Sumitomo Drive Technologies

SF COUPLING
TYPE T20
SIZE 1020～1170
INSTRUCTION BOOK

NOTES TO THE CUSTOMER

Before handling the machine, this instruction manual should be read through carefully to familiarize yourselves with contents of the manual.

The machine should be handled by skilled operator (those who have grasped the construction and function of the article).

Consideration should be given so that this instruction manual will reach to the user of this machine.

This manual should be kept in file so as to be serviceable at any time.

Sumitomo Heavy Industries Gearbox Co., Ltd.

T20SF－E

SAFETY PRECAUTIONS

Before handling this machine, be sure to read this manual and other appendices carefully to familiarize yourselves with contents of the manual for proper operation. Start on using this machine after having been well acquainted with all the equipment knowledge, safety information, and cautionary instructions. The rank of safety precautions is classified into "WARNING" and "CAUTION" in this instruction manual.

⚠ WARNING

Where occurrence of dangerous situation such as death or serious injury is presumable in the case of mishandling.

⚠ CAUTION

Where occurrence of dangerous situation such as light injury or only physical damage is presumable in the case of mishandling.

Even such matters which fall under ⚠ CAUTION may possibly lead to serious results depending upon the circumstances. Be sure to observe the instructions given by ⚠ CAUTION where every description covers important notes.

1. Specifications of the coupling

⚠ WARNING

●Never remodel the machine. Any remodeling practiccs may lead to a danger of failure and injury.

●Do not use the machine in the explosive atmosphere. Such uses may lead to a danger of explosion, fire, and accident of human body.

⚠ CAUTION

●Do not use the machine outside the scope of specifications.
Such uses may lead to a danger of failure and injury.

●Do not remove the nameplate of the machine.

2. Outline of the Coupling

⚠ WARNING

● Such practices as hauling, unpacking, installation, piping, wiring, running, operation, maintenance and inspection should be carried out by persons possessed of expertism and workmanship.
There are such possibilities as electrification, fire, failure, and injury.

⚠ CAUTION

● Do not insert your finger or any substances into the openings of the machine.
There are such possibilities as electrification, fire, failure, and injury.

3. Hauling and Unpacking

⚠ WARNING

- When the machine is lifted for hauling, never gain access to the underside of the machine.
  There is a possible danger of the accident of human body caused by falling-off.

⚠ CAUTION

- Before lifting the machine, check the machine weight and lifting procedure, and use such hauling tools as are possessed of rated capacity of lifting not less than the machine weight.
  There is a possible danger of failure and injury caused by falling-off and turnover.
- Unpack the machine after making sure of its top and bottom.
  There is a possible danger of failure and injury caused by turnover.

4. Centering

⚠ CAUTION

- Do not touch the key groove of shaft end and the acute part of corner of the machine direct by unarmed hand. There is a possible danger of suffering injuries.
- When coupling with the companion machine, keep the centering accuracy within the control value as shown in the instruction manual, drawing, etc.
  There is a possible danger of failure cauced when the machine is used beyond the control value.
- Before coupling with the companion machine, check for the direction of rotation.
  There is a possible danger of failure and injury caused depending upon the difference in the rotating direction.
- Protect the exposed rotating part with safety cover or the like.
  There is a possible danger of injury caused by entanglement.

5. Disassembly and Reassembly

⚠ CAUTION

- Disassembly and reassembly should be carried out by persons possessed of expertism and workmanship.
  (those who are conversant in construction and function, and are capable of proper work)
  Incomplete work may lead to a danger of failure.

6. Lubrication

⚠ CAUTION

- The machine is not filled up with lubricating oil.

  Before starting on operation, fill the machine with the lubricating oil of the type as recommended by instruction manual, drawing, etc. up to the specified level.

  The machine will result in failure if it is put in running without lubricating oil or in the state of short of oil.

7. Starting Operation

⚠ WARNING

- During operation, never gain access to or come in contact with rotators (shaft etc.).

  There is a possibility of the accident of human body caused by entanglement.

⚠ CAUTION

- The machine is not filled up with lubricating oil.

  Before starting on operation, fill the machine with the lubricating oil of the type as recommended by instruction manual, drawing, etc. up to the specified level.

  The machine will result in failure if it is put in running without lubricating oil or in the state of short of oil.

