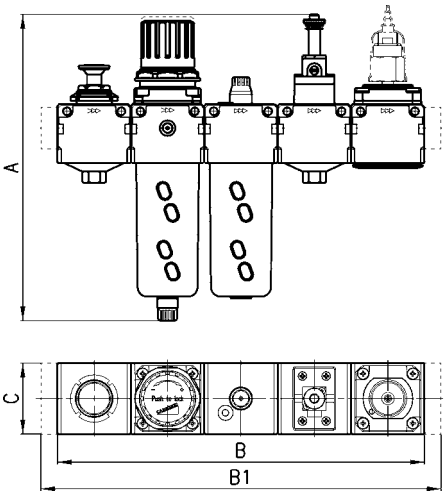


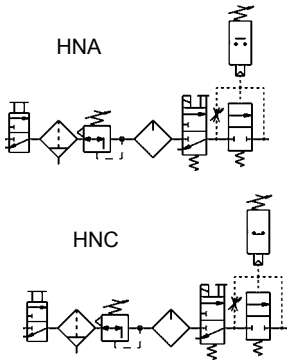


DIMENSIONS (in inches)					
Mod.	A	B	C	Flow Nl/min	SCFM
MC104-GN-5TF	8.189	7.087	1.772	1450	51.2
MC238-GN-5TF	10.197	9.764	2.362	4800	169.5
MC202-GN-5TF	10.197	9.764	2.362	4900	173

DIMENSIONS (in inches)					
Mod.	A	B1	C	Flow Nl/min	SCFM
MC104-GN-5-FLTF	8.189	8.031	1.772	1450	51.2
MC238-GN-5-FLTF	10.197	10.866	2.362	4800	169.5
MC202-GN-5-FLTF	10.197	10.866	2.362	4900	173

Assembly group HN... (Complete code with "A" or "C" for PM11 choice)

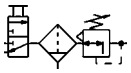


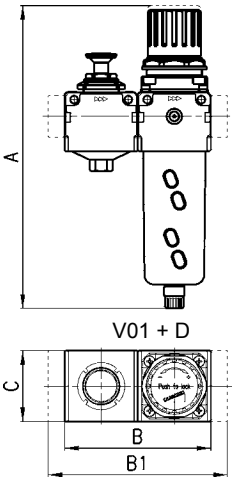


DIMENSIONS (in inches)					
Mod.	A	B	C	Flow Nl/min	SCFM
MC104-HN… -5TF	8.189	8.858	1.772	1450	51.2
MC238-HN… -5TF	10.193	12.205	2.362	4800	169.5
MC202-HN… -5TF	10.193	12.205	2.362	4900	173

DIMENSIONS (in inches)					
Mod.	A	B1	C	Flow Nl/min	SCFM
MC104-HN… -5-FLTF	8.189	9.803	1.772	1450	51.2
MC238-HN… -5-FLTF	10.193	13.307	2.362	4800	169.5
MC202-HN… -5-FLTF	10.193	13.307	2.362	4950	175

Assembly group N

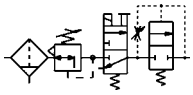


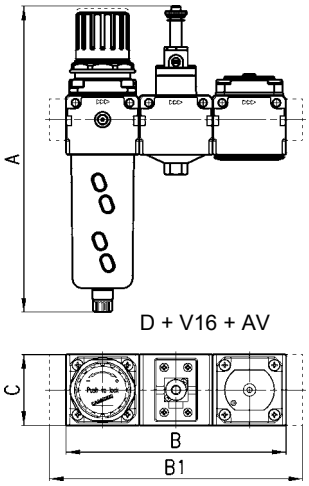


DIMENSIONS (in inches)					
Mod.	A	B	C	Flow Nl/min	SCFM
MC104-N-5TF	7.618	3.543	1.772	1450	51.2
MC238-N-5TF	10.098	4.882	2.362	4800	169.5
MC202-N-5TF	10.098	4.882	2.362	4950	175

DIMENSIONS (in inches)					
Mod.	A	B1	C	Flow Nl/min	SCFM
MC104-N-5-FLTF	7.618	4.488	1.772	1450	51.2
MC238-N-5-FLTF	10.098	5.984	2.362	4800	169.5
MC202-N-5-FLTF	10.098	5.984	2.362	4950	175

Assembly group PN, (coils sold separately, not included in assemblies)

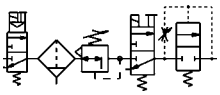


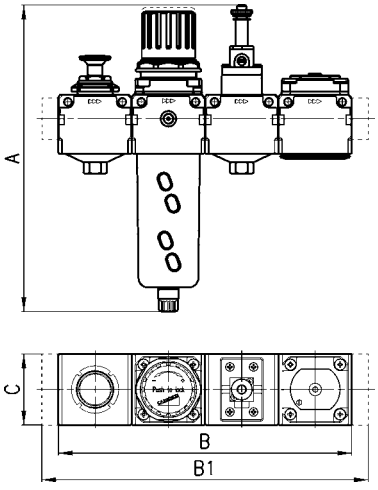


DIMENSIONS (in inches)					
Mod.	A	B	C	Flow Nl/min	SCFM
MC104-PN-5TF	8.189	5.315	1.772	1450	51.2
MC238-PN-5TF	10.197	7.323	2.362	4800	169.5
MC202-PN-5TF	10.197	7.323	2.362	4950	175

DIMENSIONS (in inches)					
Mod.	A	B1	C	Flow Nl/min	SCFM
MC104-PN-5-FLTF	8.189	8.189	1.772	1450	51.2
MC238-PN-5-FLTF	10.197	10.866	2.362	4800	169.5
MC202-PN-5-FLTF	10.197	10.866	2.362	4950	175

Assembly group QN, (coils sold separately, not included in assemblies)



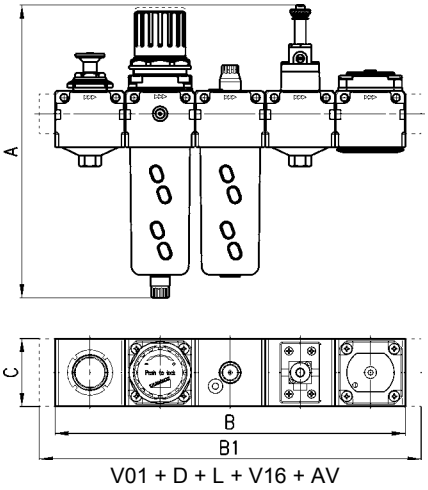


V01 + D + V16 + AV

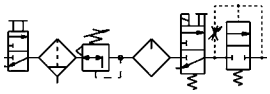
DIMENSIONS (in inches)					
Mod.	A	B	C	Flow Nl/min	SCFM
MC104-QN-5TF	8.189	7.087	1.772	1450	51.2
MC238-QN-5TF	10.197	9.764	2.362	4800	169.5
MC202-QN-5TF	10.197	9.764	2.362	4950	175

DIMENSIONS (in inches)					
Mod.	A	B1	C	Flow Nl/min	SCFM
MC104-QN-5-FLTF	8.189	8.031	1.772	1450	51.2
MC238-QN-5-FLTF	10.197	10.866	2.362	4800	169.5
MC202-QN-5-FLTF	10.197	10.866	2.362	4950	175

Assembly group TN, (coils sold separately, not included in assemblies).
Shown with PM11 - not included, only for illustration purposes



V01 + D + L + V16 + AV



DIMENSIONS (in inches)

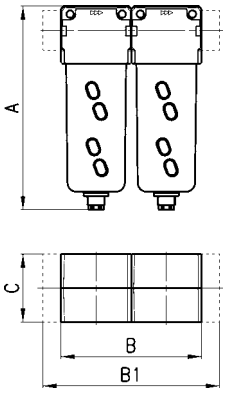
Mod.	A	B	C	Flow Nl/min	SCFM
MC104-TN-5TF	8.189	8.858	1.772	1450	51.2
MC238-TN-5TF	10.197	12.205	2.362	4800	169.5
MC202-TN-5TF	10.197	12.205	2.362	4950	175

DIMENSIONS (in inches)

Mod.	A	B1	C	Flow Nl/min	SCFM
MC104-TN-5-FLTF	8.189	8.858	1.772	1450	51.2
MC238-TN-5-FLTF	10.197	12.205	2.362	4800	169.5
MC202-TN-5-FLTF	10.197	12.205	2.362	4950	175

Assembly group U

F13 + FB3



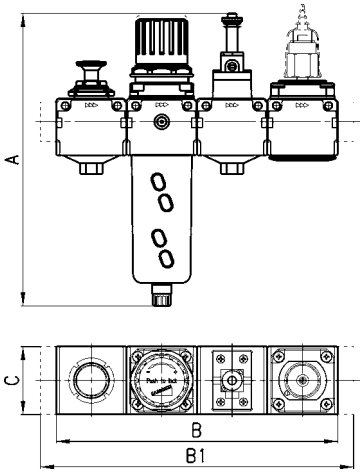
DIMENSIONS (in inches)

Mod.	A	B	C	Flow Nl/min	SCFM
MC238-U-5TF	7.087	4.882	2.362	2050	72.4
MC202-U-5TF	7.087	4.882	2.362	2300	81.2

DIMENSIONS (in inches)

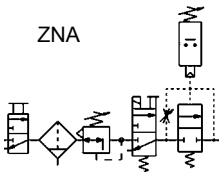
Mod.	A	B1	C	Flow Nl/min	SCFM
MC238-U-5-FLTF	7.087	5.984	2.362	2050	72.4
MC202-U-5-FLTF	7.087	5.984	2.362	2300	81.2

Assembly group ZN… (complete Code with “A” or “C” for PM11 choice), (coils sold separately, not included in assemblies)

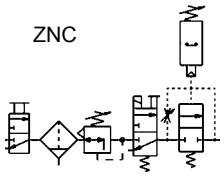


V01 + D + V16 + AV + PRESS

ZNA



ZNC



DIMENSIONS (in inches)					
Mod.	A	B	C	Flow Nl/min	SCFM
MC104-ZN… -5TF	8.189	7.087	1.772	1450	51.2
MC238-ZN… -5TF	10.197	9.764	2.362	4800	169.5
MC202-ZN… -5TF	10.197	9.764	2.362	4950	175

DIMENSIONS (in inches)					
Mod.	A	B1	C	Flow Nl/min	SCFM
MC104-ZN… -5-FLTF	8.189	8.031	1.772	1450	51.2
MC238-ZN… -5-FLTF	10.197	10.866	2.362	4800	169.5
MC202-ZN… -5-FLTF	10.197	10.866	2.362	4950	175

FRL Series MC Assembly Kits Guide

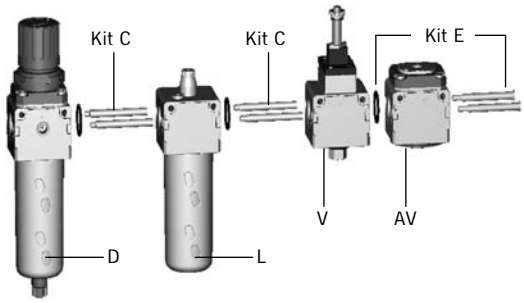
LEGEND *
All Components use an abbreviated Single-Letter code for determining KITS required. (see table below for examples of various assemblies and KITS)

- **F** = Filter (MC***-F00) - with “pass-through” assembly holes
- **R** = Regulator (MC***-R00) – with threaded fixed assembly holes
- **L** = Lubricator (MC***-L00) - with “pass-through” assembly holes
- **D** = Filter- Regulator Combo / In-Line Unit (MC***-D00) – with threaded fixed assembly holes
- **V** = 3/2-way Manual “Lock-Out” Valve, or Solenoid Shut-Off Valve, or Air-Pilot Shut-Off Valve (MC***-V01, MC***-V16, MC***-V36) - with “pass-through” assembly holes
- **B** = Additional outlet pressure block, “Take-Off” Block (MC*-B***) - with “pass-through” assembly holes
- **AV** = Slow start valve / Soft-Start valve (MC***-AV) - with “pass-through” assembly holes

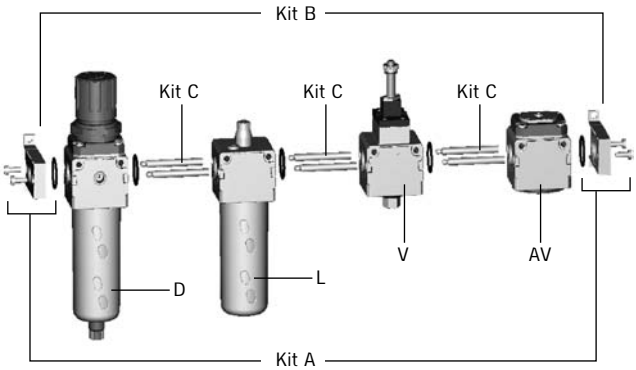
INSTRUCTIONS

1. In deciding which KITS to use for assembly, you must first decide if End-Plates, (KIT A), are to be used based upon customer preference. This affects the number of Tie-Rod KITS, (KIT C or KIT D) that will be required, as opposed to Cap-Screw KITS, (KIT E or KIT F), when no End-Plates are used in assembly.
2. ONLY Regulators and Filter-Regulators have threads in their bodies, which require Tie-Rod or Cap-Screw KITS to terminate in them. All other components allow the Tie-Rods and Cap-Screws to pass through their bodies. This allows for the most common Tie-Rod set, (KIT C), to be used in all assemblies, and merely change the final terminating/outside Tie-Rods or Cap-Screws based on the use of End-Plates, or not.
3. If no Regulators or Filter-Regulators are used, and all components are a “Pass-Through” type with no threads, then alternate KITS D or F would be used to finish the Tie-Rod or Cap-Screw assembly.

FRL without End-Plates
1D + 1L + 1V + 1AV + 2 kit C + 1 kit E



FRL with End-Plates + Wall-Mount Brackets
1D + 1L + 1V + 1AV + 3 kit C + 1 kit A + 1 kit B

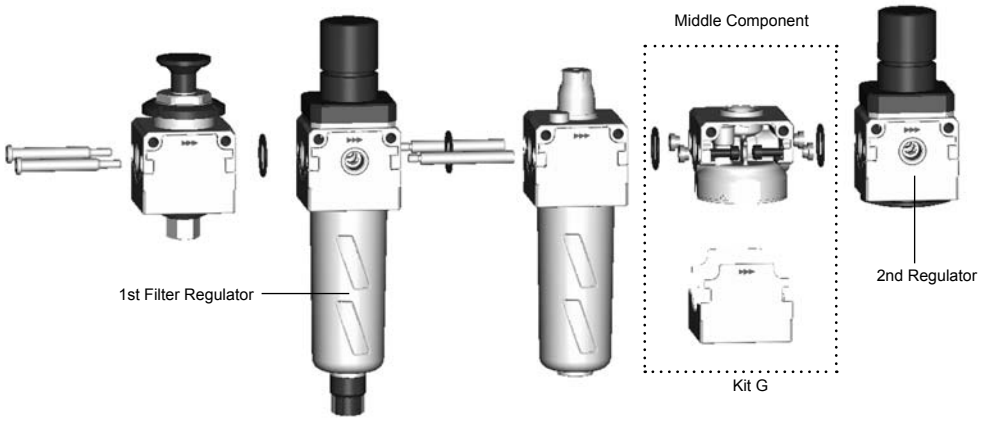


EXAMPLE OF FRL MODULAR ASSEMBLY, Based on Components in assembly using Legend above *

ASSEMBLY WITHOUT END-PLATES		ASSEMBLY WITH END-PLATES	
Components *	KITS Needed	Components *	KITS Needed
F + R + L	2 kit E	F + R + L	1 kit A + 2 kit C
D + L	1 kit E	D + L	1 kit A + 1 kit C
D + B + L	1 kit E + 1 kit C	D + B + L	1 kit A + 2 kit C
D + B + R + L	2 kit E + 1 kit C	D + B + R + L	1 kit A + 3 kit C
V + F + R + L	2 kit E + 1 kit C	V + F + R + L	1 kit A + 3 kit C
V + F + R + L + V + AV	2 kit E + 3 kit C	V + F + R + L	1 kit A + 5 kit C
F + L	1 kit F	F + L	1 kit A + 1 kit C + 1 Kit D
F + L + V + AV	2 kit C + 1 kit F	F + L + V + AV	1 kit A + 3 kit C + 1 Kit D
V + D + V + AV	2 kit E + 1 kit C	V + D + V + AV	1 kit A + 3 kit C

KIT COMPOSITION			
Kit A	Left and Right End-plate + 4 cap-screws + 2 O-Rings	Kit D	2 Female-Female tie-rods
Kit B	2 Wall-Mount supports + 4 M5 screws	Kit E	2 male cap-screws + 1 o-ring
Kit C	2 Male-Female tie-rods + 1 O-Ring	Kit F	2 male cap-screws + 2 female cap-screws + 1 o-ring
		Kit G **	4 male cap-screws + 4 washers/bushings + 2 o-rings

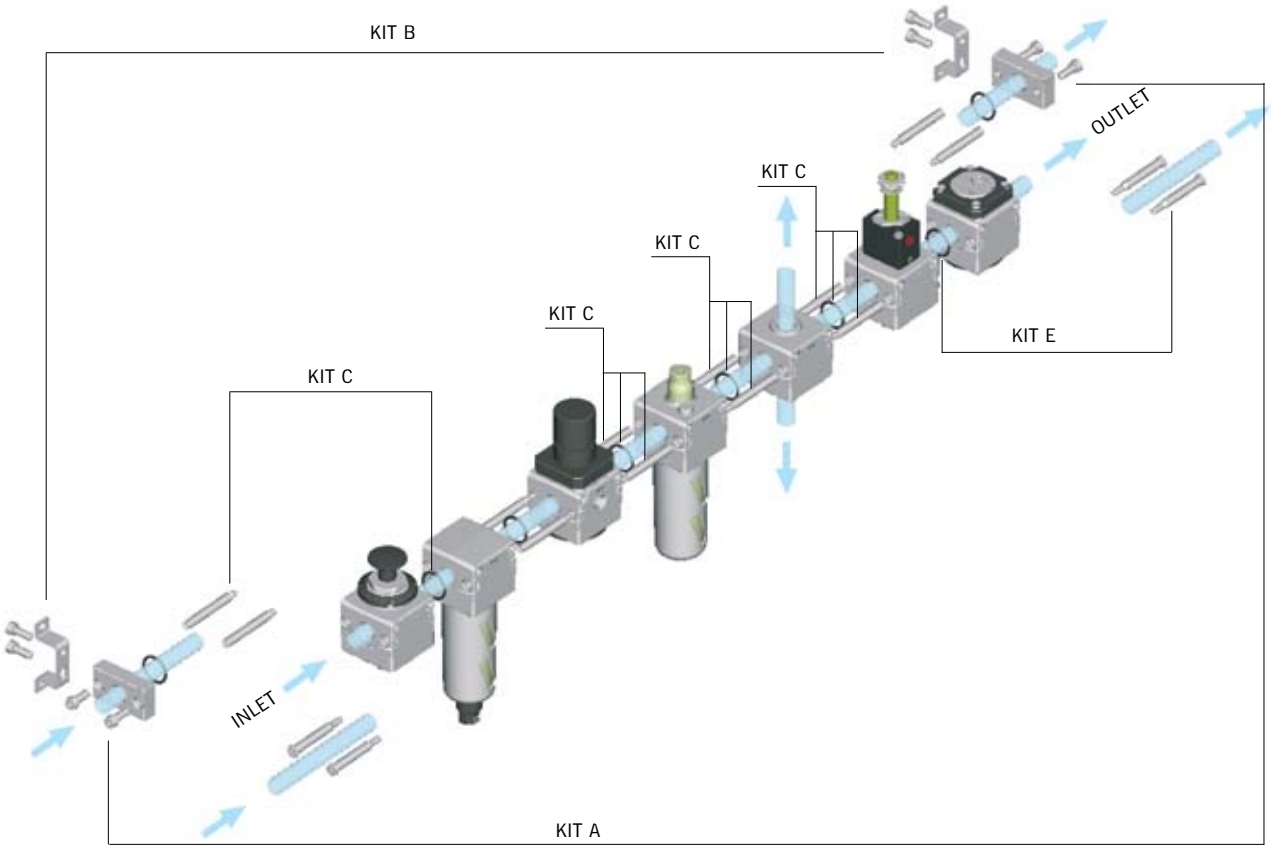
** Example of KIT “G” used below. KIT “G” is to be used whenever there is a second regulator or filter-regulator in the same common assembly. KIT “G” allows the component to the left of the second regulator to be assembled onto the second regulator on its right side and also back into the component or tie-rod KIT to its left side. You must remove the outer plastic shell or cover of that middle component in order to assemble the bushings and cap-screws of Kit “G” both to the left and right.



**** NOTE:** See below table for all KIT Part Numbers when ordering, or checking stock and price.

Part Numbers For Kits			
KIT	1/4" Units	3/8" Units	1/2" Units
Kit A	MC104-FL-TF	MC238-FL-TF	MC202-FL-TF
Kit B	MC104-ST	MC104-ST	MC104-ST
Kit C	MC1-TMF	MC2-TMF	MC2-TMF
Kit D	MC1-TFF	MC2-TFF	MC2-TFF
Kit E	MC1-VM	MC2-VM	MC2-VM
Kit F	MC1-VMF	MC2-VMF	MC2-VMF
Kit G	MC1-VMD	MC2-VMD	MC2-VMD

** All kits and accessories located at end of chapter and in Appendix section. Consult for ordering codes and descriptions.



Types Kit

Components
Kit A: 1 right flanges + 1 left flanges + 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 washers + 2 O-ring

N.B. only one “M” can be present within the assembled composition; for assembly configurations which differ from the ones described, you can add only types “P” and for each added element you need a Kit “C”.

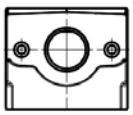
Assembly Kit Requirements – Guide to Kits with Body types “P” and “M”

Components	Without terminal flanges	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
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

Examples body type “M”

With female no through threads

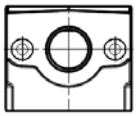
R = Regulator (MC***-R00) – with threaded fixed assembly holes
D = Filter- Regulator Combo / In-Line Unit (MC***-D00) – with threaded fixed assembly holes
H = Manifold Regulator (MC104-M00TF) , with threaded fixed assembly holes



Examples body type “P”

With through holes

F = Filter (MC***-F00) - with “pass-through” assembly holes
L = Lubricator (MC***-L00) - with “pass-through” assembly holes
AV = Slow start valve / Soft-Start valve (MC***-AV) - with “pass-through” assembly holes
V = 3/2-way Manual “Lock-Out” Valve, or Solenoid Shut-Off Valve, or Air-Pilot Shut-Off Valve (MC***-V01, MC***-V16, MC***-V36) - with “passthrough” assembly holes
B = Additional outlet pressure block, “Take-Off” Block (MC*-B***) - with “pass-through” assembly holes



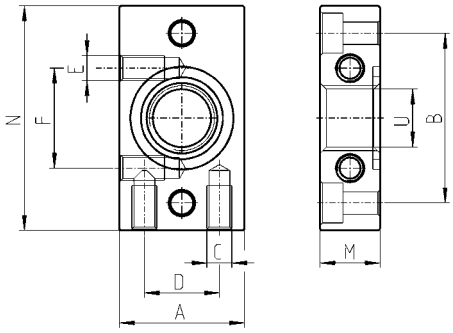
Mounting Brackets, Accessories and Kits - Series MC

Terminal flanges Series MC (Kit A)

The kit MC104-FL is supplied with: 1x left terminal flange; 1x right terminal flange; 4x screws M4x14; 2x O-Ring 2068.

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

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



DIMENSIONS (in mm)

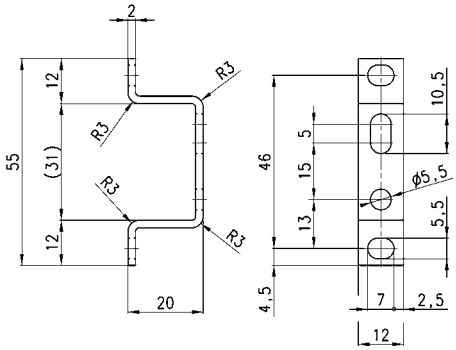
Mod.	A	B	C	D	N	M	U	size
MC104-FL	25	34	M5	15	45	12	G1/4	1
MC238-FL	35	44.5	M5	20	60	14	G3/8	2
MC202-FL	35	44.5	M5	20	60	14	G1/2	2
MC104-FLTF	25	34	M5	15	45	12	1/4" NPTF	
MC238-FLTF	35	44.5	M5	20	60	14	3/8" NPTF	
MC202-FLTF	35	44.5	M5	20	60	14	1/2" NPTF	

Mounting bracket Series MC (Kit B)

Mounting bracket for terminals 1/4, 3/8, 1.

The kit MC104-ST is supplied with:
- 2x terminal brackets
- 4x screws M5x10

Materials: zinc-plated steel brackets and screws.

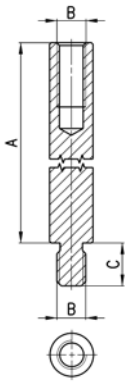


Mod. (Dimensions in mm)
MC104-ST

Tie-rod for assembling, Series MC (Kit C)

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

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



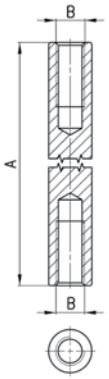
Mod. (dimensions in mm)	A	B	SW	size
MC1-TMF	45	M4	6	1
MC2-TMF	62	M5	6	2

Tie-rod for assembling, Series MC (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.

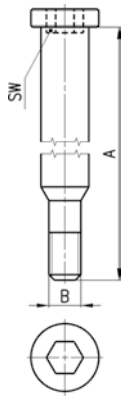


Mod. (Dimensions in mm)	A	B	size
MC1-TFF	44	M4	1
MC2-TFF	61	M5	2

Screw for assembling, Series MC (Kit E)

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

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

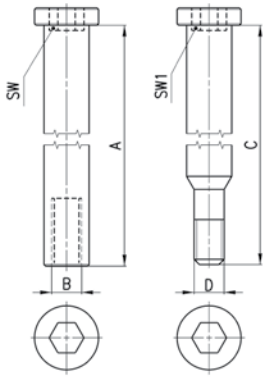


Mod. (Dimensions in mm)	A	B	SW	size
MC1-VM	48.5	M4	4	1
MC2-VM	65.5	M5	4	2

Screw for assembling, Series MC (Kit F)

The kit is supplied with: 2 male screws; 2 female screws; 1 O-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.



Mod. (dimensions in mm)	A	B	C	D	SW	SW1	size
MC1-VMF	42	M4	42.5	M4	4	4	1
MC2-VMF	59	M5	59.5	M5	4	4	2

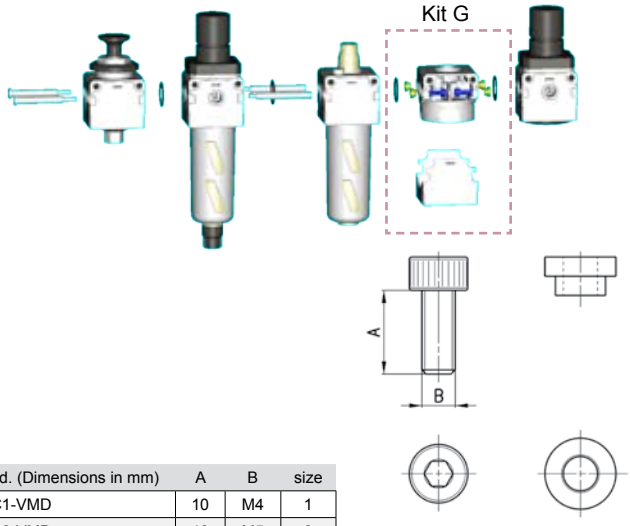
Tie-rod for assembling, Series MC (Kit G)

4 screws - 4 washers/spacers - 2 o-rings

** See example at right. KIT “G” is to be used whenever there is a second regulator or filter-regulator in the same common assembly. KIT “G” allows the component to the left of the second regulator to be assembled onto the second regulator on its right side and also back into the component or tie-rod KIT to its left side. You must remove the outer plastic shell or cover of that middle component in order to assemble the bushings and cap-screws of Kit “G” both to the left and right.

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

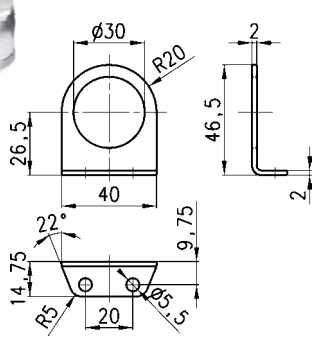
Materials: zinc-plated steel screws, brass spacers and NBR O-ring.



Mod. (Dimensions in mm)	A	B	size
MC1-VMD	10	M4	1
MC2-VMD	12	M5	2

Mounting bracket, Series MC-M-N-T

Mounting bracket for Regulators and Filter-Regulators (1/8 & 1/4) - zinc-plated steel bracket



Mod. (dimensions in mm)

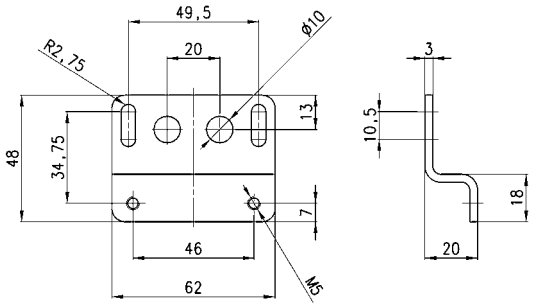
C114-ST/1

Mounting bracket, Series MC

Mounting bracket for MC238 and MC202

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

Materials: zinc-plated steel bracket and screws

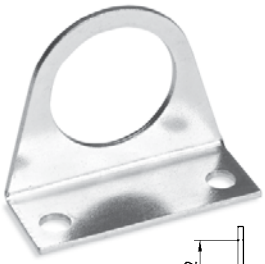


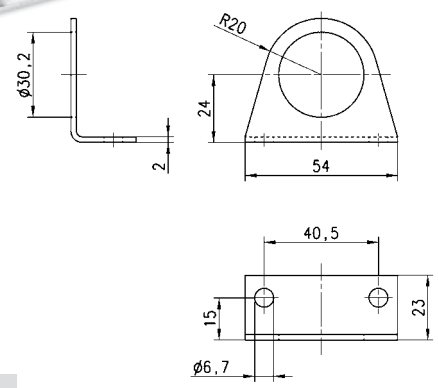
Mod. (dimensions in mm)

C238-ST/1

Mounting bracket, Series MC-M-N-T

Mounting bracket for Regulators and Filter-Regulators (1/8 & 1/4) - zinc-plated steel bracket



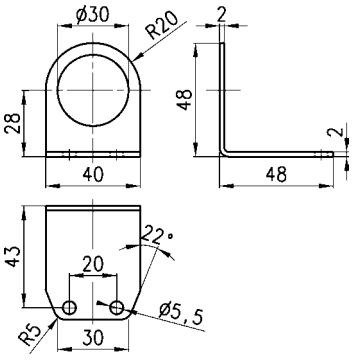


Mod. (dimensions in mm)

C114-ST

Mounting bracket, Series MC-M-N-T

Mounting bracket for Regulators and Filter-Regulators, (1/8 & 1/4) - zinc-plated steel bracket

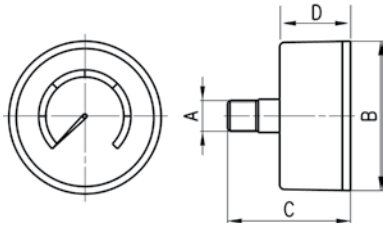


Mod. (dimensions in mm)

C114-ST/2

Pressure gauges
Mod. M043-P04TF (0 - 60 psi)

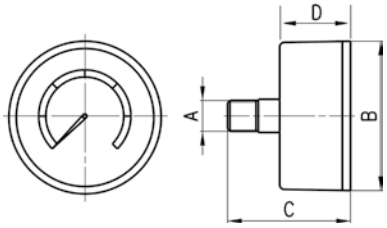
Nominal face size 1 1/2”



DIMENSIONS (in inches)				
Mod.	A	B	C	D
M043-P04TF	1/8" NPTF	1.655	1.600	0.950

Pressure gauges
Mod. M043-P10TF (0 - 160 psi)

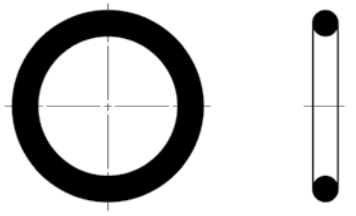
Nominal face size 1 1/2”



DIMENSIONS (in inches)				
Mod.	A	B	C	D
M043-P10TF	1/8" NPTF	1.655	1.600	0.950

Assembly O-ring, Series MC

Assembly O-ring F-R-L-D
for MC104 mod. **458-33/1** (OR 2068)
for MC238 and MC202 mod. **80-26-11/4T** (OR 3100)
(spare part only).



* spare parts only

Mod.	O-ring	For assembly	
458-33/1	OR 2068	MC104	
80-26-11/4T	OR 3100	MC238 - MC202	*
160-39-11/19	OR 3125	MX2	
C401-F33	OR 3150	MX3	

Functioning Condensate Drains Series N, MC and MX

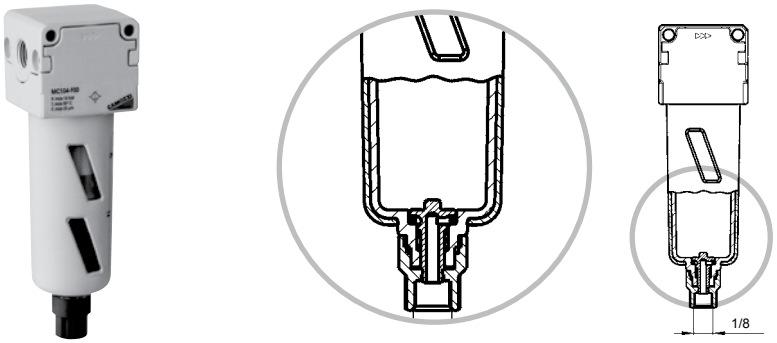
Semi-automatic - manual drain - option Type “F*0”
Automatic drain - option Type “F*3”
Depressurization drain (“spitter” drain) - option Type “F*4”
Depressurization drain, filtered drain orifice - option Type “F*5”
1/8" port (without drain) - option Type “F*8”

Semi-automatic - manual drain “F*0” Type

The version with semi-automatic drain functions in the following way:
Normally Open at 0 psi, (Closes at 4 psi). Then manually push to relieve or turn to close.

1. With the operator mechanism turned counter-clockwise, each time the pressure falls below 0,3 bar, [4.35 psi] the condensate will be released; when resetting the pressure, the drain will close again.
2. The release can also be carried out manually; when the bowl is pressurized, the operator mechanism is pushed upwards.

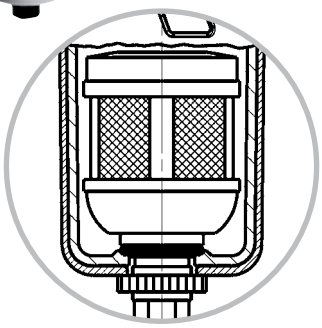
To stop the discharge of condensate, the operator mechanism is turned clockwise to completely close the drain.

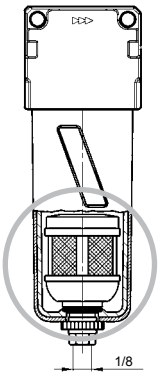


Automatic drain “F*3” Type (3/8" and larger sizes only)

The automatic drain model discharges the condensate each time the maximum permissible level in the bowl is reached. This version should be used where there is likely to be a large amount of condensate or where the system is always pressurized and the semi-automatic drain would not be used.

Normally Open at 0 psi, (Closes at 3 psi), Then Opens by liquid level to drain so long as within operating pressure range (22 psi – 220 psi)

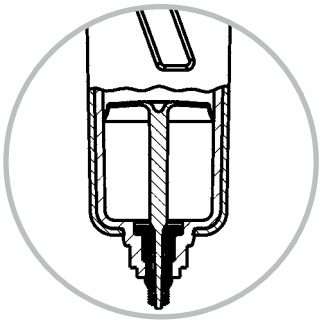


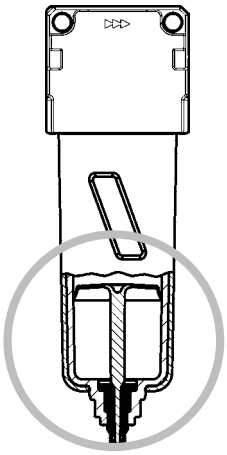


Depressurization drain “F*4” Type (1/4” sizes and smaller only)

The depressurization drain allows the rapid removal of condensate at each air consumption of the system. A pressure drop of 0,1 bar (2 psi) is sufficient to obtain the release of a small quantity of air or condensate present at the bottom of the reservoir, after which the drain is closed.

Normally Closed at 0 psi, Opens by Pressure-Drop > 2 psi , (Δp=0.1 bar), so long as within operating pressure limits of 4.5 – 145 psi

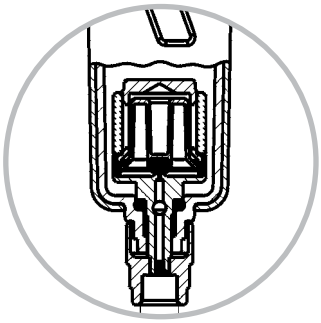


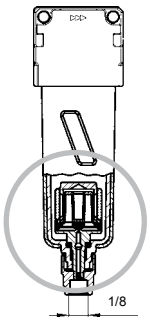


Depressurization drain, filtered drain orifice “F*5” Type

The depressurization drain allows the rapid removal of condensate at each air consumption of the system. A pressure drop of 1 bar (14.5 psi) is sufficient to obtain the release of a small quantity of air or condensate present at the bottom of the reservoir, after which the drain is closed. This version has a filtering element which protects the outlet holes from any impurity.

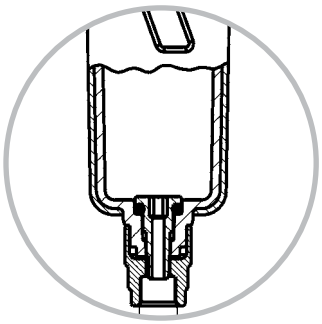
Normally Open at 0 psi, (Closes at 4.5 psi). Then opens with Pressure-Drop > 14.5 psi, (Δp = 1 bar).

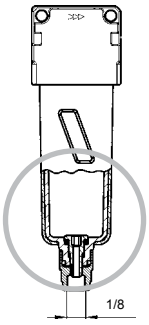




1/8 port (without drain) “F*8” Type

This version permits connection of external items to the bowl via a through hole of ø3 mm and a threaded port 1/8".
Example of application:
Mounted mini valve Series A, (or Ball Valve) for remotely operated drain.





3 Modular FRL Series MX 3/8”, 1/2”, 3/4” and 1” NPTF

Summary and Features

Series MX - Modular 3/8" - 1" NPTF

Regulator
- Three Pressure range options
- Relieving, Non-Relieving diaphragm options
- Factory Pressure presets avail.
- Tamper-proof available (slots for hard locks on all adjustment knobs)
- Locking, Non-rising knob std.
- Front & Rear gauge ports (pre-installed gauges standard)

Optional Flanges/Endcaps
- For easy removal of hard plumbing

Manual Shut-Off Valve w/ Lock-Out, Tag-Out
- Downstream quick-dump feature
- Lock-Out hole is 8mm (0.315") OD, to accommodate most locks and hasps
- Unit flows to downstream when handle is down - Lifting handle exposes lock-out hole and exhausts downstream pressure

Filter
- Coalescing, 5 & 25 micron elements avail.
- Quick-Release bayonet bowls
- Grilamid (Nylon Composite) outer shroud, inner polycarbonate bowl
- Manual, Depressurizing & Automatic Float Drain Options available
- Available in ‘Piggy-back" Filter-Regulator combos
- Thumb-latch on all bowls prevents accidental
- opening of bowl

Lubricator –
- Venturi Design w/ 2 micron drop size
- Flow adjustment near droplet indicator
- Quick-release bayonet bowl
- Grilamid (Nylon Composite) sight-glass material w/ Nylon composite shroud over the inner polycarbonate bowl
- Oil Refillable while pressurized
- Large volume capacity bowl

Optional Wallmount brackets

Standard assembly brackets

Isolation / Soft-Start Valve Combo –
- Solenoid or Air-Pilot activated
- Downstream quick-dump feature
- Fully adjustable pressure ramp-up during start-up
- Port tap for electronic pressure switch (ex. PM11)
- Poppet valve design Isolation/Soft-Start Valve
- 1/2” - 3/4" Silencer ports on Shut-Off valves for Quick-Exhaust feature

Standard Features –
- Inlet Pressure 0.3 – 16 bar (4.25 – 232 psi)
- Operating Temp (-5° C - 50° C, (23° F - 122° F), with Dew Point of air at least 2° C (4° F) below the min working temperature)
- Custom Assemblies available from McKinney, TX
- Low Temp versions available
- Aluminum construction w Polyurethane Enamel finish
- Modular Design w/ Simple bracket assembly system
- Single Part Number system for custom Assemblies

Filters Series MX

Ports 3/8" - 1" NPTF
MX2 ports: 3/8", 1/2", 3/4" NPTF - MX3 ports: 3/4" 1" NPTF
Innovative modular clamping system
Quick-Release, locking bayonet bowls

Series MX3 is the latest air treatment system offered by Camozzi. This modular design is characterized by a modern, compact design, and high performance. The integration between metal alloys and technopolymers has allowed the realization of a reliable product, both light and strong at the same time. The unique and patented modular clamping system simplifies the mounting of components.

The Series MX appeals to a broad spectrum of markets and applications because of the savings realized in installation time, space requirements and total cost.

A special configurator, available on Camozzi's global 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.

- Removal of impurities and condensate
- High flow with minimal pressure decreases
- Cartridge filters of 25 or 5 µm
- Manual, automatic, depressurizing and ported condensate drain
- Bowl locking mechanism reduces the risk of accidents

GENERAL DATA

Construction	modular, compact with filtering element in HDPE
Materials	see TABLE OF MATERIALS
Ports	3/8" - 1" NPTF
Condensate capacity	MX3: 85 cc, (approx. 3 oz.), MX2: 55 cc (approx. 1.9 oz.)
Mounting	vertical in-line wall-mounting (by means of clamps)
Operating temperature	-5°C - 50°C at 16 bar with Dew Point of air at least 2° C (4° F) below the min working temperature, (23 F - 122 F @ 232 psi, up to 140 F MAX at 145 psi) -5°C - 60°C at 10 bar with Dew Point of air at least 2° C (4° F) below the min working temperature
Porosity of filtering element	25 µm 5 µm
Draining of condensate	manual, automatic, depressurizing and ported
Operating pressure	0,3 - 16 bar (with automatic drain 1,5 - 12 bar, (4.5 - 232 psi, 22 - 175 psi w/ automatic drain option))
Nominal flow	see FLOW DIAGRAMS
Fluid	compressed air

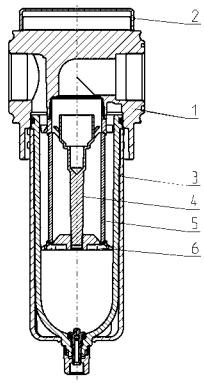
CODING EXAMPLE

MX	2	-	3/8	-	F	0	0	TF

MX	SERIES
2	SIZE: 2 = 3/8" - 1/2" - 3/4" 3 = 3/4" - 1"
3/8	PORTS: 3/8 = 3/8 1/2 = 1/2 3/4 = 3/4 1 = 1
F	FILTER
0	FILTERING ELEMENT: 0 = 25 µm (standard) 1 = 5 µm
0	DRAINING OF CONDENSATE: 0 = semiautomatic-manual drain (standard) 3 = automatic drain 5 = depressuring drain, filtered orifice 8 = without drain, with port G1/8
TF	TF = NPTF ports blank = BSP ports

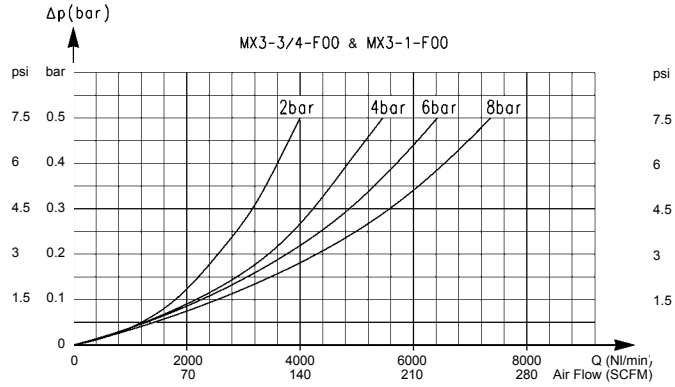
For the assembly of a single component with fixing flanges or wall-mounting, see the section "FRL Series MX Assembled"

Filters Series MX - materials



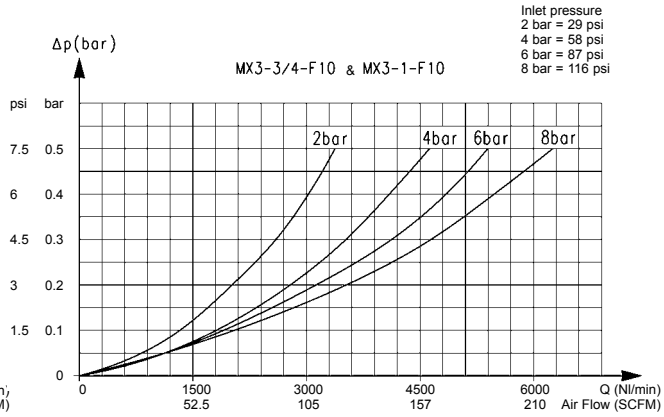
PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
3 = Bowl with technopolymer cover	Polycarbonate/Polyamide
4 = Valve-guide	Polyacetal
5 = Filtering element	Polyethylene
6 = Separation deflector	Polyacetal
Seals	NBR

MX3 FLOW DIAGRAMS



Reference diagram for models with filtering element = 25 µm

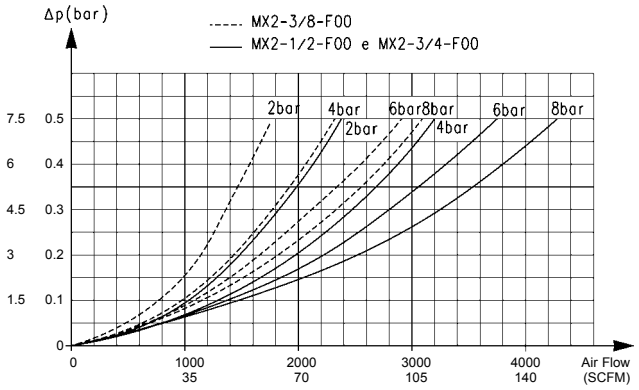
ΔP = Pressure drop
Q = Flow



Reference diagram for models with filtering element = 5 µm

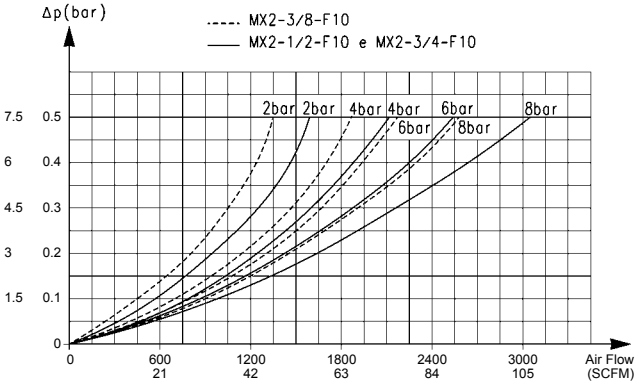
ΔP = Pressure drop
Q = Flow

MX2 FLOW DIAGRAMS



Reference diagram for models with filtering element = 25 µm

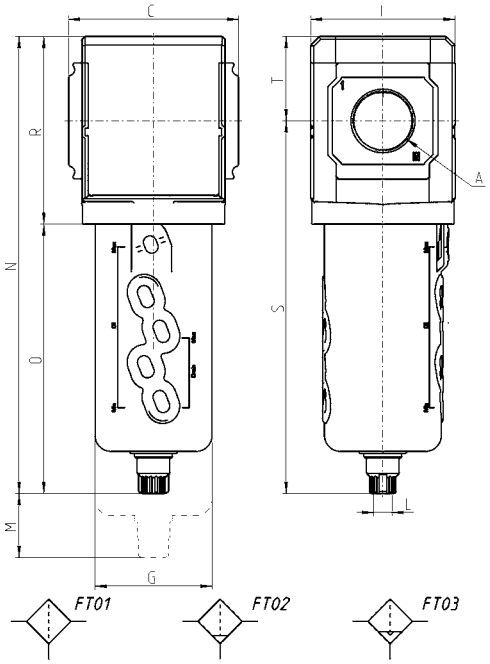
Δp = Pressure drop
Q = Flow



Reference diagram for models with filtering element = 5 µm

Δp = Pressure drop
Q = Flow

Filters Series MX - dimensions



FT01 = filter without drain with threaded port

FT02 = filter with semiautomatic manual drain

FT03 = filter with automatic or depressuring drain

DIMENSIONS (in inches)

Mod.	A	C	G	I	L	M	N	O	R	S	T	Weight (kg)
MX2-3/8-F00TF	3/8	2.756	2.177	2.677	1/8	2.264	8.346	5.000	3.346	6.870	1.476	0.5
MX2-1/2-F00TF	1/2	2.756	2.177	2.677	1/8	2.264	8.346	5.000	3.346	6.870	1.476	0.5
MX2-3/4-F00TF	3/4	2.756	2.177	2.677	1/8	2.264	8.346	5.000	3.346	6.870	1.476	0.5
MX3-3/4-F00TF	3/4	3.524	2.421	2.992	1/8	2.953	9.488	5.591	3.898	7.736	1.752	0.8
MX3-1-F00TF	1	3.524	2.421	2.992	1/8	2.953	9.488	5.591	3.898	7.736	1.752	0.7

Coalescing Filters Series MX

Ports 3/8" - 1" NPTF
MX2 ports: 3/8", 1/2", 3/4" NPTF - MX3 ports: 3/4", 1" NPTF
Innovative modular clamping system
Quick-Release, locking bayonet bowls

Series MX3 is the latest air treatment system offered by Camozzi. This modular design is characterized by a modern, compact design, and high performance. The integration between metal alloys and technopolymers has allowed the realization of a reliable product, both light and strong at the same time. The unique and patented modular clamping system simplifies the mounting of components.

