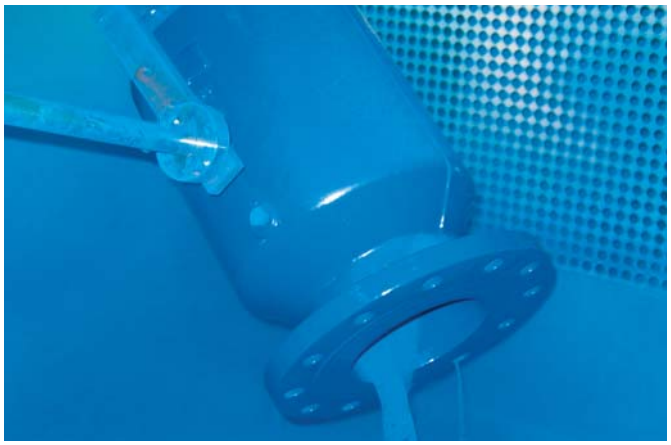
Pressure control valves

The company was founded in 1987 by transforming the former CSA, which was a trading company dealing with pipes and valves for water networks, into a manufacturing company, through the research and realization of pillar fire hydrants. These were compliant with the UNI 9485 regulation, which was at the approval stage. Since then many other products have been added.
The history of our company is characterised by years of technical and commercial research, which have enabled us to offer a complete range of valves designed for controlling, regulating and protecting the pipelines under pressure in both waterworks and sewage lines as well as fire hydrants.
Our many industrial patents and innovative technical solutions, together with modern and attractive style of design, have made it possible to differentiate our products from those offered by competitors and have allowed us to become a point of reference in our sector.
Flexibility and reliability have been the key points of CSA's rapid growth over the last few years. We are perfectly aware that we are managing the world's most precious resource and, motivated by this responsibility and the commitment towards our customers, we have dedicated ourselves to constantly improving our products, placing them at the highest levels of quality.

Quality

In the manufacturing business today, quality is the fundamental requirement for achieving and maintaining a growing market share.
For this reason we have always aimed at developing a synergy between the various sectors of the company and thus ensuring:
- Quick and precise answers;
- Evaluation of data received and immediate response;
-Rigorous control of incoming and outgoing products.
Since 1998 CSA is certified according to regulation ISO 9001 by RINA (Italian Naval Registry) recently converted into ISO 9001/2008.



During the research and realisation of new products, CSA has always focused his efforts on:
- Listening to the customer's needs and finding the best solution both at the design and operational phases.
- Guiding our R&D department to develop ranges of modern, reliable and complementary products.
- Adopting production techniques that, even while complying with the severest quality standards, would allow us to reduce delivery times.
- Guaranteeing complete technical support for our customers and prompt after-sales assistance.

This philosophy characterizes us not only as a valve manufacturer but also as a reliable partner whom you can
always depend on for consulting and solutions.
The production cycle, aimed at the constant improvement of our products and complete customer satisfaction, ensures predetermined margins of tolerance by establishing production standards, which guarantee that the semi finished products reach the next production stage with the required specifications.
All our valves are made of ductile cast iron GJS 400-15 / 500-7 in absolute compliance with European standards, and are suitable for PN 25-40 bar.
The manufacturing process is carried out exclusively by means of numerically controlled lathes, mills, and horizontal machining units. Subsequent step-by-step controls are based on strict quality procedures. Painting, pre-treated by sand blasting grade SA 2.5, is carried out inside a fluidized bed containing epoxy powder, which guarantees maximum surface protection. All our products are tested under water pressure and certified.

Downstream pressure reducer/stabilizer Mod. VRCD

The CSA valve Mod. VRCD reduces and stabilizes the downstream pressure regardless of flow rate and upstream pressure variations. It can be used for water, air and fluids in general with a maximum working pressure of 40 bar.

Technical features and benefits

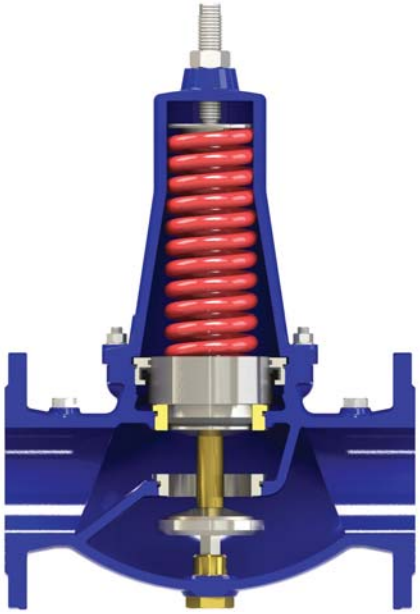
- Flanged version DN 50-150.
- Upstream and downstream pressure balanced, to stabilize the downstream pressure to a preset (and adjustable) value regardless of upstream pressure variations without creating unwanted upsurges.
- Ductile cast iron for body and cap, piston in stainless steel, seat in stainless steel, guiding bushing in stainless steel as well as bolts and nuts.
- Innovative self cleaning piston technology, pat. pending, to improve performances reducing maintenance operations.
- Mobile block composed of three components in gun metal / stainless obtained by CNC to ensure the maximum accuracy and sliding precision, this is to avoid friction and unexpected leakage.
- Upstream/downstream pressure outlets for gauges.
- Large expansion chamber to increase the allowable pressure ratio, in order to reduce the risk of cavitation also in case of high Dp across the valve itself.
- Epoxy powder applied using FBT technology.

Applications

- Water distribution systems.
- Buildings and civil installations.
- Irrigations.
- Cooling systems.
- Fire protection systems and in general whenever the pressure reduction has to be ensured.

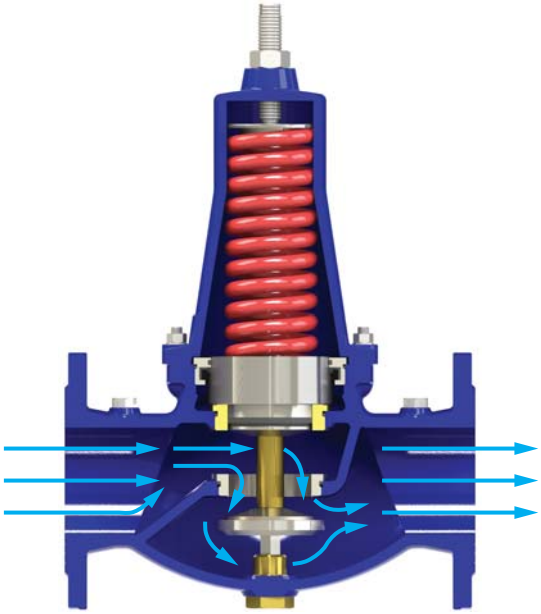
Operating principle

The operating principle of VRCD 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.



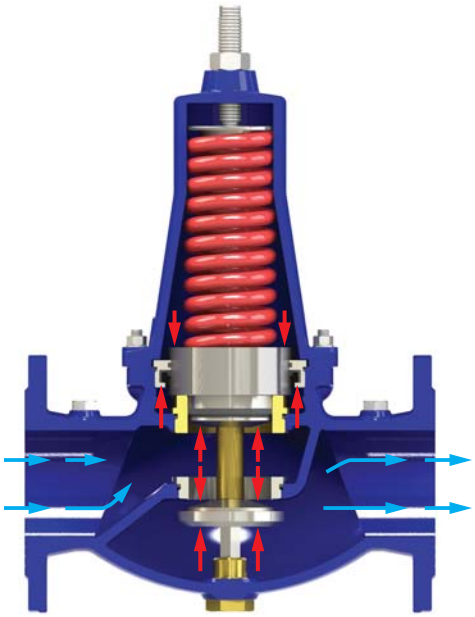
Valve normally open

Without any pressure the VRCD is a normally open valve, where the piston is kept pushed down by the force of the spring located in the cover.



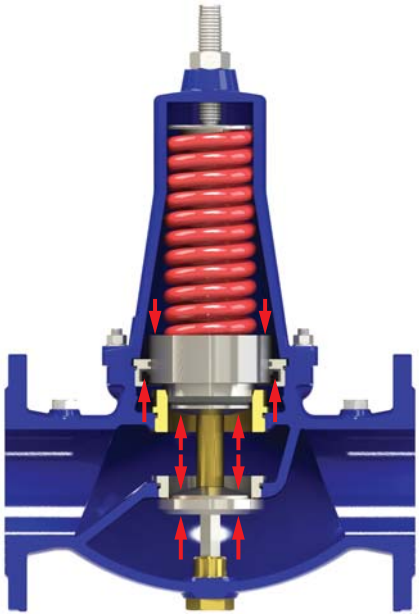
Valve fully open

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



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 raise the obturator producing the required head loss to stabilize the downstream pressure.



