

## How To Use This Manual

This manual provides detailed instructions on installation, maintenance and parts identification for Falk Lifelign™ gear couplings, Type GL. 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 Type GL52 slide couplings 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 GL52 couplings are recommended for applications that require axial hub movement and are designed for horizontal operations, but can be used vertically for the upper coupling in a vertical floating shaft assembly, if the coupling gap specified in Table 4, Page 5, is maintained. Use Type GL52 couplings for floating shaft assemblies or as the fourth bearing in vertical three bearing systems.

**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

Sleeves have 1/8 NPT lube holes for sizes 1010GL thru 1035GL, and 1/4 NPT for sizes 1040G thru 1070GL. Use a standard grease gun and lube fittings.

## 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.

The use of general purpose grease requires re-lubrication of the coupling at least every six months. If 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 and is an extreme pressure grease.

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

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 5 for coupling speed range of LTG grease.

## Packaging

14 oz. (.4 Kg) CARTRIDGE — Individual or case lots of 10 or 60.

35 lb. (16 Kg) PAILS, 120lb. (54Kg) KEG & 400 lb. 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).

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.

### 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, consult 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, Page 5. 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.

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.

INACTIVE — 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 5 (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 200°F (93°C). For temperatures beyond this range, consult the Factory. 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 5, 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.

**TABLE 1 — NLGI #1 Grease**

Manufacturer	Lubricant ★
Amoco Oil Co.	Rykon Premium Grease 1 EP
BP Oil Co.	Energrease LS-EP 1
Chevron U.S.A., Inc.	Dura-Lith EP 1
Citgo Petroleum Corp	Premium Lithium Grease EP 1
Conoco Inc.	EP Conolith Grease #1
Exxon Company, USA	Lidok EP 1
Imperial Oil Ltd.Imperial Oil Ltd.	Ronek EP 1
Kendall Refining Co.	Lithium Grease L-416
Keystone Div., Pennwalt Corp.	Zeniplex-1
Lyondell Lubricants	Litholine Complex EP1
Mobil Oil Corp.	Mobilux EP 1
Petro-Canada Products	Multipurpose EP 1
Phillips 66 Co.	Philube Blue EP
Shell Oil Co.	Alvania EP Grease R1
Shell Canada Ltd.	Alvania Grease EP1
Sun Oil Co.	Sun Prestige 741 EP
Texaco Lubricants	Multifak EP 1
Unocal 76 (East & West)	Unoba EP 1

**TABLE 2 — NLGI #0 EP Grease**

Manufacturer	Lubricant ★
Amoco Oil Co.	Rykon Premium Grease O EP
BP Oil Co.	Energrease LS-EP 0
Chevron U.S.A., Inc.	Dura-Lith EP 0
Citgo Petroleum Corp	Premium Lithium Grease EP 0
Conoco Inc.	EP Conolith Grease #0
Exxon Company, U.S.A..	Lidok EP 0
Kendall Refining Co.	Lithium Grease L-406
Keystone Div., Pennwalt Corp.	Zeniplex-0
Mobil Oil Corp..	Mobilux EP 0
Petro-Canada Products	Multipurpose Lotemp EP Grease
Shell Oil Co.	Alvania EP Grease RO
Shell Canada Ltd.	Alvania Grease EPW
Sun Oil Co.	Sun Prestige 740 EP
Texaco Lubricants	Multifak EP 0
Unocal 76 (East & West)	Unoba EP 0

**TABLE 3 — Oil Lubricants**

Manufacturer	Lubricant H
Amoco Oil Co.	Permagear EP 680
BP Oil Co.	Energear EP 680
Chevron, U.S.A., Inc.	Gear Compound 680
Conoco, Inc.	Gear Oil 680
Exxon Co., U.S.A.	Spartan EP 680
Mobil Oil Corp.	Mobilgear 636
Petro-Canada Products	Ultima EP 680
Shell Oil Co.	Omala Oil 680
Texaco Lubricants	Meropa 680
Unocal 76 (East & West)	Extra Duty NL Gear Lube 8EP

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

## TYPE GL52 HORIZONTAL COUPLING INSTALLATION

Only standard mechanics tools, torque wrench, square (or depth micrometer), spacer bar, and feeler gauges are required to install 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 5. Make certain flange fasteners are tightened to the required torque listed in Table 4, Page 5.

**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.

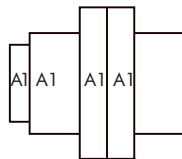
**WARNING:** If an oil bath is used, the oil must have a flash point of 350°F (177°C) or higher. Do not rest hubs on the bottom of the container. Do not use an open flame in a combustible atmosphere or near combustible materials.

