

## **RFS**

**Regulators for gas  
with filter and safety shut-off**

**DN20 ... DN50**

# RFS

## Regulators for gas with filter and safety shut-off

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### Description

The RS type is a regulator for gas pipelines according to EN 88. It is equipped with a safety shut-off valve which blocks gas flow in event of outlet pressure being too low or too high. In the RFS type, a filter according to DIN3386 is present. This device is suitable for supplying clean gas at stable pressure to all the devices downstream and to protect them against excess of pressure.

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### Features

The regulators are made of aluminum alloy die-cast and they are available with inlet/outlet connections from ¾" to 2".

The regulators are equipped with adjustable springs, so outlet, maximum and minimum pressures can be set on site in a very precise way.

Safety shut-off valve and regulator are totally independent, in this way regulating action can not hinder safety function.

A metallic mesh is present in RS with the scope of preventing serious damage of the moving parts due to dirt circulating in the pipeline (filtration grade <1mm). RFS are equipped with a filter element with a very high holding capacity of dust and impurities (filtration grade <30µm). Filter structure consists in a steel support frame covered with a double-layer high-performance nonwoven made of polyolefine fibers. Thanks to that, moving parts of regulator and other devices downstream are fully protected.

The regulators are equipped with working and safety diaphragm, hence it is not necessary to connect outside the vent line.

The closing plate is balanced with compensating diaphragm, so that variation of inlet pressure does not cause any variation of outlet pressure.

The impulse line is integrated inside the regulator. Special versions with external impulse line are available on request.

Pipe connections meet group 2.

R - RF regulators have been designed to generate low pressure drop with high flow.

The governors have the ability to lock up when there is no flow.

Suitable for use with air and non-aggressive gases included in the 1, 2 and 3 families (EN 437).

Provided with G1/8 pressure test points on one side in the inlet (after the filter cartridge) and outlet chamber to connect manometers, pressure switches or other gas equipments.

All components are designed to withstand any mechanical, chemical and thermal condition occurring during typical service. Effective impregnation and surface treatments have been used to improve mechanical sturdiness, sealing and resistance to corrosion of the components.

Regulators are 100% tested and fully warranted.

## Technical specifications

Tab. 1

<b>Connections</b>	Gas threaded f/f ISO 7-1 from Rp3/4 to Rp2 Flanged PN16 – ISO 7005 DN40 - DN50																																									
<b>Ambient temperature</b>	-15°C ... +60°C																																									
<b>Inlet-Outlet pressure</b>	<b>RS or RFS models</b> Max 500mbar (50 KPa) or Pout+30mbar  <table border="1"> <tr> <td><b>Pressure (mbar)</b></td> <td>8-16</td> <td>13-26</td> <td>20-40</td> <td>30-60</td> <td>50-100</td> <td>80-160</td> <td>130-260</td> </tr> <tr> <td><b>Spring color</b></td> <td>red</td> <td>blue</td> <td>-</td> <td>orange</td> <td>green</td> <td>pink</td> <td>yellow</td> </tr> </table> <b>6RS or 6RFS models</b> max 6 bar (0,60 MPa) or P out + 50 mbar (6RS or 6RFS models)  <table border="1"> <tr> <td><b>Pressure (mbar)</b></td> <td>20- 40</td> <td>30-60</td> <td>50-100</td> <td>80-160</td> <td>130-260</td> <td>200-400</td> <td>320-640</td> </tr> <tr> <td><b>Spring color</b></td> <td>-</td> <td>orange</td> <td>green</td> <td>pink</td> <td>yellow</td> <td>black</td> <td>violet</td> </tr> </table>								<b>Pressure (mbar)</b>	8-16	13-26	20-40	30-60	50-100	80-160	130-260	<b>Spring color</b>	red	blue	-	orange	green	pink	yellow	<b>Pressure (mbar)</b>	20- 40	30-60	50-100	80-160	130-260	200-400	320-640	<b>Spring color</b>	-	orange	green	pink	yellow	black	violet		
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<b>Spring color</b>	-	orange	green	pink	yellow	black	violet																																			
<b>Max testing pressure</b>	Max 750 mbar (RS or RFS models)  Max 9 bar for inlet chamber and max 0.9 bar for outlet chamber (6RS or 6RFS models)																																									
<b>Pressure of safety shut-off</b>	<table border="1"> <tr> <td><b>Minimum pressure (mbar)</b></td> <td colspan="2">4-15</td> <td colspan="2">8-30</td> <td colspan="2">15-55</td> <td colspan="2">30-110</td> </tr> <tr> <td><b>Spring color</b></td> <td colspan="2">-</td> <td colspan="2">violet</td> <td colspan="2">black</td> <td colspan="2">yellow</td> </tr> <tr> <td><b>Maximum pressure (mbar)</b></td> <td>36-65</td> <td>50-90</td> <td>85-150</td> <td>140-250</td> <td>220-400</td> <td>330-600</td> <td>520-950</td> </tr> <tr> <td><b>Spring color</b></td> <td>-</td> <td>orange</td> <td>green</td> <td>pink</td> <td>yellow</td> <td>black</td> <td>violet</td> </tr> </table>								<b>Minimum pressure (mbar)</b>	4-15		8-30		15-55		30-110		<b>Spring color</b>	-		violet		black		yellow		<b>Maximum pressure (mbar)</b>	36-65	50-90	85-150	140-250	220-400	330-600	520-950	<b>Spring color</b>	-	orange	green	pink	yellow	black	violet
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<b>Regulating class (EN88)</b>	RS or RFS models: Class A ( $\pm 15\%$ of set value)  6RS or 6RFS models: AC20 ( $\pm 20\%$ of set value) for springs 20-40 and 30-60 mbar, AC10 ( $\pm 10\%$ of set value) for other springs  SG30 for lock-up (+7.5mbar or +30% of set value, at least)  Over pressure shut-off: AG30 for springs 36-65, 50-90, 70-120, 95-170 AG10 for other springs																																									

