



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. 1026.

Individual Precautions: Pencil Shaped Cylinder SCP□3 Series

During Design / Selection

1. With Rubber Air Cushion SCPD3-□C

Caution

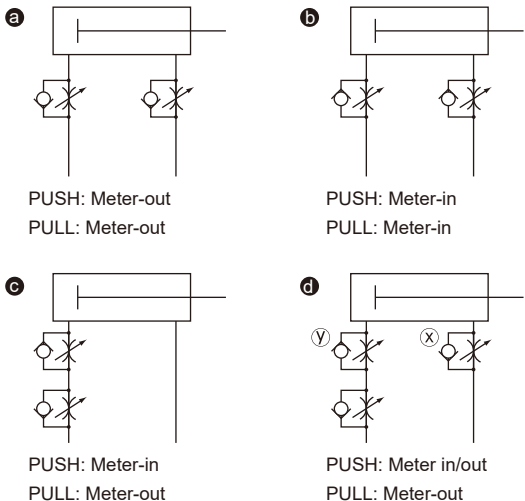
- Due to the structure, if the air supply is cut off, the stroke end position cannot be maintained. Please be careful. When detecting the stroke end with a switch, it may be outside the detection range, so set the switch position in an air-pressurized state.

2. Ultra Low Speed Type SCPD3-F

Caution

- Use without lubrication.
 - Lubrication may change characteristics.
- Install the speed controller near the cylinder.
 - If installed far from the cylinder, adjustment will be unstable.
 - SC-M3/M5-F, SC3W, SCD-M3/M5-F series speed controllers are recommended.
- Generally, the higher the air pressure and the lower the load factor, the more stable the speed.
 - Use with a load factor of 50% or less.

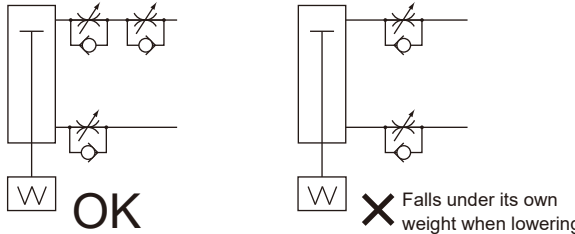
- Speed control with a meter-out circuit provides stability.
 - When driving a single-rod cylinder at creep speed in the PUSH direction, if the load resistance is small, a flying-out phenomenon may occur at the start of operation. As countermeasures, use circuits b, c, or d. Circuit d is the most stable.



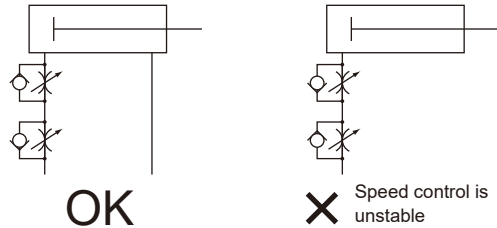
- ① Speed adjustment method for PUSH operation of circuit:
1. Set the speed with the speed controller x.
 2. Restrict the speed with the speed controller y until there is no popping out.
 3. Check the speed again.

(*1) When comparing ②, ③, and ④, the ① circuit is the most stable.

(*2) For vertical mounting, combine the cylinder with a meter-out circuit, as it will fall under its own weight when a meter-in circuit is used.



(*3) Use the circuit shown in the figure below for serial connection of speed controllers.



(Guideline for lurching occurrence)

Lurching occurs in the following cases:

- Thrust > Resistance
- *Resistance: *Resistance: Thrust due to residual pressure on exhaust side + For horizontal use: Frictional force due to load
- (For creep speed type, intake pressure = residual pressure) + For vertical use: Dead weight of the load

- Do not apply lateral load to the cylinder.
 - Operation becomes unstable when lateral load is applied.
- Avoid use in places with vibration.
 - Operation becomes unstable due to the influence of vibration.

3. With Valve SCP□3-V

Caution

- If the energization time exceeds 20 minutes, the service life may be reduced.
- Do not use a meter-in speed controller. Depending on the control flow rate, it may not operate at the minimum operating pressure. Consult with CKD.

During Use

1. Common

Caution

- Do not force piping in such a way that lateral force is applied to the cylinder tube. The cylinder tube may tilt, causing malfunction.
- Do not turn the cover.
 - When mounting the cylinder and screwing pipe fittings into the ports, if the cover rotates, there is a risk of damage from the cover joint.
- When fixing a workpiece to the tip of the piston rod, ensure that tightening torque is not applied to the cylinder body.
- When tightening the hex nut (Part No. 3 in the internal structure and parts list on P. 20), tighten within the following tightening torque range.
 - ø6: 1.46 N·m ±10%
 - ø10: 4.09 N·m ±10%
 - ø16: 8.78 N·m ±10%
- This cylinder is a non-disassembly type, so do not apply excessive force to the end cover or tube.

2. Single Acting Type SCPS, SCPS3, SCPH3

Caution

- For single acting cylinders, do not use push types in a way that applies load during piston rod retraction, or pull types in a way that applies load during piston rod extension. The cylinder's built-in spring only has force to return the piston rod, so if a load is applied, it will not return to the stroke end.
- For single acting types, a breather hole is provided on the cover surface, so be careful not to block the hole during installation. This will cause malfunction.
- Do not leave single acting cylinders pressurized. If left pressurized, the piston rod may not return by spring load when the pressure is released.

3. With Rubber Air Cushion SCPD3-□C

Caution

- Due to changes in cushion rigidity from long-term storage, the stroke may be slightly shorter than the standard value at low pressure settings. Perform a break-in operation by operating it several times or by reciprocating it at a high supply pressure.

4. Ultra Low Speed Type SCPD3-F

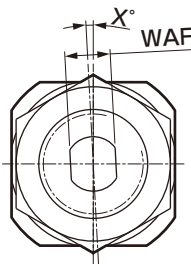
Caution

- Make adjustments such as alignment so that no lateral load is applied to the cylinder. Also, adjust and install so that there is no twisting with respect to the sliding guide.
 - Operation will become unstable if there are fluctuations in load or resistance.
 - Guides with a large difference between static friction and dynamic friction will result in unstable operation.

5. Non-Rotating Type SCPS3-M, SCPD3-M

Caution

- For non-rotating types, ensure that no rotational torque is applied to the piston rod. The bushing will deform, reducing service life.
- The direction of the piston rod's width across flats is manufactured to be parallel to the side of the rod cover, but accuracy is not guaranteed.



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**