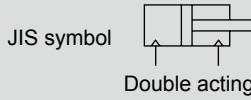


Compact cylinder double acting/single rod

SMG Series

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



Specifications

1 MPa \approx 145.0 psi, 1 MPa = 10 bar

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 (\approx 100 psi, 7 bar)					
Min. working pressure	MPa	0.12	0.06 (\approx 8.7 psi, 0.6 bar)		0.05 (\approx 7.3 psi, 0.5 bar)		
Proof pressure	MPa	1.05 (\approx 150 psi, 10.5 bar)					
Ambient temperature	$^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$) to 60 (140 $^{\circ}\text{F}$) (no freezing)					
Port size		M5					Rc1/8
Stroke tolerance	mm	+1.5 0					
Working piston speed	mm/s	50 to 500					
Cushion		With rubber cushion					
Lubrication		Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)					
Allowable absorbed energy	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
$\phi 10$		
$\phi 16$	5, 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100	
$\phi 20$		
$\phi 25$		
$\phi 32$		

Min. stroke with switch

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

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

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	Dedicated for programmable controller		For programmable controller, relay			For programmable controller, relay	
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 V/24 VDC	110 VAC
Load current	5 to 20 mA (*1)		50 mA or less			5 to 50 mA	7 to 20 mA
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 : The above max. load current is 20 mA at 25 $^{\circ}\text{C}$. The current is lower than 20 mA if operating ambient temperature around the switch is higher than 25 $^{\circ}\text{C}$. (5 to 10 mA at 60 $^{\circ}\text{C}$)

*2: Refer to Ending Page 1 for other switch specifications.

*3: Dimensions depend on switch model No. Refer to Ending Page 21 for details.

Cylinder weight

(Unit: g)

Model No. Bore size	Product weight when stroke length S = 0 mm		Additional weight per S = 5mm
	SMG double acting	SMG-L double acting/with switch	
φ6	18	18	3
φ10	27	27	3
φ16	41	56	6
φ20	87	115	11
φ25	164	208	17
φ32	267	335	26

(Example) Product weight

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

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
φ6	Push	-	-	5.65	8.48	11.3	14.1	17.0	19.8
	Pull	-	-	4.24	6.36	8.48	10.6	12.7	14.8
φ10	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
φ16	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
φ20	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
φ25	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
φ32	Push	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2
	Pull	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/
COVPIN2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/
MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd
Contr
Ending

How to order

Without switch (without magnet for switch)

SMG - **32** - **25**

With switch (built-in magnet for switch)

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

A Model No.

B Bore size

C Port thread

D Stroke length

E Switch model No.

F Switch quantity

Precautions for model No. selection

- *1: Refer to page 1368 for the min. stroke length with switch.
- *2: Copper and PTFE free as standard.

[Example of model No.]

SMG-L-6-15-K0H-R

Model: Compact cylinder

B Bore size : $\phi 6$ mm

C Port thread : Rc thread

D Stroke length : 15 mm

E Switch model No. : Reed switch K0H, lead wire length 1 m

F Switch quantity : 1 rod side

How to order switch

SW - **K2H**

Switch model No.
(Item **E** above)

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

B Bore size (mm)	
6	$\phi 6$
10	$\phi 10$
16	$\phi 16$
20	$\phi 20$
25	$\phi 25$
32	$\phi 32$

C Port thread	
Blank	Rc thread
NN	NPT thread ($\phi 32$ only) (custom order product)
GN	G thread ($\phi 32$ only) (custom order product)

D Stroke length (mm)	Applicable bore size					
	$\phi 6$	$\phi 10$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$
Standard stroke length	5	●	●	●	●	●
	10	●	●	●	●	●
	15	●	●	●	●	●
	20	●	●	●	●	●
	25	●	●	●	●	●
	30	●	●	●	●	●
	40	●	●	●	●	●
	50	●	●	●	●	●
	60	●	●	●	●	●
	70				●	●
	80				●	●
	90				●	●
	100				●	●

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

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

F Switch quantity	
R	1 on rod side
H	1 on head side
D	2

Clean-room specifications (Catalog No. CB-033SA)

- Anti-dust generation structure for use in cleanrooms

SMG - - **P7***

SMG - - **P5***

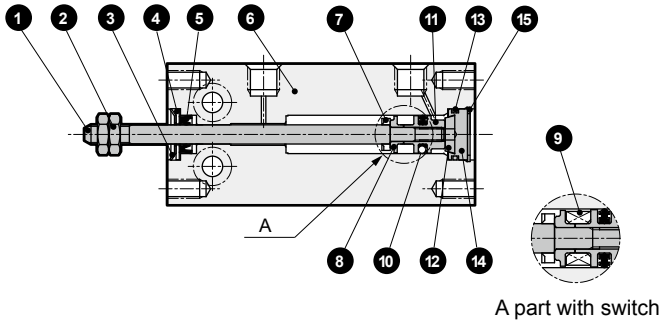
Specifications for rechargeable battery (Catalog No. CC-1226A)

- Design compatible with rechargeable battery manufacturing process

SMG - - **P4***

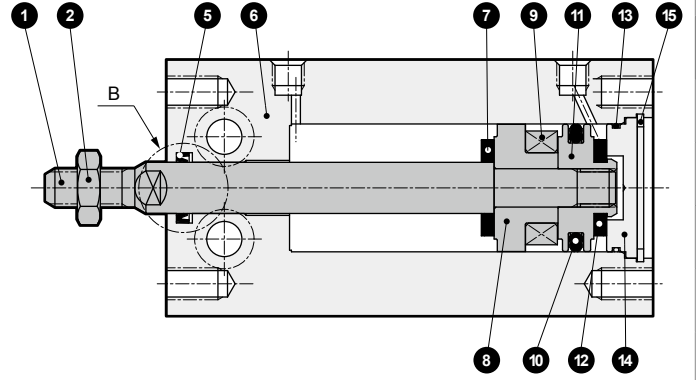
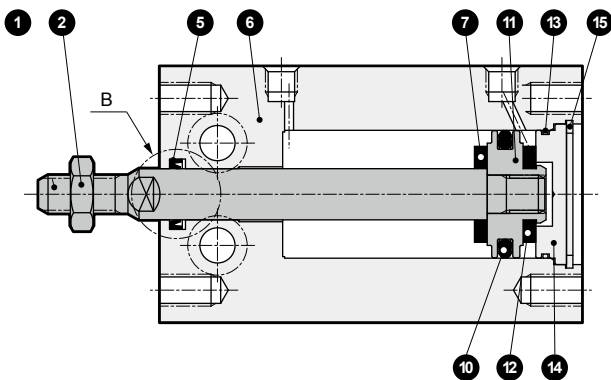
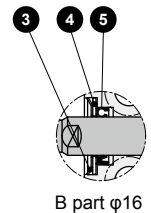
Internal structure and parts list

● $\phi 6/\phi 10$ (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	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	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 snap ring	Steel	Zinc phosphate
8	Spacer	Aluminum alloy	Chromate				

Repair parts list

Bore size (mm)	Kit No.	Repair parts No.	Bore size (mm)	Kit No.	Repair parts No.
$\phi 6$	SMG-6K	3 5 7 10 12 13	$\phi 20$	SMG-20K	5 7 10 12 13
$\phi 10$	SMG-10K		$\phi 25$	SMG-25K	
$\phi 16$	SMG-16K		$\phi 32$	SMG-32K	

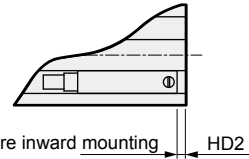
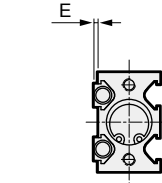
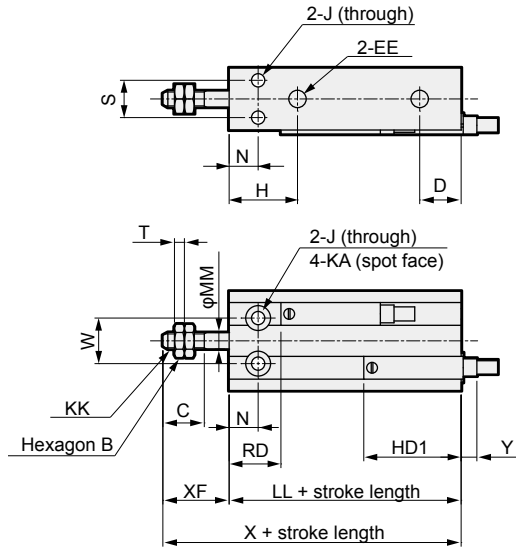
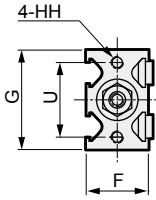
- SCP*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2
- SCS2
- CKV2
- CAV2/
COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG**
- MSD/
MSDG
- FC*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd
Contr
- Ending

