

# Pressure Reducing Valves type G1PR (PN 25) and H1PR (PN 40), DN 15 – 80 mm

3.9.08-F

GB-1

## Characteristics

- Exact regulating
- Nominal pressure PN 25 / PN 40
- Self-acting
- Easy to install and use

## Applications

This unit is designed for maintaining the pressure downstream of the valve to an adjusted set point value.

## 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 setpoint adjuster.

The valve cone is pressure balanced. The pressure acts onto the bottom and top surface of the cone at the same time. In this way, the forces produced by the media are compensated.

## Design

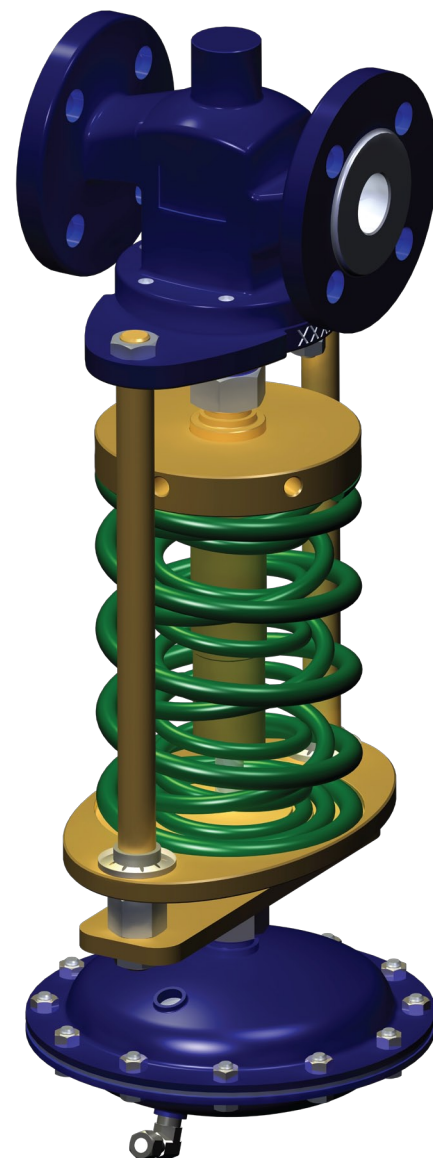
The pressure reducing valve is a self-acting unit consisting of a valve, springs, an actuator and one capillary tube connected on the upper side of the actuator. The valve body is made of nodular cast iron or cast steel. The seat and cone are made of stainless steel. The diaphragm is made of EPDM or NBR rubber, depending on the medium to be controlled.

## Quality assurance

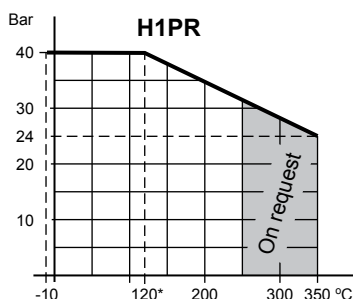
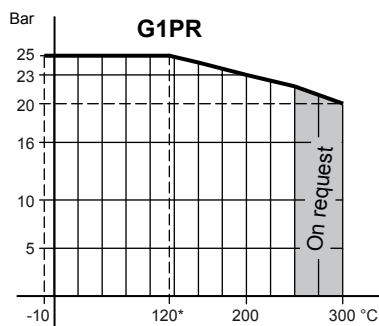
All valves are manufactured under an ISO 9001 certification and are pressure and leakage tested before shipment. For marine applications the valves can be supplied with relevant test certificates from recognized classification societies.

## Installation

The pressure reducing valve must be installed in a horizontal pipe with the actuator directed downwards. The flow through the valve must coincide with the arrow on the valve body.



Pressure/Temperature diagram



\* For temperature above 120°C a compensation chamber is needed.

## Specifications

| Type      | Flange connection<br>DN in mm | $k_{vs}$ -value<br>m <sup>3</sup> /h | Lifting height<br>mm | Weight<br>kg |
|-----------|-------------------------------|--------------------------------------|----------------------|--------------|
| 15 G/H1PR | 15                            | 2.75                                 | 6                    | 21           |
| 20 G/H1PR | 20                            | 5                                    | 6.5                  | 23           |
| 25 G/H1PR | 25                            | 7.5                                  | 7                    | 24           |
| 32 G/H1PR | 32                            | 12.5                                 | 8                    | 27           |
| 40 G/H1PR | 40                            | 20                                   | 9                    | 29           |
| 50 G/H1PR | 50                            | 30                                   | 10                   | 33           |
| 65 G/H1PR | 65                            | 50                                   | 13                   | 38           |
| 80 G/H1PR | 80                            | 80                                   | 16                   | 55           |

| Set point  | bar | 0.4 - 1.2 | 1 - 2.5 | 2 - 5 | 4 - 10 | 8 - 16 |
|--|-----|-----------|---------|-------|--------|--------|
| Maximum allowable differential pressure is 25 bar. |     |           |         |       |        |        |

Subject to change without notice.

