DURA-SHIELD™ SHAFT SEALS

HD 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 HDFS series uses two patterns of Teflon wear plate. Each side of the seal requires one of each wear plate for proper assembly.
During assembly 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

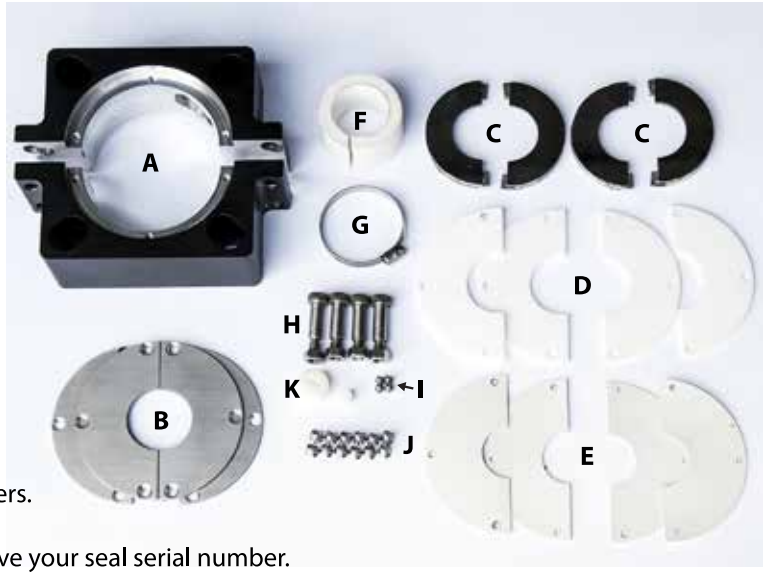
(Tools for seal housing removal varies per installation)

CLEANING:

- Denatured Alcohol
- Simple Green
- Paper towels

PARTS CHECKLIST:

- (A) HD 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 SHAFT WIPERS (4 QTY)
- (F) EPDM ELASTOMER SHAFT BOOT (1 QTY)
- (G) ELASTOMER CLAMP (1 QTY)
- (H) STAINLESS STEEL SHOULDER BOLTS WITH NUTS (4 NUTS, 4 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)

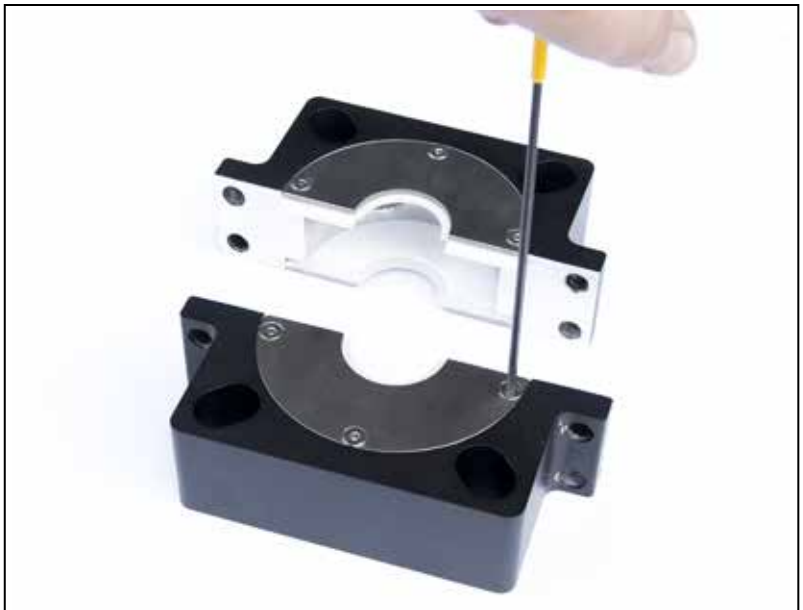


REBUILD KIT INCLUDES:
4 Polished Stainless steel wear ring halves, 4 Teflon wear plates,
4 EPDM shaft wipers 1 SPLIT EPDM Elastomer, 1 Elastomer clamp & fasteners.
The Seal Housing & Stainless faceplates are to be cleaned and re-used.
If a new faceplate or housing is required please contact us & be sure 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

