

Guided compact cylinder SSG Series

GUIDED COMPACT CYLINDER SSG SERIES





Safety precautions

Always read this section before starting use.

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

It is important to select, use, handle, and maintain the product appropriately to ensure that the CKD product is used safely.

Observe warnings and precautions to ensure device safety.

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

WARNING

1 This product is designed and manufactured as a general industrial machine part. It must be handled by an operator having sufficient knowledge and experience in handling.

2 Use this product in accordance of specifications.

This product must be used within its stated specifications. It must not be modified or machined.

This product is intended for use as a general-purpose industrial device or part. It is not intended for use outdoors or for use under the following conditions or environment.

(Note that this product can be used when CKD is consulted prior to use and the customer consents to CKD product specifications. The customer must provide safety measures to avoid risks in the event of problems.)

① Use for special applications including nuclear energy, railway, aircraft, marine vessel, vehicle, medicinal devices, devices or applications coming into contact with beverages or foodstuffs, amusement devices, emergency cutoff circuits, press machines, brake circuits, or safety devices or applications.

② Use for applications where life or assets could be adversely affected, and special safety measures are required.

3 Observe corporate standards and regulations, etc., related to the safety of device design and control, etc.

ISO4414, JIS B8370 (pneumatic system rules)

JFPS2008 (principles for pneumatic cylinder selection and use)

Including High Pressure Gas Maintenance Law, Occupational Safety and Sanitation Laws, other safety rules, body standards and regulations, etc.

4 Do not handle, pipe, or remove devices before confirming safety.

① Inspect and service the machine and devices after confirming safety of the entire system related to this product.


② Note that there may be hot or charged sections even after operation is stopped.


③ When inspecting or servicing the device, turn off the energy source (air supply or water supply), and turn off power to the facility. Discharge any compressed air from the system, and pay enough attention to possible water leakage and leakage of electricity.


④ When starting or restarting a machine or device that incorporates pneumatic components, make sure that the system safety, such as pop-out prevention measures, is secured.

5 Observe warnings and cautions on the pages below to prevent accidents.

■ The safety cautions are ranked as "DANGER", "WARNING" and "CAUTION" in this section.

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

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

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

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

Disclaimer

1. CKD cannot be held liable for any business interruption, loss of profit, personal injury, delay cost, or any other ancillary or indirect loss, cost, or damage resulting from the use of or faults in the use of CKD products.

2. CKD cannot be held responsible for the following damage

① Damage resulting from disaster or failure of CKD parts due to fire from reasons not attributable to CKD, or by intentional or negligence of a third party or customer.

② When a CKD product is assembled into customer equipment, damage that could have been avoided if customer equipment were provided with functions and structure, etc., generally accepted in the industry.

③ Damage resulting from use exceeding the scope of specifications provided in CKD catalogs or instruction manuals, etc., or from actions not following precautions for installation, adjustment, or maintenance, etc.

④ Damage resulting from product modifications not approved by CKD, or from faults due to combination with other software or other connected devices.



Safety precautions

Always read this section before starting use.

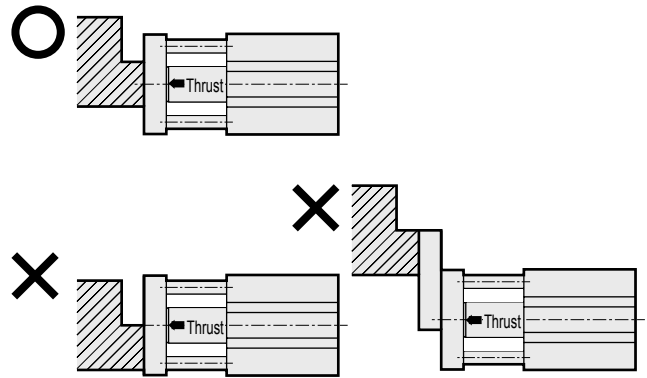
Refer to Pneumatic Cylinders (CB-029SA) for details on general cylinders and cylinder switches.

Design & Selection

CAUTION

- Use within the allowable load.
Use exceeding the allowable lateral load and rotation torque may result in damage, etc. Refer to the selection guide on page 10.
- Do not use as a stopper.
Use this product in application such as pushers and lifters that are not subject to shocking lateral loads.

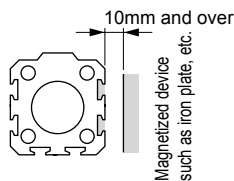
- When using this with the cylinder pushed in the middle of the stroke, check that thrust is applied to the end plate axial to the piston rod.
When pushing in the middle of the stroke with a clamp, etc., thrust will be applied to the end plate and the part pushed eccentrically may be damaged. Use at the piston rod's shaft center as shown below.



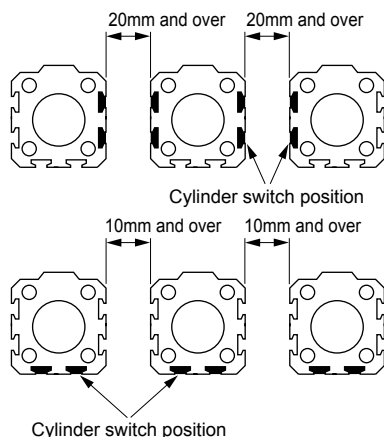
Installation & Adjustment

CAUTION

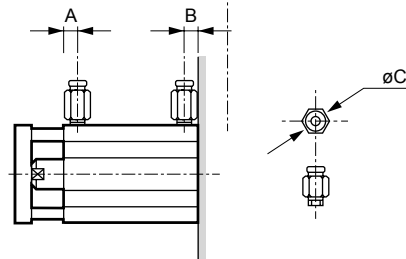
- The cylinder switch may malfunction if a magnetized device, such as a steel plate, is near the cylinder switch. Separate from the magnetized device by at least 10 mm from the cylinder surface. (Same for all bore sizes.)



- The cylinder switch could malfunction if cylinders are installed next to each other. Check that the following distances are provided between cylinder surfaces. (Same for all bore sizes.)



- Install a flow control valve when piping. Usable pipe joints are limited, so see the following table to select the joint.



Descriptions Bore size (mm)	Port size	Port dimension		Applicable joint	Joint O. D. øC	Inapplicable Joint
		A	B			
ø12	M5	5.5	5.5	SC3W-M5-4 SC3W-M5-6 GWS4-M5-S	ø11 or less	GWS6-M5
ø16		8	5.5	GWS4-M5		
ø20		8	5.5	GWS4-M5		
ø25		11	6	GWL6-M5		
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	Note 1	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			

Note 1: The port diameter is M5 for the ø32 5 stroke with no switch.
Refer to dimensions for the port dimension.

