Fast acting anti-water hammer valve Mod. VRCA

The CSA fast acting, surge prevention, pressure relief valve Mod. VRCA has been designed to avoid the devastating effects of water hammers in pipeline networks. The purpose is actually to prevent pressure from rising above a preset value, thanks to its capability of discharging the excessive volume of water directly into the atmosphere.

Technical features and benefits

- Solid and compact design suitable for treated and raw water and to reduce blowback.
- Negligible inertia of the internal mobile parts ensuring the absence of friction and long lasting performances.
- Perfect water tightness and excellent resistance to cavitation and wearing working conditions due to the floating obturator technology and to the use of special gaskets and high resistant stainless steel grades.
- Fast and accurate response without any hysteresis effect thanks to high frequency annealed springs.
- Reduced overpressure thanks to a wide selection of spring and ranges in pressure.
- Water vertical discharge deflector.

Applications

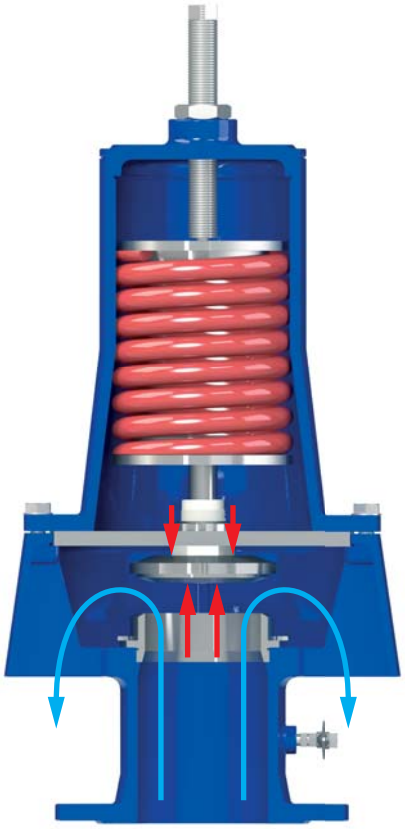
- Downstream of pumping stations to cushion sudden overpressure as a result of pump start up and power failure (in case of one of more pumps in parallel).
- Downstream and upstream of main transmission lines, or pipe segments, not able to endure critical conditions such as sudden and unexpected rise in pressure, and to guarantee reliable system protection.
- Downstream of a pressure reducing valve as a safety device.
- Upstream of modulating and sectioning devices with rapid response time, likely to generate unwanted surges.
- In general, whenever and wherever pipe bursts are expected.

Operating principle

The valve must be preset at first, simply acting on the spring, to open whenever the pressure rises above a certain value considered critical for the system.
The particular shape and construction, along with the perfect centering of the mobile block, will protect the upper part against water spurts coming from VRCA operation cycles. The valve is supplied with a pressure gauge and drainage ball valve, in order to facilitate the pressure measurement and setting procedure directly on the field.

Valve closed

Should the pressure remain below the valve's set point the VRCA will be perfectly closed, thanks to the compression of the spring pushing the obturator down to the seat.



Valve open

Should the pressure rise above the valve's set point the obturator will lifted, discharging to the atmosphere the excessive fluid volume necessary to avoid the upsurge.

