

# SCA2

## Medium bore size cylinder

ø40/ø50/ø63/ø80/ø100

### Standard

#### Overview

Medium bore size standard cylinders (ø40 to ø100) with the end covers fixed with tie rod on both sides. Wide range of choices. The most reliable series in the standard cylinders.

#### Features

Easy to modify to the type with switch

The cylinder is equipped with a magnet as standard, allowing modification to the type with switch by simply mounting the desired sensor switch.

Simple replacement of the mounting bracket

The adapter compatible with different mounting brackets enables easy replacement and helps efficient inventory management.

Lighter weight and higher corrosion resistance

Aluminum main parts including both end covers, piston and tube have enabled the lighter body with higher corrosion resistance and shock resistance.



### CONTENTS

Series variation	444
Variation and option combination selection table	448
● Double acting/single rod (SCA2)	450
● Double acting/stroke adjustable (push) (SCA2-P)	472
● Double acting/stroke adjustable (pull) (SCA2-R)	480
● Double acting/heat resistance (SCA2-T)	488
● Double acting/position locking (SCA2-Q2)	494
● Double acting/low friction (SCA2-O)	526
- Low friction at low pressure (0.2 MPa or less) -	
● Double acting/low friction (SCA2-U)	534
- Constant friction when pressurized -	
● Double acting/double rod (SCA2-D)	540
● Double acting/back to back (SCA2-B)	548
● Double acting/2-stage (SCA2-W)	556
● Double acting/steel tube (SCA2-K)	564
● Double acting/low hydraulic (SCA2-H)	568
● Double acting/rubber scraper (SCA2-G)	576
● Double acting/coolant proof (SCA2-G2/G3)	584
● Double acting/coil scraper (SCA2-G1)/anti-spatter adherence (G4)	590
● Double acting/with valve (SCA2-V)	596
SCA2 Series common accessory dimensions	470
▲ Safety precautions	616

The cylinder switches T2YH, T2YV, T3YH, and T3YV are scheduled for end of production at the end of December 2023.

SCP*3
CMK2
CMA2
SCM
SCG
<b>SCA2</b>
SCS2
CKV2
CAV2/ COVP/IN2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending


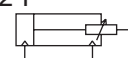
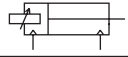




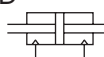

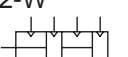


# Series variation



# Medium bore size cylinder SCA2 Series

\* For the environment-resistant/  
valve, refer to pages 576 and 613.

- SCP\*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2**
- SCS2
- CKV2
- CAV2/  
COVPIN2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/  
MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd  
Contr
- Ending

Variation	Model No.  JIS symbol	Bore size (mm)	Standard stroke (mm)											Min. stroke (mm)	Max. stroke (mm)	Available stroke (mm)	Custom stroke (per mm)				
			25	50	75	100	150	200	250	300	350	400	450				500	Basic	00		
Double acting	SCA2 	ø40/ø50	●	●	●	●	●	●	●	●	●	●	●	●	1	600	1600 2000	1	●		
		ø63	●	●	●	●	●	●	●	●	●	●	●	●	●	700	2500		●		
		ø80	●	●	●	●	●	●	●	●	●	●	●	●	●	800			●		
		ø100	●	●	●	●	●	●	●	●	●	●	●	●	●				●		
Double acting/stroke adjustable (push)	SCA2-P 	ø40 to ø63	●	●	●	●	●	●	●	●	●	●	●	●	25	600	600	1	●		
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		
Double acting/stroke adjustable (pull)	SCA2-R 	ø40 to ø63	●	●	●	●	●	●	●	●	●	●	●	●	25	600	600	1	●		
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		
Double acting/heat resistant	SCA2-T 	ø40 to ø63	●	●	●	●	●	●	●	●	●	●	●	●	1	600	600	1	●		
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		
Double acting/position locking	SCA2-Q2 	ø40 to ø63	●	●	●	●	●	●	●	●	●	●	●	●	5	600	600	1	●		
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		
Double acting/low friction (low pressure (≤ 0.2 MPa))	SCA2-O 	ø40 to ø63	●	●	●	●	●	●	●	●	●	●	●	●	1	600	600	1	●		
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		
Double acting/low friction (constant friction when pressurized)	SCA2-U 	40 to ø63	●	●	●	●	●	●	●	●	●	●	●	●	1	600	600	1	●		
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		
Double acting/double rod	SCA2-D 	ø40 to ø63	●	●	●	●	●	●	●	●	●	●	●	●	1	600	800	1	●		
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700			●		
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800			●		
Double acting/back to back	SCA2-B 	ø40 to ø63	●	●	●	●	●	●	●	●	●	●	●	●	1	600	600	1	●		
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		
Double acting/2-stage	SCA2-W 	ø40 to ø63	●	●	●	●	●	●	●	●	●	●	●	●	2	600	600	1	●		
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		
Double acting/steel tube	SCA2-K 	ø40	●	●	●	●	●	●	●	●	●	●	●	●	1	600	1600	1	●		
		ø50	●	●	●	●	●	●	●	●	●	●	●	●					1900	●	
		ø63	●	●	●	●	●	●	●	●	●	●	●	●						●	
		ø80	●	●	●	●	●	●	●	●	●	●	●	●					700	●	
Double acting/low hydraulic	SCA2-H 	ø40 to ø63	●	●	●	●	●	●	●	●	●	●	●	●	1	600	600	1	●		
		ø80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		
		ø100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		




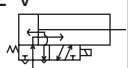


# Series variation



# Medium bore size cylinder SCA2 Series

- SCP\*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2**
- SCS2
- CKV2
- CAV2/  
COVPIN2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/  
MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd  
Contr
- Ending

Variation	Model No.  JIS symbol	Bore size (mm)	Standard stroke (mm)												Min. stroke (mm)	Max. stroke (mm)	Available stroke (mm)	Custom stroke (per mm)	Basic		
			25	50	75	100	150	200	250	300	350	400	450	500							
																				00	
Double acting/ rubber scraper	SCA2-G 	ø40													1	600	1600	1	●		
		ø50	●	●	●	●	●	●	●	●	●	●	●	●			2000				
		ø63															700			2500	●
		ø80	●	●	●	●	●	●	●	●	●	●	●	●			800			●	
		ø100	●	●	●	●	●	●	●	●	●	●	●	●			●				
Double acting/ coolant proof	SCA2-G2/G3 	ø40													1	600	1600	1	●		
		ø50	●	●	●	●	●	●	●	●	●	●	●	●			2000				
		ø63															700			2500	●
		ø80	●	●	●	●	●	●	●	●	●	●	●	●			800			●	
		ø100	●	●	●	●	●	●	●	●	●	●	●	●			●				
Double acting/ coil scraper Double acting/ anti-spatter adherence	SCA2-G1/G4 	ø40													1	600	1600	1	●		
		ø50	●	●	●	●	●	●	●	●	●	●	●	●			2000				
		ø63															700			2500	●
		ø80	●	●	●	●	●	●	●	●	●	●	●	●			800			●	
		ø100	●	●	●	●	●	●	●	●	●	●	●	●			●				
Double acting/ with valve	SCA2-V 	ø40 to ø63		●	●	●	●	●	●	●	●	●	●	●	50	600	600	1	●		
		ø80		●	●	●	●	●	●	●	●	●	●	●			700			700	
		ø100		●	●	●	●	●	●	●	●	●	●	●			800			800	●

●: Standard, ◎: Option, ○: Made to order, ■: Not available

	Mounting											Cushion				Option						Accessory						Switch	Page		
	LB	FA	FB	FC	CA	CB	TC	TA	TB	TF	TD	TE	N	B	R	H	J	L	M	S	T	P6	I	Y	B1	B2	B3			B4	
	Axial foot	Rod side flange	Head side flange	Head side special flange	Eye bracket	Clevis bracket	Intermediate trunnion	Rod side trunnion	Head side trunnion	Intermediate supporting hole trunnion	Rod side hole trunnion	Head side hole trunnion	Without cushion	Both sides cushioned	Rod side cushioned	Head side cushioned	Bellows (100°C)	Bellows (250°C)	Piston rod material (stainless steel)	Cushion needle position S	Cushion needle position T	Copper and PTFE free	Rod eye	Rod clevis	Eye bracket	Clevis bracket	Eye bracket	Trunnion No. 2 bracket			
	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	576
	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	584
	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	590
	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	596

Note: ø40 is not available for hole trunnion (TF, TD and TE).

SCP\*3

CMK2

CMA2

SCM

SCG

**SCA2**

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

Ending



\*1 : S2 side only

\*2 : Increasing rod sealant and bearings leads to a larger resistance and thus causes a change in the min. starting pressure.

\*3 : The valve installation position differs from that of the standard.

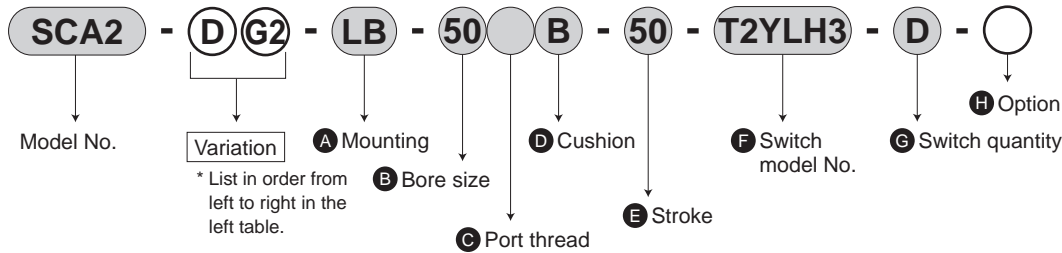
\*4 : The min. starting pressure on the S2 side will be larger than that of the standard value of the low friction. Contact CKD for details.

\*5 : The min. starting pressure is larger due to the resistance of expansion and contraction of the bellows. Contact CKD for details.

\*6 : For P7 and P71 New Fine, refer to "Components for clean room specifications" (catalog No. CB-033SA). For G2 and G3 coolant proof scraper, refer to "Guide of pneumatic devices compatible with coolants" (CC-N-375A).

\*7 : The max. stroke available for ø63 to ø100 bore size models with bellows is 2000 mm.

### [How to order]



### Model No.: Medium bore size cylinder

- Variation : Double rod/coolant proof scraper
- A Mounting : Axial foot
- B Bore size : ø50 mm
- C Port thread : Rc thread
- D Cushion : Both sides cushioned
- E Stroke : 50 mm
- F Switch model No. : Coolant proof switch, 3 m lead wire
- G Switch quantity : 2
- H Option : None

\*1: The back to back includes two cylinders. Specify the model No. as below when ordering variation.

For S1 variations only, insert the variation code before the stroke of S1.

(Example) SCA2-B-40-O100-150: Only S1 is the low friction.

For S2 variations only, insert the variation code before the stroke of S2.

(Example) SCA2-B-40-100-O150: Only S2 is the low friction.

When ordering the same variation for S1 and S2, insert the variation code before the bore size.

(Example) SCA2-BO-40-100-150: Both S1 and S2 are the low friction.

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending



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

# SCA2 Series

● Bore size:  $\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80/\varnothing 100$

JIS symbol



## Specifications

Item	SCA2/SCA2-L2					
Bore size mm	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$	
Actuation	Double acting					
Working fluid	Compressed air					
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)					
Min. working pressure MPa	0.05 ( $\approx 7.3$ psi, 0.5 bar)					
Proof pressure MPa	1.6 ( $\approx 230$ psi, 16 bar)					
Ambient temperature $^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ ) (no freezing)					
Port size	Rc1/4	Rc3/8		Rc1/2		
Stroke tolerance mm	$^{+0.9}_0$ (to 360), $^{+1.4}_0$ (to 800)					
Working piston speed mm/s	50 to 1000 (Operate within the allowable absorbed energy.)					
Cushion	Air cushion					
Effective air cushion length mm	14.6	16.6	16.6	20.6	23.6	
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)					
Allowable absorbed energy J	Cushioned	4.29	8.37	15.8	27.9	49.8
	Without cushion	0.067	0.079	0.079	0.201	0.301
Without any cushion, this product cannot absorb large energy generated by an external load. We recommend using an external shock absorber.						

## Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Available stroke (mm)	Min. stroke (mm)
$\varnothing 40$	25/50/75/100/	600	1600	1
$\varnothing 50$	150/200/250/		2000	
$\varnothing 63$	300/350/400/	700	2500	
$\varnothing 80$	450/500			
$\varnothing 100$		800	*3	

\*1 : The custom stroke is available in 1 mm increments.

\*2 : If max. stroke is exceeded, product specifications may not be satisfied depending on the conditions. Refer to Ending Page 69.

\*3 : The max. stroke available for  $\varnothing 63$  to  $\varnothing 100$  bore size models with bellows is 2000 mm.

## Min. stroke with switch

● T0/T5 min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting	Head side trunnion mounting
	1	2	3	4	1	2	3	4	1	2	3	4	No position detection at rod side stroke end.	No position detection at head side stroke end.
$\varnothing 40$	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)
$\varnothing 50$	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)
$\varnothing 63$	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)
$\varnothing 80$	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)
$\varnothing 100$	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T8 min. stroke with switch

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting	Head side trunnion mounting
	1	2	3	4	1	2	3	4	1	2	3	4	No position detection at rod side stroke end.	No position detection at head side stroke end.
$\varnothing 40$	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)
$\varnothing 50$	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)
$\varnothing 63$	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)
$\varnothing 80$	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)
$\varnothing 100$	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.



### Min. stroke with switch

#### ● T2/T3 min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	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)
ø50	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)
ø63	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)
ø80	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)
ø100	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

#### ● T1/T2Y/T3Y/T2YD min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	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)
ø50	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)
ø63	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)
ø80	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)
ø100	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire). T2YD does not have an L-shaped lead wire (V).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

#### ● T2W/T3W min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	20(5)	20(10)	20(15)	25(25)	20(5)	65(50)	110(80)	155(110)	110(80)	110(80)	170(140)	170(140)	50(35)	50(35)
ø50	20(5)	20(10)	20(15)	20(20)	20(5)	20(10)	65(40)	65(40)	110(80)	110(80)	110(80)	110(80)	50(35)	50(35)
ø63	20(5)	20(10)	20(15)	25(25)	20(5)	20(10)	65(40)	65(40)	115(85)	115(85)	115(85)	115(85)	55(40)	55(40)
ø80	15(5)	15(10)	15(15)	25(25)	15(5)	15(10)	60(40)	60(40)	120(90)	120(90)	120(90)	120(90)	55(40)	55(40)
ø100	10(5)	10(10)	20(20)	25(25)	10(5)	10(10)	60(40)	60(40)	130(100)	130(100)	130(100)	130(100)	60(45)	60(45)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/

COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/

MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd

Contr

Ending

## SCP\*3 Switch specifications (T-switch)

● 1-color/2-color LED/for AC magnetic field proof

Item	2-wire proximity	2-wire proximity				3-wire proximity				2-wire reed						2-wire proximity
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V		T8H/T8V		T2YD (*4) T2YDT		
Applications	Programming controller relay, compact solenoid valve	Dedicated for programmable controller				For programmable controller, relay				For programmable controller, relay	For programmable controller, relay (no lamp), serial		For programmable controller, relay		Dedicated for programmable controller	
Output method	-				NPN output	PNP output	NPN output	NPN output	-							
Pwr. supp. V.	-				10 to 28 VDC				-							
Load voltage	85 to 265 VAC	10 to 30 VDC		24 VDC ±10%	30 VDC or less				12/24 VDC	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 (*3)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp		LED (Lit when ON)		Red/green LED (Lit when ON)	
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA						1 mA or less	
Weight g	1 m:33	1 m:18	1 m:33	1 m:18	1 m:18		1 m:33		1 m:18		1 m:18 3 m:49 5 m:80				1 m:33	1 m:61
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49		3 m:87		3 m:49		3 m:87				3 m:87	3 m:166
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80		5 m:142		5 m:80		5 m:142				5 m:142	5 m:272

\*1: Refer to Ending Page 1 for detailed switch specifications and dimensions.

\*2: Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

\*3: Max. load current: 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

\*4: Switch for AC magnetic field (T2YD/T2YDT) cannot be used in DC magnetic field.

## Switch specifications (H switch)

Item	Strong magnetic field proof, reed 2-wire		
	H0		HOY (2-color LED)
Applications	Relay, programmable controller		Dedicated for programmable controller
Load voltage/ current	12/24 VDC 5 to 50 mA	110 VAC 7 to 20 mA	24 VDC 5 to 20 mA
Indicator	Green LED lit when ON		Red/green LED - Lit when ON
Leakage current	10 µA or less		
Weight g	1 m:76 3 m:181 5 m:289		

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

\*2: Max. load current of 20 mA is applied at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

### Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke (S) = 0 mm							Switch weight	Mounting bracket weight		Added weight/ S = 100 mm
	Basic (00)	Foot (LB)	Flange (FA, FB)	Special flange (FC)	Eye bracket (CA)	Clevis bracket (CB)	Trunnion (TA, TB, TC)		T type	H type	
ø40	0.83	1.00	1.24	0.92	1.15	1.19	1.21	Refer to the weight in the switch specifications.	0.024	0.028	0.39
ø50	1.20	1.45	1.69	1.31	1.58	1.61	1.74		0.022	0.026	0.46
ø63	1.60	1.97	2.69	1.78	2.17	2.22	2.45		0.020	0.024	0.50
ø80	2.60	3.34	4.46	2.96	3.87	4.08	3.94		0.026	0.029	0.90
ø100	4.20	5.11	6.94	4.75	5.84	6.02	6.77		0.024	0.028	1.12

(Example) Product weight of SCA2-LB-50B-200-TOH-D	Product weight for 0 mm stroke ..... 1.45 kg Additional weight for 200 mm stroke ..... $0.46 \times \frac{200}{100} = 0.92$ kg Weight of 2 TOH switches ..... $0.018 \times 2 = 0.036$ kg Weight of 2 mounting brackets ..... $0.022 \times 2 = 0.044$ kg Product weight ..... $1.45 + 0.92 + 0.036 + 0.044 = 2.450$ kg
---	---

### Oil-prohibited specifications (Ending Page 132)

- Grease splash prevented

SCA2-.....- **P12**

### Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push	62.8	1.26x10 <sup>2</sup>	1.88x10 <sup>2</sup>	2.51x10 <sup>2</sup>	3.77x10 <sup>2</sup>	5.03x10 <sup>2</sup>	6.28x10 <sup>2</sup>	7.54x10 <sup>2</sup>	8.80x10 <sup>2</sup>	1.01x10 <sup>3</sup>	1.13x10 <sup>3</sup>	1.26x10 <sup>3</sup>
	Pull	52.8	1.06x10 <sup>2</sup>	1.58x10 <sup>2</sup>	2.11x10 <sup>2</sup>	3.17x10 <sup>2</sup>	4.22x10 <sup>2</sup>	5.28x10 <sup>2</sup>	6.33x10 <sup>2</sup>	7.39x10 <sup>2</sup>	8.44x10 <sup>2</sup>	9.50x10 <sup>2</sup>	1.06x10 <sup>3</sup>
ø50	Push	98.2	1.96x10 <sup>2</sup>	2.95x10 <sup>2</sup>	3.93x10 <sup>2</sup>	5.89x10 <sup>2</sup>	7.85x10 <sup>2</sup>	9.82x10 <sup>2</sup>	1.18x10 <sup>3</sup>	1.37x10 <sup>3</sup>	1.57x10 <sup>3</sup>	1.77x10 <sup>3</sup>	1.96x10 <sup>3</sup>
	Pull	82.5	1.65x10 <sup>2</sup>	2.47x10 <sup>2</sup>	3.30x10 <sup>2</sup>	4.95x10 <sup>2</sup>	6.60x10 <sup>2</sup>	8.25x10 <sup>2</sup>	9.90x10 <sup>2</sup>	1.15x10 <sup>3</sup>	1.32x10 <sup>3</sup>	1.48x10 <sup>3</sup>	1.65x10 <sup>3</sup>
ø63	Push	1.56x10 <sup>2</sup>	3.12x10 <sup>2</sup>	4.68x10 <sup>2</sup>	6.23x10 <sup>2</sup>	9.35x10 <sup>2</sup>	1.25x10 <sup>3</sup>	1.56x10 <sup>3</sup>	1.87x10 <sup>3</sup>	2.18x10 <sup>3</sup>	2.49x10 <sup>3</sup>	2.81x10 <sup>3</sup>	3.12x10 <sup>3</sup>
	Pull	1.40x10 <sup>2</sup>	2.80x10 <sup>2</sup>	4.20x10 <sup>2</sup>	5.61x10 <sup>2</sup>	8.41x10 <sup>2</sup>	1.12x10 <sup>3</sup>	1.40x10 <sup>3</sup>	1.68x10 <sup>3</sup>	1.96x10 <sup>3</sup>	2.24x10 <sup>3</sup>	2.52x10 <sup>3</sup>	2.80x10 <sup>3</sup>
ø80	Push	2.51x10 <sup>2</sup>	5.03x10 <sup>2</sup>	7.54x10 <sup>2</sup>	1.01x10 <sup>3</sup>	1.51x10 <sup>3</sup>	2.01x10 <sup>3</sup>	2.51x10 <sup>3</sup>	3.02x10 <sup>3</sup>	3.52x10 <sup>3</sup>	4.02x10 <sup>3</sup>	4.52x10 <sup>3</sup>	5.03x10 <sup>3</sup>
	Pull	2.27x10 <sup>2</sup>	4.54x10 <sup>2</sup>	6.80x10 <sup>2</sup>	9.07x10 <sup>2</sup>	1.36x10 <sup>3</sup>	1.81x10 <sup>3</sup>	2.27x10 <sup>3</sup>	2.72x10 <sup>3</sup>	3.17x10 <sup>3</sup>	3.63x10 <sup>3</sup>	4.08x10 <sup>3</sup>	4.54x10 <sup>3</sup>
ø100	Push	3.93x10 <sup>2</sup>	7.85x10 <sup>2</sup>	1.18x10 <sup>3</sup>	1.57x10 <sup>3</sup>	2.36x10 <sup>3</sup>	3.14x10 <sup>3</sup>	3.93x10 <sup>3</sup>	4.71x10 <sup>3</sup>	5.50x10 <sup>3</sup>	6.28x10 <sup>3</sup>	7.07x10 <sup>3</sup>	7.85x10 <sup>3</sup>
	Pull	3.57x10 <sup>2</sup>	7.15x10 <sup>2</sup>	1.07x10 <sup>3</sup>	1.43x10 <sup>3</sup>	2.14x10 <sup>3</sup>	2.86x10 <sup>3</sup>	3.57x10 <sup>3</sup>	4.29x10 <sup>3</sup>	5.00x10 <sup>3</sup>	5.72x10 <sup>3</sup>	6.43x10 <sup>3</sup>	7.15x10 <sup>3</sup>

SCP\*3  
CMK2  
CMA2  
SCM  
SCG  
SCA2  
SCS2  
CKV2  
CAV2/  
COVPIN2  
SSD2  
SSG  
SSD  
CAT  
MDC2  
MVC  
SMG  
MSD/  
MSDG  
FC\*  
STK  
SRL3  
SRG3  
SRM3  
SRT3  
MRL2  
MRG2  
SM-25  
ShkAbs  
FJ  
FK  
Spd  
Contr  
Ending

## How to order

No switch (built-in magnet for switch)



With switch (built-in magnet for switch)



With strong magnetic field proof (for H0, H0Y switches) switch (built-in magnet for switch)



**A** Mounting  
\*1

**B** Bore size

**C** Port thread

**D** Cushion

**E** Stroke  
\*2  
\*3

**F** Switch model No.  
\*4

**G** Switch quantity  
\*6

**H** Option  
\*7  
\*8

**I** Accessory  
\*9

### ⚠ Precautions for model No. selection

- \*1 : Mounting bracket will be shipped with the product. (Trunnion are assembled at shipment.)
- \*2 : If the stroke exceeds the max. stroke, refer to Ending Page 69.
- \*3 : The max. stroke available for ø63 to ø100 bore size models with bellows is 2000 mm.
- \*4 : Switches are shipped with the product.
- \*5 : Refer to pages 450 and 451 for the min. stroke with switch.
- \*6 : When selecting TA, TD, TB or TE mounting, the switch quantity is limited to "H" (1 on head side) for TA and TD, and "R" (1 on rod side) for TB and TE.
- \*7 : The max. available stroke is 2000 mm for models with bellows. (ø63 to ø100) The instantaneous max. temperature is the temperature when sparks and cutting chips, etc., instantaneously contact the bellows.
- \*8 : When selecting TA, TD, TB or TE mounting format, the cushion needle position is blank and fixed at S, with no options available.
- \*9 : "I" and "Y" cannot be selected together.
- \*10: Refer to Ending Page 85 for custom specifications of rod end form.
- \*11: Refer to page 448 for combinations of variations/options.

### [Example of model No.]

#### SCA2-LB-40B-100-T0H-R-SI

Model: Medium bore size cylinder, double acting/single rod

- A** Mounting : Axial foot
- B** Bore size : ø40 mm
- C** Port thread : Rc thread
- D** Cushion : Both sides cushioned
- E** Stroke : 100 mm
- F** Switch model No. : Reed T0H switch, lead wire length 1 m
- G** Switch quantity : 1 on rod side
- H** Option : Cushion needle position S
- I** Accessory : Rod eye

Code	Description
<b>A Mounting</b>	
00	Basic
LB	Axial foot
FA	Rod side flange
FB	Head side flange
FC	Head side special flange
CA	Eye bracket
CB	Clevis bracket (pin and snap ring included)
TC	Intermediate trunnion
TA	Rod side trunnion
TB	Head side trunnion
TF	Intermediate supporting hole trunnion (ø40 is not available)
TD	Rod side hole trunnion (ø40 is not available)
TE	Head side hole trunnion (ø40 is not available)

<b>B Bore size (mm)</b>	
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

<b>C Port thread</b>	
Blank	Rc thread
N	NPT thread (made-to-order product)
G	G thread (made-to-order product)

<b>D Cushion</b>	
B	Both sides cushioned
R	Rod side cushioned
H	Head side cushioned
N	Without cushion

<b>E Stroke (mm)</b>			
Bore size	Stroke *4	Available stroke	Custom stroke
ø40	1 to 600	1600	In 1 mm increments
ø50	1 to 600	2000	
ø63	1 to 600	2500	
ø80	1 to 700	2500	
ø100	1 to 800	2500	

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

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

<b>H Option</b>			
		Max. ambient temp.	Instantaneous max. temp.
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		

<b>I Accessory</b>	
I	Rod eye
Y	Rod clevis (pin and snap ring included)
B1	Eye bracket
B2	Clevis bracket (pin and snap ring included)
B3	Eye bracket
B4	Trunnion No. 2 bracket (2 pcs./set)

### [F] Switch model No.

T-switch model No.						
Lead wire Straight	Lead wire L-shaped	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No indicator lamp	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*	Proximity	●		1-color LED	2-wire
T2H*	T2V*			●		
T3H*	T3V*			●	2-color LED	3-wire
T2WH*	T2WV*			●		
T2YH*	T2YV*			●	2-color LED	2-wire
T3WH*	T3WV*			●		
T3YH*	T3YV*			●	2-color LED	3-wire
T3PH*	T3PV*			●		
T2YD*	-			●	2-color LED	2-wire
T2YDT*	-			●	AC magnetic field	
T2JH*	T2JV*		●	1-color LED off-delay	2-wire	
H switch model No.						
HO*	-	Reed	●	●	Strong magnetic field proof	2-wire
HOY*	-			●	Strong magnetic field, 2-color LED	

### How to order switch

#### [T-switch]

- Switch body + mounting bracket set

SCA2 - T0H - 40

Switch model No. (Item F)      Bore size (Item B) on page 454

- Switch body only

SW - T0H

Switch model No. (Item F)

- Switch mounting bracket set

SCA2 - TS - 40

Mounting bracket (Item B) on page 454      Bore size (Item B) on page 454

\* Contact CKD when using an environment-friendly T-switch.

#### [H switch]

- Switch body + mounting bracket set

SCA2-L2 - H0 - 40

Switch model No. (Item F)      Bore size (Item B) on page 454

- Switch body only

SW - H0

Switch model No. (Item F)

- Mounting bracket set

SCA2-L2 - H - 40

Bore size (Item B) on page 454

#### [T2YD switch]

- Switch body + mounting bracket set

SCA2 - T2YD - 40

Switch model No. (Item F)      Bore size (Item B) on page 454

- Switch body only

SW - T2YD

Switch model No. (Item F)

- Mounting bracket set

SCA2 - T - 40

Bore size (Item B) on page 454

### How to order mounting bracket

Bore size (mm)	ø40	ø50	ø63	ø80	ø100
Mounting bracket					
Foot (LB) *2	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 bracket (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis bracket (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

\*1 : For material of the mounting bracket, refer to page 456.

\*2 : The foot mounting bracket is provided as 2 pcs./set.

\*3 : All mounting brackets are supplied with mounting bolts.

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

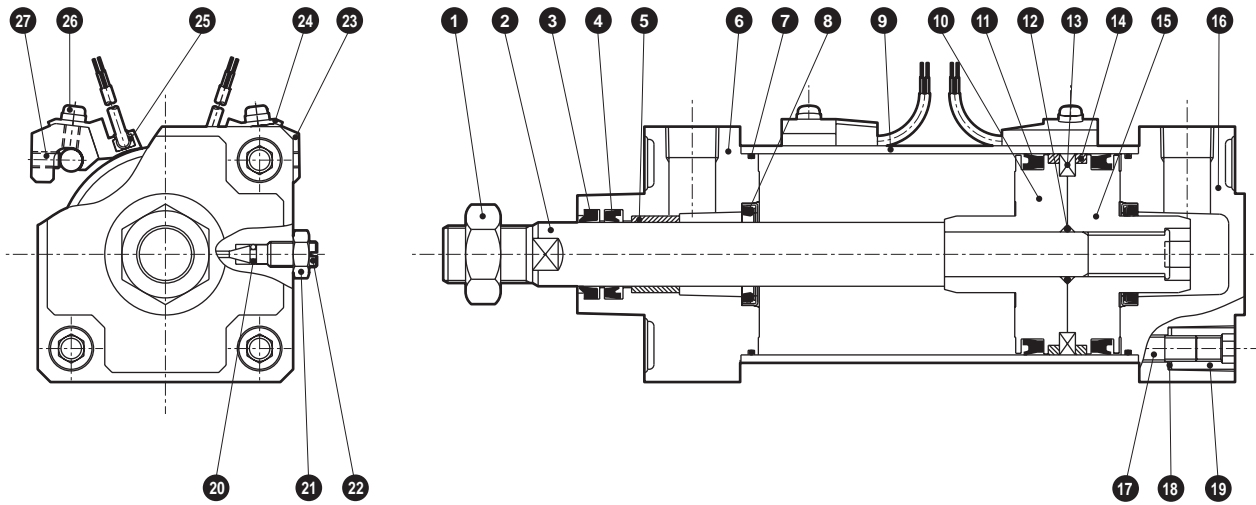
FJ

FK

Spd  
Contr

Ending

## Internal structure and parts list



No.	Part name	Material	Remarks	No.	Part 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	Nitrile rubber		18	Conical spring washer	Steel	Black finish
5	Bush	Oil impregnated bearing alloy	*1	19	Round nut	Steel	Zinc chromate
6	Rod cover	Aluminum alloy die-casting	Paint	20	Needle gasket	Nitrile rubber	
7	Cylinder gasket	Nitrile rubber		21	Needle nut	Copper alloy	Nickel plating *2
8	Cushion packing	Nitrile rubber, steel		22	Cushion needle	Copper alloy	Nickel plating *2
9	Cylinder tube	Aluminum alloy	Hard alumite treatment	With switch			
10	Piston R	Aluminum alloy die-casting		23	Switch mounting base	Aluminum alloy	
11	Piston packing	Nitrile rubber		24	Switch holder	Aluminum alloy	
12	Piston gasket	Nitrile rubber		25	Cylinder switch		
13	Magnet	Plastic		26	Phillips pan head machine screw/captive washer	Steel	Zinc chromate
14	Wear ring	Polyacetal resin		27	Hexagon socket set screw	Alloy steel	Black finish

\*1: Oil-impregnated cast iron bearing for copper and PTFE free. \*2: Steel + galvanizing for copper and PTFE free.

### Repair parts list

Bore size (mm)	Kit No.	Repair parts No.
ø40	SCA2-40K	
ø50	SCA2-50K	
ø63	SCA2-63K	
ø80	SCA2-80K	
ø100	SCA2-100K	

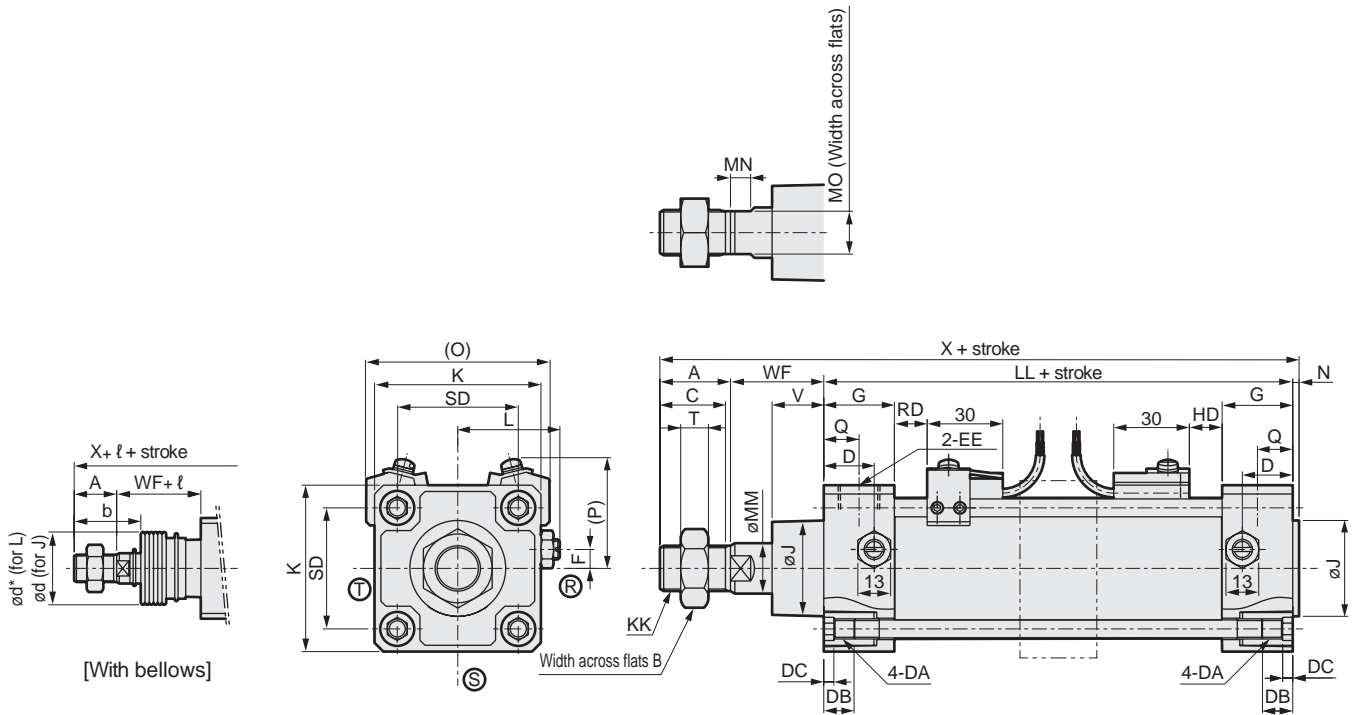
Note: Specify the kit No. when placing an order.

### Material of mounting bracket

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

## Dimensions

● Basic (00)



RD: Rod side max. sensitivity position  
 HD: Head side max. sensitivity position

Code	Basic (00) Basic dimensions																	
Bore size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	J	K	KK	L	LL	MM	MN	MO
ø40	22	22	20	18	M8	12	4	Rc1/4	7.5	26	31	57	M14x1.5	38 to 39.5	93	16	8	14
ø50	28	27	26	20	M8	12	4	Rc3/8	0	28	38	66	M18x1.5	41 to 43.5	101	20	8	17
ø63	28	27	26	22	M8	12	4	Rc3/8	0	30	38	80	M18x1.5	47.5 to 50.0	105	20	8	17
ø80	36	32	34	26	M12	16	5	Rc1/2	0	34	43	98	M22x1.5	56 to 59	116	25	11	22
ø100	45	41	43	28	M12	16	5	Rc1/2	0	36	51	118	M26x1.5	66 to 69	128	30	13	27

Code	With bellows															
Bore size (mm)	N	Q	SD	T	V	WF	X	b	d	d*	ℓ					
											50 or less	Over 50 to 100	Over 100 to 150 or less	Over 150 to 200 or less	Over 200 to 300	Over 300 to 400
ø40	2	13	40.5	8	18.5	33.5	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5
ø50	2.5	14	48	11	20.5	37	168.5	47	47	48	22	36	49	63	90	119
ø63	3	15	59	11	21	35	171	45	47	48	22	36	49	63	90	119
ø80	3.5	17	74	13	23.5	48	203.5	58.5	53	55	14	26	38	49	72	96
ø100	4	18	90	16	32	53	230	69.5	61	65	20	32	42	53	76	98

Code	With switch											
Bore size (mm)	Over 400 to 500	*1 Over 500	O	P	T0, T5		T2Y		T8		T2W, T3W	
					T2, T3		T3Y, T2J					
					RD	HD	RD	HD	RD	HD	RD	HD
ø40	174.5	(Stroke/3.0) + 8	66	41.5	11	11	10	10	5	5	13	13
ø50	146	(Stroke/3.6) + 7.5	73	43	13	13	12	12	7	7	15	15
ø63	146	(Stroke/3.6) + 7.5	85	47	13	13	12	12	7	7	15	15
ø80	119	(Stroke/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5	8.5	16.5	16.5
ø100	120	(Stroke/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5	12.5	20.5	20.5

\*1: For the ℓ dimension, round up below the decimal point.

\*2: (R), (S) and (T) indicate the cushion needle position.

\*3: Refer to page 615 for dimensions of projection of T1, T2YD and HO switches.

\*4: For the dimensions of the accessories, refer to pages 470 and 471.

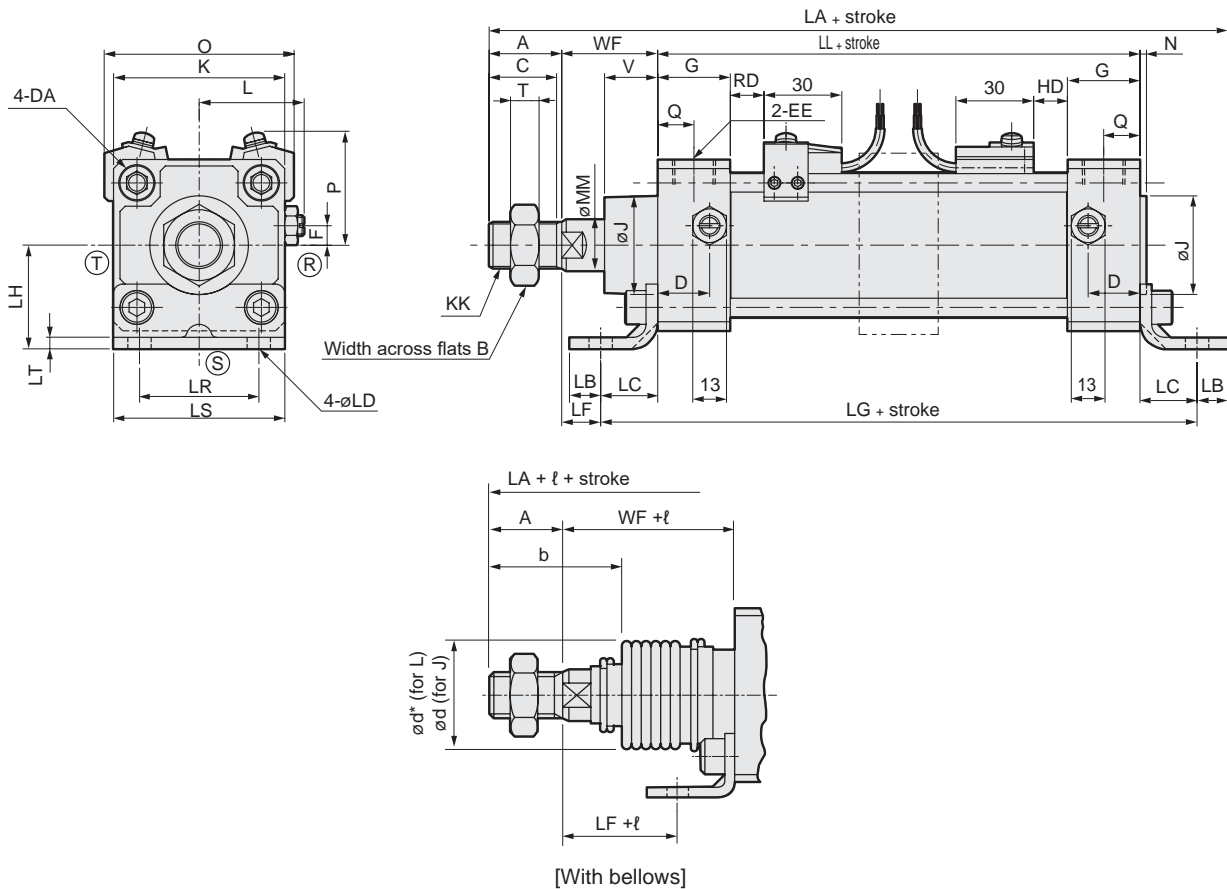
\*5: Non-sag block (2-dashed line) will be added depending on the stroke. Refer to page 614 for details on dimensions.

SCP\*3  
 CMK2  
 CMA2  
 SCM  
 SCG  
**SCA2**  
 SCS2  
 CKV2  
 CAV2/  
 COVP/N2  
 SSD2  
 SSG  
 SSD  
 CAT  
 MDC2  
 MVC  
 SMG  
 MSD/  
 MSDG  
 FC\*  
 STK  
 SRL3  
 SRG3  
 SRM3  
 SRT3  
 MRL2  
 MRG2  
 SM-25  
 ShkAbs  
 FJ  
 FK  
 Spd  
 Contr  
 Ending

## Dimensions



● Axial foot (LB)



Code	Axial foot (LB) Basic dimensions																			
	Bore size (mm)																			
	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	N	Q	T	V	WF	
FC*	ø40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14x1.5	38 to 39.5	93	16	2	13	8	18.5	33.5
STK	ø50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18x1.5	41 to 43.5	101	20	2.5	14	11	20.5	37
	ø63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18x1.5	47.5 to 50.0	105	20	3	15	11	21	35
SRL3	ø80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22x1.5	56 to 59	116	25	3.5	17	13	23.5	48
	ø100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26x1.5	66 to 69	128	30	4	18	16	32	53

Code	Mounting dimensions											With bellows							
	Bore size (mm)											l							
	LA	LB	LC	LD	LF	LG	LH	LR	LS	LT	b	d	d*	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	
SRG3	ø40	178	10	19.5	9	14	132	40	40	57	3.2	41	40	40	25.5	41.5	58.5	75.5	108.5
	ø50	200	12	22	9	15	145	40	46	66	4.5	47	47	48	22	36	49	63	90
SRM3	ø63	210	12	30	11	5	165	50	60	80	4.5	45	47	48	22	36	49	63	90
	ø80	251	14	37	14	11	190	60	74	98	6.0	58.5	53	55	14	26	38	49	72
MRG2	ø100	278	21	31	14	22	190	67	80	118	6.0	69.5	61	65	20	32	42	53	76

Code					With switch									
	Bore size (mm)				O	P	T0, T5 T2, T3		T1, T2Y T3Y, T2J		T8		T2W, T3W	
	Over 300 to 400	Over 400 to 500	*1 Over 500	RD			HD	RD	HD	RD	HD	RD	HD	
SM-25	ø40	141.5	174.5	(Stroke/3.0) + 8	66	41.5	11	11	10	10	5	5	13	13
ShkAbs	ø50	119	146	(Stroke/3.6) + 7.5	73	43	13	13	12	12	7	7	15	15
	ø63	119	146	(Stroke/3.6) + 7.5	85	47	13	13	12	12	7	7	15	15
FJ	ø80	96	119	(Stroke/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5	8.5	16.5	16.5
	ø100	98	120	(Stroke/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5	12.5	20.5	20.5

\*1 : For the l dimension, round up below the decimal point.

\*2 : (R), (S) and (T) indicate the cushion needle position.

\*3 : Refer to page 615 for dimensions of projection of T1, T2YD and HO switches.

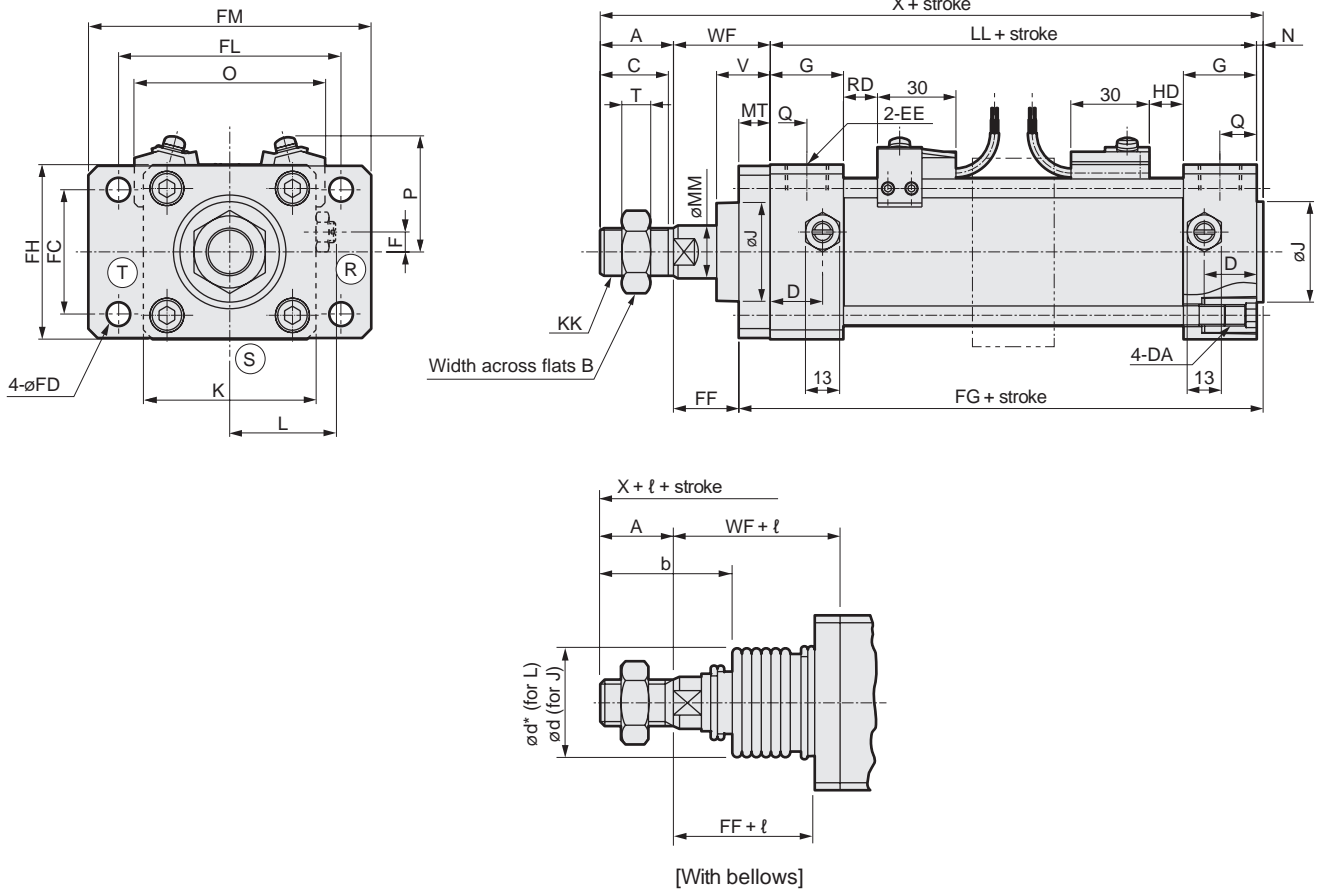
\*4 : For the dimensions of the accessories, refer to pages 470 and 471.

\*5 : Non-sag block (2-dashed line) will be added depending on the stroke. Refer to page 614 for details on dimensions.



## Dimensions

### ● Rod side flange (FA)



Code	Rod side flange (FA) Basic dimensions																			
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	N	Q	T	V	WF	X
ø40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14x1.5	38 to 39.5	93	16	2	13	8	18.5	33.5	150.5
ø50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18x1.5	41 to 43.5	101	20	2.5	14	11	20.5	37	168.5
ø63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18x1.5	47.5 to 50.0	105	20	3	15	11	21	35	171
ø80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22x1.5	56 to 59	116	25	3.5	17	13	23.5	48	203.5
ø100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26x1.5	66 to 69	128	30	4	18	16	32	53	230

Code	Mounting dimensions								With bellows									
Bore size (mm)	FC	FD	FF	FG	MT	FH	FL	FM	b	d	d*	ℓ						
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500											
ø40	40	9	21.5	107	12	57	80	100	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5
ø50	47	9	25	115.5	12	65	85	108	47	47	48	22	36	49	63	90	119	146
ø63	60	11	19	124	16	80	106	130	45	47	48	22	36	49	63	90	119	146
ø80	74	14	29	138.5	19	98	125	153	58.5	53	55	14	26	38	49	72	96	119
ø100	88	14	34	151	19	118	144	180	69.5	61	65	20	32	42	53	76	98	120

Code	With switch										
Bore size (mm)	*1 Over 500	O	P	T0, T5 T2, T3		T1, T2Y T3Y, T2J		T8		T2W, T3W	
				RD	HD	RD	HD	RD	HD	RD	HD
				ø40	(Stroke/3.0) + 8	66	41.5	11	11	10	10
ø50	(Stroke/3.6) + 7.5	73	43	13	13	12	12	7	7	15	15
ø63	(Stroke/3.6) + 7.5	85	47	13	13	12	12	7	7	15	15
ø80	(Stroke/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5	8.5	16.5	16.5
ø100	(Stroke/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5	12.5	20.5	20.5

\*1 : For the ℓ dimension, round up below the decimal point.

\*2 : (R), (S) and (T) indicate the cushion needle position.

\*3: Refer to page 615 for dimensions of projection of T1, T2YD and HO switches.

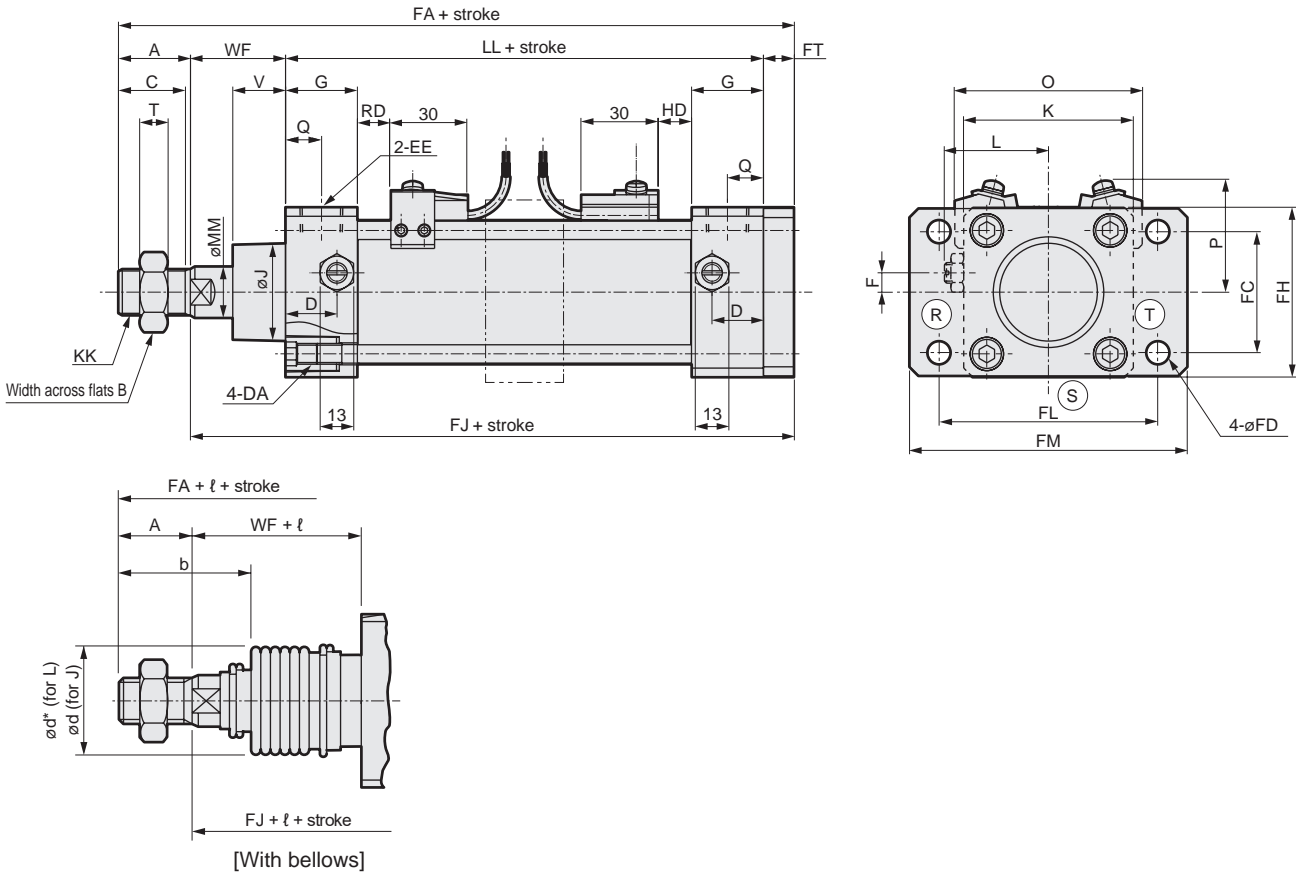
\*4: For the dimensions of the accessories, refer to pages 470 and 471.

\*5: Non-sag block (2-dashed line) will be added depending on the stroke. Refer to page 614 for details on dimensions.

## Dimensions



### ● Head side flange (FB)



Code	Head side flange (FB) Basic dimensions																		
	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	Q	T	V	WF	
FC*	Bore size (mm)																		
	ø40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14x1.5	38 to 39.5	93	16	13	8	18.5	33.5
	ø50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18x1.5	41 to 43.5	101	20	14	11	20.5	37
STK	ø63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18x1.5	47.5 to 50.0	105	20	15	11	21	35
SRL3	ø80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22x1.5	56 to 59	116	25	17	13	23.5	48
	ø100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26x1.5	66 to 69	128	30	18	16	32	53

Code	Mounting dimensions										With bellows							
	FA	FC	FD	FH	FJ	FL	FM	FT	b	d	d*	l						
	Bore size (mm)											50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	
SRG3	ø40	160.5	40	9	57	138.5	80	100	12	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5
SRM3	ø50	178	47	9	65	150	85	108	12	47	47	48	22	36	49	63	90	119
SRT3	ø63	184	60	11	80	156	106	130	16	45	47	48	22	36	49	63	90	119
MRL2	ø80	219	74	14	98	183	125	153	19	58.5	53	55	14	26	38	49	72	96
MRG2	ø100	245	88	14	118	200	144	180	19	69.5	61	65	20	32	42	53	76	98

Code	With switch												
	Over 400 to 500		*1 Over 500	O	P	T0, T5 T2, T3		T1, T2Y T3Y, T2J		T8		T2W, T3W	
	RD	HD	RD			HD	RD	HD	RD	HD			
SM-25	ø40	174.5	(Stroke/3.0) + 8	66	41.5	11	11	10	10	5	5	13	13
ShkAbs	ø50	146	(Stroke/3.6) + 7.5	73	43	13	13	12	12	7	7	15	15
FJ	ø63	146	(Stroke/3.6) + 7.5	85	47	13	13	12	12	7	7	15	15
FK	ø80	119	(Stroke/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5	8.5	16.5	16.5
	ø100	120	(Stroke/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5	12.5	20.5	20.5

\*1 : For the l dimension, round up below the decimal point.

\*2 : (R), (S) and (T) indicate the cushion needle position.

\*3: Refer to page 615 for dimensions of projection of T1, T2YD and HO switches.

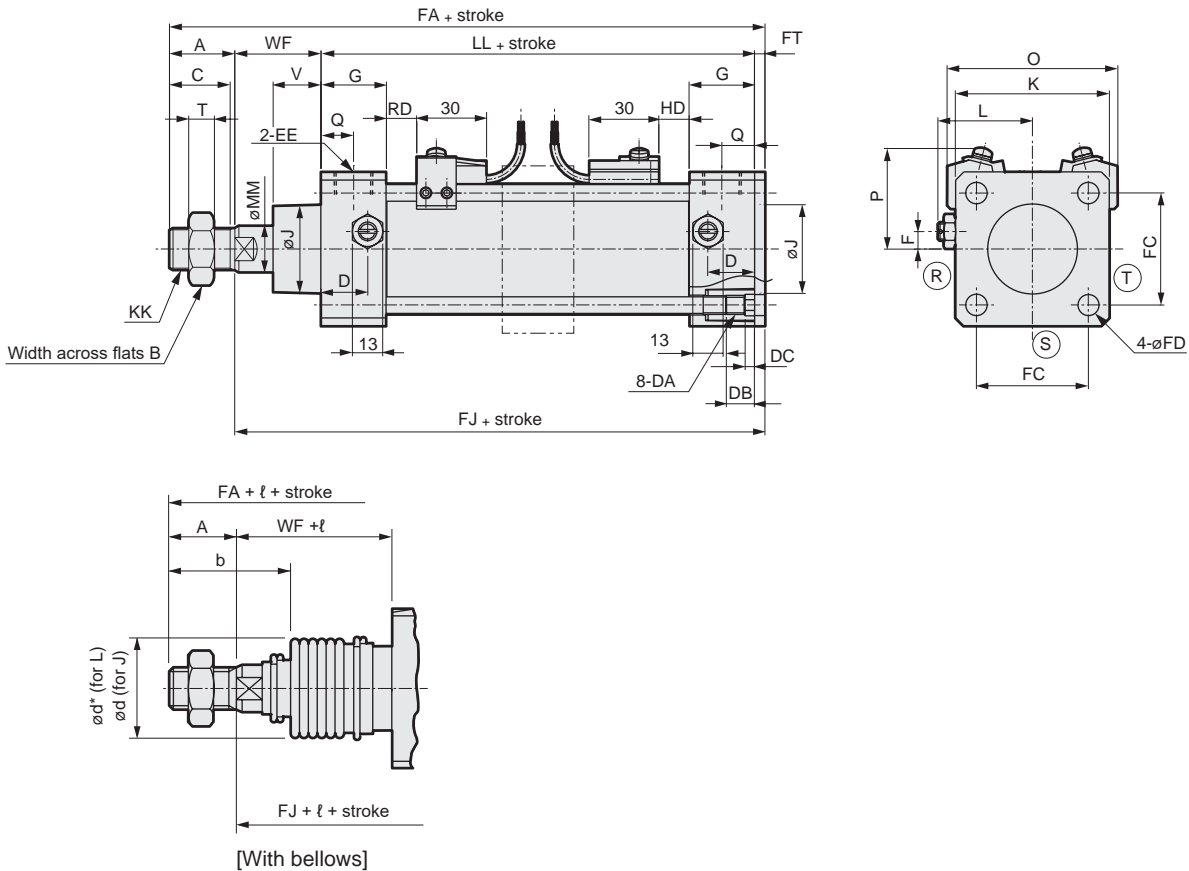
\*4: For the dimensions of the accessories, refer to pages 470 and 471.

\*5: Non-sag block (2-dashed line) will be added depending on the stroke. Refer to page 614 for details on dimensions.

### Dimensions



● Head side special flange (FC)



Code	Head side flange (FC) Basic dimensions																	
Bore size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	J	K	KK	L	LL	MM	Q	T
ø40	22	22	20	18	M8	12	4	Rc1/4	7.5	26	31	57	M14x1.5	38 to 39.5	93	16	13	8
ø50	28	27	26	20	M8	12	4	Rc3/8	0	28	38	66	M18x1.5	41 to 43.5	101	20	14	11
ø63	28	27	26	22	M8	12	4	Rc3/8	0	30	38	80	M18x1.5	47.5 to 50.0	105	20	15	11
ø80	36	32	34	26	M12	16	5	Rc1/2	0	34	43	98	M22x1.5	56 to 59	116	25	17	13
ø100	45	41	43	28	M12	16	5	Rc1/2	0	36	51	118	M26x1.5	66 to 69	128	30	18	16

Code	Mounting method							With bellows									
	Bore size (mm)	V	WF	FA	FC	FD	FJ	FT	b	d	d*	ℓ					
												50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400
ø40	18.5	33.5	153	40.5	9	131	4.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5
ø50	20.5	37	170.5	48	9	142.5	4.5	47	47	48	22	36	49	63	90	119	146
ø63	21	35	172.5	59	9	144.5	4.5	45	47	48	22	36	49	63	90	119	146
ø80	23.5	48	206	74	14	170	6	58.5	53	55	14	26	38	49	72	96	119
ø100	32	53	232	90	14	187	6	69.5	61	65	20	32	42	53	76	98	120

Code	With switch											
	Bore size (mm)	*1	O	P	T0, T5		T1, T2Y		T8		T2W, T3W	
					T2, T3	T3Y, T2J	RD	HD	RD	HD	RD	HD
ø40	(Stroke/3.0) + 8	66	41.5	11	11	10	10	5	5	13	13	
ø50	(Stroke/3.6) + 7.5	73	43	13	13	12	12	7	7	15	15	
ø63	(Stroke/3.6) + 7.5	85	47	13	13	12	12	7	7	15	15	
ø80	(Stroke/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5	8.5	16.5	16.5	
ø100	(Stroke/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5	12.5	20.5	20.5	

\*1 : For the ℓ dimension, round up below the decimal point.

\*2 : (R), (S) and (T) indicate the cushion needle position.

\*3: Refer to page 615 for dimensions of projection of T1, T2YD and HO switches.

\*4: For the dimensions of the accessories, refer to pages 470 and 471.

\*5: Non-sag block (2-dashed line) will be added depending on the stroke. Refer to page 614 for details on dimensions.

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

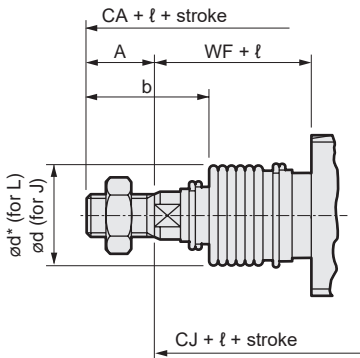
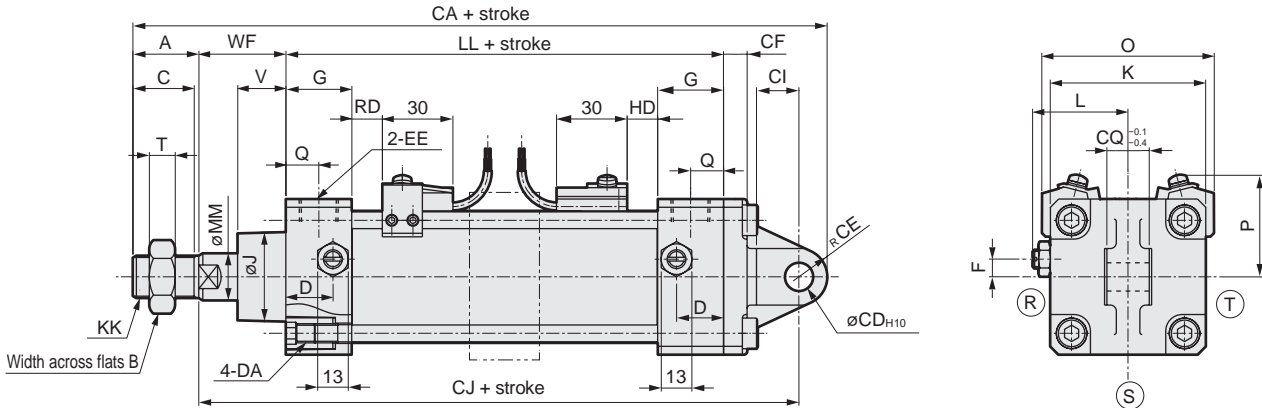
Spd Contr

Ending

## Dimensions



● Eye bracket (CA)



[With bellows]

Code	Eye bracket (CA) Basic dimensions																		
	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	Q	T	V	WF	
FC*	$\phi 40$	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14x1.5	38 to 39.5	93	16	13	8	18.5	33.5
	$\phi 50$	28	27	26	20	M8	Rc3/8	0	28	38	66	M18x1.5	41 to 43.5	101	20	14	11	20.5	37
STK	$\phi 63$	28	27	26	22	M8	Rc3/8	0	30	38	80	M18x1.5	47.5 to 50.0	105	20	15	11	21	35
	$\phi 80$	36	32	34	26	M12	Rc1/2	0	34	43	98	M22x1.5	56 to 59	116	25	17	13	23.5	48
SRL3	$\phi 100$	45	41	43	28	M12	Rc1/2	0	36	51	118	M26x1.5	66 to 69	128	30	18	16	32	53

Code	Mounting dimensions							With bellows										
	CA	CD	CE	CF	CI	CJ	CQ	b	d	d*	$\ell$							
Bore size (mm)											50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	
SRG3	$\phi 40$	192.5	12	12	10	18	158.5	18	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5
	$\phi 50$	210	12	12	10	18	170	18	47	47	48	22	36	49	63	90	119	146
SRM3	$\phi 63$	221	14	16	10	24	177	20	45	47	48	22	36	49	63	90	119	146
	$\phi 80$	272	20	20	14	30	216	28	58.5	53	55	14	26	38	49	72	96	119
SRT3	$\phi 100$	298	20	20	16	30	233	28	69.5	61	65	20	32	42	53	76	98	120

Code	With switch										
	*1	O	P	T0, T5 T2, T3		T1, T2Y T3Y, T2J		T8		T2W, T3W	
				RD	HD	RD	HD	RD	HD	RD	HD
SM-25	Over 500	66	41.5	11	11	10	10	5	5	13	13
				73	43	13	13	12	12	7	7
ShkAbs	Over 500	85	47	13	13	12	12	7	7	15	15
				105	57	14.5	14.5	13.5	13.5	8.5	8.5
FJ	Over 500	121	63	18.5	18.5	17.5	17.5	12.5	12.5	20.5	20.5
				121	63	18.5	18.5	17.5	17.5	12.5	12.5

\*1 : For the  $\ell$  dimension, round up below the decimal point.

\*2 : (R), (S) and (T) indicate the cushion needle position.

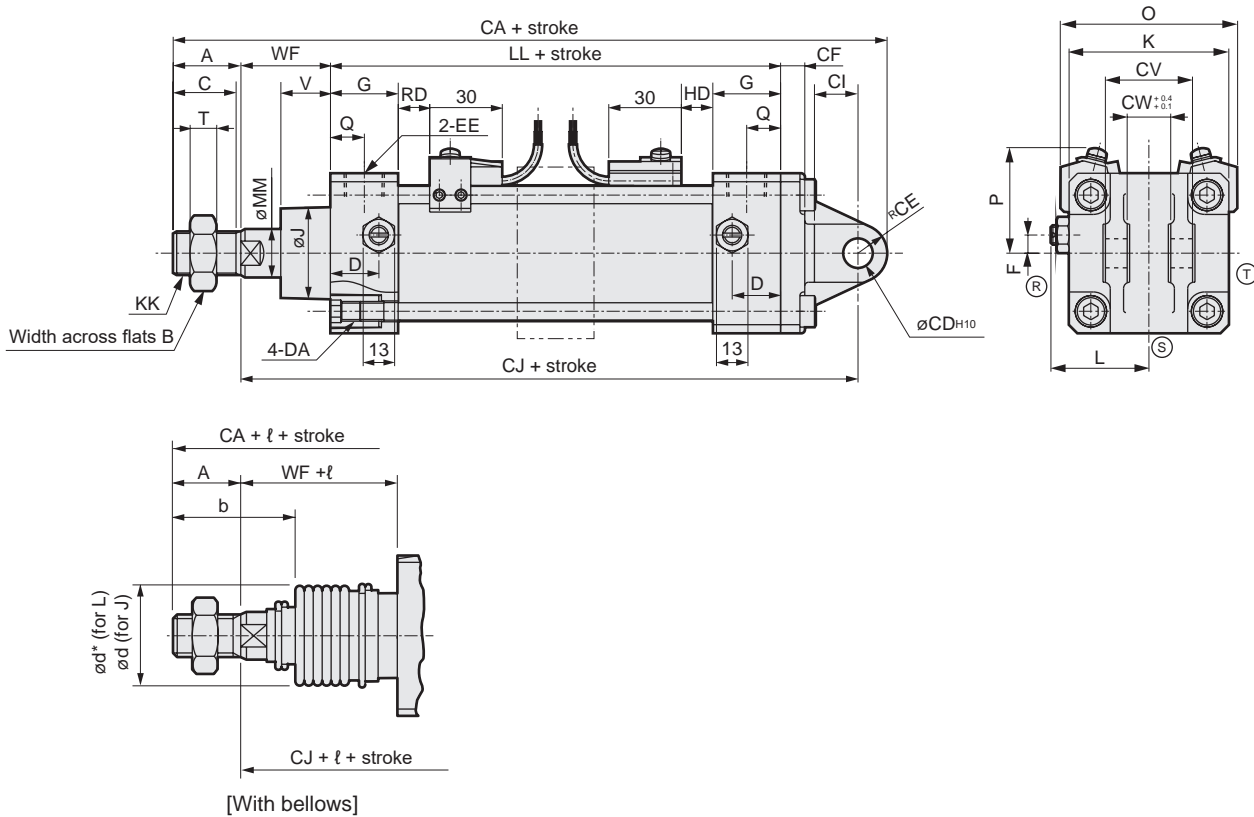
\*3: Refer to page 615 for dimensions of projection of T1, T2YD and HO switches.

\*4: For the dimensions of the accessories, refer to pages 470 and 471.

\*5: Non-sag block (2-dashed line) will be added depending on the stroke. Refer to page 614 for details on dimensions.

## Dimensions

● Clevis bracket (CB)



Code	Clevis bracket (CB) Basic dimensions																	
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	Q	T	V	WF
ø40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14x1.5	38 to 39.5	93	16	13	8	18.5	33.5
ø50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18x1.5	41 to 43.5	101	20	14	11	20.5	37
ø63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18x1.5	47.5 to 50.0	105	20	15	11	21	35
ø80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22x1.5	56 to 59	116	25	17	13	23.5	48
ø100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26x1.5	66 to 69	128	30	18	16	32	53

Code	Mounting dimensions										With bellows							
	Bore size (mm)	CA	CD	CE	CF	CI	CJ	CV	CW	b	d	d*	ℓ					
													50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400
ø40	192.5	12	12	10	18	158.5	36	18	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5
ø50	210	12	12	10	18	170	36	18	47	47	48	22	36	49	63	90	119	146
ø63	221	14	16	10	24	177	40	20	45	47	48	22	36	49	63	90	119	146
ø80	272	20	20	14	30	216	56	28	58.5	53	55	14	26	38	49	72	96	119
ø100	298	20	20	16	30	233	56	28	69.5	61	65	20	32	42	53	76	98	120

Code	With switch											
	Bore size (mm)	*1	O	P	T0, T5 T2, T3		T1, T2Y T3Y, T2J		T8		T2W, T3W	
					RD	HD	RD	HD	RD	HD	RD	HD
ø40	(Stroke/3.0) + 8	66	41.5	11	11	10	10	5	5	13	13	
ø50	(Stroke/3.6) + 7.5	73	43	13	13	12	12	7	7	15	15	
ø63	(Stroke/3.6) + 7.5	85	47	13	13	12	12	7	7	15	15	
ø80	(Stroke/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5	8.5	16.5	16.5	
ø100	(Stroke/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5	12.5	20.5	20.5	

\*1 : For the ℓ dimension, round up below the decimal point.

\*2 : (R), (S) and (T) indicate the cushion needle position.

\*3 : A pin is included.

\*4 : Refer to page 615 for dimensions of projection of T1, T2YD and HO switches.

\*5 : For the dimensions of the accessories, refer to pages 470 and 471.

\*6 : Non-sag block (2-dashed line) will be added depending on the stroke. Refer to page 614 for details on dimensions.

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

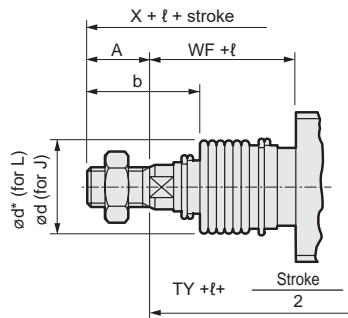
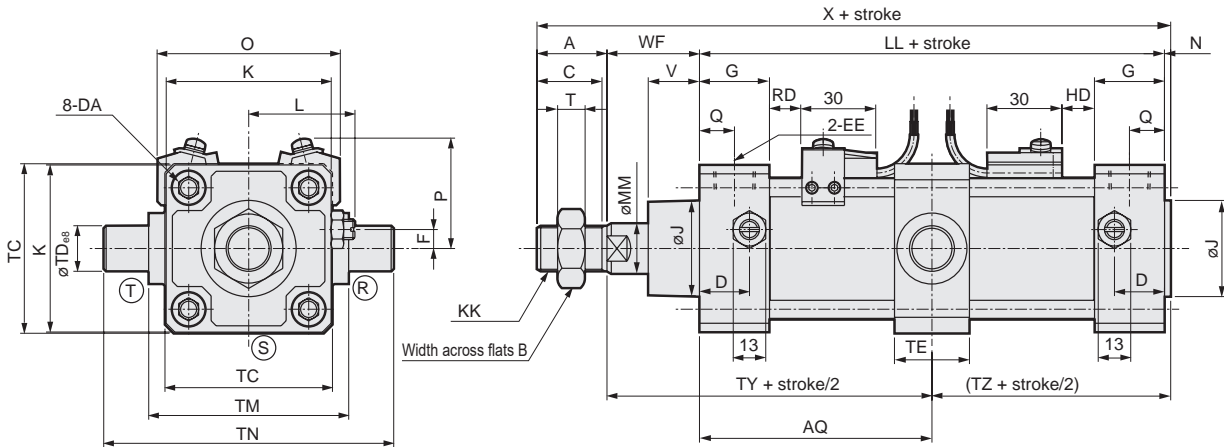
Spd  
Contr

Ending

## Dimensions



### ● Intermediate trunnion (TC)



[With bellows]

Code	Intermediate trunnion (TC) Basic dimensions																	
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	N	Q	T	V
ø40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14x1.5	38 to 39.5	93	16	2	13	8	18.5
ø50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18x1.5	41 to 43.5	101	20	2.5	14	11	20.5
ø63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18x1.5	47.5 to 50.0	105	20	3	15	11	21
ø80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22x1.5	56 to 59	116	25	3.5	17	13	23.5
ø100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26x1.5	66 to 69	128	30	4	18	16	32

Code	Mounting dimensions										With bellows						
Bore size (mm)	WF	X	AQ	TC	TD	TE	TM	TN	TY	TZ	b	d	d*	ℓ			
														50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200
ø40	33.5	150.5	46.5 + $\frac{\text{Stroke}}{2}$	57	16	30	63	95	80	48.5	41	40	40	25.5	41.5	58.5	75.5
ø50	37	168.5	50.5 + $\frac{\text{Stroke}}{2}$	67	18	30	80	116	87.5	53	47	47	48	22	36	49	63
ø63	35	171	52.5 + $\frac{\text{Stroke}}{2}$	82	20	35	90	130	87.5	55.5	45	47	48	22	36	49	63
ø80	48	203.5	58 + $\frac{\text{Stroke}}{2}$	100	25	40	115	165	106	61.5	58.5	53	55	14	26	38	49
ø100	53	230	64 + $\frac{\text{Stroke}}{2}$	121	35	50	135	205	117	68	69.5	61	65	20	32	42	53

Code					With switch									
Bore size (mm)	Over 200 to 300	Over 300 to 400	Over 400 to 500	*1 Over 500	O	P	T0, T5 T2, T3		T1, T2Y T3Y, T2J		T8		T2W, T3W	
							RD	HD	RD	HD	RD	HD	RD	HD
ø40	108.5	141.5	174.5	(Stroke/3.0) + 8	66	41.5	11	11	10	10	5	5	13	13
ø50	90	119	146	(Stroke/3.6) + 7.5	73	43	13	13	12	12	7	7	15	15
ø63	90	119	146	(Stroke/3.6) + 7.5	85	47	13	13	12	12	7	7	15	15
ø80	72	96	119	(Stroke/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5	8.5	16.5	16.5
ø100	76	98	120	(Stroke/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5	12.5	20.5	20.5

\*1 : For the ℓ dimension, round up below the decimal point.

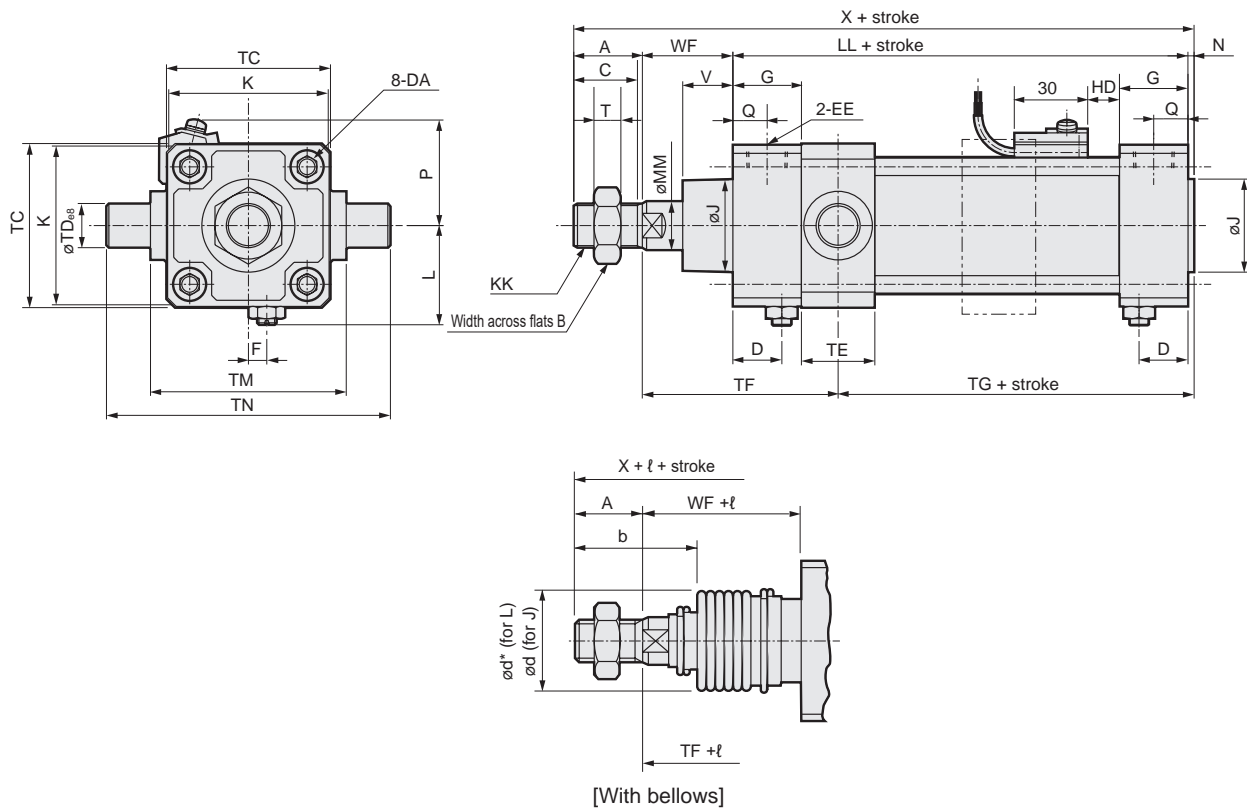
\*2 : (R), (S) and (T) indicate the cushion needle position.