The Series MX appeals to a broad spectrum of markets and applications because of the savings realized in installation time, space requirements and total cost.

A special configurator, available on Camozzi's global 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.

- » High performance and compressed air purity
- » Air quality according to ISO 8573-1 standard
- » Cartridge filters 1 or 0,01 µm
- » Manual, depressurizing, automatic and ported condensate drain
- » Bowl locking mechanism reducing the risk of accidents

GENERAL DATA

Construction	modular, compact	
Materials	see TABLE OF MATERIALS	
Ports	3/8" - 1" NPTF	
Condensate capacity	MX3: 85 cc, (approx. 3 oz.), MX2: 55 cc (approx. 1.9 oz.)	
Mounting	vertical in-line wall-mounting (by means of clamps)	
Operating temperature	-5°C - 50°C at 16 bar with Dew Point of air at least 2° C (4° F) below the min working temperature, (23 F - 122 F @ 232 psi, up to 140 F MAX at 145 psi) -5°C - 60°C at 10 bar with Dew Point of air at least 2° C (4° F) below the min working temperature	
Draining of condensate	manual, automatic, depressurizing and ported	
Operating pressure	0,3 - 16 bar (with automatic drain 1,5 - 12 bar); (4.5 - 232 psi, with automatic drain 22 - 175 psi)	
Nominal flow	see FLOW DIAGRAMS	
Porosity of filtering element	0,01 µm	1 µm
Residual oil content with inlet at 3 mg/m3	< 0,01mg/m³	< 0,1mg/m³
Oil retain efficiency	99,80%	97%
Particles retain efficiency	99,99999%	99,999%
Fluid	compressed air	
Pre-filtering with filtering element of 1 µm Pre-filtering with filtering element of 0,01 µm	it is recommended to use a filter of 5 µm it is recommended to use a filter with residual oil of 0,1 mg/m³	

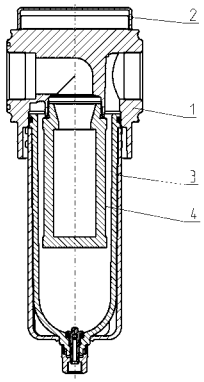
CODING EXAMPLE

MX	2	-	3/8	-	FC	0	0	TF

MX	SERIES
2	SIZE: 2 = 3/8" - 1/2" - 3/4" 3 = 3/4" - 1"
3/8	PORTS: 3/8 = 3/8 1/2 = 1/2 3/4 = 3/4 1 = 1
FC	COALESCING FILTER
0	FILTERING ELEMENT: 0 = 0,01 µm (standard) 1 = 1 µm
0	DRAINING OF CONDENSATE: 0 = semiautomatic-manual drain (standard) 3 = automatic drain 5 = depressuring drain, filtered orifice 8 = without drain, with port 1/8
TF	TF = NPTF ports blank = BSP ports

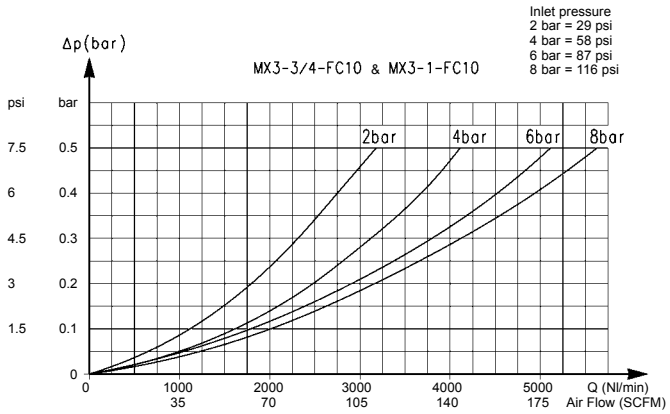
For the assembly of a single component with fixing flanges or wall-mounting, see the section “FRL Series MX Assembled”

Coalescing filters Series MX - materials



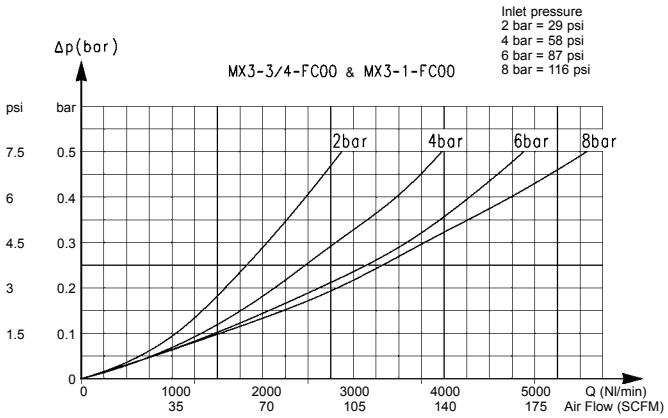
PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
3 = Bowl with technopolymer cover	Polycarbonate/Polyamide
4 = Filtering element	Borosilicate
Seals	NBR

MX3 FLOW DIAGRAMS



Reference diagram for models with filtering element = 1 µm

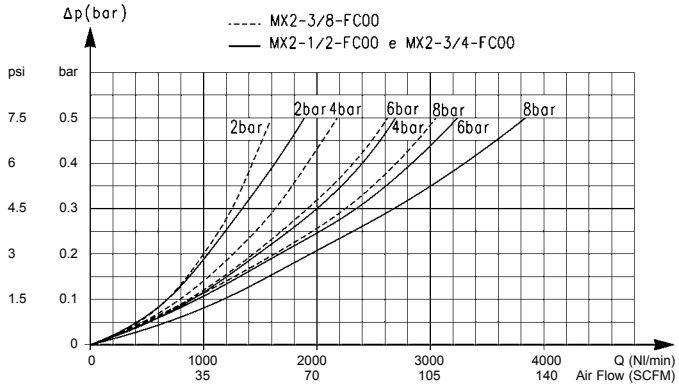
ΔP = Pressure drop
Q = Flow



Reference diagram for models with filtering element = 0,01 µm

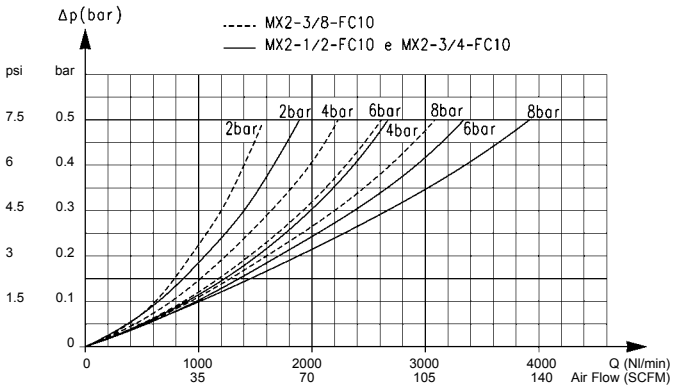
ΔP = Pressure drop
Q = Flow

MX2 FLOW DIAGRAMS



Reference diagram for models with filtering element = 0,01 µm

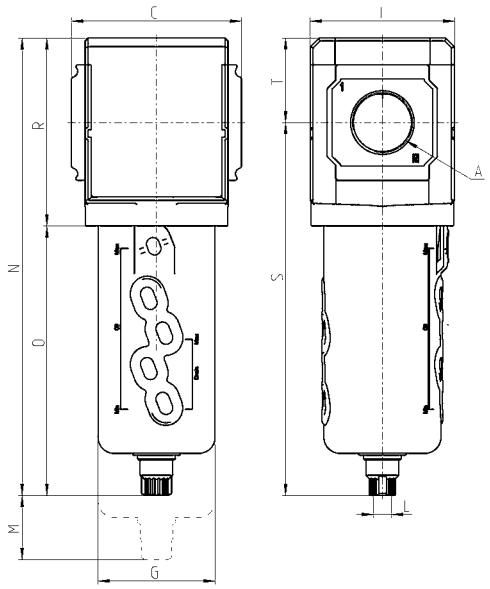
Δp = Pressure drop
Q = Flow



Reference diagram for models with filtering element = 1 µm

Δp = Pressure drop
Q = Flow

Coalescing filters Series MX - dimensions



DIMENSIONS (in inches)												
Mod.	A	C	G	I	L	M	N	O	R	S	T	Weight (kg)
MX2-3/8-FC00TF	3/8	2.756	2.177	2.677	1/8	2.047	8.346	5.000	3.346	6.870	1.476	0.5
MX2-1/2-FC00TF	1/2	2.756	2.177	2.677	1/8	2.047	8.346	5.000	3.346	6.870	1.476	0.5
MX2-3/4-FC00TF	3/4	2.756	2.177	2.677	1/8	2.047	8.346	5.000	3.346	6.870	1.476	0.5
MX3-3/4-FC00TF	3/4	3.524	2.421	2.992	1/8	2.953	9.488	5.591	3.898	7.736	1.752	0.8
MX3-1-FC00TF	1	3.524	2.421	2.992	1/8	2.953	9.488	5.591	3.898	7.736	1.752	0.8

Activated Carbon Filters Series MX

Ports 3/8" - 1" NPTF
MX2 ports: 3/8", 1/2", 3/4" NPTF - MX3 ports: 3/4", 1" NPTF
Innovative modular clamping system
Quick-Release, locking bayonet bowls

Series MX3 is the latest air treatment system offered by Camozzi. This modular design is characterized by a modern, compact design, and high performance. The integration between metal alloys and technopolymers has allowed the realization of a reliable product, both light and strong at the same time. The unique and patented modular clamping system simplifies the mounting of components.

The Series MX appeals to a broad spectrum of markets and applications because of the savings realized in installation time, space requirements and total cost.

A special configurator, available on Camozzi's global 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.

- Removal of compressed air oil, liquid, and gas components through the active carbons
- Air quality conforming to ISO 8573-1 standard, up to class 1.7.1
- Bowl locking mechanism reducing the risk of accidents

GENERAL DATA

Construction	modular, compact with filtering element in HDPE
Materials	see TABLE OF MATERIALS
Ports	3/8" - 1" NPTF
Mounting	vertical in-line wall-mounting (by means of clamps)
Operating temperature	10°C - 40°C (t max = 60°C), (50°F - 105 F, max temp. 140°F)
Draining of condensate	NO DRAINING
Operating pressure	0,3 - 16 bar (4.5 - 232 psi)
Nominal flow	see FLOW DIAGRAMS
Filtering element	active carbon
Residual oil content	< 0,003 mg/m³
Fluid	compressed air
Pre-filtering	it is recommended to use a coalescing filter with residual oil of 0,01mg/m³

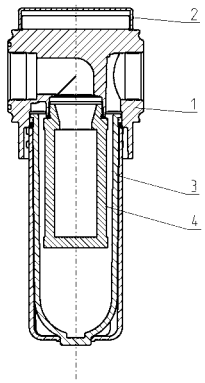
CODING EXAMPLE

MX	2	-	3/8	-	FCA	TF

MX	SERIES
2	SIZE: 2 = 3/8" - 1/2" - 3/4" 3 = 3/4" - 1"
3/8	PORT: 3/8 = 3/8 1/2 = 1/2 3/4 = 3/4 1 = 1
FCA	ACTIVATED CARBON FILTER
TF	TF = NPTF ports blank = BSP ports

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

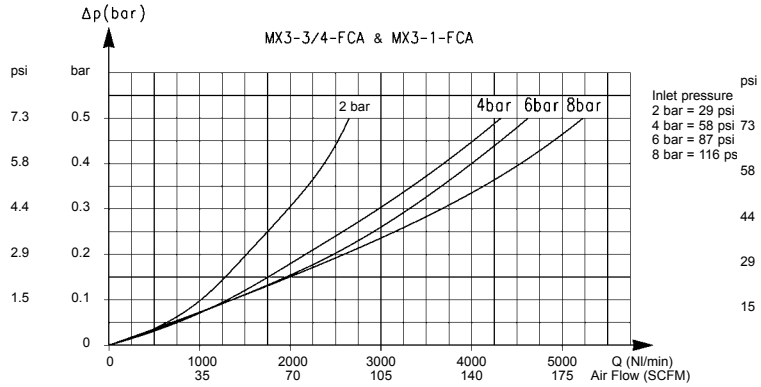
Activated carbon filters Series MX - materials



PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
3 = Bowl with technopolymer cover	Polycarbonate/Polyamide
4 = Filtering element	Active carbon
Seals	NBR

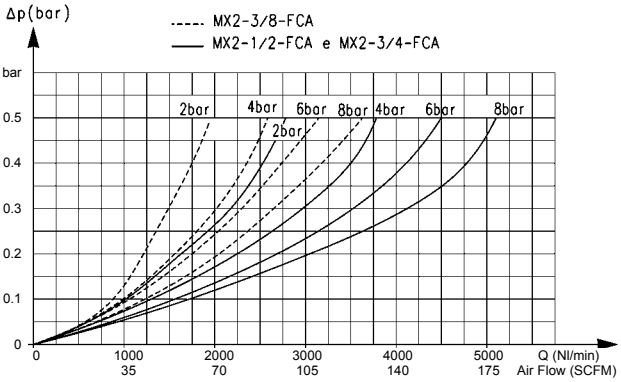
FLOW DIAGRAMS, MX3 & MX2

MX3 flow curves



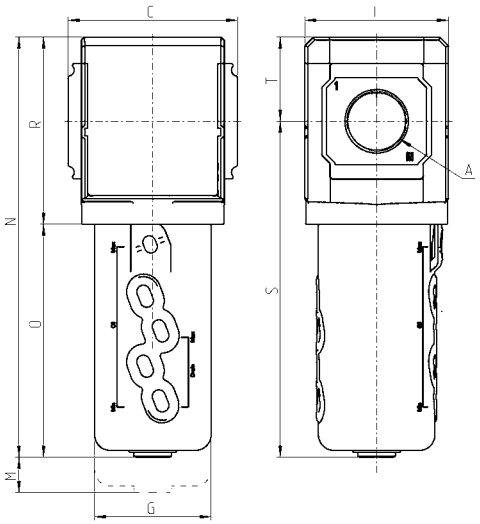
ΔP = Pressure drop
Q = Flow

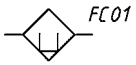
MX2 flow curves



Δp = Pressure drop
Q = Flow

Activated carbon filters Series MX - dimensions





DIMENSIONS (in inches)

Mod.	A	C	G	I	M	N	O	R	S	T	Weight (kg)
MX2-3/8-FCATF	3/8	2.756	2.177	2.677	3.524	7.461	4.114	3.346	5.984	1.476	0.5
MX2-1/2-FCATF	1/2	2.756	2.177	2.677	3.524	7.461	4.114	3.346	5.984	1.476	0.5
MX2-3/4-FCATF	3/4	2.756	2.177	2.677	3.524	7.461	4.114	3.346	5.984	1.476	0.5
MX3-3/4-FCATF	3/4	3.524	2.421	2.992	4.213	8.740	4.843	3.898	6.988	1.752	0.8
MX3-1-FCATF	1	3.524	2.421	2.992	4.213	8.740	4.843	3.898	6.988	1.752	0.8

Pressure Regulators Series MX

Standard Regulators MX2 ports: 3/8", 1/2", 3/4" NPTF - MX3 ports: 3/4", 1" NPTF
Manifold mount design: 1/2" NPTF (MX2 only)
Innovative modular clamping system
Available with built-in pressure gauges or with

Reliable and repeatable set-points of the secondary reduced pressure ensures performance optimization and energy saving. Available in 2 standard spring options for regulated pressure ranges. All regulators are equipped with an integrated locking system and built-in pressure gauges for a more compact product. The regulators Series MX are suitalbe also for panel mountings.

The Series MX appeals to a broad spectrum of markets and applications because of the savings realized in installation time, space requirements and total cost.

A special configurator, available on Camozzi's global 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.

- Low set-point variance, or hysteresis
- Lockable knob with adjustment stop
- Tamper-proof system via slots in handle offers a fully lockable regulator
- Integral return exhaust (relieving)
- Available as Manifold regulator, non-cascading

GENERAL DATA

Construction	modular, compact, diaphragm type
Materials	see TABLE OF MATERIALS
Ports	3/8" - 1" NPTF
Mounting	vertical in-line wall-mounting (by means of clamps) panel mouting
Operating temperature	-5°C - 50°C at 16 bar with Dew Point of air at least 2° C (4° F) below the min working temperature, (23 F - 122 F @ 232 psi, up to 140 F MAX at 145 psi) -5°C - 60°C at 10 bar with Dew Point of air at least 2° C (4° F) below the min working temperature
Inlet pressure	0 - 16 bar (0 - 232 psi)
Outlet pressure	0,5 - 10 bar, (7 - 145 psi) or 0 - 4 bar, (0 - 60 psi)
Overpressure exhaust	with relieving or without relieving
Nominal flow	see FLOW DIAGRAMS
Fluid	compressed air
Pressure gauge	version with built-in pressure gauge or version with ports for pressure gauge (1/4 ports) available standard on all units

CODING EXAMPLE

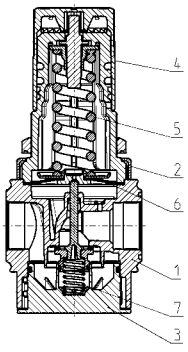
MX	2	-	3/8	-	R	0	0	4	TF

MX	SERIES
2	SIZE: 2 = 3/8" - 1/2" - 3/4" 3 = 3/4" - 1"
3/8	PORTS: 3/8 = 3/8 1/2 = 1/2 3/4 = 3/4 1 = 1
R	TYPER OF REGULATOR: R = pressure regulator M = Manifold pressure regulator (MX2 - 1/2" NPTF only)
0	OPERATING PRESSURE (1 bar = 14,5 psi) 0 = 0,5 - 10 bar (7.25 - 145 psi) 4 = 0 - 4 bar (0 - 58 psi) 7 = 0,5 - 7 bar (MX2 only) (7.25 - 103 psi)
0	DESIGN TYPE: 0 = relieving 1 = without relieving
4	PRESSURE GAUGE: 0 = without pressure gauge (with threaded port for gauges) 2 = with built-in pressure gauge 0-6 bar and working pressure 0 - 4 bar 3 = with built-in pressure gauge 0-10 bar and working pressure 0 - 7 bar (MX2 only) 4 = with built-in pressure gauge 0-12 bar and working pressure 0,5 - 10 bar
TF	TF = NPTF ports blank = BSP ports

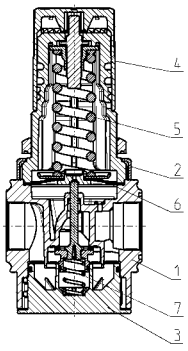
For the assembly of a single component with fixing flanges or wall-mounting, see the section "FRL Series MX Assembled" (pag. 3/1.50.01)

Pressure regulators Series MX - materials

R = pressure regulator
M = Manifold pressure regulator



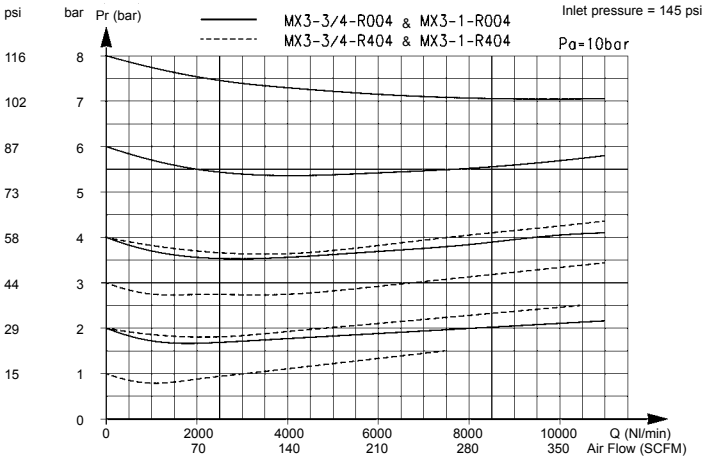
R



M

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

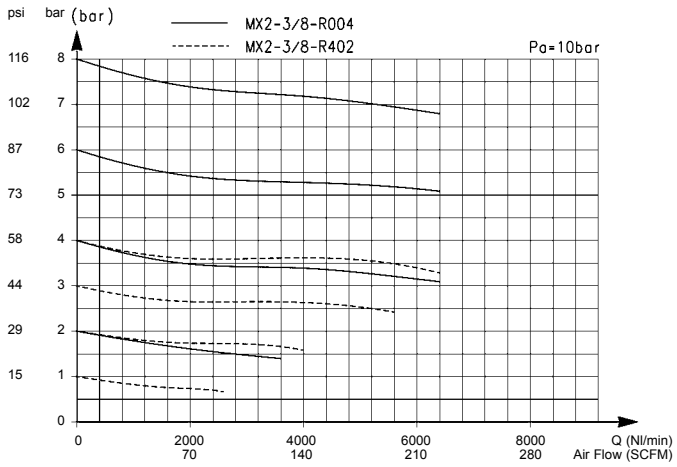
MX3 FLOW DIAGRAMS



Pr = Regulated Pressure
Q = Flow

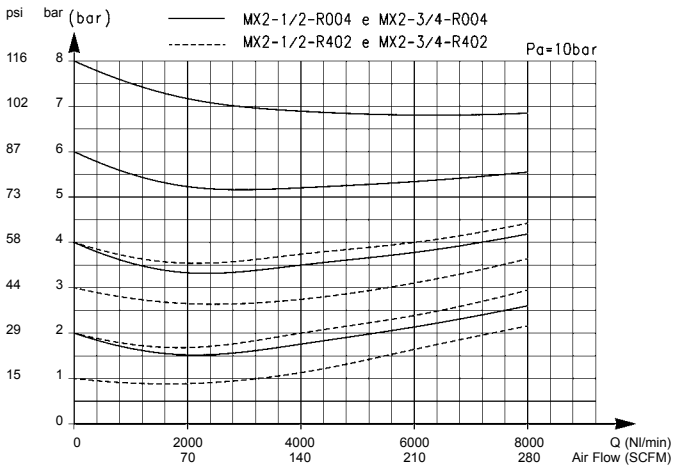
Pa = Inlet pressure

MX2 FLOW DIAGRAMS



Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

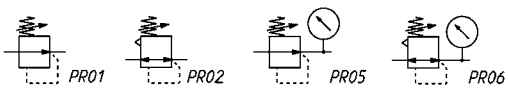


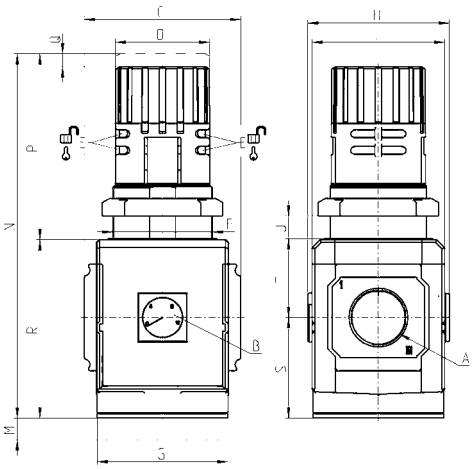
Pr = Regulated pressure
Q = Flow

Pa = Inlet pressure

Pressure regulators Series MX - dimensions

PR01 = regulator without relieving
PR02 = regulator with relieving
PR05 = regulator without relieving and with pressure gauge
PR06 = regulator with relieving and pressure gauge

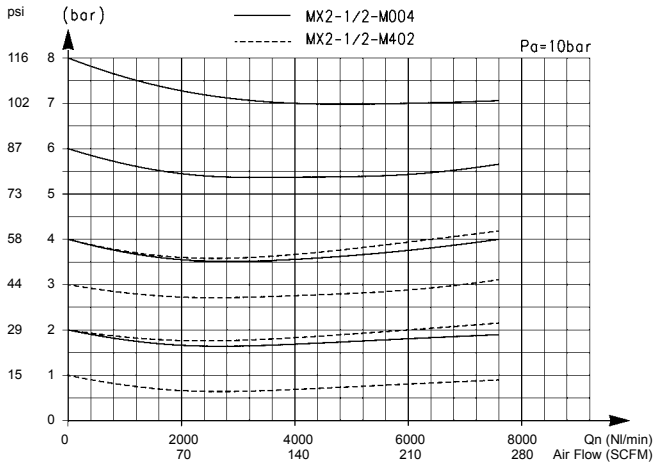




DIMENSIONS (in inches)

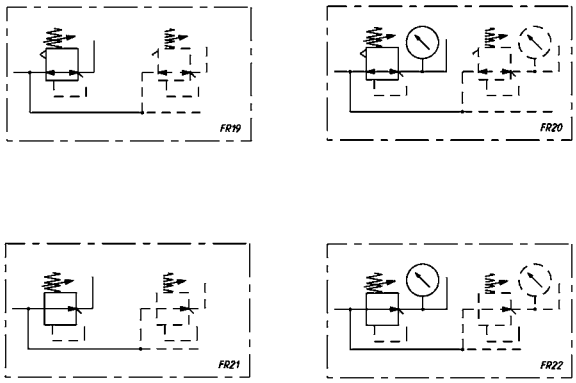
Mod.	A	B	C	D	E	F	G	H	I	M	N	P	Q	R	S	T	U	Weight (kg)
MX2-3/8-R004TF	3/8	0-12 bar	2.756	1.772	Ø 5/32”	M47x1.5	2.756	2.933	2.677	1.772	6.535	3.071	0.197	3.465	1.988	1.476	0-13	0.6
MX2-1/2-R004TF	1/2	0-12 bar	2.756	1.772	Ø 5/32”	M47x1.5	2.756	2.933	2.677	1.772	6.535	3.071	0.197	3.465	1.988	1.476	0-13	0.6
MX2-3/4-R004TF	3/4	0-12 bar	2.756	1.772	Ø 5/32”	M47x1.5	2.756	2.933	2.677	1.772	6.535	3.071	0.197	3.465	1.988	1.476	0-13	0.6
MX3-3/4-R004TF	3/4	0-12 bar	3.524	2.126	Ø 5/32”	M57x1.5	2.953	3.189	2.992	1.772	8.110	4.094	0.197	4.016	2.264	1.752	0-20	1
MX3-1-R004TF	1	0-12 bar	3.524	2.126	Ø 5/32”	M57x1.5	2.953	3.189	2.992	1.772	8.110	4.094	0.197	4.016	2.264	1.752	0-20	1

MANIFOLD REGULATOR - FLOW DIAGRAM and PNEUMATIC SYMBOLS



Pr = Regulated pressure
Q = Flow

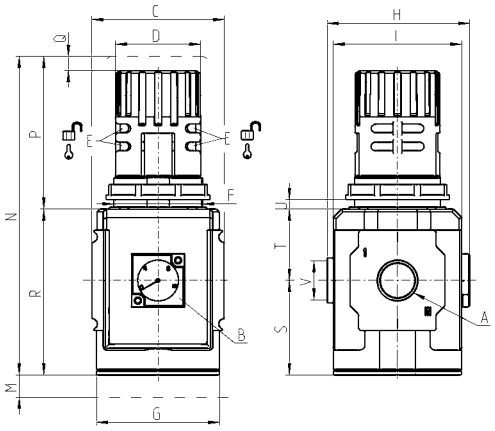
Pa = Inlet pressure



FR19 = Manifold regulator with relieving and without manometer
FR20 = Manifold regulator with relieving and manometer
FR21 = Manifold regulator without relieving nor manometer
FR22 = Manifold regulator without relieving and with manometer

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 unitl the desired pressure is reached.
This regulation has no effect on pressures of previous or following regulators.



DIMENSIONS (in inches)

Mod.	A	B	C	D	E	F	G	H	I	M	N	P	Q	R	S	T	U	V	Weight (kg)
MX2-1/2-M004	1/2	0-12 bar	2.756	1.772	5/32"	M47x1.5	2.756	2.972	2.677	1.772	6.535	3.071	0.197	3.465	1.988	1.476	0-13	G 1/2	0.6

Lubricators Series MX

Ports 3/8" - 1" NPTF
MX2 ports: 3/8", 1/2", 3/4" NPTF - MX3 ports: 3/4", 1" NPTF
Innovative modular clamping system
Quick-Release, locking bayonet bowls

Series MX3 is the latest air treatment system offered by Camozzi. This modular design is characterized by a modern, compact design, and high performance. The integration between metal alloys and technopolymers has allowed the realization of a reliable product, both light and strong at the same time. The unique and patented modular clamping system simplifies the mounting of components.

The Series MX appeals to a broad spectrum of markets and applications because of the savings realized in installation time, space requirements and total cost.

A special configurator, available on Camozzi's global 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.

- Oil adjustment screw in head cap
- Ability to refill the oil even with system under pressure
- High flow
- Oil level visible through transparent slots in bowl shroud
- Bowl locking mechanism
- Enhanced safety features

GENERAL DATA

Construction	modular, compact
Materials	see TABLE OF MATERIALS
Ports	3/4" - 1" NPTF
Oil capacity	MX3: 170 cc (5.75 oz), MX2: 118 cc (4.0 oz.)
Oil refilling	while under system pressure allowed by means of cap screw in head, or directly into bowl without pressure
Mounting	vertical in-line wall-mounting (by means of clamps)
Operating temperature	-5°C - 50°C at 16 bar (with Dew Point of air at least 2° C (4° F) below the min working temperature), (23 F - 122 F @ 232 psi, up to 140 F MAX at 145 psi) -5°C - 60°C at 10 bar (with Dew Point of air at least 2° C (4° F) below the min working temperature)
Oil for lubrication	3°E - 10°E , Engler (approx 32 centistokes) recommendation 1 - 5 drops every 1000 Nl of air consumed (35 SCFM) (10 drops = 1cm3 = .061 in3 = 1 mL)
Droplet Size	> 2 microns
Operating pressure	0 - 16 bar (0 - 232 psi)
Min. air consumption for lubrication at 1 bar Min. air consumption for lubrication at 6 bar	50 Nl/min (1.75 SCFM) 95 Nl/min (3.3 SCFM)
Nominal flow	see FLOW DIAGRAMS

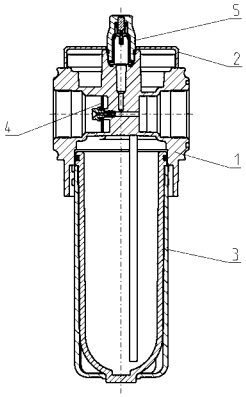
CODING EXAMPLE

MX	2	-	3/8	-	L	00	TF

MX	SERIES
2	SIZE: 2 = 3/8" - 1/2" - 3/4" 3 = 3/4" - 1"
3/8	PORT: 1/2 = 1/2 3/4 = 3/4 1 = 1
L	LUBRICATOR
00	DESIGN TYPE: 00 = atomized oil 01 = optional, low-flow orifice for low air consumption requiring lubrication (3/8" & 1/2" ONLY)
TF	TF = NPTF ports blank = BSP ports

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

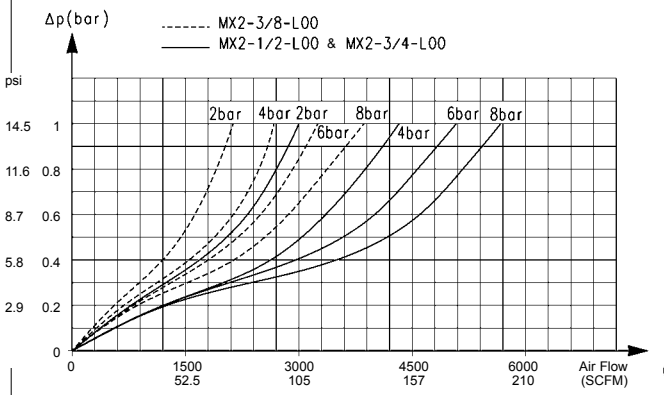
Lubricators Series MX - materials



PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
3 = Bowl with technopolymer cover	Polycarbonate/Polyamide
4 = Diaphragm	NBR
5 = Viewer	Polyamide
Seals	NBR

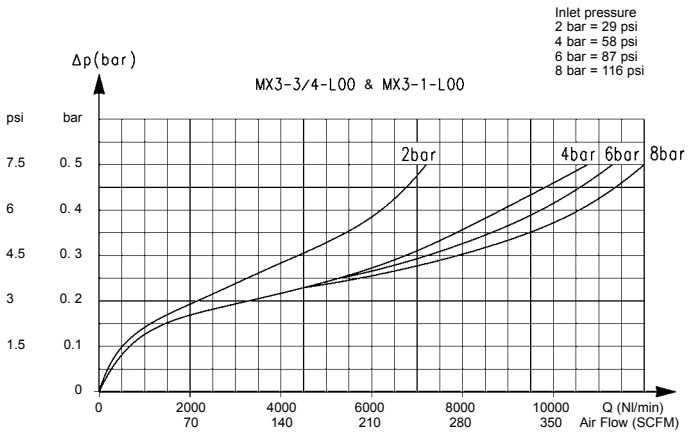
FLOW DIAGRAMS, MX2 & MX3

MX2 flow curves



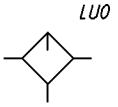
Δp = Pressure drop
Q = Flow

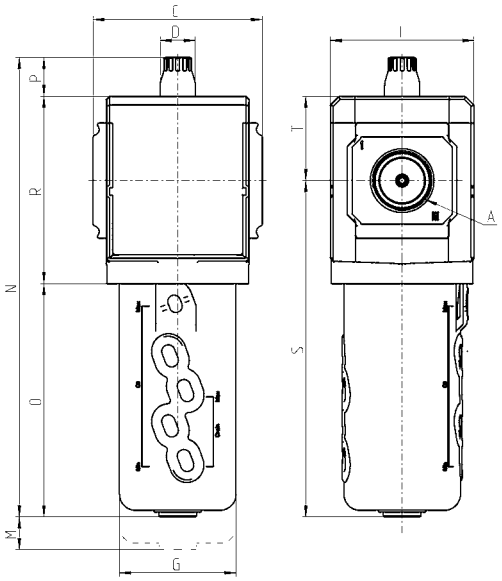
MX3 flow curves



ΔP = Pressure drop
Q = Flow

Lubricators Series MX - dimensions





DIMENSIONS (in inches)

Mod.	A	C	D	G	I	M	N	O	P	R	S	T	Weight (Kg)
MX2-3/8-L00TF	3/8	2.756	0.728	2.185	2.677	3.327	8.268	4.114	0.807	3.346	5.984	1.476	0.5
MX2-1/2-L00TF	1/2	2.756	0.728	2.185	2.677	3.327	8.268	4.114	0.807	3.346	5.984	1.476	0.5
MX2-3/4-L00TF	3/4	2.756	0.728	2.185	2.677	3.327	8.268	4.114	0.807	3.346	5.984	1.476	0.5
MX3-3/4-L00TF	3/4	3.524	0.728	2.421	2.992	3.937	9.567	4.843	0.827	3.898	7.008	1.752	0.8
MX3-1-L00TF	1	3.524	0.728	2.421	2.992	3.937	9.567	4.843	0.827	3.898	7.008	1.752	0.8

Filter-Regulators Series MX

Ports 3/8" - 1" NPTF
MX2 ports: 3/8", 1/2", 3/4" NPTF - MX3 ports: 3/4", 1" NPTF
Innovative modular clamping system
Quick-Release, locking bayonet bowls

Filter-regulators Series MX integrate filter and pressure regulator in one unit. They are, therefore, compact and suitable for pre-filtering functions.

Available in relieving or non-relieving, they are equipped with a valve diaphragm for a direct pressure regulation and with an integrated condensate drain, manual, automatic, depressurizing and ported. Moreover, they can be 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's global 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.

- Filtering element options of 25 µm or 5 µm
- Available versions: with built-in gauge or with ports for gauge
- Lockable knob with mechanical stop and tamper-proof lock-out features
- Bowl locking mechanism
- Enhanced safety features

GENERAL DATA

Construction	modular, compact with filtering element in HDPE
Materials	see TABLE OF MATERIALS
Ports	3/8" - 1" NPTF
Condensate capacity	MX3: 85 cc, (approx. 3 oz.), MX2: 55 cc (approx. 1.9 oz.)
Mounting	vertical in-line wall-mounting (by means of clamps) panel mounting
Operating temperature	-5°C - 50°C at 16 bar (with Dew Point of air at least 2° C (4° F) below the min working temperature), (23 F - 122 F @ 232 psi, up to 140 F MAX at 145 psi) -5°C - 60°C at 10 bar (with Dew Point of air at least 2° C (4° F) below the min working temperature)
Porosity of filtering element	25 µm 5 µm
Draining of condensate	manual, automatic, depressurizing and ported
Operating pressure	0,3 - 16 bar (with automatic drain 1,5 - 12 bar, (4.5 - 232 psi, 22 - 175 psi w/ automatic drain option))
Nominal flow	see FLOW DIAGRAMS
Fluid	compressed air
Pressure gauge	version with built-in pressure gauge or version with ports for pressure gauge (1/4 ports), available standard on all units

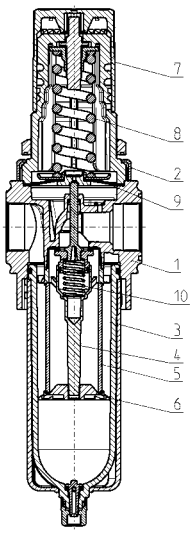
CODING EXAMPLE

MX	2	-	3/8	-	FR	0	0	0	4	TF

MX	SERIES
2	SIZE: 2 = 3/8" - 1/2" - 3/4" 3 = 3/4" - 1"
3/8	PORT: 3/8 = 3/8 1/2 = 1/2 3/4 = 3/4 1 = 1
FR	FILTER-REGULATOR
0	FILTERING ELEMENT WITH DESIGN TYPE: 0 = 25 µm with relieving (standard) 1 = 5 µm with relieving 2 = 25 µm without relieving (with semiautomatic-manual drain only) 3 = 5 µm without relieving (with semiautomatic-manual drain only)
0	DRAINING OF CONDENSATE: 0 = semiautomatic-manual drain 3 = automatic drain 5 = depressuring drain, filtered orifice 8 = without drain, with port G1/8
0	OPERATING PRESSURE: 0 = 0,5 - 10 bar (7.25 - 145 psi) 4 = 0 - 4 bar (0 - 58 psi) 7 = 0,5 - 7 bar (MX2 only) (7.25 - 103 psi)
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 (MX2 only) 4 = with built-in pressure gauge 0-12 and working pressure 0,5 - 10 bar
TF	TF = NPTF ports blank = BSP ports

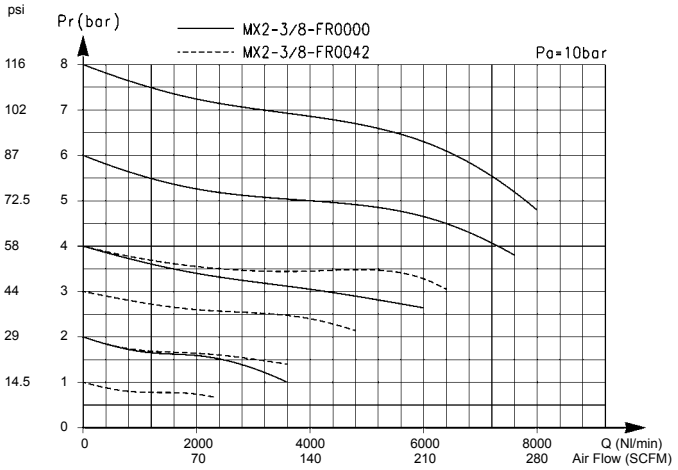
For the assembly of a single component with fixing flanges or wall-mounting, see the section "FRL Series MX Assembled"

Filter-regulators Series MX - materials



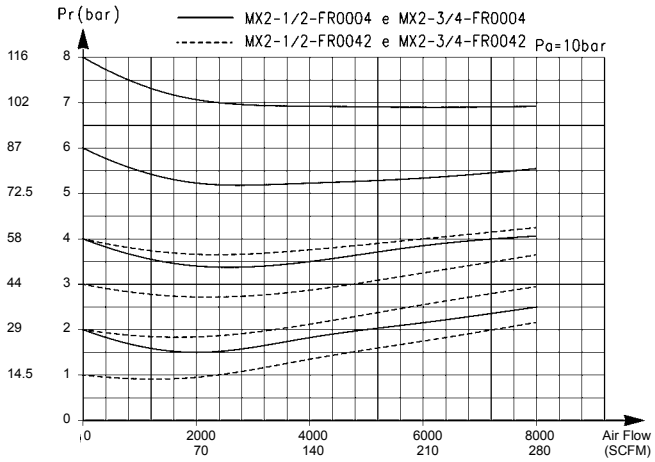
PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
3 = Bowl with technopolymer cover	Polycarbonate/Polyamide
4 = Valve guide	Polyacetal
5 = Filtering element	Polyethylene
6 = Separation deflector	Polyacetal
7 = Knob	Polyamide
8 = Upper spring	Zinc-plated steel
9 = Diaphragm	NBR
10 = Lower spring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

MX2 FLOW DIAGRAMS



Pr = Regulated pressure
Q = Flow

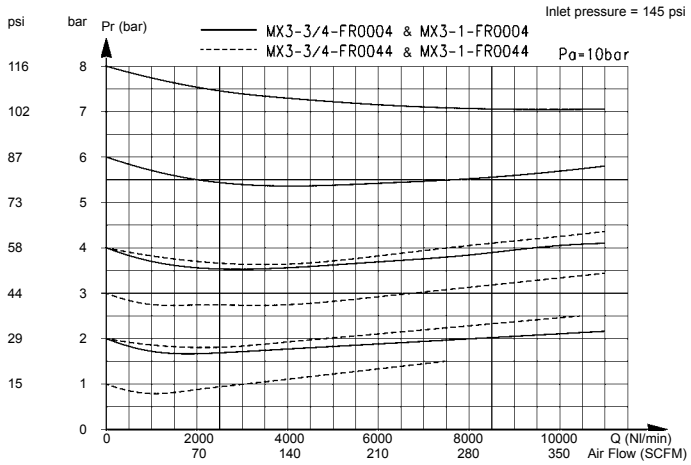
Pa = Inlet pressure



Pr = Regulated pressure
Q = Flow

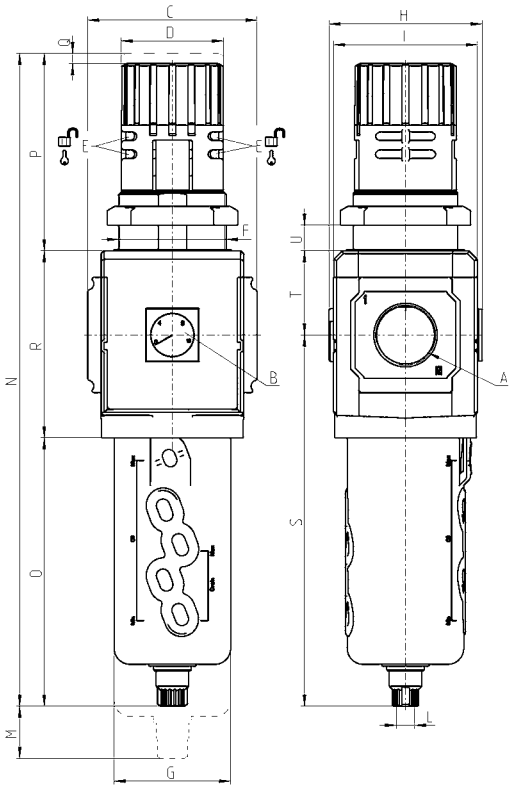
Pa = Inlet pressure

MX3 FLOW DIAGRAMS



Pr = Regulated Pressure
Q = Flow
Pa = Inlet pressure

Filter-regulators Series MX - dimensions



DIMENSIONS (in inches)

Mod.	A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R	S	T	U	Weight (kg)
MX2-3/8-FR0004TF	3/8	0-12 bar	2.756	1.772	Ø 5/32	M47x1.5	2.185	2.933	2.677	1/8	2.598	11.417	5.000	3.071	0.197	3.346	6.870	1.476	0-16	0.8
MX2-1/2-FR0004TF	1/2	0-12 bar	2.756	1.772	Ø 5/32	M47x1.5	2.185	2.933	2.677	1/8	2.598	11.417	5.000	3.071	0.197	3.346	6.870	1.476	0-16	0.8
MX2-3/4-FR0004TF	3/4	0-12 bar	2.756	1.772	Ø 5/32	M47x1.5	2.185	2.933	2.677	1/8	2.598	11.417	5.000	3.071	0.197	3.346	6.870	1.476	0-16	0.8
MX3-3/4-FR0004TF	3/4	0-12 bar	3.524	2.126	Ø 5/32	M57x1.5	2.421	3.189	2.992	1/8	2.953	13.583	5.591	4.094	0.197	3.898	7.736	1.752	0-20	1.3
MX3-1-FR0004TF	1	0-12 bar	3.524	2.126	Ø 5/32	M57x1.5	2.421	3.189	2.992	1/8	2.953	13.583	5.591	4.094	0.197	3.898	7.736	1.752	0-20	1.3

Lockable Isolation 3/2 Way Valves Series MX

Ports 3/8" - 1" NPTF
MX2 ports: 3/8", 1/2", 3/4" NPTF - MX3 ports: 3/4", 1" NPTF
Innovative modular clamping system
Manual, Solenoid Pilot,
Externally Indirect Air-Piloted Solenoid,
Air-Pilot controls

Manual isolation valves allow for depressurization of the pneumatic system so that system components may be serviced safely. The system is depressurized with the de-activation of the valve.

Electropneumatic isolation valves are ideal where manual access is difficult since they allow 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's global 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.

