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## Mixer Seal Technology

Mechanical Seals for Top, Side and  
Bottom-Entry Mixers

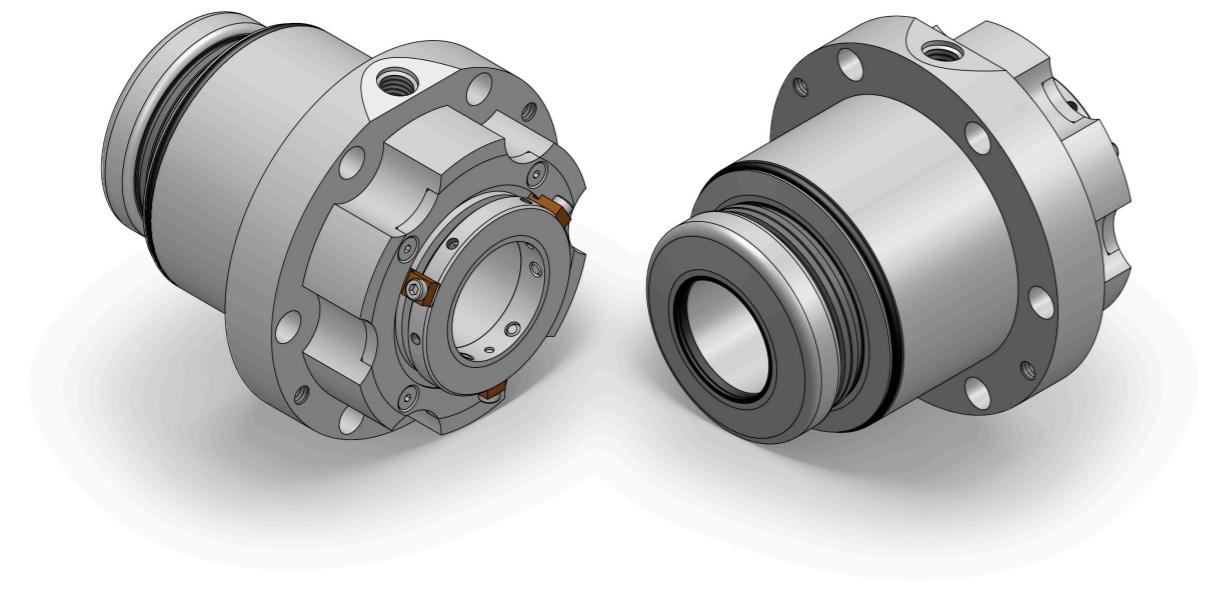
## Mechanical seals for BOTTOM ENTRY mixers

Bottom Entry seals see a variety of conditions including the settling of potential solids to the seal faces. The seal is specifically designed with sloped and drainable surfaces to facilitate complete product drainage and equipment cleaning. In addition to sloped surfaces, we offer surface smoothness to your specification as well as electro polish on metal parts.

Many of the applications are hygienic and require relevant certifications. Materials offered are FDA and USP Class VI.

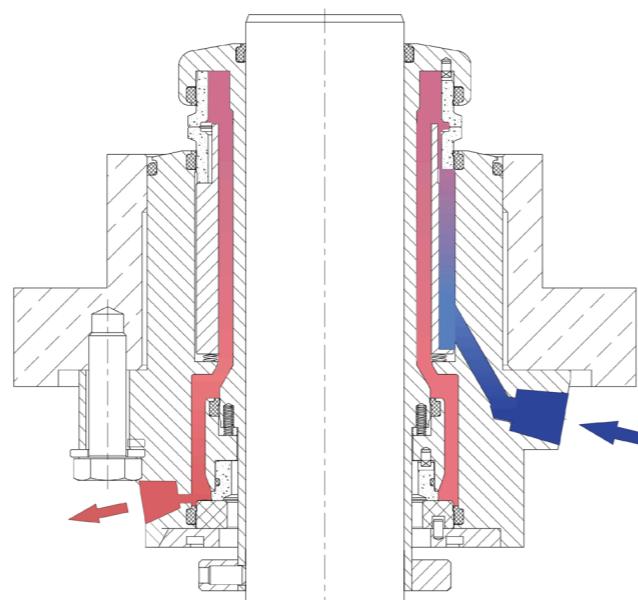
Typically we offer the seal in a double configuration so that there can be a sterile boundary between product and atmosphere, however we offer a single version should the need arise.

Double seals can be used with a "pressurized" or "unpressurized" barrier system depending on the application.



### Features

- Sloped Surfaces to ensure the product drainage
- Self-draining ports
- Hygienic design with controlled surface roughness
- The flushing collar ensures a correct lubrication of the seal rings on the top of seal and eliminate the air pockets.

