How To Use This Manual

This manual provides detailed instructions on installation, maintenance 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 standard coupling Types GL32 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 GL32 couplings are recommended for applications that require axial hub movement and are designed for horizontal operations. Refer to Factory for vertical applications.

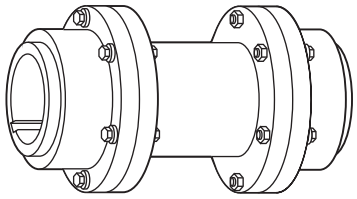
CAUTION: Consult applicable local and national safety codes for proper guarding of rotating members. Observe all safety rules when installing or servicing couplings.

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

Type GL32



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 for coupling speed range of LTG grease.

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). 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).

MINIMUM 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.

Packaging

14 oz. (.4 Kg) CARTRIDGES — For use in standard industrial lubrication guns.

CASE LOTS — 10 – 14 oz. cartridges, 60 – 14 oz. cartridges.

35 lb. (16 Kg)PAILS — Ideal for larger size couplings or many smaller sizes.

120 lb. (54 Kg) KEG — For plants with many small couplings or large size couplings. Best for hand packing.

400 lb. DRUMS — For plants with a pressurized lubrication system.

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 on Page 3 are typical products only and should not be construed as exclusive recommendations.

Specifications — General Purpose Coupling Lubricants

The values shown are typical and slight variations are permissible.

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

CONSISTENCY — See Table 1 or 2 on Page 3.

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.

CLEAN — Free from foreign inclusions.

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TABLE 1 — NLGI #1 Grease

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) 310-340
Dropping point. . . . . 300°F (149°C) or higher
Texture . . . . . Smooth or fibrous
Minimum Timken EP O.K. load . . . . . 30 lbs. (14kg)
Does not corrode steel or swell or deteriorate synthetic seals.

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

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

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 then the pour point of the oil. The specified amount of grease listed in Table 4, Page 6, is in pounds and also applies to the volume of oil in pints.

TABLE 2 — NLGI #0 EP Grease

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) 310-340
Dropping point. . . . . 300°F (149°C) or higher
Texture . . . . . Smooth or fibrous
Minimum Timken EP O.K. load. . . . . 30 lbs. (14kg)
Does not corrode steel or swell or deteriorate synthetic seals.

Manufacturer	Lubricant ★
Amoco Oil Co. BP Oil Co. Chevron U.S.A., Inc. Citgo Petroleum Corp Conoco Inc.	Rykon Premium Grease 0 EP Energrease LS-EP 0 Dura-Lith EP 0 Premium Lithium Grease EP 0 EP Conolith Grease #0
Exon Company, U.S.A.. Kendall Refining Co. Keystone Div., Pennwalt Corp. Mobil Oil Corp.. Petro-Canada Products Phillips 66 Co. Shell Oil Co. Shell Canada Ltd.	Lidok EP 0 Lithium Grease L-406 Zeniplex-0 Mobilux EP 0 Multipurpose Lotemp EP Grease Philube Blue EP Alvania EP Grease RO Alvania Grease EPW
Sun Oil Co. Texaco Lubricants Unocal 76 (East & West)	Sun Prestige 740 EP Multifak EP 0 Unoba EP 0

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

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 3 — Oil Lubricants

Manufacturer	Lubricant [H]
Amoco Chevron, U.S.A. Exxon Co., U.S.A. Gulf Oil Co.	Permagear EP 160 NL Gear Compound 680 Spartan EP680 EP Lubricant HD 680
Mobil Oil Co. Shell Oil Co. Texaco Inc. Union Oil Co. of Calif.	Mobilgear 636 Omala Oil 680 Meropa 680 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 GL HORIZONTAL COUPLING INSTALLATION

Only standard mechanics tools, torque wrenches, dial indicator 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 2 or 3. Pack sleeve teeth with grease and lightly coat seals with grease BEFORE assembly. The required amount of grease is listed in Table 4, Page 6. Make certain flange fasteners are tightened to the required torque listed in Table 4, Page 6.

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. To prevent seal damage, DO NOT heat hubs beyond a maximum temperature of 400°F (205°C).

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.

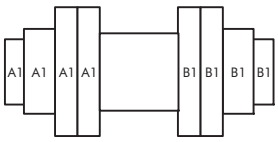
WARNING: If an oil bath is used, the oil must have a flash point of 350°F (177°C) or higher. Do not rest hubs on the bottom of the container. Do not use an open flame in a combustible atmosphere or near combustible materials.

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.

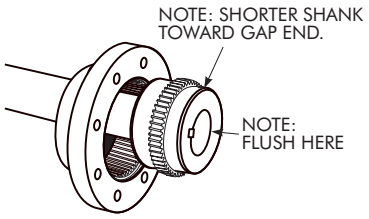
Balanced Couplings

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. Component parts of assembly balanced couplings must not be replaced without re-balancing the complete assembly.



1 — Determine Coupling Assembly Number

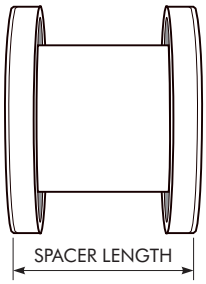
Measure flex hub dimension ZG or ZGL, as shown in drawings on Page 7. Compare the results with the values listed in Table 4 and compare coupling parts provided to the part identification drawings on Page 7 to determine if coupling is a GL32-1, GL32-2, or GL32-4. NOTE: GL32-4 couplings are provided with short tooth sleeves and gap discs.



2 — Mount Flanged Sleeve, Seal & Hubs

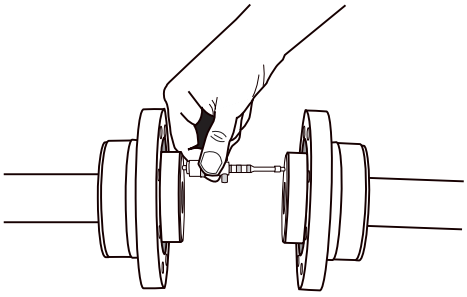
Place the flanged sleeves WITH seal rings on shafts BEFORE mounting hubs.

IMPORTANT: Mount hubs as shown above with SHORT shank, DIM. ZG or ZGL in Table 4 on Page 6, 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. Position equipment in approximate alignment with approximate hub gap.



3 — Determine Distance Between Hub Ends

Accurately measure spacer length as shown above. To determine minimum hub gap dimension, add the spacer length measured, plus the minimum "X" dimension listed in Table 4 on Page 6. To determine maximum hub gap dimension, add the spacer length measured, plus the maximum "X" dimension listed in Table 4 on Page 6.



4 — Gap & Angular Alignment

Adjust gap to any value between minimum and maximum value calculated in Step 3. Axial movement must never exceed the minimum and maximum gap values. Temporarily secure the floating shaft or shafts at their required positions. 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 installation ANGULAR limit specified in Table 4 on Page 6.

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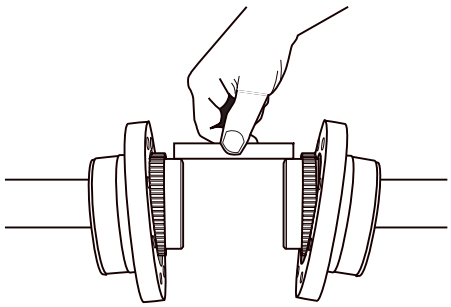
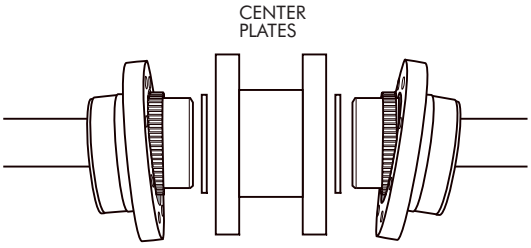


5 — Offset Alignment

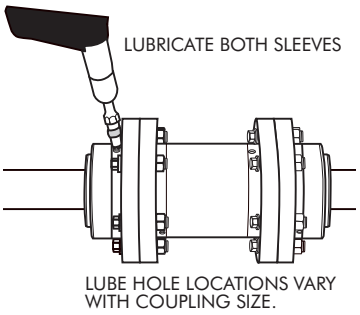
Align so that a straight edge rests squarely on both hubs as shown above and also at 90° intervals. Check with feelers. The clearance should not exceed the INSTALLATION OFFSET limit specified in Table 1. Tighten foundation bolts and repeat Steps 4 and 5. Realign coupling if necessary. Use a dial indicator if hub extension is too short for accurate use of a straight edge.



6 — Insert Center Plates Into Spacer & Assemble Coupling

Position Center Plate in both ends of spacer counterbore. If Center Plate diameter is stepped, assemble small diameter side into spacer. Position spacer (with Center Plates) between hubs. (For GL32-4, insert the gap disc between each hub and spacer). Insert gasket at each flange connection and assemble sleeves to spacer. Use only the fasteners furnished with the coupling.

IMPORTANT: Tighten fasteners to torque specified in Table 4 on Page 6.



7 — Lubricate

Insert a lube fitting into one lube hole and remove opposite plug for venting. Fill to ONE-HALF of the amount of lubricant specified in Table 1. REPEAT the procedure for other half coupling and then INSERT ALL 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 or frequent reversals; frequent lubrication may be required.

ANNUAL MAINTENANCE

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

1. Check alignment per Steps 4 and 5, Pages 4 and 5. If the maximum operating misalignment values are exceeded, realign the coupling to the recommended installation values. See Table 4, Page 6, 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.

TABLE 4 — Installation and Alignment Data ★ (Dimensions-Inches)

COUPLING SIZE				1010	1015	1020	1025	1030	1035	1040	1045	1050	1055	1060	1070
Dimensions			ZG	.586	.500	.700	.860	.960	1.060	1.080	1.240	1.370	1.290	1.670	1.960
			ZGL	.000	.000	.000	.000	.250	.250	.250	.250	.360	.500	.500	.530
"X"	Min	GL32-1 & 2		.32	.32	.32	.38	.38	.48	.60	.66	.74	.74	.86	1.06
		GL32- 4		.25	.55	.27	.85	.87	1.32	1.86	1.88	2.40	3.64	3.08	3.82
	Max	GL32-1 & 4		.42	1.14	1.06	1.34	1.78	2.42	3.14	3.40	4.04	5.30	5.04	5.94
		GL32-2		1.60	2.14	2.46	3.06	3.20	4.04	4.80	5.38	6.06	6.88	7.38	8.80
Installation Limits		Offset Max		.001 Per inch of hub separation											
		Angular Max		.006	.007	.009	.011	.013	.015	.018	.020	.022	.024	.026	.031
Operating Limits †		Offset Max		.004 Per inch of hub separation											
		Angular Max		.024	.030	.036	.045	.052	.061	.072	.081	.087	.096	.105	.122
Coupling Speed Range — (rpm)	LTG & NLGI #1 Grease	Min ‡		1030	700	550	460	380	330	290	250	230	210	190	160
		Allow		7000	5500	4600	4000	3600	3100	2800	2600	2400	2200	2100	1800
Grease - pounds				.05	.08	.14	.25	.40	.60	1.00	1.12	2.00	2.50	3.50	4.80
Flange Bolt Torque — lb-in.				108	372	900	1800	1800	3000	3000	3000	3000	3000	3000	3000

★ Refer to Selection Guide for maximum bores and Engineering Manual 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. Limits shown are extremes and should not be combined. Application requirements in excess of 1/4° misalignment per flex-half coupling should be referred to Factory for review.

