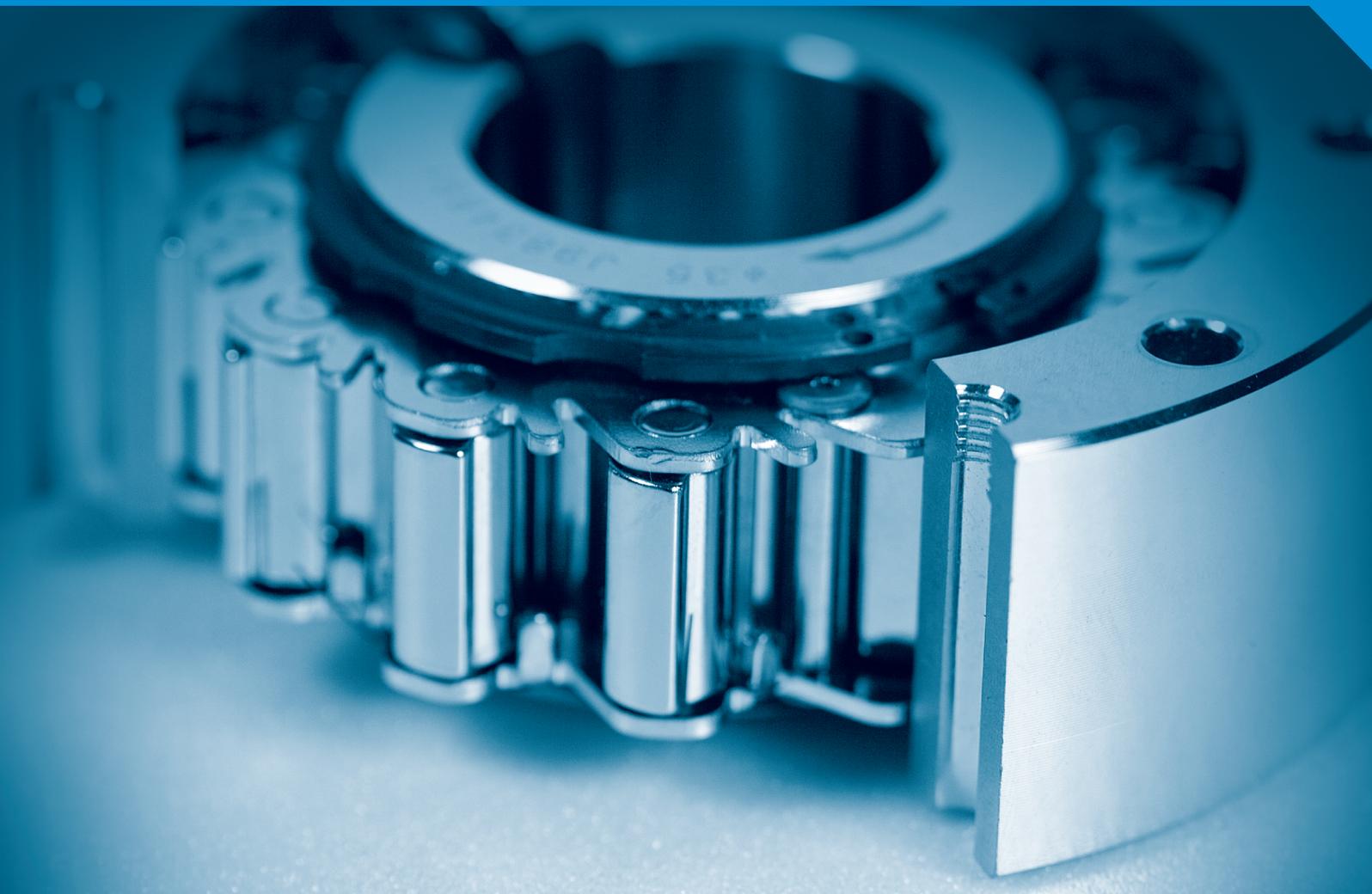


TSUBAKI

CAM CLUTCH / FREEWHEELS



MADE BY TSUBAKI

Tsubaki Motion Control Division (MCD) is a member of the Industrial Power Transmission division of Tsubakimoto Chain Company in Japan, the world's largest chain manufacturer with manufacturing facilities round the globe and one of the top global producers of freewheels.

