



**NexTech®**

Trunnion Mounted Metal Seated Ball Valves

# The Next Generation in Trunnion Technology

ValvTechnologies is committed to excellence in the design, manufacturing, service and testing of all its severe service isolation valves, while providing absolute tight shut-off solutions to meet and exceed customer expectations.

- ANSI/ASME 300-900# Class
- 2-24" (DN 50 - 500)

## Applications

The NexTech® valve was designed as a high-end, severe service solution for the process and specialty markets. NexTech® also serves specialty applications to meet specific customer requirements. Utilizing the same coating and live-loading technology that built the V Series product line, but in a lower-torque, truly bi-directional package, NexTech® is a superior solution for tough, high-cycling applications.

- Refining: Continuous catalyst regeneration (CCR) reforming (UOP and Axens), pressure swing adsorption (PSA) skids, cumene production low- pressure catalyst handling in hydrotreaters and hydrocrackers, gas drier (molecular sieve) applications, hydrogen or oxygen service
- Chemical: Unipol polyethylene (when metal seated), dow polypropylene, PSA skids, silicon processing, high-cycle lock-hopper valves
- Gasification: Lock-hoppers, black water, syngas isolation
- Power: Bi-directional, low-pressure applications such as soot-blowers and chemical handling
- Specialty: Corrosive applications where seat material should be different than body material, high-cycle applications, bi-directional, double block-and-bleed



