

# Compact Cylinder SMG Series

## COMPACT CYLINDER SMG SERIES

**A new compact cylinder release!** *New*  
**Now even more Compact & Slim!**

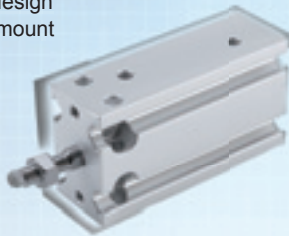


### Lightweight and space-saving design

Space-saving and lightweight design made possible with integrated mount block.

Up to **33%** weight reduction (CKD comparison)

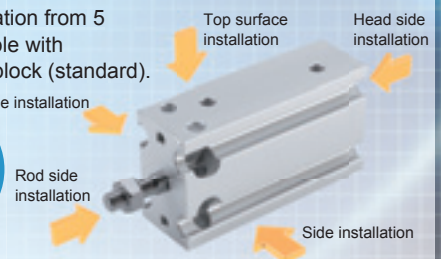
Up to **23%** space saving (CKD comparison)



### Easy-to-install, simplified shape

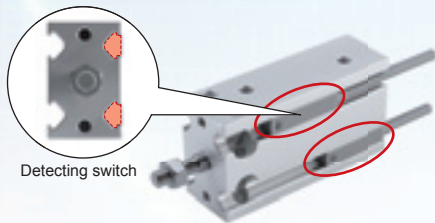
Easy direct installation from 5 sides made possible with integrated mount block (standard).

Direct 5-side installation



### Non-protruding detection switch

Virtually no protrusion even with the detection switch

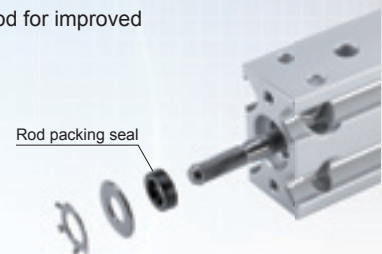


Non-protruding and flat

### Improved maintainability

New installation method for improved maintainability

Easy maintenance

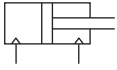




### SMG product variation

Series variation	Bore size	Stroke length (mm)												
		5	10	15	20	25	30	40	50	60	70	80	90	100
Double acting, single rod type <b>SMG</b>	ø6/10/16	●	●	●	●	●	●	●	●	●	●	●	●	●
	ø20/25/32	●	●	●	●	●	●	●	●	●	●	●	●	●
Single acting, extend type <b>SMG-X</b>	ø6/10/16/20/25/32	●	●	●	●	●	●	●	●	●	●	●	●	●
	ø6/10/16/20/25/32	●	●	●	●	●	●	●	●	●	●	●	●	●
Single acting, retract type <b>SMG-Y</b>	ø6/10/16/20/25/32	●	●	●	●	●	●	●	●	●	●	●	●	●

# Series variation

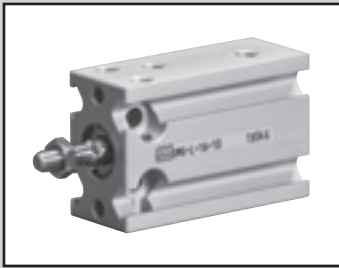
# Compact cylinder SMG Series

Variation	Model no. JIS symbol	Bore size (mm)	Standard stroke length (mm)					
			5	10	15	20	25	30
Double acting single rod type with switch	SMG SMG-L 	ø6/ø10/ø16	●	●	●	●	●	●
		ø20/ø25/ø32	●	●	●	●	●	●
Single acting extend type with switch	SMG-X SMG-XL 	ø6/ø10/ø16	●	●	●			
		ø20/ø25/ø32	●	●	●			
Single acting retract type with switch	SMG-Y SMG-YL 	ø6/ø10/ø16	●	●	●			
		ø20/ø25/ø32	●	●	●			

●: Standard, ◎: Option, ■: Not available

Standard stroke length (mm)								Min. stroke length (mm) (Note 1)	Max. stroke length (mm)	Custom stroke length (per mm)	Switch	Page
	40	50	60	70	80	90	100					
	●	●	●	■	■	■	■	5	60	5	◎	3
	●	●	●	●	●	●	●		100			
	■	■	■	■	■	■	■	5	15	-	◎	7
	■	■	■	■	■	■	■		15			
	■	■	■	■	■	■	■	5	15	-	◎	7
	■	■	■	■	■	■	■		15			

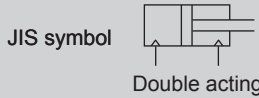
Note 1: Refer to page 3 and 7 for minimum stroke length of cylinders with switches.



Compact cylinder Double acting single rod type

# SMG Series

● Bore size:  $\phi 6/\phi 10/\phi 16/\phi 20/\phi 25/\phi 32$



## Specifications

Descriptions	SMG SMG-L (with switch)						
	mm	$\phi 6$	$\phi 10$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$
Bore size	mm	$\phi 6$	$\phi 10$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure	MPa	0.7					
Min. working pressure	MPa	0.12	0.06			0.05	
Withstanding pressure	MPa	1.05					
Ambient temperature	$^{\circ}\text{C}$	-10 to 60 (No freezing)					
Port size		M5				Rc1/8	
Stroke tolerance	mm	+1.5 0					
Working piston speed	mm/s	50 to 500					
Cushion		Rubber cushioned					
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)					
Allowable energy absorption	J	0.012	0.036	0.1	0.1	0.19	0.5

## Stroke length

Bore size (mm)	Standard stroke length (mm)	Min. stroke length (mm)
$\phi 6$	5, 10, 15, 20, 25, 30, 40, 50, 60	5
$\phi 10$		
$\phi 16$		
$\phi 20$	5, 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100	
$\phi 25$		
$\phi 32$		

Note 1: Custom stroke length is available per 5mm increment.

## Min. stroke length of types with switch

Bore size	1 color indicator		2 color indicator	
	K□H	K□V	K□YH	K□YV
$\phi 6$	5	5	5	5
$\phi 10$				
$\phi 16$				
$\phi 20$				
$\phi 25$				
$\phi 32$				

## Switch specifications

● 1 color/2 color indicator type

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 light), serial connection		
Output method	-		NPN output	PNP output	NPN output	-				
Power voltage	-		10 to 28VDC			-				
Load voltage	10 to 30VDC		30VDC or less			12/24VDC	110VAC	5/12/24VDC	110VAC	
Load current	5 to 20 mA (Note 1)		50 mA or less			5 to 50 mA	7 to 20 mA	50 mA or less		20 mA or less
Light	LED (ON lighting)	Red/green LED (ON lighting)	LED (ON lighting)	Yellow LED (ON lighting)	Red/green LED (ON lighting)	LED (ON lighting)		-		
Leakage current	1 mA or less		10 $\mu\text{A}$ 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				

Note 1: Max. load current above: 20 mA at 25 $^{\circ}\text{C}$ . The current will be lower than 20 mA if ambient temperature around the switch is higher than 25 $^{\circ}\text{C}$ . (5 to 10 mA when 60 $^{\circ}\text{C}$ .)

## Cylinder weight

Unit (g)

Model no.	Product weight when S = 0 mm stroke		Additional weight per S = 5 mm
	SMG Double acting	SMG-L Double acting/with switch	
$\phi 6$	18	18	3
$\phi 10$	27	27	3
$\phi 16$	41	56	6
$\phi 20$	87	115	11
$\phi 25$	164	208	17
$\phi 32$	267	335	26

(Example) Product weight

- SMG-L-16-10-K2H-D ● Product weight when stroke length = 0 mm ... 56 g
- Additional weight when S = 10 mm ... 6 g  $\times$  10/5 = 12 g
- Weight of two cylinder switches ... 18g  $\times$  2 = 36 g
- Product weight ... 56g + 12g + 36g = 104g

### How to order

Without switch

**SMG - 32 - 25**

With switch

**SMG-L - 32 - 25 - K2H - R**

**A** Model no.

**B** Bore size

**C** Stroke length

**D** Switch model no.

**E** Switch quantity

### Note on model no. selection

Note 1: Refer to page 3 for min. stroke length with switch.

Note 2: Copper and PTFE free as standard.

