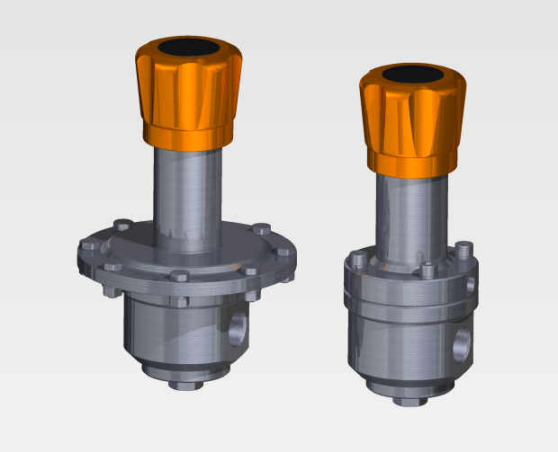
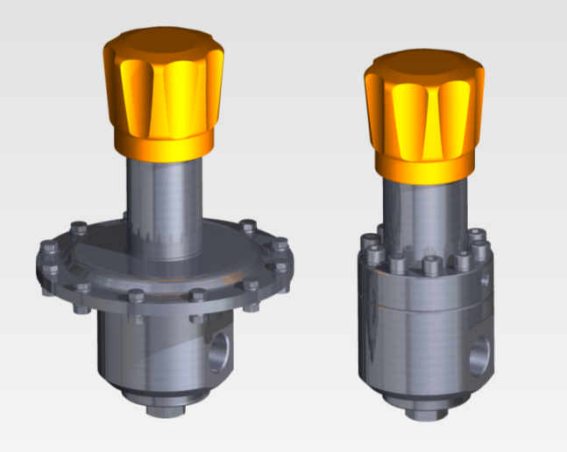
User Manual

GRT15S / GRT20S
GRT25S / GRT40S
GRT50S

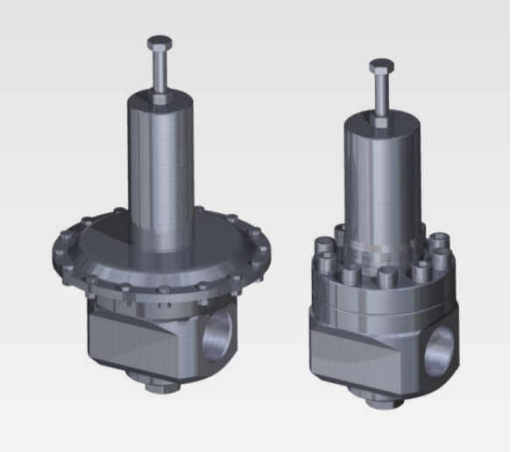


GRT15S



GRT20S

GRT25S



GRT40S

Dutch Regulators BV - Luzernestraat 8 - 2153 GN Nieuw-Vennep - The Netherlands
www.dutchregulators.com

CONTENT

1 General

The GRT15S, GRT20S, GRT25S, GRT40S and GRT50S are springloaded pressure regulators. The regulator can reduce the inletpressure to a controlled outletpressure.

NOTE
This pressure regulator is designed to control pressures and is not a shut-off valve.

Although the seat is supplied leaktight, leakage of the seat should always be considered. Safety valves need to be installed on the downstream side, when the downstream side cannot handle the full inlet pressure.

1.1 Design pressures

The regulator comes standard with five design pressure ranges for the inletpressure and outletpressure. The pressure ranges are mentioned below.

- 16 bar
- 50 bar
- 280 bar
- 420 bar
- 700 bar (model GRT15S only)

NOTE:
Always check the design pressures of the regulator on the assembly drawing. The design pressures mentioned on the assembly drawing overrules this manual.

1.2 Design temperatures

The design temperature of the regulator depends on the materials used in the regulator. In general the temperature range for the regulator is -50˚C / 200˚C. The temperature range for the regulator is limited by the used material for the seat, orings and diaphragm.

NOTE:
Always check the design temperature of the regulator on the assembly drawing. The design temperature mentioned on the assembly drawing overrules this manual.

For temperatures above 40˚C you need to be aware, that you could burn yourself when you touch the regulator.

1.3 Suitable fluids

The regulator can be used with gases and liquids.
For the use with hazardous or toxic fluids, always check if the materials are suitable in the combination with the used fluid.

A standard supplied regulator has ultrasonically cleaned parts, but a little bit of grease is use on threads and orings. Therefore the standard regulator is not oxygen clean and should not be used for oxygen.

