ENTECH Non-Slam, Nozzle Check Valve

Reliable backflow prevention for the oil, gas, water, process and nuclear industries
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ENTECH NON-SLAM, NOZZLE CHECK VALVE

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Cameron is a leading provider of valves, valve automation and measurement systems to the oil and gas industry. We offer products used primarily to control, direct and measure the flow of oil and gas as it is moved from individual wellheads through flowlines, gathering lines and transmission systems to refineries, petrochemical plants and industrial centers for processing.

Cameron provides a wide range of valves for use in natural gas, LNG, crude oil and refined products transmission lines. The traditional CAMERON® fully welded ball valve product line has been combined with the GROVE®, RING-O®, TOM WHEATLEY®, ENTECH™ and TK® product lines. This broad offering has strengthened Cameron’s ability to serve as a single source for a wide scope of customer requirements. Cameron also provides critical service valves for refinery, chemical and petrochemical processing businesses and for associated storage terminal applications, particularly through its ORBIT® and GENERAL VALVE® brands. These brands are complimented by WKM®, TBV™ and TEXSTEAM™ valve products and expand the scope of Cameron’s product offerings.

Cameron’s ENTECH brand is recognized for its use in pipelines, production and process applications. The valves are applied primarily in gas compression applications. Non-slam valves prevent reverse flow, and their short stroke length reduces closing time and eliminates water hammer. The pressure loss with a nozzle check valve is minimal and has one of the highest fluid dynamic performances.
FEATURES

Since 1935, ENTECH nozzle check valves have provided reliable backflow prevention for the oil, gas, water and process industries. Beginning in 1972, they also served the nuclear industry with nozzle check valves for containment and commercial process.

Cameron’s ENTECH nozzle check valve is designed to meet the criteria of conventional check valves by allowing forward flow under normal conditions, opening easily, firmly backseating at low velocity and closing on reverse flow with minimal seat leakage.

**Easy to stroke** – requires very low flow to fully open and guarantees the highest fluid dynamic performances

**Nozzle design** – streamlines the flow for very low pressure drops and operating costs with no turbulence and vibrations

**Tight shutoff** – accomplished by means of metal-to-metal conical seating for perfect self-alignment and minimal maintenance costs

**Extremely reliable** – the single spring-loaded disc responds quickly to flow variations

**Closes rapidly** – helps to prevent backflow to protect the pipe and critical equipment

**Highly customizable** – designed to fit almost any application and with internals that can be replaced to suit future flow conditions

The ENTECH nozzle check valve is aligned with other Cameron products, leading the field in pipeline and gas production, offshore, onshore, subsea, refining and industrial processing.

APPLICATIONS

- Compressor discharge
- Natural gas refineries
- Pump discharge
- Critical equipment discharge
- Compressor/pump bypass
- Storage facilities
- Offshore
- Nuclear power plants
DESIGN AND PRODUCT OFFERINGS: DRV-Z

The DRV-Z nozzle check valve is a small-bore valve designed for use in piping systems from 1” to 14” (25 mm to 350 mm) in diameter. This size range allows the use of a simple, streamlined, in-line check design, which is quick to respond to changes in velocity.

The DRV-Z Design Also Provides:
- Non-slam closure
- Metal seating
- Fast closing
- Mounting in any orientation
- Low pressure drop
- No scheduled maintenance
- Tight shutoff

Sizes and Ratings:
- Size 1” to 14”(25 mm to 350 mm)
- ANSI/ASME Classes 150 to 2500
- API 2000 to 10,000
- Face-to-face manufacturers standard
- ANSI/ASME flanges, weld-end or other flange-end configurations can be provided upon request
- Other sizes and pressure classes will be considered upon request
The DRV-BN nozzle check valve is a large-bore valve designed for compressor and pumping stations from 16" (400 mm) in diameter and larger.

In this size range, the ENTECH line incorporates the following:

- The use of an annular ring design reduces the weight of the disc, so avoiding any fatigue phenomena and significantly improve valve response time to pipeline flow changes.
- Centralized single-coil spring mechanism as the most consistent spring-force design, which is stable and responds rapidly to flow variation.
- A flowspacer that allows the valve to be fully customizable to specific service and installation conditions and easily re-configurable in case of potential changes of customer plant flow performances over the years.

