How to Use This Manual

This manual provides detailed instructions on installation, maintenance, and parts identification for Steelflex couplings, Types T50 & T70. 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 T50 and T70. 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 T50 couplings with floating shaft, are designed to connect equipment with large spans between shaft ends. Type T70 couplings are BALANCED for close coupled high speed applications. DO NOT mix parts between Type T50 and T70 couplings. These couplings are designed to operate in either the horizontal or vertical position. However, the addition of an elastomer gap disc is required in the lower Type T50 coupling for vertical operation.

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

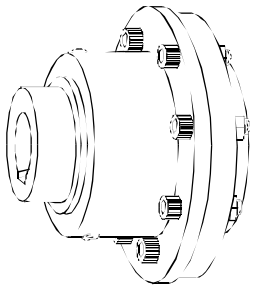
Covers have 1/8 NPT lube holes for Size 1140T and smaller and 3/8 NPT lube holes for Size 1150T and larger. Use a standard grease gun and lube fitting.

CAUTION: Remove all grease fittings and make certain all plugs have been inserted after lubricating.

LIMITED END FLOAT

When electric motors, generators, 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 428-820 for instructions.

Types T50/T70



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. Sizes 1030T to 1090T are furnished with a pre-measured amount of LTG grease for each coupling. The grease can be ordered for larger size couplings.

Steelflex couplings initially lubricated with LTG will not require re-lubrication until the connected equipment is stopped for servicing.

The use of general purpose grease requires re-lubrication of the coupling at least annually. If a coupling leaks grease, is exposed to extreme temperatures, excessive moisture, or experiences frequent reversals; 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 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 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.

WARNING: Mixing grid coupling components from different manufacturers may cause premature failure and personal or property damage from flying debris.

Packaging

14 oz. (397g) CARTRIDGES — Individual or case lots or 10 or 60.

35 lb. (16kg) PAILS, 120 lb. (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 maximum, 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

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° to 150°F (–18° to 66°C). For temperatures beyond this range (See Table 1), consult the Factory.

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

General Purpose Greases Meeting Falk Specifications

Lubricants listed in Table 1 are typical products only and should not be construed as exclusive recommendations.

TABLE 1 — General Purpose Greases ★

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. BP Oil Co. Chevron U.S.A. Inc. Citgo Petroleum Corp. Conoco Inc.	Amolith Grease #2 Energrease LS-EP2 Dura-Lith EP2 Premium Lithium Grease EP2 EP Conolith Grease #2	Amolith Grease #2 Energrease LS-EP1 Dura-Lith EP1 Premium Lithium Grease EP1 EP Conolith Grease #2
Exxon Company, USA E.F. Houghton & Co. Imperial Oil Ltd. Kendall Refining Co.	Unirex N2 Cosmolube 2 Unirex N2L Lithium Grease L421	Unirex N2 Cosmolube 1 Unirex N2L Lithium Grease L421
Keystone Div. (Pennwalt) Lyondell Petrochemical (ARCO) Mobil Oil Corp. Petro-Canada Products Phillips 66 Co.	81 EP-2 Litholine H EP 2 Grease Mobilux EP111 Multipurpose EP2 Philube Blue EP	81 EP-1 Litholine H EP 2 Grease Mobilith AW1 Multipurpose EP1 Philube Blue EP
Shell Oil Co. Shell Canada Ltd.	Alvania Grease 2 Alvania Grease 2	Alvania Grease 2 Alvania Grease 2
Sun Oil Co. Texaco Lubricants Unocal 76 (East & West) Valvoline Oil Co.	Ultra Prestige 2EP Starplex HD 2 Unoba EP2 Multilube Lithium EP Grease	Ultra Prestige 2EP Multifak EP2 Unoba EP2 . . .

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

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.

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INSTALLATION OF TYPE T50 & T70 STEELFLEX HORIZONTAL AND VERTICAL COUPLINGS

Installation

Only standard mechanics tools, wrenches, straight edge, spacer bar 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.

INTERFERENCE FIT HUBS — Standard for both designs and all sizes. Furnished without setscrews. Heat hubs to 275°F (135°C) using an oven, torch, induction heater or an oil bath. To prevent 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.

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.

