MECO-DR stuffing box insert seals for Moyno® pumps

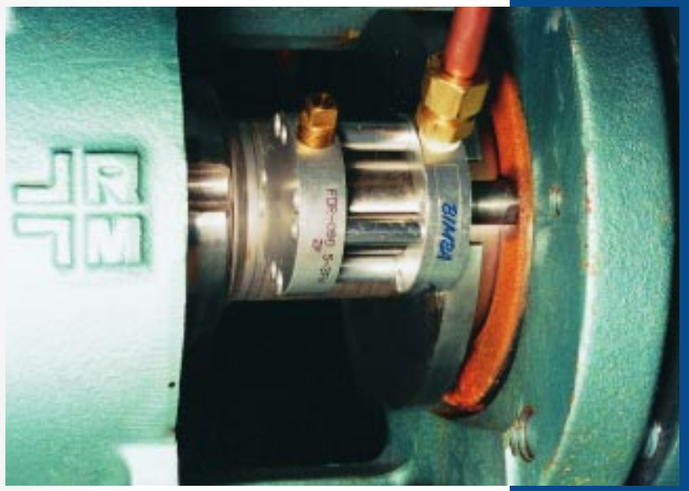
When Robbins & Myers Corporation asked MECO to deliver a mechanical seal that would last as long as their rotor/stator combination in abrasive slurry service, the **MECO-DR** was born. Three years of development and field testing produced a robust seal that outlasts two and more sets of pumping elements in extremely abrasive applications.

Utilizing massive cross sections of high-tech wear material, the **MECO-DR** doggedly withstands determined assaults from kaolin paper coating, sheetrock mud, hazardous waste, and even white chocolate confectioner's frosting.

The **MECO-DR** survives vacuum conditions and pressure spikes without complaint. Available in pneumatically-loaded or spring-loaded configurations, the seal constantly adjusts itself for sacrificial face wear, and recovers quickly from pressure surges which would devastate lesser seals.

Often, mechanical seal installations seem like delicate surgical procedures. The **MECO-DR** is built to be installed and operated by ordinary human beings: installation is simple, and the sacrificial seal faces can be freely handled–even dropped–without damage. The seal's faces even withstand hammer blows during installation.

Call your MECO distributor for more information on how you can extend your PC pump service life with the **MECO-DR**.



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MECO-DR

Just what the Doctor ordered!

If you suffer from painful shaft sealing problems like axial shaft motion, thermal growth, repetitive pressure-vacuum cycles, and harsh chemical environments, it's time to call the MECO-DR. The MECO-DR is a patented driving mechanism, for use in Meco shaft seals. The MECO-DR allows the rotating seal faces to compensate instantly for axial shaft motion, without affecting seal face loading. And the MECO-DR retains all of the superior characteristics of original MECO elastomer-drive seals:

- **Fully-split designs**
- **High (1/4" and more) runout/ misalignment tolerance**
- **No internal springs to corrode or break**
- **Economical, on-site rebuilds**

Developed for Moyno® progressing cavity pumps (see back page), the MECO-DR is now available for mixers, blenders, reactors, dryers and other process machinery. The seal can be manually adjusted or either spring or pneumatically loaded from the outside, so that seal face pressures are constantly adjusted to compensate for wear of the sacrificial seal faces. The MECO-DR can withstand punishing abrasives and keep on running, long after conventional seals have failed.

The MECO-DR is available as a design feature in new MECO seals, and also as a retrofit for some existing EAS, MECO-PAC or EX-PAC seals.

Moyno® is a registered trademark of Robbins & Myers, Inc.

MECO SYSTEMS
1-800-526-8800

Designed for Performance; Customized for Your Needs

The Meco-Dr

The patented **Meco-Dr** is a fully-split seal for severe service in liquid, slurry, paste, dry and/or vapor service. Shown at center is a liquid slurry configuration, incorporating a water quench.

Dry powders, vapors and sometimes pastes incorporate a gas purge (nitrogen or air) and a slightly-different seal configuration (see inset at bottom left). The major difference between configurations is the design of the seal cavity bellows arrangement.

The Drive Mechanism can be incorporated into an external seal housing and in some special instances fit into a stuffing box (see inset at bottom right). Though it is generally mounted outside the stuffing box, a split stuffing box and gland follower are sometimes built.

