# To Use This Product Safely

Be sure to read this before use.
For general cylinder information, see Intro 41, and for cylinder switches, see P. 808.

Individual Precautions : Linear Slide Cylinder LCW Series

## During Design / Selection

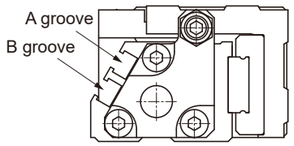
### 1. Common

**Caution**

■ For cylinder selection, follow the "LCW Selection Guide" on P. 246 to 248.

■ If the cylinder is used in a place exposed to water droplets or oil droplets, a place where there is a risk of corrosion, or a place with a lot of dust, it may cause damage or malfunction, so protect the product with a cover, etc.

■ Precautions for products with switches
- For switches with a stroke of 30, install one switch per groove on the main body.
- When using L-shaped lead wires (T□V, F□V), install the rod-side switch in groove B as shown in the diagram below.

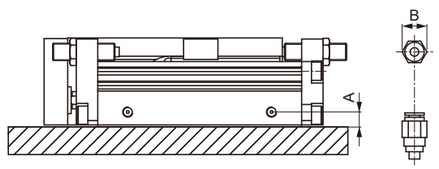



■ Avoid use in places with vibration.
Operation becomes unstable due to the influence of vibration.

### 2. Common : During piping

**Caution**

■ Precautions for piping fittings
Be sure to use a speed controller when piping. Also, the usable fittings are as follows.



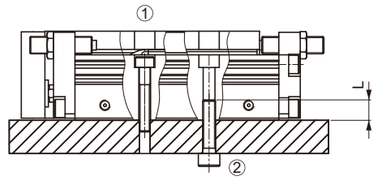

| Item: Bore Size (mm) | Port Size | Port position dimension A | Usable fittings | Fitting outer diameter B |
|---|---|---|---|---|
| ø12 | M5 | 5.5 | SC3W-M5-4<br>SC3W-M5-6 | ø11 or less |
| ø16 | | 5.5 | GWS4-M5-S<br>GWS4-M5 | ø11 or less |
| ø20 | | 7 | SC3W-M5-4<br>SC3W-M5-6<br>GWS4-M5-S<br>GWS4-M5<br>GWL6-M5<br>GWS6-M5 | ø13 or less |

### 3. Common : During installation

**Caution**

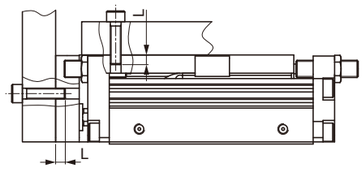
■ Please do not make dents or scratches on the mounting surface of the main body (tube) and the table surface that may impair flatness. Also, the flatness of the mating side to be included to the main body and table should be 0.02 mm or less.

■ Observe the following values for the bolt screw-in length and tightening torque when mounting the main body.




| Item | 1 | | 2 | | |
|---|---|---|---|---|---|
| | Bolt used | Tightening torque (N·m) | Bolt used | Tightening torque (N·m) | Maximum screw-in depth L (mm) |
| LCW-12 | M3x0.5 | 0.6 to 1.1 | M4x0.7 | 1.4 to 2.4 | 6 |
| LCW-16 | M4x0.7 | 1.4 to 2.4 | M5x0.8 | 2.9 to 5.1 | 8 |
| LCW-20 | M5x0.8 | 2.9 to 5.1 | M6x1.0 | 4.8 to 8.6 | 10 |

■ Observe the following values for the bolt screw-in length and tightening torque when mounting a jig to the slide table and end plate.

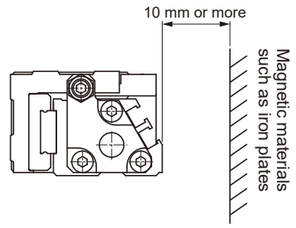



| Item | Table | | | End plate | | |
|---|---|---|---|---|---|---|
| | Bolt used | Tightening torque (N·m) | Screw-in length L (mm) | Bolt used | Tightening torque (N·m) | Screw-in depth L (mm) |
| LCW-12 | M3x0.5 | 0.6 | 3 to 4 | M3x0.5 | 0.6 | 4.5 to 6 |
| LCW-16 | M4x0.7 | 1.4 | 4 to 5.5 | M4x0.7 | 1.4 | 6 to 9 |
| LCW-20 | M5x0.8 | 2.9 | 5 to 6 | M5x0.8 | 2.9 | 7.5 to 9 |

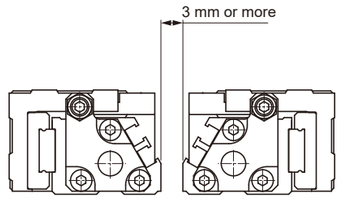
■ While the main body is operating, there is a risk of being caught by the stopper bolt, so keep hands, etc. away.

