

**Bray Commercial**

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Section 23 09 00 – INSTRUMENTATION AND CONTROL FOR HVAC**23 09 13 Instrumentation and Control Devices for HVAC****13.33 CONTROL VALVES****A. Pressure Independent Control Valves**

1. Valve shall always use full stroke of the control element irrespective of the maximum flow rate setting.
 - i. NPS 2" and Smaller: Valve shall have flows of 65 GPM or less, forged brass body rated at no less than 375 PSI cold working pressure with a maximum close-off of 58 psi. Body shall be brass alloy NPT threaded.
 - ii. NPS 2-1/2" through 12": Valve shall allow for flows up to 2,641 GPM with cast or ductile iron body rated for ANSI 125/150 or 250/300 working pressure with a maximum close-off rating of 116 psi. Body is to be compatible with ANSI 125/150 or 250/300 flanges.
2. Flow Regulator shall utilize a stainless-steel spring and stem for all sizes.
3. Design flow rate shall be in line field adjustable without the need for special tools or instruments.
4. Valve shall meet an ANSI Class IV leakage rating.
5. Accuracy: The control valves shall accurately control the flow from 0 to 100% rated flow with a valve body flow accuracy of +/- 10% over the full recommended differential pressure range, and +/- 5% from a differential pressure range of 5 to 50 PSI.
6. The actuators used for valves 2" and less shall have an IP54 rating or greater. The actuators for valves 2 1/2" and up shall be IP66 rated (or equivalent). Modulating actuators shall provide analog position feedback.
7. Actuator shall be factory mounted on the valve by the manufacturer. The actuator will be tagged by the manufacturer with the GPM setting and the equipment it is to be installed on. Maximum flow can be readjusted on the valve manually without the use of tools or electronic equipment. If flow setting is changed from the factory preset the actuator will not need to be reset.
8. All pressure independent control valves shall include two P/T ports.
9. Lengths of straight pipe preceding or following the valve shall not be required for proper operation.
10. Calibrated Balancing Valves and Automatic Flow-Control Valves shall not be used on equipment where pressure independent control valves are installed.
11. Pressure Independent Control Valves shall be Bray Simple Set™, Bray Simple Set Max™ or equal.