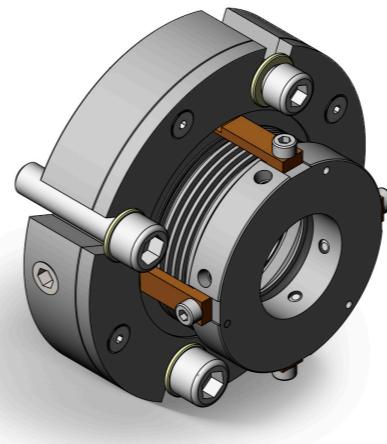


## Mechanical seals for SINGLE TOP ENTRY mixers

Dry running Top Entry seals are outside-mounted balanced single seals with specific face materials for dry running.

The design and materials meet the needs of pharmaceutical, food processing and chemical industries. The design is for a tank that is pressurized and under vacuum.

Debris well and sloped and drainable cleaning connections are available when the application requires.

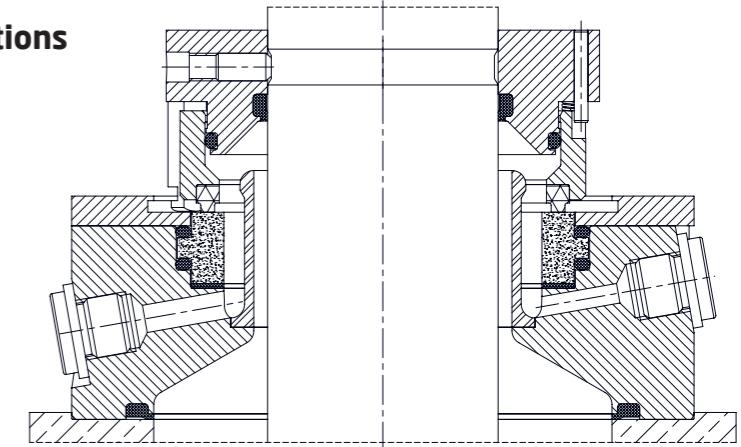


### Features

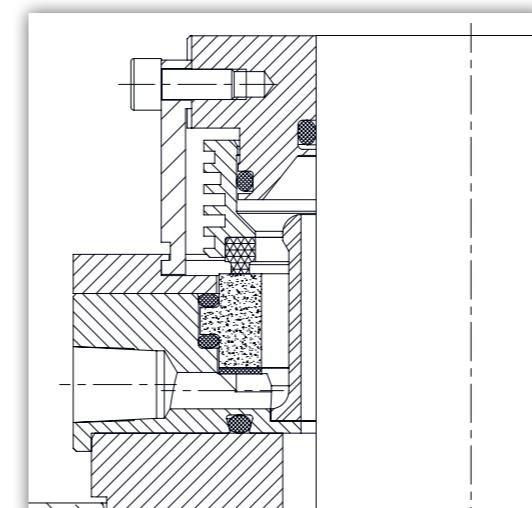
- Ready-to-install as cartridge unit
- Balanced single seals with special material sliding ring with self-lubricant
- Excellent angular and axial moving capabilities
- Easy to maintain. Upgradable to have a bearing, cooling flange and debris well
- All parts in FDA approved material
- Designed according DIN 28138
- Suitable for tilted mixers

### Mechanical seal for Pharmaceutical Applications

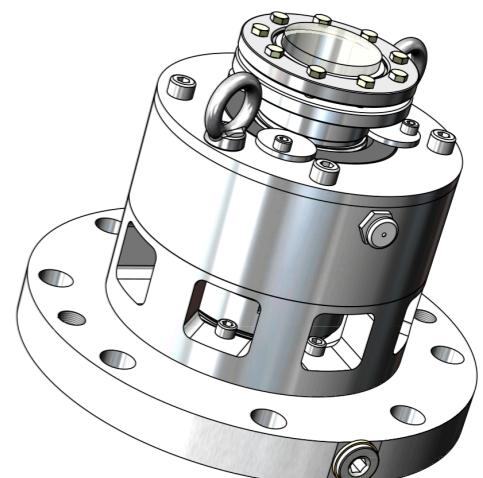
- Highly finished surfaces
- Huhnseal Lip-O-Rings®
- Self draining ports



