

How To Use This Manual

This manual provides detailed instructions on maintenance, lubrication, installation, and parts identification. Use the table of contents below to locate required information.

Table of Contents

Introduction	Page 1
Lube Fittings	Page 1
Limited End Float.	Page 1
Lubrication	Pages 1-2
Installation & Alignment Instructions	Pages 2-4
Annual Maintenance, Relube & Disassembly.	Page 4
Installation & Alignment Data	Page 5
Parts Identification & Parts Interchangeability.	Page 6

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

INTRODUCTION

This manual applies to Sizes 20T thru 160T standard Falk Steelflex Disc Brake Couplings. For couplings furnished with special features, refer to assembly drawing furnished with coupling for proper assembly arrangement and any additional installation or maintenance requirements. This coupling is designed to operate in the horizontal position; consult Factory for vertical applications. Coupling Sizes 20T thru 140T are supplied with one set of inch series cover fasteners and one set of metric cover fasteners. Use either set of fasteners, depending on your preference. Sizes 150T and 160T are supplied with inch series fasteners only. Refer to [Page 6](#) for part interchangeability.

The performance and life of the couplings depend largely upon how you install and service them.

WARNING: Consult applicable local and national safety codes for proper guarding of rotating members. Lockout starting switch of prime mover and remove all external loads from drive before installing or servicing couplings. Observe all safety rules when installing or servicing couplings.

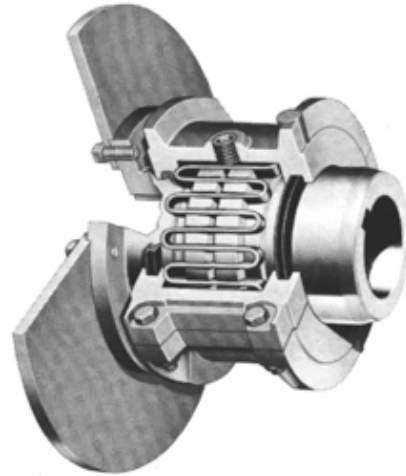
LUBE FITTINGS

Size 20T thru 140T cover halves have 1/8 NPT lube holes. Size 150T and 160T have 3/8 NPT lube holes. Use a standard grease gun and lube fitting as instructed on [Page 4](#).

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.

TYPE T63 DISC BRAKE COUPLING



LUBRICATION

Adequate lubrication is essential for satisfactory operation. [Page 2](#) provides a list of typical lubricants and specifications for general purpose and long term grease. Because of its superior lubricating characteristics and low centrifuge properties, Falk Long Term Grease (LTG) is highly recommended. Sizes 20T to 90T are furnished with a pre-measured amount of LTG grease for each coupling. The grease can be ordered for larger size couplings.

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

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 and is an extreme pressure grease.

Steelflex couplings initially lubricated with LTG will not require re-lubrication until the connected equipment is stopped for servicing. If a coupling leaks grease, is exposed to extreme temperatures, excessive moisture, or experiences frequent reversals, more frequent lubrication may be required.

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

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).

CAUTION: Do not use LTG in bearings.

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 BASE OIL VISCOSITY — 3300SSU (715cST) @ 100°F (38°C)

THICKENER — less than 12% by weight.

CENTRIFUGE SEPARATION CHARACTERISTICS — ASTM #D4425 (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 315–360 measured at 77°F (25°C).

MINIMUM DROPPING POINT — 350°F (177°C) min.

MINIMUM TIMKEN O.K. LOAD — 40 lbs.

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

Packaging

14 OZ. CARTRIDGES — For use in standard grease guns.

CASE LOTS OF 24-14 OZ. CARTRIDGES .

35 LB. PAIL — Ideal for larger size couplings or many smaller sizes.

120 LB. KEG & 400 LB. DRUM — For plants with central storage areas. A pump with a pressurized follower plate is required for dispensing grease.

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°F to 150°F (-18°C 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.

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.

General Purpose Greases Meeting Falk Specifications

Lubricants listed below are typical products only and should not be construed as exclusive recommendations.

INSTALLATION OF TYPE T63 DISC BRAKE

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.	Amolith Grease #2	Amolith Grease #2
BP Oil Co.	Energrease LS-EP2	Energrease LS-EP1
Chevron U.S.A. Inc.	Dura-Lith EP2	Dura-Lith EP1
Citgo Petroleum Corp.	Premium Lithium Grease EP2	Premium Lithium Grease EP1
Conoco Inc.	EP Conolith Grease #2	EP Conolith Grease #2
Exxon Company, USA	Unirex EP2	Unirex EP2
E.F. Houghton & Co.	Cosmulube 2	Cosmulube 1
Imperial Oil Ltd.	Unirex EP2	Unirex EP2
Kendall Refining Co.	Lithium Grease L421	Lithium Grease L421
Keystone Div. (Pennwalt)	81 EP-2	81 EP-1
Lyondell Petrochemical (ARCO)	Litholine H EP 2 Grease	Litholine H EP 2 Grease
Mobil Oil Corp.	Mobilux EP111	Mobilith AW1
Petro-Canada Products	Multipurpose EP2	Multipurpose EP1
Phillips 66 Co.	Philube Blue EP	Philube Blue EP
Shell Oil Co.	Alvania Grease 2	Alvania Grease 2
Shell Canada Ltd.	Alvania Grease 2	Alvania Grease 2
Sun Oil Co.	Ultra Prestige 2EP	Ultra Prestige 2EP
Texaco Lubricants	Starplex HD2	Multifak EP2
Unocal 76 (East & West)	Unoba EP2	Unoba EP2
Valvoline Oil Co.	Multilube Lithium EP Grease	...

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

COUPLINGS

Installation

Only standard mechanics tools, wrenches, a straight edge 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. These couplings are furnished for INTERFERENCE FIT without a setscrew.

Heat hubs to a maximum of 275°F (135°C) using an oven, torch, induction heater or an oil bath. 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.

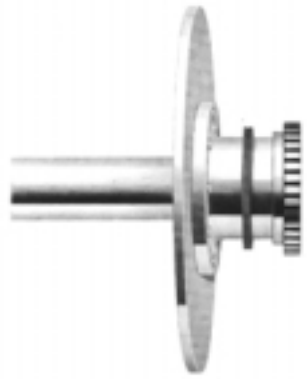
WARNING: If an oil bath is used, the oil must have a flash point of 350°F (177°C) or higher. Do not rest hubs on the bottom of the container. Do not use an open flame in a combustible atmosphere or near combustible materials.

Heat hubs as instructed above. Mount hubs as quickly as possible with hub flange face flush with shaft end. Allow hubs to cool before proceeding.

Maximize Performance And Life

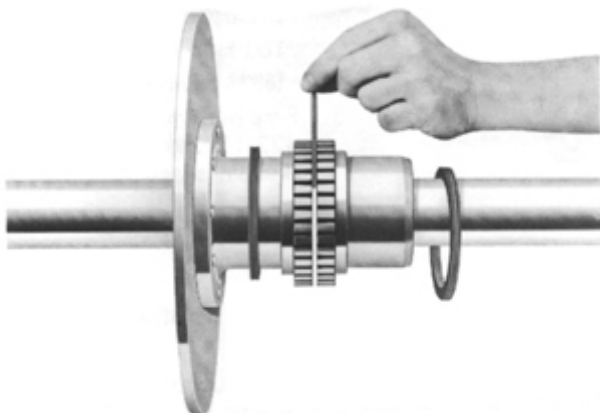
The performance and life of couplings depend largely upon how you install and maintain them. Before installing couplings, make certain that foundations of equipment to be connected meet manufacturers' requirements. Check for soft foot. The use of stainless steel shims is recommended. Measuring misalignment and positioning equipment within alignment tolerances is simplified with an alignment computer. These calculations can also be done graphically or mathematically. 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.

