

PRESSURE FILTER-REGULATORS

SERIES MD

Ports with interchangeable cartridges: threaded (1/8, 1/4, 3/8) or integrated with super-rapid fitting for tube with \varnothing 6, 8 and 10 mm
Modular assembly
Bowl with technopolymer cover and bayonet-type mounting



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

Series MD filter-regulators integrate filter and pressure reducer in one unit, thus reducing their dimensions.
The by-pass valve allows the fast exhaust of the air introduced.
The different springs enable a more accurate adjustment of the pressure.

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

General Data

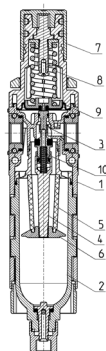
Construction	Modular, compact with filtering element in HDPE
Materials	See TABLE OF MATERIALS on the following page
Ports	With interchangeable cartridges: 1/8, 1/4 and 3/8 threaded or integrated with super-rapid fitting for tube with diameters of 6, 8 and 10 mm
Condensate capacity	24 cm ³
Mounting	In-line; Wall-mounting by means of through holes in the body or with a support bracket; Panel mounting
Operating temperature	-5°C + 50°C up to 16 bar (with the dew point of the fluid lower than 2°C at the min. working temperature)
Condensate drain	Semi-automatic manual, automatic, protected depressurisation, direct G1/8 exhaust
Quality of delivered air according to ISO 8573-1:2010	Class [6:8:4] with 5 μ m filtering element Class [7:8:4] with 25 μ m filtering element
Inlet pressure	0.3 + 16 bar (with automatic drain 1 + 9 bar)
Exit pressure	0.5 + 2bar 0.5 + 4bar 0.5 + 7bar 0.5 + 10bar
Nominal flow	See FLOW DIAGRAMS on the following pages
Fluid	Compressed air

PRESSURE FILTER-REGULATORS
SERIES MD - CODING EXAMPLES
Coding Examples

MD	1	FR	0	0	0	0	1/8
MD	SERIES						
1	DIMENSION 1 = 42 mm						
FR	FILTER-REGULATOR						
0	FILTERING ELEMENT (further details in the dedicated section) AND DESIGN TYPE 0 = 25 µm with relieving 1 = 5 µm with relieving 2 = 25 µm without relieving * 3 = 5 µm without relieving * 4 = 25 µm with relieving and by-pass valve 5 = 5 µm with relieving and by-pass valve 6 = 25 µm without relieving, with by-pass valve * 7 = 5 µm without relieving, with by-pass valve *						
0	DRAINING OF CONDENSATE (further details in the dedicated section) 0 = semiautomatic-manual drain 3 = automatic drain 5 = protected depressurisation 8 = direct G1/8 exhaust						
0	OPERATING PRESSURE (1 bar = 14,5 psi) 0 = 0.5 ÷ 10 bar 2 = 0.5 ÷ 2 bar 4 = 0.5 ÷ 4 bar 7 = 0.5 ÷ 7 bar						
0	PRESSURE GAUGE - PRESSURE SWITCH 0 = without pressure gauge (with G1/8 port) PRESSURE GAUGE Ø 43 1 = M043-P02,5 2 = M043-P04 3 = M043-P06 4 = M043-P10 5 = M043-P12 COMPACT PRESSURE GAUGE 6 = MD1-R34/W-P FS 4 bar 7 = MD1-R31/W-P FS 6 bar 8 = MD1-R32/W-P FS 10 bar 9 = MD1-R30/W-P FS 12 bar DIGITAL DISPLAY B = PG010-PB-1/8 C = PG010-PB-1/8-2 D = PG010-PB-1/8-M PRESSURE GAUGE/DIGITAL PRESSURE SWITCH E = SWCN-P10-P3-2 F = SWCN-P10-P4-2 G = SWCN-P10-P4-M						
1/8	PORTS (IN - OUT) ** = without cartridges 1/8 = G1/8 1/4 = G1/4 3/8 = G3/8 6 = tube Ø6 8 = tube Ø8 10 = tube Ø10						

