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. 924.

Individual Precautions: Small direct mounting cylinder MDC2 Series

During Design/Selection

1. Common

Caution

■ When using MDC2 with a contact switch, the cylinder cannot be mounted on a magnetic material (such as an iron plate).

■ Use MDC2 with a non-contact switch at an ambient temperature of 40°C or less. This will cause switch detection failure.

2. Single acting type MDC2-X, Y

Caution

■ Do not leave single-acting cylinders pressurized. If left pressurized, the piston rod may not return by spring force when the pressure is released.

■ A breather hole is provided on the main body, so be careful not to block it during installation.
● This will cause malfunction.

3. Low speed type MDC2-F

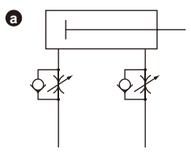
Caution

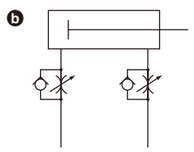
■ Use without lubrication.
● Lubrication may change the characteristics.

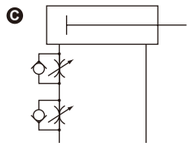
■ Install the speed controller near the cylinder.
● If installed far from the cylinder, the speed will become unstable.
● Use SC-M3/M5-F, SC3W, SCD-M3/M5-F series speed controllers.

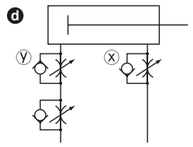
■ Generally, the higher the air pressure and the lower the load factor, the more stable the speed.
● Use with a load factor of 50% or less.

■ Speed control is stable with a meter-out circuit.
● When driving a single rod cylinder at fine speed in the PUSH direction, if the load resistance is small, a lunging phenomenon may occur at the start of operation. As countermeasures, use circuits ⓑ, ⓒ or ⓓ. In addition, the ⓓ circuit is the most stable.





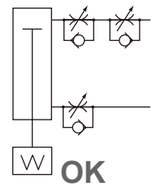


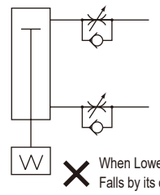


ⓓ Speed adjustment method for PUSH operation of the circuit:
1. Set the speed with the speed controller x.
2. Restrict the speed with the speed controller y until there is no popping out.
3. Reconfirmation of speed

(*1) Comparing ⓑⓒⓓ, the ⓓ circuit offers the most stable operation.

(*2) For vertical mounting, it will fall by its own weight in a meter-in circuit, so combine it with a meter-out circuit.





(*3) For series connection of speed controllers, use the circuit shown in the figure below.

(Guideline for lurching occurrence)
Lurching occurs in the following cases:
• Thrust > Resistance
*Resistance: Thrust due to residual pressure on exhaust side (For creep speed type, intake pressure = residual pressure) + { For horizontal use: Frictional force due to load / For vertical use: Dead weight of the load

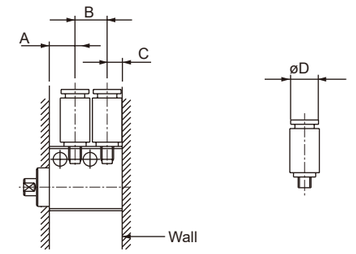
■ Avoid use in locations with vibration.
● Operation becomes unstable due to the influence of vibration.

During Use

1. Common

Caution

■ There are restrictions on the piping fittings that can be used, so please refer to the table below.



Item		Port position dimension (mm)				With wall			Without wall		
I.D. (mm)	Port Size	Stroke	A	B	C	Usable Fittings	Fitting outer diameter øD	Unusable Fittings	Usable Fittings	Fitting outer diameter øD	Unusable Fittings
ø4	M3	3	6.5	7	3.5	GWS3-M3-S FTS4-M3	ø7 or less	GWS4-M3-S SC3W-M3-3 SC3W-M3-4 SC3U-M3-3 SC3U-M3-4	GWS3-M3-S FTS4-M3	ø7 or less	GWS4-M3-S SC3W-M3-3 SC3W-M3-4 SC3U-M3-3 SC3U-M3-4
		6	6.5	10	3.5				GWS3-M3-S GWS4-M3-S FTS4-M3 SC3W-M3-□ SC3U-M3-□	ø10 or less	
ø6	M3	4	6	7.5	3.5	GWS3-M3-S FTS4-M3	ø7 or less	GWS4-M3-S SC3W-M3-3 SC3W-M3-4 SC3U-M3-3 SC3U-M3-4	GWS3-M3-S SC3W-M3-□ SC3U-M3-□	ø7.5 or less	GWS4-M3-S
		6	6	9.5	3.5				GWS3-M3-S GWS4-M3-S FTS4-M3 SC3W-M3-□ SC3U-M3-□	ø9.5 or less	
		8	6	11.5	3.5				↑	ø11.5 or less	
ø8	M3	4	6	7.5	3.5	GWS3-M3-S FTS4-M3	ø7 or less	GWS4-M3-S SC3W-M3-3 SC3W-M3-4 SC3U-M3-3 SC3U-M3-4	GWS3-M3-S SC3W-M3-□ SC3U-M3-□	ø7.5 or less	GWS4-M3-S
		6	6	9.5	3.5				GWS3-M3-S GWS4-M3-S FTS4-M3 SC3W-M3-□ SC3U-M3-□	ø9.5 or less	
		8	6	11.5	3.5				↑	ø11.5 or less	
ø10	M5	4	7	10	5	GWS□-M5-S SC3W-M5-□ SC3U-M5-□ GWS4-M5-S FTS4-M5 FTS6-M5	ø10 or less	GWS□-M5 GWS6-M5-S	GWS□-M5-S SC3W-M5-□ SC3U-M5-□ GWS4-M5-S FTS4-M5 FTS6-M5	ø10 or less	GWS□-M5 GWS6-M5-S
		6	7	12	5				GWS□-M5-S SC3W-M5-□ SC3U-M5-□ GWS4-M5-S GWS6-M5-S GWS4-M5 FTS4-M5 FTS6-M5	ø12 or less	GWS6-M5
		10	7	16	5				GWS□-M5-S SC3W-M5-□ SC3U-M5-□ GWS4-M5-S GWS6-M5-S GWS4-M5 GWS6-M5 FTS4-M5 FTS6-M5	ø14 or less	

*Port position dimensions are for standard models without switches.

■ This cylinder is a non-disassembly type, so do not apply excessive force to the rod metal or cylinder body.

2. Low speed type MDC2-F

⚠ Caution

■ Adjust alignment, etc., so that no lateral load is applied to the cylinder.
Also, adjust and install so that there is no twisting with respect to the sliding guide.

- Fluctuations in load or resistance will make operation unstable.
- Guides with a large difference between static and dynamic friction will have unstable operation.

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 .