

Guided compact cylinder SSG Series


GUIDED COMPACT CYLINDER SSG SERIES



Eliminate bothersome design and assembly by directly installing on a load!
 The SSG Series providing the super compact cylinder SSD series with a guide rod and plate.



■ SSG series products table

| Series variation | Bore size | Standard stroke length (mm) | | | | | | | | | | | | |
|---|-----------|-----------------------------|----|----|----|----|----|----|----|----|----|----|-----|--|
| | | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 75 | 100 | |
| Double acting single rod type SSG  | ø12 | | | | | | | | | | | | | |
| | ø16 | | | | | | | | | | | | | |
| | ø20 | | | | | | | | | | | | | |
| | ø25 | | | | | | | | | | | | | |
| | ø32 | | | | | | | | | | | | | |
| | ø40 | | | | | | | | | | | | | |
| | ø50 | | | | | | | | | | | | | |
| | ø63 | | | | | | | | | | | | | |
| | ø80 | | | | | | | | | | | | | |
| | ø100 | | | | | | | | | | | | | |



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.



Pneumatic components

Safety precautions

Always read this section before starting use.

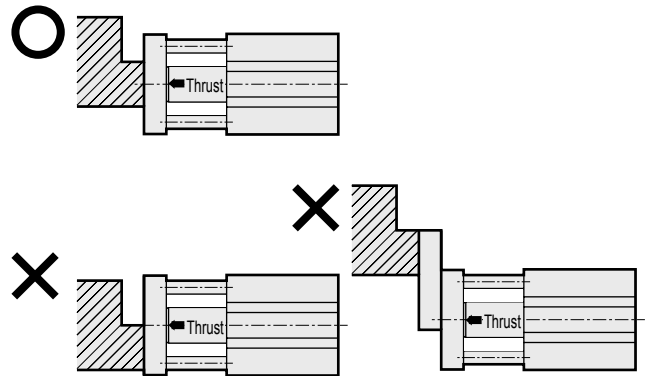
Refer to Pneumatic Cylinders (CB-029SA) for details on general cylinders and cylinder switches.

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.

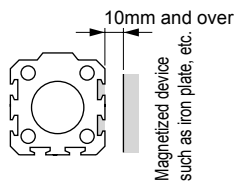
- When using this with the cylinder pushed in the middle of the stroke, check that thrust is applied to the end plate axial to the piston rod.
When pushing in the middle of the stroke with a clamp, etc., thrust will be applied to the end plate and the part pushed eccentrically may be damaged. Use at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



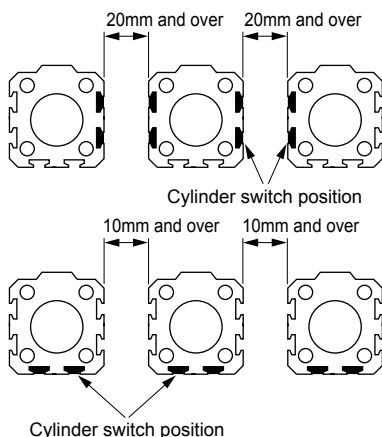
Installation & Adjustment

CAUTION

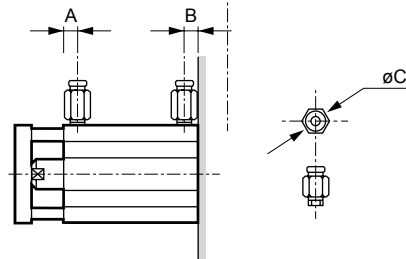
- The cylinder switch may malfunction if a magnetized device, such as a steel plate, is near the cylinder switch. Separate from the magnetized device by at least 10 mm from the cylinder surface. (Same for all bore sizes.)



- 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 | | 11 | 6 | GWL4-M5 | | |
| ø25 | | | | 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.

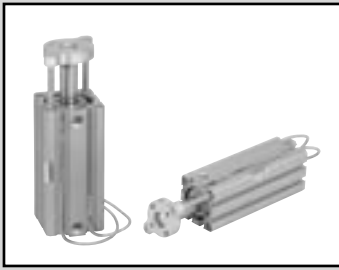
■ Allowable energy absorption

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.

