

Note: $\phi 40$ is not available for the support-hole trunnion (TF, TD, TE).
 Note: Mounting style TA or position locking mechanism R is not available.
 Note: Mounting style TB or position locking mechanism H is not available.

[illegible]

SCP2*
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/0V2
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
CAC
RCC2
MFC
SHC
GLC
Ending

Selection table of variation and options

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

- : Standard
- ◎ : Option
- : Available (custom order)
- △ : Available depending on conditions (consult with CKD)
- X : Not available
- H : Only head end position locking permissible (custom order)
- R : Only rod end position locking permissible (custom order)

Code	Code	Variation																				Port thread		Option								
			Double acting basic type	Double acting double rod type	Back to back type	Double piston type	Adjustable stroke extend	Adjustable stroke retract	Position locking type	With valve	Cylinder tube steel pipe	Low hydraulic type	Heat resistance type (120℃)	Low friction type (low pressure)	Low friction type (with pressurized)	Rubber scraper type	Coil scraper type	Coolant proof scraper (NBR)	Coolant proof scraper (FKM)	Spatter adherence prevention type	With cylinder switch	Strong magnetic field proof, cylinder switch	Heat resistance with cylinder switch	NPT	G	Nylon tarpaulin with bellows	Silicone rubber with bellows	Piston rod material (stainless steel)	Cushion needle relocation	Copper and PTFE free type	Customized piston rod end form	
		Symbol	No	D	B	W	P	R	Q2	V	K	H	T	O	U	G	G1	G2	G3	G4	No	L2	L2T	N	G	J	L	M	R,S,T	P6	N**	
Variation	Double acting basic type	Blank																			●			○	○	○	○	○	○	○	○	
	Double acting double rod type	D		X	Note 1	X	X	○	△	○	△	△	Note 2	Note 2		○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○	
	Back to back type	B			X	X	X	○	△	○	○	○	○	△	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○	
	Double piston type	W				X	X	X	Note 3	○	○	○	Note 4	Note 4		○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○	
	Adjustable stroke extend	P					X	H	○	○	△	△	Note 2	Note 2	△	△	△	△	△	△	●	○	○	○	○	○	○	○	○	○	○	
	Adjustable stroke retract	R						R	○	○	X	△	○	○	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○	
	Position locking type	Q2							X	○	X	X	△	X	△	△	△	△	△	△	●	○	X	○	○	△	△	○	○	○	○	
	With valve	V								○	X	X	X	X	○	○	X	X	○	○	●	○	X	○	○	○	○	○	○	X	○	
	Cylinder tube steel pipe	K									○	○	○	△	○	○	X	X	○	X	X	X	○	○	○	○	○	○	○	○	○	
	Low hydraulic type	H										X	X	X	△	X	X	X	X	X	●	○	X	○	○	○	○	○	○	○	○	
	Heat resistance type (120℃)	T											X	X	X	○	X	X	X	X	X	X	○	○	○	X	○	○	○	○	○	
	Low friction type (low pressure)	O												X	X	X	X	X	X	X	●	○	X	○	○	Note 5	Note 5	○	○	○	○	
	Low friction type (pressurized)	U													X	X	X	X	X	X	●	○	X	○	○	X	X	○	○	X	○	
	Rubber scraper type	G																			●	○	X	○	○	○	○	○	○	○	○	
	Coil scraper type	G1																			●	○	○	○	○	X	X	○	○	X	○	
	Coolant proof scraper (NBR)	G2																			●	○	X	○	○	X	X	●	○	○	○	
	Coolant proof scraper (FKM)	G3																			●	○	X	○	○	X	X	●	○	○	○	
	Spatter adherence prevention type	G4																			●	○	X	○	○	X	X	○	○	X	○	
	With cylinder switch	Blank																				X	X	○	○	○	○	○	○	○	○	○
	Strong magnetic field proof, cylinder switch	L2																					X	○	○	○	○	○	○	○	○	○
Heat resistance with cylinder switch	L2T																						○	○	○	○	○	○	○	○	○	
Port thread	NPT	N																						○	○	○	○	○	○	○	○	
	G	G																						○	○	○	○	○	○	○	○	
Option	Nylon tarpaulin with bellows	J																						○	○	○	○	○	○	○	○	
	Silicone rubber with bellows	L																							○	○	○	○	○	○	○	
	Piston rod material (stainless steel)	M																							○	○	○	○	○	○	○	
	Cushion needle relocation	R,S,T																							○	○	○	○	○	○	○	
	Copper and PTFE free type	P6																								○	○	○	○	○	○	○
Accessory	Customized piston rod end form	N**																														
Accessory	Cylinder switch	on another section	○	○	○	○	○	○	○	X	○	X	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Rod eye	I	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	△	○
	Rod clevis	Y	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	△	○
	Eye bracket	B1	○	X	X	○	X	X	○	○											○	○	○	○	○	○	○	○	○	○	○	○
	Clevis bracket	B2	○	X	X	○	X	X	○	○											○	○	○	○	○	○	○	○	○	○	○	○
	Eye bracket	B3	○	X	X	○	X	X	○	○											○	○	○	○	○	○	○	○	○	○	○	○
	Bracket for trunnion	B4	○	○	○	○	○	○	○	○											○	○	○	○	○	○	○	○	○	○	○	○

Note 1. Only for S2 side.

Note 2. Increase of rod seal and bearing increases resistance value. This results in the different minimum starting pressure.

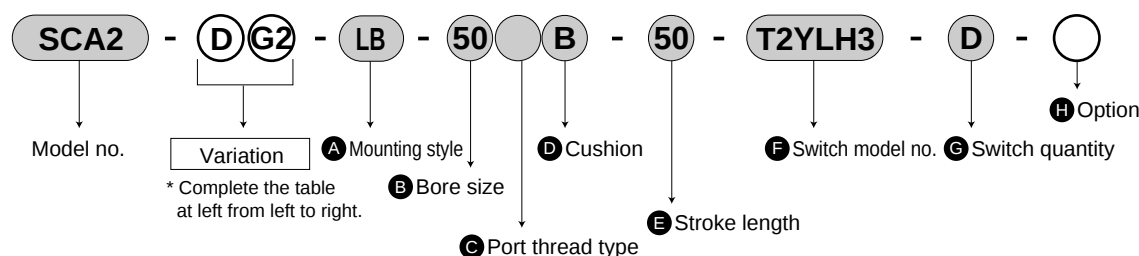
Note 3. The installation position of value is different from standard.

Note 4. Minimum starting pressure on the side of S2 is higher than low friction standard type. Contact CKD for details.

Note 5. Resistance of bellows at stretch motion rises the value of minimum starting pressure. Contact CKD for details.

Note 6. Refer to the Clean Component System (Catalog No. CB-033SA) for details on new fine types P7 and P71.

(How to order)



Model no.: medium bore size cylinder

- Variation : Double rod coolant proof scraper type
- A Mounting style : Axial foot type
- B Bore size : ϕ 50 mm
- C Port thread type : Rc thread
- D Cushion : Both sides cushioned
- E Stroke length : 50 mm
- F Switch model no. : Switch for coolant proof, lead wire 3 m
- G Switch quantity : 2
- H Option : None

Note 1: The back-to-back type has two cylinders. Do as follows to indicate variations for each cylinder.

When variations are added only to S1, indicate the variation symbol before the S1 stroke.

(Example) SCA2-B-40-O100-150: only S1 is low speed type.

When variations are added only to S2, indicate the variation symbol before the S2 stroke.

(Example) SCA2-B-40-100-O150: only S2 is low speed type.

When the same variations are added to both S1 and S2, indicate the variation symbol before the port size.

(Example) SCA2-BO-40-100-150: S1, S2 are both low speed type.

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

Medium bore size cylinder
Standard type



Pneumatic components

Safety precautions

Always read this section before starting use.

Refer to Intro 71 for general notes of cylinders and Intro 78 for cylinder switches.

Medium bore size cylinder SCA2 Series

Design & Selection

1. Common

CAUTION

■ Install a flow control valve on the cylinder.

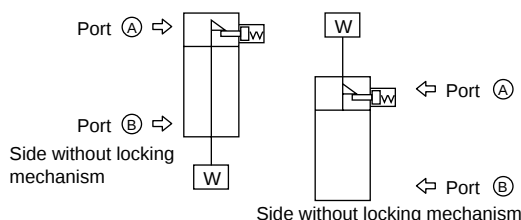
Install a flow control valve on the cylinder.

Use within the applicable piston speed range for each cylinder.

2. Position locking type SCA2-Q2

CAUTION

■ If pressure is supplied to port (A) in the locked state with neither port pressurized, locks may not be releasable or may be released suddenly, causing the piston rod to pop out, which is extremely dangerous. When releasing locking mechanism, always supply pressure to port (B) and confirm the state if no load is applied to the locking mechanism before releasing the lock.



■ If lowering speed is to be increased with the quick exhaust valve, the cylinder may move out faster than the lock pin and prevent the locking pin from being released correctly.

Do not use a quick exhaust valve with the cylinder with position locking.

■ Do not use a 3-position valve.

Do not use this together with 3-position solenoid valve, especially with closed center metal seal type. This kind of use closes the pressure at the locking mechanism side, and is unable to lock the position. Even once locked, air leakage from a solenoid valve will enter to a cylinder and this may release locking.

CAUTION

■ Cylinder load factor must be 50% or less.

If the load factor is high, the lock may not be released or the lock section could be damaged.

■ If back pressure is applied to the locking mechanism, the lock may be released. Use the solenoid valve as a discrete unit, or use an independently exhausted manifold.

■ Do not operate cylinders synchronously.

Do not move more than one workpiece using more than two cylinders with position locking mechanism simultaneously. One of the cylinder's locks may not be released.

3. Low friction type SCA2-U

WARNING

■ Durability differs based on working conditions and model features.

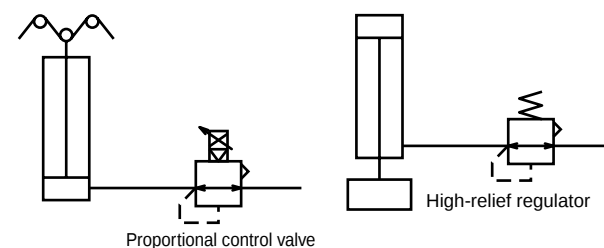
This cylinder is the cylinder which has internal leakage.

Refer to the specification on page 516 for the internal leakage volume.

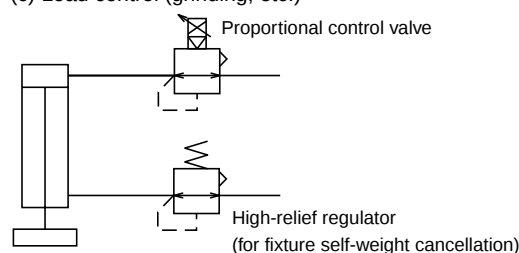
CAUTION

■ When a balancer, etc., is used, a flow control valve should not be installed if supply and exhaust efficiency are impaired. Use of circuits (a) to (c) below is recommended based on the application.

(a) Tension control (winder, etc.) (b) Balancer (finishing machine Z axis, etc.)



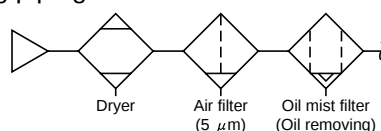
(c) Load control (grinding, etc.)



* Maximize piping volume to improve supply and exhaust.

■ Do not lubricate this product. Features will be adversely affected.

■ Poor air quality worsens features and adversely affects durability. Always Use clean air with the following piping.



■ Install the flow control valve near the cylinder.

If this is installed away from a cylinder, adjustment will be unstable.

- Generally, the speed is stable when the load factor is lower when air pressure is higher.
Keep the load factor at 50% or less.

4. Low hydraulic type SCA2-H

⚠ CAUTION

- Select low hydraulic cylinder combined with the converter unit.
Maximize operation by combining the low hydraulic cylinder and converter unit. Select an appropriate converter unit.
- Keep the low hydraulic cylinder's load to 50% or less of the logical output.
To attain constant speed operation and stopping precision performance similar to the hydraulic cylinder, the low hydraulic cylinder load must be 50% or less.
- Use petroleum-based turbine oil for working oil. Problems occur if noncombustible working oil is used.
The appropriate viscosity is 40 to 100 mm²/s at the working temperature. The temperature range is 15 to 35 °C at ISO VG32. When using in a range exceeding ISO VG32, use ISO VG46 (25 to 45 °C).

Turbine oil of ISO VG32
(Example) (Additive-free)

IDEMITSU	: Turbine oil P32
Nippon oil corp.	: Turbine oil 32
MARUZEN	: Turbine oil 32
MITSUBISHI	: MITSUBISHI turbine oil 32
(Additive)	
IDEMITSU	: Daphne turbine oil 32
Nippon oil corp.	: FBK turbine 32
MARUZEN	: Turbine super 32
MITSUBISHI	: Diamond turbine oil 32

5. Coolant proof type SCA2-G2/G3

⚠ CAUTION

- Do not apply the deviated load onto the piston rod.
It could shorten scraper and bearing life.
- When using the G2 or G3 Series and the coolant or water does not splatter, the piston rod's lubrication could be spent and cause the life to shorten. Use the G or the G1 Series in this case.

6. Spatter proof adhesion prevention type SCA2-G4

⚠ WARNING

- The durability of this cylinder in an environment containing spatter is higher than the general cylinder, but durability may be shorter than the general cylinder when used in other environments.

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

Medium bore size cylinder
Standard type

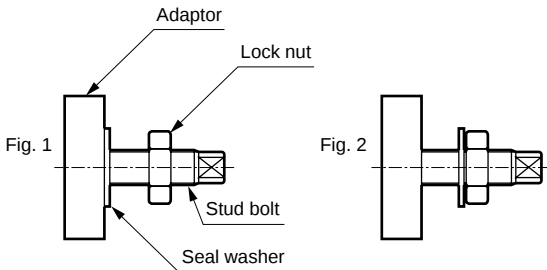
SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Installation & Adjustment

1. Stroke adjustable type SCA2-R

CAUTION

- Accurately lock the stud bolt with a lock nut.
- Release air before adjusting stroke.
Do not tighten the stud bolt as shown in Fig 1.
Tighten the stud bolt as shown in Fig.2.
Do not tighten the lock nut as shown in Fig.2.
Tighten the lock nut as shown in Fig. 1.
If the above precautions are not observed, the seal washer may break after 1 or 2 adjustments.



- The seal washer is used as the stud bolt seal, and cannot withstand frequent adjustments.
- The cushion has no effect when adjusting the stroke.

2. Heat resistance type SCA2-T

CAUTION

- The magnet is not used.

3. Position locking type SCA2-Q2

CAUTION

- The lock functions at the stroke end. If the stopper is applied with an external stopper in the middle of the stroke, the lock may not function and result in dropping. Before setting the load, check that the locking mechanism functions correctly.

- Supply a pressure higher than the minimum working pressure to the port having the locking mechanism.
- If piping on the side with the lock is thin and long, or if the speed controller is separated from the cylinder port, exhaust may slow, taking time for the lock to function. This may also occur if the silencer on the valve's EXH port is clogged.

4. Low friction type SCA2-U

CAUTION

- Do not apply lateral load on cylinder.
Install sliding guide without twist and biting.
 - The presence of load or resistance variation may result in unstable operations.
 - Speed becomes unstable depending on the self-weight of the piston rod for long stroke. Install and use a guide.
 - Large differential between static friction and dynamic friction of guide results in unstable operation.
- Avoid use in the place subject to vibration.
 - The product will be adversely affected by vibration and operation will be unstable.

5. Low hydraulic type SCA2-H

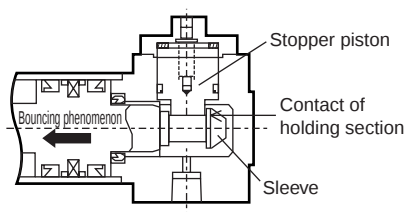
- Do not use the push-in joint for low hydraulic cylinder piping.
Using a push-in joint for low hydraulic cylinder piping could result in oil leaks.
- Use copper or brass pipes when piping the low hydraulic cylinder.
As with the hydraulic cylinder, high surge pressure could be generated in low hydraulic cylinder piping due to working pressure. Use safe piping materials.
- Avoid use with single air or single hydraulic pressure.
Air could enter oil and cause malfunctions.

During Use & Maintenance

1. Position locking type SCA2-Q2

⚠ WARNING

- For safety purposes, prevent the load from dropping under its own weight during maintenance.
- When using the cylinder with air cushion, if the air cushion needle on the lock mechanism side is tightened too tight, the piston could bounce at the stroke end causing the sleeve and stopper piston to collide and damage the locking mechanism. If the air cushion needle is opened too far, the piston could spring back at the stroke end and cause similar damage. Adjust the air cushion needle so that the piston does not bounce.



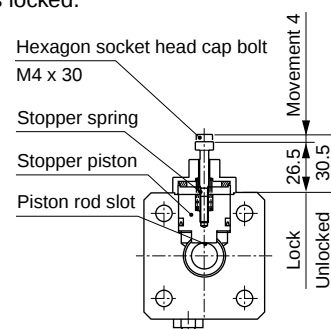
Regularly (once/twice a year) check that the holding section is not damaged by this symptom.

⚠ CAUTION

- If the locking mechanism has been manually operated, check and then return it manually to the original position. Do not use a manual override except during adjustment, because this may be dangerous.
- Release the lock when installing or adjusting the cylinder.
The lock could be damaged if the cylinder is installed while the lock is applied.
- Use the flow control valve with meter-out control.
Locks may not be released during meter-in control.
- On the side of locking mechanism, the piston rod must reach the stroke limit.
If the cylinder's piston does not reach the stroke end, the lock may not be applied or may not be released.

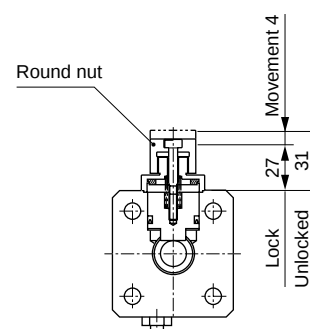
■ Releasing the nonlocking manual override

The stopper pin moves and the lock is released when the hexagon socket head bolt is screwed into the stopper piston and the bolt is pulled up 4 mm with a force of 20 N or more. During no-load horizontal installation or when counter side port is pressurized. When the hand is released, if the stopper piston returns by the internal spring and enters the piston rod groove, the piston is locked.



■ Releasing the locking manual override

When the round nut is turned counterclockwise, the stopper pin moves and the lock is released. When the nut is turned clockwise to the lock position, the stopper piston returns. When it fits into the piston rod groove again, the piston is locked.



2. Low friction type SCA2-U

⚠ CAUTION

- Do not disassemble this product. The performance may be compromised.
This product cannot be purchased as a repair part.

3. Low hydraulic type SCA2-H

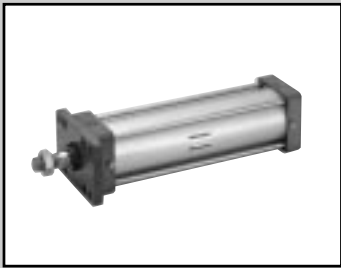
⚠ CAUTION

- Regularly exhaust air from the low hydraulic cylinder.
To keep air from accumulating there, use the air exhaust valve on piping exhaust before starting operation.
- If drainage enters working oil or if working oil becomes cloudy, degraded, or discolored, replace with new oil.
Use the same brand of oil for replacement.

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

Medium bore size cylinder
Standard type

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

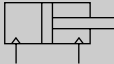


Medium bore size cylinder
 Double acting, single rod type/with switch

SCA2 Series

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

JIS symbol



Specifications

Descriptions		SCA2/SCA2-L2				
Bore size	mm	φ 40	φ 50	φ 63	φ 80	φ 100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure MPa		1.0				
Min. working pressure MPa		0.05				
Withstanding pressure MPa		1.6				
Ambient temperature °C		-10 to 60 (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance mm		^{+0.9} ₀ (Up to 360), ^{+1.4} ₀ (Up to 800)				
Working piston speed mm/s		50 to 1000 (use within the allowable energy absorption.)				
Cushion		Air cushion				
Effective cushion length mm		14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)				
Allowable energy absorption J	Cushioned	4.29	8.37	15.8	27.9	49.8
		0.067	0.079	0.079	0.201	0.301
	No cushion	If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Available stroke length (mm)	Min. stroke length (mm)
ϕ40	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	600	1600	1
ϕ50			2000	
ϕ63		700	2500	
ϕ80				
ϕ100				

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

Note 2: If the maximum stroke is exceeded, product specifications may not be met, depending on operating conditions. Refer to Ending 74.

Min. stroke length of type with switch

● T0/T5 type min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ 40	20 (10)	20 (20)	40 (40)	60 (60)	20 (10)	60 (45)	105 (75)	150 (105)	110 (110)	110 (110)	175 (145)	175 (145)	50 (50)	50 (50)
ϕ 50	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	20 (20)	65 (50)	65 (60)	135 (135)	135 (135)	135 (135)	135 (135)	60 (60)	60 (60)
ϕ 63	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	20 (20)	70 (55)	70 (60)	110 (95)	110 (95)	110 (100)	110 (100)	50 (45)	50 (45)
ϕ 80	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	115 (85)	115 (85)	115 (105)	115 (105)	55 (40)	55 (40)
ϕ 100	15 (15)	25 (25)	45 (45)	70 (70)	15 (15)	25 (25)	70 (55)	70 (70)	125 (95)	125 (95)	125 (115)	125 (115)	60 (45)	60 (45)

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 min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ 40	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	50 (35)	95 (65)	140 (95)	95 (85)	95 (85)	155 (125)	155 (125)	45 (40)	45 (40)
ϕ 50	10 (10)	20 (20)	40 (40)	60 (60)	10 (10)	20 (20)	70 (55)	70 (60)	115 (115)	115 (115)	135 (135)	135 (135)	50 (50)	50 (50)
ϕ 63	10 (10)	20 (20)	40 (40)	60 (60)	10 (10)	20 (20)	70 (55)	70 (60)	95 (75)	95 (75)	110 (110)	110 (110)	45 (35)	45 (35)
ϕ 80	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	100 (70)	100 (70)	115 (115)	115 (115)	50 (35)	50 (35)
ϕ 100	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	110 (80)	110 (80)	125 (125)	125 (125)	55 (40)	55 (40)

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.

Min. stroke length of type with switch

● T2/T3 type min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
φ40	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
φ50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	105 (75)	105 (75)	105 (75)	105 (75)	45 (30)	45 (30)
φ63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	110 (80)	110 (80)	110 (85)	110 (85)	50 (35)	50 (35)
φ80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	115 (85)	115 (85)	115 (90)	115 (90)	55 (40)	55 (40)
φ100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	125 (95)	125 (95)	125 (100)	125 (100)	60 (45)	60 (45)

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 min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
φ40	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
φ50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	100 (70)	100 (70)	100 (75)	100 (75)	45 (30)	45 (30)
φ63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	105 (75)	105 (75)	105 (85)	105 (85)	50 (35)	50 (35)
φ80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	110 (80)	110 (80)	110 (90)	110 (90)	55 (40)	55 (40)
φ100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	120 (90)	120 (90)	120 (100)	120 (100)	60 (45)	60 (45)

Note 1: Value in () for T*V (L type 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

Medium bore size cylinder
Standard type

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

Switch specifications (T type switch)

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

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

Descriptions	Proximity 2-wire			Proximity 3-wire			Reed 2-wire						Proximity 2-wire
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/T2YV	T3H/T3V	T3PH/T3PV (Custom order)	T3YH/T3YV	T0H/T0V		T5H/T5V		T8H/T8V		T2YD
Applications	Programmable controller relay, small solenoid valve	Programmable controller dedicated		Programmable controller, relay			Programmable controller, relay		Programmable controller, relay, IC circuit (w/o light), serial connection		Programmable controller, relay		Programmable controller dedicated
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
Load current	5 to 100 mA	5 to 20 mA (Note 1)		100 mA or less		50 mA or less	5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA
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	1 mA or less with 100 VAC 2 mA or less with 200 VAC	1 mA or less		10 μA or less			0 mA						1 mA 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		Programmable controller, relay		Programmable controller dedicated		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 20 mA		50 mA or less		5 to 20 mA		50 mA or less	
	Leakage current	1 mA or less		10 μA or less		1.2 mA or less		10 μA or less	
Preventive maintenance output	Load voltage	30 VDC or less							
	Load current	20 mA or less		50 mA or less		5 to 20 mA or less		50 mA or less	
	Leakage current	10 μA or less							

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

Switch specifications (H type switch)

Descriptions	Strong magnetic field proof reed 2-wire		
	H0		H0Y (2 color indicator type)
Applications	Relay, programmable controller		Programmable controller dedicated
Load voltage/current	12/24 VDC 5 to 50 mA	110 VAC 7 to 20 mA	24 VDC 5 to 20 mA
Light	Green LED ON lighting		Red/green LED ON lighting
Leakage current	10 μA or less		

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

Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke length (S) = 0 mm							Weight per switch (including mounting bracket)				Additional weight per S = 100 mm	
	Basic type (00)	Foot type (LB)	Flange type (FA and FB)	Special flange (FC)	Eye bracket (CA)	Clevis bracket (CB)	Trunnion type (TA, TB or TC)	T type	H type		T2YD type		
									1 m	3 m	1 m		3 m
φ40	0.83	1.00	1.24	0.92	1.15	1.19	1.21	0.018	0.10	0.20	0.08	0.17	0.39
φ50	1.20	1.45	1.69	1.31	1.58	1.61	1.74						0.46
φ63	1.60	1.97	2.69	1.78	2.17	2.22	2.45						0.50
φ80	2.60	3.34	4.46	2.96	3.87	4.08	3.94						0.90
φ100	4.20	5.11	6.94	4.75	5.84	6.02	6.77						1.12

(E.g.) Product weight of SCA2-LB-50B-200-T0H-D

Product weight when stroke length (S) = 0 mm ... 1.45 kg
 Additional weight at stroke length 200 mm ... $0.46 \times \frac{200}{100} = 0.92$ kg
 Weight of two switches ... $0.018 \times 2 = 0.036$ kg
 Product weight ... $1.45 + 0.92 + 0.036$ kg = 2.406 kg

Oil-prohibited specifications

(Ending 127)

- Grease splash prevented

SCA2

P12

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

Medium bore size cylinder
 Standard type

How to order

Without switch

SCA2 — LB — 40 — B — 100 — S — I

With switch

SCA2 — LB — 40 — B — 100 — T0 — R — S — I

Strong magnetic field proof (H0 and H0Y switch) with switch

SCA2-L2 — LB — 40 — B — 100 — H0Y — R — S — I

A Mounting style
Note 1

B Bore size

C Port thread type

D Cushion

E Stroke length
Note 2

F Switch model no.

G Switch quantity
Note 4

H Option
Note 5

I Accessory
Note 6

Note on model no. selection

Note 1: The mounting bracket is shipped with the product.

(However, trunnion type is attached to the product when shipped.)

Note 2: If the maximum stroke is exceeded, refer to Ending 74.

Note 3: Refer to page 442 for minimum switch stroke length.

Note 4: 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 5: Instantaneous maximum temperature is the temperature when spark and spatter etc. instantaneously contacts to bellows.

Note 6: "I" and "Y" can not be selected at the same time.

Note 7: Refer to Ending 89 for custom specifications of rod end form.

Note 8: Refer to page 436 for the variation and option combination.

<Example of model number>

SCA2-LB-40B-100-T0-R-S-I

Model: Medium bore size cylinder double acting single rod type

A Mounting style : Axial foot type

B Bore size : ϕ 40 mm

C Port thread type : Rc thread

D Cushion : Both sides cushioned

E Stroke length : 100 mm

F Switch model no. : Reed T0 switch, lead wire length 1 m

G Switch quantity : One on rod end

H Option : Cushion needle position S

I Accessory : Rod eye

Symbol	Descriptions		
A Mounting style			
00	Basic type		
LB	Axial foot type		
FA	Rod end flange type		
FB	Head end flange type		
FC	Special head end flange type		
CA	Eye bracket type		
CB	Clevis bracket type (pin and snap ring attached)		
TC	Center trunnion type		
TA	Rod end trunnion type		
TB	Head end trunnion type		
TF	Intermediate supporting hole (φ 40 cannot be selected.)		
TD	Rod end supporting hole (φ 40 cannot be selected.)		
TE	Head end supporting hole (φ 40 cannot be selected.)		
B Bore size (mm)			
40	φ 40		
50	φ 50		
63	φ 63		
80	φ 80		
100	φ 100		
C Port thread type			
Blank	Rc thread		
N	NPT thread (custom order)		
G	G thread (custom order)		
D Cushion			
B	Both sides cushioned		
R	Rod end cushion		
H	Head end cushion		
N	No cushion		
E Stroke length (mm)			
Bore size	Stroke length Note 3	Available stroke length	Custom stroke length
φ 40	1 to 600	1600	Per 1 mm increment
φ 50	1 to 600	2000	
φ 63	1 to 600	2500	
φ 80	1 to 700	2500	
φ 100	1 to 800	2500	
F Switch model no.			
Refer to the switch model no. table on the following page.			
*Lead wire length			
Blank	1m (standard)		
3	3m (option)		
5	5m (option)		
G Switch quantity			
R	One on rod end		
H	One on head end		
D	Two		
T	Three		
H Option			
		Max. ambient	Max. instantaneous
J	Bellows	100 °C	200 °C
L	Bellows	250 °C	400 °C
M	Piston rod material (stainless steel)		
Blank	Cushion needle position R (standard)		
S	Cushion needle position S		
T	Cushion needle position T		
P6	Copper and PTFE free		
I Accessory			
I	Rod eye		
Y	Rod clevis (pin and snap ring attached)		
B1	Eye bracket		
B2	Clevis bracket (pin and snap ring attached)		
B3	Eye bracket		
B4	Trunnion type No. 2 bracket		

How to order mounting bracket

Bore size (mm)	ϕ 40	ϕ 50	ϕ 63	ϕ 80	ϕ 100
Mounting bracket					
Foot (LB)	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Eye (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

Note 1: Refer to page 448 for the mounting bracket material.

Note 2: The foot type bracket is 2 pcs./set.

[F] switch model no.

T type switch model no.				
Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T0H*	T0V*	Reed	1 color indicator type	2-wire
T5H*	T5V*		Without indicator light	
T8H*	T8V*		1 color indicator type	
T1H*	T1V*	Proximity	1 color indicator type	2-wire
T2H*	T2V*			3-wire
T3H*	T3V*			2-wire
T2YH*	T2YV*		2 color indicator type	3-wire
T3YH*	T3YV*			3-wire
T3PH*	T3PV*		1 color indicator type (custom order)	3-wire
T2YFH*	T2YFV*		2 color indicator type (Without light for preventive maintenance output)	3-wire
T3YFH*	T3YFV*		2 color indicator type (With light for preventive maintenance output (1 color))	4-wire
T2YMH*	T2YMV*			3-wire
T3YMH*	T3YMV*			4-wire
T2YD*	-		Strong magnetic field proof switch	2-wire
T2YDT*	-			
T2JH*	T2JV*		Off-delay type	2-wire

R switch/H types switch				
Grommet type	Terminal box type		Contact	Indicator
	Standard type	Splash prf.		
R1*	R1B	R1A		
These types have been changed to T-switch integrated type since Oct 1st 2007.				
R0	R0B	R0A		1 color indicator type
H0*	-	-		Strong magnetic field proof 1 color indicator type
H0Y*	-	-		Strong magnetic field proof 2 color indicator type
				2-wire

How to order switch

(T type switch)

● Switch body + mounting bracket

SCA2 - T0H - 40

Switch model no. (Item ⑤ previous page) Bore size (Item ⑧ previous page)

● Only switch body

SW - T0H

Switch model no. (Item ⑤ previous page)

● Switch bracket set

SCA2 - TS - 40

Bracket Bore size (Item ⑧ previous page)

* Consult with CKD when using the environment compatible T-type switch.

(H type switch)

● Switch body + mounting bracket

SCA2-L2 - H0 - 40

Switch model no. (Item ⑤ previous page) Bore size (Item ⑧ previous page)

● Only switch body

SW - H0

Switch model no. (Item ⑤ previous page)

● Mounting bracket

SCA2-L2 - H - 40

Bore size (Item ⑧ previous page)

(T2YD type switch)

● Switch body + mounting bracket

SCA2 - T2YD - 40

Switch model no. (Item ⑤ previous page) Bore size (Item ⑧ previous page)

● Only switch body

SW - T2YD

Switch model no. (Item ⑤ previous page)

● Mounting bracket

SCA2 - T - 40

Bore size (Item ⑧ previous page)

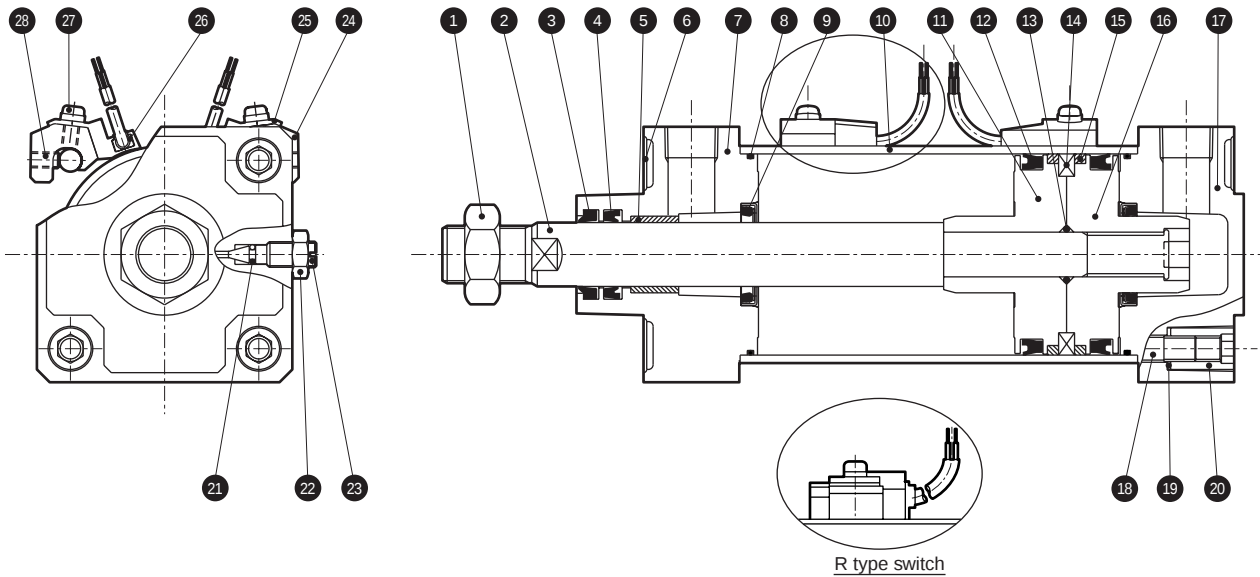
SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Medium bore size cylinder
Standard type

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

Internal structure and parts list

● SCA2



No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Rod nut	Steel	Zinc chromate	16	Piston H	Aluminum alloy die-casting	
2	Piston rod	Steel	Industrial chrome plating	17	Head cover	Aluminum alloy die-casting	Paint
3	Dust wiper	Nitrile rubber		18	Tie rod	Steel	Zinc chromate
4	Rod packing seal	Nitrile rubber		19	Conical spring washer	Steel	Blackening
5	Bush	Oil impregnated bearing alloy	Note 1	20	Round nut	Steel	Zinc chromate
6	Masking plate	Aluminum alloy	Paint	21	Needle gasket	Nitrile rubber	
7	Rod cover	Aluminum alloy die-casting	Paint	22	Needle nut	Copper alloy	Note 2
8	Cylinder gasket	Nitrile rubber		23	Cushion needle	Copper alloy	Note 2
9	Cushion packing seal	Urethane rubber, steel		With switch			
10	Cylinder tube	Aluminum alloy	Hard alumite treatment	24	Switch installation unit	Aluminum alloy	
11	Piston R	Aluminum alloy die-casting		25	Switch holder	Aluminum alloy	
12	Piston packing seal	Nitrile rubber		26	Cylinder switch		
13	Piston gasket	Nitrile rubber		27	Cross headed pan w/washer	Steel	Zinc chromate
14	Magnet	Plastic		28	Hexagon socket head set screw	Alloy steel	Blackening
15	Wear ring	Polyacetal resin					

Note 1: Oil impregnated cast iron bearing is used for copper and PTFE free. Note 2: Steel + galvanizing is used for copper and PTFE free.

Repair parts list

Bore size (mm)	Kit No.	Repair parts number
φ 40	SCA2-40K	
φ 50	SCA2-50K	3 4 8 9 12
φ 63	SCA2-63K	15 21
φ 80	SCA2-80K	
φ 100	SCA2-100K	

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

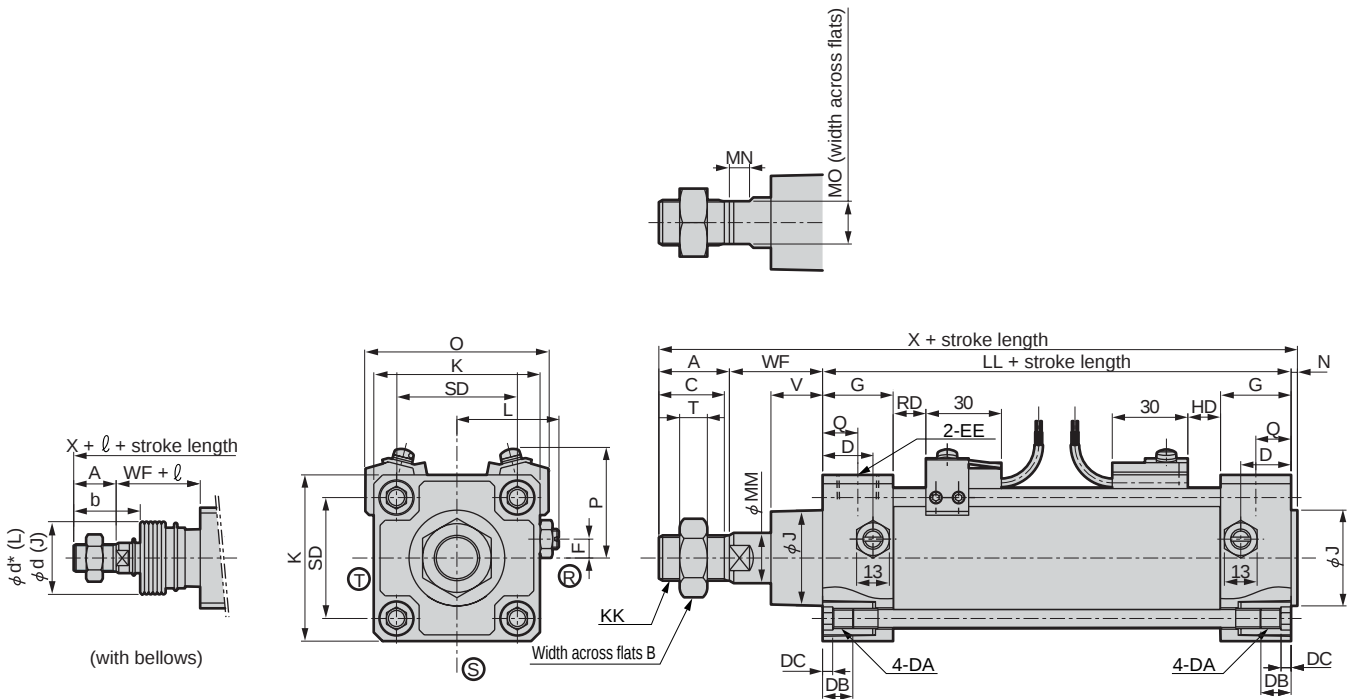
Mounting bracket material

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

Dimensions



● T type basic type with switch (00)



Note 1: For ℓ dimensions, round up decimal places.

Note 2: R, S and T indicates a cushion needle position.

RD: Rod end max. sensitive position

HD: Head end max. sensitive position

Note 3: Refer to page 597 for the projecting dimensions of T2YD, H0 switch.

Note 4: Refer to pages 598, 599 for accessory dimensions.

Symbol	Basic type (00) basic dimensions																								
Bore size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	J	K	KK	L	LL	MM	MN	MO	N	Q	SD	T	V	WF	X
φ 40	22	22	20	18	M8	12	4	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	8	14	2	13	40.5	8	18.5	33.5	150.5
φ 50	28	27	26	20	M8	12	4	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	8	17	2.5	14	48	11	20.5	37	168.5
φ 63	28	27	26	22	M8	12	4	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	8	17	3	15	59	11	21	35	171
φ 80	36	32	34	26	M12	16	5	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	11	22	3.5	17	74	13	23.5	48	203.5
φ 100	45	41	43	28	M12	16	5	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	13	27	4	18	90	16	32	53	230
Symbol	With bellows																		With switch						
Bore size (mm)	A	X	b	d	d*	ℓ								O	P	T0, T5, T2, T3		T1, T2Y, T3Y, T2YFM, T3YFM		T8					
						50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500			RD	HD	RD	HD		RD/HD				
φ 40	22	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8		66	41.5	11	11	10	10	5				
φ 50	28	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5		73	43	13	13	12	12	7				
φ 63	28	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5		85	47	13	13	12	12	7				
φ 80	36	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5		105	57	14.5	14.5	13.5	13.5	8.5				
φ 100	45	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9		121	63	18.5	18.5	17.5	17.5	12.5				

* Round up decimal places.

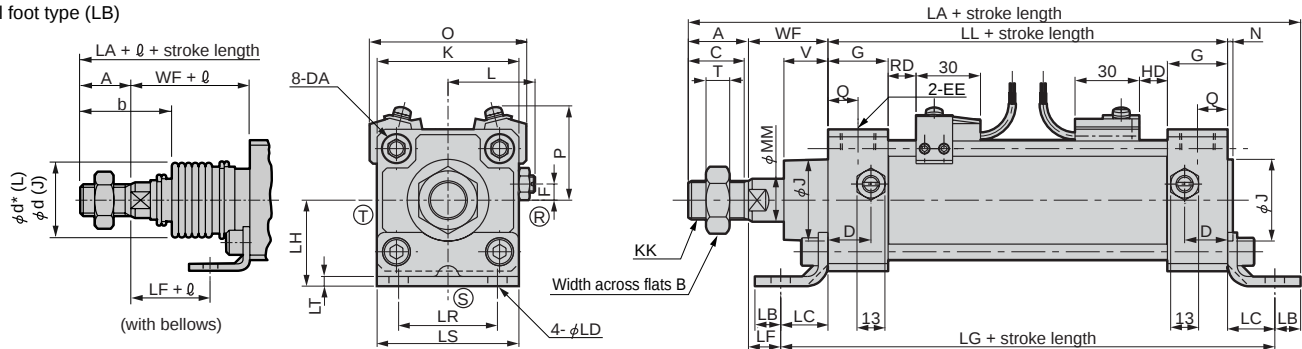
SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Medium bore size cylinder
Standard type

Dimensions



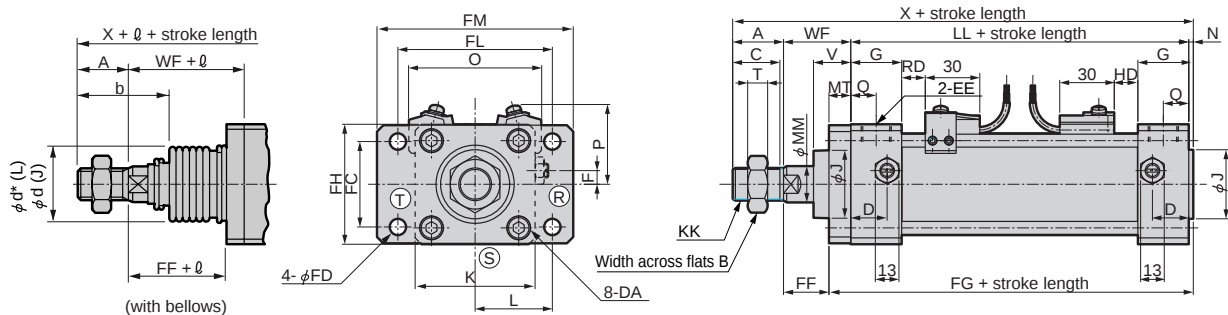
● Axial foot type (LB)



Note 1: For ℓ dimensions, round up decimal places. Note 2: R, S and T indicates a cushion needle position. Note 3: Refer to page 597 for the projecting dimensions of T2YD, H0 switch. Note 4: Refer to pages 598, 599 for accessory dimensions.

Symbol	Axial foot type (LB) basic dimensions																			Installation dimensions						
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	N	Q	T	V	WF	LA	LB	LC	LD	LF	LG	LH
φ40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	2	13	8	18.5	33.5	178	10	19.5	9	14	132	40
φ50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	2.5	14	11	20.5	37	200	12	22	9	15	145	40
φ63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	3	15	11	21	35	210	12	30	11	5	165	50
φ80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	3.5	17	13	23.5	48	251	14	37	14	11	190	60
φ100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	4	18	16	32	53	278	21	31	14	22	190	67
Symbol	With bellows																			With switch						
Bore size (mm)	LR	LS	LT	b	d	d*	ℓ												O	P	T0, T5, T2, T3		T1, T2Y, T3Y, T2YFM, T3YFM	T8		
							50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500	RD	HD	RD	HD			RD	HD				
φ40	40	57	3.2	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8				66	41.5	11	11	10	10	5		
φ50	46	66	4.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5				73	43	13	13	12	12	7		
φ63	60	80	4.5	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5				85	47	13	13	12	12	7		
φ80	74	98	6.0	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5				105	57	14.5	14.5	13.5	13.5	8.5		
φ100	80	118	6.0	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9				121	63	18.5	18.5	17.5	17.5	12.5		

● Rod end flange type (FA)

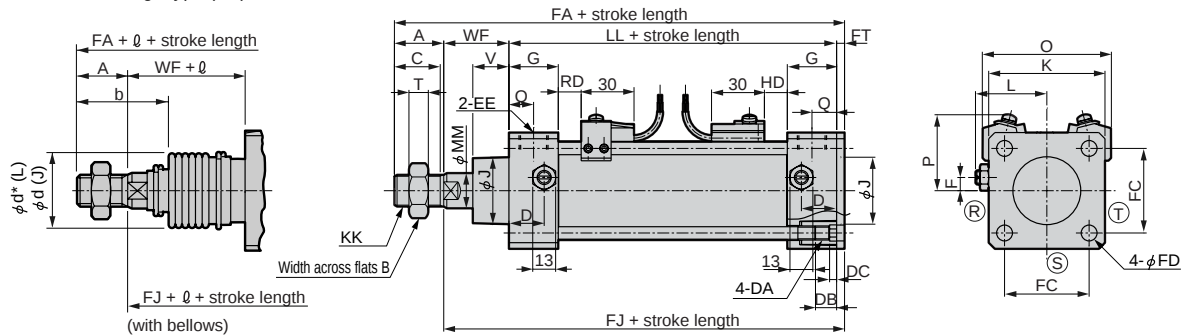


Note 1: For ℓ dimensions, round up decimal places. Note 2: R, S and T indicates a cushion needle position. Note 3: Refer to page 597 for the projecting dimensions of T2YD, H0 switch. Note 4: Refer to pages 598, 599 for accessory dimensions.

Symbol	Basic dimensions for rod end flange type (FA)																				Installation dimensions					
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	N	Q	T	V	WF	X	FC	FD	FF	FG	MT	FH
φ40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	2	13	8	18.5	33.5	150.5	40	9	21.5	107	12	57
φ50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	2.5	14	11	20.5	37	168.5	47	9	25	115.5	12	65
φ63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	3	15	11	21	35	171	60	11	19	124	16	80
φ80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	3.5	17	13	23.5	48	203.5	74	14	29	138.5	19	98
φ100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	4	18	16	32	53	230	88	14	34	151	19	118
Symbol	With bellows																			With switch						
Bore size (mm)	FL	FM	b	d	d*	ℓ							O	P	T0, T5, T2, T3		T1, T2Y, T3Y, T2YFM, T3YFM		T8							
						50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500			Over 500	RD	HD	RD		HD	RD/HD					
φ40	80	100	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8		66	41.5	11	11	10	10	5					
φ50	85	108	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5		73	43	13	13	12	12	7					
φ63	106	130	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5		85	47	13	13	12	12	7					
φ80	125	153	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5		105	57	14.5	14.5	13.5	13.5	8.5					
φ100	144	180	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9		121	63	18.5	18.5	17.5	17.5	12.5					

Note 4: Refer to pages 598, 599 for accessory dimensions.

● Special head end flange type (FC)



Note 4: Refer to pages 598, 599 for accessory dimensions.

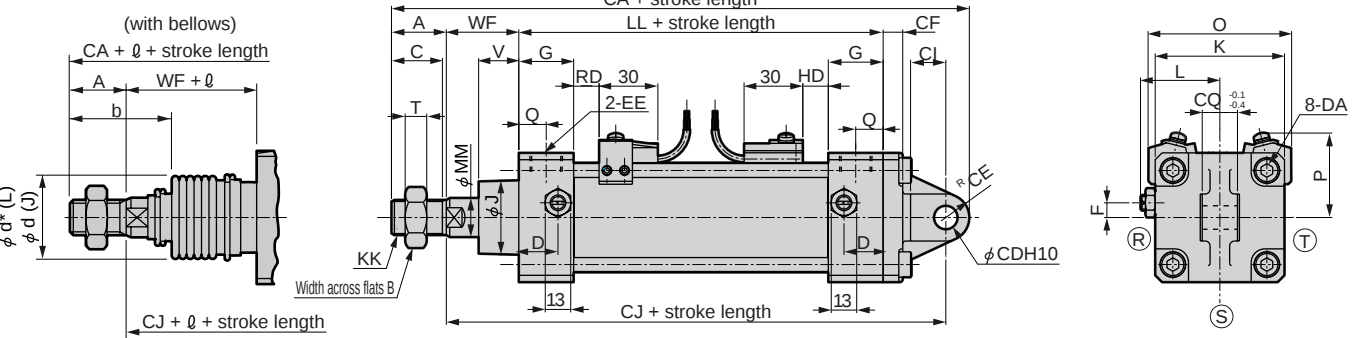
SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JJSK/IM2
JJSJ
JJSJ3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
ISM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Medium bore size cylinder
Standard type

Dimensions



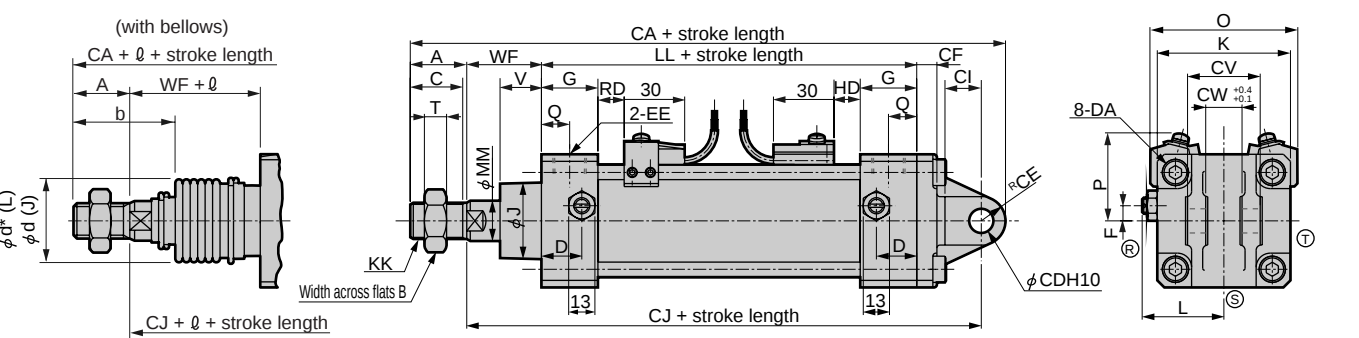
● Eye bracket type (CA)



Note 1: For l dimensions, round up decimal places. Note 2: R, S and T indicates a cushion needle position. Note 3: Refer to page 597 for the projecting dimensions of T2YD, H0 switch. Note 4: Refer to pages 598, 599 for accessory dimensions.

Symbol	Basic dimensions for eye bracket type (CA)																	Installation dimensions				
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	Q	T	V	WF	CA	CD	CE	CF
φ40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	13	8	18.5	33.5	192.5	12 ^{+0.070 0}	12	10
φ50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	14	11	20.5	37	210	12 ^{+0.070 0}	12	10
φ63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	15	11	21	35	221	14 ^{+0.070 0}	16	10
φ80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	17	13	23.5	48	272	20 ^{+0.084 0}	20	14
φ100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	18	16	32	53	298	20 ^{+0.084 0}	20	16
Symbol				With bellows														With switch				
Bore size (mm)	CI	CJ	CQ	b	d	d*	ℓ							O	P	T0, T5, T2, T3		T1, T2Y, T3Y, T2YFM, T3YFM		T8		
							50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500			Over 500	RD	HD	RD		HD	RD/HD
φ40	18	158.5	18	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8		66	41.5	11	11	10	10	5
φ50	18	170	18	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5		73	43	13	13	12	12	7
φ63	24	177	20	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5		85	47	13	13	12	12	7
φ80	30	216	28	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5		105	57	14.5	14.5	13.5	13.5	8.5
φ100	30	233	28	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9		121	63	18.5	18.5	17.5	17.5	12.5

● Clevis bracket type (CB)



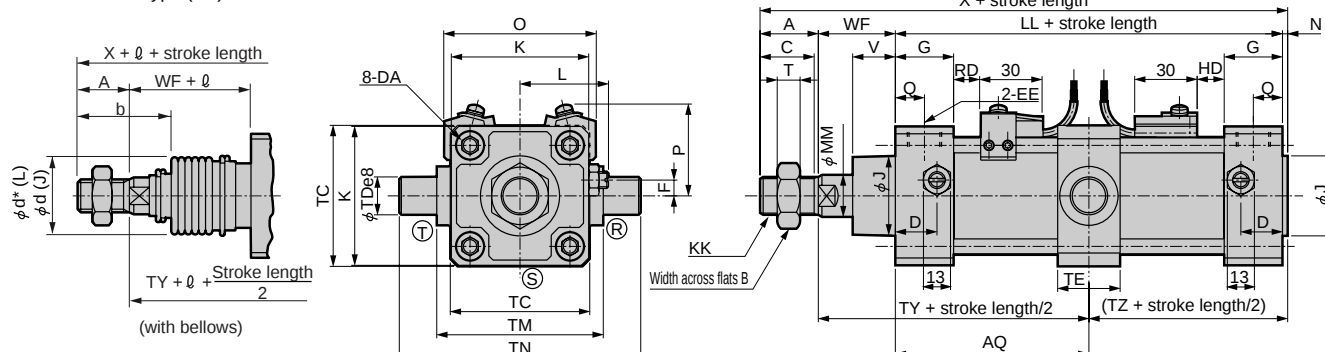
Note 1: For l dimensions, round up decimal places. Note 2: R, S and T indicates a cushion needle position. Note 3: Refer to page 597 for the projecting dimensions of T2YD, H0 switch. Note 4: Refer to pages 598, 599 for accessory dimensions.

Symbol	Basic dimensions for clevis bracket type (CB)																	Installation dimensions					
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	Q	T	V	WF	CA	CD	CE	CF	
ϕ40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	13	8	18.5	33.5	192.5	12 ^{+0.070 0}	12	10	
ϕ50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	14	11	20.5	37	210	12 ^{+0.070 0}	12	10	
ϕ63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	15	11	21	35	221	14 ^{+0.070 0}	16	10	
ϕ80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	17	13	23.5	48	272	20 ^{+0.084 0}	20	14	
ϕ100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	18	16	32	53	298	20 ^{+0.084 0}	20	16	
Symbol	Installation dimensions				With bellows												With switch						
Bore size (mm)	CI	CJ	CV	CW	b	d	d*	ℓ							O	P	T0, T5, T2, T3		T1, T2Y, T3Y, T2YFM, T3YFM		T8		
								50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500			Over 500	RD	HD	RD		HD	RD/HD
ϕ40	18	158.5	36	18	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	66	41.5	11	11	10	10	5	
ϕ50	18	170	36	18	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	73	43	13	13	12	12	7	
ϕ63	24	177	40	20	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	85	47	13	13	12	12	7	
ϕ80	30	216	56	28	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5	
ϕ100	30	233	56	28	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5	

Dimensions



● Center trunnion type (TC)

Note 1: For ℓ dimensions, round up decimal places.

Note 2: R, S and T indicates a cushion needle position.

Note 3: Refer to page 597 for the projecting dimensions of T2YD, H0 switch.

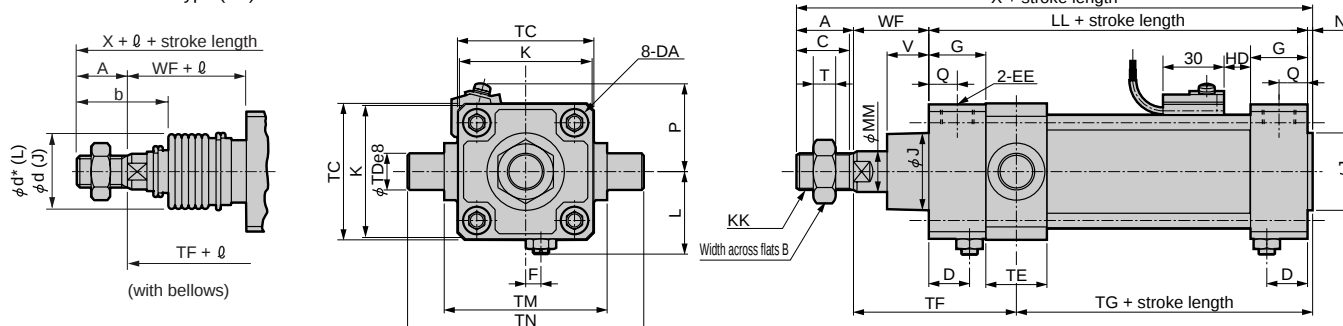
Note 4: Refer to pages 598, 599 for accessory dimensions.

Note 4: Refer to pages 558, 559 for accessory dimensions.

Symbol	Basic dimensions for enter trunnion type (TC)																				Installation dimensions		
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	N	Q	T	V	WF	X	AQ	TC	TD
φ 40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	2	13	8	18.5	33.5	150.5	46.5+ Stroke length 2	57	16 ^{+0.032 -0.059}
φ 50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	2.5	14	11	20.5	37	168.5	50.5+ Stroke length 2	67	18 ^{+0.032 -0.059}
φ 63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	3	15	11	21	35	171	52.5+ Stroke length 2	82	20 ^{+0.040 -0.073}
φ 80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	3.5	17	13	23.5	48	203.5	58+ Stroke length 2	100	25 ^{+0.040 -0.073}
φ 100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	4	18	16	32	53	230	64+ Stroke length 2	121	35 ^{+0.050 -0.089}

Symbol	Installation dimensions					With bellows											With switch							
Bore size (mm)	TE	TM	TN	TY	TZ	b	d	d*	ℓ							O	P	T0, T5, T2, T3		T1, T2Y, T3Y, T2YFM, T3YFM		T8		
									50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500			Over 500	RD	HD	RD		HD	RD/HD
φ 40	30	63	95	80	48.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	66	41.5	11	11	10	10	5	
φ 50	30	80	116	87.5	53	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	73	43	13	13	12	12	7	
φ 63	35	90	130	87.5	55.5	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	85	47	13	13	12	12	7	
φ 80	40	115	165	106	61.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5	
φ 100	50	135	205	117	68	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5	

● Rod end trunnion type (TA)



Note 1: A position can not be detected at rod side stroke end.

Note 2: For ℓ dimensions, round up decimal places.

Note 3: A cushion needle position can not be changed.

Note 4: Refer to page 597 for the projecting dimensions of T2YD, H0 switch.

Note 5: Refer to page 598, 599 for accessory dimensions.

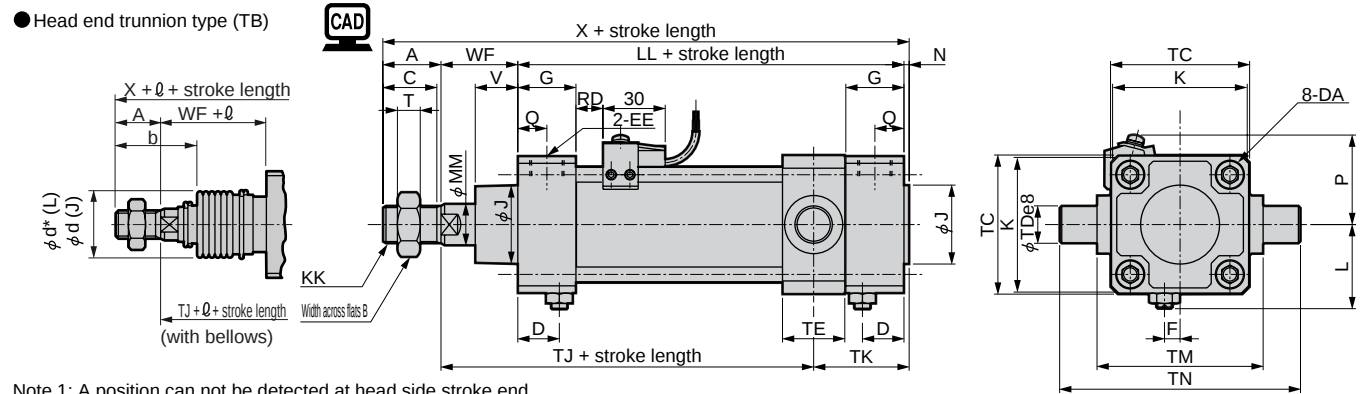
Symbol	Basic dimensions for rod end trunnion type (TA)																				Installation dimensions			
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	N	Q	T	V	WF	X	TC	TD		
φ 40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	2	13	8	18.5	33.5	150.5	57	16	-0.032 -0.059	
φ 50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	2.5	14	11	20.5	37	168.5	67	18	-0.032 -0.059	
φ 63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	3	15	11	21	35	171	82	20	-0.040 -0.073	
φ 80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	3.5	17	13	23.5	48	203.5	100	25	-0.040 -0.073	
φ 100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	4	18	16	32	53	230	121	35	-0.050 -0.089	
Symbol	Installation dimensions					With bellows											With switch							
Bore size (mm)	TE	TF	TG	TM	TN	b	d	d*	ℓ								O	P	T0, T5, T2, T3		T1, T2Y, T3Y, T2YFM, T3YFM		T8	
									50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500			RD	HD	RD	HD		RD/HD
φ 40	30	74.5	54	63	95	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	66	41.5	11	11	10	10	5	
φ 50	30	80	60.5	80	116	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	73	43	13	13	12	12	7	
φ 63	35	82.5	60.5	90	130	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	85	47	13	13	12	12	7	
φ 80	40	102	65.5	115	165	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5	
φ 100	50	114	71	135	205	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5	

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

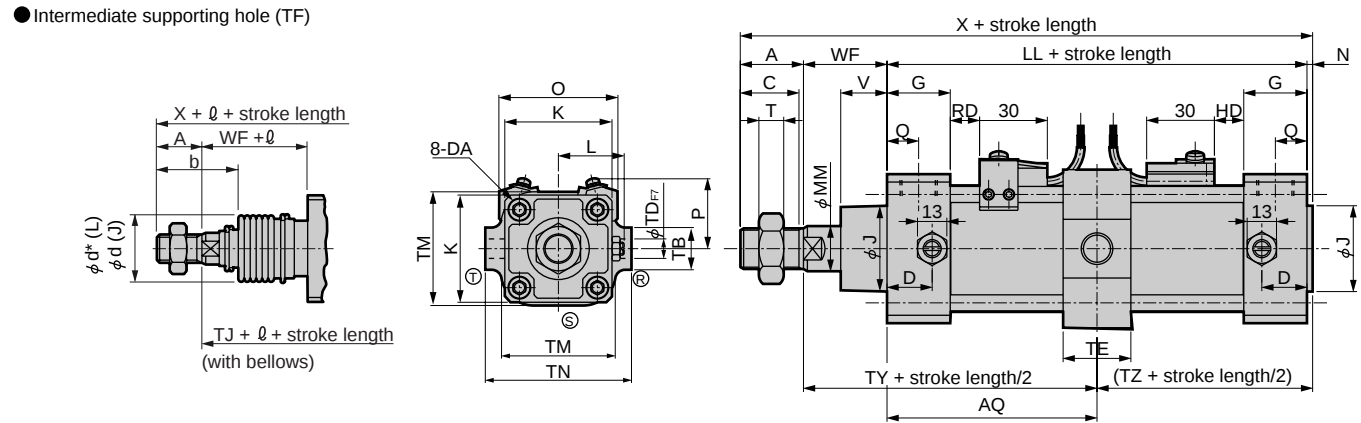
Medium bore size cylinder
Standard type

Dimensions



Note 1: A position can not be detected at head side stroke end.
Note 2: For ℓ dimensions, round up decimal places.
Note 3: A cushion needle position can not be changed.
Note 4: Refer to page 597 for the projecting dimensions of T2YD, H0 switch.
Note 5: Refer to page 598, 599 for accessory dimensions.

