

TECHNICAL REPORT

Failure reasons for oil seals
FAILURE REASONS FOR OIL
SEALS

PURPOSE

Due to the claims received by oil leakage of the oil seals, we want to report **the common faults** observed in their installation, as well as advice our customers tips in order to avoid the oil leakage.

DESCRIPTION

Oil seals are elements of **great precision** in their manufacture and therefore it requires special care in their installation **to increase their service life**. It is proved that the service life of a seal is directly related with the procedures of the installation.

Next, we are going to detail several tips or warnings for the installation of the oil seals:

1. STATUS OF HOUSING

Remember **to check the housing** in which the seal is installed, and make sure that it has no irregularities that can cause leakage of oil.

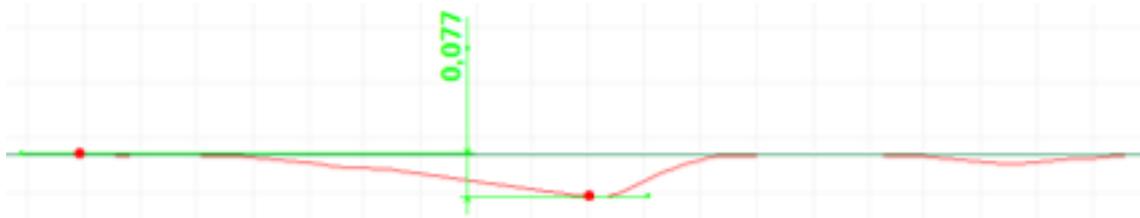
2. SHAFT STATUS

The shaft **must be checked to found imperfections** that can affect the sealing lip. In some cases, the sealing lip can wear out the surface of the shaft, creating a groove which through of it can produce leakage.

The duration and operation of the seal can be affected by shaft imperfections such as burrs, scrapes, rust, etc.

If the shaft is worn in depth, or has been damaged during the disassembly process of the old seal, it will be necessary to repair or replace the shaft, to ensure that the contact surface is in perfect condition.





Profile of the contact surface between the seal and the shaft where it's observed wear generated by the sealing lip (mm)

3. USE OF SELEANTS

No sealants or oil must be applied to the **external diameter** of the seal or in the housing. The contact of these places should be dry and tight so it can seal properly. This seal could reach the sealing lip canceling the operation of the oil seal.



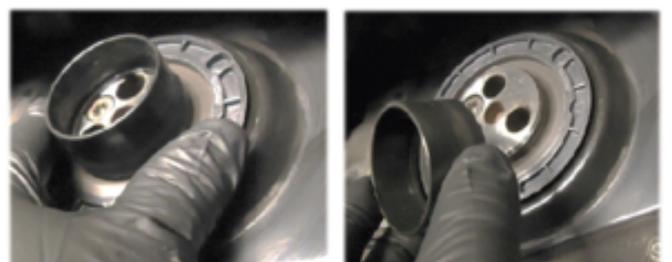
4. LUBRICATION IN THE ASSEMBLY

Before installing the oil seal, except for PTFE seals, **lightly lubricate the sealing lip with oil**. This facilitates the mounting of the seal on the shaft and prevents a dry start that could damage the lip or cause premature wears.

5. PTFE SEALS (POLYTETRAFLUOROENTHYLENE)

It is very important to **assemble them without lubricating** the internal sealing lip, using the applicator that comes with the seal to mount it on the shaft without damaging the lip.

Also, it is necessary to wait 4 hours before starting the engine, so the sealing lip is fully seated on the shaft.



6. SENSE OF ROTATION

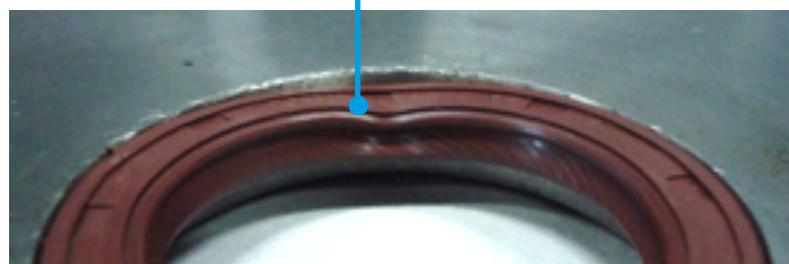
The direction of the rotation of the seal is fundamental. **If the seal that we mount is not appropriate** in terms of measures or direction of rotation, **leakage will be produced**.

Generally, the seals are marked with their dimensions and direction of rotation. **The direction of rotation is indicated by an arrow** and it must have to coincide with the direction of the axis.

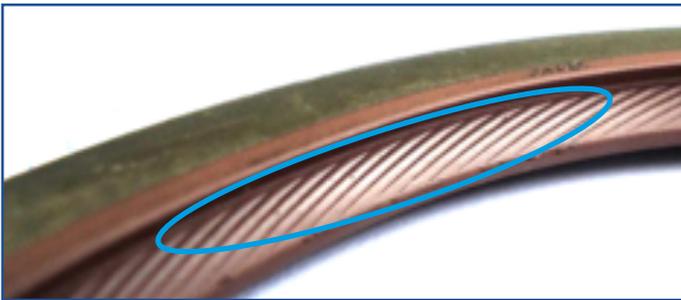
The seal must always be inserted into the housing in such a way that the marks (dimensions and arrows) must always be facing the outside (air side).

7. ASSEMBLING

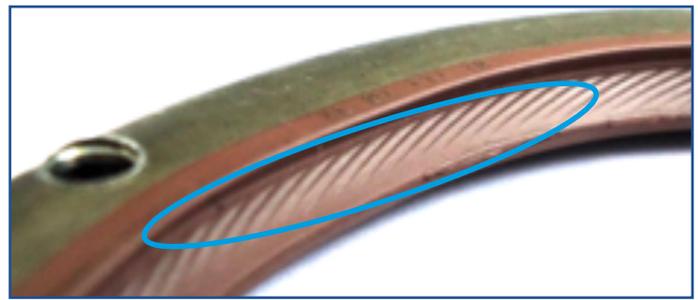
It is **totally forbidden to directly strike with the hammer** the seal or to use of any punch element to insert it into its housing, as this could cause deformations in the metal core, resulting leakage of oil.



The following pictures we can see the indicated mounting defect:



Area Max. Wear



Area Min. Wear



The assembling it must be done **by an adequate tool** that allows the oil seal to be inserted into its housing at the same time throughout its diameter, in this way, we can ensure that the oil seal is perfectly perpendicular to the axis where it is mounted, making sure that the internal lip acts in the same way on the entire surface of contact with the shaft.