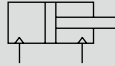


Guided super compact cylinder double acting/single rod

# 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

Descriptions		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 ( $\approx 150$ psi, 10 bar)									
Min. working pressure	MPa	0.15 ( $\approx 22$ psi, 1.5 bar)					0.1 ( $\approx 15$ psi, 1 bar)				
Proof pressure	MPa	1.6 ( $\approx 230$ psi, 16 bar)									
Ambient temperature	$^{\circ}\text{C}$	-10 ( $14^{\circ}\text{F}$ ) to 60 ( $140^{\circ}\text{F}$ ) (no freezing)									
Port size		M5				Rc1/8 *1		Rc1/4		Rc3/8	
Stroke tolerance	mm	50 to 500									
	Without cushion										
	With rubber cushion	$\begin{matrix} +1.0 \\ 0 \\ -2.0 \end{matrix}$									
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	1									
	Without cushion										
	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 length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
$\phi 12$	5/10/15/20/25/30	30	1
$\phi 16$	5/10/15/20/25/30/35/40/45/50	50	
$\phi 20$	5/10/15/20/25/30/35/40/45/50/75/100	100	
$\phi 25$	10/15/20/25/30/35/40/45/50		
$\phi 32$	10/15/20/25/30/35/40/45/50/75/100		
$\phi 40$			
$\phi 50$			
$\phi 63$			
$\phi 80$			
$\phi 100$			

\*1 : The custom stroke length is available in 1 mm increments. The dimensions of the total length with the custom stroke length are the same as the next longer standard stroke length.  
\*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
$\phi 12$	6	5
$\phi 16$		
$\phi 20$	5	
$\phi 25$		
$\phi 32$		
$\phi 40$		
$\phi 50$		
$\phi 63$		
$\phi 80$		
$\phi 100$		

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

## Switch specifications (F type switch)

● 1-color/2-color display

Descriptions	Proximity 2-wire	Proximity 3-wire	Proximity 2-wire		Proximity 3-wire		
	F2S	F3S	F2H/F2V	F2YH/F2YV	F3H/F3V	F3PH/F3PV (Custom 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 $\pm 10\%$	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 lamp	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 $\mu\text{A}$ or less	1 mA or less		10 $\mu\text{A}$ or less		
Weight	g		1 m:10 3 m:29				

### Switch specifications (T type switch)

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

Descriptions	Proximity 2-wire				Proximity 3-wire				Reed 2-wire				Proximity 2-wire			
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (Custom)	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V	T2YD				
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 (*1)		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 lamp	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)		Without 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: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 : The above max. load current is 20 mA at 25°C. The current will be lower than 20 mA when operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

\*2 : Switch for AC magnetic field (T2YD) cannot be used in DC magnetic field.

\*3 : Refer to Ending Page 1 for other switch specifications.

\*4 : Dimensions depend on switch model No. Refer to Ending Pages 18 and 23 for details.

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

● Without switch

(Unit: g)

Stroke length (mm)	5	10	15	20	25	30	35	40	45	50	75	100
φ12	49	58	67	76	85	95						
φ16	61	74	86	99	111	124						
φ20	90	105	120	135	150	165	179	194	209	224		
φ25	117	135	153	171	189	207	225	243	261	279		
φ32	170	194	218	242	266	290	314	338	362	386	576	740
φ40	245	274	303	331	360	389	418	446	475	504	742	934
φ50		464	510	556	603	649	695	741	787	833	1206	1488
φ63		738	802	866	930	994	1058	1122	1185	1249	1794	2168
φ80		1336	1434	1533	1632	1730	1829	1928	2026	2125	2971	3525
φ100		2028	2154	2279	2405	2531	2657	2782	2908	3034	4163	4859

