SMG

Compact cylinder

Space saving structure

ø6/ø10/ø16/ø20/ø25

Overview

Super mount cylinder is a compact square shape cylinder with high rigidity which realizes excellent mounting accuracy and direct mounting on multiple surfaces. Adopting a square shape body helps improve designability. This makes an excellent solution for creating a compact system with high-density and high-precision.

Features

Lightweight and space saving

Integration of the mounting block helps save space and make the entire system lightweight.

Simple shape for flexible mounting

Mounting block can be directly mounted on five surfaces.

The detection switch fits almost flush

The detection switch can fit almost flush into the body.

Either horizontal or vertical layout can be chosen for the lead wire

The switch lead wires can be taken out either horizontally or vertically.

CONTENTS

Variation and option selection table

◎ : Option variation (check category 2)
○ : C5 compatible (check category 3)
△ : Available depending on conditions (Estimation)
: Not available

			Clean room specifications							
			Exhaust treatment	Vacuum treatment	Exhaust treatment	Vacuum treatment	Exhaust treatment	Vacuum treatment	Exhaust treatment	Vacuum treatment
		Code	P7	P71	P72	P73	P5	P51	P52	P53
Variation	Double acting single rod	Blank	◎	◎			○	○		
	With cylinder switch	L	◎	◎			○	○		
	Fine speed	F	○	○						
	Non-rotation	M	*2	*2	○	○	*2	*2	○	○
	Single acting push type	Y								
	Single acting pull type	X								
Port thread	NPT1/8 (ø25)	N	○	○			○	○		
	G 1/8 (ø25)	G	○	○			○	○		
Option	Customized piston rod end form	N**	○	○			○	○		

*1: The combinations above do not apply if the thread size of the end of the piston rod is different. Contact CKD.
*2: For the combination of the clean room specification and the rotation-stop, a separate guide bar slides in addition to the piston rod. Since dust can be generated from the area in addition to the piston rod, different codes (P52, P72 (exhaust treatment); P53, P73 (vacuum treatment)) are assigned.

Excellent mounting on 5 surfaces.

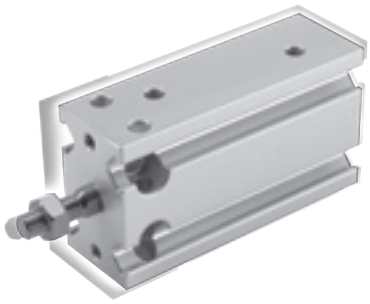
Compact/square shape cylinder, compact cylinder (ø6 to ø25) which allows direct mounting from any of five surfaces.

Lightweight and space saving

Space saving and lightweight with integration of mount block.

Up to 33% Less weight (Compared with conventional models)

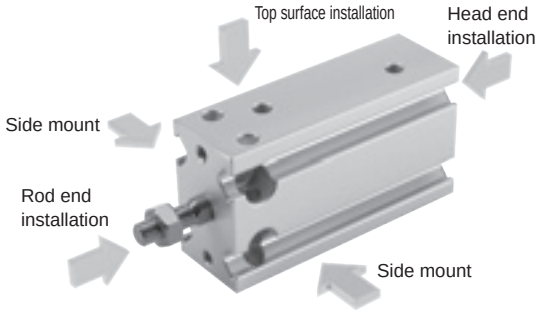
Up to 23% Space saving (Compared with conventional models)



Simple shape for flexible mounting

Integration of the mount block allows you to choose any of the five surfaces for direct mounting.

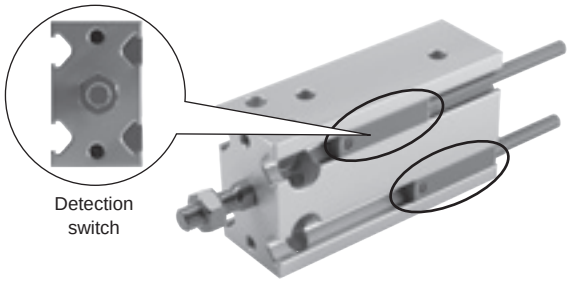
Direct mounting on any of the five surfaces

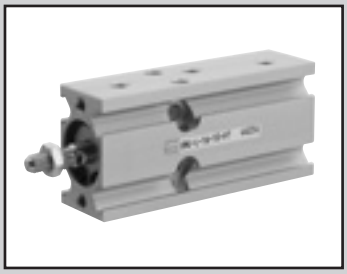


A detection switch fits in completely

A detection switch fits almost flush into the body.

