

MEDENUS

Gas Pressure Regulation



Gas filter DF 50



Product information

EN

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NOTICE

Observe the following publications in relation to installation, start-up and maintenance:
DVGW - work sheets G 491 and G 600
Operating and Maintenance Instructions DF50

List of abbreviations and formula symbols

PS	Maximum allowable pressure	$\rho_{n, Gas}$	Standard gas density	Q_n	Standard volumetric flow rate
p_u	Inlet pressure	t	Temperature	Q_b	Operating volumetric flow rate
Δp	Pressure loss	$p_{\bar{u}}$	Overpressure in bar		
w_u	Gas inlet velocity	p_{amb}	Ambient pressure		

Application, Characteristics, Technical Data

Application

Filters of type DF 50 are intended to remove gas impurities, such as dust, rust and other solids, from gas lines at a defined position. They are mainly used in gas installations and before such devices whose function is impaired by contamination.

Can be used as an equipment component on gas consumption facilities as defined in EC Directive (2009/142/EC)

These filters can be used for the gases defined in DVGW - work sheet G 260 / G 262 and neutral non-aggressive gases. (other gases on request)

Characteristics

- easily replaceable filter cartridge
- high filtration efficiency thanks to the optimised flow control (30µm standard, 5µm optional)

Type of models / Options (see page 8)

- coating with epoxy resin in black colour
- Biogas and coke oven gas version
- Flange set for screw-in threads Rp1", Rp1½" , Rp2"

Technical data

Type	DF 50		
Max. allowable pressure PS	2 bar	DN 200 / 250 / 300	
	6 bar	Rp 1/2" / 3/4" / 1" / 1 1/2" / 2" DN 25* / 40* / 50* / 65 / 80 / 100 / 125 / 150	
Nominal width	Rp 1/2" / 3/4" / 1" / 1 1/2" / 2" DN 25* / 40* / 50* / 65 / 80 / 100 / 125 / 150 / 200 / 250 / 300		
Connection type	Gas thread ISO 7-1 from Rp1/2 to Rp2 or ANSI-ASME B1.20 from 1/2"NPT to 2"NPT Flange PN16 – ISO 7005 from DN65 to DN300		
Material	Housing	- Die-cast aluminum (up to DN100) - Aluminum sand casting (from DN125)	
	Filter frame	- Non-woven polypropylene fibres with metal supporting	
	Seals	- NBR	
Temperature range (operating/ambient temperature)	-40°C / +80°C (-40°F to +176°F)		
Filtering area	DN 65 - 0.0535 m ²	DN 150 - 0.154 m ²	DN 300 - 0.420 m ²
	DN 80 - 0.0535 m ²	DN 200 - 0.276 m ²	
	DN 100 - 0.0860 m ²	DN 250 - 0.310 m ²	
	Rp 1/2" - 0.0055 m ²	Rp 3/4" - 0.0055 m ²	Rp 1" - 0.0145 m ²
	Rp 2" - 0.0330 m ²		
Filtration efficiency	Particle size > 30µm (5µm optional), filter class G4 to EN 779		
Function, Strength and Tightness	DIN 3386, DVGW work sheet G 498 and DIN 30690-1		
CE mark acc. to PED / PIN number	PED/0497/2875/14		
Ex protection	The mechanical parts of the device do not have any potential ignition sources of their own and therefore do not fall within the scope of ATEX 95 (94/9/EC). Electrical components fitted to the device comply with the ATEX requirements.		

