

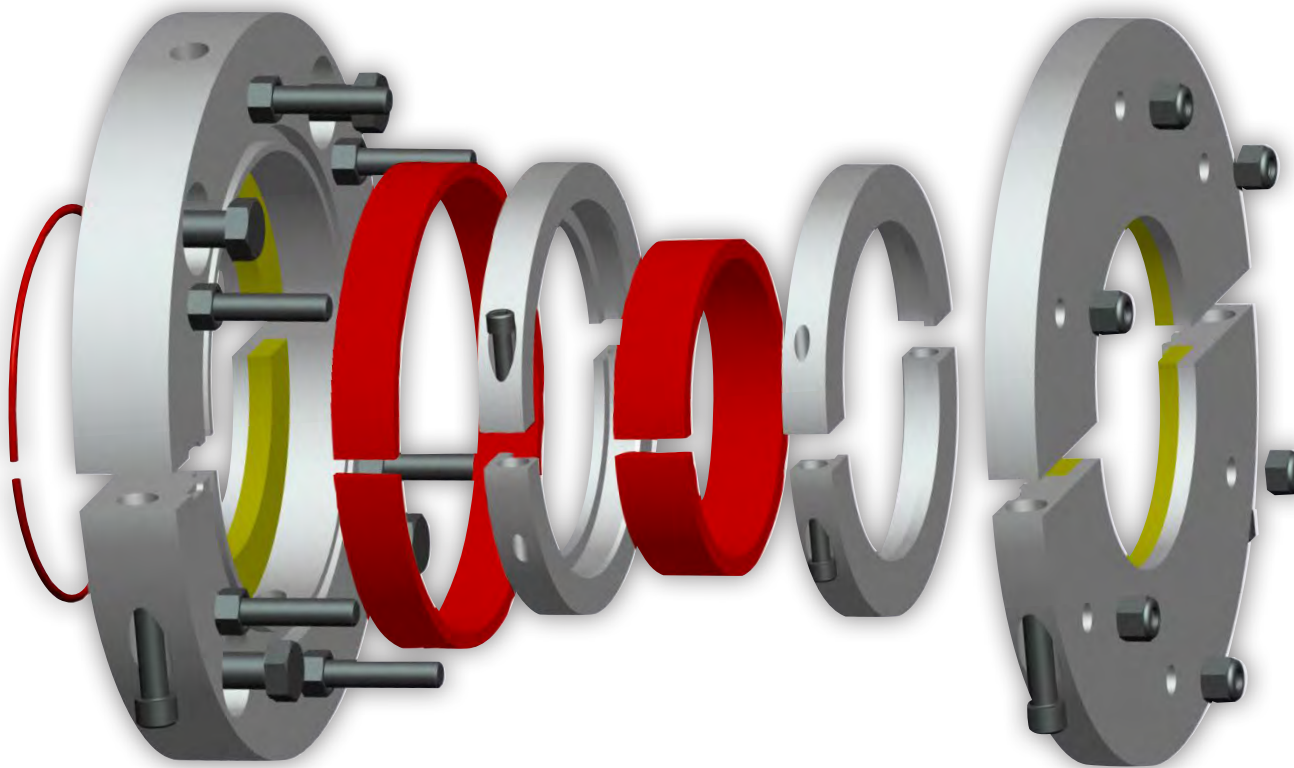
An Employee Owned Company

WHAT IS MECO'S EA TYPE -1 SEAL?

The MECO EA Type-1 fully-split seal model is a great selection when sealing wet slurries. The fully-split configuration uses an elastomer drive to rotate two hardened stainless steel seal faces against two fixed, bearing grade polymeric stationary seal faces with their contacting sealing plane set perpendicular to the shaft. The polymeric stationary seal faces are built into two fully-split stainless steel plates. One split plate is mounted to the vessel wall and the other is manually positioned a set distance from the mounted plate. Between the plates an elastomer is used to form a seal cavity where gravity-fed water flushes and cools the chamber without any back pressure applied.

WHEN ARE EA TYPE -1 SEALS THE BEST OPTION?

Where axial or linear space is limited, the MECO EA Type-1 seal model is the solution for sealing wet abrasive slurries encountered in pulpers, agitators, cylindrical blenders, paddle mixers, holding vessels, flocculators, mixing conveyors and similar rotating equipment. When linear space is available our EP Type-1 model should be considered. The EA Type-1 model is used in process industries such as pulp & paper, home building products, sewage and water treatment, biomass and ethanol production, along with other processes handling water slurries. They are frequently used on side-entry mixers containing drywall or sheetrock mud. They withstand the abuse of shock loading, high shaft runout and abrasives often associated with pulpers recycling office paper and old corrugated containers (OCC). The entire assembly is fully-split and serviceable onsite.



