

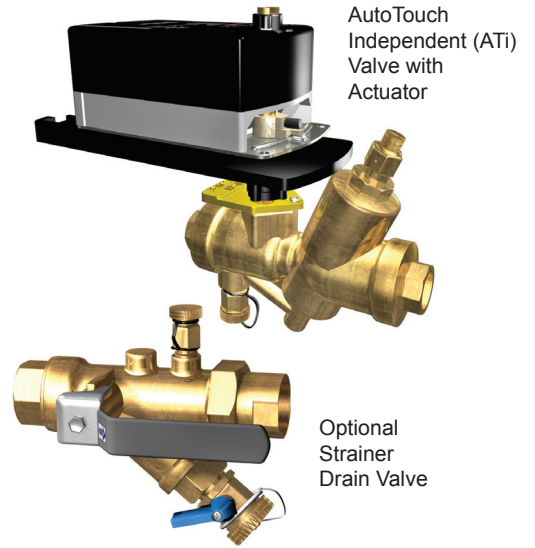
**AutoTouch Independent Series (ATi)
 Characterized Ball Valves
 Pressure Independent**

The Auto Touch Independent (ATi) valve is a state-of-the-art control valve combining a high quality/high rangeability temperature control valve with a dynamically balanced flow regulator in the same space-saving housing. The result is a pressure independent control valve that maintains the desired flow rate irrespective of the pressure differential across the valve*.

Even the most controllable standard (pressure dependent) temperature control valve will allow a change in flow as the differential pressure in the system changes, which is an everyday occurrence. Any time a chilled water or hot water system is operating at less than design maximum load conditions – which is most of the time – differential pressures in the system tend to increase, resulting in overflow through the control valves. This overflow condition results in control instability, and higher pumping costs.

Balancing valves, either manual or automatic, can only prevent overflow at conditions above design maximum flow. At any flow condition less than design maximum, balancing valves do not fulfill any purpose.

* Within rated differential pressure range of 5.8 to 60 PSI



The ATi valve provides a cost effective means of controlling hot water and chilled water flow in an accurate and stable manner while minimizing pumping, heating and cooling costs. And by combining the automatic temperature control function and the dynamic balancing function in a single device, installation costs are also reduced.

ATi valves are also available with an optional strainer/drain with isolation valve to provide a complete and convenient solution for controlling and maintaining the coil.

FEATURES

- Provides accurate, pressure independent control at all levels of demand
- Eliminates overflow at less than design demand conditions
- Combines flow control and dynamic balancing in a single space-saving device
- Eliminates field balancing

BENEFITS

- More precise and stable control
- Reduces pumping energy and contributes to higher chiller and boiler delta T
- Reduces field installation costs
- Reduces total system costs and speeds the project towards completion faster

VALVE OPERATION

Flow enters through the “control section” of the device, which is a standard Bray characterized ball valve with an actuator (not shown). The high range-ability characterized insert in the ball provides an equal percentage flow characteristic.

Inlet pressure is transferred through an internal channel to a diaphragm in the “pressure compensating” section. This diaphragm is opposed by a spring. The force-balance principle moves the pressure compen-

sating cartridge to create a constant ΔP across the control section, which results in constant flow at any valve position, irrespective of pressure changes in the system.

VALVE SIZING

Unlike conventional control valve sizing where valves are sized to a Cv, the ATi valves are simply sized for flow and pipe size. Refer to the ordering table for the wide range of flow values available.

SPECIFICATIONS

Valve Body

Working Pressure Rating	360 PSI (25 bar)
Temperature Rating	-22°F to +250°F (-30°C to +120°C)
Service	Chilled water, hot water, up to 50% Glycol
Characterized Materials	
Body Material	Forged Brass ASTM B584
Ball	Nickel-Plated Brass Ball (Stainless Steel Optional)
Stem	Brass (Stainless Steel Optional)
Stem Seals	EPDM O-Rings
Insert	NORYL, Glass Filled Polymer
Cartridge	Poly-oxy methaline and hydrogenated acrylonitrile-butadiene rubber
Ball Seals	Teflon Seals with EPDM O-Rings
Manual Air Vent	Brass
Close-off Pressure Rating	100 PSI (6.6 bar)
Leakage	ANSI Class IV (0.01% of Cv)

