

HS-Series

High Speed Valve Actuators



SHAFFER™


EMERSON™

For quarter-turn valves requiring split second operation

Emerson's Shafer HS-Series High Speed Valve Actuators were originally developed to meet NASA requirements for split second operation of large ball and plug valves.

While the first application was unique and highly sophisticated, R & D efforts have continued, leading to a variety of new applications spanning many industries. The HS-Series actuators can be adapted to most quarter-turn valve applications requiring a stroking speed of one second or less.

Current applications include:

- Industrial high pressure safety relief valves
- Aerospace launch pad water control valves
- Fuel and water valves for rocket engine test facilities
- Emergency closure of turbine extraction block valves

PRINCIPLE OF OPERATION

One moving part delivers perfect balanced torque output

HS-Series actuators utilize the rotary vane design in which two diametrically opposed vanes are coupled directly to the drive shaft. Pressure applied across the vanes rotates the shaft until the vanes simultaneously meet two opposing barriers. The direction of rotation is changed by reversing the power supply pressure at the inlet and outlet ports.

The rotary vane design produces perfectly balanced torque output without any side loading forces on the actuator bearings or the valve stem. Another benefit of the design is that there is only one moving part; this is the key to the speed, power and reliability of the HS-Series actuators.

HS-Series actuators are typically powered by a high pressure pneumatic or nitrogen source at a working pressure of 1000 psi. Emerson can supply individual nitrogen storage vessels or entire nitrogen power bank systems depending on the application requirements.

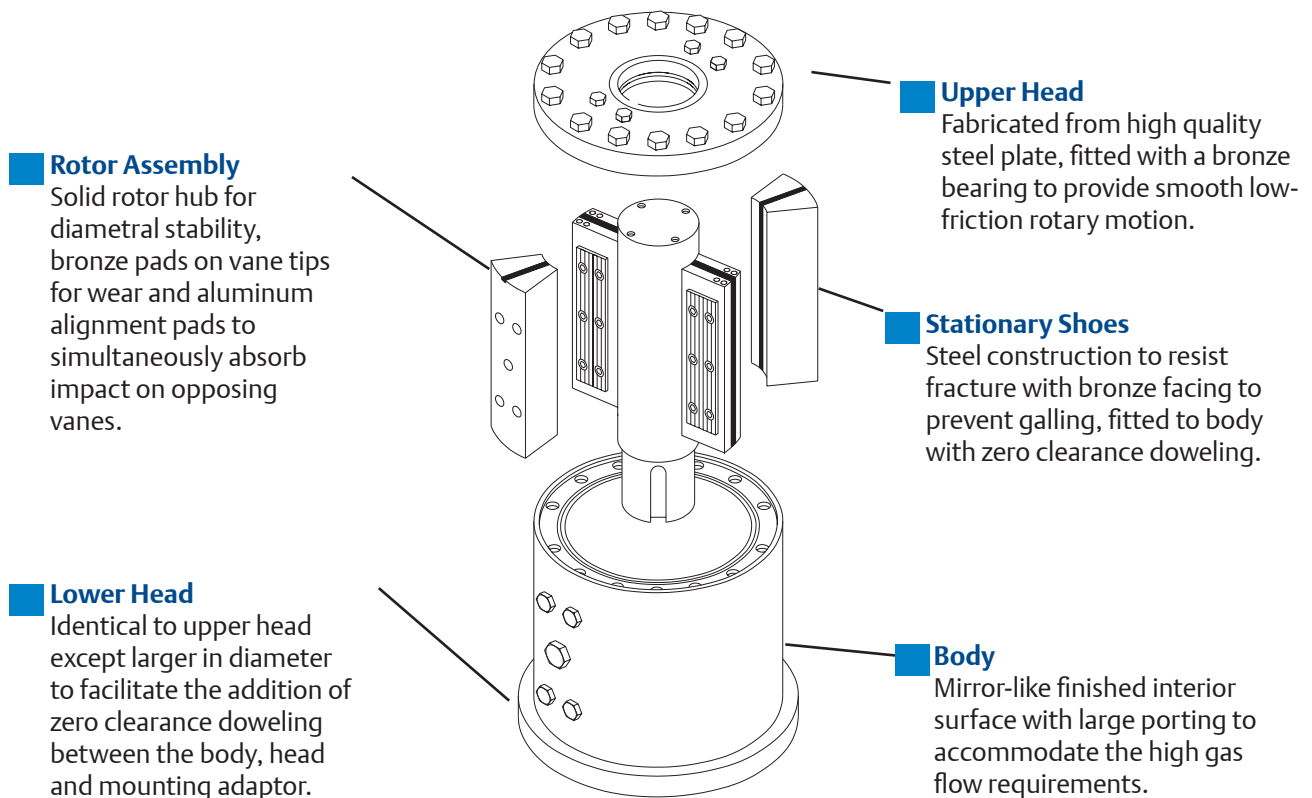
CAPABILITIES

Remote, automatic, or local valve operation

- Five actuator sizes are available, providing torque outputs ranging from 10,000 to 345,000 inch-pounds (115 to 3,975 Nm)
- Stroking speeds as fast as 250 milliseconds for full 90 degree rotation
- Operating ambient temperature from -20°F to 250°F (-45°C to 121°C)
- High pressure control systems are available offering customers with the options of remote, automatic or local operation

CONSTRUCTION FEATURES

Our unique double vane, balanced torque design is the principle behind the power, speed and reliability of the HS-Series actuator



ACCESSORIES

- Limit switches can be factory installed to provide remote indication of valve position
- Explosion proof or weather tight units can be specified in a number of switching configurations
- Factory installed mechanical cycle counter
- Field adjustable flow control valves are available to control the speed of valve operation

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