Symbol	Basic dimensions for head end trunnion type (TB)																				Installation dimensions			
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	N	Q	T	V	WF	X	TC	TD		
φ40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	2	13	8	18.5	33.5	150.5	57	16 ^{-0.032 -0.059}		
φ50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	2.5	14	11	20.5	37	168.5	67	18 ^{-0.032 -0.059}		
φ63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	3	15	11	21	35	171	82	20 ^{-0.040 -0.073}		
φ80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	3.5	17	13	23.5	48	203.5	100	25 ^{-0.040 -0.073}		
φ100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	4	18	16	32	53	230	121	35 ^{-0.050 -0.089}		
Symbol	Installation dimensions					With bellows										With switch								
Bore size (mm)	TE	TJ	TM	TN	TK	b	d	d*	ℓ							O	P	T0, T5, T2, T3		T1, T2Y, T3Y, T2YFM, T3YFM		T8		
									50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500			Over 500	RD	HD	RD		HD	RD/HD
φ40	30	85	63	95	43.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	66	41.5	11	11	10	10	5	
φ50	30	94.5	80	116	46	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	73	43	13	13	12	12	7	
φ63	35	92	90	130	51	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	85	47	13	13	12	12	7	
φ80	40	109.5	115	165	58	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5	
φ100	50	119.5	135	205	65.5	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5	



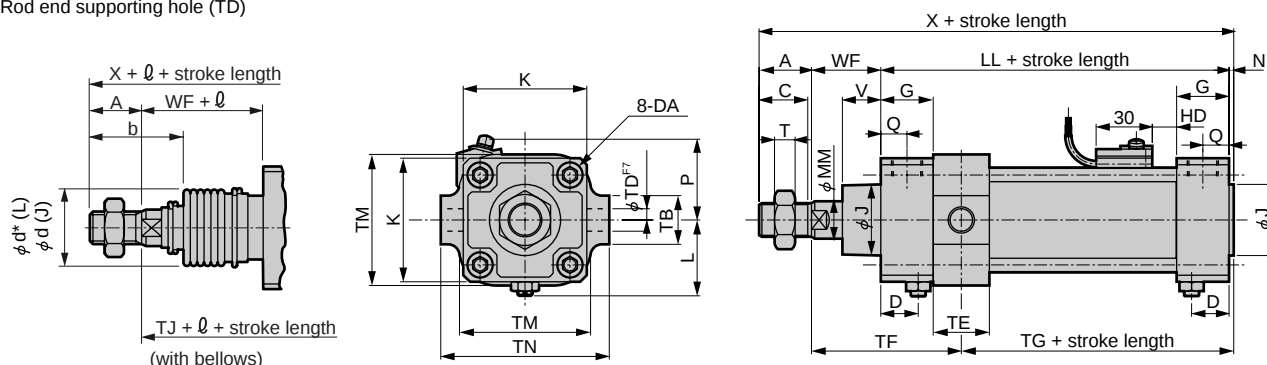
Note 1: For ℓ dimensions, round up decimal places.
Note 2: R, S and T indicates a cushion needle position.
Note 3: Refer to page 597 for the projecting dimensions of T2YD, H0 switch.
Note 4: Refer to pages 598, 599 for accessory dimensions.

Symbol	Basic dimensions for enter trunnion type (TC)																			Installation dimensions		
Bore size (mm)	A	B	C	D	DA	EE	G	J	K	KK	L	LL	MM	N	Q	T	V	WF	X	AQ	TB	TD
φ50	28	27	26	20	M8	Rc3/8	28	38	66	M18 x 1.5	41 to 43.5	101	20	2.5	14	11	20.5	37	168.5	50.5+ Stroke length 2	26	12
φ63	28	27	26	22	M8	Rc3/8	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	3	15	11	21	35	171	52.5+ Stroke length 2	30	14
φ80	36	32	34	26	M12	Rc1/2	34	43	98	M22 x 1.5	56 to 59	116	25	3.5	17	13	23.5	48	203.5	58+ Stroke length 2	35	20
φ100	45	41	43	28	M12	Rc1/2	36	51	118	M26 x 1.5	66 to 69	128	30	4	18	16	32	53	230	64+ Stroke length 2	40	20

Symbol	Installation dimensions					With bellows										With switch						
Bore size (mm)	TE	TM	TN	TY	TZ	b	d	d*	ℓ							O	P	T0, T5, T2, T3		T1, T2Y, T3Y, T2YF/M, T3YF/M		T8
									50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500			RD	HD	RD	HD	
φ50	30	70	90	87.5	53	47	47	48	22	36	49	63	90	119	146	73	43	13	13	12	12	7
φ63	35	86	104	87.5	55.5	45	47	48	22	36	49	63	90	119	146	85	47	13	13	12	12	7
φ80	40	105	134	106	61.5	58.5	53	55	14	26	38	49	72	96	119	105	57	14.5	14.5	13.5	13.5	8.5
φ100	40	127	150	117	68	69.5	61	65	20	32	42	53	76	98	120	121	63	18.5	18.5	17.5	17.5	12.5

Dimensions

● Rod end supporting hole (TD)



Note 1: A position can not be detected at rod side stroke end.

Note 2: For ℓ dimensions, round up decimal places.

Note 3: A cushion needle position can not be changed.

Note 4: Refer to page 597 for the projecting dimensions of T2YD, H0 switch.

Note 5: Refer to page 598, 599 for accessory dimensions.

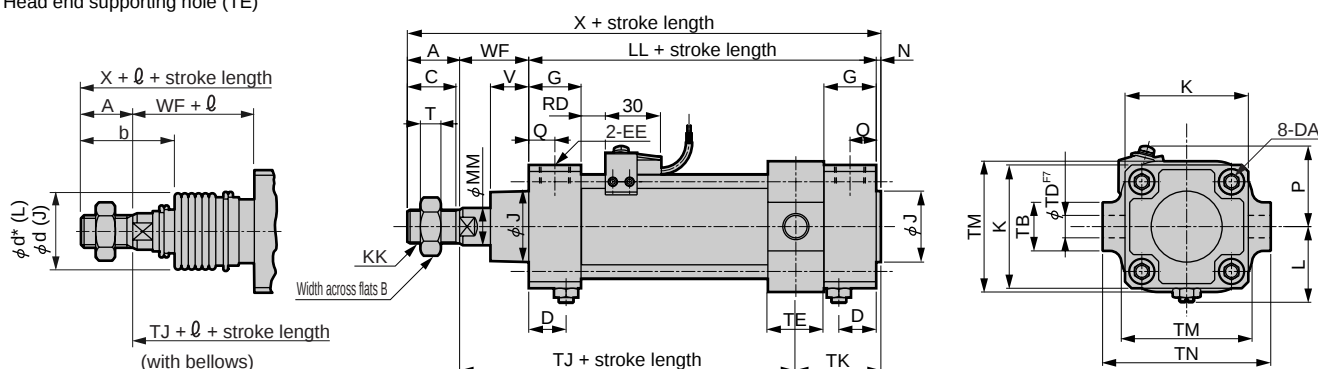
Note 3: A cushion needle position can not be changed.

Note 3: Refer to page 356, 359 for accessory dimensions.

Symbol	Basic dimensions for rod end trunnion type (TA)																			Installation dimensions	
Bore size (mm)	A	B	C	D	DA	EE	G	J	K	KK	L	LL	MM	N	Q	T	V	WF	X	TB	TD
φ 50	28	27	26	20	M8	Rc3/8	28	38	66	M18 x 1.5	41 to 43.5	101	20	2.5	14	11	20.5	37	168.5	26	12
φ 63	28	27	26	22	M8	Rc3/8	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	3	15	11	21	35	171	30	14
φ 80	36	32	34	26	M12	Rc1/2	34	43	98	M22 x 1.5	56 to 59	116	25	3.5	17	13	23.5	48	203.5	35	20
φ 100	45	41	43	28	M12	Rc1/2	36	51	118	M26 x 1.5	66 to 69	128	30	4	18	16	32	53	230	40	20

Symbol	Installation dimensions					With bellows											With switch							
Bore size (mm)	TE	TF	TG	TM	TN	b	d	d*	ℓ							O	P	T0, T5, T2, T3		T1, T2Y, T3Y, T2YF/M, T3YF/M		T8		
									50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500			Over 500	RD	HD	RD		HD	RD/HD
φ 50	30	80	60.5	70	90	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	73	43	13	13	12	12	7	
φ 63	35	82.5	60.5	86	104	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	85	47	13	13	12	12	7	
φ 80	40	102	65.5	105	134	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5	
φ 100	40	109	76	127	150	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5	

● Head end supporting hole (TE)



Note 1: A position can not be detected at head side stroke end.

Note 2: For ℓ dimensions, round up decimal places.

Note 3: A cushion needle position can not be changed.

Note 4: Refer to page 597 for the projecting dimensions of T2YD, H0 switch.

Note 5: Refer to page 598, 599 for accessory dimensions.

Symbol	Basic dimensions for head end trunnion type (TB)																			Installation dimensions				
Bore size (mm)	A	B	C	D	DA	EE	G	J	K	KK	L	LL	MM	N	Q	T	V	WF	X	TB	TD			
ϕ 50	28	27	26	20	M8	Rc3/8	28	38	66	M18 x 1.5	41 to 43.5	101	20	2.5	14	11	20.5	37	168.5	26	12			
ϕ 63	28	27	26	22	M8	Rc3/8	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	3	15	11	21	35	171	30	14			
ϕ 80	36	32	34	26	M12	Rc1/2	34	43	98	M22 x 1.5	56 to 59	116	25	3.5	17	13	23.5	48	203.5	35	20			
ϕ 100	45	41	43	28	M12	Rc1/2	36	51	118	M26 x 1.5	66 to 69	128	30	4	18	16	32	53	230	40	20			
Symbol	Installation dimensions					With bellows										With switch								
Bore size (mm)	TE	TJ	TM	TN	TK	b	d	d*	ℓ								O	P	T0, T5, T2, T3		T1, T2Y, T3Y, T2YFM, T3YFM		T8	
									50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500			RD	HD	RD	HD		RD/HD
ϕ 50	30	94.5	70	90	46	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	73	43	13	13	12	12	7	
ϕ 63	35	92	86	104	51	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	85	47	13	13	12	12	7	
ϕ 80	40	109.5	105	134	58	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5	
ϕ 100	40	124.5	127	150	60.5	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5	

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

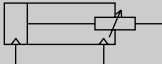


Medium bore size cylinder
 Double acting, stroke adjustable type (extend)

SCA2-P Series

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

JIS symbol



Specifications

Descriptions		SCA2-P (stroke adjustable type/extend)				
Bore size	mm	φ 40	φ 50	φ 63	φ 80	φ 100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure MPa		1.0				
Min. working pressure MPa		0.1				
Withstanding pressure MPa		1.6				
Ambient temperature °C		-10 to 60 (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance mm		^{+0.9} ₀ (Up to 360), ^{+1.4} ₀ (Up to 800)				
Working piston speed mm/s		50 to 1000 (use within the allowable energy absorption.)				
Cushion		Air cushion				
Effective cushion length mm		14.6	16.6	16.6	20.6	23.6
Adjustable stroke range mm		25, 50, 75, 100				
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)				
Allowable energy absorption J	Cushioned	4.29	8.37	15.8	27.9	49.8
	No cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Stroke length

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

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

Min. stroke length of type with switch

● T0/T5 type min. stroke length with 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	25 (25)	25 (25)	40 (40)	60 (60)	25 (25)	60 (45)	105 (75)	150 (105)	110 (110)	110 (110)	175 (145)	175 (145)	50 (50)	50 (50)
ϕ 50	25 (25)	25 (25)	40 (40)	60 (60)	25 (25)	25 (25)	65 (50)	65 (60)	135 (135)	135 (135)	135 (135)	135 (135)	60 (60)	60 (60)
ϕ 63	25 (25)	25 (25)	40 (40)	60 (60)	25 (25)	25 (25)	70 (55)	70 (60)	110 (95)	110 (95)	110 (100)	110 (100)	50 (45)	50 (45)
ϕ 80	25 (25)	25 (25)	45 (45)	65 (65)	25 (25)	25 (25)	70 (55)	70 (65)	115 (85)	115 (85)	115 (105)	115 (105)	55 (40)	55 (40)
ϕ 100	25 (25)	25 (25)	45 (45)	70 (70)	25 (25)	25 (25)	70 (55)	70 (70)	125 (95)	125 (95)	125 (115)	125 (115)	60 (45)	60 (45)

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 min. stroke length with 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	25 (25)	25 (25)	40 (40)	60 (60)	25 (25)	50 (35)	95 (65)	140 (95)	95 (85)	95 (85)	155 (125)	155 (125)	45 (40)	45 (40)
ϕ 50	25 (25)	25 (25)	40 (40)	60 (60)	25 (25)	25 (25)	70 (55)	70 (60)	115 (115)	115 (115)	135 (135)	135 (135)	50 (50)	50 (50)
ϕ 63	25 (25)	25 (25)	40 (40)	60 (60)	25 (25)	25 (25)	70 (55)	70 (60)	95 (75)	95 (75)	110 (110)	110 (110)	45 (35)	45 (35)
ϕ 80	25 (25)	25 (25)	45 (45)	65 (65)	25 (25)	25 (25)	70 (55)	70 (65)	100 (70)	100 (70)	115 (115)	115 (115)	50 (35)	50 (35)
ϕ 100	25 (25)	25 (25)	45 (45)	65 (65)	25 (25)	25 (25)	70 (55)	70 (65)	110 (80)	110 (80)	125 (125)	125 (125)	55 (40)	55 (40)

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.

Min. stroke length of type with switch

● T2/T3 type min. stroke length with 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	25 (25)	25 (25)	25 (25)	40 (40)	25 (25)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
φ 50	25 (25)	25 (25)	25 (25)	40 (40)	25 (25)	25 (25)	60 (45)	60 (45)	105 (75)	105 (75)	105 (75)	105 (75)	45 (30)	45 (30)
φ 63	25 (25)	25 (25)	25 (25)	40 (40)	25 (25)	25 (25)	60 (45)	60 (45)	110 (80)	110 (80)	110 (85)	110 (85)	50 (35)	50 (35)
φ 80	25 (25)	25 (25)	30 (30)	45 (45)	25 (25)	25 (25)	60 (45)	60 (45)	115 (85)	115 (85)	115 (90)	115 (90)	55 (40)	55 (40)
φ 100	25 (25)	25 (25)	30 (30)	45 (45)	25 (25)	25 (25)	60 (45)	60 (45)	125 (95)	125 (95)	125 (100)	125 (100)	60 (45)	60 (45)

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 min. stroke length with 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	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
φ 50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	100 (70)	100 (70)	100 (75)	100 (75)	45 (30)	45 (30)
φ 63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	105 (75)	105 (75)	105 (85)	105 (85)	50 (35)	50 (35)
φ 80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	110 (80)	110 (80)	110 (90)	110 (90)	55 (40)	55 (40)
φ 100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	120 (90)	120 (90)	120 (100)	120 (100)	60 (45)	60 (45)

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

Medium bore size cylinder
Standard type

SCA2-P Series

Switch specifications (T type switch)

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

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

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

Descriptions	Proximity 2-wire			Proximity 3-wire			Reed 2-wire						Proximity 2-wire	
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T3H/ T3V	T3PH/T3PV (Custom order)	T3YH/ T3YV	T0H/T0V		T5H/T5V		T8H/T8V		T2YD	
Applications	Programmable controller relay, small solenoid valve	Programmable controller dedicated		Programmable controller, relay			Programmable controller, relay		Programmable controller, relay, IC circuit (w/o light), serial connection		Programmable controller, relay		Programmable controller dedicated	
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 100 mA	5 to 20 mA (Note 1)		100 mA or less		50 mA or less	5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
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	1 mA or less with 100 VAC 2 mA or less with 200 VAC	1 mA or less		10 μ A or less			0 mA						1 mA 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			Programmable controller, relay		Programmable controller dedicated		Programmable controller, relay	
Output method		NPN output							
Light	Installation position adjustment	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 20 mA		50 mA or less		5 to 20 mA		50 mA or less	
	Leakage current	1 mA or less		10 μ A or less		1.2 mA or less		10 μ A or less	
Preventive maintenance output	Load voltage	30 VDC or less							
	Load current	20 mA or less		50 mA or less		5 to 20 mA or less		50 mA 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: 20 mA at 25 °C. The current will be lower than 20 mA if ambient temperature around switch is higher than 25 °C. (5 to 10 mA at 60 °C)

Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke length (S) = 0 mm						Weight per switch (including mounting bracket)					Additional weight per S = 100 mm
	Basic type (00)	Foot type (LB)	Flange type (FA and FB)	Eye bracket type (CA)	Clevis bracket type (CB)	Trunnion type (TA, TB or TC)	T type	H type		T2YD type		
								1 m	3 m	1 m	3 m	
φ 40	1.20	1.37	1.61	1.52	1.56	1.58	0.018	0.10	0.20	0.08	0.17	0.78
φ 50	1.70	1.95	2.19	2.08	2.11	2.24						0.99
φ 63	2.16	2.53	3.25	2.73	2.78	3.01						1.03
φ 80	3.80	4.54	5.66	5.07	5.28	5.14						2.15
φ 100	5.40	6.31	8.14	7.04	7.22	7.97						2.47

(E.g.) Product weight of SCA2-P-LB-50B-200-T0H-D

Product weight when stroke length (S) = 0 mm ... 1.95kg
 Additional weight at stroke length 200 mm ... $0.99 \times \frac{200}{100} = 1.98$ kg
 Weight of two switches ... $0.018 \times 2 = 0.036$ kg
 Product weight ... $1.95 + 1.98 + 0.036$ kg = 3.966 kg

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

Medium bore size cylinder
Standard type

How to order

Without switch

SCA2-P - LB - 40 - B - 100 - 25 - S - I

With switch

SCA2-P - LB - 40 - B - 100 - 25 - T0 - R - S - I

A Mounting style
Note 1

B Bore size

C Port thread type

D Cushion

E Stroke length
Note 2

F Adjustable stroke length

G Switch model no.

H Switch quantity
Note 4

I Option
Note 5

J Accessory
Note 6

Symbol	Descriptions
A Mounting style	
00	Basic type
LB	Axial foot type
FA	Rod end flange type
FB	Head end flange type
TC	Center trunnion type
TA	Rod end trunnion type
TB	Head end trunnion type
TF	Intermediate supporting hole (φ 40 cannot be selected.)
TD	Rod end supporting hole (φ 40 cannot be selected.)
TE	Head end supporting hole (φ 40 cannot be selected.)

B Bore size (mm)	
40	φ 40
50	φ 50
63	φ 63
80	φ 80
100	φ 100

C Port thread type	
Blank	Rc thread
N	NPT thread (custom order)
G	G thread (custom order)

D Cushion	
B	Both sides cushioned
R	Rod end cushion
H	Head end cushion
N	No cushion

E Stroke length (mm)		
Bore size	Stroke length Note 3	Custom stroke length
φ 40	25 to 600	Per 1 mm increment
φ 50	25 to 600	
φ 63	25 to 600	
φ 80	25 to 700	
φ 100	25 to 800	

F Adjustable stroke range (mm)	
25, 50, 75, 100	

G Switch model no.	
Refer to the switch model no. table on the following page.	
*Lead wire length	
Blank	1m (standard)
3	3m (option)
5	5m (option)

H Switch quantity	
R	One on rod end
H	One on head end
D	Two
T	Three

I Option			
		Max. ambient	Max. instantaneous
J	Bellows	100 °C	200 °C
L	Bellows	250 °C	400 °C
M	Piston rod material (stainless steel)		
Blank	Cushion needle position R (standard)		
S	Cushion needle position S		
T	Cushion needle position T		
P6	Copper and PTFE free (custom order)		

J Accessory	
I	Rod eye
Y	Rod clevis (pin and snap ring attached)
B4	Trunnion type No. 2 bracket

⚠ Note on model no. selection

Note 1: The mounting bracket is shipped with the product. (However, trunnion type is attached to the product when shipped.)

Note 2: If the maximum stroke is exceeded, refer to Ending 74.

Note 3: Refer to page 456 for min. stroke length with switch.

Note 4: 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 5: Instantaneous maximum temperature is the temperature when spark and spatter etc. instantaneously contacts to bellows.

Note 6: "I" and "Y" can not be selected at the same time.

Note 7: Refer to Ending 89 for custom specifications of rod end form.

Note 8: Refer to page 436 for variation and option combination.

<Example of model number>

SCA2-P-LB-40B-100-25-T0-R-S-I

Model: Medium bore size cylinder double acting stroke adjustment type (extended)

- A Mounting style : Axial foot type
- B Bore size : φ 40 mm
- C Port thread type : Rc thread
- D Cushion : Both sides cushioned
- E Stroke length : 100 mm
- F Adjustable stroke range : 25 mm
- G Switch model no. : Reed T0 switch, lead wire length 1 m
- H Switch quantity : One on rod end
- I Option : Cushion needle position S
- J Accessory : Rod eye

How to order mounting bracket

Bore size (mm)	φ 40	φ 50	φ 63	φ 80	φ 100
Mounting bracket					
Foot (LB)	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100

Note 1: Refer to page 448 for the mounting bracket material.

Note 2: The foot type bracket is 2 pcs./set.

[F] switch model no.

T type switch model no.				
Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T0H*	T0V*	Reed	1 color indicator type	2-wire
T5H*	T5V*		Without indicator light	
T8H*	T8V*		1 color indicator type	
T1H*	T1V*	Proximity	1 color indicator type	2-wire
T2H*	T2V*			3-wire
T3H*	T3V*			2-wire
T2YH*	T2YV*		2 color indicator type	2-wire
T3YH*	T3YV*			3-wire
T3PH*	T3PV*		1 color indicator type (custom order)	3-wire
T2YFH*	T2YFV*		2 color indicator type (Without light for preventive maintenance output)	3-wire
T3YFH*	T3YFV*		2 color indicator type (With light for preventive maintenance output (1 color))	4-wire
T2YMH*	T2YMV*			3-wire
T3YMH*	T3YMV*			4-wire
T2YD*	-	Strong magnetic field proof switch	Off-delay type	2-wire
T2YDT*	-			2-wire
T2JH*	T2JV*			

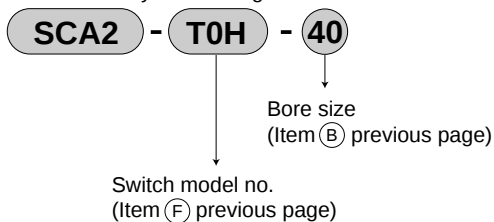
R type switch				
Grommet type	Terminal box type		Contact	Indicator
	Standard type	Splash prf.		Lead wire
R0*	R0B	R0A		1 color indicator type

These types have been changed to T-switch integrated type since Oct 1st 2007.

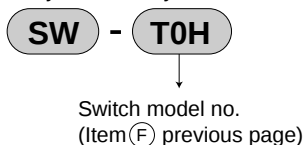
How to order switch

(T type switch)

- Switch body + mounting bracket

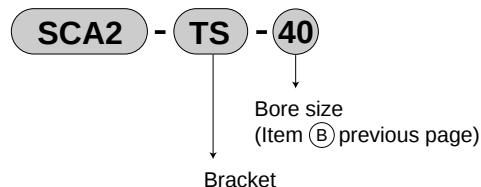


- Only switch body



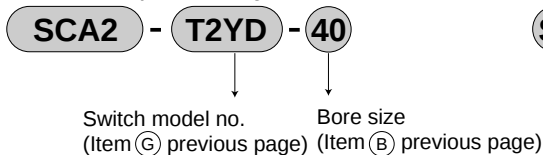
* Consult with CKD when using the environment compatible T-type switch.

- Switch bracket set

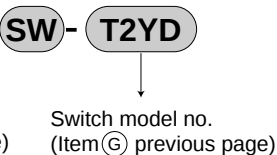


(T2YD switch)

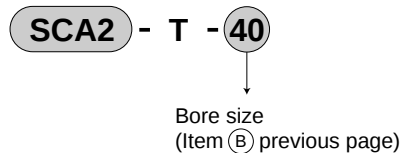
- Switch body + mounting bracket



- Only switch body



- Mounting bracket

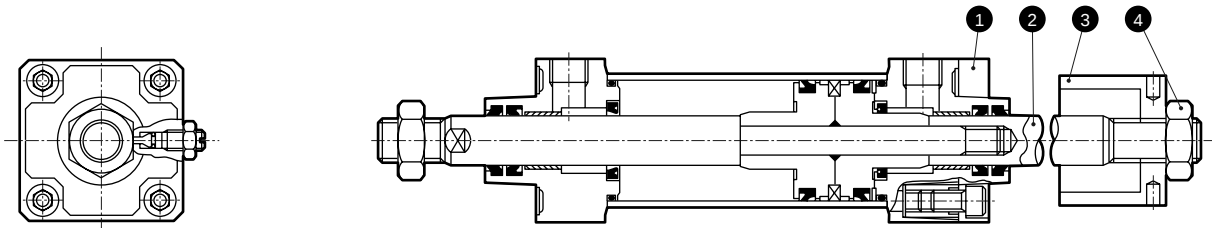


SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Medium bore size cylinder
Standard type

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

Internal structure and parts list



Note: Materials other than the right table are the same as double acting single rod type (SCA2) on page 448.

No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Plate	Steel	Phosphoric acid mangan treatment	3	Adjustable stopper	Steel	Phosphoric acid mangan treatment
2	Piston rod (2)	Steel	Industrial chrome plating	4	Lock nut	Steel	Zinc chromate

Repair parts list

Part numbers follow the SCA2 Series internal structure drawing (page 448).

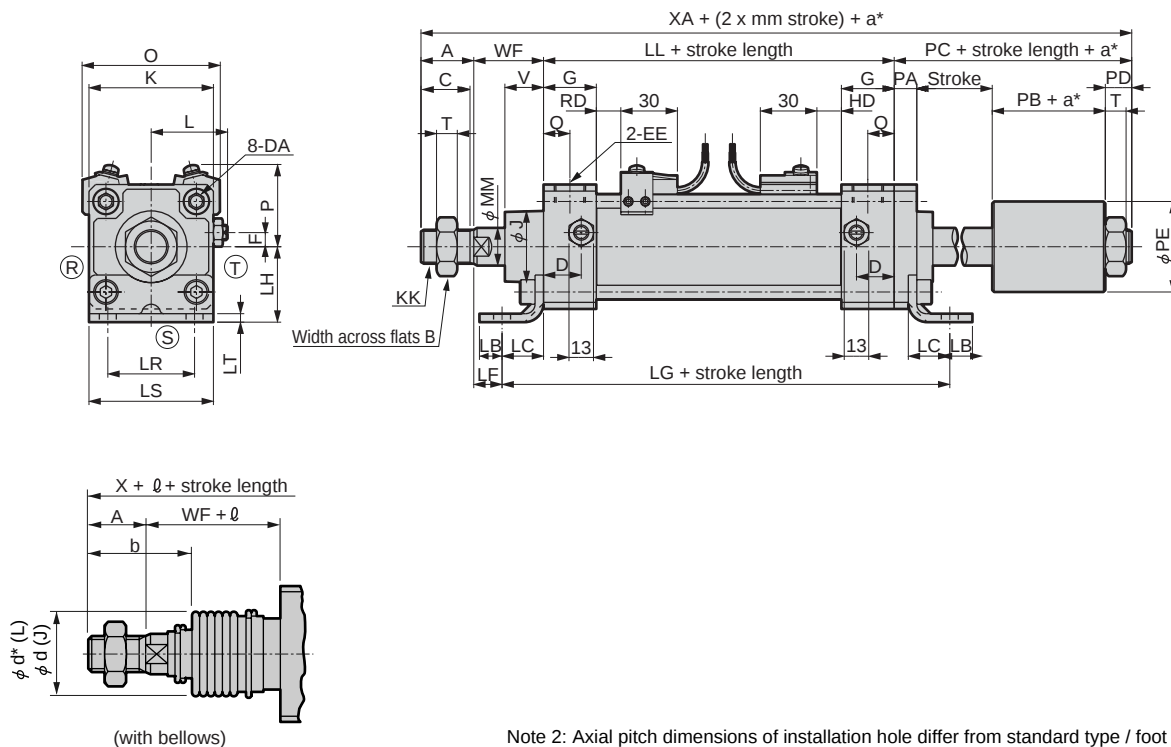
Bore size (mm)	Kit No.	Repair parts number
φ 40	SCA2-P-40K	
φ 50	SCA2-P-50K	3 4 8 9 12
φ 63	SCA2-P-63K	
φ 80	SCA2-P-80K	15 21
φ 100	SCA2-P-100K	

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

Dimensions



● Stroke adjustable type



Note 2: Axial pitch dimensions of installation hole differ from standard type / foot type mounting style is used.

Note 3: Refer to page 597 for the projecting dimensions of T2YD switch.

Note 4: Refer to pages 598, 599 for accessory dimensions.

*a is adjustable stroke length.

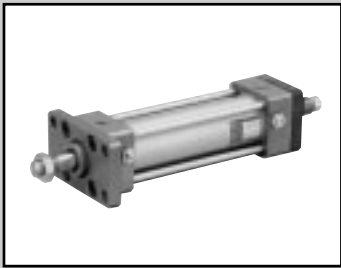
Note 1: (R)(S)(T) indicates a cushion needle position.

Symbol																													
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	PA	PB	PC	PD	PE	PF	Q	T	V	WF	XA	XF			
φ 40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	12	29	52	11	40	6	13	8	18.5	33.5	200.5	55.5			
φ 50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	12	35	61	14	48	6	14	11	20.5	37	227	65			
φ 63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50	105	20	16	31	61	14	48	6	15	11	21	35	229	63			
φ 80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	19	33	68	16	60	10	17	13	23.5	48	268	84			
φ 100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	19	50	90	21	70	10	18	16	32	53	316	98			
Symbol	With switch							Installation dimensions								With bellows													
	O	P	T0, T5, T2, T3	T1, T2Y, T3Y, T2YFM, T3YFM	T8	LB	LC	LD	LF	LG	LH	LR	LS	LT	A	X	b	d	d*	ℓ									
			RD	HD																RD	HD	RD/HD	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500
φ 40	66	41.5	11	11	10	10	5	10	19.5	9	14	140.8	40	40	57	3.2	22	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
φ 50	73	43	13	13	12	12	7	12	22	9	15	152.5	40	46	66	4.5	28	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
φ 63	85	47	13	13	12	12	7	12	30	11	5	176.5	50	60	80	4.5	28	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
φ 80	105	57	14.5	14.5	13.5	13.5	8.5	14	37	14	11	203	60	74	98	6.0	36	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5
φ 100	121	63	18.5	18.5	17.5	17.5	12.5	21	31	14	12	203	67	80	118	6.0	45	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9

● Each mounting style installation dimension is same as SCA2 (standard). Refer to pages 449 to 455.

Medium bore size cylinder
Standard type

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

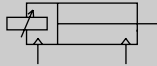


Medium bore size cylinder
Double acting, stroke adjustable type (retract)

SCA2-R Series

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

JIS symbol



Specifications

Descriptions		SCA2-R (stroke adjustable type/retract)				
Bore size	mm	φ 40	φ 50	φ 63	φ 80	φ 100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure	MPa	1.0				
Min. working pressure	MPa	0.05				
Withstanding pressure	MPa	1.6				
Ambient temperature		-10 to 60 (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance	mm	^{+0.9} ₀ (Up to 360), ^{+1.4} ₀ (Up to 800)				
Working piston speed	mm/s	50 to 1000 (use within the allowable energy absorption.)				
Cushion		Air cushion				
Effective cushion length	mm	14.6	16.6	16.6	20.6	23.6
Adjustable stroke range		25, 50, 75, 100				
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)				
Allowable energy absorption J	Cushioned	4.29	8.37	15.8	27.9	49.8
	No cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Stroke length

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

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

Min. stroke length of type with switch

● T0/T5 type min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ 40	25 (25)	25 (25)	40 (40)	60 (60)	25 (25)	60 (45)	105 (75)	150 (105)	110 (110)	110 (110)	175 (145)	175 (145)	50 (50)	50 (50)
ϕ 50	25 (25)	25 (25)	40 (40)	60 (60)	25 (25)	25 (25)	65 (50)	65 (60)	135 (135)	135 (135)	135 (135)	135 (135)	60 (60)	60 (60)
ϕ 63	25 (25)	25 (25)	40 (40)	60 (60)	25 (25)	25 (25)	70 (55)	70 (60)	110 (95)	110 (95)	110 (100)	110 (100)	50 (45)	50 (45)
ϕ 80	25 (25)	25 (25)	45 (45)	65 (65)	25 (25)	25 (25)	70 (55)	70 (65)	115 (85)	115 (85)	115 (105)	115 (105)	55 (40)	55 (40)
ϕ 100	25 (25)	25 (25)	45 (45)	70 (70)	25 (25)	25 (25)	70 (55)	70 (70)	125 (95)	125 (95)	125 (115)	125 (115)	60 (45)	60 (45)

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 min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ 40	25 (25)	25 (25)	40 (40)	60 (60)	25 (25)	50 (35)	95 (65)	140 (95)	95 (85)	95 (85)	155 (125)	155 (125)	45 (40)	45 (40)
ϕ 50	25 (25)	25 (25)	40 (40)	60 (60)	25 (25)	25 (25)	70 (55)	70 (60)	115 (115)	115 (115)	135 (135)	135 (135)	50 (50)	50 (50)
ϕ 63	25 (25)	25 (25)	40 (40)	60 (60)	25 (25)	25 (25)	70 (55)	70 (60)	95 (75)	95 (75)	110 (110)	110 (110)	45 (35)	45 (35)
ϕ 80	25 (25)	25 (25)	45 (45)	65 (65)	25 (25)	25 (25)	70 (55)	70 (65)	100 (70)	100 (70)	115 (115)	115 (115)	50 (35)	50 (35)
ϕ 100	25 (25)	25 (25)	45 (45)	65 (65)	25 (25)	25 (25)	70 (55)	70 (65)	110 (80)	110 (80)	125 (125)	125 (125)	55 (40)	55 (40)

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.

Min. stroke length of type with switch

● T2/T3 type min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
φ 40	25 (25)	25 (25)	25 (25)	40 (40)	25 (25)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
φ 50	25 (25)	25 (25)	25 (25)	40 (40)	25 (25)	25 (25)	60 (45)	60 (45)	105 (75)	105 (75)	105 (75)	105 (75)	45 (30)	45 (30)
φ 63	25 (25)	25 (25)	25 (25)	40 (40)	25 (25)	25 (25)	60 (45)	60 (45)	110 (80)	110 (80)	110 (85)	110 (85)	50 (35)	50 (35)
φ 80	25 (25)	25 (25)	30 (30)	45 (45)	25 (25)	25 (25)	60 (45)	60 (45)	115 (85)	115 (85)	115 (90)	115 (90)	55 (40)	55 (40)
φ 100	25 (25)	25 (25)	30 (30)	45 (45)	25 (25)	25 (25)	60 (45)	60 (45)	125 (95)	125 (95)	125 (100)	125 (100)	60 (45)	60 (45)

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 min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
φ 40	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
φ 50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	100 (70)	100 (70)	100 (75)	100 (75)	45 (30)	45 (30)
φ 63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	105 (75)	105 (75)	105 (85)	105 (85)	50 (35)	50 (35)
φ 80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	110 (80)	110 (80)	110 (90)	110 (90)	55 (40)	55 (40)
φ 100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	120 (90)	120 (90)	120 (100)	120 (100)	60 (45)	60 (45)

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

Medium bore size cylinder
Standard type

Switch specifications (T type switch)
● 1color / 2 color indicator, strong magnetic field proof

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

Descriptions	Proximity 2-wire			Proximity 3-wire			Reed 2-wire					Proximity 2-wire		
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T3H/ T3V	T3PH/T3PV (Custom order)	T3YH/ T3YV	T0H/T0V	T5H/T5V	T8H/T8V			T2YD		
Applications	Programmable controller relay, small solenoid valve	Programmable controller dedicated		Programmable controller, relay		Programmable controller, relay	Programmable controller, relay, IC circuit (w/o light), serial connection	Programmable controller, relay			Programmable controller dedicated			
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 100 mA	5 to 20 mA (Note 1)		100 mA or less		50 mA or less	5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
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	1 mA or less with 100 VAC 2 mA or less with 200 VAC	1 mA or less		10 μA or less			0 mA						1 mA 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		Programmable controller, relay		Programmable controller dedicated		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 20 mA		50 mA or less		5 to 20 mA		50 mA or less	
	Leakage current	1 mA or less		10 μA or less		1.2 mA or less		10 μA or less	
Preventive maintenance output	Load voltage	30 VDC or less							
	Load current	20 mA or less		50 mA or less		5 to 20 mA or less		50 mA or less	
	Leakage current	10 μA or less							

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

Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke length (S) = 0 mm						Weight per switch (including mounting bracket)					Additional weight per S = 100 mm
	Basic type (00)	Foot type (LB)	Flange type (FA and FB)	Eye bracket type (CA)	Clevis bracket type (CB)	Trunnion type (TA, TB or TC)	T type	H type		T2YD type		
								1 m	3 m	1 m	3 m	
φ 40	0.96	1.13	1.37	1.28	1.32	1.34	0.018	0.10	0.20	0.08	0.17	0.55
φ 50	1.45	1.70	1.94	1.83	1.86	1.99						0.71
φ 63	1.88	2.25	2.97	2.45	2.50	2.73						0.75
φ 80	3.15	3.89	5.01	4.42	4.63	4.49						1.26
φ 100	4.80	5.71	7.54	6.44	6.62	7.37						1.37

(E.g.) Product weight of SCA2-R-LB-50B-200-T0H-D

Product weight when stroke length (S) = 0 mm ... 1.70 kg
 Additional weight at stroke length 200 mm ... $0.71 \times \frac{200}{100} = 1.42$ kg
 Weight of two switches ... $0.018 \times 2 = 0.036$ kg
 Product weight ... $1.70 + 1.42 + 0.036$ kg = 3.156 kg

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

Medium bore size cylinder
Standard type

How to order

Without switch

SCA2-R - LB - 40 - B - 100 - 25 - S - I

With switch

SCA2-R - LB - 40 - B - 100 - 25 - T0 - R - S - I

A Mounting style
Note 1

B Bore size

C Port thread type

D Cushion

E Stroke length
Note 2

F Adjustable stroke length

G Switch model no.

H Switch quantity
Note 4

I Option
Note 5

J Accessory
Note 6

Symbol	Descriptions		
A Mounting style			
00	Basic type		
LB	Axial foot type		
FA	Rod end flange type		
TC	Center trunnion type		
TA	Rod end trunnion type		
TB	Head end trunnion type		
TF	Intermediate supporting hole (φ40 cannot be selected.)		
TD	Rod end supporting hole (φ40 cannot be selected.)		
TE	Head end supporting hole (φ40 cannot be selected.)		
B Bore size (mm)			
40	φ 40		
50	φ 50		
63	φ 63		
80	φ 80		
100	φ 100		
C Port thread type			
Blank	Rc thread		
N	NPT thread (custom order)		
G	G thread (custom order)		
D Cushion			
B	Both sides cushioned		
R	Rod end cushion		
H	Head end cushion		
N	No cushion		
E Stroke length (mm)			
Bore size	Stroke length Note 3	Custom stroke length	
φ 40	25 to 600	Per 1 mm increment	
φ 50	25 to 600		
φ 63	25 to 600		
φ 80	25 to 700		
φ 100	25 to 800		
F Adjustable stroke range (mm)			
25, 50, 75, 100			
G Switch model no.			
Refer to the switch model no. table on the following page			
*Lead wire length			
Blank	1m (standard)		
3	3m (option)		
5	5m (option)		
H Switch quantity			
R	One on rod end		
H	One on head end		
D	Two		
T	Three		
I Option			
		Max. ambient	Max. instantaneous
J	Bellows	100 °C	200 °C
L	Bellows	250 °C	400 °C
M	Piston rod material (stainless steel)		
Blank	Cushion needle position R (standard)		
S	Cushion needle position S		
T	Cushion needle position T		
P6	Copper and PTFE free (custom order)		
J Accessory			
I	Rod eye		
Y	Rod clevis (pin and snap ring attached)		
B4	Trunnion type No. 2 bracket		

⚠ Note on model no. selection

Note 1: The mounting bracket is shipped with the product. However, trunnion type is attached to the product when shipped.

Note 2: If the maximum stroke is exceeded, refer to Ending 74.

Note 3: Refer to page 464 for min. stroke length.

Note 4: 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 5: Instantaneous maximum temperature is the temperature when spark and spatter etc. instantaneously contacts to bellows.

Note 6: "I" and "Y" can not be selected at the same time.

Note 7: Refer to Ending 89 for custom specifications of rod end form.

Note 8: Refer to page 436 for variation and option combination.

<Example of model number>

SCA2-R-LB-40B-100-25-T0-R-S-I

Model: Medium bore size cylinder double acting stroke adjustment type (retracted)

- A Mounting style : Axial foot type
- B Bore size : φ 40 mm
- C Port thread type : Rc thread
- D Cushion : Both sides cushioned
- E Stroke length : 100 mm
- F Adjustable stroke range : 25 mm
- G Switch model no. : Reed T0 switch, lead wire length 1 m
- H Switch quantity : One on rod end
- I Option : Cushion needle position S
- J Accessory : Rod eye

How to order mounting bracket

Bore size (mm)	φ 40	φ 50	φ 63	φ 80	φ 100
Mounting bracket					
Foot (LB)	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100

Note 1: Refer to page 448 for the mounting bracket material.

Note 2: The foot type bracket is 2 pcs./set.

[F] switch model no.

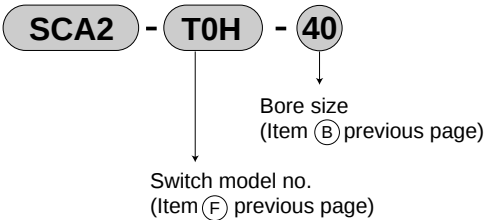
T type switch model no.				
Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T0H*	T0V*	Reed	1 color indicator type	2-wire
T5H*	T5V*		Without indicator light	
T8H*	T8V*		1 color indicator type	
T1H*	T1V*	Proximity	1 color indicator type	2-wire
T2H*	T2V*			3-wire
T3H*	T3V*			2-wire
T2YH*	T2YV*		2 color indicator type	2-wire
T3YH*	T3YV*			3-wire
T3PH*	T3PV*		1 color indicator type (custom order)	3-wire
T2YFH*	T2YFV*		2 color indicator type (Without light for preventive maintenance output)	3-wire
T3YFH*	T3YFV*		2 color indicator type (With light for preventive maintenance output (1 color))	4-wire
T2YMH*	T2YMV*			3-wire
T3YMH*	T3YMV*		Strong magnetic field proof switch	4-wire
T2YD*	-			2-wire
T2YDT*	-		Off-delay type	2-wire
T2JH*	T2JV*			

R type switch					
Grommet type	Terminal box type		Contact	Indicator	Lead wire
	Standard type	Splash prf.			
R1*	R1B	R1A			
These types have been changed to T-switch integrated type since Oct 1st 2007.					
R2*	R2B	R2A			
R3*	R3B	R3A			
R4*	R4B	R4A			
R5*	R5B	R5A			
R6*	R6B	R6A			
R7*	R7B	R7A			
R8*	R8B	R8A			
R9*	R9B	R9A			
R10*	R10B	R10A			
R11*	R11B	R11A			
R12*	R12B	R12A			
R13*	R13B	R13A			
R14*	R14B	R14A			
R15*	R15B	R15A			
R16*	R16B	R16A			
R17*	R17B	R17A			
R18*	R18B	R18A			
R19*	R19B	R19A			
R20*	R20B	R20A			
R21*	R21B	R21A			
R22*	R22B	R22A			
R23*	R23B	R23A			
R24*	R24B	R24A			
R25*	R25B	R25A			
R26*	R26B	R26A			
R27*	R27B	R27A			
R28*	R28B	R28A			
R29*	R29B	R29A			
R30*	R30B	R30A			
R31*	R31B	R31A			
R32*	R32B	R32A			
R33*	R33B	R33A			
R34*	R34B	R34A			
R35*	R35B	R35A			
R36*	R36B	R36A			
R37*	R37B	R37A			
R38*	R38B	R38A			
R39*	R39B	R39A			
R40*	R40B	R40A			
R41*	R41B	R41A			
R42*	R42B	R42A			
R43*	R43B	R43A			
R44*	R44B	R44A			
R45*	R45B	R45A			
R46*	R46B	R46A			
R47*	R47B	R47A			
R48*	R48B	R48A			
R49*	R49B	R49A			
R50*	R50B	R50A			
R51*	R51B	R51A			
R52*	R52B	R52A			
R53*	R53B	R53A			
R54*	R54B	R54A			
R55*	R55B	R55A			
R56*	R56B	R56A			
R57*	R57B	R57A			
R58*	R58B	R58A			
R59*	R59B	R59A			
R60*	R60B	R60A			
R61*	R61B	R61A			
R62*	R62B	R62A			
R63*	R63B	R63A			
R64*	R64B	R64A			
R65*	R65B	R65A			
R66*	R66B	R66A			
R67*	R67B	R67A			
R68*	R68B	R68A			
R69*	R69B	R69A			
R70*	R70B	R70A			
R71*	R71B	R71A			
R72*	R72B	R72A			
R73*	R73B	R73A			
R74*	R74B	R74A			
R75*	R75B	R75A			
R76*	R76B	R76A			
R77*	R77B	R77A			
R78*	R78B	R78A			
R79*	R79B	R79A			
R80*	R80B	R80A			
R81*	R81B	R81A			
R82*	R82B	R82A			
R83*	R83B	R83A			
R84*	R84B	R84A			
R85*	R85B	R85A			
R86*	R86B	R86A			
R87*	R87B	R87A			
R88*	R88B	R88A			
R89*	R89B	R89A			
R90*	R90B	R90A			
R91*	R91B	R91A			
R92*	R92B	R92A			
R93*	R93B	R93A			
R94*	R94B	R94A			
R95*	R95B	R95A			
R96*	R96B	R96A			
R97*	R97B	R97A			
R98*	R98B	R98A			
R99*	R99B	R99A			
R100*	R100B	R100A			

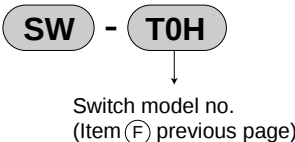
How to order switch

(T type switch)

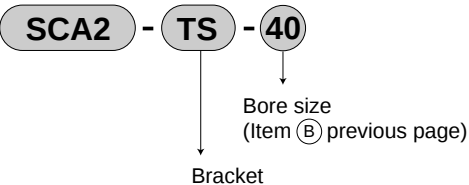
● Switch body + mounting bracket



● Only switch body



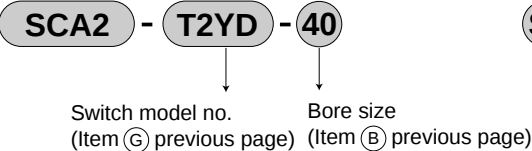
● Switch bracket set



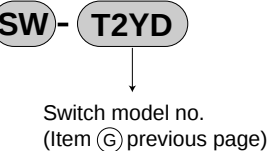
* Consult with CKD when using the environment compatible T-type switch.

(T2YD type switch)

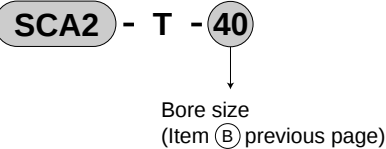
● Switch body + mounting bracket



● Only switch body



● Mounting bracket

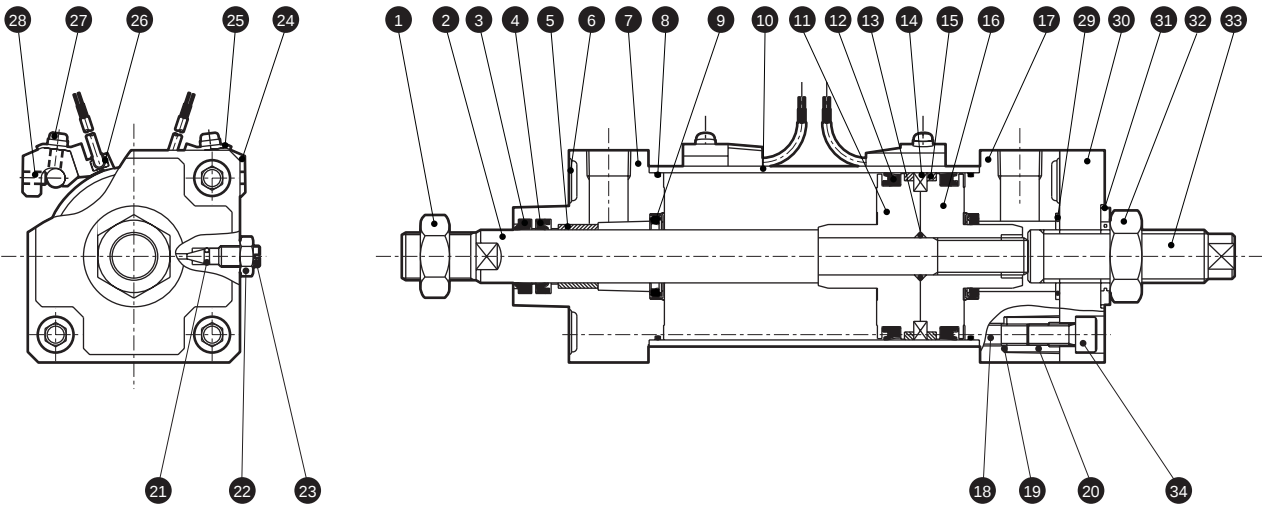


SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC

Medium bore size cylinder
Standard type

- 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

Internal structure and parts list



No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Rod nut	Steel	Zinc chromate	18	Tie rod	Steel	Zinc chromate
2	Piston rod	Steel	Industrial chrome plating	19	Conical spring washer	Steel	Blackening
3	Dust wiper	Nitrile rubber		20	Round nut	Steel	Zinc chromate
4	Rod packing seal	Nitrile rubber		21	Needle gasket	Nitrile rubber	
5	Bush	Oil impregnated bearing alloy		22	Needle nut	Copper alloy	
6	Masking plate	Aluminum alloy	Paint	23	Cushion needle	Copper alloy	
7	Rod cover	Aluminum alloy die-casting	Paint	24	Switch installation unit	Aluminum alloy	
8	Cylinder gasket	Nitrile rubber		25	Switch holder	Aluminum alloy	
9	Cushion packing seal	Urethane rubber, steel		26	Cylinder switch		
10	Cylinder tube	Aluminum alloy	Hard alumite treatment	27	Cross headed pan w/washer	Steel	Zinc chromate
11	Piston R	Aluminum alloy die-casting		28	Hexagon socket head set screw	Alloy steel	Blackening
12	Piston packing seal	Nitrile rubber		29	Head cover gasket	Nitrile rubber	
13	Piston gasket	Nitrile rubber		30	Head plate	Steel	Phosphoric acid mangan treatment
14	Magnet	Plastic		31	Seal washer	Nitrile rubber, steel	Zinc chromate
15	Wear ring	Polyacetal resin		32	Nut	Steel	Zinc chromate
16	Piston H	Aluminum alloy die-casting		33	Stud bolt	Steel	Zinc chromate
17	Head cover	Aluminum alloy die-casting	Paint	34	Hexagon socket head cap bolt	Alloy steel	Blackening

Repair parts list

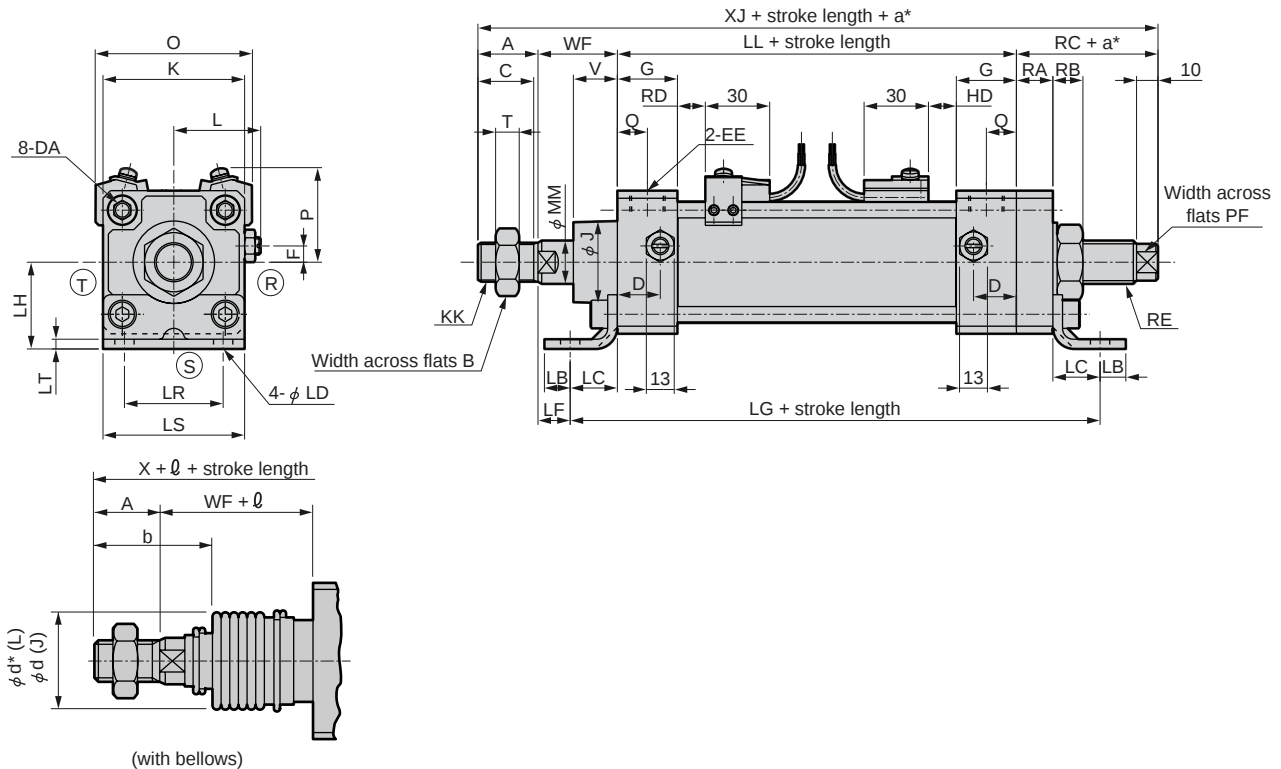
Bore size (mm)	Kit No.	Repair parts number
φ 40	SCA2-R-40K	
φ 50	SCA2-R-50K	3 4 8 9 12
φ 63	SCA2-R-63K	15 21 29 31
φ 80	SCA2-R-80K	
φ 100	SCA2-R-100K	

Note 1: Specify the kit No. when placing an order.

Dimensions



- Stroke adjustable type (retracted)



Note 1: (R)(S)(T) indicates a cushion needle position.

* a is adjustable stroke length.

Symbol																													
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L		LL	MM	Q	RA	RB	RC	RE		PF	T	V	WF	XF	XJ		
φ 40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5		93	16	13	14	11	35	M16 x 1.5		11	8	18.5	33.5	55.5	183.5		
φ 50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5		101	20	14	17	14	41	M20 x 1.5		14	11	20.5	37	65	207		
φ 63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50		105	20	15	17	14	41	M20 x 1.5		14	11	21	35	63	209		
φ 80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59		116	25	17	20	16	46	M24 x 1.5		17	13	23.5	48	84	246		
φ 100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69		128	30	18	20	16	46	M24 x 1.5		17	16	32	53	98	272		
Symbol	With switch							Installation dimensions								With bellows													
	O	P	T0, T5, T2, T3		T1, T2Y, T3Y, T2YFM, T3YFM		T8	LB	LC	LD	LF	LG	LH	LR	LS	LT	A	X	b	d	d*	ℓ							
			RD	HD	RD	HD																RD/HD	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500
φ 40	66	41.5	11	11	10	10	5	10	19.5	9	14	146	40	40	57	3.2	22	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
φ 50	73	43	13	13	12	12	7	12	22	9	15	162	40	46	66	4.5	28	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
φ 63	85	47	13	13	12	12	7	12	30	11	5	182	50	60	80	4.5	28	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
φ 80	105	57	14.5	14.5	13.5	13.5	8.5	14	37	14	11	210	60	74	98	6.0	36	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5
φ 100	121	63	18.5	18.5	17.5	17.5	12.5	21	31	14	12	210	67	80	118	6.0	45	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9

Note 2: Axial pitch dimensions of the installation hole differ from standard if foot type mounting method is used.

Note 3: Refer to page 597 for the projecting dimensions of T2YD switch.

Note 4: Refer to pages 598, 599 for accessory dimensions.

Each mounting style installation dimension is same as SCA2 (standard). Refer to pages 450 to 455.

Medium bore size cylinder
Standard type

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

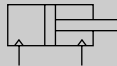


Medium bore size cylinder
Double acting, heat resistance type

SCA2-T Series

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

JIS symbol



Specifications

Descriptions		SCA2-T/SCA2-L2T (heat resistance type)				
Bore size	mm	φ 40	φ 50	φ 63	φ 80	φ 100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure	MPa	1.0				
Min. working pressure	MPa	0.05				
Withstanding pressure	MPa	1.6				
Ambient temperature	℃	5 to 120				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance	mm	^{+0.9} ₀ (Up to 360) ^{+1.4} ₀ (Up to 800)				
Working piston speed	mm/s	50 to 1000 (Use within the allowable energy absorption.)				
Cushion		Air cushion				
Effective cushion length	mm	14.6	16.6	16.6	20.6	23.6
Lubrication		Not available Note 1				
Allowable energy absorption J	Cushioned	4.29	8.37	15.8	27.9	49.8
	No cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Note 1: Apply heat proof grease periodically.

Stroke length

Bore size (mm)	Without switch Standard stroke length (mm)	With switch Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
ϕ 40	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	150, 200, 250, 300, 350, 400, 450, 500	600	1
ϕ 50			700	
ϕ 63			800	
ϕ 80				
ϕ 100				

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

Min. stroke length of type with switch

(Unit: mm)

Rough sketch	Different surface installation			Installed on the same plane			Intermediate (hole type) trunnion installation			Rod end (hole type) trunnion installation		Head end (hole type) trunnion installation	
Switch quantity	1	2	3	1	2	3	1	2	3	1		1	
Bore size (mm)													
ϕ 40	150	150	335	335	335	390	335	335	390	150		150	
ϕ 50	145	145	335	335	335	390	335	335	390	145		145	
ϕ 63	145	145	335	335	335	390	335	335	390	145		145	
ϕ 80	145	145	335	335	335	390	335	335	390	145		145	
ϕ 100	140	140	335	335	335	390	335	335	390	140		140	

A position can not be detected at rod side stroke end.

A position can not be detected at head side stroke end.

Switch specifications

Descriptions	Reed 2-wire		
	E0		
Applications	Relay, programmable controller		
Load voltage	24 VDC	110 VAC	220 VAC
Load current	5 to 50 mA	7 to 20 mA	7 to 10 mA
Light	LED ON lighting		
Leakage current	0 mA		

Note 1: Refer to Ending 1 for other switch specifications.

Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight at stroke length (S) = 0 mm							Weight per switch (Including mounting bracket)	Additional weight per S = 100 mm
	Basic type (00)	Foot type (LB)	Flange type (FA and FB)	Special flange type (FC)	Eye bracket type (CA)	Clevis bracket type (CB)	Trunnion type (TA, TB, TC)		
φ40	0.83	1.00	1.24	0.92	1.15	1.19	1.21	0.16	0.39
φ50	1.20	1.45	1.69	1.31	1.58	1.61	1.74	0.18	0.46
φ63	1.60	1.97	2.69	1.78	2.17	2.22	2.45	0.19	0.50
φ80	2.60	3.34	4.46	2.96	3.87	4.08	3.94	0.20	0.90
φ100	4.20	5.11	6.94	4.75	5.84	6.02	6.77	0.22	1.12

(E.g.) Product weight of SCA2-L2T-LB-50B-200-E0-D —

- Product weight when stroke length (S) = 0 mm ... 1.45 kg
- Additional weight at stroke length 200 mm ... $0.46 \times \frac{200}{100} = 0.92$ kg
- Weight of two switches ... $0.18 \times 2 = 0.36$ kg
- Product weight ... $1.45 + 0.92 + 0.36$ kg = 2.73 kg

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

Medium bore size cylinder
Standard type

How to order

Without switch

SCA2- T - LB - 40 - B - 100 - S - I

With switch

SCA2-L2T - LB - 40 - B - 100 - E0 - R - S - I

A Mounting style
Note 1

Heat resistance type/
with switch

B Bore size

C Port thread type

D Cushion

E Stroke length
Note 2

F Switch model no.

G Switch quantity

H Option
Note 5

I Accessory
Note 6

Symbol	Descriptions
A Mounting style	
00	Basic type
LB	Axial foot type
FA	Rod end flange type
FB	Head end flange type
FC	Special head end flange type
CA	Eye bracket type
CB	Clevis bracket type (pin and snap ring attached)
TC	Center trunnion type
TA	Rod end trunnion type
TB	Head end trunnion type
TF	Intermediate supporting hole (φ40 cannot be selected.)
TD	Rod end supporting hole (φ40 cannot be selected)
TE	Head end supporting hole (φ40 cannot be selected.)

B Bore size (mm)	
40	φ 40
50	φ 50
63	φ 63
80	φ 80
100	φ 100

C Port thread type	
Blank	Rc thread
N	NPT thread (custom order)
G	G thread (custom order)

D Cushion	
B	Both sides cushioned
R	Rod end cushion
H	Head end cushion
N	No cushion

E Stroke length (mm)		
Bore size	Stroke length Note 3	Custom stroke length
φ 40	1 to 600	Per 1 mm increment
φ 50	1 to 600	
φ 63	1 to 600	
φ 80	1 to 700	
φ 100	1 to 800	

F Switch model no.			
E0	Reed	1 color indicator type	2-wire

G Switch quantity	
R	One on rod end
H	One on head end
D	Two
T	Three

H Option			
		Max. ambient	Max. instantaneous
L	Bellows	250 °C	400 °C
M	Piston rod material (stainless steel)		
Blank	Cushion needle position R (standard)		
S	Cushion needle position S		
T	Cushion needle position T		

I Accessory	
I	Rod eye
Y	Rod clevis (pin and snap ring attached)
B1	Eye bracket
B2	Clevis bracket (pin and snap ring attached)
B3	Eye bracket
B4	Trunnion type No. 2 bracket

Note on model no. selection

Note 1: The mounting bracket is shipped with the product.

(However, trunnion type is attached to the product when shipped.)

Note 2: For types with switch, 25, 50, 75 and 100 mm stroke are not available.

Note 3: Refer to page 472 for min. stroke length.

Note 4: If the maximum stroke is exceeded, refer to Ending 74. .

Note 5: Instantaneous maximum temperature is the temperature when spark and spatter etc. instantaneously contacts to bellows.

Note 6: "I" and "Y" can not be selected at the same time.

Note 7: Refer to Ending 89 for custom specifications of rod end form.

Note 8: Refer to page 436 for variation and option combination.

<Example of model number>

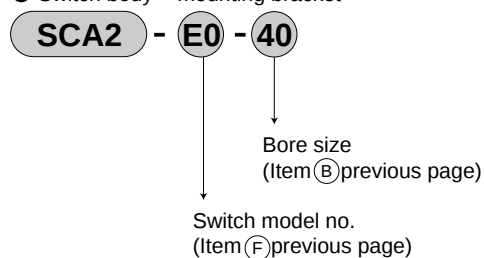
SCA2-L2T-LB-40B-100-E0-R-SI

Model: Medium bore size cylinder double acting heat resistance type

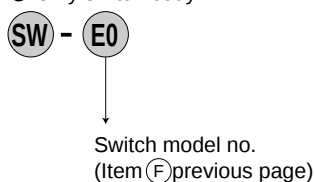
- A Mounting style : Axial foot type
- B Bore size : φ 40 mm
- C Port thread type : Rc thread
- D Cushion : Both sides cushioned
- E Stroke length : 100 mm
- F Switch model no. : Reed E0 switch
- G Switch quantity : One on rod end
- H Option : Cushion needle position S
- I Accessory : Rod eye

How to order switch

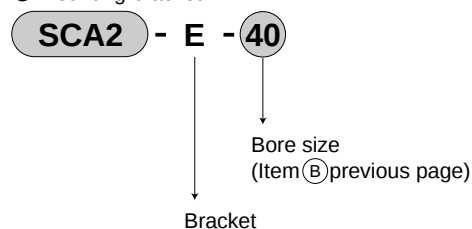
● Switch body + mounting bracket



● Only switch body



● Mounting bracket



How to order mounting bracket

Bore size (mm)	φ40	φ50	φ63	φ80	φ100
Mounting bracket					
Foot (LB)	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Eye (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

Note 1: Refer to page 448 for the mounting bracket material.

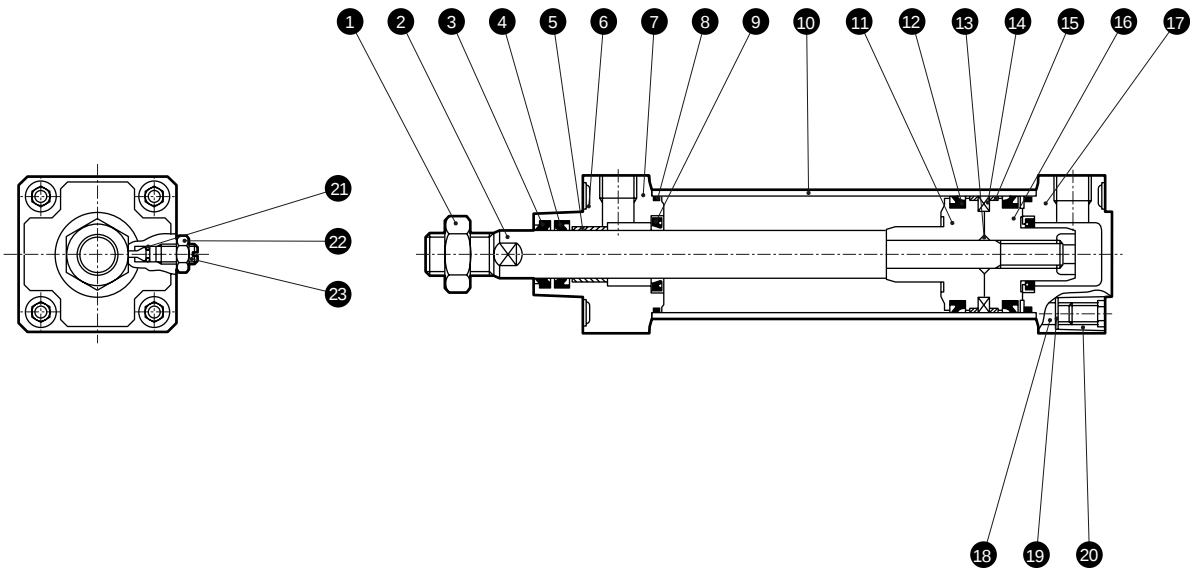
Note 2: The foot type bracket is 2pcs./set.