Installation & Adjustment

CAUTION

- Check that no dents or damages occur on the end plate that could compromise flatness. Flatness of the counterpart on which the end plate is installed must be 0.05 mm or less.

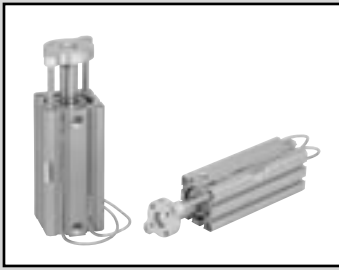
■ Allowable energy absorption

Use within the allowable energy absorption range. Provide the other cushioning outside if exceeding allowable energy absorption range. Refer to the Specifications for allowable energy absorption values.

During Use & Maintenance

CAUTION

- Do not disassemble this product. The performance may be compromised.

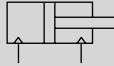


Guided compact cylinder double acting single rod type

SSG Series

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

JIS symbol



Specifications

Descriptions		SSG																															
Bore size	mm	$\varnothing 12$	$\varnothing 16$	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$																						
Actuation		Double acting																															
Working fluid		Compressed air																															
Max. working pressure	MPa	1.0																															
Min. working pressure	MPa	0.15					0.1																										
Withstanding pressure	MPa	1.6																															
Ambient temperature	$^{\circ}\text{C}$	-10 to 60 (no freezing)																															
Port size		M5				Rc1/8 Note 1		Rc1/4		Rc3/8																							
Stroke tolerance	mm	$\begin{matrix} +1.0 \\ 0 \\ +2.0 \\ 0 \end{matrix}$																															
	No cushion																																
	Rubber cushioned																																
Working piston speed	mm/s	50 to 500					50 to 300																										
Cushion		Selection of no cushion or rubber cushion is possible																															
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)																															
Allowable absorbing energy	J	<table border="1"> <tr> <td>No cushion</td> <td>0.004</td> <td>0.01</td> <td>0.016</td> <td>0.021</td> <td>0.025</td> <td>0.092</td> <td>0.1</td> <td>0.12</td> <td>0.27</td> <td>0.56</td> </tr> <tr> <td>Rubber cushioned</td> <td>0.03</td> <td>0.05</td> <td>0.10</td> <td colspan="2">0.16</td> <td>0.44</td> <td>0.75</td> <td>0.78</td> <td>2.51</td> <td>3.92</td> </tr> </table>										No cushion	0.004	0.01	0.016	0.021	0.025	0.092	0.1	0.12	0.27	0.56	Rubber cushioned	0.03	0.05	0.10	0.16		0.44	0.75	0.78	2.51	3.92
	No cushion											0.004	0.01	0.016	0.021	0.025	0.092	0.1	0.12	0.27	0.56												
Rubber cushioned	0.03	0.05	0.10	0.16		0.44	0.75	0.78	2.51	3.92																							
	No cushion																																
	Rubber cushioned																																

Note 1: The port size is M5 for the $\varnothing 32$ 5 stroke with no switch.

Stroke length

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

Note 1: The intermediate stroke can be manufactured in 1 mm increments. Total length of the intermediate stroke is the same as the next larger standard stroke.

Note 2: Refer to the following table when a switch is used.

Min. stroke length with switch (1 or 2 pc.)

Bore size (mm)	T0H/V, T5H/V	T2H/V, T3H/V
$\varnothing 12$	10	5
$\varnothing 16$		
$\varnothing 20$		
$\varnothing 25$		
$\varnothing 32$		
$\varnothing 40$		
$\varnothing 50$		
$\varnothing 63$		
$\varnothing 80$		
$\varnothing 100$		

Note 1: 10 mm or less 2 color indicator type with preventive maintenance output switch is not available.

Switch specifications (F type switch)

● 1 color/2 color indicator

Descriptions	Proximity 2 wire		Proximity 3 wire	
	F2H, F2V	F2YH, F2YV	F3H, F3V	F3YH, F3YV
Applications	Programmable controller		Programmable controller and relay	
Output type	-		NPN output	
Power voltage	-		10 to 28 VDC	
Load voltage	10 to 30 VDC	24 VDC $\pm 10\%$	30 VDC or less	
Load current	5 to 20mA		100mA or less	50mA or less
Light	LED (ON lighting)	Red/green LED (ON lighting)	LED (ON lighting)	Red/green LED (ON lighting)
Leakage current	1mA or less		10 μA or less	

Switch specifications (T type switch)

- 1 color/2 color indicator/strong magnetic field proof

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 order)	T3YH, T3YV	T3WH, T3WV	T0H, T0V	T5H, T5V	T8H, T8V	T2YD			
Applications	For programmable controller, relay and small solenoid valve	Programmable controller dedicated		For programmable controller and relay				For programmable controller and relay	For programmable controller, relay, IC circuit (two light), and serial connection	For programmable controller and relay		Programmable controller dedicated			
Output type	-		NPN output PNP output NPN output NPN output				-								
Power voltage	-		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 100mA	5 to 20mA (Note 1)		100mA or less	50mA or less		5 to 50mA	7 to 20mA	50mA or less	20mA or less	5 to 50mA	7 to 20mA	7 to 10mA	5 to 20mA	
Light	LED (ON lighting)	LED (ON lighting)	Red/green LED (ON lighting)	Red/green LED (ON lighting)	LED (ON lighting)	Green LED (ON lighting)	Red/green LED (ON lighting)	Red/green LED (ON lighting)	LED (ON lighting)	Without indicator light		LED (ON lighting)	Red/green LED (ON lighting)		
Leakage current	1mA or less with 100 VAC 2mA or less with 200 VAC	1mA or less		10µA or less				0mA				1mA or less			

- With preventive maintenance output

Descriptions	Proximity 3 wire	Proximity 4 wire	Proximity 3 wire	Proximity 4 wire
	T2YFH/V	T3YFH/V	T2YMH/V	T3YMH/V
Applications	Programmable controller dedicated	For programmable controller and relay	Programmable controller dedicated	For programmable controller and relay
Output type	NPN output			
Light	Red/green LED (ON lighting)			
	-		Yellow LED (ON lighting)	
Output section	Power voltage	-	10 to 28 VDC	-
	Load voltage	10 to 30 VDC	30 VDC or less	10 to 30 VDC
	Load current	5 to 20mA	50mA or less	5 to 20mA
	Leakage current	1mA or less	10µA or less	1.2mA or less
Preventive maintenance output	Load voltage	30 VDC or less		
	Load current	20mA or less	50mA or less	5 to 20mA or less
	Leakage current	10µA or less		

Note 1: The maximum load current 20 mA above applies at 25°C. If the ambient switch operation temperature exceeds 25°C, the current value will be less than 20 mA. (5 to 10 mA at 60°C)

Cylinder weight table (Weight with switch includes weight for two cylinder switches.)

