

Vee-Ball[®] Design V150, V200, and V300 Noise Attenuator

The Vee-Ball[®] Series valves (V150, V200, and V300) with the severe service Attenuator (figure 1) combine the efficiency of a rotary valve with the energy absorbing capability of a special trim to provide improved performance for demanding applications. The Fisher[®] attenuator design can be utilized in both liquid and gas service to reduce cavitation and noise effects that cause pipeline vibration. See table 1 for a competitive comparison.

Unless otherwise noted, all NACE references are to NACE MR0175-2002.

Note

Neither Emerson[®], Emerson Process Management[™], Fisher, nor any of their affiliated entities assumes responsibility for the selection, use and maintenance of any product. Responsibility for the selection, use, and maintenance of any product remains with the purchaser and end-user.



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Figure 1. Vee-Ball[®] Series Noise Attenuator Ball



Specifications for Vee-Ball Valves and Noise Attenuator

Valve Sizes and End Connection Styles

- 4, ■ 6, ■ 8, ■ 10, ■ 12, ■ 14, ■ 16, or
- 20-inch valves that mate with Class 150 or 300 raised-face flanges. Valves sizes also mate with DN 50 through DN 300 and DIN PN10 or PN16 flanges

Maximum Inlet Pressures⁽¹⁾

Consistent with applicable pressure-temperature ratings, but do not exceed the material temperature capabilities and pressure drop limitations listed in Bulletin 51.3:Vee-Ball

Maximum Shutoff Pressure/Temperature Ratings⁽¹⁾

Composition (TCM Plus or TCM Ultra) Seals, Flat Metal, HD (Heavy-Duty) and High Temperature HD Metal Ball Seals: See Bulletin 51.3:Vee-Ball

Flow Ring Constructions: Contact your Emerson Process Management sales office for more information

Shutoff Classification

See Bulletin 51.3:Vee-Ball

Attenuator Ball Material

- Standard attenuator ball material is CG8M.
- Other attenuator ball materials are available upon request. For other valve parts, refer to the appropriate valve bulletin

Temperature Capabilities⁽¹⁾

Fisher TCM Plus or Ultra Seals: -46 to 232°C (-50 to 450°F)

HD Metal Seals: -46 to 288°C (-50 to 550°F)

High Temperature HD Metal Seal: 288 to 427°C (550 to 800°F). Contact your Emerson Process Management sales office if higher temperatures are required.

Flow Ring or Flat Metal Seal : -198 to 425°C (-325 to 800°F)

PEEK/PTFE Bearings: -198 to 260°C (-325 to 500°F)

Packing Constructions

PTFE V-ring: -198 to 232°C (-325 to 450°F)

Graphite: -198 to 538°C (-325 to 1000°F)

ENVIRO-SEAL® Single PTFE V-ring: -46 to

232°C (-50 to 450°F)

ENVIRO-SEAL Graphite: -7 to 316°C (20 to 600°F)

Flow Coefficients

See Catalog 12

Flow Characteristic

Modified equal percentage (see figure 4)

Face-to-Face Dimensions

Consistent with ■ ISA S75.04 and IEC 60534-3-2 face-to-face dimensions

Option for Class 150 ■ ASME B16.10-short

Standard Flow Direction

Forward flow direction is into the convex face of the V-notch ball. The valve with the attenuator must be placed in the forward flow direction for the attenuator to be effective.

Actuator Mounting

- Right-hand or ■ left-hand as viewed from upstream end of valve. Counter-clockwise to close for both mounting styles.

Maximum Ball Rotation

90 degrees

Valve/Actuator Action

With diaphragm or piston rotary actuator, field-reversible between

- push-down-to-close (extending actuator rod closes valve) and

- push-down-to-open (extending actuator rod opens valve)

ENVIRO-SEAL Packing

This optional packing system provides improved sealing, guiding, and transmission of loading force to control liquid and gas emissions.

Options

- Alloy construction materials, and other common valve parts are available upon request,
- Materials that comply with NACE MR0175-2002 for sour service. Refer to Bulletin 51.3:Vee-Ball, or contact your Emerson Process Management sales office

1. The pressure/temperature limits in this bulletin, and any applicable code or standard limitation, should not be exceeded.

Features

- **Trim Versatility**—Trim components are interchangeable for Fisher Design V150, V200, and V300 valves. This feature allows you to reduce your spare parts inventory and maintenance procedures.

- **Attenuator-Ball Fabrication**—The ball-attenuator construction provides structural integrity because of its rugged fabrication weld.

- **Attenuator Performance**—Up to -10 dBA acoustical attenuation, and a $K_c=1.0$ for hydrodynamics are achievable depending on service conditions.