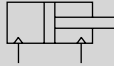


Guided compact cylinder double acting single rod type

SSG Series

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

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 | | | | | | | | | | |
| 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 | 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 | |

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

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 |
| $\phi 16$ | | | |
| $\phi 20$ | 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 | 50 | |
| $\phi 25$ | | | |
| $\phi 32$ | | | |
| $\phi 40$ | 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100 | 100 | |
| $\phi 50$ | | | |
| $\phi 63$ | | | |
| $\phi 80$ | | | |
| $\phi 100$ | 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 |
|----------------|--------------|--------------|
| $\phi 12$ | 10 | 5 |
| $\phi 16$ | | |
| $\phi 20$ | | |
| $\phi 25$ | | |
| $\phi 32$ | | |
| $\phi 40$ | | |
| $\phi 50$ | | |
| $\phi 63$ | | |
| $\phi 80$ | | |
| $\phi 100$ | | |

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) | | | | | | | | |
| | Preventive maintenance output | | | | Yellow LED (ON lighting) | | | | |
| Output section | Power voltage | - | | 10 to 28 VDC | | - | | 10 to 28 VDC | |
| | Load voltage | 10 to 30 VDC | | 30 VDC or less | | 10 to 30 VDC | | 30 VDC or less | |
| | Load current | 5 to 20mA | | 50mA or less | | 5 to 20mA | | 50mA or less | |
| | Leakage current | 1mA or less | | 10µA or less | | 1.2mA or less | | 10µA or less | |
| Preventive maintenance output | Load voltage | 30 VDC or less | | | | | | | |
| | Load current | 20mA or less | | 50mA or less | | 5 to 20mA or less | | 50mA 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* | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| T3H* | T3V* | | | 3 wire | 1 color indicator type (PNP output) (custom order) | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| T3PH* | T3PV* | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| T2YH* | T2YV* | Proximity | 2 color indicator type | 2 wire | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| T3YH* | T3YV* | | | 3 wire | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| T2YFH* | T2YFV* | Proximity | 2 color indicator type (w/o light for preventive maintenance output) | 3 wire | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| T3YFH* | T3YFV* | | | 4 wire | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| T2YMH* | T2YMV* | Proximity | 2 color indicator type (w/o light for preventive maintenance output (1 color)) | 3 wire | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| T3YMH* | T3YMV* | | | 4 wire | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| T2YD* | - | Proximity | Strong magnetic field proof switch | 2 wire | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| T2YDT* | - | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |
| T2JH* | T2JV* | Proximity | Off-delay type | 2 wire | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | |

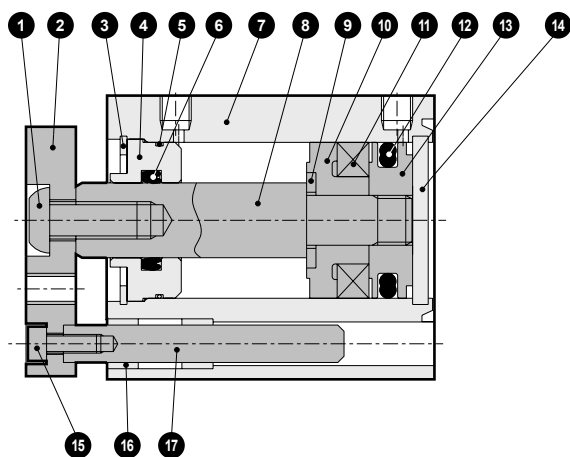
| * Lead wire length | |
|---------------------------|--|
| Blank | 1 m (standard) |
| 3 | 3 m (option) |
| 5 | 5 m (option) * Only for T type switch. F type switch can be set to 1 or 3 m. |

