Gipfel Engineering

ISO 9001-2015 CERTIFIED COMPANY

High Pressure Mechanical Seal (for Demanding Applications)

TYPE : HP760

Face Materials :

- Carbon / Ceramic / Silicon Carbide / Tungsten Carbide

Secondry Seals :

- FKM (Viton) / EPDM / FFKM (Kalrez)

Hardware :

- SS 316 / SS 316L / Duplex / Super Duplex / Hastelloy C-276 / Alloy 20 / Titanium

Operating Limits :

Size : 20.0 mm to 300.0 mm (0.750" to 12.000")
Speed : 6000 rpm
Pressure : 220 bars (3,191 psi)
Temperature : +350 °C (+662 °F)

➤ Applications of High-Pressure Mechanical Seals :

1. Power Generation

- Boiler feedwater systems
- Steam turbine auxiliary systems
- Cooling water circulation pumps
- High-pressure condensate pumps

2. Oil & Gas Industry

- Crude oil pipeline pumps
- Gas processing and compression systems
- Offshore platform pumps and compressors
- High-pressure injection pumps (e.g., water or chemical)

3. Chemical & Petrochemical Processing

- Reactor feed pumps
- Acid and caustic circulation systems
- Polymer production and blending units
- High-pressure chemical transfer pumps

4. Water & Wastewater Treatment

- Desalination plant booster pumps
- High-lift pumps in municipal water systems
- Reverse osmosis (RO) high-pressure pumps

5. Mining & Mineral Processing

- Autoclave feed and leaching systems
- High-pressure slurry and tailings pumps
- Dewatering pumps for deep mine shafts

6. Pulp & Paper Industry

- Boiler feed and recovery loop systems
- Chemical dosing and recovery systems
- High-pressure shower and cleaning pumps

7. Food & Beverage / Pharmaceutical

- High-pressure homogenizers
- Sterile water injection systems
- CIP (Clean-in-Place) high-pressure pumps

8. Marine & Shipbuilding

- Firefighting water injection pumps
- Main and auxiliary seawater pumps
- Ballast and bilge high-pressure systems

9. Industrial Manufacturing

- Hydraulic power units
- Cooling and lubrication systems in metalworking
- High-pressure test rigs and calibration equipment

Address: Gala No. 7, KMC Compound, Behram Baug Road, Behind Hotel Metro Palace, Behram Baug, Jogeshwari (West), Mumbai - 400102. Maharashtra, India. Telephone: +91 - 22 6695 6111 / 6222 | Mobile: +91 - 9967 80 40 92 / +91 - 8879 147 211 Email: office@gipfelengg.com / gipfelengg@gmail.com | Website: www.gipfelengg.com / www.gipfelengineering.in

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Technical Features :

1. Construction & Materials

- **Robust Build Quality**
  - Engineered from high-grade stainless steels, alloy steels, and corrosion-resistant alloys.
  - Ensures high mechanical strength, wear resistance, and chemical durability for long-term operation.
- **Durable Seal Faces**
  - Utilizes hard materials such as silicon carbide, tungsten carbide, and ceramics.
  - Offers superior thermal stability, abrasion resistance, and extended operational life.
- **Secondary Sealing Elements**
  - Includes O-rings and elastomeric gaskets for backup sealing.
  - Maintains sealing effectiveness under pressure, temperature, and chemical exposure.

2. Pressure Handling & Seal Design

- **High-Pressure Rating**
  - Designed for operating pressures from several hundred to several thousand PSI.
  - Withstands extreme pressure differentials while maintaining tight sealing integrity.
- **Balanced Seal Design**
  - Hydraulically balanced to minimize axial face loading and reduce friction.
  - Enhances sealing performance and reduces wear, especially in high-pressure applications.
- **Hydraulically Balanced Type**
  - Minimizes face distortion and promotes longer seal life, even in variable load conditions.

3. Operational Flexibility

- **Versatile Seal Types**
  - Compatible with both clockwise and counterclockwise shaft rotations.
  - Available in single and dual seal configurations to suit various process conditions.
- **Spring Mechanism Options**
  - Enhances sealing reliability across a wide range of operating environments.
  - Multiple spring and rotary/stationary spring designs ensure uniform pressure distribution.
- **Cartridge Construction**
  - Reduces installation error and minimizes downtime during maintenance.
  - Preassembled, factory-tested units enable quick installation and alignment.
- **Metric and Inch Sizes Available**
  - Suitable for integration with both international and domestic pump standards.

4. Cooling, Flushing & Quenching

- **Flush and Cooling Systems**
  - Manages heat, flushes debris, and ensures effective lubrication of sealing faces.
  - Supports external flushing, cooling, and quenching configurations (e.g., API Plans).
- **Flushing & Quenching Connections**
  - Enhances seal performance and longevity in thermally or mechanically demanding applications.

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