

Cam Clutch Manual

BB Series

BB, BB-1K-K, BB-2K-K, BB-2GD, BB-2GD1K-K
BB15~BB40, BB15-1K-K~BB40-1K-K, BB15-2K-K~BB40-2K-K,
BB15-2GD~BB40-2GD, BB15-2GD1K-K~BB40-2GD1K-K

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 part is 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:

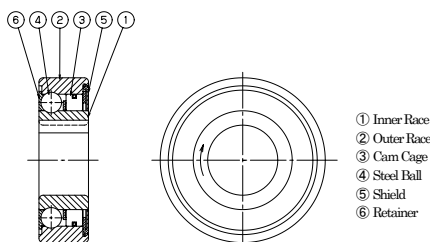
 WARNING	Death or serious injury may result from misusing the product without following the instructions.
 CAUTION	Minor or moderate injury, as well as damage to the product may result from misusing the product without following the instructions.

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

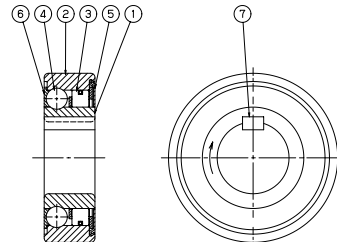
 WARNING
• Make sure turning forces are not applied to Cam Clutch or turning shaft of the equipment when conducting inspection or maintenance. Pay special attention to the back stopping application to prevent accidents. • Frequent starting and stopping will apply excessive force on the mounting. Verify 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 devise on your equipment. • Comply with Ordinance on Labor Safety and Hygiene 2-1-1 general standards.
 CAUTION
• To ensure safety and optimal performance, carefully read this instruction manual in its entirety. • Confirm rotational direction prior to installing.

■ Structure

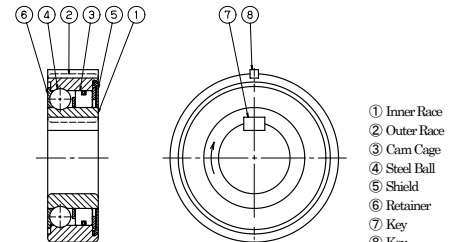
BB type



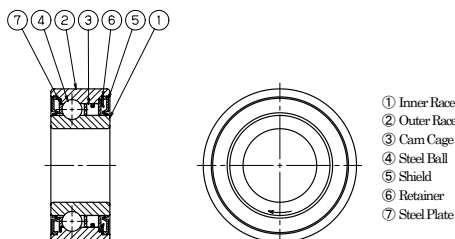
BB-1K-K type



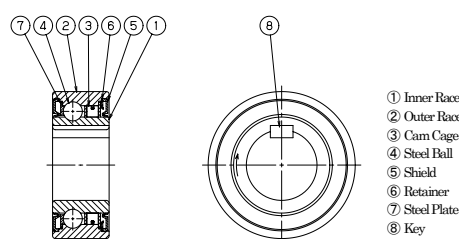
BB-2K-K type



BB-2GD type



BB-2GD1K-K type



■ Recommended shaft diameter and housing bore diameter.

Machine the shaft and housing to the measurements and tolerances given in the table below.

Torque is transmitted by press fit, for models without keyways. Clutch may slip if the shaft and housing are not machined to the recommended dimensions.

Model No.	Recommended shaft dia. (mm)	Recommended housing bore dia. (mm)
BB15/BB15-2GD	15 $+0.023$ $+0.012$	35 -0.012 -0.028
BB17/BB17-2GD	17 $+0.023$ $+0.012$	40 -0.012 -0.028
BB20/BB20-2GD	20 $+0.028$ $+0.015$	47 -0.012 -0.028
BB25/BB25-2GD	25 $+0.028$ $+0.015$	52 -0.014 -0.033
BB30/BB30-2GD	30 $+0.028$ $+0.015$	62 -0.014 -0.033
BB35/BB35-2GD	35 $+0.033$ $+0.017$	72 -0.014 -0.033
BB40/BB40-2GD	40 $+0.033$ $+0.017$	80 -0.014 -0.033