Dimensions

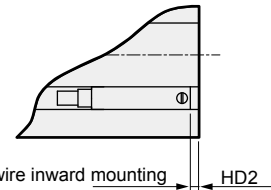
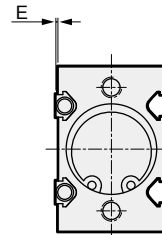
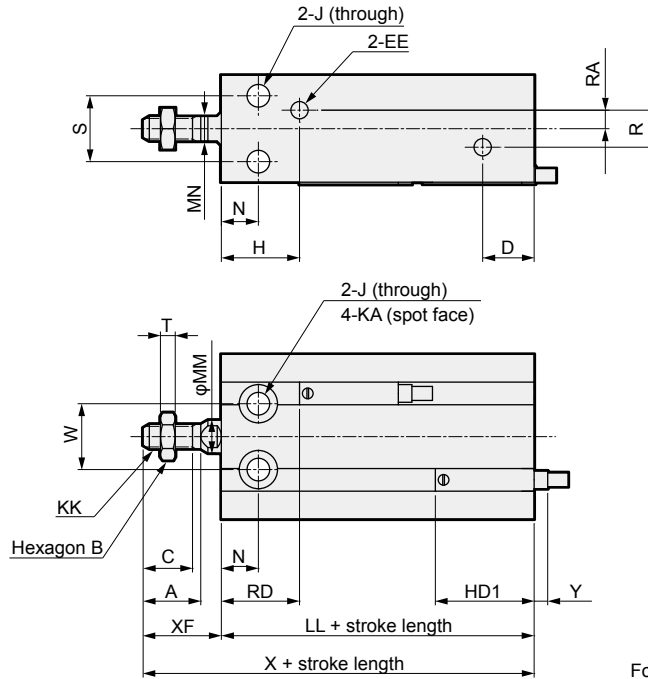
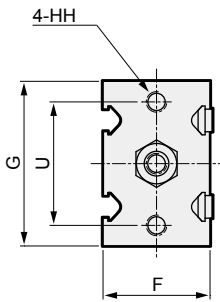


● Double acting SMG-(L)

φ6/10



φ16/φ20/φ25/φ32



Code	A	B	C	D	EE	F	G	H	HH	J	KA	KK	MM	MN	N	R	RA	S
φ6	-	5.5	7	10	M5	13	22	15	M3 depth 5	3.2	6 depth 4.8	M3	3	-	7	-	-	7
φ10	-	7	10	10	M5	15	24	16.5	M3 depth 5	3.2	6 depth 5	M4	4	-	7	-	-	9
φ16	12.5	8	11	11.5	M5	20	32	(*1) 16.5	M4 depth 6	4.5	7.5 depth 6.5	M5	6	5	7	4	2	12
φ20	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
φ25	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
φ32	22	17	19.5	12.5	Rc1/8	40	62	23	M6 depth 9	6.6	11 depth 11.5	M10X1.25	12	10	11	13.5	4.5	24

Code	T	U	W	XF	LL		X		E	HD1	HD2	RD	Y (*2)
					Without switch	With switch	Without switch	With switch					
φ6	1.8	17	10	13	33	33	46	46	1	20	1	13	7
φ10	2.4	18	11	16	36	36	52	52	1	23.5	4.5	12.5	3.5
φ16	3.2	25	14	16	30	40	46	56	0.5	24.5	5.5	15.5	2.5
φ20	3.6	30	16	19	36	46	55	65	0.5	27	8	19	0
φ25	5	38	20	23	40	50	63	73	0.5	29	10	21	-2
φ32	6	48	24	27	42	52	69	79	0.5	30.5	11.5	21.5	-3.5

*1 : 14.5 for 5 stroke length without switch

*2 : Y dimensions indicate the protruding 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)

*4 : Refer to page 1391 for HD, RD, and protruding dimensions of 2-color display switches.

MEMO

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd
Contr

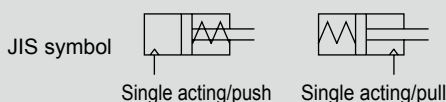
Ending



Compact cylinder Single acting/push
 Single acting/pull

SMG-X^Y Series

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



Specifications

1 MPa = 10 bar

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/push					
	SMG-Y(L)	Single acting/pull					
Working fluid		Compressed air					
Max. working pressure		0.7 (≈ 100 psi, 7 bar)					
Min. working pressure	SMG-X(L)	0.2	0.15 (≈ 22 psi, 1.5 bar)			0.13	
	SMG-Y(L)	(≈ 29 psi)				(≈ 19 psi)	
Proof pressure		1.05 (≈ 150 psi, 10.5 bar)					
Ambient temperature		-10 (14°F) to 60 (140°F) (no freezing)					
Port size		M5					Rc1/8
Stroke tolerance	mm	+1.5					
		0					
Working piston speed		50 to 500					
Cushion		Note) With rubber cushion					
Lubrication		Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)					
Allowable absorbed energy	J	0.012	0.036	0.05	0.1	0.19	0.5

*1: Do not leave the single acting cylinder pressurized for a long time. If it is left pressurized for long periods, the piston rod may not return due to spring load when the pressure is released.

*2: One side rubber-cushioned for $\phi 6$.

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 with switch

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

SMG-X/SMG-Y spring load

(Unit: N)

Bore size (mm)	Stroke length (mm)	When stroke length = 0	Full stroke length Operating	Bore size (mm)	Stroke length (mm)	When stroke length = 0	At full stroke length operation
$\phi 6$	5	3.1	3.8	$\phi 20$	5	14	19
	10	2.3			10	8.8	
	15	1.6			15		
$\phi 10$	5	5.5	8.0	$\phi 25$	5	19	25
	10	3.0			10	14	
	15				15		
$\phi 16$	5	11	16	$\phi 32$	5	25	30
	10	5.9			10	21	
	15				15		

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	Dedicated for programmable controller		For programmable controller, relay			For programmable controller, relay	
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 V/24 VDC	110 VAC
Load current	5 to 20 mA (*1)		50 mA or less			5 to 50 mA	7 to 20 mA
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	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 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

*2: Refer to Ending Page 1 for other switch specifications.

*3: Dimensions depend on switch model No. Refer to Ending Page 21 for details.

SMG-X Cylinder weight

(Unit: g)

Model No.	5		10		15	
	No switch	With switch	No switch	With switch	No switch	With switch
φ6	21	21	23	24	26	26
φ10	31	31	34	34	41	41
φ16	47	62	53	68	66	81
φ20	98	125	109	135	131	158
φ25	180	223	196	240	233	277
φ32	293	361	319	386	376	444

SMG-Y Cylinder weight

(Unit: g)

Model No.	5		10		15	
	No switch	With switch	No switch	With switch	No switch	With switch
φ6	20	21	23	23	26	26
φ10	30	30	33	33	39	40
φ16	61	62	67	68	79	80
φ20	98	124	108	135	130	157
φ25	180	223	196	240	231	275
φ32	291	359	317	385	372	439

Theoretical thrust table

- SMG-X

(Unit: N)

Bore size (mm)	Working pressure MPa					
	0.2	0.3	0.4	0.5	0.6	0.7
φ6	-	4.68	7.51	10.3	13.2	16.0
φ10	7.71	15.6	23.4	31.3	39.1	47.0
φ16	24.2	44.3	64.4	84.5	1.05×10 ²	1.25×10 ²
φ20	43.8	75.2	1.07×10 ²	1.38×10 ²	1.69×10 ²	2.01×10 ²
φ25	73.2	1.22×10 ²	1.71×10 ²	2.20×10 ²	2.70×10 ²	3.19×10 ²
φ32	1.31×10 ²	2.11×10 ²	2.92×10 ²	3.72×10 ²	4.53×10 ²	5.33×10 ²

- SMG-Y

(Unit: N)

Bore size (mm)	Working pressure MPa					
	0.2	0.3	0.4	0.5	0.6	0.7
φ6	-	2.56	4.68	6.80	8.92	11.0
φ10	5.19	11.8	18.4	25.0	31.6	38.2
φ16	18.6	35.8	53.1	70.4	87.7	1.05×10 ²
φ20	33.8	60.2	86.6	1.13×10 ²	1.39×10 ²	1.66×10 ²
φ25	57.5	98.7	1.40×10 ²	1.81×10 ²	2.22×10 ²	2.64×10 ²
φ32	1.08×10 ²	1.77×10 ²	2.46×10 ²	3.16×10 ²	3.85×10 ²	4.54×10 ²

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/
COVPIN2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/
MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd
Contr
Ending

How to order

Without switch (without magnet for switch)

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

With switch (built-in magnet for switch)

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

A Model No.

