

23 00 00 HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)

23 09 00 Instrumentation and Control for HVAC

23 09 13 Instrumentation and Control Devices for HVAC

23 09 13.33 Control Valves

Fan Coil Zone Valves and Dedicated Actuators

Mounting and Wiring

1. Valves shall be forged brass with sweat or female national pipe thread pipe fittings in sizes from ½ up to 1 inches (DN15 to DN25). Inverted flare pipe fittings shall be available for ½ inch (DN15) size, with sweat adapters for larger pipe sizes.
2. Valves shall be compact size capable of fitting inside terminal equipment such as fan coil units or unit ventilators.
3. Valves shall provide quick open flow control characteristics. Valve plug shall be rotating ball-plug style with brass seat construction.
4. Three-way valves shall have A-AB-B porting and be used for mixing control in coil-bypass applications.
5. Valves bodies shall have static pressure ratings of 300 psig (2000 kPa) at 200°F (93 C) minimum.
6. Actuators shall be direct coupled type requiring neither crank-arm nor linkage and direct mount to the associated Honeywell valve family using a snap-on engagement, and be removable without the use of tools.
7. Actuators shall provide lead wire connections with knock-out for ½ inch nominal flexible conduit where mechanical protection is required by local codes.
8. Valve actuator shall be capable of operating on 24 Vac Class II power, or be UL Recognized or CSA Certified to U.S. and Canadian Standards for use with line voltage.

Control

1. The actuator shall provide two-position control with spring return controlled by SPST switch.
2. Actuators shall have SPST pilot-duty auxiliary switch for position verification feedback as an available option.
3. Actuators will be standard with fail-safe operation.

Other

1. All valves must be field serviceable without the need to remove the valve from the piping, in order to minimize future service costs.
2. Valves may not be installed with stems below the horizontal plane to prevent actuator damage due to stem seal leakage, or accumulation of particulate in the stem packing.
3. If so rated, valves controlling steam should be installed with the actuator beside the valve, not above it, and use a Class F rated motor.
4. Superheated steam must not exceed the maximum operating temperature of the valve.
5. A water filtration and treatment system shall be installed and operated according to the requirements of Division 23 25 13, Water Treatment for Closed-Loop Hydronic Systems. The presence of excess rust in the system will void the manufacturer's warranty.

6. Actuated valves shall be capable of closing off against their maximum operating differential pressure. Seat leakage when closed shall not exceed 0.009 gpm (33 mL/m).
7. All actuators must be able to operate from 32 to 120°F (0 to 50 C) ambient temperature, as measured at the actuator.
8. Actuators shall be constructed of materials resistant to condensation when used to control chilled water. Actuator damage due to condensation or falling water shall not be cause for warranty replacement.
9. Two-position actuators shall be designed for a minimum of 100,000 full-stroke cycles at rated load and temperature.
10. All valves and actuators shall be manufactured under ISO 9001 International Quality Control Standards.
11. Valves and actuators shall be as manufactured by Honeywell.