### 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. These calculations can also be done graphically or mathematically, and allow the incorporation of "cold offsets", which will compensate for shaft position changes due to thermal growth.

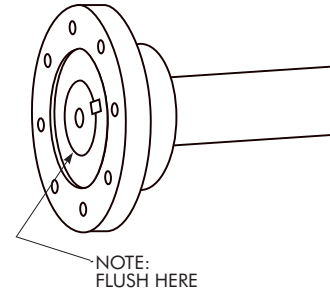
### Balanced Couplings

The fasteners provided are matched sets and must not be mixed or substituted. Balanced couplings are match marked and must be assembled with mating match marks aligned. In some sizes, the flanges are not match marked. Coupling flanges must be assembled with O. D's aligned to within .002". Component parts of assembly balanced couplings must not be replaced without re-balancing the complete assembly.



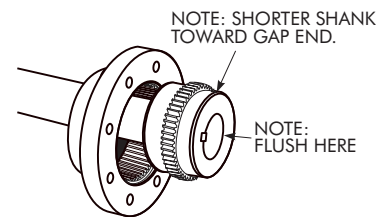
### 1 — Determine Coupling Assembly Number

Measure flex hub dimension ZG or ZGL, as shown in drawings on Page 6. Compare the results with the values listed in Table 4 and compare coupling parts provided to the part identification drawings on Page 6 to determine if coupling is a GL52-1 or GL52-2.



### 2 — Mount Rigid Hub

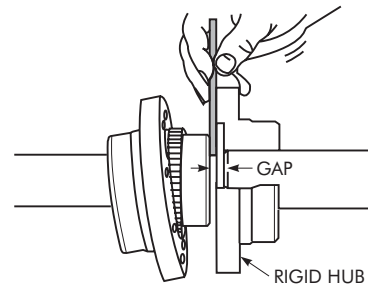
Mount the rigid hub on its respective shaft so the hub counter bore face is flush with the end of the shaft. Seal keyway to prevent leakage.



### 3 — Mounted Flanged Sleeve, Seal & Flex Hub

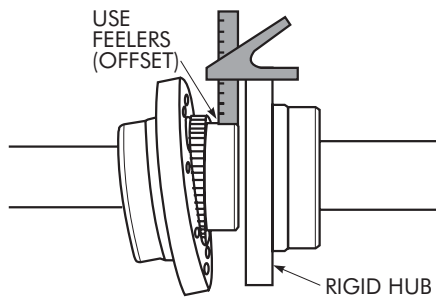
Place the flanged sleeve **WITH** seal ring on the shaft **BEFORE** mounting the flex hub.

**IMPORTANT:** Mount hubs as shown above with **SHORT** shank, DIM. ZG or ZGL in Table 4 on Page 5, toward gap. Mount hubs so that each 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.



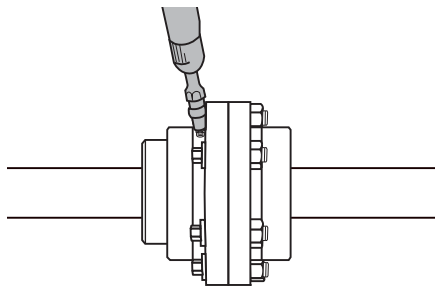
### 4 — Gap & Angular Alignment

Adjust gap to any value between minimum and maximum value specified in Table 4 on Page 5. Axial movement must never exceed the minimum and maximum gap values and hub travel must never exceed its "T" value. ("T" equals max gap minus min gap.) Temporarily secure the floating shaft or shafts at their required positions. Use a spacer bar equal in thickness to the required gap (minus "E" from Table 4) at 90° intervals to the same depth as shown. Measure clearance between bar and hub face with a feeler gauge. The difference in minimum and maximum measurements should not exceed the **ANGULAR** limit specified in Table 4 on Page 5.



### 5 — Parallel Offset Alignment

Align coupling so that, with the square (or depth micrometer) 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 INSTALLATION PARALLEL OFFSET limit in Table 4 divided by two. The above measurement is TIR. Tighten all foundation bolts and repeat steps 4 and 5. Realign coupling if necessary.



### 6 — Assemble Flanged Sleeve & Lubricate

Insert gasket between flanges and draw flanges together. Only use fasteners furnished with the coupling. Tighten fasteners to torque specified in Table 4. Insert a lube fitting into one lube hole and remove opposite plug for venting. Fill with recommended grease to the amount specified in Table 4. Then INSERT BOTH LUBE PLUGS.

