

BOSS SERIES D CONTROL VALVE

HUNG CAGE DESIGN

Unlike competitor's valves (which use the cage to compress the seat ring into the body), Spence's cage is suspended in the body from a machined shoulder. This eliminates bonnet gasket leakage, cage deformation, sticking plugs, seat gasket and body washout which can occur with cage retained seat designs. The Spence hung cage design utilizes a 17-4 Ph stainless steel Belleville load ring to maintain a constant seat gasket load,

even in temperature cycling service.

The Spence Boss D Series Control Valves are specifically designed for high pressure drop service. Pressure drop, high velocities and throttling occur between the cage window and the plug, thereby protecting the seat ring and tight shutoff capability of the valve. An optional "protected seat" seat ring provides outstanding wear and shutoff performance.

DIGIBOSS HUNG CAGE & TRIM MATERIAL



STANDARD CAGE

The full ported, standard cage, provides maximum flow with minimum pressure drop. The inherent modified linear flow characteristic provides excellent low flow control, high rangeability and maximum flows per given body size.



40% REDUCED TRIM CAGE

This optional cage reduces the maximum Cv and flow to 40% of the normal, full port valve. Used to provide body velocity control, future flow expandability, or to correct for oversized valve conditions.

ANTI-CAVITATION CAGE

The Seco-Cav cage eliminates the effects of valve cavitation providing a normal valve/trim life expectancy in cavitating conditions. Diametrically opposed holes, increase the valves cavitation index (Kc) and direct impinging flows to the center of the cage, preventing mechanical trim/body damage.



NOISE REDUCING CAGE

The Seco-Sonic cage is designed to reduce valve generated noise up to 10dBA in steam, gas or any compressible fluid service. When used in conjunction with a Seco-Sonic silencing orifice, noise attenuations of 15-20dBA can be achieved.



TRIM MATERIAL SELECTION

Balanced Plug design allows line pressure under the plug to build up above the plug, effectively cancelling out any unbalanced stem force due to pressure. In addition to providing smooth, high pressure control, balanced plugs allow use of small, light, cost effective actuators. Class III, IV or VI shutoff can be provided.

The piston seal is critical to maintaining tight shutoff in any cage valve. The Boss's heavy cupwasher style PTFE plug seal has three times the cross sectional area and wear surface of competitive valves and provides tight shutoff for longer than competitor's designs at both low and high pressures.

| Table 1 | Maximum Service Temp. | Plug | Seat Ring | Gaskets | ANSI/ISA 70-2 Shut-off |
|------------------------|-----------------------|------------------------------------|-------------------------------------|------------------------|------------------------|
| Standard Balanced Trim | 500°F (260°C) | AISI 410 St. St. w/PTFE Seal | AISI Type 400 St. St.* | Filled Type 304 St. St | IV |
| Stellite Balanced Trim | 500°F (260°C) | AISI 410 St. St. w/PTFE Seal | AISI Type 400 St. St. Stellite | Filled Type 304 St. St | IV |
| High Temp. Trim | 800°F (426°C) | AISI 410 St. St. w/ Ni-Resist Seal | AISI Type 400 St. St. Stellite | Inconel Graphite | III |
| Soft-Seated Trim | 500°F (260°C) | AISI 410 St. St. w/PTFE Seal | AISI Type 400 St. St. w/PTFE Insert | Filled Type 304 St. St | VI |

* Stellite seat optional.



STANDARD & STELLITE BALANCED PLUG

Balanced plug design eliminates large stem forces allowing the use of small, cost-effective actuators. Provides smooth throttling control even at pressures to 1000 psi. Standard PTFE piston seal provides ANSI Class IV tight shut-off to temperatures of 500°F.



HIGH-TEMP BALANCED PLUG

Balanced plug with high-temp ni-resist or carbon piston seal provides ANSI Class II shut-off at temperatures up to 800°F.



SOFT SEATED TRIM

Balanced plug with PTFE piston seal and an optional seat design with PTFE insert provide ANSI Class VI bubble tight shut-off at temperatures up to 460°F.