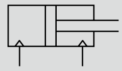
Compact cylinder double acting/single rod

SMG Series

● Bore size: ø6/ø10/ø16/ø20/ø25/ø32

JIS symbol



Double acting

Specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	SMG SMG-L (with switch)					
Bore size mm	ø6	ø10	ø16	ø20	ø25	ø32
Actuation	Double acting					
Working fluid	Compressed air					
Max. working pressure MPa	0.7 (≈100 psi, 7 bar)					
Min. working pressure MPa	0.12	0.06 (≈8.7 psi, 0.6 bar)		0.05 (≈7.3 psi, 0.5 bar)		
Proof pressure MPa	1.05 (≈150 psi, 10.5 bar)					
Ambient temperature °C	-10 (14°F) to 60 (140°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)
ø 6	5, 10, 15, 20, 25, 30, 40, 50, 60	5
ø10		
ø16		
ø20	5, 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100	
ø25		
ø32		

*1: The custom stroke length is available in 5 mm increments. However, the total length is the same as that of the next longer standard stroke length.

Min. stroke with switch

Tube Bore size	1-color display K□H	1-color display K□V	2-color display K□YH	2-color display K□YV
ø 6	5		5	
ø10				
ø16				
ø20				
ø25				
ø32				

Switch specifications

● 1-color/2-color display

Item	Proximity 2-wire K2H/K2V	Proximity 2-wire K2YH/K2YV	Proximity 3-wire K3H/K3V	Proximity 3-wire K3PH/K3PV (Made to order)	Proximity 3-wire K3YH/K3YV	Reed 2-wire K0H/K0V		Reed 2-wire K5H/K5V	
Applications	Dedicated for programmable controller		For programmable controller, relay			For programmable controller, relay		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 (*3)		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 Ending Page 1 for detailed switch specifications and dimensions.
*2: Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.
*3: The max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

Cylinder weight

(Unit: g)

Model No. / Bore size	Product weight when stroke length S = 0 mm: SMG double acting	Product weight when stroke length S = 0 mm: SMG-L double acting/with switch	Additional weight per S = 5mm
ø6	18	18	3
ø10	27	27	3
ø16	41	56	6
ø20	87	115	11
ø25	164	208	17
ø32	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 g × 10/5 = 12 g
- ● Weight of 2 cylinder switches ·················· 18 g × 2 = 36 g
- ● Product weight ····································· 56 g + 12 g + 36 g = 104 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
ø32	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

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

Code	Description
A Model No.	
SMG	Double acting
SMG-L	Double acting/with switch
B Bore size (mm)	
6	ø6
10	ø10
16	ø16
20	ø20
25	ø25
32	ø32
C Port thread	
Blank	Rc thread
NN	NPT thread (ø32 only) (made-to-order product)
GN	G thread (ø32 only) (made-to-order product)

D Stroke length (mm)		Applicable bore size					
		ø6	ø10	ø16	ø20	ø25	ø32
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 AC	Voltage DC	Indicator	Lead wire
K0H*	**K0V***	Reed	●	●	1-color display	2-wire
K5H*	**K5V***	Reed	●	●	Without indicator lamp	2-wire
K2H*	**K2V***	Proximity		●	1-color display	2-wire
K3H*	**K3V***	Proximity		●	1-color display	3-wire
K3PH*	**K3PV***	Proximity		●	1-color display (made-to-order product)	3-wire
K2YH*	**K2YV***	Proximity		●	2-color display	2-wire
K3YH*	**K3YV***	Proximity		●	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

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-L-6-15-K0H-R

Model: Compact cylinder
B Bore size : ø6 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)

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

● Anti-dust generation structure for use in cleanrooms

SMG-...............- **P7***

SMG-...............- **P5***

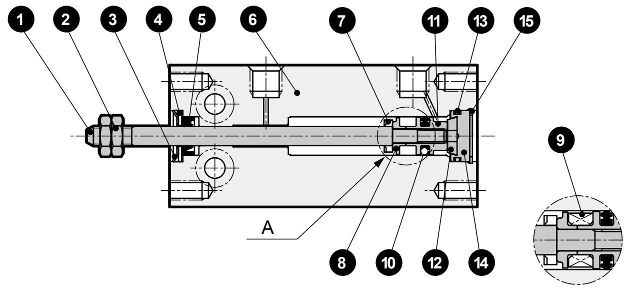
Specifications for rechargeable battery (Catalog No. CC-1226A)

● Design compatible with rechargeable battery manufacturing process

SMG-...............- **P4***

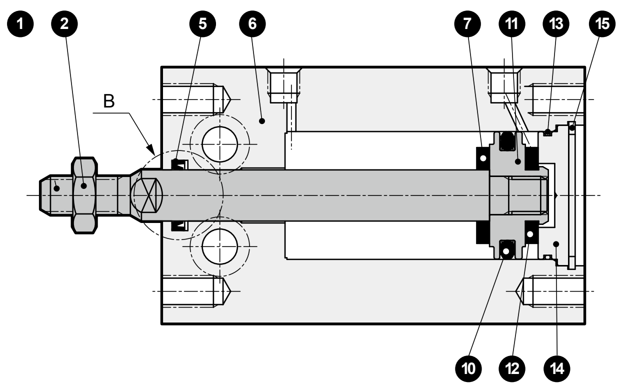
Internal structure and parts list

● ø6/ø10 (double acting)

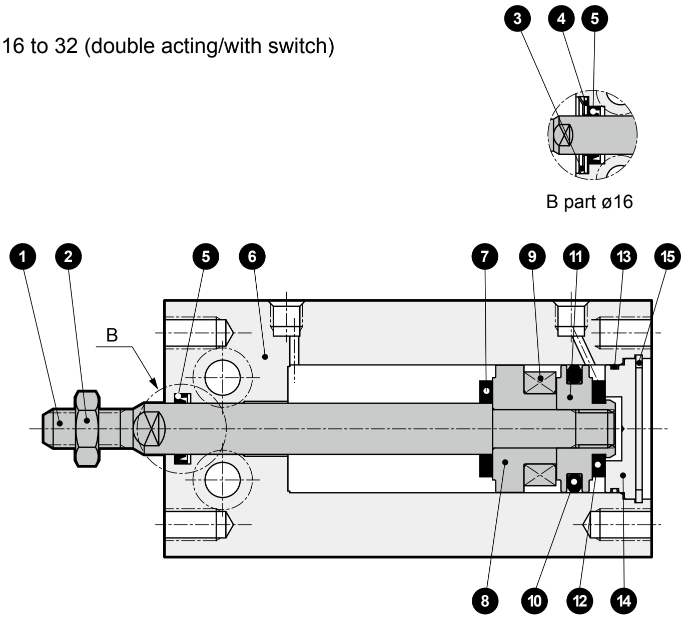


A part with switch

● ø16 to 32 (double acting)



● ø16 to 32 (double acting/with switch)



No.	Part name	Material	Remarks
1	Piston rod	Stainless steel	ø20, 25, 32 Industrial chrome plating
2	Rod nut	Steel	Nickeling
3	CR snap ring	Stainless steel	
4	Cap	Stainless steel	
5	Rod packing	Nitrile rubber	
6	Body	Aluminum alloy	Hard alumite
7	Cushion rubber R	Urethane rubber	
8	Spacer	Aluminum alloy	Chromate
9	Magnet	-	
10	Piston packing	Nitrile rubber	
11	Piston	Aluminum alloy	Chromate
12	Cushion rubber H	Urethane rubber	
13	Cover gasket	Nitrile rubber	
14	Cover	Aluminum alloy	Chromate
15	C snap ring	Steel	Zinc phosphate

