Piston Seal Kits
(Piston Lipseals, Rings & Cylinder Body Seals) for Series PL-2 Hydraulic Cylinders

Service kits of expendable parts for fluid power cylinders are stocked in principal industrial locations across the U.S.A. and other countries. For prompt delivery and complete information, contact your nearest distributor.

Fluorocarbon Seals — Fluorocarbon Seal Kits contain fluorocarbon seals and are especially suited for elevated temperature service or for some fire resistant fluids (for specific fluids not listed in the latest catalog SB0106-5, consult factory). Fluorocarbon seals should be used for high temperature service within a temperature range of -10°F (-23°C) to +250°F (+121°C). Fluorocarbon seals may be operated to +400°F (+204°C) with limited service life. For temperatures above +250°F (+121°C) the cylinder must be manufactured with a non-studded piston rod end thread and a pinned piston to rod connection.

Warning — The piston rod stud and the piston rod to piston threaded connections are secured with an anaerobic which is temperature sensitive. Cylinders specified with fluorocarbon seals are assembled with anaerobic adhesive having a maximum operating temperature rating of +250°F (+121°C). Cylinders specified with all other seal compounds are assembled with anaerobic adhesive having a maximum operating temperature rating of +165°F (+74°C). These temperature limitations are necessary to prevent the possible loosening of the threaded connections. Cylinders originally manufactured with standard seals that will be exposed to ambient temperatures above +165°F (+74°C) must be modified for higher temperature service. Contact the factory immediately and arrange for the piston to rod and the stud to piston rod connections to be properly reassembled to withstand the higher temperature service.

<table>
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<tr>
<th>BORE SIZE</th>
<th>PISTON LIPSEAL KITS PL-2 SERIES CONTAINS 2 EA. SYMBOLS 42, 44 &amp; 47</th>
<th>PISTON RING KITS PL-2 SERIES CONTAINS 2 SYMBOL 47 &amp; 4 SYMBOL 48</th>
<th>CYLINDER BODY SEAL KITS</th>
<th>TIE ROD NUT TORQUE - FT.-LB.*</th>
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See note on page 2.

When reassembling the cylinder be sure to torque the tie rods evenly.

*-0%, +5% tolerance.
Servicing The Piston Seals

The piston is sealed and securely locked to the piston rod with anaerobic adhesive. This threaded connection should only be disassembled or reassembled by factory trained personnel.

Disassemble the cylinder completely, remove the old seals and clean all of the parts. The cylinder bore and the piston should then be examined for evidence of scoring.

Iron piston rings seldom need replacement. If the rings show no signs of damage or abnormal wear, they may be reused. To install piston and rings, collapse the rings one at a time, while inserting the piston into the cylinder body, using a light oil to aid this process.

“Lipseal” piston seals must always be installed with backup washers, symbol 44.

Install one piston seal in the groove nearest the rod. The two “lips” of this Lipseal should face toward the rod end of the piston. Then insert the piston in the cylinder body.

Next, turn cylinder body on its side and push the piston through the barrel just far enough to expose the groove for the second seal. Install the second piston lipseal and back-up washers with the two lips facing away from the rod. Then push the piston into the cylinder body and proceed to assemble cylinder heads, tie rods and tie rod nuts as follows:

“O” rings (symbol 47) should be lightly coated with lubricant then worked into place by hand. Cylinder body can then be assembled to the cap by rocking it down over the seal until the end of the cylinder body is in metal-to-metal contact with the cap. Install “O” ring (symbol 47) in head. Head is then fitted over the rod and assembled to cylinder body. Rock gently into place until body and head are in metal-to-metal contact.

To replace gland, lubricate the bore of the gland, the O.D. of the gland which fits into the cylinder head and the seals. Slide glands which have no threads (2\(\frac{1}{2}\)” and smaller) over the end of the piston rod and seat it firmly against the cylinder head. Replace the retainer and tighten gland bolts securely and evenly. Slide glands which have a threaded O.D. over the end of the piston rod. Thread the gland into the retainer until it is seated firmly against the head.

With an intermediate trunnion mounted cylinder, care must be taken to prevent binding the cylinder body when repositioning the trunnion collar. Proper reassembly of this type of cylinder is as follows:

After the piston seals have been inserted and the piston is in the cylinder body, slip the trunnion collar over the cylinder body to its approximate position.

Fit the cap with its seal and backup washer onto the body. Then “stud” into the trunnion collar the four tie rods that connect the cap to the trunnion collar. Bring up the four tie rod nuts at the cap. Distances from the inner face of cap to finished face of trunnion collar should then be made equal at all four tie rods when all four tie rod nuts are in contact with the cap.

Finally, when the assembly is ready for final tightening, it may be necessary to adjust the tie rod nuts at the cap when torquing the tie rod nuts at the head in order to position the trunnion collar in its final position.

NOTE: An extreme pressure lubricant (such as molybdenum disulphide) should be used on the tie rod threads and nut bearing faces to control friction and reduce the rod twist. Tie rod twist can be eliminated by chalking a straight line on each tie rod before torquing, and backing off the nut after torquing so this line is straight again. This is particularly important on long stroke cylinders.

WARNING

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from the Company, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having expertise. It is important that you analyze all aspects of your application, including consequences of any failure and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

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