# MechaLock

Overview

What is MechaLock?

The MechaLock is a fastening tool to tightly fasten a hub to a shaft by using friction. This can be completed easily just by tightening screws on the hub and shaft (including the pulley, sprocket and gear).

Mechanism of MechaLock

By converting the screw tightening power into pressure on the tapered inner diameter surface of the hub and the tapered O.D. of the shaft., fasten a hub to a shaft.

Hub
Outer Ring
Lock Screw
Inner Ring
Shaft
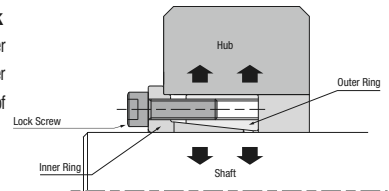
Features

1 Keyway does not need to be added

A round shaft and round bar can be used without having to add any keyway.

Tighten with key

Key
Shaft
Hub (Pulley)

Use MechaLock

MechaLock
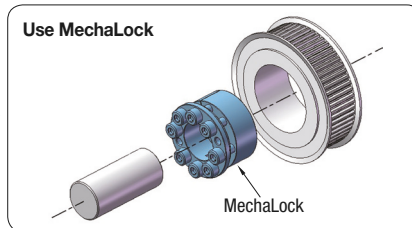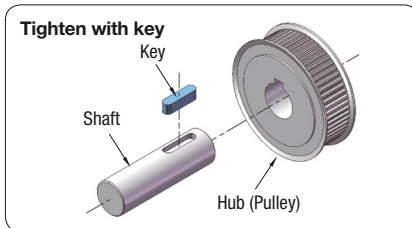
Allows the time of milling/ machining to be saved and thus, can help respond to sudden design change.
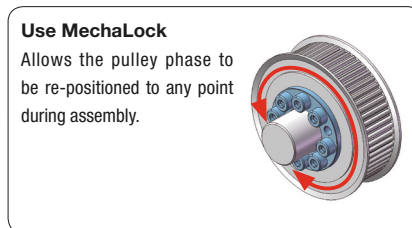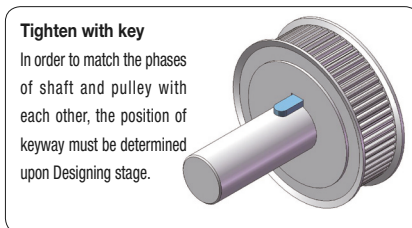
2 Easy installation / removal

Since the parts below are tightened only with screws, they can be installed and removed easily.

How to Remove Key

In order to remove the key, the special tool (puller) is required.

Puller

How to Remove MechaLock

MechaLock can be removed by using a standard wrench.

Wrench
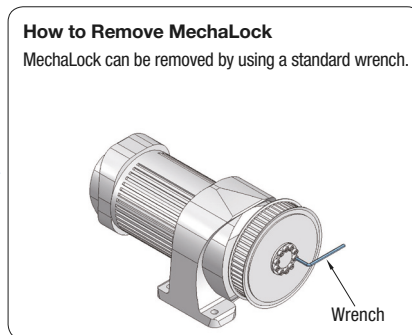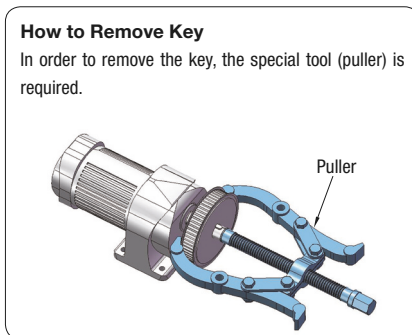
Does not require special tools and thus, facilitates facility maintenance.

3 Free phase adjustment

Allows the phase to be adjusted to any position during assembly.

Tighten with key

In order to match the phases of shaft and pulley with each other, the position of keyway must be determined upon Designing stage.
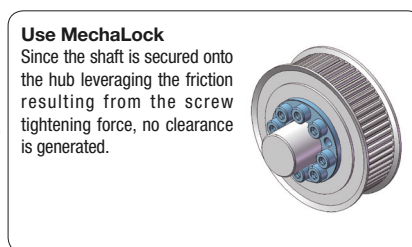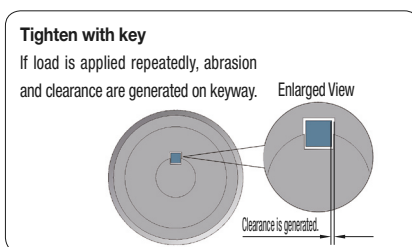
Use MechaLock

Allows the pulley phase to be re-positioned to any point during assembly.