- In case of abnormality, stop the machine forthwith to investigate into the cause of abnormality and never operate the machine until remedial actions have been taken.

  There is a possibility of failure and injury.

8. Maintenance and Inspection

⚠ WARNING

- Do not operate the machine while the safety cover etc. that were removed for inspection are being left unmounted.

  There is a possible danger of the accident of human body caused by entanglement.

Instructions for Installation and Maintenance

SIZES 1020 thru 1170

STEELFLEX COUPLINGS

Horizontal and Vertical

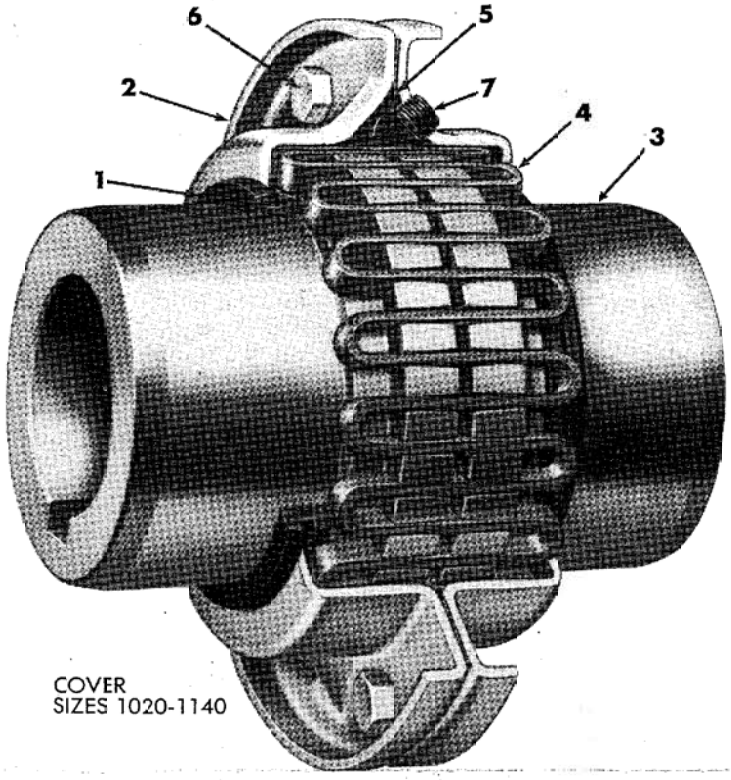
Type T20

Subject to change without notice

SERVICE MANUAL

No. 7

TYPE T20 STEELFLEX COUPLING PARTS



COVER
SIZES 1020-1140

PART NUMBERS

1. Seal (T20)
2. Cover (T20)
3. Hub (Specify bore and keyway)
4. Grid
5. Gasket (T20)
6. Fasteners (T20)
7. Lube Plug

COVER PROFILE
SIZES 1150-1170

WHEN ORDERING SPARE PARTS, SPECIFY COUPLING **SIZE** AND **TYPE** AS SHOWN ON COUPLING COVER

INTRODUCTION—This manual applies to Sizes 1020 thru 1170T20 Falk Steelflex Tapered Grid Couplings. These couplings are designed to operate in either the horizontal or vertical position without modification. The performance and life of the couplings depend largely upon how you install and service them. Carefully follow the instructions in this manual for optimum performance and trouble free service.

PARTS IDENTIFICATION—All coupling parts have identifying part numbers as shown above. Parts 3 and 4 (Hubs and Grids), are the same for both T10 and T20 couplings; all other coupling parts are NOT INTERCHANGEABLE between Types T10 and T20.Therefore when ordering parts, always SPECIFY SIZE and TYPE shown on the COVER.

LUBE FITTINGS—Depending on coupling size, cover halves have ⅛ or ⅜ NPT lube holes. Use a standard grease gun and lube fitting as instructed in Step 6 on Page 2.

LIMITED END FLOAT—When electric motors, generators, engines, compressors 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.

LUBRICATION—Adequate lubrication is essential for proper operation of the coupling. Refer to Table 1 on Page 2 for the amount of lubricant required. It is recommended that the coupling be checked once a year and lubricant added if required. For extreme or unusual operating conditions, check more frequently.

LONG TERM GREASE (LTG)—Steelflex couplings initially lubricated with Falk LTG will not require re-lubrication until the connected equipment is stopped for servicing. Refer to Manual 428-010.

