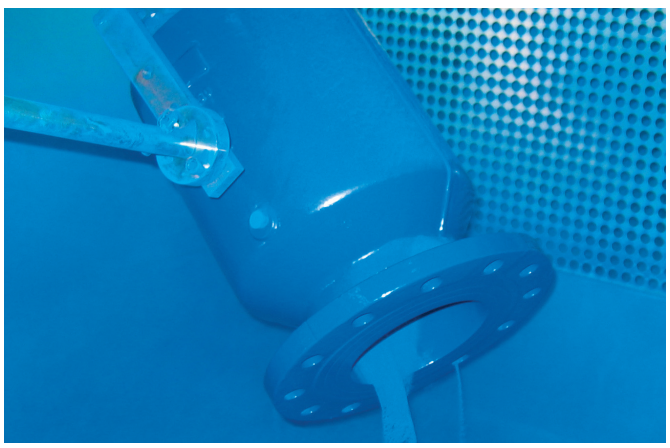
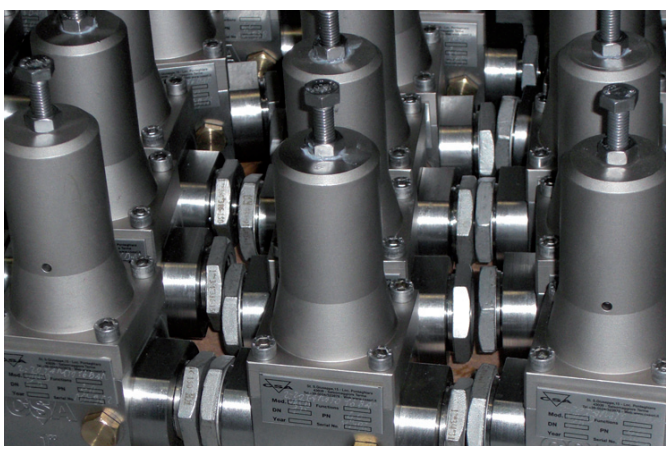
The company was founded in 1987 by transforming the former CSA, which was a trading company dealing with pipes and valves for water networks, into a manufacturing company, through the research and realization of pillar fire hydrants. Since then many other products have been added.
The history of our 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 the rapid growth of CSA 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 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 450-10 or 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, pretreated 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.

Automatic control valves XLC 500/600 series

Automatic control valves XLC 500 and 600 series

Overview:

Main configurations:

Technical and sizing:

Automatic control valves XLC 500 and 600 series

The CSA XLC range consist of a globe pattern hydraulically operated automatic control valves, namely 600 for the full bore and 500 for the reduced bore series, entirely produced in ductile cast iron and steel with internal components in stainless steel.

Piston actuated PN 40 class, the valve is designed to perform mainly pressure reduction and sustain. Each function is obtained simply by changing the circuitry and pilots, that can be combined together if needed.

All information herewith contained referring to operating principle, case studies and installation, are applicable to the XLC 500 and 600 series unless otherwise stated.

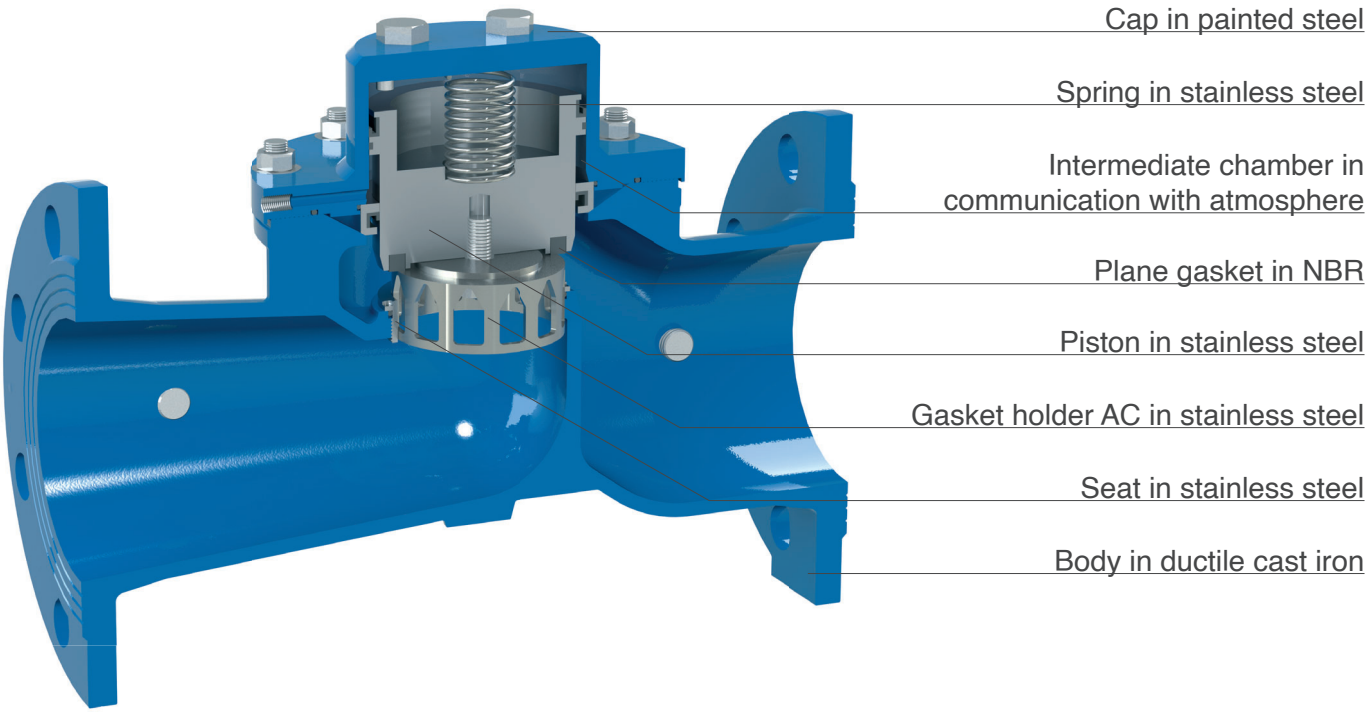
Technical features and benefits

- Body in ductile cast iron, PN 40 bar rated, globe pattern design in compliance with EN 1074 standards and available from DN 50 mm up to DN 200 mm.
- Designed to reduced head loss and minimize turbulence under a wide flow range.
- Throttling plug to ensure stability at low flow.
- Silent operation and absence of vibrations, suitable for buildings and urban applications.
- Excellent resistance to cavitation, thanks to the large expansion chamber and to CSA solutions for flow regulation either AC, designed for stability also in case of low flow conditions, and the CP for extreme pressure ratio thanks to a double step through customised cages sliding one into the other.
- In-line serviceable from the top without having to remove the valve from the pipe.
- High quality materials which guarantee reliability for long lasting performances with internals all made in stainless steel.

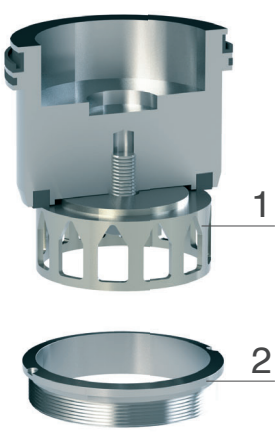
Applications

- High pressure main transmission lines.
- Industrial plants.
- Cooling system.
- Long downhill segments with high elevated terrain.

Technical features

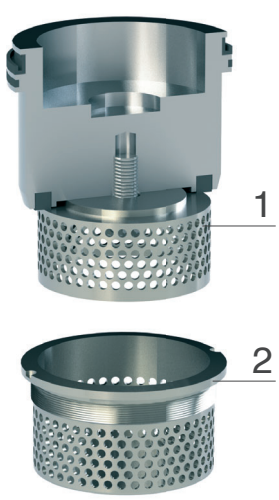


AC version for low flow stability and cavitation prevention



1. Low flow stability gasket holder for cavitation prevention
2. Obstacle free seat

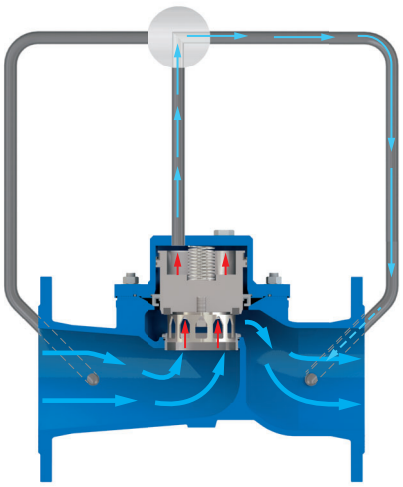
CP anti-cavitation version



1. Anti-cavitation gasket holder
2. Anti-cavitation seat in stainless steel

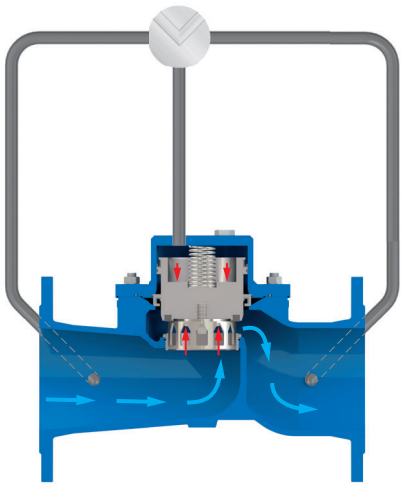
The anti-cavitation trim AC mobile block includes a gasket holder designed to increase the allowable pressure ratio and resistance to cavitation, improving at the same time the valve's stability to guarantee the maximum accuracy also in case of no flow.
The intermediate chamber, in communication with atmosphere and located between the upper and lower part of the piston, ensures a smooth and fine regulation.
The CP system includes two cages for double energy dissipation between inlet and outlet, whose holes can be customized according to the project in hand and required performances, this is to avoid damages to the valve without a drastic reduction of the valve's Kv.

Operating principle on-off mode



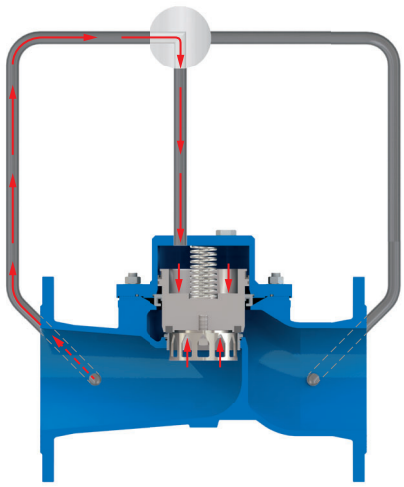
Valve opening

If the pressure inside the control chamber is put in communication with the atmosphere or a lower pressure zone, the upstream pressure will act on the lower part of the piston, pushing it upwards allowing the complete opening of the valve.