- Shut-off valves with manual, solenoid or air-pilot operation
- 8mm (0.315") OD hole for the lock-out feature accommodates most locks and hasps (manual valve version)
- Electro-pneumatic versions available in 24 V, 110 V or 230 V
- Quick-exhaust feature via port in base
- Silencers available on request, 1/2" - 3/4" exhaust port in base of valves for silencer assembly

GENERAL DATA

Construction	modular, compact, spool-type, 3-way/2-position
Materials	see TABLE OF MATERIALS
Ports	3/8" - 1" NPTF
Mounting	in-line wall-mounting (by means of clamps) panel mounting, manual only
Operating temperature	-5°C - 50°C at 16 bar (with Dew Point of air at least 2° C (4° F) below the min working temperature), (23 F - 122 F @ 232 psi, up to 140 F MAX at 145 psi) -5°C - 60°C at 10 bar (with Dew Point of air at least 2° C (4° F) below the min working temperature)
Operating pressure	2 - 10 bar (in the pneumatic version - 0,8 - 10 bar) , (30 - 145 psi ; 26 in Hg - 145 psi w/ air-piloted versions)
Nominal flow	see FLOW DIAGRAMS
Nominal exhaust flow at 6 bar with $\Delta p = 1$ bar	MX3: 3/4" - 1" NPTF = 9200 Nl/m, (322 SCFM); MX2: 3/8" - 3/4" NPTF = 6000 Nl/min, (210 SCFM)
Fluid	compressed air

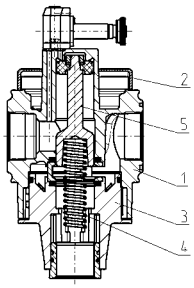
CODING EXAMPLE

MX	2	-	3/8	-	V	01	TF

MX	SERIES
2	SIZE: 2 = 3/8" - 1/2" - 3/4" 3 = 3/4" - 1"
3/8	PORT: 3/8 = 3/8 1/2 = 1/2 3/4 = 3/4 1 = 1
V	3/2-WAY VALVE
01	DESIGN TYPE: 01 = lockable manual control (lock-out design) 16 = electro-pneumatic control (solenoid pilot-operated) 17 = servo-pilot control (external air-signal pilot for solenoid w/ lower than 30 psi pressure supply) 36 = pneumatic control (air-pilot operated)
TF	TF = NPTF ports blank = BSP ports

For the assembly of a single component with fixing flanges or wall-mounting, see the section "FRL Series MX Assembled" (pag. 3/1.50.01)

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 (MX...V16 - V17 - V36) Aluminium (MX...V01)
Seals	NBR

FLOW DIAGRAM for valves Mod. MX...V01

MX2 flow curves

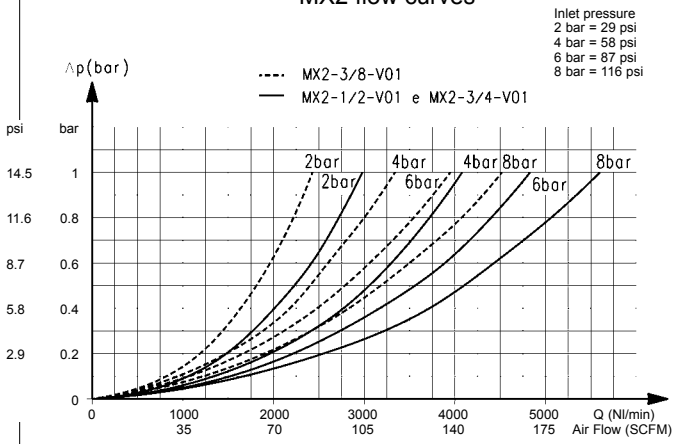


Diagram for lockable manual control valves
ΔP = Pressure drop
Q = Flow

MX3 flow curves

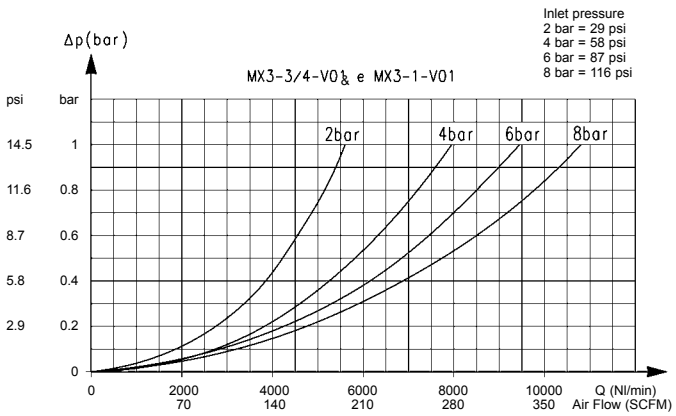
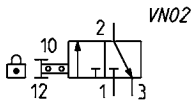


Diagram for lockable manual control valves
ΔP = Pressure drop
Q = Flow

Lockable (Lock-Out), manual valves Series MX - dimensions

Fig. 1 = closed valve, lock opening exposed,
exhausting downstream pressure
Fig. 2 = open valve, “down” handle position, flow 1 to 2



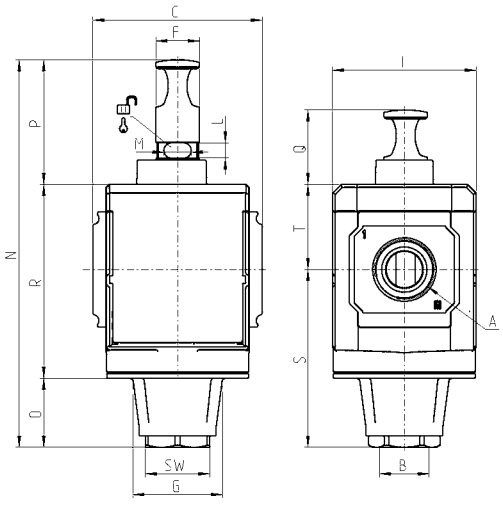


FIG.1 FIG.2

DIMENSIONS (in inches)

Mod.	A	Exhaust Port B	C	F	G	I	L	M	N	O	P	Q	R	S	SW	T	Weight (kg)
MX2-3/8-V01TF	3/8	G 1/2	2.756	0.709	1.358	2.677	0.354	0.315	5.984	0.512	2.008	1.220	3.465	2.500	1.063	1.476	0.5
MX2-1/2-V01TF	1/2	G 1/2	2.756	0.709	1.358	2.677	0.354	0.315	5.984	0.512	2.008	1.220	3.465	2.500	1.063	1.476	0.5
MX2-3/4-V01TF	3/4	G 1/2	2.756	0.709	1.358	2.677	0.354	0.315	5.984	0.512	2.008	1.220	3.465	2.500	1.063	1.476	0.5
MX3-3/4-V01TF	3/4	G 3/4	3.524	0.906	1.890	2.992	0.315	0.315	8.091	1.457	2.618	1.575	4.016	3.720	1.339	1.752	0.9
MX3-1-V01TF	1	G 3/4	3.524	0.906	1.890	2.992	0.315	0.315	8.091	1.457	2.618	1.575	4.016	3.720	1.339	1.752	0.9

FLOW DIAGRAM for valves Mod. MX...V16 and MX...V36

MX2 flow curves

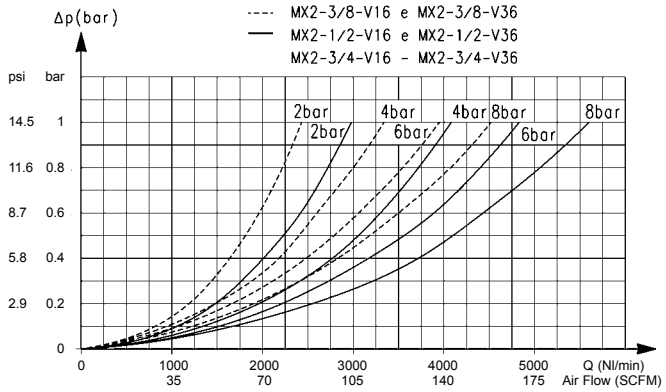


Diagram for solenoid pilot or air-pilot valves MX2

Δp = Pressure drop
Q = Flow

MX3 flow curves

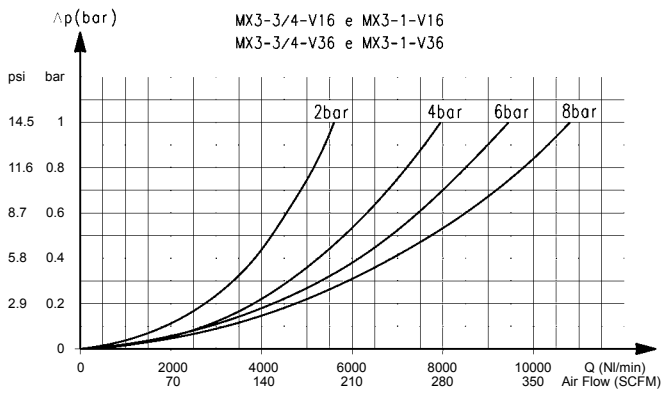


Diagram for solenoid pilot or air-pilot valves MX3

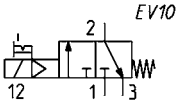
Δp = Pressure drop
Q = Flow

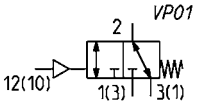
3/2-way isolation valves Series MX - dimensions

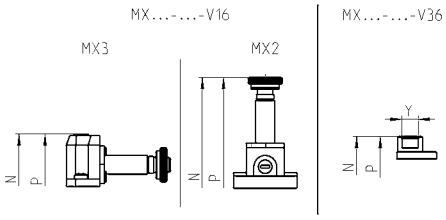
Solenoid pilot and air-pilot operated valves

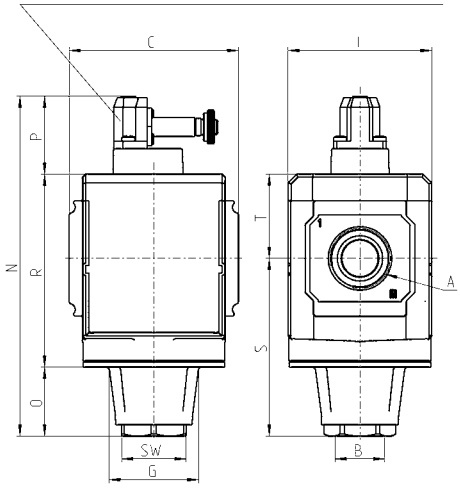
EV10 = solenoid valve, 3/2 NC, monostable, with bistable manual override

VP01 = pneumatically operated valve, 3/2, monostable, mechanical spring









DIMENSIONS (in inches)

Mod.	A	Exhaust Port B	C	G	I	N	O	P	R	S	SW	T	Pilot Port Y	Weight (Kg)
MX2-3/8-V16TF	3/8	G 1/2	2.756	1.358	2.677	6.732	0.512	2.756	3.465	2.500	1.339	1.476	-	0.5
MX2-1/2-V16TF	1/2	G 1/2	2.756	1.358	2.677	6.732	0.512	2.756	3.465	2.500	1.339	1.476	-	0.5
MX2-3/4-V16TF	3/4	G 1/2	2.756	1.358	2.677	6.732	0.512	2.756	3.465	2.500	1.339	1.476	-	0.5
MX2-3/8-V36TF	3/8	G 1/2	2.756	1.358	2.677	4.803	0.512	0.827	3.465	2.500	1.339	1.476	1/8	0.5
MX2-1/2-V36TF	1/2	G 1/2	2.756	1.358	2.677	4.803	0.512	0.827	3.465	2.500	1.339	1.476	1/8	0.5
MX2-3/4-V36TF	3/4	G 1/2	2.756	1.358	2.677	4.803	0.512	0.827	3.465	2.500	1.339	1.476	1/8	0.5
MX3-3/4-V16TF	3/4	G 3/4	3.524	1.890	2.992	7.106	1.457	1.634	4.016	3.720	1.339	1.752	-	0.9
MX3-1-V16TF	1	G 3/4	3.524	1.890	2.992	7.106	1.457	1.634	4.016	3.720	1.339	1.752	-	0.9
MX3-3/4-V36TF	3/4	G 3/4	3.524	1.890	2.992	6.457	1.457	1.004	4.016	3.720	1.339	1.752	1/8	0.9
MX3-1-V36TF	1	G 3/4	3.524	1.890	2.992	6.457	1.457	1.004	4.016	3.720	1.339	1.752	1/8	0.9

FLOW DIAGRAM for valves Mod. MX...V17

MX2 flow curves

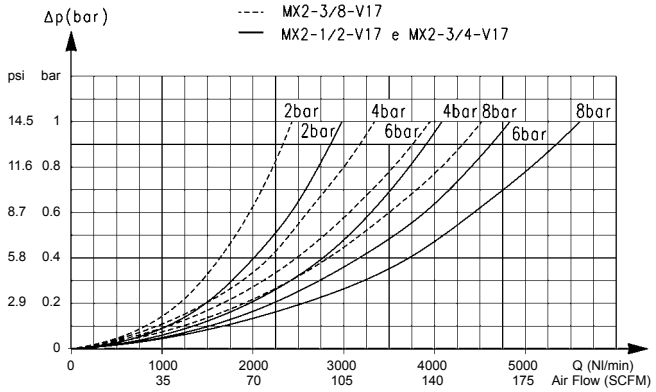


Diagram for servo-pilot control valves MX2

Δp = Pressure drop
Q = Flow

MX3 flow curves

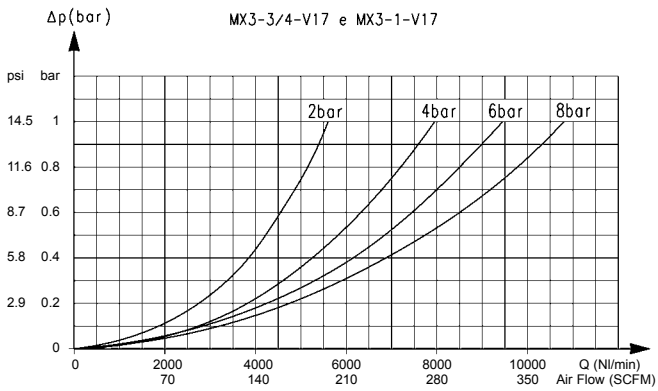


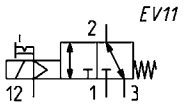
Diagram for servo-pilot control valves MX3

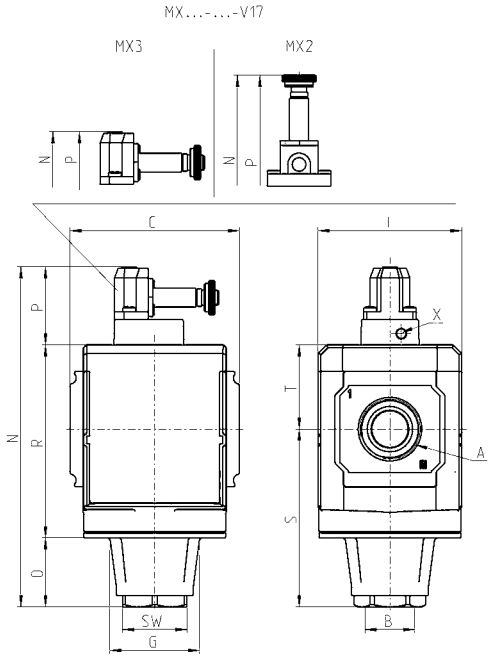
Δp = Pressure drop
Q = Flow

3/2-way isolation valves Series MX - dimensions

External air-pilot, solenoid operated (for operating line pressures below 30 psi; min. pilot pressure 30 psi) valves

EV11 = solenoid valve, 3/2, monostable, solenoid pilot with separate air supply and bistable manual override





DIMENSIONS (in inches)

Mod.	A	Exhaust Port B	C	G	I	N	O	P	R	S	SW	T	X	Weight (Kg)
MX2-3/8-V17TF	3/8	G 1/2	2.756	1.358	2.677	6.732	0.512	2.756	3.465	2.500	1.339	1.476	M5	0.5
MX2-1/2-V17TF	1/2	G 1/2	2.756	1.358	2.677	6.732	0.512	2.756	3.465	2.500	1.339	1.476	M5	0.5
MX2-3/4-V17TF	3/4	G 1/2	2.756	1.358	2.677	6.732	0.512	2.756	3.465	2.500	1.339	1.476	M5	0.5
MX3-3/4-V17TF	3/4	G 3/4	3.524	1.890	2.992	7.106	1.457	1.634	4.016	3.720	1.339	1.752	M5	0.9
MX3-1-V17TF	1	G 3/4	3.524	1.890	2.992	7.106	1.457	1.634	4.016	3.720	1.339	1.752	M5	0.9

Soft Start Valves Series MX

Ports 3/8" - 1" NPTF
MX2 ports: 3/8”, 1/2”, 3/4” NPTF - MX3 ports: 3/4”, 1” NPT
Modular

These soft start valves allow a gradual increase of the pressure in pneumatic systems. The pressure increases slowly according to the screw-adjustable 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's global 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.

- Allow for a safe, gradual pressurization of the pneumatic system from start-up
- Screw adjustment of the timing delay which regulates inlet pressure to 50% of its value before full pressurization
- Optional pressure switches are available on request

GENERAL DATA

Construction	modular, compact, poppet-type
Materials	see TABLE OF MATERIALS
Ports	3/8" - 1" NPTF
Mounting	in-line wall-mounting (by means of clamps)
Operating temperature	-5°C - 50°C at 16 bar with Dew Point of air at least 2° C (4° F) below the min working temperature, (23 F - 122 F @ 232 psi, up to 140 F MAX at 145 psi) -5°C - 60°C at 10 bar with Dew Point of air at least 2° C (4° F) below the min working temperature
Operating pressure	2 - 16 bar (30 - 232 psi)
Nominal flow (at 6 bar with ΔP 1 bar)	MX3: 8500 l/min, (298 SCFM) , MX2: 5800 Nl/min, 203 SCFM (1/2” , 3/4”) MX2: 4500 Nl/min, 157 SCFM (3/8”)
Fluid	compressed air

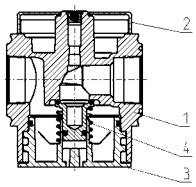
CODING EXAMPLE

MX	2	-	3/8	-	AV	TF

MX	SERIES
2	SIZE: 2 = 3/8" - 1/2" - 3/4" 3 = 3/4" - 1"
3/8	PORT: 3/8 = 3/8 1/2 = 1/2 3/4 = 3/4 1 = 1
AV	SOFT START VALVE
TF	TF = NPTF ports blank = BSP ports

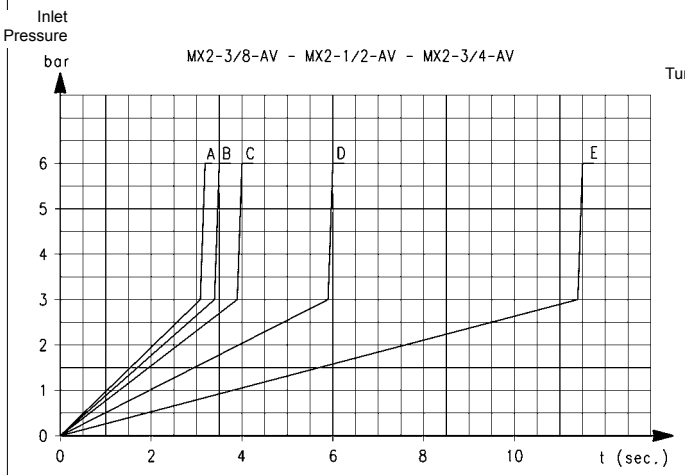
For the assembly of a single component with fixing flanges or wall-mounting, see the section "FRL Series MX Assembled"

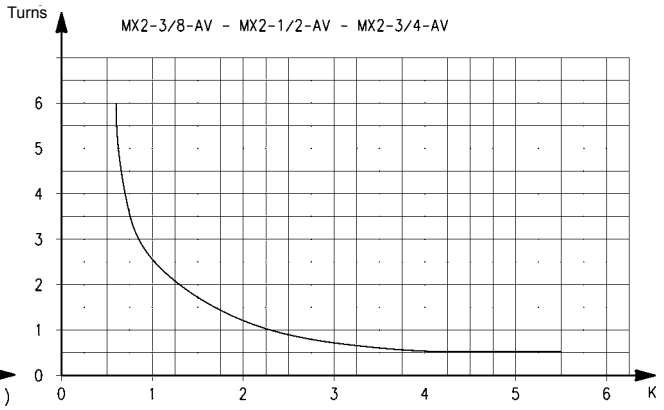
Soft start valves Series MX - materials



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



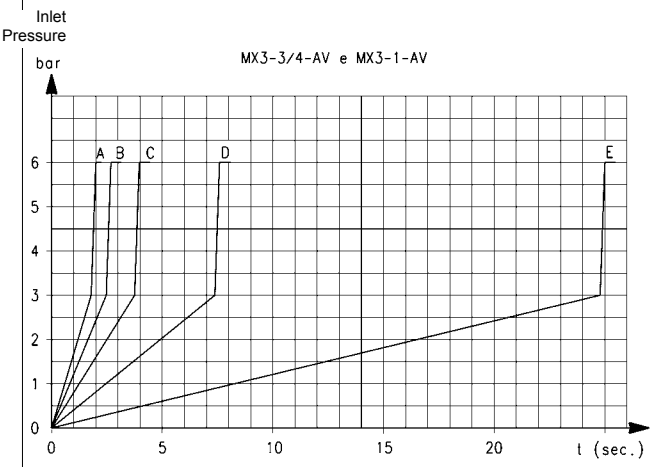


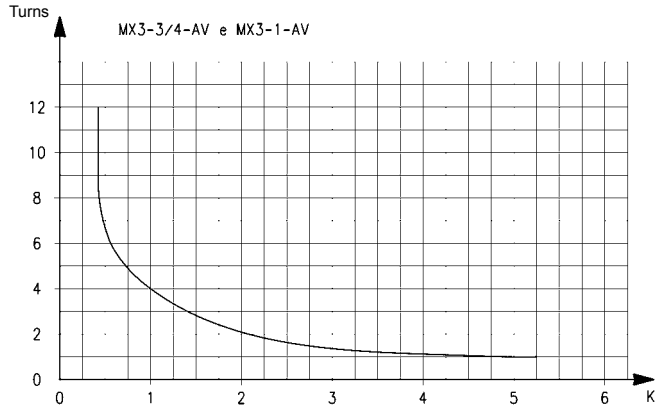
Pressurisation times as to the number of turns of the regulation screw, with downstream volume of 5 litres. A = 5 turns - B = 4 turns - C = 3 turns - D = 2 turns - E = 1 turn. K = number of turns of the regulation screw required to obtain the required pressurisation time with an inlet pressure of 6 bar. 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



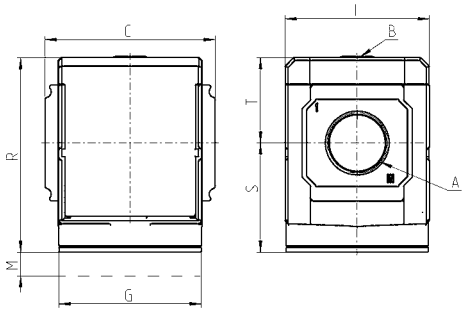


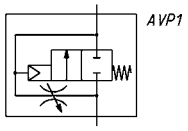
Pressurisation times as to the number of turns of the regulation screw, with downstream volume of 5 litres. A = 5 turns - B = 4 turns - C = 3 turns - D = 2 turns - E = 1 turn. K = number of turns of the regulation screw required to obtain the required pressurisation time with an inlet pressure of 6 bar. 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.

Soft start valves Series MX - dimensions





DIMENSIONS (in inches)

Mod.	A	Pressure Sensor Port B	C	G	I	M	R	S	T	Weight (Kg)
MX2-3/8-AVTF	3/8	G 1/8	2.756	2.559	2.677	1.831	3.465	1.988	1.476	0.4
MX2-1/2-AVTF	1/2	G 1/8	2.756	2.559	2.677	1.831	3.465	1.988	1.476	0.4
MX2-3/4-AVTF	3/4	G 1/8	2.756	2.559	2.677	1.831	3.465	1.988	1.476	0.4
MX3-3/4-AVTF	3/4	G 1/8	3.524	2.953	2.992	1.890	4.016	2.264	1.752	0.7
MX3-1-AVTF	1	G 1/8	3.524	2.953	2.992	1.890	4.016	2.264	1.752	0.7

Take-Off Blocks Series MX

Ports 3/8" - 1" NPTF
MX2 port: 3/8", 1/2" NPTF - MX3 port: 3/4", 1" NPTF
Modular

The Take-off blocks, when equipped with a check-valve, can be inserted before a lubricator to access non-lubricated air from its top and bottom distribution ports.

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's global 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.

- Compact design
- Available with or without an internal check-valve after take-off ports, and before modular port 2 outlet
- Pressure switches available on request

GENERAL DATA

Construction	modular, compact, diaphragm-type
Materials	see TABLE OF MATERIALS
Ports	MX2: 3/8”, 1/2” NPTF , MX3: 3/4”, 1” NPTF
Take-off ports	MX2: 3/8”, 1/2” NPTF , MX3: 3/4”, 1” NPTF
Mounting	in-line wall-mounting (by means of clamps)
Operating temperature	-5°C - 50°C at 16 bar with Dew Point of air at least 2° C (4° F) below the min working temperature, (23 F - 122 F @ 232 psi, up to 140 F MAX at 145 psi) -5°C - 60°C at 10 bar with Dew Point of air at least 2° C (4° F) below the min working temperature
Operating pressure	0 - 16 bar, (0 - 232 psi)
Nominal flow at 6 bar with Δp = 1 bar	MX2-1/2-B00 = 6800 Nl/m, (238 SCFM) MX2-1/2-B01 = 5700 Nl/m, (200 SCFM) MX3-1-B00 = 14500 Nl/m, (507 SCFM) MX3-1-B01 = 10500 Nl/m, (367 SCFM)
Fluid	compressed air

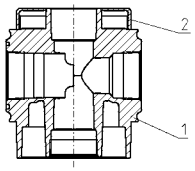
CODING EXAMPLE

MX	2	-	1/2	-	B	00	TF

MX	SERIES
2	SIZE: 2 = 3/8", 1/2" NPTF 3 = 3/4", 1" NPTF
1/2	PORT: 3/8 = 3/8" 1/2 = 1/2" 3/4 = 3/4" 1 = 1"
B	TAKE-OFF BLOCK
00	DESIGN TYPE: 00 = without internal check valve 01 = with internal check valve
TF	TF = NPTF ports blank = BSP ports

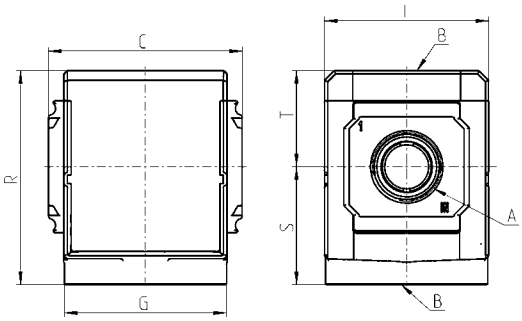
For the assembly of a single component with fixing flanges or wall-mounting, see the section "FRL Series MX Assembled"

Take-off blocks Series MX - materials

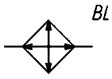


PARTS	MATERIALS
1 = Body	Aluminium
2 = Covering	Polyacetal
Seals	NBR

Take-off blocks Series MX - dimensions



DIMENSIONS (in inches)									
Mod.	A	B	C	G	I	R	S	T	Weight (Kg)
MX2-3/8-B00TF	3/8”	3/8”	2.756	2.559	2.677	3.386	1.870	1.516	0.4
MX2-1/2-B00TF	1/2	1/2	2.756	2.559	2.677	3.386	1.870	1.516	0.4
MX2-3/4-B00TF	3/4”	3/4”	3.524	2.953	2.992	3.898	2.146	1.752	0.6
MX3-1-B00TF	1	1	3.524	2.953	2.992	3.898	2.146	1.752	0.6

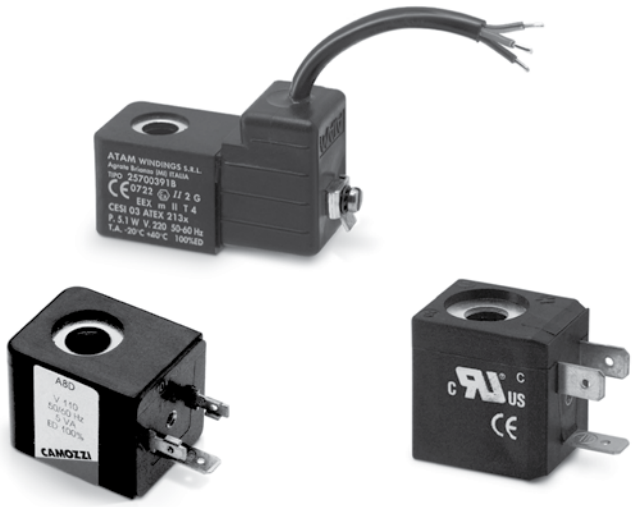


BL01 = take-off block

BL02 = take-off block with VNR

Solenoids U7* - U7*EX - G7* - A8* - H8*

Version A and B
Connection according to DIN 43650 and DIN 40050 standards



The mechanical part of the tube in the solenoid valves Series A, 3, 4, 9 and NA allows the mounting of various types of solenoids.

Mod. H8...: explosion-proof solenoids suitable for potentially explosive ambients (ATEX).

Mod. U7...: solenoids available also with ATEX certification.

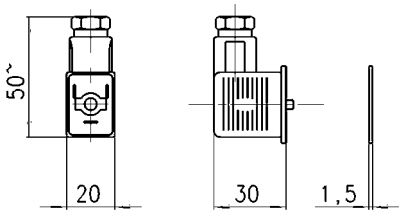
GENERAL DATA

Wire insulation	U7... / G7... / G93 = class F (155° C) A8... = class H (180° C) B... / H8... = class H (200° C)
Protection class	U7... / G7... / G93 = IP54 - DIN 40050 IP65 (with connector Mod. 122-800 and Mod. 122-800EX) A8... / B... = IP54 - DIN 40050 IP65 (with connector Mod. 124-800) H8... = IP64
Operation	ED 100%
Tolerance V AC	Mod. A and U: -15% / +10%
Tolerance V DC	Mod. A and U: ±10%

DIN Connector for U7x and G7x Coils

EN 175301-803 Form B Industrial

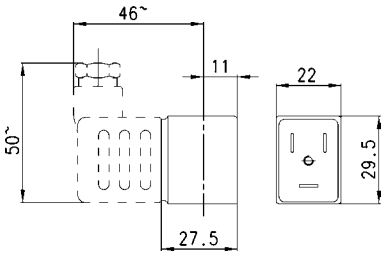
Mod. 122-800



Mod.	
122-800	DIN 43650 (PG9)
122-800EX	DIN 43650 (PG9) with TORX SCREW anti-tampering
122-701-2	24V w/ LED, varistor surge suppression and 2m molded cable
122-702-3	110V w/ LED, varistor surge suppression and 3m molded cable

Solenoids for Mod. U70/ / U7*EX / G70 (EN 175301-803 Form B Industrial)

The U7* series of solenoid coils complies with both standards UL and CSA, and the marking we will apply on the solenoids is cURus (standards UL 429 and CSA 22.2 n. 139).
The U7* coil series is also available in an ATEX explosion rated version. Mod. U7*EX is marked II 3 GD Eex nA T4.
NOTE: to order the ATEX version of hte U7* coil it is necessary to add the EX suffix at the end of the code.



Nominal dimensions:	22x22
Protection class:	IP54 - DIN 40050 IP65 (with connector Mod. 122-800)
Insulation:	Class H (180°C)
Connections:	Bipolar plus earth DIN 43650 (version B)
Voltage tolerance:	AC +10% - 15% DC ±10%
Continuous operation:	ED 100%
Protection:	U70 PET G70 Nylon

Solenoid Voltages U70 (UL and CSA approved)

Mod.			
	24V	50/60 Hz	3,5VA
U7H	12V	DC	3,1W
U7K	110V	AC 50/60 Hz	4,3VA
	125V	AC 50/60 Hz	5,5VA
U7J	230V	50/60 Hz	3,5VA
	240V	50/60 Hz	4VA
U79	48V	DC	3,1W
U710	110V	DC	3,2W

Mod.			
	24V	DC	3,1W
U77	48V	50/60 Hz	3,5VA
U7F	380V	50/60 Hz	7VA
U72	12V	DC	5W
U73	24V	DC	5W
U74	48V	DC	5W
U76	110V	DC	5W

Solenoid Voltages G70

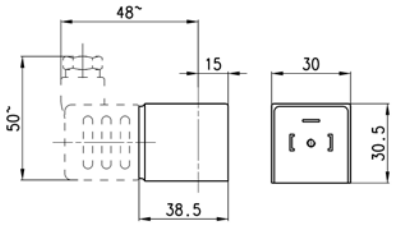
Mod.			
	24V	50/60 Hz	3,5VA
G7H	12V	DC	3,1W
G7K	110V	AC 50/60 Hz	4,3VA
	125V	AC 50/60 Hz	5,5VA
G7J	230V	50/60 Hz	3,5VA
	240V	50/60 Hz	4VA
G79	48V	DC	3,1W
G710	110V	DC	3,2W

Mod.			
	24V	DC	3,1W
G77	48V	50/60 Hz	3,5VA
G7F	380V	50/60 Hz	7VA
G72	12V	DC	5W
G73	24V	DC	5W
G74	48V	DC	5W
G76	110V	DC	5W

Dimensions in millimeters (mm)

Solenoids Mod. A8..

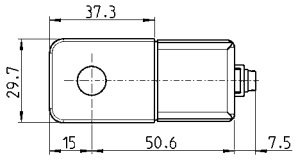
Connections: Bipolar plus earth DIN 43650
(version A) (EN 175301-803 Form A / ISO 4400)

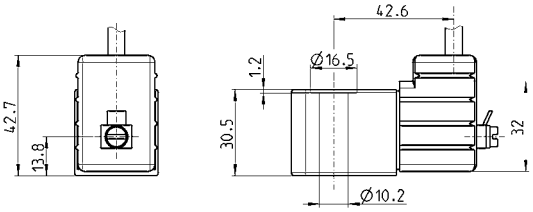


Mod.	Solenoid voltage	Power absorption
A8B	24 V - 50/60 Hz	5 VA
A8D	110 V - 50/60 Hz	5 VA
A8E	220 V - 50/60 Hz	5 VA
A83	24 V - DC	4 W

Solenoid Mod. H8.. for potentially explosive ambients (ATEX)

Class F according to the standard VDE0580
Operating temperature: -20°C + 40°C
Connections: tripolar cable 3 mt (standard)
Conformity certificate to the standard CEI 31-8 (EN 50014) and CEI 31-13 (EN50028) marked EEx m IIT4.
Incapsulating: self-extinguishing PA.



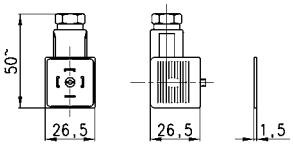


Mod.	Solenoid voltage	Power absorption
H83	24 V - DC	5,4 W
H8B	24 V - 50/60 Hz	5,3 VA
H8C	48 V - 50/60 Hz	5,3 VA
H8D	110 V - 50/60 Hz	5,3 VA
H8E	230 V - 50/60 Hz	5,3 VA

For Series NA use plate mod. NA54-PC.

Connectors for solenoids Mod. A8 and Mod. B8... / B9...

According to DIN 43650 (PG) standard
(EN 175301-803 Form A / ISO 4400)



Mod.	Torque (Nm)
124-800	0.5

Dimensions in millimeters (mm)

Pressure switches, Transducers and Pressure Indicators

Series PM: adjustable-diaphragm pressure switches, with visual scale, with exchange contacts (SPST, SPDT)
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.

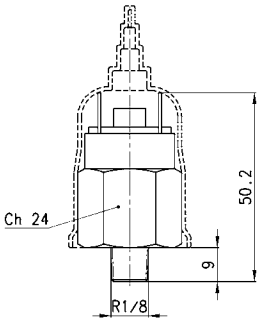
Series PM681 pressure switches with setting visual scale comply with EN60730 standards and are suitable for signaliing pressure through a normally open Reed contact.

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.

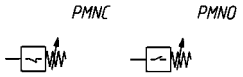
GENERAL DATA

Construction	with adjustable diaphragm
Mounting	using thread in body
Ports	R1/8, G1/4 (serie PM) - tube 4/2 (series TRP) - M5 (series 2950)
Operating temperature	-5° - +60°C, (23 - 140 deg F)
Pressure	1 - 10 bar max.
Voltage	220 V
Max. power	100 VA
Protection class	IP54
Max. nr. of pulses per 1'	200
Lifetime	106
Max current	0.5 A
Isolation voltage	1500 V

Series PM - adjustable-diaphragm pressure switches



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

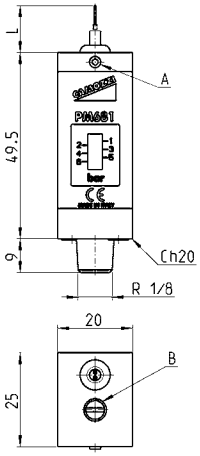


PMNC = normally closed
PMNO = normally open

Series PM681-... - pressure switches with setting visual scale

New

In compliance with EN60730 standards
Electric connection: PVC cable 2 x 0.22 mm
Electric contact: Reed SPST Normally Open Contact
Body in anodized aluminium and threaded fitting in brass
Hysteresis: 0.8 bar max

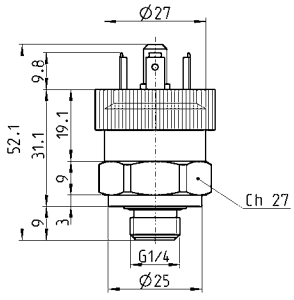


Mod.	L	Max switch voltage	Max switch current	Max switch capacity	Max fluid temperature	Max pressure	Setting range	Weight
PM681-1	1 m	48 V	0.5 A	10 W	60°C	20 bar	1 - 6 bar	95 g
PM681-3	3 m	48 V	0.5 A	10 W	60°C	20 bar	1 - 6 bar	95 g

A = LOCKING SET SCREW

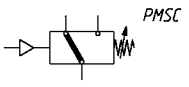
B = PRESSURE ADJUSTMENT SCREW

Series PM - pressure switch with exchange contacts (SPDT contacts)



DIMENSIONS

Mod.	Function	Max Voltage	Operating Temperature	Actuation time	Setting range	Max Hysteresis
PM11-SC	SC (*)	250 V AC 30 V DC	- 25 C° + 85 C°	> 0,1 ms	2 - 10 bar	0.8 bar

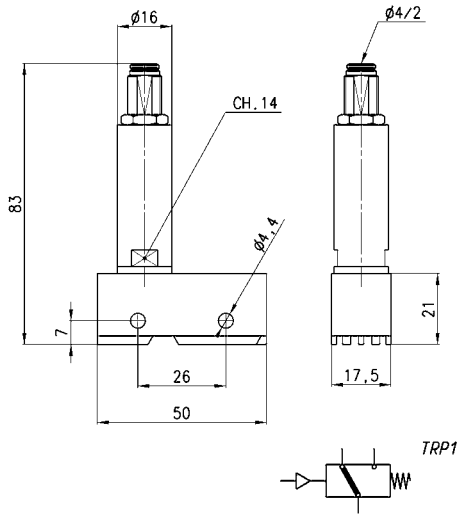


(*) SC = exchange contacts

Dimensions in millimeters (mm)

Electro-pneumatic transducer Series TRP

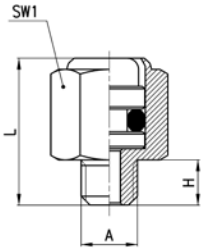
The TRP Series transducer is specially designed to convert a pneumatic signal into an electrical signal. The contacts are NC (normally closed) or NO (normally open), thus making it possible to generate or eliminate current when the pneumatic signal is present.
Minimum operating pressure 2,5 bar.

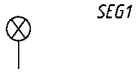


Mod.
TRP-8

Pressure indicators Series 2950

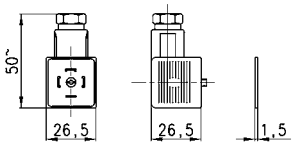
The pressure indicator Mod. 2950-M5 is passive element (no spring, red colour).
It is useful for detecting pressure manually without having to remove the connections.





Mod.	A	H	L	SW1
2950 M5	M5	4	13.5	8

Three-pole connector 124-830 for Pressure switch SC



Mod.
124-830

Dimensions in millimeters (mm)

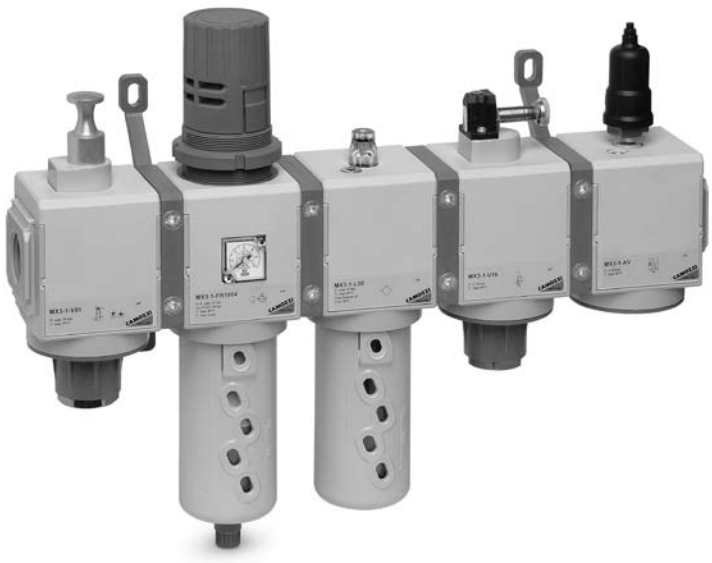
FRL Series MX Pre-Assembled

(single part number codes, fully assembled)

Ports 3/8" - 1" NPTF
MX2 ports: 3/8”, 1/2”, 3/4” NPTF - MX3 ports: 3/4”, 1” NPTF
Assembly can be specified with either standard modular brackets and/or integrated wall-mount brackets

The new FRL Series MX 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 mounting screws or with wall-mount 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.



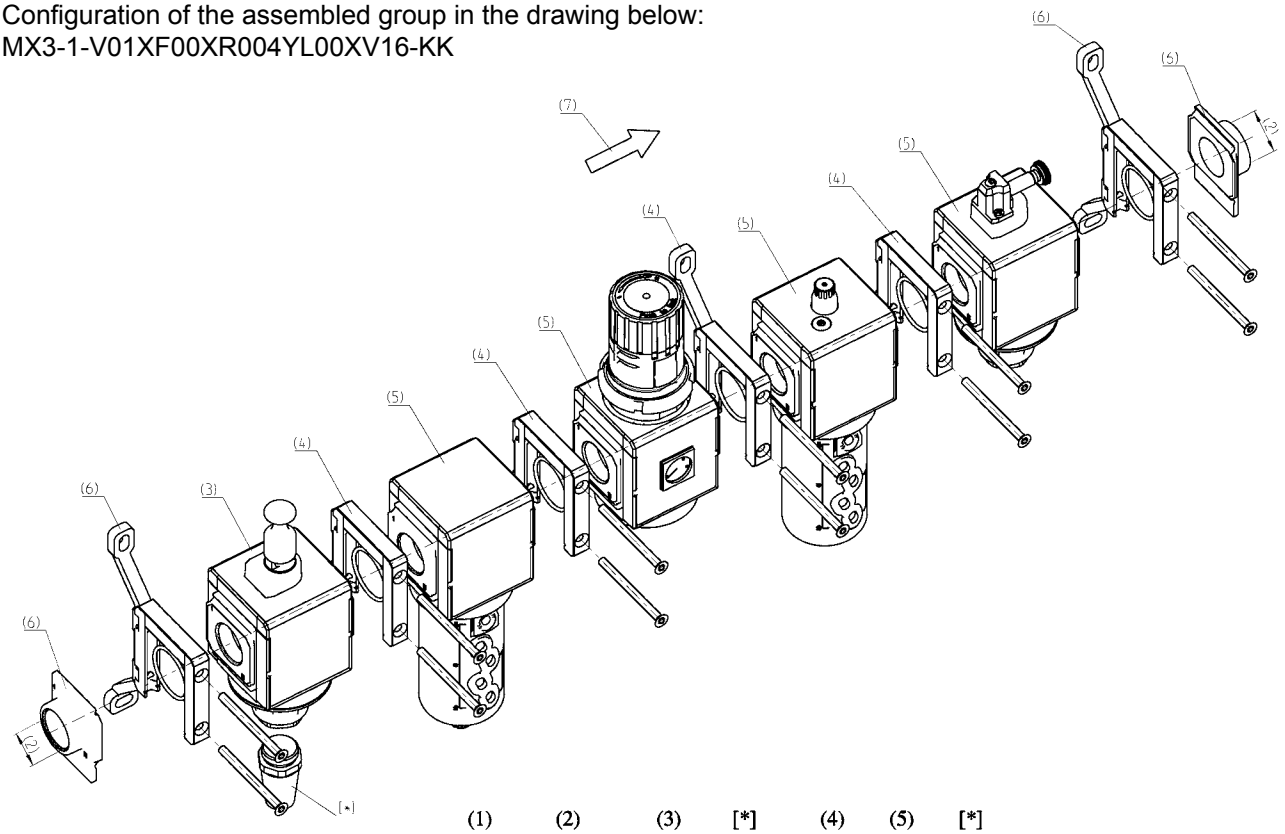
- Compact design
- Simple modularity
- Great reliability and performance
- Easy and quick maintenance
- Reduced weight

GENERAL DATA

Construction	modular, compact
Materials	see catalogue pages referring to the single component
Ports	3/8" - 1" NPTF
Mounting	vertical in-line wall-mounting (by means of direct screws or bracket mounts) panel mounting
Operating temperature	-5°C - 50°C at 16 bar (according to the single component characteristics) -5°C - 60°C at 10 bar (according to the single component characteristics)

ASSEMBLY GUIDE AND TEMPORARY LONG CODES FOR SERIES MX

Configuration of the assembled group in the drawing below:
MX3-1-V01XF00XR004YL00XV16-KK



	(1)	(2)	(3)	[*]	(4)	(5)	[*]		(6)	[**]	(7)
	MX	2	V01	+A32	X	F00					
n_X					X	R004					
					Y	L00					
					X	V16			KK		

Numbers in above position boxes refer to positions called out on next page in the Code Key. Each number is called out in order of the components' thread size and assembly order, including bracket choices.

Position 1 is for general family body size (in this case, 3)
Position 2 is for thread port size options (in this case, 1" ports)
Position 3 is the first component (in this case, a "…-V01" lock-out valve)
Positions 4 & 5 will continue to repeat for each additional component and the bracket that typically comes before it
Position 6 is final outer edge bracket choices, with or without flange units
Position 7 is only for optional right-to-left assembly/flow diagram requests

Positions 3 & 5 will require in most cases that the entire callout of the module be assembled with its unique features (such as the above filter-regulator called out as "FR0004")

Positions 4 & 6, outer brackets and intermediate brackets, utilize the same abbreviated letters for bracket styles, EXCEPT if wall-mount flanges are desired (see Code Key place "6" for options - 'HH' 'JJ' and 'KK' for the end bracket sets to include the wall flange kits)

ASSEMBLY GUIDE AND TEMPORARY LONG CODES FOR SERIES MX

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

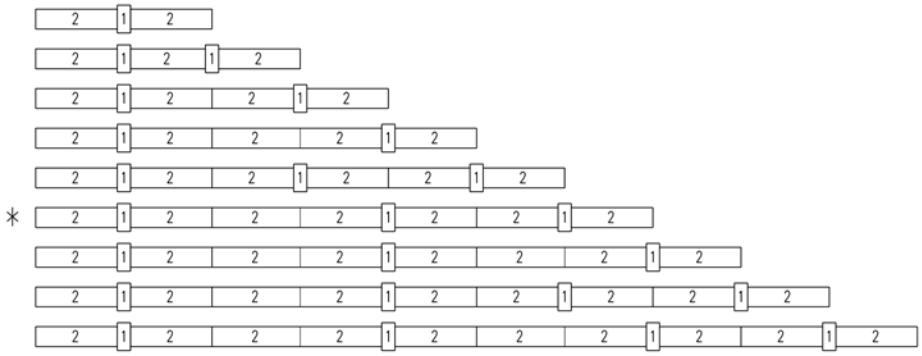
MX		SERIES
2	(1)	SIZE: 2 = 3/8 - 1/2 - 3/4 3 = 3/4 - 1
3/8	(2)	IN / OUT THREADS: 3/8 = 3/8” 1/2 = 1/2” 3/4 = 3/4” 1 = 1”
V01	(3)	MODULE + [*] (to configure the modules, see the single components pages): F... = Filter FC... = Coalescing filter FCA... = Activated carbons filter R... = Pressure regulator L... = Lubricator FR... = Filter-Regulator V... = Lockable isolation valve AV... = Soft start valve B... = Take-off block (MX2: 3/8”, 1/2” only - MX3: 3/4”, 1”)
	[*]	The following ACCESSORIES codes could be added after each individual module which they are assembled into: 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) 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** 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 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 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 + [**] Blank = no end-plate flanges 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 (optional if wall mounting of Regulator or Filter-Regulator only, by way of panel bracket Mod. S): REGULATOR and FILTER-REGULATOR S = Bracket (only with clamps mod. X o HH) Codes examples: MX3-1-R..XV..-S; MX3-1-R..XV..-HSH
LH	(7)	FLOW DIRECTION: = from left to right (standard) LH = from right to left
	(4) + (5) + [*]	REPEATABLE COMBINATION for a “n” number of times
TF		TF = NPTF ports Blank = BSP ports

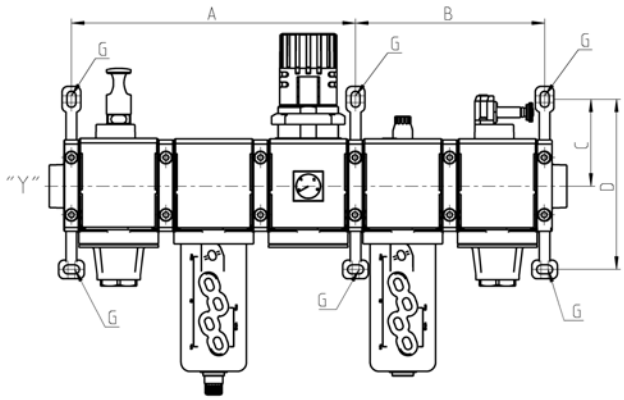
Wall mounting dimensions and positioning scheme

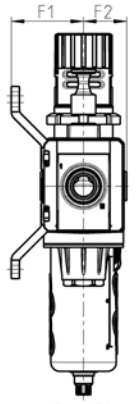
Legend of the POSITIONING SCHEME:
1 = rapid clamp with wall fixing screw
or with wall fixing bracket
2 = module / flange

* 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 = wall mount screw hole

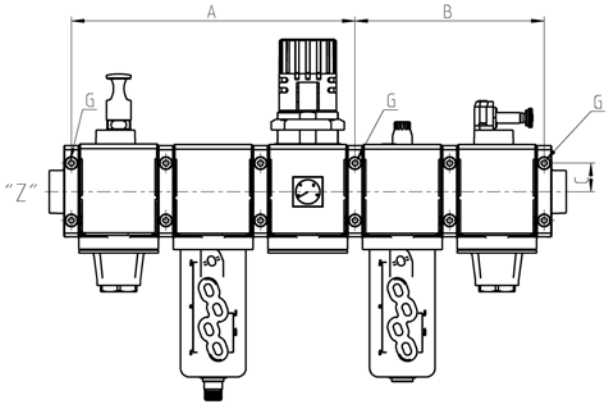


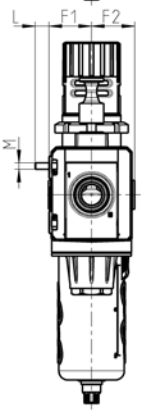




Temporary Assembly Guide: Ex.:
MX3-3/4-V01XF00XR004YL00XV16-KK TF

Notes:
3/4" NPTF unit, w/o silencers
or switch accessories.
Utilizing wall-mount brackets and flange end-plates





Temporary Assembly Guide Ex.:
MX3-1-V01XF00ZR004ZL00XV16-HH TF

Notes:
1" NPTF unit, w/o silencers
or switch accessories.
Utilizing only rapid mounting clamps, wall screws and flange end-plates.