<Example of model number>

**SMG-L-6-15-K0H-R**

Model: Compact cylinder

**B** Bore size :  $\phi 6$  mm

**C** Stroke length : 15 mm

**D** Switch model no. : Reed switch K0H, lead wire length 1 m

**E** Switch quantity : One on rod side

Symbol	Descriptions						
<b>A Model no.</b>							
SMG	Double acting						
SMG-L	Double acting/with switch						
<b>B Bore size (mm)</b>							
6	$\phi 6$						
10	$\phi 10$						
16	$\phi 16$						
20	$\phi 20$						
25	$\phi 25$						
32	$\phi 32$						
<b>C Stroke length (mm)</b>		<b>Applicable bore size</b>					
		$\phi 6$	$\phi 10$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$
Standard stroke length	5	●	●	●	●	●	●
	10	●	●	●	●	●	●
	15	●	●	●	●	●	●
	20	●	●	●	●	●	●
	25	●	●	●	●	●	●
	30	●	●	●	●	●	●
	40	●	●	●	●	●	●
	50	●	●	●	●	●	●
	60	●	●	●	●	●	●
	70				●	●	●
	80				●	●	●
	90				●	●	●
100				●	●	●	
<b>D Switch model no.</b>							
Axial lead wire	Radial lead wire	Contact	Indicator		Lead wire		
K0H*	K0V*	Reed	1 color indicator		2 wire		
K5H*	K5V*		Without indicator light				
K2H*	K2V*	Proximity	1 color indicator		2 wire		
K3H*	K3V*		1 color indicator (custom order)		3 wire		
K3PH*	K3PV*		2 color indicator		2 wire		
K2YH*	K2YV*				3 wire		
K3YH*	K3YV*						
<b>* Lead wire length</b>							
Blank	1 m (standard)						
3	3 m						
5	5 m						
<b>E Switch quantity</b>							
R	One on rod side						
H	One on head side						
D	Two						

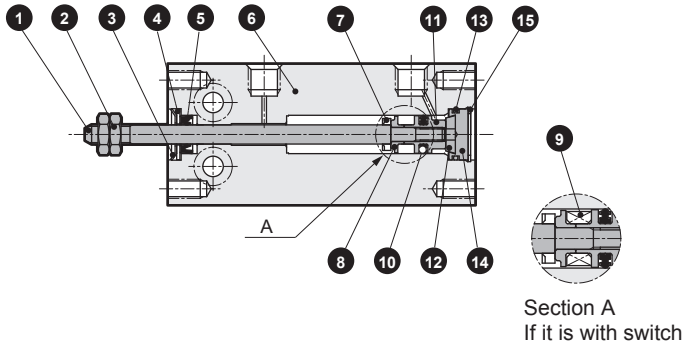
### How to order switch

**SW - K2H**

Switch model no.  
(**D** above)

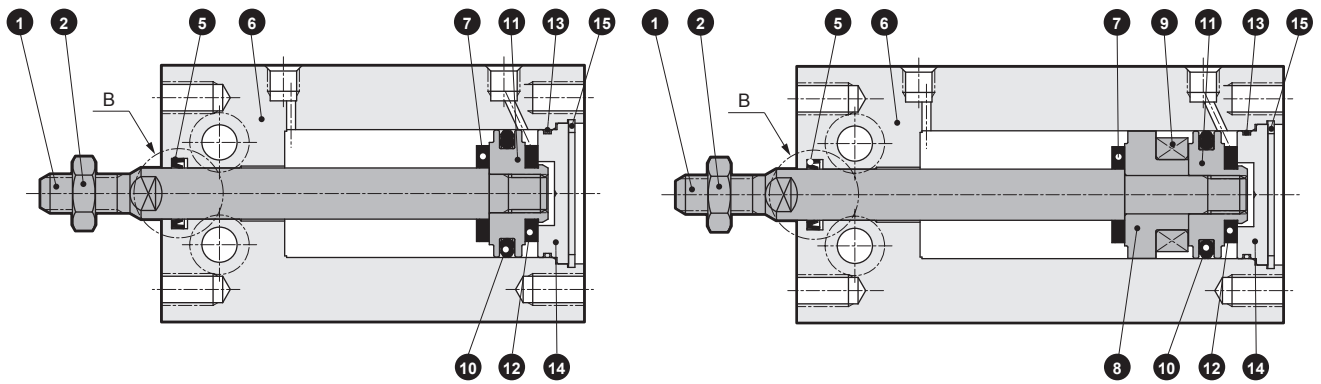
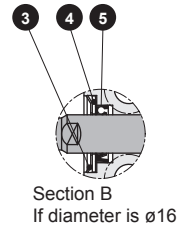
## Internal structure and parts list

●  $\phi 6/\phi 10$  (Double acting)



●  $\phi 16$  to 32 (Double acting)

●  $\phi 16$  to 32 (Double acting/with switch)



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Piston rod	Stainless steel	$\phi 20, 25, 32$ Industrial chrome plating	9	Magnet	-	
2	Rod nut	Steel	Nickeling	10	Piston packing seal	Nitrile rubber	
3	CR snap ring	Stainless steel		11	Piston	Aluminum alloy	Chromate
4	Cap	Stainless steel		12	Cushion rubber (H)	Urethane rubber	
5	Rod packing seal	Nitrile rubber		13	Cover gasket	Nitrile rubber	
6	Body	Aluminum alloy	Hard alumite	14	Cover	Aluminum alloy	Chromate
7	Cushion rubber (R)	Urethane rubber		15	C type snap ring	Steel	Phosphoric acid zinc
8	Spacer	Aluminum alloy	Chromate				

### Repair parts list

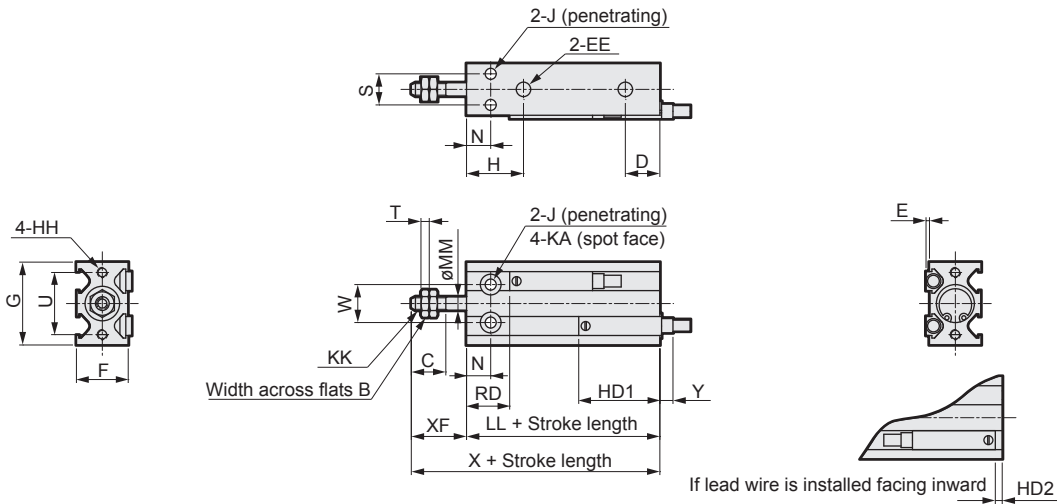
Bore size (mm)	Kit no.	Repair parts no.
$\phi 6$	SMG-6K	
$\phi 10$	SMG-10K	3 5 7 10 12 13
$\phi 16$	SMG-16K	

Bore size (mm)	Kit no.	Repair parts no.
$\phi 20$	SMG-20K	
$\phi 25$	SMG-25K	5 7 10 12 13
$\phi 32$	SMG-32K	