Valve fully closed (static conditions)

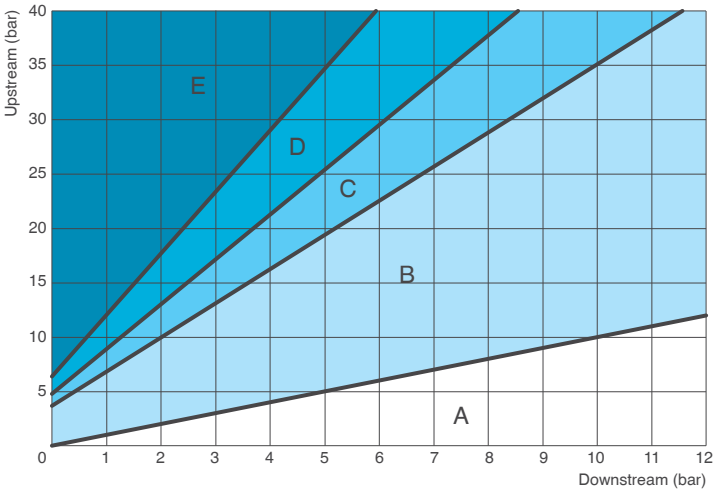
In case of downstream pressure rise above the valve's set point, should the modulating phase of the valve not be enough to stabilize the pressure, the valve will close maintaining the required downstream pressure value even in static conditions.

Technical data

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

Head loss coefficient

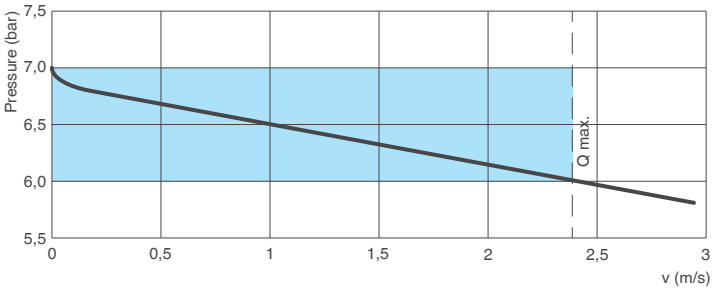
Kv coefficient representing the flow rate which is flowing through the valve fully open, and producing a head loss of 1 bar.



Cavitation chart

The cavitation phenomenon is very important during the proper valve sizing process since it may lead to substantial damages, in addition to vibration and noise. The cavitation chart has to be used to determine whether the intersection of the line, connecting upstream and downstream pressure conditions, lies within one of the 5 zones to be identified as follows:

- A: Out of the possible working conditions;
- B: Recommended working conditions;
- C: Incipient cavitation;
- D: Damage cavitation;
- E: Choked and unpredictable conditions, please consult CSA for further assistance.



Reduced pressure falloff

The plot is showing the reduced pressure falloff that occurs through the valve when the flow increases. The area depicted in blue includes the recommended working range and maximum velocity.

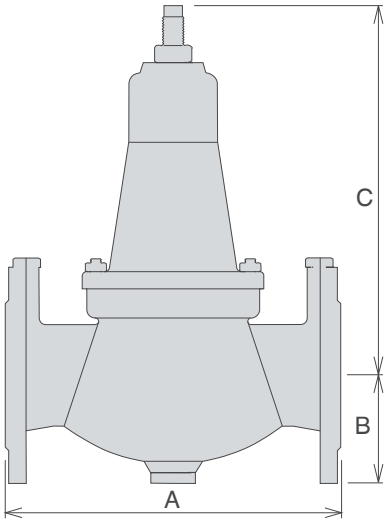
Working conditions

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

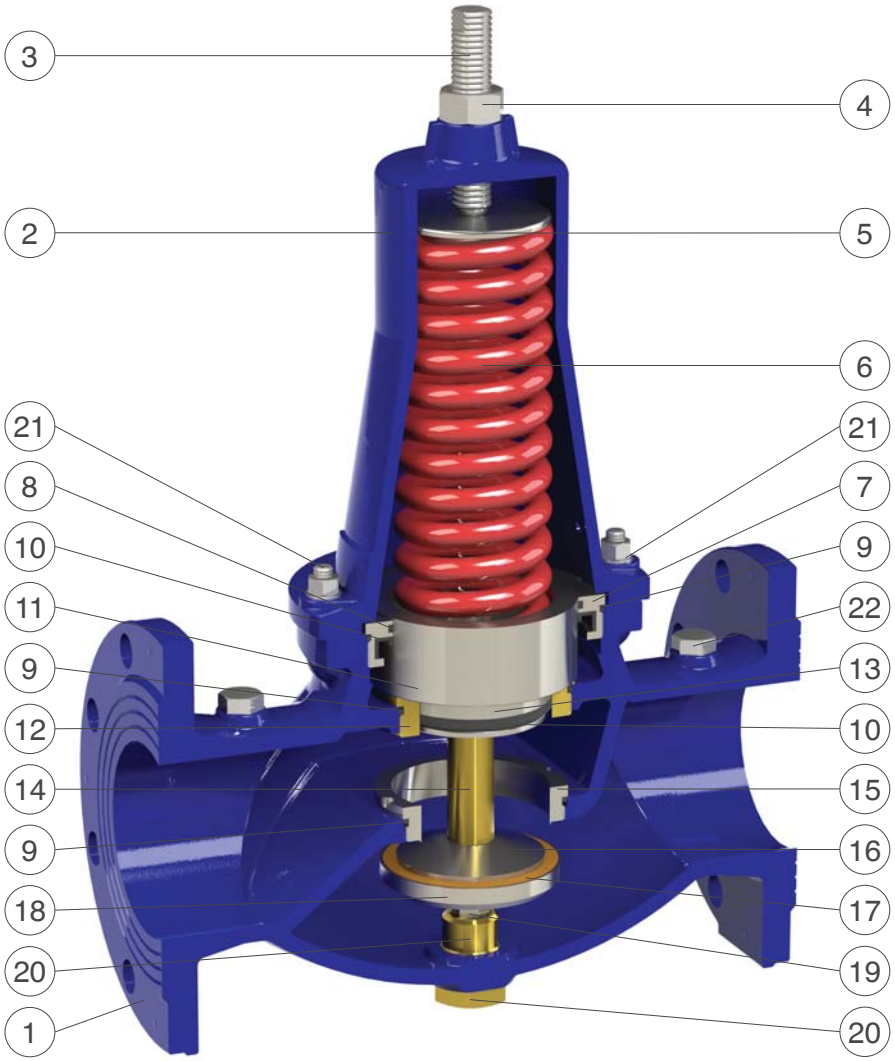
Standard

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	50	65	80	100	125	150
A mm	230	290	310	350	400	450
B mm	83	93	100	117	135	150
C mm	280	320	350	420	590	690
Weight Kg	12	19	24	34	56	74



Technical details



N.	Component	Material	Standard
1	Body	ductile cast iron	GJS 500-7
2	Cap	ductile cast iron	GJS 500-7
3	Driving screw	stainless steel	AISI 304/316
4	Nut	stainless steel	A2/A4/AISI 316
5	Spring guide	stainless steel	AISI 304/316
6	Spring	spring steel	Si -Cr
7	Main bush	stainless steel	AISI 304/316
8	Sliding ring	PTFE	
9	O-ring	NBR/EPDM	
10	Gasket	NBR/EPDM	
11	Upper piston	stainless steel	AISI 304/316
12	Lower ring	bronze/stainless steel	AISI 304/316
13	Lower piston	stainless steel	AISI 304/316
14	Spacer	brass/stainless steel	OT58/AISI 304/316
15	Obturator sealing seat	stainless steel	AISI 304/316
16	Gasket support	stainless steel	AISI 304/316
17	Plane gasket	NBR/polyurethane	
18	Gasket holder	stainless steel	AISI 304/316
19	Guiding shaft	stainless steel	AISI 304/316
20	Driving tap	brass/stainless steel	OT58/AISI 304/316
21	Studs, nuts and washers	stainless steel	A2/A4/AISI 316
22	Taps for pressure gauges	stainless steel	A2/A4/AISI 316

Downstream pressure reducer/stabilizer in stainless steel Mod. VRCD FF

The CSA valve Mod. VRCD FF reduces and stabilizes the downstream pressure regardless of flow rate and upstream pressure variations. It can be used for water, air and fluids in general with a maximum working pressure of 64 bar.

Technical features and benefits

- Entirely manufactured in stainless steel machined from a solid bar.
- Upstream and downstream pressure balanced, to stabilize the downstream pressure to a preset (and adjustable) value regardless of upstream pressure variations without creating unwanted upsurges.
- Innovative self cleaning piston technology, pat. pending, to improve performances reducing maintenance operations.
- Mobile block composed of stainless obtained by CNC to ensure the maximum accuracy and sliding precision, this is to avoid friction and unexpected leakage.
- Upstream/downstream pressure outlets for gauges.
- Cavitation proof thanks to the design and special gaskets, high pressure ratio are allowed without the risk of cavitation.
- Epoxy powder applied using FBT technology.

