

The AS and AT Series are flexible-type couplings that permit a deflection angle between the 2 shafts, while the AD and AL Series are flexible-type couplings that permit both center deviation and a deflection angle between the 2 shafts. The shaft tolerances, surface roughness, centering accuracy, and correct tightening of the lock bolts are very important factors in order to obtain full performance from each series. 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
Incorrect use or handling will produce dangerous conditions that may result in death or serious injury.	Incorrect use or handling will produce dangerous conditions that may result in injury. There is also the risk of property damage.

⚠ 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.

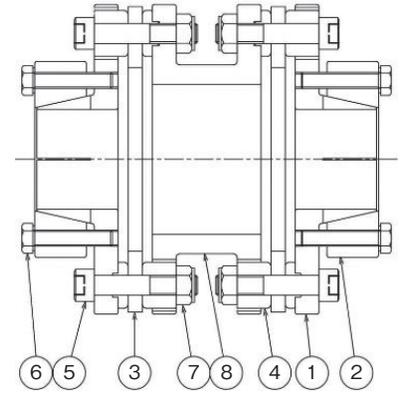
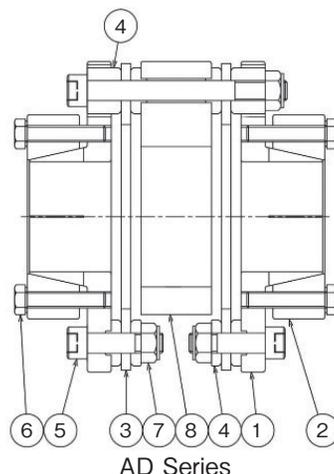
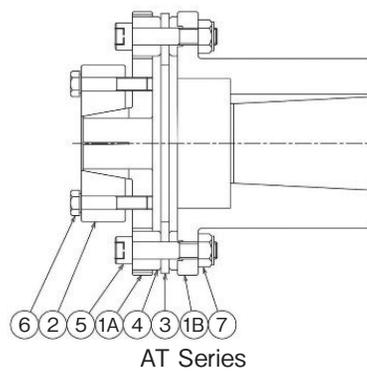
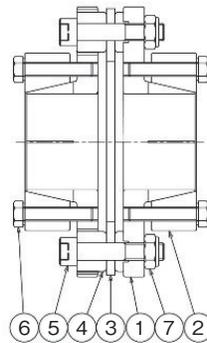
⚠ WARNING

- ◇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 lock bolts, 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.
- ◇Never use any bolt other than the designated bolt. There is the risk of damage to the bolt, resulting in an accident.
- ◇In order to ensure the designated performance, an opposite shaft with tolerance grade h7 and surface roughness of Ra1.6 or less is recommended.
- ◇In the case of a hollow shaft (pipe), depending on the thickness it may not be possible to obtain sufficient surface pressure. Please contact our company.
- ◇Install within the tolerance values for center deviation, deflection angle, and end play. There is the risk of damage to the product. In particular, centering accuracy has an effect on vibration and the lifetime of the coupling.
- ◇It is recommended that the product be used within 1/2 or less of the displacement tolerance values.
- ◇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.
- ◇If the bolts are tightened when the coupling is not connected to anything, the coupling may become deformed and be rendered unusable. Therefore check that the shaft is fully inserted into the coupling when tightening the bolts.
- ◇Due to the coupling structure, there is the risk of injury if the user grasps the corners or disc part. Therefore exercise sufficient caution when handling.

● Structural drawings



- | | |
|--------------|-------------------|
| 1. Body | 4. Washer |
| 1A. BodyA | 5. Clamping screw |
| 1B. BodyB | 6. Locking screw |
| 2. Side ring | 7. U nut |
| 3. Disk | 8. Spacer |

● Installation

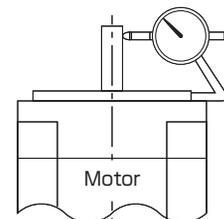
- (1) Use paint thinner or other means to wipe off any corrosion, dirt, or other substance from the surface of the shaft, then apply a light coat of oil.
- (2) Apply a light coat of oil to the coupling inner diameter parts, tapered parts, and the threads and head seats of the lock bolts.

