GENERAL HANDLING AND INSTALLATION INSTRUCTIONS
Magnetic Shaft Seal, MagSeal®

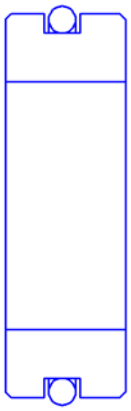
Pre-Installation Instructions

A Magnetic Seal should remain in its packaging prior to installation to avoid excessive handling which could damage the seal faces.

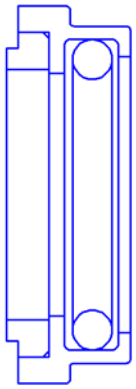
Installation should be performed in a "clean room" environment that is free from metal chips that could be attracted to the magnet.

The seal cavity must be clean and free of dirt or foreign matter. The interfacing O-ring(s), sealing diameter(s), and lead chamfer(s) must be free of burrs, sharp edges, and any surface defect(s) which might cause damage to the O-ring(s) during installation.

When a seal is removed from its package, the rotor portion of the seal (seal case) must be separated from the magnet. Do NOT slide the seal case across the magnet as the carbon seal ring may be damaged. Pull the seal case straight away from the magnet as shown

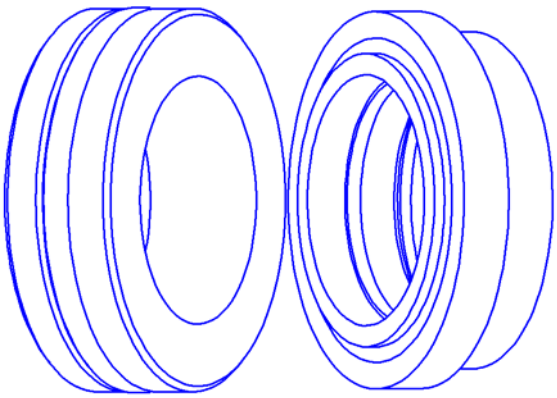


MAGNET WITH O-RING



SEAL CASE WITH O-RING

or "open" the seal halves as you would open a book.



Discard the paper separator.

Recommended O-ring Lubricants

For all synthetic and mineral based lubricating oils, hydraulic oils, and fuels:

1. Ultrachem® Inc. Assembly Fluid #1, MSC PN L-001 (0.5 gram tube), and NSN 9150-00-159-5012 (4 ounce tube).
2. Aviation Fluid Service Turbo 10 Turbine Assembly Lube, MSC PN L-003 (0.5 gram tube), NSN 9150-00-159-5012 (5.4 ounce bottle), and NSN 9150-00-340-1590 (1 Gallon can).
3. Anderol® Inc. ROYCO® HF-825 Acryloid Synthetic Assembly Fluid and O-ring Lubricant, NSN 9150-00-340-1590 (1 Gallon can).

For phosphate ester fluid applications:

1. Solutia MCS®-352B Assembly Lubricant

Installation

Remove the magnet O-ring from the magnet and completely lubricate with a thin film of the recommended lubricant. Install the O-ring into the magnet's O-ring groove by stretching it over the groove,

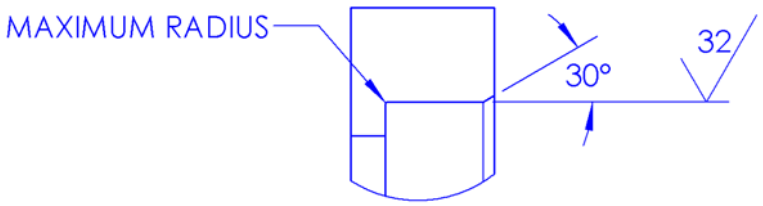
STRETCHED

and then allowing it to freely contract into the groove.

RELAXED (no twist)

Do NOT roll the O-ring into the groove because it will become twisted. Slide the O-ring evenly against the outboard groove shoulder.