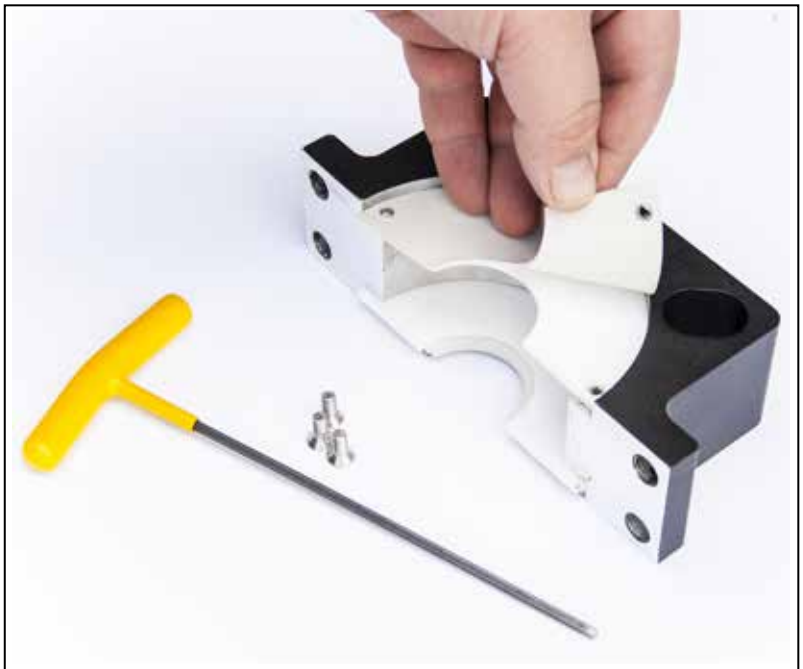
STEP 1: Remove the housing shoulder bolts using a 1/2" open/closed wrench & 3/16" Allen wrench . This will allow the seal to seperate into 2 sections. Back the outer faceplate screws out a full turn ,this will allow the two sections of the housing to seperate easier.

STEP 2: With the shoulder bolts removed seperate housing and remove the housing sections from the shaft. NOTE: The black abs shaft is installed to illustrate a typical HDFS installation & how to remove the seal for rebuilding. Internal component disassembly, rebuilding & installation process is illustrated later in this document.



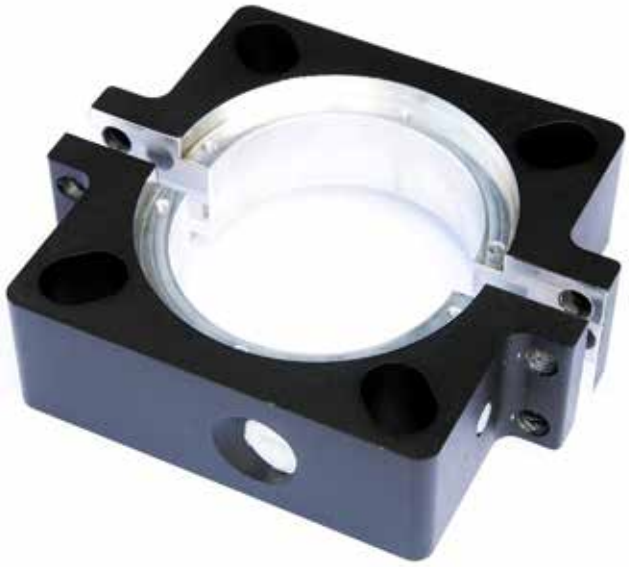
STEP 3: With the housing free of the shaft assembly. Remove the faceplate screws using a 1/8" allen wrench.