- **Application Versatility**—The Vee-Ball valves are available as standard with ISA S75.04 face-to-face dimensions as well as ASME B16.10-short face-to-face dimensions for Class 150 valves. IEC 60534-3-2 face-to-face dimensions are also available (60534-3-2 face-to-face dimensions are equivalent to S75.04 face-to-face dimensions).

- **Long Service Life**—Solid HD metal seal construction (figure 2) provides long service life in demanding applications. The constant wiping action of the seal across the ball's sealing surface prevents scale and sludge buildup, and provides excellent service on steam, gases, slurries, and various liquid applications.

- **Excellent Flow Characteristic**—Precise contouring of the V-notch ball provides an approximately equal percentage flow characteristic.

- **Sour Service Capability**—Optional materials are available that comply with NACE MR0175-2002.

- **Improved Environmental Capabilities**—The optional ENVIRO-SEAL packing system is designed with very smooth stem surfaces and live-loading provides improved sealing, guiding, and loading force transmission. The seal of the ENVIRO-SEAL system can control emissions to below the EPA (Environmental Protection Agency) limit of 100 ppm (parts per million) for valves.

- **Quick and Easy Maintenance**—The Vee-Ball valve ball seals can be inspected simply by removing two screws on the valve body inlet. There is no need to remove the actuator or disassemble the valve. No special tools are required for valve maintenance procedures, such as removing the packing, ball seal, and shafts.

Other Considerations

When a rotary noise attenuator is installed in a Vee-Ball valve, the V-notch is no longer a point of high-velocity erosion. As a result, the CoCr-A V-notch option is not required when a rotary noise attenuator is used. The rotary attenuator and CoCr-A V-notch options are not available together.

