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

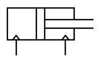
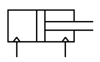
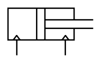
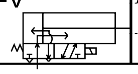
Variation	Model no. / JIS symbol	Bore size (mm)	Standard stroke length (mm) 25	50	75	100	150	200	250	300	350	400	450	500	Min. stroke length (mm)	Max. stroke length (mm)	Available stroke length (mm)	Custom stroke length (per mm)	Basic type 00		Mounting style: Axial foot type LB	Rod end flange type FA	Head end flange type FB	Special head end flange type FC	Eye bracket type CA	Clevis bracket type CB	Center trunnion type TC	Rod end trunnion type TA	Head end trunnion type TB	Intermediate supporting hole TF	Rod end supporting hole TD	Head end supporting hole TE	Cushion: No cushion N	Both sides cushion B	Rod end cushion R	Head end cushion H	Option: Bellows (100°C) J	Bellows (250°C) L	Piston rod material (stainless steel) M	Cushion needle position S S	Cushion needle position T T	Copper and PTFE free P6	Accessory: Rod eye I	Rod clevis Y	Eye bracket B1	Clevis bracket B2	Eye bracket B3	Trunnion type No. 2 bracket B4	Switch	Page
Double acting	SCA2	ϕ40, ϕ50	●	●	●	●	●	●	●	●	●	●	●	●	1	600	1600 2000	1	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	442
		ϕ63																																																
		ϕ80	●	●	●	●	●	●	●	●	●	●	●	●		700	2500		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
		ϕ100	●	●	●	●	●	●	●	●	●	●	●	●		800			●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
Double acting adjustable stroke (Extended)	SCA2-P	ϕ40 to ϕ63	●	●	●	●	●	●	●	●	●	●	●	●	25	600	600	1	●		●	●	●				●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	○	◎	◎				◎	◎				◎	456
		ϕ80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		●	●	●				●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	○	◎	◎				◎	◎				◎	
		ϕ100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		●	●	●				●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	○	◎	◎				◎					◎	
Double acting adjustable stroke (Retracted)	SCA2-R	ϕ40 to ϕ63	●	●	●	●	●	●	●	●	●	●	●	●	25	600	600	1	●		●	●					●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	○	◎	◎				◎	◎				◎	464
		ϕ80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		●	●					●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	○	◎	◎				◎	◎				◎	
		ϕ100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		●	●					●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	○	◎	◎				◎					◎	
Double acting heat resistance type	SCA2-T	ϕ40 to ϕ63	●	●	●	●	●	●	●	●	●	●	●	●	1	600	600	1	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	472
		ϕ80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
		ϕ100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
Double acting position locking type	SCA2-Q2	ϕ40 to ϕ63	●	●	●	●	●	●	●	●	●	●	●	●	1	600	600	1	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	○	◎	◎		○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	478
		ϕ80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	○	◎	◎		○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
		ϕ100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	○	◎	◎		○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
Double acting low friction type (Low pressure (0.2 MPa or less))	SCA2-O	ϕ40 to ϕ63	●	●	●	●	●	●	●	●	●	●	●	●	1	600	600	1	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				◎			◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	508
		ϕ80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				◎			○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
		ϕ100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				◎			○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
Double acting low friction type (Constant friction with pressurized)	SCA2-U	ϕ40 to ϕ63	●	●	●	●	●	●	●	●	●	●	●	●	1	600	600	1	●		●	●																																	
		ϕ80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				◎			◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	516
		ϕ100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		●	●																																	
Double acting double rod type	SCA2-D	ϕ40 to ϕ63	●	●	●	●	●	●	●	●	●	●	●	●	1	600	800	1	●		●	●	●				●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	○	◎	◎				◎	◎				◎	522
		ϕ80	●	●	●	●	●	●	●	●	●	●	●	●		700			●		●	●	●				●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	○	◎	◎				◎	◎				◎	
		ϕ100	●	●	●	●	●	●	●	●	●	●	●	●		800			●		●	●	●				●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	○	◎	◎				◎					◎	
Double acting back to back type	SCA2-B	ϕ40 to ϕ63	●	●	●	●	●	●	●	●	●	●	●	●	1	600	600	1	●		●	●						●	●		●	●	●	●	●	◎	◎	◎	◎	◎	○	◎	◎				◎	◎				◎	530
		ϕ80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		●	●						●	●		●	●	●	●	●	◎	◎	◎	◎	◎	○	◎	◎				◎	◎				◎	
		ϕ100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		●	●						●	●		●	●	●	●	●	◎	◎	◎	◎	◎	○	◎	◎				◎					◎	
Double acting two stage type	SCA2-W	ϕ40 to ϕ63	●	●	●	●	●	●	●	●	●	●	●	●	2	600	600	1	●		●	●	●	●	●	●		●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	538
		ϕ80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		●	●	●	●	●	●		●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
		ϕ100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		●	●	●	●	●	●		●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
Double acting steel tube type	SCA2-K	ϕ40	●	●	●	●	●	●	●	●	●	●	●	●	1	600	1600	1	●		●	●	●	●	●	●	●	●	●			●	●	●	●	◎	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	546
		ϕ50																																																	
		ϕ63	●	●	●	●	●	●	●	●	●	●	●	●			1900		●		●	●	●	●	●	●	●	●	●			●	●	●	●	◎	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
		ϕ80	●	●	●	●	●	●	●	●	●	●	●	●		700			●		●	●	●	●	●	●	●	●	●			●	●	●	●	◎	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
		ϕ100	●	●	●	●	●	●	●	●	●	●	●	●		800			●		●	●	●	●	●	●	●	●	●			●	●	●	●	◎	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
Double acting low hydraulic type	SCA2-H	ϕ40 to ϕ63	●	●	●	●	●	●	●	●	●	●	●	●	1	600	600	1	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	550
		ϕ80	●	●	●	●	●	●	●	●	●	●	●	●		700	700		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
		ϕ100	●	●	●	●	●	●	●	●	●	●	●	●		800	800		●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	◎	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

Note: ϕ40 is not available for the support-hole trunnion (TF, TD, TE).
Note: Mounting style TA or position locking mechanism R is not available.
Note: Mounting style TB or position locking mechanism H is not available.

Medium bore size cylinder SCA2 Series

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

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

Variation	Model no. / JIS symbol	Bore size (mm)	Standard stroke length (mm)												Min. stroke length (mm)	Max. stroke length (mm)	Available stroke length (mm)	Custom stroke length (per mm)	Basic type
			25	50	75	100	150	200	250	300	350	400	450	500					00
Double acting rubber scraper type	SCA2-G 	φ40															1600		
		φ50	●	●	●	●	●	●	●	●	●	●	●	●		600	2000		●
		φ63													1			1	
		φ80	●	●	●	●	●	●	●	●	●	●	●	●		700	2500		●
		φ100	●	●	●	●	●	●	●	●	●	●	●	●		800			●
Double acting coolant proof type	SCA2-G2/G3 	φ40															1600		
		φ50	●	●	●	●	●	●	●	●	●	●	●	●		600	2000		●
		φ63													1			1	
		φ80	●	●	●	●	●	●	●	●	●	●	●	●		700	2500		●
		φ100	●	●	●	●	●	●	●	●	●	●	●	●		800			●
Double acting coil scraper type Double acting spatter adherence prevention type	SCA2-G1/G4 	φ40															1600		
		φ50	●	●	●	●	●	●	●	●	●	●	●	●		600	2000		●
		φ63													1			1	
		φ80	●	●	●	●	●	●	●	●	●	●	●	●		700	2500		●
		φ100	●	●	●	●	●	●	●	●	●	●	●	●		800			●
Double acting with valve	SCA2-V 	φ40 to φ63	■	●	●	●	●	●	●	●	●	●	●	●		600	600		●
		φ80	■	●	●	●	●	●	●	●	●	●	●	●	50	700	700	1	●
		φ100	■	●	●	●	●	●	●	●	●	●	●	●		800	800		●

Model no.	Bore size (mm)	Mounting style												Cushion				Option						Accessory						Switch	Page
		Axial foot type	Rod end flange type	Head end flange type	Special head end flange type	Eye bracket type	Clevis bracket type	Center trunnion type	Rod end trunnion type	Head end trunnion type	Intermediate supporting hole	Rod end supporting hole	Head end supporting hole	No cushion	Both sides cushion	Rod end cushion	Head end cushion	Bellows (100℃)	Bellows (250℃)	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 type No. 2 bracket		
		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		
SCA2-G	φ40																														
	φ50	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	◎		
	φ63																													◎	558
	φ80	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	◎		
	φ100	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	○	◎	◎	◎	○	◎	◎	◎	◎	◎	◎		
SCA2-G2/G3	φ40																	■	■				■								
	φ50	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	■	■	●	◎	◎	■	◎	◎	◎	◎	◎	◎		
	φ63																	■	■				■							◎	566
	φ80	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	■	■	●	◎	◎	■	◎	◎	◎	◎	◎	◎		
	φ100	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	■	■	●	◎	◎	■	◎	◎	◎	◎	◎	◎		
SCA2-G1/G4	φ40																	■	■				■								
	φ50	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	■	■	○	◎	◎	■	◎	◎	◎	◎	◎	◎		
	φ63																	■	■				■							◎	572
	φ80	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	■	■	○	◎	◎	■	◎	◎	◎	◎	◎	◎		
	φ100	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	■	■	○	◎	◎	■	◎	◎	◎	◎	◎	◎		
SCA2-V	φ40 to φ63	●	●	●	■	●	●	●	●	■	●	●	■	●	●	●	●	◎	◎	◎	◎	◎	■	◎	◎	◎	◎	◎	◎		
	φ80	●	●	●	■	●	●	●	●	■	●	●	■	●	●	●	●	◎	◎	◎	◎	◎	■	◎	◎	◎	◎	◎	◎	◎	578
	φ100	●	●	●	■	●	●	●	●	■	●	●	■	●	●	●	●	◎	◎	◎	◎	◎	■	◎	◎	◎	◎	◎	◎		

Note: φ40 is not available for the support-hole trunnion (TF, TD, TE).

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

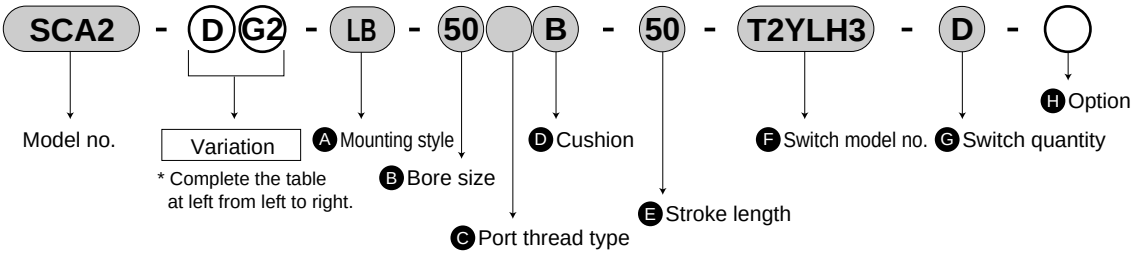
Selection table of variation and options

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

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

Note 1. Only for S2 side.
Note 2. Increase of rod seal and bearing increases resistance value. This results in the different minimum starting pressure.
Note 3. The installation position of value is different from standard.
Note 4. Minimum starting pressure on the side of S2 is higher than low friction standard type. Contact CKD for details.
Note 5. Resistance of bellows at stretch motion rises the value of minimum starting pressure. Contact CKD for details.
Note 6. Refer to the Clean Component System (Catalog No. CB-033SA) for details on new fine types P7 and P71.

(How to order)



Model no.: medium bore size cylinder

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

Note 1: The back-to-back type has two cylinders. Do as follows to indicate variations for each cylinder.
When variations are added only to S1, indicate the variation symbol before the S1 stroke.
(Example) SCA2-B-40-O100-150: only S1 is low speed type.
When variations are added only to S2, indicate the variation symbol before the S2 stroke.
(Example) SCA2-B-40-100-O150: only S2 is low speed type.
When the same variations are added to both S1 and S2, indicate the variation symbol before the port size.
(Example) SCA2-BO-40-100-150: S1, S2 are both low speed type.

Pneumatic components

Safety precautions

Always read this section before starting use.
Refer to Intro 71 for general notes of cylinders and Intro 78 for cylinder switches.

Medium bore size cylinder SCA2 Series

Design & Selection

1. Common

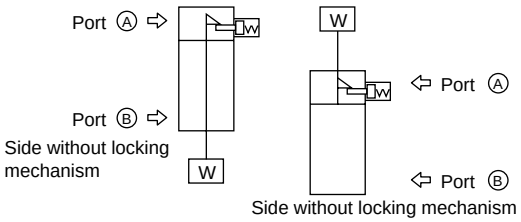
⚠ CAUTION

■ Install a flow control valve on the cylinder.
Install a flow control valve on the cylinder.
Use within the applicable piston speed range for each cylinder.

2. Position locking type SCA2-Q2

⚠ WARNING

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



■ If lowering speed is to be increased with the quick exhaust valve, the cylinder may move out faster than the lock pin and prevent the locking pin from being released correctly.
Do not use a quick exhaust valve with the cylinder with position locking.

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

⚠ CAUTION

■ Cylinder load factor must be 50% or less.
If the load factor is high, the lock may not be released or the lock section could be damaged.

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

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

3. Low friction type SCA2-U

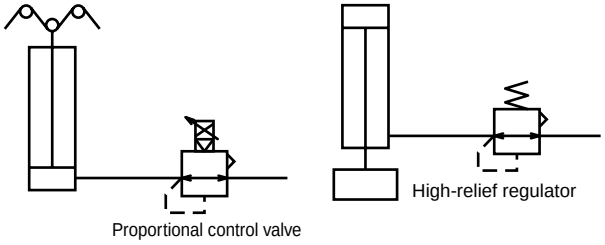
⚠ WARNING

■ Durability differs based on working conditions and model features.
This cylinder is the cylinder which has internal leakage.
Refer to the specification on page 516 for the internal leakage volume.

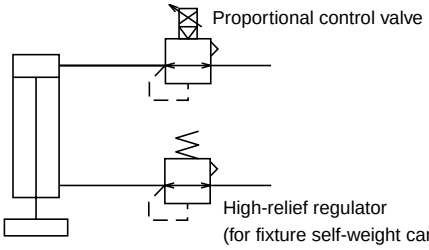
⚠ CAUTION

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

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



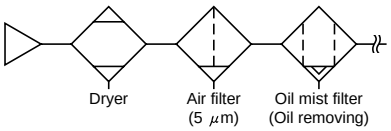
(c) Load control (grinding, etc.)



* Maximize piping volume to improve supply and exhaust.

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

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



■ Install the flow control valve near the cylinder.
If this is installed away from a cylinder, adjustment will be unstable.

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

4. Low hydraulic type SCA2-H

⚠ CAUTION

■ Select low hydraulic cylinder combined with the converter unit.
Maximize operation by combining the low hydraulic cylinder and converter unit. Select an appropriate converter unit.

■ Keep the low hydraulic cylinder's load to 50% or less of the logical output.
To attain constant speed operation and stopping precision performance similar to the hydraulic cylinder, the low hydraulic cylinder load must be 50% or less.

■ Use petroleum-based turbine oil for working oil. Problems occur if noncombustible working oil is used.
The appropriate viscosity is 40 to 100 mm^2/s at the working temperature. The temperature range is 15 to 35 ℃ at ISO VG32. When using in a range exceeding ISO VG32, use ISO VG46 (25 to 45 ℃).

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

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

5. Coolant proof type SCA2-G2/G3

⚠ CAUTION

■ Do not apply the deviated load onto the piston rod. It could shorten scraper and bearing life.

■ When using the G2 or G3 Series and the coolant or water does not splatter, the piston rod's lubrication could be spent and cause the life to shorten. Use the G or the G1 Series in this case.

6. Spatter proof adhesion prevention type SCA2-G4

⚠ WARNING

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

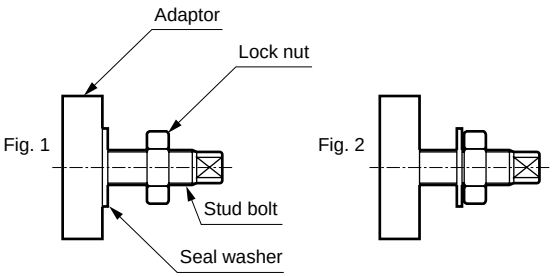
Installation & Adjustment

1. Stroke adjustable type SCA2-R

⚠ CAUTION

■ Accurately lock the stud bolt with a lock nut.

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



■ The seal washer is used as the stud bolt seal, and cannot withstand frequent adjustments.

■ The cushion has no effect when adjusting the stroke.

2. Heat resistance type SCA2-T

⚠ CAUTION

■ The magnet is not used.

3. Position locking type SCA2-Q2

⚠ CAUTION

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

■ Supply a pressure higher than the minimum working pressure to the port having the locking mechanism.

■ If piping on the side with the lock is thin and long, or if the speed controller is separated from the cylinder port, exhaust may slow, taking time for the lock to function. This may also occur if the silencer on the valve's EXH port is clogged.

4. Low friction type SCA2-U

⚠ CAUTION

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

■ Avoid use in the place subject to vibration.
- The product will be adversely affected by vibration and operation will be unstable.

5. Low hydraulic type SCA2-H

■ Do not use the push-in joint for low hydraulic cylinder piping.
Using a push-in joint for low hydraulic cylinder piping could result in oil leaks.

■ Use copper or brass pipes when piping the low hydraulic cylinder.
As with the hydraulic cylinder, high surge pressure could be generated in low hydraulic cylinder piping due to working pressure. Use safe piping materials.

■ Avoid use with single air or single hydraulic pressure.
Air could enter oil and cause malfunctions.

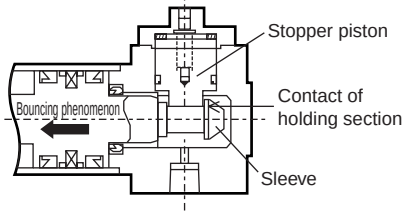
During Use & Maintenance

1.Position locking type SCA2-Q2

⚠ WARNING

■ For safety purposes, prevent the load from dropping under its own weight during maintenance.

■ When using the cylinder with air cushion, if the air cushion needle on the lock mechanism side is tightened too tight, the piston could bounce at the stroke end causing the sleeve and stopper piston to collide and damage the locking mechanism. If the air cushion needle is opened too far, the piston could spring back at the stroke end and cause similar damage. Adjust the air cushion needle so that the piston does not bounce.



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

⚠ CAUTION

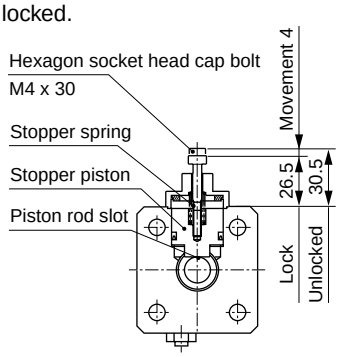
■ If the locking mechanism has been manually operated, check and then return it manually to the original position. Do not use a manual override except during adjustment, because this may be dangerous.

■ Release the lock when installing or adjusting the cylinder.
The lock could be damaged if the cylinder is installed while the lock is applied.

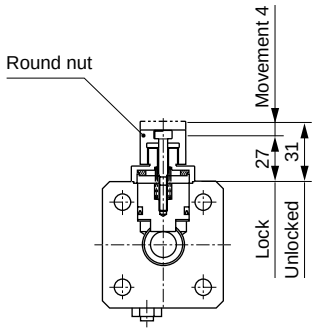
■ Use the flow control valve with meter-out control.
Locks may not be released during meter-in control.

■ On the side of locking mechanism, the piston rod must reach the stroke limit.
If the cylinder's piston does not reach the stroke end, the lock may not be applied or may not be released.

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



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



2. Low friction type SCA2-U

⚠ CAUTION

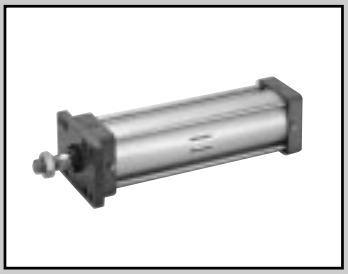
■ Do not disassemble this product. The performance may be compromised.
This product cannot be purchased as a repair part.

3. Low hydraulic type SCA2-H

⚠ CAUTION

■ Regularly exhaust air from the low hydraulic cylinder.
To keep air from accumulating there, use the air exhaust valve on piping exhaust before starting operation.

■ If drainage enters working oil or if working oil becomes cloudy, degraded, or discolored, replace with new oil. Use the same brand of oil for replacement.

