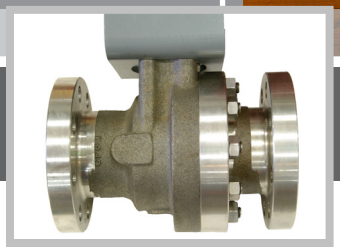
VALVTECHNOLOGIES®



Engineered Products for the Process Industries

Critical Service Solutions

Applications.

ValvTechnologies' valves are built to withstand the most severe applications. High-temperature, high-pressure, high-cycling, abrasive, corrosive and caustic media have all been considered in the design of our product line.

Refining

Delayed coking

- Drum isolation
- Heater isolation
- Cutting water isolation

Reforming

- Catalyst handling (lockhopper service)
- Hydrogen isolation

Hydrocracking (fixed and ebulating bed)

- Catalyst handling
- Pump isolation
- Filter isolation
- Hydrogen isolation
- "Chopper" valves
- Reactor vent and "blow-off" valves

FCCU

- Catalyst withdrawal
- Slurry loop isolation
- Fractionator bottom emergency isolation

Upgrading

- Heavy oil (coking service)
- Solids slurry
- Rhinoite® lined valves for erosive service

Petrochemical and chemical processing

Polyethylene and polypropylene

- Reactor withdrawal and isolation valves
- Gas isolation (zero-leakage)
- Pump isolation

Ethylene production

- Furnace isolation and de-coke valves
- Start-up vents (zero-leakage)
- High-temperature instrument isolation and sampling valves

Polysilicone

- Reactor isolation
- Solids handling
- Gas isolation (zero-leakage)
- Chlorosilane service

Specialty chemicals

- Hydrogen and gas isolation (zero-leakage, bi-directional)
- Corrosive service (special alloys)
- High-temperature isolation
- High-speed, high-cycle services

Coal and petcoke gasification

Slurry handling

- Powder and slurry feed
- Reactor "dump" valves
- Lockhopper services
- Black water and ash water isolation

Gas isolation

- High-temperature syngas isolation
- Hydrogen isolation
- Oxygen isolation
- SIL rated ESD packages
- High-speed, high-cycle pulse valves

Steam applications

Steam generators

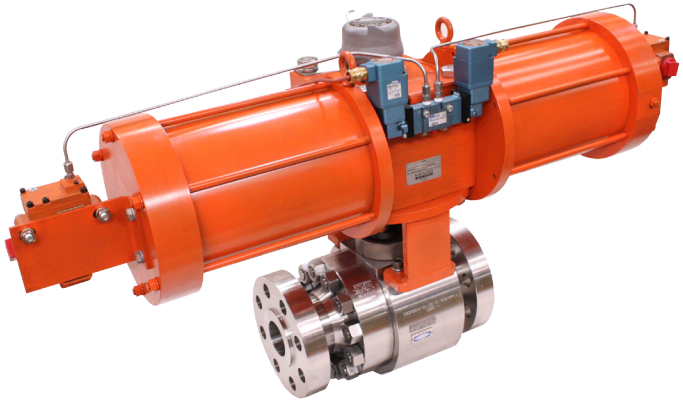
- Zero-leakage steam isolation
- High-pressure heater water side drain to condenser isolation
- Auxiliary steam isolation
- Turbine extraction isolation

Combined cycle HRSG

- Intermediate and reheat pressure ERV
- Intermediate and reheat pressure drains and drain header isolation
- Plant natural gas isolation
- Dew point fuel gas heaters
- Performance fuel gas heaters

Low Emission, Metal Seated Ball Valves.

The next generation in emission reduction technology™



PulseJet with EcoPack® Fugitive Emissions Packing

ValvTechnologies' is leading the charge in the reduction of fugitive emissions with the development of the pulsejet valve with EcoPack®: a fast-acting, high-cycle fugitive emissions valve designed to send a pulse of gas through a pipeline system. A trunnion-mounted ball valve, capable of 90° or 180° rotation in speeds as low as 0.5 seconds or faster, this fast actuation speed is what creates the gas "pulse" through the pipeline system. Pulsejet systems can be used to clean system filters, spray chemicals in an injection type system, or pulse debris/media through a pipeline to prevent clogging.