LARGE SEAL CAVITY

This cavity is isolated from the atmosphere by the 1/32" thick **Reinforced Elastomer Bellows**. The flexible bellows permits the **Outboard** and **Inboard Housings** to move relative to one another, while still containing the quench or flush medium.

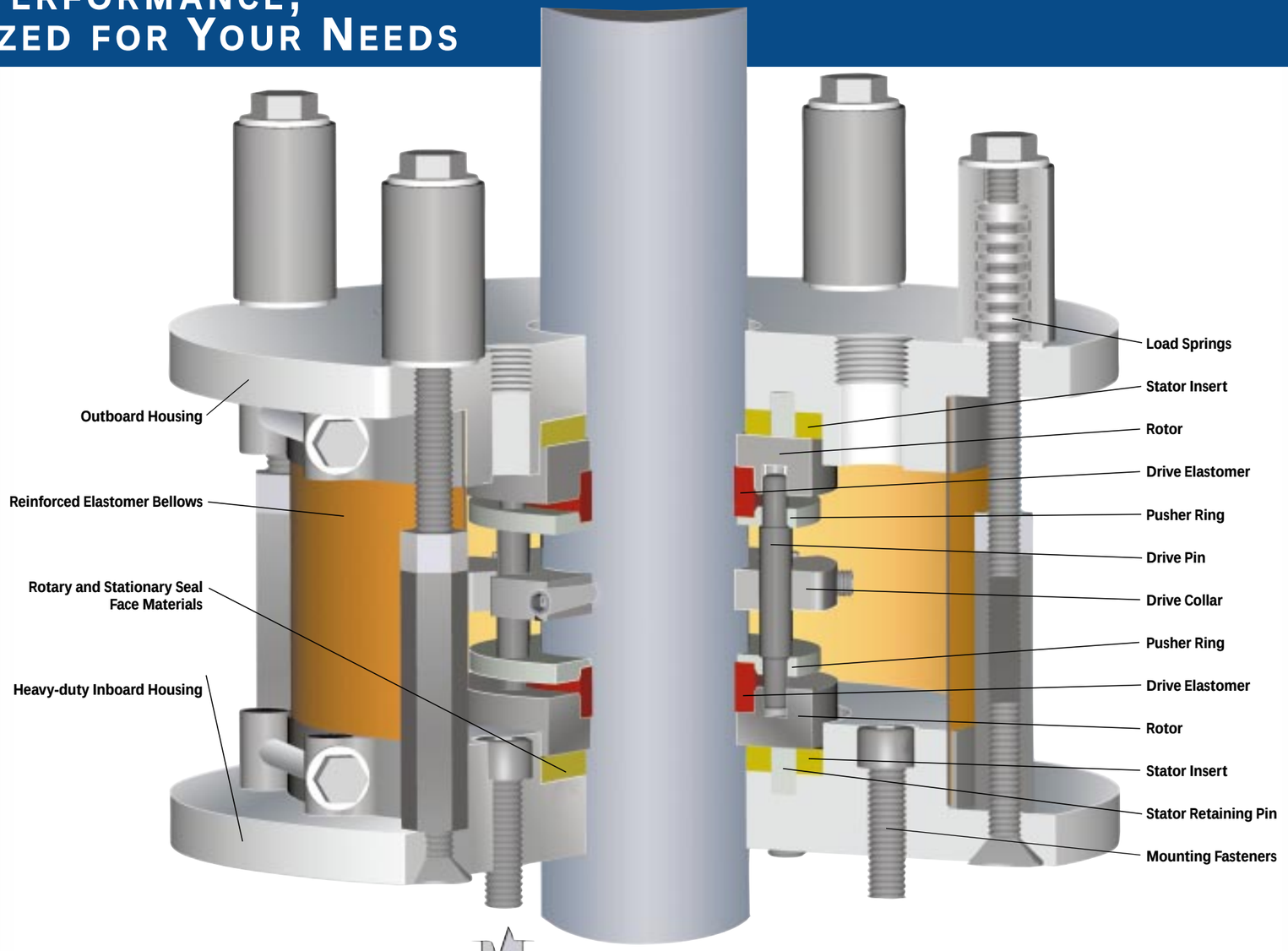
Other **Meco-Dr** configurations incorporate a thick 3/16" or 5/16" elastomer bellows (inset, bottom left). This thick elastomer still permits the outboard housing to move relative to the inboard, but permits 20 psig to 60 psig of purge pressure inside the seal cavity for vapor containment and to act as an internal spring to backload the seal faces.