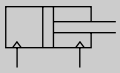


Medium bore size cylinder
Double acting, single rod type/with switch

SCA2 Series

● Bore size: ϕ40, ϕ50, ϕ63, ϕ80, ϕ100

JIS symbol



RoHS CAD

Specifications

Descriptions		SCA2/SCA2-L2				
Bore size mm		ϕ40	ϕ50	ϕ63	ϕ80	ϕ100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure MPa		1.0				
Min. working pressure MPa		0.05				
Withstanding pressure MPa		1.6				
Ambient temperature ℃		-10 to 60 (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance mm		$^{+0.9}_{0}$ (Up to 360), $^{+1.4}_{0}$ (Up to 800)				
Working piston speed mm/s		50 to 1000 (use within the allowable energy absorption.)				
Cushion		Air cushion				
Effective cushion length mm		14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)				
Allowable energy absorption J	Cushioned	4.29	8.37	15.8	27.9	49.8
	No cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Stroke length

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

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

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ40	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)
ϕ50	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)
ϕ63	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)
ϕ80	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)
ϕ100	15 (15)	25 (25)	45 (45)	70 (70)	15 (15)	25 (25)	70 (55)	70 (70)	125 (95)	125 (95)	125 (115)	125 (115)	60 (45)	60 (45)

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

● T8 type min. stroke length with switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ40	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)
ϕ50	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)
ϕ63	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)
ϕ80	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)
ϕ100	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

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
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

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
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.

Switch specifications (T type switch)

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

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

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

●With preventive maintenance output

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

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

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

Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke length (S) = 0 mm							Weight per switch (including mounting bracket)					Additional weight per S = 100 mm
	Basic type (00)	Foot type (LB)	Flange type (FA and FB)	Special flange (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 x $\frac{200}{100}$=0.92 kg
- Weight of two switches ··· 0.018 x 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

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

Ⓐ Mounting style Note 1
Ⓑ Bore size
Ⓒ Port thread type
Ⓓ Cushion
Ⓔ Stroke length Note 2
Ⓕ Switch model no.
Ⓖ Switch quantity Note 4
Ⓗ Option Note 5
Ⓘ Accessory Note 6

Symbol	Descriptions
Ⓐ 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.)
Ⓑ Bore size (mm)	
40	ϕ40
50	ϕ50
63	ϕ63
80	ϕ80
100	ϕ100
Ⓒ Port thread type	
Blank	Rc thread
N	NPT thread (custom order)
G	G thread (custom order)
Ⓓ Cushion	
B	Both sides cushioned
R	Rod end cushion
H	Head end cushion
N	No cushion

Ⓔ Stroke length (mm)

Bore size	Stroke length Note 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**	

Ⓕ Switch model no.	
Refer to the switch model no. table on the following page.	
***Lead wire length**	
Blank	1m (standard)
3	3m (option)
5	5m (option)
Ⓖ Switch quantity	
R	One on rod end
H	One on head end
D	Two
T	Three

		Max. ambient	Max. instantaneous
Ⓗ Option			
J	Bellows	100 ℃	200 ℃
L	Bellows	250 ℃	400 ℃
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		

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

Note on model no. selection

Note 1: The mounting bracket is shipped with the product.
(However, trunnion type is attached to the product when shipped.)
Note 2: 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-SI

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

How to order mounting bracket

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

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

[F] switch model no.

T type switch model no.

Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T0H*	**T0V***	Reed	1 color indicator type	2-wire
T5H*	**T5V***		Without indicator light	
T8H*	**T8V***		1 color indicator type	
T1H*	**T1V***	Proximity	1 color indicator type	2-wire
T2H*	**T2V***			
T3H*	**T3V***			3-wire
T2YH*	**T2YV***		2 color indicator type	2-wire
T3YH*	**T3YV***			3-wire
T3PH*	**T3PV***		1 color indicator type (custom order)	3-wire
T2YFH*	**T2YFV***		2 color indicator type (Without light for preventive maintenance output)	3-wire
T3YFH*	**T3YFV***			4-wire
T2YMH*	**T2YMV***		2 color indicator type (With light for preventive maintenance output (1 color))	3-wire
T3YMH*	**T3YMV***			4-wire
T2YD*	**-**		Strong magnetic field proof switch	2-wire
T2YDT*	**-**			
T2JH*	**T2JV***		Off-delay type	2-wire

R switch/H types switch

Grommet type	Terminal box type: Standard type	Terminal box type: Splash prf.	Contact	Indicator	Lead wire
R0	**R0B**	**R0A**		1 color indicator type	
H0*	**-**	**-**		Strong magnetic field proof 1 color indicator type	2-wire
H0Y*	**-**	**-**		Strong magnetic field proof 2 color indicator type	

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

How to order switch

(T type switch)

● Switch body + mounting bracket

SCA2 - T0H - 40

Switch model no. (Item Ⓕ previous page)
Bore size (Item Ⓑ previous page)

● Only switch body

SW - T0H

Switch model no. (Item Ⓕ previous page)

● Switch bracket set

SCA2 - TS - 40

Bracket
Bore size (Item Ⓑ 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 Ⓕ previous page)
Bore size (Item Ⓑ previous page)

● Only switch body

SW - H0

Switch model no. (Item Ⓕ previous page)

● Mounting bracket

SCA2-L2 - H - 40

Bore size (Item Ⓑ previous page)

(T2YD type switch)

● Switch body + mounting bracket

SCA2 - T2YD - 40

Switch model no. (Item Ⓕ previous page)
Bore size (Item Ⓑ previous page)

● Only switch body

SW - T2YD

Switch model no. (Item Ⓕ previous page)

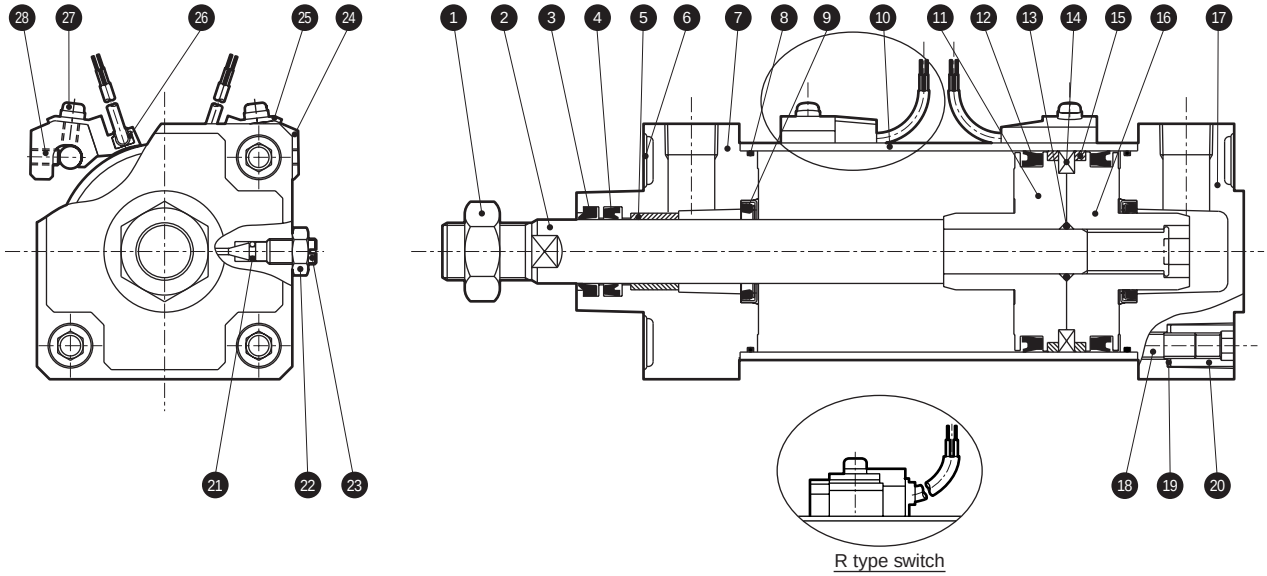
● Mounting bracket

SCA2 - T - 40

Bore size (Item Ⓑ previous page)

Internal structure and parts list

● SCA2



R type switch

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

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

Repair parts list

Bore size (mm)	Kit No.	Repair parts number
ϕ 40	SCA2-40K	❸ ❹ ❽ ❾ ⓬ ⓯ ㉑
ϕ 50	SCA2-50K	
ϕ 63	SCA2-63K	
ϕ 80	SCA2-80K	
ϕ100	SCA2-100K	

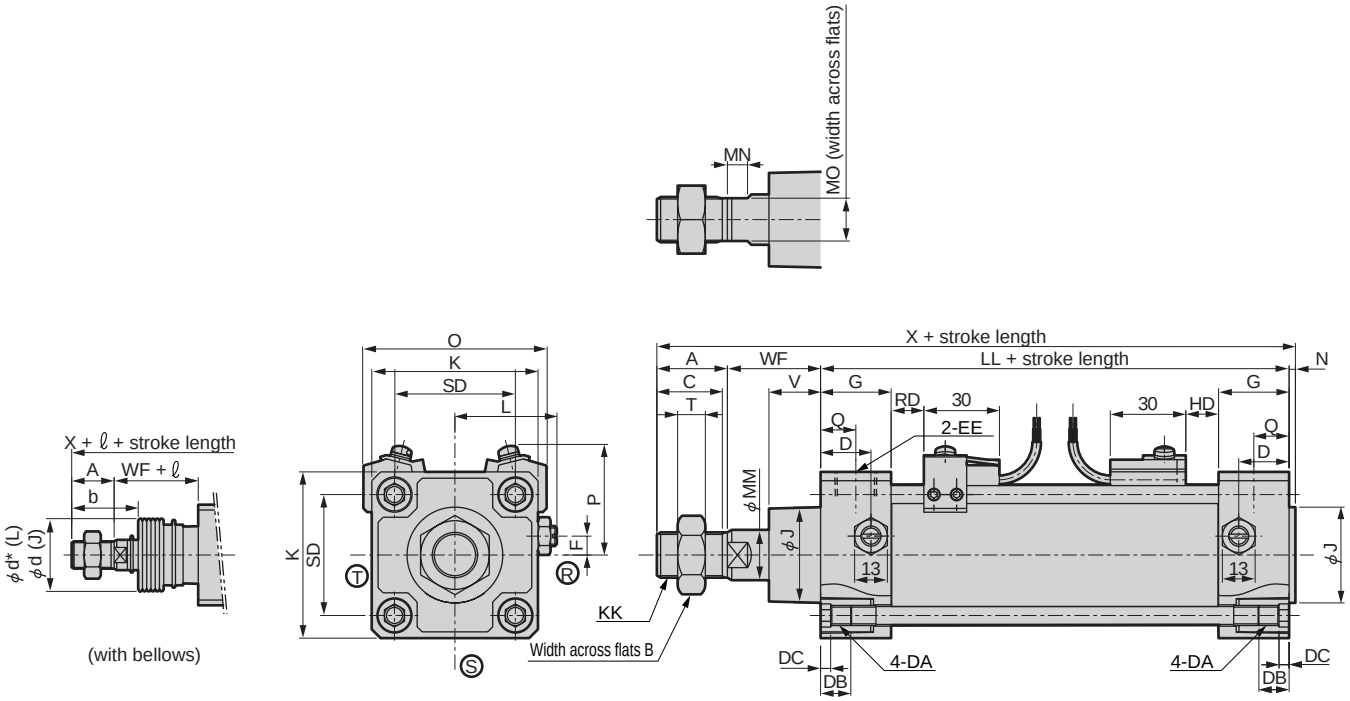
Note: Specify the kit No. when placing an order.

Mounting bracket material

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

Dimensions

● T type basic type with switch (00)



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

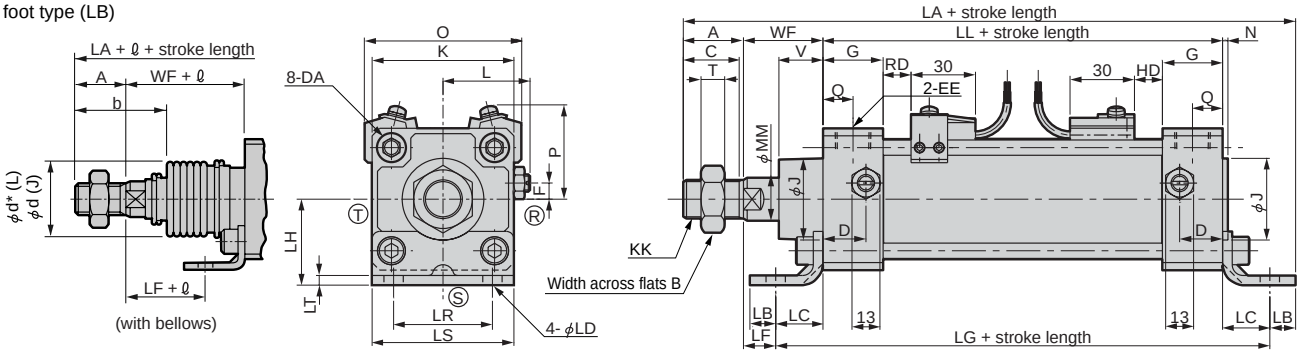
Symbol	Basic type (00) basic dimensions																								
Bore size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	J	K	KK	L	LL	MM	MN	MO	N	Q	SD	T	V	WF	X
ϕ40	22	22	20	18	M8	12	4	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	8	14	2	13	40.5	8	18.5	33.5	150.5
ϕ50	28	27	26	20	M8	12	4	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	8	17	2.5	14	48	11	20.5	37	168.5
ϕ63	28	27	26	22	M8	12	4	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	8	17	3	15	59	11	21	35	171
ϕ80	36	32	34	26	M12	16	5	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	11	22	3.5	17	74	13	23.5	48	203.5
ϕ100	45	41	43	28	M12	16	5	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	13	27	4	18	90	16	32	53	230

Symbol	With bellows													With switch						
Bore size (mm)	A	X	b	d	d*	ℓ								O	P	T0, T5, T2, T3		T1, T2Y, T3Y, T2YF/M, T3YF/M		T8
						50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500			RD	HD	RD	HD	RD/HD
ϕ40	22	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	66	41.5	11	11	10	10	5
ϕ50	28	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	73	43	13	13	12	12	7
ϕ63	28	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	85	47	13	13	12	12	7
ϕ80	36	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5
ϕ100	45	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5

* Round up decimal places.

Dimensions

● Axial foot type (LB)

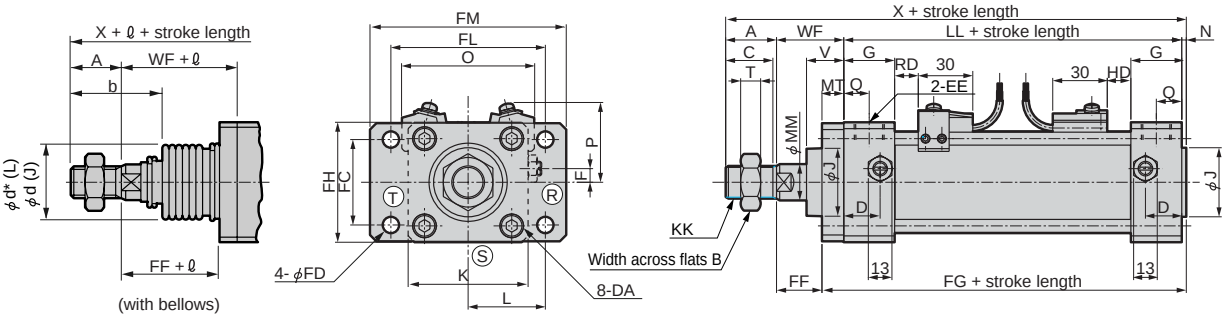


Note 1: For ℓ dimensions, round up decimal places.
Note 2: R, S and T indicates a cushion needle position.
Note 3: Refer to page 597 for the projecting dimensions of T2YD, H0 switch.
Note 4: Refer to pages 598, 599 for accessory dimensions.

Symbol	Axial foot type (LB) basic dimensions																			Installation dimensions						
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	N	Q	T	V	WF	LA	LB	LC	LD	LF	LG	LH
ϕ40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	2	13	8	18.5	33.5	178	10	19.5	9	14	132	40
ϕ50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	2.5	14	11	20.5	37	200	12	22	9	15	145	40
ϕ63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	3	15	11	21	35	210	12	30	11	5	165	50
ϕ80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	3.5	17	13	23.5	48	251	14	37	14	11	190	60
ϕ100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	4	18	16	32	53	278	21	31	14	22	190	67

Symbol				With bellows											With switch						
Bore size (mm)	LR	LS	LT	b	d	d*	ℓ 50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500	O	P	T0, T5, T2, T3 RD	T0, T5, T2, T3 HD	T1, T2Y, T3Y, T2YF/M, T3YF/M RD	T1, T2Y, T3Y, T2YF/M, T3YF/M HD	T8 RD/HD
ϕ40	40	57	3.2	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	66	41.5	11	11	10	10	5
ϕ50	46	66	4.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	73	43	13	13	12	12	7
ϕ63	60	80	4.5	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	85	47	13	13	12	12	7
ϕ80	74	98	6.0	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5
ϕ100	80	118	6.0	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5

● Rod end flange type (FA)



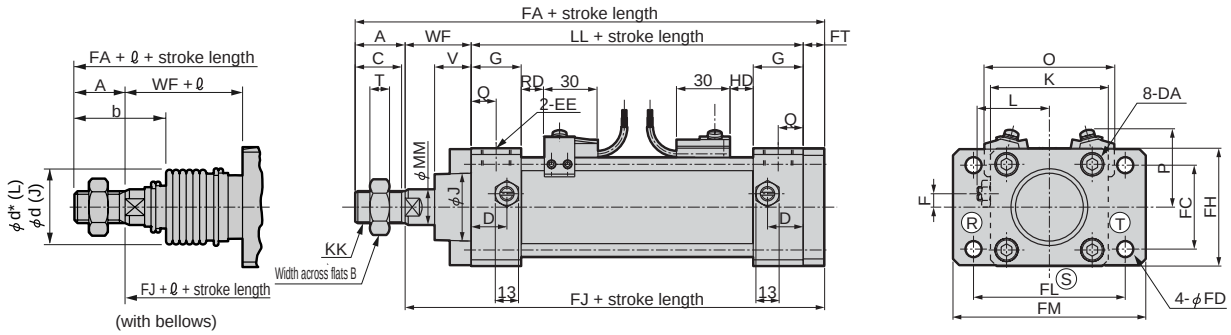
Note 1: For ℓ dimensions, round up decimal places.
Note 2: R, S and T indicates a cushion needle position.
Note 3: Refer to page 597 for the projecting dimensions of T2YD, H0 switch.
Note 4: Refer to pages 598, 599 for accessory dimensions.

Symbol	Basic dimensions for rod end flange type (FA)																				Installation dimensions					
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	N	Q	T	V	WF	X	FC	FD	FF	FG	MT	FH
ϕ40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	2	13	8	18.5	33.5	150.5	40	9	21.5	107	12	57
ϕ50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	2.5	14	11	20.5	37	168.5	47	9	25	115.5	12	65
ϕ63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	3	15	11	21	35	171	60	11	19	124	16	80
ϕ80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	3.5	17	13	23.5	48	203.5	74	14	29	138.5	19	98
ϕ100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	4	18	16	32	53	230	88	14	34	151	19	118

Symbol			With bellows											With switch						
Bore size (mm)	FL	FM	b	d	d*	ℓ 50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500	O	P	T0, T5, T2, T3 RD	T0, T5, T2, T3 HD	T1, T2Y, T3Y, T2YF/M, T3YF/M RD	T1, T2Y, T3Y, T2YF/M, T3YF/M HD	T8 RD/HD
ϕ40	80	100	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	66	41.5	11	11	10	10	5
ϕ50	85	108	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	73	43	13	13	12	12	7
ϕ63	106	130	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	85	47	13	13	12	12	7
ϕ80	125	153	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5
ϕ100	144	180	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5

Dimensions

● Head end flange type (FB)

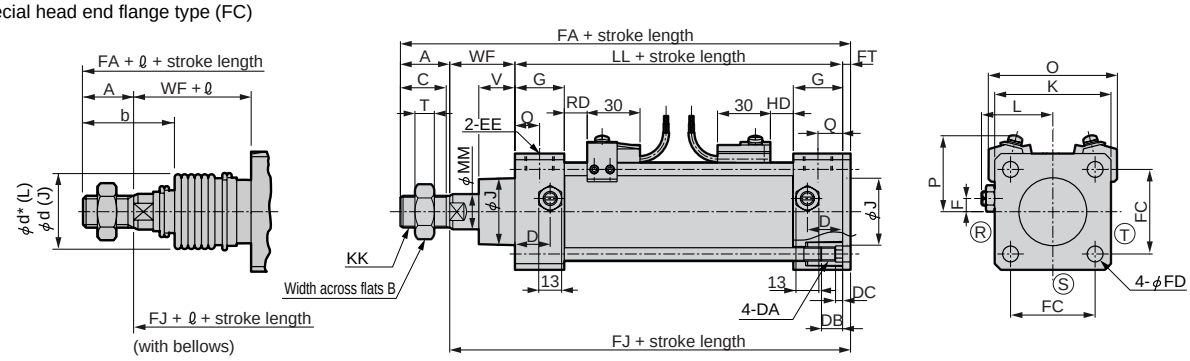


Note 1: For ℓ dimensions, round up decimal places.
Note 2: R, S and T indicates a cushion needle position.
Note 3: Refer to page 597 for the projecting dimensions of T2YD, H0 switch.
Note 4: Refer to pages 598, 599 for accessory dimensions.