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

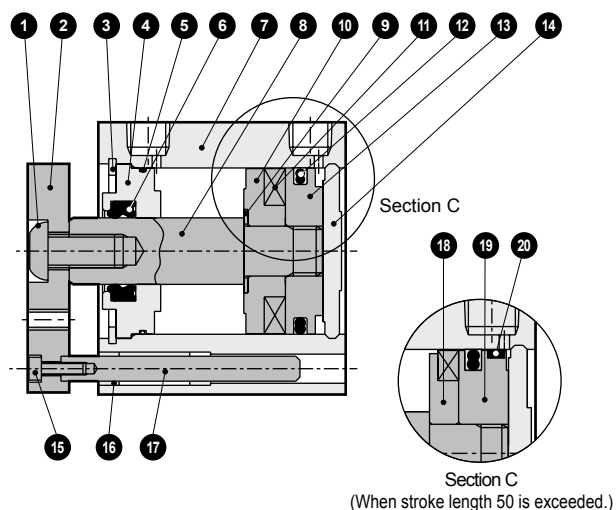
Ⓕ Switch quantity

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

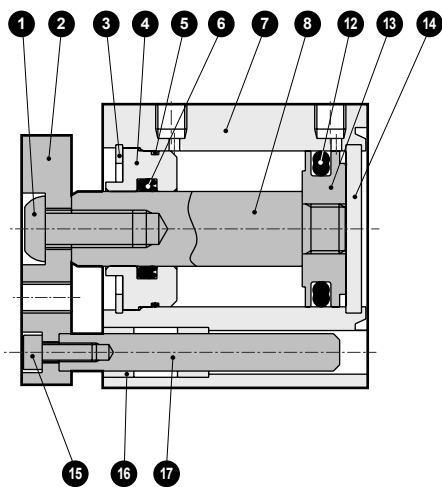
● SSG-L-12 to 15 (double acting, with switch)



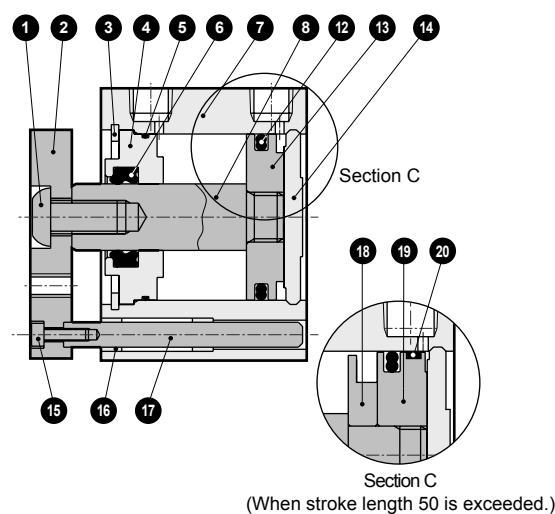
● SSG-L-32 to 50 (double acting, with switch)



● SSG-12 to 25 (double acting)



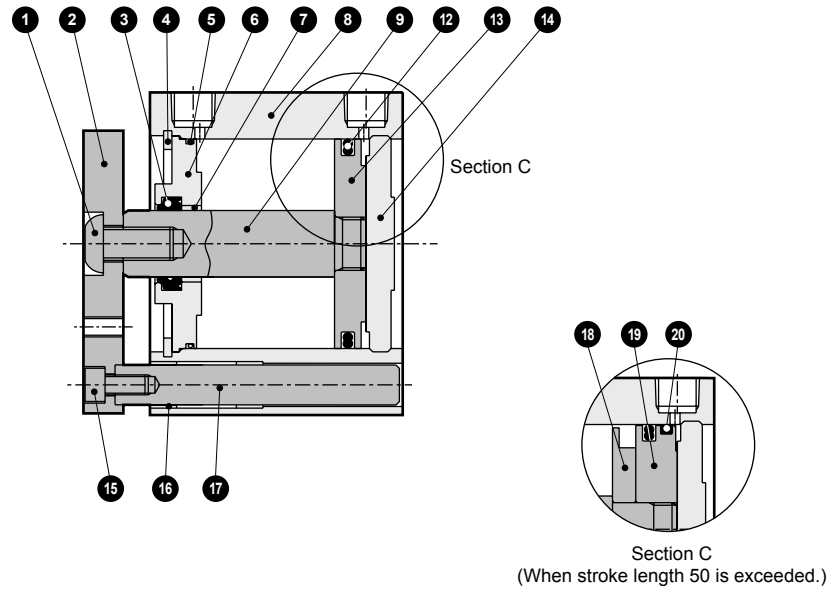
● SSG-32 to 50 (double acting)



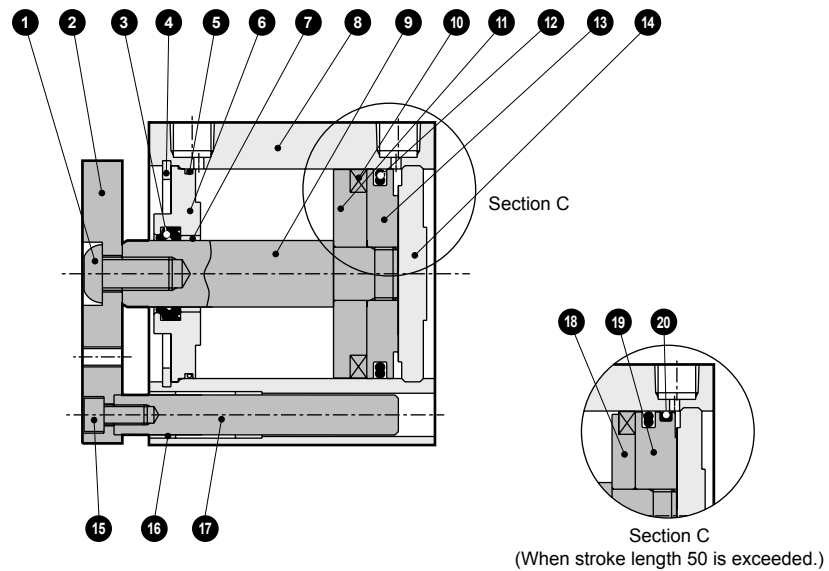
| No. | Parts name | Material | Remarks | No. | Parts name | Material | Remarks |
|-----|---|------------------------------|--------------------------------------|-----|--------------------------|-------------------------------|---------------------------------------|
| 1 | Hexagon socket head bolt (ø12) | 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)



