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

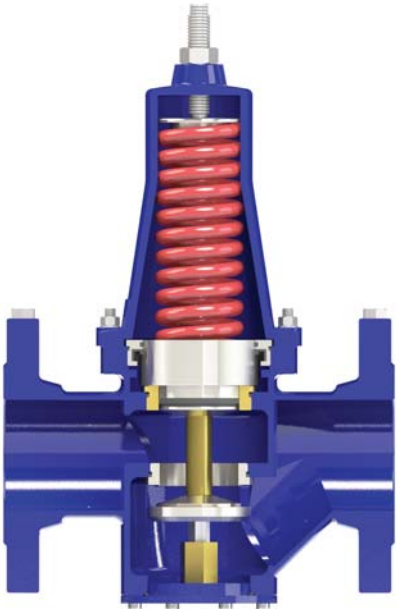
- Flanged version DN 50-150 PN 64 rated.
- Ductile cast iron cap and body in electro-welded steel, piston and mobile block in stainless steel.
- Upstream and downstream pressure balanced, to stabilize the downstream pressure to a preset (and adjustable) value regardless of upstream pressure variations 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.

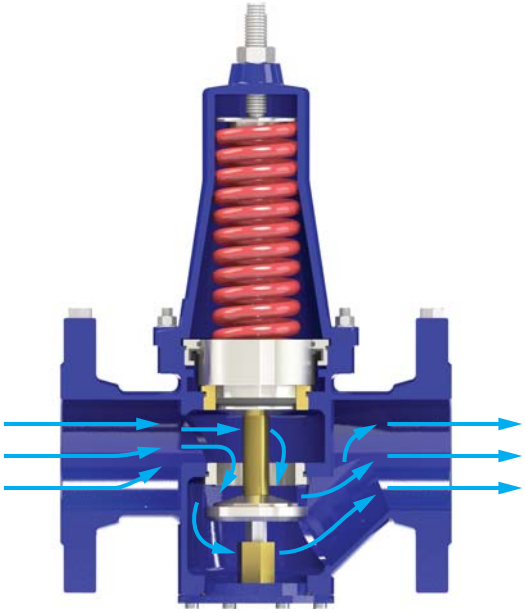
Operating principle

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.



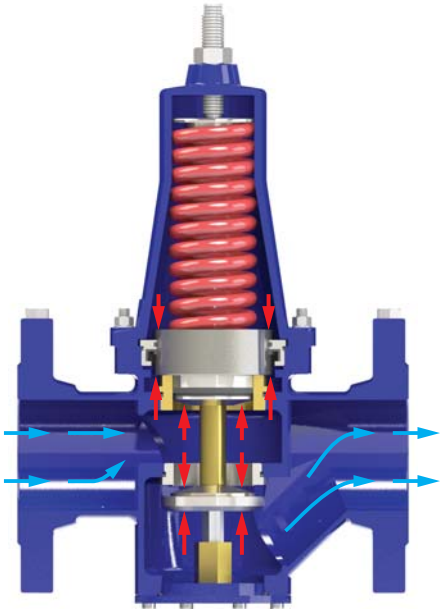
Valve normally open

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.



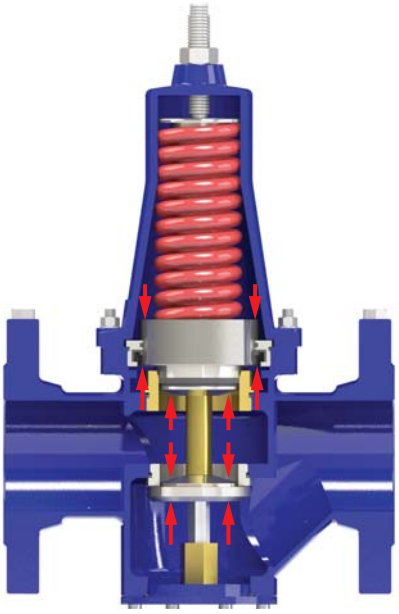
Valve fully open

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)

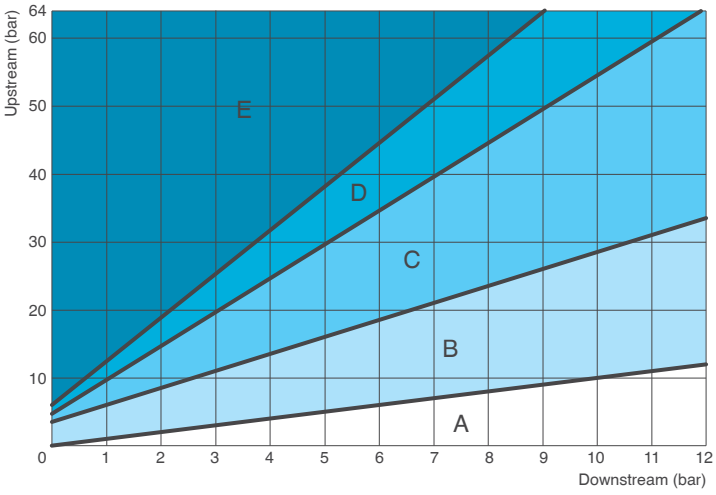
In case of downstream pressure rise above the valve's set point, should the modulating phase of the valve not be enough to stabilize the pressure, the valve will close maintaining the required downstream pressure value even in static conditions.

