



To Use This Product Safely

Be sure to read this before use. For general cylinders, See Intro 41, and Ending 1512 for cylinder switches

Individual Precautions: Shock absorber SKL, NCK, SCK, FCK Series

Design / Selection

1. Common

Warning

- Use the product in the range of conditions specified for the product.

If Max energy absorption in specifications is exceeded, damage or operation faults may occur. Note that the performance listed in the specifications cannot be exhibited if the products are not used with their full stroke.

CAUTION

- Confirm before use that the product will withstand the working environment.

- Use in conditions exceeding the Ambient Temperature range will negatively affect durability.
- Do not use in an environment (vacuum, high pressure) other than atmospheric pressure.

- Be careful of splattering due to damage of the cap.

- If used outside the specifications, the cap may be damaged and cause injuries due to the device flying apart.
- Either install a cover to prevent splatter or stand away in a position where safety can be ensured while the master unit is in operation.
- Do not use this product in clean rooms. May cause contamination of the clean room.

- Confirm the colliding conditions.

- Before use, obtain the colliding speed, colliding object weight, thrust applied to the shock absorber and the number of collisions per minute.
- Also necessary for selection calculation. If the impact speed is below the specification range, resistance force is less likely to be generated and energy absorption is small, so the effect of using a shock absorber cannot be expected much.
- This product cannot be used in cases where the number of collisions per minute will exceed the Max frequency.

- Check that the surface of the colliding object contacted by the Piston Rod is hard enough.

- For types without cap, a high surface compression load will be applied to the contact surface of the Piston Rod of the colliding object. The contact surface should have high hardness (Hardness HRC35 or more).

- Pay attention to the colliding object's return force.

- When using this product for conveyor drives, etc., it may be pressed back by internal spring force after energy is absorbed. Refer to the return spring force section of the specifications for return force.

- Do not use 2 or more Shock Absorbers in a parallel arrangement as it will be difficult to synchronize the motion thereof. Use one shock absorber with large absorption energy.

- Use an external stopper or the optional stopper nut at the final stop position of the colliding object so impact is not applied to the body. If impact force is applied to the main body, it will cause a decrease in durability and return failure. Confirm before use that the product will withstand the working environment.

- The Max repetition frequency will differ depending on the Ambient Temperature.

- Values given in specification items are for room temperature (20°C). Please note that specification values change with Ambient Temperature.

1. Common

Danger

- Do not use this product near fire or in devices or machines having an Ambient Temperature exceeding specifications. Flammable oil is used, so there is a risk of fire.

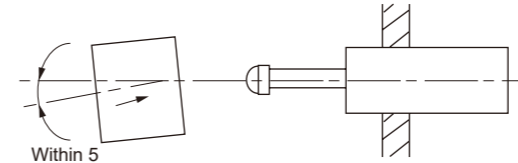
- Do not place in fire.

If thrown into fire, oil is sealed inside, so there is a risk of explosion or ignition.

Warning

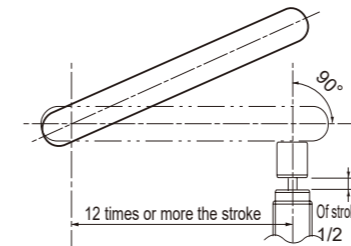
- Do not apply an eccentric load at a deflection angle of $\pm A^\circ$ or more from the center line of the Piston Rod.

- Collision of a load at a deflection angle of $\pm A^\circ$ or more may cause defective return due to the Piston Rod becoming bent or deterioration of performance due to eccentric wear of the sliding portions. When using at a deflection angle exceeding $\pm A^\circ$, use the optional deflection angle adaptor. Becomes usable up to $\pm 10^\circ$. (FCK Series)



	SKL/FCK	NCK/SCK
A	2.5°	5°

- When using rotary motion collision, set the distance from the center of the colliding object's rotation to the shock absorber installation position at 12-fold or more of the shock absorber stroke (3-fold or more when using a deflection angle adaptor). Install so contact is at a right angle at a position half of the stroke.

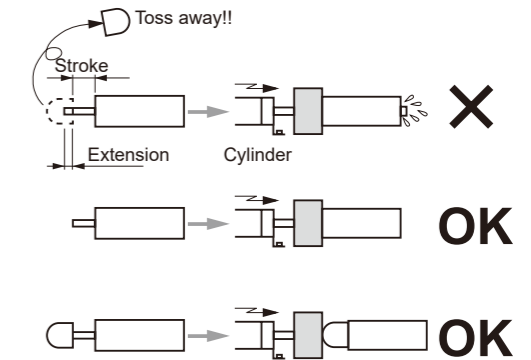


- Use with mounting parts of insufficient strength is prohibited.

