DURA-SHIELD™ SHAFT SEALS

SD SERIES FULLY SPLIT ASSEMBLY / REBUILD KIT INSTRUCTCIONS

Before proceeding , if possible uninstall the seal from the machine. Having the seal free of the machine will make the rebuilding process a breeze! Be sure to thoroughly clean the housing removing all processed materials, silicone and other particulates. Assembling the seal on a clean surface is crucial for proper operation. Prior to reassembly verify the housing is free of contaminants which can cause premature seal failure. Denatured alcohol is recommended for degreasing the housing/faceplates prior to reinstallation. Surfaces where rtv is to be applied must be degreased to obtain a proper bond. For re-installation apply a bead of silicone rtv sealant to the seal and machine end. Certain installations may require the use of a seal gasket, If so apply rtv to both sides of the gasket, place the gasket between the seal & machine end. When applying rtv sealant be sure to remove all excess sealant and verify that it does not make contact with the internal moving components of the seal.
Use of thread locker or anti-seize is not recommended. When tightening fasteners, insert , start them by hand , bottom out and apply an additional quarter to half turn. DO NOT OVERTIGHTEN.

NOTE: The teflon wear plates are made in two patterns . Each side requires one of each wear plate for proper assembly.
During assembly you will notice the wear plate assembly has an offset seam to the main seam of the housing.
This offset seam aids in stopping process material from entering into the seal. If the wear plate assembly is improperly assembled a gap will be present in which process material can enter into the seal housing. Its crucial to assemble the wear plate assembly properly.
Prior to reinstallation double check for proper assembly!

For additional assistance visit durashieldseals.com or call 1.877.243.7325

REQUIRED TOOLS:

- 7/64" ALLEN WRENCH / HEX DRIVER
- 1/8" ALLEN WRENCH / HEX DRIVER
- 3/16" ALLEN WRENCH / HEX DRIVER
- 3/16" SLOTTED HEAD SCREWDRIVER
- 1/2" SLOTTED HEAD SCREWDRIVER
- 1/2" OPEN /CLOSED SPANNER WRENCH

(Tools for seal housing removal varies per installation)

CLEANING:

- Denatured Alcohol
- Simple Green
- Paper towels

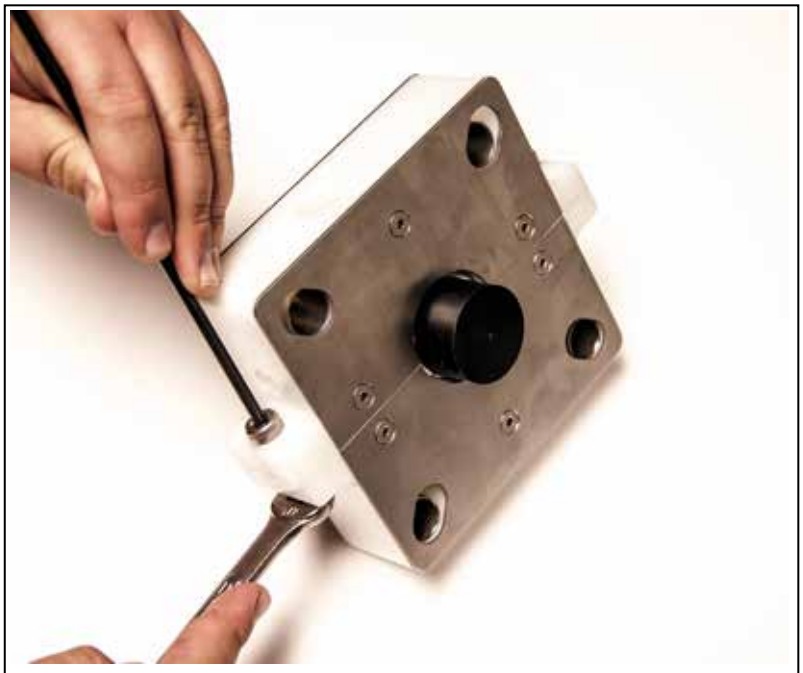
PARTS CHECKLIST:

- (A) SD SERIES FULLY SPLIT HOUSING (2 QTY)
- (B) STAINLESS STEEL FACE-PLATES (4 QTY)
- (C) POLISHED STAINLESS STEEL WEAR RINGS (4 QTY)
- (D) TEFLON WEAR PLATES (4 QTY, 2 SIZES)
- (E) EPDM ELASTOMER SHAFT BOOT (1 QTY)
- (F) ELASTOMER CLAMP (1 QTY)
- (G) STAINLESS STEEL COMPRESSION SLEEVES (4 QTY)
- (H) STAINLESS STEEL SHOULDER BOLTS WITH NUTS (2 NUTS, 2 BOLTS)
- (I) STAINLESS STEEL 7/64" ALLEN SOCKET CAP SCREWS (4 QTY)
- (J) STAINLESS STEEL 1/8" ALLEN FACE PLATE SCREWS (QTY VARIES BY MODEL)
- (K) HDPE THREADED HOLE PLUGS (2 SIZES, 2 QTY)

REBUILD KITS INCLUDE:

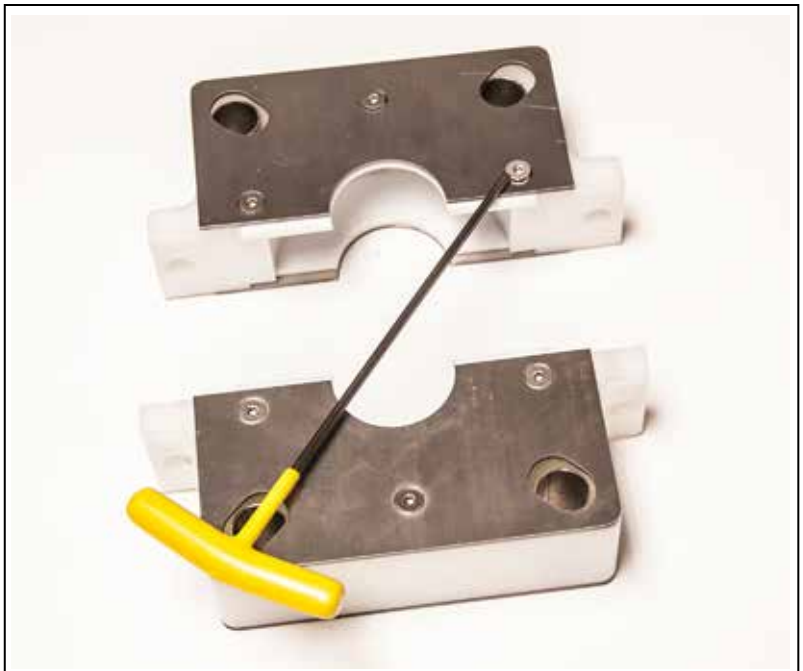
4 polished stainless steel wear ring halves, 4 Teflon wear plates,
1 SPLIT EPDM Elastomer, 1 Elastomer clamp & fasteners.
The Seal Housing & Stainless faceplates are to be cleaned and re-used.
If a new faceplate or housing is required please contact us & be sure to have your seal serial number.

For additional assistance with assembly or rebuilding please contact us.
Our support team is available for telephone support Mon-Fri 9:00AM - 4:30PM est. Call toll free 1.877.243.7325
Additional technical illustrations & documents are available for download at durashieldseals.com

