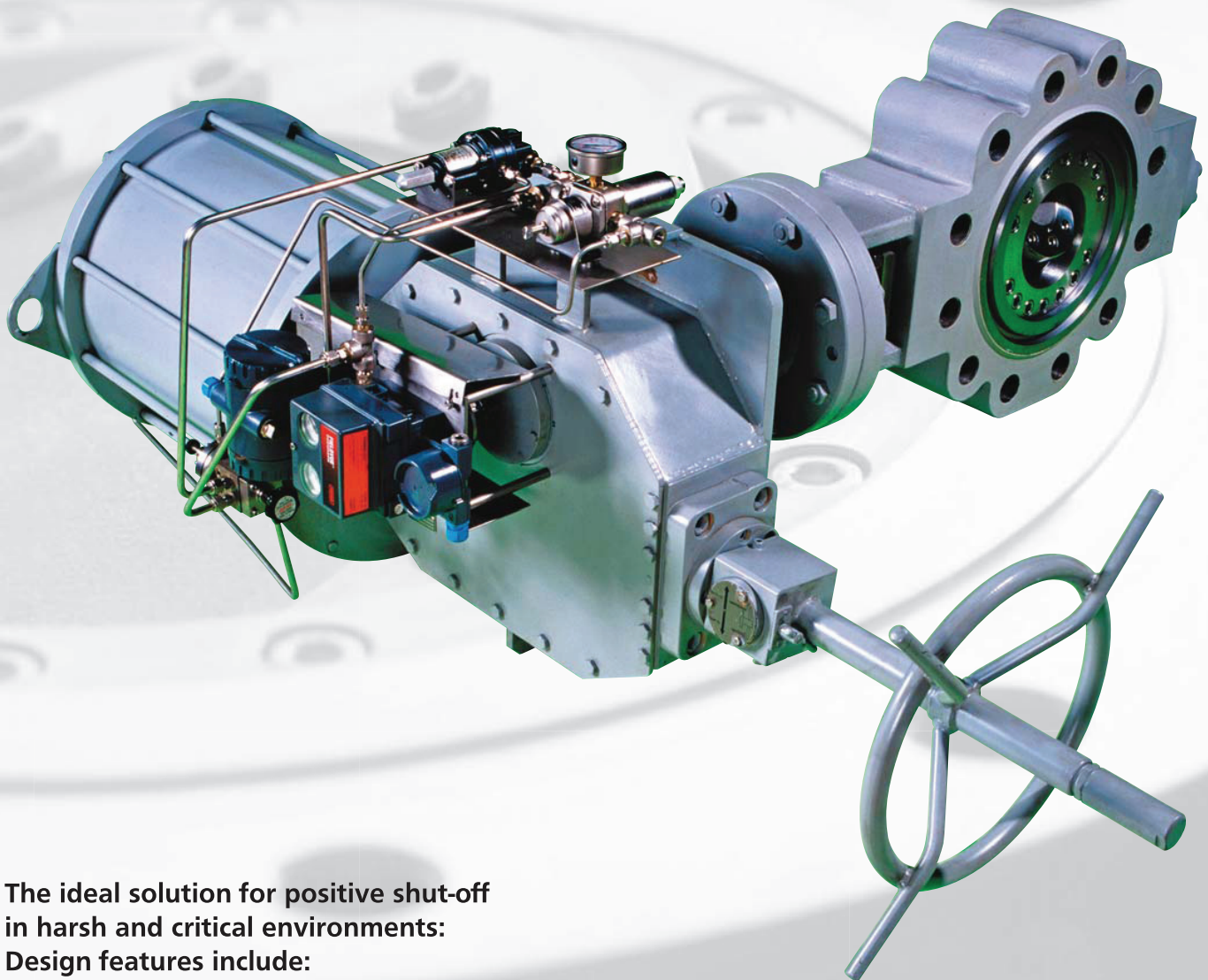


## Triple Offset Butterfly Valves

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# TT1



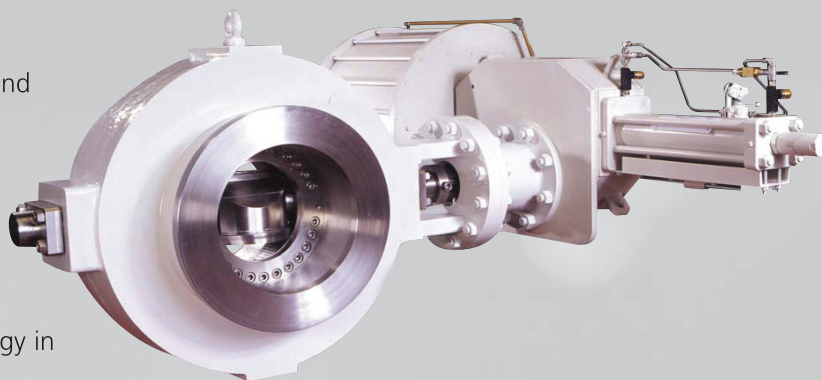
**The ideal solution for positive shut-off  
in harsh and critical environments:  
Design features include:**