Applications

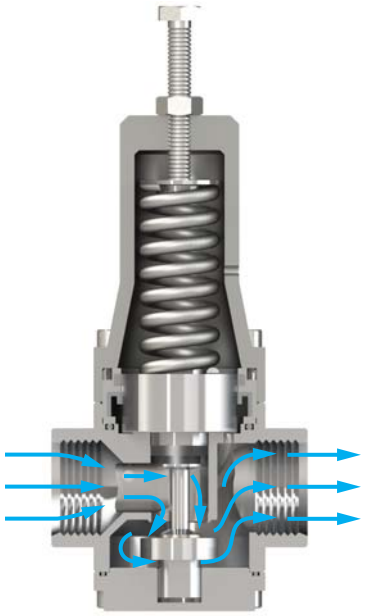
- Water distribution systems for high pressure ratio.
- Buildings and civil installations whenever stainless steel is required or advised for project aspects.
- Demineralized water and bottling plants.
- Industry and cooling systems.
- Fuel and other fluids in general with the use of special gaskets (please contact CSA).

Operating principle

The operating principle of VRCD-FF, upstream pressure balanced, is based on a piston sliding into two rings of different diameters. These rings form a watertight chamber, also known as the compensation chamber, which is necessary for the accuracy and stability of the valve.

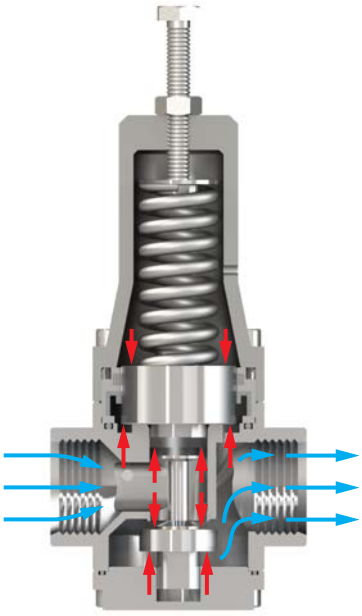
Valve normally open

Without any pressure the VRCD-FF is a normally open valve, where the piston is kept pushed 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 VRCD-FF will open completely allowing the full passage.



Valve modulating

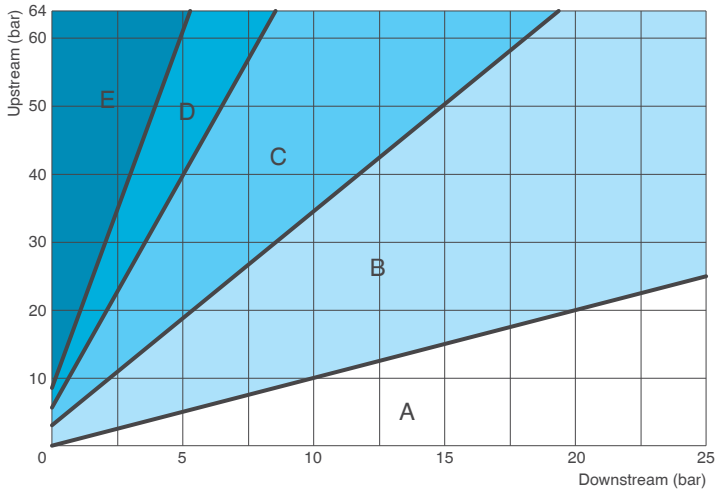
Should the downstream pressure rise above the valve's set point the resultant of the force obtained by the downstream pressure, acting on the mobile block and the compensation chamber against the spring pushing downwards, will raise the obturator producing the required head loss to stabilize the downstream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

Valve fully closed (static conditions)

In case of downstream pressure rise above the valve's set point, should the modulating phase of the valve not be enough to stabilize the pressure, the valve will close maintaining the required downstream pressure value even in static conditions.

Technical data

DN in	1/2	1	1 1/2	2
Kv (m^3/h)/bar	2,9	7,2	10,8	21



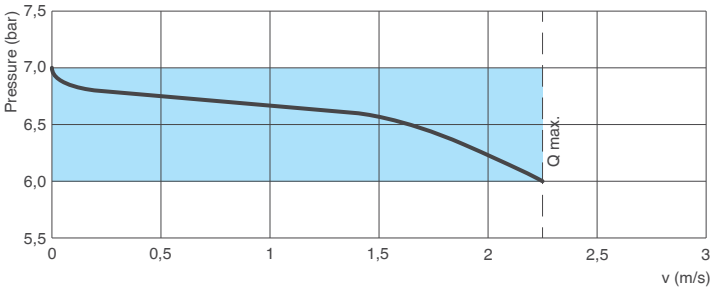
Head loss coefficient

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

Cavitation chart

The cavitation phenomenon is very important during the proper valve sizing process since it may lead to substantial damages, in addition to vibration and noise. The cavitation chart has to be used to determine whether the intersection of the line, connecting upstream and downstream pressure conditions, lies within one of the 5 zones to be identified as follows:

- A: Out of the possible working conditions;
- B : Recommended working conditions;
- C : Incipient cavitation;
- D : Damage cavitation;
- E : Choked and unpredictable conditions, please consult CSA for further assistance.



Reduced pressure falloff

The plot is showing the reduced pressure falloff that occurs through the valve when the flow increases. The area depicted in blue includes the recommended working range and maximum velocity.

Working conditions

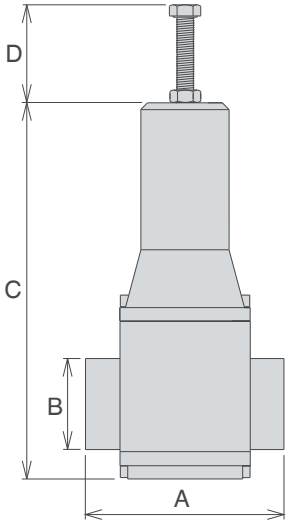
Treated water with a maximum temperature of 70°C (120°C on request).
Upstream pressure (inlet): maximum 64 bar.
Higher downstream pressure values on request.

Standard

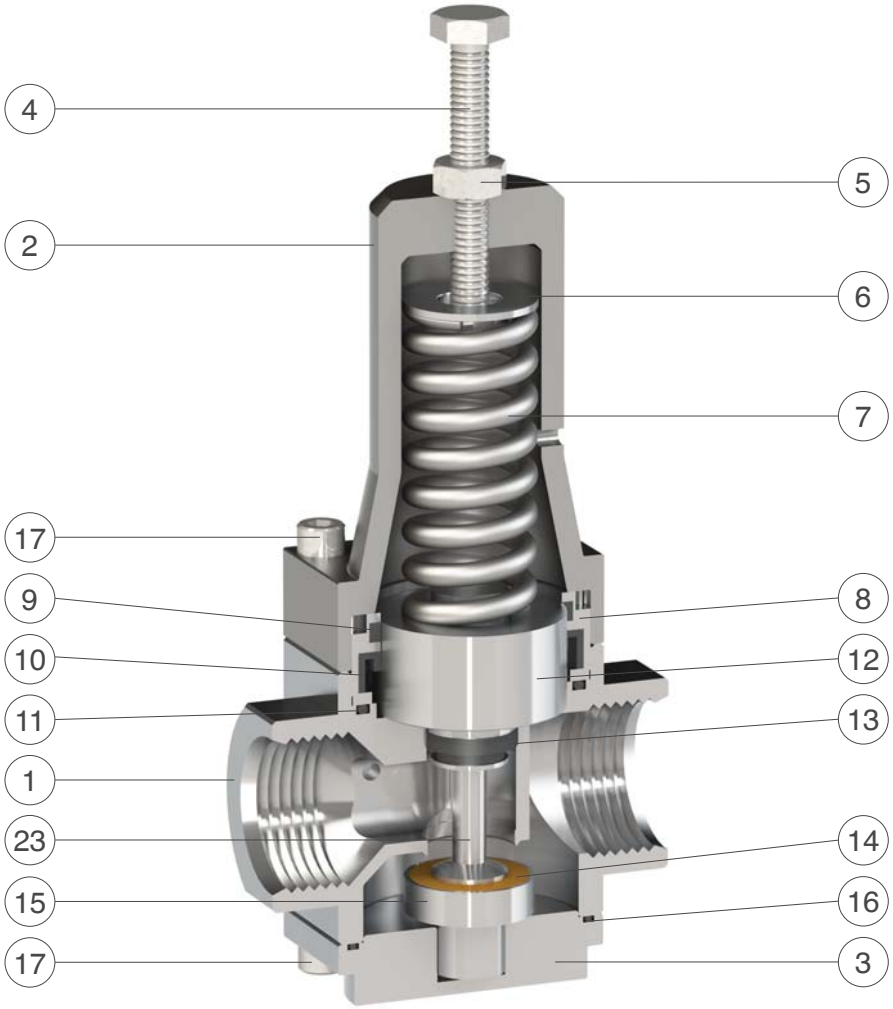
Designed in compliance with EN-1074/4.
Threaded connections according to BS standard.
Changes and variations on the thread available on request.