- Without switch

Unit: g

Stroke length (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 length (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

How to order

Without switch

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

With switch

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

2 color indicator type, off-delay type, with T1* switch (only ø12, ø16)

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

Ⓐ Model no.

Ⓑ Bore size

Ⓒ Cushion

Ⓓ Stroke length

The intermediate stroke can be manufactured in 1 mm increments. (Less than 5 mm with switch is not available.) Total length of the intermediate stroke is the same as the next larger standard stroke.

Ⓔ Switch model No.

Note 1
Note 2
Note 3
Note 4

⚠ Note on model No. selection

- Note 1: T0* or T5* switches can not be installed for 5 mm stroke length of ø12, ø16.
- Note 2: T2YD* switch can not be installed for ø12, ø16.
- Note 3: T8* switch can not be installed for ø12 to ø32.
- Note 4: F type switch is installable only on the piping port of tube bore size ø25.

<Example of model number>

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

Model: Guided compact cylinder
double acting single rod type

- Ⓐ Model no. : Double acting single rod type, with switch
- Ⓑ Bore size : ø12mm
- Ⓒ Cushion : Rubber cushion on both sides
- Ⓓ Stroke length : 10mm
- Ⓔ Switch model No. : Proximity switch T2H, lead wire length 1 m
- Ⓕ Switch quantity : 1 on rod end

How to order switch

SW - **T0H**

Switch model No.
(Item above Ⓔ)

Symbol	Descriptions
Ⓐ Model no.	
SSG	Double acting single rod type
SSG-L	Double acting single rod type with switch
SSG-L1	ø12, ø16 2 color indicator, off-delay type, with T1* switch

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

Ⓒ Cushion	
Blank	No cushion
D	Rubber cushion on both sides

Ⓓ Stroke length (mm)		Bore size									
		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					●	●	●	●	●	●

Ⓔ Switch model No.		Contact	Indicator	Lead wire	Bore size											
Axial lead wire	Radial lead wire				12	16	20	25	32	40	50	63	80	100		
F2H*	F2V*	Proximity	1 color indicator type	2 wire				●								
F3H*	F3V*			3 wire				●								
F2YH*	F2YV*	Proximity	2 color indicator type	2 wire				●								
F3YH*	F3YV*			3 wire				●								
T0H*	T0V*	Reed	1 color indicator type	2 wire	●	●	●	●	●	●	●	●	●	●	●	
T5H*	T5V*				Without light	●	●	●	●	●	●	●	●	●	●	●
T8H*	T8V*				1 color indicator type	●	●	●	●	●	●	●	●	●	●	●
T1H*	T1V*	Proximity	1 color indicator type	2 wire	●	●	●	●	●	●	●	●	●	●	●	
T2H*	T2V*				1 color indicator type (PNP output) (custom order)	●	●	●	●	●	●	●	●	●	●	
T3H*	T3V*				3 wire	●	●	●	●	●	●	●	●	●	●	
T3PH*	T3PV*	Proximity	2 color indicator type	2 wire	●	●	●	●	●	●	●	●	●	●	●	
T2YH*	T2YV*				3 wire	●	●	●	●	●	●	●	●	●	●	
T3YH*	T3YV*				3 wire	●	●	●	●	●	●	●	●	●	●	
T2YFH*	T2YFV*	Proximity	2 color indicator type	3 wire	●	●	●	●	●	●	●	●	●	●	●	
T3YFH*	T3YFV*				(w/o light for preventive maintenance output)	4 wire	●	●	●	●	●	●	●	●	●	
T2YMH*	T2YMV*				(w/o light for preventive maintenance output (1 color))	3 wire	●	●	●	●	●	●	●	●	●	
T3YMH*	T3YMV*	Proximity	2 color indicator type	4 wire	●	●	●	●	●	●	●	●	●	●	●	
T2YD*	-				Strong magnetic field proof switch	2 wire	●	●	●	●	●	●	●	●	●	
T2YDT*	-				Off-delay type	2 wire	●	●	●	●	●	●	●	●	●	
T2JH*	T2JV*	Proximity	Off-delay type	2 wire	●	●	●	●	●	●	●	●	●	●		

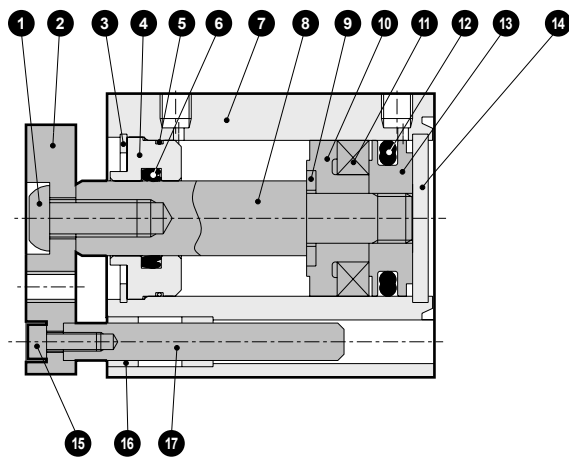
* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option) * Only for T type switch. F type switch can be set to 1 or 3 m.

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

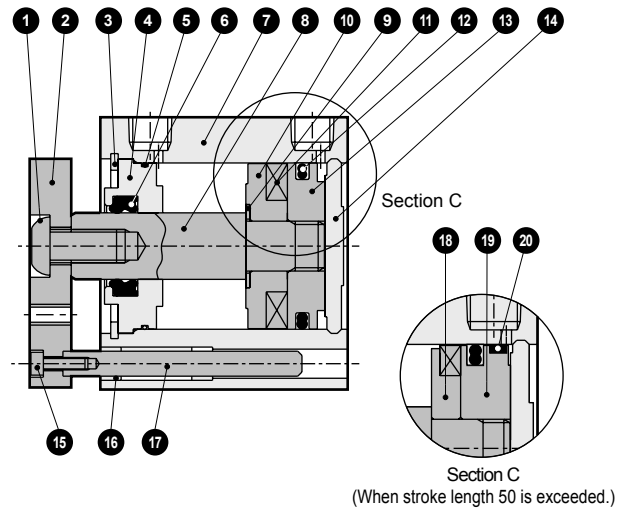
Ⓕ Switch quantity

Internal structure and parts list (ø12 to ø50) (no cushion)

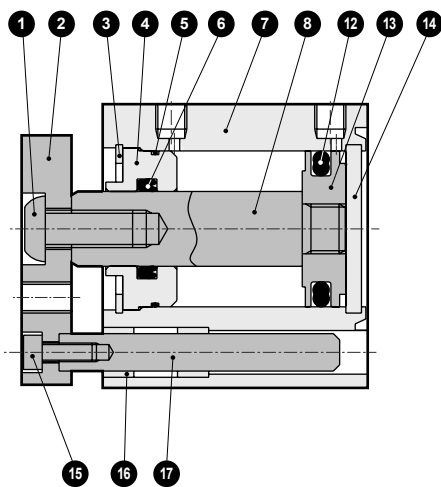
● SSG-L-12 to 15 (double acting, with switch)



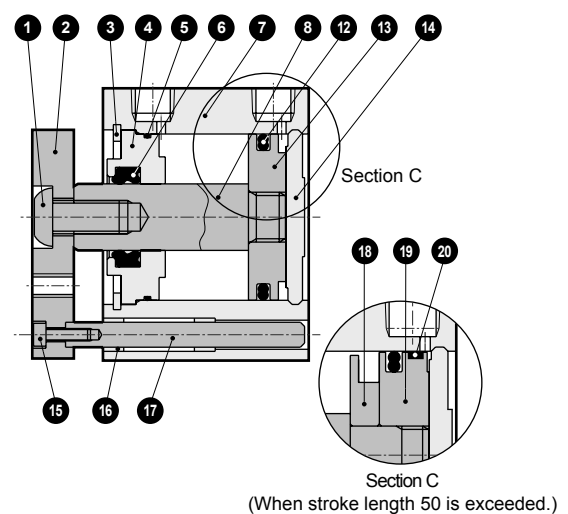
● SSG-L-32 to 50 (double acting, with switch)



● SSG-12 to 25 (double acting)



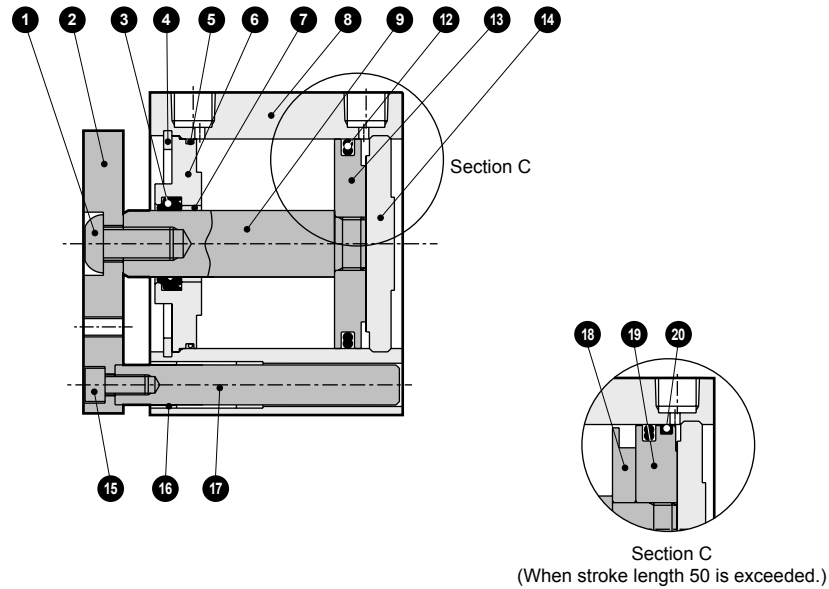
● SSG-32 to 50 (double acting)



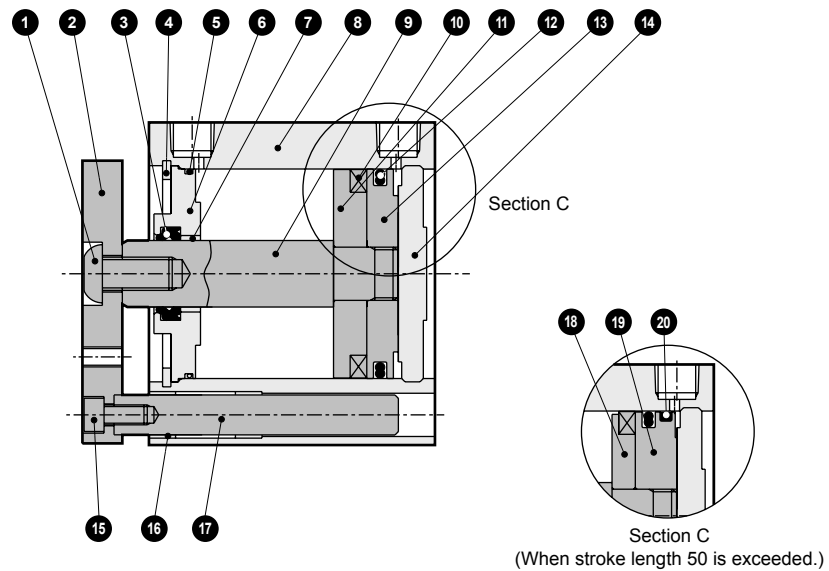
No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Hexagon socket head bolt (ø12)	Alloy steel	Zinc chromate	11	Magnet	Plastic	
	Hexagonal socket button bolt (ø16 to ø50)	Alloy steel	Zinc chromate		12	Piston packing seal	Nitrile rubber
2	End plate	Aluminum alloy	Alumite	13	Piston	Aluminum alloy	Chromate
3	C type snap ring	Steel	Phosphate film	14	Guard	Stainless steel (ø12 to ø25)	Alumite
4	Rod bushing	Special aluminum alloy	Alumite			Aluminum alloy (ø32 to ø50)	Alumite
5	O ring	Nitrile rubber		15	Hexagon socket head bolt	Alloy steel	Zinc chromate
6	Rod packing seal	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 25: 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	Acetar resin	
10	Spacer	Stainless steel (ø12)					
		Polyamide (ø16 to ø50)					

Internal structure and parts list (ø63 to ø100) (no cushion)

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



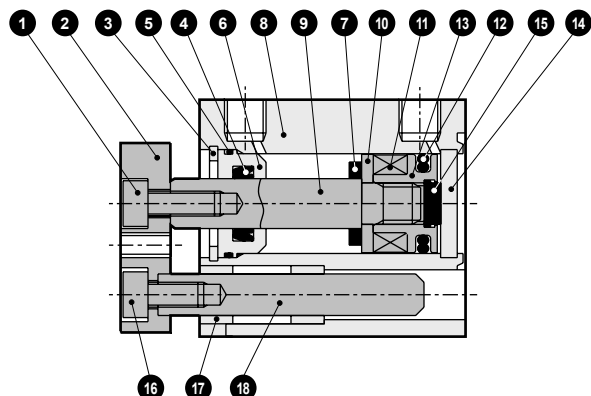
● SSG-63 to 100 (double acting)



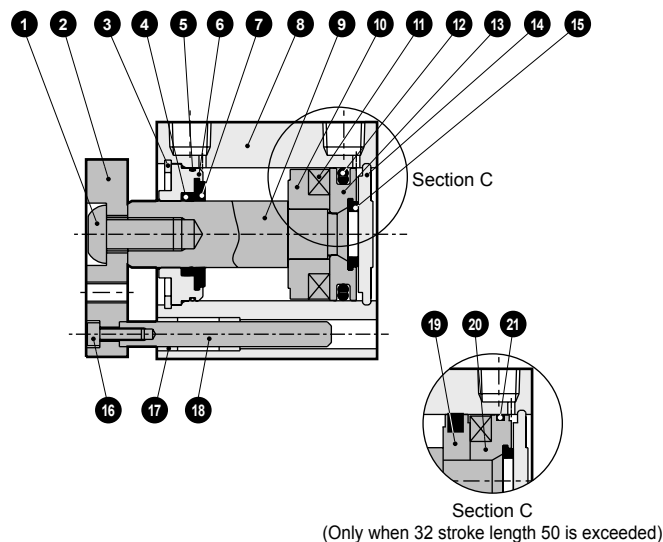
No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Hexagon socket head button bolt	Alloy steel	Zinc chromate	11	Spacer	Aluminum alloy	Chromate
2	End plate	Aluminum alloy	Alumite	12	Piston packing seal	Nitrile rubber	
3	Rod packing seal	Nitrile rubber		13	Piston	Aluminum alloy	Chromate
4	C type snap ring	Steel	Phosphate film	14	Guard	Aluminum alloy	Alumite
5	O ring	Nitrile rubber		15	Hexagon socket head bolt	Alloy steel	Zinc chromate
6	Rod bushing	Aluminum alloy	Chromate	16	Metal	Oil impregnated bearing alloy	
7	Bush	Dry bearing		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	Acetar resin	

Internal structure and parts list (ø12 to ø32) (rubber cushioned)

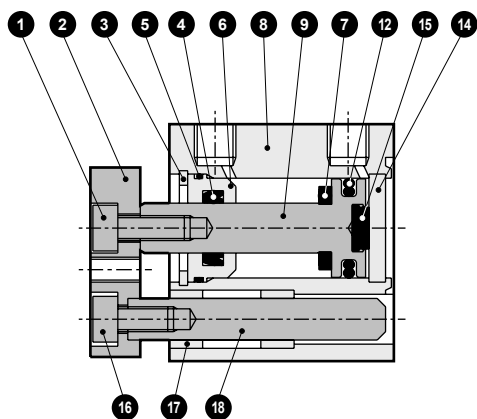
● SSG-L-12D (double acting, with switch)



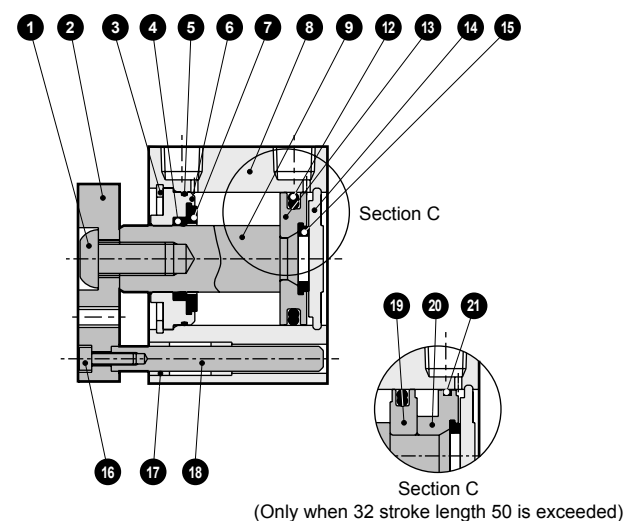
● SSG-L-16D to 32D (double acting, with switch)



● SSG-12D (double acting)



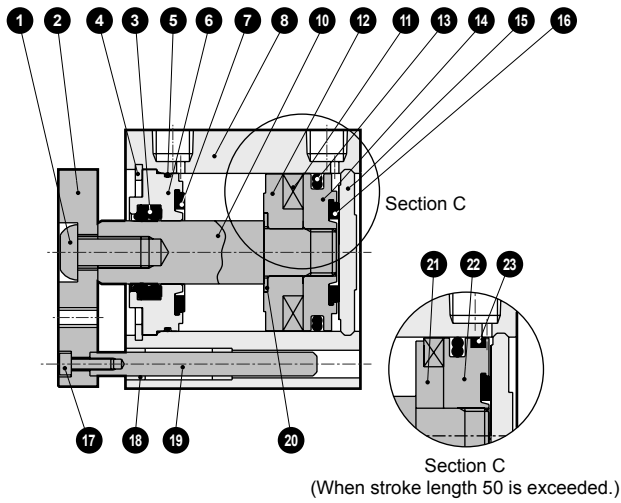
● SSG-16D to 32D (double acting)



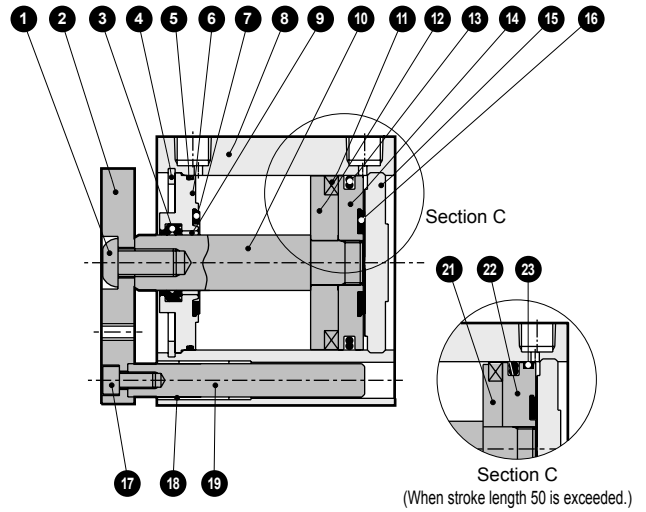
No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Hexagon socket head bolt (ø12)	Alloy steel	Zinc chromate	11	Magnet	Plastic	
	Hexagon socket head button bolt (ø16 to ø32)			12	Piston packing seal	Nitrile rubber	
2	End plate	Aluminum alloy	Alumite	13	Piston	Aluminum alloy	Chromate
3	C type snap ring	Steel	Phosphate film	14	Guard	Stainless steel (ø12)	
4	Rod packing seal	Nitrile rubber				Aluminum alloy (ø16 to ø32)	Alumite
5	O ring	Nitrile rubber		15	Cushion rubber	Urethane rubber	
6	Rod bushing	Special aluminum alloy	Alumite	16	Hexagon socket head bolt	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)	
		Steel (ø16 to ø32)	Industrial chrome plating	19		Spacer	Aluminum alloy
10	Spacer	Stainless steel (ø12)		20	Piston	Aluminum alloy	Chromate
		Aluminum alloy (ø16 to ø32)		21	Wear ring	Acetar resin	

Internal structure and parts list (ø40 to ø100) (rubber cushioned)

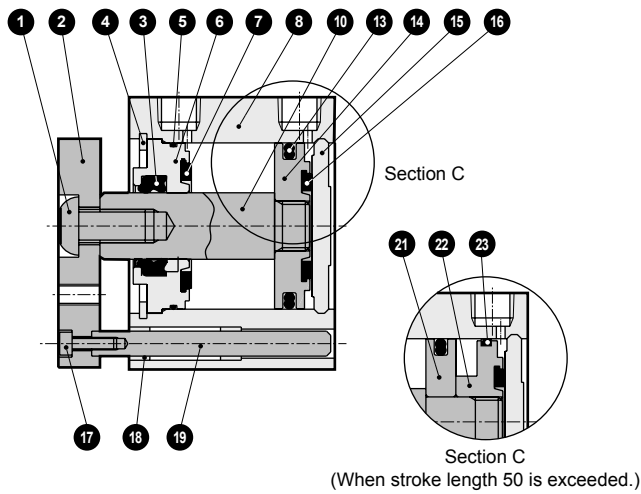
● SSG-L-40D and 50D (double acting, with switch)



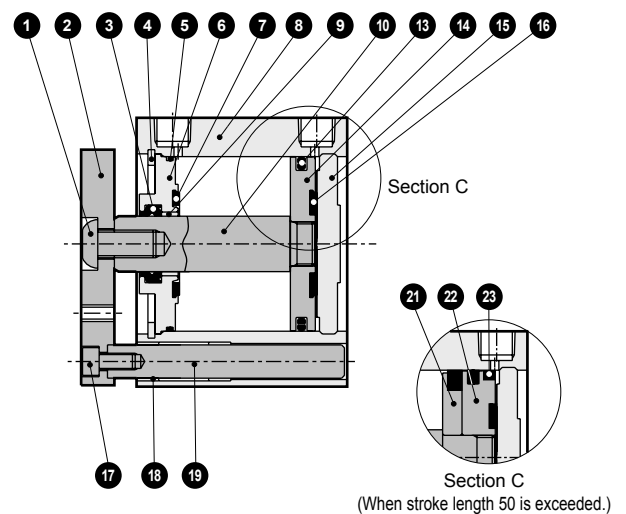
● SSG-L-63D to 100D (double acting, with switch)



● SSG-40D and 50D (double acting)

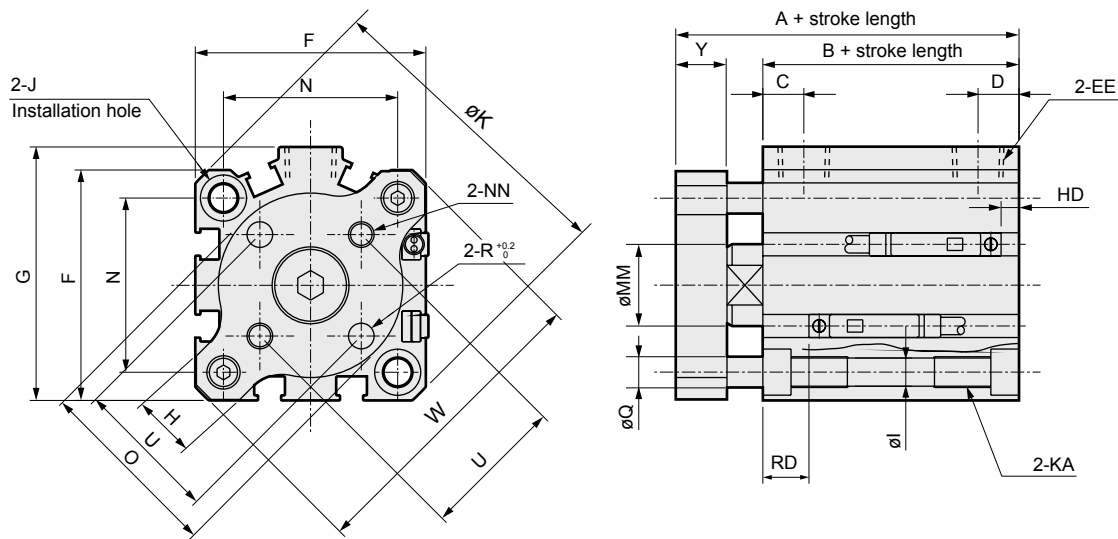


● SSG-63D to 100D (double acting)



No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Hexagon socket head button bolt	Alloy steel	Zinc chromate	13	Piston packing seal	Nitrile rubber	
2	End plate	Aluminum alloy	Alumite	14	Piston	Aluminum alloy	Chromate
3	Rod packing seal	Nitrile rubber		15	Guard	Aluminum alloy	Alumite
4	C type snap ring	Steel	Phosphate film	16	Cushion rubber	Urethane rubber	
5	O ring	Nitrile rubber		17	Hexagon socket head bolt	Alloy steel	Zinc chromate
6	Rod bushing	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	Dry bearing		21	Spacer	Aluminum alloy	Chromate
10	Piston rod	Steel	Industrial chrome plating	22	Piston	Aluminum alloy	Chromate
11	Magnet	Plastic		23	Wear ring	Acetar resin	
12	Spacer	Aluminum alloy	Chromate				

Dimensions



● Notes on switch installation groove

Note 1: Tube bore size $\phi 12$ to 20 does not have a switch groove on the piping port face.

