How To Use This Manual
This manual provides detailed instructions on installation, maintenance and parts identification for Falk Livelign gear couplings, Types G20, G32, and G52. Use the table of contents below to locate required information.

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

INTRODUCTION
This manual applies to standard coupling Types G20, G32, and G52 with exposed bolts. For couplings furnished with special features, refer to assembly drawing furnished with coupling for proper assembly arrangement and any additional installation or maintenance requirements.

Type G couplings are recommended for horizontal application only. Use Type GV couplings for vertical applications, or for inclinations over 10° from horizontal. Do not use GV couplings for thrust applications, refer to the Factory.

CAUTION: Consult applicable local and national safety codes for proper guarding of rotating members. Observe all safety rules when installing or servicing couplings.

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

LUBE FITTINGS
Flanged sleeves and end plates have ½ NPT lube holes for size 1080 (2080) thru 1110 (2110) and ¾ NPT for size 1120 (2120) thru 1300 (2300). Use standard grease pumping equipment and lube fittings.

LIMITED END FLOAT
When electric motors are fitted with sleeve bearings, the use of a gap disc is recommended to limit coupling end float to protect the motor bearings. NOTE: HUB GAP increase is required. Refer to 458-820 for instructions.

LUBRICATION
Adequate lubrication is essential for satisfactory operation. Because of its superior lubricating characteristics and low centrifuge properties, Falk Long Term Grease (LTG) is highly recommended.

Gear couplings initially lubricated with Falk Long Term Grease (LTG) will not require re-lubrication for up to three years.

The use of general purpose grease requires re-lubrication of the coupling at least once every six months. If a coupling leaks grease, is exposed to extreme temperatures, excessive moisture, experiences frequent reversals or axial movements; more frequent lubrication may be required.

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.)

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 tooth mesh area of gear couplings resulting in premature mesh 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 consistancy 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 out performing all other lubricants tested. The resistance to separation allows the lubricant to be used for relatively long periods of time.

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

CAUTION: Do not use LTG in bearings. Do not use LTG for low speed applications. Refer to Table 4, Page 8 for coupling speed range of LTG grease.

Packaging
14 oz. (0.4 Kg) CARTRIDGES — Individual or case lots of 10 or 60.
35 lb. (16 Kg) PAILS, 120 lb. (54 Kg) KEG & 400 lb. (181 kg) DRUMS.

Specifications — Falk LTG (Long Term Grease)
TEMPERATURE RANGE — –20°F (~29°C) to 250°F (121°C).
Minimum pump = 20°F (~7°C).
MINIMUM BASE OIL VISCOSITY — 3300SSU (715cSt) @ 100°F (38°C).
Install. & Maint. • Falk™ Single & Double Engagement Lifelign® Couplings

(Page 2 of 10) Types G20/G32/G52 • Sizes 1080-1300 & 2080-2300

200°F (93°C). For temperatures beyond this range, refer to Falk. The minimum operating temperature must not be lower than the pour point of the oil. The specified amount of grease listed in Table 4, Page 8, in pounds, also applies to the volume of oil in pints.

Specifications

Type: Mild EP gear oil that meets AGMA Specifications 250.04.

Grade: AGMA #8EP (ISO VG 680).

Viscosity: 612-748 cSt @ 104°F (40°C).

Pour Point: 20°F (~7°C) Maximum.

Must not corrode steel or swell or deteriorate synthetic seals.

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<th>TABLE 1 — NLGI #1 EP Grease</th>
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<td>Union Oil Co. of Calif.</td>
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Lubricants listed may not be suitable for use in the food processing industry; check with lube manufacturer for approved lubricants.

General Purpose Grease

Bi-annual Lubrication — The following specifications and lubricants for general purpose grease apply to gear couplings that are lubricated bi-annually and operate within ambient temperatures of –30°F (–34°C) to 200°F (93°C). For temperatures beyond this range, refer to the Factory. For normal service, use a NLGI #1 extreme pressure (EP) grease EXCEPT when the coupling speed is less than the minimum specified in Table 4 on Page 8. At these lower speeds, use a NLGI #0 extreme pressure (EP) grease. When one or more gear couplings in an application require NLGI #0 grease, the same grease may be used in all of the couplings.