Symbol	Basic dimensions for head end flange type (FB)																		Installation dimensions				
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	Q	T	V	WF	FA	FC	FD	FH	FJ
ϕ40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	13	8	18.5	33.5	160.5	40	9	57	138.5
ϕ50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	14	11	20.5	37	178	47	9	65	150
ϕ63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	15	11	21	35	184	60	11	80	156
ϕ80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	17	13	23.5	48	219	74	14	98	183
ϕ100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	18	16	32	53	245	88	14	118	200

Symbol				With bellows											With switch						
Bore size (mm)	FL	FM	FT	b	d	d*	ℓ 50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500	O	P	T0, T5, T2, T3 RD	T0, T5, T2, T3 HD	T1, T2Y, T3Y, T2YF/M, T3YF/M RD	T1, T2Y, T3Y, T2YF/M, T3YF/M HD	T8 RD/HD
ϕ40	80	100	12	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	66	41.5	11	11	10	10	5
ϕ50	85	108	12	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	73	43	13	13	12	12	7
ϕ63	106	130	16	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	85	47	13	13	12	12	7
ϕ80	125	153	19	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5
ϕ100	144	180	19	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5

● Special head end flange type (FC)



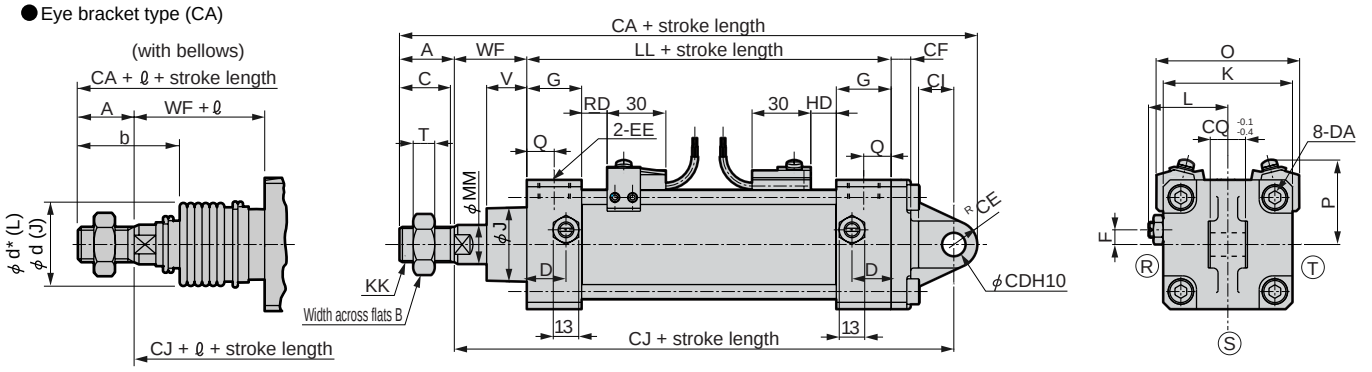
Note 1: For ℓ dimensions, round up decimal places.
Note 2: R, S and T indicates a cushion needle position.
Note 3: Refer to page 597 for the projecting dimensions of T2YD, H0 switch.
Note 4: Refer to pages 598, 599 for accessory dimensions.

Symbol	Basic dimensions for head end flange type (FC)																				Installation dimensions					
Bore size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	J	K	KK	L	LL	MM	Q	T	V	WF	FA	FC	FD	FJ	FT	b
ϕ40	22	22	20	18	M8	12	4	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	13	8	18.5	33.5	153	40.5	9	131	4.5	41
ϕ50	28	27	26	20	M8	12	4	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	14	11	20.5	37	170.5	48	9	142.5	4.5	47
ϕ63	28	27	26	22	M8	12	4	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	15	11	21	35	172.5	59	9	144.5	4.5	45
ϕ80	36	32	34	26	M12	16	5	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	17	13	23.5	48	206	74	14	170	6	58.5
ϕ100	45	41	43	28	M12	16	5	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	18	16	32	53	232	90	14	187	6	69.5

Symbol	With bellows										With switch						
Bore size (mm)	d	d*	ℓ 50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500	O	P	T0, T5, T2, T3 RD	T0, T5, T2, T3 HD	T1, T2Y, T3Y, T2YF/M, T3YF/M RD	T1, T2Y, T3Y, T2YF/M, T3YF/M HD	T8 RD/HD
ϕ40	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	66	41.5	11	11	10	10	5
ϕ50	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	73	43	13	13	12	12	7
ϕ63	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	85	47	13	13	12	12	7
ϕ80	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5
ϕ100	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5

Dimensions

● Eye bracket type (CA)

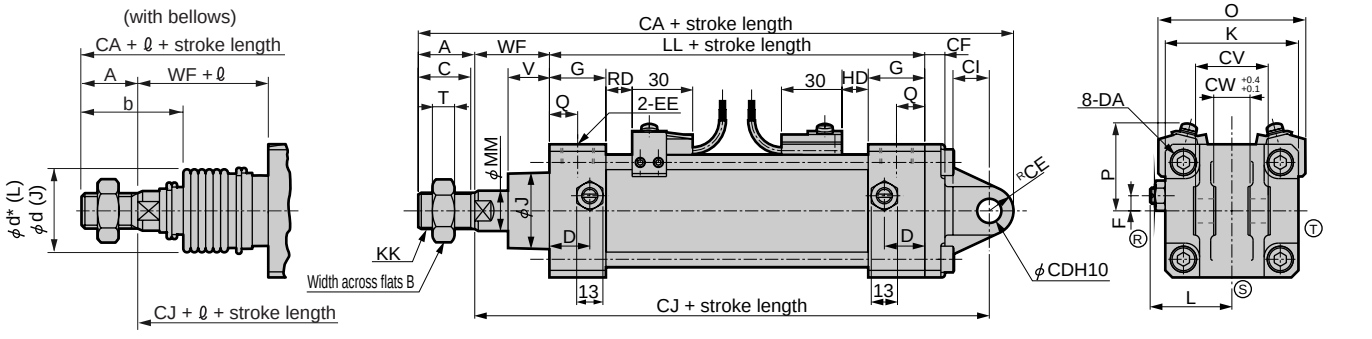


Note 1: For ℓ dimensions, round up decimal places.
Note 2: R, S and T indicates a cushion needle position.
Note 3: Refer to page 597 for the projecting dimensions of T2YD, H0 switch.
Note 4: Refer to pages 598, 599 for accessory dimensions.

Symbol	Basic dimensions for eye bracket type (CA)																	Installation dimensions			
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	Q	T	V	WF	CA	CD	CE	CF
ϕ40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	13	8	18.5	33.5	192.5	12 $^{+0.070}_{0}$	12	10
ϕ50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	14	11	20.5	37	210	12 $^{+0.070}_{0}$	12	10
ϕ63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	15	11	21	35	221	14 $^{+0.070}_{0}$	16	10
ϕ80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	17	13	23.5	48	272	20 $^{+0.084}_{0}$	20	14
ϕ100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	18	16	32	53	298	20 $^{+0.084}_{0}$	20	16

Symbol				With bellows											With switch						
Bore size (mm)	CI	CJ	CQ	b	d	d*	ℓ 50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500	O	P	T0, T5, T2, T3 RD	T0, T5, T2, T3 HD	T1, T2Y, T3Y, T2YF/M, T3YF/M RD	T1, T2Y, T3Y, T2YF/M, T3YF/M HD	T8 RD/HD
ϕ40	18	158.5	18	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	66	41.5	11	11	10	10	5
ϕ50	18	170	18	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	73	43	13	13	12	12	7
ϕ63	24	177	20	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	85	47	13	13	12	12	7
ϕ80	30	216	28	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5
ϕ100	30	233	28	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5

● Clevis bracket type (CB)



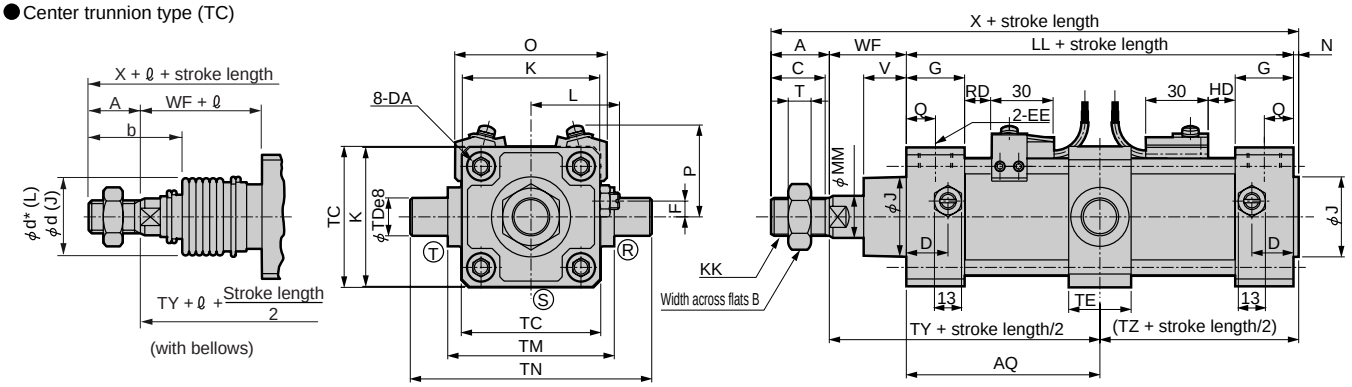
Note 1: For ℓ dimensions, round up decimal places.
Note 2: R, S and T indicates a cushion needle position.
Note 3: Refer to page 597 for the projecting dimensions of T2YD, H0 switch.
Note 4: Refer to pages 598, 599 for accessory dimensions.

Symbol	Basic dimensions for clevis bracket type (CB)																	Installation dimensions			
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	Q	T	V	WF	CA	CD	CE	CF
ϕ40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	13	8	18.5	33.5	192.5	12 $^{+0.070}_{0}$	12	10
ϕ50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	14	11	20.5	37	210	12 $^{+0.070}_{0}$	12	10
ϕ63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	15	11	21	35	221	14 $^{+0.070}_{0}$	16	10
ϕ80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	17	13	23.5	48	272	20 $^{+0.084}_{0}$	20	14
ϕ100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	18	16	32	53	298	20 $^{+0.084}_{0}$	20	16

Symbol	Installation dimensions				With bellows										With switch						
Bore size (mm)	CI	CJ	CV	CW	b	d	d*	ℓ 50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500	O	P	T0, T5, T2, T3 RD	T0, T5, T2, T3 HD	T1, T2Y, T3Y, T2YF/M, T3YF/M RD	T1, T2Y, T3Y, T2YF/M, T3YF/M HD	T8 RD/HD
ϕ40	18	158.5	36	18	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	66	41.5	11	11	10	10	5
ϕ50	18	170	36	18	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	73	43	13	13	12	12	7
ϕ63	24	177	40	20	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	85	47	13	13	12	12	7
ϕ80	30	216	56	28	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5
ϕ100	30	233	56	28	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5

Dimensions

● Center trunnion type (TC)

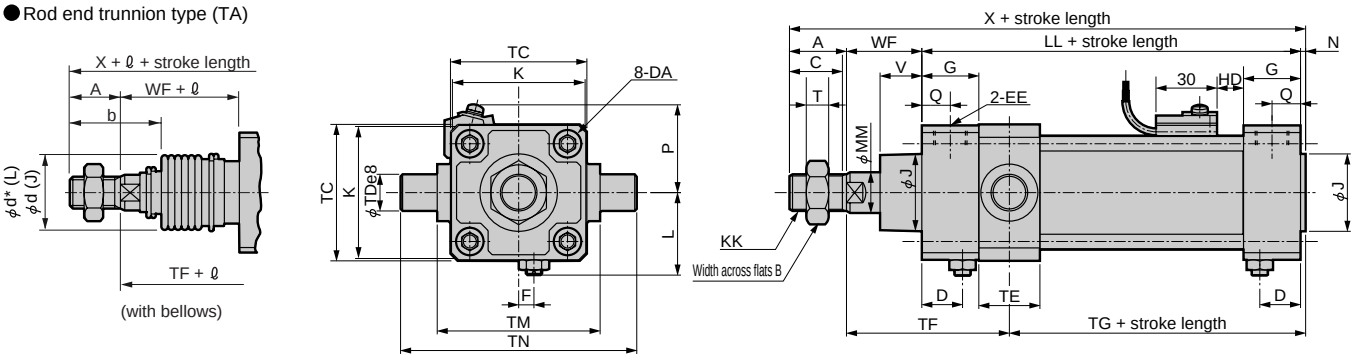


Note 1: For ℓ dimensions, round up decimal places.
Note 2: R, S and T indicates a cushion needle position.
Note 3: Refer to page 597 for the projecting dimensions of T2YD, H0 switch.
Note 4: Refer to pages 598, 599 for accessory dimensions.

Symbol	Basic dimensions for enter trunnion type (TC)																				Installation dimensions		
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	N	Q	T	V	WF	X	AQ	TC	TD
ϕ40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	2	13	8	18.5	33.5	150.5	46.5+Stroke length/2	57	16 -0.032 -0.059
ϕ50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	2.5	14	11	20.5	37	168.5	50.5+Stroke length/2	67	18 -0.032 -0.059
ϕ63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	3	15	11	21	35	171	52.5+Stroke length/2	82	20 -0.040 -0.073
ϕ80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	3.5	17	13	23.5	48	203.5	58+Stroke length/2	100	25 -0.040 -0.073
ϕ100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	4	18	16	32	53	230	64+Stroke length/2	121	35 -0.050 -0.089

Symbol	Installation dimensions					With bellows												With switch						
									ℓ											T0, T5, T2, T3		T1, T2Y, T3Y, T2YF/M, T3YF/M		T8
Bore size (mm)	TE	TM	TN	TY	TZ	b	d	d*	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500	O	P	RD	HD	RD	HD	RD/HD
ϕ40	30	63	95	80	48.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	66	41.5	11	11	10	10	5
ϕ50	30	80	116	87.5	53	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	73	43	13	13	12	12	7
ϕ63	35	90	130	87.5	55.5	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	85	47	13	13	12	12	7
ϕ80	40	115	165	106	61.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5
ϕ100	50	135	205	117	68	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5

● Rod end trunnion type (TA)



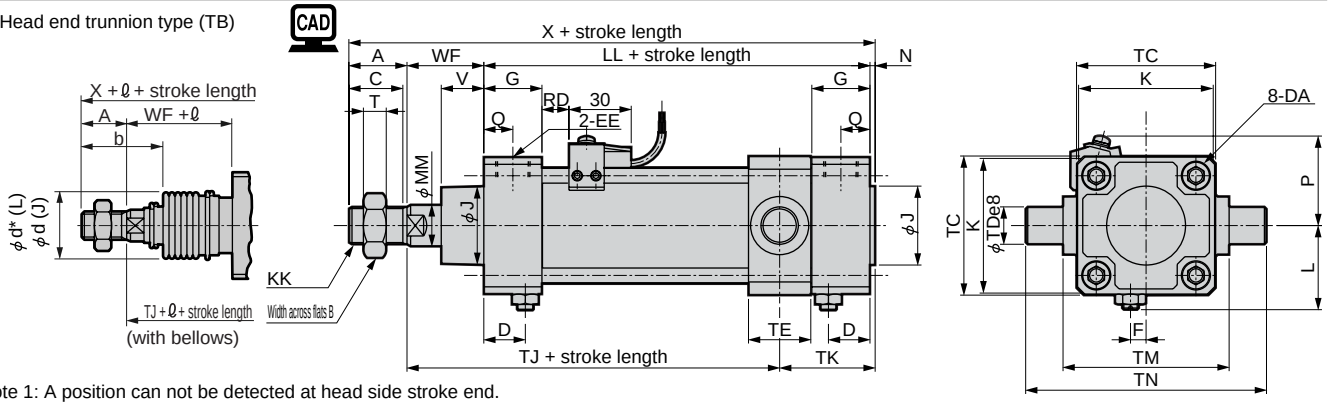
Note 1: A position can not be detected at rod side stroke end.
Note 2: For ℓ dimensions, round up decimal places.
Note 3: A cushion needle position can not be changed.
Note 4: Refer to page 597 for the projecting dimensions of T2YD, H0 switch.
Note 5: Refer to page 598, 599 for accessory dimensions.

Symbol	Basic dimensions for rod end trunnion type (TA)																				Installation dimensions	
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	N	Q	T	V	WF	X	TC	TD
ϕ40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	2	13	8	18.5	33.5	150.5	57	16 -0.032 -0.059
ϕ50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	2.5	14	11	20.5	37	168.5	67	18 -0.032 -0.059
ϕ63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	3	15	11	21	35	171	82	20 -0.040 -0.073
ϕ80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	3.5	17	13	23.5	48	203.5	100	25 -0.040 -0.073
ϕ100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	4	18	16	32	53	230	121	35 -0.050 -0.089

Symbol	Installation dimensions					With bellows												With switch						
									ℓ											T0, T5, T2, T3		T1, T2Y, T3Y, T2YF/M, T3YF/M		T8
Bore size (mm)	TE	TF	TG	TM	TN	b	d	d*	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500	O	P	RD	HD	RD	HD	RD/HD
ϕ40	30	74.5	54	63	95	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	66	41.5	11	11	10	10	5
ϕ50	30	80	60.5	80	116	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	73	43	13	13	12	12	7
ϕ63	35	82.5	60.5	90	130	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	85	47	13	13	12	12	7
ϕ80	40	102	65.5	115	165	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5
ϕ100	50	114	71	135	205	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5

Dimensions

● Head end trunnion type (TB)

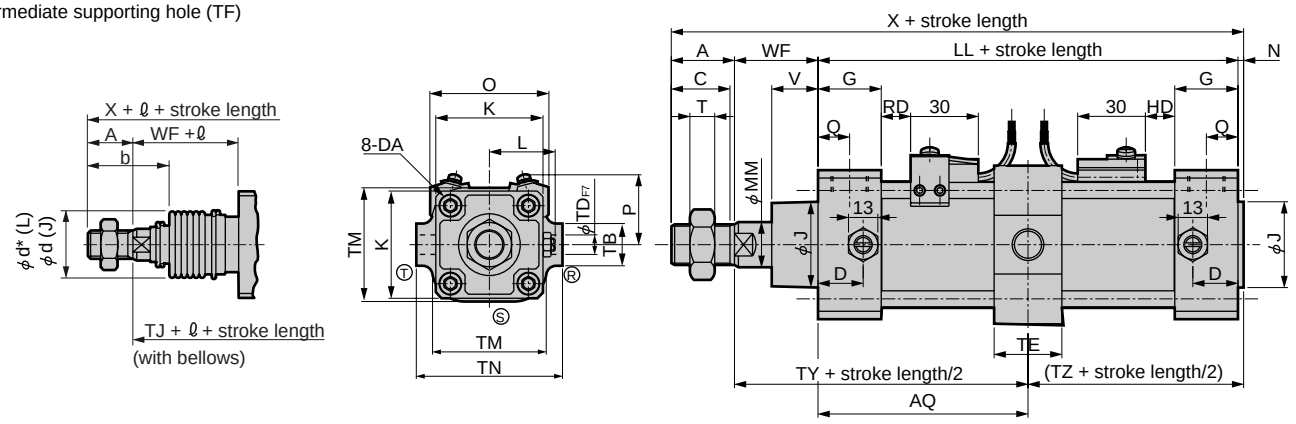


Note 1: A position can not be detected at head side stroke end.
Note 2: For ℓ dimensions, round up decimal places.
Note 3: A cushion needle position can not be changed.
Note 4: Refer to page 597 for the projecting dimensions of T2YD, H0 switch.
Note 5: Refer to page 598, 599 for accessory dimensions.

