

# Fast acting anti water hammer valve

## Mod. VRCA

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



### Technical features and benefits

- Solid and compact design including the reduction cone between the inlet and the sealing seat.
- Negligible inertia of internal mobile parts.
- Perfect sealing seat impervious to cavitation thanks to a special plane gasket.
- Precise and perfect setting without any hysteresis effect thanks to a perfectly balanced and annealed spring.
- Low overpressure values above the preset cracking point thanks to a wide selection of springs.
- Series PN 25 (PN 40 on request).

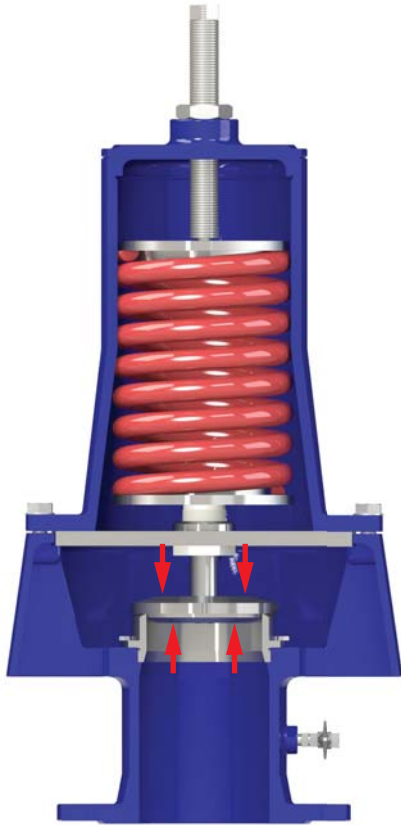
### Applications

- Downstream of pumping stations to cushion sudden overpressure as a result of pump start up (in case of one or more pumps in parallel). This is a perfect solution whenever the system is not equipped with soft-start or other devices to prevent water hammer during starting operations.
- 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 PRV as a safety device.
- Upstream of sectioning devices with rapid closing time.
- In general, whenever and wherever pipe bursts are expected.

## Operating principle

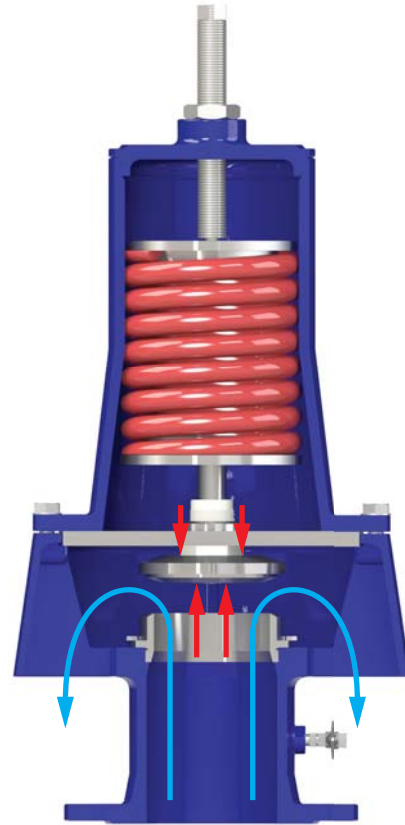
The valve must be preset at first, simply acting on the spring, to open whenever the pressure rises above a certain value considered critical for the system.

The particular shape, along with the perfect centering of the mobile block, will protect the upper part against water jets coming from VRCA's operation cycles. The valve is supplied with a pressure gauge and drainage ball valve in order to facilitate the 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 acting on the obturator.



### Valve open

Should the pressure rise above the valve's set point the VRCA will open, 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's response time and performances, can be modified on request according to the project conditions.