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

# Superior Solutions for Severe Service Applications

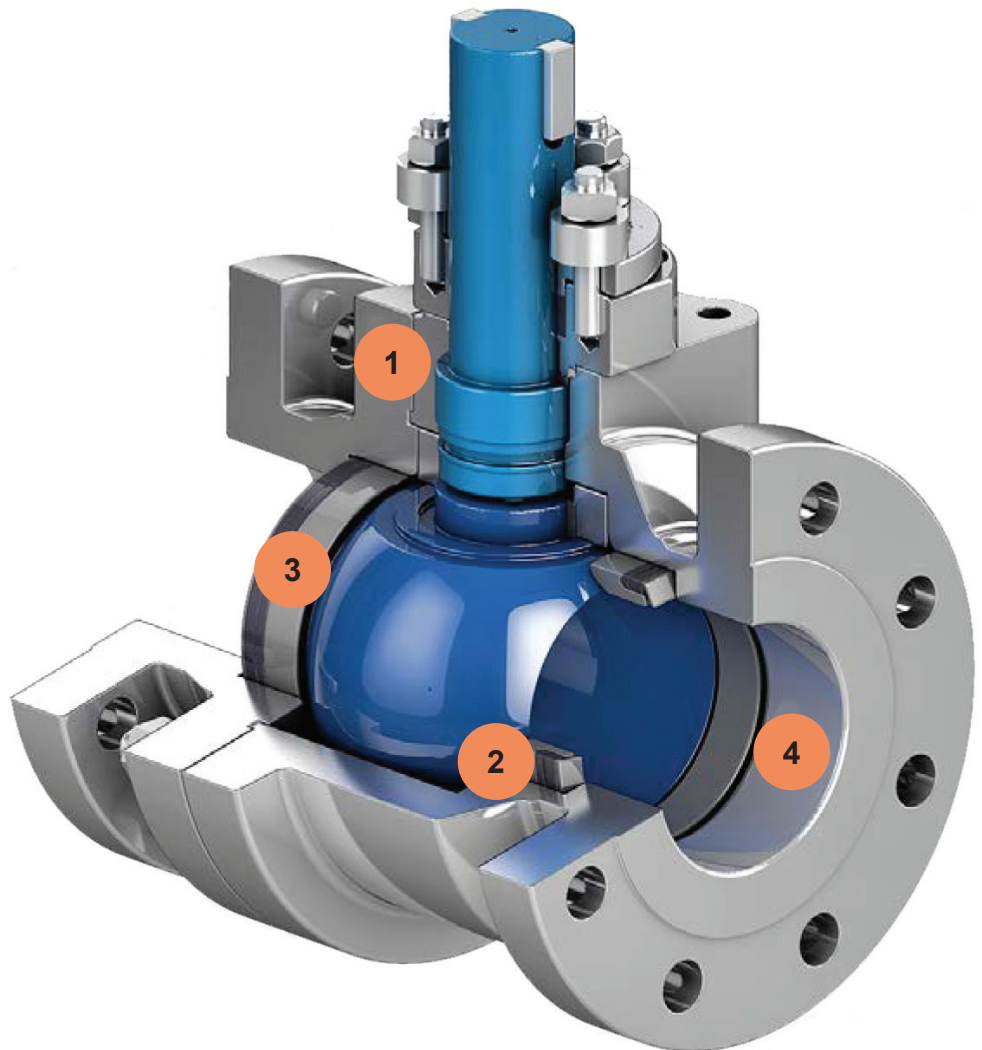
## 1. Live-loaded Gland Area

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 antiextrusion rings. The six Belleville® springs (per stud) provide constant load pressure through extreme thermal shocks and prevent wear leaks in high cycle service. This state-of-the-art system allows the NexTech® to achieve a class "B" designation in ISO 15848 testing, a distinction usually reserved for low-temperature elastomer sealing systems.

## 2. Carbide Sealing Surfaces

The sealing surfaces are coated with tungsten carbide using the HVOF RiTech® process. These surfaces have a hardness of 70-72Rc to allow long periods of operation in the most severe conditions. Other cermet coatings are available depending on application. The ball and seats are mate lapped using diamond compound to achieve tight shut-off.

*The standard seat design for all NexTech® valves is a single piston effect (SPE), or "self relieving seat." When pressure builds up inside the body cavity and  $\Delta P$  between the body cavity and valve downstream is approximately 50-100 psi, the seat moves away from the ball, relieving the pressure.*



## 3. High-integrity Seat Surfaces

To prevent leaks around the seats, ValvTechnologies 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. The seating system along with the diamond-lapped carbide seat surface provides sealing to tight shut-off standards using ANSI/ASME B16.34, FCI 70.2 and API 598 testing procedures.

## 4. Solids Resistance

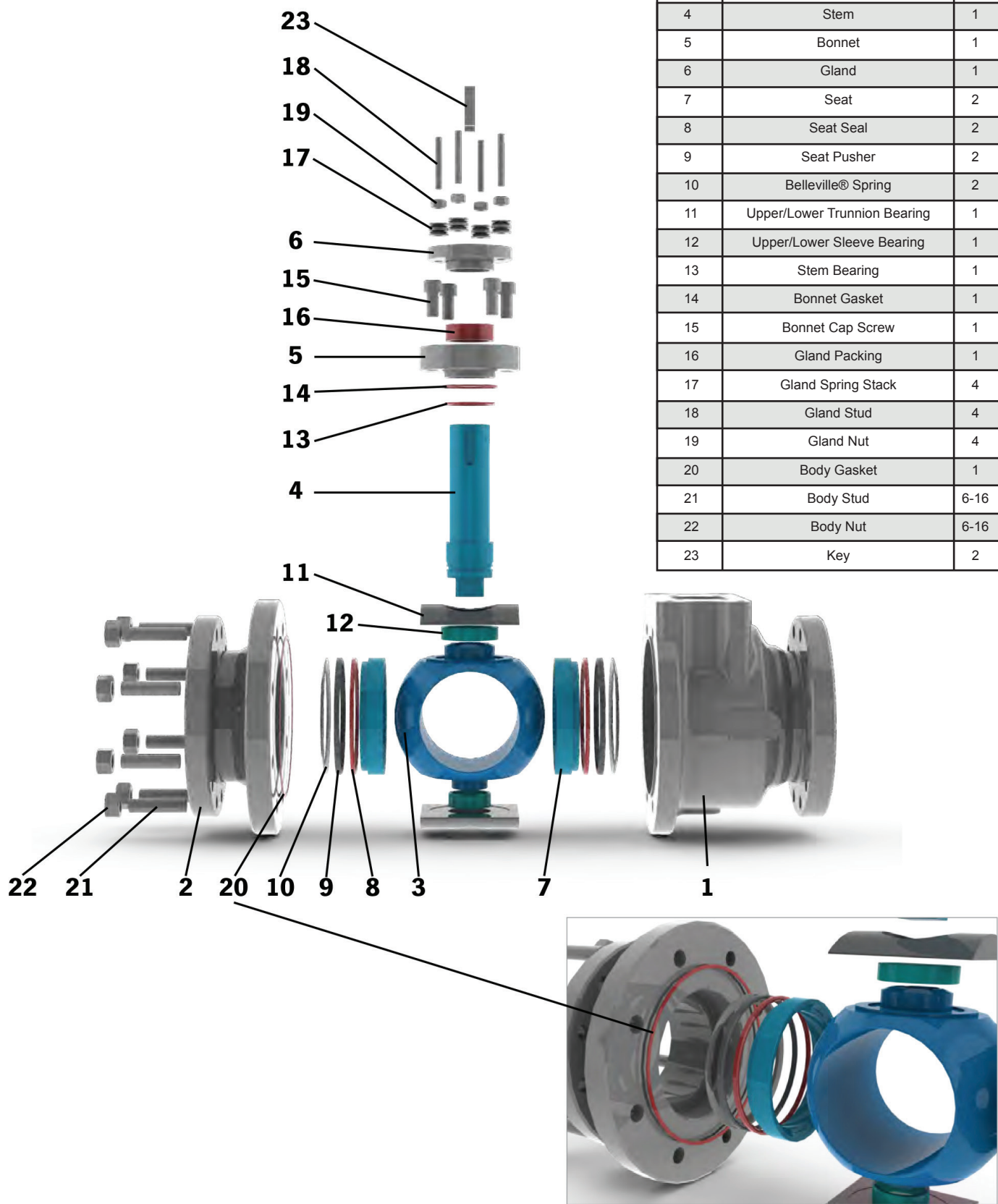
In addition to the carbide coatings which will allow the valve to function in highly abrasive applications, the individual valve parts have additional seals to prevent interference from solids in the system. This provides for outstanding performance in catalyst systems, streams with solids contamination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

