



# 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. 1512.

### Individual Precautions: Clamp cylinder with drop prevention UCAC2 Series

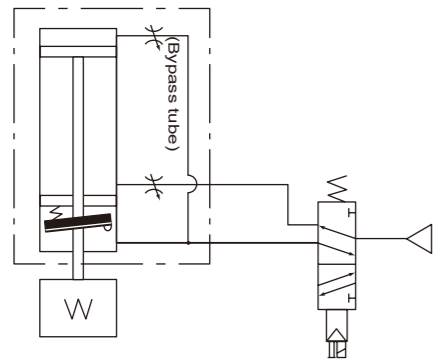
#### Design / Selection

#### CAUTION

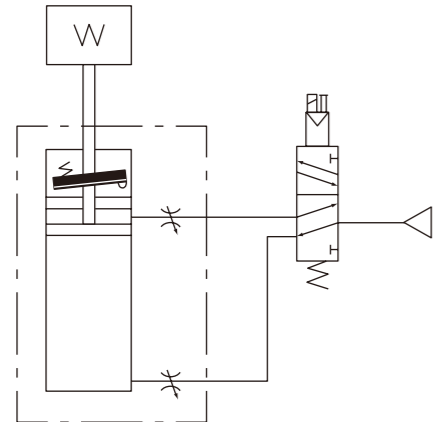
##### Basic Circuit Diagram

Since a throttle valve is built-in, installation of a speed controller for speed control is not particularly necessary, but because both meter-in and meter-out are throttled, adjusting one needle will change both forward and reverse speeds. Therefore, if you want to control the forward and reverse speeds separately, installation of a speed controller is necessary.

##### Forward Locking F type



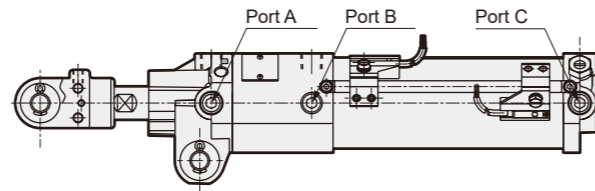
##### Backward Locking B type



When an emergency stop or urgent stop is performed, the forward direction lock type will continue to retract, and the reverse direction lock type will continue to advance and return to the home position. (If residual pressure is gone, it will stop at that position.)

The piping port position of UCAC2 can be changed in the same way as the CAC4 Series. Be sure not to use the incorrect pressure port when doing so.

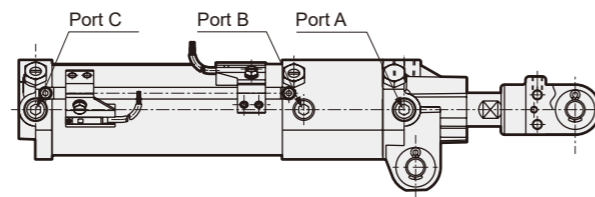
- When the port position is on the right side (lock direction F1 is on the right side as standard)



port	port A	Port B	port C
Lock Direction			
Forward Direction Lock F type *1	PUSH side port	PULL side port	Plug
Reverse Direction Lock Type B	Plug	PULL side port	PUSH side port

\*1: The lock direction F2 type cannot have the port on the right side because of the bypass tube.

- When the port position is on the left side



port	Port A	Port B	Port C
Lock Direction			
Forward Direction Lock F type *1	PUSH side port	PULL side port	Plug
Reverse Direction Lock Type B	Plug	PULL side port	PUSH side port

\*1: The lock direction F type cannot have the port on the left side because of the bypass tube.

The purpose of the cushion is to absorb the piston's kinetic energy with air compressibility, preventing the piston and cover from colliding at the stroke end.

Therefore, the cushion is not intended to operate the piston at low speed near the stroke end. The table below shows the kinetic energy that can be absorbed by the cushion. If the kinetic energy exceeds this value or if you want to avoid bouncing due to air compressibility, please consider a separate shock absorbing device.

$$\text{Kinetic Energy (J)} = \frac{1}{2} \times \text{Weight (kg)} \times \{\text{Speed (m/s)}\}^2$$

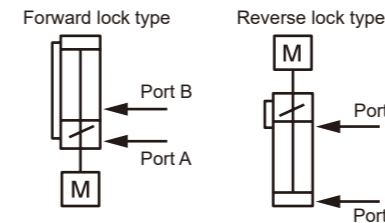
##### Cushion Characteristic Table

Bore Size (mm)	Effective Cushion Length (mm)	Allowable Absorption Energy (J)	
		With cushion	Without cushion
ø50	13.5	6.54	0.14
ø63	13.5	11.63	0.21

Do not use the product so as to apply torque to the rod when locked because the locking force may decrease, creating a dangerous condition.

Make sure to supply pressure to port B, and before unlocking, check that load is not applied to the lock mechanism.

If pressure is supplied to port A while both ports A and B are exhausted and the piston is locked, the lock may not be released, or the Piston rod may extend suddenly even if the lock is released, which is very dangerous.



If the cylinder is held with pressure applied on the locking mechanism, the lock could be released. Do not use 3-position closed center and 3-position P·A·B connection solenoid valves.

If a back pressure is applied while locked, the lock may be released. Use a discrete solenoid valve for brake release, or use an individual exhaust manifold.

Do not use with the by-pass tube disconnected as lock response could be delayed.

Note that due to the structure, a 1 mm deviation may occur when stopped with the lock.

Clamping

CAC4

UCAC2

CAC-N

UCAC-N

RCS2

RCC2

PCC

Cylinder Switch

Ending

Clamping

CAC4

UCAC2

CAC-N

UCAC-N

RCS2

RCC2

PCC

Cylinder Switch

Ending

During Use

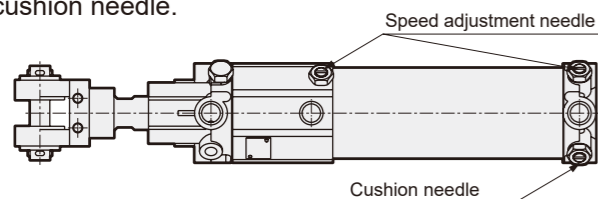
**Warning**

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

During equipment maintenance, please take separate measures for safety so that the load does not fall due to its own weight.

**CAUTION**

Do not mistake the speed adjustment needle for the cushion needle.

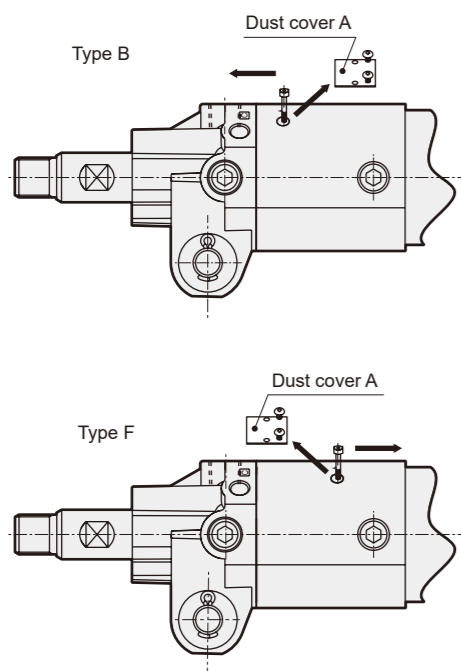


Flush the connected pipe sufficiently to prevent foreign materials or cutting chips from entering the cylinder when installing the product.

Be careful not to scratch or dent the Piston Rod sliding part. This can lead to damage to packings and cause air leakage.

**How to unlock manually**

1. Remove dust cover A.
2. Screw a Hexagon Socket Head Cap Screw (length 40 or more) into the screw hole M4 of the lock metal until the end.
3. Tilt the Hexagon Socket Head Cap Screw in the direction of the arrow to free the rod. (This frees the rod.)



1. Common (T type switch: Band mounting method)

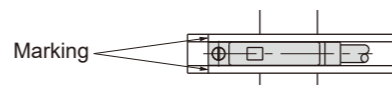
**CAUTION**

**When Moving the Switch Position in the Stroke Direction**

- The 1-color indicator switch can be finely adjusted by about  $\pm 3$  mm from the mounting position at the time of shipment. If the adjustment range exceeds  $\pm 3$  mm, or if fine-tuning the position of a 2-color indicator switch, move the band position.
- Loosen the switch mounting screw, move the switch along the rail, and tighten at the specified position. For T2, T3, T0, T5, use a flat-head screwdriver (watchmaker's screwdriver, precision screwdriver, etc.) with a grip diameter of 5 to 6 mm, tip shape width of 2.4 mm or less, and thickness of 0.3 mm or less to tighten the switch fixing screw with a tightening torque of 0.1 to 0.2 N·m. For T□C, T2J, T2Y, T3Y, tighten with a torque of 0.5 to 0.7 N·m.
- The switch rail has a marking 4 mm from the end face of the rail. Use it as a guide for mounting position when replacing the switch. Note that the marking on the switch rail is set to the switch maximum sensitivity position, which is the switch mounting position of the external dimensions. If the switch type changes or the band is moved, the maximum sensitivity position changes, so adjust the position each time.

**When Moving the Switch Position in the Circumferential Direction**

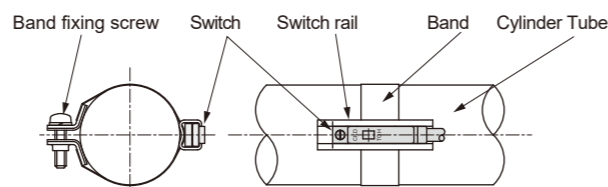
- Loosen the band fixing screw, move the switch rail circumferentially, and tighten it at the specified position.



The tightening torque for the band fixing screw is 0.6 to 0.8 N·m.

**When Moving the Band Position**

- Loosen the band fixing screw, move the switch rail and band along the cylinder tube, and tighten them at the specified position. The tightening torque for the band fixing screw is 0.6 to 0.8 N·m.



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].