CAUTION

Consult applicable local and national safety codes for proper guarding of rotating members. Observe all safety rules when installing or servicing couplings. During assembly, seal keyways of oil lubricated couplings.

LUBRICANT SPECIFICATIONS—Refer to Manual 428-010 for recommended lubricants. The following specifications apply to lubricants for Falk couplings which are lubricated annually and operate within ambient temperatures of 0° to 150°F (−18° to +66°C). For temperatures beyond this range, consult the Factory.

Dropping Point—300°F (149°C) or higher.

Consistency—NLGI No. 2 with 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—To possess good lubrication properties . . . equivalent to a high quality, well refined petroleum oil.

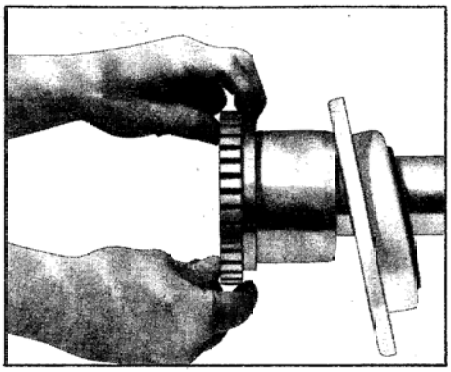
Inactive—Must not corrode steel or cause swelling or deterioration of synthetic seals.

Clean—Free from foreign inclusions.

INSTALLATION—Only standard mechanics tools, wrenches, a straight edge and feeler gauges are required to install Falk Steelflex couplings. Coupling Sizes 1020thru 1090 are generally furnished for CLEARANCE FIT with set screws. Sizes 1100 and larger are furnished for an INTERFERENCE FIT without set screws. Heat hubs with interference fit in an oil bath to a maximum of 275°F (135°C) to mount. The oil flashpoint must be 350°F (177°C) or higher. Refer to Page 2 for detailed mounting instructions.

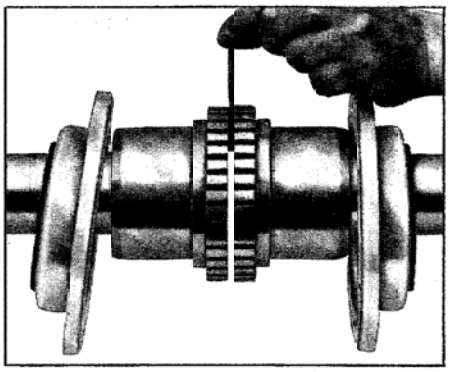
"Manufactured Under License from FALK, Milwaukee"

INSTALLATION OF TYPE T20 STEELFLEX TAPERED GRID COUPLINGS



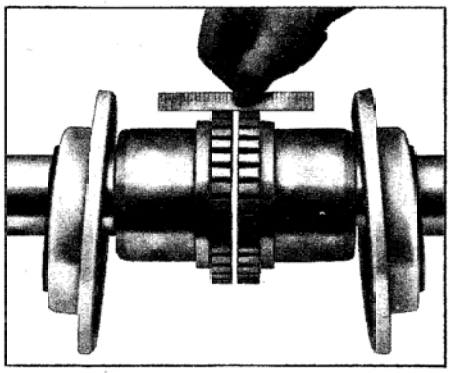
1 MOUNT COVERS, SEALS & HUBS

Lock out starting switch of prime mover. Clean all metal parts using a non-flammable solvent. Place seals into each cover half and lightly coat with grease. Place covers on shafts BEFORE mounting hubs. Mount hubs on their respective shafts so the hub face is flush with the end of its shaft. Tighten set screws when furnished. Heat interference fit hubs as instructed on Page 1.



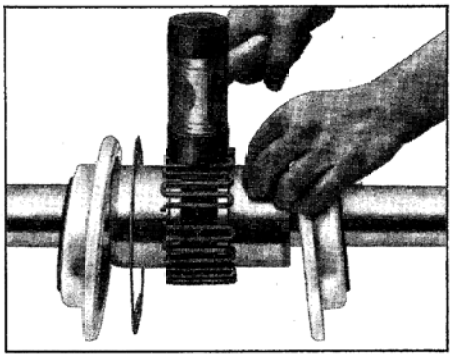
2 GAP & ANGULAR ALIGNMENT

Use a spacer bar equal in thickness to the gap specified in Table 1. 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 ANGULAR limit specified in Table 1.



