






Technical **FOCUS**

Rotary Shaft Seals



-
-  Braided Packing Seal
 -  V-ring Packing Seal
 -  Mechanical Seal
-



NSF-ISR

Registered to ISO 9001

Complete Sealing Solutions

EIRICH Machines, Inc. offers a broad range of rotary shaft seals for blending powders, liquids, slurries and bulk solids (e.g., nuts, dried fruit, granola, etc.) in production applications across a variety of industries. Process handling equipment like industrial blenders and mixers require proper sealing to ensure low production costs, minimal product lost and a safe work environment.

Rotary shaft seals perform three essential functions:

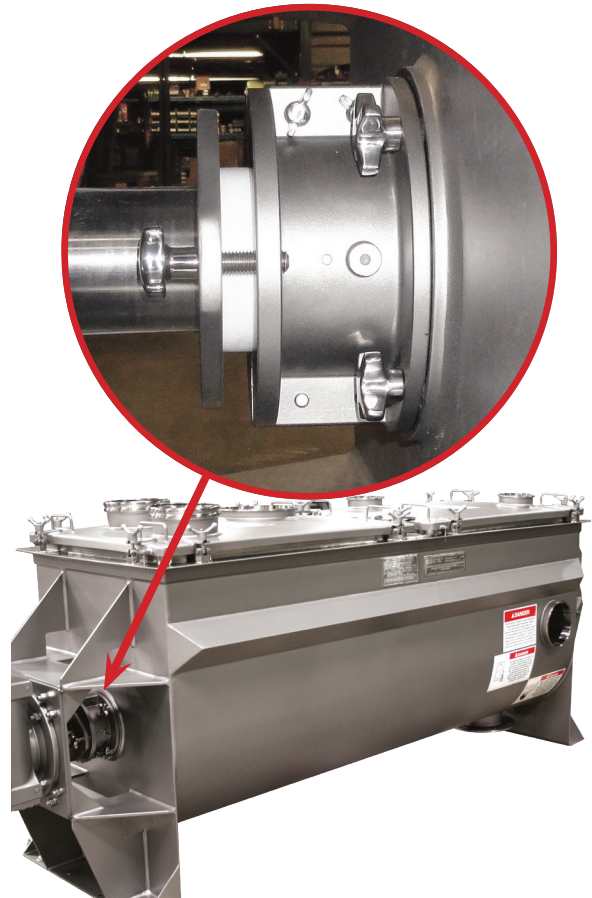
1. Prevents impurities entering from outside the vessel through the seal area and into the product zone.
2. Prevents product from passing through the seal area to the outside of the vessel allowing impurities to grow, pass through the seal and re-enter the product zone.
3. Prevents product from migrating to the seal area which would allow impurities to grow that could enter the product zone.

EIRICH offers a variety of designs and features to fit you specific application. In addition to the application, cleaning and maintenance requirements will help determine the appropriate seal selection.

These include:

- Braided Packing Seal
- V-ring Packing Seal
- Mechanical Seal

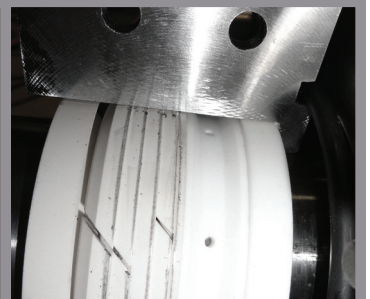
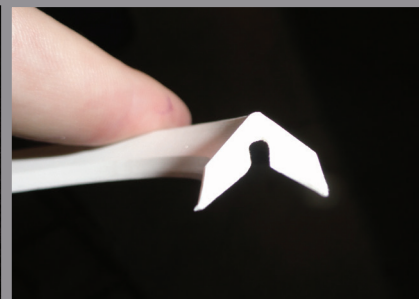
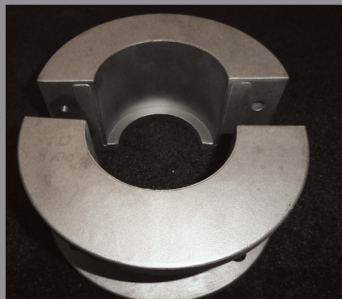
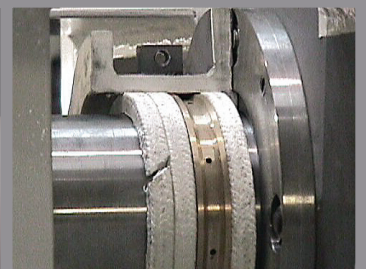
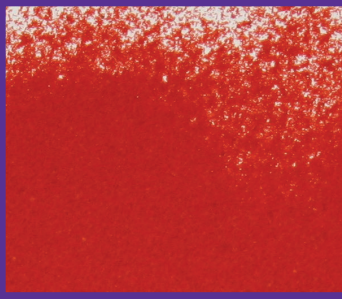
Whether it's a modification to an existing blender or mixer, a custom design for your application or a specific industry need, **EIRICH** is ready to help get the job done. With over 40 years experience blending and mixing in North America, **EIRICH** has the experience necessary to supply an effective solution for your application.



Packing gland seal with split housing. Teflon braiding, air purge ring and pusher with palm nuts.

Shaft Seal Selection Guide

	SEAL TYPES		
	Braided Packing Seals	V-ring Packing Seals	Mechanical Seals
Bulk Powders	X	X	X
Bulk Solids	X	X	X
Liquid Addition		X	X
Liquids			X
Pastes		X	X
Slurries			X

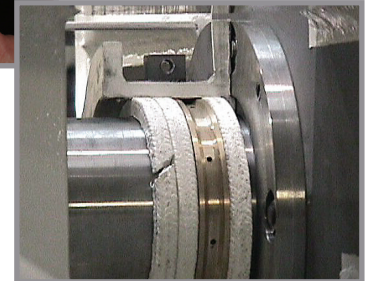


Types of Seals

Braided Packing

The EIRICH braided packing seal, from American Process Systems, is the standard for general processing applications. The braided packing is made from 100% Teflon™ continuous fiber with interlocking braid. Braided packing is ideal for dry bulk powders and solids in applications where there is minimal product variation and where wet-washing is not used.

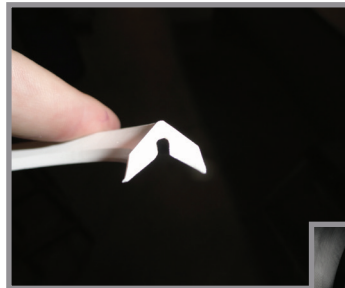
- Economical
- Easy to remove and replace
- Self adjusting and aligning
- FDA/USDA/3A compliant



V-rings

The EIRICH V-ring packing seal, from American Process Systems is made from 100% solid Teflon™ and is either molded or machined into v-shapes. V-rings are installed as a “stack” consisting of a “male” ring followed by a number of V-rings and ending with a “female” ring. V-rings are ideal for dry bulk powders and solids, liquid addition, pastes and in applications where there is large product variation and where wet-washing is used. They are also suitable for applications containing allergens.

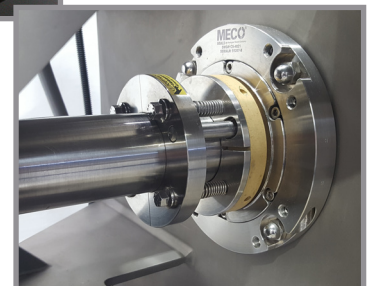
- Economical
- Easy to remove and replace
- Will not absorb moisture
- FDA/USDA/3A compliant



Mechanical Seals

ERICH specifies and procures mechanical seals through our strategic partner base or interfaces with your preferred mechanical seal OEM. Mechanical seals are great for the following: pressurized or vacuum applications, dry bulk powders and solids, liquid addition, pastes, slurries and liquids in applications where there is large product variation and where wet-washing is used. They are also suitable for applications containing allergens.