B Bore size

C Port thread

D Stroke length

E Switch model No.

F Switch quantity

Code	Content					
A Model No.						
SMG-X	Single acting push					
SMG-XL	Single acting push/with switch					
SMG-Y	Single acting pull					
SMG-YL	Single acting pull/with switch					
B Bore size (mm)						
6	φ6					
10	φ10					
16	φ16					
20	φ20					
25	φ25					
32	φ32					
C Port thread						
Blank	Rc thread					
NN	NPT thread (φ32 only) (custom order product)					
GN	G thread (φ32 only) (custom order product)					
D Stroke length (mm)						
Bore size	Stroke length					
6 to 32	5, 10, 15					
E Switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Indicator	Lead wire
			AC	DC		
K0H*	K0V*	Reed	●	●	1-color display	2-wire
			●	●	Without indicator lamp	
K2H*	K2V*	Proximity		●	1-color display	2-wire
				●		3-wire
K3PH*	K3PV*	Proximity		●	1-color display (custom order product)	3-wire
K2YH*	K2YV*			●	2-color display	2-wire
K3YH*	K3YV*			●		3-wire
* Lead wire length						
Blank	1 m (Standard)					
3	3 m					
5	5 m					
F Switch quantity						
R	1 on rod side					
H	1 on head side					
D	2					

⚠ Precautions for model No. selection

*1: Refer to page 1374 for the min. stroke length with switch.

*2: Copper and PTFE free as standard.

[Example of model No.]

SMG-XL-6-15-K0H-R

Model: Compact cylinder

A Model No. : Single acting push

B Bore size : φ6 mm

C Port thread : Rc thread

D Stroke length : 15 mm

E Switch model No. : Reed switch K0H, lead wire length 1 m

F Switch quantity : 1 on rod side

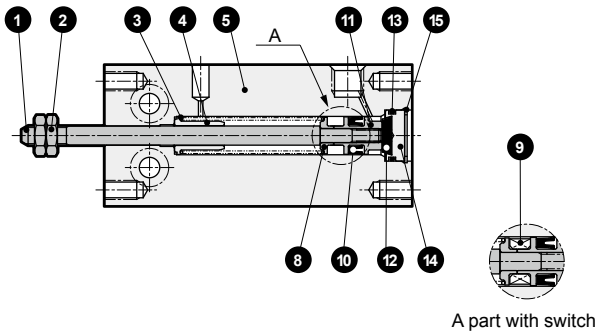
How to order switch

SW - **K2H**

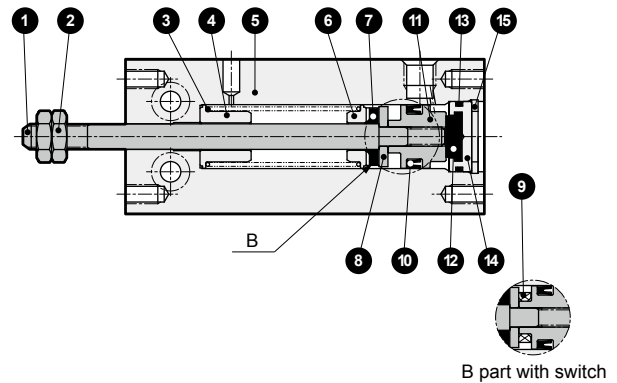
Switch model No.
(Item **E** above)

Internal structure and parts list

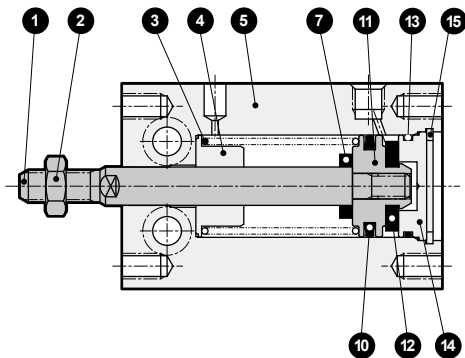
● $\phi 6$ (single acting push)



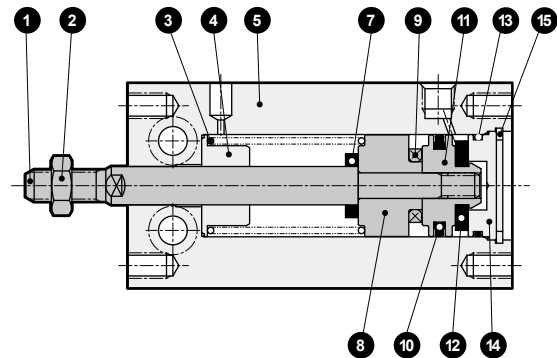
● $\phi 10$ (single acting push)



● $\phi 16$ to 32 (single acting push)



● $\phi 16$ to 32 (single acting push/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	Nitrile rubber	
3	Coil spring	Piano wire	Electrodeposition	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	Zinc phosphate
8	Spacer	Aluminum alloy	Chromate				

Repair parts list

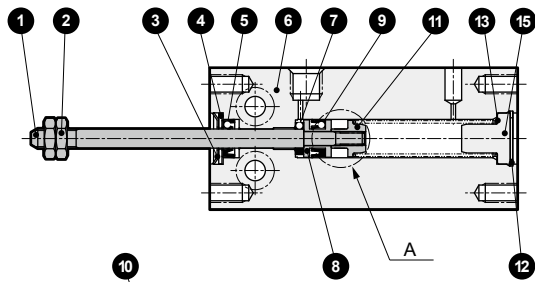
Bore size (mm)	Kit No.	Repair parts No.	Bore size (mm)	Kit No.	Repair parts No.
$\phi 6$	SMG-X-6K	10 12 13	$\phi 20$	SMG-X-20K	7 10 12 13
$\phi 10$	SMG-X-10K	7 10 12 13	$\phi 25$	SMG-X-25K	
$\phi 16$	SMG-X-16K		$\phi 32$	SMG-X-32K	

- SCP*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2
- SCS2
- CKV2
- CAV2/COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG**
- MSD/MSDG
- FC*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd Contr
- Ending

SMG-Y Series

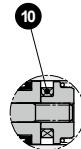
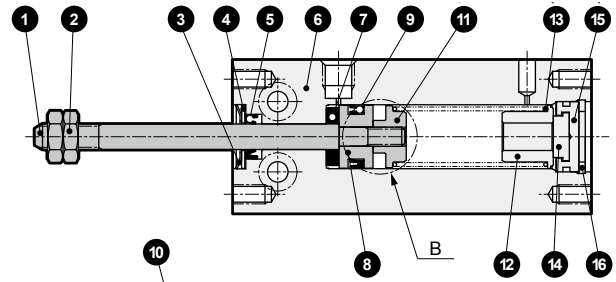
Internal structure and parts list

● $\phi 6$ (single acting pull)



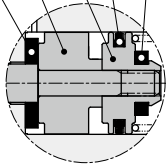
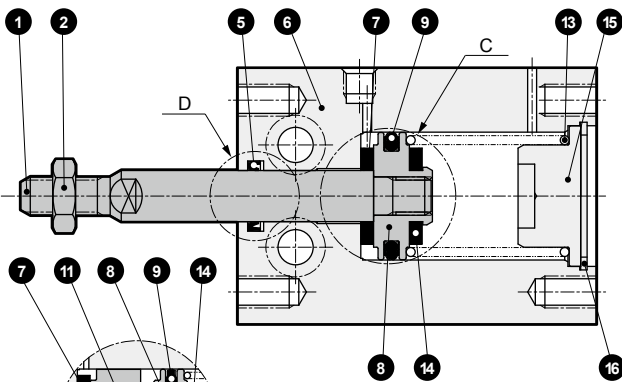
A part with switch

● $\phi 10$ (single acting pull)



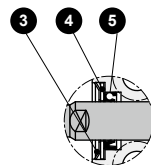
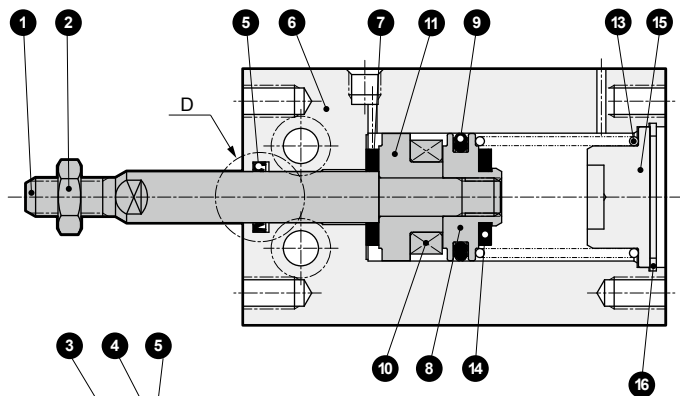
B part with switch