● With switch

Stroke length (mm)	5	10	15	20	25	30	35	40	45	50	75	100
φ12	92	101	110	119	127	136						
φ16	107	119	132	144	156	169						
φ20	155	173	190	208	226	243	261	279	296	314		
φ25	208	226	244	262	280	298	316	334	352	370		
φ32	284	308	332	356	380	404	428	452	476	500	620	740
φ40	388	417	446	474	503	532	561	589	618	647	791	934
φ50		658	704	750	797	843	889	935	981	1027	1257	1488
φ63		1017	1081	1145	1209	1273	1337	1401	1464	1528	1848	2168
φ80		1749	1847	1946	2045	2143	2242	2341	2439	2538	3031	3525
φ100		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
φ12	Push	-	17.0	22.6	33.9	45.2	56.5	67.9	79.2	90.5	1.02 × 10 <sup>2</sup>	1.13 × 10 <sup>2</sup>
	Pull	-	12.7	17.0	25.4	33.9	42.4	50.9	59.4	67.9	76.3	84.8
φ16	Push	-	30.2	40.2	60.3	80.4	1.01 × 10 <sup>2</sup>	1.21 × 10 <sup>2</sup>	1.41 × 10 <sup>2</sup>	1.61 × 10 <sup>2</sup>	1.81 × 10 <sup>2</sup>	2.01 × 10 <sup>2</sup>
	Pull	-	22.6	30.2	45.2	60.3	75.4	90.5	1.06 × 10 <sup>2</sup>	1.21 × 10 <sup>2</sup>	1.36 × 10 <sup>2</sup>	1.51 × 10 <sup>2</sup>
φ20	Push	-	47.1	62.8	94.2	1.26 × 10 <sup>2</sup>	1.57 × 10 <sup>2</sup>	1.88 × 10 <sup>2</sup>	2.20 × 10 <sup>2</sup>	2.51 × 10 <sup>2</sup>	2.83 × 10 <sup>2</sup>	3.14 × 10 <sup>2</sup>
	Pull	-	35.3	47.1	70.7	94.2	1.18 × 10 <sup>2</sup>	1.41 × 10 <sup>2</sup>	1.65 × 10 <sup>2</sup>	1.88 × 10 <sup>2</sup>	2.12 × 10 <sup>2</sup>	2.36 × 10 <sup>2</sup>
φ25	Push	-	73.6	98.2	1.47 × 10 <sup>2</sup>	1.96 × 10 <sup>2</sup>	2.45 × 10 <sup>2</sup>	2.95 × 10 <sup>2</sup>	3.44 × 10 <sup>2</sup>	3.93 × 10 <sup>2</sup>	4.42 × 10 <sup>2</sup>	4.91 × 10 <sup>2</sup>
	Pull	-	56.7	75.6	1.13 × 10 <sup>2</sup>	1.51 × 10 <sup>2</sup>	1.89 × 10 <sup>2</sup>	2.27 × 10 <sup>2</sup>	2.64 × 10 <sup>2</sup>	3.02 × 10 <sup>2</sup>	3.40 × 10 <sup>2</sup>	3.78 × 10 <sup>2</sup>
φ32	Push	80.4	1.21 × 10 <sup>2</sup>	1.61 × 10 <sup>2</sup>	2.41 × 10 <sup>2</sup>	3.22 × 10 <sup>2</sup>	4.02 × 10 <sup>2</sup>	4.83 × 10 <sup>2</sup>	5.63 × 10 <sup>2</sup>	6.43 × 10 <sup>2</sup>	7.24 × 10 <sup>2</sup>	8.04 × 10 <sup>2</sup>
	Pull	60.3	90.5	1.21 × 10 <sup>2</sup>	1.81 × 10 <sup>2</sup>	2.41 × 10 <sup>2</sup>	3.02 × 10 <sup>2</sup>	3.62 × 10 <sup>2</sup>	4.22 × 10 <sup>2</sup>	4.83 × 10 <sup>2</sup>	5.43 × 10 <sup>2</sup>	6.03 × 10 <sup>2</sup>
φ40	Push	1.26 × 10 <sup>2</sup>	1.88 × 10 <sup>2</sup>	2.51 × 10 <sup>2</sup>	3.77 × 10 <sup>2</sup>	5.03 × 10 <sup>2</sup>	6.28 × 10 <sup>2</sup>	7.54 × 10 <sup>2</sup>	8.80 × 10 <sup>2</sup>	1.01 × 10 <sup>3</sup>	1.13 × 10 <sup>3</sup>	1.26 × 10 <sup>3</sup>
	Pull	1.06 × 10 <sup>2</sup>	1.58 × 10 <sup>2</sup>	2.11 × 10 <sup>2</sup>	3.17 × 10 <sup>2</sup>	4.22 × 10 <sup>2</sup>	5.28 × 10 <sup>2</sup>	6.33 × 10 <sup>2</sup>	7.39 × 10 <sup>2</sup>	8.44 × 10 <sup>2</sup>	9.50 × 10 <sup>2</sup>	1.06 × 10 <sup>3</sup>
φ50	Push	1.96 × 10 <sup>2</sup>	2.95 × 10 <sup>2</sup>	3.93 × 10 <sup>2</sup>	5.89 × 10 <sup>2</sup>	7.85 × 10 <sup>2</sup>	9.82 × 10 <sup>2</sup>	1.18 × 10 <sup>3</sup>	1.37 × 10 <sup>3</sup>	1.57 × 10 <sup>3</sup>	1.77 × 10 <sup>3</sup>	1.96 × 10 <sup>3</sup>
	Pull	1.65 × 10 <sup>2</sup>	2.47 × 10 <sup>2</sup>	3.30 × 10 <sup>2</sup>	4.95 × 10 <sup>2</sup>	6.60 × 10 <sup>2</sup>	8.25 × 10 <sup>2</sup>	9.90 × 10 <sup>2</sup>	1.15 × 10 <sup>3</sup>	1.32 × 10 <sup>3</sup>	1.48 × 10 <sup>3</sup>	1.65 × 10 <sup>3</sup>
φ63	Push	3.12 × 10 <sup>2</sup>	4.68 × 10 <sup>2</sup>	6.23 × 10 <sup>2</sup>	9.35 × 10 <sup>2</sup>	1.25 × 10 <sup>3</sup>	1.56 × 10 <sup>3</sup>	1.87 × 10 <sup>3</sup>	2.18 × 10 <sup>3</sup>	2.49 × 10 <sup>3</sup>	2.81 × 10 <sup>3</sup>	3.12 × 10 <sup>3</sup>
	Pull	2.80 × 10 <sup>2</sup>	4.20 × 10 <sup>2</sup>	5.61 × 10 <sup>2</sup>	8.41 × 10 <sup>2</sup>	1.12 × 10 <sup>3</sup>	1.40 × 10 <sup>3</sup>	1.68 × 10 <sup>3</sup>	1.96 × 10 <sup>3</sup>	2.24 × 10 <sup>3</sup>	2.52 × 10 <sup>3</sup>	2.80 × 10 <sup>3</sup>
φ80	Push	5.03 × 10 <sup>2</sup>	7.54 × 10 <sup>2</sup>	1.01 × 10 <sup>3</sup>	1.51 × 10 <sup>3</sup>	2.01 × 10 <sup>3</sup>	2.51 × 10 <sup>3</sup>	3.02 × 10 <sup>3</sup>	3.52 × 10 <sup>3</sup>	4.02 × 10 <sup>3</sup>	4.52 × 10 <sup>3</sup>	5.03 × 10 <sup>3</sup>
	Pull	4.54 × 10 <sup>2</sup>	6.80 × 10 <sup>2</sup>	9.07 × 10 <sup>2</sup>	1.36 × 10 <sup>3</sup>	1.81 × 10 <sup>3</sup>	2.27 × 10 <sup>3</sup>	2.72 × 10 <sup>3</sup>	3.17 × 10 <sup>3</sup>	3.63 × 10 <sup>3</sup>	4.08 × 10 <sup>3</sup>	4.54 × 10 <sup>3</sup>
φ100	Push	7.85 × 10 <sup>2</sup>	1.18 × 10 <sup>3</sup>	1.57 × 10 <sup>3</sup>	2.36 × 10 <sup>3</sup>	3.14 × 10 <sup>3</sup>	3.93 × 10 <sup>3</sup>	4.71 × 10 <sup>3</sup>	5.50 × 10 <sup>3</sup>	6.28 × 10 <sup>3</sup>	7.07 × 10 <sup>3</sup>	7.85 × 10 <sup>3</sup>
	Pull	7.15 × 10 <sup>2</sup>	1.07 × 10 <sup>3</sup>	1.43 × 10 <sup>3</sup>	2.14 × 10 <sup>3</sup>	2.86 × 10 <sup>3</sup>	3.57 × 10 <sup>3</sup>	4.29 × 10 <sup>3</sup>	5.00 × 10 <sup>3</sup>	5.72 × 10 <sup>3</sup>	6.43 × 10 <sup>3</sup>	7.15 × 10 <sup>3</sup>