Note 2: For tube bore size $\phi 12$ and 16 switch grooves, only one row is provided on each face.

Note 3: Only F type switch is installable on the tube bore size $\phi 25$ piping port face.

Symbol	Without switch		With switch		Common dimension												
Bore size	A Note 5	B Note 5	A Note 6	B Note 6	C Note 4	D Note 4	EE	F	G	H	I	J	K	KA	MM	N	NN
$\phi 12$	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
$\phi 16$	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
$\phi 20$	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
$\phi 25$	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
$\phi 32$	40 (50)	23 (33)	50	33	8 (10)	8 (5.5)	Rc1/8 Note 3	45	49.5	12	5.5	9 spot face depth 5.5	60	M6 depth 11	16	34	M5
$\phi 40$	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
$\phi 50$	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
$\phi 63$	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
$\phi 80$	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
$\phi 100$	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
Symbol	Common dimension						With switch (reed and proximity 1 color)		With switch (proximity 2 color)		With switch (T8)		With switch (T2/3W)				
Bore size	O	Q	R	U	Y	W	HD Note 5, Note 7	RD Note 5, Note 7	HD Note 5, Note 7	RD Note 5, Note 7	HD Note 5	RD Note 5	HD Note 5	RD Note 5			
$\phi 12$	15	5	3	10 ± 0.1	6	31	0	2.5	4.5	1	-	-	7.5	4			
$\phi 16$	19	5	3	14 ± 0.1	6	37	0	2	4.5	0.5	-	-	7.5	3.5			
$\phi 20$	26	6	4	17 ± 0.1	8	46	3	6.5	1.5	5	-	-	4.5	8			
$\phi 25$	30	6	5	22 ± 0.1	8	50	3 (8.5)	9.5 (14)	1.5 (8.5)	8 (14)	-	-	4.5	11			
$\phi 32$	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)			
$\phi 40$	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)			
$\phi 50$	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)			
$\phi 63$	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)			
$\phi 80$	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)			
$\phi 100$	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)			

Note 1: When calculating A + and B + stroke dimensions for the intermediate stroke, do not set the intermediate stroke in the stroke. Instead, set the next larger standard stroke. Example: If the intermediate stroke is 7 mm, calculate including standard stroke 10 mm.

Note 2: HD and RD dimensions for the 5 stroke will differ from these due to manufacturing.

Note 3: The port size is M5 for the $\phi 32$ 5 stroke with no switch.

Note 4: Dimensions in () of C and D columns are values for the 5 stroke with no switch.

Note 5: Dimensions in () of A, B, HD, and RD columns are values for 75 and 100 strokes.

Note 6: Dimensions in () of A and B columns are values for 2-color indicator and preventive maintenance output with switch (L1).

Note 7: Dimensions □

How to order mounting bolt

How to order

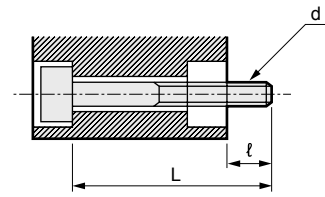
SSD - BOLT - d X L Refer to the following table for "d" and "L".

Note: This product comes with 4 bolts as a set, however it requires just 2 bolts.

eg.) SSD-BOLT-M5X65 for SSG-L-32D-30

Port size	ℓ	d	L		
			50 stroke or less		75,100
			Without switch	With switch	Stroke length
ø12, 16	6.5	M3	20 + stroke length	25 + stroke length (Note 1)	
ø20	6	M5	20 + stroke length	25 + stroke length	
ø25	8	M5	25 + stroke length	35 + stroke length	
ø32	7.5	M5	25 + stroke length	35 + stroke length	35 + stroke length
ø40	6	M5	30 + stroke length	40 + stroke length	40 + stroke length
ø50	11	M6	35 + stroke length	45 + stroke length	45 + stroke length
ø63	13	M8	40 + stroke length	50 + stroke length	50 + stroke length
ø80	17.5	M10	50 + stroke length	60 + stroke length	60 + stroke length
ø100	18	M10	60 + stroke length	70 + stroke length	70 + stroke length

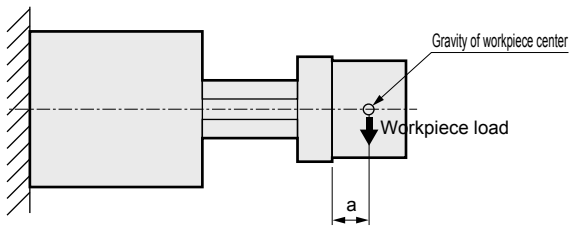
Note 1: The value is "30 + stroke length" for SSG-L1.



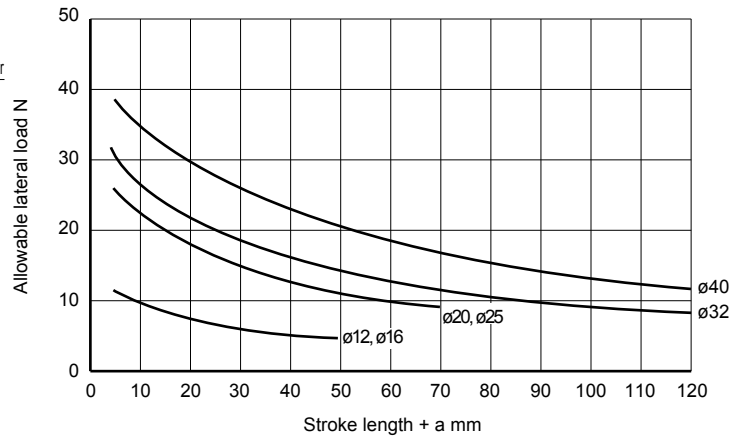
Material: Steel
Treatment: blackening

d: mounting bolt screw diameter
L: mounting bolt length
ℓ: counterpart possible screw-in length
(Note) Mounting bolt is shown with d X L.