Repair parts list

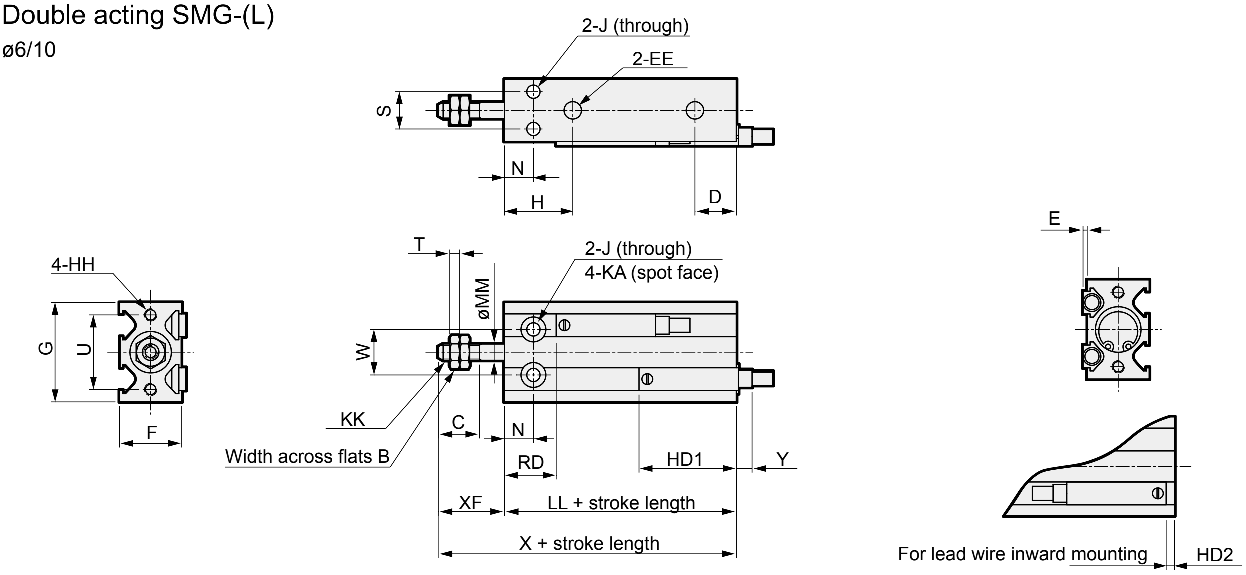
Bore size (mm)	Kit No.	Repair parts No.
ø6	SMG-6K	3 5 7 10 12 13
ø10	SMG-10K	
ø16	SMG-16K	

Bore size (mm)	Kit No.	Repair parts No.
ø20	SMG-20K	5 7 10 12 13
ø25	SMG-25K	
ø32	SMG-32K	

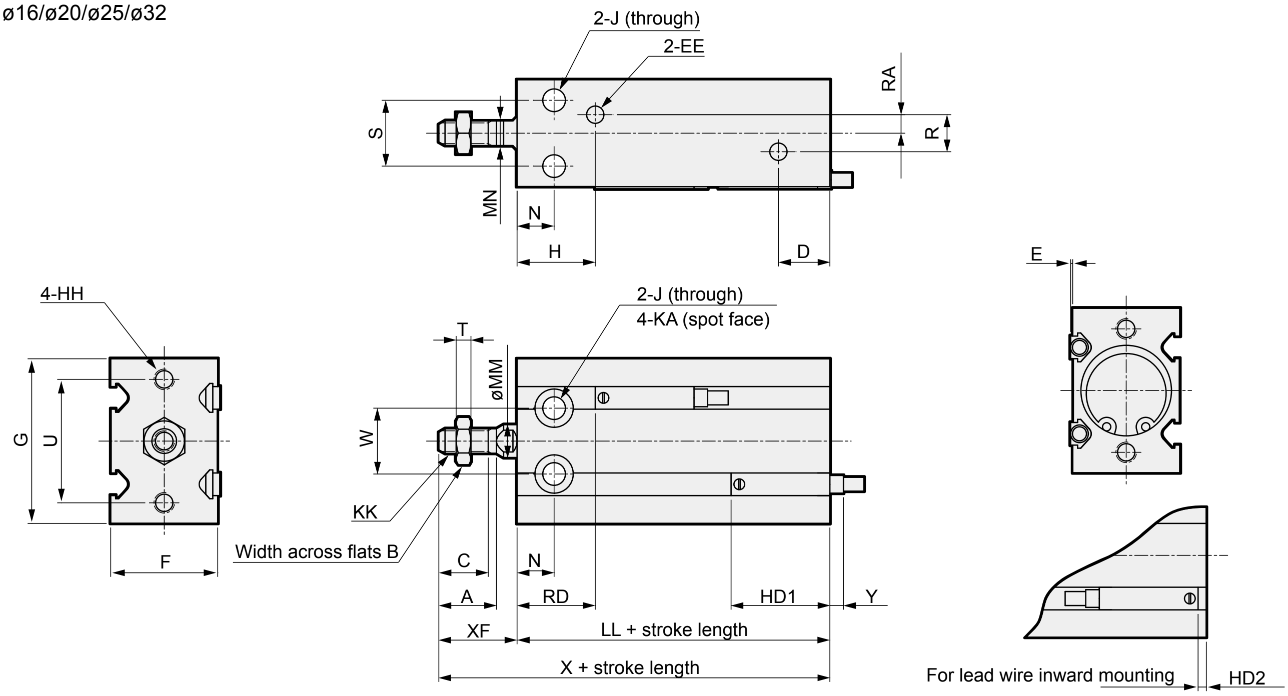
Dimensions

● Double acting SMG-(L)

ø6/10



ø16/ø20/ø25/ø32



Code / 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	(*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

Code / Bore size	T	U	W	XF	LL		X		E	HD1	HD2	RD	Y (*2)
					Without switch	With switch	Without switch	With switch					
ø6	1.8	17	10	13	33	33	46	46	1	20	1	13	7
ø10	2.4	18	11	16	36	36	52	52	1	23.5	4.5	12.5	3.5
ø16	3.2	25	14	16	30	40	46	56	0.5	24.5	5.5	15.5	2.5
ø20	3.6	30	16	19	36	46	55	65	0.5	27	8	19	0
ø25	5	38	20	23	40	50	63	73	0.5	29	10	21	-2
ø32	6	48	24	27	42	52	69	79	0.5	30.5	11.5	21.5	-3.5

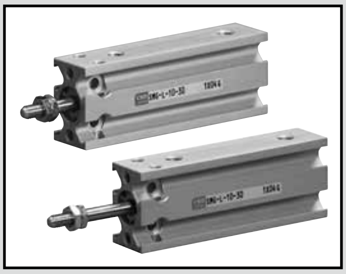
*1 : 14.5 for 5 stroke length without switch

*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 1409 for HD, RD, and protruding dimensions of 2-color display switches.

MEMO

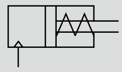


Compact cylinder Single acting/push
Single acting/pull

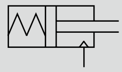
SMG-$^{X}_{Y}$ Series

● Bore size: ø6/ø10/ø16/ø20/ø25/ø32

JIS symbol



Single acting/push



Single acting/pull

Specifications

1 MPa = 10 bar

Item		SMG-X, SMG-Y SMG-XL, SMG-YL (with switch)					
Bore size	mm	ø6	ø10	ø16	ø20	ø25	ø32
Actuation	SMG-X(L)	Single acting/push					
	SMG-Y(L)	Single acting/pull					
Working fluid		Compressed air					
Max. working pressure MPa		0.7 (≈100 psi, 7 bar)					
Min. working pressure MPa	SMG-X(L) SMG-Y(L)	0.2 (≈29 psi)	0.15 (≈22 psi, 1.5 bar)				0.13 (≈19 psi)
Proof pressure	MPa	1.05 (≈150 psi, 10.5 bar)					
Ambient temperature	°C	-10 (14°F) to 60 (140°F) (no freezing)					
Port size		M5					Rc1/8
Stroke tolerance	mm	$^{+1.5}_{0}$					
Working piston speed	mm/s	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 ø6.