● $\phi 16$ to 32 (single acting pull)



C part $\phi 16$

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



D part $\phi 16$

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	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	Nitrile rubber		13	Coil spring	Piano wire	Electrodeposition
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	Zinc phosphate

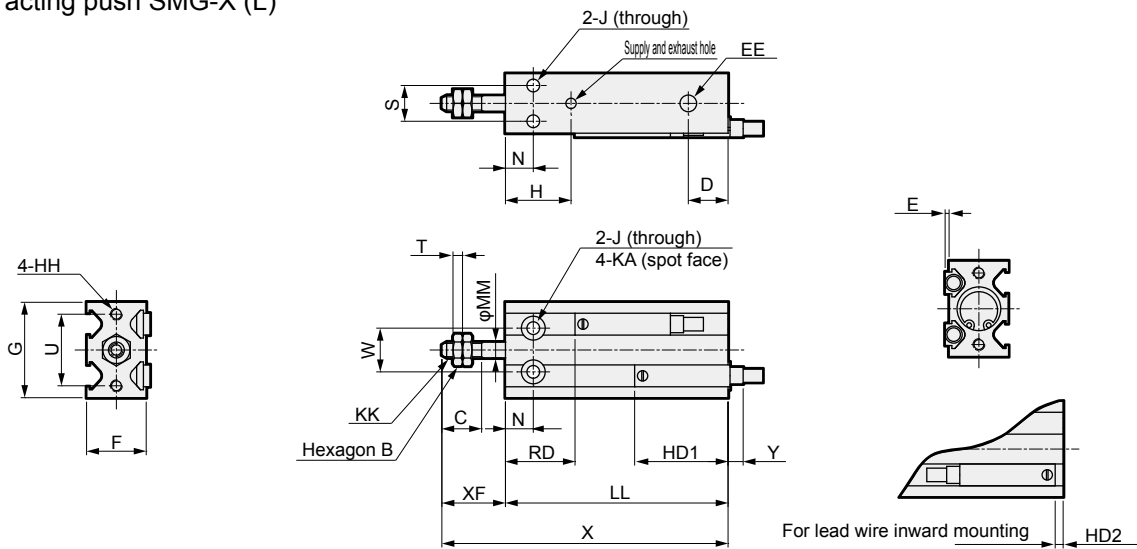
Repair parts list

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	3 5 7 9 14

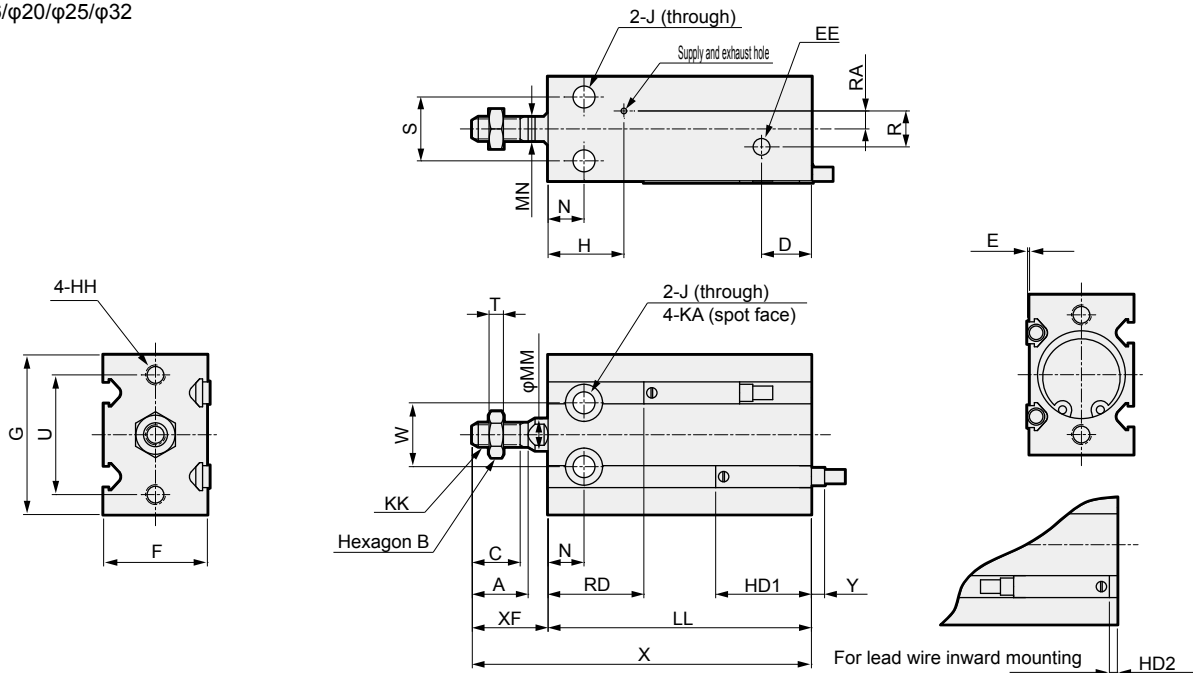
Bore size (mm)	Kit No.	Repair parts No.
$\phi 20$	SMG-Y-20K	5 7 9 14
$\phi 25$	SMG-Y-25K	
$\phi 32$	SMG-Y-32K	

Dimensions

● Single acting push SMG-X (L) φ6/10



φ16/φ20/φ25/φ32



Code	A	B	C	D	EE	F	G	H	HH	J	KA	KK	MM	MN	N	R	RA	S	T
φ6	-	5.5	7	10	M5	13	22	15	M3 depth 5	3.2	6 depth 4.8	M3	3	-	7	-	-	7	1.8
φ10	-	7	10	10	M5	15	24	16.5	M3 depth 5	3.2	6 depth 5	M4	4	-	7	-	-	9	2.4
φ16	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
φ20	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
φ25	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
φ32	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

Code Bore size	U	W	XF	LL						X						E	HD1	HD2	RD			Y (*1)
				Without switch			With switch			Without switch			With switch						5st.	10st.	15st.	
				5st.	10st.	15st.	5st.	10st.	15st.	5st.	10st.	15st.	5st.	10st.	15st.							
φ6	17	10	13	38	43	48	38	43	48	51	56	61	51	56	61	1	21.5	2.5	11.5	11.5	5.5	
φ10	18	11	16	41	46	56	41	46	56	57	62	72	57	62	72	1	23.5	4.5	12.5	17.5	3.5	
φ16	25	14	16	35	40	50	45	50	60	51	56	66	61	66	76	0.5	24.5	5.5	15.5	20.5	2.5	
φ20	30	16	19	41	46	56	51	56	66	60	65	75	70	75	85	0.5	27	8	19	24	0	
φ25	38	20	23	45	50	60	55	60	70	68	73	83	78	83	93	0.5	29	10	21	26	-2	
φ32	48	24	27	47	52	62	57	62	72	74	79	89	84	89	99	0.5	30.5	11.5	21.5	26.5	-3.5	

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

*2: Refer to page 1391 for HD, RD, and protruding dimensions of 2-color display switches.

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

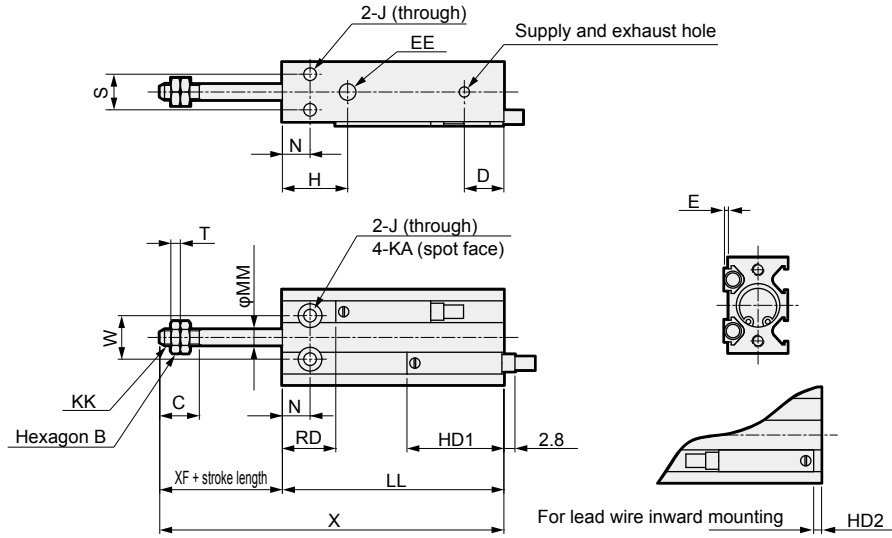
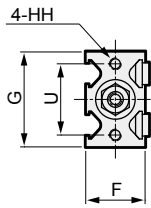
SMG-Y Series