*) For screw-in filters with flange set



Application, Characteristics, Technical Data

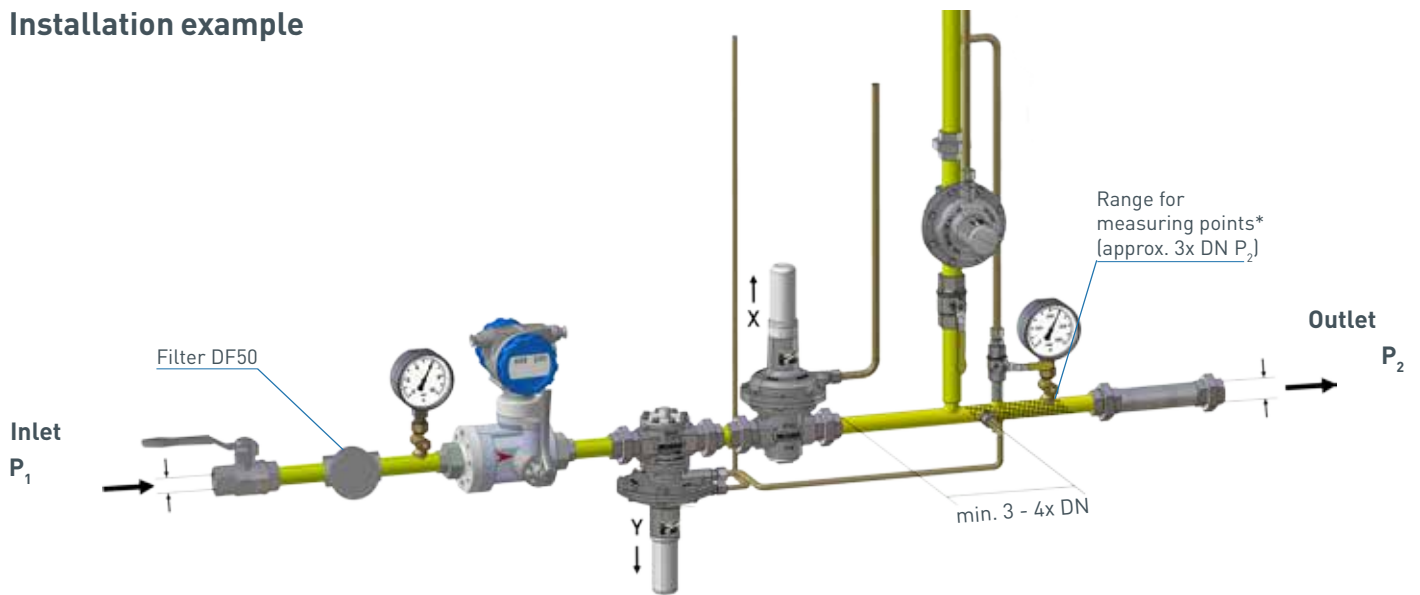
Structure and function

The gas flows through the inlet flange into the filter housing. The dust particles entrained in the gas are retained by the filter element. The cleaned gas flows off through the outlet flange.

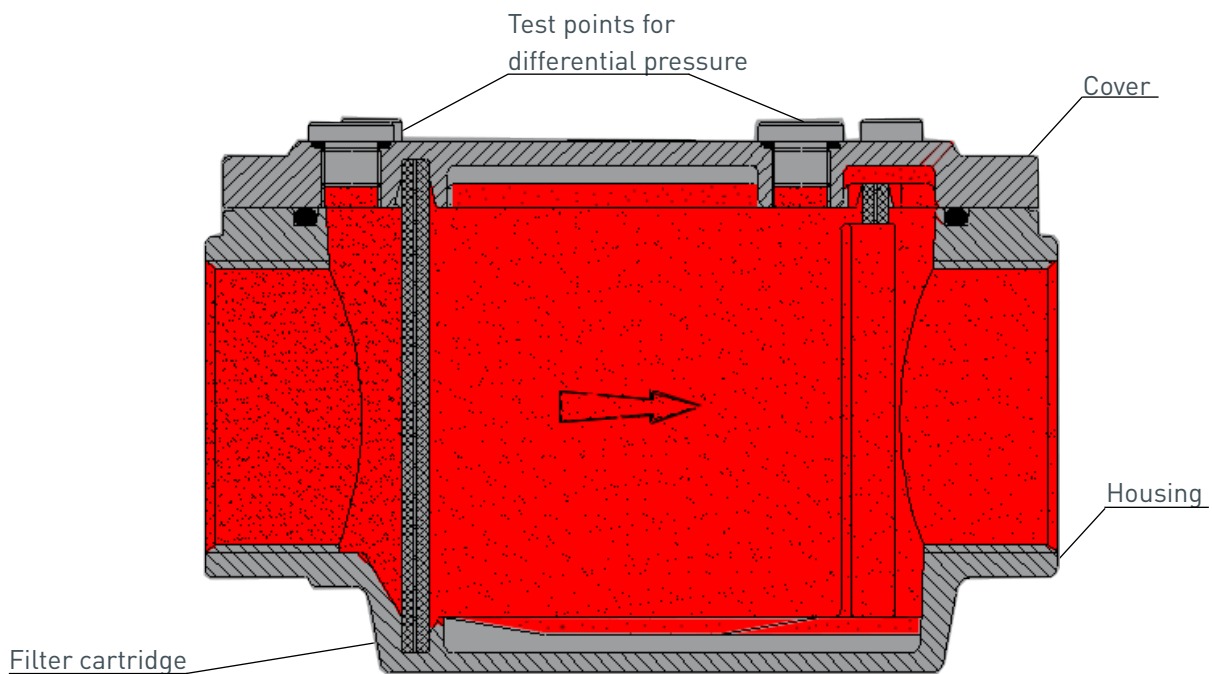
The filters mainly consist of the housing, the cover and the filter cartridge. Taking off the cover for maintenance and replacement of the filter cartridge guarantees easy access. The filter cartridge is made of non-woven polypropylene fibers, is equipped with a metal support frame and is suitable for holding dust and other impurities with a size of $\geq 30 \mu\text{m}$.

