

## How To Use This Manual

This manual provides detailed instructions on installation, maintenance and parts identification for Falk Lifelign® gear couplings, Types GC02 & 05. 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 GC02 & 05. For couplings furnished with special features, refer to assembly drawing furnished with coupling for proper assembly arrangement and any additional installation or maintenance requirements. These couplings are designed to operate in either the horizontal or vertical position without modification. However, for vertical operation, assemble Type GC02 coupling so retainer ring is up on the high side. For Type GC05 the addition of an elastomer gap disc is required in the lower coupling.

**IMPORTANT:** When gear couplings are mounted on a horizontal floating shaft, use a gap disc in coupling sizes indicated. Where limited end float is required or where sleeve bearing motors are used, consult 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

Sleeves have 1/8 NPT lube holes for sizes 1010GC thru 1035GC. Use a standard grease gun and lube fittings.

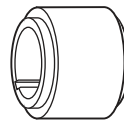
## LUBRICATION

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.

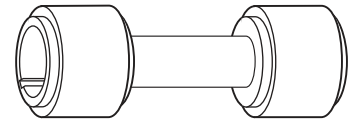
Gear couplings initially lubricated with Falk Long Term Grease (LTG) will not require re-lubrication for up to three years.

The use of general purpose grease requires re-lubrication of the coupling at least 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.

Type GC02



Type GC05



## 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 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 out performing all other lubricants tested. The resistance to separation allow 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 for coupling speed range of LTG grease.

## Packaging

14 oz. (0,4 Kg) CARTRIDGES — Individual or case lots of 10 or 30.

35 lb. (16 Kg) PAILS, 120 lb. (54 Kg) 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 6. 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. DO NOT use cup grease.

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 (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 6, is in ounces and also applies to the volume of oil.

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

**TABLE 2 — NLGI #0 EP Grease**

Manufacturer	Lubricant
Amoco Oil Co.	Rykon Premium Grease 0
BP Oil Co.	EP 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
Imperial Oil Ltd.	Unirex 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
Phillips 66 Co.	Philube Blue EP
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*
Amoco	Permagear EP 160
Chevron, U.S.A.	NL Gear Compound 680
Exxon Co., U.S.A.	Spartan EP680
Gulf Oil Co.	EP Lubricant HD 680
Mobil Oil Co.	Mobilgear 636
Shell Oil Co.	Omala Oil 680
Texaco Inc.	Meropa 680
Union Oil Co. of Calif.	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.

## HORIZONTAL COUPLING INSTALLATION ALL TYPES

Only standard mechanics tools, spacer bar, feeler gauge, straight edge and a dial indicator 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.

**Interference Fit Hubs** — Unless otherwise specified, gear couplings are furnished for an interference fit without setscrews. 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.

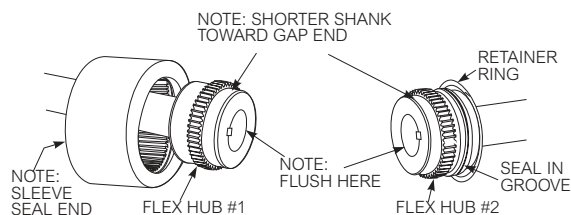
## Maximize Performance & Life

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.

## BI-ANNUAL MAINTENANCE

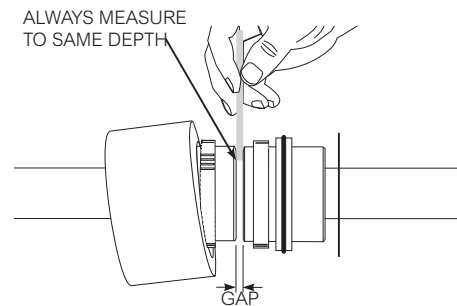
Re-lubricate coupling if using general purpose greases. If coupling leaks grease, is exposed to extreme temperatures, excessive moisture or frequent reversals; more frequent lubrication may be required.

## TYPE GC02 HORIZONTAL COUPLING INSTALLATION



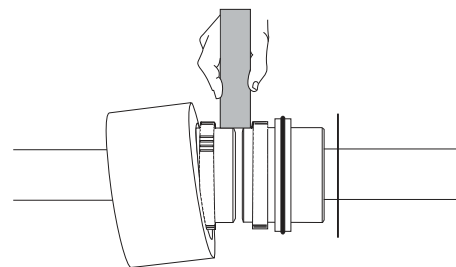
### 1 — Mount Hubs, Sleeve, Seals & Retainer Ring

Place the sleeve WITH seal ring in sleeve seal groove on shaft BEFORE mounting flex hub #1. Mount flex hub #1 onto shaft, as shown above, so that the face is flush with the end of the shaft. Place retainer ring and proper size seal onto other shaft end. Mount flex hub #2, as shown, so that the face is flush with the end of the shaft. Allow hubs to cool before proceeding. Seal keyways to prevent leakage. Install seal in flex hub #2 seal groove. Insert setscrews (if required) and tighten. Position equipment in approximate alignment with approximate hub gap specified in Table 4 on Page 6.



