

## 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 13.13 Actuators and Operators

###### Direct-Coupled Rotary Actuator Globe Valve Linkage

###### Mounting and Wiring

1. Valve linkages shall be direct coupled type capable of adapting Honeywell direct-coupled rotary actuators for direct mounting to a Honeywell globe valve from ½ to 3 inches in size (DN15 to DN80).
2. The linkage shall connect to the valve stem using a quick release engagement with anti-spin guides.
3. The linkage will mount to the valve bonnet using a U-bolt.
4. The linkage shall accept one spring or non-spring return actuators up to 300 lb-in (34 Nm) torque, for maximum close-off.
5. The actuators shall connect to the linkage shaft using a removable output hub with a self centering shaft coupling if available or u-bolt hub. This self centering shaft coupling shall provide concentric mounting and include an integral adjustable range-stop mechanism.
6. Actuators shall provide wiring terminals located within an integral access cover with conduit connections.

###### Control

1. The actuator-linkage combination shall provide two-position or floating, or proportional control. Proportional control refers to direct acceptance of 0-10 Vdc, 2-10 Vdc or with addition of a 500 ohm resistor a 4-20 mA input signal. Floating control refers to direct acceptance of 24 Vac pulse-width modulated open and close commands from a tri-state (SP3T) controller. Two-position control for non-fail safe actuators shall be in the form of SPDT 24 Vac power controlled by SPDT switch.
1. Proportional control models provide a 2-10 Vdc feedback signal.
2. Proportional actuators shall have a rotation direction control switch accessible on the cover to change between proportional or floating control.

###### Other

1. All spring return actuator-linkage combinations must be designed for either valve stem extend or retract fail-safe operation with a continuously engaged mechanical return spring. This spring must return the actuator to a fail-safe position within 20-25 seconds of power loss.
2. All spring return actuators must be able to spring return from -40 to 189°F (-40 to 87 C).
3. Valves controlling steam should be installed with the linkage beside the valve, not above it, with the actuator mounting yoke oriented to maximize convective air flow for cooling.
4. A high temperature kit shall be available for further isolation of the linkage and actuator from the valve body.
5. All actuators shall be designed for a minimum of 60,000 full-stroke cycles at actuator rated torque and temperature, and 1,500,000 repositions.
6. Run time shall be constant and independent of: load, temperature, and supply voltage (within specifications).

7. All actuators shall be plenum-rated per UL873 and cUL (CSA22.2) listed, and be manufactured under ISO 9001 International Quality Control Standards.
8. Actuators shall be as manufactured by Honeywell.