\*3 : Refer to page 615 for dimensions of projection of T1, T2YD and HO switches.

\*4 : For the dimensions of the accessories, refer to pages 470 and 471.

## Dimensions

● Rod side trunnion (TA)



Code	Rod side trunnion (TA) Basic dimensions																	
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	N	Q	T	V
ø40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14x1.5	38 to 39.5	93	16	2	13	8	18.5
ø50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18x1.5	41 to 43.5	101	20	2.5	14	11	20.5
ø63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18x1.5	47.5 to 50.0	105	20	3	15	11	21
ø80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22x1.5	56 to 59	116	25	3.5	17	13	23.5
ø100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26x1.5	66 to 69	128	30	4	18	16	32

Code	Mounting dimensions										With bellows						
Bore size (mm)	WF	X	TC	TD	TE	TF	TG	TM	TN	b	d	d*	ℓ				
													50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300
ø40	33.5	150.5	57	16	30	74.5	54	63	95	41	40	40	25.5	41.5	58.5	75.5	108.5
ø50	37	168.5	67	18	30	80	60.5	80	116	47	47	48	22	36	49	63	90
ø63	35	171	82	20	35	82.5	60.5	90	130	45	47	48	22	36	49	63	90
ø80	48	203.5	100	25	40	102	65.5	115	165	58.5	53	55	14	26	38	49	72
ø100	53	230	121	35	50	114	71	135	205	69.5	61	65	20	32	42	53	76

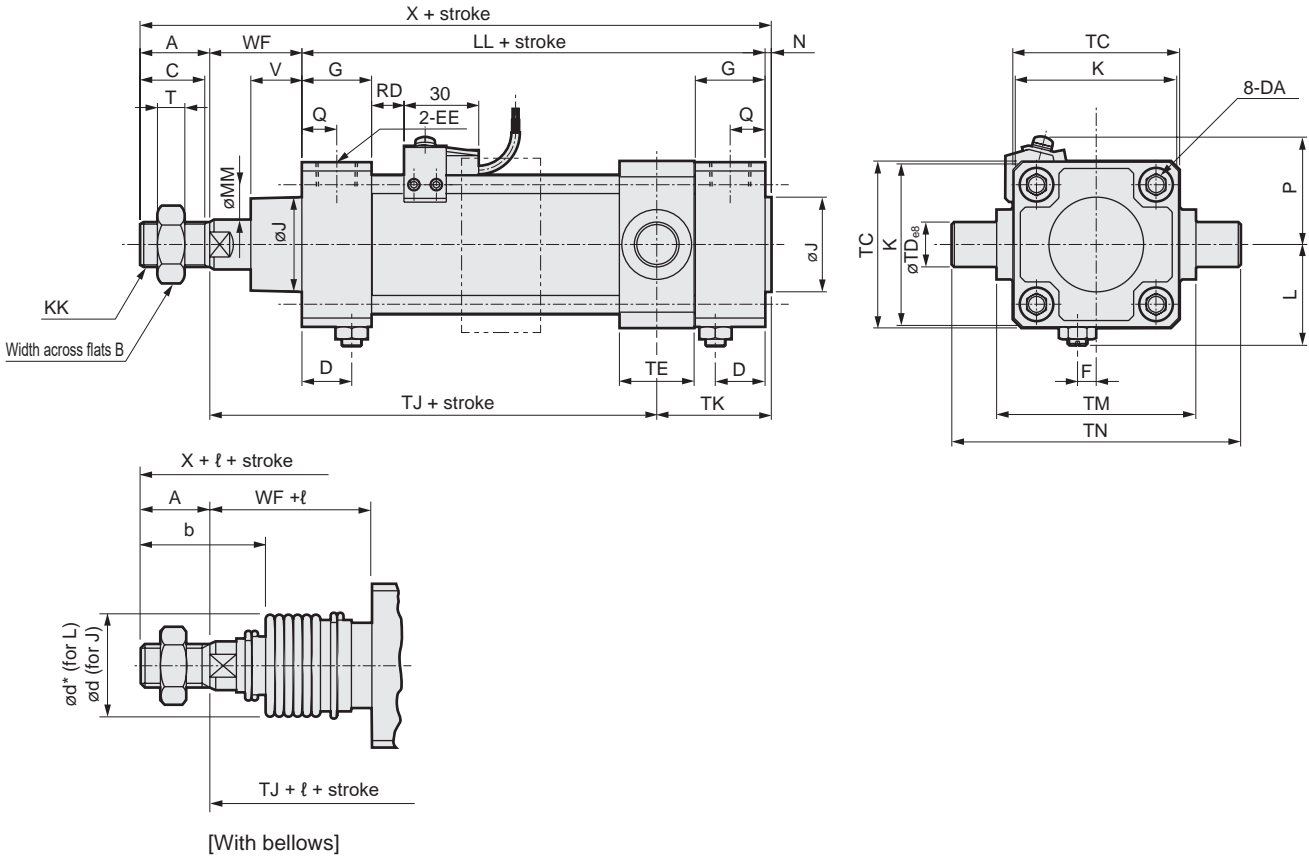
Code	With switch							
Bore size (mm)	Over 300 to 400	Over 400 to 500	*1 Over 500	P	T0, T5	T1, T2Y	T8	T2W, T3W
					T2, T3	T3Y, T2J		
					HD	HD		
ø40	141.5	174.5	(Stroke/3.0) + 8	41.5	11	10	5	13
ø50	119	146	(Stroke/3.6) + 7.5	43	13	12	7	15
ø63	119	146	(Stroke/3.6) + 7.5	47	13	12	7	15
ø80	96	119	(Stroke/4.3) + 2.5	57	14.5	13.5	8.5	16.5
ø100	98	120	(Stroke/4.5) + 9	63	18.5	17.5	12.5	20.5

\*1 : Position cannot be detected at rod side stroke end.  
 \*2 : For the ℓ dimension, round up below the decimal point.  
 \*3 : The position of the cushion needle cannot be changed.  
 \*4 : Refer to page 615 for dimensions of projection of T1, T2YD and HO switches.  
 \*5 : For the dimensions of the accessories, refer to pages 470 and 471.  
 \*6 : Non-sag block (2-dashed line) will be added depending on the stroke. Refer to page 614 for details on dimensions.

- SCP\*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2**
- SCS2
- CKV2
- CAV2/COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd Contr
- Ending

## Dimensions

● Head side trunnion (TB)



Code	Head side trunnion (TB) Basic dimensions																		
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	N	Q	T	V	
ø40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14x1.5	38 to 39.5	93	16	2	13	8	18.5	
ø50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18x1.5	41 to 43.5	101	20	2.5	14	11	20.5	
ø63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18x1.5	47.5 to 50.0	105	20	3	15	11	21	
ø80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22x1.5	56 to 59	116	25	3.5	17	13	23.5	
ø100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26x1.5	66 to 69	128	30	4	18	16	32	

Code	Mounting dimensions										With bellows						
Bore size (mm)	WF	X	TC	TD	TE	TJ	TM	TN	TK	b	d	d*	l				
													50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300
ø40	33.5	150.5	57	16	30	85	63	95	43.5	41	40	40	25.5	41.5	58.5	75.5	108.5
ø50	37	168.5	67	18	30	94.5	80	116	46	47	47	48	22	36	49	63	90
ø63	35	171	82	20	35	92	90	130	51	45	47	48	22	36	49	63	90
ø80	48	203.5	100	25	40	109.5	115	165	58	58.5	53	55	14	26	38	49	72
ø100	53	230	121	35	50	119.5	135	205	65.5	69.5	61	65	20	32	42	53	76

Code	With switch								
Bore size (mm)	Over 300 to 400			*1	P	T0, T5	T1, T2Y	T8	T2W, T3W
	Over 400 to 500	Over 500	T2, T3			T3Y, T2J			
	RD	RD	RD	RD					
ø40	141.5	174.5	(Stroke/3.0) + 8	41.5	11	10	5	13	
ø50	119	146	(Stroke/3.6) + 7.5	43	13	12	7	15	
ø63	119	146	(Stroke/3.6) + 7.5	47	13	12	7	15	
ø80	96	119	(Stroke/4.3) + 2.5	57	14.5	13.5	8.5	16.5	
ø100	98	120	(Stroke/4.5) + 9	63	18.5	17.5	12.5	20.5	

\*1 : Position cannot be detected at head side stroke end.

\*2 : For the l dimension, round up below the decimal point.

\*3 : The position of the cushion needle cannot be changed.

\*4 : Refer to page 615 for dimensions of projection of T1, T2YD and HO switches.

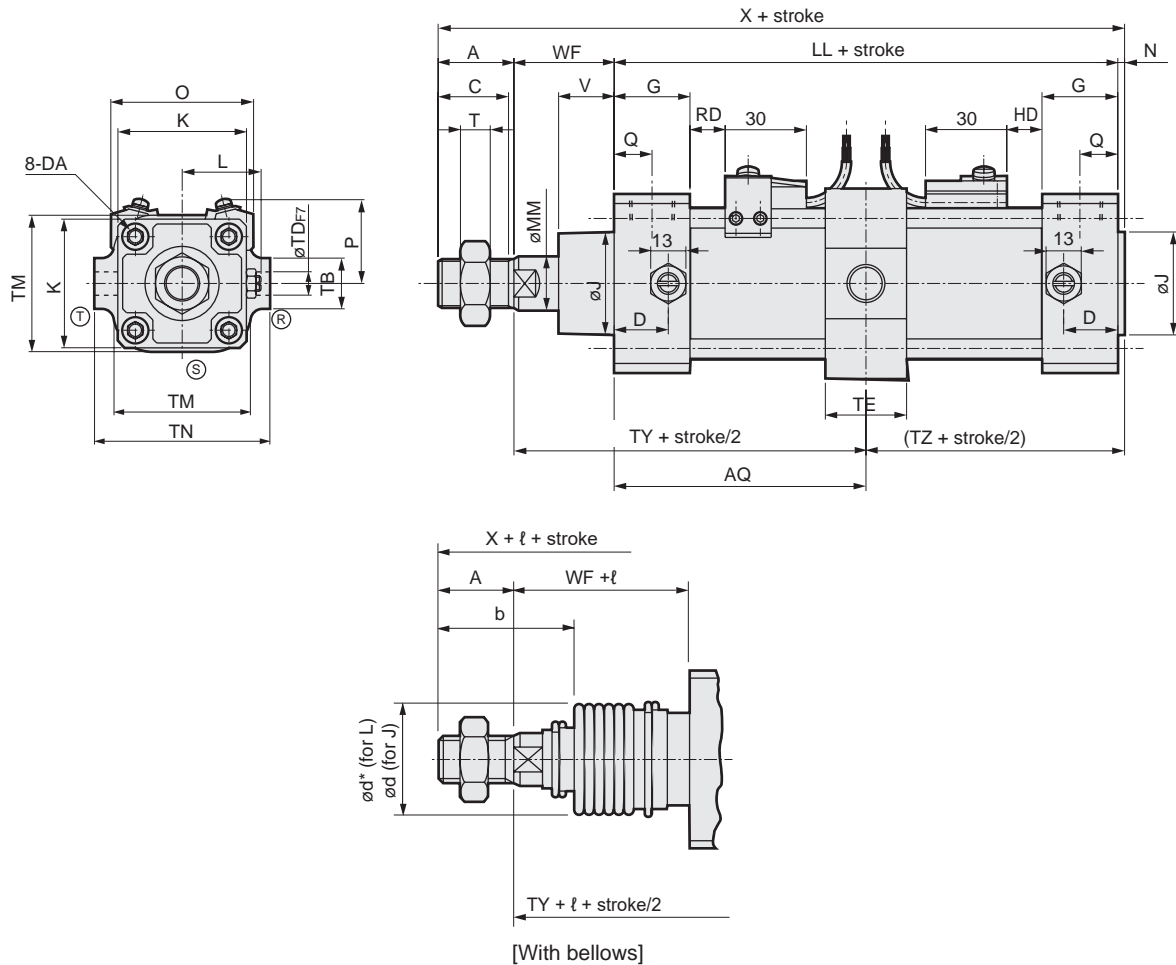
\*5 : For the dimensions of the accessories, refer to pages 470 and 471.

\*6 : Non-sag block (2-dashed line) will be added depending on the stroke. Refer to page 614 for details on dimensions.



## Dimensions

- Intermediate supporting hole trunnion (TF)



Code	Intermediate trunnion (TF) Basic dimensions																		
Bore size (mm)	A	B	C	D	DA	EE	G	J	K	KK	L	LL	MM	N	Q	T	V	WF	X
ø50	28	27	26	20	M8	Rc3/8	28	38	66	M18x1.5	41 to 43.5	101	20	2.5	14	11	20.5	37	168.5
ø63	28	27	26	22	M8	Rc3/8	30	38	80	M18x1.5	47.5 to 50.0	105	20	3	15	11	21	35	171
ø80	36	32	34	26	M12	Rc1/2	34	43	98	M22x1.5	56 to 59	116	25	3.5	17	13	23.5	48	203.5
ø100	45	41	43	28	M12	Rc1/2	36	51	118	M26x1.5	66 to 69	128	30	4	18	16	32	53	230

Code	Mounting dimensions								With bellows								
Bore size (mm)	AQ	TB	TD	TE	TM	TN	TY	TZ	b	d	d*	ℓ					
												50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400
ø50	50.5 + $\frac{\text{Stroke}}{2}$	26	12	30	70	90	87.5	53	47	47	48	22	36	49	63	90	119
ø63	52.5 + $\frac{\text{Stroke}}{2}$	30	14	35	86	104	87.5	55.5	45	47	48	22	36	49	63	90	119
ø80	58 + $\frac{\text{Stroke}}{2}$	35	20	40	105	134	106	61.5	58.5	53	55	14	26	38	49	72	96
ø100	64 + $\frac{\text{Stroke}}{2}$	40	20	40	127	150	117	68	69.5	61	65	20	32	42	53	76	98

Code	With switch											
Bore size (mm)	Over 400 to 500	*1 Over 500	O	P	T0, T5 T2, T3		T1, T2Y T3Y, T2J		T8		T2W, T3W	
					RD	HD	RD	HD	RD	HD	RD	HD
					ø50	146	(Stroke/3.6) + 7.5	73	43	13	13	12
ø63	146	(Stroke/3.6) + 7.5	85	47	13	13	12	12	7	7	15	15
ø80	119	(Stroke/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5	8.5	16.5	16.5
ø100	120	(Stroke/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5	12.5	20.5	20.5

\*1 : For the ℓ dimension, round up below the decimal point.

\*2 : (R), (S) and (T) indicate the cushion needle position.

\*3: Refer to page 615 for dimensions of projection of T1, T2YD and HO switches.

\*4: For the dimensions of the accessories, refer to pages 470 and 471.

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

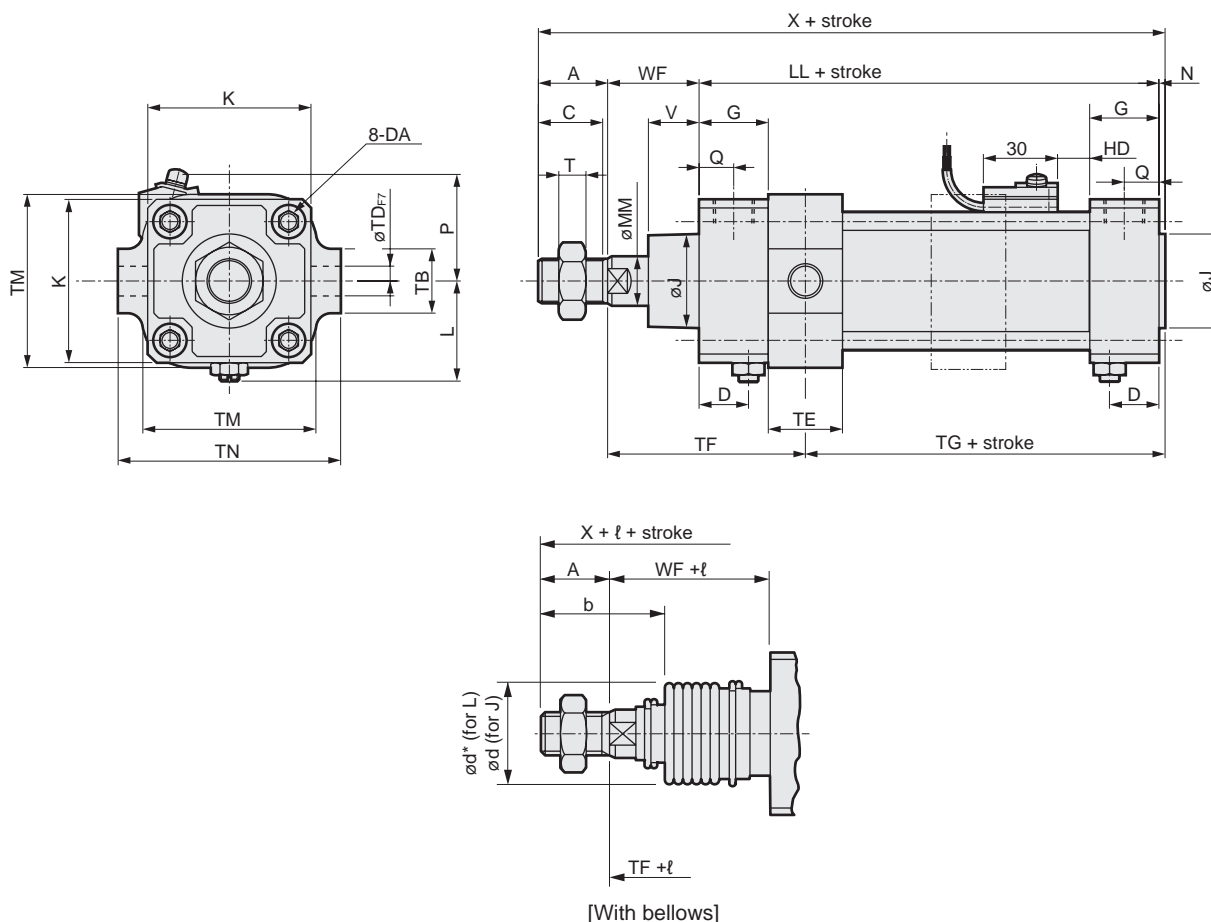
FK

Spd  
Contr

Ending

## Dimensions

● Rod side hole trunnion (TD)



Code	Rod side trunnion (TD) Basic dimensions																	
	Bore size (mm)																	
STK	$\phi 50$	28	27	26	20	M8	Rc3/8	28	38	66	M18x1.5	41 to 43.5	101	20	2.5	14	11	20.5
	$\phi 63$	28	27	26	22	M8	Rc3/8	30	38	80	M18x1.5	47.5 to 50.0	105	20	3	15	11	21
SRL3	$\phi 80$	36	32	34	26	M12	Rc1/2	34	43	98	M22x1.5	56 to 59	116	25	3.5	17	13	23.5
	$\phi 100$	45	41	43	28	M12	Rc1/2	36	51	118	M26x1.5	66 to 69	128	30	4	18	16	32
Code	Mounting dimensions									With bellows								
	Bore size (mm)									$\ell$								
SRM3	WF	X	TB	TD	TE	TF	TG	TM	TN	b	d	$d^*$	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	
													$\phi 50$	37	168.5	26	12	30
SRT3	$\phi 63$	35	171	30	14	35	82.5	60.5	86	104	45	47	48	22	36	49	63	90
	$\phi 80$	48	203.5	35	20	40	102	65.5	105	134	58.5	53	55	14	26	38	49	72
MRL2	$\phi 100$	53	230	40	20	40	109	76	127	150	69.5	61	65	20	32	42	53	76
	$\phi 50$	37	168.5	26	12	30	80	60.5	70	90	47	47	48	22	36	49	63	90
MRG2	Code	With switch																
		Bore size (mm)																
SM-25	Over 300 to 400	Over 400 to 500	*2 Over 500	P	T0, T5	T1, T2Y, T3Y, T2J	T8	T2W, T3W										
					T2, T3	T2YF/M, T3YFM	HD	HD	HD	HD								
ShkAbs	$\phi 50$	119	146	(Stroke/3.6) + 7.5	43	13	12	7	15									
	$\phi 63$	119	146	(Stroke/3.6) + 7.5	47	13	12	7	15									
FJ	$\phi 80$	96	119	(Stroke/4.3) + 2.5	57	14.5	13.5	8.5	16.5									
	$\phi 100$	98	120	(Stroke/4.5) + 9	63	18.5	17.5	12.5	20.5									

\*1 : Position cannot be detected at rod side stroke end.

\*2 : For the  $\ell$  dimension, round up below the decimal point.

\*3 : The position of the cushion needle cannot be changed.

\*4 : Refer to page 615 for dimensions of projection of T1, T2YD and HO switches.

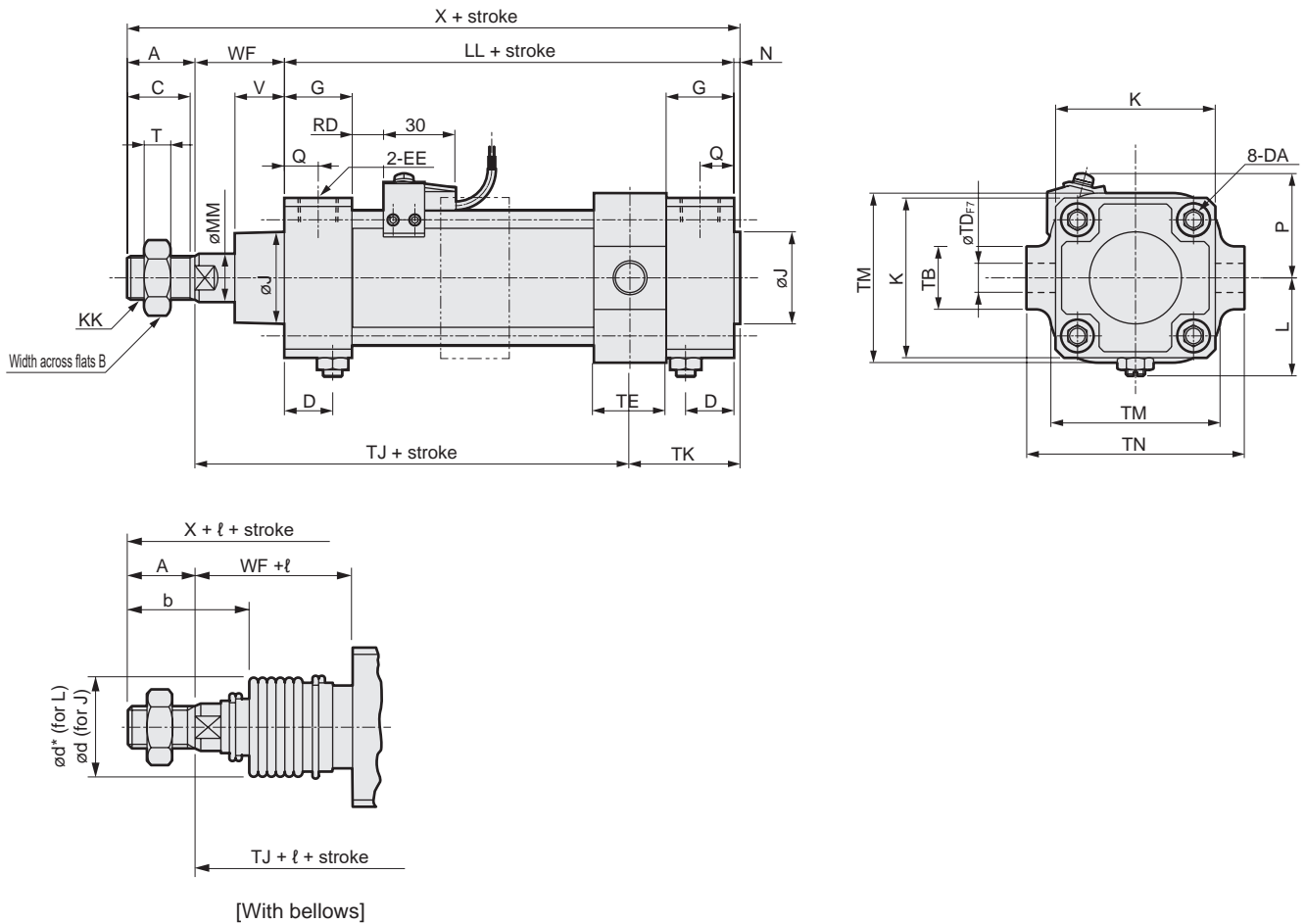
\*5 : For the dimensions of the accessories, refer to pages 470 and 471.

\*6 : Non-sag block (2-dashed line) will be added depending on the stroke.

Refer to page 614 for details on dimensions.

## Dimensions

### ● Head side hole trunnion (TE)



Code	Head side trunnion (TE) Basic dimensions																
Bore size (mm)	A	B	C	D	DA	EE	G	J	K	KK	L	LL	MM	N	Q	T	V
ø50	28	27	26	20	M8	Rc3/8	28	38	66	M18x1.5	41 to 43.5	101	20	2.5	14	11	20.5
ø63	28	27	26	22	M8	Rc3/8	30	38	80	M18x1.5	47.5 to 50.0	105	20	3	15	11	21
ø80	36	32	34	26	M12	Rc1/2	34	43	98	M22x1.5	56 to 59	116	25	3.5	17	13	23.5
ø100	45	41	43	28	M12	Rc1/2	36	51	118	M26x1.5	66 to 69	128	30	4	18	16	32

Code	Mounting dimensions									With bellows							
Bore size (mm)	WF	X	TB	TD	TE	TJ	TM	TN	TK	b	d	d*	ℓ				
													50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300
ø50	37	168.5	26	12	30	94.5	70	90	46	47	47	48	22	36	49	63	90
ø63	35	171	30	14	35	92	86	104	51	45	47	48	22	36	49	63	90
ø80	48	203.5	35	20	40	109.5	105	134	58	58.5	53	55	14	26	38	49	72
ø100	53	230	40	20	40	124.5	127	150	60.5	69.5	61	65	20	32	42	53	76

Code	With switch							
Bore size (mm)				P	T0, T5	T1, T2Y, T3Y, T2J	T8	T2W, T3W
	Over 300 to 400	Over 400 to 500	*2		T2, T3	T2YF/M, T3YFM		RD
					RD	RD	RD	RD
ø50	119	146	(Stroke/3.6) + 7.5	43	13	12	7	15
ø63	119	146	(Stroke/3.6) + 7.5	47	13	12	7	15
ø80	96	119	(Stroke/4.3) + 2.5	57	14.5	13.5	8.5	16.5
ø100	98	120	(Stroke/4.5) + 9	63	18.5	17.5	12.5	20.5

\*1 : Position cannot be detected at head side stroke end.

\*2 : For the ℓ dimension, round up below the decimal point.

\*3 : The position of the cushion needle cannot be changed.

\*4: Refer to page 615 for dimensions of projection of T1, T2YD and HO switches.

\*5: For the dimensions of the accessories, refer to pages 470 and 471.

\*6: Non-sag block (2-dashed line) will be added depending on the stroke. Refer to page 614 for details on dimensions.

SCP*3
CMK2
CMA2
SCM
SCG
<b>SCA2</b>
SCS2
CKV2
CAV2/COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

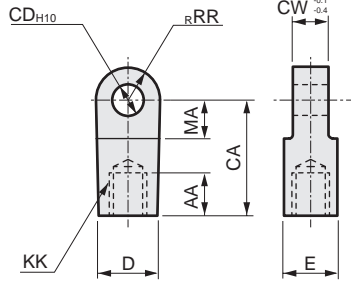
SCP\*3  
 CMK2  
 CMA2  
 SCM  
 SCG  
 SCA2  
 SCS2  
 CKV2  
 CAV2/  
 COVPIN2  
 SSD2  
 SSG  
 SSD  
 CAT  
 MDC2  
 MVC  
 SMG  
 MSD/  
 MSDG  
 FC\*  
 STK  
 SRL3  
 SRG3  
 SRM3  
 SRT3  
 MRL2  
 MRG2  
 SM-25  
 ShkAbs  
 FJ  
 FK  
 Spd  
 Contr  
 Ending

## SCA2 Series common accessory dimensions (rod eye, clevis, bracket)

- The installation dimensions for the clevis, rod eye, and No. 2 bracket ( $\phi$ CD, CW, CQ) are all the same, and any combination is possible.
- Specify the model No. when placing an order.

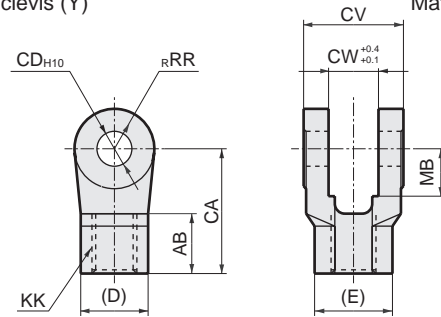


### ● Rod eye (I) Material: Cast iron Painted



Model No.	Bore size (mm)	AA	CA	CD	CW	D	E	KK	MA	RR	Wt. (kg)
S1-I-40	40	20	50	12	18	27	27	M14x1.5	21	16	0.26
S1-I-50	50	21	50	12	18	27	27	M18x1.5	21	16	0.24
S1-I-63	63	21	50	14	20	27	27	M18x1.5	21	16	0.25
S1-I-80	80	30	70	20	28	46	41	M22x1.5	30	25	0.88
S1-I-100	100	30	70	20	28	46	41	M26x1.5	30	25	0.84

### ● Rod clevis (Y) Material: Cast iron Painted

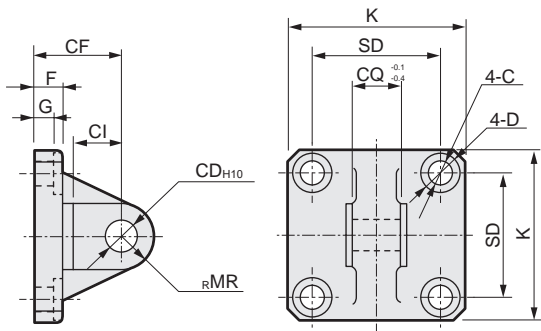


Model No.	Bore size (mm)	AB	CA	CD	CV	CW	D	E	KK	MB	RR	Wt. (kg)
S1-Y-40	40	24	50	12	36	18	27	31.2	M14x1.5	19	16	0.25
S1-Y-50	50	24	50	12	36	18	27	31.2	M18x1.5	19	16	0.24
S1-Y-63	63	24	50	14	40	20	27	31.2	M18x1.5	19	16	0.26
S1-Y-80	80	35	70	20	56	28	41	47.3	M22x1.5	30	25	0.90
S1-Y-100	100	35	70	20	56	28	41	47.3	M26x1.5	30	25	0.85

\*1: A pin and a snap ring are included.

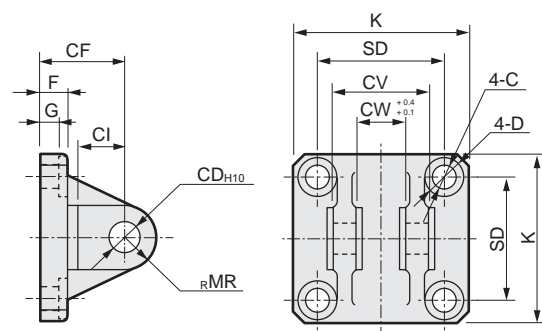
\*2: The MB dimension is the effective length of the CW dimension.

### ● Eye bracket (B1) Material: Cast iron Painted



Model No.	Bore size (mm)	C	CD	CF	CI	CQ	D	F	G	K	MR	SD	Wt. (kg)
S1-B1-40	40	9	12	32	18	18	14	10	6.5	57	12	40.5	0.32
S1-B1-50	50	9	12	32	18	18	14	10	6.5	66	12	48	0.38
S1-B1-63	63	9	14	37	24	20	14	10	6.5	80	16	59	0.57
S1-B1-80	80	14	20	52	30	28	20	14	10.5	98	20	74	1.27
S1-B1-100	100	14	20	52	30	28	20	16	10.5	118	20	90	1.64

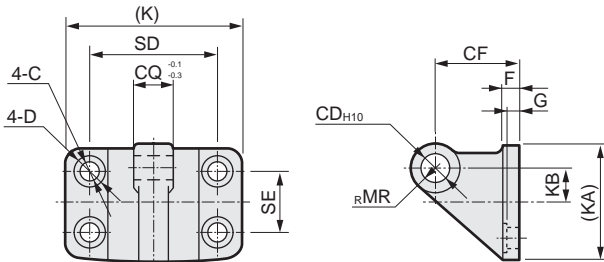
### ● Clevis bracket (B2) Material: Cast iron Painted



Model No.	Bore size (mm)	C	CD	CF	CI	CV	CW	D	F	G	K	MR	SD	Wt. (kg)
S1-B2-40	40	9	12	32	18	36	18	14	10	6.5	57	12	40.5	0.36
S1-B2-50	50	9	12	32	18	36	18	14	10	6.5	66	12	48	0.41
S1-B2-63	63	9	14	37	24	40	20	14	10	6.5	80	16	59	0.62
S1-B2-80	80	14	20	52	30	56	28	20	14	10.5	98	20	74	1.48
S1-B2-100	100	14	20	52	30	56	28	20	16	10.5	118	20	90	1.82

Note: A pin and a snap ring are included.

### ● Eye bracket (B3) Material: Cast iron Painted



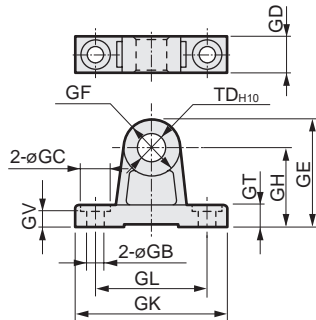
Model No.	Bore size (mm)	C	CD	CF	CQ	D	F	G	K	KA	KB	MR	SD	SE	Wt. (kg)
S1-B3-40	$\phi$ 40/ $\phi$ 50	9	12	40	18	14	8	6.5	85	57	17.5	12	65	35	0.44
S1-B3-63	$\phi$ 63	11	14	50	20	17	10	8	105	67	20	16	80	40	0.77
S1-B3-80	$\phi$ 80/ $\phi$ 100	14	20	65	28	20	12	10	130	93	30	20	100	60	1.64

## Accessory dimensions



### ● Trunnion No. 2 bracket dimensions

Material: Cast iron  
Painted



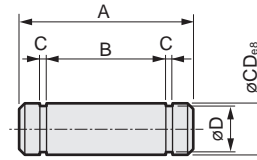
Code	GB	GC	GD	GE	GF	GH	GK	GL	GT	GV	TD	Wt. (kg)
S1-B4-40	9	17	19	61	32	45	80	60	12	11	16	0.25
S1-B4-50	9	17	19	63	36	45	85	65	12	11	18	0.28
S1-B4-63	11	22	24	80	40	60	100	75	14	13	20	0.52
S1-B4-80	14	24	26	85	50	60	115	85	14	13	25	0.70
S1-B4-100	14	24	35	107	64	75	130	100	17	16	35	1.48

Note: The bracket is provided as 2 pcs./set.

### ● Pin dimensions

Pin (P): For clevis bracket/rod clevis/  
clevis bracket

Material: Steel  
Zinc chromate  
treatment



Model No.	Bore size (mm)	A	B	C	D	CD	Applicable snap ring	Wt. (kg)
S1-P-40	40, 50	43.5	36.2	1.15	11.5	12	C for shaft 12	0.04
S1-P-63	63	47.5	40.2	1.15	13.4	14	C for shaft 14	0.06
S1-P-80	80, 100	64	56.2	1.35	19	20	C for shaft 20	0.16

Note: A snap ring is included.

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/

COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/

MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

Ending



Medium bore size cylinder  
Double acting/stroke adjustable (push)

# SCA2-P Series

● Bore size:  $\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80/\varnothing 100$

JIS symbol



## Specifications

Item	SCA2-P (stroke adjustable/push)					
Bore size mm	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$	
Actuation	Double acting					
Working fluid	Compressed air					
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)					
Min. working pressure MPa	0.1 ( $\approx 15$ psi, 1 bar)					
Proof pressure MPa	1.6 ( $\approx 230$ psi, 16 bar)					
Ambient temperature $^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ ) (no freezing)					
Port size	Rc1/4	Rc3/8		Rc1/2		
Stroke tolerance mm	$^{+0.9}_0$ (to 360), $^{+1.4}_0$ (to 800)					
Working piston speed mm/s	50 to 1000 (Operate within the allowable absorbed energy.)					
Cushion	Air cushion					
Effective air cushion length mm	14.6	16.6	16.6	20.6	23.6	
Adjustable stroke range mm	25, 50, 75, 100					
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)					
Allowable absorbed energy J	Cushioned	4.29	8.37	15.8	27.9	49.8
	Without cushion	0.067	0.079	0.079	0.201	0.301
Without any cushion, this product cannot absorb large energy generated by an external load. We recommend using an external shock absorber.						

## Stroke

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

\*1: The custom stroke is available in 1 mm increments.

## Min. stroke with switch

● T0/T5 min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
$\varnothing 40$	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)
$\varnothing 50$	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)
$\varnothing 63$	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)
$\varnothing 80$	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)
$\varnothing 100$	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T8 min. stroke with switch

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
$\varnothing 40$	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)
$\varnothing 50$	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)
$\varnothing 63$	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)
$\varnothing 80$	25(25)	25(25)	45(45)	65(65)	25(25)	25(25)	70(55)	70(65)	110(70)	110(70)	115(115)	115(115)	50(35)	50(35)
$\varnothing 100$	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

### Min. stroke with switch

#### ● T2/T3 min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	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)
ø50	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)
ø63	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)
ø80	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)
ø100	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

#### ● T1/T2Y/T3Y/T2YD min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	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)
ø50	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)
ø63	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)
ø80	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)
ø100	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire). T2YD does not have an L-shaped lead wire (V).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

#### ● T2W/T3W min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	25(25)	25(25)	25(25)	25(25)	25(25)	65(50)	110(80)	155(110)	110(80)	110(80)	170(140)	170(140)	50(35)	50(35)
ø50	25(25)	25(25)	25(25)	25(25)	25(25)	25(25)	65(40)	65(40)	110(80)	110(80)	110(80)	110(80)	50(35)	50(35)
ø63	25(25)	25(25)	25(25)	25(25)	25(25)	25(25)	65(40)	65(40)	115(85)	115(85)	115(85)	115(85)	55(40)	55(40)
ø80	25(25)	25(25)	25(25)	25(25)	25(25)	25(25)	60(40)	60(40)	120(90)	120(90)	120(90)	120(90)	55(40)	55(40)
ø100	25(25)	25(25)	25(25)	25(25)	25(25)	25(25)	60(40)	60(40)	130(100)	130(100)	130(100)	130(100)	60(45)	60(45)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/

COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/

MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd

Contr

Ending

# SCA2-P Series

## Switch specifications (T-switch)

● 1-color/2-color LED/for AC magnetic field proof

Item	2-wire proximity		2-wire proximity			3-wire proximity				2-wire reed				2-wire proximity		
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V		T8H/T8V		T2YD (*4) T2YDT		
Applications	Programming controller relay, compact solenoid valve	Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay	For programmable controller, relay (no lamp), serial		For programmable controller, relay		Dedicated for programmable controller		
Output method	-			NPN output	PNP output	NPN output	NPN output	-								
Pwr. supp. V.	-			10 to 28 VDC				-								
Load voltage	85 to 265 VAC	10 to 30 VDC	24 VDC ±10%		30 VDC or less				12/24 VDC	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 (*3)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp		LED (Lit when ON)		Red/green LED (Lit when ON)	
Leakage current	≤1 mA at 100 VAC, ≤2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA						1 mA or less	
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80		1 m:33 3 m:87 5 m:142		1 m:61 3 m:166 5 m:272				

\*1: Refer to Ending Page 1 for detailed switch specifications and dimensions.

\*2: Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

\*3: Max. load current: 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

\*4: Switch for AC magnetic field (T2YD/T2YDT) cannot be used in DC magnetic field.



### Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke (S) = 0 mm						Switch weight	Mounting bracket weight	Additional weight per S = 100mm
	Basic (00)	Foot (LB)	Flange (FA, FB)	Eye bracket (CA)	Clevis bracket (CB)	Trunnion (TA, TB, TC)		T type	
ø40	1.20	1.37	1.61	1.52	1.56	1.58	Refer to the weight in the switch specifications.	0.024	0.78
ø50	1.70	1.95	2.19	2.08	2.11	2.24		0.022	0.99
ø63	2.16	2.53	3.25	2.73	2.78	3.01		0.020	1.03
ø80	3.80	4.54	5.66	5.07	5.28	5.14		0.026	2.15
ø100	5.40	6.31	8.14	7.04	7.22	7.97		0.024	2.47

(Example) Product weight of SCA2-P-LB-50B-200-25-TOH-D	Product weight for 0 mm stroke.....	1.95 kg
	Additional weight for 200 mm stroke .....	$0.99 \times \frac{200}{100} = 1.98$ kg
	Weight of 2 TOH switches .....	$0.018 \times 2 = 0.036$ kg
	Weight of 2 mounting brackets .....	$0.022 \times 2 = 0.044$ kg
	Product weight.....	$1.95 + 1.98 + 0.036 + 0.044 = 4.010$ kg

### Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push/Pull	$1.06 \times 10^2$	$1.58 \times 10^2$	$2.11 \times 10^2$	$3.17 \times 10^2$	$4.22 \times 10^2$	$5.28 \times 10^2$	$6.33 \times 10^2$	$7.39 \times 10^2$	$8.44 \times 10^2$	$9.50 \times 10^2$	$1.06 \times 10^3$
ø50	Push/Pull	$1.65 \times 10^2$	$2.47 \times 10^2$	$3.30 \times 10^2$	$4.95 \times 10^2$	$6.60 \times 10^2$	$8.25 \times 10^2$	$9.90 \times 10^2$	$1.15 \times 10^3$	$1.32 \times 10^3$	$1.48 \times 10^3$	$1.65 \times 10^3$
ø63	Push/Pull	$2.80 \times 10^2$	$4.20 \times 10^2$	$5.61 \times 10^2$	$8.41 \times 10^2$	$1.12 \times 10^3$	$1.40 \times 10^3$	$1.68 \times 10^3$	$1.96 \times 10^3$	$2.24 \times 10^3$	$2.52 \times 10^3$	$2.80 \times 10^3$
ø80	Push/Pull	$4.54 \times 10^2$	$6.80 \times 10^2$	$9.07 \times 10^2$	$1.36 \times 10^3$	$1.81 \times 10^3$	$2.27 \times 10^3$	$2.72 \times 10^3$	$3.17 \times 10^3$	$3.63 \times 10^3$	$4.08 \times 10^3$	$4.54 \times 10^3$
ø100	Push/Pull	$7.15 \times 10^2$	$1.07 \times 10^3$	$1.43 \times 10^3$	$2.14 \times 10^3$	$2.86 \times 10^3$	$3.57 \times 10^3$	$4.29 \times 10^3$	$5.00 \times 10^3$	$5.72 \times 10^3$	$6.43 \times 10^3$	$7.15 \times 10^3$

- SCP\*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2**
- SCS2
- CKV2
- CAV2/  
COVPIN2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/  
MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd  
Contr
- Ending

## How to order

No switch (built-in magnet for switch)

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

With switch (built-in magnet for switch)

**SCA2-P - LB - 40 - B - 100 - 25 - T0H - R - S - I**

**A** Mounting  
\*1

**B** Bore size

**C** Port thread

**D** Cushion

**E** Stroke \*2

**F** Adjustable  
stroke range

**G** Switch model No.  
\*4

**H** Switch quantity  
\*5

**I** Option  
\*6  
\*7

**J** Accessory  
\*8

## ⚠ Precautions for model No. selection

- \*1 : Mounting bracket will be shipped with the product. (The axial foot, head side flange and trunnion are assembled at shipment.)
- \*2 : If the stroke exceeds the max. stroke, refer to Ending Page 69.
- \*3 : Refer to pages 472 and 473 for the min. stroke with switch.
- \*4 : Switches are shipped with the product.
- \*5 : When selecting TA, TD, TB or TE mounting, the switch quantity is limited to "H" (1 on head side) for TA and TD, and "R" (1 on rod side) for TB and TE.
- \*6 : The instantaneous max. temperature is the temperature when sparks, cutting chips, etc., instantaneously contact the bellows.
- \*7 : When selecting TA, TD, TB or TE mounting format, the cushion needle position is blank and fixed at S, with no options available.
- \*8 : "I" and "Y" cannot be selected together.
- \*9 : Refer to Ending Page 85 for custom specifications of rod end form.
- \*10: Refer to page 448 for combinations of variations/ options.

[Example of model No.]

**SCA2-P-LB-40B-100-25-T0H-R-S-I**

Model: Medium bore size cylinder, double acting/stroke adjustable (push)

- A** Mounting : Axial foot
- B** Bore size :  $\varnothing 40$  mm
- C** Port thread : Rc thread
- D** Cushion : With two-sided air cushion
- E** Stroke : 100 mm
- F** Adjustable stroke range : 25 mm
- G** Switch model No. : Reed T0H switch, lead wire length 1 m
- H** Switch quantity : 1 on rod side
- I** Option : Cushion needle position S
- J** Accessory : Rod eye

Code	Description
<b>A Mounting</b>	
<b>00</b>	Basic
<b>LB</b>	Axial foot
<b>FA</b>	Rod side flange
<b>FB</b>	Head side flange
<b>TC</b>	Intermediate trunnion
<b>TA</b>	Rod side trunnion
<b>TB</b>	Head side trunnion
<b>TF</b>	Intermediate supporting hole trunnion ( $\varnothing 40$ is not available)
<b>TD</b>	Rod side hole trunnion ( $\varnothing 40$ is not available)
<b>TE</b>	Head side hole trunnion ( $\varnothing 40$ is not available)

<b>B Bore size (mm)</b>	
<b>40</b>	$\varnothing 40$
<b>50</b>	$\varnothing 50$
<b>63</b>	$\varnothing 63$
<b>80</b>	$\varnothing 80$
<b>100</b>	$\varnothing 100$

<b>C Port thread</b>	
<b>Blank</b>	Rc thread
<b>N</b>	NPT thread (made-to-order product)
<b>G</b>	G thread (made-to-order product)

<b>D Cushion</b>	
<b>B</b>	Both sides cushioned
<b>R</b>	Rod side cushioned
<b>H</b>	Head side cushioned
<b>N</b>	Without cushion

<b>E Stroke (mm)</b>		
Bore size	Stroke *3	Custom stroke
$\varnothing 40$	<b>25 to 600</b>	In 1 mm increments
$\varnothing 50$	<b>25 to 600</b>	
$\varnothing 63$	<b>25 to 600</b>	
$\varnothing 80$	<b>25 to 700</b>	
$\varnothing 100$	<b>25 to 800</b>	

<b>F Adjustable stroke range (mm)</b>	
<b>25, 50, 75, 100</b>	

<b>G Switch model No.</b>	
Refer to the switch model numbers on the next page.	
<b>* Lead wire length</b>	
<b>Blank</b>	1 m (standard)
<b>3</b>	3 m (option)
<b>5</b>	5 m (option)

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

<b>I Option</b>			
		Max. ambient temp.	Instantaneous max. temp.
<b>J</b>	Bellows	100°C	200°C
<b>L</b>	Bellows	250°C	400°C
<b>M</b>	Piston rod material (stainless steel)		
<b>Blank</b>	Cushion needle position R (standard)		
<b>S</b>	Cushion needle position S		
<b>T</b>	Cushion needle position T		
<b>P6</b>	Copper and PTFE free (made-to-order product)		

<b>J Accessory</b>	
<b>I</b>	Rod eye
<b>Y</b>	Rod clevis (pin and snap ring included)
<b>B4</b>	Trunnion No. 2 bracket (2 pcs./set)

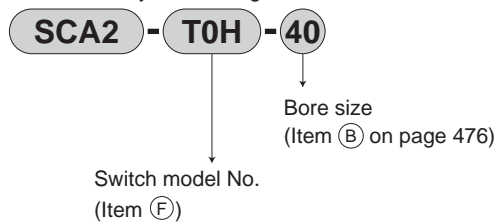
### [F] Switch model No.

T-switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No indicator lamp	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*	Proximity	●		1-color LED	2-wire
T2H*	T2V*			●		
T3H*	T3V*			●	2-color LED	2-wire
T2WH*	T2WV*			●		
T2YH*	T2YV*			●	2-color LED	3-wire
T3WH*	T3WV*			●		
T3YH*	T3YV*			●	1-color LED	3-wire
T3PH*	T3PV*			●		
T2YD*	-			●	2-color LED	2-wire
T2YDT*	-			●	for AC magnetic field	
T2JH*	T2JV*		●	1-color LED off-delay	2-wire	

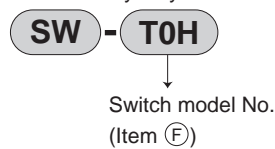
### How to order switch

#### [T-switch]

- Switch body + mounting bracket set

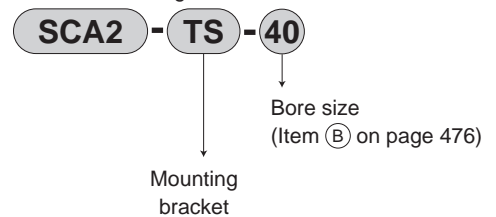


- Switch body only



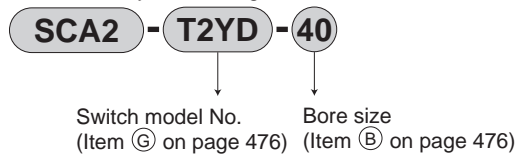
\* Contact CKD when using an environment-friendly T-switch.

- Switch mounting bracket set

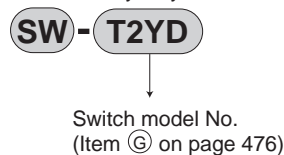


#### [T2YD switch]

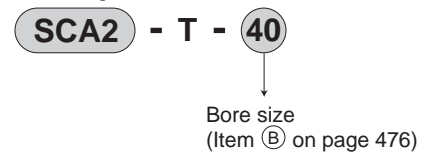
- Switch body + mounting bracket set



- Switch body only



- Mounting bracket set



### How to order mounting bracket

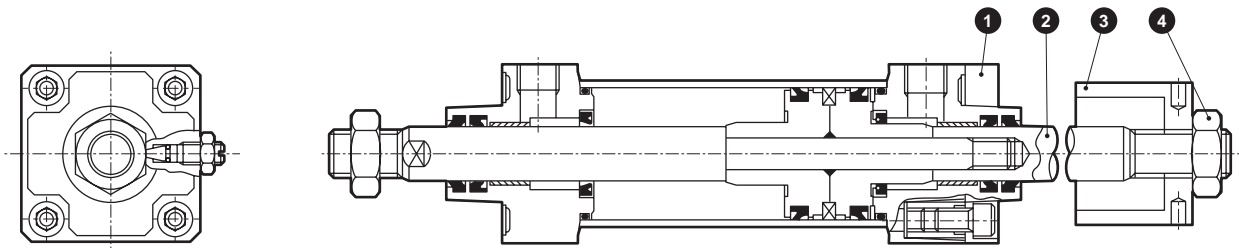
Bore size (mm)	ø40	ø50	ø63	ø80	ø100
Mounting bracket					
Flange (FA)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100

\*1: For material of the mounting bracket, refer to page 456.

\*2: Mounting brackets are supplied with mounting bolts.

SCP*3
CMK2
CMA2
SCM
SCG
<b>SCA2</b>
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

## SCP\*3 Internal structure and parts list



Note: Materials of the parts not listed below are the same as those of SCA2 Series (double acting/single rod) on page 456.

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Plate	Steel	Manganese phosphate treatment	3	Adjustable stopper	Steel	Manganese phosphate treatment
2	Piston rod (2)	Steel	Industrial chrome plating	4	Lock nut	Steel	Zinc chromate

\*Part No. 14 wear ring is not used.

### Repair parts list

(Numbering of repair parts follows that in the internal structure of the SCA2 Series (page 456).)

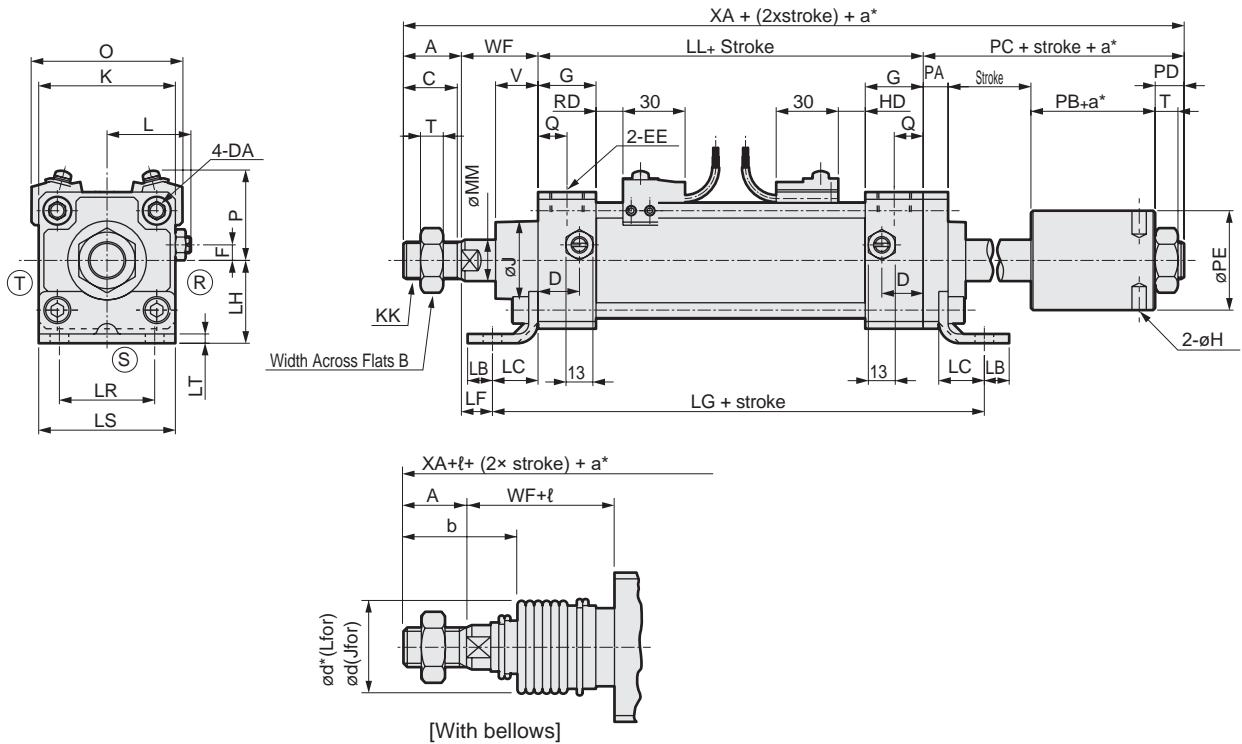
Bore size (mm)	Kit No.	Repair parts No.
ø40	SCA2-P-40K	
ø50	SCA2-P-50K	
ø63	SCA2-P-63K	3 4 7 8 11 20
ø80	SCA2-P-80K	
ø100	SCA2-P-100K	

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

### dimensions



#### ● Axial foot (LB)



Code																						
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	H	K	KK	L	LL	MM	PA	PB	PC	PD	PE	PF	Q
ø40	22	22	20	18	M8	Rc 1/4	7.5	26	31	6 depth 8	57	M 14 x 1.5	38 to 39.5	93	16	12	29	52	11	40	6	13
ø50	28	27	26	20	M8	Rc 3/8	0	28	38	6 depth 10	66	M 18 x 1.5	41 to 43.5	101	20	12	35	61	14	48	6	14
ø63	28	27	26	22	M8	Rc 3/8	0	30	38	6 depth 10	80	M 18 x 1.5	47.5 to 50	105	20	16	31	61	14	48	6	15
ø80	36	32	34	26	M12	Rc 1/2	0	34	43	10 depth 12	98	M 22 x 1.5	56 to 59	116	25	19	33	68	16	60	10	17
ø100	45	41	43	28	M12	Rc 1/2	0	36	51	10 depth 15	118	M 26 x 1.5	66 to 69	128	30	19	50	90	21	70	10	18

Code	With switch												Mounting dimensions											
	T	V	WF	XA	XF	O	P	T0, T5 T2, T3		T1, T2Y T3Y, T2J		T8		T2W, T3W		LB	LC	LD	LF	LG	LH	LR	LS	LT
								RD	HD	RD	HD	RD	HD	RD	HD									
ø40	8	18.5	33.5	200.5	55.5	66	41.5	11	11	10	10	5	5	13	13	10	19.5	9	14	140.8	40	40	57	3.2
ø50	11	20.5	37	227	65	73	43	13	13	12	12	7	7	15	15	12	22	9	15	152.5	40	46	66	4.5
ø63	11	21	35	229	63	85	47	13	13	12	12	7	7	15	15	12	30	11	5	176.5	50	60	80	4.5
ø80	13	23.5	48	268	84	105	57	14.5	14.5	13.5	13.5	8.5	8.5	16.5	16.5	14	37	14	11	203	60	74	98	6.0
ø100	16	32	53	316	98	121	63	18.5	18.5	17.5	17.5	12.5	12.5	20.5	20.5	21	31	14	12	203	67	80	118	6.0

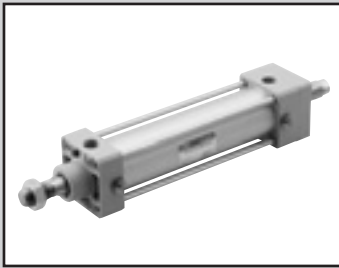
Code	With bellows										
	ℓ										
	b	d	d*	50 or less	Over 50 100 or less	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*1 500Over
ø40	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	47	47	48	22	36	49	63	90	119	146	(stroke/3.6) + 7.5
ø63	45	47	48	22	36	49	63	90	119	146	(stroke/3.6) + 7.5
ø80	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	69.5	61	65	20	32	42	53	76	98	120	(Stroke/4.5) + 9

\*1 : For the L dimension, round up below the decimal point.  
 \*2 : (R), (S) and (T) indicate the cushion needle position.  
 \*3 : In the foot mounting, the pitch in the axial direction differs from that of the standard.  
 \*4 : Refer to page 615 for dimensions of projecting section of T2YD switch.  
 \* a: Adjustable stroke.

\* Installation dimensions of other mounting are the same as those of the SCA2 (standard). Refer to pages 458 to 469.  
 \* For the dimensions of the accessories, refer to pages 470 and 471.

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

SCP\*3  
CMK2  
CMA2  
SCM  
SCG  
SCA2  
SCS2  
CKV2  
CAV2/  
COVPIN2  
SSD2  
SSG  
SSD  
CAT  
MDC2  
MVC  
SMG  
MSD/  
MSDG  
FC\*  
STK  
SRL3  
SRG3  
SRM3  
SRT3  
MRL2  
MRG2  
SM-25  
ShkAbs  
FJ  
FK  
Spd  
Contr  
Ending



Medium bore size cylinder  
Double acting/stroke adjustable (pull)

# SCA2-R Series

● Bore size:  $\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80/\varnothing 100$

JIS symbol



## Specifications

Item	SCA2-R (stroke adjustable/pull)					
Bore size mm	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$	
Actuation	Double acting					
Working fluid	Compressed air					
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)					
Min. working pressure MPa	0.05 ( $\approx 7.3$ psi, 0.5 bar)					
Proof pressure MPa	1.6 ( $\approx 230$ psi, 16 bar)					
Ambient temperature $^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ ) (no freezing)					
Port size	Rc1/4	Rc3/8		Rc1/2		
Stroke tolerance mm	$^{+0.9}_0$ (to 360), $^{+1.4}_0$ (to 800)					
Working piston speed mm/s	50 to 1000 (Operate within the allowable absorbed energy.)					
Cushion	Air cushion					
Effective air cushion length mm	14.6	16.6	16.6	20.6	23.6	
Adjustable stroke range mm	25, 50, 75, 100					
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)					
Allowable absorbed energy J	Cushioned	4.29	8.37	15.8	27.9	49.8
	Without cushion	0.067	0.079	0.079	0.201	0.301
		Without any cushion, this product cannot absorb large energy generated by an external load. We recommend using an external shock absorber.				

## Stroke

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

\*1: The custom stroke is available in 1 mm increments.

## Min. stroke with switch

● T0/T5 min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
$\varnothing 40$	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)
$\varnothing 50$	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)
$\varnothing 63$	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)
$\varnothing 80$	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)
$\varnothing 100$	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T8 min. stroke with switch

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
$\varnothing 40$	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)
$\varnothing 50$	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)
$\varnothing 63$	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)
$\varnothing 80$	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)
$\varnothing 100$	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

### Min. stroke with switch

● T2/T3 min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	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)
ø50	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)
ø63	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)
ø80	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)
ø100	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T1/T2Y/T3Y/T2YD min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	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)
ø50	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)
ø63	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)
ø80	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)
ø100	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire). T2YD does not have an L-shaped lead wire (V).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T2W/T3W min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	25(25)	25(25)	25(25)	25(25)	25(25)	65(50)	110(80)	155(110)	110(80)	110(80)	170(140)	170(140)	50(35)	50(35)
ø50	25(25)	25(25)	25(25)	25(25)	25(25)	25(25)	65(40)	65(40)	110(80)	110(80)	110(80)	110(80)	50(35)	50(35)
ø63	25(25)	25(25)	25(25)	25(25)	25(25)	25(25)	65(40)	65(40)	115(85)	115(85)	115(85)	115(85)	55(40)	55(40)
ø80	25(25)	25(25)	25(25)	25(25)	25(25)	25(25)	60(40)	60(40)	120(90)	120(90)	120(90)	120(90)	55(40)	55(40)
ø100	25(25)	25(25)	25(25)	25(25)	25(25)	25(25)	60(40)	60(40)	130(100)	130(100)	130(100)	130(100)	60(45)	60(45)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

Ending

# SCA2-R Series

## Switch specifications (T-switch)

● 1-color/2-color LED/for AC magnetic field proof

Item	2-wire proximity		2-wire proximity				3-wire proximity				2-wire reed						2-wire proximity
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V		T8H/T8V			T2YD (*4) T2YDT		
Applications	Programming controller relay, compact solenoid valve	Dedicated for programmable controller				For programmable controller, relay				For programmable controller, relay	For programmable controller, relay (no lamp), serial		For programmable controller, relay			Dedicated for programmable controller	
Output method	-				NPN output	PNP output	NPN output	NPN output	-								
Pwr. supp. V.	-				10 to 28 VDC				-								
Load voltage	85 to 265 VAC	10 to 30 VDC	24 VDC ±10%		30 VDC or less				12/24 VDC	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 (*3)				100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp		LED (Lit when ON)			Red/green LED (Lit when ON)	
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less				10 μA or less				0 mA						1 mA or less	
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80		1 m:18 3 m:49 5 m:80			1 m:33 3 m:87 5 m:142			1 m:61 3 m:166 5 m:272	

\*1 : Refer to Ending Page 1 for detailed switch specifications and dimensions.

\*2 : Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

\*3 : Max. load current: 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C.  
(5 to 10 mA at 60°C)

\*4 : Switch for AC magnetic field (T2YD/T2YDT) cannot be used in DC magnetic field.



### Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke (S) = 0 mm						Switch weight	Mounting bracket weight	Additional weight per S = 100 mm
	Basic (00)	Foot (LB)	Flange (FA, FB)	Eye bracket (CA)	Clevis bracket (CB)	Trunnion (TA, TB, TC)		T type	
ø40	0.96	1.13	1.37	1.28	1.32	1.34	Refer to the weight in the switch specifications.	0.024	0.55
ø50	1.45	1.70	1.94	1.83	1.86	1.99		0.022	0.71
ø63	1.88	2.25	2.97	2.45	2.50	2.73		0.020	0.75
ø80	3.15	3.89	5.01	4.42	4.63	4.49		0.026	1.26
ø100	4.80	5.71	7.54	6.44	6.62	7.37		0.024	1.37

(Example) Product weight of SCA2-R-LB-50B-200-25-TOH-D	Product weight for 0 mm stroke .....	1.70 kg
	Additional weight for 200 mm stroke .....	$0.71 \times \frac{200}{100} = 1.42$ kg
	Weight of 2 TOH switches .....	$0.018 \times 2 = 0.036$ kg
	Weight of 2 mounting brackets .....	$0.022 \times 2 = 0.044$ kg
	Product weight .....	$1.70 + 1.42 + 0.036 + 0.044 = 3.200$ kg

### Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push	62.8	$1.26 \times 10^2$	$1.88 \times 10^2$	$2.51 \times 10^2$	$3.77 \times 10^2$	$5.03 \times 10^2$	$6.28 \times 10^2$	$7.54 \times 10^2$	$8.80 \times 10^2$	$1.01 \times 10^3$	$1.13 \times 10^3$	$1.26 \times 10^3$
	Pull	52.8	$1.06 \times 10^2$	$1.58 \times 10^2$	$2.11 \times 10^2$	$3.17 \times 10^2$	$4.22 \times 10^2$	$5.28 \times 10^2$	$6.33 \times 10^2$	$7.39 \times 10^2$	$8.44 \times 10^2$	$9.50 \times 10^2$	$1.06 \times 10^3$
ø50	Push	98.2	$1.96 \times 10^2$	$2.95 \times 10^2$	$3.93 \times 10^2$	$5.89 \times 10^2$	$7.85 \times 10^2$	$9.82 \times 10^2$	$1.18 \times 10^3$	$1.37 \times 10^3$	$1.57 \times 10^3$	$1.77 \times 10^3$	$1.96 \times 10^3$
	Pull	82.5	$1.65 \times 10^2$	$2.47 \times 10^2$	$3.30 \times 10^2$	$4.95 \times 10^2$	$6.60 \times 10^2$	$8.25 \times 10^2$	$9.90 \times 10^2$	$1.15 \times 10^3$	$1.32 \times 10^3$	$1.48 \times 10^3$	$1.65 \times 10^3$
ø63	Push	$1.56 \times 10^2$	$3.12 \times 10^2$	$4.68 \times 10^2$	$6.23 \times 10^2$	$9.35 \times 10^2$	$1.25 \times 10^3$	$1.56 \times 10^3$	$1.87 \times 10^3$	$2.18 \times 10^3$	$2.49 \times 10^3$	$2.81 \times 10^3$	$3.12 \times 10^3$
	Pull	$1.40 \times 10^2$	$2.80 \times 10^2$	$4.20 \times 10^2$	$5.61 \times 10^2$	$8.41 \times 10^2$	$1.12 \times 10^3$	$1.40 \times 10^3$	$1.68 \times 10^3$	$1.96 \times 10^3$	$2.24 \times 10^3$	$2.52 \times 10^3$	$2.80 \times 10^3$
ø80	Push	$2.51 \times 10^2$	$5.03 \times 10^2$	$7.54 \times 10^2$	$1.01 \times 10^3$	$1.51 \times 10^3$	$2.01 \times 10^3$	$2.51 \times 10^3$	$3.02 \times 10^3$	$3.52 \times 10^3$	$4.02 \times 10^3$	$4.52 \times 10^3$	$5.03 \times 10^3$
	Pull	$2.27 \times 10^2$	$4.54 \times 10^2$	$6.80 \times 10^2$	$9.07 \times 10^2$	$1.36 \times 10^3$	$1.81 \times 10^3$	$2.27 \times 10^3$	$2.72 \times 10^3$	$3.17 \times 10^3$	$3.63 \times 10^3$	$4.08 \times 10^3$	$4.54 \times 10^3$
ø100	Push	$3.93 \times 10^2$	$7.85 \times 10^2$	$1.18 \times 10^3$	$1.57 \times 10^3$	$2.36 \times 10^3$	$3.14 \times 10^3$	$3.93 \times 10^3$	$4.71 \times 10^3$	$5.50 \times 10^3$	$6.28 \times 10^3$	$7.07 \times 10^3$	$7.85 \times 10^3$
	Pull	$3.57 \times 10^2$	$7.15 \times 10^2$	$1.07 \times 10^3$	$1.43 \times 10^3$	$2.14 \times 10^3$	$2.86 \times 10^3$	$3.57 \times 10^3$	$4.29 \times 10^3$	$5.00 \times 10^3$	$5.72 \times 10^3$	$6.43 \times 10^3$	$7.15 \times 10^3$

# SCA2-R Series

SCP\*3  
CMK2  
CMA2  
SCM  
SCG  
SCA2  
SCS2  
CKV2  
CAV2/  
COVPIN2  
SSD2  
SSG  
SSD  
CAT  
MDC2  
MVC  
SMG  
MSD/  
MSDG  
FC\*  
STK  
SRL3  
SRG3  
SRM3  
SRT3  
MRL2  
MRG2  
SM-25  
ShkAbs  
FJ  
FK  
Spd  
Contr  
Ending

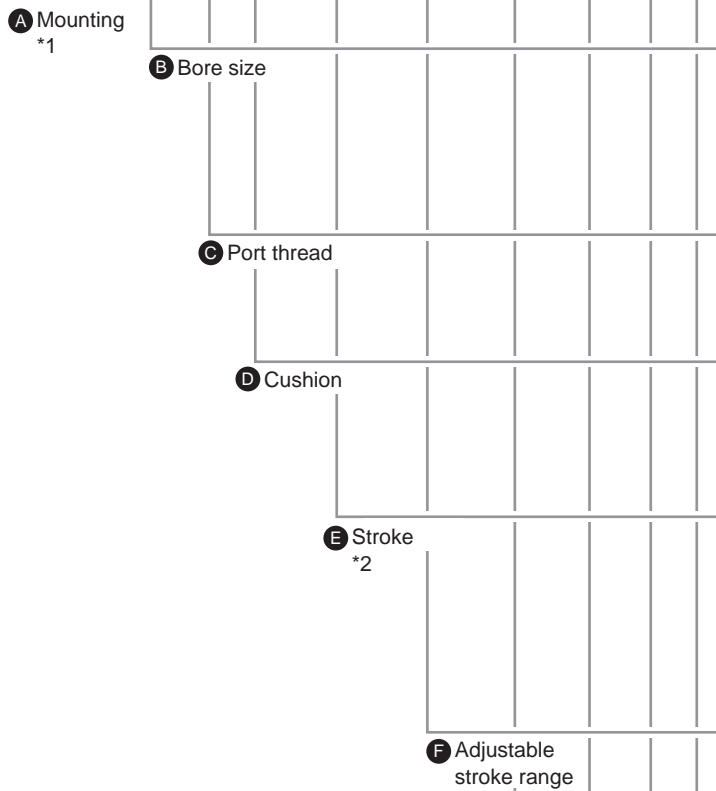
## How to order

No switch (built-in magnet for switch)

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

With switch (built-in magnet for switch)

SCA2-R - LB - 40 - B - 100 - 25 - T0H - R - S - I



## ⚠ Precautions for model No. selection

- \*1 : Mounting bracket will be shipped with the product. (The axial foot and trunnion are assembled at shipment.)
- \*2 : If the stroke exceeds the max. stroke, refer to Ending Page 74.
- \*3 : Refer to pages 480 and 481 for the min. stroke with switch.
- \*4 : Switches are shipped with the product.
- \*5 : When selecting TA, TD, TB or TE mounting, the switch quantity is limited to "H" (1 on head side) for TA and TD, and "R" (1 on rod side) for TB and TE.
- \*6 : The instantaneous max. temperature is the temperature when sparks, cutting chips, etc., instantaneously contact the bellows.
- \*7 : When selecting TA, TD, TB or TE mounting format, the cushion needle position is blank and fixed at S, with no options available.
- \*8 : "I" and "Y" cannot be selected together.
- \*9 : Refer to Ending Page 85 for custom specifications of rod end form.
- \*10: Refer to page 448 for combinations of variations/options.

[Example of model No.]

### SCA2-R-LB-40B-100-25-T0H-R-S-I

Model: Medium bore size cylinder, double acting/stroke adjustable (pull)

- A** Mounting : Axial foot
- B** Bore size : ø40 mm
- C** Port thread : Rc thread
- D** Cushion : Both sides cushioned
- E** Stroke : 100 mm
- F** Adjustable stroke range : 25 mm
- G** Switch model No. : Reed T0H switch, lead wire length 1 m
- H** Switch quantity : 1 on rod side
- I** Option : Cushion needle position S
- J** Accessory : Rod eye

Code	Description	
<b>A Mounting</b>		
<b>00</b>	Basic	
<b>LB</b>	Axial foot	
<b>FA</b>	Rod side flange	
<b>TC</b>	Intermediate trunnion	
<b>TA</b>	Rod side trunnion	
<b>TB</b>	Head side trunnion	
<b>TF</b>	Intermediate supporting hole trunnion (ø40 is not available)	
<b>TD</b>	Rod side hole trunnion (ø40 is not available)	
<b>TE</b>	Head side hole trunnion (ø40 is not available)	
<b>B Bore size (mm)</b>		
<b>40</b>	ø40	
<b>50</b>	ø50	
<b>63</b>	ø63	
<b>80</b>	ø80	
<b>100</b>	ø100	
<b>C Port thread</b>		
<b>Blank</b>	Rc thread	
<b>N</b>	NPT thread (made-to-order product)	
<b>G</b>	G thread (made-to-order product)	
<b>D Cushion</b>		
<b>B</b>	Both sides cushioned	
<b>R</b>	Rod side cushioned	
<b>H</b>	Head side cushioned	
<b>N</b>	Without cushion	
<b>E Stroke (mm)</b>		
<b>Bore size</b>	<b>Stroke *3</b>	<b>Custom stroke</b>
ø40	<b>25 to 600</b>	<b>In 1 mm increments</b>
ø50	<b>25 to 600</b>	
ø63	<b>25 to 600</b>	
ø80	<b>25 to 700</b>	
ø100	<b>25 to 800</b>	
<b>F Adjustable stroke range (mm)</b>		
<b>25, 50, 75, 100</b>		
<b>G Switch model No.</b>		
Refer to the switch model numbers on the next page.		
<b>* Lead wire length</b>		
<b>Blank</b>	1 m (standard)	
<b>3</b>	3 m (option)	
<b>5</b>	5 m (option)	
<b>H Switch quantity</b>		
<b>R</b>	1 on rod side	
<b>H</b>	1 on head side	
<b>D</b>	2	
<b>T</b>	3	
<b>I Option</b>		
		Max. ambient temp. / Instantaneous max. temp.
<b>J</b>	Bellows	100°C / 200°C
<b>L</b>	Bellows	250°C / 400°C
<b>M</b>	Piston rod material (stainless steel)	
<b>Blank</b>	Cushion needle position R (standard)	
<b>S</b>	Cushion needle position S	
<b>T</b>	Cushion needle position T	
<b>P6</b>	Copper and PTFE free (made-to-order product)	
<b>J Accessory</b>		
<b>I</b>	Rod eye	
<b>Y</b>	Rod clevis (pin and snap ring included)	
<b>B4</b>	Trunnion No. 2 bracket (2 pcs./set)	

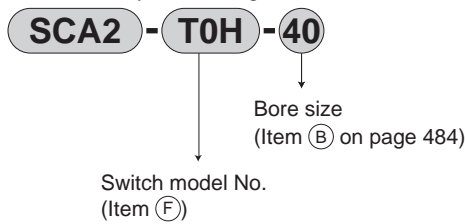
### [F] Switch model No.

T-switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No indicator lamp	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*	Proximity	●		1-color LED	2-wire
T2H*	T2V*			●		
T3H*	T3V*			●	2-color LED	3-wire
T2WH*	T2WV*			●		
T2YH*	T2YV*			●	2-color LED	2-wire
T3WH*	T3WV*			●		
T3YH*	T3YV*			●	2-color LED	3-wire
T3PH*	T3PV*			●		
T2YD*	-			●	2-color LED	2-wire
T2YDT*	-			●	AC magnetic field	
T2JH*	T2JV*		●	1-color LED off-delay	2-wire	

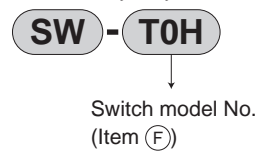
### How to order switch

#### [T-switch]

- Switch body + mounting bracket set

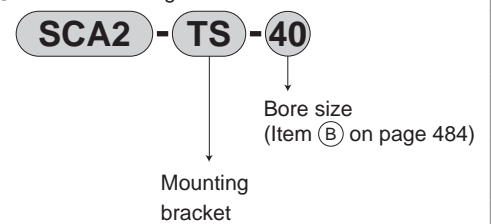


- Switch body only



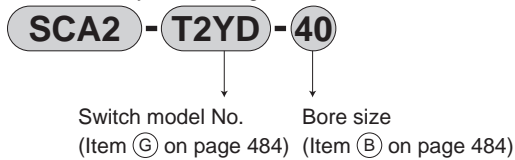
\* Contact CKD when using an environment-friendly T-switch.

- Switch mounting bracket set

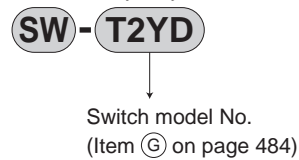


#### [T2YD switch]

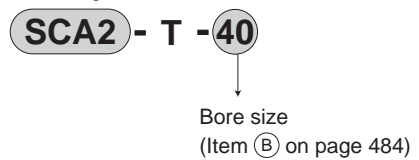
- Switch body + mounting bracket set



- Switch body only



- Mounting bracket set



### How to order mounting bracket

Bore size (mm)	ø40	ø50	ø63	ø80	ø100
Mounting bracket					
Flange (FA)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100

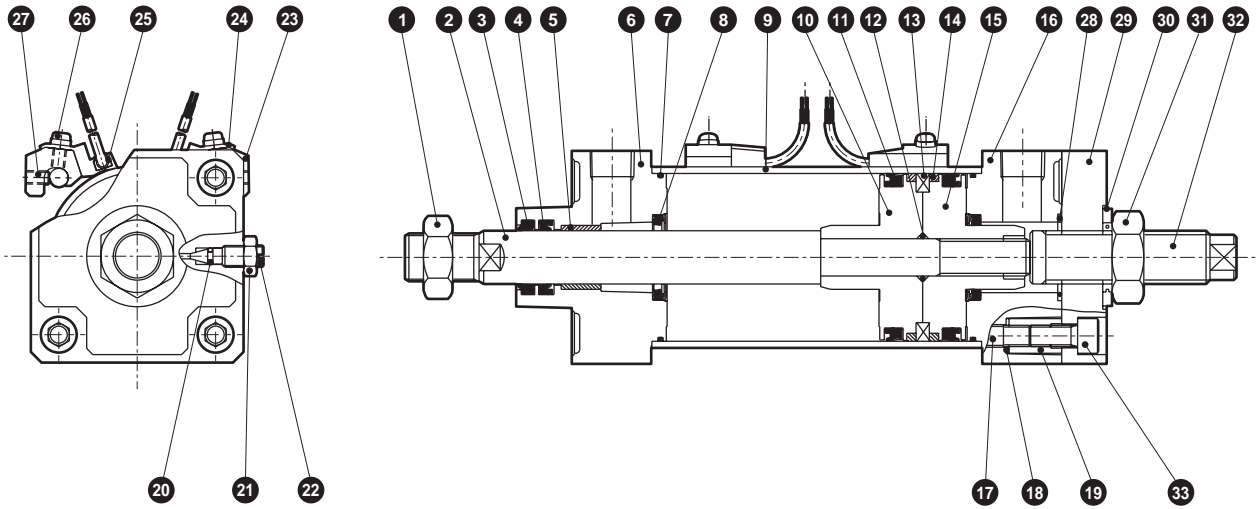
\*1: For material of the mounting bracket, refer to page 456.