AIR TREATMENT

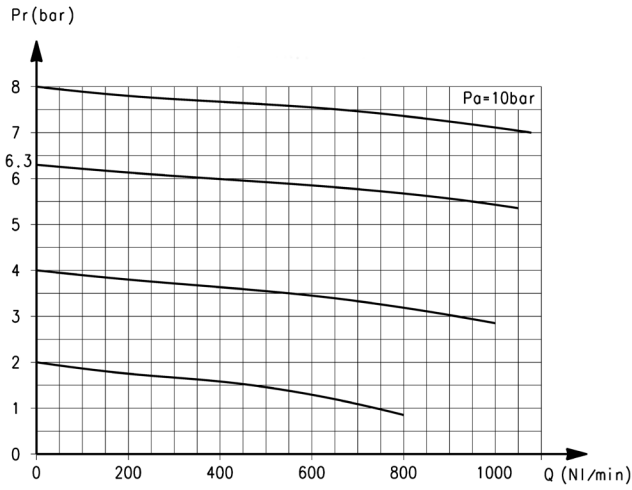
9

Series MD filter-regulators - materials


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

Flow diagram

MD1-FR....-1/8

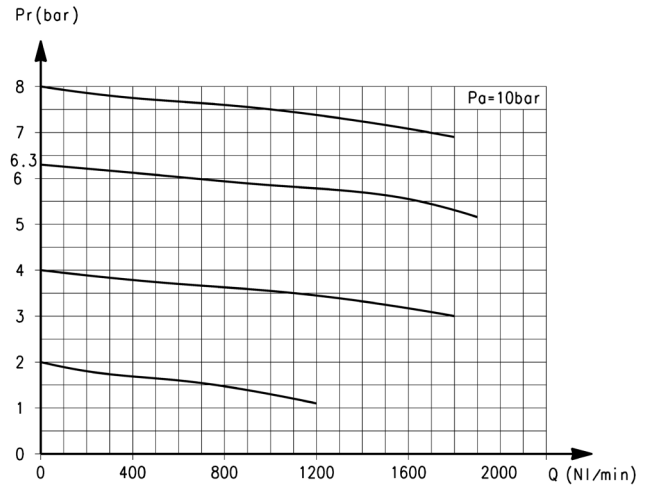


Ports with interchangeable G1/8 threaded cartridges

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

Pa = Inlet pressure (bar)

MD1-FR....-1/4

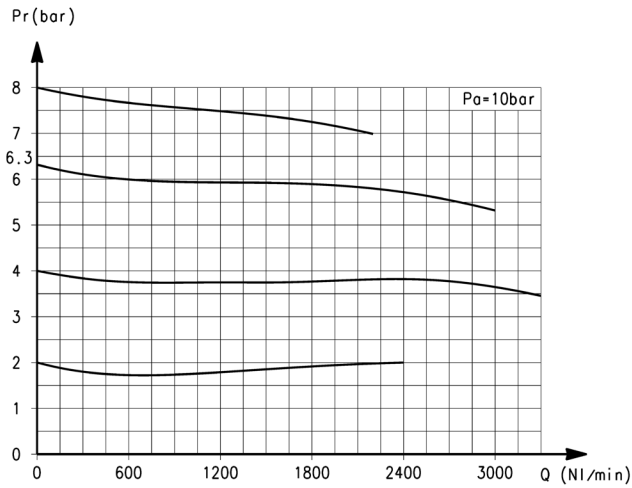


Ports with interchangeable G1/4 threaded cartridges

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

Pa = Inlet pressure (bar)