Tsubaki MCD's product programme of Cam Clutches / Freewheels is the most extensive available worldwide, covering all the European requirements and is compliant to international standards. From high and low speed overrunning applications to backstopping or high-precision indexing; Tsubakimoto has a Cam Clutch to match the

application, even in the toughest operating conditions. Where a customer needs something just that bit more special, then he can rely on the wealth of experience of our engineers to develop a tailor made Cam Clutch from the drawing board up, and suited to specific requirements.



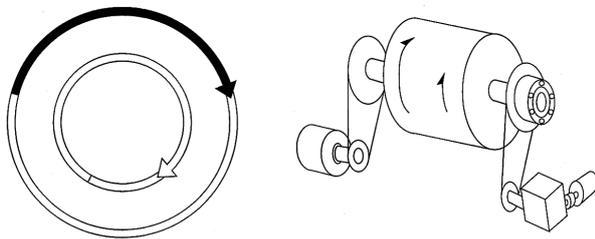
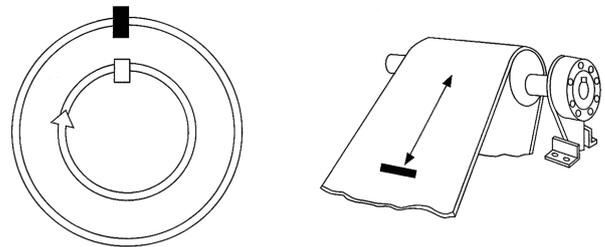
Tsubaki offers the most complete and versatile selection of one-way clutches in the industry.

Cam Clutches are precision devices which lock the inner and outer races, through the wedging action of cams, to transmit torque in one direction of rotation and overrun in the opposite direction. These units are often referred to as freewheels, sprag, overrunning, indexing, backstop or one-way clutches, depending upon their application.

Tsubaki Cam Clutch products are designed to transmit torque in one direction of rotation and overrun (freewheel) in the opposite direction of rotation. All Tsubaki Cam Clutch products utilize the same principles of operation. Tsubaki offers various series of products to address the many types of applications where Cam Clutch products are most often used. The three most common types of applications are listed below:

Backstopping

Clutches are used to prevent reverse rotation of drive shafts which may cause damage to machinery and expensive equipment. The inner race can overrun freely in one direction of rotation. Reverse rotation is instantaneously prevented by the automatic engagement of the clutch. Typical backstop applications are in inclined conveyor systems, gear reducers and industrial fans. Tsubaki has pioneered the non-rollover design.

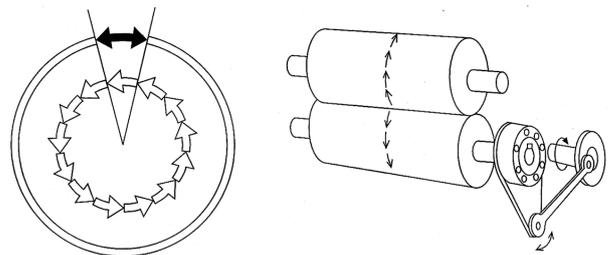


Overrunning

These clutches spin freely the majority of the time, occasionally being called upon to lock up and drive. Typical is a two-speed drive, where the machine is driven by either an electric motor or geared motor. When the gearmotor drives at low speed the clutch engages. When the faster electric motor drives, the clutch overruns, automatically switching between low speed and high speed.

Indexing

Reciprocating motion applied to the clutch transforms into one-direction motion. A crank mechanism provides reciprocating motion to drive the Cam Clutch. The clutch drives in the forward stroke (index) and overruns on the return stroke, indexing the feeding roller forward.



TSUBAKI CAM CLUTCHES ARE PERFECT FOR:

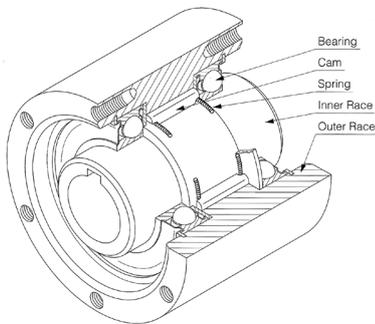
- Air cleaning plants
- Agricultural machinery
- Bucket elevators
- Compressors
- Inclined or vertical conveyors
- Cranes and hoists
- Dry cleaning machinery
- Duplicator equipment
- Fish net machinery
- Heat-treatment furnaces
- Induced draft fans
- Multi-state conveyors
- Packaging machinery
- Printing machinery
- Inclined or vertical Pumps
- Punch presses and feeders
- Power plants
- Refinery equipment
- Speed reducers
- Standby power units
- Textile looms
- Two-speed grinders
- Two-speed shiftovers
- Washing machinery
- Wire winding machinery

TSUBAKI CAM CLUTCH DESIGN FEATURES

Full Cam Compliment - Provides greater torque capacity size for size than other types of one-way clutches.