Valve isolated from the line

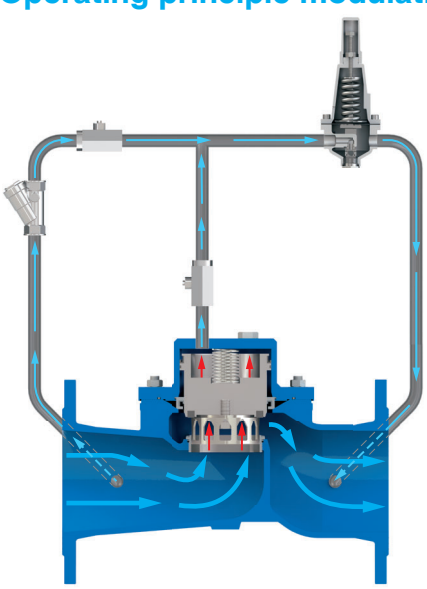
Should the control chamber be isolated from the line pressure and the rest of the circuitry, the valve will remain in the same position, therefore producing the head loss corresponding to such opening percentage.



Valve closing

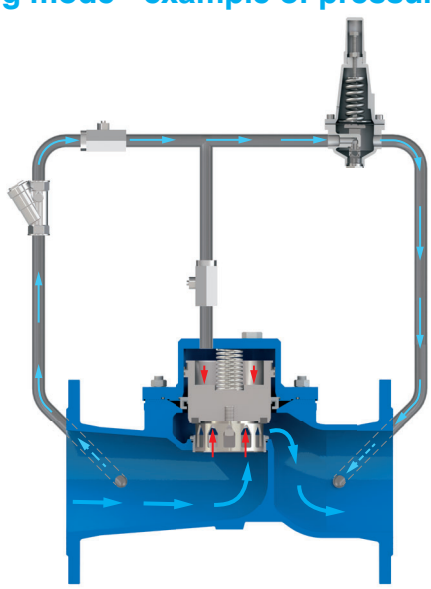
If the control chamber is put in communication with the upstream pressure, thanks to the difference in area between the piston and the seat, the valve will close completely.

Operating principle modulating mode - example of pressure reduction



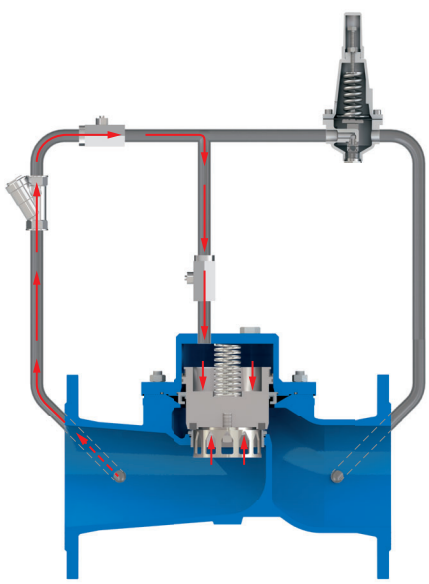
Valve opening

Should the downstream pressure drop below the pilot's preset and adjustable set point the latter will open, allowing flow and pressure to be relieved out of the main chamber. The mobile block will be lifted to increase the passage between the piston and the seat, trying to re-establish the desired downstream pressure value.



Valve modulating

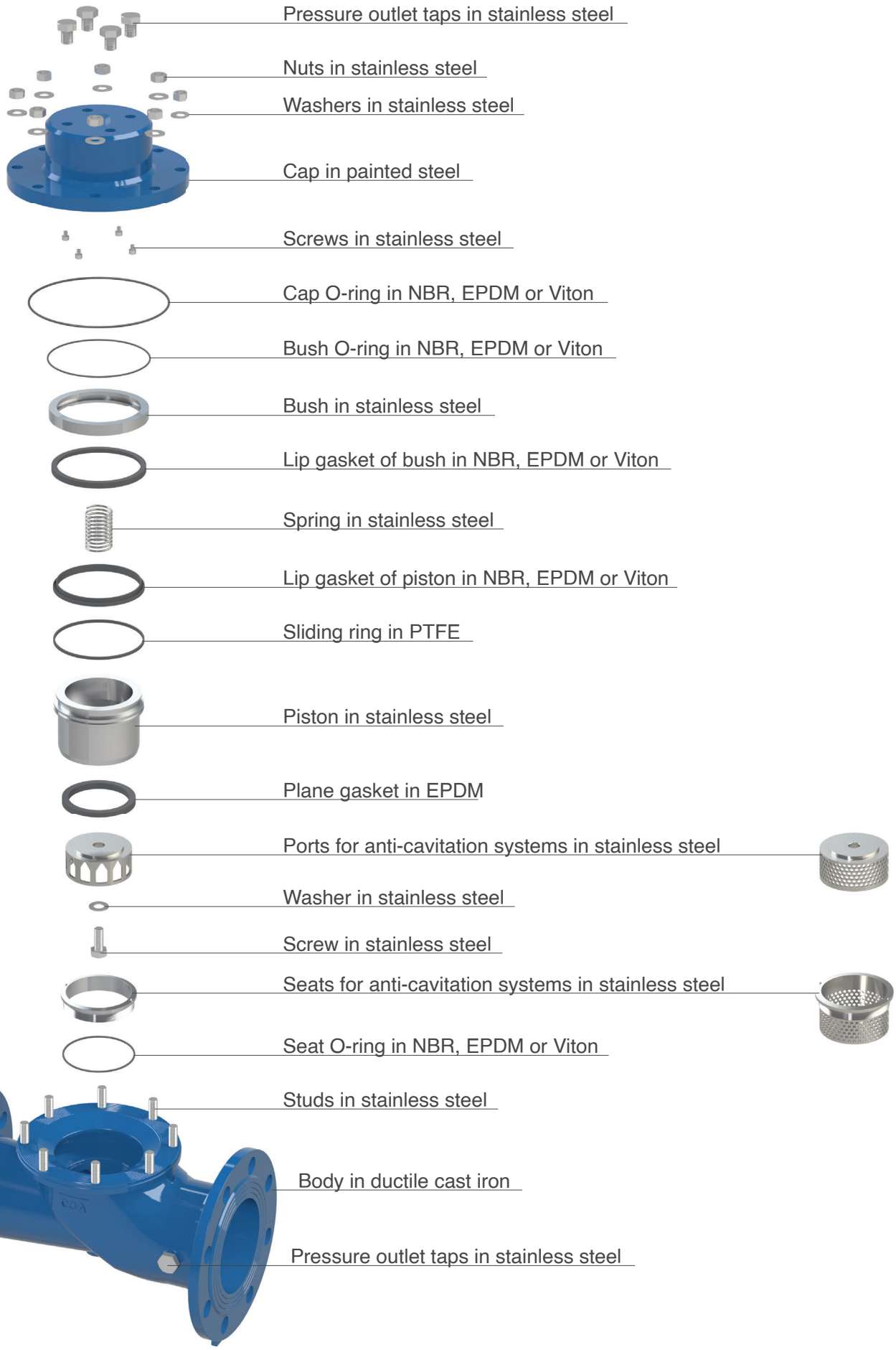
As a consequence of gradual change in demands the pilot will keep regulating the flow in and out of the main chamber, to compensate for pressure variations. The mobile block reproduces the pilot's movement, throttling the passage between the seat and piston in order to generate the head-loss required for the pressure reduction.

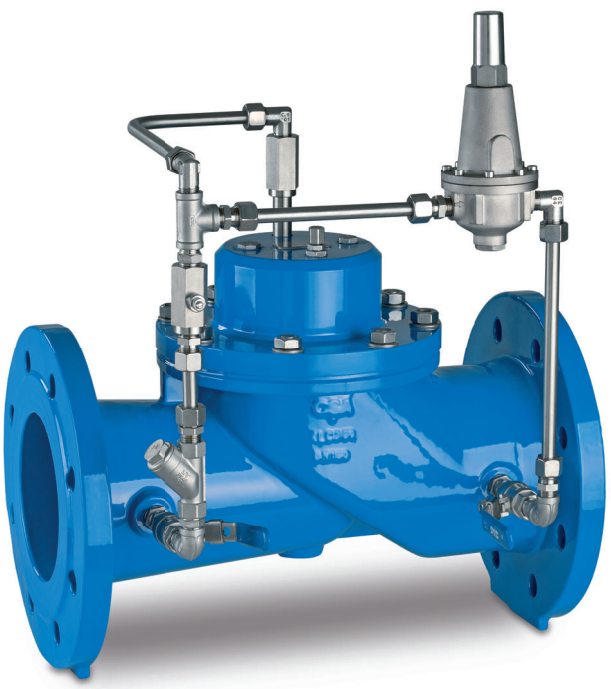


Valve closing

Should the downstream pressure rise above the pilot's set point the latter will close, allowing for pressure build up inside the main chamber. The mobile block will be pushed down trying to re-establish the desired downstream value. In static conditions pilot will be fully closed, with the valve maintaining the desired downstream pressure.

XLC 500 and 600 - AC and CP versions - Spare parts breakdown





Downstream pressure reducing stabilizing automatic control valve **Mod. XLC 510 and 610**

The CSA model XLC 510 and 610 series is a globe pattern piston operated automatic control valve, that reduces and stabilizes the downstream pressure to a constant value, regardless of variation in demands and upstream pressure conditions. Produced in compliance with PN 40 bar pressure standards and entirely made in ductile cast iron FBT epoxy painted and stainless steel, the valve is designed to reduce head loss, throttling noise and cavitation damage. The valve is normally equipped with anti cavitation low flow stability system AC, the double cage CP on request.

Applications

- Downstream of pumps to reduce the pressure on the main supply line.
- In derivation from the main line to stabilize the pressure of secondary line.
- As a protection against rise in pressure of industrial equipment and civil installations.
- On the inlet supply line of storage tanks in case of high static values to stabilize pressure and flow for the level control.

Additional features

- XLC 510/610-FR downstream pressure reducing with back-flow prevention.
- XLC 510/610-H downstream pressure reducing with high sensitivity pilot.

Accessories

- Pressure measurement kit.

Working conditions

- Fluid: treated water.
- Minimum operating pressure: 0,7 bar.
- Maximum operating pressure: 40 bar.
- Maximum temperature: 70°C.