Model No.	Recommended shaft dia. (mm)	Recommended housing bore dia. (mm)	
		BB15-1K-K BB15-2GD1K-K	BB15-2K-K
BB15-1K-K/BB15-2K-K /BB15-2GD1K-K	15 -0.008 -0.028	35 -0.012 -0.028	35 -0.002 -0.018
BB17-1K-K/BB17-2K-K /BB17-2GD1K-K	17 -0.008 -0.028	40 -0.012 -0.028	40 -0.002 -0.018
BB20-1K-K/BB20-2K-K /BB20-2GD1K-K	20 -0.010 -0.031	47 -0.012 -0.028	47 -0.003 -0.022
BB25-1K-K/BB25-2K-K /BB25-2GD1K-K	25 -0.010 -0.031	52 -0.014 -0.033	52 -0.003 -0.022
BB30-1K-K/BB30-2K-K /BB30-2GD1K-K	30 -0.010 -0.031	62 -0.014 -0.033	62 -0.003 -0.022
BB35-1K-K/BB35-2K-K /BB35-2GD1K-K	35 -0.012 -0.037	72 -0.014 -0.033	72 -0.006 -0.025
BB40-1K-K/BB40-2K-K /BB40-2GD1K-K	40 -0.012 -0.037	80 -0.014 -0.033	80 -0.006 -0.025

■ Cautions for installation

1. The arrow on the inner race indicates the direction of inner race engagement.

2. Install to the housing of sprocket, gear, etc.

Press fit types (BB, BB-1K-K, BB-2GD, BB-2GD1K-K)

Press outer race (Refer to Fig. 1)

Keyed outer race type (BB-2K-K)

Use the key provided to secure the housing and Cam Clutch, because the fit is neither press nor loose. Then, install ball bearing. Never use set bolt on the outer race to fix the key, because it may deform the outer race.

3. Installation to shaft

Press fit types (BB, BB-2GD) Press housing (Cam Clutch is already

installed) to the shaft by applying force to the inner race of Cam Clutch. (Refer to Fig. 2)

Keyed inner race types (BB-1K-K, BB-2K-K, BB-2GD1K-K) Use the key provided to install to the shaft.

4. Key and keyway

Standard key and keyway are DIN6885.3.

However, the depth of inner keyways for BB25-1K-K, BB25-2K-K and BB25-2GD1K-K are 0.5mm shallower than standard. So, the depth of outer race should be 0.5mm deeper. Standard inner race key and keyway for BB40-1K-K, BB40-2K-K and BB40-2GD1K-K are DIN6885.1.

5. When pressing Cam Clutch to the shaft and housing, do not press inner race or outer race separately but press them simultaneously. Do not hit Cam Clutch with a hammer.

6. Refer to the catalog for key dimensions.

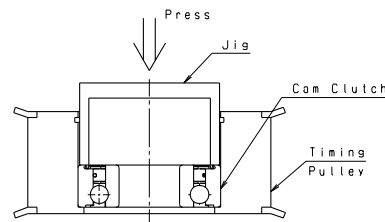


Fig. 1. Installation to housing bore

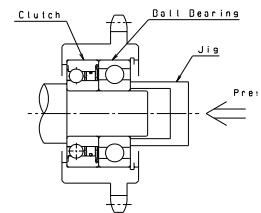


Fig. 2. Installation to shaft

■ Lubrication

1. Cam Clutches are factory greased with Esso Beacon 325. Allowable ambient temperature range is -30°C to 80°C .

2. Wash out the grease when using BB, BB-1K-K, BB-2K-K types for oil baths. Refer to Cam Clutch or general catalog for recommended oil. Oil level should be the shaft center or higher.

3. Never use lubricants with extreme-pressure additives to avoid slippage.

■ 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.

- Any costs related to removing Goods from the Buyer's equipment or machines to repair or replace parts.
- Costs to transport Buyer's equipment or machines to the Buyer's repair shop.
- 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:

- Improper installation by failing to follow the instruction manual.
- Insufficient maintenance or improper operation by the Buyer.
- 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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