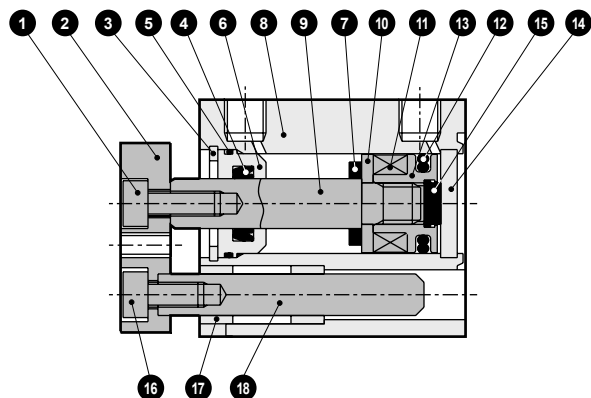
● SSG-63 to 100 (double acting)



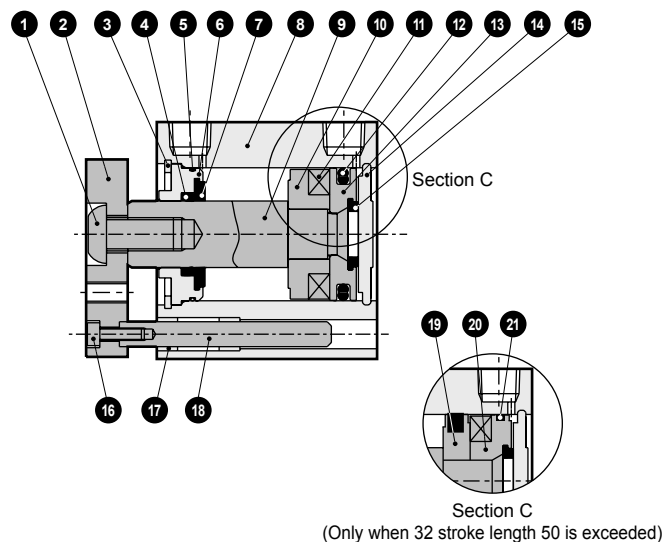
| No. | Parts name | Material | Remarks | No. | Parts name | Material | Remarks |
|-----|---------------------------------|----------------|---------------------------|-----|--------------------------|-------------------------------|---------------------------|
| 1 | Hexagon socket head button bolt | 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)

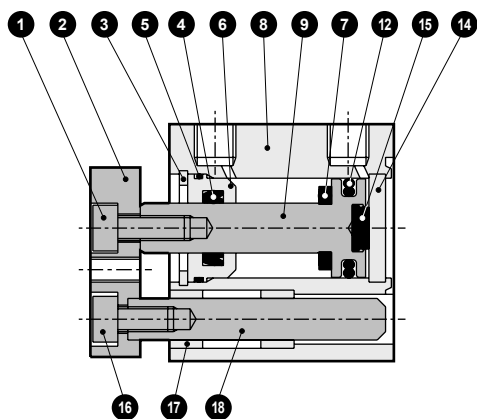
● SSG-L-12D (double acting, with switch)



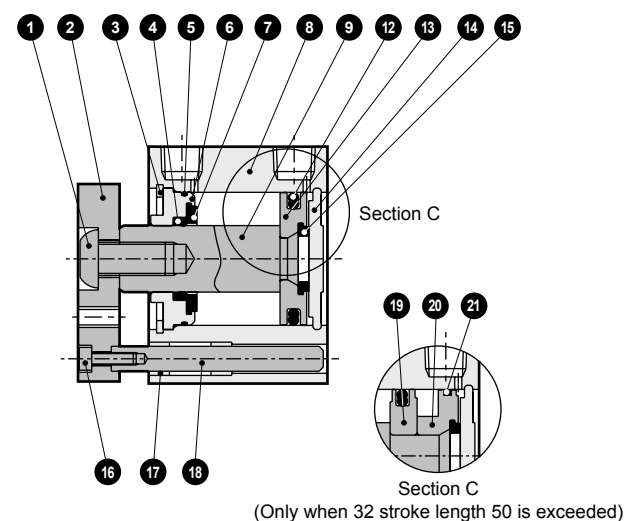
● SSG-L-16D to 32D (double acting, with switch)