Cam Design - Precision formed cams made of special alloy steel provides long wear and fatigue life. The unique cam shape prevents the cams from rolling over if the clutch is overloaded.

High Quality Components - The clutch races are made of high quality alloy steel with a high surface hardness and core toughness. The races are precision ground, provide excellent concentricity and surface finish to obtain accurate cam rotation.



TSUBAKI BALL BEARING CAM CLUTCH / FREEWHEELS



BB, BB1K, BB2K Series

BB Series Cam Clutch Freewheels with shields have bearing characteristics and dimensions of type 62 ball bearings.

Press fit, single inner race keywayed (1K) and inner and outer race keywayed (2K) versions available. Keys for inner and outer race also available.

Bore sizes - 15, 17, 20, 25, 30, 35, 40mm

Maximum torque - 260Nm



BB2GD, BB2GD 1K Series

BB2GD Series Cam Clutch Freewheels with seals for enhanced dust and spray protection and bearing characteristics and dimensions of type 62 ball bearings.

Press fit, single inner race keywayed (1K) versions available. Keys for inner race also available.

Bore sizes - 15, 17, 20, 25, 30, 35, 40mm

Maximum torque - 260Nm

TSUBAKI CAM CLUTCH / FREEWHEELS WITHOUT BEARING SUPPORT



TSS Series

TSS Series are non-bearing supported Cam Clutch Freewheels designed for outer race press fit installation. The outside dimensions are the same as series 62 ball bearings.

Bore sizes - 8, 10, 12, 15, 20, 25, 30, 35, 40, 45, 50, 60mm

Maximum torque - 649Nm



TFS Series

TFS Series are non-bearing supported Cam Clutch Freewheels designed for outer race press fit installation.

The TFS has 2 vertical keyways at each end of the outer race.

The outside dimensions are the same as series 63 ball bearings.

Bore sizes - 12, 15, 17, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80mm

Maximum torque - 3924Nm



B 200/BUS 200 Series

B 200 Series are non-bearing supported Cam Clutch Freewheels designed for direct shaft mounting installation.

B 200 has metric dimensions and outer race keyway.

BUS 200 has imperial dimensions and outer race keyway.

Inner races are available upon request.

12 Clutch sizes

Maximum torque - 1390Nm

TSUBAKI CAM CLUTCH / FREEWHEELS WITH BEARING SUPPORT



MZEU(K), MZEU-C Series

MZEU Modular Series is a pre-lubricated Cam Clutch Freewheel designed primarily for the European market.

Available as a base model MZEU, with an outer keyway MZEU(K) or with a chain coupling attached MZEU-C. The MZEU Series is available with a range of different modular flanges to suit all freewheel operations.

Bore sizes - 12, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 70, 80, 90, 100, 130, 150mm
(MZEU(K)-C - Bore sizes up to 80mm)
Maximum torque - 33800Nm



MZ, MZ-G Series

The MZ and MZ-G Series Cam Clutch Freewheels are pre-lubricated with a special grease for a long service life and requires no lubrication maintenance.

MZ-G Series has a machined outer race for locating drive media.

MZ, MZ-G Series is designed primarily for overrunning applications.

8 Clutch sizes
Bore sizes - 15, 17, 20, 22, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70mm
Maximum torque - 3040Nm



MDEU Series

MDEU Series Cam Clutch Freewheels are a pre-lubricated European style Tsubaki design.

No bearing support is necessary due to the unique cam roller construction. Easy installation for drive media on outer race. No special flange required.

Bore sizes - 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 70, 80mm
Maximum torque - 2300Nm

TSUBAKI CAM CLUTCH / FREEWHEELS WITH BEARING SUPPORT



MG, MI, MG-R Series

The MG Series Cam Clutch Freewheels are used for low to medium speed inner race overrunning. Metric dimensions MI Series is designed for indexing applications.

MG-R Series with an oil reservoir is used for backstopping with continuous operation.

12 Clutch sizes
Maximum bore size - 250mm
Maximum torque - 175000Nm



MGUS, MIUS, MGUS-R Series

The MGUS Series Cam Clutch Freewheels are used for low to medium speed inner race overrunning. Imperial dimensions MIUS Series is designed for indexing applications.

MGUS-R Series with an oil reservoir is used for backstopping with continuous operation.

9 Clutch sizes
Maximum bore size - 175mm
Maximum torque - 33800Nm



PB, PBUS Series

The PB / PBUS Series Cam Clutch Freewheels are pre-packed with special grease.

PB features easy installation for drive media on outer race. PBUS has imperial dimensions.

PB bore sizes - 10, 16, 20, 25, 31.5, 40, 45mm
Maximum torque - 2200Nm

PBUS-7 Clutch sizes
Bore sizes - 0,375 to 1,77inch



BREU Series

The BREU Modular Series high speed centrifugal lift off Cam Clutch freewheels are designed primarily for the European Market. Available as a base model BREU, with an outer keyway BREU (K) or with a chain coupling attached BREU-C. The BREU Series is available with a range of different modular flanges to suit all freewheel operations.

Bore sizes - 30, 35, 40, 45, 50, 55, 60, 70, 80, 90, 100, 130, 150mm
(BREU(K)-C - Bore sizes up to 80mm)
Maximum bore size - 150mm
Maximum torque - 33908Nm



BR-HT Series

BR-HT centrifugal lift off Cam Clutch series Backstops are designed for high speed backstopping operations with higher torque requirements. The BR-HT Series is an open type design for directly mounting into machinery such as gear reducers, pumps and winches.

BR-HT - 41 Clutch sizes
Bore range - 20-320mm,
Maximum torque - 366000Nm



BR-HT TL and TR Series

BR-HT TL and TR centrifugal lift-off Cam Clutch Series Backstops are combined with a Torque Limiter. The Torque Limiter (TL) design enables the equalising of backstop torques on multiple drive conveyors. The Tension Release (TR) design enables the controlled release of tension in a conveyor belt allowing the safe removal of blockages and jams on inclined conveyors.

BR-HT TL - 12 Clutch Sizes
Maximum bore sizes - 300mm
Maximum Torque - 103000Nm
BR-HT TR - 10 Clutch Sizes
Maximum bore sizes - 240mm
Maximum Torque - 54600Nm



BS / BS-HS / BS-F Series

BS Series Backstop Cam Clutches provide the most safety in backstop applications. The BS and BS-F Series are fitted with Tsubaki's unique self-lubricating cam/roller mechanism for longer life. The BS-HS Series is fitted with bearings and a full set of cams for higher speeds. The BS-F Series is designed for high torques and fitted with enhanced dust sealing and a quick change central torque arm.

BS - 8 Clutch sizes
Maximum bore size - 135mm
Maximum torque - 15700Nm

BS-HS - 9 Clutch sizes
Maximum bore size - 450mm
Maximum torque - 980000Nm

BS-F - 13 Clutch sizes
Maximum bore size - 465mm
Maximum torque - 980000Nm



BSEU / BSEU 2GD Series

BSEU Series are pre-lubricated European style Cam Clutches designed primarily for backstopping operations. The BSEU has an integral torque arm on the outer race and is fitted with high performance V-ring seals. The BSEU Series is fitted with Tsubaki's unique self-lubricating cam/roller mechanism for longer life. The BSEU 2GD Series is fitted with a lip seal and outer cover for enhanced dust and spray protection.

4 Clutch sizes
Bore sizes - 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 90mm
Maximum torque - 4700Nm



OB-ON / OB-SF, SN, S, PN

OB-ON Box Cam Clutches are enclosed units containing Cam Clutch and shafts. Lubrication is by oil bath. Used for high speed continuous overrunning.

OB-SF - Self lubrication with fins for water cooling.

OB-SN - Self lubrication.

OB-S - External forced lubrication.

OB-PN - Oil bath

OB-ON - 4 Clutch sizes
Maximum torque - 5880Nm

OB-SF, SN, S, PN - 5 Clutch sizes
Maximum torque - 40200Nm



Through decades of research Tsubaki MCD engineers have developed and improved one-way clutches from simple devices into the products they are today; high quality, high precision Cam Clutches designed to prevent reverse rotation and to ensure safety.

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