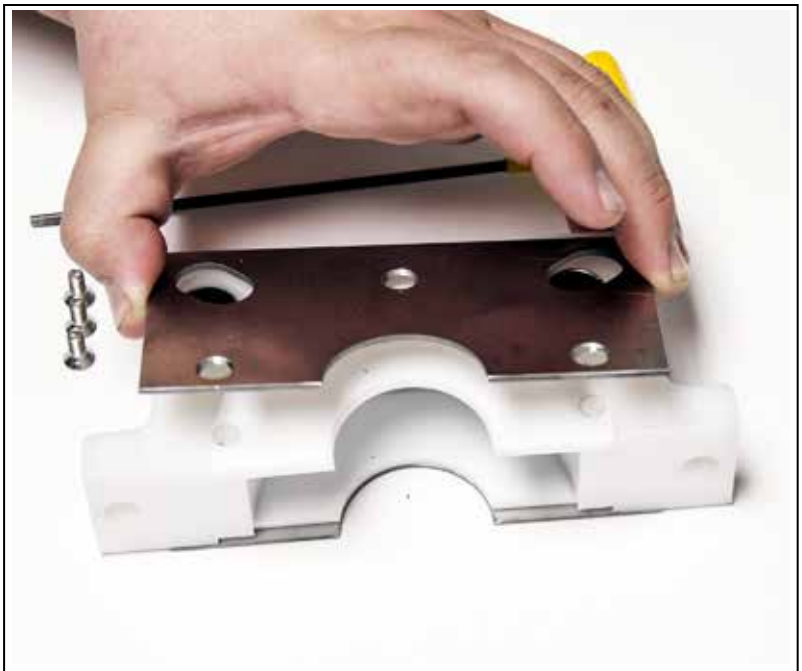


STEP 1: Using a 1/2" wrench & 3/16" Allen wrench remove the housing shoulder bolts. This will allow the seal to seperate into 2 sections. Using a 1/8" Allen wrench back the outer faceplate screws out a full turn, this will permit the two sections of the housing to seperate easier.

STEP 2: Seperate the split housings and remove them from the shaft. NOTE: The black abs shaft is installed to illustrate a typical SDFS installation & how to remove the seal for rebuilding. Internal component disassembly, rebuilding & installation process is illustrated later in this document.



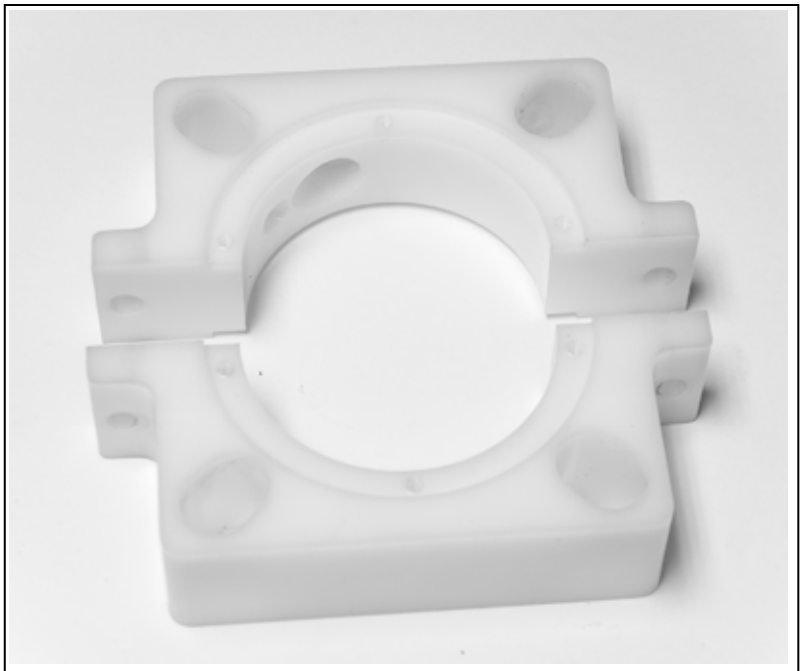
STEP 3: With the housings free of the shaft assembly. Remove the faceplate screws using a 1/8" allen wrench. Rebuilt kits include new screws (qty of screws varies per shaft dia)



STEP 4: Remove the outer stainless steel faceplate

STEP 5: Remove the teflon wear plate.
New teflon plates are included with the rebuild kits.