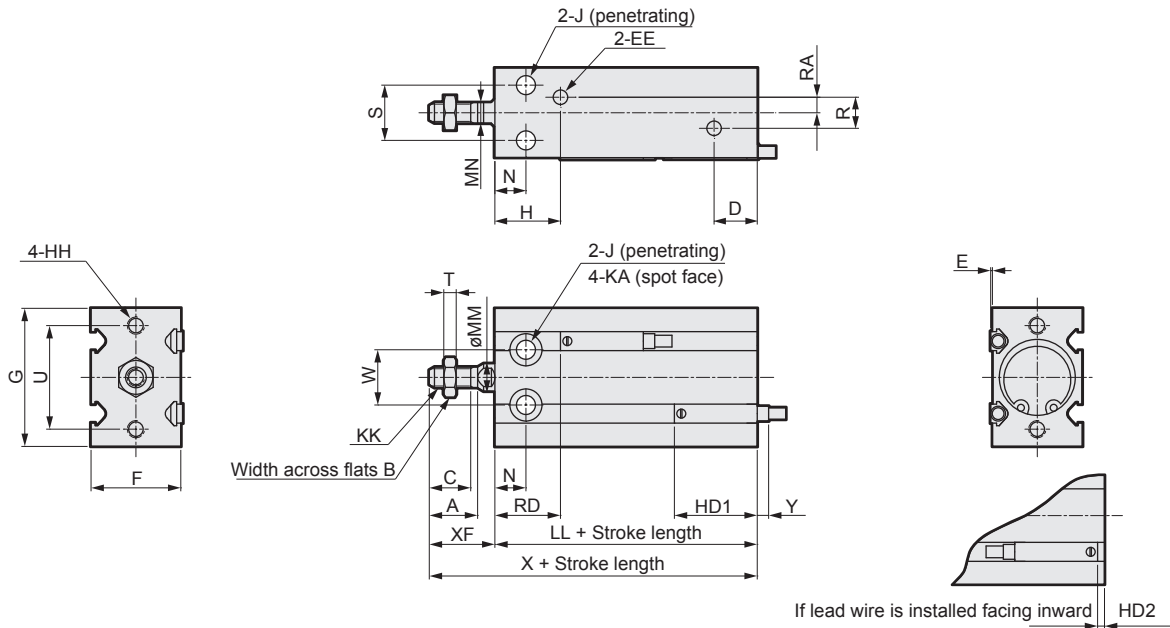
### Dimensions

#### ● Double acting SMG- (L)

ø6/10



ø16/ø20/ø25/ø32



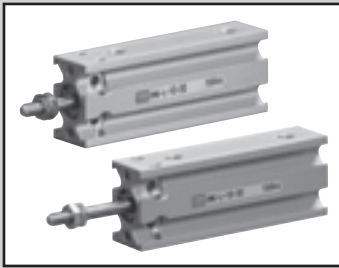
Symbol Bore size	A	B	C	D	EE	F	G	H	HH	J	KA	KK	MM	MN	N	R	RA	S
ø6	-	5.5	7	10	M5	13	22	15	M3 depth 5	3.2	6 depth 4.8	M3	3	-	7	-	-	7
ø10	-	7	10	10	M5	15	24	16.5	M3 depth 5	3.2	6 depth 5	M4	4	-	7	-	-	9
ø16	12.5	8	11	11.5	M5	20	32	(Note 1) 16.5	M4 depth 6	4.5	7.5 depth 6.5	M5	6	5	7	4	2	12
ø20	14	10	12	12.5	M5	26	40	19	M5 depth 8	5.5	9 depth 8	M6	8	6	9	9	4.5	16
ø25	18	13	15.5	13	M5	32	50	21.5	M5 depth 8	5.5	9 depth 9	M8	10	8	10	9	4.5	20
ø32	22	17	19.5	12.5	Rc1/8	40	62	23	M6 depth 9	6.6	11 depth 11.5	M10 × 1.25	12	10	11	13.5	4.5	24

Symbol Bore size	T	U	W	XF	LL		X		E		HD1	HD2	RD	Y (Note 2)
					w/o switch	w/ switch	w/o switch	w/ switch	K0/5	K2/3, K3P				
ø6	1.8	17	10	13	33	33	46	46	0.5	1	20	1	13	7
ø10	2.4	18	11	16	36	36	52	52	0.5	1	23.5	4.5	12.5	3.5
ø16	3.2	25	14	16	30	40	46	56	0	0.5	24.5	5.5	15.5	2.5
ø20	3.6	30	16	19	36	46	55	65	0	0.5	27	8	19	0
ø25	5	38	20	23	40	50	63	73	0	0.5	29	10	21	-2
ø32	6	48	24	27	42	52	69	79	0	0.5	30.5	11.5	21.5	-3.5

Note 1: 14.5 if 5stroke length without switch

Note 2: Y dimension refers to projecting length from the edge of the switch's body. (negative dimension is the retracting length from the body's edge)

Note 3: When calculating LL+stroke length and X + stroke length of custom stroke, do not add the value of custom stroke. Add the standard stroke value above.  
(ex. When custom stroke is 35mm, use standard stroke 40mm and calculate.)

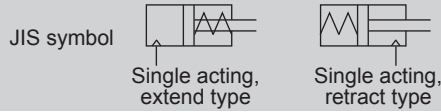


Compact cylinder

Single acting extend type with switch  
Single acting retract type with switch

# SMG-X<sup>Y</sup> Series

● Bore size:  $\phi 6/\phi 10/\phi 16/\phi 20/\phi 25/\phi 32$



## Specifications

Descriptions		SMG-X, SMG-Y SMG-XL, SMG-YL (with switch)					
Bore size	mm	$\phi 6$	$\phi 10$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$
Actuation	SMG-X (L)	Single acting, extend type					
	SMG-Y (L)	Single acting, retract type					
Working fluid		Compressed air					
Max. working pressure	MPa	0.7					
Min. working pressure	SMG-X (L)	0.2	0.15			0.13	
	SMG-Y (L)						
Withstanding pressure	MPa	1.05					
Ambient temperature	°C	-10 to 60 (No freezing)					
Port size		M5					Rc1/8
Stroke tolerance	mm	+1.5 0					
Working piston speed	mm/s	50 to 500					
Cushion		Note) Rubber cushioned					
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)					
Allowable energy absorption	J	0.012	0.036	0.05	0.1	0.19	0.5

Note 1: Do not leave the single acting cylinder in a pressurized state. If left pressurized, the piston rod may not return with spring power when pressure is released.

Note 2:  $\phi 6$  comes with rubber cushion on one side.

## Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
$\phi 6$	5, 10, 15	15	5
$\phi 10$			
$\phi 16$			
$\phi 20$			
$\phi 25$			
$\phi 32$			

## Min. stroke length of types with switch

Model	Bore size	1 color indicator		2 color indicator	
		K□H	K□V	K□YH	K□YV
SMG-XL SMG-YL	$\phi 6$	5		5	
	$\phi 10$				
	$\phi 16$				
	$\phi 20$				
	$\phi 25$				
	$\phi 32$				



## Switch specifications

● 1 color/2 color indicator type

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 light), serial connection		
Output method	-		NPN output	PNP output	NPN output	-				
Power voltage	-		10 to 28VDC			-				
Load voltage	10 to 30VDC		30VDC or less			12/24VDC	110VAC	5/12/24VDC	110VAC	
Load current	5 to 20 mA (Note 1)		50 mA or less			5 to 50 mA	7 to 20 mA	50 mA or less	20mA or less	
Light	LED (ON lighting)	Red/green LED (ON lighting)	LED (ON lighting)	Yellow LED (ON lighting)	Red/green LED (ON lighting)	LED (ON lighting)		-		
Leakage current	1 mA or less		10 μA or less			0mA				
Weight	1m: 18 3m: 49 5m: 80	1m: 31 3m: 85 5m: 139	1m: 18 3m: 49 5m: 80	1m: 31 3m: 85 5m: 139	1m: 18 3m: 49 5m: 80					

Note 1: Max. load current above: 20 mA at 25°C. The current will be lower than 20 mA if ambient temperature around the switch is higher than 25°C. (5 to 10 mA when 60°C.)