- Operating the unit with mounting parts of insufficient strength may cause damage to the master unit or lead to injuries.
- As for mounting part strength, be sure to maintain the Max load \times safety factor. (Refer to the Max load. Or, contact CKD.)

During Use

- Do not remove the cap of capped Shock Absorbers.
 - As the Piston Rod has been extended in order to mount the cap, use with the cap removed will cause damage to the bottom portion.



- A guide is required if the colliding object vibrates. If the impacting object has vibration, etc., and a force perpendicular to the axis acts on the Piston Rod, provide a solid guide for the impacting object.

- When there is the risk of static electricity building up in an explosive environment Perform grounding for discharge, and never use shock absorbing surface materials that produce sparks.

- Dumping into fire is prohibited.

- Since the oil is sealed, this product has a risk of injury as it may explode or ignite if placed in fire.
- Dispose of the oil according to prescribed methods for processing waste oil.

- Do not apply a separate external load with a colliding object which has been stopped at the end of its stroke. The impact of an external load may be applied, causing damage.

- Turn device power OFF and confirm the machine is stopped before installing, removing, or adjusting the stroke.

- Disassembly is prohibited.

- Do not disassemble the unit, as doing so may be dangerous.

CAUTION

■ Make sure the tightening torque of the installation nut is in accordance with the following table.

- The shock absorber may be damaged if nut tightening torque exceeds the upper limit below. If you want to securely fix the nut, implement loosening prevention measures such as adhesive separately.

(SKL Series)

Thread Diameter (mm)	M8×0.75	M10×1	M12×1
Nut Tightening Torque (N·m)	1.2 to 2.0	3 to 4	5 to 6

(NCK Series)

Thread Diameter (mm)	M8×0.75	M10×1	M12×1	M14×1.5	M20×1.5
Nut Tightening Torque (N·m)	1.2 to 2.0	3 to 4	5 to 6	7.5 to 10	22 to 30

Thread Diameter (mm)	M25×1.5	M27×1.5
Nut Tightening Torque (N·m)	55 to 70	100 to 130

(SCK Series)

Thread Diameter (mm)	M10×1	M12×1	M16×1	M20×1	M25×1.5
Nut Tightening Torque (N·m)	3.4	5.4	14.2	70.8	421.7 to 588.4

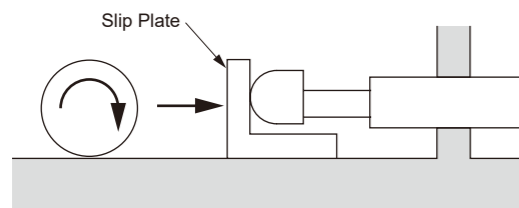
Thread Diameter (mm)	M30×1.5	M40×1.5	M45×1.5
Nut Tightening Torque (N·m)	149.1 to 196.1	274.6 to 353.0	421.7 to 588.4

(FCK Series)

Thread Diameter (mm)	M10×1	M12×1	M14×1.5	M16×1.5	M20×1.5
Nut Tightening Torque (N·m)	5.9 to 7.8	5.9 to 7.8	8.3 to 9.8	11.8 to 14.7	29.4 to 35.3

Thread Diameter (mm)	M25×1.5	M27×1.5	M30×1.5	M36×1.5	M42×1.5
Nut Tightening Torque (N·m)	49.0 to 61.0	58.9 to 73.5	78.4 to 98.0	98.0 to 122.5	392.0 to 490.0

■ If the rotating objects or if deformation or wear is generated between the shock absorber and the colliding object, place protective material before the collision surface to prevent deformation and wear.



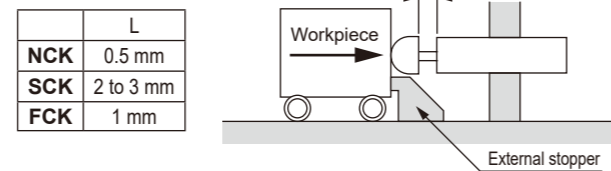
■ Do not damage the Piston Rod sliding section or the damper case thread O.D. section.

