

How to select hydraulic cylinders and instructions for use

■ Outline and structural drawings are available for all models.
couplers

1. How to determine the output

- The maximum output while a cylinder is operating should be within 70% to 80% of the cylinder specification.

2. How to determine the stroke

- A cylinder longer than the necessary stroke should be selected.

3. How to determine the single- or double-acting type

Cylinders are classified into the single-acting type (return by load, return by spring) and the double-acting type (double acting) according to the “return” functions.

- A return-by-load type does not have the “return” function. An external force is required to return the piston.

* Return force	200 kN cylinder	Approx. 0.35 kN
	300 kN cylinder	Approx. 0.45 kN
	500 kN cylinder	Approx. 0.75 kN
	1000 kN cylinder	Approx. 1.50 kN

- The “return” spring of the single-acting type has only sufficient force to return the piston. In addition, the return time is not fixed; it depends on the length of the hose and other factors.

- The double-acting type should be selected when the cylinder is frequently used or a “pull” output is required by attaching a heavy jig to the piston.

- ⚠ A pump with a valve to prevent falling under self-weight should be selected when a “pull” output is required by attaching a heavy jig, or the piston is extended (lowered) under its self-weight.

4. How to determine the cylinder speed

- When used with an electro-hydraulic pump, a pump suitable for the application should be selected by referring to the cylinder speed table (P. 205).

- ⚠ The cylinder should be used at lower than the following speed.

Standard type

Under no-load condition: 500mm/sec, at 70MPa:30mm/sec

Strong type

Under no-load condition: 1000mm/sec, at 70MPa:50mm/sec

5. How to determine the mounting/fixing methods

- The cylinder should be loaded vertically.
- The allowable unbalanced load is 2.5% of the cylinder specification indication or lower.
- The cylinders should be fixed with a flange (see P. 45), preferably using collar screws.
- The cap should always be used when the load is received directly by the piston. In addition, parts for each cylinder (see P. 44 to 48) should be used depending on the application.

- ⚠ When cylinder parts such as caps are used, they should be screwed completely.

6. Usage environment

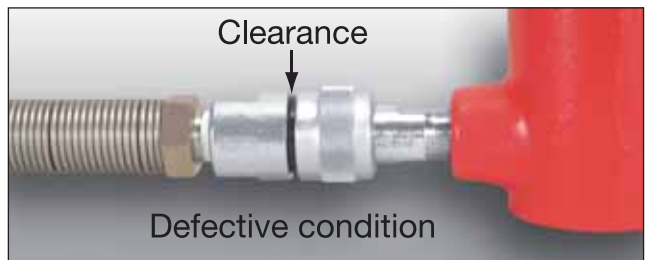
- Riken products should be used at an ambient temperature of 0°C to 40°C.
For a type with low cylinder oil level, a one-touch

coupler may not be connected due to internal pressure caused by the ambient temperature.

- The hydraulic oil temperature should be kept below 60°C.
- Riken products are designed for indoor use (except for some products).

7. Instructions for use

- If a cylinder which worked properly with self-sealing couplers (S-1R, S-24R, S-5R) stops suddenly, the most likely cause is looseness (clearance) between the couplers. The couplers should be tightened using by a tool.



- Using all the cylinder strokes should be avoided. (Over-extending use is prohibited.)
- A strong cylinder is recommended when the cylinder is frequently used. Consult us for further information.

8. Special-type cylinders

- We are able to manufacture large cylinders of 5000 kN or larger, as well as others not listed in the catalogue, upon request. Please consult us.

9. Attached couplers

- ROC-13 one-touch couplers conditioning no-looseness should be used when the cylinder is frequently removed and the impact pressure is small.
- No-check couplers should be used when there is strong vibration, the cylinder is frequently used, or the impact pressure is high (e.g. punching).
- The couplers should be connected correctly. They must not be connected or detached in the pressurized state.
- One-touch couplers cannot be connected in the pressurized state. In addition, other types of couplers should be used when a pressure could be applied to the inner side of the cylinder due the external temperature.

10. Others

- The contents of this catalogue are subject to change without notice. Check our website for the latest information.

<http://www.rikenkiki.co.jp>