

Cartridge Gas Filter GS Serie up to DN150

Main Features



Cartridge Gas Filters GS Serie According to 2014/68/EU Directive, EN 13445 standard.

Type GS and cellular gas filters are designed for retaining gas impurities, such as dust, rust and other solid particles, in gas-carrying lines at a defined location. They are mainly used in gas pressure regulating and measuring stations, power plant and upstream of equipment, the function of which would be impaired by contaminants. The filters are suitable for gases in accordance with DVGW Code of Practice G 260 / G 262 and neutral non-corrosive gases. (Other gases on request). According to 2014/68/EU directive.

- High filtration efficiency
- Large particle chamber
- High flow capability
- Outdoor version as standard
- Wide range of accessories
- Replaceable cartridge structure
- Eco-friendly cartridge
- Easy maintenance

Technical Features

Maximum allowable pressure –PS	25 bar
Allowable temperature –TS ⁽¹⁾	-20 °C to +60 °C
Inlet gas temperature	-20 °C to +60 °C
Nominal size –DN	DN25 DN32 DN40 DN50 DN65 DN80 DN100 DN125 DN150 It is possible to produce filters with different inlet and outlet diameters to order.
Connections ⁽²⁾	PN16, PN25 according to ISO 7005 Class 150 RF according to ASME B16.5 and
Filtration efficiency ⁽³⁾	Standard 99.9% of particle size > 2 µm
Limit for soiled filter insert	Δp _{max} = 500 mbar
Explosion protection	Mechanical components of filter do not contain a potential ignition source, thus do not fall in limits of ATEX 95 (94/9/EG). (Used electronic accessories comply with ATEX-demands.)

⁽¹⁾ Low temperature version -40°C: available on request

⁽²⁾ On request for other connection class

⁽³⁾ On request cartridge 5µm and 10µm

Materials

Body ⁽¹⁾	DN25 – DN150 EN-GJS 500-7
Cartridge ⁽²⁾	Polyester
Filter basket ⁽³⁾	Steel perforated plate, galvanised
Seals	NBR

⁽¹⁾ on request A 216 WCB available

⁽²⁾ On request paper

⁽³⁾ On request stainless steel

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Standards and certificates

Applied directives:

Pressure Equipment Directive –PED

(EU) EU/2014/68



Compliance with the regulations of the applied directives is verified by the adherence to the following standards / regulations:

- Quality System Approval Certificate 2195 : PED : 2103302
- EU Desing Examination Certificate 2195 : PED-2103302 : T



- UkrSepro Tecnical Regulations for Pressure Equipment UA.TR.012C.0368



The relevant valid edition of the standards can be found in the declaration of conformity!

Use

General Gases :

Natural gas, town gas, propane, butane, air, nitrogen or all non-corrosive gases

Suitable for use with previously filtered gaseous fluids, it is mainly used for medium and low pressure natural gas distribution networks.

Hydrogen Ready :

Suitability of natural gas-hydrogen mixtures or pure hydrogen.

When using the GS series, a manufacturer's declaration and notified body reports can be provided on request.

Biogas or Biomethane Version :

Suitable for biogases and recycling gases

– up to maximum 1% by volume H₂S, dry

– up to maximum 1% by volume NH₃,

dry No non-ferrous metals (except in very small quantities found in the plastic components)

Biogas version of GS Series are also designed for slightly aggressive, dry gases.

Gases according such as biogases, landfill gases, sewage gases, other recycled gases, process gases, and air. The chemical composition and aggressiveness of each biogas or recycled gas is different, not constant, and dependent on several factors.

The aggressiveness of the gas notably increases:

- as the hydrogen sulfide content H₂S increases

- with the moisture content of the gas, condensation is not permitted inside the filter

In consultation with Gastech, users must decide whether the materials used for the GS Series are suitable for the intended types of recycling gas. These gases can vary in terms of both their composition and the respective concentration of the components.

As a result, it is not possible to make any warranties or definitive statements regarding service life. An assessment should be carried out to determine the suitability of the gas used.