\*2: Mounting brackets are supplied with mounting bolts.

SCP*3
CMK2
CMA2
SCM
SCG
<b>SCA2</b>
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

# SCA2-R Series

## Internal structure and parts list



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

## Repair parts list

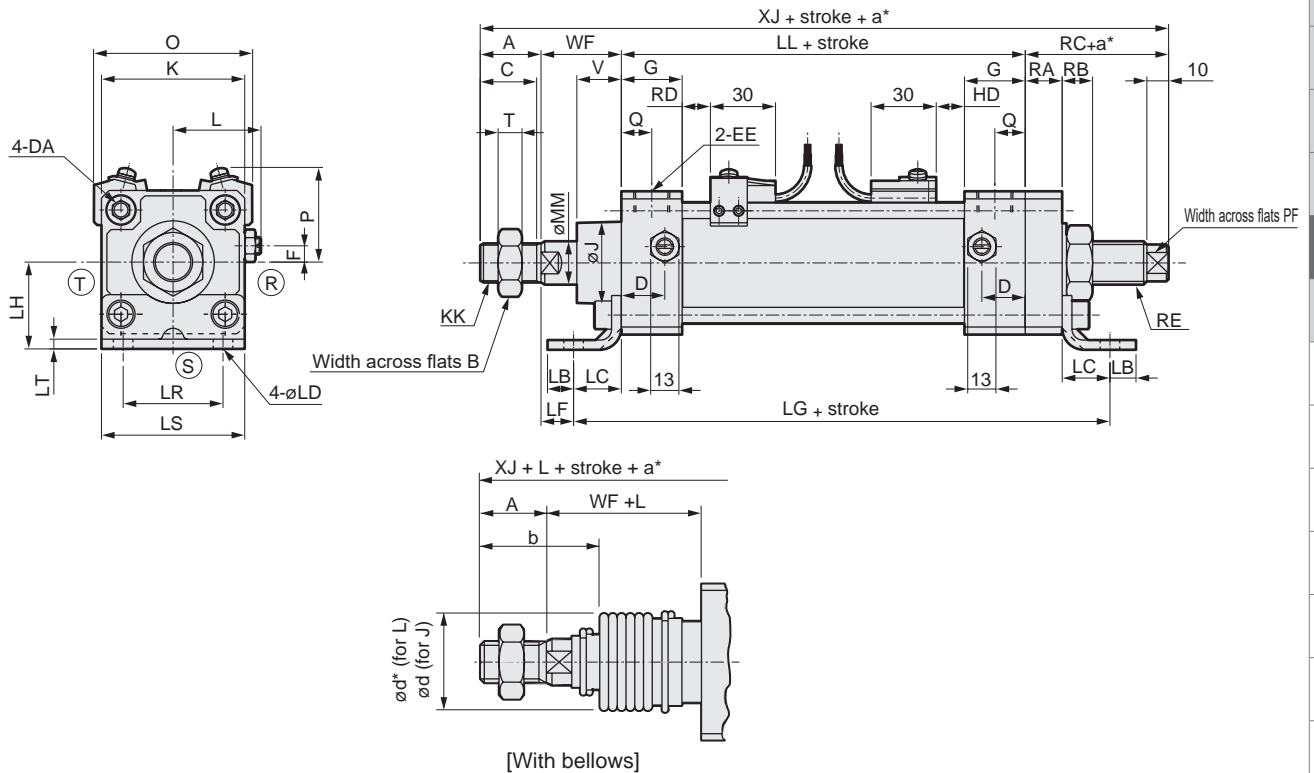
Bore size (mm)	Kit No.	Repair parts No.
ø40	SCA2-R-40K	
ø50	SCA2-R-50K	
ø63	SCA2-R-63K	
ø80	SCA2-R-80K	
ø100	SCA2-R-100K	

\*1: Specify the kit No. when placing an order.

### Dimensions



● Basic (00)



\* a: Adjustable stroke.

Code																				
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	Q	RA	RB	RC	RE	PF
ø40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14x1.5	38 to 39.5	93	16	13	14	11	35	M16x1.5	11
ø50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18x1.5	41 to 43.5	101	20	14	17	14	41	M20x1.5	14
ø63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18x1.5	47.5 to 50	105	20	15	17	14	41	M20x1.5	14
ø80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22x1.5	56 to 59	116	25	17	20	16	46	M24x1.5	17
ø100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26x1.5	66 to 69	128	30	18	20	16	46	M24x1.5	17

Code	With switch												Mounting dimensions											
Bore size (mm)	T	V	WF	XF	XJ	O	P	T0, T5		T1, T2Y		T8		T2W, T3W		LB	LC	LD	LF	LG	LH	LR	LS	LT
								T2, T3	T3Y, T2J	RD	HD	RD	HD	RD	HD									
ø40	8	18.5	33.5	55.5	183.5	66	41.5	11	11	10	10	5	5	13	13	10	19.5	9	14	146	40	40	57	3.2
ø50	11	20.5	37	65	207	73	43	13	13	12	12	7	7	15	15	12	22	9	15	162	40	46	66	4.5
ø63	11	21	35	63	209	85	47	13	13	12	12	7	7	15	15	12	30	11	5	182	50	60	80	4.5
ø80	13	23.5	48	84	246	105	57	14.5	14.5	13.5	13.5	8.5	8.5	16.5	16.5	14	37	14	11	210	60	74	98	6.0
ø100	16	32	53	98	272	121	63	18.5	18.5	17.5	17.5	12.5	12.5	20.5	20.5	21	31	14	12	210	67	80	118	6.0

Code	With bellows										
Bore size (mm)	L										
	b	d	d*	≤ 50	51 ≤ 100	101 ≤ 150	151 ≤ 200	201 ≤ 300	301 ≤ 400	401 ≤ 500	*1 Over 500
ø40	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	69.5	61	65	20	32	42	53	76	98	120	(Stroke/4.5) + 9

\*1 : For the L dimension, round up below the decimal point.

\*2 : (R), (S) and (T) indicate the cushion needle position.

\*3 : In the foot mounting, the pitch in the axial direction differs from that of the standard.

\*4 : Refer to page 615 for dimensions of projecting section of T2YD switch.

\* Installation dimensions of other mounting are the same as those of the SCA2 (standard). Refer to pages 458 to 469.

\* For the dimensions of the accessories, refer to pages 470 and 471.

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

Ending



Medium bore size cylinder  
Double acting/heat resistant

# SCA2-T Series

● Bore size:  $\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80/\varnothing 100$

JIS symbol



## Specifications

Item	SCA2-T/SCA2-L2T (heat resistance)					
Bore size mm	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$	
Actuation	Double acting					
Working fluid	Compressed air					
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)					
Min. working pressure MPa	0.05 ( $\approx 7.3$ psi, 0.5 bar)					
Proof pressure MPa	1.6 ( $\approx 230$ psi, 16 bar)					
Ambient temperature $^{\circ}\text{C}$	5 (41 $^{\circ}\text{F}$ ) to 120 (248 $^{\circ}\text{F}$ )					
Port size	Rc1/4	Rc3/8		Rc1/2		
Stroke tolerance mm	$^{+0.9}_{0}$ (to 360) $^{+1.4}_{0}$ (to 800)					
Working piston speed mm/s	50 to 1000 (Operate within the absorbed energy.)					
Cushion	Air cushion					
Effective air cushion length mm	14.6	16.6	16.6	20.6	23.6	
Lubrication	Unavailable *1					
Allowable absorbed energy J	Cushioned	4.29	8.37	15.8	27.9	49.8
	Without cushion	0.067	0.079	0.079	0.201	0.301
Without any cushion, this product cannot absorb large energy generated by an external load. We recommend using an external shock absorber.						

\*1: Periodically apply additional heat-resistant grease.

## Stroke

Bore size (mm)	Body without switch/standard stroke (mm)	Body with switch/standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\varnothing 40$	25/50/75/ 100/150/200/ 250/300/350/ 400/450/500	150/200/250/ 300/350/400/ 450/500	600 700 800	*2 1
$\varnothing 50$				
$\varnothing 63$				
$\varnothing 80$				
$\varnothing 100$				

\*1: The custom stroke is available in 1 mm increments.

\*2: When using the type with switch, refer to the table of the min. stroke with switch as below.

## Min. stroke with switch

(Unit: mm)

Sketch	When mounted on different surfaces			When mounted on the same surface			With intermediate support (hole) trunnion			With rod side supporting hole	With head side supporting hole
	1	2	3	1	2	3	1	2	3	1	1
Switch quantity	1			1			1			1	1
Bore size (mm)	1			1			1			1	1
$\varnothing 40$	150	150	335	335	335	390	335	335	390	150	150
$\varnothing 50$	145	145	335	335	335	390	335	335	390	145	145
$\varnothing 63$	145	145	335	335	335	390	335	335	390	145	145
$\varnothing 80$	145	145	335	335	335	390	335	335	390	145	145
$\varnothing 100$	140	140	335	335	335	390	335	335	390	140	140

Position cannot be detected at the rod side stroke end.

Position cannot be detected at the head side stroke end.

### Switch specifications

Item	2-wire reed		
	E0		
Applications	For relay, programmable controller		
Load voltage	12 VDC/24 VDC	110 VAC	220 VAC
Load current	5 to 50 mA	7 to 20 mA	7 to 10 mA
Indicator	LED lit when ON		
Leakage current	0 mA		
Weight	g 164		

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

### Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke (S) = 0 mm							Switch weight	Mounting bracket weight	Additional weight per S = 100 mm
	Basic (OO)	Foot (LB)	Flange (FA, FB)	Special flange (FC)	Eye bracket (CA)	Clevis bracket (CB)	Trunnion (TA, TB, TC)		EO type	
ø40	0.83	1.00	1.24	0.92	1.15	1.19	1.21	Refer to the weight in the switch specifications.	0.043	0.39
ø50	1.20	1.45	1.69	1.31	1.58	1.61	1.74		0.059	0.46
ø63	1.60	1.97	2.69	1.78	2.17	2.22	2.45		0.070	0.50
ø80	2.60	3.34	4.46	2.96	3.87	4.08	3.94		0.105	0.90
ø100	4.20	5.11	6.94	4.75	5.84	6.02	6.77		0.132	1.12

(Example) Product weight of SCA2-L2T-LB-50B-200-EO-D	<ul style="list-style-type: none"> <li>Product weight for 0 mm stroke ..... 1.45 kg</li> <li>Additional weight for 200 mm stroke ..... <math>0.46 \times \frac{200}{100} = 0.92</math> kg</li> <li>Weight of 2 EO switches ..... <math>0.164 \times 2 = 0.328</math> kg</li> <li>Weight of 2 mounting brackets ..... <math>0.059 \times 2 = 0.118</math> kg</li> <li>Product weight ..... <math>1.45 + 0.92 + 0.328 + 0.118 = 2.816</math> kg</li> </ul>
--	--

### Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push	62.8	$1.26 \times 10^2$	$1.88 \times 10^2$	$2.51 \times 10^2$	$3.77 \times 10^2$	$5.03 \times 10^2$	$6.28 \times 10^2$	$7.54 \times 10^2$	$8.80 \times 10^2$	$1.01 \times 10^3$	$1.13 \times 10^3$	$1.26 \times 10^3$
	Pull	52.8	$1.06 \times 10^2$	$1.58 \times 10^2$	$2.11 \times 10^2$	$3.17 \times 10^2$	$4.22 \times 10^2$	$5.28 \times 10^2$	$6.33 \times 10^2$	$7.39 \times 10^2$	$8.44 \times 10^2$	$9.50 \times 10^2$	$1.06 \times 10^3$
ø50	Push	98.2	$1.96 \times 10^2$	$2.95 \times 10^2$	$3.93 \times 10^2$	$5.89 \times 10^2$	$7.85 \times 10^2$	$9.82 \times 10^2$	$1.18 \times 10^3$	$1.37 \times 10^3$	$1.57 \times 10^3$	$1.77 \times 10^3$	$1.96 \times 10^3$
	Pull	82.5	$1.65 \times 10^2$	$2.47 \times 10^2$	$3.30 \times 10^2$	$4.95 \times 10^2$	$6.60 \times 10^2$	$8.25 \times 10^2$	$9.90 \times 10^2$	$1.15 \times 10^3$	$1.32 \times 10^3$	$1.48 \times 10^3$	$1.65 \times 10^3$
ø63	Push	$1.56 \times 10^2$	$3.12 \times 10^2$	$4.68 \times 10^2$	$6.23 \times 10^2$	$9.35 \times 10^2$	$1.25 \times 10^3$	$1.56 \times 10^3$	$1.87 \times 10^3$	$2.18 \times 10^3$	$2.49 \times 10^3$	$2.81 \times 10^3$	$3.12 \times 10^3$
	Pull	$1.40 \times 10^2$	$2.80 \times 10^2$	$4.20 \times 10^2$	$5.61 \times 10^2$	$8.41 \times 10^2$	$1.12 \times 10^3$	$1.40 \times 10^3$	$1.68 \times 10^3$	$1.96 \times 10^3$	$2.24 \times 10^3$	$2.52 \times 10^3$	$2.80 \times 10^3$
ø80	Push	$2.51 \times 10^2$	$5.03 \times 10^2$	$7.54 \times 10^2$	$1.01 \times 10^3$	$1.51 \times 10^3$	$2.01 \times 10^3$	$2.51 \times 10^3$	$3.02 \times 10^3$	$3.52 \times 10^3$	$4.02 \times 10^3$	$4.52 \times 10^3$	$5.03 \times 10^3$
	Pull	$2.27 \times 10^2$	$4.54 \times 10^2$	$6.80 \times 10^2$	$9.07 \times 10^2$	$1.36 \times 10^3$	$1.81 \times 10^3$	$2.27 \times 10^3$	$2.72 \times 10^3$	$3.17 \times 10^3$	$3.63 \times 10^3$	$4.08 \times 10^3$	$4.54 \times 10^3$
ø100	Push	$3.93 \times 10^2$	$7.85 \times 10^2$	$1.18 \times 10^3$	$1.57 \times 10^3$	$2.36 \times 10^3$	$3.14 \times 10^3$	$3.93 \times 10^3$	$4.71 \times 10^3$	$5.50 \times 10^3$	$6.28 \times 10^3$	$7.07 \times 10^3$	$7.85 \times 10^3$
	Pull	$3.57 \times 10^2$	$7.15 \times 10^2$	$1.07 \times 10^3$	$1.43 \times 10^3$	$2.14 \times 10^3$	$2.86 \times 10^3$	$3.57 \times 10^3$	$4.29 \times 10^3$	$5.00 \times 10^3$	$5.72 \times 10^3$	$6.43 \times 10^3$	$7.15 \times 10^3$

# SCA2-T Series

SCP\*3  
CMK2  
CMA2  
SCM  
SCG  
SCA2  
SCS2  
CKV2  
CAV2/  
COVPIN2  
SSD2  
SSG  
SSD  
CAT  
MDC2  
MVC  
SMG  
MSD/  
MSDG  
FC\*  
STK  
SRL3  
SRG3  
SRM3  
SRT3  
MRL2  
MRG2  
SM-25  
ShkAbs  
FJ  
FK  
Spd  
Contr  
Ending

## How to order

No switch (without magnet for switch)

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

With switch (built-in magnet for switch)

SCA2-L2T-LB-40-B-150-E0-R-S-I

A Mounting  
\*1  
Heat resistance/ with  
switch

B Bore size

C Port thread

D Cushion

E Stroke  
\*2

F Switch model No.  
\*5

G Switch quantity

H Option  
\*6  
\*7

I Accessory  
\*8

## ⚠ Precautions for model No. selection

- \*1 : Mounting bracket will be shipped with the product. (Trunnion are assembled at shipment.)
- \*2 : If the type with switch is selected, 150 mm or less stroke cannot be selected.
- \*3 : Refer to page 488 for the min. stroke with switch.
- \*4 : If the stroke exceeds the max. stroke, refer to Ending Page 69.
- \*5 : Switches are shipped with the product.
- \*6 : The instantaneous max. temperature is the temperature when sparks, cutting chips, etc., instantaneously contact the bellows.
- \*7 : When selecting TA, TD, TB or TE mounting format, the cushion needle position is blank and fixed at S, with no options available.
- \*8 : "I" and "Y" cannot be selected together.
- \*9 : Refer to Ending Page 85 for custom specifications of rod end form.
- \*10: Refer to page 448 for combinations of variations/options.

[Example of model No.]

**SCA2-L2T-LB-40B-150-E0-R-S-I**

Model: Medium bore size cylinder, double acting/heat resistant

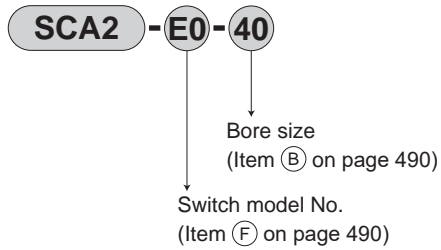
- A Mounting : Axial foot
- B Bore size : ø40 mm
- C Port thread : Rc thread
- D Cushion : Both sides cushioned
- E Stroke : 150 mm
- F Switch model No. : Reed E0 switch
- G Switch quantity : 1 on rod side
- H Option : Cushion needle position S
- I Accessory : Rod eye

Code	Description		
<b>A Mounting</b>			
00	Basic		
LB	Axial foot		
FA	Rod side flange		
FB	Head side flange		
FC	Head side special flange		
CA	Eye bracket		
CB	Clevis bracket (pin and snap ring included)		
TC	Intermediate trunnion		
TA	Rod side trunnion		
TB	Head side trunnion		
TF	Intermediate supporting hole trunnion (ø40 is not available)		
TD	Rod side hole trunnion (ø40 is not available)		
TE	Head side hole trunnion (ø40 is not available)		
<b>B Bore size (mm)</b>			
40	ø40		
50	ø50		
63	ø63		
80	ø80		
100	ø100		
<b>C Port thread</b>			
Blank	Rc thread		
N	NPT thread (made-to-order product)		
G	G thread (made-to-order product)		
<b>D Cushion</b>			
B	Both sides cushioned		
R	Rod side cushioned		
H	Head side cushioned		
N	Without cushion		
<b>E Stroke (mm)</b>			
	Bore size	Stroke *3	Custom stroke
	ø40	1 to 600	In 1 mm increments
	ø50	1 to 600	
	ø63	1 to 600	
	ø80	1 to 700	
	ø100	1 to 800	
<b>F Switch model No.</b>			
E0	Reed	1-color LED	2-wire
<b>G Switch quantity</b>			
R	1 on rod side		
H	1 on head side		
D	2		
T	3		
<b>H Option</b>			
		Max. ambient temp.	Instantaneous max. temp.
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		
<b>I Accessory</b>			
I	Rod eye		
Y	Rod clevis (pin and snap ring included)		
B1	Eye bracket		
B2	Clevis bracket (pin and snap ring included)		
B3	Eye bracket		
B4	Trunnion No. 2 bracket (2 pcs./set)		

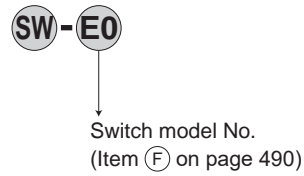


### How to order switch

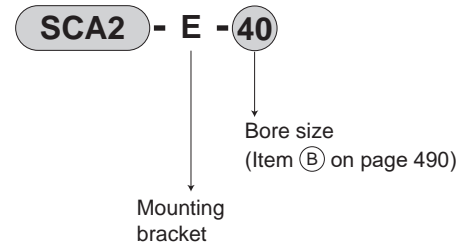
● Switch body + mounting bracket set



● Switch body only



● Mounting bracket set



### How to order mounting bracket

Bore size (mm)	ø40	ø50	ø63	ø80	ø100
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 bracket (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis bracket (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

\*1 : For material of the mounting bracket, refer to page 456.

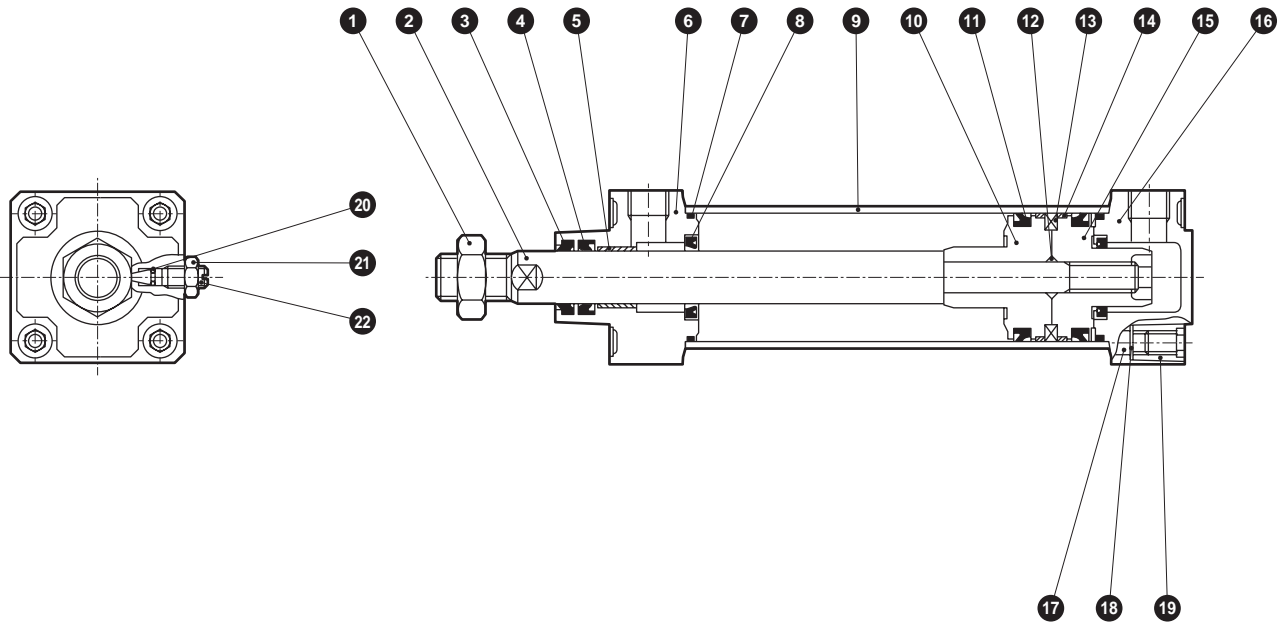
\*2 : The foot mounting bracket is provided as 2 pcs./set.

\*3 : All mounting brackets are supplied with mounting bolts.

SCP*3
CMK2
CMA2
SCM
SCG
<b>SCA2</b>
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

# SCA2-T Series

## Internal structure and parts list



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

## Repair parts list

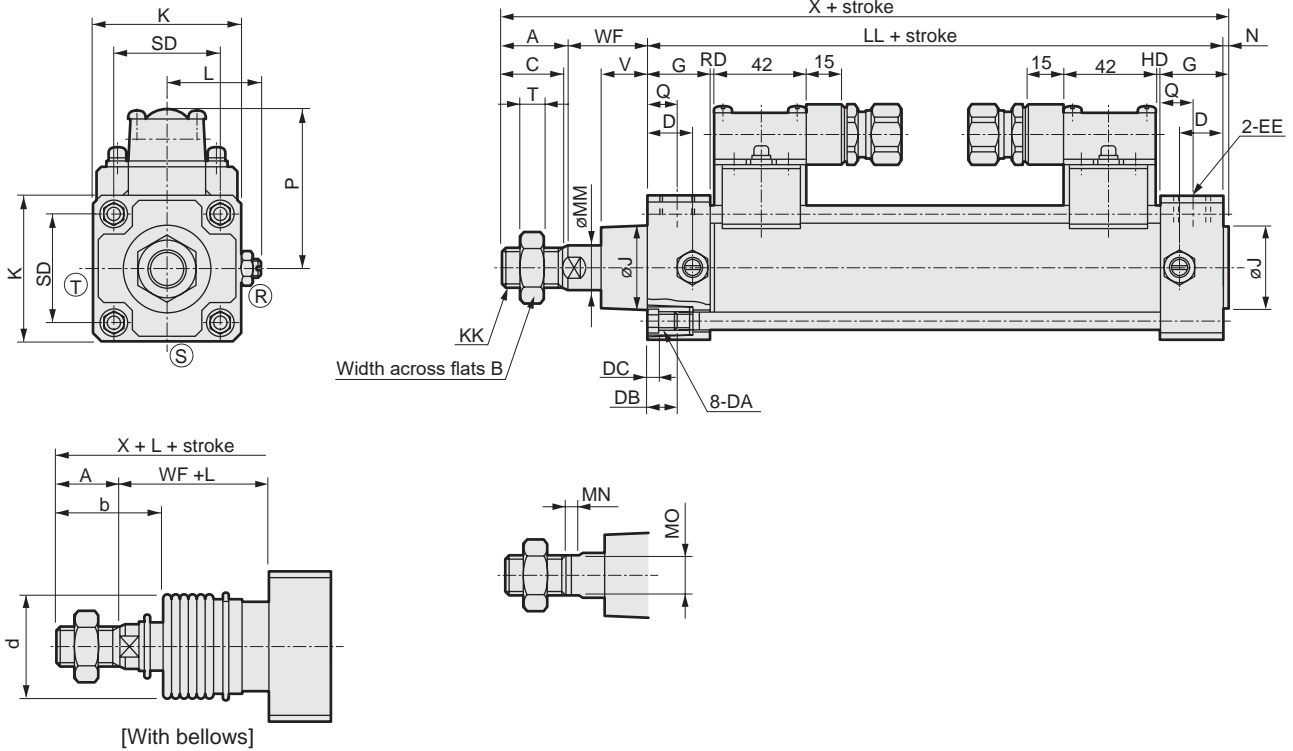
Bore size (mm)	Kit No.	Repair parts No.
ø40	SCA2-T-40K	
ø50	SCA2-T-50K	
ø63	SCA2-T-63K	3 4 7 8 11
ø80	SCA2-T-80K	14 20
ø100	SCA2-T-100K	

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

## Dimensions



● Basic (00)



Code	Basic (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
ø40	22	22	20	18	M8	12	4	Rc1/4	7.5	26	31	57	M14x1.5	38 to 39.5	93	16	8	14	2	13	40.5	8
ø50	28	27	26	20	M8	12	4	Rc3/8	0	28	38	66	M18x1.5	41 to 43.5	101	20	8	17	2.5	14	48	11
ø63	28	27	26	22	M8	12	4	Rc3/8	0	30	38	80	M18x1.5	47.5 to 50.0	105	20	8	17	3	15	59	11
ø80	36	32	34	26	M12	16	5	Rc1/2	0	34	43	98	M22x1.5	56 to 59	116	25	11	22	3.5	17	74	13
ø100	45	41	43	28	M12	16	5	Rc1/2	0	36	51	118	M26x1.5	66 to 69	128	30	13	27	4	18	90	16

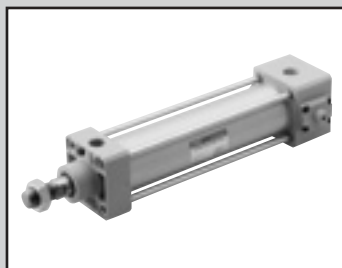
Code	With bellows													With switch		
	V	WF	X	b	d	L							HD	P	RD	
						50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500				*1 Over 500
ø40	18.5	33.5	150.5	41	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8	0	68	0
ø50	20.5	37	168.5	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5	1.5	72	1.5
ø63	21	35	171	45	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5	1.5	79	1.5
ø80	23.5	48	203.5	58.5	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5	3	89	3
ø100	32	53	230	69.5	65	20	32	42	53	76	98	120	(Stroke/4.5) + 9	7	99	7

\*1: For the L dimension, round up below the decimal point.

\* Installation dimensions of other mountings are the same as those of the SCA2 (standard). Refer to pages 458 to 469.

\* For the dimensions of the accessories, refer to pages 470 and 471.

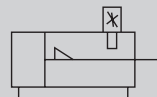
SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending



Medium bore size cylinder  
Double acting/position locking  
**SCA2-Q2 Series**

● Bore size:  $\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80/\varnothing 100$

JIS symbol



## Specifications

Descriptions	SCA2-Q2(Position locking)					
Bore size mm	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$	
Actuation	Double acting					
Working fluid	Compressed air					
Max. working pressure MPa	1.0					
Min. working pressure MPa	0.1					
Proof pressure MPa	1.6					
Ambient temperature °C	-10 to 60 (no freezing)					
Port size	Rc 1/4	Rc 3/8		Rc 1/2		
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 absorbed energy...)					
Cushion	Air cushion					
Effective air cushion length mm	14.6	16.6	16.6	20.6	23.6	
Position locking mechanism	Head side, rod side					
Holding force N	Max. thrust x 0.7					
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)					
Allowable absorbed energy J	Cushioned	4.29	8.37	15.8	27.9	49.8
	Without cushion	0.067	0.079	0.079	0.201	0.301
		without cushion, Cannot absorb high energy generated by an external load. We recommend using an external shock absorber.				

## Stroke

Bore size(mm)	Standard stroke (mm)	Max. stroke (mm)	Min.Stroke (mm)
$\varnothing 40$	25/50/75/100/	600	5
$\varnothing 50$	150/200/250/		
$\varnothing 63$	300/350/400/	700	
$\varnothing 80$	450/500	800	
$\varnothing 100$			

\*1: The custom stroke is available in 1 mm increments.

## Min. stroke with switch

● Min. stroke with T0/T5 switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting position cannot be detected at the rod side stroke end.	Head side trunnion mounting Position cannot be detected at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
$\varnothing 40$	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)
$\varnothing 50$	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)
$\varnothing 63$	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)
$\varnothing 80$	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)
$\varnothing 100$	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)

\*1: Values in ( ) are for T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● Min. stroke with T8 switch

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
$\varnothing 40$	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)
$\varnothing 50$	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)
$\varnothing 63$	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)
$\varnothing 80$	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)
$\varnothing 100$	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)

\*1: Values in ( ) are for T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

⚠ Be sure to read the Safety precautions for the (Position locking) on pages 616 to 619 before use.

### Min. stroke with switch

#### ● T2/T3 min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
∅40	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)
∅50	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)
∅63	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)
∅80	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)
∅100	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

#### ● T1/T2Y/T3Y/T2YD min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
∅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)
∅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)
∅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)
∅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)
∅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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire). T2YD does not have an L-shaped lead wire (V).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

#### ● T2W/T3W min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
∅40	20(5)	20(10)	20(15)	25(25)	20(5)	65(50)	110(80)	155(110)	135(105)	135(105)	195(165)	195(165)	50(35)	50(35)
∅50	20(5)	20(10)	20(15)	20(20)	20(5)	20(10)	65(40)	65(40)	135(105)	135(105)	135(105)	135(105)	50(35)	50(35)
∅63	20(5)	20(10)	20(15)	25(25)	20(5)	20(10)	65(40)	65(40)	140(110)	140(110)	140(110)	140(110)	55(40)	55(40)
∅80	15(5)	15(10)	15(15)	25(25)	15(5)	15(10)	60(40)	60(40)	145(115)	145(115)	145(115)	145(115)	55(40)	55(40)
∅100	10(5)	10(10)	20(20)	25(25)	10(5)	10(10)	60(40)	60(40)	155(125)	155(125)	155(125)	155(125)	60(45)	60(45)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/

COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/

MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd

Contr

Ending

# SCA2-Q2 Series

## Switch specifications (T-switch)

● 1-color/2-color LED/for AC magnetic field proof

Item	2-wire proximity	2-wire proximity			3-wire proximity				2-wire reed			2-wire proximity				
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V	T2YD (*4)				
Applications	Programming controller relay, compact solenoid valve	Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay	For programmable controller, relay (no lamp), serial	For programmable controller, relay	Dedicated for programmable controller				
Output method	-			NPN output	PNP output	NPN output	NPN output	-								
Pwr. supp. V.	-			10 to 28 VDC				-								
Load voltage	85 to 265 VAC	10 to 30 VDC	24 VDC ±10%	30 VDC or less				12/24 VDC	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 (*3)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp	LED (Lit when ON)		Red/green LED (Lit when ON)		
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA					1 mA or less		
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80			1 m:33 3 m:87 5 m:142	1 m:61 3 m:166 5 m:272				

\*1 : Refer to Ending Page 1 for detailed switch specifications and dimensions.

\*2 : Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

\*3 : Max. load current: 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C.  
(5 to 10 mA at 60°C)

\*4 : Switch for AC magnetic field (T2YD/T2YDT) cannot be used in DC magnetic field.

- SCP\*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2
- SCS2
- CKV2
- CAV2/  
COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/  
MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd  
Contr
- Ending

### Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke (S) = 0 mm							Switch weight	Mounting bracket weight	Additional weight per S = 100 mm
	Basic (OO)	Foot (LB)	Flange (FA, FB)	Special flange (FC)	Eye bracket (CA)	Clevis bracket (CB)	Trunnion (TA, TB, TC)		T type	
ø40	1.21	1.38	1.62	1.30	1.53	1.57	1.59	Refer to the weight in the switch specifications.	0.024	0.39
ø50	1.70	1.95	2.19	1.81	2.08	2.11	2.24		0.022	0.46
ø63	2.36	2.73	3.45	2.54	2.93	2.98	3.21		0.020	0.50
ø80	3.84	4.58	5.70	4.20	5.11	5.32	5.18		0.026	0.90
ø100	6.12	7.03	8.86	6.67	7.76	7.94	8.69		0.024	1.12

(Example) Product weight of SCA2-Q2-LB-50B-200-H-T0H-D	Product weight for 0 mm stroke .....	1.95 kg
	Additional weight for 200 mm stroke .....	$0.46 \times \frac{200}{100} = 0.92$ kg
	Weight of 2 T0H switches .....	$0.018 \times 2 = 0.036$ kg
	Weight of 2 mounting brackets .....	$0.022 \times 2 = 0.044$ kg
	Product weight .....	$1.95 + 0.92 + 0.036 + 0.044 = 2.950$ kg

### Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push	1.26x10 <sup>2</sup>	1.88x10 <sup>2</sup>	2.51x10 <sup>2</sup>	3.77x10 <sup>2</sup>	5.03x10 <sup>2</sup>	6.28x10 <sup>2</sup>	7.54x10 <sup>2</sup>	8.80x10 <sup>2</sup>	1.01x10 <sup>3</sup>	1.13x10 <sup>3</sup>	1.26x10 <sup>3</sup>
	Pull	1.06x10 <sup>2</sup>	1.58x10 <sup>2</sup>	2.11x10 <sup>2</sup>	3.17x10 <sup>2</sup>	4.22x10 <sup>2</sup>	5.28x10 <sup>2</sup>	6.33x10 <sup>2</sup>	7.39x10 <sup>2</sup>	8.44x10 <sup>2</sup>	9.50x10 <sup>2</sup>	1.06x10 <sup>3</sup>
ø50	Push	1.96x10 <sup>2</sup>	2.95x10 <sup>2</sup>	3.93x10 <sup>2</sup>	5.89x10 <sup>2</sup>	7.85x10 <sup>2</sup>	9.82x10 <sup>2</sup>	1.18x10 <sup>3</sup>	1.37x10 <sup>3</sup>	1.57x10 <sup>3</sup>	1.77x10 <sup>3</sup>	1.96x10 <sup>3</sup>
	Pull	1.65x10 <sup>2</sup>	2.47x10 <sup>2</sup>	3.30x10 <sup>2</sup>	4.95x10 <sup>2</sup>	6.60x10 <sup>2</sup>	8.25x10 <sup>2</sup>	9.90x10 <sup>2</sup>	1.15x10 <sup>3</sup>	1.32x10 <sup>3</sup>	1.48x10 <sup>3</sup>	1.65x10 <sup>3</sup>
ø63	Push	3.12x10 <sup>2</sup>	4.68x10 <sup>2</sup>	6.23x10 <sup>2</sup>	9.35x10 <sup>2</sup>	1.25x10 <sup>3</sup>	1.56x10 <sup>3</sup>	1.87x10 <sup>3</sup>	2.18x10 <sup>3</sup>	2.49x10 <sup>3</sup>	2.81x10 <sup>3</sup>	3.12x10 <sup>3</sup>
	Pull	2.80x10 <sup>2</sup>	4.20x10 <sup>2</sup>	5.61x10 <sup>2</sup>	8.41x10 <sup>2</sup>	1.12x10 <sup>3</sup>	1.40x10 <sup>3</sup>	1.68x10 <sup>3</sup>	1.96x10 <sup>3</sup>	2.24x10 <sup>3</sup>	2.52x10 <sup>3</sup>	2.80x10 <sup>3</sup>
ø80	Push	5.03x10 <sup>2</sup>	7.54x10 <sup>2</sup>	1.01x10 <sup>3</sup>	1.51x10 <sup>3</sup>	2.01x10 <sup>3</sup>	2.51x10 <sup>3</sup>	3.02x10 <sup>3</sup>	3.52x10 <sup>3</sup>	4.02x10 <sup>3</sup>	4.52x10 <sup>3</sup>	5.03x10 <sup>3</sup>
	Pull	4.54x10 <sup>2</sup>	6.80x10 <sup>2</sup>	9.07x10 <sup>2</sup>	1.36x10 <sup>3</sup>	1.81x10 <sup>3</sup>	2.27x10 <sup>3</sup>	2.72x10 <sup>3</sup>	3.17x10 <sup>3</sup>	3.63x10 <sup>3</sup>	4.08x10 <sup>3</sup>	4.54x10 <sup>3</sup>
ø100	Push	7.85x10 <sup>2</sup>	1.18x10 <sup>3</sup>	1.57x10 <sup>3</sup>	2.36x10 <sup>3</sup>	3.14x10 <sup>3</sup>	3.93x10 <sup>3</sup>	4.71x10 <sup>3</sup>	5.50x10 <sup>3</sup>	6.28x10 <sup>3</sup>	7.07x10 <sup>3</sup>	7.85x10 <sup>3</sup>
	Pull	7.15x10 <sup>2</sup>	1.07x10 <sup>3</sup>	1.43x10 <sup>3</sup>	2.14x10 <sup>3</sup>	2.86x10 <sup>3</sup>	3.57x10 <sup>3</sup>	4.29x10 <sup>3</sup>	5.00x10 <sup>3</sup>	5.72x10 <sup>3</sup>	6.43x10 <sup>3</sup>	7.15x10 <sup>3</sup>

# SCA2-Q2 Series

SCP\*3  
CMK2  
CMA2  
SCM  
SCG  
SCA2  
SCS2  
CKV2  
CAV2/  
COVPIN2  
SSD2  
SSG  
SSD  
CAT  
MDC2  
MVC  
SMG  
MSD/  
MSDG  
FC\*  
STK  
SRL3  
SRG3  
SRM3  
SRT3  
MRL2  
MRG2  
SM-25  
ShkAbs  
FJ  
FK  
Spd  
Contr  
Ending

## How to order

No switch (built-in magnet for switch)

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

With switch (built-in magnet for switch)

**SCA2-Q2-LB-40-B-100-H-T0H-R-S-I**

**A** Mounting  
\*1

**B** Bore size

**C** Port thread

**D** Cushion

**E** Stroke  
\*2

**F** Position locking mechanism

**G** Switch model No.  
\*4

**H** Switch quantity  
\*5

**I** Option  
\*6  
\*7

**J** Accessory  
\*8

### ⚠ Precautions for model No. selection

- \*1 : Mounting bracket will be shipped with the product. (Trunnion are assembled at shipment.)  
TA mounting with R position locking mechanism is not available.  
TB mounting with H position locking mechanism is not available.
- \*2 : If the stroke exceeds the max. stroke, refer to Ending Page 69.
- \*3 : Refer to pages 494 and 495 for the min. stroke with switch.
- \*4 : Switches are shipped with the product.
- \*5 : When selecting TA, TD, TB or TE mounting, the switch quantity is limited to "H" (1 on head side) for TA and TD, and "R" (1 on rod side) for TB and TE.
- \*6 : Only non-locking manual override unless "M0" or "M1" of **I** option is selected. Release bolt is not included.
- \*7 : When selecting TA, TD, TB or TE mounting format, the cushion needle position is blank and fixed at S, with no options available.
- \*8 : "I" and "Y" cannot be selected together.
- \*9 : Refer to Ending Page 85 for custom specifications of rod end form.
- \*10: Refer to page 448 for combinations of variations/ options.

### [Example of model No.]

**SCA2-Q2-LB-40B-100-H-T0H-R-SI**

Model: Medium bore size cylinder, position locking

- A** Mounting : Axial foot
- B** Bore size : ø40 mm
- C** Port thread : Rc thread
- D** Cushion : Both sides cushioned
- E** Stroke : 100 mm
- F** Position locking mechanism : With head side position locking
- G** Switch model No. : Reed T0H switch, lead wire length 1 m
- H** Switch quantity : 1 on rod side
- I** Option : Cushion needle position S
- J** Accessory : Rod eye

Code	Description	
<b>A Mounting</b>		
00	Basic	
LB	Axial foot	
FA	Rod side flange	
FB	Head side flange	
FC	Head side special flange	
CA	Eye bracket	
CB	Clevis bracket (pin and snap ring included)	
TC	Intermediate trunnion	
TA	Rod side trunnion	
TB	Head side trunnion	
TF	Intermediate supporting hole trunnion (ø40 is not available)	
TD	Rod side hole trunnion (ø40 is not available)	
TE	Head side hole trunnion (ø40 is not available)	
<b>B Bore size (mm)</b>		
40	ø40	
50	ø50	
63	ø63	
80	ø80	
100	ø100	
<b>C Port thread</b>		
Blank	Rc thread	
N	NPT thread (made-to-order product)	
G	G thread (made-to-order product)	
<b>D Cushion</b>		
B	Both sides cushioned	
R	Rod side cushioned	
H	Head side cushioned	
N	Without cushion	
<b>E Stroke (mm)</b>		
Bore size	Stroke *3	Custom stroke
ø40	5 to 600	In 1 mm increments
ø50	5 to 600	
ø63	5 to 600	
ø80	5 to 700	
ø100	5 to 800	
<b>F Position locking mechanism</b>		
H	With head side position locking	
R	With rod side position locking	
<b>G Switch model No.</b>		
Refer to the switch model numbers on the next page.		
<b>* Lead wire length</b>		
Blank	1 m (standard)	
3	3 m (option)	
5	5 m (option)	
<b>H Switch quantity</b>		
R	1 on rod side	
H	1 on head side	
D	2	
T	3	
<b>I Option</b>		
M	Piston rod material (stainless steel)	
S	Cushion needle position S	
M0	Non-locking manual override (with release bolt)	
M1	Locking manual override	
<b>J Accessory</b>		
I	Rod eye	
Y	Rod clevis (pin and snap ring included)	
B1	Eye bracket	
B2	Clevis bracket (pin and snap ring included)	
B3	Eye bracket	
B4	Trunnion No. 2 bracket (2 pcs./set)	



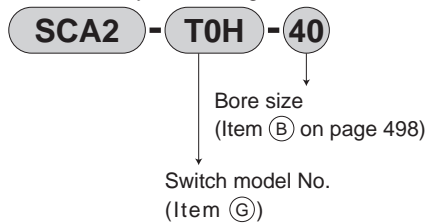
### [G] Switch model No.

T-switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No indicator lamp	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*	Proximity	●		1-color LED	2-wire
T2H*	T2V*			●		
T3H*	T3V*			●		3-wire
T2WH*	T2WV*			●		
T2YH*	T2YV*			●	2-color LED	2-wire
T3WH*	T3WV*			●		
T3YH*	T3YV*			●	3-wire	
T3PH*	T3PV*			●		
T2YD*	-			●	2-color LED	2-wire
T2YDT*	-			●	AC magnetic field	
T2JH*	T2JV*		●	1-color LED off-delay	2-wire	

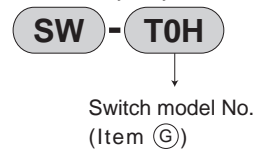
### How to order switch

#### [T-switch]

- Switch body + mounting bracket set

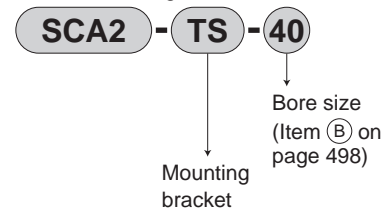


- Switch body only



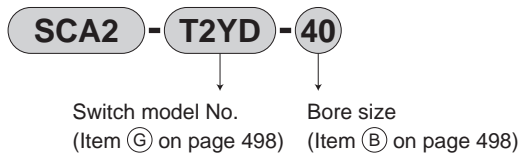
\* Contact CKD when using an environment-friendly T-switch.

- Switch mounting bracket set

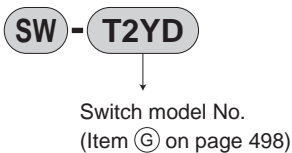


#### [T2YD switch]

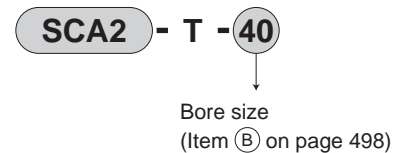
- Switch body + mounting bracket set



- Switch body only



- Mounting bracket set



### How to order mounting bracket

Bore size (mm)	ø40	ø50	ø63	ø80	ø100
Mounting bracket					
Foot (LB)	*2 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 bracket (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis bracket (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

\*1 : For material of the mounting bracket, refer to page 456.

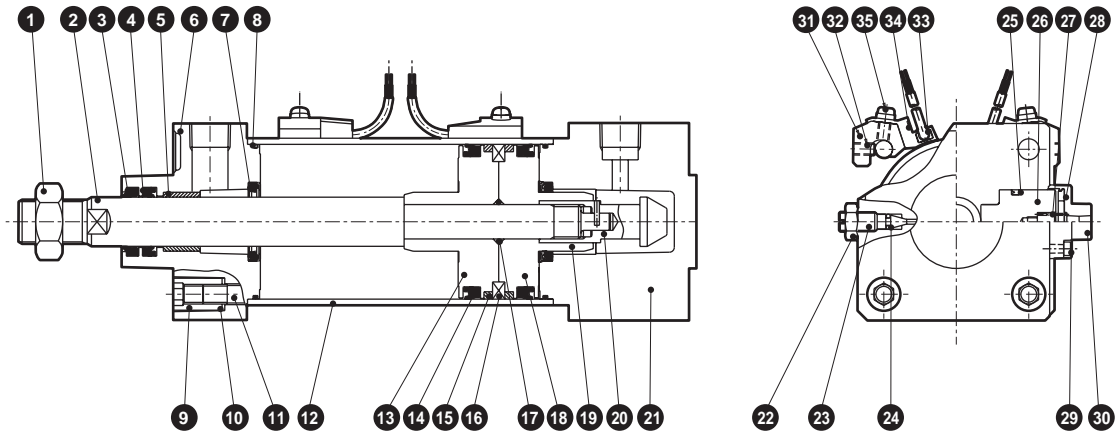
\*2 : The foot mounting bracket is provided as 2 pcs./set.

\*3 : All mounting brackets are supplied with mounting bolts.

SCP*3
CMK2
CMA2
SCM
SCG
<b>SCA2</b>
SCS2
CKV2
CAV2/COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

# SCA2-Q2 Series

## SCP\*3 Internal structure and parts list



(The figure shows the type with head cover side position locking.)

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

\*1: Aluminum alloy casting for the rod side position locking.

\*2: Aluminum alloy die-casting for the rod side position locking.

## Repair parts list

Bore size (mm)	Kit No.	Repair parts No.
ø40	SCA2-Q2-40K	
ø50	SCA2-Q2-50K	
ø63	SCA2-Q2-63K	3 4 7 8
ø80	SCA2-Q2-80K	14 15 24 25 28
ø100	SCA2-Q2-100K	

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

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# MEMO

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SCP\*3

CMK2

CMA2

SCM

SCG

**SCA2**

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

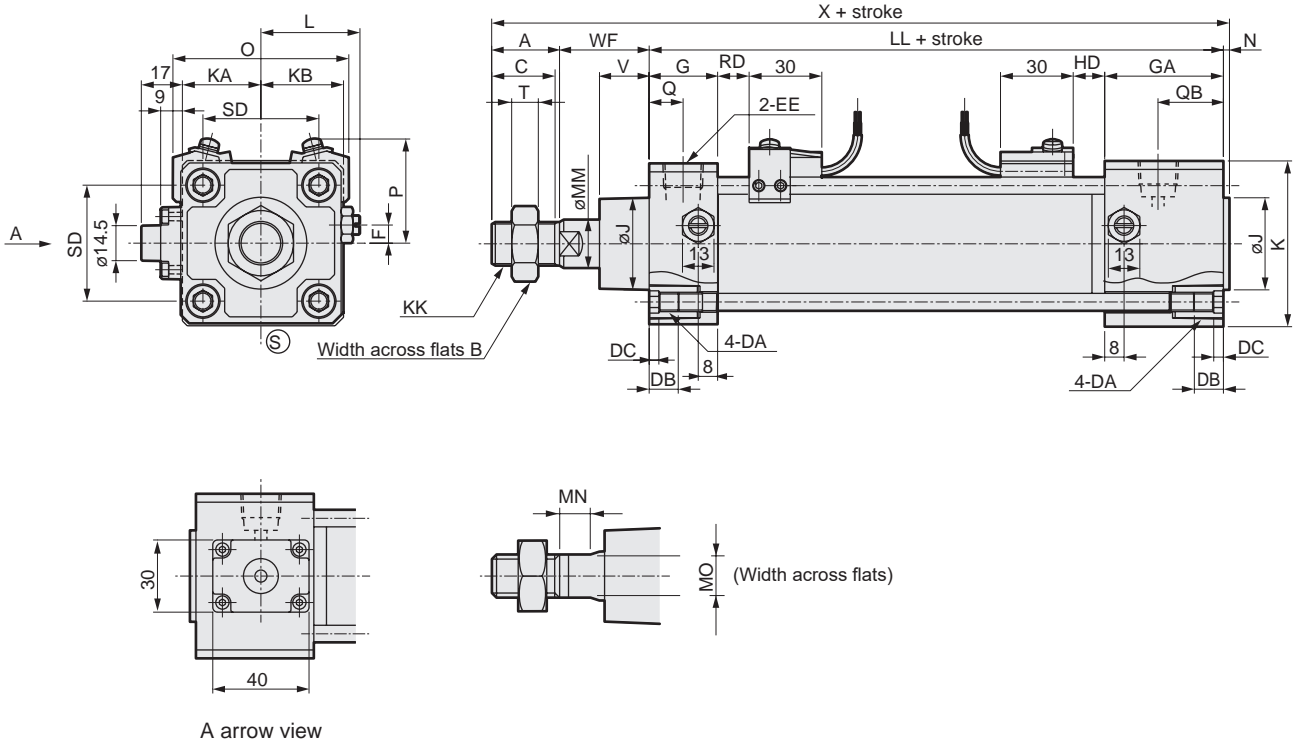
Ending

# SCA2-Q2 Series



## Dimensions

● Basic (00) with head side position locking



Code	Basic (00)																
	Bore size (mm)	A	B	C	DA	DB	DC	EE	F	G	GA	J	K	KA	KB	KK	L
ø40	22	22	20	M8	12	4	Rc1/4	7.5	26	49	31	60	30	30	M14x1.5	38 to 39.5	120.5
ø50	28	27	26	M8	12	4	Rc3/8	0	28	49	38	68	32.5	34	M18x1.5	41 to 43.5	127
ø63	28	27	26	M8	12	4	Rc3/8	0	30	49	38	80	38	40	M18x1.5	47.5 to 50	130
ø80	36	32	34	M12	16	5	Rc1/2	0	34	53	43	100	49	50	M22x1.5	56 to 59	144
ø100	45	41	43	M12	16	5	Rc1/2	0	36	53	51	118	58.5	59	M26x1.5	66 to 69	156

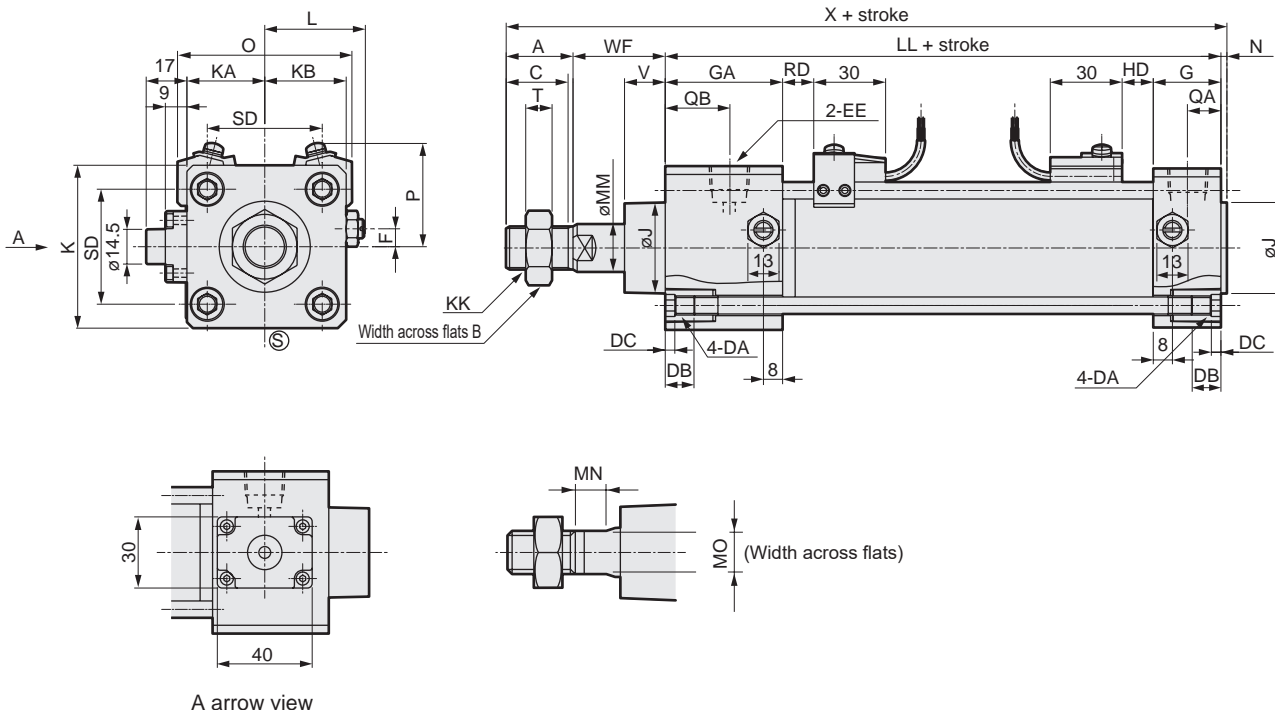
Code												With switch										
	Bore size (mm)	MM	MN	MO	N	QA	QB	SD	T	V	WF	X	O	P	T0, T5 T2, T3		T2Y T3Y, T2J		T8		T2W, T3W	
															RD	HD	RD	HD	RD	HD	RD	HD
ø40	16	8	14	2	13	26	40.5	8	18.5	33.5	178	66	41.5	11	15.5	10	14.5	5	9.5	13	17.5	
ø50	20	8	17	2.5	14	27	48	11	20.5	37	194.5	73	43	13	18	12	17	7	12	15	20	
ø63	20	8	17	3	15	28	59	11	21	35	196	85	47	13	19	12	18	7	13	15	21	
ø80	25	11	22	3.5	17	27	74	13	23.5	48	231.5	105	57	14.5	23.5	13.5	22.5	8.5	17.5	16.5	25.5	
ø100	30	13	27	4	18	27	90	16	32	53	258	121	63	18.5	29.5	17.5	28.5	12.5	23.5	20.5	31.5	

\*1: Refer to page 615 for dimensions of projecting section of T1 and T2YD switch.

\*2: For the dimensions of the accessories, refer to pages 470 and 471.

## Dimensions

● Basic (00) with rod side position locking



Code	Basic (00)																		
Bore size (mm)	A	B	C	DA	DB	DC	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN
ø40	22	22	20	M8	12	4	Rc1/4	7.5	26	49	31	60	30	30	M14x1.5	38 to 39.5	120.5	16	8
ø50	28	27	26	M8	12	4	Rc3/8	0	28	49	38	68	32.5	34	M18x1.5	41 to 43.5	127	20	8
ø63	28	27	26	M8	12	4	Rc3/8	0	30	49	38	80	38	40	M18x1.5	47.5 to 50	130	20	8
ø80	36	32	34	M12	16	5	Rc1/2	0	34	53	43	100	49	50	M22x1.5	56 to 59	144	25	11
ø100	45	41	43	M12	16	5	Rc1/2	0	36	53	51	118	58.5	59	M26x1.5	66 to 69	156	30	13

Code	With switch																		
Bore size (mm)	MO	N	QA	QB	SD	T	V	WF	X	O	P	T0, T5 T2, T3		T2Y T3Y, T2J		T8		T2W, T3W	
												RD	HD	RD	HD	RD	HD	RD	HD
												ø40	14	2	13	26	40.5	8	18.5
ø50	17	2.5	14	27	48	11	17	33.5	191	73	43	18	13	17	12	12	7	20	15
ø63	17	3	15	28	59	11	17	31	192	85	47	19	13	18	12	13	7	21	15
ø80	22	3.5	17	27	74	13	18.5	43	226.5	105	57	23.5	14.5	22.5	13.5	17.5	8.5	25.5	16.5
ø100	27	4	18	27	90	16	29	50	255	121	63	29.5	18.5	28.5	17.5	23.5	12.5	31.5	20.5

\*1: Refer to page 615 for dimensions of projecting section of T1 and T2YD switch.

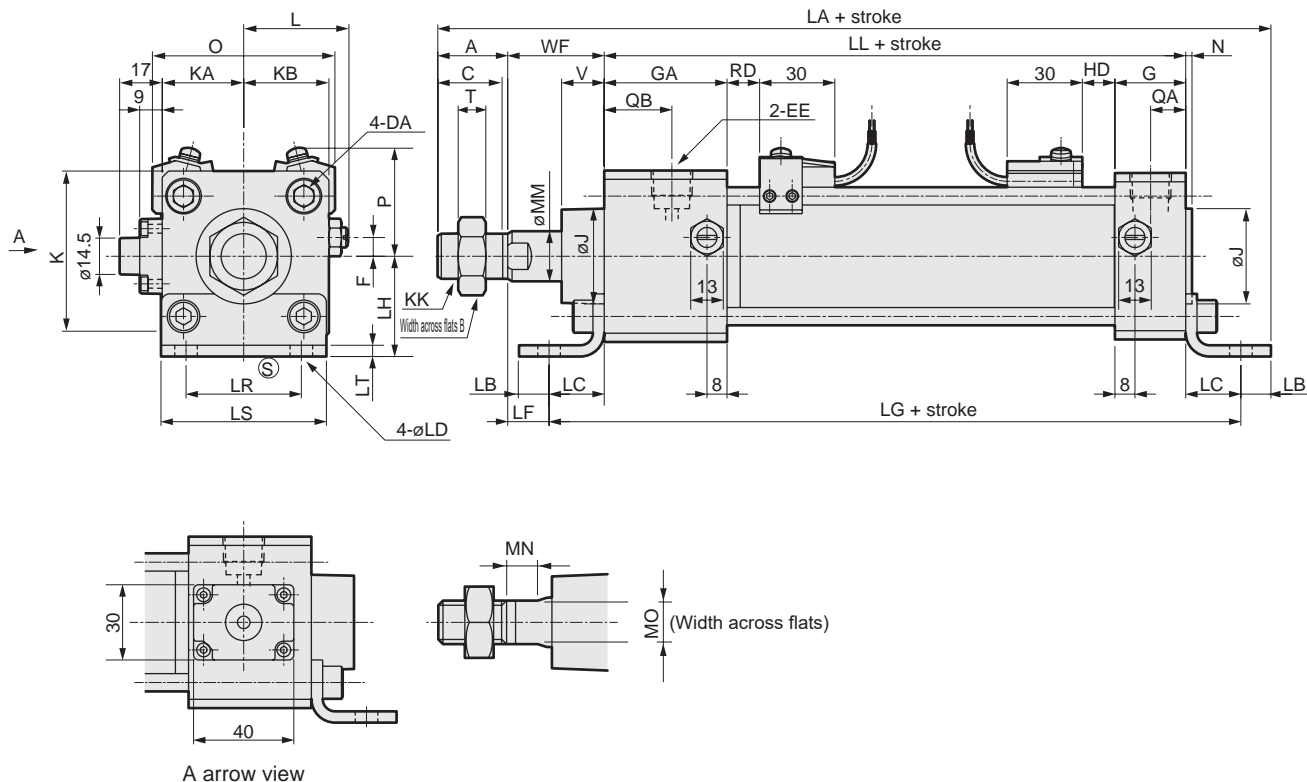
\*2: For the dimensions of the accessories, refer to pages 470 and 471.

SCP*3
CMK2
CMA2
SCM
SCG
<b>SCA2</b>
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending



## Dimensions

● Axial foot (LB) with rod side position locking



Code	Axial foot (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
ø40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14x1.5	38 to 39.5	120.5	16	8	14	2	13	26
ø50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18x1.5	41 to 43.5	127	20	8	17	2.5	14	27
ø63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18x1.5	47.5 to 50	130	20	8	17	3	15	28
ø80	36	31	34	M12	Rc1/2	0	34	53	43	100	49	50	M22x1.5	56 to 59	144	25	11	22	3.5	17	27
ø100	45	42	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26x1.5	66 to 69	156	30	13	27	4	18	27

Code	Mounting method												With switch										
Bore size (mm)	T	V	WF	LA	LB	LC	LD	LF	LG	LH	LR	LS	LT	O	P	T0, T5 T2, T3		T2Y T3Y, T2J		T8		T2W, T3W	
																RD	HD	RD	HD	RD	HD	RD	HD
ø40	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	17.5	13
ø50	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	20	15
ø63	11	17	31	231	12	30	11	1	190	50	60	80	4.5	85	47	19	13	18	12	13	7	21	15
ø80	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	25.5	16.5
ø100	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	31.5	20.5

\*1: Refer to page 615 for dimensions of projecting section of T1 and T2YD switch.

\*2: For the dimensions of the accessories, refer to pages 470 and 471.

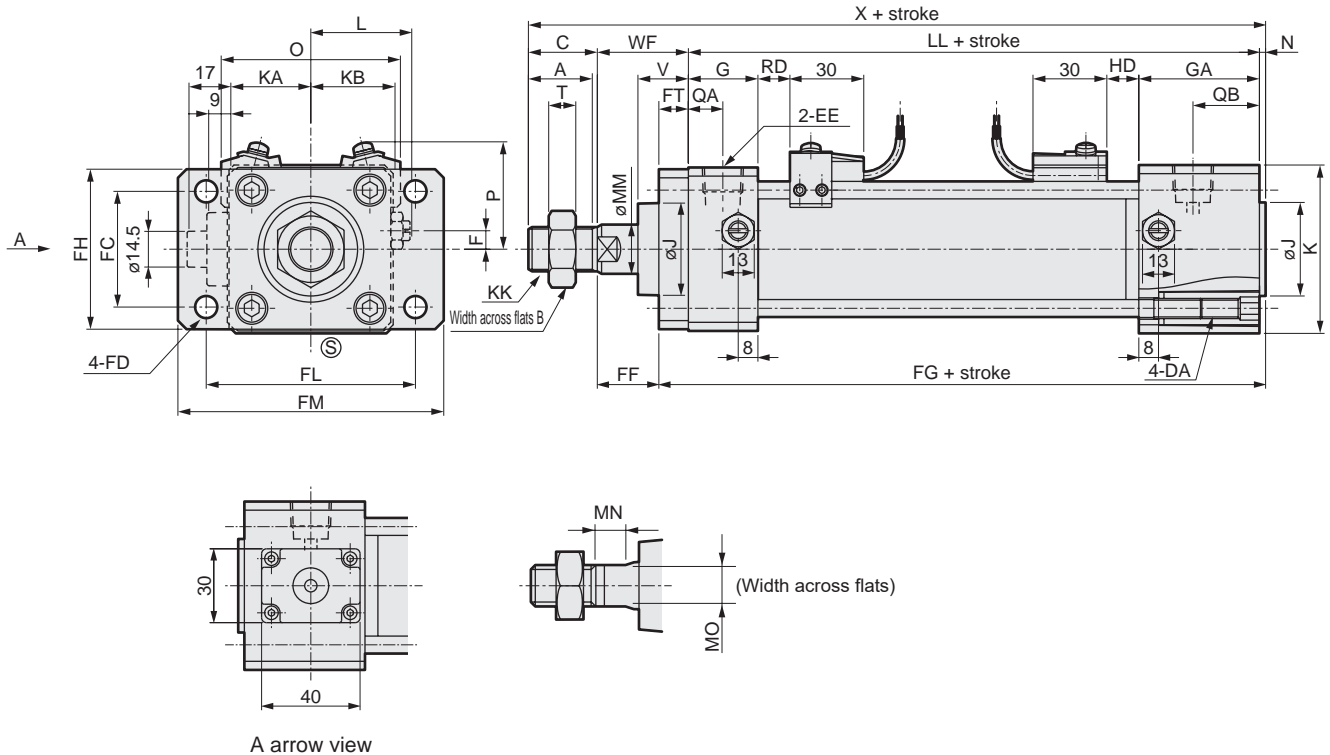
SCP*3
CMK2
CMA2
SCM
SCG
<b>SCA2</b>
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

# SCA2-Q2 Series

## Dimensions



● Rod side flange (FA) with head side position locking



Code	Rod side flange (FA) (unit: mm)																					
	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB	
Bore size (mm)																						
$\phi 40$	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14x1.5	38 to 39.5	120.5	16	8	14	2	13	26	
$\phi 50$	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18x1.5	41 to 43.5	127	20	8	17	2.5	14	27	
$\phi 63$	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18x1.5	47.5 to 50	130	20	8	17	3	15	28	
$\phi 80$	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22x1.5	56 to 59	144	25	11	22	3.5	17	27	
$\phi 100$	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26x1.5	66 to 69	156	30	13	27	4	18	27	

Code	Mounting method												With switch									
	T	V	WF	X	FC	FD	FF	FG	FH	FL	FM	FT	O	P	T0, T5 T2, T3		T2Y T3Y, T2J		T8		T2W, T3W	
															RD	HD	RD	HD	RD	HD	RD	HD
$\phi 40$	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	13	17.5
$\phi 50$	11	20.5	37	194.5	47	9	25	141.5	65	85	108	12	73	43	13	18	12	17	7	12	15	20
$\phi 63$	11	21	35	196	60	11	19	149	80	106	130	16	85	47	13	19	12	18	7	13	15	21
$\phi 80$	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	16.5	25.5
$\phi 100$	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	20.5	31.5

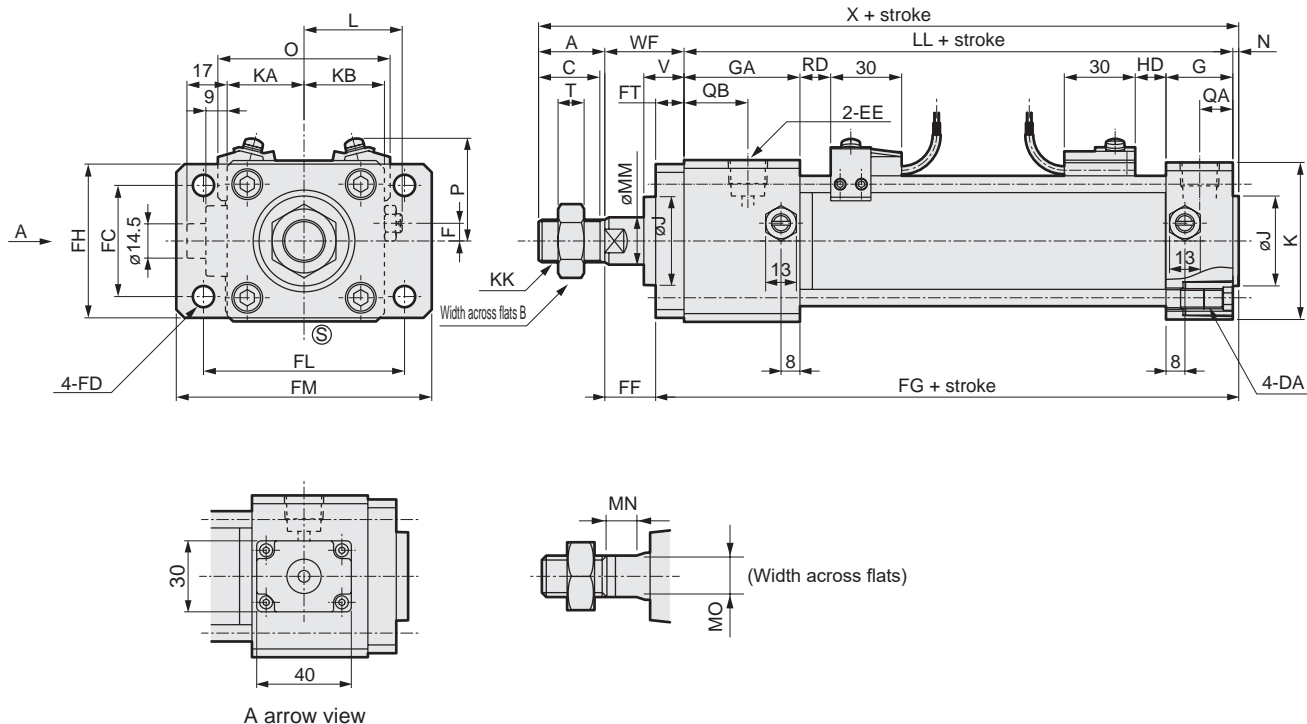
\*1: Refer to page 615 for dimensions of projecting section of T1 and T2YD switch.

\*2: For the dimensions of the accessories, refer to pages 470 and 471.



## Dimensions

● Rod side flange (FA) with rod side position locking



Code	Rod side flange (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
ø40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14x1.5	38 to 39.5	120.5	16	8	14	2	13	26
ø50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18x1.5	41 to 43.5	127	20	8	17	2.5	14	27
ø63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18x1.5	47.5 to 50	130	20	8	17	3	15	28
ø80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22x1.5	56 to 59	144	25	11	22	3.5	17	27
ø100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26x1.5	66 to 69	156	30	13	27	4	18	27

Code	Mounting method												With switch									
Bore size (mm)	T	V	WF	X	FC	FD	FF	FG	FH	FL	FM	FT	O	P	T0, T5 T2, T3		T2Y T3Y, T2J		T8		T2W, T3W	
	RD	HD	RD	HD	RD	HD	RD	HD	RD	HD												
ø40	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	17.5	13
ø50	11	17	33.5	191	47	9	21.5	141.5	65	85	108	12	73	43	18	13	17	12	12	7	20	15
ø63	11	17	31	192	60	11	15	149	80	106	130	16	85	47	19	13	18	12	13	7	21	15
ø80	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	25.5	16.5
ø100	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	31.5	20.5

\*1: Refer to page 615 for dimensions of projecting section of T1 and T2YD switch.

\*2: For the dimensions of the accessories, refer to pages 470 and 471.

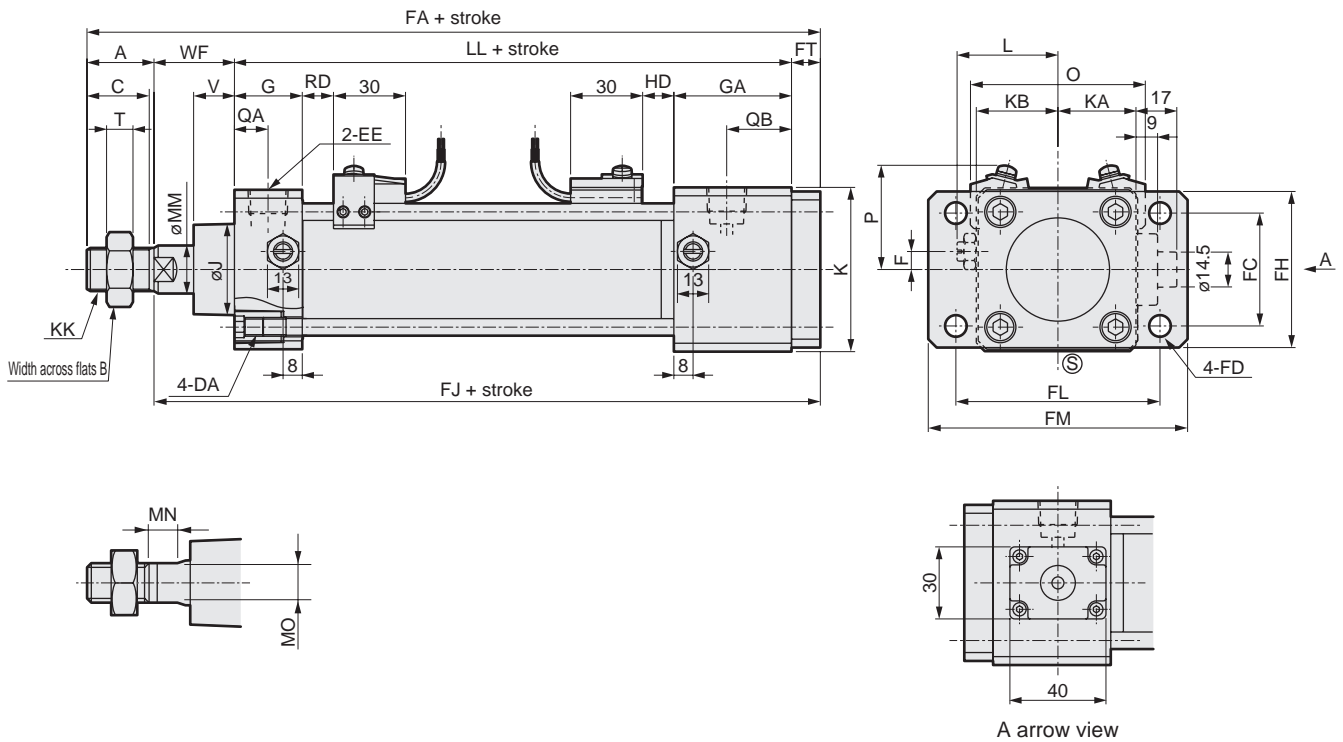
- SCP\*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2**
- SCS2
- CKV2
- CAV2/  
COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/  
MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd  
Contr
- Ending

# SCA2-Q2 Series

## Dimensions



● Head side flange (FB) with head side position locking



Code	Head side flange (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
ø40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14x1.5	38 to 39.5	120.5	16	8	14	13	26	8
ø50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18x1.5	41 to 43.5	127	20	8	17	14	27	11
ø63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18x1.5	47.5 to 50	130	20	8	17	15	28	11
ø80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22x1.5	56 to 59	144	25	11	22	17	27	13
ø100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26x1.5	66 to 69	156	30	13	27	18	27	16

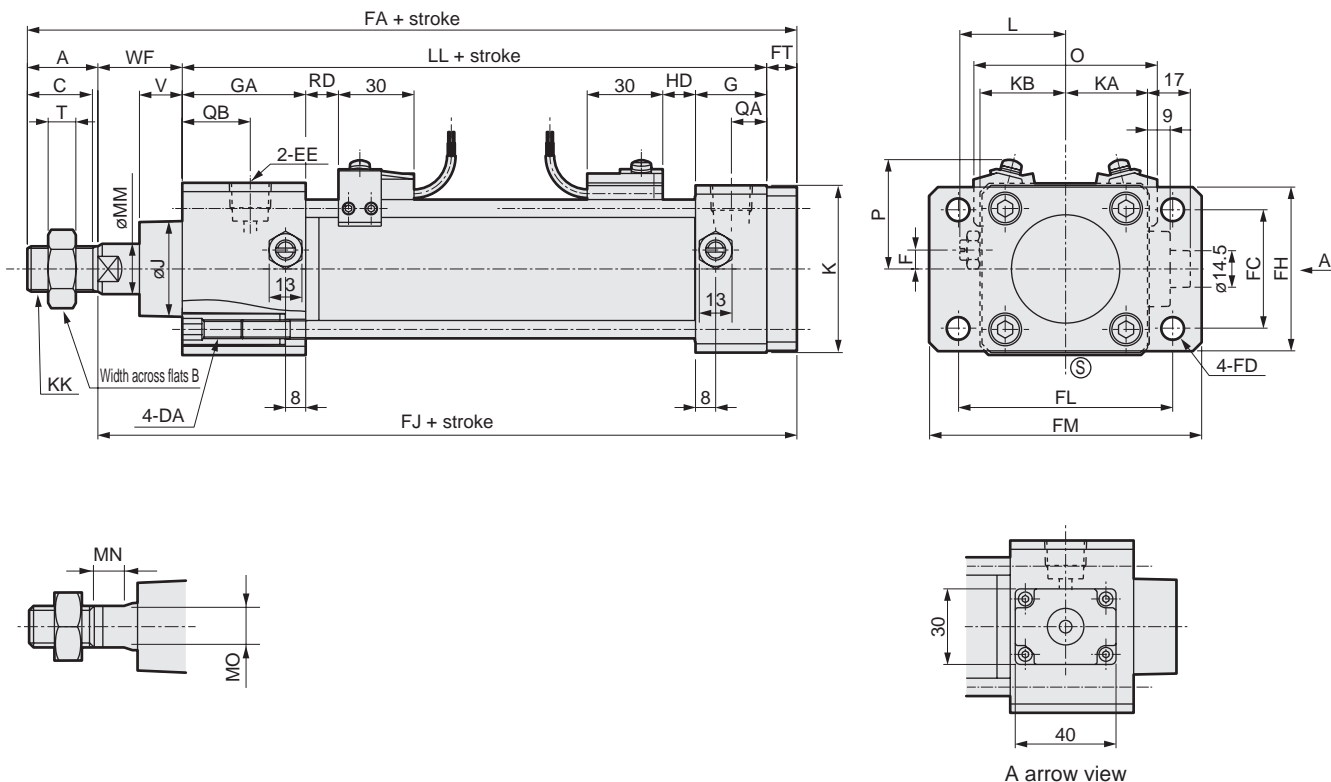
Code	Mounting method										With switch									
	V	WF	FA	FC	FD	FJ	FH	FL	FM	FT	O	P	T0, T5		T2Y		T8		T2W, T3W	
													T2, T3	T3Y, T2J	RD	HD	RD	HD	RD	HD
ø40	18.5	33.5	188	40	9	166	57	80	100	12	66	41.5	11	15.5	10	14.5	5	9.5	13	17.5
ø50	20.5	37	204	47	9	176	65	85	108	12	73	43	13	18	12	17	7	12	15	20
ø63	21	35	209	60	11	181	80	106	130	16	85	47	13	19	12	18	7	13	15	21
ø80	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	16.5	25.5
ø100	32	53	273	88	14	228	118	144	180	19	121	63	18.5	29.5	17.5	28.5	12.5	23.5	20.5	31.5

\*1: Refer to page 615 for dimensions of projecting section of T1 and T2YD switch.