- Fully split eliminating bearing or drive removal
- Predictable maintenance cycles
- FDA/USDA/3A compliant
- Configurations designed around your service and operating conditions



How Braided/V-ring Packing Works

The braided packing seal consists of a stuffing box, packing material, air purge ring (optional), pusher, and a pusher plate. Figure 1. As the flange fasteners are tightened, the pusher is pressed forward against the packing. The packing material is compressed and expands against the stuffing box wall and shaft. This stops materials from migrating past while the shaft rotates. The packing is designed to be the wearable part of the seal and repair kits are available. The process for compression is the same for the V-rings.

All seals should be purged with either air or nitrogen. (3-5psi overhead pressure is recommended). For best results, each seal should have its own air regulator. Air purging the seal creates a higher pressure inside the seal cavity which creates an air barrier that helps keep material inside the tank and out of the seal area which adds to the life of the wearable parts.

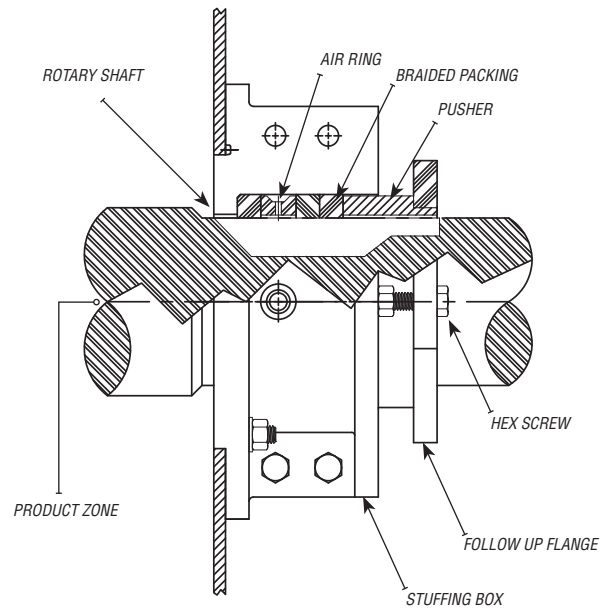
FDA/USDA/3A Compliant

Packing seals can meet all requirements of 3A sanitary standards and FDA/USDA requirements for food processing applications. The split 316 cast stainless steel stuffing box allows for easy cleaning and better visual inspection of the product contact area and is capable of handling caustic cleaning solutions. The packing is also split for easy inspection and replacement.

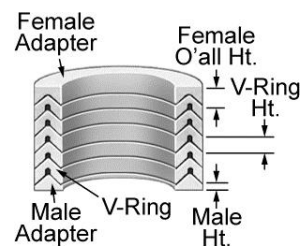
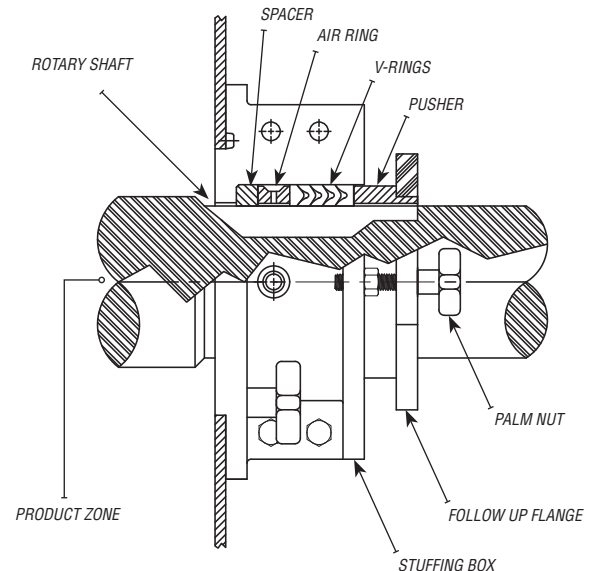
Operating Tips

1. Seals should be inspected and cleaned as part of a preventative maintenance schedule (PM).
2. Proper torque needs to be checked routinely to prevent leakage.
3. Mechanical packing should not be installed on severely worn or damaged shafts.
4. Use braided packing for dry applications only.
5. Use clean, dry air at the F/R/G inlet.
6. Each seal should have its own air regulator.
7. Refer to installation guide when mounting seals.
8. For best results, each seal should have its own sealsaver.