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
ø 6	5, 10, 15	15	5
ø10			
ø16			
ø20			
ø25			
ø32			

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	ø 6	5		5	
	ø10				
	ø16				
	ø20				
	ø25				
	ø32				

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
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		

Switch specifications

● 1-color/2-color display

Item	Proximity 2-wire		Proximity 3-wire			Reed 2-wire			
	K2H/K2V	K2YH/ K2YV	K3H/K3V	K3PH/K3PV (Made to order)	K3YH/ K3YV	K0H/K0V		K5H/K5V	
Applications	Dedicated for programmable controller		For programmable controller, relay			For programmable controller, relay		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 (*3)		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	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 Ending Page 1 for detailed switch specifications and dimensions.
*2: Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.
*3: The max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C.)

SMG-X Cylinder weight

(Unit: g)

Model No.	5		10		15	
Bore size	No switch	With switch	No switch	With switch	No switch	With 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-Y Cylinder weight

(Unit: g)

Model No.	5		10		15	
Bore size	No switch	With switch	No switch	With switch	No switch	With 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

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
ø6	-	4.68	7.51	10.3	13.2	16.0
ø10	7.71	15.6	23.4	31.3	39.1	47.0
ø16	24.2	44.3	64.4	84.5	1.05×10^2	1.25×10^2
ø20	43.8	75.2	1.07×10^2	1.38×10^2	1.69×10^2	2.01×10^2
ø25	73.2	1.22×10^2	1.71×10^2	2.20×10^2	2.70×10^2	3.19×10^2
ø32	1.31×10^2	2.11×10^2	2.92×10^2	3.72×10^2	4.53×10^2	5.33×10^2

Note: The load above indicates thrust excluding the spring force at the push end.

● SMG-Y

(Unit: N)

Bore size (mm)	Working pressure MPa					
	0.2	0.3	0.4	0.5	0.6	0.7
ø6	-	2.56	4.68	6.80	8.92	11.0
ø10	5.19	11.8	18.4	25.0	31.6	38.2
ø16	18.6	35.8	53.1	70.4	87.7	1.05×10^2
ø20	33.8	60.2	86.6	1.13×10^2	1.39×10^2	1.66×10^2
ø25	57.5	98.7	1.40×10^2	1.81×10^2	2.22×10^2	2.64×10^2
ø32	1.08×10^2	1.77×10^2	2.46×10^2	3.16×10^2	3.85×10^2	4.54×10^2

Note: The load above indicates thrust excluding the spring force at the pull end.

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

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	Description
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	ø6
10	ø10
16	ø16
20	ø20
25	ø25
32	ø32
C Port thread	
Blank	Rc thread
NN	NPT thread (ø32 only) (made-to-order product)
GN	G thread (ø32 only) (made-to-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 AC	Voltage DC	Indicator	Lead wire
K0H*	**K0V***	Reed	●	●	1-color display	2-wire
K5H*	**K5V***	Reed	●	●	Without indicator lamp	2-wire
K2H*	**K2V***	Proximity		●	1-color display	2-wire
K3H*	**K3V***	Proximity		●	1-color display	3-wire
K3PH*	**K3PV***	Proximity		●	1-color display (made-to-order product)	3-wire
K2YH*	**K2YV***	Proximity		●	2-color display	2-wire
K3YH*	**K3YV***	Proximity		●	2-color display	3-wire

Code	Description
*** 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 1392 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 : ø6 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

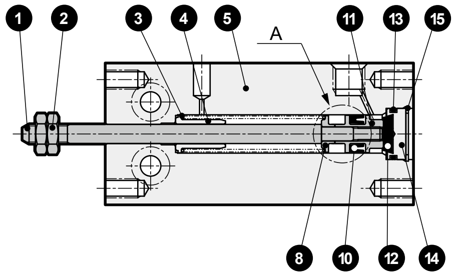
How to order switch

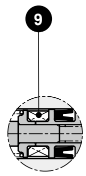
SW - K2H

Switch model No.
(Item E above)

Internal structure and parts list

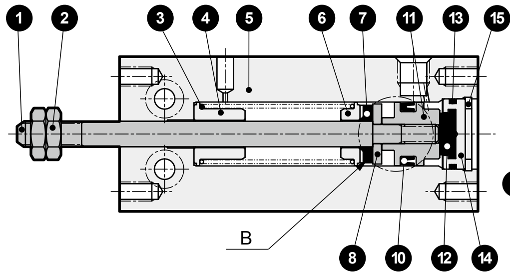
● ø6 (single acting push)

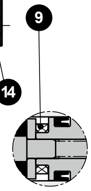




A part with switch

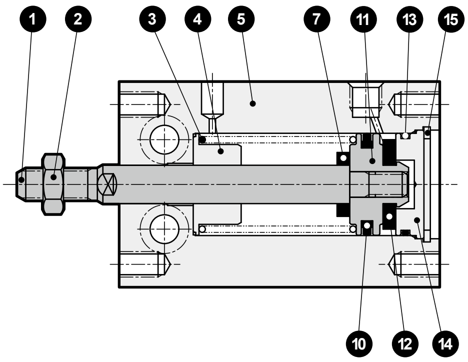
● ø10 (single acting push)



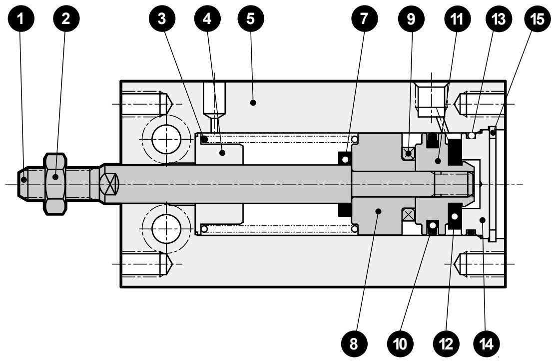


B part with switch

● ø16 to 32 (single acting push)



● ø16 to 32 (single acting push/with switch)



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Piston rod	Stainless steel	ø20, 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				

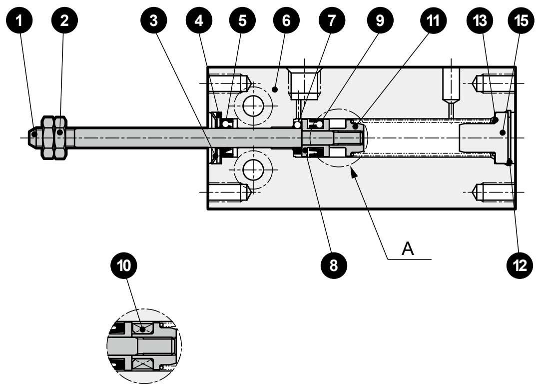
Repair parts list

Bore size (mm)	Kit No.	Repair parts No.
ø6	SMG-X-6K	10 12 13
ø10	SMG-X-10K	7 10 12 13
ø16	SMG-X-16K	

Bore size (mm)	Kit No.	Repair parts No.
ø20	SMG-X-20K	7 10 12 13
ø25	SMG-X-25K	
ø32	SMG-X-32K	