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

Medium bore size cylinder
Standard type

- 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

Internal structure and parts list



No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Rod nut	Steel	Zinc chromate	13	Piston gasket	Fluoro rubber	
2	Piston rod	Steel	Industrial chrome plating	14	Piston ring	Steel	SCA2-T
3	Dust wiper	Fluoro rubber		14	Magnet	Rare earth plastic magnet	SCA2-L2T
4	Rod packing seal	Fluoro rubber		15	Wear ring	Special plastic	
5	Bush	Oil impregnated bearing alloy		16	Piston H	Aluminum alloy die-casting	
6	Masking plate	Aluminum alloy	Paint	17	Head cover	Aluminum alloy die-casting	Paint
7	Rod cover	Aluminum alloy die-casting	Paint	18	Tie rod	Steel	Zinc chromate
8	Cylinder gasket	Fluoro rubber		19	Conical spring washer	Steel	Blackening
9	Cushion packing seal	Fluoro rubber		20	Round nut	Steel	Zinc chromate
10	Cylinder tube	Aluminum alloy	Hard alumite treatment	21	Needle gasket	Fluoro rubber	
11	Piston R	Aluminum alloy die-casting		22	Needle nut	Copper alloy	
12	Piston packing seal	Fluoro rubber		23	Cushion needle	Copper alloy	

Repair parts list

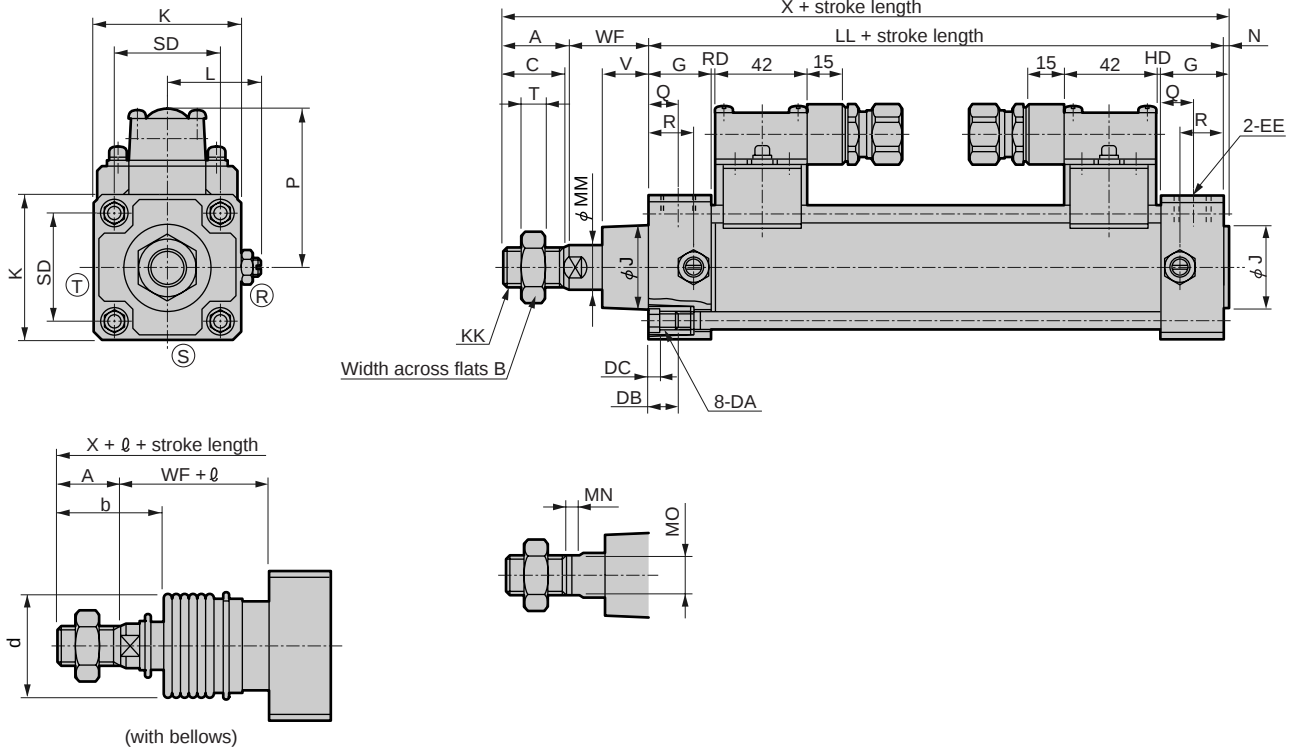
Bore size (mm)	Kit No.	Repair parts number
φ 40	SCA2-T-40K	
φ 50	SCA2-T-50K	3 4 8 9 12
φ 63	SCA2-T-63K	15 21
φ 80	SCA2-T-80K	
φ 100	SCA2-T-100K	

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

Dimensions



● SCA2-L2T-**



Note 1: Refer to page 598, 599 for accessory dimensions.

Symbol	Basic type (00) basic dimensions																					
Bore size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	J	K	KK	L	LL	MM	MN	MO	N	Q	SD	T
φ40	22	22	20	18	M8	12	4	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	8	14	2	13	40.5	8
φ50	28	27	26	20	M8	12	4	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	8	17	2.5	14	48	11
φ63	28	27	26	22	M8	12	4	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	8	17	3	15	59	11
φ80	36	32	34	26	M12	16	5	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	11	22	3.5	17	74	13
φ100	45	41	43	28	M12	16	5	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	13	27	4	18	90	16
Symbol				With bellows																With switch		
Bore size (mm)	V	WF	X	A	X	b	d	ℓ								HD	P	RD				
								50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500							
φ40	18.5	33.5	150.5	22	150.5	41	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8			0	68	0		
φ50	20.5	37	168.5	28	168.5	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5			1.5	72	1.5		
φ63	21	35	171	28	171	45	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5			1.5	79	1.5		
φ80	23.5	48	203.5	36	203.5	58.5	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5			3	89	3		
φ100	32	53	230	45	230	69.5	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9			7	99	7		

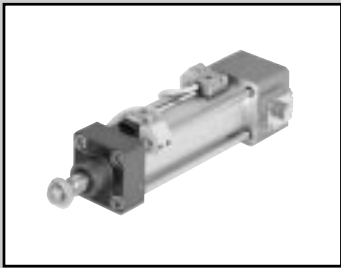
* Round up decimal places.

Note: Each mounting style installation dimension is same as SCA2 (standard). Refer to pages 450 to 455.

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

Medium bore size cylinder
Standard type

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

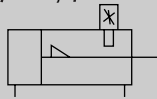
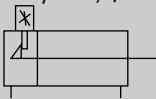


Medium bore size cylinder
Double acting, position locking type

SCA2-Q2 Series

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

JIS symbol



Specifications

Descriptions		SCA2-Q2 (position locking type)				
Bore size	mm	φ40	φ50	φ63	φ80	φ100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure	MPa	1.0				
Min. working pressure	MPa	0.1				
Withstanding pressure	MPa	1.6				
Ambient temperature		-10 to 60 (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance	mm	^{+0.9} ₀ (Up to 360), ^{+1.4} ₀ (Up to 800)				
Working piston speed	mm/s	50 to 500 (Use within the allowable energy absorption.)				
Cushion		Air cushion				
Effective cushion length	mm	14.6	16.6	16.6	20.6	23.6
Position locking mechanism		Head end, rod end				
Holding force		N				
Lubrication		Maximum thrust x 0.7				
		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)				
Allowable energy absorption J	Cushioned	4.29	8.37	15.8	27.9	49.8
	No cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Stroke length

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

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

Min. stroke length of type with switch

- T0/T5 type min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ 40	20 (10)	20 (20)	40 (40)	60 (60)	20 (10)	60 (45)	105 (75)	150 (105)	135 (135)	135 (135)	200 (170)	200 (170)	50 (50)	50 (50)
ϕ 50	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	20 (20)	65 (50)	65 (60)	160 (160)	160 (160)	160 (160)	160 (160)	60 (60)	60 (60)
ϕ 63	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	20 (20)	70 (55)	70 (60)	135 (120)	135 (120)	135 (125)	135 (125)	50 (45)	50 (45)
ϕ 80	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	140 (110)	140 (110)	140 (130)	140 (130)	55 (40)	55 (40)
ϕ 100	15 (15)	25 (25)	45 (45)	70 (70)	15 (15)	25 (25)	70 (55)	70 (70)	150 (120)	150 (120)	150 (145)	150 (145)	60 (45)	60 (45)

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 min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ 40	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	50 (35)	95 (65)	140 (95)	125 (125)	125 (125)	190 (160)	190 (160)	45 (40)	45 (40)
ϕ 50	10 (10)	20 (20)	40 (40)	60 (60)	10 (10)	20 (20)	70 (55)	70 (60)	150 (150)	150 (150)	175 (175)	175 (175)	50 (50)	50 (50)
ϕ 63	10 (10)	20 (20)	40 (40)	60 (60)	10 (10)	20 (20)	70 (55)	70 (60)	120 (110)	120 (110)	140 (140)	140 (140)	45 (35)	45 (35)
ϕ 80	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	130 (100)	130 (100)	145 (145)	145 (145)	50 (35)	50 (35)
ϕ 100	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	140 (110)	140 (110)	155 (155)	155 (155)	55 (40)	55 (40)

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.

⚠ Refer to the safety precautions for (the position locking) mechanism on pages 439 to 441 before starting use.

Min. stroke length of type with switch

● T2/T3 type min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
φ40	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	130 (100)	130 (100)	190 (160)	190 (160)	50 (35)	50 (35)
φ50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	130 (100)	130 (100)	130 (105)	130 (105)	45 (30)	45 (30)
φ63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	135 (105)	135 (105)	135 (110)	135 (110)	50 (35)	50 (35)
φ80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	140 (110)	140 (110)	140 (120)	140 (120)	55 (40)	55 (40)
φ100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	150 (120)	150 (120)	150 (130)	150 (130)	60 (45)	60 (45)

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 min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
φ40	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
φ50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	100 (70)	100 (70)	100 (75)	100 (75)	45 (30)	45 (30)
φ63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	105 (75)	105 (75)	105 (85)	105 (85)	50 (35)	50 (35)
φ80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	110 (80)	110 (80)	110 (90)	110 (90)	55 (40)	55 (40)
φ100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	120 (90)	120 (90)	120 (100)	120 (100)	60 (45)	60 (45)

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

Medium bore size cylinder
Standard type

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

Switch specifications (T type switch)
● 1color / 2 color indicator, strong magnetic field proof

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

Descriptions	Proximity 2-wire			Proximity 3-wire			Reed 2-wire						Proximity 2-wire	
	T1H/T1V	T2H/T2V T2JH/T2JV	T2YH/T2YV	T3H/T3V	T3PH/T3PV (Custom order)	T3YH/T3YV	T0H/T0V		T5H/T5V		T8H/T8V		T2YD	
Applications	Programmable controller relay, small solenoid valve	Programmable controller dedicated		Programmable controller, relay			Programmable controller, relay		Programmable controller, relay, IC circuit (w/o light), serial connection		Programmable controller, relay		Programmable controller dedicated	
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 100 mA	5 to 20 mA (Note 1)		100 mA or less		50 mA or less	5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
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	1 mA or less with 100 VAC 2 mA or less with 200 VAC	1 mA or less		10 μA or less			0 mA						1 mA 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		Programmable controller, relay		Programmable controller dedicated		Programmable controller, relay	
Output method		NPN output							
Light	Installation position adjustment	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 20 mA		50 mA or less		5 to 20 mA		50 mA or less	
	Leakage current	1 mA or less		10 μA or less		1.2 mA or less		10 μA or less	
Preventive maintenance output	Load voltage	30 VDC or less							
	Load current	20 mA or less		50 mA or less		5 to 20 mA or less		50 mA or less	
	Leakage current	10 μA or less							

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

Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke length (S) = 0 mm							Weight per switch (including mounting bracket)		Additional weight per S = 100 mm	
	Basic type (00)	Foot type (LB)	Flange type (FA and FB)	Special flange type (FC)	Eye bracket type (CA)	Clevis bracket type (CB)	Trunnion type (TA, TB, TC)	T type	T2YD type		
									1 m		3 m
φ40	1.21	1.38	1.62	1.30	1.53	1.57	1.59	0.018	0.08	0.17	0.39
φ50	1.70	1.95	2.19	1.81	2.08	2.11	2.24				0.46
φ63	2.36	2.73	3.45	2.54	2.93	2.98	3.21				0.50
φ80	3.84	4.58	5.70	4.20	5.11	5.32	5.18				0.90
φ100	6.12	7.03	8.86	6.67	7.76	7.94	8.69				1.12

(E.g.) Product weight of SCA2-Q2-LB-50B-200-H-T0H-D — Product weight when stroke length (S) = 0 mm ... 1.95 kg Additional weight at stroke length 200 mm ... $0.46 \times \frac{200}{100} = 0.92$ kg T0H, weight of two switches ... $0.018 \times 2 = 0.036$ kg Product weight ... $1.95 \text{ kg} + 0.92 \text{ kg} + 0.036 \text{ kg} = 2.906 \text{ kg}$											
--	--	--	--	--	--	--	--	--	--	--	--

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

Medium bore size cylinder
Standard type

How to order

Without switch

SCA2-Q2 - LB - 40 - B - 100 - H - S - I

With switch

SCA2-Q2 - LB - 40 - B - 100 - H - T0 - R - S - I

A Mounting style
Note 1

B Bore size

C Port thread type

D Cushion

E Stroke length
Note 2

F Position locking mechanism

G Switch model no.

H Switch quantity
Note 4

I Option
Note 5

J Accessory
Note 6

Note on model no. selection

Note 1: The mounting bracket is shipped with the product.
However, trunnion type is attached to the product when shipped.
Mounting style TA or position locking mechanism R is not available.
Mounting style TB or position locking mechanism H is not available.

Note 2: If the maximum stroke is exceeded, refer to Ending 74.

Note 3: Refer to page 478 for min. stroke length.

Note 4: 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 5: If "M0" or "M1" is not selected for the "I" Options, only the nonlocking manual override is available.
Release bolt is not included.

Note 6: "I" and "Y" can not be selected at the same time.

Note 7: Refer to Ending 89 for custom specifications of rod end form.

Note 8: Refer to page 436 for variation and option combination.

<Example of model number>

SCA2-Q2-LB-40B-100-H-T0-R-S-I

Model: Medium bore size cylinder position locking type

- A Mounting style : Axial foot type
- B Bore size : ϕ 40 mm
- C Port thread type : Rc thread
- D Cushion : Both sides cushioned
- E Stroke length : 100 mm
- F Position locking mechanism : Head end position locking
- G Switch model no. : Reed T0 switch, lead wire length 1 m
- H Switch quantity : One on rod end
- I Option : Cushion needle position S
- J Accessory : Rod eye

Symbol	Descriptions	
A Mounting style		
00	Basic type	
LB	Axial foot type	
FA	Rod end flange type	
FB	Head end flange type	
FC	Special head end flange type	
CA	Eye bracket type	
CB	Clevis bracket type (pin and snap ring attached)	
TC	Center trunnion type	
TA	Rod end trunnion type	
TB	Head end trunnion type	
TF	Intermediate supporting hole (φ40 cannot be selected.)	
TD	Rod end supporting hole (φ40 cannot be selected.)	
TE	Head end supporting hole (φ40 cannot be selected.)	
B Bore size (mm)		
40	φ 40	
50	φ 50	
63	φ 63	
80	φ 80	
100	φ 100	
C Port thread type		
Blank	Rc thread	
N	NPT thread (custom order)	
G	G thread (custom order)	
D Cushion		
B	Both sides cushioned	
R	Rod end cushion	
H	Head end cushion	
N	No cushion	
E Stroke length (mm)		
Bore size	Stroke length Note 3	Custom stroke length
φ40	1 to 600	Per 1 mm increment
φ50	1 to 600	
φ63	1 to 600	
φ80	1 to 700	
φ100	1 to 800	
F Position locking mechanism		
H	Head end position locking	
R	Rod end position locking	
G Switch model no.		
Refer to the switch model no. table on the following page.		
*Lead wire length		
Blank	1m (standard)	
3	3m (option)	
5	5m (option)	
H Switch quantity		
R	One on rod end	
H	One on head end	
D	Two	
T	Three	
I Option		
M	Piston rod material (stainless steel)	
S	Cushion needle position S	
M0	Non-locking manual override (release bolt attached)	
M1	Locking manual override	
J Accessory		
I	Rod eye	
Y	Rod clevis (pin and snap ring attached)	
B1	Eye bracket	
B2	Clevis bracket (pin and snap ring attached)	
B3	Eye bracket	
B4	Trunnion type No. 2 bracket	

How to order mounting bracket

Bore size (mm)	ϕ 40	ϕ 50	ϕ 63	ϕ 80	ϕ 100
Mounting bracket					
Foot type (LB)	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange type (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Eye bracket type (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis bracket type (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

Note 1: Refer to page 448 for the mounting bracket material.

Note 2: The foot type bracket is 2 pcs./set.

[F] switch model no.

T type switch model no.				
Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T0H*	T0V*	Reed	1 color indicator type	2-wire
T5H*	T5V*		Without indicator light	
T8H*	T8V*		1 color indicator type	
T1H*	T1V*	Proximity	1 color indicator type	2-wire
T2H*	T2V*			3-wire
T3H*	T3V*			2-wire
T2YH*	T2YV*		2 color indicator type	3-wire
T3YH*	T3YV*			3-wire
T3PH*	T3PV*		1 color indicator type (custom order)	3-wire
T2YFH*	T2YFV*		2 color indicator type (Without light for preventive maintenance output)	3-wire
T3YFH*	T3YFV*			4-wire
T2YMH*	T2YMV*		2 color indicator type (Without light for preventive maintenance output)	3-wire
T3YMH*	T3YMV*			4-wire
T2YD*	-		Strong magnetic field proof switch	2-wire
T2YDT*	-			
T2JH*	T2JV*		Off-delay type	2-wire

R type switch				
Grommet type	Terminal box type	Contact	Indicator	Lead wire
Standard type	Splash prf.			
R1*	R1B	R1A		
These types have been changed to T-switch integrated type since Oct 1st 2007.				
R2	R2B	R2A	1 color indicator type	

How to order switch

(T type switch)

● Switch body + mounting bracket

SCA2 - **T0H** - **40**

Switch model no.
(Item ⑤ previous page)

Bore size
(Item ⑥ previous page)

● Only switch body

SW - **T0H**

Switch model no.
(Item ⑤ previous page)

● Switch bracket set

SCA2 - **TS** - **40**

Bracket

Bore size
(Item ⑥ previous page)

* Consult with CKD when using the environment compatible T-type switch.

(T2YD type switch)

● Switch body + mounting bracket

SCA2 - **T2YD** - **40**

Switch model no. Bore size
(Item ⑤ previous page) (Item ⑥ previous page)

● Only switch body

SW - **T2YD**

Switch model no.
(Item ⑤ previous page)

● Mounting bracket

SCA2 - **T** - **40**

Bore size
(Item ⑥ previous page)

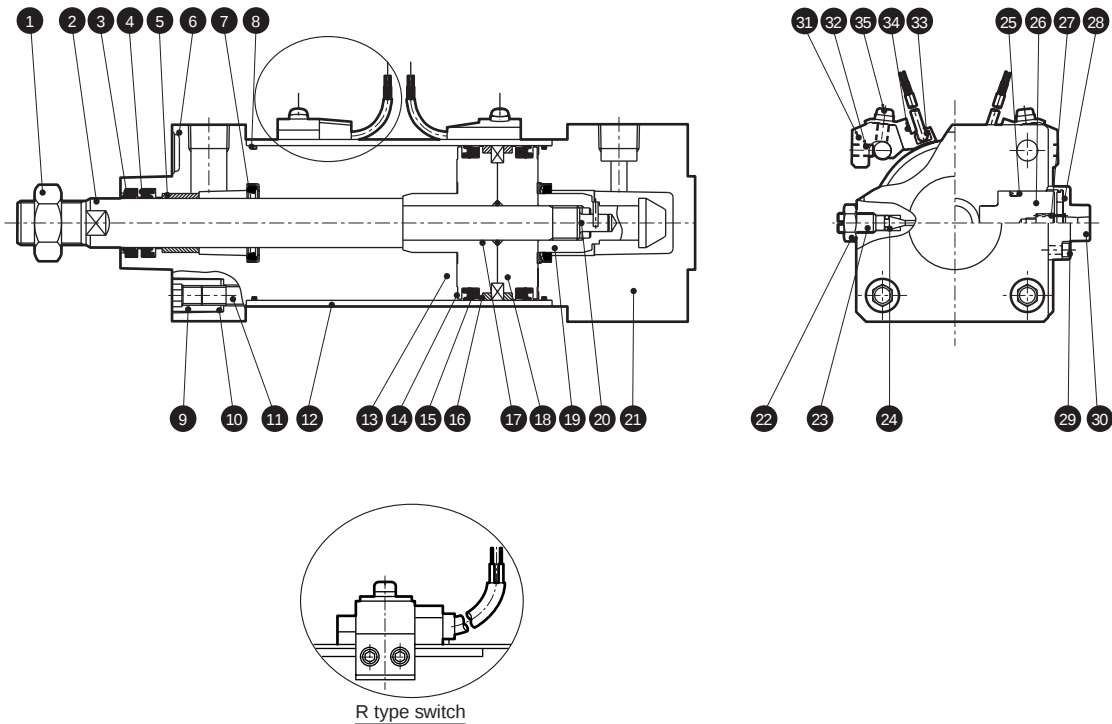
SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Medium bore size cylinder
Standard type

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

Internal structure and parts list

● SCA2-Q2 (with switch)



(The drawing is with head cover side position locking.)

No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Rod nut	Steel	Zinc chromate	19	Sleeve	Steel	Nitriding
2	Piston rod	Steel	Industrial chrome plating	20	Spring pin	Steel	Blackening
3	Dust wiper	Nitrile rubber		21	Head cover	Aluminum alloy casting *2	Paint
4	Rod packing seal	Nitrile rubber		22	Hexagon nut	Copper alloy	
5	Bush	Oil impregnated bearing alloy		23	Cushion needle	Copper alloy	
6	Rod cover	Aluminum alloy die-casting *1	Paint	24	Needle gasket	Nitrile rubber	
7	Cushion packing seal	Urethane rubber, steel		25	Stopper packing seal	Nitrile rubber	
8	Cylinder gasket	Nitrile rubber		26	Stopper piston	Steel	Nitriding
9	Round nut	Steel	Zinc chromate	27	Coil spring	Piano wire	Electrodeposition coating
10	Conical spring washer	Steel	Blackening	28	Cushion rubber	Urethane rubber	
11	Tie rod	Steel	Zinc chromate	29	Hexagon socket head cap bolt	Alloy steel	Zinc chromate
12	Cylinder tube	Aluminum alloy	Alumite treatment	30	Stopper guard	Aluminum alloy die-casting	
13	Piston (R)	Aluminum alloy die-casting		With switch			
14	Piston packing seal	Nitrile rubber		31	Switch installation unit	Aluminum alloy	
15	Wear ring	Polyacetal resin		32	Hexagon socket head set screw	Alloy steel	Blackening
16	Magnet	Plastic		33	Cylinder switch	-	
17	Piston gasket	Nitrile rubber		34	Switch holder	Aluminum alloy	
18	Piston (B)	Aluminum alloy die-casting		35	Cross headed pan w/washer	Steel	Zinc chromate

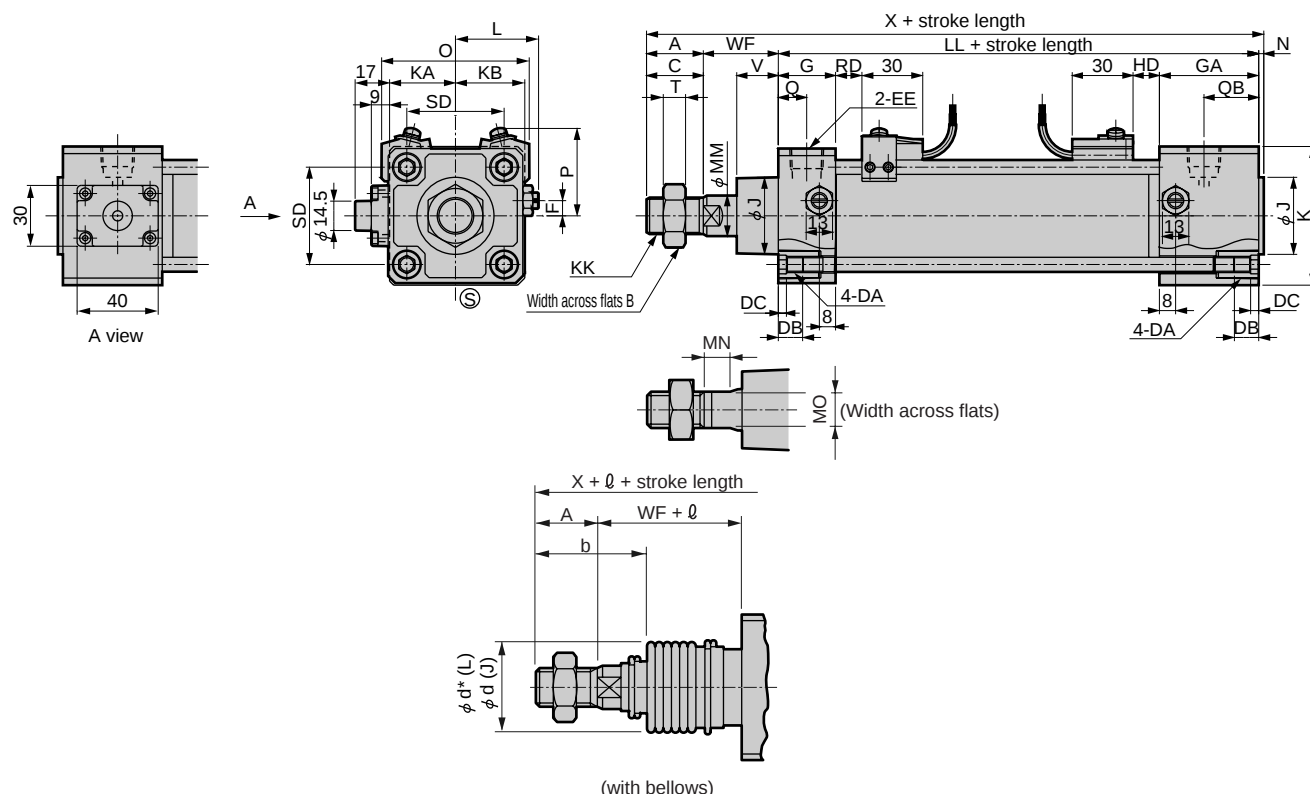
*1 Aluminum alloy casting is used for rod end position locking.
*2 Aluminum alloy die-casting is used for rod end position locking.

Repair parts list

Bore size (mm)	Kit No.	Repair parts number
φ 40	SCA2-Q2-40K	
φ 50	SCA2-Q2-50K	
φ 63	SCA2-Q2-63K	
φ 80	SCA2-Q2-80K	
φ 100	SCA2-Q2-100K	

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

- Basic type (00) head end position locking



Symbol	Basic type (00)																					
Bore size (mm)	A	B	C	DA	DB	DC	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA
φ40	22	22	20	M8	12	4	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	2	13
φ50	28	27	26	M8	12	4	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14
φ63	28	27	26	M8	12	4	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15
φ80	36	32	34	M12	16	5	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17
φ100	45	41	43	M12	16	5	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18
Symbol							With switch								With bellows							
Bore size (mm)	QB	SD	T	V	WF	X	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YFM, T3YFM		T8		X	b	d	d*	ℓ			
									RD	HD	RD	HD	RD	HD					50 or less	50 to 100	100 to 150	
φ40	26	40.5	8	18.5	33.5	178	66	41.5	11	15.5	10	14.5	5	9.5	178	41	40	40	25.5	41.5	58.5	
φ50	27	48	11	20.5	37	194.5	73	43	13	18	12	17	7	12	194.5	47	47	48	22	36	49	
φ63	28	59	11	21	35	196	85	47	13	19	12	18	7	13	196	45	47	48	22	36	49	
φ80	27	74	13	23.5	48	231.5	105	57	14.5	23.5	13.5	22.5	8.5	17.5	231.5	58.5	53	55	14	26	38	
φ100	27	90	16	32	53	258	121	63	18.5	29.5	17.5	28.5	12.5	23.5	258	69.5	61	65	20	32	42	
Symbol																						
Bore size (mm)	ℓ																					
	150 to 200		200 to 300		300 to 400		400 to 500		Over 500													
φ40	75.5		108.5		141.5		174.5		(stroke length/3.0) + 8													
φ50	63		90		119		146		(stroke length/3.6) + 7.5													
φ63	63		90		119		146		(stroke length/3.6) + 7.5													
φ80	49		72		96		119		(stroke length/4.3) + 2.5													
φ100	53		76		98		120		(stroke length/4.5) + 9													

Note 1: For ℓ dimensions, round up decimal places.

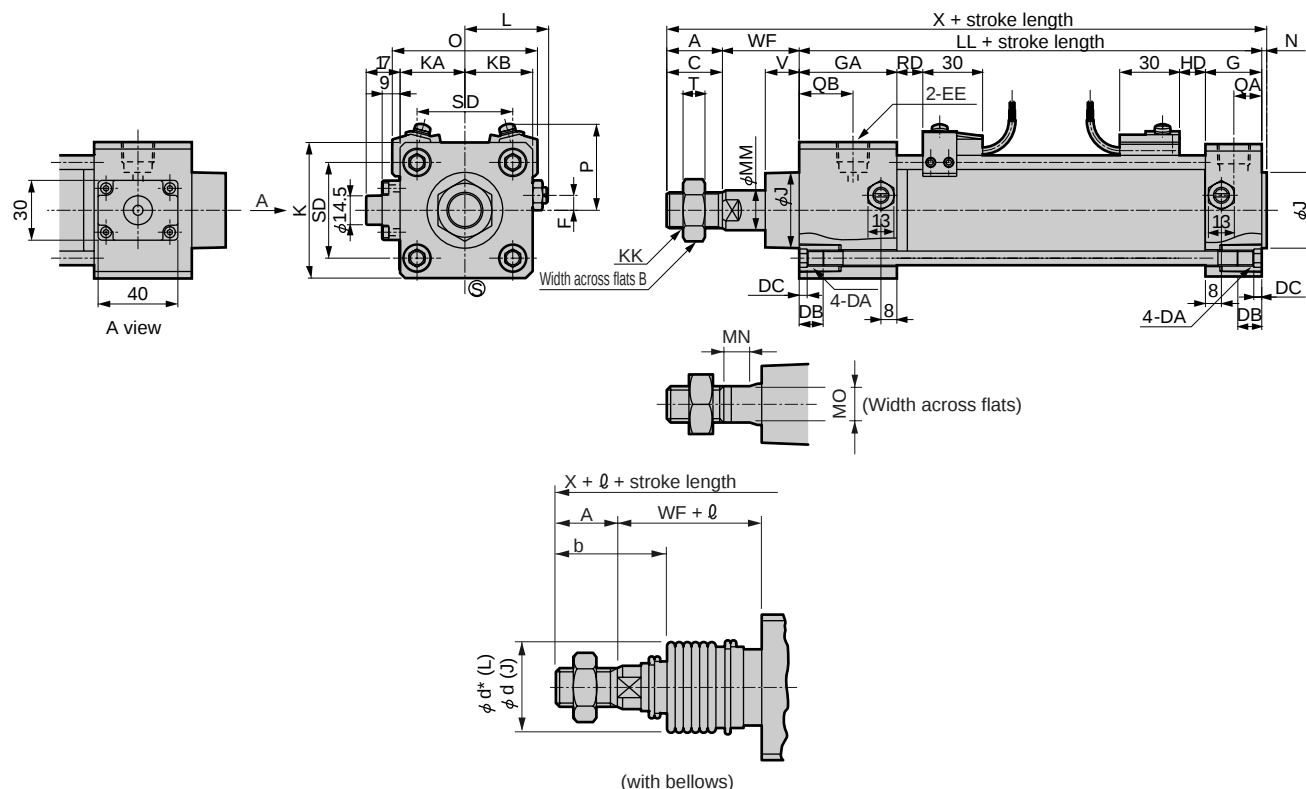
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.

Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions



- Basic type (00) rod end position locking



Symbol	Basic type (00)																					
Bore size (mm)	A	B	C	DA	DB	DC	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA
φ40	22	22	20	M8	12	4	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	2	13
φ50	28	27	26	M8	12	4	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14
φ63	28	27	26	M8	12	4	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15
φ80	36	32	34	M12	16	5	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17
φ100	45	41	43	M12	16	5	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18
Symbol							With switch								With bellows							
Bore size (mm)	QB	SD	T	V	WF	X	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YF/M, T3YF/M		T8		X	b	d	d*	ℓ			
									RD	HD	RD	HD	RD	HD					50 or less	50 to 100	100 to 150	
φ40	26	40.5	8	18.5	33.5	178	66	41.5	15.5	11	14.5	10	9.5	5	178	41	40	40	25.5	41.5	58.5	
φ50	27	48	11	17	33.5	191	73	43	18	13	17	12	12	7	191	47	47	48	22	36	49	
φ63	28	59	11	17	31	192	85	47	19	13	18	12	13	7	192	45	47	48	22	36	49	
φ80	27	74	13	18.5	43	226.5	105	57	23.5	14.5	22.5	13.5	17.5	8.5	226.5	58.5	53	55	14	26	38	
φ100	27	90	16	29	50	255	121	63	29.5	18.5	28.5	17.5	23.5	12.5	255	69.5	61	65	20	32	42	
Symbol																						
Bore size (mm)	ℓ																					
	150 to 200		200 to 300		300 to 400		400 to 500		Over 500													
φ40	75.5		108.5		141.5		174.5		(stroke length/3.0) + 8													
φ50	63		90		119		146		(stroke length/3.6) + 7.5													
φ63	63		90		119		146		(stroke length/3.6) + 7.5													
φ80	49		72		96		119		(stroke length/4.3) + 2.5													
φ100	53		76		98		120		(stroke length/4.5) + 9													

Note 1: For ℓ dimensions, round up decimal places.

Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.

Note 3: Refer to page 598, 599 for accessory dimensions.

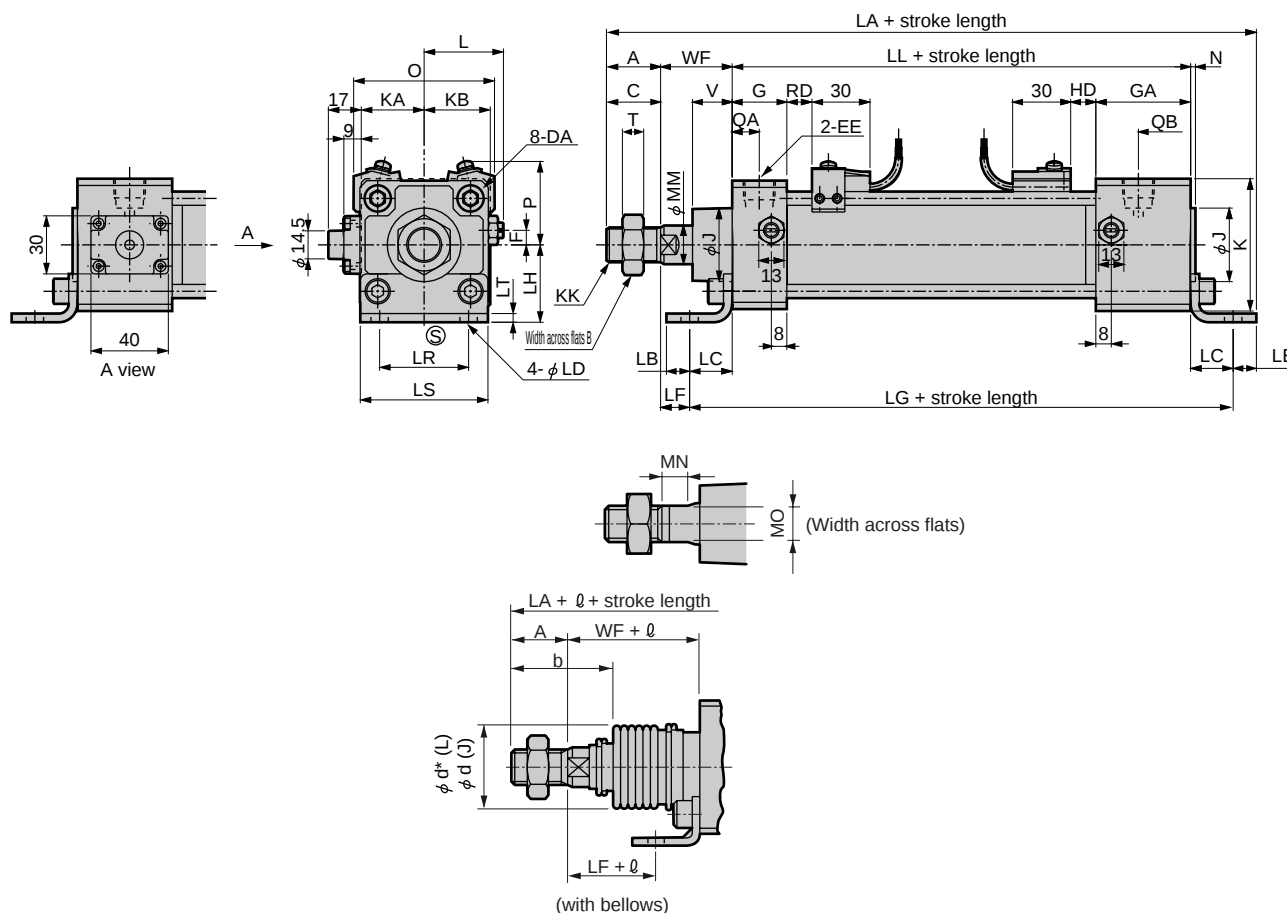
SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Medium bore size cylinder
Standard type

Dimensions



- Axial foot type (LB) head end position locking



Symbol	Axial foot type (LB) (unit: mm)																							
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB			
φ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	2	13	26			
φ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14	27			
φ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15	28			
φ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17	27			
φ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18	27			
Symbol														With switch							With bellows			
Bore size (mm)	T	V	WF	LA	LB	LC	LD	LF	LG	LH	LR	LS	LT	O	P	T0, T5, T2, T3	T1, T2Y, T3Y T2YFM, T3YFM	T8		X	b	d		
	RD	HD	RD	HD	RD	HD																		
φ40	8	18.5	33.5	205.5	10	19.5	9	14	159.5	40	40	57	3.2	66	41.5	11	15.5	10	14.5	5	9.5	178	41	40
φ50	11	20.5	37	226	12	22	9	15	171	40	46	66	4.5	73	43	13	18	12	17	7	12	194.5	47	47
φ63	11	21	35	235	12	30	11	5	190	50	60	80	4.5	85	47	13	19	12	18	7	13	196	45	47
φ80	13	23.5	48	279	14	37	14	11	218	60	74	98	6.0	105	57	14.5	23.5	13.5	22.5	8.5	17.5	231.5	58.5	53
φ100	16	32	53	306	21	31	14	22	218	67	80	118	6.0	121	63	18.5	29.5	17.5	28.5	12.5	23.5	258	69.5	61
Symbol																								
Bore size (mm)	d*	ℓ																						
	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500																
φ40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8															
φ50	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5															
φ63	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5															
φ80	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5															
φ100	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9															

Note 1: For ℓ dimensions, round up decimal places.

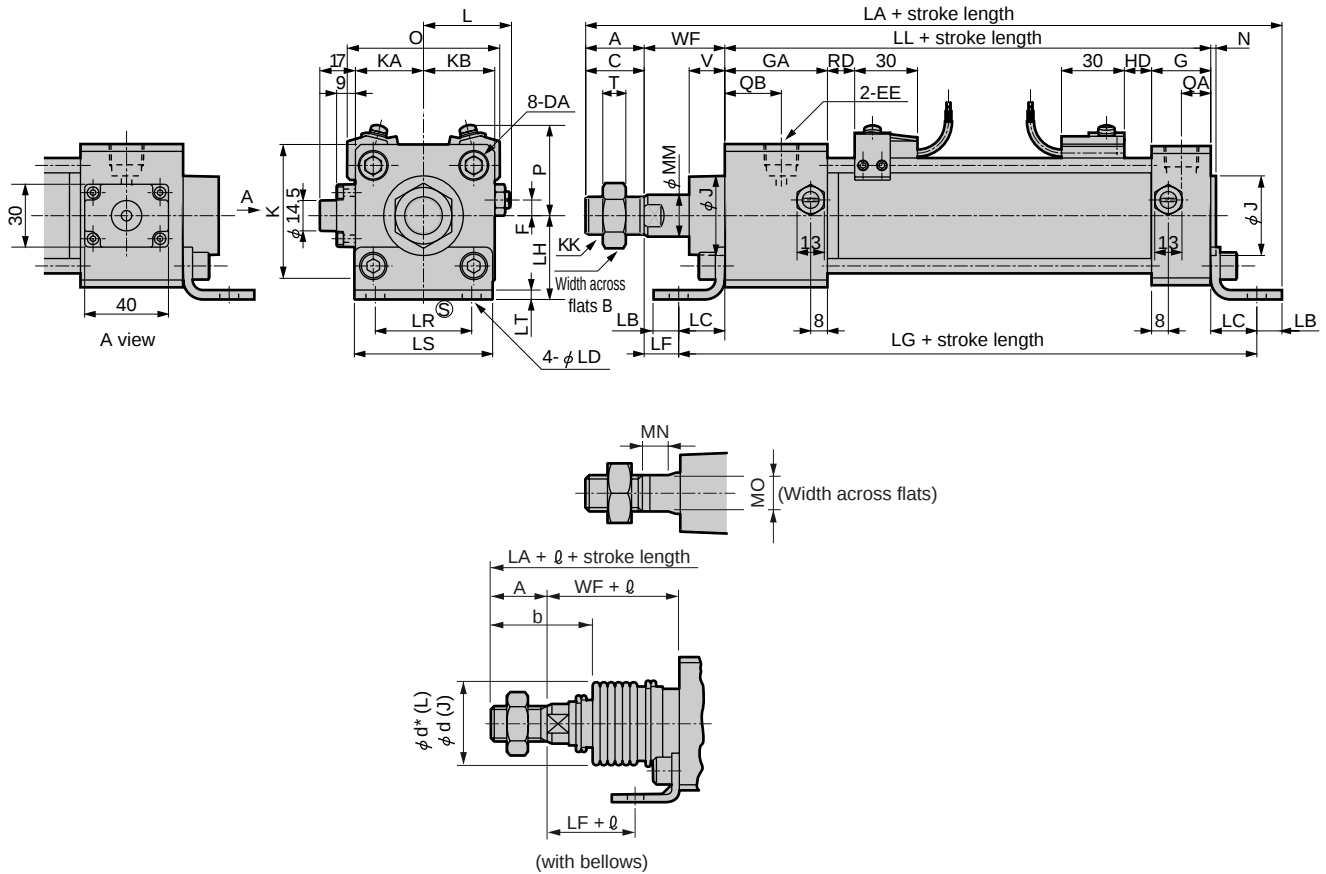
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.

Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions



- Axial foot type (LB) rod end position locking



Symbol	Axial foot type (LB) (unit: mm)																										
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB						
φ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	2	13	26						
φ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14	27						
φ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15	28						
φ80	36	31	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17	27						
φ100	45	42	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18	27						
Symbol														With switch								With bellows					
Bore size (mm)	T	V	WF	LA	LB	LC	LD	LF	LG	LH	LR	LS	LT	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YF/M, T3YF/M		T8		X	b	d			
																RD	HD	RD	HD	RD	HD						
φ40	8	18.5	33.5	205.5	10	19.5	9	14	159.5	40	40	57	3.2	66	41.5	15.5	11	14.5	10	9.5	5	178	41	40			
φ50	11	17	33.5	222.5	12	22	9	11.5	171	40	46	66	4.5	73	43	18	13	17	12	12	7	191	47	47			
φ63	11	17	31	231	12	30	11	1	190	50	60	80	4.5	85	47	19	13	18	12	13	7	192	45	47			
φ80	13	18.5	43	274	14	37	14	6	218	60	74	98	6.0	105	57	23.5	14.5	22.5	13.5	17.5	8.5	226.5	58.5	53			
φ100	16	29	50	303	21	31	14	19	218	67	80	118	6.0	121	63	29.5	18.5	28.5	17.5	23.5	12.5	255	69.5	61			
Symbol																											
Bore size (mm)	d*	ℓ																									
		50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500																		
φ40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8																		
φ50	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5																		
φ63	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5																		
φ80	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5																		
φ100	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9																		

Note 1: For ℓ dimensions, round up decimal places.

Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.

Note 3: Refer to page 598, 599 for accessory dimensions.

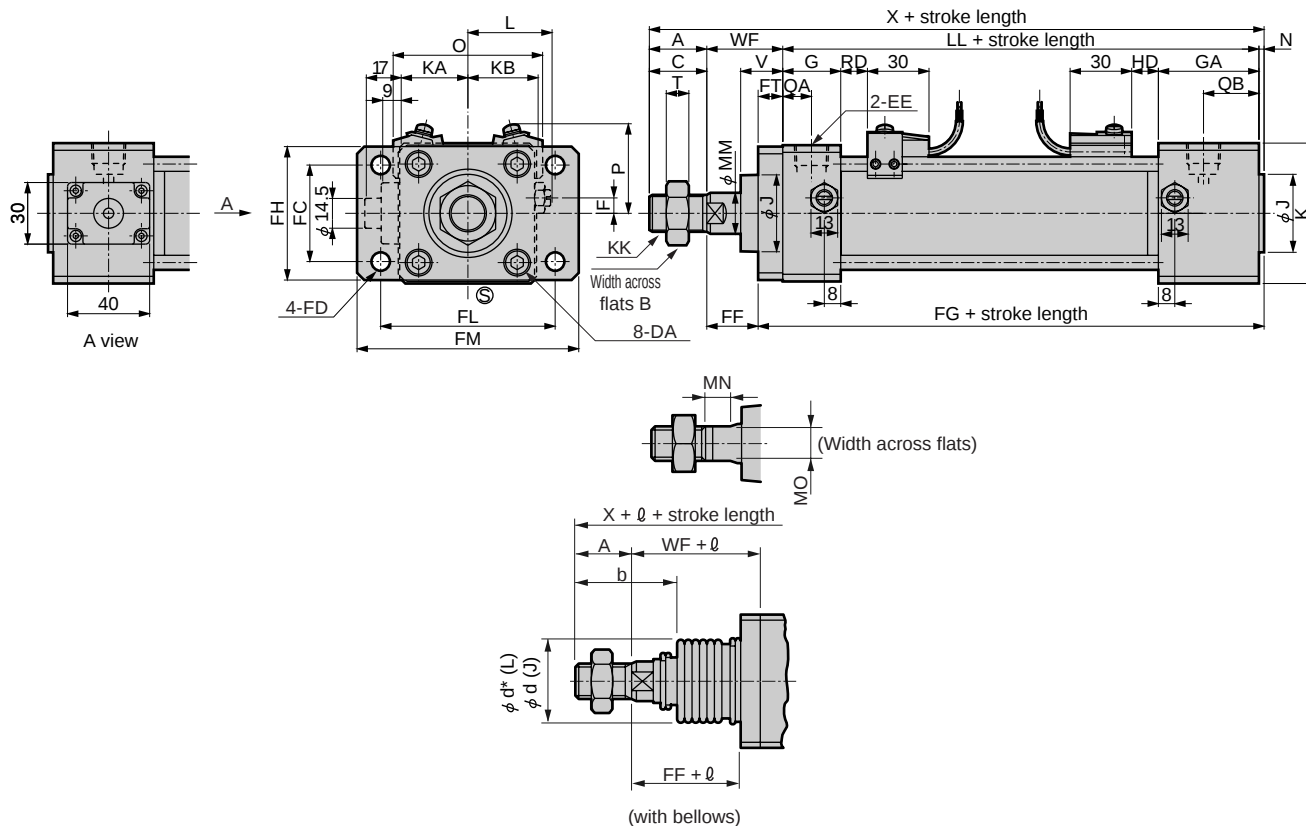
SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Medium bore size cylinder
Standard type

Dimensions



- Rod end flange type (FA) head end position locking



Symbol	Rod end flange type (FA) (Unit: mm)																									
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB					
φ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	2	13	26					
φ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14	27					
φ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15	28					
φ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17	27					
φ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18	27					
Symbol													With switch								With bellows					
Bore size (mm)	T	V	WF	X	FC	FD	FF	FG	FH	FL	FM	FT	O	P	T0, T5, T2, T3	T1, T2Y, T3Y T2YFM, T3YFIM	T8		X	b	d	d*				
															RD	HD	RD	HD	RD	HD						
φ40	8	18.5	33.5	178	40	9	21.5	134.5	57	80	100	12	66	41.5	11	15.5	10	14.5	5	9.5	178	41	40	40		
φ50	11	20.5	37	194.5	47	9	25	141.5	65	85	108	12	73	43	13	18	12	17	7	12	194.5	47	47	48		
φ63	11	21	35	196	60	11	19	149	80	106	130	16	85	47	13	19	12	18	7	13	196	45	47	48		
φ80	13	23.5	48	231.5	74	14	29	166.5	98	125	153	19	105	57	14.5	23.5	13.5	22.5	8.5	17.5	231.5	58.5	53	55		
φ100	16	32	53	258	88	14	34	179	118	144	180	19	121	63	18.5	29.5	17.5	28.5	12.5	23.5	258	69.5	61	65		
Symbol																										
Bore size (mm)	ℓ																									
	50 or less		50 to 100		100 to 150		150 to 200		200 to 300		300 to 400		400 to 500		Over 500											
φ40	25.5		41.5		58.5		75.5		108.5		141.5		174.5		(stroke length/3.0) + 8											
φ50	22		36		49		63		90		119		146		(stroke length/3.6) + 7.5											
φ63	22		36		49		63		90		119		146		(stroke length/3.6) + 7.5											
φ80	14		26		38		49		72		96		119		(stroke length/4.3) + 2.5											
φ100	20		32		42		53		76		98		120		(stroke length/4.5) + 9											

Note 1: For l dimensions, round up decimal places.

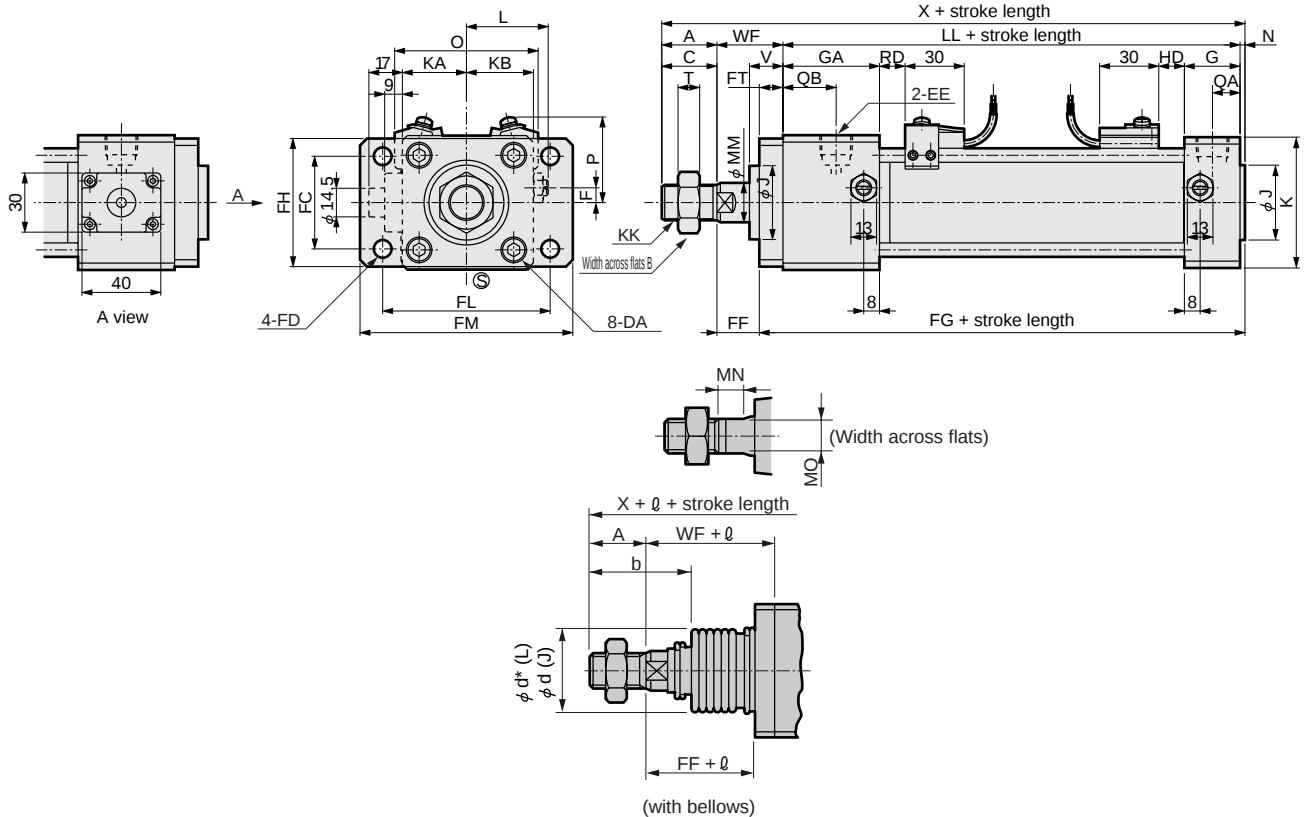
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.

Note 2: Refer to page 598, 599 for accessory dimensions.

Dimensions



- Rod end flange type (FA) rod end position locking



Symbol	Rod end flange type (FA) (Unit: mm)																							
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB			
φ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	2	13	26			
φ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14	27			
φ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15	28			
φ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17	27			
φ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18	27			
Symbol													With switch								With bellows			
Bore size (mm)	T	V	WF	X	FC	FD	FF	FG	FH	FL	FM	FT	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YF/M, T3YF/M		T8		X	b	d	d*
															RD	HD	RD	HD	RD	HD				
φ40	8	18.5	33.5	178	40	9	21.5	134.5	57	80	100	12	66	41.5	15.5	11	14.5	10	9.5	5	178	41	40	40
φ50	11	17	33.5	191	47	9	21.5	141.5	65	85	108	12	73	43	18	13	17	12	12	7	191	47	47	48
φ63	11	17	31	192	60	11	15	149	80	106	130	16	85	47	19	13	18	12	13	7	192	45	47	48
φ80	13	18.5	43	226.5	74	14	24	166.5	98	125	153	19	105	57	23.5	14.5	22.5	13.5	17.5	8.5	226.5	58.5	53	55
φ100	16	29	50	255	88	14	31	179	118	144	180	19	121	63	29.5	18.5	28.5	17.5	23.5	12.5	255	69.5	61	65
Symbol																								
Bore size (mm)	ℓ																							
	50 or less		50 to 100		100 to 150		150 to 200		200 to 300		300 to 400		400 to 500		Over 500									
φ40	25.5		41.5		58.5		75.5		108.5		141.5		174.5		(stroke length/3.0) + 8									
φ50	22		36		49		63		90		119		146		(stroke length/3.6) + 7.5									
φ63	22		36		49		63		90		119		146		(stroke length/3.6) + 7.5									
φ80	14		26		38		49		72		96		119		(stroke length/4.3) + 2.5									
φ100	20		32		42		53		76		98		120		(stroke length/4.5) + 9									

Note 1: For ℓ dimensions, round up decimal places.

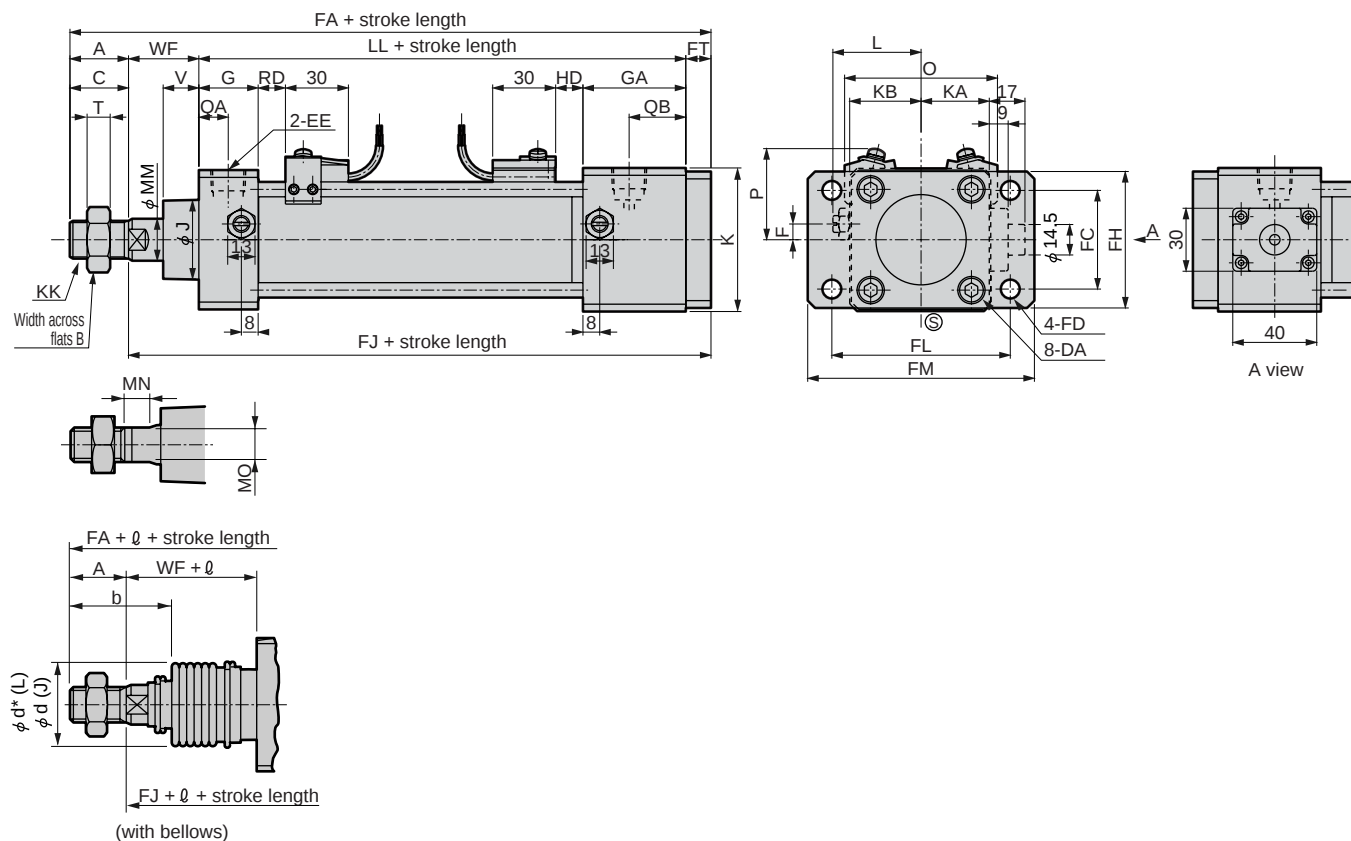
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.

Note 3: Refer to page 598, 599 for accessory dimensions.

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

Medium bore size cylinder
Standard type

- Head end flange type (FB) head end position locking



Symbol	Head end flange type (FB) (unit: mm)																						
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	QA	QB	T		
φ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	13	26	8		
φ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	14	27	11		
φ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	15	28	11		
φ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	17	27	13		
φ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	18	27	16		
Symbol											With switch								With bellows				
Bore size (mm)	V	WF	FA	FC	FD	FJ	FH	FL	FM	FT	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YFM, T3YF/M		T8		X	b	d	d*	ℓ
													RD	HD	RD	HD	RD	HD					50 or less
φ40	18.5	33.5	188	40	9	166	57	80	100	12	66	41.5	11	15.5	10	14.5	5	9.5	178	41	40	40	25.5
φ50	20.5	37	204	47	9	176	65	85	108	12	73	43	13	18	12	17	7	12	194.5	47	47	48	22
φ63	21	35	209	60	11	181	80	106	130	16	85	47	13	19	12	18	7	13	196	45	47	48	22
φ80	23.5	48	247	74	14	211	98	125	153	19	105	57	14.5	23.5	13.5	22.5	8.5	17.5	231.5	58.5	53	55	14
φ100	32	53	273	88	14	228	118	144	180	19	121	63	18.5	29.5	17.5	28.5	12.5	23.5	258	69.5	61	65	20
Symbol																							
Bore size (mm)	ℓ																						
	50 to 100		100 to 150		150 to 200		200 to 300		300 to 400		400 to 500		Over 500										
φ40	41.5		58.5		75.5		108.5		141.5		174.5		(stroke length/3.0) + 8										
φ50	36		49		63		90		119		146		(stroke length/3.6) + 7.5										
φ63	36		49		63		90		119		146		(stroke length/3.6) + 7.5										
φ80	26		38		49		72		96		119		(stroke length/4.3) + 2.5										
φ100	32		42		53		76		98		120		(stroke length/4.5) + 9										

Note 1: For ℓ dimensions, round up decimal places.

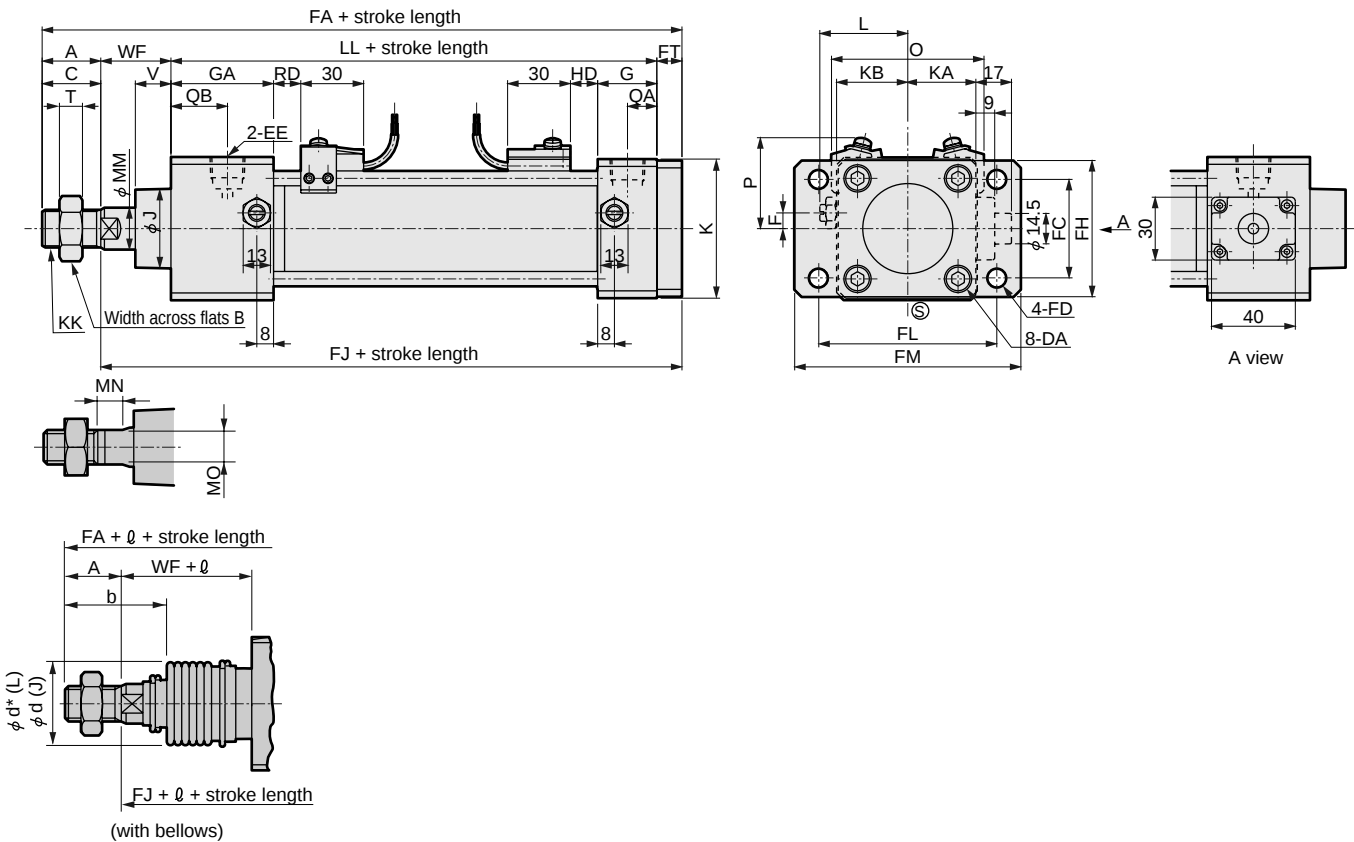
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.

Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions



- Head end flange type (FB) rod end position locking



Symbol	Head end flange type (FB) (unit: mm)																						
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	QA	QB	T		
φ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	13	26	8		
φ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	14	27	11		
φ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	15	28	11		
φ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	17	27	13		
φ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	18	27	16		
Symbol											With switch								With bellows				
Bore size (mm)	V	WF	FA	FC	FD	FJ	FH	FL	FM	FT	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YFM, T3YFM		T8		X	b	d	d*	ℓ
													RD	HD	RD	HD	RD	HD					50 or less
φ40	18.5	33.5	188	40	9	166	57	80	100	12	66	41.5	15.5	11	14.5	10	9.5	5	178	41	40	40	25.5
φ50	17	33.5	200.5	47	9	172.5	65	85	108	12	73	43	18	13	17	12	12	7	191	47	47	48	22
φ63	17	31	205	60	11	177	80	106	130	16	85	47	19	13	18	12	13	7	192	45	47	48	22
φ80	18.5	43	242	74	14	206	98	125	153	19	105	57	23.5	14.5	22.5	13.5	17.5	8.5	226.5	58.5	53	55	14
φ100	29	50	270	88	14	225	118	144	180	19	121	63	29.5	18.5	28.5	17.5	23.5	12.5	255	69.5	61	65	20
Symbol																							
Bore size (mm)	ℓ																						
	50 to 100		100 to 150		150 to 200		200 to 300		300 to 400		400 to 500		Over 500										
φ40	41.5		58.5		75.5		108.5		141.5		174.5		(stroke length/3.0) + 8										
φ50	36		49		63		90		119		146		(stroke length/3.6) + 7.5										
φ63	36		49		63		90		119		146		(stroke length/3.6) + 7.5										
φ80	26		38		49		72		96		119		(stroke length/4.3) + 2.5										
φ100	32		42		53		76		98		120		(stroke length/4.5) + 9										

Note 1: For ℓ dimensions, round up decimal places.

Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.

Note 2: Refer to page 598, 599 for accessory dimensions.

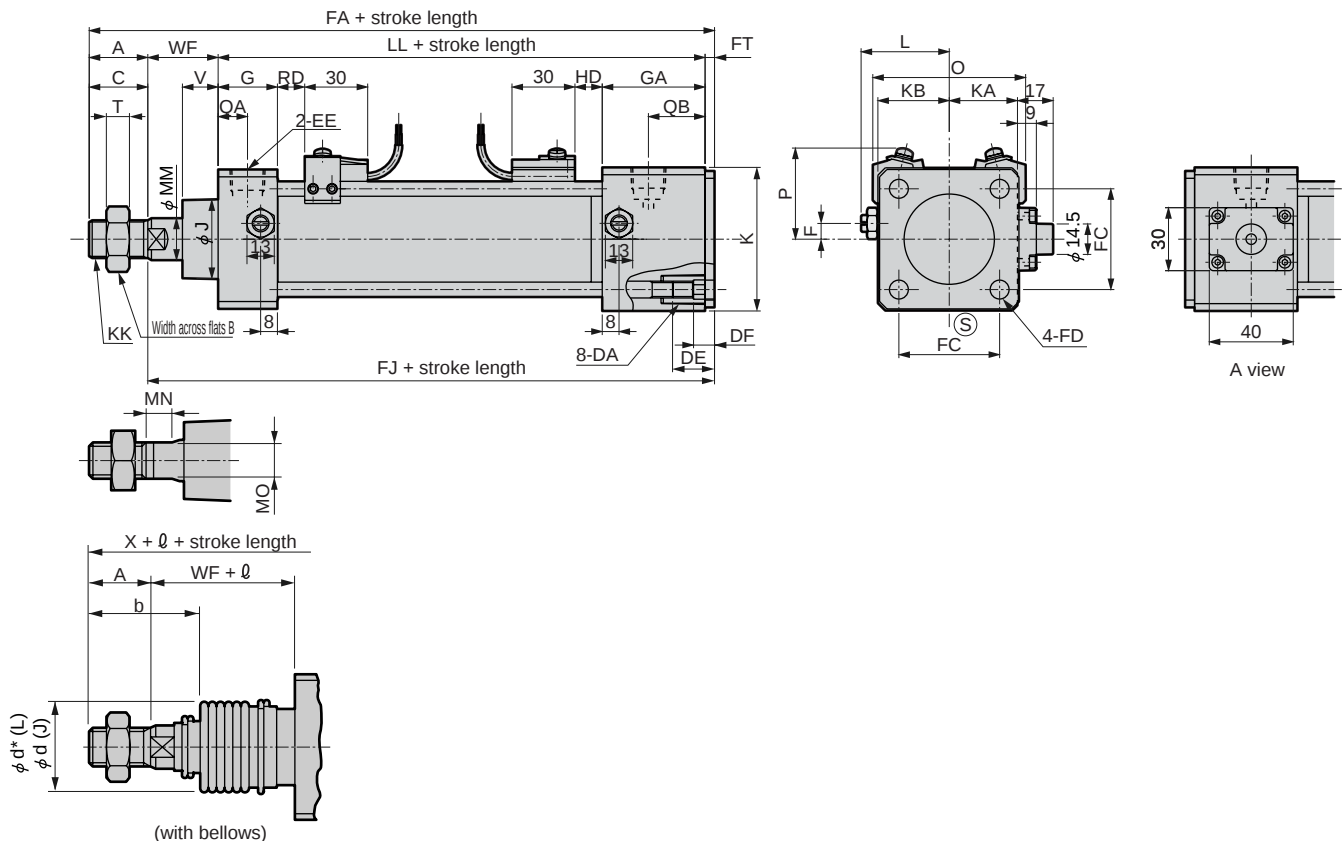
SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending
Medium bore size cylinder
Standard type

SCA2-Q2 Series

Dimensions



- Special head end flange type (FC) head end position locking



Symbol	Special head end flange type (FC) (unit: mm)																						
Bore size (mm)	A	B	C	DA	DE	DF	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	QA		
φ40	22	22	20	M8	16.5	8.5	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	13		
φ50	28	27	26	M8	16.5	8.5	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	14		
φ63	28	27	26	M8	16.5	8.5	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	15		
φ80	36	32	34	M12	22	11	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	17		
φ100	45	41	43	M12	22	11	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	18		
Symbol										With switch								With bellows					
Bore size (mm)	QB	T	V	WF	FA	FC	FD	FJ	FT	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YFIM, T3YFIM		T8		X	b	d	d*	ℓ	
												RD	HD	RD	HD	RD	HD					50 or less	
φ40	26	8	18.5	33.5	180.5	40.5	9	158.5	4.5	66	41.5	11	15.5	10	14.5	5	9.5	178	41	40	40	25.5	
φ50	27	11	20.5	37	196.5	48	9	168.5	4.5	73	43	13	18	12	17	7	12	194.5	47	47	48	22	
φ63	28	11	21	35	197.5	59	9	169.5	4.5	85	47	13	19	12	18	7	13	196	45	47	48	22	
φ80	27	13	23.5	48	234	74	14	198	6	105	57	14.5	23.5	13.5	22.5	8.5	17.5	231.5	58.5	53	55	14	
φ100	27	16	32	53	260	90	14	215	6	121	63	18.5	29.5	17.5	28.5	12.5	23.5	258	69.5	61	65	20	
Symbol																							
Bore size (mm)	ℓ																						
	50 to 100		100 to 150		150 to 200		200 to 300		300 to 400		400 to 500		Over 500										
φ40	41.5		58.5		75.5		108.5		141.5		174.5		(stroke length/3.0) + 8										
φ50	36		49		63		90		119		146		(stroke length/3.6) + 7.5										
φ63	36		49		63		90		119		146		(stroke length/3.6) + 7.5										
φ80	26		38		49		72		96		119		(stroke length/4.3) + 2.5										
φ100	32		42		53		76		98		120		(stroke length/4.5) + 9										

Note 1: For l dimensions, round up decimal places.

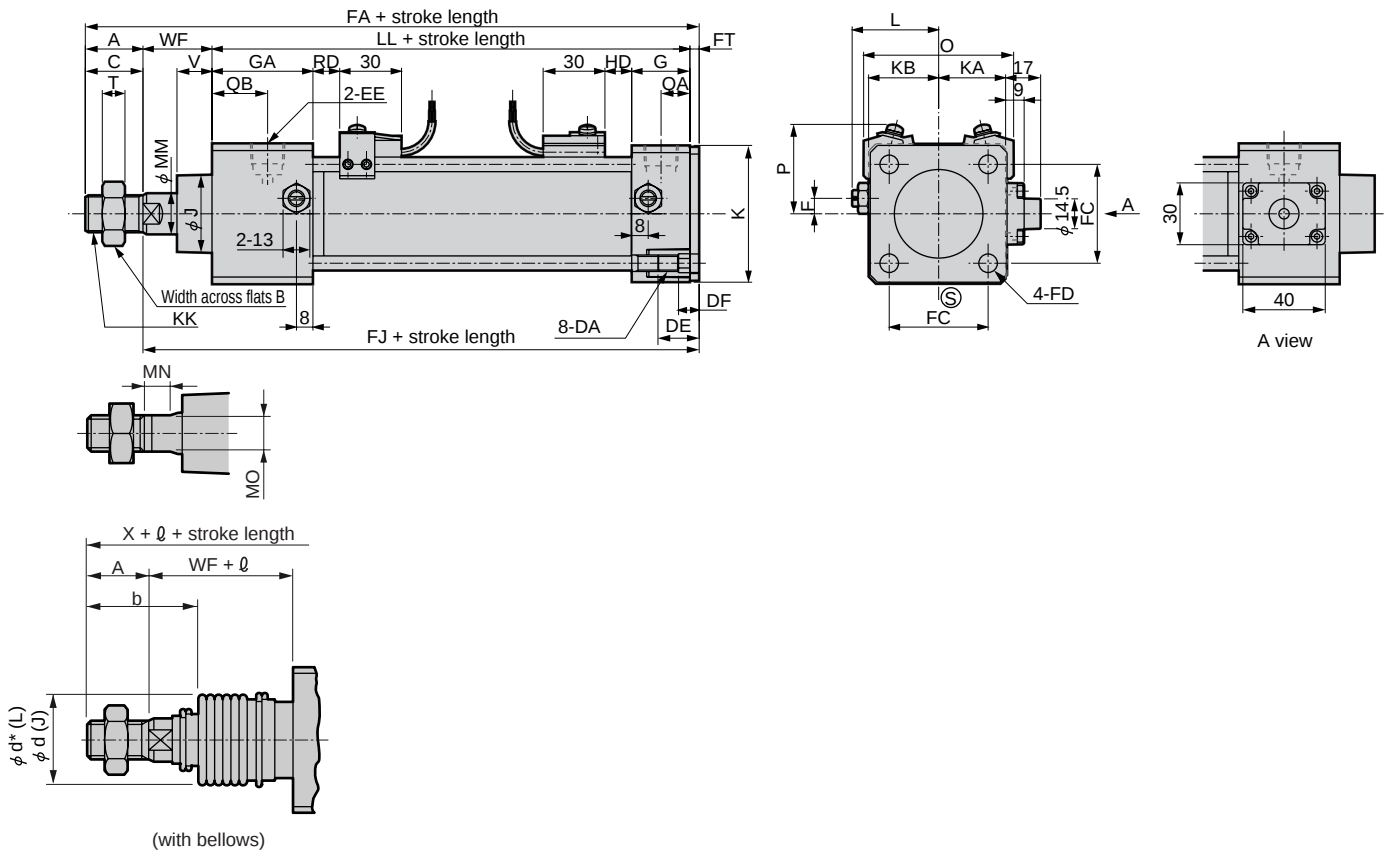
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.

Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions



- Special head end flange type (FC) rod end position locking



Symbol	Special head end flange type (FC) (unit: mm)																						
Bore size (mm)	A	B	C	DA	DE	DF	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	QA		
φ40	22	22	20	M8	19	10	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	13		
φ50	28	27	26	M8	20	10	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	14		
φ63	28	27	26	M8	20	10	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	15		
φ80	36	32	34	M12	22	11	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	17		
φ100	45	41	43	M12	22	11	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	18		
Symbol										With switch								With bellows					
Bore size (mm)	QB	T	V	WF	FA	FC	FD	FJ	FT	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YFM, T3YFM		T8		X	b	d	d*	ℓ	
												RD	HD	RD	HD	RD	HD					50 or less	
φ40	26	8	18.5	33.5	180.5	40	9	158.5	4.5	66	41.5	15.5	11	14.5	10	9.5	5	178	41	40	40	25.5	
φ50	27	11	17	33.5	193	47	9	165	4.5	73	43	18	13	17	12	12	7	191	47	47	48	22	
φ63	28	11	17	31	193.5	60	11	165.5	4.5	85	47	19	13	18	12	13	7	192	45	47	48	22	
φ80	27	13	18.5	43	229	74	14	193	6	105	57	23.5	14.5	22.5	13.5	17.5	8.5	226.5	58.5	53	55	14	
φ100	27	16	29	50	257	88	14	212	6	121	63	29.5	18.5	28.5	17.5	23.5	12.5	255	69.5	61	65	20	
Symbol																							
Bore size (mm)	ℓ																						
	50 to 100		100 to 150		150 to 200		200 to 300		300 to 400		400 to 500		Over 500										
φ40	41.5		58.5		75.5		108.5		141.5		174.5		(stroke length/3.0) + 8										
φ50	36		49		63		90		119		146		(stroke length/3.6) + 7.5										
φ63	36		49		63		90		119		146		(stroke length/3.6) + 7.5										
φ80	26		38		49		72		96		119		(stroke length/4.3) + 2.5										
φ100	32		42		53		76		98		120		(stroke length/4.5) + 9										

Note 1: For l dimensions, round up decimal places.

Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.

Note 3: Refer to page 598, 599 for accessory dimensions.

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

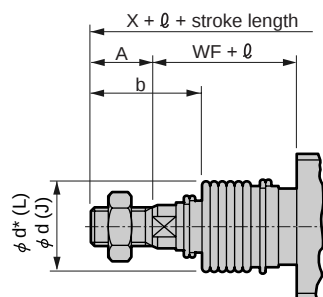
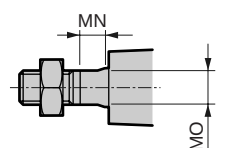
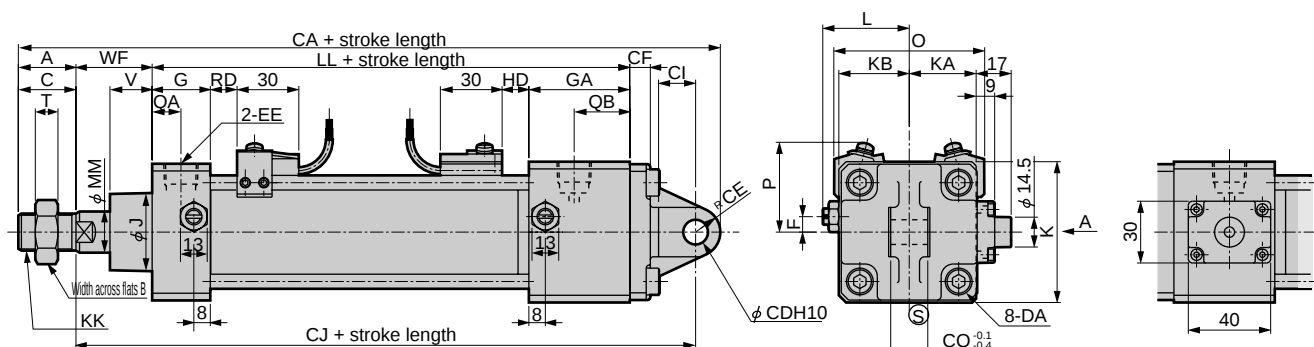
Medium bore size cylinder
Standard type

SCA2-Q2 Series

Dimensions



- Eye bracket type (CA) head end position locking



(with bellows)

Symbol	Eye bracket type (CA) (unit: mm)																					
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	QA	QB	T	
φ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	13	26	8	
φ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	14	27	11	
φ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	15	28	11	
φ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	17	27	13	
φ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	18	27	16	
Symbol										With switch								With bellows				
Bore size (mm)	V	WF	CA	CD	CE	CF	CI	CJ	CQ	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YF/M, T3YF/M		T8		X	b	d	d*	ℓ
												RD	HD	RD	HD	RD	HD					50 or less
φ40	18.5	33.5	220	12 ^{+0.070} ₀	12	10	18	186	18	66	41.5	11	15.5	10	14.5	5	9.5	178	41	40	40	25.5
φ50	20.5	37	236	12 ^{+0.070} ₀	12	10	18	196	18	73	43	13	18	12	17	7	12	194.5	47	47	48	22
φ63	21	35	246	14 ^{+0.070} ₀	16	10	24	202	20	85	47	13	19	12	18	7	13	196	45	47	48	22
φ80	23.5	48	300	20 ^{+0.084} ₀	20	14	30	244	28	105	57	14.5	23.5	13.5	22.5	8.5	17.5	231.5	58.5	53	55	14
φ100	32	53	326	20 ^{+0.084} ₀	20	16	30	261	28	121	63	18.5	29.5	17.5	28.5	12.5	23.5	258	69.5	61	65	20
Symbol																						
Bore size (mm)	ℓ																					
	50 to 100		100 to 150		150 to 200		200 to 300		300 to 400		400 to 500		Over 500									
φ40	41.5		58.5		75.5		108.5		141.5		174.5		(stroke length/3.0) + 8									
φ50	36		49		63		90		119		146		(stroke length/3.6) + 7.5									
φ63	36		49		63		90		119		146		(stroke length/3.6) + 7.5									
φ80	26		38		49		72		96		119		(stroke length/4.3) + 2.5									
φ100	32		42		53		76		98		120		(stroke length/4.5) + 9									

Note 1: For ℓ dimensions, round up decimal places.

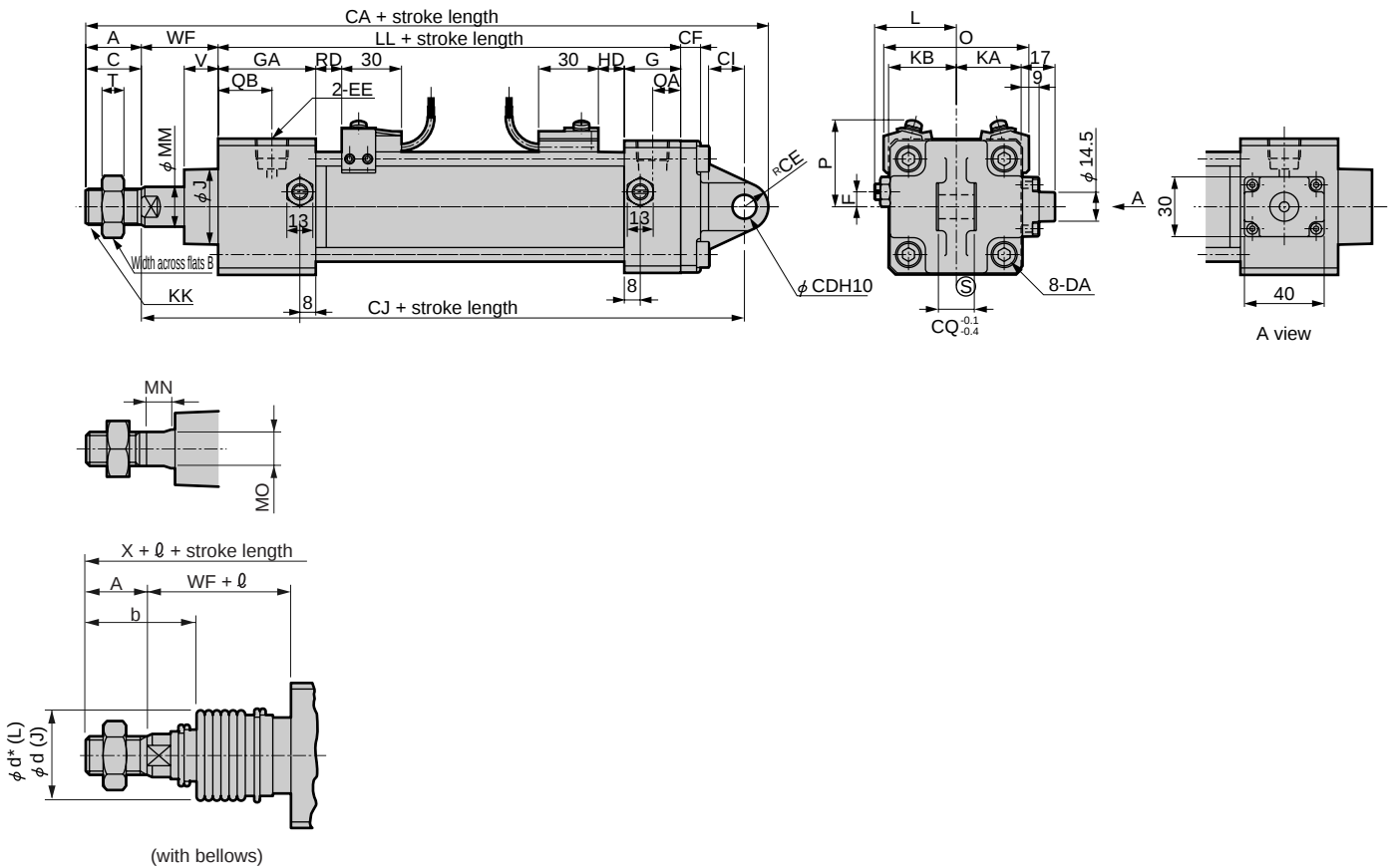
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.

Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions



- Eye bracket type (CA) rod end position locking



Symbol	Eye bracket type (CA) (unit: mm)																						
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	QA	QB	T		
φ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	13	26	8		
φ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	14	27	11		
φ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	15	28	11		
φ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	17	27	13		
φ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	18	27	16		
Symbol											With switch								With bellows				
Bore size (mm)	V	WF	CA	CD	CE	CF	CI	CJ	CQ	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2Y/F/M, T3Y/F/M		T8		X	b	d	d*	ℓ	
												RD	HD	RD	HD	RD	HD					50 or less	
φ40	18.5	33.5	220	12 ^{+0.070} ₀	12	10	18	186	18	66	41.5	15.5	11	14.5	10	9.5	5	178	41	40	40	25.5	
φ50	17	33.5	232.5	12 ^{+0.070} ₀	12	10	18	192.5	18	73	43	18	13	17	12	12	7	191	47	47	48	22	
φ63	17	31	242	14 ^{+0.070} ₀	16	10	24	198	20	85	47	19	13	18	12	13	7	192	45	47	48	22	
φ80	18.5	43	295	20 ^{+0.084} ₀	20	14	30	239	28	105	57	23.5	14.5	22.5	13.5	17.5	8.5	226.5	58.5	53	55	14	
φ100	29	50	323	20 ^{+0.084} ₀	20	16	30	258	28	121	63	29.5	18.5	28.5	17.5	23.5	12.5	255	69.5	61	65	20	
Symbol																							
Bore size (mm)	ℓ																						
	50 to 100		100 to 150		150 to 200		200 to 300		300 to 400		400 to 500		Over 500										
φ40	41.5		58.5		75.5		108.5		141.5		174.5		(stroke length/3.0) + 8										
φ50	36		49		63		90		119		146		(stroke length/3.6) + 7.5										
φ63	36		49		63		90		119		146		(stroke length/3.6) + 7.5										
φ80	26		38		49		72		96		119		(stroke length/4.3) + 2.5										
φ100	32		42		53		76		98		120		(stroke length/4.5) + 9										

Note 1: For l dimensions, round up decimal places.

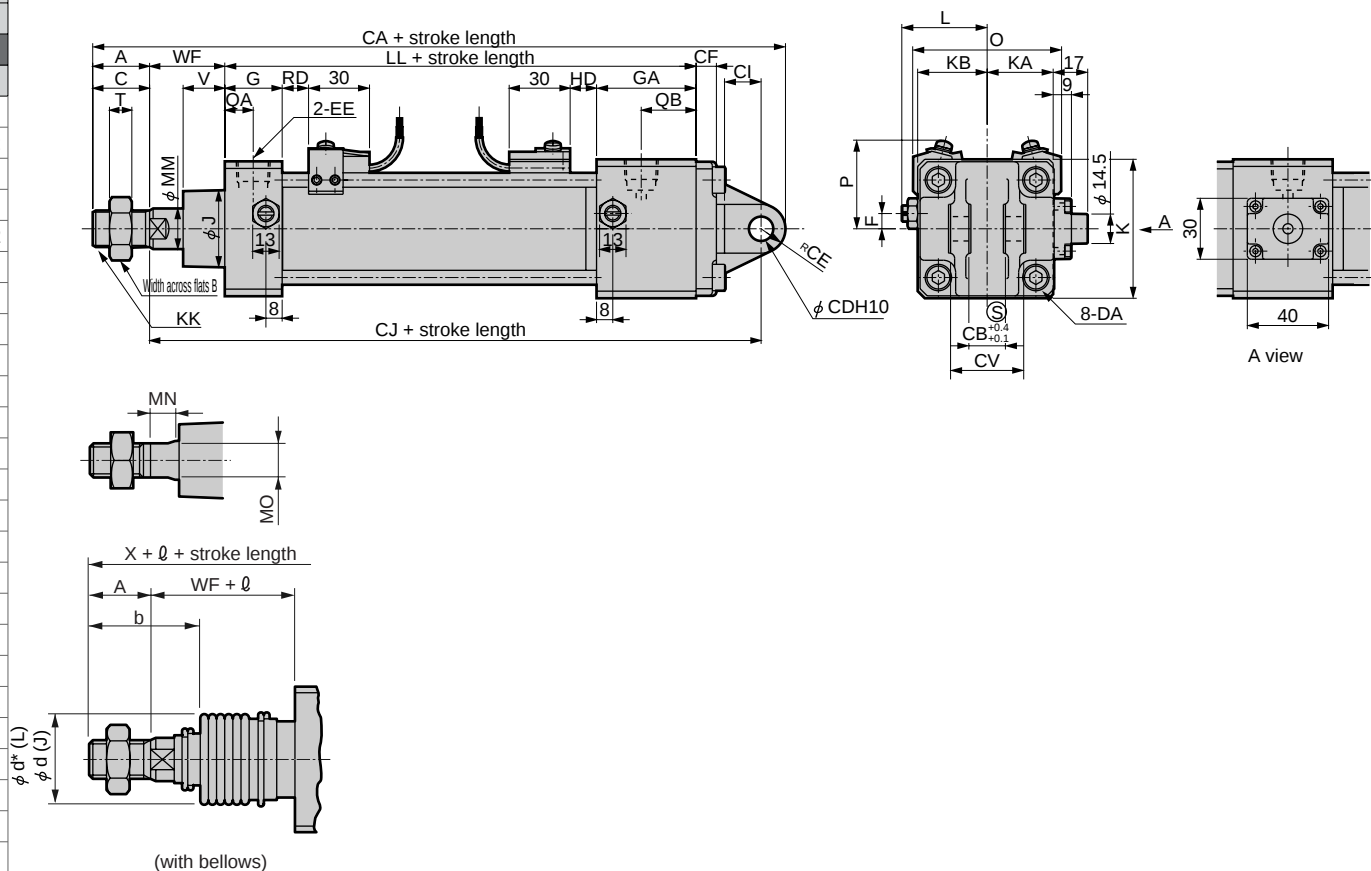
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.

Note 3: Refer to page 598, 599 for accessory dimensions.

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

Medium bore size cylinder
Standard type

- Clevis bracket type (CB) head end position locking.



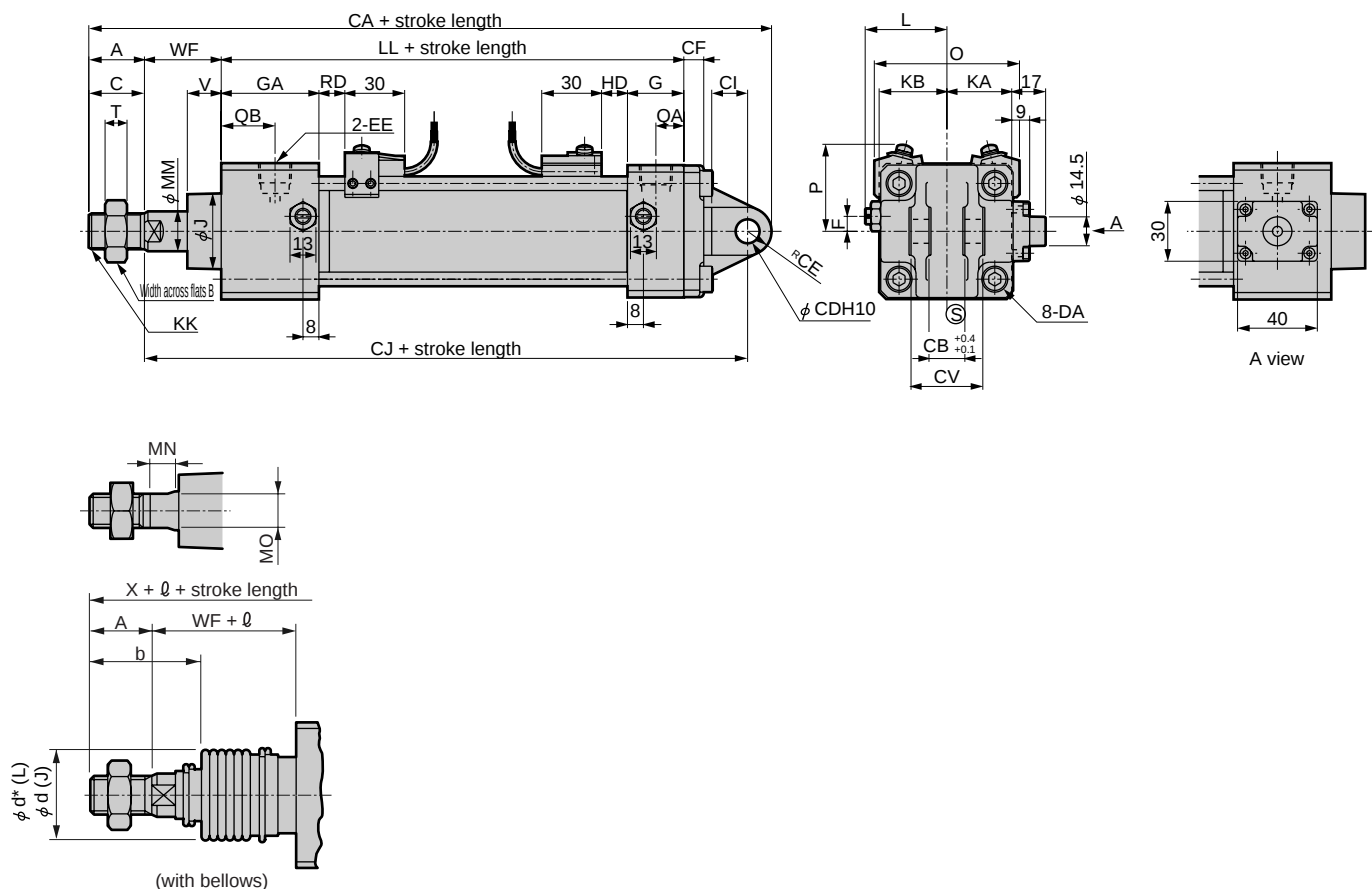
Symbol	Clevis bracket type (CB) (unit: mm).																						
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK		L		LL	MM	MN	MO	QA	QB	T
φ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5		38 to 39.5		120.5	16	8	14	13	26	8
φ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5		41 to 43.5		127	20	8	17	14	27	11
φ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5		47.5 to 50		130	20	8	17	15	28	11
φ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5		56 to 59		144	25	11	22	17	27	13
φ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5		66 to 69		156	30	13	27	18	27	16
Symbol											With switch								With bellows				
Bore size (mm)	V	WF	CA	CB	CD	CE	CF	CI	CJ	CV	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2Y/F/M, T3Y/F/M		T8		X	b	d	d*	
	RD	HD	RD	HD	RD	HD																	
φ40	18.5	33.5	220	18	12 ^{+0.070 0}	12	10	18	186	36	66	41.5	11	15.5	10	14.5	5	9.5	178	41	40	40	
φ50	20.5	37	236	18	12 ^{+0.070 0}	12	10	18	196	36	73	43	13	18	12	17	7	12	194.5	47	47	48	
φ63	21	35	246	20	14 ^{+0.070 0}	16	10	24	202	40	85	47	13	19	12	18	7	13	196	45	47	48	
φ80	23.5	48	300	28	20 ^{+0.084 0}	20	14	30	244	56	105	57	14.5	23.5	13.5	22.5	8.5	17.5	231.5	58.5	53	55	
φ100	32	53	326	28	20 ^{+0.084 0}	20	16	30	261	56	121	63	18.5	29.5	17.5	28.5	12.5	23.5	258	69.5	61	65	
Symbol																							
Bore size (mm)	ℓ																						
	50 or less		50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500														
φ40	25.5		41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8														
φ50	22		36	49	63	90	119	146	(stroke length/3.6) + 7.5														
φ63	22		36	49	63	90	119	146	(stroke length/3.6) + 7.5														
φ80	14		26	38	49	72	96	119	(stroke length/4.3) + 2.5														
φ100	20		32	42	53	76	98	120	(stroke length/4.5) + 9														

Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions



- Clevis bracket type (CB) rod end position locking.



Symbol	Clevis bracket type (CB) (unit: mm).																							
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	QA	QB	T			
φ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	13	26	8			
φ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	14	27	11			
φ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	15	28	11			
φ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	17	27	13			
φ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	18	27	16			
Symbol											With switch								With bellows					
Bore size (mm)	V	WF	CA	CB	CD	CE	CF	CI	CJ	CV	O	P	T0, T5, T2, T3	T1, T2Y, T3Y T2YFM, T3YFM	T8		X	b	d	d*				
													RD	HD	RD	HD						RD	HD	
φ40	18.5	33.5	220	18	12 ^{+0.070} ₀	12	10	18	186	36	66	41.5	15.5	11	14.5	10	9.5	5	178	41	40	40		
φ50	17	33.5	232.5	18	12 ^{+0.070} ₀	12	10	18	192.5	36	73	43	18	13	17	12	12	7	191	47	47	48		
φ63	17	31	242	20	14 ^{+0.070} ₀	16	10	24	198	40	85	47	19	13	18	12	13	7	192	45	47	48		
φ80	18.5	43	295	28	20 ^{+0.084} ₀	20	14	30	239	56	105	57	23.5	14.5	22.5	13.5	17.5	8.5	226.5	58.5	53	55		
φ100	29	50	323	28	20 ^{+0.084} ₀	20	16	30	258	56	121	63	29.5	18.5	28.5	17.5	23.5	12.5	255	69.5	61	65		
Symbol																								
Bore size (mm)	ℓ																							
	50 or less		50 to 100		100 to 150		150 to 200		200 to 300		300 to 400		400 to 500		Over 500									
φ40	25.5		41.5		58.5		75.5		108.5		141.5		174.5		(stroke length/3.0) + 8									
φ50	22		36		49		63		90		119		146		(stroke length/3.6) + 7.5									
φ63	22		36		49		63		90		119		146		(stroke length/3.6) + 7.5									
φ80	14		26		38		49		72		96		119		(stroke length/4.3) + 2.5									
φ100	20		32		42		53		76		98		120		(stroke length/4.5) + 9									

Note 1: For ℓ dimensions, round up decimal places.

Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.

Note 3: Refer to page 598, 599 for accessory dimensions.

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

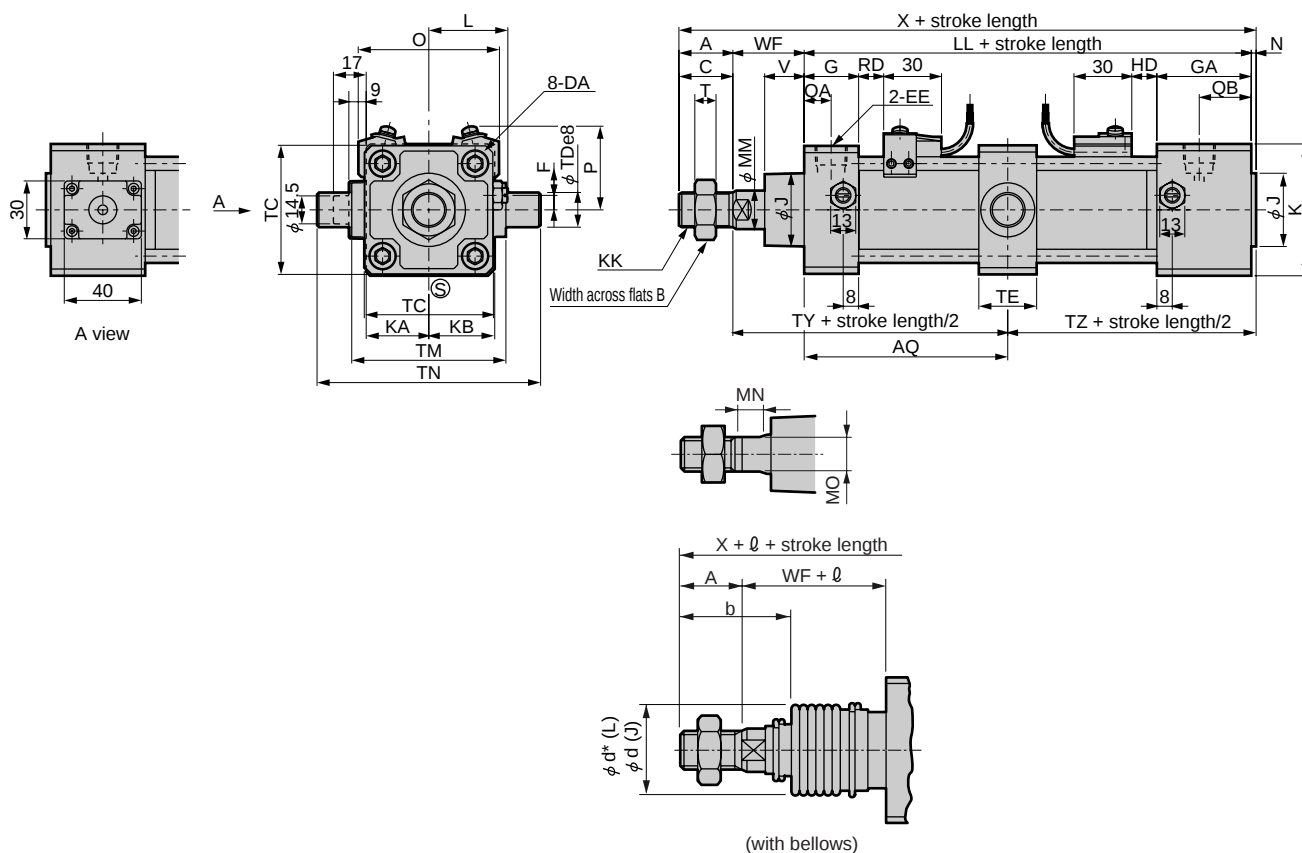
Ending
Medium bore size cylinder
Standard type

SCA2-Q2 Series

Dimensions



- Center trunnion type (TC) head end position locking



Symbol	Center trunnion type (TC) (unit: mm)																							
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB			
φ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	2	13	26			
φ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14	27			
φ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15	28			
φ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17	27			
φ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18	27			
Symbol													With switch						With bellows					
Bore size (mm)	T	V	WF	X	AQ	TC	TD	TE	TM	TN	TY	TZ	O	P	T0, T5, T2, T3	T1, T2Y, T3Y T2YFM, T3YFM	T8			b	d	d*		
															RD	HD	RD	HD	RD	HD				
φ40	8	18.5	33.5	178	60.5 ^{+Stroke length 2}	57	16 ^{-0.032 -0.059}	30	63	95	94	62	66	41.5	11	15.5	10	14.5	5	9.5	178	41	40	40
φ50	11	20.5	37	194.5	80 ^{+Stroke length 2}	67	18 ^{-0.032 -0.059}	30	80	116	100.5	66	73	43	13	18	12	17	7	12	194.5	47	47	48
φ63	11	21	35	196	65 ^{+Stroke length 2}	82	20 ^{-0.040 -0.073}	35	90	130	100	68	85	47	13	19	12	18	7	13	196	45	47	48
φ80	13	23.5	48	231.5	72 ^{+Stroke length 2}	100	25 ^{-0.040 -0.073}	40	115	165	120	75.5	105	57	14.5	23.5	13.5	22.5	8.5	17.5	231.5	58.5	53	55
φ100	16	32	53	258	78 ^{+Stroke length 2}	121	35 ^{-0.050 -0.089}	50	135	205	131	82	121	63	18.5	29.5	17.5	28.5	12.5	23.5	258	69.5	61	65
Symbol																								
Bore size (mm)	ℓ																							
	50 or less		50 to 100		100 to 150		150 to 200		200 to 300		300 to 400		400 to 500		Over 500									
φ40	25.5		41.5		58.5		75.5		108.5		141.5		174.5		(stroke length/3.0) + 8									
φ50	22		36		49		63		90		119		146		(stroke length/3.6) + 7.5									
φ63	22		36		49		63		90		119		146		(stroke length/3.6) + 7.5									
φ80	14		26		38		49		72		96		119		(stroke length/4.3) + 2.5									
φ100	20		32		42		53		76		98		120		(stroke length/4.5) + 9									

Note 1: For ℓ dimensions, round up decimal places.

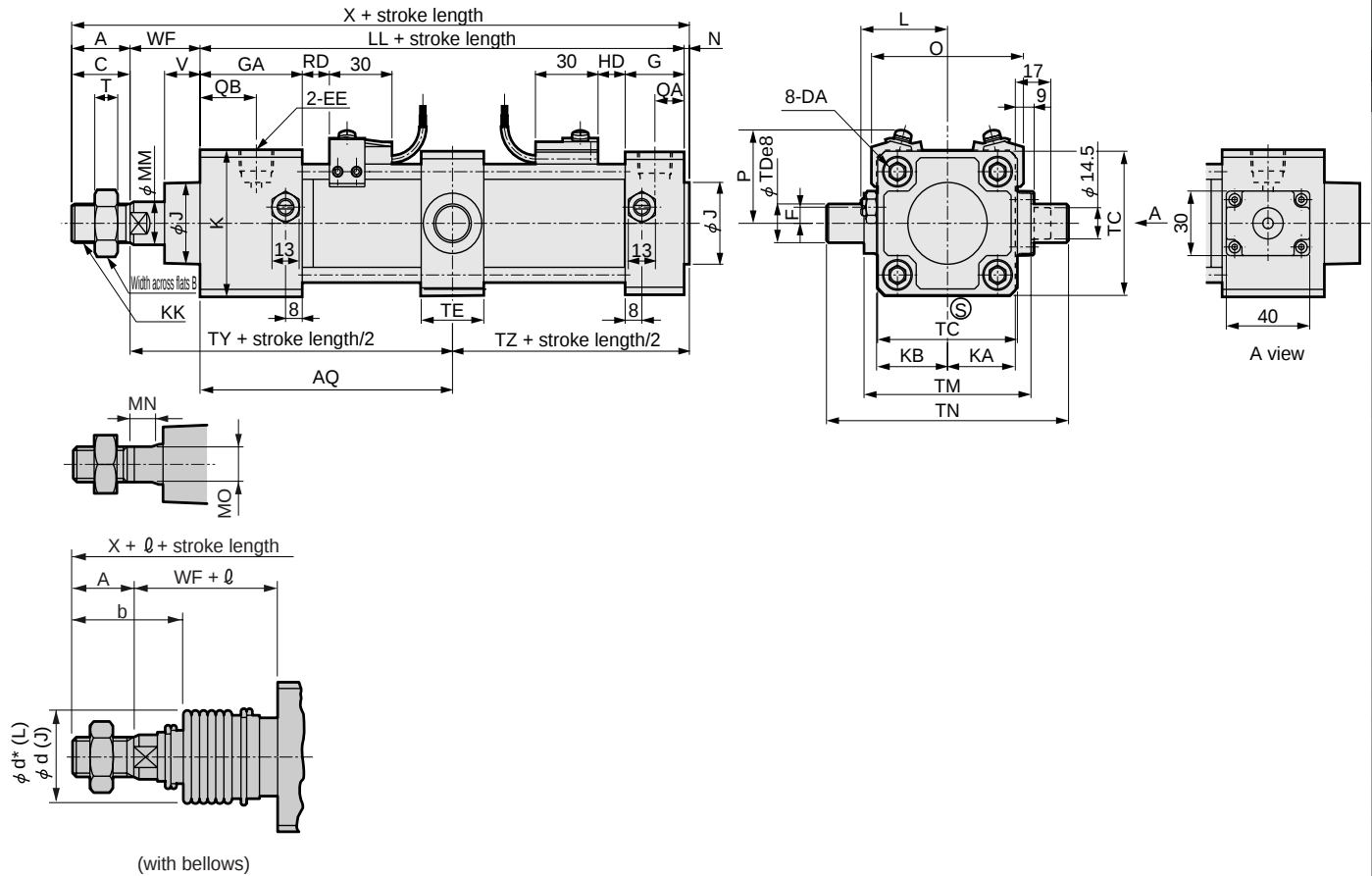
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.

Note 2: Refer to page 598, 599 for accessory dimensions.

Dimensions



- Center trunnion type (TC) rod end position locking



Symbol	Center trunnion type (TC) (unit: mm)																							
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB			
φ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	2	13	26			
φ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14	27			
φ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15	28			
φ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17	27			
φ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18	27			
Symbol													With switch							With bellows				
Bore size (mm)	T	V	WF	X	AQ	TC	TD	TE	TM	TN	TY	TZ	O	P	T0, T5, T2, T3	T1, T2Y, T3Y T2YFM, T3YFM	T8		X	b	d	d*		
															RD	HD	RD	HD					RD	HD
φ40	8	18.5	33.5	178	60.5+ Stroke length 2	57	16 ^{-0.032 -0.059}	30	63	95	94	62	66	41.5	15.5	11	14.5	10	9.5	5	178	41	40	40
φ50	11	17	33.5	191	63.5+ Stroke length 2	67	18 ^{-0.032 -0.059}	30	80	116	97	66	73	43	18	13	17	12	12	7	191	47	47	48
φ63	11	17	31	192	65+ Stroke length 2	82	20 ^{-0.040 -0.073}	35	90	130	96	68	85	47	19	13	18	12	13	7	192	45	47	48
φ80	13	18.5	43	226.5	72+ Stroke length 2	100	25 ^{-0.040 -0.073}	40	115	165	115	75.5	105	57	23.5	14.5	22.5	13.5	17.5	8.5	226.5	58.5	53	55
φ100	16	29	50	255	78+ Stroke length 2	121	35 ^{-0.050 -0.089}	50	135	205	128	82	121	63	29.5	18.5	28.5	17.5	23.5	12.5	255	69.5	61	65
Symbol																								
Bore size (mm)	ℓ																							
	50 or less		50 to 100		100 to 150		150 to 200		200 to 300		300 to 400		400 to 500		Over 500									
φ40	25.5		41.5		58.5		75.5		108.5		141.5		174.5		(stroke length/3.0) + 8									
φ50	22		36		49		63		90		119		146		(stroke length/3.6) + 7.5									
φ63	22		36		49		63		90		119		146		(stroke length/3.6) + 7.5									
φ80	14		26		38		49		72		96		119		(stroke length/4.3) + 2.5									
φ100	20		32		42		53		76		98		120		(stroke length/4.5) + 9									

Note 1: For l dimensions, round up decimal places.

Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.

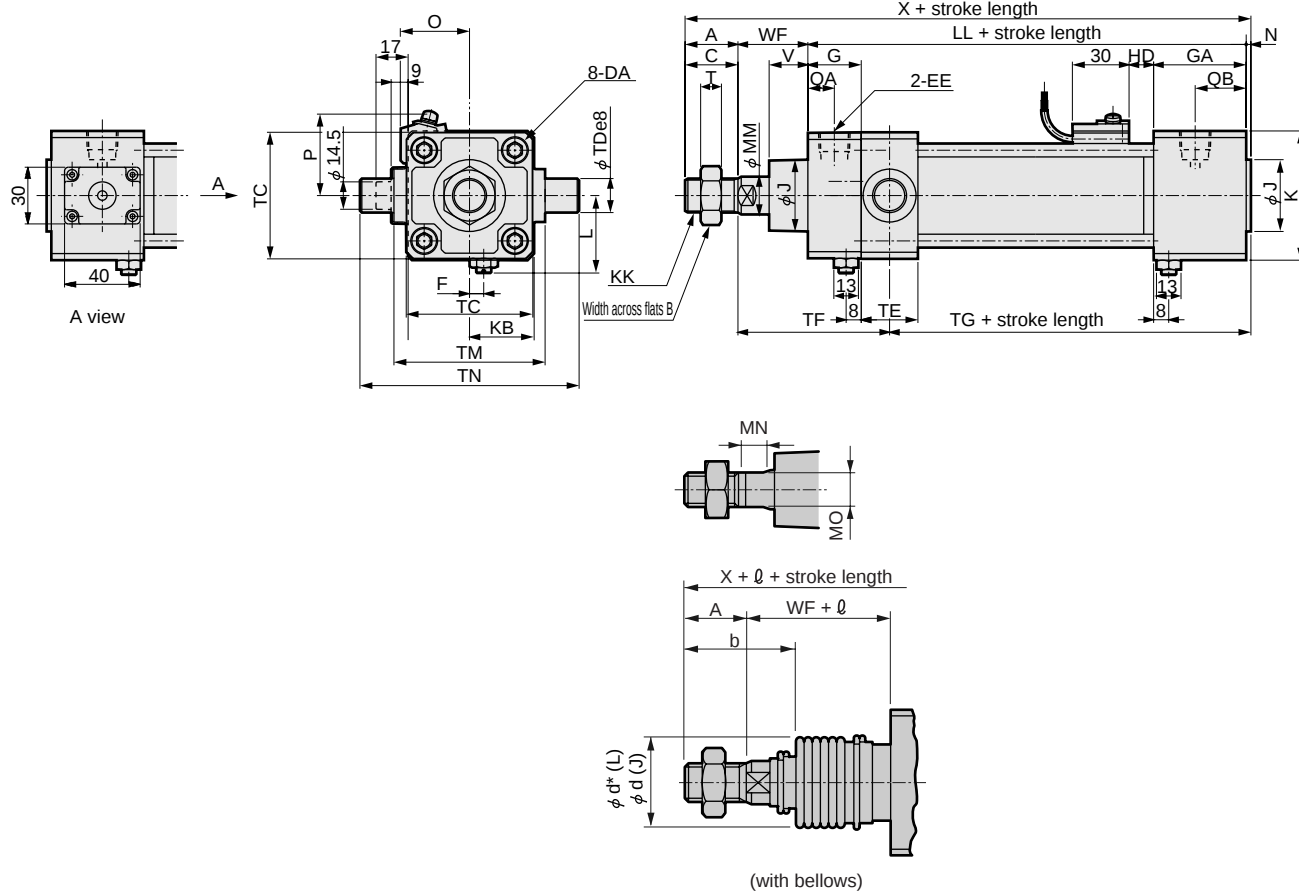
Note 3: Refer to page 598, 599 for accessory dimensions.

SCA2-Q2 Series

Dimensions



- Rod end trunnion type (TA) head end position locking



Symbol	Rod end trunnion type (TA) (unit: mm)																					
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB	
φ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	2	13	26	
φ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14	27	
φ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15	28	
φ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17	27	
φ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18	27	
Symbol												With switch							With bellows			
Bore size (mm)	T	V	WF	X	TC	TD	TE	TF	TG	TM	TN	O	P	HD				X	b	d	d*	
														T0, T5, T2, T3	T1, T2Y, T3Y T2YF/M, T3YF/M	T8						
φ40	8	18.5	33.5	178	57	16 ^{-0.032/-0.059}	30	74.5	81.5	63	95	66	41.5	15.5	14.5	9.5	178	41	40	40		
φ50	11	20.5	37	194.5	67	18 ^{-0.032/-0.059}	30	80	86.5	80	116	73	43	18	17	12	194.5	47	47	48		
φ63	11	21	35	196	82	20 ^{-0.040/-0.073}	35	82.5	85.5	90	130	85	47	19	18	13	196	45	47	48		
φ80	13	23.5	48	231.5	100	25 ^{-0.040/-0.073}	40	102	93.5	115	165	105	57	23.5	22.5	17.5	231.5	58.5	53	55		
φ100	16	32	53	258	121	35 ^{-0.050/-0.089}	50	114	99	135	205	121	63	29.5	28.5	23.5	258	69.5	61	65		
Symbol																						
Bore size (mm)	ℓ																					
	50 or less		50 to 100		100 to 150		150 to 200		200 to 300		300 to 400		400 to 500		Over 500							
φ40	25.5		41.5		58.5		75.5		108.5		141.5		174.5		(stroke length/3.0) + 8							
φ50	22		36		49		63		90		119		146		(stroke length/3.6) + 7.5							
φ63	22		36		49		63		90		119		146		(stroke length/3.6) + 7.5							
φ80	14		26		38		49		72		96		119		(stroke length/4.3) + 2.5							
φ100	20		32		42		53		76		98		120		(stroke length/4.5) + 9							

Note 1: For ℓ dimensions, round up decimal places.

Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.

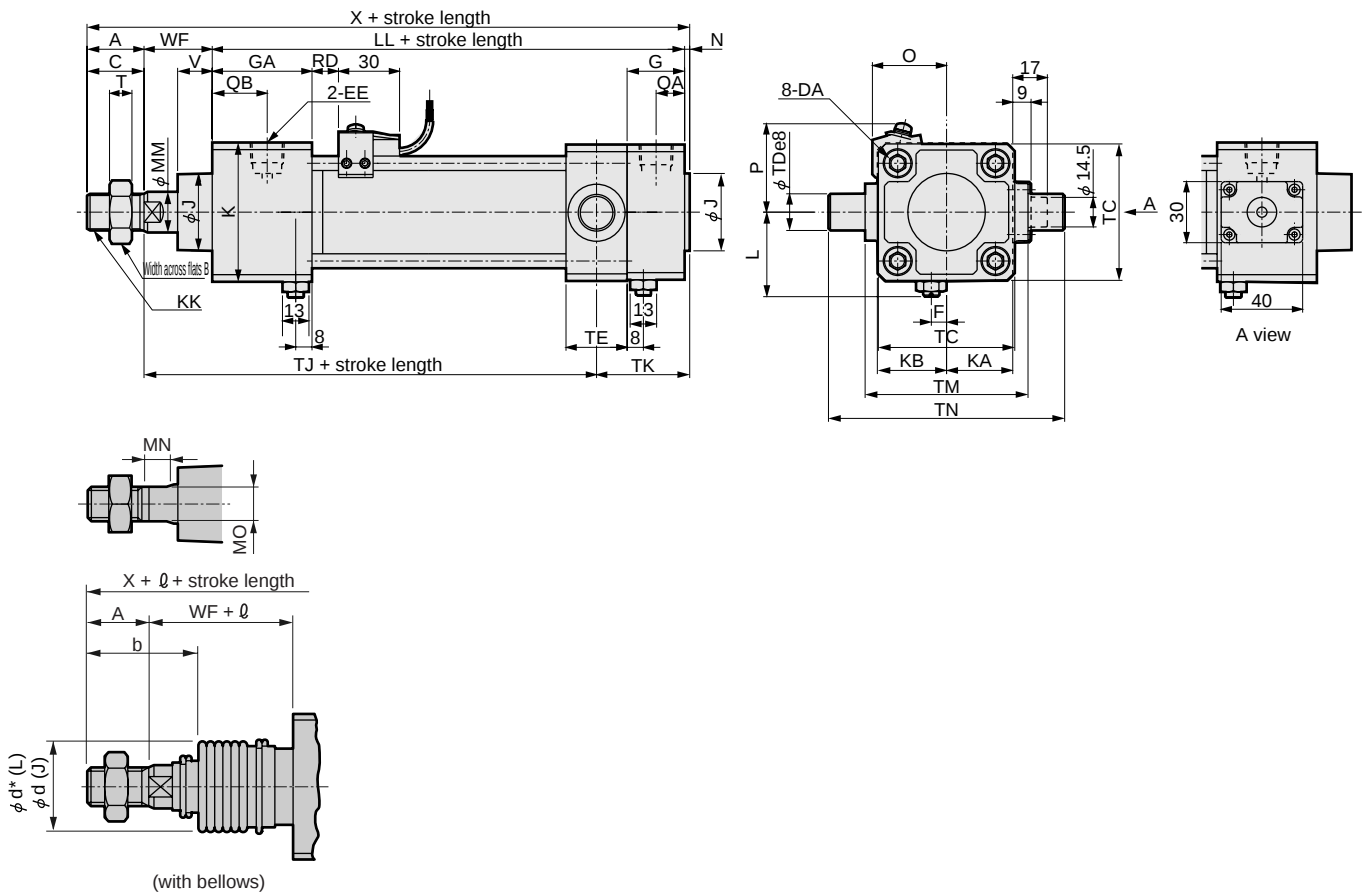
Note 3: Refer to page 598, 599 for accessory dimensions.

Note 4: A cushion needle position can not be changed.

Dimensions



- Head end trunnion type (TB) rod end position locking



Symbol	Head end trunnion type (TB) (unit: mm)																					
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB	
φ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	2	13	26	
φ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14	27	
φ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15	28	
φ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17	27	
φ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18	27	
Symbol													With switch						With bellows			
Bore size (mm)	T	V	WF	X	TC	TD	TE	TJ	TK	TM	TN	O	P	RD			T8	X	b	d	d*	
														T0, T5, T2, T3	T1, T2Y, T3Y, T2YF/M, T3YF/M							
φ40	8	18.5	33.5	178	57	16 ^{-0.032 -0.059}	30	112.5	43.5	63	95	66	41.5	15.5	14.5	9.5	178	41	40	40		
φ50	11	17	33.5	191	67	18 ^{-0.032 -0.059}	30	117	46	80	116	73	43	18	17	12	191	47	47	48		
φ63	11	17	31	192	82	20 ^{-0.040 -0.073}	35	113	51	90	130	85	47	19	18	13	192	45	47	48		
φ80	13	18.5	43	226.5	100	25 ^{-0.040 -0.073}	40	132.5	58	115	165	105	57	23.5	22.5	17.5	226.5	58.5	53	55		
φ100	16	29	50	256	121	35 ^{-0.050 -0.089}	50	144.5	65.5	135	205	121	63	29.5	28.5	23.5	255	69.5	61	65		
Symbol																						
Bore size (mm)	<i>ℓ</i>																					
	50 or less		50 to 100		100 to 150		150 to 200		200 to 300		300 to 400		400 to 500		Over 500							
φ40	25.5		41.5		58.5		75.5		108.5		141.5		174.5		(stroke length/3.0) + 8							
φ50	22		36		49		63		90		119		146		(stroke length/3.6) + 7.5							
φ63	22		36		49		63		90		119		146		(stroke length/3.6) + 7.5							
φ80	14		26		38		49		72		96		119		(stroke length/4.3) + 2.5							
φ100	20		32		42		53		76		98		120		(stroke length/4.5) + 9							

Note 1: For l dimensions, round up decimal places.

Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.

Note 3: Refer to page 598, 599 for accessory dimensions.

Note 4: A cushion needle position can not be changed.

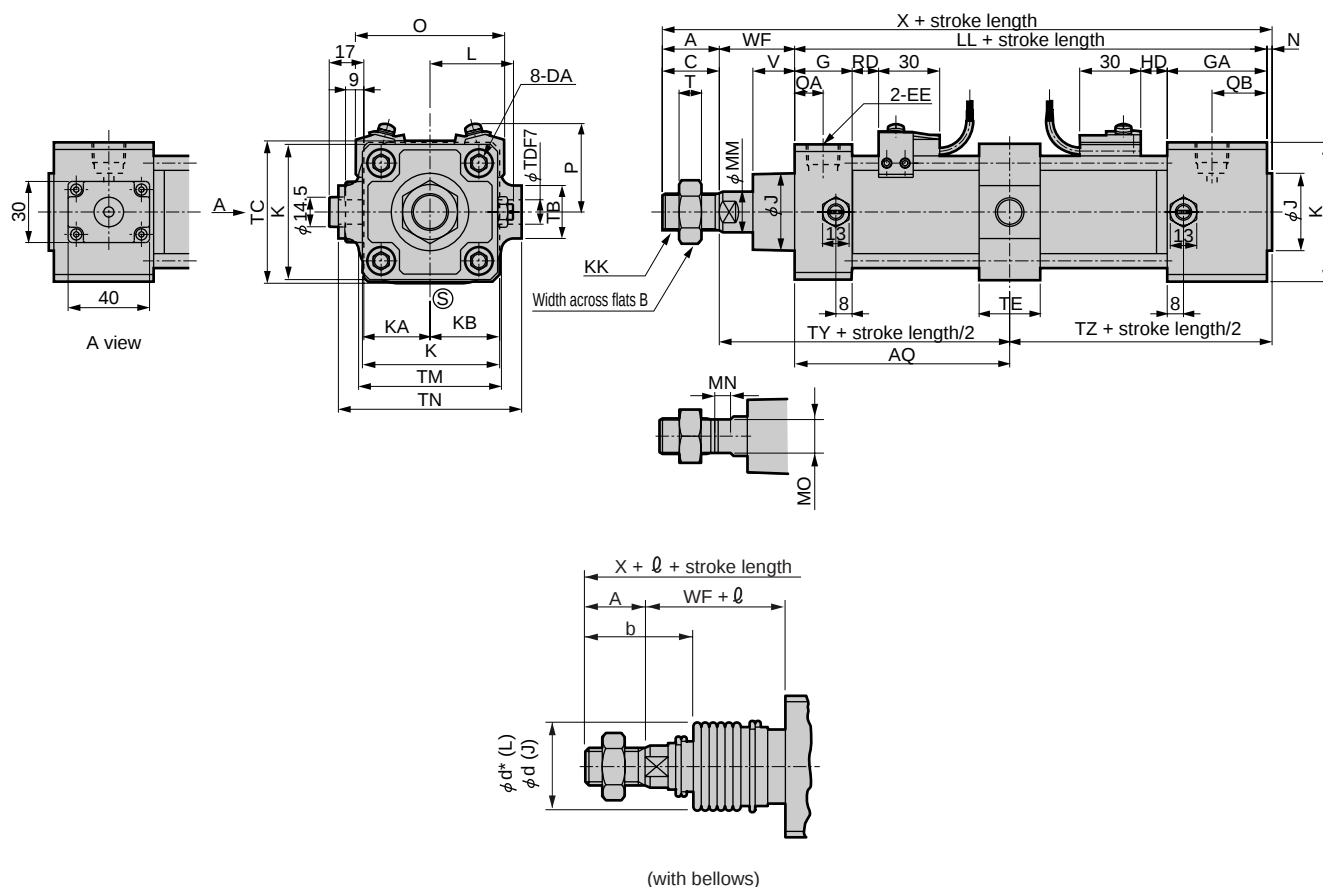
SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Medium bore size cylinder
Standard type

SCA2-Q2 Series

Dimensions

● Intermediate supporting hole (TF) head end position locking



Symbol	Intermediate supporting hole (TF) (unit: mm)																						
Bore size (mm)	A	B	C	DA	EE	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB			
φ 50	28	27	26	M8	Rc3/8	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14	27			
φ 63	28	27	26	M8	Rc3/8	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15	28			
φ 80	36	32	34	M12	Rc1/2	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17	27			
φ 100	45	41	43	M12	Rc1/2	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18	27			
Symbol													With switch								With bellows		
Bore size (mm)	T	V	WF	X	AQ	TB	TC	TD	TE	TM	TN	TY	TZ	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YFM, T3YFM		T8		X	b
																RD	HD	RD	HD	RD	HD		
φ 50	11	20.5	37	194.5	63.5+ Stroke 2	26	67	12	30	70	90	97	66	73	43	13	18	12	17	7	12	194.5	47
φ 63	11	21	35	196	65+ Stroke 2	30	82	14	35	86	104	96	68	85	47	13	19	12	18	7	13	196	45
φ 80	13	23.5	48	231.5	72+ Stroke 2	35	100	20	40	105	134	115	75.5	105	57	14.5	23.5	13.5	22.5	8.5	17.5	231.5	58.5
φ 100	16	32	53	258	78+ Stroke 2	40	121	20	40	127	150	128	82	121	63	18.5	29.5	17.5	28.5	12.5	23.5	258	69.5
Symbol																							
Bore size (mm)	d	d*	ℓ																				
			50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500													
φ 50	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5													
φ 63	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5													
φ 80	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5													
φ 100	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9													

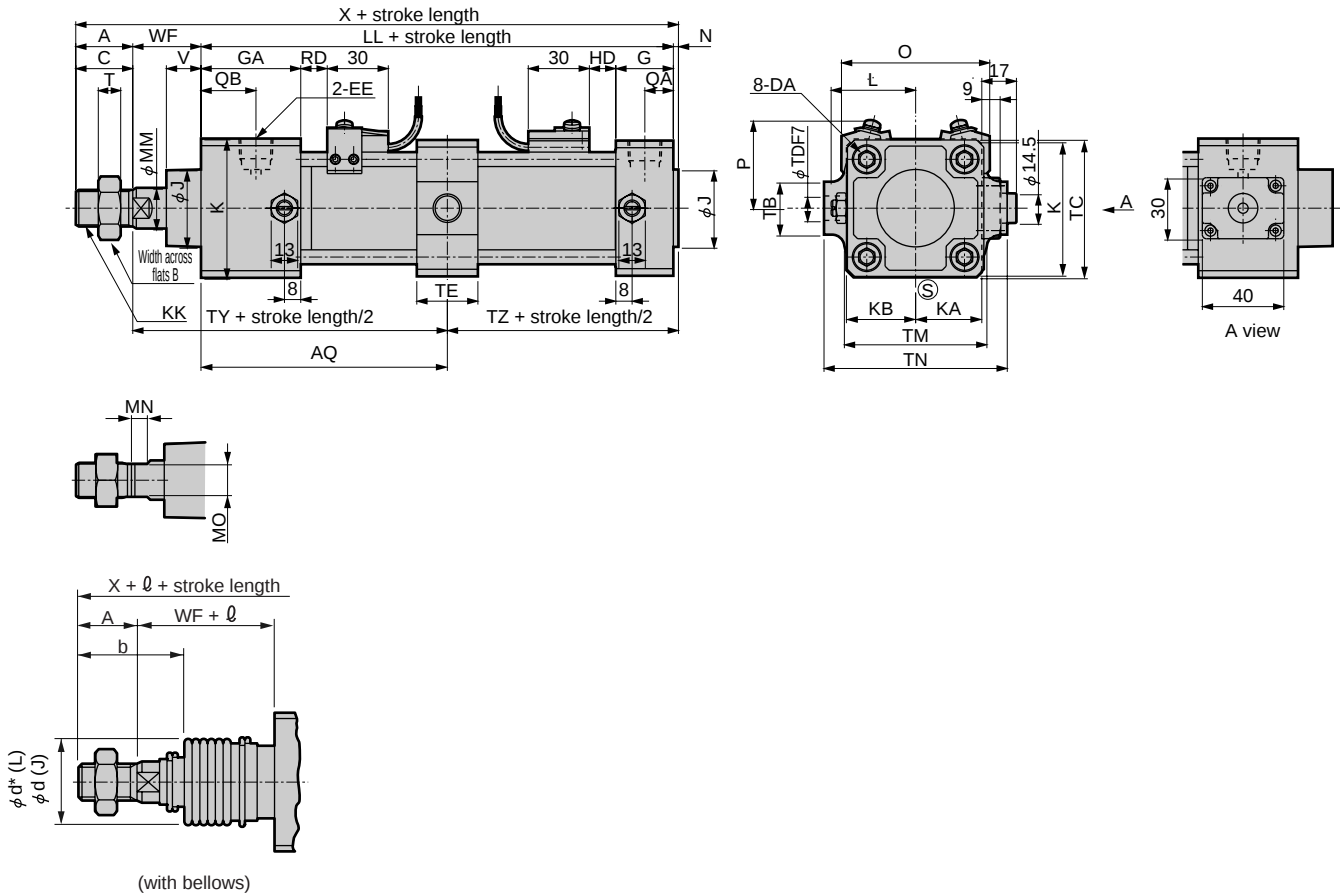
Note 1: For ℓ dimensions, round up decimal places.

Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.

Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

- Intermediate supporting hole (TF) rod end position locking



Symbol	Intermediate supporting hole (TF) (unit: mm)																				
Bore size (mm)	A	B	C	DA	EE	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB	
φ 50	28	27	26	M8	Rc3/8	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14	27	
φ 63	28	27	26	M8	Rc3/8	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15	28	
φ 80	36	32	34	M12	Rc1/2	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17	27	
φ 100	45	41	43	M12	Rc1/2	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18	27	
Symbol													With switch								
Bore size (mm)	T	V	WF	X	AQ	TB	TC	TD	TE	TM	TN	TY	TZ	O	P	T0, T5, T2, T3	T1, T2Y, T3Y T2YFM, T3YFM	T8			
																RD	HD	RD	HD	RD	HD
φ 50	11	17	33.5	191	63.5+ Stroke 2	26	67	12	30	70	90	97	66	73	43	18	13	17	12	12	7
φ 63	11	17	31	192	65+ Stroke 2	30	82	14	35	86	104	96	68	85	47	19	13	18	12	13	7
φ 80	13	18.5	43	226.5	72+ Stroke 2	35	100	20	40	105	134	115	75.5	105	57	23.5	14.5	22.5	13.5	17.5	8.5
φ 100	16	29	50	255	78+ Stroke 2	40	121	20	40	127	150	128	82	121	63	29.5	18.5	28.5	17.5	23.5	12.5
Symbol	With bellows																				
Bore size (mm)	b	d	d*	50 or less	ℓ																
					50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500										
φ 50	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5										
φ 63	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5										
φ 80	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5										
φ 100	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9										

Note 1: For ℓ dimensions, round up decimal places.

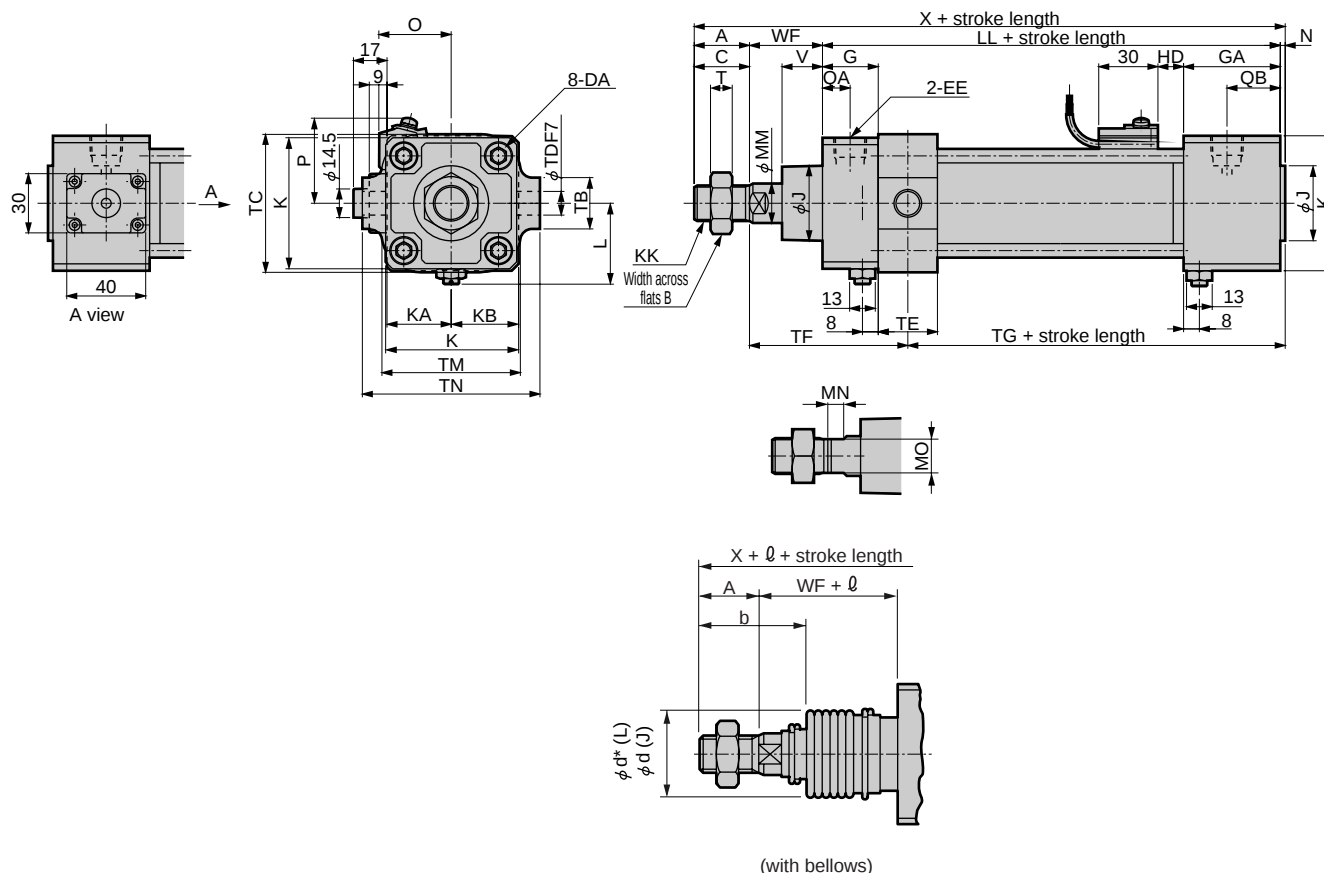
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.

Note 3: Refer to page 598, 599 for accessory dimensions.

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
Medium bore size cylinder
Standard type

Dimensions

● Rod end supporting hole (TD) head end position locking



Symbol	Rod end supporting hole (TD) (unit: mm)																			
Bore size (mm)	A	B	C	DA	EE	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB
φ 50	28	27	26	M8	Rc3/8	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14	27
φ 63	28	27	26	M8	Rc3/8	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15	28
φ 80	36	32	34	M12	Rc1/2	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17	27
φ 100	45	41	43	M12	Rc1/2	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18	27
Symbol															With switch					
Bore size (mm)	T	V	WF	X	TB	TC	TD	TE	TF	TG	TJ	TK	TM	TN	O	P	HD			
																	T0, T5, T2, T3	T1, T2Y, T3Y T2YFM, T3YFM	T8	
φ 50	11	20.5	37	194.5	26	67	12	30	80	86.5	117	46	70	90	73	43	18	17	12	
φ 63	11	21	35	196	30	82	14	35	82.5	85.5	113	51	86	104	85	47	19	18	13	
φ 80	13	23.5	48	231.5	35	100	20	40	102	93.5	132.5	58	105	134	105	57	23.5	22.5	17.5	
φ 100	16	32	53	258	40	121	20	40	109	104	144.5	65.5	127	150	121	63	29.5	28.5	23.5	
Symbol	With bellows																			
Bore size (mm)	b	d	d*	ℓ																
				50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500									
φ 50	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5									
φ 63	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5									
φ 80	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5									
φ 100	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9									

Note 1: For l dimensions, round up decimal places.

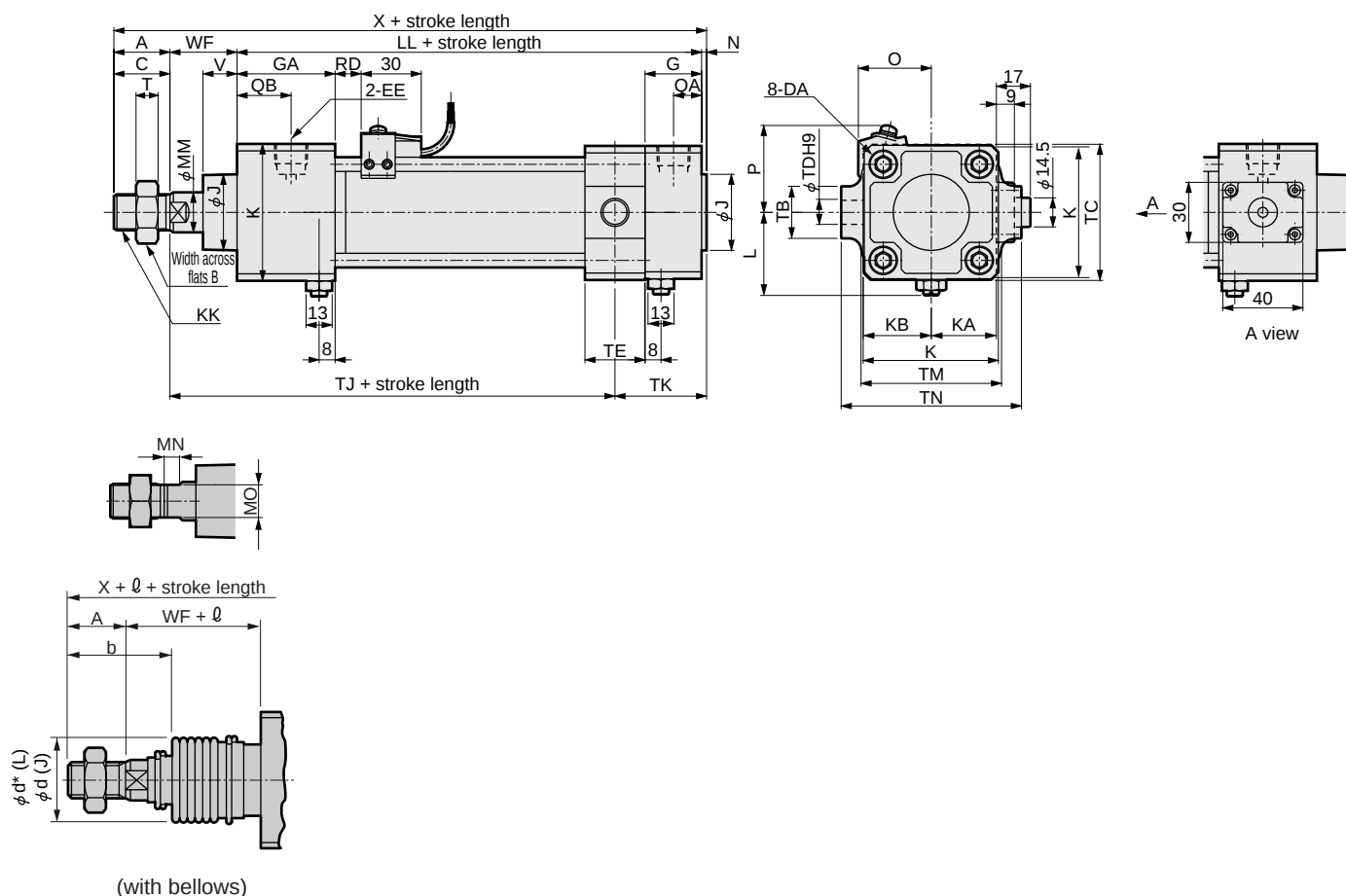
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.

Note 3: Refer to page 598, 599 for accessory dimensions.

Note 4: A cushion needle position can not be changed.

Dimensions

- Head end supporting hole (TE) rod end position locking



Symbol	Head end supporting hole (TE) (unit: mm)																				
Bore size (mm)	A	B	C	DA	EE	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB	
φ 50	28	27	26	M8	Rc3/8	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14	27	
φ 63	28	27	26	M8	Rc3/8	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15	28	
φ 80	36	32	34	M12	Rc1/2	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17	27	
φ 100	45	41	43	M12	Rc1/2	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18	27	
Symbol													With switch				With bellows				
Bore size (mm)	T	V	WF	X	TB	TC	TD	TE	TJ	TK	TM	TN	O	P	RD			b	d	d*	
															T0, T5, T2, T3	T1, T2Y, T3Y T2YF/M, T3YF/M	T8				
φ 50	11	17	33.5	191	26	67	12	30	117	46	70	90	73	43	18	17	12	47	47	48	
φ 63	11	17	31	192	30	82	14	35	113	51	86	104	85	47	19	18	13	45	47	48	
φ 80	13	18.5	43	226.5	35	100	20	40	132.5	58	105	134	105	57	23.5	22.5	17.5	58.5	53	55	
φ 100	16	29	50	255	40	121	20	40	149.5	60.5	127	150	121	63	29.5	28.5	23.5	69.5	61	65	
Symbol																					
Bore size (mm)	ℓ																				
	50 or less		50 to 100		100 to 150		150 to 200		200 to 300		300 to 400		400 to 500		Over 500						
φ 50	22		36		49		63		90		119		146		(stroke length/3.6) + 7.5						
φ 63	22		36		49		63		90		119		146		(stroke length/3.6) + 7.5						
φ 80	14		26		38		49		72		96		119		(stroke length/4.3) + 2.5						
φ 100	20		32		42		53		76		98		120		(stroke length/4.5) + 9						

Note 1: For l dimensions, round up decimal places.

Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.

Note 3: Refer to page 598, 599 for accessory dimensions.

Note 4: A cushion needle position can not be changed.

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

Medium bore size cylinder
Standard type

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



Medium bore size cylinder
Double acting, low friction type (low pressure (0.2 MPa or less) low friction)

SCA2-O Series

● Bore size: $\phi 40$, $\phi 50$, $\phi 63$, $\phi 80$, $\phi 100$

JIS symbol



Specifications

Descriptions		SCA2-O (low friction type)				
Bore size	mm	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$	$\phi 100$
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure	MPa	1.0				
Min. working pressure	MPa	0.01				
Withstanding pressure	MPa	1.6				
Ambient temperature	℃	5 to 60				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance	mm	$^{+0.9}_{0}$ (Up to 360) $^{+1.4}_{0}$ (Up to 800)				
Working piston speed	mm/s	10 to 200 (Use within the allowable energy absorption.)				
Cushion		None				
Effective cushion length	mm	14.6	16.6	16.6	20.6	23.6
Lubrication		Not available				
Allowable energy absorption J	no cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
$\phi 40$	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	600	1
$\phi 50$			
$\phi 63$			
$\phi 80$		700	
$\phi 100$		800	

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

Min. stroke length of type with switch

● T0/T5 type min. stroke length with 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
$\phi 40$	20 (10)	20 (20)	40 (40)	60 (60)	20 (10)	60 (45)	105 (75)	150 (105)	110 (110)	110 (110)	175 (145)	175 (145)	50 (50)	50 (50)
$\phi 50$	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	20 (20)	65 (50)	65 (60)	135 (135)	135 (135)	135 (135)	135 (135)	60 (60)	60 (60)
$\phi 63$	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	20 (20)	70 (55)	70 (60)	110 (95)	110 (95)	110 (100)	110 (100)	50 (45)	50 (45)
$\phi 80$	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	115 (85)	115 (85)	115 (105)	115 (105)	55 (40)	55 (40)
$\phi 100$	15 (15)	25 (25)	45 (45)	70 (70)	15 (15)	25 (25)	70 (55)	70 (70)	125 (95)	125 (95)	125 (115)	125 (115)	60 (45)	60 (45)

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 min. stroke length with 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
$\phi 40$	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	50 (35)	95 (65)	140 (95)	95 (85)	95 (85)	155 (125)	155 (125)	45 (40)	45 (40)
$\phi 50$	10 (10)	20 (20)	40 (40)	60 (60)	10 (10)	20 (20)	70 (55)	70 (60)	115 (115)	115 (115)	135 (135)	135 (135)	50 (50)	50 (50)
$\phi 63$	10 (10)	20 (20)	40 (40)	60 (60)	10 (10)	20 (20)	70 (55)	70 (60)	95 (75)	95 (75)	110 (110)	110 (110)	45 (35)	45 (35)
$\phi 80$	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	100 (70)	100 (70)	115 (115)	115 (115)	50 (35)	50 (35)
$\phi 100$	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	110 (80)	110 (80)	125 (125)	125 (125)	55 (40)	55 (40)

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.

Switch specifications

● T2/T3 type min. stroke length with 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	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
φ 50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	105 (75)	105 (75)	105 (75)	105 (75)	45 (30)	45 (30)
φ 63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	110 (80)	110 (80)	110 (85)	110 (85)	50 (35)	50 (35)
φ 80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	115 (85)	115 (85)	115 (90)	115 (90)	55 (40)	55 (40)
φ 100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	125 (95)	125 (95)	125 (100)	125 (100)	60 (45)	60 (45)

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 min. stroke length with 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	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
φ 50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	100 (70)	100 (70)	100 (75)	100 (75)	45 (30)	45 (30)
φ 63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	105 (75)	105 (75)	105 (85)	105 (85)	50 (35)	50 (35)
φ 80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	110 (80)	110 (80)	110 (90)	110 (90)	55 (40)	55 (40)
φ 100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	120 (90)	120 (90)	120 (100)	120 (100)	60 (45)	60 (45)

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

Medium bore size cylinder
Standard type

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

Switch specifications (T type switch)
● 1color / 2 color indicator, strong magnetic field proof

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

Descriptions	Proximity 2-wire			Proximity 3-wire			Reed 2-wire					Proximity 2-wire		
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T3H/ T3V	T3PH/T3PV (Custom order)	T3YH/ T3YV	T0H/T0V	T5H/T5V	T8H/T8V			T2YD		
Applications	Programmable controller relay, small solenoid valve	Programmable controller dedicated		Programmable controller, relay			Programmable controller, relay	Programmable controller, relay, IC circuit (w/o light), serial connection	Programmable controller, relay			Programmable controller dedicated		
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 100 mA	5 to 20 mA (Note 1)		100 mA or less		50 mA or less	5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
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	1 mA or less with 100 VAC 2 mA or less with 200 VAC	1 mA or less		10 μA or less			0 mA					1 mA 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		Programmable controller, relay		Programmable controller dedicated		Programmable controller, relay	
Output method		NPN output							
Light	Installation position adjustment	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 20 mA		50 mA or less		5 to 20 mA		50 mA or less	
	Leakage current	1 mA or less		10 μA or less		1.2 mA or less		10 μA or less	
Preventive maintenance output	Load voltage	30 VDC or less							
	Load current	20 mA or less		50 mA or less		5 to 20 mA or less		50 mA or less	
	Leakage current	10 μA or less							

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

Cylinder weight

Cylinder weight										(Unit: kg)
Bore size (mm)	Product weight when stroke length (S) = 0 mm						Weight per switch (including mounting bracket)			Additional weight per S = 100 mm
	Basic type (00)	Foot type (LB)	Flange type (FA and FB)	Eye bracket type (CA)	Clevis bracket type (CB)	Trunnion type (TA, TB or TC)	T type	T2YD type		
								1 m	3 m	
φ 40	0.83	1.00	1.24	1.15	1.19	1.21	0.018	0.08	0.17	0.39
φ 50	1.20	1.45	1.69	1.58	1.61	1.74				0.46
φ 63	1.60	1.97	2.69	2.17	2.22	2.45				0.50
φ 80	2.60	3.34	4.46	3.87	4.08	3.94				0.90
φ 100	4.20	5.11	6.94	5.84	6.02	6.77				1.12
(E.g.) Product weight of SCA2-O-LB-50B-200-T0H-D Product weight when stroke length (S) = 0 mm ... 1.45 kg. Additional mass at stroke length 200 mm ... $0.46 \times \frac{200}{100} = 0.92$ kg. Weight of two switches ... $0.018 \times 2 = 0.036$ kg. Product weight ... $1.45 + 0.92 + 0.036$ kg = 2.406 kg										

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

Medium bore size cylinder
Standard type

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

Without switch

SCA2-O - LB - 40 - N - 100 - M - I

With switch

SCA2-O - LB - 40 - N - 100 - T0 - R - M - I

A Mounting style
Note 1

B Bore size

C Port thread type

D Cushion

E Stroke length
Note 2

F Switch model no.

G Switch quantity
Note 4

H Option

I Accessory
Note 5

Note on model no. selection

Note 1: The mounting bracket is shipped with the product. (However, trunnion type is attached to the product when shipped.)

Note 2: If the maximum stroke is exceeded, refer to Ending 74.

Note 3: Refer to page 508 for min. stroke length.

Note 4: 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 5: "I" and "Y" can not be selected at the same time.

Note 6: Refer to Ending 89 for custom specifications of rod end form.

Note 7: Refer to page 436 for variation and option combination.

<Example of model number>

SCA2-O-LB-40N-100-T0-R-MI

Model: Medium bore size cylinder double acting low friction type

- A Mounting style : Axial foot type
- B Bore size : ϕ 40 mm
- C Port thread type : Rc thread
- D Cushion : No cushion
- E Stroke length : 100 mm
- F Switch model no. : Reed T0 switch, lead wire length 1 m
- G Switch quantity : One on rod end
- H Option : Piston rod material change (stainless steel)
- I Accessory : Rod eye

Symbol	Descriptions
A Mounting style	
00	Basic type
LB	Axial foot type
FA	Rod end flange type
FB	Head end flange type
FC	Special head end flange type
CA	Eye bracket type
CB	Clevis bracket type (pin and snap ring attached)
TC	Center trunnion type
TA	Rod end trunnion type
TB	Head end trunnion type
TF	Intermediate supporting hole (ϕ 40 cannot be selected.)
TD	Rod end supporting hole (ϕ 40 cannot be selected.)
TE	Head end supporting hole (ϕ 40 cannot be selected.)

B Bore size (mm)	
40	ϕ 40
50	ϕ 50
63	ϕ 63
80	ϕ 80
100	ϕ 100

C Port thread type	
Blank	Rc thread
N	NPT thread (custom order)
G	G thread (custom order)

D Cushion	
N	No cushion

E Stroke length (mm)		
Bore size	Stroke length Note 3	Custom stroke length
ϕ 40	1 to 600	Per 1 mm increment
ϕ 50	1 to 600	
ϕ 63	1 to 600	
ϕ 80	1 to 700	
ϕ 100	1 to 800	

F Switch model no.	
Refer to the switch model no. table on the following page.	

*Lead wire length	
Blank	1m (standard)
3	3m (option)
5	5m (option)

G Switch quantity	
R	One on rod end
H	One on head end
D	Two
T	Three

H Option	
M	Piston rod material (stainless steel)
P6	Copper and PTFE free (custom order)

I Accessory	
I	Rod eye
Y	Rod clevis (pin and snap ring attached)
B1	Eye bracket
B2	Clevis bracket (pin and snap ring attached)
B3	Eye bracket
B4	Trunnion type No. 2 bracket

How to order mounting bracket

Bore size (mm)	ϕ 40	ϕ 50	ϕ 63	ϕ 80	ϕ 100
Mounting bracket					
Foot (LB)	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Eye (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

Note 1: Refer to page 448 for the mounting bracket material.

Note 2: The foot type bracket is 2 pcs./set.

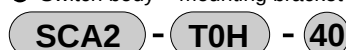
T type switch model no.				
Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T0H*	T0V*	Reed	1 color indicator type	2-wire
T5H*	T5V*		Without indicator light	
T8H*	T8V*		1 color indicator type	
T1H*	T1V*	Proximity	1 color indicator type	2-wire
T2H*	T2V*			3-wire
T3H*	T3V*			
T2YH*	T2YV*		2 color indicator type	2-wire
T3YH*	T3YV*			3-wire
T3PH*	T3PV*		1 color indicator type (custom order)	3-wire
T2YFH*	T2YFV*		2 color indicator type	3-wire
T3YFH*	T3YFV*		(Without light for preventive maintenance output)	4-wire
T2YMH*	T2YMV*		2 color indicator type	3-wire
T3YMH*	T3YMV*		(Without light for preventive maintenance output)	4-wire
T2YD*	-		Strong magnetic field proof switch	2-wire
T2YDT*	-			
T2JH*	T2JV*		Off-delay type	2-wire

R type switch					
Grommet type	Terminal box type		Contact	Indicator	Lead wire
Standard type	Splash prf.				
R1A	R1B	R1A		1 color	
These types have been changed to T-switch integrated type since Oct 1st 2007.					
R6	R6B	R6A		1 color indicator type	

These types have been changed to T-switchch integrated type since Oct 1st 2007.

(T type switch)

- Switch bracket set



Bore size
(Item (B) p



Switch model no.
(Item (F) previous page)



Bore size
(Item (B) previous page)

* Consult with CKD when using the environment compatible T-type switch.

- Switch body + mounting bracket

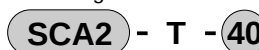
- Mounting bracket



Bore size
(Item (B) p



Switch model no.
(Item (F) previous page)

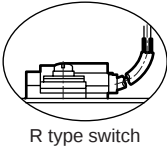
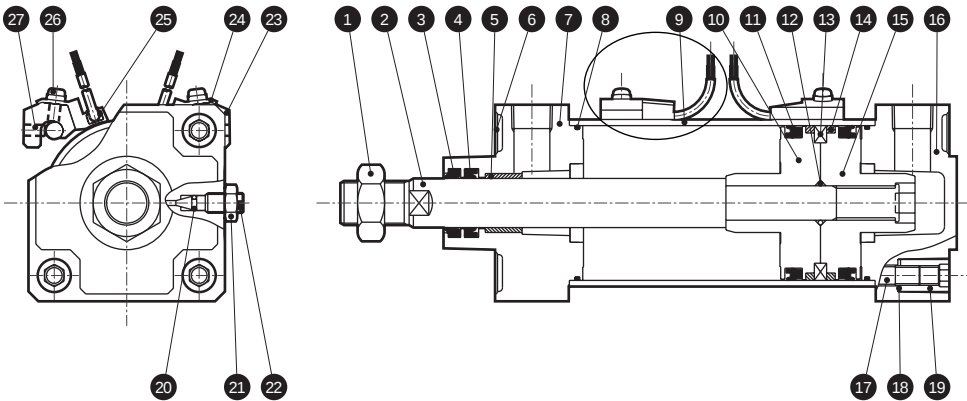


Bore size
(Item (B) previous page)

Medium bore size cylinder
Standard type

- 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

Internal structure and parts list



No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Rod nut	Steel	Zinc chromate	15	Piston H	Aluminum alloy die-casting	
2	Piston rod	Steel	Industrial chrome plating	16	Head cover	Aluminum alloy die-casting	Paint
3	Dust wiper	Nitrile rubber		17	Tie rod	Steel	Zinc chromate
4	Rod packing seal	Nitrile rubber		18	Conical spring washer	Steel	Blackening
5	Bush	Oil impregnated bearing alloy		19	Round nut	Steel	Zinc chromate
6	Masking plate	Aluminum alloy	Paint	20	Needle gasket	Nitrile rubber	
7	Rod cover	Aluminum alloy die-casting	Paint	21	Hexagon nut	Copper alloy	
8	Cylinder gasket	Nitrile rubber		22	Cushion plug	Copper alloy	
9	Cylinder tube	Aluminum alloy	Hard alumite treatment	23	Switch installation unit	Aluminum alloy	
10	Piston R	Aluminum alloy die-casting		24	Switch holder	Aluminum alloy	
11	Piston packing seal	Nitrile rubber		25	Cylinder switch		
12	Piston gasket	Nitrile rubber		26	Cross headed pan w/washer	Steel	Zinc chromate
13	Magnet	Plastic		27	Hexagon socket head set screw	Alloy steel	Blackening
14	Wear ring	Polyacetal resin					

Repair parts list

Bore size (mm)	Kit No.	Repair parts number
φ 40	SCA2-O-40K	
φ 50	SCA2-O-50K	3 4 8
φ 63	SCA2-O-63K	11 14 20
φ 80	SCA2-O-80K	
φ 100	SCA2-O-100K	

Note 1: Specify the kit No. when placing an order.

Dimensions

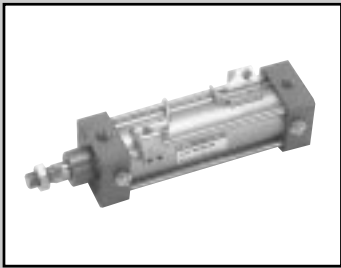
This is the same as double acting standard single rod type. Refer to pages 450 to 455.

MEMO

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

Medium bore size cylinder
Standard type

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

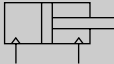


Medium bore size cylinder
Double acting, low friction type (constant friction with pressurized)

SCA2-U Series

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

JIS symbol



Specifications

Descriptions		SCA2-U				
Bore size		ϕ 40	ϕ 50	ϕ 63	ϕ 80	ϕ 100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure	MPa	0.7				
Min. working pressure	MPa	0.03				
Withstanding pressure	MPa	1.0				
Ambient temperature		5 to 60				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance	mm	^{+0.9} ₀ (Up to 360), ^{+1.4} ₀ (Up to 800)				
Working piston speed	mm	10 to 1000				
Cushion		None				
Lubrication		Not available				
Internal leakage volume		5			8	
No cushion	No cushion	0.067	0.079	0.079	0.201	0.301
Allowable energy absorption		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Stroke length

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

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

Min. stroke length of type with switch

● T0/T5 type min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ 40	20 (10)	20 (20)	40 (40)	60 (60)	20 (10)	60 (45)	105 (75)	150 (105)	110 (110)	110 (110)	175 (145)	175 (145)	50 (50)	50 (50)
ϕ 50	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	20 (20)	65 (50)	65 (60)	135 (135)	135 (135)	135 (135)	135 (135)	60 (60)	60 (60)
ϕ 63	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	20 (20)	70 (55)	70 (60)	110 (95)	110 (95)	110 (100)	110 (100)	50 (45)	50 (45)
ϕ 80	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	115 (85)	115 (85)	115 (105)	115 (105)	55 (40)	55 (40)
ϕ 100	15 (15)	25 (25)	45 (45)	70 (70)	15 (15)	25 (25)	70 (55)	70 (70)	125 (95)	125 (95)	125 (115)	125 (115)	60 (45)	60 (45)

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 min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ 40	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	50 (35)	95 (65)	140 (95)	95 (85)	95 (85)	155 (125)	155 (125)	45 (40)	45 (40)
ϕ 50	10 (10)	20 (20)	40 (40)	60 (60)	10 (10)	20 (20)	70 (55)	70 (60)	115 (115)	115 (115)	135 (135)	135 (135)	50 (50)	50 (50)
ϕ 63	10 (10)	20 (20)	40 (40)	60 (60)	10 (10)	20 (20)	70 (55)	70 (60)	95 (75)	95 (75)	110 (110)	110 (110)	45 (35)	45 (35)
ϕ 80	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	100 (70)	100 (70)	115 (115)	115 (115)	50 (35)	50 (35)
ϕ 100	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	110 (80)	110 (80)	125 (125)	125 (125)	55 (40)	55 (40)

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.

Min. stroke length with switch

● T2/T3 type min. stroke length with 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	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
φ 50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	105 (75)	105 (75)	105 (75)	105 (75)	45 (30)	45 (30)
φ 63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	110 (80)	110 (80)	110 (85)	110 (85)	50 (35)	50 (35)
φ 80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	115 (85)	115 (85)	115 (90)	115 (90)	55 (40)	55 (40)
φ 100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	125 (95)	125 (95)	125 (100)	125 (100)	60 (45)	60 (45)

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 min. stroke length with 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	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
φ 50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	100 (70)	100 (70)	100 (75)	100 (75)	45 (30)	45 (30)
φ 63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	105 (75)	105 (75)	105 (85)	105 (85)	50 (35)	50 (35)
φ 80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	110 (80)	110 (80)	110 (90)	110 (90)	55 (40)	55 (40)
φ 100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	120 (90)	120 (90)	120 (100)	120 (100)	60 (45)	60 (45)

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

Medium bore size cylinder
Standard type

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

Switch specifications (T type switch)

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

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

Descriptions	Proximity 2-wire			Proximity 3-wire			Reed 2-wire					Proximity 2-wire		
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T3H/ T3V	T3PH/T3PV (Custom order)	T3YH/ T3YV	T0H/T0V	T5H/T5V	T8H/T8V			T2YD		
Applications	Programmable controller relay, small solenoid valve	Programmable controller dedicated		Programmable controller, relay			Programmable controller, relay	Programmable controller, relay, IC circuit (w/o light), serial connection	Programmable controller, relay			Programmable controller dedicated		
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 100 mA	5 to 20 mA (Note 1)		100 mA or less		50 mA or less	5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
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	1 mA or less with 100 VAC 2 mA or less with 200 VAC	1 mA or less		10 μA or less			0 mA					1 mA 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	Programmable controller, relay	Programmable controller dedicated	Programmable controller, relay
Output method		NPN output			
Light	Installation position adjustment	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 20 mA	50 mA or less	5 to 20 mA	50 mA or less
	Leakage current	1 mA or less	10 μA or less	1.2 mA or less	10 μA or less
Preventive maintenance output	Load voltage	30 VDC or less			
	Load current	20 mA or less	50 mA or less	5 to 20 mA or less	50 mA or less
	Leakage current	10 μA or less			

Note 1: Refer to Ending 1 for other switch specifications.

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

Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke length (S) = 0 mm							Weight per switch (including mounting bracket)			Additional weight per S = 100 mm
	Basic type (00)	Foot type (LB)	Flange type (FA and FB)	Special flange type (FC)	Eye bracket type (CA)	Clevis bracket type (CB)	Trunnion type (TA, TB or TC)	T type	T2YD type		
									1 m	3 m	
φ 40	0.83	1.00	1.24	0.92	1.15	1.19	1.21	0.018	0.08	0.17	0.39
φ 50	1.20	1.45	1.69	1.31	1.58	1.61	1.74				0.46
φ 63	1.60	1.97	2.69	1.78	2.17	2.22	2.45				0.50
φ 80	2.60	3.34	4.46	2.96	3.87	4.08	3.94				0.90
φ 100	4.20	5.11	6.94	4.75	5.84	6.02	6.77				1.12

(E.g.) product weight of SCA2-U-LB-50B-200-T0H-D —

- Product weight when stroke length (S) = 0 mm ... 1.45 kg
- Additional weight at stroke length 200 mm ... $0.46 \times \frac{200}{100} = 0.92$ kg
- Weight of two switches ... $0.018 \times 2 = 0.036$ kg
- Product weight ... $1.45 + 0.92 + 0.036$ kg = 2.406 kg

Dimensions

It is the same as the double acting, single rod type SCA2 series. Refer to pages 450 to 455.

Technical data

Refer to page 294 for technical data of a sliding resistance value.

Data on page 294 is for the "SCM-U Series", but similar trends apply to the SCA2-U Series.

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

Medium bore size cylinder
Standard type

How to order

Without switch

SCA2-U — LB — 40 — N — 100 — M — I

With switch

SCA2-U — LB — 40 — N — 100 — T0 — R — M — I

● Mounting style
Note 1

No cushion

● Bore size

● Port thread type

● Stroke length

● Switch model no.

● Switch quantity
Note 3

● Option

● Accessory
Note 4

⚠ Note on model no. selection

Note 1: The mounting bracket is shipped with the product.
(However, trunnion type is attached to the product when shipped.)

Note 2: Refer to page 516 for min. stroke length.

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.

Note 5: Refer to Ending 89 for custom specifications of rod end form.

Note 6: Refer to page 436 for variation and option combination.

<Example of model number>

SCA2-U-LB-40N-100-T0-R-M-I

Model: Medium bore size cylinder double acting low friction type

- **A** Mounting style : Axial foot type
- **B** Bore size : ϕ 40 mm
- **C** Port thread type : Rc thread
- **D** Stroke length : 100 mm
- **E** Switch model no. : Reed T0 switch, lead wire length 1 m
- **F** Switch quantity : One on rod end
- **G** Option : Piston rod material change (stainless steel)
- **H** Accessory : Rod eye

Symbol	Descriptions	
A Mounting style		
00	Basic type	
LB	Axial foot type	
FA	Rod end flange type	
FB	Head end flange type	
FC	Special head end flange type	
CA	Eye bracket type	
CB	Clevis bracket type (pin and snap ring attached)	
TC	Center trunnion type	
TA	Rod end trunnion type	
TB	Head end trunnion type	
TF	Intermediate supporting hole (φ40 cannot be selected.)	
TD	Rod end supporting hole (φ40 cannot be selected.)	
TE	Head end supporting hole (φ40 cannot be selected.)	
B Bore size (mm)		
40	φ 40	
50	φ 50	
63	φ 63	
80	φ 80	
100	φ 100	
C Port thread type		
Blank	Rc thread	
N	NPT thread (custom order)	
G	G thread (custom order)	
D Stroke length (mm)		
Bore size	Stroke length Note 2	Custom stroke length
φ 40	1 to 600	Per 1 mm increment
φ 50	1 to 600	
φ 63	1 to 600	
φ 80	1 to 700	
φ 100	1 to 800	
E Switch model no.		
Refer to the switch model no. table on the following page.		
*Lead wire length		
Blank	1m (standard)	
3	3m (option)	
5	5m (option)	
F Switch quantity		
R	One on rod end	
H	One on head end	
D	Two	
T	Three	
G Option		
M	Piston rod material (stainless steel)	
H Accessory		
I	Rod eye	
Y	Rod clevis (pin and snap ring attached)	
B1	Eye bracket	
B2	Clevis bracket (pin and snap ring attached)	
B3	Eye bracket	
B4	Trunnion type No. 2 bracket	

How to order mounting bracket

Bore size (mm)	ϕ 40	ϕ 50	ϕ 63	ϕ 80	ϕ 100
Mounting bracket					
Foot (LB)	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Eye (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

Note 1: Refer to page 448 for the mounting bracket material.

Note 2: The foot type bracket is 2 pcs./set.

[E] switch model no.

T type switch model no.				
Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T0H*	T0V*	Reed	1 color indicator type	2-wire
T5H*	T5V*		Without indicator light	
T8H*	T8V*		1 color indicator type	
T1H*	T1V*	Proximity	1 color indicator type	2-wire
T2H*	T2V*			3-wire
T3H*	T3V*		2 color indicator type	2-wire
T2YH*	T2YV*			3-wire
T3YH*	T3YV*		1 color indicator type (custom order)	3-wire
T3PH*	T3PV*			3-wire
T2YFH*	T2YFV*		2 color indicator type (Without light for preventive maintenance output)	3-wire
T3YFH*	T3YFV*			4-wire
T2YMH*	T2YMV*		2 color indicator type (With light for preventive maintenance output (1 color))	3-wire
T3YMH*	T3YMV*			4-wire
T2YD*	-		Strong magnetic field proof switch	2-wire
T2YDT*	-			2-wire
T2JH*	T2JV*		Off-delay type	2-wire

R type switch				
Grommet type	Terminal box type		Contact	Indicator
Standard type	Splash prf.			Lead wire
R0*	R0B	R0A	1 color indicator type	

These types have been changed to T-switch integrated type since Oct 1st 2007.

How to order switch

(T type switch)

● Switch body + mounting bracket

SCA2 - T0H - 40

Switch model no.
(Item ⑤ previous page)Bore size
(Item ⑥ previous page)

● Only switch body

SW - T0H

Switch model no.
(Item ⑤ previous page)

● Switch bracket set

SCA2 - TS - 40

Bracket

Bore size
(Item ⑥ previous page)

* Consult with CKD when using the environment compatible T-type switch.

(T2YD type switch)

● Switch body + mounting bracket

SCA2 - T2YD - 40

Switch model no.
(Item ⑤ previous page)Bore size
(Item ⑥ previous page)

● Only switch body

SW - T2YD

Switch model no.
(Item ⑤ previous page)

● Mounting bracket

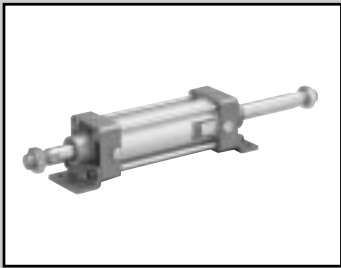
SCA2 - T - 40

Bore size
(Item ⑥ previous page)

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

Medium bore size cylinder
Standard type

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



Medium bore size cylinder
Double acting, double rod type

SCA2-D Series

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

JIS symbol



Specifications

Descriptions		SCA2-D (double rod type)				
Bore size	mm	φ 40	φ 50	φ 63	φ 80	φ 100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure	MPa	1.0				
Min. working pressure	MPa	0.1				
Withstanding pressure	MPa	1.6				
Ambient temperature		-10 to 60 (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance	mm	$^{+0.9}_0$ (Up to 360), $^{+1.4}_0$ (Up to 800)				
Working piston speed	mm/s	50 to 1000 (use within the allowable energy absorption.)				
Cushion		Air cushion				
Effective cushion length	mm	14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)				
Allowable energy absorption J	Cushioned	4.29	8.37	15.8	27.9	49.8
	No cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Available stroke length (mm)	Min. stroke length (mm)
φ40	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	600	800	1
φ50				
φ63		700		
φ80				
φ100				

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

Note 2: If the maximum stroke is exceeded, product specifications many not be met, depending on operating conditions. Refer to Ending 74.

Min. stroke length of type with switch

● T0/T5 type min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ 40	20 (10)	20 (20)	40 (40)	60 (60)	20 (10)	60 (45)	105 (75)	150 (105)	110 (110)	110 (110)	175 (145)	175 (145)	50 (50)	50 (50)
ϕ 50	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	20 (20)	65 (50)	65 (60)	135 (135)	135 (135)	135 (135)	135 (135)	60 (60)	60 (60)
ϕ 63	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	20 (20)	70 (55)	70 (60)	110 (95)	110 (95)	110 (100)	110 (100)	50 (45)	50 (45)
ϕ 80	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	115 (85)	115 (85)	115 (105)	115 (105)	55 (40)	55 (40)
ϕ 100	15 (15)	25 (25)	45 (45)	70 (70)	15 (15)	25 (25)	70 (55)	70 (70)	125 (95)	125 (95)	125 (115)	125 (115)	60 (45)	60 (45)

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 min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ 40	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	50 (35)	95 (65)	140 (95)	95 (85)	95 (85)	155 (125)	155 (125)	45 (40)	45 (40)
ϕ 50	10 (10)	20 (20)	40 (40)	60 (60)	10 (10)	20 (20)	70 (55)	70 (60)	115 (115)	115 (115)	135 (135)	135 (135)	50 (50)	50 (50)
ϕ 63	10 (10)	20 (20)	40 (40)	60 (60)	10 (10)	20 (20)	70 (55)	70 (60)	95 (75)	95 (75)	110 (110)	110 (110)	45 (35)	45 (35)
ϕ 80	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	100 (70)	100 (70)	115 (115)	115 (115)	50 (35)	50 (35)
ϕ 100	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	110 (80)	110 (80)	125 (125)	125 (125)	55 (40)	55 (40)

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.

Min. stroke length of type with switch

● T2/T3 type min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
φ40	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
φ50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	105 (75)	105 (75)	105 (75)	105 (75)	45 (30)	45 (30)
φ63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	110 (80)	110 (80)	110 (85)	110 (85)	50 (35)	50 (35)
φ80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	115 (85)	115 (85)	115 (90)	115 (90)	55 (40)	55 (40)
φ100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	125 (95)	125 (95)	125 (100)	125 (100)	60 (45)	60 (45)

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 min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
φ40	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
φ50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	100 (70)	100 (70)	100 (75)	100 (75)	45 (30)	45 (30)
φ63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	105 (75)	105 (75)	105 (85)	105 (85)	50 (35)	50 (35)
φ80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	110 (80)	110 (80)	110 (90)	110 (90)	55 (40)	55 (40)
φ100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	120 (90)	120 (90)	120 (100)	120 (100)	60 (45)	60 (45)

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

Medium bore size cylinder
Standard type

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

Switch specifications (T type switch)

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

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

	Proximity 2-wire			Proximity 3-wire			Reed 2-wire					Proximity 2-wire		
Descriptions	T1H/T1V	T2H/T2V T2JH/T2JV	T2YH/T2YV	T3H/T3V	T3PH/T3PV (Custom order)	T3YH/T3YV	T0H/T0V	T5H/T5V	T8H/T8V			T2YD		
Applications	Programmable controller relay, small solenoid valve	Programmable controller dedicated		Programmable controller, relay			Programmable controller, relay	Programmable controller, relay, IC circuit (w/o light), serial connection	Programmable controller, relay			Programmable controller dedicated		
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 100 mA	5 to 20 mA (Note 1)		100 mA or less		50 mA or less	5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
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	1 mA or less with 100 VAC 2 mA or less with 200 VAC	1 mA or less		10 μA or less			0 mA					1 mA 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		Programmable controller, relay		Programmable controller dedicated		Programmable controller, relay	
Output method		NPN output							
Light	Installation position adjustment	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 20 mA		50 mA or less		5 to 20 mA		50 mA or less	
	Leakage current	1 mA or less		10 μA or less		1.2 mA or less		10 μA or less	
Preventive maintenance output	Load voltage	30 VDC or less							
	Load current	20 mA or less		50 mA or less		5 to 20 mA or less		50 mA or less	
	Leakage current	10 μA or less							

Note 1: Refer to Ending 1 for other switch specifications.

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

Cylinder weight

Cylinder weight										(Unit: kg)
Bore size (mm)	Product weight when stroke length (S) = 0 mm						Weight per switch (including mounting bracket)			Additional weight per S = 100 mm
	Basic type (00)	Foot type (LB)	Flange type (FA and FB)	Eye bracket type (CA)	Clevis bracket type (CB)	Trunnion type (TA, TB or TC)	T type	T2YD type		
								1 m	3 m	
φ40	1.15	1.32	1.56	1.47	1.51	1.53	0.018	0.08	0.17	0.55
φ50	1.63	1.88	2.12	2.01	2.04	2.17				0.71
φ63	2.06	2.43	3.15	2.63	2.68	2.91				0.75
φ80	3.66	4.40	5.52	4.93	5.14	5.00				1.29
φ100	5.70	6.61	8.44	7.34	7.52	8.27				1.67
(E.g.) Product weight of SCA2-D-LB-50B-200-T0H-D — Product weight when S = 0 mm ... 1.88 kg Additional weight at stroke length 200 mm ... $0.71 \times \frac{200}{100} = 1.42$ kg. Weight of two switches ... $0.018 \times 2 = 0.036$ kg. Product weight ... $1.88 + 1.42 + 0.036$ kg = 3.336 kg										

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

Medium bore size cylinder
Standard type

How to order

Without switch

SCA2-D - LB - 40 - B - 100 - S - I

With switch

SCA2-D - LB - 40 - B - 100 - T0 - R - S - I

A Mounting style
Note 1

B Bore size

C Port thread type

D Cushion

E Stroke length
Note 2

F Switch model no.

G Switch quantity
Note 4

H Option
Note 5

I Accessory

Symbol	Descriptions
A Mounting style	
00	Basic type
LB	Axial foot type
FA	Rod end flange type
FB	Head end flange type
TC	Center trunnion type
TA	Rod end trunnion type
TB	Head end trunnion type
TF	Intermediate supporting hole (φ40 cannot be selected.)
TD	Rod end supporting hole (φ40 cannot be selected.)
TE	Head end supporting hole (φ40 cannot be selected.)

B Bore size (mm)	
40	φ 40
50	φ 50
63	φ 63
80	φ 80
100	φ 100

C Port thread type	
Blank	Rc thread
N	NPT thread (custom order)
G	G thread (custom order)

D Cushion	
B	Both sides cushioned
R	Rod end cushion
H	Head end cushion
N	No cushion

E Stroke length (mm)			
Bore size	Stroke length Note 3	Available stroke length	Custom stroke length
φ40	1 to 600	800	Per 1 mm increment
φ50	1 to 600	800	
φ63	1 to 600	800	
φ80	1 to 700	800	
φ100	1 to 800	800	

F Switch model no.	
Refer to the switch model no. table on the following page.	

*Lead wire length	
Blank	1m (standard)
3	3m (option)
5	5m (option)

G Switch quantity	
R	One on rod end
H	One on head end
D	Two
T	Three

H Option			
		Max. ambient temperature	Instantaneous max. temperature
J	Bellows	100 °C	200 °C
L	Bellows	250 °C	400 °C
M	Piston rod material (stainless steel)		
Blank	Cushion needle position R (standard)		
S	Cushion needle position S		
T	Cushion needle position T		
P6	Copper and PTFE free (custom order)		

I Accessory	
I	Rod eye
Y	Rod clevis (pin and snap ring attached)
B4	Trunnion type No. 2 bracket

Note on model no. selection

Note 1: The mounting bracket is shipped with the product.
(However, trunnion type is attached to the product when shipped.)

Note 2: If the maximum stroke is exceeded, refer to Ending 74.

Note 3: Refer to page 522 for min. stroke length.

Note 4: 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 5: Instantaneous maximum temperature is the temperature when spark and spatter etc. instantaneously contacts to bellows.

Note 6: Refer to Ending 89 for custom specifications of rod end form.

Note 7: Refer to page 436 for variation and option combination.

<Example of model number>

SCA2-D-LB-40B-100-T0-R-SI

Model: Medium bore size cylinder double acting double rod type

- A Mounting style : Axial foot type
- B Bore size : φ 40 mm
- C Port thread type : Rc thread
- D Cushion : Both sides cushioned
- E Stroke length : 100 mm
- F Switch model no. : Reed T0 switch, lead wire length 1 m
- G Switch quantity : One on rod end
- H Option : Cushion needle position S
- I Accessory : Rod eye

How to order mounting bracket

Bore size (mm)	φ40	φ50	φ63	φ80	φ100
Mounting bracket					
Foot (LB)	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100

Note 1: Refer to page 448 for the mounting bracket material.

Note 2: The foot type bracket is 2 pcs./set.

[F] switch model no.

T type switch model no.				
Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T0H*	T0V*	Reed	1 color indicator type	2-wire
T5H*	T5V*		Without indicator light	
T8H*	T8V*		1 color indicator type	
T1H*	T1V*	Proximity	1 color indicator type	2-wire
T2H*	T2V*			3-wire
T3H*	T3V*			
T2YH*	T2YV*		2 color indicator type	2-wire
T3YH*	T3YV*			3-wire
T3PH*	T3PV*		1 color indicator type (custom order)	3-wire
T2YFH*	T2YFV*		2 color indicator type (Without light for preventive maintenance output)	3-wire
T3YFH*	T3YFV*			4-wire
T2YMH*	T2YMV*		2 color indicator type (Without light for preventive maintenance output)	3-wire
T3YMH*	T3YMV*			4-wire
T2YD*	-		Strong magnetic field proof switch	2-wire
T2YDT*	-			
T2JH*	T2JV*		Off-delay type	2-wire

R type switch				
Grommet type	Terminal box type		Contact	Indicator
	Standard type	Splash prf.		
R0*	R0B	R0A		1 color indicator type

These types have been changed to T-switch integrated type since Oct 1st 2007.

How to order switch

(T type switch)

● Switch body + mounting bracket

SCA2 - **T0H** - **40**

Switch model no.
(Item ⑤ previous page)

Bore size
(Item ⑥ previous page)

● Only switch body

SW - **T0H**

Switch model no.
(Item ⑤ previous page)

● Switch bracket set

SCA2 - **TS** - **40**

Bracket

Bore size
(Item ⑥ previous page)

* Consult with CKD when using the environment compatible T-type switch.

(T2YD type switch)

● Switch body + mounting bracket

SCA2 - **T2YD** - **40**

Switch model no.
(Item ⑤ previous page)

Bore size
(Item ⑥ previous page)

● Only switch body

SW - **T2YD**

Switch model no.
(Item ⑤ previous page)

● Mounting bracket

SCA2 - **T** - **40**

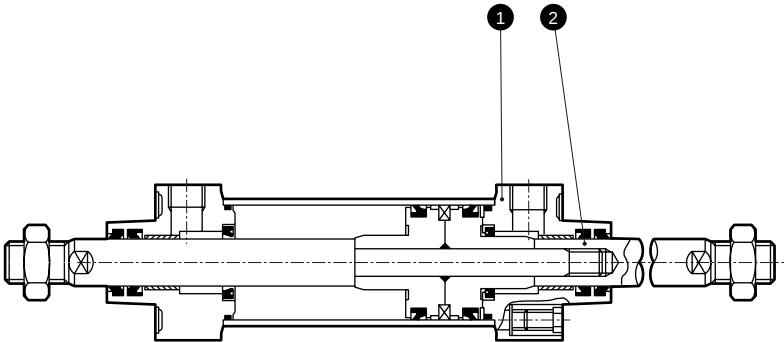
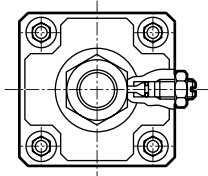
Bore size
(Item ⑥ previous page)

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

Medium bore size cylinder
Standard type

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

Internal structure and parts list



Note: Materials other than right table are the same as double acting single rod type (SCA2) on page 448.

No.	Parts name	Material	Remarks
1	Rod cover T	Aluminum alloy die-casting	Paint
2	Piston rod (2)	Steel	Industrial chrome plating

Repair parts list

Part numbers follow the SCA2 Series internal structure drawing (page 448).

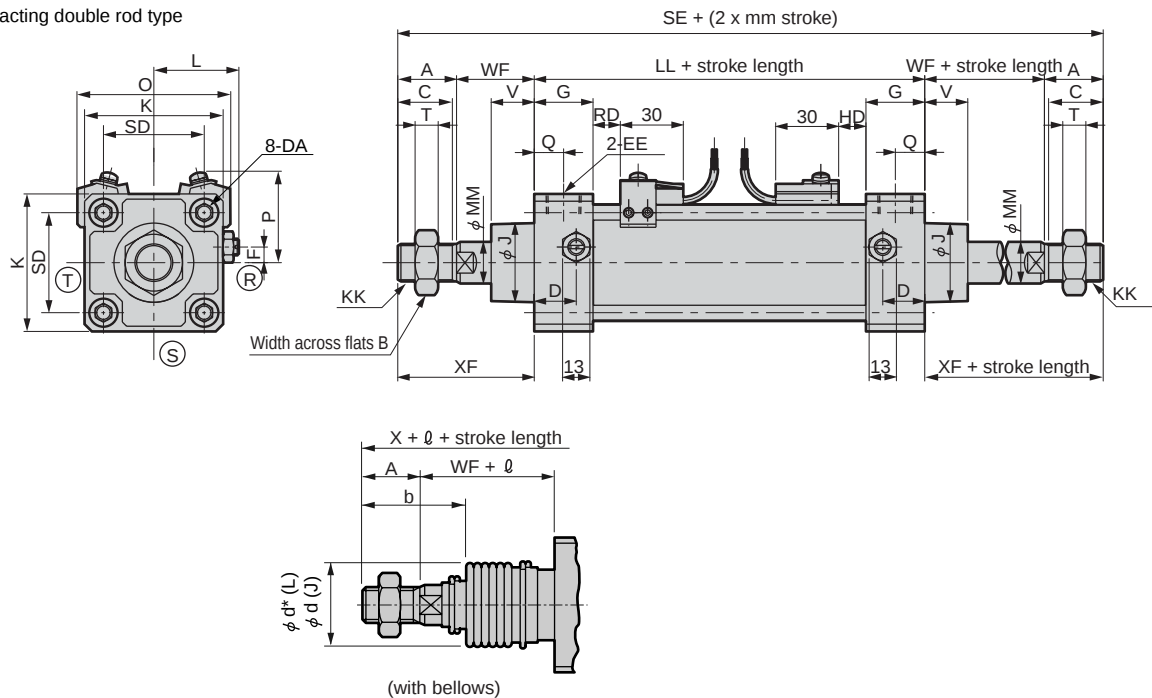
Bore size (mm)	Kit No.	Repair parts number
φ 40	SCA2-D-40K	3 4 8 9 12 15 21
φ 50	SCA2-D-50K	
φ 63	SCA2-D-63K	
φ 80	SCA2-D-80K	
φ 100	SCA2-D-100K	

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

Dimensions



- Double acting double rod type



Note 1: (R)(S)(T) indicates a cushion needle position. Note 2: The position of the across flat for catching the wrench on the left and right is not specified. Note 2: Refer to page 597 for the projecting dimensions of T2YD switch. Note 3: Refer to page 598, 599 for accessory dimensions.

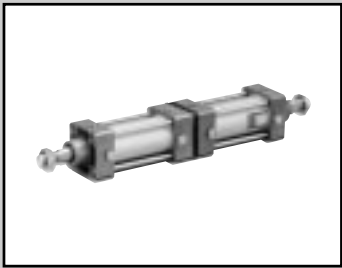
Symbol	Basic dimensions																				
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	Q	SE	SD	T	V	WF	XF
φ 40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	13	204	40.5	8	18.5	33.5	55.5
φ 50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	14	231	48	11	20.5	37	65
φ 63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	15	231	59	11	21	35	63
φ 80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	17	284	74	13	23.5	48	84
φ 100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	18	324	90	16	32	53	98
Symbol	With switch						With bellows														
	O	P	T0, T5, T2, T3		T1, T2Y, T3Y, T2YF/M		T8	A	X	b	d	d*	ℓ								
			RD	HD	RD	HD							RD/HD	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
φ 40	66	41.5	11	11	10	10	5	22	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	
φ 50	73	43	13	13	12	12	7	28	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	
φ 63	85	47	13	13	12	12	7	28	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	
φ 80	105	57	14.5	14.5	13.5	13.5	8.5	36	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	
φ 100	121	63	18.5	18.5	17.5	17.5	12.5	45	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	

Each mounting style installation dimension is same as SCA2 (standard). Refer to pages 450 to 455.

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

Medium bore size cylinder
Standard type

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

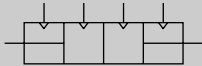


Medium bore size cylinder
 Double acting, back to back type

SCA2-B Series

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

JIS symbol



Specifications

Descriptions		SCA2-B (back to back type)				
Bore size	mm	φ 40	φ 50	φ 63	φ 80	φ 100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure	MPa	1.0				
Min. working pressure	MPa	0.05				
Withstanding pressure	MPa	1.6				
Ambient temperature		-10 to 60 (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance		mm ^{+0.9} ₀ (Up to 360), ^{+1.4} ₀ (Up to 800)				
Working piston speed		mm/s 50 to 1000 (use within the allowable energy absorption.)				
Cushion		Air cushion				
Effective cushion length	mm	14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)				
Allowable energy absorption J	Cushioned	4.29	8.37	15.8	27.9	49.8
	No cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
ϕ 40	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	600	1 (both first and second stage)
ϕ 50			
ϕ 63			
ϕ 80		700	
ϕ 100		800	

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

Min. stroke length of type with switch

● T0/T5 type min. stroke length with switch

Switch quantity	Different surface installation				Same surface 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.
	1	2	3	4	1	2	3	4	1	1
ϕ 40	20 (10)	20 (20)	40 (40)	60 (60)	20 (10)	60 (45)	105 (75)	150 (105)	50 (50)	50 (50)
ϕ 50	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	20 (20)	65 (50)	65 (60)	60 (60)	60 (60)
ϕ 63	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	20 (20)	70 (55)	70 (60)	50 (45)	50 (45)
ϕ 80	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	55 (40)	55 (40)
ϕ 100	15 (15)	25 (25)	45 (45)	70 (70)	15 (15)	25 (25)	70 (55)	70 (70)	60 (45)	60 (45)

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 min. stroke length with switch

Switch quantity	Different surface installation				Same surface 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.
	1	2	3	4	1	2	3	4	1	1
ϕ 40	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	50 (35)	95 (65)	140 (95)	45 (40)	45 (40)
ϕ 50	10 (10)	20 (20)	40 (40)	60 (60)	10 (10)	20 (20)	70 (55)	70 (60)	50 (50)	50 (50)
ϕ 63	10 (10)	20 (20)	40 (40)	60 (60)	10 (10)	20 (20)	70 (55)	70 (60)	45 (35)	45 (35)
ϕ 80	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	50 (35)	50 (35)
ϕ 100	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	55 (40)	55 (40)

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.

Min. stroke length of type with switch

● T2/T3 type min. stroke length with switch

Switch quantity	Different surface installation				Same surface 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.
	1	2	3	4	1	2	3	4	1	1
φ40	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	50 (35)	50 (35)
φ50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	45 (30)	45 (30)
φ63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	50 (35)	50 (35)
φ80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	55 (40)	55 (40)
φ100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	60 (45)	60 (45)

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 min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
φ40	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
φ50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	100 (70)	100 (70)	100 (75)	100 (75)	45 (30)	45 (30)
φ63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	105 (75)	105 (75)	105 (85)	105 (85)	50 (35)	50 (35)
φ80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	110 (80)	110 (80)	110 (90)	110 (90)	55 (40)	55 (40)
φ100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	120 (90)	120 (90)	120 (100)	120 (100)	60 (45)	60 (45)

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

Medium bore size cylinder
Standard type

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

Switch specifications (T type switch)

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

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

Descriptions	Proximity 2-wire			Proximity 3-wire			Reed 2-wire						Proximity 2-wire	
	T1H/T1V	T2H/T2V T2JH/T2JV	T2YH/T2YV	T3H/T3V	T3PH/T3PV (Custom order)	T3YH/T3YV	T0H/T0V	T5H/T5V	T8H/T8V			T2YD		
Applications	Programmable controller relay, small solenoid valve	Programmable controller dedicated		Programmable controller, relay			Programmable controller, relay	Programmable controller, relay, IC circuit (w/o light), serial connection	Programmable controller, relay			Programmable controller dedicated		
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 100 mA	5 to 20 mA (Note 1)		100 mA or less		50 mA or less	5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
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	1 mA or less with 100 VAC 2 mA or less with 200 VAC	1 mA or less		10 μA or less			0 mA						1 mA 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		Programmable controller, relay		Programmable controller dedicated		Programmable controller, relay	
Output method		NPN output							
Light	Installation position adjustment	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 20 mA		50 mA or less		5 to 20 mA		50 mA or less	
	Leakage current	1 mA or less		10 μA or less		1.2 mA or less		10 μA or less	
Preventive maintenance output	Load voltage	30 VDC or less							
	Load current	20 mA or less		50 mA or less		5 to 20 mA or less		50 mA or less	
	Leakage current	10 μA or less							

Note 1: Refer to Ending 1 for other switch specifications.

Note 2: Max. load current above: 20 mA at 25℃. The current will be lower than 20 mA if ambient temperature around switch is higher than 25℃.
(5 to 10 mA at 60℃)

Cylinder weight

Cylinder weight										(Unit: kg)
Bore size (mm)	Product weight when stroke length (S) = 0 mm						Weight per switch (including mounting bracket)			Additional weight per S = 100 mm
	Basic type (00)	Foot type (LB)	Flange type (FA and FB)	Eye bracket type (CA)	Clevis bracket type (CB)	Trunnion type (TA, TB or TC)	T type	T2YD type		
								1 m	3 m	
φ40	1.66	1.83	2.07	1.98	2.02	2.04	0.018	0.08	0.17	0.78
φ50	2.40	2.65	2.89	2.78	2.81	2.94				0.92
φ63	3.20	3.57	4.29	3.77	3.82	4.05				1.00
φ80	5.20	5.94	7.06	6.47	6.68	6.54				1.80
φ100	8.40	9.31	11.14	10.04	10.22	10.97				2.24

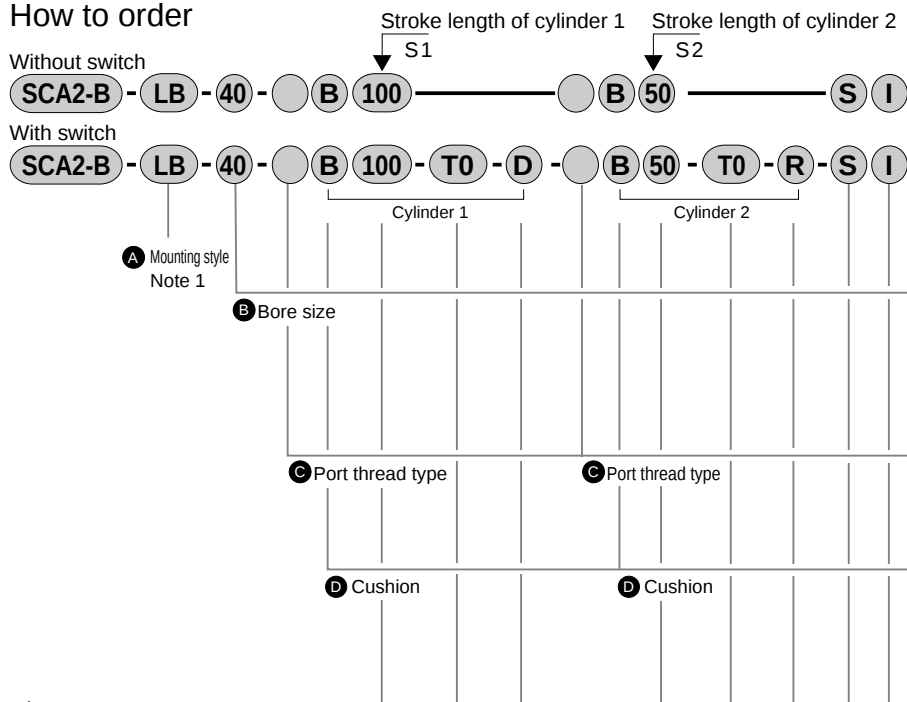
(E.g.) Product weight of SCA2-B-LB-50B-200-T0H-D

Product weight at S = 0 mm ... 2.65 kg
 Additional weight at S = 200 mm ... $0.92 \times \frac{200}{100} = 0.92$ kg
 Weight of two switches ... $0.018 \times 2 = 0.036$ kg.
 Product weight ... $2.65 + 1.84 + 0.036$ kg = 4.526 kg

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

Medium bore size cylinder
Standard type

How to order



Symbol	Descriptions
A Mounting style	
00	Basic type
LB	Axial foot type
FA	Rod end flange type
TA	Rod end trunnion type
TB	Head end trunnion type
TD	Rod end supporting hole (φ 40 cannot be selected)
TE	Head end supporting hole (φ 40 cannot be selected)

B Bore size (mm)	
40	φ 40
50	φ 50
63	φ 63
80	φ 80
100	φ 100

C Port thread type	
Blank	Rc thread
N	NPT thread (custom order)
G	G thread (custom order)

D Cushion	
B	Both sides cushioned
R	Rod end cushion
H	Head end cushion
N	No cushion

E Stroke length (mm)		
Bore size	Stroke length Note 3	Custom stroke length
φ40	1 to 600	Per 1 mm increment
φ50	1 to 600	
φ63	1 to 600	
φ80	1 to 700	
φ100	1 to 800	

F Switch model no.	
Refer to the switch model no. table on the following page.	
*Lead wire length	
Blank	1m (standard)
3	3m (option)
5	5m (option)

G Switch quantity	
R	One on rod end
H	One on head end
D	Two
T	Three

H Option			
		Max. ambient	Max. instantaneous
J	Bellows	100 °C	200 °C
L	Bellows	250 °C	400 °C
M	Piston rod material (stainless steel)		
Blank	Cushion needle position R (standard)		
S	Cushion needle position S		
T	Cushion needle position T		
P6	Copper and PTFE free (custom order)		

I Accessory	
I	Rod eye
Y	Rod clevis (pin and snap ring attached)
B4	Trunnion type No. 2 bracket

Note on model no. selection

Note 1: The mounting bracket is shipped with the product. (However, trunnion type is attached to the product when shipped.)