⚠ WARNING

- ◇Using the product after unpackaging without applying oil to it may cause a decrease in allowable torque.
- (3) Machine the motor mount part accurately so that the misalignment between the 2 shafts is at or below the tolerance value.

● Installation procedure

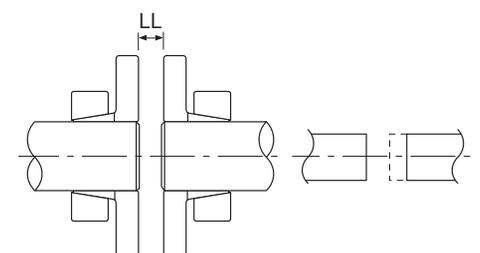
- (1) Check output motor shaft centering accuracy. Confirm centering accuracy by measuring the output motor shaft before installing the coupling. Set the gauge as shown in order to measure motor shaft off-centering (Figure.1).



(Figure 1)

Precautions: The motor shaft off-centering amount is established by each manufacturer but may already have occurred at this stage.

- (2) Remove the clamp bolts from the disc part of the provisionally installed coupling, and separate the body and disc. Only the necessary numbers of washers, bolts, and other parts are provided. Be careful not to lose any of them.
- (3) Set the distance between flange surfaces (Table 1) according to the model. (Figure 2)



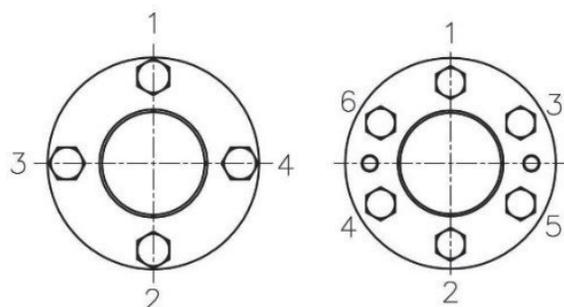
(Figure 2)

	AS/AT models		AD models		AL models	
	Dimension LL (m.m)	Maximum allowable end play (m.m)	Dimension LL (m.m)	Maximum allowable end play (m.m)	Dimension LL (m.m)	Maximum allowable end play (m.m)
A-65	7.5	±0.4	29.0	±0.8	*	±0.8
A-80	10.0	±0.5	37.0	±1.0		±1.0
A-100	10.4	±0.5	40.8	±1.0		±1.0
A-125	11.6	±0.5	43.2	±1.0		±1.0
A-155	14.8	±0.5	56.6	±1.0		±1.0
A-185	16.0	±0.3	67	±0.6		±0.6
A-220	16.0	±0.2	-	-		±0.4

(Table 1)

* = LL (AS model) × 2 + LC (Max. 800 mm)

(4) Use a torque wrench and tighten the lock bolts at diagonally opposite positions in sequence. Tighten gently at first (approximately 1/4 of the designated torque) then gradually increase the tightening force (approximately 1/2 of the designated torque), and then fully tighten the bolts at the designated torque. Finally repeat tightening of each bolt several times, working in the peripheral direction and check that all lock bolts have been tightened at the designated torque and none were skipped. (Table 2, Table 3, Figure 3)
When tightening, never tighten all the bolts on one side first.
Doing so will cause centering deviation.



(Figure 3)

Lock bolt tightening torque (side ring specifications)

Model	Bolt	Tightening torque N · m
A-65	M5	7.8
A-80	M6	15.7
A-100	M6	15.7
A-125	M6	15.7
A-155	M8	37.3
A-185	M8	37.3
A-220	No side ring specifications	

(Table 2)

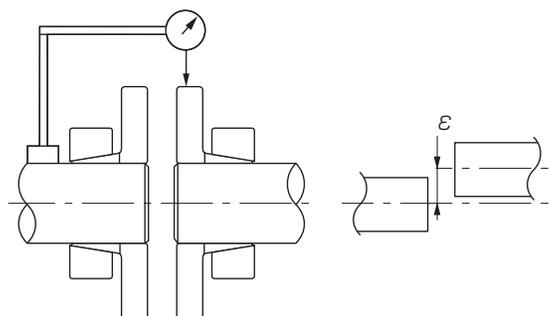
Lock bolt tightening torque (mechanical lock specifications)

Bolt	Tightening torque N · m
M6	15.7
M8	37.3

(Table 3)

The AT Series is specifically for tapered shafts (ø11, ø16). Use the nut provided with the motor when installing.

