


PRESSURE INDEPENDENT VALVES
PINNACLE
TAKING YOUR HVAC TO PEAK PERFORMANCE



Recommended Applications:

- Where balancing at reduced loads is needed, such as office buildings, schools or hotels
- Where temperature variance can not be risked, such as hospitals, laboratories or prisons
- Where longer actuator life is required
- Where the primary variable flow system needs to be optimized

Absolute Control. **Optimized Efficiency.**

PINNACLE Pressure Independent Control Valves

The Pinnacle valve is a modern pressure independent control valve (PICV) meeting today's HVAC requirements of reducing the building operational costs without increasing the initial installation costs. The Pinnacle valve is an important partner in your effort to reduce HVAC operational cost and energy consumption because it precisely controls the flow at all load requirements. The small compact valve is the most competitive pressure independent valve on the market so initial install cost is comparable to a traditional control valve and a manual balance valve.

The valve includes an innovative self-adjustment feature allowing continuous mechanical self-balancing in all valve positions. This ensures that each coil controlled by the Pinnacle valve is always supplied with the exact flow required for the specific system condition.

The valve is designed to facilitate large fan coils, smaller air handling units, smaller heat exchangers or equivalent, but it is generally the optimal choice in all applications where efficient distribution of water, with focus on system pressure drop, are required.



100% Valve Authority

The Pinnacle is a true pressure independent control valve holding 100% authority at all times. The valve instantaneously self-balances at all points of operation, even when there is variance in pressure differential.

As long as the pressure differential across the valve is within the operating range, the Cv of the valve is variable and continuously regulated mechanically to keep the control valve in constant authority.

Features and Benefits

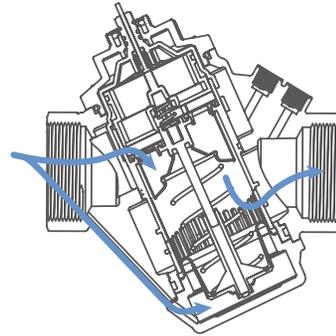
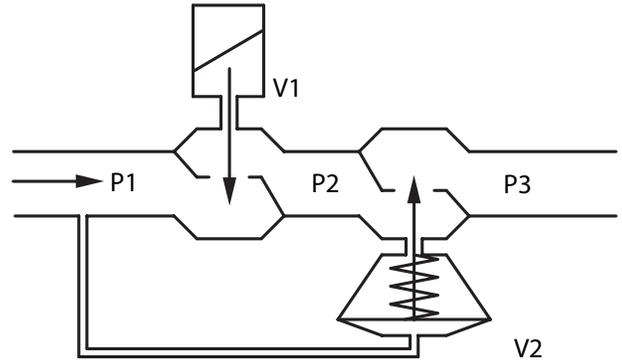
- Three-in-one combination valve, modulating control valve, dynamic flow limiter and differential pressure control valve in one body
- Full-stroke modulation at any design flow
- 100% authority for any of the valve's flow setting
- Automatic system balancing, the correct flow rate for each circuit is achieved automatically
- Dynamic balancing, the correct flow rate is maintained as each valve continuously compensates for pressure fluctuations in the system
- Field adjustable: flow rate can be changed on demand to 41 predefined flow rates without removing the valve from the pipe works
- Elimination of branch or "partner" balancing valves resulting in fewer total valves used in each project
- A compact, one-unit PICV (housing and regulator combined)
- Up to 41 different flow curves in one and the same insert
- Choice of actuator 0(2)-10V modulating, three-point floating or two-position: all actuators features position indicator, manual overwrite and feedback signals for BMS monitoring
- Pressure/temperature measurement plugs for verifying operating differential pressure or checking ΔT across the coil

Principle of Operation

The Pinnacle valve is like two valves in one. The second valve (V2) regulates the pressure differential across the first valve (V1) by means of a rolling diaphragm element counteracted by a spring. The first valve is a calibrated variable orifice device adjusted by the actuator (similar to a standard modulating control valve).

The diaphragm reacts to the system and regulates the pressure differential across the actuated control valve orifice to maintain its flow rate.

When presetting the maximum flow rate, the inlet orifice is changed. Typical PI valves change the flow rate by limiting the actuator stroke which results in poor control during system operation. Through the entire operation of the Pinnacle valve the actuator uses its full stroke resulting in better control.