DN [in]	1/2	1	1 1/2	2
Available spring pressure range bar	2-10	1,5-8	1,5-7	1,5-6
	2-20	2-20	2-15	5-12

DN in	A mm	B mm	C mm	D mm	Weight Kg
1/2	53	- -	108	25	1,0
1	90	CH 41	170	45	2,1
1 1/2	110	CH 55	205	50	2,8
2	152	CH 70	290	60	5,9



Technical details



N.	Component	Material	Standard
1	Body	stainless steel	AISI 303/316
2	Cap	Ni-plated aluminium/s.s.	AISI 303/316
3	Driving tap	stainless steel	AISI 303/316
4	Driving screw	stainless steel	AISI 304/316
5	Nut	stainless steel	AISI 304/316
6	Spring guide	stainless steel	AISI 303/316
7	Spring	stainless/spring steel	Si-Cr
8	Main bush	stainless steel	AISI 303/316
9	Sliding ring	PTFE	
10	Upper gasket	NBR/EPDM	
11	O-ring	NBR/EPDM	
12	Piston	stainless steel	AISI 303/316
13	Lower gasket	NBR	
14	Plane gasket	NBR/polyurethane	
15	Obturator guide	stainless steel	AISI 303/316
16	Tap o-ring	NBR/EPDM	
17	Screw	stainless steel	AISI 304/316

Downstream pressure reducer/stabilizer Mod. RDA

The CSA valve Mod. RDA reduces and stabilizes the downstream pressure regardless of flow rate variations. It can be used for water, air and fluids in general up to a temperature of 70° C and a max. pressure of 64 bar.

Technical features and benefits

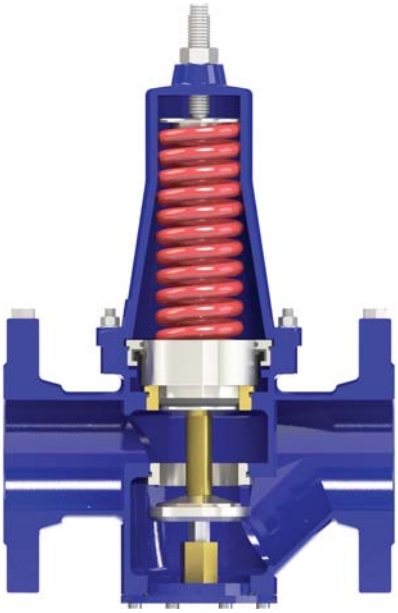
- Flanged version DN 50-150 PN 64 rated.
- Ductile cast iron cap and body in electro-welded steel, piston and mobile block in stainless steel.
- Upstream and downstream pressure balanced, to stabilize the downstream pressure to a preset (and adjustable) value regardless of upstream pressure variations without creating unwanted upsurges.
- Innovative self cleaning piston technology, pat. pending, to improve performances reducing maintenance operations.
- Mobile block composed of three components in gun metal / stainless obtained by CNC to ensure the maximum accuracy and sliding precision, this is to avoid friction and unexpected leakage.
- Upstream/downstream pressure outlets for gauges.
- Flanges drilling according to UNI EN 1092-2 (others on request).
- Epoxy powder applied using FBT technology.

Applications

- Water distribution systems for high pressure ratio.
- Mines.
- Industry and cooling systems.

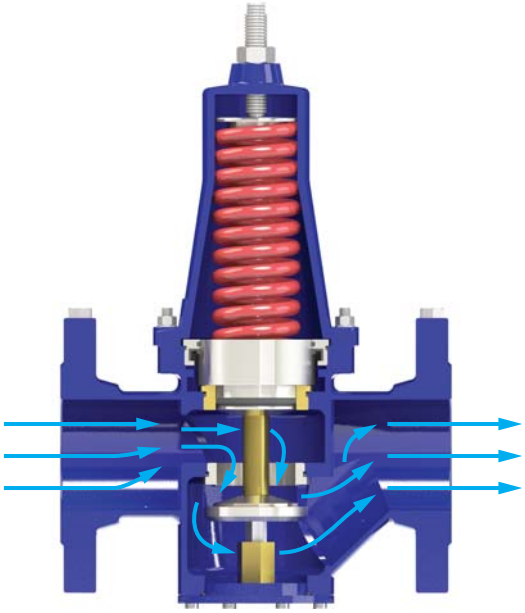
Operating principle

The operating principle of RDA 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.



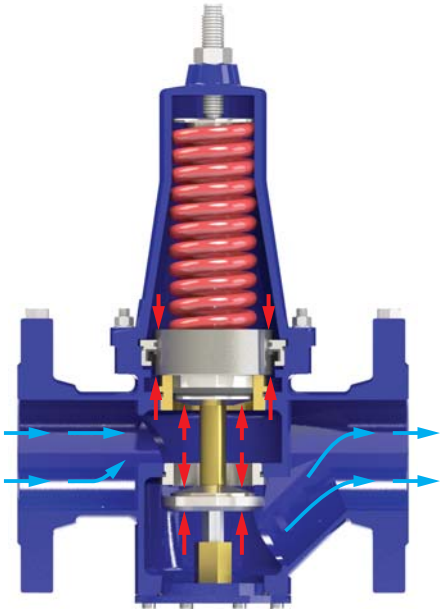
Valve normally open

Without any pressure the RDA is a normally open valve, where the piston is kept pushed down by the force of the spring located in the cover.



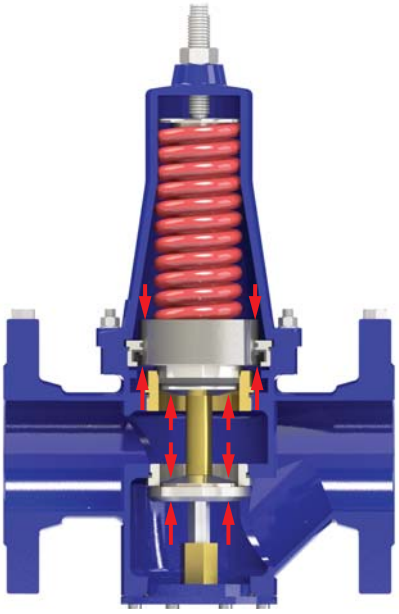
Valve fully open

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



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 raise the obturator producing the required head loss to stabilize the downstream pressure.



Valve fully closed (static conditions)

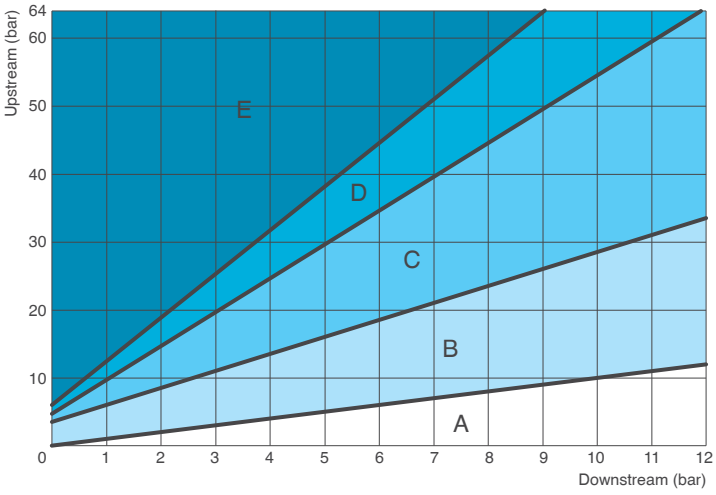
In case of downstream pressure rise above the valve's set point, should the modulating phase of the valve not be enough to stabilize the pressure, the valve will close maintaining the required downstream pressure value even in static conditions.

Technical data

DN mm	50	80	100	150
Kv (m^3/h)/bar	18	63	98	147

Head loss coefficient

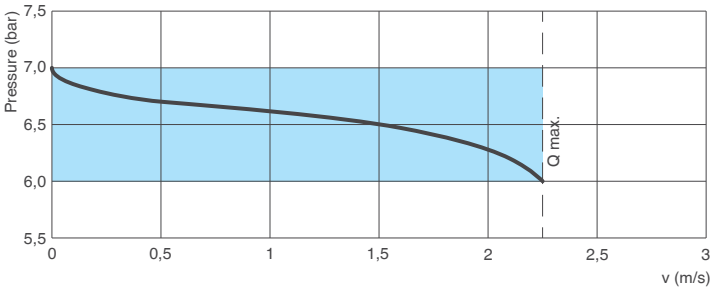
Kv coefficient representing the flow rate which is flowing through the valve fully open producing a head loss of 1 bar.



Cavitation chart

The cavitation phenomenon is very important during the proper valve sizing process since it may lead to substantial damages, in addition to vibration and noise. The cavitation chart has to be used to determine whether the intersection of the line, connecting upstream and downstream pressure conditions, lies within one of the 5 zones to be identified as follows:

- A: Out of the possible working conditions;
- B : Recommended working conditions;
- C : Incipient cavitation;
- D : Damage cavitation;
- E : Choked and unpredictable conditions, please consult CSA for further assistance.



Reduced pressure falloff

The plot is showing the reduced pressure falloff that occurs through the valve when the flow increases. The area depicted in blue includes the recommended working range and maximum velocity.

