

⚠ WARNING

- Read and follow all instructions carefully.
- Disconnect and lock-out power before installation and maintenance. Working on or near energized equipment can result in severe injury or death.
- Do not operate equipment without guards in place. Exposed equipment can result in severe injury or death.

⚠ CAUTION

- Periodic inspections should be performed. Failure to perform proper maintenance can result in premature product failure and personal injury.

All parts should be examined for any damage during shipping and handling. Measurements should be taken to verify correctness of parts to meet application requirements such as hub and shaft fits, shaft separation, etc. All parts must be clean and free of any foreign materials before attempting assembly.

Installation

1. Install keys in respective shafts. Keys should fit shaft keyseats with a tight fit on the sides and slight clearance over the key. Coat the shafts with a suitable anti-galling lubricant. Use plastic oil sealing compound around keys to prevent loss of lubricant. Follow machinery manufacturer's recommendations for preparation, mounting and dismounting of keyless hub to shaft fits.
2. Slide one snap ring and then one seal over **each shaft**. Be sure that **embossed metal ring in the seal is facing toward the shaft end**. (Reference Figure 2)
3. Mount hubs with short end in board. **Straight Bore Hubs:** Hub bores must be expanded prior to mounting. Heat hubs in either an oil bath or oven until bores are larger than shaft diameter (Reference Table 1 and Figure 1).

CAUTION: Never apply an open flame to hub teeth.
 Mount so that end of hub is flush with end of shaft.

4. Coat hub teeth and sleeve teeth with coupling grease. Slide sleeve over hub mounted on longest shaft extension. Move sleeve as far back as possible in order to expose short end of hub for alignment.

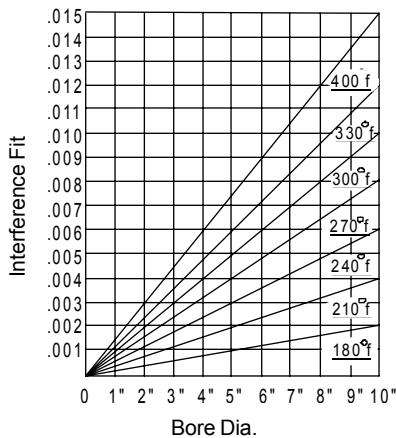


Figure 1 - Temperature Chart

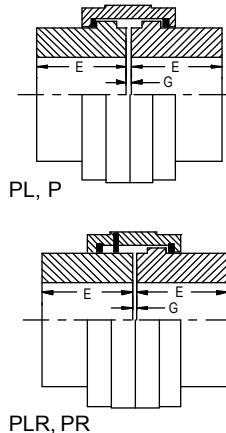
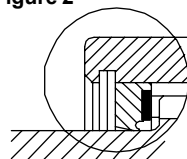


Figure 2



PL, P Seal

Table 1 - Interference Fit Limitations	
(Interference Per Inch Max.) Type of Fit	
Keyless	Keyed
.00125"	.00075"

Important: On PLR and PR coupling applications be sure the set screw hole in the sleeve is toward the rigid hub.

5. Although the shafts may be perfectly aligned at installation they should be realigned after mounting of couplings. Position machines, referencing to shaft separation dimension "G" in Table 2. Align couplings per following methods:

Angular Alignment

- A. Instrument method, the most accurate, is recommended. Attach dial base to one of the hubs and the indicator needle against the face of the other hub. Rotate both hubs 360°, taking indicator readings at four points 90° apart. Adjust machines until all four readings are identical, referring to Figure 4 for maximum angular misalignment. Relocate the dial base to the opposite hub and repeat the procedure.
- B. Feeler gage may be used when dial indicator is unavailable or shaft separation is too small. Check with feeler gage at four points 90° apart. Adjust machines until all four readings are identical. Refer to Figure 4 for maximum angular misalignment.

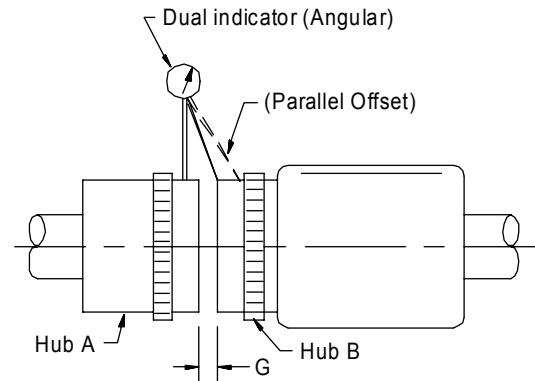


Figure 3 — Alignment

Parallel Offset Alignment

- D. Again the dial indicator is recommended as being most accurate. Attach dial base to one hub and set dial indicator button in contact with surface (O.D.) of opposite hub as shown. Rotate hub on which indicator is mounted 360°, taking indicator readings at four points 90° apart. Adjust machines until all four readings are identical, referring to Figure 4 for maximum misalignment. Relocate dial base to opposite hub and repeat the procedure. Recheck angular alignment.