Flat and hardly protruding from the surface



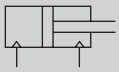


Compact cylinder double acting/single rod

SMG Series

● Bore size: ø6/ø10/ø16/ø20/ø25

JIS symbol



Double acting

RoHS

Structure and material restriction

	Structure	Material restriction			Model No.
P7 Series (custom order product)	Exhaust treatment				P7
	Vacuum treatment				P71
P5 Series (custom order product)	Exhaust treatment	Copper-based materials prohibited	Silicon-based materials prohibited	Halogen-based materials prohibited (fluorine, chlorine, bromine)	P5
	Vacuum treatment	Copper-based materials prohibited	Silicon-based materials prohibited	Halogen-based materials prohibited (fluorine, chlorine, bromine)	P51

Specifications

Descriptions	SMG-P7*/P5* SMG-L-P7*/P5* (with switch)				
Bore size mm	ø6	ø10	ø16	ø20	ø25
Actuation	Double acting				
Working fluid	Compressed air				
Max. working pressure MPa	0.7				
Min. working pressure MPa	0.12*	0.06		0.05	
Proof pressure MPa	1.05				
Ambient temperature °C	-10 to 60 (no freezing)				
Port size	M5				
Port size (relief port)	M5				
Stroke tolerance mm	+1.5 0				
Working piston speed mm/s	50 to 500				
Cushion	With rubber cushion				
Lubrication	Not available				
Allowable energy absorption J	0.012	0.036	0.1	0.1	0.19

*0.12 (≈17 psi, 1.2 bar)

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
ø6	5/10/15/20/25/30	30	5
ø10			
ø16			
ø20	5/10/15/20/25/30/40/50	50	
ø25			

*1: Custom stroke length is available per 5 mm.

Min. stroke with switch

Bore size	1-color display		2-color display	
	K□H	K□V	K□YH	K□YV
ø6	5		5	
ø10				
ø16				
ø20				
ø25				

Switch specifications

● 1-color/2-color display

Descriptions	Proximity 2-wire		Proximity 3-wire			Reed 2-wire			
	K2H/K2V	K2YH/K2YV	K3H/K3V	K3PH/K3PV (custom order)	K3YH/K3YV	K0H/K0V		K5H/K5V	
Applications	Programmable controller		Programmable controller, relay			Programmable controller, relay		Programmable controller, relay IC circuit (without indicator lamp), serial connection	
Output method	-		NPN output	PNP output	NPN output	-			
Power supply voltage	-		10 to 28 VDC			-			
Load voltage	10 to 30 VDC		30 VDC or less			12/24 VDC	110 VAC	5/12/24 VDC	110 VAC
Load current	5 to 20 mA (*2)		50 mA or less			5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less
Indicator lamp	LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		-	
Leakage current	1 mA or less		10 μA or less			0 mA			
Weight g	1 m: 18 3 m: 49 5 m: 80	1 m: 31 3 m: 85 5 m: 139	1 m: 18 3 m: 49 5 m: 80		1 m: 31 3 m: 85 5 m: 139	1 m: 18 3 m: 49 5 m: 80			

*1: Refer to page 309 for detailed switch specifications and Dimensions.
*2: Max. load current: 20mA at 25°C.The current is lower than 25 mA if the operating ambient temperature around the switch is higher than 20˚C. (60 to 5 mA at 10°C)

Cylinder weight

Unit (g)

Model No. / Bore size	Product weight when stroke length (S) = 0 mm		Additional weight per S = 5 mm
	SMG-P7*/P5* Double acting	SMG-L-P7*/P5* Double acting with switch	
ø6	26	26	3
ø10	36	36	3
ø16	60	75	6
ø20	123	151	11
ø25	216	260	17

Example: Product weight
SMG-L-16-10-K2H-D-P7
● Product weight for 0 mm stroke length ...75 g
● Additional weight when S = 10 mm .....6 g × 10/5 = 12 g
● Weight of 2 cylinder switches .....18 g × 2 = 36 g
● Product weight .....75 g + 12 g + 36 g = 123 g

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa							
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7
ø6	Push	-	4.24	5.65	8.48	11.3	14.1	17.0	19.8
	Pull	-	3.18	4.24	6.36	8.48	10.6	12.7	14.8
ø10	Push	7.85	11.8	15.7	23.6	31.4	39.3	47.1	55.0
	Pull	6.60	9.90	13.2	19.8	26.4	33.0	39.6	46.2
ø16	Push	20.1	30.2	40.2	60.3	80.4	1.01×10^2	1.21×10^2	1.41×10^2
	Pull	17.3	25.9	34.6	51.8	69.1	86.4	1.04×10^2	1.21×10^2
ø20	Push	31.4	47.1	62.8	94.2	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2
	Pull	26.4	39.6	52.8	79.2	1.06×10^2	1.32×10^2	1.58×10^2	1.85×10^2
ø25	Push	49.1	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2
	Pull	41.2	61.9	82.5	1.24×10^2	1.65×10^2	2.06×10^2	2.47×10^2	2.89×10^2

How to order

Without switch (without magnet for switch)

SMG - 25 - 25 ——— P7

With switch (built-in magnet for switch)

SMG-L - 25 - 25 - K2H - R - P7

Ⓐ Model No.