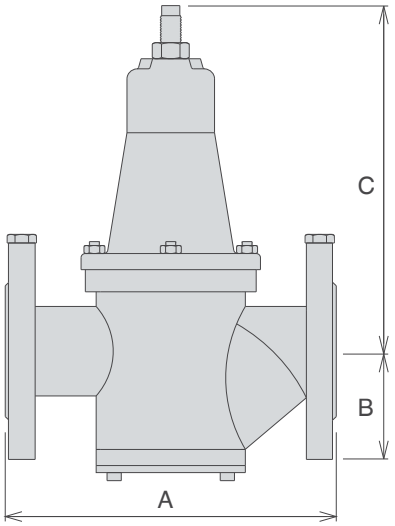
Working conditions

Treated water/air temperature: max. 70°C.
Upstream pressure (in): max. 64 bar.
Downstream pressure (out): standard from 1,5 to 6 bar or from 5 to 12 bar.
Higher values on request.

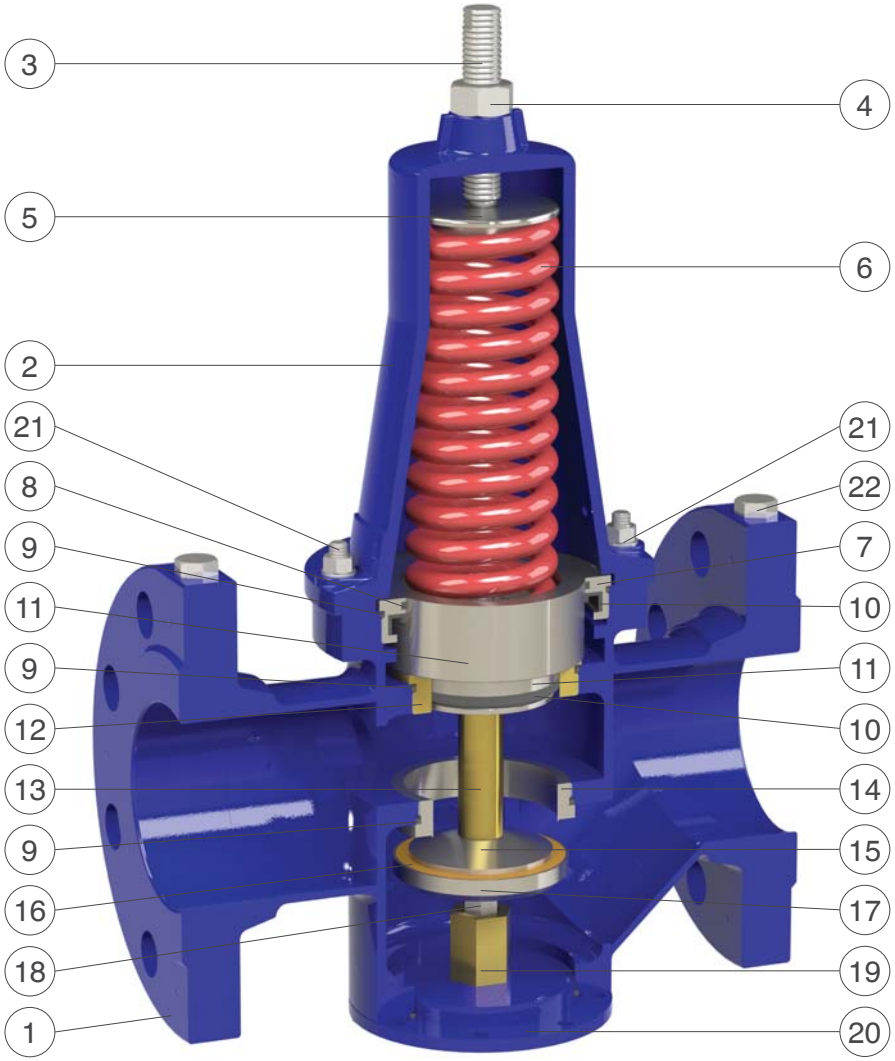
Standard

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	50	80	100	150
A mm	230	310	350	480
B mm	80	120	130	190
C mm	240	340	400	500
Weight Kg	15	29	40	90



Technical details



N.	Component	Material	Standard
1	Body	painted steel	Fe 37
2	Cap	ductile cast iron	GJS 500-7
3	Driving screw	stainless steel	AISI 304/316
4	Nut	stainless steel	A2/A4/AISI 316
5	Spring guide	stainless steel	AISI 304/316
6	Spring	spring steel	Si-Cr
7	Main bush	stainless steel	AISI 304/316
8	Sliding ring	PTFE	
9	O-ring	NBR	
10	Gasket	NBR	
11	Upper and lower piston	stainless steel	AISI 304/316
12	Lower reinforcements	bronze/stainless steel	AISI 304/316
13	Spacer	brass/stainless steel	OT58/AISI 304/316
14	Obturator sealing seat	stainless steel	AISI 304/316
15	Gasket support	stainless steel	AISI 304/316
16	Plane gasket	NBR/polyurethane	
17	Obturator guide	stainless steel	AISI 304/316
18	Guiding shaft	stainless steel	AISI 304/316
19	Driving tap	brass/stainless steel	OT58/AISI 304/316
20	Lower tap	painted steel	Fe 37
21	Studs, nuts and washers	stainless steel	A2/A4/AISI 316
22	Taps for pressure gauges	stainless steel	A2/A4/AISI 316

Pressure relief/sustaining valve
Mod. VSM

The CSA valve Mod. VSM automatically maintains and sustains a preset upstream pressure discharging any overpressure downstream.

Technical features and benefits

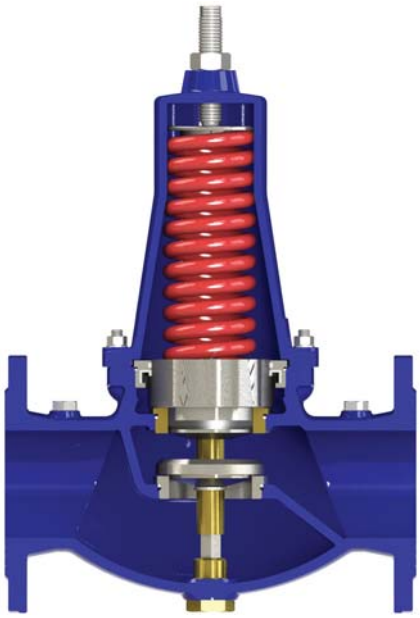
- Flanged version DN 50-150.
- Upstream pressure balanced, to stabilize and maintain the upstream pressure to a preset (and adjustable) value regardless of demand and downstream pressure variations.
- Ductile cast iron for body and cap, piston in stainless steel, seat in stainless steel, guiding bushing in stainless steel as well as bolts and nuts.
- Innovative self cleaning piston technology, pat. pending, to improve performances reducing maintenance operations.
- Mobile block composed of three components in gun metal / stainless obtained by CNC to ensure the maximum accuracy and sliding precision, this is to avoid friction and unexpected leakage.
- Large expansion chamber to increase the allowable pressure ratio, in order to reduce the risk of cavitation also in case of high Dp across the valve itself.
- Epoxy powder applied using FBT technology.

Applications

- Water distribution systems as a pressure relief/discharge valve.
- Fire fighting systems to discharge overpressure caused by pumps.
- Irrigation systems as an effective protection against water hammer and to prevent pumps from cavitating.
- Industrial plants, civil buildings and more.

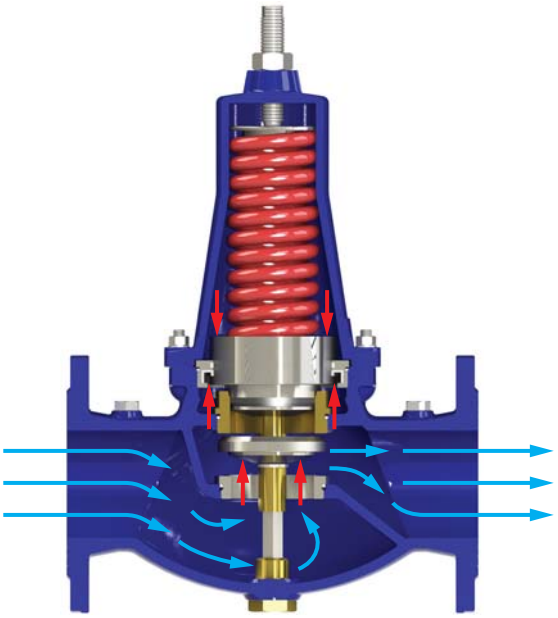
Operating principle

The operating principle of VSM 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. .



