

442C™ Cartridge Split Mechanical Seal

Installation Troubleshooting Guide

The 442C Cartridge Split Mechanical Seal incorporates technical advancements that significantly increase seal performance and reliability; and simplify seal installation. When installing the 442C, as with any sealing device, familiarity with the proper installation procedure optimizes reliable sealing at equipment start-up. Installation videos are available at: www.chesterton.com/442C_Videos.

Chesterton split seals are designed to be leak free. However, due to variable equipment and operating conditions, some leakage may occur during the startup period. Typically, the leakage diminishes or stops as the seal faces and elastomers conform to their mating surfaces.

If leakage is greater than 60 drops per minute, confirm that the equipment and operating installation conditions are within recommended specification (pump sleeves sealed properly, etc.). If seal installation is the probable cause, then this guide can be used to correct the source of the seal leakage. This guide references sections from the 442C Cartridge Split Seal Installation, Operating and Maintenance Instructions, Rev. 6.

NOTE: Make sure the equipment and the operating conditions are within the established seal operating parameters. Record the source of the leakage as this may be helpful in determining the corrective action required. Record if the leakage follows the shaft rotation.

PROBLEM	CHECK	SOLUTION
Seal leakage at the gland splits	Adjustment of the gland socket head cap screws and stuffing box bolts can affect the gland split leakage.	Make adjustments and if leakage continues, remove gland assembly from equipment and perform the following inspections.
	Ensure gland split gaskets are seated properly in their grooves. Inspect gaskets/O-Rings for cuts or nicks.	If gaskets can still be used, re-install gaskets or replace with new per Section 9.0, Step 38.
Seal leakage from stuffing box gasket area	Ensure the gland is properly seated against the stuffing box face surface.	Ensure the stuffing box bolts are torqued to the proper values per Section 5.0 Step 18, Table 5.
	Ensure the stuffing box face surface has no steps or potential leak paths on the stuffing box face surface. Refer to Section 4.0 for stuffing box condition requirements.	Rework stuffing box gasket surface to ensure its condition is adequate to seal. Refer to Section 4.0 for stuffing box condition requirements.
	Ensure the stuffing box gasket is in its proper position. Refer to Section 9.0, image in Step 28.	Reposition or replace gasket per Section 9.0, Step 28.
Seal leakage from shaft area which does not follow shaft rotation	Remove gland assembly only (do not remove rotary holder from equipment) and perform the following inspections:	
	Inspect the stationary seal ring split lines, focusing on possible chips at the O-Ring area.	Any chips in the O-Ring area could affect seal leakage. Replace seal ring per Section 9.0, Steps 34 through 37.
	Ensure that the stationary seal ring splits are greased.	Clean carefully and apply a thin film of grease to both split surfaces per Section 5.0, Step 10.
	Ensure stationary O-Ring splits are flush with stationary seal ring splits.	Reposition the O-Ring per Section 9.0, Steps 34 through 37.
	Check rotary seal ring for scratches or chips on the sealing surface.	If scratches and chips on the seal ring exceed 20% of the sealing surface cross-section install a new rotary seal ring per Section 9.0, Steps 22 and 24.
	Ensure the gap between the rotary holder splits are equal on both sides (Reference Section 5.0, Step 5).	If splits are not equal on both sides, adjust the holder socket head cap screws per Section 5.0, Steps 3 through 4. Caution: During this procedure the set screws must be loosened and then retightened after holder socket head cap screws are adjusted; reference Section 5.0, Step 7.
	Inspect rotary seal ring splits for misalignment or a step.	To correct a step on the splits of the rotary seal ring perform the following steps: Install the installation P-spacer on the holder. Loosen up the holder socket head cap screws half a turn. Loosen up the set screws half a turn. Press on the high side of the face split until it is level with the lower side. Re-tighten the socket head cap screws (make sure the gap between the holder splits is even on both sides). Re-tighten the set screws. Remove the installation spacers. Clean the faces. Reinstall the gland assembly per installation instructions, Section 5.0, Step 9 through 19.
Inspect the rotary seal ring to make sure it is properly seated in the holder (even protrusion).	If rotary seal ring is not seated in the holder, reinstall per Section 9.0, Steps 22 through 24.	
Seal leakage from shaft area which follows shaft rotation	Once holder is removed from equipment:	
	Check the condition of the shaft at the O-Ring location. Reference Section 4.0 for shaft condition requirements.	Repair/replace shaft per equipment manufacturers requirements.
	Ensure rotary seal ring O-Rings are flush with rotary seal ring splits.	Reposition O-Rings per Section 4.0, Step 12, and Section 9.0, Steps 21 through 24.
	Ensure rotary holder split gaskets are seated properly in their grooves. Inspect gaskets for cuts or nicks.	If gaskets are in good condition, re-install gaskets or replace with new per Section 9.0, Step 25.
Check O-Ring condition.	Replace damaged O-Rings per Section 9.0, Steps 21 through 24.	

Please contact Chesterton Mechanical Seal Application Engineering if you have any questions.