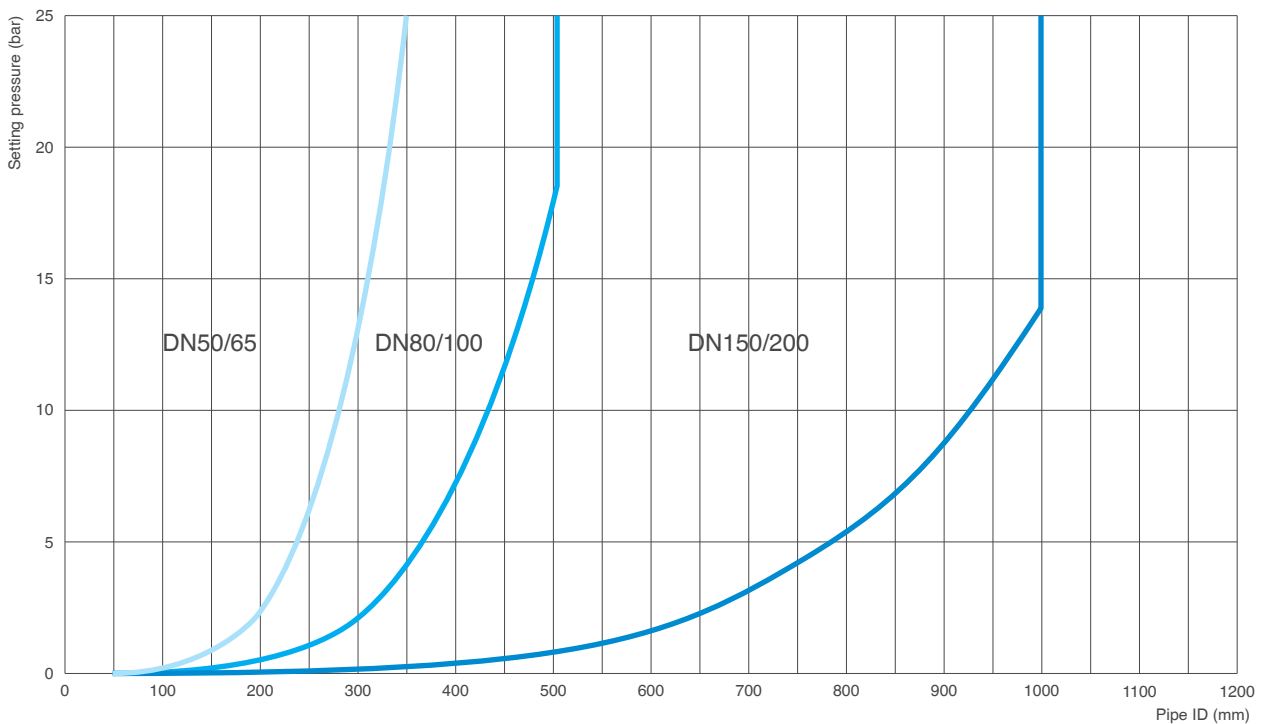
## Technical data

### Preliminary sizing chart

The function of the fast acting pressure relief valve CSA Mod. VRCA is to protect piping systems, pressure vessels and other equipment from pressure exceeding their design pressure.

The proper sizing must be done by those who have a complete understanding of the pressure relieving requirements of the system and of how VRCA works. Overpressure and blowdown effects must be taken into account during sizing, please contact CSA for more assistance and a detailed water hammer analysis.

Purely as an indication, and for a preliminary assessment of the VRCA DN, use the following chart showing the valve's pressure setting versus pipe ID.



### Working conditions

Treated 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

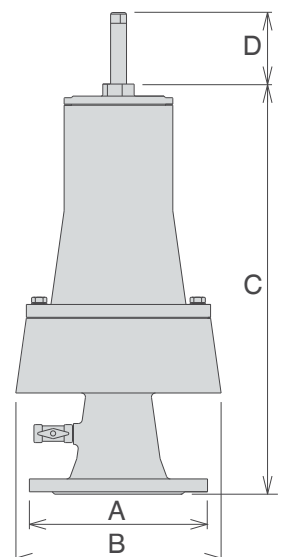
Designed in compliance with EN-1074/4.

Flanges according to EN 1092/2.

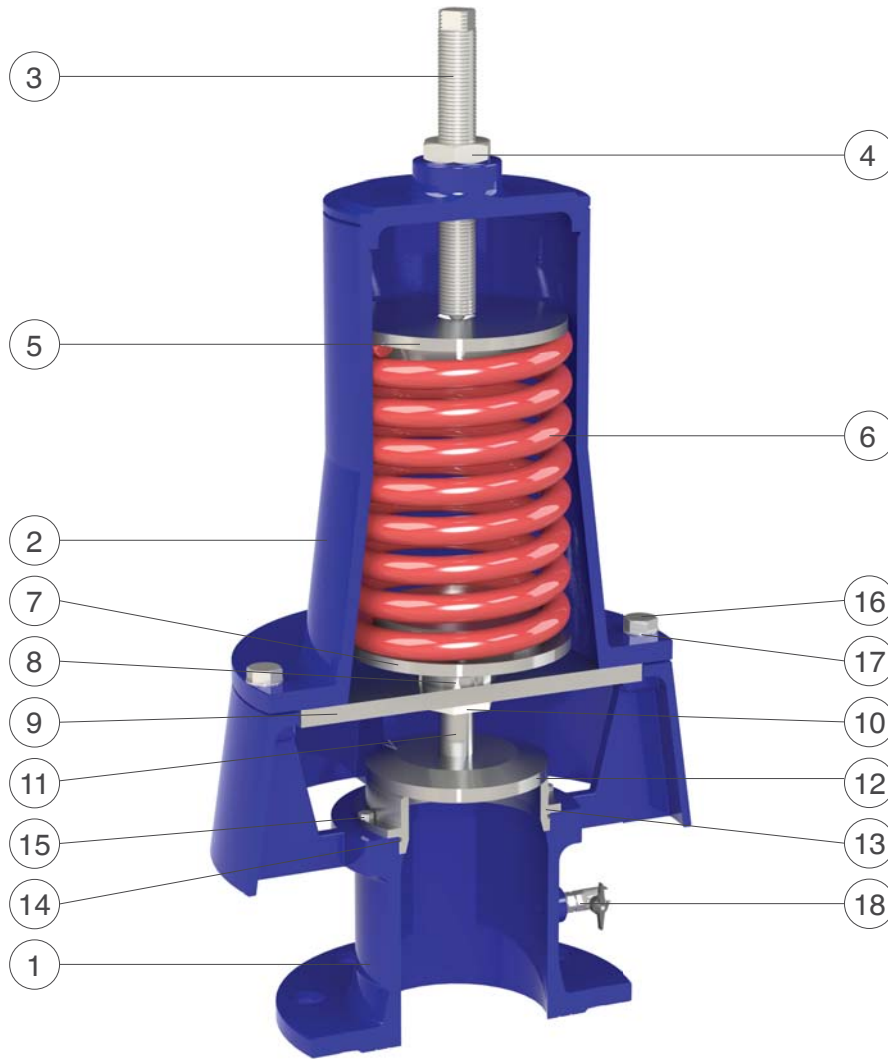
Epoxy painting applied through fluidized bed technology blue RAL 5005.

Changes and variations on the flanges and painting details available on request.

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



## Technical details



N.	Component	Standard material	Optional
1	Body	ductile cast iron GJS 500-7	
2	Cap	ductile cast iron GJS 500-7 e painted steel Fe 37	
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 Fe 37 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 OT58	stainless steel AISI 316