

CAM CLUTCH MANUAL

BR-HT Series

- Thank you for buying Cam Clutch 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.

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 rotational forces are not applied to Cam Clutch or shaft of the equipment when conducting inspection or maintenance. ● Pay special attention to a 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 the Cam Clutch. Inspect and maintain periodically and install a safety devise 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. 	

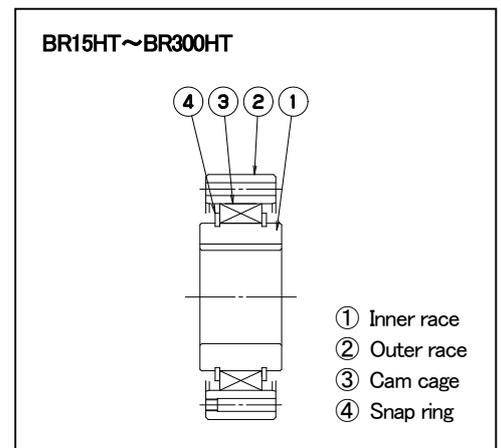
■ INSTALLATION AND USAGE

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.

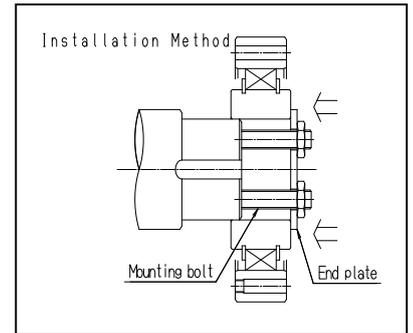


2. Cams should be held in lift-off position to avoid cams rotating. You can do this by mounting an o-ring or similar on the outside of the cam cage.
3. After cams have been fixed remove the outer race.

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. We recommend using shaft tolerances of h6 or h7 for Cam Clutch installation.
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.
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.

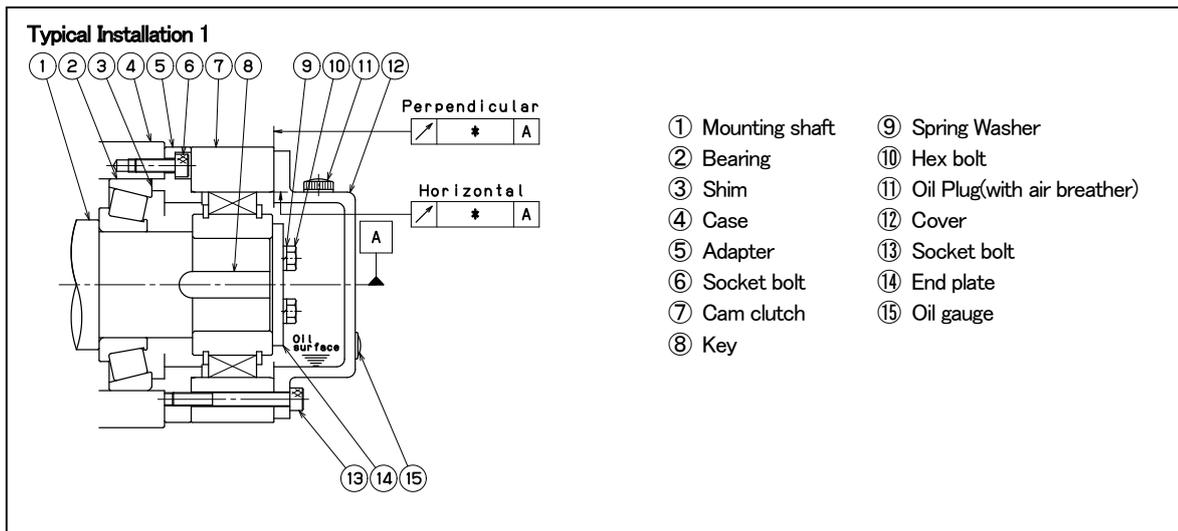
Parallel Tolerances Dimensions in mm

Model	Parallelism
BR15HT to BR58HT	0.10
BR60HT to BR98HT	0.15
BR100HT and above	0.25

Right Angle Tolerances Dimensions in mm

Model	Angularity
BR15HT to BR58HT	0.04
BR60HT to BR98HT	0.06
BR100HT and above	0.08

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 Typical Installation 1). 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.

Recommended Oil

Brand	Type
JXTG Nippon Oil & Energy	FBK Turbine 32, Automatic D2
Shell	Rimura D Oil 10W, Turbo Oil T32
Exxon Mobil	DTE Oil Light, ATF 220

■ 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.

1. The recommended oils are for operating environments ranging from -5°C to +40°C. Contact TSUBAKI when the environmental temperature is outside of this range.

2. Special Cam Clutch oil (1 liter) is available from TSUBAKI.

Note:

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

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 mean time, 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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