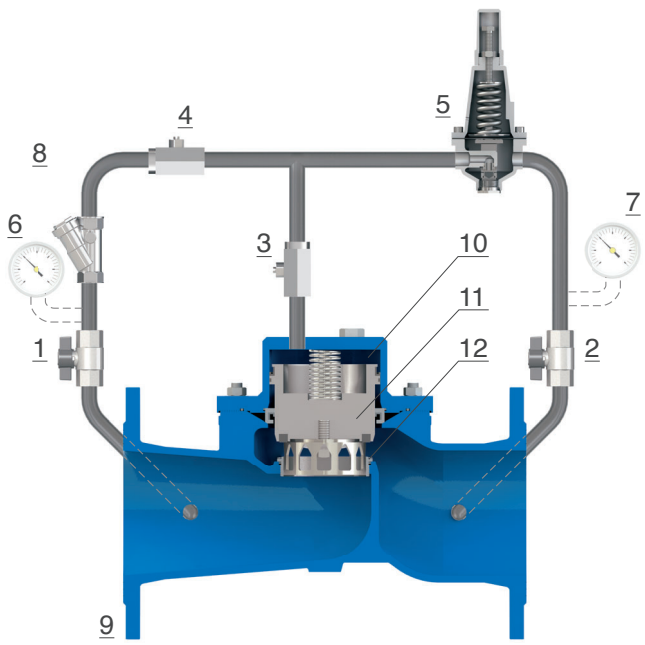
Note to the engineer

- Inlet and outlet pressure, and flow rate are required for the proper sizing.
- CP double stage pressure reduction trim is recommended to provide a higher resistance to cavitation, and accurate regulation in case of low flow.
- A minimum length of 3 DN upstream of the valve is recommended for the best accuracy.

Downstream pressure pilot adjustment range

- Blue spring: 0,7 to 7 bar.
- Red spring: 1,5 to 15 bar.
- Higher values up to 25 bar on request.
- Values lower than 0,7 available with high sensitivity pilots.

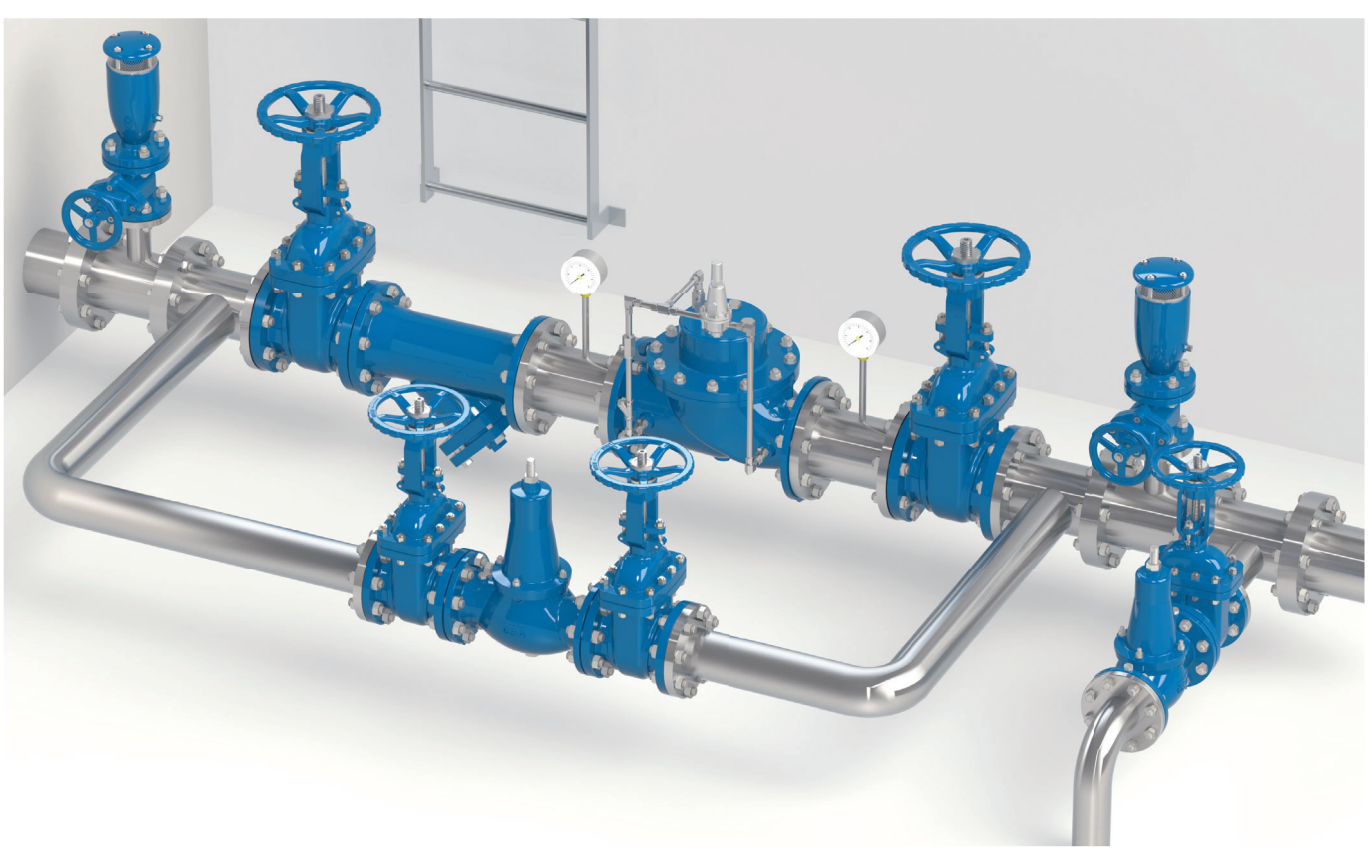
Operating principle



The CSA model XLC 510/610 is an automatic control valve operated by a 2 ways pilot (5) with pre-set set and adjustable value. Should the downstream pressure rise above the pilot set point the latter will throttle and limit the flow to direct inlet pressure to the main chamber (10), thus pushing down the piston (11) to generate the head loss required for the valve (9) to reduce and stabilize the downstream pressure to a constant value. Should the downstream pressure fall below the pilot set point the piston (11) moves up increasing the passage through the seat (12), thus reducing the head loss through the valve. The flow in and out of the main chamber (10) is controlled by the CSA high sensitivity needle valve in stainless steel (3), needed for the valve's response time and accuracy also in case of rapid variation in demand. Thanks to isolation ball valves and a needle valve on the chamber (1, 2 and 3) the circuit and its components can be maintained without interrupting the flow.

Installation layout

The recommended XLC 510/610 installation layout includes sectioning devices and by-pass for maintenance operations, and a strainer to prevent dirt from reaching the control valve. The direct acting pressure reducer VRCD is the best choice on the by-pass thanks to its reliability also after long periods of inactivity. Anti-surge combination air valves FOX 3F AS are recommended upstream and downstream as well as a pressure relief valve CSA VSM installed in derivation from the line to prevent rise in pressure.



Upstream pressure sustaining automatic valve **Mod. XLC 520-S and 620-S**

The CSA Model XLC 520-S and 620-S series is a globe pattern hydraulically operated automatic control valve that, installed in-line, will sustain the upstream pressure to a pre-set and adjustable value regardless of variations in demand. Produced in compliance with PN 40 bar pressure standards and entirely made in ductile cast iron FBT epoxy painted and stainless steel, the valve is designed to reduce head loss, throttling noise and cavitation damage. The valve is normally equipped with anti cavitation low flow stability system AC, the double cage CP on request.

Applications

- Downstream of pumps to prevent overload and for cavitation protection.
- On the inlet supply line of storage tanks to stabilize pressure and flow required for the level control.
- On gravity fed supply lines with high static values to ensure the minimum pressure to consumers at higher elevation zones, in case of high consumption of the lower zones.

Additional features

- XLC 520/620-S-FR pressure sustaining valve with back-flow prevention.
- XLC 520/620-S-H pressure sustaining valve with high sensitivity pilot.

Accessories

- Pressure measurement kit.

Working conditions

- Fluid: treated water.
- Minimum operating pressure: 0,7 bar.
- Maximum operating pressure: 40 bar.
- Maximum temperature: 70°C.

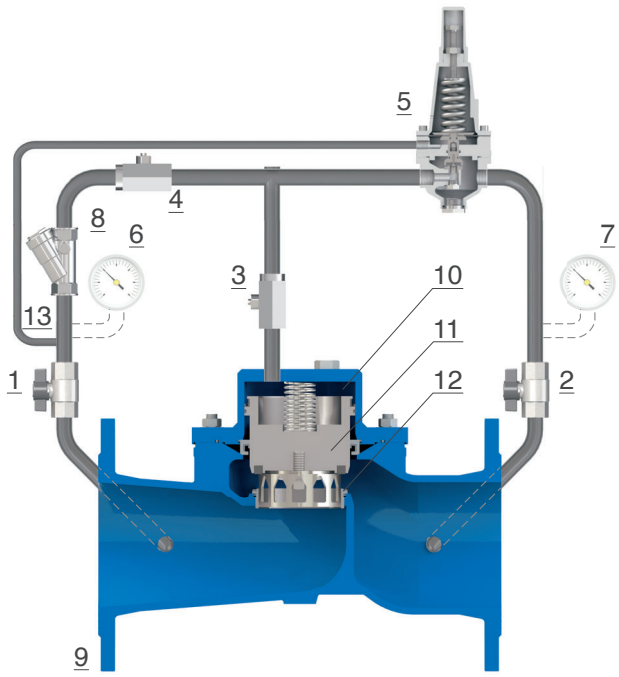
Note to the engineer

- Inlet and outlet pressure, and flow rate are required for the proper sizing.
- CP double stage pressure reduction trim is recommended to provide a higher resistance to cavitation, and accurate regulation in case of low flow.
- A minimum length of 3 DN upstream of the valve is recommended for the best accuracy.

Upstream pressure pilot adjustment range

- Blue spring: 0,7 to 7 bar.
- Red spring: 1,5 to 15 bar.
- Higher values up to 25 bar on request.