Note 2: If the maximum stroke is exceeded, refer to Ending 74.

Note 3: Refer to page 530 for min. stroke length.

Note 4: 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 5: Instantaneous maximum temperature is the temperature when spark and spatter etc. instantaneously contacts to bellows.

Note 6: Refer to Ending 89 for custom specifications of rod end form.

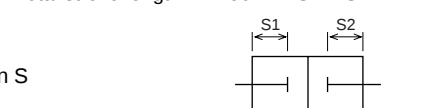
Note 7: Refer to page 436 for variation and option combination.

<Example of model number>

SCA2-B-LB-40-B100-T0-D-B50-T0-R-SI

Model: Medium bore size cylinder double acting back to back type

- A Mounting style: Axial foot type
- B Bore size : φ 40 mm
- C Port thread type : Rc thread
- D Cushion : Both sides cushioned
- E Stroke length S1 : 100 mm
- F Switch model no. : Reed T0 switch, Lead wire 1 m
- G Switch quantity : 2
- C Port thread type : Rc thread
- D Cushion : Both sides cushioned
- E Stroke length S2 : 50 mm
- F Switch model no. : Reed T0 switch, Lead wire 1 m
- G Switch quantity : One on rod end
- H Option : Cushion needle position S
- I Accessory : Rod eye



How to order mounting bracket

Bore size (mm)	φ40	φ50	φ63	φ80	φ100
Mounting bracket					
Foot (LB)	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100

Note 1: Refer to page 448 for the mounting bracket material.

Note 2: The foot type bracket is 2 pcs./set.

[F] switch model no.

T type switch model no.				
Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T0H*	T0V*	Reed	1 color indicator type	2-wire
T5H*	T5V*		Without indicator light	
T8H*	T8V*		1 color indicator type	
T1H*	T1V*	Proximity	1 color indicator type	2-wire
T2H*	T2V*		2 color indicator type	3-wire
T3H*	T3V*			2-wire
T2YH*	T2YV*			3-wire
T3YH*	T3YV*		1 color indicator type (custom order)	3-wire
T3PH*	T3PV*			3-wire
T2YFH*	T2YFV*			3-wire
T3YFH*	T3YFV*		2 color indicator type (Without light for preventive maintenance output)	4-wire
T2YMH*	T2YMV*		2 color indicator type (With light for preventive maintenance output (1 color))	3-wire
T3YMH*	T3YMV*			4-wire
T2YD*	-	Strong magnetic field proof switch	Off-delay type	2-wire
T2YDT*	-			2-wire
T2JH*	T2JV*			

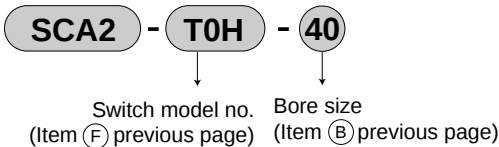
R type switch				
Grommet type	Terminal box type		Contact	Indicator
	Standard type	Splash prf.		Lead wire
R0*	R0B	R0A		1 color indicator type

These types have been changed to T-switch integrated type since Oct 1st 2007.

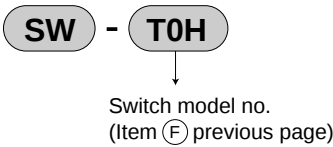
How to order switch

(T type switch)

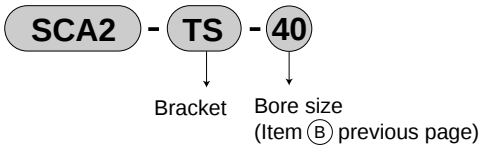
● Switch body + mounting bracket



● Only switch body



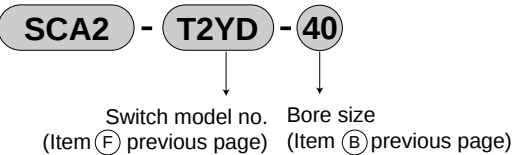
● Switch bracket set



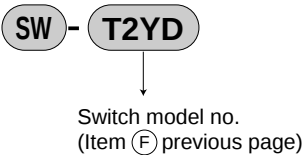
* Consult with CKD when using the environment compatible T-type switch.

(T2YD type switch)

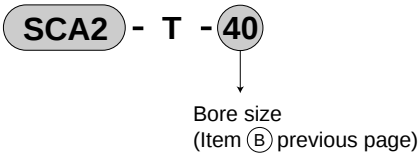
● Switch body + mounting bracket



● Only switch body



● Mounting bracket

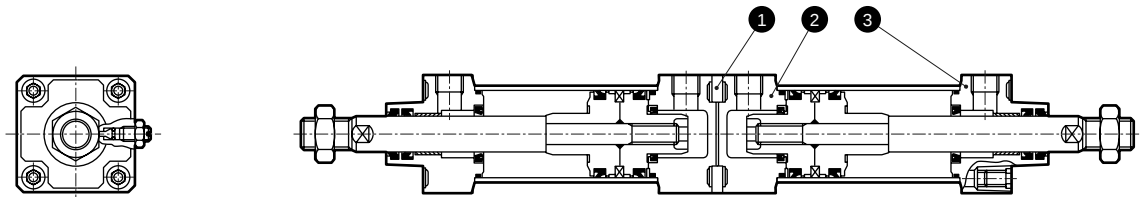


SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Medium bore size cylinder
Standard type

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

Internal structure and parts list



Note: Materials other than the table below are the same as double acting single rod type (SCA2) on page 448.

No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Spacer	Steel	Phosphoric acid mangan treatment	3	Rod cover T	Aluminum alloy die-casting	Paint
2	Head cover T	Aluminum alloy die-casting	Paint				

Repair parts list

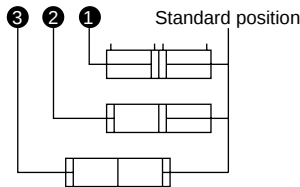
Part numbers follow the SCA2 Series internal structure drawing (page 448).

Bore size (mm)	Kit No.	Repair parts number
ϕ 40	SCA2-B-40K	
ϕ 50	SCA2-B-50K	3 4 8 9 12
ϕ 63	SCA2-B-63K	15 21
ϕ 80	SCA2-B-80K	
ϕ 100	SCA2-B-100K	

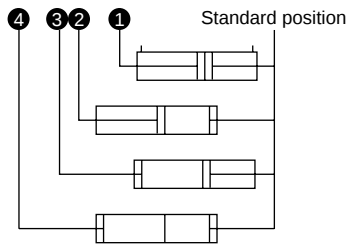
Note: Specify the kit No. when placing an order

Applications

Three positions are available when the same stroke is combined.

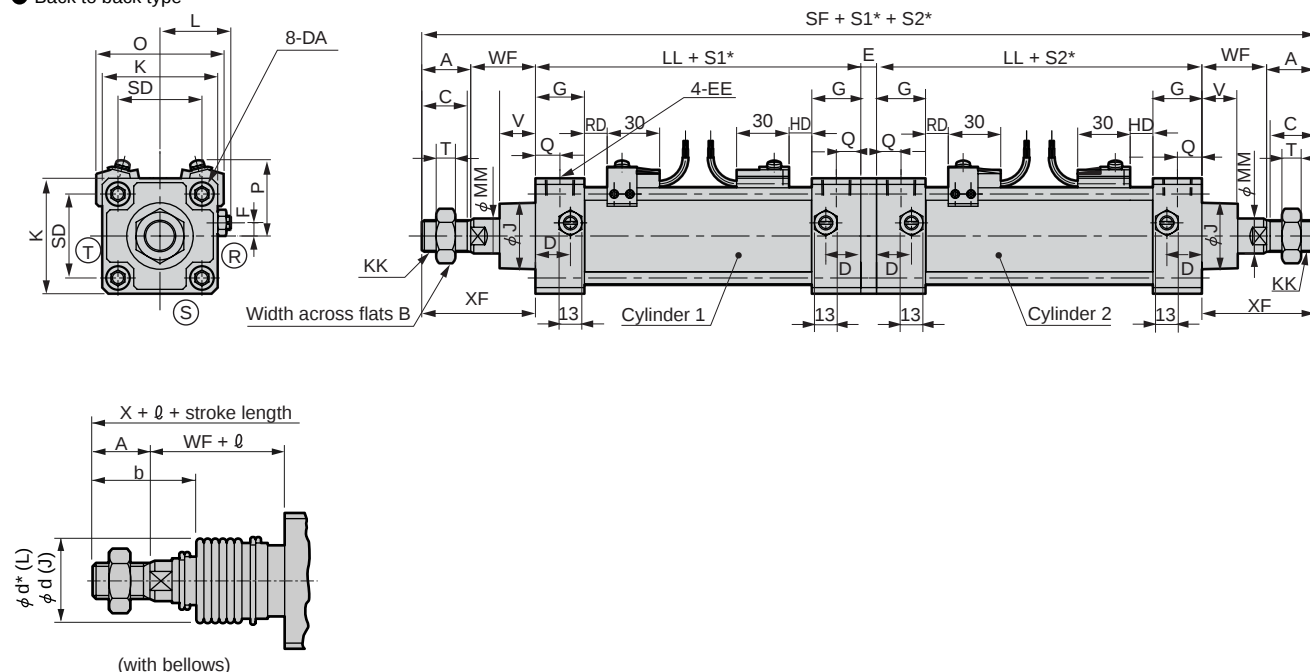


Four positions are available when different strokes are combined.



Dimensions

● Back to back type



Note 1: (R)(S)(T) indicates a cushion needle position. Note 2: S1: Stroke length of cylinder 1, S2: Stroke length of cylinder 2

Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.

Note 3: Refer to page 598, 599 for accessory dimensions.

Symbol	A	B	C	D	E	F	DA	EE	G	J	K	KK	L	LL	MM	Q	SD	SF	T	V	WF	XF
Bore size (mm)																						
φ 40	22	22	20	18	4.5	7.5	M8	Rc1/4	26	31	57	M14 x 1.5	38 to 39.5	93	16	13	40.5	301.5	8	18.5	33.5	55.5
φ 50	28	27	26	20	9	0	M8	Rc3/8	28	38	66	M18 x 1.5	41 to 43.5	101	20	14	48	341	11	20.5	37	65
φ 63	28	27	26	22	9	0	M8	Rc3/8	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	15	59	345	11	21	35	63
φ 80	36	32	34	26	12	0	M12	Rc1/2	34	43	98	M22 x 1.5	56 to 59	116	25	17	74	412	13	23.5	48	84
φ 100	45	41	43	28	12	0	M12	Rc1/2	36	51	118	M26 x 1.5	66 to 69	128	30	18	90	464	16	32	53	98
Symbol	With switch						With bellows															
	O	P	T0, T5, T2, T3		T1, T2Y, T3Y or T2YF/M		T8	A	X	b	d	d*	ℓ									
			RD	HD	RD	HD							RD/HD	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500	
φ 40	66	41.5	11	11	10	10	5	22	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8		
φ 50	73	43	13	13	12	12	7	28	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5		
φ 63	85	47	13	13	12	12	7	28	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5		
φ 80	105	57	14.5	14.5	13.5	13.5	8.5	36	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5		
φ 100	121	63	18.5	18.5	17.5	17.5	12.5	45	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9		

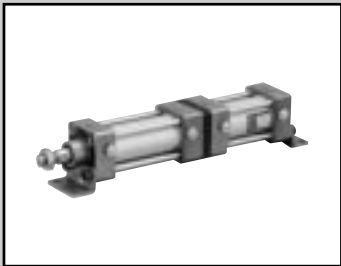
● Note: The φ40 cushion adjustment needle position is 7.5 mm above the center.

Each mounting style installation dimension is same as SCA2 (standard). Refer to pages 450 to 455.

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

Medium bore size cylinder
Standard type

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



Medium bore size cylinder
 Double acting, two stage type

SCA2-W Series

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



Specifications

Descriptions		SCA2-W (two stage type)				
Bore size	mm	φ 40	φ 50	φ 63	φ 80	φ 100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure	MPa	1.0 Note 1				
Min. working pressure	MPa	0.1				
Withstanding pressure	MPa	1.6				
Ambient temperature		-10 to 60 (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance		+0.9 0 (Up to 360), +1.4 0 (Up to 800)				
Working piston speed		mm/s 50 to 1000 (use within the allowable energy absorption.)				
Cushion		Air cushion				
Effective cushion length		mm 14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)				
Allowable energy absorption J	Cushioned	4.29	8.37	15.8	27.9	49.8
	No cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Note 1: If S1 and S2 are the same, the maximum working pressure is 0.5 MPa.

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
ϕ 40	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	600	2
ϕ 50			
ϕ 63			
ϕ 80		700	
ϕ 100		800	(Total stroke length)

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

Min. stroke length of type with switch

● T0/T5 type min. stroke length with switch

Switch quantity	Different surface installation				Same surface 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.
	1	2	3	4	1	2	3	4	1	1
ϕ 40	20 (10)	20 (20)	40 (40)	60 (60)	20 (10)	60 (45)	105 (75)	150 (105)	50 (50)	50 (50)
ϕ 50	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	20 (20)	65 (50)	65 (60)	60 (60)	60 (60)
ϕ 63	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	20 (20)	70 (55)	70 (60)	50 (45)	50 (45)
ϕ 80	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	55 (40)	55 (40)
ϕ 100	15 (15)	25 (25)	45 (45)	70 (70)	15 (15)	25 (25)	70 (55)	70 (70)	60 (45)	60 (45)

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 min. stroke length with switch

Switch quantity	Different surface installation				Same surface 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.
	1	2	3	4	1	2	3	4	1	1
ϕ 40	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	50 (35)	95 (65)	140 (95)	45 (40)	45 (40)
ϕ 50	10 (10)	20 (20)	40 (40)	60 (60)	10 (10)	20 (20)	70 (55)	70 (60)	50 (50)	50 (50)
ϕ 63	10 (10)	20 (20)	40 (40)	60 (60)	10 (10)	20 (20)	70 (55)	70 (60)	45 (35)	45 (35)
ϕ 80	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	50 (35)	50 (35)
ϕ 100	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	55 (40)	55 (40)

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.

Min. stroke length of type with switch

● T2/T3 type min. stroke length with switch

Switch quantity	Different surface installation				Same surface 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.
	1	2	3	4	1	2	3	4	1	1
φ40	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	50 (35)	50 (35)
φ50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	45 (30)	45 (30)
φ63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	50 (35)	50 (35)
φ80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	55 (40)	55 (40)
φ100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	60 (45)	60 (45)

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 min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
φ40	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
φ50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	100 (70)	100 (70)	100 (75)	100 (75)	45 (30)	45 (30)
φ63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	105 (75)	105 (75)	105 (85)	105 (85)	50 (35)	50 (35)
φ80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	110 (80)	110 (80)	110 (90)	110 (90)	55 (40)	55 (40)
φ100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	120 (90)	120 (90)	120 (100)	120 (100)	60 (45)	60 (45)

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

Medium bore size cylinder
Standard type

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

Switch specifications (T type switch)
● 1color / 2 color indicator, strong magnetic field proof

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

Descriptions	Proximity 2-wire			Proximity 3-wire			Reed 2-wire					Proximity 2-wire		
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/T2YV	T3H/T3V	T3PH/T3PV (Custom order)	T3YH/T3YV	T0H/T0V	T5H/T5V	T8H/T8V		T2YD			
Applications	Programmable controller relay, small solenoid valve	Programmable controller dedicated		Programmable controller, relay			Programmable controller, relay	Programmable controller, relay, IC circuit (w/o light), serial connection	Programmable controller, relay		Programmable controller dedicated			
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 100 mA	5 to 20 mA (Note 1)		100 mA or less		50 mA or less	5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
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	1 mA or less with 100 VAC 2 mA or less with 200 VAC	1 mA or less		10 μA or less			0 mA					1 mA 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		Programmable controller, relay		Programmable controller dedicated		Programmable controller, relay	
Output method		NPN output							
Light	Installation position adjustment	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 20 mA		50 mA or less		5 to 20 mA		50 mA or less	
	Leakage current	1 mA or less		10 μA or less		1.2 mA or less		10 μA or less	
Preventive maintenance output	Load voltage	30 VDC or less							
	Load current	20 mA or less		50 mA or less		5 to 20 mA or less		50 mA or less	
	Leakage current	10 μA or less							

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

Cylinder weight

Cylinder weight										(Unit: kg)
Bore size (mm)	Product weight when stroke length (S) = 0 mm						Weight per switch (including mounting bracket)			Additional weight per S = 100 mm
	Basic type (00)	Foot type (LB)	Flange type (FA and FB)	Eye bracket type (CA)	Clevis bracket type (CB)	Trunnion type (TA, TB, TC)	T type	T2YD type		
								1 m	3 m	
φ40	1.34	1.51	1.75	1.66	1.70	1.72	0.018	0.08	0.17	0.78
φ50	1.97	2.22	2.46	2.35	2.38	2.51				0.92
φ63	2.74	3.11	3.83	3.31	3.36	3.59				1.00
φ80	4.14	4.88	6.00	5.41	5.62	5.48				1.80
φ100	6.90	7.81	9.64	8.54	8.72	9.47				2.24

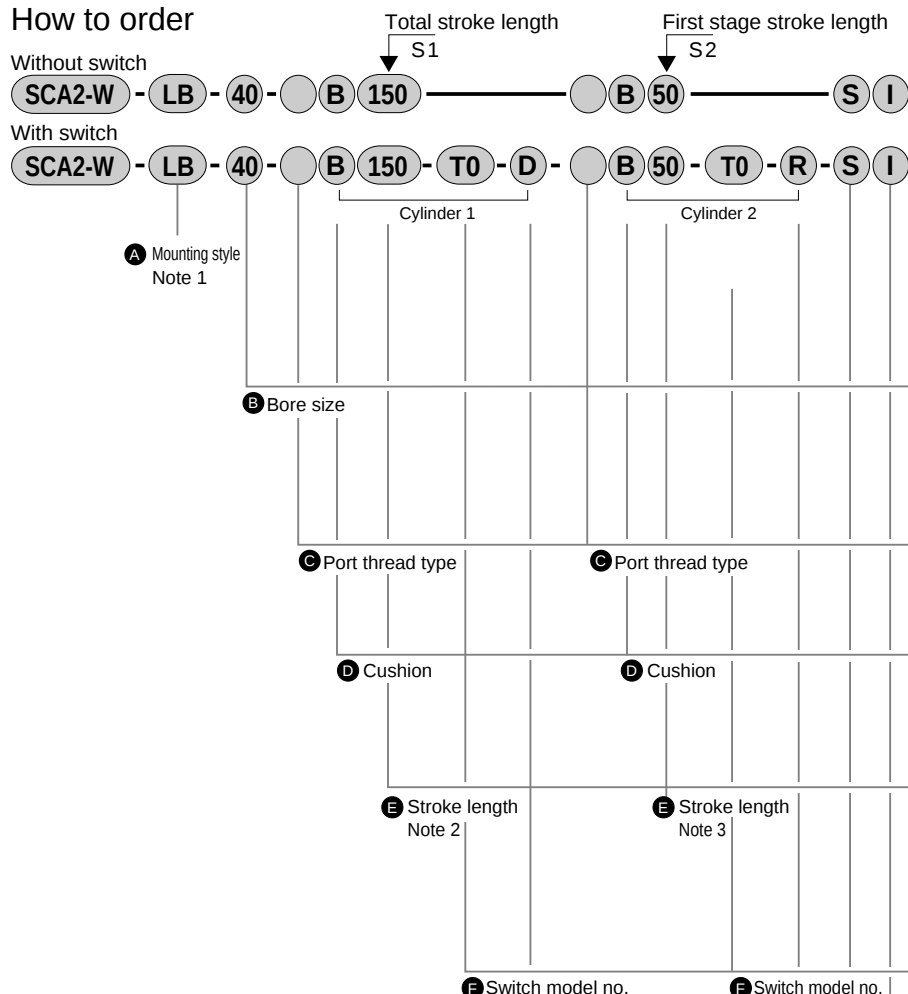
(E.g.) Product weight of SCA2-W-LB-50B-200-T0H-D

Product weight when S = 0 mm ... 2.22 kg
 Additional weight when S = 200 mm ... $0.92 \times \frac{200}{100} = 1.84$ kg
 Weight of two switches ... $0.018 \times 2 = 0.036$ kg.
 Product weight ... $2.22 + 1.84 + 0.036$ kg = 4.096 kg

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

Medium bore size cylinder
Standard type

How to order



Symbol	Descriptions
A Mounting style	
00	Basic type
LB	Axial foot type
FA	Rod end flange type
FB	Head end flange type
FC	Special head end flange type
CA	Eye bracket type
CB	Clevis bracket type (pin and snap ring attached)
TA	Rod end trunnion type
TB	Head end trunnion type
TD	Rod end supporting hole (φ40 cannot be selected)
TE	Head end supporting hole (φ40 cannot be selected)

B Bore size (mm)	
40	φ 40
50	φ 50
63	φ 63
80	φ 80
100	φ 100

C Port thread type	
Blank	Rc thread
N	NPT thread (custom order)
G	G thread (custom order)

D Cushion	
B	Both sides cushioned
R	Rod end cushion
H	Head end cushion
N	No cushion

E Stroke length (mm)		
Bore size	Stroke length Note 4	Custom stroke length
φ40	2 to 600	Per 1 mm increment
φ50	2 to 600	
φ63	2 to 600	
φ80	2 to 700	
φ100	2 to 800	

F Switch model no.	
Refer to the switch model no. table on the following page.	
*Lead wire length	
Blank	1m (standard)
3	3m (option)
5	5m (option)

G Switch quantity	
R	One on rod end
H	One on head end
D	Two
T	Three

H Option			
		Max. ambient	Max. instantaneous
J	Bellows	100 °C	200 °C
L	Bellows	250 °C	400 °C
M	Piston rod material (stainless steel)		
Blank	Cushion needle position R (standard)		
S	Cushion needle position S		
T	Cushion needle position T		
P6	Copper and PTFE free (custom order)		

I Accessory	
I	Rod eye
Y	Rod clevis (pin and snap ring attached)
B1	Eye bracket
B2	Clevis bracket (pin and snap ring attached)
B3	Eye bracket
B4	Trunnion type No. 2 bracket

Note on model no. selection

- Note 1: The mounting bracket is shipped with the product. However, trunnion type is attached to the product when shipped.
- Note 2: Refer to Ending 74 if the maximum stroke is exceeded.
- Note 3: Max. stroke length of S2 (first stage) is 200 mm.
- Note 4: Refer to page 538 for min. stroke length.
- Note 5: 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 6: Instantaneous maximum temperature is the temperature when spark and spatter etc. instantaneously contacts to bellows.
- Note 7: "I" and "Y" can not be selected at the same time.
- Note 8: Refer to Ending 89 for custom specifications of rod end form.
- Note 9: Refer to page 436 for variation and option combination.

<Example of model number>

SCA2-W-LB-40-B150-T0-D-B50-T0-R-SI

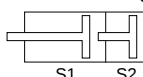
Model: Medium bore size cylinder double acting two stage type

- A Mounting style : Axial foot type
- B Bore size : φ 40 mm
- C Port thread type : Rc thread
- D Cushion : Both sides cushioned
- E Stroke length S1 : 150 mm
- F Switch model no. : Reed T0 switch, Lead wire 1 m
- G Switch quantity : 2
- C Port thread type : Rc thread
- D Cushion : Both sides cushioned
- E Stroke length S2 : 50 mm
- F Switch model no. : Reed T0 switch, Lead wire 1 m
- G Switch quantity : One on rod end
- H Option : Cushion needle position S
- I Accessory : Rod eye

Cylinder 1

Cylinder 2

First stage stroke length 50 mm displayed by S2
+ Second stage stroke length 100 mm
Total stroke length 150 mm displayed by S1



[F] switch model no.

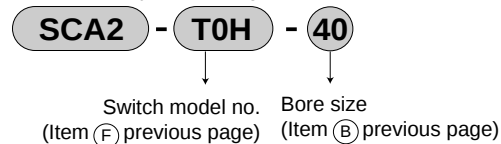
T type switch model no.				
Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T0H*	T0V*	Reed	1 color indicator type	2-wire
T5H*	T5V*		Without indicator light	
T8H*	T8V*		1 color indicator type	
T1H*	T1V*	Proximity	1 color indicator type	2-wire
T2H*	T2V*			3-wire
T3H*	T3V*		2 color indicator type	2-wire
T2YH*	T2YV*			3-wire
T3YH*	T3YV*		1 color indicator type (custom order)	3-wire
T3PH*	T3PV*		2 color indicator type (Without light for preventive maintenance output)	3-wire
T2YFH*	T2YFV*			4-wire
T3YFH*	T3YFV*		2 color indicator type (With light for preventive maintenance output (1 color))	3-wire
T2YMH*	T2YMV*			4-wire
T3YMH*	T3YMV*		Strong magnetic field proof switch	2-wire
T2YD*	-			
T2YDT*	-		Off-delay type	2-wire
T2JH*	T2JV*			

R type switch				
Grommet type	Terminal box type	Contact	Indicator	Lead wire
Standard type	Splash prf.			
These types have been changed to T-switch integrated type since Oct 1st 2007.				

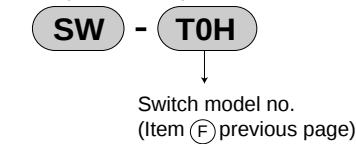
How to order switch

(T type switch)

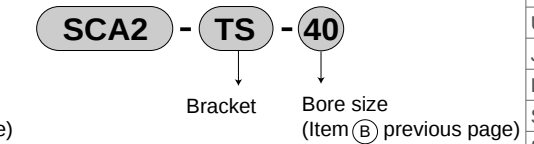
● Switch body + mounting bracket



● Only switch body



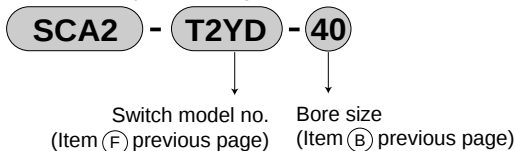
● Switch bracket set



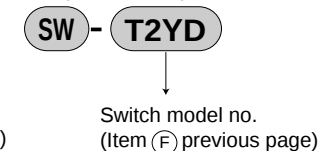
* Consult with CKD when using the environment compatible T-type switch.

(T2YD type switch)

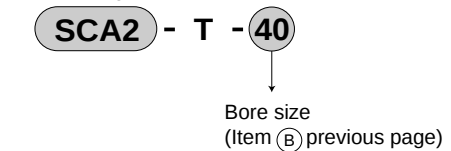
● Switch body + mounting bracket



● Only switch body



● Mounting bracket



How to order mounting bracket

Bore size (mm)	φ40	φ50	φ63	φ80	φ100
Mounting bracket					
Foot (LB)	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Eye (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

Note 1: Refer to page 448 for the mounting bracket material.

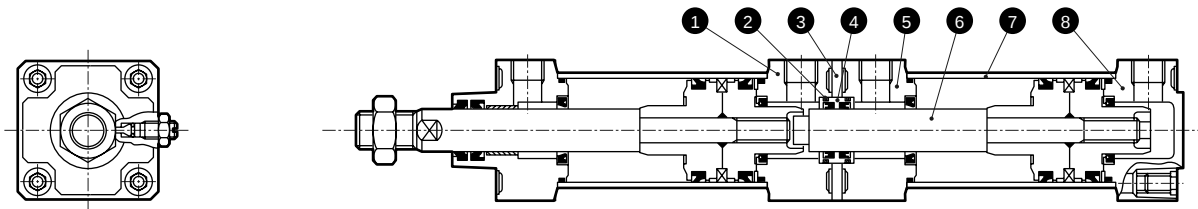
Note 2: The foot type bracket is 2 pcs./set.

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

Medium bore size cylinder
Standard type

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

Internal structure and parts list



Note: Materials other than the table below are the same as double acting single rod type (SCA2) on page 448.

No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Intermediate guard H	Aluminum alloy die-casting	Paint	5	Intermediate guard R	Aluminum alloy die-casting	Paint
2	Metal gasket	Nitrile rubber	O ring	6	Piston rod (2)	Steel	Industrial chrome plating
3	Spacer	Steel	Phosphoric acid mangan treatment	7	Cylinder tube	Aluminum alloy	Hard alumite treatment
4	Rod bushing	Cast iron	Phosphoric acid mangan treatment	8	Head cover	Aluminum alloy die-casting	Paint

Repair parts list

Part numbers follow the SCA2 Series internal structure drawing (page 448).

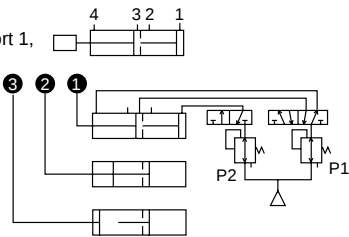
Bore size (mm)	Kit No.	Repair parts number
φ 40	SCA2-W-40K	
φ 50	SCA2-W-50K	2 3 4 8 9
φ 63	SCA2-W-63K	
φ 80	SCA2-W-80K	12 15 21
φ 100	SCA2-W-100K	

Note: Specify the kit No. when placing an order

Applications

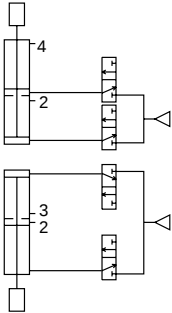
Pressure setting is $P2 > P1$.

- First stage: push-out with pressurizing to port 4, apply pressure to port 1.
- Second stage : push-out with supplying pressurizing to port 1, supply pressure to port 3.



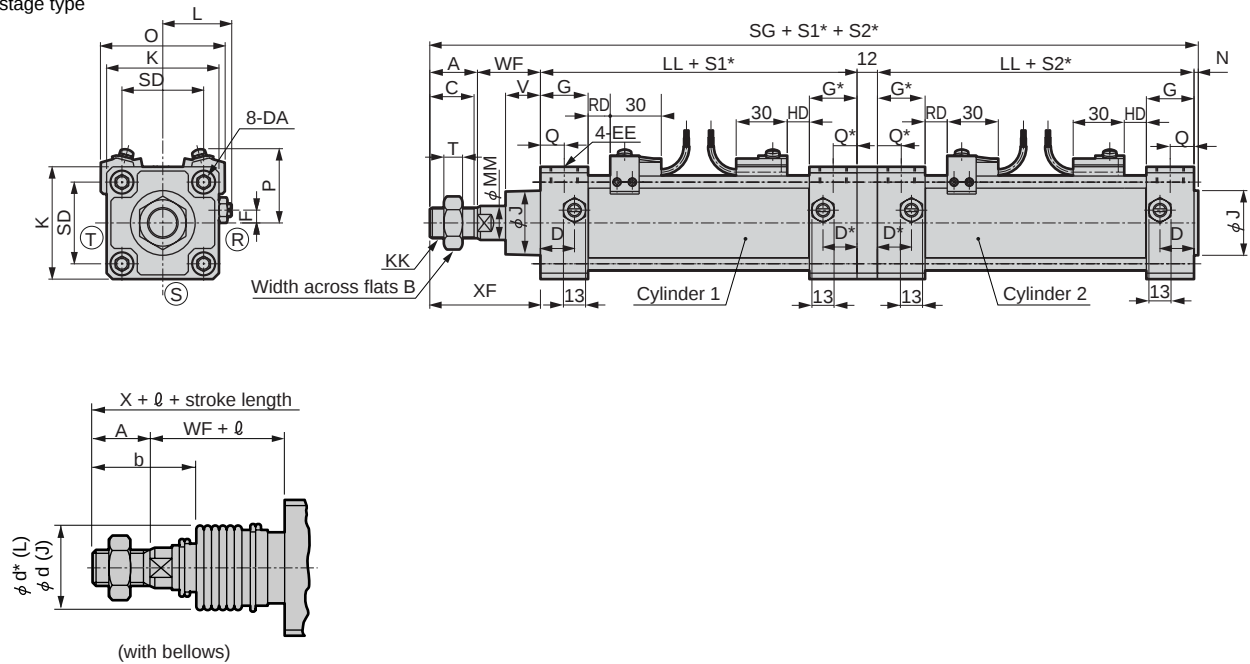
$P2 = P1$ is acceptable depending on a load direction.

When using a single acting cylinder with a load which drops by its own weight, for the drawing above, port 2 and 4 are used as bleed holes, while for the drawing below, port 2 and 3 are used as bleed holes. Basically, piping ports (2) not requiring piping improve the cushion effect.



Dimensions

● Two stage type



Note 1: (R)(S)(T) indicates a cushion needle position.

Note 2: S1: Stroke length of cylinder 1 (total stroke length) S2: Stroke length of cylinder 2 (stroke length of first stage)

Note 3: Refer to page 597 for the projecting dimensions of T2YD switch.

Note 4: Refer to pages 598, 599 for accessory dimensions.

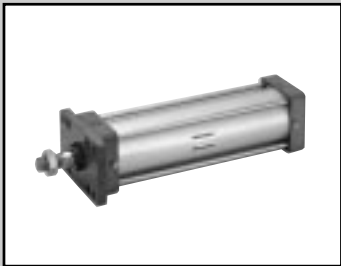
Symbol	A	B	C	D	D*	DA	EE	F	G	G*	J	K	KK	L	LL	MM	N	Q	Q*	SD	SG	T	
Bore size (mm)																							
φ 40	22	22	20	18	17.5	M 8	RC1/4	7.5	26	25.5	31	57	M14 x 1.5	38 to 39.5	92.5	16	2	13	12.5	40.5	254.5	8	
φ 50	28	27	26	20	19.5	M 8	RC3/8	0	28	27.5	38	66	M18 x 1.5	41 to 43.5	100.5	20	2.5	14	13.5	48	280.5	11	
φ 63	28	27	26	22	21.5	M 8	RC3/8	0	30	29.5	38	80	M18 x 1.5	47.5 to 50.0	104.5	20	3	15	14.5	59	287	11	
φ 80	36	32	34	26	25.5	M12	RC1/2	0	34	33.5	43	98	M22 x 1.5	56 to 59	115.5	25	3.5	17	16.5	74	330.5	13	
φ 100	45	41	43	28	28	M12	RC1/2	0	36	35.5	51	118	M26 x 1.5	66 to 69	127.5	30	4	18	18	90	369	16	
Symbol	With switch					With bellows																	
	V	WF	XF	O	P	T0, T5, T2, T3	T1, T2Y, T3Y, T2YF/M	T8	A	X	b	d	d*	ℓ									
						RD	HD	RD						HD	RD/HD	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
φ 40	18.5	33.5	55.5	66	41.5	11	11	10	10	5	22	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length(3.0) + 8
φ 50	20.5	37	65	73	43	13	13	12	12	7	28	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length(3.6) + 7.5
φ 63	21	35	63	85	47	13	13	12	12	7	28	171	45	47	48	22	36	49	63	90	119	146	(stroke length(3.6) + 7.5
φ 80	23.5	48	84	105	57	14.5	14.5	13.5	13.5	8.5	36	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length(4.3) + 2.5
φ 100	32	53	98	121	63	18.5	18.5	17.5	17.5	12.5	45	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length(4.5) + 9

Each mounting style installation dimension is same as SCA2 (standard). Refer to pages 450 to 455.

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

Medium bore size cylinder
Standard type

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

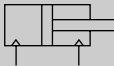


Medium bore size cylinder
 Double acting, steel tube type

SCA2-K Series

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

JIS symbol



Specifications

Descriptions		SCA2-K (steel tube type)				
Bore size	mm	φ 40	φ 50	φ 63	φ 80	φ 100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure	MPa	1.0				
Min. working pressure	MPa	0.05				
Withstanding pressure	MPa	1.6				
Ambient temperature		-10 to 60 (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance		$^{+0.9}_0$ (Up to 360), $^{+1.4}_0$ (Up to 800)				
Working piston speed		mm/s 50 to 1000 (use within the allowable energy absorption.)				
Cushion		Air cushion				
Effective cushion length	mm	14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)				
Allowable energy absorption J	Cushioned	4.29	8.37	15.8	27.9	49.8
	No cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Available stroke length (mm)	Min. stroke length (mm)	
φ40	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	600	1600	1	
φ50			1900		
φ63		700			
φ80					800
φ100					

Note 1: Custom stroke length is available per 1 mm increment.
 Note 2: If the maximum stroke is exceeded, product specifications may not be met, depending on operating conditions. Refer to Ending 74.

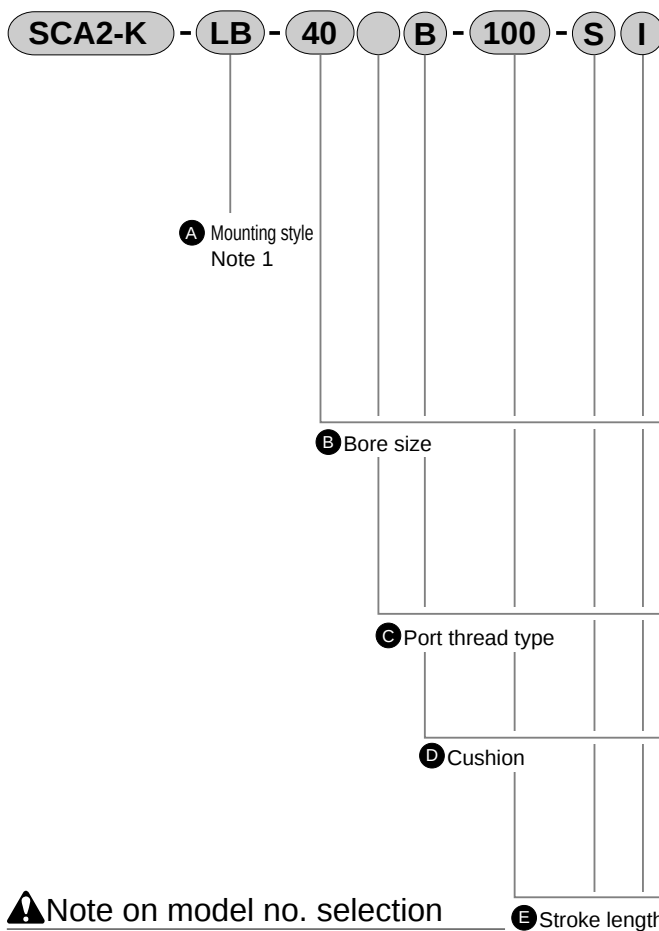
Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke length (S) = 0 mm						Additional weight per S = 100 mm
	Basic type (00)	Foot type (LB)	Flange type (FA, FB)	Eye bracket type (CA)	Clevis bracket type (CB)	Trunnion type (TA, TB, TC)	
ϕ 40	1.01	1.18	1.42	1.33	1.37	1.39	0.56
ϕ 50	1.42	1.67	1.91	1.80	1.83	1.96	0.72
ϕ 63	1.85	2.22	2.94	2.42	2.47	2.70	0.82
ϕ 80	2.94	3.68	4.80	4.21	4.42	4.28	1.37
ϕ 100	4.64	5.55	7.38	6.28	6.46	7.21	1.70

(E.g.) Product weight of SCA2-K-LB-50B-200 ———— $\left\{ \begin{array}{l} \text{Product weight when } S = 0 \text{ mm} \cdots 1.67 \text{ kg} \\ \text{Additional weight when } S = 200 \text{ mm} \cdots 0.72 \times \frac{200}{100} = 1.44 \text{ kg} \\ \text{Product weight} \cdots 1.67 + 1.44 = 3.11 \text{ kg} \end{array} \right.$

How to order



⚠ Note on model no. selection

- Note 1: The mounting bracket is shipped with the product.
(However, trunnion type is attached to the product when shipped.)
- Note 2: Refer to Ending 74 if the maximum stroke is exceeded.
- Note 3: Instantaneous maximum temperature is the temperature when spark and spatter etc. instantaneously contacts to bellows.
- Note 4: "I" and "Y" can not be selected at the same time.
- Note 5: Refer to Ending 89 for custom specifications of rod end form.
- Note 6: Refer to page 436 for variation and option combination.

<Example of model number>

SCA2-K-LB-40B-100-SI

Model: Medium bore size cylinder double acting standard single rod type, steel tube type

- A** Mounting style : Axial foot type
- B** Bore size : ϕ 40 mm
- C** Port thread type : Rc thread
- D** Cushion : Both sides cushioned
- E** Stroke length : 100 mm
- F** Option : Cushion needle position S
- G** Accessory : Rod eye

Symbol	Descriptions		
A Mounting style			
00	Basic type		
LB	Axial foot type		
FA	Rod end flange type		
FB	Head end flange type		
FC	Special head end flange type		
CA	Eye bracket type		
CB	Clevis bracket type (pin and snap ring attached)		
TC	Center trunnion type		
TA	Rod end trunnion type		
TB	Head end trunnion type		
TF	Intermediate supporting hole (φ 40 cannot be selected.)		
TD	Rod end supporting hole (φ 40 cannot be selected)		
TE	Head end supporting hole (φ 40 cannot be selected.)		
B Bore size (mm)			
40	φ 40		
50	φ 50		
63	φ 63		
80	φ 80		
100	φ 100		
C Port thread type			
Blank	Rc thread		
N	NPT thread (custom order)		
G	G thread (custom order)		
D Cushion			
B	Both sides cushioned		
R	Rod end cushion		
H	Head end cushion		
N	No cushion		
E Stroke length (mm)			
Bore size	Stroke length	Available stroke length	Custom stroke length
φ 40	1 to 600	1600	Per 1 mm increment
φ 50	1 to 600	1900	
φ 63	1 to 600	1900	
φ 80	1 to 700	1900	
φ 100	1 to 800	1900	
F Option			
		Max. ambient temperature	Instantaneous max. temperature
J	Bellows	100 °C	200 °C
L	Bellows	250 °C	400 °C
M	Piston rod material (stainless steel)		
Blank	Cushion needle position R (standard)		
S	Cushion needle position S		
T	Cushion needle position T		
P6	Copper and PTFE free (custom order)		
G Accessory			
I	Rod eye		
Y	Rod clevis (pin and snap ring attached)		
B1	Eye bracket		
B2	Clevis bracket (pin and snap ring attached)		
B3	Eye bracket		
B4	Trunnion type No. 2 bracket		

How to order mounting bracket

Bore size (mm)	ϕ 40	ϕ 50	ϕ 63	ϕ 80	ϕ 100
Mounting bracket					
Foot (LB)	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Eye (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

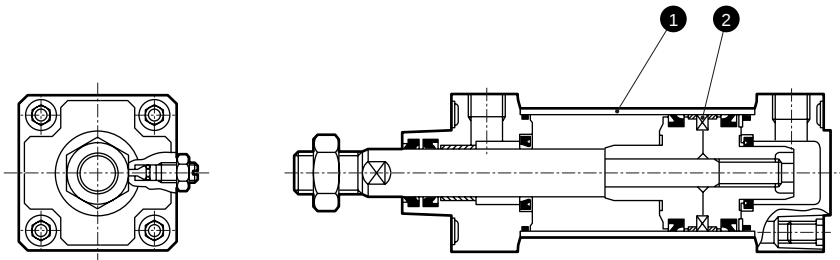
- Note 1: Refer to page 448 for the mounting bracket material.
- Note 2: The foot type bracket is 2 pcs./set.

SCA2*
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

Medium bore size cylinder
Standard type

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

Internal structure and parts list



No.	Parts name	Material	Remarks
1	Cylinder tube	Steel	Industrial chrome plating
2	Piston ring	Steel	Zinc chromate

- Note: Materials other than right table are the same as double acting standard single rod type (SCA2) on page 488.
- O.D. for $\phi 50$ to $\phi 100$ differ from the double acting standard single rod type.
Trunnion fittings are not compatible with double acting standard single rod type.

Repair parts list

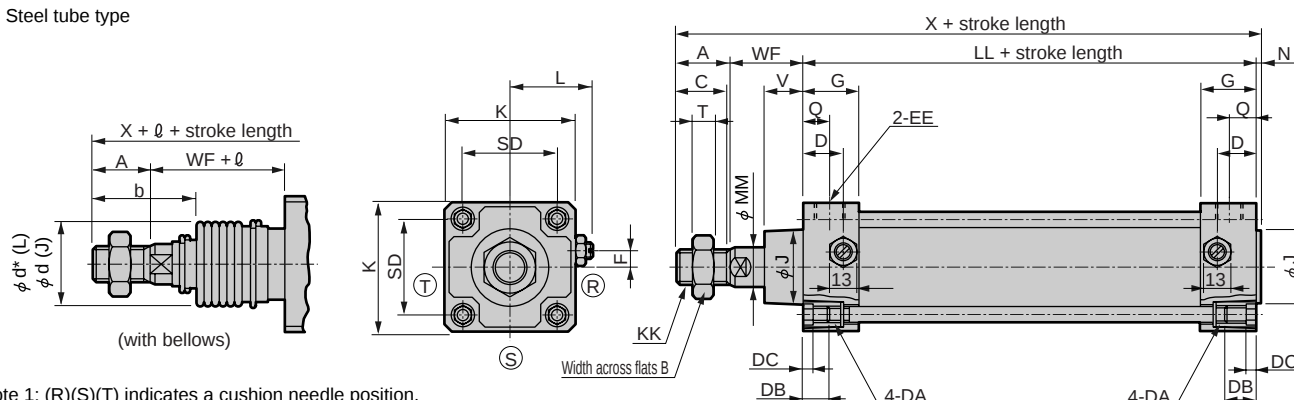
Part numbers follow the SCA2 Series internal structure drawing (page 448).

Bore size (mm)	Kit No.	Repair parts number
$\phi 40$	SCA2-K-40K	
$\phi 50$	SCA2-K-50K	
$\phi 63$	SCA2-K-63K	
$\phi 80$	SCA2-K-80K	
$\phi 100$	SCA2-K-100K	

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

Dimensions

● Steel tube type



Note 1: (R)(S)(T) indicates a cushion needle position.

Note 2: Refer to page 598, 599 for accessory dimensions.

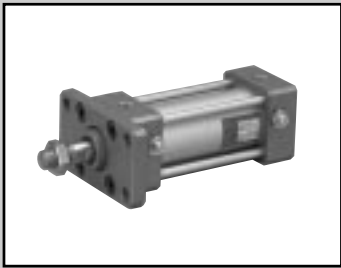
Symbol	Basic type (00) basic dimensions																						
Bore size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	J	K	KK	L	LL	MM	N	Q	SD	T	V	WF	X
φ 40	22	22	20	18	M8	12	4	Rc1/4	7.5	26	31	57	M14 x 1.5	38.0 to 39.5	93	16	2	13	40.5	8	18.5	33.5	150.5
φ 50	28	27	26	20	M8	12	4	Rc3/8	0	28	38	66	M18 x 1.5	41.0 to 43.5	101	20	2.5	14	48	11	20.5	37	168.5
φ 63	28	27	26	22	M8	12	4	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	3	15	59	11	21	35	171
φ 80	36	32	34	26	M12	16	5	Rc1/2	0	34	43	98	M22 x 1.5	56.0 to 59.0	116	25	3.5	17	74	13	23.5	48	203.5
φ 100	45	41	43	28	M12	16	5	Rc1/2	0	36	51	118	M26 x 1.5	66.0 to 69.0	128	30	4	18	90	16	32	53	230
Symbol	With bellows																						
	A	X	b	d	d*	ℓ																	
Bore size (mm)	A	X	b	d	d*	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500										
φ 40	22	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8										
φ 50	28	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5										
φ 63	28	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5										
φ 80	36	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5										
φ 100	45	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9										

● Note: Each mounting style installation dimension is same as SCA2 (standard). Refer to pages 450 to 455.

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

Medium bore size cylinder
Standard type

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



Medium bore size cylinder
Double acting, low hydraulic type

SCA2-H Series

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

JIS symbol



Specifications

Descriptions		SCA2-H (low hydraulic type)				
Bore size	mm	φ 40	φ 50	φ 63	φ 80	φ 100
Actuation		Double acting				
Working fluid	Note 1	Hydraulic fluid				
Max. working pressure	MPa	1.0				
Min. working pressure	MPa	0.2		0.15		
Withstanding pressure	MPa	1.6				
Ambient temperature	°C	5 to 50				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance	mm	^{+0.9} ₀ (Up to 360), ^{+1.4} ₀ (Up to 800)				
Cushion		Cushioned				
Effective cushion length	mm	14.6	16.6	16.6	20.6	23.6
Allowable surge pressure	MPa	2.9 (cushioned), 4.9 (no cushion)				
Allowable energy absorption J	Cushioned	Low hydraulic cylinder cushion performance cannot absorb large energy. So an external shock absorber should be used.				
	No cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Note 1: Working oil viscosity should be 40 mm²/S at the working oil temperature.
The recommended oil is Fuji Kosan Fukkol Hydrol x22 or equivalent. Similar oils include Mitsubishi Diamond Power Fluid 18, Showa Shell Shell Terrace Oil 22, Esso Univis J26, Mobil Mobil DTE22, Cosmo Hydro HV22, Eneos Hiland Wide 22, and Idemitsu Daphney Super Hydro 22WR.

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
φ40	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	600	1
φ50			
φ63		700	
φ80			
φ100		800	

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

Min. stroke length of type with switch

● T0/T5 type min. stroke length with 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	20 (10)	20 (20)	40 (40)	60 (60)	20 (10)	60 (45)	105 (75)	150 (105)	110 (110)	110 (110)	175 (145)	175 (145)	50 (50)	50 (50)
ϕ 50	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	20 (20)	65 (50)	65 (60)	135 (135)	135 (135)	135 (135)	135 (135)	60 (60)	60 (60)
ϕ 63	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	20 (20)	70 (55)	70 (60)	110 (95)	110 (95)	110 (100)	110 (100)	50 (45)	50 (45)
ϕ 80	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	115 (85)	115 (85)	115 (105)	115 (105)	55 (40)	55 (40)
ϕ 100	15 (15)	25 (25)	45 (45)	70 (70)	15 (15)	25 (25)	70 (55)	70 (70)	125 (95)	125 (95)	125 (115)	125 (115)	60 (45)	60 (45)

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 min. stroke length with 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	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	50 (35)	95 (65)	140 (95)	95 (85)	95 (85)	155 (125)	155 (125)	45 (40)	45 (40)
ϕ 50	10 (10)	20 (20)	40 (40)	60 (60)	10 (10)	20 (20)	70 (55)	70 (60)	115 (115)	115 (115)	135 (135)	135 (135)	50 (50)	50 (50)
ϕ 63	10 (10)	20 (20)	40 (40)	60 (60)	10 (10)	20 (20)	70 (55)	70 (60)	95 (75)	95 (75)	110 (110)	110 (110)	45 (35)	45 (35)
ϕ 80	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	100 (70)	100 (70)	115 (115)	115 (115)	50 (35)	50 (35)
ϕ 100	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	110 (80)	110 (80)	125 (125)	125 (125)	55 (40)	55 (40)

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.

Min. stroke length of type with switch

● T2/T3 type min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
φ40	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
φ50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	105 (75)	105 (75)	105 (75)	105 (75)	45 (30)	45 (30)
φ63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	110 (80)	110 (80)	110 (85)	110 (85)	50 (35)	50 (35)
φ80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	115 (85)	115 (85)	115 (90)	115 (90)	55 (40)	55 (40)
φ100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	125 (95)	125 (95)	125 (100)	125 (100)	60 (45)	60 (45)

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 min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
φ40	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
φ50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	100 (70)	100 (70)	100 (75)	100 (75)	45 (30)	45 (30)
φ63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	105 (75)	105 (75)	105 (85)	105 (85)	50 (35)	50 (35)
φ80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	110 (80)	110 (80)	110 (90)	110 (90)	55 (40)	55 (40)
φ100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	120 (90)	120 (90)	120 (100)	120 (100)	60 (45)	60 (45)

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

Medium bore size cylinder
Standard type

Switch specifications (T type switch)

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

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

Descriptions	Proximity 2-wire			Proximity 3-wire			Reed 2-wire						Proximity 2-wire	
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/T2YV	T3H/T3V	T3PH/T3PV (Custom order)	T3YH/T3YV	T0H/T0V		T5H/T5V		T8H/T8V		T2YD	
Applications	Programmable controller relay, small solenoid valve	Programmable controller dedicated		Programmable controller, relay			Programmable controller, relay		Programmable controller, relay, IC circuit (w/o light), serial connection		Programmable controller, relay		Programmable controller dedicated	
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 100 mA	5 to 20 mA (Note 1)		100 mA or less		50 mA or less	5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
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	1 mA or less with 100 VAC 2 mA or less with 200 VAC	1 mA or less		10 μA or less			0 mA						1 mA 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	Programmable controller, relay	Programmable controller dedicated	Programmable controller, relay
Output method		NPN output			
Light	Installation position adjustment	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 20 mA	50 mA or less	5 to 20 mA	50 mA or less
	Leakage current	1 mA or less	10 μ A or less	1.2 mA or less	10 μ A or less
Preventive maintenance output	Load voltage	30 VDC or less			
	Load current	20 mA or less	50 mA or less	5 to 20 mA or less	50 mA 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: 20 mA at 25 °C. The current will be lower than 20 mA if ambient temperature around switch is higher than 25 °C.
(5 to 10 mA at 60 °C)

Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight at stroke length (S) = 0 mm							Weight per switch (including mounting bracket)		Additional weight per S = 100 mm	
	Basic type (00)	Foot type (LB)	Flange type (FA and FB)	Special flange type (FC)	Eye bracket type (CA)	Clevis bracket type (CB)	Trunnion type (TA, TB or TC)	T type	T2YD type		
									1 m		3 m
φ40	0.83	1.00	1.24	0.92	1.15	1.19	1.21	0.018	0.08	0.17	0.39
φ50	1.20	1.45	1.69	1.31	1.58	1.61	1.74				0.46
φ63	1.60	1.97	2.69	1.78	2.17	2.22	2.45				0.50
φ80	2.60	3.34	4.46	2.96	3.87	4.08	3.94				0.90
φ100	4.20	5.11	6.94	4.75	5.84	6.02	6.77				1.12

(E.g.) Product weight of SCA2-H-LB-50B-200-R0-D

Product weight when stroke length (S) = 0 mm ... 1.45 kg
 Additional weight at stroke length 200 mm ... $0.46 \times \frac{200}{100} = 0.92$ kg
 Weight of two switches ... $0.018 \times 2 = 0.036$ kg
 Product weight ... $1.45 + 0.92 + 0.036$ kg = 2.406 kg

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

Medium bore size cylinder
Standard type

How to order

Without switch

SCA2-H - LB - 40 - B - 100 - S - I

With switch

SCA2-H - LB - 40 - B - 100 - T0 - R - S - I

A Mounting style
Note 1

B Bore size

C Port thread type

D Cushion

E Stroke length
Note 2

F Switch model no.

G Switch quantity
Note 4

H Option
Note 5

I Accessory
Note 6

⚠ Note on model no. selection

Note 1: The mounting bracket is shipped with the product.
However, trunnion type is attached to the product when shipped.

Note 2: If the maximum stroke is exceeded, refer to Ending 74.

Note 3: Refer to page 550 for min. stroke length.

Note 4: 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 5: Instantaneous maximum temperature is the temperature when spark and spatter etc. instantaneously contacts to bellows.

Note 6: "I" and "Y" can not be selected at the same time.

Note 7: Refer to Ending 89 for custom specifications of rod end form.

Note 8: Refer to page 436 for variation and option combination.

<Example of model number>

SCA2-H-LB-40B-100-T0-R-S-I

Model: Medium bore size cylinder double acting low hydraulic type

A Mounting style : Axial foot type

B Bore size : ϕ 40 mm

C Port thread type : Rc thread

D Cushion : Both sides cushioned

E Stroke length : 100 mm

F Switch model no. : Reed T0 switch, lead wire length 1 m

G Switch quantity : One on rod end

H Option : Cushion needle position S

I Accessory : Rod eye

How to order mounting bracket

Bore size (mm)	ϕ 40	ϕ 50	ϕ 63	ϕ 80	ϕ 100
Mounting bracket					
Foot (LB)	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Eye (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

Note 1: Refer to page 448 for the mounting bracket material.

Note 2: The foot type bracket is 2 pcs./set.

Symbol	Descriptions
A Mounting style	
00	Basic type
LB	Axial foot type
FA	Rod end flange type
FB	Head end flange type
FC	Special head end flange type
CA	Eye bracket type
CB	Clevis bracket type (pin and snap ring attached)
TC	Center trunnion
TA	Rod end trunnion type
TB	Head end trunnion type
TF	Intermediate supporting hole (ϕ 40 cannot be selected.)
TD	Rod end supporting hole (ϕ 40 cannot be selected)
TE	Head end supporting hole (ϕ 40 cannot be selected.)

B Bore size (mm)	
40	ϕ 40
50	ϕ 50
63	ϕ 63
80	ϕ 80
100	ϕ 100

C Port thread type	
Blank	Rc thread
N	NPT thread (custom order)
G	G thread (custom order)

D Cushion	
B	Both sides cushioned
R	Rod end cushion
H	Head end cushion
N	No cushion

E Stroke length (mm)		
Bore size	Stroke length Note 3	Custom stroke length
ϕ 40	1 to 600	Per 1 mm increment
ϕ 50	1 to 600	
ϕ 63	1 to 600	
ϕ 80	1 to 700	
ϕ 100	1 to 800	

F Switch model no.	
Refer to the switch model no. table on the following page.	
*Lead wire length	
Blank	1m (standard)
3	3m (option)
5	5m (option)

G Switch quantity	
R	One on rod end
H	One on head end
D	Two
T	Three

H Option	
	Max. ambient ; Max. instantaneous
J	Bellows 100 °C ; 200 °C
L	Bellows 250 °C ; 400 °C
M	Piston rod material (stainless steel)
Blank	Cushion needle position R (standard)
S	Cushion needle position S
T	Cushion needle position T
P6	Copper and PTFE free (custom order)

I Accessory	
I	Rod eye
Y	Rod clevis (pin and snap ring attached)
B1	Eye bracket
B2	Clevis bracket (pin and snap ring attached)
B3	Eye bracket
B4	Trunnion type No. 2 bracket

[F] switch model no.

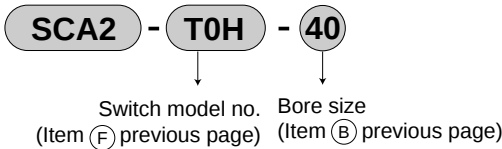
T type switch model no.			
Axial lead wire	Radial lead wire	Contact	Indicator
T0H*	T0V*	Reed	1 color indicator type
T5H*	T5V*		Without indicator light
T8H*	T8V*		1 color indicator type
T1H*	T1V*	Proximity	1 color indicator type
T2H*	T2V*		2 color indicator type
T3H*	T3V*		
T2YH*	T2YV*		2-wire
T3YH*	T3YV*		3-wire
T3PH*	T3PV*		2-wire
T2YFH*	T2YFV*		3-wire
T3YFH*	T3YFV*		3-wire
T2YMH*	T2YMV*		4-wire
T3YMH*	T3YMV*		4-wire
T2YD*	-		Strong magnetic field proof switch
T2YDT*	-		2-wire
T2JH*	T2JV*		Off-delay type

R type switch				
Grommet type	Terminal box type		Contact	Indicator
	Standard type	Splash prf.		
R0*	R0B	R0A		
These types have been changed to T-switch integrated type since Oct 1st 2007.				
R0*	R0B	R0A		1 color indicator type

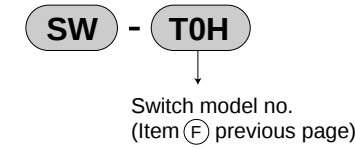
How to order switch

(T type switch)

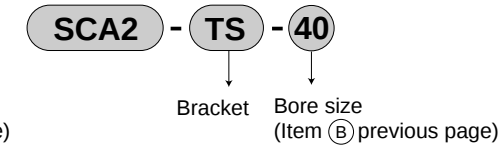
● Switch body + mounting bracket



● Only switch body



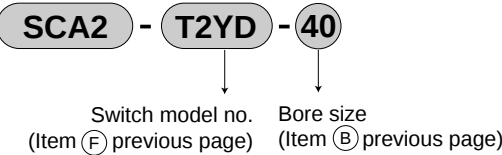
● Switch bracket set



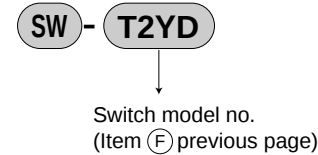
* Consult with CKD when using the environment compatible T-type switch.

(T2YD type switch)

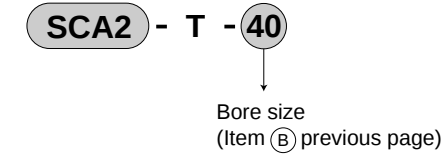
● Switch body + mounting bracket



● Only switch body



● Mounting bracket



Dimensions

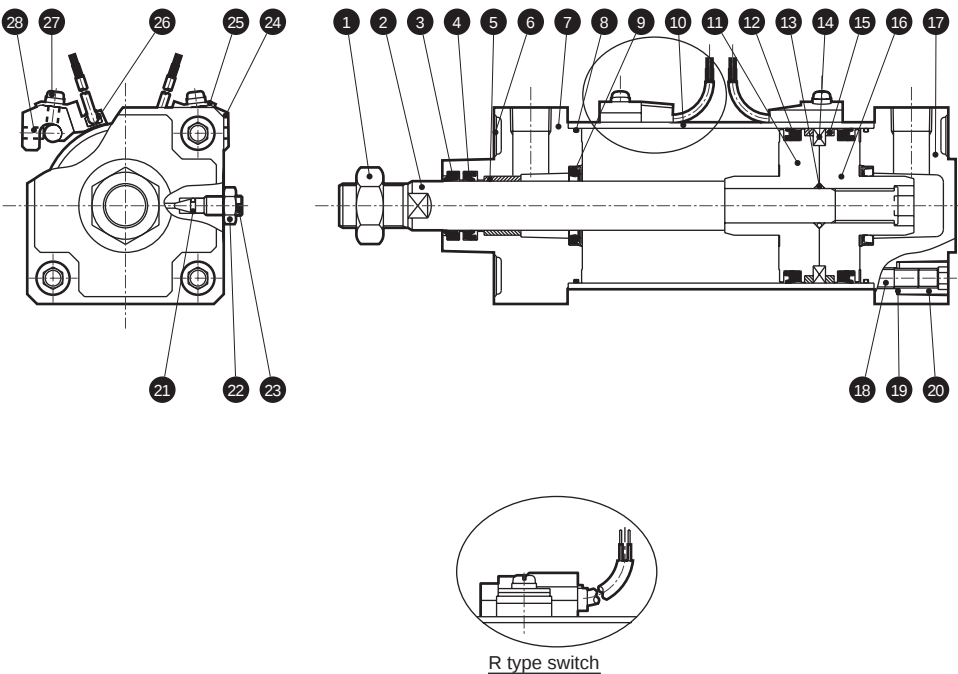
This is the same as double acting standard single rod type. Refer to pages 449 to 455.

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

Medium bore size cylinder
Standard type

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

Internal structure and parts list



No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Rod nut	Steel	Zinc chromate	16	Piston H	Aluminum alloy die-casting	
2	Piston rod	Steel	Industrial chrome plating	17	Head cover	Aluminum alloy die-casting	Paint
3	Dust wiper	Nitrile rubber		18	Tie rod	Steel	Zinc chromate
4	Rod packing seal	Nitrile rubber		19	Conical spring washer	Steel	Blackening
5	Bush	Oil impregnated bearing alloy	Note 1	20	Round nut	Steel	Zinc chromate
6	Masking plate	Aluminum alloy	Paint	21	Needle gasket	Nitrile rubber	
7	Rod cover	Aluminum alloy die-casting	Paint	22	Needle nut	Copper alloy	Note 2
8	Cylinder gasket	Nitrile rubber		23	Cushion needle	Copper alloy	Note 2
9	Cushion packing seal	Urethane rubber, steel					
10	Cylinder tube	Aluminum alloy	Hard alumite treatment	With switch			
11	Piston R	Aluminum alloy die-casting		24	Switch installation unit	Aluminum alloy	
12	Piston packing seal	Nitrile rubber		25	Switch holder	Aluminum alloy	
13	Piston gasket	Nitrile rubber		26	Cylinder switch		
14	Magnet	Plastic		27	Cross headed pan w/washer	Steel	Zinc chromate
15	Wear ring	Polyacetal resin		28	Hexagon socket head set screw	Alloy steel	Blackening

Note 1: Oil impregnated cast iron bearing is used for copper and PTFE free. Note 2: Copper + galvanizing is used for copper and PTFE free.

Repair parts list

Bore size (mm)	Kit No.	Repair parts number
φ 40	SCA2-H-40K	
φ 50	SCA2-H-50K	3 4 8 9 12
φ 63	SCA2-H-63K	
φ 80	SCA2-H-80K	15 21
φ 100	SCA2-H-100K	

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

Dimensions

It is the same dimensions as the double acting single rod type. Refer to pages 449 to 455.