MD1-FR....-3/8



Ports with interchangeable G3/8 threaded cartridges

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

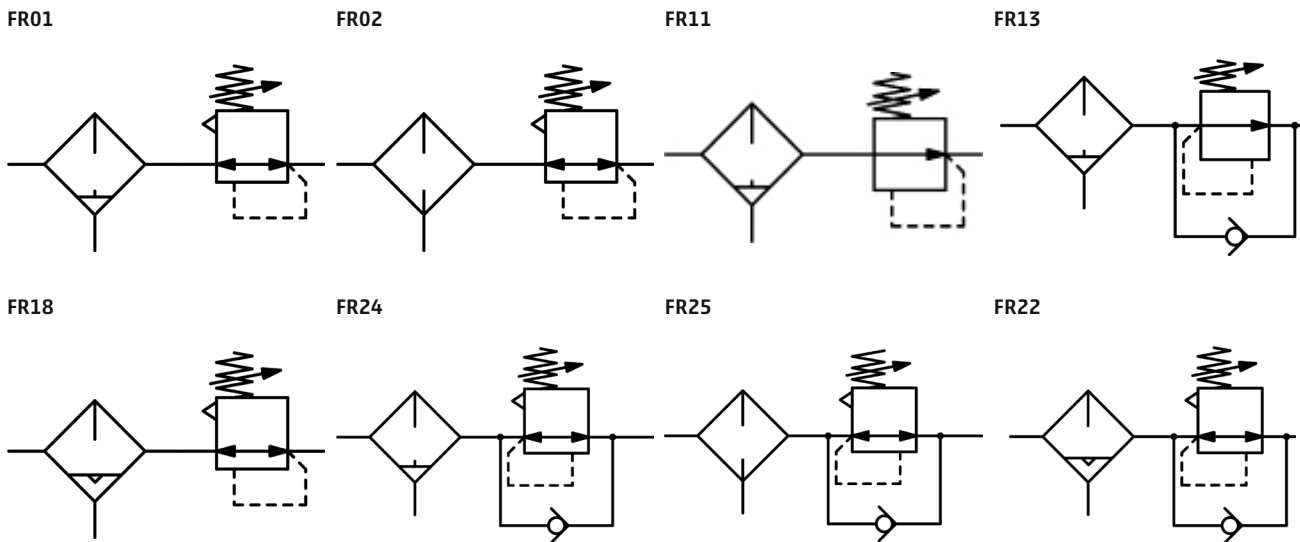
Pa = Inlet pressure (bar)

N.B: The version with automatic exhaust has a flow reduction of max 10%

PRESSURE FILTER-REGULATORS
SERIES MD - PNEUMATIC SYMBOLS

Pneumatic symbols

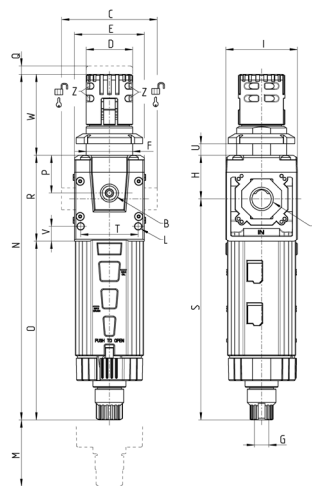
- FR01 = filter-regulator with relieving and semi-automatic manual drain
- FR02 = filter-regulator with relieving and direct G1/8 exhaust
- FR11 = filter-regulator without relieving, with semi-automatic manual drain
- FR13 = filter-regulator without relieving, with by-pass valve and semi-automatic manual drain
- FR18 = filter-regulator with relieving and automatic/depressuring drain
- FR24 = filter-regulator with relieving, by-pass valve and semi-automatic manual drain
- FR25 = filter-regulator with relieving, by-pass valve and direct G1/8 exhaust
- FR22 = filter-regulator with relieving, by-pass valve and automatic/depressuring drain



AIR TREATMENT

9

Series MD filter-regulators - dimensions



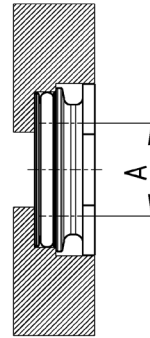
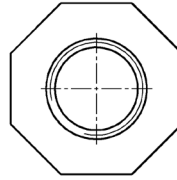
Mod.	A	B	C	D	E	F	G	H	I	L	M	N	P	Q	R	S	T	U	V	W	Peso (Kg)	Z	Weight [kg]
MD1-FR0000	-	G1/8	42	Ø28	42	M30X1,5	G1/8	26.2	43	Ø4	110	208.2	22.7	4	51.7	133.2	34.6	0 ± 11	9	48.8	0.2	Ø3.2	0.2
MD1-FR0000-1/8	G1/8	G1/8	42	Ø28	42	M30X1,5	G1/8	26.2	43	Ø4	110	208.2	22.7	4	51.7	133.2	34.6	0 ± 11	9	48.8	0.2	Ø3.2	0.2
MD1-FR0000-1/4	G1/4	G1/8	42	Ø28	42	M30X1,5	G1/8	26.2	43	Ø4	110	208.2	22.7	4	51.7	133.2	34.6	0 ± 11	9	48.8	0.2	Ø3.2	0.2
MD1-FR0000-3/8	G3/8	G1/8	42	Ø28	42	M30X1,5	G1/8	26.2	43	Ø4	110	208.2	22.7	4	51.7	133.2	34.6	0 ± 11	9	48.8	0.2	Ø3.2	0.2
MD1-FR0000-6	Ø6	G1/8	47	Ø28	42	M30X1,5	G1/8	26.2	43	Ø4	110	208.2	22.7	4	51.7	133.2	34.6	0 ± 11	9	48.8	0.2	Ø3.2	0.2
MD1-FR0000-8	Ø8	G1/8	62	Ø28	42	M30X1,5	G1/8	26.2	43	Ø4	110	208.2	22.7	4	51.7	133.2	34.6	0 ± 11	9	48.8	0.2	Ø3.2	0.2
MD1-FR0000-10	Ø10	G1/8	67	Ø28	42	M30X1,5	G1/8	26.2	43	Ø4	110	208.2	22.7	4	51.7	133.2	34.6	0 ± 11	9	48.8	0.2	Ø3.2	0.2
MD1-FR0000	-	G1/8	42	Ø28	42	M30X1,5	M10x1	26.2	43	Ø4	110	197.6	22.7	4	51.7	122.9	34.6	0 ± 11	9	48.8	0.2	Ø3.2	0.2

Threaded cartridges



Supplied with:

2x nickel-plated threaded cartridges
 4x special white zinc-plated screws Ø4,5 TC/RC



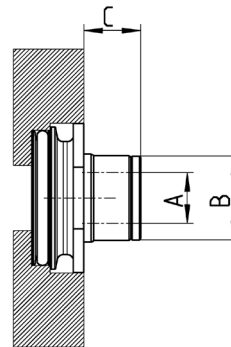
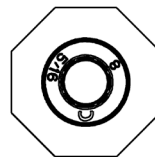
Mod.	A
MD1-A-1/8	G1/8
MD1-A-1/4	G1/4
MD1-A-3/8	G3/8
MD1-A-1/8TF	1/8 NPTF
MD1-A-1/4TF	1/4 NPTF
MD1-A-3/8TF	3/8 NPTF

Integrated cartridges with super-rapid fitting



Supplied with:

2x integrated nickel-plated cartridges with super-rapid fitting
 4x special white zinc-plated screws Ø4,5 TC/RC

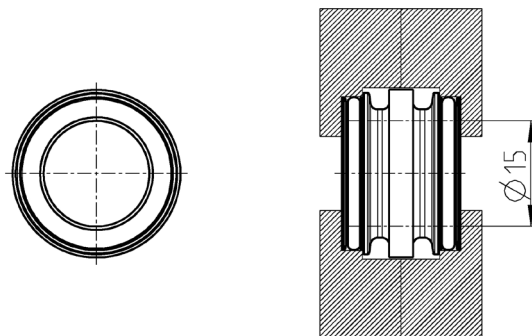


Mod.	A	B	C
MD1-A-6	Ø6	12,7	8,5
MD1-A-8	Ø8	14,2	10
MD1-A-10	Ø10	16,5	12,5
MD1-A04TF	Ø1/4"	12,7	8,5
MD1-A-05TF	Ø5/16"	14,2	10
MD1-A-06TF	Ø3/8"	16,5	12,5