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

Lubricants listed in Tables 1, 2 & 3 are typical products only and should not be construed as exclusive recommendations.

Specifications — General Purpose Coupling Lubricants

COUPLING SPEED RANGE — See Table 4, Page 8.

TEMPERATURE RANGE — –30°F to +200°F (–34°C to +93°C)

WORKED PENETRATION AT 77°F (25°C) —

NLGI #1 .................. 310-340 (See Table 1)

NLGI #0 .................. 355-385 (See Table 2)

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

TEXTURE — Smooth or fibrous

MINIMUM TIMKEN O.K. LOAD — 30 lbs.

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 with EP additives.

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

Oil Lubrication

EP oils may be a more effective lubricant than grease when the required coupling speed is one half of the minimum speed range of NLGI #1 grease listed in Table 4, Page 8 (Minimum rpm ÷ 2). Oil lubricated couplings must be sealed to prevent leakage, i.e. keyways, etc. Couplings must be drained and refilled with new oil every six months for operating temperatures up to 160°F (71°C) and every three months for couplings operating at temperatures of 160°F (71°C) up to

THICKENER — Lithium soap/polymer.

CENTRIFUGE SEPARATION CHARACTERISTICS — ASTM #D4425-84 (Centrifuge Test) — K36 = 2/24 max., very high resistance to centrifuging.

NLGI GRADE (ASTM D-217) — 1/2

CONSISTENCY (ASTM D-217) — 60 stroke worked penetration value in the range of 315 to 360 measured @ 77°F (25°C).

DROPPING POINT — 350°F (177°C) minimum.

MINIMUM TIMKEN EP O.K. LOAD — 40 lbs. (18 kg).

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

Union Oil Co. of Calif. Extra Duty NL Gear Lube 8EP

Amoco Permagear EP 680

Gulf Oil Co. EP Lubricant HD 680

BP Oil Co. Energrease LS-EP1

Chevron Inc. Multifak EP 0

Chevron RP Lubricant HD 680

Citgo Petroleum Corp Premium Lithium Grease EP1

Conoco Inc. EP Conolith Grease #0

Dura-Lith EP0

Exxon Company, U.S.A. Lidor EP1

Kendall Refining Co. Lithium Grease L-416

Lyndell Lubricants Zeniplex-1

Petro-Canada Products Multipurpose Grease

Phillips 66 Co. Phylube Blue EP

Shell Canada Ltd. Almina EP Grease 1

Shell Oil Co. Almina Grease EP1

Shell Canada Ltd. Sun Prestige 741 EP

Texaco Lubricants Multifak EP1

Unocal 76 (East & West) Unoba EP1

Unocal 76 (East & West) Unoba EP2

Texaco Inc. Texaco Lubricants

Unocal 76 (East & West) Unoba EP2
COUPLING INSTALLATION, ALL TYPES

Only standard mechanics tools, torque wrenches, straight edge, spacer bar and feeler gauges are required to install Falk gear couplings. Clean all parts using a non-flammable solvent. Check hubs, shafts and keyways for burrs. DO NOT heat clearance fit hubs. Use a lubricant that meets the specifications on Page 1 or 2. Pack sleeve teeth with grease and lightly coat seals with grease BEFORE assembly. The required amount of grease is listed in Table 4, Page 8. Make certain flange fasteners are tightened to the required torque listed in Tables 4.

Interference Fit Hubs — Unless otherwise specified, gear couplings are furnished for an interference fit without set screws. Heat hubs to 275°F (135°C) using an oven, torch, induction heater or an oil bath.

CAUTION: 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, and allow the incorporation of “cold offsets”, which will compensate for shaft position changes due to thermal growth. Alignment calculations can also be done graphically or mathematically.

TYPE G HORIZONTAL COUPLING INSTALLATION

1 — Mount Coupling Parts

Place the end plates WITH seal rings and end plate gaskets on the shafts BEFORE mounting flex hubs. Mount flex hubs on their respective shafts, as shown above, so that each hub face is flush with the end of its shaft. Allow hubs to cool before proceeding. Seal keyways to prevent leakage. Insert set screws (if required) and tighten. Mount flanged sleeves with end plate gaskets or seal rings.