Dimensions

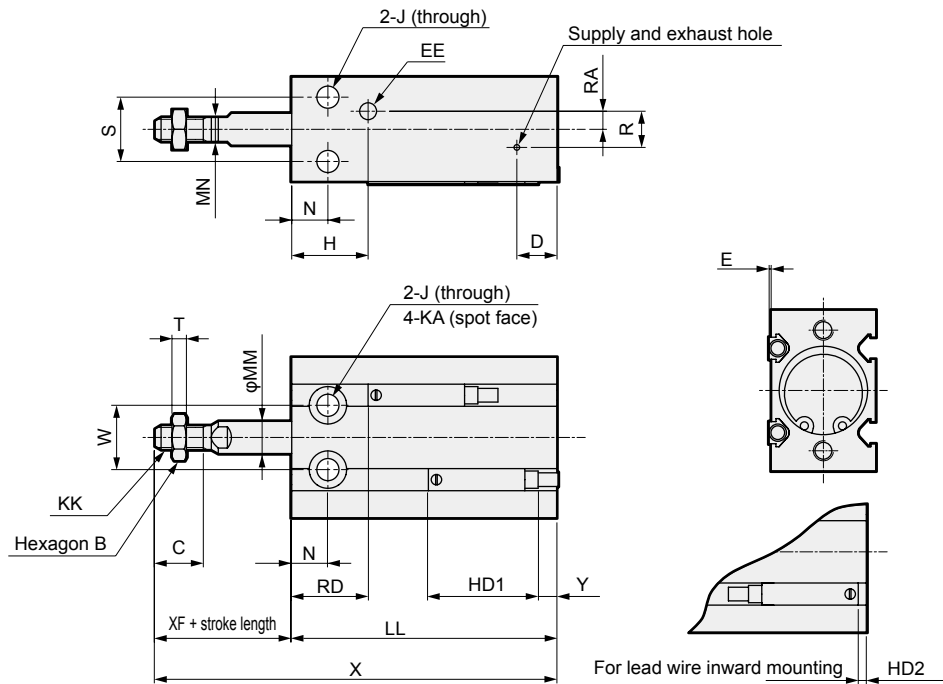
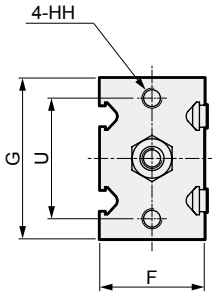


● Single acting pull SMG-Y (L)

φ6/10



φ16/φ20/φ25/φ32



Code	A	B	C	D	EE	F	G	H	HH	J	KA	KK	MM	MN	N	R	RA	S	T	U
Code																				
Bore size																				
φ6	-	5.5	7	10	M5	13	22	15	M3 depth 5	3.2	6 depth 4.8	M3	3	-	7	-	-	7	1.8	17
φ10	-	7	10	10	M5	15	24	16.5	M3 depth 5	3.2	6 depth 5	M4	4	-	7	-	-	9	2.4	18
φ16	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
φ20	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
φ25	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
φ32	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

Code	W	XF	LL						X						E	HD1			HD2			RD	Y (*1)		
			Without switch			With switch			Without switch			With switch				5, 10st, 15st.	5, 10st, 15st.	5, 10st, 15st.	5, 10st, 15st.	5, 10st, 15st.					
			5st.	10st.	15st.	5st.	10st.	15st.	5st.	10st.	15st.	5st.	10st.	15st.											
φ6	10	13	38	43	48	38	43	48	56	66	76	56	66	76	1	22.5	22.5	3.5	3.5	10.5	4.5	4.5			
φ10	11	16	41	46	56	41	46	56	62	72	87	62	72	87	1	22.5	27.5	3.5	8.5	13.5	4.5	-0.5			
φ16	14	16	45	50	60	45	50	60	66	76	91	66	76	91	0.5	24.5	29.5	5.5	10.5	15.5	2.5	-2.5			
φ20	16	19	41	46	56	51	56	66	65	75	90	75	85	100	0.5	27	32	8	13	19	0	-5			
φ25	20	23	45	50	60	55	60	70	73	83	98	83	93	108	0.5	29	34	10	15	21	-2	-7			
φ32	24	27	47	52	62	57	62	72	79	89	104	89	99	114	0.5	30.5	35.5	11.5	16.5	21.5	-3.5	-8.5			

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

*2: Refer to page 1391 for HD, RD, and protruding dimensions of 2-color display switches.

MEMO

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

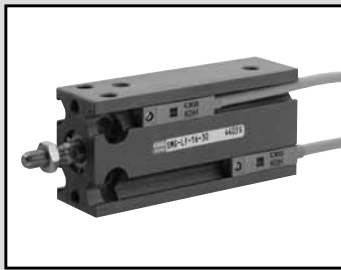
ShkAbs

FJ

FK

Spd
Contr

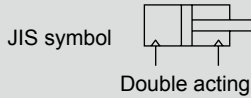
Ending



Compact cylinder double acting/fine speed

SMG-F Series

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



Specifications

1 MPa \approx 145.0 psi, 1 MPa = 10 bar

Descriptions	SMG-F SMG-LF (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 (\approx 100 psi, 7 bar)					
Min. working pressure	MPa	0.12	0.06 (\approx 8.7 psi, 0.6 bar)		0.05 (\approx 7.3 psi, 0.5 bar)		
Proof pressure	MPa	1.05 (\approx 150 psi, 10.5 bar)					
Ambient temperature	$^{\circ}\text{C}$	5 (41 $^{\circ}\text{F}$) to 60 (140 $^{\circ}\text{F}$)					
Port size		M5					Rc1/8
Stroke tolerance	mm	+1.5 0					
Working piston speed	mm/s	1 to 200					
Cushion		With rubber cushion					
Lubrication		Lubrication not possible					
Allowable absorbed energy	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	5
$\phi 10$		
$\phi 16$		
$\phi 20$	5, 10, 15, 20, 25, 30, 40, 50	5
$\phi 25$		
$\phi 32$		

Min. stroke with switch

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

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

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	Dedicated for programmable controller		For programmable controller, relay			For programmable controller, relay		For programmable controller, relay, IC circuit (without indicator), 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 V/24 VDC	110 VAC	5/12/24 VDC	110 VAC
Load current	5 to 20 mA (*1)		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: The above max. load current is 20 mA at 25 $^{\circ}\text{C}$. The current is lower than 20 mA if operating ambient temperature around the switch is higher than 25 $^{\circ}\text{C}$. (5 to 10 mA at 60 $^{\circ}\text{C}$)

Weight

Same as SMG Series (double acting/single rod). Refer to page 1369.

Dimensions

Same as SMG Series (double acting/single rod). Refer to page 1372.

Cylinder weight

(Unit: g)

Model No.	Product weight when stroke length S = 0 mm		Additional weight per S = 5 mm
	SMG-F double acting	SMG-LF double acting/with switch	
φ6	18	18	3
φ10	27	27	3
φ16	41	56	6
φ20	87	115	11
φ25	164	208	17
φ32	267	335	26

(Example) Product weight

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

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
φ6	Push	-	-	5.65	8.48	11.3	14.1	17.0	19.8
	Pull	-	-	4.24	6.36	8.48	10.6	12.7	14.8
φ10	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
φ16	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
φ20	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
φ25	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
φ32	Push	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2
	Pull	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd
Contr

Ending

SMG-F Series

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/
COVPIN2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/
MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd
Contr
Ending

How to order

Without switch (without magnet for switch)

SMG-F - **32** - **25**

With switch (built-in magnet for switch)

SMG-LF - **32** - **25** - **K2H** - **R**

A Model No.

B Bore size

C Port thread

D Stroke length

E Switch model No.

Precautions for model No. selection

*1: Refer to page 1382 for the min. stroke length with switch.

[Example of model No.]