MECO ENGINEERED SHAFT SEALS

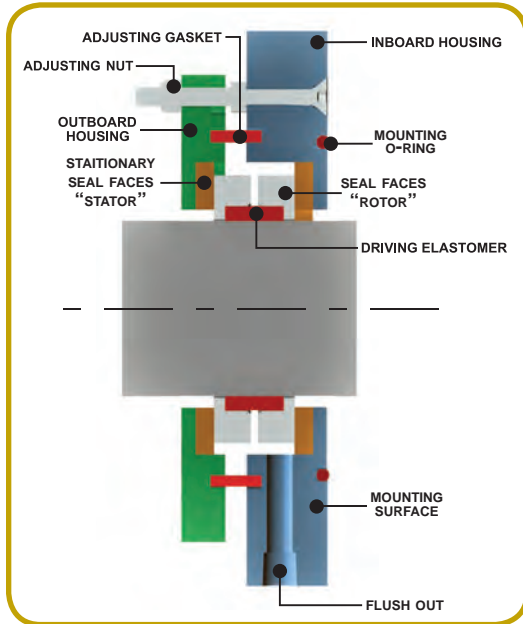


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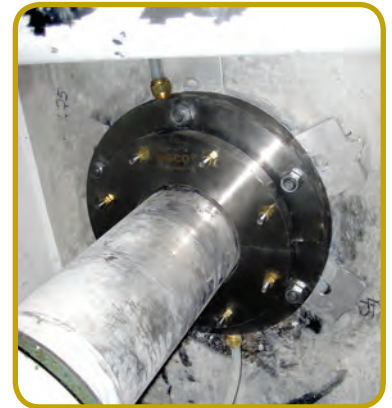
The MECO EA Type-1 seal's components are designed fully split.

HOW DOES THE EA TYPE-1 SEAL MODEL WORK?



The MECO EA Type-1 seal model is mechanically akin to a thrust washer. The seal utilizes an elastomer to interlock two rotating stainless steel seal faces, “rotors”, with the shaft to provide the rotating thrust washer element, while forming a watertight seal at the shaft. Fixed, self-lubricating polymeric stationary seal faces, “stators”, are built into two fully-split stainless steel plates.

These are set at right angles to the shaft to provide the fixed-element running surfaces. The sliding interfaces operate without boundary lubrication to form the dynamic sealing plane. The setting is done manually via external fasteners on the seal. A water flush or quench is used for cooling, to remove debris from within the seal cavity and to check adjustment.

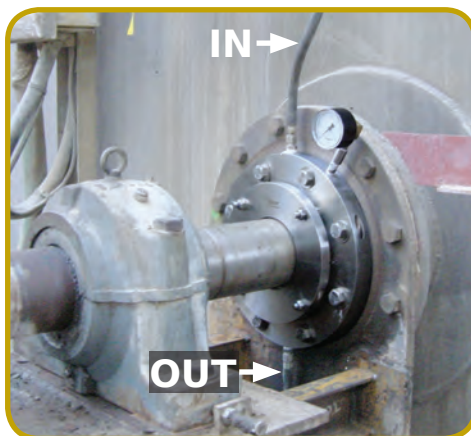


4¹⁵/₁₆ IN. EA TYPE-1 SEAL MOUNTED ON A SHEETROCK MUD MIXER.

HOW IS THE EA TYPE-1 SEAL MODEL MAINTAINED?

Periodic inspection of the flush water confirming it is free-flowing is recommended to maximize mean-time-to-repair (MTR). Over time, process fluid clouds clear flush water indicating an adjustment is possibly beneficial. Without emptying the vessel, the seal is manually adjusted for wear by measuring the distance between the housings and reducing it a set amount.

By reviewing the condition of the flush water, the water temperature from inlet to outlet, and the ability of the seal to withstand back pressure for short moments of time, you are



4.5 IN. FULLY SPLIT EA TYPE-1 SEAL MOUNTED ON BLACK LIQUOR AGITATOR

able to determine if the seal is installed correctly or in need of an adjustment. Once the seal no longer contains flush water or no longer is adjustable, a rebuild is needed. The stainless steel rotating seal faces may be resurfaced. The seal may be rebuilt on-site or returned to MECO for factory refurbishing. All of the seal faces and elastomers are replaceable fully split.



INSTALLING THE 4.5 IN. FULLY SPLIT EA TYPE-1 SEAL ON BLACK LIQUOR AGITATOR



MECO EA Type-1

WHAT CONSTRUCTION IS AVAILABLE?

The MECO EA Type-1 seal's components are designed for long life. The standard assembly uses hardened stainless steel rotating seal faces. The housing plates are typically machined from 304 or 316 stainless steel.

Common high-performance bearing-grade stationary seal face options are as follows: MECO 3000, a slick polymer-filled PTFE; MECO 3120, a malleable ceramic filled PTFE; MECO 4000, a hard, carbon fiber, graphite & PTFE-filled PEEK.

The common elastomer is EPDM. White silicone, Viton® and Nitrile are possible alternatives. These materials have an FDA-compliant option.

We have the flexibility to fabricate from various materials. Special requests are typically feasible.