STEP 4: Remove the outer stainless steel faceplate

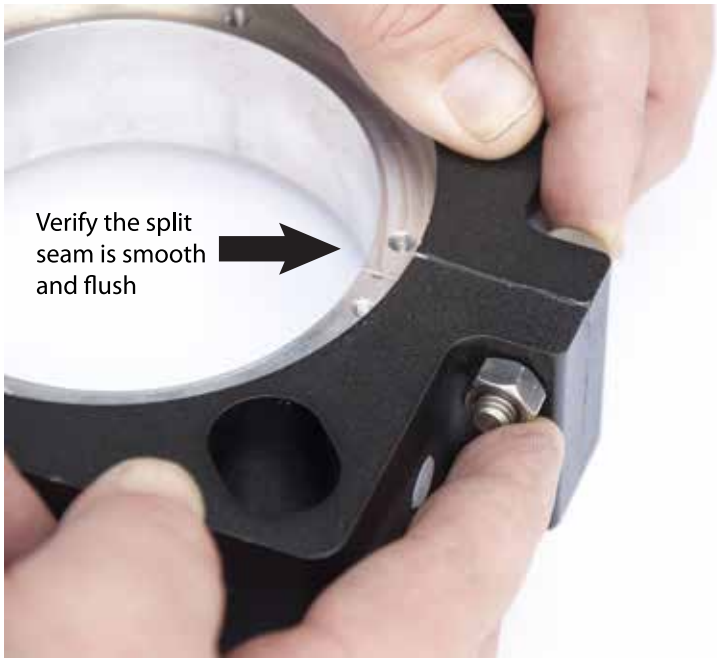


STEP 5: Remove the EPDM shaft wiper. The wiper is a thin synthetic rubber material. Rebuild kits include a new set of shaft wipers.

STEP 6: Remove the wearplates.

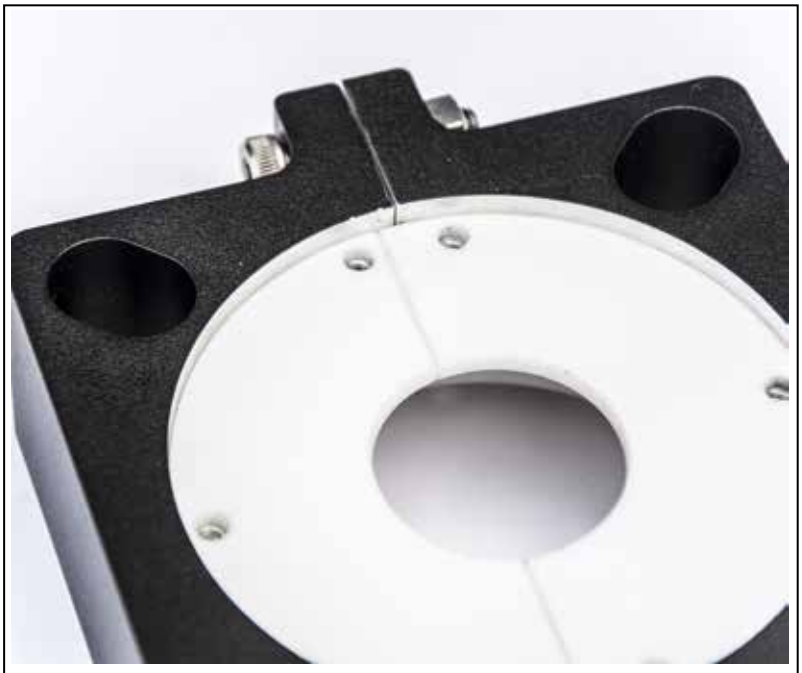


STEP 7: Repeat steps 3-6 on each segment of the split seal housing. The seal should look like the photo above. Thoroughly clean the housing (simple green works well)
Remove all processed materials to insure proper assembly & operation.



STEP 8: Reassemble the housing using two shoulder bolts, one for each side. This step is temporary & the bolts only need to be finger tight.
Verify the seam is Smooth & Flush all the way round.

STEP 9: Installing the new wear plates. The wearplates are made in two patterns. Each side of the seal gets 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 10: The second half of the wearplate completes the assembly- note the offset seam. Be sure to mirror this pattern on the obverse side of the seal when installing the wearplates.

