FloControl

DNS Flanged WRAS-Approved

DIRECT ACTING PRESSURE REDUCING VALVE

DATA SHEET

DNS VRCD PN16 Flanged Direct Acting Pressure Reducing Valve

The DNS flanged direct acting pressure reducing valve controls the downstream pressure to a constant value, regardless of flow rate and upstream pressure variations. It can be used in both hot and cold water systems, available in PN10, PN16, PN25. PN25, PN40 versions.

Product Codes

Size [mm]	1.5 – 6 Bar	5 – 12 Bar
50	DNS-50-1.5/6-PN16-DPRV	DNS-50-5/12-PN16-DPRV
65	DNS-65-1.5/6-PN16-DPRV	DNS-65-5/12-PN16-DPRV
80	DNS-80-1.5/6-PN16-DPRV	DNS-80-5/12-PN16-DPRV
100	DNS-100-1.5/6-PN16-DPRV	DNS-100-5/12-PN16-DPRV
150	DNS-150-1.5/6-PN16-DPRV	DNS-150-5/12-PN16-DPRV

Technical Features and Benefits

- Flanged version DN 50-150.
- Upstream and downstream pressure balanced, to stabilize the downstream pressure to a pre-set (and adjustable) value regardless of upstream pressure variations without creating unwanted upsurges.
- Ductile cast iron body and cap, piston, seat, guiding bush, bolts and nuts in stainless steel.
- Innovative self-cleaning piston technology (patent pending) to improve performance-reducing maintenance operations.
- Mobile block composed of three components in gun metal/stainless steel obtained by CNC to ensure the maximum accuracy and sliding precision avoiding friction and unexpected leakage.
- Upstream/downstream body tappings for optional pressure gauges.
- Large expansion chamber to reduce noise and to provide an excellent resistance to cavitation.
- Epoxy powder applied using fluidized bed technology.

Applications

- Downstream of pumps to reduce the pressure on the main supply line.
- Installed in derivation from the main line to stabilise the pressure of secondary line and water users.
- As a protection against rise in pressure of industrial equipment and civil installations.
- On the inlet supply line of storage tanks to stabilise pressure and flow required for the level control.

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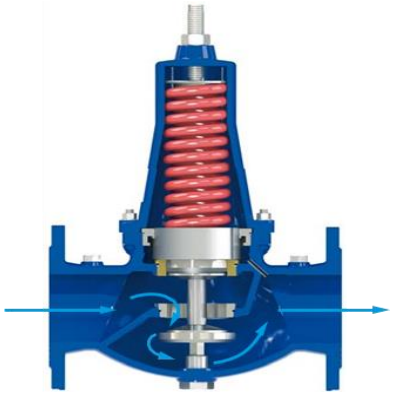
Operating Principle

The operating principle is based on a piston sliding into two rings in stainless steel/bronze of different diameters. These rings, tightly connected to the body, form a watertight chamber also known as the compensation chamber, which is necessary for the accuracy and stability of the valve.

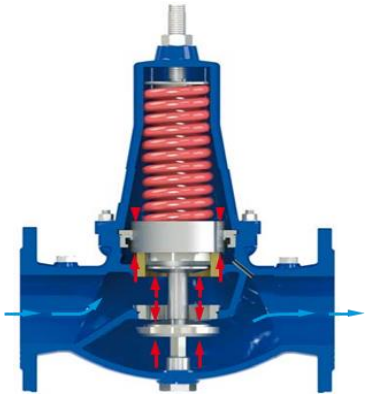
Valve normally open

Under no load the valve is a normally open, where the piston is kept held down by the force of the spring located in the cover.



Valve fully open

During working conditions, should the downstream pressure drop below the valve's set point obtained by the compression of the spring, the valve will open completely allowing full flow.



Valve modulating

Should the downstream pressure rise above the valve's set point the resultant of the force obtained by the downstream pressure, acting on the mobile block and the compensation chamber against the spring pushing downwards, will move the obturator producing the required head loss to modulate and stabilize the downstream pressure.