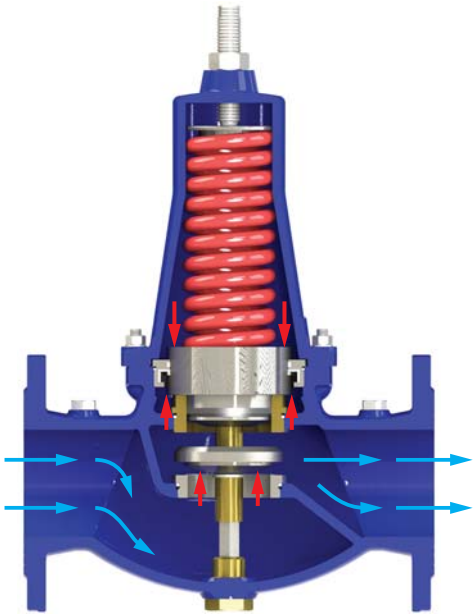
Valve normally closed

Without any incoming pressure the VSM is a normally closed valve, as shown in the picture, where the piston is kept pushed down by the force of the spring.



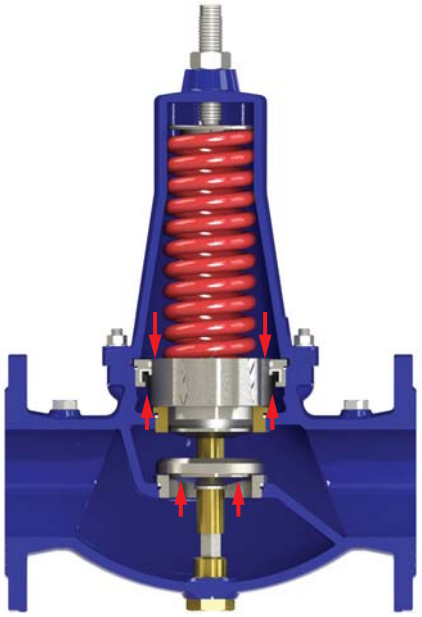
Valve fully open

Should the upstream pressure rise above the valve's set point, obtained by the compression of the spring, the VSM will open completely allowing the full passage through the seat.



Valve modulating

Should the upstream pressure fluctuate around the valve's set point the resultant of the force, obtained by it acting on the obturator and the compensation chamber pushing upwards, against the spring pushing downwards, will move the obturator producing the required head loss to stabilize the upstream pressure to the minimum required value.



Valve fully closed (static conditions)

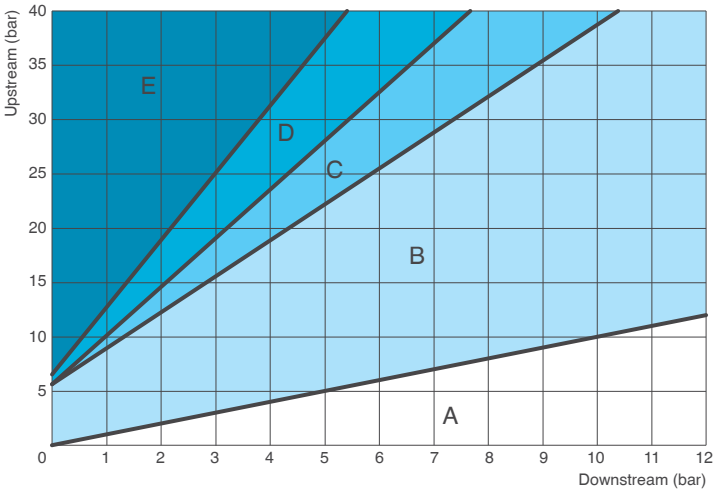
In case of a drop of the upstream pressure below the valve's set point, should the modulating phase of the valve not be enough to stabilize the minimum requested value, the valve will close maintaining the required upstream pressure even in static conditions.

Technical data

DN mm	50	65	80	100	125	150
Kv (m^3/h)/bar	22	51	83	122	166	194

Head loss coefficient

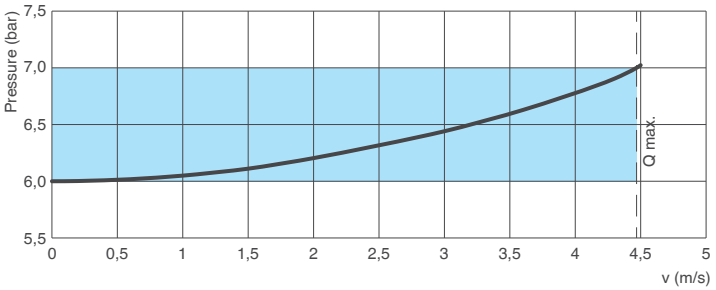
Kv coefficient representing the flow rate which is flowing through the valve fully open producing a head loss of 1 bar.



Cavitation chart

The cavitation phenomenon is very important during the proper valve sizing process since it may lead to substantial damages, in addition to vibration and noise. The cavitation chart has to be used to determine whether the intersection of the line, connecting upstream and downstream pressure conditions, lies within one of the 5 zones to be identified as follows:

- A: Out of the possible working conditions;
- B : Recommended working conditions;
- C : Incipient cavitation;
- D : Damage cavitation;
- E : Choked and unpredictable conditions, please consult CSA for further assistance.



Upstream pressure buildup

The plot is showing the increase in the upstream pressure that occurs through the valve, when the flow increases. The area depicted in blue includes the recommended working range and maximum velocity of the valve, used as a pressure relief only.

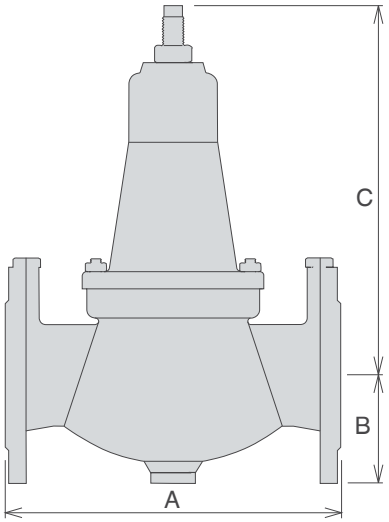
Working conditions

Treated water/air temperature: max. 70°C.
Maximum working pressure 40 bar.
Upstream pressure values: from 1,5 to 6 bar or from 5 to 12 bar.
Higher values on request.

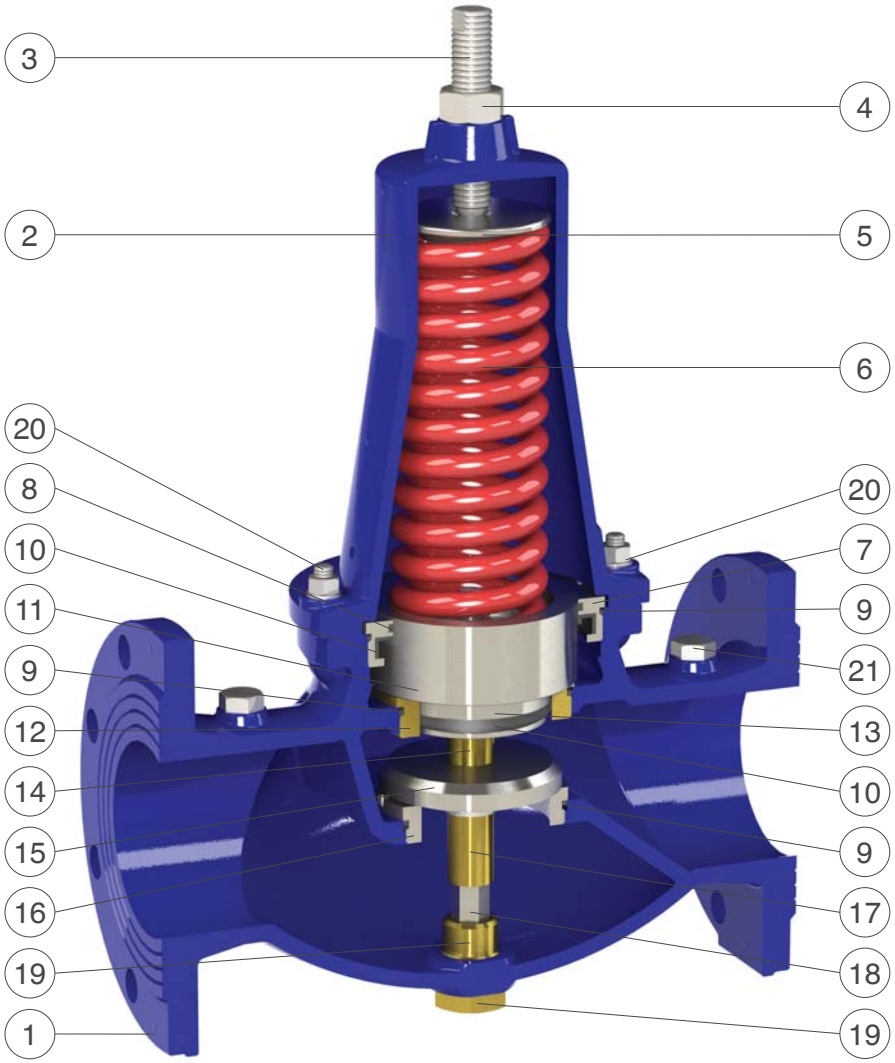
Standard

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	50	65	80	100	125	150
A mm	230	290	310	350	400	450
B mm	83	93	100	117	135	150
C mm	280	320	350	420	590	690
Weight Kg	12	19	24	34	56	74