## SMG-X Cylinder weight

Model no.	5		10		15	
	w/o switch	w/ switch	w/o switch	w/ switch	w/o switch	w/ switch
ø6	21	21	23	24	26	26
ø10	31	31	34	34	41	41
ø16	47	62	53	68	66	81
ø20	98	125	109	135	131	158
ø25	180	223	196	240	233	277
ø32	293	361	319	386	376	444

## SMG-X Cylinder weight

Model no.	5		10		15	
	w/o switch	w/ switch	w/o switch	w/ switch	w/o switch	w/ switch
ø6	20	21	23	23	26	26
ø10	30	30	33	33	39	40
ø16	61	62	67	68	79	80
ø20	98	124	108	135	130	157
ø25	180	223	196	240	231	275
ø32	291	359	317	385	372	439

## SMG-X/SMG-Y Spring load

Unit: N

Bore size (mm)	Stroke length (mm)	Stroke length at 0 o'clock	Full stroke length during operation	Bore size (mm)	Stroke length (mm)	Stroke length at 0 o'clock	Full stroke length during operation
ø6	5	3.1	3.8	ø20	5	14	19
	10	2.3			10	8.8	
	15	1.6			15		
ø10	5	5.5	8.0	ø25	5	19	25
	10	3.0			10	14	
	15				15		
ø16	5	11	16	ø32	5	25	30
	10	5.9			10	21	
	15				15		

## How to order

Without switch

**SMG-X** - **32** - **15**

With switch

**SMG-XL** - **32** - **15** - **K2H** - **R**

**A** Model no.

**B** Bore size

**C** Stroke length

**D** Switch model no.

**E** Switch quantity

Symbol	Descriptions				
<b>A Model no.</b>					
<b>SMG-X</b>	Single acting extend type				
<b>SMG-XL</b>	Single acting extend type with switch				
<b>SMG-Y</b>	Single acting spring retract type				
<b>SMG-YL</b>	Single acting spring retract type, with switch				
<b>B Bore size (mm)</b>					
<b>6</b>	ø6				
<b>10</b>	ø10				
<b>16</b>	ø16				
<b>20</b>	ø20				
<b>25</b>	ø25				
<b>32</b>	ø32				
<b>C Stroke length (mm)</b>					
Bore size	Stroke length				
<b>6 to 32</b>	5, 10, 15				
<b>D Switch model no.</b>					
Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire	
<b>K0H*</b>	<b>K0V*</b>	Reed	1 color indicator Without indicator light	2 wire	
<b>K5H*</b>	<b>K5V*</b>				
<b>K2H*</b>	<b>K2V*</b>	Proximity	1 color indicator	2 wire	
<b>K3H*</b>	<b>K3V*</b>			3 wire	
<b>K3PH*</b>	<b>K3PV*</b>		2 color indicator	1 color indicator (custom order)	3 wire
<b>K2YH*</b>	<b>K2YV*</b>			2 wire	
<b>K3YH*</b>	<b>K3YV*</b>			3 wire	
<b>* Lead wire length</b>					
<b>Blank</b>	1 m (standard)				
<b>3</b>	3 m				
<b>5</b>	5 m				
<b>E Switch quantity</b>					
<b>R</b>	One on rod side				
<b>H</b>	One on head side				
<b>D</b>	Two				

## ! Note on model no. selection

Note 1: Refer to page 7 for min. stroke length with switch.

Note 2: Copper and PTFE free as standard.

<Example of model number>

**SMG-XL-6-15-K0H-R**

Model: Compact cylinder

- A** Model no. : Single acting extend type
- B** Bore size : ø6 mm
- C** Stroke length : 15 mm
- D** Switch model no. : Reed switch K0H, lead wire length 1 m
- E** Switch quantity : One on rod side

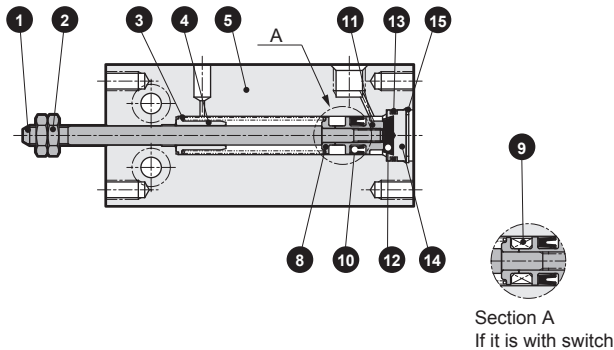
## How to order switch

**SW** - **K2H**

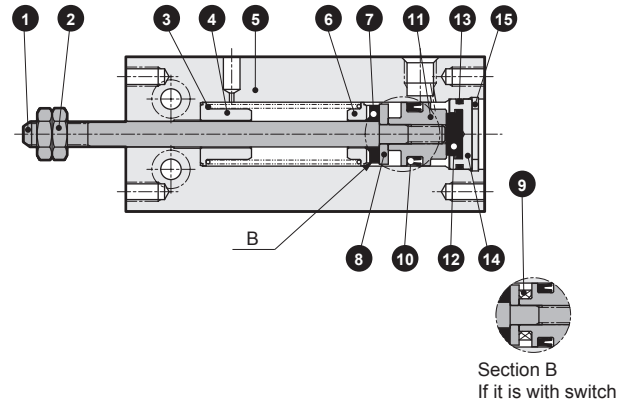
Switch model no.  
(**D** above)

### Internal structure and parts list

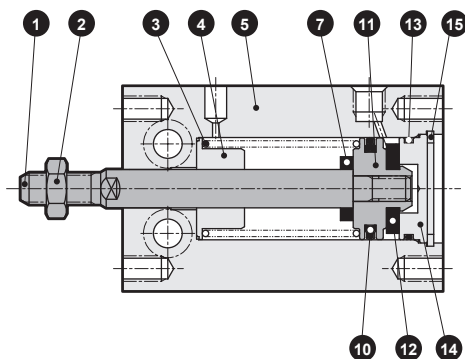
●  $\phi 6$  (single acting extend type)



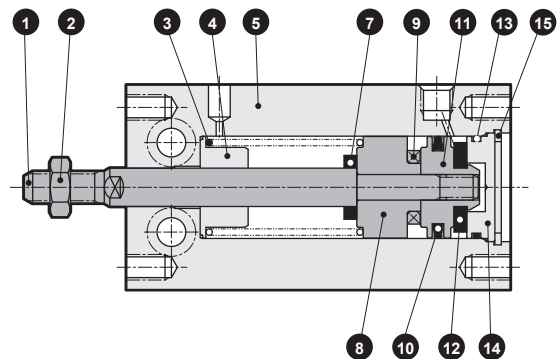
●  $\phi 10$  (single acting extend type)



●  $\phi 16$  to 32 (single acting extend type)



●  $\phi 16$  to 32 (single acting extend type)



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Piston rod	Stainless steel	$\phi 20, 25, 32$ Industrial chrome plating	9	Magnet	-	
2	Rod nut	Steel	Nickeling	10	Piston packing seal	Nitrile rubber	
3	Coil spring	Piano wire	Electrode position coating	11	Piston	Aluminum alloy	Chromate
4	Spring holder	Aluminum alloy		12	Cushion rubber (H)	Urethane rubber	
5	Body	Aluminum alloy	Hard alumite	13	Cover gasket	Nitrile rubber	
6	Spring holder	Aluminum alloy		14	Cover	Aluminum alloy	Chromate
7	Cushion rubber (R)	Urethane rubber		15	C type snap ring	Steel	Phosphoric acid zinc
8	Spacer	Aluminum alloy	Chromate				

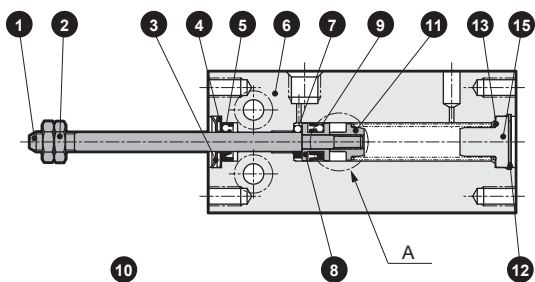
### Repair parts list

Bore size (mm)	Kit no.	Repair parts no.
$\phi 6$	SMG-X-6K	10 12 13
$\phi 10$	SMG-X-10K	7 10 12 13
$\phi 16$	SMG-X-16K	

Bore size (mm)	Kit no.	Repair parts no.
$\phi 20$	SMG-X-20K	7 10 12 13
$\phi 25$	SMG-X-25K	
$\phi 32$	SMG-X-32K	

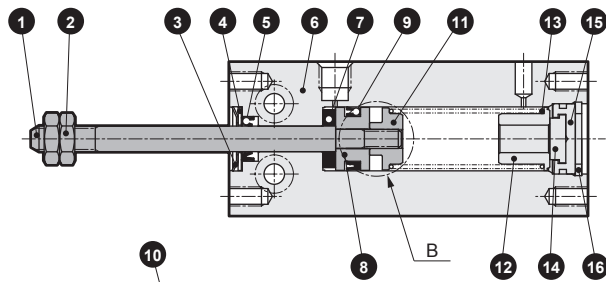
## Internal structure and parts list

●  $\phi 6$  (single acting spring retract types)



