# HS-Series

## High Speed Valve Actuators


SHAFER™

EMERSON™

# APPLICATIONS

***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.

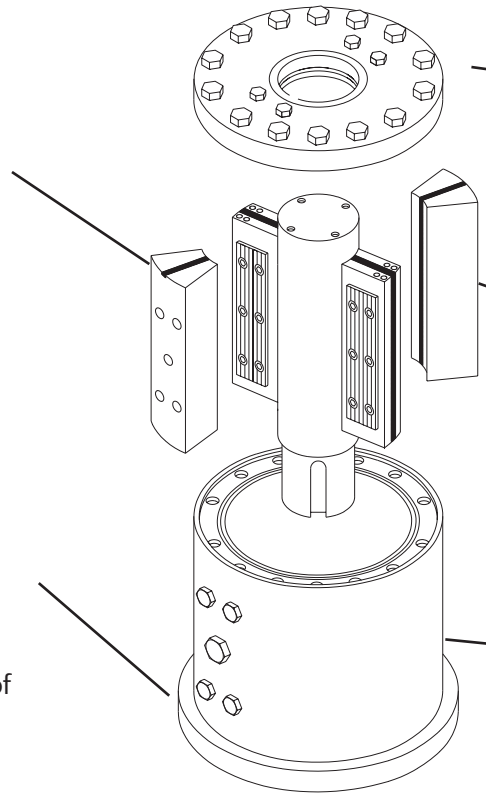
# CAPABILITIES

***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*



**Rotor Assembly**
Solid rotor hub for diametral stability, bronze pads on vane tips for wear and aluminum alignment pads to simultaneously absorb impact on opposing vanes.

**Upper Head**
Fabricated from high quality steel plate, fitted with a bronze bearing to provide smooth low-friction rotary motion.

**Stationary Shoes**
Steel construction to resist fracture with bronze facing to prevent galling, fitted to body with zero clearance doweling.

**Lower Head**
Identical to upper head except larger in diameter to facilitate the addition of zero clearance doweling between the body, head and mounting adaptor.

**Body**
Mirror-like finished interior surface with large porting to accommodate the high gas flow requirements.

# 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

**World Area Configuration Centers (WACC) offer sales support, service, inventory and commissioning to our global customers. Choose the WACC or sales office nearest you:**


***NORTH & SOUTH AMERICA***

19200 Northwest Freeway
Houston TX 77065
USA
T +1 281 477 4100
F +1 281 477 2809

Av. Hollingsworth
325 Iporanga Sorocaba
SP 18087-105
Brazil
T +55 15 3238 3788
F +55 15 3228 3300

***ASIA PACIFIC***

No. 9 Gul Road
#01-02 Singapore 629361
T +65 6777 8211
F +65 6268 0028

No. 1 Lai Yuan Road
Wuqing Development Area
Tianjin 301700
P. R. China
T +86 22 8212 3300
F +86 22 8212 3308

***MIDDLE EAST & AFRICA***

P. O. Box 17033
Dubai
United Arab Emirates
T +971 4 811 8100
F +971 4 886 5465

P. O. Box 10305
Jubail 31961
Saudi Arabia
T +966 3 340 8650
F +966 3 340 8790

24 Angus Crescent
Longmeadow Business Estate East
P.O. Box 6908 Greenstone
1616 Modderfontein Extension 5
South Africa
T +27 11 451 3700
F +27 11 451 3800

***EUROPE***

Berenyi u. 72- 100
Videoton Industry Park
Building #230
Székesfehérvár 8000
Hungary
T +36 22 53 09 50
F +36 22 54 37 00


For complete list of sales and manufacturing sites, please visit www.emerson.com/actuationtechnologieslocations or contact us at info.actuationtechnologies@emerson.com


©2017 Emerson. All rights reserved.

The Emerson logo is a trademark and service mark of Emerson Electric Co. Shafer™ is a mark of the Emerson family of companies. All other marks are property of their respective owners.


SHAFER™


Bulletin HS-1-06-17


**www.emerson.com/shafer**

EMERSON™