



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: Free position locking large Bore Size cylinder USC Series

Design / Selection

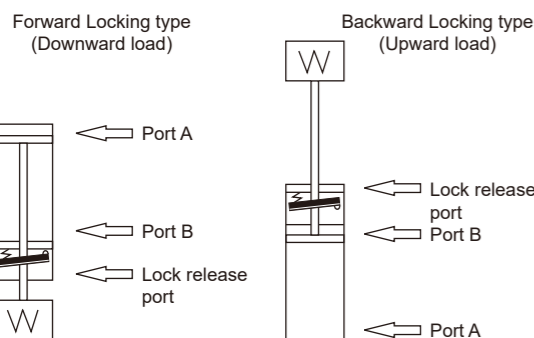
Warning

■ This cylinder is equipped with a fall prevention (holding of cylinder stationary state) mechanism. If used for emergency stop or urgent stop (stopping from cylinder operating state), the service life will be significantly reduced.

■ If back pressure is applied during locking, the lock may disengage. Therefore, use a standalone valve or an individual exhaust type manifold.

■ Since the locking force will decrease and it is dangerous, do not apply rotational force (torque) to the rod during lock operation. Also, use with a mechanism that prevents rod rotation.

■ When releasing the lock, always supply pressure to port B for forward direction lock type and port A for reverse direction lock type, ensuring no load is on the lock mechanism before releasing the lock. If pressure is supplied to port A for Forward Locking type or port B for Backward Locking type while both ports A and B are exhausted and the piston is locked, the lock may not release, or even if released, the Piston rod may extend suddenly, which is very dangerous.



■ Do not use multiple synchronized cylinders with position locking. If a synchronization error occurs, excessive moment load or load concentration may occur on the cylinder that locked first, potentially causing lock release failure, reduced lifespan, or damage.

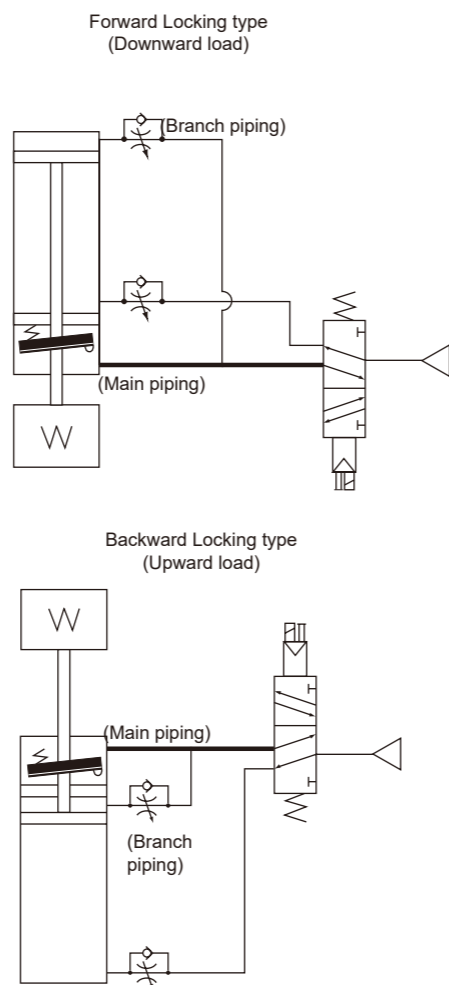
■ Since the locking force will decrease and it is dangerous, do not apply rotational force (torque) to the rod during lock operation. Also, use with a mechanism that prevents rod rotation.

CAUTION

Basic Circuit Diagram

The air piping for this cylinder should be as shown in the diagram below. If piping differently from the diagram below, such as piping to the fall prevention part as a single unit, it may cause a malfunctions such as response delays.

1. Be sure to branch the piping after the valve as shown below, and pipe to the fall prevention unit (lock release port as main piping) and cylinder unit (cylinder port as branch piping).
2. If cylinder operation is faster than lock release, the lock may not release or the Piston rod may extend suddenly, so design the piping so that lock release is faster than cylinder operation.



