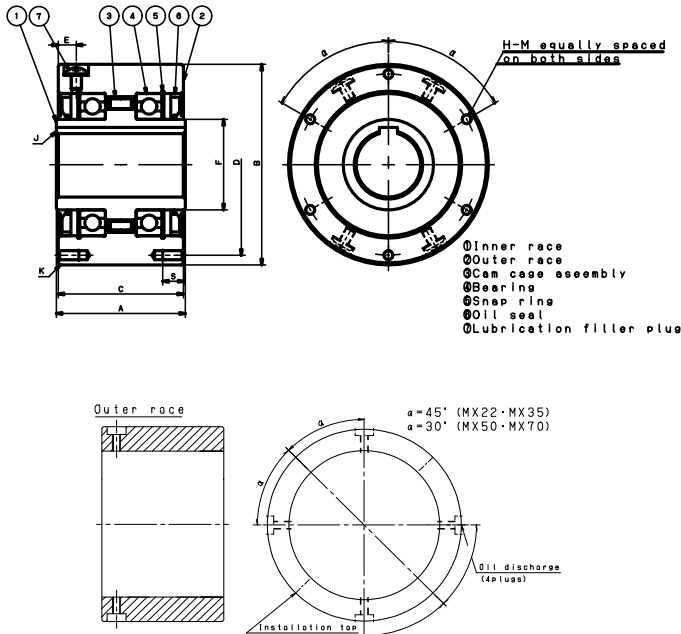


# Cam Clutch Manual

MX22, MX35, MX50, MX70,

- Thank you for buying CamClutch products.
- Before installing or working on the product, confirm it is the correct size by checking its label 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.

## ■ Structure



## Capacities

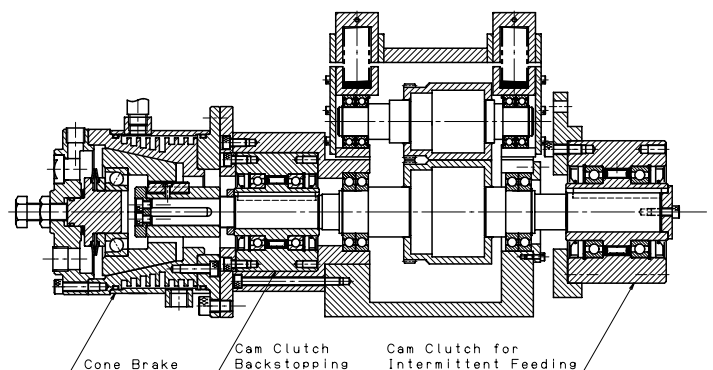
| Model No. | Max Torque (N·m) | Max Indexing (cycle/min.) | Overrun Drag (N·m) |
|-----------|------------------|---------------------------|--------------------|
| MX22      | 78.4             | 1, 200                    | 0. 470             |
| MX35      | 235              | 1, 200                    | 1. 362             |
| MX50      | 441              | 1, 200                    | 2. 675             |
| MX70      | 784              | 1, 200                    | 5. 145             |

## Dimensions

| Model No. | Stock Bore Size |        |           | Inner Race Width A | Outer Race Width C | Outside Diameter Of B(h7) | K   | F   | PCD D | S  | H-M No. of Tapped Holes × Size × Pitch | Plug Position E | Lubrication Filler Plug Size × Pitch | Oil (CC) | Mass (kg) |
|-----------|-----------------|--------|-----------|--------------------|--------------------|---------------------------|-----|-----|-------|----|----------------------------------------|-----------------|--------------------------------------|----------|-----------|
|           | Diameter        | Keyway | Chamfer J |                    |                    |                           |     |     |       |    |                                        |                 |                                      |          |           |
| MX22      | 22              | 6×2.8  | 1.0       | 80                 | 77                 | 95                        | 1.6 | 35  | 80    | 16 | 4-M8×P1.25                             | 12              | M6×1.0                               | 80       | 3.3       |
| MX35      | 35              | 10×3.3 | 1.3       | 90                 | 87                 | 125                       | 1.6 | 50  | 110   | 16 | 4-M8×P1.25                             | 12              | M6×1.0                               | 110      | 6.4       |
| MX50      | 50              | 14×3.8 | 1.6       | 100                | 97                 | 155                       | 1.6 | 70  | 140   | 16 | 6-M8×P1.25                             | 14              | M8×1.25                              | 190      | 10.6      |
| MX70      | 70              | 20×4.9 | 1.8       | 127                | 124                | 200                       | 1.6 | 100 | 180   | 20 | 6-M10×P1.5                             | 15              | M8×1.25                              | 340      | 21.3      |