● SSG-12D (double acting)



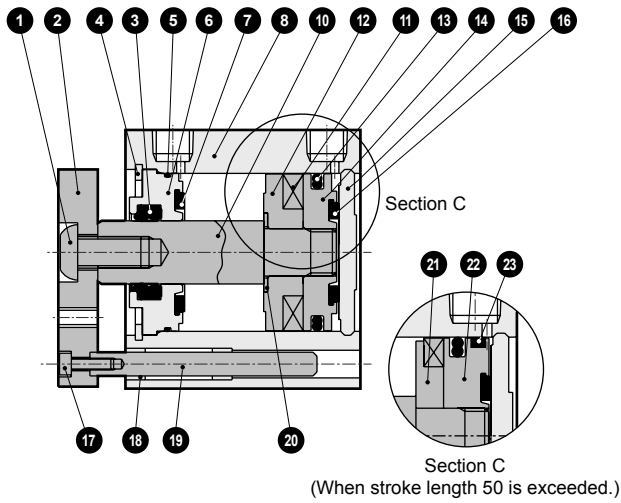
● SSG-16D to 32D (double acting)



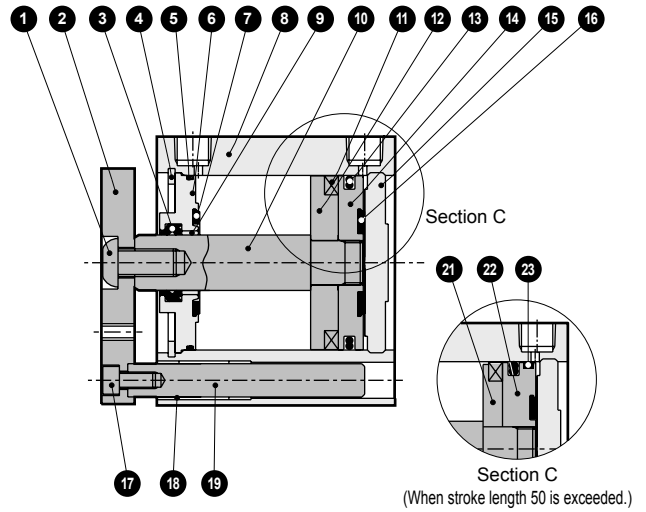
| No. | Parts name | Material | Remarks | No. | Parts name | Material | Remarks |
|-----|--|-----------------------------|---------------------------|-----|--------------------------|-------------------------------|--|
| 1 | Hexagon socket head bolt (ø12) | Alloy steel | Zinc chromate | 11 | Magnet | 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 | 20 | | Piston | Aluminum alloy |
| 10 | Spacer | Stainless steel (ø12) | | 21 | Wear ring | Acetar resin | |
| | | Aluminum alloy (ø16 to ø32) | | | | | |

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

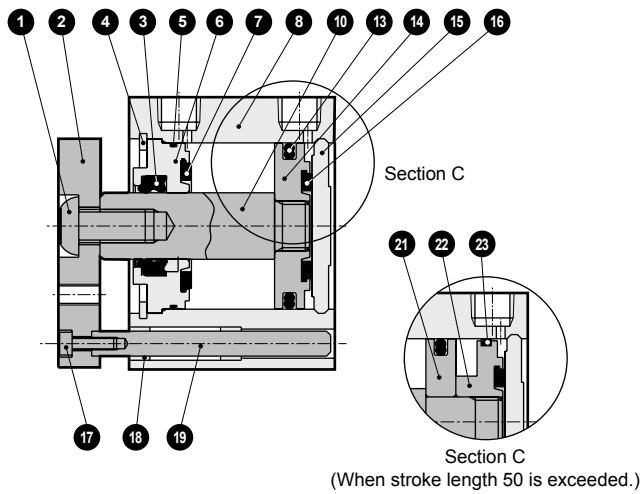
● SSG-L-40D and 50D (double acting, with switch)