If the dust holding capacity is exceeded or there is an excessive pressure difference, the filter loses its protective function. In this case, the filter element must be replaced.

Installation example

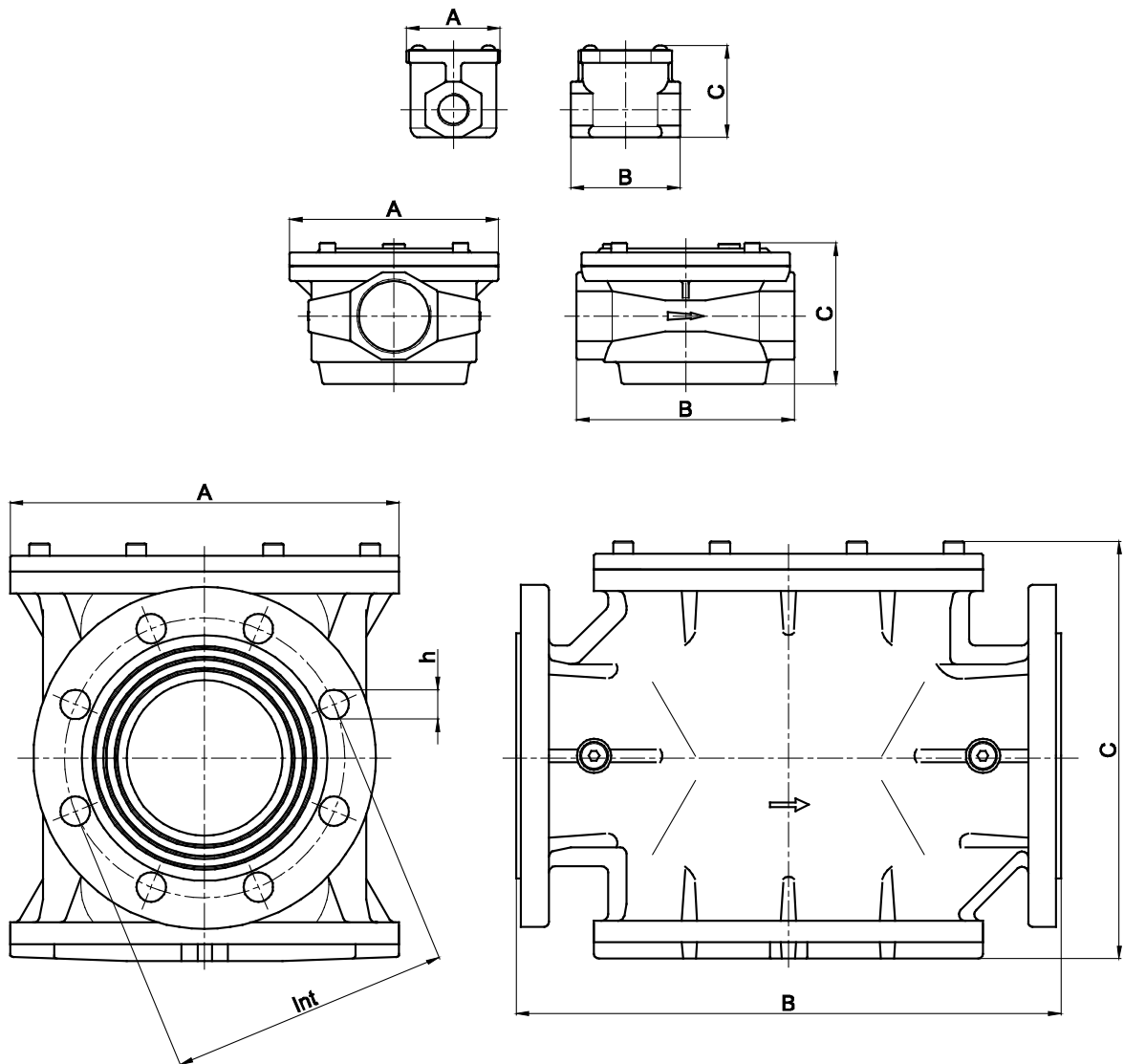


Sectional view



*) Recommended max. velocity at the measurement line port 25 m/s

Dimensions, Connection and Weight



Dimensions	Nominal widths													
	DF50 RP 1/2"	DF50 RP 3/4"	DF50 RP 1"	DF50 RP 1 1/2"	DF50 RP 2"	DF50 DN 65	DF50 DN 80	DF50 DN 100	DF50 DN 125	DF50 DN 150	DF50 DN 200	DF50 DN 250	DF50 DN 300	
A [mm]	88	88	134	182	182	200	200	250	315	315	370	405	460	
B [mm]	96	96	140	208	208	308	308	350	460	460	546	600	700	
C [mm]	84	84	91	128	128	212	212	265	347	347	420	466	537	
Int [mm]						145	160	180	210	240	295	355	410	
h [mm]						4x18	8x18	8x18	8x18	8x23	12x23	12x28	12x28	
Weight [kg]	0,39	0,38	0,97	2,2	2,0	8,5	8,4	13,5	22,8	24,5	47	69	96	

Type of models / Options

Epoxy resin coating in colour Black

To protect the gas pressure regulator from influences in aggressive atmosphere.



Type of models

- Biogas or coke oven gas version
- For screw-in filters with flange set DN25-DN50