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

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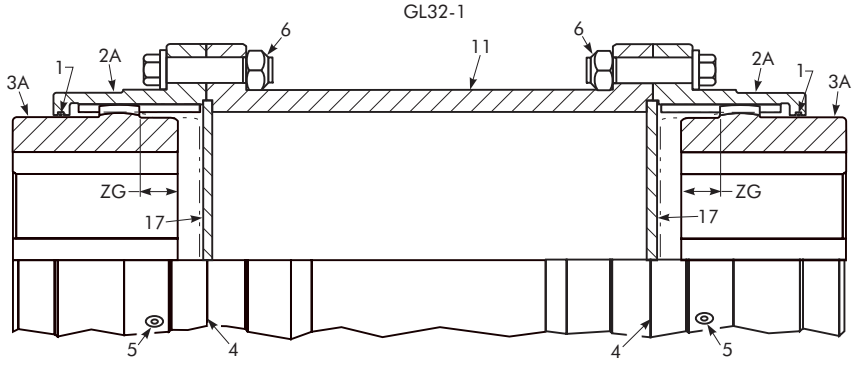
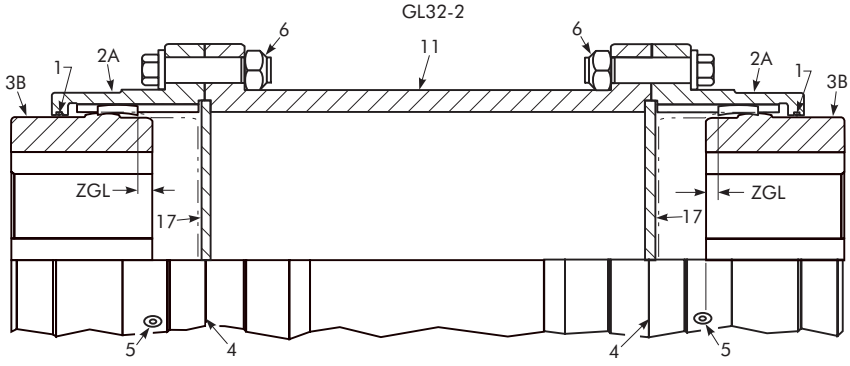
PARTS IDENTIFICATION

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.

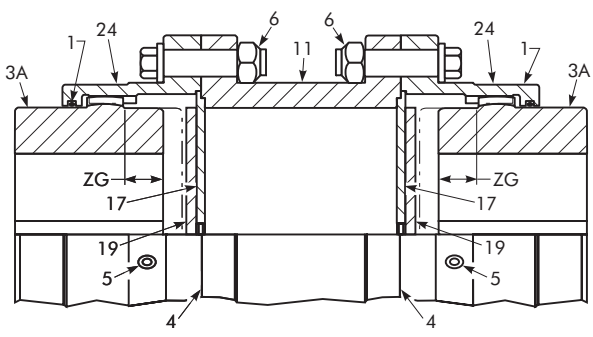
GL32-1



GL32-2



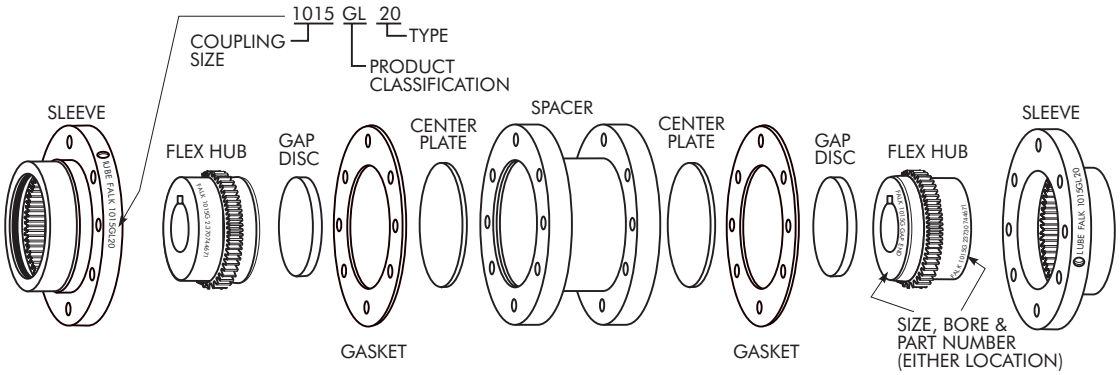
GL32-4



1. Seal Ring
2A. GL Flanged Sleeve (Long tooth)
3A. GL Flex Hub
3B. GL Flex Hub – 2
4. Sleeve Gasket
5. Lube Plug
6. Sleeve Fasteners
11. Spacer
17. Center Plate
19. GL – 4 Gap Disc ‡
24. G Flanged Sleeve (Short tooth)

‡ Are not required for Sizes 1010 and 1020GL.

PART NUMBER LOCATION



ORDER INFORMATION

1. Identify part(s) required by name from above.
2. Furnish the following information:
   EXAMPLE:
   Coupling Size: 1050
   Coupling Type: GL32-1
   Flex Hub:
   Bore: 6.750
   Keyway: 1.750 x .750
3. Price parts from Price List 452-110 and appropriate discount sheet.

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