For safety reasons, we strongly recommend

- a visual inspection of the GS Serie filter at intervals of 3 to 6 months

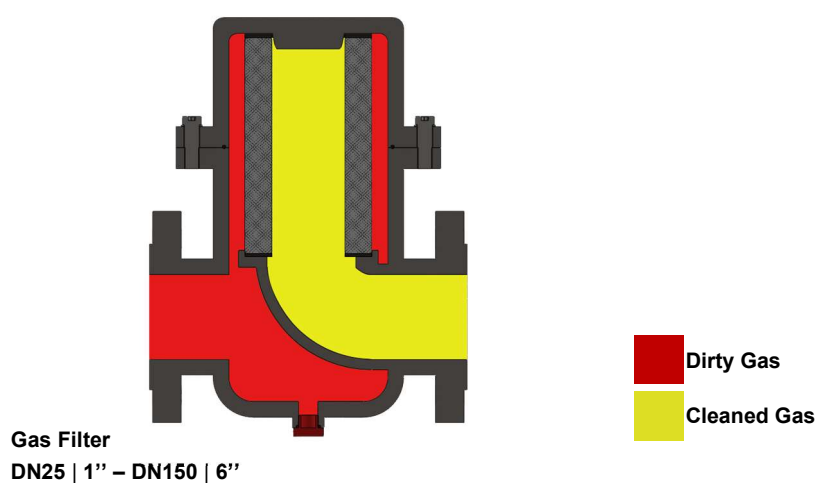
- Pressure loss and leakage tests

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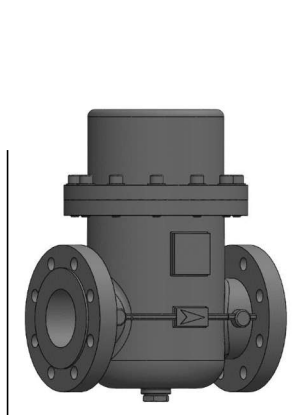
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Operational Diagram**

Main purpose; is to clean the gas by keeping the solid particles in the gas

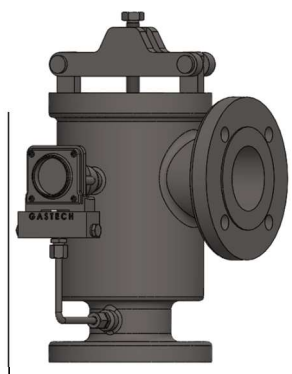
Gas velocity entering into the chamber of filter body is reduced, big solid particles falls into the stock chamber, the gas advancing with small particles encounters the cartridge. in the cartridge, the gas filtration are starting again and the solid particle is kept .



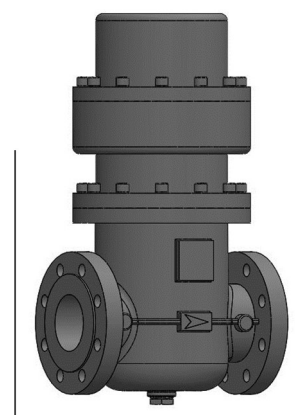
Configurations



GS Serie Standard Gas Filter
GS 25 - 150



GS Serie Gas Filter Angle
GS 25 - 150



**GS Serie Gas Filter
with Liquid Separator GS25 - 150**

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Accessories
(to be ordered separately)



Differential Pressure Gauge

Article No	Type	DN Size
2.90.0622	Without Reed Contact	all size
2.90.0623	With Reed Contact	all size



Differential Pressure Gauge with Manifold

Article No	Type	DN Size
2.90.0624	Without Reed Contact	all size
2.90.0625	With Reed Contact	all size




Level Sensor for liquid

Article No	Type	DN Size
2.90.0626	IP 65	all size
2.90.0627	EX. II 1 GD Ex ia IIC T6	all size



Sensing Line Kit for GS Serie

Article No	Type	DN Size
2.80.1122	All Type	All size

 Consisting of: 2pcs x 1mt dia.10mm steel pipe – 2pcs x pipe connection for 10 mm dia. 1/4"