SMG-LF-6-15-K0H-R

Model: Compact cylinder

A Model No. : Double acting/fine speed/with switch

B Bore size : $\phi 6$ mm

C Port thread : Rc thread

D Stroke length : 15 mm

E Switch model No. : Reed switch K0H,
Lead wire length 1 m

F Switch quantity : 1 on rod side

F Switch quantity

How to order switch

SW - **K2H**

Switch model No.
(Item **E** above)

Code	Content						
A Model No.							
SMG-F	Double acting/fine speed						
SMG-LF	Double acting/fine speed/with switch						
B Bore size (mm)							
6	$\phi 6$						
10	$\phi 10$						
16	$\phi 16$						
20	$\phi 20$						
25	$\phi 25$						
32	$\phi 32$						
C Port thread							
Blank	Rc thread						
NN	NPT thread ($\phi 32$ only)						
GN	G thread ($\phi 32$ only)						
D Stroke length (mm)		Applicable bore size					
		$\phi 6$	$\phi 10$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$
Standard stroke length	5	●	●	●	●	●	●
	10	●	●	●	●	●	●
	15	●	●	●	●	●	●
	20	●	●	●	●	●	●
	25	●	●	●	●	●	●
	30	●	●	●	●	●	●
	40				●	●	●
	50				●	●	●
E Switch model No.			Voltage		Indicator		Lead wire
Axial lead wire	Radial lead wire	Contact	AC	DC			
K0H*	K0V*	Reed	●	●	1-color display		2-wire
K5H*	K5V*		●	●	Without indicator lamp		
K2H*	K2V*	Proximity		●	1-color display		2-wire
K3H*	K3V*			●			3-wire
K3PH*	K3PV*			●	1-color display (custom)		3-wire
K2YH*	K2YV*			●	2-color display		2-wire
K3YH*	K3YV*		●			3-wire	
* Lead wire length							
Blank	1 m (Standard)						
3	3 m						
5	5 m						
F Switch quantity							
R	1 on rod side						
H	1 on head side						
D	2						

MEMO

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

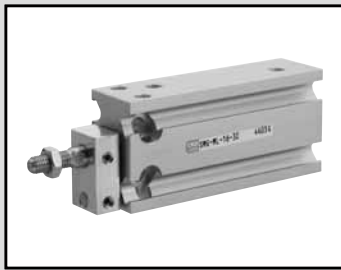
ShkAbs

FJ

FK

Spd
Contr

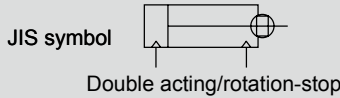
Ending



Compact cylinder double acting/rotation-stop

SMG-M Series

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



Specifications

1 MPa \approx 145.0 psi, 1 MPa = 10 bar

Descriptions	SMG-M SMG-ML (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 (\approx 100 psi, 7 bar)					
Min. working pressure	MPa	0.15	0.10 (\approx 15 psi, 1 bar)	0.08 (\approx 12 psi, 0.8 bar)			
Proof pressure	MPa	1.05 (\approx 150 psi, 10.5 bar)					
Ambient temperature	$^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$) to 60 (140 $^{\circ}\text{F}$) (no freezing)					
Port size		M5					Rc1/8
Stroke tolerance	mm	+1.5 0					
Working piston speed	mm/s	50 to 500					
Cushion		With rubber cushion					
Lubrication		Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)					
Non-rotating accuracy	*1	$\pm 0.8^{\circ}$			$\pm 0.5^{\circ}$		
Allowable torque	N·m	0.008	0.025	0.088	0.17	0.33	0.67
Allowable absorbed energy	J	0.012	0.036	0.1	0.1	0.19	0.5

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

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	
$\phi 25$		
$\phi 32$		

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

Min. stroke with switch

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

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	Dedicated for programmable controller		For programmable controller, relay			For programmable controller, relay		For programmable controller, relay, IC circuit (without indicator), 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 V/24 VDC	110 VAC	5/12/24 VDC	110 VAC
Load current	5 to 20 mA (*1)		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: The above max. load current is 20 mA at 25 $^{\circ}\text{C}$. The current is lower than 20 mA if operating ambient temperature around the switch is higher than 25 $^{\circ}\text{C}$. (5 to 10 mA at 60 $^{\circ}\text{C}$)

Cylinder weight

(Unit: g)

Model No.	Product weight when stroke length S = 0 mm		Additional weight per S = 5mm
	SMG-M Double acting/rotation-stop	SMG-ML Double acting/rotation-stop/switch	
Bore size			
φ6	23	23	3
φ10	33	33	3
φ16	51	66	6
φ20	106	134	12
φ25	197	241	18
φ32	329	397	27

(Example) Product weight

- SMG-ML-16-10-K2H-D ● Product weight for 0 mm stroke length 66 g
- Additional weight when S = 10 mm $6 \text{ g} \times 10/5 = 12 \text{ g}$
 - Weight of 2 cylinder switches $18 \text{ g} \times 2 = 36 \text{ g}$
 - Product weight $66 \text{ g} + 12 \text{ g} + 36 \text{ g} = 114 \text{ g}$

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
φ6	Push	-	-	5.65	8.48	11.3	14.1	17.0	19.8
	Pull	-	-	4.24	6.36	8.48	10.6	12.7	14.8
φ10	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
φ16	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
φ20	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
φ25	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
φ32	Push	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2
	Pull	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2

- SCP*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2
- SCS2
- CKV2
- CAV2/COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/MSDG
- FC*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd Contr
- Ending

SMG-M Series

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/
COVPIN2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/
MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd
Contr
Ending

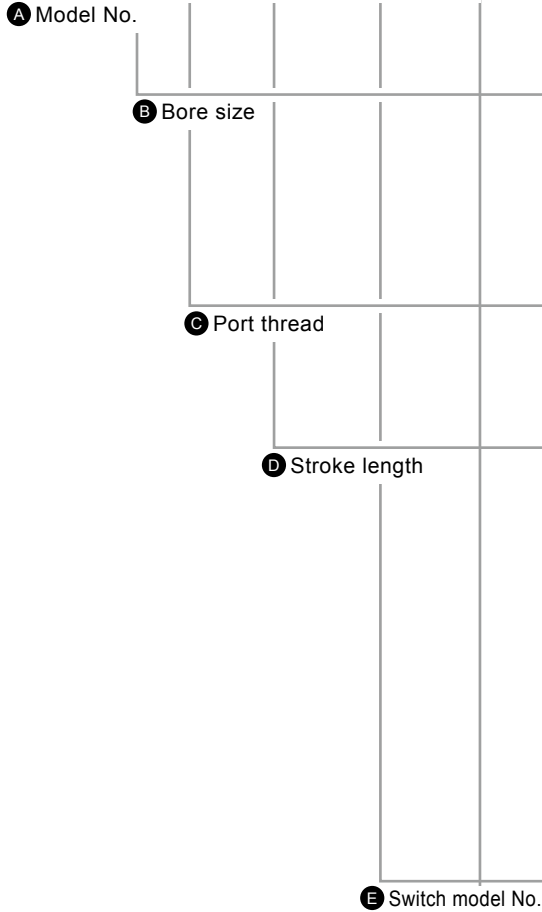
How to order

Without switch (without magnet for switch)

SMG-M - **32** - **25**

With switch (built-in magnet for switch)

SMG-ML - **32** - **25** - **K2H** - **R**



Code	Content
A Model No.	
SMG-M	Double acting/rotation-stop
SMG-ML	Double acting/rotation-stop/with switch

B Bore size (mm)	
6	φ6
10	φ10
16	φ16
20	φ20
25	φ25
32	φ32

C Port thread	
Blank	Rc thread
NN	NPT thread (φ32 only) (custom order product)
GN	G thread (φ32 only) (custom order product)

D Stroke length (mm)	Applicable bore size					
	φ6	φ10	φ16	φ20	φ25	φ32
Standard stroke length	5	●	●	●	●	●
	10	●	●	●	●	●
	15	●	●	●	●	●
	20	●	●	●	●	●
	25	●	●	●	●	●
	30	●	●	●	●	●
	40	●	●	●	●	●
	50	●	●	●	●	●
	60	●	●	●	●	●
	70				●	●
	80				●	●
	90				●	●
100				●	●	

E Switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Indicator	Lead wire
			AC	DC		
K0H*	K0V*	Reed	●	●	1-color display	2-wire
K5H*	K5V*		●	●	Without indicator lamp	
K2H*	K2V*	Proximity		●	1-color display	2-wire
K3H*	K3V*			●		3-wire
K3PH*	K3PV*		●	●	1-color display (custom)	3-wire
K2YH*	K2YV*		●	●	2-color display	2-wire
K3YH*	K3YV*		●		3-wire	

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

F Switch quantity	
R	1 on rod side
H	1 on head side
D	2

Precautions for model No. selection

*1: Refer to page 1386 for the min. stroke length with switch.

*2: Copper and PTFE free as standard.

[Example of model No.]