# Pressure Reducing Valves type G1PR (PN 25) and H1PR (PN 40), DN 15 – 80 mm

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GB-2

## Technical Data

### Materials:

|                                 |   |
|---------------------------------|---|
| - H1PR valve body               | Cast steel<br>GP240GH<br>(GS-C25)       |
| - G1PR valve body               | Nodular cast iron<br>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<br>Electroplated         |
| - Spindle housing               | St. 42, 1.0503<br>Electroplated         |
| - Spring                        | W. Nr. 1.4568<br>powder coated          |
| - Diaphragm housing             | Steel 1.0122                            |
| - Diaphragm                     | NBR / EPDM                              |
| Nominal pressure                | PN 25 - G1PR<br>PN 40 - H1PR            |
| Seating                         | Single-seated                           |
| Valve characteristic            | Quadratic                               |
| Leakage rate                    | $\leq 0.05\%$ of $k_{vs}$               |
| Temperature range               | See pressure/<br>temperature<br>diagram |

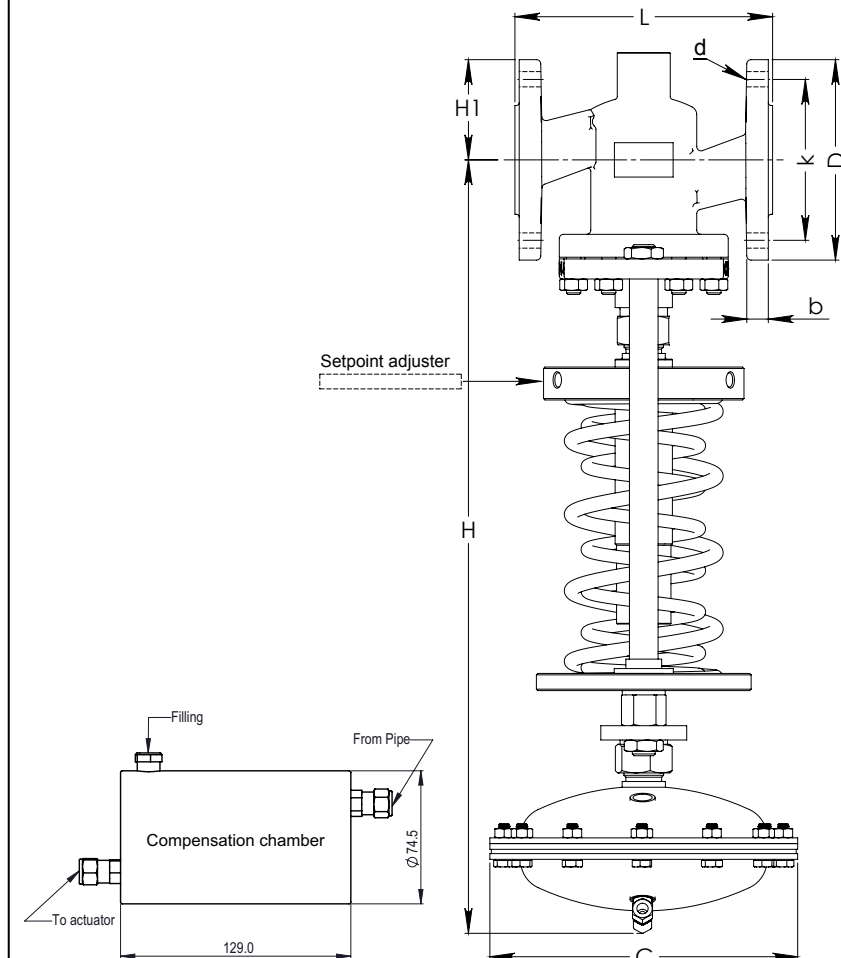
### Flanges drilled according to:

|        |                 |
|--------|-----------------|
| - H1PR | EN 1092-1 PN 40 |
| - G1PR | EN 1092-2 PN 25 |

### Counter flanges

|                             |          |
|-----------------------------|----------|
|                             | DIN 2634 |
| Colour (valve body, cover): |          |
| - H1PR                      | Green    |
| - G1PR                      | Blue     |

## Dimension sketch



## Definition of $k_{vs}$ -value

The  $k_{vs}$ -value is identical to the IEC flow coefficient  $k_v$  and defined as the water flow rate in  $m^3/h$  through the fully open valve by a constant differential pressure,  $\Delta p_v$ , of 1 bar.

## Strainer

It is recommended to use a strainer in front of the control valve if the liquid contains suspended particles.

## Compensation chamber

For steam applications and media temperature above  $120^\circ C$  a compensation chamber is needed.

| Type      | L<br>mm | H1<br>mm | H<br>mm | C<br>mm | b<br>mm | D (dia.)<br>mm | k (dia.)<br>mm | d mm dia.<br>(number) |
|-----------|---------|----------|---------|---------|---------|----------------|----------------|-----------------------|
| 15 G/H1PR | 130     | 60       | 582     | 220     | 14      | 95             | 65             | 14 x (4)              |
| 20 G/H1PR | 150     | 65       | 595     | 220     | 16      | 105            | 75             | 14 x (4)              |
| 25 G/H1PR | 160     | 70       | 601     | 220     | 16      | 115            | 85             | 14 x (4)              |
| 32 G/H1PR | 180     | 75       | 618     | 220     | 18      | 140            | 100            | 19 x (4)              |
| 40 G/H1PR | 200     | 85       | 630     | 220     | 19      | 150            | 110            | 19 x (4)              |
| 50 G/H1PR | 230     | 95       | 660     | 220     | 19      | 165            | 125            | 19 x (4)              |
| 65 G/H1PR | 290     | 110      | 685     | 220     | 20      | 185            | 145            | 19 x (8)              |
| 80 G/H1PR | 310     | 155      | 708     | 220     | 20      | 200            | 160            | 19 x (8)              |

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