



# GROVE IST

Integrated seat technology ball valve

# Overview

Critical applications require reliable, high-performing equipment to meet customer needs. Longer life span and a small, lightweight footprint are just as important to maintaining high efficiency and lowering total cost of ownership.

GROVE IST\* integrated seat technology ball valve meets and exceeds these requirements by offering an evolution of trunnion-mounted ball valve technology. Its patented seat design offers superior sealing performance in a smaller footprint compared with conventional technology.



## Applications

Critical isolation, shutdown, and blowdown service in high-pressure offshore and onshore production facilities

## Benefits

- Superior sealing performance through patented metal-to-metal sealing
- Space-saving and lightweight design
- Lower torque profile that enables more efficient actuation

## Features

- Patented valve design that overcomes ball flexing and deformation
- Patented flow-diversion spoiler to protect primary sealing elements
- Enhanced sealing capability compared with conventional metal-seated ball valves
- Optimized design using finite-element analysis (FEA) and computational fluid dynamics (CFD)
- Pressure-balanced design for quick closing
- Top-entry body configuration for simplified inline maintenance
- Rigorous testing beyond industry requirements

# Innovative Design Philosophy

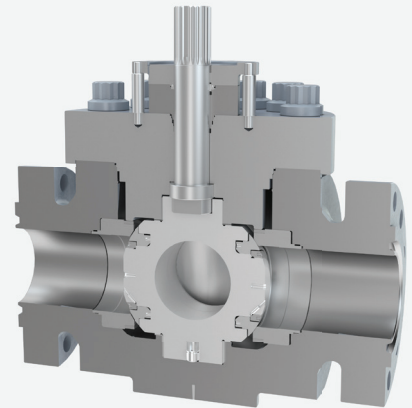
Conventional trunnion-mounted ball valves present challenges with regard to high pressure and abrasive flow service conditions. Deformations and sealing degradation under full differential pressure can reduce the sealing capability and increase the torque profile of valves, causing undesired leakage and increasing actuation requirements. These limiting factors require the design to have increased stiffness, weight, and size to meet sealing requirements and can ultimately reduce service life and increase total cost of ownership.

## **Dependable sealing in critical applications**

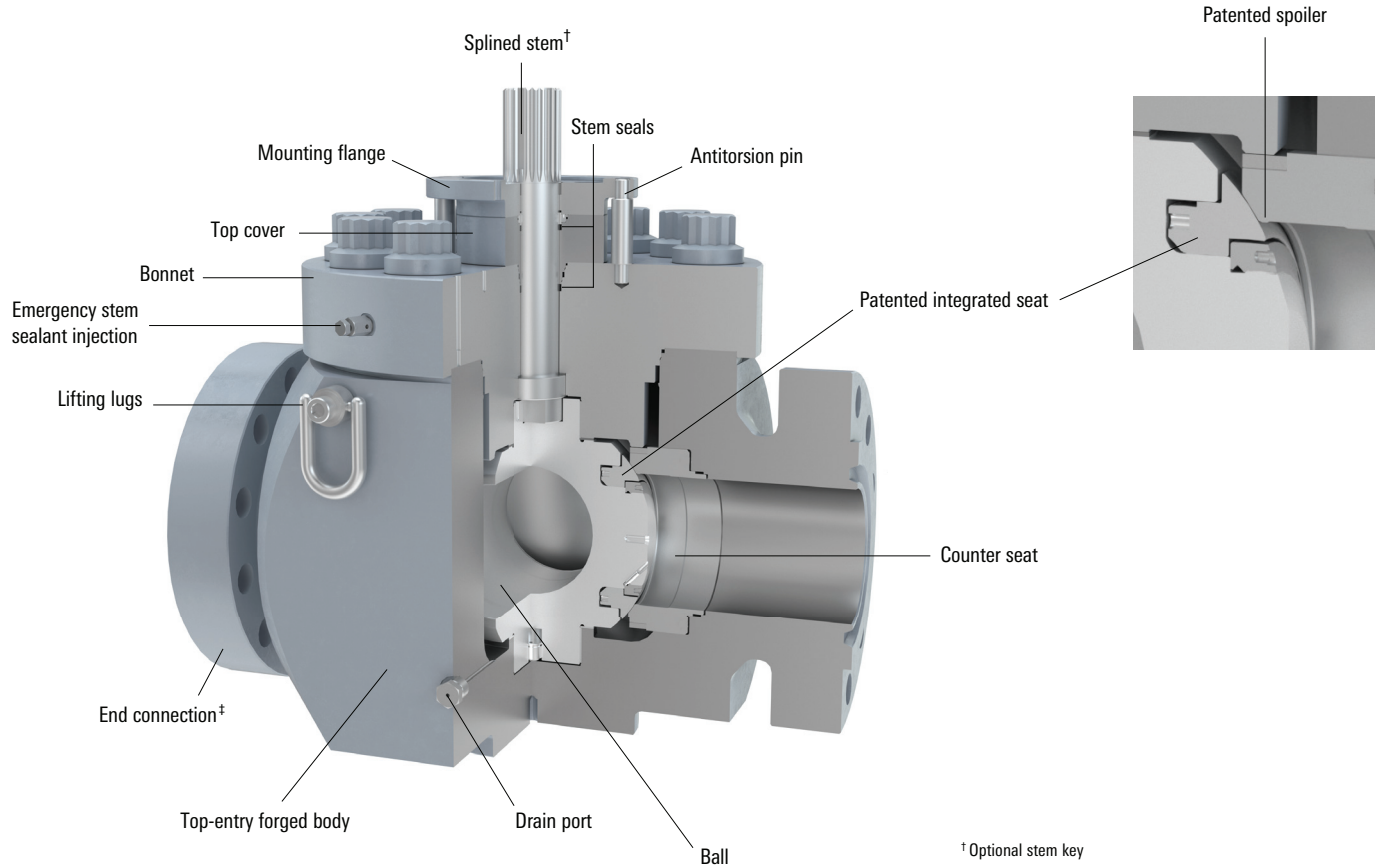
The GROVE IST ball valve takes a different approach on metal-to-metal seated ball valves using the integrated seat technology that decouples ball flex and deformation from sealing performance. When pressure is applied to the valve, its integrated seat is energized, generating a reliable seal independent of ball deflection.