BEFORE: STUFFING BOX ON A 4 IN. PAPER STOCK AGITATOR



AFTER: EA TYPE-1 ON A 4 IN. PAPER STOCK AGITATOR

WHAT SIZES ARE AVAILABLE?

The MECO EA Type-1 seal model is designed and built to order. Assemblies are fully-split. Common shaft diameters range from 4" (100mm) to 16.5" (420mm) and include all sizes in between and many outside the range. Dimensions will vary according to each application, but typical dimensions are shown in the illustration on the last page. The seals are designed to fit per application and accommodate most mounting arrangements. Seals are built either with S.A.E or metric fasteners. Any extra space is helpful for the installer.



15% PAPER STOCK INSIDE THE PULPER

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

INLET AND OUTLET FLUSH PORT PLUMBING ON THE EA TYPE-1 SEAL MOUNTED ON A BLACK CLAWSON PAPER PULPER.



13 IN. (330MM) EA TYPE-1 SEAL MOUNTED ON A BLACK CLAWSON PAPER PULPER.

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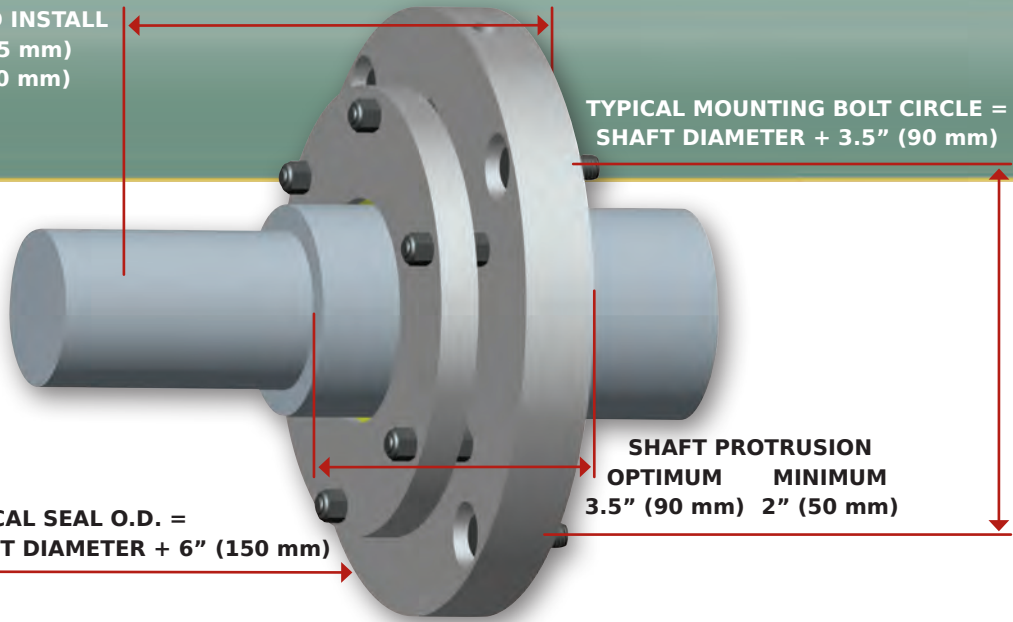
EA TYPE-1 TYPICAL DIMENSIONS

AXIAL CLEARANCE TO INSTALL
OPTIMUM - 5" (125 mm)
FEASIBLE - 4" (100 mm)

TYPICAL MOUNTING BOLT CIRCLE =
SHAFT DIAMETER + 3.5" (90 mm)

TYPICAL SEAL O.D. =
SHAFT DIAMETER + 6" (150 mm)

SHAFT PROTRUSION
OPTIMUM MINIMUM
3.5" (90 mm) 2" (50 mm)



Mechanical Capabilities

Temperature	40° to 200° F (+5° to 95° C)
Pressure	Slight Vacuum to 30 psig (200 kPa)
Shaft Speed	Up to 350 RPM
T.I.R. Runout	1/4" (6mm) standard; greater runout on shafts >9" (230mm) is accommodated
Repeated Axial Shaft Motion	1/128" (0.2mm)
Thermal Shaft Growth	Limits set per application

Results may vary with operating conditions - please call for discussion.



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

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



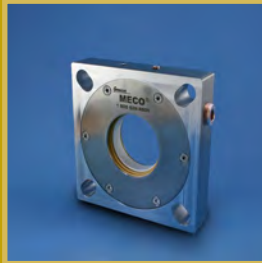
Split OFS Model

- Top and Side Entry
- Solvents
- Purge Free



AH Model

- Blenders
- Screw Conveyors
- Tight Spaces



HC Model

- Air Free Seals for C.E.M.A. and Metric Screw Conveyors



HB Model

- Air/N₂ Loaded Seals for C.E.M.A. and Metric Screw Conveyors



EP Model

- Reactor Vessels
- Dryers
- Extruders

Distributed by:

