

SSG

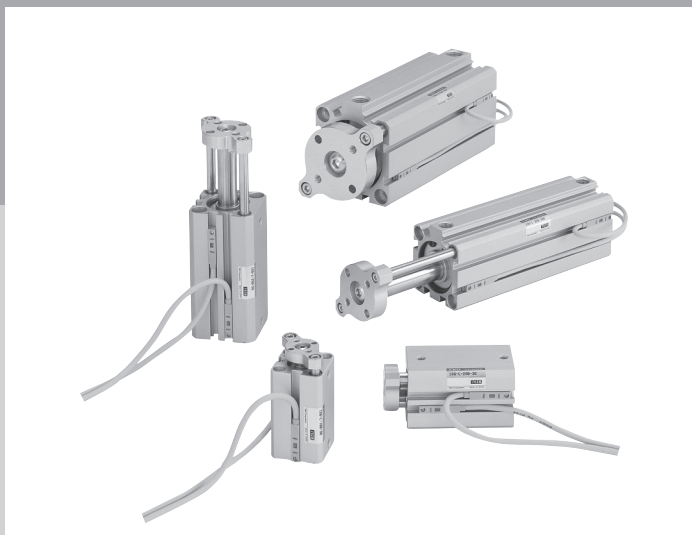
Space saving structure

Guided super compact cylinder

ø12/ø16/ø20/ø25/ø32/ø40/ø50
ø63/ø80/ø100

Overview

These cylinders belong to the compact cylinder SSD Series, equipped with a guide rod and plate. No more struggles with design and assembly.



CONTENTS

Product introduction	1066
Series variation	1067
● Double acting/single rod (SSG)	1068
List of mounting bolts	1076
Technical data	1077
⚠ Safety precautions	1078

The cylinder switches T2YH, T2YV, T3YH, and T3YV are scheduled for end of production at the end of December 2023.

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVP/IN2
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
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SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

Troublesome design and assembly eliminated! Load directly!

SSG Series providing the compact cylinder SSD Series with a guide rod and plate.



Series variation



Compact cylinder SSG Series

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

Variation	Model No. JIS symbol	Bore size (mm)	Stroke (mm)												Max. stroke (mm)	Min. stroke (mm)	Switch	Page
			5	10	15	20	25	30	35	40	45	50	75	100				
With double acting/ single rod switch, with 2-color LED, off-delay, T1 switch	SSG SSG-L SSG-L1	ø12/ø16	●	●	●	●	●	●	■	■	■	■	■	■	30	1	◎	1068
		ø20/ø25	●	●	●	●	●	●	●	●	●	●	■	■	50			
		ø32/ø40	●	●	●	●	●	●	●	●	●	●	●	●	100			
		ø50/ø63/ø80/ø100	■	●	●	●	●	●	●	●	●	●	●	●	100			

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

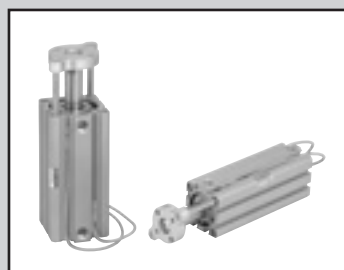
ShkAbs

FJ

FK

Spd
Contr

Ending



Guided super compact cylinder double acting/single rod

SSG Series

● Bore size: $\phi 12/\phi 16/\phi 20/\phi 25/\phi 32/\phi 40/\phi 50/\phi 63/\phi 80/\phi 100$

JIS symbol



Specifications

Item	SSG
Bore size mm	$\phi 12$ $\phi 16$ $\phi 20$ $\phi 25$ $\phi 32$ $\phi 40$ $\phi 50$ $\phi 63$ $\phi 80$ $\phi 100$
Actuation	Double acting
Working fluid	Compressed air
Max. working pressure MPa	1.0 (≈ 150 psi, 10 bar)
Min. working pressure MPa	0.15 (≈ 22 psi, 1.5 bar) 0.1 (≈ 15 psi, 1 bar)
Proof pressure MPa	1.6 (≈ 230 psi, 16 bar)
Ambient temperature $^{\circ}\text{C}$	-10 (14°F) to 60 (140°F) (no freezing)
Port size	M5 Rc1/8 *1 Rc1/4 Rc3/8
Stroke tolerance mm	Without cushion $+1.0$ With rubber cushion $+2.0$
Working piston speed mm/s	50 to 500 50 to 300
Cushion	With a rubber cushion or without can be selected.
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)
Allowable absorbed energy J	Without cushion 0.004 0.01 0.016 0.021 0.025 0.092 0.1 0.12 0.27 0.56 With rubber cushion 0.03 0.05 0.10 0.16 0.44 0.75 0.78 2.51 3.92

*1: The $\phi 32$ bore size with a 5 mm stroke and without a switch has a port size of M5.

Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
ø12	5/10/15/20/ 25/30	30	1
ø16			
ø20	5/10/15/20/25/ 30/35/40/45/50	50	
ø25			
ø32	5/10/15/20/25/30/35/40/ 45/50/75/100	100	
ø40			
ø50	10/15/20/25/ 30/35/40/45/50 75/100		
ø63			
ø80			
ø100			

*1 : The custom stroke is available in 1 mm increments.
The dimensions of the total length with the custom stroke are the same as the next longer standard stroke.

*2 : When using the type with a switch, refer to the table below.

Min. stroke with switch (with 1 or 2 switches)

Bore size (mm)	T0H/V / T5H/V	T2H/V / T3H/V
ø12	6	5
ø16		
ø20	5	
ø25		
ø32		
ø40		
ø50		
ø63		
ø80		
ø100		

*1: Less than 10 mm with the 2-color LED switch is not available.

Switch specifications (F-switch)

● 1-color/2-color LED

Item	2-wire proximity	3-wire proximity	2-wire proximity		3-wire proximity		
	F2S	F3S	F2H/F2V	F2YH/F2YV	F3H/F3V	F3PH/F3PV (made to order)	F3YH/F3YV
Applications	Dedicated for programmable controller	For programmable controller, relay	Dedicated for programmable controller		For programmable controller, relay		
Output method	-	NPN output	-		NPN output	PNP output	NPN output
Power supply voltage	-	10 to 28 VDC	-		10 to 28 VDC	4.5 to 28 VDC	10 to 28 VDC
Load voltage	10 to 30 VDC	30 VDC or less	10 to 30 VDC	24 VDC ±10%	30 VDC or less		
Load current	5 to 20 mA	50 mA or less	5 to 20 mA		100 mA or less	50 mA or less	
Indicator	LED (Lit when ON)		Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Yellow LED (Lit when ON)		Red/green LED (Lit when ON)
Leakage current	1 mA or less	10 μA or less	1 mA or less		10 μA or less		
Weight	1 m:10 3 m:29						

Switch specifications (T-switch)

● 1-color/2-color LED/for AC magnetic field

Item	2-wire proximity				3-wire proximity				2-wire reed						2-wire proximity	
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V			T2YD (*4) T2YDT		
Applications	For programmable controller, relay, compact solenoid valve	Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay	For programmable controller, relay, IC circuit (no indicator lamp), serial connection			For programmable controller, relay	Dedicated for programmable controller		
Output method	-				NPN output	PNP output	NPN output	NPN output	-							
Pwr. supp. V.	-				10 to 28 VDC				-							
Load voltage	85 to 265 VAC	10 to 30 VDC		24 VDC ±10%	30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA	5 to 20 mA (*3)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green 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)	Red/green LED (Lit when ON)	LED (Lit when ON)	No indicator lamp	LED (Lit when ON)			Red/green LED (Lit when ON)		
Leakage current	≤ 1mA at 100 VAC ≤ 2mA at 200 VAC	1 mA or less			10 μA or less				0 mA						1 mA or less	
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80		1 m:18 3 m:49 5 m:80				1 m:33 3 m:87 5 m:142			1 m:61 3 m:166 5 m:272

*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)

*4: AC magnetic field proof switch (T2YD/T2YDT) cannot be used in DC magnetic field.

Cylinder weight table (the weight of the switches is when there are 2 cylinder switches.)

● No switch

(Unit: g)

Stroke (mm) Bore size (mm)	5	10	15	20	25	30	35	40	45	50	75	100
ø12	49	58	67	76	85	95						
ø16	61	74	86	99	111	124						
ø20	90	105	120	135	150	165	179	194	209	224		
ø25	117	135	153	171	189	207	225	243	261	279		
ø32	170	194	218	242	266	290	314	338	362	386	576	740
ø40	245	274	303	331	360	389	418	446	475	504	742	934
ø50		464	510	556	603	649	695	741	787	833	1206	1488
ø63		738	802	866	930	994	1058	1122	1185	1249	1794	2168
ø80		1336	1434	1533	1632	1730	1829	1928	2026	2125	2971	3525
ø100		2028	2154	2279	2405	2531	2657	2782	2908	3034	4163	4859

● With switch

Stroke (mm) Bore size (mm)	5	10	15	20	25	30	35	40	45	50	75	100
ø12	92	101	110	119	127	136						
ø16	107	119	132	144	156	169						
ø20	155	173	190	208	226	243	261	279	296	314		
ø25	208	226	244	262	280	298	316	334	352	370		
ø32	284	308	332	356	380	404	428	452	476	500	620	740
ø40	388	417	446	474	503	532	561	589	618	647	791	934
ø50		658	704	750	797	843	889	935	981	1027	1257	1488
ø63		1017	1081	1145	1209	1273	1337	1401	1464	1528	1848	2168
ø80		1749	1847	1946	2045	2143	2242	2341	2439	2538	3031	3525
ø100		2595	2721	2846	2972	3098	3224	3349	3475	3601	4230	4859

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	0.8	0.9	1.0
ø12	Push	-	17.0	22.6	33.9	45.2	56.5	67.9	79.2	90.5	1.02x10 ²	1.13x10 ²
	Pull	-	12.7	17.0	25.4	33.9	42.4	50.9	59.4	67.9	76.3	84.8
ø16	Push	-	30.2	40.2	60.3	80.4	1.01x10 ²	1.21x10 ²	1.41x10 ²	1.61x10 ²	1.81x10 ²	2.01x10 ²
	Pull	-	22.6	30.2	45.2	60.3	75.4	90.5	1.06x10 ²	1.21x10 ²	1.36x10 ²	1.51x10 ²
ø20	Push	-	47.1	62.8	94.2	1.26x10 ²	1.57x10 ²	1.88x10 ²	2.20x10 ²	2.51x10 ²	2.83x10 ²	3.14x10 ²
	Pull	-	35.3	47.1	70.7	94.2	1.18x10 ²	1.41x10 ²	1.65x10 ²	1.88x10 ²	2.12x10 ²	2.36x10 ²
ø25	Push	-	73.6	98.2	1.47x10 ²	1.96x10 ²	2.45x10 ²	2.95x10 ²	3.44x10 ²	3.93x10 ²	4.42x10 ²	4.91x10 ²
	Pull	-	56.7	75.6	1.13x10 ²	1.51x10 ²	1.89x10 ²	2.27x10 ²	2.64x10 ²	3.02x10 ²	3.40x10 ²	3.78x10 ²
ø32	Push	80.4	1.21x10 ²	1.61x10 ²	2.41x10 ²	3.22x10 ²	4.02x10 ²	4.83x10 ²	5.63x10 ²	6.43x10 ²	7.24x10 ²	8.04x10 ²
	Pull	60.3	90.5	1.21x10 ²	1.81x10 ²	2.41x10 ²	3.02x10 ²	3.62x10 ²	4.22x10 ²	4.83x10 ²	5.43x10 ²	6.03x10 ²
ø40	Push	1.26x10 ²	1.88x10 ²	2.51x10 ²	3.77x10 ²	5.03x10 ²	6.28x10 ²	7.54x10 ²	8.80x10 ²	1.01x10 ³	1.13x10 ³	1.26x10 ³
	Pull	1.06x10 ²	1.58x10 ²	2.11x10 ²	3.17x10 ²	4.22x10 ²	5.28x10 ²	6.33x10 ²	7.39x10 ²	8.44x10 ²	9.50x10 ²	1.06x10 ³
ø50	Push	1.96x10 ²	2.95x10 ²	3.93x10 ²	5.89x10 ²	7.85x10 ²	9.82x10 ²	1.18x10 ³	1.37x10 ³	1.57x10 ³	1.77x10 ³	1.96x10 ³
	Pull	1.65x10 ²	2.47x10 ²	3.30x10 ²	4.95x10 ²	6.60x10 ²	8.25x10 ²	9.90x10 ²	1.15x10 ³	1.32x10 ³	1.48x10 ³	1.65x10 ³
ø63	Push	3.12x10 ²	4.68x10 ²	6.23x10 ²	9.35x10 ²	1.25x10 ³	1.56x10 ³	1.87x10 ³	2.18x10 ³	2.49x10 ³	2.81x10 ³	3.12x10 ³
	Pull	2.80x10 ²	4.20x10 ²	5.61x10 ²	8.41x10 ²	1.12x10 ³	1.40x10 ³	1.68x10 ³	1.96x10 ³	2.24x10 ³	2.52x10 ³	2.80x10 ³
ø80	Push	5.03x10 ²	7.54x10 ²	1.01x10 ³	1.51x10 ³	2.01x10 ³	2.51x10 ³	3.02x10 ³	3.52x10 ³	4.02x10 ³	4.52x10 ³	5.03x10 ³
	Pull	4.54x10 ²	6.80x10 ²	9.07x10 ²	1.36x10 ³	1.81x10 ³	2.27x10 ³	2.72x10 ³	3.17x10 ³	3.63x10 ³	4.08x10 ³	4.54x10 ³
ø100	Push	7.85x10 ²	1.18x10 ³	1.57x10 ³	2.36x10 ³	3.14x10 ³	3.93x10 ³	4.71x10 ³	5.50x10 ³	6.28x10 ³	7.07x10 ³	7.85x10 ³
	Pull	7.15x10 ²	1.07x10 ³	1.43x10 ³	2.14x10 ³	2.86x10 ³	3.57x10 ³	4.29x10 ³	5.00x10 ³	5.72x10 ³	6.43x10 ³	7.15x10 ³

How to order

No switch (without magnet for switch)

SSG - **12** **D** - **10**

With switch (built-in magnet for switch)

SSG-L - **12** **D** - **10** - **T2H** - **R**

2-color LED/off-delay, with T1* switch (ø12/ø16 only)

SSG-L1 - **12** **D** - **10** - **T2YH** - **R**

A Model No.

B Bore size

C Cushion

D Stroke

Custom stroke
Available in 1 mm
increments. (Less than
5 mm with switch is not
available) Note that the
dimensions of the total
length with the custom
stroke are the same as the
longer standard stroke.

E Switch model No.

⚠ Precautions for model No. selection

1 : The T0 and T5* switches cannot be mounted on the
5 mm stroke of the ø12 and ø16 bore sizes.

2 : The T2YD switch cannot be mounted on the
ø12 and ø16 bore sizes.

3 : The T8 switch cannot be mounted on the
ø12 to ø32 bore sizes.

*4 : The F-switch can only be mounted on the
piping port surface of bore size ø25.

*5 : Switches are shipped with the product.
Contact CKD if assembling before shipment
is necessary.

[Example of model No.]

SSG-L-12D-10-T2H-R

Model: Guided compact cylinder
Double acting/single rod

- Model No. : Double acting/single rod with switch
- Bore size : ø12 mm
- Cushion : Two-sided rubber cushion
- Stroke : 10 mm
- Switch model No. : Proximity switch T2H,
lead wire length 1 m
- Switch quantity : 1 on rod side

How to order switch

SW - **T0H**

Switch model No.
(Item E above)

Code	Description
A Model No.	
SSG	Double acting/single rod
SSG-L	Double acting/single rod/with switch
SSG-L1	ø12, ø16 2-color LED, off-delay, with T1* switch

B Bore size (mm)	
12	ø12
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

C Cushion	
Blank	Without cushion
D	With two-sided rubber cushion

D Stroke (mm)		Bore size (ø)									
		12	16	20	25	32	40	50	63	80	100
5	5	●	●	●	●	●	●				
10	10	●	●	●	●	●	●	●	●	●	●
15	15	●	●	●	●	●	●	●	●	●	●
20	20	●	●	●	●	●	●	●	●	●	●
25	25	●	●	●	●	●	●	●	●	●	●
30	30	●	●	●	●	●	●	●	●	●	●
35	35			●	●	●	●	●	●	●	●
40	40			●	●	●	●	●	●	●	●
45	45			●	●	●	●	●	●	●	●
50	50			●	●	●	●	●	●	●	●
75	75					●	●	●	●	●	●
100	100					●	●	●	●	●	●

E Switch model No.																
Axial lead wire		Contact	Voltage		Indicator	Lead wire	Bore size									
			AC	DC			12	16	20	25	32	40	50	63	80	100
-	F2S*	Proximity		●	1-color LED	2-wire				●						
-	F3S*			●		3-wire				●						
F2H*	F2V*			●		2-wire				●						
F3H*	F3V*			●		3-wire				●						
F3PH*	F3PV*			●	1-color LED (PNP output) (custom)	3-wire				●						
F2YH*	F2YV*				2-color LED	2-wire				●						
F3YH*	F3YV*			●		3-wire				●						
T0H*	T0V*	Reed	●	●	1-color LED	2-wire	●	●	●	●	●	●	●	●	●	
T5H*	T5V*		●	●	No indicator lamp		●	●	●	●	●	●	●	●	●	
T8H*	T8V*		●	●	1-color LED						●	●	●	●	●	
T1H*	T1V*	Proximity	●		1-color LED	2-wire	●	●	●	●	●	●	●	●	●	
T2H*	T2V*			●		2-wire	●	●	●	●	●	●	●	●	●	
T3H*	T3V*					3-wire	●	●	●	●	●	●	●	●	●	
T3PH*	T3PV*			●	1-color LED (PNP output)	3-wire	●	●	●	●	●	●	●	●	●	
T2YH*	T2YV*			●	2-color LED	2-wire	●	●	●	●	●	●	●	●	●	
T2WH*	T2WV*			●		2-wire	●	●	●	●	●	●	●	●	●	
T3YH*	T3YV*			●		3-wire	●	●	●	●	●	●	●	●	●	
T3WH*	T3WV*			●		3-wire	●	●	●	●	●	●	●	●	●	
T2YD*	-			●	●	2-color LED	2-wire			●	●	●	●	●	●	●
T2YDT*	-			●	●	AC magnetic field				●	●	●	●	●	●	●
T2JH*	T2JV*		●	●	1-color LED off-delay	2-wire	●	●	●	●	●	●	●	●	●	

* Lead wire length

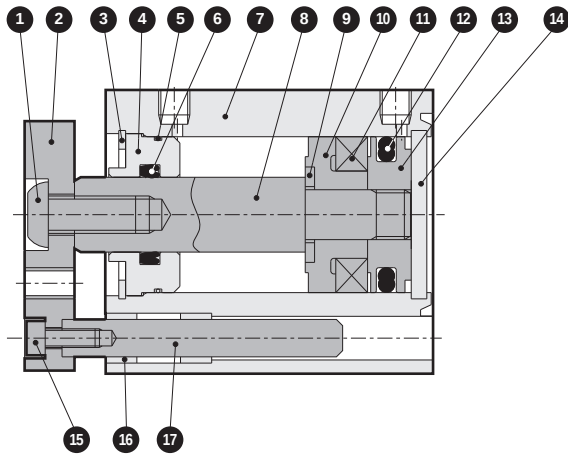
Blank	1 m (standard)
3	3 m (option)
5	5 m (option) * T-switch only. The F-switch can be configured for up to 3 m.

F Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

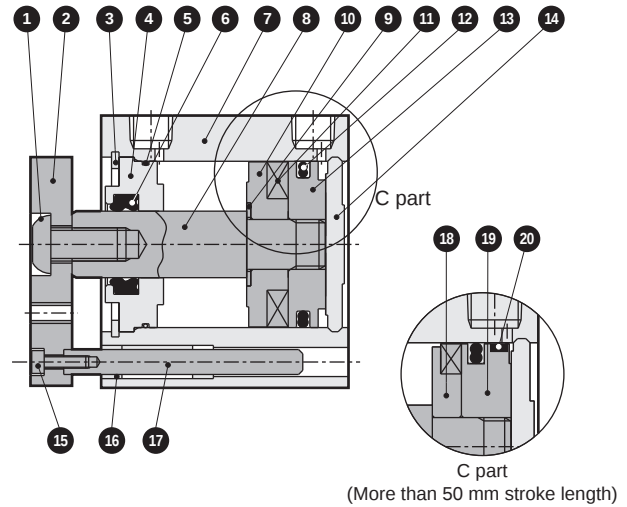
F Switch quantity

Internal structure and parts list (ø12 to ø50) (without cushion)

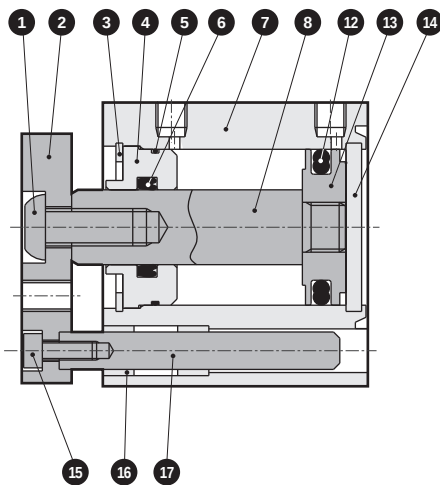
● SSG-L-12 to 25 (double acting/with switch)



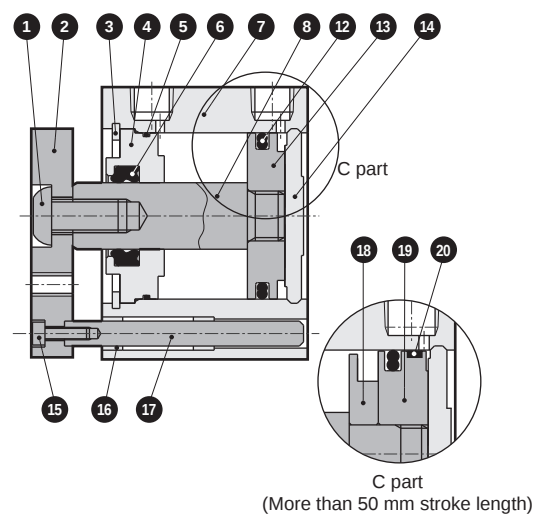
● SSG-L-32 to 50 (double acting/with switch)



● SSG-12 to 25 (double acting)



● SSG-32 to 50 (double acting)



Cannot be disassembled

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Hexagon socket head cap screw (ø12)	Alloy steel	Zinc chromate	11	Magnet	Plastic	
	Hex socket button head bolt (ø16-50)	Alloy steel	Zinc chromate	12	Piston packing	Nitrile rubber	
2	End plate	Aluminum alloy	Alumite	13	Piston	Aluminum alloy	Chromate
3	C-snap ring	Steel	Phosphate coating	14	Cover	Stainless steel (ø12 to ø25)	Alumite
4	Rod metal	Special aluminum alloy	Alumite			Aluminum alloy (ø32 to ø50)	Alumite
5	O-ring	Nitrile rubber		15	Hexagon socket head cap screw	Alloy steel	Zinc chromate
6	Rod packing	Nitrile rubber		16	Metal	Oil impregnated bearing alloy	
7	Body	Aluminum alloy	Hard alumite	17	Guide rod	Stainless steel	ø12 to ø50: Industrial chrome plating
8	Piston rod	Stainless steel (ø12 to ø25)	ø16 to ø25: Industrial chrome plating	18	Spacer	Aluminum alloy	Chromate
		Steel (ø32 to ø50)	Industrial chrome plating	19	Piston	Aluminum alloy	Chromate
9	Spacer washer	Stainless steel	ø20 to 50	20	Wear ring	Acetal resin	
10	Spacer	Stainless steel (ø12)					
		Special resin (ø16 to ø50)					

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

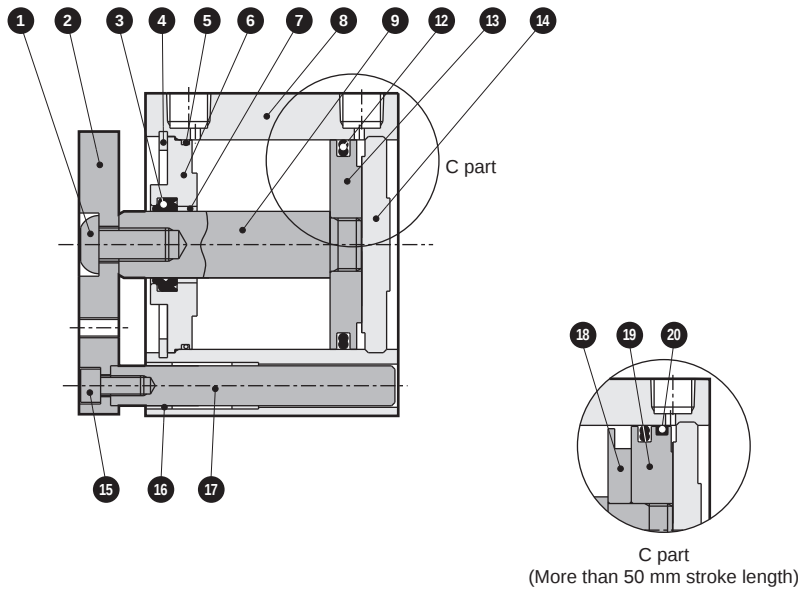
Spd
Contr

Ending

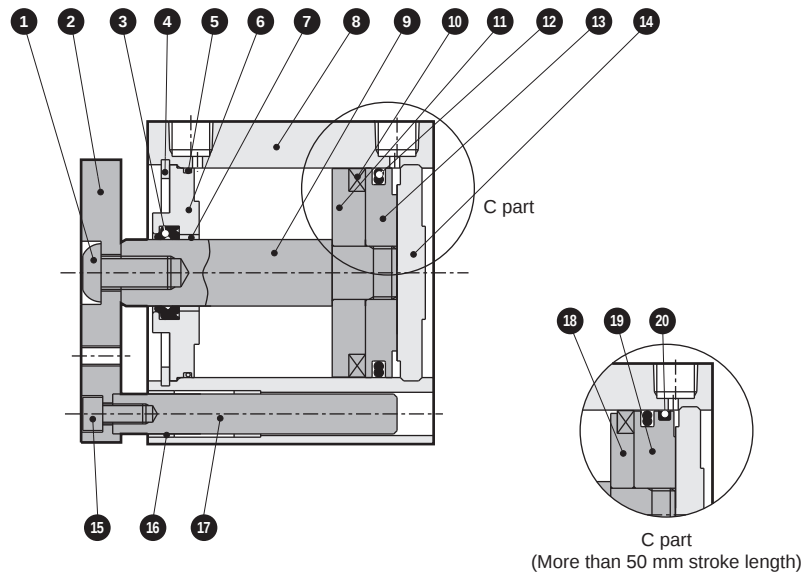
SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVPIN2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

Internal structure and parts list (ø63 to 100) (no cushion)

● SSG-L-63 to 100 (double acting/with switch)



● SSG-63 to 100 (double acting)

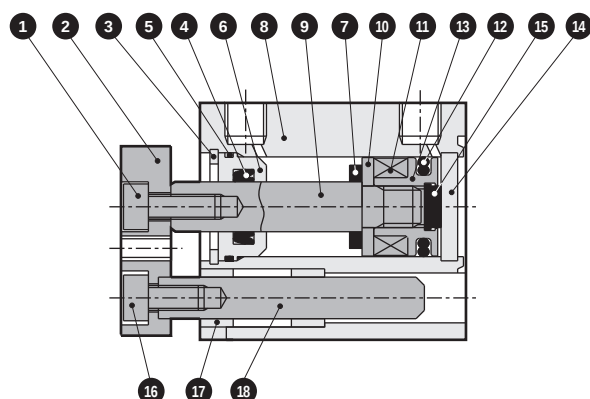


Cannot be disassembled

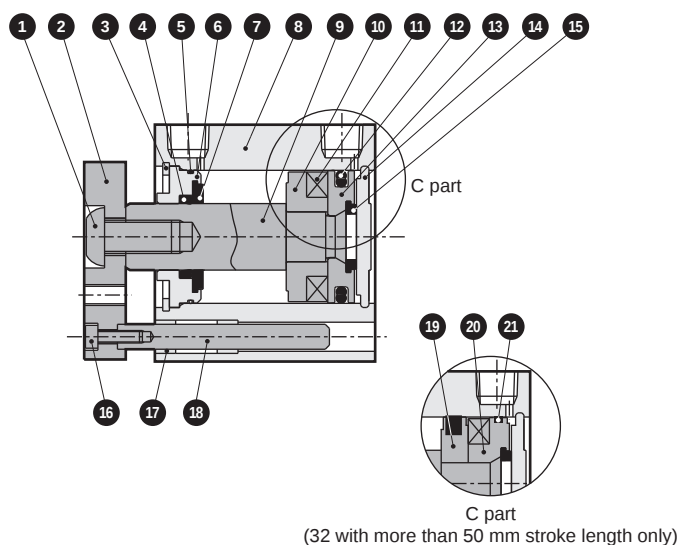
No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Hexagon socket button head bolt	Alloy steel	Zinc chromate	11	Spacer	Aluminum alloy	Chromate
2	End plate	Aluminum alloy	Alumite	12	Piston packing	Nitrile rubber	
3	Rod packing	Nitrile rubber		13	Piston	Aluminum alloy	Chromate
4	C-snap ring	Steel	Phosphate coating	14	Cover	Aluminum alloy	Alumite
5	O-ring	Nitrile rubber		15	Hexagon socket head cap screw	Alloy steel	Zinc chromate
6	Rod metal	Aluminum alloy	Chromate	16	Metal	Oil impregnated bearing alloy	
7	Bush	Oiles drymet		17	Guide rod	Steel	Industrial chrome plating
8	Body	Aluminum alloy	Hard alumite	18	Spacer	Aluminum alloy	Chromate
9	Piston rod	Steel	Industrial chrome plating	19	Piston	Aluminum alloy	Chromate
10	Magnet	Plastic		20	Wear ring	Polyacetal resin	

Internal structure and parts list (ø12 to ø32) (with rubber cushion)

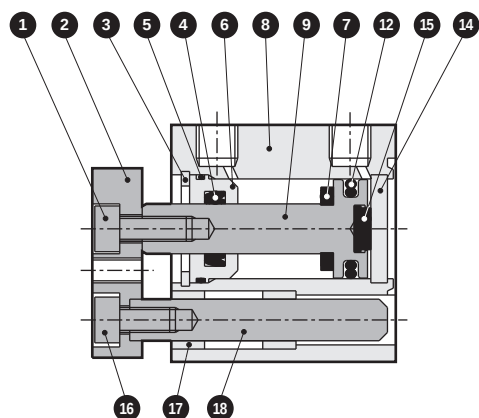
● SSG-L-12D (double acting/with switch)



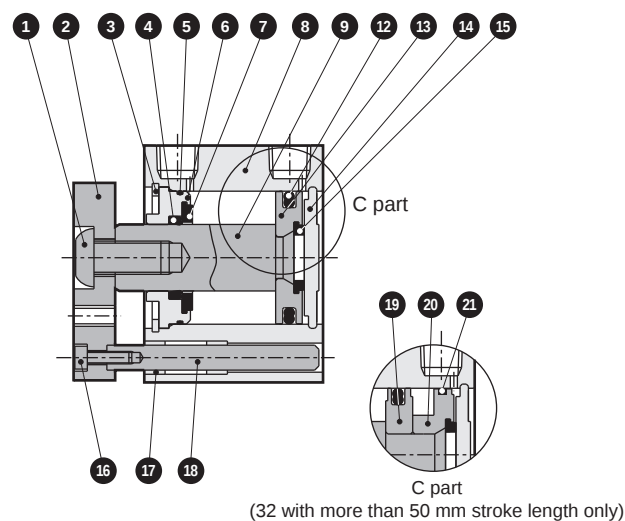
● SSG-L-16D to 32D (double acting/with switch)



● SSG-12D (double acting)



● SSG-16D to 32D (double acting)



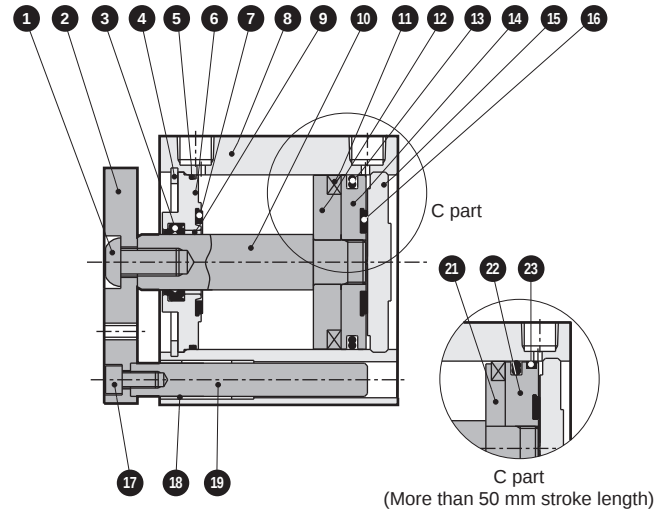
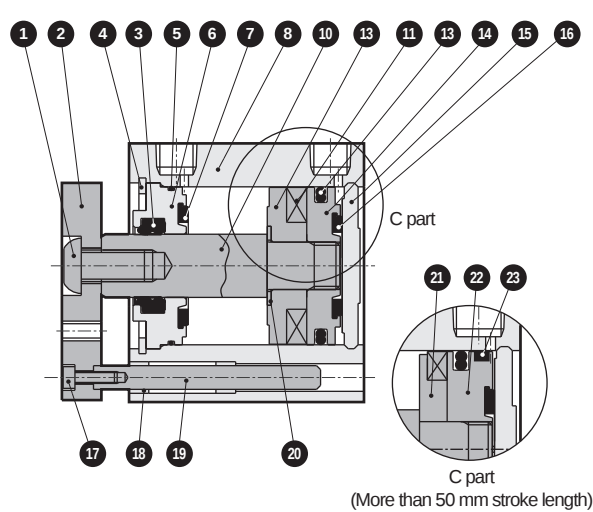
Cannot be disassembled

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Hexagon socket head cap screw (ø12)	Alloy steel	Zinc chromate	11	Magnet	Plastic	
	Hex socket button head bolt (ø16-32)			12	Piston packing	Nitrile rubber	
2	End plate	Aluminum alloy	Alumite	13	Piston	Aluminum alloy	Chromate
3	C-snap ring	Steel	Phosphate coating	14	Cover	Stainless steel (ø12)	
4	Rod packing	Nitrile rubber				Aluminum alloy (ø16 to ø32)	Alumite
5	O-ring	Nitrile rubber		15	Cushion rubber	Urethane rubber	
6	Rod metal	Special aluminum alloy	Alumite	16	Hexagon socket head cap screw	Alloy steel	Zinc chromate
7	Cushion rubber	Urethane rubber		17	Metal	Oil impregnated bearing alloy	
8	Body	Aluminum alloy	Hard alumite	18	Guide rod	Stainless steel	Industrial chrome plating (ø16 to ø32)
9	Piston rod	Stainless steel (ø12)		19	Spacer	Aluminum alloy	Chromate
		Steel (ø16 to ø32)	Industrial chrome plating	20	Piston	Aluminum alloy	Chromate
10	Spacer	Stainless steel (ø12)		21	Wear ring	Polyacetal resin	
		Aluminum alloy (ø16 to ø32)					

Internal structure and parts list (ø40 to ø100) (with rubber cushion)

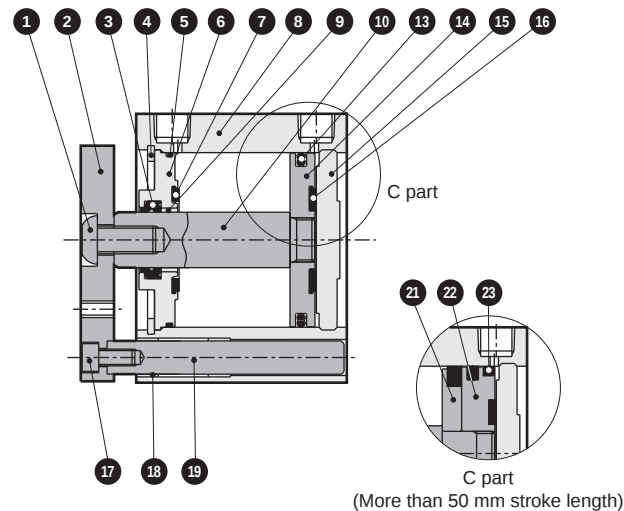
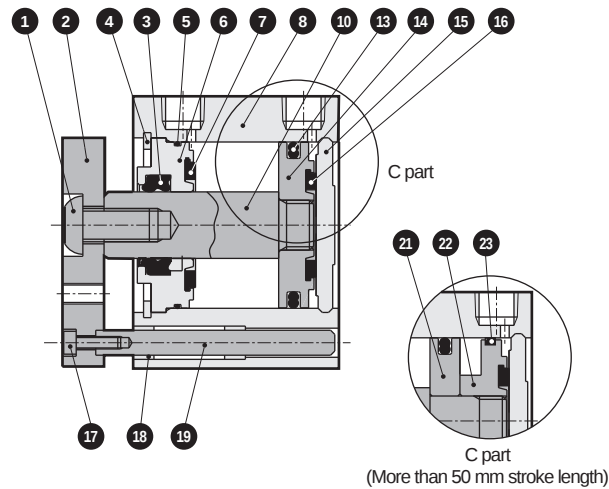
● SSG-L-40D, 50D (double acting/with switch)

● SSG-L-63D to 100D (double acting/with switch)



● SSG-40D, 50D (double acting)

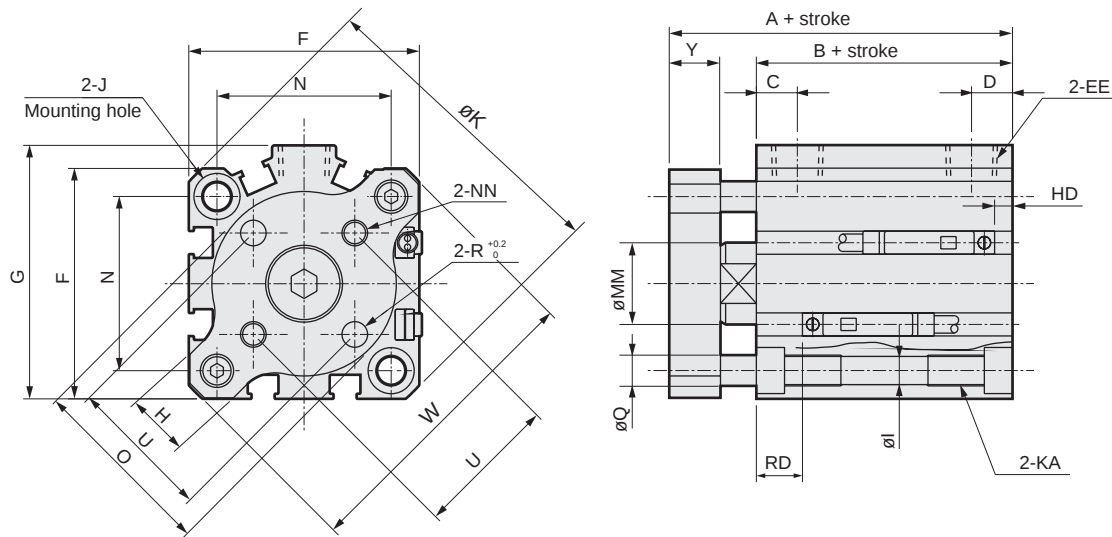
● SSG-63D to 100D (double acting)



Cannot be disassembled

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Hexagon socket button head bolt	Alloy steel	Zinc chromate	13	Piston packing	Nitrile rubber	
2	End plate	Aluminum alloy	Alumite	14	Piston	Aluminum alloy	Chromate
3	Rod packing	Nitrile rubber		15	Cover	Aluminum alloy	Alumite
4	C-snap ring	Steel	Phosphate coating	16	Cushion rubber	Urethane rubber	
5	O-ring	Nitrile rubber		17	Hexagon socket head cap screw	Alloy steel	Zinc chromate
6	Rod metal	Special aluminum alloy (ø40/ø50) Aluminum alloy (ø63 to ø100)	Alumite Chromate	18	Metal	Oil impregnated bearing alloy	
7	Cushion rubber	Urethane rubber		19	Guide rod	Stainless steel Steel	Industrial chrome plating
8	Body	Aluminum alloy	Hard alumite	20	Spacer washer	Stainless steel	
9	Bush	Oiles drymet		21	Spacer	Aluminum alloy	Chromate
10	Piston rod	Steel	Industrial chrome plating	22	Piston	Aluminum alloy	Chromate
11	Magnet	Plastic		23	Wear ring	Polyacetal resin	
12	Spacer	Aluminum alloy	Chromate				

Dimensions



● Precautions regarding the switch mounting groove

*1 : Bore sizes $\phi 12$ to 20 do not have a switch groove on the piping port surface.

*2 : Bore sizes $\phi 12$ and 16 have only one switch groove on each surface.

*3 : The piping port surface of bore size $\phi 25$ can only mount an F-switch.