Symbol	Basic dimensions for head end trunnion type (TB)																				Installation dimensions	
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	N	Q	T	V	WF	X	TC	TD
ϕ40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	2	13	8	18.5	33.5	150.5	57	16 -0.032 -0.059
ϕ50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	2.5	14	11	20.5	37	168.5	67	18 -0.032 -0.059
ϕ63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	3	15	11	21	35	171	82	20 -0.040 -0.073
ϕ80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	3.5	17	13	23.5	48	203.5	100	25 -0.040 -0.073
ϕ100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	4	18	16	32	53	230	121	35 -0.050 -0.089

Symbol	Installation dimensions					With bellows											With switch							
Bore size (mm)	TE	TJ	TM	TN	TK	b	d	d*	ℓ: 50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500	O	P	T0, T5, T2, T3 RD	T0, T5, T2, T3 HD	T1, T2Y, T3Y, T2YF/M, T3YF/M RD	T1, T2Y, T3Y, T2YF/M, T3YF/M HD	T8 RD/HD
ϕ40	30	85	63	95	43.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	66	41.5	11	11	10	10	5
ϕ50	30	94.5	80	116	46	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	73	43	13	13	12	12	7
ϕ63	35	92	90	130	51	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	85	47	13	13	12	12	7
ϕ80	40	109.5	115	165	58	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5
ϕ100	50	119.5	135	205	65.5	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5

● Intermediate supporting hole (TF)



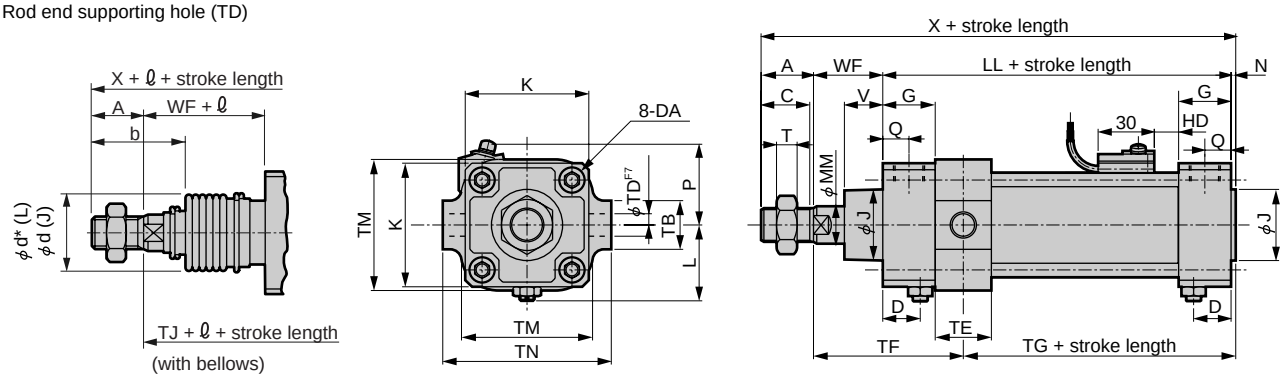
Note 1: For ℓ dimensions, round up decimal places.
Note 2: R, S and T indicates a cushion needle position.
Note 3: Refer to page 597 for the projecting dimensions of T2YD, H0 switch.
Note 4: Refer to pages 598, 599 for accessory dimensions.

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

Symbol	Installation dimensions					With bellows											With switch							
Bore size (mm)	TE	TM	TN	TY	TZ	b	d	d*	ℓ: 50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500	O	P	T0, T5, T2, T3 RD	T0, T5, T2, T3 HD	T1, T2Y, T3Y, T2YF/M, T3YF/M RD	T1, T2Y, T3Y, T2YF/M, T3YF/M HD	T8 RD/HD
ϕ50	30	70	90	87.5	53	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	73	43	13	13	12	12	7
ϕ63	35	86	104	87.5	55.5	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	85	47	13	13	12	12	7
ϕ80	40	105	134	106	61.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5
ϕ100	40	127	150	117	68	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5

Dimensions

● Rod end supporting hole (TD)

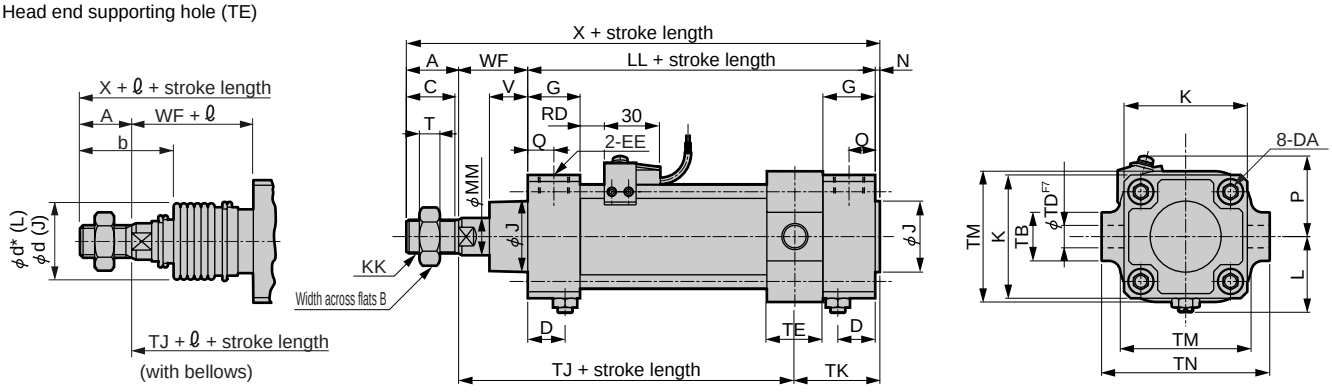


Note 1: A position can not be detected at rod side stroke end.
Note 2: For ℓ dimensions, round up decimal places.
Note 3: A cushion needle position can not be changed.
Note 4: Refer to page 597 for the projecting dimensions of T2YD, H0 switch.
Note 5: Refer to page 598, 599 for accessory dimensions.

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

Symbol	Installation dimensions					With bellows												With switch								
Bore size (mm)	TE	TF	TG	TM	TN	b	d	d*	ℓ 50 or less	ℓ 50 to 100	ℓ 100 to 150	ℓ 150 to 200	ℓ 200 to 300	ℓ 300 to 400	ℓ 400 to 500	ℓ Over 500	O	P	T0, T5, T2, T3 RD	T0, T5, T2, T3 HD	T1, T2Y, T3Y, T2YF/M, T3YF/M RD	T1, T2Y, T3Y, T2YF/M, T3YF/M HD	T8 RD/HD
ϕ50	30	80	60.5	70	90	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	73	43	13	13	12	12	7
ϕ63	35	82.5	60.5	86	104	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	85	47	13	13	12	12	7
ϕ80	40	102	65.5	105	134	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5
ϕ100	40	109	76	127	150	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5

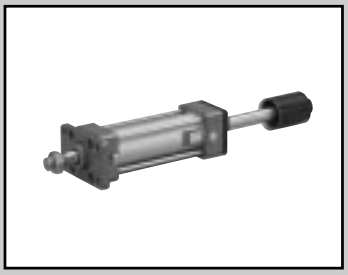
● Head end supporting hole (TE)



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

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

Symbol	Installation dimensions					With bellows												With switch								
Bore size (mm)	TE	TJ	TM	TN	TK	b	d	d*	ℓ 50 or less	ℓ 50 to 100	ℓ 100 to 150	ℓ 150 to 200	ℓ 200 to 300	ℓ 300 to 400	ℓ 400 to 500	ℓ Over 500	O	P	T0, T5, T2, T3 RD	T0, T5, T2, T3 HD	T1, T2Y, T3Y, T2YF/M, T3YF/M RD	T1, T2Y, T3Y, T2YF/M, T3YF/M HD	T8 RD/HD
ϕ50	30	94.5	70	90	46	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	73	43	13	13	12	12	7
ϕ63	35	92	86	104	51	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	85	47	13	13	12	12	7
ϕ80	40	109.5	105	134	58	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	105	57	14.5	14.5	13.5	13.5	8.5
ϕ100	40	124.5	127	150	60.5	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	121	63	18.5	18.5	17.5	17.5	12.5

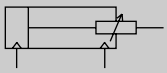


Medium bore size cylinder
Double acting, stroke adjustable type (extend)

SCA2-P Series

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

JIS symbol



RoHS CAD

Specifications

Descriptions		SCA2-P (stroke adjustable type/extend)				
Bore size mm		ϕ40	ϕ50	ϕ63	ϕ80	ϕ100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure MPa		1.0				
Min. working pressure MPa		0.1				
Withstanding pressure MPa		1.6				
Ambient temperature ℃		-10 to 60 (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance mm		$^{+0.9}_{0}$ (Up to 360), $^{+1.4}_{0}$ (Up to 800)				
Working piston speed mm/s		50 to 1000 (use within the allowable energy absorption.)				
Cushion		Air cushion				
Effective cushion length mm		14.6	16.6	16.6	20.6	23.6
Adjustable stroke range mm		25, 50, 75, 100				
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)				
Allowable energy absorption J	Cushioned	4.29	8.37	15.8	27.9	49.8
	No cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Stroke length

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

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

Min. stroke length of type with switch

● T0/T5 type min. stroke length with switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ40	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)
ϕ50	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)
ϕ63	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)
ϕ80	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)
ϕ100	25 (25)	25 (25)	45 (45)	70 (70)	25 (25)	25 (25)	70 (55)	70 (70)	125 (95)	125 (95)	125 (115)	125 (115)	60 (45)	60 (45)

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

● T8 type min. stroke length with switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ40	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)
ϕ50	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)
ϕ63	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)
ϕ80	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)
ϕ100	25 (25)	25 (25)	45 (45)	65 (65)	25 (25)	25 (25)	70 (55)	70 (65)	110 (80)	110 (80)	125 (125)	125 (125)	55 (40)	55 (40)

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

Min. stroke length of type with switch

● T2/T3 type min. stroke length with switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ40	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)
ϕ50	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)
ϕ63	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)
ϕ80	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)
ϕ100	25 (25)	25 (25)	30 (30)	45 (45)	25 (25)	25 (25)	60 (45)	60 (45)	125 (95)	125 (95)	125 (100)	125 (100)	60 (45)	60 (45)

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

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

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

Note 1: Value in ( ) for T*V (Radial lead wire). Note that radial lead wire (V) is not available for T2YD.
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

Switch specifications (T type switch)

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

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

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

● With preventive maintenance output

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

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

Cylinder weight

(Unit: kg)

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

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

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

How to order

Without switch

SCA2-P - LB - 40 ( ) B - 100 - 25 ——— S I

With switch

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

Ⓐ Mounting style Note 1

Ⓑ Bore size

Ⓒ Port thread type

Ⓓ Cushion

Ⓔ Stroke length Note 2

Ⓕ Adjustable stroke length

Ⓖ Switch model no.

Ⓗ Switch quantity Note 4

Ⓘ Option Note 5

Ⓙ Accessory Note 6

Symbol	Descriptions
Ⓐ Mounting style	
00	Basic type
LB	Axial foot type
FA	Rod end flange type
FB	Head end flange type
TC	Center trunnion type
TA	Rod end trunnion type
TB	Head end trunnion type
TF	Intermediate supporting hole (ϕ 40 cannot be selected.)
TD	Rod end supporting hole (ϕ 40 cannot be selected)
TE	Head end supporting hole (ϕ 40 cannot be selected.)
Ⓑ Bore size (mm)	
40	ϕ 40
50	ϕ 50
63	ϕ 63
80	ϕ 80
100	ϕ 100
Ⓒ Port thread type	
Blank	Rc thread
N	NPT thread (custom order)
G	G thread (custom order)
Ⓓ Cushion	
B	Both sides cushioned
R	Rod end cushion
H	Head end cushion
N	No cushion

Ⓔ Stroke length (mm)

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

Ⓕ Adjustable stroke range (mm)	
25, 50, 75, 100	
Ⓖ Switch model no.	
Refer to the switch model no. table on the following page.	
***Lead wire length**	
Blank	1m (standard)
3	3m (option)
5	5m (option)
Ⓗ Switch quantity	
R	One on rod end
H	One on head end
D	Two
T	Three

Ⓘ Option

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

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

⚠ Note on model no. selection

Note 1: The mounting bracket is shipped with the product. (However, trunnion type is attached to the product when shipped.)
Note 2: If the maximum stroke is exceeded, refer to Ending 74.
Note 3: Refer to page 456 for min. stroke length with switch.
Note 4: When selecting TA or TB for mounting, the number of switches is limited to "H" (one on head side) for TA, and "R" (one on rod side) for TB.
Note 5: Instantaneous maximum temperature is the temperature when spark and spatter etc. instantaneously contacts to bellows.
Note 6: "I" and "Y" can not be selected at the same time.
Note 7: Refer to Ending 89 for custom specifications of rod end form.
Note 8: Refer to page 436 for variation and option combination.

<Example of model number>

SCA2-P-LB-40B-100-25-T0-R-SI

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

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

How to order mounting bracket

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

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

[F] switch model no.

T type switch model no.

Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T0H*	**T0V***	Reed	1 color indicator type	2-wire
T5H*	**T5V***		Without indicator light	
T8H*	**T8V***		1 color indicator type	
T1H*	**T1V***	Proximity	1 color indicator type	2-wire
T2H*	**T2V***			
T3H*	**T3V***			3-wire
T2YH*	**T2YV***		2 color indicator type	2-wire
T3YH*	**T3YV***			3-wire
T3PH*	**T3PV***		1 color indicator type (custom order)	3-wire
T2YFH*	**T2YFV***		2 color indicator type (Without light for preventive maintenance output)	3-wire
T3YFH*	**T3YFV***			4-wire
T2YMH*	**T2YMV***		2 color indicator type (With light for preventive maintenance output (1 color))	3-wire
T3YMH*	**T3YMV***			4-wire
T2YD*	-		Strong magnetic field proof switch	2-wire
T2YDT*	-			
T2JH*	**T2JV***		Off-delay type	2-wire

R type switch

Grommet type	Terminal box type: Standard type	Terminal box type: Splash prf.	Contact	Indicator	Lead wire
R6*	**R6B**	**R6A**		1 color indicator type	

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

How to order switch

(T type switch)

● Switch body + mounting bracket

SCA2 - T0H - 40

- 40: Bore size (Item Ⓑ previous page)
- T0H: Switch model no. (Item Ⓕ previous page)

● Only switch body

SW - T0H

- T0H: Switch model no. (Item Ⓕ previous page)

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

● Switch bracket set

SCA2 - TS - 40

- TS: Bracket
- 40: Bore size (Item Ⓑ previous page)

(T2YD switch)

● Switch body + mounting bracket

SCA2 - T2YD - 40

- T2YD: Switch model no. (Item Ⓖ previous page)
- 40: Bore size (Item Ⓑ previous page)

● Only switch body

SW - T2YD

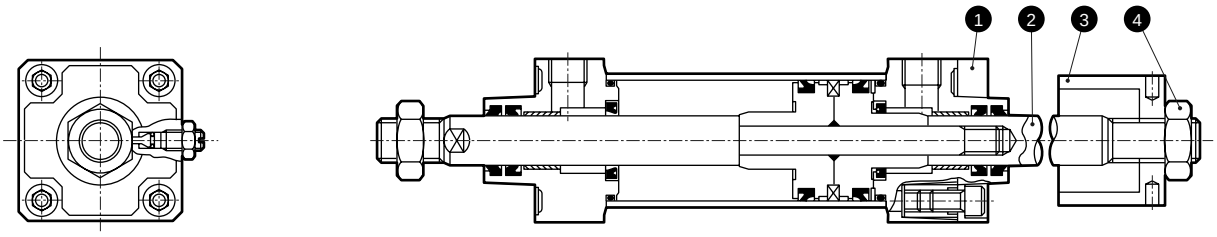
- T2YD: Switch model no. (Item Ⓖ previous page)

● Mounting bracket

SCA2 - T - 40

- 40: Bore size (Item Ⓑ previous page)

Internal structure and parts list



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

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

Repair parts list

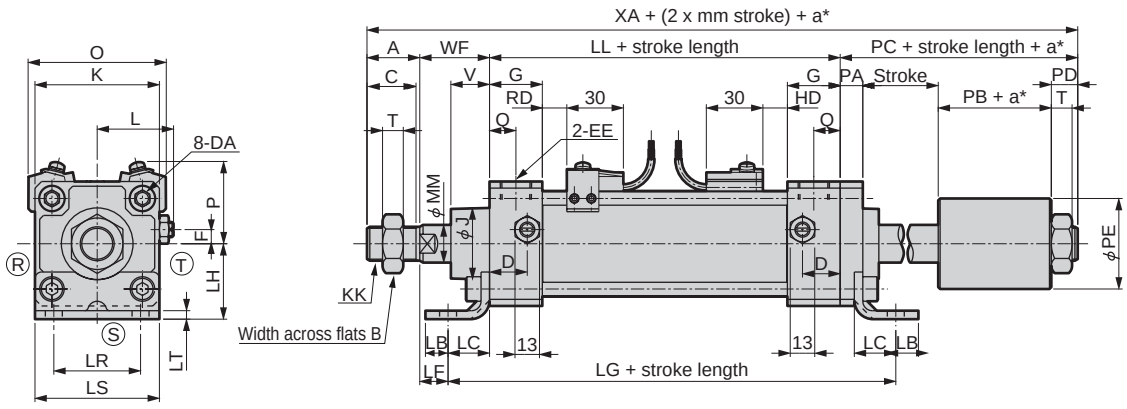
Part numbers follow the SCA2 Series internal structure drawing (page 448).

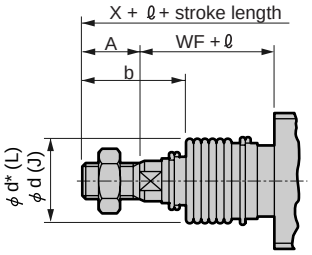
Bore size (mm)	Kit No.	Repair parts number
ϕ 40	SCA2-P-40K	❸ ❹ ❽ ❾ ⓬ ⓯ ㉑
ϕ 50	SCA2-P-50K	
ϕ 63	SCA2-P-63K	
ϕ 80	SCA2-P-80K	
ϕ 100	SCA2-P-100K	

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

Dimensions CAD

● Stroke adjustable type





(with bellows)

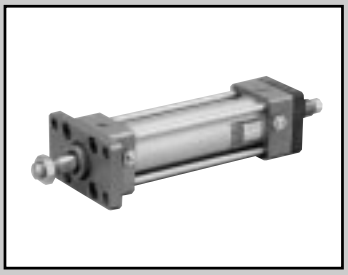
Note 1: (R)(S)(T) indicates a cushion needle position.

Note 2: Axial pitch dimensions of installation hole differ from standard type / foot type mounting style is used.
Note 3: Refer to page 597 for the projecting dimensions of T2YD switch.
Note 4: Refer to pages 598, 599 for accessory dimensions. *a is adjustable stroke length.