Intermediate joining cartridge



Supplied with:
 1x intermediate joining cartridge
 4x special white zinc-plated screws $\varnothing 4,5$ TC/RC

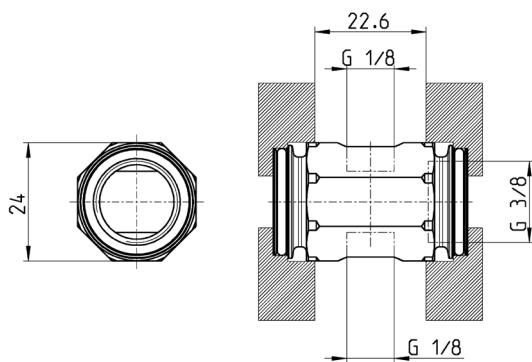


Mod.
MD1-C

Screws for wall mounting



Supplied with:
 2x white zinc-plated screws M4x50

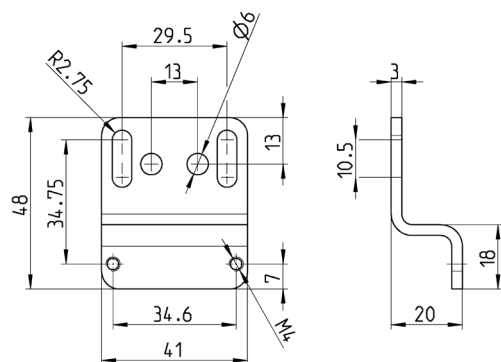


Mod.
MD1-D

Rear bracket



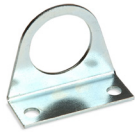
Supplied with:
 1x zinc-plated bracket
 2x white zinc-plated screws M4x50



Mod.
MD1-ST/1

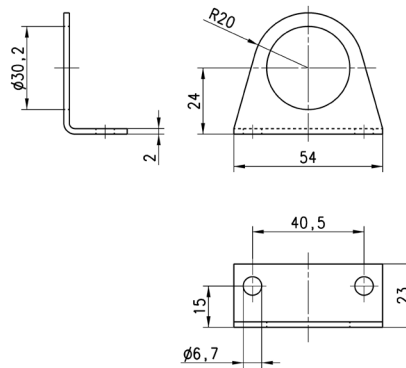
Mounting bracket Mod. C114-ST

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



Material:
zinc-plated steel

Supplied with:
1x bracket



Mod.

C114-ST

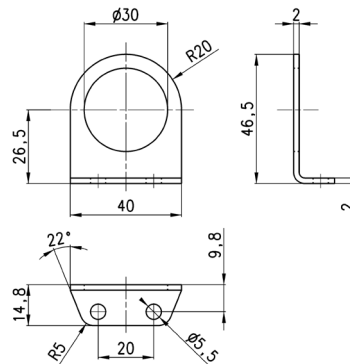
Mounting bracket Mod. C114-ST/1

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



Material:
zinc-plated steel

Supplied with:
1x bracket



Mod.

C114-ST/1

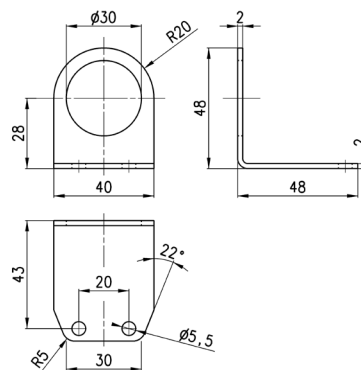
Mounting bracket Mod. C114-ST/2

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



Material:
zinc-plated steel

Supplied with:
1x bracket



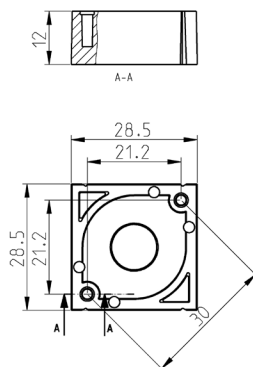
Mod.