**IMPORTANT:** Over lubrication may restrict the sliding action of the coupling.

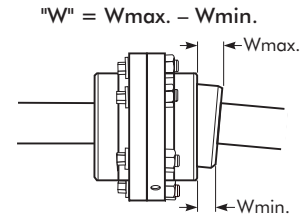
### BI-ANNUAL MAINTENANCE

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

### ANNUAL MAINTENANCE

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

1. Check alignment per Step 7 below. If the maximum operating misalignment values are exceeded, realign the coupling to the recommended installation values. See Table 4, Page 5, 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.



Check "W" at each flexible hub.

### 7 — Assembled Coupling Alignment Check

The alignment can be checked without disassembling the coupling as shown above. Determine "W" by measuring distances "W" max. and "W" min. between flex hub and sleeve using a depth mic or feeler gages. The difference between "W" max. and "W" min. must not exceed the "W" value given in Table 4. Check "W" at each coupling end.

**TABLE 4 — Installation and Alignment Data ★ — Dimensions – Inches (Metric – mm)**

COUPLING SIZE			1010	1015	1020	1025	1030	1035	1040	1045	1050	1055	1060	1070
Dimensions	E (C'Bore Depth)		.100 (2.540)	.100 (2.540)	.100 (2.540)	.100 (2.540)	.100 (2.540)	.100 (2.540)	.155 (3.937)	.155 (3.937)	.200 (5.080)	.200 (5.080)	.260 (6.604)	.330 (8.382)
	ZG		.586 (14.884)	.500 (12.700)	.700 (17.780)	.860 (21.844)	.960 (24.384)	1.060 (26.924)	1.080 (27.432)	1.240 (31.496)	1.370 (34.798)	1.290 (32.766)	1.670 (42.418)	1.960 (49.784)
	ZGL		.000 (0.000)	.000 (0.000)	.000 (0.000)	.000 (0.000)	.250 (6.350)	.250 (6.350)	.250 (6.350)	.250 (6.350)	.360 (9.144)	.500 (12.700)	.500 (12.700)	.530 (13.462)
Gap (Hub Separation)	Min	GL52-1 & 2	.16 (4.064)	.16 (4.064)	.16 (4.064)	.19 (4.826)	.19 (4.826)	.22 (5.588)	.28 (7.112)	.31 (7.874)	.34 (8.636)	.34 (8.636)	.41 (10.414)	.50 (12.700)
		GL52-1	.30 (7.620)	.66 (16.764)	.62 (15.748)	.76 (19.304)	.98 (24.892)	1.29 (33.766)	1.71 (43.434)	1.84 (46.736)	2.19 (55.626)	2.82 (71.628)	2.76 (70.104)	3.27 (83.058)
	Max	GL52-2	.89 (22.606)	1.16 (29.464)	1.32 (33.528)	1.62 (41.148)	1.69 (42.926)	2.10 (53.340)	2.54 (64.516)	2.83 (71.882)	3.20 (81.280)	3.61 (91.694)	3.93 (99.822)	4.70 (119.380)
Installation Limits	Parallel Offset Max		.001 (.025)	.001 (.025)	.001 (.025)	.001 (.025)	.002 (.50)	.002 (.50)	.003 (.076)	.003 (.076)	.003 (.076)	.003 (.076)	.004 (.102)	.005 (.127)
	Angular Max		.006 (.152)	.007 (.178)	.009 (.229)	.011 (.279)	.013 (.330)	.015 (.381)	.018 (.457)	.020 (.508)	.022 (.559)	.024 (.610)	.026 (.660)	.031 (.787)
"W"†	Installation Limit Check		.006 (.152)	.007 (.178)	.009 (.229)	.011 (.279)	.013 (.330)	.015 (.381)	.018 (.457)	.020 (.508)	.022 (.559)	.024 (.610)	.026 (.660)	.031 (.787)
	Operating Limit Check		.012 (.305)	.015 (.381)	.018 (.457)	.022 (.559)	.026 (.660)	.030 (.762)	.036 (.914)	.040 (1.016)	.044 (1.118)	.048 (1.219)	.052 (1.321)	.061 (1.549)
Coupling Speed Range — rpm	Falk LTG & NLGI #1 Grease	Min ‡	1030	700	550	460	380	330	290	250	230	210	190	160
		Allow	5300	4300	3700	3300	2900	2600	2400	2100	1900	1800	1600	1400
Grease - pounds (Kg)			.03 (.014)	.05 (.023)	.08 (.036)	.14 (.064)	.25 (.113)	.40 (.181)	.60 (.272)	.75 (.340)	1.20 (.544)	1.60 (.726)	2.12 (.962)	3.00 (1.36)
Flange Bolt Wrench Size (Inch Only)			.250	.375	.500	.625	.625	.750	.750	.750	.875	.875	.875	1.000
Flange Bolt Torque — lb-in (Nm)			108 (12.2)	372 (42.0)	900 (102)	1800 (203)	1800 (203)	3000 (339)	3000 (339)	3000 (339)	3000 (339)	3000 (339)	3000 (339)	3000 (339)

