

Cam Clutch Installation and Maintenance Instruction

TFS Series

TFS12, TFS15, TFS17, TFS20, TFS25, TFS30, TFS35, TFS40, TFS45, TFS50, TFS60, TFS70, TFS80

- Thank you for choosing Tsubaki products.
- Before installing or working on the product, check label for correct size and make sure you have the complete set of parts. If any parts are missing, contact your distributor immediately.
- This manual should be considered an essential part of the unit and remain with the unit when redistributed.

SAFETY

- Your Cam Clutch is a high quality, sophisticated unit which should be handled by experienced engineers only.
- For safety purposes, make sure this manual is easily accessible by the user at all times.
- To ensure safety and optimal performance, carefully read this instruction manual in its entirety.



WARNING

Death or serious injury may result from misuse, improper installation and/or improper maintenance of this product. Please refer to the detailed instructions provided in this manual for installation and maintenance specifications.



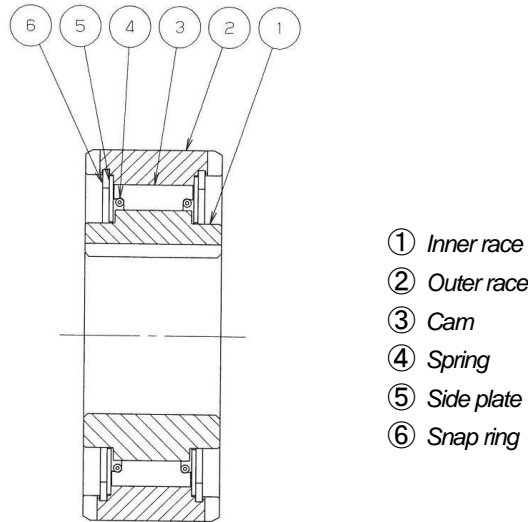
WARNING

USE CARE TO PREVENT INJURY COMPLY WITH THE FOLLOWING TO AVOID SERIOUS PERSONAL INJURY:

1. Guards must be provided on all chain and sprocket installations in accordance with provisions of ANSI/ASME B15.1 - 2000 "Safety Standards for Mechanical Power Transmission Apparatus," and ANSI/ASME B20.1 - 2012 "Safety Standards for Conveyors and Related Equipment," or other applicable safety standards. When revisions of these standards are published, the updated edition shall apply.
2. Always lock out the power switch before installing, removing, lubricating or servicing a system which uses PTUC product.
3. When connecting or disconnecting PTUC products, eye protection is required. Wear safety glasses, protective clothing, gloves and safety shoes.
4. Improper installation or mounting, as well as operating conditions and maintenance, can affect the performance of a cam clutch. The cam clutch should be inspected regularly.

"PTUC is used by U.S. Tsubaki to designate "Power Transmission Unit Components." PTUC products include Cam Clutch DISCO, POWER-LOCK[®], Shock Relay, Gearmotor, HF Drive, Shock Damper, Power cylinder[™], Couplings, SCR variable speed motor and other like products manufactured by/for Tsubaki.

■ **Construction**



- ① Inner race
- ② Outer race
- ③ Cam
- ④ Spring
- ⑤ Side plate
- ⑥ Snap ring

■ **Pre-Installation**

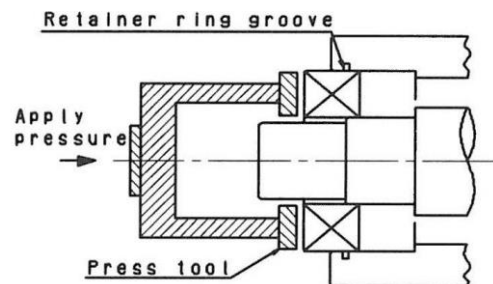
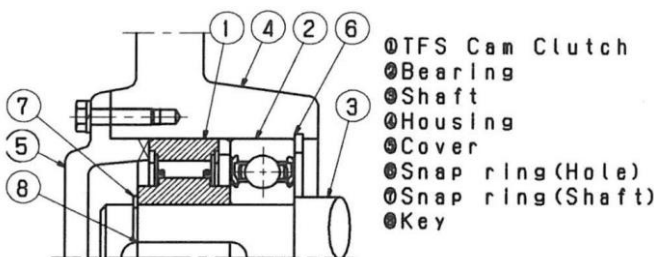
1. The outer race of TFS Series Cam Clutch is designed for press fit installation to the housing.
Correct interference dimensions of the outer race must be maintained to obtain maximum clutch performance.
2. The tolerance of the housing and shaft are shown in the below table..

Clutch Bore or OD of Outer race	Fit Guide
0 to 1.20 inches dia. 0 to 30mm dia.	Line fit to .0008 inches loose (0.020mm)
1.20 to 2.00 inches dia. 30mm to 50mm dia.	Line fit to .0010 inches loose (0.025mm)
2.00 to 3.15 inches dia. 50mm to 80mm dia.	Line fit to .0012 inches loose (0.030mm)
3.15 to 4.70 inches dia. 80mm to 120mm dia.	Line fit to .0014 inches loose (0.036mm)
4.70 to 7.10 inches dia. 120mm to 180mm dia.	Line fit to .0016 inches loose (0.041mm)

3. Keyways should be made in the end faces of clutch for proper installation.
Keyways are not required on the end faces of the clutch if the internal diameter of housing is produced by following tolerance..

Diameter inch (mm)	Tolerance (inch)	Tolerance (mm)
1.18 to 1.97 (30~50)	-0.000079 ~ -0.00071	-0.002 ~ -0.018
1.97 to 3.15 (50~80)	-0.000079 ~ -0.00083	-0.002 ~ -0.021
3.15 to 4.72 (80~120)	-0.00012 ~ -0.00098	-0.003 ~ -0.025
4.72 to 7.09 (120~180)	-0.00012 ~ -0.00110	-0.003 ~ -0.028

4. Make sure the housing has enough strength to withstand the pressure required for the press fitting installation of the clutch.
5. When installing the clutch mount it with a type 63 bearing to avoid radial force, since this clutch does not have any bearings support.
6. The recommended shaft tolerance is h7, and key profile should be in accordance with the following standard. TFS12.....DIN 6885,1 TFS15~80.....DIN 6885,3
7. Suitable surface pressure of the key should be selected according to your company design standard.



■ **Installation**

1. The clutch should be mounted on the shaft by rotating it in the direction marked by the arrow shown on the clutch plate.
2. To install the clutch, use a press tool of the appropriate diameter to apply even pressure over the entire face of the inner or outer race.
3. Do not apply hammer or other shock to the clutch.

■ **Lubrication**

1. Oil lubrication is recommended. Refer to below table.
2. Do not use greases or lubricants with EP additives.

Recommended Oil

<i>Ambient temperature in Overrunning and Backstopping Applications</i>	
<i>+14 F to +86 F (-10 °C to +30 °C)</i>	<i>+86 F to +122 F (+30 °C to +50 °C)</i>
Any Automatic Transmission Fluid (ATF) Shell Turbo Oil T32, Turbo Oil 68, Rimulla D Oil 10W Exxon Mobil DTE Oil Light, Multipurpose ATF, Delvac Hydraulic 10W, ATF220 Teresso 32, Teresstic Oil 68, DTE Heavy Medium Texaco Regal Oil R&O 68, Chevron GST Oil 68 BP Rnergol THB32, Gulf Harmony 32	Exxon Mobil Delvac 1330, Essolube XT1 10W-30 Shell Rimulla D Oil 20W/20, Rimura D Oil 30 White Parrot Super S-3-20W-20, 30



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