

# Springloaded Pressure Regulator

Model – GRF20S

## Description

The GRF20S springloaded pressure regulator reduces the supply pressure on the inlet side to a controlled pressure on the outlet side.

## Specifications

Inlet pressure	20, 40, 50, 100, 250 or 420 bar
Adjustable	0-420 bar - 7 pressure ranges
Connections	DN20 or DN25 flanges according EN 1092-1 or 3/4" or 1"
Seat diameter	12,5 mm
Cv / Kv	Cv 3.2 / Kv 2.7

## Fluids

This pressure regulator is suitable for gases and liquids.



## Materials

The regulator is made out of barstock stainless steel material.

Body	ss 316L
Springhousing	ss 316L
Valve	ss 316L
Seat	PCTFE, PEEK or rubber
Valve spring	ss 316
Setspring	ss 302
O-rings / diaphragm	NBR, FKM or EPDM


Other materials available on request.

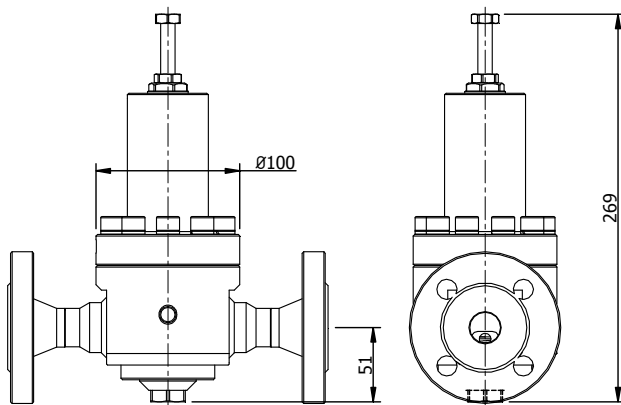
All metal parts are marked with a traceable batch number. Material certificates are available on request.

## Technical details

- all parts cleaned and degreased
- leak-tight seat design
- all regulators tested before delivery

## Standards

- EN 12516 - design
- EN 12266-1 - testing
- PED 2014/68/EU - SEP (article 4, paragraph 3)
- ATEX 2014/34/EU -  II 2G



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## Options

Many options are available. The most requested options are mentioned below.

## Materials

Regulators can be produced in higher graded materials than stainless steel 316L.

## Seals

Regulators can be equipped with FFKM + PTFE seals. Other compounds for higher or lower temperatures are available.

## NACE - MR 0175

All wetted parts of the regulators can be supplied according to NACE MR 0175, including Inconel X750 valvespring and a NACE report.

## Spare parts

Spare parts kit is available for the regulator. Mention the serial number in case you need spare parts for existing regulators.

## Adjusting the regulator

The regulator comes standard with a setscrew.



## Dependency

Character of the regulator is "dependency". The set-pressure will increase, when you have a decreasing inletpressure.

Dependency ratios are listed below.

- range 0-3 bar - 1:350
- range 0-8 bar - 1:350
- range 0-20 bar - 1:150
- range 0-50 bar - 1:50
- range 0-100 bar - 1:25
- range 0-280 bar - 1:9
- range 0-420 bar - 1:7

The balanced valve has a positive effect towards dependency.

## Flow

The regulator has good flow performance over the complete range. Ask for advice if this regulator is the best choice for your application.

Regulators that have a fixed setpoint, can be equipped with a locking cap.



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## Internals

The internals of the regulator are important for the performance. The different internals are mentioned below.

### Diaphragm or piston sensing

Diaphragm sensed for pressure ranges  
0-3 bar / 0-8 bar / 0-20 bar

Piston sensed for pressure ranges  
0-50 bar / 0-100 bar / 0-250 bar / 0-420 bar

### Rubber or plastic seated

A rubber seat is less sensitive to dirt.

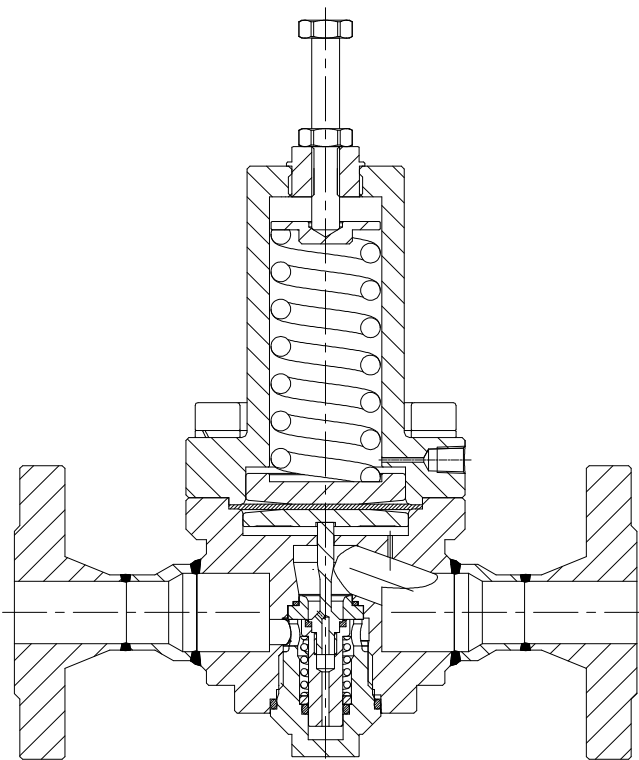
PCTFE is recommended because it seals easy.  
PEEK is recommended for liquid applications.