★ Refer to selection guide for maximum bores and Engineering 427-108 for re boring instructions.

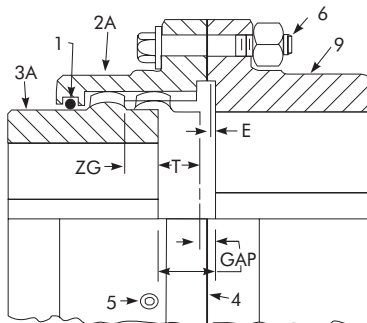
† Flexible couplings are designed to accommodate changes in operating conditions. Coupling life expectancy between initial alignment and maximum operating limits is a function of load, speed and lubrication. Application requirements in excess of ¼° misalignment per flex-half coupling should be referred to the Factory for review.

‡ NLGI #0 grease must be used when speeds are below minimum shown.

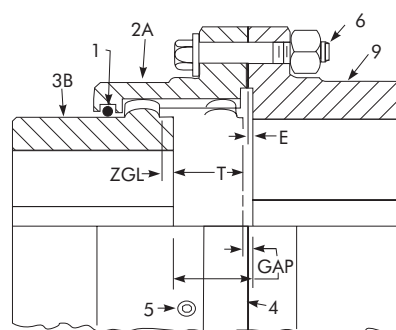
### PARTS IDENTIFICATION

Coupling parts have identifying size and part numbers as illustrated below. When ordering parts, always specify SIZE and TYPE, hub bore & keyway and part number found on each item.

#### Type GL52-1

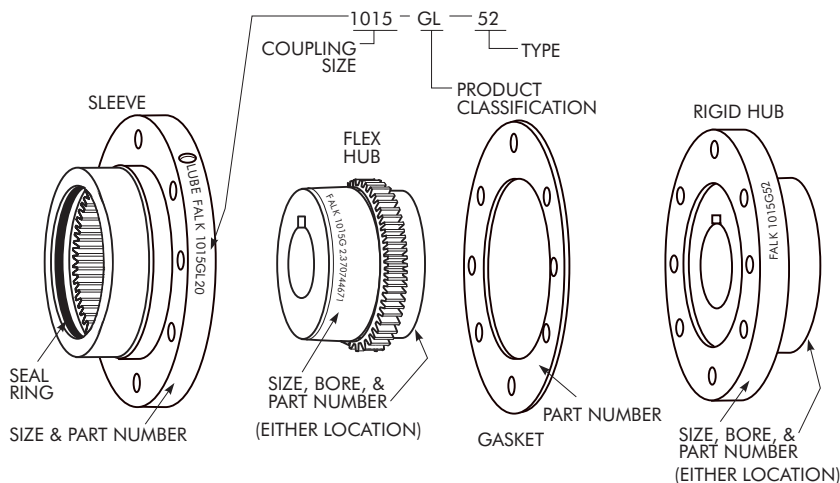


#### Type GL52-2



- |                       |                   |              |
|-----------------------|-------------------|--------------|
| 1. Seal Ring          | 3B. GL Flex Hub-2 | 6. Fasteners |
| 2A. GL Flanged Sleeve | 4. Gasket         | 9. Rigid Hub |
| 3A. GL Flex Hub-1     | 5. Lube Plug      |              |

### PART NUMBER LOCATION



### ORDER INFORMATION

- Identify part(s) required by name from Parts Identification above.
- Furnish the following information:

**EXAMPLE:**

**Complete 1015GL52-1 Gear Coupling**  
Consisting of :

1 – 1015GL52 Sleeve  
(Includes: Gasket & Seal)

1 – 1015GL-1 Flex Hub

Bore: 2.250 Keyway: .500 x .250

1 – Rigid Hub

Bore: 2.750 Keyway: .625 x .312

1 – Fastener Set

Contact your Rexnord Distributor or the Factory for price and availability.