Do not hit, grip, or strongly bite Set Screws, etc., into the Piston Rod sliding part and outer tube outer diameter threaded part, causing scratches or dents. Scratches or dents on the Piston Rod sliding part will lead to damage to packings, causing oil leakage and malfunction. Also, scratches or dents on the outer tube outer diameter threaded part may prevent mounting on a frame, or cause a malfunction due to deformation of internal components.

■ Do not use in conditions where oil mist or water drops may contact the rod surface, or in areas with high levels of wear powder. Normal energy absorption may not occur, leading to defects.

■ Use without an external stopper is prohibited.

- Operation without an external stopper may damage the main body due to bottoming.
- Operate the unit upon installing an external stopper at the position decided for each model.



■ Installation with other than the tightening torque value is prohibited.

- Installation with other than the tightening torque value may lead to damage of the master unit.
- Do not fix with screws that do not match the mounting holes. There is a risk of product detachment or damage.

■ Be careful of detachment of the snap ring.

- If used outside the specifications, the internal pressure of the inner tube in the shock absorber may rise abnormally, causing the snap ring to come off. This may cause inner parts to pop out and cause injury.
- Do not go near the Shock Absorbers during operation.

■ If the device is stored with the rod pushed in, the performance of the air chamber may drop. Do not store with the rod pushed in.

■ Adjust the adjustable, and use at the optimum position.

■ Make sure that the Piston Rod and the tube outer diameter threading are not scratched.

- The sealant will become scratched, which may lead to decreased durability or defective return.

■ Careless oil dumping is prohibited.

- Careless disposal of the oil in the Shock Absorbers will pollute the environment.
- Dispose of the oil according to prescribed methods for processing waste oil.

■ Be careful of irregular vibrations as well as noises due to vibrations.

- If collision or vibration increases abnormally, product life may be expired. Continuing to use it as is will cause damage to the installed equipment.

2. FCK Series Adjustment Method

CAUTION

■ To adjust the shock absorber, first set the adjusting knob to "2", and allow it to collide while observing the conditions. Then rotate in the direction of "1" or "3" to optimize.

- After setting the scale to the optimum position, tighten the lock screw before starting use. If used without tightening the lock screw, the adjustment position will shift, making optimal absorption impossible. (However, FCK-L-0.15, FCK-M-0.18, FCK-L-0.3, FCK-M-0.5 has no lock screw mechanism.)

- Protect the Shock Absorbers with an external stopper or a stopper nut while making adjustments.

*Adjusting knob 1 → 2 → 3 means absorption energy Low → Medium → High.

- As there are slight variances between individual products, adjust each product to determine the most appropriate adjustment positions.

- The recommended tightening torque for the lock screw is as follows.

FCK-□-0.4, 0.6	0.09±0.01 N·m
FCK-□-1	0.3±0.02 N·m
FCK-□-3 and absorber outer diameter thread size M20 and higher models	0.7±0.03 N·m

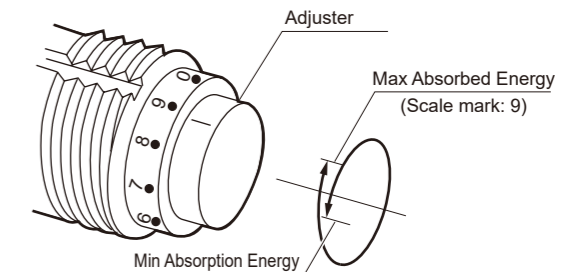
3. SCK Series Adjustment Method

CAUTION

Products SCK-□□-0.3 or more have an adjuster, so adjust according to the following procedure. The adjuster rotates more than one full turn, so when adjusting the adjuster, be sure to first turn it clockwise to the stop end (Max absorption energy on the scale), and then adjust by turning it counterclockwise. The adjuster is designed to lock its position with a detent as an anti-rotation mechanism, so be sure to apply impact force at a position where the detent is engaged.

*1. The Max energy absorption is attained when the adjuster is turned clockwise to 9, while the Min energy absorption is attained when the adjuster is turned counterclockwise by slightly more than one rotation. Min energy may vary per product. Forcibly turning the adjuster may cause it to lock or break, so please be careful.

*2. If the adjuster is not set to the appropriate scale, operation time may be long, or it may stop midway.



For precautions during mounting, installation, adjustment, use, and maintenance, refer to "During Use" in this catalog and the CKD Components Product website (<https://www.ckd.co.jp/kiki/en/>) -> "Model No." -> [Instruction Manual](#).