MECO® EP TYPE 3 SEALS

ENGINEERED SHAFT SEALS

FULLY SPLIT

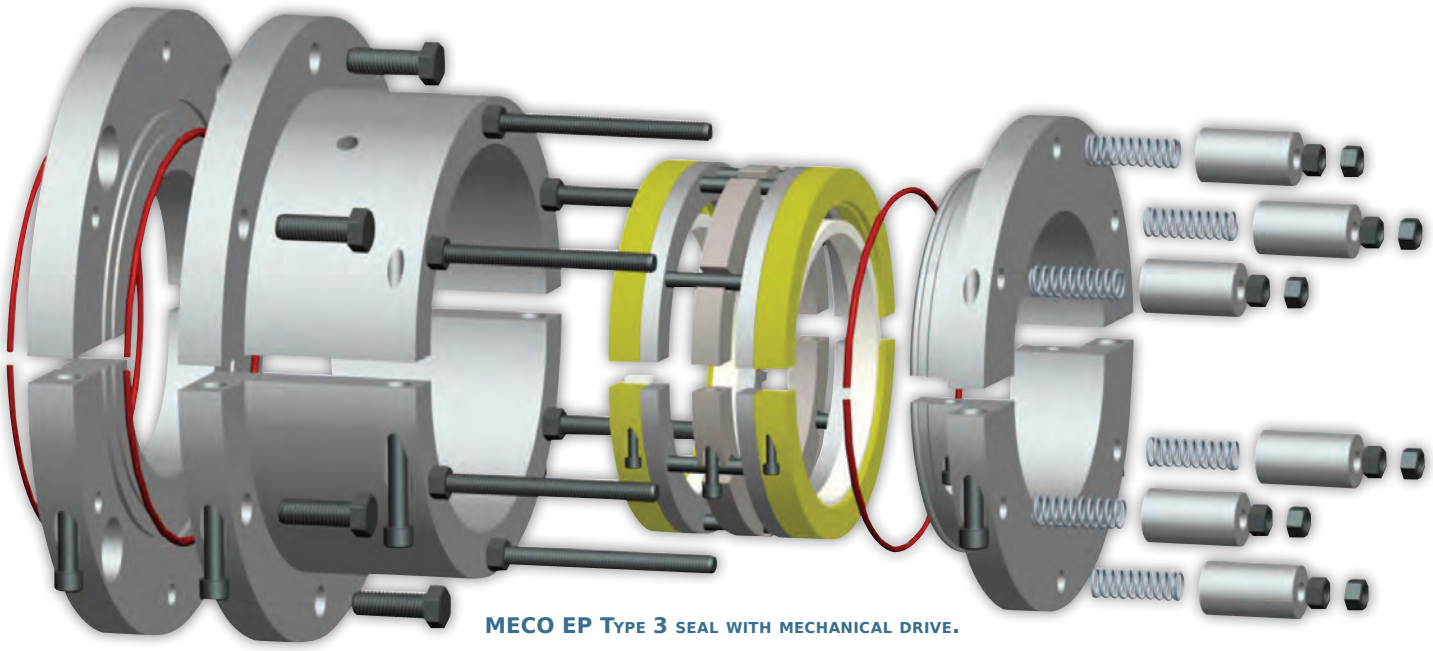
An Employee Owned Company

What is MECO's EP Type 3 Seal?

The MECO EP Type 3 model is the best choice in split sealing technology for horizontal dryers and reactors in vacuum service. The configuration is a double mechanical seal, using a mechanical drive to rotate bearing-grade, synthetic seal faces against fixed, hardened stainless steel seal faces. The EP Type 3 uses full-contact, soft face mechanical shaft sealing technology, sized for OEM and custom in-house process equipment.

When are EP Type 3 Seals The Best Option?

The MECO EP Type 3 split seal model is ideal for dryers, sigma mixers, plow blenders, paddle blenders, reactor vessels, extruder-compounders and similar rotating equipment used in the chemical, plastics, metals, pharmaceutical and other process industries. The EP Type 3 seal model is typically used on horizontal, inclined or top-entering shafts. The seal addresses the challenges of higher temperatures, large thermal motion, changing pressures and shaft runout. They are frequently used on agitator shafts in reactors where the process medium goes through several phase changes, containing liquids, vapors and/or solids. They are well-suited for extensive thermal growth or shrinkage of the shaft and/or vessel. They are ideal for vacuum service and moderate pressure applications. They may be used for processes where aggressive solvents, hazardous materials and other chemicals are present. They handle the higher shaft speeds and shaft runout associated with large extruder-compounders.



