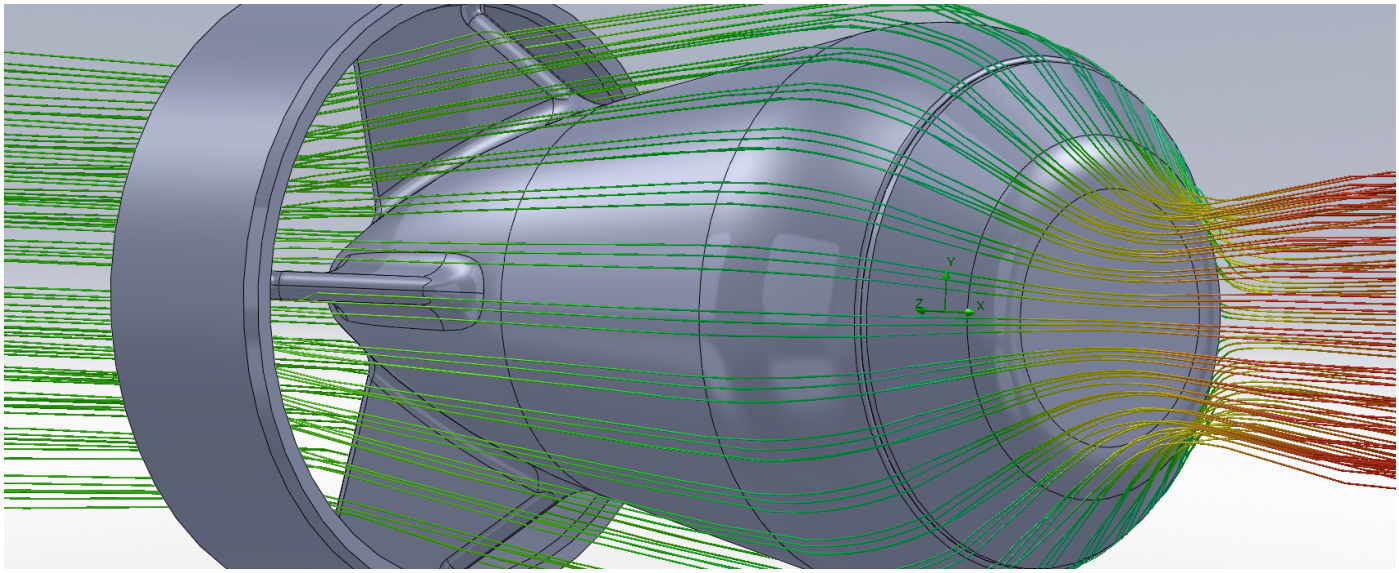
NozzleCheck Valves

Non-Slam In-Line Check Valves

CURTISS-WRIGHT

Nuclear Power Products and Services



A Proven Track Record

The NozzleCheck valve was first developed and patented in 1935 to mitigate system damage caused by water hammer utilizing a non-slam design. The first NozzleCheck valve was installed in a nuclear plant in 1972 to eliminate damaging transients caused by Main Feedwater Pump trips. Since that time, over 800 NozzleCheck Valves have been selected to replace conventional check valve designs in the most challenging nuclear plant applications.

NozzleCheck Valves

Non-Slam In-Line Check Valves

The NozzleCheck valve has been manufactured under Enertech's N-Stamp and Appendix B Program in support of the Nuclear Industry since 1992. Enertech provides ASME Section III Class 1, 2, and 3, safety-related and commercial axial flow check valves as a power, long-term solution to challenging issues such as:

- Accelerated wear of swing checks and dual plate check valves caused by disc oscillation at low flow
- Frequent maintenance required to replace degraded elastomer seats
- Water hammer as a result of pump trips
- Obsolescence of first-generation check valve designs
- Water hammer caused by gas recoil after pump start evolutions
- LLRT and seat leakage test failures due to slam-induced seat degradation and misalignment
- The need to function in horizontal, vertical-flow-up or vertical-flow-down applications
- Minimizing weight and face-to-face dimensions on

