



# 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: Rodless Cylinder with High Precision Guide SRG3 Series

### During Use

#### 1. Common

#### CAUTION

■ Pay attention when designing the brake control circuit. Slit type rodless cylinders represented by SRL3 have slight external air leakage structurally, so intermediate stop control by an all-port block 3-position valve will cause a failure to maintain the table stop position. Therefore, please use a both-side pressurization control circuit using a PAB connection 3-position valve. However, please note that if air is pressurized in a de-energized state when restarting after a pressure drop, the table may move and deviate from the origin.

#### Basic Circuit Diagram

##### ● Horizontal load

Piping as shown in Figure 1 will apply equal pressure to both sides of the piston when stopped, preventing the table from flying out during restart.

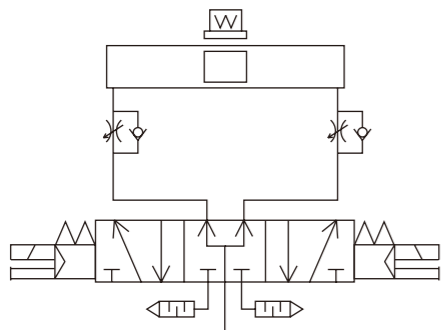


Fig. 1

##### ● In case of vertical load

● If a vertical load is applied as shown in Fig. 2, the table will move in the Load Direction. Therefore, install a pressure reducing valve with check valve on the upper side, reduce the thrust in the Load Direction, and balance the load.

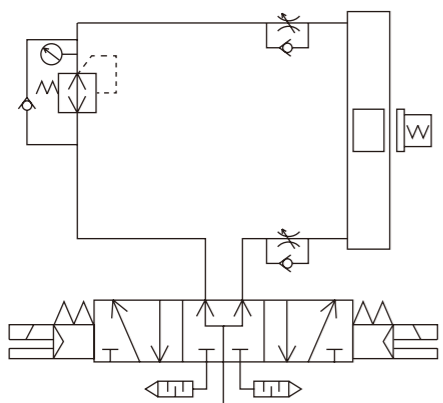


Fig. 2

■ Although the structure of SRL3 and other slit rodless cylinders has a slight amount of external air leakage, it does not affect the speed control performance.

■ Prevent negative pressure from occurring inside the cylinder tube. If used as an air balancer or in an all-port blocked state, if the table is driven by external force, inertia force, etc., negative pressure may be generated in the cylinder, causing the seal belt to detach and air leakage to occur. Be careful not to create negative pressure in the cylinder by driving it with external force, inertial force, etc.

#### Warning

##### Shock Absorber Adjustment

Since the gap between the shock absorber and the stopper bolt is narrow, it is recommended to remove the stroke adjustment plate for adjustment.

##### Precautions for use of stroke adjustment unit

Be sure to adjust so that the table stops at the stopper bolt. Settings where cylinder thrust continues to be applied to the shock absorber even at the cylinder stroke end may cause the shock absorber to break.

Table 1 Full stroke adjustment shock absorber specifications (Initial setting value)

Model	Absorption Energy (J)	Effective Stroke (mm)
For SRG3-12/16	2.4	5.5
For SRG3-20	5.7	7
For SRG3-25	10	8

■ Do not perform electric welding after installing the rodless cylinder.

Current flows through the cylinder and a spark occurs between the dustproof belt and the cylinder tube, damaging the dustproof belt.

■ The Cylinder Body may be damaged or may malfunction if a unit with excessive inertia, etc., is actuated. Use within the allowable range.

■ Do not apply strong impact or excessive moment to the table.

■ Carefully match the centers when connecting a load with an external guide mechanism.

● Displacement of the shaft center increases as the stroke becomes longer. Carefully decide the connection method (floating) so that the displacement can be absorbed.

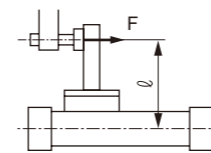
■ Keep the moment, including inertia force caused by load transfer or stop, within the allowable load. Exceeding this value will cause damage.

(When overhang is large)

● When the overhang load is large and the cylinder is stopped at both ends by the piston, load inertia causes bending moment even if the energy is within the allowable absorbed energy of the internal cushion. If the kinetic energy is large and an external cushion is used, try to hit the center of gravity of the workpiece as much as possible.

(When using external stopper)

● When using an external stopper, make a selection considering bending moment due to the cylinder thrust.



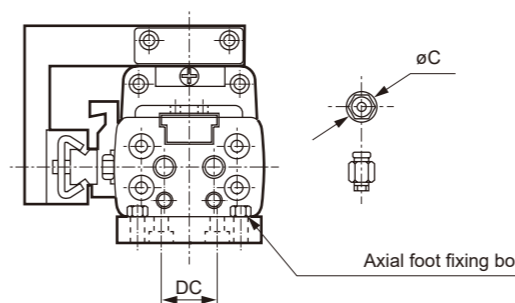
F: Cylinders Thrust  
l: Length from the center of the cylinder to the stopper

##### Using common port piping

● Piping used for the common ports (option codes R and T) are limited. Select an appropriate one from Table 2.