Valve fully closed (static conditions)

Should the water supply be interrupted from down-stream the system will work in static conditions, the valve will maintain and stabilize the required pressure even with no flow thanks to the pressure balanced technology and compensation chamber.

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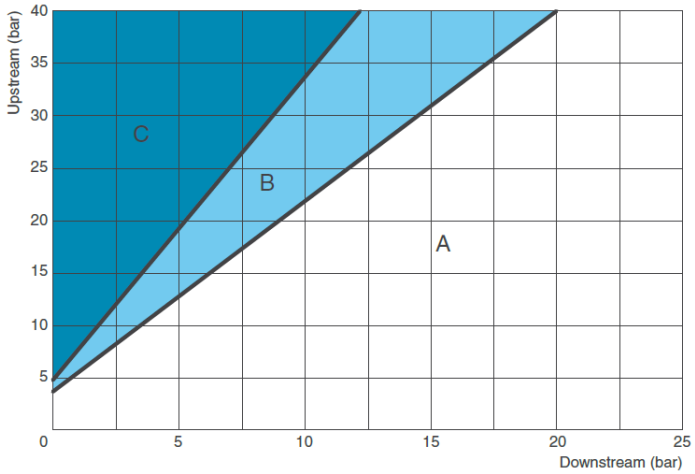
Technical Data

DN mm	50	65	80	100	125	150
Kv (m^3/h)/bar	20	47	72	116	147	172

Head loss coefficient

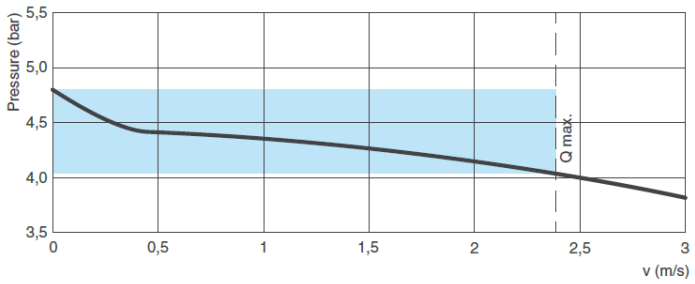
Kv coefficient representing the flow rate which is flowing through the valve fully open, and producing a head loss of 1 bar.



Cavitation chart

- A: Recommended working conditions;
- B: Incipient cavitation;
- C: Damage cavitation.

Ensure that the working point, obtained connecting upstream (y axis) and downstream (x axis) pressure conditions, falls on the A zone with the smallest valve to meet the required flow.
The chart is to be used for valves modulating with an opening percentage between 35-40% at standard water temperature and elevation below 300m. For continuous pressure reduction the maximum allowed Δp shall not exceed 24 bar.



Reduced pressure falloff

The plot is showing the reduced pressure falloff that occurs through the valve when the flow increases. Ensure that the operating conditions fall on the area depicted in blue for the recommended fluid flow velocity through the valve.

Working conditions

- Treated water with a maximum temperature of 70°C.
- Upstream pressure (inlet): up to a maximum of 40 bar dependent on valve choice.
- Downstream pressure (outlet): adjustable from 1,5 to 6 bar or from 5 to 12 bar.
- Higher downstream pressure values on request.

Standard

- Certified and tested in compliance with EN 1074/5.
- Flanges according to EN 1092/2.
- Epoxy painting applied through fluidized bed technology blue RAL 5005.
- Changes on flanges and painting on request.