Code	Content
Ⓐ Model No.	
SMG	Double acting
SMG-L	Double acting with switch

Ⓑ Bore size

Ⓑ Bore size (mm)	
6	ø6
10	ø10
16	ø16
20	ø20
25	ø25

Ⓒ Stroke length

Ⓒ Stroke length (mm)		**Applicable bore size**				
		ø6	**ø10**	**ø16**	**ø20**	**ø25**
Standard stroke length	**5**	●	●	●	●	●
	10	●	●	●	●	●
	15	●	●	●	●	●
	20	●	●	●	●	●
	25	●	●	●	●	●
	30	●	●	●	●	●
	40				●	●
	50				●	●

Ⓓ Switch model No.

Ⓓ Switch model No.						
Lead wire straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Indicator	Lead wire
K0H*	**K0V***	Reed	●	●	1-color display	2 wires
K5H*	**K5V***		●	●	Without indicator lamp	
K2H*	**K2V***	Proximity		●	1-color display	2 wires
K3H*	**K3V***			●		3 wires
K3PH*	**K3PV***			●	1-color display (custom order product)	3 wires
K2YH*	**K2YV***			●	2-color display	2 wires
K3YH*	**K3YV***			●		3 wires

*** Lead wire length**	
Blank	1 m (standard)
3	3 m
5	5 m

Ⓔ Switch quantity

Ⓔ Switch quantity	
R	1 (on rod end)
H	1 (on head end)
D	2

Ⓕ Clean room specifications

Ⓕ Clean room specifications		
	Structure	Material restriction
P7	Exhaust treatment	-
P71	Vacuum treatment	-
P5	Exhaust treatment	Copper-based/silicon-based/halogen-based materials (fluorine, chlorine, bromine) are prohibited
P51	Vacuum treatment	Copper-based/silicon-based/halogen-based materials (fluorine, chlorine, bromine) are prohibited

Precautions for model No. selection

*1: Refer to page 76 for the minimum stroke length with switch.
*2: Refer to page 74 for combinations of variations/options.

[Example of model No.]

SMG-L-6-15-K0H-R-P7

Model: Compact cylinder
Ⓐ Model No. : Double acting with switch
Ⓑ Bore size : ø6 mm
Ⓒ Stroke length : 15 mm
Ⓓ Switch model No. : Reed K0H switch, lead wire length 1 m
Ⓔ Switch quantity : 1 (on rod end)
Ⓕ Clean room specifications : Exhaust treatment

How to order switch

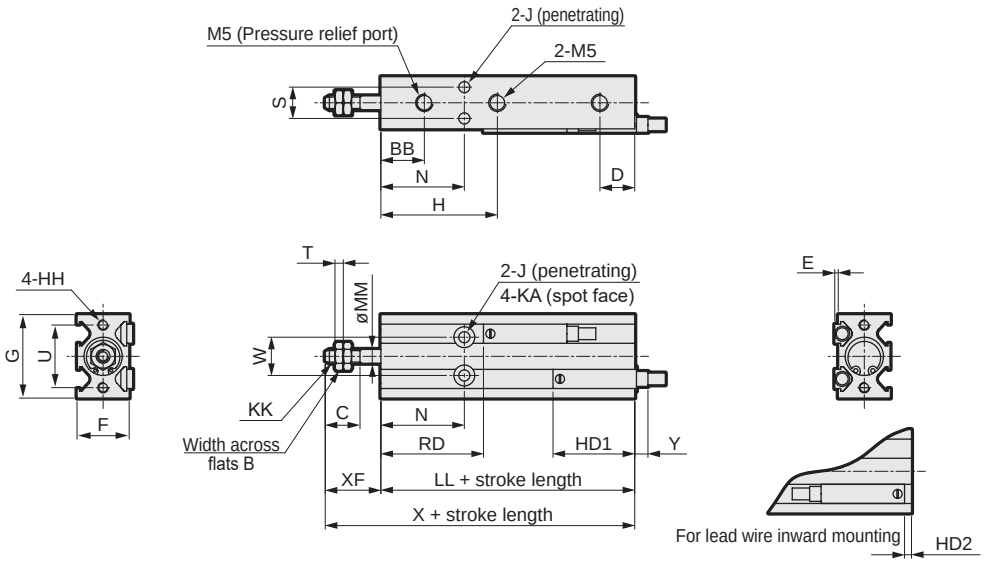
SW - K2H

Switch model No.
(Item Ⓓ above)