MECO EP Type 3 seal with mechanical drive.

Manufactured *Since 1984* by: WOODEX® BEARING COMPANY, INC.

MECO ENGINEERED SHAFT SEALS

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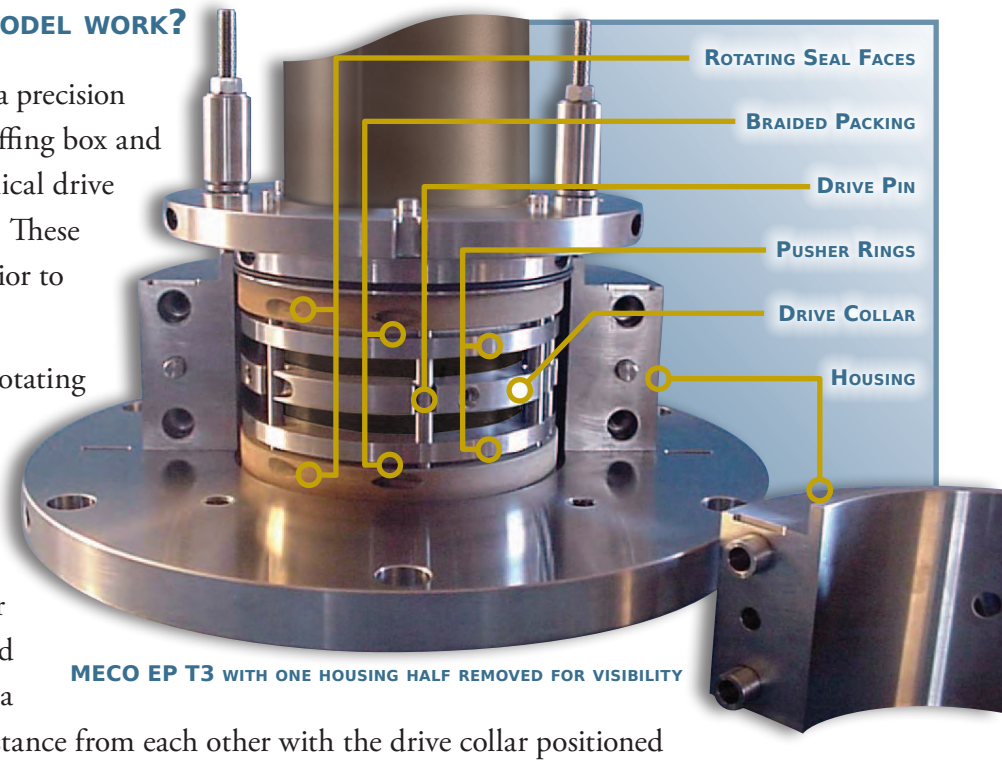
The MECO EP Type 3: a reliable solution for holding vacuum during large temperature changes and thermal expansions.

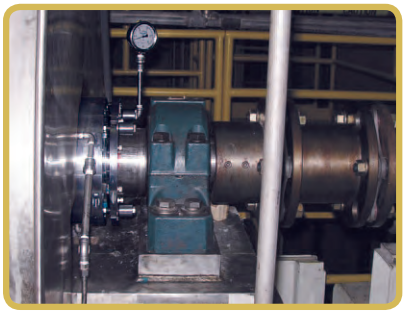
How does the EP Type 3 Seal model work?

The MECO EP Type 3 seal model utilizes a precision machined split seal housing similar to a stuffing box and gland follower. The MECO-DR or mechanical drive consists of all the rotating seal components. These rotating parts are fitted around the shaft prior to installing the seal housing.