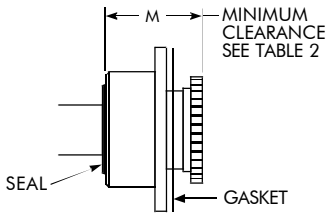
Installation of Type T70 Steelflex Tapered Grid Couplings

Prior to mounting hubs on shafts, make sure that cover side of coupling is mounted on a shaft long enough so that cover can be backed off to allow for coupling alignment and grid installation. See illustration in Step 1 and Table 2 for minimum clearance required.

TABLE 2— Minimum Clearance

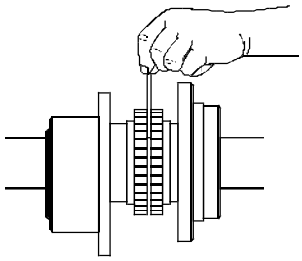
SIZE	M	SIZE	M
1030	3.06	**1130**	8.66
1050	3.70	**1140**	9.24
1070	4.06	**1150**	10.56
1080	5.28	**1160**	11.30
1090	5.66	**1170**	12.00
1100	7.14	**1180**	13.00
1110	7.50	**1190**	13.76
1120	8.66	**1200**	14.40

1— Mount Cover, Gasket, Seal & Hubs



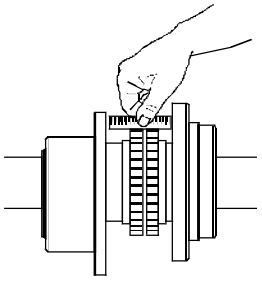
Assemble seal in cover and coat seal bore with grease. Place cover (with seal) on shaft before mounting hub. Place gasket on shaft. Mount hubs on their respective shafts so that hub face is flush with the end of its shaft. Allow hubs to cool before proceeding. Seal keyways to prevent leakage. Insert setscrews (if required) and tighten. Position equipment in approximate alignment with approximate hub gap.

2 — Gap & Angular Alignment



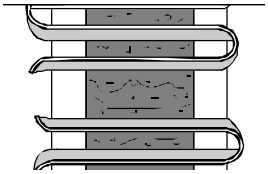
Use a spacer bar equal in thickness to the gap specified in Table 3 on Page 6. Insert bar, as shown above, to same depth at 90° intervals and measure clearance between bar and hub face with feelers. The difference in minimum and maximum measurements must not exceed the INSTALLATION ANGULAR limit specified in Table 3 on Page 6.

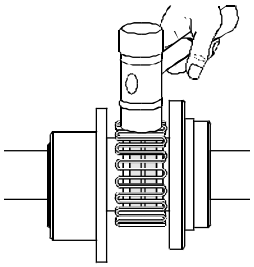
3 — Offset Alignment



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

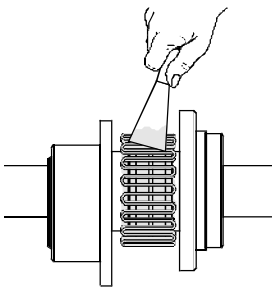
4 — Insert Grid





Pack gap and grooves with lubricant before inserting 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 inset picture above). Spread the grid slightly to pass over the coupling teeth and then seat with a soft mallet.

5 — Pack with Grease & Assemble Covers



Pack the spaces between and around the grid with as much lubricant as possible, and wipe off excess flush with top of grid. Remove the lube plugs in the cover to ease cover assembly. Fasten cover with gasket to flanged hub. The hardware provided for "T70" couplings are matched sets and must not be mixed or substituted. For Size 1140T70 and smaller, true-up cover flange O.D. to rotating axis to within .002 T.I.R. For Size 1150T70 and larger, assemble cover to flanged hub with mating match mark letters aligned. True-up cover flange O.D. to hub flange O.D. to within .002 T.I.R.. Tighten fasteners to torque specified in Table 3. Insert lube fitting in cover. Fill with recommended lubricant until an excess appears at the opposite hole. Remove lube fitting and install lube plugs before operating.

INSTALLATION OF TYPE T50 STEELFLEX TAPERED GRID COUPLINGS WITH FLOATING SHAFT

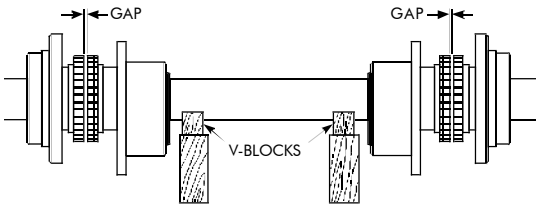
1 — Mount Covers, Gaskets, Seals and Hubs –

Refer to Step 1 on Page 3.

2 — Position First Drive and Floating Shaft —

For horizontal applications, set the drive most difficult to move to true level and bolt it in place. Set the floating shaft on V-blocks and position in line with fixed drive shaft. For vertical applications, set the bottom drive in the proper position and bolt it in place. Center the elastomer gap disc(s) on top of the bottom drive hub face (Coupling sizes 1030 thru 1070 use two elastomer gap discs). Bring the floating shaft into position on top of gap disc(s). Secure floating shaft, covers and gaskets into a position so that grids can be installed.

3 — Gap and Angular Alignment — Refer to Step 2 on Page 3.



4 — Parallel Offset Alignment — Refer to Step 3 at left.

5 — Position Second Drive and Align —

Position second drive in line with floating shaft. Align the second drive to the floating shaft per Steps 2 and 3. Make alignment corrections by moving the drive; do not move the floating shaft. Tighten foundation fasteners and repeat Steps 2 and 3. Realign coupling if necessary.

6 — Insert Grids — Refer to Step 4 at left.

7 — Pack with Grease & Assemble Covers —

Pack the spaces between and around the grid with as much lubricant as possible, and wipe off excess flush with top of grid. Remove the lube plugs in the cover to ease cover assembly. Assemble cover with gasket to flanged hub. Insert fasteners and tighten to torque specified in Table 3. Remove V-block supports. Insert lube fitting in cover. Fill with recommended lubricant until an excess appears at the opposite hole. Remove lube fitting and install lube plugs before operating.

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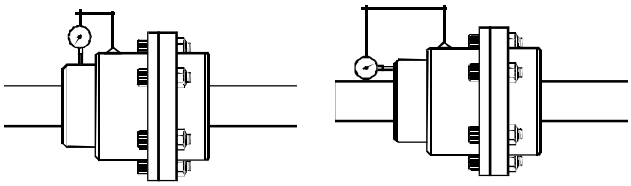
ANNUAL MAINTENANCE

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

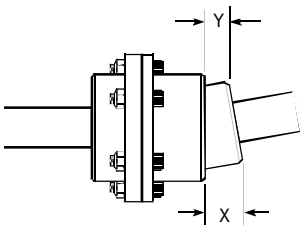
1. The alignment can be checked without disassembling the coupling as shown below.



"T70" Type

Parallel Offset Misalignment Angular Misalignment

1a. For "T70" Type couplings, mount dial indicator on cover and indicate surface shown by rotating shafts with coupling. The parallel offset T.I.R. value divided by 2, must not exceed the OPERATING PARALLEL OFFSET limit shown in Table 3. The angular T.I.R. value, must not exceed the OPERATING ANGULAR limit shown in Table 3. Realign equipment to within the installation limits if either operating limit value is exceeded.

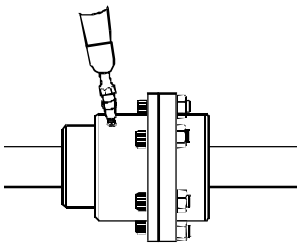


"T50" Type

1b. For "T50" Type couplings, determine misalignment by measuring distances "X" max. and "Y" min. between pilot hub an cover using a depth mic or feeler gages. The difference between "X" max. and "Y" min. must not exceed the OPERATING ANGULAR limit value given in Table 3. Check at each coupling end. Realign equipment to within the installation limits if operating limit value is exceeded.

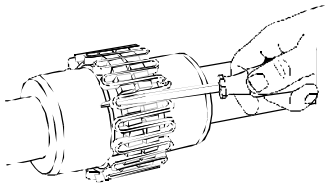
2. Inspect seal ring and gasket to determine if replacement is required; if leaking grease, replace.
3. Check tightening torques of all fasteners.
4. When connected equipment is serviced, disassemble, clean grease from coupling, inspect for wear, and replace worn parts. Check alignment per steps on Pages 3 and 4. Install coupling per this manual using new gaskets and seals.

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, Page 2, should be relubed annually. The use of Falk Long Term Grease (LTG) will allow relube intervals to be extended 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 grease fittings have been removed and all plugs have been inserted after lubricating.*

Coupling Disassembly & Grid Removal



Safely support floating shaft of "T50" Type couplings. Whenever it is necessary to disconnect the coupling, remove the cover fasteners, draw back cover and remove grid as follows. 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.

INSTALLATION & ALIGNMENT DATA

Maximum life and minimum maintenance for the coupling and connected machinery will result if couplings are accurately aligned. Coupling life expectancy between initial alignment and maximum operating limits is a function of load, speed and lubrication.

Values may be combined for an installation or operating condition.

Example: 1150T70 max. operating misalignment is .012" (.305mm) PARALLEL OFFSET plus .062" (1.57mm) angular.

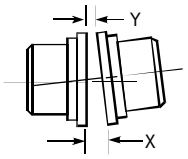
NOTE: For applications requiring greater misalignment, refer application details to the Factory.

Angular misalignment is dimension X minus Y as illustrated below.

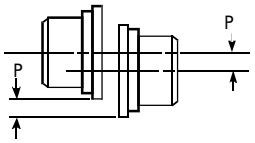
PARALLEL OFFSET misalignment is distance P between the hub center lines as illustrated below.

End float (with zero angular and PARALLEL OFFSET misalignment) is the axial movement of the hubs(s) within the cover(s) measured from "O" gap.

ANGULARMISALIGNMENT



PARALLEL OFFSET MISALIGNMENT



END FLOAT

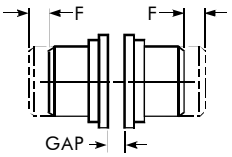


TABLE 3 — Misalignment & End Float

SIZE ★	Installation Limits								Operating Limits						Cover Fastener Torque		Lube Wt		Allow. Speed Type T70 †
	Parallel Offset – P				Angular (x - y)		Normal Gap ± 10%		Parallel Offset – P		Angular (x - y)		End Float Physical Limit (Min) 2 x F						
	Type T50		Type T70				Inch	mm	Type T70		Max Inch	Max mm	Inch	mm	(lb-in)	Nm	lb	kg	
	Max Inch	Max mm	Max Inch	Max mm	Max Inch	Max mm			Max Inch	Max mm									
1030T	.002	0,0508	.003	0,0762	.003	0,0762	.125	3	.006	0,152	.012	0,305	.238	6,05	90	10	.09	0,0408	10000
1050T	.002	0,0508	.004	0,102	.004	0,102	.125	3	.008	0,203	.016	0,406	.240	6,10	330	37	.15	0,068	9000
1070T	.002	0,0508	.004	0,102	.005	0,127	.125	3	.008	0,203	.020	0,508	.281	7,14	825	93	.25	0,113	8200
1080T	.002	0,0508	.004	0,102	.006	0,152	.125	3	.008	0,203	.024	0,610	.311	7,90	1640	185	.38	0,172	7100
1090T	.003	0,0762	.004	0,102	.007	0,178	.125	3	.008	0,203	.028	0,711	.315	8,00	1640	185	.56	0,254	6000
1100T	.003	0,0762	.005	0,127	.008	0,203	.188	5	.010	0,254	.033	0,838	.439	11,15	2940	332	.94	0,426	4900
1110T	.003	0,0762	.005	0,127	.009	0,229	.188	5	.010	0,254	.036	0,914	.434	11,02	2940	332	1.12	0,508	4500
1120T	.003	0,0762	.006	0,152	.010	0,254	.250	6	.011	0,279	.040	1,02	.551	14,00	825	93	1.62	0,735	4000
1130T	.004	0,102	.006	0,152	.012	0,305	.250	6	.011	0,279	.047	1,19	.552	14,02	825	93	2.0	0,907	3600
1140T	.004	0,102	.006	0,152	.013	0,330	.250	6	.011	0,279	.053	1,35	.562	14,27	1640	185	2.5	1,14	3300
1150T	.004	0,102	.006	0,152	.016	0,406	.250	6	.012	0,305	.062	1,57	.565	14,35	1640	185	4.3	1,95	3000
1160T	.005	0,127	.006	0,152	.018	0,457	.250	6	.012	0,305	.070	1,78	.565	14,35	2940	332	6.2	2,81	2600
1170T	.005	0,127	.006	0,152	.020	0,508	.250	6	.012	0,305	.079	2,00	.565	14,35	2940	332	7.7	3,49	2400
1180T	.005	0,127	.008	0,203	.022	0,559	.250	6	.015	0,381	.089	2,26	.565	14,35	2940	332	8.3	3,75	2100
1190T	.006	0,152	.008	0,203	.024	0,610	.250	6	.015	0,381	.097	2,46	.565	14,35	2940	332	9.7	4,40	1950
1200T	.006	0,152	.008	0,203	.027	0,686	.250	6	.015	0,381	.107	2,72	.565	14,35	4560	515	12.4	5,62	1800

★ Refer to Selection Guide for maximum bores and Engineering 427-108 for reboring instructions.

† Allowable speed for the Type T50 coupling is generally based on the floating shaft length and diameter. Refer to Selection Guide to determine the allowable speed for the application.

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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.

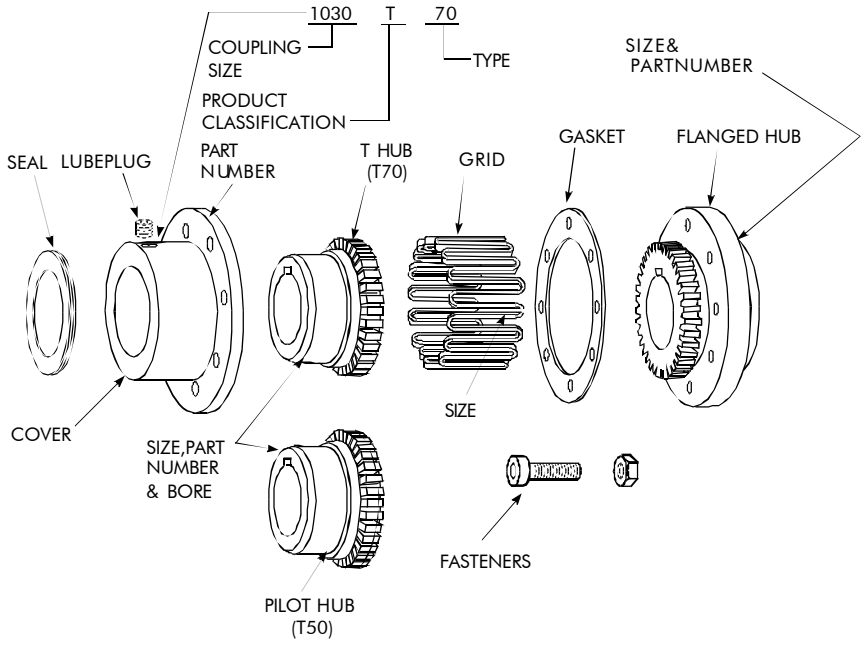
Contact your Rexnord Distributor or Rexnord for price and availability.

PARTS INTERCHANGEABILITY

GRIDS — Size 1030T thru 1200T Steelflex couplings use blue grids. Older models, 30T thru 200T, use orange grids.

CAUTION: *Blue grids may be used in all applications, but DO NOT substitute orange grids for blue.*

Do not substitute "T70" Type components with "T50" Type components. "T70" Type hardware are matched sets and must not be mixed or substituted. For Sizes 1150T70 and larger, covers are balanced with flanged hubs (and match marked) and must be replaced as an assembly.



ORDER INFORMATION

1. Identify part(s) required by name shown.
2. Furnish the following information.

EXAMPLES:

Coupling Size: 1030
Coupling Type: T70
Flanged Hub Bore: 1.375
Keyway: .312 x .156
T Hub Bore: 1.250
Keyway: .250 x .125

or

Coupling Size: 1030
Coupling Type: T50
Bore: 1.375
Keyway: .312 x .156
Bore: 1.250
Keyway: .250 x .125
Distance between shafts: 20 inches
Operating Speed: 1750 RPM