SMG-ML-6-15-K0H-R

Model: Compact cylinder

A Model No. : Double acting/rotation-stop/with switch

B Bore size : φ6 mm

C Port thread : Rc thread

D Stroke length : 15 mm

E Switch model No. : Reed switch K0H,
Lead wire length 1 m

F Switch quantity : 1 on rod side

How to order switch

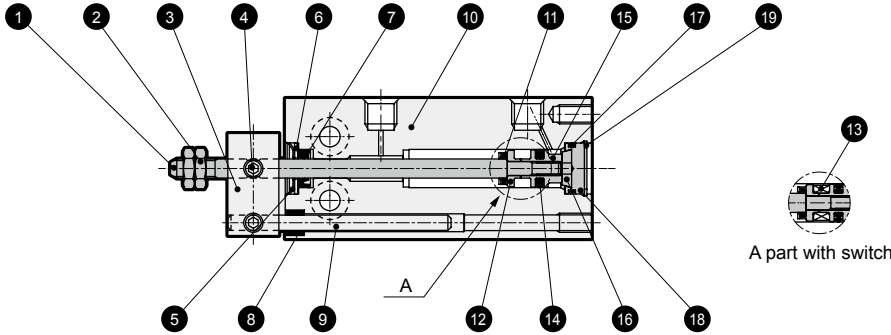
SW - **K2H**

Switch model No.
(Item **E** above)

CKD

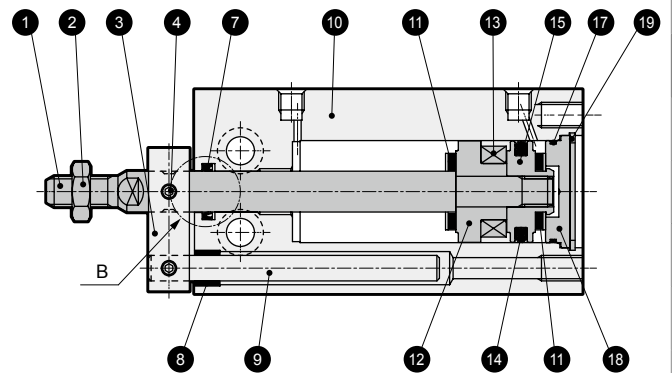
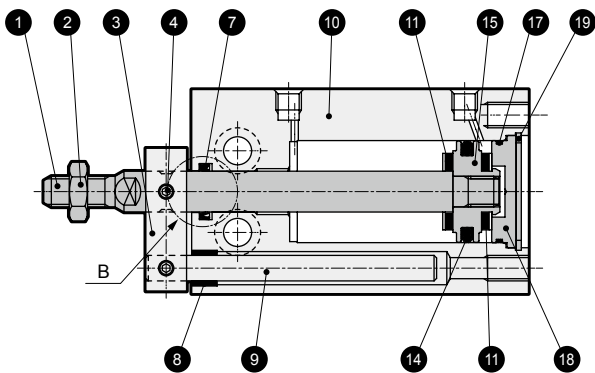
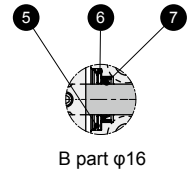
Internal structure and parts list

- SMG-M-6/10 (double acting/rotation-stop)
 - $\phi 6/\phi 10$



- SMG-M-16 to 32 (double acting/rotation-stop)
 - $\phi 16$ to $\phi 32$

- SMG-ML-16 to 32 (double acting/rotation-stop/with switch)
 - $\phi 16$ to $\phi 32$



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Piston rod	Stainless steel	$\phi 20, 25, 32$ Industrial chrome plating	11	Cushion rubber R	Urethane rubber	
2	Rod nut	Steel	Nickeling	12	Spacer	Aluminum alloy	Chromate
3	Rotation-stop plate	Aluminum alloy	Chromate	13	Magnet	-	
4	Hexagon socket set screw	Stainless steel		14	Piston packing	Nitrile rubber	
5	CR ring	Stainless steel		15	Piston	Aluminum alloy	Chromate
6	Cap	Stainless steel		16	Cushion rubber H	Urethane rubber	
7	Rod packing	Nitrile rubber		17	Cover gasket	Nitrile rubber	
8	Rotation-stop bush	Acetal resin		18	Cover	Aluminum alloy	Chromate
9	Guide bar	Stainless steel	$\phi 32$ Industrial chrome plating	19	C type snap ring	Steel	Zinc phosphate
10	Body	Aluminum alloy	Hard alumite				

Repair parts list

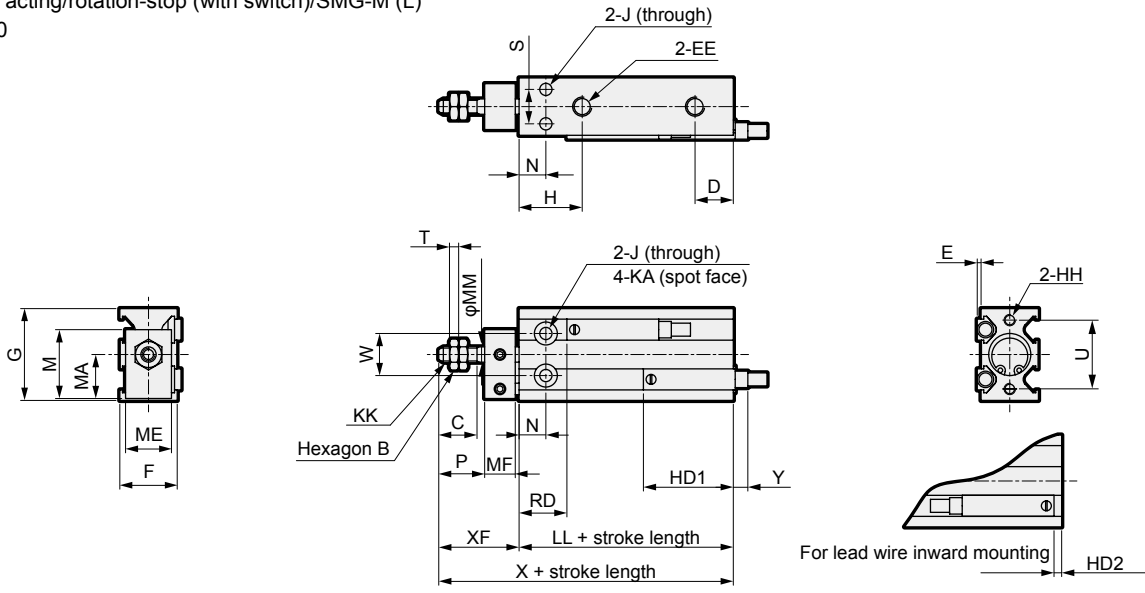
Bore size (mm)	Kit No.	Repair parts No.	Bore size (mm)	Kit No.	Repair parts No.
$\phi 6$	SMG-M-6K		$\phi 20$	SMG-M-20K	
$\phi 10$	SMG-M-10K	4 5 7 11 14 16 17	$\phi 25$	SMG-M-25K	4 7 11 14 16 17
$\phi 16$	SMG-M-16K		$\phi 32$	SMG-M-32K	

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/
COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/
MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd
Contr
Ending

