How To Use This Manual

This manual provides detailed instructions on maintenance, lubrication, installation, and parts identification. Use the table of contents below to locate required information.

Table of Contents

CAREFULLY FOLLOW THE INSTRUCTIONS IN THIS MANUAL FOR OPTIMUM PERFORMANCE AND TROUBLE FREE SERVICE.

INTRODUCTION

This manual applies to Sizes 3F thru 190F Falk Steelflex Couplings. These couplings are designed to operate in either the horizontal or vertical position without modification.

CAUTION: Consult applicable local and national safety codes for proper guarding of rotating members. Observe all safety rules when installing or servicing couplings. During assembly, seal keyways of vertical couplings and oil lubricated couplings to prevent leakage.

WARNING: Lockout starting switch of prime mover and remove all external loads from drive before installing or servicing couplings.

LIMITED END FLOAT

When electric motors, generators, engines, compressors, and other machines are fitted with sleeve or straight roller bearings, limited axial end float kits are recommended for protecting the bearings. Falk Steelflex couplings are easily modified to limit end float; refer to Manual 438-820 for instructions.

LUBRICATION

Adequate lubrication is essential for satisfactory operation. Column 2 provides a list of typical lubricants and specifications for general purpose and long term greases. Because of its superior lubricating characteristics and low centrifuge properties, Falk Long Term Grease (LTG) is highly recommended. The use of general purpose grease requires re-lubrication of the coupling at least annually.

Long Term Grease (LTG)

The high centrifugal forces encountered in couplings separate the base oil and thickener of general purpose greases. Heavy thickener, which has no lubrication qualities, accumulates in the grid-groove area of Steelflex couplings resulting in premature hub or grid failure unless periodic lubrication cycles are maintained.

Falk Long Term Grease (LTG) was developed specifically for couplings. It resists separation of the oil and thickener. The consistency of Falk LTG changes with operating conditions. As manufactured it is an NLGI #1/2 grade. Working of the lubricant under actual service conditions causes it to become semifluid while the grease near the seals will set to a heavier grade, helping to prevent leakage.

LTG is highly resistant to separation, easily outperforming all other lubricants tested. The resistance to separation allows the lubricant to be used for relatively long periods of time.

Steelflex couplings initially lubricated with LTG will not require re-lubrication until the connected equipment is stopped for servicing. If a coupling leaks grease, is exposed to extreme temperatures, excessive moisture, or experiences frequent reversals, more frequent lubrication may be required.

Although LTG grease is compatible with most other coupling greases, the mixing of greases may dilute the benefits of LTG.

USDA Approval

LTG has the United States Department of Agriculture Food Safety & Inspection Service approval for applications where there is no possibility of contact with edible products. (H-2 ratings).

CAUTION: Do not use LTG in bearings.

Specifications — Falk LTG

The values shown are typical and slight variations are permissible.

AMBIENT TEMPERATURE RANGE — -20°F (-29°C) to 250°F (121°C). Min. Pump = 20° F (-7° C).

MINIMUM BASE OIL VISCOSITY — 3300SSU (715cST) @ 100°F (38°C).

THICKENER — Lithium & soap/polymer.

CENTRIFUGE SEPARATION CHARACTERISTICS — ASTM #D4425 (Centrifuge Test) — K36 = 2/24 max., very high resistance to centrifuging.

NLGI GRADE (ASTM D-217) — $^1/_2$

MINIMUM DROPPING POINT — with 60 stroke worked penetration value in the range of 320 to 365 — 350°F (177°C) min.

MINIMUM TIMKEN O.K. LOAD — 40 lb.

ADDITIVES — Rust and oxidation inhibitors that do not corrode steel or swell or deteriorate synthetic seals.

Packaging

14 oz (0,4 kg) CARTRIDGES — Individual or case lots of 10 or 60.

35 lb (16 kg) PAIL, 120 lb (54 kg) KEG & 400 lb (181 kg) DRUMS.

General Purpose Grease

Annual Lubrication — The following specifications and lubricants for general purpose grease apply to Falk Steelflex couplings that are lubricated annually and operate within ambient temperatures of 0°F to 150°F (-18°C to 66°C). For temperatures beyond this range (see Table 1), refer to Factory.

If a coupling leaks grease, is exposed to extreme temperatures, excessive moisture, or experiences frequent reversals, more frequent lubrication may be required.

Specifications — General Purpose Coupling Lubricants

The values shown are typical and slight variations are permissible.