### Mechanical seal with Cooling device



### Mechanical seal with Integrated Bearing

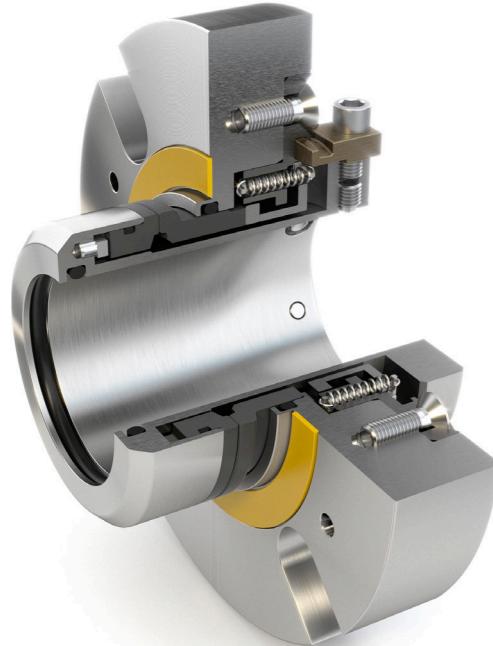


Top entry and side entry mixers typically need mechanical seals.

In sanitary process vessels, the mixer may have a sealing barrier to allow pressure or vacuum in the tank, or an aseptic sealing device to provide a hygienic seal between the tank and the outside of the vessel.

### Single Mechanical seals

The Huhnseal ES seal is a balanced single seal with unique design features as noted below. Materials offered are FDA and USP Class VI and offering the same flexibility for surface finish.



#### Features

- Balanced cartridge seal design
- Excellent angular and axial movement capabilities
- Atmospheric location of spring package
- Compact design
- Smooth product contact surfaces



Huhnseal ESH is the hygienic version for ES, for the typical requirement of the Food & Beverage industry and sanitary applications.

Smooth surfaces without cavities or closed spaces make the seal geometry suitable for hygienic applications.

Lip-O-Rings® are employed.

Cleaning / Steaming (sterilizing) In Place (CIP and SIP) are fully enabled and the use of materials compatible to all the international regulations makes this a very reliable and cost effective solution.

### Double Mechanical seals

The Huhnseal ED seal is a double balanced cartridge seal maintaining sealing performance even during pressure drops/spikes and reversals.

This robust seal has excellent radial and axial movement capabilities.

The springs are located outside both the product and barrier/buffer areas minimizing risk of clogging.



#### Features

- Balanced cartridge seal design
- Excellent axial movement capabilities
- Excellent radial movement capabilities
- Atmospheric location of spring package
- Safe drive of rotating surface at the atmospheric side



The Huhnseal EDH is the hygienic version of ED, for the typical requirement of the Food & Beverage industry and sanitary applications.

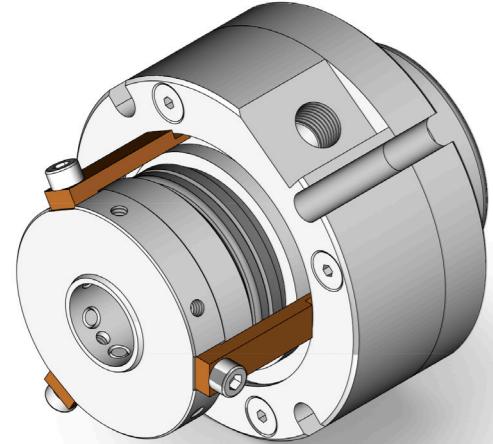
Smooth surfaces without cavities or closed spaces make the seal geometry suitable for hygienic applications.

Lip-O-Rings® are employed on the wetted parts.

Cleaning / Steaming (sterilizing) In Place (CIP and SIP) are fully enabled and the use of materials compatible to all the international regulations makes this a very reliable and cost effective solution.

