



CRITICAL NUCLEAR VALVE SOLUTIONS

TRUSTING THE COPES-VULCAN HERITAGE: 120
YEARS OF BEST-IN-CLASS PRODUCTS, WITH
OVER 45 YEARS OF ENGINEERING EXCELLENCE
IN NUCLEAR VALVES

 COPES-VULCAN®



Celeros Flow Technology are a full lifecycle optimisation partner and advisor to the world's critical flow systems. Through our renowned pumps, valves and pipeline access brands, we manufacture and market products, components, services and technologies that are integral to meeting today's challenges and tomorrow's needs. Celeros FT offer an engineering environment where innovation is fostered, and the real needs of industry are understood, transforming ideas into powerful solutions to help customers meet their goals, overcome business challenges and thrive in a complex, constantly changing marketplace.

**OVER 45
YEARS OF
EXCELLENCE
IN NUCLEAR
VALVES**

CRITICAL NUCLEAR VALVE SOLUTIONS

Copes-Vulcan, a Celeros FT brand, boasts over 45 years of expertise in engineering and manufacturing valves for the nuclear industry. The team take pride in the production of a wide range of valves, including globe, control, swing check, butterfly, ball, and sampling valves, to meet the specific needs of our nuclear customers. Over the years Copes-Vulcan has delivered technical solutions for a diverse array of nuclear applications, such as feedwater, steam dump, pressuriser spray, reactor coolant, sampling, service water, and safety injection valves.

Copes-Vulcan takes pride in its commitment to customer satisfaction by providing dedicated field

service technicians and technical support. With a long-standing track record of actively engaging in equipment refurbishments and upgrades of existing equipment to assist utilities in effectively reducing maintenance costs and facilitating power uprates. The Copes Vulcan's expertise extends to the production of high-quality valves tailored for various reactor types, such as boiling water reactors (BWR), heavy water reactors (CANDU), and pressurised water reactors (PWR). With a global reach, our valves are currently installed in numerous countries, including the United States, Canada, Mexico, South Korea, China, Japan, Switzerland, Brazil, and many more.

QUALITY COMMITMENT

Celeros FT is committed to quality throughout the company. Our Quality Management System is fully approved to ISO 9001:2015 and independently verified to comply with the latest quality standards. Our commitment extends to meeting the rigorous criteria of ASME 'N,' 'NA,' 'NPT,' and the 10CFR50 Appendix B Program in our quality programs. We also understand the challenges faced to acquire and maintain the high standards required to design and build nuclear coded valves, and the company has three coded facilities with a long history of excellence; Glasgow, UK, Anney, France and Houston, USA.

AFTERMARKET SUPPORT

Copes-Vulcan offers experienced field service technicians and qualified engineering support to customers, and has been actively providing refurbishments and upgrades of installed equipment, which has reduced nuclear power plant maintenance and operation costs while improving plant performance. In addition, Copes-Vulcan has expanded its product offering to include nuclear refurbishments and upgrades in response to quality concerns over non-OEM suppliers. Copes Vulcan continually strives to meet our customers' critical needs for improved cost savings as part of plant life extension, power up rate and other nuclear plant programs. Copes Vulcan can offer the following:

- Refurbishment of existing valve components and assemblies to extend the life of the OEM equipment.
- Upgrade and modernization of original equipment such as:
 - Quick disconnect kits for D100 actuators which eliminates the need for spinning the actuator on and off during maintenance.
- Replacing the threaded trim with a quick change trim.
- Configuration/material changes to resolve potential operational issues due to changes in operating temperatures, pressures and flow rates.

TYPICAL NUCLEAR PRODUCT APPLICATIONS

FEEDWATER (START-UP, MAIN)

ATMOSPHERIC DUMP

SAMPLING

HIGH PRESSURE SAFETY INJECTION

REACTOR COOLANT

SERVICE WATER (RHR)

3-WAY DIVERTING & CONVERTING

CLOSED COOLING WATER

HEATER DRAINS

GLOBE VALVES

With a legacy in valve manufacturing and a dedication to meeting the diverse needs of our customers, Copes Vulcan proudly offers a well-established and versatile range of globe valves. These valves are designed to meet a wide spectrum of applications, from standard to severe duty. Our globe valves come in various body configurations, including angle, three-way, and straight-through, which can be either cast or forged to suit your specific requirements. These valves are available in an array of materials, with options encompassing, but not limited to, carbon, stainless steel, and chrome moly steels. When it comes to control valves, Copes-Vulcan offers flexibility in actuation options, including pneumatic (diaphragm or piston), electric, or hydraulic, and may feature either digital or analog controls.

