

Succeeding the outstanding DNA of the JSC3.

SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

The JSC3 Series brake mechanism popular for its high stopping accuracy, powerful holding force and superb reliability have been incorporated into the new environmentally friendly cylinder SCG Series. This new tie-rod type JSG cylinder with brakes has been freed of harmful substances and is compliant with RoHS Directives. (ϕ 40 to ϕ 100)

Reliable and accomplished brake mechanism

The same mechanism as the popular JSC3 Series has been adopted for the brake section to ensure a reliable durability.



Powerful rod holding force

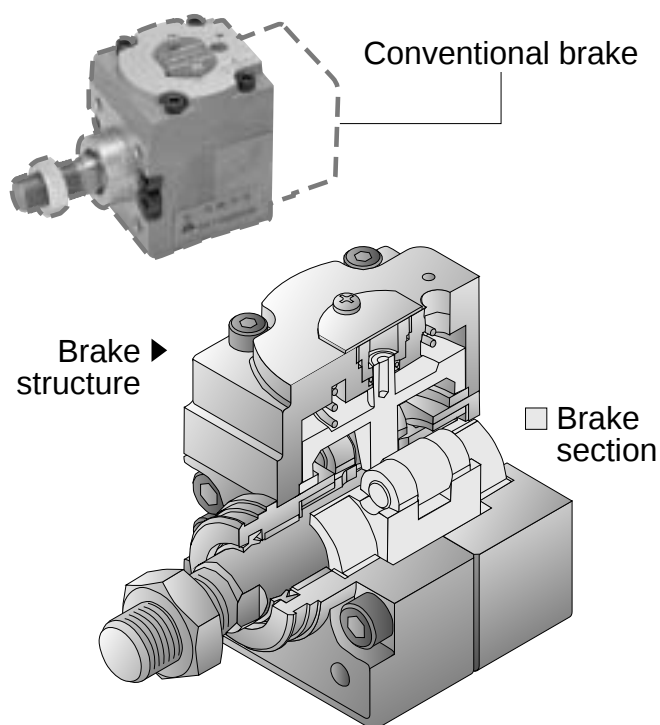
Our original lock mechanism has a rod holding force approximately double the thrust (at working pressure 0.4MPa). The brake stopping accuracy is also high at $\pm 1\text{mm}$ (300mm/s at no load).

Evolving into a smaller,
easier-to-use cylinder.

JSGseries
Tie-rod cylinder with brakes



● Compact and reliable brake section

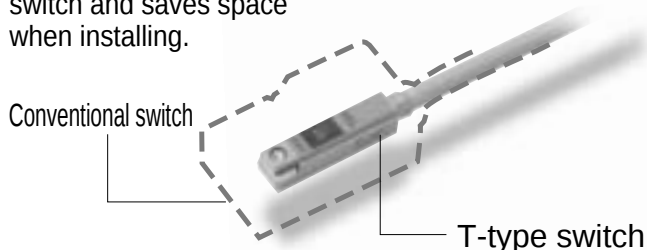


● Light weight

The weight has been reduced an average 17% compared to the conventional cylinder.

● Built-in compact switch

A T-type switch, smaller than the conventional type, has been incorporated. This eliminates the protruding switch and saves space when installing.



■ JSG Series products

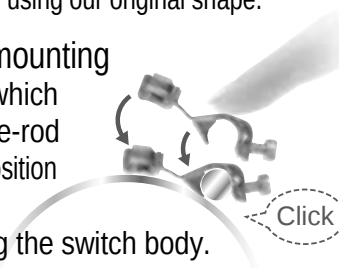
Series variation			Bore size					Stroke length (mm)
			φ40	φ50	φ63	φ80	φ100	25~500
Standard type	JSG		●	●	●	●	●	●
With valve for brake release	JSG-V		●	●	●	●	●	●

● New switch mounting method

The switch can be easily and smoothly fixed with the switch fitting using our original shape.

(1) Easy switch mounting

The mechanism which sandwiches the tie-rod allows the switch position to be adjusted without supporting the switch body.



(2) Complete fixing with screw

Fixing is completed by adjusting the switch position and then tightening the screw.



The T-type switch in the rail can be finely adjusted.

● Ecological products

All substances which could adversely affect the environment, including lead and hexavalent chrome, have been eliminated from the cylinder body and cylinder switch.

This product complies with the RoHS Directive issued by the EU.

RoHS

● Magnet provided as standard

Switches can be additionally mounted on all products.

● Space saving

The overall length of the cylinder has been shortened compared to the conventional JSC3 thereby reducing the installation space.

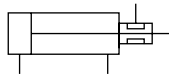
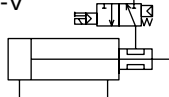
● Uniform white color

White has been adopted for the product surface color to match various devices.

SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Tie rod cylinder with brake
With brake

● : Standard, ◎ : Option, ○ : Custom order, ■ : Not available

Variation	Model no. JIS symbol	Bore size (mm)	Standard stroke length (mm)												Min. stroke length (mm)		Max. stroke length (mm)	Available stroke length (mm)	Custom stroke length (mm)	Mounting style									Cushion		Option		Accessory						Switch	Page															
																				Basic type	Axial foot type	Rod end flange type	Head end flange type	Eye bracket type	Clevis bracket type	Rod end trunnion type	Head end trunnion type	Center trunnion type	Both sides air cushioned	Both sides rubber cushioned	Bellows (60 °C)	Piston rod material stainless steel	Rod eye	Rod clevis	Eye bracket	Clevis bracket	Eye bracket	Trunnion type No. 2 bracket																	
			00	LB	FA	FB	CA	CB	TA	TB	TC	B	D	J																											M	I	Y	B1	B2	B3	B4								
Double acting single rod type	JSG 	φ 40												1		600	800	1	●	●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	1266																		
		φ 50, φ 63	●	●	●	●	●	●	●	●	●	●	●	●		●	●																					●	●	●	●	●													
		φ 80																																																					
		φ 100																																																					
Double acting, with valve for brake release	JSG-V 	φ 40												1		600	800	1	●	●	●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	1266																		
		φ 50, φ 63	●	●	●	●	●	●	●	●	●	●	●	●		●	●																					●	●	●	●	●													
		φ 80																																																					
		φ 100																																																					



Pneumatic components

Safety precautions

Always read this section before starting use.

Refer to Intro 71 for general precautions of the cylinder, and to Intro 78 for general precautions of the cylinder switch.

Tie rod type with brake JSG Series

Design & Selection

WARNING

■ Structure so that nothing directly touches the driven object or movable sections of the cylinder with brakes. Provide a protective cover so that no human-body directly touches the unit. If parts contact is possible, provide safety measures by placing a sensor to stop the cylinder or sound a warning to report danger.

■ Use a balance circuit considering piston rod protrusion.

When activating brakes at any position in the stroke, if pneumatic pressure is applied to only one side of the cylinder, the piston protrudes at high speed when brakes are released. This involves risk to personnel and equipment. Use a balance circuit, such as the recommended pneumatic pressure circuit, to prevent protrusion.

This cylinder has oil-free specifications. Do not lubricate this cylinder. Otherwise braking faults may occur. Brake malfunction is caused.

■ Holding force (max. static load) refers to performance to hold a static load without vibration or impact when brakes are activated in a no-load state.

Take care when constantly using near the upper limit of the holding force.

■ During braking, kinetic energy is large and the braking distance is long. Thus, avoid using when brakes may be applied at the stroke end.

Even if a cushion is provided, the back pressure is released and the cushions may not function.

If kinetic energy is large, overrun distance increases and stopping accuracy drops.

■ Do not apply loads with impact, strong vibration, or torque while brakes are activated.

If a load with impact, strong vibration, or torque is applied externally, holding force drops.

■ Consider the stoppage accuracy and the overrun length during the braking.

A mechanical lock is applied, so the cylinder does not stop instantly when the stop signal is issued, but stops with a time-wise delay. The stroke at which the cylinder slides due to this delay is the overrun distance. Maximum and minimum width of overrun distance is the stoppage accuracy.

● To achieve the required stop position, move the limit switch forward by the overrun distance.

● The limit switch must have a detection length (dog length) equivalent to the overrun distance + α .

● When using the CKD cylinder switch, the working range is 7 to 16 mm, depending on the switch. If overrun distance exceeds this, provide self-holding of the contact at the switch load.

■ To improve stopping accuracy, minimize the time from stop signal output to brake stoppage.

Use a high response DC control electricity circuit or solenoid valve, and set the solenoid valve as close to the cylinder as possible.

■ Stopping accuracy is affected by changes in piston speed.

If piston speed changes due to load fluctuation or disturbance during cylinder reciprocation, stop position dispersion increases. Take measures to keep piston speed constant just before the stop position. Speed changes are large during the acceleration range, compared to during the cushion stroke and when starting operation, so dispersion in the stop position increases.

WARNING

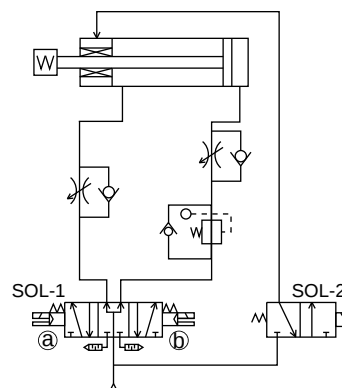
■ Basic circuit

When using this cylinder for position locking or emergency stop, use the circuits below. The 2-position valve cannot be used since cylinder thrust is also applied to brakes when stopped. Balance thrust and load with the circuit below. Brakes may not be released when load is applied to brakes.

● For horizontal load

If piping is as shown in Fig. 1, equalizing pressure is applied to both ends of the piston when stopped to prevent the rod from protruding when brakes are released. Place a regulator with a check valve on the head to balance thrust.

Fig. 1



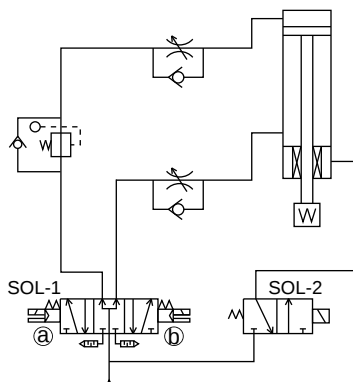
① SOL-1 ②		SOL-2	Operational status
OFF	OFF	OFF	Stop
ON	OFF	ON	Return
OFF	ON	ON	Advance

Design & Selection

● For downward vertical load

If load faces downward as shown in Fig. 2, the rod malfunctions in the load direction when brakes are released. Place a regulator with a check valve on the head to reduce thrust in the load direction and balance the load.

Fig. 2

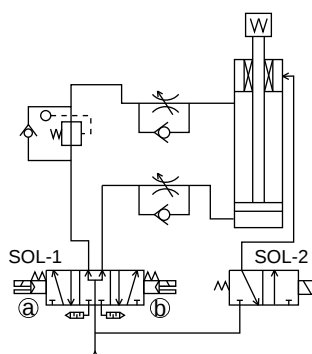


① SOL-1	②	SOL-2	Operational status
OFF	OFF	OFF	Stop
ON	OFF	ON	Down
OFF	ON	ON	Up

● For upward vertical load

If the load faces upward as shown in Fig. 3, the rod malfunctions in the load direction when brakes are released. Place a regulator with a check valve on the rod to reduce thrust in the load direction and balance the load.

Fig. 3



① SOL-1	②	SOL-2	Operational status
OFF	OFF	OFF	Stop
ON	OFF	ON	Down
OFF	ON	ON	Up

⚠ CAUTION

■ Install a flow control valve on the cylinder.

Install a flow control valve on the cylinder.

Use within the piston speed range of each series.

■ Stoppage accuracy

● Stop pitch and load factor

Stopping accuracy differs with stop pitch and load ratio.

The load ratio below is recommended for achieving specified stopping accuracy.

Stop pitch	Load ratio
	JSG
50mm or less	20 % of thrust
50mm to 100mm	40 % of thrust
100mm and over	60 % of thrust

● Solenoid valve for brake selection

Stoppage accuracy and overrun length changes depending on the responsiveness of the solenoid valve for brake. Refer to the JSG-V brake valve electric specifications and select from the CKD pneumatic valve 4KB2 Series. Couple the valve directly to the brake port to improve stopping accuracy.

● Using PC (PLC)

If a PLC is used as the electric control unit for the solenoid valve for brakes, the stopping accuracy will drop because of the scan time (operation process time). When using a PLC, do not assemble the solenoid valve for brake into the PLC circuit.

■ Do not apply the large load when brake stopping. Stop position may change.

SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Tie rod cylinder with brake
With brake

CAUTION

■ Either the rubber cushion type or air cushion type cushion mechanism is assembled into the cylinder. The purpose of the air cushion is to absorb the kinetic energy that the piston has by using the air's compressibility, and prevent the piston and cover from colliding at the stroke end. Thus, the cushion is not used to decelerate the piston near the stroke end. The following table shows the kinetic energy that can be absorbed by the cushion. If the kinetic energy exceeds these values, or if bouncing caused by the air compressibility is to be avoided, consider using another cushioning unit.

Bore size (mm)	Rubber cushion	Air cushion	
	Allowable energy absorption J	Valid cushion length (mm)	Allowable energy absorption J
φ40	0.9	8.6	3.7
φ50	1.6	13.4	8.0
φ63	1.6	13.4	14.4
φ80	3.3	15.4	25.4
φ100	5.8	15.4	45.6

Kinetic energy (J) =

$$\frac{1}{2} \times \text{weight (kg)} \times \{\text{speed (m/s)}\}^2$$

(Note) Calculating of kinetic energy

Cylinder average speed is obtained with $V_a = \frac{L}{T}$.

V_a : Average speed (m/s)

L : Cylinder stroke (m)

T : Operation time (s)

In respect to this, the cylinder speed just before entering the cushion can be obtained with the following simple expression.

$$V_m = \frac{L}{T} \times (1 + 1.5 \times \frac{\omega}{100})$$

V_m : Speed just before rush-into the cushion (m/s)

ω : Cylinder load ratio (%)

Use this V_m value as speed to calculate kinetic energy.

Installation & Adjustment

WARNING

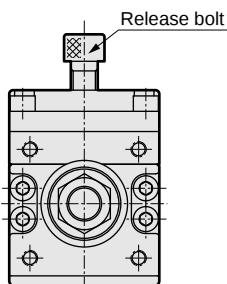
■ Release brakes before coupling the load to the end of the rod.

If coupled while brakes are applied, torque or load exceeding holding force may be applied to the piston rod and damage the brake mechanism.

■ If brakes are released when air is pressurized on only one side of the cylinder, the piston may protrude at high speed, causing a hazard. Observe the points below when releasing brakes for adjustment, etc.

- Check that no one is in the movable range of the load and that no problem arises if the load moves when brakes are released.
- Take the following measures to prevent the load from dropping when brakes are released:
 - Set the load at the lowering end.
 - Pressurize both sides.
 - Set a support column.
- Confirm that air is not pressurized on only one side of the cylinder when releasing brakes.

■ Manual brake release method



Note: Method of brake release

- The brakes will be released when a release bolt is screwed into the female threads (brake release port) at the top of the brakes. (Remove the release bolt during normal use.)