Pinnacle					SETTING
GPM					
1/2"-1"		1"L-1-1/4"		1-1/2"-2"	
2.3-87 PSID ⁴	4.4-116 PSID ⁵	5.1-116 PSID ⁵	2.3-116 PSID	2.3-87 PSID	
-	0.282	-	3.81	8.36	1.0
0.163	0.624	-	4.46	10.0	1.1
0.370	0.920	-	5.10	11.7	1.2
0.510	1.18	-	5.72	13.3	1.3
0.664	1.41	-	6.32	15.0	1.4
0.792	1.61	2.73	6.90	16.7	1.5
0.902	1.80	3.17	7.47	18.3	1.6
1.03	1.96	3.61	8.02	20.0	1.7
1.14	2.12	4.10	8.56	21.6	1.8
1.24	2.27	4.67	9.08	23.2	1.9
1.33	2.42	5.15	9.59	24.8	2.0
1.41	2.56	5.55	10.1	26.4	2.1
1.49	2.69	5.95	10.6	28.0	2.2
1.55	2.82	6.28	11.0	29.6	2.3
1.63	2.95	6.61	11.5	31.2	2.4
1.68	3.08	6.96	11.9	32.7	2.5
1.73	3.21	7.27	12.4	34.2	2.6
1.79	3.33	7.62	12.8	35.7	2.7
1.82	3.45	7.93	13.2	37.2	2.8
1.88	3.56	8.28	13.6	38.6	2.9
1.93	3.68	8.59	14.0	40.0	3.0
1.98	3.79	8.72	14.4	41.4	3.1
2.02	3.89	8.85	14.7	42.8	3.2
2.06	3.99	8.99	15.1	44.1	3.3
2.10	4.08	9.12	15.5	45.4	3.4
2.14	4.17	9.25	15.8	46.6	3.5
2.17	4.25	9.47	16.1	47.8	3.6
2.21	4.32	9.69	16.5	49.0	3.7
2.25	4.39	9.91	16.8	50.2	3.8
2.28	4.46	10.1	17.1	51.3	3.9
2.31	4.51	10.4	17.4	52.3	4.0
2.34	4.57	10.5	17.7	53.3	4.1
2.37	4.61	10.6	18.1	54.3	4.2
2.39	4.66	10.7	18.4	55.2	4.3
2.42	4.70	10.9	18.7	56.0	4.4
2.43	4.73	11.0	19.0	56.8	4.5
2.46	4.77	11.1	19.2	57.6	4.6
2.48	4.80	11.3	19.5	58.3	4.7
2.50	4.83	11.4	19.8	58.9	4.8
2.51	4.86	11.5	20.1	59.5	4.9
2.53	4.89	11.7	20.4	60.0	5.0

NOTES

If PSID is 29-87 PSID then accuracy is +/-20%.

If PSID is 58-116 PSID then accuracy is +/-20%.

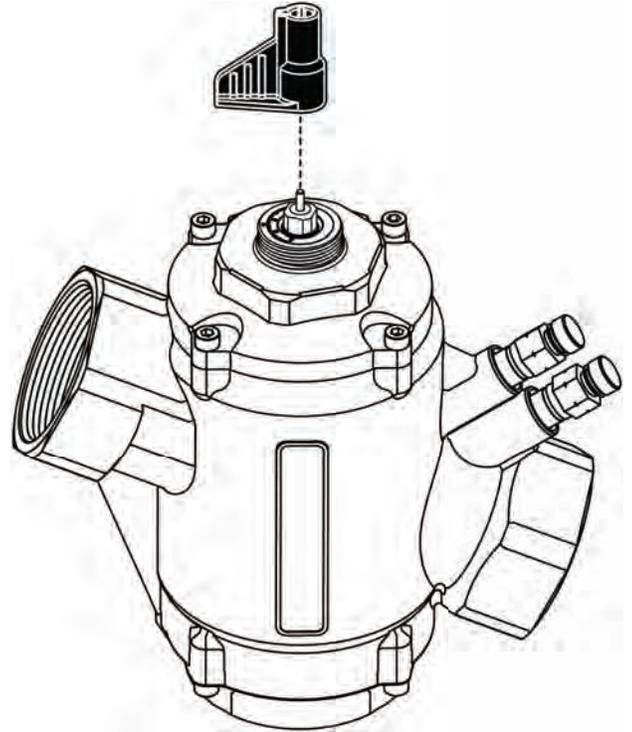
Hydronic Flow-Limiting

The valve can be pre-set to limit the maximum flow rate through the valve without restricting the valve stroke.

Pre-setting the Maximum Flow Rate

The valve is adjusted to a maximum flow rate limit by setting the scale located on the top of the Pinnacle valve. The setting indicates one of 41 possible predefined maximum flow rates and since the setting is stepless, any flow rate in between will be obtainable. The setting is done by means of a special key. With the actuator mounted the pre-setting is “sealed” to avoid tampering.

For readjustment simply disconnect power from the actuator and remove the actuator from the insert. Then dial in the new required maximum flow and reapply the actuator and connect power again.



Pinnacle		
Static pressure	psi	360
Temperature rating (media/ambient)	°F	-4 to +248 / +36 to +122
Pressure drop data	Note: for pump head calculations, add the minimum pressure differential for the index circuit to the other components pressure losses (i.e., valves, coils, etc.)	
Flow rate	GPM	0.163 to 60.0

For further information please see the installation and operation instruction manual.



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