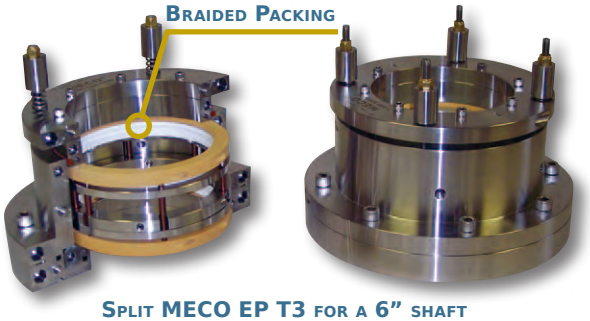
The Patented MECO-DR is comprised of rotating seal faces, braided packing, pusher rings, drive pins and a drive collar. The MECO-DR mechanical drive attaches only one component, the drive collar, to the shaft. Pusher rings are permitted to float on either side of the drive collar. Large diameter, fixed length drive pins link the two pusher rings a fixed distance from each other with the drive collar positioned between them. The drive collar is set at a predetermined distance from the pusher rings. On the other side of the pusher rings are two sets of braided packing rings followed by the rotating seal faces (rotors). Together, the pusher ring & rotor contain each set of braided packing, forming a static seal to the shaft. The rotor orients the dynamic sealing surface perpendicular to the shaft, permitting radial shaft runout, as compared to a stuffing box and packing which compress the shaft radially.



MECO EP T3 with one housing half removed for visibility


MECO EP T3 installed on a vacuum dryer

The MECO-DR allows the shaft to move axially, sliding on the packing, limited only by the length of the drive pin. The drive collar locked to the shaft engages the drive pins, transferring the torque from the shaft to the seal faces and allowing the seal to compensate for thermal growth.



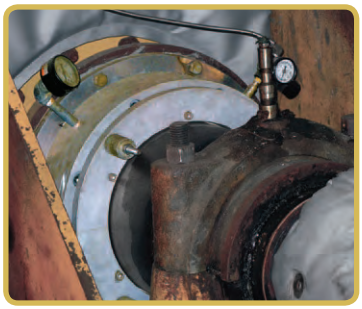
Split MECO EP T3 for a 6" shaft

The nose or pilot of the gland follower provides the outboard (secondary) stationary seal face. A plate attached to the bottom of the stuffing box provides the inboard (primary) stationary seal face. These are precision machined stationary seal faces (stators) with hardened, lapped and polished seal face surfaces.

MECO® SEALS Driven.

EP MODEL TYPICAL DIMENSIONS

How is the EP Type 3 Seal model maintained?



MECO EP T3 installed on a pressurized dryer

The MECO EP Type 3 seal model uses compressed N2 or air as a barrier fluid and diagnostic tool. The gas acts as a barrier fluid to provide pneumatic seal face loading. A pressure gage is attached to the seal housing to monitor seal cavity pressure. External springs are attached to the back of the gland follower to hold the outboard seal face in check and provide seal face alignment capabilities.

As the sacrificial rotor seal face material wears, the springs will gradually expand and the seal cavity pressure will gradually decrease. After a significant pressure decrease or when an opportunity presents itself, the spring should be re-set. Then the pressure will reset itself.

What construction is available?