\*2: For the dimensions of the accessories, refer to pages 470 and 471.

## Dimensions

● Head side flange (FB) with rod side position locking



Code	Head side flange (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
ø40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14x1.5	38 to 39.5	120.5	16	8	14	13	26	8
ø50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18x1.5	41 to 43.5	127	20	8	17	14	27	11
ø63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18x1.5	47.5 to 50	130	20	8	17	15	28	11
ø80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22x1.5	56 to 59	144	25	11	22	17	27	13
ø100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26x1.5	66 to 69	156	30	13	27	18	27	16

Code	Mounting method										With switch									
	V	WF	FA	FC	FD	FJ	FH	FL	FM	FT	O	P	T0, T5		T2Y		T8		T2W, T3W	
													T2, T3	T3Y, T2J	RD	HD	RD	HD	RD	HD
ø40	18.5	33.5	188	40	9	166	57	80	100	12	66	41.5	15.5	11	14.5	10	9.5	5	17.5	13
ø50	17	33.5	200.5	47	9	172.5	65	85	108	12	73	43	18	13	17	12	12	7	20	15
ø63	17	31	205	60	11	177	80	106	130	16	85	47	19	13	18	12	13	7	21	15
ø80	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	25.5	16.5
ø100	29	50	270	88	14	225	118	144	180	19	121	63	29.5	18.5	28.5	17.5	23.5	12.5	31.5	20.5

\*1: Refer to page 615 for dimensions of projecting section of T1 and T2YD switch.

\*2: For the dimensions of the accessories, refer to pages 470 and 471.

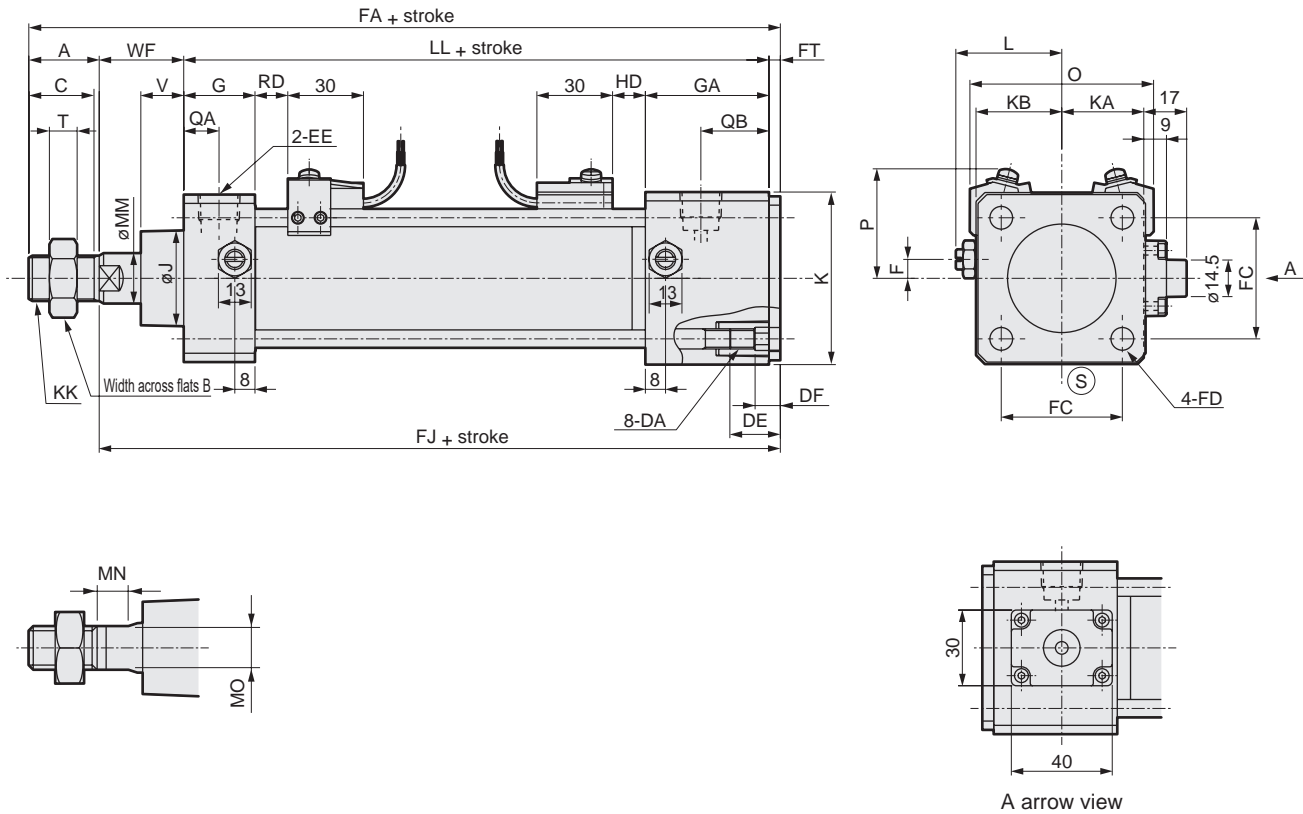
- SCP\*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2**
- SCS2
- CKV2
- CAV2/COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd Contr
- Ending

# SCA2-Q2 Series



## Dimensions

● Head side special flange (FC) with head side position locking



Code	Head side special flange (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
MSD/MSDG	22	22	20	M8	16.5	8.5	Rc1/4	7.5	26	49	31	60	30	30	M14x1.5	38 to 39.5	120.5	16	8	14	13
	28	27	26	M8	16.5	8.5	Rc3/8	0	28	49	38	68	32.5	34	M18x1.5	41 to 43.5	127	20	8	17	14
FC*	28	27	26	M8	16.5	8.5	Rc3/8	0	30	49	38	80	38	40	M18x1.5	47.5 to 50	130	20	8	17	15
	36	32	34	M12	22	11	Rc1/2	0	34	53	43	100	49	50	M22x1.5	56 to 59	144	25	11	22	17
	45	41	43	M12	22	11	Rc1/2	0	36	53	51	118	58.5	59	M26x1.5	66 to 69	156	30	13	27	18

Code	Mounting method					With switch													
Bore size (mm)	QB	T	V	WF	FA	FC	FD	FJ	FT	O	P	T0, T5 T2, T3		T2Y T3Y, T2J		T8		T2W, T3W	
												RD	HD	RD	HD	RD	HD	RD	HD
SRG3	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	13	17.5
SRM3	27	11	20.5	37	196.5	48	9	168.5	4.5	73	43	13	18	12	17	7	12	15	20
	28	11	21	35	197.5	59	9	169.5	4.5	85	47	13	19	12	18	7	13	15	21
SRT3	27	13	23.5	48	234	74	14	198	6	105	57	14.5	23.5	13.5	22.5	8.5	17.5	16.5	25.5
	27	16	32	53	260	90	14	215	6	121	63	18.5	29.5	17.5	28.5	12.5	23.5	20.5	31.5

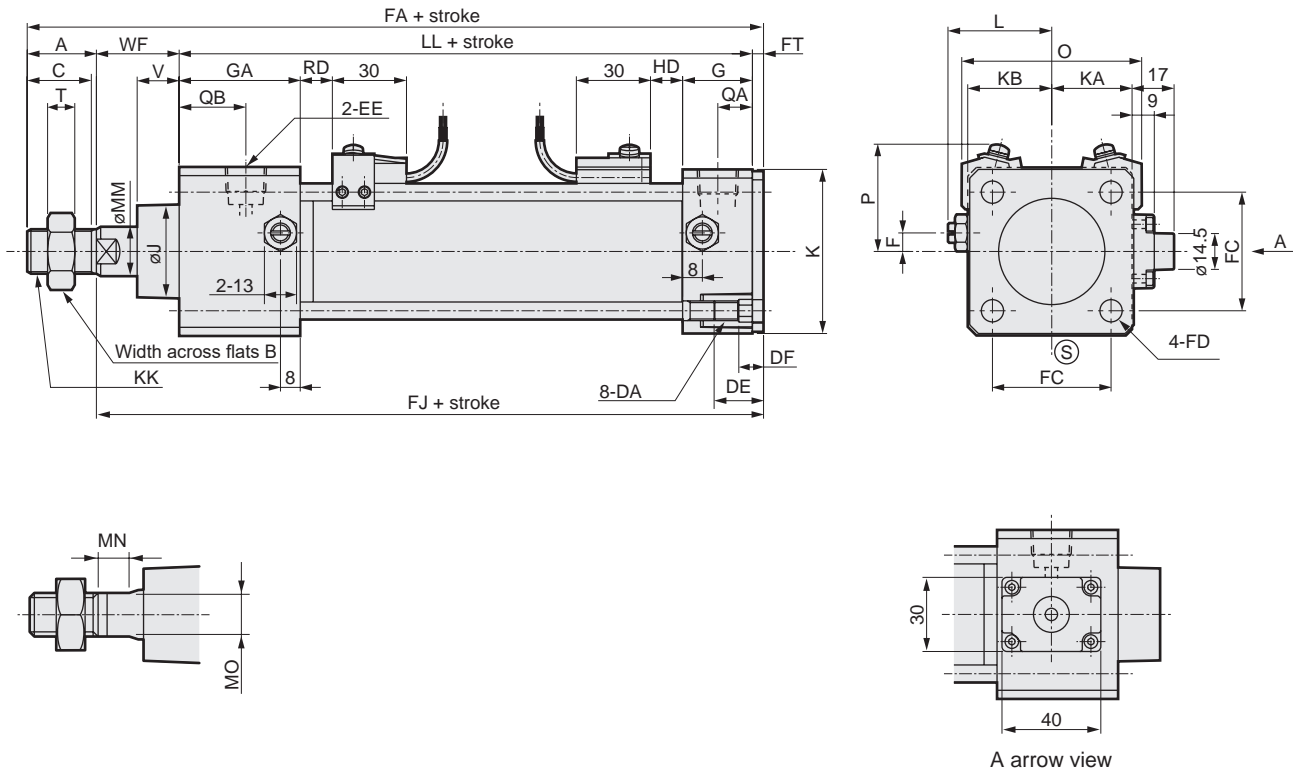
\*1: Refer to page 615 for dimensions of projecting section of T1 and T2YD switch.

\*2: For the dimensions of the accessories, refer to pages 470 and 471.

### Dimensions



- Head side special flange (FC) with rod side position locking



Code	Head side special flange (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
ø40	22	22	20	M8	19	10	Rc1/4	7.5	26	49	31	60	30	30	M14x1.5	38 to 39.5	120.5	16	8	14	13
ø50	28	27	26	M8	20	10	Rc3/8	0	28	49	38	68	32.5	34	M18x1.5	41 to 43.5	127	20	8	17	14
ø63	28	27	26	M8	20	10	Rc3/8	0	30	49	38	80	38	40	M18x1.5	47.5 to 50	130	20	8	17	15
ø80	36	32	34	M12	22	11	Rc1/2	0	34	53	43	100	49	50	M22x1.5	56 to 59	144	25	11	22	17
ø100	45	41	43	M12	22	11	Rc1/2	0	36	53	51	118	58.5	59	M26x1.5	66 to 69	156	30	13	27	18

Code	Mounting method										With switch										
Bore size (mm)	QB	T	V	WF	FA	FC	FD	FJ	FT	O	P	T0, T5		T2Y		T8		T2W, T3W			
												T2, T3	T3Y, T2J	RD	HD	RD	HD	RD	HD	RD	HD
												RD	HD	RD	HD	RD	HD	RD	HD		
ø40	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	17.5	13		
ø50	27	11	17	33.5	193	47	9	165	4.5	73	43	18	13	17	12	12	7	20	15		
ø63	28	11	17	31	193.5	60	11	165.5	4.5	85	47	19	13	18	12	13	7	21	15		
ø80	27	13	18.5	43	229	74	14	193	6	105	57	23.5	14.5	22.5	13.5	17.5	8.5	25.5	16.5		
ø100	27	16	29	50	257	88	14	212	6	121	63	29.5	18.5	28.5	17.5	23.5	12.5	31.5	20.5		

\*1: Refer to page 615 for dimensions of projecting section of T1 and T2YD switch.

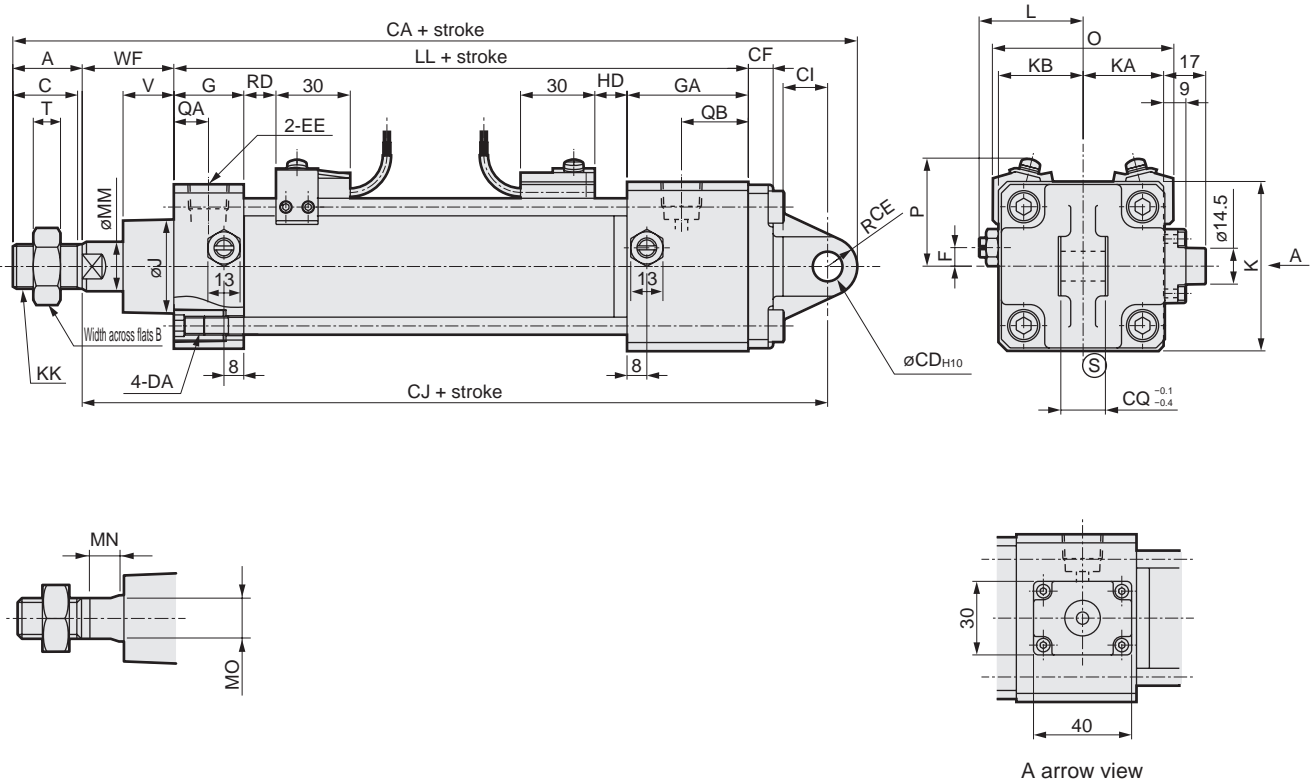
\*2: For the dimensions of the accessories, refer to pages 470 and 471.

- SCP\*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2**
- SCS2
- CKV2
- CAV2/COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd Contr
- Ending

# SCA2-Q2 Series

## Dimensions

● Eye bracket (CA) with head side position locking



Code	Eye bracket (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
ø40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14x1.5	38 to 39.5	120.5	16	8	14	13	26	8
ø50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18x1.5	41 to 43.5	127	20	8	17	14	27	11
ø63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18x1.5	47.5 to 50	130	20	8	17	15	28	11
ø80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22x1.5	56 to 59	144	25	11	22	17	27	13
ø100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26x1.5	66 to 69	156	30	13	27	18	27	16

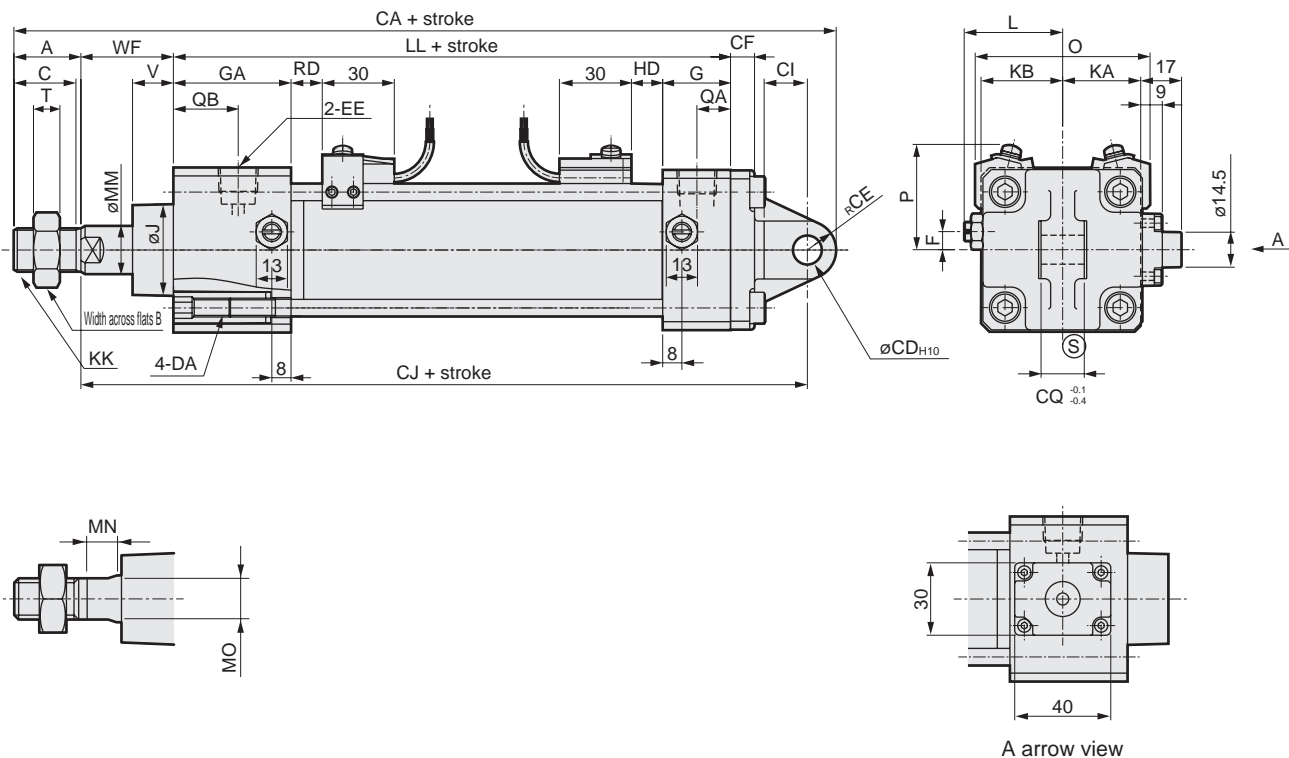
Code	Mounting method										With switch								
Bore size (mm)	V	WF	CA	CD	CE	CF	CI	CJ	CQ	O	P	T0, T5 T2, T3		T2Y T3Y, T2J		T8		T2W, T3W	
												RD	HD	RD	HD	RD	HD	RD	HD
												ø40	18.5	33.5	220	12	12	10	18
ø50	20.5	37	236	12	12	10	18	196	18	73	43	13	18	12	17	7	12	15	20
ø63	21	35	246	14	16	10	24	202	20	85	47	13	19	12	18	7	13	15	21
ø80	23.5	48	300	20	20	14	30	244	28	105	57	14.5	23.5	13.5	22.5	8.5	17.5	16.5	25.5
ø100	32	53	326	20	20	16	30	261	28	121	63	18.5	29.5	17.5	28.5	12.5	23.5	20.5	31.5

\*1: Refer to page 615 for dimensions of projecting section of T1 and T2YD switch.  
 \*2: For the dimensions of the accessories, refer to pages 470 and 471.

## Dimensions



- Eye bracket (CA) with rod side position locking



Code	Eye bracket (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
ø40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14x1.5	38 to 39.5	120.5	16	8	14	13	26	8
ø50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18x1.5	41 to 43.5	127	20	8	17	14	27	11
ø63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18x1.5	47.5 to 50	130	20	8	17	15	28	11
ø80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22x1.5	56 to 59	144	25	11	22	17	27	13
ø100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26x1.5	66 to 69	156	30	13	27	18	27	16

Code	Mounting method								With switch												
Bore size (mm)	V	WF	CA	CD	CE	CF	CI	CJ	CQ	O	P	T0, T5		T2Y		T8		T2W, T3W			
												T2, T3	T3Y, T2J	RD	HD	RD	HD	RD	HD	RD	HD
												RD	HD	RD	HD	RD	HD	RD	HD		
ø40	18.5	33.5	220	12	12	10	18	186	18	66	41.5	15.5	11	14.5	10	9.5	5	17.5	13		
ø50	17	33.5	232.5	12	12	10	18	192.5	18	73	43	18	13	17	12	12	7	20	15		
ø63	17	31	242	14	16	10	24	198	20	85	47	19	13	18	12	13	7	21	15		
ø80	18.5	43	295	20	20	14	30	239	28	105	57	23.5	14.5	22.5	13.5	17.5	8.5	25.5	16.5		
ø100	29	50	323	20	20	16	30	258	28	121	63	29.5	18.5	28.5	17.5	23.5	12.5	31.5	20.5		

\*1: Refer to page 615 for dimensions of projecting section of T1 and T2YD switch.

\*2: For the dimensions of the accessories, refer to pages 470 and 471.

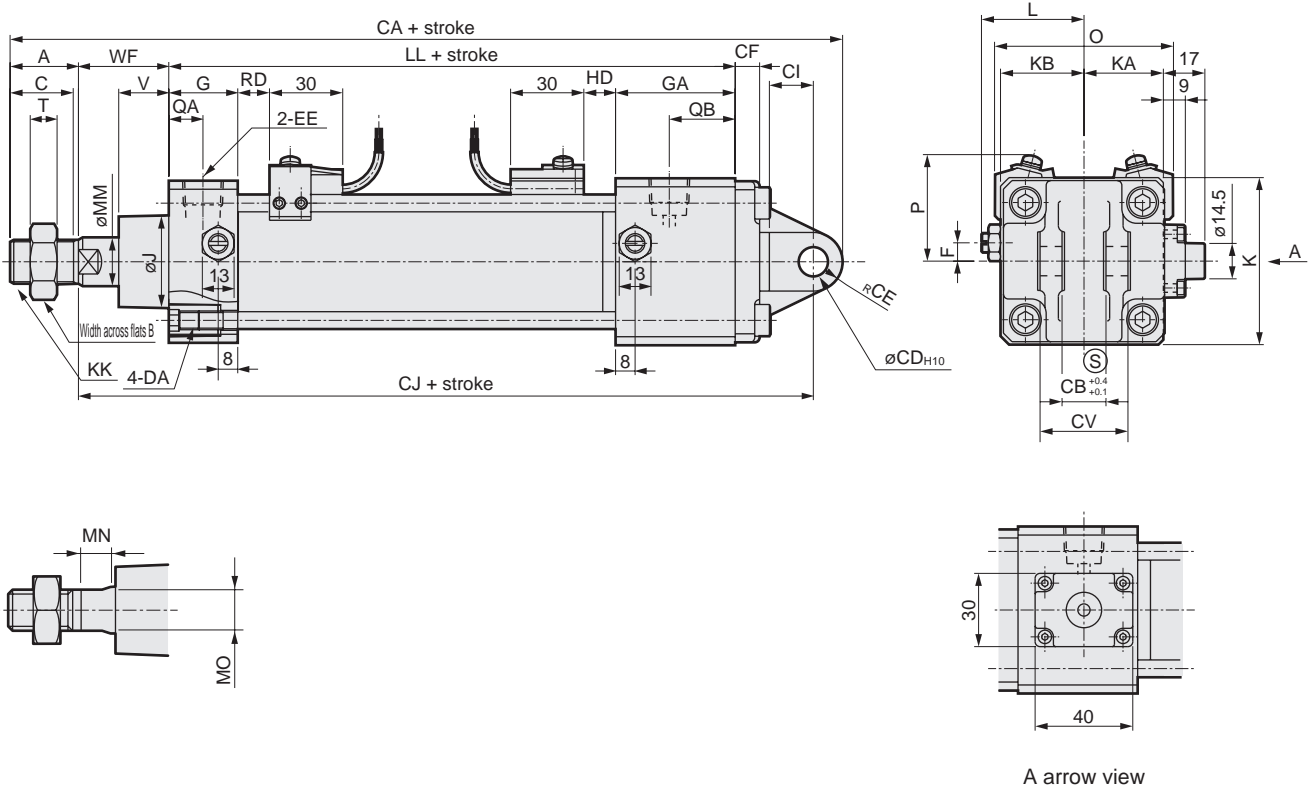
- SCP\*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2**
- SCS2
- CKV2
- CAV2/COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd Contr
- Ending

# SCA2-Q2 Series

## Dimensions



● Clevis bracket (CB) with head side position locking



Code	Clevis bracket (CB) (unit: mm)																				
	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	QA	QB	T
$\phi 40$	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14x1.5	38 to 39.5	120.5	16	8	14	13	26	8
$\phi 50$	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18x1.5	41 to 43.5	127	20	8	17	14	27	11
$\phi 63$	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18x1.5	47.5 to 50	130	20	8	17	15	28	11
$\phi 80$	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22x1.5	56 to 59	144	25	11	22	17	27	13
$\phi 100$	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26x1.5	66 to 69	156	30	13	27	18	27	16

Code	Mounting method										With switch									
	V	WF	CA	CB	CD	CE	CF	CI	CJ	CV	O	P	T0, T5 T2, T3		T2Y T3Y, T2J		T8		T2W, T3W	
													RD	HD	RD	HD	RD	HD	RD	HD
$\phi 40$	18.5	33.5	220	18	12	12	10	18	186	36	66	41.5	11	15.5	10	14.5	5	9.5	13	17.5
$\phi 50$	20.5	37	236	18	12	12	10	18	196	36	73	43	13	18	12	17	7	12	15	20
$\phi 63$	21	35	246	20	14	16	10	24	202	40	85	47	13	19	12	18	7	13	15	21
$\phi 80$	23.5	48	300	28	20	20	14	30	244	56	105	57	14.5	23.5	13.5	22.5	8.5	17.5	16.5	25.5
$\phi 100$	32	53	326	28	20	20	16	30	261	56	121	63	18.5	29.5	17.5	28.5	12.5	23.5	20.5	31.5

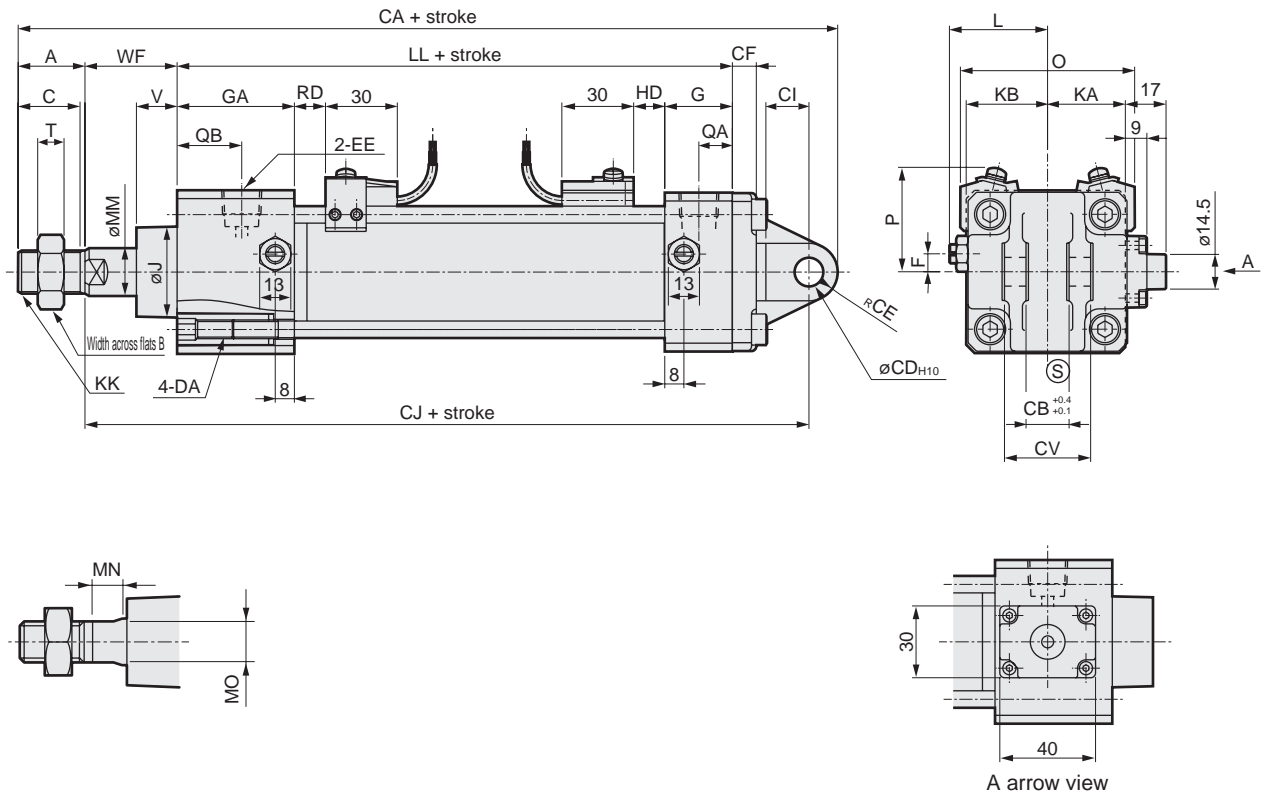
\*1: Refer to page 615 for dimensions of projecting section of T1 and T2YD switch.  
 \*2: For the dimensions of the accessories, refer to pages 470 and 471.



### Dimensions



- Clevis bracket (CB) with rod side position locking



Code	Clevis bracket (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
ø40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14x1.5	38 to 39.5	120.5	16	8	14	13	26	8
ø50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18x1.5	41 to 43.5	127	20	8	17	14	27	11
ø63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18x1.5	47.5 to 50	130	20	8	17	15	28	11
ø80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22x1.5	56 to 59	144	25	11	22	17	27	13
ø100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26x1.5	66 to 69	156	30	13	27	18	27	16

Code	Mounting method										With switch									
Bore size (mm)	V	WF	CA	CB	CD	CE	CF	CI	CJ	CV	O	P	T0, T5 T2, T3		T2Y T3Y, T2J		T8		T2W, T3W	
													RD	HD	RD	HD	RD	HD	RD	HD
													ø40	18.5	33.5	220	18	12	12	10
ø50	17	33.5	232.5	18	12	12	10	18	192.5	36	73	43	18	13	17	12	12	7	20	15
ø63	17	31	242	20	14	16	10	24	198	40	85	47	19	13	18	12	13	7	21	15
ø80	18.5	43	295	28	20	20	14	30	239	56	105	57	23.5	14.5	22.5	13.5	17.5	8.5	25.5	16.5
ø100	29	50	323	28	20	20	16	30	258	56	121	63	29.5	18.5	28.5	17.5	23.5	12.5	31.5	20.5

\*1: Refer to page 615 for dimensions of projecting section of T1 and T2YD switch.

\*2: For the dimensions of the accessories, refer to pages 470 and 471.

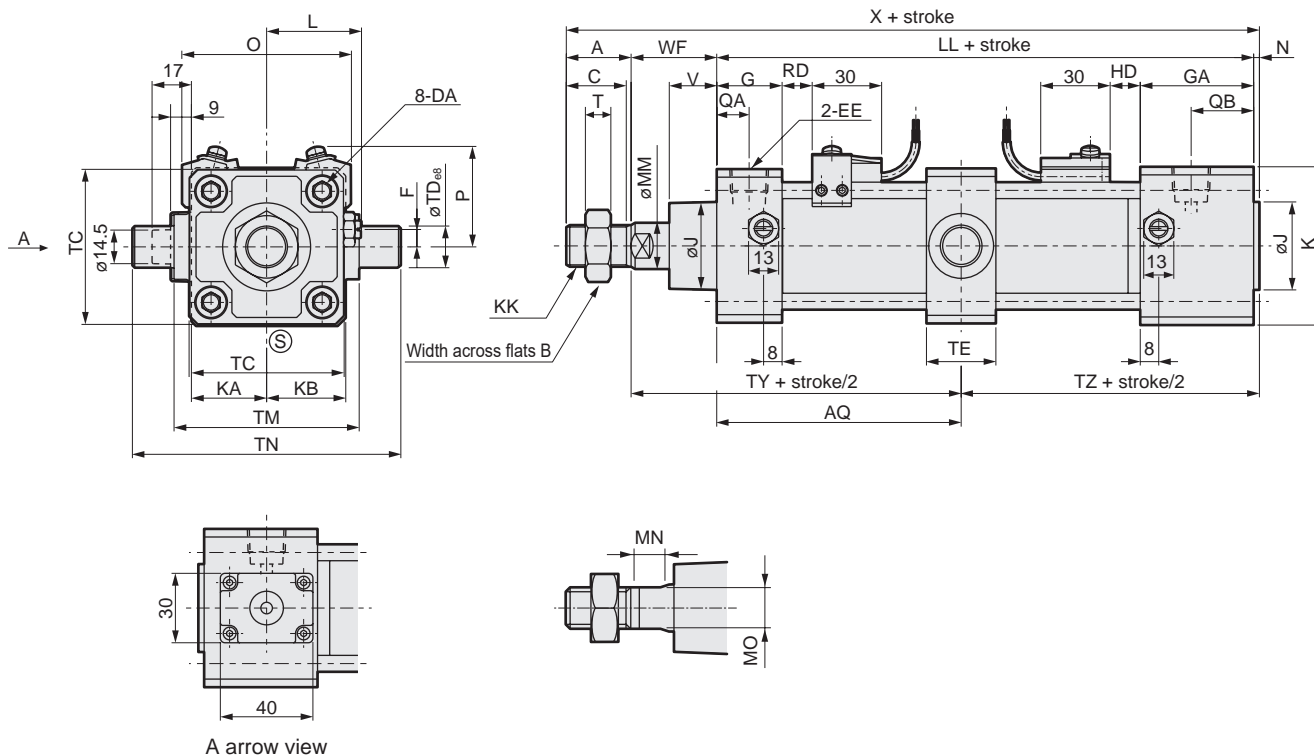
- SCP\*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2**
- SCS2
- CKV2
- CAV2/  
COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/  
MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd  
Contr
- Ending

# SCA2-Q2 Series

## Dimensions



● Intermediate trunnion (TC) with head side position locking



Code	Intermediate trunnion (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
ø40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14x1.5	38 to 39.5	120.5	16	8	14	2	13	26
ø50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18x1.5	41 to 43.5	127	20	8	17	2.5	14	27
ø63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18x1.5	47.5 to 50	130	20	8	17	3	15	28
ø80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22x1.5	56 to 59	144	25	11	22	3.5	17	27
ø100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26x1.5	66 to 69	156	30	13	27	4	18	27

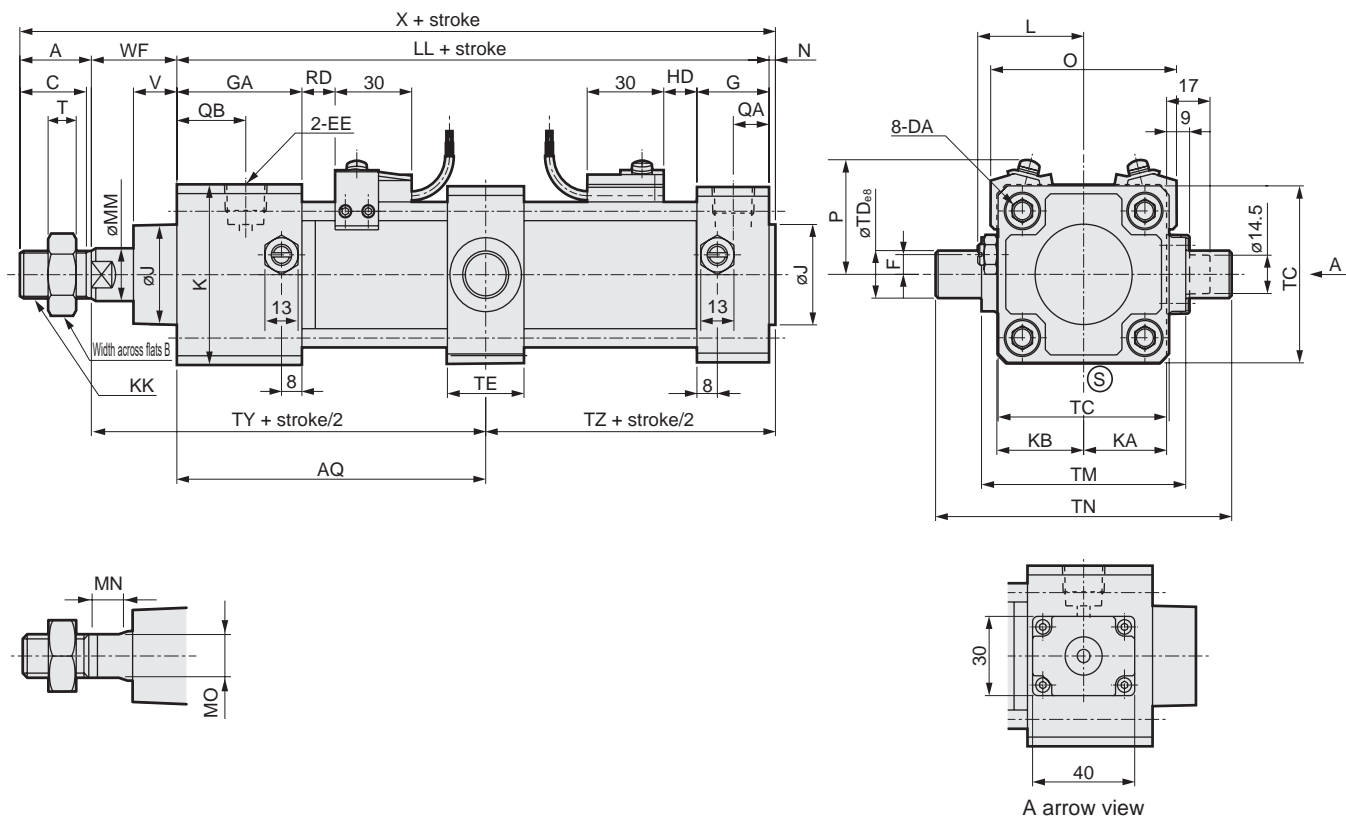
Code	Mounting method												With switch									
Bore size (mm)	T	V	WF	X	AQ	TC	TD	TE	TM	TN	TY	TZ	O	P	T0, T5		T2Y		T8		T2W, T3W	
															T2, T3	T3Y, T2J	RD	HD	RD	HD	RD	HD
ø40	8	18.5	33.5	178	60.5 + $\frac{\text{Stroke}}{2}$	57	16	30	63	95	94	62	66	41.5	11	15.5	10	14.5	5	9.5	13	17.5
ø50	11	20.5	37	194.5	80 + $\frac{\text{Stroke}}{2}$	67	18	30	80	116	100.5	66	73	43	13	18	12	17	7	12	15	20
ø63	11	21	35	196	65 + $\frac{\text{Stroke}}{2}$	82	20	35	90	130	100	68	85	47	13	19	12	18	7	13	15	21
ø80	13	23.5	48	231.5	72 + $\frac{\text{Stroke}}{2}$	100	25	40	115	165	120	75.5	105	57	14.5	23.5	13.5	22.5	8.5	17.5	16.5	25.5
ø100	16	32	53	258	78 + $\frac{\text{Stroke}}{2}$	121	35	50	135	205	131	82	121	63	18.5	29.5	17.5	28.5	12.5	23.5	20.5	31.5

\*1: Refer to page 615 for dimensions of projecting section of T1 and T2YD switch.

\*2: For the dimensions of the accessories, refer to pages 470 and 471.

## Dimensions

● Intermediate trunnion (TC) with rod side position locking



Code	Intermediate trunnion (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
ø40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14x1.5	38 to 39.5	120.5	16	8	14	2	13	26
ø50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18x1.5	41 to 43.5	127	20	8	17	2.5	14	27
ø63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18x1.5	47.5 to 50	130	20	8	17	3	15	28
ø80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22x1.5	56 to 59	144	25	11	22	3.5	17	27
ø100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26x1.5	66 to 69	156	30	13	27	4	18	27

Code	Mounting method												With switch									
Bore size (mm)	T	V	WF	X	AQ	TC	TD	TE	TM	TN	TY	TZ	O	P	T0, T5 T2, T3		T2Y T3Y, T2J		T8		T2W, T3W	
															RD	HD	RD	HD	RD	HD	RD	HD
ø40	8	18.5	33.5	178	60.5 + $\frac{\text{Stroke}}{2}$	57	16	30	63	95	94	62	66	41.5	15.5	11	14.5	10	9.5	5	17.5	13
ø50	11	17	33.5	191	63.5 + $\frac{\text{Stroke}}{2}$	67	18	30	80	116	97	66	73	43	18	13	17	12	12	7	20	15
ø63	11	17	31	192	65 + $\frac{\text{Stroke}}{2}$	82	20	35	90	130	96	68	85	47	19	13	18	12	13	7	21	15
ø80	13	18.5	43	226.5	72 + $\frac{\text{Stroke}}{2}$	100	25	40	115	165	115	75.5	105	57	23.5	14.5	22.5	13.5	17.5	8.5	25.5	16.5
ø100	16	29	50	255	78 + $\frac{\text{Stroke}}{2}$	121	35	50	135	205	128	82	121	63	29.5	18.5	28.5	17.5	23.5	12.5	31.5	20.5

\*1: Refer to page 615 for dimensions of projecting section of T1 and T2YD switch.

\*2: For the dimensions of the accessories, refer to pages 470 and 471.

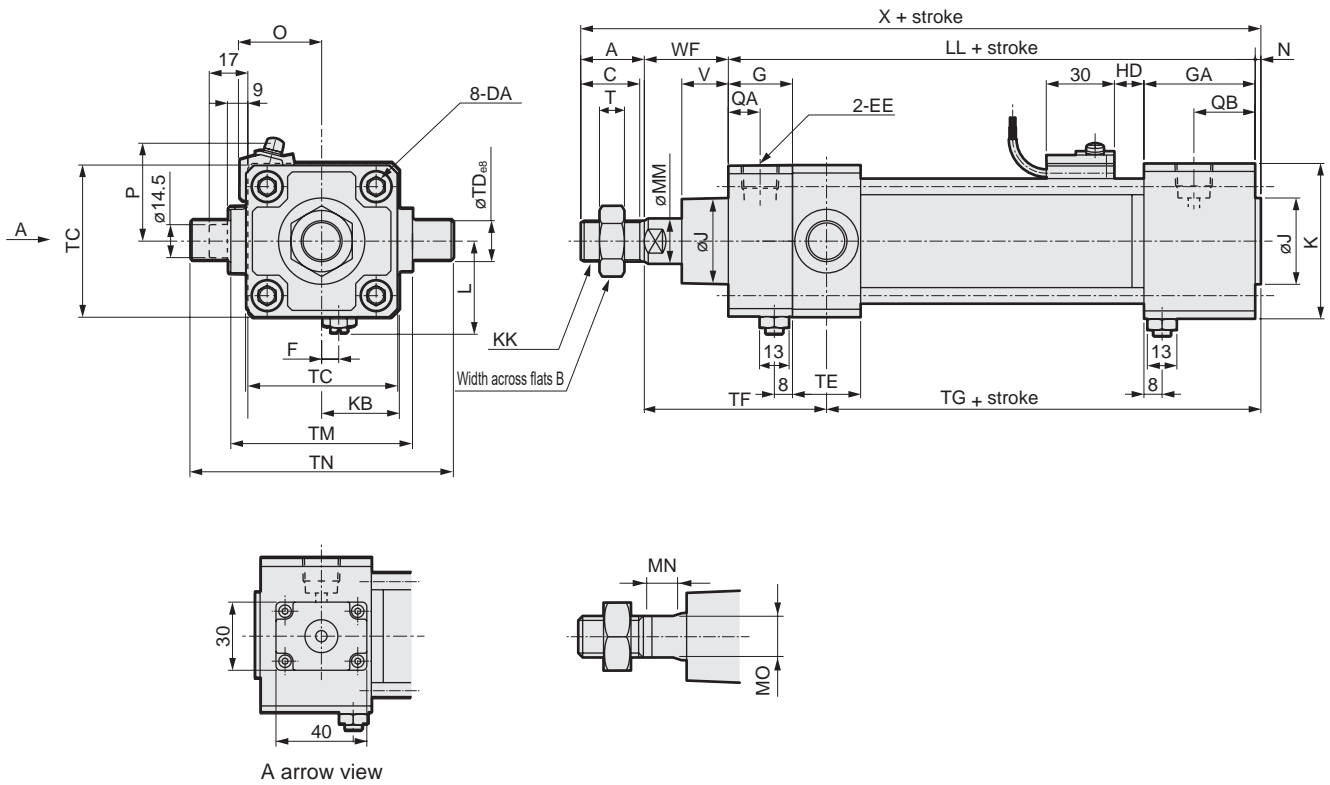
- SCP\*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2**
- SCS2
- CKV2
- CAV2/  
COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/  
MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd  
Contr
- Ending

# SCA2-Q2 Series

## Dimensions



- Rod side trunnion (TA) with head side position locking



Code	Rod side trunnion (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
ø40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14x1.5	38 to 39.5	120.5	16	8	14	2	13	26
ø50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18x1.5	41 to 43.5	127	20	8	17	2.5	14	27
ø63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18x1.5	47.5 to 50	130	20	8	17	3	15	28
ø80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22x1.5	56 to 59	144	25	11	22	3.5	17	27
ø100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26x1.5	66 to 69	156	30	13	27	4	18	27

Code	Mounting method											With switch					
Bore size (mm)	T	V	WF	X	TC	TD	TE	TF	TG	TM	TN	O	P	HD			
														T0, T5 T2, T3	T2Y T3Y, T2J	T8	T2W, T3W
ø40	8	18.5	33.5	178	57	16	30	74.5	81.5	63	95	66	41.5	15.5	14.5	9.5	17.5
ø50	11	20.5	37	194.5	67	18	30	80	86.5	80	116	73	43	18	17	12	20
ø63	11	21	35	196	82	20	35	82.5	85.5	90	130	85	47	19	18	13	21
ø80	13	23.5	48	231.5	100	25	40	102	93.5	115	165	105	57	23.5	22.5	17.5	25.5
ø100	16	32	53	258	121	35	50	114	99	135	205	121	63	29.5	28.5	23.5	31.5

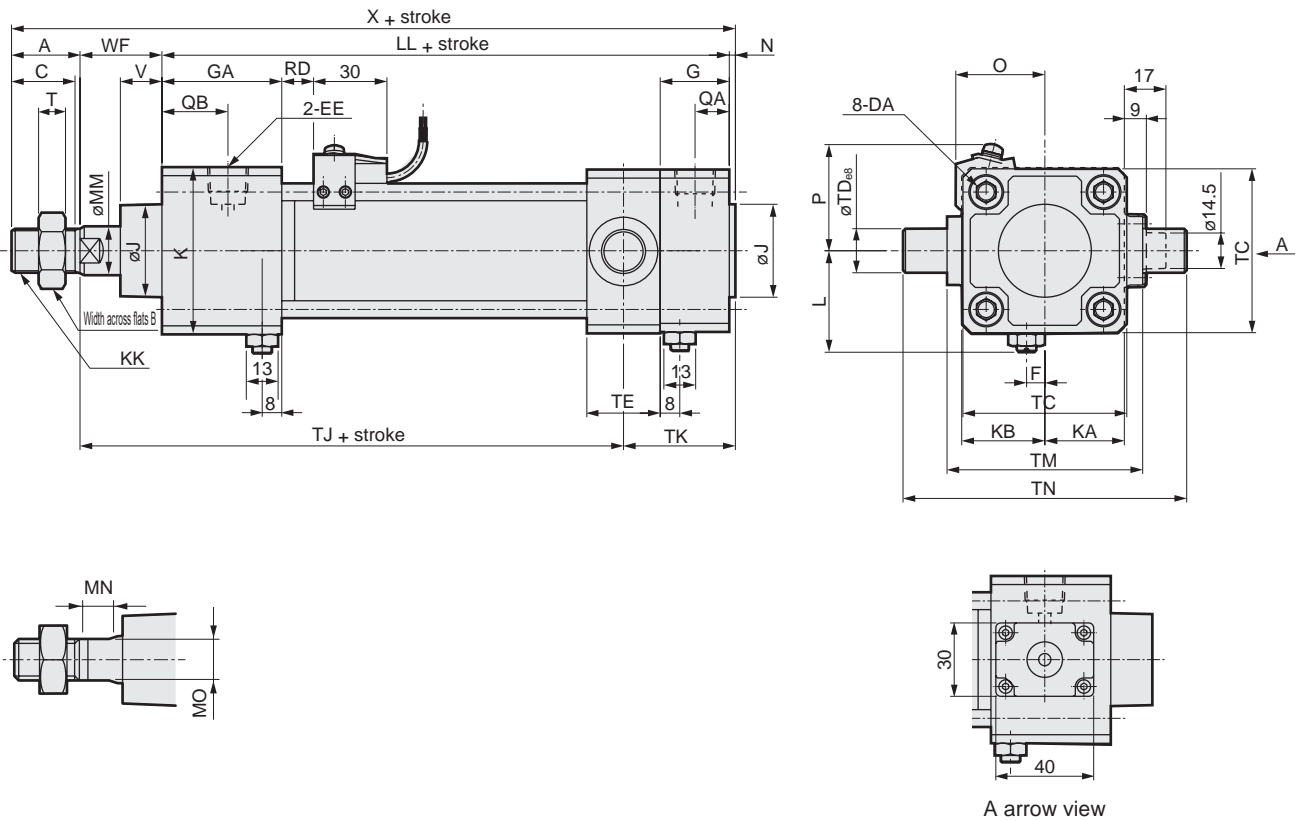
\*1: Refer to page 615 for dimensions of projecting section of T1 and T2YD switch.

\*2: For the dimensions of the accessories, refer to pages 470 and 471.

\*3: The position of the cushion needle cannot be changed.

## Dimensions

- Head side trunnion (TB) with rod side position locking



Code	Head side trunnion (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
ø40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14x1.5	38 to 39.5	120.5	16	8	14	2	13	26
ø50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18x1.5	41 to 43.5	127	20	8	17	2.5	14	27
ø63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18x1.5	47.5 to 50	130	20	8	17	3	15	28
ø80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22x1.5	56 to 59	144	25	11	22	3.5	17	27
ø100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26x1.5	66 to 69	156	30	13	27	4	18	27

Code	Mounting method										With switch						
Bore size (mm)	T	V	WF	X	TC	TD	TE	TJ	TK	TM	TN	O	P	RD			
														T0, T5 T2, T3	T2Y T3Y, T2J	T8	T2W, T3W
ø40	8	18.5	33.5	178	57	16	30	112.5	43.5	63	95	66	41.5	15.5	14.5	9.5	17.5
ø50	11	17	33.5	191	67	18	30	117	46	80	116	73	43	18	17	12	20
ø63	11	17	31	192	82	20	35	113	51	90	130	85	47	19	18	13	21
ø80	13	18.5	43	226.5	100	25	40	132.5	58	115	165	105	57	23.5	22.5	17.5	25.5
ø100	16	29	50	256	121	35	50	144.5	65.5	135	205	121	63	29.5	28.5	23.5	31.5

\*1: Refer to page 615 for dimensions of projecting section of T1 and T2YD switch.

\*2: For the dimensions of the accessories, refer to pages 470 and 471.

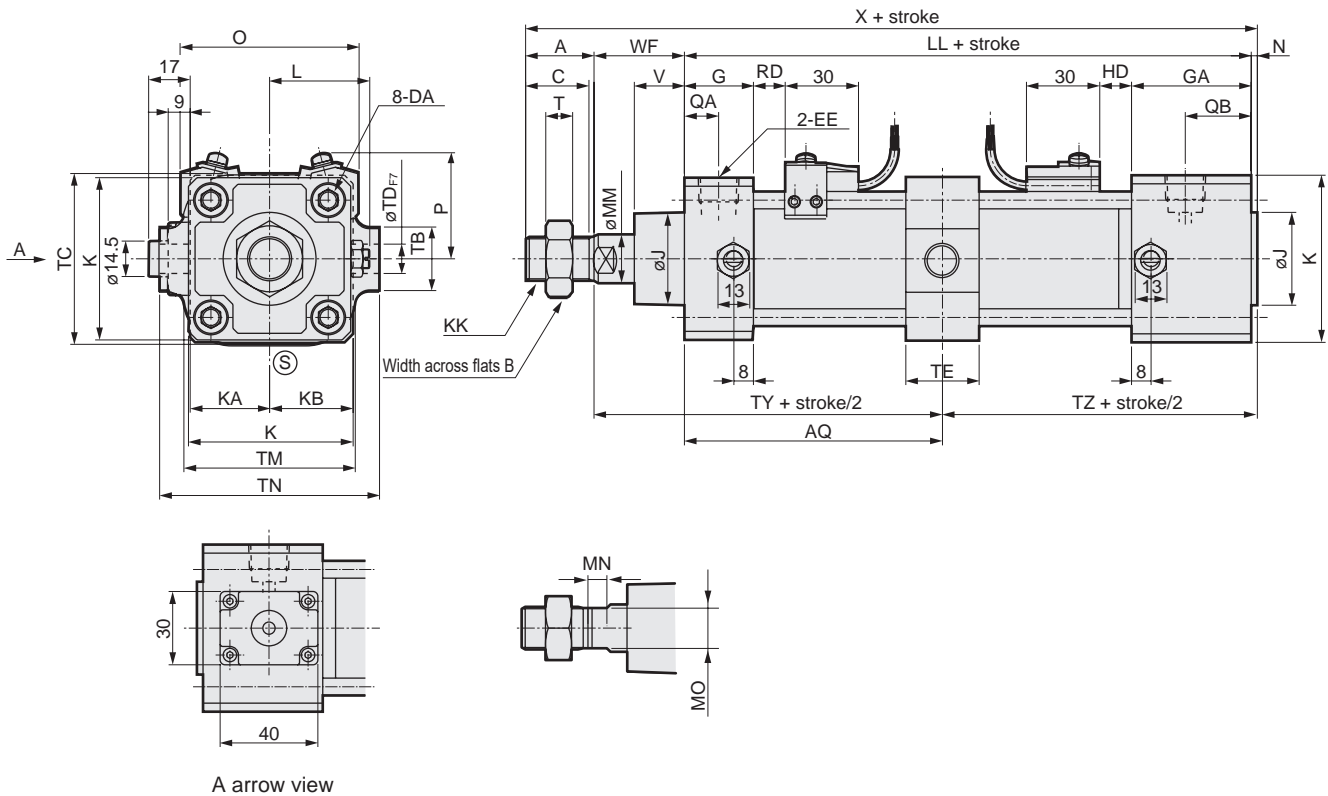
\*3: The position of the cushion needle cannot be changed.

SCP\*3  
CMK2  
CMA2  
SCM  
SCG  
SCA2  
SCS2  
CKV2  
CAV2/  
COVP/N2  
SSD2  
SSG  
SSD  
CAT  
MDC2  
MVC  
SMG  
MSD/  
MSDG  
FC\*  
STK  
SRL3  
SRG3  
SRM3  
SRT3  
MRL2  
MRG2  
SM-25  
ShkAbs  
FJ  
FK  
Spd  
Contr  
Ending

# SCA2-Q2 Series

## Dimensions

● Intermediate supporting hole trunnion (TF) with head side position locking



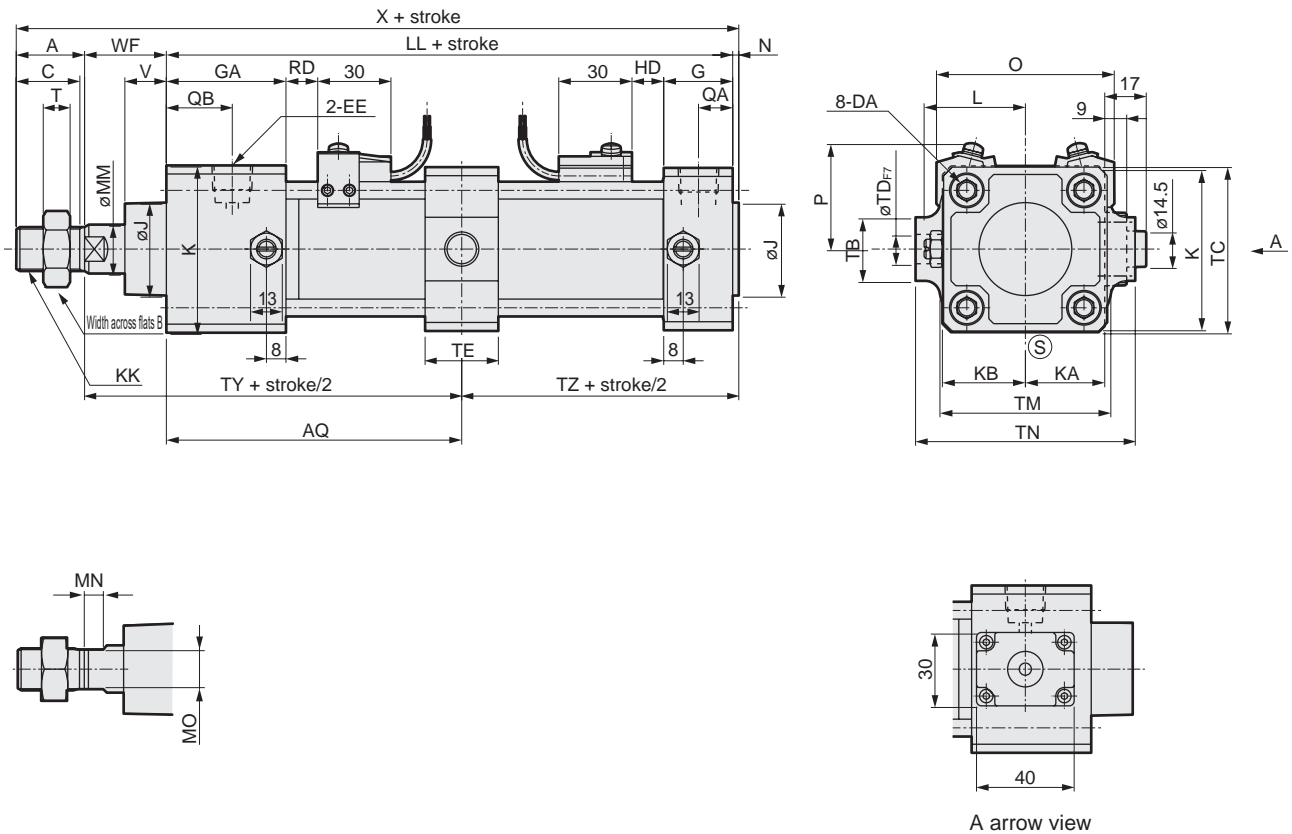
Code	Intermediate supporting hole trunnion (TF) (unit: mm)																						
Bore size (mm)	A	B	C	DA	EE	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB			
FC*	28	27	26	M8	Rc3/8	28	49	38	68	32.5	34	M18x1.5	41 to 43.5	127	20	8	17	2.5	14	27			
STK	28	27	26	M8	Rc3/8	30	49	38	80	38	40	M18x1.5	47.5 to 50	130	20	8	17	3	15	28			
SRL3	36	32	34	M12	Rc1/2	34	53	43	100	49	50	M22x1.5	56 to 59	144	25	11	22	3.5	17	27			
SRG3	45	41	43	M12	Rc1/2	36	53	51	118	58.5	59	M26x1.5	66 to 69	156	30	13	27	4	18	27			
Code	Mounting method												With switch										
Bore size (mm)	T	V	WF	X	AQ	TB	TC	TD	TE	TM	TN	TY	TZ	O	P	T0, T5 T2, T3		T2Y T3Y, T2J		T8		T2W, T3W	
																RD	HD	RD	HD	RD	HD	RD	HD
SRM3	11	20.5	37	194.5	63.5 + $\frac{\text{Stroke}}{2}$	26	67	12	30	70	90	97	66	73	43	13	18	12	17	7	12	15	20
SRT3	11	21	35	196	65 + $\frac{\text{Stroke}}{2}$	30	82	14	35	86	104	96	68	85	47	13	19	12	18	7	13	15	21
MRL2	13	23.5	48	231.5	72 + $\frac{\text{Stroke}}{2}$	35	100	20	40	105	134	115	75.5	105	57	14.5	23.5	13.5	22.5	8.5	17.5	16.5	25.5
MRG2	16	32	53	258	78 + $\frac{\text{Stroke}}{2}$	40	121	20	40	127	150	128	82	121	63	18.5	29.5	17.5	28.5	12.5	23.5	20.5	31.5

\*1: Refer to page 615 for dimensions of projecting section of T1 and T2YD switch.

\*2: For the dimensions of the accessories, refer to pages 470 and 471.

### Dimensions

- Intermediate supporting hole trunnion (TF) with rod side position locking



Code	Intermediate supporting hole trunnion (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
ø50	28	27	26	M8	Rc3/8	28	49	38	68	32.5	34	M18x1.5	41 to 43.5	127	20	8	17	2.5	14	27
ø63	28	27	26	M8	Rc3/8	30	49	38	80	38	40	M18x1.5	47.5 to 50	130	20	8	17	3	15	28
ø80	36	32	34	M12	Rc1/2	34	53	43	100	49	50	M22x1.5	56 to 59	144	25	11	22	3.5	17	27
ø100	45	41	43	M12	Rc1/2	36	53	51	118	58.5	59	M26x1.5	66 to 69	156	30	13	27	4	18	27

Code	Mounting method												With switch										
Bore size (mm)	T	V	WF	X	AQ	TB	TC	TD	TE	TM	TN	TY	TZ	O	P	T0, T5 T2, T3		T2Y T3Y, T2J		T8		T2W, T3W	
																RD	HD	RD	HD	RD	HD	RD	HD
ø50	11	17	33.5	191	63.5 + $\frac{\text{Stroke}}{2}$	26	67	12	30	70	90	97	66	73	43	18	13	17	12	12	7	20	15
ø63	11	17	31	192	65 + $\frac{\text{Stroke}}{2}$	30	82	14	35	86	104	96	68	85	47	19	13	18	12	13	7	21	15
ø80	13	18.5	43	226.5	72 + $\frac{\text{Stroke}}{2}$	35	100	20	40	105	134	115	75.5	105	57	23.5	14.5	22.5	13.5	17.5	8.5	25.5	16.5
ø100	16	29	50	255	78 + $\frac{\text{Stroke}}{2}$	40	121	20	40	127	150	128	82	121	63	29.5	18.5	28.5	17.5	23.5	12.5	31.5	20.5

\*1: Refer to page 615 for dimensions of projecting section of T1 and T2YD switch.

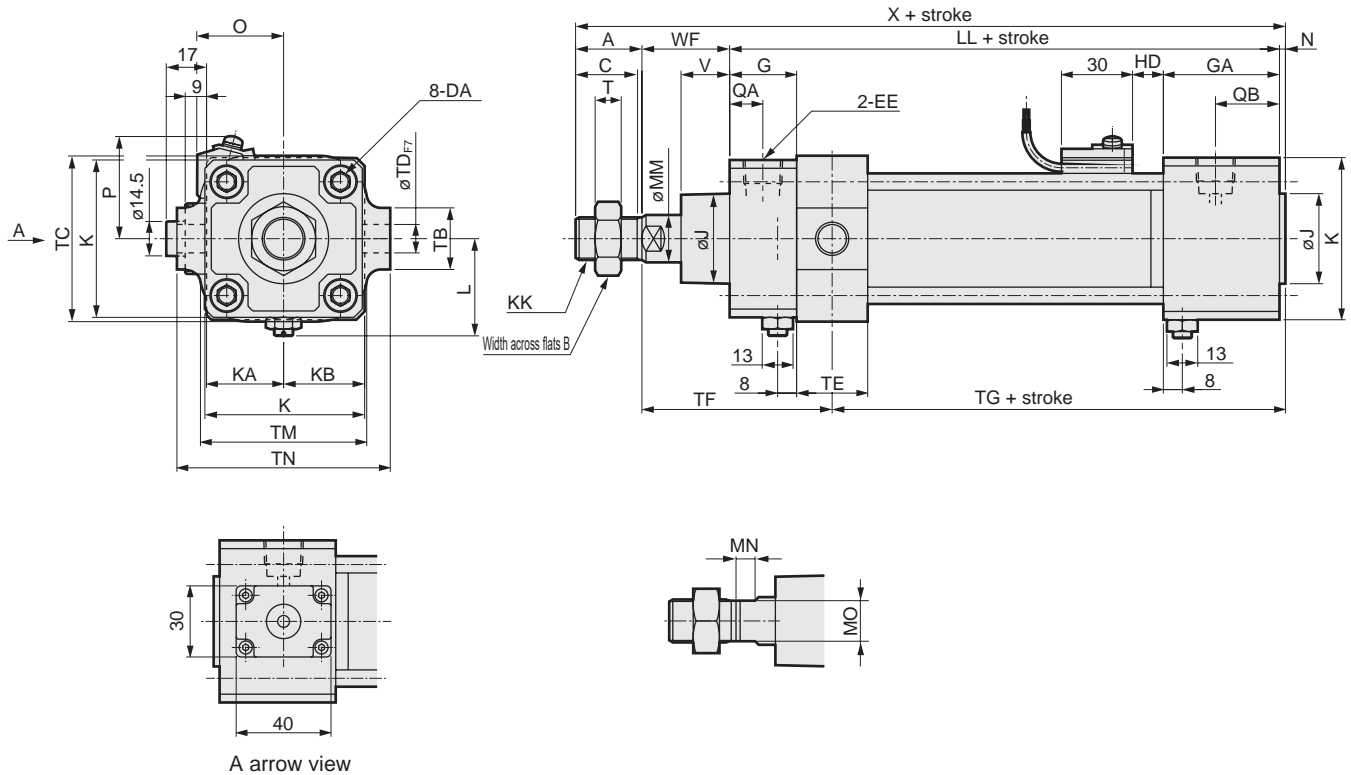
\*2: For the dimensions of the accessories, refer to pages 470 and 471.

- SCP\*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2**
- SCS2
- CKV2
- CAV2/  
COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/  
MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd  
Contr
- Ending

# SCA2-Q2 Series

## Dimensions

● Rod side hole trunnion (TD) with head side position locking



Code	Rod side hole trunnion (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
STK	ø50	28	27	26	M8	Rc3/8	28	49	38	68	32.5	34	M18x1.5	41 to 43.5	127	20	8	17	2.5	14	27
SRL3	ø63	28	27	26	M8	Rc3/8	30	49	38	80	38	40	M18x1.5	47.5 to 50	130	20	8	17	3	15	28
SRG3	ø80	36	32	34	M12	Rc1/2	34	53	43	100	49	50	M22x1.5	56 to 59	144	25	11	22	3.5	17	27
	ø100	45	41	43	M12	Rc1/2	36	53	51	118	58.5	59	M26x1.5	66 to 69	156	30	13	27	4	18	27
Code	Bore size (mm)	Mounting method												With switch							
		T	V	WF	X	TB	TC	TD	TE	TF	TG	TJ	TK	TM	TN	O	P	HD			
																		T0, T5 T2, T3	T2Y T3Y, T2J	T8	T2W, T3W
MRL2	ø50	11	20.5	37	194.5	26	67	12	30	80	86.5	117	46	70	90	73	43	18	17	12	20
	ø63	11	21	35	196	30	82	14	35	82.5	85.5	113	51	86	104	85	47	19	18	13	21
MRG2	ø80	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	25.5
	ø100	16	32	53	258	40	121	20	40	109	104	144.5	65.5	127	150	121	63	29.5	28.5	23.5	31.5

\*1: Refer to page 615 for dimensions of projecting section of T1 and T2YD switch.

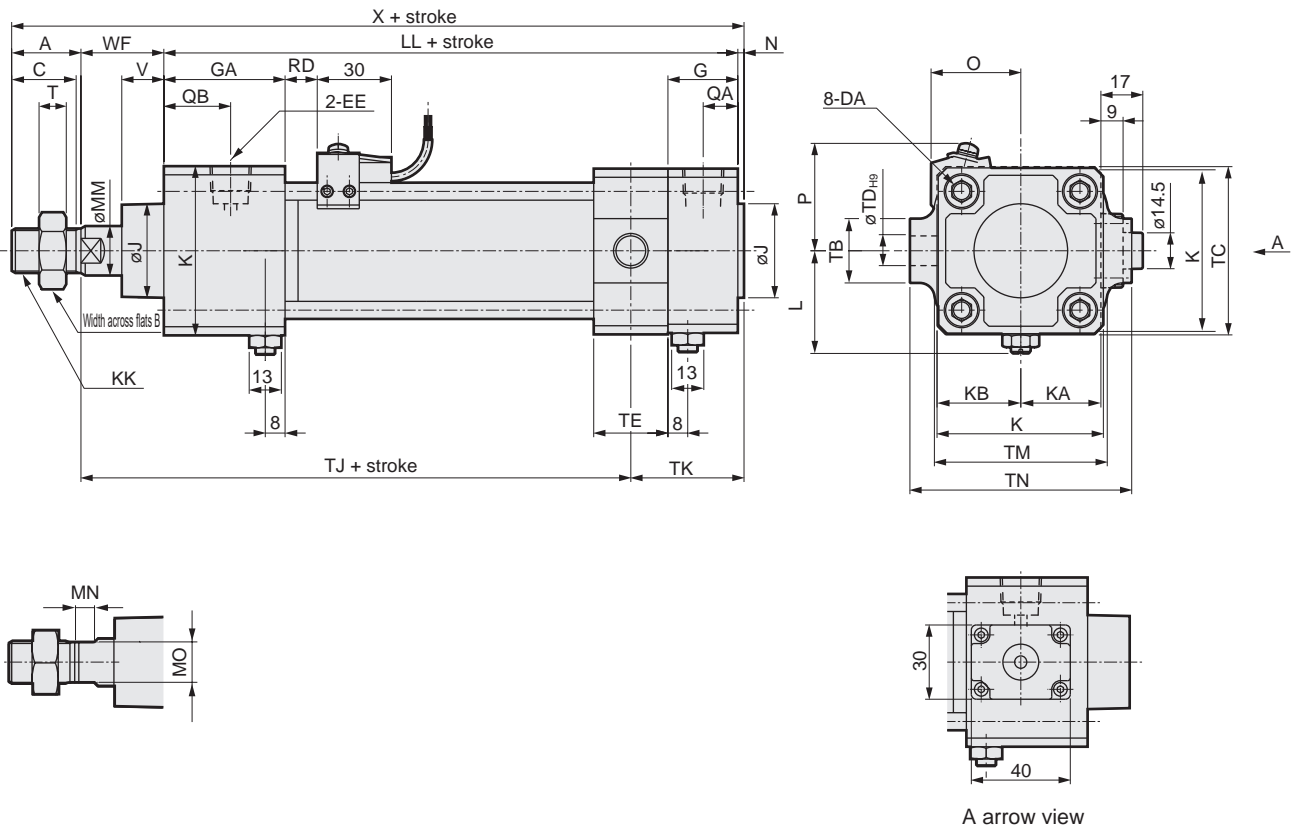
\*2: For the dimensions of the accessories, refer to pages 470 and 471.

\*3: The position of the cushion needle cannot be changed.



### Dimensions

- Head side hole trunnion (TE) with rod side position locking



Code	Head side hole trunnion (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
ø50	28	27	26	M8	Rc3/8	28	49	38	68	32.5	34	M18x1.5	41 to 43.5	127	20	8	17	2.5	14	27
ø63	28	27	26	M8	Rc3/8	30	49	38	80	38	40	M18x1.5	47.5 to 50	130	20	8	17	3	15	28
ø80	36	32	34	M12	Rc1/2	34	53	43	100	49	50	M22x1.5	56 to 59	144	25	11	22	3.5	17	27
ø100	45	41	43	M12	Rc1/2	36	53	51	118	58.5	59	M26x1.5	66 to 69	156	30	13	27	4	18	27

Code	Mounting method										With switch							
Bore size (mm)	T	V	WF	X	TB	TC	TD	TE	TJ	TK	TM	TN	O	P	RD			
															T0, T5 T2, T3	T2Y T3Y, T2J	T8	T2W, T3W
ø50	11	17	33.5	191	26	67	12	30	117	46	70	90	73	43	18	17	12	20
ø63	11	17	31	192	30	82	14	35	113	51	86	104	85	47	19	18	13	21
ø80	13	18.5	43	226.5	35	100	20	40	132.5	58	105	134	105	57	23.5	22.5	17.5	25.5
ø100	16	29	50	255	40	121	20	40	149.5	60.5	127	150	121	63	29.5	28.5	23.5	31.5

\*1: Refer to page 615 for dimensions of projecting section of T1 and T2YD switch.

\*2: The position of the cushion needle cannot be changed.

\* For the dimensions of the accessories, refer to pages 470 and 471.

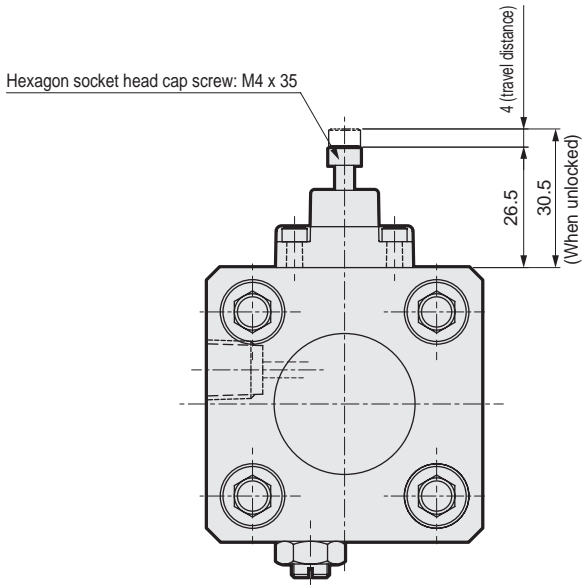
- SCP\*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2**
- SCS2
- CKV2
- CAV2/  
COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/  
MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd  
Contr
- Ending

# SCA2-Q2 Series

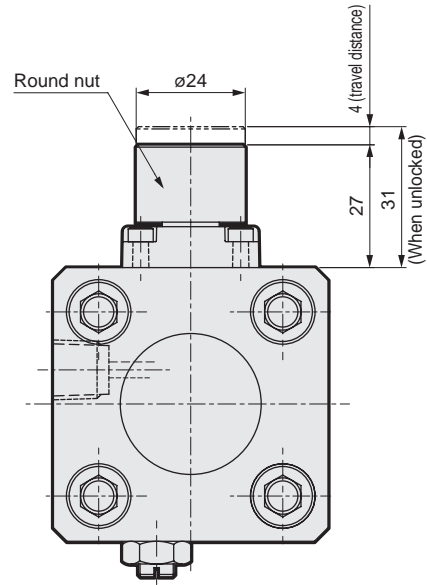
## Dimensions

● Main dimensions of M0 (non-locking manual override) and M1 (locking manual override)

Dimensions of the manual override are the same in all sizes (ø40 to 100).



M0 (Non-locking manual override)



M1 (Locking manual override)

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# MEMO

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SCP\*3

CMK2

CMA2

SCM

SCG

**SCA2**

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

Ending



Medium bore size cylinder  
Double acting/low friction (low friction at low pressure (0.2 MPa or less))

# SCA2-O Series

● Bore size:  $\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80/\varnothing 100$

JIS symbol



## Specifications

Item	SCA2-O (Low friction)					
Bore size	mm	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure	MPa	1.0 ( $\approx 150$ psi, 10 bar)				
Min. working pressure	MPa	0.01 ( $\approx 1.5$ psi, 0.1 bar)				
Proof pressure	MPa	1.6 ( $\approx 230$ psi, 16 bar)				
Ambient temperature	$^{\circ}\text{C}$	5 (41 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ )				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance	mm	$^{+0.9}_0$ ( to 360) $^{+1.4}_0$ ( to 800)				
Working piston speed	mm/s	10 to 200 (Operate within the allowable absorbed energy.)				
Cushion		None				
Lubrication		Not available				
Allowable absorbed energy		0.067	0.079	0.079	0.201	0.301
	J	As it has no cushion, this product cannot absorb large energy generated by an external load. We recommend using an external shock absorber.				

## Stroke

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

\*1: The custom stroke is available in 1 mm increments.

## Min. stroke with switch

● T0/T5 min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
$\varnothing 40$	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)
$\varnothing 50$	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)
$\varnothing 63$	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)
$\varnothing 80$	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)
$\varnothing 100$	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T8 min. stroke with switch

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
$\varnothing 40$	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)
$\varnothing 50$	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)
$\varnothing 63$	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)
$\varnothing 80$	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)
$\varnothing 100$	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

### Switch specifications

● T2/T3 min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	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)
ø50	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)
ø63	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)
ø80	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)
ø100	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T1/T2Y/T3Y/T2YD min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	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)
ø50	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)
ø63	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)
ø80	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)
ø100	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire). T2YD does not have an L-shaped lead wire (V).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T2W/T3W min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	20(5)	20(10)	20(15)	25(25)	20(5)	65(50)	110(80)	155(110)	110(80)	110(80)	170(140)	170(140)	50(35)	50(35)
ø50	20(5)	20(10)	20(15)	20(20)	20(5)	20(10)	65(40)	65(40)	110(80)	110(80)	110(80)	110(80)	50(35)	50(35)
ø63	20(5)	20(10)	20(15)	25(25)	20(5)	20(10)	65(40)	65(40)	115(85)	115(85)	115(85)	115(85)	55(40)	55(40)
ø80	15(5)	15(10)	15(15)	25(25)	15(5)	15(10)	60(40)	60(40)	120(90)	120(90)	120(90)	120(90)	55(40)	55(40)
ø100	10(5)	10(10)	20(20)	25(25)	10(5)	10(10)	60(40)	60(40)	130(100)	130(100)	130(100)	130(100)	60(45)	60(45)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

Ending

# SCA2-O Series

## Switch specifications (T-switch)

● 1-color/2-color LED/for AC magnetic field proof

Item	2-wire proximity		2-wire proximity			3-wire proximity				2-wire reed			2-wire proximity			
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V		T2YD (*4) T2YDT			
Applications	For programming controller, relay, compact solenoid valve		Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay	For programmable controller, relay (no lamp), serial		For programmable controller, relay	Dedicated for programmable controller		
Output method	-					NPN output	PNP output	NPN output	NPN output	-						
Pwr. supp. V.	-					10 to 28 VDC				-						
Load voltage	85 to 265 VAC	10 to 30 VDC	24 VDC ±10%		30 VDC or less				12/24 VDC	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 (*3)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp		LED (Lit when ON)		Red/green LED (Lit when ON)	
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA					1 mA or less		
Weight g	1 m:33	1 m:18	1 m:33	1 m:18	1 m:18	1 m:33	1 m:18	1 m:18	1 m:18 3 m:49 5 m:80			1 m:33		1 m:61		
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49	3 m:87	3 m:49	3 m:49	1 m:18 3 m:49 5 m:80			3 m:87		3 m:166		
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80	5 m:142	5 m:80	5 m:80				5 m:142		5 m:272		

\*1: Refer to Ending Page 1 for detailed switch specifications and dimensions.

