

A mechanical lock is a friction fastener that fastens a shaft and hub without the use of a key. The tolerances and surface roughness of the shaft and hub installation surfaces, and correct tightening of the lock bolts, are very important factors in order to obtain the designated performance.

If you have any questions, please contact a dealer or our company.

### For safe use of the product

Thank you for your purchase of an ISEL product. In order to use the product safely and obtain the designated full performance, please be sure to read the following items.

- ◎Read this instruction manual carefully and understand the contents before using the product, and be sure to observe all instructions in the manual and use the product correctly.
- ◎Be sure that you fully understand the information related to the device and safety before using the product.
- ◎After reading, be sure to store this manual carefully so that it can be referred to at any time when needed during use.

This manual classifies important precautions into two categories: DANGER and WARNING.

⚠ DANGER	⚠ WARNING
<p>Incorrect use or handling will produce dangerous conditions that may result in death or serious injury.</p>	<p>Incorrect use or handling will produce dangerous conditions that may result in injury. There is also the risk of property damage.</p>

### ⚠ DANGER

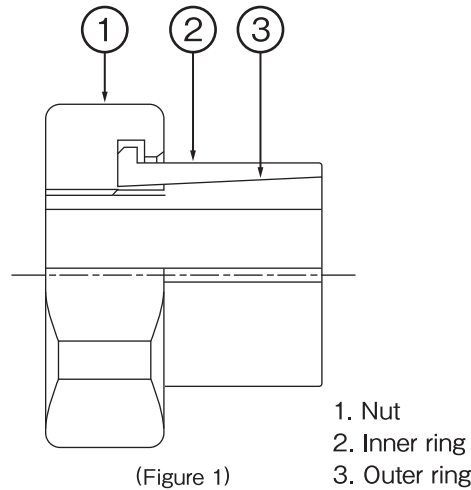
- ◆When using this product, be sure that the necessary mechanisms (covers, enclosures, etc.) for ensuring the safety of life and health are installed on the equipment.
- ◆Wear clothing and protective gear that is suitable for the work.
- ◆Keep the work area clean and orderly, and work safely in order to prevent secondary accidents.
- ◆In the environment where the product operates, install safety mechanisms onto all parts which may be a danger to the operator.
- ◆When performing maintenance or inspections, turn OFF the motor power (power supply) and check that the machine has fully stopped before beginning work.
- ◆Before using lift equipment, install safety measures on the equipment to prevent falling. There is the risk of death or injury, as well as damage to the equipment, if the lift part falls.
- ◆If the product is used for transporting persons, install the necessary equipment for safety.
- ◆Do not touch the product while it is operating. Doing so may result in injury, damage to the product, or other damage.
- ◆Do not use the product for any purpose other than the designated purpose, and do not modify the product. There is the risk that the designated accuracy and performance will not be possible.
- ◆If abnormal noise or vibration occurs during work, immediately discontinue operation and inspect the equipment and this product. If use is continued without inspecting, there is the risk of injury to operators, damage to equipment, and other damage.

### ⚠ WARNING

- ◇Check that the product is the one you ordered and that there is no damage to it. If the product is not the one you ordered or is damaged, there is the risk of injury to operators, damage to equipment, and other damage.
- ◇Never use molybdenum oil or oil which contains an extreme-pressure additive. Doing so may cause a large decrease in allowable torque, resulting in slipping.
- ◇If the shaft includes a key groove, it can be used as long as the groove width is as prescribed in the JIS standard. However the maximum allowable torque is reduced by 15% - 20%. Remove any burrs on the key groove before using.

