

Low Speed Cylinders

Slow, smooth, and stable operation!

- Enable stable operation from 1mm/s [0.04in./sec.].^{Note}
- Smooth operation without stick-slips.
- Suitable for low speed transfer of fragile workpieces.
- Cylinder's outer dimensions are the same as the standard product.
- Wide range of cylinders are available: 6 types and 10 bore sizes.
- Speed controllers for low speed cylinders are also available.

Note : Excluding Jig cylinders with guides.



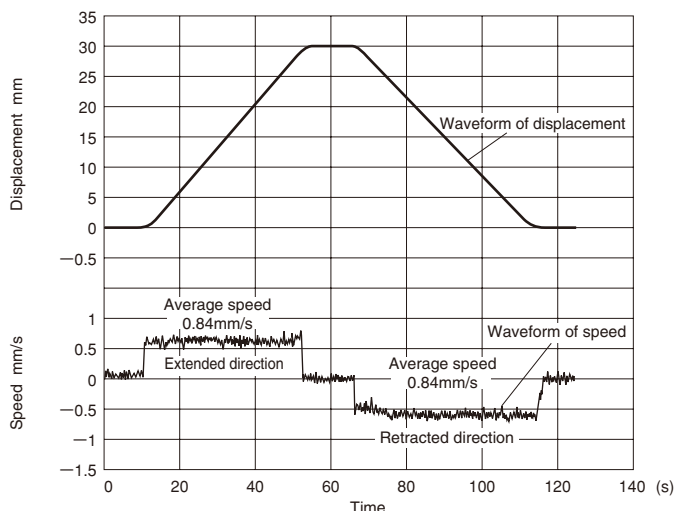
Slow and smooth



CAUTION

Always wash your hands thoroughly whenever you happen to touch the grease used in the Low Speed Cylinders. If you light a cigarette with greasy hands, the grease adhered to the cigarette could release toxic gases as it burns. (While the grease used in the Low Speed Cylinder is very stable in chemical terms at room temperature, it would release toxic gases if heated to 250°C [482°F] or higher.)

Waveform of Speed and Displacement

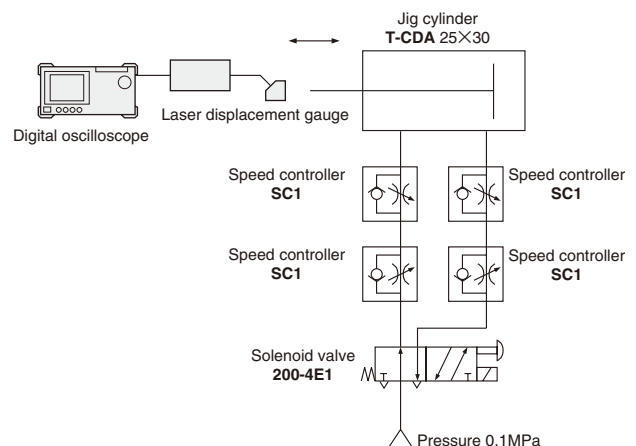


Remarks 1 : The average speed is obtained by dividing the stroke by the time required to travel the stroke. The above average speed values were obtained by tests undertaken at Koganei. They do not imply guaranteed values of the product.