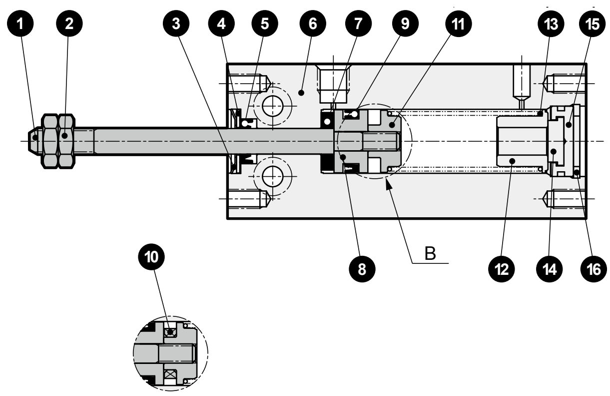
Internal structure and parts list

● ø6 (single acting pull)



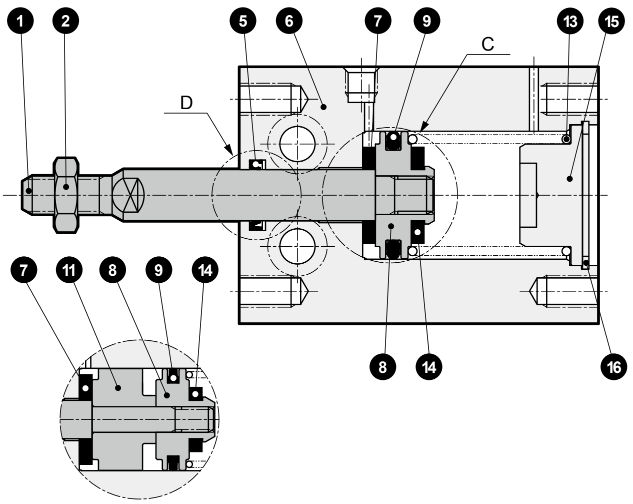
A part with switch

● ø10 (single acting pull)



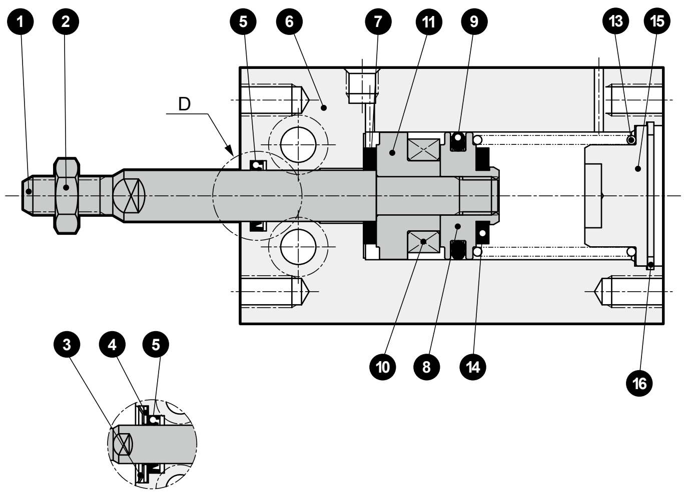
B part with switch

● ø16 to 32 (single acting pull)



C part ø16

● ø16 to 32 (single acting pull/with switch)



D part ø16

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Piston rod	Stainless steel	ø20, 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.
ø6	SMG-Y-6K	3 5 7 9
ø10	SMG-Y-10K	3 5 7 9 14
ø16	SMG-Y-16K	

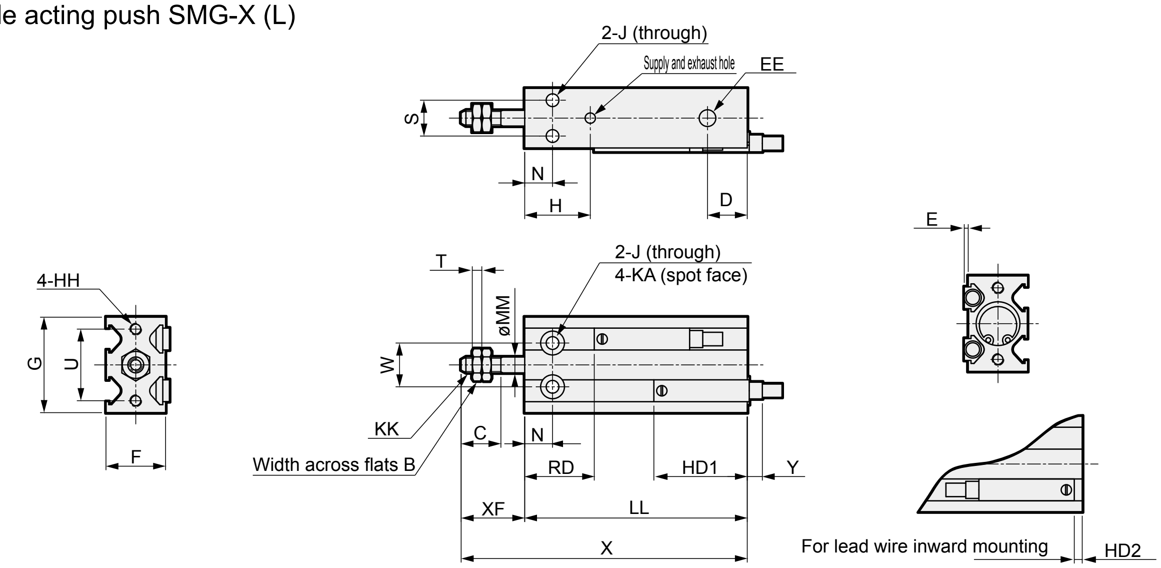
Bore size (mm)	Kit No.	Repair parts No.
ø20	SMG-Y-20K	5 7 9 14
ø25	SMG-Y-25K	
ø32	SMG-Y-32K	

Dimensions

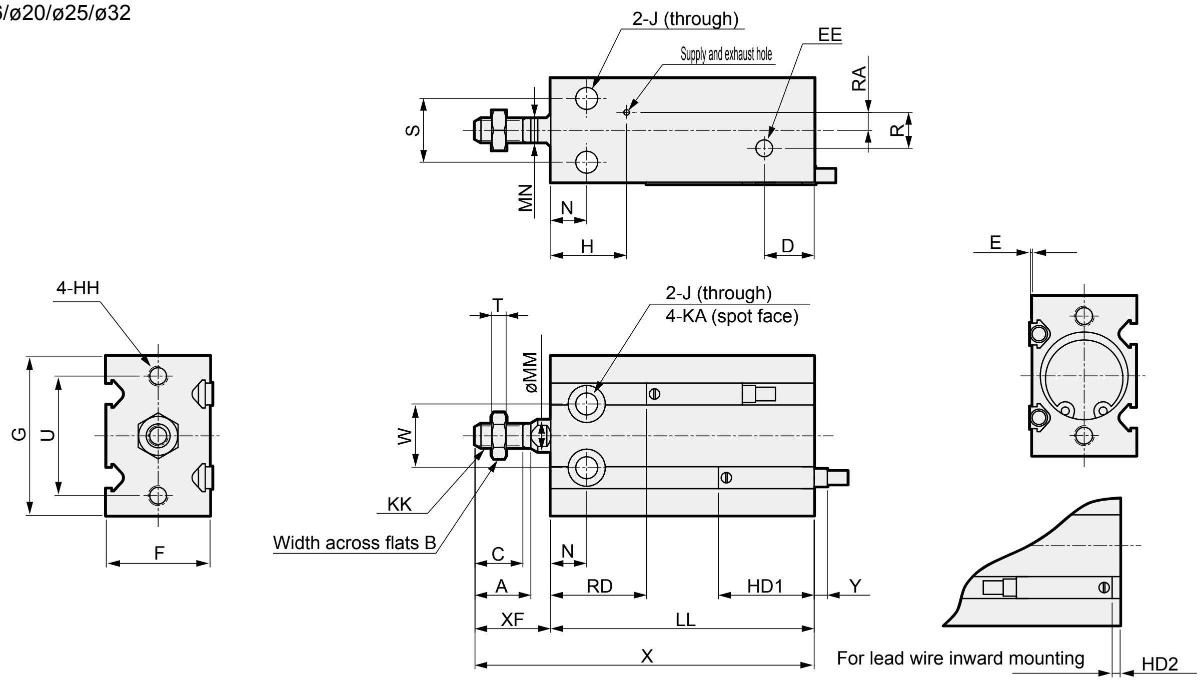
CAD

● Single acting push SMG-X (L)

