

## Cam Clutch Installation and Maintenance Instruction

### BR-HT Series

- Thank you for choosing Tsubaki E&M products.
- Before installing or working on the product, check label for correct model 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<sup>®</sup>, Shock Relay, Gearmotor, HF Drive, Shock Damper, Power cylinder<sup>™</sup>, Couplings, SCR variable speed motor and other like products manufactured by/for Tsubaki.

### Disassemble and Reassemble

While the Cam Clutch can be disassembled by the user, reassembly may prove difficult.

We recommend that you install the Cam Clutch as delivered.

If the outer race has to be removed from the Cam Clutch in order to fit the Cam Clutch to the machine, follow the procedure listed below.

Procedure to disassemble the outer race

1. When removing the outer race, the inner race (to which cam cages are fixed) also has to be removed but do not remove them completely. First remove the outer race about half way.
2. Cams should be held in lift-off position to avoid cams rotating. You can do this by install an o ring or similar on the outside of cam cage.
3. After cams have been fixed remove the outer race.

### Procedure to reassemble the inner race and the outer race

Work in the reverse order of disassembly.

(When reassembling, rotate the inner race or the outer race to the free running direction slightly.)

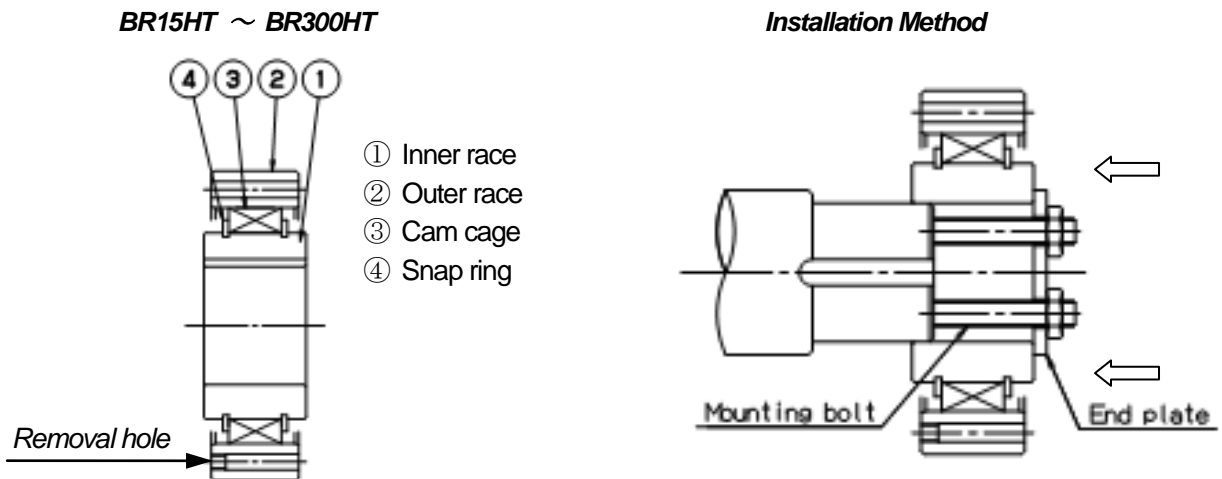
Note:

Do not reassemble the parts by force. It can damage the cam cage.

(When reassembling, do not apply unnecessary force or shock. It is not possible to install the inner race and the outer race if cams are not fixed in lift-off position.)

When mounting (or removing) the o ring or similar, pay attention not to deform or damage springs of the cam cage.

If the inner race and the outer race were removed without fixing cams, mount the o ring or similar on the outer side of cam cage to hold cams in lift-off position.