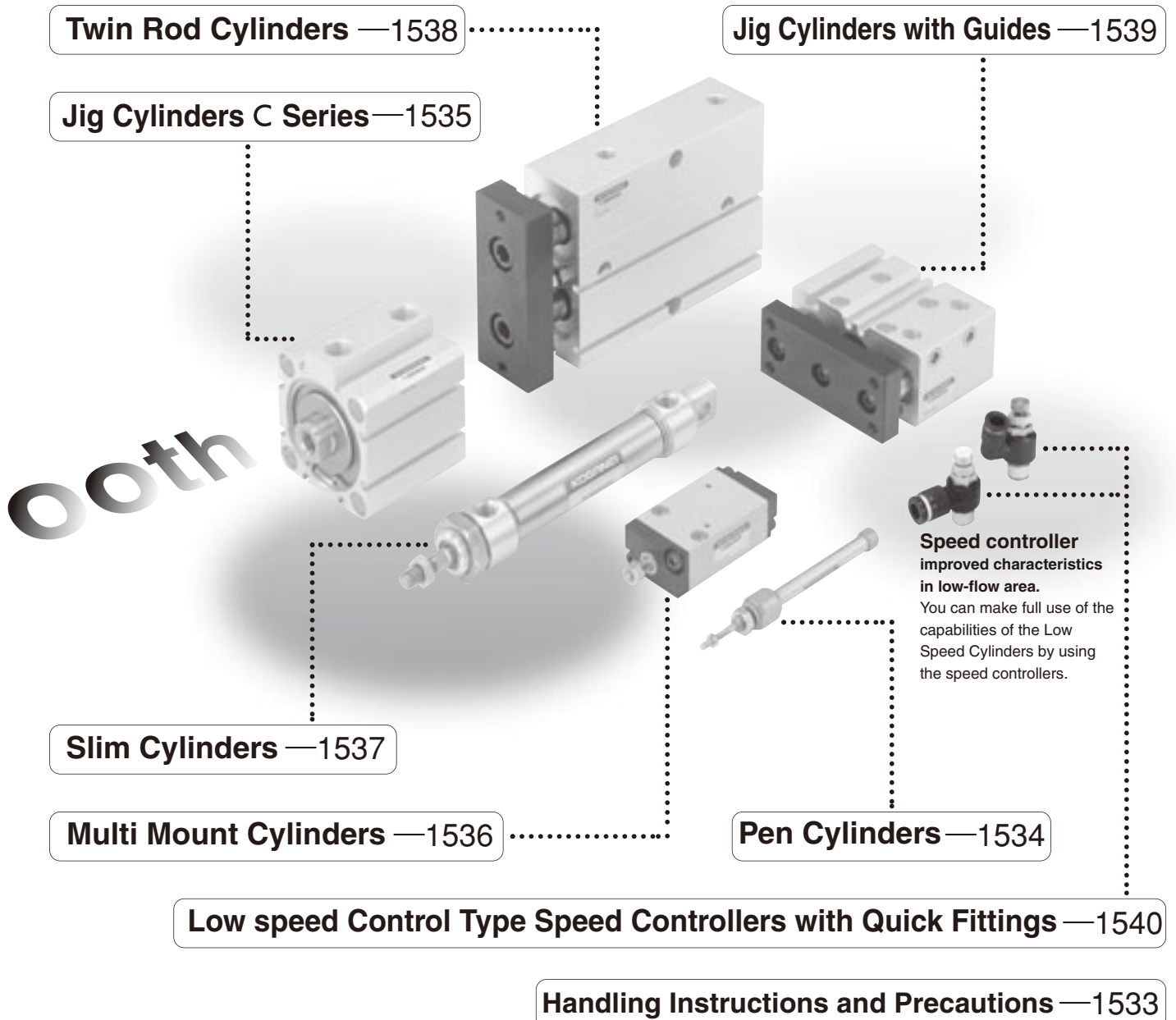
2 : The speed value reads positive when the cylinder is extended.

1mm/s = 0.03944in./sec. 1mm = 0.0394in.

Measurement method

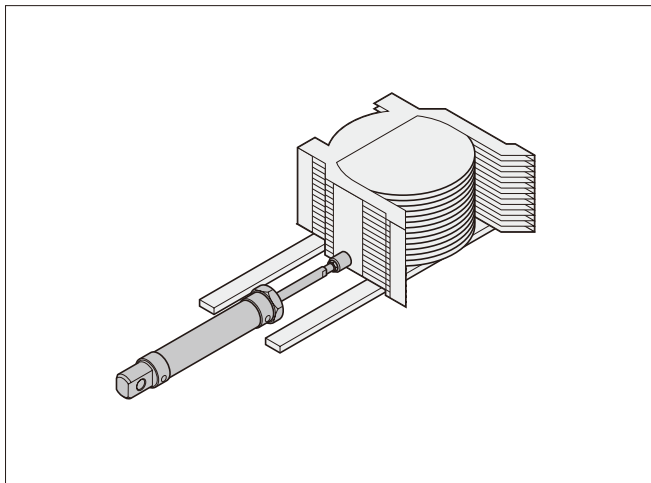


Low Speed Cylinder Variations

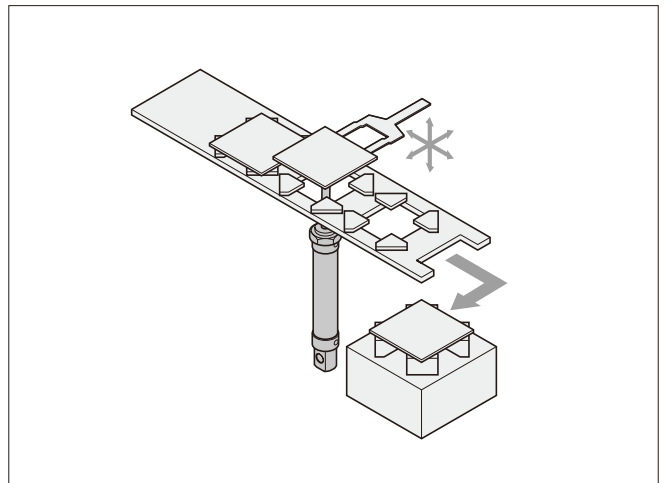


Application Examples

● Positioning a wafer stacker



● Transfer of a liquid crystal display panel



Handling Instructions and Precautions



General precautions

1. Always thoroughly blow off (use compressed air) the tubing before piping. Entering metal chips, sealing tape, rust, etc., generated during piping work could result in air leaks or other defective operation.
2. Use air for the media. For the use of any other media, consult us.
3. Air used for the cylinder should be clean air that contains no deteriorated compressor oil, etc. Install an air filter (filtration of a minimum 40 μm) near the cylinder or valve to remove collected liquid or dust. In addition, drain the air filter periodically. Collected liquid or dust entering the cylinder may cause improper operation.