Position equipment in approximate alignment with approximate gap specified in Table 4, Page 8. For Types G32 and G52, determine the distance between shafts to be connected per Step 5A, Figure 2, Page 6, or Step 5B, Figure 3, Page 7, and position equipment in approximate alignment. Set the unit most difficult to move to true level and bolt in place.

2 — Gap & Angular Alignment for Single and Double Engagement and Spacer or Floating Shaft Couplings

2A — Type G20 – Double Engagement

Use a spacer bar equal in thickness to gap specified in Table 4. Insert bar, as shown above, to same depth at 90° intervals and measure the clearance between the bar and hub face with feelers. The difference in minimum and maximum measurements should not exceed the INSTALLATION ANGULAR limit specified in Table 4.

2B — Type G52 – Single Engagement

Use a spacer bar equal in thickness to the “X” dimension specified in Table 4. Insert the bar, as shown above to same depth at 90° intervals and measure the clearance between the bar and hub face with feelers. The difference in minimum and maximum measurements must not exceed the INSTALLATION ANGULAR limit specified in Table 4.
2C — G32/G52 Short Spacer or Floating Shaft

Use an inside micrometer as shown above and at 90° intervals to measure the distance between hubs. The difference in minimum and maximum measurements should not exceed the ANGULAR limit specified in Table 4, Page 8.

3 — Parallel Offset Alignment

3A — Type G20 – Double Engagement

Align so that a straight edge rests squarely (or within the limits specified in Table 4) on both hubs as shown above and also at 90° intervals. Check with feelers. The clearance should not exceed the INSTALLATION PARALLEL OFFSET limit specified. Tighten foundation bolts and repeat Steps 2 and 3. Realign coupling if necessary. IMPORTANT: Grease the hub teeth.

3B — Type G52 – Single Engagement

Position a square on the rigid hub flange as shown above at 6 to 8 equally spaced points. Measure the clearance between the hub and square blade at each point with feelers and reposition units until the DIFFERENCE in feeler readings is as near zero as possible. Tighten all foundation bolts and repeat Steps 2 and 3. Realign coupling if necessary. Grease the hub teeth.

3C — G32/G52 Short Spacer or Floating Shaft

Align so that a straight edge rest squarely (or within the limits specified in Table 4) on both hubs as shown above and also at 90° intervals. Check with feelers. The clearance should not exceed the PARALLEL OFFSET limit specified. Tighten all foundation bolts and repeat Steps 2 and 3. Realign coupling if necessary. Grease the hub teeth.

4 — Assemble Couplings

4A — Type G20 – Double Engagement

Insert gasket or seal ring between flanges. Position flanged sleeves with lube holes at about 90° and then carefully draw flanged sleeves into register. Use only the fasteners furnished with the coupling. Bolt end plates with gaskets or seal rings to sleeves. Position end plate lube holes at about 90° from holes in adjacent sleeve. IMPORTANT: Tighten flange fasteners to torque specified in Table 4, Page 8.

4B — Type G32/G52 – Single Engagement

Insert gasket or seal ring between flanged sleeve and rigid hub. Carefully draw flanged sleeve into register with rigid hub. Use only bolts furnished with the coupling. IMPORTANT: Tighten flange or seal ring sleeve bolts to torque specified in Table 4, Page 8. Bolt end plate with gasket to sleeve. Position end plate lube holes at about 90° from holes in sleeve.
5 — Lubricate

5A — Type G20 – Double Engagement

Remove all lube plugs from sleeves and end plates and fill with recommended grease until an excess appears at an open lube hole; then insert plug. Continue procedure until lubricant has flowed through each hole and all plugs have been inserted.

**CAUTION:** Remove grease fitting and make certain all plugs are inserted after lubricating.

**NOTE:** For disassembly, jack-screw holes are provided on all sleeve flanges except the female center flange. End plate fasteners may be used as jack-screws.