Symbol / Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	PA	PB	PC	PD	PE	PF	Q	T	V	WF	XA	XF
φ40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	12	29	52	11	40	6	13	8	18.5	33.5	200.5	55.5
φ50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	12	35	61	14	48	6	14	11	20.5	37	227	65
φ63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50	105	20	16	31	61	14	48	6	15	11	21	35	229	63
φ80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	19	33	68	16	60	10	17	13	23.5	48	268	84
φ100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	19	50	90	21	70	10	18	16	32	53	316	98

Symbol / Bore size (mm)	With switch							Installation dimensions								With bellows													
	O	P	T0, T5, T2, T3		T1, T2Y, T3Y, T2YF/M, T3YF/M		T8	LB	LC	LD	LF	LG	LH	LR	LS	LT	A	X	b	d	d*	ℓ							
			RD	HD	RD	HD	RD/HD															50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
φ40	66	41.5	11	11	10	10	5	10	19.5	9	14	140.8	40	40	57	3.2	22	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
φ50	73	43	13	13	12	12	7	12	22	9	15	152.5	40	46	66	4.5	28	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
φ63	85	47	13	13	12	12	7	12	30	11	5	176.5	50	60	80	4.5	28	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
φ80	105	57	14.5	14.5	13.5	13.5	8.5	14	37	14	11	203	60	74	98	6.0	36	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5
φ100	121	63	18.5	18.5	17.5	17.5	12.5	21	31	14	12	203	67	80	118	6.0	45	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9

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

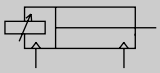


Medium bore size cylinder
Double acting, stroke adjustable type (retract)

SCA2-R Series

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

JIS symbol



RoHS CAD

Specifications

Descriptions		SCA2-R (stroke adjustable type/retract)				
Bore size mm		ϕ 40	ϕ 50	ϕ 63	ϕ 80	ϕ100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure MPa		1.0				
Min. working pressure MPa		0.05				
Withstanding pressure MPa		1.6				
Ambient temperature ℃		-10 to 60 (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance mm		$^{+0.9}_{0}$ (Up to 360), $^{+1.4}_{0}$ (Up to 800)				
Working piston speed mm/s		50 to 1000 (use within the allowable energy absorption.)				
Cushion		Air cushion				
Effective cushion length mm		14.6	16.6	16.6	20.6	23.6
Adjustable stroke range mm		25, 50, 75, 100				
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)				
Allowable energy absorption J	Cushioned	4.29	8.37	15.8	27.9	49.8
	No cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Stroke length

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

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

Min. stroke length of type with switch

● T0/T5 type min. stroke length with switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ40	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)
ϕ50	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)
ϕ63	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)
ϕ80	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)
ϕ100	25 (25)	25 (25)	45 (45)	70 (70)	25 (25)	25 (25)	70 (55)	70 (70)	125 (95)	125 (95)	125 (115)	125 (115)	60 (45)	60 (45)

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

● T8 type min. stroke length with switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ40	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)
ϕ50	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)
ϕ63	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)
ϕ80	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)
ϕ100	25 (25)	25 (25)	45 (45)	65 (65)	25 (25)	25 (25)	70 (55)	70 (65)	110 (80)	110 (80)	125 (125)	125 (125)	55 (40)	55 (40)

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

Min. stroke length of type with switch

● T2/T3 type min. stroke length with switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ 40	25 (25)	25 (25)	25 (25)	40 (40)	25 (25)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
ϕ 50	25 (25)	25 (25)	25 (25)	40 (40)	25 (25)	25 (25)	60 (45)	60 (45)	105 (75)	105 (75)	105 (75)	105 (75)	45 (30)	45 (30)
ϕ 63	25 (25)	25 (25)	25 (25)	40 (40)	25 (25)	25 (25)	60 (45)	60 (45)	110 (80)	110 (80)	110 (85)	110 (85)	50 (35)	50 (35)
ϕ 80	25 (25)	25 (25)	30 (30)	45 (45)	25 (25)	25 (25)	60 (45)	60 (45)	115 (85)	115 (85)	115 (90)	115 (90)	55 (40)	55 (40)
ϕ 100	25 (25)	25 (25)	30 (30)	45 (45)	25 (25)	25 (25)	60 (45)	60 (45)	125 (95)	125 (95)	125 (100)	125 (100)	60 (45)	60 (45)

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

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

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ 40	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	105 (75)	105 (75)	165 (135)	165 (135)	50 (35)	50 (35)
ϕ 50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	100 (70)	100 (70)	100 (75)	100 (75)	45 (30)	45 (30)
ϕ 63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	105 (75)	105 (75)	105 (85)	105 (85)	50 (35)	50 (35)
ϕ 80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	110 (80)	110 (80)	110 (90)	110 (90)	55 (40)	55 (40)
ϕ 100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	120 (90)	120 (90)	120 (100)	120 (100)	60 (45)	60 (45)

Note 1: Value in ( ) for T*V (Radial lead wire). Note that radial lead wire (V) is not available for T2YD.
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

Switch specifications (T type switch)

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

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

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

● With preventive maintenance output

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

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

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

Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke length (S) = 0 mm						Weight per switch (including mounting bracket)					Additional weight per S = 100 mm
	Basic type (00)	Foot type (LB)	Flange type (FA and FB)	Eye bracket type (CA)	Clevis bracket type (CB)	Trunnion type (TA, TB or TC)	T type	H type		T2YD type		
								1 m	3 m	1 m	3 m	
ϕ40	0.96	1.13	1.37	1.28	1.32	1.34	0.018	0.10	0.20	0.08	0.17	0.55
ϕ50	1.45	1.70	1.94	1.83	1.86	1.99						0.71
ϕ63	1.88	2.25	2.97	2.45	2.50	2.73						0.75
ϕ80	3.15	3.89	5.01	4.42	4.63	4.49						1.26
ϕ100	4.80	5.71	7.54	6.44	6.62	7.37						1.37

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

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

How to order

Without switch

SCA2-R - LB - 40 ( ) B - 100 - 25 ——— S I

With switch

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

Ⓐ Mounting style Note 1

Ⓑ Bore size

Ⓒ Port thread type

Ⓓ Cushion

Ⓔ Stroke length Note 2

Ⓕ Adjustable stroke length

Ⓖ Switch model no.

Ⓗ Switch quantity Note 4

Ⓘ Option Note 5

Ⓙ Accessory Note 6

Symbol	Descriptions
Ⓐ Mounting style	
00	Basic type
LB	Axial foot type
FA	Rod end flange type
TC	Center trunnion type
TA	Rod end trunnion type
TB	Head end trunnion type
TF	Intermediate supporting hole (ϕ40 cannot be selected.)
TD	Rod end supporting hole (ϕ40 cannot be selected)
TE	Head end supporting hole (ϕ40 cannot be selected.)
Ⓑ Bore size (mm)	
40	ϕ 40
50	ϕ 50
63	ϕ 63
80	ϕ 80
100	ϕ 100
Ⓒ Port thread type	
Blank	Rc thread
N	NPT thread (custom order)
G	G thread (custom order)
Ⓓ Cushion	
B	Both sides cushioned
R	Rod end cushion
H	Head end cushion
N	No cushion

Ⓔ Stroke length (mm)

Bore size	Stroke length Note 3	Custom stroke length
ϕ40	**25 to 600**	**Per 1 mm increment**
ϕ50	**25 to 600**	
ϕ63	**25 to 600**	
ϕ80	**25 to 700**	
ϕ100	**25 to 800**	

Ⓕ Adjustable stroke range (mm)	
25, 50, 75, 100	
Ⓖ Switch model no.	
Refer to the switch model no. table on the following page.	
***Lead wire length**	
Blank	1m (standard)
3	3m (option)
5	5m (option)
Ⓗ Switch quantity	
R	One on rod end
H	One on head end
D	Two
T	Three

Ⓘ Option

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

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

⚠Note on model no. selection

Note 1: The mounting bracket is shipped with the product. However, trunnion type is attached to the product when shipped.
Note 2: If the maximum stroke is exceeded, refer to Ending 74.
Note 3: Refer to page 464 for min. stroke length.
Note 4: When selecting TA or TB for mounting, the number of switches is limited to "H" (one on head side) for TA, and "R" (one on rod side) for TB.
Note 5: Instantaneous maximum temperature is the temperature when spark and spatter etc. instantaneously contacts to bellows.
Note 6: "I" and "Y" can not be selected at the same time.
Note 7: Refer to Ending 89 for custom specifications of rod end form.
Note 8: Refer to page 436 for variation and option combination.

<Example of model number>

SCA2-R-LB-40B-100-25-T0-R-SI

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

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

How to order mounting bracket

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

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

[F] switch model no.

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

R type switch					
Grommet type	Terminal box type		Contact	Indicator	Lead wire
	Standard type	Splash prf.			
R1*	**R1B**	**R1A**			
R0				1 color indicator type	

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

How to order switch

(T type switch)

● Switch body + mounting bracket

SCA2 - T0H - 40

- 40: Bore size (Item Ⓑ previous page)
- T0H: Switch model no. (Item Ⓕ previous page)

● Only switch body

SW - T0H

- T0H: Switch model no. (Item Ⓕ previous page)

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

● Switch bracket set

SCA2 - TS - 40

- 40: Bore size (Item Ⓑ previous page)
- TS: Bracket

(T2YD type switch)

● Switch body + mounting bracket

SCA2 - T2YD - 40

- T2YD: Switch model no. (Item Ⓖ previous page)
- 40: Bore size (Item Ⓑ previous page)

● Only switch body

SW - T2YD

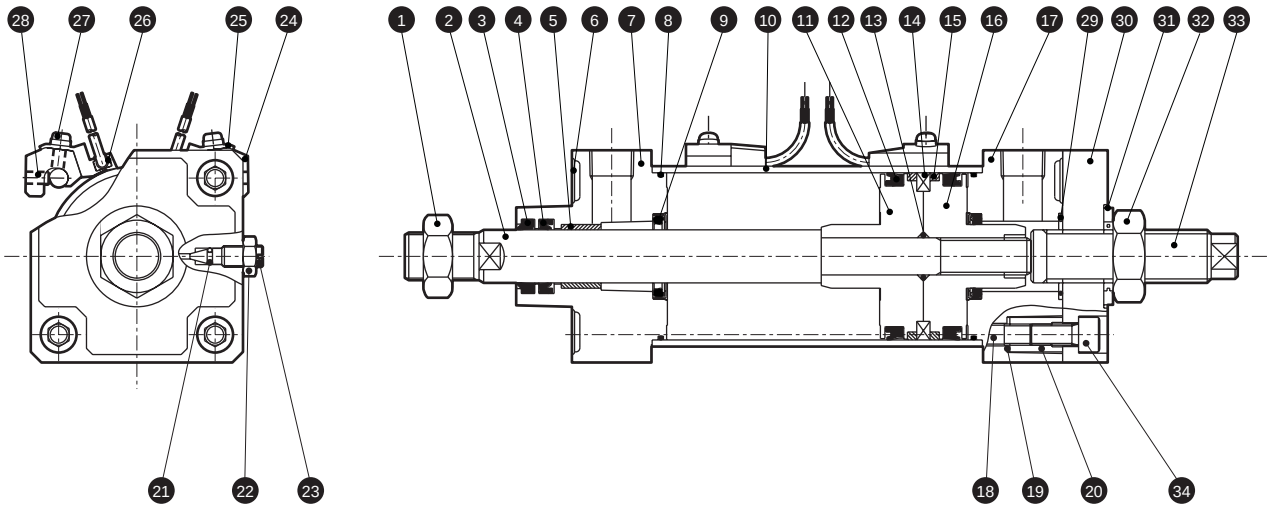
- T2YD: Switch model no. (Item Ⓖ previous page)

● Mounting bracket

SCA2 - T - 40

- 40: Bore size (Item Ⓑ previous page)

Internal structure and parts list



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

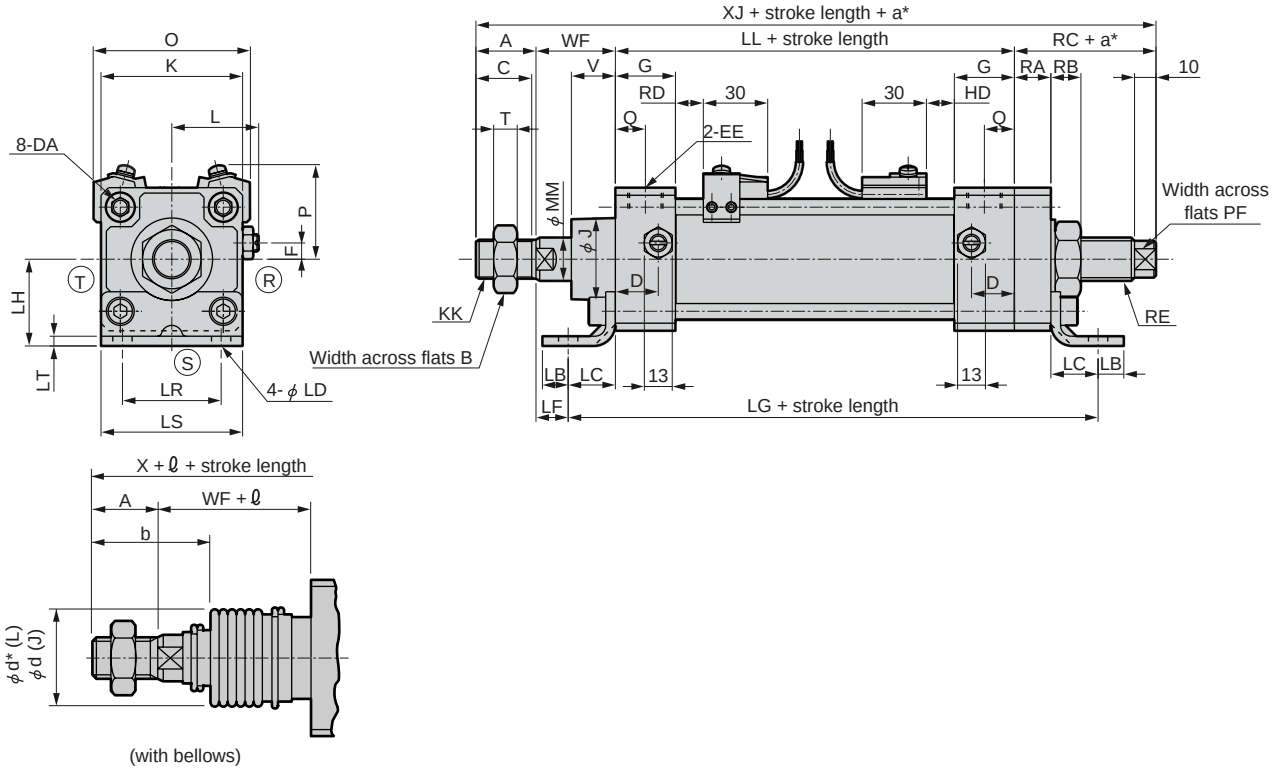
Repair parts list

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

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

Dimensions

● Stroke adjustable type (retracted)



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

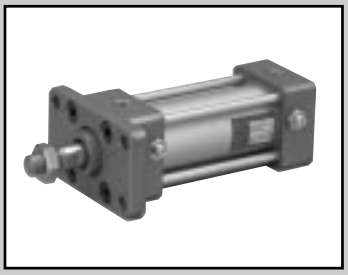
* a is adjustable stroke length.

Symbol / Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	Q	RA	RB	RC	RE	PF	T	V	WF	XF	XJ
ϕ40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	13	14	11	35	M16 x 1.5	11	8	18.5	33.5	55.5	183.5
ϕ50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	14	17	14	41	M20 x 1.5	14	11	20.5	37	65	207
ϕ63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50	105	20	15	17	14	41	M20 x 1.5	14	11	21	35	63	209
ϕ80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	17	20	16	46	M24 x 1.5	17	13	23.5	48	84	246
ϕ100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	18	20	16	46	M24 x 1.5	17	16	32	53	98	272

Symbol / Bore size (mm)	With switch							Installation dimensions									With bellows													
	O	P	T0, T5, T2, T3		T1, T2Y, T3Y, T2YF/M, T3YF/M		T8	LB	LC	LD	LF	LG	LH	LR	LS	LT	A	X	b	d	d*	ℓ								
			RD	HD	RD	HD	RD/HD															50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
ϕ40	66	41.5	11	11	10	10	5	10	19.5	9	14	146	40	40	57	3.2	22	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
ϕ50	73	43	13	13	12	12	7	12	22	9	15	162	40	46	66	4.5	28	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ63	85	47	13	13	12	12	7	12	30	11	5	182	50	60	80	4.5	28	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ80	105	57	14.5	14.5	13.5	13.5	8.5	14	37	14	11	210	60	74	98	6.0	36	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5
ϕ100	121	63	18.5	18.5	17.5	17.5	12.5	21	31	14	12	210	67	80	118	6.0	45	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9

Note 2: Axial pitch dimensions of the installation hole differ from standard if foot type mounting method is used.
Note 3: Refer to page 597 for the projecting dimensions of T2YD switch.
Note 4: Refer to pages 598, 599 for accessory dimensions.

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

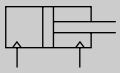


Medium bore size cylinder
Double acting, heat resistance type

SCA2-T Series

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

JIS symbol



RoHS CAD

Specifications

Descriptions		SCA2-T/SCA2-L2T (heat resistance type)				
Bore size mm		ϕ40	ϕ50	ϕ63	ϕ80	ϕ100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure MPa		1.0				
Min. working pressure MPa		0.05				
Withstanding pressure MPa		1.6				
Ambient temperature ℃		5 to 120				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance mm		$^{+0.9}_{0}$ (Up to 360) $^{+1.4}_{0}$ (Up to 800)				
Working piston speed mm/s		50 to 1000 (Use within the allowable energy absorption.)				
Cushion		Air cushion				
Effective cushion length mm		14.6	16.6	16.6	20.6	23.6
Lubrication		Not available Note 1				
Allowable energy absorption J	Cushioned	4.29	8.37	15.8	27.9	49.8
	No cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Note 1: Apply heat proof grease periodically.

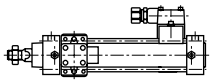
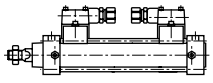
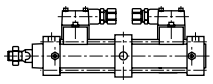
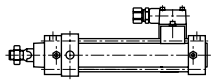
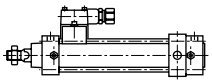
Stroke length

Bore size (mm)	Without switch Standard stroke length (mm)	With switch Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
ϕ40	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	150, 200, 250, 300, 350, 400, 450, 500	600	1
ϕ50				
ϕ63				
ϕ80			700	
ϕ100			800	

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

Min. stroke length of type with switch

(Unit: mm)

Rough sketch	Different surface installation			Installed on the same plane			Intermediate (hole type) trunnion installation			Rod end (hole type) trunnion installation	Head end (hole type) trunnion installation
										 A position can not be detected at rod side stroke end.	 A position can not be detected at head side stroke end.
Switch quantity / Bore size (mm)	1	2	3	1	2	3	1	2	3	1	1
ϕ40	150	150	335	335	335	390	335	335	390	150	150
ϕ50	145	145	335	335	335	390	335	335	390	145	145
ϕ63	145	145	335	335	335	390	335	335	390	145	145
ϕ80	145	145	335	335	335	390	335	335	390	145	145
ϕ100	140	140	335	335	335	390	335	335	390	140	140

Switch specifications

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

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

Cylinder weight

(Unit: kg)

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

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

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

How to order

Without switch

SCA2- T - LB - 40 B - 100 ——— S I

With switch

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

Heat resistance type/ with switch

Ⓐ Mounting style Note 1

Ⓑ Bore size

Ⓒ Port thread type

Ⓓ Cushion

Ⓔ Stroke length Note 2

Ⓕ Switch model no.

Ⓖ Switch quantity

Ⓗ Option Note 5

Ⓘ Accessory Note 6

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

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

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

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

Ⓔ Stroke length (mm)

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

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

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

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

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

⚠Note on model no. selection

Note 1: The mounting bracket is shipped with the product.
(However, trunnion type is attached to the product when shipped.)
Note 2: For types with switch, 25, 50, 75 and 100 mm stroke are not available.
Note 3: Refer to page 472 for min. stroke length.
Note 4: If the maximum stroke is exceeded, refer to Ending 74. .
Note 5: Instantaneous maximum temperature is the temperature when spark and spatter etc. instantaneously contacts to bellows.
Note 6: "I" and "Y" can not be selected at the same time.
Note 7: Refer to Ending 89 for custom specifications of rod end form.
Note 8: Refer to page 436 for variation and option combination.