Technical details



N.	Component	Material	Standard
1	Body	ductile cast iron	GJS 500-7
2	Cap	ductile cast iron	GJS 500-7
3	Driving screw	stainless steel	AISI 304/316
4	Nut	stainless steel	A2/A4/AISI 316
5	Spring guide	stainless steel	AISI 304/316
6	Spring	spring steel	Si -Cr
7	Main bush	stainless steel	AISI 304/316
8	Sliding ring	PTFE	
9	O-ring	NBR	
10	Gasket	NBR	
11	Upper piston	stainless steel	AISI 304/316
12	Lower reinforcements	bronze/stainless steel	AISI 304/316
13	Lower piston	stainless steel	AISI 304/316
14	Central spacer	brass/stainless steel	OT58/AISI 304/316
15	Obturator guide	stainless steel	AISI 304/316
16	Obturator sealing seat	stainless steel	AISI 304/316
17	Lower spacer	brass/stainless steel	OT58/AISI 304/316
18	Guiding shaft	stainless steel	AISI 304/316
19	Driving tap	brass/stainless steel	OT58/AISI 304/316
20	Studs, nuts and washers	stainless steel	A2/A4/AISI 316
21	Taps for pressure gauges	stainless steel	A2/A4/AISI 316

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

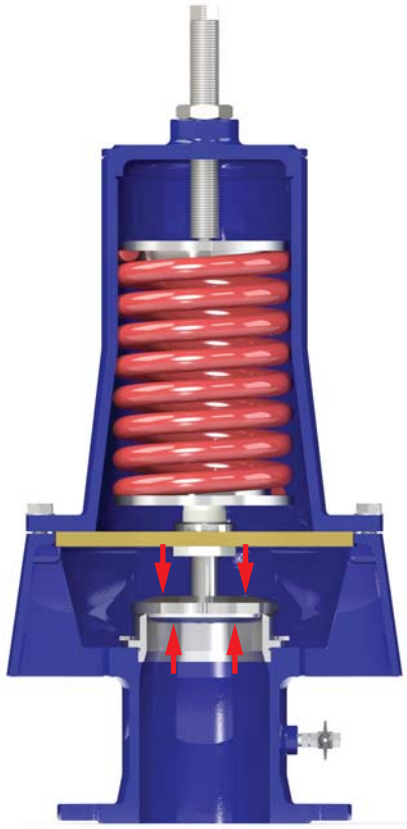
- Solid and compact design including the reduction cone between the inlet and the sealing seat.
- Negligible inertia of internal mobile parts.
- Perfect sealing seat impervious to cavitation thanks to a special plane gasket.
- Precise and perfect setting without any hysteresis effect thanks to a perfectly 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 of 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.

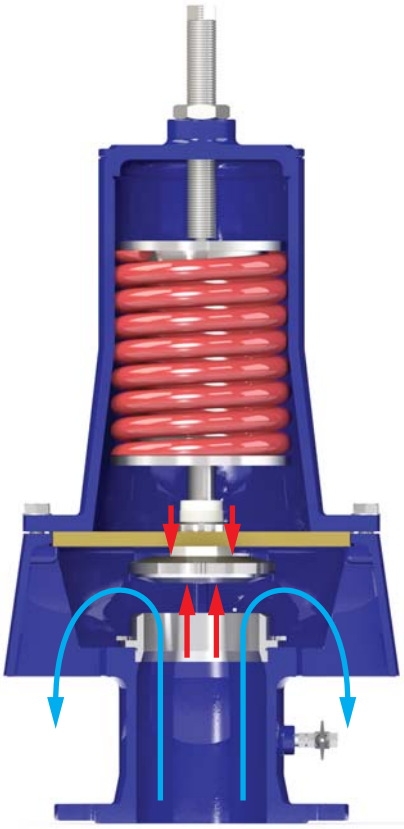
Operating principle

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.

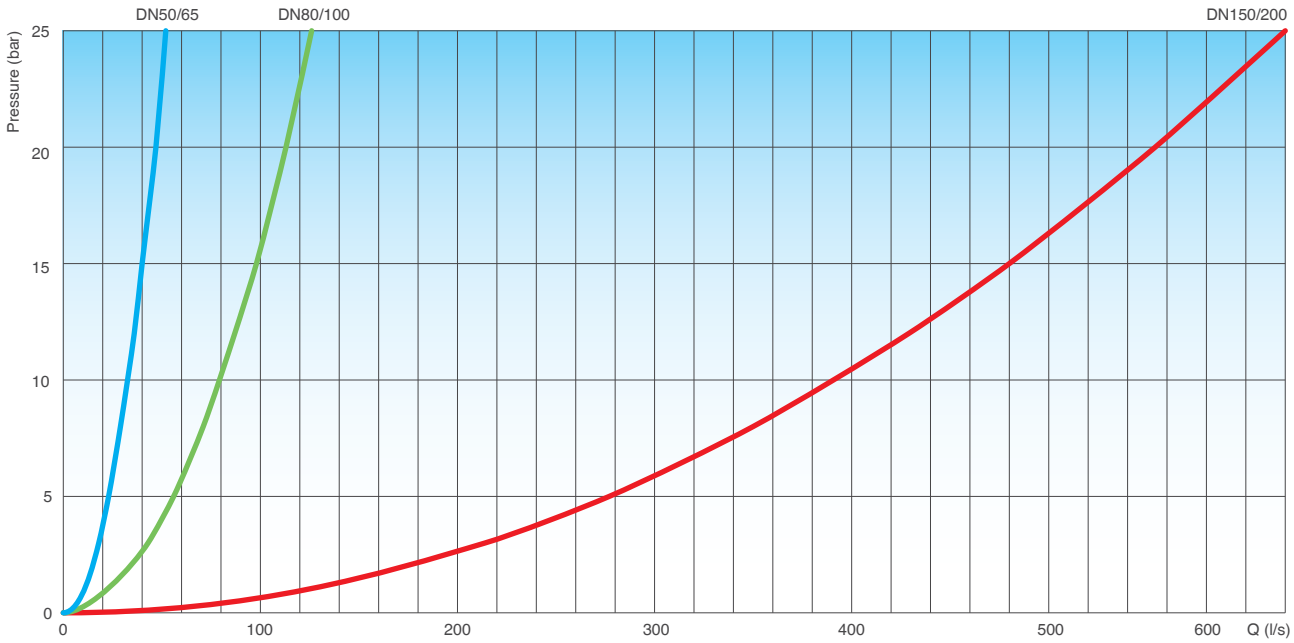
Optional

■ 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

VRCA sizing chart

CSA technical department, by means of advanced simulation tools, is at your complete disposal for hydraulic modelling and transient analysis.
In the hope of making the sizing process easier, you will find below the sizing chart showing the actual VRCA performances in terms of protection capabilities. The vertical axis represents the pressure and the horizontal one represents the corresponding flow rate of the valve.
We recommend to size the valve to discharge a percentage of the system flow rate, in steady state conditions, ranging from 30 up to maximum 45%. If the required value falls on the left of one of the curves VRCA will be able to protect the system.
Nevertheless we always suggest contacting our technical support for a numerical analysis.

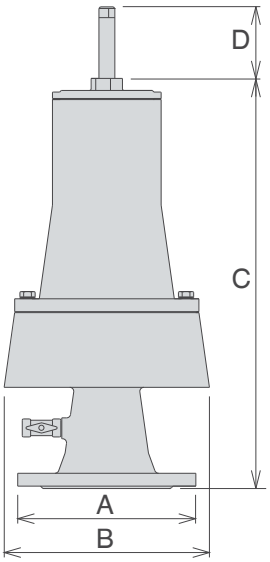


Working conditions

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.