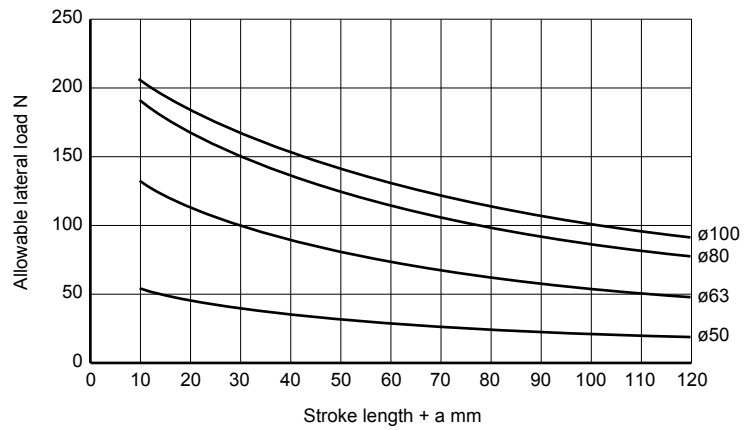
Allowable lateral load



ø12 to ø40

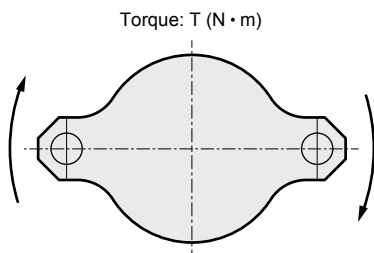


ø50 to ø100



Allowable lateral load is when load is applied to the end plate edge.
If the center of gravity of the workpiece installed on the end plate separates, calculate the separated distance as the stroke.

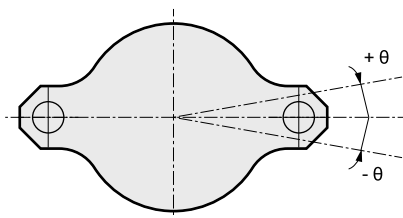
Allowable torque



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

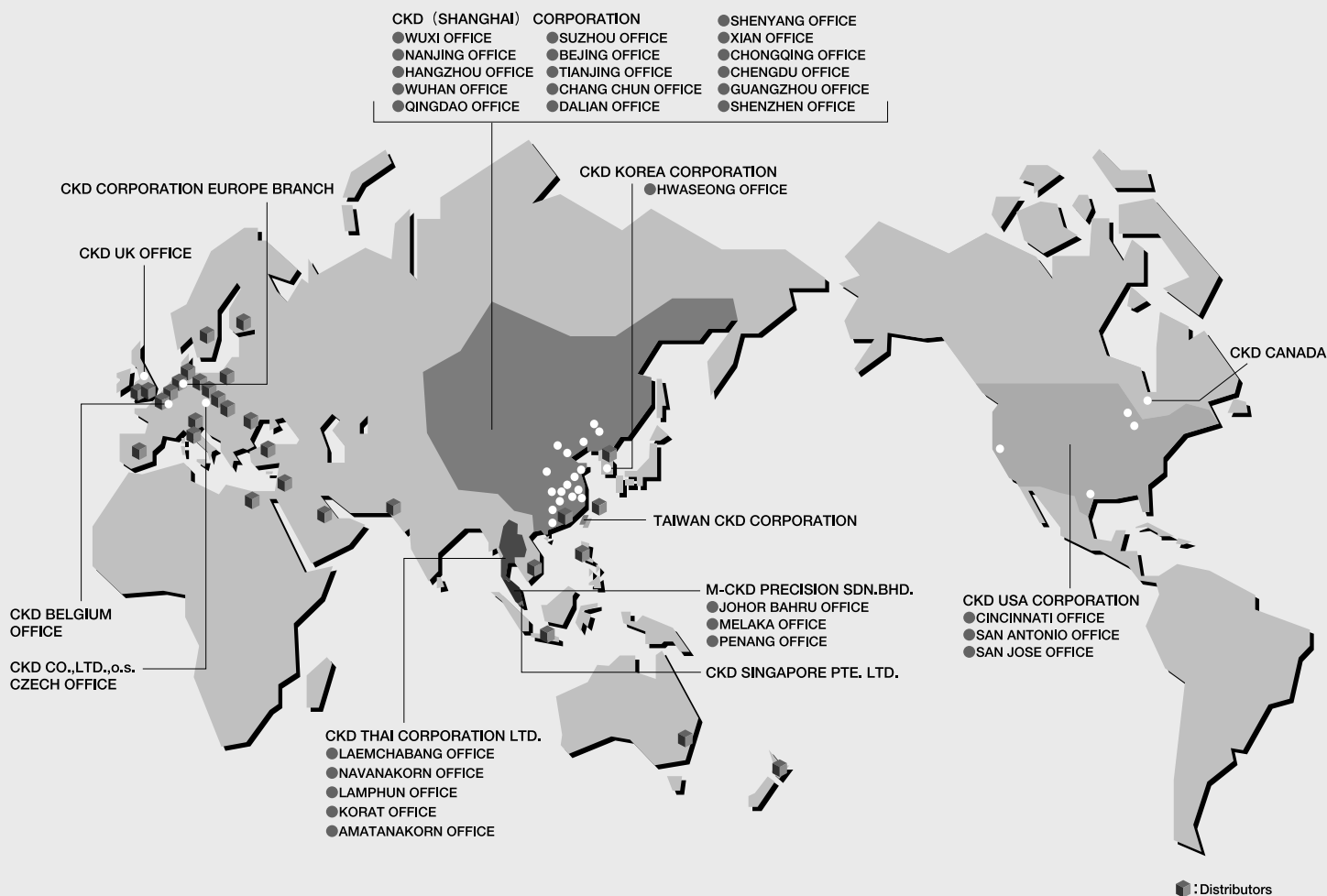
Revolvable angle tolerance (Reference value)



Bore size (mm)	Revolvable angle tolerance θ (°)
ø12, 16	±0.2
ø20, 25, 32, 40	±0.1
ø50, 63, 80, 100	±0.08

(PULL for default)

Note: Excluding deflection of guide rod



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