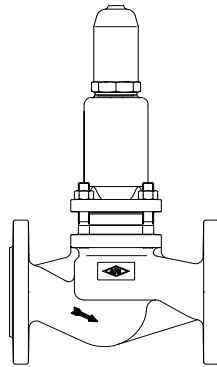


ARI-Pressure regulating valve - with bellows seal

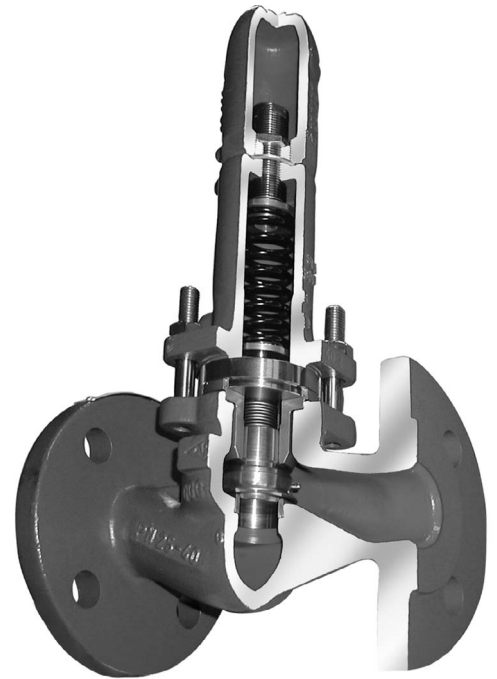
DN 25 - 100

ARI-PRESO®
Pressure regulating valve
with flanges
• Spring loaded

Cast iron
Nodular iron
Cast steel
BR 750



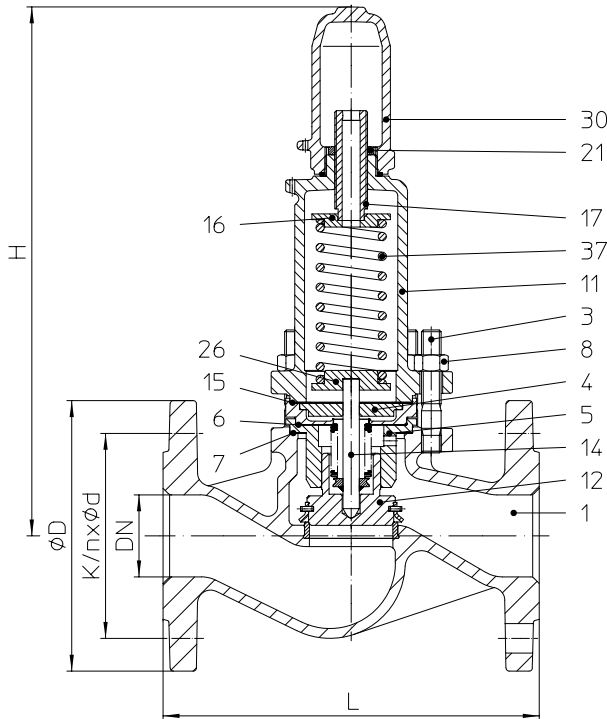
Page 2



BR 750

Features:

- Spring loaded
- Standard bellows seal
- Compact design
- Regulating plug
- Shaft plug guide
- Pressure ranges: 0,5 - 1,5 bar
1,0 - 3,0 bar
2,0 - 5,0 bar
4,0 - 10,0 bar
- Exact and easy adjustment
- Proportional flow characteristic
- Maintenance-free

Pressure regulating valve with bellows seal, cast iron, nodular iron, cast steel


| Figure | Nom. pressure | Material | Nom. diameter |
|--------|---------------|-----------|---------------|
| 12.753 | PN 16 | EN-JL1040 | DN 25-100 |
| 22.753 | PN 16 | EN-JS1049 | DN 25-100 |
| 32.753 | PN 16 | 1.0619+N | DN 25-100 |
| 52.753 | PN 16 | 1.4408 | DN 25-100 |

Selection of possible applications:

- Refrigerant
- Cooling water
- Warm water
- Hot water
- Thermal oil

- other applications on request -

| Figure | | PN16 - 12.753 | PN16 - 22.753 | PN16 - 32.753 | PN16 - 52.753 |
|-------------|-----------------------|--|---------------------------------|------------------------|-----------------------------|
| Pos. | Description | Material, Material-No. | | | |
| 1 | Body | EN-JL1040, EN-GJL-250 | EN-JS1049, EN-GJS-400-18U-LT | GP240GH+N, 1.0619+N | GX5CrNiMo19-11-2, 1.4408 |
| 1.2 | Seat | X20Cr13+QT, 1.4021+QT | | | GX5CrNiMo19-11-2, 1.4408 |
| 3 | Stud | 25CrMo4, 1.7218 | | | A 4-70 |
| 4 | Stem guide | X20Cr13+QT, 1.4021+QT | | | |
| 5 | Guide housing | X20Cr13+QT, 1.4021+QT | | | X6CrNiMoTi17-12-2, 1.4571 |
| 6 | Gasket * | CrNi laminated both sides with pure graphite | | | |
| 7 | Gasket * | CrNi laminated both sides with pure graphite | | | |
| 8 | Hexagon nut | C35E, 1.1181 | | | A 4 |
| 11 | Bonnet | EN-JL1040, EN-GJL-250 | EN-JS1049, EN-GJS-400-18U-LT | | GX5CrNiMo19-11-2, 1.4408 |
| 12 | Plug unit * | X20Cr13+QT, 1.4021+QT | | | X6CrNiMoTi17-12-2, 1.4571 |
| 14 | Stem unit * | X6CrNiMoTi17-12-2, 1.4571 | | | |
| 15 | Gasket * | CrNi laminated both sides with pure graphite | | | |
| 16 | Spring plate (top) | S235JR, 1.0037 | | | X6CrNiMoTi17-12-2, 1.4571 |
| 17 | Adjusting screw | X20Cr13+QT, 1.4021+QT | | | X6CrNiMoTi17-12-2, 1.4571 |
| 21 | Lock nut | 11SMnPb30+C, 1.0718+C | | | X6CrNiMoTi17-12-2, 1.4571 |
| 26 | Spring plate (bottom) | S235JR, 1.0037 | | | X6CrNiMoTi17-12-2, 1.4571 |
| 30 | Cap, gastight | EN-JS1049, EN-GJS-400-18U-LT | | | GX5CrNiMo19-11-2, 1.4408 |
| 37 | Spring * | FDSiCr | | | |

* Spare parts

Dimensions and weights

Flanges acc. to DIN EN 1092-1/-2 (Flangeholes/-thickness tolerances acc. to DIN 2533)

| DN | | 25 | 32 | 40 | 50 | 65 | 80 | 100 |
|---------|------|--------|--------|--------|--------|--------|--------|--------|
| H | (mm) | 290 | 300 | 325 | 330 | 400 | 440 | 500 |
| L | (mm) | 160 | 180 | 200 | 230 | 290 | 310 | 350 |
| Ø D | (mm) | 115 | 140 | 150 | 165 | 185 | 200 | 220 |
| Ø K | (mm) | 85 | 100 | 110 | 125 | 145 | 160 | 180 |
| n x Ø d | (mm) | 4 x 14 | 4 x 18 | 4 x 18 | 4 x 18 | 4 x 18 | 8 x 18 | 8 x 18 |
| Weight | (kg) | 6,6 | 7,7 | 10,4 | 12,9 | 20,2 | 28,9 | 43,7 |

Application

The pressure regulating valve PRESO® is a spring loaded differential pressure-control valve. The main applications are:

- Pump protection: PRESO® inserted parallel to the pump, this secures a minimum flow.
- Application in bypass lines from users, e.g. heat exchanger in thermal oil systems to sustain a minimum flow.
- Parallel to piping systems to avoid to higher differential pressures.
- Pressure maintaining valve to avoid the flashing in condensate systems.