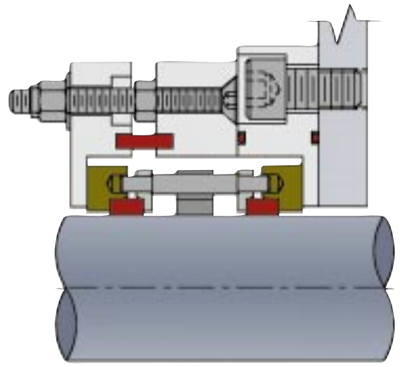
SEAL FACE MATERIALS

A variety of sacrificial **Rotary and Stationary Seal Face Materials** is available to match the needs of your application. Meco's extensive wear testing of over 50 high performance bearing plastics has yielded the ideal materials for containing most any combination of abrasives, chemicals and temperatures up to 500º F.

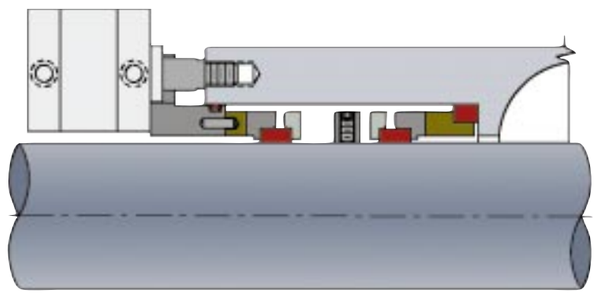
MOUNTING, CENTERING AND RADIAL MOTION

A **Heavy-duty Inboard Housing** helps create a flat, rigid assembly. The **Mounting Fasteners** may act as an alignment device, or be provided with clearance for hand centering the seal to the shaft. Since the standard runout allowance is 1/4" TIR, exact centering is not required. Increased runout tolerance can be provided where needed.





Meco-Dr with thick bellows and manual adjustment



Meco-Dr in stuffing box with pneumatic adjustment

LOAD SPRINGS

In highly abrasive sealing media with over 5 psig of process pressure, **Load Springs** will automatically maintain seal face pressure to compensate for seal face wear. The springs are chosen per your equipment's parameters. The springs are located outside the process and quench medium, free from clogging or corrosion. Manual adjustment bolts are used in non-abrasive media, in vapor containment and where space limitations exist. Reverse-acting pneumatic cylinders are also available for air adjustment.

DRIVE MECHANISM & SEALING AGAINST THE SHAFT

The **Drive Collar** is the only component of the seal rigidly set-screwed to the shaft. The **Drive Elastomers**, when compressed between the **Pusher Rings** and **Rotors**, maintain a grip against the shaft, preventing leakage, but permitting the shaft to slide through.

The **Drive Collar** has large clearance slots which the **Drive Pins** engage. The **Drive Pins** have shoulders at each end that lock into the **Pusher Rings**. The **Drive Pins** then pass over the **Drive Elastomers** and end up fitting loosely into the clearance holes in the backsides of the **Rotors**. The **Pusher Rings** hold the drive elastomers firmly compressed against the rotors at each end of the assembly, maintaining seal face pressure and ensuring constant rotation. All these parts rotate with the shaft: **Drive Collar, Drive Pins, Drive Elastomers, Pusher Rings** and **Rotors**.

The **Drive Elastomer** has a rectangular cross section and is available in several standard elastomer materials as well as PTFE braided packing or PFA-encapsulated elastomers.

AXIAL MOTION CAPABILITIES

If thermal growth or axial motion of the shaft occurs, the shaft and **Drive Collar** are free to "float" along the **Drive Pins**, and have no effect on seal face pressure. The distance between the two **Pusher Rings**, minus the width of the **Drive Collar**, is the axial motion range available, generally 3/4". Use of low-friction **Drive Elastomers** is recommended where frequent axial motion will occur.

PRESSURE CAPABILITIES

The seal can withstand full vacuum to 60 psig of pressure depending on shaft speed, water quench or gas purge service.