Dimensions in millimeters (mm)

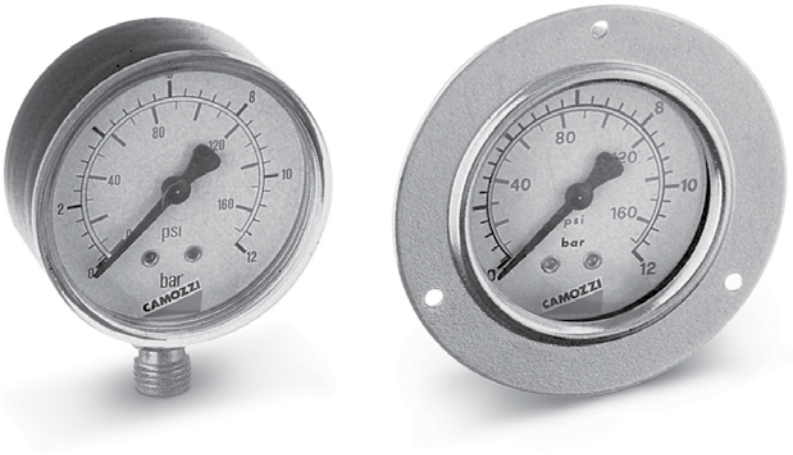
Mod.	A	B	C	D	F1	F2	L	M
MX2-X	210	140	68,5	134,5	70	37	-	-
MX2-Z	210	140	23	-	37,5	37	13,5	M5
MX3-Y	267	178	82	160	68	40,5	-	-
MX3-Z	267	178	27	-	40,5	40,5	13	M6

Pressure Gauges and Accessories for Series MX

Various pressure ranges
Various connections: radial, rear, for panel mounting
Precision classes: CL1,6 and CL2,5 (maximum permissible error as percentage of full span)

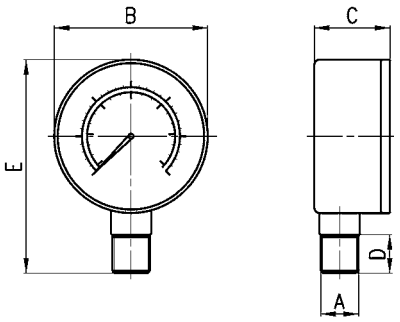
To select the most suitable pressure gauge, the measurement range should be chosen considering the type of application according to the following criteria:

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.**



- Precision class CL1,6 (+/- 1.6% of full span) (mod. M063...)
- Precision class CL2,5 (+/- 2.5% of full span) (mod. M043... and M053...)
- NPTF Gauges have accuracy of 3-2-3%, conforming to ASME/ASNI B40.1 Grade B

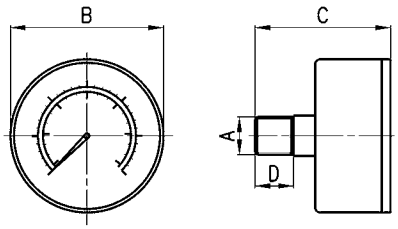
Pressure gauges with radial connection



DIMENSIONS (in inches)

Mod.	A	B	C	D	E	Range
M043-R06	R1/8	Ø 1.595	0.965	0.394	2.244	0-85 psi
M043-R12	R1/8	Ø 1.595	0.965	0.394	2.244	0-175 psi
M053-R12	R1/8	Ø 2.067	1.142	0.394	2.756	0-175 psi
M063-R12	R1/4	Ø 2.480	1.102	0.472	3.268	0-175 psi

Pressure gauges with rear connection

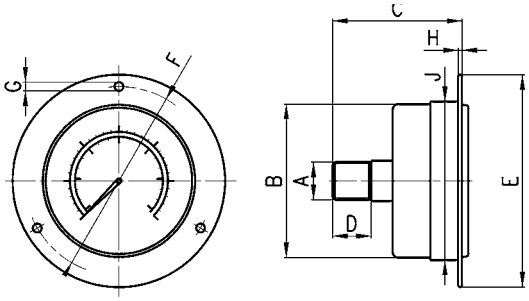


DIMENSIONS (in inches)

Mod.	A	B	C	D	Range
M043-P04	R1/8	Ø 1.595	1.555	0.394	0-60 psi
M043-P06	R1/8	Ø 1.595	1.555	0.394	0-85 psi
M043-P10	R1/8	Ø 1.595	1.555	0.394	0-145 psi
M043-P12	R1/8	Ø 1.595	1.555	0.394	0-175 psi
M053-P04	R1/8	Ø 2.067	1.772	0.394	0-60 psi
M053-P06	R1/8	Ø 2.067	1.772	0.394	0-85 psi
M053-P10	R1/8	Ø 2.067	1.772	0.394	0-145 psi
M053-P12	R1/8	Ø 2.067	1.772	0.394	0-175 psi
M063-P04	R1/4	Ø 2.480	1.791	0.472	0-60 psi
M063-P06	R1/4	Ø 2.480	1.791	0.472	0-85 psi
M063-P12	R1/4	Ø 2.480	1.791	0.472	0-175 psi

Pressure gauges for panel mounting

Materials: painted aluminum

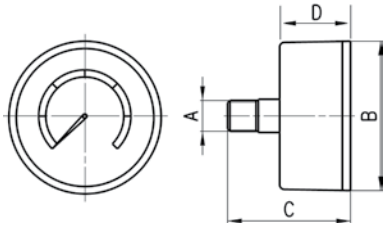


DIMENSIONS (in inches)

Mod.	A	B	C	D	E	F	G	H	J	Range
M043-F04	R1/8	Ø 1.595	1.496	0.394	Ø 2.382	2.087	Ø 0.138	0.472	1.673	0-60 psi
M043-F06	R1/8	Ø 1.595	1.496	0.394	Ø 2.382	2.087	Ø 0.138	0.472	1.673	0-85 psi
M043-F10	R1/8	Ø 1.595	1.496	0.394	Ø 2.382	2.087	Ø 0.138	0.472	1.673	0-145 psi
M043-F12	R1/8	Ø 1.595	1.496	0.394	Ø 2.382	2.087	Ø 0.138	0.472	1.673	0-175 psi
M063-F12	R1/4	Ø 2.480	1.693	0.472	Ø 3.307	2.933	Ø 0.138	0.472	2.500	0-175 psi

Pressure gauges Mod. M043-P04TF (0 - 60 psi)

Nominal face size 1 1/2”

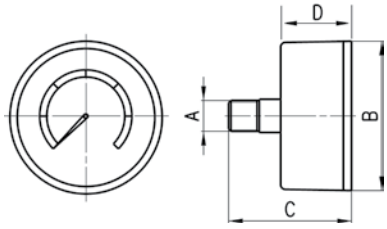


DIMENSIONS (in inches)

Mod.	A	B	C	D
M043-P04TF	1/8" NPTF	1.655	1.600	0.950

Pressure gauges Mod. M043-P10TF (0 - 160 psi)

Nominal face size 1 1/2”



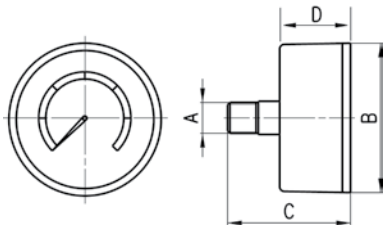
.600

DIMENSIONS (in inches)

Mod.	A	B	C	D
M043-P10TF	1/8" NPTF	1.655	1.600	0.950

Pressure gauges Mod. M063-P10TF (0 - 160 psi)

Nominal face size 2”



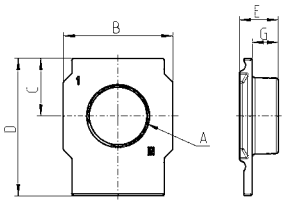
DIMENSIONS (in inches)

Mod.	A	B	C	D
M063-P10TF	1/4" NPTF	2.180	1.878	0.900

NPTF Gauges have accuracy of 3-2-3%, conforming to ASME/ASNI B40.1 Grade B

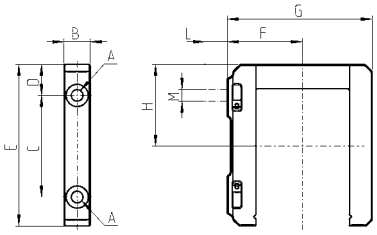
Terminal flanges (IN/OUT) for series MX (Threaded End-plates)

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



DIMENSIONS (in inches)						
Mod.	A (NPTF)	B	C	D	E	G
MX2-3/8-FL-TF	3/8	1.969	1.043	2.500	0.669	0.433
MX2-1/2-FL-TF	1/2	1.969	1.043	2.500	0.669	0.433
MX2-3/4-FL-TF	3/4	1.969	1.043	2.500	0.669	0.433
MX3-3/4-FL-TF	3/4	2.283	1.201	2.874	0.807	0.531
MX3-1-FL-TF	1	2.283	1.201	2.874	0.807	0.531

Rapid clamps kit for series MX



Kit MX2-X supplied with: 1 rapid clamp, 1 O-ring OR 3125**, 2 hexagonal nuts M5, 2 screws M5x69.

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

** OR 3125 can be ordered separately (cod. 160-39-11/19)

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

The kit MX3-X is supplied with:
n° 1 rapid clamp, n° 1 O-ring, OR 3150 **
n° 2 square nuts, n° 2 screws M6x75

The kit MX3-Z is supplied with:
n° 1 rapid clamp, n° 1 O-ring, OR 3150 **
n° 1 square nut, n° 1 screw M6x75,
n° 1 screw M6x90 for direct wall-mounting

**OR 3150 can be ordered separately (mod. C401-F33)

DIMENSIONS (in inches)											
Mod.	A	B	C	D	E	F	G	H	L	M	
MX2-X	0.205	0.472	1.811	0.551	2.894	1.476	2.776	1.457		-	
MX2-Z	0.205	0.472	1.811	0.551	2.894	1.476	2.776	1.457	0.551	M5	*
MX3-X	0.244	0.551	2.126	0.650	3.386	1.575	3.031	1.713		-	
MX3-Z	0.244	0.551	2.126	0.650	3.386	1.575	3.031	1.713	0.512	M6	*

* kit with wall mounting screw

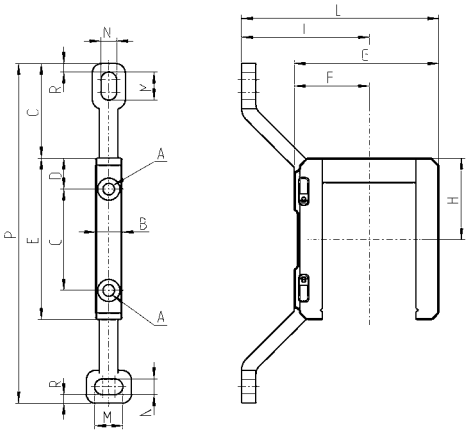
Rapid clamp kit with wall mount brackets for series MX

The kit MX3-Y is supplied with:
n° 1 wall rapid clamp, n° 1 O-ring, OR 3150 **
n° 2 square nuts, n° 2 screws M6x75
**OR 3150 can be ordered separately (mod. C401-F33)

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

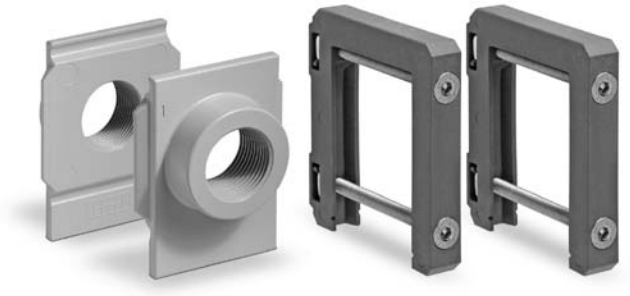
** OR 3125 can be separately ordered (mod. 160-39-11/19)

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



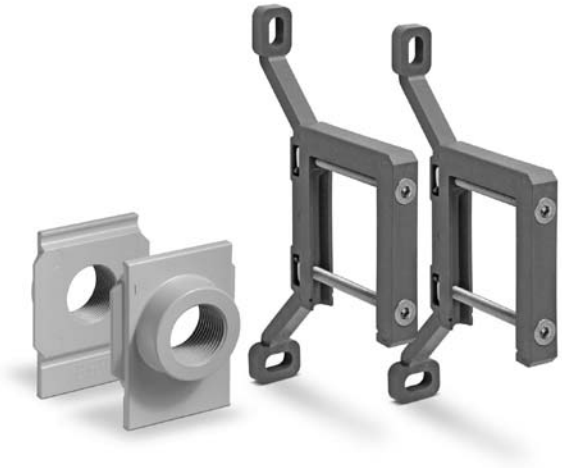
DIMENSIONS (in inches)															
Mod.	A	B	C	D	E	F	G	H	I	L	M	N	O	P	R
MX2-Y	0.205	0.472	1.811	0.551	2.894	1.280	2.776	1.457	2.776	4.055	0.472	0.256	1.654	5.984	0.157
MX3-Y	0.244	0.551	2.126	0.650	3.386	1.575	3.031	1.713	2.677	4.134	0.591	0.331	1.988	7.126	0.177

Assembly brackets and flange kit for series MX



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

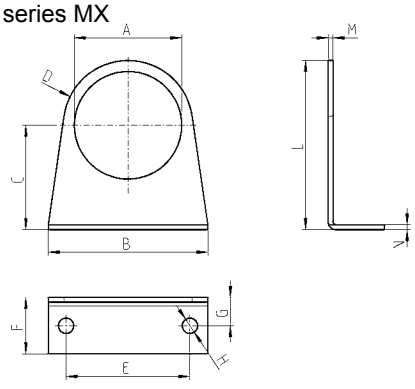
Wall-mount brackets and flange kit for series MX



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

Single wall-mount bracket for regulator or filter-regulator series MX

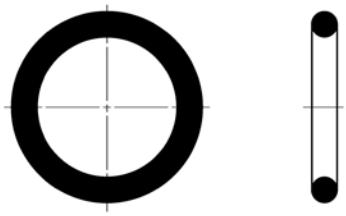
The kit is supplied with 1 zinc-plated steel bracket



Mod.	A	B	C	D	E	F	G	H	L	M	N
MX2-S	Ø 1.858	2.874	2.382	R 1.161	2.126	0.984	0.591	Ø 0.244	3.543	0.098	0.098
MX3-S	Ø 2.252	3.346	2.185	R 1.358	2.598	1.181	0.591	Ø 0.323	3.543	0.098	0.098

DIMENSIONS (in millimeters)

O-ring for assembling Series MC - MX



Mod.	O-ring	For assembly between units and/or end-plates	*
458-33/1	OR 2068	MC104	*
80-26-11/4T	OR 3100	MC238 - MC202	*
160-39-11/19	OR 3125	MX2	*
C401-F33	OR 3150	MX3	*

* spare parts only

4 Additional Products & Accessories

4

Digital Electro-pneumatic Regulator Series ER100

Port G1/4

Digital Electro-pneumatic Regulator.
- **Compact design**
- **Digital display**
- **Analog and digital input**
- **Programmable**
- **Zero/span adjustment function**
- **Error display function, pressure display**
- **Preset memory function 8-set points (3bits).**

Specifications ER104 - 5xxx

ITEM		ER104-5 0/1/2 X	ER104-5P X
		Analog type	Parallel type
Media		Cleaned air (equivalent to class 1,3,2 - ISO 8571-3)	
Max. working pressure		7 bar	
Min. working pressure		Set pressure + Max. control pressure X 0.2	
Pressure control range		0 - 5 bar	
Power supply voltage		DC24V ± 10% (stabilized power supply with a ripple rate of 1% or less)	
Consumption current		0.15 A or less rush current 0.6 A or less when power is turned on	
Input signal (Input impedance)		0 to 10 VDC (6.7k Ω)	10bit
		0 to 5 VDC (10k Ω)	
		4 to 20 mADC (250 Ω)	
Preset input		8 points	N/A
Output signal	Note 1	Analog output 1-5 VDC (load to be connected impedance 500 kΩ or more)	
		Switch output NPN or PNP, open collector output, 30 V or less, 50 mA or less, voltage drop 2.4 V or less, compatible for usage in PLC and Relay	
Error output signal		NPN or PNP, open collector output, 30 V or less, 50 mA or less, voltage drop 2.4 V or less, compatible for usage in PLC and Relay	
Direct memory setting		0,05 - 5 bar - minimum input width 0,01 bar	
Hysteresis	Note 2	0.5% F.S. or less	
Linearity	Note 2	±0.3% F.S. or less	
Resolution	Note 2	0.2% F.S. or less	
Repeatability	Note 2	0.3% F.S. or less	
Temperature characteristics	Zero point fluctuation	0.15% F.S./°C or less	
	Span point fluctuation	0.07% F.S./°C or less	
Max. flow rate (ANR)	Note 3	400L/min (see diagram page 3)	
Step response time	No load	0.2sec. or less	
Note 4	1000cm3 load	0.8sec. or less	
Mechanical vibration proof		98 m/s2 or less	
Ambient temperature		5 to 50 °C	
Fluid temperature		5 to 50 °C	
Connecting port size		G1/4	
Mounting direction		Free	
Mass (body)		250g	

Note 1: Select either analog or switch output.
Note 2: The above applies in control pressure 10 to 90 % with 24 VDC power voltage and working pressure set at the maximum control pressure x1.2.
Pressure may fluctuate if used for applications such as blowing only when the secondary side is a closed circuit.
Note 3: The above apply when working pressure and control pressure are maximum.
Note 4: The above apply when working pressure is maximum and the step is as follows: 50% F.S. -> 100% F.S.
50% F.S. -> 60% F.S.
50% F.S. -> 40% F.S.

Specifications ER104-9xxx

ITEM		ER104-9 0/1/2 X Analog type	ER104-9P X Parallel type
Media		Cleaned air (equivalent to class 1,3,2 - ISO 8571-3)	
Max. working pressure		10 bar	
Min. working pressure		Control pressure + Max. control pressure x 0,2	
Pressure control range		0,5 - 9 bar	
Power supply voltage		DC24V ± 10% (stabilized power supply with a ripple rate of 1% or less)	
Consumption current		0.15 A or less rush current 0.6 A or less when power is turned on	
Input signal (Input impedance)		0 to 10 VDC (6.7k Ω)	10bit
		0 to 5 VDC (10k Ω)	
		4 to 20 mADC (250 Ω)	
Preset input		8 points	N/A
Output signal	Note 1	Analog output 1-5 VDC (load to be connected impedance 500 kΩ or more)	
		Switch output NPN or PNP, open collector output, 30 V or less, 50 mA or less, voltage drop 2.4 V or less, compatible for usage in PLC and Relay	
Error output signal		NPN or PNP, open collector output, 30 V or less, 50 mA or less, voltage drop 2.4 V or less, compatible for usage in PLC and Relay	
Direct memory setting		0,09 - 9 bar - minimum input width 0,01 bar - setting resolution 0,02 bar	
Hysteresis	Note 2	0.5% F.S. or less	
Linearity	Note 2	±0.3% F.S. or less	
Resolution	Note 2	0.2% F.S. or less	
Repeatability	Note 2	0.3% F.S. or less	
Temperature characteristics	Zero point fluctuation	0.15% F.S./°C or less	
	Span point fluctuation	0.07% F.S./°C or less	
Max. flow rate (ANR)	Note 3	400L/min (see diagram page 3)	
Step response time	Note 4	0.2sec. or less (Under no load condition)	
Mechanical vibration proof		98 m/s2 or less	
Ambient temperature		5 to 50 °C	
Fluid temperature		5 to 50 °C	
Connecting port size	IN/OUT port	G1/4	
	EXH port		
Mounting direction		Free	
Mass (body)		250g	

Note 1: Select either analog or switch output.
Note 2: The above applies in control pressure 10 to 90 % with 24 VDC power voltage and working pressure set at the maximum control pressure x1.2.
Pressure may fluctuate if used for applications such as blowing only when the secondary side is a closed circuit.
Note 3: The above apply when working pressure and control pressure are maximum.
Note 4: The above apply when working pressure is maximum and the step is as follows: 50% F.S. -> 100% F.S.
50% F.S. -> 60% F.S.
50% F.S. -> 40% F.S.

CODING EXAMPLE

ER	1	04	-	5	0	AN

ER	SERIES
1	SIZE 2 = size 2
04	PORT 04 = G1/4
5	WORKING PRESSURE 5 = 0 - 5 bar 9 = 0.5 - 9 bar
0	INPUT 0 = 0 - 10 V DC 1 = 0 - 5 V DC 2 = 4 - 20 mA P = Parallel 10 bit
AN	Output AN = 1 - 5 V analog, error (NPN) AP = 1 - 5 V analog, error (PNP) SN = switch (NPN), error (NPN) SP = switch (PNP), error (PNP)

CODES

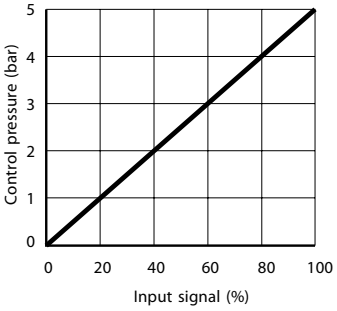
ER 1 04 - 5 0 AP
ER 1 04 - 5 0 SP
ER 1 04 - 5 2 AP
ER 1 04 - 5 2 SP
ER 1 04 – 5 P SP
ER 1 04 – 9 0 AP
ER 1 04 – 9 0 SP
ER 1 04 – 9 2 AP
ER 1 04 – 9 2 SP

Internal structure and parts list

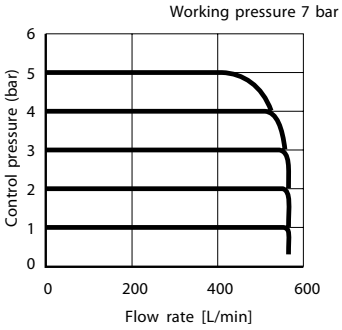
No.	Parts Name	Material
1	Cover	PBT resin
2	D sub-connector	-
3	Housing	ABS resin
4	Controller circuit board	-
5	3 way valve	-
6	Valve base	Polyphenylen sulfite resin
7	Pilot chamber	Polyphenylen sulfite resin
8	Body	Aluminium alloy die casting
9	Pressure sensor	-
10	Diaphragm	Special nitrile rubber
11	Relief sheet	Aluminium alloy
12	Steel ball (exhaust valve)	SUJ
13	Valve	Special nitrile rubber and stainless steel
14	Bottom rubber	Silicon rubber
15	Bottom plug	Brass and electroless nickeling
16	O ring	Fluoro rubber

FLOW DIAGRAMS

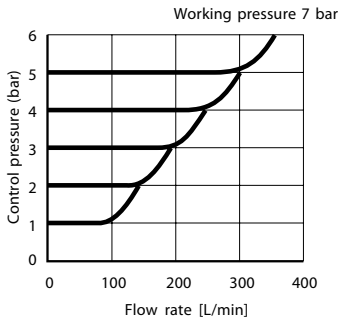
I/O Characteristics ER-104-5xxx



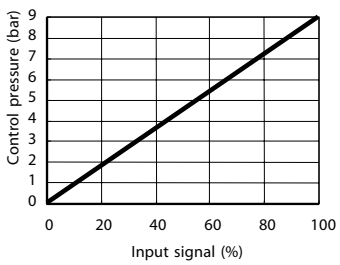
Flow Characteristics ER-104-5xxx



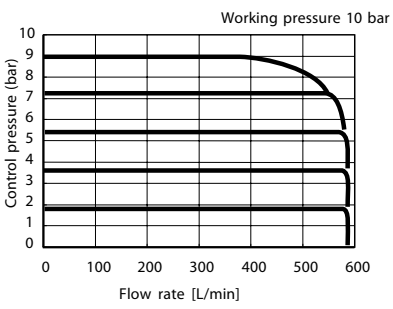
Relief Characteristics ER-104-5xxx



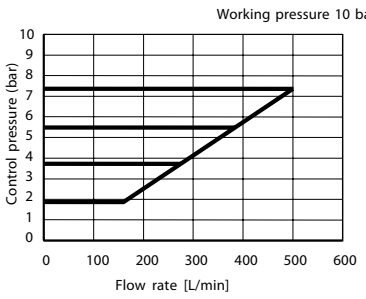
I/O characteristics ER-104-9xxx



Flow characteristics ER-104-9xxx

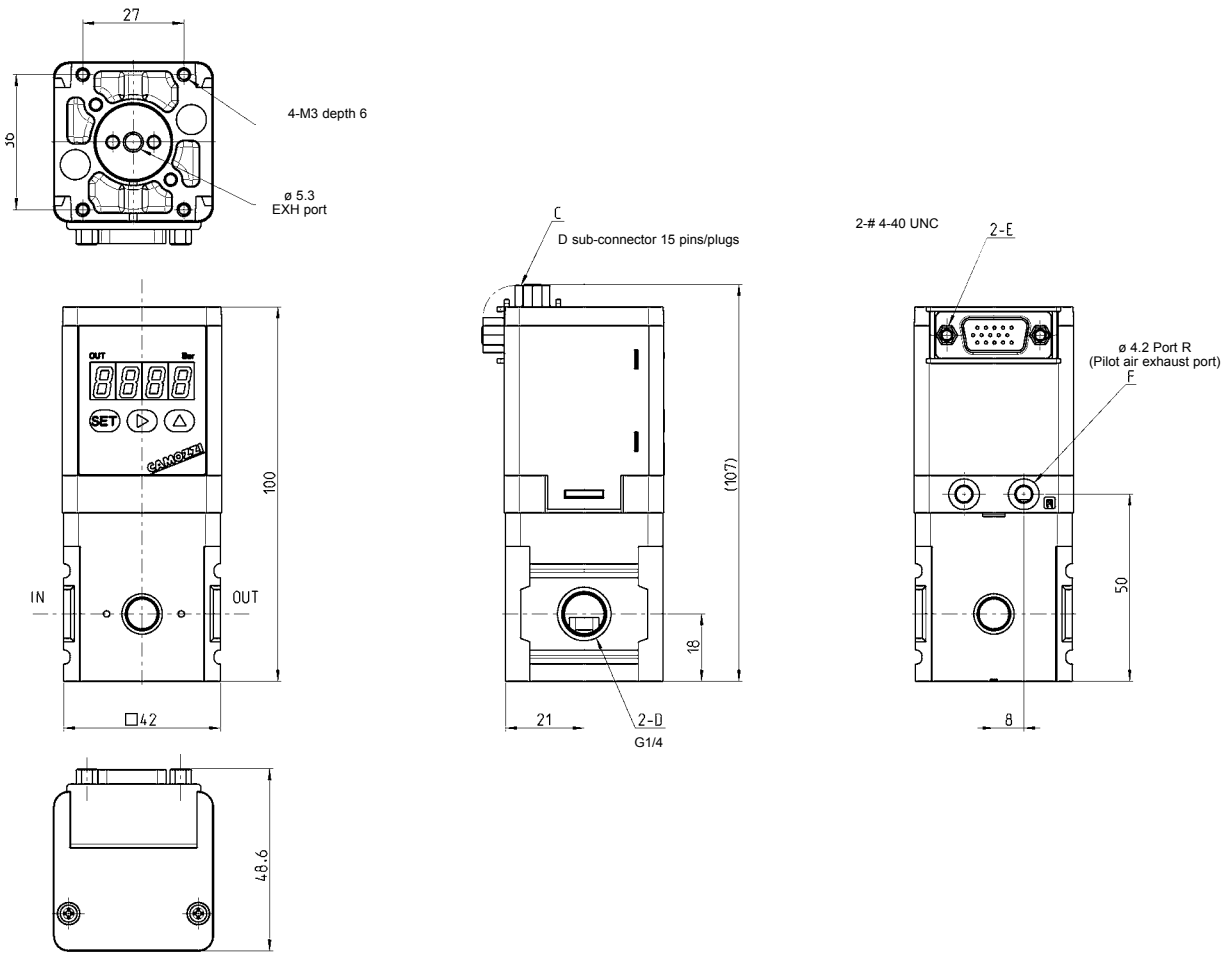


Relief characteristics ER-104-9xxx



Dimensions in millimeters (mm)

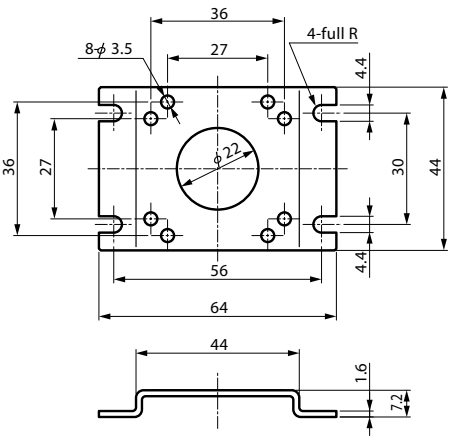
Dimensions



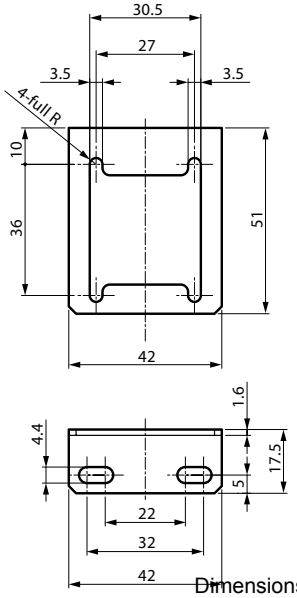
(Dimensions in mm)

Option Dimensions

ER1-B1: floor installation type



ER1-B2: wall installation type



CODES	
ER1-B1	ER1-B2

Dimensions in millimeters (mm)
(Dimensions in mm)

4

Digital Electro-pneumatic Regulator Series ER200

Port G1/4, G3/8

Digital Electro-pneumatic Regulator.
- **Compact design**
- **Digital display**
- **Analog and digital input**
- **Programmable**
- **Zero/span adjustment function**
- **Error display function, pressure display**
- **Preset memory function 8-set points (3bits).**

Specifications ER2 Xx - 5xxx

ITEM		ER204-5 0/1/2 X	ER238-5 0/1/2 X	ER204-5P X	ER238-5P X
		Analog type		Parallel type	
Media		Cleaned air (equivalent to class 1,3,2 - ISO 8571-3)			
Max. working pressure		7 bar			
Min. working pressure		Control pressure + Max. control pressure X 0.2			
Pressure control range		0 - 5 bar			
Power supply voltage		DC24V ± 10% (stabilized power supply with a ripple rate of 1% or less)			
Consumption current		0.15 A or less rush current 0.6 A or less when power is turned on			
Input signal (Input impedance)		0 to 10 VDC (6.7k Ω)		10bit	
		0 to 5 VDC (10k Ω)			
		4 to 20 mADC (250 Ω)			
Preset input		8 points		N/A	
Output signal	Note 1	Analog output 1-5 VDC (load to be connected impedance 500 kΩ or more)			
		Switch output NPN or PNP, open collector output, 30 V or less, 50 mA or less, voltage drop 2.4 V or less, compatible for usage in PLC and Relay			
Error output signal		NPN or PNP, open collector output, 30 V or less, 50 mA or less, voltage drop 2.4 V or less, compatible for usage in PLC and Relay			
Direct memory setting		0,05 - 5 bar - minimum input width 0,01 bar			
Hysteresis	Note 2	0.5% F.S. or less			
Linearity	Note 2	±0.3% F.S. or less			
Resolution	Note 2	0.2% F.S. or less			
Repeatability	Note 2	0.3% F.S. or less			
Temperature characteristics	Zero point fluctuation	0.15% F.S./°C or less			
	Span point fluctuation	0.07% F.S./°C or less			
Max. flow rate (ANR)	Note 3	1500L/min			
Step response time	No load	0.2sec. or less			
Note 4	1000cm3 load	0.8sec. or less			
Mechanical vibration proof		98 m/s2 or less			
Ambient temperature		5 to 50 °C			
Fluid temperature		5 to 50 °C			
Connecting port size	IN/OUT port	G1/4	G3/8	G1/4	G3/8
	EXH port	G3/8			
Mounting direction		Free			
Mass (body)		450g			

Note 1: Select either analog or switch output.
Note 2: The above applies in control pressure 10 to 90 % with 24 VDC power voltage and working pressure set at the maximum control pressure x1.2. Pressure may fluctuate if used for applications such as blowing only when the secondary side is a closed circuit.
Note 3: The above apply when working pressure and control pressure are maximum.
Note 4: The above apply when working pressure is maximum and the step is as follows: 50% F.S. -> 100% F.S.
50% F.S. -> 60% F.S.
50% F.S. -> 40% F.S.

Specifications ER2 Xx - 9xxx

ITEM		ER204-9 0/1/2 X	ER238-9 0/1/2 X	ER238-9P X	ER238-9P X
		Analog type		Parallel type	
Media		Cleaned air (equivalent to class 1,3,2 - ISO 8571-3)			
Max. working pressure		10 bar			
Min. working pressure		Control pressure + Max. control pressure x 0,2			
Pressure control range		0,5 - 9 bar			
Power supply voltage		DC24V ± 10% (stabilized power supply with a ripple rate of 1% or less)			
Consumption current		0.15 A or less rush current 0.6 A or less when power is turned on			
Input signal (Input impedance)		0 to 10 VDC (6.7k Ω)		10bit	
		0 to 5 VDC (10k Ω)			
		4 to 20 mADC (250 Ω)			
Preset input		8 points		N/A	
Output signal	Note 1	Analog output 1-5 VDC (load to be connected impedance 500 kΩ or more)			
		Switch output NPN or PNP, open collector output, 30 V or less, 50 mA or less, voltage drop 2.4 V or less, compatible for usage in PLC and Relay			
Error output signal		NPN or PNP, open collector output, 30 V or less, 50 mA or less, voltage drop 2.4 V or less, compatible for usage in PLC and Relay			
Direct memory setting		0,09 - 9 bar - minimum input width 0,01 bar - setting resolution 0,02 bar			
Hysteresis	Note 2	0.5% F.S. or less			
Linearity	Note 2	±0.3% F.S. or less			
Resolution	Note 2	0.2% F.S. or less			
Repeatability	Note 2	0.3% F.S. or less			
Temperature characteristics	Zero point fluctuation	0.15% F.S./°C or less			
	Span point fluctuation	0.07% F.S./°C or less			
Max. flow rate (ANR)	Note 3	1500L/min			
Step response time	Note 4	0.2sec. or less (Under no load condition)			
Mechanical vibration proof		98 m/s2 or less			
Ambient temperature		5 to 50 °C			
Fluid temperature		5 to 50 °C			
Connecting port size	IN/OUT port	G1/4	G3/8	G1/4	G3/8
	EXH port	G3/8			
Mounting direction		Free			
Mass (body)		450g			
Protective circuit		Power reverse protect, Switch output reverse protect, Switch output load short protect			

Note 1: Select either analog or switch output.
Note 2: The above applies in control pressure 10 to 90 % with 24 VDC power voltage and working pressure set at the maximum control pressure x1.2.
Pressure may fluctuate if used for applications such as blowing only when the secondary side is a closed circuit.
Note 3: The above apply when working pressure and control pressure are maximum.
Note 4: The above apply when working pressure is maximum and the step is as follows: 50% F.S. -> 100% F.S.
50% F.S. -> 60% F.S.
50% F.S. -> 40% F.S.

CODING EXAMPLE

ER	2	38	-	5	0	AN

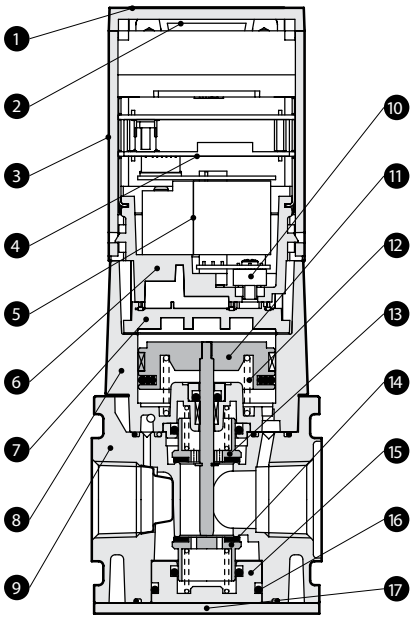
ER	SERIES
2	SIZE 2 = size 2
38	PORT 04 = G1/4 38 = G3/8
5	WORKING PRESSURE 5 = 0 - 5 bar 9 = 0.5 - 9 bar
0	INPUT 0 = 0 - 10 V DC 2 = 4 - 20 mA 1 = 0 - 5 V DC P = Parallel 10 bit
AN	Output AN = 1 - 5 V analog, error (NPN) SN = switch (NPN), error (NPN) AP = 1 - 5 V analog, error (PNP) SP = switch (PNP), error (PNP)

CODES

ER 2 38 - 5 0 AP
ER 2 38 – 5 0 SP
ER 2 38 – 5 2 AP
ER 2 38 – 5 2 SP
ER 2 38 – 5 P SP
ER 2 38 – 9 0 AP
ER 2 38 – 9 0 SP
ER 2 38 – 9 2 AP
ER 2 38 – 9 2 SP
ER 2 38 – 9 P SP

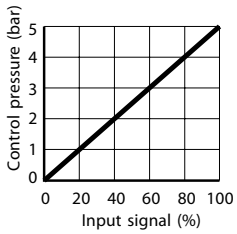
Internal structure and parts list

No.	Parts name	Material
1	Cover	PBT resin
2	D sub-connector	-
3	Housing	ABS resin
4	Controller circuit board	-
5	3 way valve	-
6	Valve base	Polyphenylen sulfite resin
7	Pilot chamber	Polyphenylen sulfite resin
8	Piston body assembly	Aluminium alloy die casting, etc.
9	Body	Aluminium alloy die casting
10	Pressure sensor	-
11	Piston assembly	Aluminium alloy and stainless steel, etc.
12	Spring	Stainless steel
13	Top valve	Special brass and nitrile rubber
14	Bottom valve	Special brass and nitrile rubber
15	Bottom cap	Brass
16	O ring	Nitrile rubber
17	Base plate	Steel sheet

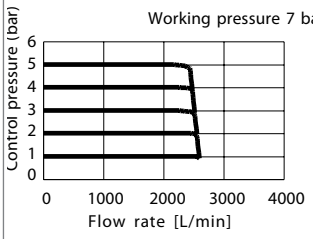


Diagram

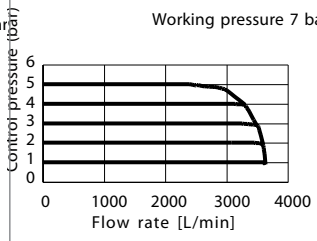
I/O CHARACTERISTICS ER-2XX-5XXX



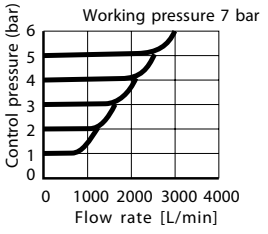
FLOW CHARACTERISTICS ER204-5XXX



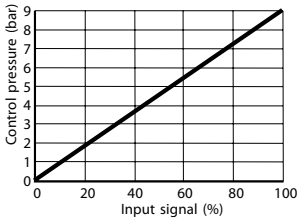
FLOW CHARACTERISTICS ER238-5XXX



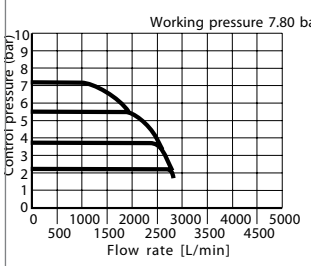
RELIEF CHARACTERISTICS ER-2XX-5XXX



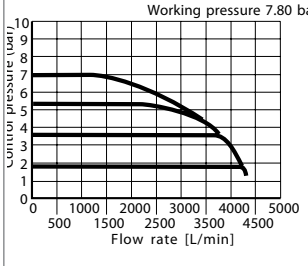
I/O CHARACTERISTICS ER-2XX-9XXX



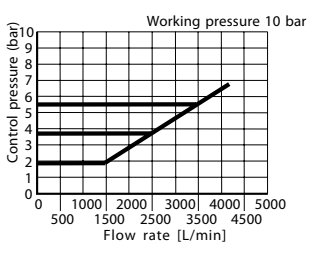
FLOW CHARACTERISTICS ER204-9XXX



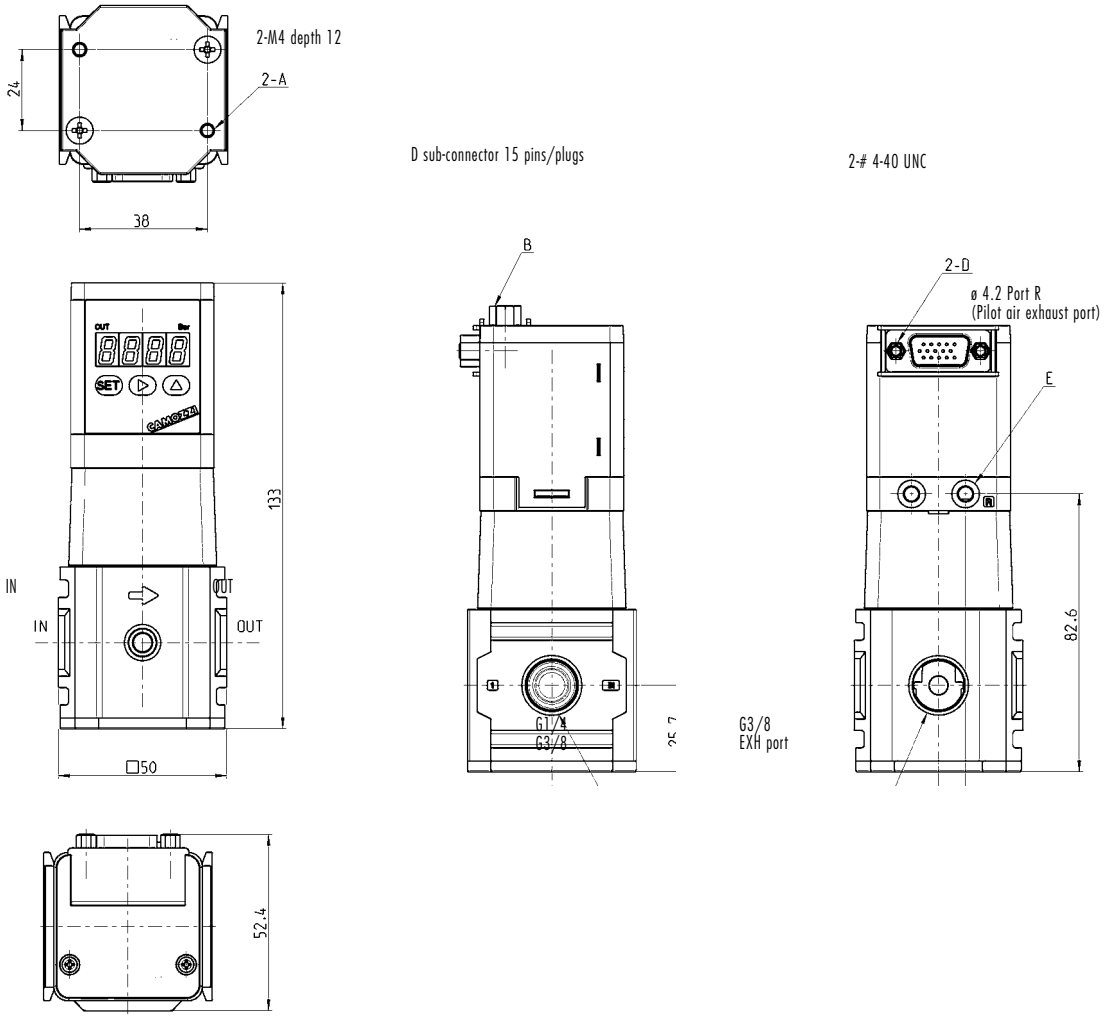
FLOW CHARACTERISTICS ER238-9XXX



RELIEF CHARACTERISTICS ER-2XX-9XXX

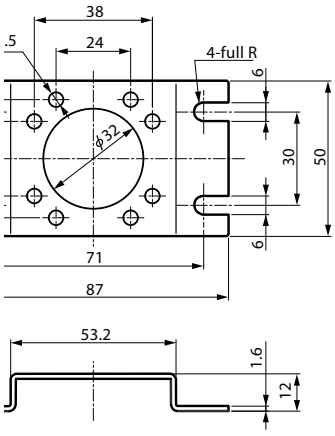


Dimensions

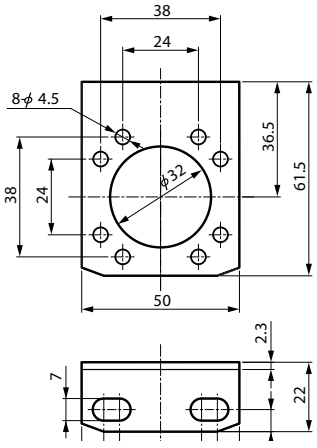


Option dimensions

ER2-B1: floor installation type



ER2-B2: wall installation type



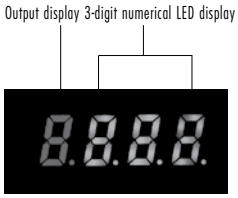
CODES	
ER2-B1	ER2-B2

4

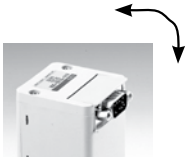
ADDITIONAL PRODUCTS AND ACCESSORIES

User-friendly, installation

- **The digital display shows control status at a glance.**
  3-digit output pressure display Output status (switch output ON-OFF) is displayed in addition to error display.



- **Parallel input available as standard**
  Direct control is possible from the PLC.
- **Compact design**
- **Pressure range**
  0 - 5 bar
  0.5 - 9 bar
- **The highly universal D-sub connector enables bidirectional connection.**
  The connection is rotated 90 degrees from top to side, enabling top or side connection to be selected based on use.



Realizing high-level functions with microcomputer

- **Error display function**
  Errors are displayed and reported with electric signals back to the contol unit.
- **Zero/span adjustment function**
  Zero and span can be adjusted according to the requirements of the application.
- **Direct memory function**
  External input signals are not required.
  Secondary pressure is adjusted as desired with operation keys.
  Digital indicator.
- **Switch output function**
  Switch outputs (built-in overcurrent protection) is possible by setting the upper/lower limit pressure

Highly precise high-response pressure control

- **Linearity ± 0.3%**
- **Hysteresis 0.5%**
- **Response time 0.2sec**

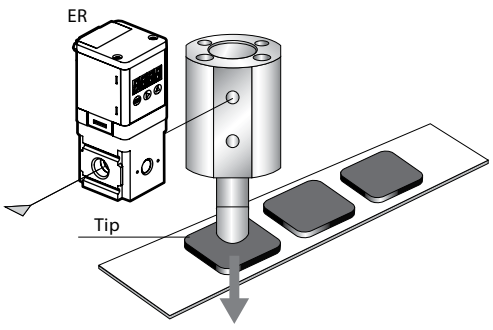
Environment-friendly design

- **No lead or polyvinyl chloride**
  All lead and polyvinyl chloride has been eliminated.
- **Energy saving**
  "Automatic power off" automatically turns off the digital display.