2 Installation

Read the complete manual before installing the regulator.

2.1 Before installation

- Make sure that the regulator is undamaged before installation.
- The regulator can be mounted in every position.
  The preferred mounting position is with the springhousing facing upwards.
- Use the correct fittings for the connections of the regulator.
  The type of connections is mentioned on the assembly drawing.
- Clean the pipes and fittings before installation.
  Dirt in the system may cause leakage of the seat after installation.
- Make sure well sized safety valves are mounted up- and downstream side. So the pressure cannot raise above the design pressure(s).

2.2 Installing the regulator

The regulator should be installed by a person how has a sufficient education or experience with high pressure equipment.

- Check the flowdirection of the system and mount the regulator accordingly.
- The regulator needs to be mounted without stress on the connections.
- Mount a gauge in the gaugeport or make sure that the gaugeport is plugged.
- When an earth wire is required, mount the earth wire with a bolt in one of the bottom holes of the regulator.

2.3 Adjusting the regulator

Make sure that the regulator is properly installed before you put pressure on the regulator.

- Turn the setscrew counter clockwise, until the springforce is gone.
- Gently open the supply valve on the upstream side, which is connected to the inlet connection of the regulator.
- Turning the setscrew clockwise will increase the outletpressure.
  Gently turn the setscrew clockwise to set the correct outlet pressure.
- To decrease the outletpressure, a valve on the downstream side needs to be opened, because the regulator is not self-venting.
- The regulator is now fully operational.

3 Maintenance

Make sure that the regulator is completely pressure less, before you do maintenance!!

NOTE:
Dutch Regulators has spare parts kits available for the regulators.

3.1 Tools for maintenance

Only standard tools are required for maintenance.

Use a vice to clamp the regulator and a torque wrench to tighten the screws with the right torque.
Lubricant is required for threads and o-rings.

Tools and torques for maintenance								
			GRT15S-16	**GRT20S-16**	**GRT25S-16**	**GRT40S-16**	**GRT50S-16**	
Bodyplug	hexagon head	size torque	17 mm 15 Nm	24 mm 15 Nm	24 mm 15 Nm	30 mm 40 Nm	36 mm 40 Nm	
Springhousing screws	hexagon head	size torque	10 mm 15 Nm	10 mm 15 Nm	10 mm 15 Nm	10 mm 15 Nm	10 mm 15 Nm	
			GRT15S	**GRT20S**	**GRT25S**	**GRT40S**	**GRT50S**	
Bodyplug	hexagon head	size torque	17 mm 15 Nm	24 mm 15 Nm	24 mm 15 Nm	30 mm 40 Nm	36 mm 40 Nm	
Springhousing screws	socket head	size torque	5 mm 12 Nm	6 mm 20 Nm	8 mm 25 Nm	10 mm 40 Nm	10 mm 40 Nm	

3.2 Disassembly of the regulator

Make sure that the regulator is completely pressure less, before you do maintenance!!

- Take the regulator out of the system and clamp the regulator in a vice.
- Turn the setscrew counter-clockwise and make sure that the setspring is not tensioned.
- Loosen the springhousing bolts and remove the setspring, diaphragmplates and diaphragm.
- Turn the body upside down and loosen the bodyplug, remove the seat, valve and valvespring.

3.3 Assembly of the regulator

Assemble the regulator in reversed order as you disassembled the regulator.

Use some grease on the threads to avoid galling and use some grease on the o-rings for better performance and longer a lifetime.
Make sure you tighten the bodyplug and the bolts with the specified recommended torques.

4 Common problems and solutions

The table below gives some common problems for the regulators.

Problem	**Cause**
The outletpressure rises with a closed shutt-off valve on the downstream side.	*Seatleakage.* Often caused by dirt on the seat and valve. Clean or replace the seat and valve.
Leakage along the bodyplug.	*Damaged o-ring.* The o-ring is probably damaged and needs to be replaced. Do not try to tighten the bodyplug more than the specified torque.
Leakage between the body and springhousing.	*Damaged diaphragm.* Check the diaphragm and mount it correctly, otherwise replace the diaphragm. Do not tighten the springhousing bolts more than the specified torque.
The setpressure changes with different flow quantities.	*Character of this mechanical regulator.* When the flow increases, the pressure on the downstream side will decrease.
Outletpressure rises when you go from a little flow to a zero flow condition.	*Character of this mechanical regulator.* The outletpressure needs to rise a little, to generate force to close the seat.

When your problem is not in the list above, please contact Dutch Regulators for help.