DIRECTION OF INSTALLATION



Magnet Bore Radius and Lead Chamfer

Magnet Bore Diameters	Maximum Radius
Up to and including 3.0625	.005 (0.127mm)
Up to and including 4.750	.010 (0.254 mm)
For magnet bores larger than 4.750, please consult MagSeal®	

Preferred Magseal® magnet bore designs are available at www.magseal.com

Apply a thin film of the recommended lubricant to the bore diameter and lead chamfer that interface with the magnet O-ring.

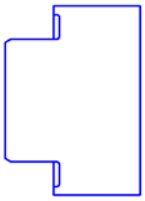
Using CARE not to damage or cut the O-ring, cover the highly polished mating face of the magnet with a CLEAN lint-free towel and hand press it evenly into the housing bore until squarely seated.

INSTALLING MAGNET INTO HOUSING

The magnet must be squarely seated against the bore shoulder so that a non-magnetic feeler gauge cannot freely be inserted between the magnet and the bore shoulder.

Linear Shaft Speed (Feet Per Minute)	Maximum Feeler Gauge
3,000	.004
3,625	.0035
4,400	.0030
5,500	.0025
8,000	.0020
10,000	.0015
15,000	.001

It may be necessary to use special tooling to install the MagSeal® because of the geometry of the seal cavity. Use a drift made of non-magnetic material (aluminum, Teflon® or wood) which pilots into the magnet ID and has a relieved face that will prevent damage to the seal case mating area.



MAGNET INSTALLATION DRIFT

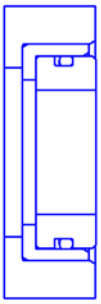
Note: Teflon® is a registered trademark of the DuPont company.

INSTALLING MAGNET INTO HOUSING USING DRIFT

MAGNET INSTALLED INTO HOUSING

Caution: If the magnet is to be installed into a housing that is magnetic, then the housing must be modified to accept an insulator made of a non-magnetic material such as aluminum or 300 series stainless steel. The insulator must be either a press fit into the housing (and a sealant may be applied at the press interface) or a clearance fit with an O-ring secondary seal in the housing bore.
Preferred Magseal® insulator bore designs are available at www.Magseal.com

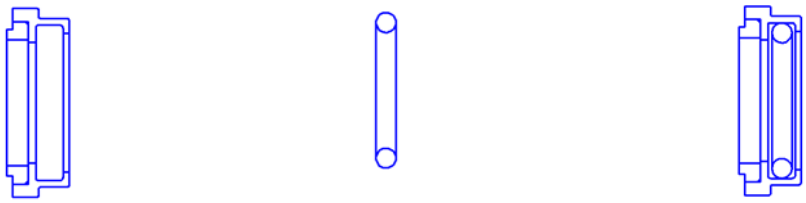
INSTALLING MAGNET INTO INSULATOR USING DRIFT



MAGNET INSTALLED INTO HOUSING WITH INSULATOR

Grasp the housing firmly and rotate (spin) the magnet approximately a quarter turn within the housing using a CLEAN lint-free towel in order to remove any O-ring roll or twist.

Remove the seal case O-ring from the seal case and completely lubricate it with a thin film of the lubricant and reinstall it into its groove.



