



# Valves for the Process Industries

Critical Service Solutions

Severe-Service • Zero-Leakage • Metal-Seated

# Critical Service Valve 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.

ValvTechnologies provides field proven solutions for severe service applications.

## 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 (bubble-tight)
- Pump isolation

### Ethylene production

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

### Polysilicone

- Reactor isolation
- Solids handling
- Gas isolation (bubble-tight)
- Chlorosilane service

### Specialty chemicals

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



In critical service applications, valve leakage means money lost and risk to the environment.

## 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 (bubble-tight)
- 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

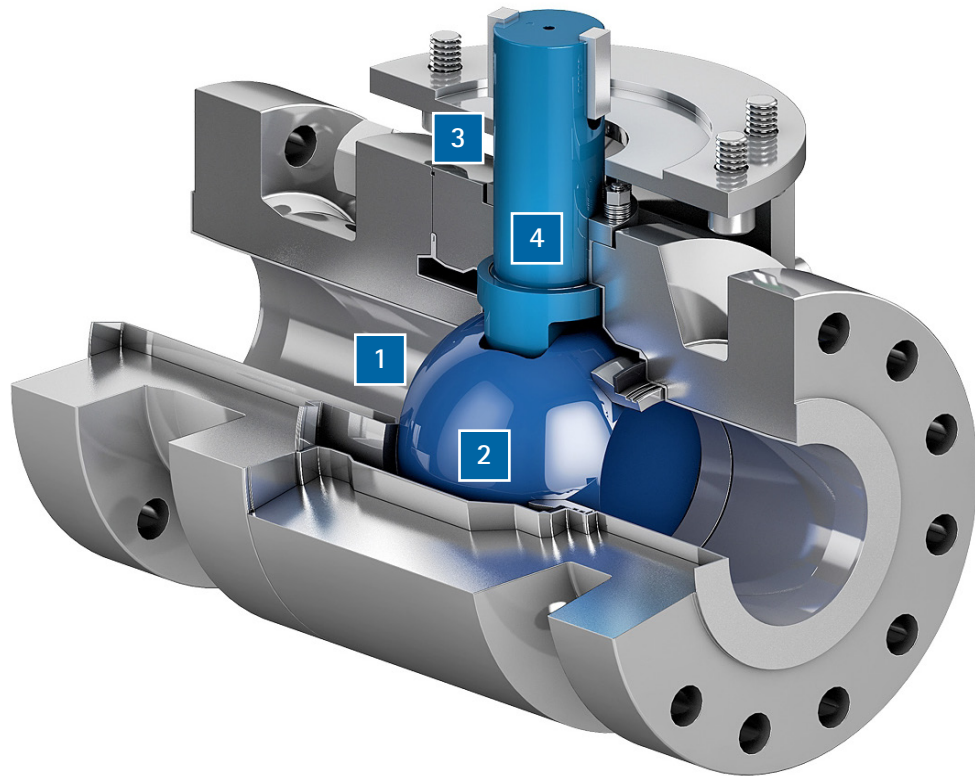
### Combined cycle HRSG

- 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

# SEAT-SUPPORTED V1 SERIES

The V1 seat design provides proven repeatable tight shut-off in severe applications. Engineered to eliminate leak paths and maximize direct flow, these units' enhanced rotary design and construction also deliver the extra safety margin crucial to maintaining peak productivity.

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



## 1 Integral Metal Seat

With patented ceramet coatings, the integral seat in ValvTechnologies' quarter turn valves are resistant to attack from solids in the flow.

## 2 Exclusive Coating Process

The sealing surfaces are overlaid with tungsten or chromium carbide using our exclusive high-velocity coating process. These surfaces have a hardness of 68-72 Rc (8x Stellite® VI) to allow operation in the most severe conditions.

## 3 Live Loaded Gland System

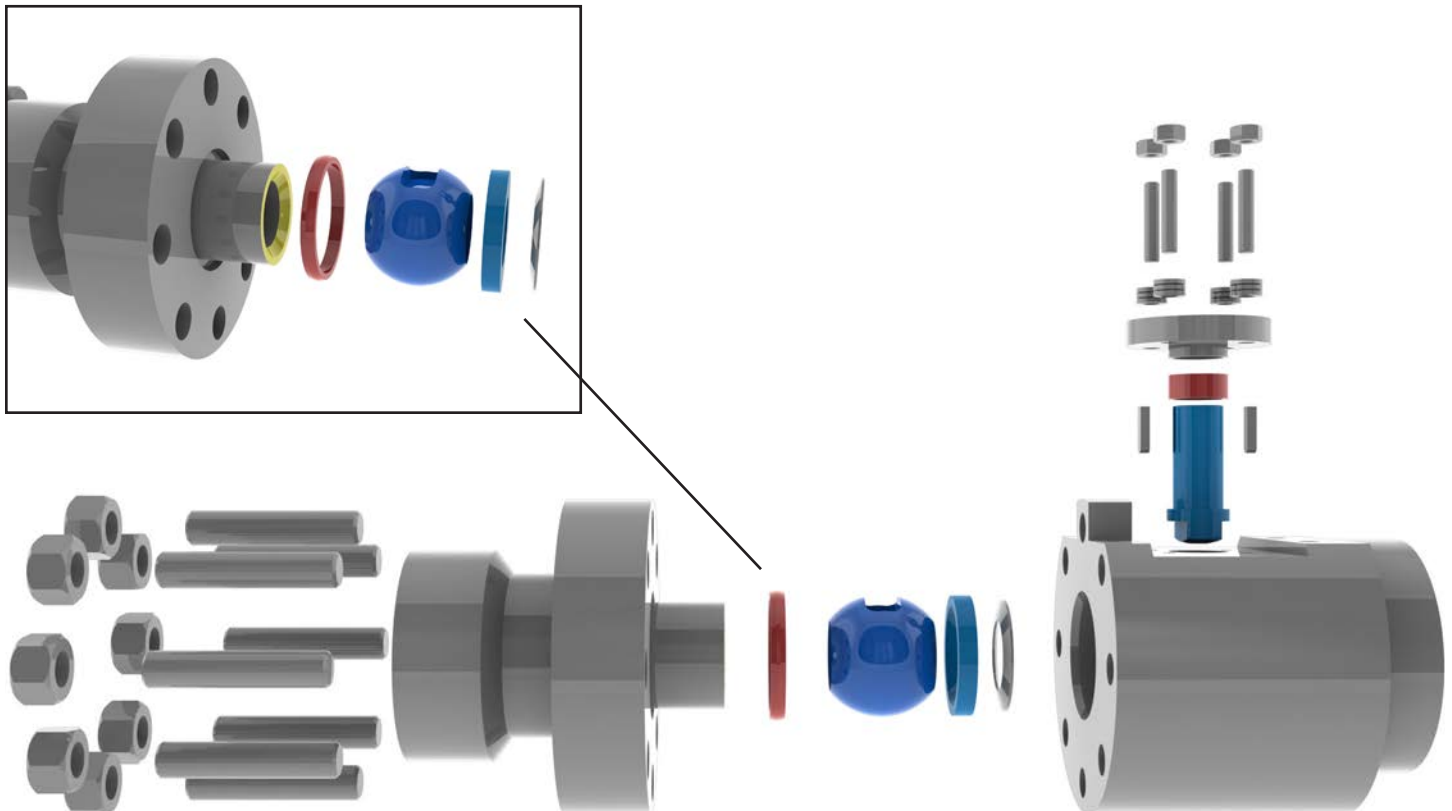
The V1 Series gland packing design features a four-stud, live-loaded assembly designed for heavy industrial applications. The packing material is high purity Grafoil® surrounded by carbon fiber / inonel anti-extrusion rings.

## 4 Blow-out Proof Stem

ValvTechnologies design utilizes a one piece, hard-faced, blow-out proof stem that is inserted through the inside of the body cavity eliminating the possibility of blow-out through the gland area.

## V1 Series Key Performance Features and Benefits

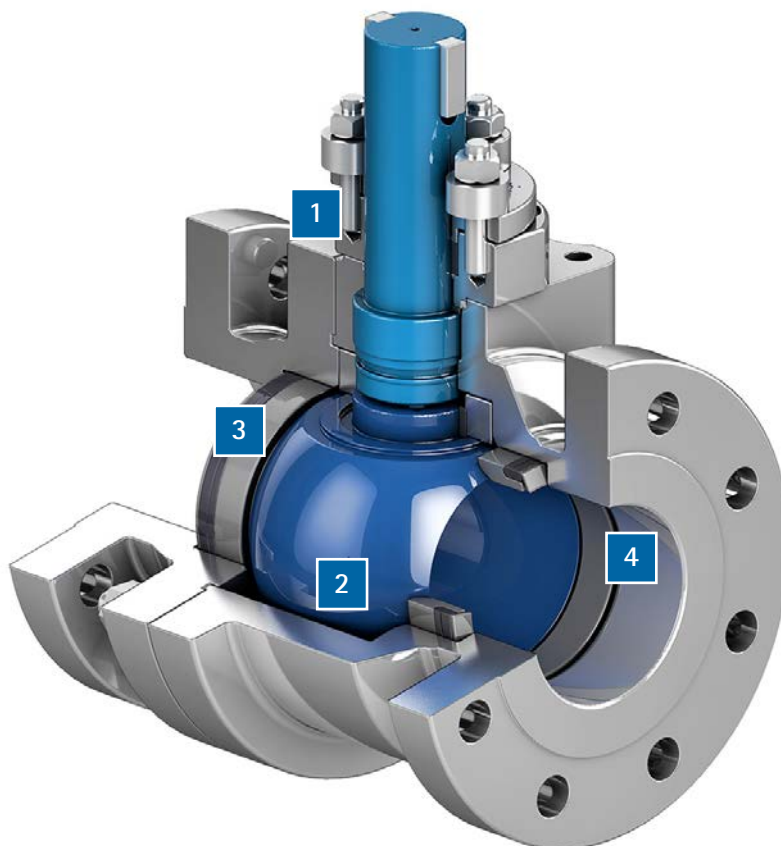
Features	Benefits
Guaranteed tight shut-off	Enhanced process safety
Quarter turn operation - readily automated	Increased safety, ease of operation, reduced space requirements
Low pressure drop - high Cv	Process efficiency
Custom engineered	Process optimization
Dimensions to ANSI B16.10	Interchangeable 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