Allows phase-adjustment to be performed during assembly and thus, can remove the time and trouble of aligning the positions of key and teeth from the designing stage.

4 No clearance

While use of key generates some clearance on a keyway, MechaLock does not allow any clearance and thus, is suitable for use on portions where forward / backward rotation is repeated.

Tighten with key

If load is applied repeatedly, abrasion and clearance are generated on keyway.

Enlarged View

Clearance is generated.

Use MechaLock

Since the shaft is secured onto the hub leveraging the friction resulting from the screw tightening force, no clearance is generated.
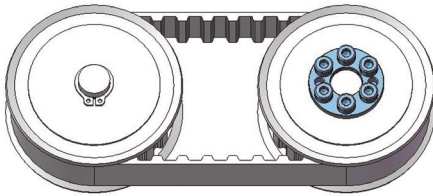
Allows a shaft and hub to be fastened onto each other with high coaxial accuracy in a long term. Is suitable for use in cases where a motor is toggled between forward mode and backward one repeatedly.
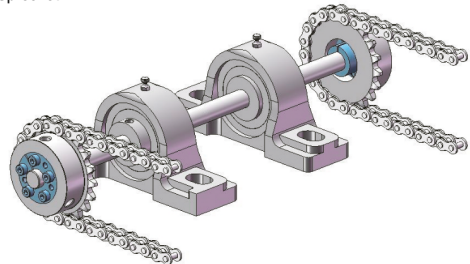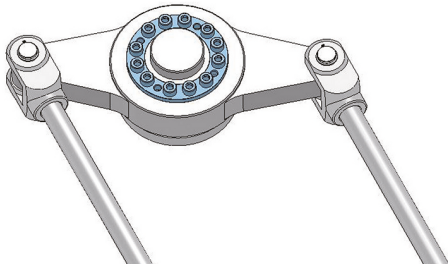
General Installation

· Pulley

· Sprocket

The above examples indicate general applications of MechaLock. MechaLock is easy to install and remove and thus, can improve efficiency of facility maintenance.
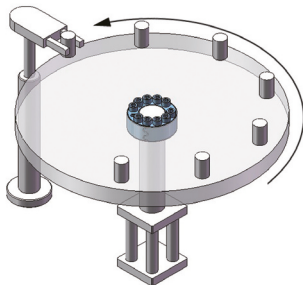
Phase Adjustment

· Crank

· Cam Mechanism

Allows phase-adjustment to be performed during assembly and thus, can contribute to reduction of designing labor.
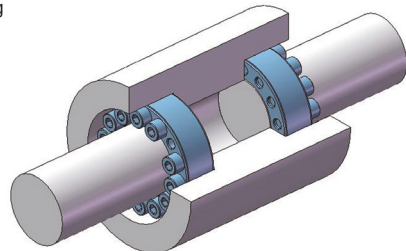
Load Capacity

· Index Table

Can withstand axial load and thus, is suitable for use on load-intensive portions.

Others

· Coupling

Since MechaLock does not allow any clearance and excels in coaxial accuracy, it can also serve as the coupling.

How to Mount

① **Coat with Lubricant** Wipe off the shaft surface and apply oil or grease. * Do not use any oil or grease containing molybdenum type antifriction agent.
② **Positioning** After temporarily assembling the MechaLock and hub, position them while inserting into the shaft.
③ **Screw Tightening** By using a torque wrench, tighten locking screws in the diagonal line order.
Tighten a screw lightly at first (at approx. 1/2 of the predetermined tightening torque) and then, fully at the predetermined torque.
④ **Finally Tighten** Finally tighten the locking screws at the pre-determined torque in circumferential order.

How to Remove

① **Remove Screws** Loosen the lock screws in circumferential order.
② **Remove MechaLock** Insert a screw in a hole for removal and tighten evenly.