Model DRV-Z and ERV-Z

- High capacity valve for small bore applications
- Size: 3/4" to 10"
- ANSI Pressure Class: 150 -2500
- End Connections: socket weld, buttweld, flange
- Drop-in replacement for standard swing check valves
- Available in standard and short face-to-face dimensions

Model DRV-B and ERV-B

High capacity valve for small bore applications

- High flow for large bore applications
- Size: 10" to 72"
- ANSI Pressure Class: 150 -2500
- End Connections: flange, buttweld
- High Cv and excellent dynamic performance
- Ring-style disc for low friction cycling

Model KRV-B

- Short face-to-face for large bore applications
- Size: 12" to 72"
- ANSI Pressure Class: 150 -1500
- End Connections: flange, lug wafer, wafer, buttweld
- Drop-in replacement for obsolete large bore dual plate check valves

Model KRV

- Wafer style valve with short face-to-face dimensions
- Size: 1" to 10"
- ANSI Pressure Class: 150 -2500
- Short face-to-face makes it an excellent drop-in replacement for dual plate check valves
- Lightweight, economical, tight shut-off design

Special Designs Available:

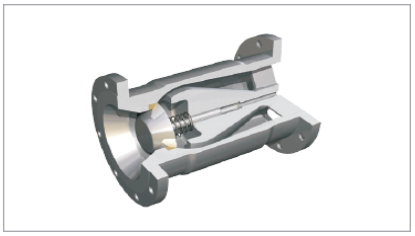
- Normally open NozzleCheck valves for Auxiliary Feed Pump Turbine Steam Supply to eliminate wear due to fluctuating steam generator pressures
- External position indication to support ISI/IST programs
- Soft-seat options for low pressure seat leakage requirements
- Vacuum Breakers for Service Water and HPCI/RCIC Turbine Exhaust

Support Services

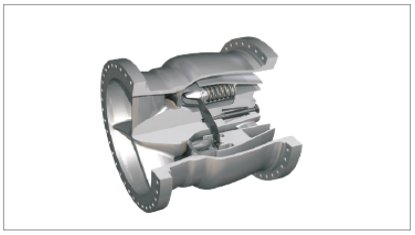
- Outage Services
- Field inspection, maintenance and repair
- Site-specific O&M training
- Enertech Applications Engineering
- Spare Parts
- Complete nuclear design and seismic reports and analysis

Typical Applications for Axial Flow Check Valves

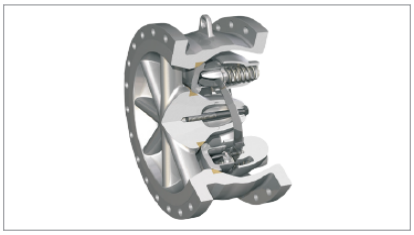
- Safety Injection
- Instrument Air
- Aux Feed Pump Discharge
- RCIC/HPCI
- Containment Isolation
- Main Feedwater Pump Discharge
- CCW Pump Discharge
- Extraction Steam
- Heater Drain Pump Discharge



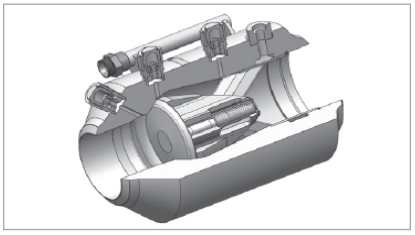
DRV-Z



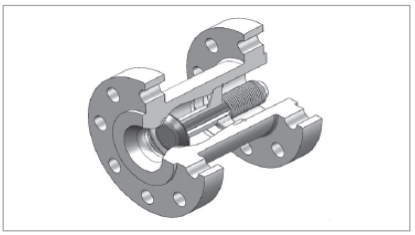
DRV-B



KRV-B



XRV AP1000



Normally Open

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