Braided Packing With Air Ring



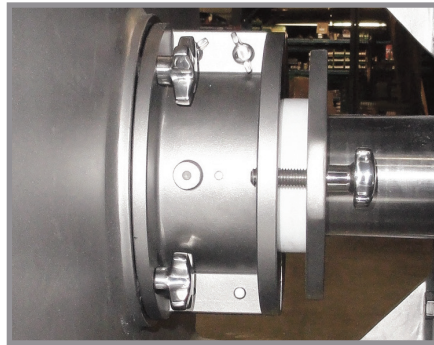
V-ring Packing With Air Ring



Optional Features

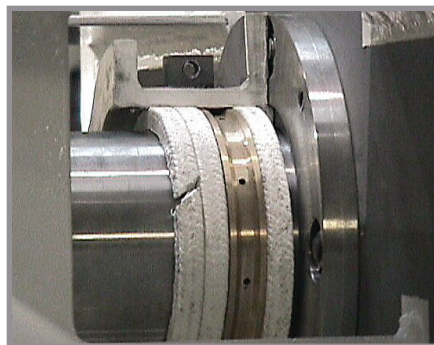
Palm Nuts

Allows operator to easily install, remove and make periodic adjustments to the seals without the need for tools.



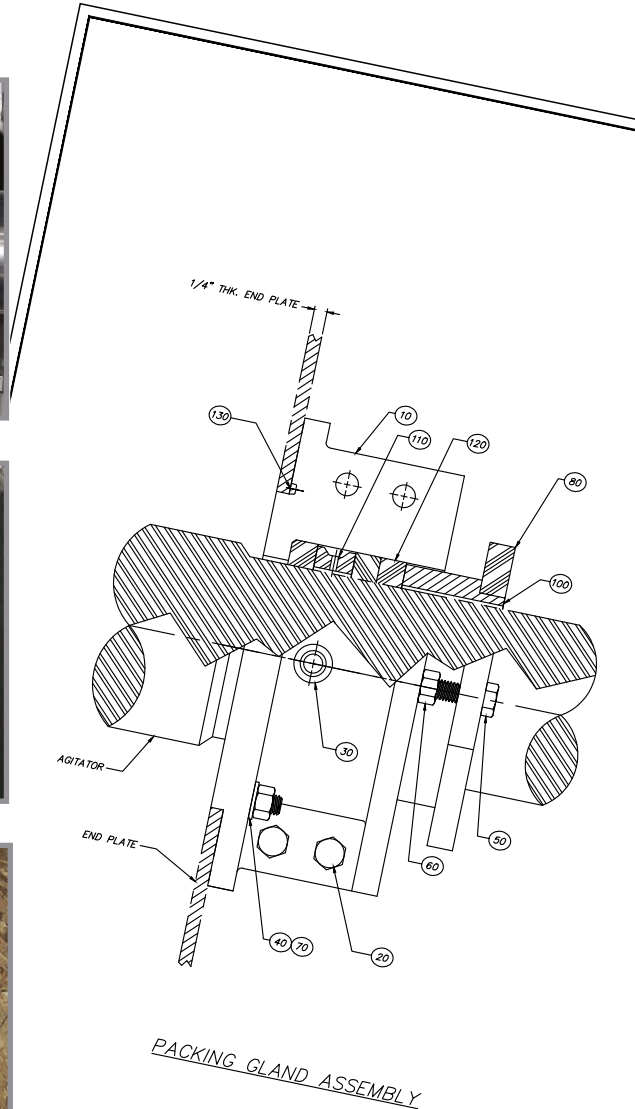
Air Purge Ring

Allows small amounts of air or inert gas to create a positive pressure against the shaft, mitigating materials from entering the shaft seal area.



