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.

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
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

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

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 / inconel 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

<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guaranteed tight shut-off</td>
<td>Enhanced process safety</td>
</tr>
<tr>
<td>Quarter turn operation – readily automated</td>
<td>Increased safety, ease of operation, reduced space requirements</td>
</tr>
<tr>
<td>Low pressure drop - high Cv</td>
<td>Process efficiency</td>
</tr>
<tr>
<td>Custom engineered</td>
<td>Process optimization</td>
</tr>
<tr>
<td>Dimensions to ANSI B16.10</td>
<td>Interchangeable with equivalent valves</td>
</tr>
<tr>
<td>Low emission packing and seals</td>
<td>Reduced emissions</td>
</tr>
<tr>
<td>Single piece anti-blow-out stem design</td>
<td>Enhanced process safety</td>
</tr>
<tr>
<td>Resistant to solids</td>
<td>Reduced maintenance costs, minimum downtime</td>
</tr>
<tr>
<td>Certified to use in SIL-3 and SIL-4 loops</td>
<td>Enhanced process safety</td>
</tr>
<tr>
<td>Live-loaded gland system (four stud design)</td>
<td>Reduced emissions</td>
</tr>
<tr>
<td>Stem fugitive emissions per ISO 15848-1 Class B</td>
<td>Reduced emissions, enhanced process safety</td>
</tr>
<tr>
<td>Fire safe certification: API-607</td>
<td>Enhanced process safety</td>
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The Nextech™ trunnion design provides a severe service solution for tough, high-cycling applications.

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.

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

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<td>True metal-to-metal sealing without using secondary elastomeric seals</td>
<td>Inherent fire safety</td>
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<td>Solid-proofed by design</td>
<td>Process reliability</td>
</tr>
<tr>
<td>HVOF ceramet coating technology</td>
<td>Extended life, reduced maintenance costs</td>
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<td>High-density Grafoil® seals</td>
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<td>Double block-and-bleed capability</td>
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<td>Bi-directional sealing by design</td>
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<td>Single piece anti-blow-out stem design</td>
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<td>Impervious to high thermal cycling</td>
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<td>Low emission packing: API 622</td>
<td>Most effective technology</td>
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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
ValvTechnologies, Inc.
5904 Bingle Road
Houston, Texas 77092 U.S.A.
Telephone +1 713 860 0400
Fax +1 713 860 0499
sales@valv.com

Master distributors in:
• The Americas
• Europe
• Asia
• Africa
• Middle East
• India
• Australasia
• China

To locate a master distributor or satellite office near you, visit us online at:
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ValvTechnologies products are certified to: