

Cam Clutch Installation and Maintenance Instructions


BUS200 Series


BUS203, BUS204, BUS205, BUS206, BUS207, BUS208, BUS209, BUS210, BUS211, BUS212, BUS213, BUS214

Thank you for choosing Tsubaki E&M 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.
- To ensure safety and optimal performance, carefully read this instruction manual in its entirety.

	<p>WARNING</p> <p>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.</p>
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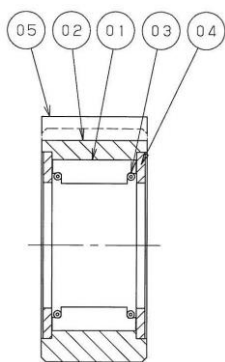
WARNING

**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[®], Shock Relay, Gearmotor, HF Drive, Shock Damper, Power cylinder[™], Couplings, SCR variable speed motor and other like products manufactured by/for Tsubaki.

■ Construction

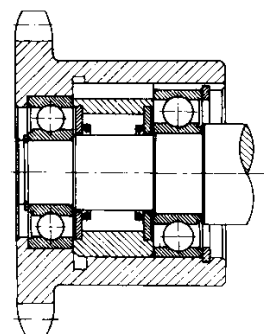


- ① Cam
- ② Outer race
- ③ Spring
- ④ Side plate
- ⑤ Key

■ Installation

1. BUS200 series Cam clutch is shaft mounted, so the shaft on which the clutch is mounted must be hardened to Rc 56-60 and 0.06" (1.5mm) case depth after grinding. Grind to 1.5 S (16micro-inch) finish. The taper of this shaft should not exceed 0.0004" (0.01mm) per 1.969" (50mm)
2. For installation of the clutch, mount the clutch with bearings at both sides or on one side in order to obtain concentricity between the shaft and the clutch outer race and to take up radial or thrust loads which may work on the outer race or the shaft. See the installation example.
3. The clutch should be mounted on the shaft by rotating it in the direction marked by the arrow shown on the clutch plate. Do not apply shock to the clutch by hammering.
4. The clutches have the same outside diameters as the 6200 type bearings (BUS205 = 6205, BUS208 = 6208). Bore tolerance of the housing in which the clutch is assembled should be within the table below.
5. For indexing, oil lubrication is recommended.
6. Concentricity of the housing bore and shaft should be within 0.002" (0.05mm) T.I.R..
7. Key profile should be in accordance with ANSI B17, 1-1967 (R1998).
8. Oil lubrication is recommended if the application is indexing.

Installation example



Model No.	Shaft dia.	Housing bore dia.
BUS203	.6490 / .6500 (in) 16.485 / 16.510 (mm)	1.5748 / 1.5758 (in) 40.000 / 40.025 (mm)
BUS204	.7390 / .7400 18.771 / 18.796	1.8504 / 1.8514 47.000 / 47.025
BUS205	.9290 / .9300 23.597 / 23.622	2.0472 / 2.0484 52.000 / 52.030
BUS206	1.2890 / 1.2900 32.741 / 32.766	2.4409 / 2.4421 62.000 / 62.030
BUS207	1.6560 / 1.6570 42.063 / 42.088	2.8346 / 2.8353 72.000 / 72.030
BUS208	1.8400 / 1.8410 46.736 / 46.761	3.1496 / 3.1508 80.000 / 80.030

Model No.	Shaft dia.	Housing bore dia.
BUS209	1.8400 / 1.8410 (in) 46.736 / 46.761 (mm)	3.3465 / 3.3478 (in) 85.000 / 85.035 (mm)
BUS210	2.2080 / 2.2090 59.084 / 56.109	3.5433 / 3.5447 90.000 / 90.035
BUS211	2.2080 / 2.2090 56.084 / 56.109	3.9370 / 3.9384 100.000 / 100.035
BUS212	2.7561 / 2.7570 70.004 / 70.029	4.3307 / 4.3321 110.000 / 110.035
BUS213	2.7561 / 2.7570 70.004 / 70.029	4.7244 / 4.7258 120.000 / 120.035
BUS214	3.1233 / 3.1243 79.331 / 79.356	4.9213 / 4.9228 125.000 / 125.040

■ **Lubrication**

1. The BUS200 series Cam Clutch is pre-lubricated with grease. And change the grease and clean the inside of the Cam Clutch every six months. Recommended lubricants are the table below.
2. Do not use the grease or oil that contains EP additives.

Recommended Grease

Brand	BUS200, PBUS Series
Shell	Alvania Grease S1, Sunlight Grease 1, Aeroshell No.7, Aeroshell No.22
Fiske Bros.	Lubriplate Low-Temp, Aero Lubriplate
Kyodo Yushi	Multemp PS No.1
Petro-Canada	PRECISION Synthetic

Recommended Oil for Overrunning and Backstopping

Ambient temperature in Overrunning and ackstopping Application	
+14F to +86F (-10°C to +30°C)	+86F to +122F (+30°C to +50°C)
Any Automatic Transmission Fluid (ATF) Shell Turbo Oi T32, Turbo Oil 68, Rimulla D Oil 10W Exxon Mobil DTE Oil Light, Multipurpose ATF, Delvac Hydraulic 10W, ATF220 Teresso 32, Teresstic Oil 68, DTE Heavy Medium Texaco Regal Oil R&O 68, Chevron GST 68 BP Rnergol THB32, Guld Harmony 32I	Exxon Mobil Delvac 1330 Essolube XT1 10W-30 Shell Rimulla D Oil 20W/20, Rimulla D Oil 30 White Perrot Super S-3-20W-20, 30

Recommended Oil for Indexing

Ambient temperature in Indexing Application	
+20F to +86F (-7°C to +30°C)	-10F to +20F (-23°C to -7°C)
At 150 strokes per minutes or less	At 150 strokes per minutes or less
Any Automatic Transmission Fluid (ATF) Shell Turbo Oil 32 Exxon Mobil DTE Oil Light, Teresstic Oil 32 Texco Regal Oil R&O 32	Any Automatic Transmission Fluid (ATF) Shell Clavus Oil 15 Exxon Mobil Zerice 46

Note : Maximum ambient temperature +122F (+50°C) is depending on the operational condition.
 Contact TSUBAKI for operating temperatures outside of this range.

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