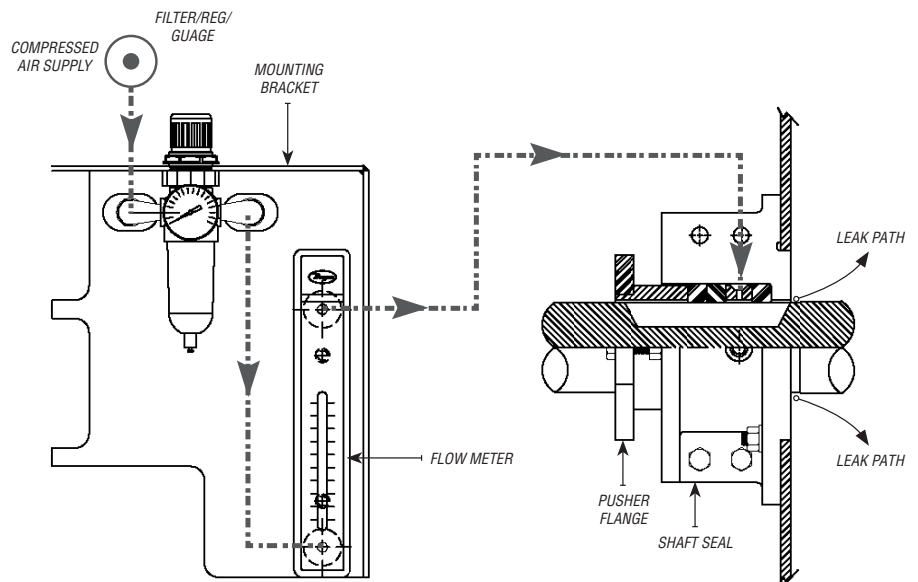
Seal Repair Kits

The braided packing and V-rings are designed to be a wearable part of the seal and repair kits are available.



Seal Saver Kit

A filter / regulator / gauge (F/R/G) used to identify potential problems inside the seal that cannot be detected by visual inspection. Available for braided packing, V-rings and mechanical seals.



Installation

Note: The packing material used for these instructions is braided Teflon™ packing. The procedure for assembling or replacing V-rings is the same.

1. Cut Teflon™ Braiding

Place the gasket between the stuffing box halves.

Note: Gasket is not used with USDA applications.



2. Mount Stuffing Box

Take one half of the stuffing box and bolt it to the bolting ring “finger tight”.



3. Insert Gasket

Place the gasket between the stuffing box halves.

Note: Gasket is not used with USDA applications.



4. Close Stuffing Box

Bolt the stuffing box halves “finger tight”.



5. Position Braiding

Place one piece of braiding firmly around the shaft making sure all ends of the packing are tight around the shaft.

Note: Verify that the orientation of the cut is correct.



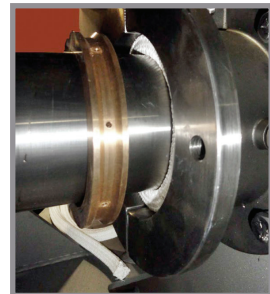
6. Install Braiding

Place braiding into stuffing box.



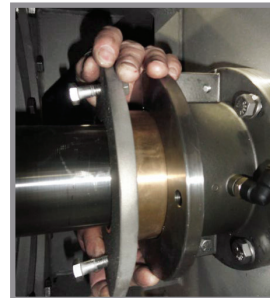
7. Install Air Ring

Seat the braiding and the air ring by pressing the pusher into the stuffing box.



8. Balance of Braiding

Follow the air ring with the second and third piece of braiding. Seat the assembly by pressing the pusher into the stuffing box.



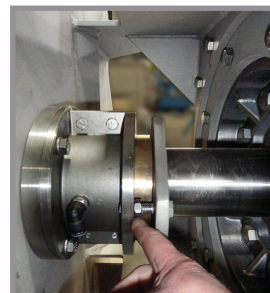
9. Tighten Stuffing Box

Tighten all of the bolts starting with the stuffing box halves. Then, secure the stuffing box to the bolting ring.