Sizing

Necessary data

| | |
|-----------------------------------|----------------------|
| Medium: | BP Transcal N |
| Temperature: | 230 °C |
| Flow Q : | 25 m ³ /h |
| Set pressure p ₁₀ : | 2,5 bar(g) |
| Opening pressure p ₁ : | 3,1 bar(g) |
| Back pressure p ₂ : | 0,5 bar (g) |

1. Differential set pressure

(small leakage, for selection see pressure ranges pt. 4)

$$\Delta p_0 = p_{10} - p_2 = 2,0 \text{ bar}$$

2. Differential opening pressure

(needed full flow, sizing see pt. 3)

$$\Delta p = p_1 - p_2 = 2,6 \text{ bar}$$

$$\Delta p / \Delta p_0 = 1,3 \quad (\text{complies to 30\% differential pressure raise})$$

3. Sizing

ARI-VASI program part „Check valves“ with

p₁ = 4,1 bar(a),

p₂ = 1,5 bar(a),

Q = 25 m³/h

result Kv = 13,29

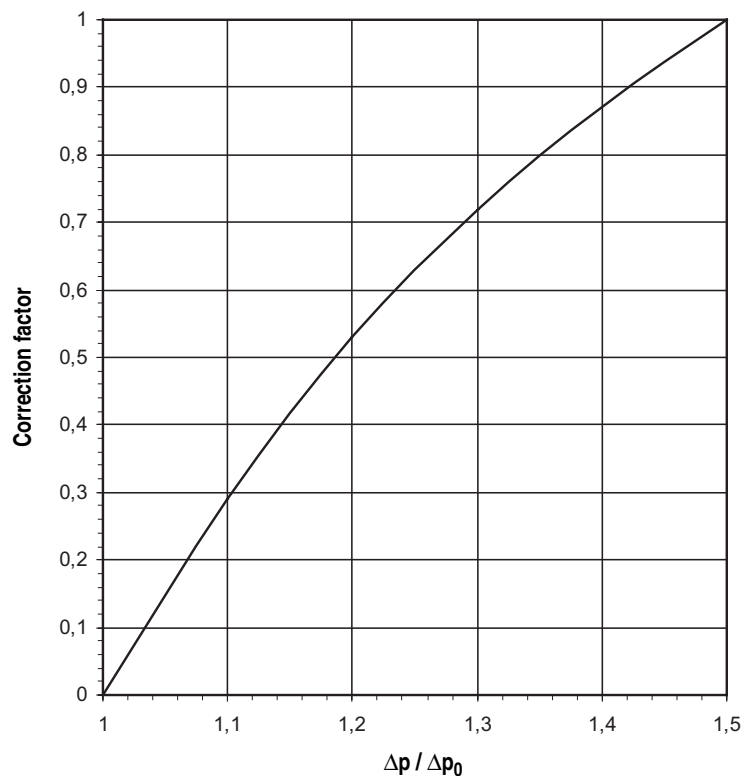
Diagram by $\Delta p / \Delta p_0 = 1,3$

result correction factor = 0,72

$$Kvs = kv/0,72 = 18,5$$

Chosen out of catalogue table:

DN50 with Kvs = 20



4. Selection of pressure range

The differential set pressure Δp_0 (here 2,0 bar) gives the pressure range.

Please observe the max. permissible back pressure p₂ (refer to page 4).

If two pressure ranges are possible, you should choose the lower range.

In this case 1 - 3 bar is better than 2 - 5 bar.

| DN | | 25 | 32 | 40 | 50 | 65 | 80 | 100 |
|------------|---------------------|-----|-----|----|-----|----|----|-----|
| Kvs-values | (m ³ /h) | 3 | 5 | 10 | 20 | 22 | 29 | 45 |
| Seat-Ø | (mm) | 27 | 31 | 41 | 51 | 66 | 81 | 101 |
| Stroke | (mm) | 2,5 | 2,5 | 4 | 5,5 | 7 | 8 | 10 |