## How to order

Without 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 display/off-delay, with T1\* switch (φ12/φ16 only)

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

**A** Model No.

**B** Bore size

**C** Cushion

**D** Stroke length

Custom stroke length 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 length are the same as the longer standard stroke length.

**E** Switch model No.

### ⚠ Precautions for model No. selection

- \*1 : The T0\* and T5\* switches cannot be mounted on the 5 mm stroke length of the φ12 and φ16 bore sizes.
- \*2 : The T2YD\* switch cannot be mounted on the φ12 and φ16 bore sizes.
- \*3 : The T8\* switch cannot be mounted on the φ12 to φ32 bore sizes.
- \*4 : The F type switch can only be mounted on the piping port surface of bore size φ25.
- \*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

- A** Model No. : Double acting/single rod with switch
- B** Bore size : φ12 mm
- C** Cushion : Two-sided rubber cushion
- D** Stroke length : 10 mm
- E** Switch model No.: Proximity switch T2H, lead wire length 1 m

**F** Switch quantity : 1 on rod side

## How to order switch

**SW** - **T0H**

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

Code	Content
<b>A Model No.</b>	
<b>SSG</b>	Double acting/single rod
<b>SSG-L</b>	Double acting/single rod/with switch
<b>SSG-L1</b>	φ12, φ16 2-color display, off-delay, with T1* switch

<b>B Bore size (mm)</b>	
<b>12</b>	φ12
<b>16</b>	φ16
<b>20</b>	φ20
<b>25</b>	φ25
<b>32</b>	φ32
<b>40</b>	φ40
<b>50</b>	φ50
<b>63</b>	φ63
<b>80</b>	φ80
<b>100</b>	φ100

<b>C Cushion</b>	
<b>Blank</b>	Without cushion
<b>D</b>	With two-sided rubber cushion

		<b>D Stroke length (mm)</b>									
		<b>Bore size (φ)</b>									
		12	16	20	25	32	40	50	63	80	100
<b>5</b>	5	●	●	●	●	●	●				
<b>10</b>	10	●	●	●	●	●	●	●	●	●	●
<b>15</b>	15	●	●	●	●	●	●	●	●	●	●
<b>20</b>	20	●	●	●	●	●	●	●	●	●	●
<b>25</b>	25	●	●	●	●	●	●	●	●	●	●
<b>30</b>	30	●	●	●	●	●	●	●	●	●	●
<b>35</b>	35			●	●	●	●	●	●	●	●
<b>40</b>	40			●	●	●	●	●	●	●	●
<b>45</b>	45			●	●	●	●	●	●	●	●
<b>50</b>	50			●	●	●	●	●	●	●	●
<b>75</b>	75					●	●	●	●	●	●
<b>100</b>	100					●	●	●	●	●	●

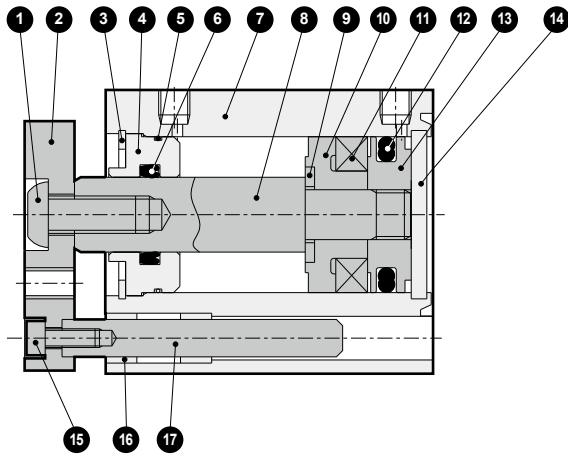
				Contact		Voltage		Display		Lead wire		<b>E Switch model No.</b>																						
												<b>Bore size</b>																						
Axial lead wire	Radial lead wire	AC	DC	1	2	1	2	1	2	12	16	20	25	32	40	50	63	80	100															
<b>F2S*</b>		●	●	Proximity	●	1-color display	2-wire	●	●	●	●	●	●	●	●	●	●	●	●															
<b>F3S*</b>		●	●																	Proximity	●	1-color display (PNP output) (custom)	3-wire	●	●	●	●	●	●	●	●	●	●	●
<b>F2H*</b>	<b>F2V*</b>	●	●																															
<b>F3H*</b>	<b>F3V*</b>	●	●	Proximity	●	1-color display (PNP output) (custom)	3-wire	●	●	●	●	●	●	●	●	●	●	●																
<b>F3PH*</b>	<b>F3PV*</b>	●	●																Reed	●	1-color display	2-wire	●	●	●	●	●	●	●	●	●	●	●	
<b>F2YH*</b>	<b>F2YV*</b>	●	●	Reed	●	Without indicator lamp	2-wire	●	●	●	●	●	●	●	●	●	●	●																
<b>F3YH*</b>	<b>F3YV*</b>	●	●																Proximity	●	1-color display	2-wire	●	●	●	●	●	●	●	●	●	●	●	
<b>T0H*</b>	<b>T0V*</b>	●	●	Proximity	●	1-color display (PNP output) (custom)	3-wire	●	●	●	●	●	●	●	●	●	●	●																
<b>T5H*</b>	<b>T5V*</b>	●	●																Proximity	●	2-color display	2-wire	●	●	●	●	●	●	●	●	●	●	●	
<b>T8H*</b>	<b>T8V*</b>	●	●	Proximity	●	2-color display	3-wire	●	●	●	●	●	●	●	●	●	●	●																
<b>T1H*</b>	<b>T1V*</b>	●	●																Proximity	●	AC magnetic field	2-wire	●	●	●	●	●	●	●	●	●	●	●	
<b>T2H*</b>	<b>T2V*</b>	●	●	Proximity	●	1-color display off-delay	2-wire	●	●	●	●	●	●	●	●	●	●	●																
<b>T3H*</b>	<b>T3V*</b>	●	●																Proximity	●	1-color display off-delay	2-wire	●	●	●	●	●	●	●	●	●	●	●	
<b>T3PH*</b>	<b>T3PV*</b>	●	●	Proximity	●	1-color display off-delay	2-wire	●	●	●	●	●	●	●	●	●	●	●																
<b>T2YH*</b>	<b>T2YV*</b>	●	●																Proximity	●	1-color display off-delay	2-wire	●	●	●	●	●	●	●	●	●	●	●	
<b>T2WH*</b>	<b>T2WV*</b>	●	●	Proximity	●	1-color display off-delay	2-wire	●	●	●	●	●	●	●	●	●	●	●																
<b>T3YH*</b>	<b>T3YV*</b>	●	●																Proximity	●	1-color display off-delay	2-wire	●	●	●	●	●	●	●	●	●	●	●	
<b>T3WH*</b>	<b>T3WV*</b>	●	●	Proximity	●	1-color display off-delay	2-wire	●	●	●	●	●	●	●	●	●	●	●																
<b>T2YD*</b>	-	●	●																Proximity	●	1-color display off-delay	2-wire	●	●	●	●	●	●	●	●	●	●	●	
<b>T2YDT*</b>	-	●	●	Proximity	●	1-color display off-delay	2-wire	●	●	●	●	●	●	●	●	●	●	●																
<b>T2JH*</b>	<b>T2JV*</b>	●	●																Proximity	●	1-color display off-delay	2-wire	●	●	●	●	●	●	●	●	●	●	●	

<b>* Lead wire length</b>	
<b>Blank</b>	1 m (standard)
<b>3</b>	3 m (option)
<b>5</b>	5 m (option) * T type switch only. The F type switch can be configured for up to 3 m.

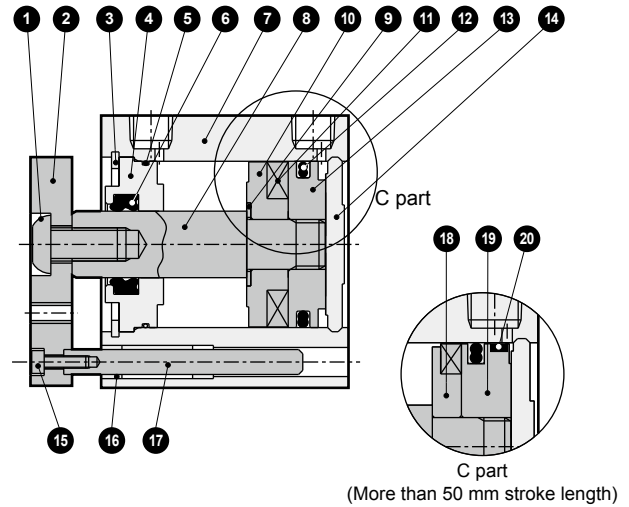
<b>F Switch quantity</b>	
<b>R</b>	1 on rod side
<b>H</b>	1 on head side
<b>D</b>	2
<b>T</b>	3

### Internal structure and parts list ( $\phi 12$ to $\phi 50$ ) (without cushion)

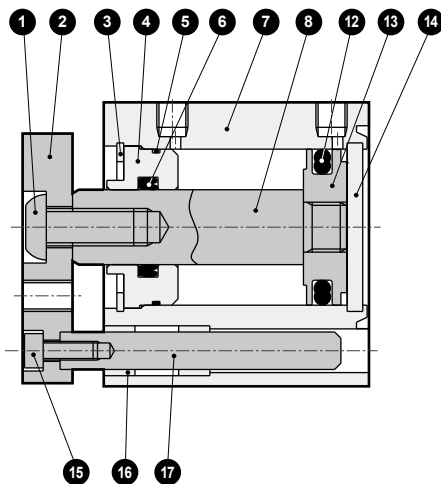
● SSG-L-12 to 15 (double acting/with switch)



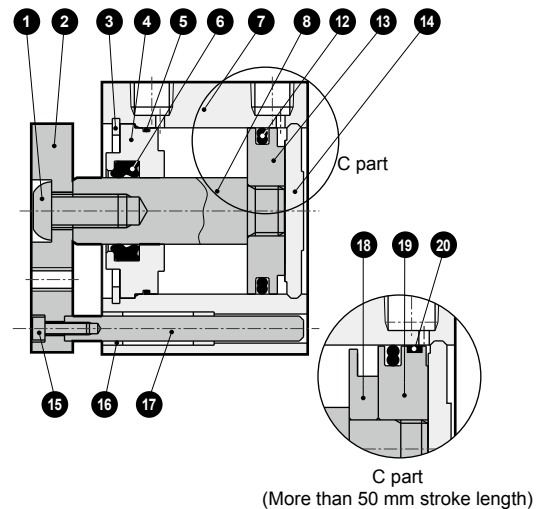
● SSG-L-32 to 50 (double acting/with switch)