# NexTech® Design 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
Solid-proof by design	Process reliability
Exclusive HVOF RiTech® coating technology	Extended life
Grafoil® fire-safe 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 loop	Enhanced process safety
Live-load stem packing (four-bolt design)	Lower emissions
Stem fugitive emissions per ISO 15848-1 Class B and TA-Luft.	Lower emissions and enhanced process safety
Fire safe certification: API-607 / API 6FA	Enhanced process safety

***The NexTech® trunnion is inherently fire safe due to its true metal-to-metal sealing design.***

# NexTech® Key Design Features



Item	Quantity	Qty
1	Body	1
2	End cap	1
3	Ball	1
4	Stem	1
5	Bonnet	1
6	Gland	1
7	Seat	2
8	Seat Seal	2
9	Seat Pusher	2
10	Belleville® Spring	2
11	Upper/Lower Trunnion Bearing	1
12	Upper/Lower Sleeve Bearing	1
13	Stem Bearing	1
14	Bonnet Gasket	1
15	Bonnet Cap Screw	1
16	Gland Packing	1
17	Gland Spring Stack	4
18	Gland Stud	4
19	Gland Nut	4
20	Body Gasket	1
21	Body Stud	6-16
22	Body Nut	6-16
23	Key	2



# NexTech® R Series

ValvTechnologies is committed to excellence in the design, manufacturing, service and testing of all its severe service isolation valves, while providing absolute tight shut-off solutions to meet and exceed customer expectations.

The NexTech® R Series stock valves are a low-cost valve ready for immediate delivery. Engineered with the same quality standards of all ValvTechnologies' products, the NexTech® R Series valve is stocked and ready to ship. While the R Series is our stock model, there is nothing basic about its design and performance. This valve design represents the state-of-the-art in severe service metal seated ball valve technology. It has all the features and benefits of the E Series design, but with limited metallurgical and testing options in order to provide this to the market at the lowest cost possible. This valve is offered in full port sizes 2-6" (DN 50-150), in ANSI 300-600# and 8" (DN 200) in ANSI 300#.