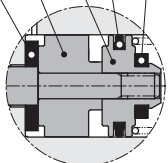
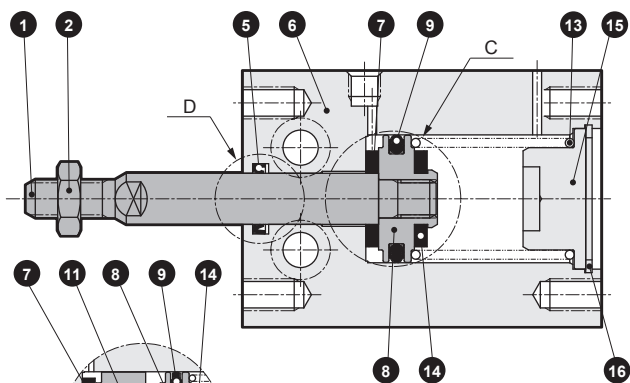
Section A  
If it is with switch

●  $\phi 10$  (single acting spring retract types)



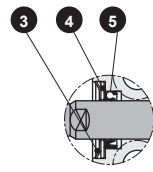
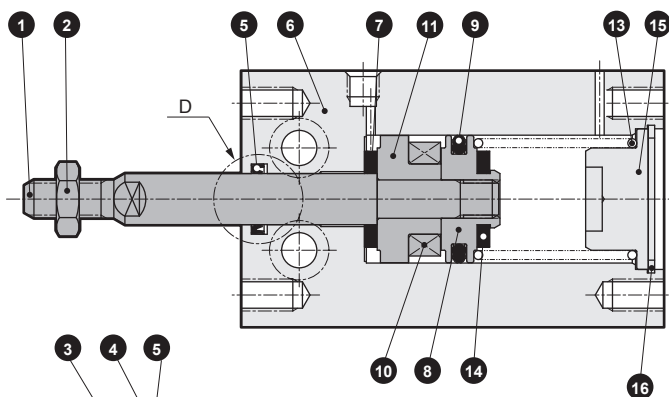
Section B  
If it is with switch

●  $\phi 16$  to 32 (single acting spring retract types)



Section C  
If diameter is  $\phi 16$

●  $\phi 16$  to 32 (single acting retract types with switch)



Section D  
If diameter is  $\phi 16$

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Piston rod	Stainless steel	$\phi 20, 25, 32$ Industrial chrome plating	9	Piston packing seal	Nitrile rubber	
2	Rod nut	Steel	Nickeling	10	Magnet	-	
3	CR snap ring	Stainless steel		11	Spacer	Aluminum alloy	Chromate
4	Cap	Stainless steel		12	Spring holder	Aluminum alloy	
5	Rod packing seal	Nitrile rubber		13	Coil spring	Piano wire	Electrode position coating
6	Body	Aluminum alloy	Hard alumite	14	Cushion rubber (H)	Urethane rubber	
7	Cushion rubber (R)	Urethane rubber		15	Cover	Aluminum alloy	Chromate
8	Piston	Aluminum alloy	Chromate	16	C type snap ring	Steel	Phosphoric acid zinc

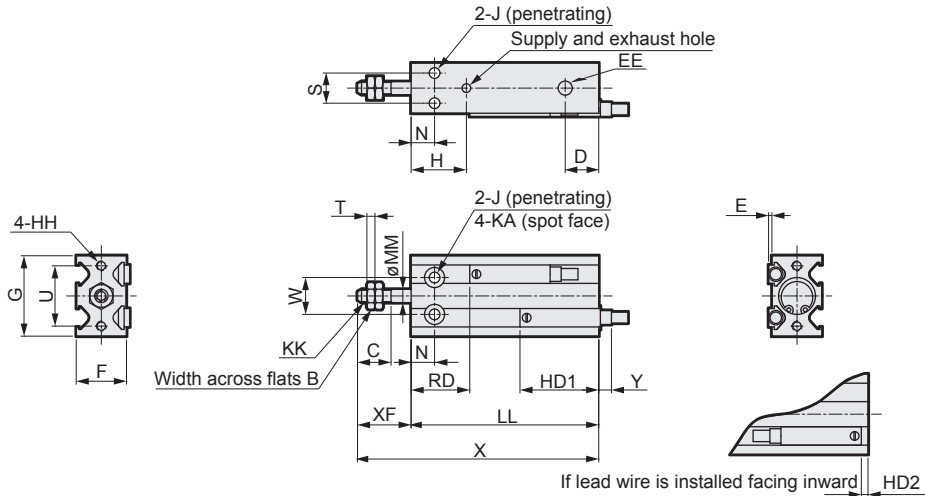
### Repair parts list

Bore size (mm)	Kit no.	Repair parts no.
$\phi 6$	SMG-Y-6K	3 5 7 9
$\phi 10$	SMG-Y-10K	3 5 7 9 14
$\phi 16$	SMG-Y-16K	

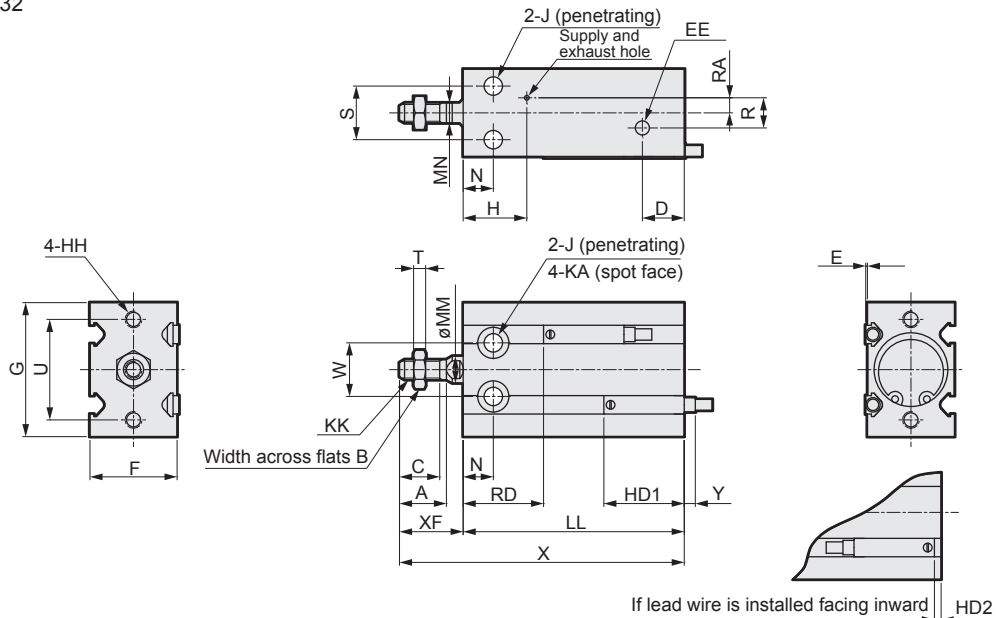
Bore size (mm)	Kit no.	Repair parts no.
$\phi 20$	SMG-Y-20K	5 7 9 14
$\phi 25$	SMG-Y-25K	
$\phi 32$	SMG-Y-32K	

## Dimensions

### ● Single acting extend type SMG-X (L) ø6/10



### ø16/ø20/ø25/ø32



Symbol	A	B	C	D	EE	F	G	H	HH	J	KA	KK	MM	MN	N	R	RA	S	T
ø6	-	5.5	7	10	M5	13	22	15	M3 depth 5	3.2	6 depth 4.8	M3	3	-	7	-	-	7	1.8
ø10	-	7	10	10	M5	15	24	16.5	M3 depth 5	3.2	6 depth 5	M4	4	-	7	-	-	9	2.4
ø16	12.5	8	11	11.5	M5	20	32	16.5	M4 depth 6	4.5	7.5 depth 6.5	M5	6	5	7	4	2	12	3.2
ø20	14	10	12	12.5	M5	26	40	19	M5 depth 8	5.5	9 depth 8	M6	8	6	9	9	4.5	16	3.6
ø25	18	13	15.5	13	M5	32	50	21.5	M5 depth 8	5.5	9 depth 9	M8	10	8	10	9	4.5	20	5
ø32	22	17	19.5	12.5	Rc1/8	40	62	23	M6 depth 9	6.6	11 depth 11.5	M10 x 1.25	12	10	11	13.5	4.5	24	6