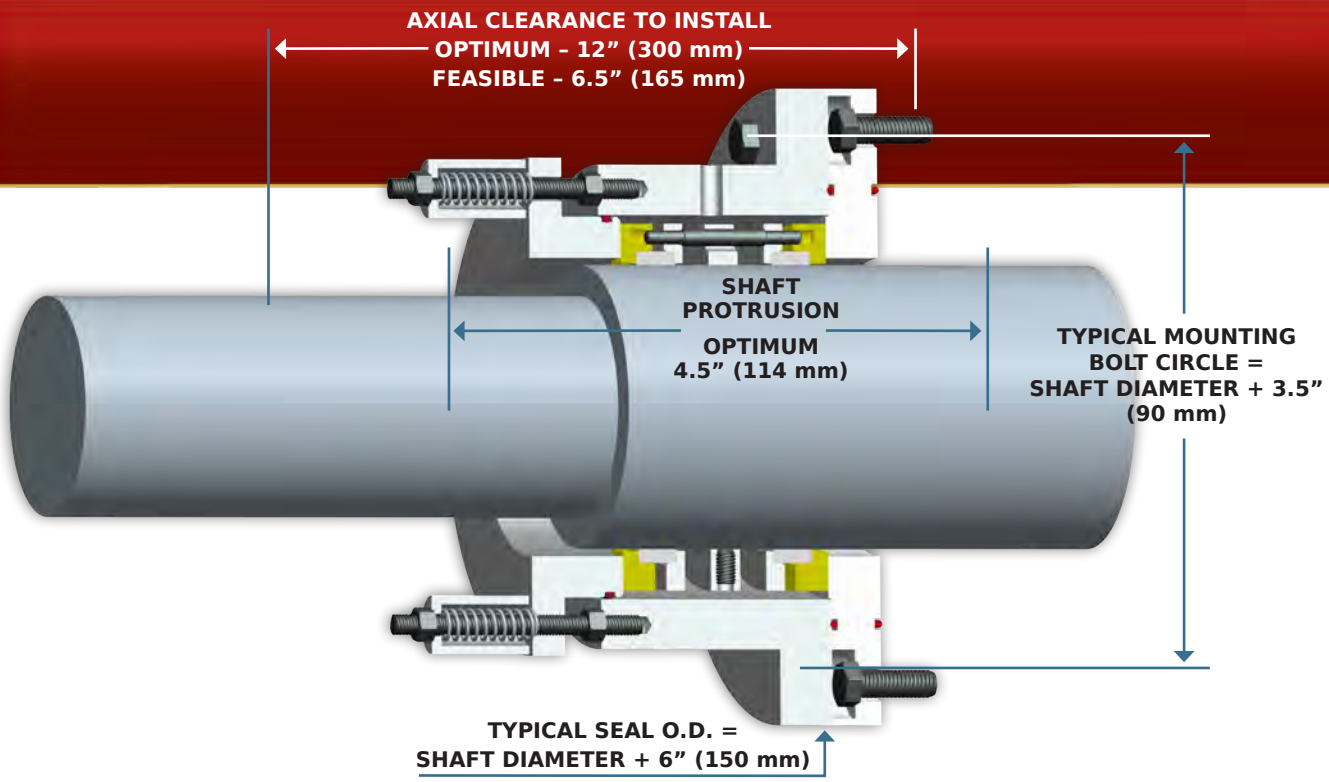
The MECO EP Type 3 seal's rugged components are designed for long life. The standard configuration uses hardened stainless steel stationary seal faces. The standard rotor seal faces are MECO 3000, a high performance, bearing grade, polymer filled PTFE with FDA approval. No abrasive filler material is added to the MECO 3000. The housing is either made of a 300 series stainless steel or aluminum. The static rings sealing on the shaft are a dense FDA approved ptfe braided packing. The standard elastomer for the O-ring is FDA Viton®. For large shaft diameters or highly-abrasive process materials, a replaceable hardened stator insert, the polished central ring at right, can be offered. MECO seals can be fabricated from a wide variety of suitable materials.

Seal housing with removable stator

Viton® is a registered trademark of E.I. Dupont de Nemours & Company

Mechanical Capabilities	
Temperature	-60° to 500° f (-50° to 260° C)
Pressure	Vacuum to 50 psig (345 kPa)
Shaft Speed	Up to 600 RPM
T.I.R. Runout	1/4" (6mm) standard; greater runout can be accommodated
Repeated Axial Shaft Motion	1/16" (1.6mm)
Thermal Shaft Growth	1" (25.4mm) standard; actual limits are set by physical space and application parameters
Results may vary with operating conditions - please call for discussion.	

MECO EP Type 3



What sizes are available?

The MECO EP Type 3 seal model is custom designed and built to order. Having extra axial space is helpful for the installer and maximizes thermal expansion capabilities. Dimensions will vary according to each application, but typical dimensions are shown in the illustration above. They are readily designed to fit most mounting arrangements specified by equipment OEMs and are designer-friendly, to interface with customized, in-house process equipment requirements. Seals can be built either to S.A.E or metric dimensions.

MECO® SEALS

MECO’s design staff or your local distributor can help tailor the EP to your individual needs.

Below are a few examples of other **MECO** seal models.

Split OFS Model
- Top and Side Entry
- Solvents
- Purge Free

AH Model
- Blenders
- Screw Conveyors
- Tight Spaces

MP Model
- Air locks
- Rotary Feeders

HB Model
- Standard Seals for C.E.M.A. and Metric Screw Conveyors

EA Model
- Abrasive Slurries
- Adjustable on-the-Fly
- Large Diameters

Distributed by:

All MECO Seals
Made in USA