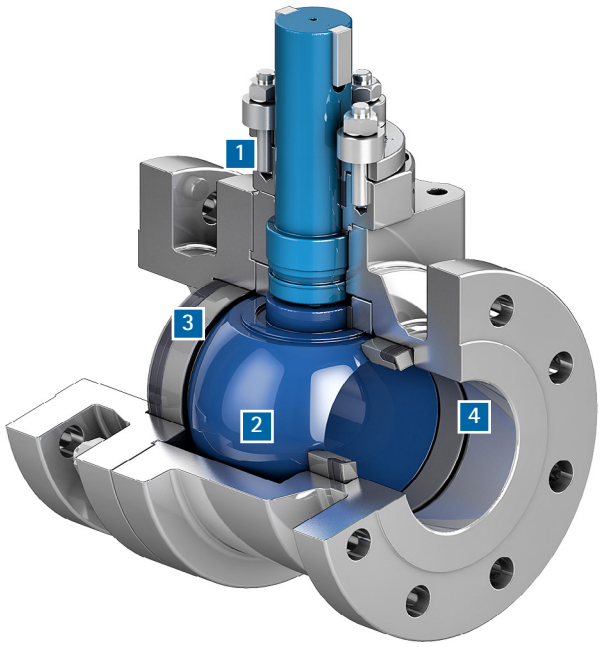
These systems cycle many thousands of times per day. Conventional packing systems cannot handle the abuse of the fast cycle speed, combined with the high cycle count. ValvTechnologies' EcoPack® solution was designed to address this challenge. The EcoPack® seal has been lab-tested at high pressure and line temperature to 450°F for over 500,000 cycles, requiring zero adjustments or maintenance. This equals longer plant operation between maintenance intervals, improved site safety and less emissions from the stem packing.

PulseJet Key Performance Features and Benefits

Features	Benefits
Guaranteed tight shut-off	Enhanced process safety and repeatable sealing allows operation under process excursions
True metal-to-metal sealing without using secondary elastomeric seals	Inherent fire safety
Two piece, split-body design	Increased safety and ease of maintenance
HVOF RiTech® coating technology	Extended life even in the most severe conditions, reduced maintenance costs, process reliability, enhanced process safety
Grafoil® seals	Reduced maintenance costs
Double block-and-bleed capability	Enhanced process safety
High-cycling capability	Process reliability
Bi-directional sealing by design	Enhanced process safety, lower maintenance, less downtime
Single-piece anti blow-out stem design	Enhanced process safety
Impervious to high thermal cycling	Enhanced process safety
Live-load stem packing (four-bolt design)	Lower emissions
Stem fugitive emissions per ISO 15848-1 Class B	Lower emissions and enhanced process safety
Fire safe certification: API-607	Enhanced process safety

NexTech®Trunnion Metal Seated Ball Valves.

The next generation in trunnion technology™



The NexTech® trunnion design provides a severe service solution for tough, high-cycling applications.

1 Live-loaded gland area.

The NexTech® gland packing design features a four stud, live-loaded assembly designed for heavy industrial applications. The packing material is high purity Grafoil® surrounded by carbon fiber / inconel anti-extrusion rings. The six Belleville springs (per stud) provide constant load pressure through extreme thermal shocks and prevent wear leaks in high-cycle service.

2 Carbide sealing surfaces.

The sealing surfaces are overlaid with tungsten or chromium carbide using our exclusive HVOF RiTech® coating process. These surfaces have a hardness of 68 - 72 Rc to allow long periods of operation in the most severe conditions.

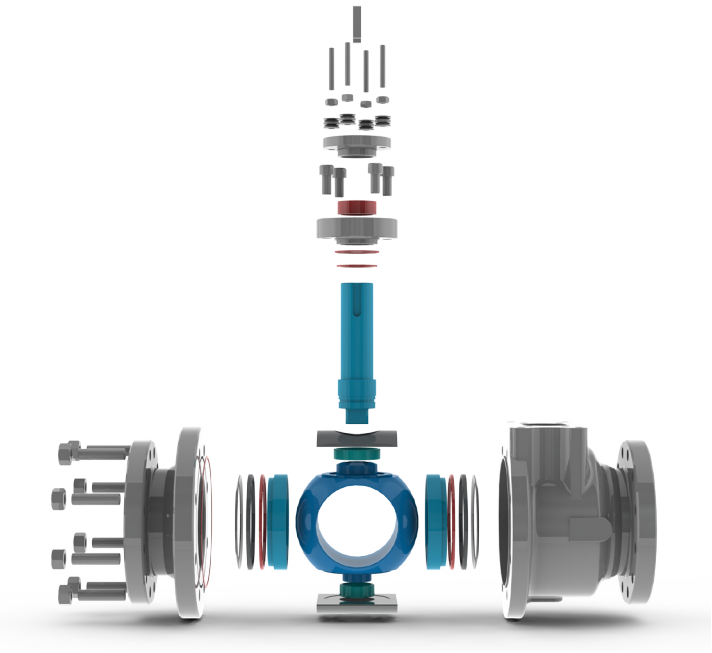
3 High-integrity seat surfaces.

To prevent leaks around the seats, ValvTechnologies has developed an innovative double seal design for high-temperature operation and/or high-cycling applications. In low temperature, high-cycling service, a secondary elastomer seal is installed on the seat perimeter.

