

FDM-D1 series

Modular in-line high pressure filters



Technical Information

Housing

Pressure: Max working 315 bar (4600 psi) (acc. to NFPA T 3.10.5.1)
Burst 945 bar (13700 psi) (acc. to NFPA T 3.10.5.1)

Connection: CETOP 03 - CETOP 05

Materials: Head: steel
Bowl: steel
Seal: Buna-N (FKM on request)

By-pass: No by-pass

Element

Filter Media: Microglass fiber 4,5 - 7 - 12 - 27 $\mu\text{m}_{(C)}$ (acc. to ISO 16889)

Differential collapse pressure:
210 bar (3000 psi) (acc. to ISO 2941)

Filtrec elements are tested also according to ISO 2942 and ISO 23181

Common

Working temperature: -25°C +120°C (-13°F +248°F)

Fluid compatibility (acc. to ISO 2943):
Full with HH-HL-HM-HV (acc. to ISO 6743/4).
For use with other fluid applications please contact Filtrec Customer Service (info@filtrec.it).

Ordering information

MEDIA	
000	no element
G03	microglass fiber $\beta_{4,5 \mu\text{m (c)}} \geq 1000$
G06	microglass fiber $\beta_{7 \mu\text{m (c)}} \geq 1000$
G10	microglass fiber $\beta_{12 \mu\text{m (c)}} \geq 1000$
G25	microglass fiber $\beta_{27 \mu\text{m (c)}} \geq 1000$

	NOMINAL SIZE	MEDIA	ELEMENT COLLAPSE	SEALS	BOWL POSITION	INDICATOR
Filter assembly FDM-D1	08	G10	B	V	D	Z12
Filter element D1	08	G10	B	V		