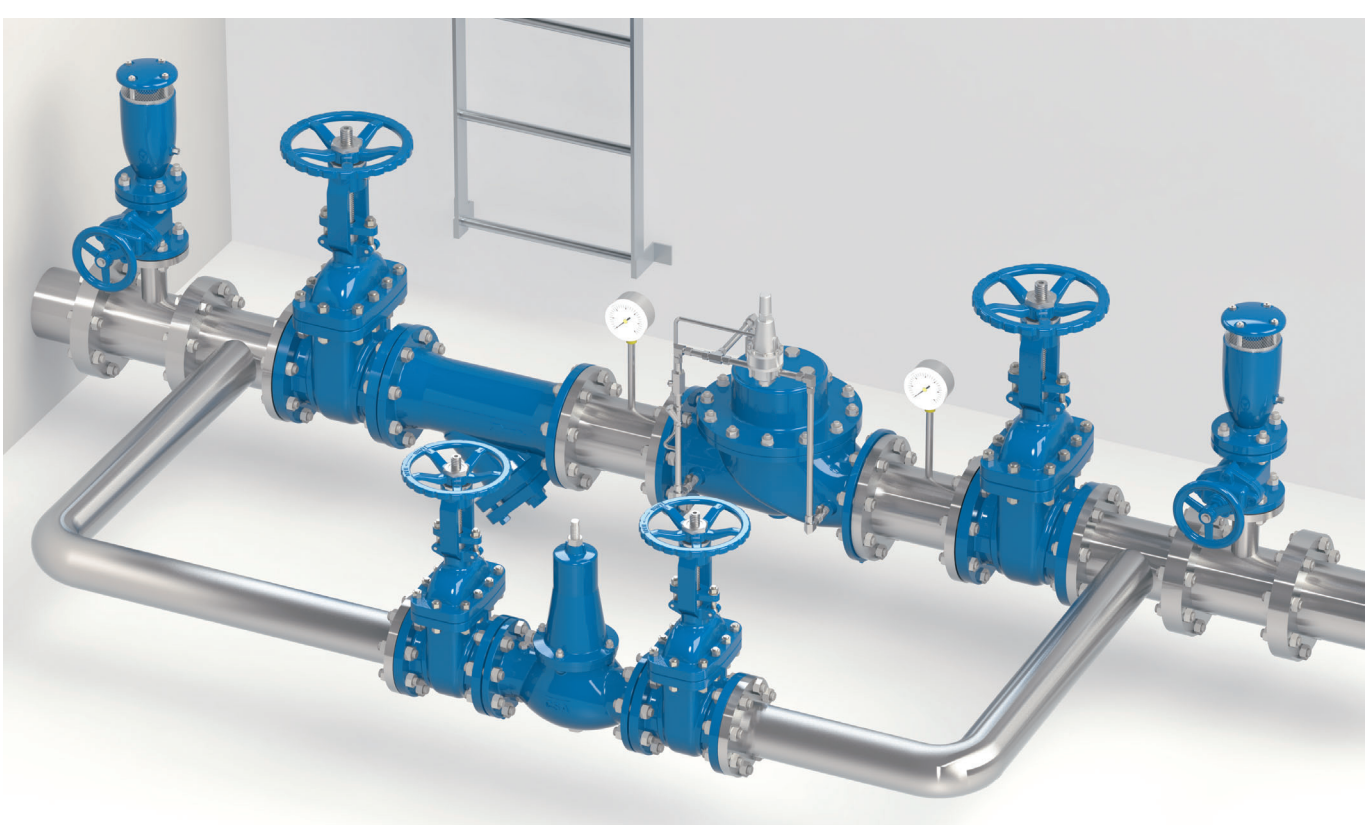
Operating principle



The CSA Model XLC 520/620-S is an automatic control valve operated by a high sensitivity two ways pilot (5), with pre-set and adjustable set point value, sensing the unfiltered upstream pressure from the inlet supply line (13). Should the line pressure rise above the pilot's set point the latter will open thus relieving the chamber (10) and moving the obturator (11) upwards, to discharge water and pressure through the main valve (9) downstream protecting the system. Should the upstream pressure be lower than the pilot's set point the latter will throttle (close eventually), diverting all pressure towards the main chamber (10) thus pushing the obturator (11) onto the seat (12), interrupting the flow rate.
The flow in and out of the main chamber (10) is controlled by the CSA high sensitivity needle valve in stainless steel (3), needed for the valve's response time and accuracy also in case of rapid variation in demand. Thanks to isolation ball valves and a needle valve on the chamber (1, 2 and 3) the circuit can be maintained without interrupting the flow.

Installation layout

The recommended installation lay-out of the CSA XLC 520/620-S, used as a in-line pressure sustaining, includes sectioning devices and by-pass for maintenance operations, and a strainer to prevent dirt from reaching the control valve. The direct acting pressure sustain valve CSA Mod. VSM is the best choice on the by-pass thanks to its reliability also after long periods of inactivity. Anti-surge combination air valves CSA Mod. FOX 3F AS are recommended upstream and downstream of the installation.



Upstream pressure relief automatic valve **Mod. XLC 520-R and 620-R**

The CSA Model XLC 520-R and 620-R series is a globe pattern hydraulically operated automatic control valve that, installed in derivation from the main line, will relief the excessive upstream pressure when it rises above the pre-set and adjustable value. Produced in compliance with PN 40 bar pressure standards and entirely made in ductile cast iron FBT epoxy painted and stainless steel, the valve is designed to reduce head loss, throttling noise and cavitation damage. The valve is normally equipped with anti cavitation low flow stability system AC, the double cage CP on request.

Applications

- Downstream of pumps to protect the pipeline against rise in pressure during pump start up and pump failure.
- As a protection against rise in pressure in industrial equipment and civil installations.
- Downstream of pressure reducing station and modulating devices to protect the system against unwanted pressure fluctuations.

Additional features

- XLC 520/620-R-FR upstream pressure relief valve with back-flow prevention.

Accessories

- Pressure measurement kit.

Working conditions

- Fluid: treated water.
- Minimum operating pressure: 0,7 bar.
- Maximum operating pressure: 40 bar.
- Maximum temperature: 70°C.

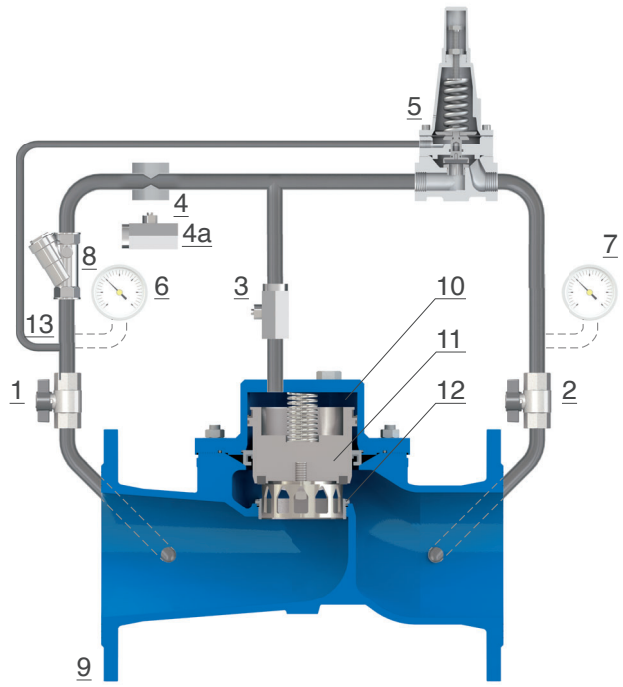
Note to the engineer

- Inlet pressure, outlet pressure, flow rate and application are required for the proper sizing and cavitation analysis.
- For the recommended flow rate please use the charts available on the XLC series engineering.
- When the valve discharges to atmosphere the CP system is advised.

Upstream pressure pilot adjustment range

- Blue spring: 0,7 to 7 bar.
- Red spring: 1,5 to 15 bar.
- Higher values up to 25 bar on request.