1— Mount T Hub, Brake Disc Assembly & Seals

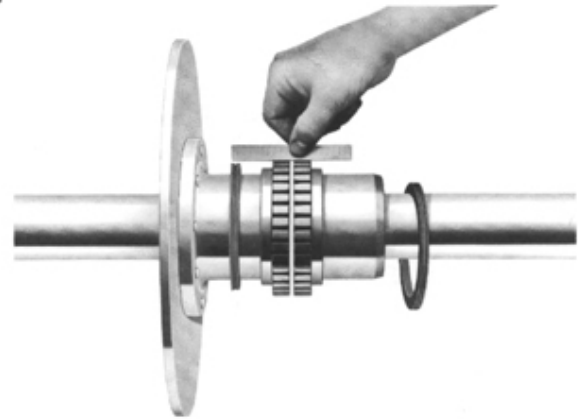


Assemble disc to T63 hub before mounting on to shaft with fasteners provided. Torque fasteners to value listed in Table 2 on Page 5. It is recommended that the T63 disc brake be mounted on the driven shaft. Lock out starting switch of prime mover. Lightly coat seal with grease and place on shaft BEFORE mounting T hub. Heat interference fit hubs as previously instructed. Mount hubs on their respective shafts so the hub face is flush with the end of its shaft unless otherwise indicated. After T63 hub cools, wrap tape over grid grooves and carefully stretch and roll the seal over the hub teeth into position. Seal keyways to prevent leakage. Tighten set screws when furnished.

2 — Gap and Angular Alignment

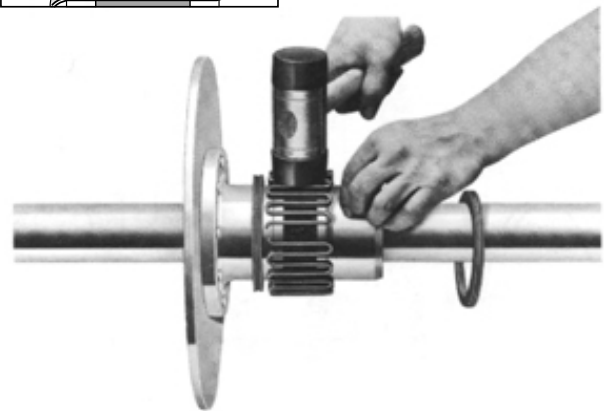
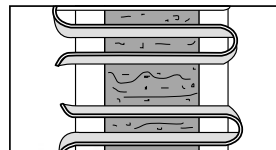


Use a spacer bar equal in thickness to the gap specified in Table 2, Page 5. Insert bar as shown below left, to same depth at 90° intervals and measure clearance between bar and hub face with feelers. The difference in minimum and maximum measurements must not exceed the ANGULAR installation limits specified in Table 2.



3 — Offset Alignment

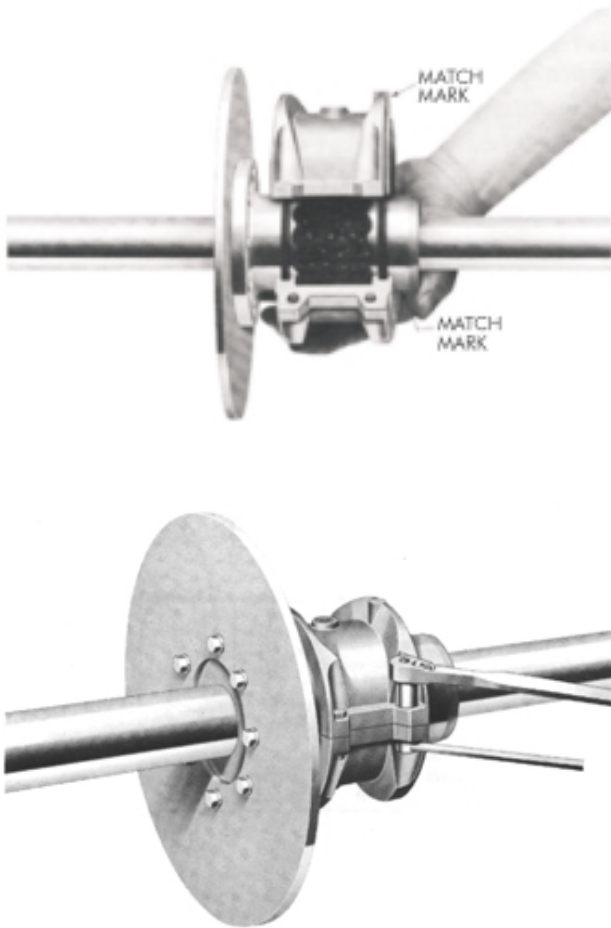
Align so that a straight edge rests squarely (or within the limits specified in Table 2, Page 5) on both hubs as shown above and also at 90° intervals. Check with feelers. The clearance must not exceed the PARALLEL OFFSET installation limits specified in Table 2 on Page 5. Tighten all foundation bolts and repeat Steps 2 and 3. Realign coupling if necessary.