Release bolt size

Bore size	Bolt screw diameter	Bolt length		Adequate screw-in volume
		JSG	JSG-V	
φ 40	M12 x 1.75	16 and over	40 and over	3 rotations or less
φ 50	M12 x 1.75	16 and over	40 and over	4 rotations or less
φ 63	M14 x 2	16 and over	40 and over	4 rotations or less
φ 80	M16 x 2	20 and over	40 and over	4.5 rotations or less
φ 100	M18 x 2.5	20 and over	50 and over	5 rotations or less

■ Brakes can be released with manual releasing operations or by applying air pressure to the brake release port. With a load, the load may drop if brakes are left released with either of these operations. Before attaching the load, check that brakes can be applied from the initial state when using manual release or from when air is not applied to the brake release port.

■ Do not apply torque to the rod when brakes are applied because holding force may drop, presenting a hazard. Use a rod that does not rotate.

■ Do not apply brake holding force to the cylinder exceeding that indicated in the catalog.

Installation & Adjustment

⚠ WARNING

- With the JSG Series, the brakes can be manually released by screwing in a hexagon socket bolt into the brake release female thread on the top or side of the brakes. However, the brakes may be damaged if screwed in too far, follow the appropriate screw in amount of the release bolt shown below.

Bore size	No. of bolt rotations
φ 40	3 rotations or less
φ 50	4 rotations or less
φ 63	4 rotations or less
φ 80	4.5 rotations or less
φ 100	5 rotations or less

- If there is any play, such as looseness, in the brake signal dog, stopping accuracy is affected. Securely fix to eliminate play, etc.
- If cylinder speed is fast, the detection dog must be long enough to match relay response time. If the dog is short, the stop signal is not output and operation does not stop.

⚠ CAUTION

- Adjust the cylinder air balance.
With brakes released, place a load on the cylinder and balance the load by adjusting air pressure applied to the cylinder rod and head. Faults such as cylinder protrusion during brake release or improper brake release are prevented by accurately balancing the load.
- Check the installation position of detectors such as the cylinder switch.
When using braking, consider overrun distance for the required stopping position, and adjust the position of detectors such as the cylinder switch.
- Load fluctuation during the cylinder reciprocation stroke leads to changes in the piston speed, which in turn increases dispersion in the stop position. Place and adjust so the load does not change just before stopping in the cylinder reciprocation stroke.
- Speed changes are large during the acceleration range, compared to during the cushion stroke and when starting operation, so dispersion in the stop position increases. Accuracy in specifications may therefore not be attained in step operation with a short stroke from the starting position to the next position.

■ Load to piston rod

Compared to using a general-purpose air cylinder, check that load applied totally to the piston rod is applied in the axial direction. Limit load movement using guides so play or torsion does not occur.

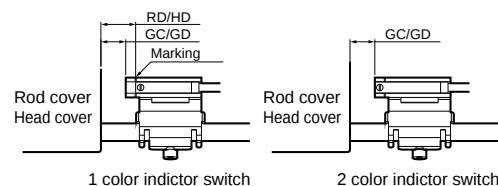
■ Maintenance of rod sliding section

Check that scratches and dents are not made on the piston rod's sliding section. These can result in damage to packing, leaks, or brake faults.

Note for switch installation

■ Assembling the switch bracket

When assembling the cylinder onto the switch bracket, fit the tie rod to be installed into the bracket, and move the switch so that it is at the center of the operation range (ON range). Then, tighten the fixing bolts with a tightening torque of 0.6 to 0.9N·m. The bracket position (GC, GD) and switch positions (RD, HD) at which the max. sensitivity is attained at both stroke ends are shown in the dimension drawings.



■ Shifting the switch position in the stroke direction

The 1 color indicator switch can be finely adjusted ± 3 mm from the default maximum sensitivity installation position. If the adjustment range exceeds 3 mm, or when adjusting the 2 color indicator switch, loosen fixing bolt of switch mounting bracket and move the bracket position.

■ Switch fixing

When using T2, T3, T0, or T5, use a flat-tip screwdriver (screwdriver for clocks, precision screwdriver, etc.) with a 5 to 6 mm grip diameter, with a 2.4 mm or smaller tip, and 0.3 mm thick or less. Tighten with a tightening torque of 0.1 to 0.2 N·m. Tighten T*C, T2J, T2Y, T3Y, T2YF, T3YF, T2YM, or T3YM with a tightening torque of 0.5 to 0.7 N·m. The switch bracket rail has a mark at 4 mm from the rail end. Use this as a guide for the mounting position when replacing the switch.

The switch rail markings are set to the default switch max. sensitivity position. The maxi. sensitivity changes when the switch type is changed or when the band is changed, so adjust the position accordingly.

SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
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SRG
SRM
SRT
MRL2
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CAC3
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Ending

Tie rod cylinder with brake
With brake

During Use & Maintenance

⚠ WARNING

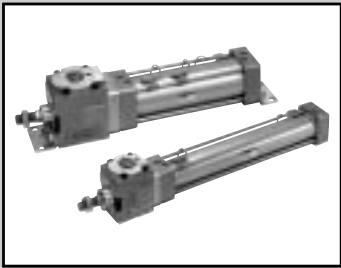
- The brake section can be removed from the cylinder body. Do not disassemble or inspect brakes or hazards may result when brakes are used again.
- The required grease is applied to brakes. Avoid applying extra grease and do not wipe grease off.
- The required grease is applied when brakes are replaced, so there is no need to apply grease to rods.
- To prevent faults, use a dust cover during operation except when manually releasing brakes.

⚠ CAUTION

- If the air supply pipe is thin or long, stoppage accuracy drops.
- Frictional resistance increases and causes the piston speed to change when the cylinder has been stopped for a long time, such as when using first thing in the morning or afternoon. This may impair stoppage accuracy. Conduct break-in operation to obtain stable stoppage accuracy.

SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
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Ending

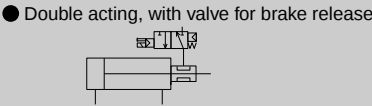
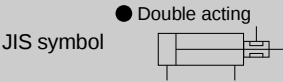
SCP*2
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MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
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SHC
GLC
Ending



Tie rod cylinder with brake Double acting single rod type/Double acting, with valve for brake release

JSG/JSG-V Series

● Bore size: ϕ 40, ϕ 50, ϕ 63, ϕ 80, ϕ 100



Specifications

Descriptions		JSG					JSG-V				
Bore size mm		φ 40	φ 50	φ 63	φ 80	φ 100	φ 40	φ 50	φ 63	φ 80	φ 100
Actuation		Double acting					Double acting with valve				
Working fluid		Compressed air					Compressed air				
Max. working pressure MPa		1.0					0.7				
Min. working pressure MPa		0.3					0.3				
Withstanding pressure MPa		1.6					1.6				
Ambient temperature °C		-10 to 60 (no freezing)					-10 to 60 (no freezing)				
Port size	Brake section	Rc1/8		Rc1/4		Rc3/8	Rc1/8		Rc1/4		
	Cylinder section	Rc1/4		Rc3/8		Rc1/2	Rc1/4		Rc3/8		Rc1/2
Stroke tolerance	Rubber cushioned	$\begin{smallmatrix} +1.4 \\ 0 \end{smallmatrix}$ (To 1000), $\begin{smallmatrix} +1.8 \\ 0 \end{smallmatrix}$ (to 1500)					$\begin{smallmatrix} +1.4 \\ 0 \end{smallmatrix}$ (To 1000), $\begin{smallmatrix} +1.8 \\ 0 \end{smallmatrix}$ (to 1500)				
	mm Air cushioned	$\begin{smallmatrix} +1.0 \\ 0 \end{smallmatrix}$ (to 360), $\begin{smallmatrix} +1.4 \\ 0 \end{smallmatrix}$ (to 1000), $\begin{smallmatrix} +1.8 \\ 0 \end{smallmatrix}$ (to 1500)					$\begin{smallmatrix} +1.0 \\ 0 \end{smallmatrix}$ (to 360), $\begin{smallmatrix} +1.4 \\ 0 \end{smallmatrix}$ (to 1000), $\begin{smallmatrix} +1.8 \\ 0 \end{smallmatrix}$ (to 1500)				
Working piston speed mm/s		50 to 1000 (Use within the allowable energy absorption.)					50 to 1000 (Use within the allowable energy absorption.)				
Cushion		Selection of air cushion and rubber cushion possible					Selection of air cushion and rubber cushion possible				
Effective air cushion length mm		8.6	13.4	13.4	15.4	15.4	8.6	13.4	13.4	15.4	15.4
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32)					Not required (when lubricating, use turbine oil Class 1 ISO VG32)				
Stoppage accuracy mm		± 1 (300mm/s loadless)					± 1 (300mm/s loadless)				
Holding force N		980	1569	2451	3922	6178	980	1569	2451	3922	6178
Allowable energy absorption J	Rubber cushioned	0.9	1.6	1.6	3.3	5.8	0.9	1.6	1.6	3.3	5.8
	Air cushioned	3.7	8.0	14.4	25.4	45.6	3.7	8.0	14.4	25.4	45.6

Valve electric specifications for brake

Descriptions	Specifications		
Rated voltage (V)	100 VAC (50/60Hz)	200 VAC (50/60Hz)	24 VDC
Starting current (A)	0.056/0.044	0.028/0.022	0.075
Holding current (A)	0.028/0.022	0.014/0.011	0.075
Power consumption (W)	1.8/1.4		1.8
Insulation class	Class B (molded coil)		

Note 1: 100/200 VAC coil is available for 110/220 VAC (60Hz).

Note 2: Specifications of valves are the same as the standard products 4KB2. Refer to "Pneumatic Valves (CB-23SA)" for details.
The order model will differ, so contact CKD for more information.

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Available stroke length (mm)	Min. stroke length (mm)
ϕ 40	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	600	800	1
ϕ 50			1200	
ϕ 63		700	1400	
ϕ 80			1500	
ϕ 100		800	1500	

Note 1: Custom stroke length is available per 1mm increment.

Note 2: If the maximum stroke is exceeded, product specifications may not be met, depending on operating conditions. Consult with CKD in this case.

Min. stroke length with switch

● T0/T5 type switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
φ 40	9	18	36	54	9	48 (33)	78 (64)	109 (94)	81 (81)	81 (81)	164 (142)	164 (142)	38	38
φ 50	9	18	36	54	9	18	36	54	112 (112)	112 (112)	121 (121)	121 (121)	51	53
φ 63	10	19	38	57	10	19	38	57	85 (73)	85 (73)	91 (91)	91 (91)	41	42
φ 80	10	20	39	59	10	20	39	59	96 (66)	96 (66)	99 (99)	99 (99)	41	47
φ 100	10	20	40	60	10	20	40	60	101 (71)	101 (71)	105 (105)	105 (105)	47	53

Note 1: Value in () for T*V (Radial lead wire).

Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

● T8 type switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
φ 40	9	18	36	54	9	54 (31)	84 (62)	115 (92)	87 (87)	87 (87)	178 (148)	178 (148)	41	41
φ 50	9	18	36	54	9	18	36	54	116 (116)	116 (116)	121 (121)	121 (121)	54	55
φ 63	10	19	38	57	10	19	38	57	89 (77)	89 (77)	99 (99)	99 (99)	44	44
φ 80	10	20	39	59	10	20	39	59	100 (70)	100 (70)	111 (111)	111 (111)	43	49
φ 100	10	20	40	60	10	20	40	60	105 (75)	105 (75)	117 (117)	117 (117)	49	55

Note 1: Value in () for T*V (Radial lead wire).

Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

● T2/T3 type switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at rod side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
φ 40	5	10	20	30	5	40 (33)	70 (64)	101 (94)	69 (39)	69 (39)	152 (100)	152 (100)	32	32
φ 50	5	10	20	30	5	10	20	30	71 (41)	71 (41)	71 (61)	71 (61)	31	32
φ 63	6	11	21	32	6	11	21	32	77 (47)	77 (47)	77 (68)	77 (68)	37	38
φ 80	6	11	22	33	6	11	22	33	88 (58)	88 (58)	88 (80)	88 (80)	37	43
φ 100	6	11	22	33	6	11	22	33	93 (63)	93 (63)	93 (85)	93 (85)	43	49

Note 1: Value in () for T*V (Radial lead wire).

Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

● T1/T2Y/T3Y/T2YD type switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
φ 40	6	11	22	33	6	62 (49)	92 (80)	123 (110)	91 (61)	91 (61)	182 (122)	182 (122)	43	43
φ 50	6	12	24	36	6	12	24	36	93 (63)	93 (63)	93 (68)	93 (68)	42	43
φ 63	6	12	24	36	6	12	24	36	99 (69)	99 (69)	99 (74)	99 (74)	48	49
φ 80	7	13	25	38	7	13	25	38	110 (80)	110 (80)	110 (86)	110 (86)	48	54
φ 100	7	13	26	39	7	13	26	39	115 (85)	115 (85)	115 (92)	115 (92)	54	60

Note 1: Value in () for T*V (Radial lead wire). Note that radial lead wire (V) is not available for T2YD.

Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Tie rod cylinder with brake
With brake

Switch specifications

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

*The T0/T5 switch can be used with 220 VAC.
Consult with CKD for working conditions.

Descriptions	Proximity 2 wire			Proximity 3 wire			Reed 2 wire						Proximity 2 wire	
	T1H/T1 V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T3H/ T3V	T3PH/T3PV/ (Custom order)	T3YH/ T3YV	TOH/TOV	T5H/T5V		T8H/T8V			T2YD	
Applications	Programmable controller relay, small solenoid valve	Programmable controller		Programmable controller, relay			Programmable controller, relay	Programmable controller, relay, IC circuit (w/o indicator light), serial connection	Programmable controller, relay			Programmable controller		
Output method	-			NPN output	PNP output	NPN output	-							
Power voltage	-			10 to 28 VDC			-							
Load voltage	85 to 265 VAC	10 to 30 VDC		30 VDC or less			12/24 VDC	110 VAC	5/12/24 VDC	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)	LED (ON lighting)	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		10 μ A 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		Programmable controller, relay		Programmable controller		Programmable controller, relay	
Output method		NPN output							
Light	Installation position adjustment section	Red/green LED (ON lighting)							
	Preventive maintenance output	-				Yellow LED (ON lighting)			
Regular Output	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		10 μ A or less		1.2mA or less		10 μ A 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	10 μ A or less							

Note 1: Refer to Ending 1 for other switch specifications.
Note 2: Max. load current above: 20mA at 25°C . The current will be lower than 20mA if ambient temperature around switch is higher than 20mA.
(5 to 10mA when 60°C)

Weight

Unit: kg

Bore size (mm)	Product weight when stroke length = 0mm						Stroke length:	Switch weight	Accessory weight	
	Basic type (00)	Foot type (LB)	Flange type (FA, FB)	Eye bracket type (CA)	Clevis bracket type (CB)	Trunnion type (TA, TB, TC)	Additional weight per 50mm	Grommet	I	Y
φ 40	1.75	1.89	2.16	1.94	1.94	2.09	0.17	0.018	0.09	0.14
φ 50	2.91	3.07	3.54	3.32	3.32	3.40	0.23	0.018	0.20	0.33
φ 63	3.94	4.28	4.96	4.49	4.51	4.82	0.25	0.018	0.20	0.33
φ 80	7.81	8.24	9.38	9.08	9.09	9.30	0.40	0.018	0.52	0.96
φ 100	12.08	12.94	14.40	13.80	13.83	14.65	0.51	0.018	0.48	0.92

How to order

Without switch

JSG - **LB** - **40** - **B** - **100** - **J** - **I**

With switch

JSG - **LB** - **40** - **B** - **100** - **T2H** - **R** - **J** - **I**

A Model no.