10. Secure Pusher

Press the pusher firmly inside the stuffing box. Screw in the pusher's compression bolts “finger tight”. Tighten bolts an addition 1/2 turn. Lastly, secure the jam nut to lock the pusher in place.

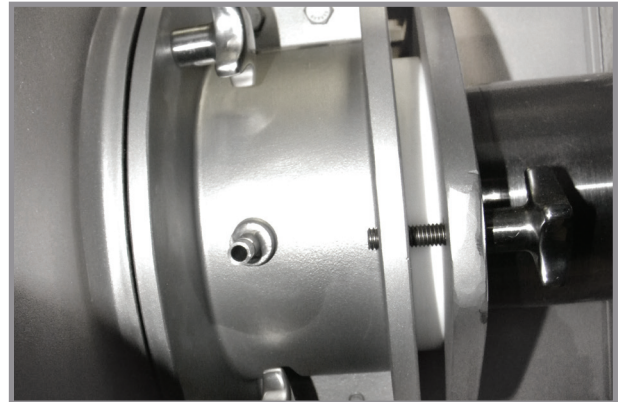
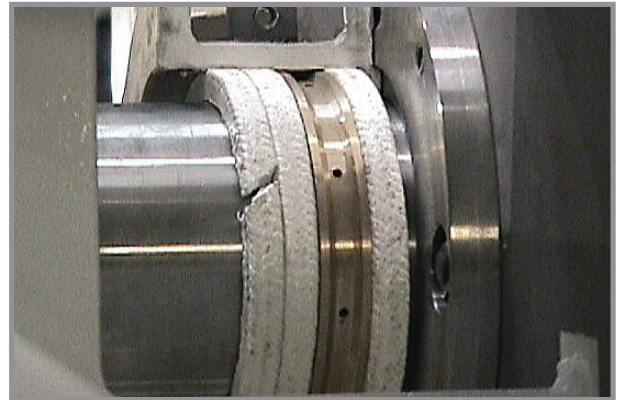
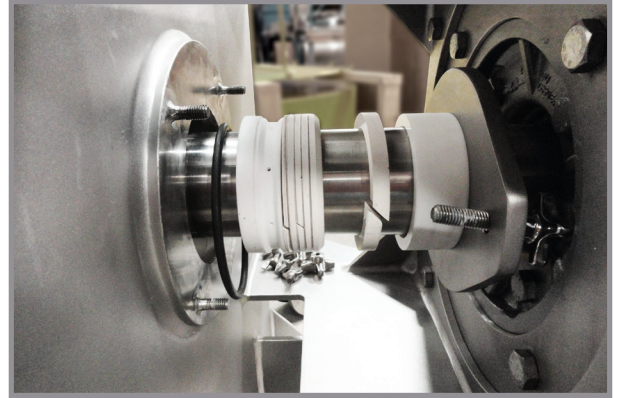


Cleaning Tips

Here are some general guidelines for maintaining our packing and V-ring rotary shaft seals. Following these guidelines will ensure the proper function and add to the life of the wearable parts. For proper operation, the **EIRICH** stuffing box design will require periodic maintenance to work effectively.

Important: Do not over tighten the packing. This will cause excess frictional heat and abrasive wearing of the packing.

1. The seals should be washed as part of the normal blender cleaning procedure. Each application is unique, so your specific requirements and approaches to equipment cleaning may vary.
2. Inspect the seal during the cleaning process. If any of the items are showing significant wear, those items should be replaced. Follow the procedure outlined earlier to properly re-assemble the seal.
3. If the cleaning process is wet, it is recommended to rotate the agitator (if possible) so that all surfaces can be sprayed directly to most effectively remove any build-up.
4. Whether the cleaning process is dry or uses chemical cleaning agents or just water (ideally hot water between 165°F and 205°F), the same should be used for the seal. The seal should be disassembled, cleaned and dried prior to re-assembly.



Ask about equipment in the American Process Systems® product line:



OptimaBlend® Fluidizing Paddle Blender



Ribbon Blenders



OptimaIBlend™ Fluidizing Zone Mixer



Vacuum Dryer/Reactors



Registered to ISO 9001

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