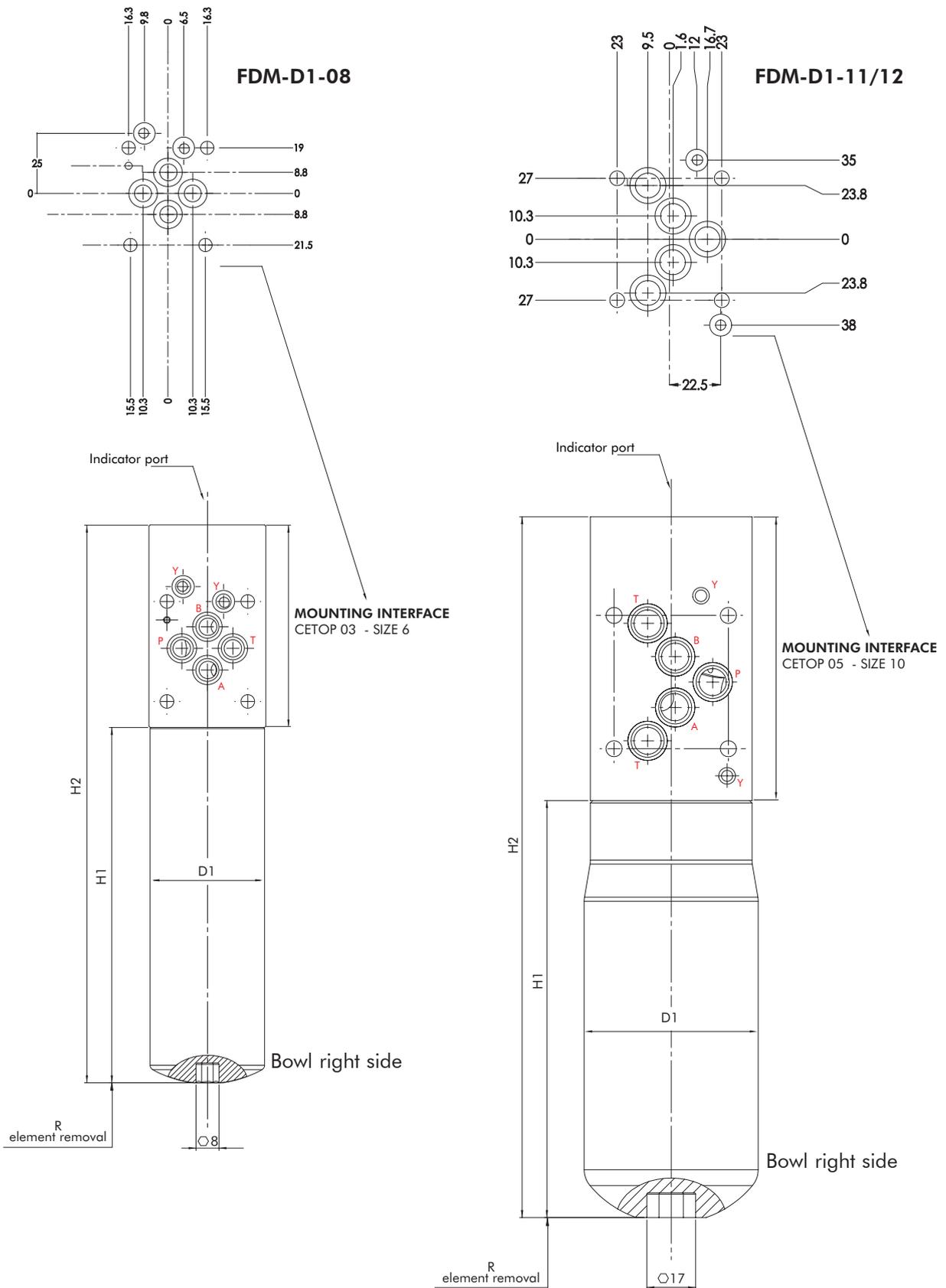
ELEMENT COLLAPSE	
B	210 bar / 3000 psi

SEALS	
B	NBR
V	FKM

BOWL POSITION	
D	bowl on right side (standard)
S	bowl on left side (optional)

INDICATOR	
000	no indicator
Z12	differential visual 5 bar/ 70 psi
Z13	differential electrical visual 5 bar/ 70 psi
Z17	differential visual 8 bar/ 120 psi
Z18	differential electrical visual 8 bar/ 120 psi

Overall dimensions



Nominal size

CODE	D1	H1	H2	R	WEIGHT
FDM-D1-08	$\varnothing 46$	144	226	60	2,5 Kg
FDM-D1-11	$\varnothing 70$	169	284	80	4 Kg
FDM-D1-12		265	380		5,4 Kg

Pressure drop diagrams

The total Pressure Drop (Δp) value is obtained by adding the Δp values of filter housing and filter element at the given flow rate. This ideally should not exceed 1,5 bar (22 psi).

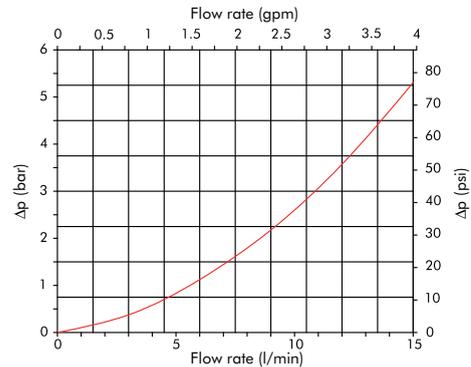
PRESSURE DROP THROUGH THE FILTER HOUSING

The Pressure Drop through the filter housing is governed by the port, not the bowl length and the oil viscosity.

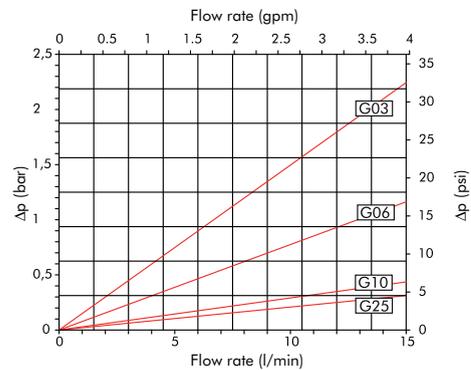
PRESSURE DROP THROUGH THE CLEAN FILTER ELEMENT

The Pressure Drop through the filter element is related both to the internal diameter of the filter element and to the filter media; this value is affected by the oil viscosity in a roughly proportional way: e.g. when the Δp value from the curve is 0,2 bar and a 46 cSt oil is used, the corresponding value is 0,31 ($=0,2 \times 46/30$) bar.

Housing FDM-D1-08



Element D1-08...-B



Pressure drop diagrams

The total Pressure Drop (Δp) value is obtained by adding the Δp values of filter housing and filter element at the given flow rate. This ideally should not exceed 1,5 bar (22 psi).

