

GROVE IST

Integrated seat technology ball valve

APPLICATIONS

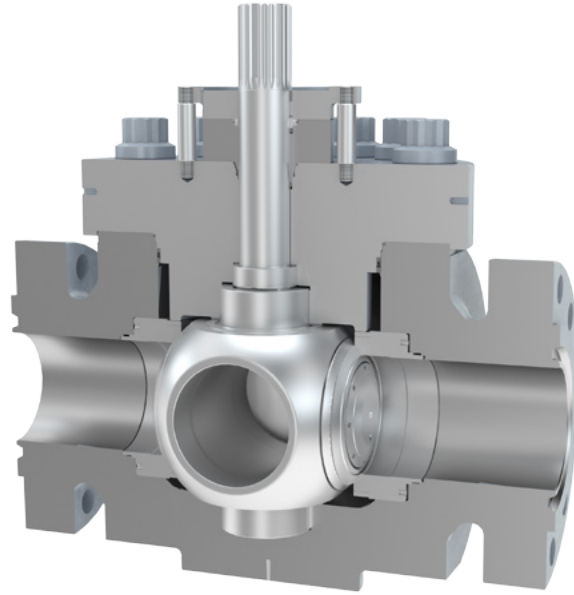
Critical isolation, shutdown, and blowdown service in high-pressure onshore and offshore production facilities

BENEFITS

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

FEATURES

- Optimized valve and compact actuator assembly that overcomes ball flexing and deformation up to 10,000 psi [68.9 MPa]
- 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 with simplified inline maintenance
- Rigorously tested beyond industry requirements



Designed using FEA and CFD, the GROVE IST integrated seat technology ball valve provides enhanced sealing in a compact design.

Operators are driving technical specifications to demand stricter leakage rates for critical service valves. Simultaneously, there is also a need to reduce weight, space, and cost of existing facilities. Manufacturers have responded by pushing the limits of conventional trunnion mounted ball valve technology to achieve the desired results.

With the introduction of the GROVE IST* integrated seat technology ball valve, operators no longer need to use larger and heavier valves to achieve the sealing performance they need. Using patented integrated seat technology, which overcomes ball flexing and deformation at high pressure, the GROVE IST ball valve provides superior sealing performance up to 10,000 psi in a reduced footprint that reduces total cost of ownership.

Reduced costs through lower break-to-open torques

Lower break-to-open torque enables the use of smaller actuation for automated valves. Because of its innovative sealing concept and component geometry, the GROVE IST ball valve requires up to 30% less torque compared with a conventional metal-seated trunnion ball valve. Lower torques also equate to less wear on moving components.

GROVE IST

Consistent superior sealing performance

Industry standards require conventional metal-seated ball valves to achieve ISO 5208 Rate D in liquid or gas performance testing. In contrast, the GROVE IST ball valve consistently achieves ISO 5208 Rate B leakage performance and can be pushed to ISO 5208 Rate A with no visible leakage. This equates to a hundredfold or greater improvement compared with traditional ball valves.

GROVE IST ball valves also include a patented flow-diversion spoiler that protects the primary sealing elements from flow. This leads to reduced erosion of sealing elements and longer field life.

Weight savings from integrated sealing elements

The GROVE IST ball valve weighs up to 40% less compared with conventional valves because its sealing elements are integrated in the ball valve design, delivering a smaller and lighter package (depending on valve size and pressure class). For example, GROVE IST ball valve offers 30% weight savings when compared with a traditional side-entry 7 $\frac{1}{16}$ -in API 10,000-psi ball valve.

Simple and reduced maintenance

Conventional top-entry valves require special tools to retract the seats and enable the ball to be removed, complicating in situ repair. These tools are often not available, delaying repairs. With GROVE IST ball valves, routine maintenance and replacement of internals are simple and streamlined. Only when installed in vertical piping is a special tool required to support the ball for removal.

ASME Classes

Size, in	Bore Size, mm	1500	2500
4	79.4	●	●
6	124	●	●
8	179.4	●	●
10	215.9	●	●
12	257.2	●	●

API Classes

Size, in	Bore Size, mm	5K	10K
3 $\frac{1}{2}$	79.4	●	●
4 $\frac{1}{16}$	103.2	●	●
5 $\frac{1}{8}$	130.2	●	●
6 $\frac{3}{8}$	161.9	●	●
7 $\frac{1}{16}$	179.4	●	●
9	228.6	●	–

Design standards

- API 6D
- API 6A
- ASME B16.34
- ASME VIII
- NACE MR0175/ISO 15156

Certifications

- API 6A PR2
- API 6AV1 (sand slurry)
- API 607 6th Ed. (fire test)
- SIL 3 capability
- PED 2014/68/EU

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

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