If emergency stop or urgent stop is performed with the air piping shown above, the Forward Locking type will continue to retract and the Backward Locking type will continue to extend, returning to the origin position. (It will stop at that position when residual pressure is gone.)

■ The main piping in the basic circuit diagram on the previous P. should be thicker and shorter than the branch piping.

■ After using in the unlocked state for a long time, if you try to lock it, a response delay in locking may occur. Do not leave the lock part pressurized; operate the lock part with each cylinder operation. (Please use the basic circuit diagram on P. 610)

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

■ Due to the structure, a drop of about 1 mm (Piston Rod movement) occurs during locking.

■ Operating units with excessive inertia may cause damage to the Cylinder Body or malfunction, so be sure to use within the allowable absorbed energy range.

During Use

Warning

■ Since the locking force will decrease and it is dangerous, do not apply grease to the Piston Rod during use.

■ The necessary amount of grease is applied to the Piston Rod, so avoid applying more grease and do not wipe off the grease.

■ Since it is dangerous, never disassemble the lock part.

■ As it may cause a malfunctions, always use with the dust cover included, except during manual release operation.

■ During equipment maintenance, for safety, please take separate measures to prevent the load from falling under its own weight.

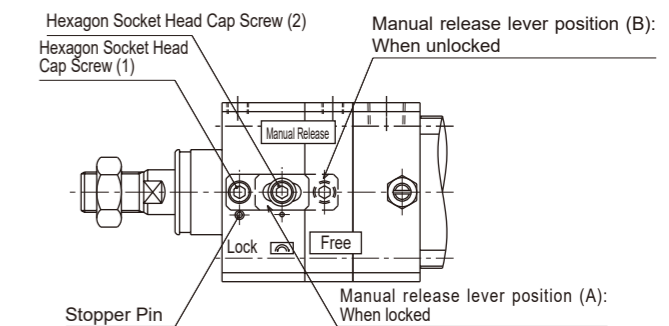
CAUTION

■ When used in vertical mounting, etc., if there is no air pressure, the locking force will be lost during manual release operation, and the rod may move (descend) due to the load's own weight, etc., so please be careful. In that case, for safety, perform the following preparations before manual release.

- Move the load to the lower end.
- Provide a stopper for the load
- Apply air pressure to the cylinder to balance the load.

■ During normal operation, use with the manual release lever in the lock position.

Manual Release Method



Lock Release

- ① Loosen Hexagon Socket Head Cap Screw (1) by 3 to 4 turns.
- ② Loosen Hexagon Socket Head Cap Screw (2) by 1 to 2 turns.
- ③ Rotate the release lever 180° in the direction of the arrow from manual release lever position (A) to (B).
- The Piston Rod becomes free.

Lock Operation

- ① Rotate the release lever 180° in the direction of the arrow from manual release lever position (B) to (A).
- ② Tighten Hexagon Socket Head Cap Screw (1) at the position where the release lever hits the stopper pin.
- ③ Tighten Hexagon Socket Head Cap Screw (2).
- ④ The Piston Rod becomes locked.

Note: When manually releasing, be sure to rotate the release lever in the direction of the arrow. Removal of the release lever is strictly prohibited. Hexagon Socket Head Cap Screw (2) can be rotated by loosening it only 1 to 2 turns. Be careful as loosening it too much will cause the release lever to come off. Tighten the Hexagon Socket Head Cap Screws with a torque of 8 to 11 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](#).

With Brake / With Lock

ULK□

JSK2/ JSM2

JSG

JSC3, JSC4

USSD

UFCD

USC

With Brake / With Lock

ULK□

JSK2/ JSM2

JSG

JSC3, JSC4

USSD

UFCD

USC

Cylinders Switch

Ending

Cylinders Switch

Ending