Symbol	U	W	XF	LL						X						E			RD	Y (Note 1)		
				w/o switch			w/ switch			w/o switch			w/ switch			K0/5	K2/3, K3P	HD1			HD2	
				5st.	10st.	15st.	5st.	10st.	15st.	5st.	10st.	15st.	5st.	10st.	15st.							
ø6	17	10	13	38	43	48	38	43	48	51	56	61	51	56	61	0.5	1	21.5	2.5	11.5	11.5	5.5
ø10	18	11	16	41	46	56	41	46	56	57	62	72	57	62	72	0.5	1	23.5	4.5	12.5	17.5	3.5
ø16	25	14	16	35	40	50	45	50	60	51	56	66	61	66	76	0	0.5	24.5	5.5	15.5	20.5	2.5
ø20	30	16	19	41	46	56	51	56	66	60	65	75	70	75	85	0	0.5	27	8	19	24	0
ø25	38	20	23	45	50	60	55	60	70	68	73	83	78	83	93	0	0.5	29	10	21	26	-2
ø32	48	24	27	47	52	62	57	62	72	74	79	89	84	89	99	0	0.5	30.5	11.5	21.5	26.5	-3.5

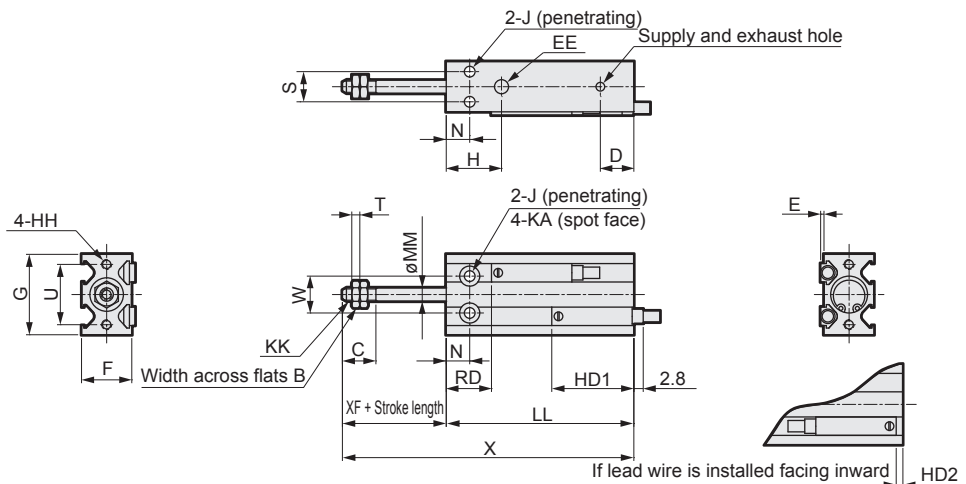
Note 1: Y dimension refers to projecting length from the edge of the switch's body.  
(negative dimension is the retracting length from the body's edge)

## Dimensions

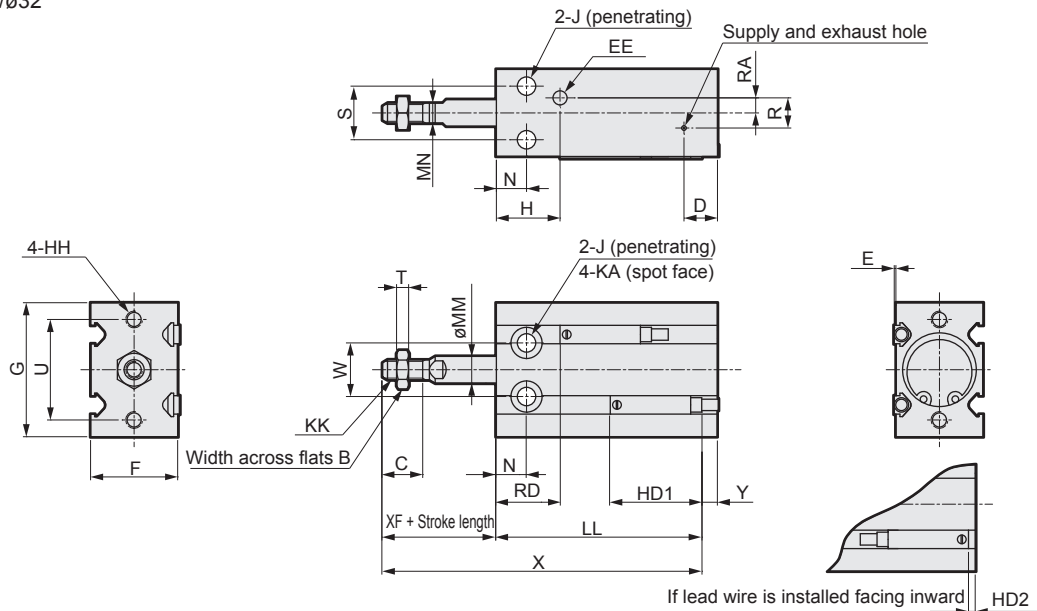


### ● Single acting spring retract type SMG-X (L)

ø6/10



ø16/ø20/ø25/ø32



Symbol	A	B	C	D	EE	F	G	H	HH	J	KA	KK	MM	MN	N	R	RA	S	T	U
ø6	-	5.5	7	10	M5	13	22	15	M3 depth 5	3.2	6 depth 4.8	M3	3	-	7	-	-	7	1.8	17
ø10	-	7	10	10	M5	15	24	16.5	M3 depth 5	3.2	6 depth 5	M4	4	-	7	-	-	9	2.4	18
ø16	12.5	8	11	11.5	M5	20	32	16.5	M4 depth 6	4.5	7.5 depth 6.5	M5	6	5	7	4	2	12	3.2	25
ø20	14	10	12	12.5	M5	26	40	19	M5 depth 8	5.5	9 depth 8	M6	8	6	9	9	4.5	16	3.6	30
ø25	18	13	15.5	13	M5	32	50	21.5	M5 depth 8	5.5	9 depth 9	M8	10	8	10	9	4.5	20	5	38
ø32	22	17	19.5	12.5	Rc1/8	40	62	23	M6 depth 9	6.6	11 depth 11.5	M10 × 1.25	12	10	11	13.5	4.5	24	6	48

Symbol	W	XF	LL						X						E		HD1		HD2		RD	Y (Note 1)		
			w/o switch			w/ switch			w/o switch			w/ switch			K0/5	K2/3, K3P	5, 10st.	15st.	5, 10st.	15st.		5, 10st.	15st.	
			5st.	10st.	15st.	5st.	10st.	15st.	5st.	10st.	15st.	5st.	10st.	15st.										
ø6	10	13	38	43	48	38	43	48	56	66	76	56	66	76	0.5	1	22.5	22.5	3.5	3.5	10.5	4.5	4.5	
ø10	11	16	41	46	56	41	46	56	62	72	87	62	72	87	0.5	1	22.5	27.5	3.5	8.5	13.5	4.5	-0.5	
ø16	14	16	45	50	60	45	50	60	66	76	91	66	76	91	0	0.5	24.5	29.5	5.5	10.5	15.5	2.5	-2.5	
ø20	16	19	41	46	56	51	56	66	65	75	90	75	85	100	0	0.5	27	32	8	13	19	0	-5	
ø25	20	23	45	50	60	55	60	70	73	83	98	83	93	108	0	0.5	29	34	10	15	21	-2	-7	
ø32	24	27	47	52	62	57	62	72	79	89	104	89	99	114	0	0.5	30.5	35.5	11.5	16.5	21.5	-3.5	-8.5	