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

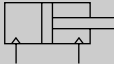


Medium bore size cylinder
 Double acting, rubber scraper type

SCA2-G Series

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

JIS symbol



Specifications

Descriptions		SCA2-G (rubber scraper type)				
Bore size	mm	φ 40	φ 50	φ 63	φ 80	φ 100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure	MPa	1.0				
Min. working pressure	MPa	0.05				
Withstanding pressure	MPa	1.6				
Ambient temperature		-10 to 60 (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance		$^{+0.9}_0$ (Up to 360), $^{+1.4}_0$ (Up to 800)				
Working piston speed		mm/s 50 to 1000 (use within the allowable energy absorption.)				
Cushion		Air cushion				
Effective cushion length		mm 14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)				
Allowable energy absorption J	Cushioned	4.29	8.37	15.8	27.9	49.8
	No cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Available stroke length (mm)	Min. stroke length (mm)	
φ40	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450 500	600	1600	1	
φ50			2000		
φ63		700 800	2500		
φ80					
φ100					

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

Min. stroke length of type with switch

● T0/T5 type min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ 40	20 (10)	20 (20)	40 (40)	60 (60)	20 (10)	60 (45)	105 (75)	150 (105)	110 (110)	110 (110)	175 (145)	175 (145)	50 (50)	50 (50)
ϕ 50	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	20 (20)	65 (50)	65 (60)	135 (135)	135 (135)	135 (135)	135 (135)	60 (60)	60 (60)
ϕ 63	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	20 (20)	70 (55)	70 (60)	110 (95)	110 (95)	110 (100)	110 (100)	50 (45)	50 (45)
ϕ 80	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	115 (85)	115 (85)	115 (105)	115 (105)	55 (40)	55 (40)
ϕ 100	15 (15)	25 (25)	45 (45)	70 (70)	15 (15)	25 (25)	70 (55)	70 (70)	125 (95)	125 (95)	125 (115)	125 (115)	60 (45)	60 (45)

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 min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ 40	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	50 (35)	95 (65)	140 (95)	95 (85)	95 (85)	155 (125)	155 (125)	45 (40)	45 (40)
ϕ 50	10 (10)	20 (20)	40 (40)	60 (60)	10 (10)	20 (20)	70 (55)	70 (60)	115 (115)	115 (115)	135 (135)	135 (135)	50 (50)	50 (50)
ϕ 63	10 (10)	20 (20)	40 (40)	60 (60)	10 (10)	20 (20)	70 (55)	70 (60)	95 (75)	95 (75)	110 (110)	110 (110)	45 (35)	45 (35)
ϕ 80	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	100 (70)	100 (70)	115 (115)	115 (115)	50 (35)	50 (35)
ϕ 100	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	110 (80)	110 (80)	125 (125)	125 (125)	55 (40)	55 (40)

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.

Min. stroke length of type with switch

● T2/T3 type min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
φ40	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
φ50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	105 (75)	105 (75)	105 (75)	105 (75)	45 (30)	45 (30)
φ63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	110 (80)	110 (80)	110 (85)	110 (85)	50 (35)	50 (35)
φ80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	115 (85)	115 (85)	115 (90)	115 (90)	55 (40)	55 (40)
φ100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	125 (95)	125 (95)	125 (100)	125 (100)	60 (45)	60 (45)

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 min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
φ40	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
φ50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	100 (70)	100 (70)	100 (75)	100 (75)	45 (30)	45 (30)
φ63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	105 (75)	105 (75)	105 (85)	105 (85)	50 (35)	50 (35)
φ80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	110 (80)	110 (80)	110 (90)	110 (90)	55 (40)	55 (40)
φ100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	120 (90)	120 (90)	120 (100)	120 (100)	60 (45)	60 (45)

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

Medium bore size cylinder
Standard type

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

Switch specifications (T type switch)

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

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

	Proximity 2-wire			Proximity 3-wire			Reed 2-wire					Proximity 2-wire		
Descriptions	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/T2YV	T3H/T3V	T3PH/T3PV (Custom order)	T3YH/T3YV	T0H/T0V	T5H/T5V	T8H/T8V			T2YD		
Applications	Programmable controller relay, small solenoid valve	Programmable controller dedicated		Programmable controller, relay			Programmable controller, relay	Programmable controller, relay, IC circuit (w/o light), serial connection	Programmable controller, relay			Programmable controller dedicated		
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 100 mA	5 to 20 mA (Note 1)		100 mA or less		50 mA or less	5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
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	1 mA or less with 100 VAC 2 mA or less with 200 VAC	1 mA or less		10 μA or less			0 mA						1 mA 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		Programmable controller, relay		Programmable controller dedicated		Programmable controller, relay	
Output method		NPN output							
Light	Installation position adjustment	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 20 mA		50 mA or less		5 to 20 mA		50 mA or less	
	Leakage current	1 mA or less		10 μA or less		1.2 mA or less		10 μA or less	
Preventive maintenance output	Load voltage	30 VDC or less							
	Load current	20 mA or less		50 mA or less		5 to 20 mA or less		50 mA or less	
	Leakage current	10 μA or less							

Note 1: Refer to Ending 1 for other switch specifications.

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

Cylinder weight

Cylinder weight										(Unit: kg)
Bore size (mm)	Product weight when stroke length (S) = 0 mm						Weight per switch (including mounting bracket)			Additional weight per S = 100 mm
	Basic type (00)	Foot type (LB)	Flange type (FA, FB)	Eye bracket type (CA)	Clevis bracket type (CB)	Trunnion type (TA, TB, TC)	T type	T2YD type		
								1 m	3 m	
φ40	0.83	1.00	1.24	1.15	1.19	1.21	0.018	0.08	0.17	0.39
φ50	1.20	1.45	1.69	1.58	1.61	1.74				0.46
φ63	1.60	1.97	2.69	2.17	2.22	2.45				0.50
φ80	2.60	3.34	4.46	3.87	4.08	3.94				0.90
φ100	4.20	5.11	6.94	5.84	6.02	6.77				1.12
(E.g.) Product weight of SCA2-G-LB-50B-200-R0-D Product weight when stroke length (S) = 0 mm ... 1.45 kg. Additional weight at stroke length 200 mm ... $0.46 \times \frac{200}{100} = 0.92$ kg. Weight of two switches ... $0.018 \times 2 = 0.036$ kg. Product weight ... $1.45 + 0.92 + 0.036$ kg = 2.406 kg										

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

Medium bore size cylinder
Standard type

How to order

Without switch

SCA2-G - LB - 40 - B - 100 - S - I

With switch

SCA2-G - LB - 40 - B - 100 - T0 - R - S - I

A Mounting style
Note 1

B Bore size

C Port thread type

D Cushion

E Stroke length
Note 2

F Switch model no.

G Switch quantity
Note 4

H Option

I Accessory
Note 5

Note on model no. selection

Note 1: The mounting bracket is shipped with the product.
However, trunnion type is attached to the product when shipped.

Note 2: If the maximum stroke is exceeded, refer to Ending 74.

Note 3: Refer to page 558 for min. stroke length.

Note 4: 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 5: "I" and "Y" can not be selected at the same time.

Note 6: Refer to Ending 89 for custom specifications of rod end form.

Note 7: Refer to page 436 for variation and option combination.

<Example of model number>

SCA2-G-LB-40B-100-T0-R-SI

Model: Medium bore size cylinder double acting powerful scraper type

A Mounting style : Axial foot type

B Bore size : ϕ 40 mm

C Port thread type : Rc thread

D Cushion : Both sides cushioned

E Stroke length : 100 mm

F Switch model no. : Reed T0 switch, lead wire length 1 m

G Switch quantity : One on rod end

H Option : Cushion needle position S

I Accessory : Rod eye

Symbol	Descriptions
A Mounting style	
00	Basic type
LB	Axial foot type
FA	Rod end flange type
FB	Head end flange type
FC	Special head end flange type
CA	Eye bracket type
CB	Clevis bracket type (pin and snap ring attached)
TC	Center trunnion type
TA	Rod end trunnion type
TB	Head end trunnion type
TF	Intermediate supporting hole (ϕ 40 cannot be selected)
TD	Rod end supporting hole (ϕ 40 cannot be selected)
TE	Head end supporting hole (ϕ 40 cannot be selected)

B Bore size (mm)	
40	ϕ 40
50	ϕ 50
63	ϕ 63
80	ϕ 80
100	ϕ 100

C Port thread type	
Blank	Rc thread
N	NPT thread (custom order)
G	G thread (custom order)

D Cushion	
B	Both sides cushioned
R	Rod end cushion
H	Head end cushion
N	No cushion

E Stroke length (mm)			
Bore size	Stroke length Note 3	Available stroke length	Custom stroke length
φ 40	1 to 600	1600	Per 1 mm increment
φ 50	1 to 600	2000	
φ 63	1 to 600	2500	
φ 80	1 to 700		
φ 100	1 to 800		

F Switch model no.
Refer to the switch model no. table on the following page.

*Lead wire length	
Blank	1m (standard)
3	3m (option)
5	5m (option)

G Switch quantity	
R	One on rod end
H	One on head end
D	Two
T	Three

H Option	
M	Piston rod material (stainless steel)
Blank	Cushion needle position R (standard)
S	Cushion needle position S
T	Cushion needle position T
P6	Copper and PTFE free (custom order)

I Accessory	
I	Rod eye
Y	Rod clevis (pin and snap ring attached)
B1	Eye bracket
B2	Clevis bracket (pin and snap ring attached)
B3	Eye bracket
B4	Trunnion type No. 2 bracket

How to order mounting bracket

Bore size (mm)	ϕ 40	ϕ 50	ϕ 63	ϕ 80	ϕ 100
Mounting bracket					
Foot (LB)	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Eye (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

Note 1: Refer to page 448 for the mounting bracket material.

Note 2: The foot type bracket is 2 pcs./set.

[F] switch model no.

T type switch model no.				
Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T0H*	T0V*	Reed	1 color indicator type	2-wire
T5H*	T5V*		Without indicator light	
T8H*	T8V*		1 color indicator type	
T1H*	T1V*	Proximity	1 color indicator type	2-wire
T2H*	T2V*			3-wire
T3H*	T3V*			
T2YH*	T2YV*		2 color indicator type	2-wire
T3YH*	T3YV*			3-wire
T3PH*	T3PV*		1 color indicator type (custom order)	3-wire
T2YFH*	T2YFV*		2 color indicator type (Without light for preventive maintenance output)	3-wire
T3YFH*	T3YFV*			4-wire
T2YMH*	T2YMV*		2 color indicator type (With light for preventive maintenance output (1 color))	3-wire
T3YMH*	T3YMV*			4-wire
T2YD*	-		Strong magnetic field proof switch	2-wire
T2YDT*	-			
T2JH*	T2JV*		Off-delay type	2-wire

R type switch				
Grommet type	Terminal box type		Contact	Indicator
	Standard type	Splash prf.		Lead wire
R0*	R0B	R0A	1 color indicator type	

These types have been changed to T-switch integrated type since Oct 1st 2007.

How to order switch

(T type switch)

● Switch body + mounting bracket

SCA2 - T0H - 40

Switch model no. (Item ⑤ previous page) Bore size (Item ⑥ previous page)

● Only switch body

SW - T0H

Switch model no. (Item ⑤ previous page)

● Switch bracket set

SCA2 - TS - 40

Bracket Bore size (Item ⑥ previous page)

* Consult with CKD when using the environment compatible T-type switch.

(T2YD type switch)

● Switch body + mounting bracket

SCA2 - T2YD - 40

Switch model no. (Item ⑤ previous page) Bore size (Item ⑥ previous page)

● Only switch body

SW - T2YD

Switch model no. (Item ⑤ previous page)

● Mounting bracket

SCA2 - T - 40

Bore size (Item ⑥ previous page)

Dimensions

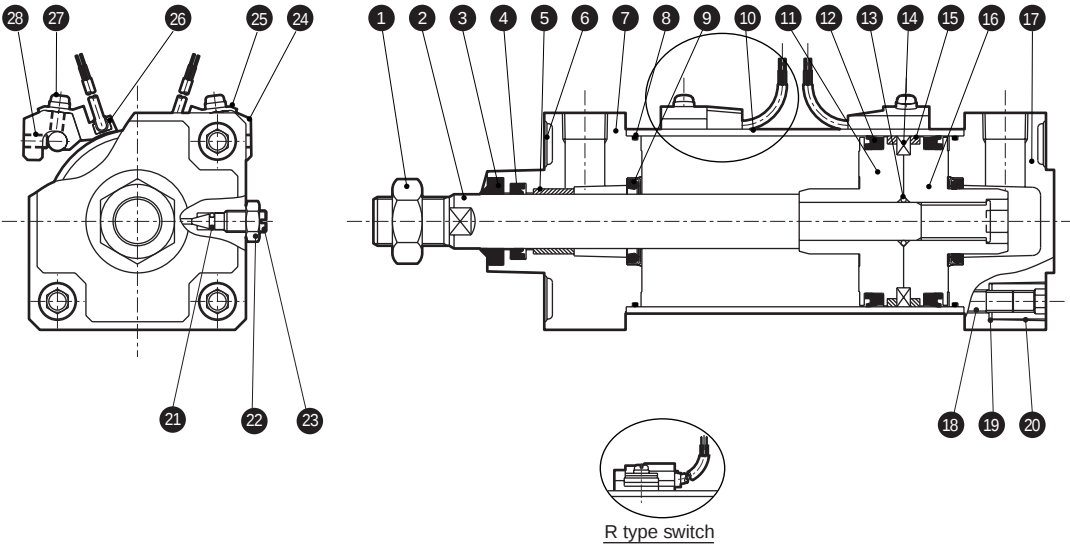
This is the same as double acting standard single rod type. Refer to pages 449 to 455.

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

Medium bore size cylinder
Standard type

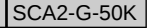
- SCP*2
- CMK2
- CMA2
- SCM
- SCG
- SCA2
- SCS
- CKV2
- CA/OV2
- SSD
- CAT
- MDC2
- MVC
- SMD2
- MSD*
- FC*
- STK
- ULK*
- JSK/M2
- JSG
- JSC3
- USSD
- USC
- JSB3
- LMB
- STG
- STS/L
- LCS
- LCG
- LCM
- LCT
- LCY
- STR2
- UCA2
- HCM
- HCA
- SRL2
- SRG
- SRM
- SRT
- MRL2
- MRG2
- SM-25
- CAC3
- UCAC
-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

Internal structure and parts list



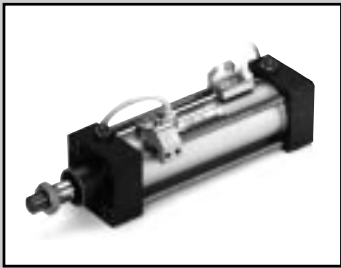
No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Rod nut	Steel	Zinc chromate	15	Wear ring	Polyacetal resin	
2	Piston rod	Steel	Industrial chrome plating	16	Piston H	Aluminum alloy die-casting	
3	Dust wiper	Nitrile rubber		17	Head cover	Aluminum alloy die-casting	Paint
4	Rod packing seal	Nitrile rubber		18	Tie rod	Steel	Zinc chromate
5	Bush	Oil impregnated bearing alloy		19	Conical spring washer	Steel	Blackening
6	Masking plate	Aluminum alloy	Paint	20	Round nut	Steel	Zinc chromate
7	Rod cover	Aluminum alloy die-casting	Paint	21	Needle gasket	Nitrile rubber	
8	Cylinder gasket	Nitrile rubber		22	Needle nut	Copper alloy	
9	Cushion packing seal	Urethane rubber, steel		23	Cushion needle	Copper alloy	
10	Cylinder tube	Aluminum alloy	Hard alumite	24	Switch installation unit	Aluminum alloy	
11	Piston R	Aluminum alloy die-casting		25	Switch holder	Aluminum alloy	
12	Piston packing seal	Nitrile rubber		26	Cylinder switch		
13	Piston gasket	Nitrile rubber		27	Cross headed pan w/washer	Steel	Zinc chromate
14	Magnet	Plastic		28	Hexagon socket head set screw	Alloy steel	Blackening

Repair parts list

Bore size (mm)	Kit No.	Repair parts number
φ 40	SCA2-G-40K	
φ 50	SCA2-G-50K	
φ 63	SCA2-G-63K	
φ 80	SCA2-G-80K	
φ 100	SCA2-G-100K	

Note 1: Specify the kit No. when placing an order.

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

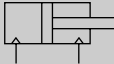


Medium bore size cylinder
Double acting, coolant proof type

SCA2-^{G2}/_{G3} Series

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

JIS symbol



Specifications

Descriptions		SCA2-G2/G3				
Bore size	mm	φ 40	φ 50	φ 63	φ 80	φ 100
Actuation		Double acting, coolant proof type				
Working fluid		Compressed air				
Max. working pressure	MPa	1.0				
Min. working pressure	MPa	0.05				
Withstanding pressure	MPa	1.6				
Ambient temperature		-10 to 60 (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance	mm	^{+0.9} ₀ (Up to 360), ^{+1.4} ₀ (Up to 800)				
Working piston speed	mm/s	50 to 1000 (use within allowable energy absorption.)				
Cushion		Air cushion				
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)				
Allowable energy absorption J	Cushioned	4.29	8.37	15.8	27.9	49.8
	No cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

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	1600	1
ϕ 50			2000	
ϕ 63			2500	
ϕ 80		700	2500	
ϕ 100		800	2500	

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

Note 2: When using the switch, the minimum stroke differs with the mounting method. See the table below for strokes.

If the stroke is 15 mm or less, two switches may turn on simultaneously.

In this case, adjust switch positions by separating them.

Note 3: If the maximum stroke is exceeded, product specifications many not be met, depending on operating conditions. Refer to Ending 74.

● T2YL/T3YL type min. stroke length with switch

Switch quantity	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.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ 40	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
ϕ 50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	100 (70)	100 (70)	100 (75)	100 (75)	45 (30)	45 (30)
ϕ 63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	105 (75)	105 (75)	105 (85)	105 (85)	50 (35)	50 (35)
ϕ 80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	110 (80)	110 (80)	110 (90)	110 (90)	55 (40)	55 (40)
ϕ 100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	120 (90)	120 (90)	120 (100)	120 (100)	60 (45)	60 (45)

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.

Switch specifications

Descriptions	Proximity 2-wire	Proximity 3-wire
	T2YLH/T2YLV	T3YLH/T3YLV
Applications	Programmable controller	Programmable controller, relay
Power voltage	-	10 to 28 VDC
Load voltage/current	10 to 30 VDC, 5 to 20 mA Note 1	30 VDC or less, 50 mA or less
Light	Red/green LED (ON lighting)	
Maximum shock resistance	980 m/S ²	
Leakage current	1 mA or less	10 μA or less

Note1: Max. load current above: 20 mA at 25 °C . When ambient temperature around switch is more than 25 °C , the value is lower than 20 mA.
(5 to 10 mA at 60 °C)

Cylinder weight

(Unit: kg)

Bore size (mm)	Product aweight when stroke length (S) = 0 mm							Weight per switch (including mounting bracket)				Additional weight per S = 100 mm
	Basic type (00)	Foot type (LB)	Flange type (FA, FB)	Special flange type (FC)	Eye bracket type (CA)	Clevis bracket type (CB)	Trunnion type (TA, TB, TC)	T2YL type		T3YL type		
								1 m	3 m	1 m	3 m	
φ40	0.84	1.01	1.25	0.93	1.16	1.20	1.22	0.05	0.10	0.05	0.10	0.39
φ50	1.23	1.48	1.72	1.34	1.61	1.64	1.77					0.46
φ63	1.63	2.00	2.72	1.81	2.20	2.25	2.48					0.50
φ80	2.63	3.37	4.49	2.99	3.90	4.11	3.97					0.90
φ100	4.24	5.15	6.98	4.79	5.88	6.06	6.81					1.12

(E.g.) Product weight of SCA2-G2-LB-50-200-T2YLH-D

Product weight when stroke length (S) = 0 mm ... 1.48 kg
 Additional weight at stroke length 200 mm ... $0.46 \times \frac{200}{100} = 0.92$ kg
 Weight of two switches ... $0.05 \times 2 = 0.10$ kg
 Product weight ... $1.48 + 0.92 + 0.10$ kg = 2.50 kg

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

Medium bore size cylinder
Standard type

SCA2-G2/G3 Series

How to order

Without switch

SCA2 - G2 - LB - 50 - B - 75 - S - Y

With switch

SCA2 - G2 - LB - 50 - B - 75 - T2YLH - R - S - Y

A Protective structure

B Mounting style
Note 1

G Switch model no.
* indicates lead wire length.

H Switch quantity
Note 4

I Option

J Accessory
Note 5

C Bore size

D Port thread type

E Cushion

F Stroke length

Note on model no. selection

Note 1: The mounting bracket is shipped with the product.
(However, trunnion type is attached to the product when shipped.)

Note 2: If the maximum stroke is exceeded, refer to Ending 74.

Note 3: Refer to page 566 for min. stroke length.

Note 4: When selecting TA or TB for mounting, the number of switches is limited to "H" (one on head end) for TA, and "R" (one on rod end) for TB.

Note 5: "I" and "Y" can not select a selection at the same time.

Note 6: Refer to Ending 89 for custom specifications of rod end form.

Note 7: Refer to page 436 for variation and option combination.

<Example of model number>

SCA2-G2-LB-50B-75-T2YLH-R-SI

Model: Medium bore size cylinder

A Protective structure : Coolant proof scraper + packing seal NBR

B Mounting style : Axial foot type

C Bore size : ϕ 50 mm

D Port thread type : Rc thread

E Cushion : Both sides cushioned

F Stroke length : 75 mm

G Switch model no. : Proximity switch T2YLH, lead wire 1 m

H Switch quantity : 1 on rod end

I Option : Cushion needle position change

J Accessory : Rod eye

Symbol	Descriptions
A Protective structure	
G2	Coolant proof scraper + packing seal NBR
G3	Coolant proof scraper + packing seal FKM

B Mounting style	
00	Basic type
LB	Axial foot type (both sides)
FA	Rod end flange type
FB	Head end flange type
FC	Special head end flange type
CA	Eye bracket type
CB	Clevis bracket type (pin and snap ring attached)
TC	Center trunnion type
TA	Rod end trunnion type
TB	Head end trunnion type
TF	Intermediate supporting hole (ϕ 40 cannot be selected.)
TD	Rod end supporting hole (ϕ 40 cannot be selected)
TE	Head end supporting hole (ϕ 40 cannot be selected.)

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 cushioned
R	Rod end cushion
H	Head end cushion
N	No cushion

F Stroke length (mm)			
Bore size	Stroke length Note 3	Available stroke length	Custom stroke length
ϕ 40	1 to 600	1600	Per 1 mm increment
ϕ 50	1 to 600	2000	
ϕ 63	1 to 600	2500	
ϕ 80	1 to 700	2500	
ϕ 100	1 to 800	2500	

G Switch model no.				
Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T2YLH*	T2YLV*	Proximity	2 color indicator type	2-wire
T3YLH*	T3YLV*			3-wire

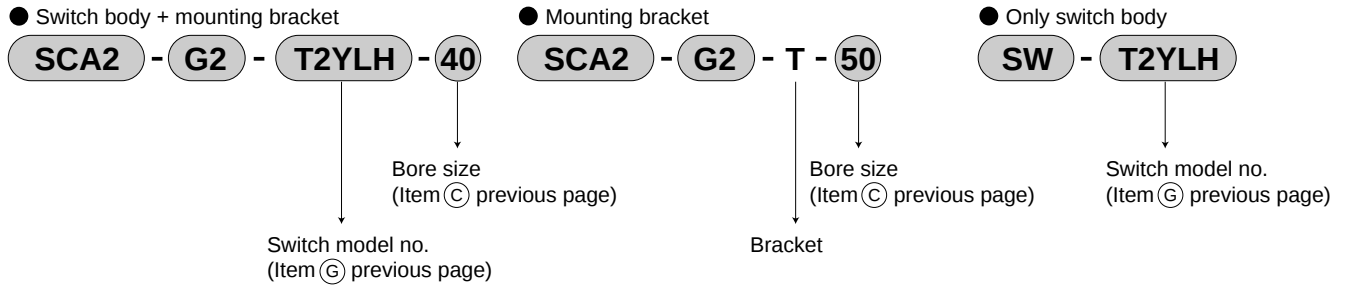
*Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

H Switch quantity	
R	One on rod end
H	One on head end
D	Two
T	Three

I Option	
Blank	Cushion needle position change R (standard)
S	Cushion needle position change S
T	Cushion needle position change T

J Accessory	
I	Rod eye
Y	Rod clevis (pin and snap ring attached)
B1	Eye bracket
B2	Clevis bracket (pin and snap ring attached)
B3	Eye bracket
B4	Trunnion type No. 2 bracket

How to order switch



How to order mounting bracket

Bore size (mm)	φ40	φ50	φ63	φ80	φ100
Mounting bracket					
Foot (LB)	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Eye (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

Note 1: Refer to page 448 for the mounting bracket material.

Note 2: The foot type bracket is 2 pcs./set.

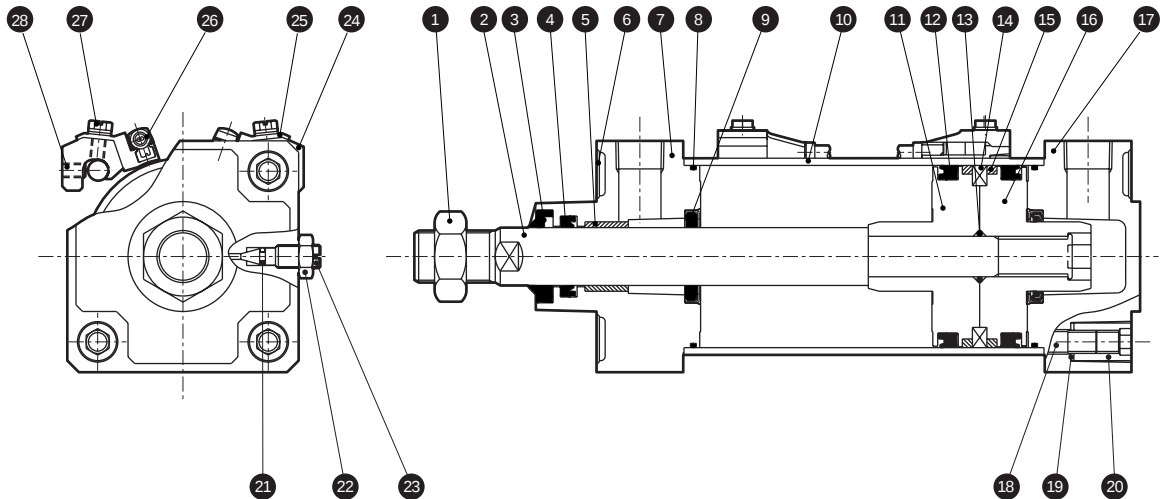
SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Medium bore size cylinder
Standard type

SCA2-G2/G3 Series

Internal structure and parts list

- Protective structure: Packing seal NBR
SCA2 - G2
- Protective structure: Packing seal FKM
SCA2 - G3



Main parts list

No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Rod nut	Stainless steel		14	Magnet	Plastic	
2	Piston rod	Stainless steel	Industrial chrome plating	15	Wear ring	Polyacetal resin	
3	Scraper	G2 Nitrile rubber		16	Piston H	Aluminum alloy	Chromate treatment
		G3 Fluoro rubber		17	Head cover	Aluminum alloy	Paint
4	Rod packing seal	G2 Nitrile rubber		18	Round nut	Steel	Zinc chromate plating
		G3 Fluoro rubber		19	Conical spring washer	Steel	Blackening
5	Bush	Oil impregnated bearing alloy		20	Tie rod	Steel	Zinc chromate plating
6	Masking plate	Aluminum alloy	Paint	21	Needle gasket	G2 Nitrile rubber	
7	Rod cover	Aluminum alloy	Paint			G3 Fluoro rubber	
8	Cylinder gasket	G2 Nitrile rubber		22	Needle nut	Copper alloy	
		G3 Fluoro rubber		23	Cushion needle	Copper alloy	
9	Cushion packing seal	G2 Urethane rubber		24	Cylinder switch		
		G3 Fluoro rubber		25	Slotted, hexagon head bolt w/washer	Stainless steel	
10	Cylinder tube	Aluminum alloy	Hard alumite treatment	26	Spring washer	Stainless steel	
11	Piston R	Aluminum alloy	Chromate treatment	27	Compact round washer	Stainless steel	
12	Piston packing seal	G2 Nitrile rubber		28	Switch holder	Aluminum alloy	Chromate treatment
		G3 Fluoro rubber		29	Switch installation unit	Aluminum alloy	Chromate treatment
13	Piston gasket	G2 Nitrile rubber		30	Hexagon socket head set screw	Stainless steel	
		G3 Fluoro rubber					

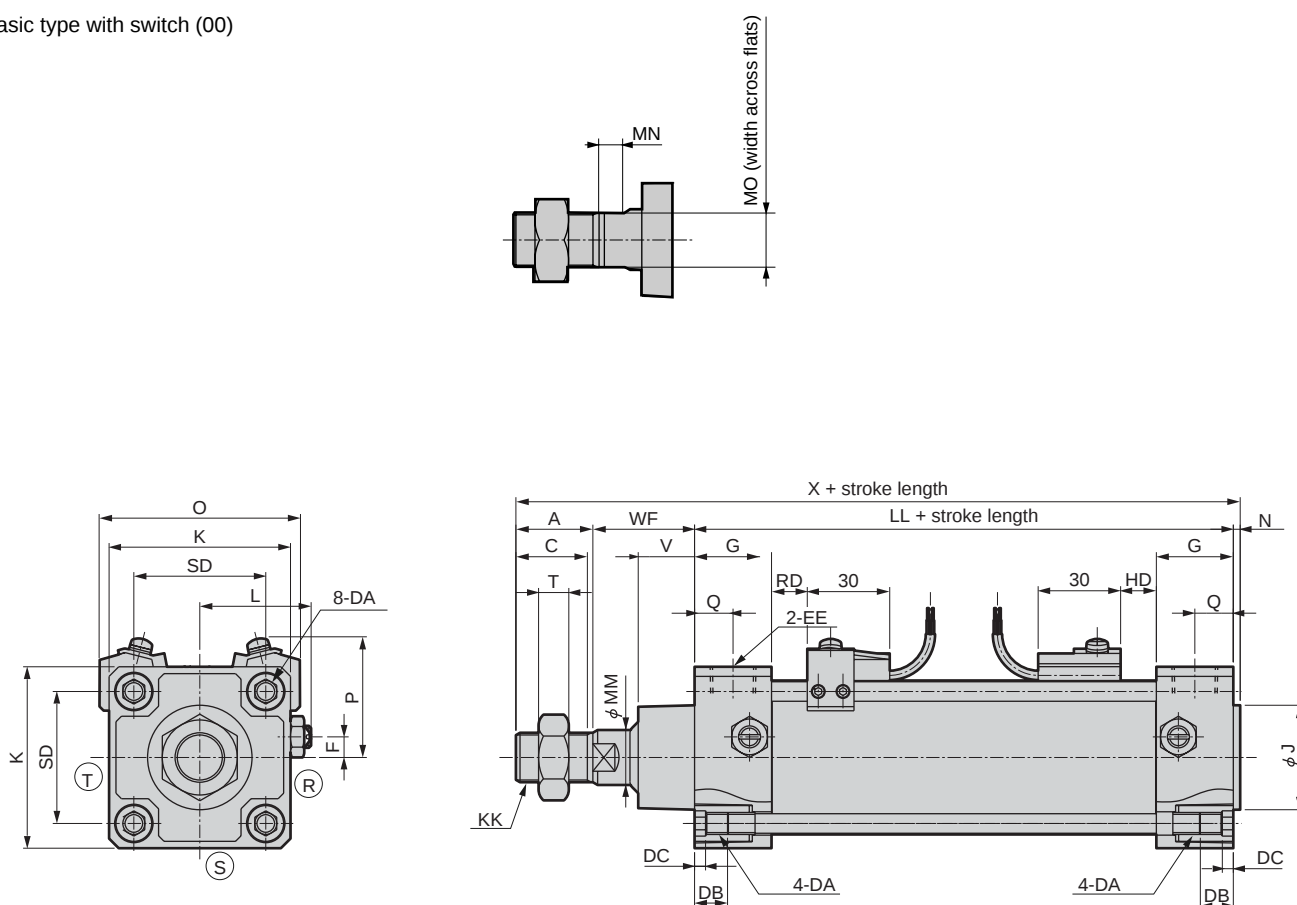
Repair parts list

No./part	Kit No.	Repair parts number
Bore size (mm)		
φ 40	SCA2-G2- 40K	
	SCA2-G3- 40K	
φ 50	SCA2-G2- 50K	
	SCA2-G3- 50K	
φ 63	SCA2-G2- 63K	3 4 8 9 12 15 21
	SCA2-G3- 63K	
φ 80	SCA2-G2- 80K	
	SCA2-G3- 80K	
φ 100	SCA2-G2-100K	
	SCA2-G3-100K	

Note 1: Specify the kit No. when placing an order.

Dimensions

● Basic type with switch (00)



Note 1: Refer to pages 572, 573 for accessory dimensions.

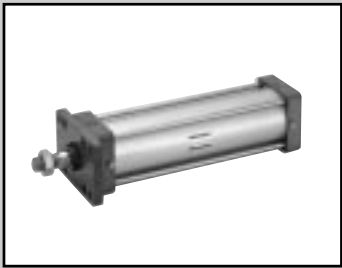
Symbol	Basic type with switch (00)														
Bore size (mm)	A	C	D	DA	DB	DC	EE	F	G	J	K	KK	L	LL	MM
φ 40	22	20	18	M8	12	4	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16
φ 50	28	26	20	M8	12	4	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20
φ 63	28	26	22	M8	12	4	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20
φ 80	36	34	26	M12	16	5	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25
φ 100	45	43	26	M12	16	5	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30
Symbol										With switch					
Bore size (mm)	MN	MO	N	Q	SD	T	V	WF	X	HD	P	O	RD		
φ 40	8	14	2	13	40.5	8	18.5	33.5	150.5	10	42	66	10		
φ 50	8	17	2.5	14	48	11	20.5	37	168.5	12	44	73	12		
φ 63	8	17	3	15	59	11	21	35	171	12	47	84	12		
φ 80	11	22	3.5	17	74	13	23.5	48	203.5	13.5	58	104	13.5		
φ 100	13	27	4	18	90	16	32	53	230	17.5	64	120	17.5		

● Each mounting style installation dimension is same as SCA2 (standard). Refer to pages 450 to 455.

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

Medium bore size cylinder
Standard type

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

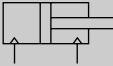


Medium bore size cylinder
Double acting coil scraper type

SCA2-G1 Series

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

JIS symbol



Double acting spatter adherence prevention type

SCA2-G4 Series

RoHS

Specifications

Descriptions		SCA2-G1-G4 SCA2-G1L2-G4L2					
Bore size	mm	φ 40	φ 50	φ 63	φ 80	φ 100	
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure	MPa	1.0					
Min. working pressure	MPa	0.05					
Withstanding pressure	MPa	1.6					
Ambient temperature		-10 to 60 (no freezing)					
Port size		Rc1/4	Rc3/8		Rc1/2		
Stroke tolerance		^{+0.9} ₀ (To 360), ^{+1.4} ₀ (to 800)					
Working piston speed		50 to 1000 (use within allowable energy absorption.)					
Cushion		Air cushion					
Effective cushion length		mm	14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)					
Allowable energy absorption	Cushioned	4.29	8.37	15.8	27.9	49.8	
	No cushion	0.067	0.079	0.079	0.201	0.301	
		The type without cushion cannot absorb a large energy generated by an external load. so an external shock absorber should be used.					

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	1600	1
ϕ 50			2000	
ϕ 63		700	2500	
ϕ 80				
ϕ 100				

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

Note 2: For types with switch, minimum stroke length varies depending on installation method. Refer to below table.

Min. stroke length of type with switch (T2YD type switch)

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod end stroke end.	Head end trunnion installation A position can not be detected at head end stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
Switch quantity														
ϕ 40	20	20	25	40	20	60	105	150	105	105	165	165	50	50
ϕ 50	15	15	25	40	15	15	60	60	100	100	100	100	45	45
ϕ 63	15	15	25	40	15	15	60	60	105	105	105	105	50	50
ϕ 80	15	15	30	45	15	15	60	60	110	110	110	110	55	55
ϕ 100	10	15	0	45	10	15	60	60	120	120	120	120	60	60

Note 1: 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.

Min. stroke length of type with switch (H type switch)

(Unit: mm)

Sketch	Different surface installation				Same surface installation				Center (hole type) trunnion installation				Rod end (hole type) trunnion installation	Head end (hole type) trunnion installation
													 A position can not be detected at rod end stroke end.	 A position can not be detected at head end stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
Bore size (mm)														
ϕ 40	10	20	35	50	10	50	100	150	86	86	92	92	38	38
ϕ 50	10	20	40	55	10	50	100	150	86	86	92	92	36	36
ϕ 63	10	20	40	55	10	35	100	150	91	91	97	97	41	41
ϕ 80	10	20	40	55	10	20	100	150	96	96	102	102	44	44
ϕ 100	10	20	40	55	10	20	100	150	106	106	112	112	50	50

Note 1: 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.

Switch specifications

● Strong magnetic field proof proximity

Descriptions	Proximity 2 wire	
	T2YD	
Applications	Programmable controller	
Load voltage	24 VDC $\pm 10\%$	
Load current	5 to 20mA	
Light	Red/green LED (ON lighting)	
Internal voltage drop	6V or less	
Leakage current	1.0mA or less	
Output delay hour Note 1 (ON/OFF delay)	30 to 60ms	
Lead wire length	1m (oil resistant vinyl cabtire cable ϕ 6, 0.5mm ² x 2 conductor) Note 2, Note 3	0.3m (flame resistance cabtire cord ϕ 6, 0.5 mm ² with M12 cable connector x 2 conductor)
Insulation resistance	100M Ω and over with 500 VDC megger	
Withstand voltage	No failure when 1000 VAC is applied for one minute	
Maximum shock resistance	980m/s ²	
Ambient temperature	-10 to + 60°C	
Protective structure	JIS C029 (water tight type), IEC standards IP67, oil resistance	

Note 1: This shows the time from magnetic sensor detects piston magnet until outputs a signal.

Note 2: For lead wire length, 3m and 5m are available as an option.

Note 3: For lead wire material, flame resistance type is available as an option.

● Strong magnetic field proof reed 2 wire

Descriptions	Reed 2 wire		
	H0		H0Y (2 color indicator type)
Applications	Programmable controller, relay		Programmable controller
Load voltage	12/24 VDC	110 VAC	24 VDC
Load current	5 to 50mA	7 to 20mA	5 to 20mA
Internal voltage drop	5V or less		6V or less
Light	Green LED (ON lighting)		Red/green LED (ON lighting)
Leakage current	10 μ A or less		
Lead wire length	1m (flame resistance cabtire cord ϕ 6, 0.5mm ² x 2 conductor)		
Insulation resistance	100M Ω and over with 500 VDC megger		
Withstand voltage	No failure impressed at 1000 VAC for one minute		
Maximum shock resistance	294m/s ²		
Ambient temperature range	-10 to + 60 °C		
Protective structure	JIS C029 (water tight type), IEC standards IP67, oil resistance		

Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke length (S) = 0mm							Weight per switch (including mounting bracket)		Additional weight per S=100mm
	Basic type (00)	Foot type (LB)	Flange type (FA, FB)	Special flange type (FC)	Eye bracket type (CA)	Clevis bracket type (CB)	Trunnion type (TA, TB, TC)	H type 1m	T2YD type 3m	
ϕ 40	0.84	1.01	1.25	0.93	1.16	1.20	1.22			0.39
ϕ 50	1.23	1.48	1.72	1.34	1.61	1.64	1.77			0.46
ϕ 63	1.63	2.00	2.72	1.81	2.20	2.25	2.48	0.10	0.20	0.50
ϕ 80	2.63	3.37	4.49	2.99	3.90	4.11	3.97			0.90
ϕ 100	4.24	5.15	6.98	4.79	5.88	6.06	6.81			1.12

(E.g.) Product weight for SCA2-G4-LB50B-200-H0-D

Product weight when stroke length 0mm ... 1.48 kg
 Additional weight when strokes length 200mm ... $0.46 \times \frac{200}{100} = 0.92$ kg
 Weight for 2 switches ... $0.10 \times 2 = 0.20$ kg
 Product weight ... $1.48 + 0.92 + 0.20$ kg = 2.60 kg

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
Medium bore size cylinder
Standard type

How to order

Without switch

SCA2 - G4 - LB - 40 B - 100 - S I

With switch

SCA2 - G4 - LB - 40 B - 100 - T2YD - R - S I

With strong magnetic field proof (H0, H0Y) switch

SCA2 - G4 L2 - LB - 40 B - 100 - H0Y - R - S I

A Model no.

B Mounting style
Note 1

C Bore size

D Cushion

E Stroke length
Note 2

F Switch model no.

G Switch quantity
Note 4

H Option

I Accessory
Note 5

Note on model no. selection

Note 1: The mounting bracket is shipped with the product.
(However, trunnion type is attached to the product when shipped.)

Note 2: If the maximum stroke is exceeded, refer to Ending 74.

Note 3: Refer to Page 572 for minimum stroke length of the type with switch.

Note 4: Switch quantity is limited when selected mounting style TA or TB; "H" (one on head end) for TA, "R" (one on rod end) for TB.

Note 5: "I" and "Y" can not select a selection at the same time.

Note 6: Refer to ending 89 for rod end specifications by custom order.

Note 7: Refer to page 436 for variation and option combination.

<Example of model number>

SCA2-G4-LB-40B-100-T2YD-R-SI

Model: Medium bore size cylinder

- A Model no. : Double acting spatter adherence prevention type
- B Mounting style : Axial foot type
- C Bore size : ϕ 40mm
- D Cushion : Both sides cushioned
- E Stroke length : 100mm
- F Switch model no. : Proximity switch T2YD, lead wire length 1m
- G Switch quantity : One on rod end
- H Option : Cushion needle position S
- I Accessory : Rod eye

Symbol	Descriptions			
A Model no.				
G1	Double acting coil scraper type			
G4	Double acting spatter adherence prevention type			
B Mounting style				
00	Basic type			
LB	Axial foot type			
FA	Rod end flange type			
FB	Head end flange type			
FC	Special head end flange type			
CA	Eye bracket type			
CB	Clevis bracket type			
TC	Center trunnion type			
TA	Rod end trunnion type			
TB	Head end trunnion type			
TF	Intermediate supporting hole (φ40 cannot be selected)			
TD	Rod end supporting hole (φ40 cannot be selected)			
TE	Head end supporting hole (φ40 cannot be selected)			
C Bore size (mm)				
40	φ 40			
50	φ 50			
63	φ 63			
80	φ 80			
100	φ 100			
D Cushion				
B	Both sides cushioned			
R	Rod end cushion			
H	Head end cushion			
N	No cushion			
E Stroke length (mm)				
Bore size	Stroke length Note 3	Available stroke length	Custom stroke length	
φ 40	1 to 600	1600	Per 1mm increment	
φ 50	1 to 600	2000		
φ 63	1 to 600	2500		
φ 80	1 to 700			
φ 100	1 to 800			
F Switch model no.				
Grommet type	Terminal box type		Indicator	Lead wire
	Standard type	Splash-proof		
T2YD*	-	-	Strong magnetic field proof switch	2-wire
T2YDT*	-	-		
H0*	-	-	Strong magnetic field proof switch Strong magnetic field 2 color indicator type	2-wire
H0Y*	-	-		
*Lead wire length				
Blank	1m (standard)			
3	3m (option)			
5	5m (option)			
G Switch quantity				
R	1 on rod end			
H	1 on head end			
D	2			
T	3			
H Option				
Blank	Cushion needle position R (standard)			
S	Cushion needle position S			
T	Cushion needle position T			
I Accessory				
I	Rod eye			
Y	Rod clevis			
B1	Eye bracket			
B2	Clevis bracket			
B3	Eye bracket			
B4	Trunnion type No. 2 bracket			

How to order H type switch

- Switch body + mounting bracket

SCA2-L2 - **H0** - **40**

Switch model no.

(Item ⑤ previous page)

Bore size

(Item ③ previous page)

- Only switch body

SW - **H0**

Switch model no.

(Item ⑤ previous page)

- Mounting bracket

SCA2-L2 - **H** - **40**

Bore size

(Item ③ previous page)

How to order T2YD type switch

- Switch body + mounting bracket

SCA2 - **T2YD** - **40**

Switch model no.

(Item ⑤ previous page)

Bore size

(Item ③ previous page)

- Only switch body

SW - **T2YD**

Switch model no.

(Item ⑤ previous page)

- Mounting bracket

SCA2 - **T** - **40**

Bore size

(Item ③ previous page)

How to order mounting bracket

Bore size (mm)	φ 40	φ 50	φ 63	φ 80	φ 100
Mounting bracket					
Foot (LB)	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Eye (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

Note 1: Refer to Page 448 for the mounting bracket material.

Note 2: The foot type mounting bracket is provided as 2 pcs./set.

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

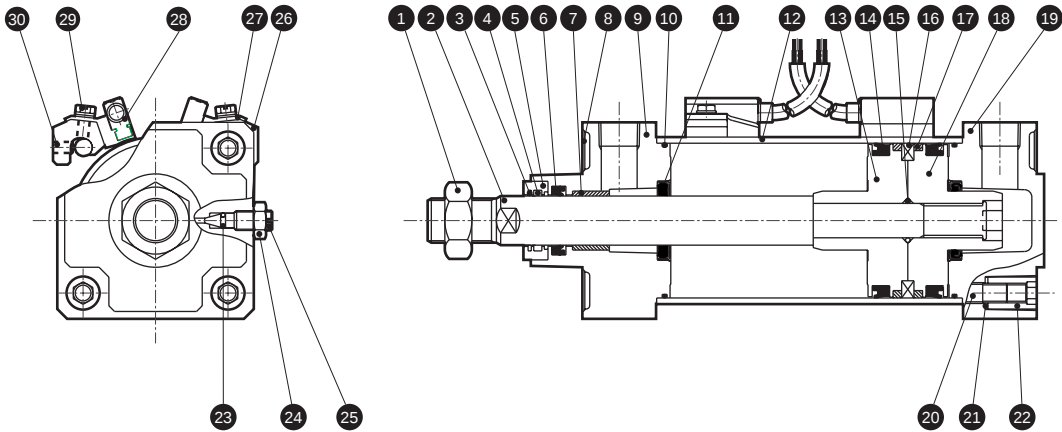
Medium bore size cylinder
Standard type

SCA2-G1/G4 Series

- 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

Internal structure and parts list

● SCA2-G1.G4



No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Rod nut	Steel	Zinc chromate	17	Wear ring	Polyacetal resin	
2	Piston rod	Steel	Industrial chrome plating	18	Piston H	Aluminum alloy die-casting	
3	Coil scraper	Phosphor bronze		19	Head cover	Aluminum alloy die-casting	Paint
4	Lube keeping structure	Special rubber	Only "G4"	20	Tie rod	Steel	Zinc chromate
5	Adaptor	Stainless steel		21	Conical spring washer	Steel	Blackening
6	Rod packing seal	Nitrile rubber		22	Round nut	Steel	Zinc chromate
7	Bush	Oil impregnated bearing alloy		23	Needle gasket	Nitrile rubber	
8	Masking plate	Aluminum alloy	Paint	24	Needle nut	Copper alloy	
9	Rod cover	Aluminum alloy die-casting	Paint	25	Cushion needle	Copper alloy	
10	Cylinder gasket	Nitrile rubber		With switch			
11	Cushion packing seal	Urethane rubber and steel	Special	26	Switch installation unit	Aluminum alloy	
12	Cylinder tube	Aluminum alloy	Hard alumite treatment	27	Switch holder	Aluminum alloy	
13	Piston R	Aluminum alloy die-casting		28	Cylinder switch		
14	Piston packing seal	Nitrile rubber		29	Slotted hexagon head bolt w/washer	Stainless steel	
15	Piston gasket	Nitrile rubber		30	Hexagon socket head set screw	Alloy steel	Blackening
16	Magnet	Plastic					

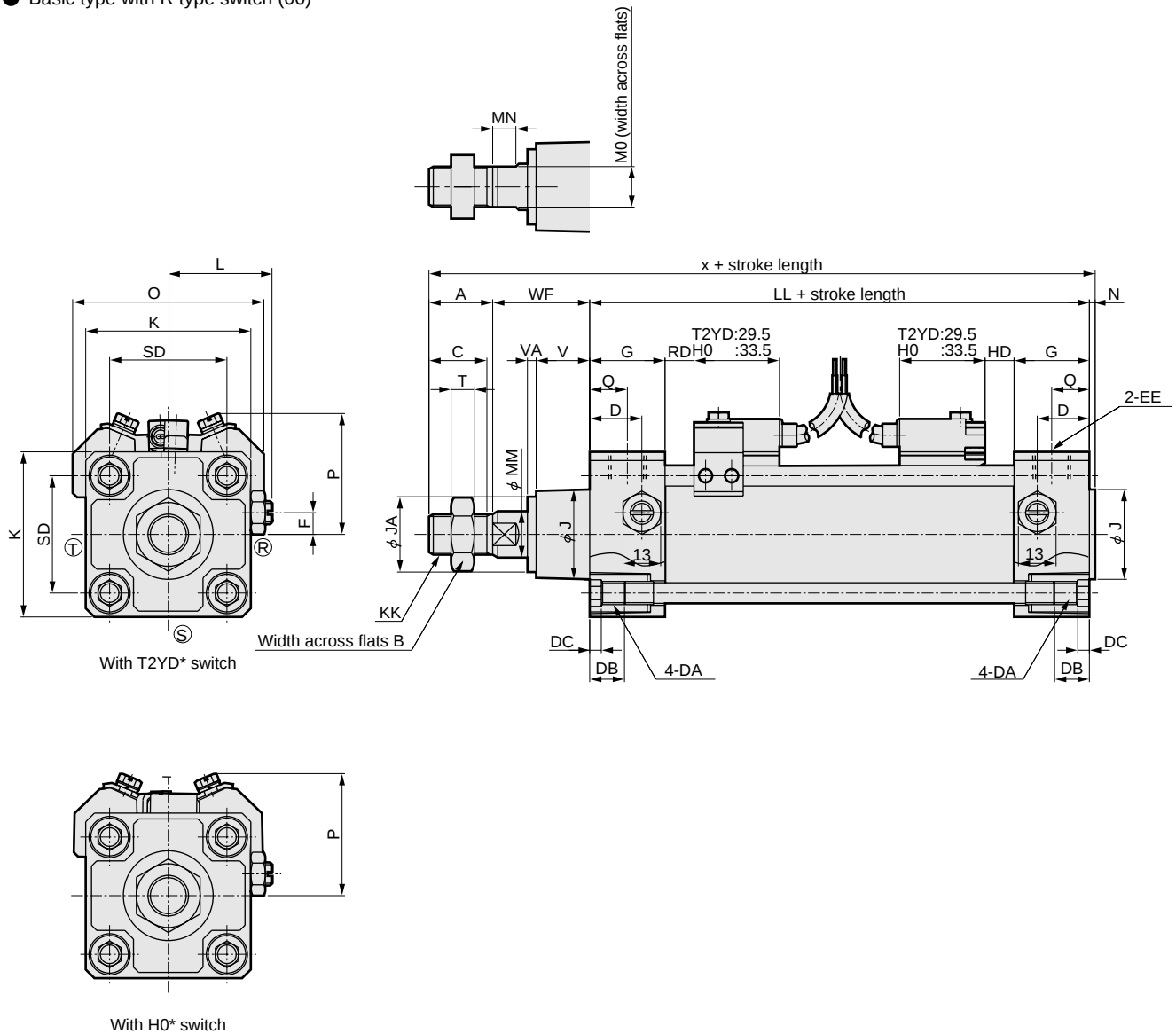
Repair parts list (SGA2-G1)

Bore size	Kit No.	Repair parts number
φ 40	SCA2-G1-40K	3 6 10 11 14 17 23
φ 50	SCA2-G1-50K	
φ 63	SCA2-G1-63K	
φ 80	SCA2-G1-80K	
φ 100	SCA2-G1-100K	

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

Dimensions

- Basic type with R type switch (00)



Note 1: R S T indicates a cushion needle position.

RD: Rod end max. sensitive position

HD: Head end max. sensitive position

Note 2: Referr to pages 598 to 599 for the dimentions of attachement.

Symbol	Basic type (00) basic dimensions																			
Bore size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	J	JA	K	KK	L	LL	MM	MN	MO	N
φ 40	22	22	20	18	M8	12	4	Rc1/4	7.5	26	31	26	57	M14 x 1.5	38 to 39.5	93	16	8	14	2
φ 50	28	27	26	20	M8	12	4	Rc3/8	0	28	38	32	66	M18 x 1.5	41 to 43.5	101	20	8	17	2.5
φ 63	28	27	26	22	M8	12	4	Rc3/8	0	30	38	32	80	M18 x 1.5	47.5 to 50.0	105	20	8	17	3
φ 80	36	32	34	26	M12	16	5	Rc1/2	0	34	43	37	98	M22 x 1.5	56 to 59	116	25	11	22	3.5
φ 100	45	41	43	28	M12	16	5	Rc1/2	0	36	51	42	118	M26 x 1.5	66 to 69	128	30	13	27	4
Symbol	With T2YD* switch				With H0* switch															
Bore size (mm)	HD	P	O	RD	HD	P	O	RD												
φ 40	10	40	66	10	4	42	66	4												
φ 50	12	44.5	73	12	6	44	73	6												
φ 63	12	50	84	12	6	47	84	6												
φ 80	13.5	60	104	13.5	7.5	58	104	7.5												
φ 100	17.5	68	120	17.5	11.5	64	120	11.5												

Each mounting style installation dimension is the same as SCA2 (standard type). Refer to pages 450 to 455.

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

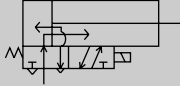


Medium bore size cylinder
 Double acting, with valve

SCA2-V Series

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

JIS symbol



(Single solenoid
 Push at energized)



Specifications

Descriptions		SCA2-V1/V2/V (with valve)				
Bore size	mm	φ40	φ50	φ63	φ80	φ100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure	MPa	0.7				
Min. working pressure	MPa	0.15				
Withstanding pressure	MPa	1.05				
Ambient temperature		-5 to 50 (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance		^{+0.9} ₀ (Up to 360) ^{+1.4} ₀ (Up to 800)				
Working piston speed Note 1		mm/s 50 to 500				50 to 450
Cushion		Air cushion				
Effective cushion length		mm 14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)				
Allowable energy absorption J	Cushioned	4.29	8.37	15.8	27.9	49.8
	No cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Note 1: Use this within absorbed energy range.
 To increase a piston speed of ϕ 100 cylinder, using silencer (SLW-10A) as substitution of metering valve (SMW-10A) enables 500 mm/s.

Valve specifications

Model no.	V1 SCA2-V2-40/50 V			V1 SCA2-V2-63 V			V1 SCA2-V2-80/100 V		
Descriptions									
Model no.	4KB2*9-00-[Voltage]			4KB3*9-00-[Voltage]			4KB4*9-00-[Voltage]		
Rated voltage	100 VAC (50/60Hz)	200 VAC (50/60Hz)	24 VDC	100 VAC (50/60Hz)	200 VAC (50/60Hz)	24 VDC	100 VAC (50/60Hz)	200 VAC (50/60Hz)	24 VDC
Starting current (A)	0.056/0.044	0.028/0.022	0.075	0.046/0.042	0.023/0.021	0.075	0.046/0.042	0.023/0.021	0.075
Holding current (A)	0.028/0.022	0.014/0.011		0.028/0.021	0.014/0.011		0.028/0.022	0.014/0.011	
Power consumption (W)	1.8/1.4	1.8/1.4	1.8	1.6/1.3	1.6/1.3	1.8	1.6/1.3	1.6/1.3	1.8
Voltage fluctuation range	±10%	±10%	±10%	±10%	±10%	±10%	±10%	±10%	±10%
Insulation class	Class B molded coil	Class B molded coil	Class B molded coil	Class B molded coil	Class B molded coil	Class B molded coil	Class B molded coil	Class B molded coil	Class B molded coil
Lead wire	Grommet lead wire (300 mm)								
Lead-out									

Note: Refer to "Pneumatic valves" CB-23SA about valves' details.

Stroke length

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

Note 1: Custom stroke length is available per 1mm increment.
 Note 2: Whether with switch or without switch, stroke length less than 50 mm is not available.

Min. stroke length of type with switch

● T0/T5 type min. stroke length with 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.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1
φ 40	50 (50)	50 (50)	50 (50)	60 (60)	50 (50)	60 (50)	105 (75)	150 (102)	110 (110)	110 (110)	175 (145)	175 (145)	50 (50)
φ 50	50 (50)	50 (50)	50 (50)	60 (60)	50 (50)	50 (50)	65 (50)	65 (60)	135 (135)	135 (135)	135 (135)	135 (135)	60 (60)
φ 63	50 (50)	50 (50)	50 (50)	60 (60)	50 (50)	50 (50)	70 (55)	70 (60)	110 (95)	110 (95)	110 (100)	110 (100)	50 (50)
φ 80	50 (50)	50 (50)	50 (50)	65 (65)	50 (50)	50 (50)	70 (55)	70 (65)	115 (85)	115 (85)	115 (105)	115 (105)	55 (50)
φ 100	50 (50)	50 (50)	50 (50)	70 (70)	50 (50)	50 (50)	70 (55)	70 (70)	125 (95)	125 (95)	125 (115)	125 (115)	60 (50)

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

Note 2: Stroke length less than 50 mm is not available.

Note 3: T8 type switches can not be installed.

Min. stroke length of type with switch

● T2/T3 type min. stroke length with 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.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1
φ 40	50 (50)	50 (50)	50 (50)	50 (50)	50 (50)	60 (50)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (50)
φ 50	50 (50)	50 (50)	50 (50)	50 (50)	50 (50)	50 (50)	60 (50)	60 (50)	105 (75)	105 (75)	105 (75)	105 (75)	50 (50)
φ 63	50 (50)	50 (50)	50 (50)	50 (50)	50 (50)	50 (50)	60 (50)	60 (50)	110 (80)	110 (80)	110 (85)	110 (85)	50 (50)
φ 80	50 (50)	50 (50)	50 (50)	50 (50)	50 (50)	50 (50)	60 (50)	60 (50)	115 (85)	115 (85)	115 (90)	115 (90)	55 (50)
φ 100	50 (50)	50 (50)	50 (50)	50 (50)	50 (50)	50 (50)	60 (50)	60 (50)	125 (95)	125 (95)	125 (100)	125 (100)	60 (50)

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

Note 2: Stroke length less than 50 mm is not available.

● T1/T2Y/T3Y/T2YD type min. stroke length with 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	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
φ 50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	100 (70)	100 (70)	100 (75)	100 (75)	45 (30)	45 (30)
φ 63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	105 (75)	105 (75)	105 (85)	105 (85)	50 (35)	50 (35)
φ 80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	110 (80)	110 (80)	110 (90)	110 (90)	55 (40)	55 (40)
φ 100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	120 (90)	120 (90)	120 (100)	120 (100)	60 (45)	60 (45)

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

Medium bore size cylinder
Standard type

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

Switch specifications (T type switch)

● 1color / 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/T1V	T2H/T2V/ T2JH/T2JV	T2YH/T2YV	T3H/T3V	T3PH/T3PV (Custom order)	T3YH/T3YV	T0H/T0V	T5H/T5V		T2YD	
Applications	Programmable controller relay, small solenoid valve	Programmable controller dedicated		Programmable controller, relay			Programmable controller, relay	Programmable controller, relay, IC circuit (w/o light), serial connection	Programmable controller dedicated		
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	24 VDC ±10%
Load current	5 to 100 mA	5 to 20 mA (Note 1)		100 mA or less		50 mA or less	5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 20 mA
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		Red/green LED (ON lighting)
Leakage current	1 mA or less with 100 VAC 2 mA or less with 200 VAC	1 mA or less		10 μA or less			0 mA				1 mA 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		Programmable controller, relay		Programmable controller dedicated		Programmable controller, relay	
Output method		NPN output							
Light	Installation position adjustment	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 20 mA		50 mA or less		5 to 20 mA		50 mA or less	
	Leakage current	1 mA or less		10 μA or less		1.2 mA or less		10 μA or less	
Preventive maintenance output	Load voltage	30 VDC or less							
	Load current	20 mA or less		50 mA or less		5 to 20 mA or less		50 mA or less	
	Leakage current	10 μA or less							

Note 1: Refer to Ending 1 for other switch specifications.

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

Cylinder weight

● SCA2-V

(Unit: kg)

Bore size (mm)	Product weight when stroke length (S) = 0 mm						Weight per switch (including mounting bracket)			Additional weight per S = 100 mm
	Basic type (00)	Foot type (LB)	Flange type (FA, FB)	Eye bracket type (CA)	Clevis bracket type (CB)	Trunnion type (TA, TB, TC)	T type	T2YD type		
								1 m	3 m	
φ 40	1.27	1.45	1.69	1.59	1.63	1.66	0.018	0.08	0.17	0.39
φ 50	1.64	1.89	2.14	2.02	2.05	2.18				0.46
φ 63	2.39	2.76	3.48	2.96	3.01	3.24				0.50
φ 80	4.17	4.91	6.03	5.44	5.65	5.51				0.90
φ 100	5.77	6.67	8.51	7.40	7.59	8.33				1.12

● SCA2-V1/V2

(Unit: kg)

Bore size (mm)	Product weight when stroke length (S) = 0 mm						Weight per switch (including mounting bracket)			Additional weight per S = 100 mm
	Basic type (00)	Foot type (LB)	Flange type (FA, FB)	Eye bracket type (CA)	Clevis bracket type (CB)	Trunnion type (TA, TB, TC)	T type	T2YD type		
								1 m	3 m	
ϕ 40	1.23	1.40	1.64	1.55	1.59	1.61	0.018	0.08	0.17	0.39
ϕ 50	1.60	1.84	2.09	1.97	2.01	2.13				0.46
ϕ 63	2.28	2.65	3.38	2.85	2.91	3.13				0.50
ϕ 80	4.07	4.81	5.93	5.34	5.55	5.41				0.90
ϕ 100	5.67	6.57	8.41	7.30	7.49	8.23				1.12

(E.g.) Product weight of SCA2-V1-LB-50B-200-R0-D

Product weight when S = 0 mm ... 1.84 kg
 Additional weight at stroke length 200 mm ... $0.46 \times \frac{200}{100} = 0.92$ kg
 Weight of two switches ... $0.018 \times 2 = 0.036$ kg
 Product weight ... $1.84 + 0.92 + 0.036$ kg = 2.796 kg

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

Medium bore size cylinder
Standard type

How to order

Without switch

SCA2 - V1 - LB - 40 - B - 100 - 1 - S I

With switch

SCA2 - V1 - LB - 40 - B - 100 - 1 - T0H - R - S I

A Operational method

B Mounting style
Note 1

C Bore size

D Port thread type

E Cushion

F Stroke length

G Valve voltage

H Switch model no.

I Switch quantity
Note 3

J Option
Note 4

K Accessory
Note 5

Note on model no. selection

Note 1: The mounting bracket is shipped with the product.
(However, trunnion type is attached to the product when shipped.)

Note 2: Refer to page 578 for min. stroke length.

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: Instantaneous maximum temperature is the temperature when spark and spatter etc. instantaneously contacts to bellows.

Note 5: "I" and "Y" can not be selected at the same time.

Note 6: Refer to Ending 89 for custom specifications of rod end form.

Note 7: Refer to page 436 for variation and option combination.

<Example of model number>

SCA2-V1-LB-40B-100-1-T0H-R-SI

Model: Medium bore size cylinder double acting with valve type

- A Operational method : Push at energized, single solenoid
- B Mounting style : Axial foot type
- C Bore size : ϕ 40 mm
- D Port thread type : Rc thread
- E Cushion : Both sides cushioned
- F Stroke length : 100 mm
- G Valve voltage : 100 VAC
- H Switch model no. : Reed T0H switch, lead wire length 1 m
- I Switch quantity : One on rod end
- J Option : Cushion needle position S
- K Accessory : Rod eye

How to order mounting bracket

Bore size (mm)	ϕ 40	ϕ 50	ϕ 63	ϕ 80	ϕ 100
Mounting bracket					
Foot (LB)	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Eye (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

Note 1: Refer to page 448 for the mounting bracket material.

Note 2: The foot type bracket is 2 pcs./set.

Symbol	Descriptions	
Ⓐ Operational method		
V1	Push at energized, single solenoid	
V2	Pull at energized, single solenoid	
V	Double solenoid	
Ⓑ 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 snap ring attached)	
TC	Center trunnion type	
TA	Rod end trunnion type	
TF	Intermediate supporting hole (φ 40 cannot be selected.)	
TD	Rod end supporting hole (φ 40 cannot be selected.)	
Ⓒ Bore size (mm)		
40	φ 40	
50	φ 50	
63	φ 63	
80	φ 80	
100	φ 100	
Ⓓ Port thread type		
Blank	Rc thread	
N	NPT thread (custom order)	
G	G thread (custom order)	
Ⓔ Cushion		
B	Both sides cushioned	
R	Rod end cushion	
H	Head end cushion	
N	No cushion	
Ⓕ Stroke length (mm)		
Bore size	Stroke length Note 2	Custom stroke length
φ 40	50 to 600	Per 1 mm increment
φ 50	50 to 600	
φ 63	50 to 600	
φ 80	50 to 700	
φ 100	50 to 800	
Ⓖ Valve voltage		
1	100 VAC	
2	200 VAC	
3	24 VDC	
Ⓜ Switch model no.		
Refer to the switch model no. table on the following page		
*Lead wire length		
Blank	1m (standard)	
3	3m (option)	
5	5m (option)	
Ⓢ Switch quantity		
R	One on rod end	
H	One on head end	
D	Two	
T	Three	
Ⓜ Option		
	Max. ambient temperature	Instantaneous max. temperature
J	Bellows 100 °C	200 °C
L	Bellows 250 °C	400 °C
M	Piston rod material (stainless steel)	
Blank	Cushion needle position R (standard)	
S	Cushion needle position S	
T	Cushion needle position T	
Ⓚ Accessory		
I	Rod eye	
Y	Rod clevis (pin and snap ring attached)	
B1	Eye bracket	
B2	Clevis bracket (pin and snap ring attached)	
B3	Eye bracket	
B4	Trunnion type No. 2 bracket	

[H] switch model no.

T type switch model no.				
Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T0H*	T0V*	Reed	1 color indicator type	2-wire
T5H*	T5V*		Without indicator light	
T1H*	T1V*	Proximity	1 color indicator type	2-wire
T2H*	T2V*			3-wire
T3H*	T3V*			2-wire
T2YH*	T2YV*		2 color indicator type	3-wire
T3YH*	T3YV*			2-wire
T3PH*	T3PV*		1 color indicator type (custom order)	3-wire
T2YFH*	T2YFV*		2 color indicator type (Without light for preventive maintenance output)	3-wire
T3YFH*	T3YFV*			4-wire
T2YMH*	T2YMV*		2 color indicator type (With light for preventive maintenance output (1 color))	3-wire
T3YMH*	T3YMV*			4-wire
T2YD*	-		Strong magnetic field proof switch	2-wire
T2YDT*	-		Off-delay type	2-wire
T2JH*	T2JV*			

R switch/H types switch					
Grommet type	Terminal box type		Contact	Indicator	Lead wire
	Standard type	Splash prf.			
R0*	R0B	R0A		1 color indicator type	

These types have been changed to T-switch integrated type since Oct 1st 2007.