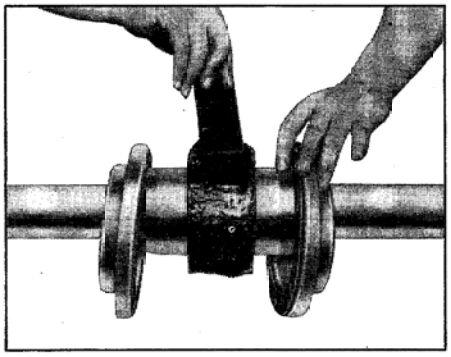
3 OFFSET ALIGNMENT

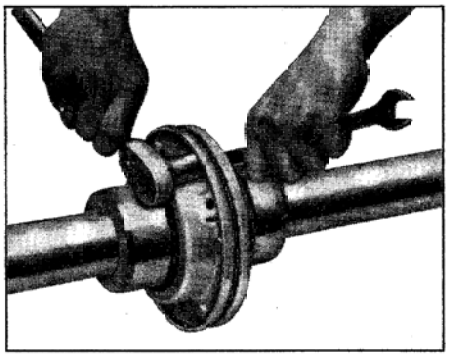
Align so that a straight edge rests squarely (or within the limits specified in Table 1) on both hubs as shown above and also at 90° intervals. Check with feelers. The clearance must not exceed the OFFSET limit specified in Table 1. Tighten all foundation bolts and repeat Steps 2 and 3. Realign coupling if necessary. NOTE: Use a dial indicator for more accurate alignment.



4 INSERT GRID

Insert gasket thru the gap and hang it on either hub. 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. 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. Make certain lube plugs are removed to ease in cover assembly. Slide cover halves with seals onto hubs and position with lube holes 180° apart (90° apart for Sizes 1150 thru 1170). Line up cover and gasket bolt holes and secure with fasteners; tighten to torque specified in Table 1. CAUTION: Make certain lube plugs are installed before operating.

TABLE 1

SIZE	Alow. Speed	GAP			Operating Alignment Limits		Cover Bolt Torque kgf·cm	Lube Wt (g)	SIZE
		(MIN)	(NCR)	(MAX)	Offset (MAX)	Angular (MAX)			
	rpm	mm	mm	mm	mm	mm			
1020T	6000	2.9	3.2	3.5	0.15	0.08	115	30	1020T
1030T	6000	2.9	3.2	3.5	0.15	0.08	115	40	1030T
1040T	6000	2.9	3.2	3.5	0.15	0.08	115	55	1040T
1050T	6000	2.9	3.2	3.5	0.20	0.10	230	70	1050T
1060T	6000	2.9	3.2	3.5	0.20	0.13	230	85	1060T
1070T	5500	2.9	3.2	3.5	0.20	0.13	230	115	1070T
1080T	4750	2.9	3.2	3.5	0.20	0.15	230	170	1080T
1090T	4000	2.9	3.2	3.5	0.20	0.18	230	255	1090T
1100T	3250	4.3	4.8	5.3	0.25	0.20	300	425	1100T
1110T	3000	4.3	4.8	5.3	0.25	0.23	300	500	1110T
1120T	2700	5.7	6.4	7.0	0.28	0.25	300	725	1120T
1130T	2400	5.7	6.4	7.0	0.28	0.30	750	910	1130T
1140T	2200	5.7	6.4	7.0	0.28	0.33	750	1135	1140T
1150T	2000	5.7	6.4	7.0	0.30	0.41	750	1900	1150T
1160T	1750	5.7	6.4	7.0	0.30	0.46	1500	2810	1160T
1170T	1600	5.7	6.4	7.0	0.30	0.51	1500	3500	1170T

* Refer to Bulletin 421-110 for maximum bores and Engineering 427-108 for rebcring instructions.

▪ Align couplings within "Operating Alignment Limits" specified above. Exceeding these limits reduces coupling life.

6 PERIODIC LUBRICATION

— Remove all lube plugs and insert lube fitting. Fill with recommended lubricant until an excess appears at an open hole; then insert plug. Continue procedure until all plugs have been inserted. 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 screw driver 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 screw driver 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.