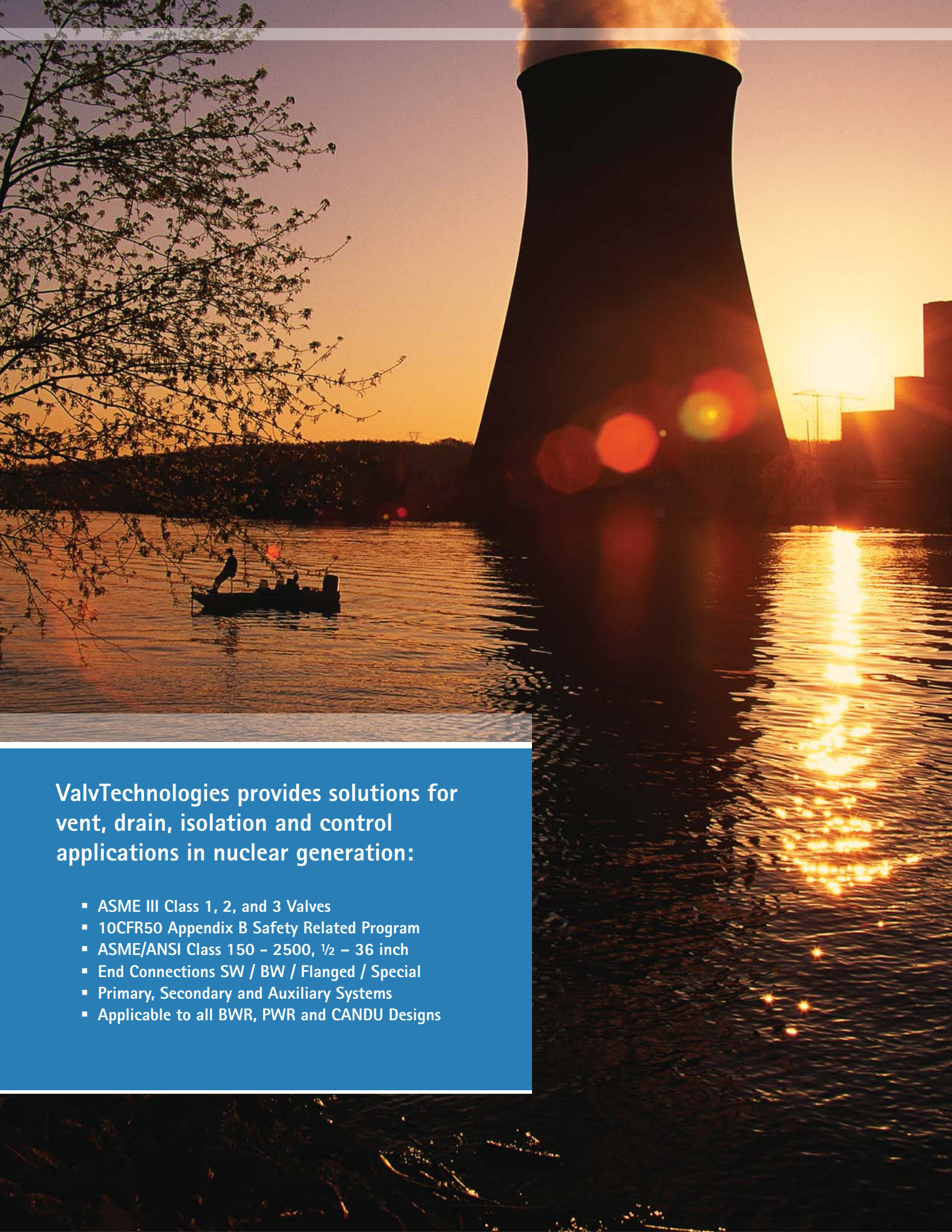


# Valves for Nuclear Power

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, 1/2 – 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?

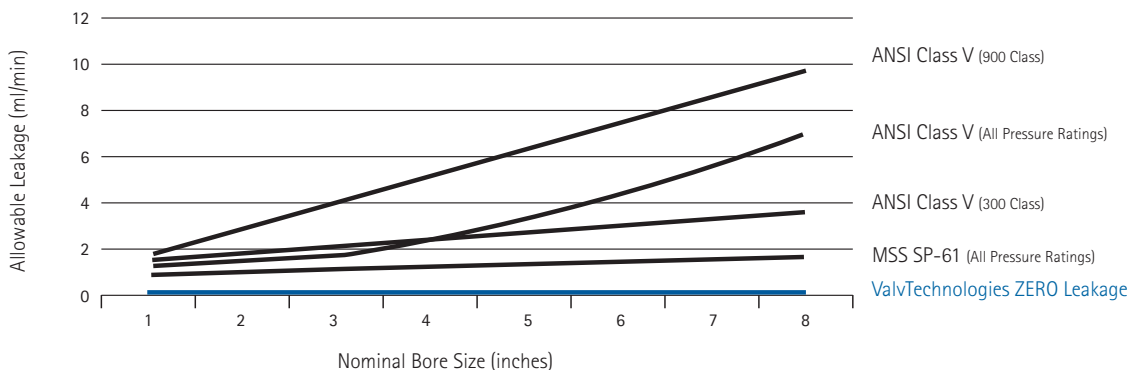
Our Mission. ValvTechnologies defines zero leakage as no detectable leakage of gas or a liquid for a period of three minutes or greater. The valve must not leak after multiple cycles and must exhibit zero leakage at various pressure conditions – from vacuum to full-rated pressure. Unprecedented criteria.

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.

## Zero Leakage = True Cost Savings

- Long Term Reliability
- Reduce Valve Maintenance
- Improve Heat Rate
- Saves Energy, Time and Money

## Allowable Leakage



## 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.



*Globe type valves often develop dangerous leak paths due to their torque seated design. Their linear operation requires an operator to seat the plug by exterior force, often repetitively as the flow stream can cause the valve to become unseated.*

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
- 1/2 – 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:

A B C     D     E F G     H     I     J  
**V8L1-SW-ST-P01-xxx-N1-xxx**

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

The Product Part Numbering System allows you to accurately and easily specify at time of ordering

|   |  |
|---|--|
| <p><b>A</b> Valve Type<br/>V - Ball Valve</p>               | <p><b>F</b> Actuation<br/>P - Pneumatic</p>                            |
| <p><b>B</b> Pressure Class<br/>8 - ASME/ANSI Class 1500</p> | <p><b>G</b> Nominal Pipe Size<br/>01 - 1 inch</p>                      |
| <p><b>C</b> Trim Code<br/>L1 - F22</p>                      | <p><b>H</b> Quality Material Index<br/>xxx - Manufacturer Supplied</p> |
| <p><b>D</b> End Connection<br/>SW - Socket Weld</p>         | <p><b>I</b> Nuclear Class<br/>N1 - Nuclear Class 1</p>                 |
| <p><b>E</b> Port Type<br/>ST - Standard</p>                 | <p><b>J</b> Unique Identifier<br/>xxx - Manufacturer Supplied</p>      |

# Zero Leakage Valve Solutions.

## PSG

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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:

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### 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

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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

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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

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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



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