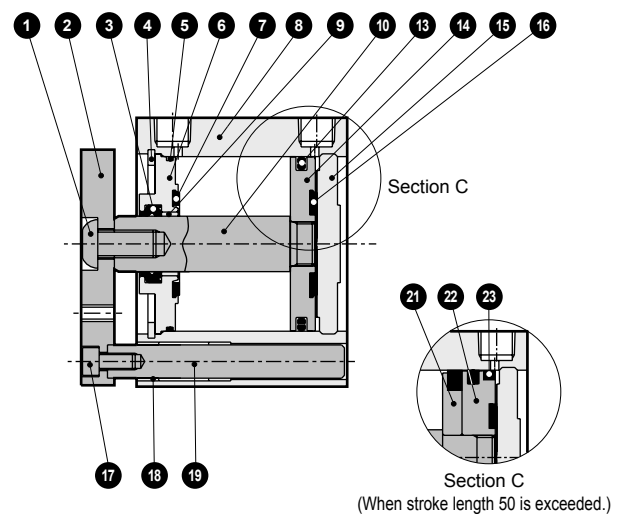
● SSG-L-63D to 100D (double acting, with switch)



● SSG-40D and 50D (double acting)

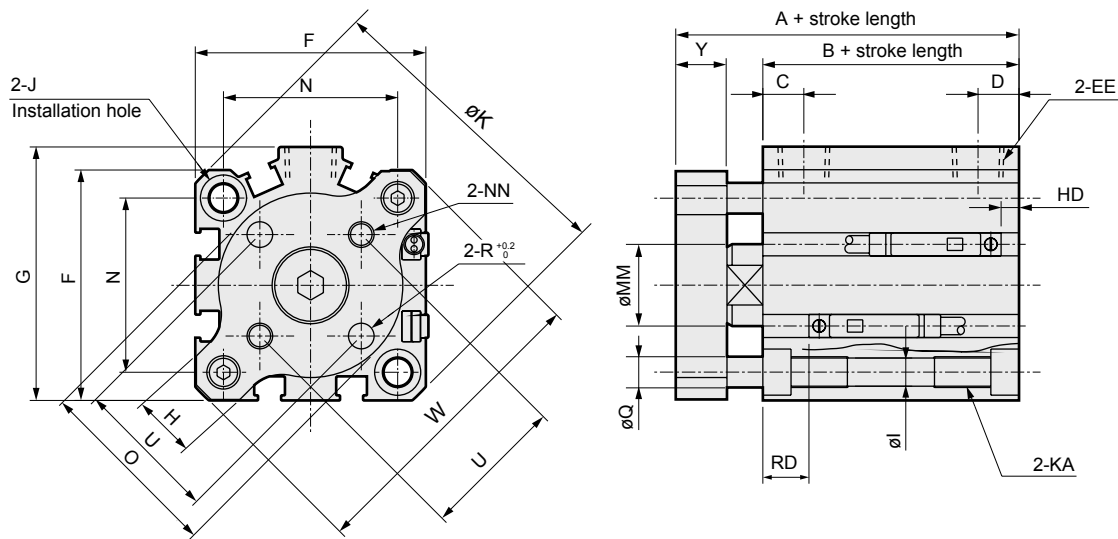


● SSG-63D to 100D (double acting)



| 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

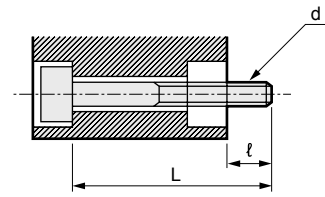
SSD - BOLT - d X L Refer to the following table for "d" and "L".

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 |

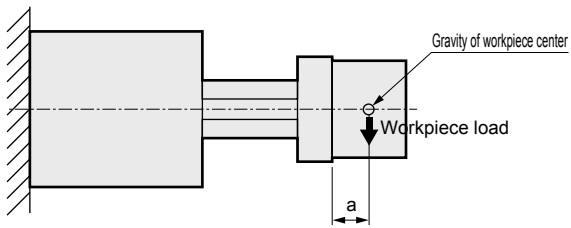
Note 1: The value is "30 + stroke length" for SSG-L1.