(5) Position a dial gauge as shown in the figure below, then rotate the part and read the runout on the dial gauge.
The AS and AT Series do not permit center deviation. Adjust so that it is close to zero. (Figure 4, Table 4)



(Figure 4)

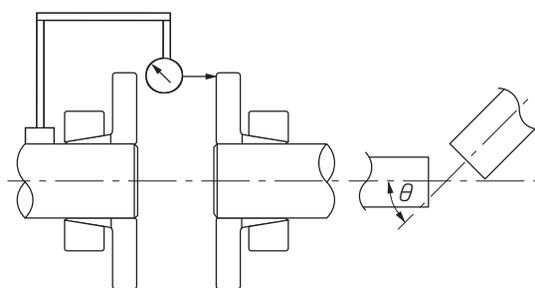
	AS/AT models	AD models	AL models
A-65	Adjust to close to zero.	0.20	*1
A-80			*2
A-100		0.24	*3
A-125			
A-155		0.30	*4
A-185			
A-220		-	

(Table 4)

*1 Tolerance center deviation = $\tan 0.8 \times \text{LC dimension}$
*2 Tolerance center deviation = $\tan 0.6 \times \text{LC dimension}$
*3 Tolerance center deviation = $\tan 0.5 \times \text{LC dimension}$
*4 Tolerance center deviation = $\tan 0.4 \times \text{LC dimension}$

◇ Avoid reading at the locations of the drilled holes in the flange and washers, as the values are higher at these locations.

(6) Position a dial gauge on the periphery as shown in the figure below, then rotate the part and read the runout on the dial gauge. (Figure 5, Table 5)



(Figure 5)

	AS/AT models		AD/AL models	
	Angle (°)	End runout (m.m)	Angle (°)	End runout (m.m)
A-65	0.8	0.9	0.8	1.8
A-80	0.6	0.8	0.6	1.6
A-100		1.0		2.0
A-125	0.5	1.3	0.5	2.6
A-155		1.2		2.4
A-185	0.4	1.5	0.4	3.0
A-220		1.5		3.0

(Table 5)

◇ Maximum runout value on end periphery. Adjust to reduce the runout to as little as possible.

(7) Pass the clamp bolts through the washers, disc, and body (flange), then fasten provisionally in place with U-nuts. When tightening, turn the U-nut side. Use a torque wrench and tighten at diagonally opposite positions in sequence. Tighten gently at first (approximately 1/4 of the designated torque) then gradually increase the tightening force (approximately 1/2 of the designated torque), and then fully tighten at the designated torque.
Finally repeat tightening of each U-nut several times, working in the peripheral direction and check that all U-nuts have been tightened at the designated torque and none were skipped. (Table 6)

U-nut tightening torque

Model	Bolt/U-nut size	Tightening torque N · m
A-65	M5	7.8
A-80	M6	13.7
A-100	M8	30.4
A-125	M8	30.4
A-155	M10	61.8
A-185	M12	103.0
A-220	M14	162.0

(Table 6)

◇ When tightening, never tighten all the bolts on one side first. Doing so will cause centering deviation.
◇ There is a type where the clamp bolts cannot be inserted because they interfere with the side ring. In this case, temporarily remove the side ring before inserting the bolts.



◇ These are metal U-nuts. Replace them with new U-nuts after they have been removed and reinstalled approximately 10 times. Otherwise, there is the risk of them loosening.

● Countermeasure to initial bolt loosening

As a countermeasure to initial loosening of the lock bolts after they are tightened, operate for approximately 30 minutes then again check the tightening torque.

● Removal

Check for safety before beginning removal work.

- Turn OFF the motor power (power supply) and check that there is no torque or thrust force applied to the coupling, and that there is no risk of falling or other accident.
- Gradually loosen each of the lock bolts in sequence. Place the loosened lock bolts into all of the threaded holes for part removal, then gradually screw in the bolts working on opposite diagonals in sequence with even force in order to disassemble.

*Specifications may be changed without notice.

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