NexTech® R Series - Trim		
EX: 2", 300lb ANSI	"CR" Trim N5CR-RF-FP-B020-001AA-001	"22" Trim N522-RF-FP-B020-001AA-001
Valve body	Cast carbon steel – dual certified to ASTM A216/A352 WCC/LCC	Cast 316 stainless steel – A351 Gr. CF8M
Ball and seats	316SS with HVOF RiTech® tungsten carbide coating	316SS with HVOF RiTech® tungsten carbide coating
Stem	316SS boronized	316SS boronized
Belleville® springs	Inconel 718	Inconel 718
Gland	316SS with QPQ treatment	316SS with QPQ treatment
Stem bearing	Nitronic 60	Nitronic 60
Packing	Grafoil®/Inconel	Grafoil®/Inconel
Live load system	17.7 ph	17.7 ph
Body seal	Grafoil®	Grafoil®
Bolting	SA-193 B7/SA-194 2H	SA-193 B8M/SA-194 8M

Additional trim options available in data sheet.



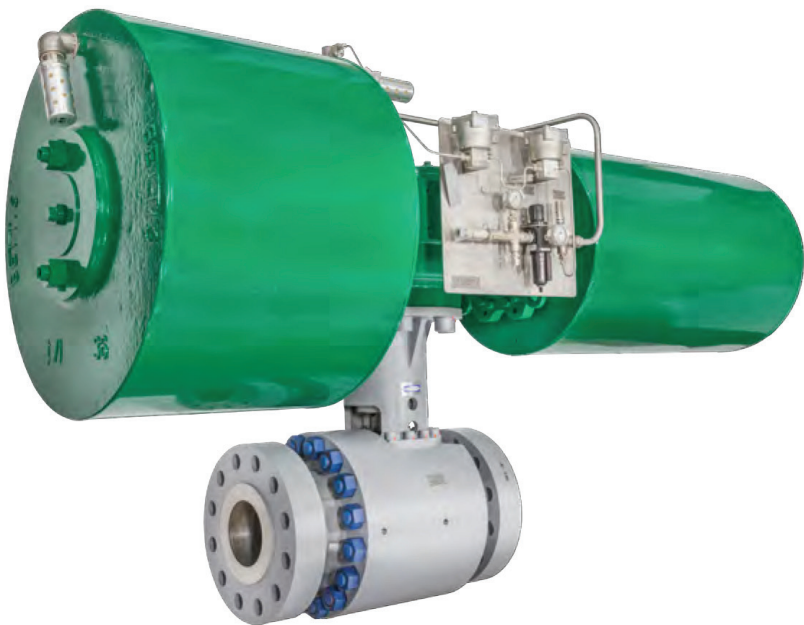
# NexTech® E Series

The NexTech® E Series (engineered series) represents a true engineered-to-spec, specialty valve with materials selected to meet the needs of the most demanding applications. These valves are designed and configured to handle corrosive, high-temperature and high-solids applications requiring tight shut-off. The NexTech® E Series are zero-leakage valves offered between 2-24” in ANSI 300#, 600# and 900#.

Below is a general comparison chart detailing the components and variations of the NexTech® R and E Series valves.

NexTech® Series (ANSI 300-600#) E vs. R Series Comparison		
Sealing	Absolute zero-leakage at test. FCI 70-2 Class VI or better in service.	Absolute zero-leakage
Ball and seat coatings	HVOF RiTech®	Cast 316 stainless steel – A351 Gr. CF8M
Stem and bearing coatings	316SS boronized	Per application requirement
Belleville® springs	Inconel 718	Inconel 718
Gland load springs	17.7 pH	Inconel 718
Body and bonnet seals	Low-density	High-density
Body material	WCC/LCC and CF8M	Per application requirement
Warranty		Two years parts and workmanship
Delivery	Two-four weeks	20-30 weeks
Options	None	<ul style="list-style-type: none"><li>• Helium testing to Class VI</li><li>• Reduced port</li><li>• Special materials</li><li>• Limited operational warranty</li><li>• Cladding and overlays</li></ul>

R Series - Stocked item, ready for delivery  
E Series - Specialty item, requiring additional materials and/or engineering



# Zero-leakage Valve Solutions



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