

CAM CLUTCH MANUAL

TSS, TFS Series

- Thank you for buying Cam Clutch 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.

Safety precautions in this manual are classified into two categories: "WARNING" and "CAUTION". These are defined as follows:

⚠ WARNING	Death or serious injury may result from misusing the product without following the instructions.
⚠ CAUTION	Minor or moderate injury, as well as damage to the product may result from misusing the product without following the instructions.

Notice that although categorized under "CAUTION", subjects discussed may lead to serious results depending on the situation.

⚠ WARNING
<ul style="list-style-type: none"> ● Make sure turning forces are not applied to Cam Clutch or turning shaft of the equipment when conducting inspection or maintenance. ● Pay special attention to the back stopping application to prevent accidents. ● Frequent starting and stopping will apply excessive force on the mounting. Verify mounting strength. ● Inaccurate installation and mounting, various load conditions, wear and tear of parts, and life expectancy can all affect the performance of a Cam Clutch. Inspect and maintain periodically and install a safety device on your equipment. ● Comply with Ordinance on Labor Safety and Hygiene 2-1-1 general standards.
⚠ CAUTION
<ul style="list-style-type: none"> ● To ensure safety and optimal performance, carefully read this instruction manual in its entirety. ● Confirm rotational direction prior to installing.

TSS8, TSS10, TSS12, TSS15, TSS20, TSS25, TSS30, TSS35, TSS40, TSS45, TSS50, TSS60
TFS series shows opposite side

■ Pre-Installation

1. The TSS Series Cam Clutch is designed for press fit installation. Correct interference dimensions must be maintained to obtain maximum clutch performance.
2. The internal diameter of the housing should be meet the H7 tolerance of the JIS standard.
3. Make sure the housing has enough strength to withstand the pressure required for the press fitting installation of the clutch.
4. When installing the clutch, mount it with a type 62 bearing to avoid radial force, since this clutch does not have any bearings support.
5. The recommended shaft tolerance is h7, and the key profile should be in accordance with the following standard.

TSS8-12·····DIN6885,1 TSS15-60·····DIN6885,3

Align the key to slide through the keyway smoothly before installation.

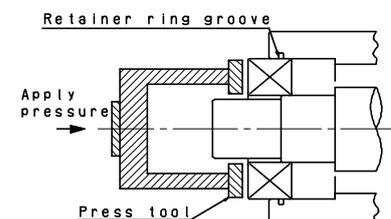
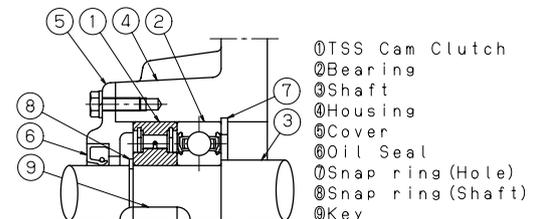
6. Suitable surface pressure of the key should be selected according to your company design standard.

■ 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 and outer race
3. Do not hammer or apply other shock to the clutch.

■ Lubrication

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



TFS12, TFS15, TFS17, TFS20, TFS25, TFS30, TFS35, TFS40, TFS45, TFS50, TFS60, TFS70, TFS80
TSS series shows opposite side

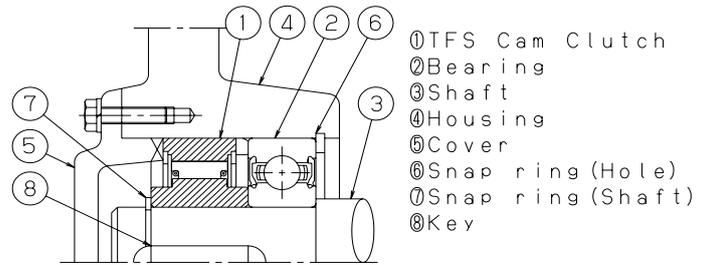
■ Pre-Installation

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 internal diameter of the housing should meet the H7 tolerance of the JIS standard.
3. Keyways should be made in the end faces of the clutch for proper installation. If the tolerance of the internal diameter of the housing is K6, keyways are not required on the end faces of the clutch.
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

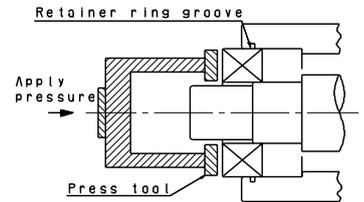
Adjust the key to slide through the keyway smoothly before installation.

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 hammer or apply 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

Oil Company	Overrunning or Backstop Applications	
	In low speed applications (below 1/3 of maximum overrun speed) or ambient temperature of -10°C to 30°C	In high speed applications (near maximum overrun speed) or ambient temperature of 30°C to 50°C
Shell Oil	Turbo Oil T32, Rimulla D Oil 10W Shell ATF, Gelco ATF	Rimulla D Oil 20W/20,30
Exxon Mobil	ATF 220, Delvac Hydraulic 10W DTE Oil Light	Delvac 1330
JXTG Nippon Oil & Energy	FBK Oil RO32, ATF II (N) FBK Turbine 32, Automatic D2	FBK Oil RO68
BP	BP Energol THB32	-
Gulf	Harmony 32	-

Warranty

TSUBAKIMOTO CHAIN CO.: hereinafter referred to as "Seller"
Customer: hereinafter referred to as "Buyer"
Goods sold or supplied by Seller to Buyer: hereinafter referred to as "Goods"

1. **Warranty period without charge**
18 months effective the date of shipment or 12 months effective the first use of Goods, including installation of Goods to Buyer's equipment or machines - whichever comes first.
2. **Warranty coverage**
Should any damage or problem with the Goods arise within the warranty period, given that the Goods were operated and maintained under instructions provided in the manual, Seller would repair and replace at no charge once the Goods are returned to Seller. The following are excluded from the warranty.
 - 1) Any costs related to removing Goods from the Buyer's equipment or machines to repair or replace parts.
 - 2) Costs to transport Buyer's equipment or machines to the Buyer's repair shop.
 - 3) Costs to reimburse any profit loss due to any repair or damage and consequential losses caused by the Buyer.
3. **Warranty with charge**
Seller will charge any investigation and repair of Goods caused by:
 - 1) Improper installation by failing to follow the instruction manual.
 - 2) Insufficient maintenance or improper operation by the Buyer.
 - 3) Incorrect installation of Goods to other equipment or machines.
 - 4) Any modifications or alterations of Goods by the Buyer.
 - 5) Any repair by engineers other than the Seller or those designated by the Seller.
 - 6) Operation in an inappropriate environment not specified in the manual.
 - 7) Force Majeure or forces beyond the Seller's control such as natural disasters and injustice done by a third party.
 - 8) Secondary damage or problem incurred by the Buyer's equipment or machines.
 - 9) Defected parts supplied, or specified by the Buyer.
 - 10) Incorrect wiring or parameter setting by the Buyer
 - 11) The end of life cycle of the Goods under normal usage.
 - 12) Loss or damage not liable to the Seller.
4. **Dispatch Service**
Service to dispatch a Seller's engineer to investigate, adjust or trial test Seller's Goods is at the Buyer's expense.
5. **Disclaimer**
 - 1) In our constant efforts to improve, TSUBAKIMOTO CHAIN CO. may change the contents of this document without notice.
 - 2) Considerable effort has been made to ensure that the contents of this document are free from errors. However, TSUBAKIMOTO CHAIN CO. makes no warranties with respect to the accuracy of information described herein. In the meantime, we would appreciate comments or reports on any inaccuracies or omissions found in this document to help us make timely amendments as necessary. Your cooperation is greatly appreciated.



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