DROPPING POINT — 300°F (149°C) or higher.

CONSISTENCY — NLGI No. 2 with 60 stroke worked penetration value in the range of 250 to 300.

SEPARATION AND RESISTANCE — Low oil separation rate and high resistance to separation from centrifuging.

LIQUID CONSTITUENT — Possess good lubricating properties equivalent to a high quality, well refined petroleum oil.

INACTIVE — Must not corrode steel or cause swelling or deterioration of synthetic seals.

CLEAN — Free from foreign inclusions.

General Purpose Greases Meeting Rexnord Specifications

Lubricants listed below are typical products only and should not be construed as exclusive recommendations.

TABLE 1 — General Purpose Greases [H]

Ambient Temperature Range	0°F to 150°F (-18°C to 66°C)	-30°F to 100°F (-34°C to 38°C)
Manufacturer	**Lubricant †**	**Lubricant †**
Amoco Oil Co.	Amolith Grease #2	Amolith Grease #2
BP Oil Co.	Energrease LS-EP2	Energrease LS-EP1
Chevron U.S.A. Inc.	Dura-Lith EP2	Dura-Lith EP1
Citgo Petroleum Corp.	Premium Lithium Grease EP2	Premium Lithium Grease EP1
Conoco Inc.	EP Conolith Grease #2	EP Conolith Grease #2
Exxon Company, USA	Unirex EP2	Unirex EP2
E.F. Houghton & Co.	Cosmolube 2	Cosmolube 1
Imperial Oil Ltd.	Unirex EP2	Unirex EP2
Kendall Refining Co.	Lithium Grease L421	Lithium Grease L421
Keystone Div. (Pennwalt)	81 EP-2	81 EP-1
Lyondell Petrochemical (ARCO)	Litholine H EP 2 Grease	Litholine H EP 2 Grease
Mobil Oil Corp.	Mobilux EP111	Mobilith AW1
Petro-Canada Products	Multipurpose EP2	Multipurpose EP1
Phillips 66 Co.	Philube Blue EP	Philube Blue EP
Shell Oil Co.	Alvania Grease 2	Alvania Grease 2
Shell Canada Ltd.	Alvania Grease 2	Alvania Grease 2
Sun Oil Co.	Ultra Prestige 2EP	Ultra Prestige 2EP
Texaco Lubricants	Starplex HD2	Multifak EP2
Unocal 76 (East & West)	Unoba EP2	Unoba EP2
Valvoline Oil Co.	Multilube Lithium EP Grease	. . .

★ Grease application or re-lubrication should be done at temperatures above 20°F (-7°C). If grease must be applied below 20°F (-7°C), consult The Falk Corporation.

† Lubricants listed may not be suitable for use in the food processing industry; check with lube manufacturer for approved lubricants.

TABLE 2 — Installation & Alignment Data *

CPLG SIZE	Allow. Speed rpm	Approximate Lubricant		Hub Gap "10%		Grid		Installation ■ Alignment Limits				Operating Alignment Limits				Cover Fastener Tightening Torque Values Inch Series	
		lb	kg	Inch	mm	No. of Layers	No. Segments Per Layer	Offset Max Inch	Offset Max mm	Angular Max Inch	Angular Max mm	Offset Max Inch	Offset Max mm	Angular Max Inch	Angular Max mm	lb-in	Nm
3	6000	.063	0,03	.125	3	1	1	.004	0,10	.003	0,08	.008	0,20	.008	0,20	100	11,3
4	6000	.094	0,04	.125	3	1	1	.005	0,13	.003	0,08	.010	0,25	.009	0,23	100	11,3
5	6000	.125	0,06	.125	3	1	1	.005	0,13	.003	0,08	.010	0,25	.010	0,25	100	11,3
6	6000	.188	0,09	.125	3	1	1	.005	0,13	.004	0,10	.010	0,25	.012	0,31	100	11,3
7	6000	.188	0,09	.125	3	1	2	.005	0,13	.005	0,13	.010	0,25	.014	0,36	100	11,3
8	5000	.313	0,14	.125	3	1	2	.007	0,18	.005	0,13	.015	0,38	.016	0,41	200	22,6
9	4500	.375	0,17	.125	3	1	2	.007	0,18	.006	0,15	.015	0,38	.018	0,46	200	22,6
10	3750	.375	0,17	.188	5	1	2	.010	0,25	.007	0,18	.020	0,51	.020	0,51	200	22,6
11	3600	.500	0,23	.188	5	1	2	.010	0,25	.007	0,18	.020	0,51	.022	0,56	200	22,6
12	3600	.625	0,28	.188	5	2	2	.010	0,25	.008	0,20	.020	0,51	.024	0,61	200	22,6
13	2700	.750	0,34	.188	5	2	2	.010	0,25	.009	0,23	.020	0,51	.028	0,71	200	22,6
14	2500	1.500	0,68	.250	6	2	2	.011	0,28	.010	0,25	.022	0,56	.031	0,79	350	39,5
15	2400	1.500	0,68	.250	6	2	2	.011	0,28	.011	0,28	.022	0,56	.032	0,81	280	31,6
16	2300	2.0000	0,91	.250	6	2	2	.011	0,28	.012	0,31	.022	0,56	.036	0,91	280	31,6
17	2200	2.750	1,25	.250	6	2	2	.011	0,28	.014	0,36	.022	0,56	.041	1,04	280	31,6
18	2100	3.250	1,47	.250	6	2	3	.011	0,28	.015	0,38	.022	0,56	.046	1,17	570	64,4
190	2000	8.000	3,63	.250	6	2	4	.011	0,28	.017	0,43	.022	0,56	.051	1,30	570	64,4