<Example of model number>

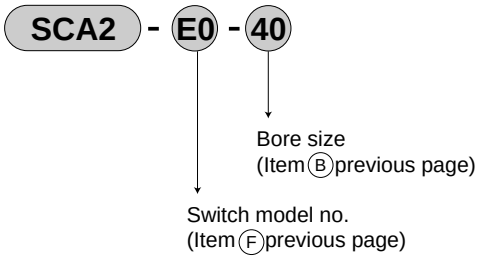
SCA2-L2T-LB-40B-100-E0-R-SI

Model: Medium bore size cylinder double acting heat resistance type

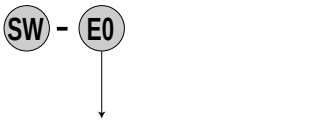
Ⓐ Mounting style : Axial foot type
Ⓑ Bore size : ϕ 40 mm
Ⓒ Port thread type : Rc thread
Ⓓ Cushion : Both sides cushioned
Ⓔ Stroke length : 100 mm
Ⓕ Switch model no. : Reed E0 switch
Ⓖ Switch quantity : One on rod end
Ⓗ Option : Cushion needle position S
Ⓘ Accessory : Rod eye

How to order switch

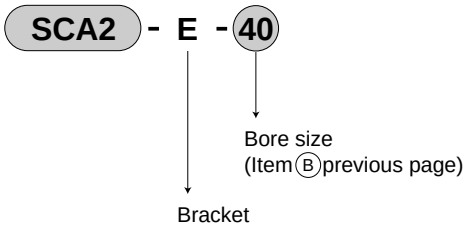
● Switch body + mounting bracket



● Only switch body



● Mounting bracket

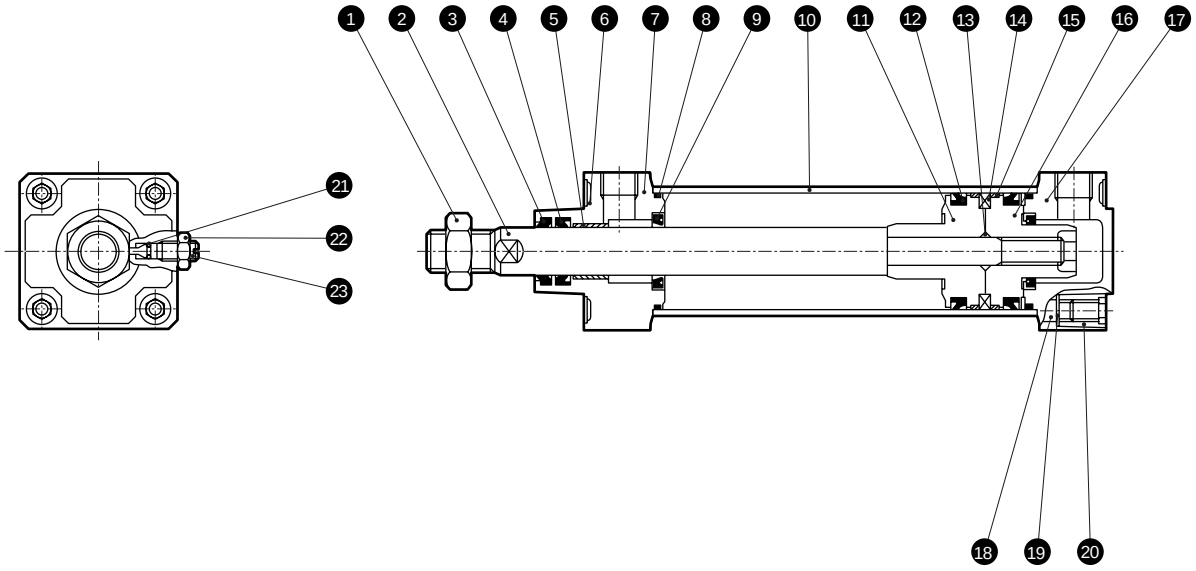


How to order mounting bracket

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

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

Internal structure and parts list



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

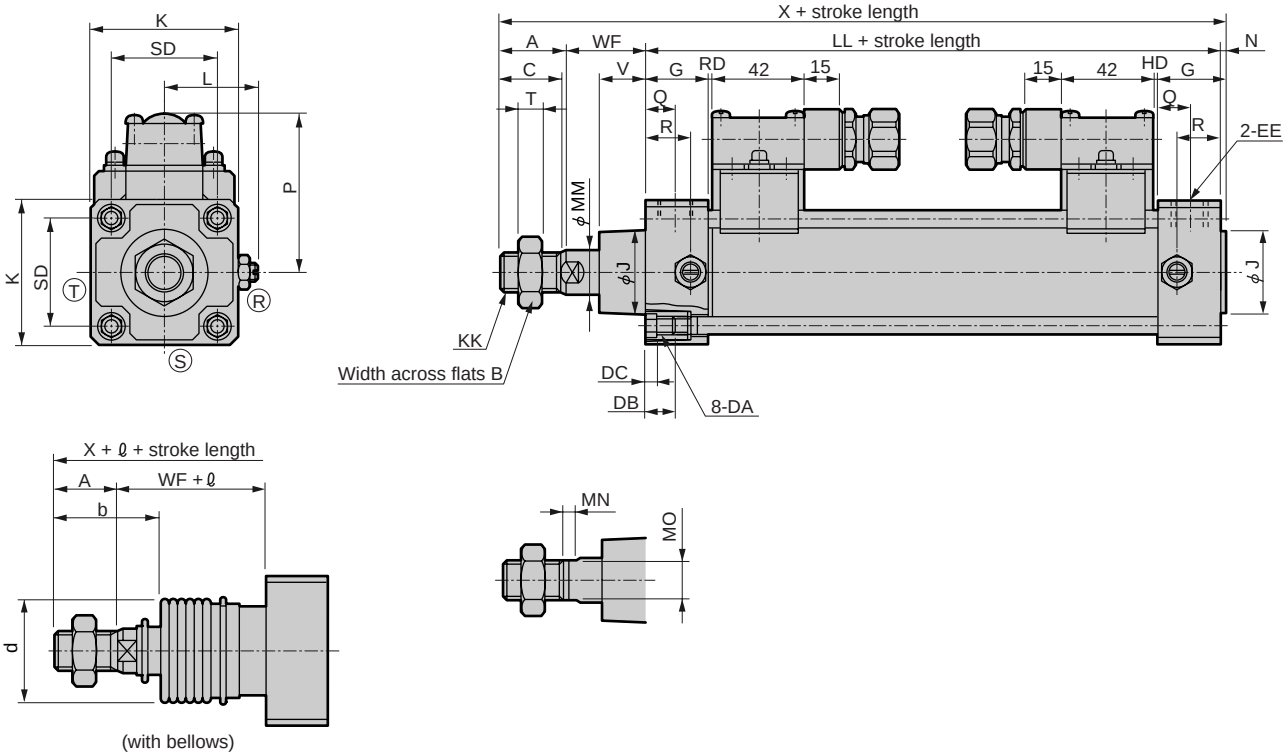
Repair parts list

Bore size (mm)	Kit No.	Repair parts number
ϕ 40	SCA2-T-40K	3 4 8 9 12 15 21
ϕ 50	SCA2-T-50K	
ϕ 63	SCA2-T-63K	
ϕ 80	SCA2-T-80K	
ϕ100	SCA2-T-100K	

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

Dimensions

● SCA2-L2T-**



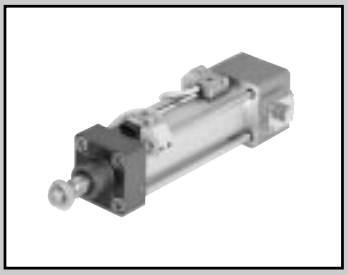
Note 1: Refer to page 598, 599 for accessory dimensions.

Symbol	Basic type (00) basic dimensions																					
Bore size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	J	K	KK	L	LL	MM	MN	MO	N	Q	SD	T
ϕ40	22	22	20	18	M8	12	4	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	8	14	2	13	40.5	8
ϕ50	28	27	26	20	M8	12	4	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	8	17	2.5	14	48	11
ϕ63	28	27	26	22	M8	12	4	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	8	17	3	15	59	11
ϕ80	36	32	34	26	M12	16	5	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	11	22	3.5	17	74	13
ϕ100	45	41	43	28	M12	16	5	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	13	27	4	18	90	16

Symbol				With bellows												With switch		
Bore size (mm)	V	WF	X	A	X	b	d	ℓ 50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500	HD	P	RD
ϕ40	18.5	33.5	150.5	22	150.5	41	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	0	68	0
ϕ50	20.5	37	168.5	28	168.5	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	1.5	72	1.5
ϕ63	21	35	171	28	171	45	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	1.5	79	1.5
ϕ80	23.5	48	203.5	36	203.5	58.5	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	3	89	3
ϕ100	32	53	230	45	230	69.5	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	7	99	7

* Round up decimal places.

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

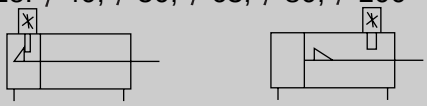


Medium bore size cylinder
Double acting, position locking type

SCA2-Q2 Series

● Bore size: ϕ40, ϕ50, ϕ63, ϕ80, ϕ100

JIS symbol



RoHS CAD

Specifications

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

Stroke length

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

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

Min. stroke length of type with switch

● T0/T5 type min. stroke length with switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ40	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)
ϕ50	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)
ϕ63	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)
ϕ80	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)
ϕ100	15 (15)	25 (25)	45 (45)	70 (70)	15 (15)	25 (25)	70 (55)	70 (70)	150 (120)	150 (120)	150 (145)	150 (145)	60 (45)	60 (45)

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

● T8 type min. stroke length with switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ40	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)
ϕ50	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)
ϕ63	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)
ϕ80	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)
ϕ100	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	140 (110)	140 (110)	155 (155)	155 (155)	55 (40)	55 (40)

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

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

Min. stroke length of type with switch

● T2/T3 type min. stroke length with switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ40	20 (10)	20 (15)	25 (25)	40 (40)	20 (10)	60 (45)	105 (75)	150 (105)	130 (100)	130 (100)	190 (160)	190 (160)	50 (35)	50 (35)
ϕ50	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	130 (100)	130 (100)	130 (105)	130 (105)	45 (30)	45 (30)
ϕ63	15 (10)	15 (15)	25 (25)	40 (40)	15 (10)	15 (15)	60 (45)	60 (45)	135 (105)	135 (105)	135 (110)	135 (110)	50 (35)	50 (35)
ϕ80	15 (10)	15 (15)	30 (30)	45 (45)	15 (10)	15 (15)	60 (45)	60 (45)	140 (110)	140 (110)	140 (120)	140 (120)	55 (40)	55 (40)
ϕ100	10 (10)	15 (15)	30 (30)	45 (45)	10 (10)	15 (15)	60 (45)	60 (45)	150 (120)	150 (120)	150 (130)	150 (130)	60 (45)	60 (45)

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

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

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

Note 1: Value in ( ) for T*V (Radial lead wire). Note that radial lead wire (V) is not available for T2YD.
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

Switch specifications (T type switch)

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

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

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

● With preventive maintenance output

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

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

Cylinder weight

(Unit: kg)

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

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

How to order

Without switch

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

With switch

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

Ⓐ Mounting style Note 1

Ⓑ Bore size

Ⓒ Port thread type

Ⓓ Cushion

Ⓔ Stroke length Note 2

Ⓕ Position locking mechanism

Ⓖ Switch model no.

Ⓗ Switch quantity Note 4

Ⓘ Option Note 5

Ⓙ Accessory Note 6

Symbol	Descriptions
Ⓐ Mounting style	
00	Basic type
LB	Axial foot type
FA	Rod end flange type
FB	Head end flange type
FC	Special head end flange type
CA	Eye bracket type
CB	Clevis bracket type (pin and snap ring attached)
TC	Center trunnion type
TA	Rod end trunnion type
TB	Head end trunnion type
TF	Intermediate supporting hole (ϕ40 cannot be selected.)
TD	Rod end supporting hole (ϕ40 cannot be selected)
TE	Head end supporting hole (ϕ40 cannot be selected.)
Ⓑ Bore size (mm)	
40	ϕ 40
50	ϕ 50
63	ϕ 63
80	ϕ 80
100	ϕ 100
Ⓒ Port thread type	
Blank	Rc thread
N	NPT thread (custom order)
G	G thread (custom order)
Ⓓ Cushion	
B	Both sides cushioned
R	Rod end cushion
H	Head end cushion
N	No cushion

Ⓔ Stroke length (mm)

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

Ⓕ Position locking mechanism	
H	Head end position locking
R	Rod end position locking
Ⓖ Switch model no.	
Refer to the switch model no. table on the following page.	
***Lead wire length**	
Blank	1m (standard)
3	3m (option)
5	5m (option)
Ⓗ Switch quantity	
R	One on rod end
H	One on head end
D	Two
T	Three
Ⓘ Option	
M	Piston rod material (stainless steel)
S	Cushion needle position S
M0	Non-locking manual override (release bolt attached)
M1	Locking manual override
Ⓙ Accessory	
I	Rod eye
Y	Rod clevis (pin and snap ring attached)
B1	Eye bracket
B2	Clevis bracket (pin and snap ring attached)
B3	Eye bracket
B4	Trunnion type No. 2 bracket

⚠ Note on model no. selection

Note 1: The mounting bracket is shipped with the product.
However, trunnion type is attached to the product when shipped.
Mounting style TA or position locking mechanism R is not available.
Mounting style TB or position locking mechanism H is not available.
Note 2: If the maximum stroke is exceeded, refer to Ending 74.
Note 3: Refer to page 478 for min. stroke length.
Note 4: When selecting TA or TB for mounting, the number of switches is limited to "H" (one on head side) for TA, and "R" (one on rod side) for TB.
Note 5: If "M0" or "M1" is not selected for the "I" Options, only the nonlocking manual override is available. Release bolt is not included.
Note 6: "I" and "Y" can not be selected at the same time.
Note 7: Refer to Ending 89 for custom specifications of rod end form.
Note 8: Refer to page 436 for variation and option combination.

<Example of model number>

SCA2-Q2-LB-40B-100-H-T0-R-SI

Model: Medium bore size cylinder position locking type

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

How to order mounting bracket

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

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

[F] switch model no.

T type switch model no.

Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T0H*	**T0V***	Reed	1 color indicator type	2-wire
T5H*	**T5V***		Without indicator light	
T8H*	**T8V***		1 color indicator type	
T1H*	**T1V***	Proximity	1 color indicator type	2-wire
T2H*	**T2V***			3-wire
T3H*	**T3V***		2 color indicator type	2-wire
T2YH*	**T2YV***			3-wire
T3YH*	**T3YV***		1 color indicator type (custom order)	3-wire
T3PH*	**T3PV***		2 color indicator type (Without light for preventive maintenance output)	3-wire
T2YFH*	**T2YFV***			4-wire
T3YFH*	**T3YFV***		2 color indicator type (Without light for preventive maintenance output)	3-wire
T2YMH*	**T2YMV***			4-wire
T3YMH*	**T3YMV***		Strong magnetic field proof switch	2-wire
T2YD*	-			
T2YDT*	-		Off-delay type	2-wire
T2JH*	**T2JV***			

R type switch

Grommet type	Terminal box type: Standard type	Terminal box type: Splash prf.	Contact	Indicator	Lead wire
R1*	**R1B**	**R1A**			
R6	**R6B**	**R6A**		1 color indicator type	

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

How to order switch

(T type switch)

● Switch body + mounting bracket

SCA2 - T0H - 40

- 40: Bore size (Item Ⓑ previous page)
- T0H: Switch model no. (Item Ⓕ previous page)

● Only switch body

SW - T0H

- T0H: Switch model no. (Item Ⓕ previous page)

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

● Switch bracket set

SCA2 - TS - 40

- TS: Bracket
- 40: Bore size (Item Ⓑ previous page)

(T2YD type switch)

● Switch body + mounting bracket

SCA2 - T2YD - 40

- T2YD: Switch model no. (Item Ⓖ previous page)
- 40: Bore size (Item Ⓑ previous page)

● Only switch body

SW - T2YD

- T2YD: Switch model no. (Item Ⓖ previous page)

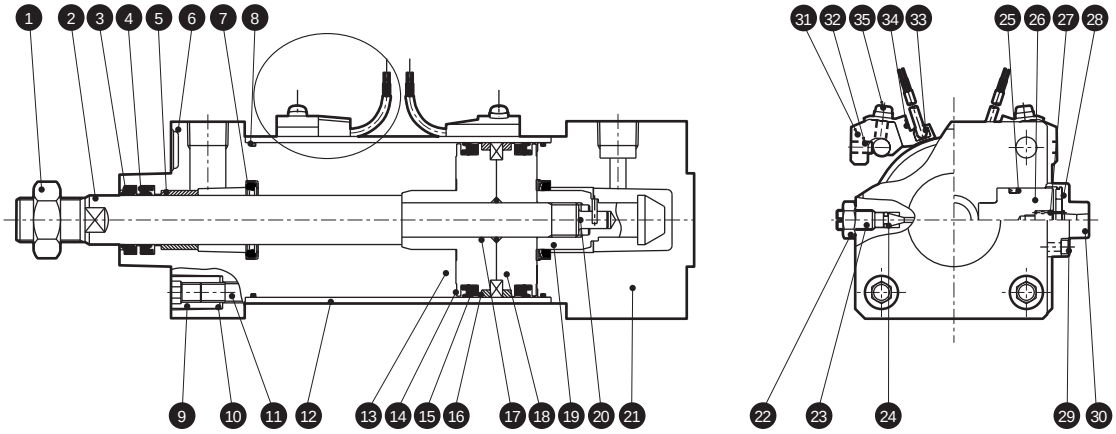
● Mounting bracket

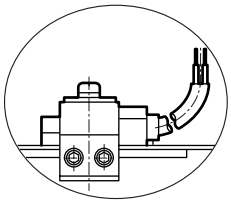
SCA2 - T - 40

- 40: Bore size (Item Ⓑ previous page)

Internal structure and parts list

● SCA2-Q2 (with switch)





R type switch

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

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

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

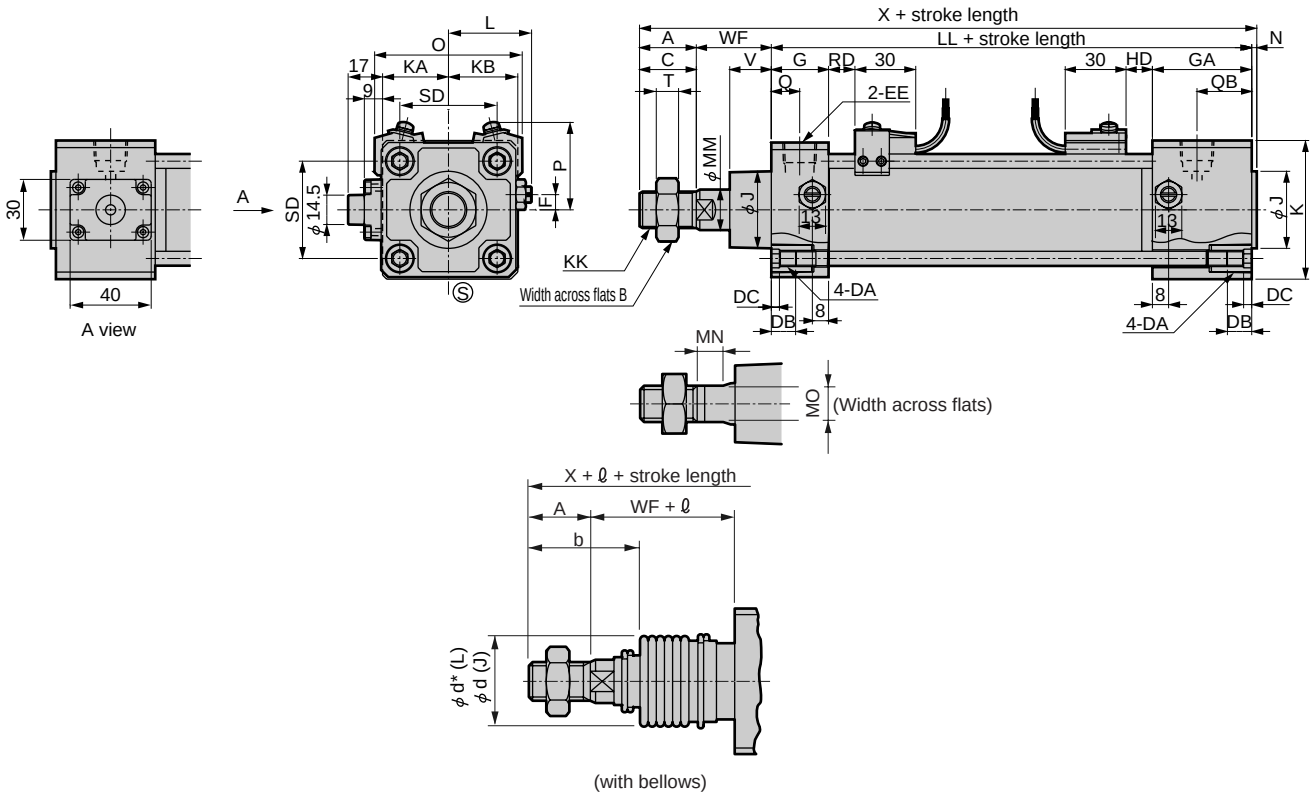
Repair parts list

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

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

Dimensions

● Basic type (00) head end position locking



Symbol	Basic type (00)																					
Bore size (mm)	A	B	C	DA	DB	DC	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA
ϕ40	22	22	20	M8	12	4	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	2	13
ϕ50	28	27	26	M8	12	4	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14
ϕ63	28	27	26	M8	12	4	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15
ϕ80	36	32	34	M12	16	5	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17
ϕ100	45	41	43	M12	16	5	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18