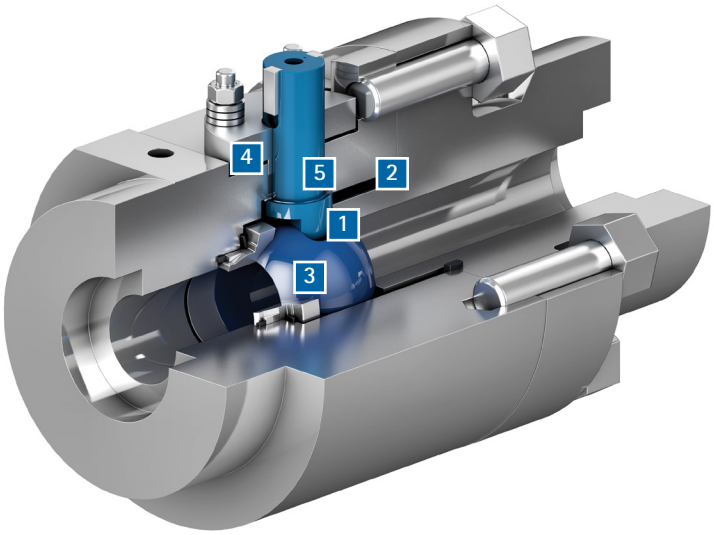
4 Solids resistance.

In addition to the carbide coatings which will allow the valve to function in highly abrasive applications, the individual valve parts have additional seals to prevent interference from solids in the system. This provides for outstanding performance in catalyst systems, streams with solids contamination and polymers.

NexTech® Series Key Performance Features and Benefits	
Features	**Benefits**
Guaranteed tight shut-off	Enhanced process safety, repeatable sealing
True metal-to-metal sealing without using secondary elastomeric seals	Inherent fire safety
Solid-proofed by design	Process reliability
HVOF RiTech® coating technology	Extended life, reduced maintenance costs
High-density Grafoil® seals	Reduced maintenance costs
Double block-and-bleed capability	Enhanced process safety
High-cycling capability	Process reliability
Bi-directional sealing by design	Enhanced process safety, lower maintenance, less downtime
Single piece anti-blow-out stem design	Enhanced process safety
Impervious to high thermal cycling	Enhanced process safety
Certified to use in SIL-3 and SIL-4 loops	Enhanced process safety
Live-load gland system (four stud design)	Lower emissions
Stem fugitive emissions per ISO 15848-1 Class B	Lower emissions, enhanced process safety
Fire safe certification: API-607	Enhanced process safety
Low emission packing: API 622	Most effective technology



V Series Metal Seated Ball Valves.
The flagship of the ValvTechnologies' product line



The critical service needs drive the design features of ValvTechnologies' valves.

1 Integral metal seat.

With our patented HVOF RiTech® coating technology, the integral seat in ValvTechnologies' valves is resistant to the attack of abrasive magnetite and ferrous oxides that may be seen in the steam flow.

2 Body seal ring.

ValvTechnologies employs a field proven seal ring technology to ensure sealing under all operating conditions, up to 1400°F. The body seal ring is loaded at a pressure higher than 20,000 psi. In addition, valves sized 3" and above contain a secondary Grafoil® seal to further guarantee reliability.

3 Patented coating process.

The sealing surfaces are overlaid with tungsten or chromium carbide using our HVOF RiTech® coating process. These surfaces have a hardness of 68 - 72 Rc to provide uninterrupted operation in the most severe conditions.

