



INDUSTRIAL CASE STUDY

HEAVY-DUTY BUTTERFLY VALVES





OMNISEAL® METAL SEALS

Heavy-Duty Butterfly Valves

Regina Schaade October 2025

INDUSTRIAL BUTTERFLY VALVE EXTREME CONDITIONS HOT TEMPERATURE
CRYOGENIC

Environment

In extreme conditions such as heavy dirt, hot or freezing environments where safety is required at the highest standards, industrial high-performance butterfly valves (HPBVs) are used. Designed for tight shutoff and precise flow control, these valves not only protect the workers in the field but also provide reliable operation necessary in high-pressure, high-temperature, and corrosive industrial environments. Applications include pulp and paper, mining and sea water as well as hot energy production and distribution for city heating and transport of cryo-fluids. To handle a multitude of temperatures, pressures, vacuum and aggressive fluids, industrial valve manufacturers often rely on Omniseal® metal seals.

Challenges

Due to extreme operating conditions, the following construction and requirements need to be considered:

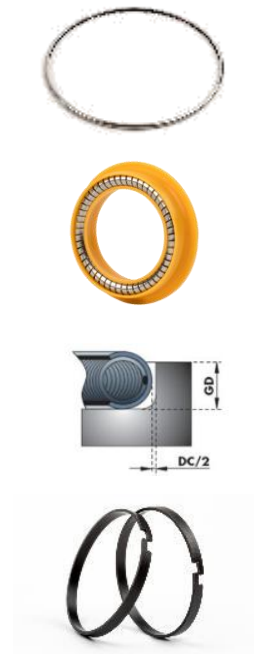
- Sturdy and small build of the hardware
- Tight tolerance manufacturing
- Temperature resistance from cryogenic (-270°C to 900°C)
- Pressure and vacuum tight (200 bar and more)
- Compatibility with aggressive media
- Combination of environmental factors:
 - Gas tightness
 - Abrasive particle tightness
 - Temperature shock capability
 - Chemical compatibility
 - Special valve-plate movement
- Certification depending on criticality



Solution

As long-term partners of industrial customers, Omniseal Solutions has provided custom sealing solutions that reliably protect high-performance butterfly valves as well as other type of valves used in the heavy-duty industrial industry for over 60 years. Due to extreme operating conditions, not only are durability and purity needed but also precision sealing and wear and friction control. Our global technical expertise and experience in understanding our customer's specific requirements and applications have solved their critical industrial challenges, using innovative metal and polymer seal designs and advanced materials.

- Our Omniseal® metal seals are proven to handle extreme temperature ranges within butterfly valves, engineered for harsh media as well as high pressure. They handle ranges where other seal designs typically fail.
- For chemical applications where temperatures are not as extreme, our Hycomp™, Meldin® and Rulon® polymer bearings are known for their low wear and friction as well as their self-lubrication, which help the equipment operate smoothly.
- The above metal sealing solutions are often used in industrial valves; however, we also design polymer seals for extreme requirements such as high pressure and temperature. Hycomp™ composites and Meldin® polyimides are often used in demanding vibrating or dry running environments.



Need an engineered design and precision seal that withstands harsh conditions in your industrial valve range?
Our Omniseal® metal seals are proven to handle extreme pressure, temperature, media and more!

Technology Advantages

- Excellent in hot and cryogenic environments
- Handles combination of high pressure and temperature
- Withstands aggressive media
- Solves friction and tightness challenges

Design Expertise & Tailor-made Solutions for Your Critical Applications

Omniseal Solutions is a global engineering leader with over 65 years of historical legacy, relentlessly dedicated to the design and manufacture of precision sealing and wear and friction control solutions that protect critical applications in the most demanding environments - passionately driven to push "Beyond the Boundaries of Possible."



Contact Our Expert

Regina Schaade

Sales Manager, Europe

Germany

Mob: +49 172 232 5371

regina.schaade@saint-gobain.com

Omniseal Solutions
help@omniseal-solutions.com
www.omniseal-solutions.com