✱ Refer to Selection Guide for maximum bores and Engineering Sheet 427-108 for re-boring instructions

■ Flexible couplings are designed to accommodate changes in operating conditions. Coupling life expectancy between initial alignment and operating alignment limits is a function of load, speed and lubrication. Application requirements in excess of the operating alignment limits shown, must be referred to the Factory for review.

Rexnord Industries, LLC, Coupling Group
5555 S. Moorland Rd., New Berlin, WI 53151-7953 USA Telephone : 262-796-4060
Fax: 262-796-4064 e-mail: info@rexnord.com web: www.rexnord.com

INSTALLATION OF TYPE F STEELFLEX COUPLINGS

Installation

Only standard mechanics tools, wrenches, a straight edge, and feeler gauges are required to install Falk Steelflex couplings. Clean all parts using a non-flammable solvent. Check hubs, shafts and keyways for burrs.

CLEARANCE FIT HUBS — Clean all parts using a non-flammable solvent. Check hubs, shafts, and keyways for burrs. Do not heat clearance fit hubs. Install keys, mount hubs with flange face flush with shaft ends or as otherwise specified and tighten setscrews.

INTERFERENCE FIT HUBS — Furnished without setscrews. Heat hubs to 275°F (135°C) using an oven, torch, induction heater, or an oil bath. To prevent seal damage, DO NOT heat hubs beyond a maximum temperature of 400°F (205°C).

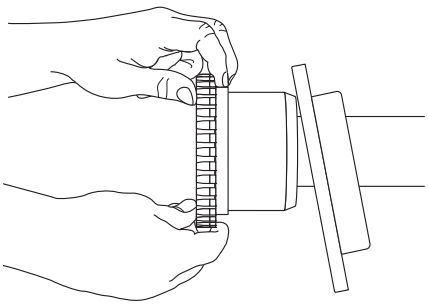
When an oxy-acetylene or blow torch is used, use an excess acetylene mixture. Mark hubs near the center of their length in several places on hub body with a temperature sensitive crayon, 275°F (135°C) melt temperature. Direct flame towards hub bore using constant motion to avoid overheating an area.

WARNING: *If an oil bath is used, the oil must have a flash point of 350°F (177°C) or higher. Do not rest hubs on the bottom of the container. Do not use an open flame in a combustible atmosphere or near combustible materials.*

Maximize Performance & Life

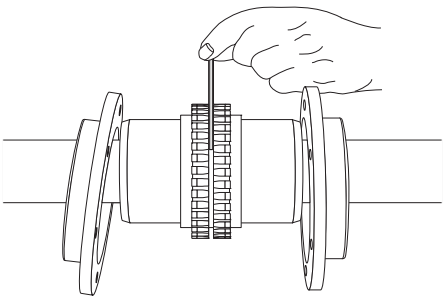
The performance and life of couplings depend largely upon how you install and maintain them. Before installing couplings, make certain that foundations of equipment to be connected meet manufacturers' requirements. Check for soft foot. The use of stainless steel shims is recommended. Measuring misalignment and positioning equipment within alignment tolerances is simplified with an alignment computer. These calculations can also be done graphically or mathematically.