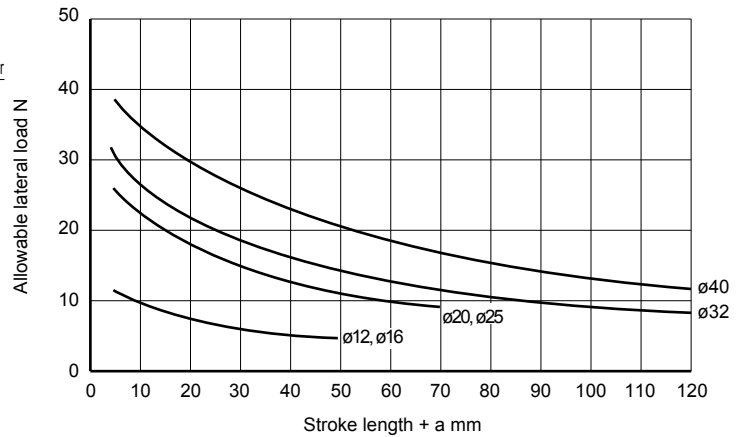
Material: Steel
Treatment: blackening

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

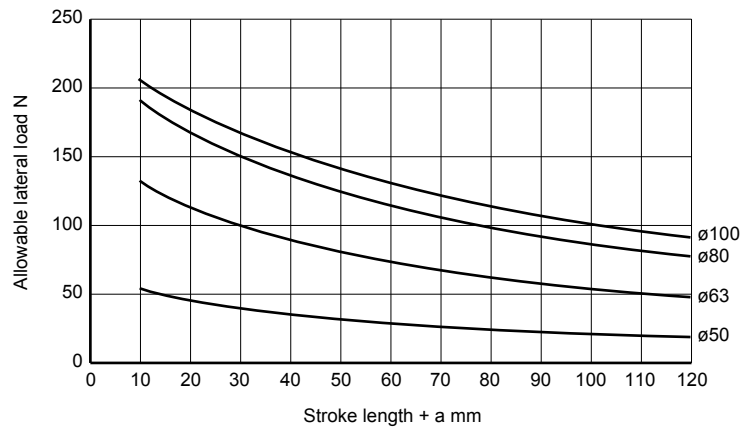
Allowable lateral load



ø12 to ø40

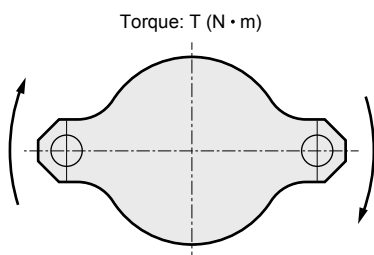


ø50 to ø100



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.