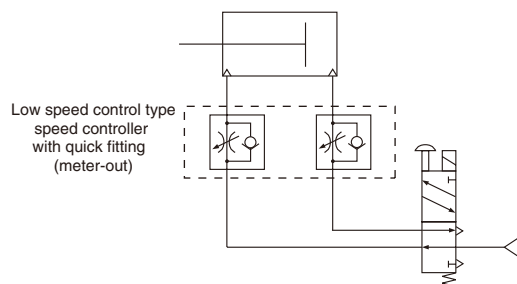
Piping

See the diagrams below for piping with the Low Speed Cylinder.

Recommended circuit

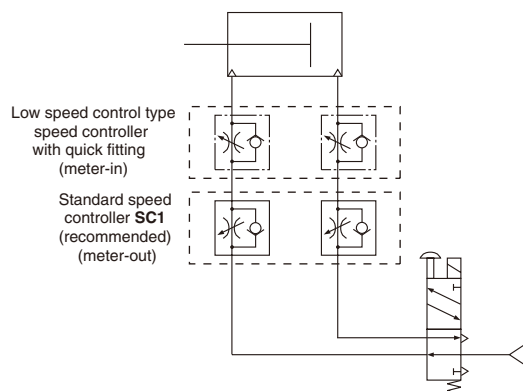
① Basic circuit

Use meter-out speed controllers.



② Jump start prevention circuit

Use in combination with speed controllers, as shown in the diagram below, is effective for low speed control as well as jump start prevention.



Note: Locate the cylinder and speed controller as close to each other as possible.

LOW SPEED CYLINDERS

Twin Rod Cylinders

Operating speed range
1~200 mm/s
 [0.04~7.87in./sec.]



Order Codes

Cylinder bore size		Stroke	Sensor switch		Lead wire length	Number of sensor switches	
6 : ϕ 6 [0.236in.]			Blank : No sensor switch		A : 1000mm [39in.]	1 : With 1 sensor switch	
10 : ϕ 10 [0.394in.]			ZC130 : 2-lead wire, Solid state type		B : 3000mm [118in.]	2 : With 2 sensor switches	
16 : ϕ 16 [0.630in.]			ZC153 : 3-lead wire, Solid state type				
20 : ϕ 20 [0.787in.]			CS5T : Without indicator lamp, Reed switch type ^{Note1}				
25 : ϕ 25 [0.984in.]			CS11T : With indicator lamp, Reed switch type ^{Note1}				
32 : ϕ 32 [1.260in.]			ZE135 : 2-lead wire, Solid state type				
			ZE155 : 3-lead wire, Solid state type				
			ZE235 : 2-lead wire, Solid state type				
			ZE255 : 3-lead wire, Solid state type				
			ZE101 : Without indicator lamp, Reed switch type ^{Note1}				
			ZE102 : With indicator lamp, Reed switch type ^{Note1}				
			ZE201 : Without indicator lamp, Reed switch type ^{Note1}				
			ZE202 : With indicator lamp, Reed switch type ^{Note1}				

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	×	6 ^{Note2}	10, 20, 30, 40, 50	Blank -ZC130 -ZC153 -CS5T -CS11T			
	×	10	10, 20, 30, 40, 50, 60, 70		A	1	
	×	16		Blank -ZE135 -ZE101			
	×	20	10, 20, 30, 40, 50, 60, 70,	-ZE135 -ZE102			
	×	25	80, 90, 100	-ZE155 -ZE201	B	2	
	×	32		-ZE235 -ZE202			

※The double rod cylinder is not available. In addition, the cylinder for clean systems requires special specifications. For details, consult us.

Notes: 1. If using reed-type sensor switches, maintain an operating speed of 30mm/s [1.2in./sec.] or higher.
 2. When using ϕ 6 [0.236in.] bore size at 1mm/s [0.04in./sec.], apply air pressure of 0.4MPa [58psi.] or more.

T : Twin Rod Cylinder (Only for ϕ 6 [0.236in.])
 TB : Twin Rod Cylinder B series

Low speed type

● Except the items listed below, all outer dimensions, cylinder specifications, sensor switch specifications, and handling instructions are the same as the standard product. For details, see p.744.

- Operating speed range: 1~200mm/s [0.04~7.87in./sec.]
- Lubrication prohibited