Clorius CONTROLS

99.39.08-E
GB PL

Pressure Reducing Valves G1PR & H1PR

Instructions

General safety instructions

The regulators must be installed, started up and serviced by fully trained and qualified personnel only, observing the accepted industry codes and practices. Make sure employees or third persons are not exposed to any danger Springs must be relieved before disassembly actuator from body.

Design

The pressure reducing valve is a self acting unit consisting of:

- Valve
- 1, 2 or 3 springs
- Diaphragm in the actuator
- One capillary tube on upper side of the actuator
- Compensation chamber (for steam applications)

Function

The medium flows through the free area between the seat and cone in the direction indicated by the arrow on the body.
The position of the valve cone determines the flow rate and consequently the pressure ratio across the valve.
The downstream pressure is transmitted through the compensation chamber and the capillary to the diaphragm, where it is converted into a positioning force. This positioning force is adjusting the cone with dependence on the force of the operating springs. The spring force can be adjusted by using the set point adjuster - increase P_2 by turning clockwise (right), decrease P_2 by turning anticlockwise (left).
The valve cone is pressure balanced.
The fluid pressure acts onto the bottom and top surfaces of the cone at the same time. In this way, the forces produced by the fluid pressure on the cone, are compensated.

Technical Data

Materials:	
- H1PR valve body	Cast steel GP240GH (GS-C25)
- G1PR valve body	Nodular cast iron EN-GJS-400-15
- Cone, Seat	Stainless steel
- O-ring	A70H FEPM
- Bolts, nuts	24 CrMo 4/A4
- Stag bolt, Set point adjuster	St. 42, 1.0503, electroplated
- Spindle housing	St. 42, 1.0503, electroplated
- Spring	W. Nr. 1.4568, powder coated
- Diaphragm housing	Steel 1.0122
- Diaphragm	NBR / EPDM
Nominal pressure:	
- G1PR	PN 25
- H1PR	PN 40
Seating	Single-seated
Valve characteristic	Quadratic
Leakage rate	≤ 0.05% of kvs
Flanges drilled according to:	
- G1PR	EN 1092-2 PN 25
- H1PR	EN 1092-1 PN 40
Counter flanges	DIN 2634
Colour (valve body, cover):	
- H1PR	Green
- G1PR	Blue

Installation

1. Follow assembly instructions (only if valve is not already assembled at delivery).
2. Install the pressure reducing valve in a horizontal pipeline.
3. On installing the valve, make sure the

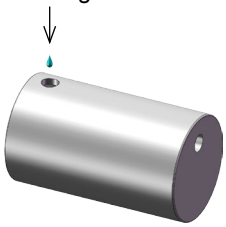
direction of flow corresponds with the arrow on the body.

4. For media with a tendency to condensate, install the pipeline with a slight downward slope on both sides so that the condensate can drain properly.
5. Make sure you choose a place of installation that allows you to freely access the regulator even after the entire plant has been completed.
6. The regulator must be installed free of stress. If necessary, support the piping near the connections.
7. Capillary is recommended to be installed on the horizontal center line of the pipe and approx. 1 m from pressure reducing valve on the secondary side.
8. Pressure gauge must be installed downstream right after the compensation chamber.

NOTICE !
Install a strainer upstream of the regulator. We recommend installing a hand-operated shut-off valve both upstream of the strainer and downstream of the regulator to be able to shut down the plant for cleaning and maintenance, and when the plant is not used for longer periods of time.
To monitor the pressures in the plant, install a pressure gauge both upstream and downstream of the regulator. Install the pressure gauge on the downstream side behind the downstream pressure tapping point (not between the tapping point and the valve!).
Condensation chamber is needed for all steam applications.