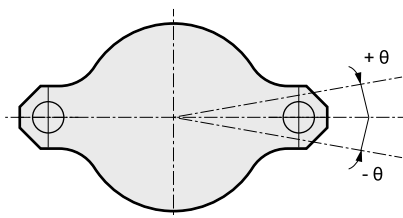
Allowable torque



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 |

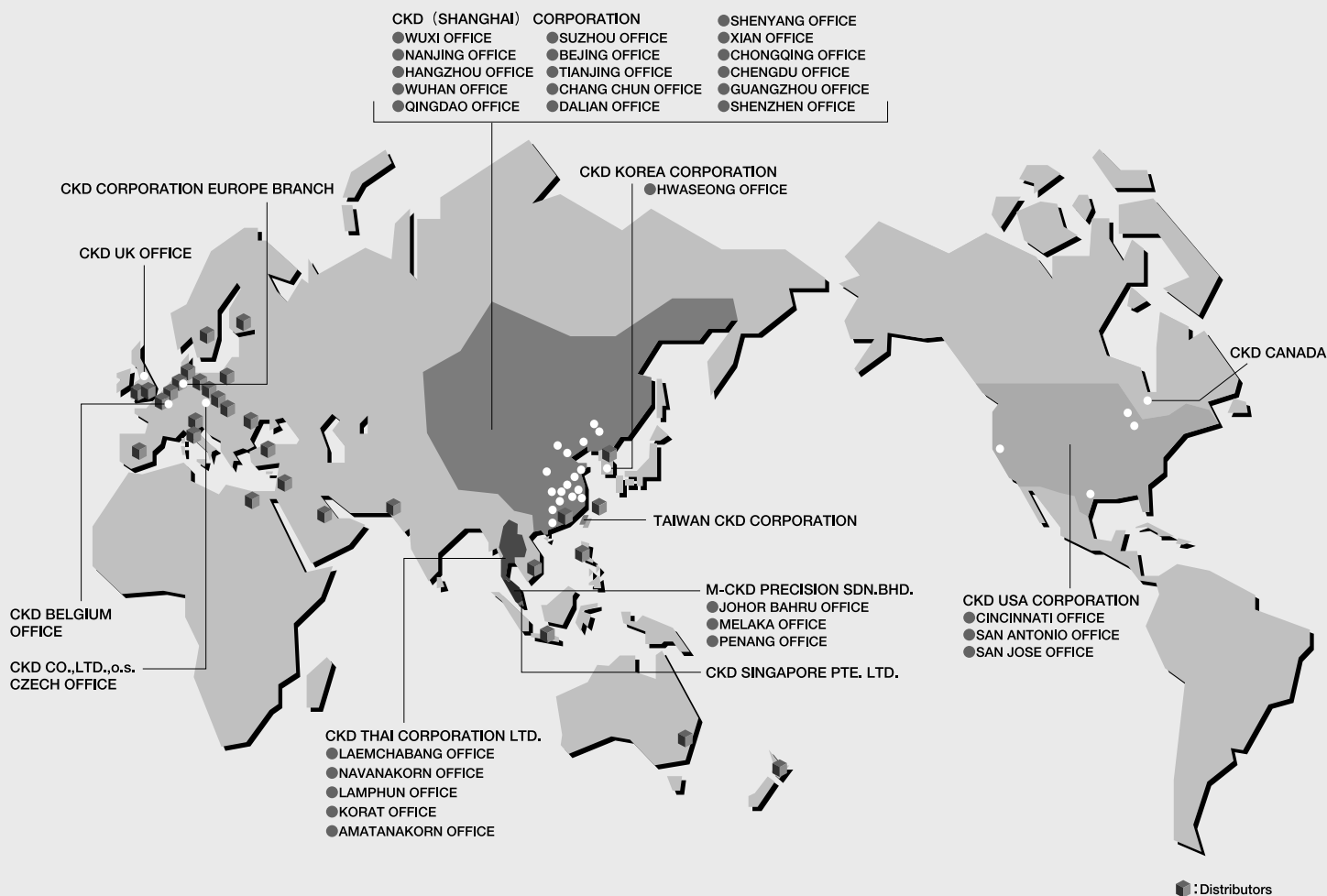
Revolvable angle tolerance (Reference value)



| 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



CKD Corporation

- OVERSEAS DPT. SALES DIV. 2-250 Uji Komaki, Aichi 485-8551, Japan
- PHONE +81-(0)568-74-1338 FAX +81-(0)568-77-3461

U.S.A

CKD USA CORPORATION

● HEADQUARTERS

4080 Winnetka Avenue, Rolling Meadows, IL 60008 USA
PHONE +1-847-368-0539 FAX +1-847-788-0575

EUROPE

CKD EUROPE BRANCH

De Fruittuinen 28 Hoofddorp 2132NZ The Netherlands
PHONE +31-(0)23-5541490 FAX +31-(0)23-5541491

Malaysia

M-CKD PRECISION SDN.BHD.

● HEADQUARTERS

Lot No.6,Jalan Modal 23/2, Seksyen 23, Kawasan, MIEL,
Fasa 8, 40300 Shah Alam,Selangor Darul Ehsan, Malaysia
PHONE +60-(0) 3-5541-1468 FAX +60-(0)3-5541-1533

Thailand

CKD THAI CORPORATION LTD.

● SALES HEADQUARTERS-BANGKOK OFFICE

Suwan Tower, 14/1 Soi Saladaeng 1, North Sathorn Rd.,
Bangrak, Bangkok 10500 Thailand
PHONE +66-(0)2-267-6300 FAX +66-(0)2-267-6305

Singapore

CKD SINGAPORE PTE LTD.

705 Sims Drive #03-01/02, Shun Li Industrial Complex,
387384 Singapore
PHONE +65-6744-2623 FAX +65-6744-2486

Taiwan

TAIWAN CKD CORPORATION

1F., No.16, Wucyuan 5th Rd., Wugu Township, Taipei
Country 248, Taiwan (R.O.C)
PHONE +886-(0)2-2298-2866 FAX +886-(0)2-2298-0322

Website <http://www.ckd.co.jp/>

China

CKD (SHANGHAI) CORPORATION

● SALES HEADQUARTERS / SHANGHAI OFFICE

Room 1903, 333 Jiujiang Road, Shanghai, 200001,
China
PHONE +86-(0)21-63602277 FAX +86-(0)21-63511661

Korea

CKD KOREA CORPORATION

Room No.1105, 11th FL, The Korea Teachers
Pention B/L. 27-2, Yoido-Dong, Youngdeungpo-Gu,
Seoul, 150-742, Korea
PHONE +82-(0)2-783-5201~5203 FAX +82-(0)2-783-5204

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