Dirty Service Anti-Cavitation Trim (DST)

Dirty Service Trim (DST) (figure 1) is a patented multi-stage, anti-cavitation control valve trim concept for use in services where the fluid may have entrained particulate that could plug the passages in or cause erosion damage to conventional anti-cavitation trims. DST is frequently used in high pressure drop applications up to 4000 psid in the chemical, refining, oil and gas production, and power industries.

Features

- **Cavitation Control—**2-, 3-, 4-, or 6-stage DST used in a valve properly selected for flow conditions can eliminate cavitation and associated damage and noise.

- **Versatility—**Available in globe and angle valves, flow up (figure 3) or flow down (figure 2), from 1- to 8-inch sizes having weld-end or flanged-end connections. Can be used in Design E, EA, EH, EHA, EW, HP, and HPA valves.

- **Longer Trim Life—**The patented trim concept uses a combined axial and radial flow that features large, open flow paths.

- **Easy Maintenance—**In-line trim removal allows inspection of parts without taking the valve body out of the pipeline. DST can pass particles that are 0.25 to 0.375 inch in size without plugging.

- **Trim Materials—**Typical trim materials include 17-4PH SST cages, 416 or 440C SST valve plug, or 316/ENC cages with 316/alloy 6 valve plug. Other materials are available to satisfy application requirements.

- **Shutoff—**DST also features a protected seat design where the shutoff function of the valve is separate from the throttling areas of the trim.

Figure 1. Dirty Service Trim

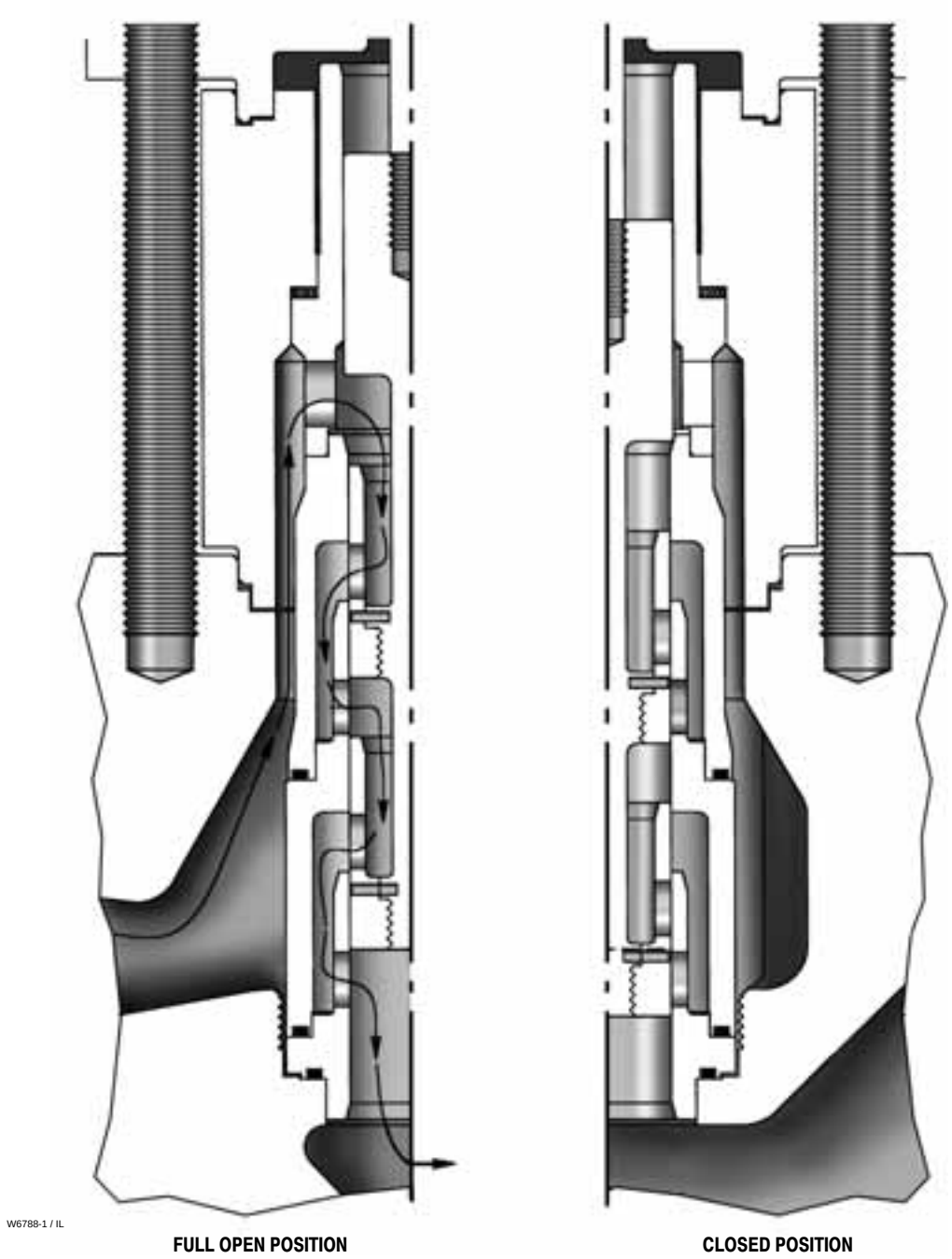

Figure 2. DST 4-Stage Flow Down Trim

Note

Fisher does not assume responsibility for the selection, use, or maintenance of any product. Responsibility for proper selection, use, and maintenance of any Fisher product remains solely with the purchaser and end-user.