Code	No switch		With switch		Common dimensions													
Bore size	A *5	B *5	A *6	B *6	C *4	D *4	EE	F	G	H	I	J	K	KA	MM	N	NN	
ø12	26.5	17	31.5(36.5)	22(27)	5.5	5.5	M5	25	-	8.5	3.5	6.5 spot face depth 3.5	32	M4 depth 7	6	15.5	M3	
ø16	26.5	17	31.5(36.5)	22(27)	5.5	5.5	M5	29	-	9	3.5	6.5 spot face depth 3.5	38	M4 depth 7	8	20	M3	
ø20	32	19.5	42	29.5	8	5.5	M5	36	-	10	5.5	9 spot face depth 5.5	47	M6 depth 11	10	25.5	M4	
ø25	35.5	22.5	45.5	32.5	11	6	M5	40	-	11	5.5	9 spot face depth 5.5	51	M6 depth 11	12	28	M5	
ø32	40(50)	23(33)	50	33	8(10)	8(5.5)	Rc1/8 *3	45	49.5	12	5.5	9 spot face depth 5.5	60	M6 depth 11	16	34	M5	
ø40	46.5(56.5)	29.5(39.5)	56.5	39.5	12(11.5)	8.5(8)	Rc1/8	52	57	12	5.5	9 spot face depth 5.5	69	M6 depth 11	16	40	M5	
ø50	50.5(60.5)	30.5(40.5)	60.5	40.5	10.5	10.5	Rc1/4	64	71	15	6.9	11 spot face depth 6.5	86	M8 depth 13	20	50	M6	
ø63	56(66)	36(46)	66	46	13	11	Rc1/4	77	84	18	8.7	14 spot face depth 9	103	M10 depth 25	20	60	M6	
ø80	67.5(77.5)	43.5(53.5)	77.5	53.5	16	13	Rc3/8	98	104	22	10.5	17.5 spot face depth 11	132	M12 depth 28	25	77	M8	
ø100	79(89)	53(63)	89	63	23	15	Rc3/8	117	123.5	22	10.5	17.5 spot face depth 11	156	M12 depth 28	30	94	M10	
Code	Common dimensions						With switch (reed/proximity 1-color)		With switch (proximity 2-color)		With switch (T8)		With switch (T2/3W)					
Bore size	O	Q	R	U	Y	W	HD *5, *7	RD *5, *7	HD *5, *7	RD *5, *7	HD *5	RD *5	HD *5	RD *5				
ø12	15	5	3	10±0.1	6	31	0	2.5	4.5	1	-	-	7.5	4				
ø16	19	5	3	14±0.1	6	37	0	2	4.5	0.5	-	-	7.5	3.5				
ø20	26	6	4	17±0.1	8	46	3	6.5	1.5	5	-	-	4.5	8				
ø25	30	6	5	22±0.1	8	50	3(8.5)	9.5(14)	1.5(8.5)	8(14)	-	-	4.5	11				
ø32	36	6	5	28±0.2	10	59	3.5(2)	9(10.5)	2(0.5)	7.5(9)	-	-	5(3.5)	10.5(13)				
ø40	42	6	5	33±0.2	10	68	7(4.5)	12(14.5)	5.5(3)	10.5(13)	1(0)	6(8.5)	8.5(6)	13.5(16)				
ø50	54	8	6	42±0.2	12	85	7.5(10.5)	12.5(9.5)	6(9)	11(8)	1.5(4.5)	6.5(3.5)	9(12)	14(11)				
ø63	68	12	6	50±0.2	12	102	12.5(15.5)	13(10)	11(14)	11.5(8.5)	6.5(9.5)	7(4)	14(17)	14.5(11.5)				
ø80	88	14	8	65±0.2	14	131	17.5(21)	15.5(12)	16(19.5)	14(10.5)	11.5(15)	9.5(6)	19(22.5)	17(13.5)				
ø100	106	14	10	80±0.2	16	155	23(26.5)	19.5(16)	21.5(25)	18(14.5)	17(20.5)	13.5(10)	24.5(28)	21(17.5)				

*1 : To calculate A+ stroke or B+ stroke when using custom stroke, apply the next longer standard stroke (instead of the custom stroke) to the stroke value.

(Example) If the custom stroke is 7 mm, apply the standard stroke of 10 mm.

*2 : HD and RD dimensions for 5 mm stroke differ from these dimensions by production lot.

*3 : The $\phi 32$ bore size with a 5 mm stroke and without a switch has a port size of M5.*4 : Dimensions in () of codes C and D are when the value is for a 5 mm stroke without switch.

*5 : Dimensions in () of codes A, B, HD, and RD are values for 75/100 mm stroke.

*6 : Dimensions in () of codes A and B are values for the 2-color LED with switch (L1)

*7 : Dimensions in () of codes HD and RD are values for units with F-switch. (The F-switch can only be mounted on the piping port surface.)

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 mounting bolts

How to order

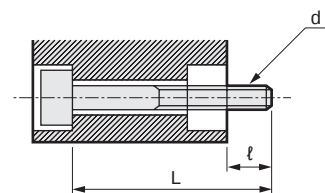
SSD - BOLT - d x L Refer to the following table for “d” and “L”.

(Note) Although these will be shipped in units of 4 bolts per set, use with this product will only require 2 bolts.

Example) For SSG-L-32D-30 ... SSD-BOLT-M5X65

Bore size	ℓ	d	L		
			50 stroke or less		75/100 stroke
			No switch	With switch	
ø12/16	6.5	M3	20 + stroke	25 + stroke (*1)	
ø20	6	M5	20 + stroke	25 + stroke	
ø25	8	M5	25 + stroke	35 + stroke	
ø32	7.5	M5	25 + stroke	35 + stroke	35 + stroke
ø40	6	M5	30 + stroke	40 + stroke	40 + stroke
ø50	11	M6	35 + stroke	45 + stroke	45 + stroke
ø63	13	M8	40 + stroke	50 + stroke	50 + stroke
ø80	17.5	M10	50 + stroke	60 + stroke	60 + stroke
ø100	18	M10	60 + stroke	70 + stroke	70 + stroke

*1 : For SSG-L1, this is “30 + stroke”.



Material: Steel

Treatment: Black finish

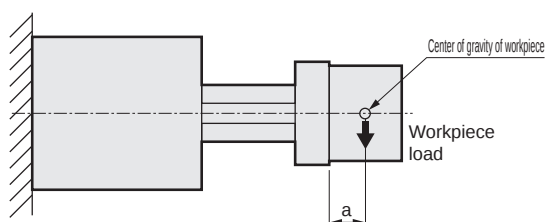
d: Mounting bolt screw diameter

L: Mounting bolt length

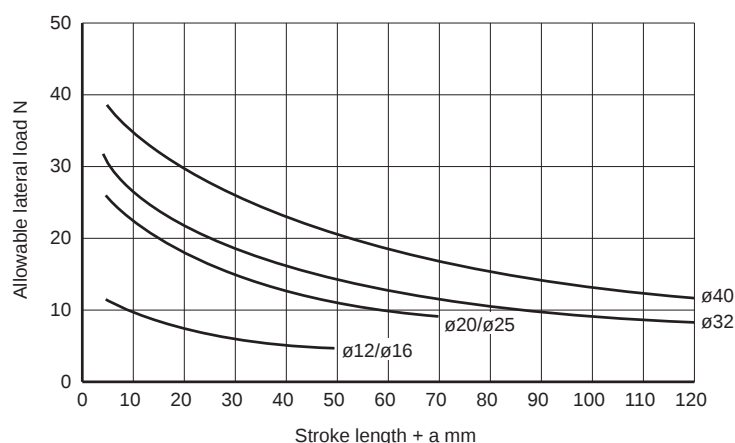
ℓ: Mating side screw-in available length

(Note) The mounting bolts will be displayed as d x L.