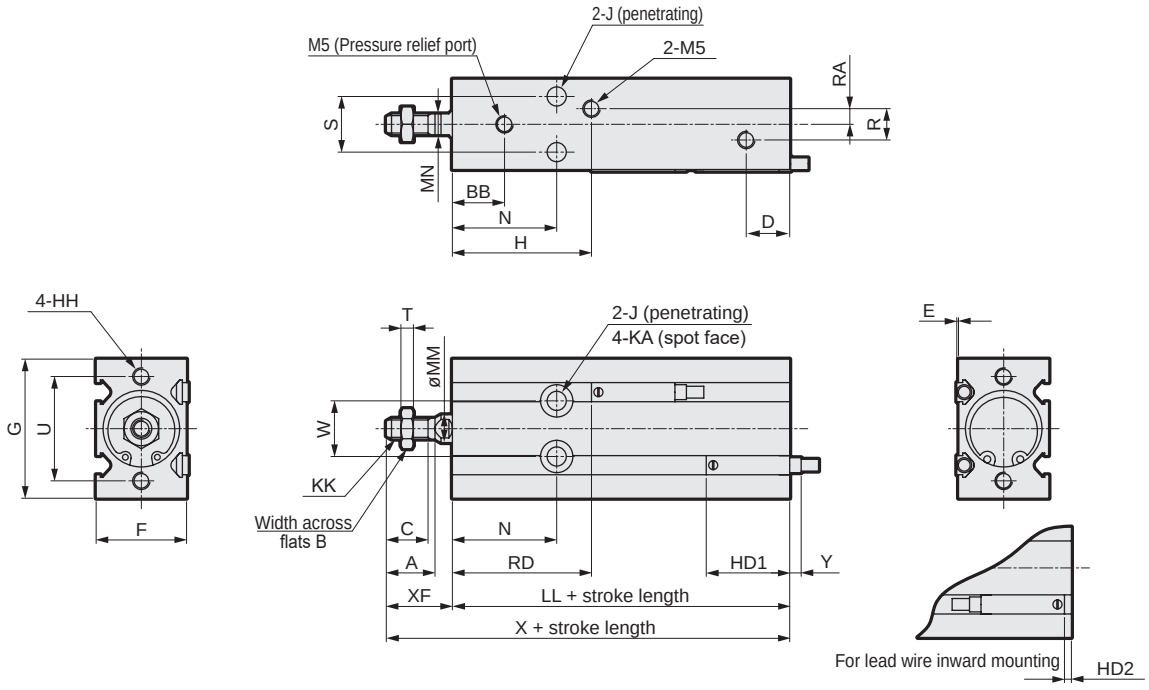
Dimensions

● Double acting/single rod SMG- (L) -P7*/P5*

• ø6/ø10



• ø16/ø20/ø25



Code / Bore size	A	B	BB	C	D	F	G	H	HH	J	KA	KK	MM	MN	N	R	RA	S	T	U	W
ø6	-	5.5	15	7	10	13	22	31	M3 depth 5	3.2	6 depth 4.8	M3	3	-	23	-	-	7	1.8	17	10
ø10	-	7	12.5	10	10	15	24	33.5	M3 depth 5	3.2	6 depth 5	M4	4	-	24	-	-	9	2.4	18	11
ø16	12.5	8	12	11	11.5	20	32	(*1) 36.5	M4 depth 6	4.5	7.6 depth 6.5	M5	6	5	27	4	2	12	3.2	25	14
ø20	14	10	15	12	12.5	26	40	40	M5 depth 8	5.5	9.3 depth 8	M6	8	6	30	9	4.5	16	3.6	30	16
ø25	18	13	15	15.5	13	32	50	40.5	M5 depth 8	5.5	9.3 depth 9	M8	10	8	29	9	4.5	20	5	38	20

Code / Bore size	XF	LL		X		E	HD1	HD2	RD	Y
		Without switch	With switch	Without switch	With switch					
ø6	13	49	49	62	62	1	20	1	29	7
ø10	16	53	53	69	69	1	23.5	4.5	29.5	3.5
ø16	16	50	60	66	76	0.5	24.5	5.5	35.5	2.5
ø20	19	57	67	76	86	0.5	27	8	40	0
ø25	23	59	69	82	92	0.5	29	10	40	-2