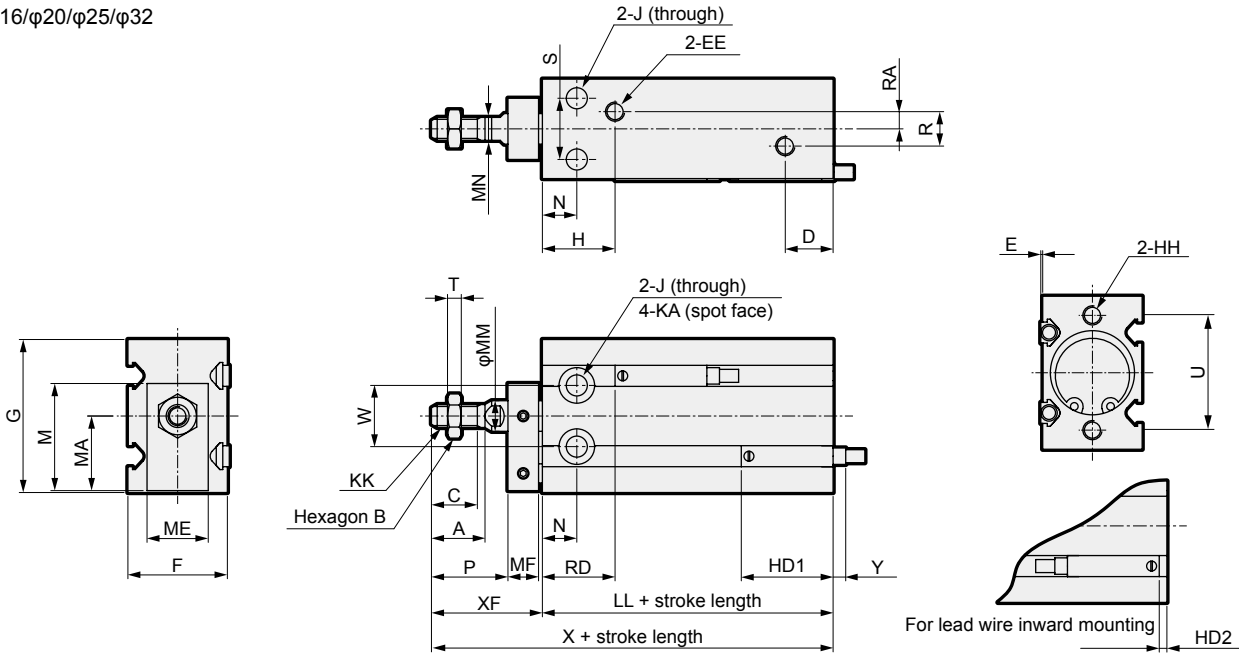
SMG-M Series

Dimensions

- Double acting/rotation-stop (with switch)/SMG-M (L)
- $\phi 6/\phi 10$



- $\phi 16/\phi 20/\phi 25/\phi 32$



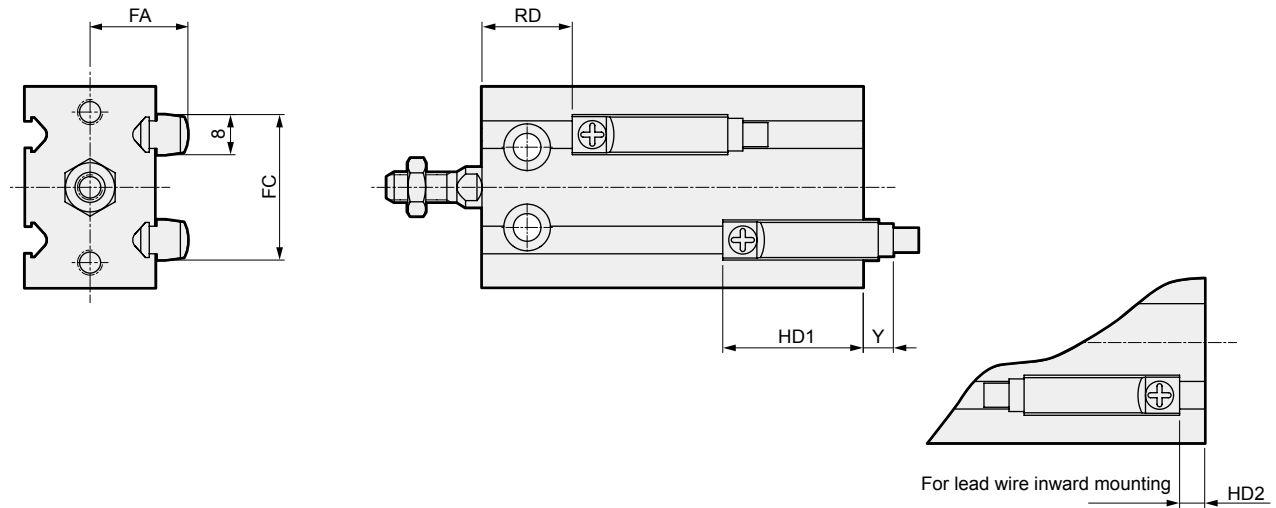
Code	A	B	C	D	EE	F	G	H	HH	J	KA	KK	M	MA	ME	MF	MM	MN	N	P	R	RA
Bore size																						
$\phi 6$	-	5.5	7	10	M5	13	22	15	M3 depth 5	3.2	6 depth 4.8	M3	16	10.5	11	8	3	-	7	9	-	-
$\phi 10$	-	7	10	10	M5	15	24	16.5	M3 depth 5	3.2	6 depth 5	M4	18	11.5	12	8	4	-	7	12	-	-
$\phi 16$	12.5	8	11	11.5	M5	20	32	(*1) 16.5	M4 depth 6	4.5	7.5 depth 6.5	M5	22	15.5	13	8	6	5	7	17	4	2
$\phi 20$	14	10	12	12.5	M5	26	40	19	M5 depth 8	5.5	9 depth 8	M6	28	19.5	16	8	8	6	9	20	9	4.5
$\phi 25$	18	13	15.5	13	M5	32	50	21.5	M5 depth 8	5.5	9 depth 9	M8	35	24.5	20	10	10	8	10	22	9	4.5
$\phi 32$	22	17	19.5	12.5	Rc1/8	40	62	23	M6 depth 9	6.6	11 depth 11.5	M10 X 1.25	42.5	30.5	24	12	12	10	11	29	13.5	4.5

Code	S	T	U	W	XF	LL		X		E	HD1	HD2	RD	Y
Bore size						Without switch	With switch	Without switch	With switch					
$\phi 6$	7	1.8	17	10	18	33	33	51	51	1	20	1	13	7
$\phi 10$	9	2.4	18	11	21	36	36	57	57	1	23.5	4.5	12.5	3.5
$\phi 16$	12	3.2	25	14	26	30	40	56	66	0.5	24.5	5.5	15.5	2.5
$\phi 20$	16	3.6	30	16	29	36	46	65	75	0.5	27	8	19	0
$\phi 25$	20	5	38	20	33	40	50	73	83	0.5	29	10	21	-2
$\phi 32$	24	6	48	24	42	42	52	84	94	0.5	30.5	11.5	21.5	-3.5

*1 : 14.5 for 5 stroke length without switch
 *2 : Y dimensions indicate the protruding 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)
 *4 : Refer to page 1391 for HD, RD, and protruding dimensions of 2-color display switches.

SMG Series with switch common dimensions (2-color display)

- SMG-L (with switch: K2Y^{H/V}, K3Y^{H/V})
 - XL
 - YL
 - ML
 - LF



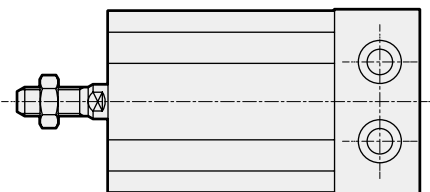
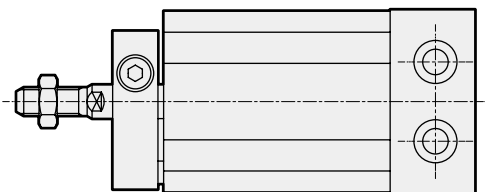
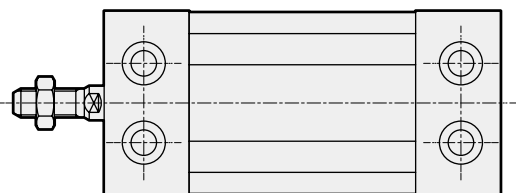
Code	FA	FC	Double acting, double acting/fine speed (F), double acting/rotation-stop (M)						Single acting/push (X)						Single acting/pull (Y)									
			HD1	HD2	RD	Y		HD1	HD2	RD		Y		HD1		HD2		RD	Y (*1)					
						Axial lead wire	Radial lead wire			5, 10st.	15st.	Axial lead wire	Radial lead wire	5, 10st.	15st.	5, 10st.	15st.		5, 10st.	15st.	Axial lead wire	Radial lead wire	Axial lead wire	Radial lead wire
φ6	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		
φ10	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		
φ16	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		
φ20	19.5	29	28	7	18	6	3	28	7	18	23	6	3	28	33	7	12	18	6	3	1	-2		
φ25	22.5	32	30	9	20	4	1	30	9	20	25	4	1	30	35	9	14	20	4	1	-1	-4		
φ32	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		

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

- SCP*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2
- SCS2
- CKV2
- CAV2/
COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG**
- MSD/
MSDG
- FC*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd
Contr
- Ending

Guide to compact cylinder SMD2 compatibility

SMD2 Series models have been changed to SMG Series from October 2015. Since some of the mounting set for SMD2 do not exist for SMG, compatible devices are provided to support such mounting. (Custom order product) If you need these mounting while using SMD2 at this time, contact CKD.

Mounting	SMD2 compatible dimensions	
	Double acting/single acting/fine speed	Rotation-stop
DA	Supported with SMG standard products. SMD2 compatible mounting. However, the total length is shorter.	
DB		
DC		

Other guides

(1) Specification values

Note that there is a change in spring load value of single acting/push and single acting/pull in SMD2 compatible dimensions.

(2) Dimensions

Some port positions are changed.

* Check with CKD for details.