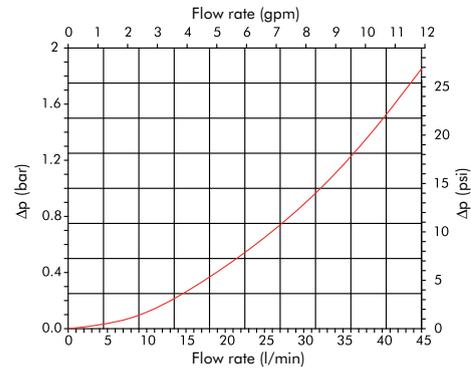
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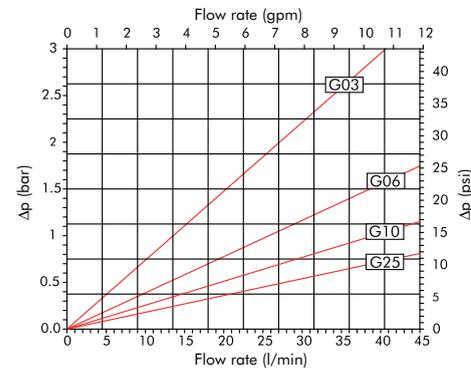
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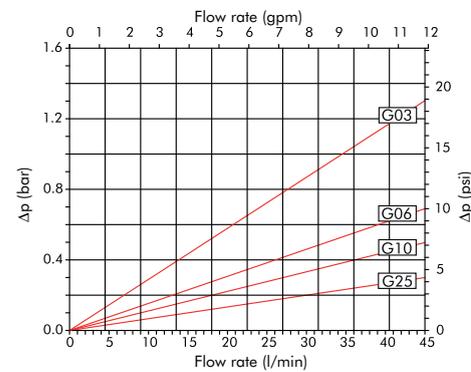
Housing FDM-D1-11/12



Element D1-11...-B



Element D1-12...-B



The above diagrams have been obtained at the FILTREC laboratory, according to the ISO 3968 specification, with mineral oil having 30 cSt viscosity and 0,86 Kg/dm³ density.

In case of discrepancy, please check contamination level, viscosity and features of the oil in use and the sampling points of the differential pressure.

Clogging indicator

The Pressure Drop (Δp) through the filter increases during the system operation due to the contaminant retained by the filter element.

The filter element must be replaced when the indicator shows an alarm.

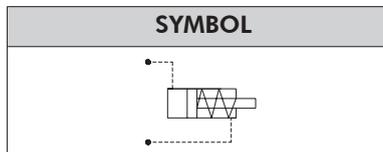
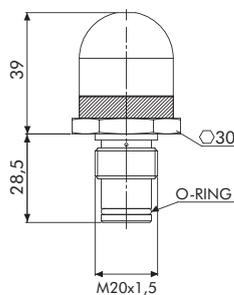
N.B. in cold start conditions a false alarm can be caused by higher oil viscosity due to low temperature; the indicator alarm must be considered at normal working temperature only.

The differential clogging indicator registers the pressure upstream and downstream the filter element and activates a signal when the differential pressure reaches the set value:

- in the VISUAL indicator the signal is given by a green sector switching into red.
- in the ELECTRIC VISUAL indicator, further to the green to red visual indication, an electrical switch is activated.



DIFFERENTIAL VISUAL



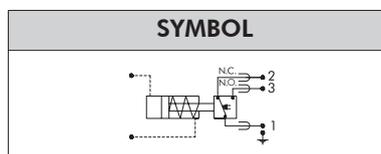
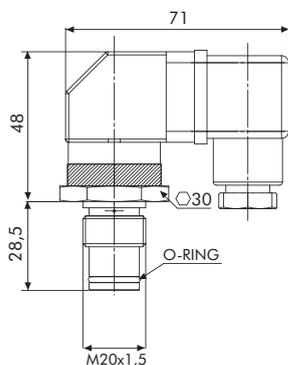
CODE	SETTING
Z12	5 bar (70 psi)
Z17	8 bar (120 psi)

Visual indicator:

- GREEN: clean element
- RED: dirty element



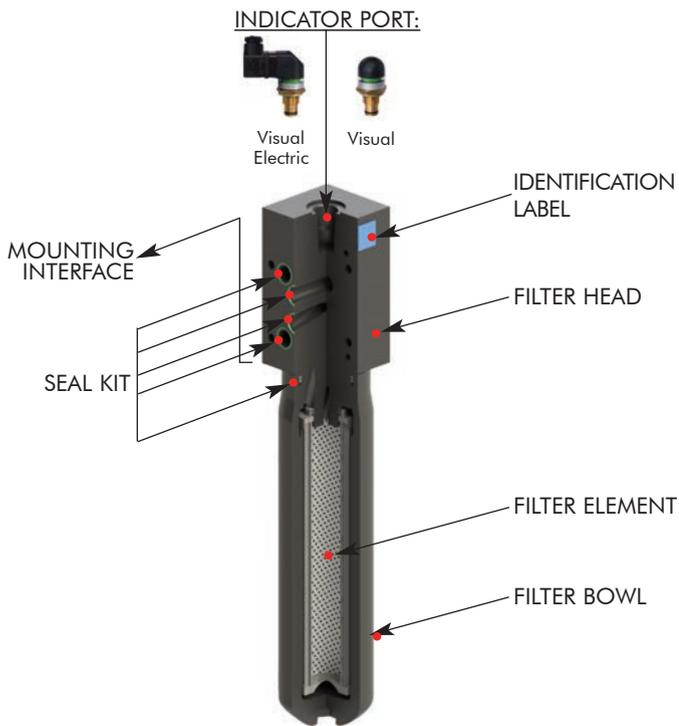
DIFFERENTIAL ELECTRIC VISUAL



CODE	SETTING
Z13	5 bar (70 psi)
Z18	8 bar (120 psi)

- Visual indicator:
 - GREEN: clean element
 - RED: dirty element
- Electric plug connection as per DIN 43650
- Protection: IP65 acc. to DIN 40050
- Max current: 5A resistive 1A inductive
- Max voltage: 250V AC - 30V DC

User Tips



SPARE SEAL KIT PART NUMBER		
	NBR	FKM
FDM-D1-08	06.021.00154	06.021.00124
FDM-D1-11/12	06.021.00155	06.021.00125

BOWL TIGHTENING TORQUE	
FDM-D1-08	50 Nm
FDM-D1-11/12	60 Nm

INDICATOR TIGHTENING TORQUE	
Z12/Z13/Z17/Z18	90 Nm

Installation

Make sure that the filter head is properly mounted, facing correctly the corresponding components' interfaces.

The filter head must be properly secured between valve and block, through the dedicated fixing holes. Make sure that enough space is available for element replacement and that the clogging indicator is in a easily viewable position. If an electrical indicator is used, make sure that it is properly wired.

Never run the system without a filter element fitted. We recommend the stocking of a spare FILTREC filter element for timely replacement when required.

Operation

Make sure that the filter works within the conditions of pressure, temperature and fluid compatibility given in the first page of this data sheet.

The filter element must be replaced as soon as the clogging indicator signals at working temperature (in cold start conditions, oil temperature lower than 30°C, a false alarm can be given due to oil viscosity).

If no clogging indicator is mounted, make sure that the filter element is replaced according to the system manufacturer's recommendations.

Maintenance

Before opening the filter housing, ensure that the system is switched off and there is no residual pressure in the filter.

Unscrew the bowl by turning it anticlockwise.

Remove the dirty filter element pulling it carefully; replace it with a FILTREC element, verifying the part number, particularly concerning the micron rating. When fitting the new element, open the plastic protection on the top and insert the element over the spigot in the filter head, then remove completely the plastic protection.

Clean carefully the bowl; check the gaskets conditions and replace if necessary; when replacing the bowl's gaskets ensure that the back-up ring is located below the O-ring and it is in the right verso (concave side up), lubricate the threads and screw by hand the bowl in the filter head by turning it clockwise. Tighten at the recommended torque.

N.B. The used filter elements cannot be cleaned and re-used.

PED Compliance

FDM-D1 filters conform to PED 97/23/CE norm, article 3 section 3, and so they can be used with fluids of group 2 (liquids with steam pressure < 0,5 bar at the maximum allowable temperature, article 3, section 1.1(b) – sub-section II).

WARNING

Make sure that Personal Protective Equipment (PPE) is worn during installation and maintenance operation.

Disposal of filter elements

The used filter elements and the filter parts dirty of oil are classified as "Dangerous waste material": they must be disposed according to the local laws by authorized Companies.



FDM-D1 series

www.filtrec.com