Filling the compensation chamber

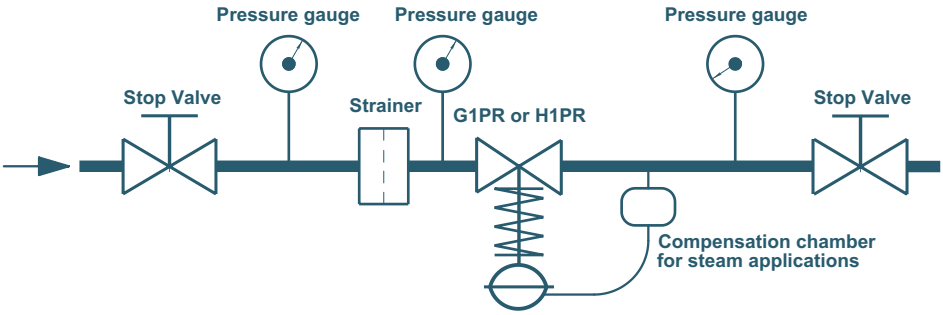
Water Filling Point



Installation in steam applications

1. Make sure the plant is shut down and that the shut-off valves are closed.

Drawing of installation principle



2. Unscrew and remove bolt at the water filling point.
3. Fill up completely the condensation chamber with clean fresh water and insert the bolt again.
4. Make sure the bolt hole is properly sealed before opening the shut off-valves again.

Start up

1. Before start-up check if the tubes and the interior of the valve are cleaned.
2. Check that the valve, spring and actuator parts correspond to the correct setpoint according to Table 1 and 2.
3. Slowly open the stop valve. The downstream pressure will now close the G1PR.
4. Use the set point adjuster to adjust the spring force. Increase P2 by turning clockwise (right), until the required pressure is monitored on the pressure gauge.
5. If P2 is too high, then decrease P2 by turning anti-clockwise (left) and keep monitoring the pressure gauge until correct pressure is set.
6. Valve is ready to use.

Replacing the operating diaphragm

If the downstream pressure deviates from the set point considerably, check if the diaphragm is leaking and, if necessary, replace it.

1. Shut down the plant by slowly closing the shut-off valves. Relieve the relevant section of the pipeline of pressure and, if necessary, drain it as well.
2. Unscrew the control line and clean it.
3. Loosen the bolts at the actuator and remove the cover plate.
4. Unscrew the nut and lift off the diaphragm plate.
5. Replace the operating diaphragm with a new one.
6. Proceed in the reverse order to reassemble the regulator.

Assembly instructions

1. Choose the valve part, G1PR or H1PR.

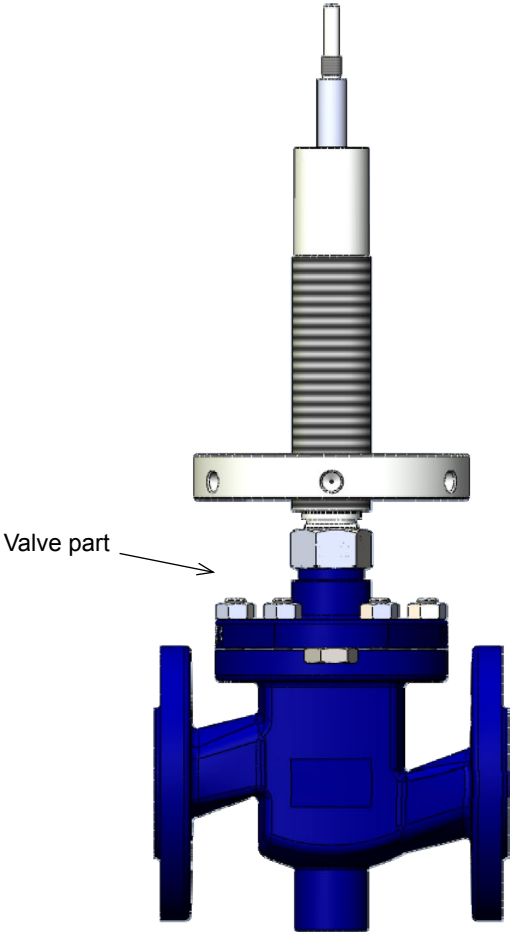


Fig. 1

2. Choose and place the Spring part, according to table 1, on the setpoint-adjuster and screw the Spring-guide on the Spindle.