\*2: Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

\*3: Max. load current: 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C.  
(5 to 10 mA at 60°C)

\*4: Switch for AC magnetic field (T2YD/T2YDT) cannot be used in DC magnetic field.

- SCP\*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2
- SCS2
- CKV2
- CAV2/  
COVPIN2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/  
MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd  
Contr
- Ending

### Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke (S) = 0 mm						Switch weight	Mounting bracket weight	Additional weight per S = 100 mm
	Basic (00)	Foot (LB)	Flange (FA, FB)	Eye bracket (CA)	Clevis bracket (CB)	Trunnion (TA, TB, TC)		T type	
ø40	0.83	1.00	1.24	1.15	1.19	1.21	Refer to the weight in the switch specifications.	0.024	0.39
ø50	1.20	1.45	1.69	1.58	1.61	1.74		0.022	0.46
ø63	1.60	1.97	2.69	2.17	2.22	2.45		0.020	0.50
ø80	2.60	3.34	4.46	3.87	4.08	3.94		0.026	0.90
ø100	4.20	5.11	6.94	5.84	6.02	6.77		0.024	1.12

(Example) Product weight of SCA2-O-LB-50B-200-TOH-D	Product weight for 0 mm stroke..... 1.45 kg Additional weight for 200 mm stroke..... $0.46 \times \frac{200}{100} = 0.92$ kg Weight of 2 TOH switches..... $0.018 \times 2 = 0.036$ kg Weight of 2 mounting brackets..... $0.022 \times 2 = 0.044$ kg Product weight..... $1.45 + 0.92 + 0.036 + 0.044 = 2.450$ kg
---	--

### Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa											
		0.01	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push	1.26x10	1.26x10 <sup>2</sup>	1.88x10 <sup>2</sup>	2.51x10 <sup>2</sup>	3.77x10 <sup>2</sup>	5.03x10 <sup>2</sup>	6.28x10 <sup>2</sup>	7.54x10 <sup>2</sup>	8.80x10 <sup>2</sup>	1.01x10 <sup>3</sup>	1.13x10 <sup>3</sup>	1.26x10 <sup>3</sup>
	Pull	1.06x10	1.06x10 <sup>2</sup>	1.58x10 <sup>2</sup>	2.11x10 <sup>2</sup>	3.17x10 <sup>2</sup>	4.22x10 <sup>2</sup>	5.28x10 <sup>2</sup>	6.33x10 <sup>2</sup>	7.39x10 <sup>2</sup>	8.44x10 <sup>2</sup>	9.50x10 <sup>2</sup>	1.06x10 <sup>3</sup>
ø50	Push	1.96x10	1.96x10 <sup>2</sup>	2.95x10 <sup>2</sup>	3.93x10 <sup>2</sup>	5.89x10 <sup>2</sup>	7.85x10 <sup>2</sup>	9.82x10 <sup>2</sup>	1.18x10 <sup>3</sup>	1.37x10 <sup>3</sup>	1.57x10 <sup>3</sup>	1.77x10 <sup>3</sup>	1.96x10 <sup>3</sup>
	Pull	1.65x10	1.65x10 <sup>2</sup>	2.47x10 <sup>2</sup>	3.30x10 <sup>2</sup>	4.95x10 <sup>2</sup>	6.60x10 <sup>2</sup>	8.25x10 <sup>2</sup>	9.90x10 <sup>2</sup>	1.15x10 <sup>3</sup>	1.32x10 <sup>3</sup>	1.48x10 <sup>3</sup>	1.65x10 <sup>3</sup>
ø63	Push	3.12x10	3.12x10 <sup>2</sup>	4.68x10 <sup>2</sup>	6.23x10 <sup>2</sup>	9.35x10 <sup>2</sup>	1.25x10 <sup>3</sup>	1.56x10 <sup>3</sup>	1.87x10 <sup>3</sup>	2.18x10 <sup>3</sup>	2.49x10 <sup>3</sup>	2.81x10 <sup>3</sup>	3.12x10 <sup>3</sup>
	Pull	2.80x10	2.80x10 <sup>2</sup>	4.20x10 <sup>2</sup>	5.61x10 <sup>2</sup>	8.41x10 <sup>2</sup>	1.12x10 <sup>3</sup>	1.40x10 <sup>3</sup>	1.68x10 <sup>3</sup>	1.96x10 <sup>3</sup>	2.24x10 <sup>3</sup>	2.52x10 <sup>3</sup>	2.80x10 <sup>3</sup>
ø80	Push	5.03x10	5.03x10 <sup>2</sup>	7.54x10 <sup>2</sup>	1.01x10 <sup>3</sup>	1.51x10 <sup>3</sup>	2.01x10 <sup>3</sup>	2.51x10 <sup>3</sup>	3.02x10 <sup>3</sup>	3.52x10 <sup>3</sup>	4.02x10 <sup>3</sup>	4.52x10 <sup>3</sup>	5.03x10 <sup>3</sup>
	Pull	4.54x10	4.54x10 <sup>2</sup>	6.80x10 <sup>2</sup>	9.07x10 <sup>2</sup>	1.36x10 <sup>3</sup>	1.81x10 <sup>3</sup>	2.27x10 <sup>3</sup>	2.72x10 <sup>3</sup>	3.17x10 <sup>3</sup>	3.63x10 <sup>3</sup>	4.08x10 <sup>3</sup>	4.54x10 <sup>3</sup>
ø100	Push	7.85x10	7.85x10 <sup>2</sup>	1.18x10 <sup>3</sup>	1.57x10 <sup>3</sup>	2.36x10 <sup>3</sup>	3.14x10 <sup>3</sup>	3.93x10 <sup>3</sup>	4.71x10 <sup>3</sup>	5.50x10 <sup>3</sup>	6.28x10 <sup>3</sup>	7.07x10 <sup>3</sup>	7.85x10 <sup>3</sup>
	Pull	7.15x10	7.15x10 <sup>2</sup>	1.07x10 <sup>3</sup>	1.43x10 <sup>3</sup>	2.14x10 <sup>3</sup>	2.86x10 <sup>3</sup>	3.57x10 <sup>3</sup>	4.29x10 <sup>3</sup>	5.00x10 <sup>3</sup>	5.72x10 <sup>3</sup>	6.43x10 <sup>3</sup>	7.15x10 <sup>3</sup>

# SCA2-O Series

SCP\*3  
CMK2  
CMA2  
SCM  
SCG  
SCA2  
SCS2  
CKV2  
CAV2/  
COVPIN2  
SSD2  
SSG  
SSD  
CAT  
MDC2  
MVC  
SMG  
MSD/  
MSDG  
FC\*  
STK  
SRL3  
SRG3  
SRM3  
SRT3  
MRL2  
MRG2  
SM-25  
ShkAbs  
FJ  
FK  
Spd  
Contr  
Ending

## How to order

No switch (built-in magnet for switch)

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

With switch (built-in magnet for switch)

SCA2-O - LB - 40 - N - 100 - T0H - R - M I

A Mounting  
\*1

B Bore size

C Port thread

D Cushion

E Stroke \*2

F Switch model No.  
\*4

G Switch quantity  
\*5

H Option

I Accessory  
\*6

## ⚠ Precautions for model No. selection

\*1 : Mounting bracket will be shipped with the product. (Trunnion are assembled at shipment.)

\*2 : If the stroke exceeds the max. stroke, refer to Ending Page 69.

\*3 : Refer to pages 526 and 527 for the min. stroke with switch.

\*4 : Switches are shipped with the product.

\*5 : When selecting TA, TD, TB or TE mounting, the switch quantity is limited to "H" (1 on head side) for TA and TD, and "R" (1 on rod side) for TB and TE.

\*6 : "I" and "Y" cannot be selected together.

\*7 : Refer to Ending Page 85 for custom specifications of rod end form.

\*8 : Refer to page 448 for combinations of variations/options.

[Example of model No.]

**SCA2-O-LB-40N-100-T0H-R-MI**

Model: Medium bore size cylinder, double acting/low friction

- A Mounting : Axial foot
- B Bore size : ø40 mm
- C Port thread : Rc thread
- D Cushion : Without cushion
- E Stroke : 100 mm
- F Switch model No. : Reed T0H switch, lead wire length 1 m
- G Switch quantity : 1 on rod side
- H Option : Piston rod material change (stainless steel)
- I Accessory : Rod eye

Code	Description	
<b>A Mounting</b>		
00	Basic	
LB	Axial foot	
FA	Rod side flange	
FB	Head side flange	
FC	Head side special flange	
CA	Eye bracket	
CB	Clevis bracket (pin and snap ring included)	
TC	Intermediate trunnion	
TA	Rod side trunnion	
TB	Head side trunnion	
TF	Intermediate supporting hole trunnion (ø40 is not available)	
TD	Rod side hole trunnion (ø40 is not available)	
TE	Head side hole trunnion (ø40 is not available)	
<b>B Bore size (mm)</b>		
40	ø40	
50	ø50	
63	ø63	
80	ø80	
100	ø100	
<b>C Port thread</b>		
Blank	Rc thread	
N	NPT thread (made-to-order product)	
G	G thread (made-to-order product)	
<b>D Cushion</b>		
N	Without cushion	
<b>E Stroke (mm)</b>		
Bore size	Stroke *3	Custom stroke
ø40	1 to 600	In 1 mm increments
ø50	1 to 600	
ø63	1 to 600	
ø80	1 to 700	
ø100	1 to 800	
<b>F Switch model No.</b>		
Refer to the switch model numbers on the next page.		
<b>* Lead wire length</b>		
Blank	1 m (standard)	
3	3 m (option)	
5	5 m (option)	
<b>G Switch quantity</b>		
R	1 on rod side	
H	1 on head side	
D	2	
T	3	
<b>H Option</b>		
M	Piston rod material (stainless steel)	
P6	Copper and PTFE free (made-to-order product)	
<b>I Accessory</b>		
I	Rod eye	
Y	Rod clevis (pin and snap ring included)	
B1	Eye bracket	
B2	Clevis bracket (pin and snap ring included)	
B3	Eye bracket	
B4	Trunnion No. 2 bracket (2 pcs./set)	



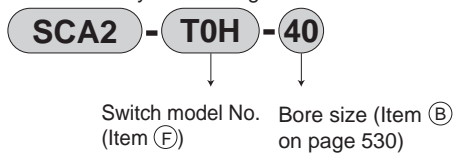
### [F] Switch model No.

T-switch model No.						
Lead wire Straight	Lead wire L-shaped	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No indicator lamp	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*	Proximity	●		1-color LED	2-wire
T2H*	T2V*			●		
T3H*	T3V*			●		
T2WH*	T2WV*			●	2-color LED	2-wire
T2YH*	T2YV*			●		
T3WH*	T3WV*			●		
T3YH*	T3YV*			●	1-color LED	3-wire
T3PH*	T3PV*			●		
T2YD*	-			●		
T2YDT*	-		●	AC magnetic field		
T2JH*	T2JV*		●	1-color LED off-delay	2-wire	

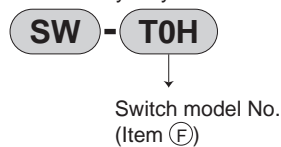
### How to order switch

[T-switch]

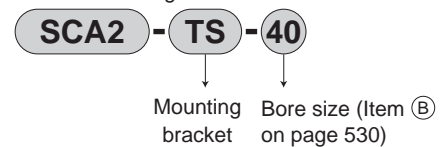
- Switch body + mounting bracket set



- Switch body only



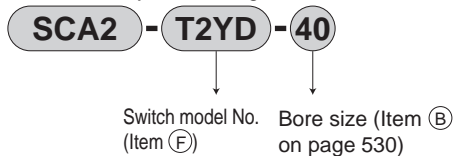
- Switch mounting bracket set



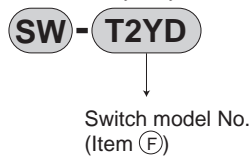
\* Contact CKD when using an environment-friendly T-switch.

[T2YD switch]

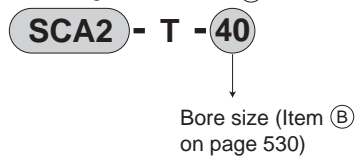
- Switch body + mounting bracket set



- Switch body only



- Mounting bracket set (B)



### How to order mounting bracket

Bore size (mm)	ø40	ø50	ø63	ø80	ø100
Mounting bracket					
Foot (LB) *2	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 bracket (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis bracket (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

\*1: For material of the mounting bracket, refer to page 456.

\*2: The foot mounting bracket is provided as 2 pcs./set.

\*3: All mounting brackets are supplied with mounting bolts.

SCP\*3

CMK2

CMA2

SCM

SCG

**SCA2**

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

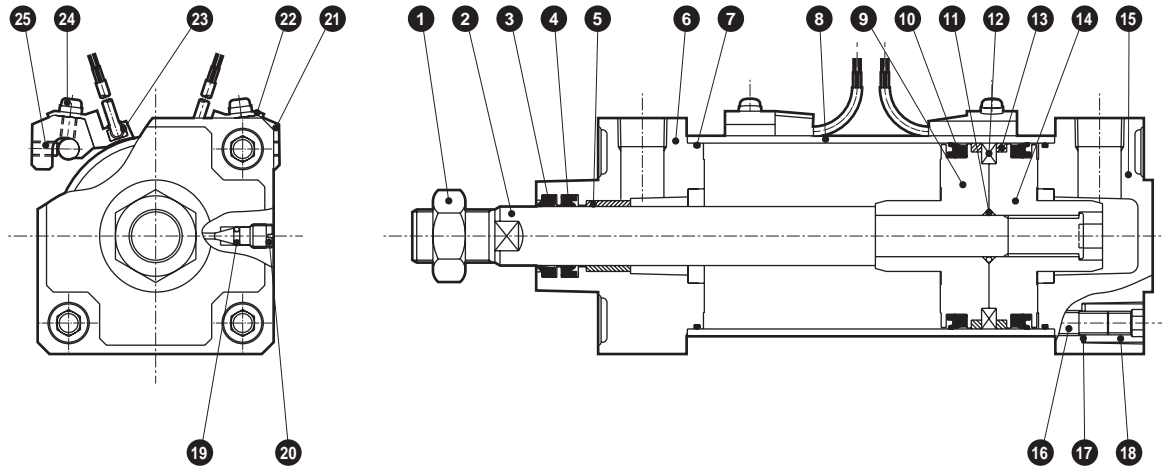
FK

Spd  
Contr

Ending

# SCA2-O Series

## Internal structure and parts list



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

## Repair parts list

Bore size (mm)	Kit No.	Repair parts No.
ø 40	SCA2-O-40K	<div style="display: flex; flex-wrap: wrap; justify-content: space-around;"> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; margin: 2px;">3</div> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; margin: 2px;">4</div> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; margin: 2px;">7</div> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; margin: 2px;">10</div> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; margin: 2px;">13</div> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; margin: 2px;">19</div> </div>
ø 50	SCA2-O-50K	
ø 63	SCA2-O-63K	
ø 80	SCA2-O-80K	
ø100	SCA2-O-100K	

\*1 : Specify the kit No. when placing an order.

## Dimensions

Same as double acting/standard single rod. Refer to pages 457 to 469.

---

# MEMO

---

SCP\*3

CMK2

CMA2

SCM

SCG

**SCA2**

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

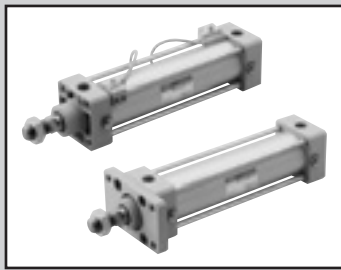
ShkAbs

FJ

FK

Spd  
Contr

Ending



Medium bore size cylinder  
Double acting/low friction (constant friction when pressurized)

# SCA2-U Series

● Bore size:  $\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80/\varnothing 100$

JIS symbol



## Specifications

Item	SCA2-U				
	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$
Bore size	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$
Actuation	Double acting				
Working fluid	Compressed air				
Max. working pressure MPa	0.7 ( $\approx 100$ psi, 7 bar)				
Min. working pressure MPa	0.03 ( $\approx 4.4$ psi, 0.3 bar)				
Proof pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)				
Ambient temperature $^{\circ}\text{C}$	5 (41 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ )				
Port size	Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance mm	$^{+0.9}_0$ ( to 360), $^{+1.4}_0$ ( to 800)				
Working piston speed mm	10 to 1000				
Cushion	None				
Lubrication	Not available				
Internal leakage $\text{m}^3/\text{min}$	0.005		0.008		
Allowable absorbed energy J	0.067	0.079	0.079	0.201	0.301
	As it has no cushion, this product cannot absorb high energy generated by an external load. We recommend using an external shock absorber.				

## Stroke

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

\*1: The custom stroke is available in 1 mm increments.

## Min. stroke with switch

● T0/T5 min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting	Head side trunnion mounting
	1	2	3	4	1	2	3	4	1	2	3	4	No position detection at rod side stroke end.	No position detection at head side stroke end.
$\varnothing 40$	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)
$\varnothing 50$	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)
$\varnothing 63$	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)
$\varnothing 80$	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)
$\varnothing 100$	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T8 min. stroke with switch

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting	Head side trunnion mounting
	1	2	3	4	1	2	3	4	1	2	3	4	No position detection at rod side stroke end.	No position detection at head side stroke end.
$\varnothing 40$	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)
$\varnothing 50$	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)
$\varnothing 63$	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)
$\varnothing 80$	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)
$\varnothing 100$	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

### Min. stroke with switch

● T2/T3 min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
∅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)
∅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)
∅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)
∅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)
∅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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T1/T2Y/T3Y/T2YD min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
∅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)
∅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)
∅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)
∅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)
∅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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire). T2YD does not have an L-shaped lead wire (V).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T2W/T3W min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
∅40	20(5)	20(10)	20(15)	25(25)	20(5)	65(50)	110(80)	155(110)	110(80)	110(80)	170(140)	170(140)	50(35)	50(35)
∅50	20(5)	20(10)	20(15)	20(20)	20(5)	20(10)	65(40)	65(40)	110(80)	110(80)	110(80)	110(80)	50(35)	50(35)
∅63	20(5)	20(10)	20(15)	25(25)	20(5)	20(10)	65(40)	65(40)	115(85)	115(85)	115(85)	115(85)	55(40)	55(40)
∅80	15(5)	15(10)	15(15)	25(25)	15(5)	15(10)	60(40)	60(40)	120(90)	120(90)	120(90)	120(90)	55(40)	55(40)
∅100	10(5)	10(10)	20(20)	25(25)	10(5)	10(10)	60(40)	60(40)	130(100)	130(100)	130(100)	130(100)	60(45)	60(45)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

# SCA2-U Series

## SCP\*3 Switch specifications (T-switch)

● 1-color/2-color LED/for AC magnetic field proof

Item	2-wire proximity		2-wire proximity				3-wire proximity				2-wire reed						2-wire proximity
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V		T8H/T8V		T2YD (*4) T2YDT			
Applications	For programming controller, relay, compact solenoid valve	Dedicated for programmable controller				For programmable controller, relay				For programmable controller, relay	For programmable controller, relay (no lamp), serial		For programmable controller, relay		Dedicated for programmable controller		
Output method	-				NPN output	PNP output	NPN output	NPN output	-								
Pwr. supp. V.	-				10 to 28 VDC				-								
Load voltage	85 to 265 VAC	10 to 30 VDC		24 VDC ±10%	30 VDC or less				12/24 VDC	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 (*3)				100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp		LED (Lit when ON)		Red/green LED (Lit when ON)		
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less				10 µA or less				0 mA						1 mA or less	
Weight g	1 m:33	1 m:18	1 m:33	1 m:18	1 m:18		1 m:33		1 m:18		1 m:18 3 m:49 5 m:80			1 m:33		1 m:61	
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49		3 m:87		3 m:49		3 m:87			3 m:87		3 m:166	
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80		5 m:142		5 m:80		5 m:142			5 m:142		5 m:272	

\*1: Refer to Ending Page 1 for detailed switch specifications and dimensions.

\*2: Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

\*3: Max. load current: 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C.  
(5 to 10 mA at 60°C)

\*4: Switch for AC magnetic field (T2YD/T2YDT) cannot be used in DC magnetic field.

### Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke (S) = 0 mm							Switch weight	Mounting bracket weight	Additional weight per S = 100 mm
	Basic (OO)	Foot (LB)	Flange (FA, FB)	Special flange (FC)	Eye bracket (CA)	Clevis bracket (CB)	Trunnion (TA, TB, TC)		T type	
ø40	0.83	1.00	1.24	0.92	1.15	1.19	1.21	Refer to the weight in the switch specifications.	0.024	0.39
ø50	1.20	1.45	1.69	1.31	1.58	1.61	1.74		0.022	0.46
ø63	1.60	1.97	2.69	1.78	2.17	2.22	2.45		0.020	0.50
ø80	2.60	3.34	4.46	2.96	3.87	4.08	3.94		0.026	0.90
ø100	4.20	5.11	6.94	4.75	5.84	6.02	6.77		0.024	1.12

(Example) Product weight of SCA2-U-LB-50B-200-T0H-D	Product weight for 0 mm stroke.....	1.45 kg
	Additional weight for 200 mm stroke.t.....	$0.46 \times \frac{200}{100} = 0.92$ kg
	Weight of 2 TOH switchest.....	$0.018 \times 2 = 0.036$ kg
	Weight of 2 mounting bracketst.....	$0.022 \times 2 = 0.044$ kg
	● Product weight.....	$1.45 + 0.92 + 0.036 + 0.044 = 2.450$ kg

### Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa								
		0.03	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7
ø40	Push	37.8	$1.26 \times 10^2$	$1.88 \times 10^2$	$2.51 \times 10^2$	$3.77 \times 10^2$	$5.03 \times 10^2$	$6.28 \times 10^2$	$7.54 \times 10^2$	$8.80 \times 10^2$
	Pull	31.8	$1.06 \times 10^2$	$1.58 \times 10^2$	$2.11 \times 10^2$	$3.17 \times 10^2$	$4.22 \times 10^2$	$5.28 \times 10^2$	$6.33 \times 10^2$	$7.39 \times 10^2$
ø50	Push	58.8	$1.96 \times 10^2$	$2.95 \times 10^2$	$3.93 \times 10^2$	$5.89 \times 10^2$	$7.85 \times 10^2$	$9.82 \times 10^2$	$1.18 \times 10^3$	$1.37 \times 10^3$
	Pull	49.5	$1.65 \times 10^2$	$2.47 \times 10^2$	$3.30 \times 10^2$	$4.95 \times 10^2$	$6.60 \times 10^2$	$8.25 \times 10^2$	$9.90 \times 10^2$	$1.15 \times 10^3$
ø63	Push	93.6	$3.12 \times 10^2$	$4.68 \times 10^2$	$6.23 \times 10^2$	$9.35 \times 10^2$	$1.25 \times 10^3$	$1.56 \times 10^3$	$1.87 \times 10^3$	$2.18 \times 10^3$
	Pull	84.0	$2.80 \times 10^2$	$4.20 \times 10^2$	$5.61 \times 10^2$	$8.41 \times 10^2$	$1.12 \times 10^3$	$1.40 \times 10^3$	$1.68 \times 10^3$	$1.96 \times 10^3$
ø80	Push	$1.51 \times 10^2$	$5.03 \times 10^2$	$7.54 \times 10^2$	$1.01 \times 10^3$	$1.51 \times 10^3$	$2.01 \times 10^3$	$2.51 \times 10^3$	$3.02 \times 10^3$	$3.52 \times 10^3$
	Pull	$1.36 \times 10^2$	$4.54 \times 10^2$	$6.80 \times 10^2$	$9.07 \times 10^2$	$1.36 \times 10^3$	$1.81 \times 10^3$	$2.27 \times 10^3$	$2.72 \times 10^3$	$3.17 \times 10^3$
ø100	Push	$2.36 \times 10^2$	$7.85 \times 10^2$	$1.18 \times 10^3$	$1.57 \times 10^3$	$2.36 \times 10^3$	$3.14 \times 10^3$	$3.93 \times 10^3$	$4.71 \times 10^3$	$5.50 \times 10^3$
	Pull	$2.15 \times 10^2$	$7.15 \times 10^2$	$1.07 \times 10^3$	$1.43 \times 10^3$	$2.14 \times 10^3$	$2.86 \times 10^3$	$3.57 \times 10^3$	$4.29 \times 10^3$	$5.00 \times 10^3$

### Dimensions

Same as SCA2 Series (double acting/single rod). Refer to pages 457 to 469.

### Technical data

Refer to page 306 for technical data regarding sliding resistance values. SCA2-U Series shows a similar trend to the data of "SCM-U Series" on page 306.

# SCA2-U Series

SCP\*3  
CMK2  
CMA2  
SCM  
SCG  
SCA2  
SCS2  
CKV2  
CAV2/  
COVPIN2  
SSD2  
SSG  
SSD  
CAT  
MDC2  
MVC  
SMG  
MSD/  
MSDG  
FC\*  
STK  
SRL3  
SRG3  
SRM3  
SRT3  
MRL2  
MRG2  
SM-25  
ShkAbs  
FJ  
FK  
Spd  
Contr  
Ending

## How to order

No switch (built-in magnet for switch)

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

With switch (built-in magnet for switch)

SCA2-U - LB - 40 - N - 100 - T0H - R - M I

A Mounting  
\*1

Without cushion

B Bore size

C Port thread

D Stroke

E Switch model No.  
\*3

F Switch quantity  
\*4

G Option

H Accessory  
\*5

### ⚠ Precautions for model No. selection

- \*1 : Mounting bracket will be shipped with the product. (Trunnion are assembled at shipment.)
- \*2 : Refer to pages 534 and 535 for the min. stroke with switch.
- \*3 : Switches are shipped with the product.
- \*4 : When selecting TA, TD, TB or TE mounting, the switch quantity is limited to "H" (1 on head side) for TA and TD, and "R" (1 on rod side) for TB and TE.
- \*5 : "I" and "Y" cannot be selected together.
- \*6 : Refer to Ending Page 85 for custom specifications of rod end form.
- \*7 : Refer to page 448 for combinations of variations/options.

[Example of model No.]

**SCA2-U-LB-40N-100-T0H-R-MI**

Model: Medium bore size cylinder, double acting/low friction

- A Mounting : Axial foot
- B Bore size : ø40 mm
- C Port thread : Rc thread
- D Stroke : 100 mm
- E Switch model No. : Reed T0H switch, lead wire length 1 m
- F Switch quantity : 1 on rod side
- G Option : Piston rod material change (stainless steel)
- H Accessory : Rod eye

Code	Description
<b>A Mounting</b>	
00	Basic
LB	Axial foot
FA	Rod side flange
FB	Head side flange
FC	Head side special flange
CA	Eye bracket
CB	Clevis bracket (pin and snap ring included)
TC	Intermediate trunnion
TA	Rod side trunnion
TB	Head side trunnion
TF	Intermediate supporting hole trunnion (ø40 is not available)
TD	Rod side hole trunnion (ø40 is not available)
TE	Head side hole trunnion (ø40 is not available)

<b>B Bore size (mm)</b>	
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

<b>C Port thread</b>	
Blank	Rc thread
N	NPT thread (made-to-order product)
G	G thread (made-to-order product)

<b>D Stroke (mm)</b>		
Bore size	Stroke *2	Custom stroke
ø40	1 to 600	In 1 mm increments
ø50	1 to 600	
ø63	1 to 600	
ø80	1 to 700	
ø100	1 to 800	

<b>E Switch model No.</b>	
Refer to the switch model numbers on the next page.	
<b>* Lead wire length</b>	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

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

<b>G Option</b>	
M	Piston rod material (stainless steel)

<b>H Accessory</b>	
I	Rod eye
Y	Rod clevis (pin and snap ring included)
B1	Eye bracket
B2	Clevis bracket (pin and snap ring included)
B3	Eye bracket
B4	Trunnion No. 2 bracket (2 pcs./set)



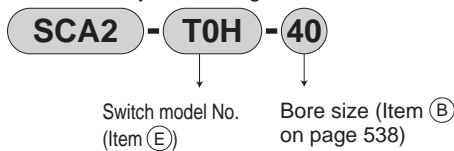
### [E] Switch model number

T-switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No indicator lamp	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*	Proximity	●		1-color LED	2-wire
T2H*	T2V*			●		
T3H*	T3V*			●	2-color LED	3-wire
T2WH*	T2WV*			●		
T2YH*	T2YV*			●	2-color LED	2-wire
T3WH*	T3WV*			●		
T3YH*	T3YV*			●	1-color LED	3-wire
T3PH*	T3PV*			●		
T2YD*	-			●	2-color LED	2-wire
T2YDT*	-			●	AC magnetic field	
T2JH*	T2JV*		●	1-color LED off-delay	2-wire	

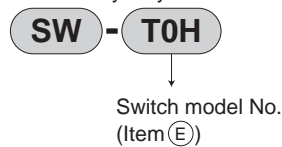
### How to order switch

#### [T-switch]

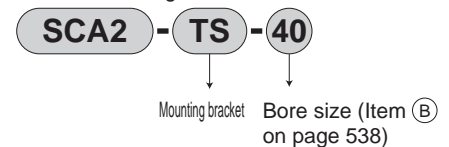
- Switch body + mounting bracket set



- Switch body only



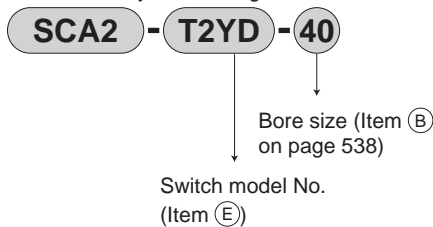
- Switch mounting bracket set



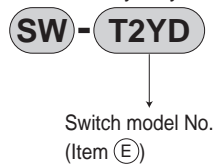
\* Contact CKD when using an environment-friendly T-switch.

#### [T2YD switch]

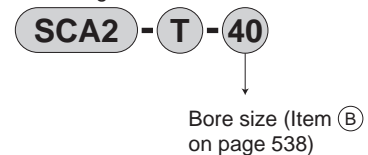
- Switch body + mounting bracket set



- Switch body only



- Mounting bracket set



### How to order mounting bracket

Bore size (mm)	ø40	ø50	ø63	ø80	ø100
Mounting bracket					
Foot (LB) *2	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 bracket (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis bracket (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

\*1: For material of the mounting bracket, refer to page 456.

\*2: The foot mounting bracket is provided as 2 pcs./set.

\*3: All mounting brackets are supplied with mounting bolts.

SCP\*3

CMK2

CMA2

SCM

SCG

**SCA2**

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

Ending



Medium bore size cylinder  
Double acting/double rod

# SCA2-D Series

● Bore size:  $\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80/\varnothing 100$

JIS symbol



## Specifications

Item		SCA2-D (Double rod)				
Bore size	mm	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure	MPa	1.0 ( $\approx 150$ psi, 10 bar)				
Min. working pressure	MPa	0.1 ( $\approx 15$ psi, 1 bar)				
Proof pressure	MPa	1.6 ( $\approx 230$ psi, 16 bar)				
Ambient temperature	$^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ ) (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance	mm	$^{+0.9}_{0}$ (to 360), $^{+1.4}_{0}$ (to 800)				
Working piston speed	mm/s	50 to 1000 (Operate within the allowable absorbed energy.)				
Cushion		Air cushion				
Effective air cushion length	mm	14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)				
Allowable absorbed energy	Cushioned	4.29	8.37	15.8	27.9	49.8
	Without cushion	0.067	0.079	0.079	0.201	0.301
Without any cushion, this product cannot absorb large energy generated by an external load. We recommend using an external shock absorber.						

## Stroke

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

\*1 : The custom stroke is available in 1 mm increments.

\*2 : If max. stroke is exceeded, product specifications may not be satisfied depending on the conditions. Refer to Ending Page 69.

## Min. stroke with switch

● T0/T5 min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting	Head side trunnion mounting
	1	2	3	4	1	2	3	4	1	2	3	4	No position detection at rod side stroke end.	No position detection at head side stroke end.
$\varnothing 40$	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)
$\varnothing 50$	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)
$\varnothing 63$	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)
$\varnothing 80$	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)
$\varnothing 100$	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)

\*1 : The values in ( ) are of T\*V (L-shaped lead wire).

\*2 : When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T8 min. stroke with switch

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting	Head side trunnion mounting
	1	2	3	4	1	2	3	4	1	2	3	4	No position detection at rod side stroke end.	No position detection at head side stroke end.
$\varnothing 40$	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)
$\varnothing 50$	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)
$\varnothing 63$	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)
$\varnothing 80$	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)
$\varnothing 100$	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)

\*1 : The values in ( ) are of T\*V (L-shaped lead wire).

\*2 : When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

### Min. stroke with switch

● T2/T3 min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	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)
ø50	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)
ø63	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)
ø80	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)
ø100	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)

\*1 : The values in ( ) are of T\*V (L-shaped lead wire).

\*2 : When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T1/T2Y/T3Y/T2YD min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	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)
ø50	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)
ø63	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)
ø80	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)
ø100	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)

\*1 : The values in ( ) are of T\*V (L-shaped lead wire). T2YD does not have an L-shaped lead wire (V).

\*2 : When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T2W/T3W min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	20(5)	20(10)	20(15)	25(25)	20(5)	65(50)	110(80)	155(110)	110(80)	110(80)	170(140)	170(140)	50(35)	50(35)
ø50	20(5)	20(10)	20(15)	20(20)	20(5)	20(10)	65(40)	65(40)	110(80)	110(80)	110(80)	110(80)	50(35)	50(35)
ø63	20(5)	20(10)	20(15)	25(25)	20(5)	20(10)	65(40)	65(40)	115(85)	115(85)	115(85)	115(85)	55(40)	55(40)
ø80	15(5)	15(10)	15(15)	25(25)	15(5)	15(10)	60(40)	60(40)	120(90)	120(90)	120(90)	120(90)	55(40)	55(40)
ø100	10(5)	10(10)	20(20)	25(25)	10(5)	10(10)	60(40)	60(40)	130(100)	130(100)	130(100)	130(100)	60(45)	60(45)

\*1 : The values in ( ) are of T\*V (L-shaped lead wire).

\*2 : When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

# SCA2-D Series

## Switch specifications (T-switch)

● 1-color/2-color LED/for AC magnetic field proof

Item	2-wire proximity		2-wire proximity			3-wire proximity				2-wire reed			2-wire proximity			
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V		T2YD (*4) T2YDT			
Applications	For programming controller, relay, compact solenoid valve		Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay	For programmable controller, relay (no lamp), serial		For programmable controller, relay	Dedicated for programmable controller		
Output method	-					NPN output	PNP output	NPN output	NPN output	-						
Pwr. supp. V.	-					10 to 28 VDC				-						
Load voltage	85 to 265 VAC	10 to 30 VDC	24 VDC ±10%		30 VDC or less				12/24 VDC	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 (*3)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp		LED (Lit when ON)		Red/green LED (Lit when ON)	
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA					1 mA or less		
Weight g	1 m:33	1 m:18	1 m:33	1 m:18	1 m:18	1 m:33	1 m:18	1 m:18	1 m:18 3 m:49 5 m:80			1 m:33		1 m:61		
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49	3 m:87	3 m:49	3 m:49	1 m:18 3 m:49 5 m:80			3 m:87		3 m:166		
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80	5 m:142	5 m:80	5 m:80			5 m:142		5 m:272			

\*1: Refer to Ending Page 1 for detailed switch specifications and dimensions.

\*2: Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

\*3: Max. load current: 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

\*4: Switch for AC magnetic field (T2YD/T2YDT) cannot be used in DC magnetic field.

SCP\*3  
CMK2  
CMA2  
SCM  
SCG  
SCA2  
SCS2  
CKV2  
CAV2/  
COVPIN2  
SSD2  
SSG  
SSD  
CAT  
MDC2  
MVC  
SMG  
MSD/  
MSDG  
FC\*  
STK  
SRL3  
SRG3  
SRM3  
SRT3  
MRL2  
MRG2  
SM-25  
ShkAbs  
FJ  
FK  
Spd  
Contr  
Ending

### Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke (S) = 0 mm						Switch weight	Mounting bracket weight	Additional weight per S = 100 mm
	Basic (00)	Foot (LB)	Flange (FA, FB)	Eye bracket (CA)	Clevis bracket (CB)	Trunnion (TA, TB, TC)		T type	
ø40	1.15	1.32	1.56	1.47	1.51	1.53	Refer to the weight in the switch specifications.	0.024	0.55
ø50	1.63	1.88	2.12	2.01	2.04	2.17		0.022	0.71
ø63	2.06	2.43	3.15	2.63	2.68	2.91		0.020	0.75
ø80	3.66	4.40	5.52	4.93	5.14	5.00		0.026	1.29
ø100	5.70	6.61	8.44	7.34	7.52	8.27		0.024	1.67

(Example) Product weight of SCA2-D-LB-50B-200-TOH-D	Product weight for 0 mm stroke.....	1.88 kg
	Additional weight for 200 mm stroke.....	0.71 x $\frac{200}{100}$ = 1.42 kg
	Weight of 2 TOH switches.....	0.018 x 2 = 0.036 kg
	Weight of 2 mounting brackets.....	0.022 x 2 = 0.044 kg
	Product weight.....	1.88 + 1.42 + 0.036 + 0.044 = 3.380 kg

### Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push/Pull	1.06x10 <sup>2</sup>	1.58x10 <sup>2</sup>	2.11x10 <sup>2</sup>	3.17x10 <sup>2</sup>	4.22x10 <sup>2</sup>	5.28x10 <sup>2</sup>	6.33x10 <sup>2</sup>	7.39x10 <sup>2</sup>	8.44x10 <sup>2</sup>	9.50x10 <sup>2</sup>	1.06x10 <sup>3</sup>
ø50	Push/Pull	1.65x10 <sup>2</sup>	2.47x10 <sup>2</sup>	3.30x10 <sup>2</sup>	4.95x10 <sup>2</sup>	6.60x10 <sup>2</sup>	8.25x10 <sup>2</sup>	9.90x10 <sup>2</sup>	1.15x10 <sup>3</sup>	1.32x10 <sup>3</sup>	1.48x10 <sup>3</sup>	1.65x10 <sup>3</sup>
ø63	Push/Pull	2.80x10 <sup>2</sup>	4.20x10 <sup>2</sup>	5.61x10 <sup>2</sup>	8.41x10 <sup>2</sup>	1.12x10 <sup>3</sup>	1.40x10 <sup>3</sup>	1.68x10 <sup>3</sup>	1.96x10 <sup>3</sup>	2.24x10 <sup>3</sup>	2.52x10 <sup>3</sup>	2.80x10 <sup>3</sup>
ø80	Push/Pull	4.54x10 <sup>2</sup>	6.80x10 <sup>2</sup>	9.07x10 <sup>2</sup>	1.36x10 <sup>3</sup>	1.81x10 <sup>3</sup>	2.27x10 <sup>3</sup>	2.72x10 <sup>3</sup>	3.17x10 <sup>3</sup>	3.63x10 <sup>3</sup>	4.08x10 <sup>3</sup>	4.54x10 <sup>3</sup>
ø100	Push/Pull	7.15x10 <sup>2</sup>	1.07x10 <sup>3</sup>	1.43x10 <sup>3</sup>	2.14x10 <sup>3</sup>	2.86x10 <sup>3</sup>	3.57x10 <sup>3</sup>	4.29x10 <sup>3</sup>	5.00x10 <sup>3</sup>	5.72x10 <sup>3</sup>	6.43x10 <sup>3</sup>	7.15x10 <sup>3</sup>

- SCP\*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2
- SCS2
- CKV2
- CAV2/COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd Contr
- Ending

# SCA2-D Series

## How to order

No switch (built-in magnet for switch)

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

With switch (built-in magnet for switch)

SCA2-D - LB - 40 - B - 100 - T0H - R - S - I

A Mounting  
\*1

B Bore size

C Port thread

D Cushion

E Stroke \*2

F Switch model No.  
\*4

G Switch quantity  
\*5

H Option  
\*6  
\*7

I Accessory  
\*10

### ⚠ Precautions for model No. selection

\*1 : Mounting bracket will be shipped with the product. (Trunnion are assembled at shipment.)

\*2 : If the stroke exceeds the max. stroke, refer to Ending Page 69.

\*3 : Refer to pages 540 and 541 for the min. stroke with switch.

\*4 : Switches are shipped with the product.

\*5 : When selecting TA, TD, TB or TE mounting, the switch quantity is limited to "H" (1 on head side) for TA and TD, and "R" (1 on rod side) for TB and TE.

\*6 : The instantaneous max. temperature is the temperature when sparks, cutting chips, etc., instantaneously contact the bellows.

\*7 : When selecting TA, TD, TB or TE mounting format, the cushion needle position is blank and fixed at S, with no options available.

\*8 : Refer to Ending Page 85 for custom specifications of rod end form.

\*9 : Refer to page 448 for combinations of variations/options.

\*10 : Two sets are included for accessories I and Y.

### [Example of model No.]

**SCA2-D-LB-40B-100-T0H-R-SI**

Model: Medium bore size cylinder, double acting/double rod

- A Mounting : Axial foot
- B Bore size : ø40 mm
- C Port thread : Rc thread
- D Cushion : Both sides cushioned
- E Stroke : 100 mm
- F Switch model No. : Reed T0H switch, lead wire length 1 m
- G Switch quantity : 1 on rod side
- H Option : Cushion needle position S
- I Accessory : Rod eye

Code	Description		
<b>A Mounting</b>			
00	Basic		
LB	Axial foot		
FA	Rod side flange		
FB	Head side flange		
TC	Intermediate trunnion		
TA	Rod side trunnion		
TB	Head side trunnion		
TF	Intermediate supporting hole trunnion (ø40 is not available)		
TD	Rod side hole trunnion (ø40 is not available)		
TE	Head side hole trunnion (ø40 is not available)		
<b>B Bore size (mm)</b>			
40	ø40		
50	ø50		
63	ø63		
80	ø80		
100	ø100		
<b>C Port thread</b>			
Blank	Rc thread		
N	NPT thread (made-to-order product)		
G	G thread (made-to-order product)		
<b>D Cushion</b>			
B	Both sides cushioned		
R	Rod side cushioned		
H	Head side cushioned		
N	Without cushion		
<b>E Stroke (mm)</b>			
Bore size	Stroke *3	Available stroke	Custom stroke
ø40	1 to 600	800	In 1 mm increments
ø50	1 to 600	800	
ø63	1 to 600	800	
ø80	1 to 700	800	
ø100	1 to 800	800	
<b>F Switch model No.</b>			
Refer to the switch model numbers on the next page.			
<b>* Lead wire length</b>			
Blank	1 m (standard)		
3	3 m (option)		
5	5 m (option)		
<b>G Switch quantity</b>			
R	1 on rod side		
H	1 on head side		
D	2		
T	3		
<b>H Option</b>			
		Max. ambient temp.	Instantaneous max. temp.
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 (made-to-order product)		
<b>I Accessory</b>			
I	Rod eye		
Y	Rod clevis (pin and snap ring included)		
B4	Trunnion No. 2 bracket (2 pcs./set)		

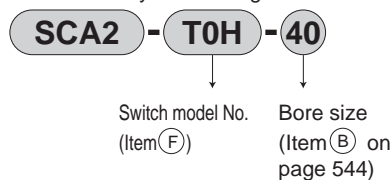
### [F] Switch model No.

T-switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No indicator lamp	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*	Proximity	●		1-color LED	2-wire
T2H*	T2V*			●		
T3H*	T3V*			●	2-color LED	3-wire
T2WH*	T2WV*			●		
T2YH*	T2YV*			●	2-color LED	2-wire
T3WH*	T3WV*			●		
T3YH*	T3YV*			●	2-color LED	3-wire
T3PH*	T3PV*			●		
T2YD*	-			●	2-color LED	2-wire
T2YDT*	-			●	AC magnetic field	
T2JH*	T2JV*		●	1-color LED off-delay	2-wire	

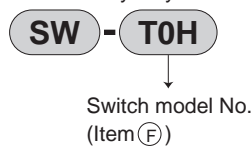
### How to order switch

#### [T-switch]

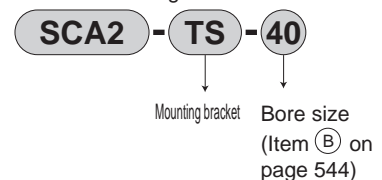
- Switch body + mounting bracket set



- Switch body only



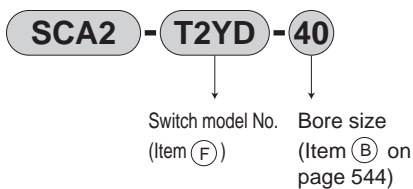
- Switch mounting bracket set



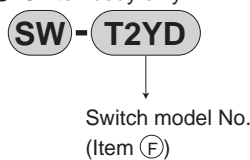
\* Contact CKD when using an environment-friendly T-switch.

#### [T2YD switch]

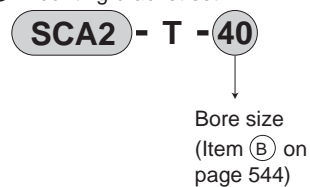
- Switch body + mounting bracket set



- Switch body only



- Mounting bracket set



### How to order mounting bracket

Bore size (mm)	ø40	ø50	ø63	ø80	ø100
Mounting bracket					
Foot (LB) *2	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

\*1: For material of the mounting bracket, refer to page 456.

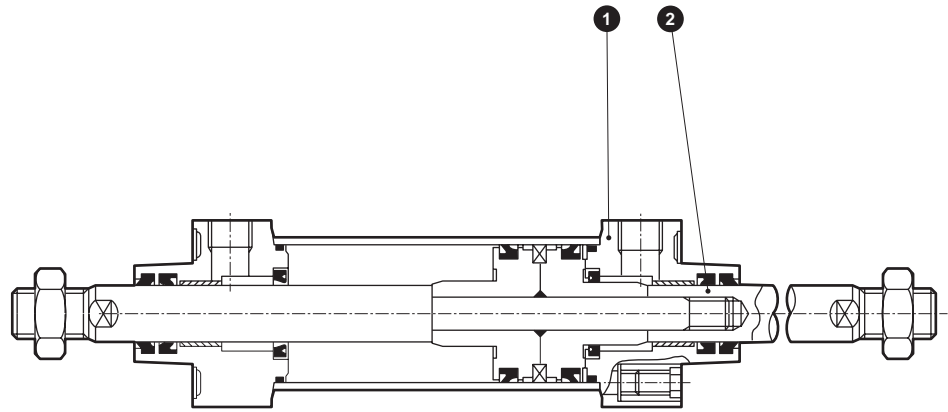
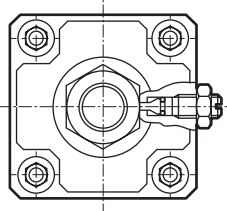
\*2: The foot mounting bracket is provided as 2 pcs./set.

\*3: All mounting brackets are supplied with mounting bolts.

SCP*3
CMK2
CMA2
SCM
SCG
<b>SCA2</b>
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

# SCA2-D Series

## Internal structure and parts list



Note: Materials of the parts not listed on the right are the same as those of SCA2 Series (double acting/single rod) on page 456.

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

\*Part No. 14 wear ring is not used.

## Repair parts list

(Numbering of repair parts follows that in the internal structure of the SCA2 Series (page 456).)

Bore size (mm)	Kit No.	Repair parts No.
ø 40	SCA2-D-40K	<div style="display: flex; flex-wrap: wrap; justify-content: space-around;"> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; margin: 2px;">3</div> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; margin: 2px;">4</div> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; margin: 2px;">7</div> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; margin: 2px;">8</div> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; margin: 2px;">11</div> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; margin: 2px;">20</div> </div>
ø 50	SCA2-D-50K	
ø 63	SCA2-D-63K	
ø 80	SCA2-D-80K	
ø 100	SCA2-D-100K	

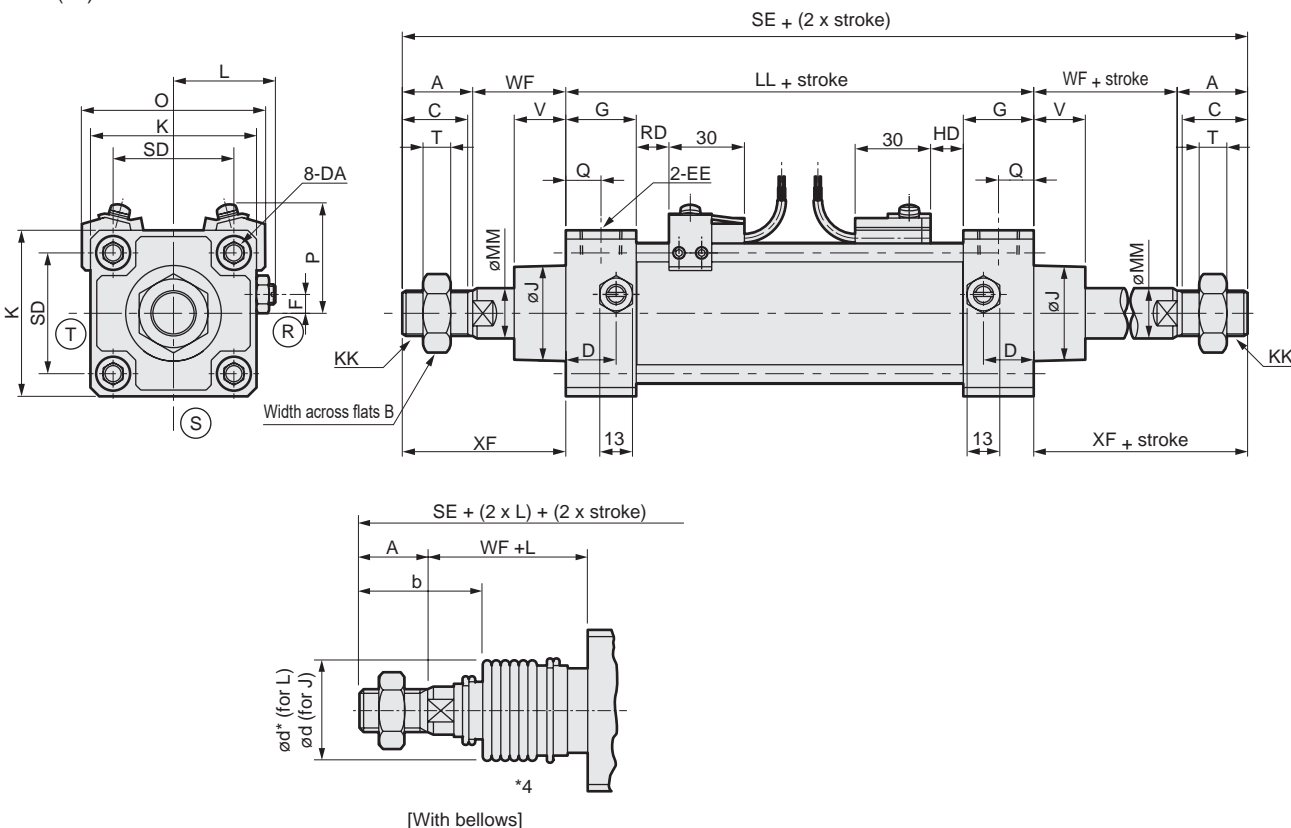
Note: Specify the kit No. when placing an order.



### Dimensions



● Basic (00)



Code	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
ø40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14x1.5	38 to 39.5	93	16	13	204	40.5	8	18.5	33.5	55.5
ø50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18x1.5	41 to 43.5	101	20	14	231	48	11	20.5	37	65
ø63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18x1.5	47.5 to 50.0	105	20	15	231	59	11	21	35	63
ø80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22x1.5	56 to 59	116	25	17	284	74	13	23.5	48	84
ø100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26x1.5	66 to 69	128	30	18	324	90	16	32	53	98

Code	With switch										With bellows									
	O	P	T0, T5 T2, T3		T1, T2Y T3Y, T2J		T8		T2W, T3W		b	d	d*	L						
			RD	HD	RD	HD	RD	HD	RD	HD				50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500
ø40	66	41.5	11	11	10	10	5	5	13	13	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5
ø50	73	43	13	13	12	12	7	7	15	15	47	47	48	22	36	49	63	90	119	146
ø63	85	47	13	13	12	12	7	7	15	15	45	47	48	22	36	49	63	90	119	146
ø80	105	57	14.5	14.5	13.5	13.5	8.5	8.5	16.5	16.5	58.5	53	55	14	26	38	49	72	96	119
ø100	121	63	18.5	18.5	17.5	17.5	12.5	12.5	20.5	20.5	69.5	61	65	20	32	42	53	76	98	120

Code	
Bore size (mm)	*3 Over 500
ø40	(Stroke/3.0) + 8
ø50	(Stroke/3.6) + 7.5
ø63	(Stroke/3.6) + 7.5
ø80	(Stroke/4.3) + 2.5
ø100	(Stroke/4.5) + 9

\*1 : (R), (S) and (T) indicate the cushion needle position.  
 \*2 : The positions for the left and right widths across flats are unspecified.  
 \*3 : For the L dimension, round up below the decimal point.  
 \*4 : Bellows are attached to both rods.  
 \*5 : Refer to page 615 for dimensions of projecting section of T2YD switch.

\* Installation dimensions of other mounting are the same as those of the SCA2 (standard). Refer to pages 458 to 469.  
 \* For the dimensions of the accessories, refer to pages 470 and 471.

- SCP\*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2**
- SCS2
- CKV2
- CAV2/  
COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/  
MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd  
Contr
- Ending



Medium bore size cylinder  
Double acting/back to back

# SCA2-B Series

● Bore size:  $\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80/\varnothing 100$

JIS symbol



## Specifications

Item	SCA2-B (back to back)					
Bore size mm	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$	
Actuation	Double acting					
Working fluid	Compressed air					
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)					
Min. working pressure MPa	0.05 ( $\approx 7.3$ psi, 0.5 bar)					
Proof pressure MPa	1.6 ( $\approx 230$ psi, 16 bar)					
Ambient temperature $^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ ) (no freezing)					
Port size	Rc1/4	Rc3/8		Rc1/2		
Stroke tolerance mm	$^{+0.9}_0$ ( to 360), $^{+1.4}_0$ ( to 800)					
Working piston speed mm/s	50 to 1000 (Operate within the allowable absorbed energy.)					
Cushion	Air cushion					
Effective air cushion length mm	14.6	16.6	16.6	20.6	23.6	
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)					
Allowable absorbed energy J	Cushioned	4.29	8.37	15.8	27.9	49.8
	Without cushion	0.067	0.079	0.079	0.201	0.301
Without any cushion, this product cannot absorb large energy generated by an external load. We recommend using an external shock absorber.						

## Stroke

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

(the same for cylinder 1 and cylinder 2)

\*1: The custom stroke is available in 1 mm increments.

## Min. stroke with switch

● T0/T5 min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	1
$\varnothing 40$	20(10)	20(20)	40(40)	60(60)	20(10)	60(45)	105(75)	150(105)	50(50)	50(50)
$\varnothing 50$	15(10)	20(20)	40(40)	60(60)	15(10)	20(20)	65(50)	65(60)	60(60)	60(60)
$\varnothing 63$	15(10)	20(20)	40(40)	60(60)	15(10)	20(20)	70(55)	70(60)	50(45)	50(45)
$\varnothing 80$	15(15)	25(25)	45(45)	65(65)	15(15)	25(25)	70(55)	70(65)	55(40)	55(40)
$\varnothing 100$	15(15)	25(25)	45(45)	70(70)	15(15)	25(25)	70(55)	70(70)	60(45)	60(45)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T8 min. stroke with switch

Switch quantity	Different surface mounting				Same surface mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	1
$\varnothing 40$	15(10)	20(20)	40(40)	60(60)	15(10)	50(35)	95(65)	140(95)	45(40)	45(40)
$\varnothing 50$	10(10)	20(20)	40(40)	60(60)	10(10)	20(20)	70(55)	70(60)	50(50)	50(50)
$\varnothing 63$	10(10)	20(20)	40(40)	60(60)	10(10)	20(20)	70(55)	70(60)	45(35)	45(35)
$\varnothing 80$	15(15)	25(25)	45(45)	65(65)	15(15)	25(25)	70(55)	70(65)	50(35)	50(35)
$\varnothing 100$	15(15)	25(25)	45(45)	65(65)	15(15)	25(25)	70(55)	70(65)	55(40)	55(40)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

### Min. stroke with switch

● T2/T3 min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	1
ø40	20(10)	20(15)	25(25)	40(40)	20(10)	60(45)	105(75)	150(105)	50(35)	50(35)
ø50	15(10)	15(15)	25(25)	40(40)	15(10)	15(15)	60(45)	60(45)	45(30)	45(30)
ø63	15(10)	15(15)	25(25)	40(40)	15(10)	15(15)	60(45)	60(45)	50(35)	50(35)
ø80	15(10)	15(15)	30(30)	45(45)	15(10)	15(15)	60(45)	60(45)	55(40)	55(40)
ø100	10(10)	15(15)	30(30)	45(45)	10(10)	15(15)	60(45)	60(45)	60(45)	60(45)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T1/T2Y/T3Y/T2YD min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	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)
ø50	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)
ø63	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)
ø80	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)
ø100	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire). T2YD does not have an L-shaped lead wire (V).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T2W/T3W min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	1
ø40	20(5)	20(10)	20(15)	25(25)	20(5)	65(50)	110(80)	155(110)	50(35)	50(35)
ø50	20(5)	20(10)	20(15)	20(20)	20(5)	20(10)	65(40)	65(40)	50(35)	50(35)
ø63	20(5)	20(10)	20(15)	25(25)	20(5)	20(10)	65(40)	65(40)	55(40)	55(40)
ø80	15(5)	15(10)	15(15)	25(25)	15(5)	15(10)	60(40)	60(40)	55(40)	55(40)
ø100	10(5)	10(10)	20(20)	25(25)	10(5)	10(10)	60(40)	60(40)	60(45)	60(45)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

# SCA2-B Series

## Switch specifications (T-switch)

● 1-color/2-color LED/for AC magnetic field proof

Item	2-wire proximity	2-wire proximity				3-wire proximity				2-wire reed						2-wire proximity	
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V		T8H/T8V		T2YD (*4)	T2YDT		
Applications	For programming controller, relay, compact solenoid valve	Dedicated for programmable controller				For programmable controller, relay				For programmable controller, relay	For programmable controller, relay (no lamp), serial		For programmable controller, relay		Dedicated for programmable controller		
Output method	-				NPN output	PNP output	NPN output	NPN output	-								
Pwr. supp. V.	-				10 to 28 VDC				-								
Load voltage	85 to 265 VAC	10 to 30 VDC		24 VDC ±10%	30 VDC or less				12/24 VDC	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 (*3)				100mA or less		50mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp		LED (Lit when ON)		Red/green LED (Lit when ON)		
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less				10 μA or less				0 mA						1 mA or less	
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80		1 m:18 3 m:49 5 m:80			1 m:33 3 m:87 5 m:142		1 m:61 3 m:166 5 m:272		

\*1: Refer to Ending Page 1 for detailed switch specifications and dimensions.

\*2: Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

\*3: Max. load current: 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

\*4: Switch for AC magnetic field (T2YD/T2YDT) cannot be used in DC magnetic field.

### Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke (S) = 0 mm						Switch weight	Mounting bracket weight	Additional weight per S = 100 mm
	Basic (00)	Foot (LB)	Flange (FA, FB)	Eye bracket (CA)	Clevis bracket (CB)	Trunnion (TA, TB, TC)		T type	
ø40	1.66	1.83	2.07	1.98	2.02	2.04	Refer to the weight in the switch specifications.	0.024	0.39
ø50	2.40	2.65	2.89	2.78	2.81	2.94		0.022	0.46
ø63	3.20	3.57	4.29	3.77	3.82	4.05		0.020	0.50
ø80	5.20	5.94	7.06	6.47	6.68	6.54		0.026	0.90
ø100	8.40	9.31	11.14	10.04	10.22	10.97		0.024	1.12

(Example) Product weight of SCA2-B-LB-50-B200-TOH-D-B100-TOH-R	Product weight for 0 mm stroke.....	2.65 kg
	Additional weight for 200 mm S1 stroke.....	$0.46 \times \frac{200}{100} = 0.92$ kg
	Additional weight for 100 mm S2 stroke.....	$0.46 \times \frac{100}{100} = 0.46$ kg
	Weight of 3 TOH switches.....	$0.018 \times 3 = 0.054$ kg
	Weight of 3 mounting brackets.....	$0.022 \times 3 = 0.066$ kg
● Product weight.....	$2.65 + 0.92 + 0.46 + 0.054 + 0.066 = 4.150$ kg	

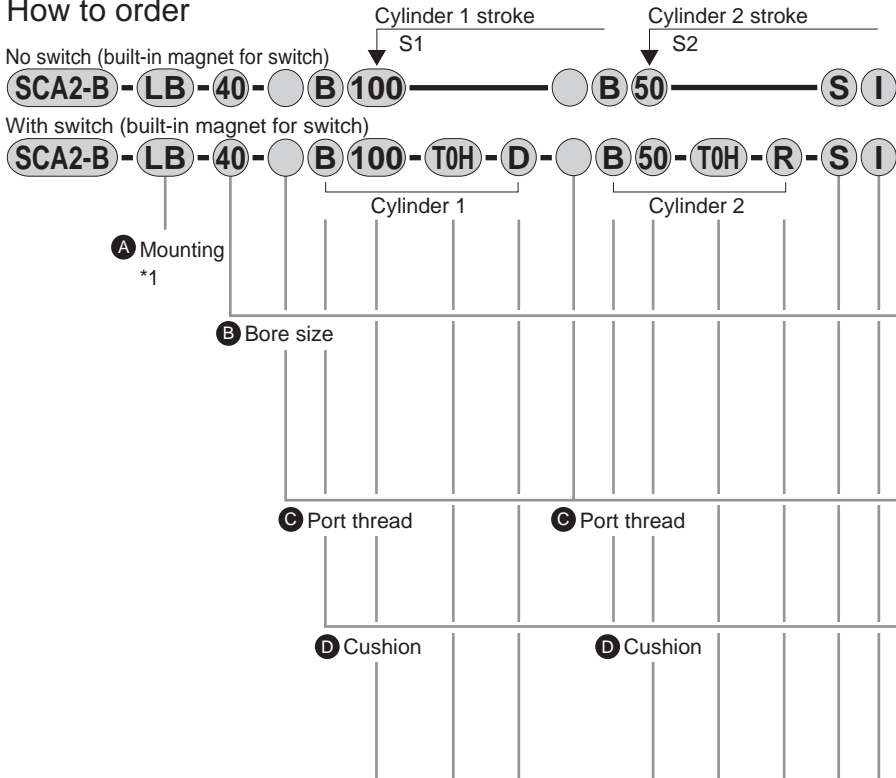
### Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push	62.8	$1.26 \times 10^2$	$1.88 \times 10^2$	$2.51 \times 10^2$	$3.77 \times 10^2$	$5.03 \times 10^2$	$6.28 \times 10^2$	$7.54 \times 10^2$	$8.80 \times 10^2$	$1.01 \times 10^3$	$1.13 \times 10^3$	$1.26 \times 10^3$
	Pull	52.8	$1.06 \times 10^2$	$1.58 \times 10^2$	$2.11 \times 10^2$	$3.17 \times 10^2$	$4.22 \times 10^2$	$5.28 \times 10^2$	$6.33 \times 10^2$	$7.39 \times 10^2$	$8.44 \times 10^2$	$9.50 \times 10^2$	$1.06 \times 10^3$
ø50	Push	98.2	$1.96 \times 10^2$	$2.95 \times 10^2$	$3.93 \times 10^2$	$5.89 \times 10^2$	$7.85 \times 10^2$	$9.82 \times 10^2$	$1.18 \times 10^3$	$1.37 \times 10^3$	$1.57 \times 10^3$	$1.77 \times 10^3$	$1.96 \times 10^3$
	Pull	82.5	$1.65 \times 10^2$	$2.47 \times 10^2$	$3.30 \times 10^2$	$4.95 \times 10^2$	$6.60 \times 10^2$	$8.25 \times 10^2$	$9.90 \times 10^2$	$1.15 \times 10^3$	$1.32 \times 10^3$	$1.48 \times 10^3$	$1.65 \times 10^3$
ø63	Push	$1.56 \times 10^2$	$3.12 \times 10^2$	$4.68 \times 10^2$	$6.23 \times 10^2$	$9.35 \times 10^2$	$1.25 \times 10^3$	$1.56 \times 10^3$	$1.87 \times 10^3$	$2.18 \times 10^3$	$2.49 \times 10^3$	$2.81 \times 10^3$	$3.12 \times 10^3$
	Pull	$1.40 \times 10^2$	$2.80 \times 10^2$	$4.20 \times 10^2$	$5.61 \times 10^2$	$8.41 \times 10^2$	$1.12 \times 10^3$	$1.40 \times 10^3$	$1.68 \times 10^3$	$1.96 \times 10^3$	$2.24 \times 10^3$	$2.52 \times 10^3$	$2.80 \times 10^3$
ø80	Push	$2.51 \times 10^2$	$5.03 \times 10^2$	$7.54 \times 10^2$	$1.01 \times 10^3$	$1.51 \times 10^3$	$2.01 \times 10^3$	$2.51 \times 10^3$	$3.02 \times 10^3$	$3.52 \times 10^3$	$4.02 \times 10^3$	$4.52 \times 10^3$	$5.03 \times 10^3$
	Pull	$2.27 \times 10^2$	$4.54 \times 10^2$	$6.80 \times 10^2$	$9.07 \times 10^2$	$1.36 \times 10^3$	$1.81 \times 10^3$	$2.27 \times 10^3$	$2.72 \times 10^3$	$3.17 \times 10^3$	$3.63 \times 10^3$	$4.08 \times 10^3$	$4.54 \times 10^3$
ø100	Push	$3.93 \times 10^2$	$7.85 \times 10^2$	$1.18 \times 10^3$	$1.57 \times 10^3$	$2.36 \times 10^3$	$3.14 \times 10^3$	$3.93 \times 10^3$	$4.71 \times 10^3$	$5.50 \times 10^3$	$6.28 \times 10^3$	$7.07 \times 10^3$	$7.85 \times 10^3$
	Pull	$3.57 \times 10^2$	$7.15 \times 10^2$	$1.07 \times 10^3$	$1.43 \times 10^3$	$2.14 \times 10^3$	$2.86 \times 10^3$	$3.57 \times 10^3$	$4.29 \times 10^3$	$5.00 \times 10^3$	$5.72 \times 10^3$	$6.43 \times 10^3$	$7.15 \times 10^3$

# SCA2-B Series

## How to order



Code	Description
<b>A Mounting</b>	
00	Basic
LB	Axial foot
FA	Rod side flange
TA	Rod side trunnion
TB	Head side trunnion
TD	Rod side hole trunnion (ø40 is not available)
TE	Head side hole trunnion (ø40 is not available)

<b>B Bore size (mm)</b>	
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

<b>C Port thread</b>	
Blank	Rc thread
N	NPT thread (made-to-order product)
G	G thread (made-to-order product)

<b>D Cushion</b>	
B	Both sides cushioned
R	Rod side cushioned
H	Head side cushioned
N	Without cushion

<b>E Stroke (mm)</b>		
Bore size	Stroke *3	Custom stroke
ø40	1 to 600	In 1 mm increments
ø50	1 to 600	
ø63	1 to 600	
ø80	1 to 700	
ø100	1 to 800	

<b>F Switch model No.</b>	
Refer to the switch model numbers on the next page.	

<b>* Lead wire length</b>	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

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

<b>H Option</b>			
		Max. ambient temp.	Instantaneous max. temp.
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 (made-to-order product)		

<b>I Accessory</b>	
I	Rod eye
Y	Rod clevis (pin and snap ring included)
B4	Trunnion No. 2 bracket (2 pcs./set)

### ⚠ Precautions for model No. selection

- \*1 : Mounting bracket will be shipped with the product. (Trunnion are assembled at shipment.)
- \*2 : If the stroke exceeds the max. stroke, refer to Ending Page 69.
- \*3 : Refer to pages 548 and 549 for the min. stroke with switch.
- \*4 : Switches are shipped with the product.
- \*5 : When selecting TA, TD, TB or TE mounting, the switch quantity is limited to "H" (1 on head side) for TA and TD, and "R" (1 on rod side) for TB and TE.
- \*6 : The instantaneous max. temperature is the temperature when sparks and cutting chips, etc., instantaneously contact the bellows.
- \*7 : When selecting TA, TD, TB or TE mounting format, the cushion needle position is blank and fixed at S, with no options available.
- \*8 : Refer to Ending Page 85 for custom specifications of rod end form.
- \*9 : Refer to page 448 for combination of variations/options.
- \*10 : Two sets are included for accessories I and Y.

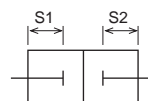
### [Example of model No.]

**SCA2-B-LB-40-B100-T0H-D-B50-T0H-R-SI**

Model: Medium bore size cylinder, double acting/back to back

- A** Mounting : Axial foot
- B** Bore size : ø40 mm
- C** Port thread : Rc thread
- D** Cushion : Both sides cushioned
- E** Stroke S1 : 100 mm
- F** Switch model No. : Reed T0H switch, lead wire 1m
- G** Switch quantity : 2
- C** Port thread : Rc thread
- D** Cushion : Both sides cushioned
- E** Stroke S2 : 50 mm
- F** Switch model No. : Reed T0H switch, lead wire 1m
- G** Switch quantity : 1 on rod side
- H** Option : Cushion needle position S
- I** Accessory : Rod eye

1st stage stroke : 100 mm indicated by S1  
 + 2nd stage stroke : 50 mm indicated by S2  
 Total stroke : 150 mm S1 + S2



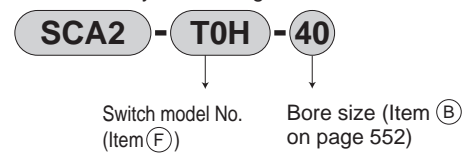
### [F] Switch model No.

T-switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No indicator lamp	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*	Proximity	●		1-color LED	2-wire
T2H*	T2V*			●		3-wire
T3H*	T3V*			●	2-wire	
T2WH*	T2WV*			●		3-wire
T2YH*	T2YV*			●	2-color LED	
T3WH*	T3WV*			●		2-wire
T3YH*	T3YV*			●	3-wire	
T3PH*	T3PV*			●		1-color LED
T2YD*	-			●	2-color LED	
T2YDT*	-			●		(AC magnetic field)
T2JH*	T2JV*		●	Off-delay	2-wire	

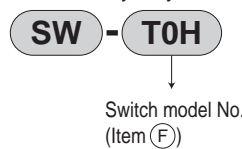
### How to order switch

#### [T-switch]

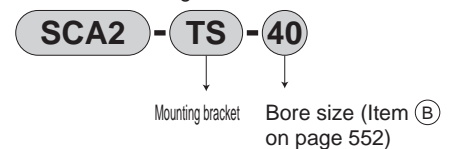
- Switch body + mounting bracket set



- Switch body only



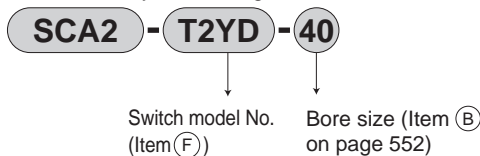
- Switch mounting bracket set



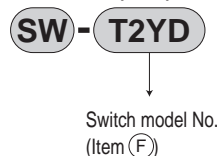
\* Contact CKD when using an environment-friendly T-switch.

#### [T2YD switch]

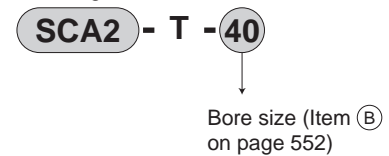
- Switch body + mounting bracket set



- Switch body only



- Mounting bracket set



### How to order mounting bracket

Bore size (mm)		ø40	ø50	ø63	ø80	ø100
Mounting bracket						
Foot (LB)	*2	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

\*1: For material of the mounting bracket, refer to page 456.

\*2: The foot mounting bracket is provided as 2 pcs./set.

\*3: All mounting brackets are supplied with mounting bolts.

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/

COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/

MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

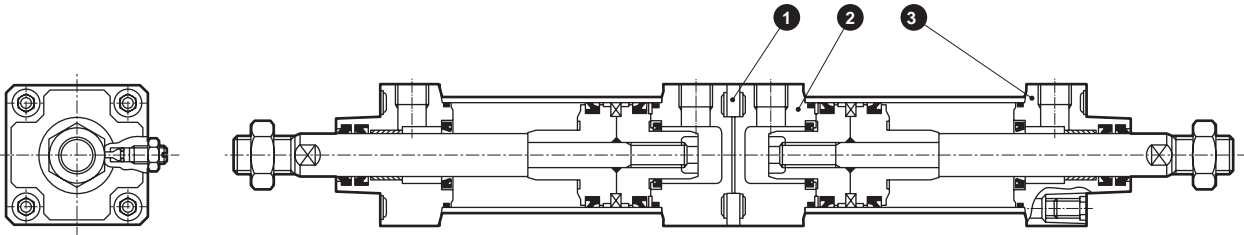
Spd

Contr

Ending

# SCA2-B Series

## SCP\*3 Internal structure and parts list



Note: Materials of the parts not listed below are the same as those of SCA2 Series (double acting/single rod) on page 456.

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Spacer	Steel	Manganese phosphate treatment	3	Rod cover (T)	Aluminum alloy die-casting	Paint
2	Head cover (T)	Aluminum alloy die-casting	Paint				

## Repair parts list

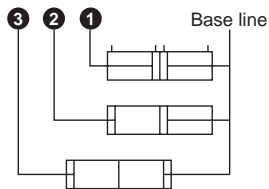
(Numbering of repair parts follows that in the internal structure of the SCA2 Series (page 456).)

Bore size (mm)	Kit No.	Repair parts No.
ø40	SCA2-B-40K	
ø50	SCA2-B-50K	
ø63	SCA2-B-63K	
ø80	SCA2-B-80K	
ø100	SCA2-B-100K	

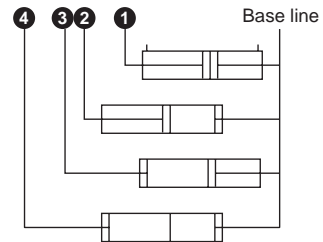
Note: Specify the kit No. when placing an order.

## Applications

When the same strokes are combined,  
3 positions are available.



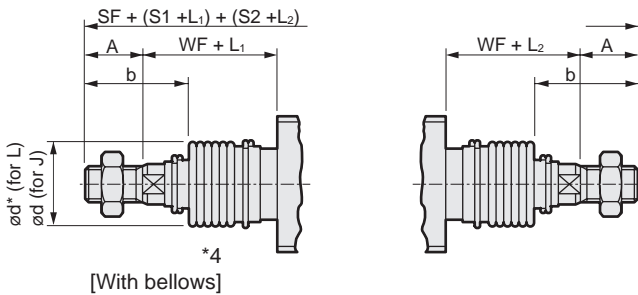
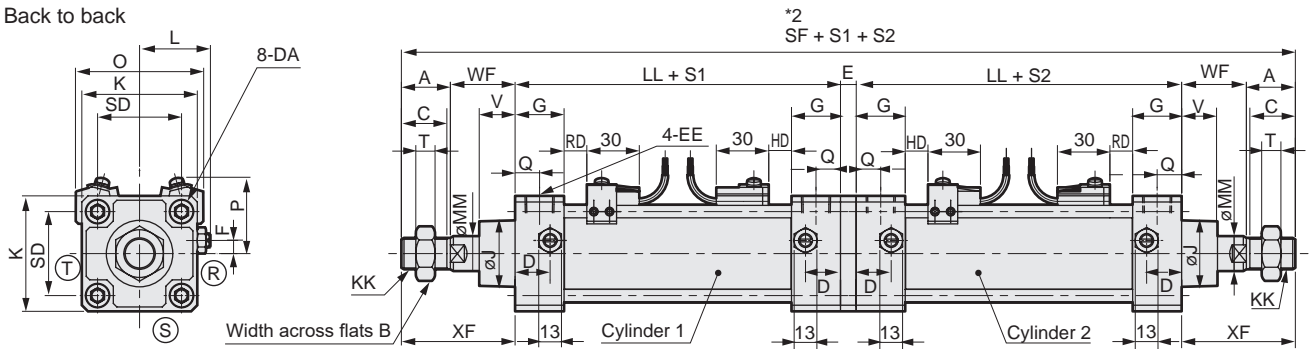
When different strokes are combined,  
4 positions are available.





## Dimensions

● Back to back



Code	A	B	C	D	E	F	DA	EE	G	J	K	KK	L	LL	MM	Q	SD	SF	T	V	WF	XF
ø40	22	22	20	18	4.5	7.5	M8	Rc1/4	26	31	57	M14x1.5	38 to 39.5	93	16	13	40.5	301.5	8	18.5	33.5	55.5
ø50	28	27	26	20	9	0	M8	Rc3/8	28	38	66	M18x1.5	41 to 43.5	101	20	14	48	341	11	20.5	37	65
ø63	28	27	26	22	9	0	M8	Rc3/8	30	38	80	M18x1.5	47.5 to 50.0	105	20	15	59	345	11	21	35	63
ø80	36	32	34	26	12	0	M12	Rc1/2	34	43	98	M22x1.5	56 to 59	116	25	17	74	412	13	23.5	48	84
ø100	45	41	43	28	12	0	M12	Rc1/2	36	51	118	M26x1.5	66 to 69	128	30	18	90	464	16	32	53	98

Code	With switch										With bellows											
	O	P	T0, T5		T1, T2Y		T8		T2W, T3W		b	d	d*	L <sub>1</sub> , L <sub>2</sub>								
			T2, T3	T3Y, T2J	RD	HD	RD	HD	RD	HD				RD	HD	RD	HD	RD	HD	RD	HD	RD
ø40	66	41.5	11	11	10	10	5	5	13	13	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8	
ø50	73	43	13	13	12	12	7	7	15	15	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5	
ø63	85	47	13	13	12	12	7	7	15	15	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5	
ø80	105	57	14.5	14.5	13.5	13.5	8.5	8.5	16.5	16.5	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5	
ø100	121	63	18.5	18.5	17.5	17.5	12.5	12.5	20.5	20.5	69.5	61	65	20	32	42	53	76	98	120	(Stroke/4.5) + 9	

\*1 : (R), (S), (T) indicates the cushion needle position.

\*2 : S1: Cylinder 1 stroke, S2: Cylinder 2 stroke

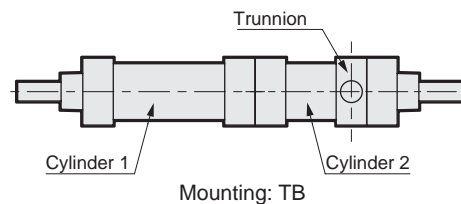
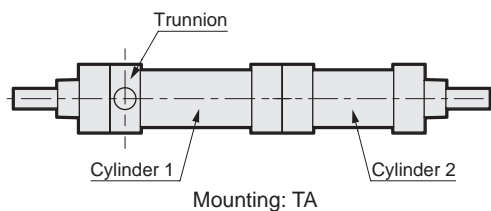
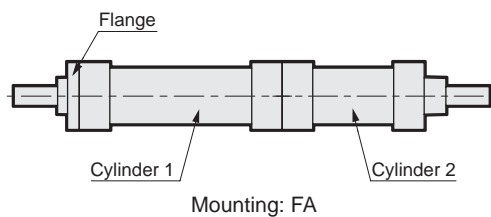
\*3 : For the L<sub>1</sub> and L<sub>2</sub> dimensions, round up below the decimal point.

