

Kalsi Seals in Hydraulic Swivels

Hydraulic Swivel Seals

Hydraulic swivels communicate hydraulic pressure between a shaft and housing that have relative rotation with respect to one another.

Regardless of the [swivel type](#), selection of hydraulic swivel seals is critical. They establish sealing between the relatively rotating housing and shaft, define the hydraulic circuit(s), and generally establish the operating capability and reliability of the equipment.

There are two Kalsi hydraulic swivel seal options to meet the most demanding hydraulic swivel pressure and speed requirements.

High Pressure Hydraulic Swivel Seals

The [BDRP Seal](#)TM (Bi-Direction Rotation and Pressure) provides the highest combined pressure and speed capability (PV) for conventional multiport hydraulic swivel arrangements — three seals define two circuits, four seals define three circuits, and so on. They fit in the same groove as a cap seal or Glyde Ring but have a much higher PV rating.

BDRP seals have been tested at 1,500 psi on a 10.50” shaft rotating at 100 RPM for 200 hours (Figure 1). This PV of 16.3 MPa-m/s is more than 1.5 times higher than PV ratings advertised for cap seals and Glide Rings.



Figure 1

717-Series BDRP Hydraulic Swivel Seal

This BDRP Seal was run for 215 hours at 1,500 psi on a 10.50” shaft rotating at 75 rpm.

Extreme Pressure Hydraulic Swivel Seals

The [Plastic Lined Kalsi Seal](#)TM is our most pressure capable seal. It is recommended for use in hydraulic swivels that operate above 1,500 psi.

This hydraulic swivel seal takes pressure in one direction. Because of this, a pair of seals is used to define each hydraulic circuit. The typical

implementation of this seal in a multiport swivel is shown in Figure 2.

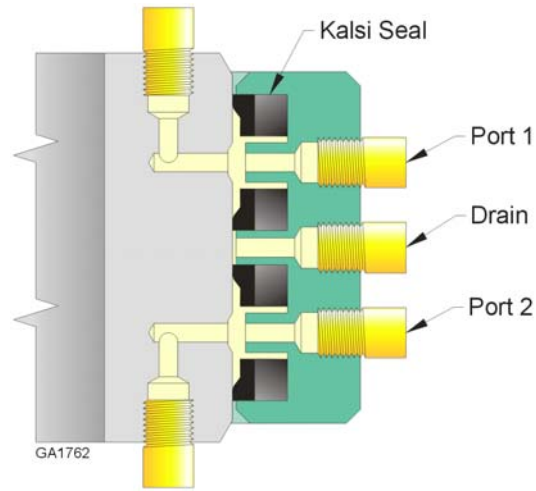


Figure 2

Extreme Pressure Hydraulic Swivel Seal

This schematic shows how to implement Plastic Lined Kalsi seals in a multiport swivel.

When implemented with our patented [floating backup ring](#) seal carrier this hydraulic swivel seal can operate at 10,000 psi and a surface speed of 206 feet per minute (72 MPa-m/s). Figure 3 shows a seal [tested](#) at these conditions.



Figure 3

Plastic Lined Kalsi Hydraulic Swivel Seal

This 750-1-318 Plastic Lined Seal ran for 368 hours at 10,000 psi and speeds up to 206 feet per minute.

Testing Hydraulic Swivel Seals

Kalsi Engineering, Inc. has been designing and [testing rotary seals](#) since the early 1980s. Our testing sets us apart from other seal companies and gives the customer confidence that the Kalsi-brand hydraulic swivel seal is going to work as intended.

[Contact Kalsi Engineering](#) to learn which hydraulic swivel seal is best for your equipment. Guidance for selecting and implementing Kalsi hydraulic swivel seals is provided in [Chapter E2](#) of the Kalsi Seals Handbook.