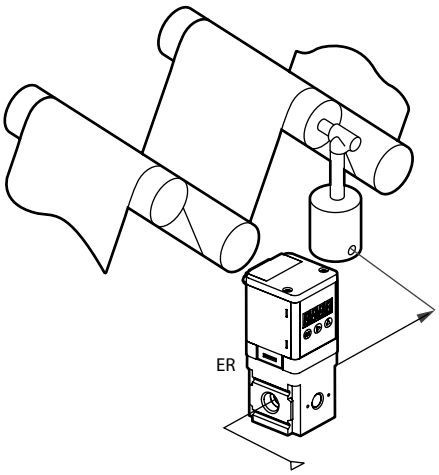
Digital electro pneumatic regulator variation

Series	Pressure range	Input signal	Port size	Output type	Maximum flow rate	Flow path material
ER 100	5 bar	Analog	G1/4	NPN PNP Switch output	400 L/min	Grease free
		10 bit parallel		Analog input		
ER 200	9 bar	Analog	G1/4	NPN PNP Switch output	1500 L/min	Fluorine grease
		10 bit parallel	G3/8	Analog input		

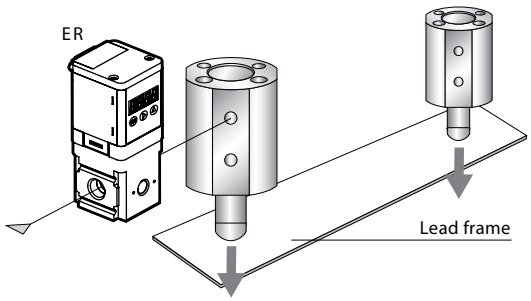
Assembly of chips



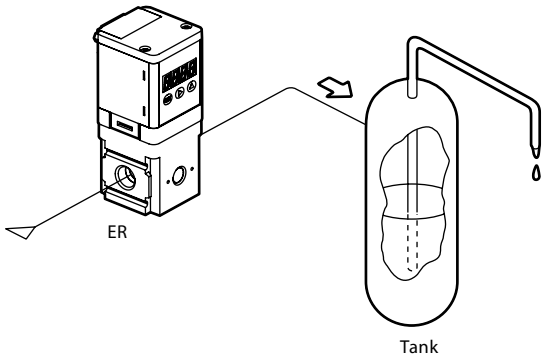
Balancer tension control



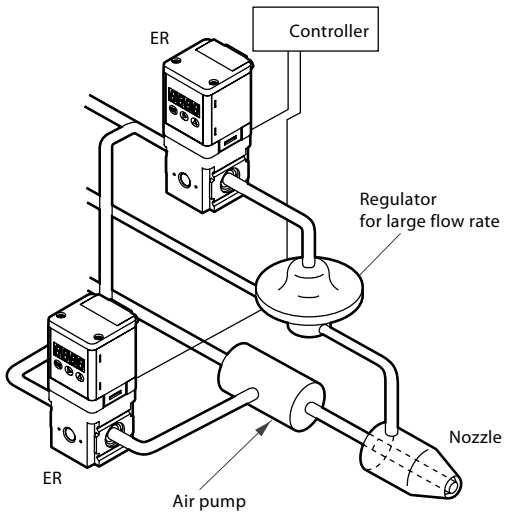
Fixing of lead frames, etc.



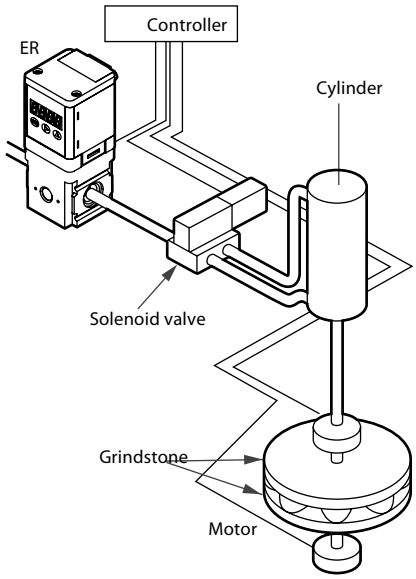
Fluid discharge rate control



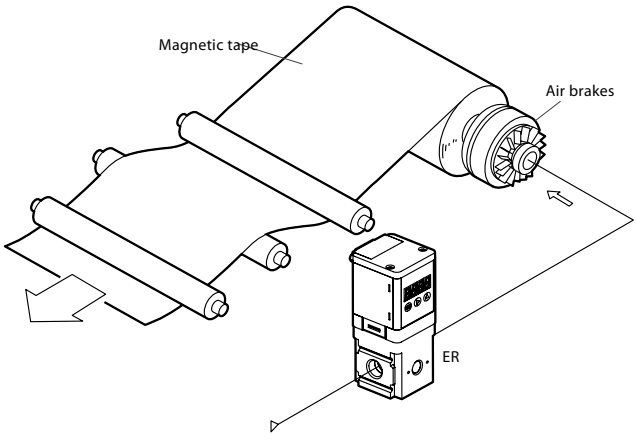
Fluid pressure control



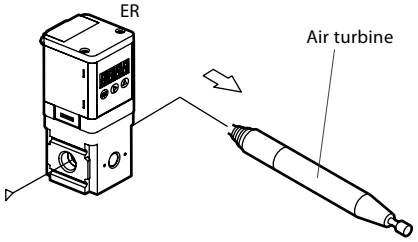
Grinding force control



Tension control using air brake

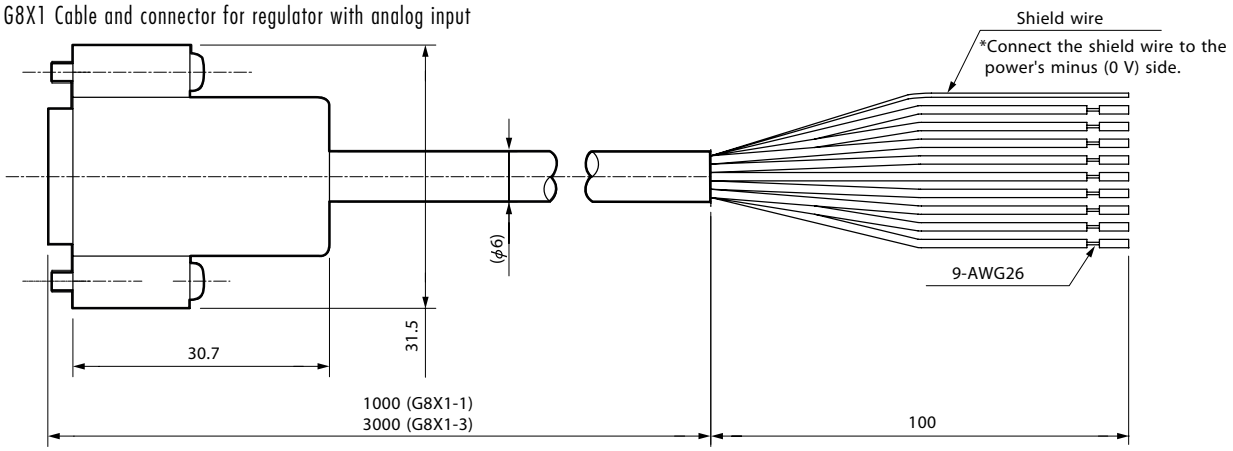


Air turbine speed control



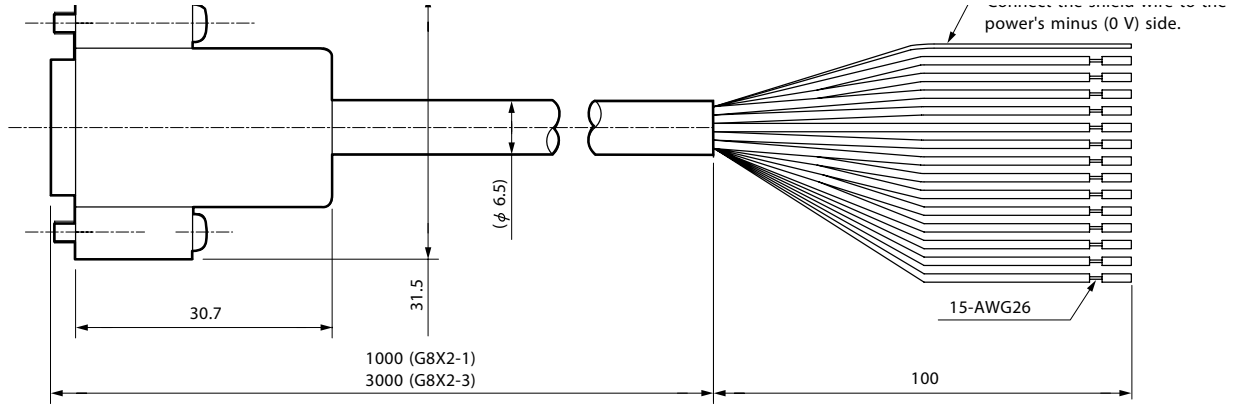
Cable configuration and dimensions

G8X1 Cable and connector for regulator with analog input



D sub socket pin no.	1	2	3	4	5	6	7	8	9	10	11			12	13		14	15
isolator color	Brown	Orange	Yellow	-	Red	-	-	-	-	Grey	White			-	Green		Blue	Black
Name	Preset input signal			Vacant	Power Supply+	Vacant	Vacant	Vacant	Vacant	Vacant	Input signal			Vacant	Monitor output	Switch output	Error output	Power-supply (OV)
Type of Input	Bit 1	Bit 2	Bit 3		+24 VDC					Common	0 to 10 VDC	0 to 5 VDC	4 to 20 mADC	Output short-circuit protection circuit 1 to 5 VDC	NPN or PNP output	NPN or PNP output	NPN or PNP output	

G8X2 Cable and connector for regulator with parallel input

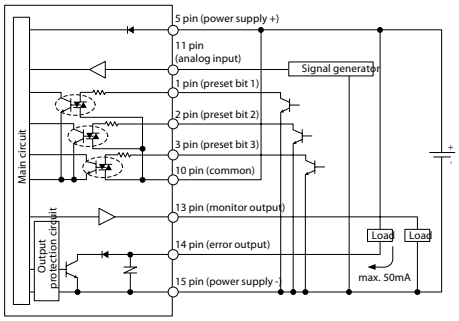


D sub socket pin no.	1	2	3	4	5	6	7	8	9	10	11	12	13		14	15
isolator color	Brown	Orange	Yellow	Purple	Red	Light Blue	Pink	White (with a black line)	Red (with a black line)	Grey	White	Green (with a black line)	Green (with a black line)		Blue	Black
Name	Preset input signal				Power Supply+		Parallel input signal			Common	Parallel input signal		Monitor output	Switch output	Error output	Power-supply (OV)
Type of Input	Bit 1	Bit 2	Bit 3	Bit 4	+24 VDC	Bit 5	Bit 6	Bit 7	Bit 8		Bit 9	Bit 10	Output short-circuit protection circuit 1 to 5 VDC	NPN or PNP output	NPN or PNP output	

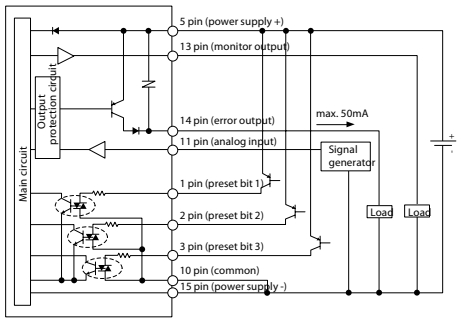
CODES	
G8X1-1	G8X1-3
G8X2-1	G8X2-3

Example of internal circuit and load connection for analog input

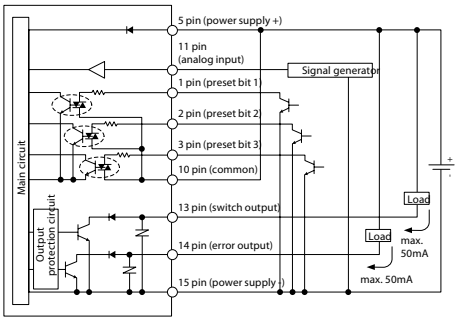
Analog input, analog output + error output type, NPN



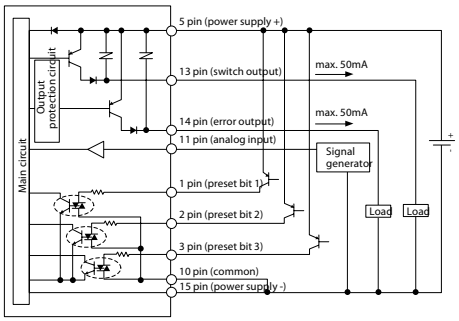
Analog input, analog output + error output type, PNP output



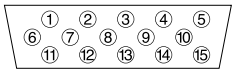
Analog input, switch output + error output type, NPN output



Analog input, switch output + error output type, PNP output



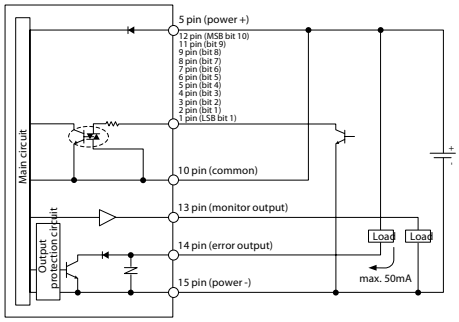
Connector pin layout (product body side)
[Analog input type]



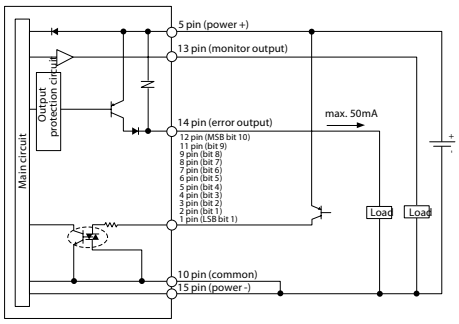
Analog input does not have ④⑥⑦⑧⑨ or ⑫ pins.

Example of internal circuit and load connection for parallel input

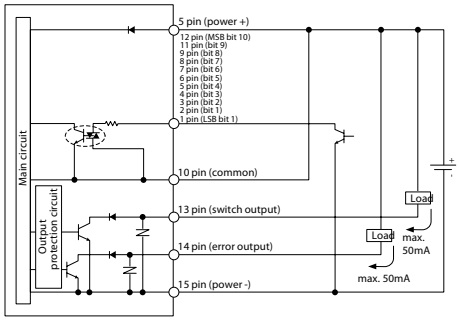
Analog input, analog output + error output type, NPN



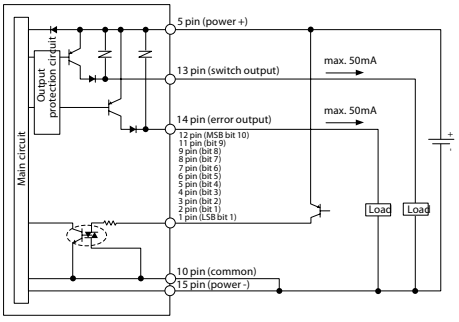
Analog input, analog output + error output type, PNP output



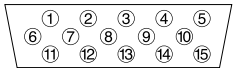
Analog input, switch output + error output type, NPN output



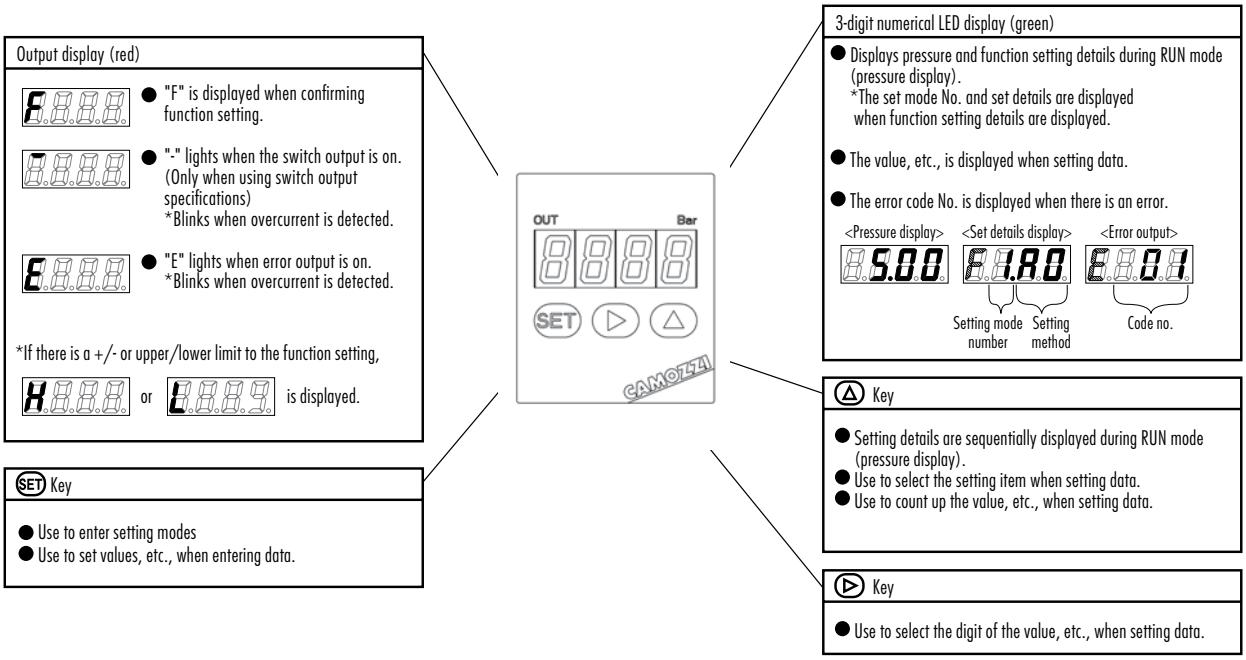
Analog input, switch output + error output type, PNP output



Connector pin layout (product body side)
[Parallel input type]



Names and functions of display and operation sections



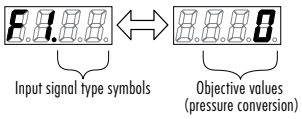
Function list

Screen display	Name	Display descriptions (RUN mode)	Setting descriptions (setting mode)	Setting method
	Pressure display	Secondary pressure is confirmed with the 3-digit numerical display LED. Unit: bar		
Screen F1	Input signal selection	The selected input signal and current target value (pressure conversion value) are confirmed. *When preset input (8-point) is selected, the currently selected preset No. and setting are displayed.	For analog input type: analog input, preset memory input, or direct memory input is selected. For preset input/direct memory input, input the setting for this mode. For parallel input: parallel input or direct memory input is selected. For direct memory input, input the setting for this mode.	P15
Screen F2	Zero/span adjustment	The validity of the zero/span adjustment and the setting value is confirmed. When "valid", F2.on - zero point adjustment (L) and span point adjustment (H) are alternately displayed. *The default is set with the full scale (- -).	Select whether to use with the full scale or with the zero and span adjusted. When zero/span adjustment is selected, the adjustment for this mode is set randomly.	P16
Screen F3	Automatic power off	The validity of the automatic power off function is confirmed. *The default is invalid (- -).	The validity of the automatic power off function is selected. Note: The automatic power off time is about 1 minute, and cannot be changed.	P16
Screen F4	Switch output *Switch output specifications only	Switch output validity and setting are confirmed. When "Mode 1 valid" is selected, F4.0 - - tolerable range setting (L) - + tolerable range setting (H) is alternately displayed. When "Mode 2 valid" is selected, F4.1 - lower limit setting value (L) - upper limit setting value (H) will alternately display. *The default is invalid (- -).	Switch output validity is selected. When valid, mode 1 or mode 2 can be selected. The +/- tolerable values and upper/lower limit values can be set randomly. Note: The hysteresis width cannot be set.	P16

How to operate - RUN mode Display descriptions table

F1 (input signal selection) Screen F1 display details

The input signal type and target value are alternately displayed.



<Analog input type>

Input signal type symbols	Descriptions
F1.A0	Analog 0 to 10 VDC input
F1.A1	Analog 0 to 5 VDC input
F1.A2	Analog 4 to 20 mA DC input
F1.P1 to F1.P8	Preset memory input Selected preset no. is displayed.
F1.dr	Direct memory input

<Digital input type>

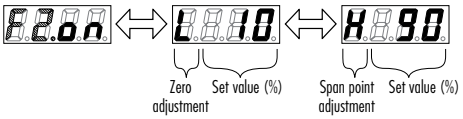
Input signal type symbols	Descriptions
F1.PR	Parallel 10bit input
F1.dr	Direct memory input

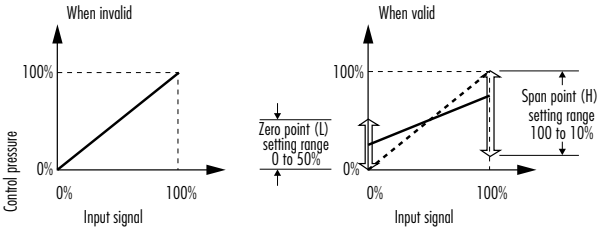
F2 (Zero/span adjustment function) Screen F2 display details

The validity of zero/span adjustment and the setting are confirmed.
Note: This is invalid if preset or direct memory input is selected for F1 mode.

When invalid

When valid





F3 (automatic power off) Screen F3 display details

The validity of automatic power off is confirmed.

When invalid

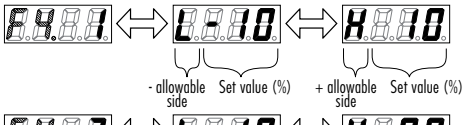
When valid

F4 (switch output function) Screen F4 display details

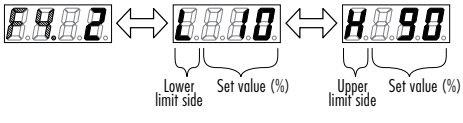
Switch output validity and setting are confirmed.
Note: This is invalid with analog output specifications.

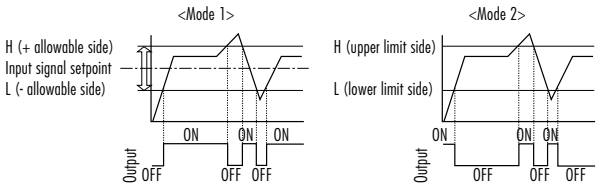
When invalid

For mode 1



For mode 2

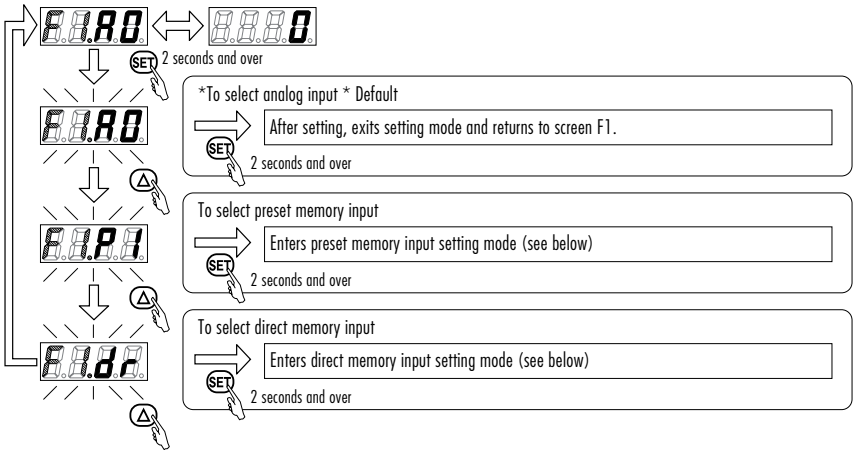




Setting mode Setting method Caution ⚠ Release the key lock before changing setting details.

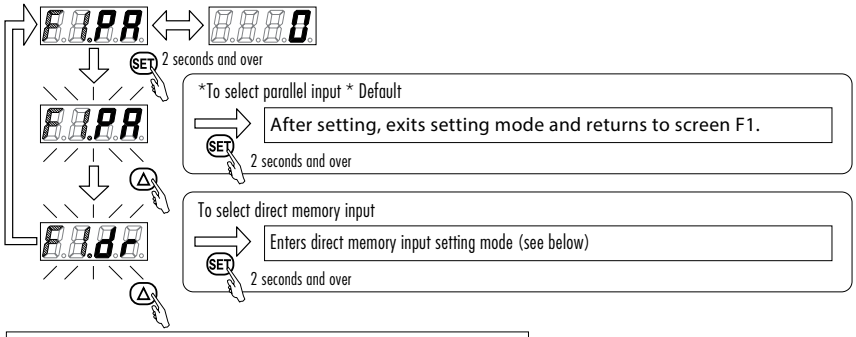
Hold down the SET key for 2 seconds or longer with the F1 (input signal selection) screen F1 displayed.The F1 setting mode isentered.

Changing analog input signal selection
Note: Analog input specifications cannot be changed.



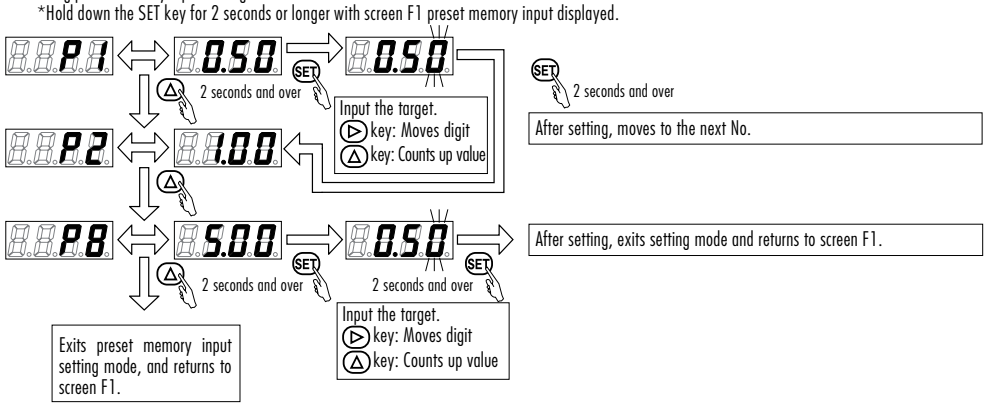
Exits input signal selection setting mode, and returns to screen F1.

Changing parallel input signal selection



Exits input signal selection setting mode, and returns to screen F1.

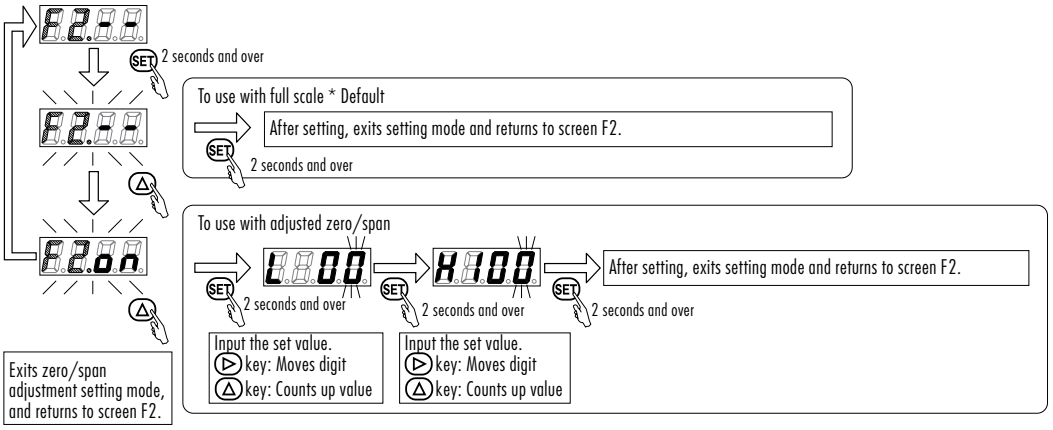
Using preset memory input setting mode
*Hold down the SET key for 2 seconds or longer with screen F1 preset memory input displayed.



Using direct memory input setting mode

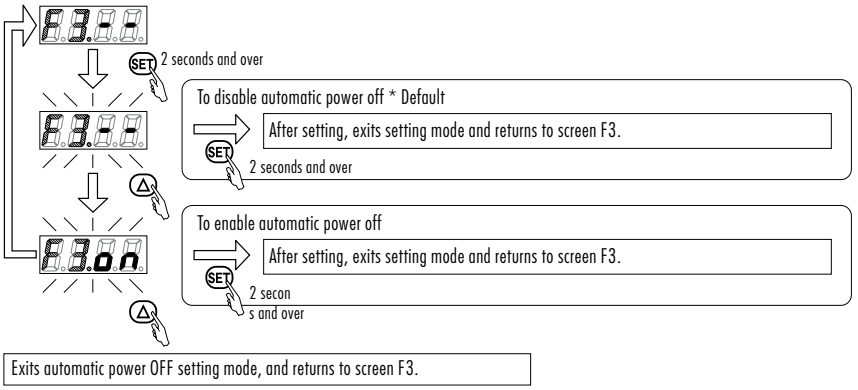
Setting mode Setting method Caution ⚠ Release the key lock before changing setting details.

Hold down the SET key for 2 seconds or longer with screen F2 (zero/span adjustment) screen F2 displayed.F2 setting mode is entered.



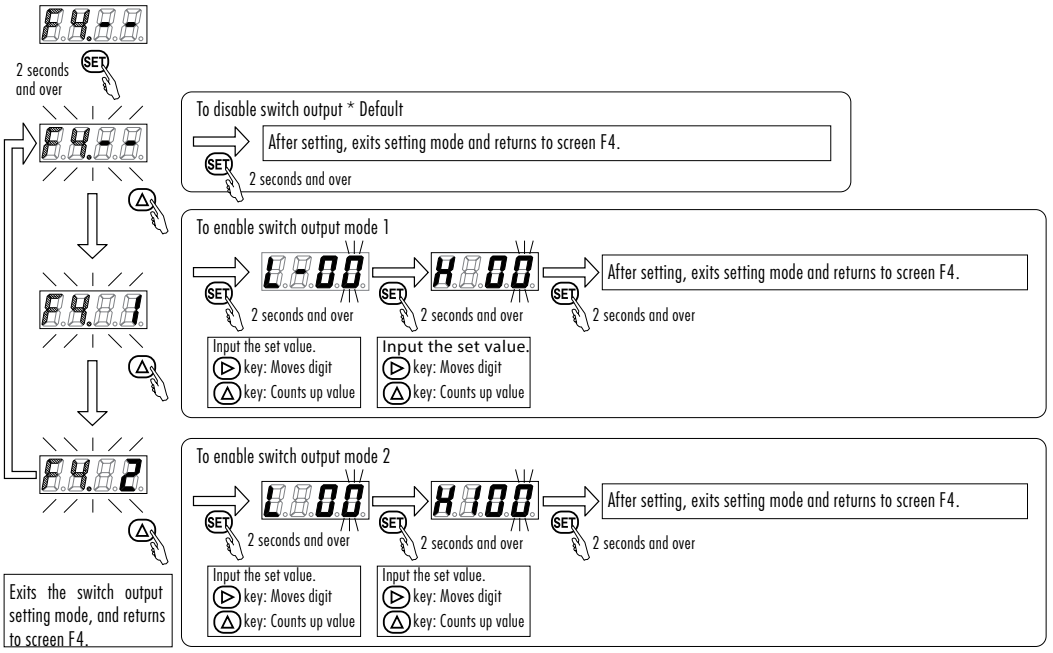
*This function cannot be used when preset or direct memory input is selected with F1 (input signal selection). Only full scale is used.

Hold down the SET key for 2 seconds or longer with screen F3 (automatic power off) screen F3 displayed. The F3 setting mode will be entered.



*If a key is pressed during automatic power off, the display will turn on.
*The automatic power off time is set to about 1 minute, and cannot be changed.

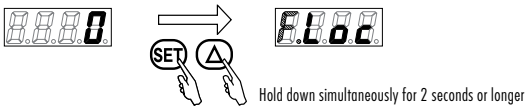
Hold down the SET key for 2 seconds or longer in with screen F4 (switch output function) screen F4 displayed.F4 setting mode is entered.



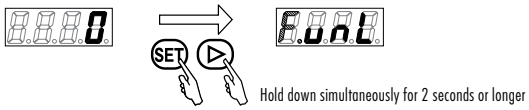
Key lock

This prevents incorrect operation. Release the key lock before changing settings.

Operating the key lock



Releasing the key lock



*The key is locked when power is turned on or turned on again.

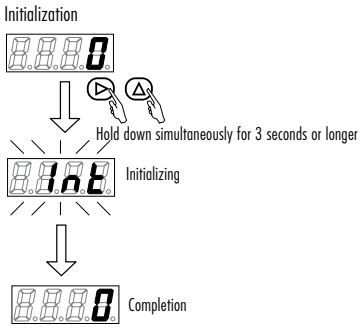
Setting range of each function

Function	Setting display screen	Setting descriptions	Setting specifications
F1: Input signal selection For preset memory input F1.P1 F1.P8	0.00	Set the target pressure	Range: 00 0 to 500 Note 1
F1: Input signal selection For direct memory input F1.dr	0.00	Set the target pressure	Range: 000 to 500 Minimum setting: 1 kPa Note 1
F2: zero/span adjustment function F2.on	L 00	Set zero point adjustment.	Range: 00 to 50 Minimum setting: 1% Note 2
	H 100	Set span p	Range: 100 to 010 Minimum setting: 1% Note 2
F4: switch output function For mode 1 F4.A1	L -00	Set the - tolerable value.	Range: -00 to-50 Minimum setting: -1%
	H 00	Set the + tolerable value.	Range: 00 to 50 Minimum setting: 1%
F4: switch output function For mode 2 F4.A2	L 00	Set the lower limit value.	Range: 00 to 90 Minimum setting: 1% Note 2
	H 100	Set the upper limit value.	Range: 100 to 010 Minimum setting: 1% Note 2

Note 1: If set to 5 kPa or less, it may not be possible to control pressure due to the effect of residual pressure.
Note 2: The setting range may be limited depending on the setting.

Default mode settings (initialization)

Screen display	Name	Setting display	Setting descriptions
Screen F1 F1.A0	Input signal selection	Analog type F1.A0 Parallel type F1.PA A0.A1.A2	Analog/parallel input
Screen F2 F2.---	Zero/span adjustment	F2.---	Full scale (Zero/span adjustment invalid)
Screen F3 F3.---	Automatic power off	F3.---	Automatic power off invalid
Screen F4 F4.---	Switch output *Switch output specifications only	F4.---	Switch output invalid



Error code

Error display	Cause	Measures
E.01	Power voltage not within the rating.	Check regulator power specifications, set power voltage within the rated range, and turn power on again.
E.02	Input signal exceeded rating.	Check the regulator's input signal, set the input signal within the rated range, and turn power on again.
E.03	An error occurred during EEPROM reading or writing.	Contact your nearest Camozzi branch or dealer.
E.04	An error occurred during memory reading or writing.	Contact your nearest Camozzi branch or dealer.
E.05	Secondary pressure did not reach the set value for five or seconds or more.	Check primary pressure, supply pressure within the rating, and turn power on again. Check that there are no leaks from pipes, joints or other devices. Correctly connect, and turn power on again. If the error is not resolved, contact your nearest Camozzi branch or dealer.
8.8.8.8.	The switch output's overcurrent protection circuit has functioned.	Check whether load current exceeds the rating. Correctly connect, and turn power on again.

If the above errors occur, errors are displayed and error output turns on.

Electronic proportional micro regulator Series K8P

Proportional regulator for pressure control

- High precision
- Reduced response times
- Minimum consumption
- Self-regulation function
- Flexibility of use
- Compact design

Series K8P electronic proportional micro regulators have evolved from our Series K8 mini-solenoid valves. Series K8P regulators guarantee excellent pressure regulation, fast response times, self-regulation and low energy consumption.

Series K8P is a high performance proportional pressure regulator which is suitable for use in all applications where high precision, quick response times and low consumption are required. The K8P regulator adjusts the outlet pressure through the operation of two K8 monostable valves according to the inlet signal and to the retroactivity of the internal pressure sensor. A self-adjusting function has been integrated into the regulator control algorithm to guarantee the highest levels of performance apart from the volume connected.

GENERAL DATA

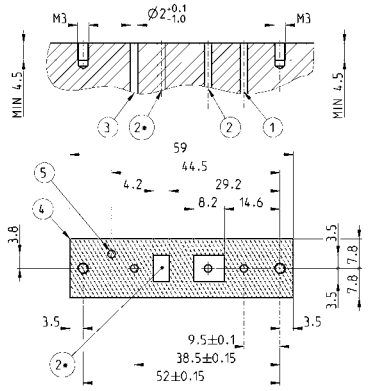
Fluids	Inert gas
Range of regulated pressure	0,5 - 10 bar 0,15 - 3 bar
Max inlet pressure	11 bar (0,5 - 10 bar) 4 bar (0,15 - 3 bar)
Analogical input	0-10 V DC 4-20 mA Ripple ≤ 0,2%
Analogical output	0-10 V [Feedback]
Maximum flow	6 bar 12 l/min 3 bar 6 l/min
Supply / Use	24 V - ~1 W
Function	3/2 NC
Linearity	≤ ± 1% FS
Hysteresis	±0,5% FS
Repeatability	±0,5% FS
Sensibility	0,3 % FS
Electrical connection	M8 4 Pin (Male)

CODING EXAMPLE

K8P	-	0	-	D	5	2	2	-	0

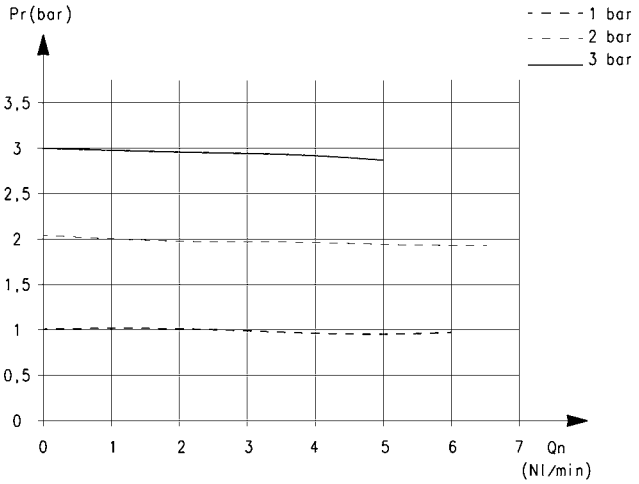
K8P	SERIES
0	BODY DESIGN: 0 = Stand alone S = Standard Sub-base L = Light Sub-base T = Light Sub-base for the pressure remote reading 2 = manifold, 2 pos. 3 = manifold, 3 pos.
D	WORKING PRESSURE: D = 0 -10 bar E = 0 - 3 bar
5	VALVE FUNCTIONS: 5 = 2-way NC
2	COMMAND: 2 = 0-10 V DC 3 = 4-20 mA
2	OUTPUT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

Interface for single use without sub-base



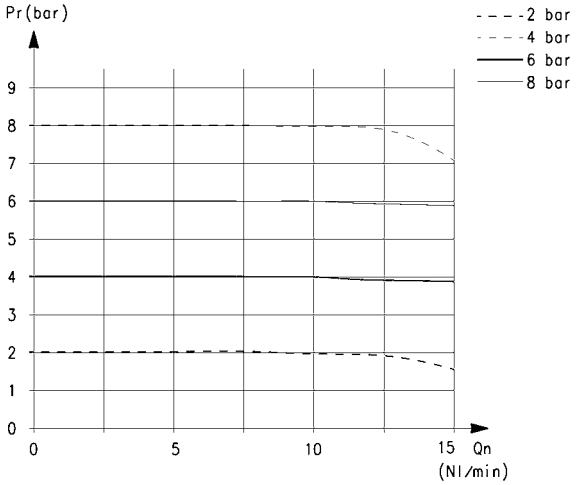
DRAWING LEGEND	
	Notes
1 = Supply	Pneumatic connection
2 = Outlet	Pneumatic connection
2* = area for possible positioning of outlet port 2	Do not exceed the indicated outline
3 = Exhaust	Pneumatic connection
4 = OUTLET DIMENSION	
5 = VENT PORT FOR IP65	Optional when a OR seal is mounted

FLOW DIAGRAMS



Pr = Outlet pressure (bar)*
Qn = Flow (Nl/min)*

* = Inlet pressure 4 bar



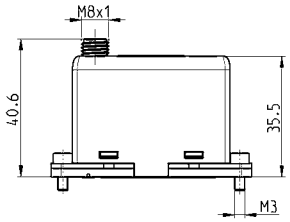
Pr = Outlet pressure (bar)*
Qn = Flow (Nl/min)*

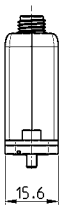
* = Inlet pressure 10 bar

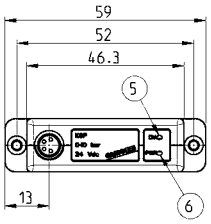
Electronic proportional micro regulator Series K8P - dimensions

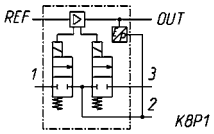
MALE CONNECTOR M8 4 POLES
Pin 1: +24 V DC (Power supply)
Pin 2: Command analogical signal 0-10 V DC
or 4-20 mA
Pin 3: 0 V (Ground) common also for the
command signal
Pin 4: Output analogical signal
(according to the regulated pressure)

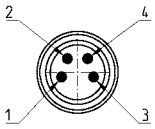
5 red LED
6 green LED











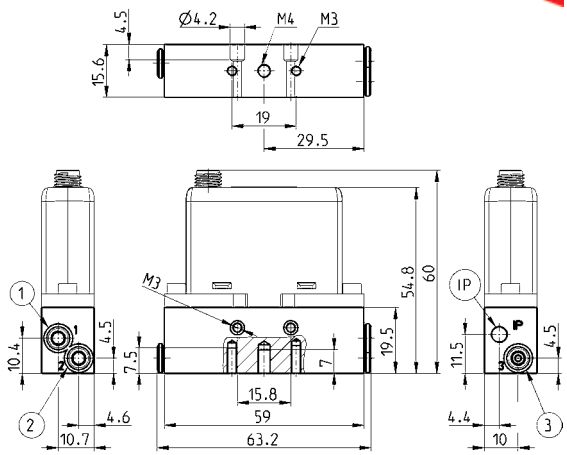
Mod.
K8P-0-D522-0
K8P-0-E522-0
K8P-L-E522-0
K8P-L-D522-0
K8P-S-D522-0
K8P-S-E522-0
K8P-T-D522-0
K8P-T-E522-0

Standard Sub-base

New

Note: the use of a silencer on the exhaust is recommended. *

* Mod. 2939 4



1 = Power supply
2 = Outlet
3 = Exhaust

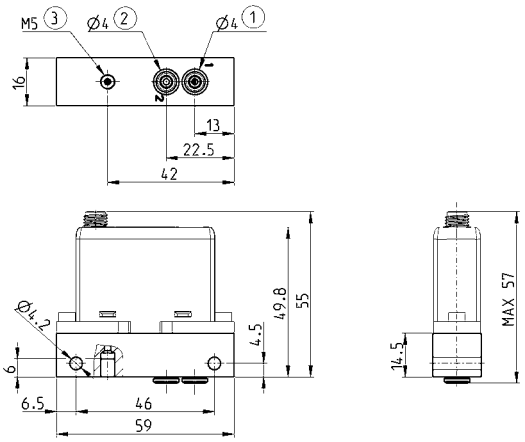
IP = IP65 connection

Mod.
K8P-AS

Light Sub-base

Note: the use of a silencer on the exhaust is recommended. *

* Mod. 2931 M5
Mod. 2938 M5
Mod. 2901 M5



1 = Power supply
2 = Outlet
3 = Exhaust

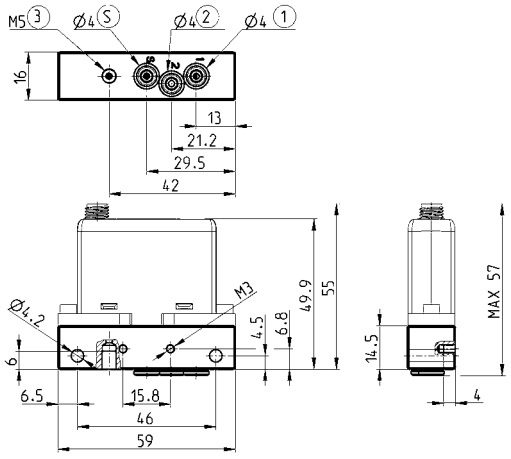
Mod.
K8P-AL

Light Sub-base for the pressure remote reading

Note: the use of a silencer on the exhaust is recommended. *

* Mod. 2931 M5
Mod. 2938 M5
Mod. 2901 M5

In the version Light sub-base for the pressure remote reading it is also possible to use the fixing bracket B2-E531 (see page 5/2.05.15).



1 = Power supply
2 = Outlet
3 = Exhaust

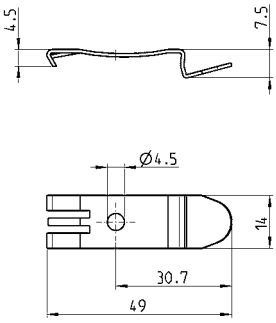
S = remote-mounted sensor

Mod.
K8P-AT

Mounting bracket for DIN rail

Supplied with:
2x plates
2x screws M4x6 UNI 5931

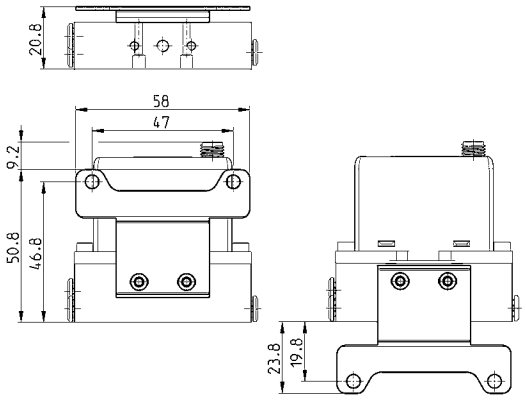
Note: this accessory cannot be used with the Light sub-base version.



Mod.
PCF-E520

Bracket for horizontal mounting, for standard sub-base

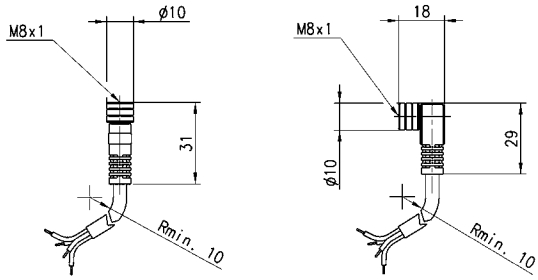
Supplied with:
1x mounting bracket
2x screws M3x8 UNI 5931



Mod.
K8P-B1

Circular connectors M8, 4 Pin Female

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



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

4

Micro Pressure Regulators Series CLR

Micro pressure regulators with banjo in technopolymer
Ports G1/4, G1/8, 1/4" NPTF & 1/8" NPTF
Inch Tube OD & Metric mm Tube OD

Series CLR micro pressure regulators are available with 1/8 and 1/4, "G" or NPTF connections. A relieving piston and VS function (rapid reverse flow) has been incorporated into its design.

The body is in brass, while the banjo fitting is in technopolymer which guarantees maximum lightness.

With a threaded top part of the body both direct mounting to a valve outlet (1/8 and 1/4 threads) and panel 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. Pressure is regulated in the 'meter-out' style, from the male thread connection, up and out the tube OD connection.