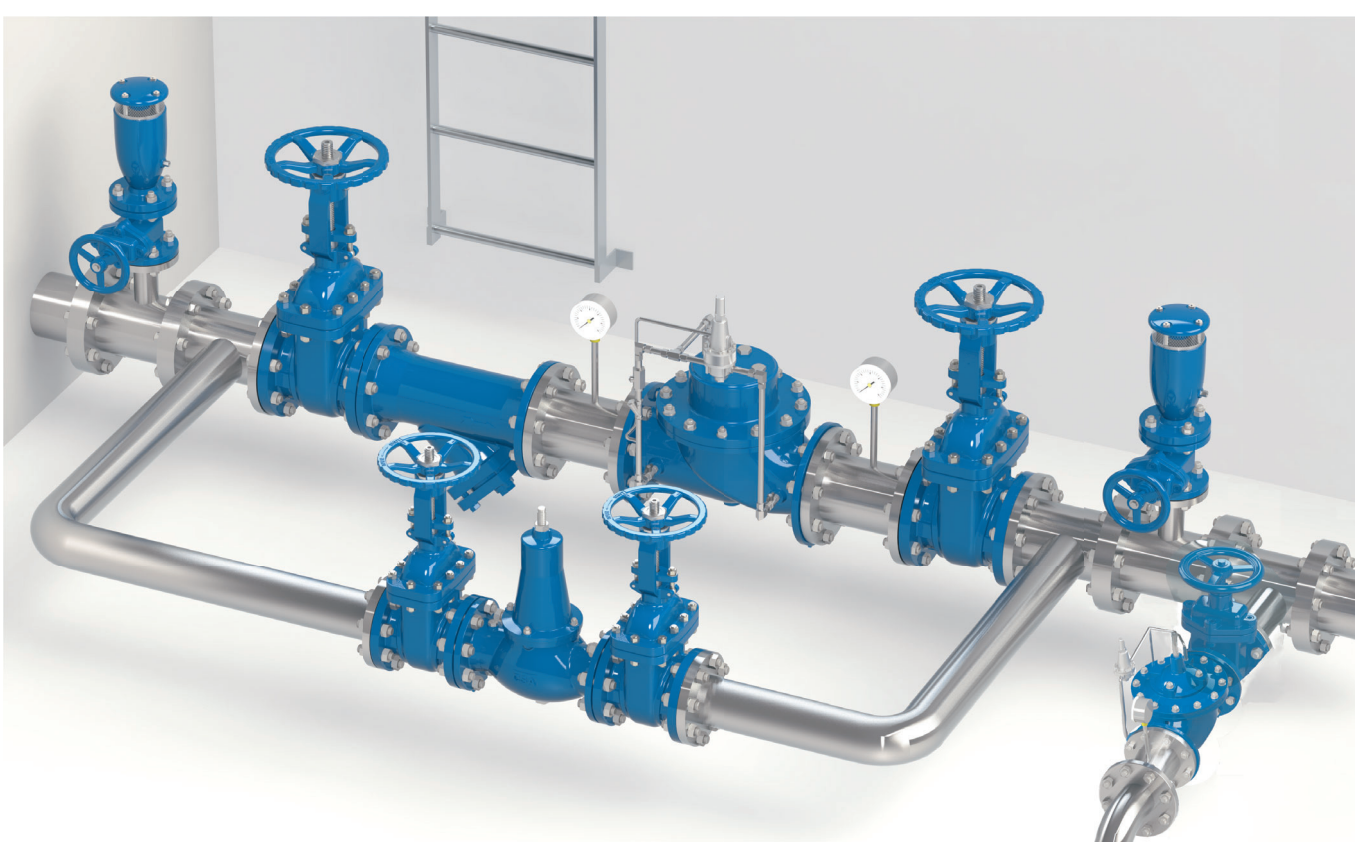
Operating principle



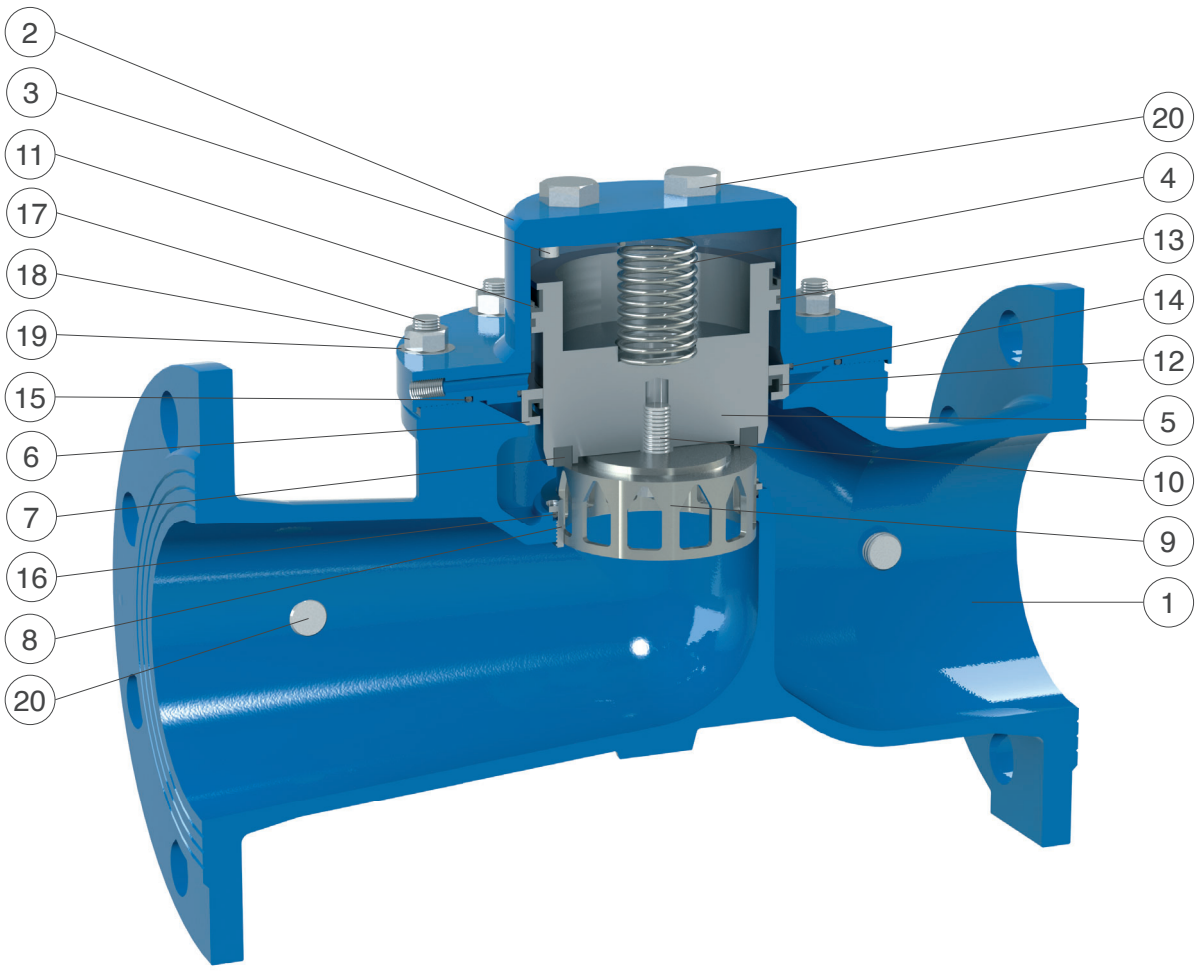
The CSA Model XLC 520/620-R is an automatic control valve operated by a high flow capacity two ways pilot (5), with pre-set and adjustable set point value, sensing the unfiltered upstream pressure from the inlet supply line (13). Should the line pressure rise above the pilot's set point the latter will open thus relieving the chamber (10) and moving the obturator (11) upwards, to discharge water and pressure through the main valve (9) protecting the system. Should the upstream pressure be lower than the pilot's set point the latter will throttle (close eventually), diverting all pressure towards the main chamber (10) thus pushing the obturator (11) onto the seat (12), interrupting the flow rate.
The flow in and out of the main chamber (10) is controlled by the CSA high sensitivity needle valve in stainless steel (3), needed for the valve's response time and accuracy also in case of rapid variation in demand. Thanks to isolation ball valves and a needle valve on the chamber (1, 2 and 3) the circuit can be maintained without interrupting the flow.

Installation layout

The picture below shows the recommended installation lay-put of the CSA XLC 520/620 R , used as a pressure relief in derivation from the main line downstream of a pressure reducing valve XLC 510/610. The sectioning devices as are very important for the maintenance e operations, including a filter necessary to avoid unexpected malfunctioning. The set point of XLC 520/620 R should always remain within at least 0,5/1 bar above the downstream pressure setting of the XLC 510/610.



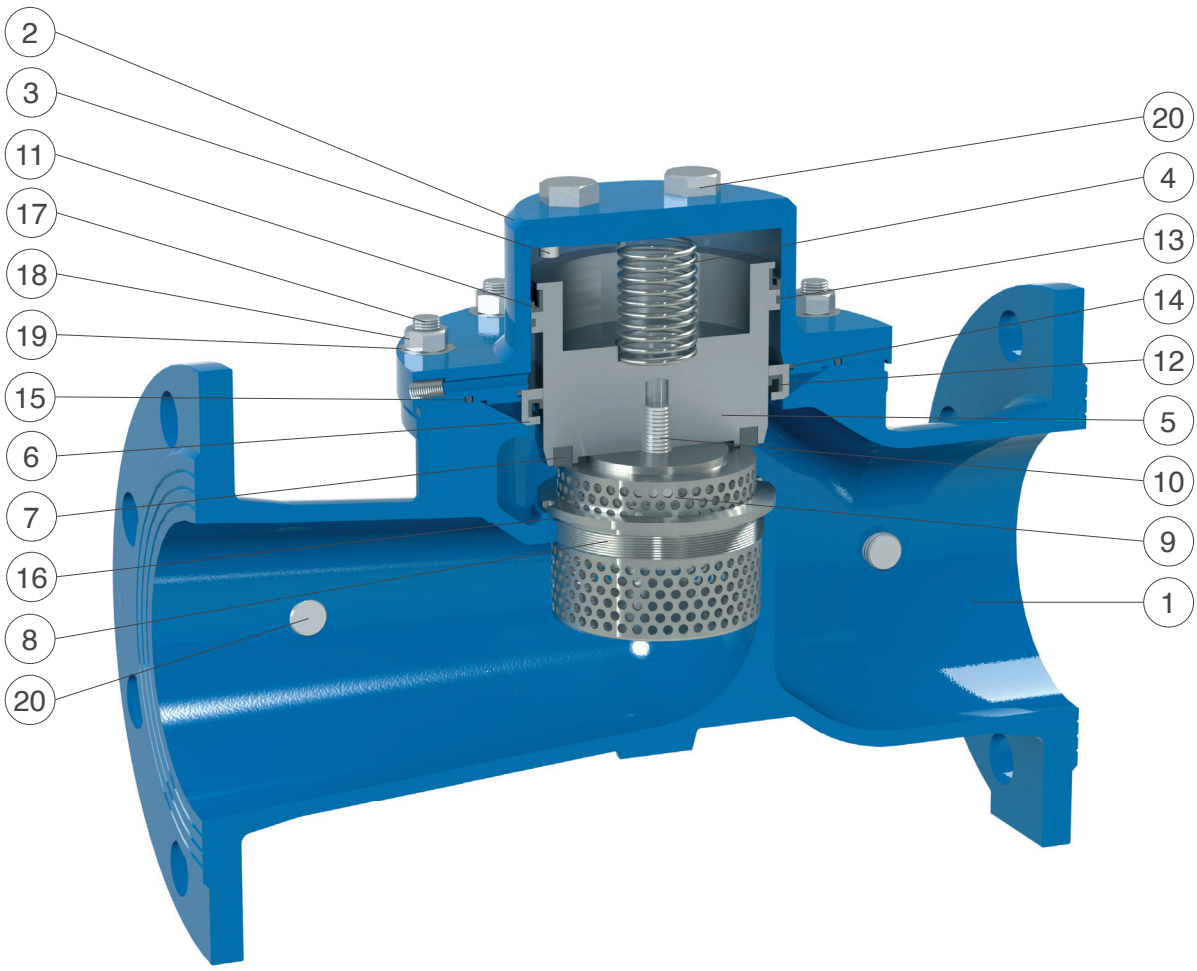
XLC 500 and 600 - AC version - Technical details



N.	Component	Standard material	Optional
1	Body	ductile cast iron GJS 450-10	
2	Cap	painted steel and stainless steel AISI 303	
3	Screws	stainless steel AISI 304	stainless steel AISI 316
4	Spring	stainless steel AISI 302	
5	Piston	stainless steel AISI 303	stainless steel AISI 316
6	Bush	stainless steel AISI 303	stainless steel AISI 316
7	Plane gasket	EPDM	
8	Seat for system AC	stainless steel AISI 303 (316 from DN 150FB/200RB)	stainless steel AISI 316
9	V-port	stainless steel AISI 303 (304 from DN 150FB/200RB)	stainless steel AISI 316
10	Screw with washer	stainless steel AISI 304	stainless steel AISI 316
11	Gasket	NBR	
12	Gasket	NBR	
13	Sliding ring	PTFE	
14	O-ring	NBR	EPDM/Viton
15	O-ring	NBR	EPDM/Viton
16	Seat O-ring	NBR	EPDM/Viton
17	Studs	stainless steel AISI 304	stainless steel AISI 316
18	Nuts	stainless steel AISI 304	stainless steel AISI 316
19	Washers	stainless steel AISI 304	stainless steel AISI 316
20	Pressure outlet taps	stainless steel AISI 316	

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

XLC 500 and 600 - CP version - Technical details



N.	Component	Standard material	Optional
1	Body	ductile cast iron GJS 450-10	
2	Cap	painted steel and stainless steel AISI 303	
3	Screws	stainless steel AISI 304	stainless steel AISI 316
4	Spring	stainless steel AISI 302	
5	Piston	stainless steel AISI 303	stainless steel AISI 316
6	Bush	stainless steel AISI 303	stainless steel AISI 316
7	Plane gasket	EPDM	
8	Seat for anti-cavitation system CP	stainless steel AISI 303 (316 from DN 150FB/200RB)	stainless steel AISI 316
9	Anti-cavitation gasket holder CP	stainless steel AISI 303 (304 from DN 150FB/200RB)	stainless steel AISI 316
10	Screw with washer	stainless steel AISI 304	stainless steel AISI 316
11	Gasket	NBR	
12	Gasket	NBR	
13	Sliding ring	PTFE	
14	O-ring	NBR	EPDM/Viton
15	O-ring	NBR	EPDM/Viton
16	Seat O-ring	NBR	EPDM/Viton
17	Studs	stainless steel AISI 304	stainless steel AISI 316
18	Nuts	stainless steel AISI 304	stainless steel AISI 316
19	Washers	stainless steel AISI 304	stainless steel AISI 316
20	Pressure outlet taps	stainless steel AISI 316	