B Mounting style
Note 1

C Bore size

D Port thread type

E Cushion

F Stroke length

G Solenoid valve voltage

H Switch model no.

Note on model no. selection

- Note 1: The mounting bracket is shipped with the product.
(Trunnion type is installed on the product at shipment.)
Note 2: Custom stroke length is available per 1mm increment.
Note 3: When selecting TA or TB for mounting, the number of switches is limited to "H" (one on head side) for TA, and "R" (one on rod side) for TB.
Note 4: "I" and "Y" can not be selected at the same time.

<Example of model number>

JSG-V-LB-40B-100-1-T2H-D-JI

Model: Tie rod cylinder with brake

- A Model no. : Double acting, with valve for brake release
B Mounting style : Axial foot type
C Bore size : ϕ 40mm
D Port thread type : Rc thread
E Cushion : Both sides air cushioned
F Stroke length : 100mm
G Solenoid valve voltage: 100 VAC
H Switch model no. : Proximity T2H switch, lead wire 1m
I Switch quantity : Two
J Option : With bellows
K Accessory : Rod eye (attachment)

I Switch quantity
Note 3

J Option

K Accessory
Note 4

Symbol	Descriptions	D	Double valve		
B Mounting style					
00	Basic type	●	●		
LB	Axial foot type	●	●		
FA	Rod end flange type	●	●		
FB	Head end flange type	●	●		
CA	Eye bracket type	●	●		
CB	Clevis bracket type (pin and split pin attached)	●	●		
TA	Rod end trunnion type	●	●		
TB	Head end trunnion type	●	●		
TC	Center trunnion type	●	●		
C Bore size (mm)					
40	φ 40	●	●		
50	φ 50	●	●		
63	φ 63	●	●		
80	φ 80	●	●		
100	φ 100	●	●		
D Port thread type					
Blank	Rc thread	●	●		
N	NPT thread (custom order)	●	●		
G	G thread (custom order)	●	●		
E Cushion					
B	Both sides air cushioned (basic type)	●	●		
D	Both sides rubber cushioned	●	●		
Note: The rubber cushion type is longer than the air cushion.					
F Stroke length (mm)					
Bore size	Stroke length Note 2	Available stroke length	Custom stroke length		
φ 40	1 to 600	800	1 mm increment		
φ 50		1200			
φ 63		1400			
φ 80	1 to 700	1500			
φ 100	1 to 800				
G Solenoid valve voltage					
1	100 VAC		●		
2	200 VAC		●		
3	24 VDC		●		
4	12 VDC		●		
H Switch model no.					
Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire	
T0H*	T0V*	Reed	1 color indicator type Without light	2-wire	
T5H*	T5V*		1 color indicator type	2-wire	
T8H*	T8V*		1 color indicator type	2-wire	
T1H*	T1V*		1 color indicator type	2-wire	
T2H*	T2V*	Proximity	1 color indicator type	2-wire	
T3H*	T3V*		1 color indicator type (custom order)	3-wire	
T3PH*	T3PV*		2 color indicator type	2-wire	
T2YH*	T2YV*		1 color indicator type (custom order)	3-wire	
T3YH*	T3YV*		2 color indicator type (without indicator light for preventive maintenance output)	3-wire	
T3PH*	T3PV*		2 color indicator type (with indicator light for preventive maintenance output (1 color))	4-wire	
T2YFH*	T2YFV*		Strong magnetic field proof switch	3-wire	
T3YFH*	T3YFV*		Off-delay type	4-wire	
T2YMH*	T2YMV*			2-wire	
T3YMH*	T3YMV*			2-wire	
T2YD*	-				
T2YDT*	-				
T2JH*	T2JV*				
* Lead wire length					
Blank	1m (standard)		●	●	
3	3m (option)		●	●	
5	5m (option)		●	●	
I Switch quantity					
R	One on rod end		●	●	
H	One on head end		●	●	
D	Two		●	●	
T	Three		●	●	
J Option					
J	Bellows	Max. ambient temperature 60 °C	Instantaneous ambient temperature 100 °C	●	●
M	Piston rod material stainless steel			●	●
K Accessory					
I	Rod eye		●	●	
Y	Rod clevis (pin and split pin attached)		●	●	
B1	Eye bracket		●	●	
B2	Clevis bracket (pin and split pin attached)		●	●	
B3	Eye bracket		●	●	
B4	Trunnion type No. 2 bracket		●	●	

SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Tie rod cylinder with brake
With brake

SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

How to order switch

● Switch body + mounting bracket

SCG - T0H - 40

Switch model no.
(Previous (H) page)

Bore size
(Previous (C) page)

● Only switch body

SW - T0H

Switch model no.
(Previous (H) page)

● Switch bracket set

SCG - T - 40

Bracket

Bore size
(Previous (C) page)

Note: To use an ecological
T type switch,
consult with CKD.

How to order mounting bracket

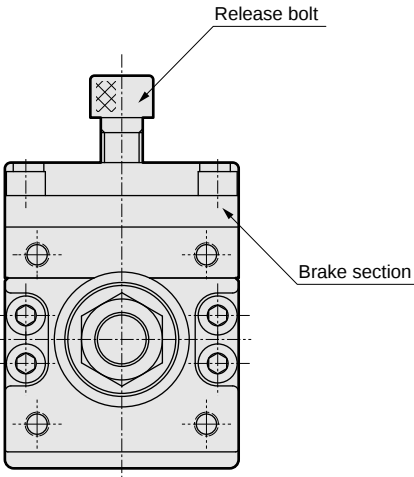
Bore size (mm)		φ 40	φ 50	φ 63	φ 80	φ 100
Mounting bracket						
Foot (IB)	Note 2	JSG-LB-40	JSG-LB-50	JSG-LB-63	SCG-LB-80	SCG-LB-100
Flange (FA) (FB)	Note 1	JSG-FA-40	JSG-FA-50	JSG-FA-63	SCG-FA-80	SCG-FA-100
Eye bracket (CA)		SCG-CA-40	SCG-CA-50	SCG-CA-63	SCG-CA-80	SCG-CA-100
Clevis bracket (CB)	Note 3	SCG-CB-40	SCG-CB-50	SCG-CB-63	SCG-CB-80	SCG-CB-100

Note 1: The foot type bracket is a two-piece set.

Note 2: Designate "JSG-FA-(bore size)-J" for the flange with bellows (FA).

Note 3: A pin, a split pin and a plain washer are contained.

How to unlock brake section manually



The brakes are released by screwing a bolt into the manual release port
(female threads on top of brakes).

(If the bolt is screwed in too far, the brakes may not be applied.

Refer to the screw-in volume showed in the separate table.)

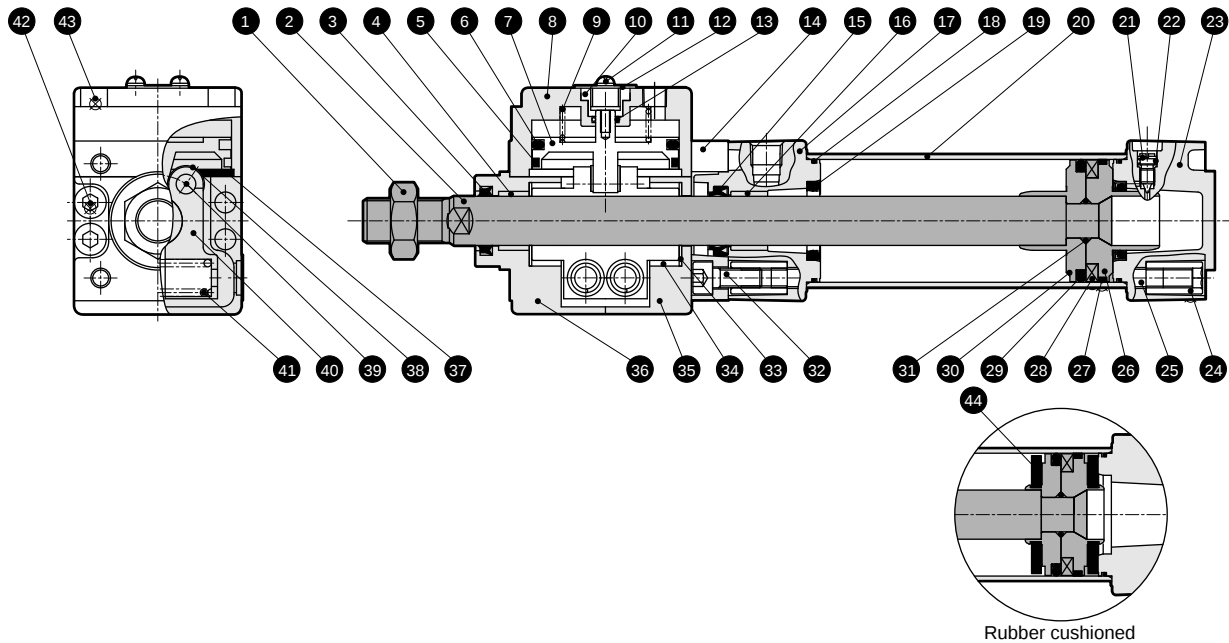
Always remove the bolt during normal use.

Release bolt size

Bore size	Bolt screw diameter	Bolt length		Adequate screw-in volume
		JSG	JSG-V	
φ 40	M12 x 1.75	16 and over	40 and over	3 rotations or less
φ 50	M12 x 1.75	16 and over	40 and over	4 rotations or less
φ 63	M14 x 2	16 and over	40 and over	4 rotations or less
φ 80	M16 x 2	20 and over	40 and over	4.5 rotations or less
φ 100	M18 x 2.5	20 and over	50 and over	5 rotations or less

Internal structure and parts list

● JSG



No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Rod nut	Steel	Nickel plating	24	Round nut	Steel	Zinc chromate
2	Piston rod	Steel	Industrial chrome plating	25	Tie rod	Steel	Zinc chromate
3	Dust wiper	Nitrile rubber		26	Piston H	φ 40: Aluminum alloy φ 50 to 100: Aluminum alloy die-casting	
4	Bush	Oil impregnated bearing alloy		27	Wear ring	Polyacetal resin	
5	Wear ring	Acetar resin		28	Magnet	Resin	
6	Piston packing seal B	Nitrile rubber		29	Piston packing seal	Nitrile rubber	
7	Piston for brake	Cast iron	Phosphate coating	30	Piston R	φ 40: Aluminum alloy φ 50 to 100: Aluminum alloy die-casting	
8	Body H	Aluminum casting	Chromate	31	Piston gasket	Nitrile rubber	
9	Spring	Piano wire		32	Hexagon socket head cap bolt	Alloy steel	Blackening
10	Piston guide	Cast iron	Phosphate coating	33	Thrust washer		
11	Washer assembly cross headed pan	Steel	Zinc chromate	34	Bush	Dry bearing	
12	Dust cover	Aluminum alloy	Alumite	35	Body R	Aluminum casting	Chromate
13	Gasket	Nitrile rubber		36	Body F	Aluminum casting	Chromate
14	Joint plate	Aluminum alloy	Alumite	37	Cushion rubber	Urethane rubber	
15	Rod packing seal	Nitrile rubber		38	Bearing		
16	Bush	Oil impregnated bearing alloy		39	Pin	Alloy steel	
17	Rod cover	Aluminum alloy die-casting	Paint	40	Brake shoe metal	Cast iron	Nickel plating
18	Cylinder gasket	Nitrile rubber		41	Spring	Piano wire	
19	Cushion packing seal	Nitrile rubber, steel	Zinc chromate	42	Hexagon socket head cap bolt	Alloy steel	Blackening
20	Cylinder tube	Aluminum alloy	Hard alumite	43	Hexagon socket head cap bolt	Alloy steel	Blackening
21	Cushion needle	Copper alloy		44	Cushion rubber	Urethane rubber	
22	Needle gasket	Nitrile rubber					
23	Head cover	Aluminum alloy die-casting	Paint				

Repair parts list

● Air cushioned

Bore size (mm)	Kit No.	Repair parts number
φ 40	JSG-40BK	3 15 18
φ 50	JSG-50BK	3 15 18
φ 63	JSG-63BK	19 21 27
φ 80	JSG-80BK	29
φ 100	JSG-100BK	29

Note: Specify the kit No. when placing an order.

● Rubber cushioned

Bore size (mm)	Kit No.	Repair parts number
φ 40	JSG-40DK	3 15 18
φ 50	JSG-50DK	3 15 18
φ 63	JSG-63DK	21 27 29
φ 80	JSG-80DK	44
φ 100	JSG-100DK	44

Note: Specify the kit No. when placing an order.

Mounting bracket material

Mounting style	Material	Remarks
LB	Steel	Nickel plating
FA/FB	Steel	Paint
CA/CB	Cast iron	Paint
TA/TB/TC	Cast iron	Paint

SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC

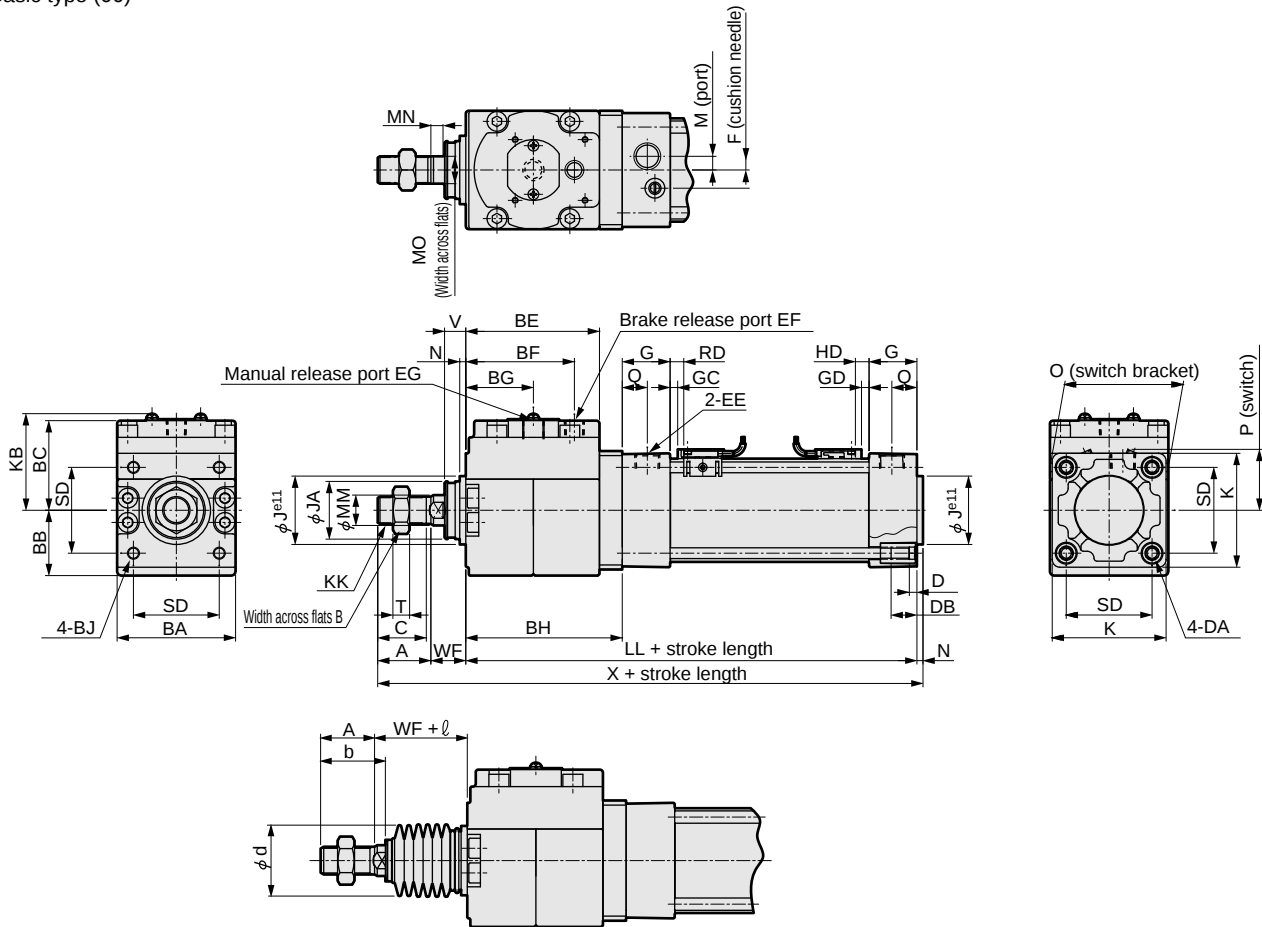
Ending

Tie rod cylinder with brake
With brake



Dimensions

● Basic type (00)



Note 1: Dimensions shown in parentheses are for the rubber cushion type. This type is longer than the air cushion type.