5B — G32/G52 Short Spacer or Floating Shaft

Refer to Table 4, Page 8, for amount of grease required. Remove all lube plugs from sleeves and end plates and fill with recommended grease until an excess appears at an open lube hole; then insert plug. Continue procedure until lubricant has flowed through each hole and all plugs have been inserted.

**CAUTION:** Remove grease fitting and make certain all plugs are inserted after lubricating.

**NOTE:** For disassembly, jack-screw holes are provided on sleeve flanges. End plate fasteners may be used as jack-screws.

6 — Assembled Coupling Alignment Check

**W** = **W**\(_{\text{max}}\) - **W**\(_{\text{min}}\)

\(\text{Check } **W** \text{ at each flexible hub.} \)

The alignment can be checked without disassembling or rotating the coupling as shown above. Determine “**W**” by measuring distances “**W**”\(_{\text{max}}\) and “**W**”\(_{\text{min}}\) between flex hub and end plate using a depth micrometer or feeler gages. The difference between “**W**”\(_{\text{max}}\) and “**W**”\(_{\text{min}}\) must not exceed the “**W**” value given in Table 4, Page 8. Check “**W**” at each coupling end.

**COUPLING WITH SHORT SPACER OR FLOATING SHAFT — Rigid Hubs on Shaft Extensions**

A — Mount Rigid Hubs

Refer to Step 1 on Page 3. **NOTE:** Mount rigid hub so that the hub counterbore face is flush with the shaft ends as illustrated above. Seal keyway to prevent leakage.

B — Gap and Angular Alignment

Determine correct distance between rigid hub flange faces from Step 5A, Figure 2 on Page 6, and position machines. Use an inside micrometer at 90° intervals between the rigid hub faces to obtain correct distance and angular alignment. The difference between the minimum and maximum measurements should not exceed the ANGULAR limit specified in Table 4.

C — Parallel Offset Alignment

Align so that a straight edge rests squarely (or within limits specified in Table 4, Page 8) on both hubs as shown above and also at 90° intervals. Check with feelers. Fasten foundation bolts, and repeat Steps B and C. Realign if necessary. Assemble and lubricate per Steps 4B and 5B on Pages 4 and 5.
COUPLING WITH LONG FLOATING SHAFT — Rigid or Flex Hubs on Shaft Extensions

1 — Mount Coupling Parts
Mount hubs, sleeves, gaskets, end plates and seals per Step 1 on Page 3 or A on Page 5.

2 — Position First Unit and Floating Shaft
Set the unit most difficult to move to true level and bolt it in place. Set the floating shaft or spacer on V-blocks and align coupling on fixed unit.

3 — Gap and Angular Alignment
Refer to Figure 1. Use a spacer bar equal in thickness to the “X” dimension specified in Table 4 on Page 8. Insert the bar to the same depth at 90° intervals and measure the clearance between the bar and hub face with feelers as shown. The difference in minimum and maximum measurements should not exceed the ANGULAR limit specified in Table 4, Page 8.

4 — Parallel Offset Alignment
Refer to Figure 1 and align coupling and floating shaft so that, with the square head resting squarely on the flange, equal clearance measurements are obtained between flange and the hub O.D. in four places 90° apart. The difference between minimum and maximum feeler readings should not exceed the PARALLEL OFFSET limit in Table 4 on Page 8.

5A — Determine Distance Between Rigid Hub Flange Faces
For Figure 2 below, measure the length of the floating shaft and add 2 times the “X” dimension from Table 4 on Page 8 to get the distance between the rigid hub flange faces.

5B — Determine Distance Between Flex Hub Faces
For Figure 3, Page 7, measure the overall floating shaft or spacer assembly length from flange to flange and add 2 times the “X” dimension from Table 4 on Page 8 to get the distance between the shafts to be coupled.

6 — Position Second Unit
Position second unit for the correct “X” dimension and align per Steps 3 and 4 above. DO NOT move the floating shaft. Bolt unit in place and recheck alignment and gap, realign if necessary. For greater accuracy, check alignment with a depth micrometer or dial indicator as outlined on Page 7.
NOTE: Dimension “X” in Figures 2 and 3 is the same as in Figure 1. Refer to Table 4, Page 8 for “X”.