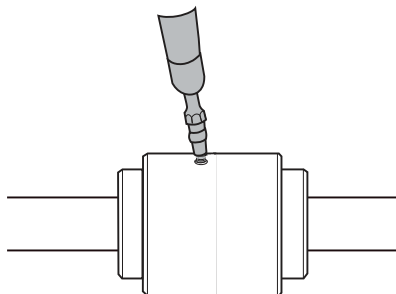
### 2 — Gap & Angular Alignment

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 clearance between bar and hub face with feelers. The difference in minimum and maximum measurements must not exceed the INSTALLATION ANGULAR limit specified in Table 4.



### 3 — Offset Alignment

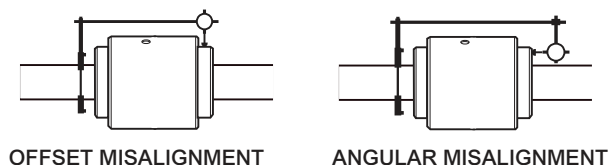
Align so that a straight edge rests squarely on both hubs as shown above and also at 90° intervals. Check with feelers. The clearance should not exceed the INSTALLATION OFFSET limit specified in Table 4. Tighten foundation bolts and repeat Steps 2 and 3. Realign coupling if necessary. Use a dial indicator if hub extension is too short for accurate use of a straight edge. Refer to Step 4 on Page 5 for procedure.



**4 —Assemble Sleeve, Retainer Ring & Lubricate**

Remove pipe plugs from sleeve if present. Slide sleeve to engage hub #2. Separate coils of retainer ring and insert ring end into sleeve retainer ring groove. Keep the coils separated and spiral turn each progressively into the groove until the ring snaps into place. Check ring for proper seating.

Fill with recommended grease until an excess appears at the open hole; then insert plug. CAUTION: Make certain all lube plugs are inserted after lubricating.



**ANNUAL MAINTENANCE**

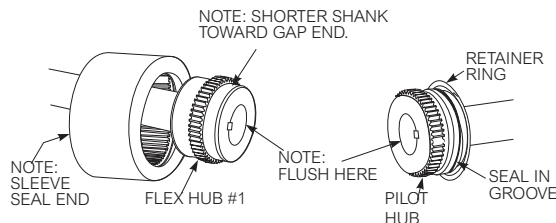
For extreme or unusual operating conditions, check coupling more frequently.

1. The alignment can be checked without disassembling the coupling as shown in the above illustrations. Mount dial indicator on hub or shaft and indicate surface shown by rotating shafts with coupling. The offset TIR value divided by 2, must not exceed the offset operating limit shown in Table 4. The angular TIR value, must not exceed the angular operating limit shown in Table 4. Realign equipment to within the installation limits if either operating limit value is exceeded.
2. Inspect seal ring to determine if replacement is required.
3. Re-lubricate coupling if using general purpose grease.

**DISASSEMBLY**

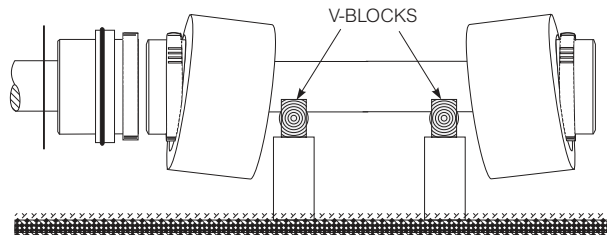
Locate the radius removal notch on face of retainer ring. With screw driver or similar tool, pry end of ring down and out of groove. Wedge tool behind notch and pry ring from sleeve using spiral motion. Slide sleeve off hubs.