- E. A straight edge and feeler gage may be used as shown if dial indicator is not available. Adjust machines until straight edge appears to be at right angle to shafts and rests squarely on both hubs. Repeat procedure at three additional points 90° apart. Recheck angular alignment.
- F. Couplings with floating shafts have a greater hub separation than shown in Table 4. Refer to application for shaft separation and use either a dial indicator or straight edge per instruction in 4D or 4E. Recheck alignment after a few hours of operation to insure proper alignment at operating temperatures.

Coupling Size	PL/PR		P/PR					
	1 ¹ / ₈	1 ⁵ / ₈	1 ¹ / ₂	2	2 ³ / ₂	3	3 ¹ / ₂	4
Amt. of Lube Req'd. to fill Coupling*(oz.)	.27	.27	.88	1.4	2.5	3.3	5.5	6.9
Min. Speed for Grease Lubrication (R.P.M.)	575	510	463	411	380	348	321	301
"G" (B.S.E.)	1 ¹ / ₈ "	1 ¹ / ₈ "	1 ¹ / ₈ "	1 ¹ / ₈ "	3 ³ / ₁₆ "	3 ³ / ₁₆ "	1 ¹ / ₄ "	1 ¹ / ₄ "

- * Amount by volume.
- ▲ Couplings operating below these speeds should use a grease having an NLGI rating of "0" or "00".

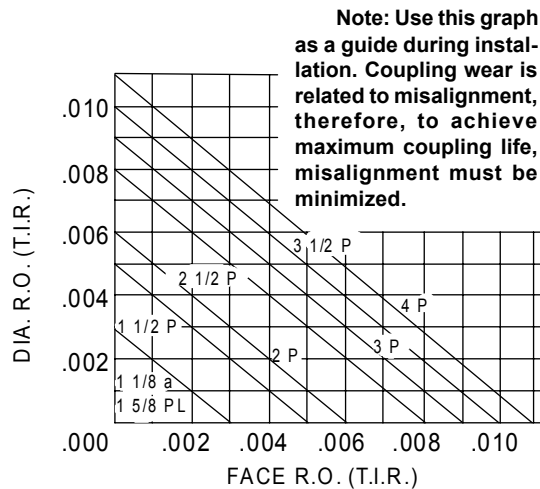


Figure 4 — Limits of Misalignment

Assembly

6. Coat hub teeth and body, as well as inside of sleeve with coupling grease. Slide the sleeve over both hubs, making sure that the gear teeth mesh properly and are fully engaged. Insert dog point set screw on types PLR & PR. Be sure that set screw is seated properly.
7. Apply small amount of grease on seals and hubs so seals will slide easily over hub surfaces. Install the seals in the sleeves, insuring that they are not crimped or rolled over. Lock in place with retaining ring. Retaining ring **MUST** be properly seated in the groove in the sleeve.
8. Remove the two lube plugs, located 180° apart, and fill coupling with recommended amount of coupling grease (reference Table 2). **Replace lube plugs and tighten securely.**

Maintenance

Following an initial break-in period of about 3 million revolutions (80 hr @ 600 rpm) it is recommended that the coupling be completely flushed and relubricated. Thereafter, a regular relubrication schedule should be maintained. Each application should be evaluated based on its environment and operating condition to determine a relubrication interval. For average industrial operating conditions, relubrication every 6 months should suffice with periodic visual inspections to insure that neither the quality nor the supply (due to leakage) of the lubricant has deteriorated to an unacceptable level.

Many lubricants will perform satisfactorily under average industrial operating conditions. As long as the temperature range of the application is within the limits shown for the lubricant and the coupling speed is above the minimum speed for grease lubrication shown in Table 2. Although some lubricants will maintain their lubricity at elevated temperatures, the thermal limit of the coupling is 250°F. For applications where coupling is exposed to sustained temperatures above 250°F, consult factory. For low speed operation (below min. speed for grease lubrication, Table 2), use a grease having an NLGI rating of "0" or "00." Lubricants required for severe operating conditions should be referred to a lubrication manufacturers representative for recommendations.

During relubrication cycle or at least yearly, whichever comes first, the coupling should be disassembled and thoroughly cleaned of all old grease. Remove and visually inspect all parts; gear teeth for signs of abnormal stress and wear, the seals and gaskets for any cracks or breaks. All bolts should fit snugly and locknuts should tighten securely.

Any parts showing signs of wear or damage should be replaced. These parts are available for purchase by referencing the coupling, size, type and bolting style. Hubs and sleeves should be replaced as half couplings whenever possible.