FEATURES

- 3/8 – 24 inch, Class 150 – 4500
- Quick change trim with linear, equal percent, modified parabolic or custom flow characteristics
- Large interior flow passageways in valve bodies allow for maximum pressure recovery
- Diaphragm maintains a constant effective area throughout the full stroke
- No other life limiting elastomeric seals or gaskets are used within the actuator
- Field adjustment of the main spring set-point is a standard feature
- Class IV, V, VI shutoff available

TRIM OPTIONS

Copes-Vulcan boasts one of the largest selections of control valve trims available in the nuclear market. This diverse range of trim configurations empowers us to tailor our valve designs precisely to our customers' unique needs and operating conditions. In doing so, we achieve optimal performance with designs ranging from general service port throttling trim to Raven™ – a stacked disc, velocity control trim.

FEATURES

- Designs ranging from general service port throttling trim to Raven™ – a stacked disc, velocity control trim
- Our trim selection can be fitted to all of our globe valves and steam conditioning valves

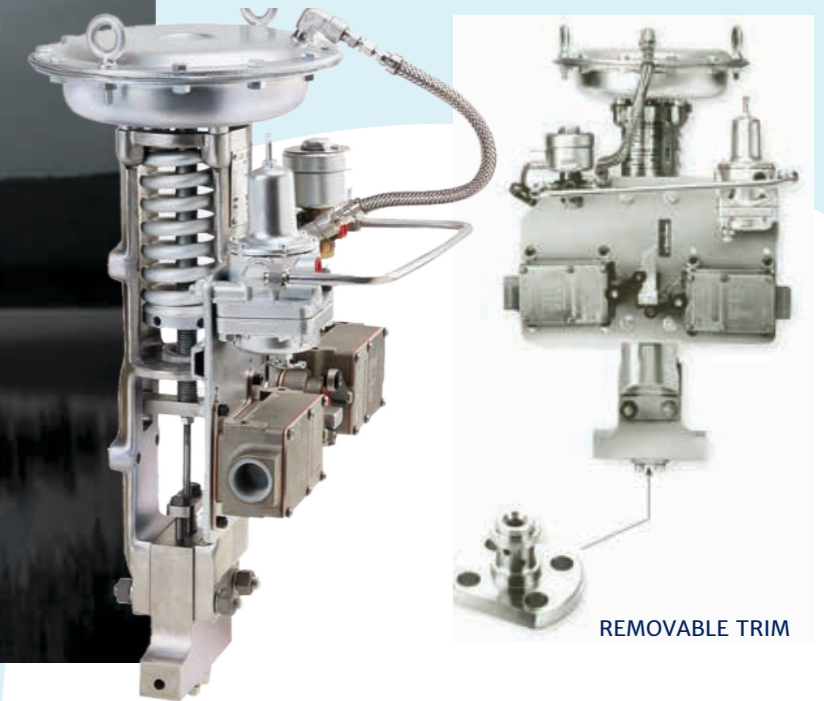


CONTAINMENT SAMPLING ISOLATION VALVE

The Copes-Vulcan globe valve products include a specialized valve for sampling applications, custom designed for the nuclear industry. The sampling valve features a robust stainless steel body, with a diaphragm operator. It provides FCI 70-2 Class V shutoff, with excellent performance in high differential pressure applications. One of the key benefits of the Copes-Vulcan sampling valve is the ability to replace the plug and the seat in the field without removing the actuator.

Such high-pressure water, steam and gas applications demand exceptional seat tightness. The Copes-Vulcan design incorporates a high-thrust actuator with thru-hardened trim components to ensure better than ANSI 70-2 Class V leakage at 2500 psid (17,225 kPa).