ø6/10



ø16/ø20/ø25/ø32



Code / Bore size	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	M10×1.25	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.				5, 10st.	15st.	
ø6	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
ø10	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
ø16	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
ø20	30	16	19	41	46	56	51	56	66	60	65	75	70	75	85	0.5	27	8	19	24	0
ø25	38	20	23	45	50	60	55	60	70	68	73	83	78	83	93	0.5	29	10	21	26	-2
ø32	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 1409 for HD, RD, and protruding dimensions of 2-color display switches.

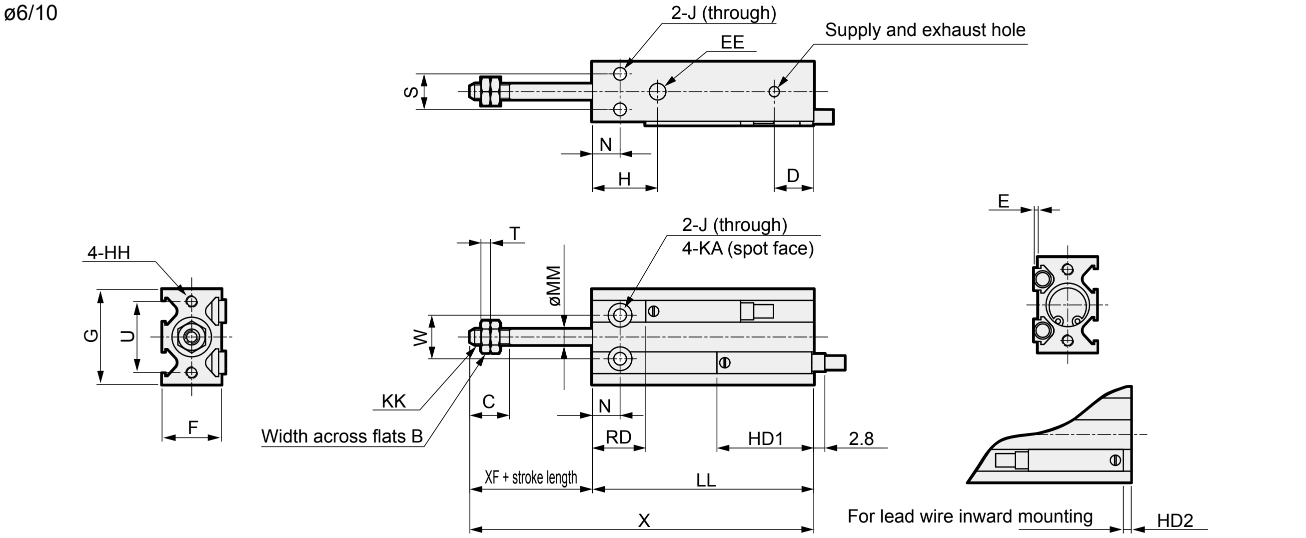
SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

Dimensions

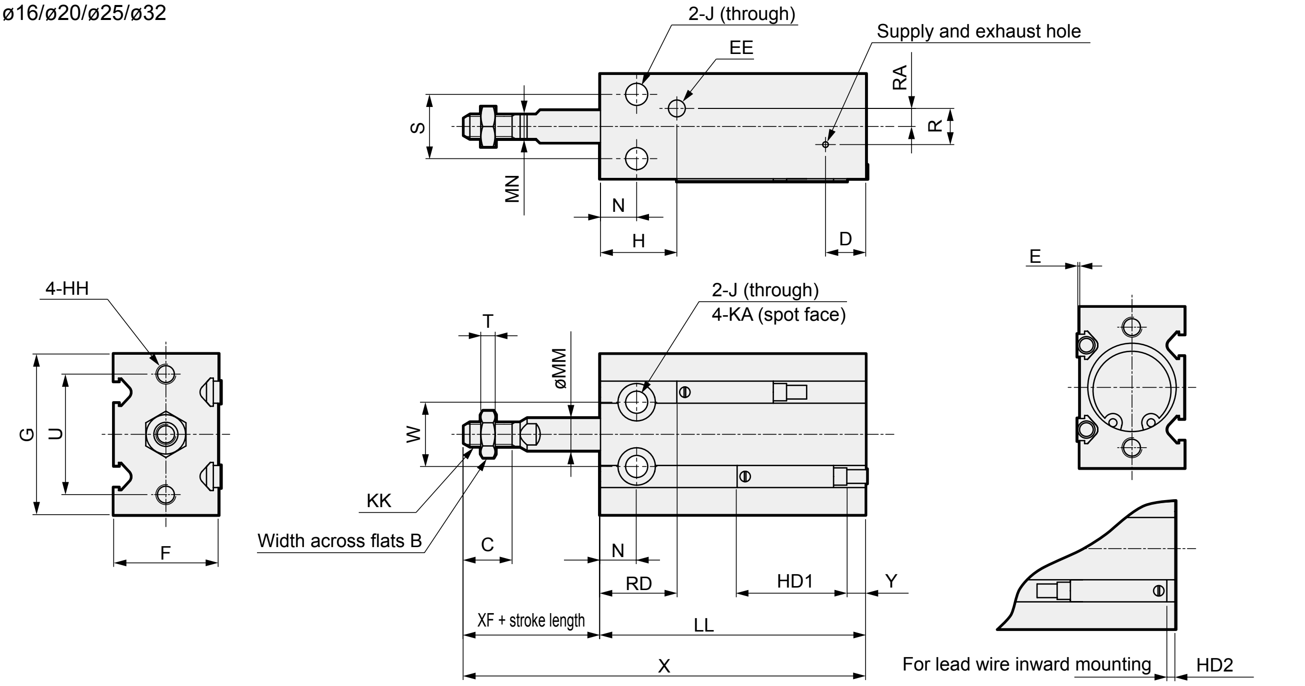
CAD

● Single acting pull SMG-Y (L)

ø6/10



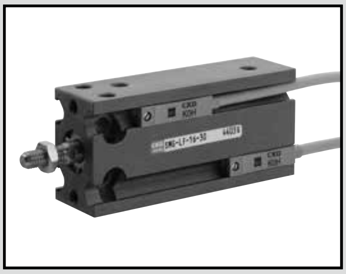
ø16/ø20/ø25/ø32



Code / Bore size	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

Code / Bore size	W	XF	LL Without switch			LL With switch			X Without switch			X With switch			E	HD1		HD2		RD	Y (*1)	
			5st.	10st.	15st.	5st.	10st.	15st.	5st.	10st.	15st.	5st.	10st.	15st.		5, 10st.	15st.	5, 10st.	15st.		5, 10st.	15st.
ø6	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
ø10	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
ø16	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
ø20	16	19	41	46	56	51	56	66	65	75	90	75	85	100	0.5	27	32	8	13	19	0	-5
ø25	20	23	45	50	60	55	60	70	73	83	98	83	93	108	0.5	29	34	10	15	21	-2	-7
ø32	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 1409 for HD, RD, and protruding dimensions of 2-color display switches.