The DRV-BN Design Also Provides:

- Non-slam closure
- Metal seating
- Fast closing
- Spring-loaded disc, which allows mounting in any orientation
- Low pressure drop
- No scheduled maintenance
- Tight shutoff

Sizes and Ratings:

- Size 16" (400 mm) and larger
- ANSI/ASME Classes 150 to 2500
- Face-to-face manufacturers standard
- ANSI/ASME flanges, weld-end or other flange-end configurations can be provided upon request
- Other sizes and pressure classes will be considered upon request
QUALITY ASSURANCE

Cameron operates a high-level quality control program to ensure all its products are designed and manufactured to the highest standards available using the latest technology. The quality assurance program encompasses our entire operation, from order entry to final inspection and delivery.

Cameron’s Lean Six Sigma manufacturing philosophy and the standard warranty, which covers the product for 12 months after installation or 18 months after shipment, whichever occurs first, assures that the design, materials and workmanship of all ENTECH products result in years of dependable operation.

Specifications and Compliance

DIMENSIONAL DATA AND WEIGHTS

DRV-Z FLANGED END VALVES

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<thead>
<tr>
<th>Valve Size</th>
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<th>300#</th>
<th>600#</th>
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<td>Weight kg</td>
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DRV-BN FLANGED END VALVES

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* Information provided upon request.

FLOW PERFORMANCE DATA

Cₜ VALUES (gal/min)

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<th>Size</th>
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<th>300</th>
<th>600</th>
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Pressure classes above ANSI 900 are available upon request.
MATERIALS OF CONSTRUCTION

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<th>Part</th>
<th>Description</th>
<th>Low-Temp. Carbon Steel/316SS Seats</th>
<th>Low-Temp. Carbon Steel/Inc625 Seats</th>
<th>Full Stainless Steel</th>
<th>Full Duplex</th>
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<td>A352 LCC/A350 LF2</td>
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<td>S31803/A182 F51</td>
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<td>S31803</td>
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DESIGN TEMPERATURES

Low-temperature carbon steel: -50° F to 572° F (-45° C to 300° C)
Stainless steel: -320° F to 572° F (-196° C to 300° C)
Duplex: -320° F to 572° F (-196° C to 300° C)

All materials comply with NACE MR0175/ISO 15156 sour service requirements.
Others materials are available upon request to meet specific service requirements.
Applications with temperatures below -50° F (-45° C) or exceeding 350° F (176° C) are subject to engineering approval.
INSTALLATION GUIDELINES

The nozzle check valve should be installed a minimum of five diameters, and preferably eight diameters, downstream of a flow impediment, i.e., valve, reducer or bend, etc., to ensure a good flow pattern at the entry to the nozzle check valve.

The nozzle check valve also should be installed at least three diameters upstream of a bend or reducer to avoid choked flow conditions, which can prevent the full opening of the check valve.

The nozzle check valve can be installed on the upstream side of isolating valves. If the isolating valve is throttling, clearance as shown should be allowed to ensure full pressure recovery after the nozzle check valve.

The nozzle check valve can be installed closer to the inlet of the isolating valve if it is full port and fully open.

All valve inquiries will require valve data sheets that provide minimum, normal and maximum operating conditions. Valves must be sized to fully open at minimum operating conditions. The minimum operating conditions refer to what the lowest consistent flow rate will be for an extended period of time. Start-up conditions are not to be considered as minimum operating conditions.
CAMSERV™ Aftermarket Services for Valves and Actuation

WE BUILD IT. WE BACK IT.

Global Network and Local Support
Cameron is well-positioned to deliver total aftermarket support, quickly and efficiently, with unmatched OEM expertise. Our highly skilled engineers and technicians are available around the clock, seven days a week, to respond to customer queries, troubleshoot problems and offer reliable solutions.

Easily Accessible Parts and Spare Valves
- OEM spare valves, actuators and parts (including non-Cameron brands)
- Handling, storage, packaging and delivery
- Dedicated stocking program

Comprehensive Aftermarket Services Portfolio
- Parts and spare valves
- Repair
- Field services
- Preventative maintenance
- Equipment testing and diagnostics
- Remanufacturing
- Asset preservation
- Customer property management
- Training and recertification services
- Warranty

Customized Total Valve Care™ (TVC) Programs
Customized asset management plans that optimize uptime, availability and dedicated services.
- Engineering consultancy
- Site management
- Flange management
- Startup and commissioning
- Spare parts and asset management
- Operational support
HSE Policy Statement
At Cameron, we are committed ethically, financially and personally to a working environment where no one gets hurt and nothing gets harmed.