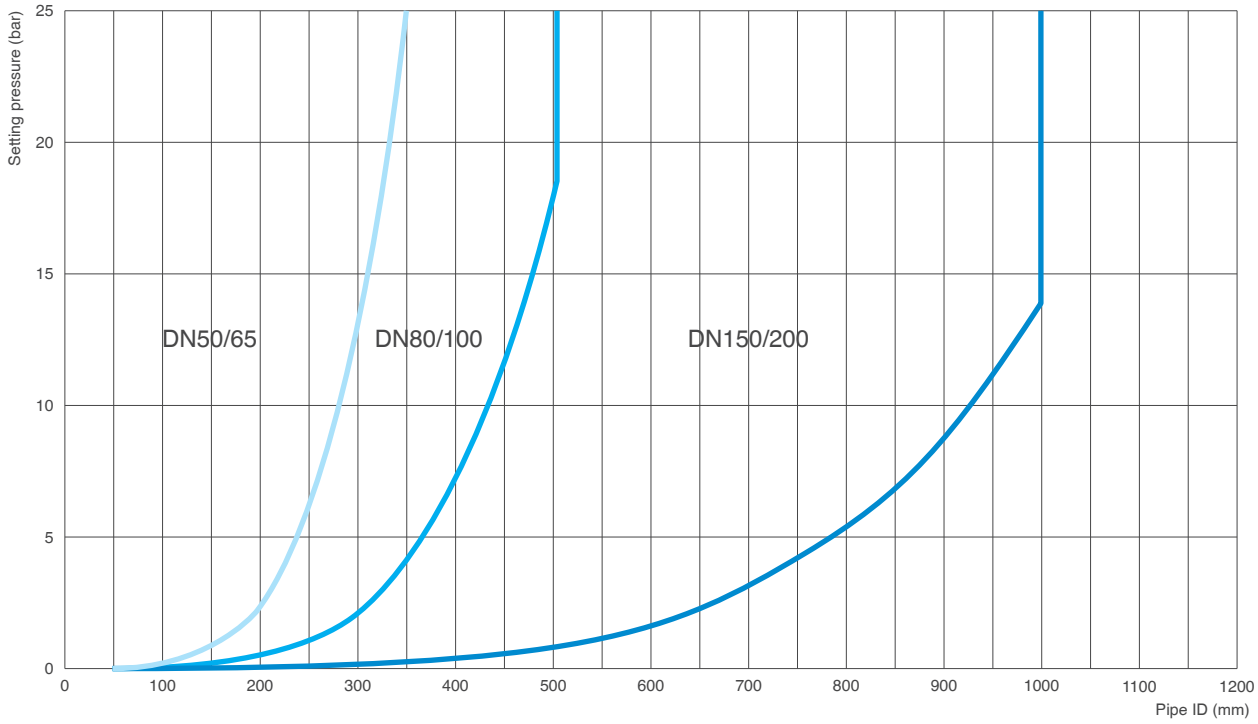
Optional

■ The spring setting, gasket materials and other technical features related to the valve response time and performances, can be modified on request according to the project requirements.

Technical data

Preliminary sizing chart

The function of the fast acting relief valve CSA Mod. VRCA is to protect piping systems, pumps, vessels and other equipment from excess in pressure and potential damages.
For the sizing overpressure values, blowdown effects and installation criteria must be taken into account, purely as an indication and for a preliminary assessment use the following chart showing the recommended valve's DN versus pressure setting and pipe ID. Ensure that the operating conditions fall on the left of the curve of the chosen valve.

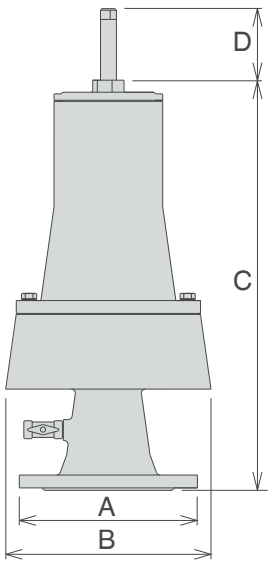


Working conditions

Treated and row water with a maximum temperature of 70°C.
Maximum pressure 25 bar.
Setting ranges: 0-8 bar, 8-16 bar, 16-25 bar.
Higher pressure values on request.

Standard

Designed in compliance with EN-1074/4.
Flanges according to EN 1092/2.
Epoxy painting applied through fluidized bed technology blue RAL 5005.
Changes and variations on the flanges and painting details available on request.