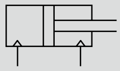


Compact cylinder double acting/fine speed

SMG-F Series

● Bore size: ø6/ø10/ø16/ø20/ø25/ø32

JIS symbol



Double acting

RoHS

Specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	SMG-F SMG-LF (with switch)					
Bore size mm	ø6	ø10	ø16	ø20	ø25	ø32
Actuation	Double acting					
Working fluid	Compressed air					
Max. working pressure MPa	0.7 (≈100 psi, 7 bar)					
Min. working pressure MPa	0.12	0.06 (≈8.7 psi, 0.6 bar)	0.05 (≈7.3 psi, 0.5 bar)			
Proof pressure MPa	1.05 (≈150 psi, 10.5 bar)					
Ambient temperature °C	5 (41°F) to 60 (140°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)
ø 6	5, 10, 15, 20, 25, 30	5
ø10		
ø16		
ø20	5, 10, 15, 20, 25, 30, 40, 50	
ø25		
ø32		

*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
ø 6	5		5	
ø10				
ø16				
ø20				
ø25				
ø32				

Switch specifications

● 1-color/2-color display

Item	Proximity 2-wire		Proximity 3-wire			Reed 2-wire			
	K2H/K2V	K2YH/K2YV	K3H/K3V	K3PH/K3PV (Made to 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 (*3)		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 Ending Page 1 for detailed switch specifications and dimensions.
*2: Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.
*3: The max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

Weight

Same as SMG Series (double acting/single rod). Refer to page 1387.

Dimensions

Same as SMG Series (double acting/single rod). Refer to page 1390.

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

Cylinder weight

(Unit: g)

Model No. / Bore size	Product weight when stroke length S = 0 mm: SMG-F double acting	Product weight when stroke length S = 0 mm: SMG-LF double acting/with switch	Additional weight per S = 5 mm
ø6	18	18	3
ø10	27	27	3
ø16	41	56	6
ø20	87	115	11
ø25	164	208	17
ø32	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 g × 10/5 = 12 g
- Weight of 2 cylinder switches ··················· 18 g × 2 = 36 g
- Product weight ····································· 56 g + 12 g + 36 g = 104 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
ø32	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

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

Ⓐ Model No.
Ⓑ Bore size
Ⓒ Port thread
Ⓓ Stroke length
Ⓔ Switch model No.
Ⓕ Switch quantity

Code	Description
Ⓐ Model No.	
SMG-F	Double acting/fine speed
SMG-LF	Double acting/fine speed/with switch
Ⓑ Bore size (mm)	
6	ø6
10	ø10
16	ø16
20	ø20
25	ø25
32	ø32
Ⓒ Port thread	
Blank	Rc thread
NN	NPT thread (ø32 only)
GN	G thread (ø32 only)

Ⓓ Stroke length (mm)		Applicable bore size ø6	ø10	ø16	ø20	ø25	ø32
Standard stroke length	**5**	●	●	●	●	●	●
	10	●	●	●	●	●	●
	15	●	●	●	●	●	●
	20	●	●	●	●	●	●
	25	●	●	●	●	●	●
	30	●	●	●	●	●	●
	40				●	●	●
	50				●	●	●

Ⓔ Switch model No.

Axial lead wire	Radial lead wire	Contact	Voltage AC	Voltage DC	Indicator	Lead wire
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

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

⚠ Precautions for model No. selection

*1: Refer to page 1400 for the min. stroke length with switch.

[Example of model No.]

SMG-LF-6-15-K0H-R

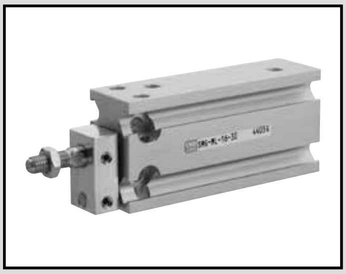
Model: Compact cylinder
Ⓐ Model No. : Double acting/fine speed/with switch
Ⓑ Bore size : ø6 mm
Ⓒ Port thread : Rc thread
Ⓓ Stroke length : 15 mm
Ⓔ Switch model No. : Reed switch K0H, Lead wire length 1 m
Ⓕ Switch quantity : 1 on rod side

How to order switch

SW - K2H

Switch model No. (Item Ⓔ above)

MEMO

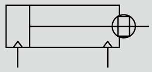


Compact cylinder double acting/rotation-stop

SMG-M Series

● Bore size: ø6/ø10/ø16/ø20/ø25/ø32

JIS symbol



Double acting/rotation-stop

RoHS

Specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item		SMG-M SMG-ML (with switch)					
Bore size	mm	ø6	ø10	ø16	ø20	ø25	ø32
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure	MPa	0.7 (≈100 psi, 7 bar)					
Min. working pressure	MPa	0.15	0.10 (≈15 psi, 1 bar)	0.08 (≈12 psi, 0.8 bar)			
Proof pressure	MPa	1.05 (≈150 psi, 10.5 bar)					
Ambient temperature	°C	-10 (14°F) to 60 (140°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	±0.8°			±0.5°		
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: Initial value at the retracted end (excluding piston rod deflection).

Stroke length

Bore size (mm)	Standard stroke length (mm)	Min. stroke length (mm)
ø 6	5, 10, 15, 20, 25, 30, 40, 50, 60	5
ø10		
ø16		
ø20	5, 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100	
ø25		
ø32		

*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
ø 6	5		5	
ø10				
ø16				
ø20				
ø25				
ø32				

Switch specifications

● 1-color/2-color display

Item	Proximity 2-wire		Proximity 3-wire			Reed 2-wire			
	K2H/K2V	K2YH/K2YV	K3H/K3V	K3PH/K3PV (Made to 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: Refer to Ending Page 1 for detailed switch specifications and dimensions.
*2: Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.
*3: The max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

Cylinder weight

(Unit: g)

Model No. / Bore size	Product weight when stroke length S = 0 mm: SMG-M (Double acting/rotation-stop)	Product weight when stroke length S = 0 mm: SMG-ML (Double acting/rotation-stop/switch)	Additional weight per S = 5mm
ø6	23	23	3
ø10	33	33	3
ø16	51	66	6
ø20	106	134	12
ø25	197	241	18
ø32	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 g × 10/5 = 12 g
- ● Weight of 2 cylinder switches ················· 18 g × 2 = 36 g
- ● Product weight ···································· 66 g + 12 g + 36 g = 114 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
ø32	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

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

Ⓐ Model No.
Ⓑ Bore size
Ⓒ Port thread
Ⓓ Stroke length
Ⓔ Switch model No.
Ⓕ Switch quantity

Code	Description
Ⓐ Model No.	
SMG-M	Double acting/rotation-stop
SMG-ML	Double acting/rotation-stop/with switch
Ⓑ Bore size (mm)	
6	ø6
10	ø10
16	ø16
20	ø20
25	ø25
32	ø32
Ⓒ Port thread	
Blank	Rc thread
NN	NPT thread (ø32 only) (made-to-order product)
GN	G thread (ø32 only) (made-to-order product)

Ⓓ Stroke length (mm)		Applicable bore size					
		ø6	**ø10**	**ø16**	**ø20**	**ø25**	**ø32**
Standard stroke length	**5**	●	●	●	●	●	●
	10	●	●	●	●	●	●
	15	●	●	●	●	●	●
	20	●	●	●	●	●	●
	25	●	●	●	●	●	●
	30	●	●	●	●	●	●
	40	●	●	●	●	●	●
	50	●	●	●	●	●	●
	60	●	●	●	●	●	●
	70				●	●	●
	80				●	●	●
	90				●	●	●
	100				●	●	●