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Capacity Tables

Diameter	Capacity m ³ /h										
	Gas Pressure (bar)										
	0,5	1	2	3	4	5	6	10	12	19	25
DN25 1"	54	71	107	142	177	213	248	389	460	708	920
DN32 1 1/4"	88	117	175	233	290	348	406	638	754	1160	1507
DN40 1 1/2"	137	182	273	363	454	544	635	997	1178	1812	2355
DN50 2"	214	285	426	568	709	851	992	1558	1841	2831	3680
DN65 2 1/2"	362	481	720	959	1199	1438	1677	2633	3111	4785	6219
DN80 3"	548	729	1091	1453	1815	2178	2540	3988	4713	7248	9421
DN100 4"	856	1139	1705	2271	2837	3403	3968	6232	7364	11325	14720
DN125 5"	1338	1780	2664	3548	4432	5316	6201	9737	11506	17695	23000
DN150 6"	1926	2563	3836	5109	6383	7656	8929	14022	16568	25481	33120



These values are valid for natural gas of $\rho_n = 0.61 \text{ kg/m}^3$ and $t = 15^\circ\text{C}$. $\Delta p = 50 \text{ mbar}$

Correction factor for non-natural gas applications

The flow rates are indicated for a 0.6 specific gravity gas. To determine the volumetric flow rate for gases other than natural gas, multiply or calculate the values in the capacity tables using the sizing equations with a correction factor. The table below lists correction factors for some common gases:

Gas Type	Density ratio to air	Conversion factor
Air	1.00	0.77
Butane	2.00	0.55
Propane	1.52	0,63
Propane+Air Mix	1.20	0,71
Hydrogen	0.07	2.94
Nitrogen	0.97	0.79
Carbondioxide	1.52	0.63

Use the following formula to calculate the correction factor for gases not listed above. In the formula, d is the specific gravity of the gas.

$$\text{Conversion factor} = \sqrt{\frac{0.6}{d}}$$

Stm³ /h /reference conditions 15 °C, 1 barg

Stm³ /h x 0.94795 = Nm³ /h Nm³ /h reference conditions 0 °C, 1 barg

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Flow Calculations

Can use the formula below to calculate the filter diameter

$$d = 18,8 \times \sqrt{\frac{Q}{P \times V}}$$

Acronyms

d	Filter diameter (mm)
Q	volumetric flow rate in (m ³ /h)
P	absolute inlet pressure in (bar)
V	Velocity (m/s)
18.8	Numerical constant

 the recommended gas velocity should be a maximum of 20 m/s

Select the diameter of the filter with higher than calculated value .
After finding the DN of the filter, check that gas speed on the seat does not exceed 20 m/sec, using the following formula:

$$V = 345.92 \times \frac{Q}{DN^2} \times \frac{1 - 0.002 \times P}{1 + P}$$

V	Velocity (m/s)
345.92	Numerical constant
Q	Flow rate under standard conditions (Stm ³ /h)
DN	Filter nominal diameter (mm)
P	absolute pressure in (bar)

Calculation of cartridge area of the filter

$$A = \frac{Q}{P \times V \times 3600}$$

A	Filtering area (m ²)
345.92	Numerical constant
Q	Flow rate under standard conditions (Stm ³ /h)
V	Velocity (m/s)
P	absolute pressure in (bar)

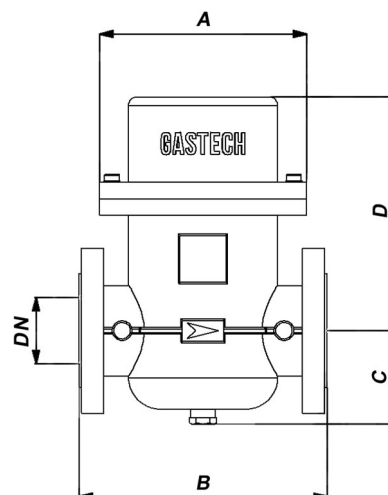
Cartridge area

Diemension	G 0.5	G 1	G 1.5	G 2	G 2.5	G 3	G 4	G 5	G 6
Surface m ²	0.060	0.125	0.230	0.470	0.725	0.95	1.45	2.3	4.2

