INSTALLATION AND MAINTENANCE

Installation of TMC Clutches

Installation Procedure

1. The complete unit consists of three major subassemblies: the field, the rotor, and the armature.

2. If a modified or special clutch was ordered, a flange or pulley may already be attached to the armature assembly, in which case skip to step 3. If not, the customer-supplied flange or pulley must be mounted onto the armature assembly with one or two bearings, depending on the type of hub connection, to support the assembly on the shaft. Bolt the assembly together through the 3 tapped holes in the hub using M3 or M4 bolts.

3. It is usually simpler to install the field and rotor first. This is normally installed on the input shaft to reduce the inertial load to be accelerated at engagement. Slide the field onto the shaft until the bearing inner race contacts a shaft step or set collar. Then slide the rotor onto the shaft until it contacts the inner race of the field bearing and install the key. Loosely restrain the torque tab to prevent the field from rotating due to field bearing drag. A minimum of 1/16" of axial and radial clearance should be allowed so that the field bearing is not pre-loaded.

4. Calculate the distance required between the hub bearing's inner race and the rotor face to set the proper gap. Use spacers and shims if necessary to set the gap as specified on the TMC data sheet. Then slide the armature/hub assembly onto the shaft. Verify that the gap is within proper range and attach a snap ring or set collar against the hub bearing's inner race to lock the assembly in place.

5. Connect the lead wires to the power source and energize the field. If the armature is not pulled in by the magnetic force of the field, verify and reset the gap.

6. When power is disconnected, the clutch should disengage freely and there should be no contact between the armature and the rotor. If any contact is noted, verify and reset the gap.

7. In the first few engagements, the unit may not produce rated torque but will do so after the clutch surfaces wear in. The unit may squeak during initial wear because there is only metal to metal contact. This will diminish as the unit wears itself in. If full torque is required immediately, contact Ogura or a sales representative for proper burnishing procedures.

Ogura Industrial Corp.
100 Randolph Road
Somerset, NJ 08873

www.ogura-clutch.com
info@ogura-clutch.com
(732) 271-7361

Maintenance

The gap between the armature and rotor will enlarge as the clutch wears. If the clutch fails to pull in, reset the gap and verify that it is within specified range. When adjustments are made as many times as specified in the following table, the unit is at the end of its life.

Table 1

Model	0.6	1.2	2.5	5	10	20
Air Gap Spec [inch]	0.008~ 0.012	0.008~ 0.012	0.008~ 0.012	0.008~ 0.012	0.012~ 0.016	0.012~ 0.020
Max Gap [inch]	0.020	0.024	0.028	0.031	0.047	0.059
Adjustments [times]	3~4	2~3	2~3	2~3	2~3	2~3

Loss of Torque

The most common service problem is loss of torque. The following quick checks can easily be made and will usually take care of the problem:

1. Check for wear: The unit may be worn out and need replacing.

2. Check the friction surfaces for contaminants: Remove if any are present (see Contamination).

3. Check for proper power input: Use a DC voltmeter across the field terminals and verify that normal voltage is being supplied. If the power control has a potentiometer, this should be turned to full power for this test. The voltage should also be read as the potentiometer is turned down and should be approximately proportional.

4. If the voltage is zero or low, the wiring should be checked for a grounded (shorted) or open coil.

   A. Grounded coil: With the power off and one lead disconnected, measure the resistance between one field terminal and the field shell. The ohmmeter should register no change (infinite resistance) with a good unit. Repeat with other terminal. If the ohmmeter shows a reading, this means there is some grounding to the shell, and the field should be replaced.

   B. Open coil: With the power off and both leads disconnected, measure the resistance between the two field terminals. The ohmmeter should give a reading very close to the following. An open coil would give no reading (infinite resistance) and must be replaced.

Table 2

Model	0.6	1.2	2.5	5	10	20
Coil Resistance [Ω] (DC 24V – 20°C)	48	37	26	18	15	11

Contamination

Care should be taken so that contaminants such as oil, grease, etc. do not come in contact with the working faces of the unit. In some cases it may be necessary to provide a cover or baffle to prevent this. Oil and grease on the friction surfaces should be removed by wiping with a small amount of environmentally friendly grease solvent. However, depending on the permeability of the grease or oil, it may be impossible to remove completely, so if the unit shows signs of slippage it needs to be replaced.