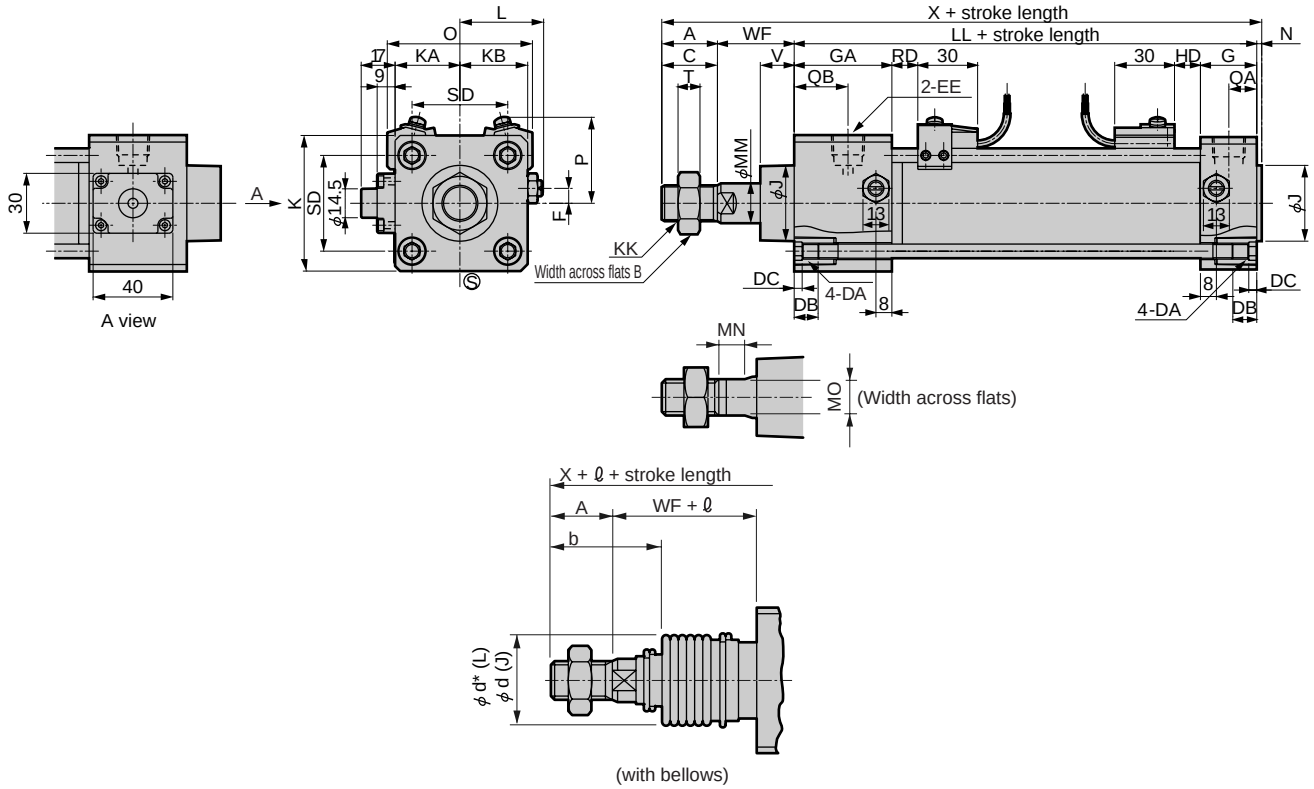
Symbol	With switch														With bellows						
Bore size (mm)	QB	SD	T	V	WF	X	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YF/M, T3YF/M		T8		X	b	d	d*	ℓ		
									RD	HD	RD	HD	RD	HD					50 or less	50 to 100	100 to 150
ϕ40	26	40.5	8	18.5	33.5	178	66	41.5	11	15.5	10	14.5	5	9.5	178	41	40	40	25.5	41.5	58.5
ϕ50	27	48	11	20.5	37	194.5	73	43	13	18	12	17	7	12	194.5	47	47	48	22	36	49
ϕ63	28	59	11	21	35	196	85	47	13	19	12	18	7	13	196	45	47	48	22	36	49
ϕ80	27	74	13	23.5	48	231.5	105	57	14.5	23.5	13.5	22.5	8.5	17.5	231.5	58.5	53	55	14	26	38
ϕ100	27	90	16	32	53	258	121	63	18.5	29.5	17.5	28.5	12.5	23.5	258	69.5	61	65	20	32	42

Symbol	ℓ				
Bore size (mm)	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
ϕ40	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
ϕ50	63	90	119	146	(stroke length/3.6) + 7.5
ϕ63	63	90	119	146	(stroke length/3.6) + 7.5
ϕ80	49	72	96	119	(stroke length/4.3) + 2.5
ϕ100	53	76	98	120	(stroke length/4.5) + 9

Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

● Basic type (00) rod end position locking



Symbol	Basic type (00)																					
Bore size (mm)	A	B	C	DA	DB	DC	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA
φ40	22	22	20	M8	12	4	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	2	13
φ50	28	27	26	M8	12	4	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14
φ63	28	27	26	M8	12	4	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15
φ80	36	32	34	M12	16	5	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17
φ100	45	41	43	M12	16	5	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18

Symbol	With switch														With bellows						
Bore size (mm)	QB	SD	T	V	WF	X	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YF/M, T3YF/M		T8		X	b	d	d*	ℓ		
									RD	HD	RD	HD	RD	HD					50 or less	50 to 100	100 to 150
φ40	26	40.5	8	18.5	33.5	178	66	41.5	15.5	11	14.5	10	9.5	5	178	41	40	40	25.5	41.5	58.5
φ50	27	48	11	17	33.5	191	73	43	18	13	17	12	12	7	191	47	47	48	22	36	49
φ63	28	59	11	17	31	192	85	47	19	13	18	12	13	7	192	45	47	48	22	36	49
φ80	27	74	13	18.5	43	226.5	105	57	23.5	14.5	22.5	13.5	17.5	8.5	226.5	58.5	53	55	14	26	38
φ100	27	90	16	29	50	255	121	63	29.5	18.5	28.5	17.5	23.5	12.5	255	69.5	61	65	20	32	42

Symbol	ℓ					
Bore size (mm)	150 to 200	200 to 300	300 to 400	400 to 500	Over 500	
φ40	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	
φ50	63	90	119	146	(stroke length/3.6) + 7.5	
φ63	63	90	119	146	(stroke length/3.6) + 7.5	
φ80	49	72	96	119	(stroke length/4.3) + 2.5	
φ100	53	76	98	120	(stroke length/4.5) + 9	

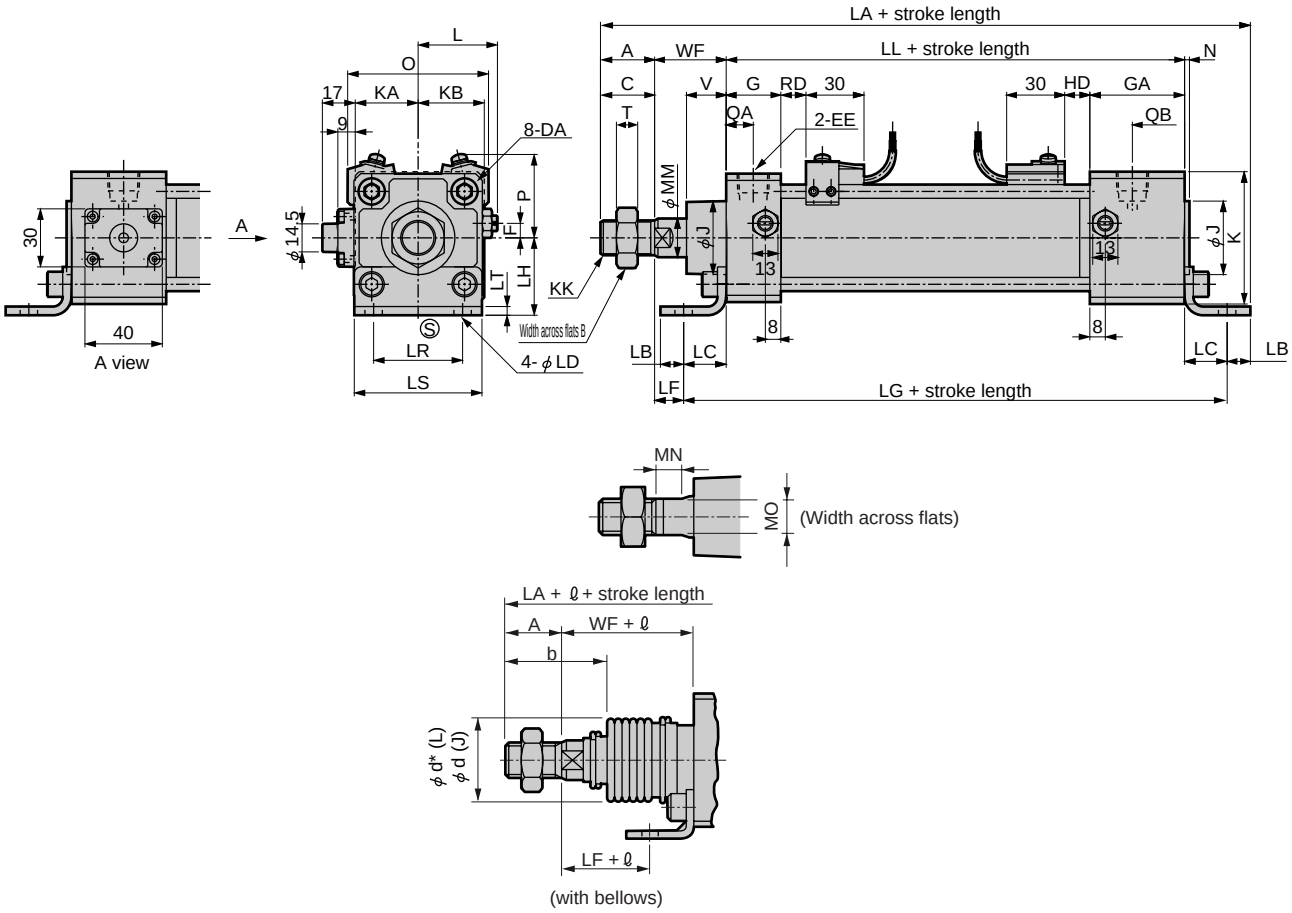
Note 1: For ℓ dimensions, round up decimal places.

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

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

Dimensions

● Axial foot type (LB) head end position locking



Symbol	Axial foot type (LB) (unit: mm)																					
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB	
φ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	2	13	26	
φ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14	27	
φ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15	28	
φ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17	27	
φ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18	27	

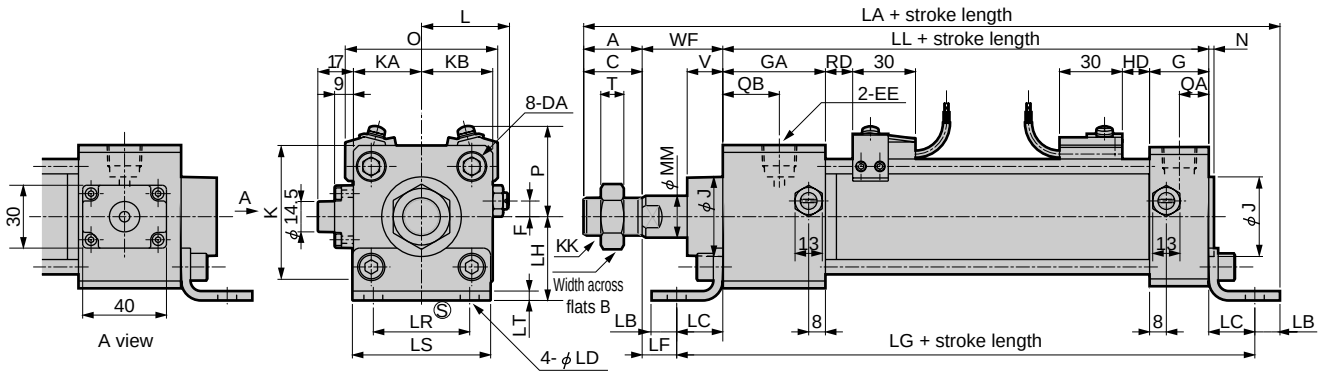
Symbol														With switch									With bellows		
Bore size (mm)	T	V	WF	LA	LB	LC	LD	LF	LG	LH	LR	LS	LT	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YF/M, T3YF/M		T8		X	b	d
																RD	HD	RD	HD	RD	HD			
φ40	8	18.5	33.5	205.5	10	19.5	9	14	159.5	40	40	57	3.2	66	41.5	11	15.5	10	14.5	5	9.5	178	41	40
φ50	11	20.5	37	226	12	22	9	15	171	40	46	66	4.5	73	43	13	18	12	17	7	12	194.5	47	47
φ63	11	21	35	235	12	30	11	5	190	50	60	80	4.5	85	47	13	19	12	18	7	13	196	45	47
φ80	13	23.5	48	279	14	37	14	11	218	60	74	98	6.0	105	57	14.5	23.5	13.5	22.5	8.5	17.5	231.5	58.5	53
φ100	16	32	53	306	21	31	14	22	218	67	80	118	6.0	121	63	18.5	29.5	17.5	28.5	12.5	23.5	258	69.5	61

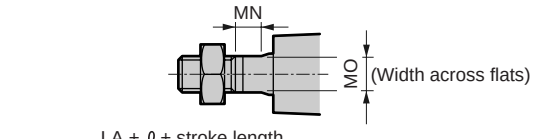
Symbol										
Bore size (mm)	d*	ℓ								
		50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500	
φ40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	
φ50	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	
φ63	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	
φ80	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	
φ100	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	

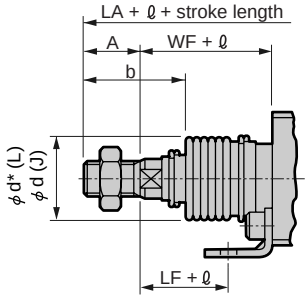
Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

● Axial foot type (LB) rod end position locking







(with bellows)

Symbol	Axial foot type (LB) (unit: mm)																				
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB
ϕ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	2	13	26
ϕ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14	27
ϕ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15	28
ϕ80	36	31	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17	27
ϕ100	45	42	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18	27

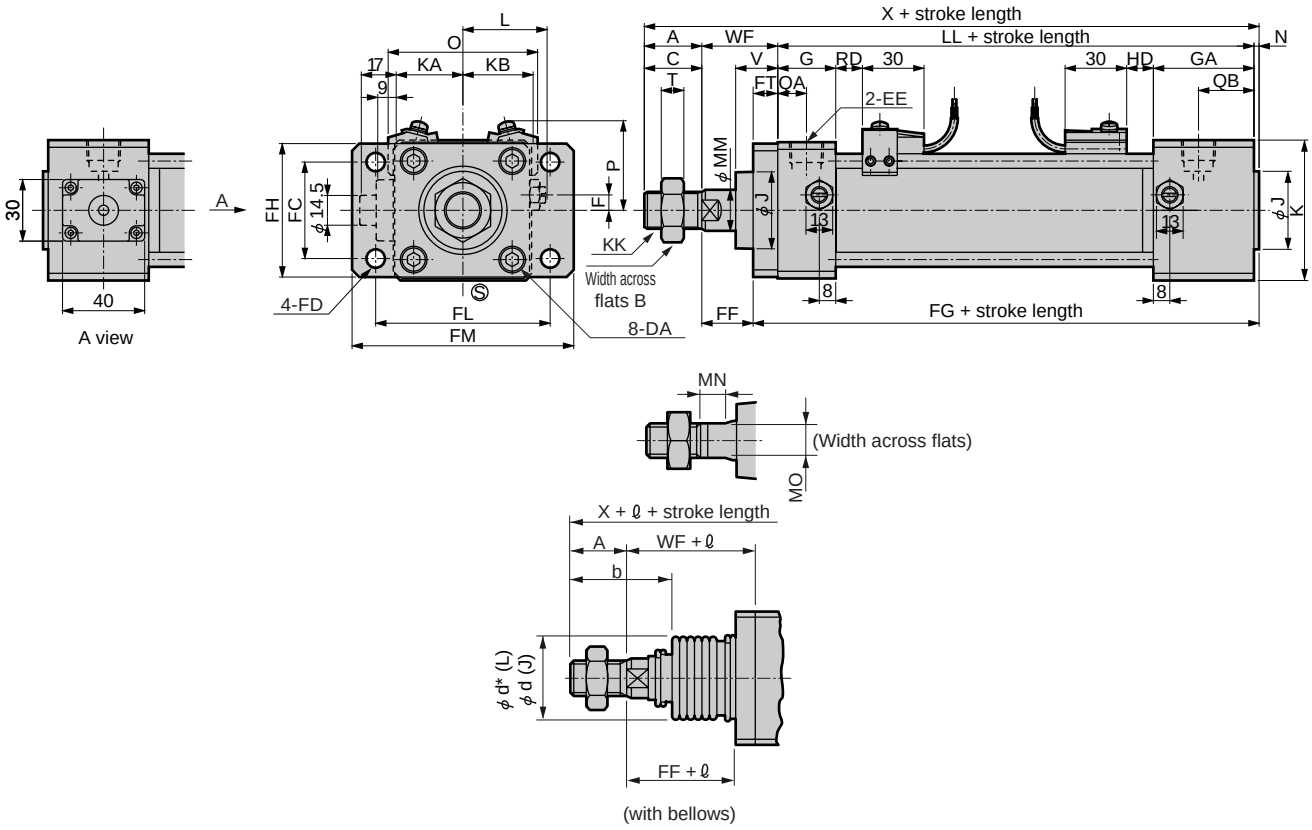
Symbol													With switch								With bellows		
Bore size (mm)	T	V	WF	LA	LB	LC	LD	LF	LG	LH	LR	LS	LT	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YF/M, T3YF/M		T8		X	b	d
																RD	HD	RD	HD	RD	HD			
ϕ40	8	18.5	33.5	205.5	10	19.5	9	14	159.5	40	40	57	3.2	66	41.5	15.5	11	14.5	10	9.5	5	178	41	40
ϕ50	11	17	33.5	222.5	12	22	9	11.5	171	40	46	66	4.5	73	43	18	13	17	12	12	7	191	47	47
ϕ63	11	17	31	231	12	30	11	1	190	50	60	80	4.5	85	47	19	13	18	12	13	7	192	45	47
ϕ80	13	18.5	43	274	14	37	14	6	218	60	74	98	6.0	105	57	23.5	14.5	22.5	13.5	17.5	8.5	226.5	58.5	53
ϕ100	16	29	50	303	21	31	14	19	218	67	80	118	6.0	121	63	29.5	18.5	28.5	17.5	23.5	12.5	255	69.5	61

Symbol										
Bore size (mm)	d*	ℓ								
		50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500	
ϕ40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	
ϕ50	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	
ϕ63	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	
ϕ80	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	
ϕ100	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	

Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

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



Symbol	Rod end flange type (FA) (Unit: mm)																				
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB
φ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	2	13	26
φ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14	27
φ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15	28
φ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17	27
φ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18	27

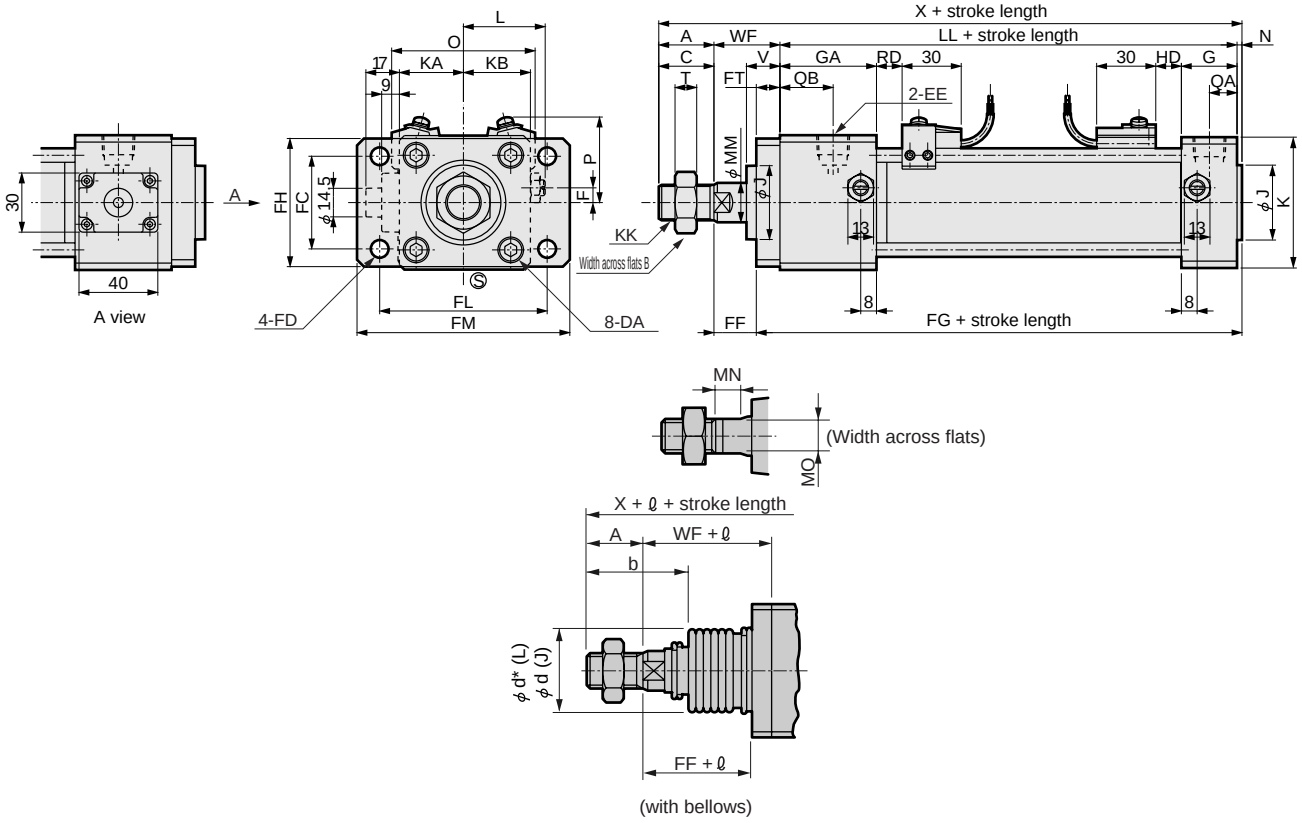
Symbol													With switch								With bellows			
Bore size (mm)	T	V	WF	X	FC	FD	FF	FG	FH	FL	FM	FT	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YF/M, T3YF/M		T8		X	b	d	d*
															RD	HD	RD	HD	RD	HD				
φ40	8	18.5	33.5	178	40	9	21.5	134.5	57	80	100	12	66	41.5	11	15.5	10	14.5	5	9.5	178	41	40	40
φ50	11	20.5	37	194.5	47	9	25	141.5	65	85	108	12	73	43	13	18	12	17	7	12	194.5	47	47	48
φ63	11	21	35	196	60	11	19	149	80	106	130	16	85	47	13	19	12	18	7	13	196	45	47	48
φ80	13	23.5	48	231.5	74	14	29	166.5	98	125	153	19	105	57	14.5	23.5	13.5	22.5	8.5	17.5	231.5	58.5	53	55
φ100	16	32	53	258	88	14	34	179	118	144	180	19	121	63	18.5	29.5	17.5	28.5	12.5	23.5	258	69.5	61	65

Symbol	ℓ							
Bore size (mm)	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
φ40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
φ50	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
φ63	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
φ80	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5
φ100	20	32	42	53	76	98	120	(stroke length/4.5) + 9

Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.
Note 2: Refer to page 598, 599 for accessory dimensions.