● 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 ( $\phi 12$ )	Alloy steel	Zinc chromate	11	Magnet	Plastic	
	Hex socket button head bolt ( $\phi 16-50$ )	Alloy steel	Zinc chromate		12	Piston packing	Nitrile rubber
2	End plate	Aluminum alloy	Alumite	13	Piston	Aluminum alloy	Chromate
3	C type snap ring	Steel	Phosphate coating	14	Cover	Stainless steel ( $\phi 12$ to $\phi 25$ )	Alumite
4	Rod metal	Special aluminum alloy	Alumite			Aluminum alloy ( $\phi 32$ to $\phi 50$ )	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	$\phi 12$ to $\phi 50$ : Industrial chrome plating
8	Piston rod	Stainless steel ( $\phi 12$ to $\phi 25$ )	$\phi 16$ to $\phi 25$ : Industrial chrome plating	18	Spacer	Aluminum alloy	Chromate
		Steel ( $\phi 32$ to $\phi 50$ )	Industrial chrome plating	19	Piston	Aluminum alloy	Chromate
9	Spacer washer	Stainless steel	$\phi 20$ to $50$	20	Wear ring	Acetal resin	
10	Spacer	Stainless steel ( $\phi 12$ )					
		Special resin ( $\phi 16$ to $\phi 50$ )					

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

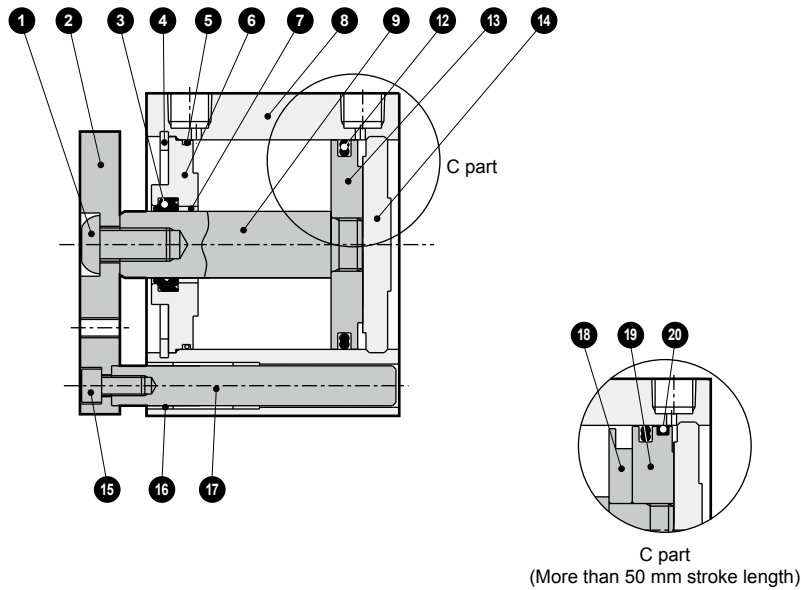
FK

Spd  
Contr

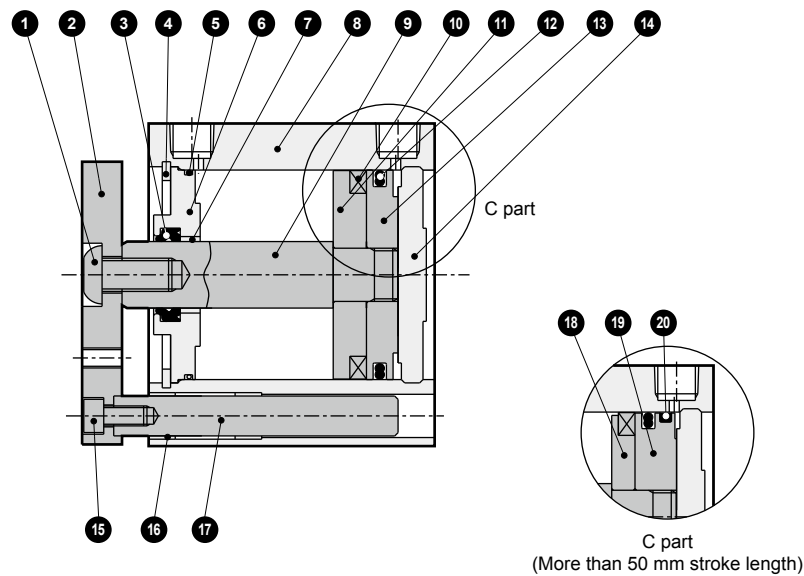
Ending

## Internal structure and parts list (φ63 to 100) (no cushion)

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



● SSG-63 to 100 (double acting)

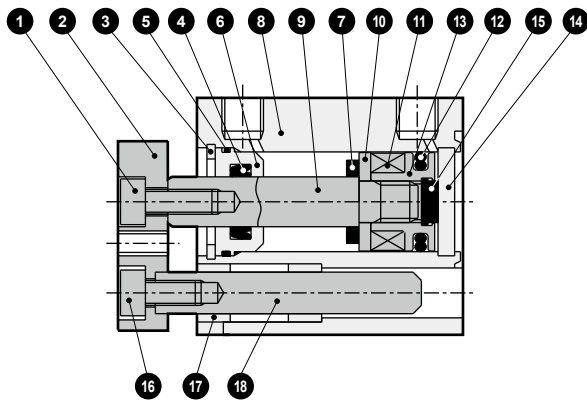


**Cannot be disassembled**

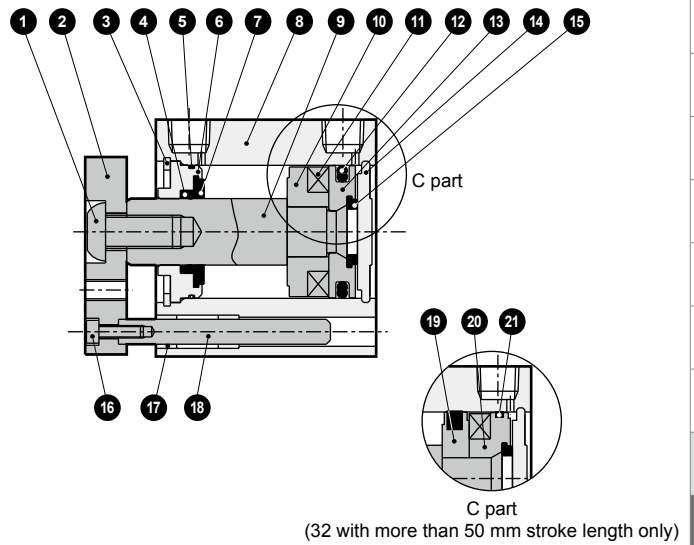
No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Hexagon socket button head bolt	Alloy steel	Zinc chromate	11	Spacer	Aluminum alloy	Chromate
2	End plate	Aluminum alloy	Alumite	12	Piston packing	Nitrile rubber	
3	Rod packing	Nitrile rubber		13	Piston	Aluminum alloy	Chromate
4	C type snap 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 ( $\phi 12$ to $\phi 32$ ) (with rubber cushion)

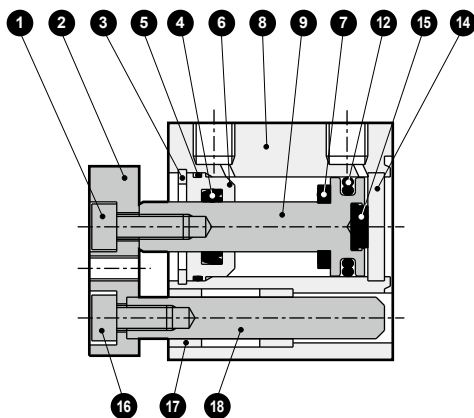
● SSG-L-12D (double acting/with switch)



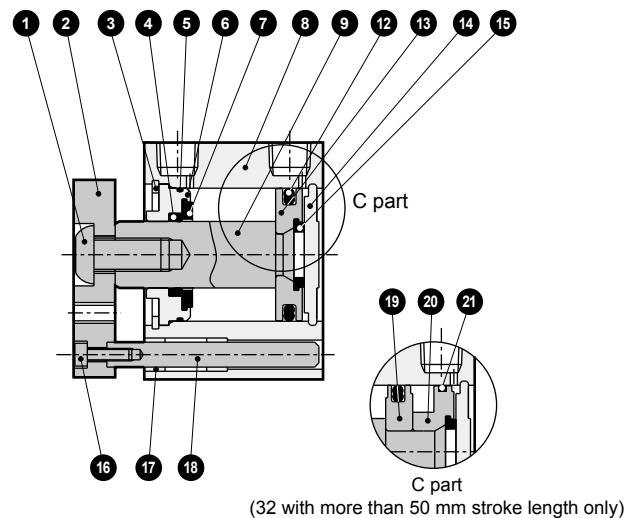
● SSG-L-16D to 32D (double acting/with switch)



● 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 ( $\phi 12$ )	Alloy steel	Zinc chromate	11	Magnet	Plastic	
	Hex socket button head bolt ( $\phi 16-32$ )			12	Piston packing	Nitrile rubber	
2	End plate	Aluminum alloy	Alumite	13	Piston	Aluminum alloy	Chromate
3	C type snap ring	Steel	Phosphate coating	14	Cover	Stainless steel ( $\phi 12$ )	
4	Rod packing	Nitrile rubber				Aluminum alloy ( $\phi 16$ to $\phi 32$ )	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 ( $\phi 16$ to $\phi 32$ )
				9	Piston rod	Stainless steel ( $\phi 12$ )	
		Steel ( $\phi 16$ to $\phi 32$ )	Industrial chrome plating	20		Piston	Aluminum alloy
10	Spacer	Stainless steel ( $\phi 12$ )		21	Wear ring	Polyacetal resin	
		Aluminum alloy ( $\phi 16$ to $\phi 32$ )					