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- Frictionless sealing, field replaceable seat and seal, zero leakage and low torque
- Fire tested to API 6FA / API 607 / ISO 10497
- Available fully rated in 150# / 300# / 600# / 900# & 1500#
- Also available in 2500# with 1500# internals
- Available in a wide range of materials
- Customised designs available

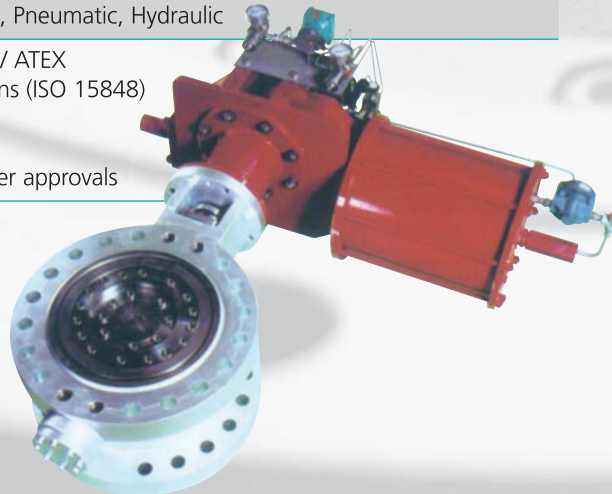
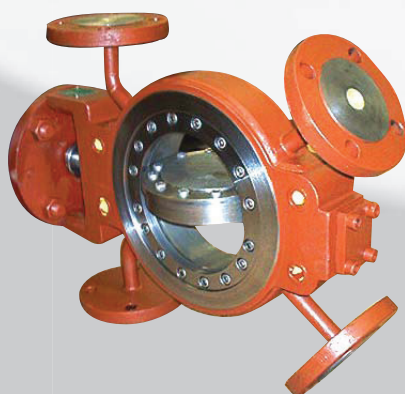
Internationally recognised for product innovation and quality, TRITEC triple offset valves are the ideal solution for positive shut-off or control applications in harsh and critical environments.

Designed for absolute reliability, ease of maintenance and low cost of ownership, the ranges of standard or custom-made valves incorporate the latest valve and materials technology in triple offset design.



## Standard Specifications

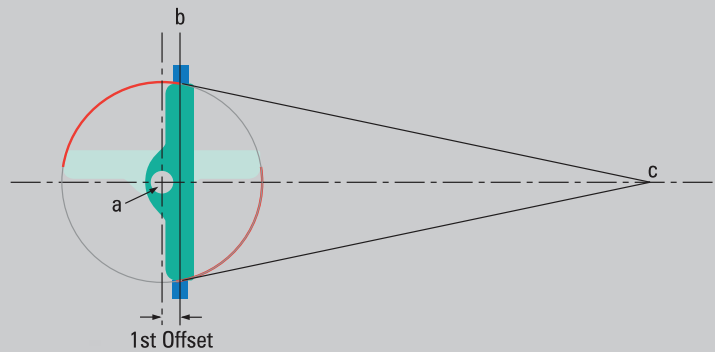
Design	API 609, ANSI B16.34, ASME SEC VIII
Valve sizes	2" (DN 50) to 60" (DN 1500) For larger sizes please contact the sales office
Pressure Classes	ANSI 150 to 1500lb, PN 6 to PN 250. Higher rating flanges available with de-rated internals (max. internals rating CL 1500)
Body Styles	Lugged / Wafer (Flangeless) / Double Flanged / Butt Weld End / Hub End
Flange Accommodation	ANSI B16.5 ANSI B16.47 Series A & B API, AWWA JIS / JPI / Norsok L-005 / Hub end
Face to Face Dimensions	Meet all industry standards API / ANSI / ISO Non-standard face to face available (to customer specification)
Temperature Ratings	Standard: -29°C (-20°F) to +538°C (+1000°F) With selection of suitable materials: -50°C (-148°F) to +800°C (+1292°F)
Valve Testing	Shell Test, Seat Test Fugitive Emission High / Low Pressure Gas
Firesafe	Certified Firesafe to API 607 / API 6FA / ISO 10497
Marking	API 609 / MSS SP-25 / Customer specific
Operators	Manual, Electric, Pneumatic, Hydraulic
Approvals	ISO 9001 / PED / ATEX Fugitive Emissions (ISO 15848) Lloyds Shipside GOST-R / CRN Multiple end user approvals



## Tracing the evolution of Triple Offset design

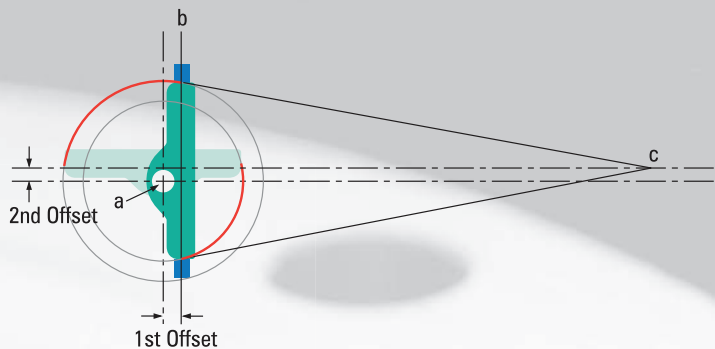
### Single Offset

The centre of rotation is moved back from the centreline of the valve disc. The seat and seal are designed conically and on centre. This design relies on a frictional, interference seal and so is applicable only to soft seated valves.