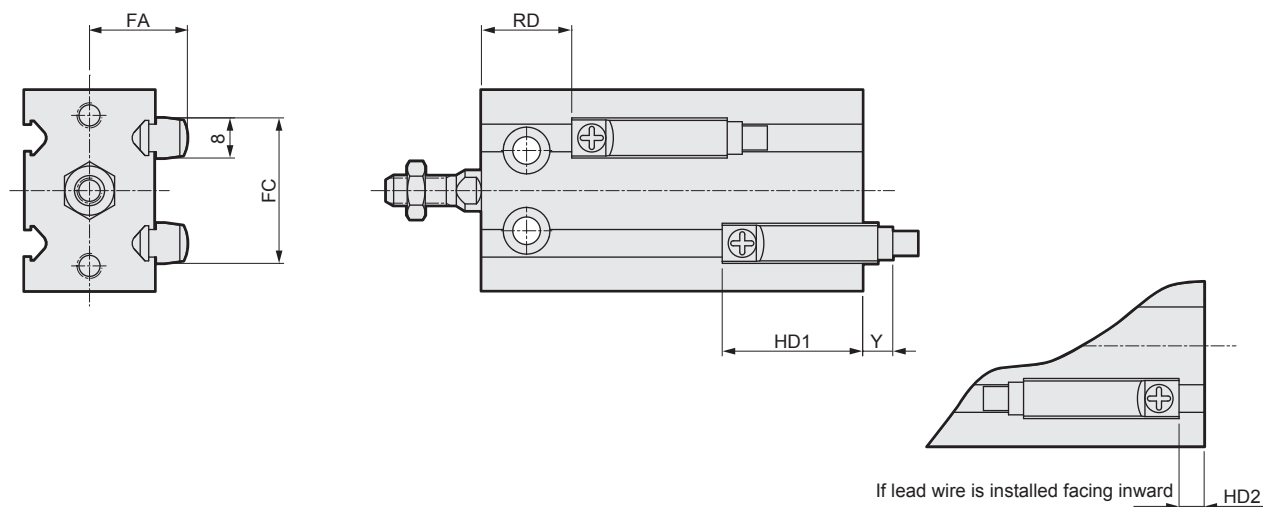
Note 1: Y dimension refers to projecting length from the edge of the switch's body.  
(negative dimension is the retracting length from the body's edge)

## SMG Series with common switch dimension (2 color indicator)

● SMG2-L (With switch, K2Y<sup>H</sup>/<sub>V</sub>, K3Y<sup>H</sup>/<sub>V</sub>)

-XL

-YL



Symbol	FA	FC	Double acting						Single acting, extend type (X)						Single acting, retract type (Y)							
			HD1	HD2	RD	Y		HD1	HD2	RD		Y		HD1		HD2		RD	Y (Note 1)			
						Axial lead wire	Radial lead wire			5, 10st.	15st.	Axial lead wire	Radial lead wire	5, 10st.	15st.	5, 10st.	15st.		5, 10st.	15st.	Axial lead wire	Radial lead wire
			5, 10st.	15st.	5, 10st.	15st.	5, 10st.	15st.	5, 10st.	15st.	5, 10st.	15st.	5, 10st.	15st.	5, 10st.	15st.	5, 10st.	15st.	5, 10st.	15st.		
ø6	13.5	18	21	0	12	13	10	22.5	1.5	10.5	10.5	11.5	8.5	23.5	23.5	2.5	2.5	9.5	10.5	7.5	10.5	7.5
ø10	14.5	21	24.5	3.5	11.5	9.5	6.5	24.5	3.5	11.5	16.5	9.5	6.5	23.5	28.5	2.5	7.5	12.5	10.5	7.5	5.5	2.5
ø16	16.5	27	25.5	4.5	14.5	8.5	5.5	25.5	4.5	14.5	19.5	8.5	5.5	25.5	30.5	4.5	9.5	14.5	8.5	5.5	3.5	0.5
ø20	19.5	29	28	7	18	6	3	28	7	18	23	6	3	28	33	7	12	18	6	3	1	-2
ø25	22.5	32	30	9	20	4	1	30	9	20	25	4	1	30	35	9	14	20	4	1	-1	-4
ø32	26.5	34	31.5	10.5	20.5	2.5	-0.5	31.5	10.5	20.5	25.5	2.5	-0.5	31.5	36.5	10.5	15.5	20.5	2.5	-0.5	-2.5	-5.5

Note 1: Y dimension refers to projecting length from the edge of the switch's body. (negative dimension is the retracting length from the body's edge)



# Safety precautions

Always read this section before starting use.

When designing and manufacturing a device using CKD products, the manufacturer is obligated to check that device safety mechanism, pneumatic control circuit, or water control circuit and the system operated by electrical control that controls the devices is secured.

It is important to select, use, handle, and maintain the product appropriately to ensure that the CKD product is used safely. Observe warnings and precautions to ensure device safety.

Check that device safety is ensured, and manufacture a safe device.


## WARNING


- 1** This product is designed and manufactured as a general industrial machine part. It must be handled by an operator having sufficient knowledge and experience in handling.
- 2** Use this product in accordance of specifications.


This product must be used within its stated specifications. It must not be modified or machined. This product is intended for use as a general-purpose industrial device or part. It is not intended for use outdoors or for use under the following conditions or environment.  
(Note that this product can be used when CKD is consulted prior to use and the customer consents to CKD product specifications. The customer must provide safety measures to avoid risks in the event of problems.)

  - ① Use for special applications including nuclear energy, railway, aircraft, marine vessel, vehicle, medicinal devices, devices or applications coming into contact with beverages or foodstuffs, amusement devices, emergency cutoff circuits, press machines, brake circuits, or safety devices or applications.
  - ② Use for applications where life or assets could be adversely affected, and special safety measures are required.
- 3** Observe corporate standards and regulations, etc., related to the safety of device design and control, etc.

ISO4414, JIS B 8370 (pneumatic system rules)  
JFPS2008 (principles for pneumatic cylinder selection and use)  
Including High Pressure Gas Maintenance Law, Occupational Safety and Sanitation Laws, other safety rules, body standards and regulations, etc.
- 4** Do not handle, pipe, or remove devices before confirming safety.
  - ① Inspect and service the machine and devices after confirming safety of the entire system related to this product.
  - ② Note that there may be hot or charged sections even after operation is stopped.
  - ③ When inspecting or servicing the device, turn off the energy source (air supply or water supply), and turn off power to the facility. Discharge any compressed air from the system, and pay enough attention to possible water leakage and leakage of electricity.
  - ④ When starting or restarting a machine or device that incorporates pneumatic components, make sure that the system safety, such as pop-out prevention measures, is secured.
- 5** Observe warnings and cautions on the pages below to prevent accidents.
  - The precautions are ranked as "DANGER", "WARNING" and "CAUTION" in this section.

 **DANGER:** When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries, or when there is a high degree of emergency to a warning.

 **WARNING:** When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries.

 **CAUTION:** When a dangerous situation may occur if handling is mistaken leading to minor injuries or physical damage.

Note that some items described as "CAUTION" may lead to serious results depending on the situation. In any case, important information that must be observed is explained.

## Limited Warranty and Disclaimer

- 1** "Warranty Period" is one (1) year from the first delivery to the customer.
- 2** In case any defect attributable to CKD is found during Warranty Period, CKD shall, at its own discretion, repair the defect or replace the relevant product in whole or in part, according to its own judgment. In no event CKD shall never be liable for the costs in relation to and the damages resulting from the (de)installation of the product.

This Limited Warranty will not apply to:

  - (1) Product abuse/misuse contrary to conditions/environment recommended in its catalogs/specifications.
  - (2) Failure due to other causes.
  - (3) Use other than original design purposes.
  - (4) Third-party repair/modification.
  - (5) Failure due to causes not foreseeable with technology at the time of delivery.
  - (6) Failure attributable to force majeure.
- 3** IN NO EVENT SHALL CKD BE LIABLE FOR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, notwithstanding any disclosure to CKD of the use to which the product is to be put.





# Safety precautions

Always read this section before starting use.

Refer to Pneumatic Cylinders No. CB-029SA for general details on cylinders and cylinder switch.

## Design and selection

1. Common

**CAUTION**

Minimum working pressure in the specification column indicates default value.

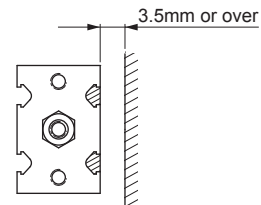
Depending on the working conditions and duration, it may exceed the specified value. Please consult us when using near the minimum working pressure.