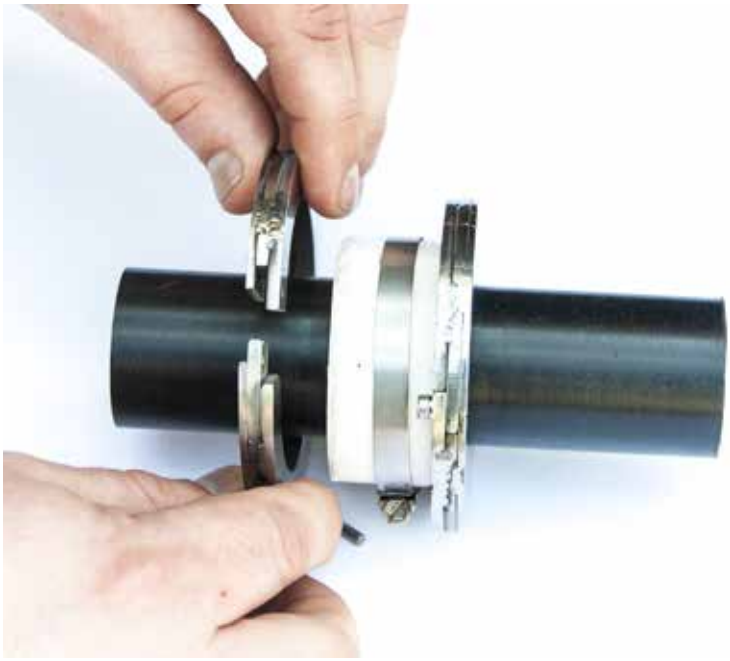
STEP 11: Install the EPDM shaft wipers.

STEP 8: Install the faceplates & faceplate screws using the 1/8" Allen wrench. Do not fully tighten the screws as it will not permit the housings to be rejoined properly. Flip the housing and repeat steps 9-8.

STEP 13: Remove the side shoulder bolts and seperate the 2 housing sections.

STEP 14: Having the faceplate screws backed out a whole turn leaves a small amount of play in the faceplates to allow the seal to reassemble without pinching the internal components. At this stage the housing is rebuilt.

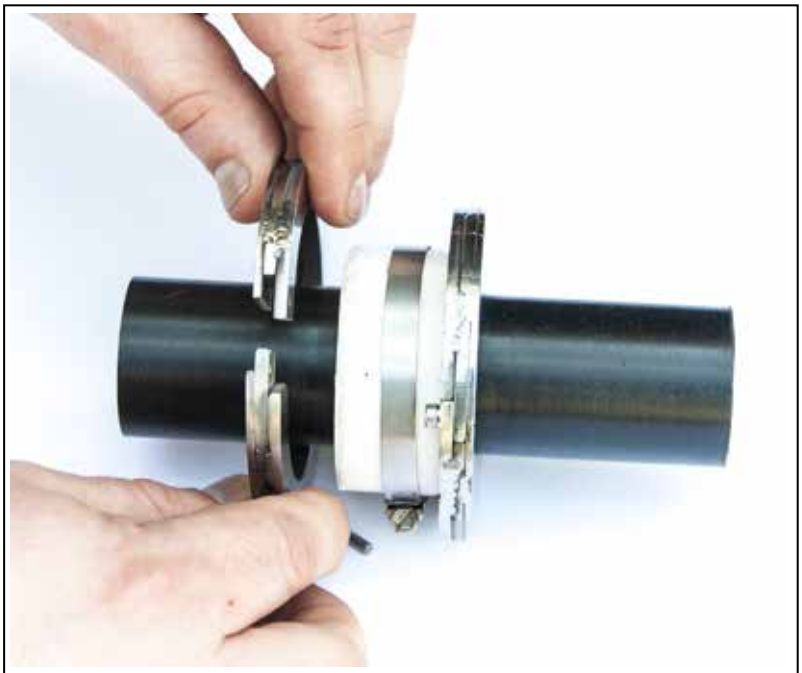
STEP 15: The rebuild kit includes new stainless steel rings, elastomer & elastomer clamp. Slide the outer ring forward, using a 7/64" Allen key- Remove the 2 screws which hold the wear ring together.