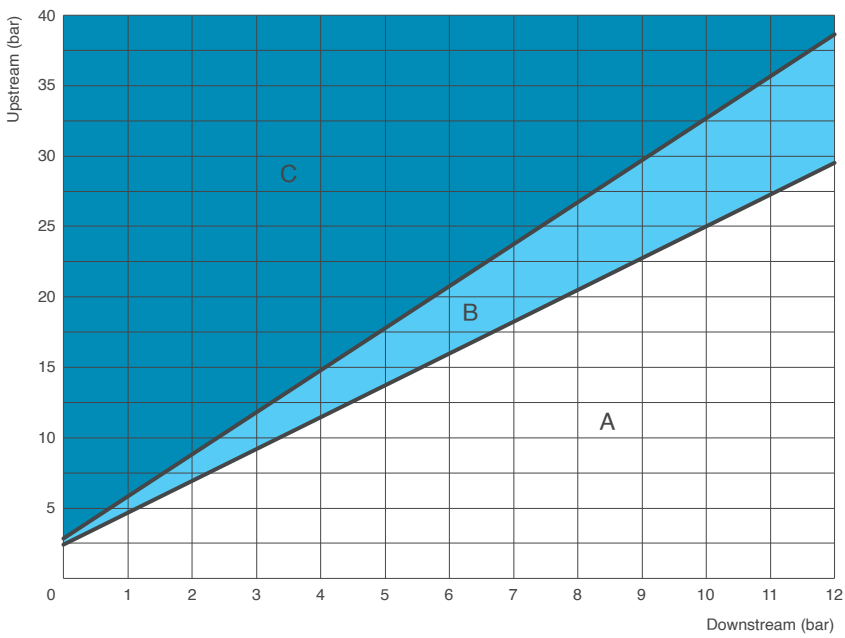
The list of materials and components is subject to changes without notice.

XLC 600 - AC version - Technical data

DN (mm)	40	50	65	80	100	150
Kv (m^3/h)	32,5	32,5	56	100	132	312
Stroke (mm)	15	15	18	21	27	43

Head loss coefficient

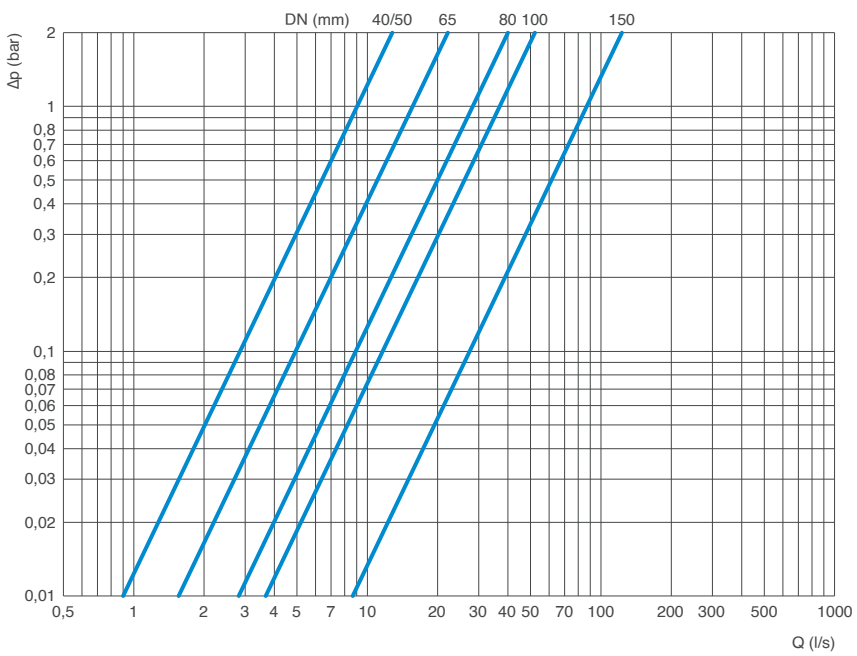
Kv coefficient representing the flow rate which is flowing through the valve fully open, and producing a head loss of 1 bar.



Cavitation chart

The cavitation analysis is very important since it may lead to substantial damages, in addition to vibration and noise. The cavitation chart has to be used to determine whether the working point obtained by the intersection of the lines, connecting upstream (y axis) and downstream (x axis) pressure conditions, lies within one of the 3 zones to be identified as follows:
- A: Recommended working conditions;
- B: Noise cavitation;
- C: Damage cavitation.

The chart is to be used for valves modulating with an opening percentage between 35-40% at standard water temperature and elevation below 300 m. For continuous pressure reduction the maximum allowed Δp shall not exceed 15 bar.



Head loss chart

The chart indicates the head loss of XLC automatic control valves fully open versus flow rate in l/s.

Recommended flow rate

The following chart shows the recommended flow rate for the proper sizing of XLC control valves.

DN (mm)			40/50	65	80	100	150
Flow rate (l/s)	Low head loss (0,1-0,15 bar)	Max.	2,8	4,9	6,9	11	27
	Recommended	Min.	0,5	0,9	1,4	2,2	4,9
		Max.	7,9	14	19	30	67
	Pressure relief	Max.	12	20	30	46	100

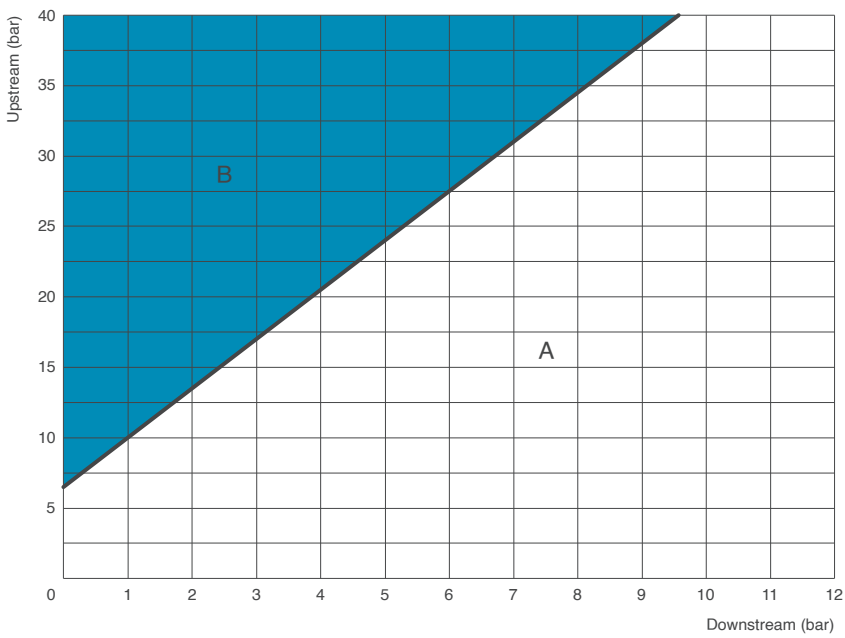
The technical informations are indicative and can change according to the number and dimension of holes.

XLC 600 - CP anti-cavitation version - Technical data

DN (mm)	40	50	65	80	100	150
Kv (m^3/h)	20	20	34	63	84	205
Stroke (mm)	15	15	18	21	27	43

Head loss coefficient

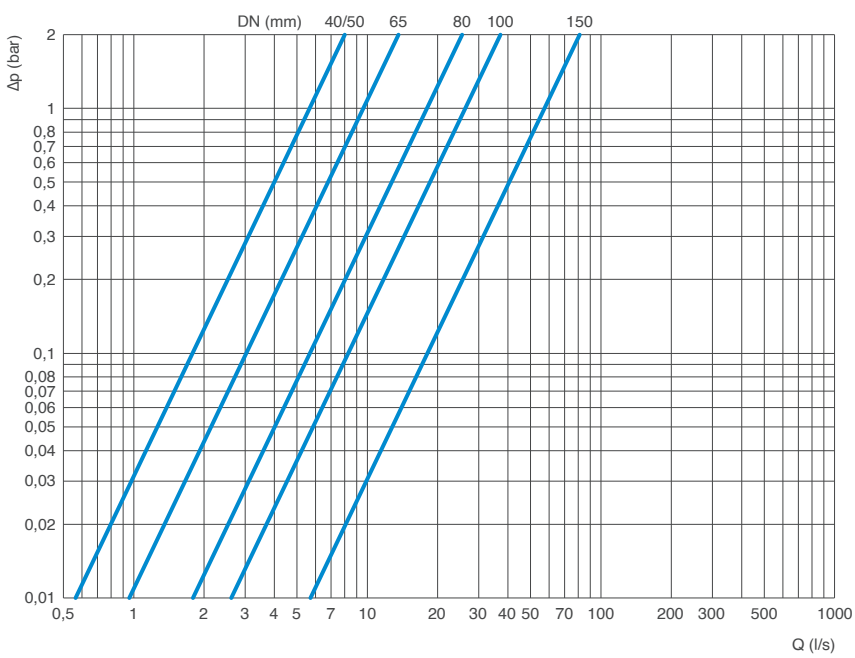
Kv coefficient representing the flow rate which is flowing through the valve fully open, and producing a head loss of 1 bar.



Cavitation chart

The cavitation analysis is very important since it may lead to substantial damages, in addition to vibration and noise. The cavitation chart has to be used to determine whether the working point obtained by the intersection of the lines, connecting upstream (y axis) and downstream (x axis) pressure conditions, lies within one of the two zones to be identified as follows:
- A: Recommended working conditions;
- B: Damage cavitation.

The chart is to be used for valves modulating with an opening percentage between 35-40% at standard water temperature and elevation below 300 m. For continuous pressure reduction the maximum allowed Δp shall not exceed 15 bar.



Head loss chart

The chart indicates the head loss of XLC automatic control valves fully open versus flow rate in l/s.

Recommended flow rate

The following chart shows the recommended flow rate for the proper sizing of XLC control valves.

