

11BIS and 11BIS RC

Pressure reducing valves

Desbordes

Technical Data Sheet



Description

The Desbordes pressure reducing valves 11 BIS and 11 BIS RC bodies are made of bronze. Due to their 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 cannot 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 head loss
- Downstream setting : 1 bar to 5,5 bar; indicative value according to EN1567
- Downstream setting is possible from 0,5 bar with a compensating spring on RC type
- Pre-set at 3 bar
- 1/4" pressure gauge connection and drain on both sides of the casing



11BIS and 11BIS RC

Desbordes pressure reducing valves

DN	PFA in bar	PS in bar				Cat.	Ref.		Weight Kg
		L1	L2	G1	G2		Water	Other mediums	
1/2 15	25	25	25	x	25	4.3	149B7056	149B7768	0,70
3/4 20	25	25	25	x	25	4.3	149B7057	149B7769	0,90
1 25	25	25	25	x	25	4.3	149B7314	149B7770	1,90
1 1/4 32	25	25	25	x	25	4.3	149B7549	149B7771	3,90
1 1/2 40	25	25	25	x	25	4.3	149B7558	149B7772	4,20
2 50	25	25	25	x	25	4.3	149B7561	149B7773	5,20

Type RC

1/2 15	25	25	25	x	x	4.3	149B7063	(consult us)	0,70
3/4 20	25	25	25	x	x	4.3	149B7064	(consult us)	0,90

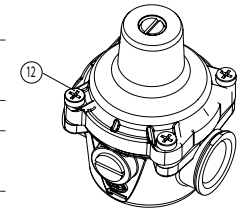
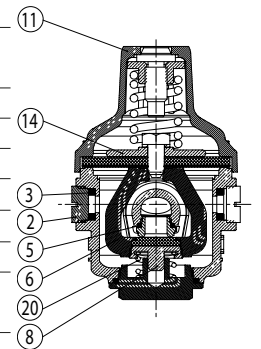
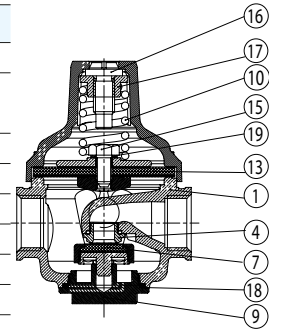
Important notice :

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
Gauge connection	1/4"
Mediums	Membrane 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	Pressure gauge plug	Brass	EN12164 CW617N R360 mini 4MS	ASTM B 124	
3	Seal	NBR (Nitrile)			
4	Seat	Stainless steel	EN10088-3 X8CrNiS18-09	AISI 303	
5	O-ring	NBR (Nitrile)			
6	Stirrup	DN 15 à 25 mm	Brass	EN12165 CuZn40PB2 H080	ASTM B 124
		DN 32 à 50 mm	Brass	EN1982 CuAl9-C	ASTM B 124
7	Flat seal	NBR (Nitrile)			
8	Flange	Brass	EN12164 CuZn39Pb3 R360 mini	ASTM B 124	
9	Plug cover	Brass	EN12164 CuZn39Pb3 R360 mini	ASTM B 124	
10	Spring	Anticorrosive steel	EN10270-2 VD CrSi		
11	Cap	DN 15 à 25 mm	Brass	EN12165 CuZn40PB2 H080	ASTM B 124
		DN 32 à 50 mm	Brass	EN1982 CuSn5Zn5PB5-C-GS	ASTM B 124
12	Screw	Stainless steel	EN10088-3 X5CrNi 18-10	AISI 304	
13	Membrane	Water	EPDM		
		Other medium			
14	Plate	Brass	EN12164 CuZn39Pb3 R360 mini	ASTM B 124	
15	Membrane screw	Stainless steel	EN10088-3 X5CrNi 18-10	AISI 304	
16	Adjusting screw	Laiton	EN12164 CuZn39Pb3 R360 mini	ASTM B 124	
17	Nut for spring pressing	Laiton	EN12164 CuZn39Pb3 R360 mini	ASTM B 124	
18	O-ring	NBR (Nitrile)			
19	Copper washer	Copper annealed			
20*	Compensating spring	Stainless steel	EN10270-3 X10CrNi18-08	AISI 302	



* Type 11 BIS RC only (DN 15 and 20 mm)

Approvals

ACS   (DN15-20-25)

International construction Standards :

Pressure reducing valves EN 1567

Thread connection NF EN ISO 228

Application

The Desbordes 11 BIS and 11 BIS RC is an ideal pressure reducing valves for industrial buildings and domestic water systems :

- For water distribution, domestic and individual for the protection of the whole sanitary installation (cold and hot water)
- Industrial applications such as : Machines and work stations, laundries, green houses, boiler rooms, compressed air pipeworks, fuel oil. For those applications, consult us.

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 11 BIS and 11 BIS RC 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 11 BIS and 11 BIS RC pressure reducing valves is factory pre-set at 3 bar.

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

RC type (compensating spring) allow an upstream setting from 0.5 bar

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 pipework, the circuits must be rinsed beforehand.