■ Treat our Shock absorbers as consumable parts. Replace when a decrease in energy absorption capacity is observed or when operation is no longer smooth.

■ If there is a magnetic material such as an iron plate near the cylinder switch, it may malfunction. You can use it safely by keeping it 10 mm or more away from the cylinder surface or by changing the mounting surface of the cylinder switch. (Common to all bore sizes)




■ If cylinders are adjacent as shown in the diagram below, the cylinder switch may malfunction. Maintain the following distance from the cylinder surface. (Common to all bore sizes)




■ When using locating holes, use pins with dimensions that do not result in a press fit. Using press-fit dimension pins may cause damage to the linear guide part due to press-fitting load or accuracy deterioration due to distortion. The recommended tolerance for the pin is JIS tolerance m6 or less.

### 4. Drop prevention type LCW-Q

**Caution**

■ Do not use 3-position valves.
Avoid using in combination with 3-position valves (especially closed center metal seal type). If pressure is trapped in the port on the side with the lock mechanism, the lock will not engage. Also, even if locked once, air leaking from the valve may enter the cylinder, and the lock may be released over time.

■ Release the lock when installing or adjusting the cylinder. If installation work, etc. is performed while the lock is engaged, the lock part may be damaged.

■ Do not use multiple cylinders synchronized.
Do not use a method where two or more fall prevention type cylinders are synchronized to move one workpiece. The lock of one of the cylinders may become unremovable.

■ Use the speed controller with meter-out control.
Lock may not be released with meter-in control.

■ On the side with the lock, be sure to use the cylinder to the stroke end.
If the cylinder piston has not reached the stroke end, the lock may not engage, or it may not be possible to release the lock.

■ Release method
Screw a hexagon socket head cap screw (M3x20) into the stopper piston and pull the bolt with a force of 20 N or more for 3 mm, the stopper piston will move and the lock will be released. (No-load horizontal mounting, rod port pressurization) Also, when you release your hand, the built-in spring returns the stopper piston, and if it enters the piston rod groove, the cylinder will be locked.

## During Use

### 1. Common

#### Caution

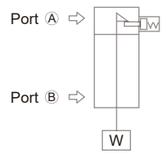
■ For the guide part, apply grease to the guide rail raceway surface every 6 months or 1 million operations, whichever comes first.
(For recommended grease, please inquire separately.)

■ When disassembling the end plate during packing replacement, be sure to hold the slide table itself while working.

### 2. Drop prevention type LCW-Q

#### Warning

■ In the locked state, if pressure is supplied to port Ⓐ from a state where both side ports are not pressurized, the lock may not be released, or the lock may suddenly be released and the piston rod may fly out, which is very dangerous. When releasing the lock mechanism, always supply pressure to port Ⓑ and release it from a state where no load is applied to the lock mechanism.



Side without lock mechanism

■ When using a quick exhaust valve to increase the lowering speed, the cylinder body may start moving before the lock pin operates, and normal release may not be possible. Do not use a quick exhaust valve with a drop prevention type cylinder.

#### Caution

■ The lock mechanism works at the stroke end. If an external stopper is applied mid-stroke, the lock mechanism may not engage, and there is a risk of falling. When setting the load, be sure to confirm that the lock mechanism is working before installing.

■ Supply pressure equal to or higher than the minimum operating pressure for each model to the port on the side with the lock mechanism.

■ f the piping on the side with the lock mechanism is thin and long, or if the speed controller is far from the cylinder port, the exhaust speed may be slow and it may take time for the lock to engage, so please be careful. Also, clogging of the silencer included to the EXH. port of the solenoid valve will lead to similar results.

■ If back pressure is applied to the lock mechanism side, the lock may be released, so use a single solenoid valve or a manifold with individual exhaust.

■ After manually operating the lock mechanism, return the lock mechanism to its original state. Also, do not perform manual operations other than during adjustment, as it is dangerous.

For precautions regarding mounting, installation, adjustment, use, and maintenance, please see "Precautions for Use" in this catalog and the CKD Components Product website (https://www.ckd.co.jp/kiki/en/) → "Model No." → Instruction Manual

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