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

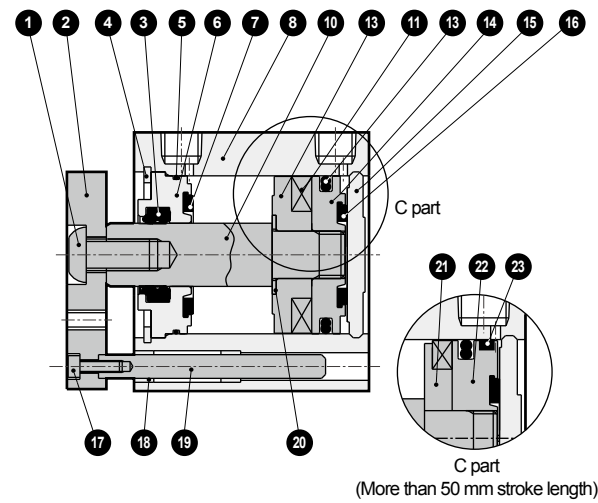
FK

Spd  
Contr

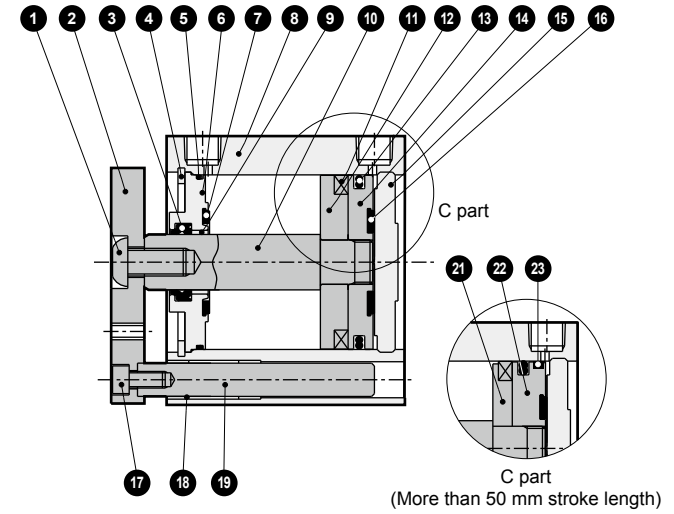
Ending

## Internal structure and parts list (φ40 to φ100) (with rubber cushion)

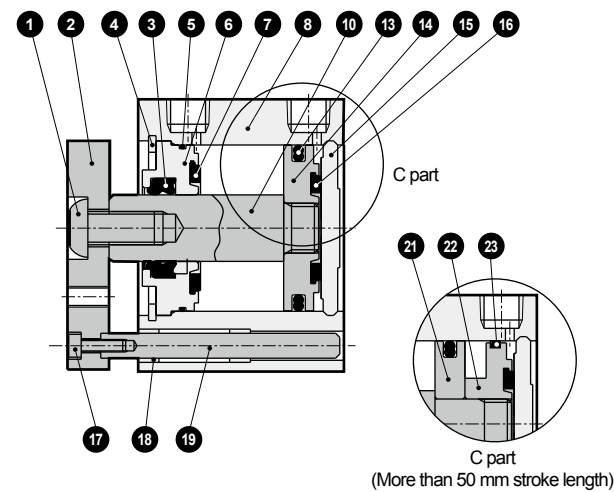
● SSG-L-40D, 50D (double acting/with switch)



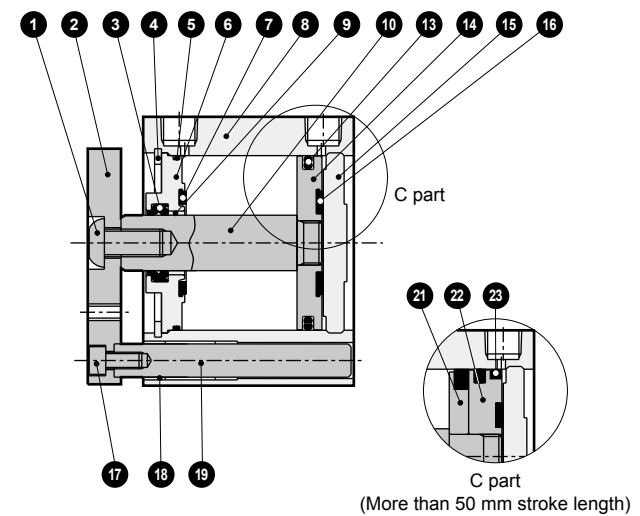
● SSG-L-63D to 100D (double acting/with switch)



● SSG-40D, 50D (double acting)



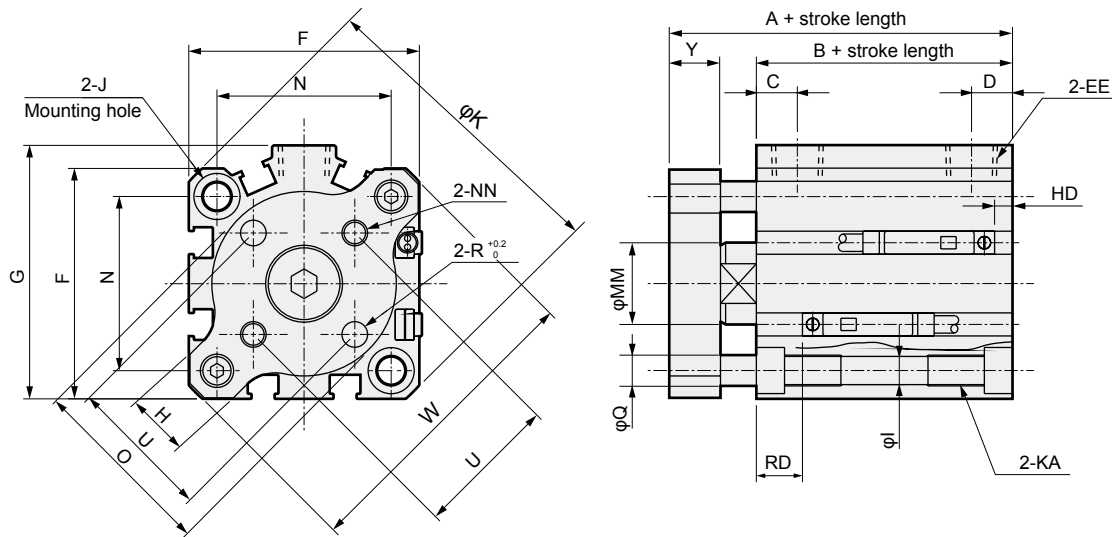
● SSG-63D to 100D (double acting)



**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 type 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 (φ40/φ50) Aluminum alloy (φ63 to φ100)	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 φ12 to 20 do not have a switch groove on the piping port surface.
- \*2 : Bore sizes φ12 and 16 have only one switch groove on each surface.
- \*3 : The piping port surface of bore size φ25 can only mount an F type switch.