### Installation and Usage

1. The recommended shaft tolerances is shown at next page.
2. Use ISO R773/DIN 6885.1 Parallel key or DIN6885.3 Parallel key for models marked \* on our catalog. Ensure that the key does not move in the keyway. A loose key will damage the Cam Clutch.
3. When installing the Cam Clutch over a shaft, please follow the procedure outlined below. Never strike the clutch with a steel hammer or apply unnecessary impact loads.
  - 1) Verify Cam Clutch direction of rotation. The arrow on the inner race shows the free running (cam disengaged) direction. Make sure that the direction of cam engagement matches the intended application.
  - 2) Tap the inner race lightly with a soft hammer moving around the race circumference so the Cam Clutch moves slowly and uniformly onto the end of the shaft. Make sure that the outer race does not become dislodged.
  - 3) Place an end plate over the inner race and use the mounting bolts to pull the Cam Clutch onto the shaft as shown in Installation Method at right.
  - 4) Fix the end plate securely.

**Recommended shaft tolerance**

Clutch Bore	Shaft 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 0.0014 inches loose (0.036mm)
4.70 to 7.10 inches dia. 120mm to 180mm dia.	Line fit to 0.0016 inches loose (0.041mm)
7.10 to 9.85 inches dia. 180mm to 250mm dia.	Line fit to 0.0018 inches loose (0.046mm)
9.85 to 12.40 inches dia. 250mm to 315mm dia.	Line fit to 0.0020 inches loose (0.051mm)
12.40 to 15.70 inches dia. 315mm to 400mm dia.	Line fit to 0.0023 inches loose (0.058mm)
15.70 to 17.72 inches dia. 400mm to 450mm dia.	Line fit to 0.0025 inches loose (0.064mm)

4. Check the tolerances in the tables below.

Verify that the parallel and right angle tolerances can be obtained. Out of specification installation could damage the Cam Clutch.

Model	(mm) Parallelism	(in)	(mm) Angularity	(in)
BR15HT to BR58HT	0.10	0.0039	0.04	0.0016
BR60HT to BR98HT	0.15	0.0059	0.06	0.0024
BR100HT and above	0.25	0.0098	0.08	0.0032

5. Non-lubricated when delivered, please lubricate before use.

To lubricate the Cam Clutch, apply lubricant at the outer circumference of the inner race (see Installation example). Avoid over lubrication, as it will cause the Cam Clutch to generate excessive heat.

6. BR-HT Series accepts lubricant generally used in a gear reducer. It is possible to mount BR-HT directly in gearbox without separate lubrication.

7. When installing a cover or seal support over the outer race, use bolts with a tensile rating of 10.9 or greater. Use a sealing agent or packing material between the mating surfaces to prevent leakage.

**LUBRICATION**

BR-HT Series Cam Clutch needs periodic maintenance and lubrication to provide maximum performance throughout their service life.

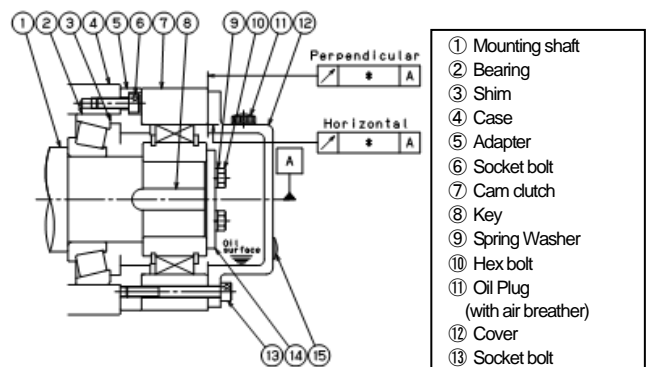
Lack of the prescribed maintenance and lubrication will shorten the Cam Clutch's service life and may result in unnecessary mechanical damage. BR-HT Cam Clutch can be lubricated with oil or depending on the type of application.

Any type of Gear oil can be used for BR-HT Series if it is used as high speed backstopping application which is installed into the reducer.

**The viscosity of any type oil must be lower than VG320.**

Note: Crossover shipping of outer races with different colors may occur across the board, although performance and quality are unchanged.

**Installation example**





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