



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

SCA2 Series

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

JIS symbol



Specifications

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

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Available stroke length (mm)	Min. stroke length (mm)
φ 40	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	600	1600	1
φ 50			2000	
φ 63		700	2500	
φ 80				
φ 100				

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

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

Min. stroke length of type with switch

● T0/T5 type min. stroke length with switch

Switch quantity	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ 40	20 (10)	20 (20)	40 (40)	60 (60)	20 (10)	60 (45)	105 (75)	150 (105)	110 (110)	110 (110)	175 (145)	175 (145)	50 (50)	50 (50)
ϕ 50	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	20 (20)	65 (50)	65 (60)	135 (135)	135 (135)	135 (135)	135 (135)	60 (60)	60 (60)
ϕ 63	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	20 (20)	70 (55)	70 (60)	110 (95)	110 (95)	110 (100)	110 (100)	50 (45)	50 (45)
ϕ 80	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	115 (85)	115 (85)	115 (105)	115 (105)	55 (40)	55 (40)
ϕ 100	15 (15)	25 (25)	45 (45)	70 (70)	15 (15)	25 (25)	70 (55)	70 (70)	125 (95)	125 (95)	125 (115)	125 (115)	60 (45)	60 (45)

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

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

● T8 type min. stroke length with switch

Switch quantity	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ 40	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	50 (35)	95 (65)	140 (95)	95 (85)	95 (85)	155 (125)	155 (125)	45 (40)	45 (40)
ϕ 50	10 (10)	20 (20)	40 (40)	60 (60)	10 (10)	20 (20)	70 (55)	70 (60)	115 (115)	115 (115)	135 (135)	135 (135)	50 (50)	50 (50)
ϕ 63	10 (10)	20 (20)	40 (40)	60 (60)	10 (10)	20 (20)	70 (55)	70 (60)	95 (75)	95 (75)	110 (110)	110 (110)	45 (35)	45 (35)
ϕ 80	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	100 (70)	100 (70)	115 (115)	115 (115)	50 (35)	50 (35)
ϕ 100	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	110 (80)	110 (80)	125 (125)	125 (125)	55 (40)	55 (40)

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

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

Min. stroke length of type with switch

● T2/T3 type min. stroke length with switch

Switch quantity	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
φ40	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
φ50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	105 (75)	105 (75)	105 (75)	105 (75)	45 (30)	45 (30)
φ63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	110 (80)	110 (80)	110 (85)	110 (85)	50 (35)	50 (35)
φ80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	115 (85)	115 (85)	115 (90)	115 (90)	55 (40)	55 (40)
φ100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	125 (95)	125 (95)	125 (100)	125 (100)	60 (45)	60 (45)

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

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

● T1/T2Y/T3Y/T2YD type min. stroke length with switch

Switch quantity	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4	1	1
φ40	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
φ50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	100 (70)	100 (70)	100 (75)	100 (75)	45 (30)	45 (30)
φ63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	105 (75)	105 (75)	105 (85)	105 (85)	50 (35)	50 (35)
φ80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	110 (80)	110 (80)	110 (90)	110 (90)	55 (40)	55 (40)
φ100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	120 (90)	120 (90)	120 (100)	120 (100)	60 (45)	60 (45)

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

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

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

Medium bore size cylinder
Standard type

Switch specifications (T type switch)

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

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

Descriptions	Proximity 2-wire			Proximity 3-wire			Reed 2-wire						Proximity 2-wire
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/T2YV	T3H/T3V	T3PH/T3PV (Custom order)	T3YH/T3YV	T0H/T0V		T5H/T5V		T8H/T8V		T2YD
Applications	Programmable controller relay, small solenoid valve	Programmable controller dedicated		Programmable controller, relay			Programmable controller, relay		Programmable controller, relay, IC circuit (w/o light), serial connection		Programmable controller, relay		Programmable controller dedicated
Output method	-			NPN output	PNP output	NPN output	-						
Power voltage	-			10 to 28 VDC			-						-
Load voltage	85 to 265 VAC	10 to 30 VDC		30 VDC or less			12/24 VDC	110 VAC	5/12/24 VDC	110 VAC	12/24 VDC	110 VAC	220 VAC
Load current	5 to 100 mA	5 to 20 mA (Note 1)		100 mA or less		50 mA or less	5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA
Light	LED (ON lighting)	LED (ON lighting)	Red/green LED (ON lighting)	LED (ON lighting)	Green LED (ON lighting)	Red/green LED (ON lighting)	LED (ON lighting)		Without indicator light		LED (ON lighting)		Red/green LED (ON lighting)
Leakage current	1 mA or less with 100 VAC 2 mA or less with 200 VAC	1 mA or less		10 μA or less			0 mA						1 mA or less