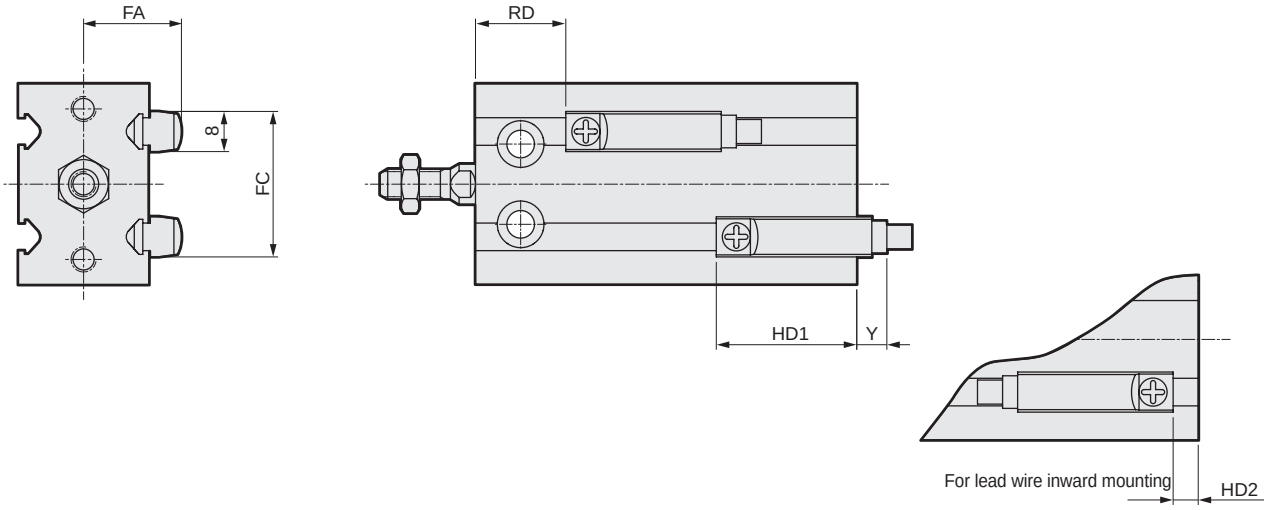
*1: 34.5 for 5 stroke length without switch

*2: Y dimensions indicate the projection dimensions from the end surface of the switch body. (Negative dimensions indicate the pull dimensions from the end surface of the body)

*3: To calculate LL+ stroke length or X+ stroke length when using custom stroke length, apply the next longer standard stroke length (instead of the custom stroke length) to the stroke length value. (Example: If the custom stroke length is 35 mm, apply the standard stroke length of 40 mm)

Dimensions (2-color display switch)

● SMG-L (with switch: K2Y$^{H}/_{V}$, K3Y$^{H}/_{V}$)



Code / Bore size	FA	FC	Double acting/clean room specifications (P7*/P5*)				
			HD1	HD2	RD	Y	
						Lead wire straight	Lead wire L-shaped
ø6	13.5	18	21	0	28	13	10
ø10	14.5	21	24.5	3.5	28.5	9.5	6.5
ø16	16.5	27	25.5	4.5	34.5	8.5	5.5
ø20	19.5	29	28	7	39	6	3
ø25	22.5	32	30	9	39	4	1

*1: Y dimensions indicate the projection dimensions from the end surface of the switch body. (Negative dimensions indicate the pull dimensions from the end surface of the body)

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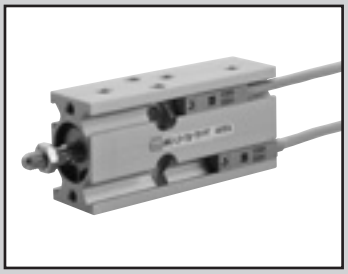
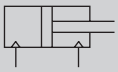


Compact cylinder/double acting/fine speed

SMG-F Series (made to order)

● Bore size: ø6/ø10/ø16/ø20/ø25

JIS symbol 

Double acting

Structure and material restriction

	Structure	Model No.
P7 Series	Exhaust treatment	P7
	Vacuum treatment	P71

Specifications

Descriptions	SMG-F-P7* SMG-LF-P7* (with switch)				
Bore size mm	ø6	ø10	ø16	ø20	ø25
Actuation	Double acting				
Working fluid	Compressed air				
Max. working pressure MPa	0.7				
Min. working pressure MPa	0.12	0.06		0.05	
Proof pressure MPa	1.05				
Ambient temperature °C	5 to 60				
Port size	M5				
Port size (relief port)	M5				
Stroke tolerance mm	+1.5 0				
Working piston speed mm/s	1 to 200				
Cushion	With rubber cushion				
Lubrication	Lubrication not possible				
Allowable energy absorption J	0.012	0.036	0.1	0.1	0.19

Stroke length

Bore size (mm)	Standard stroke length (mm)	Min. stroke length (mm)
ø6	5/10/15/20/25/30	30
ø10		
ø16		
ø20	5/10/15/20/25/30/40/50	50
ø25		

*1: The custom stroke length is available by 5 mm increments.

