

# Seals

Seals represent one of the greatest challenges in any lubrication application. These devices must prevent any of the process fluids and lubricants from being released (retention seal), while preventing any atmospheric contaminants (dust, moisture, dirt, etc.) from entering the application (exclusion seal). The vast combination of fluids, operating environments, and seal materials make choosing the proper sealing device a formidable task. In order to insure that the proper sealing device is chosen, many factors must be considered: equipment dimensions, fluid type (corrosive, flammability, toxicity, stability, abrasiveness, and cost), temperature range, pressure range (positive and negative), speed range, type of motion (rotating or reciprocating), and potential contaminants.

There are two major categories of sealing devices, static and dynamic. Static sealing devices, such as gaskets, sealants, and o-rings, are placed between two stationary surfaces and remain stationary. Dynamic sealing devices, such as packing, lip seals, mechanical seals, and labyrinth seals, perform between two moving surfaces or one moving surface and one stationary surface. The motion between these surfaces is either rotating or reciprocating.

The most common type of sealing device is the lip seal. The purpose of the lip seal is to retain lubricants within a sump. These seals can also be used to seal out contaminants. One key aspect of a lip seal is its ability to seal in only one direction. If the seal is being used to retain a lubricant, the lip should face inward. If the lip seal is utilized to seal out contaminants, then the lip should face outwards.

There are many different seal designs and seal materials. Viton, Buna-N\*, and Teflon are the most resistant to degradation when exposed to petroleum products. These three materials are also compatible with most types of synthetic lubricants.

\*Note: Buna-N should not be used with aromatics or chlorinated solvents



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