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90 Series Swivel Joints

V-Ring Replacement & Maintenance Information

Reference the following guide to assist in general maintenance and seal replacement for all OILCO Liquid Handling Systems v-ring design swivel joints. Take all due safety precautions when assembling and operating these units. Handle all components with care. If there is something unique to the assembly not covered in this form, contact the factory.

Lubrication: All OILCO swivel joints are supplied with a grease fitting at each plane of rotation. General lubrication should be performed on a programmed basis (e.g. bi-annually, quarterly or monthly), depending on service and operating conditions. When service is severe, such as high temperatures, heavy loads or constant rotation, daily lubrication may be required. Consult factory.

Inject grease and rotate the unit (as allowed by installation) as it is applied to ensure an even application throughout the raceway. Do not over-lubricate, as this may displace the seals and result in leakage. The table below offers a suggested volume for servicing based on a bi-annual program (where operational conditions are fair). Note that the volumes suggested are for vacant mechanical cavities – should lubricant be present and at a good viscosity level, less can be applied during the maintenance procedure.

Swivel Size	Volume	Swivel Size	Volume
2"	2 ounces	10"	20 ounces
3"	3 ounces	12"	30 ounces
4"	4 ounces	14"	9 ounces per raceway
6"	7 ounces	16"	10 ounces per raceway
8"	12 ounces	18"	12 ounces per raceway

The general recommended lubrication for use with Buna "N", viton "A", neoprene, and Teflon seals is a grease containing a minimum of 5% Molybdenum Disulfide (Molyube SP Lubricant 5). [Note – This grease should not be used with EPT or butyl seals.]

- Recommended grease for oxygen service swivel joints is Halocarbon No. 25-10M.
- Recommended grease for ethylene-propylene-terpolymer (EPT) butyl and silicone seals is Silicone No. 1023 grease (also manufactured by Bel-Ray), or any other non-petroleum based lubricant.

Components:

90 Series Complete Repair Kit	
Main Pressure Seal	(3) chevron v-rings
Environmental Dust Seal	(1) slim o-ring
Radial Ball Bearings <i>Standard Dual Raceway</i>	(46) 2" unit size (66) 3" unit size (84) 4" unit size (76) 6" unit size (80) 8" unit size (82) 10" unit size (86) 12" unit size (100) 14" unit size (112) 16" unit size

90 Series Complete Repair Kit	
Ball Bearing Cap Screws	(2) threaded cap screw
Grease Port Fitting	(1) standard fitting
Compression Springs <i>Standard Soft Seals</i>	(6) 2" unit size (6) 3" unit size (8) 4" unit size (12) 6" unit size (16) 8" unit size (18) 10" unit size (24) 12" unit size (24) 14" unit size (24) 16" unit size
(Double Count for Teflon Main Pressure Seal)	
Teflon Spring Adapter	(1) pre-drilled

Note: Additional components and considerations may be required for "HD" (heavy duty) swivel joint models or those with secondary applications (e.g. sealed for submerged service).

Caution: Any improper handling or disregard for both onsite safety and operational procedures or factory recommendations could cause unnecessary damage to the unit and severe personal injury

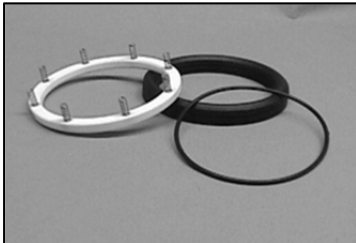
Warning: Never exceed the rated working pressure of the unit. Never modify or alter a unit beyond that to which it has been designed. Should any unit appear damaged, remove it from service immediately and contact the factory.



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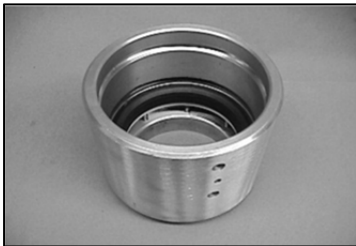


STEP 1: Remove the ball retainer screws. Add a sufficient amount of solvent into each raceway to flush out the lubricant. Rotate the sleeve, catching the balls as they fall out. When all the balls have been removed, the body and sleeve may be separated. Discard old seals. Thoroughly clean both body and sleeve.



STEP 2: Assemble spring adapter, collect three v-rings and appropriate dust seal. Main packing seal arrangement is compression springs down on the shelf of the swivel joint body and chevron seals in a stack with the point facing upward.

Note: Teflon compounds require additional springs for proper installation. With included Teflon seals, the Teflon v-rings rest on the spring adapter and the soft seal is placed on top.



STEP 3: Lubricate packing seal area of body and then insert spring adapter and three v-ring seals.

Note: See front page for lubricant information and recommendations.



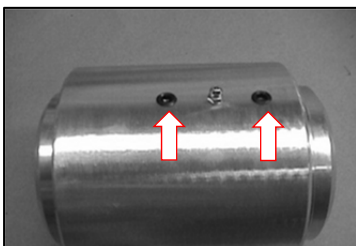
STEP 4: Place dust seal on sleeve and grease remaining body and sleeve with Molykote® grease or equivalent.

Note: See front page for lubricant information and recommendations.



STEP 5: When the sleeve is fully inserted, feed the ball bearings into the raceways. Insert a flathead screwdriver (or bearing tool) and rotate the joint to make space for the balls (be careful not to damage the threads or scratch the raceway surface). Then reverse rotation to insert remaining balls.

Note: There will be a slight gap between the last and first bearing, do not attempt to over-fill the unit.



STEP 6: Reinstall the ball retainer screw until tight. If this prevents smooth rotation, back off 1/8 turn. A thread locking sealant is recommended to prevent screws from backing off. After pressure testing, the unit is ready for installation.