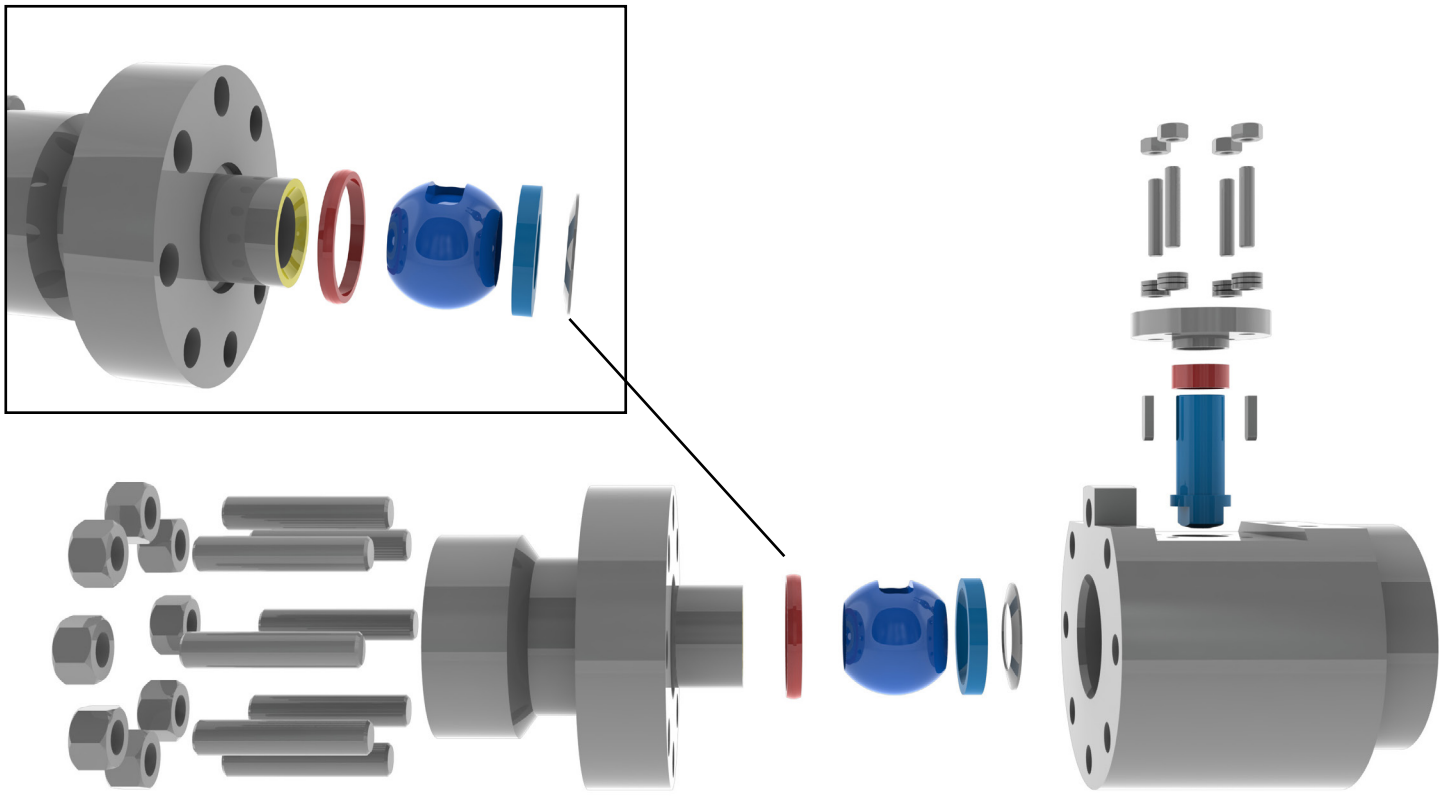
4 Live-loaded gland area.

The V Series' sealing design features a four stud, live-loaded assembly designed for heavy industrial applications. The sealing material is high purity Grafoil® surrounded by stainless steel wire mesh anti-extrusion rings. The six Belleville® springs (per stud) provide constant load pressure through extreme thermal shocks and prevent wear leaks in high-cycle service.

5 Blow-out proof stem.

ValvTechnologies' design utilizes a one-piece, hard-coated, blow-out proof stem that is inserted through the inside of the body cavity eliminating the possibility of blow-out through the gland area. There are no pins, collars or other devices used to retain the stem in the valve body.

V Series Key Performance Features and Benefits	
Features	**Benefits**
Guaranteed tight shut-off	Enhanced process safety
Quarter turn operation - readily automated	Increased safety, ease of operation, reduced space requirements
Low pressure drop - high Cv	Process efficiency
Custom engineered	Process optimization
Dimensions to ANSI B16.10	Interchangeable with equivalent valves
Low emission packing and seals	Reduced emissions
Single piece anti-blow-out stem design	Enhanced process safety
Resistant to solids	Reduced maintenance costs, minimum downtime
Certified to use in SIL-3 and SIL-4 loops	Enhanced process safety
Live-loaded gland system (four stud design)	Reduced emissions
Stem fugitive emissions per ISO 15848-1 Class B	Reduced emissions, enhanced process safety
Fire safe certification: API-607	Enhanced process safety



Valves for the Process Industries.

ValvTechnologies, Inc. is a global leader in the design and manufacturing of flow control devices. Founded in 1987 and headquartered in Houston, Texas, ValvTechnologies remains focused on helping customers meet their daily production and process challenges safely and efficiently.

Having built a global reputation for superior quality and dependability across multiple industries, ValvTechnologies' products are designed to exceed both the standard and most sophisticated, severe-service processes application requirements. ValvTechnologies meets the demands for total flow control solutions, whether one valve at a time, or system-wide.

Bringing together the best people and the latest in technological design and manufacturing processes, ValvTechnologies has created an atmosphere where quality and dependability are built into every product, start to finish.

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