(ϕ 40; +6mm, ϕ 50/ ϕ 63; +8mm, ϕ 80/ ϕ 100; +10mm)

Note 2: RD and HD dimensions in the dimension drawings indicate the position of switch end, and GC and GD indicate the position of switch rail end.

Note 3: Refer to page 1281 for the dimensions of the type with valves (JSG-V).

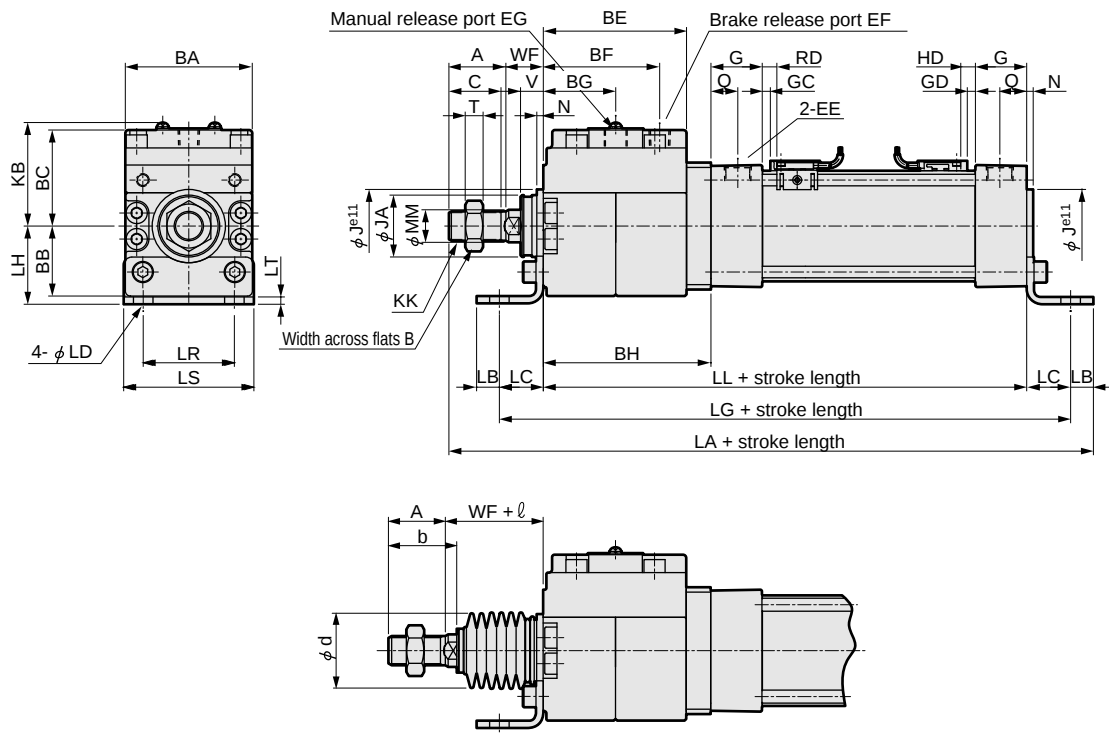
Note 4: Refer to page 1282 for 2 color indicator type, HD, RD dimensions and projection dimensions of preventive maintenance output switch.

Symbol Bore size (mm)	Basic type (00) basic dimensions																			
	A	B	BA	BB	BC	BE	BF	BG	BH	BJ	C	DA	DB	DC	EE	EF	EG	F	G	J
φ 40	30	22	57	31.5	46.5	63	52.5	32.5	77	M6 depth 12	27	M6	16	5	Rc1/4	Rc1/8	M12	9	27	35
φ 50	35	27	68	38	54	74	59	39	89	M8 depth 12	32	M8	16	5	Rc1/4	Rc1/8	M12	10.5	31.5	40
φ 63	35	27	78	43	59	88	71.5	44.5	103	M8 depth 14	32	M8	16	5	Rc3/8	Rc1/4	M14	12	31.5	45
φ 80	40	32	98	53	72.5	108	81.5	54.5	131	M10 depth 16	37	M10	16	5	Rc3/8	Rc1/4	M16	14	38	45
φ 100	40	41	118	63	80.5	129	101	65.5	151	M10 depth 18	37	M10	16	5	Rc1/2	Rc3/8	M18	15	38	55
Symbol Bore size (mm)																				
	JA	K	KB	KK	Note 1 LL	M	MM	MN	MO	N	O	Q	SD	T	V	WF	Note 1 X			
φ 40	31	52	51.1	M14 x 1.5	161 (167)	4	16	6	14	4	57	14	38	8	13	21	216 (222)			
φ 50	38	65	58.6	M18 x 1.5	183 (191)	5	20	7	17	4	68	15.5	46.5	11	14	23	245 (253)			
φ 63	38	75	63.6	M18 x 1.5	197 (205)	9	20	7	17	4	78	16.5	56.5	11	14	23	259 (267)			
φ 80	43	95	77.1	M22 x 1.5	245 (255)	11.5	25	10	22	4	95	19	72	13	20	32	321 (331)			
φ 100	51	114	85.1	M26 x 1.5	265 (275)	17	30	10	27	4	114	19	89	16	20	32	341 (351)			
Symbol Bore size (mm)	With bellows													With switch						
	A	b	d	WF	ℓ										Note 1 GC	Note 1 GD	Note 1 RD	Note 1 HD	P	
50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	500 to 600	600 to 700	700 to 750											
φ 40	30	35	40	21	30	43	55	68	93	118	143	-	-	-	1 (4)	1 (4)	5 (8)	5 (8)	29	
φ 50	35	42	47	23	31	44	56	69	94	119	144	169	-	-	2.5 (6.5)	1 (5)	6.5 (10.5)	5 (9)	34	
φ 63	35	42	47	23	31	44	56	69	94	119	144	169	-	-	2.5 (6.5)	1 (5)	6.5 (10.5)	5 (9)	40	
φ 80	40	50	53	32	29	42	54	67	92	117	142	167	192	204	8.5 (13.5)	2 (7)	12.5 (17.5)	6 (11)	-	
φ 100	40	52.5	61	32	29	42	54	67	92	117	142	167	192	204	8 (13)	2.5 (7.5)	12 (17)	6.5 (11.5)	-	

Dimensions



● Axial foot type (LB)



Note 1: Dimensions shown in parentheses are for the rubber cushion type. This type is longer than the air cushion type.

(ϕ 40; +6mm, ϕ 50/ ϕ 63; +8mm, ϕ 80/ ϕ 100; +10mm)

Note 2: RD and HD dimensions in the dimension drawings indicate the position of switch end, and GC and GD indicate the position of switch rail end.

Note 3: Refer to page 1281 for dimensions of type with valves (JSG-V).

Note 4: Refer to page 1282 for 2 color indicator type, HD, RD dimensions and projection dimensions of preventive maintenance output switch.

Symbol	Axial foot type (LB) basic dimensions																		
Bore size (mm)	A	B	BA	BB	BC	BE	BF	BG	BH	C	EE	EF	EG	G	J	JA	KB	KK	Note 1 LL
φ 40	30	22	57	31.5	46.5	63	52.5	32.5	77	27	Rc1/4	Rc1/8	M12	27	35	31	51.1	M14 x 1.5	161 (167)
φ 50	35	27	68	38	54	74	59	39	89	32	Rc1/4	Rc1/8	M12	31.5	40	38	58.6	M18 x 1.5	183 (191)
φ 63	35	27	78	43	59	88	71.5	44.5	103	32	Rc3/8	Rc1/4	M14	31.5	45	38	63.6	M18 x 1.5	197 (205)
φ 80	40	32	98	53	72.5	108	81.5	54.5	131	37	Rc3/8	Rc1/4	M16	38	45	43	77.1	M22 x 1.5	245 (255)
φ 100	40	41	118	63	80.5	129	101	65.5	151	37	Rc1/2	Rc3/8	M18	38	55	51	85.1	M26 x 1.5	265 (275)
Symbol							Installation dimensions												
Bore size (mm)	MM	N	Q	T	V	WF	Note 1 LA	LB	LC	LD	Note 1 LG	LH	LR	LS	LT				
φ 40	16	4	14	8	13	21	247 (253)	11	24	9	209 (215)	33	38	55	3.2				
φ 50	20	4	15.5	11	14	23	279 (287)	11	27	9	237 (245)	40	46	70	3.2				
φ 63	20	4	16.5	11	14	23	296 (304)	14	27	12	251 (259)	48	56	80	4.5				
φ 80	25	4	19	13	20	32	361 (371)	14	30	12	305 (315)	55	72	95	4.5				
φ 100	30	4	19	16	20	32	385 (395)	16	32	14	329 (339)	65	89	114	6				
Symbol	With bellows												With switch						
Bore size (mm)	A	b	d	WF	ℓ									Note 1 GC	Note 1 GD	Note 1 RD	Note 1 HD	P	
					50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	500 to 600	600 to 700						700 to 750
φ 40	30	35	40	21	30	43	55	68	93	118	143	-	-	-	1 (4)	1 (4)	5 (8)	5 (8)	29
φ 50	35	42	47	23	31	44	56	69	94	119	144	169	-	-	2.5 (6.5)	1 (5)	6.5 (10.5)	5 (9)	34
φ 63	35	42	47	23	31	44	56	69	94	119	144	169	-	-	2.5 (6.5)	1 (5)	6.5 (10.5)	5 (9)	40
φ 80	40	50	53	32	29	42	54	67	92	117	142	167	192	204	8.5 (13.5)	2 (7)	12.5 (17.5)	6 (11)	-
φ 100	40	52.5	61	32	29	42	54	67	92	117	142	167	192	204	8 (13)	2.5 (7.5)	12 (17)	6.5 (11.5)	-

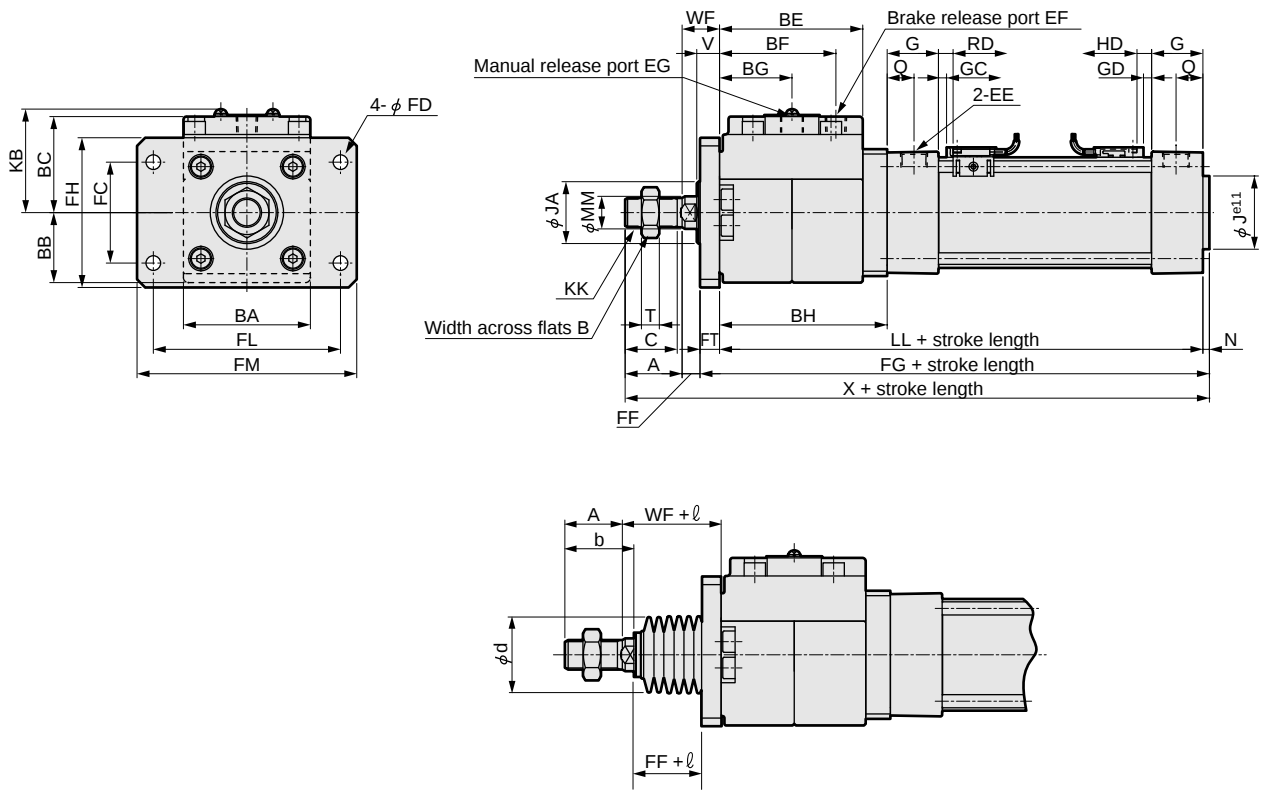
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SSD
CAT
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MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Tie rod cylinder with brake
With brake



Dimensions

● Rod end flange type (FA)



Note 1: Dimensions shown in parentheses are for the rubber cushion type. This type is longer than the air cushion type.

(φ 40; +6mm, φ 50/φ 63; +8mm, φ 80/φ 100; +10mm)

Note 2: RD and HD dimensions in the dimension drawings indicate the position of switch end, and GC and GD indicate the position of switch rail end.

Note 3: Refer to page 1281 for dimensions of type with valves (JSG-V).

Note 4: Refer to page 1282 for 2 color indicator type, HD, RD dimensions and projection dimensions of preventive maintenance output switch.