- ◇If the product is reused, check that there is no deformation, damage, or other problem with the product or any of its components before use. If there is damage, deformation, or other problem, replace with a new product.
- ◇When tightening the nuts, be sure to use a torque wrench that includes a torque adjustment scale, and tighten at the designated tightening torque. Use of a plate-type torque wrench may cause slipping, deformation, and other trouble because it is difficult to check the designated torque.
- ◇Do not tighten at torque higher than the designated tightening torque. There is the risk of deformation and of difficulty in disassembling.
- ◇In order to ensure the designated performance, an opposite shaft with tolerance grade h7, hub tolerance grade H7, and surface roughness of Ra1.6 or less is recommended.
- ◇If the product has special specifications, it may differ in parts from the contents of this instruction manual. Please contact a dealer or our company.
- ◇Oil cannot be used with the MKN (plated type) Series. Be sure to use it under degreased conditions. Do not allow paint thinner or other organic solvent to contact the nuts. It will dissolve the friction stabilizer on the surface of the nut, and may make it impossible to deliver the designated performance.
- ◇The MKN (plated type) Series can be used without applying oil to it.

### ● Structural drawings



(Figure 1)

### ● Installation

- (1) Use paint thinner or other means to wipe off any corrosion, dirt, or other substance from the surface of the shaft surface and inner diameter of the hub, then apply a light coat of oil.
- (2) Refer to Table 1 and apply a light coat of oil to the mechanical lock inner diameter parts, outer diameter parts, contact parts of each taper, and thread parts.

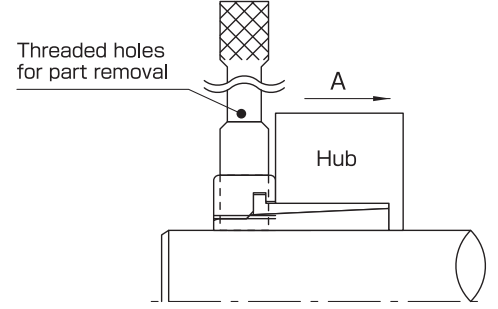
	MN	MKN
Oil application	○	—

\*For details, refer to the selection design guide in the mechanical lock and coupling general catalog.

(Table 1)

### ⚠ WARNING

- ◇Using the product after unpackaging without applying oil to it may cause a decrease in allowable torque.
- (3) Insert the mechanical lock into the hub that was machined to the instructed dimensions. After installing onto the shaft, lightly tighten the nut by hand and complete positioning.
- (4) After positioning, lightly screw in the nut. Once rotation of both parts will not occur, tighten gradually using a torque wrench until the designated tightening torque is reached. (Perform retightening to check that the nut has been tightened at the designated tightening torque.) (Figure 2) (Table 2)



(Figure 2)

Model	Tightening torque N · m	Model	Tightening torque N · m
M(K)N-8	24.5	M(K)N-20	137.0
M(K)N-10	29.4	M(K)N-22	147.0
M(K)N-11	34.3	M(K)N-24	167.0
M(K)N-12	44.1	M(K)N-25	186.0
M(K)N-14	58.8	M(K)N-28	226.0
M(K)N-15	68.6	M(K)N-30	255.0
M(K)N-17	98.1	M(K)N-35	294.0

(Table 2\*)

\*Same for MN and MKN specifications

### ⚠ WARNING

- ◇Tightening the nut causes the hub to move in the direction of arrow A. (Figure 2) Refer to Table 3 below and perform positioning.

Model	Amount of hub movement mm	Model	Amount of hub movement mm
M(K)N-8	0.33	M(K)N-20	0.42
M(K)N-10		M(K)N-22	0.46
M(K)N-11	0.36	M(K)N-24	
M(K)N-12	0.39	M(K)N-25	
M(K)N-14		M(K)N-28	
M(K)N-15		M(K)N-30	
M(K)N-17		M(K)N-35	0.50

(Table 3)

- ◇If the mechanical lock MN is difficult to insert into the hub, loosen the nut slightly.

### ● Removal

- Check for safety before beginning removal work.
- (1) Turn OFF the motor power (power supply) and check that there is no torque or thrust force applied to the mechanical lock, and that there is no risk of falling or other accident.
- (2) After loosening the nut gradually, the shaft and hub will be unfastened.

\*Specifications may be changed without notice.

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