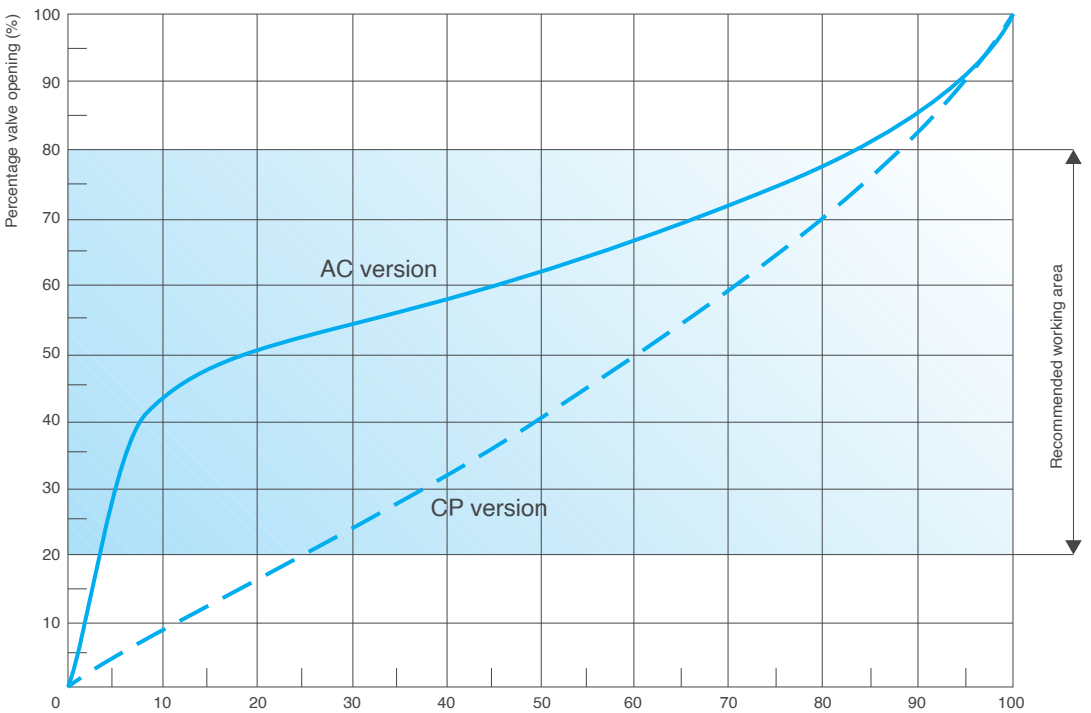
DN (mm)			40/50	65	80	100	150
Flow rate (l/s)	Recommended	Min.	0,4	0,7	1,0	1,6	3,5
		Max.	3,9	6,6	9,7	16	40
	Pressure relief	Max.	9,8	16	25	39	88

The technical informations are indicative and can change according to the number and dimension of holes.

XLC 600 - AC and CP versions - Technical data

Kv to valve opening chart

The following chart shows the opening percentage of XLC 600-AC and XLC 600-CP versus the Kv.



The charts are purely indicative and change with the valve DN and configuration.

Working conditions

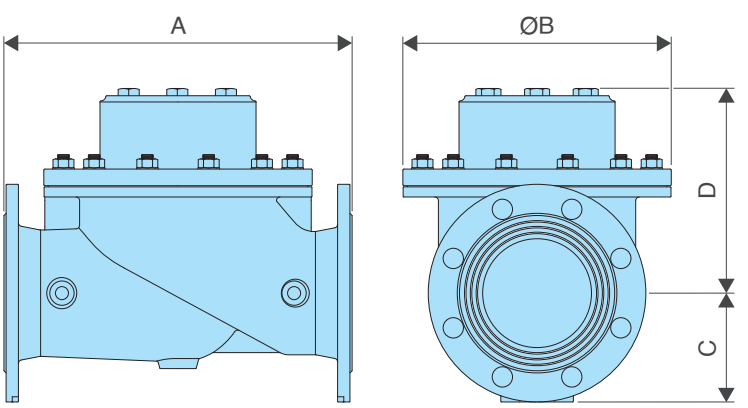
Treated filtered water.
Maximum temperature: 70°C.
Minimum pressure on the pilot : 0,5 bar plus head loss.
Maximum pressure: 40 bar.

Standard

Certified and tested in compliance with EN 1074/5.
Pressure rating 40 bar.
Flanges according to EN 1092/2 (different drilling on request).
Epoxy painting applied through FBT technology blue RAL 5005.

Weights and dimensions

DN (mm)	A (mm)	B (mm)	C (mm)	D (mm)	Weight (Kg)
40	230	162	83	140	15
50	230	162	83	140	15
65	290	194	93	160	23
80	310	218	100	180	30,5
100	350	260	118	205	43,5
150	480	370	150	285	110



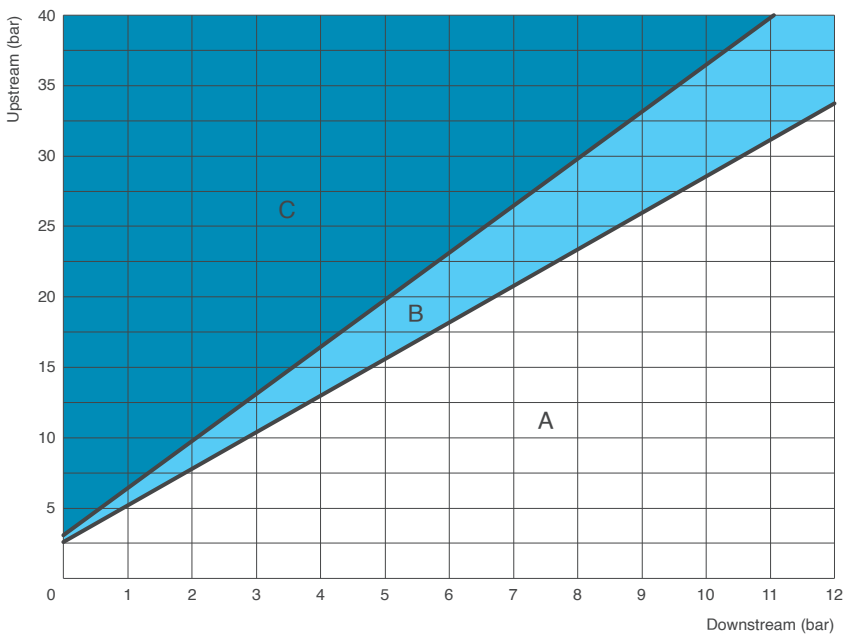
All values are approximate, consult CSA service for more details.

XLC 500 - AC version - Technical data

DN (mm)	80	100	125	150	200
Kv (m^3/h)	43	111	146	154	377
Stroke (mm)	15	21	27	27	43

Head loss coefficient

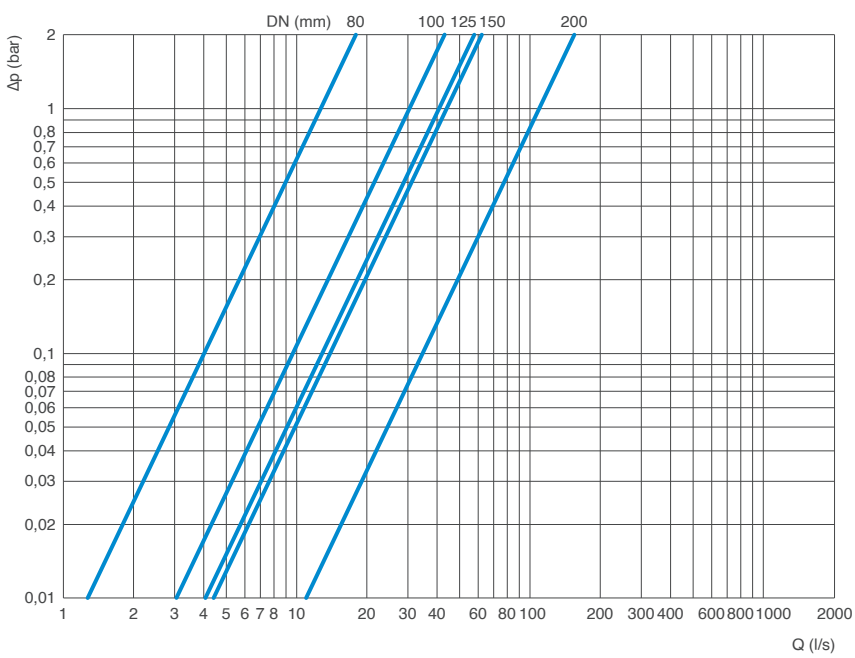
Kv coefficient representing the flow rate which is flowing through the valve fully open, and producing a head loss of 1 bar.



Cavitation chart

The cavitation analysis is very important since it may lead to substantial damages, in addition to vibration and noise. The cavitation chart has to be used to determine whether the working point obtained by the intersection of the lines, connecting upstream (y axis) and downstream (x axis) pressure conditions, lies within one of the 3 zones to be identified as follows:
- A: Recommended working conditions;
- B: Noise cavitation;
- C: Damage cavitation.

The chart is to be used for valves modulating with an opening percentage between 35-40% at standard water temperature and elevation below 300 m. For continuous pressure reduction the maximum allowed Δp shall not exceed 15 bar.



Head loss chart

The chart indicates the head loss of XLC automatic control valves fully open versus flow rate in l/s.

Recommended flow rate

The following chart shows the recommended flow rate for the proper sizing of XLC control valves.

DN (mm)			80	100	125	150	200
Flow rate (l/s)	Low head loss (0,1-0,15 bar)	Max.	1,2	2,6	4	4,3	10
	Recommended	Min.	0,5	1,4	2,2	2,3	4,9
		Max.	8,8	23	33	35	78
	Pressure relief	Max.	12	30	46	48	102

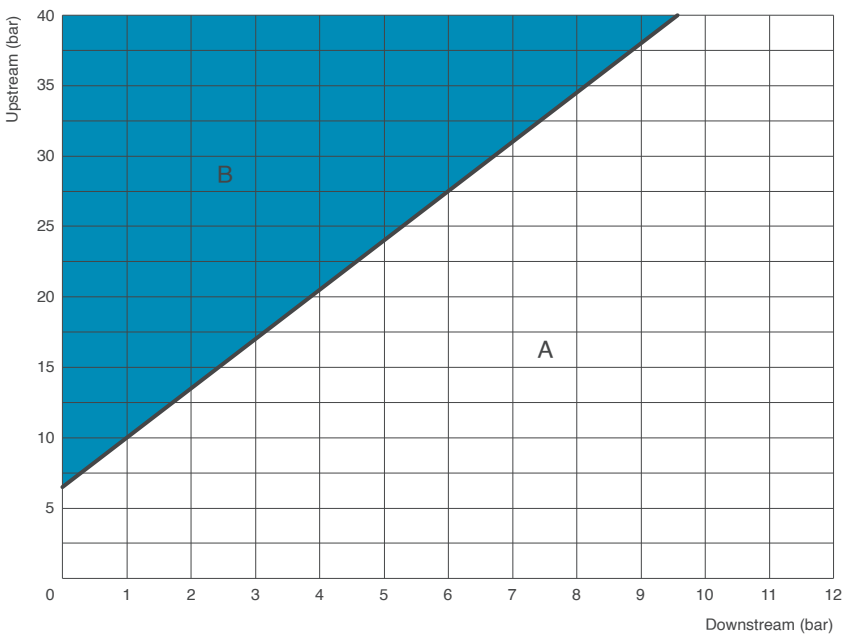
The technical informations are indicative and can change according to the number and dimension of holes.