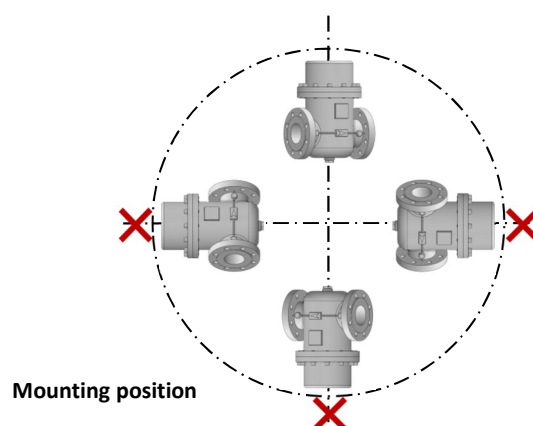
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Dimensions and Weights

Standard Filters



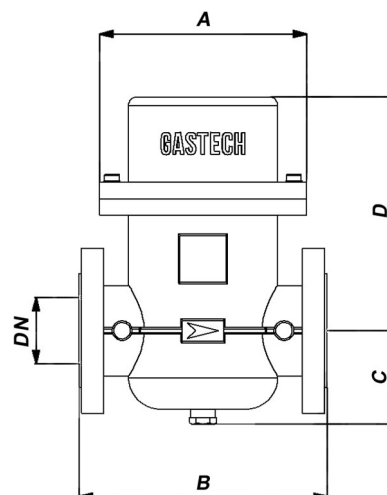
Diameter	A	B	C	D	Cartridge Surface	Cartridge Type	Internal Volume Lt	Wgt kg
DN25 1"	170	210	80	162	0,060	G 0.5	2,7	14
DN32 1 1/4"	170	210	80	162	0,060	G 0.5	2,7	16
DN40 1 1/2"	170	210	80	162	0,060	G 0.5	2,7	17
DN50 2"	170	210	80	162	0,060	G 0.5	2,7	18
DN65 2 1/2"	250	300	120	300	0,230	G 1.5	8,0	45
DN80 3"	250	300	120	300	0,230	G 1.5	8,0	47
DN100 4"	250	300	120	300	0,230	G 1.5	8,0	51
DN125 5"	280	450	205	320	0,725	G 2.5	15,0	130
DN150 6"	280	450	205	320	0,725	G 2.5	15,0	134



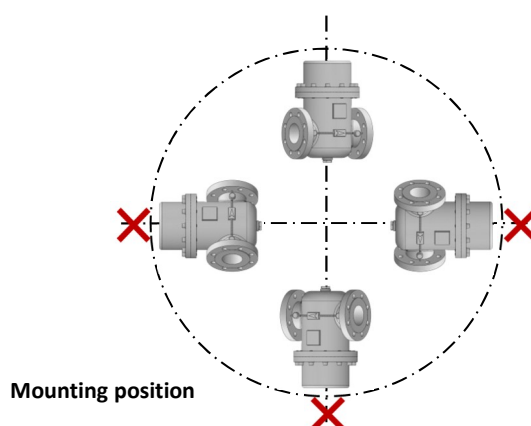
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Dimensions and Weights