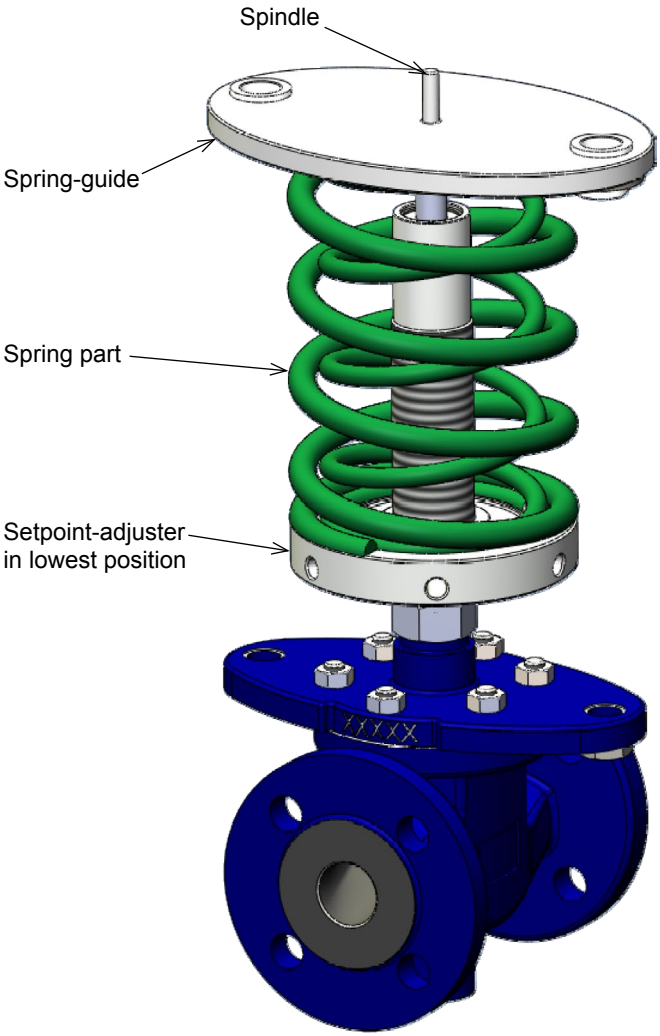


Fig. 2

3. Choose and mount the Actuator part, according to table 1, and fasten the stay-bolts with the nuts.(Max. torque : 270 NM).
Stick the warning label on the stay-bolt.