4 — Insert Grid

Pack gap and grooves with specified 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 picture above); this will assure correct grid contact with non-rotating lug in cover halves. Spread the grid slightly to pass over the coupling teeth and seat with a soft mallet.

5 — Pack With Grease And Assemble Covers



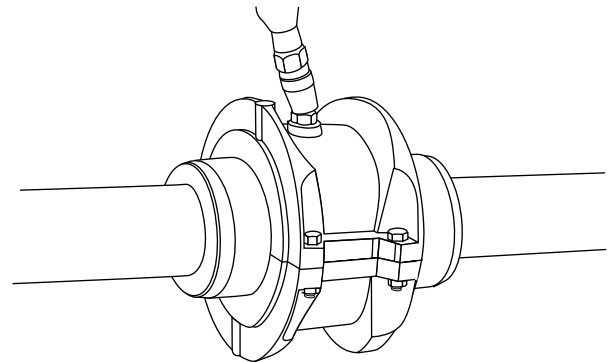
Pack the spaces between and around the grid with as much lubricant as possible and wipe off excess flush with top of grid. Position seals on hubs to line up with grooves in cover. Position gaskets on flange of lower cover half (Sizes 150 & 160; block-up lower cover half into position) and assemble covers so that the match marks are on the same side. See above. If the coupling is to be used vertically, consult the Factory. Push gaskets in until they stop against the seals and secure cover halves with fasteners, tighten to torque specified in Table 2. Make sure gaskets stay in position during tightening of fasteners. CAUTION: Make certain lube plugs are installed before operating.

ANNUAL MAINTENANCE

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

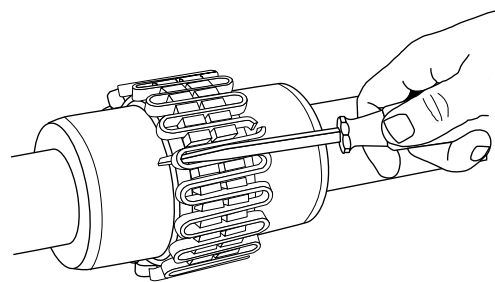
1. Check tightening torques of all fasteners.
2. Inspect seal ring and gasket to determine if replacement is required. If leaking grease, replace.
3. When connected equipment is serviced, disassemble and clean grease from coupling. Inspect for wear. Replace worn parts. Check alignment per steps on Page 3. Install coupling per this manual using new gasket 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, should be relubed annually. The use of Falk Long Term Grease (LTG) will allow relube intervals to be extended to 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 plugs have been inserted after lubricating.

Coupling Disassembly And Grid Removal



Whenever it is necessary to disconnect the coupling, remove the cover halves and grid. 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. Maximum operating values listed in Table 2 are based on cataloged allowable rpm.

Values listed are based upon the use of the gaps listed, standard coupling components, standard assemblies and cataloged allowable speeds.

Values may be combined for an installation or operating condition.

Example: 60T max. operating misalignment is .016" parallel plus .018" angular.

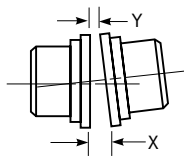
NOTE: For applications requiring greater misalignment, refer application details to the Factory.

Angular misalignment is dimension X minus Y as illustrated below.

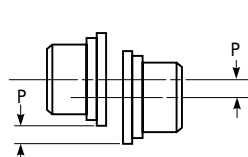
Parallel misalignment is distance P between the hub center lines as illustrated below.