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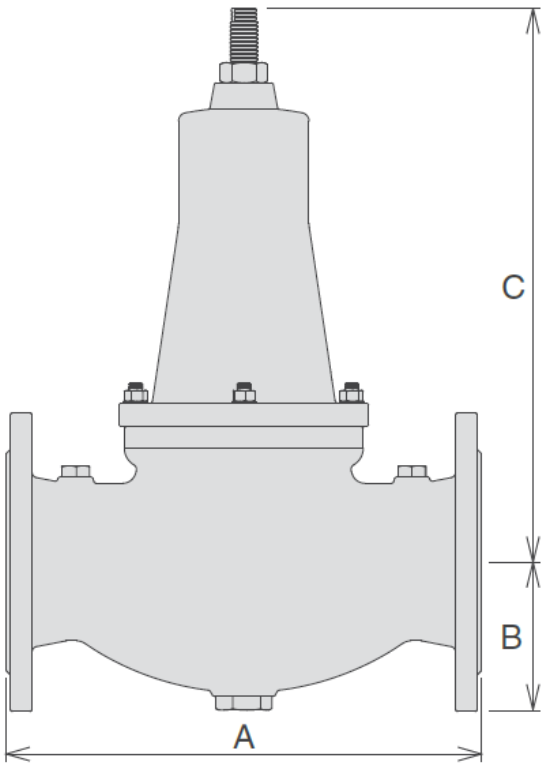
Recommended Flow Rate

DN (mm)	50	65	80	100	125	150
Flow rate min. (l/s)	0.3	0.5	0.8	1.2	1.8	2.6
Flow rate max. (l/s)	4.7	8.0	12	18	29	42
Exceptional (l/s)	6.9	11	17	27	42	61

Weights and Dimensions

DN (mm)	50	65	80	100	125	150
A (mm)	230	290	310	350	400	450
B (mm)	83	93	100	110	135	150
C (mm)	280	320	350	420	590	690
Weight (Kg)	12	19	24	34	56	74



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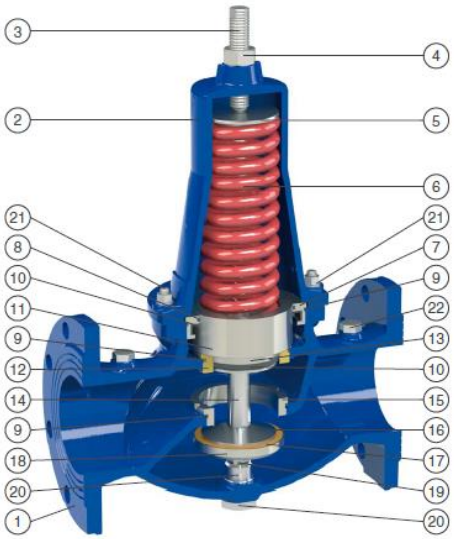
Technical Details

No.	Component	Standard Material	Optional
1	Body	Ductile cast iron GJS 500-7 or GJS 450-10	
2	Cap	Ductile cast iron GJS 500-7 or GJS 450-10	
3	Driving Screw	Stainless steel AISI 304	Stainless steel AISI 316
4	Nut	Stainless steel AISI 304	Stainless steel AISI 316
5	Spring Guide	Stainless steel AISI 303	Stainless steel AISI 316
6	Spring	Painted steel 52SiCrNi5	
7	Main Bush	Stainless steel AISI 304	Stainless steel AISI 316
8	Sliding Ring	PTFE	
9	O-rings	NBR	EPDM/Viton
10	Gasket	NBR	EPDM/Viton
11	Upper Piston	Stainless steel AISI 303 (bronze CuSn5Zn5Pb5 for DN125-150)	Stainless steel AISI 303/316
12	Lower Ring	Stainless steel AISI 303	Stainless steel AISI 304/316
13	Lower Piston	Stainless steel AISI 303	Stainless steel AISI 316
14	Spacer	Stainless steel AISI 304	Stainless steel AISI 316
15	Obturator Sealing Seat	Stainless steel AISI 303	Stainless steel AISI 316
16	Gasket Support	Stainless steel AISI 303	Stainless steel AISI 316
17	Plane Gasket	NBR (polyurethane for NP25-40)	
18	Gasket Holder	Stainless steel AISI 303	Stainless steel AISI 316
19	Guiding Shaft	Stainless steel AISI 303	Stainless steel AISI 316
20	Driving Tap	Stainless steel AISI 303	Stainless steel AISI 316
21	Studs, Nuts and Washers	Stainless steel AISI 304	Stainless steel AISI 316
22	Taps for Pressure Gauges	Stainless steel AISI 316	

The list of materials and components is subject to changes without notice.



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Spare Parts Breakdown