

VP-2170 2-WAY NORMALLY OPEN PNEUMATIC CONTROL VALVES

DESCRIPTION

The VP-2170 series pneumatic control valves have been designed for the control of hot water, chilled water, glycol and low pressure steam. Direct-acting, they are normally open, closing on rise in control air pressure.

Three spring ranges are standard:-

- VP-2171 has a nominal spring range of 3 - 6 psi.
- VP-2173 has a nominal spring range of 9 - 12 psi.
- VP-2174 has a nominal spring range of 3 - 12 psi.

An adjustable spring follower allows for increasing or decreasing the spring ranges by 2 to 6 psi to assure accurate positioning.

Multiple spring loaded EPM V-ring packing with brass followers and the use of heavy bronze yoke casting (no white metal) assures years of trouble free service.

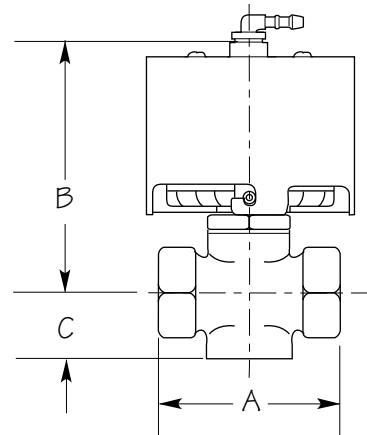


APPLICATIONS

The VP-2170 series of valves are suitable for use in heating and cooling systems to control heating coils, cooling coils, heat reclaim coils, converters, and other heat transfer systems.

HOW TO SPECIFY

Provide Spartan type VP-2170 pneumatic, normally-open control valves with heavy duty, 250 psig, bronze globe valve bodies, parabolic equal percentage plugs, replaceable EPM disc and with compact 12 sq.in. actuators, bronze non corroding valve yokes (no white metal), spring ranges to suit and (optional) pilot positioners.



DIMENSIONS AND PERFORMANCE

Cv	Size	Kvs	VP-2171-F Max. Close-off psi		VP-2173-F Max. Close-off psi		VP-2174-F Max. Close-off psi		DIMENSIONS						WEIGHT	
			@ 15psi	@ 20psi	@ 15psi	@ 20psi	@ 15psi	@ 20psi	A		B		C		"	mm
4.7	1/2	3.9	100	100	78	100	78	100	3.3	85	5.9	149	1.5	38	5.0	2.3
7.0	3/4	5.8	100	100	78	100	78	100	3.3	85	5.9	148	1.5	38	5.0	2.3
11.7	1	9.8	100	100	44	100	44	100	4.1	105	6.1	155	1.8	45	6.0	2.7
18.7	1 1/4	15.6	84	100	28	75	28	75	4.7	120	6.2	157	1.9	48	7.0	3.2
29.2	1 1/2	24.6	59	91	20	52	20	52	5.7	145	6.5	164	2.2	57	9.0	4.1
46.7	2	38.9	33	51	11	29	11	29	6.5	165	6.8	173	2.6	67	11.0	5.0

NOTE: Maximum recommended Δ psi = 100 psi although static rating = 250 psig. In locations where water noise is critical, limit Δ psi to 35 psi.

SP-VP2170-97/12/11-1/2

VP-2170 2-WAY NORMALLY OPEN PNEUMATIC CONTROL VALVES

SPECIFICATIONS

BODY: bronze, open stem up
Nominal Pressure: 250 psig
Steam Pressure: 15 psig 30 psia
Style: globe, single seat
Parabolic Plug: equal percentage
Disc: replaceable EMPT
Seat: integral bronze
Stem: stainless steel
Packing: multiple EMPT v-ring
Sizes: 1/2" through 2"
Ports: female NPT
Cv's: 4.6 to 46.7
Kvs's: 3.9 to 38.9
Maximum temperature: 120°C, 250°F

ACTUATOR: pneumatic 12 sq/in
Action: direct; air drives stem down
Diaphragm: neoprene reverse roll
Spring Ranges: 3-6; 9-12; 3-12 psi
Spring Follower: bronze ±2 psi
 (6 psi on VP-2174)
Housing: epoxy coated steel
Yoke: bronze
Position Indicator: integral 0 - 1
Pilot Positioner: optional
Airline Connection: 1/8" NPT
Max. Air Pressure: 30 psig
Max. Ambient Temp.: 175°F, 80°C
Mounting Position (to 200°F fluids): any
Mounting Position (over 200°F): on side
 (see installation instructions)

INSTALLATION INSTRUCTIONS

Install VP-2170 control valves with the fluid passing in the direction shown on the valve body (inlet under the plug forcing valve open, never on top of plug forcing it closed) and with a suitable strainer to prevent pipe shavings and debris from entering the valve body.

Preferred installation is upright, however in high temperature installations (and where space restrictions dictate) the valve assembly should be mounted on its side, slightly above horizontal, so that the high temperatures rising from the pipe do not overheat the actuator diaphragm. This will ensure maximum life expectancy, while any leaking from the packing will run off the valve body rather than the operator.

The actuator requires space for its disassembly and repair. Leave at least 4 inches for ease of maintenance.

The nominal spring ranges are affected by the fluid pressure and differential pressure and this can be compensated for by the adjustable spring follower.

Tightening the spring will raise the effective control range and lower the differential pressure that the valve can oppose.

Loosening the spring will lower the effective control range, and raise the potential differential pressure that the air pressure can oppose.

MAINTENANCE INSTRUCTIONS

Normally, the valve will give decades of service without maintenance, however, over the years, the valve may leak, either across the seat, or out of the packing gland. To replace disc and packing, proceed as follows:-

Make sure no pressure is in the hydronic system.

Make sure no air pressure is applied to the actuator.

Remove air line connection. Apply downward force to the top while rotating it to the left, then lift top and diaphragm off.

Hold or clamp actuator piston down firmly while removing 'C' clips, and remove spring assembly carefully (use care not to allow spring to get away, and if necessary, release spring adjuster to reduce spring force).

Disassemble actuator housing to remove and replace diaphragm. Loosen and remove valve bonnet assembly to replace packing and disc (it is best when repairing valve to replace all wearing components at the same time).

Check the condition of the stainless steel valve stem and if it shows signs of scratches or abrasion, replace it too.

Reassemble valve with small amount of pipe seal and readjust reassembled control valve spring range to required setting. Note that when two valves operate in sequence, accurate adjustment of the spring is particularly critical to prevent the two valves from being opened simultaneously with resultant decreased energy efficiency.