Symbol	Rod end flange type (FA) basic dimensions																		
Bore size (mm)	A	B	BA	BB	BC	BE	BF	BG	BH	C	EE	EF	EG	G	J	JA	KB	KK	Note 1 LL
φ 40	30	22	57	31.5	46.5	63	52.5	32.5	77	27	Rc1/4	Rc1/8	M12	27	35	31	51.1	M14 x 1.5	161 (167)
φ 50	35	27	68	38	54	74	59	39	89	32	Rc1/4	Rc1/8	M12	31.5	40	38	58.6	M18 x 1.5	183 (191)
φ 63	35	27	78	43	59	88	71.5	44.5	103	32	Rc3/8	Rc1/4	M14	31.5	45	38	63.6	M18 x 1.5	197 (205)
φ 80	40	32	98	53	72.5	108	81.5	54.5	131	37	Rc3/8	Rc1/4	M16	38	45	43	77.1	M22 x 1.5	245 (255)
φ 100	40	41	118	63	80.5	129	101	65.5	151	37	Rc1/2	Rc3/8	M18	38	55	51	85.1	M26 x 1.5	265 (275)

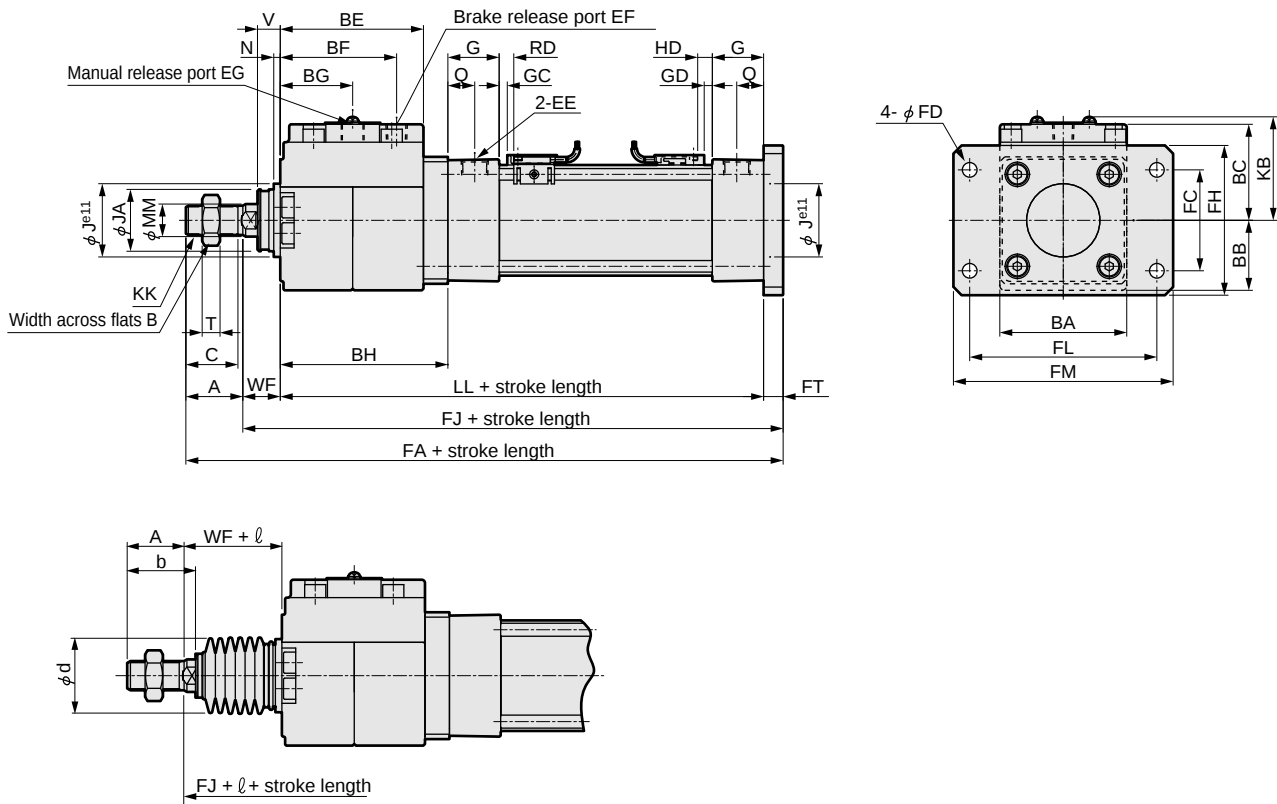
Symbol	Installation dimensions														
Bore size (mm)	MM	N	Q	T	V	WF	Note 1 X	FC	FD	FF	Note 1 FG	FH	FL	FM	FT
φ 40	16	4	14	8	13	21	216 (222)	46	9	11	175 (181)	65	83	101	10
φ 50	20	4	15.5	11	14	23	245 (253)	52	9	11	199 (207)	77	100	120	12
φ 63	20	4	16.5	11	14	23	259 (267)	62	9	11	213 (221)	92	115	135	12
φ 80	25	4	19	13	20	32	321 (331)	63	12	16	265 (275)	100	126	153	16
φ 100	30	4	19	16	20	32	341 (351)	75	14	16	285 (295)	120	150	178	16

Symbol	With bellows										With switch				
Bore size (mm)	A	b	d	WF	ℓ						Note 1 GC	Note 1 GD	Note 1 RD	Note 1 HD	P
φ 40	30	35	40	21	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	1	1	5	5	29
φ 50	35	42	47	23	30	43	55	68	93	118	2.5 (6.5)	1 (5)	6.5 (10.5)	5 (9)	34
φ 63	35	42	47	23	31	44	56	69	94	119	2.5 (6.5)	1 (5)	6.5 (10.5)	5 (9)	40
φ 80	40	50	53	32	29	42	54	67	92	117	8.5 (13.5)	2 (7)	12.5 (17.5)	6 (11)	-
φ 100	40	52.5	61	32	29	42	54	67	92	117	8 (13)	2.5 (7.5)	12 (17)	6.5 (11.5)	-

Dimensions



● Head end flange type (FB)



Note 1: Dimensions shown in parentheses are for the rubber cushion type. This type is longer than the air cushion type.

(ϕ 40; +6mm, ϕ 50/ ϕ 63; +8mm, ϕ 80/ ϕ 100; +10mm)

Note 2: RD and HD dimensions in the dimension drawings indicate the position of switch end, and GC and GD indicate the position of switch rail end.

Note 3: Refer to page 1281 for dimensions of type with valves (JSG-V).

Note 4: Refer to page 1282 for 2 color indicator type, HD, RD dimensions and projection dimensions of preventive maintenance output switch.

Symbol	Head end flange type (FB) basic dimensions																		
Bore size (mm)	A	B	BA	BB	BC	BE	BF	BG	BH	C	EE	EF	EG	G	J	JA	KB	KK	Note 1 LL
φ 40	30	22	57	31.5	46.5	63	52.5	32.5	77	27	Rc1/4	Rc1/8	M12	27	35	31	51.1	M14 × 1.5	161 (167)
φ 50	35	27	68	38	54	74	59	39	89	32	Rc1/4	Rc1/8	M12	31.5	40	38	58.6	M18 × 1.5	183 (191)
φ 63	35	27	78	43	59	88	71.5	44.5	103	32	Rc3/8	Rc1/4	M14	31.5	45	38	63.6	M18 × 1.5	197 (205)
φ 80	40	32	98	53	72.5	108	81.5	54.5	131	37	Rc3/8	Rc1/4	M16	38	45	43	77.1	M22 × 1.5	245 (255)
φ 100	40	41	118	63	80.5	129	101	65.5	151	37	Rc1/2	Rc3/8	M18	38	55	51	85.1	M26 × 1.5	265 (275)
Symbol							Installation dimensions												
Bore size (mm)	MM	N	Q	T	V	WF	Note 1 FA	FC	FD	FH	Note 1 FJ	FL	FM	FT					
φ 40	16	4	14	8	13	21	222 (228)	46	9	65	192 (198)	83	101	10					
φ 50	20	4	15.5	11	14	23	253 (261)	52	9	77	218 (226)	100	120	12					
φ 63	20	4	16.5	11	14	23	267 (275)	62	9	92	232 (240)	115	135	12					
φ 80	25	4	19	13	20	32	333 (343)	63	12	100	293 (303)	126	153	16					
φ 100	30	4	19	16	20	32	353 (363)	75	14	120	313 (323)	150	178	16					
Symbol	With bellows												With switch						
Bore size (mm)	A	b	d	WF	ℓ									Note 1 GC	Note 1 GD	Note 1 RD	Note 1 HD	P	
φ 40	30	35	40	21	30 or less	30 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	500 to 600	600 to 700	700 to 750	1 (4)	1 (4)	5 (8)	5 (8)	29
φ 50	35	42	47	23	31	44	56	69	94	119	144	169	-	-	2.5 (6.5)	1 (5)	6.5 (10.5)	5 (9)	34
φ 63	35	42	47	23	31	44	56	69	94	119	144	169	-	-	2.5 (6.5)	1 (5)	6.5 (10.5)	5 (9)	40
φ 80	40	50	53	32	29	42	54	67	92	117	142	167	192	204	8.5 (13.5)	2 (7)	12.5 (17.5)	6 (11)	-
φ 100	40	52.5	61	32	29	42	54	67	92	117	142	167	192	204	8 (13)	2.5 (7.5)	12 (17)	6.5 (11.5)	-

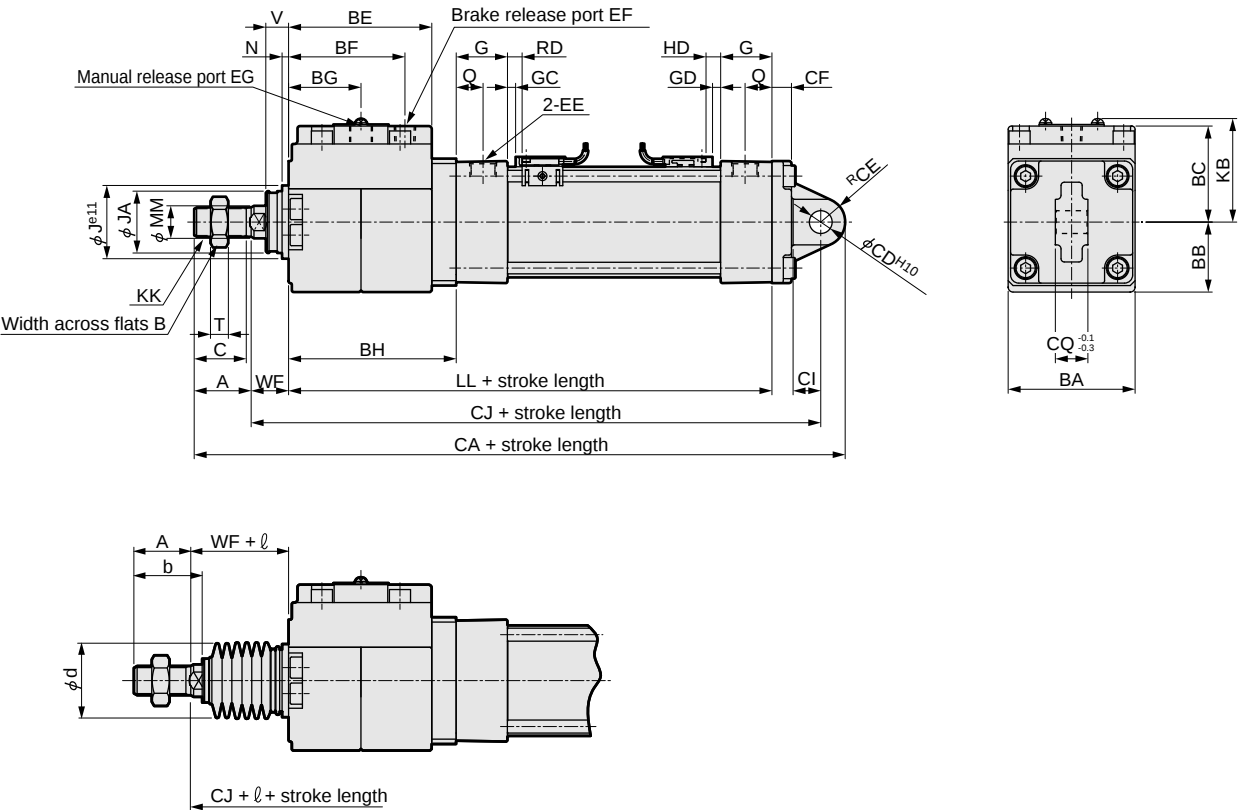
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SCM
SCG
SCA2
SCS
CKV2
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SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Tie rod cylinder with brake
With brake



Dimensions

● Eye bracket type (CA)



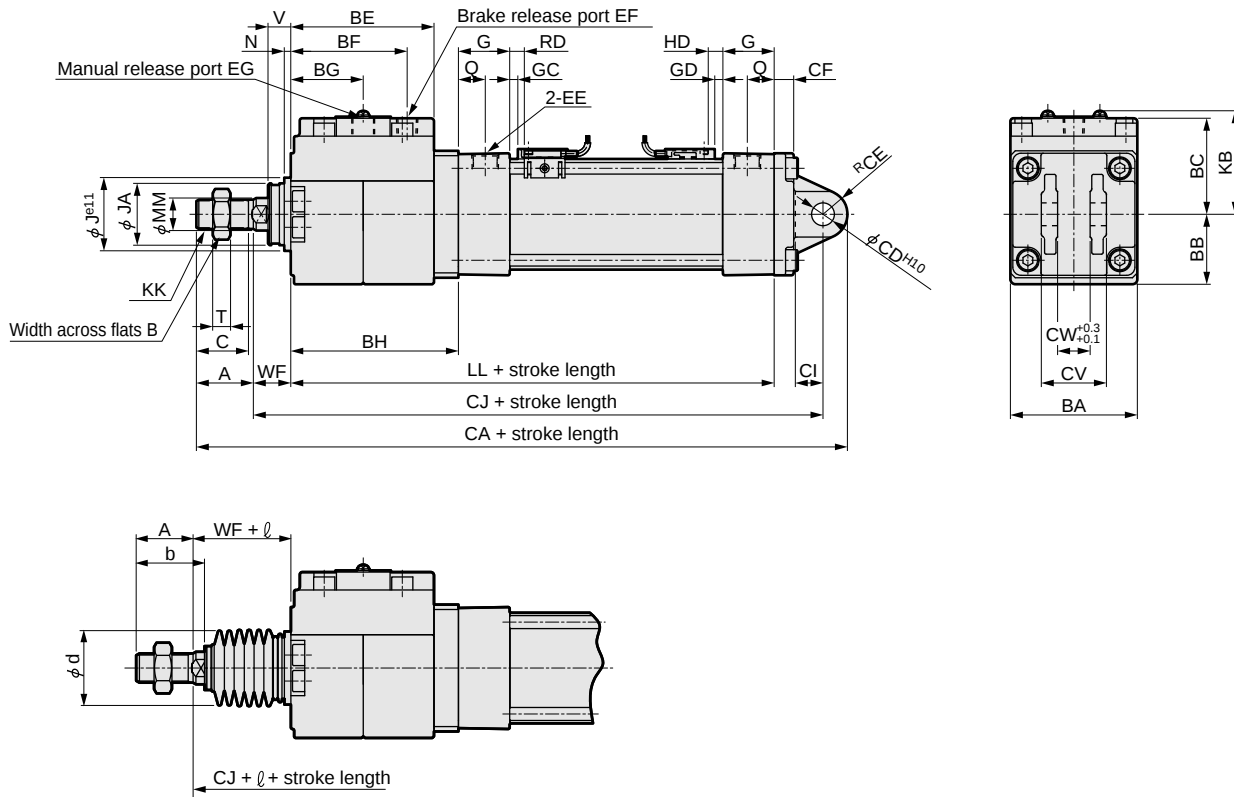
Note 1: Dimensions shown in parentheses are for the rubber cushion type. This type is longer than the air cushion type.
(ϕ 40; +6mm, ϕ 50/ ϕ 63; +8mm, ϕ 80/ ϕ 100; +10mm)
Note 2: RD and HD dimensions in the dimension drawings indicate the position of switch end, and GC and GD indicate the position of switch rail end.
Note 3: Refer to page 1281 for dimensions of type with valves (JSG-V).
Note 4: Refer to page 1282 for 2 color indicator type, HD, RD dimensions and projection dimensions of preventive maintenance output switch.