**TYPE GC05 HORIZONTAL COUPLING WITH FLOATING SHAFT**



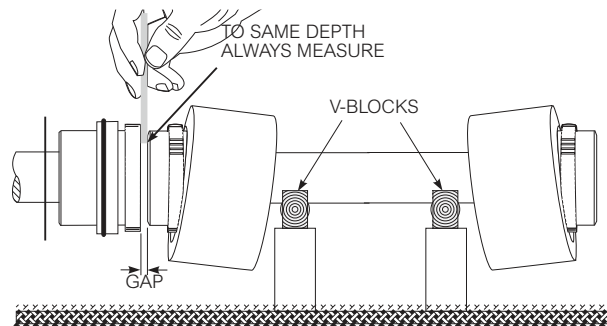
**1 — Mount Hubs, Sleeve, Seals & Retainer Ring**

Place the sleeve WITH seal ring in sleeve seal groove on shaft BEFORE mounting flex hub #1. Mount flex hub #1 onto shaft, as shown above, so that the face is flush with the end of the shaft. Place retainer ring and proper size seal onto other shaft end. Mount pilot hub, as shown above, so that the face is flush with the end of the shaft. Allow hubs to cool before proceeding. Seal keyways to prevent leakage. Install seal in pilot hub seal groove. Insert setscrews (if required) and tighten. NOTE: Pilot hub or flex hub #1 (as illustrated below) can be mounted on floating shaft.



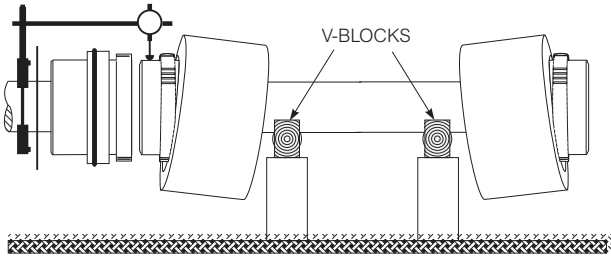
**2 — Position First Drive & Floating Shaft**

Set the drive most difficult to move to true level and bolt it in place. Set the floating shaft on V-blocks. Then align the floating shaft to the fixed drive.



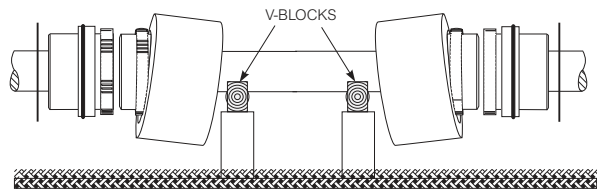
**3 — Gap & Angular Alignment**

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 clearance between bar and hub face with feelers. The difference in minimum and maximum measurements must not exceed the INSTALLATION ANGULAR limit specified in Table 4.



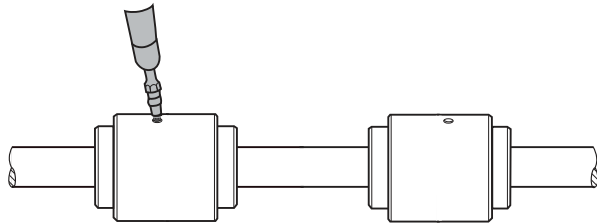
#### 4 — Offset Alignment

Mount dial indicator on hub or shaft and indicate surface shown by rotating hub with indicator. The offset TIR value divided by 2, must not exceed the INSTALLATION OFFSET limit specified in Table 4. For optional straight edge method, refer to Step 3 on Page 3. Rest straight edge on pilot hub tooth tip and check with feelers at flex hub #1 tooth tip at 90° intervals.



#### 5 — Position Second Drive

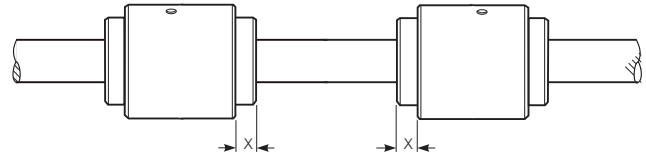
Position and align second drive to the floating shaft per Steps 3 & 4. DO NOT move the floating shaft. Bolt drive in place and recheck alignment & gap. Realign if necessary.



#### 6 — Insert Gap Discs, Assemble Sleeves, Retainer Rings & Lubricate

Remove pipe plugs from sleeve if present. Insert gap discs between hub faces for Sizes 1025GC thru 1035GC. Slide sleeve to engage pilot hub. Separate coils of retainer ring and insert ring end into sleeve retainer ring groove. Keep the coils separated and spiral turn each progressively into the groove until the ring snaps into place. Repeat procedure for other coupling end. Check ring for proper seating. Remove V-blocks supports.

Fill with recommended grease until an excess appears at the open hole; then insert plug. Continue procedure for other coupling end. **CAUTION:** Make certain all lube plugs are inserted after lubricating.



