



Durco[®] TX3 Triple Offset Butterfly Control Valve



Experience In Motion

Reliable zero-leakage shutoff

The Durco TX3 butterfly valve from Flowserve offers excellent shutoff capabilities with the low torque and reduced wear benefits of a triple offset design. The precision seat and seal are machined at an offset angle, creating even seat loading around the entire seat ring and eliminating rubbing between the seat and seal during opening and throttling. Combined with its laminated seal ring, the Durco TX3 valve's triple offset design provides long-lasting, bi-directional, bubble-tight shutoff, even in gas applications.

The Durco TX3 valve's high-performance design offers the following advantages:

- Higher reliability — API 598 zero-leakage shutoff assured by triple offset design and laminated metal graphite seat seal
- Extended service life — owing to low-operating torque resulting from the low-friction, low-wear elliptical sealing surfaces
- Minimized emissions — packing options meet stringent fugitive emissions (ISO 15848-1) requirements
- Improved safety — API 607 fire-safe design plus API 609 anti-blowout shaft



Key features and benefits

- Triple offset design eliminates wear associated with sealing surface contact and maintains sealing integrity during high-cycle operation
- Laminated graphite or metal-to-metal sealing provides robust performance in a wide range of harsh and difficult services
- Robust, anti-blowout shaft meets requirements of API 609
- Bi-directional, tight shutoff
- Low-operating torque for compact, cost-effective actuation
- Meets industry standards for design, fire safety and fugitive emissions operation

General specifications

Sizes	NPS 3 to 60
Pressure Class	ANSI Class 150, 300, 600, 900, 1500
Temperature Rating	-196°C to 820°C (-320°F to 1,500°F)
Body Style	Wafer, lug, double flange, top entry cryo
Body Material	Carbon steel, stainless steel, duplex stainless steel, Inconel® 625, Monel®, Hastelloy® C or Alloy 20
Seal Ring	Laminated metal-graphite or solid metal
Shutoff Rating	API 598, MSS SP-68 ISO 5208 (EN 12266): Rate A ANSI/FCI 70-2: Class IV, V, VI
Actuator	Limitorque® LPS, Automax RG-Series or Supernova
Industry Standards	ASME B16.34, ANSI FCI 70-2, API 609, API 607, API 598

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Wide-ranging applicability

The Durco TX3 valve is designed for applications in a wide range of industries.

- Oil and gas
 - Midstream
 - Liquid natural gas (LNG) processing and transfer
 - Hydrofluoric acid (HF) alkylation
- Power generation
 - Molten salt and thermal oil isolation and control
- Chemical
- General industries



Solving application challenges

API 598 zero leakage

Durco TX3 valves have been tested to the industry's most stringent seat leak test requirements, demonstrating the ability to shut off with zero leakage. Test standards include:

- API 598: Valve Inspection and Testing
- MSS SP-68: High Pressure Butterfly Valves with Offset Design
- ISO 5208 (EN 12266): Industrial valves – Pressure testing of metallic valves
- ANSI/FCI 70-2: Control Valve Seat Leakage

Industry certifications

Durco TX3 valves have obtained numerous industry and country-specific certifications so that the valve can be used around the world.