● With preventive maintenance output

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

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

Switch specifications (H type switch)

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

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

Cylinder weight

(Unit: kg)

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

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

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

Oil-prohibited specifications

(Ending 127)

- Grease splash prevented

SCA2

P12

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

Medium bore size cylinder
 Standard type

How to order

Without switch

SCA2 — LB — 40 — B — 100 — S — I

With switch

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

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

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

A Mounting style
Note 1

B Bore size

C Port thread type

D Cushion

E Stroke length
Note 2

F Switch model no.

G Switch quantity
Note 4

H Option
Note 5

I Accessory
Note 6

Note on model no. selection

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

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

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

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

Note 4: When selecting TA or TB for mounting, the number of switches is limited to "H" (one on head side) for TA, and "R" (one on rod side) for TB.

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

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

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

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

<Example of model number>

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

Model: Medium bore size cylinder double acting single rod type

A Mounting style : Axial foot type

B Bore size : ϕ 40 mm

C Port thread type : Rc thread

D Cushion : Both sides cushioned

E Stroke length : 100 mm

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

G Switch quantity : One on rod end

H Option : Cushion needle position S

I Accessory : Rod eye

Symbol	Descriptions		
A Mounting style			
00	Basic type		
LB	Axial foot type		
FA	Rod end flange type		
FB	Head end flange type		
FC	Special head end flange type		
CA	Eye bracket type		
CB	Clevis bracket type (pin and snap ring attached)		
TC	Center trunnion type		
TA	Rod end trunnion type		
TB	Head end trunnion type		
TF	Intermediate supporting hole (φ 40 cannot be selected.)		
TD	Rod end supporting hole (φ 40 cannot be selected.)		
TE	Head end supporting hole (φ 40 cannot be selected.)		
B Bore size (mm)			
40	φ40		
50	φ50		
63	φ63		
80	φ80		
100	φ100		
C Port thread type			
Blank	Rc thread		
N	NPT thread (custom order)		
G	G thread (custom order)		
D Cushion			
B	Both sides cushioned		
R	Rod end cushion		
H	Head end cushion		
N	No cushion		
E Stroke length (mm)			
Bore size	Stroke length Note 3	Available stroke length	Custom stroke length
φ40	1 to 600	1600	Per 1 mm increment
φ50	1 to 600	2000	
φ63	1 to 600	2500	
φ80	1 to 700	2500	
φ100	1 to 800	2500	
F Switch model no.			
Refer to the switch model no. table on the following page.			
*Lead wire length			
Blank	1m (standard)		
3	3m (option)		
5	5m (option)		
G Switch quantity			
R	One on rod end		
H	One on head end		
D	Two		
T	Three		
H Option			
		Max. ambient	Max. instantaneous
J	Bellows	100 °C	200 °C
L	Bellows	250 °C	400 °C
M	Piston rod material (stainless steel)		
Blank	Cushion needle position R (standard)		
S	Cushion needle position S		
T	Cushion needle position T		
P6	Copper and PTFE free		
I Accessory			
I	Rod eye		
Y	Rod clevis (pin and snap ring attached)		
B1	Eye bracket		
B2	Clevis bracket (pin and snap ring attached)		
B3	Eye bracket		
B4	Trunnion type No. 2 bracket		

How to order mounting bracket

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

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

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

[F] switch model no.

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

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

How to order switch

(T type switch)

● Switch body + mounting bracket

SCA2 - T0H - 40

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

● Only switch body

SW - T0H

Switch model no. (Item ⑤ previous page)

● Switch bracket set

SCA2 - TS - 40

Bracket (Item ⑥ previous page) Bore size (Item ⑧ previous page)

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

(H type switch)

● Switch body + mounting bracket

SCA2-L2 - H0 - 40

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

● Only switch body

SW - H0

Switch model no. (Item ⑤ previous page)

● Mounting bracket

SCA2-L2 - H - 40

Bore size (Item ⑧ previous page)

(T2YD type switch)

● Switch body + mounting bracket

SCA2 - T2YD - 40

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

● Only switch body

SW - T2YD

Switch model no. (Item ⑤ previous page)

● Mounting bracket

SCA2 - T - 40

Bore size (Item ⑧ previous page)

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

Medium bore size cylinder
Standard type