ADDITIONAL PRODUCTS AND ACCESSORIES

TECHNICAL SPECIFICATIONS

Construction	piston-type regulation
Materials	Body - Nickel-Plated brass, Knob and Banjo - Nylon composite, Seals - Buna-N, Internals - Brass
Ports	G1/8 - G1/4, 1/8" & 1/4" NPTF
Weight	Kg 0,035 (0.08 lbs)
Mounting	in-line or panel mounting (in any position)
Operating temperature	-5° C - 50° C (23° F - 122° F), with Dew Point of air at least 2° C (4° F) below the min working temperature
Inlet pressure	2 - 10 bar (29 - 145 psi)
Outlet pressure	0.5 - 10 bar (7.35 - 145 psi)
Nominal flow	see graphs
Secondary pressure relieving	standard (all regulators are provided with high relief flow VS function)

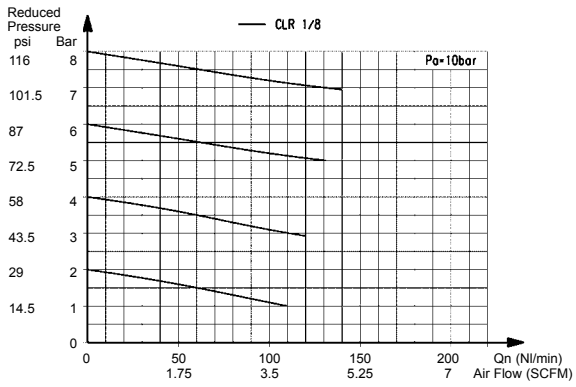
CODING EXAMPLE

CL	R	1/8	-	4

CL	SERIES
R	R = REGULATOR
1/8	PORTS: 1/8 = G1/8 1/4 = G1/4 02 = 1/8" NPTF with adapters 04 = 1/4" NPTF with adapters
4	TUBE: 4 = Ø4 mm (G1/8 only) 6 = Ø6 mm 8 = Ø8 mm 53 = 5/32" OD 04 = 1/4" OD 05 = 5/16" OD 06 = 3/8" OD

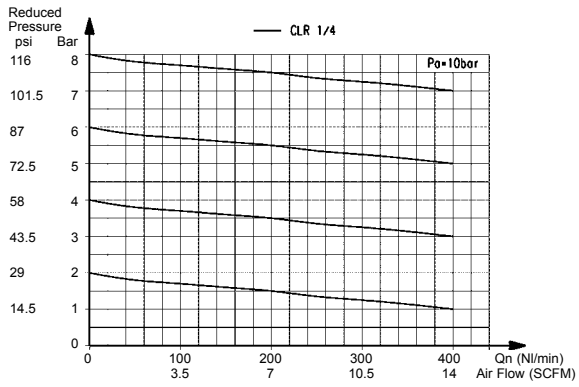
FLOW DIAGRAMS

CLR 1/8" THREAD MODELS



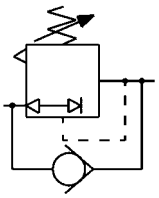
Pa = Inlet pressure (10 Bar) - 145 psi
Pr = Regulated pressure - Q = Flow
CLR 1/8-4 6bar ΔP1 = 90 Nl/min - CLR 1/8-6 6bar ΔP1 = 120 Nl/min - CLR 1/8-8 6bar ΔP1 = 120 Nl/min

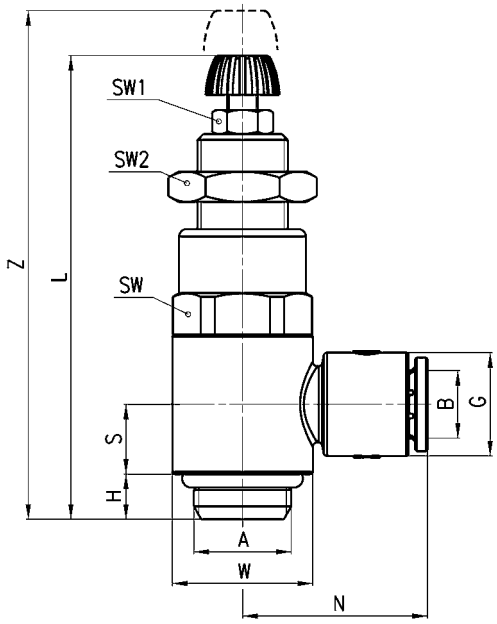
CLR 1/4" THREAD MODELS



Pa = Inlet pressure (10 Bar) - 145 psi
Pr = Regulated pressure - Q = Flow
CLR 1/4-6 6 bar ΔP1 = 209 Nl/min
CLR 1/4-8 6 bar ΔP1 = 310 Nl/min

Micro pressure regulators Series CLR



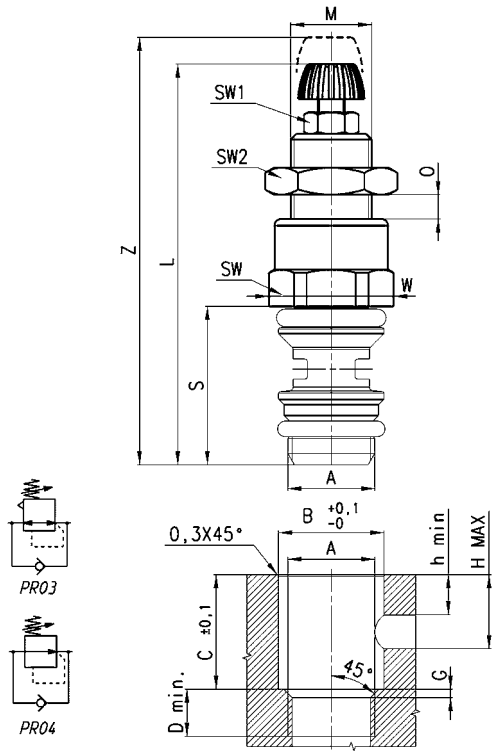


DIMENSIONS (in millimeters)

Mod.	A	B	G	H	L	N	S	W	SW	SW1	SW2	Z
CLR 1/8-4	G1/8	4	11.6	5	52	21	7.75	14	14	7	14	59
CLR 1/8-6	G1/8	6	11.6	5	52	21	7.75	14	14	7	14	59
CLR 1/8-8	G1/8	8	13.9	5	52	22.5	7.75	14	14	7	14	59
CLR 1/4-6	G1/4	6	13.9	6	59.5	24.5	9.25	18.6	17	7	17	68
CLR 1/4-8	G1/4	8	13.9	6	59.5	24.5	9.25	18.6	17	7	17	68
CLR 02-53	1/8" NPTF	5/32" OD	11.6	8	65	21	7.75	17.75	14	7	14	72
CLR 02-04	1/8" NPTF	1/4" OD	11.6	8	65	21	17.75	14	14	7	14	72
CLR 04-04	1/4" NPTF	1/4" OD	13.9	12	77	24.5	21	18.6	17	7	17	85.5
CLR 04-05	1/4" NPTF	5/16" OD	13.9	12	77	24.5	21	18.6	17	7	17	85.5
CLR 04-06	1/4" NPTF	3/8" OD	16.0	12	77	24.5	21	18.6	17	7	17	85.5

Note: 2520 NPTF adapters added to create NPTF units.
Pressure regulation is ‘meter-out’ style, up and out the thread through the tube connection. Dimension “S” is center-line clearance above sealing surface

Series CLR Micro pressure regulators without banjo



Dimensions in millimeters (mm)

Mod.	A	B	C	D min.	G	h min	H MAX	L	M	O	S	W	SW	SW1	SW2	Z
CLR 1/8	G1/8	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

PR03 = Regulator with relieving and by-pass valve

PR04 = Regulator without relieving and with by-pass valve

4

ISO Sandwich Regulators For Solenoid and Air-Pilot Operated Valves

(VDMA 24563)
ISO 15407-1, Size 26mm (size 01)

Valves and Manifold Assembly for illustration purposes ONLY - The Series 7 electropneumatically and pneumatically operated valves have been designed to comply with ISO 15407-1

(VDMA 24563) standards size 26mm (VDMA 01)

The electropneumatically operated valves have the following types of operation available:
- **Air-Pilot, and air-spring return**
- **Air-Pilot operation and return**

ADDITIONAL PRODUCTS AND ACCESSORIES

TECHNICAL SPECIFICATIONS

Materials	Anodized aluminum body, spool, base nylon end covers, BUNA-N seals
Mounting	through holes in valve body onto manifold segements
Operating temperature	0° C min. +50° C max, (32°F - 122°F)
Lubricant	without lubrication**
Size	26 mm - size VDMA 01
Installation	in any position

PNEUMATIC DATA

Operating pressure	P. max 7 bar (102 psi). See tables for minimum operating pressures.
Nominal pressure	6 bar - 87 psi (used for flow calcutations)
Nominal flow	*Qn Size 26 mm: 900 NL/min; 31.8 SCFM ; Cv = .95, (typical valve flow only, consult tables for regulated flow rates)
Fluid	filtered air (5 micron or less), without lubrication**

*Qn = determined with supply pressure of 6 bar and with Dp = 1 bar ** If lubricated air is used, it is recommended to use ISOVG32 oil and never to interrupt the lubrication.

CODING OF SANDWICH REGULATOR(S) - (ISO VALVES AND MANIFOLDS ORDERED SEPARATELY)

ISO	01	A	12

ISO	SERIES
01	PORT 01 = 26mm - VDMA Size 01
A	REGULATION PORTS A B AB P
12	GAUGE LOCATION 12 = Gauge location (12 or 14)

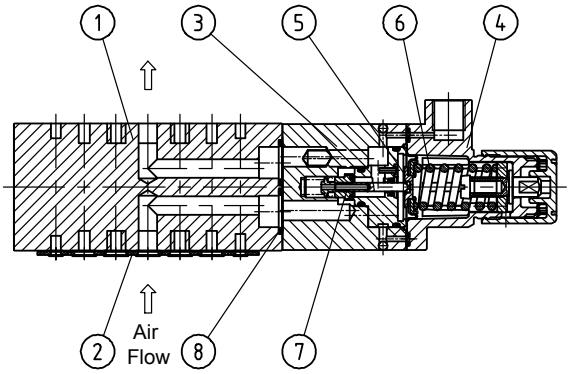
4

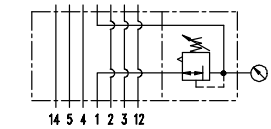
VDMA 24563 (ISO 15407-1) Regulator Plate ISO Size 01 (P-regulation) 26mm

For 26mm-ISO 01 size valves only.

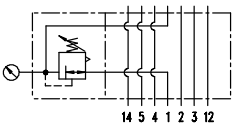
Part Number	ISO.01 P		
port size	VDMA 24563		
description	air line regulator with diaphragm and relieving feature		
mounting	arbitrary		
supply pressure	Pe max. 16 bar (not to exceed max. pressure of valve)		
reduced pressure	Pa 0.5-10 bar		
media and ambient			
temperature	max. 50°C (other temperature ranges available upon request)		
fixing	with connection board		
weight	0.340 kg		

Gauges supplied separately, shown only for installation





regulator on 12 (standard)



regulator on 14 (option)

replacement parts

*** (repair kit: ESA-ISO.01)**

no	description		material	order-no.
1	intermediate plate		Al	---
2	sealing frame	ISO.01-6	NBR	5.1801.06.000
3	body		Al	---
4	spring cage	ISO.01-9	PBTP - Ms	8.1801.09.000
5	diaphragm		NBR - Ms	*
6	regulating spring 0-10 bar		St. - galvanized	5.1801.11.000
7	valve cone		NBR - Ms	*
8	spring	DR.00-70	niro	5.1500.70.000
				*

ordering information

	12
ISO.01 P	14

type

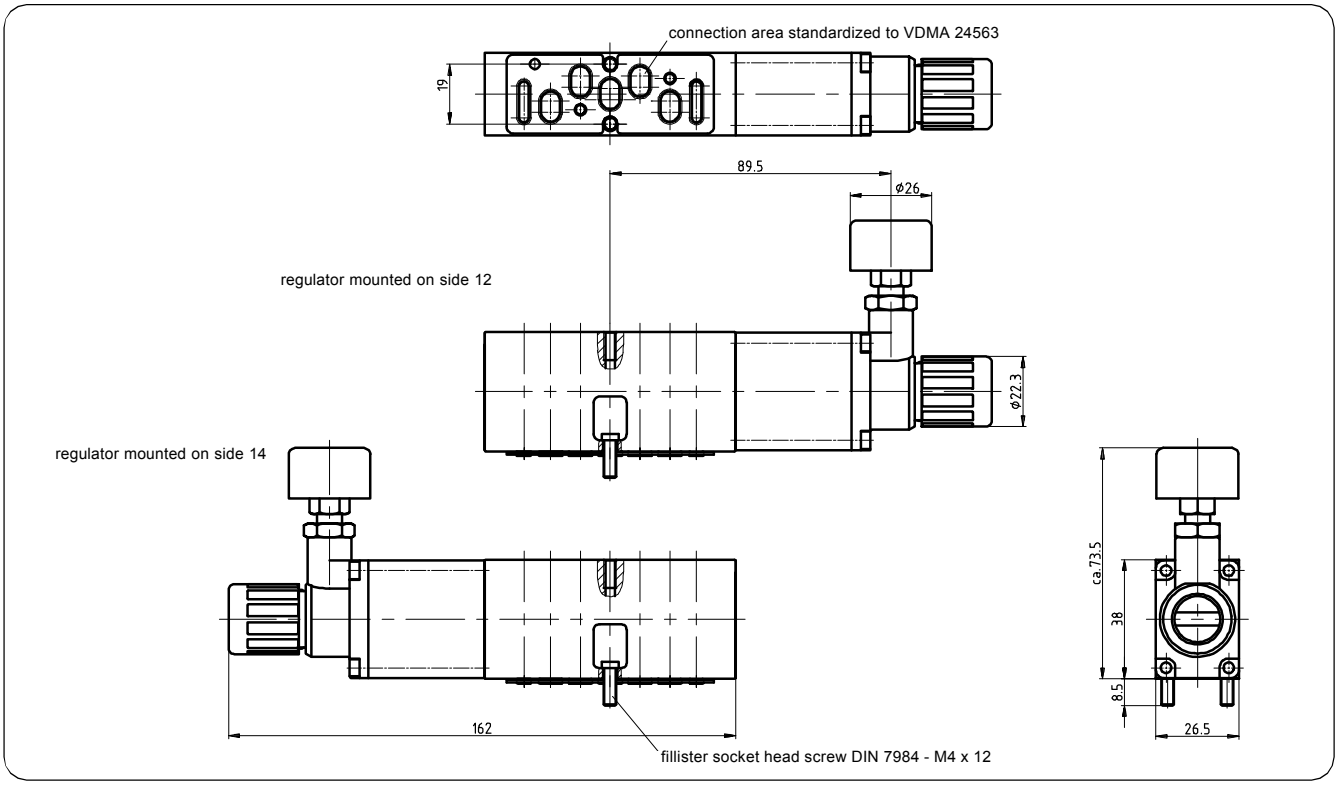
1 port side

ordering example: ISO.01 P 14

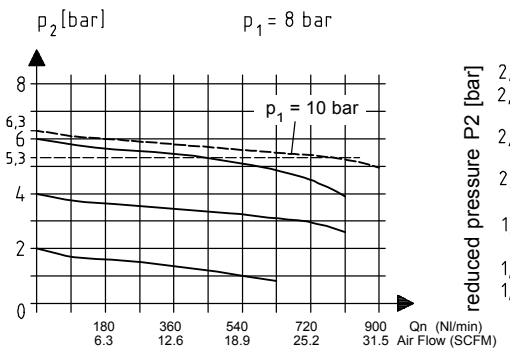
application information

– adjusting knob can be locked by depressing

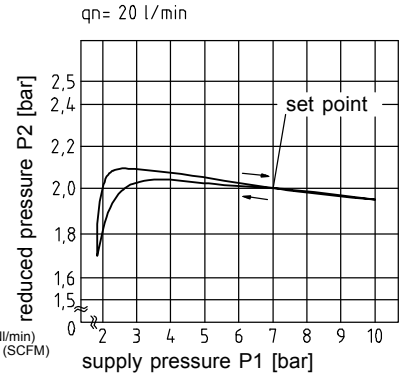
Dimensions (mm)



flow characteristics



pressure characteristics



4

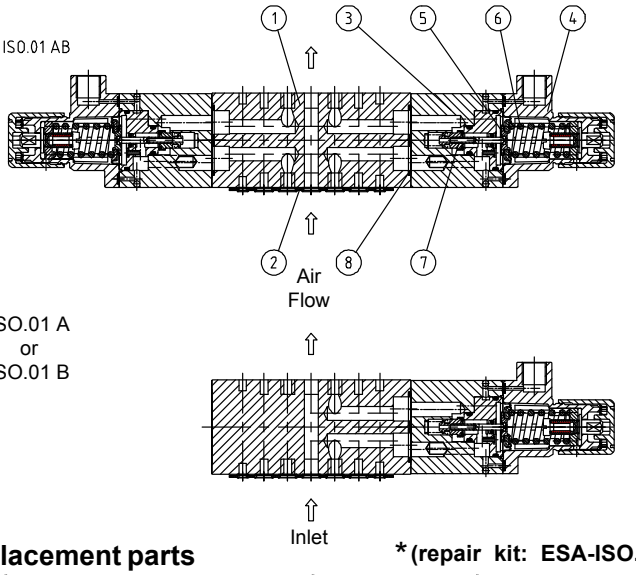
ADDITIONAL PRODUCTS AND ACCESSORIES

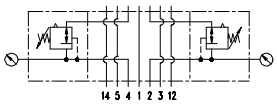
VDMA 24563 (ISO 15407-1) Regulator Plate ISO Size 01 (AB-regulation) 26mm

For 26mm-ISO 01 size valves only.

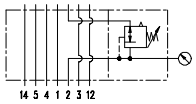
Part Number	ISO.01AB	ISO.01A	ISO.01B
port size	regulation on 4 & 2	regulation on 4	regulation on 2
	VDMA 24563		
description	air line regulator with diaphragm and relieving feature		
mounting	arbitrary		
supply pressure	Pe max. 16 bar (not to exceed max. pressure of valve)		
reduced pressure	Pa 0.5-10 bar		
media and ambient			
temperature	max. 50°C (other temperature ranges available upon request)		
fixing	with connection board		
weight	0.470 kg	0.340 kg	

Gauges supplied separately, shown only for installation

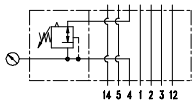




regulation at 4 u. 2



regulation at 2



regulation at 4

replacement parts

*** (repair kit: ESA-ISO.01)**

no	description		material	order-no.
1	intermediate plate		Al	---
2	sealing frame	ISO.01-6	NBR	5.1801.06.000
3	body		Al	---
4	spring cage	ISO.01-9	PBTP - Ms	8.1801.09.000
5	diaphragm		NBR - Ms	*
6	regulating spring 0-10 bar		St. - galvanized	5.1801.11.000
7	valve cone		NBR - Ms	*
8	spring	DR.00-70	niro	5.1500.70.000
				*

ordering information

	key
ISO.01	AB
ISO.01	A(4)
ISO.01	B(2)

type

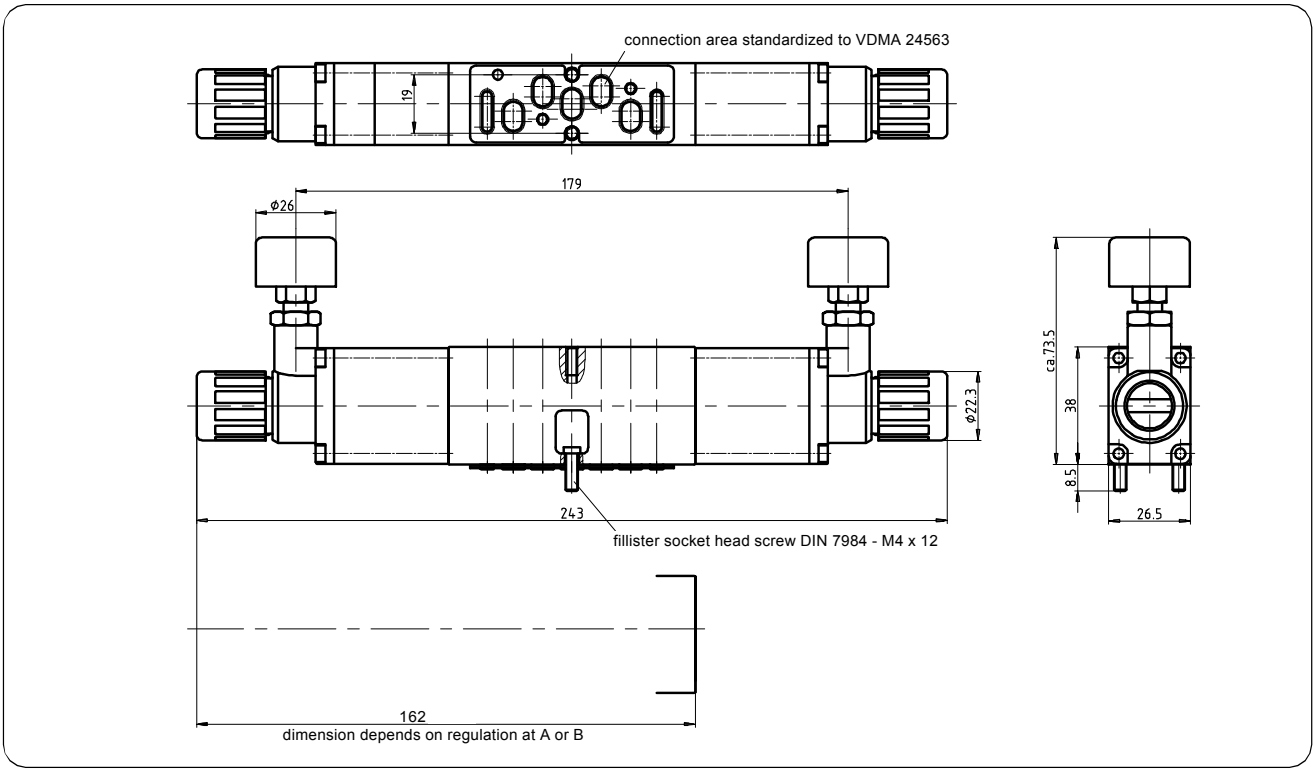
1 port side

ordering example: ISO.01 AB

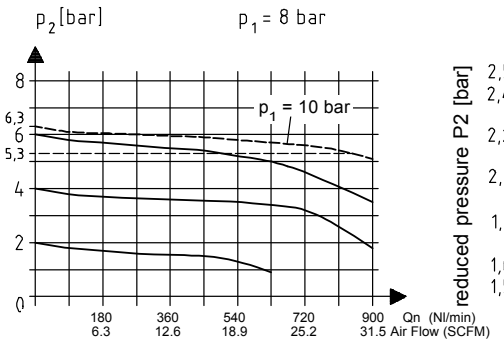
application information

– adjusting knob can be locked by depressing

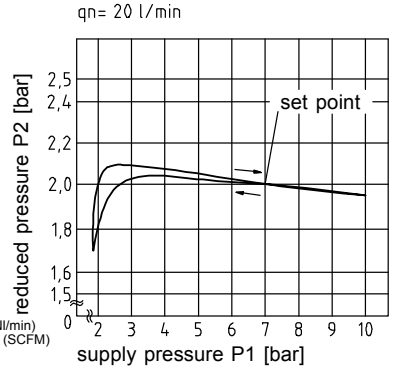
Dimensions (mm)



flow characteristics



pressure characteristics



ISO Sandwich Regulators For Solenoid and Air-Pilot Operated Valves

Assembly with sub-base (ISO 5599/1 Standards) non-plug-in Sizes 1, 2 and 3

Valves and Manifold Assembly for illustration purposes ONLY - The Series 9 Air-Pilot operated valves have been manufactured in the sizes 1, 2 and 3, as recommended by the ISO Standards. Three different types of sub-base are available:
- single sub-base with side ports
- single sub-base with rear ports
- manifold sub-base with common exhausts complete with end blocks.

The Series 9 solenoid valves are also constructed so as to be actuated in different ways:
- Air-Pilot and spring return
- Air-Pilot and return
- Air-Pilot and differential
Air-Pilot return (bias override)

TECHNICAL SPECIFICATIONS

Materials	Anodized aluminum body, stainless steel spool, BUNA-N seals
Mounting	threaded holes in sub-base
Size	1, 2 and 3 according to ISO 5599/1 standard)
Installation	in any position
Operating temperature	0 - 50°C (using dry air at -20°C) (32°F — 122°F) (using dry air at -4°F)

PNEUMATIC DATA

Operating pressure	max. press. 12 bar (for minimum pressures see descriptions); 175 psi max
Nominal pressure	6 bar (87 psi) nominal
Nominal flow	* Qn Size 1 = 900 NL/min; 31.8 SCFM, Cv= .95, (typical valve flow only, consult tables for regulated flow rates)
	Size 2 = 1610 NL/min; 56.8 SCFM, Cv= 1.69, (typical valve flow only, consult tables for regulated flow rates)
	Size 3 = 4350 NL/min; 153.6 SCFM, Cv= 4.57, (typical valve flow only, consult tables for regulated flow rates)
Fluid	filtered air, without lubrication (25 micron or less recommended)**

*Qn = determined with supply pressure of 6 bar and with Dp = 1 bar. **If lubricated air is used, it is recommended to use ISOVG32 oil and to never interrupt the lubrication.

CODING OF SANDWICH REGULATOR(S) - (ISO VALVES AND MANIFOLDS ORDERED SEPARATELY)

ISO	1	A	12

ISO	SERIES
1	PORT 1 = ISO Size 1 2 = ISO Size 2 3 = ISO Size 3
A	REGULATION PORTS A B AB P
12	GAUGE LOCATION 12 = Gauge location (12 or 14)

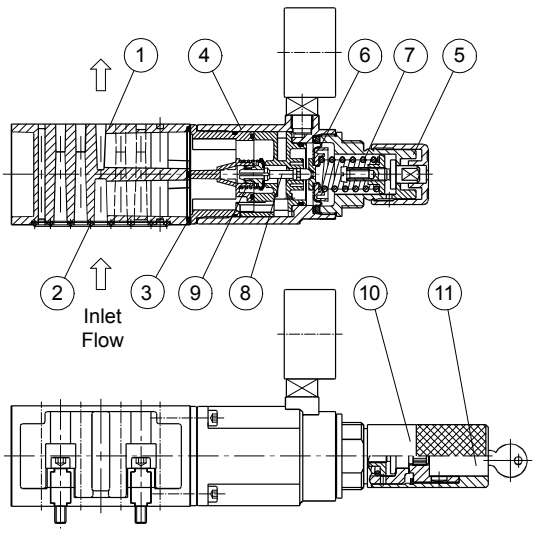
4

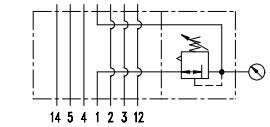
ISO 5599/1 Regulator Plate Size 1 (P-regulation)

For ISO Size 1 valves only.

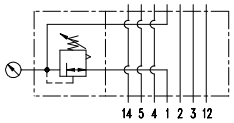
Part Number	ISO.1 P		
port size	DIN ISO 5599/1		
description	air line regulator with diaphragm and relieving feature,		
mounting	arbitrary		
supply pressure	Pe max. 16 bar (not to exceed max. pressure of valve)		
reduced pressure	Pa 0.5-12 bar		
media and ambient			
temperature	max. 50°C (other temperature ranges available upon request)		
fixing	with connection board		
weight	0.374 kg (without gauge)		

Gauges supplied separately, shown only for installation





regulator on 12 (standard)



regulator on 14 (option)

replacement parts

* (repair kit: ESA-ISO.1)

no	description		material	order-no.
1	intermediate plate		zinc - Z 410	---
2	sealing frame	ISO 1-58	NBR	9.9911.00.056
3	sealing frame	ISO 1-59	NBR	*
4	body		zinc - Z 410	---
5	spring cage	C.00-72	POM - Ms	8.2100.72.000
6	regulating spring	C.11-66	St. - galvanized	5.2111.66.000
7	diaphragm		NBR - Ms	*
8	valve cone		NBR - Ms	*
9	spring	C.11-87	niro	5.2111.87.000
10	spring cage lockable	C.11-K	POM - Al	8.2111.72.001
11	lock cylinder	C.33-52	Ms	5.2133.52.000

ordering information key

ISO.1 P **12 14**

type

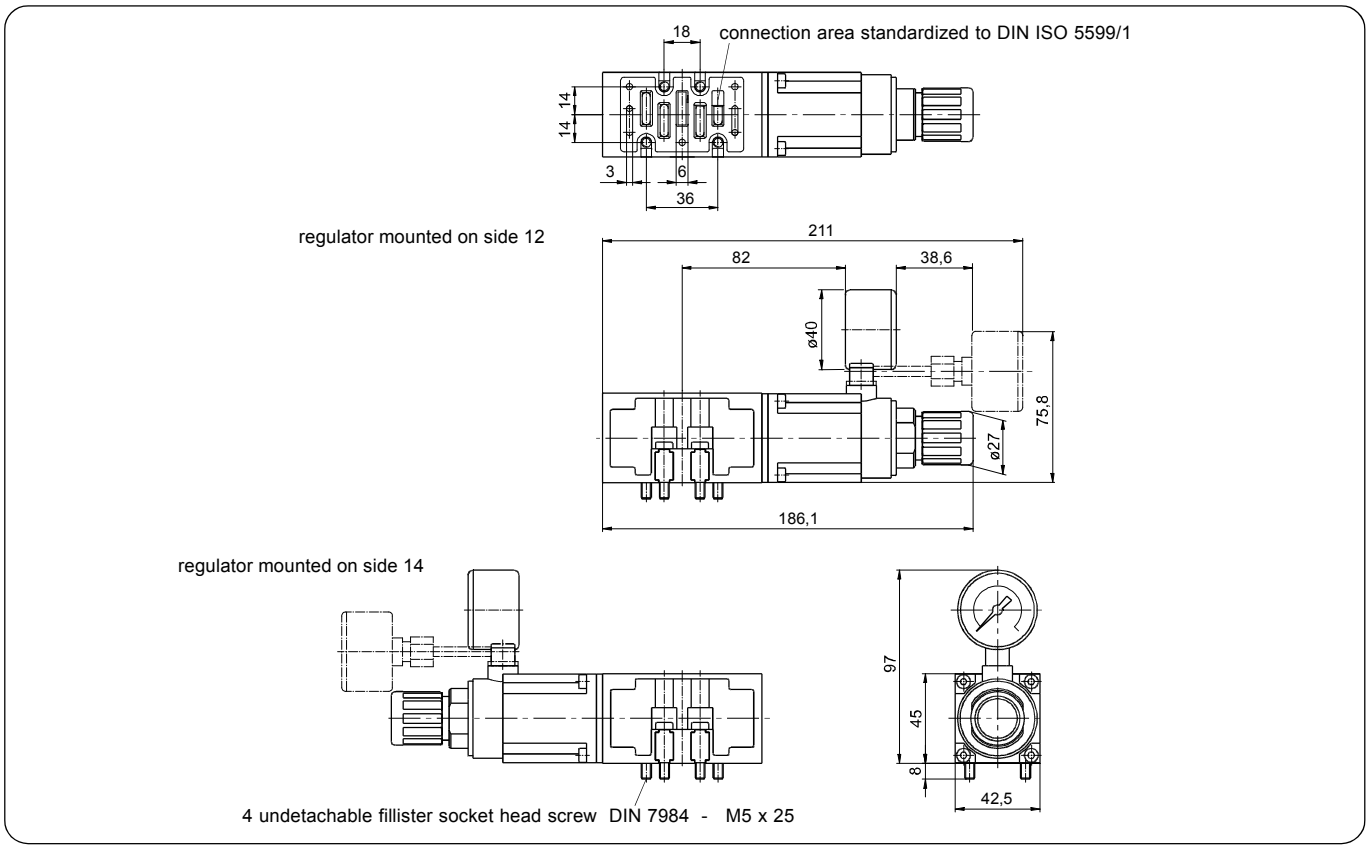
1 port side

ordering example: ISO.1 P 14

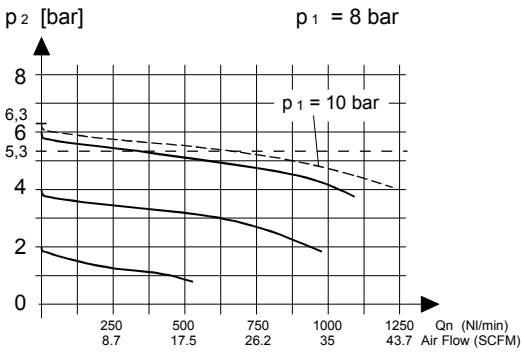
application information

– adjusting knob can be locked by depressing

Dimensions (mm)

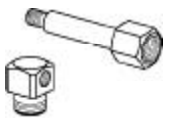


flow characteristics



accessories

adaptor for gauge with rear connection



Mod.: ISO.1-12

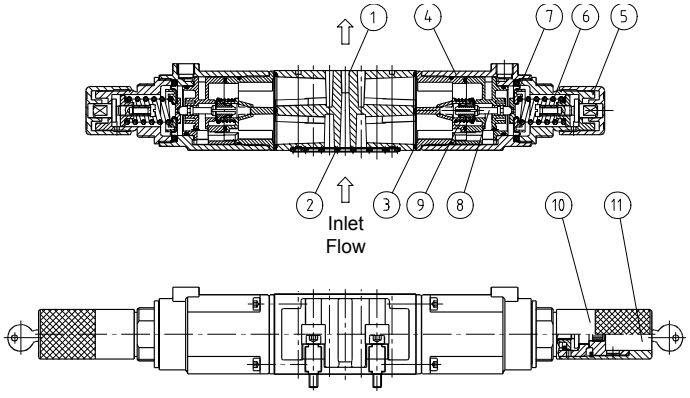
4

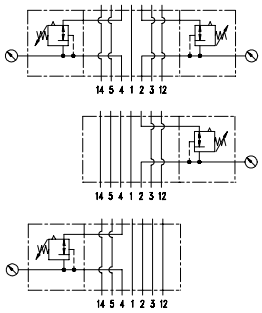
ISO 5599/1 Regulator Plate Size 1 (AB-regulation)

For ISO Size 1 valves only.

Part Number	ISO.1 AB	ISO.1 A	ISO.1 B
port size	regulation on 4 u. 2	regulation on 4	regulation on 2
	DIN ISO 5599/1		
description	air line regulator with diaphragm and relieving feature		
mounting	arbitrary		
supply pressure	Pe max. 16 bar (not to exceed max. pressure of valve)		
reduced pressure	Pa 0.5-12 bar		
media and ambient			
temperature	max. 50°C (other temperature ranges available upon request)		
fixing	with connection board		
weight	0.585 kg	0.374 kg	0.374 kg
	without gauge	without gauge	without gauge

Gauges supplied separately, shown only for installation





regulation at 4 u. 2

regulation at 2

regulation at 4

replacement parts

* (repair kit: ESA-ISO.1)

no	description		material	order-no.
1	intermediate plate		zinc - Z 410	---
2	sealing frame	ISO 1-58	NBR	9.9911.00.056
3	sealing frame	ISO 1-59	NBR	*
4	body		zinc - Z 410	---
5	spring cage	C.00-72	POM - Ms	8.2100.72.000
6	regulating spring	C.11-66	St. - galvanized	5.2111.66.000
7	diaphragm		NBR - Ms	*
8	valve cone		NBR - Ms	*
9	spring	C.11-87	niro	5.2111.87.000
10	spring cage lockable	C.11-K	POM - Al	8.2111.72.001
11	lock cylinder	C.33-52	Ms	5.2133.52.000

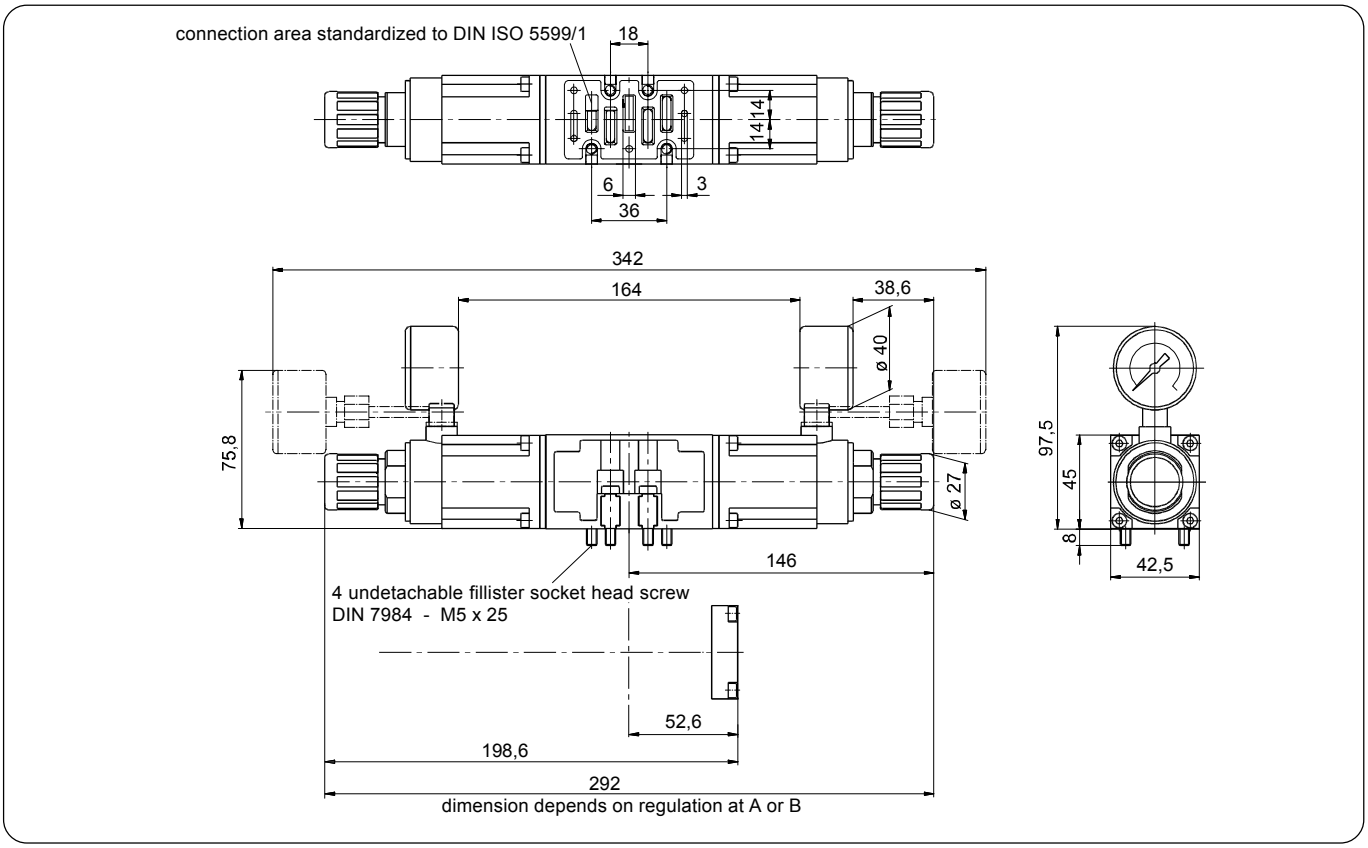
application information

– adjusting knob can be locked by depressing

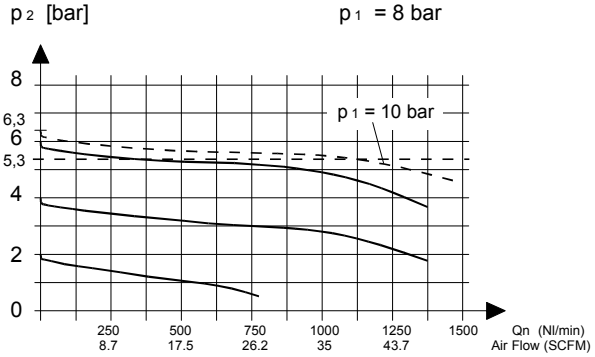
ordering information	key
ISO.1	**AB**
ISO.1	**A**(4)
ISO.1	**B**(2)
type	
1 port size	

ordering example: ISO.1 AB

Dimensions (mm)

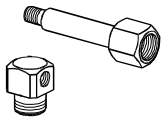


flow characteristics



accessories

adaptor for gauge with rear connection



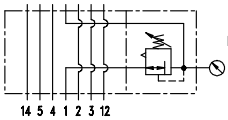
Mod.: ISO.1-12

ISO 5599/1 Regulator Plate Size 2 (P-regulation)

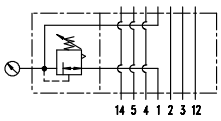
For ISO Size 2 valves only.

Part Number	ISO.2 P		
port size	DIN ISO 5599/1		
description	air line regulator with diaphragm and relieving feature,		
mounting	arbitrary		
supply pressure	Pe max. 16 bar (not to exceed max. pressure valve)		
reduced pressure	Pa 0.5-12 bar		
media and ambient			
temperature	max. 50°C (other temperature ranges available upon request)		
fixing	with connection board		
weight	1.680 kg (without gauge)		

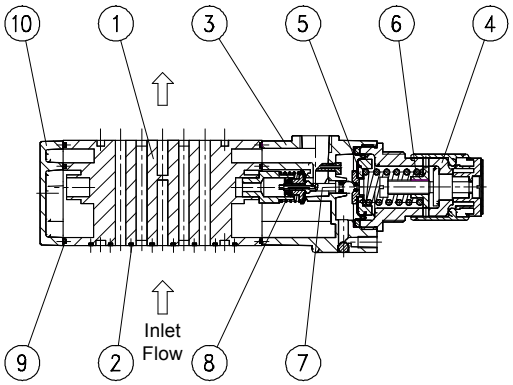
Gauges supplied separately, shown only for installation



regulator on 12 (standard)



regulator on 14 (option)



replacement parts

*(repair kit: ESA-ISO.2)

no	description	material	order-no.
1	intermediate plate	Al	---
2	sealing frame ISO.2-5	NBR	5.1822.05.000
3	body	zinc - Z 410	---
4	spring cage C.22-72	POM - Ms	8.2122.72.000
5	diaphragm	NBR - Ms	*
6	regulating spring 0-12 bar	St. - galvanized	5.2122.83.000
7	valve cone	NBR - Ms	*
8	spring C.22-87	niro	5.2122.87.000
9	sealing frame	NBR	*
10	bonnet	Al	---

application information

– adjusting knob can be locked by depressing

ordering information key

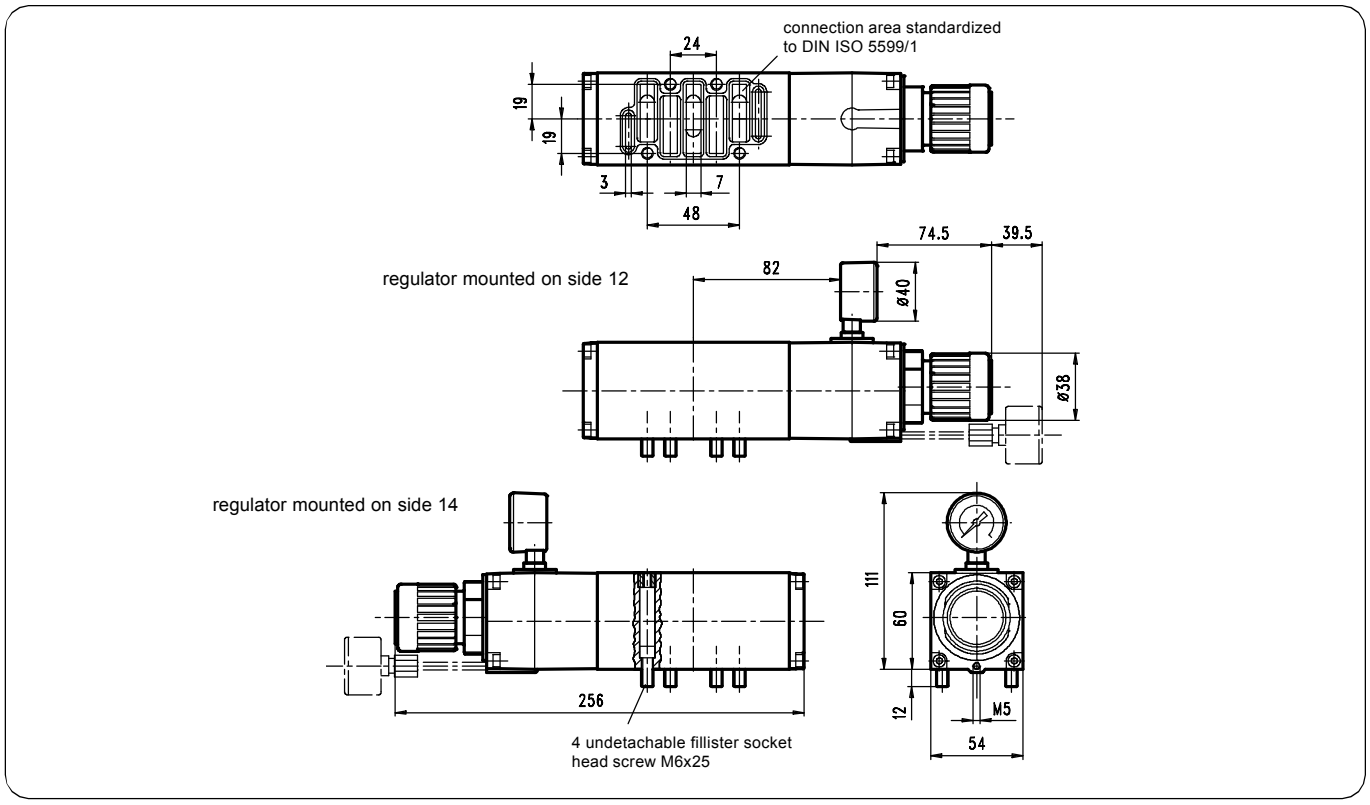
ISO.2 P **12** **14**

type

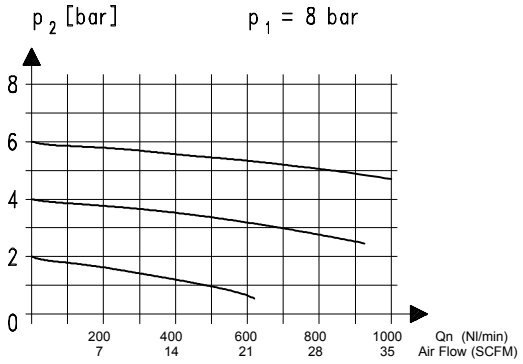
1 port side

ordering example: ISO.2 P 14

Dimensions (mm)

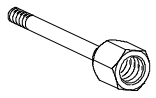


flow characteristics



accessories

adaptor for gauge with rear connection



Mod: ISO.3-12

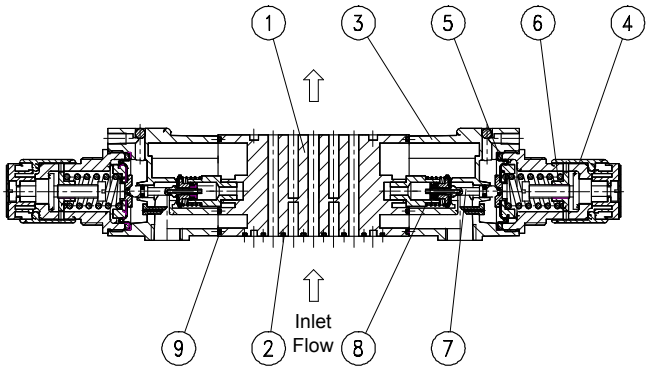
4

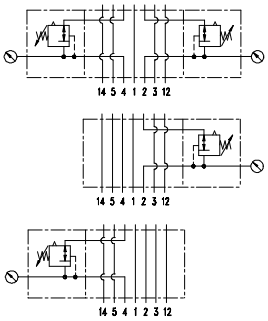
ISO 5599/1 Regulator Plate Size 2 (AB-regulation)

For ISO Size 2 valves only.