<b>Filtration grade</b>	with metallic filter	<1mm
	with filtering cartridge	≤30 μm (G4 according to EN779)
<b>Flow capacity</b>	See tab. 2	
<b>Installation</b>	Horizontal (with settable spring upward) or vertical pipeline.	
<b>Gas type</b>	Natural gas, town gas, LPG (gaseous) of families 1,2,3 (EN437).	
	Special version for biogas.	
<b>Materials in contact with gas</b>	Aluminum alloy Brass Stainless steel Plated steel Polyamide Anaerobic adhesive Nitrile rubber (NBR) Fluoro elastomer (FPM) Polytetrafluoroethylene (PTFE)	

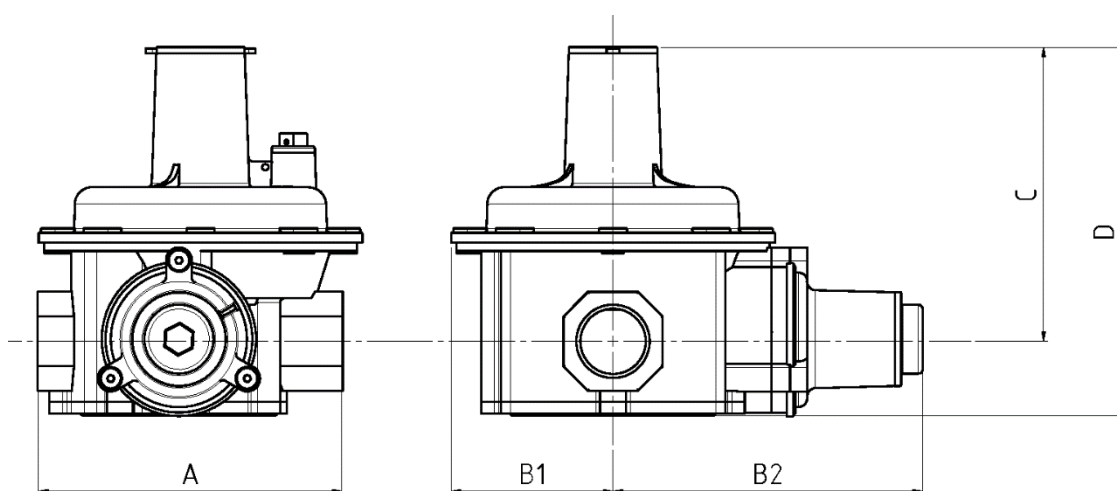


Fig.1

Model	Connection	Overall dimensions [mm]					Weight (Kg)	Kvs with metallic filter (m³/h)	Kvs with filtering cartridge (m³/h)
		A	B1	B2	C	D			
RFS2	Rp 3/4	141.5	75	144	136.5	171	1,70	8,5	7,0
RFS3	Rp 1	141.5	75	144	136.5	171	1,65	9,0	8,0
RFS4	Rp 1½	230	121	204	237	289	3,0	27,0	21,0
RFS6	Rp 2	230	121	204	237	289	2,9	29,0	23,0

Tab. 2

## Ordering information

	-	<b>RFS</b>	<b>3</b>	<b>B</b>	.	-
<b>Max inlet pressure</b>						
- 500 mbar						
6 6bar						
<b>Regulator type</b>						
RS with metallic filter						
RFS with filtering cartridge 30 µm						
<b>Connections size</b>						
2 = Rp3/4						
3 = Rp1						
4 = Rp 1½						
6 = Rp 2						
4F = DN40						
6F = DN50						
<b>Springs for outlet pressure and maximum / minimum pressure</b>						
see table below						
Different setting on request						
<b>Special version</b>						
P test points on one side						
O without minimum pressure shut-off						
J suitable for biogas						

Springs combination	Outlet pressure (set)	Max pressure (set)	Min pressure (set)
A	8-16 mbar (12)	36-65mbar (38)	4-15 mbar (4.5)
B	13-26 mbar (20)	36-65mbar (38)	4-15 mbar (7)
C	20-40 mbar (30)	36-65mbar (50)	4-15 mbar (10)
D	30-60 mbar (50)	50-90mbar (80)	8-30 mbar (15)
E	50-100 mbar (80)	85-150mbar (120)	8-30 mbar (25)
F	80-160 mbar (120)	140-250 mbar (180)	15-55 mbar (30)
G	130-260 mbar (200)	220-400 mbar (300)	30-110 mbar (60)
H	200-400 mbar (300)	330-600 mbar (420)	30-110 mbar (100)
I	320-640 mbar (500)	520-950 mbar (700)	30-110 mbar (100)

*Example:*

**6RFS4G.P:** regulator with connection Rp1½, inlet max 6bar, outlet 130-260 mbar (200), min of shut-off 30-110mbar (60), max of shut-off 30-110mbar (60).

## Special versions and optionals

The governors can be supplied in special versions for aggressive gases such as biogas and COG (version K), they are free of non-ferrous metals and provided with rubber part made of FKM.

## Standards and approvals

The regulators are designed and manufactured according to European Directive on the gas appliances 2009/142/EC and Directive on pressure equipment 97/23/CE on the basis of norm EN88-2. The certification is in progress.

The Quality Management System of the manufacturer is certified according to UNI EN ISO 9001 and the monitoring is carried out by the notified body:

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