U200 SERIES

BACK PRESSURE REGULATING VALVE
(PRESSURE HOLDING VALVE)
- PILOT OPERATED

U200 SERIES
BACK PRESSURE REGULATING VALVE

Medium Pressure Control

Typically called as Upstream Pressure Control Valves are meant for controlling the pressure at inlet and maintain or hold the pressure in the equipment at preset value. The U200 Series are Pilot Operated Self Actuated Globe Type Medium Pressure Back Pressure Regulating Valves meant to regulate the inlet pressure at the pre-determined set value required for the processes / equipment protection.

Being self actuated it does not require any external controller for its functionality. These are widely used in almost each business segment wherein the various utilities are needed at controlled pressure for various processes.

Typical Applications

- *Pump By-pass*
- *Compressor Discharge*
- *Pressure Holding*
- *Industrial gases*
- *Non-Corrosive gases & Liquids*
- *Speciality gases & Liquids*

FEATURES

- **Back Pressure Regulation / Control :** These are designed to respond to the smallest rise in pressure at inlet and allow the excess pressure at outlet affecting protection of equipments and helping the efficiency of equipments like pumps and compressors. These are also used as Pressure Holding Valves as they hold the pressure at upstream.

- **Self Actuated Design :** This series of back pressure regulating valves are self actuated or self contained and hence, do not require any external energy like pneumatic air or electricity to operate.

- **Impulse Sensing :** As a standard, the impulse sensing is external ie through the pipeline at upstream of valve. The outlet impulse is provided to the valve body as a standard.

- **Accurate Pressure Control :** The inlet pressure directly acts on the pilot diaphragm to counter balance the spring force affecting efficient response capability and accuracy.

- **Easy Maintenance :** The maintenance and inspection of the back pressure regulating valve internals is possible without removing body from pipe line.

- **Material selection :** As a standard we provide trim material as AISI 304. Wide range of material is available to suit various services for different process fluids including corrosive fluids. NACE compliance can be provided for sour services.

- **Tamper - Resistant Adjustment :** Cap and adjusting screw discourage on-field tampering of the pressure setting.

- **Leakage Proof :** Combination of metallic and soft seat enables the leakage class VI as per ANSI FCI 70.2.

- **Minimum Maintenance Cost :** The general replacement parts are polymer parts like Diaphragm, Soft Seat & O Rings only and thus the maintenance cost is very low.

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SPECIFICATIONS

Design Specifications
Design Pressure – As per ANSI 150#, 300# & 600#
Set pressure range – 0.1 to 49 Bar with different standard model configurations. Higher set pressure on request can be provided. Please consult our sales team.
Design Temperature – (-)10 to 80^{O}C with BunaN polymer and (-)20 to 180^{O}C with Fluroelastomer

MOC Specifications	
Body – Carbon steel, Stainless Steel 304, 316 and other on request Internals – AISI304 (Standard), AISI316, 316L, Monel, Hastalloy B/C and other on request Soft Seat & Polymer – Buna N (Nitrile), Neoprene, Fluroelastomer, PTFE and other on request	Diaphragm – Reinforced Polymers like Buna N (Nitrile), Neoprene, Fluroelastomer and PTFE Spring Housing – Fabricated Steel (Standard) and other on request

- Other special material available on request. Please consult with our Sales team.

Constructional Specifications	
Body size – 1”, 1½”, 2”, 3”, 4”, 6”, 8” & 10”	Flow capacities – Refer Valve Coefficients

End Connection –
Flanged ANSI B16.5 as per 150#, 300# & 600# – 1”, 1½”, 2”, 3”, 4”, 6”, 8”, 10”, 12” & 16”
Higher size and Rating can be provided as per demand. Please consult our sales team.

VALVE CO-EFFICIENTS Cv VALUES

Valve Size	1”	1½”	2”	3”	4”	6”	8”
Cv Value	7.6	15.5	25.6	51	100	224	410

Note : The above values are standard values. However, higher or lesser Cv values can be offered based on the process requirement in consultation with our design team.

PRINCIPLE OF OPERATION

Movement occurs as pressure variations register above the diaphragm of main regulator. The registering pressure is the inlet or upstream pressure.

The inlet pressure acts on the diaphragm of the pilot. Pilot is an Upstream pressure control valve which opens in the event of high upstream pressure than its set pressure. Rise in inlet pressure above the set pressure opens the pilot affecting the main valve to open and flow to take place. Restricting needle valve in pilot line which is factory set, controls the response time of valve.

Thus, slightest rise in the upstream pressure above the set pressure, affects faster opening of the main valve through pilot operation and relieves the unanticipated surge of pressure keeping the system pressure under desired value.

When the upstream pressure drops below the set value, the pilot closes affecting bleeding of loading pressure through restricting needle valve and closure of main valve.

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SET PRESSURE RANGES

Spring Code	Set Range
208S	0.1 to 0.5 Bar
209S	0.4 to 0.9 Bar
210S	0.8 to 2.5 Bar
220S	2.1 to 4.0 Bar
230S	3.8 to 5.5 Bar
240S	5.0 to 6.5 Bar
250S	5.5 Bar to 10.0 Bar
260S	9.0 Bar to 17.0 Bar
270S	15.8 Bar to 23.9 Bar
280S	22.5 Bar to 36.6 Bar
290S	34.8 Bar to 48.5 Bar

VARIOUS APPLICATIONS AND TERMINOLOGY

Upstream Pressure Control Valves are used for various application and accordingly different terminologies are used for the same.

Pressure Holding Valve : Being Upstream Pressure Control Valve, it holds the inlet pressure below the preset value. It doesn't open unless the inlet pressure rises above its set value. Thus, it acts as Pressure Holding Valves. Used in PSA Generation Plants and Compressors.

Pump By-pass Valve : Being Upstream Pressure Control Valve, it relieves the excess pressure at inlet above its set value. These generally are installed in the return lines of the pumps. If the discharge pressure of pump rises above desired level, this BPRV installed in the return line, senses that and relieves the excess pressure back to the sump.

ORDERING SPECIFICATIONS

SERVICE FLUID / MEDIA

INLET PRESSURE — OUTLET PRESSURE

FLOW MIN./ MAX. — TEMP. MIN./MAX.

SPECIFIC GRAVITY — SET PRESSURE

BODY MOC — INTERNALS MOC

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