

7 BIS

Pressure reducing valves type JUNIOR

Desbordes

Technical Data Sheet



Description

The Desbordes pressure reducing valves 7 BIS bodies are made of bronze. Due to the design, they are not affected by scale or dirt and do not need any maintenance. They can be fitted on compressed air, neutral gases and fuel oil at ambient temperature circuits. For these cases of applications consult us.

- Control and maintain the downstream pressure at an adjustable reduced value, whether there is a flow or not
- Keep an outlet pressure at a constant value, even by variation of the upstream pressure (the downstream pressure can not vary more than 10 % of the variation of the upstream pressure, according to the Standard)
- Guarantee a high flow rate at a constant outlet pressure because of low headloss
- Downstream setting : 1 bar to 5,5 bar ; indicative value according to EN1567
- Pre-set at 3 bar
- Equipped with 2 plugs 1/4" on each side to allow the mounting of downstream pressure gauge and drain

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| DN | PFA in bar | PS in bar | | | | Cat. | Ref. | | Weight Kg |
|----------|---------------|-----------|----|----|----|------|-----------------|-----------------|--------------|
| | | L1 | L2 | G1 | G2 | | Water | Other mediums | |
| 1/2 15 | 16 | 16 | 16 | x | 16 | 4.3 | 149B7209 | 149B7756 | 0,50 |
| 3/4 20 | 16 | 16 | 16 | x | 16 | 4.3 | 149B7210 | 149B7757 | 0,60 |
| 1 25 | 16 | 16 | 16 | x | 16 | 4.3 | 149B7552 | 149B7758 | 0,95 |
| 1 1/4 32 | 16 | 16 | 16 | x | 16 | 4.3 | 149B7553 | 149B7759 | 1,55 |
| 1 1/2 40 | 16 | 16 | 16 | x | 16 | 4.3 | 149B7554 | 149B7760 | 2,05 |
| 2 50 | 16 | 16 | 16 | x | 16 | 4.3 | 149B7555 | 149B7761 | 3,70 |

Important notice :

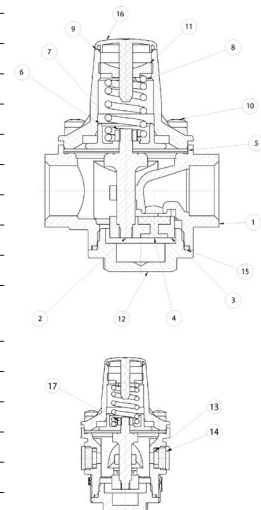
L1, L2, G1 and G2 correspond to liquids/gas classified into degree of danger according to the Pressure Equipment Directive (PED). The article 4.3 applies to equipments with no CE marking.

Technical features

| | |
|---|---|
| Operating temperature | Mini. : -10 °C / Maxi. in permanent service : 80 °C |
| Permissible operating pressure (PFA) in water | See table above |
| Maximum permissible pressure (PS) other mediums | See table above |
| Connection | Female/female, BSP thread |
| Gauge connection | 1/4" |
| Mediums | EPDM : water Other mediums : consult us |

Nomenclature and materials

| N° | Designation | Materials | EURO | ANSI |
|-----|---------------------|---------------------|-------------------------------------|------------|
| 1 | Body | Bronze | EN1982 CuSn5Zn5Pb5-C GS | ASTM B 505 |
| 2 | Stem | DZR Brass | EN12164 CuZn36Pb2As R350 | |
| 3 | Seal box | Brass | EN12164 CuZn39Pb3 R360 mini | ASTM B 124 |
| 4 | Seal | DN 15-20 mm | EPDM or NBR | |
| | | DN 25-50 mm | NBR | |
| 5 | Membrane | Water | EPDM | |
| | | Other mediums | FKM | |
| 6 | Membrane washer | Brass | EN12164 CuZn39Pb3 R360 mini | ASTM B 124 |
| 7 | Nut | Stainless steels | EN10088-3 X5CrNi 18-10 | AISI 304 |
| 8 | Spring | Anticorrosive steel | EN10270-1 SH | |
| 9 | Cap | Brass or Zamak | EN12165 CuZn40Pb2 H080 Zamak ZP5 | ASTM B 124 |
| 10 | Screw | Stainless steel | EN10088-3 X5CrNi 18-10 | AISI 304 |
| 11 | Adjusting screw | Brass | EN12164 CuZn39Pb3 R360 mini | ASTM B 124 |
| 12 | Plug cap | Brass | EN12164 CuZn39Pb3 R360 mini | ASTM B 124 |
| 13 | Flat seal | NBR (Nitrile) | | |
| 14 | Pressure gauge plug | Brass | EN12164 CW617N R360 mini | ASTM B 124 |
| 15 | O-ring | EPDM or NBR | | |
| 16 | Plug | Plastic or Brass | PB 180 G2M CuZn40Pb2 | |
| 17* | O-ring | EPDM or NBR | | |



*To DN 32 at 50mm only

Approvals

ACS : specific references consult us

International construction Standards :

Pressure reducing valves EN 1567
Thread connection NF EN ISO 228

Application

7 BIS is an ideal pressure reducing valve for domestic water systems without special requirements : individual supply for building sites (flats, houses...).

Factory preset at 3 bar, it protects the whole installation, facilitates the setting of mixing valves, and decreases the hammering and helps to avoid cracks and vibrations in the piping.

Thanks to its weak head losses, it helps to obtain normal flow during simultaneous pumping.

Installation

In domestic water supply the DESBORDES 7 BIS reducing valves are fitted just after the water meter and thus protect the whole installation. They can be fitted wherever a reducing pressure is needed.

If there is a frost risk, they should be drained.

