



## TYPE C3 PRESSURE REDUCING VALVE

The **C3 pressure reducing valves** are direct acting nozzle design, which are suitable for use on compressed air, gas, water, oil and steam. These valves are used in a variety of applications throughout industry, where their outstanding accuracy and reliability have been proven.

Valves are supplied in sizes 1½" to 4" in Gunmetal with ends screwed female or alternatively flanged to customers requirements. Inlet pressures of up to 250 psig for steam and 300 psig for air and liquid service can be accommodated, although up to 600 psig can be achieved using a reduced orifice and screwed ends. (**Consult Broady Technical Sales Engineers for further information**). Reduced pressure ranges of 5 – 120 psig are possible.

### Specification

Pressure gauge bosses are cast on each side of the valve and tapped to customers requirements. Suitable strainers, pressure gauges, syphon pipes and cocks can be supplied when required.

All valves are supplied with a nitrile disc and diaphragm for air, gases, oils, etc. as standard, but other materials are available on request. Valves for steam service are supplied with a metallic diaphragm and lid for steam and high temperature applications.

### Description of Action

High pressure is admitted to the underside of the needle

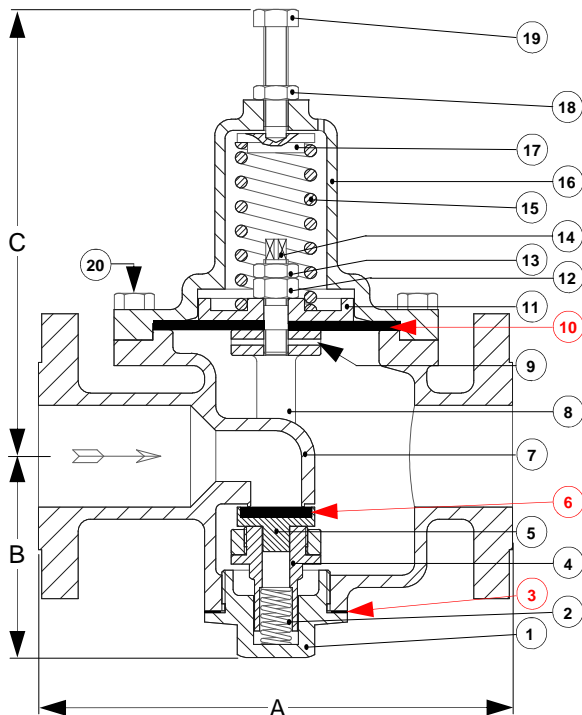
valve or disc valve. The spring is then compressed the requisite amount and the valve opened permitting pressure to pass to the service side. Expansion and consequent reduction of pressure takes place as it leaves the valve orifice and the reduced pressure is then controlled by the reaction of the spring to the reduced pressure acting upon the area of the piston. If the reduced pressure tends to fall, the spring, through the medium of the diaphragm, opens the valve and increases the orifice area. Conversely, if the pressure rises the valve closes until the required downstream pressure is restored; uniformity of the reduced pressure is thereby maintained within very close limits. The reduced pressure can be varied to requirements by compressing or relaxing the spring. The adjusting screw is provided for this purpose.

**Compressing** the spring **increases** the reduced pressure, **relaxing** the spring **decreases** the reduced pressure.

### Installation

All valves should be fitted in a horizontal pipeline with, flow in the direction of the arrow cast on the side of the body. The adjusting screw should be directly above or below the pipeline. The pipe must be clean and free from dirt, scale, etc. It is advisable to fit a stop valve on the high pressure side of the line. A relief valve should always be fitted where dead end conditions apply. This can be combined with the reducing valve but we recommend that it be fitted in a convenient point in the reduced pressure line.

Valve for Air, Gas and Water Applications



These Items are recommended spares.

Item	Description	Material
1	Cap	Gunmetal
2	Loading Spring	Stainless Steel
3	Joint, Cap	Non Asbestos
4	Saddle Cap	Gunmetal
5	Disc Holder	Brass
6	Disc	Nitrile
7	Body	Gunmetal
8	Saddle	Gunmetal
9	Pin	Carbon Steel
10	Diaphragm	Nitrile
11	Piston	Brass
12	Nut	Brass
13	Locknut	Brass
14	Piston Bolt	Carbon Steel
15	Spring	Carbon Steel
16	Dome	Gunmetal
17	Spring Carrier	Brass
18	Locknut	Brass
19	Adjusting Screw	Brass
20	Setscrews	Carbon Steel

Size	* A *	B	C
40NB	228	98	223
50NB	228	102	223
65NB	308	134	286
80NB	319	159	284
100NB	384	284	368

\* This dimension is for Gunmetal ANSI300 FF flanges only. Where flange thickness differs from Gunmetal ANSI300 FF, the face to face should be adjusted accordingly.

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### *Instructions for fitting a new diaphragm and disc*

**Replacing an elastomer Diaphragm :** When the valve is isolated from the pressure slacken off the spring. Remove the dome, spring, locknut, nut and piston. It will probably be found that the diaphragm will come away freely. After removal of the diaphragm the spigot on the body should be cleaned. Ascertain that the face of the saddle and the face of the spigot are level. The valve lid/disc must be held in the fully closed position and the new diaphragm should be fitted, the valve should be reassembled in the reverse order to the above dismantling procedure. Note care should be taken when tightening the fasteners in order to prevent damage to the diaphragm. Re-adjust the pressure as necessary by means of the adjusting screw.

**Replacing a metallic diaphragm :** Dismantle the valve as above. Ascertain that the face of the collar on the piston bolt and the face of the body spigot are level. The centre face of the diaphragm and the piston bolt collar should be lapped in prior to fitting, clean off any lapping compound and reassemble. When a metallic diaphragm is replaced we recommend that a new spigot joint be fitted.

**Replacing a valve lid/disc :** Dismantle the valve as above, remove the cap and saddle cap. Remove the saddle through the diaphragm end of the body by moving away from the nozzle, the valve lid/disc holder should stay in the screwed end of the saddle during this operation. The metallic valve lid should be relapped if required to form a good seating face, or the disc should be replaced if damaged.

### **Disclaimer**

The information, specifications and technical data contained in this catalogue are subject to change without notice. The user should verify all technical data and specifications prior to use. Broady Valves does not warrant that the material and information contained herein is current or correct and assumes no responsibility for the use or misuse of any such material and information by the user.

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