While the valve is open, the patented spoiler in the counter seat diverts fluid and debris away from critical sealing areas, further increasing reliability.

The GROVE IST ball valve also features a top-entry design for streamlined, simplified inline maintenance that reduces overall downtime.



# Construction



<sup>†</sup> Optional stem key

<sup>‡</sup> Available in ring-type joint, weld-end, hub-end, or compact flange

# Technical Features

## Design standards

- API Specs. 6A and 6D
- American Society of Mechanical Engineers (ASME) Standard B16.34
- ASME Section VIII Div. I & II
- NACE MR0175/ISO 15156

## Design parameters

- Material configurations: carbon steel, low-alloy steel, and corrosion-resistant alloy
- Design temperature limits: -50 to 400 degF [-46 to 204 degC]
- Primary seal type: metal-to-metal
- Secondary seat seals: elastomer or thermoplastic options available
- Stem seals: elastomer or thermoplastic options available

## Certification and testing

The valve was rigorously tested to internationally recognized standards for performance, sand slurry, and fire testing.

ASME Classes		
Size, in	1500	2500
4	●	●
6	●	●
8	●	●
10	●	●
12	●	●

API Classes		
Size, in	5K	10K
3 $\frac{1}{8}$	●	●
4 $\frac{1}{16}$	●	●
5 $\frac{1}{8}$	●	●
6 $\frac{3}{8}$	●	●
7 $\frac{1}{16}$	●	●
9	●	—

Authority	Specification or Standard	Qualification
API	6A PR2	Performance testing
	6AV1	Sand slurry testing
	607/6FA	Fire testing

# Actuation Accessories

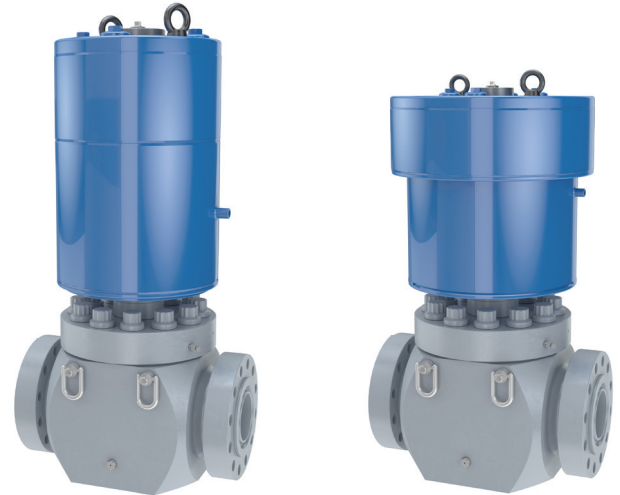
A variety of automation options are available, from gear operators to pneumatic, hydraulic, or electric actuators. Coupling the GROVE IST ball valve with our compact LEDEEN\* actuator offering offers further opportunity to reduce space and weight.

Compact LEDEEN HS and CP actuators — some of the smallest actuators available on the market — save valuable space on a production platform or FPSO vessel when installing automated valve packages within the piping system.

Two different torque mechanisms are used, enabling the most appropriate mechanism to be used for maximum efficiency.

- For high-pressure hydraulic applications, a small helical spline mechanism is used with a small piston diameter to generate high torque outputs.
- For low-pressure pneumatic applications, the larger helical slot mechanism is combined with a larger piston diameter to generate an equivalent torque output.

The compact LEDEEN actuator combined with the GROVE IST ball valve provides a compact and lightweight package that is ideal for critical service applications.



*GROVE IST ball valve with HS (left) and CP (right) compact actuators.*

# Services for Valves and Actuation

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

## **Easily accessible parts and spare valves**

- OEM spare valves, actuators, and parts
- Handling, storage, packaging, and delivery
- Dedicated stocking program

## **Customized total valve care programs**

- Engineering consultancy
- Site management
- Flange management
- Startup and commissioning
- Spare parts and asset management
- Operational support

## **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

# GROVE IST



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