Min. stroke with switch

Bore size	1-color display		2-color display	
	K*H	K*V	K*YH	K*YV
ø6	5		5	
ø10				
ø16				
ø20				
ø25				

Switch specifications

● 1-color/2-color display

Descriptions	Proximity 2-wire		Proximity 3-wire			Reed 2-wire			
	K2H/K2V	K2YH/K2YV	K3H/K3V	K3PH/K3PV (custom order)	K3YH/K3YV	K0H/K0V		K5H/K5V	
Applications	Programmable controller		Programmable controller, relay			Programmable controller, relay		Programmable controller, relay IC circuit (without indicator lamp), serial connection	
Output method	-		NPN output	PNP output	NPN output	-			
Power supply voltage	-		10 to 28 VDC			-			
Load voltage	10 to 30 VDC		30 VDC or less			12/24 VDC	110 VAC	5/12/24 VDC	110 VAC
Load current	5 to 20 mA (*2)		50 mA or less			5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less
Indicator lamp	LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		-	
Leakage current	1 mA or less		10 μA or less			0 mA			
Weight g	1 m: 18 3 m: 49 5 m: 80	1 m: 31 3 m: 85 5 m: 139	1 m: 18 3 m: 49 5 m: 80	1 m: 31 3 m: 85 5 m: 139		1 m: 18 3 m: 49 5 m: 80			

*1: Refer to page 309 for detailed switch specifications and dimensions.
*2: Max. load current: 20mA at 25°C.The current is lower than 25 mA if the operating ambient temperature around the switch is higher than 20°C.
(60 to 5 mA at 10°C)

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa							
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7
ø6	Push	-	4.24	5.65	8.48	11.3	14.1	17.0	19.8
	Pull	-	3.18	4.24	6.36	8.48	10.6	12.7	14.8
ø10	Push	7.85	11.8	15.7	23.6	31.4	39.3	47.1	55.0
	Pull	6.60	9.90	13.2	19.8	26.4	33.0	39.6	46.2
ø16	Push	20.1	30.2	40.2	60.3	80.4	1.01×10^2	1.21×10^2	1.41×10^2
	Pull	17.3	25.9	34.6	51.8	69.1	86.4	1.04×10^2	1.21×10^2
ø20	Push	31.4	47.1	62.8	94.2	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2
	Pull	26.4	39.6	52.8	79.2	1.06×10^2	1.32×10^2	1.58×10^2	1.85×10^2
ø25	Push	49.1	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2
	Pull	41.2	61.9	82.5	1.24×10^2	1.65×10^2	2.06×10^2	2.47×10^2	2.89×10^2

Weight

Same as SMG Series (double acting/single rod). Refer to page 77.

Dimensions

Same as SMG Series (double acting/single rod). Refer to page 79 to 80.

How to order

Without switch (No magnet for switch)

SMG-F - 25 - 25 ——— P7

With switch (Magnet for switch incorporated)

SMG-LF - 25 - 25 - K2H - R - P7

Ⓐ Model No.

Code	Content
Ⓐ Model No.	
SMG-F	Double acting/fine speed
SMG-LF	Double acting/fine speed with switch

Ⓑ Bore size

Ⓑ Bore size (mm)	
6	ø6
10	ø10
16	ø16
20	ø20
25	ø25

Ⓒ Stroke length

Ⓒ Stroke (mm)		**Applicable bore size**				
		ø6	**ø10**	**ø16**	**ø20**	**ø25**
Standard stroke	**5**	●	●	●	●	●
	10	●	●	●	●	●
	15	●	●	●	●	●
	20	●	●	●	●	●
	25	●	●	●	●	●
	30	●	●	●	●	●
	40				●	●
	50				●	●

Ⓓ Switch model No.

Ⓓ Switch model No.						
Lead wire straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Indicator	Lead wire
K0H*	**K0V***	Reed	●	●	1-color display	2 wires
K5H*	**K5V***		●	●	Without indicator lamp	
K2H*	**K2V***	Proximity		●	1-color display	2 wires
K3H*	**K3V***			●		3 wires
K3PH*	**K3PV***			●	1-color display (custom order product)	3 wires
K2YH*	**K2YV***			●	2-color display	2 wires
K3YH*	**K3YV***			●		3 wires

*** Lead wire length**	
Blank	1 m (standard)
3	3 m
5	5 m

Ⓔ Switch quantity

Ⓔ Switch quantity	
R	1 (on rod end)
H	1 (on head end)
D	2

Ⓕ Clean room specifications

Ⓕ Clean room specifications	
	Structure
P7	Exhaust treatment
P71	Vacuum treatment

Precautions for model No. selection

*1: Refer to page 82 for the minimum stroke length with switch.
*2: Refer to page 74 for combinations of variations/options.

[Example of model No.]