# NEXTECH™

The advantages of the trunnion-mounted ball valve include: low operating torque, bi-directional sealing, very high flow rates (Cv), protected sealing surfaces when in the open and closed position, and the ability to operate in the presence of solids and other contamination. The Nextech™ is designed to withstand severe thermal swings, meet stringent emission requirements, and provide long life in abrasive / erosive conditions.

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 high-velocity 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

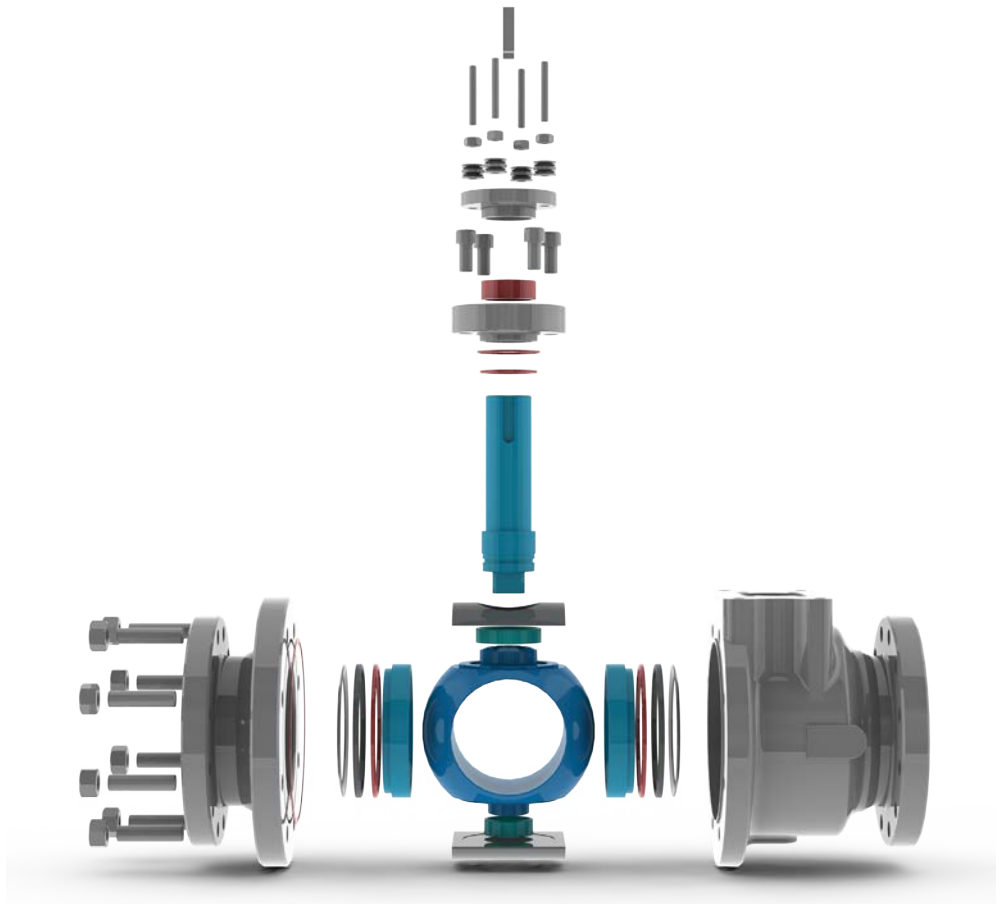
To prevent leaks around the seats, ValvTechnologies has developed an innovative double seal design for high-temperature operation and/or high-cycling applications. In low temperature, high-cycling service, a secondary elastomer seal is installed on the seat perimeter.

## 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 ceramet 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



# 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 every industry served with products designed to fulfill the requirements of standard applications to the most sophisticated, severe-service processes, 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.

## Corporate Offices and Manufacturing

### Headquarters

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