Symbol	Eye bracket type (CA) basic dimensions																		
Bore size (mm)	A	B	BA	BB	BC	BE	BF	BG	BH	C	EE	EF	EG	G	J	JA	KB	KK	Note 1 LL
φ 40	30	22	57	31.5	46.5	63	52.5	32.5	77	27	Rc1/4	Rc1/8	M12	27	35	31	51.1	M14 x 1.5	161 (167)
φ 50	35	27	68	38	54	74	59	39	89	32	Rc1/4	Rc1/8	M12	31.5	40	38	58.6	M18 x 1.5	183 (191)
φ 63	35	27	78	43	59	88	71.5	44.5	103	32	Rc3/8	Rc1/4	M14	31.5	45	38	63.6	M18 x 1.5	197 (205)
φ 80	40	32	98	53	72.5	108	81.5	54.5	131	37	Rc3/8	Rc1/4	M16	38	45	43	77.1	M22 x 1.5	245 (255)
φ 100	40	41	118	63	80.5	129	101	65.5	151	37	Rc1/2	Rc3/8	M18	38	55	51	85.1	M26 x 1.5	265 (275)
Symbol											Installation dimensions								
Bore size (mm)	MM	N	Q	T	V	WF	Note 1 CA	CD	CE	CF	CI	Note 1 CJ	CQ						
φ 40	16	4	14	8	13	21	246 (252)	10	11	9	13	205 (211)	14						
φ 50	20	4	15.5	11	14	23	286 (294)	14	15	12	17	236 (244)	20						
φ 63	20	4	16.5	11	14	23	300 (308)	14	15	12	17	250 (258)	20						
φ 80	25	4	19	13	20	32	382 (392)	22	23	15	26	319 (329)	30						
φ 100	30	4	19	16	20	32	402 (412)	22	23	15	26	339 (349)	30						
Symbol	With bellows												With switch						
Bore size (mm)	A	b	d	WF	ℓ										Note 1 GC	Note 1 GD	Note 1 RD	Note 1 HD	P
φ 40	30	35	40	21	30	43	55	68	93	118	143	-	-	-	1 (4)	1 (4)	5 (8)	5 (8)	29
φ 50	35	42	47	23	31	44	56	69	94	119	144	169	-	-	2.5 (6.5)	1 (5)	6.5 (10.5)	5 (9)	34
φ 63	35	42	47	23	31	44	56	69	94	119	144	169	-	-	2.5 (6.5)	1 (5)	6.5 (10.5)	5 (9)	40
φ 80	40	50	53	32	29	42	54	67	92	117	142	167	192	204	8.5 (13.5)	2 (7)	12.5 (17.5)	6 (11)	-
φ 100	40	52.5	61	32	29	42	54	67	92	117	142	167	192	204	8 (13)	2.5 (7.5)	12 (17)	6.5 (11.5)	-

Dimensions



● Clevis bracket (CB)



Note 1: Dimensions shown in parentheses are for the rubber cushion type. This type is longer than the air cushion type.

($\phi 40$; +6mm, $\phi 50/\phi 63$; +8mm, $\phi 80/\phi 100$; +10mm)

Note 2: RD and HD dimensions in the dimension drawings indicate the position of switch end, and GC and GD indicate the position of switch rail end.

Note 3: Refer to page 1281 for dimensions of type with valves (JSG-V).

Note 4: Refer to page 1282 for 2 color indicator type, HD, RD dimensions and projection dimensions of preventive maintenance output switch.

Note 5: A pin, a split pin and a plain washer are included.

Symbol	Clevis bracket type (CB) basic dimensions.																		
Bore size (mm)	A	B	BA	BB	BC	BE	BF	BG	BH	C	EE	EF	EG	G	J	JA	KB	KK	Note 1 LL
φ 40	30	22	57	31.5	46.5	63	52.5	32.5	77	27	Rc1/4	Rc1/8	M12	27	35	31	51.1	M14 x 1.5	161 (167)
φ 50	35	27	68	38	54	74	59	39	89	32	Rc1/4	Rc1/8	M12	31.5	40	38	58.6	M18 x 1.5	183 (191)
φ 63	35	27	78	43	59	88	71.5	44.5	103	32	Rc3/8	Rc1/4	M14	31.5	45	38	63.6	M18 x 1.5	197 (205)
φ 80	40	32	98	53	72.5	108	81.5	54.5	131	37	Rc3/8	Rc1/4	M16	38	45	43	77.1	M22 x 1.5	245 (255)
φ 100	40	41	118	63	80.5	129	101	65.5	151	37	Rc1/2	Rc3/8	M18	38	55	51	85.1	M26 x 1.5	265 (275)
Symbol							Installation dimensions												
Bore size (mm)	MM	N	Q	T	V	WF	Note 1 CA	CD	CE	CF	CI	Note 1 CJ	CV	CW					
φ 40	16	4	14	8	13	21	246 (252)	10	11	9	13	205 (211)	28	14					
φ 50	20	4	15.5	11	14	23	286 (294)	14	15	12	17	236 (244)	40	20					
φ 63	20	4	16.5	11	14	23	300 (308)	14	15	12	17	250 (258)	40	20					
φ 80	25	4	19	13	20	32	382 (392)	22	23	15	26	319 (329)	60	30					
φ 100	30	4	19	16	20	32	402 (412)	22	23	15	26	339 (349)	60	30					
Symbol	With bellows													With switch					
Bore size (mm)	A	b	d	WF	ℓ									Note 1 GC	Note 1 GD	Note 1 RD	Note 1 HD	P	
φ 40	30	35	40	21	30 or less	30 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	500 to 600	600 to 700	700 to 750	1 (4)	1 (4)	5 (8)	5 (8)	29
φ 50	35	42	47	23	31	44	56	69	94	118	144	169	-	-	2.5 (6.5)	1 (5)	6.5 (10.5)	5 (9)	34
φ 63	35	42	47	23	31	44	56	69	94	119	144	169	-	-	2.5 (6.5)	1 (5)	6.5 (10.5)	5 (9)	40
φ 80	40	50	53	32	29	42	54	67	92	117	142	167	192	204	8.5 (13.5)	2 (7)	12.5 (17.5)	6 (11)	-
φ 100	40	52.5	61	32	29	42	54	67	92	117	142	167	192	204	8 (13)	2.5 (7.5)	12 (17)	6.5 (11.5)	-

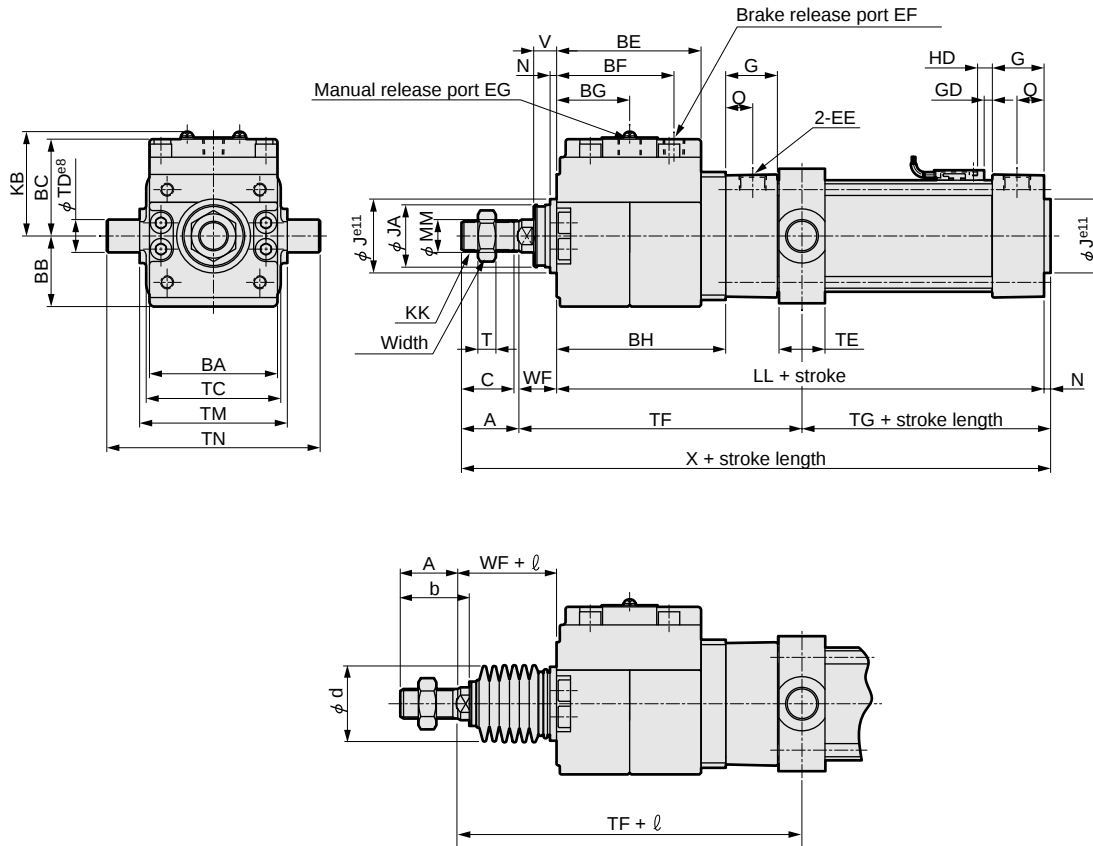
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MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Tie rod cylinder with brake
With brake



Dimensions

● Rod end trunnion type (TA)



Note 1: Dimensions shown in parentheses are for the rubber cushion type. This type is longer than the air cushion type.

(ϕ 40; +6mm, ϕ 50/ ϕ 63; +8mm, ϕ 80/ ϕ 100; +10mm)

Note 2: Switches can not be installed on the rod end.

Note 3: RD and HD dimensions in the dimension drawings indicate the position of switch end, and GC and GD indicate the position of switch rail end.

Note 4: Refer to page 1281 for dimensions of type with valves (JSG-V).

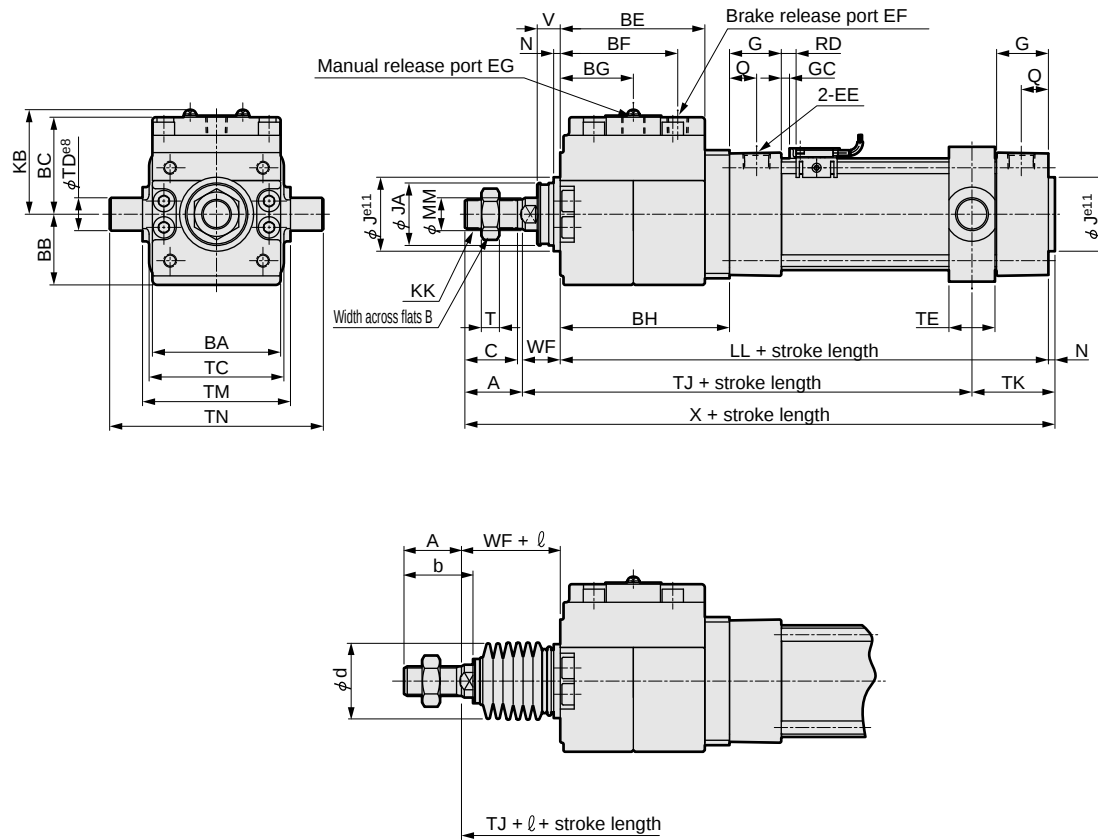
Note 5: Refer to page 1282 for 2 color indicator type, HD, RD dimensions and projection dimensions of preventive maintenance output switch.

Symbol	Rod end trunnion type (TA) basic dimensions																		
Bore size (mm)	A	B	BA	BB	BC	BE	BF	BG	BH	C	EE	EF	EG	G	J	JA	KB	KK	Note 1 LL
φ 40	30	22	57	31.5	46.5	63	52.5	32.5	77	27	Rc1/4	Rc1/8	M12	27	35	31	51.1	M14 x 1.5	161 (167)
φ 50	35	27	68	38	54	74	59	39	89	32	Rc1/4	Rc1/8	M12	31.5	40	38	58.6	M18 x 1.5	183 (191)
φ 63	35	27	78	43	59	88	71.5	44.5	103	32	Rc3/8	Rc1/4	M14	31.5	45	38	63.6	M18 x 1.5	197 (205)
φ 80	40	32	98	53	72.5	108	81.5	54.5	131	37	Rc3/8	Rc1/4	M16	38	45	43	77.1	M22 x 1.5	245 (255)
φ 100	40	41	118	63	80.5	129	101	65.5	151	37	Rc1/2	Rc3/8	M18	38	55	51	85.1	M26 x 1.5	265 (275)
Symbol										Installation dimensions									
Bore size (mm)	MM	N	Q	T	V	WF	Note 1 X	TC	TD	TE	TF	Note 1 TG	TM	TN					
φ 40	16	4	14	8	13	21	216 (222)	57	16	22	137	49 (55)	63	95					
φ 50	20	4	15.5	11	14	23	245 (253)	67	16	22	155.5	54.5 (62.5)	75	107					
φ 63	20	4	16.5	11	14	23	259 (267)	82	20	28	172.5	51.5 (59.5)	90	130					
φ 80	25	4	19	13	20	32	321 (331)	100	20	34	219	62 (72)	110	150					
φ 100	30	4	19	16	20	32	341 (351)	121	25	40	242	59 (69)	132	182					
Symbol	With bellows												With switch						
Bore size (mm)	A	b	d	WF	ℓ									Note 1 GD	Note 1 HD				
φ 40	30	35	40	21	50 or less	50 to 100	100 to 150	200 to 300	300 to 400	300 to 350	400 to 500	500 to 600	600 to 700	700 to 750	1 (4)	5 (8)			
φ 50	35	42	47	23	31	44	56	69	94	119	144	169	-	-	1 (5)	5 (9)			
φ 63	35	42	47	23	31	44	56	69	94	119	144	169	-	-	1 (5)	5 (9)			
φ 80	40	50	53	32	29	42	54	67	92	117	142	167	192	204	2 (7)	6 (11)			
φ 100	40	52.5	61	32	29	42	54	67	92	117	142	167	192	204	2.5 (7.5)	6.5 (11.5)			

Dimensions



● Head end trunnion (TB)



Note 1: Dimensions shown in parentheses are for the rubber cushion type. This type is longer than the air cushion type.