Recommended Lubricant KOP-FLEX KSG Coupling Grease

This grease is specifically compounded for standard couplings to provide improved lubrication and resistance to centrifugal separation. When KSG grease is used, lubrication intervals may be extended, based upon operating experience. Balanced couplings or others operating at speeds above 3500 rpm can benefit from KOP-FLEX KHP coupling grease. Both KSG and KHP coupling greases are available from KOP-FLEX or authorized distributors of KOP-FLEX power transmission products.

If the coupling is mounted on a reciprocating machine, or if recurrent reverse loading is experienced, a heavy viscous lubricant similar to Texaco Crater Compound #0 or Gulf Lubecoat #0 may be required for damping characteristics.

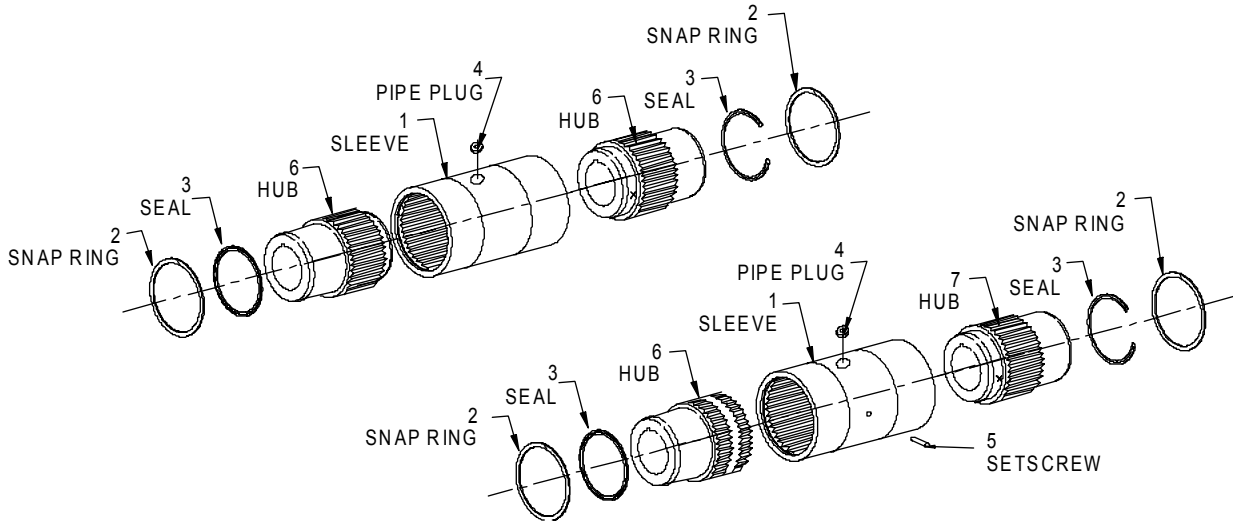
OTHER GREASES

Alternate lubricating greases should equal or exceed the specifications for Kop-Flex KSG and KHP coupling greases. (Specification sheet 3532 is available upon request.) Greases other than KSG or KHP, should meet these minimum specifications:

- Grade: NLGI #1
- Base oil Viscosity: Min.: 3000 SSU at 100°F, 160 SSU at 210°F
- Dropping Point, Min.: 190°F
- Four Ball Wear, ASTM D-2266: .500mm Maximum
- Base oil content: 87% Minimum
- K36 Factor, ASTM D-4425: KSG: K36 = 8/24 = .33
- Required: Rust and Oxidation Inhibitors
- E.P. Address

The most reliable test of a suitable lubricant is often the result of user experience and satisfaction. If a lubricant has been known to sludge, separate into heavy components or dry out, consider the use of KOP-FLEX greases or one meeting the minimum specifications.

PARTS REPLACEMENT



Ref. No.	Name of Part	Number Required	
		PL, P	PLR, PR
1	Sleeve Assy*	1	1
2	Snap Ring	2	2
3	Coupling Seal	2	2
4	Pipe Plug	2	2
5	Set Screw	-	1
6	Gear Hub	2	1
7	Rigid Hub	-	1

*Assembly Includes Parts Listed Immediately Below.

Table 5
Recommended Spare Parts for Powerline Couplings

Coupling Size	Seals	Retaining (Snap) Rings	Pipe Plugs	Set Screws*
1-1/8 PL	149185	149389	149354	149483
1-5/8 PL	149186	149390	149354	149483
1-1/2 P	149222	149393	149354	149483
2P	149223	149396	149354	149483
2-1/2 P	149224	149402	149354	
3P	149225	149407	149354	
3-1/2 P	149226	149412	149354	
4P	149227	149415	149354	

*For PLR & PR Couplings Only.

▲ Consult Factory Set Screw Size.

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