

When the flow read on the diagram is referred to operating pressure instead of standard conditions, the pressure drop Δp read on the diagram must be multiplied for the factor: (1+ relative pressure in bar)

Example:

For a filter with size 1"½ and a natural gas flow of 80 Nm³/h the pressure drop is $\Delta p = 2$ mbar. If we consider that 80 m³/h is the flow at 2 bar of gas pressure, then the effective pressure drop to be consider is:

$$\Delta p = 2 \times (1 + 2) = 6 \text{ mbar}$$



Filter must be selected considering the following:

- Pressure drops $\Delta p \leq 10$ mbar
- Flow velocities $w \leq 20$ m/s

Normally, pressure drop and flow rate for the filters are read from the gas flow diagram. However, the filters can also be chosen in accordance with the characteristic "Kvs value" which is shown in table 2.

The selection of the filter requires the calculation of the Kv under the operating conditions.

Considering only subcritical pressure drops:

$$\Delta p < \frac{p_1}{2}$$

Kv can be calculated with the formula:

$$Kv = \frac{V}{514} \sqrt{\frac{\rho(t + 273)}{\Delta p \cdot p_2}}$$

where

- V = flow rate [Nm³/h]
- Kv = flow factor [m³/h]
- ρ = density [Kg/m³]
- p_1 = absolute inlet pressure [bar]
- p_2 = absolute outlet pressure [bar]
- Δp = differential pressure $p_1 - p_2$ [bar]
- t = media temperature [°C]

To the Kv value calculated from operating conditions we add an allowance of 20%, to obtain the minimum Kvs value which the filter should have:

Kvs > 1,2 Kv

Example:

We need a filter with a capacity of 100 m³/h of natural gas, with a pressure of 2 bar and a temperature of 15°C, corresponding to 300 Nm³/h at standard conditions. Considering an actual pressure drop $\Delta p_{max} = 10$ mbar, we obtain:

$$Kv = \frac{300}{514} \sqrt{\frac{0.8 \cdot (15 + 273)}{0.010 \cdot (1 + 2)}} = 51 \text{ m}^3/\text{h}$$

The filter with Kvs > (1,2 x 51) = 61 m³/h is the size 2", which has Kvs=70 m³/h (table 2). By applying the inverse formula, the effective pressure drop can be obtained:

$$\Delta p = 5,2 \text{ mbar}$$

Ordering information

Tab.4

				FG	2	2	A	.J	
Filter type									
Size									
S1	1/2" small								
S2	3/4" small								
S3	1" small								
S4	1 1/2" small								
1	1/2"	8	3"						
2	3/4"	9	4"						
3	1"	93	5"						
35	1 1/4"	95	6"						
4	1 1/2" ⁽¹⁾	98	8"						
6	2" ⁽¹⁾	910	10"						
7	2 1/2"	912	12"						
Max. Operating pressure									
2	2 bar (30 psig)								
6	6 bar (90 psig)								
Connection									
none	Rp internal thread / ISO flange								
A	Rp internal thread / ISO flange with pressure gauges								
N	NPT internal thread / ANSI flange								
NA	NPT internal thread / ANSI flange with pressure gauges								
Special versions									
J	special seals for aggressive gases								
K	special seals with metal cartridge								
M	5 µm cartridge								
+	FGS1-2 with nonwoven cartridge								

(¹) Flanged connections with optional kit

Accessories and optionals

Inlet and outlet pressure chambers can be provided with pressure gauges, to connect a gas differential pressure switch to monitor the pressure difference.

On request a test point fitting can be provided (mounting in charge of the user).

The threaded models 1 1/2" and 2" can be provided with flanged connections using an optional kit.

Standards and approvals

The product complies with the essential requirements of the following European Directives and their amendments:



2014/68/EU (Pressure Equipment Directive)
2011/65/EU (RoHS II)

CE-Reg.-No. PED/0497/2875/14



The product complies with the Technical Regulation RT UD 032/2013 of Russia, Belarus and Kazakhstan.

Declaration of Conformity No.: **CN № RU Д-IT.PA01.B.40716**

Quality Management System is certified according to UNI EN ISO 9001.



The information in this document contains general descriptions of technical options available and based on current specifications.

The company reserves the right to make changes in specifications and models as design improvements are introduced, without prior notice.