Valves for Nuclear Power
Zero Leakage Valve Solutions
ValvTechnologies provides solutions for vent, drain, isolation and control applications in nuclear generation:

- ASME III Class 1, 2, and 3 Valves
- 10CFR50 Appendix B Safety Related Program
- ASME/ANSI Class 150 – 2500, ½ – 36 inch
- End Connections SW / BW / Flanged / Special
- Primary, Secondary and Auxiliary Systems
- Applicable to all BWR, PWR and CANDU Designs
What is Zero Leakage?

Our Mission. ValvTechnologies defines zero leakage as no detectable leakage of gas or a liquid for a period of three minutes or greater. The valve must not leak after multiple cycles and must exhibit zero leakage at various pressure conditions — from vacuum to full-rated pressure. Unprecedented criteria.

More traditional valve manufacturers have published acceptable leakage rates, even when brand new. At ValvTechnologies, we will not ship a valve unless it shuts off completely. We test every valve made according to ASME / ANSI standards (MSS SP-61, ANSI Class V), then we toughen the standard to 100 percent shut-off (zero bubbles) and attach our signed and witnessed test report to every valve we ship. With this kind of quality control, ValvTechnologies’ valves last longer and reduce maintenance and operation costs.

Allowable Leakage

![Graph showing allowable leakage rates](image)

Four Year, Zero Leakage. Guaranteed.

All ValvTechnologies’ valves manufactured for the nuclear industry are stringently tested to meet the zero leakage testing criteria and are backed by a four year, ZERO leakage guarantee. In addition, every valve that we manufacture for nuclear generation comes with extensive documentation and full materials traceability which include:

- CMTR – Certified Materials Test Report
- Certificate of Compliance
- Valve Test Report
- Design Report
- Drawings
Unrivaled Design.

The rotary operating design of a ball valve is inherently better designed for high pressure steam applications than compared to the linear design of the typical globe type valve. The quarter-turn, rotary action of the ball valve protects the downstream seat while in operation, eliminating the probability of developing dangerous seat erosion and downstream leak paths - which left unchecked can develop into serious safety concerns.

ValvTechnologies expanded upon the strengths of the ball valve by incorporating proprietary design features that extend the life of the standard, rotary design. Core to the design is the integral seat. As part of valve end cap, and positioned away from the flow path, leak paths and interference from particulates are eliminated.

Through the integration of field experience and customer feedback, ValvTechnologies’ V1 design features have become industry design standards that when required provide proven long-term performance.

ValvTechnologies’ Ball Valve Specification

Body Design
- Should be split body, in-line repairable.

Seats
- The downstream, main sealing seat is integral to the end cap.
- High Velocity Hydrogen Fuel (HVHF) Ceramet overlay RAM 31 or equivalent.
- The Rc hardness of the seat must be a minimum of 68, at service temperature.

Ball
- 410 SS with HVHF Ceramet overlay RAM 31 or equivalent.
- The Rc hardness of the ball must be a minimum of 68, at service temperature.

Stem
- The stem should be true blow-out proof, no pins or pinned stem designs acceptable.
- Material A638, Grade 660 or equivalent.
- The Rc hard facing must be a minimum of 68, at service temperature.

Fasteners
- Must conform to B16.34 1988 and ASME Section VIII stress values.

Packing
- Live loaded design, containing a four stud and six Belleville washer configuration.
V1 – Product Line

Forged & Cast Ball Valves.
Four Year, ZERO Leakage Guarantee.

- ASME/ANSI Class 150 – 2500
- ½ – 36 inch
- Integral Seat Design
- Hard Faced Seat and Ball with RAM Coating – Rc 70
- Blow-out Proof Stem
- Live Loaded Packing

Nuclear, Valve Part Numbering System

Example Part Number:

V8L1-SW-ST-P010-xxxN1-xxx

Ball Valve – ASME/ANSI Class 1500 – F22 – Socket Weld Ends – Standard Port – Pneumatic – 1 inch Nominal – QMI – Nuclear Class 1 – Unique ID

A  Valve Type
    V - Ball Valve

B  Pressure Class
    8 – ASME/ANSI Class 1500

C  Trim Code
    L1 – F22

D  End Connection
    SW – Socket Weld

E  Port Type
    ST – Standard

F  Actuation
    P – Pneumatic

G  Nominal Pipe Size
    010 – 1 inch

H  Quality Material Index
    xxx – Manufacturer Supplied

I  Nuclear Class
    N1 – Nuclear Class 1

J  Unique Identifier
    xxx – Manufacturer Supplied

The Product Part Numbering System allows you to accurately and easily specify at time of ordering.
Zero Leakage Valve Solutions.

PSG

Parallel Slide Gate.
Bi-directional, ZERO Leakage Isolation.

- ASME/ANSI Class 300 – 2500
- 6 – 36 inch
- Position Seated Easily Automated
- In-line Repairable
- Hard Faced Trim with RAM Coating - Rc 70
- Four Year, Zero Leakage Guarantee

ValvTechnologies’ PSG Valve Specification:

Allowable Leakage Rates
- Must Exceed FCI 70-2 Class V & VI and B16.34 1988; the leakage criteria to be ZERO bubbles and drops over a 3 minute period on all tests.

Stem
- The stem should be a tee slot design, no threads to hanger, RAM coated and polished.

Seats and Guides
- The seats and guides are integral to the valve body.
- HVHF Ceramet overlay RAM 31 or equivalent.
- Protected seats in the open position, the flow through-conduit positioned precisely between the seats, eliminating turbulence and flow impingement on the seats.

Discs/Gates
- Tee slot configuration no threaded hanger, parallel in the range of travel, fully open and in the closed position
- HVHF Ceramet overlay RAM 31 or equivalent.

Packing
- Live-loaded design, four stud and six Belleville Washer configuration.
**ERV**

Electronic Relief Valve.
Protection of Safety Valves.

- ASME/ANSI Class 150 - 2500
- 1/2 – 12 inch
- ASME Sec. I, V-Stamp Capacity Certified
- Integral Isolation Valve Available
- Easily Adapted to Existing Controls
- Four Year, Zero Leakage Guarantee

**XACTROL**

Characterized Trim.
Leak Free Isolation and Control in One.

- ASME/ANSI Class 150 – 2500
- 1/2 – 36 inch
- Integral, Characterized Downstream Seat
- Upstream Disc Inserts for Modulation

**NEXTECH**

Trunnion Mounted.
Bi-directional Isolation, Low Torque.

- ASME/ANSI Class 300 – 2500
- 2 – 36 inch
- In-line Repairable
- Double Block and Bleed
Valves for Nuclear Power
Zero Leakage Valve Solutions

Corporate Offices & Manufacturing

Headquarters
ValvTechnologies, Inc.
5904 Bingle Road
Houston, Texas 77092 U.S.A.
Telephone +1 713 860 0400
Fax +1 713 860 0499
sales@valv.com

To locate a distributor or satellite office near you, visit us online at: www.valv.com

Argentina / Chile / Peru
Lima
+51 1 628 1126
peru@valv.com

Brazil
Sao Paulo
+55 12 3322 6527
brazil@valv.com

China
Beijing
+010 65882188
china@valv.com
Chengdu
+86 2886317266
china@valv.com
Shanghai
+021 53839881
china@valv.com

United Kingdom
Stockton on Tees
+44 1642 662814
europe@valv.com

Middle East
Kingdom of Bahrain
+973 17 735758
middle.east@valv.com

ValvTechnologies products are certified to:

©2009 ValvTechnologies, Inc.