Ⓔ 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***	Reed	●	●	Without indicator lamp	2-wire
K2H*	**K2V***	Proximity		●	1-color display	2-wire
K3H*	**K3V***	Proximity		●	1-color display	3-wire
K3PH*	**K3PV***	Proximity		●	1-color display (custom)	3-wire
K2YH*	**K2YV***	Proximity		●	2-color display	2-wire
K3YH*	**K3YV***	Proximity		●	2-color display	3-wire

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

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

⚠ Precautions for model No. selection

*1: Refer to page 1404 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
Ⓐ Model No. : Double acting/rotation-stop/with switch
Ⓑ Bore size : ø6 mm
Ⓒ Port thread : Rc thread
Ⓓ Stroke length : 15 mm
Ⓔ Switch model No. : Reed switch K0H, Lead wire length 1 m
Ⓕ Switch quantity : 1 on rod side

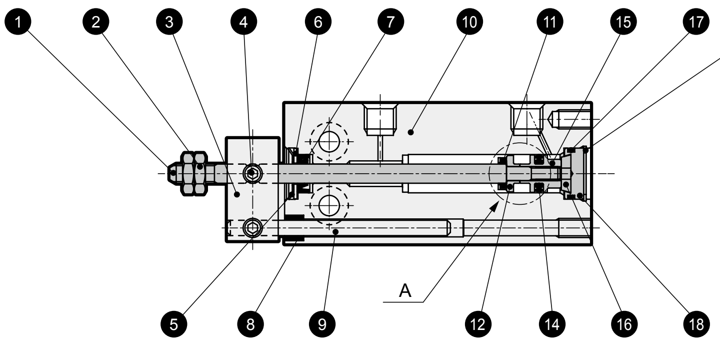
How to order switch

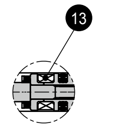
SW - K2H

Switch model No.
(Item Ⓔ above)

Internal structure and parts list

- SMG-M-6/10 (double acting/rotation-stop)
  - ø6/ø10

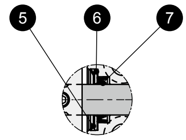




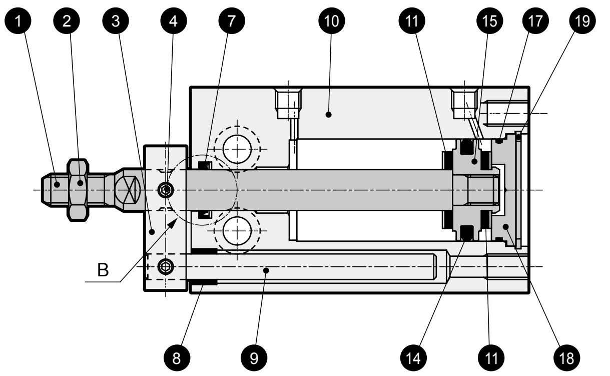
A part with switch

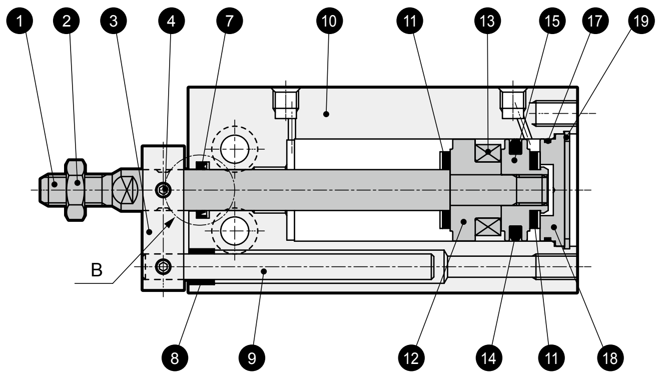
- SMG-M-16 to 32 (double acting/rotation-stop)
  - ø16 to ø32

- SMG-ML-16 to 32 (double acting/rotation-stop/with switch)
  - ø16 to ø32



B part ø16





No.	Part name	Material	Remarks
1	Piston rod	Stainless steel	ø20, 25, 32 Industrial chrome plating
2	Rod nut	Steel	Nickeling
3	Rotation-stop plate	Aluminum alloy	Chromate
4	Hexagon socket set screw	Stainless steel	
5	CR type snap ring	Stainless steel	
6	Cap	Stainless steel	
7	Rod packing	Nitrile rubber	
8	Rotation-stop bush	Acetal resin	
9	Guide bar	Stainless steel	ø32 Industrial chrome plating
10	Body	Aluminum alloy	Hard alumite
11	Cushion rubber R	Urethane rubber	
12	Spacer	Aluminum alloy	Chromate
13	Magnet	-	
14	Piston packing	Nitrile rubber	
15	Piston	Aluminum alloy	Chromate
16	Cushion rubber H	Urethane rubber	
17	Cover gasket	Nitrile rubber	
18	Cover	Aluminum alloy	Chromate
19	C type snap ring	Steel	Zinc phosphate

Repair parts list

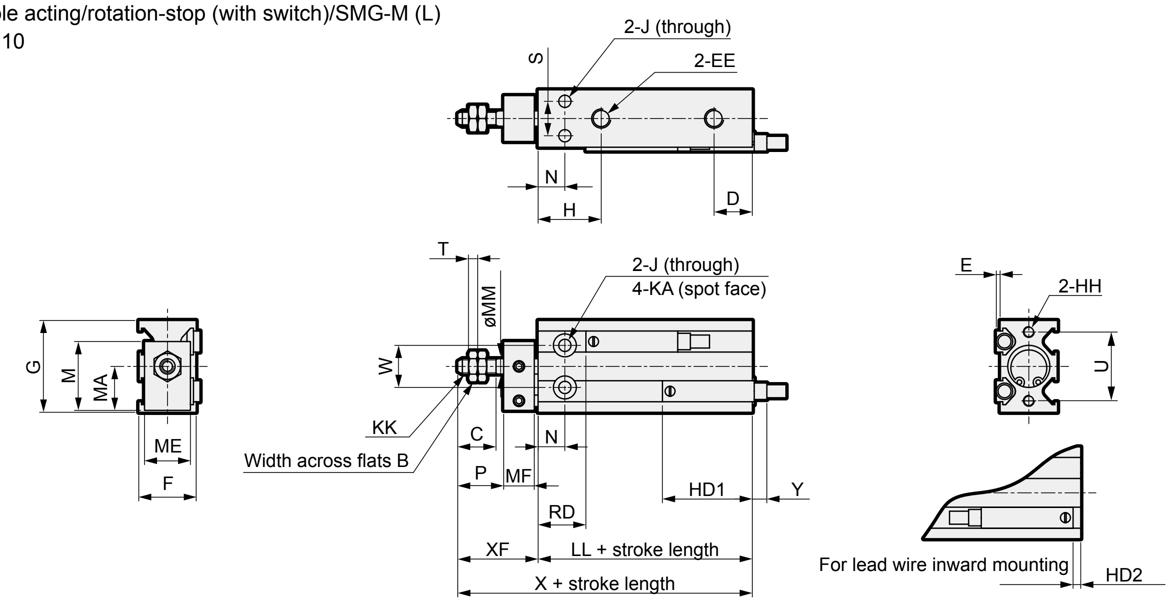
Bore size (mm)	Kit No.	Repair parts No.
ø6	SMG-6K	5 7 11 14 16 17
ø10	SMG-10K	
ø16	SMG-16K	