SMG-LF-6-15-K0H-R-P7

Model: Compact cylinder

Ⓐ Model No. : Double acting/fine speed with switch
Ⓑ Bore size : ø6 mm
Ⓒ Stroke length : 15 mm
Ⓓ Switch model No. : Reed K0H switch, lead wire length 1 m
Ⓔ Switch quantity : 1 (on rod end)
Ⓕ Clean room specifications : Exhaust treatment

How to order switch

SW - K2H

Switch model No. (Item Ⓓ above)

MEMO

Safety Precautions

Always read this section before use.

Refer to page 2 for general information of the cylinder, and to page 320 for general information of the cylinder switch.

Compact cylinder SMG Series

Design & selection

1. Common

⚠ CAUTION

The minimum working pressure in the specifications column indicates the initial value. Depending on the conditions of use or duration of use, the specifications may be exceeded. When using around the minimum working pressure, contact CKD.

2. Fine speed SMG-F

⚠ CAUTION

■ Use without lubrication.

Applying lubrication may cause changes in characteristics.

■ Assemble the speed controller near the cylinder.

When installed far from the cylinder, the speed becomes unstable.
For the speed controller, SC-M3/M5-F, SCD-M3/M5-F Series are recommended.

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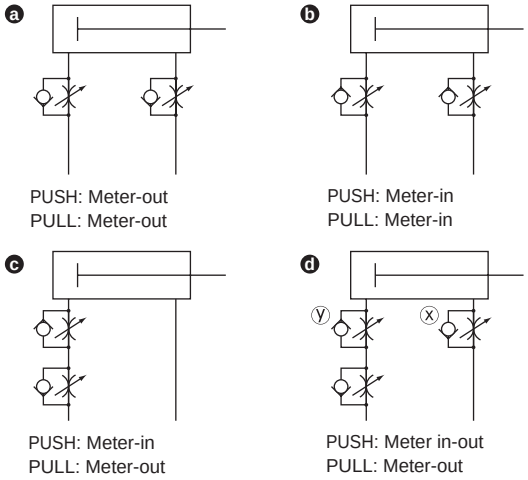
■ Stable speed control is achieved with a meter-out circuit.

When fine speed activation is performed with operating direction PUSH for the single rod cylinder, the popping out phenomenon occurs when operation starts if the load resistance is low. For countermeasures, use the ⓑ, ⓒ, or ⓓ circuit. Note that circuit ⓓ is the most stable.

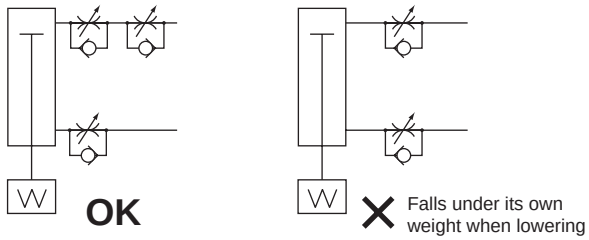


Speed adjustment method for PUSH operation of ⓓ circuit:

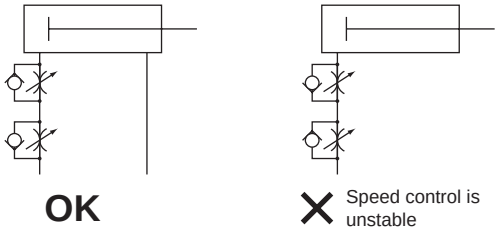
1. Set the speed with the speed controller x.
2. Restrict the speed with the speed controller y until there is no popping out.
3. Check the speed again.

(*1) When comparing ⓑ ⓒ ⓓ, the circuit ⓓ is the most stable.

(*2) For vertical mounting, combine the cylinder with a meter-out circuit, as it will fall under its own weight when a meter-in circuit is used.



(*3) Use the circuit as shown in the figure below for the serial connection of the speed controllers.



(Occurrence of popping out)

When the following condition is met, popping out could occur.

- Thrust > Resistance

* Resistance: a force produced by a residual pressure on the outlet side (for fine speed, Inlet pressure = Residual pressure) + { For vertical use: friction caused by the load / For horizontal use: self-weight of the load }

■ Do not apply a lateral load to the cylinder.

With a lateral load, operation will become unstable.

■ Avoid using the products where vibration is present.

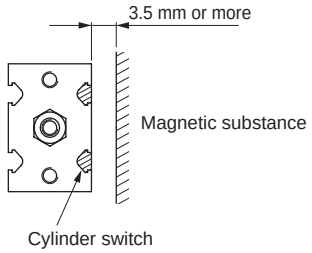
The product will be adversely affected by vibration and operation will become unstable.