## Installation and adjustment

1. Common

**CAUTION**

- The cylinder may malfunction if a magnetic substance, such as a steel plate, is nearby. Move the magnetic substance to at least 3.5 mm from the cylinder.  
(Same clearance for all bore sizes)



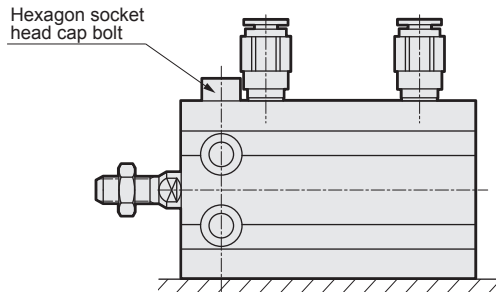
- When installing cylinders adjacently, provide the following installation pitch to prevent switches from malfunctioning:

Unit: mm

Adjacent conditions		Switch model no.	ø6	ø10	ø16	ø20	ø25	ø32	Remarks	
Two cylinders in parallel	• Horizontal 	A	K0, K5	27	29	37	45	55	67	
			K2, K3							
	• Vertical Install the switch on the opposite side of the cylinder at the side 	A	K0, K5	28	21	25	33	41	46	Note that when the cylinder is installed, the switch position cannot be adjusted if the driver length is longer than the B dimension.
				K2, K3	25	28	35	40	50	
		B	K0, K5	5.5	5.5	5.5	6.5	8.5	5.5	
			K2, K3	11.5	12.5	14.5	14.5	17.5	14.5	
• Vertical Install switch at the side of the adjacent cylinder 	A	K0, K5	14	16	21	27	33	41		
			K2, K3	0.5						
Installing more than 2 cylinders in parallel	• Horizontal 	A	K0, K5	27	29	37	45	55	67	
			K2, K3	4.5						
	• Vertical 	A	K0, K5	19	22	26	34	42	47	Note that when the cylinder is installed, the switch position cannot be adjusted if the driver length is longer than the B dimension.
				K2, K3	27	29	35	44	51	
		B	K0, K5	6.5	6.5	6.5	7.5	9.5	6.5	
			K2, K3	13.5	13.5	14.5	17.5	18.5	15.5	

- There are restrictions on the piping fittings that can be used depending on the stroke length or installation method. Therefore, please use the recommended fittings below.

Drg. 1



Descriptions Bore size	Port size	Recommended fittings
6	M5	SC3W-M5-4, 6 SC3WU-M5-4, 6 GWS4-M5 GWS6-M5 (Note 1) GWS4, 6-M5-S GWL4-M5 GWL6-M5 (Note 1)
10	M5	SC3W-M5-4, 6 SC3WU-M5-4, 6 GWS4, 6-M5 GWS4, 6-M5-S GWL4, 6-M5
16	M5	SC3W-M5-4, 6 SC3WU-M5-4, 6 GWS4-M5 (Note 1) GWS6-M5 (Note 2) GWS4-M5-S GWS6-M5-S (Note 1) GWL4-M5 (Note 1) GWL6-M5 (Note 2)
20	M5	SC3W-M5-4, 6 SC3WU-M5-4, 6 GWS4-M5 GWS6-M5 (Note 1) GWS4, 6-M5-S GWL4-M5 GWL6-M5 (Note 1)
25	M5	SC3W-M5-4, 6 SC3WU-M5-4, 6 GWS4, 6-M5 GWS4, 6-M5-S GWL4, 6-M5
32	Rc1/8	SC3W-6-4, 6, 8 SC3WU-6-4, 6, 8 GWS4, 6, 8-6 GWS4, 6, 8-6-S GWL4, 6, 8-6

Note 1) Except when stroke length is 5 and when using installation method in "Drg. 1".

Note 2) Except when stroke length is 5 or 10 and when using installation method in "Drg. 1".

- When using a through bolt to install the body, tighten according to the tightening torque in the table below.

Bore size	Applicable bolts	Tightening torque
ø6/10	M3	0.6 to 1.1 Nm
ø16	M4	1.5 to 2.7 Nm
ø20/25	M5	3.0 to 5.4 Nm
ø32	M6	5.2 to 9.2 Nm

## 2. Single acting SMD2-X/Y

### CAUTION

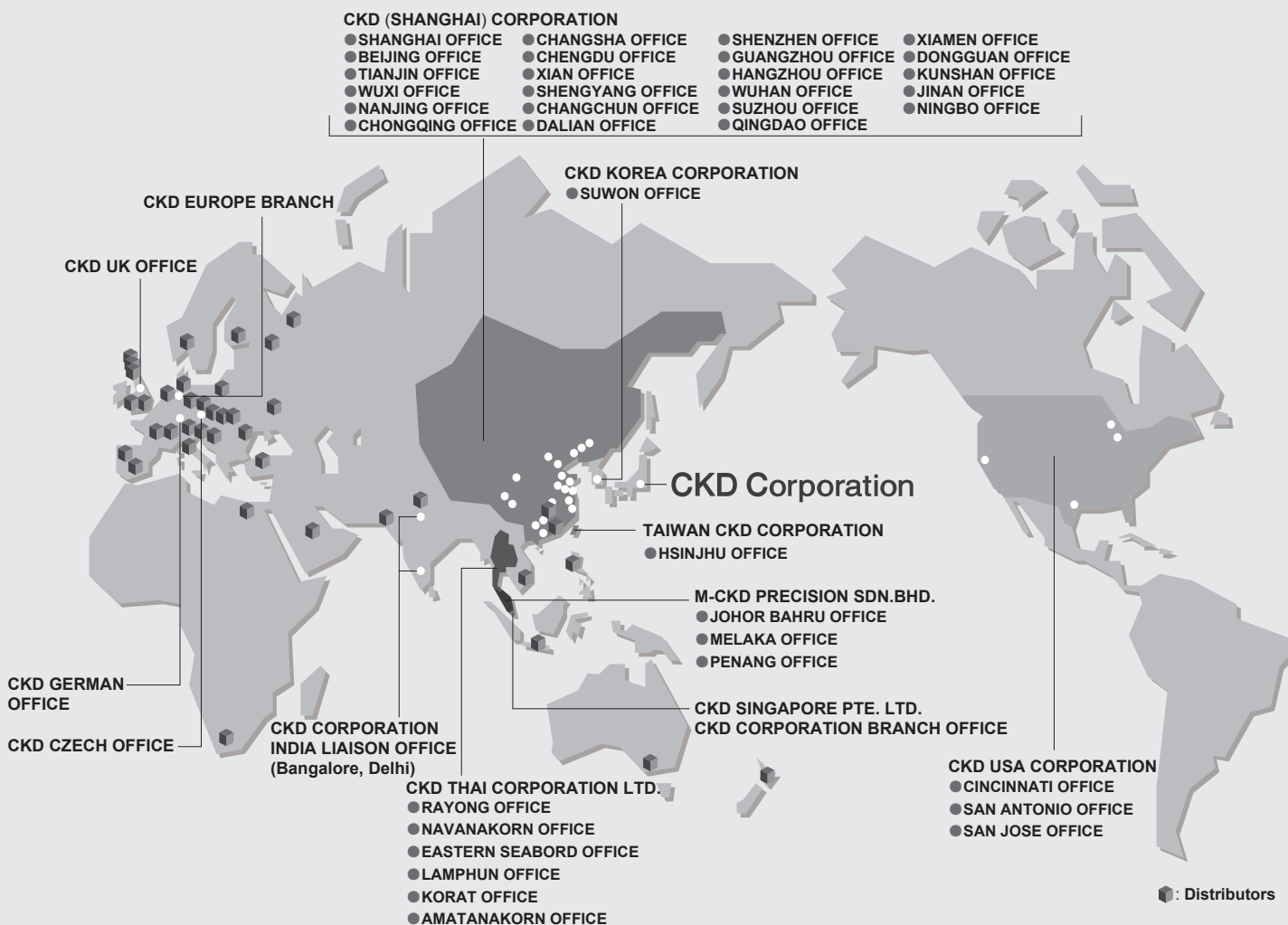
- Do not leave the single acting cylinder in a pressurized state.

If left pressurized, the piston rod may not return with spring power when pressure is released.

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MEMO

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