(φ40; +6mm, φ50/φ63; +8mm, φ80/φ100; +10mm)

Note 2: Switches can not be installed on the head end.

Note 3: RD and HD dimensions in the dimension drawings indicate the position of switch end, and GC and GD indicate the position of switch rail end.

Note 4: Refer to page 1281 for dimensions of type with valves (JSG-V).

Note 5: Refer to page 1282 for 2 color indicator type, HD, RD dimensions and projection dimensions of preventive maintenance output switch.

Symbol	Head end trunnion (TB) basic dimensions																		
Bore size (mm)	A	B	BA	BB	BC	BE	BF	BG	BH	C	EE	EF	EG	G	J	JA	KB	KK	Note 1 LL
φ 40	30	22	57	31.5	46.5	63	52.5	32.5	77	27	Rc1/4	Rc1/8	M12	27	35	31	51.1	M14 x 1.5	161 (167)
φ 50	35	27	68	38	54	74	59	39	89	32	Rc1/4	Rc1/8	M12	31.5	40	38	58.6	M18 x 1.5	183 (191)
φ 63	35	27	78	43	59	88	71.5	44.5	103	32	Rc3/8	Rc1/4	M14	31.5	45	38	63.6	M18 x 1.5	197 (205)
φ 80	40	32	98	53	72.5	108	81.5	54.5	131	37	Rc3/8	Rc1/4	M16	38	45	43	77.1	M22 x 1.5	245 (255)
φ 100	40	41	118	63	80.5	129	101	65.5	151	37	Rc1/2	Rc3/8	M18	38	55	51	85.1	M26 x 1.5	265 (275)

Symbol	Installation dimensions													
Bore size (mm)	MM	N	Q	T	V	WF	Note 1 X	TC	TD	TE	Note 1 TJ	TK	TM	TN
φ40	16	4	14	8	13	21	216 (222)	57	16	22	143 (149)	43	63	95
φ50	20	4	15.5	11	14	23	245 (253)	67	16	22	162.5 (170.5)	47.5	75	107
φ63	20	4	16.5	11	14	23	259 (267)	82	20	28	173.5 (181.5)	50.5	90	130
φ80	25	4	19	13	20	32	321 (331)	100	20	34	221 (231)	60	110	150
φ100	30	4	19	16	20	32	341 (351)	121	25	40	238 (248)	63	132	182

Symbol	With bellows														With switch	
	A	b	d	WF	ℓ										Note 1 GC	Note 1 RD
50 or less					50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	500 to 600	600 to 700	700 to 750			
φ 40	30	35	40	21	30	43	55	68	93	118	143	-	-	-	1 (4)	5 (8)
φ 50	35	42	47	23	31	44	56	69	94	119	144	169	-	-	2.5 (6.5)	6.5 (10.5)
φ 63	35	42	47	23	31	44	56	69	94	119	144	169	-	-	2.5 (6.5)	6.5 (10.5)
φ 80	40	50	53	32	29	42	54	67	92	117	142	167	192	204	8.5 (13.5)	12.5 (17.5)
φ 100	40	52.5	61	32	29	42	54	67	92	117	142	167	192	204	8 (13)	12 (17)

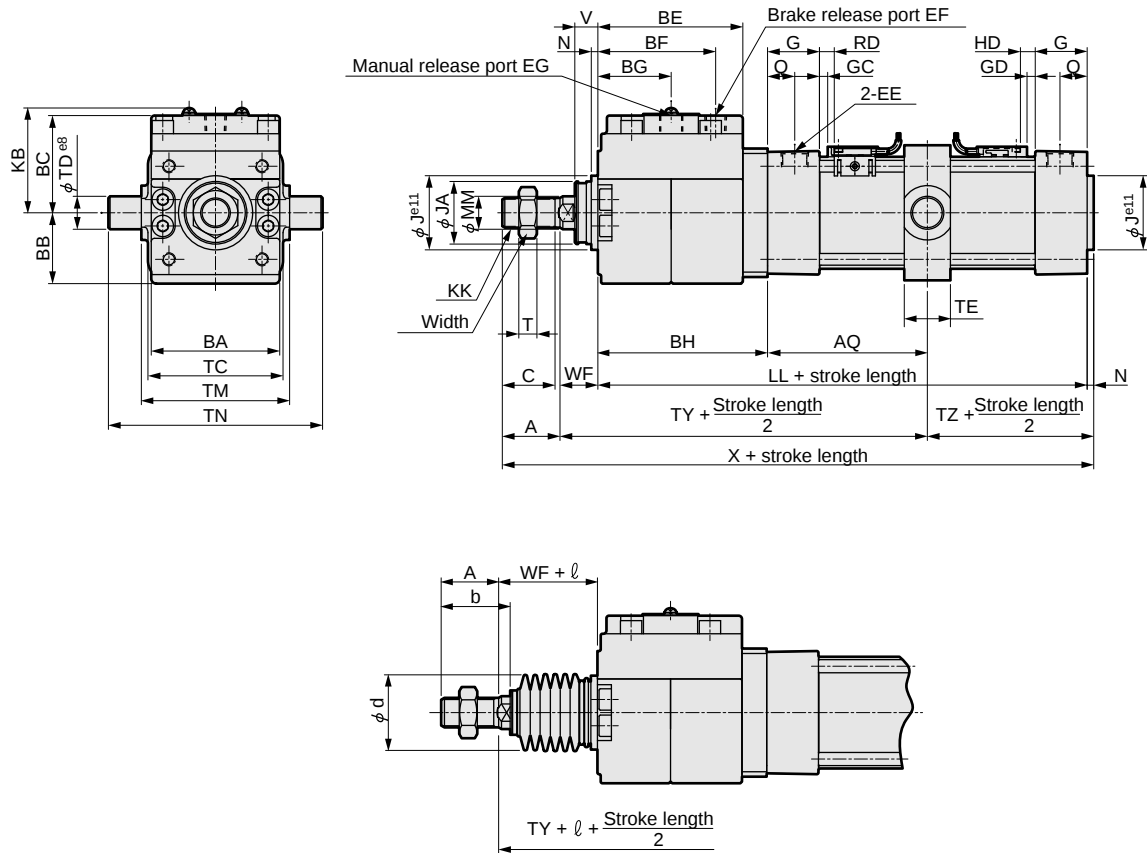
SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Tie rod cylinder with brake
With brake



Dimensions

● Center trunnion type (TC)



Note 1: Dimensions shown in parentheses are for the rubber cushion type. This type is longer than the air cushion type.

(φ40; +6mm, φ50/φ63; +8mm, φ80/φ100; +10mm)

Note 2: RD and HD dimensions in the dimension drawings indicate the position of switch end, and GC and GD indicate the position of switch rail end.

Note 3: Refer to page 1281 for dimensions of type with valves (JSG-V).

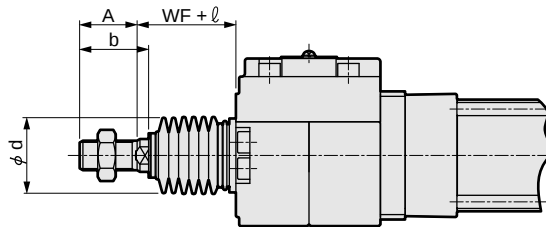
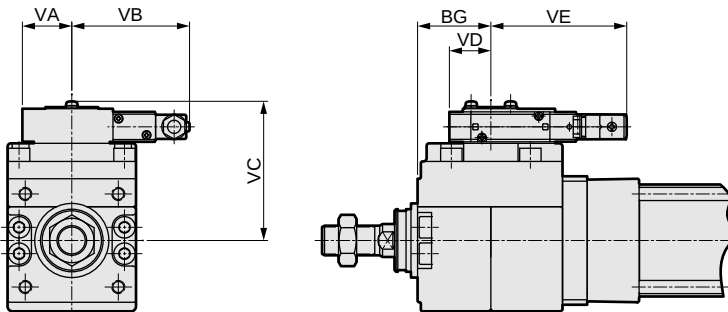
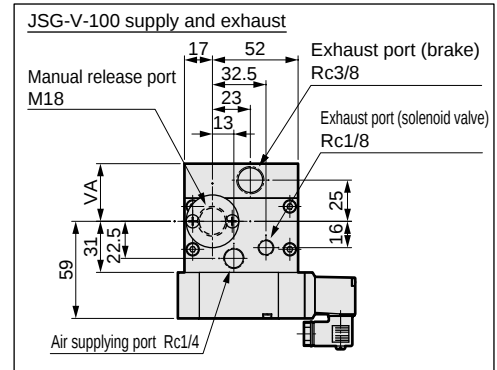
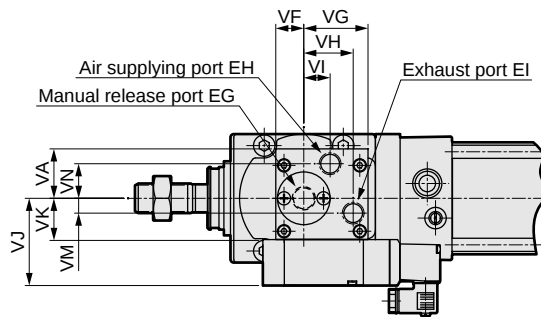
Note 4: Refer to page 1282 for 2 color indicator type, HD, RD dimensions and projection dimensions of preventive maintenance output switch.

Symbol	Center trunnion type (TC) basic dimensions																					
Bore size (mm)	A	B	BA	BB	BC	BE	BF	BG	BH	C	EE	EF	EG	G	J	JA	KB	KK	Note 1 LL			
φ 40	30	22	57	31.5	46.5	63	52.5	32.5	77	27	Rc1/4	Rc1/8	M12	27	35	31	51.1	M14 x 1.5	161 (167)			
φ 50	35	27	68	38	54	74	59	39	89	32	Rc1/4	Rc1/8	M12	31.5	40	38	58.6	M18 x 1.5	183 (191)			
φ 63	35	27	78	43	59	88	71.5	44.5	103	32	Rc3/8	Rc1/4	M14	31.5	45	38	63.6	M18 x 1.5	197 (205)			
φ 80	40	32	98	53	72.5	108	81.5	54.5	131	37	Rc3/8	Rc1/4	M16	38	45	43	77.1	M22 x 1.5	245 (255)			
φ 100	40	41	118	63	80.5	129	101	65.5	151	37	Rc1/2	Rc3/8	M18	38	55	51	85.1	M26 x 1.5	265 (275)			
Symbol									Installation dimensions													
Bore size (mm)	MM	N	Q	T	V	WF	Note 1 X	TC	TD	TE	TM	TN	Note 1 TY	Note 1 TZ	Note 1 AQ							
φ 40	16	4	14	8	13	21	216 (222)	57	16	22	63	95	140 (143)	46 (49)	42 (45)+	Stroke length 2						
φ 50	20	4	15.5	11	14	23	245 (253)	67	16	22	75	107	159 (163)	51 (55)	47 (51)+	Stroke length 2						
φ 63	20	4	16.5	11	14	23	259 (267)	82	20	28	90	130	173 (177)	51 (55)	47 (51)+	Stroke length 2						
φ 80	25	4	19	13	20	32	321 (331)	100	20	34	110	150	220 (225)	61 (66)	57 (62)+	Stroke length 2						
φ 100	30	4	19	16	20	32	341 (351)	121	25	40	132	182	240 (245)	61 (66)	57 (62)+	Stroke length 2						
Symbol	With bellows												With switch									
Bore size (mm)	A	b	d	WF	ℓ									Note 1 GC		Note 1 GD		Note 1 RD		Note 1 HD		P
φ 40	30	35	40	21	30	43	55	68	93	118	143	-	-	-	1 (4)	1 (4)	5 (8)	5 (8)	29			
φ 50	35	42	47	23	31	44	56	69	94	119	144	169	-	-	2.5 (6.5)	1 (5)	6.5 (10.5)	5 (9)	34			
φ 63	35	42	47	23	31	44	56	69	94	119	144	169	-	-	2.5 (6.5)	1 (5)	6.5 (10.5)	5 (9)	40			
φ 80	40	50	53	32	29	42	54	67	92	117	142	167	192	204	8.5 (13.5)	2 (7)	12.5 (17.5)	6 (11)	-			
φ 100	40	52.5	61	32	29	42	54	67	92	117	142	167	192	204	8 (13)	2.5 (7.5)	12 (17)	6.5 (11.5)	-			

Dimensions



● JSG-V (with valve for brake release)



Note 1: The shape of the JSG-V-100 supply and exhaust port differs from other sizes.

Refer to dimension drawing of the JSG-V-100 supply and exhaust port at the upper right.

Symbol	With valve for brake release (JSG-V) basic dimensions																
Bore size (mm)	BG	EG	EH	EI	VA	VB	VC	VD	VE	VF	VG	VH	VI	VJ	VK	VM	VN
φ 40	32.5	M12	Rc1/8	Rc1/8	26	62.5	72	24	83.5	19	38	30	12.5	44	16	4	16
φ 50	39	M12	Rc1/8	Rc1/8	26	62.5	79.5	24	83.5	19	38	30	12.5	44	16	4	16
φ 63	44.5	M14	Rc1/4	Rc1/4	30	71.5	84.5	25	82.5	17	39	30	16	53	25	9	21
φ 80	54.5	M16	Rc1/4	Rc1/4	30	71.5	98	25	82.5	17	39	30	16	53	25	9	21
φ 100	65.5	M18	Note 1			35	77.5	113	21	86.5	Note 1						

Symbol	With bellows													
Bore size (mm)	A	b	d	WF	ℓ									
					50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	500 to 600	600 to 700	700 to 750
φ 40	30	35	40	21	30	43	55	68	93	118	143	-	-	-
φ 50	35	42	47	23	31	44	56	69	94	119	144	169	-	-
φ 63	35	42	47	23	31	44	56	69	94	119	144	169	-	-
φ 80	40	50	53	32	29	42	54	67	92	117	142	167	192	204
φ 100	40	52.5	61	32	29	42	54	67	92	117	142	167	192	204

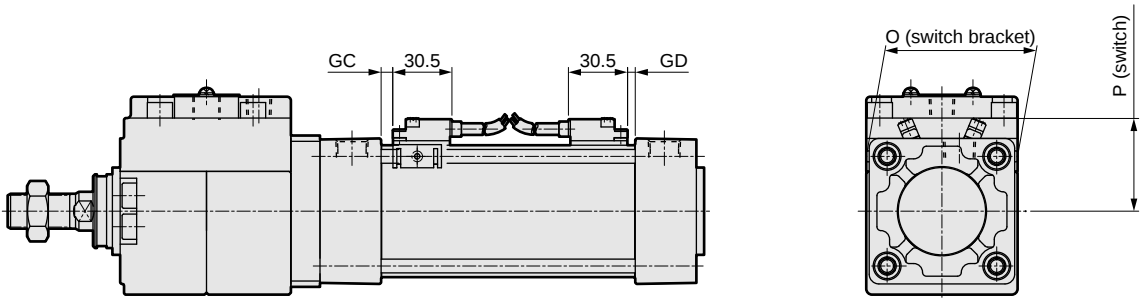
* Dimensions other than those above are the same as the double-acting and single-rod type. Refer to pages 1272 to 1280.

SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Tie rod cylinder with brake
With brake



JSG Series common (2 color indicator type, with preventive maintenance output with switch) dimensions



2 color indicator type, preventive maintenance output switch installation dimensions

Symbol Bore size (mm)	P				Other than T8*		T8*		O
	2 color indicator type		Preventive maintenance output type		Note 1 GC	Note 1 GD	GC	GD	
	T*YH	T*YV	T*Y*H	T*Y*V					
φ 40	35	38	40	43	4 (7)	4 (7)	0 (2)	0 (2)	58
φ 50	39	42	44	47	5.5 (9.5)	4 (8)	0.5 (4.5)	0 (3)	68
φ 63	45	48	50	53	5.5 (9.5)	4 (8)	0.5 (4.5)	0 (3)	78
φ 80	52	55	57	60	11.5 (16.5)	5 (10)	6.5 (11.5)	0 (5)	95
φ 100	60	63	64	67	11 (16)	5.5 (10.5)	6 (11)	0.5 (5.5)	114

Note 1: Dimensions shown in parentheses are for rubber cushion type.



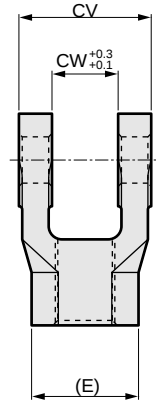
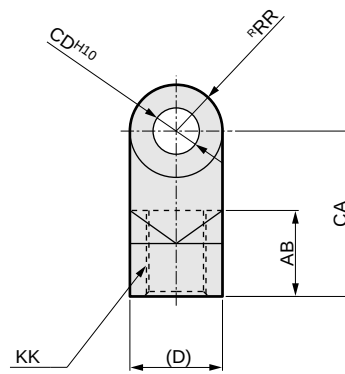
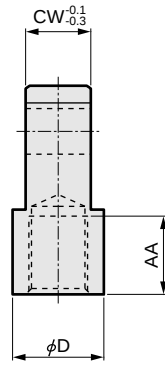
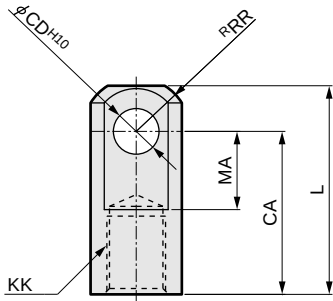
SCG Series common accessory (rod eye/clevis/bracket) dimensions

● Rod eye (I)

Material: Steel

● Rod clevis (Y)

Material: Cast iron



Model no.	Applicable bore size (mm)	AA	CA	CD	CW	D	KK	L	MA	RR	Weight (kg)
SCG-I-40	40	19	40	10	14	22	M14 x 1.5	50	19	12.5	0.07
SCG-I-50	50,63	24	50	14	20	28	M18 x 1.5	64	24	16.5	0.20
SCG-I-80	80	26	60	22	30	40	M22 x 1.5	80	34	23.5	0.52
SCG-I-100	100	26	60	22	30	40	M26 x 1.5	80	34	23.5	0.48

Model no.	Applicable bore size (mm)	AB	CA	CD	CV	CW	D	E	KK	RR	Weight (kg)
SCG-Y-40	40	21	40	10	28	14	22	25.4	M14 x 1.5	11	0.13
SCG-Y-50	50,63	26	50	14	40	20	28	32.3	M18 x 1.5	14	0.30
SCG-Y-80	80	31	65	22	60	30	40	46.2	M22 x 1.5	20	0.94
SCG-Y-100	100	31	65	22	60	30	40	46.2	M26 x 1.5	20	0.92

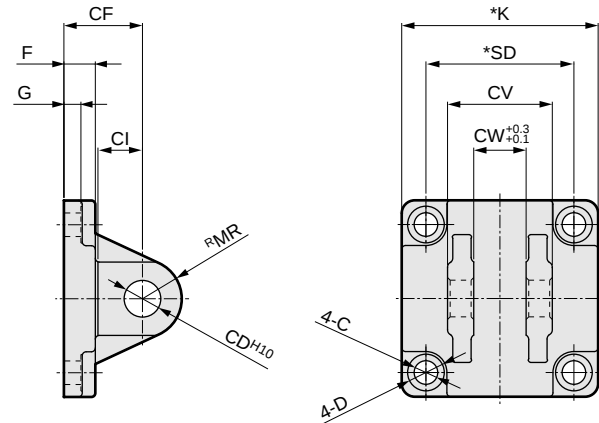
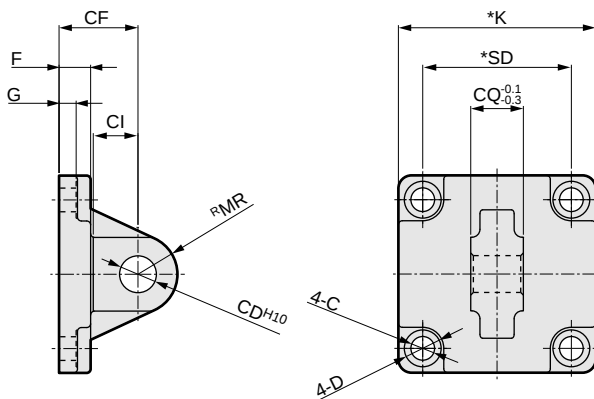
Note: Pin, split pin and plain washer are included.

● Eye bracket (B1)

Material: Cast iron

● A clevis bracket type (B2)

Material: Cast iron



Model no.	Applicable bore size (mm)	C	CD	CF	CI	CQ	D	F	G	K	MR	SD	Weight (kg)
SCG-B1-40	40	6.6	10	23	13	14	11	9	4.5	52	11	38	0.16
SCG-B1-50	50	9	14	30	17	20	14	12	6.5	65	15	46.5	0.38
SCG-B1-63	63	9	14	30	17	20	14	12	6.5	75	15	56.5	0.48
SCG-B1-80	80	11	22	42	26	30	17	15	8.5	95	23	72	1.19
SCG-B1-100	100	11	22	42	26	30	17	15	8.5	114	23	89	1.56

Model no.	Applicable bore size (mm)	C	CD	CF	CI	CV	CW	D	F	G	K	MR	SD	Weight (kg)
SCG-B2-40	40	6.6	10	23	13	28	14	11	9	4.5	52	11	38	0.20
SCG-B2-50	50	9	14	30	17	40	20	14	12	6.5	65	15	46.5	0.46
SCG-B2-63	63	9	14	30	17	40	20	14	12	6.5	75	15	56.5	0.58
SCG-B2-80	80	11	22	42	26	60	30	17	15	8.5	95	23	72	1.52
SCG-B2-100	100	11	22	42	26	60	30	17	15	8.5	114	23	89	1.91

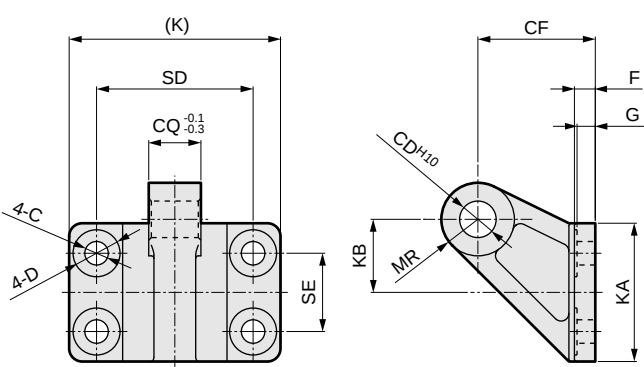
Note: Pin, split pin and plain washer are included.

Tie rod cylinder with brake
With brake

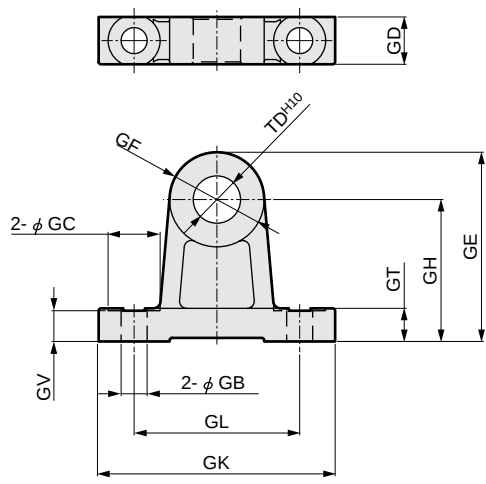
SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Accessory dimensions

● Eye bracket (B3) Material: Cast iron ● Trunnion type No. 2 bracket (B4) Material: Cast iron

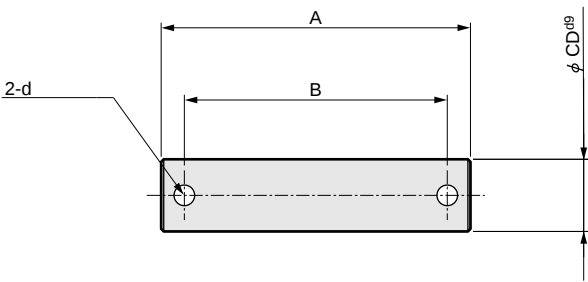


Model no.	Applicable bore size (mm)	C	CD	CF	CQ	D	F	G	K	KA	KB	MR	SD	SE	Weight (kg)
SCG-B3-32	40	6.6	10	33	14	15	7	6	62	42	21	10	44	22	0.21
SCG-B3-50	50,63	9	14	45	20	18	8	7	81	53	28	14	60	30	0.45
SCG-B3-80	80,100	11	22	65	30	22	10	9	111	73	41.5	22	86	45	1.23



Model no.	Applicable bore size (mm)	GB	GC	GD	GE	GF	GH	GK	GL	GT	GV	TD	Weight (kg)
SCG-B4-40	40,50	9	18	17	60	30	45	80	60	12	11	16	0.43
SCG-B4-63	63,80	11	22	20	80	40	60	100	70	14	13	20	0.87
SCG-B4-100	100	13.5	24	26	100	50	75	120	90	17	16	25	1.75

● Pin (P) Material: Steel



Model no.	Applicable bore size (mm)	A	B	CD	d	Weight (kg)
SCG-P-32	40	44	36	10	3	0.04
SCG-P-50	50, 63	60	51	14	4	0.10
SCG-P-80	80, 100	82	72	22	4	0.34

Note: Split pin and plain washer for clevis, rod clevis, clevis bracket types are attached.

Applications

This product can be used with devices and equipment requiring the following types of functions.

1 Requiring multi point positioning (transfer and positioning)

The equipment can be accurately stopped at the several required positions.

2 Requiring position locking

As the brakes can be applied and held instantly when the air source or power is turned OFF (during power failure or accident), damage to the equipment can be prevented and safety can be secured.

3 Requiring emergency stop

The cylinder can be stopped with electric signals, etc., when the worker, etc., is entering hazardous areas, etc.

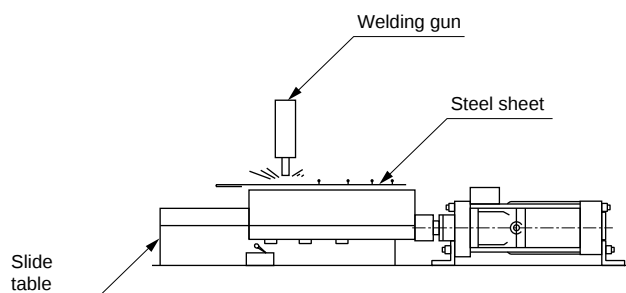
4 Work lock

When the workpiece is locked to the jig or mounting frame, etc., it can be locked even if there is no air pressure source or power. The workpiece can be transferred while locked to the jig.

Applications

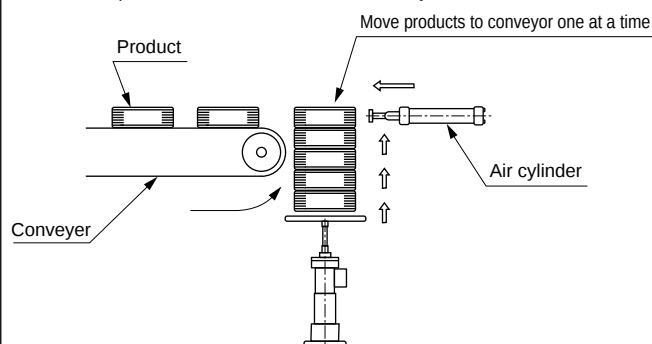
1 Linear multipoint welding

When welding steel plates, etc., linearly at several points, this cylinder can be used to move and position the slide table or welding gun.



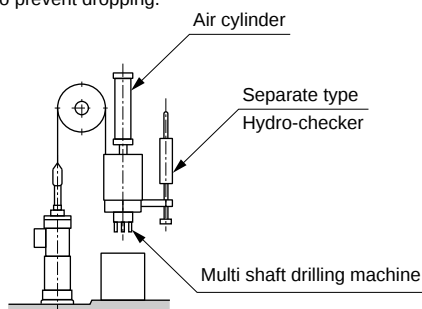
4 Movement to conveyor

The products can be moved to the conveyor one at a time.



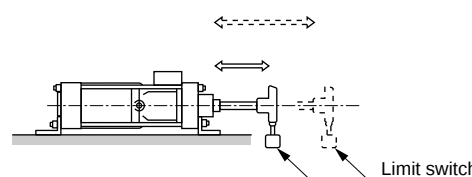
2 Position locking

If there is a load in the vertical direction and the load could drop with its own weight when the pressure source is cut off, the brakes will be applied to prevent dropping.



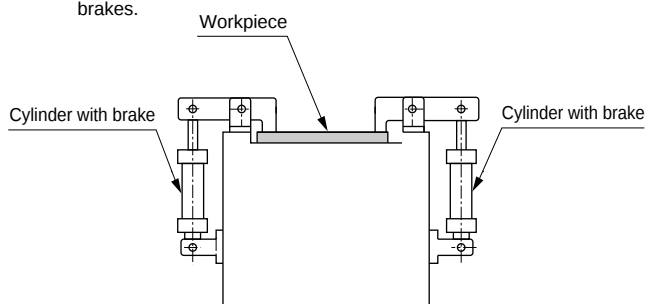
5 When several cylinders with different strokes are required

When different sized products pass to the conveyor, etc., and there are many cylinders set, the stroke must be changed. By using the cylinder, a cylinder compatible with various strokes can be created electrically.



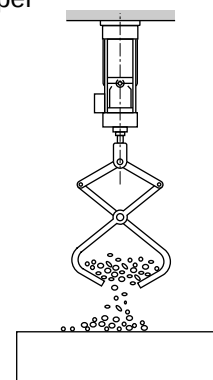
3 Work lock

When the workpiece is locked to a jig, etc., it can be locked even when the air pressure source or power by using the cylinder with brakes.



6 Open and close of hopper

When a hopper has to be closed at a specific weight, such as when dispensing powders, the hopper is closed just before it is fully closed to accurately measure the powder, and then it is fully closed.



SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Tie rod cylinder with brake
With brake