#### ANNUAL MAINTENANCE

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

1. The alignment can be checked without disassembling the coupling as shown in the above illustration. Measure distance "X" using a depth MIC. The difference in minimum and maximum measurements taken at each coupling end, must not exceed the angular operating limit shown in Table
4. Realign equipment to within the installation limit if the operating limit is exceeded.
2. Inspect seal ring to determine if replacement is required.
3. Re-lubricate coupling if using general purpose grease.

#### DISASSEMBLY

Safely support floating shaft. Locate the radius removal notch on face of retainer ring. With screw driver or similar tool, pry end of ring down and out of groove. Wedge tool behind notch and pry ring from sleeve using spiral motion. Slide sleeve off hubs.

**TABLE 4 — Installation & Alignment Data For Types GC02 & 05★— Dimensions Inches (Metric – mm)**

COUPLING SIZE			1010G	1015G	1020G	1025G	1030G	1035G	
Gap ±10%	G02 & 05		.125 (3)	.125 (3)	.125 (3)	.188 (5)	.188 (5)	.250 (6)	
Installation Limits	G02 & 05	Offset Max	.0015 (.0381)	.0015 (.0381)	.0015 (.0381)	.002 (.0508)	.002 (.0508)	.003 (.0762)	
		Angular Max	.003 (.0762)	.007 (.178)	.009 (.229)	.011 (.279)	.013 (.330)	.013 (.330)	
Operating Limits†	G02	Offset Max	.005 (.127)	.008 (.203)	.009 (.229)	.012 (.305)	.014 (.356)	.016 (.406)	
		Angular Max	.035 (.889)	.045 (1.14)	.054 (1.37)	.067 (1.70)	.079 (2.01)	.092 (2.34)	
Operating Limits† Per Cplg	G05		Angular Max	.035 (.889)	.045 (1.14)	.054 (1.37)	.067 (1.70)	.079 (2.01)	.092 (2.34)
Coupling Speed Range (rpm)	G02&05	NLGI #0 Grease-Max.‡		5300	4300	3700	3300	2900	2600
		Falk LTG & NLGI #1 Grease	Min	1030	700	550	460	380	330
			Allow.	5300	4300	3700	3300	2900	2600
Grease - ounces (g)	G02		.4 (11.3)	1.0 (28.3)	1.5 (42.5)	2.3 (65.2)	3.3 (93.6)	4.3 (122)	
	G05		.3 (8.50)	.7 (19.8)	1.1 (31.2)	1.8 (51.0)	2.6 (73.7)	3.4 (96.4)	

★Refer to Selection Guide for maximum bores and Manual 427-108 for reboring 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 3/4° misalignment per flex-half coupling should be referred to Factory for review.

‡Couplings with NLGI #0 grease may be operated at any speed between zero and the maximum shown.

### PARTS IDENTIFICATION AND PART NUMBER LOCATION

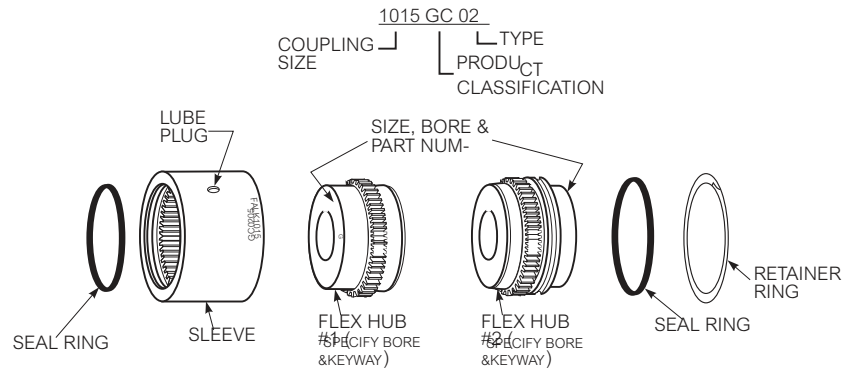
Coupling parts have identifying size and part numbers as illustrated below. When ordering parts, always SPECIFY SIZE, TYPE, HUB BORE, KEYWAY and PART NUMBER found on each item.

Contact your Rexnord Distributor or Rexnord for price and availability.

### EXAMPLE:

- Complete 1015GC02 Gear Coupling
- Consisting of;
- 1 -1015GC02 Sleeve (Includes Seal Rings and Retainer Ring)
- 1 - 1015GC Flex Hub #1 Bore: 2.375 Keyway: .625 x .375
- 1 - 1015GC Flex Hub #2 Bore: 2.250 Keyway: .500 x .250

#### TYPE GC02



#### TYPE GC05