Pressure-temperature-ratings

Flangeholes/-thickness tolerances acc. to DIN

| acc. to DIN EN 1092-2 | | Temperature | | | | | | | | |
|-----------------------|----|---------------------|-------------------|----------|----------|----------|----------|----------|-------|-------|
| Material | PN | -60°C up to <-10°C* | -10°C up to 120°C | 150°C | 200°C | 250°C | 300°C | 350°C | 400°C | 450°C |
| EN-JL1040 | 16 | --- | 16 bar | 14,4 bar | 12,8 bar | 11,2 bar | 9,6 bar | --- | --- | --- |
| EN-JS1049 | 16 | on request | 16 bar | 15,5 bar | 14,7 bar | 13,9 bar | 12,8 bar | 11,2 bar | --- | --- |

| acc. to DIN EN 1092-1 | | Temperature | | | | | | | | | |
|-----------------------|----|---------------------|------------------|----------|----------|----------|----------|----------|----------|----------|---------|
| Material | PN | -60°C up to <-10°C* | -10°C up to 50°C | 100°C | 150°C | 200°C | 250°C | 300°C | 350°C | 400°C | 450°C |
| 1.0619+N | 16 | 12 bar | 16 bar | 14,9 bar | 13,9 bar | 12,4 bar | 11,4 bar | 10,3 bar | 9,6 bar | 9,2 bar | 8,9 bar |
| 1.4408 | 16 | 16 bar | 16 bar | 14,9 bar | 13,5 bar | 12,4 bar | 11,7 bar | 11 bar | 10,7 bar | 10,2 bar | --- |

Intermediate values for max. permissible operational pressures can be determined by linear interpolation of the given temperature / pressure chart.

* Studs and nuts made of A4-70 (at temperatures below -10°C)

Information / Restrictions of technical rules to be observed!

Max. permissible back pressure p₂ in bar(ü)

(Observe pressure-temperature-ratings)

| DN | | 25 | 32 | 40 | 50 | 65 | 80 | 100 |
|---------------------------------------|------------------------------|---|------|-----|------|------|------|------|
| Pressure range Δp ₀ in bar | Range Δp ₀ in bar | Max. permissible back pressure p ₂ in bar(ü) | | | | | | |
| 0,5 - 1,5 | 0,5 | 6,9 | 6,4 | 6,6 | 9,5 | 4,9 | 6,7 | 5,9 |
| | 1 | 5,4 | 4,4 | 4,7 | 6,5 | 3,3 | 4,9 | 4,2 |
| | 1,5 | 3,9 | 2,4 | 2,7 | 3,5 | 1,7 | 3,1 | 2,5 |
| 1 - 3 | 1 | 10,6 | 11,2 | 9,9 | 14 | 7 | 7,7 | 6,8 |
| | 2 | 7,6 | 7,2 | 6 | 10,4 | 3,8 | 4,2 | 3,5 |
| | 3 | 4,6 | 3,2 | 2 | 6,8 | 0,5 | 0,6 | 0,1 |
| 2 - 5 | 2 | 12 | 12 | 12 | 12 | 11,3 | 10,8 | 10,2 |
| | 3 | 9,3 | 9,2 | 8,4 | 9,8 | 8,1 | 7,2 | 6,8 |
| | 4 | 6,6 | 6,5 | 4,9 | 7,7 | 4,8 | 3,7 | 3,5 |
| | 5 | 3,9 | 3,7 | 1,3 | 5,5 | 1,6 | 0,1 | 0,1 |
| 4 - 10 | 4 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| | 6 | 5,7 | 5,7 | 5,7 | 5,7 | 5,7 | 5,7 | 5,7 |
| | 8 | 3,3 | 3,3 | 3,3 | 3,3 | 3,3 | 3,3 | 3,3 |
| | 10 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

Δp₀ = differential pressure (set pressure p₁₀ – back pressure p₂)

Please indicate when ordering:

- 1. Figure-No.
- 2. Nominal diameter
- 3. Nominal pressure
- 4. Body material
- 5. Plug design
- 6. Kvs-value
- 7. Pressure range
- 8. Special design

Dimensions in mm
 Weight in kg
 Pressures in barg (gauge)
 1 bar ≙ 10⁵ Pa ≙ 0,1 MPa
 Kvs in m³/h

Example:

Figure 22.753; nominal diameter DN50; nominal pressure PN16; body material EN-JS1049; metal sealed; Kvs 20; pressure range 1 - 3 bar.



Technology for the Future.
 GERMAN QUALITY VALVES

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