Table 2

Mounting Type	Usable fitting outer diameter $\phi C$		
	00	LB	LB1
Bore Size (mm)			
$\phi 12$ or equivalent	11 or less	Centralized port piping not usable	11 or less
$\phi 16$ equivalent	12 or less		12 or less
$\phi 20$ equivalent	16 or less		16 or less
$\phi 25$ equivalent	26 or less		26 or less

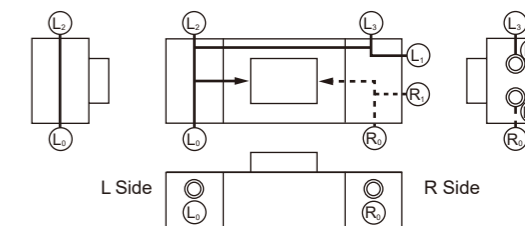


● In the case of the axial foot (LB1) mounting style with option code R or T, the piping tube and the axial foot fixing bolt will interfere with each other. Fix the Cylinder Body (by tightening the axial foot fixing bolt) before attaching the piping tube. (If the piping fitting is assembled first, it will interfere, making it impossible to tighten the axial foot fixing bolt.)

##### Piping port position and operating direction

Equivalent to Bore Size  $\phi 12$  to  $\phi 20$

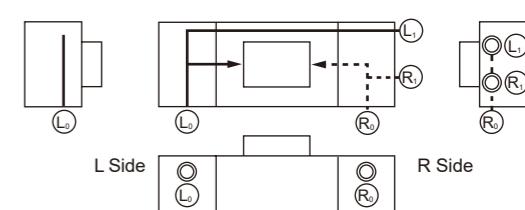
● Option code (blank, R, B, T)



Ⓡ indicates the pressurized ports on R side and Ⓛ indicates the pressurized ports on L side. When the product is shipped from the factory, ports other than one each of ⓇⓁ are sealed with plugs. Piping to other ports is possible by removing the plug. Optional code (D) cannot be manufactured.

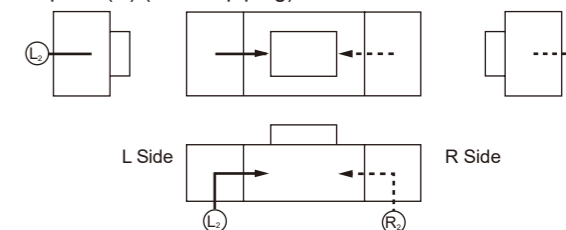
Bore Size  $\phi 25$

● Option code (blank, R, B, T)



Ⓡ indicates the pressurized ports on R side and Ⓛ indicates the pressurized ports on L side. When the product is shipped from the factory, ports other than one each of ⓇⓁ are sealed with plugs. However, bottom piping is not possible. If bottom piping is required, select option (D).

##### Option (D) (bottom piping)



Ⓡ indicates the pressurized ports on R side, Ⓛ indicates the pressurized port on L side. Except ⓇⓁ, there are no ports for piping.

■ Do not damage surface flatness by denting or scratching the body (tube) mounting surface or the end plate surface.

Rodless Type

Rodless Type

SRL3

SRL3

SRG3

SRG3

SRM3

SRM3

SRT3

SRT3

MRL2

MRL2

MRG2

MRG2

SM-25

SM-25

Cylinders Switch

Cylinders Switch

Ending

Ending

**CAUTION**

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■ Basic Circuit Diagram

● Horizontal load

If piped as shown in Fig. 1, equal pressure is applied to both sides of the piston when stopped, preventing the table from jumping out during restart.

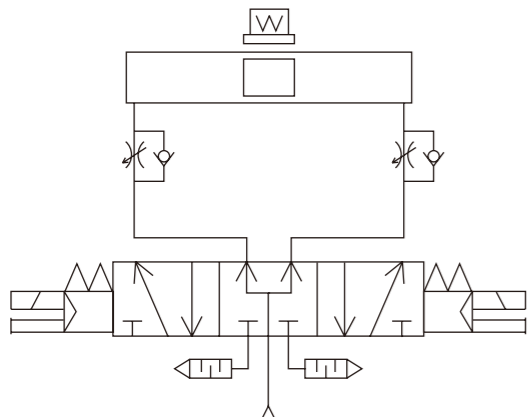


Fig. 1

● In case of vertical load

If a vertical load is applied as shown in Fig. 2, the table will move in the Load Direction. Therefore, install a pressure reducing valve with check valve on the upper side, reduce the thrust in the Load Direction, and balance the load.

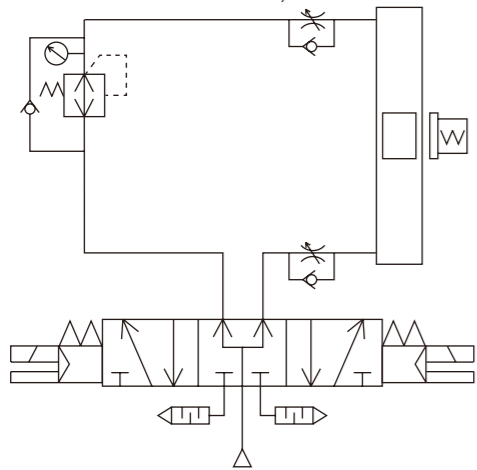


Fig. 2

- Do not use the cylinder in places where it is directly exposed to cutting oil, coolant, oil mist, etc.  
If unavoidable due to cylinder installation, be sure to protect the cylinder with a cover, etc.
- Do not use this product where foreign matter such as cutting chips, dust, or spatter, etc., will contact or enter the cylinders.  
If unavoidable due to cylinder installation, provide a cover, etc., for protection. Also, if used in such an environment, please be sure to consult us.
- Treat our shock absorbers as consumable parts.  
Replace them if a decrease in energy absorption capacity is observed or if operation is no longer smooth.

MEMO

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](#).