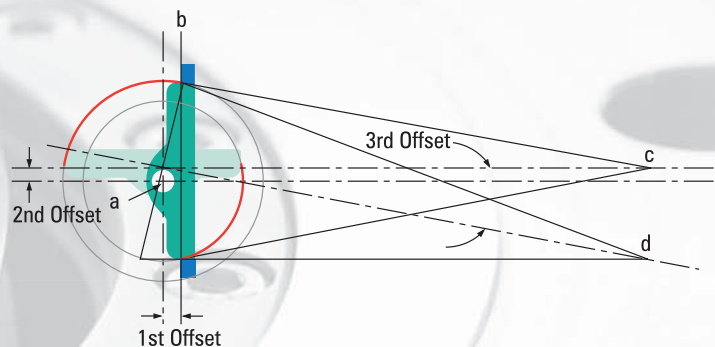
### Double Offset

The centre of rotation is moved from the centreline of the valve body. The seat and seal design remains conical and on centre. This design again relies on a frictional, interference seal, but the length of rotation over which this friction occurs is reduced, allowing a larger range of process resistant seat materials to be used. However these materials must be relatively soft or highly elastic to prevent "jamming".



### Triple Offset

The centreline of the cone is rotated away from the valve centreline resulting in an ellipsoidal profile and providing the third offset. With this geometry, seat seal interference is completely eliminated ensuring long sealing life. The result is a torque seated, process pressure aided FRICTIONLESS seal. The geometry allows the body seat to be used as the closed limit stop, aiding operator adjustment. The Triple Offset design is ideally suited to metal seated valves providing bubble-tight performance on high temperature, high pressure and firesafe applications.

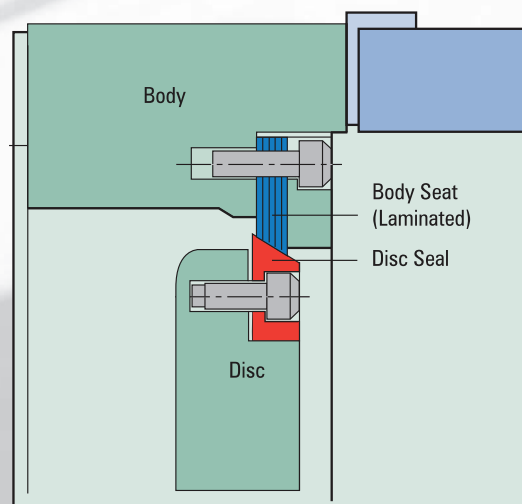


## Features of the Tritec Valve

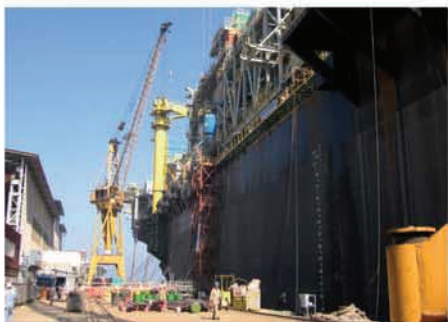
Triple offset geometry results in:

- Bi-directional zero leakage
- Firesafe
- Zero seat/seal friction
- Low torques
- Continued sealing through thermal cycling
- Excellent flow and throttling characteristics
- Excellent control of fugitive emissions by virtue of rotary stem movement and advanced packing materials
- Client specific testing available on request
- Firesafe to API 6FA / API Std 607 / ISO 10497
- Available fully rated to Class 1500lb
- Fully rated for end of line duty
- Wide range of materials available
- Laminated seat is mounted in the body, removing it from the erosive effects of the flowing media
- Disc seal can be hard-faced to provide extended service life on erosive duties
- Both seat and seal are field replaceable without special tools
- ISO mounting flange allows easy fitting and changing of operators

- Cavitation and noise reduction baffle plates are available to compliment the Tritec valve under high pressure drop and/or high noise process conditions







TOMOE valves can be found in operation in a vast range of industries worldwide, both onshore and offshore, providing unsurpassed levels of leak tightness and wear resistance and making a valuable contribution to overall process efficiency.

- Water Treatment

- Chemical Processing

- Food & Drink

- Sugar Processing

- Oil & Gas

- Offshore

- Petrochemical

- HVAC

- Power Generation

- LNG

- Iron & Steel

- Marine

- Cement

- Powder Handling

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