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

ANGULAR MISALIGNMENT



PARALLEL OFFSET MISALIGNMENT



END FLOAT

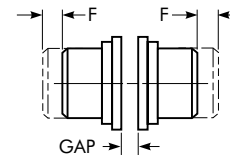


TABLE 2 — Misalignment And End Float

Size	Installation Limits						Operating Limits						Fastener Tightening Torque Values			Allow. Speed (rpm)	Lube Wt	
	Parallel Offset-P		Angular (x-y)		Normal Gap 10%		Parallel Offset-P		Angular (x-y)		End Float Physical Limit (Min) 2 x F		Cover		Flange		lb	kg
	Max Inch	Max mm	Max Inch	Max mm	Inch	mm	Max Inch	Max mm	Max Inch	Max mm	Inch	mm	Inch Series Fasteners (lb-in)	Metric Fasteners (Nm)				
20T	.006	.15	.003	.08	.125	3	.012	.30	.010	.25	.210	5.33	100	11.3	120	4500	.06	.03
30T	.006	.15	.003	.08	.125	3	.012	.30	.012	.30	.198	5.03	100	11.3	120	4500	.09	.04
40T	.006	.15	.003	.08	.125	3	.012	.30	.013	.33	.211	5.36	100	11.3	120	4500	.12	.05
50T	.008	.20	.004	.10	.125	3	.016	.41	.016	.41	.212	5.38	200	22.6	250	4150	.15	.07
60T	.008	.20	.005	.13	.125	3	.016	.41	.018	.46	.258	6.55	200	22.6	440	3800	.19	.09
70T	.008	.20	.005	.13	.125	3	.016	.41	.020	.51	.259	6.58	200	22.6	440	3250	.25	.11
80T	.008	.20	.006	.15	.125	3	.016	.41	.024	.61	.288	7.32	200	22.6	825	2850	.38	.17
90T	.008	.20	.007	.18	.125	3	.016	.41	.028	.71	.286	7.26	200	22.6	1640	2700	.56	.25
100T	.010	.25	.008	.20	.188	5	.020	.51	.033	.84	.429	10.90	312	35	2940	2440	.94	.43
110T	.010	.25	.009	.23	.188	5	.020	.51	.036	.91	.429	10.90	312	35	2940	2250	1.1	.51
120T	.011	.28	.010	.25	.250	6	.022	.56	.040	1.02	.556	14.12	650	73	4560	2025	1.6	.74
130T	.011	.28	.012	.30	.250	6	.022	.56	.047	1.19	.551	14.00	650	73	6800	1800	2.0	.91
140T	.011	.28	.013	.33	.250	6	.022	.56	.053	1.35	.571	14.50	650	73	8900	1650	2.5	1.14
150T	.012	.30	.016	.41	.250	6	.024	.61	.062	1.57	.620	15.75	650	73	3960	1500	4.3	1.95
160T	.012	.30	.018	.46	.250	6	.024	.61	.070	1.78	.640	16.26	650	73	3960	1350	6.2	2.81

TABLE 3 — Coupling Cover Fastener Identification

SIZE	INCH SERIES FASTENERS				METRIC FASTENERS	
	Old Style		New Style			
20-70T10		SAE Grade 8 †		SAE Grade 8		Property Class 10.9
80-90T10		SAE Grade 8		SAE Grade 8		Property Class 10.9
100-160T10 ^H		SAE Grade 5		SAE Grade 5		Property Class 8.8

★ Sizes 150 & 160 are currently furnished with inch series fasteners only.

† Older style covers, Sizes 1020T10 thru 1070T10 must utilize socket head cap screws and locknuts held by the cover.

PARTS IDENTIFICATION

All coupling parts have identifying part numbers as shown below. Parts 1 thru 7, are the same as used for Type T10 couplings. All other coupling parts are unique to Type T63. When ordering parts, always SPECIFY SIZE and TYPE .

PARTS INTERCHANGEABILITY

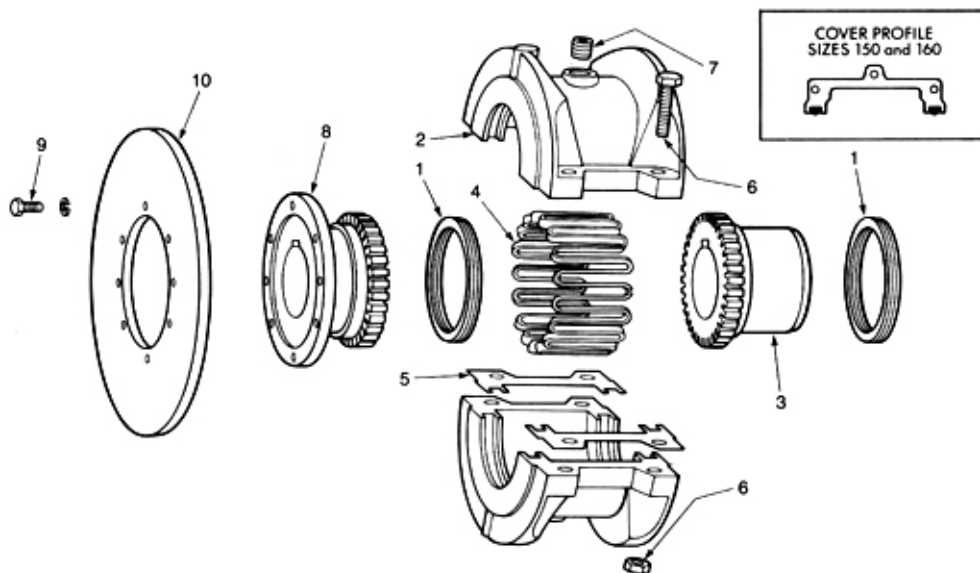
Parts are interchangeable between Sizes 20T and 1020T, 30T and 1030T, etc. except as noted.