7 — Alignment Check with Dial Indicator
A dial indicator may be used if the driving and driven hubs can be rotated. Mount dial indicators on the driving and driven hubs. For the parallel offset check, sweep the O.D. of the floating shaft hubs through one complete 360° turn. The total dial indicator reading, divided by two, should not exceed the parallel offset limit in Table 4. For the parallel offset check with a depth micrometer, use the same procedure as outlined in Step 4, Page 6 when a square head is used.

For angular check with flex hubs on the floating shaft, sweep the face of either end of the flex hubs for 360°. The TIR should not exceed the angular limit shown in Table 4. For angular check with rigid hubs on the floating shaft, sweep the gasket flange for 360°. The TIR should not exceed the angular limit shown in Table 4.

8 — Assemble and Lubricate
Grease hub teeth. Assemble and lubricate coupling per Steps 4B on Page 4 and 5B on Page 5.

BI-ANNUAL MAINTENANCE
Re-lubricate coupling if using general purpose greases. If coupling leaks grease, is exposed to extreme temperatures, excessive moisture or frequent reversals; more frequent lubrication may be required.

ANNUAL MAINTENANCE
For extreme or unusual operating conditions, check coupling more frequently.
1. Check alignment per Step 6, Page 5. If the maximum operating misalignment values are exceeded, realign the coupling to the recommended installation values. See Table 4, Page 8, for installation and maximum operating misalignment values.
2. Check tightening torques of all fasteners.
3. Inspect seal ring and gasket to determine if replacement is required.
4. Re-lubricate coupling if using general purpose grease.
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† Flexible couplings are designed to accommodate changes in operating conditions. Coupling life expectancy between initial alignment and maximum operating limits is a function of load, speed, and lubrication. Application requirements in excess of 3/8° misalignment per flex-half coupling should be referred to the Factory for review.
‡ NLG1 #0 grease MUST be used when speeds are BELOW minimum shown.
PARTS IDENTIFICATION AND ORDER INFORMATION

Coupling parts have identifying size and part description as illustrated below. When ordering parts, always SPECIFY SIZE, TYPE, HUB BORE, KEYWAY, PART DESCRIPTION, and PART NUMBER found on each item.

Contact your Rexnord Distributor or Rexnord for price and availability.

EXAMPLE:
Complete 1080G20 Gear Coupling
Bore: 8.750 Keyway: 2.000 x .750
Bore: 9.500 Keyway: 2.500 x .750

PRODUCT CLASSIFICATION

<table>
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<tr>
<th>COUPLING SIZE</th>
<th>TYPE</th>
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<td>1080 G 20</td>
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<td>1080 G 52</td>
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1. Seal Ring
2. Flanged Sleeve - Male
3. Flanged Sleeve - Female
4. G Flex Hub
5. Lube Plug
6. Center Flange Fasteners
7. Sleeve Gasket
8. Sleeve Bolt, Nut, Lockwasher
9. Rigid Hub
10. End Plate
11. End Plate Gasket
12. End Plate Bolt, Nut, Lockwasher
13. O-Ring is used for Sizes 1130 thru 1300 and 2130 thru 2300.

†O-Ring is used for Sizes 1130 thru 1300 and 2130 thru 2300.
FLOATING SHAFT AND SPACER COUPLINGS

**TYPE G32**
Parts 1 thru 14 shown above for Type G52 (delete 9 and 10) complete the balance of the spacer coupling.

1. Seal Ring
2. Flanged Sleeve
3. G Flex Hub
†4. Sleeve Gasket
5. Lube Plug
6. Sleeve Bolt, Nut, Lockwasher
9. Rigid Hub
†13. End Plate Gasket
11. Spacer (specify length)
12. End Plate
14. End Plate Bolt, Nut, Lockwasher

**TYPE G52**
Flex Hubs on Floating Shaft
(Also Include Two Rigid Hubs, Part 9)

†1. O-Ring is used for Sizes 1130 thru 1300 and 2130 thru 2300.

* Always specify bore and keyway.