The valve was designed, built and tested in accordance with ASME Boiler and Pressure Vessel Code Section III for Classes 1, 2 or 3. ANSI B16.34



REMOVABLE TRIM

valves are also available. A maximum design pressure and temperature rating of 2500 psig (17,225 kPag) at 680°F (360°C) is standard.

Materials of construction were chosen for borate water service. These same materials are excellent choices for service water, steam and hydrogen media. Stainless steel is used for body, seat, plug/stem, actuator frame, frame-to-body mounting components and packing gland. The absence of hardfacing limits cobalt to minor residual elements. The use of inert and radiation-resistant materials reduces maintenance and the risk of failure. The only non-metallic component used on the valve assembly that could experience degradation from exposure to radiation is the diaphragm. Copes-Vulcan has qualified the EPDM diaphragm material to 20 years service at 2.0 x 10⁷ rads.

FEATURES

The Copes-Vulcan Model F100-40 valve can solve your leakage problems in critical applications by offering:

- Positive shutoff
- Reliable operation
- Radiation resistant materials
- Fast, easy maintenance
- No need for piping supports or restraints

NUCLEAR BALL VALVES

Specifically developed for nuclear applications in response to customer needs, the Copes-Vulcan Nuclear Ball Valve line has been meticulously crafted to meet the unique requirements of our clients. They needed a “nuclear” valve – not an upgraded commercial design. The ball valve line has evolved to include two and three piece designs, and can be customised to fit within existing face-to-face dimensions for replacements of existing equipment. The Copes-Vulcan ball valve is robust and requires minimal maintenance.

FEATURES

- 1 – 8 inch, Class 150/300
- Bi-directional Class V and Class VI shutoff available
- Pneumatic piston or manual operators
- Two and three piece designs available



CHECK VALVES

Copes-Vulcan has supplied check valves to the nuclear industry since the early 1970's. It is designed to provide positive shutoff even at low differential pressures.

FEATURES

- 3 – 18 inch, Class 150 – 1500+
- Bolted bonnet
- Available without cobalt
- Carbon, stainless and special materials



HIGH PERFORMANCE BUTTERFLY VALVES

The proven performance of the Copes-Vulcan High Performance Butterfly Valve is the result of over 35 years of experience with quarter turn designs. This has permitted Copes-Vulcan to develop a highly reliable valve with exceptional sealing capabilities requirements.

FEATURES

- 2 – 36 inch, Class 150 – 600
- Torque or position seated
- Offset disc minimizes seat-to-disc interference reducing torque requirements
- Independent flow testing to EPRI guidelines
- MOV sizing per EPRI NP-7501
- Bi-directional Class V and Class VI shutoff available

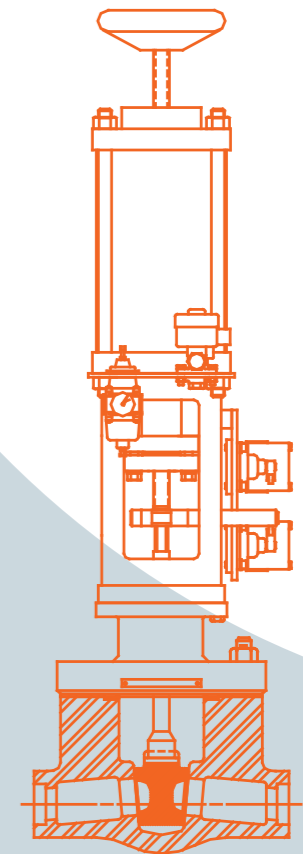


GATE VALVES

The Copes-Vulcan nuclear gate valve was originally supplied to the industry in the 1970's. The design has continued to be enhanced to ensure compliance with NRC Generic Letter 89-10 and the EPRI MOV Performance Prediction Methodology.

FEATURES

- 3 – 18 inch, Class 150 – 1500+
- Bolted bonnet and pressure seal configurations
- Addresses pressure locking and thermal binding
- Full port and Venturi port designs
- Compliant with EPRI PPM guidelines
- Flex wedge and parallel slide configurations





CRITICAL NUCLEAR VALVE SOLUTIONS

- | SPEED
- | EXCELLENCE
- | PARTNERSHIP

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