Industry certifications

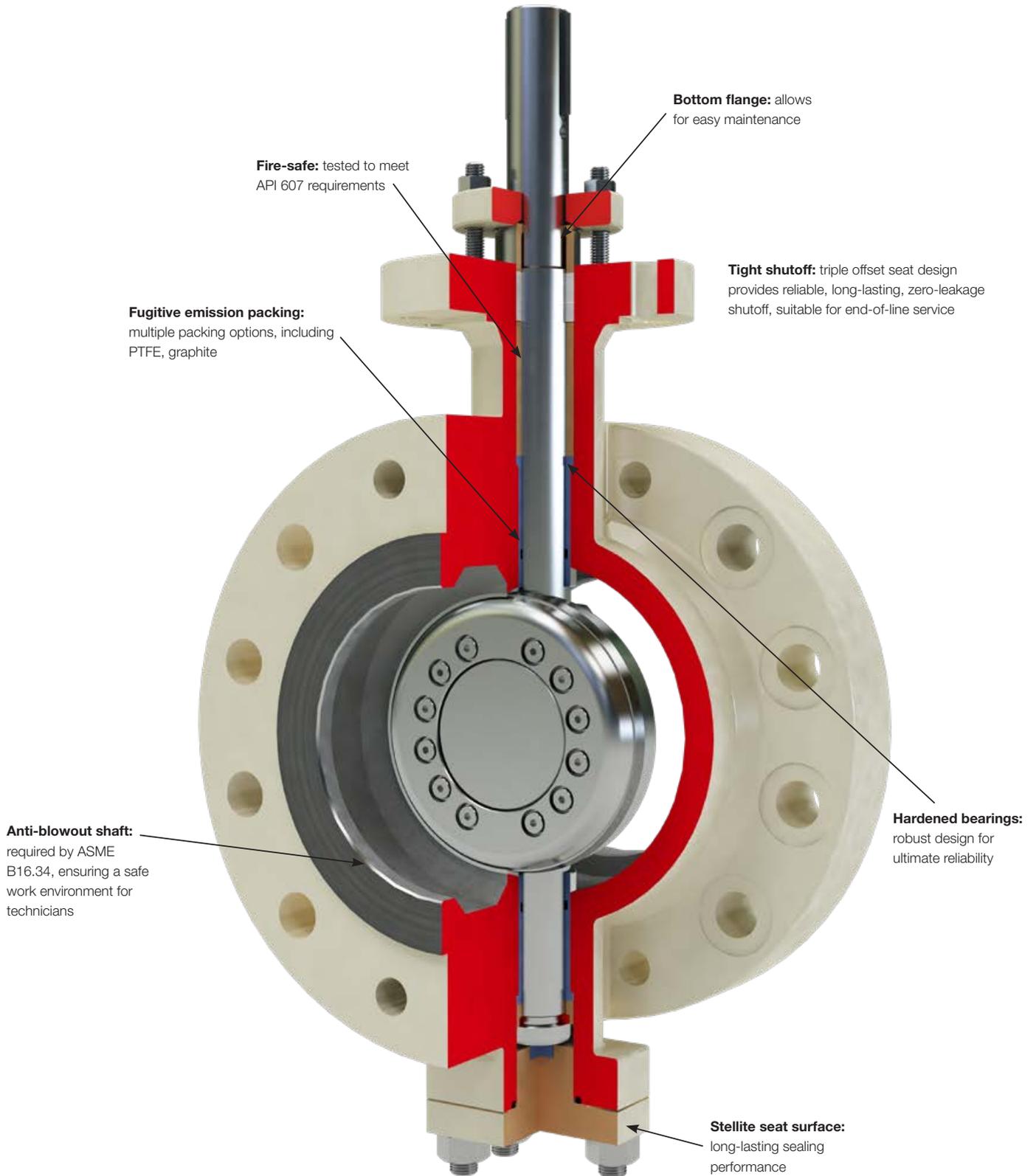
- API 609: Butterfly Valves: Double-Flanged, Lug-and-Wafer Type
- API 607: Fire Test for Quarter-Turn Valves
- ISO 15848-1: External leakage of valve stems
- IEC 61508 (SIL): Functional Safety of Safety-related Systems

Country certifications

- PED: European Pressure Equipment Directive
- TRCU: Russian Technical Regulation Conformity
- CRN: Canadian Registration Number



Engineered for demanding applications



Multi-point sealing technology

The Durco TX3 valve uses a laminated seal ring to ensure bubble-tight shutoff, even in gas applications. Composed of alternating layers of metal and graphite, the laminated seal ring provides a robust multi-point seal. Each individual layer seals independently and is unaffected by damage that may occur to the other layers.

This seal is fire-safe tested to API 607 and meets the following standards for no visible leakage:

- API 598 resilient seat
- ISO 5208 Rate A
- MSS SP-68

The metal plate of the laminated seal ring is available in the following options to suit application requirements:

- Duplex 31803 (standard)
- 316 SS
- Inconel
- Monel
- Hastelloy

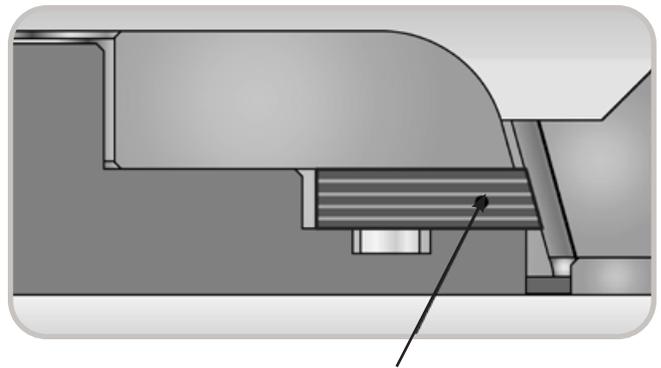
Available solid seal ring

For more severe applications, such as those at extreme temperatures, a solid metal seal ring is available. It is preferred for applications exceeding 427°C (800°F) or below -50°C (-58°F).