High Flow Version



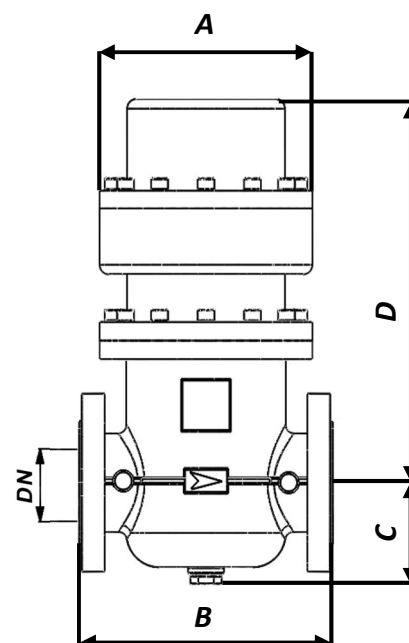
Diameter	A	B	C	D	Cartridge Surface	Cartridge Type	Internal Volume Lt	Wgt kg
DN25 1"	170	210	80	280	0,060	G 0.5 x 2	4,0	18
DN32 1 1/4"	170	210	80	280	0,060	G 0.5 x 2	4,0	20
DN40 1 1/2"	170	210	80	280	0,060	G 0.5 x 2	4,0	21
DN50 2"	170	210	80	280	0,060	G 0.5 x 2	4,0	22
DN65 2 1/2"	250	300	120	510	0,230	G 1.5 x 2	13,5	80
DN80 3"	250	300	120	510	0,230	G 1.5 x 2	13,5	82
DN100 4"	250	300	120	510	0,230	G 1.5 x 2	13,5	88
DN125 5"	280	450	205	605	0,725	G 2.5 x 2	22,0	165
DN150 6"	280	450	205	605	0,725	G 2.5 x 2	22,0	171



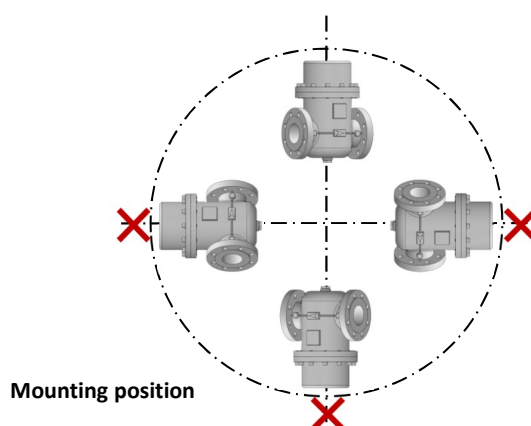
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Dimensions and Weights

Standard Version with Liquid Separated



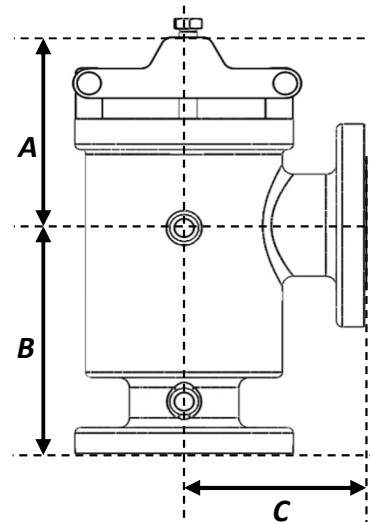
Diameter	A	B	C	D	Cartridge Surface	Cartridge Type	Internal Volume Lt	Wgt kg
DN25 1"	170	210	80	280	0,060	G 0.5 x 2	4,0	18
DN32 1 1/4"	170	210	80	280	0,060	G 0.5 x 2	4,0	20
DN40 1 1/2"	170	210	80	280	0,060	G 0.5 x 2	4,0	21
DN50 2"	170	210	80	280	0,060	G 0.5 x 2	4,0	22
DN65 2 1/2"	250	300	120	510	0,230	G 1.5 x 2	13,5	80
DN80 3"	250	300	120	510	0,230	G 1.5 x 2	13,5	82
DN100 4"	250	300	120	510	0,230	G 1.5 x 2	13,5	88
DN125 5"	280	450	205	605	0,725	G 2.5 x 2	22,0	165
DN150 6"	280	450	205	605	0,725	G 2.5 x 2	22,0	171