Mounting, installation & adjustment

1. Common

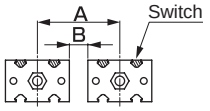
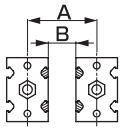
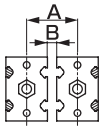
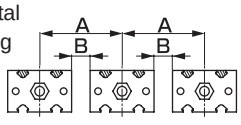
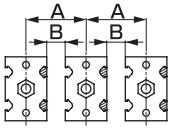
⚠ CAUTION

■ The cylinder switch may malfunction if there is a magnetic substance such as a metal plate installed adjacently. Check that a distance of 3.5 mm is provided from the surface of the cylinders.
(Same for all bore sizes)



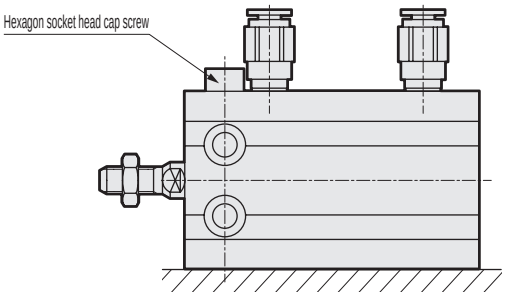
■ The cylinder switch may malfunction when cylinders are installed adjacently. In order to prevent switch malfunctions, provide a mounting pitch value according to the table below and the next page.

Unit: mm

Adjacent conditions			Switch model No.	ø6	ø10	ø16	ø20	ø25	Remarks
Two cylinders in parallel	• Horizontal mounting 	A	K0, K5	27	29	37	45	55	
			K2, K3						
		B	K0, K5	4.5					
			K2, K3						
	• Vertical mounting Switches are attached on the opposite side of the horizontal cylinders 	A	K0, K5	28	21	25	33	41	Note that switch position cannot be adjusted if the length of the screwdriver is longer than B dimension with cylinders mounted.
			K2, K3	25	28	35	40	50	
		B	K0, K5	5.5	5.5	5.5	6.5	8.5	
			K2, K3	11.5	12.5	14.5	14.5	17.5	
	• Vertical mounting Switches are attached on the side of the adjacent cylinders 	A	K0, K5	14	16	21	27	33	
			K2, K3						
		B	K0, K5	0.5					
			K2, K3						
More than two cylinders in parallel	• Horizontal mounting 	A	K0, K5	27	29	37	45	55	
			K2, K3						
		B	K0, K5	4.5					
			K2, K3						
	• Vertical mounting 	A	K0, K5	19	22	26	34	42	Note that switch position cannot be adjusted if the length of the screwdriver is longer than B dimension with cylinders mounted.
			K2, K3	27	29	35	44	51	
		B	K0, K5	6.5	6.5	6.5	7.5	9.5	
			K2, K3	13.5	13.5	14.5	17.5	18.5	

■ Depending on the stroke length or mounting method, compatible piping fittings are limited. Use the following recommended fittings.

Fig. 1



Descriptions / Port size	Port size	Recommended fittings
6	M5	SC3W-M5-4,6-P7* GWS4-M5-P7* GWS6-M5-P7* (*1) GWS4,6-M5-S-P7* GWL4-M5-P7* GWL6-M5-P7* (*1)
10	M5	SC3W-M5-4,6-P7* GWS4,6-M5-P7* GWS4,6-M5-S-P7* GWL4,6-M5-P7*
16	M5	SC3W-M5-4,6-P7* GWS4-M5-P7* (*1) GWS6-M5-P7* (*2) GWS4-M5-S-P7* GWS6-M5-S-P7* (*1) GWL4-M5-P7* (*1) GWL6-M5-P7* (*2)
20	M5	SC3W-M5-4,6-P7* GWS4-M5-P7* GWS6-M5-P7* (*1) GWS4,6-M5-S-P7* GWL4-M5-P7* GWL6-M5-P7* (*1)
25	M5	SC3W-M5-4,6-P7* GWS4,6-M5-P7* GWS4,6-M5-S-P7* GWL4,6-M5-P7*

*1: Excluding the case of 5 stroke length or mounting method in "Fig. 1".
*2: Excluding the case of 5,10 stroke length or mounting method in "Fig. 1".

■ When mounting the body with a through bolt, tighten the bolts to the tightening torque specified in the table below.

Port size	Applicable bolts	Tightening torque
ø6/10	M3	0.6 to 1.1 N·m
ø16	M4	1.5 to 2.7 N·m
ø20/25	M5	3.0 to 5.4 N·m

2. Fine speed SMG-F

⚠CAUTION

■ Perform adjustment such as centering so that a lateral load is not applied to the cylinder.
In addition, install and adjust the sliding guide to avoid twisting.

- When the load or the resistance fluctuates, operation becomes unstable.
- With a large difference between static friction and kinematic friction of the guide, operation becomes unstable.