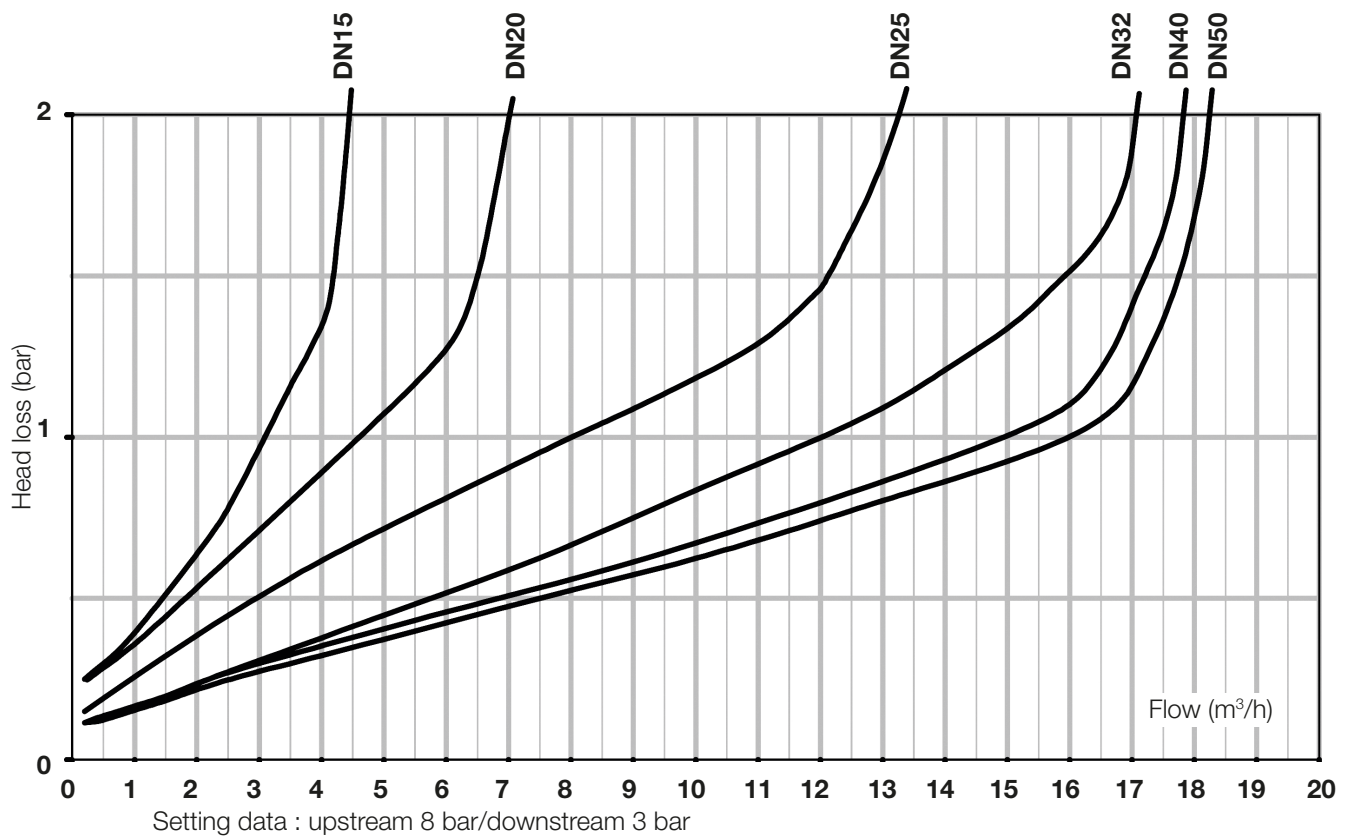
Max. upstream pressure : 25 bar.

Maintenance

Due to the special design, the Desbordes 11 BIS and 11 BIS RC pressure reducing valves 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



DN (mm)	Kv	Q max	Q at 2 m/s
15	3	5	1,6
20	4,5	8	2,8
25	8	14	3,6
32	12	18	5,8
40	15	18	9,1
50	16	18	14,2

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

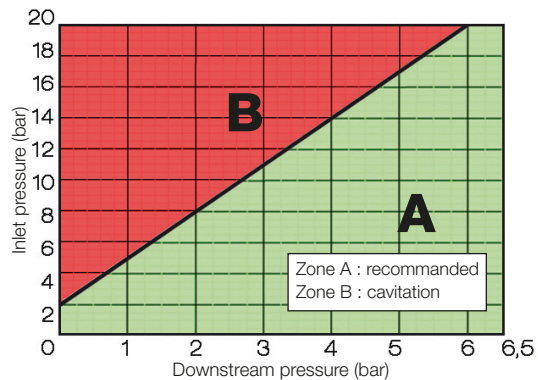
11BIS and 11BIS RC - Headloss chart

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.

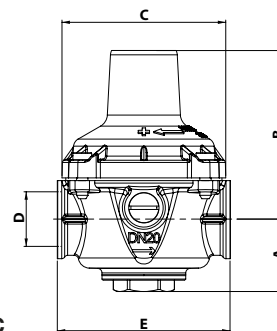
By putting in the graph hereafter, the upstream value and the desired downstream pressure, 2 results are possible :

- 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	E
mm	"	mm	mm	mm	mm	mm
15	1/2	15/21	31	60	59	66
20	3/4	20/27	32	75	73	76,5
25	1	26/34	40	102	94	98
32	1 1/4	33/42	51	179	104	126
40	1 1/2	40/49	46	185	104	132
50	2	50/60	54	194	104	146



11BIS and 11BIS RC

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