



# KROMBACH® TUFSEAT™ Performance Series Ball Valves



**NEW!** REVOLUTIONARY SEAT DESIGN RESULTS IN **50% LONGER LIFE**

Combining critical safety and performance features required for demanding service applications in chemical and refining markets.

**1 LONGER SERVICE LIFE**

Consistent seat leak performance and torque throughout the life of the valve for **HIGH CYCLE AND SLURRY APPLICATIONS**.

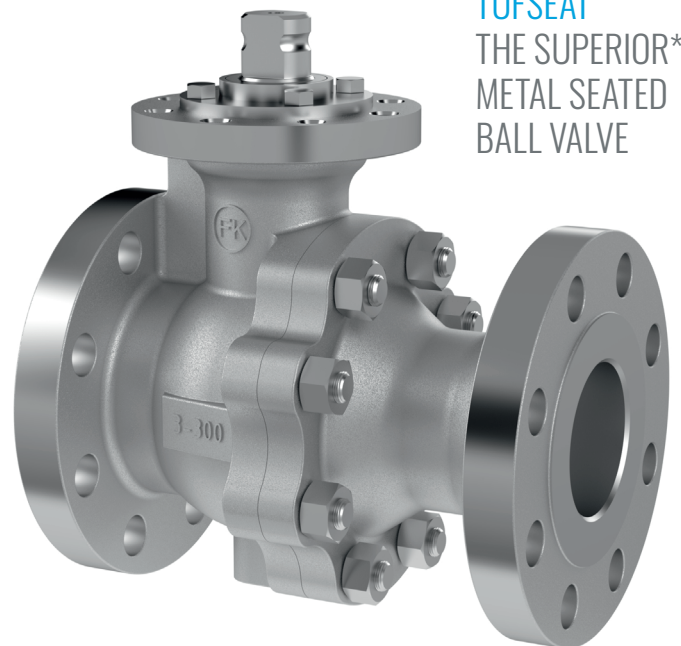
**2 LOW OPERATING TORQUE**

Reduced initial investment cost of automation through **HIGH EFFICIENCY PACKING** and **LIVE LOADED SEATS**.

**3 OUTPERFORMS SEAT LEAK STANDARDS\***

Bi-directional, class V or VI seat leakage (API-598/FCI 70.2) through **PRECISION LAPPING** at elevated pressure and temperature.

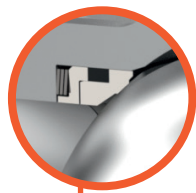
**TUFSEAT**  
THE SUPERIOR\*  
METAL SEATED  
BALL VALVE



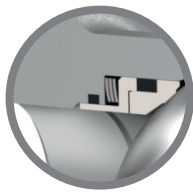
**CRANE**

**v in** [www.cranecpe.com](http://www.cranecpe.com)

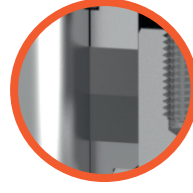
# KROMBACH<sup>®</sup> TUFSEAT<sup>™</sup> Features and Benefits



Precision lapping of the metal ball and seat provides sealing integrity, assuring **TIGHT SEALING** even at low pressure, seat geometry creates a scraper self-cleaning effect, and seat springs offset the effects of thermal expansion for **LOWER CONSTANT TORQUE**.



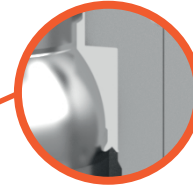
Optional seats with graphite wiper rings for abrasive services, catalyst, slurries and other viscous fluids to protect internal components from seizing and **EXTEND THE LIFE** of the valve.



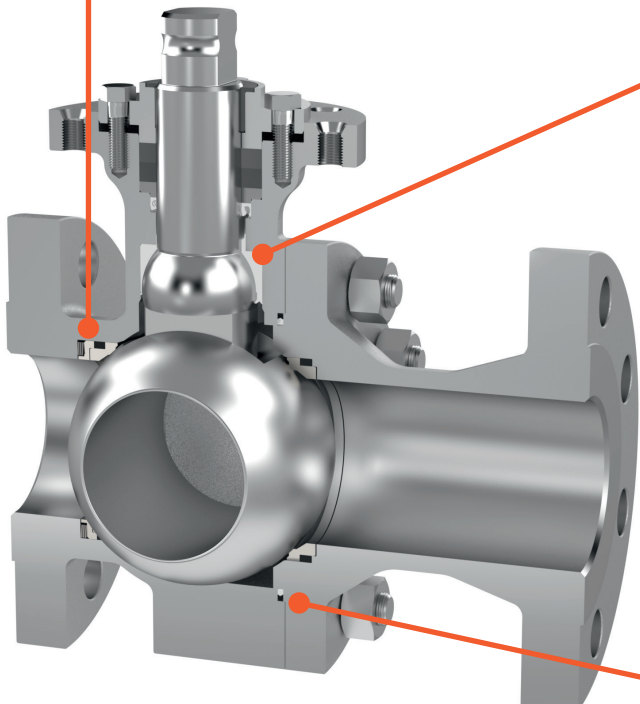
Fully adjustable graphite packing arrangement provide Fire Safe protection without excessive friction for **LOWER TORQUE OPERATION**.



A secondary independent Spring-Energized lip seal compensates for any wear, manufacturing tolerance or eccentricity and provides live loading of the stem seal to **EXTEND THE LIFE** of the packing system.



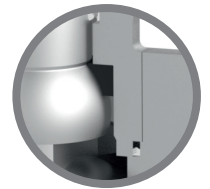
The patented pressure assisted SX stem seal provides the highest protection against fugitive emissions while supplying side-load protection further enhancing the longer life of the packing.



Alternatively, for higher temperature applications, Krombach offers a graphite packing arrangement with metallic diffusion barrier rings to ensure the highest levels of fugitive emissions containment without sacrificing **LOW TORQUE OPERATION** and Fire Safe protection.



To also protect the packing set and ensure **LONG LIFE**, a high density graphite ring further supports the stem against misalignments and assists in eliminating fugitive emissions.



To avoid the effects of pressure and temperature fluctuation, spiral wound dual material body gaskets are standard in KROMBACH<sup>®</sup> TUFSEAT<sup>™</sup> Performance series with an inert PTFE inner seal and fire proof external graphite seal and a full graphite option for high temperature applications and **LONGER LIFE** without static leaks.

## Configurations & Sizes

| Design   | Pressure Rates |     |     |     |     |      |      |      | Sizes    |    |    |    |     |    |    |     |     |     |     |     |     |     |  |
|----------|----------------|-----|-----|-----|-----|------|------|------|----------|----|----|----|-----|----|----|-----|-----|-----|-----|-----|-----|-----|--|
|          | ASME Class     | 150 | 300 | 600 | 900 | 1500 | 2500 | 4500 | ASME NPS | ½" | ¾" | 1" | 1½" | 2" | 3" | 4"  | 6"  | 8"  | 10" | 12" | 14" | 16" |  |
|          | DIN PN         | 25  | 40  | 100 | 150 | 250  | 420  | 720  | DIN DN   | 15 | 20 | 25 | 40  | 50 | 80 | 100 | 150 | 200 | 250 | 300 | 350 | 400 |  |
| Floating |                | ●   | ●   |     |     |      |      |      |          | ●  | ●  | ●  | ●   | ●  | ●  | ●   |     |     |     |     |     |     |  |
| Trunnion |                | ●   | ●   |     |     |      |      |      |          |    |    |    |     |    |    |     |     | ●   | ●   | ●   |     |     |  |

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