C114-ST/2

PRESSURE FILTER-REGULATORS
SERIES MD - ACCESSORIES
Built in for series MD and MC

Precision class CL4,0

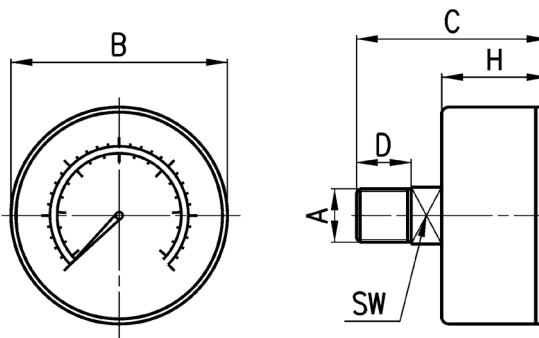
Supplied with:
 1 pressure gauge
 2 seat
 2 self-tapping screws (da 0,3 a 0,4 Nm)
 1 base in polymer
 1 fixing fitting G1/8 (from 0,5 to 1,5 Nm with a 3 mm hex key)



Mod.	Range
MD1-R34/W-P	0 ÷ 4 bar
MD1-R31/W-P	0 ÷ 6 bar
MD1-R32/W-P	0 ÷ 10 bar
MD1-R30/W-P	0 ÷ 12 bar

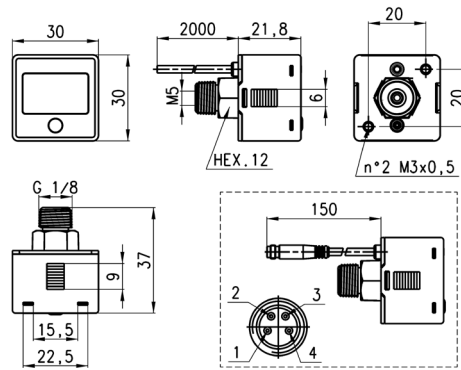
Pressure gauges with rear connection


Precision class CL2,5
 * Not compatible with oxygen.



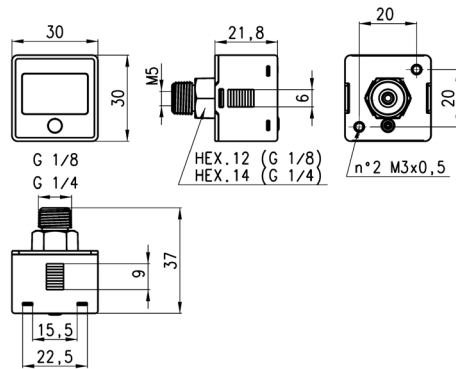
Mod.	A	B	C	D	H	SW	Range
M043-P02,5	R1/8	∅ 38,8	41	10	25	14	0 ÷ 2,5 bar
M043-P04	R1/8	∅ 38,8	41	10	25	14	0 ÷ 4 bar
M043-P06	R1/8	∅ 38,8	41	10	25	14	0 ÷ 6 bar
M043-P10	R1/8	∅ 38,8	41	10	25	14	0 ÷ 10 bar
M043-P12	R1/8	∅ 38,8	41	10	25	14	0 ÷ 12 bar

Digital pressure gauges - with cable



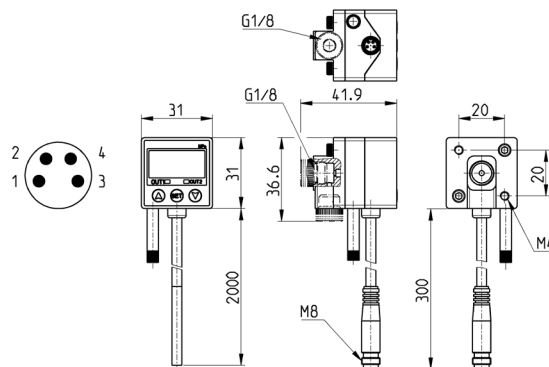
Mod.
PG010-PB-1/8-2
PG010-PB-1/8-M

Digital pressure gauges - battery-powered



Mod.
PG010-PB-1/8

Vacuum/Pressure switch



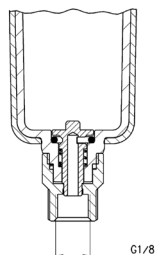
Mod.
SWCN-P10-P3-2
SWCN-P10-P4-2
SWCN-P10-P4-M

Semi-automatic manual drain Type 0



Functioning: with the operator mechanism turned clockwise, each time the pressure falls below 0,3 bar, the draining of condensate will be released; when resetting the pressure, the drain will close again.

The release can also be carried out manually; when the bowl is pressurised, the operator mechanism is pushed upwards.

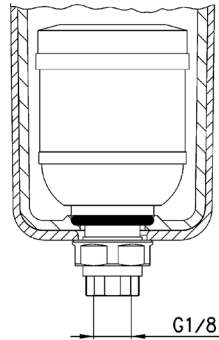


Mod. filter	Bowl with semiautomatic manual drain
N10...-F	N1-F71
N10...-D	N1-F71
N10...-FB	N1-F71
N20...-F	N2-F71
N20...-D	N2-F71
N20...-FB	N2-F71
MC104-F	MC1-F71
MC104-D	MC1-F71
MC104-FB	MC1-F71
MC202-F	MC2-F71
MC202-D	MC2-F71
MC202-FB	MC2-F71
MC238-F	MC2-F71
MC238-D	MC2-F71
MC238-FB	MC2-F71
MX2...-F	MX2-F2-P
MX2...FR	MX2-F2-P
MX2...-FC	MX2-F2-P
MX3...-F	MX3-F2-P
MX3...-FR	MX3-F2-P
MX3...-FC	MX3-F2-P
MD1-F0..	MD1-FSP01
MD1-F1..	MD1-FSP04
MD1-FR0..	MD1-FSP01
MD1-FR1..	MD1-FSP04
MD1-FC0..	MD1-FCSP01
MD1-FC1..	MD1-FCSP04

Automatic drain (Type 3)



Functioning: the presence of liquid inside the bowl raises the float, thus opening the exhaust valve.



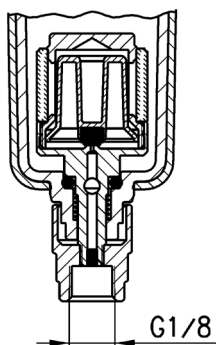
Mod. filter	Bowl with automatic drain
MC202-F	MC2-F71/3
MC202-D	MC2-F71/3
MC202-FB	MC2-F71/3
MC238-F	MC2-F71/3
MC238-D	MC2-F71/3
MC238-FB	MC2-F71/3
MX2...-F	MX2-F2/1-P
MX2...FR	MX2-F2/1-P
MX2...FC	MX2-F2/1-P
MX3...-F	MX3-F2/1-P
MX3...FR	MX3-F2/1-P
MX3...FC	MX3-F2/1-P
MD1-F0..	MD1-FSP08
MD1-F1..	MD1-FSP07
MD1-FR0..	MD1-FSP08
MD1-FR1..	MD1-FSP07

Depressurisation drain, protected (Type 5)



Solution similar to the Type 4 but requiring a $\Delta P = 1$ bar.

Functioning: this version has a filtering element which prevents any impurities from clogging the exhaust hole.

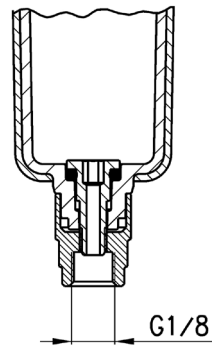


Mod. filter	Bowl with depressurization drain, protected
N20...-F	N2-F71/1
N20...-D	N2-F71/1
N20...-FB	N2-F71/1
MC104-F	MC1-F71/1
MC104-D	MC1-F71/1
MC104-FB	MC1-F71/1
MC202-F	MC2-F71/1
MC202-D	MC2-F71/1
MC202-FB	MC2-F71/1
MC238-F	MC2-F71/1
MC238-D	MC2-F71/1
MC238-FB	MC2-F71/1
MX2...-F	MX2-F2/3-P
MX2...FR	MX2-F2/3-P
MX2...FC	MX2-F2/3-P
MX3...-F	MX3-F2/3-P
MX3...-FR	MX3-F2/3-P
MX3...-FC	MX3-F2/3-P
MD1-F0..	MD1-FSP03
MD1-F1..	MD1-FSP06
MD1-FR0..	MD1-FSP03
MD1-FR1..	MD1-FSP06
MD1-FC0..	MD1-FCSP03
MD1-FC1..	MD1-FCSP06