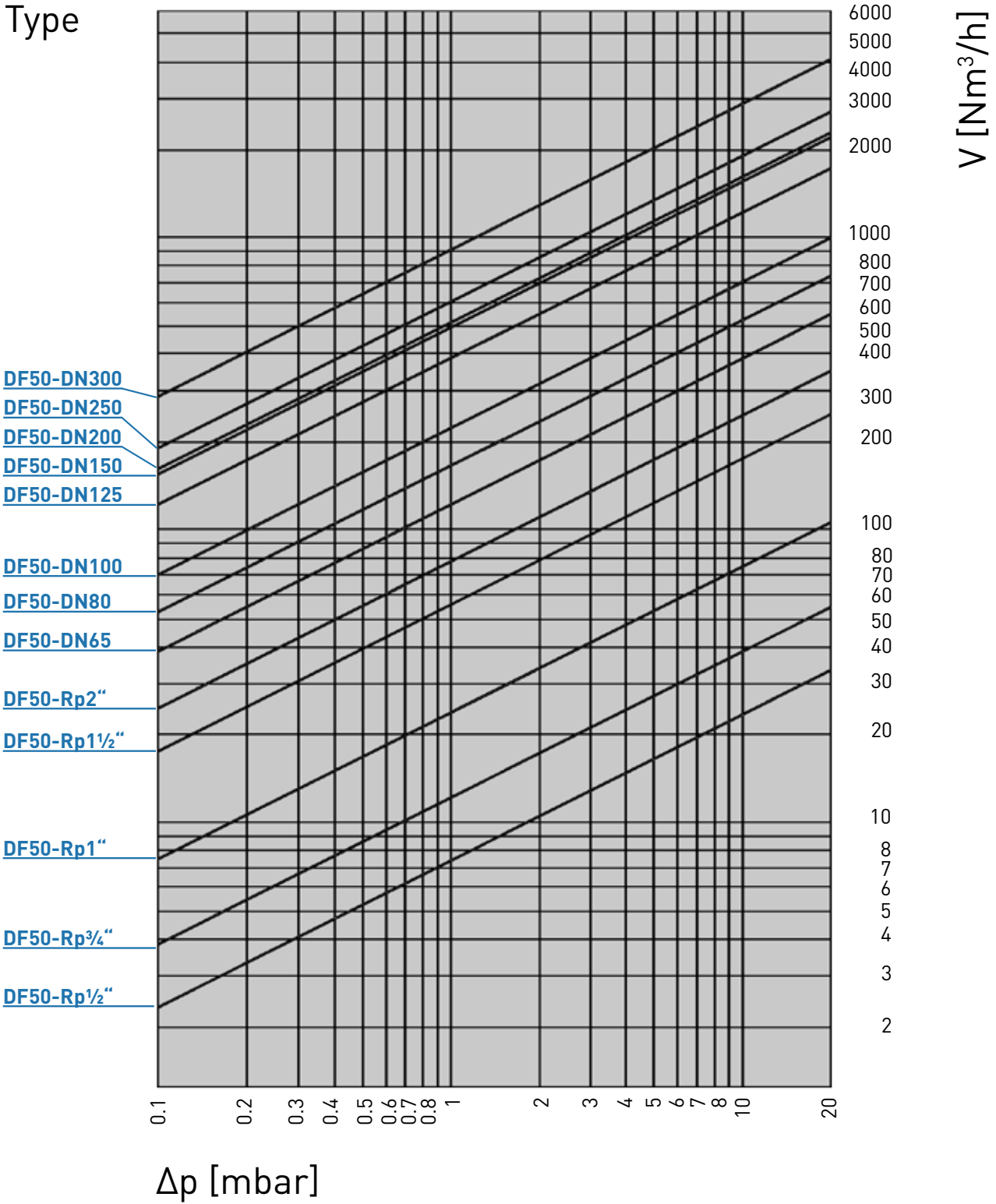


Design

Performance diagram

(pressure loss when not contaminated)

Type



If the flow read from the diagram is based on the operating pressure instead of the standard conditions, the pressure drop read from the diagram must be multiplied by the factor:
(1+ relative pressure in bar)

Example:

With a filter of size Rp1½" and a natural gas flow of 80 Nm³/h, the pressure drop is Δp = 2 mbar.

Considering that the flow rate is 80 m³/h at a gas pressure of 2 bar, the effective pressure drop must be taken into account:

$$\Delta p = 2 \text{ mbar}^{*1} \times [(1 + 2) \cdot 1/\text{bar}] = 6 \text{ mbar}$$

*) Value determined from diagram

The filter must be selected taking into account the following points:

- Pressure drop of Δp ≤ 10 mbar
- Flow rates w ≤ 20 m/s

Order data

Example:

Filter type: DF50/1"/6/WAZ/So

		Order code:				
		DF50	1"	6	WAZ	So
Order selection	Designation					
Type						
DF50	DF50	DF50				
DN - Nominal width	Table p.7		1"			
Max. operating pressure						
2 bar	2			2		
6 bar	6			6		
Acceptance test certificate to EN 10204/3.1						
without acceptance test certificate	-					
with acceptance test certificate	WAZ				WAZ	
Special model						
- Coating with epoxy resin in black colour - Biogas or coke oven gas version - With flange set - 5 µm	So					So



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Contact

If you want to know more about solutions from MEDENUS for the gas industry, please contact your local contact person or go to our internet site at www.medenus.de



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