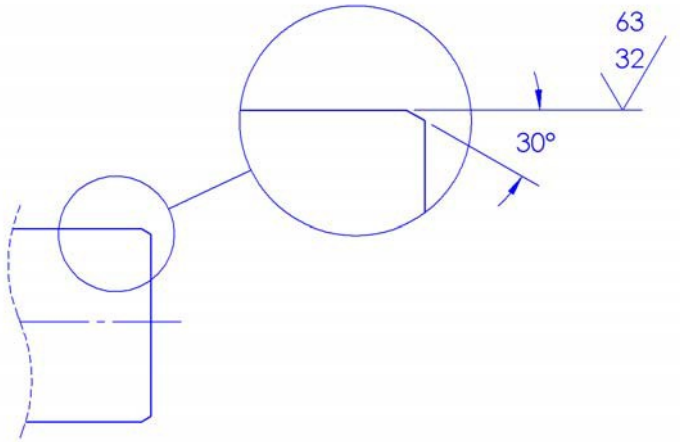
SEAL CASE O-RING O-RING INSTALLED

Caution: Mating faces must be clean and free of any contamination and/or O-ring lubricant. Clean mating faces with either denatured alcohol, Stoddard solvent, or CLEAN system fluid and wipe dry with a CLEAN lint-free towel prior to mating faces.

Grasp the seal case firmly and using CARE not to damage the mating faces, GENTLY mate the seal case with the magnet and position it so that it is centered on the magnet.

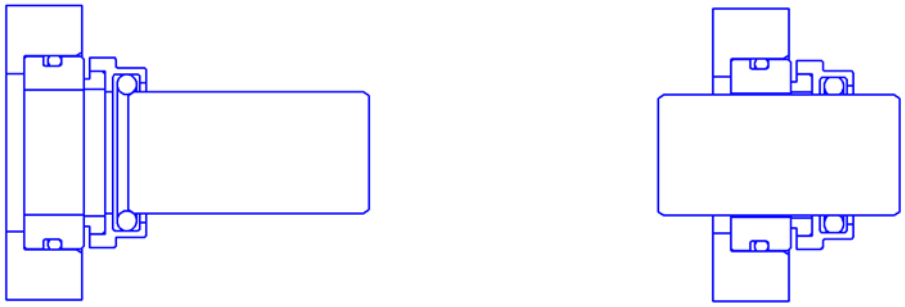
SEAL CASE MATED WITH MAGNET

Apply a thin film of the recommended lubricant to the shaft diameter and lead chamfer that interface with the seal case O-ring.



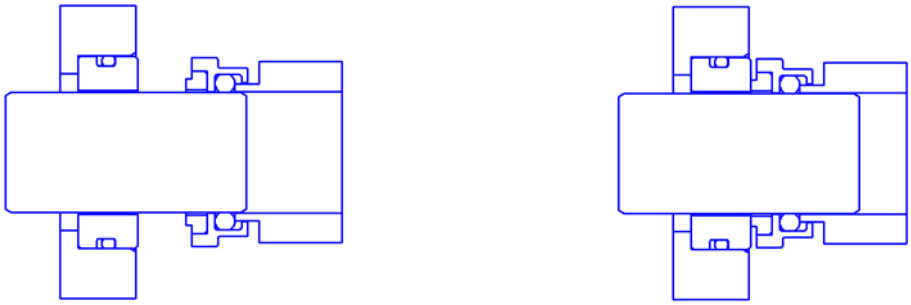
RECOMMENDED SHAFT FEATURES

Using CARE not to damage or cut the O-rings, assemble the seal and housing assembly onto the shaft and secure it in accordance with standard procedures.



DIRECTION OF ASSEMBLY → MAGSEAL® IN FINAL POSITION

When a shaft must be installed into a housing before the seal case is mated to the magnet, use an assembly tool that pilots over the shaft to push against the O-ring evenly until the seal case is mated with the magnet. This will prevent O-ring rollback during installation.



DIRECTION OF ASSEMBLY ← MAGSEAL® IN FINAL POSITION

Note: The seal faces must remain in contact after the removal of the installation tool. If the faces become separated then the seal case must be removed and reinstalled.

Caution: Do NOT move the MagSeal® axially away from the housing prior to securing it, otherwise seal face separation may occur which will require that the MagSeal® must be removed and reinstalled to ensure positive seal face contact with the magnet.

Removal: When removing either the magnet or the seal assembly from its position in the housing, hand pressing is recommended. Hammering or any direct physical shock may crack or chip the magnet or damage its O-ring sealing surface.