Heat

If the unit appears to be running hot, first check the temperature on the outside of the field. The field temperature can be around 150°F in an ambient temperature of 72°F due to the heat generated by the coil and operation of the unit. Excessive heat may be a source of failure and can be corrected by:

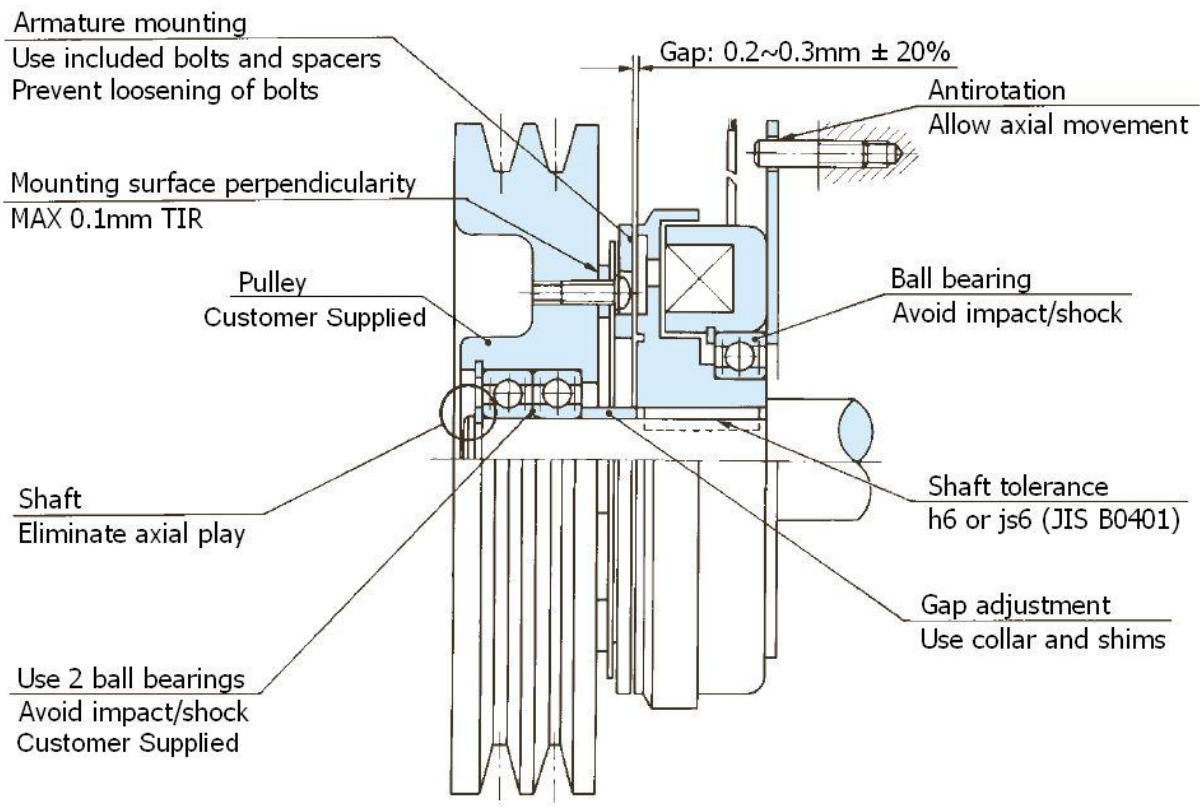
- Insuring that the input voltage is correct.
- Providing ventilation of the unit.
- Reducing system inertia and/or cycle rate.

Initial Torque

Out-of-box torque of these units is approximately 70% of the rated torque (requires burnishing for units to achieve rated torque).

Ogura Industrial Corp.
100 Randolph Road
Somerset, NJ 08873

www.ogura-clutch.com
info@ogura-clutch.com
(732) 271-7361



Ogura Industrial Corp.
100 Randolph Road
Somerset, NJ 08873

www.ogura-clutch.com
info@ogura-clutch.com
(732) 271-7361