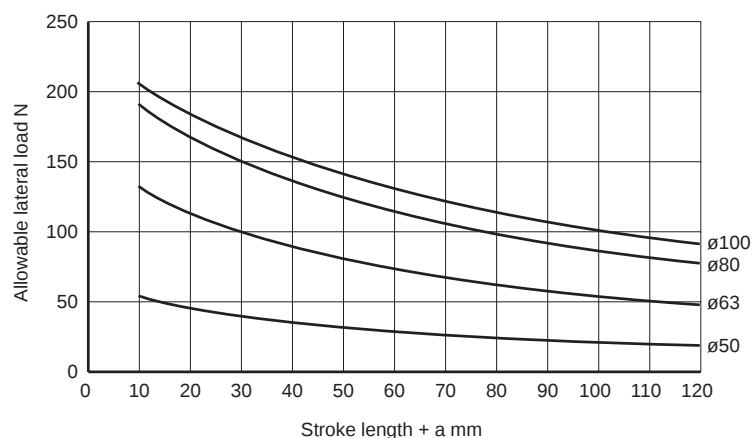
Allowable lateral load



ø12 to ø40

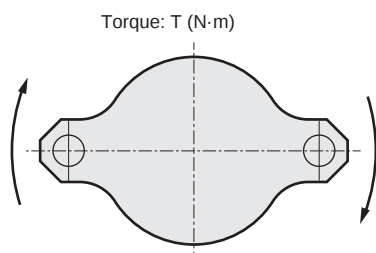


ø50 to ø100



The allowable lateral load is a value for when the load is acting on the end surface of the end plate. When the center of gravity of the workpiece mounted on the end plate will be moved, substitute this distance for the stroke before selection.

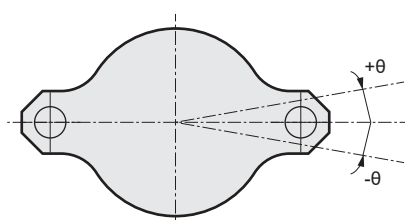
Allowable torque



Unit: N·m

Bore size (mm)	Stroke							
	5	10	20	30	40	50	75	100
12	0.12	0.10	0.080	0.066				
16	0.16	0.13	0.10	0.085				
20	0.40	0.35	0.28	0.23	0.20	0.17		
25	0.44	0.38	0.31	0.25	0.22	0.19		
32	0.69	0.62	0.51	0.43	0.38	0.33	0.26	0.21
40	1.1	0.99	0.83	0.72	0.63	0.57	0.45	0.37
50		1.9	1.6	1.4	1.2	1.1	0.87	0.73
63		4.3	3.7	3.3	2.9	2.6	2.1	1.8
80		7.9	6.9	6.2	5.6	5.1	4.2	3.6
100		12	11	9.9	9.0	8.3	6.9	5.9

Non-rotating accuracy (reference value)



Bore size (mm)	Non-rotating accuracy θ (degrees)
ø12/16	±0.2
ø20/25/32/40	±0.1
ø50/63/80/100	±0.08

(Default value during PULL)
Note: Excluding sag of guide rod



Safety Precautions

Be sure to read this section before use.

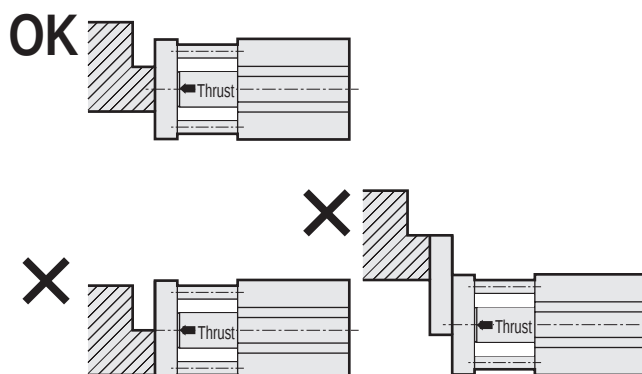
Refer to Intro Page 73 for general information of the cylinder, and to Intro Page 80 for general information of the cylinder switch.

Design/selection

CAUTION

- Use within the allowable load.
Exceeding the allowable lateral load or allowable torque may cause damage, etc. Refer to the Technical data on page 1077.
- Do not use as a stopper.
Use this product in applications that are not subject to lateral loads with impact, such as pushers and lifters.

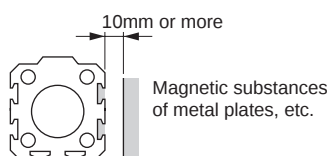
- When the unit is going to be used by pressing down on the cylinder part-way in the stroke, be sure to apply thrust on the end plate towards the piston rod axis direction. When the unit is going to be used by pressing down on the cylinder with a clamp, etc., part-way in the stroke, thrust will work on the end plate so that eccentric pressure may lead to damage of parts. Use at the piston rod shaft core as in the figure below.



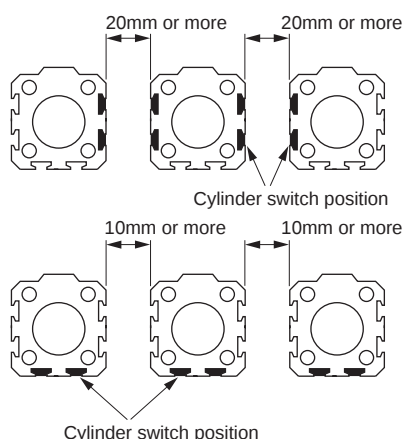
Mounting, installation and adjustment

CAUTION

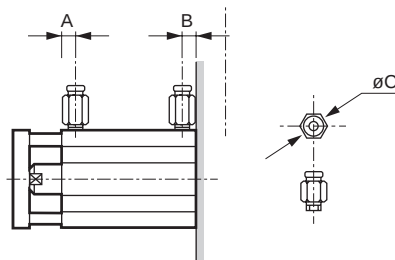
- The cylinder switch may malfunction if there is a magnetic substance such as a metal plate installed adjacently. Confirm that a distance of at least 10 mm is allocated from the surface of the cylinders. (Same for all bore sizes)



- The cylinder switch may malfunction if cylinders are installed adjacently. Check that the following distances are allocated between cylinders. (Same for all bore sizes)



- Be sure to attach a speed controller during piping before use. As compatible piping fittings are limited, refer to the table below to select the fitting.



Item	Port size	Port position		Applicable fittings	Fitting O.D. øC	Inapplicable fittings
		A	B			
ø12	M5	5.5	5.5	SC3W-M5-4 SC3W-M5-6 GWS4-M5-S GWS4-M5 GWL4-M5 GWL6-M5	ø11 or less	GWS6-M5
ø16		8	5.5			
ø20		11	6			
ø25						
ø32	Rc1/8	8	8	SC3W-6-4, 6, 8 GWS4-6 GWS6-6 GWS8-6 GWL4-6 GWL6-6	ø15 or less	GWS10-6 GWL8-6 GWL10-6
ø40		12	8.5			
ø50	Rc1/4	10.5	10.5	SC3W-8-6, 8, 10 GWS4-8 GWS6-8 GWS10-8 GWL4 to 12-8	ø21 or less	GWS12-8
ø63		13	11			
ø80	Rc3/8	16	13	SC3W-10-6, 8, 10 GWS6-10 GWS8-10 GWS10-10 GWL6 to 12-10	ø21 or less	—
ø100		23	15			

*1 : The ø32 bore size with a 5 mm stroke and without a switch has a port size of M5. Refer to the dimensions for the port dimensions.

Mounting, installation and adjustment

CAUTION

- Do not damage surface flatness by denting or scratching the end plate surface.
Make sure that the flatness of the mating surface where the end plate will be attached is 0.05mm or below.

■ Allowable absorbed energy value

Use this cushion within the range of the allowable absorbed energy.
When the unit will be used where the allowable absorbed energy will be exceeded, provide a separate external shock absorber.
For details on the allowable absorbed energy value, refer to the field for specifications.

Use/maintenance

CAUTION

- Do not disassemble the product. Once disassembled, the performance may not be retained.

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