## ■ Installation

1. When mounting the clutch on a shaft, apply pressure to the clutch inner race end, but never to the outer race.
2. The arrow on the outer face of the outer race shows the direction of the engagement. Before the installation, ensure that the direction of rotation of the cam clutch corresponds to the intended application.
3. A press fit is required for MX Series clutches for indexing applications, but do not exceed 0.025mm when press fitting.
4. Fix the cam clutch on the shaft with the end plate or snap ring etc.
5. Adjust the side of the key to fit the keyway tightly, but allow a clearance between the top of key and keyway.
6. Proper selection of the Cam Clutch provides accurate indexing performance. A braking device and a backstopping device may also be required for more accurate performance.
7. Avoid the installation obstructing the parallelism or concentricity of the inner race and the outer race, or occurring extreme O.H.L. It cause the malfunction of the cam clutch or affect on its life.
8. For the attaching a swing arm or a gear to the clutch, insert the



clutch into the hub of the device, and screw the bolts (high tension) into the tapped hole on the clutch end.

The tolerance bore of the hub should be H6 or H7 of JIS standard.

9. In order to attain high-speed, high-precision feeding, brake with less torque fluctuation and a cam clutch for back stopping are used together.

10. Mount the clutch with a type 62 bearing to avoid radial force, since this clutch does not have any bearing support.

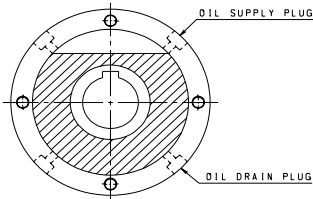
## ■ Lubrication

1. The MX series are not pre-lubricated. Use the brand of lube oil listed below or its equivalent.

1) Do not use oil with extreme pressure additives as it will shorten the life of the Cam Clutch.

2) For the Cam Clutch to be able to function correctly with the above oil: the ambient temperature must be between  $-5^{\circ}\text{C} \sim +40^{\circ}\text{C}$ . If you intend to run the Cam Clutch at a temperature that exceeds this ambient temperature, contact TSUBAKI for a consultation.

2. Follow the directions below for lube oil amount and lubrication method.



1) Remove two of the plugs out of three to four plugs on the outer race of the Cam Clutch

2) Place the plugs on their face at the same height.

3) Lubricate from one of the plug hole at upper portion, and continue until oil comes out from the other plug hole. Then, make sure to tighten the plugs to prevent oil leakage

(Note) 1) Replenish oil after 300 hours of operation or every two weeks, whichever is sooner. Once every three months, drain old oil and wash out the inside, then replace it with new oil. Locate the plug hole at the bottom and drain old oil.

2) When lubricating or washing the Cam Clutch, do not allow any foreign matter to enter the inner portion of the Cam Clutch as this may cause it to function incorrectly

## Recommended oil

| Brand    | Sanwa Kasei Kogyo      | Idemitsu Kosan  |
|----------|------------------------|-----------------|
| Indexing | Samic Arctic Oil Light | Daphne Oil CR10 |

## Safety

|  |                |                                                                                                                                     |
|--|----------------|-------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>WARNING</b> | Death or serious injury may result from misusing the product without following the instructions.                                    |
|  | <b>CAUTION</b> | 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.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>WARNING</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
| <ul style="list-style-type: none"> <li>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.</li> <li>Frequent starting and stopping will apply excessive force on the mounting. Verify mounting strength.</li> <li>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.</li> <li>Comply with Ordinance on Labor Safety and Hygiene 2-1-1 general standards.</li> </ul> |  |
| <b>CAUTION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
| <ul style="list-style-type: none"> <li>To ensure safety and optimal performance, carefully read this instruction manual in its entirety.</li> <li>Confirm rotational direction prior to installing.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |

## 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.



**TSUBAKIMOTO CHAIN CO.**

1-1, Kohtari-Kuresumi, Nagaokakyo

**Kyoto 617- 0833, Japan**

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