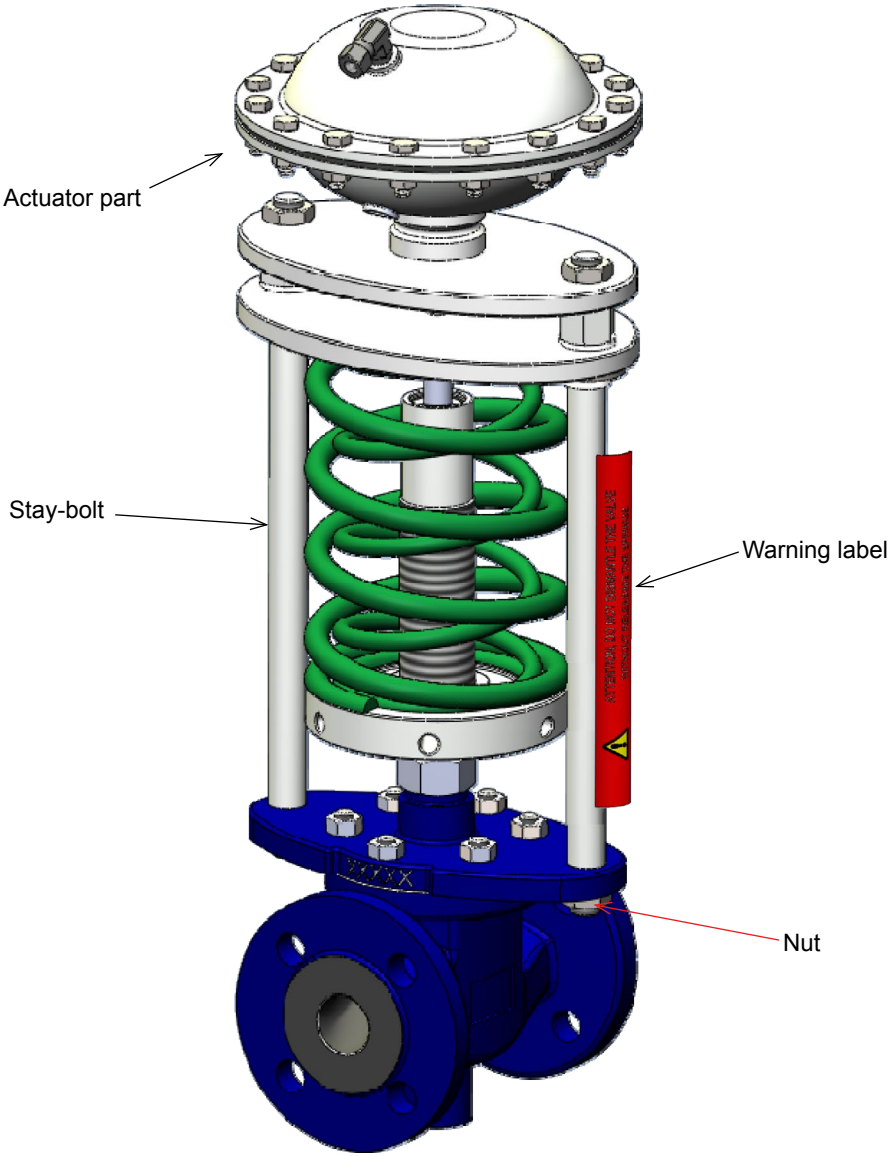


Fig. 3

Valve	Setpoint	Valve Part G1PR	Valve Part H1PR	Actuator Part	Spring Part		
					0149929	0149927	0149925
DN15	0,4 - 1,2	0151373	0151389	0151405		2	
	1,0 - 2,5			0151407		2	3
	2,0 - 5,0				1	2	3
	4,0 - 10			0151409	1		3
	8,0 - 16				1	2	3
DN20	0,4 - 1,2	0151375	0151391	0151405		2	
	1,0 - 2,5			0151407		2	3
	2,0 - 5,0				1	2	3
	4,0 - 10			0151409	1		3
	8,0 - 16				1	2	3
DN25	0,4 - 1,2	0151377	0151393	0151405		2	
	1,0 - 2,5			0151407		2	3
	2,0 - 5,0				1	2	3
	4,0 - 10			0151409	1		3
	8,0 - 16				1	2	3
DN32	0,4 - 1,2	0151379	0151395	0151405		2	
	1,0 - 2,5			0151407		2	3
	2,0 - 5,0				1	2	3
	4,0 - 10			0151409	1		3
	8,0 - 16				1	2	3
DN40	0,4 - 1,2	0151381	0151397	0151405		2	
	1,0 - 2,5			0151407		2	3
	2,0 - 5,0				1	2	3
	4,0 - 10			0151409	1		3
	8,0 - 16				1	2	3
DN50	0,4 - 1,2	0151383	0151399	0151405		2	
	1,0 - 2,5			0151407		2	3
	2,0 - 5,0				1	2	3
	4,0 - 10			0151409	1		3
	8,0 - 16				1	2	3
DN65	0,4 - 1,2	0151385	0151401	0151411		2	
	1,0 - 2,5			0151413		2	3
	2,0 - 5,0				1	2	3
	4,0 - 10			0151415	1		3
	8,0 - 16				1	2	3
DN80	0,4 - 1,2	0151387	0151403	0151411		2	
	1,0 - 2,5			0151413		2	3
	2,0 - 5,0				1	2	3
	4,0 - 10			0151415	1		3
	8,0 - 16				1	2	3

Table 1

Spring No.	Wire Dia.	Item No.
1	Ø13	0149929
2	Ø10	0149927
3	Ø9	0149925

Table 2

Transport and storage

The valve must be transported and stored dry and clean.
In humid rooms, a drying material or heating must be used to avoid condensation.

During transport and intermediate storage the valve should not be exposed to temperatures lower than -10°C.

If the valves are painted (coated) on the outside, this coating must remain without damage, otherwise the faulty spots must be repaired immediately.

The standard packaging protects valves and equipment against rain and snow during trucking.

For critical transports such as sea freight equipment will be protected by VCI (Volatile Corrosion Inhibitor) material.
If protected by VCI do not remove the packaging until the equipment is going to be installed.

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