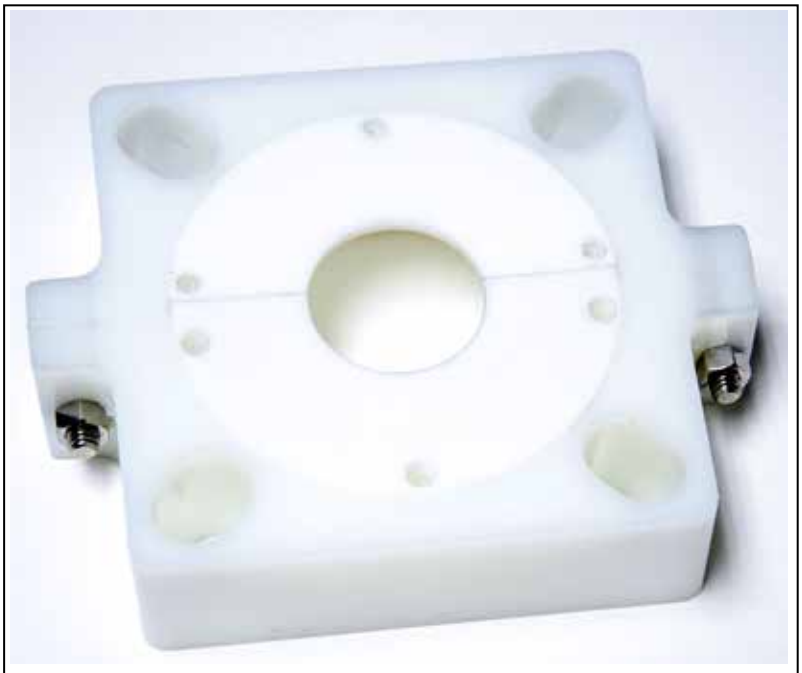
STEP 6: Remove the stainless compression sleeves.



STEP 7: Repeat steps 3-6 on each segment of the split seal housing. The seal should look like the photo above.
Thoroughly clean the housing- (simple green works well)
Remove all processed materials to insure proper assembly & operation.

STEP 8: Reassemble the housing.
This step is temporary & the bolts only need to be finger tight.
Verify the seam is Smooth & Flush all the way round.

STEP 9: Install the compression sleeves. Make sure the sleeves are clean and free of process materials.



STEP 10: Installing the new wear plates. The wearplates are made in 2 patterns. Each side requires one of each pattern. Notice the seam offset created by the larger wearplate.
In most seals the wearplates are Teflon. We offer alternate wear plate materials such as Vespel, Peek, Rulon J & Carbon filled teflon. Rebuild kits include a new set of wear plates. Each kit is matched to the seal serial # to assure proper replacement parts.

STEP 11: Install the faceplates & faceplate screws using the 1/8" Allen wrench. Leave a 1/4 turn of slack in the screws as it will allow the housings to seperate easier.
Flip the housing and repeat steps 10 & 11 for the obverse side.

STEP 12 Wear ring removal: Using the 7/64" Allen wrench back both screws out on each wear ring. This will allow the rings to seperate. Rebuild kits include new rings.

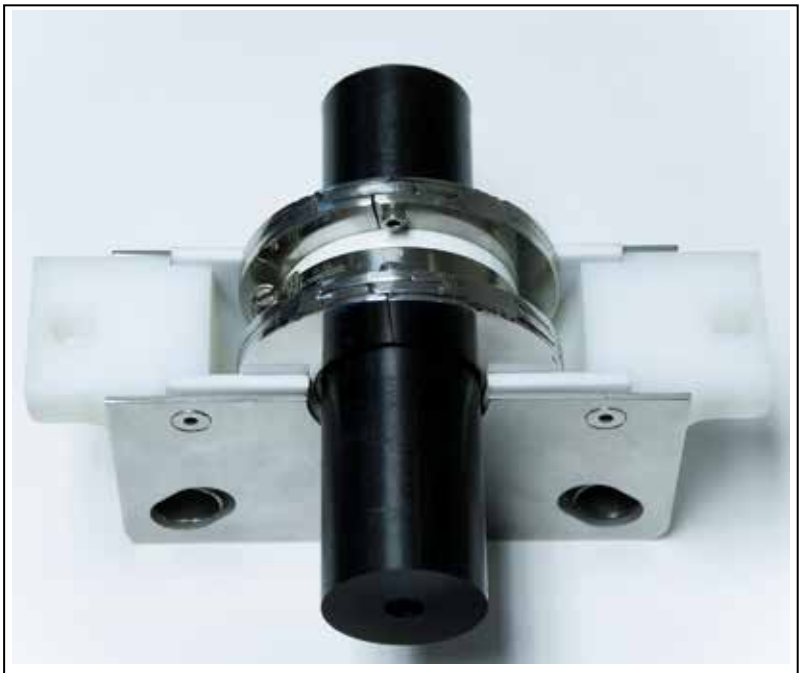
STEP 13: Repeat step 12 for the remaining wear ring

STEP 14: Remove the elastomer clamp, back the clamp screw out using the 3/16" slotted screw driver. the clamp will slip over the elastomer. Remove the elastomer. Rebuild kits include a new EPDM elastomer.