Part Number	ISO.2 AB	ISO.2 A	ISO.2 B
port size	regulation on 4 & 2	regulation on 4	regulation on 2
	DIN ISO 5599/1		
description	air line regulator with diaphragm and relieving feature		
mounting	arbitrary		
supply pressure	Pe max. 16 bar (not to exceed max. pressure valve)		
reduced pressure	Pa 0.5-12 bar		
media and ambient			
temperature	max. 50°C (other temperature ranges available upon request)		
fixing	with connection board		
weight	2.400 kg (without gauge)		

Gauges supplied separately, shown only for installation





regulation at 4 & 2

regulation at 2

regulation at 4

replacement parts *** (repair kit: ESA-ISO.2)**

no	description		material	order-no.
1	intermediate plate		Al	---
2	sealing frame	ISO.2-5	NBR	5.1822.05.000
3	body		zinc - Z 410	---
4	spring cage	C.22-72	POM - Ms	8.2122.72.000
5	diaphragm		NBR - Ms	*
6	regulating spring 0-12 bar		St. - galvanized	5.2122.83.000
7	valve cone		NBR - Ms	*
8	spring	C.22-87	niro	5.2122.87.000
9	sealing frame		NBR	*

ordering information	key
ISO.2 AB	**AB**
ISO.2 A (4)	**A**(4)
ISO.2 B (2)	**B**(2)

type

1 port side

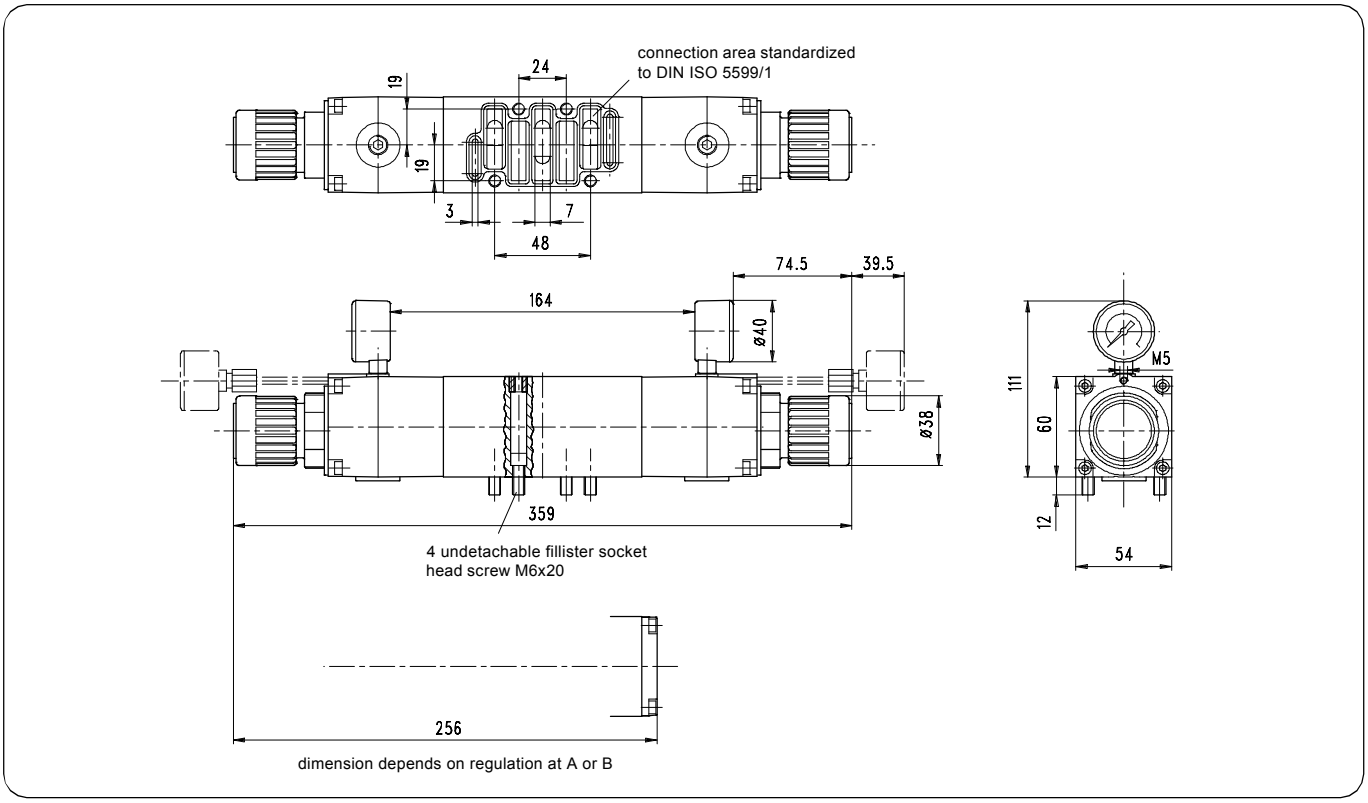
ordering example: ISO.2 AB

application information

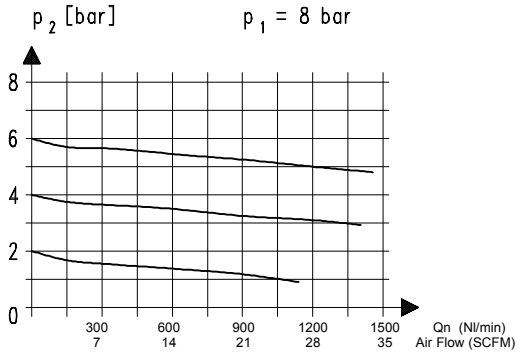
– adjusting knob can be locked by depressing

ADDITIONAL PRODUCTS AND ACCESSORIES

Dimensions (mm)

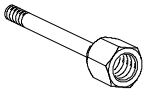


flow characteristics



accessories

adaptor for gauge with rear connection



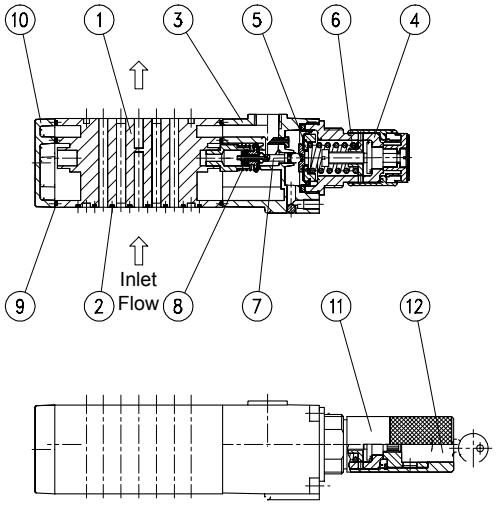
Mod.: ISO.3-12

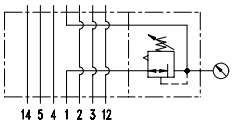
ISO 5599/1 Regulator Plate Size 3 (P-regulation)

For ISO Size 3 valves only.

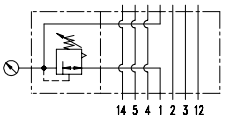
Part Number	ISO.3 P		
port size	DIN ISO 5599/1		
description	air line regulator with diaphragm and relieving feature		
mounting	arbitrary		
supply pressure	Pe max. 16 bar (not to exceed max. pressure of valve)		
reduced pressure	Pa 0.5-12 bar		
media and ambient			
temperature	max. 50°C (other temperature ranges available upon request)		
fixing	with connection board		
weight	2.210 kg (without gauge)		

Gauges supplied separately, shown only for installation





regulator on 12 (standard)



regulator on 14 (option)

replacement parts

*(repair kit: ESA-ISO.3)

no	description	material	order-no.
1	intermediate plate	Al	---
2	sealing frame ISO.3-5	NBR	5.1833.05.000
3	body	Al	---
4	spring cage	POM - Ms	8.2133.72.000
5	diaphragm	NBR - Ms	*
6	regulating spring 0-12 bar	St. - galvanized	5.2133.08.000
7	valve cone	NBR - Ms	*
8	spring C.33-22	niro	5.2133.22.000
9	sealing frame	NBR	*
10	bonnet	Al	---
11	spring cage lockable C.33-K	POM - Al	8.2133.72.001
12	lock cylinder C.33-52	Ms	5.2133.52.000

ordering information

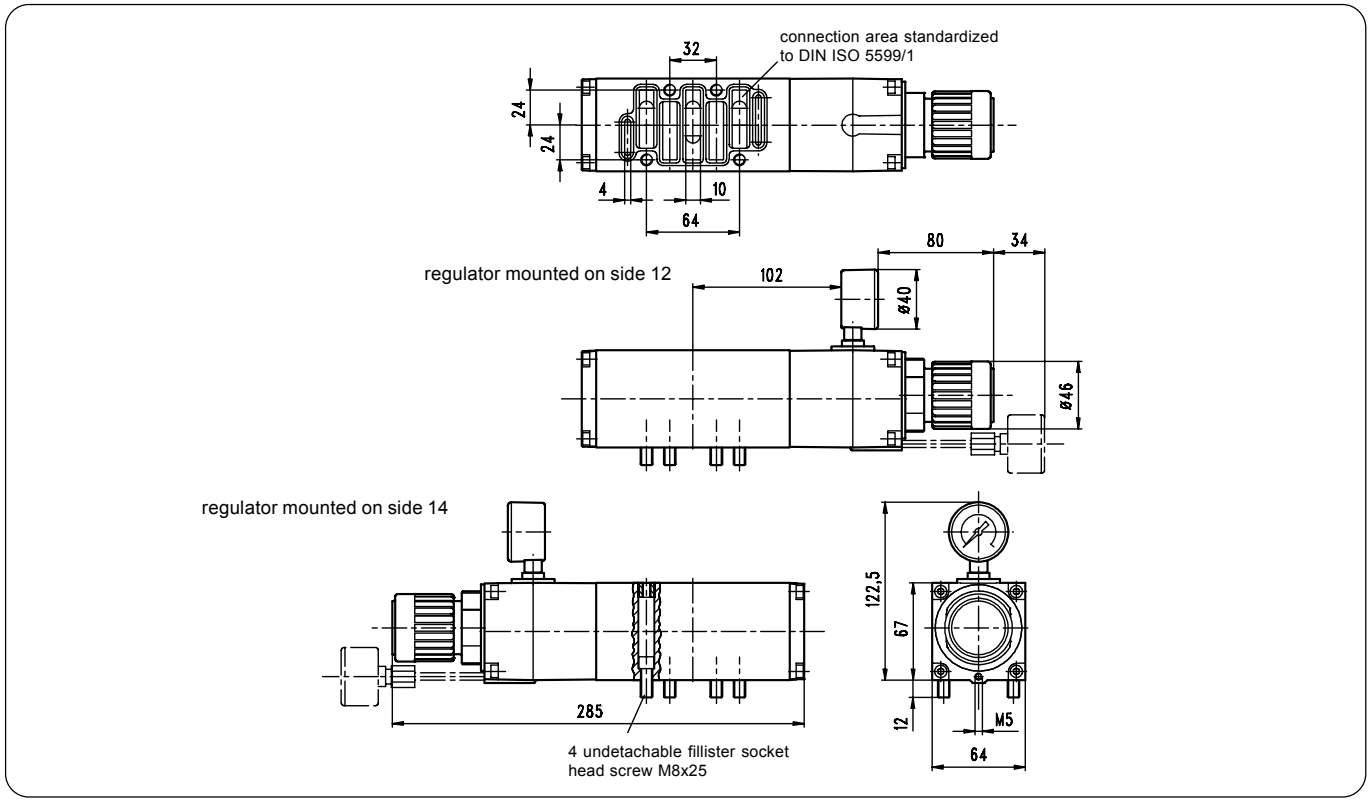
ISO.3 P	12 14
type	
1 port side	

ordering example: ISO.3 P 14

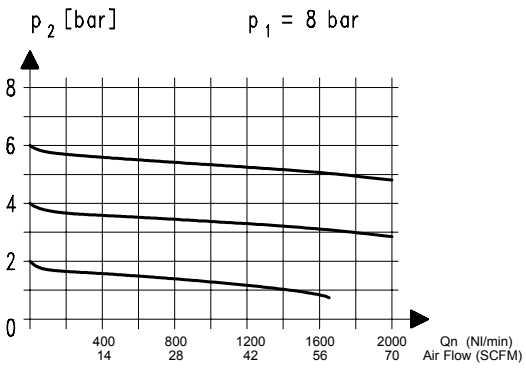
application information

– adjusting knob can be locked by depressing

Dimensions (mm)

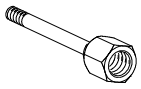


flow characteristics



accessories

adaptor for gauge with rear connection



Mod.: ISO.3-12

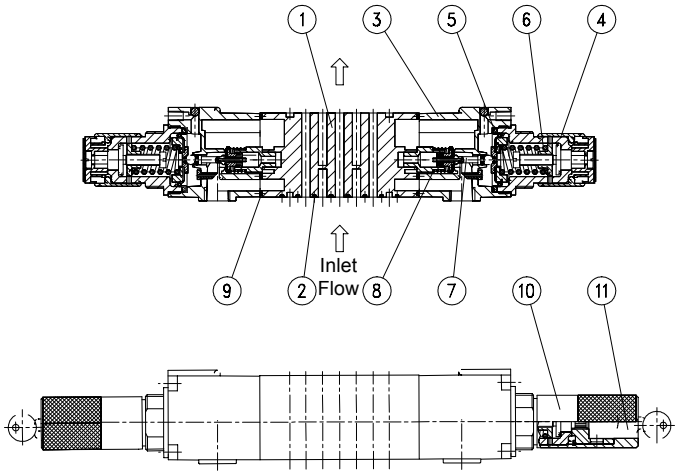
4

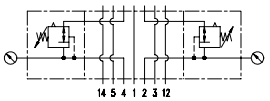
ISO 5599/1 Regulator Plate Size 3 (AB-regulation)

For ISO Size 3 valves only.

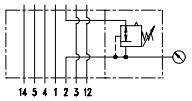
Part Number	ISO.3 AB	ISO.3 A	ISO.3 B
port size	regulation at 4 & 2	regulation at 4	regulation at 2
	DIN ISO 5599/1		
description	air line regulator with diaphragm and relieving feature		
mounting	arbitrary		
supply pressure	Pe max. 16 bar (not to exceed max. pressure of valve)		
reduced pressure	Pa 0.5-12 bar		
media and ambient			
temperature	max. 50°C (other temperature ranges available upon request)		
fixing	with connection board		
weight	3.200 kg (without gauge)		

Gauges supplied separately, shown only for installation

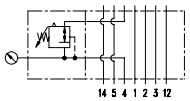




regulation at 4 & 2



regulation at 2



regulation at 4

replacement parts

* (repair kit: ESA-ISO.3)

no	description		material	order-no.
1	intermediate plate		Al	---
2	sealing frame	ISO.3-5	NBR	5.1833.05.000
3	body		Al	---
4	spring cage	C.33-72	POM - Ms	8.2133.72.000
5	diaphragm		NBR - Ms	*
6	regulating spring 0-12 bar		St. - galvanized	5.2133.08.000
7	valve cone		NBR - Ms	*
8	spring	C.33-22	niro	5.2133.22.000
9	sealing frame		NBR	*
10	spring cage lockable	C.33-K	POM - Al	8.2133.72.001
11	lock cylinder	C.33-52	Ms	5.2133.52.000

application information

– adjusting knob can be locked by depressing

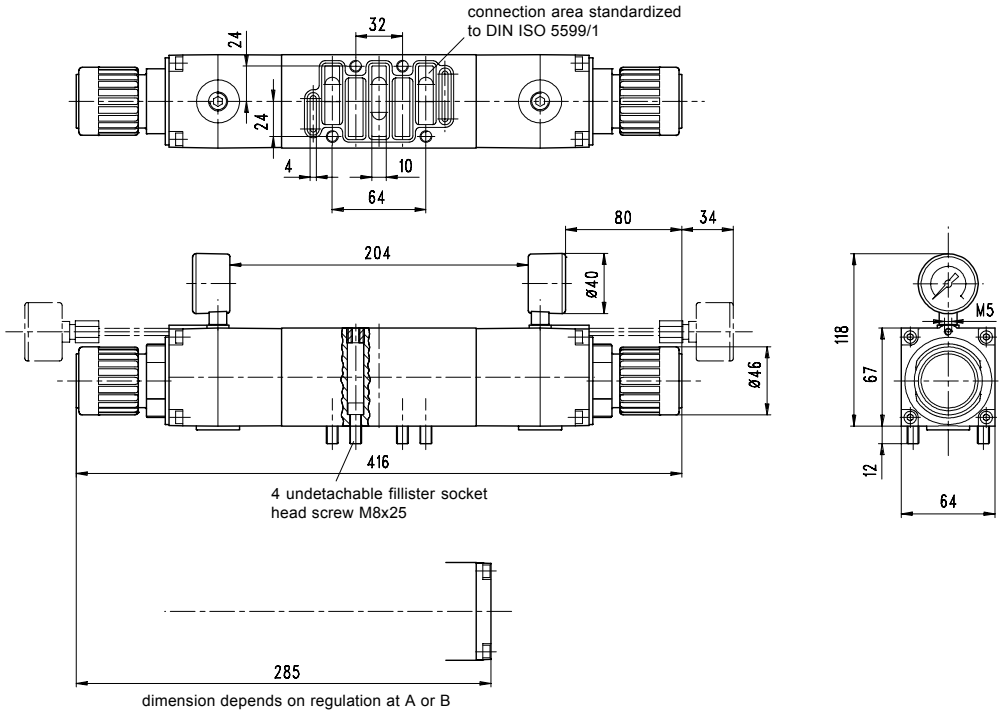
ordering information	Key
ISO.3 AB	**AB**
ISO.3 A (4)	**A** (4)
ISO.3 B (2)	**B** (2)

type

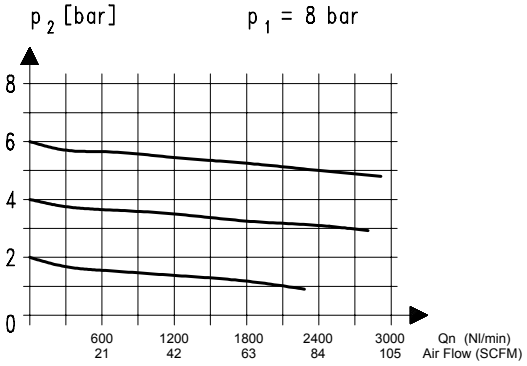
1 port side

ordering example: ISO.3 AB

Dimensions (mm)

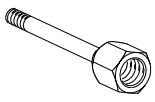


flow characteristics



accessories

adaptor for gauge with rear connection



Mod.: ISO.3-12

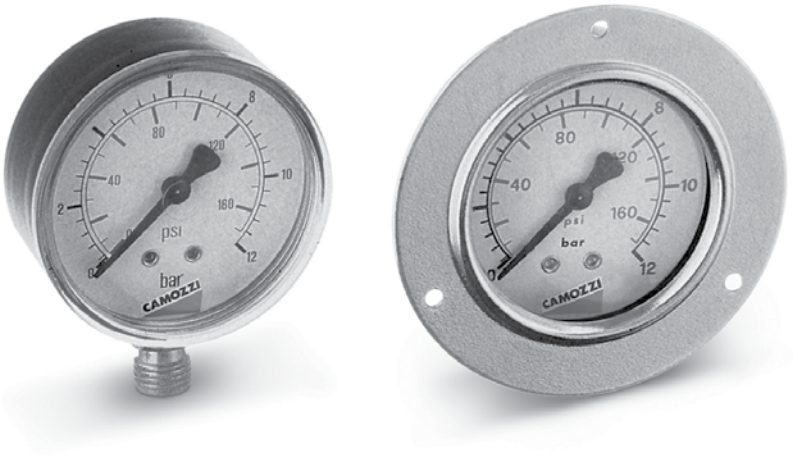
4

Pressure Gauges

Various pressure ranges
Various connections: radial, rear, for panel mounting
Precision classes: CL1,6 and CL2,5 (maximum permissible error as percentage of full span)

To select the most suitable pressure gauge, the measurement range should be chosen considering the type of application according to the following criteria:

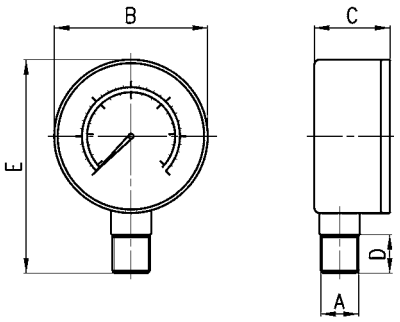
1. **Constant pressure or pressure with slow fluctuations should be within 75% of the maximun scale value.**
2. **Pulsing pressure or rapid fluctuations should be within 65% of the maximum scale value.**
3. **Pressure peaks should never exceed the maximum scale value.**



- Precision class CL1,6 (+/- 1.6% of full span) (mod. M063...)
- Precision class CL2,5 (+/- 2.5% of full span) (mod. M043... and M053...)
- NPTF Gauges have accuracy of 3-2-3%, conforming to ASME/ASNI B40.1 Grade B

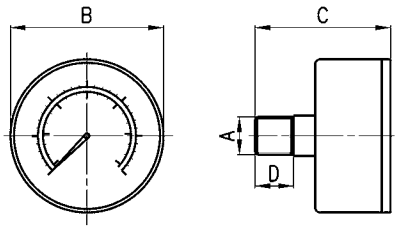
ADDITIONAL PRODUCTS AND ACCESSORIES

Pressure gauges with radial connection



DIMENSIONS (in inches)						
Mod.	A	B	C	D	E	Range
M043-R06	R1/8	Ø 1.595	0.965	0.394	2.244	0-85 psi
M043-R12	R1/8	Ø 1.595	0.965	0.394	2.244	0-175 psi
M053-R12	R1/8	Ø 2.067	1.142	0.394	2.756	0-175 psi
M063-R12	R1/4	Ø 2.480	1.102	0.472	3.268	0-175 psi

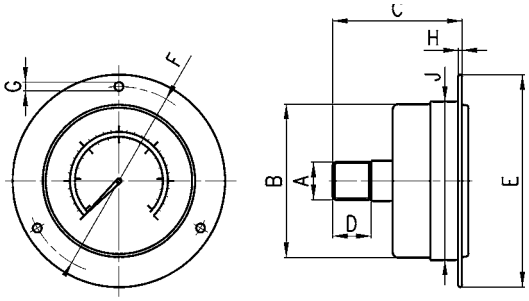
Pressure gauges with rear connection



DIMENSIONS (in inches)					
Mod.	A	B	C	D	Range
M043-P04	R1/8	Ø 1.595	1.555	0.394	0-60 psi
M043-P06	R1/8	Ø 1.595	1.555	0.394	0-85 psi
M043-P10	R1/8	Ø 1.595	1.555	0.394	0-145 psi
M043-P12	R1/8	Ø 1.595	1.555	0.394	0-175 psi
M053-P04	R1/8	Ø 2.067	1.772	0.394	0-60 psi
M053-P06	R1/8	Ø 2.067	1.772	0.394	0-85 psi
M053-P10	R1/8	Ø 2.067	1.772	0.394	0-145 psi
M053-P12	R1/8	Ø 2.067	1.772	0.394	0-175 psi
M063-P04	R1/4	Ø 2.480	1.791	0.472	0-60 psi
M063-P06	R1/4	Ø 2.480	1.791	0.472	0-85 psi
M063-P12	R1/4	Ø 2.480	1.791	0.472	0-175 psi

Pressure gauges for panel mounting

Materials: painted aluminum

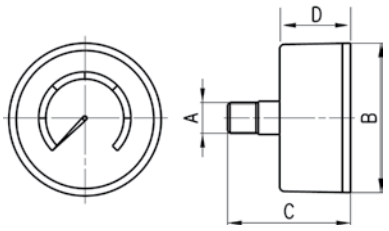


DIMENSIONS (in inches)

Mod.	A	B	C	D	E	F	G	H	J	Range
M043-F04	R1/8	Ø 1.595	1.496	0.394	Ø 2.382	2.087	Ø 0.138	0.472	1.673	0-60 psi
M043-F06	R1/8	Ø 1.595	1.496	0.394	Ø 2.382	2.087	Ø 0.138	0.472	1.673	0-85 psi
M043-F10	R1/8	Ø 1.595	1.496	0.394	Ø 2.382	2.087	Ø 0.138	0.472	1.673	0-145 psi
M043-F12	R1/8	Ø 1.595	1.496	0.394	Ø 2.382	2.087	Ø 0.138	0.472	1.673	0-175 psi
M063-F12	R1/4	Ø 2.480	1.693	0.472	Ø 3.307	2.933	Ø 0.138	0.472	2.500	0-175 psi

Pressure gauges Mod. M043-P04TF (0 - 60 psi)

Nominal face size 1 1/2”

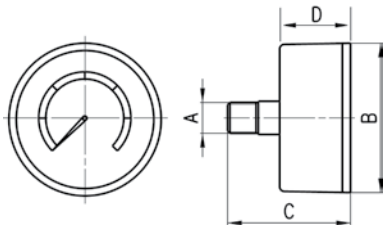


DIMENSIONS (in inches)

Mod.	A	B	C	D
M043-P04TF	1/8" NPTF	1.655	1.600	0.950

Pressure gauges Mod. M043-P10TF (0 - 160 psi)

Nominal face size 1 1/2”



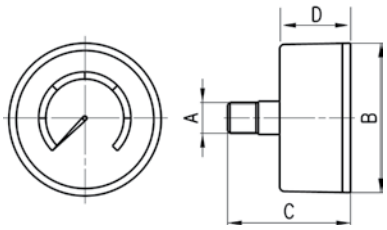
.600

DIMENSIONS (in inches)

Mod.	A	B	C	D
M043-P10TF	1/8" NPTF	1.655	1.600	0.950

Pressure gauges Mod. M063-P10TF (0 - 160 psi)

Nominal face size 2”



DIMENSIONS (in inches)

Mod.	A	B	C	D
M063-P10TF	1/4" NPTF	2.180	1.878	0.900

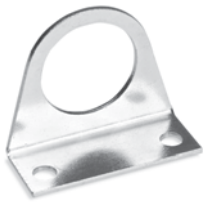
NPTF Gauges have accuracy of 3-2-3%, conforming to ASME/ASNI B40.1 Grade B

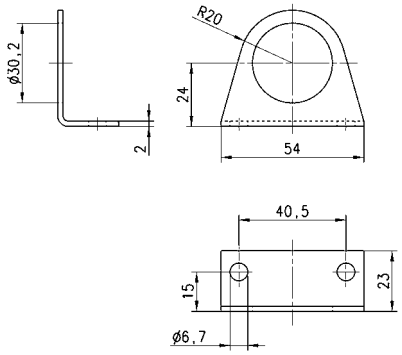
4

Mounting Brackets, Accessories and Kits - Series M, N, and T

Mounting bracket, Series MC-M-N-T

Mounting bracket for Regulators and Filter-Regulators (1/8 & 1/4) - zinc-plated steel bracket

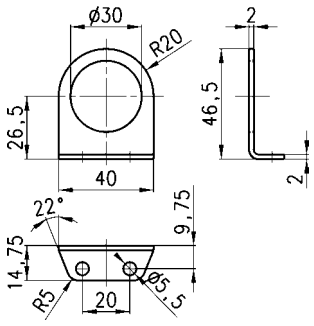




Mod. (dimensions in mm)
C114-ST

Mounting bracket, Series MC-M-N-T

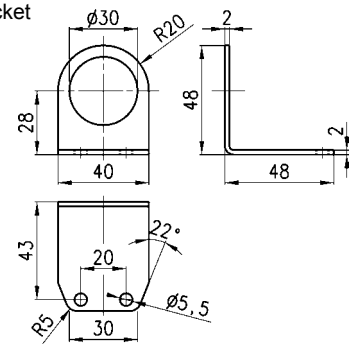
Mounting bracket for Regulators and Filter-Regulators (1/8 & 1/4) - zinc-plated steel bracket



Mod. (dimensions in mm)
C114-ST/1

Mounting bracket Series MC-M-N-T

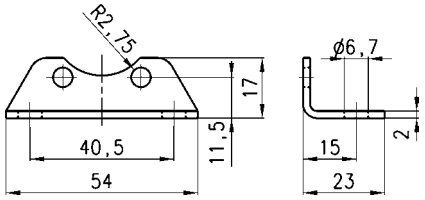
Mounting bracket for Regulators and Filter-Regulators, (1/8 & 1/4) - zinc-plated steel bracket



Mod. (dimensions in mm)
C114-ST/2

Mounting bracket Series Series N

Mounting bracket
(for N204 Filters and Lubricators)
(complete with 2 screws M5x6 and bracket, zinc-plated steel).



Mod. (dimensions in mm)
N204-ST

4

ADDITIONAL PRODUCTS AND ACCESSORIES

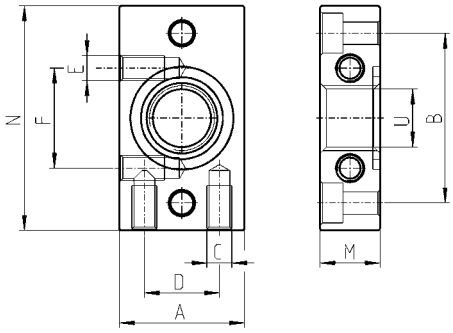
Mounting Brackets, Accessories and Kits - Series MC

Terminal flanges Series MC (Kit A)

The kit MC104-FL is supplied with: 1x left terminal flange; 1x right terminal flange; 4x screws M4x14; 2x O-Ring 2068.

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

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



DIMENSIONS (in mm)

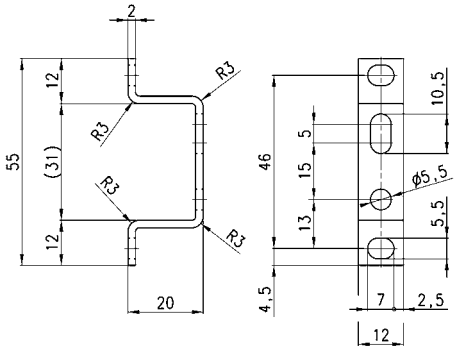
Mod.	A	B	C	D	N	M	U	size
MC104-FL	25	34	M5	15	45	12	G1/4	1
MC238-FL	35	44.5	M5	20	60	14	G3/8	2
MC202-FL	35	44.5	M5	20	60	14	G1/2	2
MC104-FLTF	25	34	M5	15	45	12	1/4" NPTF	
MC238-FLTF	35	44.5	M5	20	60	14	3/8" NPTF	
MC202-FLTF	35	44.5	M5	20	60	14	1/2" NPTF	

Mounting bracket Series MC (Kit B)

Mounting bracket for terminals 1/4, 3/8, 1.

The kit MC104-ST is supplied with:
- 2x terminal brackets
- 4x screws M5x10

Materials: zinc-plated steel brackets and screws.

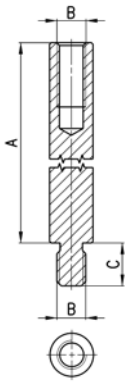


Mod. (Dimensions in mm)
MC104-ST

Tie-rod for assembling, Series MC (Kit C)

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

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



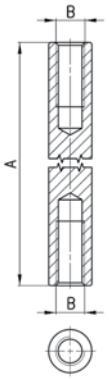
Mod. (dimensions in mm)	A	B	SW	size
MC1-TMF	45	M4	6	1
MC2-TMF	62	M5	6	2

Tie-rod for assembling, Series MC (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.

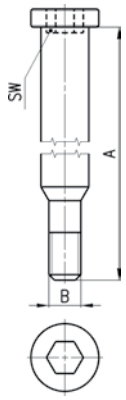


Mod. (Dimensions in mm)	A	B	size
MC1-TFF	44	M4	1
MC2-TFF	61	M5	2

Screw for assembling, Series MC (Kit E)

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

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

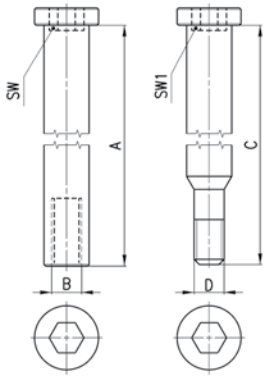


Mod. (Dimensions in mm)	A	B	SW	size
MC1-VM	48.5	M4	4	1
MC2-VM	65.5	M5	4	2

Screw for assembling, Series MC (Kit F)

The kit is supplied with: 2 male screws; 2 female screws; 1 O-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.



Mod. (dimensions in mm)	A	B	C	D	SW	SW1	size
MC1-VMF	42	M4	42.5	M4	4	4	1
MC2-VMF	59	M5	59.5	M5	4	4	2

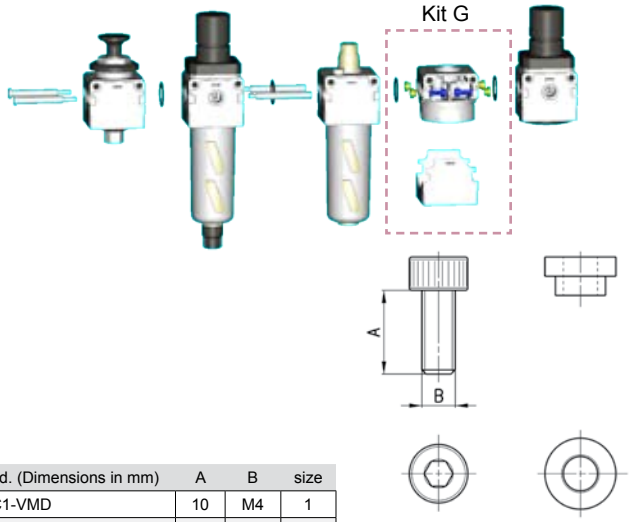
Tie-rod for assembling, Series MC (Kit G)

4 screws - 4 washers/spacers - 2 o-rings

** See example at right. KIT “G” is to be used whenever there is a second regulator or filter-regulator in the same common assembly. KIT “G” allows the component to the left of the second regulator to be assembled onto the second regulator on its right side and also back into the component or tie-rod KIT to its left side. You must remove the outer plastic shell or cover of that middle component in order to assemble the bushings and cap-screws of Kit “G” both to the left and right.

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

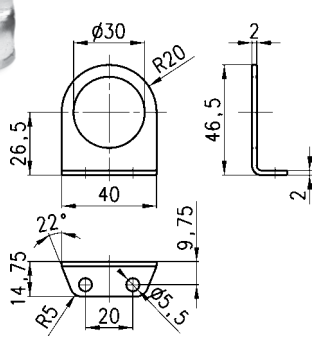
Materials: zinc-plated steel screws, brass spacers and NBR O-ring.



Mod. (Dimensions in mm)	A	B	size
MC1-VMD	10	M4	1
MC2-VMD	12	M5	2

Mounting bracket, Series MC-M-N-T

Mounting bracket for Regulators and Filter-Regulators (1/8 & 1/4) - zinc-plated steel bracket



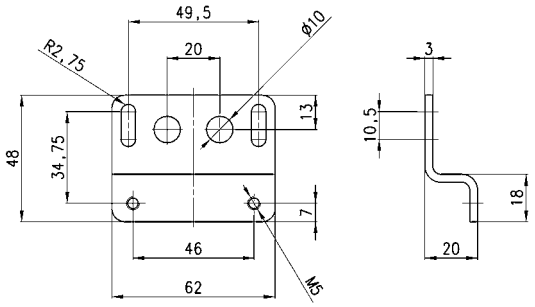
Mod. (dimensions in mm)
C114-ST/1

Mounting bracket, Series MC

Mounting bracket for MC238 and MC202

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

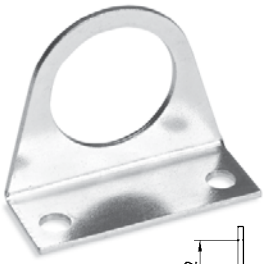
Materials: zinc-plated steel bracket and screws

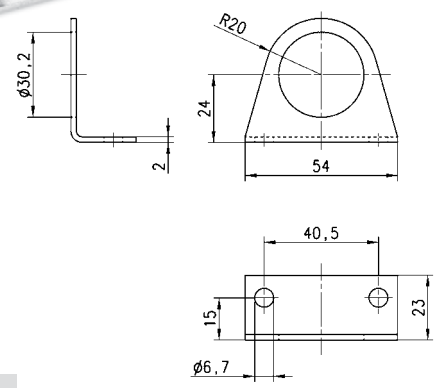


Mod. (dimensions in mm)
C238-ST/1

Mounting bracket, Series MC-M-N-T

Mounting bracket for Regulators and Filter-Regulators (1/8 & 1/4) - zinc-plated steel bracket

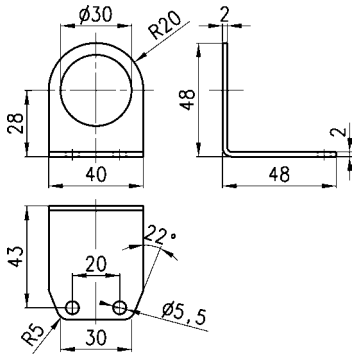




Mod. (dimensions in mm)
C114-ST

Mounting bracket, Series MC-M-N-T

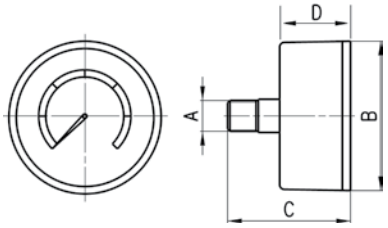
Mounting bracket for Regulators and Filter-Regulators, (1/8 & 1/4) - zinc-plated steel bracket



Mod. (dimensions in mm)
C114-ST/2

Pressure gauges
Mod. M043-P04TF (0 - 60 psi)

Nominal face size 1 1/2”

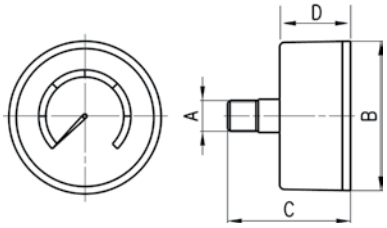


DIMENSIONS (in inches)

Mod.	A	B	C	D
M043-P04TF	1/8" NPTF	1.655	1.600	0.950

Pressure gauges
Mod. M043-P10TF (0 - 160 psi)

Nominal face size 1 1/2”

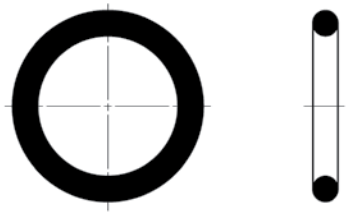


DIMENSIONS (in inches)

Mod.	A	B	C	D
M043-P10TF	1/8" NPTF	1.655	1.600	0.950

Assembly O-ring, Series MC

Assembly O-ring F-R-L-D
for MC104 mod. **458-33/1** (OR 2068)
for MC238 and MC202 mod. **80-26-11/4T** (OR 3100)
(spare part only).



* spare parts only

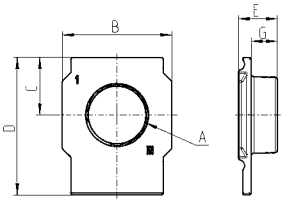
Mod.	O-ring	For assembly	
458-33/1	OR 2068	MC104	
80-26-11/4T	OR 3100	MC238 - MC202	*
160-39-11/19	OR 3125	MX2	
C401-F33	OR 3150	MX3	

4

Mounting Brackets, Accessories and Kits - Series MX

Terminal flanges (IN/OUT) for series MX (Threaded End-plates)

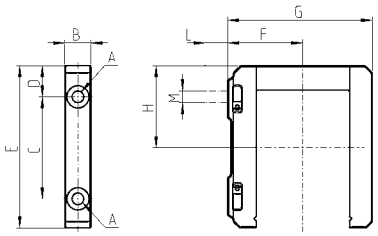
The kit is supplied with:
- n°1 flange INLET side
- n°1 flange OUTLET side



DIMENSIONS (in inches)

Mod.	A (NPTF)	B	C	D	E	G
MX2-3/8-FL-TF	3/8	1.969	1.043	2.500	0.669	0.433
MX2-1/2-FL-TF	1/2	1.969	1.043	2.500	0.669	0.433
MX2-3/4-FL-TF	3/4	1.969	1.043	2.500	0.669	0.433
MX3-3/4-FL-TF	3/4	2.283	1.201	2.874	0.807	0.531
MX3-1-FL-TF	1	2.283	1.201	2.874	0.807	0.531

Rapid clamps kit for series MX



Kit MX2-X supplied with: 1 rapid clamp, 1 O-ring OR 3125**, 2 hexagonal nuts M5, 2 screws M5x69.

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

** OR 3125 can be ordered separately (cod. 160-39-11/19)

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

The kit MX3-X is supplied with:
n° 1 rapid clamp, n° 1 O-ring, OR 3150 **
n° 2 square nuts, n° 2 screws M6x75

The kit MX3-Z is supplied with:
n° 1 rapid clamp, n° 1 O-ring, OR 3150 **
n° 1 square nut, n° 1 screw M6x75,
n° 1 screw M6x90 for direct wall-mounting

**OR 3150 can be ordered separately (mod. C401-F33)

DIMENSIONS (in inches)

Mod.	A	B	C	D	E	F	G	H	L	M	
MX2-X	0.205	0.472	1.811	0.551	2.894	1.476	2.776	1.457		-	
MX2-Z	0.205	0.472	1.811	0.551	2.894	1.476	2.776	1.457	0.551	M5	*
MX3-X	0.244	0.551	2.126	0.650	3.386	1.575	3.031	1.713		-	
MX3-Z	0.244	0.551	2.126	0.650	3.386	1.575	3.031	1.713	0.512	M6	*

* kit with wall mounting screw

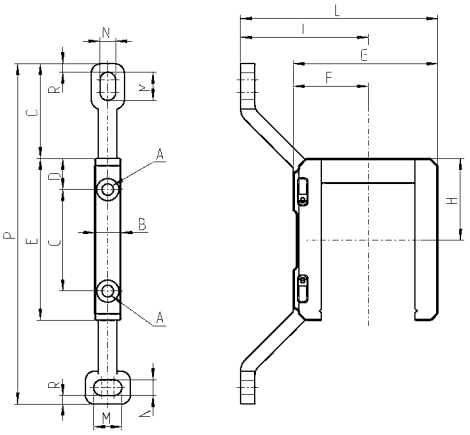
Rapid clamp kit with wall mount brackets for series MX

The kit MX3-Y is supplied with:
n° 1 wall rapid clamp, n° 1 O-ring, OR 3150 **
n° 2 square nuts, n° 2 screws M6x75
**OR 3150 can be ordered separately (mod. C401-F33)

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

** OR 3125 can be separately ordered (mod. 160-39-11/19)

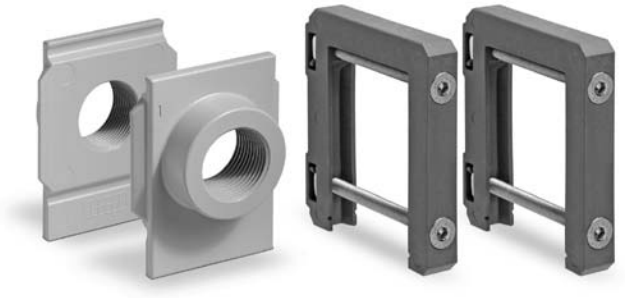
Materials: technopolymer clamp, NBR O-ring, zinc-plated steel nuts and screws.



DIMENSIONS (in inches)

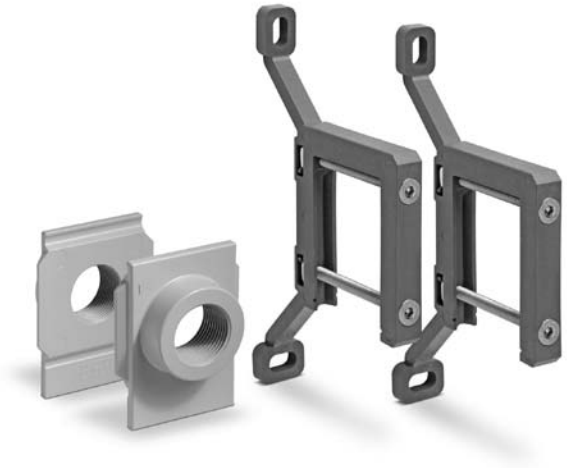
Mod.	A	B	C	D	E	F	G	H	I	L	M	N	O	P	R
MX2-Y	0.205	0.472	1.811	0.551	2.894	1.280	2.776	1.457	2.776	4.055	0.472	0.256	1.654	5.984	0.157
MX3-Y	0.244	0.551	2.126	0.650	3.386	1.575	3.031	1.713	2.677	4.134	0.591	0.331	1.988	7.126	0.177

Assembly brackets and flange kit for series MX



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

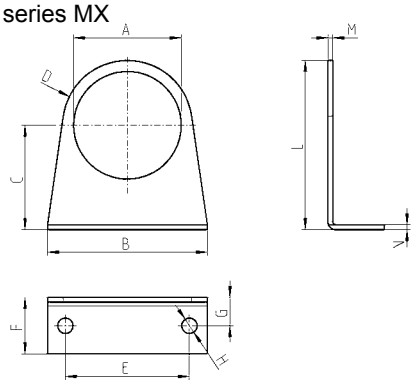
Wall-mount brackets and flange kit for series MX



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

Single wall-mount bracket for regulator or filter-regulator series MX

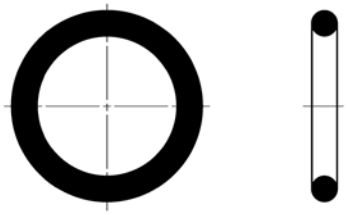
The kit is supplied with 1 zinc-plated steel bracket



Mod.	A	B	C	D	E	F	G	H	L	M	N
MX2-S	Ø 1.858	2.874	2.382	R 1.161	2.126	0.984	0.591	Ø 0.244	3.543	0.098	0.098
MX3-S	Ø 2.252	3.346	2.185	R 1.358	2.598	1.181	0.591	Ø 0.323	3.543	0.098	0.098

DIMENSIONS (in millimeters)

O-ring for assembling Series MC - MX



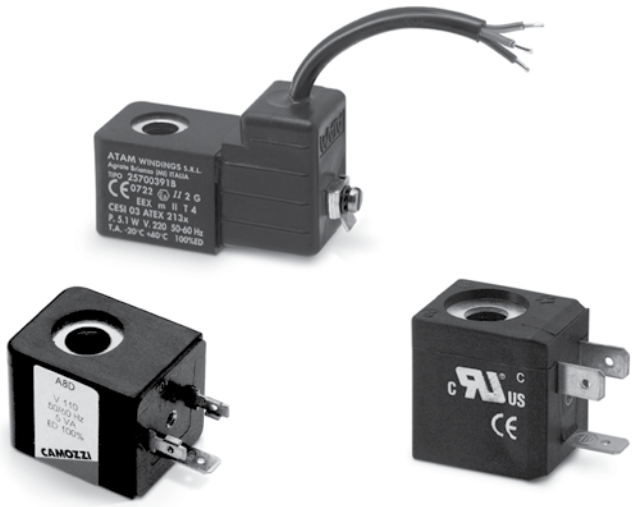
Mod.	O-ring	For assembly between units and/or end-plates	*
458-33/1	OR 2068	MC104	*
80-26-11/4T	OR 3100	MC238 - MC202	*
160-39-11/19	OR 3125	MX2	*
C401-F33	OR 3150	MX3	*

* spare parts only

4

Solenoids U7* - U7*EX - G7* - A8* - H8*

Version A and B
Connection according to DIN 43650 and DIN 40050 standards



The mechanical part of the tube in the solenoid valves Series A, 3, 4, 9 and NA allows the mounting of various types of solenoids.

Mod. H8...: explosion-proof solenoids suitable for potentially explosive ambients (ATEX).

Mod. U7...: solenoids available also with ATEX certification.

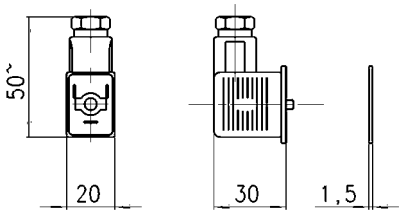
GENERAL DATA

Wire insulation	U7... / G7... / G93 = class F (155° C) A8... = class H (180° C) B... / H8... = class H (200° C)
Protection class	U7... / G7... / G93 = IP54 - DIN 40050 IP65 (with connector Mod. 122-800 and Mod. 122-800EX) A8... / B... = IP54 - DIN 40050 IP65 (with connector Mod. 124-800) H8... = IP64
Operation	ED 100%
Tolerance V AC	Mod. A and U: -15% / +10%
Tolerance V DC	Mod. A and U: ±10%

DIN Connector for U7x and G7x Coils

EN 175301-803 Form B Industrial

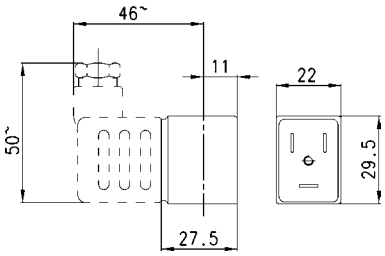
Mod. 122-800



Mod.	
122-800	DIN 43650 (PG9)
122-800EX	DIN 43650 (PG9) with TORX SCREW anti-tampering
122-701-2	24V w/ LED, varistor surge suppression and 2m molded cable
122-702-3	110V w/ LED, varistor surge suppression and 3m molded cable

Solenoids for Mod. U70/ / U7*EX / G70 (EN 175301-803 Form B Industrial)

The U7* series of solenoid coils complies with both standards UL and CSA, and the marking we will apply on the solenoids is cURus (standards UL 429 and CSA 22.2 n. 139).
The U7* coil series is also available in an ATEX explosion rated version. Mod. U7*EX is marked II 3 GD Eex nA T4.
NOTE: to order the ATEX version of hte U7* coil it is necessary to add the EX suffix at the end of the code.