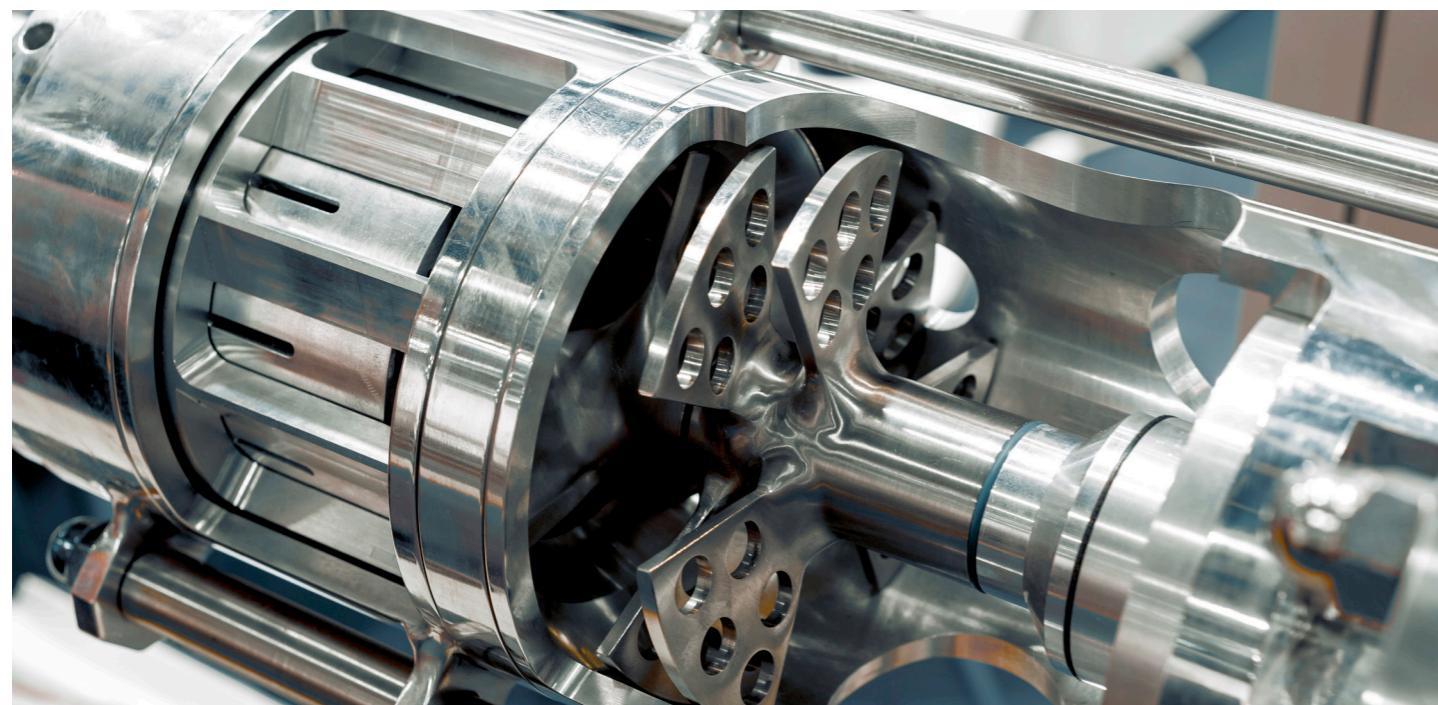
Flushing collar ensures proper and consistent lubrication to the seal faces.

High Shear mixers, homogenizers, decanters, separators and centrifuges typically require mechanical seals with very specific features, preventing or minimizing the effects of vibrations and overheating and at the same time guaranteeing the stability of the mechanical seal.



### Typical features

- Very robust design
- Spring package in static position
- Dampers for vibration absorption to protect the seal faces
- Excellent lubrication of seal medium, cooling the seal faces



### Component designs for compact or cost effective sealing solutions

Sometimes there is not enough room to accomodate a cartridge design in a mixer stuffing box and we offer several component designs that increase seal performance. Assembly operations may result as more complicated than on the cartridge designs.

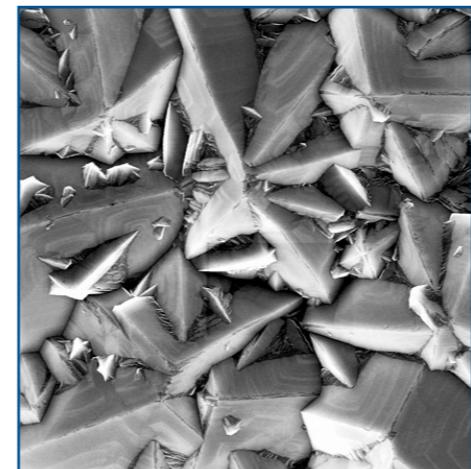


- Accomodates typical mixer axial movement
- Radial runout tolerated
- CIP / SIP enabled

### Special Features

#### Diamond Coating

A Crystalline layer of synthetic Diamond on a hard material seal face will lead to a strong reduction of the friction coefficient, enabling the capabilities of handling very high pressures or dry operations for a mechanical seal, without compromises on the hardness of seal faces and their resistance to the toughest abrasive environments.



#### Knife Edge design on seal faces

It consists of a pair of faces in which one face has a narrow running track. By minimizing the contact area, products with high viscosity, sticky or crystallizing behavior do not create high torque situations at start up. This prevents seal faces from cracking. It also helps reduce leakage in high viscosity situations and with polymers, latex, or adhesives.



#### Flushing collar

As typical requirement for double mechanical seals vertically installed (top entry or bottom entry), it ensures safe and long lasting operations, with a proper lubrication of the seal faces.