How to order switch

(T type switch)

Rod end

- Switch body + mounting bracket

SCA2 - T0H - 40

Switch model no. Bore size
(Item (H) previous page) (Item (B) previous page)

- Only switch body

SW - T0H

Switch model no.
(Item (H) previous page)

- Switch bracket set

SCA2 - TS - 40

Bracket Bore size
(Item (B) previous page)

* Consult with CKD when using the environment compatible T-type switch.

Head end

- Switch body + mounting bracket

SCA2 - V - T0H - 40

Switch model no. Bore size
(Item (H) previous page) (Item (B) previous page)

- Only switch body

SW - T0H

Switch model no.
(Item (H) previous page)

- Switch bracket set

SCA2 - V - TS - 40

Bracket Bore size
(Item (B) previous page)

* Consult with CKD when using the environment compatible T-type switch.

(T2YD type switch)

- Switch body + mounting bracket

SCA2 - T2YD - 40

Switch model no. Bore size
(Item (H) previous page) (Item (C) previous page)

- Only switch body

SW - T2YD

Switch model no.
(Item (H) previous page)

- Mounting bracket

SCA2 - T - 40

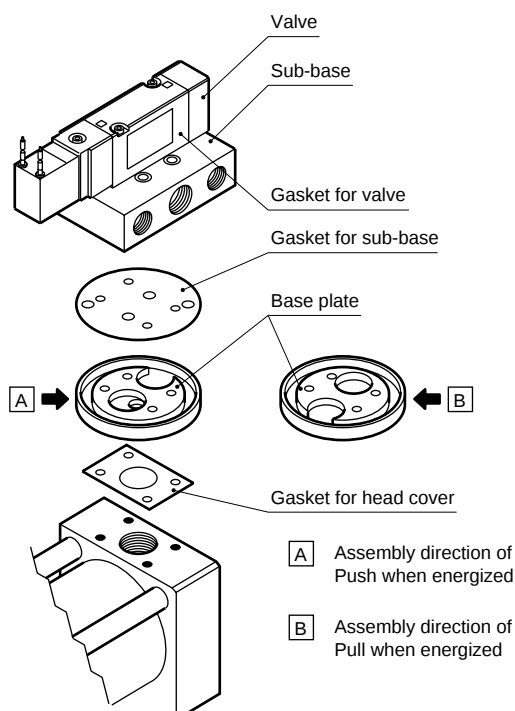
Bore size
(Item (C) previous page)

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

Medium bore size cylinder
Standard type

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

Change method in Push / Pull when energized

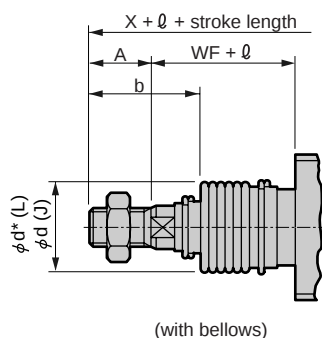
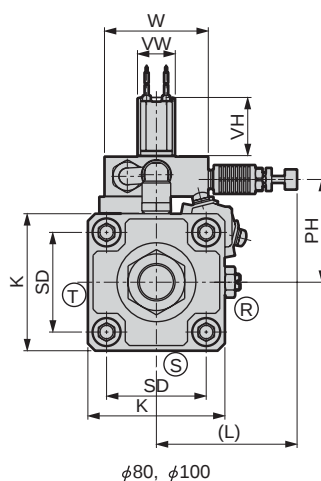
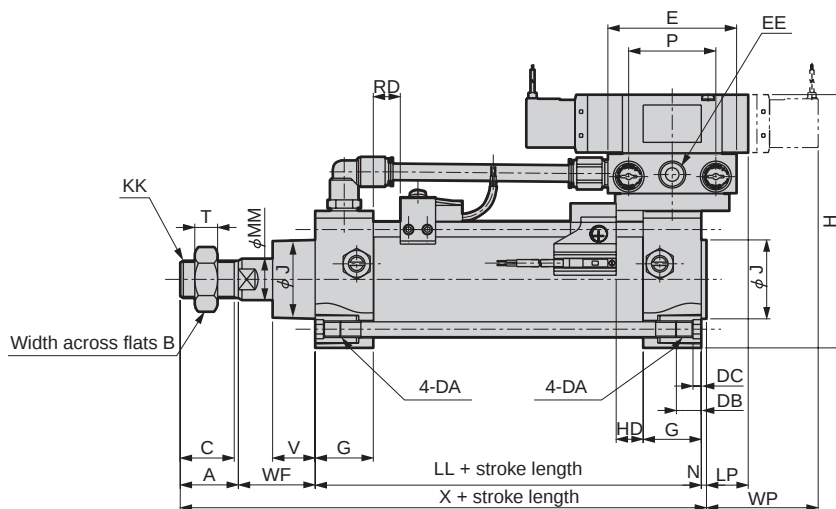
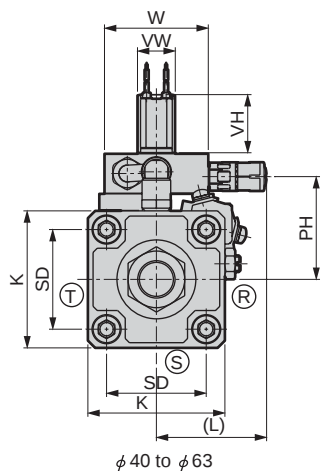


Internal structure

It is the same as the double acting single rod type SCA2 Series. Refer to page 448.

Dimensions

● Basic type (00)



Symbol	Basic type (00) basic dimensions																			
Bore size	A	B	C	E	EE	DB	DC	G	H	J	K	KK	L	LL	LP	MM	N	P	PH	SD
φ 40	22	22	20	62	Rc1/4	12	4	26	113	31	57	M14 x 1.5	60	93	22	16	2	42	45	40.5
φ 50	28	27	26	62	Rc1/4	12	4	28	122	38	66	M18 x 1.5	60	101	20.5	20	2.5	42	49.5	48
φ 63	28	27	26	76	Rc3/8	12	4	30	149	38	80	M18 x 1.5	64	105	20	20	3	51	60.5	59
φ 80	36	32	34	94	Rc1/2	16	5	34	188	43	98	M22 x 1.5	122	116	26.5	25	3.5	64	78.5	74
φ 100	45	41	43	94	Rc1/2	16	5	36	208	51	118	M26 x 1.5	122	128	25	30	4	64	88.5	90
Symbol	With switch					With bellows														
Bore size	T0, T5, T2, T3		T1, T2Y, T3Y, T2YF/M, T3YF/M			X	b	d	d*	ℓ										
	RD	HD	RD	HD						50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500			
φ 40	11	11	10	10		150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8			
φ 50	13	13	12	12		168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5			
φ 63	13	13	12	12		171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5			
φ 80	14.5	14.5	13.5	13.5		203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5			
φ 100	18.5	18.5	17.5	17.5		230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9			

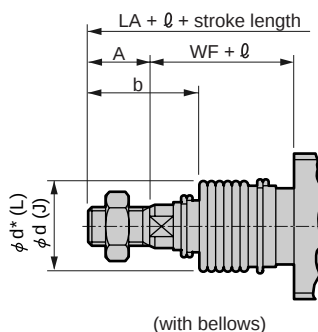
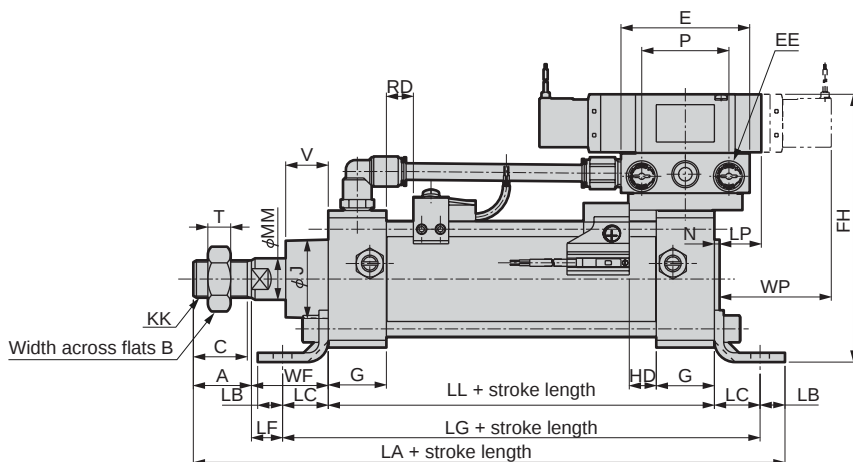
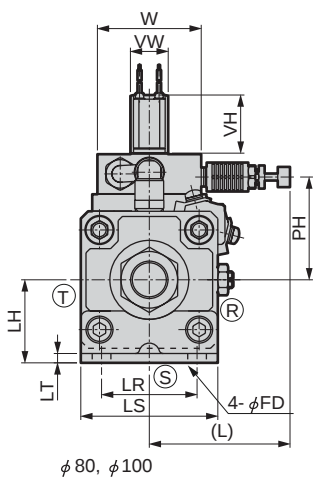
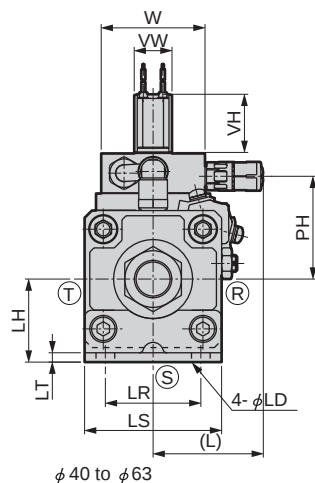
Note 1: For ℓ dimensions, round up decimal places.

Note 2: Refer to pages 597 for the projecting dimensions of T2YD switch.

Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

- Axial foot type (LB)



Symbol	Axial foot type (LB) basic dimensions																					Installation dimensions										
Bore size	A	B	C	E	EE	FH	G	KK	L	LL	LP	MM	N	P	PH	T	V	VH	VW	W	WF	WP	LA	LB	LC	LD	LF	LG	LH	LR	LS	LT
φ40	22	22	20	62	Rc1/4	124.5	26	M14 x 1.5	60	93	22	16	2	42	45	8	18.5	28	18	50	33.5	55	178	10	19.5	9	14	132	40	40	57	3.2
φ50	28	27	26	62	Rc1/4	129	28	M18 x 1.5	60	101	20.5	20	2.5	42	49.5	11	20.5	28	18	50	37	53.5	200	12	22	9	15	145	40	46	66	4.5
φ63	28	27	26	76	Rc3/8	159	30	M18 x 1.5	64	105	20	20	3	51	60.5	11	21	36	23	60	35	62	210	12	30	11	5	165	50	60	80	4.5
φ80	36	32	34	94	Rc1/2	199	34	M22 x 1.5	122	116	26.5	25	3.5	64	78.5	13	23.5	43	29	90	48	72.5	251	14	37	14	11	190	60	74	98	6.0
φ100	45	41	43	94	Rc1/2	216	36	M26 x 1.5	122	128	25	30	4	64	88.5	16	32	43	29	90	53	71	278	21	31	14	22	190	67	80	118	6.0
Symbol	With switch								With bellows																							
Bore size	T0, T5, T2, T3				T1, T2Y, T3Y, T2YF/M, T3YF/M				X	b	d	d*	ℓ																			
	RD		HD		RD		HD						50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500												
φ40	11		11		10		10		150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8												
φ50	13		13		12		12		168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5												
φ63	13		13		12		12		171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5												
φ80	14.5		14.5		13.5		13.5		203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5												
φ100	18.5		18.5		17.5		17.5		230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9												

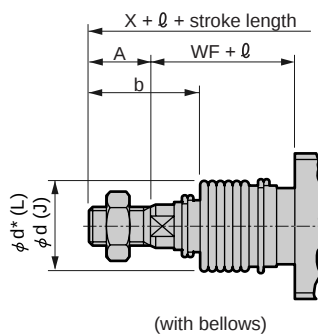
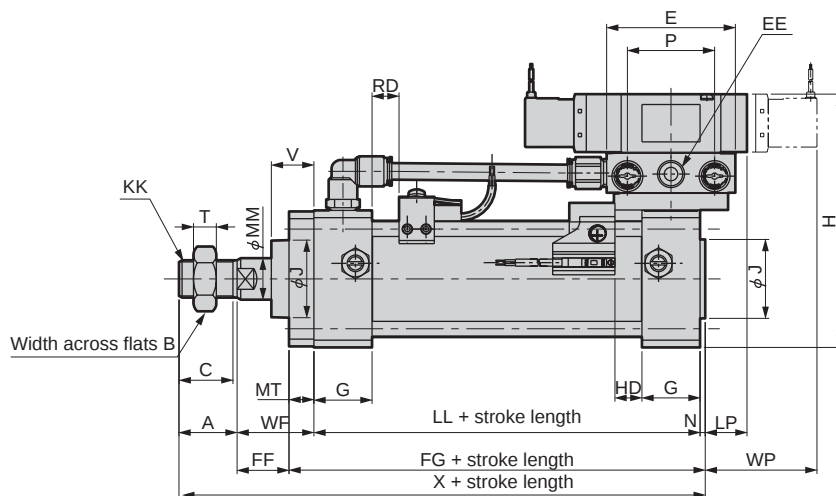
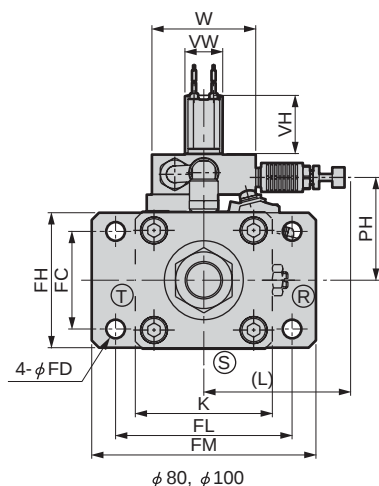
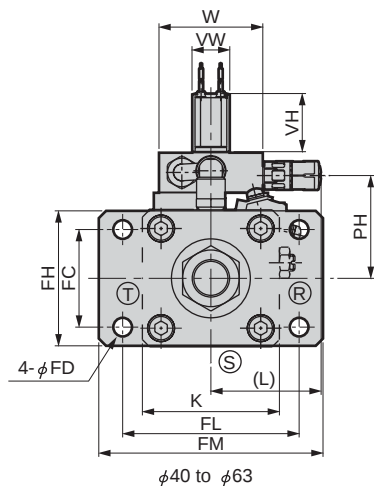
Note 1: For ℓ dimensions, round up decimal places.

Note 2: Refer to pages 597 for the projecting dimensions of T2YD switch.

Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

● Rod end flange type (FA)



Symbol	Basic dimensions for rod end flange type (FA)																										Installation dimensions									
Bore size	A	B	C	E	EE	G	H	J	K	KK	L	LL	LP	MM	MT	N	P	PH	T	V	VH	VW	W	WF	WP	X	FC	FD	FF	FG	FH	FL	FM			
φ 40	22	22	20	62	Rc1/4	26	113	31	57	M14 x 1.5	60	93	22	16	12	2	42	45	8	18.5	28	18	50	33.5	55	150.5	40	9	21.5	107	57	80	100			
φ 50	28	27	26	62	Rc1/4	28	122	38	66	M18 x 1.5	60	101	20.5	20	12	2.5	42	49.5	11	20.5	28	18	50	37	53.5	168.5	47	9	25	115.5	65	85	108			
φ 63	28	27	26	76	Rc3/8	30	149	38	80	M18 x 1.5	64	105	20	20	16	3	51	60.5	11	21	36	23	60	35	62	171	60	11	19	124	80	106	130			
φ 80	36	32	34	94	Rc1/2	34	188	43	98	M22 x 1.5	122	116	26.5	25	19	3.5	64	78.5	13	23.5	43	29	90	48	72.5	203.5	74	14	29	138.5	98	125	153			
φ 100	45	41	43	94	Rc1/2	36	208	51	118	M26 x 1.5	122	128	25	30	19	4	64	88.5	16	32	43	29	90	53	71	230	88	14	34	151	118	144	180			
Symbol Bore size	With switch										With bellows																									
	T0, T5, T2, T3				T1, T2Y, T3Y, T2YF/M, T3YF/M				X	b	d	d*	ℓ												Over 500											
	RD		HD		RD		HD						50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500																	
φ 40	11		11		10		10		150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8																
φ 50	13		13		12		12		168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5																
φ 63	13		13		12		12		171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5																
φ 80	14.5		14.5		13.5		13.5		203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5																
φ 100	18.5		18.5		17.5		17.5		230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9																

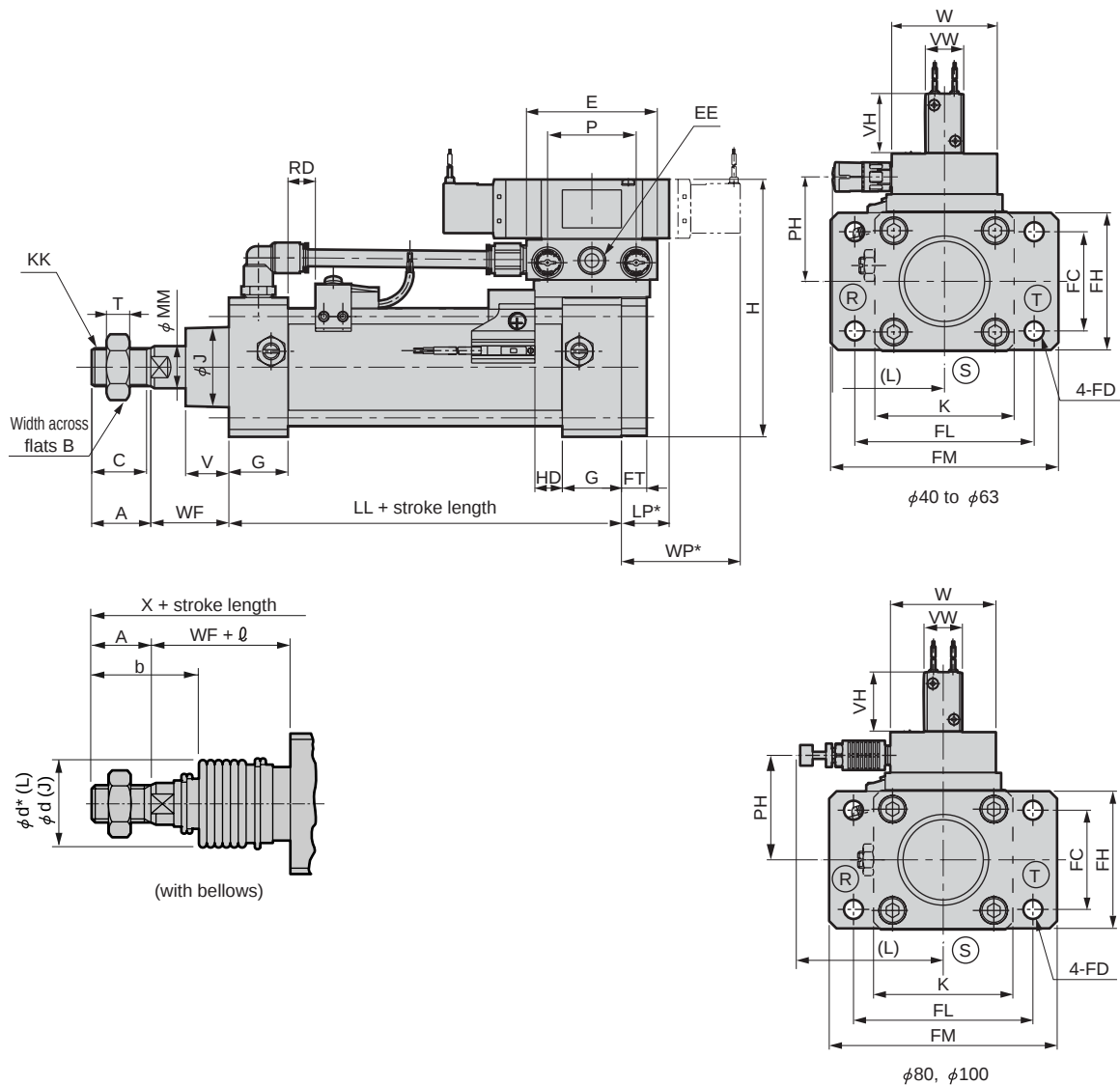
Note 1: For ℓ dimensions, round up decimal places.

Note 2: Refer to pages 597 for the projecting dimensions of T2YD switch.

Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

● Head end flange type (FB)



Symbol	Basic dimensions for head end flange type (FB)																				Installation dimensions							
Bore size	A	B	C	E	EE	G	H	K	KK	L	LL	LP*	MM	P	PH	T	V	VH	VW	W	WP*	FC	FD	FH	FJ	FL	FM	FT
φ40	22	22	20	62	Rc1/4	26	113	57	M14 x 1.5	60	93	20	16	42	45	8	18.5	28	18	50	57	40	9	57	131	80	100	12
φ50	28	27	26	62	Rc1/4	28	122	66	M18 x 1.5	60	101	18	20	42	49.5	11	20.5	28	18	50	56	47	9	65	142.5	85	108	12
φ63	28	27	26	76	Rc3/8	30	149	80	M18 x 1.5	64	105	17	20	51	60.5	11	21	36	23	60	65	60	11	80	144.5	106	130	16
φ80	36	32	34	94	Rc1/2	34	188	98	M22 x 1.5	122	116	23	25	64	78.5	13	23.5	43	29	90	76	74	14	98	170	125	153	19
φ100	45	41	43	94	Rc1/2	36	208	118	M26 x 1.5	122	128	21	30	64	88.5	16	32	43	29	90	75	88	14	118	187	144	180	19
Symbol	With switch							With bellows																				
Bore size	T0, T5, T2, T3		T1, T2Y, T3Y, T2YF/M, T3YF/M		X	b	d	d*	ℓ																			
									50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500												
	RD	HD	RD	HD																								
φ40	11	11	10	10	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8												
φ50	13	13	12	12	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5												
φ63	13	13	12	12	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5												
φ80	14.5	14.5	13.5	13.5	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5												
φ100	18.5	18.5	17.5	17.5	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9												

Note 1: For ℓ dimensions, round up decimal places.

Note 2: Refer to pages 597 for the projecting dimensions of T2YD switch.

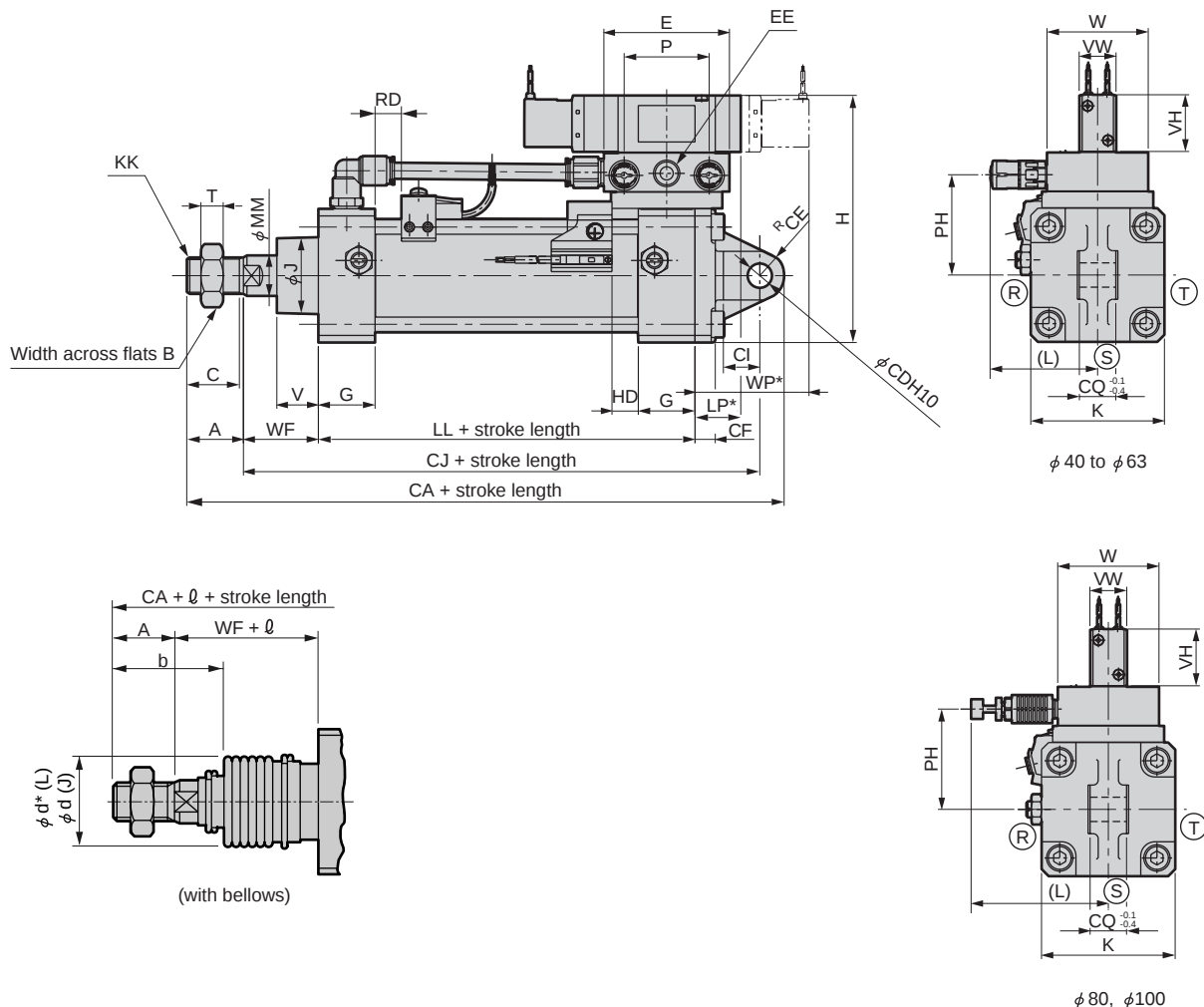
Note 3: Refer to page 598, 599 for accessory dimensions.

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
Medium bore size cylinder
Standard type

Dimensions

● Eye bracket type (CA)



Symbol	Basic dimensions for eye bracket type (CA)																						Installation dimensions						
Bore size	A	B	C	E	EE	G	H	K	KK	L	LL	LP*	MM	P	PH	T	V	VH	VW	W	WF	WP*	CA	CD	CE	CF	CI	CJ	CQ
φ 40	22	22	20	62	Rc1/4	26	113	57	M14 x 1.5	60	93	20	16	42	45	8	18.5	28	18	50	33.5	57	192.5	12	12	10	18	158.5	18
φ 50	28	27	26	62	Rc1/4	28	122	66	M18 x 1.5	60	101	18	20	42	49.5	11	20.5	28	18	50	37	56	210	12	12	10	18	170	18
φ 63	28	27	26	76	Rc3/8	30	149	80	M18 x 1.5	64	105	17	20	51	60.5	11	21	36	23	60	35	65	221	14	16	10	24	177	20
φ 80	36	32	34	94	Rc1/2	34	188	98	M22 x 1.5	122	116	23	25	64	78.5	13	23.5	43	29	90	48	76	272	20	20	14	30	216	28
φ 100	45	41	43	94	Rc1/2	36	208	118	M26 x 1.5	122	128	21	30	64	88.5	16	32	43	29	90	53	75	298	20	20	16	30	233	28
Symbol	With switch								With bellows																				
Bore size	T0, T5, T2, T3				T1, T2Y, T3Y, T2YF/M, T3YF/M				X	b	d	d*	ℓ												Over 500				
	RD	HD	RD	HD	50 or less	50 to 100	100 to 150	150 to 200					200 to 300	300 to 400	400 to 500														
φ 40	11	11	10	10	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8													
φ 50	13	13	12	12	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5													
φ 63	13	13	12	12	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5													
φ 80	14.5	14.5	13.5	13.5	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5													
φ 100	18.5	18.5	17.5	17.5	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9													

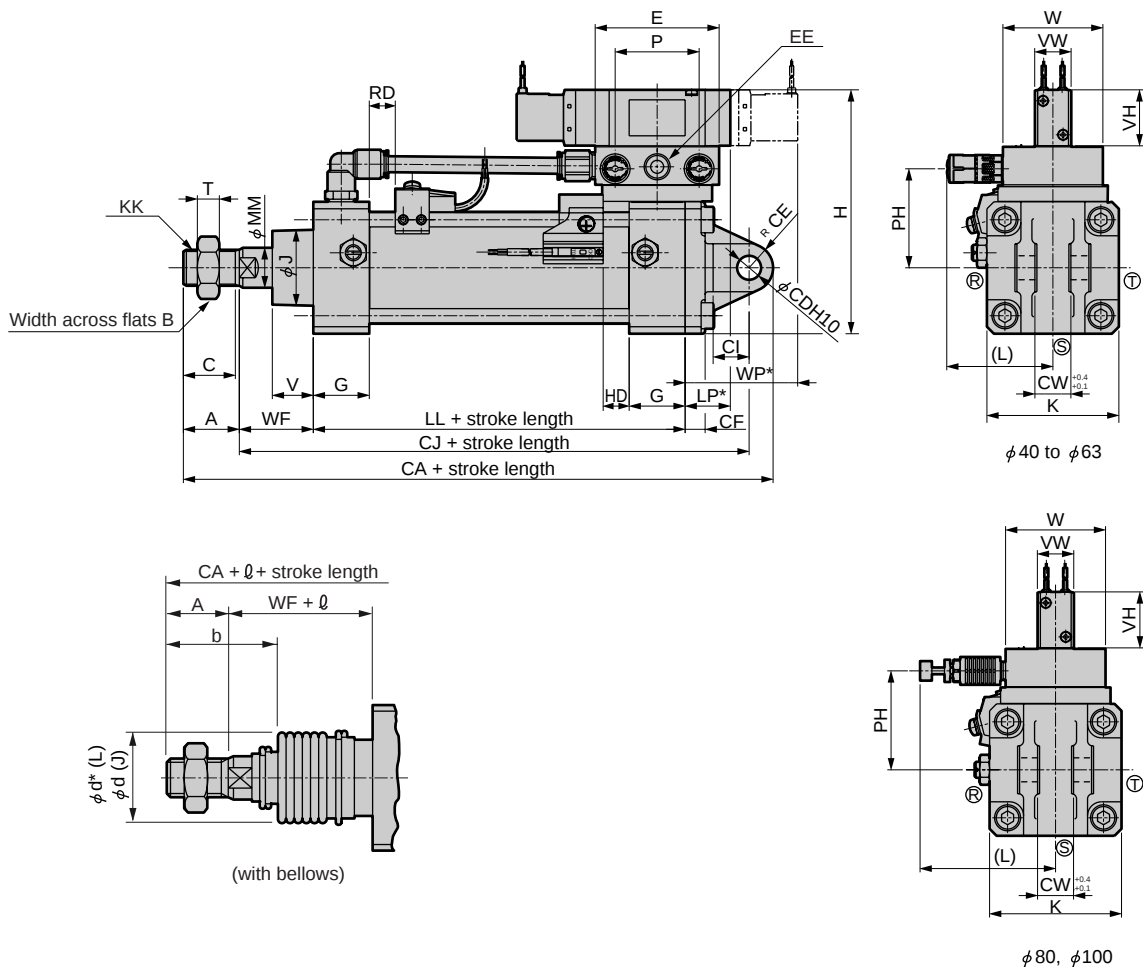
Note 1: For ℓ dimensions, round up decimal places.

Note 2: Refer to pages 597 for the projecting dimensions of T2YD switch.

Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

● Clevis bracket type (CB)



Symbol	Basic dimensions for clevis bracket type (CB)																						Installation dimensions						
Bore size	A	B	C	E	EE	G	H	K	KK	L	LL	LP*	MM	P	PH	T	V	VH	VW	W	WF	WP*	CA	CD	CE	CF	CI	CJ	CW
φ 40	22	22	20	62	Rc1/4	26	113	57	M14 x 1.5	60	93	20	16	42	45	8	18.5	28	18	50	33.5	57	192.5	12	12	10	18	158.5	18
φ 50	28	27	26	62	Rc1/4	28	122	66	M18 x 1.5	60	101	18	20	42	49.5	11	20.5	28	18	50	37	56	210	12	12	10	18	170	18
φ 63	28	27	26	76	Rc3/8	30	149	80	M18 x 1.5	64	105	17	20	51	60.5	11	21	36	23	60	35	65	221	14	16	10	24	177	20
φ 80	36	32	34	94	Rc1/2	34	188	98	M22 x 1.5	122	116	23	25	64	78.5	13	23.5	43	29	90	48	76	272	20	20	14	30	216	28
φ 100	45	41	43	94	Rc1/2	36	208	118	M26 x 1.5	122	128	21	30	64	88.5	16	32	43	29	90	53	75	298	20	20	16	30	233	28
Symbol	With switch								With bellows																				
Bore size	T0, T5, T2, T3		T1, T2Y, T3Y, T2YF/M, T3YF/M		X	b	d	d*	ℓ										Over 500										
									50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500														
	RD	HD	RD	HD																									
φ 40	11	11	10	10	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8													
φ 50	13	13	12	12	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5													
φ 63	13	13	12	12	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5													
φ 80	14.5	14.5	13.5	13.5	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5													
φ 100	18.5	18.5	17.5	17.5	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9													

Note 1: For ℓ dimensions, round up decimal places.

Note 2: Refer to pages 597 for the projecting dimensions of T2YD switch.

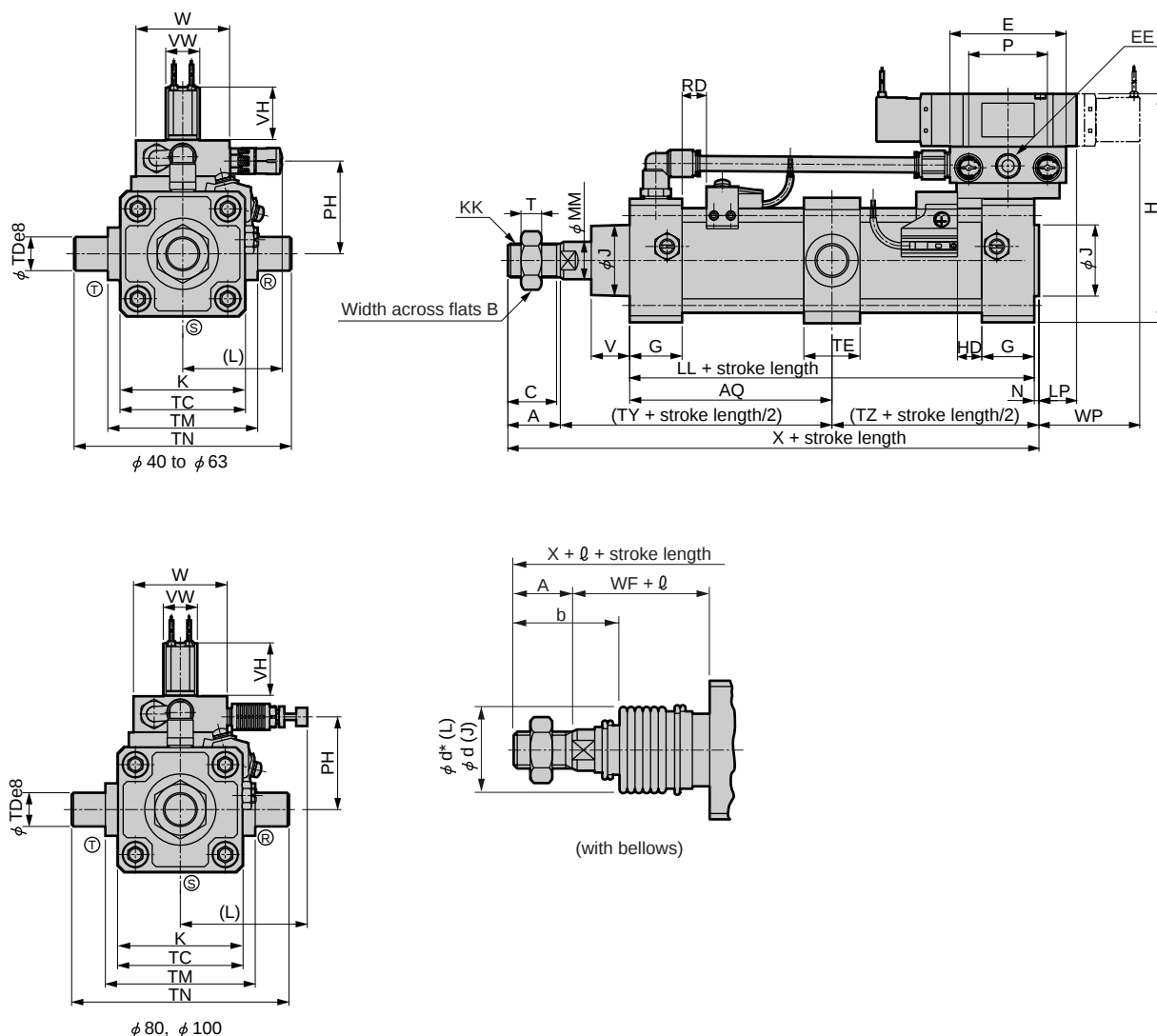
Note 3: Refer to page 598, 599 for accessory dimensions.

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

Medium bore size cylinder
Standard type

Dimensions

● Center trunnion type (TC)



Symbol	Basic dimensions for enter trunnion type (TC)																							Installation dim.							
Bore size	A	B	C	E	EE	H	J	K	KK	L	LL	LP	MM	N	P	PH	T	V	VH	VW	W	WF	WP	X	AQ	TC	TD	TE			
φ 40	22	22	20	62	Rc1/4	113	31	57	M14 x 1.5	60	93	22	16	2	42	45	8	18.5	28	18	50	33.5	55	150.5	46.5+ Stroke length 2	57	16	30			
φ 50	28	27	26	62	Rc1/4	122	38	66	M18 x 1.5	60	101	20.5	20	2.5	42	49.5	11	20.5	28	18	50	37	53.5	168.5	50.5+ Stroke length 2	67	18	30			
φ 63	28	27	26	76	Rc3/8	149	38	80	M18 x 1.5	64	105	20	20	3	51	60.5	11	21	36	23	60	35	62	171	52.5+ Stroke length 2	82	20	35			
φ 80	36	32	34	94	Rc1/2	188	43	98	M22 x 1.5	122	116	26.5	25	3.5	64	78.5	13	23.5	43	29	90	48	72.5	203.5	58+ Stroke length 2	100	25	40			
φ 100	45	41	43	94	Rc1/2	208	51	118	M26 x 1.5	122	128	25	30	4	64	88.5	16	32	43	29	90	53	71	230	64+ Stroke length 2	121	35	50			
Symbol					With switch				With bellows																						
Bore size	TM	TN	TY	TZ	T0, T5, T2, T3		T1, T2Y, T3Y, T2YFM, T3YFM		X	b	d	d*	ℓ												Over 500						
					RD	HD	RD	HD					50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500												
φ 40	63	95	80	48.5	11	11	10	10	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8											
φ 50	80	116	87.5	53	13	13	12	12	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5											
φ 63	90	130	87.5	55.5	13	13	12	12	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5											
φ 80	115	165	106	61.5	14.5	14.5	13.5	13.5	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5											
φ 100	135	205	117	68	18.5	18.5	17.5	17.5	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9											

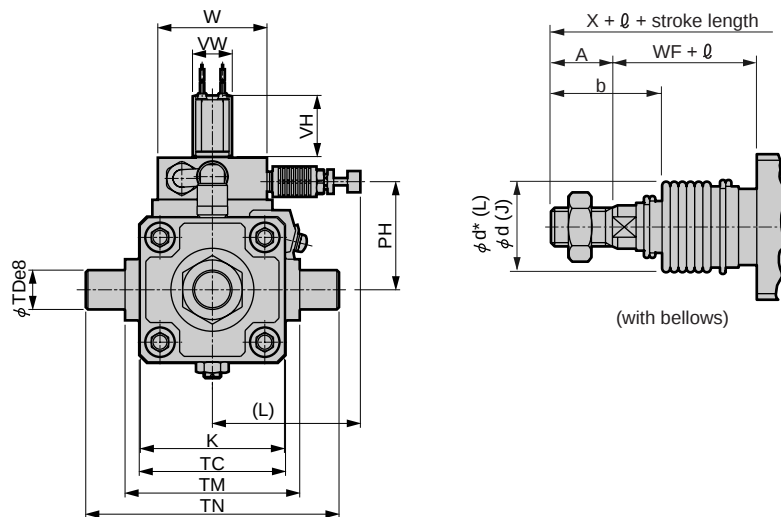
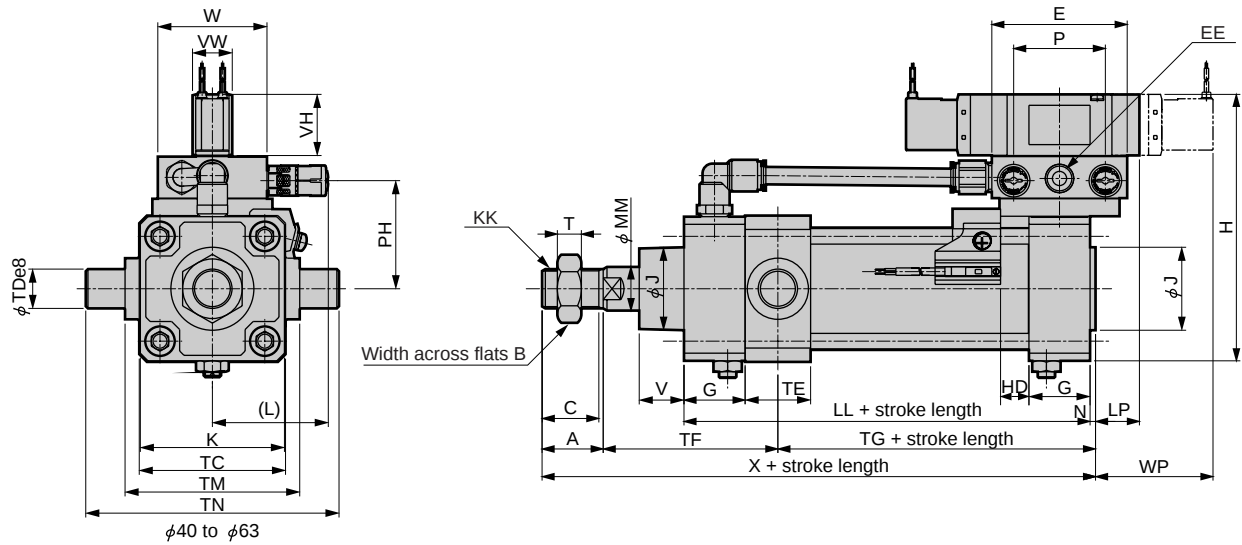
Note 1: For ℓ dimensions, round up decimal places.

Note 2: Refer to pages 597 for the projecting dimensions of T2YD switch.

Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

● Rod end trunnion type (TA)



φ80, φ100

Symbol	Basic dimensions for rod end trunnion type (TA)																							Installation dim.						
Bore size	A	B	C	E	EE	G	H	J	K	KK	L	LL	LP	MM	N	P	PH	T	V	VH	VW	W	WF	WP	X	TC	TD	TE	TF	TG
φ 40	22	22	20	62	Rc1/4	26	113	31	57	M14 x 1.5	60	93	22	16	2	42	45	8	18.5	28	18	50	33.5	55	150.5	57	16	30	74.5	54
φ 50	28	27	26	62	Rc1/4	28	122	38	66	M18 x 1.5	60	101	20.5	20	2.5	42	49.5	11	20.5	28	18	50	37	53.5	168.5	67	18	30	80	60.5
φ 63	28	27	26	76	Rc3/8	30	149	38	80	M18 x 1.5	64	105	20	20	3	51	60.5	11	21	36	23	60	35	62	171	82	20	35	82.5	60.5
φ 80	36	32	34	94	Rc1/2	34	188	43	98	M22 x 1.5	122	116	26.5	25	3.5	64	78.5	13	23.5	43	29	90	48	72.5	203.5	100	25	40	102	65.5
φ 100	45	41	43	94	Rc1/2	36	208	51	118	M26 x 1.5	122	128	25	30	4	64	88.5	16	32	43	29	90	53	71	230	121	35	50	114	71
Symbol					With switch		With bellows																							
Bore size	TM	TN	T0, T5, T2, T3		T1, T2Y, T3Y, T2YF/M, T3YF/M		X	b	d	d*	ℓ																			
			HD	HD	50 or less	50 to 100					100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500														
φ 40	63	95	11	10	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8														
φ 50	80	116	13	12	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5														
φ 63	90	130	13	12	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5														
φ 80	115	165	14.5	13.5	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5														
φ 100	135	205	18.5	17.5	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9														

Note 1: For l dimensions, round up decimal places.

Note 2: Refer to pages 597 for the projecting dimensions of T2YD switch.

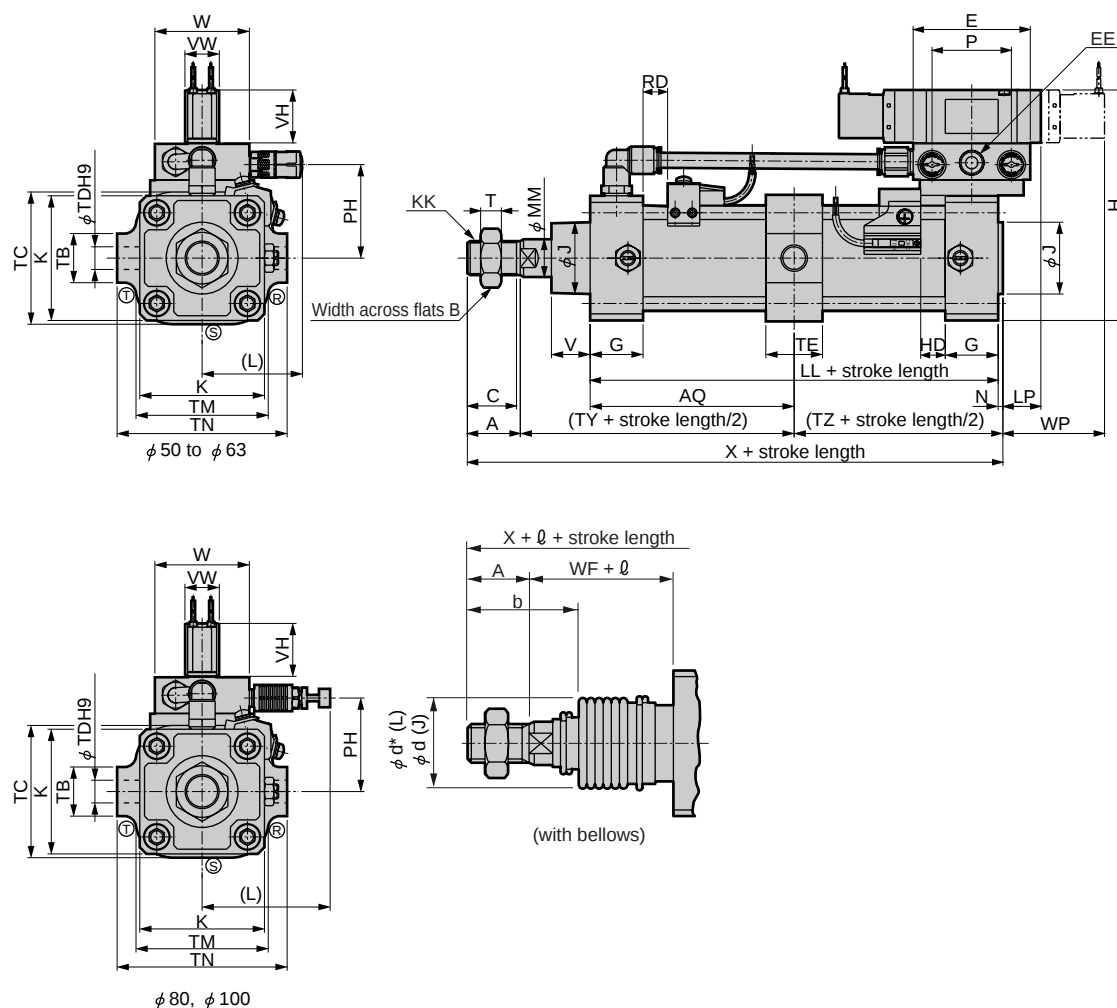
Note 3: Refer to page 598, 599 for accessory dimensions.

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
Medium bore size cylinder
Standard type

Dimensions

● Intermediate supporting hole (TF)



Symbol	Basic dimensions for intermediate supporting hole (TF)																					Installation dimensions								
Bore size	A	B	C	E	EE	H	J	K	KK	L	LL	LP	MM	N	P	PH	T	VH	VW	W	WP	X	AQ	TB	TC	TD	TE	TM	TN	
φ50	28	27	26	62	Rc1/4	122	38	66	M18 x 1.5	60	101	20.5	20	2.5	42	49.5	11	28	18	50	53.5	168.5	50.5+ Stroke length 2	26	67	12	30	70	90	
φ63	28	27	26	76	Rc3/8	149	38	80	M18 x 1.5	64	105	20	20	3	51	60.5	11	36	23	60	62	171	52.5+ Stroke length 2	30	82	14	35	86	104	
φ80	36	32	34	94	Rc1/2	188	43	98	M22 x 1.5	122	116	26.5	25	3.5	64	78.5	13	43	29	90	72.5	203.5	58+ Stroke length 2	35	100	20	40	105	134	
φ100	45	41	43	94	Rc1/2	208	51	118	M26 x 1.5	122	128	25	30	4	64	88.5	16	43	29	90	71	230	64+ Stroke length 2	40	121	20	40	127	150	
Symbol	With switch					With bellows																								
Bore size	TY	TZ	T0, T5, T2, T3		T1, T2Y, T3Y, T2YF/M, T3YF/M		X	b	d	d*	ℓ															Over 500				
			RD	HD	RD	HD					50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500													
φ50	87.5	53	13	13	12	12	12	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5											
φ63	87.5	55.5	13	13	12	12	12	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5											
φ80	106	61.5	14.5	14.5	13.5	13.5	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5												
φ100	117	68	18.5	18.5	17.5	17.5	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9												

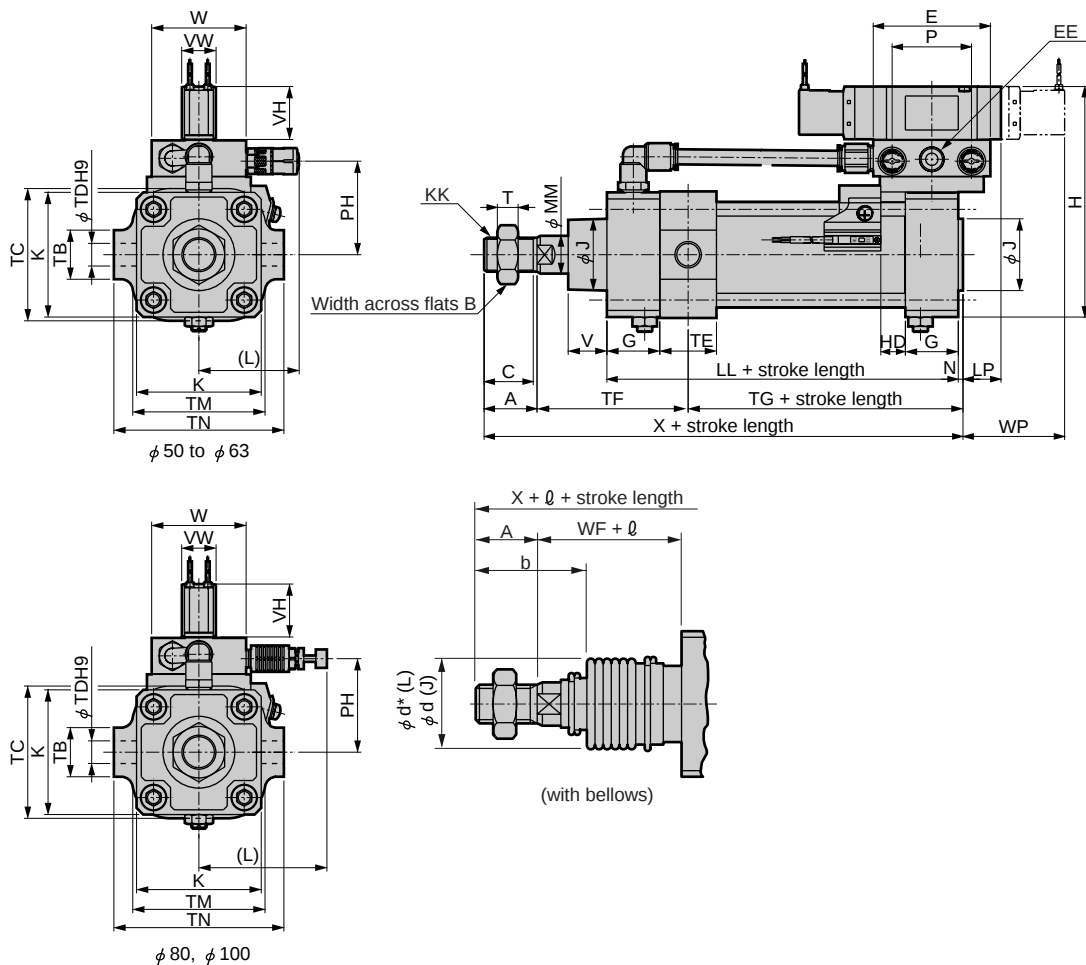
Note 1: For ℓ dimensions, round up decimal places.

Note 2: Refer to pages 597 for the projecting dimensions of T2YD switch.

Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

- Rod end supporting hole (TD)



Symbol	Basic dimensions for rod end supporting hole (TD)																						Installation dimensions								
Bore size	A	B	C	E	EE	G	H	J	K	KK	L	LL	LP	MM	N	P	PH	T	VH	VW	W	WP	X	TB	TC	TD	TE	TF	TG	TM	TN
φ50	28	27	26	62	Rc1/4	28	122	38	66	M18 x 1.5	60	101	20.5	20	2.5	42	49.5	11	28	18	50	53.5	168.5	26	67	12	30	80	60.5	70	90
φ63	28	27	26	76	Rc3/8	30	149	38	80	M18 x 1.5	64	105	20	20	3	51	60.5	11	36	23	60	62	171	30	82	14	35	82.5	60.5	86	104
φ80	36	32	34	94	Rc1/2	34	188	43	98	M22 x 1.5	122	116	26.5	25	3.5	64	78.5	13	43	29	90	72.5	203.5	35	100	20	40	102	65.5	105	134
φ100	45	41	43	94	Rc1/2	36	208	51	118	M26 x 1.5	122	128	25	30	4	64	88.5	16	43	29	90	71	230	40	121	20	40	109	76	127	150
Symbol	With switch				With bellows																										
Bore size	T0, T5, T2, T3		T1, T2Y, T3Y, T2YF/M, T3YF/M		X	b	d	d*	ℓ																						
	HD	HD	50 or less	50 to 100					100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500																	
φ50	13		12		168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5															
φ63	13		12		171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5															
φ80	14.5		13.5		203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5															
φ100	18.5		17.5		230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9															

Note 1: For ℓ dimensions, round up decimal places.

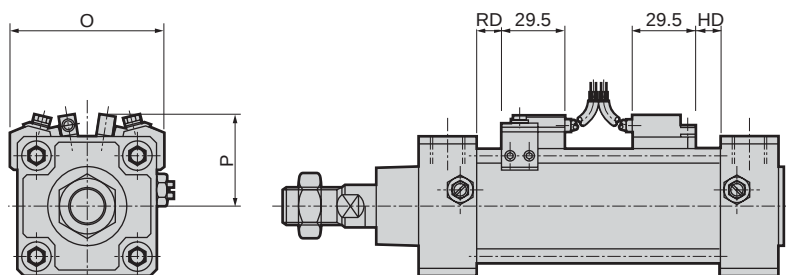
Note 2: Refer to pages 597 for the projecting dimensions of T2YD switch.

Note 3: Refer to page 598, 599 for accessory dimensions.

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

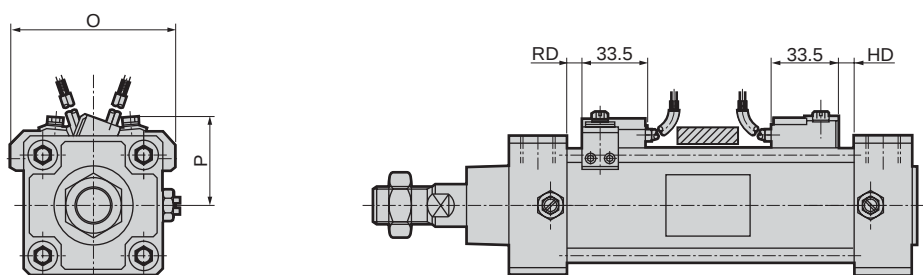
Ending
Medium bore size cylinder
Standard type

● With T2YD switch



Symbol Bore size (mm)	O	P	RD	HD
φ 40	66	40	10	10
φ 50	73	44.5	12	12
φ 63	84	50	12	12
φ 80	104	60	13.5	13.5
φ 100	120	68	17.5	17.5

● With H0* switch



Symbol Bore size (mm)	O	P	RD	HD
φ 40	66	42	4	4
φ 50	73	44	6	6
φ 63	84	47	6	6
φ 80	104	58	7.5	7.5
φ 100	120	64	11.5	11.5

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

Medium bore size cylinder
Standard type

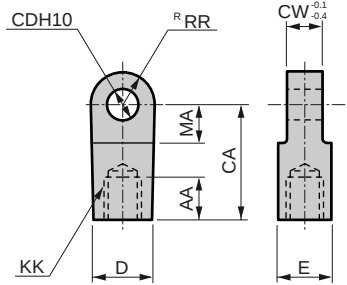
Dimensions for SCA2 Series common accessory (rode eye/clevis/bracket)

- Mounting dimensions ϕ CD, CW, CQ for the clevis type, rod eye, and second bracket are the same, so all parts can be combined.
- Designate the model No. when ordering.



● Rod eye (I)

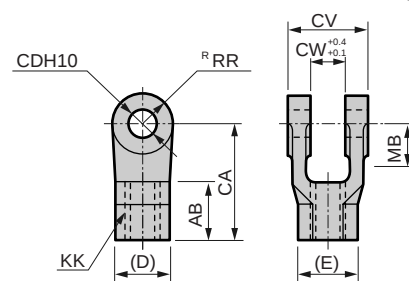
Material: Cast iron



Model no.	Applicable bore size (mm)	AA	CA	CD	CW	D	E	KK	MA	RR	Weight (kg)
S1-I-40	40	20	50	12 ^{+0.070} ₀	18	27	27	M14 x 1.5	21	16	0.26
S1-I-50	50	21	50	12 ^{+0.070} ₀	18	27	27	M18 x 1.5	21	16	0.24
S1-I-63	63	21	50	14 ^{+0.070} ₀	20	27	27	M18 x 1.5	21	16	0.25
S1-I-80	80	30	70	20 ^{+0.084} ₀	28	46	41	M22 x 1.5	30	25	0.88
S1-I-100	100	30	70	20 ^{+0.084} ₀	28	46	41	M26 x 1.5	30	25	0.84

● Rod clevis (Y)

Material: Cast iron



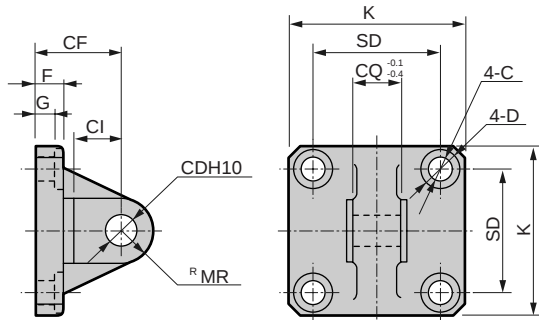
Note: Pin and snap ring are attached.

Model no.	Applicable bore size (mm)	AB	CA	CD	CV	CW	D	E	KK	MB	RR	Weight (kg)
S1-Y-40	40	24	50	12 ^{+0.070} ₀	36	18	27	31.2	M14 x 1.5	19	16	0.25
S1-Y-50	50	24	50	12 ^{+0.070} ₀	36	18	27	31.2	M18 x 1.5	19	16	0.24
S1-Y-63	63	24	50	14 ^{+0.070} ₀	40	20	27	31.2	M18 x 1.5	19	16	0.26
S1-Y-80	80	35	70	20 ^{+0.084} ₀	56	28	41	47.3	M22 x 1.5	30	25	0.90
S1-Y-100	100	35	70	20 ^{+0.084} ₀	56	28	41	47.3	M26 x 1.5	30	25	0.85

Note: MB dimension indicates CW dimension effective length.

● Eye bracket (B1)

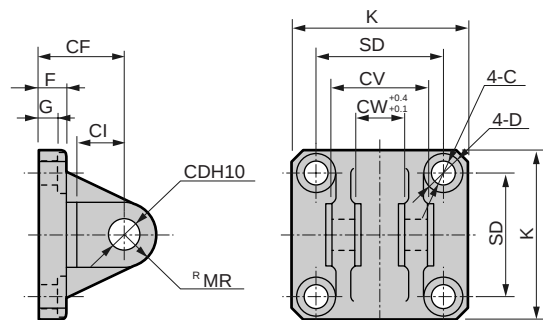
Material: Cast iron



Model no.	Applicable bore size (mm)	C	CD	CF	CI	CQ	D	F	G	K	MR	SD	Weight (kg)
S1-B1-40	40	9	12 ^{+0.070} ₀	32	18	18	14	10	6.5	57	12	40.5	0.32
S1-B1-50	50	9	12 ^{+0.070} ₀	32	18	18	14	10	6.5	66	12	48	0.38
S1-B1-63	63	9	14 ^{+0.070} ₀	37	24	20	14	10	6.5	80	16	59	0.57
S1-B1-80	80	14	20 ^{+0.084} ₀	52	30	28	20	14	10.5	98	20	74	1.27
S1-B1-100	100	14	20 ^{+0.084} ₀	52	30	28	20	16	10.5	118	20	90	1.64

● Clevis bracket (B2)

Material: Cast iron

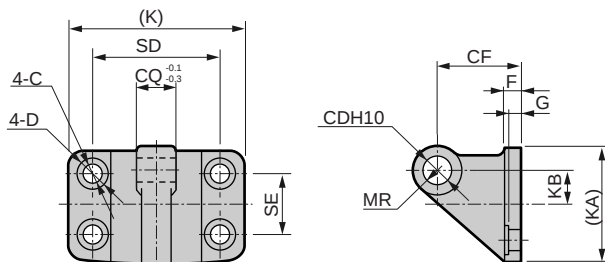


Note: Pin and snap ring are attached.

Model no.	Applicable bore size (mm)	C	CD	CF	CI	CV	CW	D	F	G	K	MR	SD	Weight (kg)
S1-B2-40	40	9	12 ^{+0.070} ₀	32	18	36	18	14	10	6.5	57	12	40.5	0.36
S1-B2-50	50	9	12 ^{+0.070} ₀	32	18	36	18	14	10	6.5	66	12	48	0.41
S1-B2-63	63	9	14 ^{+0.070} ₀	37	24	40	20	14	10	6.5	80	16	59	0.62
S1-B2-80	80	14	20 ^{+0.084} ₀	52	30	56	28	20	14	10.5	98	20	74	1.48
S1-B2-100	100	14	20 ^{+0.084} ₀	52	30	56	28	20	16	10.5	118	20	90	1.82

● Eye bracket (B3)

Material: Cast iron

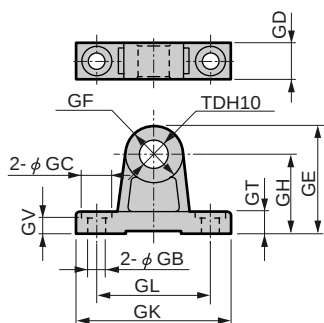


Model no.	Applicable bore size (mm)	C	CD	CF	CQ	D	F	G	K	KA	KB	MR	SD	SE	Weight (kg)
S1-B3-40	ϕ 40, ϕ 50	9	12	40	18	14	8	6.5	85	57	17.5	12	65	35	0.44
S1-B3-63	ϕ 63	11	14	50	20	17	10	8	105	67	20	16	80	40	0.77
S1-B3-80	ϕ 80, ϕ 100	14	20	65	28	20	12	10	130	93	30	20	100	60	1.64

Accessory dimensions

● Trunnion type No. 2 bracket dimensions

Material: Cast iron

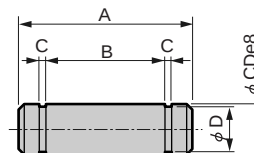


Symbol Model no.	GB	GC	GD	GE	GF	GH	GK	GL	GT	GV	TD	Weight (kg)
S1-B4-40	9	17	19	61	32	45	80	60	12	11	16 ^{+0.070} ₀	0.25
S1-B4-50	9	17	19	63	36	45	85	65	12	11	18 ^{+0.070} ₀	0.28
S1-B4-63	11	22	24	80	40	60	100	75	14	13	20 ^{+0.084} ₀	0.52
S1-B4-80	14	24	26	85	50	60	115	85	14	13	25 ^{+0.084} ₀	0.70
S1-B4-100	14	24	35	107	64	75	130	100	17	16	35 ^{+0.100} ₀	1.48

● Pin dimensions

Pin (P)

Material: Steel



Model no.	Applicable bore size (mm)	A	B	C	D	CD	Snap ring	Weight (kg)
S1-P-40	40, 50	43.5	36.2	1.15	11.5	12 ^{-0.032} _{-0.059}	Axis C type 12	0.04
S1-P-63	63	47.5	40.2	1.15	13.4	14 ^{-0.032} _{-0.059}	Axis C type 14	0.06
S1-P-80	80, 100	64	56.2	1.35	19	20 ^{-0.040} _{-0.073}	Axis C type 20	0.16

Note: For clevis bracket, rod clevis and clevis bracket types, a pin and a snap ring are attached.

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

Medium bore size cylinder
Standard type