Technical data

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

Head loss coefficient

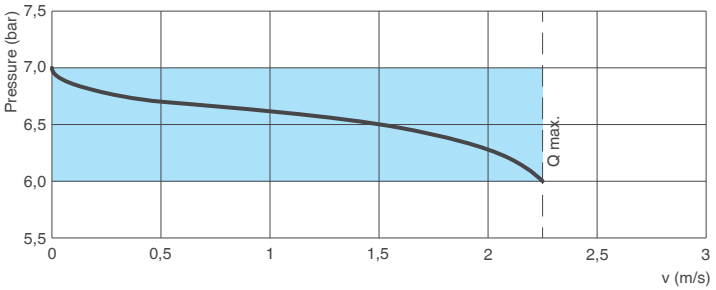
Kv coefficient representing the flow rate which is flowing through the valve fully open producing a head loss of 1 bar.



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.

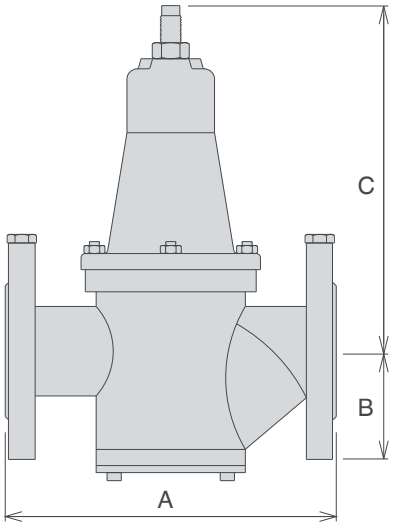
Working conditions

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.

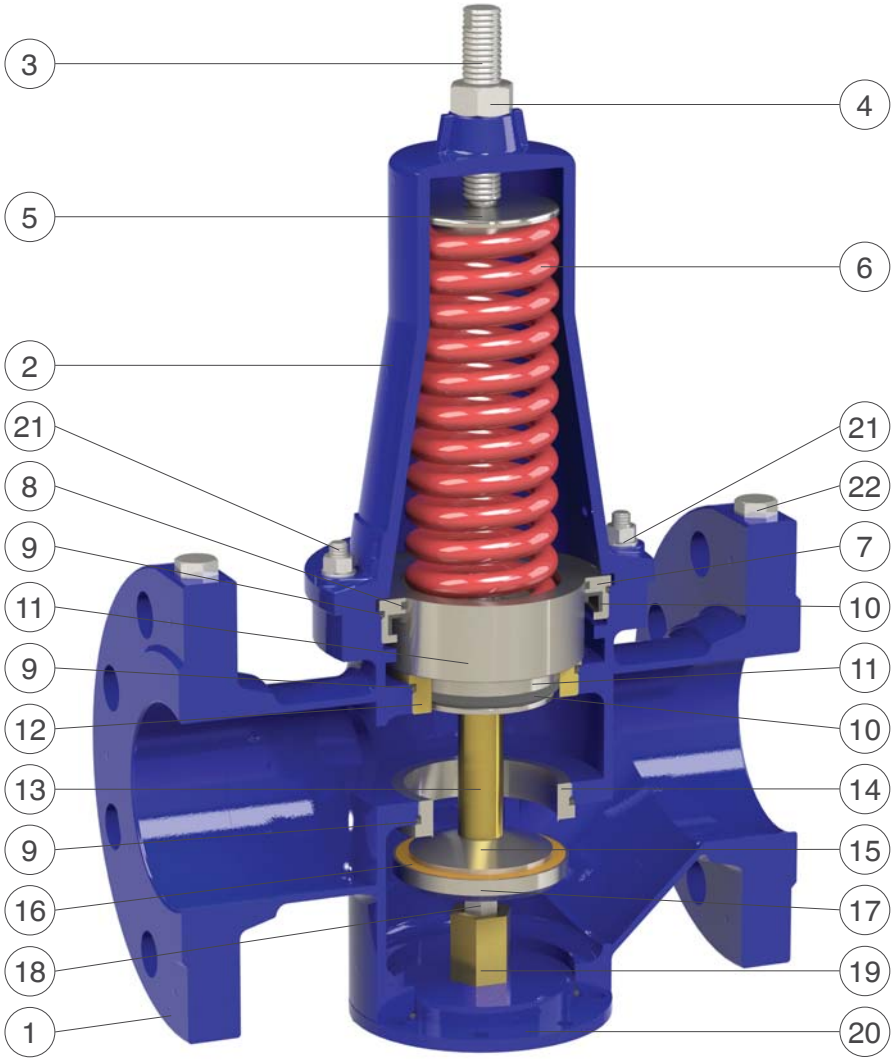
Standard

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