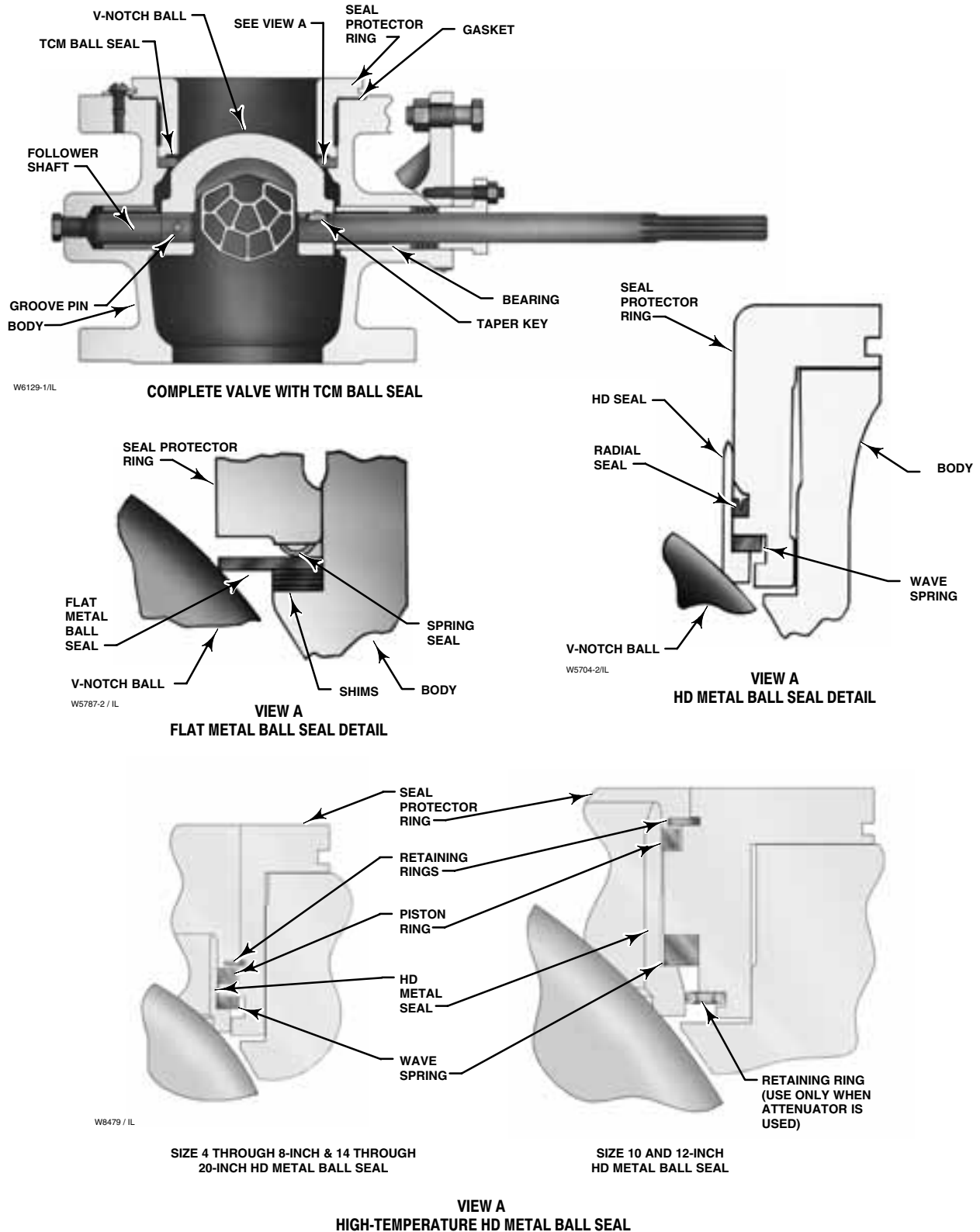


Figure 2. Vee-Ball Series Rotary Attenuator Construction

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Vee-Ball Attenuator

Table 1. Segmented Ball Benefits Analysis Comparison

Benefits	Typical Competitive Device	Fisher Vee-Ball Attenuator ⁽¹⁾
Predictable Performance	No	Yes
-10 dBA Aerodynamic Noise Attenuation	No	Yes
Superior Attenuation Effect at Critical Opening Position	No	Yes
Maximum Pressure Drop Capability	No	Yes
Heavy Duty, Integrally Welded Attenuator/Ball Assembly	No	Yes
Valve Splined Shaft Connects to Clamped Actuator Lever to Minimize Lost Motion	No	Yes
Superior Soft Seats for Tight Shutoff	No	Yes
Moderate Kc Improvement vs Unattenuated Device	Yes	Yes
Trunnion Mounted Ball for Superior Wear Resistance	Yes	Yes
Heavy Duty Metal Seats for Demanding Applications	Yes	Yes

1. See figure 4 for valve characteristics.

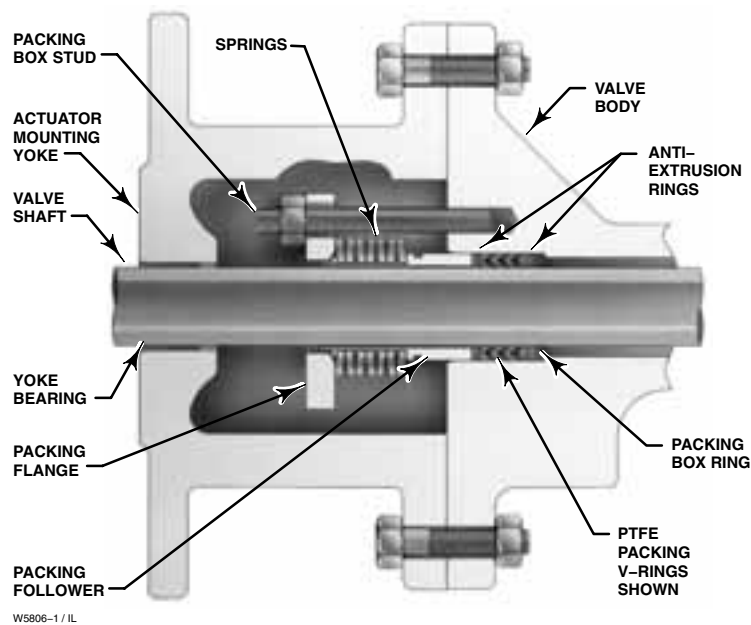


Figure 3. Typical ENVIRO-SEAL® PTFE and Graphite Packing Arrangements

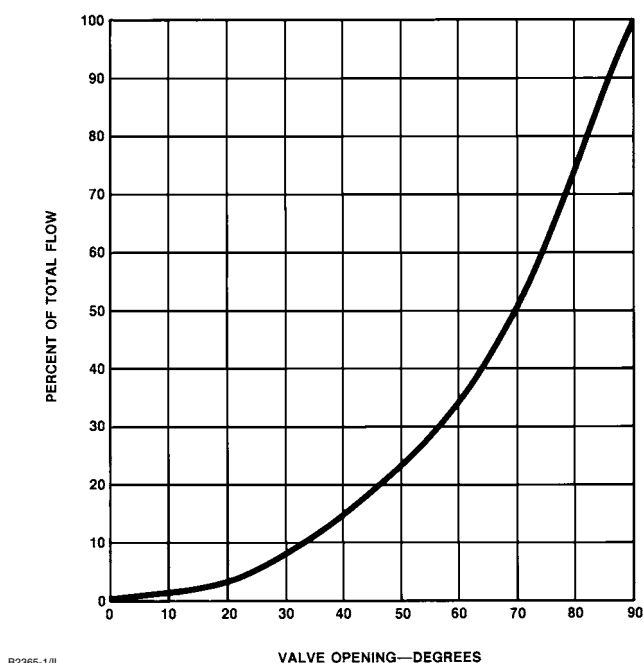


Figure 4. Valve Characteristics

Note

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