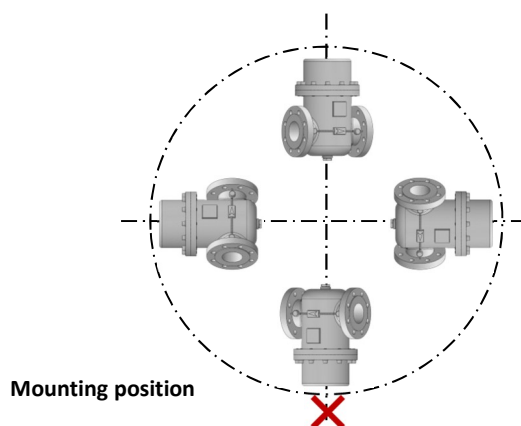
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Dimensions and Weights

Angle Filters



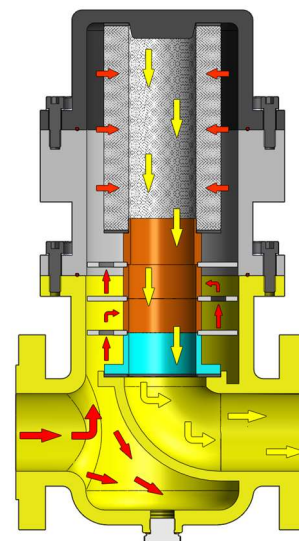
Diameter	A	B	C	Cartridge Surface	Cartridge Type	Internal Volume Lt	Wgt kg
DN25 1"	65	90	90	0,060	G 0.5	2,7	14
DN32 1 1/4"	65	90	90	0,060	G 0.5	2,7	16
DN40 1 1/2"	65	90	90	0,060	G 0.5	2,7	17
DN50 2"	200	150	150	0,060	G 0.5	2,7	18
DN65 2 1/2"	200	150	150	0,230	G 1.5	8,0	45
DN80 3"	210	200	200	0,230	G 1.5	8,0	47
DN100 4"	220	250	250	0,230	G 1.5	8,0	51
DN125 5"	280	350	350	0,725	G 2.5	15,0	130
DN150 6"	280	350	350	0,725	G 2.5	15,0	134



Gas Filter, GS Serie

Gas Filter with Liquid Separator




Main function is to separate liquids with gas. Fluid velocity entering into the chamber is reduced, liquid falls into the stock chamber, in the separating plates, the gas velocities are increased again and the liquid is kept by condensation. For a special liquid holder filter design; the gas pressure, the capacity, the volume of the liquid to be kept should be known. When the special exproof level switch is placed in the filter body and the liquid is stored in the filter, it can be transferred to the system. Cast iron filters are effective when the amount of liquid from the system is less than 30ml/day.



Color of Products






Standard Colors


The colors of the filter parts are painted as follows.

Part	RAL Code	Color
Body EN PN Flangeds	1021	
Body ANSI flanges Class 150 RF	3000	
Cover All Versions	9005	

Optional Colors

You can choose one or more of the following colors.

Part	RAL Code	Color
All Parts	1021	
All Parts	3000	
All Parts	9005	
All Parts	6011	
All Parts	5010	

 delivery times and price may vary in optional color options.

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ORDERING DATA

GS / 25 / 16 / LR / DV / DPC / 2 / LSL

Type		
GS		
Diameter		
DN25 1"	25	
DN32 1 1/4"	32	
DN40 1 1/2"	40	
DN50 2"	50	
DN65 2 1/2"	65	
DN80 3"	80	
DN100 4"	100	
DN125 5"	125	
DN150 6"	150	
Flanged Desing		
PN16	16	
PN25	25	
ANSI 150	150	
Flow Direction		
Inlet Right – Outlet Left	RL	
Inlet Left – Outlet Right	LR	
Drain Valve		
Without drain valve	-	
With drain valve	DV	
Differential Pressure Gauge		
Without Differential Pressure Gauge	-	
With Differential Pressure Gauge	DP	
With Differential Pressure Gauge+Reed Contact	DPC	
Filter Particle Size		
Filtration efficiency %99 2 µm	2	
Filtration efficiency %99 5 µm	5	
Filtration efficiency %99 10 µm	10	
Liquid Sperator		
Without Liquid Separator	-	
Without Liquid Separator	LS	
Level Sensor for Liquid Stock	LSL	

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For more information, contact your local sales representative or agency.



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