It can be fitted in any positions (horizontal, upright, upside down, fluid ascending or reversed and inclined...) if you respect the direction of flow as indicated by the arrow engraved on the body.

However if the circuit present a risk of back pressure or hammering we recommend to protect the pressure reducing valve with a check valve directly after its output.

Fonctionnement

Flow :

During water flow, water pressure exercised on the diaphragm decreases, which allows the spring to relax. The piston disc-yoke assembly moves towards the bottom to allow the water to pass.

Flow stoppage :

When water flow stops, the downstream pressure pushes on the diaphragm again, the spring goes back to its initial position, which leads to the valve closing, stopping water from flowing freely.

Setting

The adjustment must be done without flow ie no downstream outflow. The 7 BIS pressure reducing valve is factory pre-set at 3 bar.

They remain adjustable within a 1,5 bar to 5.5 bar range.

To increase the pressure, tighten the adjusting screw (clockwise as you look at the screw from above). To reduce the pressure, undo the adjusting screw (anticlockwise as you look at the screw from above), slightly open a tap for a moment, close again, then tighten the screw again until you obtain a desired pressure.

Water hammers can damage the reducing valve. When commissioning, open slowly and gradually the valve at the upstream side. A booster unit with a sudden start close to the pressure reducer requires the safety of an absorption tank. Just like by any intervention on the pipe work, the circuits must be rinsed beforehand.

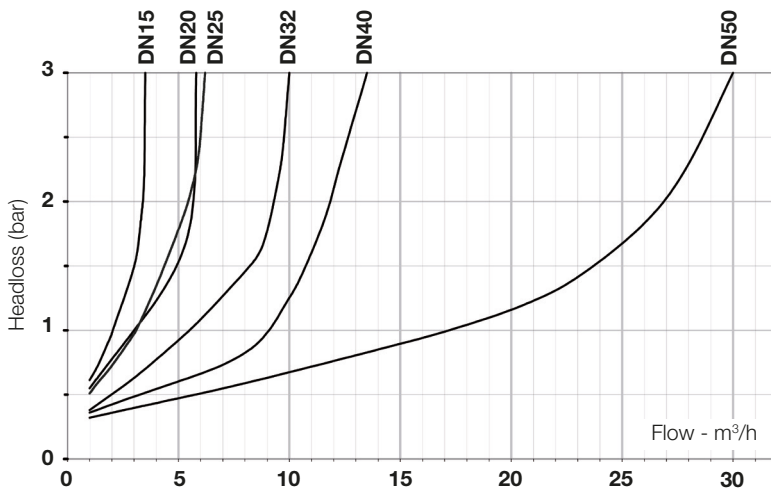
Max. upstream pressure : 16 bar.

Maintenance

Due to the special design, the Desbordés 7 BIS pressure reducing valve is not affected by scale or dirt and does not need any maintenance if is fitted by a professional.

Diaphragm, spring, seat, valve are largely dimensioned to allow precise and constant adjustment allowing a high flow.

Operation



Setting data : upstream 8 bar/downstream 3 bar

7 BIS - Headloss chart

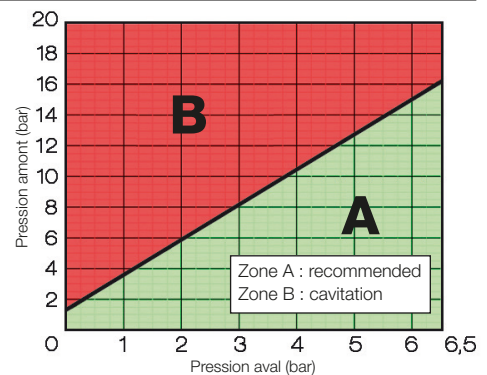
| DN (mm) | Kv | Q max | Q at 2 m/s |
|---------|------|-------|------------|
| 15 | 2 | 3,5 | 1,27 |
| 20 | 3 | 5,8 | 2,26 |
| 25 | 3,1 | 6,2 | 3,53 |
| 32 | 5,5 | 10 | 5,8 |
| 40 | 9,3 | 13,5 | 9 |
| 50 | 17,4 | 30 | 14 |

Kv : Flow in m³/h when the output pressure becomes 1 bar lower than its zero flow setting

Cavitation

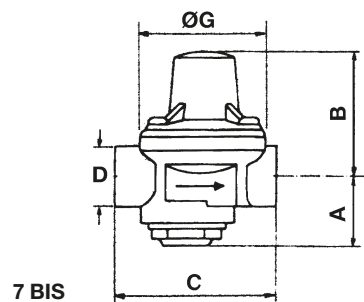
Checking if the differential of pressure, between the upstream and the desired downstream pressure, is not too large, is necessary to avoid cavitation risk. By putting in the graph hereafter, the upstream value and the desired downstream pressure, 2 results are possible :

- Zone A : The point is in the no-cavitation zone, normal duty
- Zone B : The point is in the cavitation zone : continuous operation in this zone can cause rapid damage of the internal parts. If the pressure reducing valve is to operate in this zone, contact us.



Sizing

| DN | D | | A | B | C | G |
|----|-------|-------|------|-----|------|-----|
| mm | " | mm | mm | mm | mm | mm |
| 15 | 1/2 | 15/21 | 30 | 56 | 64,5 | 50 |
| 20 | 3/4 | 20/27 | 33,5 | 61 | 70 | 57 |
| 25 | 1 | 26/34 | 30 | 68 | 81 | 70 |
| 32 | 1 1/4 | 33/42 | 34,5 | 91 | 97 | 81 |
| 40 | 1 1/2 | 40/49 | 36,5 | 106 | 110 | 92 |
| 50 | 2 | 50/60 | 45,5 | 106 | 135 | 120 |



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