\*4 : Bellows are attached to both rods.

\*5 : Refer to page 615 for dimensions of projecting section of T2YD switch.

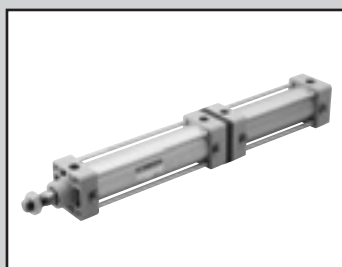
Installation dimensions of other mounting are the same as those of the SCA2 (standard). Refer to pages 458 to 469.

Installation positions of the flange (mounting: FA) and trunnion (mounting: TA/TB) are as below.



\*For the dimensions of the accessories, refer to pages 470 and 471.

SCP\*3  
CMK2  
CMA2  
SCM  
SCG  
SCA2  
SCS2  
CKV2  
CAV2/  
COVP/N2  
SSD2  
SSG  
SSD  
CAT  
MDC2  
MVC  
SMG  
MSD/  
MSDG  
FC\*  
STK  
SRL3  
SRG3  
SRM3  
SRT3  
MRL2  
MRG2  
SM-25  
ShkAbs  
FJ  
FK  
Spd  
Contr  
Ending

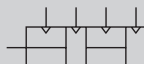


Medium bore size cylinder  
Double acting/2-stage

# SCA2-W Series

● Bore size:  $\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80/\varnothing 100$

JIS symbol



## Specifications

Item	SCA2-W (2-stage)					
Bore size mm	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$	
Actuation	Double acting					
Working fluid	Compressed air					
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar) *1					
Min. working pressure MPa	0.1 ( $\approx 15$ psi, 1 bar)					
Proof pressure MPa	1.6 ( $\approx 230$ psi, 16 bar)					
Ambient temperature $^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ ) (no freezing)					
Port size	Rc1/4	Rc3/8		Rc1/2		
Stroke tolerance mm	$^{+0.9}_0$ ( to 360), $^{+1.4}_0$ ( to 800)					
Working piston speed mm/s	50 to 1000 (Operate within the allowable absorbed energy.)					
Cushion	Air cushion					
Effective air cushion length mm	14.6	16.6	16.6	20.6	23.6	
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)					
Allowable absorbed energy J	Cushioned	4.29	8.37	15.8	27.9	49.8
	Without cushion	0.067	0.079	0.079	0.201	0.301
Without any cushion, this product cannot absorb large energy generated by an external load. We recommend using an external shock absorber.						

\*1: The max. working pressure is 0.5 MPa when S1 and S2 are the same value.

## Stroke

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

\*1: The custom stroke is available in 1 mm increments.

## Min. stroke with switch

● T0/T5 min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	1
$\varnothing 40$	20(10)	20(20)	40(40)	60(60)	20(10)	60(45)	105(75)	150(105)	50(50)	50(50)
$\varnothing 50$	15(10)	20(20)	40(40)	60(60)	15(10)	20(20)	65(50)	65(60)	60(60)	60(60)
$\varnothing 63$	15(10)	20(20)	40(40)	60(60)	15(10)	20(20)	70(55)	70(60)	50(45)	50(45)
$\varnothing 80$	15(15)	25(25)	45(45)	65(65)	15(15)	25(25)	70(55)	70(65)	55(40)	55(40)
$\varnothing 100$	15(15)	25(25)	45(45)	70(70)	15(15)	25(25)	70(55)	70(70)	60(45)	60(45)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T8 min. stroke with switch

Switch quantity	Different surface mounting				Same surface mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	1
$\varnothing 40$	15(10)	20(20)	40(40)	60(60)	15(10)	50(35)	95(65)	140(95)	45(40)	45(40)
$\varnothing 50$	10(10)	20(20)	40(40)	60(60)	10(10)	20(20)	70(55)	70(60)	50(50)	50(50)
$\varnothing 63$	10(10)	20(20)	40(40)	60(60)	10(10)	20(20)	70(55)	70(60)	45(35)	45(35)
$\varnothing 80$	15(15)	25(25)	45(45)	65(65)	15(15)	25(25)	70(55)	70(65)	50(35)	50(35)
$\varnothing 100$	15(15)	25(25)	45(45)	65(65)	15(15)	25(25)	70(55)	70(65)	55(40)	55(40)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

### Min. stroke with switch

● T2/T3 min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	1
∅40	20(10)	20(15)	25(25)	40(40)	20(10)	60(45)	105(75)	150(105)	50(35)	50(35)
∅50	15(10)	15(15)	25(25)	40(40)	15(10)	15(15)	60(45)	60(45)	45(30)	45(30)
∅63	15(10)	15(15)	25(25)	40(40)	15(10)	15(15)	60(45)	60(45)	50(35)	50(35)
∅80	15(10)	15(15)	30(30)	45(45)	15(10)	15(15)	60(45)	60(45)	55(40)	55(40)
∅100	10(10)	15(15)	30(30)	45(45)	10(10)	15(15)	60(45)	60(45)	60(45)	60(45)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T1/T2Y/T3Y/T2YD min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
∅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)
∅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)
∅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)
∅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)
∅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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire). T2YD does not have an L-shaped lead wire (V).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T2W/T3W min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	1
∅40	20(5)	20(10)	20(15)	25(25)	20(5)	65(50)	110(80)	155(110)	50(35)	50(35)
∅50	20(5)	20(10)	20(15)	20(20)	20(5)	20(10)	65(40)	65(40)	50(35)	50(35)
∅63	20(5)	20(10)	20(15)	25(25)	20(5)	20(10)	65(40)	65(40)	55(40)	55(40)
∅80	15(5)	15(10)	15(15)	25(25)	15(5)	15(10)	60(40)	60(40)	55(40)	55(40)
∅100	10(5)	10(10)	20(20)	25(25)	10(5)	10(10)	60(40)	60(40)	60(45)	60(45)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/

COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/

MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd

Contr

Ending

# SCA2-W Series

## Switch specifications (T-switch)

● 1-color/2-color LED/for AC magnetic field proof

Item	2-wire proximity	2-wire proximity			3-wire proximity				2-wire reed				2-wire proximity			
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V		T2YD (*4) T2YDT			
Applications	For programming controller, relay, compact solenoid valve	Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay	For programmable controller, relay (no lamp), serial		For programmable controller, relay		Dedicated for programmable controller		
Output method	-			NPN output	PNP output	NPN output	NPN output	-								
Pwr. supp. V.	-			10 to 28 VDC				-								
Load voltage	85 to 265 VAC	10 to 30 VDC	24 VDC ±10%		30 VDC or less				12/24 VDC	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 (*3)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp		LED (Lit when ON)		Red/green LED (Lit when ON)	
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA						1 mA or less	
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80		1 m:33 3 m:87 5 m:142		1 m:61 3 m:166 5 m:272				

\*1 : Refer to Ending Page 1 for detailed switch specifications and dimensions.

\*2 : Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

\*3 : Max. load current: 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

\*4 : Switch for AC magnetic field (T2YD/T2YDT) cannot be used in DC magnetic field.

### Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke (S) = 0 mm						Switch weight	Mounting bracket weight	Added weight/S=100 mm
	Basic (00)	Foot (LB)	Flange (FA, FB)	Eye bracket (CA)	Clevis bracket (CB)	Trunnion (TA, TB, TC)		T type	
ø40	1.34	1.51	1.75	1.66	1.70	1.72	Refer to the weight in the switch specifications.	0.024	0.78
ø50	1.97	2.22	2.46	2.35	2.38	2.51		0.022	0.92
ø63	2.74	3.11	3.83	3.31	3.36	3.59		0.020	1.00
ø80	4.14	4.88	6.00	5.41	5.62	5.48		0.026	1.80
ø100	6.90	7.81	9.64	8.54	8.72	9.47		0.024	2.24

(Example) Product weight of SCA2-W-LB-50-B200-T0H-D-B100-TOH-R	Product weight for 0 mm stroke.....	2.22 kg
	Additional weight for 200 mm S1 stroke .....	$0.46 \times \frac{200}{100} = 0.92$ kg
	Additional weight for 100 mm S2 stroke .....	$0.46 \times \frac{100}{100} = 0.46$ kg
	Weight of 3 TOH switches .....	$0.018 \times 3 = 0.054$ kg
	Weight of 3 mounting brackets .....	$0.022 \times 3 = 0.066$ kg
Product weight.....	$2.22 + 0.92 + 0.46 + 0.054 + 0.066 = 3.720$ kg	

SCP*3
CMK2
CMA2
SCM
SCG
<b>SCA2</b>
SCS2
CKV2
CAV2/COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

# SCA2-W Series

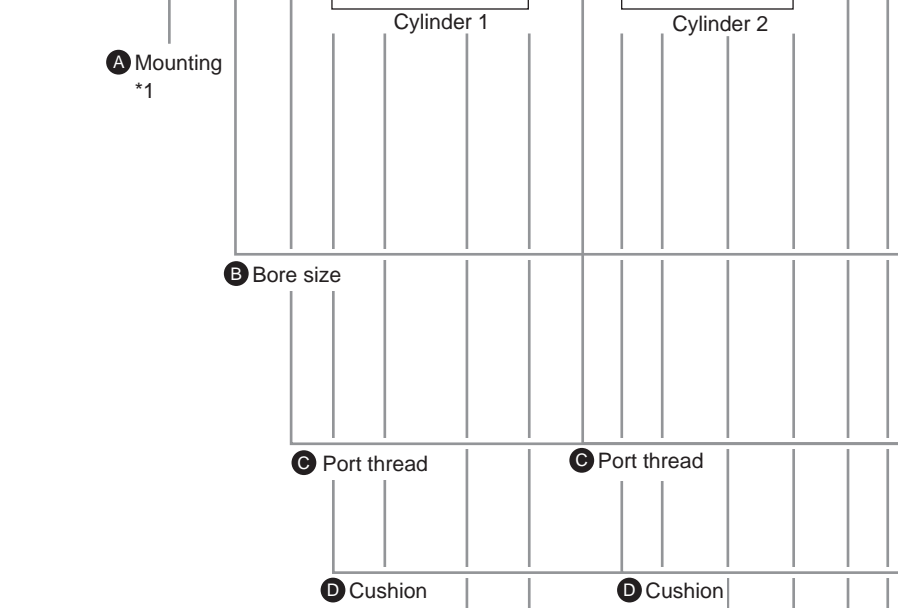
## How to order

No switch (built-in magnet for switch)

SCA2-W-LB-40-B150-B50-S-I

With switch (built-in magnet for switch)

SCA2-W-LB-40-B150-T0H-D-B50-T0H-R-S-I



### ⚠ Precautions for model No. selection

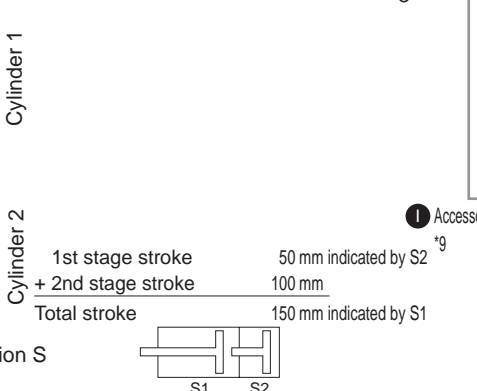
- \*1 : Mounting bracket will be shipped with the product. (Trunnion are assembled at shipment.)
- \*2 : If the stroke exceeds the max. stroke, refer to Ending Page 69.
- \*3 : The max. stroke of S2 (1st stage) is 200 mm.
- \*4 : Refer to pages 556 and 557 for the min. stroke with switch.
- \*5 : Switches are shipped with the product.
- \*6 : When selecting TA, TD, TB or TE mounting, the switch quantity is limited to "H" (1 on head side) for TA and TD, and "R" (1 on rod side) for TB and TE.
- \*7 : The instantaneous max. temperature is the temperature when sparks and cutting chips, etc., instantaneously contact the bellows.
- \*8 : When selecting TA, TD, TB or TE mounting format, the cushion needle position is blank and fixed at S, with no options available.
- \*9 : "I" and "Y" cannot be selected together.
- \*10: Refer to Ending Page 85 for custom specifications of rod end form.
- \*11: Refer to page 448 for combinations of variations/options.

### [Example of model No.]

**SCA2-W-LB-40-B150-T0H-D-B50-T0H-R-S-I**

Model: Medium bore size cylinder, double acting/2-stage

- A** Mounting : Axial foot
- B** Bore size :  $\varnothing 40$  mm
- C** Port thread : Rc thread
- D** Cushion : Both sides cushioned
- E** Stroke S1 : 150 mm
- F** Switch model No. : Reed T0H switch, Lead wire 1m
- G** Switch quantity : 2
- C** Port thread : Rc thread
- D** Cushion : Both sides cushioned
- E** Stroke S2 : 50 mm
- F** Switch model No. : Reed T0H switch, Lead wire 1m
- G** Switch quantity : 1 on rod side
- H** Option : Cushion needle position S
- I** Accessory : Rod eye



Code	Description
------	-------------

A Mounting	
00	Basic
LB	Axial foot
FA	Rod side flange
FB	Head side flange
FC	Head side special flange
CA	Eye bracket
CB	Clevis bracket (pin and snap ring included)
TA	Rod side trunnion
TB	Head side trunnion
TD	Rod side hole trunnion ( $\varnothing 40$ is not available)
TE	Head side hole trunnion ( $\varnothing 40$ is not available)

B Bore size (mm)	
40	$\varnothing 40$
50	$\varnothing 50$
63	$\varnothing 63$
80	$\varnothing 80$
100	$\varnothing 100$

C Port thread	
Blank	Rc thread
N	NPT thread (made-to-order product)
G	G thread (made-to-order product)

D Cushion	
B	Both sides cushioned
R	Rod side cushioned
H	Head side cushioned
N	Without cushion

E Stroke (mm)		
Bore size	Stroke *4	Custom stroke
$\varnothing 40$	2 to 600	In 1 mm increments
$\varnothing 50$	2 to 600	
$\varnothing 63$	2 to 600	
$\varnothing 80$	2 to 700	
$\varnothing 100$	2 to 800	

F Switch model No.	
Refer to the switch model numbers on the next page.	
* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

G Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

H Option			
		Max. ambient temp.	Instantaneous max. temp.
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 (made-to-order product)		

I Accessory	
I	Rod eye
Y	Rod clevis (pin and snap ring included)
B1	Eye bracket
B2	Clevis bracket (pin and snap ring included)
B3	Eye bracket
B4	Trunnion No. 2 bracket (2 pcs./set)

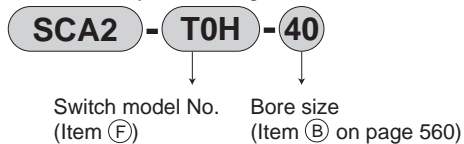
### [F] Switch model No.

T-switch model No.							
Axial lead wire	Radial lead wire	Contact	Voltage		Indicator	Lead wire	
			AC	DC			
T0H*	T0V*	Reed	●	●	1-color LED	2-wire	
T5H*	T5V*		●	●	No indicator lamp		
T8H*	T8V*		●	●	1-color LED		
T1H*	T1V*	Proximity	●		1-color LED	2-wire	
T2H*	T2V*			●		1-color LED	3-wire
T3H*	T3V*			●	2-color LED		2-wire
T2WH*	T2WV*			●		2-color LED	3-wire
T2YH*	T2YV*			●			1-color LED
T3WH*	T3WV*			●		2-color LED	
T3YH*	T3YV*			●	2-color LED		3-wire
T3PH*	T3PV*			●		1-color LED	3-wire
T2YD*	-			●	2-color LED	2-wire	
T2YDT*	-			●	(AC magnetic field)	2-wire	
T2JH*	T2JV*		●	Off-delay	2-wire		

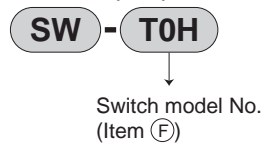
### How to order switch

#### [T-switch]

- Switch body + mounting bracket set

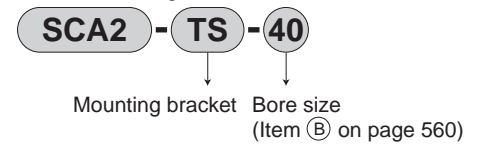


- Switch body only



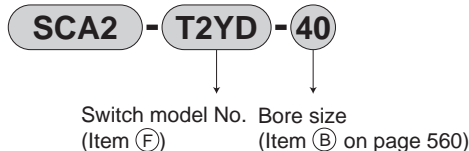
\* Contact CKD when using an environment-friendly T-switch.

- Switch mounting bracket set

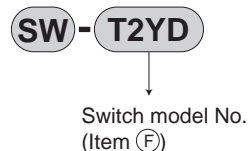


#### [T2YD switch]

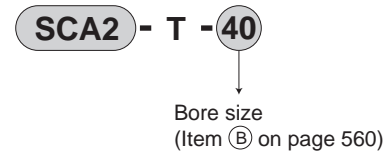
- Switch body + mounting bracket set



- Switch body only



- Mounting bracket set



### How to order mounting bracket

Bore size (mm)	ø40	ø50	ø63	ø80	ø100
Mounting bracket					
Foot (LB)	*2 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 bracket (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis bracket (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

\*1: For material of the mounting bracket, refer to page 456.

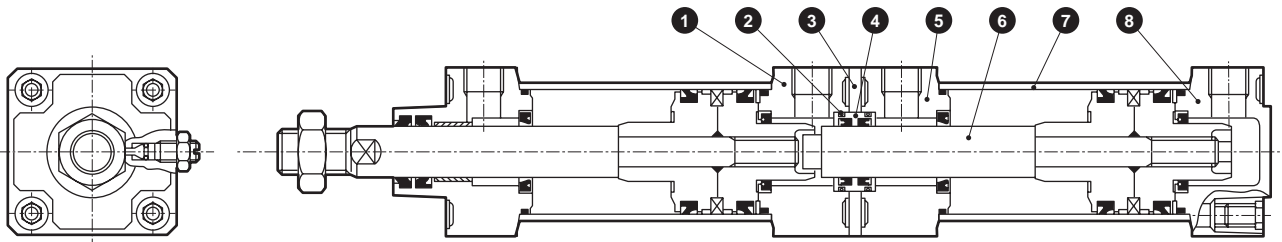
\*2: The foot mounting bracket is provided as 2 pcs./set.

\*3: All mounting brackets are supplied with mounting bolts.

SCP*3
CMK2
CMA2
SCM
SCG
<b>SCA2</b>
SCS2
CKV2
CAV2/COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

# SCA2-W Series

## SCP\*3 Internal structure and parts list



Note: Materials of the parts not listed below are the same as those of SCA2 Series (double acting/single rod) on page 456.

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

## Repair parts list

(Numbering of consumable parts follows that in the internal structure of the SCA2 Series (page 456). ② alone is the part No. in the figure above.)

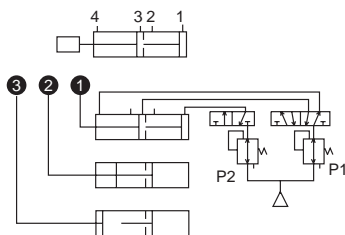
Bore size (mm)	Kit No.	Repair parts No.
ø 40	SCA2-W-40K	(2) ③ ④ ⑦ ⑧ ⑪ ⑭ ⑯
ø 50	SCA2-W-50K	
ø 63	SCA2-W-63K	
ø 80	SCA2-W-80K	
ø 100	SCA2-W-100K	

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

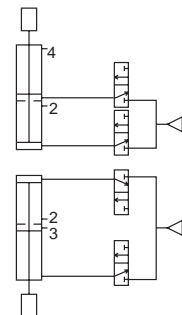
## Applications

Pressure setting:  $P2 > P1$

- 1st stage push  
Keeping port 4 pressurized, pressurize port 1.
- 2nd stage push  
Keeping port 1 pressurized, pressurize port 3.



$P2 = P1$  is allowed depending on the load direction. When using a single acting cylinder with free fall load, ports 2 and 4 in the upper figure and ports 2 and 3 in the lower figure are breathing holes. Cushion performance will be better when all ports are piped even if piping them is not necessary (port 2 in this case).

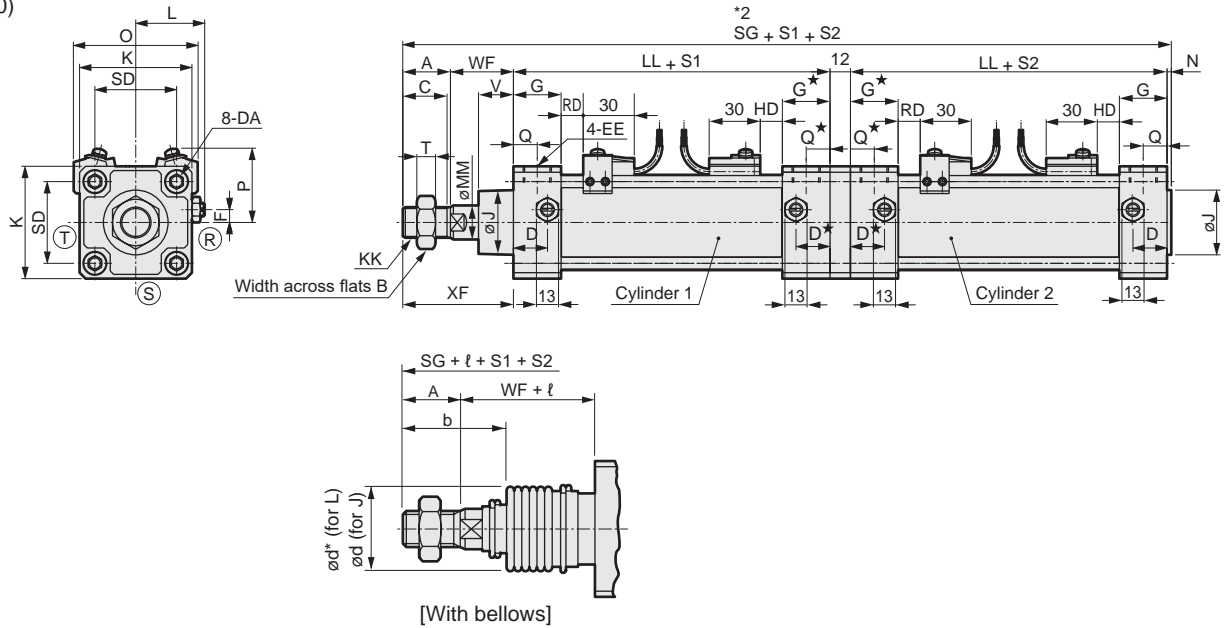




## Dimensions



● Basic (00)



Code	A	B	C	D	D*	DA	EE	F	G	G*	J	K	KK	L	LL	MM	N	Q	Q*	SD	SG	T
ø40	22	22	20	18	17.5	M 8	RC1/4	7.5	26	25.5	31	57	M14x1.5	38 to 39.5	92.5	16	2	13	12.5	40.5	254.5	8
ø50	28	27	26	20	19.5	M 8	RC3/8	0	28	27.5	38	66	M18x1.5	41 to 43.5	100.5	20	2.5	14	13.5	48	280.5	11
ø63	28	27	26	22	21.5	M 8	RC3/8	0	30	29.5	38	80	M18x1.5	47.5 to 50.0	104.5	20	3	15	14.5	59	287	11
ø80	36	32	34	26	25.5	M12	RC1/2	0	34	33.5	43	98	M22x1.5	56 to 59	115.5	25	3.5	17	16.5	74	330.5	13
ø100	45	41	43	28	27.5	M12	RC1/2	0	36	35.5	51	118	M26x1.5	66 to 69	127.5	30	4	18	17.5	90	369	16

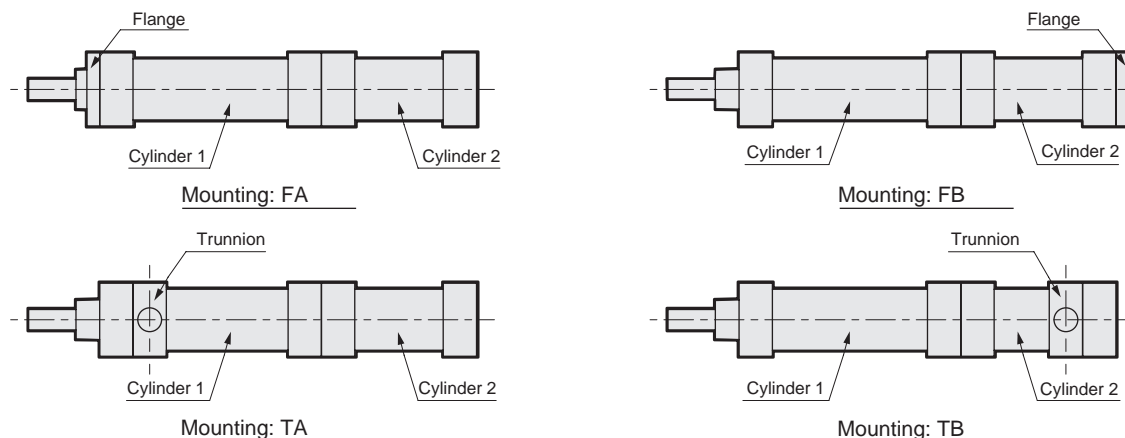
  

Code	With switch										With bellows													
	V	WF	XF	O	P	T0, T5		T1, T2Y		T8		T2W, T3W		b	d	d*	ℓ							
						RD	HD	RD	HD	RD	HD	RD	HD				50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*3 Over 500
ø40	18.5	33.5	55.5	66	41.5	11	11	10	10	5	5	13	13	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	20.5	37	65	73	43	13	13	12	12	7	7	15	15	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	21	35	63	85	47	13	13	12	12	7	7	15	15	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	23.5	48	84	105	57	14.5	14.5	13.5	13.5	8.5	8.5	16.5	16.5	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	32	53	98	121	63	18.5	18.5	17.5	17.5	12.5	12.5	20.5	20.5	69.5	61	65	20	32	42	53	76	98	120	(Stroke/4.5) + 9

\*1 : (R), (S) and (T) indicate the cushion needle position.  
 \*2 : S1 = cylinder 1 stroke (total stroke), S2 = cylinder 2 stroke (1st stage stroke)  
 \*3 : For the ℓ dimension, round up below the decimal point.  
 \*4 : Refer to page 615 for dimensions of projecting section of T2YD switch.

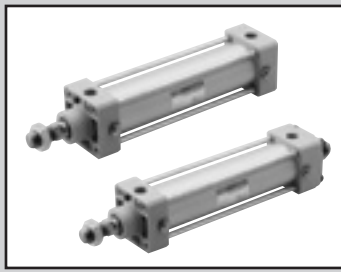
Installation dimensions of other mounting are the same as those of the SCA2 (standard). Refer to pages 458 to 469.

Installation positions of the flange (mounting: FA/FB) and trunnion (mounting: TA/TB) are as below.



\* For the dimensions of the accessories, refer to pages 470 and 471.

- SCP\*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2**
- SCS2
- CKV2
- CAV2/COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd Contr
- Ending



# Medium bore size cylinder Double acting/steel tube SCA2-K Series

● Bore size: ø40/ø50/ø63/ø80/ø100

JIS symbol



## Specifications

Item	SCA2-K (steel tube)					
Bore size mm	ø40	ø50	ø63	ø80	ø100	
Actuation	Double acting					
Working fluid	Compressed air					
Max. working pressure MPa	1.0 (≈150 psi, 10 bar)					
Min. working pressure MPa	0.05 (≈7.3 psi, 0.5 bar)					
Proof pressure MPa	1.6 (≈230 psi, 16 bar)					
Ambient temperature °C	-10 (14°F) to 60 (140°F) (no freezing)					
Port size	Rc1/4	Rc3/8		Rc1/2		
Stroke tolerance mm	$^{+0.9}_0$ (to 360), $^{+1.4}_0$ (to 800)					
Working piston speed mm/s	50 to 1000 (Operate within the allowable absorbed energy.)					
Cushion	Air cushion					
Effective air cushion length mm	14.6	16.6	16.6	20.6	23.6	
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)					
Allowable absorbed energy J	Cushioned	4.29	8.37	15.8	27.9	49.8
	Without cushion	0.067	0.079	0.079	0.201	0.301
Without any cushion, this product cannot absorb large energy generated by an external load. We recommend using an external shock absorber.						

## Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Available stroke (mm)	Min. stroke (mm)
ø40	25/50/75/100/	600	1600	1
ø50	150/200/250/			
ø63	300/350/400/	700	1900	
ø80	450/500			
ø100		800		

\*1 : The custom stroke is available in 1 mm increments.

\*2 : If max. stroke is exceeded, product specifications may not be satisfied depending on the conditions. Refer to Ending Page 69.

## Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke (S) = 0 mm						Added weight/ S = 100 mm
	Basic (00)	Foot (LB)	Flange (FA, FB)	Eye bracket (CA)	Clevis bracket (CB)	Trunnion (TA, TB, TC)	
ø40	1.01	1.18	1.42	1.33	1.37	1.39	0.56
ø50	1.42	1.67	1.91	1.80	1.83	1.96	0.72
ø63	1.85	2.22	2.94	2.42	2.47	2.70	0.82
ø80	2.94	3.68	4.80	4.21	4.42	4.28	1.37
ø100	4.64	5.55	7.38	6.28	6.46	7.21	1.70

(Example) Product weight of SCA2-K-LB-50B-200 ——— { Product weight for 0 mm stroke..... 1.67 kg  
Additional weight for 200 mm stroke .....  $0.72 \times \frac{200}{100} = 1.44$  kg  
Product weight.....  $1.67 + 1.44 = 3.11$  kg

## Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push	62.8	1.26x10 <sup>2</sup>	1.88x10 <sup>2</sup>	2.51x10 <sup>2</sup>	3.77x10 <sup>2</sup>	5.03x10 <sup>2</sup>	6.28x10 <sup>2</sup>	7.54x10 <sup>2</sup>	8.80x10 <sup>2</sup>	1.01x10 <sup>3</sup>	1.13x10 <sup>3</sup>	1.26x10 <sup>3</sup>
	Pull	52.8	1.06x10 <sup>2</sup>	1.58x10 <sup>2</sup>	2.11x10 <sup>2</sup>	3.17x10 <sup>2</sup>	4.22x10 <sup>2</sup>	5.28x10 <sup>2</sup>	6.33x10 <sup>2</sup>	7.39x10 <sup>2</sup>	8.44x10 <sup>2</sup>	9.50x10 <sup>2</sup>	1.06x10 <sup>3</sup>
ø50	Push	98.2	1.96x10 <sup>2</sup>	2.95x10 <sup>2</sup>	3.93x10 <sup>2</sup>	5.89x10 <sup>2</sup>	7.85x10 <sup>2</sup>	9.82x10 <sup>2</sup>	1.18x10 <sup>3</sup>	1.37x10 <sup>3</sup>	1.57x10 <sup>3</sup>	1.77x10 <sup>3</sup>	1.96x10 <sup>3</sup>
	Pull	82.5	1.65x10 <sup>2</sup>	2.47x10 <sup>2</sup>	3.30x10 <sup>2</sup>	4.95x10 <sup>2</sup>	6.60x10 <sup>2</sup>	8.25x10 <sup>2</sup>	9.90x10 <sup>2</sup>	1.15x10 <sup>3</sup>	1.32x10 <sup>3</sup>	1.48x10 <sup>3</sup>	1.65x10 <sup>3</sup>
ø63	Push	1.56x10 <sup>2</sup>	3.12x10 <sup>2</sup>	4.68x10 <sup>2</sup>	6.23x10 <sup>2</sup>	9.35x10 <sup>2</sup>	1.25x10 <sup>3</sup>	1.56x10 <sup>3</sup>	1.87x10 <sup>3</sup>	2.18x10 <sup>3</sup>	2.49x10 <sup>3</sup>	2.81x10 <sup>3</sup>	3.12x10 <sup>3</sup>
	Pull	1.40x10 <sup>2</sup>	2.80x10 <sup>2</sup>	4.20x10 <sup>2</sup>	5.61x10 <sup>2</sup>	8.41x10 <sup>2</sup>	1.12x10 <sup>3</sup>	1.40x10 <sup>3</sup>	1.68x10 <sup>3</sup>	1.96x10 <sup>3</sup>	2.24x10 <sup>3</sup>	2.52x10 <sup>3</sup>	2.80x10 <sup>3</sup>
ø80	Push	2.51x10 <sup>2</sup>	5.03x10 <sup>2</sup>	7.54x10 <sup>2</sup>	1.01x10 <sup>3</sup>	1.51x10 <sup>3</sup>	2.01x10 <sup>3</sup>	2.51x10 <sup>3</sup>	3.02x10 <sup>3</sup>	3.52x10 <sup>3</sup>	4.02x10 <sup>3</sup>	4.52x10 <sup>3</sup>	5.03x10 <sup>3</sup>
	Pull	2.27x10 <sup>2</sup>	4.54x10 <sup>2</sup>	6.80x10 <sup>2</sup>	9.07x10 <sup>2</sup>	1.36x10 <sup>3</sup>	1.81x10 <sup>3</sup>	2.27x10 <sup>3</sup>	2.72x10 <sup>3</sup>	3.17x10 <sup>3</sup>	3.63x10 <sup>3</sup>	4.08x10 <sup>3</sup>	4.54x10 <sup>3</sup>
ø100	Push	3.93x10 <sup>2</sup>	7.85x10 <sup>2</sup>	1.18x10 <sup>3</sup>	1.57x10 <sup>3</sup>	2.36x10 <sup>3</sup>	3.14x10 <sup>3</sup>	3.93x10 <sup>3</sup>	4.71x10 <sup>3</sup>	5.50x10 <sup>3</sup>	6.28x10 <sup>3</sup>	7.07x10 <sup>3</sup>	7.85x10 <sup>3</sup>
	Pull	3.57x10 <sup>2</sup>	7.15x10 <sup>2</sup>	1.07x10 <sup>3</sup>	1.43x10 <sup>3</sup>	2.14x10 <sup>3</sup>	2.86x10 <sup>3</sup>	3.57x10 <sup>3</sup>	4.29x10 <sup>3</sup>	5.00x10 <sup>3</sup>	5.72x10 <sup>3</sup>	6.43x10 <sup>3</sup>	7.15x10 <sup>3</sup>

### How to order

**SCA2-K - LB - 40 - B - 100 - S I**

**A** Mounting  
\*1

**B** Bore size

**C** Port thread

**D** Cushion

**E** Stroke  
\*2

**F** Option  
\*4  
\*5

**G** Accessory  
\*6

### ⚠ Precautions for model No. selection

- \*1 : Mounting bracket will be shipped with the product.  
(Trunnion are assembled at shipment.)
- \*2 : If the stroke exceeds the max. stroke, refer to Ending Page 69.
- \*3 : The instantaneous max. temperature is the temperature when sparks and cutting chips, etc., instantaneously contact the bellows.
- \*4 : "I" and "Y" cannot be selected together.
- \*5 : When selecting TA, TD, TB or TE mounting format, the cushion needle position is blank and fixed at S, with no options available.
- \*6 : Refer to Ending Page 85 for custom specifications of rod end form.
- \*7 : Refer to page 448 for combinations of variations/options.

### [Example of model No.]

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

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

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

### How to order mounting bracket

Bore size (mm)	$\phi$ 40	$\phi$ 50	$\phi$ 63	$\phi$ 80	$\phi$ 100
<b>Mounting bracket</b>					
Foot (LB) *2	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 bracket (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis bracket (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

\*1 : For material of the mounting bracket, refer to page 456.

\*2 : The foot mounting bracket is provided as 2 pcs./set.

\*3 : All mounting brackets are supplied with mounting bolts.

Code	Description
<b>A Mounting</b>	
00	Basic
LB	Axial foot
FA	Rod side flange
FB	Head side flange
FC	Head side special flange
CA	Eye bracket
CB	Clevis bracket (pin and snap ring included)
TC	Intermediate trunnion
TA	Rod side trunnion
TB	Head side trunnion
TF	Intermediate supporting hole trunnion ( $\phi$ 40 is not available)
TD	Rod side hole trunnion ( $\phi$ 40 is not available)
TE	Head side hole trunnion ( $\phi$ 40 is not available)

<b>B Bore size (mm)</b>	
40	$\phi$ 40
50	$\phi$ 50
63	$\phi$ 63
80	$\phi$ 80
100	$\phi$ 100

<b>C Port thread</b>	
Blank	Rc thread
N	NPT thread (made-to-order product)
G	G thread (made-to-order product)

<b>D Cushion</b>	
B	Both sides cushioned
R	Rod side cushioned
H	Head side cushioned
N	Without cushion

<b>E Stroke (mm)</b>			
Bore size	Stroke	Available stroke	Custom stroke
$\phi$ 40	1 to 600	1600	In 1 mm increments
$\phi$ 50	1 to 600	1900	
$\phi$ 63	1 to 600	1900	
$\phi$ 80	1 to 700	1900	
$\phi$ 100	1 to 800	1900	

<b>F Option</b>			
		Max. ambient temp.	Instantaneous max. temp.
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 (made-to-order product)		

<b>G Accessory</b>	
I	Rod eye
Y	Rod clevis (pin and snap ring included)
B1	Eye bracket
B2	Clevis bracket (pin and snap ring included)
B3	Eye bracket
B4	Trunnion No. 2 bracket (2 pcs./set)

SCP\*3

CMK2

CMA2

SCM

SCG

**SCA2**

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

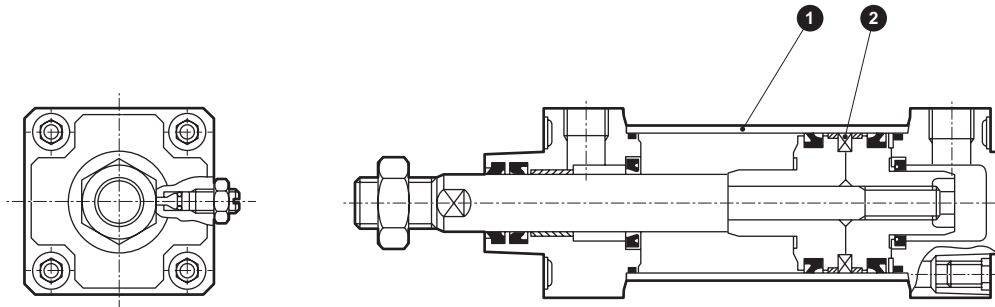
FJ

FK

Spd  
Contr

Ending

## Internal structure and parts list



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

● Note: Materials of the parts not listed on the right are the same as those of SCA2 Series (double acting/standard single rod) on page 456.

● Tube O.D. of the  $\varnothing 50$  to  $\varnothing 100$  bore sizes differ from that of the double acting/standard single rod. Therefore, the trunnion bracket is not compatible with the double acting/standard single rod.

### Repair parts list

Numbering of repair parts follows that in the internal structure of the SCA2 Series (page 456).

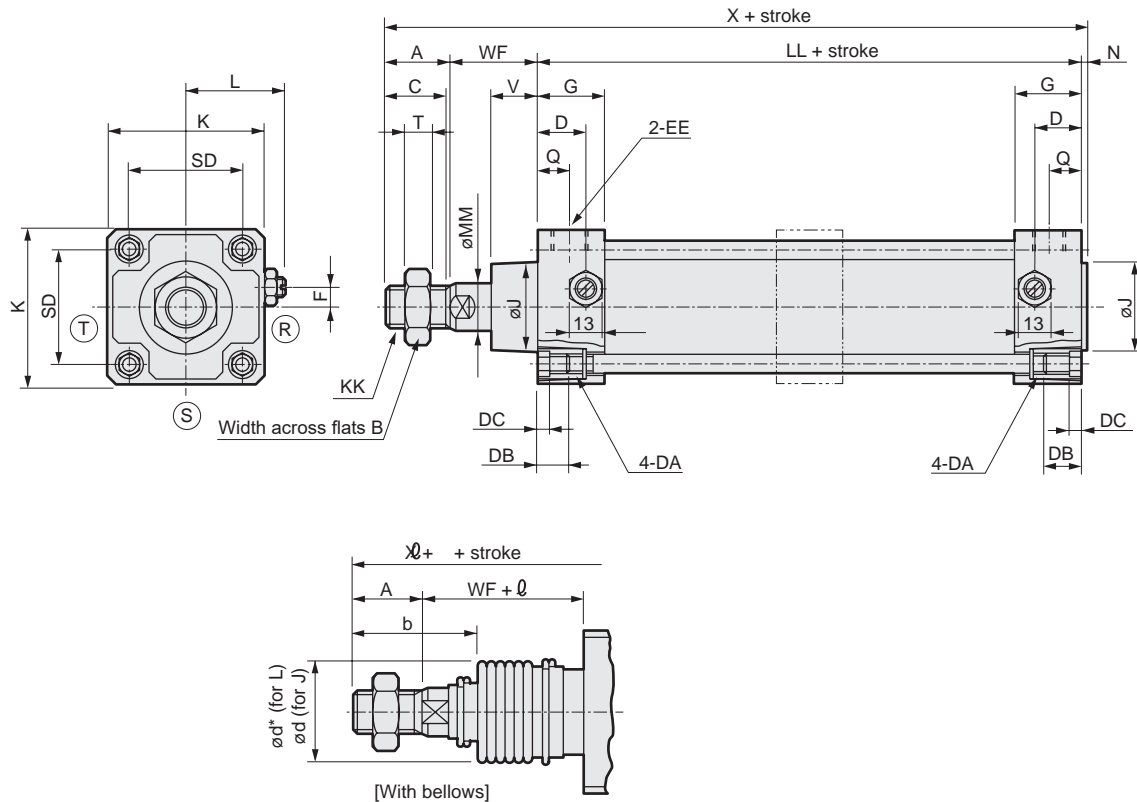
Bore size (mm)	Kit No.	Repair parts No.
$\varnothing 40$	SCA2-K-40K	
$\varnothing 50$	SCA2-K-50K	
$\varnothing 63$	SCA2-K-63K	
$\varnothing 80$	SCA2-K-80K	
$\varnothing 100$	SCA2-K-100K	

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

## Dimensions



● Basic (00)



Code	Basic (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
ø40	22	22	20	18	M8	12	4	Rc1/4	7.5	26	31	57	M14x1.5	38 to 39.5	93	16	2	13	40.5	8	18.5	33.5	150.5
ø50	28	27	26	20	M8	12	4	Rc3/8	0	28	38	66	M18x1.5	41 to 43.5	101	20	2.5	14	48	11	20.5	37	168.5
ø63	28	27	26	22	M8	12	4	Rc3/8	0	30	38	80	M18x1.5	47.5 to 50	105	20	3	15	59	11	21	35	171
ø80	36	32	34	26	M12	16	5	Rc1/2	0	34	43	98	M22x1.5	56 to 59	116	25	3.5	17	74	13	23.5	48	203.5
ø100	45	41	43	28	M12	16	5	Rc1/2	0	36	51	118	M26x1.5	66 to 69	128	30	4	18	90	16	32	53	230

Code	With bellows											
Bore size (mm)	b	d	d*	ℓ								*2: Over 500
				50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500		
ø40	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8	
ø50	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5	
ø63	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5	
ø80	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5	
ø100	69.5	61	65	20	32	42	53	76	98	120	(Stroke/4.5) + 9	

\*1 : (R/S) and (T) indicate the cushion needle position.

\*2 : For the ℓ dimension, round up below the decimal point.

\*3: Non-sag block (2-dashed line) will be added depending on the stroke.  
Refer to page 614 for details on dimensions.

\* Installation dimensions of other mounting are the same as those of the SCA2 (standard).  
Refer to pages 458 to 469.

\* For the dimensions of the accessories, refer to pages 470 and 471.

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

Ending



Medium bore size cylinder  
Double acting/low hydraulic

# SCA2-H Series

● Bore size:  $\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80/\varnothing 100$

JIS symbol



## Specifications

Item	SCA2-H (Low hydraulic)				
Bore size mm	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$
Actuation	Double acting				
Working fluid *1	Hydraulic fluid				
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)				
Min. working pressure MPa	0.2 ( $\approx 29$ psi, 2 bar)		0.15 ( $\approx 22$ psi, 1.5 bar)		
Proof pressure MPa	1.6 ( $\approx 230$ psi, 16 bar)				
Ambient temperature $^{\circ}\text{C}$	5 (41 $^{\circ}\text{F}$ ) to 50 (122 $^{\circ}\text{F}$ )				
Port size	Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance mm	$^{+0.9}_0$ (to 360), $^{+1.4}_0$ (to 800)				
Cushion	Cushioned				
Effective air 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 absorbed energy J	Cushioned	The cushioning of the low hydraulic cylinder cannot absorb large energy. We recommend using an external shock absorber.			
	Without cushion	0.067	0.079	0.079	0.201
Without any cushion, this product cannot absorb large energy generated by an external load. We recommend using an external shock absorber.					

\*1: Hydraulic fluid of viscosity 40 mm<sup>2</sup>/s is recommended at working oil temperature.

For oil, use Fuji Kosan/Fukkol Hydrol x 22 or equivalent oil such as MITSUBISHI/Diamond Power Fluid 18, Showa-Shell/SHELL Tellus Oil 22, ESSO/Univis J26, Mobile DTE22, Cosmohydro HV22, JX Nippon Oil & Energy Corporation/Highlandwide 22 or Idemitsu/Daphne Super Hydro 22 WR.

## Stroke

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

\*1: The custom stroke is available in 1 mm increments.

## Min. stroke with switch

● T0/T5 min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
$\varnothing 40$	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)
$\varnothing 50$	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)
$\varnothing 63$	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)
$\varnothing 80$	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)
$\varnothing 100$	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T8 min. stroke with switch

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
$\varnothing 40$	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)
$\varnothing 50$	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)
$\varnothing 63$	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)
$\varnothing 80$	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)
$\varnothing 100$	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

### Min. stroke with switch

#### ● T2/T3 min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	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)
ø50	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)
ø63	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)
ø80	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)
ø100	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

#### ● T1/T2Y/T3Y/T2YD min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	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)
ø50	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)
ø63	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)
ø80	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)
ø100	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire). T2YD does not have an L-shaped lead wire (V).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

#### ● T2W/T3W min. stroke with switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	20(5)	20(10)	20(15)	25(25)	20(5)	65(50)	110(80)	155(110)	110(80)	110(80)	170(140)	170(140)	50(35)	50(35)
ø50	20(5)	20(10)	20(15)	20(20)	20(5)	20(10)	65(40)	65(40)	110(80)	110(80)	110(80)	110(80)	50(35)	50(35)
ø63	20(5)	20(10)	20(15)	25(25)	20(5)	20(10)	65(40)	65(40)	115(85)	115(85)	115(85)	115(85)	55(40)	55(40)
ø80	15(5)	15(10)	15(15)	25(25)	15(5)	15(10)	60(40)	60(40)	120(90)	120(90)	120(90)	120(90)	55(40)	55(40)
ø100	10(5)	10(10)	20(20)	25(25)	10(5)	10(10)	60(40)	60(40)	130(100)	130(100)	130(100)	130(100)	60(45)	60(45)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

# SCA2-H Series

## Switch specifications (T-switch)

● 1-color/2-color LED/for AC magnetic field proof

Item	2-wire proximity		2-wire proximity			3-wire proximity				2-wire reed			2-wire proximity			
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V		T2YD (*4) T2YDT			
Applications	For programming controller, relay, compact solenoid valve	Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay	For programmable controller, relay (no lamp), serial		For programmable controller, relay		Dedicated for programmable controller		
Output method	-			NPN output	PNP output	NPN output	NPN output	-								
Pwr. supp. V.	-			10 to 28 VDC				-								
Load voltage	85 to 265 VAC	10 to 30 VDC	24 VDC ±10%		30 VDC or less				12/24 VDC	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 (*3)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp		LED (Lit when ON)		Red/green LED (Lit when ON)	
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA						1 mA or less	
Weight g	1 m:33	1 m:18	1 m:33	1 m:18	1 m:18	1 m:33	1 m:18				1 m:33		1 m:61			
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49	3 m:87	3 m:49	1 m:18 3 m:49 5 m:80			3 m:87		3 m:166			
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80	5 m:142	5 m:80				5 m:142		5 m:272			

\*1: Refer to Ending Page 1 for detailed switch specifications and dimensions.

\*2: Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

\*3: Max. load current: 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

\*4: Switch for AC magnetic field (T2YD/T2YDT) cannot be used in DC magnetic field.



### Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke (S) = 0 mm							Switch weight	Mounting bracket weight	Additional weight per S = 100 mm
	Basic (OO)	Foot (LB)	Flange (FA, FB)	Special flange (FC)	Eye bracket (CA)	Clevis bracket (CB)	Trunnion (TA, TB, TC)		T type	
ø40	0.83	1.00	1.24	0.92	1.15	1.19	1.21	Refer to the weight in the switch specifications.	0.024	0.39
ø50	1.20	1.45	1.69	1.31	1.58	1.61	1.74		0.022	0.46
ø63	1.60	1.97	2.69	1.78	2.17	2.22	2.45		0.020	0.50
ø80	2.60	3.34	4.46	2.96	3.87	4.08	3.94		0.026	0.90
ø100	4.20	5.11	6.94	4.75	5.84	6.02	6.77		0.024	1.12

(Example) Product weight of SCA2-H-LB-50B-200-TOH-D	Product weight for 0 mm stroke.....	1.45 kg
	Additional weight for 200 mm stroke .....	$0.46 \times \frac{200}{100} = 0.92$ kg
	Weight of 2 TOH switches .....	$0.018 \times 2 = 0.036$ kg
	Weight of 2 mounting brackets .....	$0.022 \times 2 = 0.044$ kg
	Product weight.....	$1.45 + 0.92 + 0.036 + 0.044 = 2.450$ kg

### Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa									
		0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push	—	$2.51 \times 10^2$	$3.77 \times 10^2$	$5.03 \times 10^2$	$6.28 \times 10^2$	$7.54 \times 10^2$	$8.80 \times 10^2$	$1.01 \times 10^3$	$1.13 \times 10^3$	$1.26 \times 10^3$
	Pull	—	$2.11 \times 10^2$	$3.17 \times 10^2$	$4.22 \times 10^2$	$5.28 \times 10^2$	$6.33 \times 10^2$	$7.39 \times 10^2$	$8.44 \times 10^2$	$9.50 \times 10^2$	$1.06 \times 10^3$
ø50	Push	—	$3.93 \times 10^2$	$5.89 \times 10^2$	$7.85 \times 10^2$	$9.82 \times 10^2$	$1.18 \times 10^3$	$1.37 \times 10^3$	$1.57 \times 10^3$	$1.77 \times 10^3$	$1.96 \times 10^3$
	Pull	—	$3.30 \times 10^2$	$4.95 \times 10^2$	$6.60 \times 10^2$	$8.25 \times 10^2$	$9.90 \times 10^2$	$1.15 \times 10^3$	$1.32 \times 10^3$	$1.48 \times 10^3$	$1.65 \times 10^3$
ø63	Push	$4.68 \times 10^2$	$6.23 \times 10^2$	$9.35 \times 10^2$	$1.25 \times 10^3$	$1.56 \times 10^3$	$1.87 \times 10^3$	$2.18 \times 10^3$	$2.49 \times 10^3$	$2.81 \times 10^3$	$3.12 \times 10^3$
	Pull	$4.20 \times 10^2$	$5.61 \times 10^2$	$8.41 \times 10^2$	$1.12 \times 10^3$	$1.40 \times 10^3$	$1.68 \times 10^3$	$1.96 \times 10^3$	$2.24 \times 10^3$	$2.52 \times 10^3$	$2.80 \times 10^3$
ø80	Push	$7.54 \times 10^2$	$1.01 \times 10^3$	$1.51 \times 10^3$	$2.01 \times 10^3$	$2.51 \times 10^3$	$3.02 \times 10^3$	$3.52 \times 10^3$	$4.02 \times 10^3$	$4.52 \times 10^3$	$5.03 \times 10^3$
	Pull	$6.80 \times 10^2$	$9.07 \times 10^2$	$1.36 \times 10^3$	$1.81 \times 10^3$	$2.27 \times 10^3$	$2.72 \times 10^3$	$3.17 \times 10^3$	$3.63 \times 10^3$	$4.08 \times 10^3$	$4.54 \times 10^3$
ø100	Push	$1.18 \times 10^3$	$1.57 \times 10^3$	$2.36 \times 10^3$	$3.14 \times 10^3$	$3.93 \times 10^3$	$4.71 \times 10^3$	$5.50 \times 10^3$	$6.28 \times 10^3$	$7.07 \times 10^3$	$7.85 \times 10^3$
	Pull	$1.07 \times 10^3$	$1.43 \times 10^3$	$2.14 \times 10^3$	$2.86 \times 10^3$	$3.57 \times 10^3$	$4.29 \times 10^3$	$5.00 \times 10^3$	$5.72 \times 10^3$	$6.43 \times 10^3$	$7.15 \times 10^3$

# SCA2-H Series

## How to order

No switch (built-in magnet for switch)

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

With switch (built-in magnet for switch)

SCA2-H - LB - 40 - B - 100 - T0H - R - S - I

A Mounting  
\*1

B Bore size

C Port thread

D Cushion

E Stroke  
\*2

F Switch model No.  
\*4

G Switch quantity  
\*5

H Option  
\*6  
\*7

I Accessory  
\*8

### ⚠ Precautions for model No. selection

- \*1 : Mounting bracket will be shipped with the product. (Trunnion are assembled at shipment.)
- \*2 : If the stroke exceeds the max. stroke, refer to Ending Page 69.
- \*3 : Refer to pages 568 and 569 for the min. stroke with switch.
- \*4 : Switches are shipped with the product.
- \*5 : When selecting TA, TD, TB or TE mounting, the switch quantity is limited to "H" (1 on head side) for TA and TD, and "R" (1 on rod side) for TB and TE.
- \*6 : The instantaneous max. temperature is the temperature when sparks and cutting chips, etc., instantaneously contact the bellows.
- \*7 : When selecting TA, TD, TB or TE mounting format, the cushion needle position is blank and fixed at S, with no options available.
- \*8 : "I" and "Y" cannot be selected together.
- \*9 : Refer to Ending Page 85 for custom specifications of rod end form.
- \*10: Refer to page 448 for combination of variations/options.

[Example of model No.]

**SCA2-H-LB-40B-100-T0H-R-SI**

Model: Medium bore size cylinder, double acting/low hydraulic

- A Mounting : Axial foot
- B Bore size : ø40 mm
- C Port thread : Rc thread
- D Cushion : Both sides cushioned
- E Stroke : 100 mm
- F Switch model No. : Reed T0H switch, lead wire length 1 m
- G Switch quantity : 1 on rod side
- H Option : Cushion needle position S
- I Accessory : Rod eye

Code	Description	
<b>A Mounting</b>		
00	Basic	
LB	Axial foot	
FA	Rod side flange	
FB	Head side flange	
FC	Head side special flange	
CA	Eye bracket	
CB	Clevis bracket (pin and snap ring included)	
TC	Intermediate trunnion	
TA	Rod side trunnion	
TB	Head side trunnion	
TF	Intermediate supporting hole trunnion (ø40 is not available)	
TD	Rod side hole trunnion (ø40 is not available)	
TE	Head side hole trunnion (ø40 is not available)	
<b>B Bore size (mm)</b>		
40	ø40	
50	ø50	
63	ø63	
80	ø80	
100	ø100	
<b>C Port thread</b>		
Blank	Rc thread	
N	NPT thread (made-to-order product)	
G	G thread (made-to-order product)	
<b>D Cushion</b>		
B	Both sides cushioned	
R	Rod side cushioned	
H	Head side cushioned	
N	Without cushion	
<b>E Stroke (mm)</b>		
Bore size	Stroke *3	Custom stroke
ø40	1 to 600	In 1 mm increments
ø50	1 to 600	
ø63	1 to 600	
ø80	1 to 700	
ø100	1 to 800	
<b>F Switch model No.</b>		
Refer to the switch model numbers on the next page.		
<b>* Lead wire length</b>		
Blank	1 m (standard)	
3	3 m (option)	
5	5 m (option)	
<b>G Switch quantity</b>		
R	1 on rod side	
H	1 on head side	
D	2	
T	3	
<b>H Option</b>		
		Max. ambient temp. / Instantaneous max. temp.
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 (made-to-order product)	
<b>I Accessory</b>		
I	Rod eye	
Y	Rod clevis (pin and snap ring included)	
B1	Eye bracket	
B2	Clevis bracket (pin and snap ring included)	
B3	Eye bracket	
B4	Trunnion No. 2 bracket (2 pcs./set)	

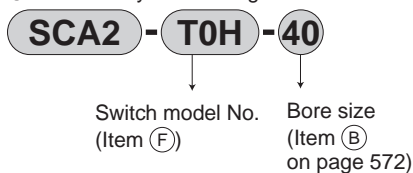
### [F] Switch model No.

T-switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No indicator lamp	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*	Proximity	●		1-color LED	2-wire
T2H*	T2V*			●		1-color LED
T3H*	T3V*			●	2-color LED	
T2WH*	T2WV*			●		3-wire
T2YH*	T2YV*			●		
T3WH*	T3WV*			●		3-wire
T3YH*	T3YV*			●	1-color LED	
T3PH*	T3PV*			●		2-color LED
T2YD*	-			●	AC magnetic field	
T2YDT*	-			●		1-color LED off-delay
T2JH*	T2JV*		●			

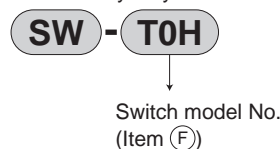
### How to order switch

#### [T-switch]

- Switch body + mounting bracket set

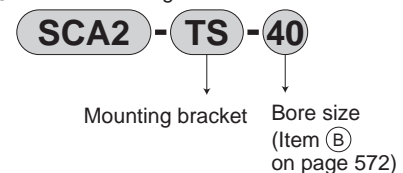


- Switch body only



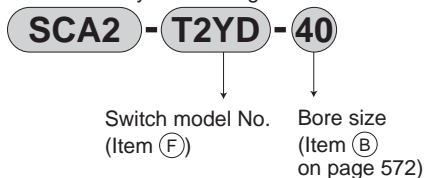
\* Contact CKD when using an environment-friendly T-switch.

- Switch mounting bracket set

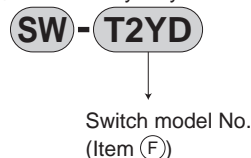


#### [T2YD switch]

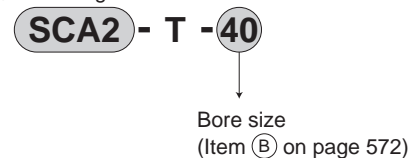
- Switch body + mounting bracket set



- Switch body only



- Mounting bracket set



### How to order mounting bracket

Bore size (mm)	ø40	ø50	ø63	ø80	ø100
Mounting bracket					
Foot (LB) *2	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 bracket (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis bracket (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

\*1: For material of the mounting bracket, refer to page 456.

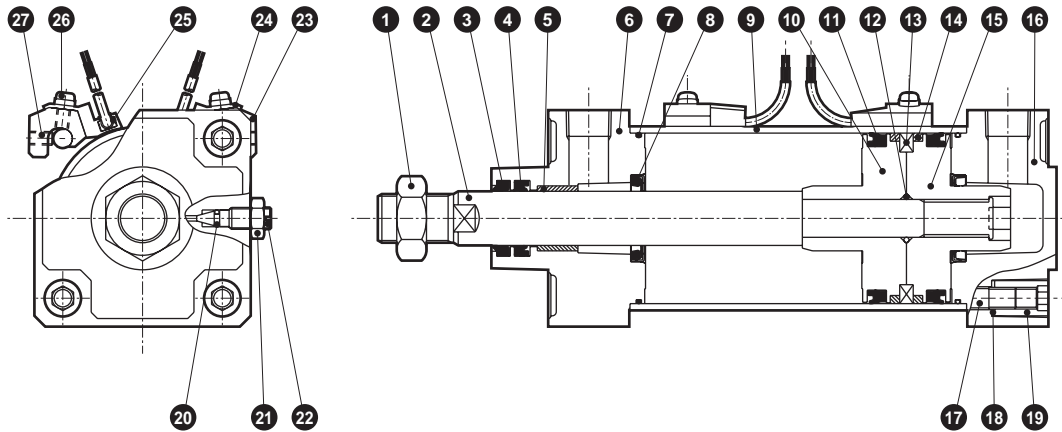
\*2: The foot mounting bracket is provided as 2 pcs./set.

\*3: All mounting brackets are supplied with mounting bolts.

SCP*3
CMK2
CMA2
SCM
SCG
<b>SCA2</b>
SCS2
CKV2
CAV2/COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

# SCA2-H Series

## Internal structure and parts list



No.	Part name	Material	Remarks	No.	Part 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	Nitrile rubber		18	Conical spring washer	Steel	Black finish
5	Bush	Oil impregnated bearing alloy	*1	19	Round nut	Steel	Zinc chromate
6	Rod cover	Aluminum alloy die-casting	Paint	20	Needle gasket	Nitrile rubber	
7	Cylinder gasket	Nitrile rubber		21	Needle nut	Copper alloy	Nickel plating *2
8	Cushion packing	Nitrile rubber, steel		22	Cushion needle	Copper alloy	Nickel plating *2
9	Cylinder tube	Aluminum alloy	Hard alumite treatment	With switch			
10	Piston R	Aluminum alloy die-casting		23	Switch mounting base	Aluminum alloy	
11	Piston packing	Nitrile rubber		24	Switch holder	Aluminum alloy	
12	Piston gasket	Nitrile rubber		25	Cylinder switch		
13	Magnet	Plastic		26	Phillips pan head machine screw/captive washer	Steel	Zinc chromate
14	Wear ring	Polyacetal resin		27	Hexagon socket set screw	Alloy steel	Black finish

\*1: Oil-impregnated cast iron bearing for copper and PTFE free.

\*2: Copper + galvanizing for copper and PTFE free.

## Repair parts list

Bore size (mm)	Kit No.	Repair parts No.
ø40	SCA2-H-40K	
ø50	SCA2-H-50K	3 4 7 8 11
ø63	SCA2-H-63K	14 20
ø80	SCA2-H-80K	
ø100	SCA2-H-100K	

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

## Dimensions

Same dimensions as the double acting/single rod. Refer to pages 457 to 469.

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# MEMO

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SCP\*3

CMK2

CMA2

SCM

SCG

**SCA2**

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

Ending



Medium bore size cylinder  
Double acting/rubber scraper

# SCA2-G Series

● Bore size:  $\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80/\varnothing 100$

JIS symbol



## Specifications

Item	SCA2-G (Rubber scraper)					
Bore size	mm	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure	MPa	1.0 ( $\approx 150$ psi, 10 bar)				
Min. working pressure	MPa	0.05 ( $\approx 7.3$ psi, 0.5 bar)				
Proof pressure	MPa	1.6 ( $\approx 230$ psi, 16 bar)				
Ambient temperature	$^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ ) (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance	mm	$^{+0.9}_0$ (to 360), $^{+1.4}_0$ (to 800)				
Working piston speed	mm/s	50 to 1000 (Operate within the allowable absorbed energy.)				
Cushion		Air cushion				
Effective air cushion length	mm	14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)				
Allowable absorbed energy	Cushioned	4.29	8.37	15.8	27.9	49.8
	Without cushion	0.067	0.079	0.079	0.201	0.301
Without any cushion, this product cannot absorb large energy generated by an external load. We recommend using an external shock absorber.						

## Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Available stroke (mm)	Min. stroke (mm)
$\varnothing 40$	25/50/75/100/	600	1600	1
$\varnothing 50$	150/200/250/		2000	
$\varnothing 63$	300/350/400/	700	2500	
$\varnothing 80$	450/500			
$\varnothing 100$				

\*1 : The custom stroke is available in 1 mm increments.

\*2 : If max. stroke is exceeded, product specifications may not be satisfied depending on the conditions. Refer to Ending Page 69.

## Min. stroke with switch

● T0/T5 min. stroke with switches

Switch Qty	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting	Head side trunnion mounting
	1	2	3	4	1	2	3	4	1	2	3	4	No position detection at rod side stroke end.	No position detection at head side stroke end.
$\varnothing 40$	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)
$\varnothing 50$	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)
$\varnothing 63$	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)
$\varnothing 80$	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)
$\varnothing 100$	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)

\*1 : The values in ( ) are of T\*V (L-shaped lead wire).

\*2 : When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T8 min. stroke with switch

Switch Qty	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting	Head side trunnion mounting
	1	2	3	4	1	2	3	4	1	2	3	4	No position detection at rod side stroke end.	No position detection at head side stroke end.
$\varnothing 40$	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)
$\varnothing 50$	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)
$\varnothing 63$	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)
$\varnothing 80$	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)
$\varnothing 100$	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)

\*1 : The values in ( ) are of T\*V (L-shaped lead wire).

\*2 : When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

### Min. stroke with switch

● T2/T3 min. stroke with switches

Switch Qty	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	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)
ø50	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)
ø63	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)
ø80	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)
ø100	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T1/T2Y/T3Y/T2YD min. stroke with switches

Switch Qty	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	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)
ø50	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)
ø63	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)
ø80	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)
ø100	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire). T2YD does not have an L-shaped lead wire (V).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T2W/T3W min. stroke with switches

Switch Qty	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	20(5)	20(10)	20(15)	25(25)	20(5)	65(50)	110(80)	155(110)	110(80)	110(80)	170(140)	170(140)	50(35)	50(35)
ø50	20(5)	20(10)	20(15)	20(20)	20(5)	20(10)	65(40)	65(40)	110(80)	110(80)	110(80)	110(80)	50(35)	50(35)
ø63	20(5)	20(10)	20(15)	25(25)	20(5)	20(10)	65(40)	65(40)	115(85)	115(85)	115(85)	115(85)	55(40)	55(40)
ø80	15(5)	15(10)	15(15)	25(25)	15(5)	15(10)	60(40)	60(40)	120(90)	120(90)	120(90)	120(90)	55(40)	55(40)
ø100	10(5)	10(10)	20(20)	25(25)	10(5)	10(10)	60(40)	60(40)	130(100)	130(100)	130(100)	130(100)	60(45)	60(45)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

# SCA2-G Series

## Switch specifications (T-switch)

● 1-color/2-color LED/for AC magnetic field proof

Item	2-wire proximity	2-wire proximity			3-wire proximity				2-wire reed			2-wire proximity				
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V	T2YD (*4) T2YDT				
Applications	For programming controller, relay, compact solenoid valve	Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay	For programmable controller, relay (no lamp), serial	For programmable controller, relay	Dedicated for programmable controller				
Output method	-			NPN output	PNP output	NPN output	NPN output	-								
Pwr. supp. V.	-			10 to 28 VDC				-								
Load voltage	85 to 265 VAC	10 to 30 VDC	24 VDC ±10%	30 VDC or less				12/24 VDC	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 (*3)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp	LED (Lit when ON)		Red/green LED (Lit when ON)		
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA					1 mA or less		
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80		1 m:33 3 m:87 5 m:142		1 m:61 3 m:166 5 m:272				

\*1 : Refer to Ending Page 1 for detailed switch specifications and dimensions.

\*2 : Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

\*3 : Max. load current: 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

\*4 : Switch for AC magnetic field (T2YD/T2YDT) cannot be used in DC magnetic field.

SCP\*3  
CMK2  
CMA2  
SCM  
SCG  
SCA2  
SCS2  
CKV2  
CAV2/  
COVP/N2  
SSD2  
SSG  
SSD  
CAT  
MDC2  
MVC  
SMG  
MSD/  
MSDG  
FC\*  
STK  
SRL3  
SRG3  
SRM3  
SRT3  
MRL2  
MRG2  
SM-25  
ShkAbs  
FJ  
FK  
Spd  
Contr  
Ending



### Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke (S) = 0 mm						Switch weight	Mounting bracket weight	Additional weight per S = 100 mm
	Basic (00)	Foot (LB)	Flange (FA, FB)	Eye bracket (CA)	Clevis bracket (CB)	Trunnion (TA, TB, TC)		T type	
ø40	0.83	1.00	1.24	1.15	1.19	1.21	Refer to the weight in the switch specifications.	0.024	0.39
ø50	1.20	1.45	1.69	1.58	1.61	1.74		0.022	0.46
ø63	1.60	1.97	2.69	2.17	2.22	2.45		0.020	0.50
ø80	2.60	3.34	4.46	3.87	4.08	3.94		0.026	0.90
ø100	4.20	5.11	6.94	5.84	6.02	6.77		0.024	1.12

(Example) Product weight of SCA2-G-LB-50B-200-TOH-D	Product weight for 0 mm stroke.....	1.45 kg
	Additional weight for 200 mm stroke .....	$0.46 \times \frac{200}{100} = 0.92$ kg
	Weight of 2 TOH switches .....	$0.018 \times 2 = 0.036$ kg
	Weight of 2 mounting brackets .....	$0.022 \times 2 = 0.044$ kg
	Product weight .....	$1.45 + 0.92 + 0.036 + 0.044 = 2.450$ kg

### Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push	62.8	$1.26 \times 10^2$	$1.88 \times 10^2$	$2.51 \times 10^2$	$3.77 \times 10^2$	$5.03 \times 10^2$	$6.28 \times 10^2$	$7.54 \times 10^2$	$8.80 \times 10^2$	$1.01 \times 10^3$	$1.13 \times 10^3$	$1.26 \times 10^3$
	Pull	52.8	$1.06 \times 10^2$	$1.58 \times 10^2$	$2.11 \times 10^2$	$3.17 \times 10^2$	$4.22 \times 10^2$	$5.28 \times 10^2$	$6.33 \times 10^2$	$7.39 \times 10^2$	$8.44 \times 10^2$	$9.50 \times 10^2$	$1.06 \times 10^3$
ø50	Push	98.2	$1.96 \times 10^2$	$2.95 \times 10^2$	$3.93 \times 10^2$	$5.89 \times 10^2$	$7.85 \times 10^2$	$9.82 \times 10^2$	$1.18 \times 10^3$	$1.37 \times 10^3$	$1.57 \times 10^3$	$1.77 \times 10^3$	$1.96 \times 10^3$
	Pull	82.5	$1.65 \times 10^2$	$2.47 \times 10^2$	$3.30 \times 10^2$	$4.95 \times 10^2$	$6.60 \times 10^2$	$8.25 \times 10^2$	$9.90 \times 10^2$	$1.15 \times 10^3$	$1.32 \times 10^3$	$1.48 \times 10^3$	$1.65 \times 10^3$
ø63	Push	$1.56 \times 10^2$	$3.12 \times 10^2$	$4.68 \times 10^2$	$6.23 \times 10^2$	$9.35 \times 10^2$	$1.25 \times 10^3$	$1.56 \times 10^3$	$1.87 \times 10^3$	$2.18 \times 10^3$	$2.49 \times 10^3$	$2.81 \times 10^3$	$3.12 \times 10^3$
	Pull	$1.40 \times 10^2$	$2.80 \times 10^2$	$4.20 \times 10^2$	$5.61 \times 10^2$	$8.41 \times 10^2$	$1.12 \times 10^3$	$1.40 \times 10^3$	$1.68 \times 10^3$	$1.96 \times 10^3$	$2.24 \times 10^3$	$2.52 \times 10^3$	$2.80 \times 10^3$
ø80	Push	$2.51 \times 10^2$	$5.03 \times 10^2$	$7.54 \times 10^2$	$1.01 \times 10^3$	$1.51 \times 10^3$	$2.01 \times 10^3$	$2.51 \times 10^3$	$3.02 \times 10^3$	$3.52 \times 10^3$	$4.02 \times 10^3$	$4.52 \times 10^3$	$5.03 \times 10^3$
	Pull	$2.27 \times 10^2$	$4.54 \times 10^2$	$6.80 \times 10^2$	$9.07 \times 10^2$	$1.36 \times 10^3$	$1.81 \times 10^3$	$2.27 \times 10^3$	$2.72 \times 10^3$	$3.17 \times 10^3$	$3.63 \times 10^3$	$4.08 \times 10^3$	$4.54 \times 10^3$
ø100	Push	$3.93 \times 10^2$	$7.85 \times 10^2$	$1.18 \times 10^3$	$1.57 \times 10^3$	$2.36 \times 10^3$	$3.14 \times 10^3$	$3.93 \times 10^3$	$4.71 \times 10^3$	$5.50 \times 10^3$	$6.28 \times 10^3$	$7.07 \times 10^3$	$7.85 \times 10^3$
	Pull	$3.57 \times 10^2$	$7.15 \times 10^2$	$1.07 \times 10^3$	$1.43 \times 10^3$	$2.14 \times 10^3$	$2.86 \times 10^3$	$3.57 \times 10^3$	$4.29 \times 10^3$	$5.00 \times 10^3$	$5.72 \times 10^3$	$6.43 \times 10^3$	$7.15 \times 10^3$

# SCA2-G Series

SCP\*3  
CMK2  
CMA2  
SCM  
SCG  
SCA2  
SCS2  
CKV2  
CAV2/  
COVPIN2  
SSD2  
SSG  
SSD  
CAT  
MDC2  
MVC  
SMG  
MSD/  
MSDG  
FC\*  
STK  
SRL3  
SRG3  
SRM3  
SRT3  
MRL2  
MRG2  
SM-25  
ShkAbs  
FJ  
FK  
Spd  
Contr  
Ending

## How to order

No switch (built-in magnet for switch)

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

With switch (built-in magnet for switch)

**SCA2-G** - **LB** - **40** - **B** - **100** - **T0H** - **R** - **S** **I**

**A** Mounting  
\*1

**B** Bore size

**C** Port thread

**D** Cushion

**E** Stroke  
\*2

**F** Switch model No.  
\*4

**G** Switch quantity  
\*5

**H** Option  
\*6

**I** Accessory  
\*7

## ⚠ Precautions for model No. selection

\*1 : Mounting bracket will be shipped with the product. (Trunnion are assembled at shipment.)

\*2 : If the stroke exceeds the max. stroke, refer to Ending Page 69.

\*3 : Refer to pages 576 and 577 for the min. stroke with switch.

\*4 : Switches are shipped with the product.

\*5 : When selecting TA, TD, TB or TE mounting, the switch quantity is limited to "H" (1 on head side) for TA and TD, and "R" (1 on rod side) for TB and TE.

\*6 : When selecting TA, TD, TB or TE mounting format, the cushion needle position is blank and fixed at S, with no options available.

\*7 : "I" and "Y" cannot be selected together.

\*8 : Refer to Ending Page 85 for custom specifications of rod end form.

\*9 : Refer to page 448 for combination of variations/options.

[Example of model No.]

**SCA2-G-LB-40B-100-T0H-R-SI**

Model: Medium bore size cylinder, double acting/rubber scraper

- A** Mounting : Axial foot
- B** Bore size :  $\varnothing 40$  mm
- C** Port thread : Rc thread
- D** Cushion : Both sides cushioned
- E** Stroke : 100 mm
- F** Switch model No. : Reed T0H switch, lead wire length 1 m
- G** Switch quantity : 1 on rod side
- H** Option : Cushion needle position S
- I** Accessory : Rod eye

Code	Description
<b>A Mounting</b>	
<b>00</b>	Basic
<b>LB</b>	Axial foot
<b>FA</b>	Rod side flange
<b>FB</b>	Head side flange
<b>FC</b>	Head side special flange
<b>CA</b>	Eye bracket
<b>CB</b>	Clevis bracket (pin and snap ring included)
<b>TC</b>	Intermediate trunnion
<b>TA</b>	Rod side trunnion
<b>TB</b>	Head side trunnion
<b>TF</b>	Intermediate supporting hole trunnion ( $\varnothing 40$ is not available)
<b>TD</b>	Rod side hole trunnion ( $\varnothing 40$ is not available)
<b>TE</b>	Head side hole trunnion ( $\varnothing 40$ is not available)

<b>B Bore size (mm)</b>	
<b>40</b>	$\varnothing 40$
<b>50</b>	$\varnothing 50$
<b>63</b>	$\varnothing 63$
<b>80</b>	$\varnothing 80$
<b>100</b>	$\varnothing 100$

<b>C Port thread</b>	
<b>Blank</b>	Rc thread
<b>N</b>	NPT thread (made-to-order product)
<b>G</b>	G thread (made-to-order product)

<b>D Cushion</b>	
<b>B</b>	Both sides cushioned
<b>R</b>	Rod side cushioned
<b>H</b>	Head side cushioned
<b>N</b>	Without cushion

<b>E Stroke (mm)</b>			
Bore size	Stroke *3	Available stroke	Custom stroke
$\varnothing 40$	<b>1 to 600</b>	<b>1600</b>	In 1 mm increments
$\varnothing 50$	<b>1 to 600</b>	<b>2000</b>	
$\varnothing 63$	<b>1 to 600</b>	<b>2500</b>	
$\varnothing 80$	<b>1 to 700</b>		
$\varnothing 100$	<b>1 to 800</b>		

<b>F Switch model No.</b>	
Refer to the switch model numbers on the next page.	
<b>* Lead wire length</b>	
<b>Blank</b>	1 m (standard)
<b>3</b>	3 m (option)
<b>5</b>	5 m (option)

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

<b>H Option</b>	
<b>M</b>	Piston rod material (stainless steel)
<b>Blank</b>	Cushion needle position R (standard)
<b>S</b>	Cushion needle position S
<b>T</b>	Cushion needle position T
<b>P6</b>	Copper and PTFE free (made-to-order product)

<b>I Accessory</b>	
<b>I</b>	Rod eye
<b>Y</b>	Rod clevis (pin and snap ring included)
<b>B1</b>	Eye bracket
<b>B2</b>	Clevis bracket (pin and snap ring included)
<b>B3</b>	Eye bracket
<b>B4</b>	Trunnion No. 2 bracket (2 pcs./set)

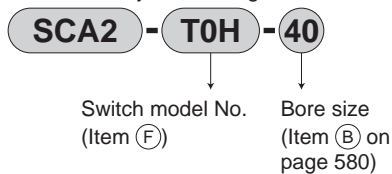
### [F] Switch model No.

T-switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No indicator lamp	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*	Proximity	●		1-color LED	2-wire
T2H*	T2V*			●		
T3H*	T3V*			●	3-wire	
T2WH*	T2WV*			●	2-color LED	2-wire
T2YH*	T2YV*			●		
T3WH*	T3WV*			●		3-wire
T3YH*	T3YV*			●	1-color LED	3-wire
T3PH*	T3PV*			●		
T2YD*	-			●	2-color LED	2-wire
T2YDT*	-			●	AC magnetic field	
T2JH*	T2JV*		●	1-color LED off-delay	2-wire	

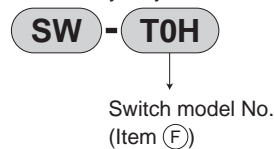
### How to order switch

#### [T-switch]

- Switch body + mounting bracket set

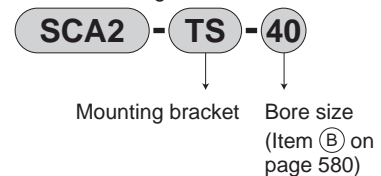


- Switch body only



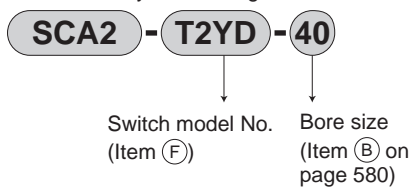
\* Contact CKD when using an environment-friendly T-switch.