GRIDS — Size 1020T thru 1160T Steelflex couplings use blue grids. Older models, 20T thru 160T, use orange grids.

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

COVERS — **CAUTION:** DO NOT mix cover halves of different designs. Sizes 1020T thru 1070T10 covers have been manufactured in several different two-rib designs and 1080T thru 1160T covers have been manufactured with different two and three rib designs.

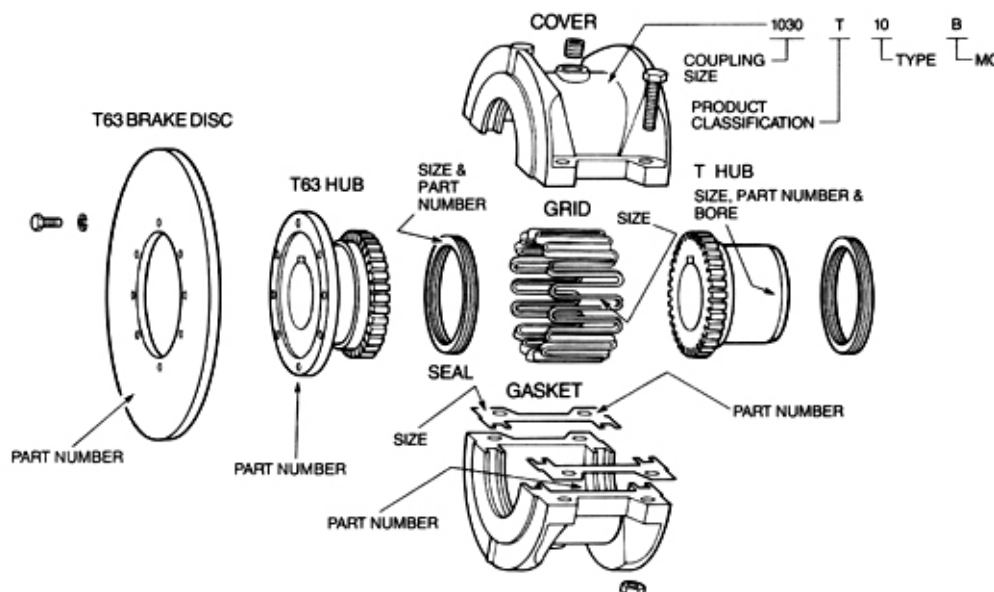
HARDWARE — Older style covers, Sizes 1020T10 thru 1070T10, utilized socket head cap screws with captured locknuts. The new style covers use hex head cap screws (either inch or metric) and unrestrained locknuts. Specify either inch series SOCKET head or metric series HEX head cap screws when ordering replacement parts.



PART DESCRIPTIONS

1. Seal (T10)
2. Cover (T10)
3. T Hub (Specify bore and keyway)
4. Grid
5. Gasket (T10)
6. Fasteners (T10) — Coupling may be supplied with one set each of inch series fasteners and metric fasteners.
7. Lube Plug
8. T63 Hub
9. Flange Fasteners
10. T63 Brake Disc

PART NUMBER LOCATION



ORDER INFORMATION

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

EXAMPLE:

Coupling Size: 1030
 Coupling Type: T63
 T Hub Bore: 1.375
 T Hub Keyway: .312 x .156
 T63 Hub Bore: 1.250
 T63 Hub Keyway: .250 x .125

3. Price parts from Price List 422-110 and appropriate discount sheet.