XLC 500 - CP anti-cavitation version - Technical data

DN (mm)	80	100	125	150	200
Kv (m^3/h)	24	63	72	89	207
Stroke (mm)	15	21	27	27	43

Head loss coefficient

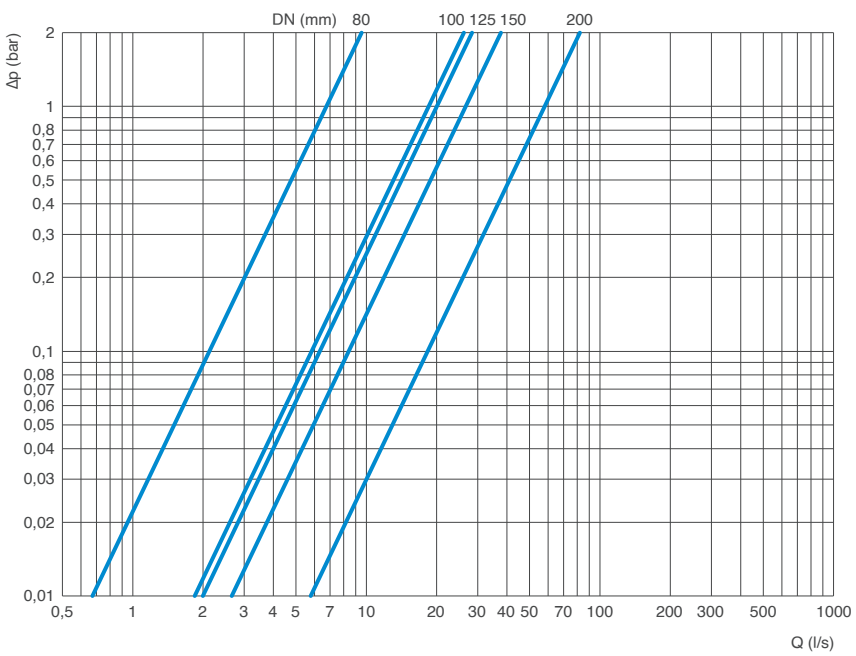
Kv coefficient representing the flow rate which is flowing through the valve fully open, and producing a head loss of 1 bar.



Cavitation chart

The cavitation analysis is very important since it may lead to substantial damages, in addition to vibration and noise. The cavitation chart has to be used to determine whether the working point obtained by the intersection of the lines, connecting upstream (y axis) and downstream (x axis) pressure conditions, lies within one of the two zones to be identified as follows:
- A: Recommended working conditions;
- B: Damage cavitation.

The chart is to be used for valves modulating with an opening percentage between 35-40% at standard water temperature and elevation below 300 m. For continuous pressure reduction the maximum allowed Δp shall not exceed 15 bar.



Head loss chart

The chart indicates the head loss of XLC automatic control valves fully open versus flow rate in l/s.

Recommended flow rate

The following chart shows the recommended flow rate for the proper sizing of XLC control valves.

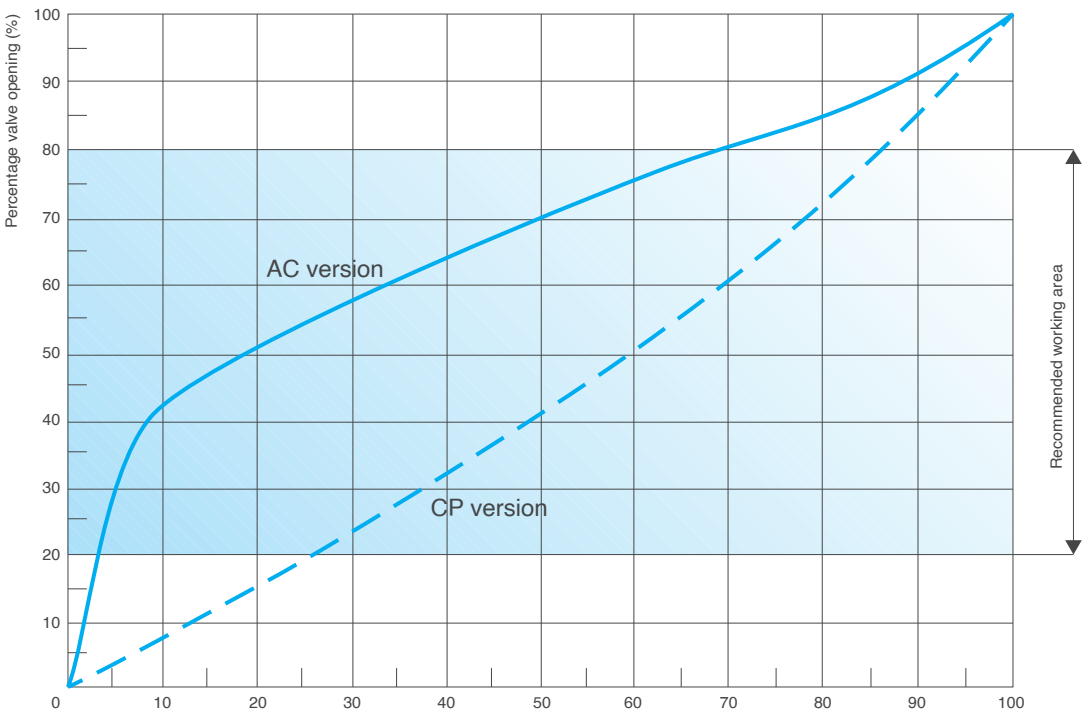
DN (mm)			80	100	125	150	200
Flow rate (l/s)	Recommended	Min.	0,7	1,0	2,2	2,3	4,1
		Max.	5,1	11	16	18	43
	Pressure relief	Max.	11	25	40	42	98

The technical informations are indicative and can change according to the number and dimension of holes.

XLC 500 - AC and CP versions - Technical data

Kv to valve opening chart

The following chart shows the opening percentage of XLC 500-AC and XLC 500-CP versus the Kv.



The charts are purely indicative and change with the valve DN and configuration.

Working conditions

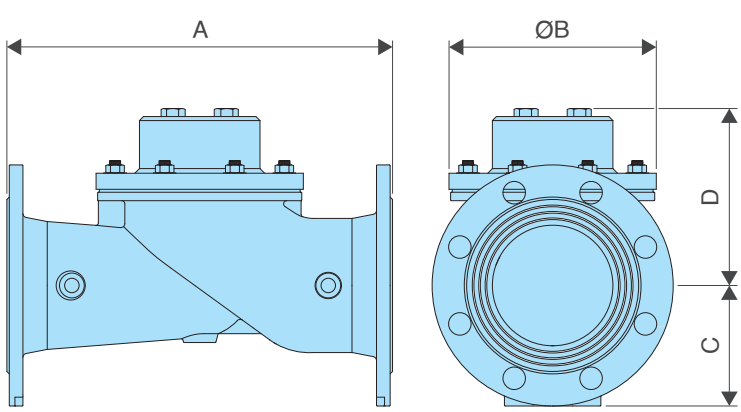
Treated filtered water.
Maximum temperature: 70°C.
Minimum pressure on the pilot : 0,5 bar plus head loss.
Maximum pressure: 40 bar.

Standard

Certified and tested in compliance with EN 1074/5.
Pressure rating 40 bar.
Flanges according to EN 1092/2 (different drilling on request).
Epoxy painting applied through FBT technology blue RAL 5005.

Weights and dimensions

DN (mm)	A (mm)	B (mm)	C (mm)	D (mm)	Weight (Kg)
80	310	162	100	155	20
100	350	218	118	185	34
125	400	260	135	225	56
150	480	260	150	225	58,5
200	600	370	187,5	295	122



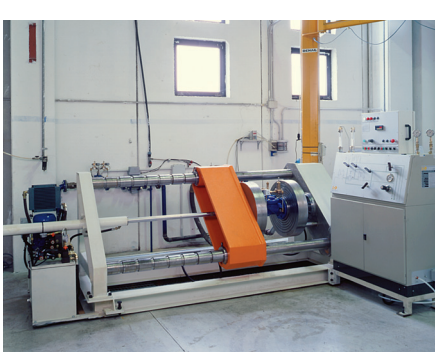
All values are approximate, consult CSA service for more details.

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

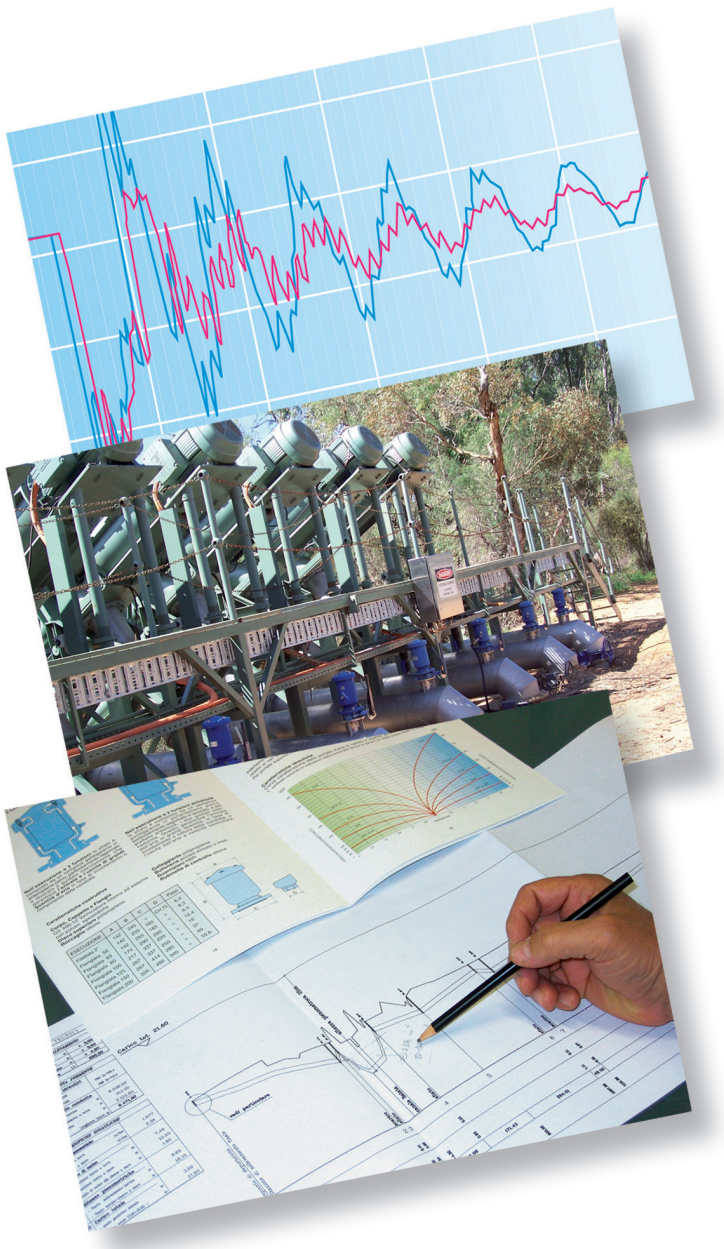
All our valves undergo severe tests according to EN standards to ensure they are mechanically resistant, watertight, and high performing. After testing every valve is identified by means of a metallic tag or sticker, and duly registered and certified.



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.