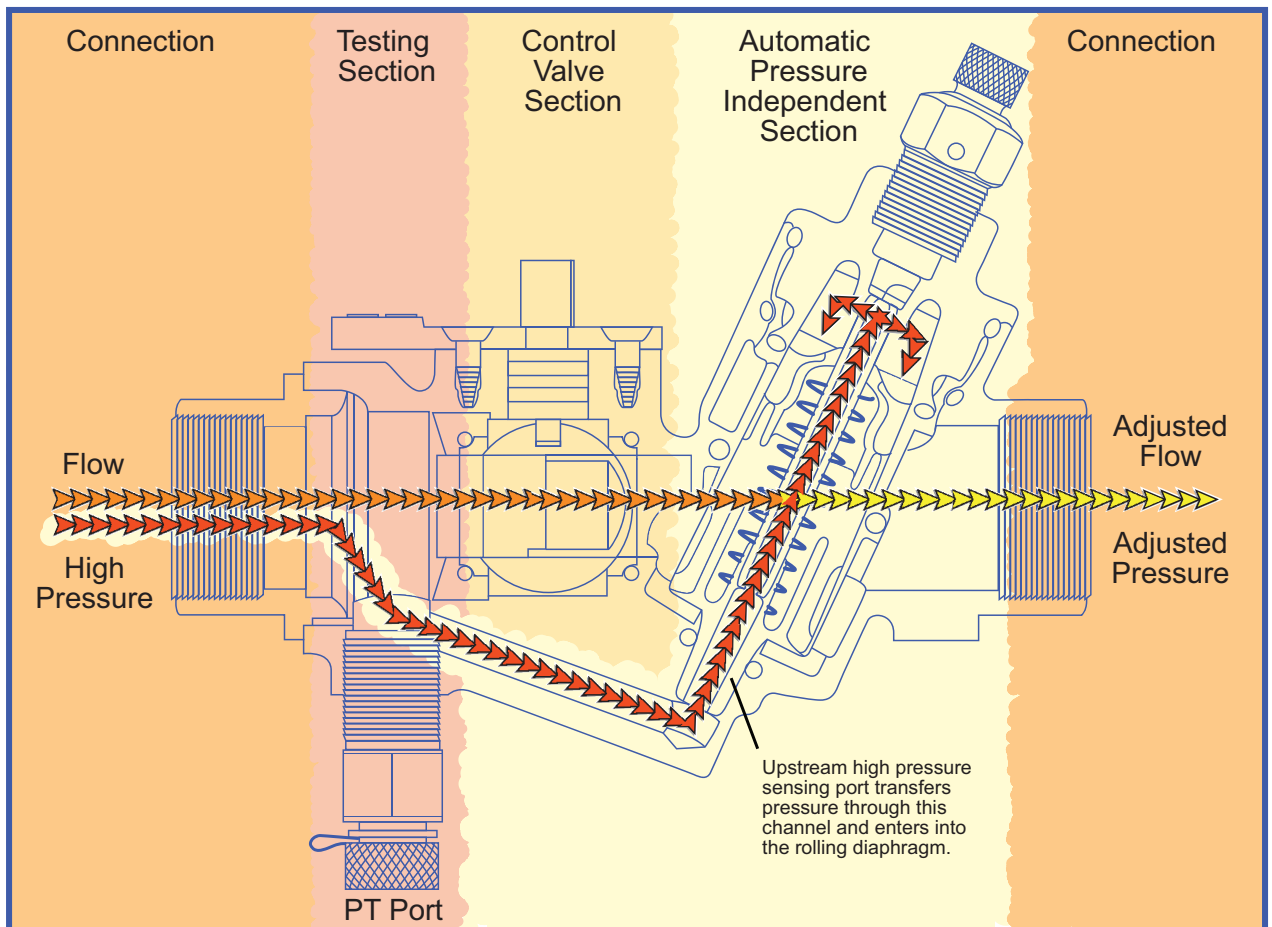
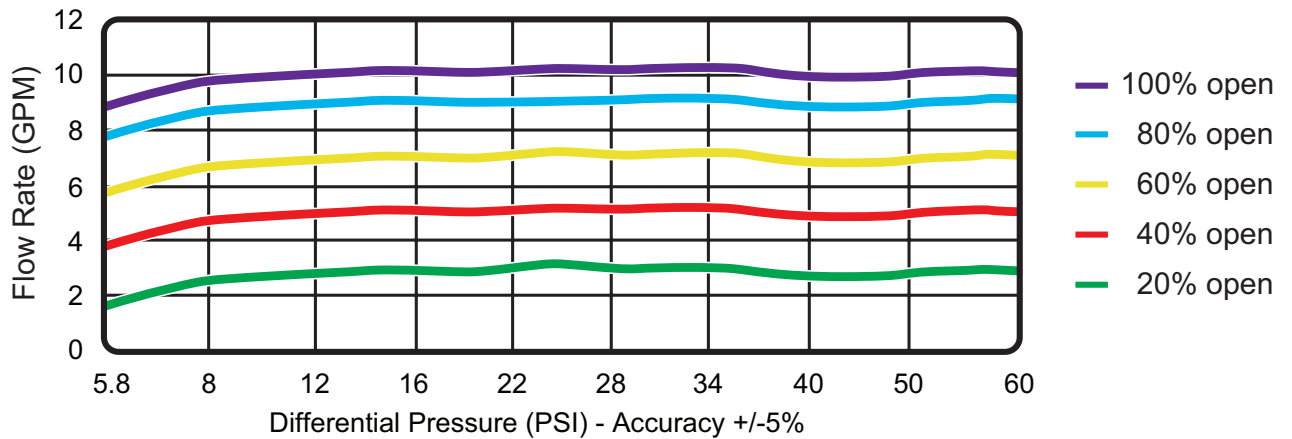
Strainer/Drain Valve Body