### Valvespring and setspring

The valvespring gives high spring force to ensure seat-tightness.

The setspring is produced according to our high quality specifications. The low spring rate ensures good performance at high flow.

## Section view

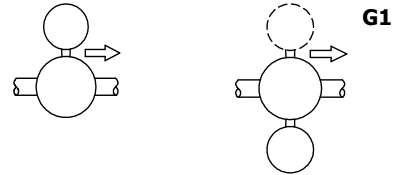


Section view of:  
GRF20S-40D8-SSNN

## Gaugeports

The regulator has standard one 1/4" NPT gaugeport to measure the controlled setpressure.

Additional 1/4" NPT gaugeport is available, see option G1 below.



Standard  
Outlet gaugeport

Additional  
Outlet gaugeport

## Gauges

Regulators can be supplied with gauges.

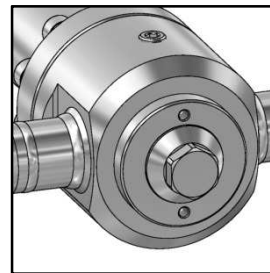
Below ranges are available:

0-4 bar / 0-10 bar / 0-25 bar / 0-60 bar / 0-160 bar /  
0-400 bar / 0-600 bar

- case diameter 63 mm
- internals ss 316
- bottom connection 1/4" NPT

## Mounting

The regulator can be mounted in every position (horizontal / vertical).



The bottom of the regulator has two mounting holes M6 with 8 mm thread and a C-C distance of 50 mm.

For regulators installed outdoors, make sure that rain cannot enter the springhousing or mount it drainable.

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### Connections

The regulator is designed for flanged connections. The flanges are welded to the regulator with butt-welds.

### Model - flange size

GRF20S DN20 or 3/4"  
GRF20F25S DN25 or 1"

### EN 1092-1 - flanges - design pressure

DN20 - DN25 PN40 40 bar

### ASME B16.5 - flanges - design pressure

3/4" - 1" 150# 20 bar  
3/4" - 1" 300# 50 bar  
3/4" - 1" 600# 100 bar  
3/4" - 1" 1500# 250 bar  
3/4" - 1" 2500# 420 bar

### Weld stub connections

Regulator can be supplied with weld-stubs. They have the model name as below.

GRF20S20S 3/4" weld stubs  
GRF20S25S 1" weld stubs

### Design pressures

The design pressure applies for inlet and outletside. Design pressure is limited to the maximum pressure of the flanges.

### Seat materials

The seat materials are related to the design pressure.

NBR, FKM or EPDM design pressure up to 100 bar  
PCTFE or PEEK design pressure above 100 bar

Depending on temperature or special wishes, the seat material could be different as mentioned above.

### Temperature

The general temperature range of the regulator is -50 / 200 °C, but is often limited due to the used sealing materials.

PCTFE seat - 50 / 60 °C  
PEEK seat - 50 / 200 °C  
NBR seat / seals - 35 / 130 °C  
FKM seat / seals - 20 / 200 °C  
EPDM seat / seals - 50 / 120 °C

## Typenumber explanation

Example : GRF20S - 40D8 - SSNN - L

model	design pressure	connections	adjustable	material	seat	seals	options
GRF20S	20 : 20 bar	D : EN 1092-1	3 : 0-3 bar	SS SS 316L	N NBR	N NBR	G1 one extra gaugeport
GRF20F25S	40 : 40 bar	A : ASME B16.5	8 : 0-8 bar		nitrite	nitrite	
	50 : 50 bar		20 : 0-20 bar		V FKM	V FKM	G2 two extra gaugeports
	100 : 100 bar		50 : 0-50 bar		viton	viton	
	250 : 250 bar	S : weld stubs	100 : 0-100 bar		E EPDM	E EPDM	L locking cap
	420 : 420 bar		250 : 0-250 bar		K PCTFE		xx codes for special option
			420 : 0-420 bar		kel-f		
					P PEEK		

All regulators are marked with a typenumber, a drawingnumber and a unique serialnumber. Dutch Regulators stores the exact configuration of the regulator in the serialnumber.