Alignment is shown using spacer bar and straight edge. This practice has proven to be adequate for many industrial applications. However, for superior final alignment, the use of dial indicators (see Manual 458-834 for instructions), lasers, alignment computers, or graphical analysis is recommended.



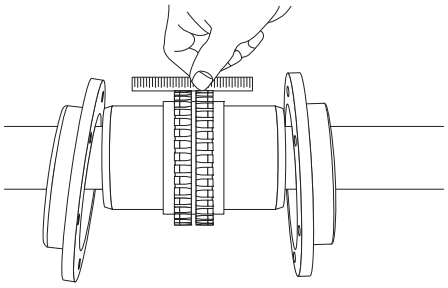
1— Mount Cover, Seal Ring & Hub on Shaft

Lightly coat seals with grease and install in covers. Place covers on shafts BEFORE mounting hubs. Mount hubs on shafts with hub faces flush with shaft ends. Seal keyways. Tighten set screws when furnished.



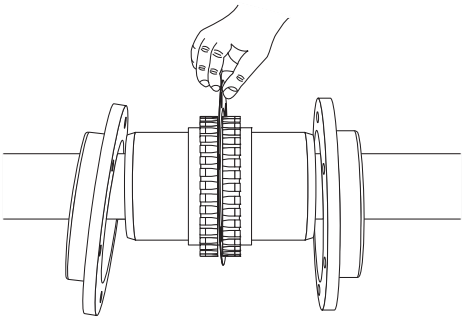
2 — Gap & Angular Alignment

Use a spacer bar equal in thickness to the gap specified in Table 2, Page 2. Insert bar as shown above, to same depth at 90° intervals and measure clearance between bar and hub face with feelers. The difference in minimum and maximum measurements must not exceed the ANGULAR installation limits specified in Table 2.



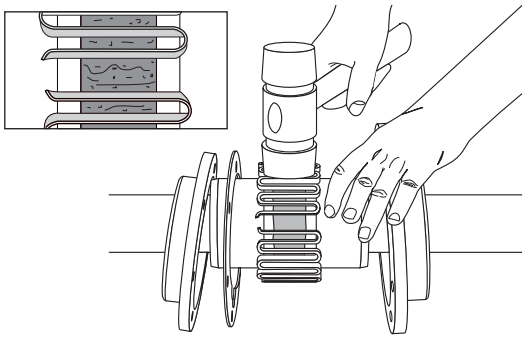
3 — Offset Alignment

Align so that a straight edge rests squarely (or within the limits specified in Table 2) on both hubs as shown above and also at 90° intervals. Check with feelers. The clearance must not exceed the INSTALLATION OFFSET limits specified in Table 2. Tighten all foundation bolts and repeat Steps 2 and 3. Realign coupling if necessary.



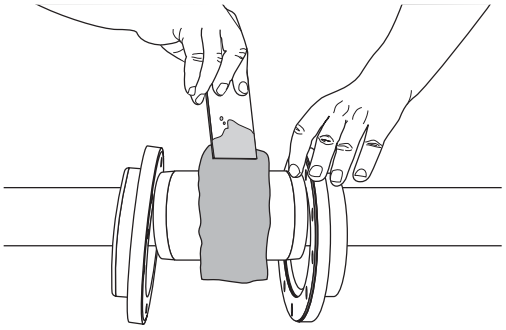
4 — Insert Gasket & Lubricate

After coupling is aligned, carefully insert the gasket between hubs and hang it on either hub. Do not damage gasket. Next force as much lubricant as possible into the gap and grid grooves. Refer to Page 1 for lubrication specifications.



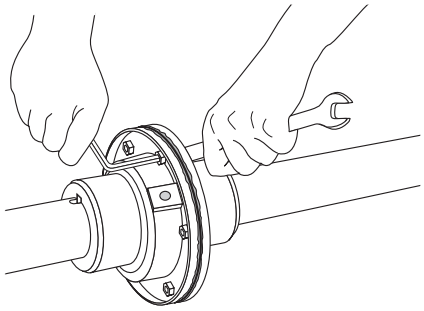
5 — Insert Grid

When grids are furnished in two or more segments, install them so that all cut ends extend in the same direction (as detailed in the exploded view pictured above); this will assure correct gird contact with non-rotating pin in cover halves. Coupling Sizes 3 to 11 have a single layer grid which is painted gray. Sizes 12 thru 190 have a two layer grid; the inner layer is painted gray and stamped "IN"; the outer layer is painted yellow and stamped "OUT." Spread the gird slightly to pass over the coupling teeth and seat with a soft mallet.