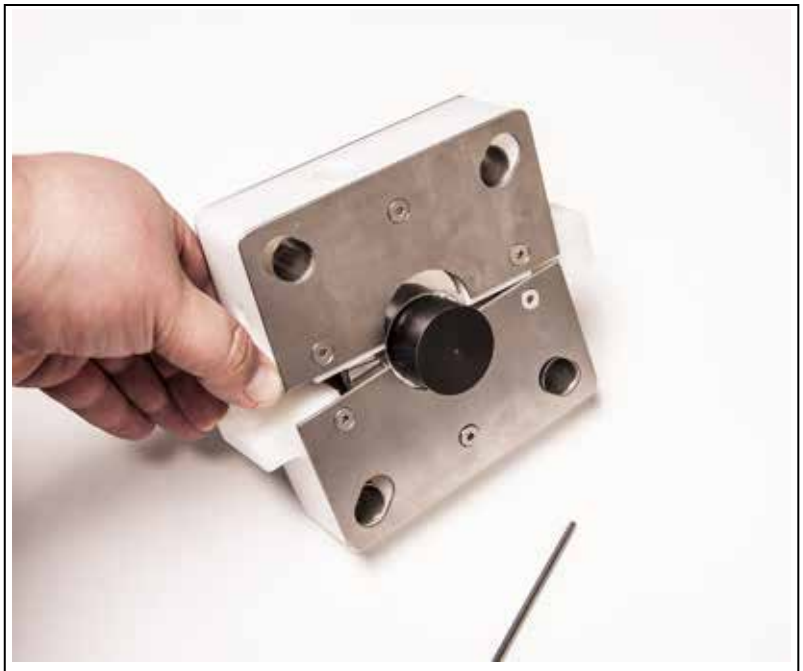
STEP 15: Install the elastomer & elastomer clamp.
Align the clamp head over the seam of the elastomer.
Form the elastomer gap as tightly as possible by hand before applying pressure to the clamp, tighten the clamp until its seated.

STEP 16: Reinstall the split rings onto the shaft. Make sure the rings properly seat onto the elastomer. The internal assembly should be aligned as shown. Make sure the clamp is centered between the rings.

STEP 17: Seperate the housings. Using a 3/16" Allen & 1/2" wrench remove the side shoulder bolts.

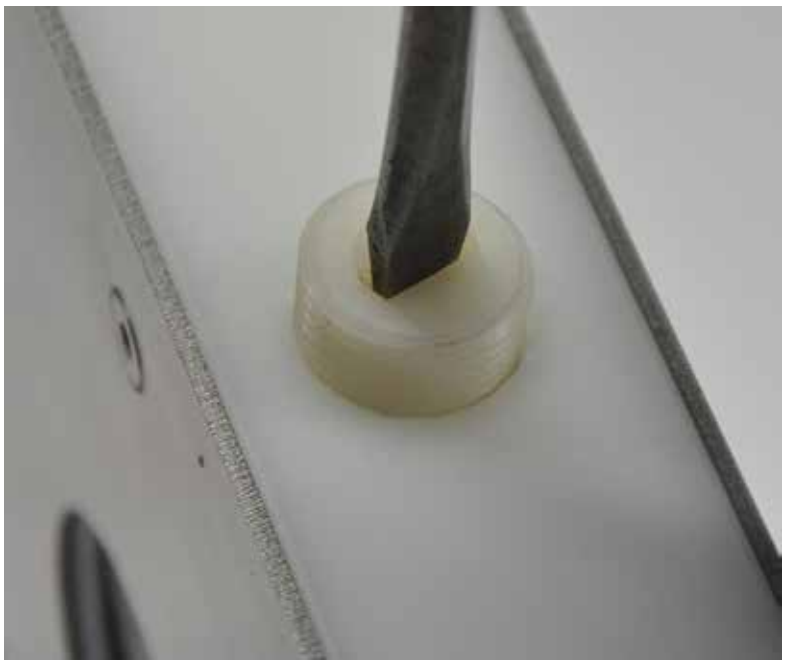


STEP 18: Place half of the housing onto the wear-ring assembly as shown. Make sure the clamp adjustment screw is aligned to the adjustment port on the second half of the housing.