STEP 16: With the 7/64" allen screws removed the the split ring housings can be removed from the shaft.

STEP 17: Remove the old elastomer. The elastomer clamp removes by backing the clamping screw out. U
se steps 15 & 16 remove the remaining wear ring.

When installing the new elastomer clamp
be sure to align the split seam with the clamp head.

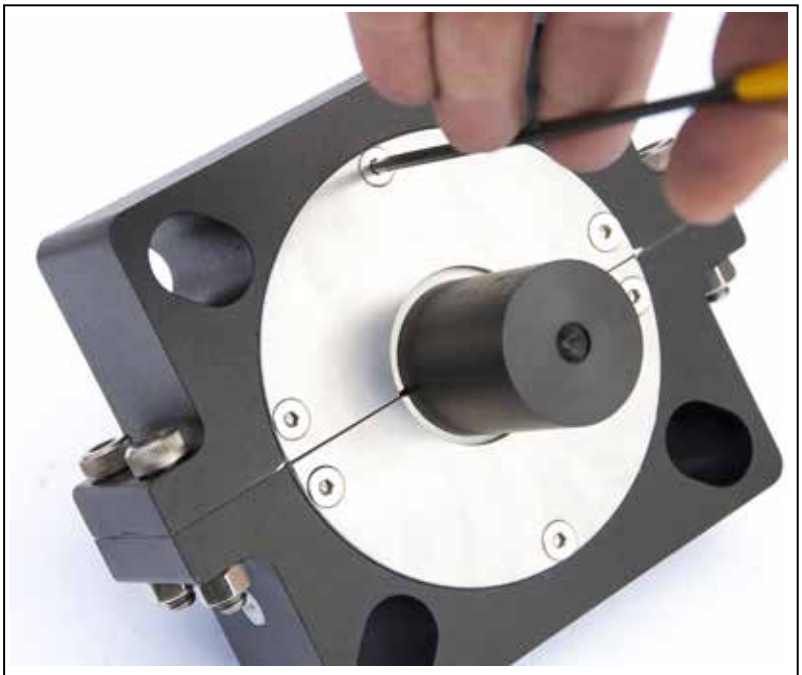


STEP 18: The wear rings fasten together using two 7/64" Allen head screws per ring. Insert and tighten the screws adding a 1/4 turn for proper tension. Place the new elastomer & clamp onto the shaft. Seat the elastomer onto the inner lip of the new wear ring. Center the clamp. Install the remaining wear ring.

STEP 19: When assembled the elastomer/wear ring assembly should fit into the housing. Align the clamp adjustment screw to the adjustment port of the housing- this is crucial for seal adjustment. Verify the clamp is snug but able to move for adjustment.

STEP 20: Combine the housing segments, Verify the EPDM shaft wipers are not pinched and the Teflon plates are properly seated, the seam should be tight.

STEP 21: Re-install the stainless steel shoulder bolts using the 3/16" Allen wrench & 1/2" open/closed wrench. Fully tighten and apply an additional 1/2 to 3/4 turn.
Use of thread locker or anti-seize is not reccomended.



STEP 22: Use a 1/8" Allen wrench & tighten the faceplate screws. The faceplates should be flush to the housing. Do not over tighten the screws! An additional 1/4 turn is ample torque.

Verify the shaft wipers are not pinched and the seam is even.

STEP 23: With the seal re-installed adjust the elastomer so the shaft rotates normally. Check for rubbing- proper adjustment is crucial for optimal seal life.

STEP 24: Reinstall the elastomer adjustment hole plug using the 1/2" Straight screwdriver. A new plug for the elastomer port is included with the rebuild kit.

STEP 25: The seal is complete. Generally HDFS 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 here & at durashieldseals.com

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.

GREASE PURING: Seals which are grease purged require more attention to maintain proper grease levels. Daily filling is required. The seal housing has a fill port for a grease gun. Use of automatic spring lubricators is recommended for optimal operation.

AGD Products is an authorized distributor of Pulsarlube products, please ask your sales rep for more details.

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- A 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