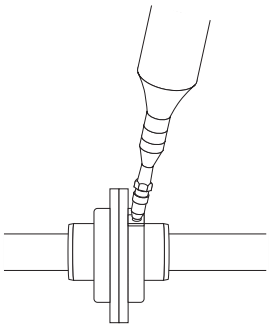
6 — Pack with Lubricant

Pack the spaces between and around the grid with as much lubricant as possible. Scrape or wipe excess lubricant off flush with top of grid. Lightly oil seal rings to facilitate the sliding of covers onto the hubs.



7 — Assemble Covers

Assemble covers so that lubrication fittings or NPT holes are 180° apart and align covers to prevent wobble. Tighten cover bolts and check seals for proper seating.



8 — Lubricate Every 12 Months

For couplings with permanent Alemite fittings, insert a smooth feeler gauge (.010) under seal 180° from fitting to vent cover. Use Alemite gun nozzle Z-737. For others, remove both lube plugs and insert your lube fitting. Lubricate couplings until grease flows through the vent or other opening. Then INSTALL LUBE PLUGS.

Rexnord Industries, LLC, Coupling Group
5555 S. Moorland Rd., New Berlin, WI 53151-7953 USA Telephone : 262-796-4060
Fax: 262-796-4064 e-mail: info@rexnord.com web: www.rexnord.com

ANNUAL MAINTENANCE

For extreme or unusual operating conditions, check coupling more frequently.

1. Check alignment per steps on Page 3. If the maximum operating misalignment limits are exceeded, realign the coupling to the recommended installation limits. See Table 2 for installation and operating alignment limits.
2. Check tightening torques of all fasteners.
3. Inspect seal ring and gasket to determine if replacement is required. If leaking grease, replace.
4. When connected equipment is serviced, disassemble the coupling and inspect for wear. Replace worn parts. Clean grease from coupling and repack with new grease. Install coupling using new gasket as instructed in this manual.

Periodic Lubrication

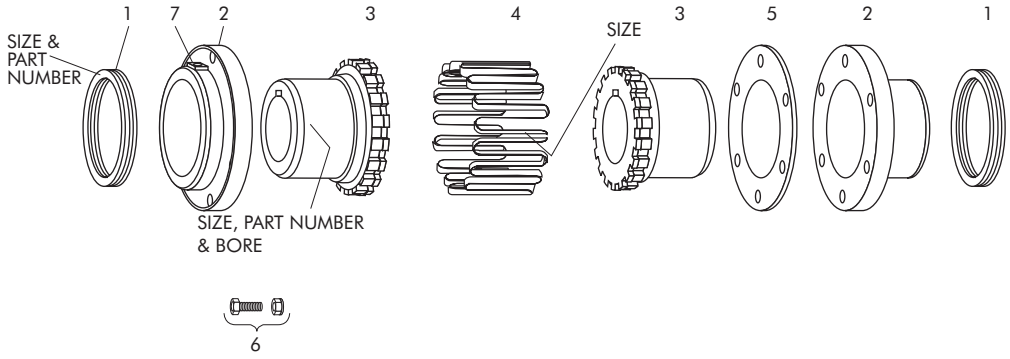
The required frequency of lubrication is directly related to the type of lubricant chosen, and the operating conditions. Steelflex couplings lubricated with common industrial lubricants, such as those shown in Table 1, should be relubed annually. The use of Falk Long Term Grease (LTG) will allow relube intervals to be extended to beyond five years. When relubing, remove both lube plugs and insert lube fitting. Fill with recommended lubricant until an excess appears at the opposite hole. ***CAUTION:*** *Make certain all plugs have been inserted after lubricating.*

Coupling Disassembly & Grid Removal

Whenever it is necessary to disconnect the coupling, remove the cover halves and grid. A round rod or screwdriver that will conveniently fit into the open loop ends of the grid is required. Begin at the open end of the grid section and insert the rod or screwdriver into the loop ends. Use the teeth adjacent to each loop as a fulcrum and pry the grid out radially in even, gradual stages, proceeding alternately from side to side.

PARTS IDENTIFICATION

All coupling parts have identifying part numbers. When ordering parts, always specify hub bores and keyways, and state coupling size as stamped on the cover and hub.



1. Seal Ring
2. Half Cover
3. Hub (Specify bore & Keyway)
4. Grid
   INNER layer stamped "IN"
   OUTER layer grid end tips painted yellow, stamped "OUT"
5. Gasket
6. Cap Screws & Nut