Pressure Rating	1/2" - 1-1/2" - 400 PSI / 250°F 1.5L - 2" - 275 PSI / 250°F
Materials	
Body Material	1/2" -1-1/2"-Forged Brass 1.5L - 3" - Cast Bronze
End Connections	NPT, Sweat
Seals	EPDM O-Rings
Strainer	20 Mesh Stainless Steel
Body Tappings	Side Port: 1/4" NPT with Plug
Ball	Nickel-Plated Brass Ball
Leakage	ANSI Class IV (0.01% of Cv)

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Bray office. Bray, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

OPERATION FLOW GRAPH

Differential Range of 5.8–60 PSI. Actuator rotation moves the horizontal fixed flow line up or down to provide temperature control modulation. Simultaneously, flow control is maintained along the horizontal portion of the graph within the minimum & maximum differential pressure limits when the pressure in the system changes.



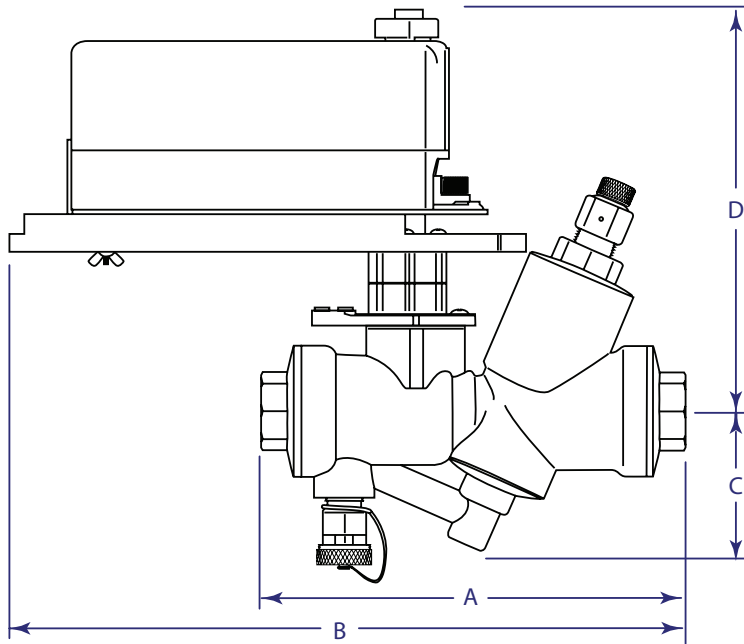
When inlet pressure changes, the pressure at the top of the diaphragm also changes. This alters the low pressure area under the diaphragm so that the pressure drop across the ball remains constant. A constant PSID means a constant flow rate.

ATi MODEL SELECTION TABLE

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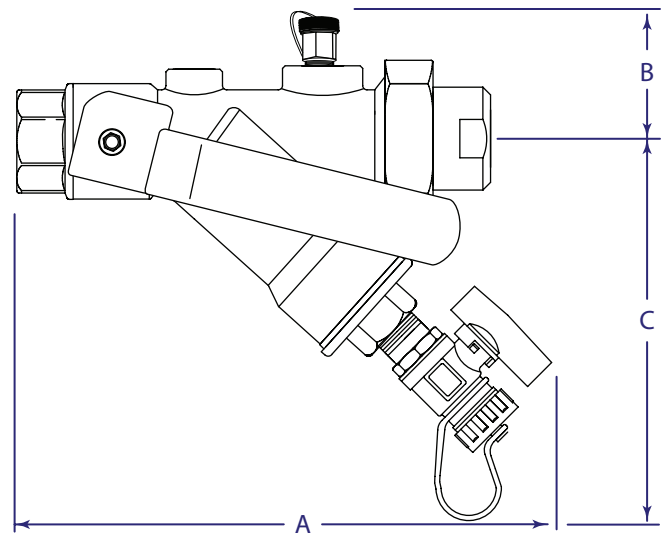
Pressure Independent Valve



Housing	Size	A	B	C	D
Small	1/2"	6.7	5.3	2.5	7.4
	3/4"	6.7			
	1"	6.9			
Medium	1"	10.4	6.0	2.7	8.0
	1-1/4"	9.8			
	1-1/2"	9.6			
Large	1-1/2"	11.9	7.1	3.5	8.3
	2"	11.8			
	2-1/2"	12.75	6.6	3.1	
	3"	13.0			

Strainer/Drain Valve

Size	A	B	C
1/2"	3.9	1.1	2.3
3/4"	3.9	1.1	2.3
1"	5.3	1.3	2.6
1-1/4"	7.7	1.9	3.7
1-1/2"	7.5	1.9	3.7
2"	9.5	1.6	4.3



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Bray® **CONTROLS** **Commercial Division**

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