STEP 19: Combine the housing segments, verify the Teflon plates are properly seated, the seam should be even & tight.

STEP 20: Using the 3/16" allen & 1/2" wrench install the shoulder bolts to combine the housings.
Using the 1/8" Allen, tighten all the faceplate screws Apply an additional 1/2 turn to each screw.



STEP 21: Remove the elastomer adjustment port. align the clamp adjustment screw with the port.

STEP 22: The seal is complete. Generally SDFS seals are rebuilt around the shaft. The only remaining step is bolting the main housing to the machine end. Installation tips and setup procedures are posted on page 7,

1.5" SDFS SEAL.

SETUP & INSTALLATION TIPS:

· **AIR/GAS PURGING:** When connecting an Air or Gas purge start the operating pressure at 15-20 psi. This should create about 2 SCFM of air flow. If your process material is capable of packing against the face of seal you will need to manually adjust the amount of air pressure required to maintain a positive flow over the seal faces.
(5 psi. over product pressure is sufficient)

· **AIR/GAS REGULATION:** Regulator & Filter assemblies are commonly used. In tight spaces it may be necessary to mount the regulator / filter away from the housing and pipe the purge medium to the housing. Typically the regulator/filter can be mounted to the housing with a Stainless Steel 1/8" NPT Connector Pipe.

· **AIR/GAS PLUMBING:** Pneumatic air lines should have enough slack so you can move the seal without disconnecting the purge. Keep all lines free and clear of the shaft!
Teflon tape can be used to seal the air purge threads.

MOUNTING: Verify the mounting area is clean & free of particulates. Check for a smooth even surface so the seal's faceplate can seat evenly. Be sure to degrease the mounting area & seal faces before applying RTV sealant. Do not de-grease with mineral spirits or similar petroleum based solvents! Only use Denatured alcohol. Remove all excess RTV sealant, verify RTV is not on or near the shaft or internal components as it will cause operating issues. If the seal has a gap of plus 3/16" use of a gasket is necessary. We offer gaskets cut to match the profile of your seal. Apply equal pressure to all mounting nuts & bolts. Mild torque is sufficient depending on the application and seal size.
Mixing 5:1 water & mild soap to create a solvent which makes sliding the seal over the shaft without binding the elastomer.

INITIAL STARTUP: After installation is complete run the machine for 30 minutes and check your temperatures, if they're beyond the posted tolerances, adjustments to the air purge pressure and or elastomer are necessary, also verify proper installation, no binding or pinching of the internal wear components. The seal should not rub or squeal.

ADJUSTMENT: Check the pressure on the hose clamp of the elastomer periodically, this insures proper operation- 1/4 to 1/2 turn is usually sufficient. As the internal plates wear over time adjustments will become more necessary. When you tighten the clamp the internal expansion of the elastomer creates outward pressure against the seals internal wear plates maintaining seal & pressure. If the current pressure seems the same but the seal is failing, increase torque on the clamp more in half turn increments until leaking stops. If you tighten two full turns and the leaking issue persists it's time for the seal to be rebuilt.

OPERATION & MAINTENANCE: Optimal operation is maintained by monitoring seal temperatures and maintaining proper adjustment.
If the seal is running hot, adjustment of the elastomer clamp is necessary , you may also have to boost air purge pressure to reduce internal temperature and drag. There is no exact way to define these settings as each application is different. While the seal is in operation it could potentially be very hot, enough to cause an injury- For safety please check the operating temps before attempting to service the seal.
Use extreme caution when adjusting the seal and never attempt adjustment with the machine or purge running!
Check temps daily and maintain a log, this will help map out the lifespan and rebuild schedule of your DURASHIELD Seal.
Remote or infrared thermometers are ideal for monitoring temps.

If maintenance is difficult due to the installation environment, please ask about our self adjusting & maintenance free designs. Visit durashieldseals.com or call 1.877.243.7325