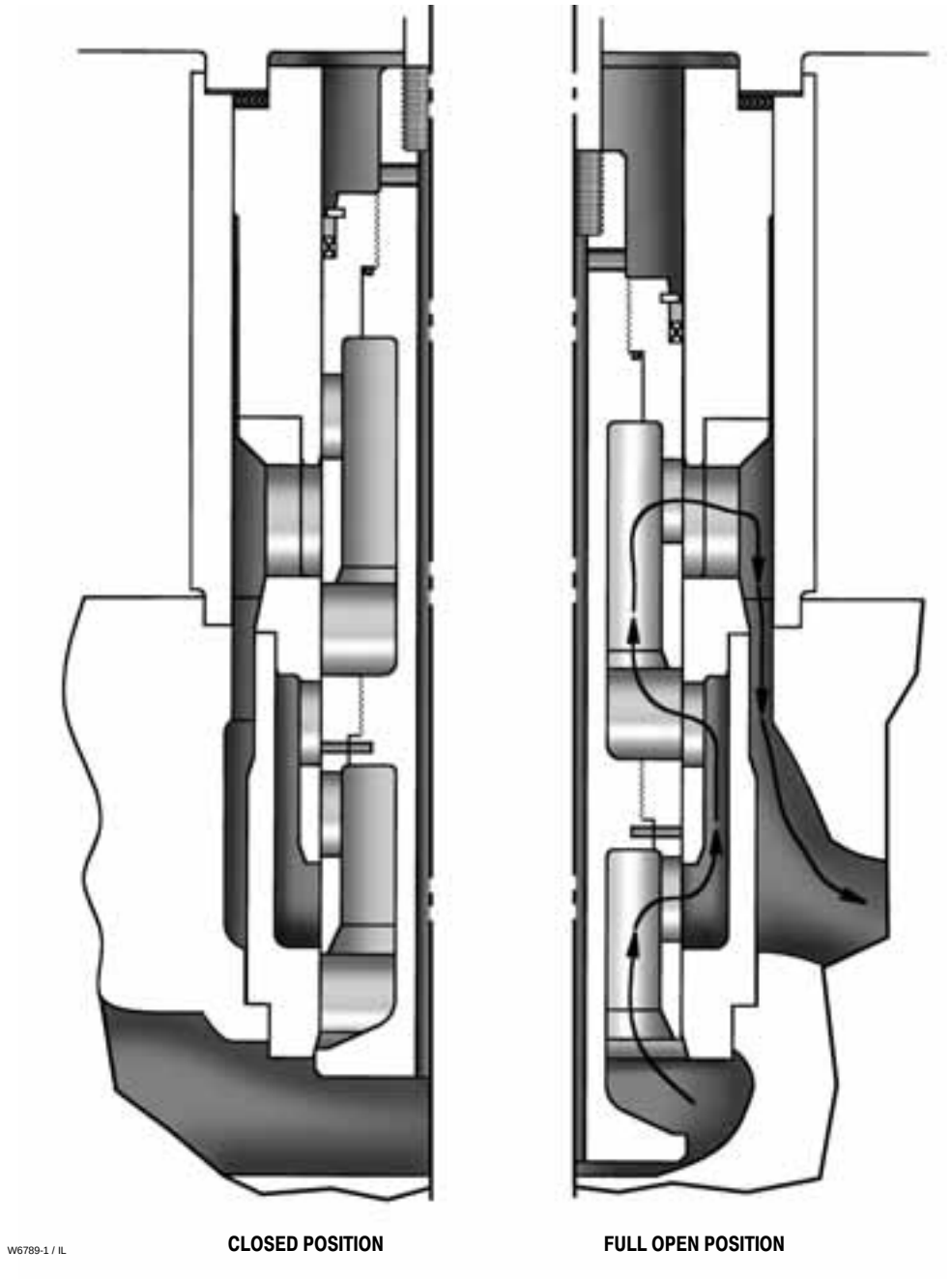

Figure 3. DST 3-Stage Flow Up Trim

Dirty Service Trim

Product Bulletin
80.2:021
April 2004

Specifications

Available Valves

Design E, EA, EH, EHA, EW, HP, and HPA. Consult your Fisher sales office for DST applications for other Fisher or competitive valves

End Connection Styles

Refer to appropriate valve bulletin

Shutoff Classifications per ANSI/FCS 70-2 and IEC 60534-4

Class V [5 x 10^{-12} m^3/sec/bar/mm of port diameter
(0.0005 mL/min/psid/in.) of water at service pressure drop]

Maximum Inlet Pressures(1)

Consistent with applicable ASME B16.34 ratings

Maximum Pressure Drop(1)

Two-stage: 52 bar (750 psi)
Three-stage: 103 bar (1500 psi)
Four-stage: 207 bar (3000 psi)
Six-stage: 276 bar (4000 psi)

Construction Materials

Trim Parts: 17-4PH SST cages, 416 or 440C SST valve plug or 316/ENC cages with 316/Alloy 6 valve plug. Trim can be made from several other bar stock alloys.

Flow Characteristic

Linear

Flow Direction

Flow up or flow down

Valve Recovery Coefficients

K_m: 0.90 for 2-stage
K_m: 0.95 for 3-stage
K_m: 0.98 for 4-stage
K_m: 0.98 for 6-stage

Valve Cavitation Coefficient

K_c = 1.0 for all valves when trim is used within applicable pressure drop limits.

Maximum Valve Plug Travel

Typical plug travels are 0.75 inch through 1.5 inch. Contact your Fisher sales office for your specific application

Minimum Seating Force

Use Class V seat load requirements

Noise Level

Noise levels will be 85 dBA or lower when DST is used. Contact your Fisher sales office if particularly low noise specifications must be met.

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

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