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Valve features

An accurate and reliable control valve **is essential in any process** loop to enhance efficiency.

VSI Controls HXL Series Control Ball Valve has been developed in partnership with the PetrolValves R&D Team, to provide a high flow, high pressure drop throttling ball valve, by combining VSI Controls expertise in Control Valves with PetrolValves Ball Valve design expertise. **The HXL is specifically designed for severe service applications**, both on **gas** and **liquid** services. Allowable pressure drops are significantly increased compared to full bore or V-ball control valves, thanks to the multi step trim, that **splits pressure drop** in several stages. The unique design is the result of extensive FEA analysis and extensive CFD testing.

The side entry split body geometry offers excellent structural strength and versatility of construction, while the trunnion mounted design of the HXL **allows the transfer of the pressure load** from the trim directly into the valve body, to reduce actuating torques and increase seal life. HXL Series combines **superb high flow capacity** with **accurate control** at **small flow conditions**, thus increasing valve rangeability at values up to 300:1. Sizes range from 2 to 48" Inches, and pressures start at Class 150 and go up to class 2500.



HXL SERIES control ball valve

HXL SERIES



LEAKAGE CLASS

STEM SEALS

ACTUATORS

DIGITAL POSITIONER

Up to Class V with metal seat, Up to Class VI with soft seat thanks to spring energized seat, and piston effect.

For bidirectional use, based on configuration Anti Blow Out Proof stem design, with rugged ball-to-stem connection, avoids backlash, minimizes hysteresis and correspondingly increases control accuracy. Double-redundant O-ring barrier system [-46 up to 300°C] Chevron packing arrangement, with live

loading system available [-196 up to 220°C], V-ring packing arrangement [-196 up to 220°C], Graphite packing for temperatures exceeding 220°C, with live loading system available.

Double acting with spring return pneumatic Rotary Piston, Single or Double acting Scotch Yoke actuator, Electric actuator, Hydraulic actuator.

VSI Chronos Positioner, Others as required.



Trim design

The HXL Control Valve incorporates a Multistage Cage Trim inside the ball. The trim contains a number of plates with drilled holes specifically designed to maximize noise reduction on gas flows, and cavitation prevention in liquid flows.

The Full port trim design allows unequaled high flow control capability, as well as huge rangeability, bi-directional flow and excellent durable seat tightness.

Trim design has been specifically designed to perform under a wide range of flow conditions using CFD analysis, and achieve up to 15dBA of noise attenuation in gas services,

and moderate cavitation control in liquid services, using its modified equal percentage characteristic.

Fluid dynamic and static torque values are derived from numerical analysis, thus allowing an accurate sizing of actuator type and size throughout its rotation.

Upon request, the number and position of the plates and holes can be customized to optimize a specific application solution. The HXL trim performs adequately in dirty fluids (containing fibers and/or particulates) due to its self-cleaning design.



Performance

Cv values and fluyd dynamic performance are here summarized. They represent a typical design, and could be modified according to specific requirements.



Typical Cv values up to rating ANSI 600

SIZE [inch]	2	3	4	6	8	10	12	14	16	18	20	24	28	30	32	36	40	48
MAXIMUM CV [gpm]	98	257	452	1049	1709	3029	4555	4986	7151	8638	11327	16225	20378	26441	30166	36309	51196	129864





Drilled disc

Drilled Disc, inserted upstream and/or downstream of where the ball first opens increases low lift/flow performance, allowing precise control even with high pressure drops and small flow rates. The extension size as well as the number and size of the drilled holes can be easily customized and accommodated. This increases the overall rangeability up to theoretically infinite values and pressure reducing capability of the valve system, with slight reductions in capacity.

In liquid flows, the multi-step pressure reduction and increased recovery factor, Fl, improve the valve's anticavitation performance.

With gases, the noise reduction is increased due to its greater expansion factor.









Materials

HXL Series Control Ball Valves allow a wide range and combinations of materials, to best meet the customers' service conditions. Material offerings are based upon careful analysis of process data and upon the experience gained from the performance of our installed base of valves. These choices provide better service life, operating and shutoff torques, and guard against damage from flashing, vibration, high velocities or entrained particles.



BODY MATERIAL SELECTION	BALL MATERIAL SELECTION	SEAT MATERIAL SELECTION
 Carbon Steel (*) Low Temperature CS (*) Cr-Mo and Low Alloy Steel Stainless Steel Duplex/Superduplex SS Ni Alloys 	 CS, Low Temperature CS (*) Cr-Mo and Low Alloy Steel Austenitic/Ferritic/ Martensitic SS Duplex SS Ni Alloys 	 Cr-Mo and Low AlloySteel Austenitic/Ferritic/ Martensitic SS Duplex/Superduplex SS Ni Alloys
(*) Corrosion Resistant Alloy overlay option available	(*) Corrosion Resistant Alloy overlay Available hard facings: Ni-Plating, N Coating, Chrome Carbide Coating	option available IiSiC-Plating, Tungsten Carbide



VSI Controls[™] S.r.l. with a sole shareholder subject to direction and coordination activity of PETROLVALVES S.p.A.

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WorldWide presence through the Companies of the Group: Italy - Uk - The Netherlands -Norway - Usa - Brazil - Singapore -Australia - Russia - Kazakhstan