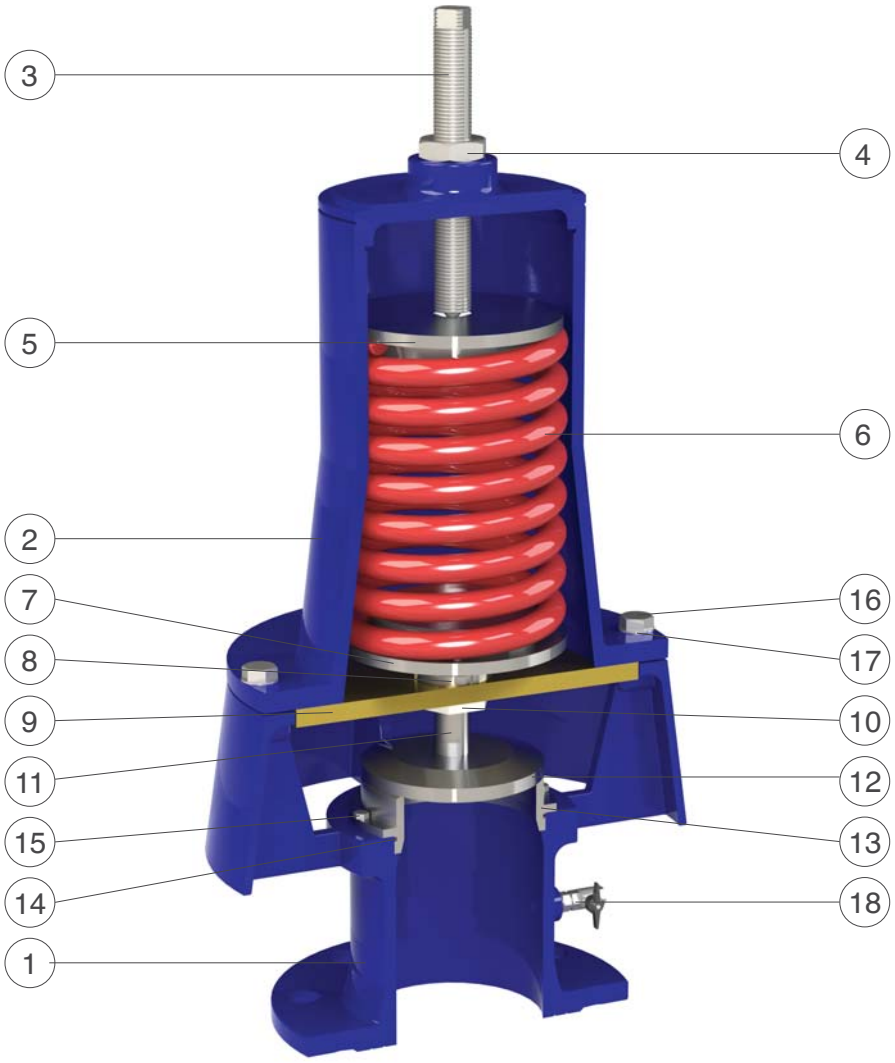
Standard

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	Material	Standard
1	Body	ductile cast iron	GJS 500-7
2	Cap	ductile cast iron	GJS 500-7
3	Driving screw	stainless steel	AISI 304/316
4	Nut	stainless steel	A2/A4/AISI 316
5	Spring support	stainless steel	AISI 304/316
6	Spring	spring steel	Si-Cr
7	Spring housing	stainless steel	AISI 304/316
8	Ring	stainless steel	AISI 304/316
9	Separation plate	brass/s.s./painted steel	OT 58/AISI 304/Fe 37
10	Driving sleeve	delrin polyoxymethylene	
11	Shaft	stainless steel	AISI 304/316
12	Obturator	stainless steel	AISI 316
13	Sealing seat	stainless steel	AISI 316
14	O-ring	NBR	
15	Screws	stainless steel	A2/A4/AISI 316
16	Screws	stainless steel	A2/A4/AISI 316
17	Washers	stainless steel	A2/A4/AISI 316
18	Ball valve 1/4”	nickel plated brass	

Advanced testing facilities

Designed to reproduce real conditions of modern water distribution systems the CSA testing facility is able to assess the dynamic performances of automatic control valves, direct acting pressure control valves, air valves and anti water hammer valves.
Provided with a high capacity booster pumps station, and linked to an advanced high frequency pressure transducers and flow meters, the testing rig allows for a real time visualization of pressure and flow evolutions. Water hammer events can also be simulated and recorded to prove the efficacy of CSA fast acting relief valve, in addition to level control for which, using an auxiliary stilling tank, a part of the pipeline system is entirely dedicated. The PLC and control station allows for the operation of step by step and solenoid operated valves to determine the sensitivity of such kind of application and pressure management solutions. Thanks to this important and powerful tool valves can be customized, simulated and set according to the project requirements assuring the perfect performance and accuracy.

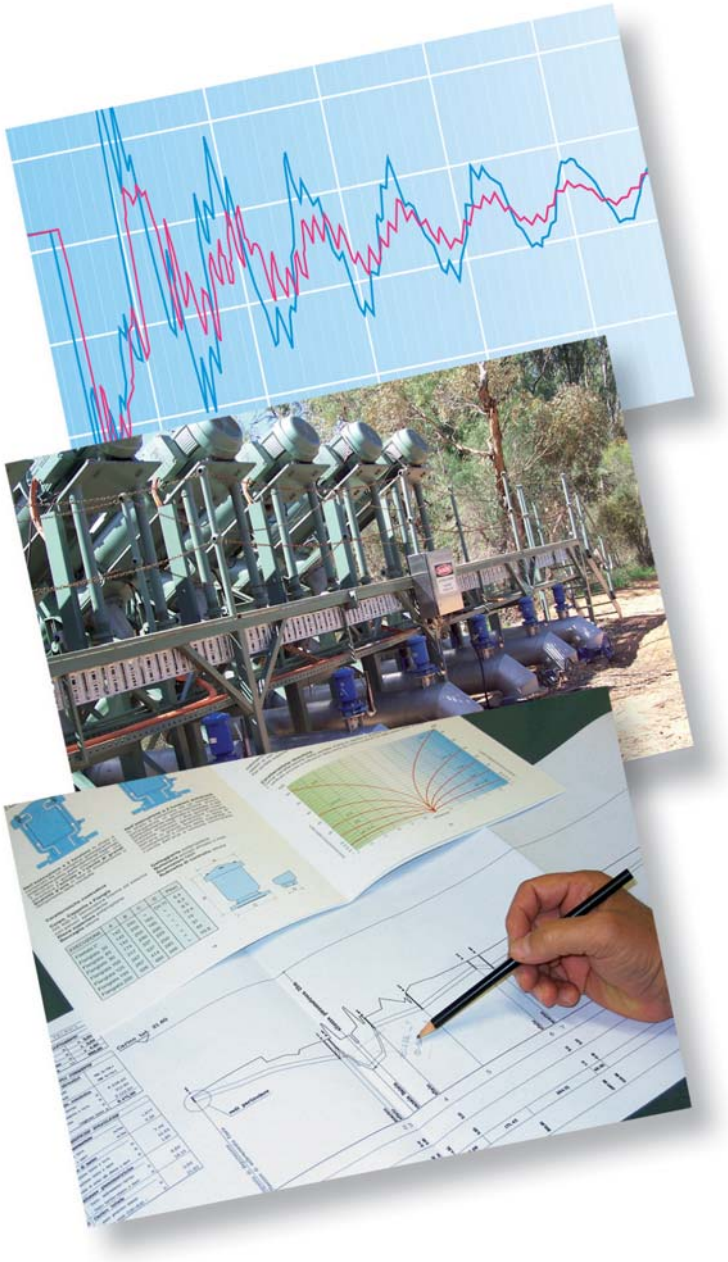
The testing process

All our valves undergo severe tests according to EN standards to ensure they are mechanically resistant, watertight, and high performing. After testing every valve is identified by means of a metallic tag or sticker, and duly registered and certified.

CSA HYCONSULT

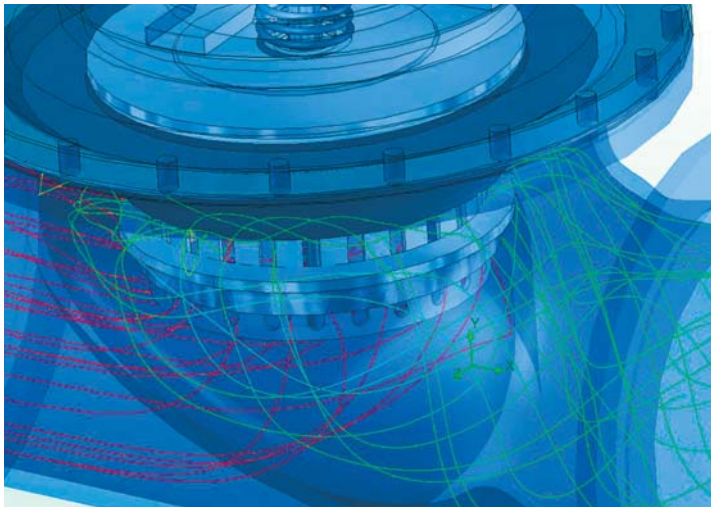
Water hammer analysis
CSA Hyconsult

CSA Hyconsult was founded to provide designers and consultants, involved in the design of water distribution and sewage systems, with accurate and unique technical support.
CSA Hyconsult has specialized in hydraulic modelling and transients analysis, entirely through the use of modern computational tools and advanced algorithms. Simulations are essential to predict system responses to events under a wide range of conditions without disrupting the actual system.
Using simulations, problems can be anticipated in possible or existing situations, and solutions can be evaluated in order to invest time, money and material in the most productive manner.



Research and innovation

CSA has always regarded knowledge as being indispensable for the kind of research that consistently feeds innovation at all levels. The R&D department at CSA constantly strives to improve product performance and continually searches for new solutions to meet our customer's needs. Twenty years of experience in valve design and sizing, supported by advanced computational tools, cooperation with external entities at the highest level, and test facilities for the verification of theoretical results which are available for our customers, guarantee our professionalism and reliability.



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