- Switch mounting bracket set

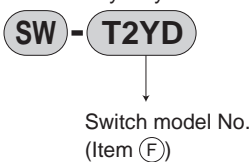


#### [T2YD switch]

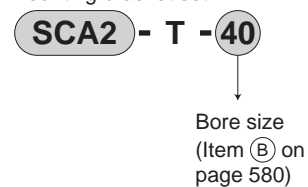
- Switch body + mounting bracket set



- Switch body only



- Mounting bracket set



### How to order mounting bracket

Bore size (mm)	ø40	ø50	ø63	ø80	ø100
Mounting bracket					
Foot (LB)	*2 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 bracket (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis bracket (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

\*1: For material of the mounting bracket, refer to page 456.

\*2: The foot mounting bracket is provided as 2 pcs./set.

\*3: All mounting brackets are supplied with mounting bolts.

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

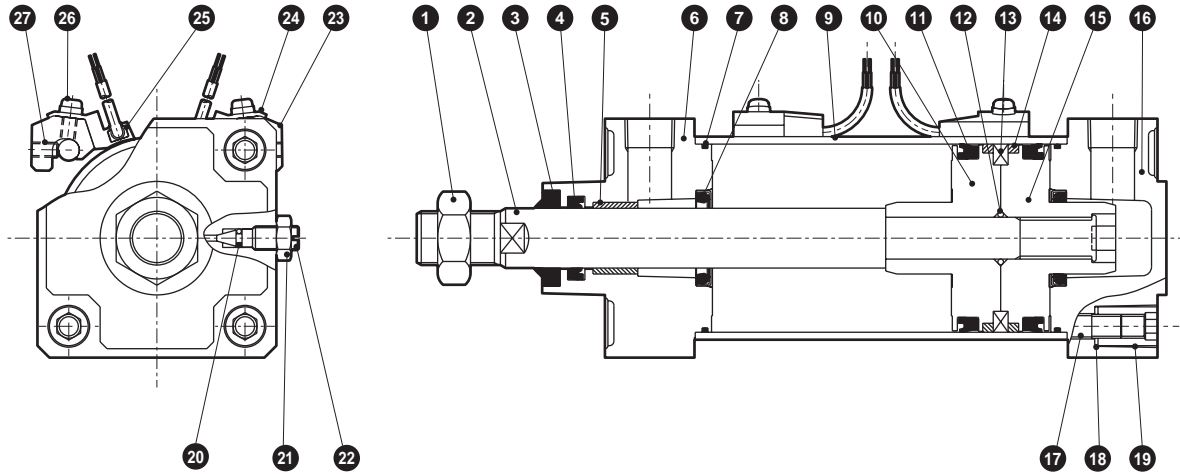
FK

Spd Contr

Ending

# SCA2-G Series

## Internal structure and parts list



No.	Part name	Material	Remarks	No.	Part 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	Nitrile rubber		18	Conical spring washer	Steel	Black finish
5	Bush	Oil impregnated bearing alloy		19	Round nut	Steel	Zinc chromate
6	Rod cover	Aluminum alloy die-casting	Paint	20	Needle gasket	Nitrile rubber	
7	Cylinder gasket	Nitrile rubber		21	Needle nut	Copper alloy	Nickel plating
8	Cushion packing	Nitrile rubber/steel		22	Cushion needle	Copper alloy	Nickel plating
9	Cylinder tube	Aluminum alloy	Hard alumite	23	Switch mounting base	Aluminum alloy	
10	Piston R	Aluminum alloy die-casting		24	Switch holder	Aluminum alloy	
11	Piston packing	Nitrile rubber		25	Cylinder switch		
12	Piston gasket	Nitrile rubber		26	Phillips pan head machine screw/captive washer	Steel	Zinc chromate
13	Magnet	Plastic		27	Hexagon socket set screw	Alloy steel	Black finish
14	Wear ring	Polyacetal resin					

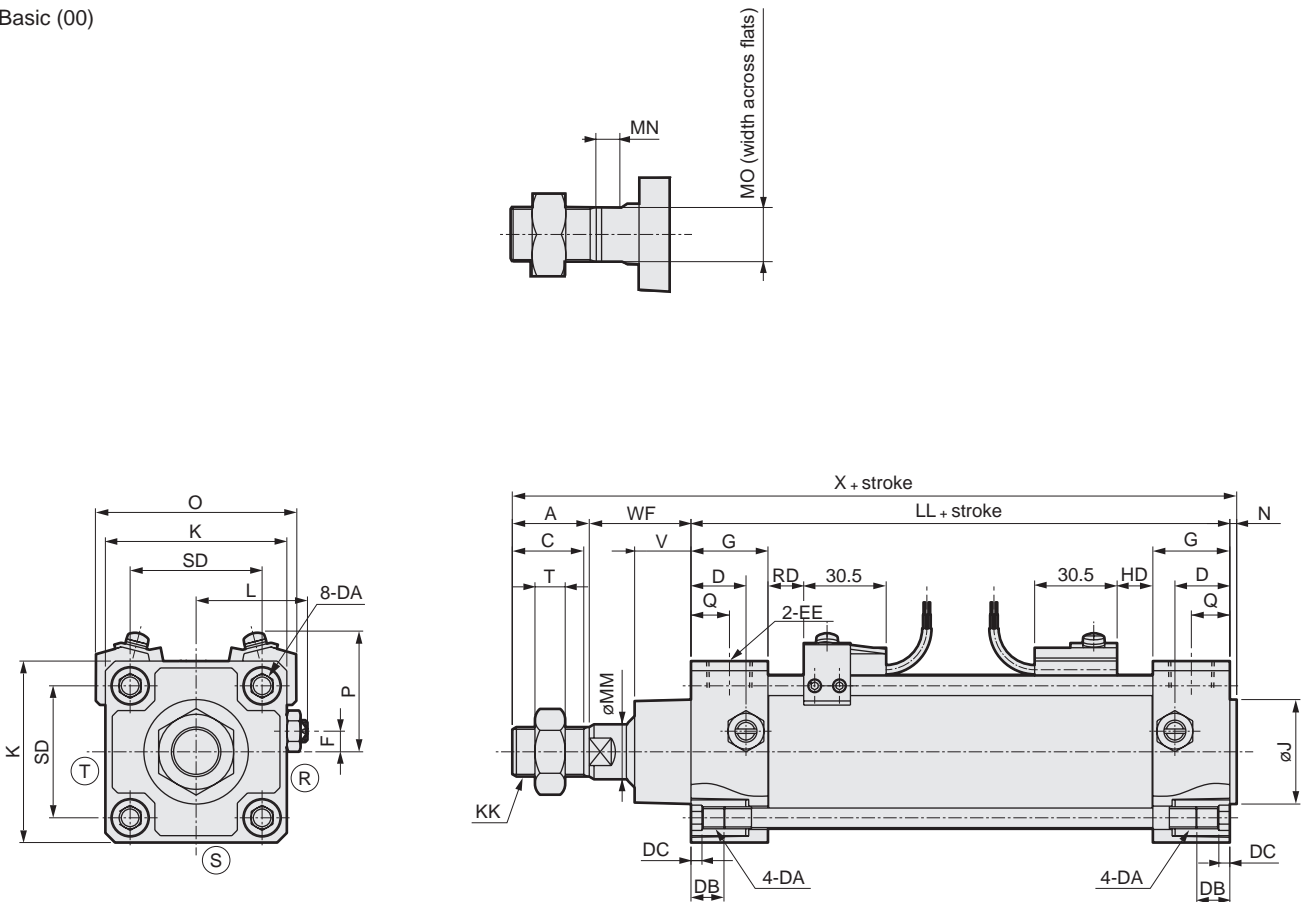
## Repair parts list

Bore size (mm)	Kit No.	Repair parts No.
ø40	SCA2-G-40K	
ø50	SCA2-G-50K	
ø63	SCA2-G-63K	
ø80	SCA2-G-80K	
ø100	SCA2-G-100K	

\*1: Specify the kit No. when placing an order.

## Dimensions

● Basic (00)



Code	Basic (00) with switch														
Bore size (mm)	A	C	D	DA	DB	DC	EE	F	G	J	K	KK	L	LL	MM
ø40	22	20	18	M8	12	4	Rc1/4	7.5	26	31	57	M14x1.5	38 to 39.5	93	16
ø50	28	26	20	M8	12	4	Rc3/8	0	28	38	66	M18x1.5	41 to 43.5	101	20
ø63	28	26	22	M8	12	4	Rc3/8	0	30	38	80	M18x1.5	47.5 to 50.0	105	20
ø80	36	34	26	M12	16	5	Rc1/2	0	34	43	98	M22x1.5	56 to 59	116	25
ø100	45	43	28	M12	16	5	Rc1/2	0	36	51	118	M26x1.5	66 to 69	128	30

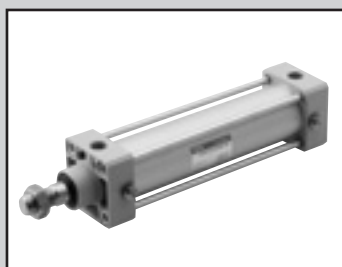
  

Code	Basic (00)									With switch				
Bore size (mm)	MN	MO	N	Q	SD	T	V	WF	X	HD	P	O	RD	
ø40	8	14	2	13	40.5	8	17	33.5	150.5	10	42	66	10	
ø50	8	17	2.5	14	48	11	20	37	168.5	12	44	73	12	
ø63	8	17	3	15	59	11	20.5	35	171	12	47	84	12	
ø80	11	22	3.5	17	74	13	23	48	203.5	13.5	58	104	13.5	
ø100	13	27	4	18	90	16	30.5	53	230	17.5	64	120	17.5	

\*Mounting dimensions of each mounting format are the same as those of SCA2 (standard). Refer to pages 458 to 469.

\*For the dimensions of the accessories, refer to pages 470 and 471.

- SCP\*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2**
- SCS2
- CKV2
- CAV2/COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd Contr
- Ending



Medium bore size cylinder  
Double acting/coolant proof

# SCA2- $\frac{G2}{G3}$ Series

● Bore size:  $\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80/\varnothing 100$

JIS symbol



## Specifications

Item	SCA2-G2/G3					
Bore size mm	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$	
Actuation	Double acting/coolant proof					
Working fluid	Compressed air					
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)					
Min. working pressure MPa	0.05 ( $\approx 7.3$ psi, 0.5 bar)					
Proof pressure MPa	1.6 ( $\approx 230$ psi, 16 bar)					
Ambient temperature $^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ ) (no freezing)					
Port size	Rc1/4	Rc3/8		Rc1/2		
Stroke tolerance mm	$^{+0.9}_0$ (to 360), $^{+1.4}_0$ (to 800)					
Working piston speed mm/s	50 to 1000 (Use within the allowable absorbed energy.)					
Cushion	Air cushion					
Effective air cushion length mm	14.6	16.6	16.6	20.6	23.6	
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)					
Allowable absorbed energy	Cushioned	4.29	8.37	15.8	27.9	49.8
	Without cushion	0.067	0.079	0.079	0.201	0.301
Without any cushion, this product cannot absorb large energy generated by an external load. We recommend using an external shock absorber.						

## Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Available stroke (mm)	Min. stroke (mm)
$\varnothing 40$	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	600	1600	1
$\varnothing 50$			2000	
$\varnothing 63$			2500	
$\varnothing 80$				
$\varnothing 100$				

\*1 : The custom stroke is available in 1 mm increments.

\*2 : For types with switch, minimum stroke varies depending on the mounting method. Refer to the table below for details.

When the stroke is 15 mm or less, the two switches could turn ON at the same time.

In this case, increase the space between the switches to adjust their positions.

\*3: If max. stroke is exceeded, product specifications may not be satisfied depending on the conditions. Refer to Ending Page 69.

● Min. stroke with T2YL/T3YL switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting	Head side trunnion mounting
	1	2	3	4	1	2	3	4	1	2	3	4	No position detection at rod side stroke end.	No position detection at head side stroke end.
$\varnothing 40$	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)
$\varnothing 50$	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)
$\varnothing 63$	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)
$\varnothing 80$	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)
$\varnothing 100$	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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

## Switch specifications

Item	2-wire proximity	3-wire proximity
	T2YLH/T2YLV	T3YLH/T3YLV
Applications	Dedicated for programmable controller	Programmable controller, relay
Power supply voltage	-	10 to 28 VDC
Load voltage/current	10 to 30 VDC, 5 to 20 mA *3	30 VDC or less, 50 mA or less
Lamp	Red/green LED (Lit when ON)	
Max. shock resistance	980 m / S <sup>2</sup>	
Leakage current	1 mA or less	10 µA or less
Weight	g 1 m:33 3 m:87 5 m:142	

\*1: Refer to Ending Page 1 for detailed switch specifications and dimensions.

\*2: Switches with connectors are also available. Refer to Ending Page 1.

\*3: The max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

## Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke (S) = 0 mm							Switch weight	Mounting bracket weight	Additional weight per S = 100 mm
	Basic (OO)	Foot (LB)	Flange (FA, FB)	Special flange (FC)	Eye bracket (CA)	Clevis bracket (CB)	Trunnion (TA, TB, TC)		T type	
ø40	0.84	1.01	1.25	0.93	1.16	1.20	1.22	Refer to the weight in the switch specifications.	0.024	0.39
ø50	1.23	1.48	1.72	1.34	1.61	1.64	1.77		0.022	0.46
ø63	1.63	2.00	2.72	1.81	2.20	2.25	2.48		0.020	0.50
ø80	2.63	3.37	4.49	2.99	3.90	4.11	3.97		0.026	0.90
ø100	4.24	5.15	6.98	4.79	5.88	6.06	6.81		0.024	1.12

(Example) Product weight of SCA2-G2-LB-50-200-T2YLH-D	Product weight for 0 mm stroke.....	1.48 kg
	Additional weight for 200 mm stroke .....	$0.46 \times \frac{200}{100} = 0.92$ kg
	Weight of 2 T2YLH switches .....	$0.033 \times 2 = 0.066$ kg
	Weight of 2 mounting brackets .....	$0.022 \times 2 = 0.044$ kg
	Product weight.....	$1.48 + 0.92 + 0.066 + 0.044 = 2.510$ kg

## Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push	62.8	$1.26 \times 10^2$	$1.88 \times 10^2$	$2.51 \times 10^2$	$3.77 \times 10^2$	$5.03 \times 10^2$	$6.28 \times 10^2$	$7.54 \times 10^2$	$8.80 \times 10^2$	$1.01 \times 10^3$	$1.13 \times 10^3$	$1.26 \times 10^3$
	Pull	52.8	$1.06 \times 10^2$	$1.58 \times 10^2$	$2.11 \times 10^2$	$3.17 \times 10^2$	$4.22 \times 10^2$	$5.28 \times 10^2$	$6.33 \times 10^2$	$7.39 \times 10^2$	$8.44 \times 10^2$	$9.50 \times 10^2$	$1.06 \times 10^3$
ø50	Push	98.2	$1.96 \times 10^2$	$2.95 \times 10^2$	$3.93 \times 10^2$	$5.89 \times 10^2$	$7.85 \times 10^2$	$9.82 \times 10^2$	$1.18 \times 10^3$	$1.37 \times 10^3$	$1.57 \times 10^3$	$1.77 \times 10^3$	$1.96 \times 10^3$
	Pull	82.5	$1.65 \times 10^2$	$2.47 \times 10^2$	$3.30 \times 10^2$	$4.95 \times 10^2$	$6.60 \times 10^2$	$8.25 \times 10^2$	$9.90 \times 10^2$	$1.15 \times 10^3$	$1.32 \times 10^3$	$1.48 \times 10^3$	$1.65 \times 10^3$
ø63	Push	$1.56 \times 10^2$	$3.12 \times 10^2$	$4.68 \times 10^2$	$6.23 \times 10^2$	$9.35 \times 10^2$	$1.25 \times 10^3$	$1.56 \times 10^3$	$1.87 \times 10^3$	$2.18 \times 10^3$	$2.49 \times 10^3$	$2.81 \times 10^3$	$3.12 \times 10^3$
	Pull	$1.40 \times 10^2$	$2.80 \times 10^2$	$4.20 \times 10^2$	$5.61 \times 10^2$	$8.41 \times 10^2$	$1.12 \times 10^3$	$1.40 \times 10^3$	$1.68 \times 10^3$	$1.96 \times 10^3$	$2.24 \times 10^3$	$2.52 \times 10^3$	$2.80 \times 10^3$
ø80	Push	$2.51 \times 10^2$	$5.03 \times 10^2$	$7.54 \times 10^2$	$1.01 \times 10^3$	$1.51 \times 10^3$	$2.01 \times 10^3$	$2.51 \times 10^3$	$3.02 \times 10^3$	$3.52 \times 10^3$	$4.02 \times 10^3$	$4.52 \times 10^3$	$5.03 \times 10^3$
	Pull	$2.27 \times 10^2$	$4.54 \times 10^2$	$6.80 \times 10^2$	$9.07 \times 10^2$	$1.36 \times 10^3$	$1.81 \times 10^3$	$2.27 \times 10^3$	$2.72 \times 10^3$	$3.17 \times 10^3$	$3.63 \times 10^3$	$4.08 \times 10^3$	$4.54 \times 10^3$
ø100	Push	$3.93 \times 10^2$	$7.85 \times 10^2$	$1.18 \times 10^3$	$1.57 \times 10^3$	$2.36 \times 10^3$	$3.14 \times 10^3$	$3.93 \times 10^3$	$4.71 \times 10^3$	$5.50 \times 10^3$	$6.28 \times 10^3$	$7.07 \times 10^3$	$7.85 \times 10^3$
	Pull	$3.57 \times 10^2$	$7.15 \times 10^2$	$1.07 \times 10^3$	$1.43 \times 10^3$	$2.14 \times 10^3$	$2.86 \times 10^3$	$3.57 \times 10^3$	$4.29 \times 10^3$	$5.00 \times 10^3$	$5.72 \times 10^3$	$6.43 \times 10^3$	$7.15 \times 10^3$

# SCA2-G2/G3 Series

SCP\*3  
CMK2  
CMA2  
SCM  
SCG  
SCA2  
SCS2  
CKV2  
CAV2/  
COVPIN2  
SSD2  
SSG  
SSD  
CAT  
MDC2  
MVC  
SMG  
MSD/  
MSDG  
FC\*  
STK  
SRL3  
SRG3  
SRM3  
SRT3  
MRL2  
MRG2  
SM-25  
ShkAbs  
FJ  
FK  
Spd  
Contr  
Ending

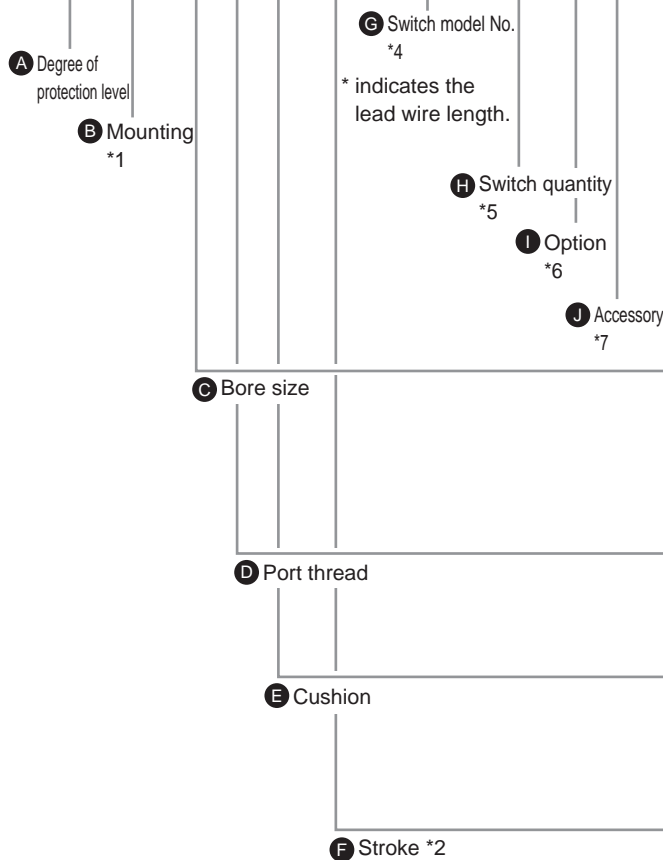
## How to order

No switch (built-in magnet for switch)

**SCA2-G2-LB-50-B-75-S-Y**

With switch (built-in magnet for switch)

**SCA2-G2-LB-50-B-75-T2YLH-R-S-Y**



## ⚠ Precautions for model No. selection

- \*1 : Mounting bracket will be shipped with the product. (Trunnion are assembled at shipment.)
- \*2 : If the stroke exceeds the max. stroke, refer to Ending Page 69.
- \*3 : Refer to page 584 for the min. stroke with switch.
- \*4 : Switches are shipped with the product.
- \*5 : When selecting TA, TD, TB or TE mounting, the switch quantity is limited to "H" (1 on head side) for TA and TD, and "R" (1 on rod side) for TB and TE.
- \*6 : When selecting TA, TD, TB or TE mounting format, the cushion needle position is blank and fixed at S, with no options available.
- \*7 : "I" and "Y" cannot be selected together.
- \*8 : Refer to Ending Page 85 for custom specifications of rod end form.
- \*9 : Refer to page 448 for combination of variations/options.

[Example of model No.]

**SCA2-G2-LB-50B-75-T2YLH-R-SI**

Model: Medium bore size cylinder

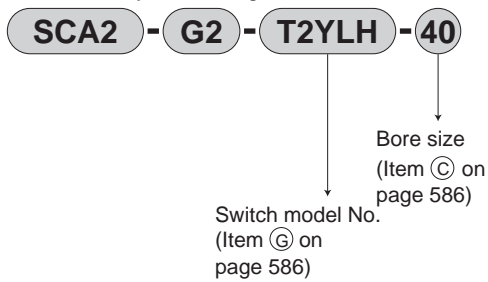
- A** Degree of protection level : Coolant proof scraper + packing NBR
- B** Mounting : Axial foot
- C** Bore size :  $\phi 50$  mm
- D** Port thread : Rc thread
- E** Cushion : Both sides cushioned
- F** Stroke : 75 mm
- G** Switch model No. : Proximity switch T2YLH, lead wire 1 m
- H** Switch quantity : 1 on rod side
- I** Option : Cushion needle position change
- J** Accessory : Rod eye

Code	Description					
<b>A Degree of protection level</b>						
G2	Coolant proof scraper + packing NBR					
G3	Coolant proof scraper + packing FKM					
<b>B Mounting</b>						
00	Basic					
LB	Axial foot (Both sides)					
FA	Rod side flange					
FB	Head side flange					
FC	Head side special flange					
CA	Eye bracket					
CB	Clevis bracket (pin and snap ring included)					
TC	Intermediate trunnion					
TA	Rod side trunnion					
TB	Head side trunnion					
TF	Intermediate supporting hole trunnion ( $\phi 40$ is not available)					
TD	Rod side hole trunnion ( $\phi 40$ is not available)					
TE	Head side hole trunnion ( $\phi 40$ is not available)					
<b>C Bore size (mm)</b>						
40	$\phi 40$					
50	$\phi 50$					
63	$\phi 63$					
80	$\phi 80$					
100	$\phi 100$					
<b>D Port thread</b>						
Blank	Rc thread					
N	NPT thread (made-to-order product)					
G	G thread (made-to-order product)					
<b>E Cushion</b>						
B	Both sides cushioned					
R	Rod side cushioned					
H	Head side cushioned					
N	Without cushion					
<b>F Stroke (mm)</b>						
Bore size	Stroke *3	Available stroke	Custom stroke			
$\phi 40$	1 to 600	1600	In 1 mm increments			
$\phi 50$	1 to 600	2000				
$\phi 63$	1 to 600	2500				
$\phi 80$	1 to 700	2500				
$\phi 100$	1 to 800	2500				
<b>G Switch model No.</b>						
Axial lead wire	Radial lead wire	Contact	Voltage	Indicator	Lead wire	
T2YLH*	T2YLV*	Proximity	AC	DC	2-color LED	2-wire
T3YLH*	T3YLV*		AC	DC		
<b>* Lead wire length</b>						
Blank	1 m (standard)					
3	3 m (option)					
5	5 m (option)					
<b>H Switch quantity</b>						
R	1 on rod side					
H	1 on head side					
D	2					
T	3					
<b>I Option</b>						
Blank	Cushion needle position change R (standard)					
S	Cushion needle position change S					
T	Cushion needle position change T					
<b>J Accessory</b>						
I	Rod eye					
Y	Rod clevis (pin and snap ring included)					
B1	Eye bracket					
B2	Clevis bracket (pin and snap ring included)					
B3	Eye bracket					
B4	Trunnion No. 2 bracket (2 pcs./set)					

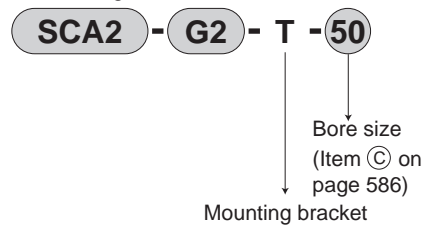


### How to order switch

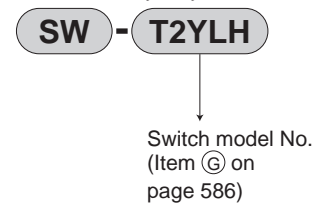
● Switch body + mounting bracket set



● Mounting bracket set



● Switch body only



### How to order mounting bracket

Bore size (mm)	ø40	ø50	ø63	ø80	ø100
Mounting bracket					
Foot (LB) *2	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 bracket (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis bracket (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

\*1 : For material of the mounting bracket, refer to page 456.

\*2 : The foot mounting bracket is provided as 2 pcs./set.

\*3 : All mounting brackets are supplied with mounting bolts.

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

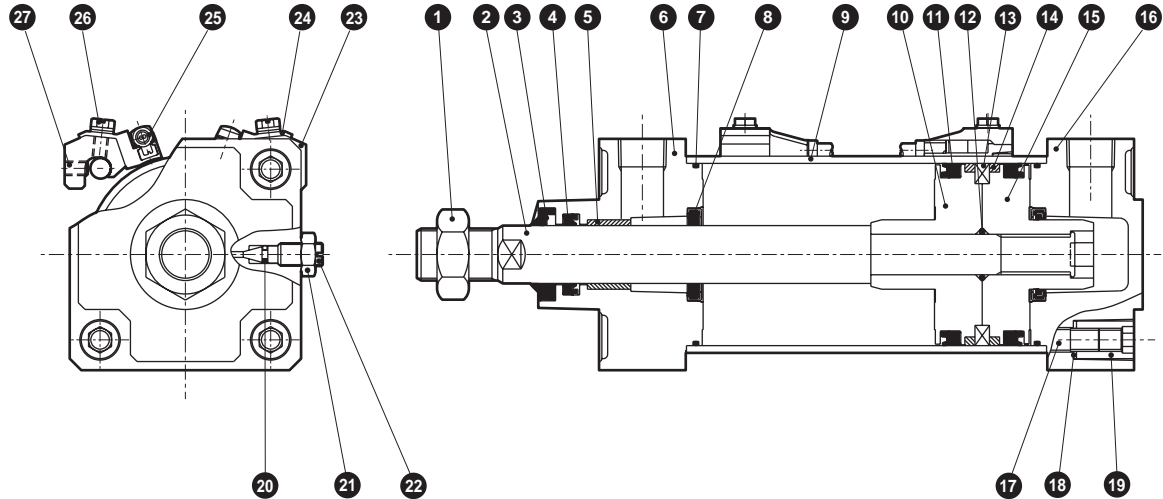
Ending

# SCA2-G2/G3 Series

## Internal structure and parts list

● Degree of protection: Packing NBR  
**SCA2 - G2**

● Degree of protection: Packing FKM  
**SCA2 - G3**



### Main parts list

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rod nut	Stainless steel		13	Magnet	Plastic	
2	Piston rod	Stainless steel	Industrial chrome plating	14	Wear ring	Polyacetal resin	
3	Scraper	G2	Nitrile rubber	15	Piston H	Aluminum alloy	Chromate treatment
		G3	Fluoro rubber	16	Head cover	Aluminum alloy	Paint
4	Rod packing	G2	Nitrile rubber	17	Tie rod	Steel	Zinc chromate treatment
		G3	Fluoro rubber	18	Conical spring washer	Steel	Black finish
5	Bush	Oil impregnated bearing alloy		19	Round nut	Steel	Zinc chromate treatment
6	Rod cover	Aluminum alloy	Paint	20	Needle gasket	G2	Nitrile rubber
7	Cylinder gasket	G2	Nitrile rubber			G3	Fluoro rubber
		G3	Fluoro rubber	21	Needle nut	Copper alloy	Nickel plating
8	Cushion packing	G2	Nitrile rubber, steel	22	Cushion needle	Copper alloy	Nickel plating
		G3	Fluoro rubber, steel	23	Switch mounting base	Aluminum alloy	
9	Cylinder tube	Aluminum alloy	Hard alumite treatment	24	Switch holder	Aluminum alloy	
10	Piston R	Aluminum alloy	Chromate treatment	25	Cylinder switch		
11	Piston packing	G2	Nitrile rubber	26	Slotted hexagon head bolt/captive washer	Stainless steel	
		G3	Fluoro rubber	27	Hexagon socket set screw	Stainless steel	
12	Piston gasket	G2	Nitrile rubber				
		G3	Fluoro rubber				

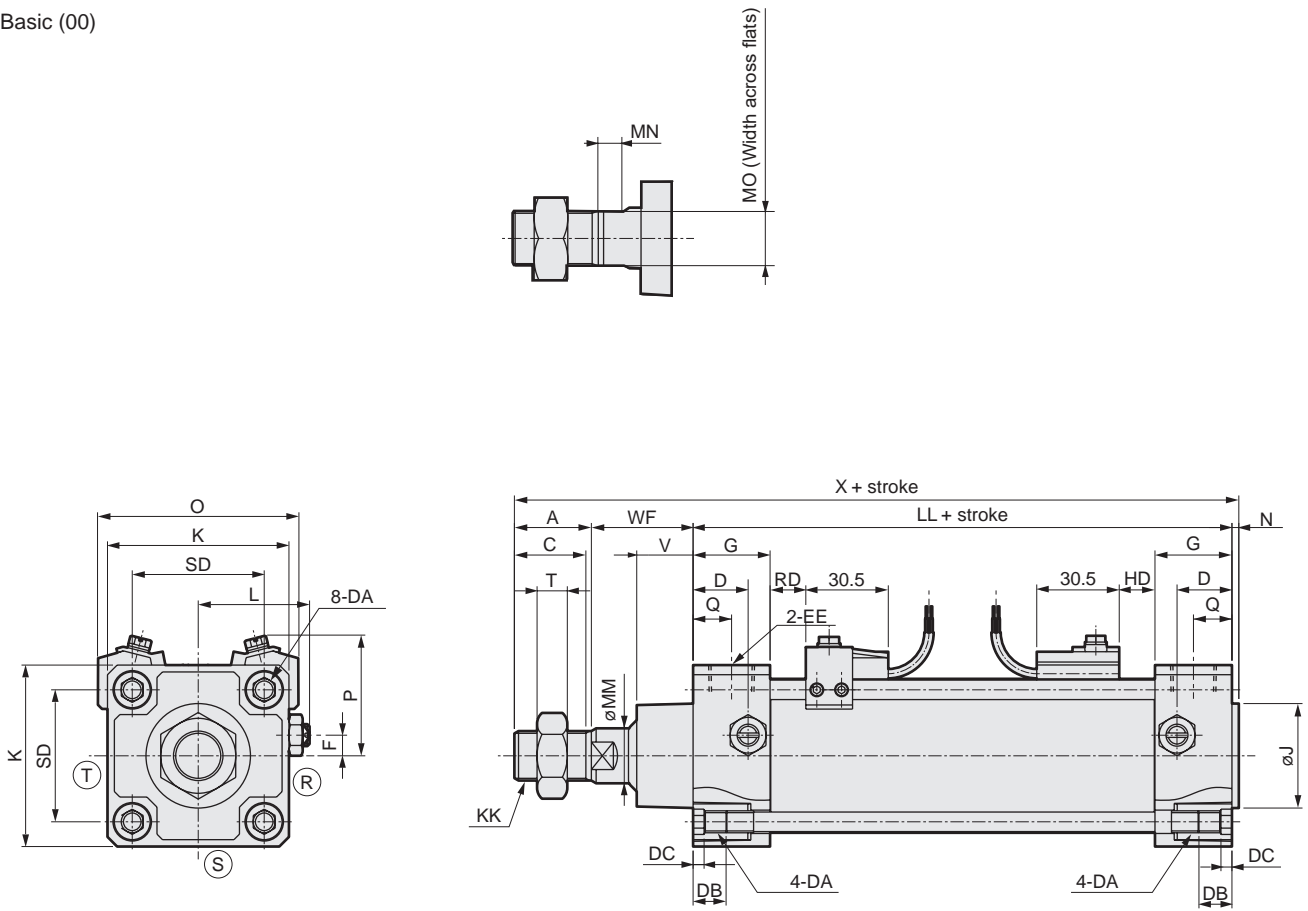
### Repair parts list

No./part name	Kit No.	Repair parts No.
Bore size (mm)		
ø40	SCA2-G2- 40K	
	SCA2-G3- 40K	
ø50	SCA2-G2- 50K	
	SCA2-G3- 50K	
ø63	SCA2-G2- 63K	
	SCA2-G3- 63K	
ø80	SCA2-G2- 80K	
	SCA2-G3- 80K	
ø100	SCA2-G2-100K	
	SCA2-G3-100K	

\*1: Specify the kit No. when placing an order.

## Dimensions

● Basic (00)



Code	Basic (00) with switch														
Bore size (mm)	A	C	D	DA	DB	DC	EE	F	G	J	K	KK	L	LL	MM
ø40	22	20	18	M8	12	4	Rc1/4	7.5	26	31	57	M14x1.5	38 to 39.5	93	16
ø50	28	26	20	M8	12	4	Rc3/8	0	28	38	66	M18x1.5	41 to 43.5	101	20
ø63	28	26	22	M8	12	4	Rc3/8	0	30	38	80	M18x1.5	47.5 to 50.0	105	20
ø80	36	34	26	M12	16	5	Rc1/2	0	34	43	98	M22x1.5	56 to 59	116	25
ø100	45	43	28	M12	16	5	Rc1/2	0	36	51	118	M26x1.5	66 to 69	128	30

Code	Basic (00)									With switch				
Bore size (mm)	MN	MO	N	Q	SD	T	V	WF	X	HD	P	O	RD	
ø40	8	14	2	13	40.5	8	17	33.5	150.5	10	42	66	10	
ø50	8	17	2.5	14	48	11	20	37	168.5	12	44	73	12	
ø63	8	17	3	15	59	11	20.5	35	171	12	47	84	12	
ø80	11	22	3.5	17	74	13	23	48	203.5	13.5	58	104	13.5	
ø100	13	27	4	18	90	16	30.5	53	230	17.5	64	120	17.5	

\* Installation dimensions of other mounting are the same as those of the SCA2 (standard). Refer to pages 458 to 469.

\* For the dimensions of the accessories, refer to pages 470 and 471.

- SCP\*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2**
- SCS2
- CKV2
- CAV2/COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd Contr
- Ending



Medium bore size cylinder  
Double acting/coil scraper

Double acting/anti-spatter adherence

# SCA2-G1 Series SCA2-G4 Series

● Bore size:  $\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80/\varnothing 100$

JIS symbol



## Specifications

Item	SCA2-G1/G4 SCA2-G1L2/G4L2					
Bore size	mm	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure	MPa	1.0 ( $\approx 150$ psi, 10 bar)				
Min. working pressure	MPa	0.05 ( $\approx 7.3$ psi, 0.5 bar)				
Proof pressure	MPa	1.6 ( $\approx 230$ psi, 16 bar)				
Ambient temperature	$^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ ) (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance	mm	$^{+0.9}_0$ (to 360), $^{+1.4}_0$ (to 800)				
Working piston speed	mm/s	50 to 1000 (Operate within the allowable absorbed energy.)				
Cushion		Air cushion				
Effective air cushion length	mm	14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)				
Allowable absorbed energy	Cushioned	4.29	8.37	15.8	27.9	49.8
	Without cushion	0.067	0.079	0.079	0.201	0.301
Without any cushion, this product cannot absorb large energy generated by an external load. We recommend using an external shock absorber.						

## Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Available stroke (mm)	Min. stroke (mm)
$\varnothing 40$	25/50/75/100/ 150/200/250/ 300/350/400/ 450/500	600	1600	1
$\varnothing 50$			2000	
$\varnothing 63$	700	2500		
$\varnothing 80$				
$\varnothing 100$			800	

\*1: The custom stroke is available in 1 mm increments.

\*2: For types with switch, minimum stroke varies depending on the mounting method. Refer to the following table.

## Min. stroke with switch (T2YD switch)

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
$\varnothing 40$	20	20	25	40	20	60	105	150	105	105	165	165	50	50
$\varnothing 50$	15	15	25	40	15	15	60	60	100	100	100	100	45	45
$\varnothing 63$	15	15	25	40	15	15	60	60	105	105	105	105	50	50
$\varnothing 80$	15	15	30	45	15	15	60	60	110	110	110	110	55	55
$\varnothing 100$	10	15	0	45	10	15	60	60	120	120	120	120	60	60

\*1: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

## Min. stroke with switch (H switch)

(Unit: mm)

Sketch	When mounted on different surfaces				When mounted on same surface				With intermediate support (hole) trunnion				With rod side supporting hole		With head side supporting hole	
Switch quantity	1				1				1				1		1	
Bore size (mm)	1	2	3	4	1	2	3	4	1	2	3	4				
$\varnothing 40$	10	20	35	50	10	50	100	150	86	86	92	92	38		38	
$\varnothing 50$	10	20	40	55	10	50	100	150	86	86	92	92	36		36	
$\varnothing 63$	10	20	40	55	10	35	100	150	91	91	97	97	41		41	
$\varnothing 80$	10	20	40	55	10	20	100	150	96	96	102	102	44		44	
$\varnothing 100$	10	20	40	55	10	20	100	150	106	106	112	112	50		50	

\*1: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

### Switch specifications

Item	2-wire proximity		2-wire reed		
	T2YD		HO		H0Y (2-color LED)
Applications	Dedicated for programmable controller		For programmable controller, relay		Dedicated for programmable controller
Load voltage	24 VDC ±10%		12/24 VDC	110 VAC	24 VDC
Load current	5 to 20 mA		5 to 50 mA	7 to 20 mA	5 to 20 mA
Indicator	Red/green LED (Lit when ON)		Green LED (Lit when ON)		Red/green LED (Lit when ON)
Internal voltage drop	6V or less		5V or less		6V or less
Leakage current	1.0 mA or less		10 µA or less		
Output delay time *1 (ON delay, OFF delay)	60 ms or less		-		
Lead wire length	1 m (oil resistant vinyl cabtyre cable ø6, 0.5 mm <sup>2</sup> x 2-conductor) *2, *3	0.3 m (flame-resistant cabtyre cable ø6, 0.5 mm <sup>2</sup> x 2-conductor with M12 cable connector)	1 m (flame-resistant cabtyre cable ø6, 0.5 mm <sup>2</sup> x 2-conductor)		
Insulation resistance	100 MΩ or more at 500 VDC megger		100 MΩ and over with 500 VDC megger		
Withstand voltage	No failure after 1 minute of 1,000 VAC application.		No failure after 1 minute of 1,000 VAC application.		
Max. shock resistance	980 m/s <sup>2</sup>		294 m/s <sup>2</sup>		
Ambient temperature	-10 to +60°C		-10 to +60°C		
Degree of protection	JIS C0920 (water-tight), IEC standards IP67, oil resistance		IEC Standard IP67, JIS C0920 (water-tight), oil resistance		
Weight g	1 m:61 3 m:166 5 m:272		1 m:76 3 m:181 5 m:289		

\*1: Indicates the time from magnetic sensor detection of the piston magnet until switch output.

\*2: 3 m and 5 m lead wires are available as options.

\*3: Flame-resistant lead wires are available as options.

\*4: Switch for AC magnetic field (T2YD) cannot be used in DC magnetic field.

### Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke (S) = 0 mm							Switch weight	Mounting bracket weight		Additional weight per S = 100 mm
	Basic (00)	Foot (LB)	Flange (FA, FB)	Special flange (FC)	Eye bracket (CA)	Clevis bracket (CB)	Trunnion (TA, TB, TC)		T type	H type	
ø40	0.84	1.01	1.25	0.93	1.16	1.20	1.22	Refer to the weight in the switch specifications.	0.024	0.028	0.39
ø50	1.23	1.48	1.72	1.34	1.61	1.64	1.77		0.022	0.026	0.46
ø63	1.63	2.00	2.72	1.81	2.20	2.25	2.48		0.020	0.024	0.50
ø80	2.63	3.37	4.49	2.99	3.90	4.11	3.97		0.026	0.029	0.90
ø100	4.24	5.15	6.98	4.79	5.88	6.06	6.81		0.024	0.028	1.12

(Example) Product weight of SCA2-G4-LB-50B-200-HO-D	Product weight for 0 mm stroke..... 1.48 kg Additional weight for 200 mm stroke ..... $0.46 \times \frac{200}{100} = 0.92$ kg Weight of 2 HO switches ..... $0.076 \times 2 = 0.152$ kg Weight of 2 mounting brackets ..... $0.026 \times 2 = 0.052$ kg Product weight..... $1.48 + 0.92 + 0.152 + 0.052 = 2.604$ kg
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### Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push	62.8	1.26x10 <sup>2</sup>	1.88x10 <sup>2</sup>	2.51x10 <sup>2</sup>	3.77x10 <sup>2</sup>	5.03x10 <sup>2</sup>	6.28x10 <sup>2</sup>	7.54x10 <sup>2</sup>	8.80x10 <sup>2</sup>	1.01x10 <sup>3</sup>	1.13x10 <sup>3</sup>	1.26x10 <sup>3</sup>
	Pull	52.8	1.06x10 <sup>2</sup>	1.58x10 <sup>2</sup>	2.11x10 <sup>2</sup>	3.17x10 <sup>2</sup>	4.22x10 <sup>2</sup>	5.28x10 <sup>2</sup>	6.33x10 <sup>2</sup>	7.39x10 <sup>2</sup>	8.44x10 <sup>2</sup>	9.50x10 <sup>2</sup>	1.06x10 <sup>3</sup>
ø50	Push	98.2	1.96x10 <sup>2</sup>	2.95x10 <sup>2</sup>	3.93x10 <sup>2</sup>	5.89x10 <sup>2</sup>	7.85x10 <sup>2</sup>	9.82x10 <sup>2</sup>	1.18x10 <sup>3</sup>	1.37x10 <sup>3</sup>	1.57x10 <sup>3</sup>	1.77x10 <sup>3</sup>	1.96x10 <sup>3</sup>
	Pull	82.5	1.65x10 <sup>2</sup>	2.47x10 <sup>2</sup>	3.30x10 <sup>2</sup>	4.95x10 <sup>2</sup>	6.60x10 <sup>2</sup>	8.25x10 <sup>2</sup>	9.90x10 <sup>2</sup>	1.15x10 <sup>3</sup>	1.32x10 <sup>3</sup>	1.48x10 <sup>3</sup>	1.65x10 <sup>3</sup>
ø63	Push	1.56x10 <sup>2</sup>	3.12x10 <sup>2</sup>	4.68x10 <sup>2</sup>	6.23x10 <sup>2</sup>	9.35x10 <sup>2</sup>	1.25x10 <sup>3</sup>	1.56x10 <sup>3</sup>	1.87x10 <sup>3</sup>	2.18x10 <sup>3</sup>	2.49x10 <sup>3</sup>	2.81x10 <sup>3</sup>	3.12x10 <sup>3</sup>
	Pull	1.40x10 <sup>2</sup>	2.80x10 <sup>2</sup>	4.20x10 <sup>2</sup>	5.61x10 <sup>2</sup>	8.41x10 <sup>2</sup>	1.12x10 <sup>3</sup>	1.40x10 <sup>3</sup>	1.68x10 <sup>3</sup>	1.96x10 <sup>3</sup>	2.24x10 <sup>3</sup>	2.52x10 <sup>3</sup>	2.80x10 <sup>3</sup>
ø80	Push	2.51x10 <sup>2</sup>	5.03x10 <sup>2</sup>	7.54x10 <sup>2</sup>	1.01x10 <sup>3</sup>	1.51x10 <sup>3</sup>	2.01x10 <sup>3</sup>	2.51x10 <sup>3</sup>	3.02x10 <sup>3</sup>	3.52x10 <sup>3</sup>	4.02x10 <sup>3</sup>	4.52x10 <sup>3</sup>	5.03x10 <sup>3</sup>
	Pull	2.27x10 <sup>2</sup>	4.54x10 <sup>2</sup>	6.80x10 <sup>2</sup>	9.07x10 <sup>2</sup>	1.36x10 <sup>3</sup>	1.81x10 <sup>3</sup>	2.27x10 <sup>3</sup>	2.72x10 <sup>3</sup>	3.17x10 <sup>3</sup>	3.63x10 <sup>3</sup>	4.08x10 <sup>3</sup>	4.54x10 <sup>3</sup>
ø100	Push	3.93x10 <sup>2</sup>	7.85x10 <sup>2</sup>	1.18x10 <sup>3</sup>	1.57x10 <sup>3</sup>	2.36x10 <sup>3</sup>	3.14x10 <sup>3</sup>	3.93x10 <sup>3</sup>	4.71x10 <sup>3</sup>	5.50x10 <sup>3</sup>	6.28x10 <sup>3</sup>	7.07x10 <sup>3</sup>	7.85x10 <sup>3</sup>
	Pull	3.57x10 <sup>2</sup>	7.15x10 <sup>2</sup>	1.07x10 <sup>3</sup>	1.43x10 <sup>3</sup>	2.14x10 <sup>3</sup>	2.86x10 <sup>3</sup>	3.57x10 <sup>3</sup>	4.29x10 <sup>3</sup>	5.00x10 <sup>3</sup>	5.72x10 <sup>3</sup>	6.43x10 <sup>3</sup>	7.15x10 <sup>3</sup>

# SCA2-G1/G4 Series

SCP\*3  
CMK2  
CMA2  
SCM  
SCG  
SCA2  
SCS2  
CKV2  
CAV2/  
COVPIN2  
SSD2  
SSG  
SSD  
CAT  
MDC2  
MVC  
SMG  
MSD/  
MSDG  
FC\*  
STK  
SRL3  
SRG3  
SRM3  
SRT3  
MRL2  
MRG2  
SM-25  
ShkAbs  
FJ  
FK  
Spd  
Contr  
Ending

## How to order

No switch (built-in magnet for switch)

**SCA2 - G4 - LB - 40 B - 100 - S I**

With switch (built-in magnet for switch)

**SCA2 - G4 - LB - 40 B - 100 - T2YD - R - S I**

With strong magnetic field proof (for H0, H0Y switches) switch (built-in magnet for switch)

**SCA2 - G4 L2 - LB - 40 B - 100 - H0Y - R - S I**

**A** Model No.

**B** Mounting \*1

**C** Bore size

**D** Cushion

**E** Stroke

\*2

\*3

**F** Switch model No.

\*4

**G** Switch quantity

\*5

**H** Option

\*6

**I** Accessory

\*7

### ⚠ Precautions for model No. selection

- \*1 : Mounting bracket will be shipped with the product. (Trunnion are assembled at shipment.)
- \*2 : If the stroke exceeds the max. stroke, refer to Ending Page 69.
- \*3 : Refer to page 590 for the min. stroke with switch.
- \*4 : Switches are shipped with the product.
- \*5 : When selecting TA, TD, TB or TE mounting, the switch quantity is limited to "H" (1 on head side) for TA and TD, and "R" (1 on rod side) for TB and TE.
- \*6 : When selecting TA, TD, TB or TE mounting, the cushion needle position is blank and fixed at S, with no options available.
- \*7 : "I" and "Y" cannot be selected together.
- \*8 : Refer to Ending Page 85 for custom specifications of rod end form.
- \*9 : Refer to page 448 for combination of variations/options.

[Example of model No.]

**SCA2-G4-LB-40B-100-T2YD-R-SI**

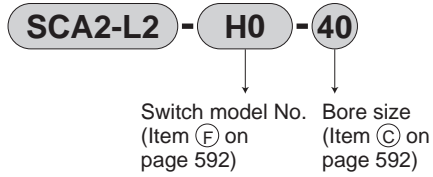
Model: Medium bore size cylinder

- A** Model No. : Double acting/anti-spatter adherence
- B** Mounting : Axial foot
- C** Bore size :  $\varnothing 40$  mm
- D** Cushion : Both sides cushioned
- E** Stroke : 100 mm
- F** Switch model No.: Proximity switch T2YD, lead wire 1 m
- G** Switch quantity : 1 on rod side
- H** Option : Cushion needle position S
- I** Accessory : Rod eye

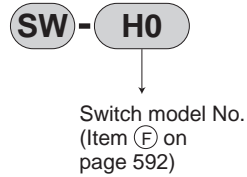
Code	Description			
<b>A Model No.</b>				
<b>G1</b>	Double acting/coil scraper			
<b>G4</b>	Double acting/anti-spatter adherence			
<b>B Mounting</b>				
<b>00</b>	Basic			
<b>LB</b>	Axial foot			
<b>FA</b>	Rod side flange			
<b>FB</b>	Head side flange			
<b>FC</b>	Head side special flange			
<b>CA</b>	Eye bracket			
<b>CB</b>	Clevis bracket			
<b>TC</b>	Intermediate trunnion			
<b>TA</b>	Rod side trunnion			
<b>TB</b>	Head side trunnion			
<b>TF</b>	Intermediate supporting hole trunnion ( $\varnothing 40$ is not available)			
<b>TD</b>	Rod side hole trunnion ( $\varnothing 40$ is not available)			
<b>TE</b>	Head side hole trunnion ( $\varnothing 40$ is not available)			
<b>C Bore size (mm)</b>				
<b>40</b>	$\varnothing 40$			
<b>50</b>	$\varnothing 50$			
<b>63</b>	$\varnothing 63$			
<b>80</b>	$\varnothing 80$			
<b>100</b>	$\varnothing 100$			
<b>D Cushion</b>				
<b>B</b>	Both sides cushioned			
<b>R</b>	Rod side cushioned			
<b>H</b>	Head side cushioned			
<b>N</b>	Without cushion			
<b>E Stroke (mm)</b>				
Bore size	Stroke *3	Available stroke	Custom stroke	
$\varnothing 40$	1 to 600	1600	In 1 mm increments	
$\varnothing 50$	1 to 600	2000		
$\varnothing 63$	1 to 600	2500		
$\varnothing 80$	1 to 700			
$\varnothing 100$	1 to 800			
<b>F Switch model No.</b>				
Grommet	Contact	Voltage AC/DC	Indicator	Lead wire
<b>T2YD*</b>	●	●	2-color LED	2-wire
<b>T2YDT*</b>	●	●	(AC magnetic field)	
<b>H0*</b>	●	●	Strong magnetic field proof switch, strong magnetic field, 2-color LED	2-wire
<b>H0Y*</b>	●	●		
<b>* Lead wire length</b>				
<b>Blank</b>	1 m (standard)			
<b>3</b>	3 m (option)			
<b>5</b>	5 m (option)			
<b>G Switch quantity</b>				
<b>R</b>	1 on rod side			
<b>H</b>	1 on head side			
<b>D</b>	2			
<b>T</b>	3			
<b>H Option</b>				
<b>Blank</b>	Cushion needle position R (standard)			
<b>S</b>	Cushion needle position S			
<b>T</b>	Cushion needle position T			
<b>I Accessory</b>				
<b>I</b>	Rod eye			
<b>Y</b>	Rod clevis (pin and snap ring included)			
<b>B1</b>	Eye bracket			
<b>B2</b>	Clevis bracket (pin and snap ring included)			
<b>B3</b>	Eye bracket			
<b>B4</b>	Trunnion No. 2 bracket (2 pcs./set)			

### How to order H switch

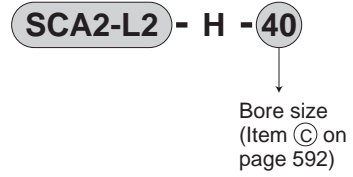
- Switch body + mounting bracket set



- Switch body only

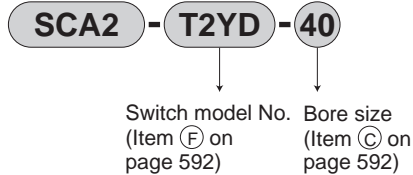


- Mounting bracket set

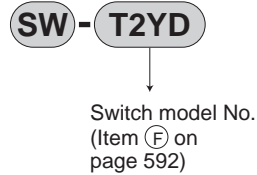


### How to order T2YD switch

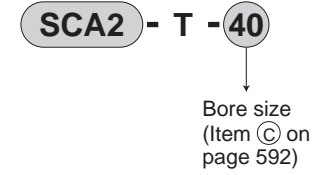
- Switch body + mounting bracket set



- Switch body only



- Mounting bracket set



### How to order mounting bracket

Bore size (mm)	ø40	ø50	ø63	ø80	ø100
<b>Mounting bracket</b>					
Foot (LB) *2	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 bracket (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis bracket (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

\*1: For material of the mounting bracket, refer to page 456.

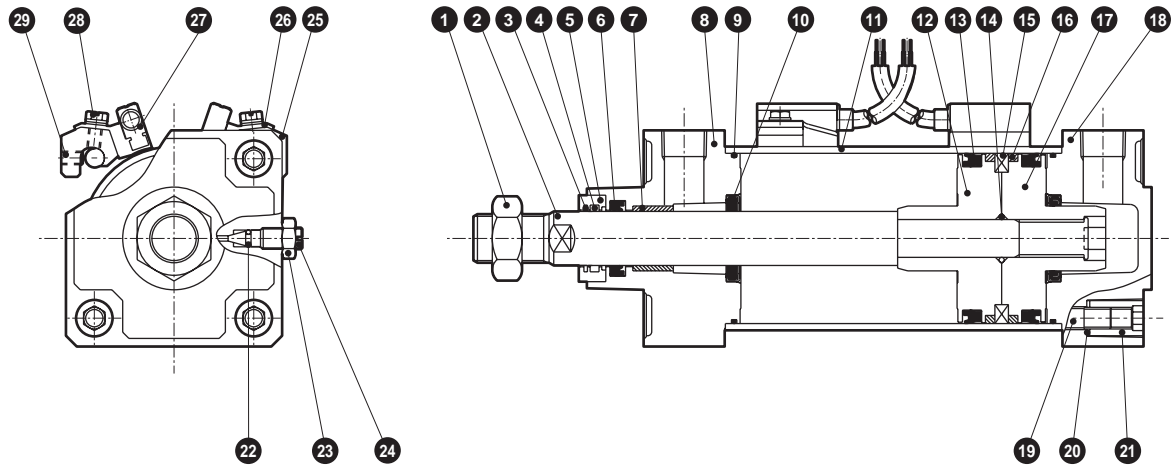
\*2: The foot mounting bracket is provided as 2 pcs./set.

\*3: All mounting brackets are supplied with mounting bolts.

SCP*3
CMK2
CMA2
SCM
SCG
<b>SCA2</b>
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

# SCA2-G1/G4 Series

## Internal structure and parts list



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rod nut	Steel	Zinc chromate	16	Wear ring	Polyacetal resin	
2	Piston rod	Steel	Industrial chrome plating	17	Piston H	Aluminum alloy die-casting	
3	Coil scraper	Phosphor bronze		18	Head cover	Aluminum alloy die-casting	Paint
4	Lube keeping structure	Special rubber	"G4" only	19	Tie rod	Steel	Zinc chromate
5	Adaptor	Stainless steel		20	Conical spring washer	Steel	Black finish
6	Rod packing	Nitrile rubber		21	Round nut	Steel	Zinc chromate
7	Bush	Oil impregnated bearing alloy		22	Needle gasket	Nitrile rubber	
8	Rod cover	Aluminum alloy die-casting	Paint	23	Needle nut	Copper alloy	Nickel plating
9	Cylinder gasket	Nitrile rubber		24	Cushion needle	Copper alloy	Nickel plating
10	Cushion packing	Nitrile rubber, steel	Special	With switch			
11	Cylinder tube	Aluminum alloy	Hard alumite treatment	25	Switch mounting base	Aluminum alloy	
12	Piston R	Aluminum alloy die-casting		26	Switch holder	Aluminum alloy	
13	Piston packing	Nitrile rubber		27	Cylinder switch		
14	Piston gasket	Nitrile rubber		28	Slotted hexagon head bolt/captive washer	Stainless steel	
15	Magnet	Plastic		29	Hexagon socket set screw	Alloy steel	Black finish

### Repair parts list (SCA2-G1)

Bore size	Kit No.	Repair parts No.
ø40	SCA2-G1-40K	
ø50	SCA2-G1-50K	
ø63	SCA2-G1-63K	
ø80	SCA2-G1-80K	
ø100	SCA2-G1-100K	

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

· No repair parts kit is available for SCA2-G4 Series.



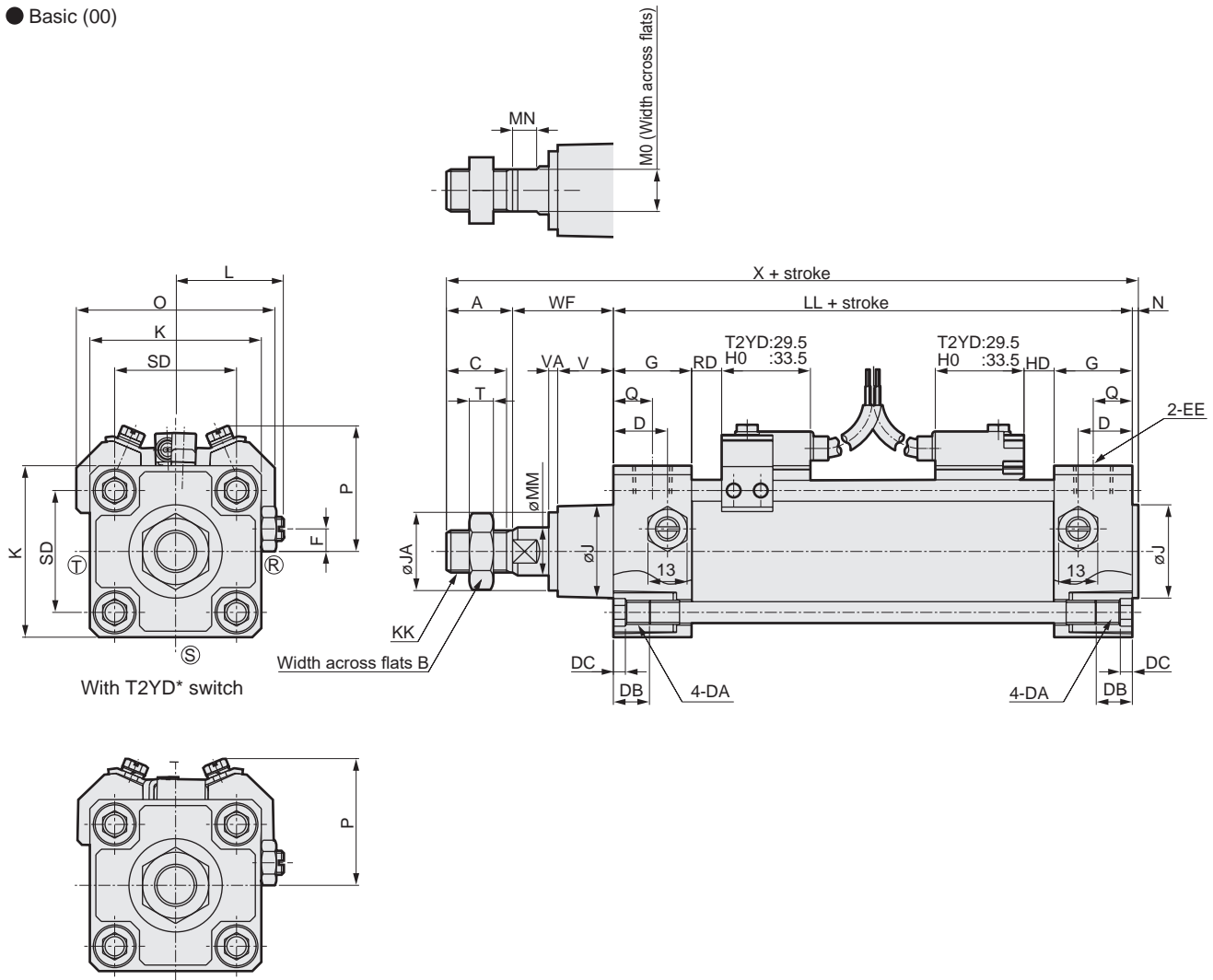
# SCA2-G1/G4 Series

Double acting/coil scraper/anti-spatter adherence

## Dimensions



● Basic (00)



With T2YD\* switch

With H0\* switch

RD: Rod side max. sensitivity position  
HD: Head side max. sensitivity position

Code	Basic (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	Q
ø40	22	22	20	18	M8	12	4	Rc1/4	7.5	26	31	26	57	M14x1.5	38 to 39.5	93	16	8	14	2	13
ø50	28	27	26	20	M8	12	4	Rc3/8	0	28	38	32	66	M18x1.5	41 to 43.5	101	20	8	17	2.5	14
ø63	28	27	26	22	M8	12	4	Rc3/8	0	30	38	32	80	M18x1.5	47.5 to 50.0	105	20	8	17	3	15
ø80	36	32	34	26	M12	16	5	Rc1/2	0	34	43	37	98	M22x1.5	56 to 59	116	25	11	22	3.5	17
ø100	45	41	43	28	M12	16	5	Rc1/2	0	36	51	42	118	M26x1.5	66 to 69	128	30	13	27	4	18

Code	Basic (00) Basic				With T2YD* switch							With H0* switch			
Bore size (mm)	SD	T	V	VA		WF	X	HD	P	O	RD	HD	P	O	RD
				G1	G4										
ø40	40.5	8	18.5	0	3	33.5	150.5	10	40	66	10	4	42	66	4
ø50	48	11	20.5	0	3	37	168.5	12	44.5	73	12	6	44	73	6
ø63	59	11	21	0	3	35	171	12	50	84	12	6	47	84	6
ø80	74	13	23.5	0	3	48	203.5	13.5	60	104	13.5	7.5	58	104	7.5
ø100	90	16	32	0	2	53	230	17.5	68	120	17.5	11.5	64	120	11.5

\*1: (R)(S)(T) indicates the cushion needle position.

\* Installation dimensions of other mounting are the same as those of the SCA2 (standard). Refer to pages 458 to 469.

\* For the dimensions of the accessories, refer to pages 470 and 471.

- SCP\*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2
- SCS2
- CKV2
- CAV2/COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd Contr
- Ending

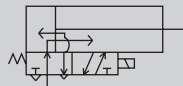


Medium bore size cylinder  
Double acting/with valve

# SCA2-V Series

● Bore size:  $\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80/\varnothing 100$

JIS symbol



(Single solenoid  
Push out when energized)



## Specifications

Item		SCA2-V1/V2/V (with valve)				
Bore size	mm	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure	MPa	0.7 ( $\approx 100$ psi, 7 bar)				
Min. working pressure	MPa	0.15 ( $\approx 22$ psi, 1.5 bar)				
Proof pressure	MPa	1.05 ( $\approx 150$ psi, 10.5 bar)				
Ambient temperature	$^{\circ}\text{C}$	-5 (23 $^{\circ}\text{F}$ ) to 50 (122 $^{\circ}\text{F}$ ) (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance	mm	$^{+0.9}_0$ ( to 360) $^{+1.4}_0$ ( to 800)				
Working piston speed *1	mm/s	50 to 500				50 to 450
Cushion		Air cushion				
Effective air cushion length	mm	14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)				
Allowable absorbed energy	Cushioned	4.29	8.37	15.8	27.9	49.8
	Without cushion	0.067	0.079	0.079	0.201	0.301
Without any cushion, this product cannot absorb large energy generated by an external load. We recommend using an external shock absorber.						

\*1: Operate within the absorbed energy.

500 mm/s piston speed of  $\varnothing 100$  bore size can be attained when a silencer (SLW-10A) is used instead of a metering valve (SMW-10A).

## Valve specifications

Model No.	V1 SCA2-V2-40/50 V			V1 SCA2-V2-63 V			V1 SCA2-V2-80/100 V		
Item									
Model No. (*2)	4KB2*9-00-voltage			4KB3*9-00-voltage			4KB4*9-00-voltage		
Rated voltage	100 VAC(50/60 Hz)	200 VAC(50/60 Hz)	24 VDC	100 VAC(50/60 Hz)	200 VAC(50/60 Hz)	24 VDC	100 VAC(50/60 Hz)	200 VAC(50/60 Hz)	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
Rated voltage fluctuation	$\pm 10\%$	$\pm 10\%$	$\pm 10\%$	$\pm 10\%$	$\pm 10\%$	$\pm 10\%$	$\pm 10\%$	$\pm 10\%$	$\pm 10\%$
Thermal 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 outlet	Grommet lead wire (300 mm)								

\*1: Refer to "Pneumatic Valves (CB-023SA)" for details on valves.

\*2: For operating method V, \*=2; for operating methods V1 and V2, \*=1

## Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\varnothing 40$	50/75/100/ 150/200/250/ 300/350/400/ 450/500	600	50
$\varnothing 50$			
$\varnothing 63$			
$\varnothing 80$			
$\varnothing 100$			

\*1: The custom stroke is available in 1 mm increments.

\*2: Less than 50 mm stroke is not available with or without switch.

### Min. stroke with switch

#### ● Min. stroke with T0/T5 switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting position cannot be detected at the rod side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	
∅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)
∅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)
∅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)
∅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)
∅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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: Less than 50 mm stroke is not available.

\*3: T8 switch cannot be installed.

#### ● Min. stroke with T2/T3 switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting position cannot be detected at the rod side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	
∅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)
∅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)
∅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)
∅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)
∅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)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: Less than 50 mm stroke is not available.

#### ● Min. stroke with T1/T2Y/T3Y/T2YD switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting position cannot be detected at the rod side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	
∅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)
∅50	50(50)	50(50)	50(50)	50(50)	50(50)	50(50)	60(50)	60(50)	100(70)	100(70)	100(75)	100(75)	50(50)
∅63	50(50)	50(50)	50(50)	50(50)	50(50)	50(50)	60(50)	60(50)	105(75)	105(75)	105(85)	105(85)	50(50)
∅80	50(50)	50(50)	50(50)	50(50)	50(50)	50(50)	60(50)	60(50)	110(80)	110(80)	110(90)	110(90)	50(50)
∅100	50(50)	50(50)	50(50)	50(50)	50(50)	50(50)	60(50)	60(50)	120(90)	120(90)	120(100)	120(100)	60(50)

\*1: The values in ( ) are of T\*V (L-shaped lead wire). T2YD does not have an L-shaped lead wire (V).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

#### ● Min. stroke with T2W/T3W switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting position cannot be detected at the rod side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	
∅40	50(50)	50(50)	50(50)	50(50)	50(50)	65(50)	110(80)	155(110)	110(80)	110(80)	170(140)	170(140)	50(50)
∅50	50(50)	50(50)	50(50)	50(50)	50(50)	50(50)	65(50)	65(50)	110(80)	110(80)	110(80)	110(80)	50(50)
∅63	50(50)	50(50)	50(50)	50(50)	50(50)	50(50)	65(50)	65(50)	115(85)	115(85)	115(85)	115(85)	55(50)
∅80	50(50)	50(50)	50(50)	50(50)	50(50)	50(50)	60(50)	60(50)	120(90)	120(90)	120(90)	120(90)	55(50)
∅100	50(50)	50(50)	50(50)	50(50)	50(50)	50(50)	60(50)	60(50)	130(100)	130(100)	130(100)	130(100)	60(50)

\*1: The values in ( ) are of T\*V (L-shaped lead wire).

\*2: When the stroke is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

# SCA2-V Series

## Switch specifications (T-switch)

● 1-color/2-color LED/for AC magnetic field proof

Item	2-wire proximity				3-wire proximity				2-wire reed		2-wire proximity		
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T2YD (*4) T2YDT		
Applications	For programmable controller, relay, compact solenoid valve	Programmable controller dedicated			For programmable controller, relay				For programmable controller, relay	For programmable controller, relay, IC circuit (without indicator lamp), serial connection	Programmable controller dedicated		
Output method	-				NPN output	PNP output	NPN output	NPN output	-				
Power supply voltage	-				10 to 28 VDC				-				
Load voltage	85 to 265 VAC	10 to 30 VDC	24 VDC ±10%		30 VDC or less				12/24 VDC	110 VAC	5/12/24 VDC	110 VAC	24 VDC ±10%
Load current	5 to 100 mA	5 to 20 mA (*3)			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
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	No indicator lamp	Red/green LED (Lit when ON)		
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	
Weight g	1 m: 33 3 m: 87 5 m: 142	1 m: 18 3 m: 49 5 m: 80	1 m: 33 3 m: 87 5 m: 142	1 m: 18 3 m: 49 5 m: 80	1 m: 18 3 m: 49 5 m: 80	1 m: 33 3 m: 87 5 m: 142	1 m: 18 3 m: 49 5 m: 80	1 m: 18 3 m: 49 5 m: 80			1 m: 61 3 m: 166 5 m: 272		

\*1: Refer to Ending Page 1 for detailed switch specifications and dimensions.

\*2: Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

\*3: Max. load current: 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

\*4: Switch for AC magnetic field (T2YD/T2YDT) cannot be used in DC magnetic field.

### Cylinder weight

● SCA2-V

(Unit: kg)

Bore size (mm)	Product weight when stroke (S) = 0 mm						Switch weight	Mounting bracket weight	Additional weight per S = 100mm
	Basic (00)	Foot (LB)	Flange (FA, FB)	Eye bracket (CA)	Clevis bracket (CB)	Trunnion (TA, TB, TC)		T type	
ø40	1.27	1.45	1.69	1.59	1.63	1.66	Refer to the weight in the switch specifications.	0.030	0.39
ø50	1.64	1.89	2.14	2.02	2.05	2.18		0.027	0.46
ø63	2.39	2.76	3.48	2.96	3.01	3.24		0.027	0.50
ø80	4.17	4.91	6.03	5.44	5.65	5.51		0.040	0.90
ø100	5.77	6.67	8.51	7.40	7.59	8.33		0.035	1.12

● SCA2-V1,V2

(Unit: kg)

Bore size (mm)	Product weight when stroke (S) = 0 mm						Switch weight	Mounting bracket weight	Additional weight per S = 100mm
	Basic (00)	Foot (LB)	Flange (FA, FB)	Eye bracket (CA)	Clevis bracket (CB)	Trunnion (TA, TB, TC)		T type	
ø40	1.23	1.40	1.64	1.55	1.59	1.61	Refer to the weight in the switch specifications.	0.030	0.39
ø50	1.60	1.84	2.09	1.97	2.01	2.13		0.027	0.46
ø63	2.28	2.65	3.38	2.85	2.91	3.13		0.027	0.50
ø80	4.07	4.81	5.93	5.34	5.55	5.41		0.040	0.90
ø100	5.67	6.57	8.41	7.30	7.49	8.23		0.035	1.12

(Example) Product weight of SCA2-V1-LB-50B-200-TOH-D	Product weight for 0 mm stroke..... 1.84 kg Additional weight for 200 mm stroke ..... $0.46 \times \frac{200}{100} = 0.92$ kg Weight of 2 TOH switches ..... $0.018 \times 2 = 0.036$ kg Weight of 2 mounting brackets..... $0.027 \times 2 = 0.054$ kg Product weight..... $1.45 + 0.92 + 0.036 + 0.054 = 2.460$ kg
--	--

### Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa						
		0.15	0.2	0.3	0.4	0.5	0.6	0.7
ø40	Push	$1.88 \times 10^2$	$2.51 \times 10^2$	$3.77 \times 10^2$	$5.03 \times 10^2$	$6.28 \times 10^2$	$7.54 \times 10^2$	$8.80 \times 10^2$
	Pull	$1.58 \times 10^2$	$2.11 \times 10^2$	$3.17 \times 10^2$	$4.22 \times 10^2$	$5.28 \times 10^2$	$6.33 \times 10^2$	$7.39 \times 10^2$
ø50	Push	$2.95 \times 10^2$	$3.93 \times 10^2$	$5.89 \times 10^2$	$7.85 \times 10^2$	$9.82 \times 10^2$	$1.18 \times 10^3$	$1.37 \times 10^3$
	Pull	$2.47 \times 10^2$	$3.30 \times 10^2$	$4.95 \times 10^2$	$6.60 \times 10^2$	$8.25 \times 10^2$	$9.90 \times 10^2$	$1.15 \times 10^3$
ø63	Push	$4.68 \times 10^2$	$6.23 \times 10^2$	$9.35 \times 10^2$	$1.25 \times 10^3$	$1.56 \times 10^3$	$1.87 \times 10^3$	$2.18 \times 10^3$
	Pull	$4.20 \times 10^2$	$5.61 \times 10^2$	$8.41 \times 10^2$	$1.12 \times 10^3$	$1.40 \times 10^3$	$1.68 \times 10^3$	$1.96 \times 10^3$
ø80	Push	$7.54 \times 10^2$	$1.01 \times 10^3$	$1.51 \times 10^3$	$2.01 \times 10^3$	$2.51 \times 10^3$	$3.02 \times 10^3$	$3.52 \times 10^3$
	Pull	$6.80 \times 10^2$	$9.07 \times 10^2$	$1.36 \times 10^3$	$1.81 \times 10^3$	$2.27 \times 10^3$	$2.72 \times 10^3$	$3.17 \times 10^3$
ø100	Push	$1.18 \times 10^3$	$1.57 \times 10^3$	$2.36 \times 10^3$	$3.14 \times 10^3$	$3.93 \times 10^3$	$4.71 \times 10^3$	$5.50 \times 10^3$
	Pull	$1.07 \times 10^3$	$1.43 \times 10^3$	$2.14 \times 10^3$	$2.86 \times 10^3$	$3.57 \times 10^3$	$4.29 \times 10^3$	$5.00 \times 10^3$

# SCA2-V Series

SCP\*3  
CMK2  
CMA2  
SCM  
SCG  
SCA2  
SCS2  
CKV2  
CAV2/  
COVPIN2  
SSD2  
SSG  
SSD  
CAT  
MDC2  
MVC  
SMG  
MSD/  
MSDG  
FC\*  
STK  
SRL3  
SRG3  
SRM3  
SRT3  
MRL2  
MRG2  
SM-25  
ShkAbs  
FJ  
FK  
Spd  
Contr  
Ending

## How to order

No switch (built-in magnet for switch)

SCA2 - V1 - LB - 40 - B - 100 - 1 - S I

With switch (built-in magnet for switch)

SCA2 - V1 - LB - 40 - B - 100 - 1 - T0H - R - S I

A Actuation

B Mounting  
\*1

C Bore size

D Port thread

E Cushion

F Stroke

G Valve voltage

H Switch model No.  
\*3

I Switch quantity  
\*4

J Option  
\*5  
\*6

K Accessory  
\*7

## ⚠ Precautions for model No. selection

- \*1 : Mounting bracket will be shipped with the product.  
(Trunnion are assembled at shipment.)
- \*2 : Refer to page 597 for the min. stroke with switch.
- \*3 : Switches are shipped with the product.
- \*4 : When selecting TA, TD, TB or TE mounting, the switch quantity is limited to "H" (1 on head side) for TA and TD, and "R" (1 on rod side) for TB and TE.
- \*5 : The instantaneous max. temperature is the temperature when sparks, cutting chips, etc., instantaneously contact the bellows.
- \*6 : When selecting TA, TD, TB or TE mounting format, the cushion needle position is blank and fixed at S, with no options available.
- \*7 : "I" and "Y" cannot be selected together.
- \*8 : Refer to Ending Page 85 for custom specifications of rod end form.
- \*9 : Refer to page 448 for combination of variations/options.

[Example of model No.]

**SCA2-V1-LB-40B-100-1-T0H-R-SI**

Model: Medium bore size cylinder double acting/with valve

- A Actuation : Push out when energized/single solenoid
- B Mounting : Axial foot
- C Bore size : ø40 mm
- D Port thread : Rc thread
- E Cushion : Both sides cushioned
- F Stroke : 100 mm
- G Valve voltage : 100 VAC
- H Switch model No. : Reed T0H switch, lead wire length 1 m
- I Switch quantity : 1 on rod side
- J Option : Cushion needle position S
- K Accessory : Rod eye

Code	Description	
<b>A Actuation</b>		
V1	Push when energized, single solenoid	
V2	Pull when energized, single solenoid	
V	Double solenoid	
<b>B Mounting</b>		
00	Basic	
LB	Axial foot	
FA	Rod side flange	
FB	Head side flange	
CA	Eye bracket	
CB	Clevis bracket (pin and snap ring included)	
TC	Intermediate trunnion	
TA	Rod side trunnion	
TF	Intermediate supporting hole trunnion (ø40 is not available)	
TD	Rod side hole trunnion (ø40 is not available)	
<b>C Bore size (mm)</b>		
40	ø40	
50	ø50	
63	ø63	
80	ø80	
100	ø100	
<b>D Port thread</b>		
Blank	Rc thread	
N	NPT thread (made-to-order product)	
G	G thread (made-to-order product)	
<b>E Cushion</b>		
B	Both sides cushioned	
R	Rod side cushioned	
H	Head side cushioned	
N	Without cushion	
<b>F Stroke (mm)</b>		
Bore size	Stroke *2	Custom stroke
ø40	50 to 600	In 1 mm increments
ø50	50 to 600	
ø63	50 to 600	
ø80	50 to 700	
ø100	50 to 800	
<b>G Valve voltage</b>		
1	100 VAC	
2	200 VAC	
3	24 VDC	
<b>H Switch model No.</b>		
Refer to the switch model numbers on the next page.		
<b>* Lead wire length</b>		
Blank	1 m (standard)	
3	3 m (option)	
5	5 m (option)	
<b>I Switch quantity</b>		
R	1 on rod side	
H	1 on head side	
D	2	
T	3	
<b>J Option</b>		
		Max. ambient temp.   instantaneous max. temp.
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	
<b>K Accessory</b>		
I	Rod eye	
Y	Rod clevis (pin and snap ring included)	
B1	Eye bracket	
B2	Clevis bracket (pin and snap ring included)	
B3	Eye bracket	
B4	Trunnion No. 2 bracket (2 pcs./set)	

### [H] Switch model No.

T-switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No indicator lamp	
T1H*	T1V*	Proximity	●		1-color LED	2-wire
T2H*	T2V*			●		
T3H*	T3V*			●	2-wire	
T2WH*	T2WV*			●		2-wire
T2YH*	T2YV*			●	3-wire	
T3WH*	T3WV*			●		2-wire
T3YH*	T3YV*			●	3-wire	
T3PH*	T3PV*			●		1-color LED
T2YD*	-		●	2-color LED	2-wire	
T2YDT*	-		●	AC magnetic field	2-wire	
T2JH*	T2JV*		●	1-color LED off-delay	2-wire	

### How to order switch

#### [T-switch]

For rod side

- Switch body + mounting bracket set

SCA2 - T0H - 40

Switch model No. (Item H)    Bore size (Item C) on page 600

- Switch body only

SW - T0H

Switch model No. (Item H)

\* Contact CKD when using an environment-friendly T-switch.

- Switch mounting bracket set

SCA2 - TS - 40

Mounting bracket    Bore size (Item C) on page 600

For head side

- Switch body + mounting bracket set

SCA2 - V - T0H - 40

Switch model No. (Item H)    Bore size (Item C) on page 600

- Switch body only

SW - T0H

Switch model No. (Item H)

\* Contact CKD when using an environment-friendly T type switch.