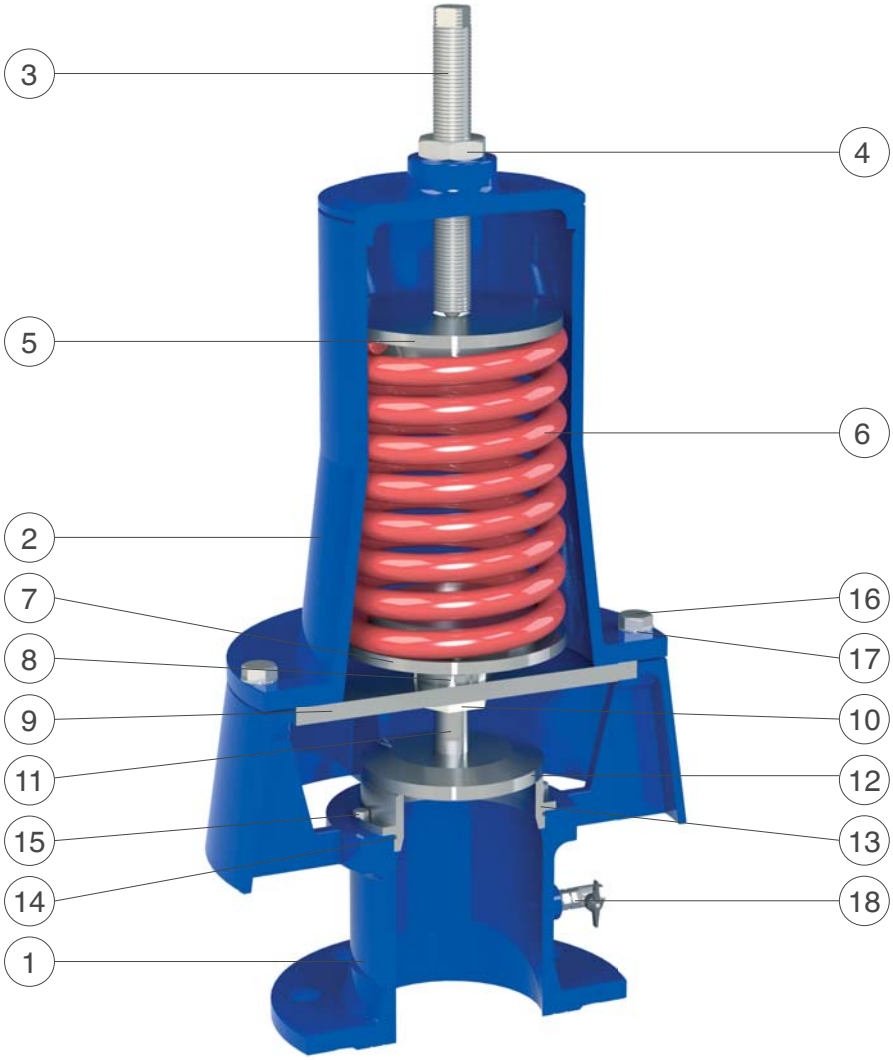


Weights and dimensions

DN mm	A mm	B mm	C mm	D mm	Seat DN mm	Weight Kg
50/65	185	185	417	40	40	14
80/100	235	242	540	50	62	28
150	300	404	720	220	137	75
200	360	404	720	220	137	79

Values are approximate, consult CSA service for more details.

Technical details



N.	Component	Standard material	Optional
1	Body	ductile cast iron GJS 500-7 or GJS 450-10	
2	Cap	duct. cast iron GJS 500-7 or 450-10 and painted steel	
3	Driving screw	stainless steel AISI 304	stainless steel AISI 316
4	Nut	stainless steel AISI 304	stainless steel AISI 316
5	Spring support	stainless steel AISI 303 (304 for DN 150-200)	stainless steel AISI 316
6	Spring	spring painted steel 52SiCrNi5	
7	Spring housing	stainless steel AISI 303 (304 for DN 150-200)	stainless steel AISI 316
8	Ring	stainless steel AISI 304	stainless steel AISI 316
9	Separation plate	s.s. AISI 304 (painted steel for DN 150-200)	stainless steel AISI 316
10	Driving sleeve	Delrin (s. s. AISI 304 for DN 150-200)	
11	Shaft	stainless steel AISI 304	stainless steel AISI 316
12	Obturator	stainless steel AISI 303 (304 for DN 150-200)	stainless steel AISI 316
13	Sealing seat	stainless steel AISI 304 (303 for DN 50/65)	stainless steel AISI 316
14	O-ring	NBR	EPDM/Viton
15	Screws	stainless steel AISI 304	stainless steel AISI 316
16	Screws	stainless steel AISI 304	stainless steel AISI 316
17	Washers	stainless steel AISI 304	stainless steel AISI 316
18	Ball valve 1/4”	nickel-plated brass	stainless steel AISI 316

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