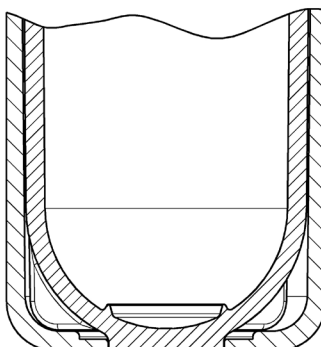
Bowl without drain (Type 8)



The solution with port G1/8 is used to assemble the items to the bowl which is realized with a through hole of $\varnothing 3$ mm and a threaded port G1/8.



Mod. filter	Bowl without drain (1/8 port)
N10...-F	N1-F71-1/8
N10...-D	N1-F71-1/8
N10...-FB	N1-F71-1/8
N20...-F	N2-F71-1/8
N20...-D	N2-F71-1/8
N20...-FB	N2-F71-1/8
MC104-F	MC1-F71-1/8
MC104-D	MC1-F71-1/8
MC104-FB	MC1-F71-1/8
MC202-F	MC2-F71-1/8
MC202-D	MC2-F71-1/8
MC202-FB	MC2-F71-1/8
MC238-F	MC2-F71-1/8
MC238-D	MC2-F71-1/8
MC238-FB	MC2-F71-1/8
MX2...-F	MX2-F2/2-P
MX2...-FR	MX2-F2/2-P
MX2...-FC	MX2-F2/2-P
MX3...-F	MX3-F2/2-P
MX3...-FR	MX3-F2/2-P
MX3...-FC	MX3-F2/2-P
MD1-F0..	MD1-FSP02
MD1-F1..	MD1-FSP05
MD1-FR0..	MD1-FSP02
MD1-FR1..	MD1-FSP05
MD1-FC0..	MD1-FCSP02
MD1-FC1..	MD1-FCSP05

PRESSURE FILTER-REGULATORS
SERIES MD - ACCESSORIES
Closed bowl


Mod. filter	Closed bowl
N20...-FCA	N2-L71
MC104-FCA	MC1-L71
MC202-FCA	MC2-L71
MC238-FCA	MC2-L71
MX2...-FCA	MX2-L2-P
MX3...-FCA	MX3-L2-P
MD1-FCA..	MD1-FCASP01

AIR TREATMENT

9

Surface filters


Mod. filter	Filtering element 25 μ
N10...-F	C104-F20/3
N10...-D	C104-F20/3
N20...-F	C104-F20/3
N20...-D	C104-F20/3
MC104-F	C104-F20/3
MC104-D	C104-F20/3
MC202-F	C238-F11/3
MC202-D	C238-F11/3
MC238-F	C238-F11/3
MC238-D	C238-F11/3
MX2...-F	C238-F11/3
MX2...FR	C238-F11/3
MX3...-F	MX3-F7
MX3...-FR	MX3-F7
MD1-F0..*	C104-F20/3
MD1-FR0..*	C104-F20/3

Surface filters



Mod. filter	Filtering element 5 μ
N10...-F	C104-F21/3
N10...-D	C104-F21/3
N20...-F	C104-F21/3
N20...-D	C104-F21/3
MC104-F	C104-F21/3
MC104-D	C104-F21/3
MC202-F	C238-F12/3
MC202-D	C238-F12/3
MC238-F	C238-F12/3
MC238-D	C238-F12/3
MX2...-F	C238-F12/3
MX2...FR	C238-F12/3
MX3...-F	MX3-F8
MX3...-FR	MX3-F8
MD1-F1..*	C104-F21/3
MD1-FR1..*	C104-F21/3