- Switch mounting bracket set

SCA2 - V - TS - 40

Mounting bracket    Bore size (Item C) on page 600

#### [T2YD switch]

- Switch body + mounting bracket set

SCA2 - T2YD - 40

Switch model No. (Item H)    Bore size (Item C) on page 600

- Switch body only

SW - T2YD

Switch model No. (Item H)

- Mounting bracket set

SCA2 - T - 40

Bore size (Item C) on page 600

### How to order mounting bracket

Bore size (mm)		ø40	ø50	ø63	ø80	ø100
Mounting bracket						
Foot (LB)	*2	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 bracket (CA)		S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis bracket (CB)		S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

\*1 : For material of the mounting bracket, refer to page 456.

\*2 : The foot mounting bracket is provided as 2 pcs./set.

\*3 : All mounting brackets are supplied with mounting bolts.

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

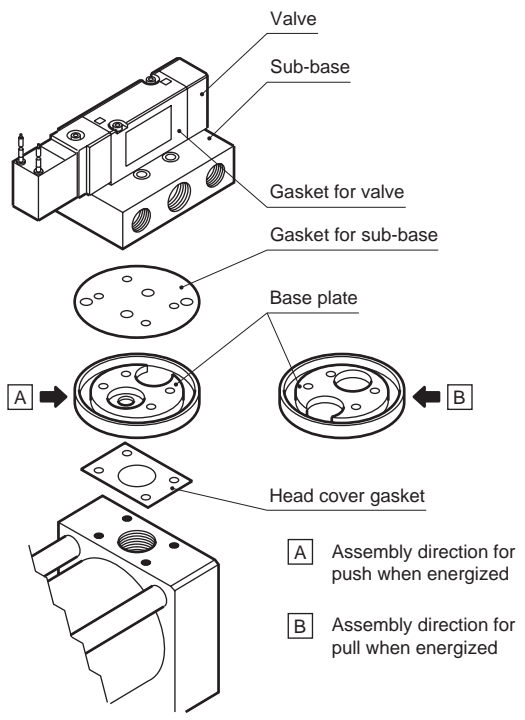
Spd  
Contr

Ending

# SCA2-V Series

SCP\*3 Changing to push when energized or pull when energized

- CMK2
- CMA2
- SCM
- SCG
- SCA2**
- SCS2
- CKV2
- CAV2/  
COVPIN2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/  
MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd  
Contr
- Ending



## Internal structure

Same as SCA2 Series (double acting/single rod). Refer to page 456.



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# MEMO

---

SCP\*3

CMK2

CMA2

SCM

SCG

**SCA2**

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

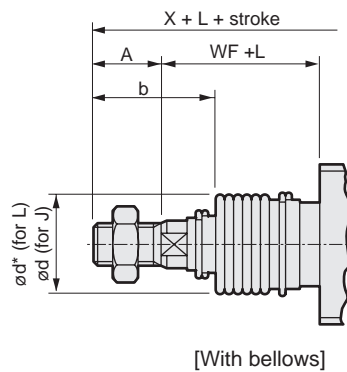
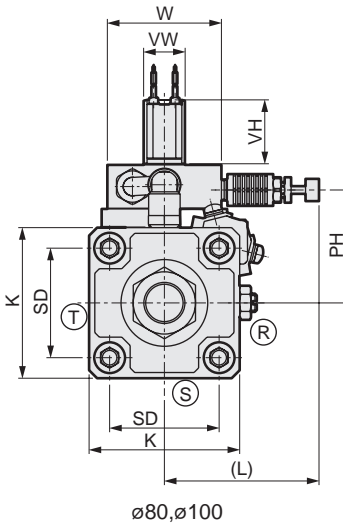
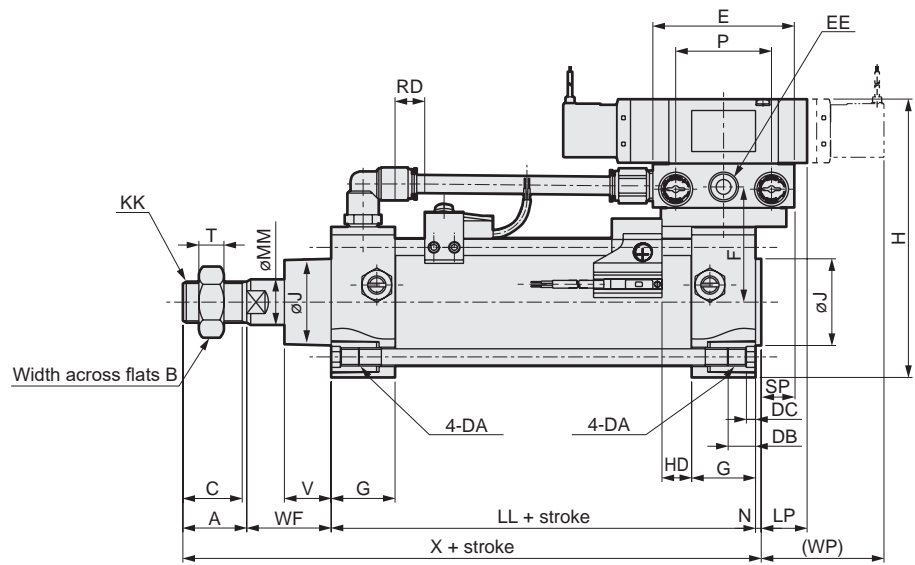
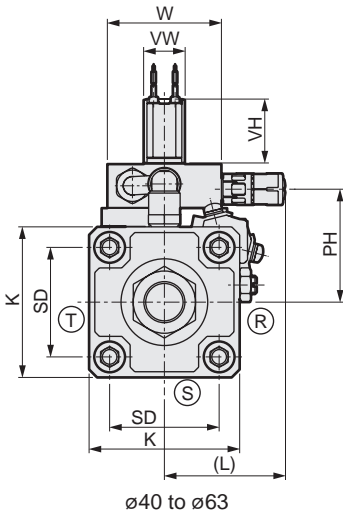
Ending

# SCA2-V Series

## Dimensions



● Basic (00)



[With bellows]

Code	Basic (00) Basic dimensions																														
Bore size	A	B	C	E	EE	F	DA	DB	DC	G	H	J	K	KK	L	LL	LP	MM	N	P	PH	SD	SP	T	V	VH	VW	W	WF	WP	X
ø40	22	22	20	62	Rc 1/4	46	M8	12	4	26	113	31	57	M14x1.5	60	93	22	16	2	42	45	40.5	16	8	18.5	28	18	50	33.5	55	150.5
ø50	28	27	26	62	Rc 1/4	50.5	M8	12	4	28	122	38	66	M18x1.5	60	101	20.5	20	2.5	42	49.5	48	14.5	11	20.5	28	18	50	37	54	168.5
ø63	28	27	26	76	Rc 3/8	60	M8	12	4	30	149	38	80	M18x1.5	64	105	20	20	3	51	60.5	59	20	11	21	36	23	60	35	62	171
ø80	36	32	34	94	Rc 1/2	78.5	M12	16	5	34	188	43	98	M22x1.5	122	116	26.5	25	3.5	64	78.5	74	26.5	13	23.5	43	29	90	48	72.5	203.5
ø100	45	41	43	94	Rc 1/2	88.5	M12	16	5	36	208	51	118	M26x1.5	122	128	25	30	4	64	88.5	90	25	16	32	43	29	90	53	71	230

Code	With switch							With bellows																									
	T0,T5 T2,T3		T1,T2Y T3Y,T2J		T2W, T3W			b	d	d*	L							*1 Over 500															
	RD	HD	RD	HD	RD	HD	50 or less				Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500																	
SM-25																																	
ShkAbs																																	
FJ																																	
FK																																	

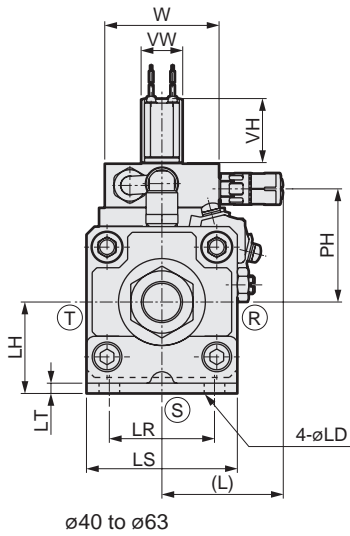
\*1 : For the L dimension, round up below the decimal point.

\*2: Refer to page 615 for dimensions of projecting section of T2YD switch.

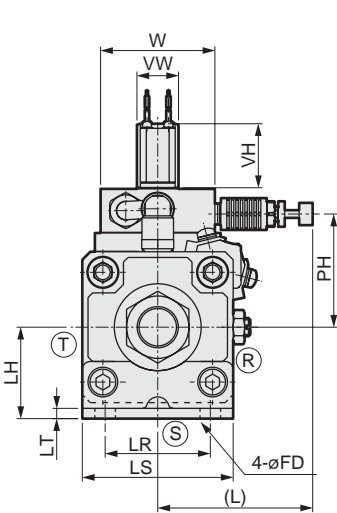
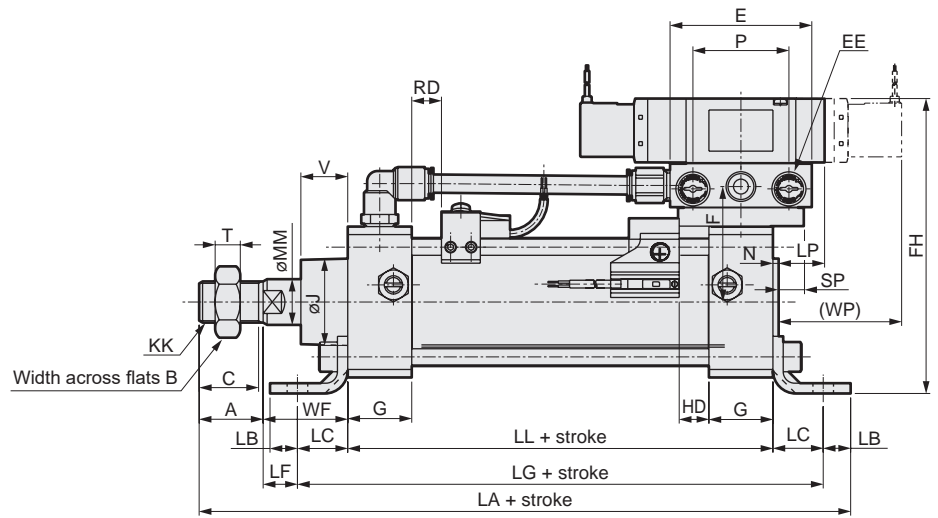
\*3: For the dimensions of the accessories, refer to pages 470 and 471.

## Dimensions

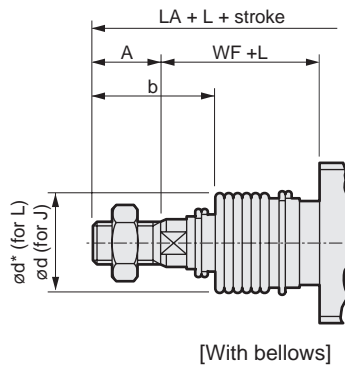
● Axial foot (LB)



ø40 to ø63



ø80, ø100



[With bellows]

Code	Axial foot (LB) Basic dimensions																				Mounting method													
Bore size	A	B	C	E	EE	F	FH	G	KK	L	LL	LP	MM	N	P	PH	SP	T	V	VH	VW	W	WF	WP	LA	LB	LC	LD	LF	LG	LH	LR	LS	LT
	ø40	22	22	20	62	Rc 1/4	46	124.5	26	M14x1.5	60	93	22	16	2	42	45	16	8	18.5	28	18	50	33.5	55	178	10	19.5	9	14	132	40	40	57
ø50	28	27	26	62	Rc 1/4	50.5	129	28	M18x1.5	60	101	20.5	20	2.5	42	49.5	14.5	11	20.5	28	18	50	37	54	200	12	22	9	15	145	40	46	66	4.5
ø63	28	27	26	76	Rc 3/8	60	159	30	M18x1.5	64	105	20	20	3	51	60.5	20	11	21	36	23	60	35	62	210	12	30	11	5	165	50	60	80	4.5
ø80	36	32	34	94	Rc 1/2	78.5	199	34	M22x1.5	122	116	26.5	25	3.5	64	78.5	26.5	13	23.5	43	29	90	48	72.5	251	14	37	14	11	190	60	74	98	6.0
ø100	45	41	43	94	Rc 1/2	88.5	216	36	M26x1.5	122	128	25	30	4	64	88.5	25	16	32	43	29	90	53	71	278	21	31	14	22	190	67	80	118	6.0

Code	With switch						With bellows										
	T0,T5 T2,T3		T1,T2Y T3Y,T2J		T2W,T3W		b	d	d*	L							*1 Over 500
	RD	HD	RD	HD	RD	HD				50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	
ø40	11	11	10	10	13	13	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	13	13	12	12	15	15	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	13	13	12	12	15	15	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	14.5	14.5	13.5	13.5	16.5	16.5	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	18.5	18.5	17.5	17.5	20.5	20.5	69.5	61	65	20	32	42	53	76	98	120	(Stroke/4.5) + 9

\*1 :For the L dimension, round up below the decimal point.

\*2:Refer to page 615 for dimensions of projecting section of T2YD switch.

\*3:For the dimensions of the accessories, refer to pages 470 and 471.

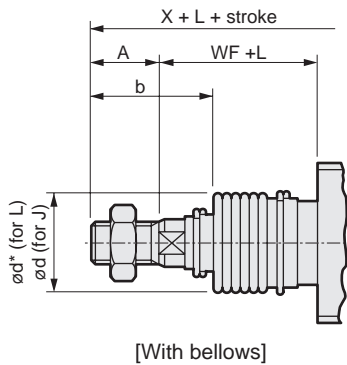
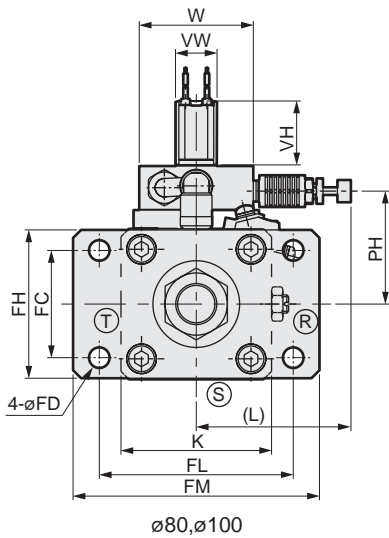
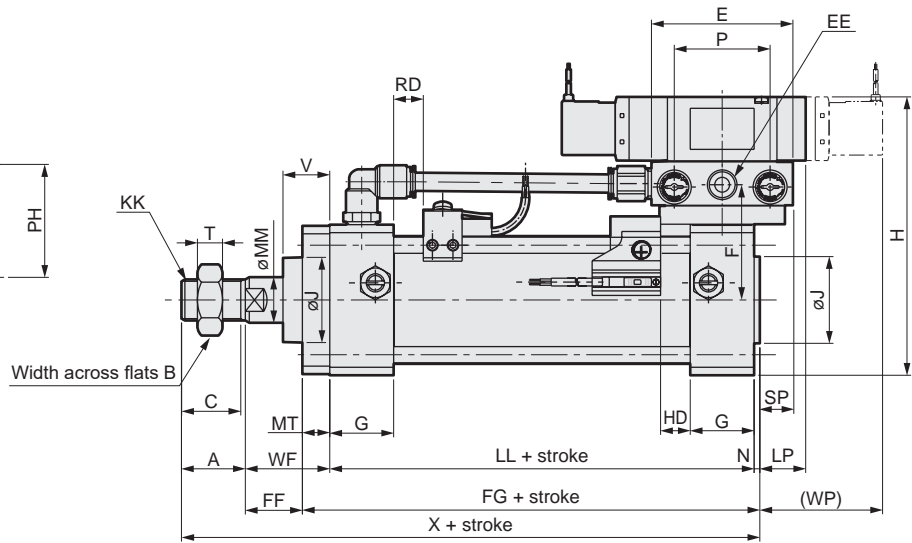
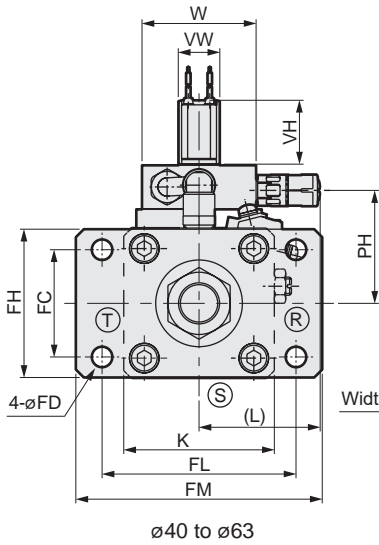
SCP*3
CMK2
CMA2
SCM
SCG
<b>SCA2</b>
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

# SCA2-V Series

## Dimensions



● Rod side flange (FA)



[With bellows]

Code	Rod side flange (FA) Basic dimensions																				Mounting method															
	A	B	C	E	EE	F	G	H	J	K	KK	L	LL	LP	MM	MT	N	P	PH	SP	T	V	VH	VW	W	WF	WP	X	FC	FD	FF	FG	FH	FL	FM	
SRG3	ø40	22	22	20	62	Rc1/4	46	26	113	31	57	M14x1.5	60	93	22	16	12	2	42	45	16	8	18.5	28	18	50	33.5	55	150.5	40	9	21.5	107	57	80	100
SRM3	ø50	28	27	26	62	Rc1/4	50.5	28	122	38	66	M18x1.5	60	101	20.5	20	12	2.5	42	49.5	14.5	11	20.5	28	18	50	37	54	168.5	47	9	25	115.5	65	85	108
SRT3	ø63	28	27	26	76	Rc3/8	60	30	149	38	80	M18x1.5	64	105	20	20	16	3	51	60.5	20	11	21	36	23	60	35	62	171	60	11	19	124	80	106	130
MRL2	ø80	36	32	34	94	Rc1/2	78.5	34	188	43	98	M22x1.5	122	116	26.5	25	19	3.5	64	78.5	26.5	13	23.5	43	29	90	48	72.5	203.5	74	14	29	138.5	98	125	153
MRG2	ø100	45	41	43	94	Rc1/2	88.5	36	208	51	118	M26x1.5	122	128	25	30	19	4	64	88.5	25	16	32	43	29	90	53	71	230	88	14	34	151	118	144	180
Code	With switch						With bellows						L																							
	T0, T5 T2, T3		T1, T2Y T3Y, T2J		T2W, T3W		b	d	d*	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*1 Over 500																			
ShkAbs	RD	HD	RD	HD	RD	HD																														
SM-25	ø40	11	11	10	10	13	13	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8																		
FJ	ø50	13	13	12	12	15	15	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5																		
FK	ø63	13	13	12	12	15	15	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5																		
	ø80	14.5	14.5	13.5	13.5	16.5	16.5	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5																		
	ø100	18.5	18.5	17.5	17.5	20.5	20.5	69.5	61	65	20	32	42	53	76	98	120	(Stroke/4.5) + 9																		

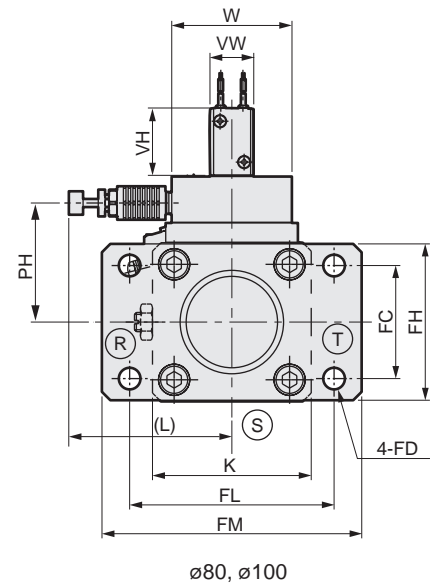
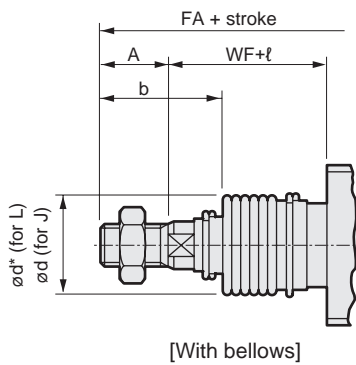
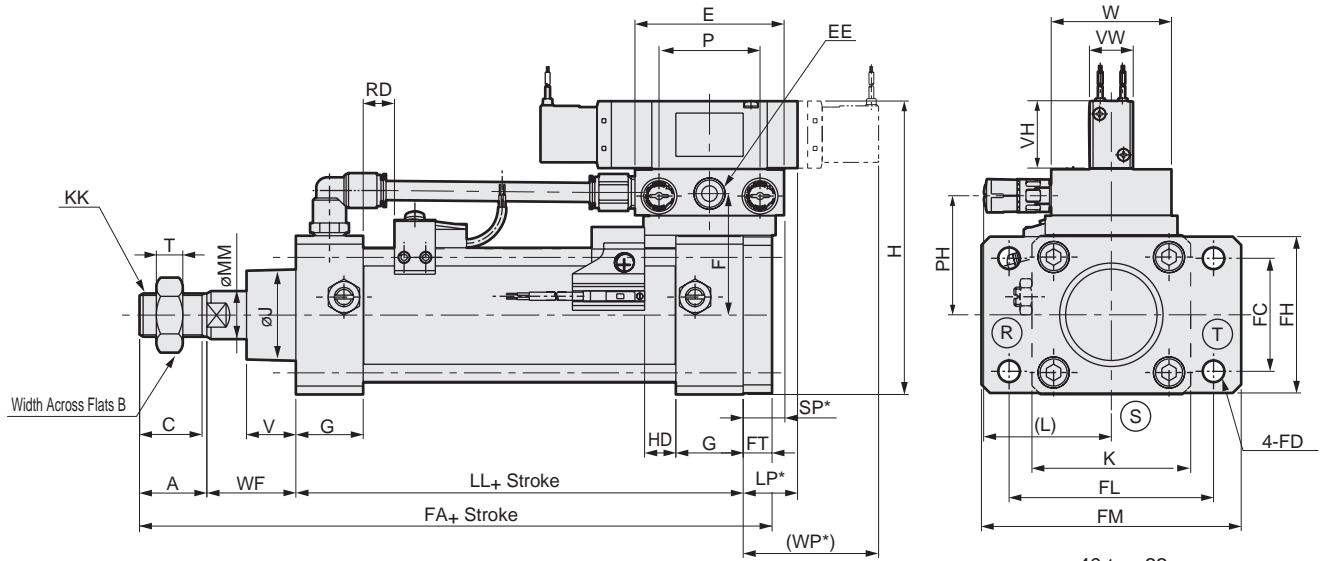
\*1 : For the L dimension, round up below the decimal point.

\*2: Refer to page 615 for dimensions of projecting section of T2YD switch.

\*3: For the dimensions of the accessories, refer to pages 470 and 471.

## Dimensions

● Head side flange FB



Code	Head side flange(FB)Basic dimensions																				Mounting method										
Bore size	A	B	C	E	EE	F	G	H	K	KK	L	LL	LP*	MM	P	PH	SP*	T	V	VH	VW	W	WP*	FA	FC	FD	FH	FJ	FL	FM	FT
ø40	22	22	20	62	Rc 1/4	46	26	113	57	M 14 x 1.5	60	93	24	16	42	45	18	8	18.5	28	18	50	57	180.5	40	9	57	131	80	100	12
ø50	28	27	26	62	Rc 1/4	50.5	28	122	66	M 18 x 1.5	60	101	23	20	42	49.5	17	11	20.5	28	18	50	56.5	178	47	9	65	142.5	85	108	12
ø63	28	27	26	76	Rc 3/8	60	30	149	80	M 18 x 1.5	64	105	23	20	51	60.5	23	11	21	36	23	60	65	184	60	11	80	144.5	106	130	16
ø80	36	32	34	94	Rc 1/2	78.5	34	188	98	M 22 x 1.5	122	116	28.5	25	64	78.5	30	13	23.5	43	29	90	76	219	74	14	98	170	125	153	19
ø100	45	41	43	94	Rc 1/2	88.5	36	208	118	M 26 x 1.5	122	128	34	30	64	88.5	29	16	32	43	29	90	75	245	88	14	118	187	144	180	19

Code	With switch						With bellows										
	T0, T5 T2, T3		T1, T2Y T3Y, T2J		T2W, T3W		b	d	d*	L							
	RD	HD	RD	HD	RD	HD				50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500
ø40	11	11	10	10	13	13	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	13	13	12	12	15	15	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	13	13	12	12	15	15	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	14.5	14.5	13.5	13.5	16.5	16.5	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	18.5	18.5	17.5	17.5	20.5	20.5	69.5	61	65	20	32	42	53	76	98	120	(Stroke/4.5) + 9

\*1 :For the L dimension, round up below the decimal point.

\*2: Refer to page 615 for dimensions of projecting section of T2YD switch.

\*3: For the dimensions of the accessories, refer to pages 470 and 471.

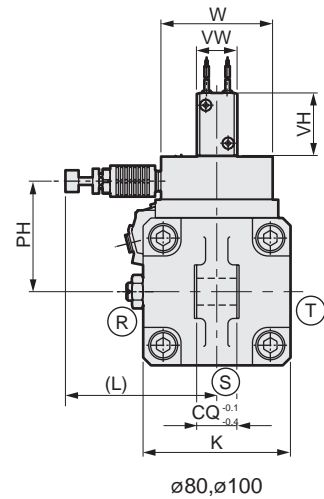
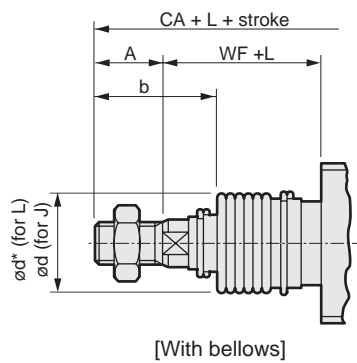
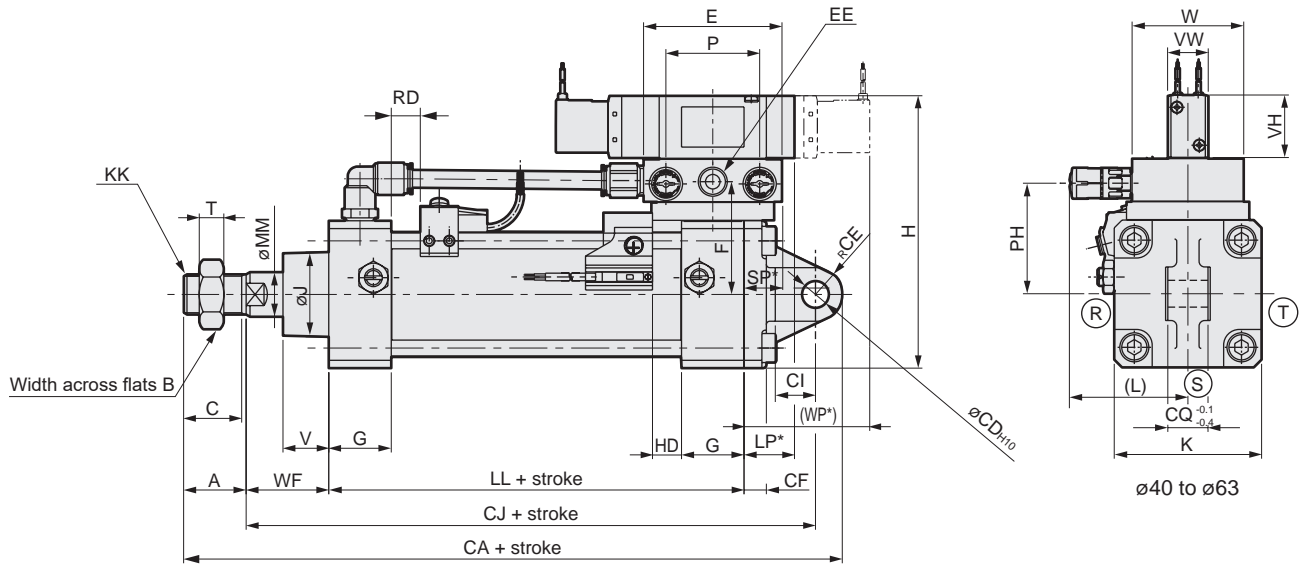
- SCP\*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2**
- SCS2
- CKV2
- CAV2/COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd Contr
- Ending

# SCA2-V Series

## Dimensions



● Eye bracket (CA)



Code	Eye bracket (CA) Basic dimensions																				Mounting method												
	A	B	C	E	EE	F	G	H	J	K	KK	L	LL	LP*	MM	P	PH	SP*	T	V	VH	VW	W	WF	WP*	CA	CD	CE	CF	CI	CJ	CQ	
SRG3	ø40	22	22	20	62	Rc 1/4	46	26	113	31	57	M14x1.5	60	93	24	16	42	45	18	8	18.5	28	18	50	33.5	57	192.5	12	12	10	18	158.5	18
	ø50	28	27	26	62	Rc 1/4	50.5	28	122	38	66	M18x1.5	60	101	23	20	42	49.5	17	11	20.5	28	18	50	37	56.5	210	12	12	10	18	170	18
SRM3	ø63	28	27	26	76	Rc 3/8	60	30	149	38	80	M18x1.5	64	105	23	20	51	60.5	23	11	21	36	23	60	35	65	221	14	16	10	24	177	20
	ø80	36	32	34	94	Rc 1/2	78.5	34	188	43	98	M22x1.5	122	116	28.5	25	64	78.5	30	13	23.5	43	29	90	48	76	272	20	20	14	30	216	28
SRT3	ø100	45	41	43	94	Rc 1/2	88.5	36	208	51	118	M26x1.5	122	128	34	30	64	88.5	29	16	32	43	29	90	53	75	298	20	20	16	30	233	28
MRL2	Code										With switch										With bellows												
	Bore size	T0, T5		T1, T2Y		T2, T3		T3Y, T2J		T2W, T3W		b	d	d*	L													*1					
RD		HD	RD	HD	RD	HD	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300				Over 300 to 400	Over 400 to 500	Over 500																
MRG2	ø40	11	11	10	10	13	13	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8															
ShkAbs	ø50	13	13	12	12	15	15	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5															
	ø63	13	13	12	12	15	15	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5															
FJ	ø80	14.5	14.5	13.5	13.5	16.5	16.5	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5															
	ø100	18.5	18.5	17.5	17.5	20.5	20.5	69.5	61	65	20	32	42	53	76	98	120	(Stroke/4.5) + 9															

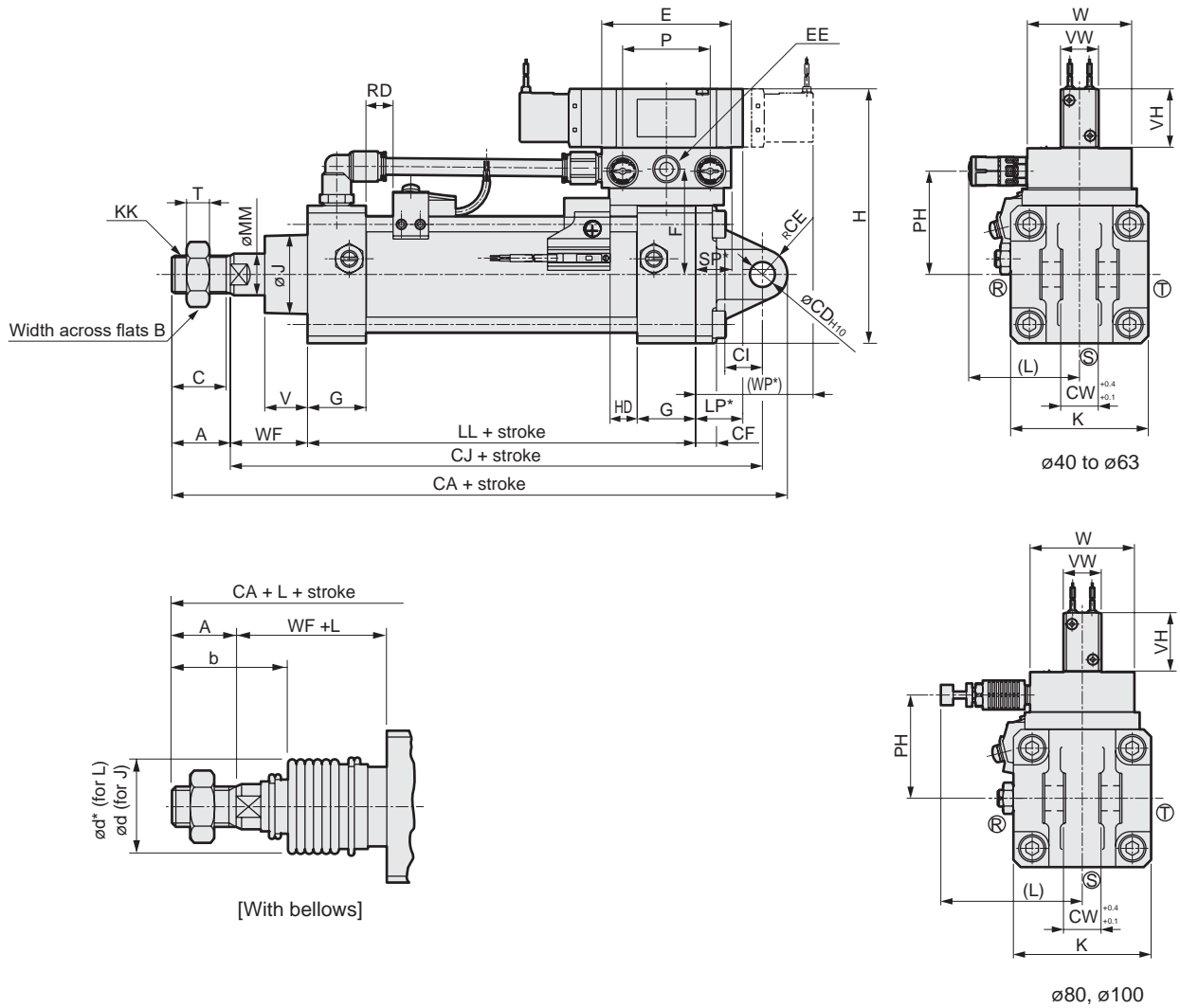
\*1 : For the L dimension, round up below the decimal point.

\*2 : Refer to page 615 for dimensions of projecting section of T2YD switch.

\*3 : For the dimensions of the accessories, refer to pages 470 and 471.

## Dimensions

● Clevis bracket (CB)



- SCP\*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2**
- SCS2
- CKV2
- CAV2/COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd Contr
- Ending

Code	Clevis bracket (CB) Basic dimensions																							Mounting method								
Bore size	A	B	C	E	EE	F	G	H	J	K	KK	L	LL	LP*	MM	P	PH	SP*	T	V	VH	VW	W	WF	WP*	CA	CD	CE	CF	CI	CJ	CW
ø40	22	22	20	62	Rc 1/4	46	26	113	31	57	M14x1.5	60	93	24	16	42	45	18	8	18.5	28	18	50	33.5	57	192.5	12	12	10	18	158.5	18
ø50	28	27	26	62	Rc 1/4	50.5	28	122	38	66	M18x1.5	60	101	23	20	42	49.5	17	11	20.5	28	18	50	37	56.5	210	12	12	10	18	170	18
ø63	28	27	26	76	Rc 3/8	60	30	149	38	80	M18x1.5	64	105	23	20	51	60.5	23	11	21	36	23	60	35	65	221	14	16	10	24	177	20
ø80	36	32	34	94	Rc 1/2	78.5	34	188	43	98	M22x1.5	122	116	28.5	25	64	78.5	30	13	23.5	43	29	90	48	76	272	20	20	14	30	216	28
ø100	45	41	43	94	Rc 1/2	88.5	36	208	51	118	M26x1.5	122	128	34	30	64	88.5	29	16	32	43	29	90	53	75	298	20	20	16	30	233	28

Code	With switch						With bellows										
	T0, T5 T2, T3		T1, T2Y T3Y, T2J		T2W, T3W		b	d	d*	L							*1
	RD	HD	RD	HD	RD	HD				50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	
ø40	11	11	10	10	13	13	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8
ø50	13	13	12	12	15	15	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	13	13	12	12	15	15	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	14.5	14.5	13.5	13.5	16.5	16.5	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	18.5	18.5	17.5	17.5	20.5	20.5	69.5	61	65	20	32	42	53	76	98	120	(Stroke/4.5) + 9

\*1 : For the L dimension, round up below the decimal point.

\*2: Refer to page 615 for dimensions of projecting section of T2YD switch.

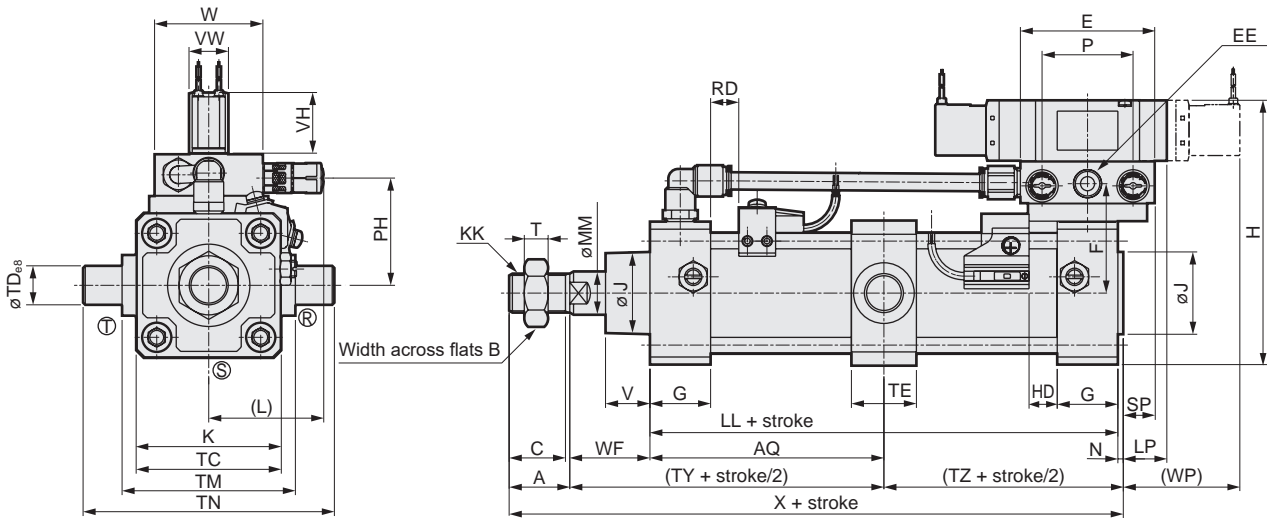
\*3: For the dimensions of the accessories, refer to pages 470 and 471.

# SCA2-V Series

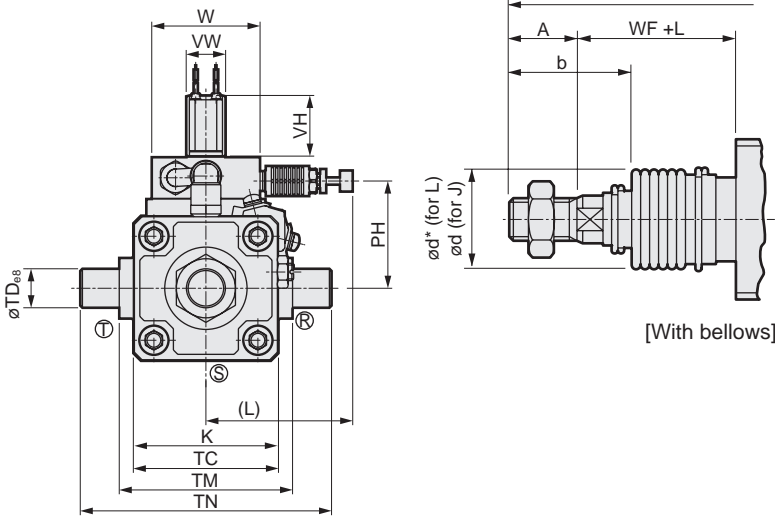
## Dimensions



### ● Intermediate trunnion (TC)



ø40 to ø63



ø80, ø100

Code	Intermediate trunnion (TC) Basic dimensions																				Mounting method											
	A	B	C	E	EE	F	G	H	J	K	KK	L	LL	LP	MM	N	P	PH	SP	T	V	VH	VW	W	WF	WP	X	AQ	TC	TD	TE	
SRM3																																
SRT3	ø40	22	22	20	62	Rc 1/4	46	26	113	31	57	M14x1.5	60	93	22	16	2	42	45	16	8	18.5	28	18	50	33.5	55	150.5	46.5+	57	16	30
	ø50	28	27	26	62	Rc 1/4	50.5	28	122	38	66	M18x1.5	60	101	20.5	20	2.5	42	49.5	14.5	11	20.5	28	18	50	37	54	168.5	50.5+	67	18	30
MRL2	ø63	28	27	26	76	Rc 3/8	60	30	149	38	80	M18x1.5	64	105	20	20	3	51	60.5	20	11	21	36	23	60	35	62	171	52.5+	82	20	35
	ø80	36	32	34	94	Rc 1/2	78.5	34	188	43	98	M22x1.5	122	116	26.5	25	3.5	64	78.5	26.5	13	23.5	43	29	90	48	72.5	203.5	58+	100	25	40
MRG2	ø100	45	41	43	94	Rc 1/2	88.5	36	208	51	118	M26x1.5	122	128	25	30	4	64	88.5	25	16	32	43	29	90	53	71	230	64+	121	35	50
SM-25																																
ShkAbs					With switch						With bellows						L															
	Bore size	TM	TN	TY	TZ	T0, T5	T1, T2Y	T2W, T3W		L						*1																
T2, T3						T3Y, T2J	RD	HD	RD	HD	b	d	d*	50 or less	Over 50 to 100		Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500										
FJ	ø40	63	95	80	48.5	11	11	10	10	13	13	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8										
FK	ø50	80	116	87.5	53	13	13	12	12	15	15	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5										
	ø63	90	130	87.5	55.5	13	13	12	12	15	15	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5										
Spd Contr	ø80	115	165	106	61.5	14.5	14.5	13.5	13.5	16.5	16.5	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5										
	ø100	135	205	117	68	18.5	18.5	17.5	17.5	20.5	20.5	69.5	61	65	20	32	42	53	76	98	120	(Stroke/4.5) + 9										

\*1 : For the L dimension, round up below the decimal point.

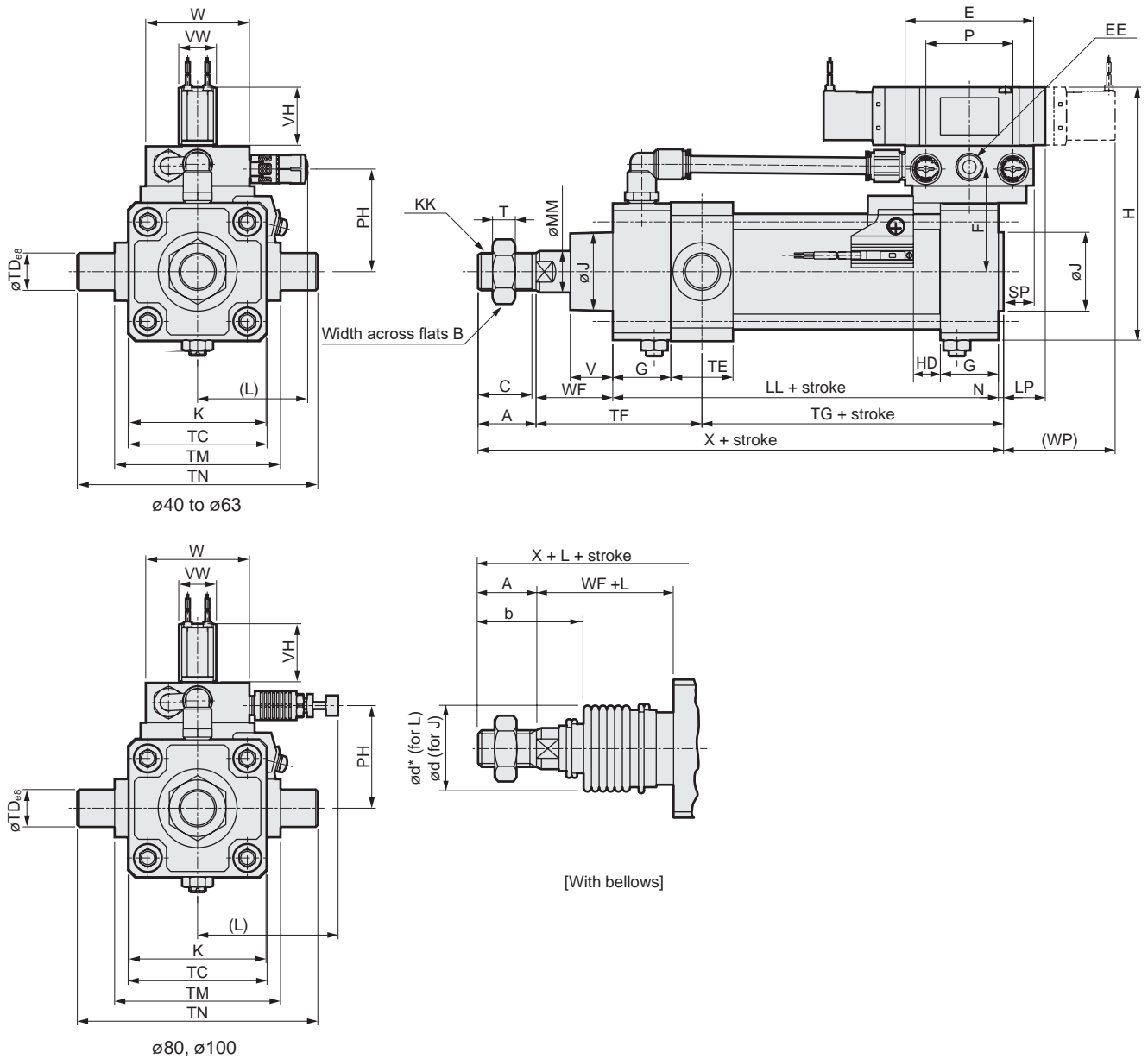
\*2: Refer to page 615 for dimensions of projecting section of T2YD switch.

\*3: For the dimensions of the accessories, refer to pages 470 and 471.



## Dimensions

● Rod side trunnion (TA)



Code	Rod side trunnion (TA) Basic dimensions																				Mounting method											
Bore size	A	B	C	E	EE	F	G	H	J	K	KK	L	LL	LP	MM	N	P	PH	SP	T	V	VH	VW	W	WF	WP	X	TC	TD	TE	TF	TG
$\phi 40$	22	22	20	62	Rc 1/4	46	26	113	31	57	M14x1.5	60	93	22	16	2	42	45	16	8	18.5	28	18	50	33.5	55	150.5	57	16	30	74.5	54
$\phi 50$	28	27	26	62	Rc 1/4	50.5	28	122	38	66	M18x1.5	60	101	20.5	20	2.5	42	49.5	14.5	11	20.5	28	18	50	37	54	168.5	67	18	30	80	60.5
$\phi 63$	28	27	26	76	Rc 3/8	60	30	149	38	80	M18x1.5	64	105	20	20	3	51	60.5	20	11	21	36	23	60	35	62	171	82	20	35	82.5	60.5
$\phi 80$	36	32	34	94	Rc 1/2	78.5	34	188	43	98	M22x1.5	122	116	26.5	25	3.5	64	78.5	26.5	13	23.5	43	29	90	48	72.5	203.5	100	25	40	102	65.5
$\phi 100$	45	41	43	94	Rc 1/2	88.5	36	208	51	118	M26x1.5	122	128	25	30	4	64	88.5	25	16	32	43	29	90	53	71	230	121	35	50	114	71

Code	With switch					With bellows											
Bore size	TM	TN	T0, T5	T1, T2Y	T2W, T3W	b	d	d*	L								*1
			T2, T3	T3Y, T2J	HD				50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500		
			HD	HD	HD				Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500					
$\phi 40$	63	95	11	10	13	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8	
$\phi 50$	80	116	13	12	15	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5	
$\phi 63$	90	130	13	12	15	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5	
$\phi 80$	115	165	14.5	13.5	16.5	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5	
$\phi 100$	135	205	18.5	17.5	20.5	69.5	61	65	20	32	42	53	76	98	120	(Stroke/4.5) + 9	

\*1 :For the L dimension, round up below the decimal point.

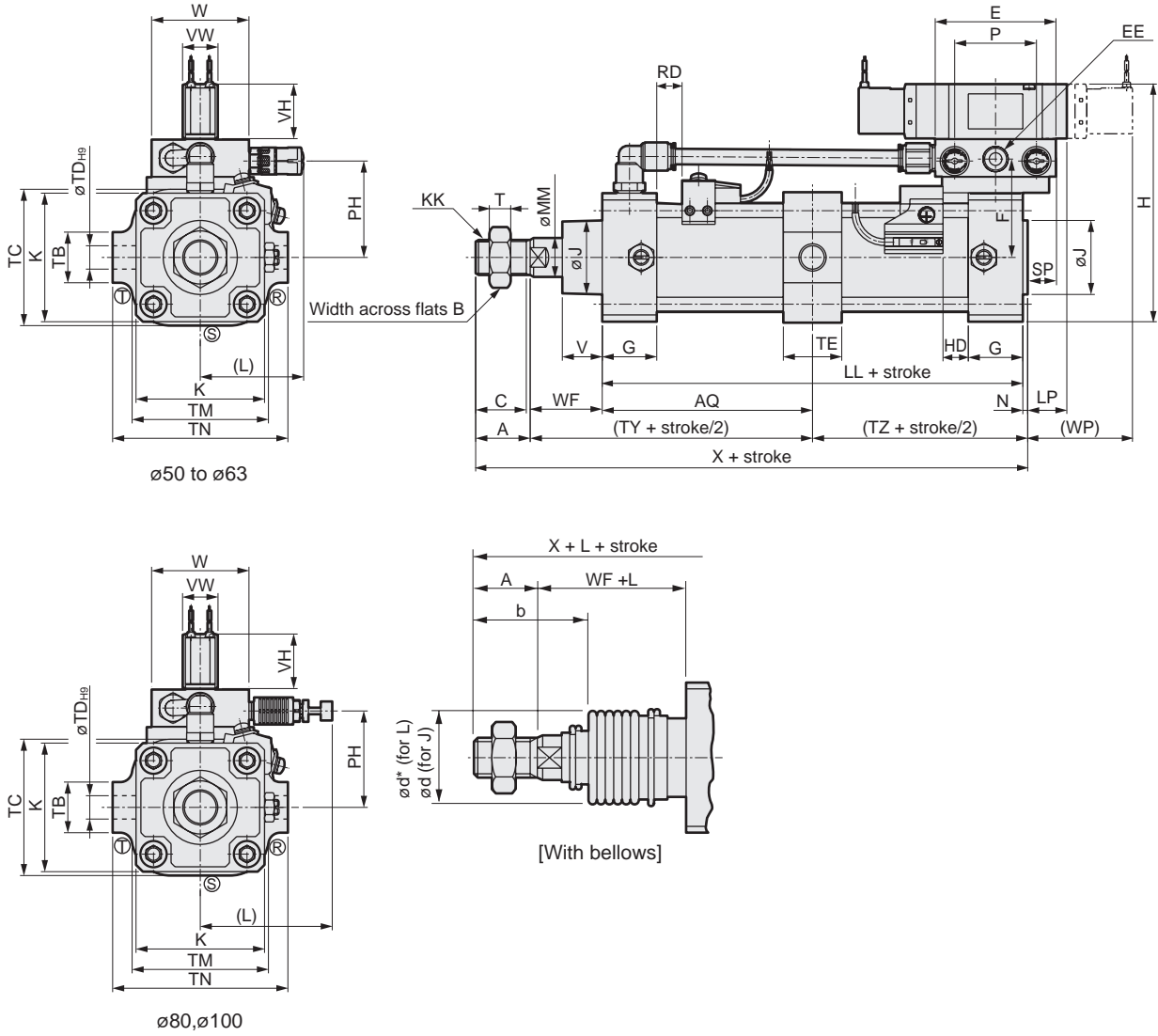
\*2: Refer to page 615 for dimensions of projecting section of T2YD switch.

\*3: For the dimensions of the accessories, refer to pages 470 and 471.

# SCA2-V Series

## Dimensions

● Intermediate supporting hole trunnion (TF)



Code	Intermediate hole style trunnion (TF) Basic dimensions																				Mounting method											
Bore size	A	B	C	E	EE	F	H	J	K	KK	L	LL	LP	MM	N	P	PH	SP	T	VH	VW	W	WF	WP	X	AQ	TB	TC	TD	TE	TM	TN
$\phi 50$	28	27	26	62	Rc 1/4	50.5	122	38	66	M18x1.5	60	101	20.5	20	2.5	42	49.5	14.5	11	28	18	50	37	54	168.5	50.5+	26	67	12	30	70	90
$\phi 63$	28	27	26	76	Rc 3/8	60	149	38	80	M18x1.5	64	105	20	20	3	51	60.5	20	11	36	23	60	35	62	171	52.5+	30	82	14	35	86	104
$\phi 80$	36	32	34	94	Rc 1/2	78.5	188	43	98	M22x1.5	122	116	26.5	25	3.5	64	78.5	26.5	13	43	29	90	48	72.5	203.5	58+	35	100	20	40	105	134
$\phi 100$	45	41	43	94	Rc 1/2	88.5	208	51	118	M26x1.5	122	128	25	30	4	64	88.5	25	16	43	29	90	53	71	230	64+	40	121	20	40	127	150
Code	With switch								With bellows								L															
Bore size	TY	TZ	T0,T5 T2,T3		T1,T2Y T3Y,T2J		T2W, T3W		b	d	d*	L					Over 400 to 500	Over 500														
			RD	HD	RD	HD	RD	HD				50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300																
$\phi 50$	87.5	53	13	13	12	12	15	15	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5													
$\phi 63$	87.5	55.5	13	13	12	12	15	15	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5													
$\phi 80$	106	61.5	14.5	14.5	13.5	13.5	16.5	16.5	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5													
$\phi 100$	117	68	18.5	18.5	17.5	17.5	20.5	20.5	69.5	61	65	20	32	42	53	76	98	120	(Stroke/4.5) + 9													

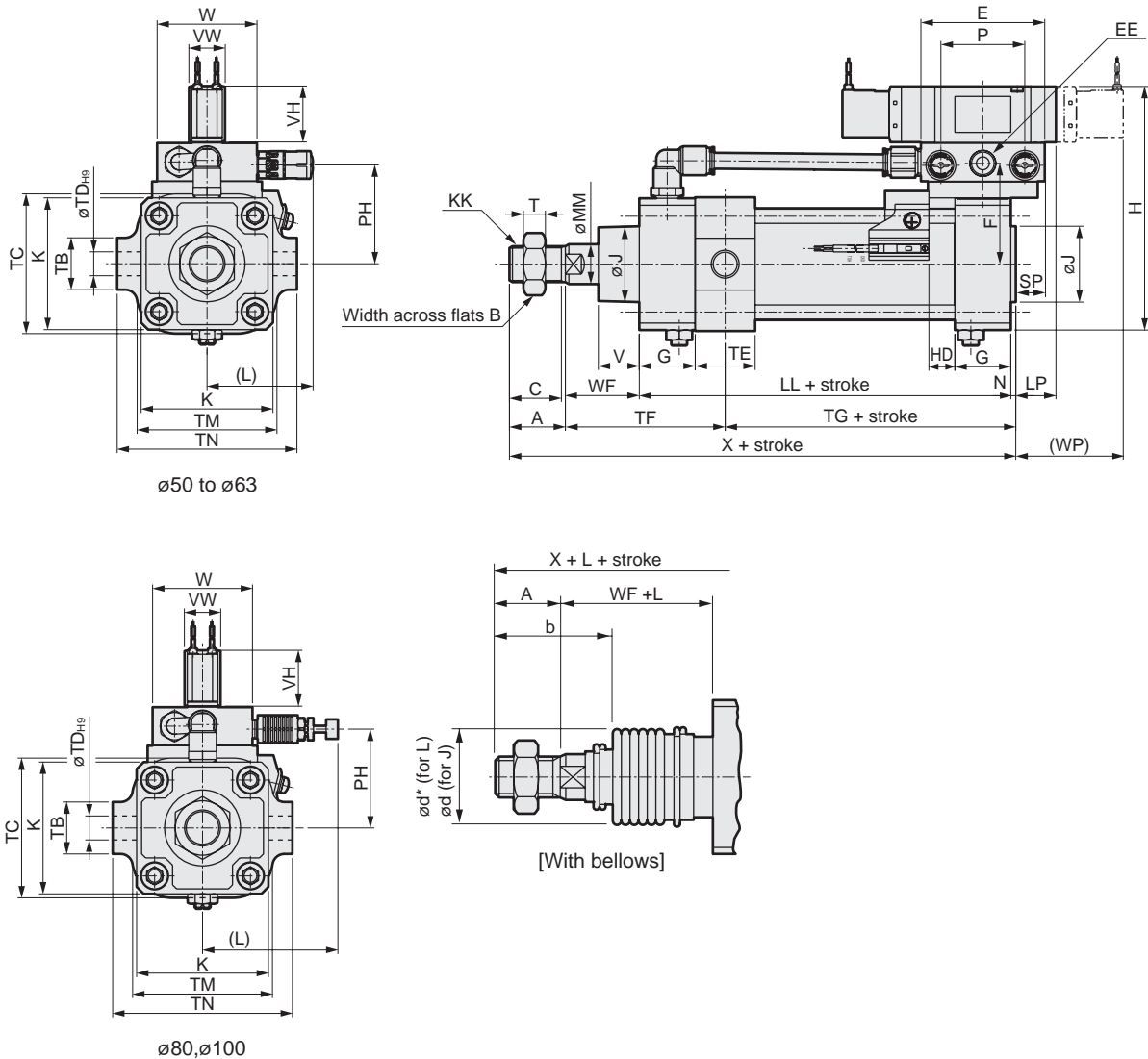
\*1 : For the L dimension, round up below the decimal point.

\*2: Refer to page 615 for dimensions of projecting section of T2YD switch.

\*3: For the dimensions of the accessories, refer to pages 470 and 471.

### Dimensions

- Rod side hole trunnion (TD)



Code	Rod side hole trunnion (TD) Basic dimensions																				Mounting method													
Bore size	A	B	C	E	EE	F	G	H	J	K	KK	L	LL	LP	MM	N	P	PH	SP	T	VH	VW	W	WF	WP	X	TB	TC	TD	TE	TF	TG	TM	TN
ø50	28	27	26	62	Rc 1/4	50.5	28	122	38	66	M18x1.5	60	101	20.5	20	2.5	42	49.5	14.5	11	28	18	50	37	54	168.5	26	67	12	30	80	60.5	70	90
ø63	28	27	26	76	Rc 3/8	60	30	149	38	80	M18x1.5	64	105	20	20	3	51	60.5	20	11	36	23	60	35	62	171	30	82	14	35	82.5	60.5	86	104
ø80	36	32	34	94	Rc 1/2	78.5	34	188	43	98	M22x1.5	122	116	26.5	25	3.5	64	78.5	26.5	13	43	29	90	48	72.5	203.5	35	100	20	40	102	65.5	105	134
ø100	45	41	43	94	Rc 1/2	88.5	36	208	51	118	M26x1.5	122	128	25	30	4	64	88.5	25	16	43	29	90	53	71	230	40	121	20	40	109	76	127	150

Code	With switch			With bellows			L									
Bore size	T0, T5 T2, T3	T1, T2Y T3Y, T2J	T2W, T3W	b	d	d*	L									
	HD	HD	HD				50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	*1 Over 500		
ø50	13	12	15	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5		
ø63	13	12	15	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5		
ø80	14.5	13.5	16.5	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5		
ø100	18.5	17.5	20.5	69.5	61	65	20	32	42	53	76	98	120	(Stroke/4.5) + 9		

\*1 : For the L dimension, round up below the decimal point.

\*2: Refer to page 615 for dimensions of projecting section of T2YD switch.

\* For the dimensions of the accessories, refer to pages 470 and 471.

- SCP\*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2**
- SCS2
- CKV2
- CAV2/  
COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/  
MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd  
Contr
- Ending

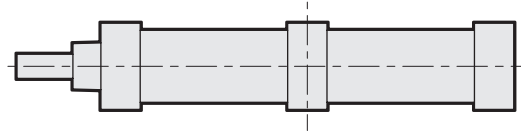
SCP\*3  
CMK2  
CMA2  
SCM  
SCG  
SCA2  
SCS2  
CKV2  
CAV2/  
COVPIN2  
SSD2  
SSG  
SSD  
CAT  
MDC2  
MVC  
SMG  
MSD/  
MSDG  
FC\*  
STK  
SRL3  
SRG3  
SRM3  
SRT3  
MRL2  
MRG2  
SM-25  
ShkAbs  
FJ  
FK  
Spd  
Contr  
Ending

## About non-sag block

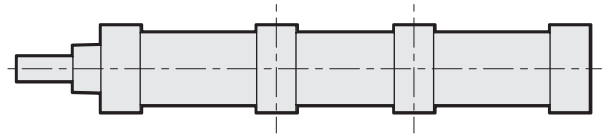
Depending on its stroke, a non-sag block will be added to the middle part of the cylinder.  
The number of non-sag blocks to be added differs depending on the bore size and the stroke as shown in the table below.  
Refer to Technical data 14 (Ending Page 70) as well.

Number of non-sag blocks depending on stroke

Tube size (mm)	Stroke (mm)	Number of non-sag blocks
ø40	1200 to 1600	1
	1200 to 1800	1
ø50	1801 to 2000	2
	1200 to 1800	1
ø63	1801 to 2500	2
	1500 to 2000	1
ø80	2001 to 2500	2
	1500 to 2000	1
ø100	2001 to 2500	2
	1500 to 2000	1

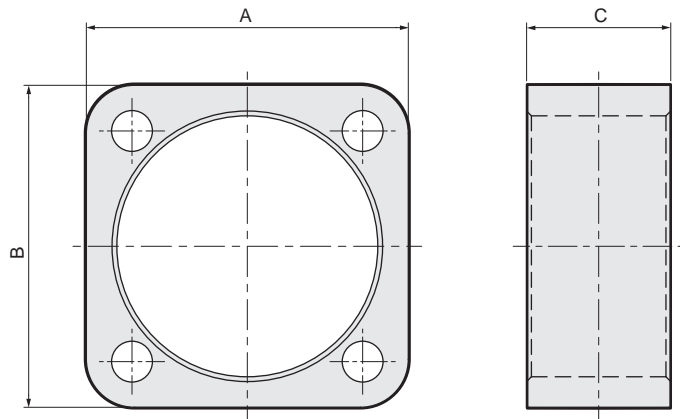


One non-sag block: To be added to the middle point between the covers.



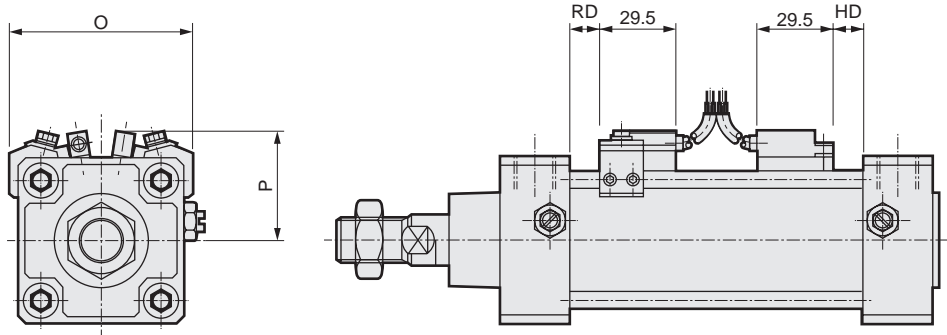
Two non-sag blocks: mount the 2 blocks so that the length of the 2 covers will be divided into 3 equal parts.

The dimensions of non-sag blocks are as shown in the figure below. When attaching the cylinder, take into account the dimensions of the non-sag blocks.



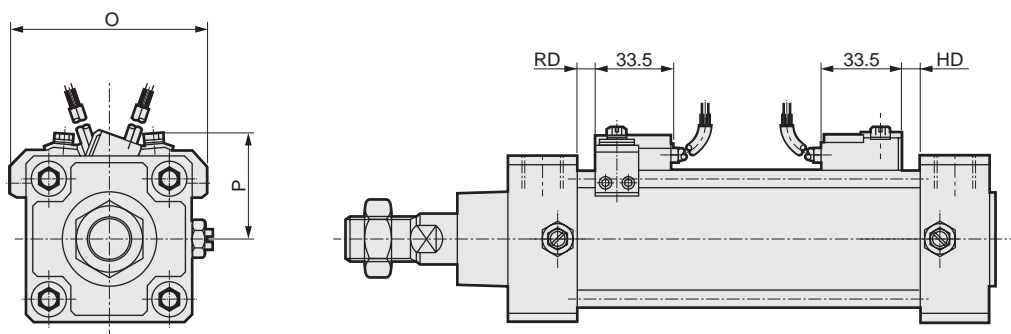
Tube size (mm)	Non-sag block dimensions		
	A	B	C
ø40	56	57	30
ø50	66	67	30
ø63	81	82	35
ø80	99	100	40
ø100	120	121	50

● With T1, T2YD switch



Code	O	P	RD	HD	Q2 For rod side position locking RD	Q2 For head side position locking HD
∅40	66	40	10	10	14.5	14.5
∅50	73	44.5	12	12	17	17
∅63	84	50	12	12	18	18
∅80	104	60	13.5	13.5	22.5	22.5
∅100	120	68	17.5	17.5	28.5	28.5

● With HO\* switch



Code	O	P	RD	HD
∅40	66	42	4	4
∅50	73	44	6	6
∅63	84	47	6	6
∅80	104	58	7.5	7.5
∅100	120	64	11.5	11.5

SCP\*3

CMK2

CMA2

SCM

SCG

**SCA2**

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

Ending



# Safety Precautions

Be sure to read this section before use.

Refer to Intro Page 73 for general information of the cylinder, and to Intro Page 80 for general information of the cylinder switch.

SCP\*3  
CMK2  
CMA2  
SCM  
SCG  
SCA2  
SCS2  
CKV2  
CAV2/  
COVPIN2  
SSD2  
SSG  
SSD  
CAT  
MDC2  
MVC  
SMG  
MSD/  
MSDG  
FC\*  
STK  
SRL3  
SRG3  
SRM3  
SRT3  
MRL2  
MRG2  
SM-25  
ShkAbs  
FJ  
FK  
Spd  
Contr  
Ending

Product-specific cautions: Medium bore size cylinder SCA2 Series

## Design/selection

### 1. Common

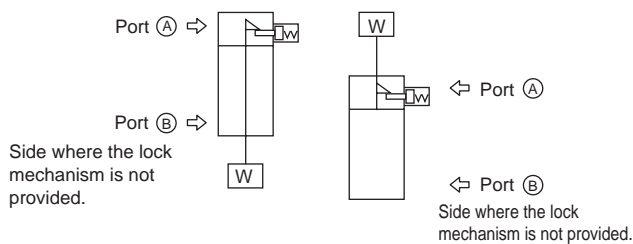
#### CAUTION

- Mount a speed controller on the cylinder.  
Mount the speed controller on the cylinder.  
Use within the working piston speed range of each series.

### 2. Position locking SCA2-Q2

#### WARNING

- If pressure is supplied to port A when both ports are not pressurized and the piston is locked, the lock may not be released or the piston rod may suddenly pop out just after the lock is released. This can be extremely hazardous. To release the lock mechanism, make sure to supply pressure to port B. Check that load is not applied to the lock mechanism.



- For usage where the drop rate is increased using the quick exhaust valve, the lock may not release normally because the cylinder body starts operating before the lock pin.  
For the position locking cylinder, do not use the quick exhaust valve.

- Do not use 3-position valves.  
Do not use the cylinder in combination with 3-position (especially closed center metal seal type) valves. If the port at the side where the lock mechanism is provided is pressurized, the lock cannot be engaged. Even if it is locked once, the air leaked from the valve enters the cylinder, and the lock may be released after a certain period of time.

#### 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 may be damaged.
- If back pressure is applied to the locking mechanism, the lock may be released. Use a single solenoid valve, or an individual exhaust manifold.

- Do not use multiple synchronized cylinders.  
Do not use so that 1 workpiece is moved by synchronizing 2 or more position locking cylinders. Lock release may fail for one of the cylinders.

### 3. Low friction SCA2-U

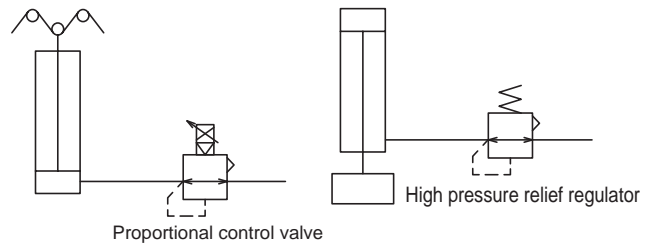
#### WARNING

- Durability differs based on working conditions and model characteristics.  
This cylinder is a cylinder that has internal leakage.  
Refer to specifications (page 534) for amount of leakage.

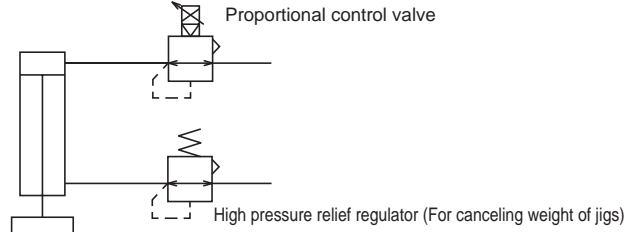
#### CAUTION

- When using the cylinder for a balancer, etc., it may be advisable not to mount a speed controller in order to improve the supply and exhaust efficiency. Depending on the application, circuits a to c below are recommended.

a Tension control (winding machine, etc.)    b Balancer (processing machine Z-axis, etc.)

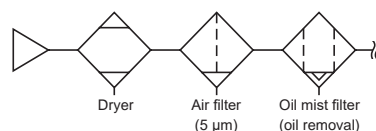


c Load control (grinding, etc.)



\* To improve the supply and exhaust efficiency, make the volume of piping as large as possible.

- Do not lubricate. The properties fluctuate.
- Because poor quality air worsens the characteristics and adversely affects the durability, use clean air with the piping below.



- Mount the speed controller near the cylinder.  
When installed far from the cylinder, the speed becomes unstable.

- In general, the speed is stabler at higher air pressure and lower load factor.  
Use at a 50% or less load factor.

### 4. Low hydraulic SCA2-H

#### ⚠ CAUTION

- This product is a pneumatic cylinder which enables the use of hydraulic fluid as its working fluid.  
Not compliant with JIS standards on activation and leak inspection for hydraulic cylinders.
- Select the low hydraulic cylinder by combining with the converter unit.  
Because the optimized operation of the low hydraulic cylinder can be obtained by combining with the converter unit, select an adequate converter unit.
- Keep the low hydraulic cylinder load to 50% or less of the theoretical output.  
To attain performance similar to the hydraulic cylinder in constant speed operation and stopping accuracy, the low hydraulic cylinder load must be 50% or less.
- Use petroleum-based turbine oil for the hydraulic fluid. Problems may occur if noncombustible hydraulic fluid is used. The adequate viscosity is approx. 40 to 100 mm<sup>2</sup>/s at the ambient operating temperature. The temperature range is 15 to 35°C for ISO VG32. When using in a range exceeding ISO VG32, use ISO VG46 (25 to 45°C).

ISO VG32 turbine oil

Example: [Non-additive]

- Idemitsu : Turbine Oil P32
  - Nisseki : Turbine Oil 32
  - Maruzen : Turbine Oil 32
  - Mitsubishi: Mitsubishi Turbine Oil 32
- [Additive]
- Idemitsu : Daphne Turbine Oil 32
  - Nisseki : FBK Turbine 32
  - Maruzen : Turbine Super 32

### 5. Coolant proof SCA2-G2/G3

#### ⚠ CAUTION

- Do not apply an eccentric load to the piston rod.  
The service life of the scraper or bearing could be shortened.
- In the case that the G2 or G3 Series are not exposed to splattering of coolant or water, the lubrication of the piston rod will run out and the service life will be shortened. Use the G, G1 Series in this case.

### 6. Anti-spatter adherence SCA2-G4

#### ⚠ WARNING

- The durability of this cylinder series is improved in comparison to standard cylinders when used in an atmosphere exposed to spatter. But durability may be shorter than the standard cylinder when used in other atmospheres.

SCP\*3

CMK2

CMA2

SCM

SCG

**SCA2**

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

Ending

## Mounting, installation and adjustment

### 1. Stroke adjustable SCA2-R

#### ⚠ CAUTION

■ Securely lock the stud bolt with the lock nut.

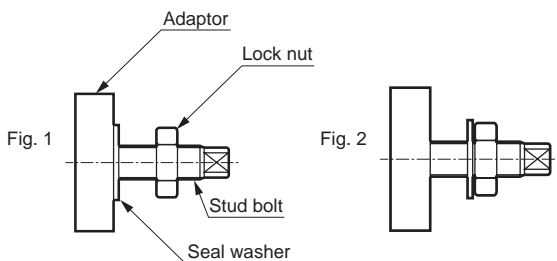
■ Remove the air before adjusting the stroke.

Do not tighten the stud bolt in the state shown in Fig. 1.

Tighten the stud bolt in the state shown in Fig. 2. Do not tighten the lock nut in the state shown in Fig. 2.

Tighten the lock nut in the state shown in Fig. 1.

When not using the adjustment methods above, the seal washer will break after 1 or 2 usages.



■ Because a seal washer is used for sealing the stud bolt, the sealing cannot withstand frequent adjustment.

■ If the stroke is adjusted, the cushion cannot function.

### 2. Heat resistant SCA2-T

#### ⚠ CAUTION

■ Magnet is not built in.

### 3. Position locking SCA2-Q2

#### ⚠ CAUTION

■ The lock mechanism functions at the stroke end, so that if the stopper is engaged during the stroke by the external stopper, the lock mechanism may not work and the piston could fall. When setting a load, make sure to check that the lock mechanism functions before installing the product.

■ Supply pressure equal to or higher than the min. working pressure to the port on the lock mechanism side.

■ When the piping at the side where the lock mechanism is provided is long and thin, or when the speed controller is far away from the cylinder port, note that it takes time to engage the lock. Clogging in the silencer mounted on the EXH port of the valve may cause the same result.

### 4. Low friction SCA2-U

#### ⚠ CAUTION

■ Do not apply a lateral load to the cylinder.

Install the sliding guide so that it is not twisted.

- When the load or the resistance fluctuates, operation becomes unstable.
- For the long stroke, the piston rod's self-weight causes the speed to become unstable. Install the guide before use.
- With a large difference between static friction and kinematic friction of the guide, operation becomes unstable.

■ Avoid using this product where vibration is present.

- The product will be adversely affected by vibration and operation will become unstable.

■ Avoid using in environments with water vapor or high humidity or in alkaline atmospheres.

### 5. Low hydraulic SCA2-H

■ Do not use a push-in fitting to pipe the low hydraulic cylinder.

Do not use a push-in fitting because oil leakage may occur if the push-in fitting is used to pipe the low hydraulic cylinder.

■ Use a steel pipe or copper tube to pipe the low hydraulic cylinder.

Similar to the hydraulic circuit, higher surge than working pressure may be generated in the low hydraulic cylinder piping, requiring safe piping materials.

■ Avoid using this product where air and hydraulics are applied to one side.

An entry of air into the oil may occur, and this could result in malfunction.



## Use/maintenance

SCP\*3

CMK2

CMA2

SCM

SCG

**SCA2**

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

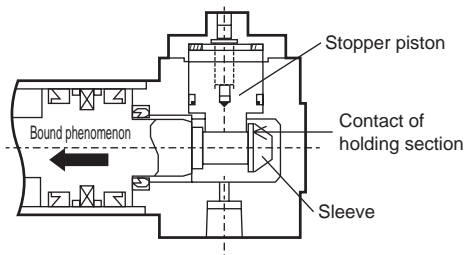
Spd  
Contr

Ending

### 1. Position locking SCA2-Q2

#### ⚠ WARNING

- For safety purposes, prevent the load from falling under its own weight during maintenance.
- In the case of the cylinder with air cushion, if the air cushion needle at the lock mechanism side is tightened excessively, the piston bounds at the stroke end and the sleeve and stopper piston collide strongly, which may result in damage to the locking mechanism. Also, if the air cushion needle is opened too much, the piston bounces off at the stroke end, which may similarly damage the mechanism. Adjust the needle of the air cushion so that there is no bound.



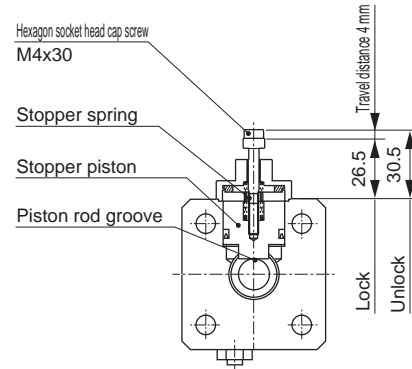
Inspect the piston once or twice a year to make sure there is no damage to the retainer caused by this phenomenon.

#### ⚠ CAUTION

- After the lock mechanism is manually operated, make sure to confirm manual operation and return the mechanism to the original state before use. Do not perform manual operation except for adjustment, as it is dangerous.
- When mounting or adjusting the cylinder, release the lock.  
If mounting work, etc., is done while the lock is engaged, the lock part may be damaged.
- Use the speed controller with meter-out.  
If the meter-in control is used, the lock may not be able to be released.
- At the side where the lock mechanism is attached, be sure to use the cylinder from the stroke end.  
If the cylinder piston does not reach the stroke end, the lock may not be engaged or the lock may not be able to be released.

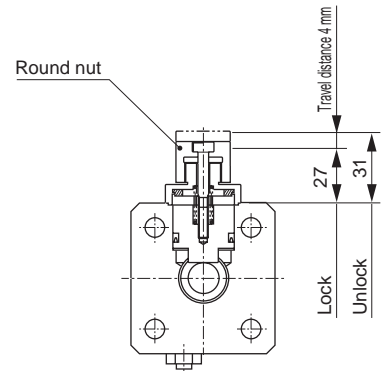
#### ■ Manual override non-locking release method

By screwing the hexagon socket head cap screw into the stopper piston and pulling the bolt 4 mm with force of 20 N or more, the stopper piston moves and the lock is released. (when horizontally installed with no load or with the opposite side port pressurized). When the screw is released, the internal spring causes the stopper piston to return. When it fits into the piston rod groove, the piston is locked.



#### ■ Manual override locking release method

By rotating the round nut leftward (counterclockwise), the stopper piston moves and the lock is released. Rotating the round nut to the right (clockwise) to set it in the locked position causes the stopper piston to return. When it fits into the piston rod groove, the piston is locked.



### 2. Low friction SCA2-U

#### ⚠ CAUTION

- Do not disassemble the product. Once disassembled, the performance may not be retained.  
For this product, just the repair parts are not available.

### 3. Low hydraulic SCA2-H

#### ⚠ CAUTION

- Regularly vent air from the low hydraulic cylinder.  
Air may accumulate in the low hydraulic cylinder, so vent air before starting operations, etc. Vent air with the air vent valve provided on piping.
- If moisture enters the hydraulic fluid, or if hydraulic fluid becomes cloudy or discolored, replace it with new oil.  
Use the same brand of oil when replacing.