The solid seal ring meets multiple leakage rates:

- API 598 metal seat
- ISO 5208 Rate CC
- FCI 70-2 Class IV and Class V

Multiple material options are available.



Laminated seal ring

Variety of body styles

The Durco TX3 valve is available in several body styles, making it suitable for a wide range of applications and installations. The valve body can be configured with wafer, lug, or double flanged short or long (ASME B16.10) end connections. Additional options include buttweld, cryogenic or offset top entry.

The double flanged long body provides the flexibility of making inline upgrades — such as replacing an existing ball or gate valve with a smaller, lighter valve body — without requiring any piping changes.



Wafer



Lug



Double flanged

Integrated control valve solution

LPS Scotch yoke rotary actuator

The Limatorque LPS pneumatic Scotch yoke actuator is designed to meet the most recent and stringent safety and performance standards. Its heavy-duty design features robust construction in a compact dimensional footprint, guaranteeing high torque output with reduced air consumption over the lifespan of the actuator.

The range of LPS actuators is able to provide up to 550 kNm (405,659 ft-lb) of precisely controlled torque in double-acting and spring-return configurations, suitable to operate quarter-turn valves in a wide range of applications.



Supernova rack and pinion rotary actuator

The Automax Supernova rack and pinion rotary actuator is designed for reliability, versatility and safety. Rugged, yet compact construction combined with technical solutions make this product extremely reliable in the severest of operating conditions.



Logix™ 3800 digital positioner

The Logix 3800 digital positioner is the ideal choice for applications that require a balance between technological sophistication and long-lasting reliability in tough environments.

This high-precision positioner simplifies installation through easy configuration and calibration. It also facilitates improvements in process uptime, reliability and process throughput. Advanced diagnostics not only identify developing problems in the control valve, but also help guide corrective actions to ensure reduced return-to-operation times.

Tool and services to help you maximize productivity and profitability

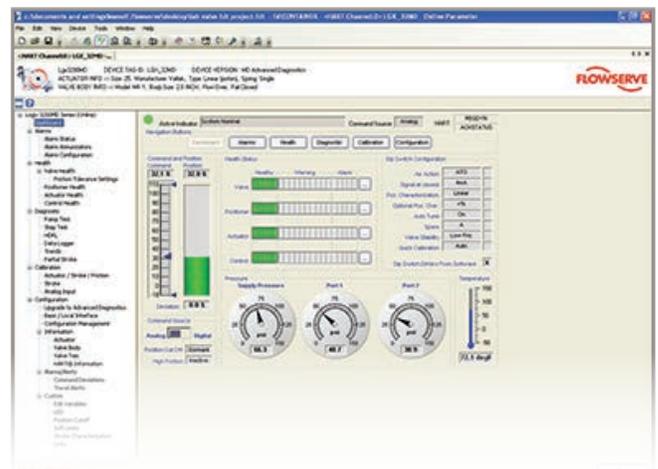


PNxt! Valve Sizing and Selection

PNxt! Valve Sizing and Selection is the right tool for the right product — first time, every time. This comprehensive set of next-generation engineering tools allows you to size and select Flowserve control valve products best-suited to your application and service conditions. In just seconds, you get the answers you need to ensure you make the right choice.

ValveSight™ diagnostic software — prevention delivered

ValveSight is a diagnostic solution for control valves that can be seamlessly integrated into a host control and/or plant asset management system. The power of ValveSight is the intelligent diagnostic engine — which detects an emerging condition in the valve, actuator, positioner and control signal — that may indicate a performance, safety or environmental problem. ValveSight advises which corrective actions to take to prevent a failure.



Everywhere you are

Flowserve manufacturing sites and Quick Response Centers are located all around the world so customers have on-the-spot availability for technical support and experienced field service technicians. Wherever your operations are, Flowserve is there to help your operations be successful.



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