Bore size (mm)	Kit No.	Repair parts No.
ø20	SMG-20K	7 11 14 16 17
ø25	SMG-25K	
ø32	SMG-32K	

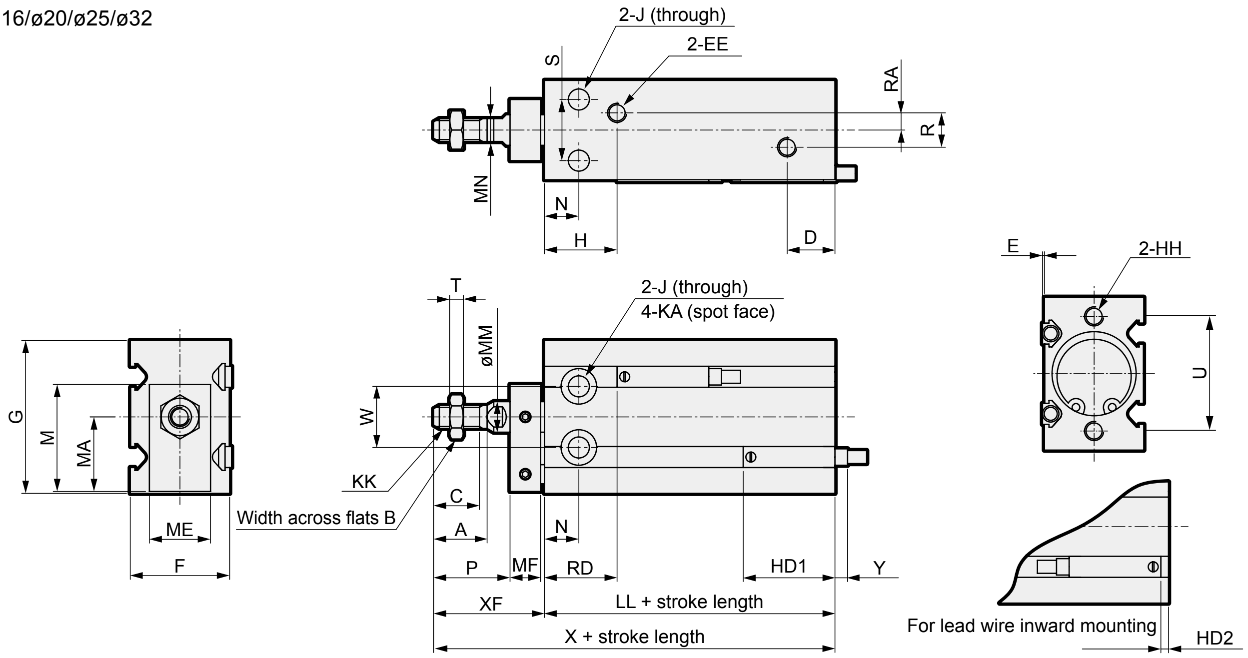
Dimensions

● Double acting/rotation-stop (with switch)/SMG-M (L)

● ø6/ø10



● ø16/ø20/ø25/ø32



Code / Bore size	A	B	C	D	EE	F	G	H	HH	J	KA	KK	M	MA	ME	MF	MM	MN	N	P	R	RA
ø6	-	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	-	-
ø10	-	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	-	-
ø16	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
ø20	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
ø25	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
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	42.5	30.5	24	12	12	10	11	29	13.5	4.5

Code / Bore size	S	T	U	W	XF	LL Without switch	LL With switch	X Without switch	X With switch	E	HD1	HD2	RD	Y
ø6	7	1.8	17	10	18	33	33	51	51	1	20	1	13	7
ø10	9	2.4	18	11	21	36	36	57	57	1	23.5	4.5	12.5	3.5
ø16	12	3.2	25	14	26	30	40	56	66	0.5	24.5	5.5	15.5	2.5
ø20	16	3.6	30	16	29	36	46	65	75	0.5	27	8	19	0
ø25	20	5	38	20	33	40	50	73	83	0.5	29	10	21	-2
ø32	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

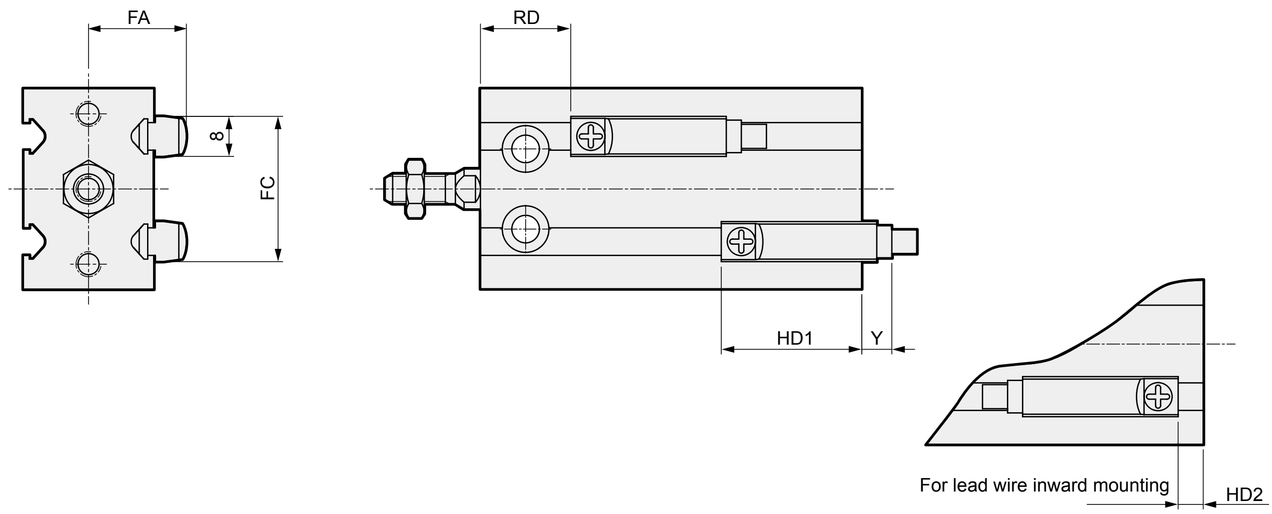
*2 : Y dimensions indicate the protruding dimensions from the end surface of the switch body. (Negative dimensions indicate the pull dimensions from the end surface of the body)

*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 1409 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



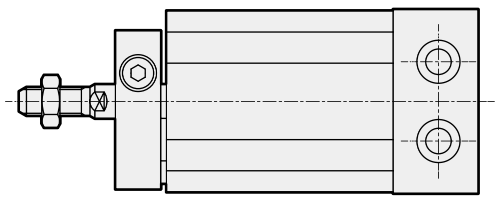
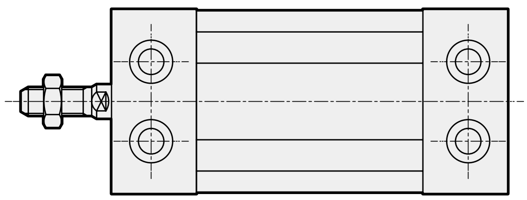
Code / Bore size	FA	FC	Double acting, double acting/fine speed (F), double acting/rotation-stop (M)					Single acting/push (X)						Single acting/pull (Y)								
			HD1	HD2	RD	Y		HD1	HD2	RD		Y		HD1		HD2		RD	Y (*1)			
																			5, 10st.		15st.	
						Axial lead wire	Radial lead wire			5, 10st.	15st.	Axial lead wire	Radial lead wire	5, 10st.	15st.	5, 10st.	15st.		Axial lead wire	Radial lead wire	Axial lead wire	Radial lead wire
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

*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. (Made-to-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.