Code	Without 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	
φ12	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	
φ16	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	
φ20	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	
φ25	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	
φ32	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	
φ40	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	
φ50	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	
φ63	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	
φ80	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	
φ100	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				
φ12	15	5	3	10±0.1	6	31	0	2.5	4.5	1	-	-	7.5	4				
φ16	19	5	3	14±0.1	6	37	0	2	4.5	0.5	-	-	7.5	3.5				
φ20	26	6	4	17±0.1	8	46	3	6.5	1.5	5	-	-	4.5	8				
φ25	30	6	5	22±0.1	8	50	3(8.5)	9.5(14)	1.5(8.5)	8(14)	-	-	4.5	11				
φ32	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)				
φ40	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)				
φ50	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)				
φ63	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)				
φ80	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)				
φ100	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 length or B+ 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 7 mm, apply the standard stroke length of 10 mm.
- \*2 : HD and RD dimensions for 5 mm stroke length differ from these dimensions by production lot.
- \*3 : The φ32 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 display with switch (L1)
- \*7 : Dimensions in ( ) of codes HD and RD are values for units with F type switch. (The F type switch can only be mounted on the piping port surface.)

- 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 mounting bolts

### How to order

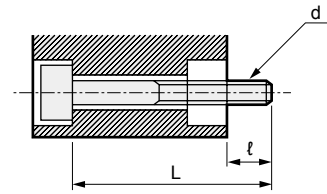
**SSD - BOLT - d × L** Refer to the following table for “d” and “L”.

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 length or less		75/100 stroke length
			Without switch	With switch	
φ12/16	6.5	M3	20 + stroke length	25 + stroke length (*1)	
φ20	6	M5	20 + stroke length	25 + stroke length	
φ25	8	M5	25 + stroke length	35 + stroke length	
φ32	7.5	M5	25 + stroke length	35 + stroke length	35 + stroke length
φ40	6	M5	30 + stroke length	40 + stroke length	40 + stroke length
φ50	11	M6	35 + stroke length	45 + stroke length	45 + stroke length
φ63	13	M8	40 + stroke length	50 + stroke length	50 + stroke length
φ80	17.5	M10	50 + stroke length	60 + stroke length	60 + stroke length
φ100	18	M10	60 + stroke length	70 + stroke length	70 + stroke length

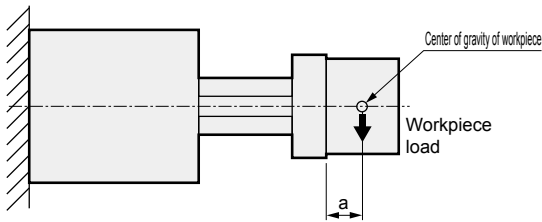
\*1 : For SSG-L1, this is “30 + stroke length”.



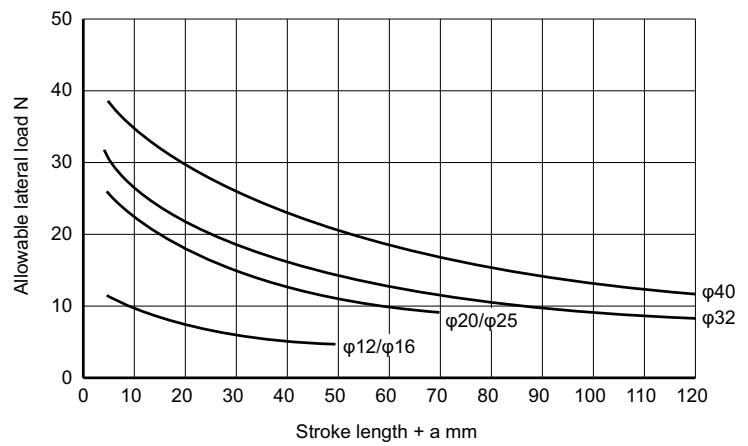
Material: Steel  
Treatment: Black finish

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 × L.

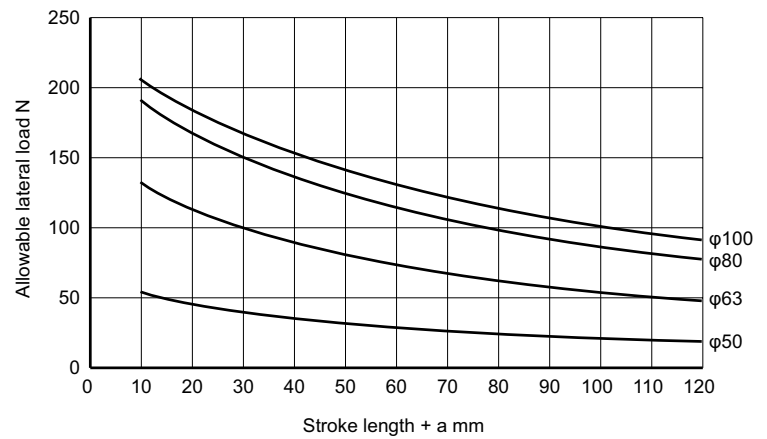
## Allowable lateral load



φ12 to φ40

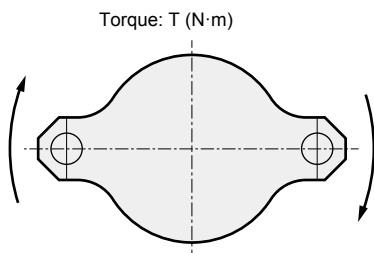


φ50 to φ100



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 length before selection.

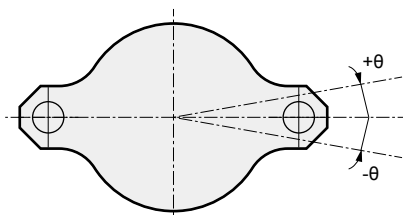
## Allowable torque



Unit: N·m

Bore size (mm)	Stroke length							
	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)
φ12/16	±0.2
φ20/25/32/40	±0.1
φ50/63/80/100	±0.08

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

- 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