Nominal dimensions:	22x22
Protection class:	IP54 - DIN 40050 IP65 (with connector Mod. 122-800)
Insulation:	Class H (180°C)
Connections:	Bipolar plus earth DIN 43650 (version B)
Voltage tolerance:	AC +10% - 15% DC ±10%
Continuous operation:	ED 100%
Protection:	U70 PET G70 Nylon

Solenoid Voltages U70 (UL and CSA approved)

Mod.			
	24V	50/60 Hz	3,5VA
U7H	12V	DC	3,1W
U7K	110V	AC 50/60 Hz	4,3VA
	125V	AC 50/60 Hz	5,5VA
U7J	230V	50/60 Hz	3,5VA
	240V	50/60 Hz	4VA
U79	48V	DC	3,1W
U710	110V	DC	3,2W

Mod.			
	24V	DC	3,1W
U77	48V	50/60 Hz	3,5VA
U7F	380V	50/60 Hz	7VA
U72	12V	DC	5W
U73	24V	DC	5W
U74	48V	DC	5W
U76	110V	DC	5W

Solenoid Voltages G70

Mod.			
	24V	50/60 Hz	3,5VA
G7H	12V	DC	3,1W
G7K	110V	AC 50/60 Hz	4,3VA
	125V	AC 50/60 Hz	5,5VA
G7J	230V	50/60 Hz	3,5VA
	240V	50/60 Hz	4VA
G79	48V	DC	3,1W
G710	110V	DC	3,2W

Mod.			
	24V	DC	3,1W
G77	48V	50/60 Hz	3,5VA
G7F	380V	50/60 Hz	7VA
G72	12V	DC	5W
G73	24V	DC	5W
G74	48V	DC	5W
G76	110V	DC	5W

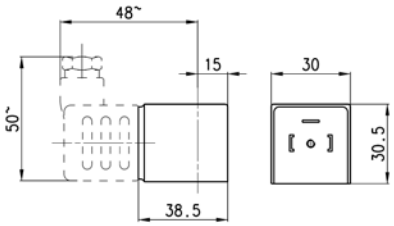
Dimensions in millimeters (mm)

4

ADDITIONAL PRODUCTS AND ACCESSORIES

Solenoids Mod. A8..

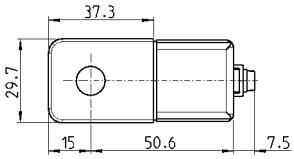
Connections: Bipolar plus earth DIN 43650
(version A) (EN 175301-803 Form A / ISO 4400)

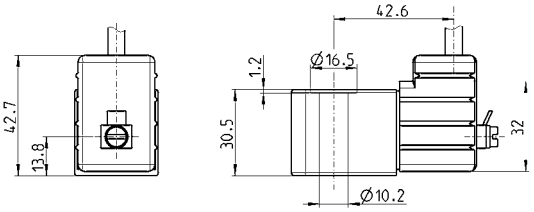


Mod.	Solenoid voltage	Power absorption
A8B	24 V - 50/60 Hz	5 VA
A8D	110 V - 50/60 Hz	5 VA
A8E	220 V - 50/60 Hz	5 VA
A83	24 V - DC	4 W

Solenoid Mod. H8.. for potentially explosive ambients (ATEX)

Class F according to the standard VDE0580
Operating temperature: -20°C + 40°C
Connections: tripolar cable 3 mt (standard)
Conformity certificate to the standard CEI 31-8 (EN 50014) and CEI 31-13 (EN50028) marked EEx m IIT4.
Incapsulating: self-extinguishing PA.



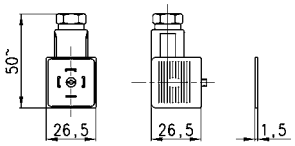


Mod.	Solenoid voltage	Power absorption
H83	24 V - DC	5,4 W
H8B	24 V - 50/60 Hz	5,3 VA
H8C	48 V - 50/60 Hz	5,3 VA
H8D	110 V - 50/60 Hz	5,3 VA
H8E	230 V - 50/60 Hz	5,3 VA

For Series NA use plate mod. NA54-PC.

Connectors for solenoids Mod. A8 and Mod. B8... / B9...

According to DIN 43650 (PG) standard
(EN 175301-803 Form A / ISO 4400)



Mod.	Torque (Nm)
124-800	0.5

Dimensions in millimeters (mm)

4

Pressure switches, Transducers and Pressure Indicators

Series PM: adjustable-diaphragm pressure switches, with visual scale, with exchange contacts (SPST, SPDT)
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.

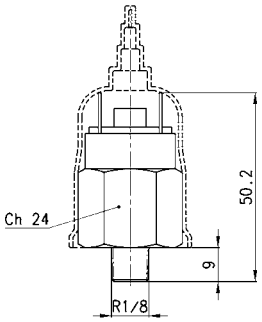
Series PM681 pressure switches with setting visual scale comply with EN60730 standards and are suitable for signaliing pressure through a normally open Reed contact.

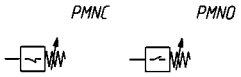
A regulating screw, which can be adjusted using a small screwdriver, allows the switch to be set to the required pressure.
The calibrated diaphragm enables an electrical signal to be generated or inhibited depending on the pressure set.

GENERAL DATA

Construction	with adjustable diaphragm
Mounting	using thread in body
Ports	R1/8, G1/4 (serie PM) - tube 4/2 (series TRP) - M5 (series 2950)
Operating temperature	-5° - +60°C, (23 - 140 deg F)
Pressure	1 - 10 bar max.
Voltage	220 V
Max. power	100 VA
Protection class	IP54
Max. nr. of pulses per 1'	200
Lifetime	106
Max current	0.5 A
Isolation voltage	1500 V

Series PM - adjustable-diaphragm pressure switches





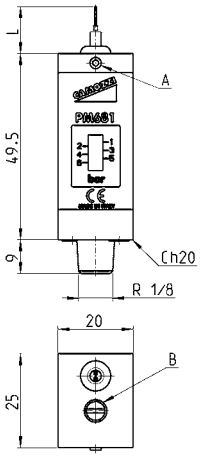
Mod.	Function	Max Voltage	Max Power	Service Type	Insulation voltage	Symbol
PM11-NC	NC = normally closed	48 V AC DC	24 VA	Heavy	500 V	PMNC
PM11-NA	NA = normally open	48 V AC DC	24 VA	Heavy	500 V	PMNO

PMNC = normally closed
PMNO = normally open

Series PM681-... - pressure switches with setting visual scale

New

In compliance with EN60730 standards
Electric connection: PVC cable 2 x 0.22 mm
Electric contact: Reed SPST Normally Open Contact
Body in anodized aluminium and threaded fitting in brass
Hysteresis: 0.8 bar max

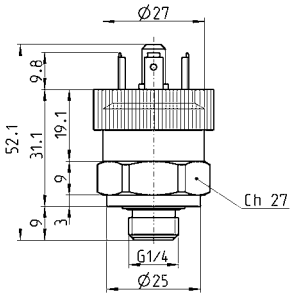


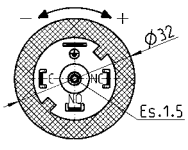
Mod.	L	Max switch voltage	Max switch current	Max switch capacity	Max fluid temperature	Max pressure	Setting range	Weight
PM681-1	1 m	48 V	0.5 A	10 W	60°C	20 bar	1 - 6 bar	95 g
PM681-3	3 m	48 V	0.5 A	10 W	60°C	20 bar	1 - 6 bar	95 g

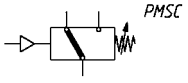
A = LOCKING SET SCREW

B = PRESSURE ADJUSTMENT SCREW

Series PM - pressure switch with exchange contacts (SPDT contacts)







DIMENSIONS

Mod.	Function	Max Voltage	Operating Temperature	Actuation time	Setting range	Max Hysteresis
PM11-SC	SC (*)	250 V AC 30 V DC	- 25 C° + 85 C°	> 0,1 ms	2 - 10 bar	0.8 bar

(*) SC = exchange contacts

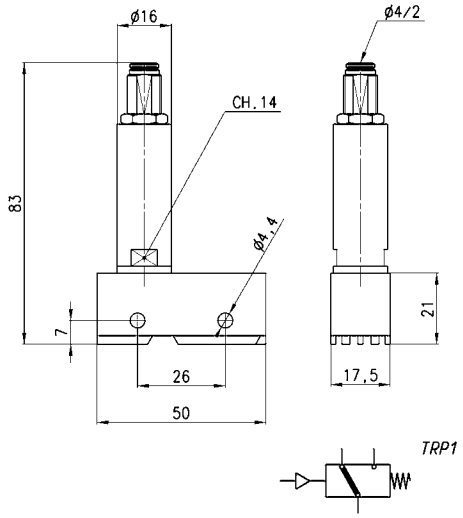
Dimensions in millimeters (mm)

4

ADDITIONAL PRODUCTS AND ACCESSORIES

Electro-pneumatic transducer Series TRP

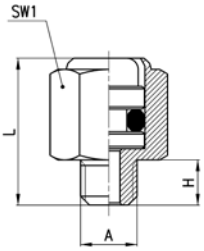
The TRP Series transducer is specially designed to convert a pneumatic signal into an electrical signal. The contacts are NC (normally closed) or NO (normally open), thus making it possible to generate or eliminate current when the pneumatic signal is present.
Minimum operating pressure 2,5 bar.

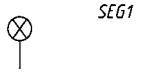


Mod.
TRP-8

Pressure indicators Series 2950

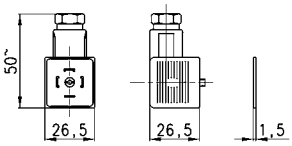
The pressure indicator Mod. 2950-M5 is passive element (no spring, red colour).
It is useful for detecting pressure manually without having to remove the connections.





Mod.	A	H	L	SW1
2950 M5	M5	4	13.5	8

Three-pole connector 124-830 for Pressure switch SC



Mod.
124-830

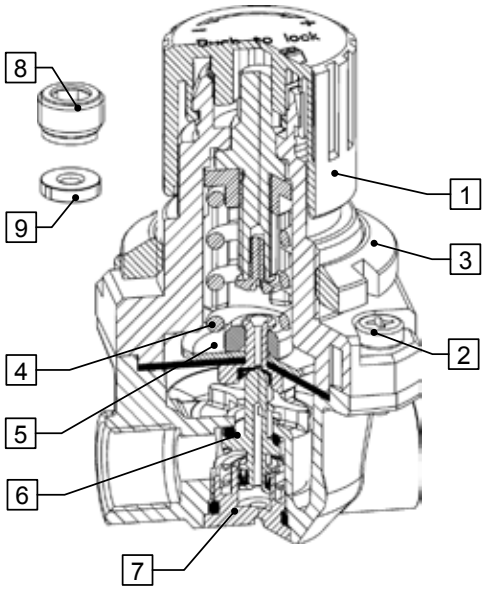
Dimensions in millimeters (mm)

5 Spare Parts & Seal Kits

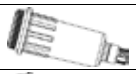
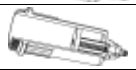
Spare Parts and Seal Kits

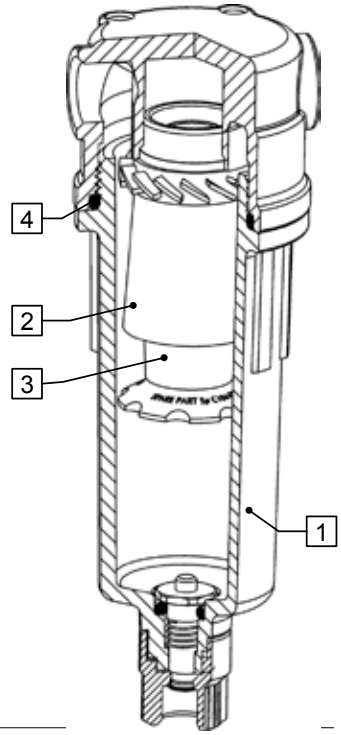
Spare Parts REGULATORS Series M

Pos.	Drawing	Description	M008 / M004
1		Complete bell with regulation screw	MC1-R2
2		Bell fixing screw	C104-R28
3		Panel nut	MC104-R22
4		Spring 1 bar	C104-R16/2
		Spring 2 bar	C104-R16/1
		Spring 4 bar	C104-R16
		Spring 7 bar	C104-R16/5
		Spring 10 bar	C104-R17
5		Complete standard diaphragm	C1-R27
		Complete diaphragm non-relieving	C1-R28
		Complete diaphragm with controlled leak	C1-R27/S
6		Complete standard poppet valve	M0-R32/4
		Complete poppet-valve with exhaust.	M0-R32/5
7		Complete valve bearing tap	M0-R9/1
8		Rear screw for pressure gauge connection	MC104-R9
9		Special O-ring seal	C104-F30/1



Spare Parts FILTERS and COALESCING-FILTERS Series N

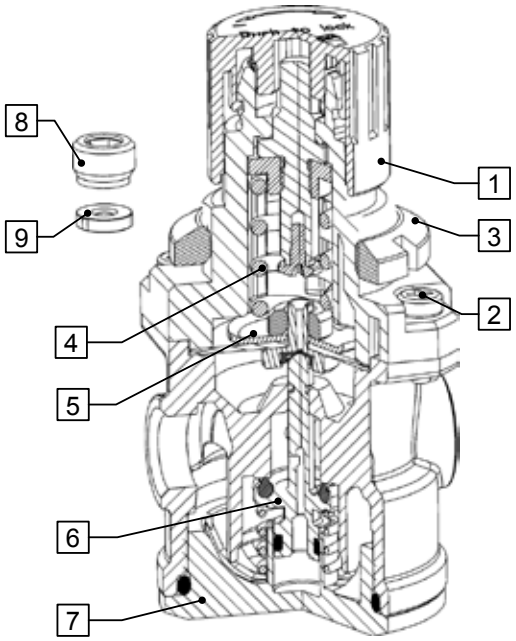
Pos.	Drawing	Description	N108 / N104	N 208 / N204
1		Complete bowl with semiautomatic-manual drain	N1-F71	N2-F71
-		Complete bowl with depressuration drain	N/A	N2-F71/2
-		Seal for depressuration drain	N/A	C104-F76
-		Shutter for depressuration drain	N/A	C104-F73
-		Complete bowl with protected depressuration drain	N/A	N2-F71/1
-		Complete bowl with port 1/8 (without drain)	N1-F71-1/8	N2-F71-1/8
2	 *	Complete filtering element 25µ	C1-F20/3	C1-F20/3
		Complete filtering element 5µ	C1-F21/3	C1-F21/3
3	 *	Filtering element 25µ	C104-F20/3	C104-F20/3
		Filtering element 5µ	C104-F21/3	C104-F21/3
-	 **	Filtering element 0,01µ	C104-F26	C104-F26
4		Standard bowl O-ring	N204-F25	N204-F25



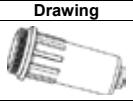
* = for filter only
** = for coalescing-filter only

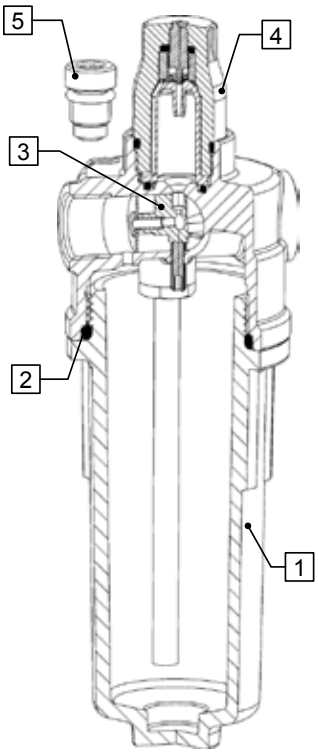
Spare Parts REGULATORS Series N

Pos.	Drawing	Description	N1208 / N1204
1		Complete bell with regulation screw	MC1-R2
2		Bell fixing screw	C104-R28
3		Panel nut	MC104-R22
4		Spring 1 bar	C104-R16/2
		Spring 2 bar	C104-R16/1
		Spring 4 bar	C104-R16
		Spring 7 bar	C104-R16/5
		Spring 10 bar	C104-R17
5		Complete standard diaphragm	C1-R27
		Complete diaphragm non-relieving	C1-R28
		Complete diaphragm with controlled leak	C1-R27/S
6		Complete standard poppet valve	N2-R32
7		Complete valve bearing tap	N204-R3/3
8		Rear screw for pressure gauge connection	MC104-R9
9		Special O-ring seal	C104-F30/1



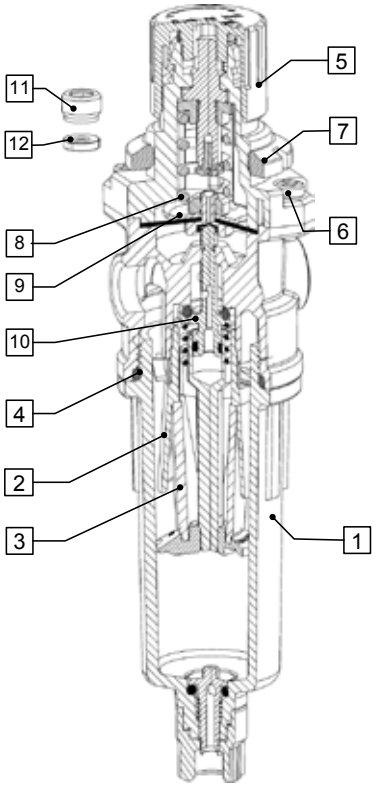
Spare Parts LUBRICATORS Series N

Pos.	Drawing	Description	N108	N104	N208	N204
1		Complete bowl	N1-L71	N1-L71	N2-L71	N2-L71
2		Standard bowl O-ring	N204-F25	N204-F25	N204-F25	N204-F25
3		Complete Venturi system	NA	MC1-L8	NA	MC1-L8
4		Complete lubricator cap	MC1-L24	MC1-L24	MC1-L24	MC1-L24
5		Complete oil refilling tap	C1-L34	C1-L34	C1-L34	C1-L34

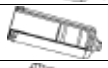


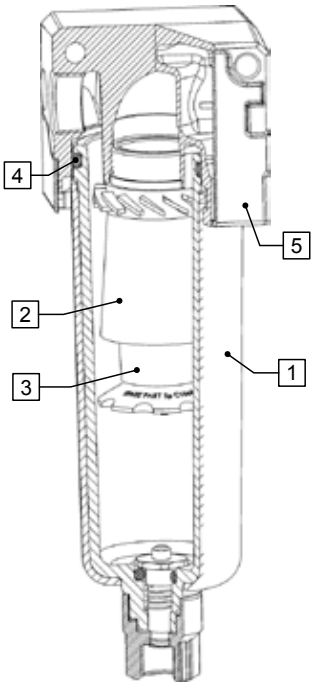
Spare Parts FILTER-REGULATORS Series N

Pos.	Drawing	Description	N108 / N104	N208 / N204
1		Complete bowl with semiautomatic-manual drain	N1-F71	N2-F71
-		Complete bowl with depressure drain	NA	N2-F71/2
-		Seal for depressuration drain	NA	C104-F76
-		Shutter poppet for depressuration drain	NA	C104-F73
-		Complete bowl with filter-protected depressuration drain	NA	N2-F71/1
-		Complete bowl with port 1/8 , without drain	N1-F71-1/8	N2-F71-1/8
2		Complete filtering element 25µ	C1-F20/3	C1-F20/3
		Complete filtering element 5µ	C1-F21/3	C1-F21/3
3		Filtering element 25µ	C104-F20/3	C104-F20/3
		Filtering element 5µ	C104-F21/3	C104-F21/3
4		Standard bowl O-ring	N204-F25	N204-F25
5		Complete bell with regulation screw	MC1-R2	MC1-R2
6		Bell fixing screw	C104-R28	C104-R28
7		Panel nut	MC104-R22	MC104-R22



Spare Parts FILTERS and COALESCING-FILTERS Series MC

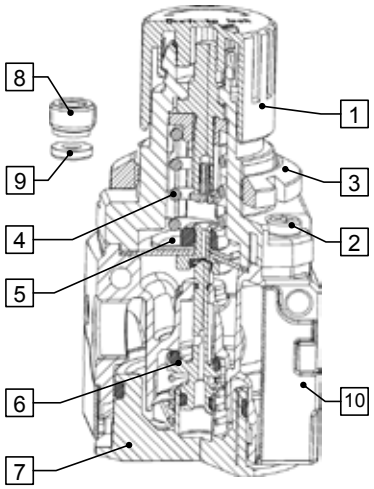
Pos.	Drawing	Description	MC104 Part #	MC238 / MC202 Part #
1		Complete bowl with semiautomatic-manual drain	MC1-F71	MC2-F71
-		Complete bowl with automatic drain	N/A	MC2-F71/3
-		Automatic drain	N/A	C238-FSA2
-		Complete bowl with depressuration drain	MC1-F71/2	N/A
-		Seal for depressuration drain	C104-F76	N/A
-		Shutter for depressuration drain	C104-F73	N/A
-		Complete bowl with protected depressuration drain	MC1-F71/1	MC2-F71/1
-		Complete bowl with port 1/8 , without drain	MC1-F71-1/8(TF)	MC2-F71-1/8(TF)
2	 *	Complete filtering element 25µ	C1-F20/3	C2-F11/3
		Complete filtering element 5µ	C1-F21/3	C2-F12/3
3	 *	Filtering element 25µ	C104-F20/3	C238-F11/3
		Filtering element 5µ	C104-F21/3	C238-F12/3
-	 **	Filtering element 0,01µ	C104-F26	MX2-F10
4		Standard bowl O-ring	C104-F9	C238-F4
5		Protection body without holes	MC104-F80	MC238-F80



* = for filter only
** = for coalescing-filter only

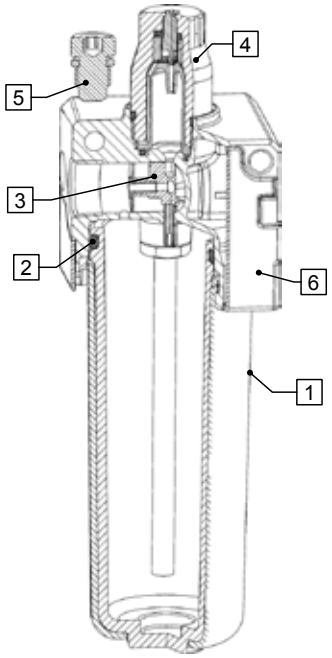
Spare Parts REGULATORS Series MC

Pos.	Drawing	Description	MC104	MC238 / MC202
1		Complete bell with regulation screw	MC1-R2	MC2-R25/1
2		Bell fixing screw	C104-R28	C238-R28/1
3		Panel nut	MC104-R22	MC238-R27
4		Spring 1 bar	C104-R16/2	NA
		Spring 2 bar	C104-R16/1	NA
		Spring 4 bar	C104-R16	MC238-R18
		Spring 7 bar	C104-R16/5	NA
		Spring 10 bar	C104-R17	MC238-R19
5		Complete standard diaphragm	C1-R27	C2-R33
		Complete diaphragm non-relieving	C1-R28	C2-R34
		Complete diaphragm with controlled leak	C1-R27/S	NA
6		Complete standard poppet valve	C1-R32	MC2-R32
7		Complete valve bearing tap	MC1-R3	MC2-R3
8		Rear screw for pressure gauge connection	MC104-R9	MC104-R9
9		Special O-ring seal	C104-F30/1	C104-F30/1
10		Protection body with holes	MC104-D80	MC238-D80



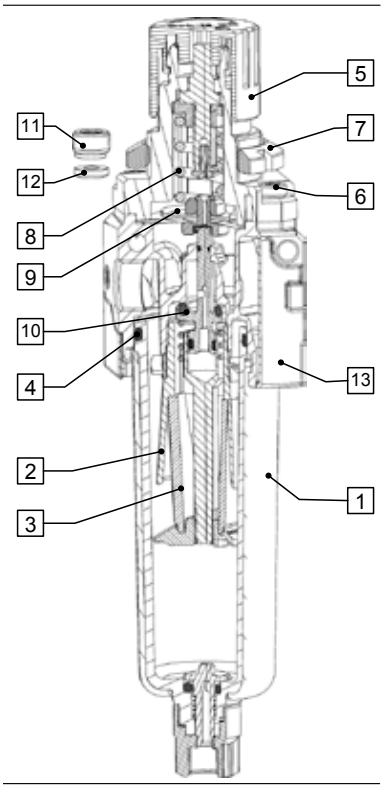
Spare Parts LUBRICATORS Series MC

Pos.	Drawing	Description	MC104	MC238	MC202
1		Complete bowl	MC1-L71	MC2-L71	MC2-L71
2		Standard bowl O-ring	C104-F9	C238-F4	C238-F4
3		Complete Venturi system	MC1-L8	NA	NA
		Complete diaphragm	NA	MC2-L6	MC2-L6/1
3		"L01" Low Flow diaphragm	NA	C202-L6/1	C202-L6/1
4		Complete lubricator cap	MC1-L24	MC1-L24	MC1-L24
5		Complete oil refilling tap	C1-L34	MC2-L3	MC2-L3
6		Protection body without holes	MC104-F80	MC238-F80	MC238-F80



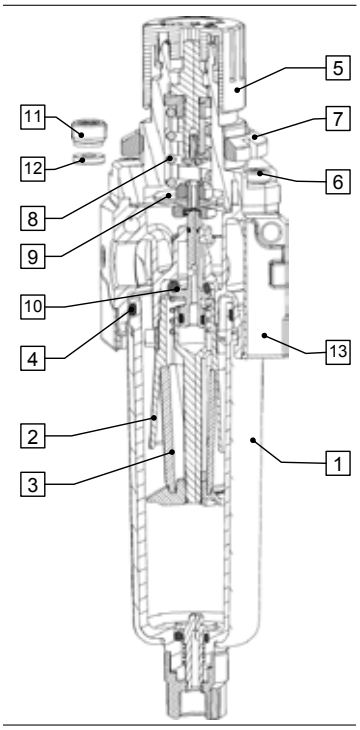
Spare Parts FILTER-REGULATORS Series MC

Pos.	Drawing	Description	MC104	MC238 / MC202
1		Complete bowl with semiautomatic-manual drain	MC1-F71	MC2-F71
-		Complete bowl with automatic drain	NA	MC2-F71/3
-		Automatic drain	NA	C238-FSA2
-		Complete bowl with depressure drain	MC1-F71/3	NA
-		Seal for depressuration drain	C104-F76	NA
-		Shutter poppet for depressuration drain	C104-F73	NA
-		Complete bowl with filter-protected depressuration drain	MC1-F71/1	MC2-F71/1
-		Complete bowl with port 1/8, without drain	MC1-F71-1/8 (TF)	MC2-F71-1/8 (TF)
2		Complete filtering element 25µ	C1-F20/3	C2-F11/3
		Complete filtering element 5µ	C1-F21/3	C2-F12/3
3		Filtering element 25µ	C104-F20/3	C238-F11/3
		Filtering element 5µ	C104-F21/3	C238-F12/3
4		Standard bowl O-ring	C104-F9	C238-F4
5		Complete bell with regulation screw	MC1-R2	MC2-R25/1



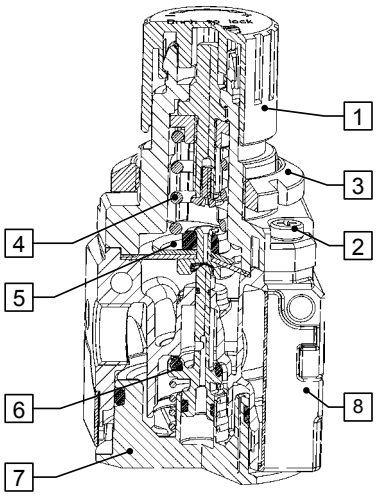
Spare Parts FILTER-REGULATORS Series MC cont.

Pos.	Drawing	Description	MC104	MC238 / MC202
6		Bell fixing screw	C104-R28	C238-R28/1
7		Panel nut	MC104-R22	MC238-R27
8		Spring 1 bar	C104-R16/2	NA
		Spring 2 bar	C104-R16/1	NA
		Spring-4 bar	C104-R16	MC238-R18
		Spring 7 bar	C104-R16/5	NA
		Spring 10 bar	C104-R17	MC238-R19
9		Complete standard diaphragm	C1-R27	C2-R33
		Complete diaphragm non-relieving	C1-R28	C2-R34
		Complete diaphragm with controlled leak	C1-R27/S	NA
10		Complete standard poppet valve	C1-R32	MC2-R32
11		Rear screw for pressure gauge connection	MC104-R9	MC104-R9
12		Special O-ring seal	C104-F30/1	C104-F30/1
13		Protection body with holes	MC104-D80	MC238-D80



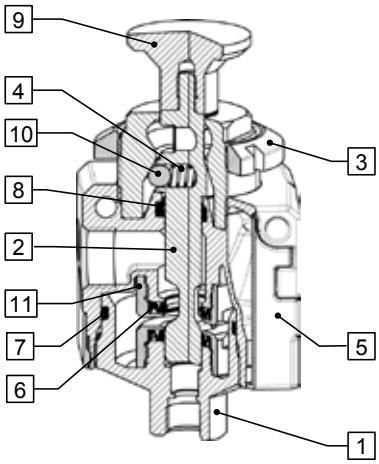
Spare Parts MANIFOLD REGULATORS Series MC

Pos.	Drawing	Description	MC104
1		Complete bell with regulation screw	MC1-R2
2		Bell fixing screw	C104-R28
3		Panel nut	MC104-R22
4		Spring 1 bar	C104-R16/2
		Spring 2 bar	C104-R16/1
		Spring 4 bar	C104-R16
		Spring 7 bar	C104-R16/5
		Spring 10 bar	C104-R17
5		Complete standard diaphragm	C1-R27
		Complete diaphragm non-relieving	C1-R28
		Complete diaphragm with controlled leak	C1-R27/S
6		Complete standard poppet valve	C1-R32
7		Complete valve bearing tap	MC1-R3
8		Protection body with holes	MC104-M80

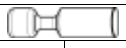
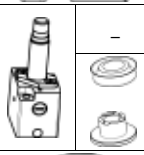


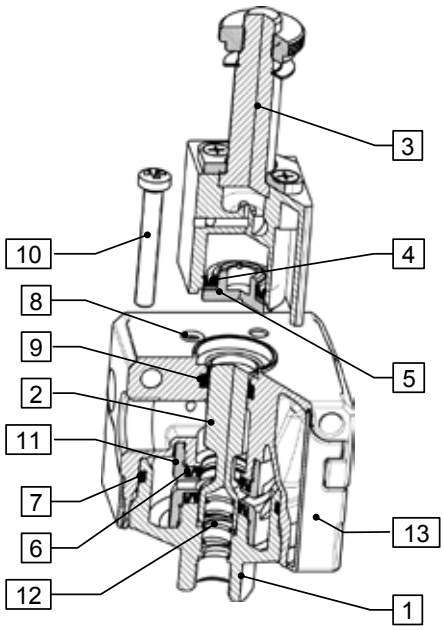
Spare Parts MANUAL LOCK-OUT VALVES Series MC

Pos.	Drawing	Description	MC104	MC238 / MC202
1		Complete valve bearing end-cover	MC1-V3/1 (TF)	MC2-V3/1 (TF)
2		Standard valve spool	MC104-V7/1-SPE01	MC238-V7/1-SPE02
3		Panel nut	MC104-R22	MC104-R22
4		Valve spring	MC104-V6/1	MC238-V6/1
5		Protection body without heloes	MC104-F80	MC238-F80
6		Spool lip-seal 'airzet' seal	454-33/8	452-33/8
7		Standard valve bearing end-cover O-Ring	OR 32X2	C238-F4
8		Polyurethane piston rod seal	20-31/3	50-31/3
9		Grey Knob	MC104-V10	MC104-V10
10		Stainless steel ball bearing detent	SFERA D. 4,74	SFERA D. 4,74
11		Valve nut	MC104-V4	MC238-V4



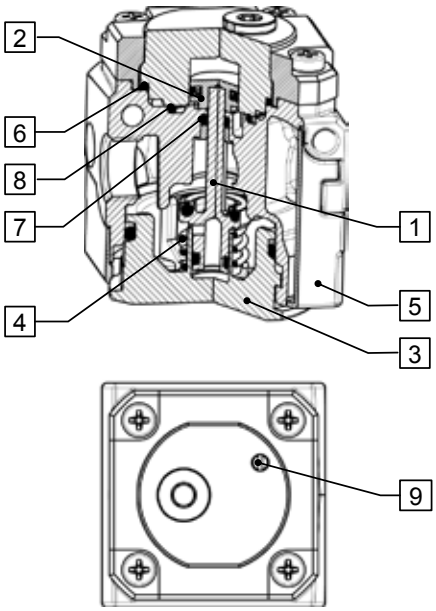
Spare Parts ELECTRONIC SHUT-OFF VALVES Series MC

Pos.	Drawing	Description	MC104	MC238 / MC202
1		Complete valve end-cover	MC1-V3/1 (TF)	MC2-V3/1 (TF)
2		Standard valve spool	MC104-V7	MC238-V7
3		Air-pilot end-cover	308-033/16	454-33/28
		Solenoid end-cover	338-015/4C	454-011/15C
4		DE pilot lip-seal	_	454-33/6
5		Pilot piston	_	454-33/23
6		Spool lip-seal 'airzet' Seal	454-33/8	454-33/8
7		Valve end-cover standard O-Ring	OR 32X2	C238-F4
8		Pilot end-cover seal	308-011/5	_
		Pilot end-cover seal	_	454-33/7
9		Polyurethane piston rod seal	20-31/3	50-31/3
10		Pilot end-cover assembly screw	308-015/22	308-015/22
11		Valve Nut	MC104-V4	MC104-V4
12		Valve spring	MC104-V6	MC104-V6
13		Protection body without holes	MC104-F80	MC238-F80

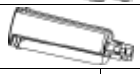


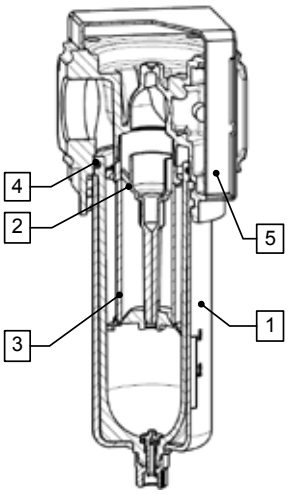
Spare Parts SOFT-START VALVES Series MC

Pos.	Drawing	Description	MC104	MC238 / MC202
1		Complete Poppet Valve	MC1-AV7	MC2-AV7
2		Complete Piston	MC1-AV5	MC2-AV5
3		Complete Valve bearing end-cover	MC1-R3	MC2-R3
4		Poppet Spring	C104-R5	C238-R6
5		Protection body cover without holes	MC104-F80	MC238-F80
6		End cover O-Ring	OR 2112 NBR	OR 41X1,78 NBR
7		Poppet O-Ring	6702 4	OR 6,07X1,8 NBR
8		Soft start valve body O-Ring	OR 2068 NBR	OR 2112 NBR
9		Complete Regulation Screw	MC1-AV3	MC2-AV3



Spare Parts FILTERS and COALESCING FILTERS Series MX

Pos.	Drawing		Description	MX1	MX2	MX3
1			Complete bowl with semiautomatic-manual drain		MX2-F2-P	MX3-F2-P
-			Complete bowl with automatic drain		MX2-F2/1-P	MX3-F2/1-P
-			Automatic drain		C238-FSA2	C238-FSA2
-			Complete bowl with depressuration drain		N/A	N/A
-			Seal for depressuration drain		N/A	N/A
-			Shutter for depressuration drain		N/A	N/A
-			Complete bowl with protected depressuration drain		MX2-F2/3-P	N/A
-			Complete bowl with port 1/8 , without drain		MX2-F2/2-P	MX3-F2/2-P
2		*	Complete filtering element 25µ		C2-F11/3	MX3-F7-P
			Complete filtering element 5µ		C2-F12/3	MX3-F8-P
3		*	Filtering element 25µ		C238-F11/3	MX3-F7
			Filtering element 5µ		C238-F12/3	MX3-F8
-		**	Filtering element 0,01µ		MX2-F10	MX3-F10
			Filtering element 1µ		MX2-F9	MX3-F9
		***	Active carbon filt. Elem.		MX2-F11	MX3-F11
4			Standard bowl O-ring		OR 3193 NBR	OR 3212 NBR
5			Protection body without holes		MX2-F4	MX3-F4

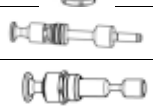


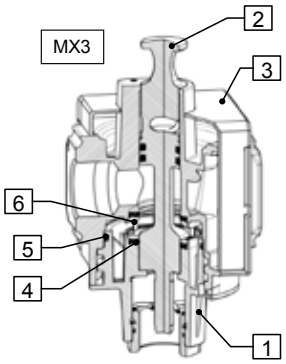
* = for filter only

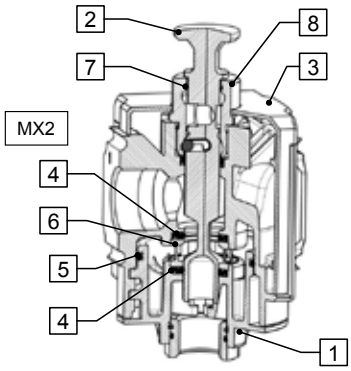
** = for coalescing-filter only

*** = for active carbon-filter only

Spare Parts MANUAL LOCK-OUT VALVES Series MX

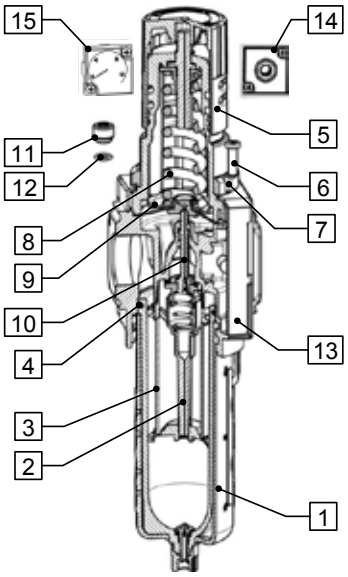
Pos.	Drawing	Description		MX1	MX2	MX3
1		Complete valve bearing end-cover	GAS ISO-228		MX2-V3-P	MX3-V3/2-P
			NPTF		MX2-V3-P-TF	MX3-V3/2-P-TF
2		Complete spool			MX2-V8-P	MX3-V8-P
3		Protection body without holes			MX2-B4	MX3-V4
4		Spool lip seal “Z” profile seal			452-33/8	MX3-V7
5		Standard valve end cover O-Ring			OR 3193 NBR	OR 3212 NBR
6		Valve spacer			MX2-V6	MX3-V6





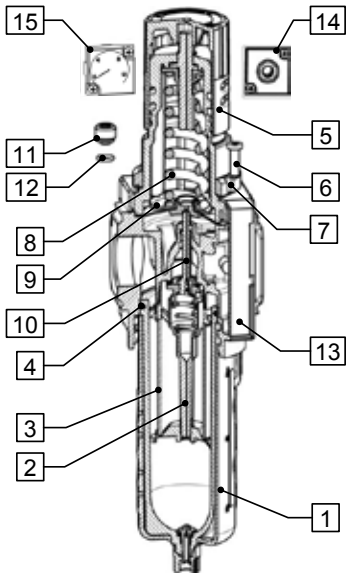
Spare Parts FILTER-REGULATORS Series MX

Pos.	Drawing	Description	MX1	MX2	MX3
1		Complete bowl with semiautomatic-manual drain		MX2-F2-P	MX3-F2-P
-		Complete bowl with automatic drain		MX2-F2/1-P	MX3-F2/1-P
-		Automatic drain		C238-FSA2	C238-FSA2
-		Complete bowl with depressuration drain		NA	NA
-		Seal for depressuration drain		NA	NA
-		Shutter poppet for depressuration drain		NA	NA
-		Complete bowl with filter protected depressuration drain		MX2-F2/3-P	NA
-		Complete bowl with port 1/8 , without drain		MX2-F2/2-P	MX3-F2/2-P
2		Complete filtering element 25µ		C2-F11/3	MX3-F7-P
		Complete filtering element 5µ		C2-F12/3	MX3-F8-P
3		Filtering element 25µ		C238-F11/3	MX3-F7
		Filtering element 5µ		C238-F12/3	MX3-F8
4		Standard bowl O-ring		OR 3193 NBR	OR 3212 NBR
5		Complete bell with regulation screw		MX2-R2-P	MX3-R2-P



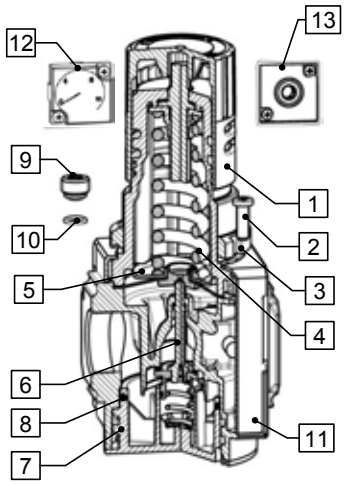
Spare Parts FILTER-REGULATORS Series MX

Pos.	Drawing	Description	MX1	MX2	MX3
6		Bell fixing screw		C238-R28/1	MX3-R28
7		Panel nut		MC238-R27	MX3-R6
8		Spring 1 bar		NA	NA
		Spring 2 bar		NA	NA
		Spring 4 bar		MX2-R16	MX3-R16
		Spring 7 bar		MX2-R16/1	NA
		Spring 10 bar		MX2-R17	MX3-R17
9		Complete standard diaphragm		MX2-R10-P	MX3-R10-P
		Complete diaphragm non-relieving		MX2-R10/1-P	MX3-R10/1-P
		Complete diaphragm with controlled leak		NA	NA
10		Complete standard poppet valve		MX2-R7/1-P	MX3-R7/1-P
11		Rear screw for pressure gauge connection		MC104-R9	MX3-R27
12		O-ring seal		C104-F30/1	558-33/2
13		Protection body with holes		MX2-R4	MX3-R4
14		Complete Block		MX2-R26/1-P	MX3-R26/1-P
		Threaded block without plug		MX2-R26/2-P	MX3-R26/2-P
15		Complete 0-12 pressure gauge		MX3-R30-P	MX3-R30-P
		Complete 0-6 pressure gauge		MX3-R31-P	MX3-R31-P
		Complete 0-10 pressure gauge		MX3-R32-P	NA



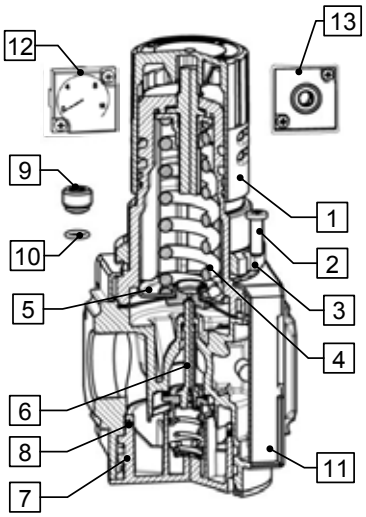
Spare Parts REGULATORS Series MX

Pos.	Drawing	Description	MX1	MX2	MX3
1		Complete bell with regulation screw		MX2-R2-P	MX3-R2-P
2		Bell fixing screw		C238-R28/1	MX3-R28
3		Panel nut		MC238-R27	MX3-R6
4		Spring 2 bar		NA	NA
		Spring 4 bar		MX2-R16	MX3-R16
		Spring 7 bar		MX2-R16/1	NA
		Spring 10 bar		MX2-R17	MX3-R17
5		Complete standard diaphragm		MX2-R10-P	MX3-R10-P
		Complete diaphragm non-relieving		MX2-R10/1-P	MX3-R10/1-P
		Complete diaphragm with controlled leak		NA	NA
6		Complete standard poppet valve		MX2-R7/1-P	MX3-R7/1-P
7		Complete valve bearing tap		MX2-R3-P	MX3-R3-P
8		Standard bowl O-Ring		OR 3193 NBR	OR 3212 NBR
9		Rear screw for pressure gauge connection		MC104-R9	MX3-R27
10		O-ring seal		C104-F30/1	558-33/2
11		Protection body with holes		MX2-R4	MX3-R4



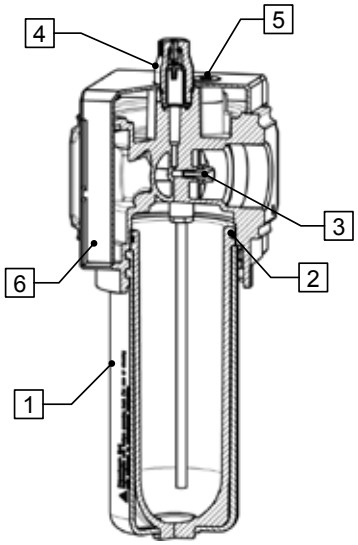
Spare Parts REGULATORS Series MX

12		Complete 0-12 pression gauge		MX3-R30-P	MX3-R30-P
		Complete 0-6 pression gauge		MX3-R31-P	MX3-R31-P
		Complete 0-10 pression gauge		MX3-R32-P	NA
13		Complete threaded block		MX2-R26/1-P	MX3-R26/1-P
		Threaded block		MX2-R26/2-P	MX3-R26/2-P



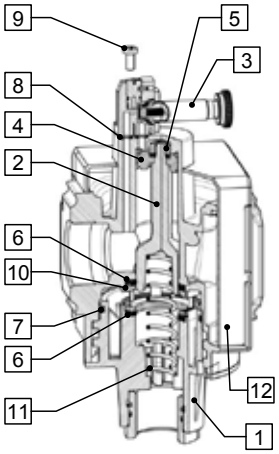
Spare Parts LUBRICATORS Series MX

Pos.	Drawing	Description	MX1	MX2	MX3
1		Complete bowl		MX2-L2-P	MX3-L2-P
2		Standard bowl O-ring		OR 3193 NBR	OR 3212 NBR
3		Complete diaphragm		C202-L6	MX3-L5-P
4		Complete lubricator cap		MC1-L24	MC1-L24
5		Complete oil refilling tap		MC2-L3	MC2-L3
6		Protection body without holes		MX2-L4	MX2-L4



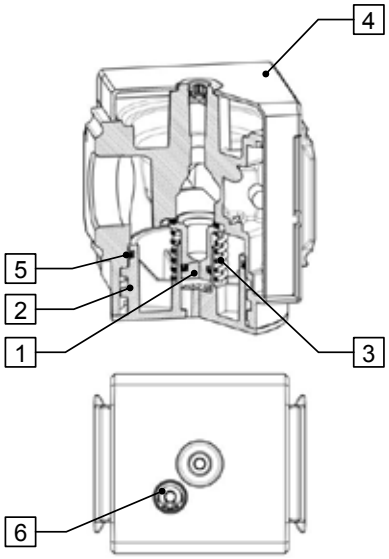
Spare Parts ELECTRONIC SHUT-OFF VALVES Series MX

Pos.	Drawing	Description		MX1	MX2	MX3
1		Complete valve end cover	GAS ISO-228		MX2-V3-P	MX3-V3-P
			NPTF		MX2-V3-P-TF	MX3-V3-P-TF
2		V16 valve spool			MX2-V5	MX3-V5-P
3	MX2  MX3 	Solenoid pilot End cover (Only for electropneumatic)			454-011/15C	A531-BC2-111C
		 Air-Pilot End cover			454-33/28	MX3-V12
4		Piston			454-33/23	25-31/2R
5		Piston DE lip seal			454-33/6	NA
6		Spool lip seal "Z" profile Seal			452-33/8	MX3-V7
7		Valve end cover standard O-Ring			OR 3193NBR	OR 3212 NBR
8	MX2  MX3 	Pilot seal			454-33/7	600-400/5
9		Pilot assembly screw			C104-R28	458-33/9
10		Valve Spacer			MX2-V6	MX3-V6
11		Valve spring			MC238-V6	MX3-V10
12		Protection body without holes			MX2-V4	MX3-V4



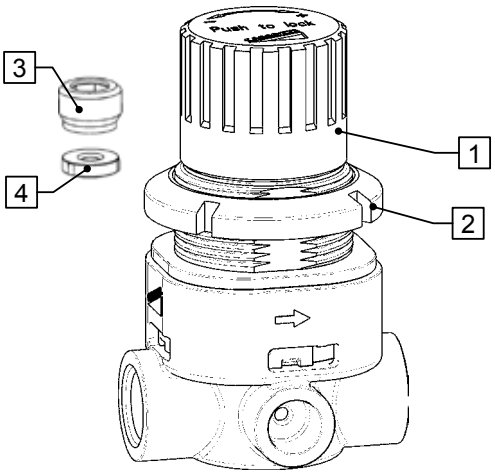
Spare Parts SOFT-START VALVES Series MX

Pos.	Drawing	Description	MX1	MX2	MX3
1	MX2  MX3 	Complete Poppet Valve		MX2-AV2-P	MX3-AV2-P
2		Complete Valve bearing end cover		MX2-AV3-P	MX3-AV3-P
3		Soft start valve spring		MX2-AV5	MX3-AV5
4		Protection body cover without holes		MX2-L4	MX3-L4
5		Soft Start end cover O-Ring		OR 3193 NBR	OR 3212 NBR
6		Complete Regulation Screw		MX2-AV6-P	MX3-AV6-P



Spare Parts REGULATORS Series T

Pos.	Drawing	Description	T108/T104
1		Activating element	MC104-R24
2		Panel nut	MC104-R22
3		Rear screw for pressure gauge connection	MC104-R9
4		Special O-ring seal	C104-F30/1



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Group Profile Brochure
93-4900-0GB006

Pneumatics
Division Brochure
93-1500-0GB010

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93-0512-USA001

North American Fittings
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93-0507-USA001

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93-0513-USA002

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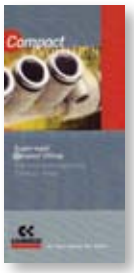

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93-1002-0GB101

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