Dimensions

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



Symbol	Rod end flange type (FA) (Unit: mm)																				
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB
φ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	2	13	26
φ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14	27
φ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15	28
φ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17	27
φ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18	27

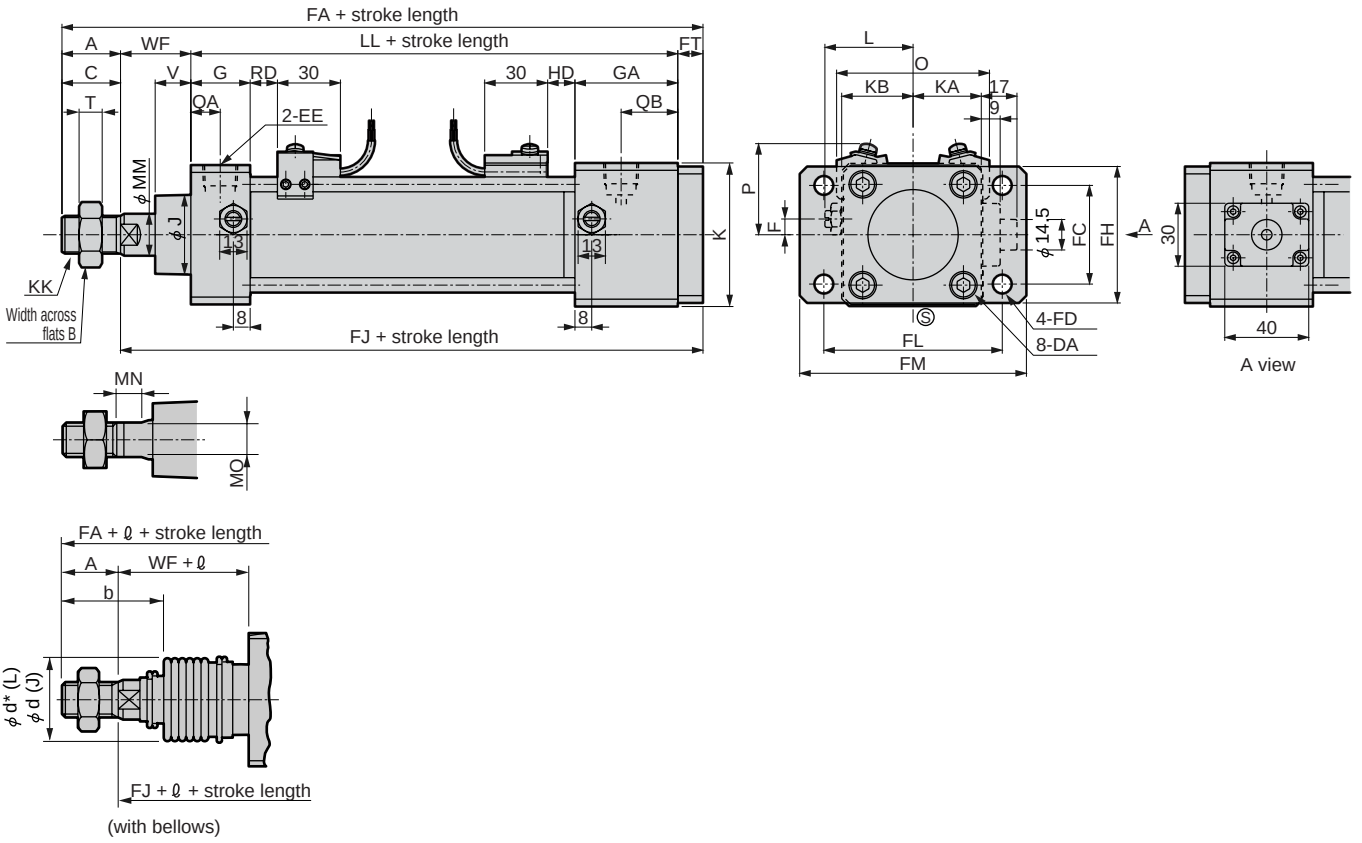
Symbol													With switch								With bellows			
Bore size (mm)	T	V	WF	X	FC	FD	FF	FG	FH	FL	FM	FT	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YF/M, T3YF/M		T8		X	b	d	d*
															RD	HD	RD	HD	RD	HD				
φ40	8	18.5	33.5	178	40	9	21.5	134.5	57	80	100	12	66	41.5	15.5	11	14.5	10	9.5	5	178	41	40	40
φ50	11	17	33.5	191	47	9	21.5	141.5	65	85	108	12	73	43	18	13	17	12	12	7	191	47	47	48
φ63	11	17	31	192	60	11	15	149	80	106	130	16	85	47	19	13	18	12	13	7	192	45	47	48
φ80	13	18.5	43	226.5	74	14	24	166.5	98	125	153	19	105	57	23.5	14.5	22.5	13.5	17.5	8.5	226.5	58.5	53	55
φ100	16	29	50	255	88	14	31	179	118	144	180	19	121	63	29.5	18.5	28.5	17.5	23.5	12.5	255	69.5	61	65

Symbol	ℓ								
Bore size (mm)	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500	
φ40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	
φ50	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	
φ63	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	
φ80	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	
φ100	20	32	42	53	76	98	120	(stroke length/4.5) + 9	

Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

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



Symbol / Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	QA	QB	T
	Head end flange type (FB) (unit: mm)																				
ϕ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	13	26	8
ϕ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	14	27	11
ϕ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	15	28	11
ϕ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	17	27	13
ϕ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	18	27	16

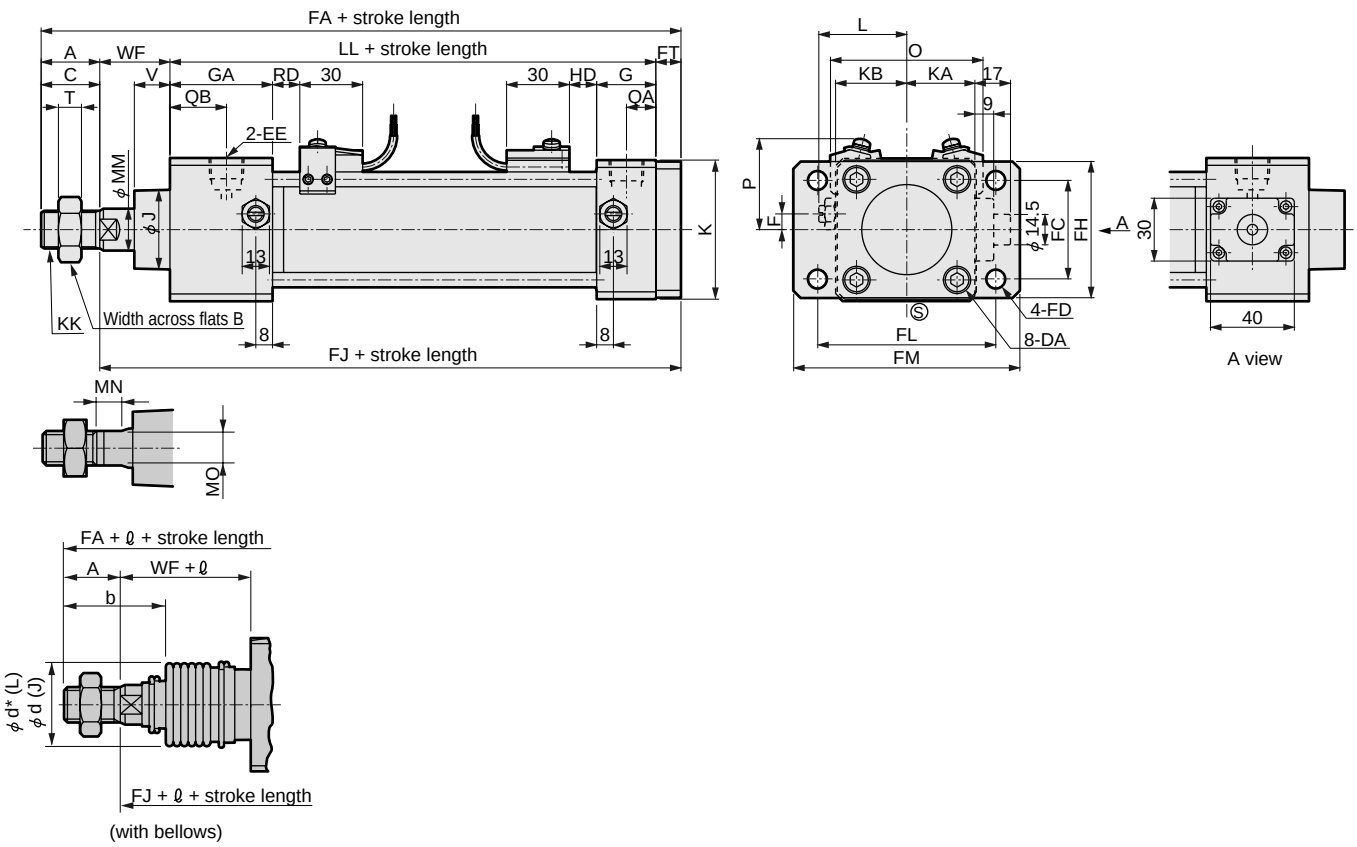
Symbol / Bore size (mm)	V	WF	FA	FC	FD	FJ	FH	FL	FM	FT	With switch: O	P	T0, T5, T2, T3 RD	T0, T5, T2, T3 HD	T1, T2Y, T3Y T2YF/M, T3YF/M RD	T1, T2Y, T3Y T2YF/M, T3YF/M HD	T8 RD	T8 HD	With bellows: X	b	d	d*	ℓ 50 or less
ϕ40	18.5	33.5	188	40	9	166	57	80	100	12	66	41.5	11	15.5	10	14.5	5	9.5	178	41	40	40	25.5
ϕ50	20.5	37	204	47	9	176	65	85	108	12	73	43	13	18	12	17	7	12	194.5	47	47	48	22
ϕ63	21	35	209	60	11	181	80	106	130	16	85	47	13	19	12	18	7	13	196	45	47	48	22
ϕ80	23.5	48	247	74	14	211	98	125	153	19	105	57	14.5	23.5	13.5	22.5	8.5	17.5	231.5	58.5	53	55	14
ϕ100	32	53	273	88	14	228	118	144	180	19	121	63	18.5	29.5	17.5	28.5	12.5	23.5	258	69.5	61	65	20

Symbol / Bore size (mm)	ℓ 50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
ϕ40	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
ϕ50	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ63	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ80	26	38	49	72	96	119	(stroke length/4.3) + 2.5
ϕ100	32	42	53	76	98	120	(stroke length/4.5) + 9

Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

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



Symbol / Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	QA	QB	T
Head end flange type (FB) (unit: mm)																					
ϕ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	13	26	8
ϕ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	14	27	11
ϕ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	15	28	11
ϕ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	17	27	13
ϕ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	18	27	16

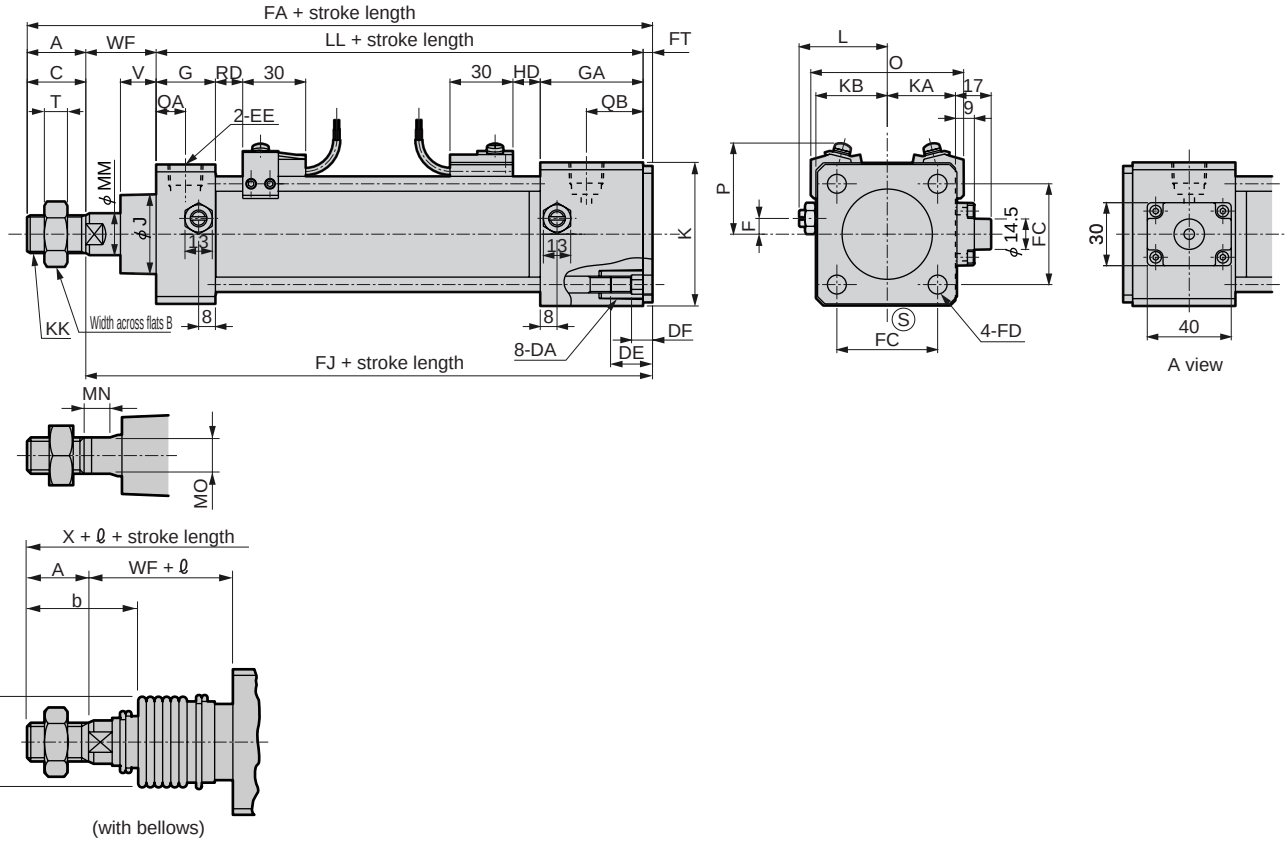
Symbol / Bore size (mm)	V	WF	FA	FC	FD	FJ	FH	FL	FM	FT	With switch: O	P	T0, T5, T2, T3 RD	T0, T5, T2, T3 HD	T1, T2Y, T3Y T2YF/M, T3YF/M RD	T1, T2Y, T3Y T2YF/M, T3YF/M HD	T8 RD	T8 HD	With bellows: X	b	d	d*	ℓ 50 or less
ϕ40	18.5	33.5	188	40	9	166	57	80	100	12	66	41.5	15.5	11	14.5	10	9.5	5	178	41	40	40	25.5
ϕ50	17	33.5	200.5	47	9	172.5	65	85	108	12	73	43	18	13	17	12	12	7	191	47	47	48	22
ϕ63	17	31	205	60	11	177	80	106	130	16	85	47	19	13	18	12	13	7	192	45	47	48	22
ϕ80	18.5	43	242	74	14	206	98	125	153	19	105	57	23.5	14.5	22.5	13.5	17.5	8.5	226.5	58.5	53	55	14
ϕ100	29	50	270	88	14	225	118	144	180	19	121	63	29.5	18.5	28.5	17.5	23.5	12.5	255	69.5	61	65	20

Symbol / Bore size (mm)	ℓ 50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
ϕ40	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
ϕ50	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ63	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ80	26	38	49	72	96	119	(stroke length/4.3) + 2.5
ϕ100	32	42	53	76	98	120	(stroke length/4.5) + 9

Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.
Note 2: Refer to page 598, 599 for accessory dimensions.

Dimensions

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



Symbol	Special head end flange type (FC) (unit: mm)																				
Bore size (mm)	A	B	C	DA	DE	DF	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	QA
ϕ40	22	22	20	M8	16.5	8.5	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	13
ϕ50	28	27	26	M8	16.5	8.5	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	14
ϕ63	28	27	26	M8	16.5	8.5	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	15
ϕ80	36	32	34	M12	22	11	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	17
ϕ100	45	41	43	M12	22	11	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	18

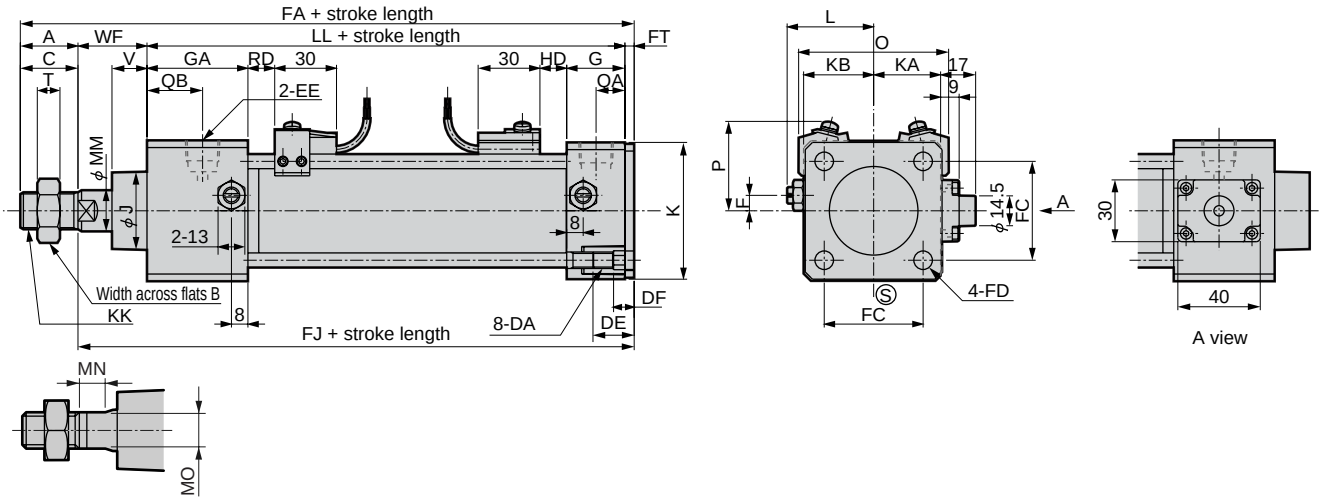
Symbol										With switch								With bellows					
Bore size (mm)	QB	T	V	WF	FA	FC	FD	FJ	FT	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YF/M, T3YF/M		T8		X	b	d	d*	ℓ	
												RD	HD	RD	HD	RD	HD					50 or less	
ϕ40	26	8	18.5	33.5	180.5	40.5	9	158.5	4.5	66	41.5	11	15.5	10	14.5	5	9.5	178	41	40	40	25.5	
ϕ50	27	11	20.5	37	196.5	48	9	168.5	4.5	73	43	13	18	12	17	7	12	194.5	47	47	48	22	
ϕ63	28	11	21	35	197.5	59	9	169.5	4.5	85	47	13	19	12	18	7	13	196	45	47	48	22	
ϕ80	27	13	23.5	48	234	74	14	198	6	105	57	14.5	23.5	13.5	22.5	8.5	17.5	231.5	58.5	53	55	14	
ϕ100	27	16	32	53	260	90	14	215	6	121	63	18.5	29.5	17.5	28.5	12.5	23.5	258	69.5	61	65	20	

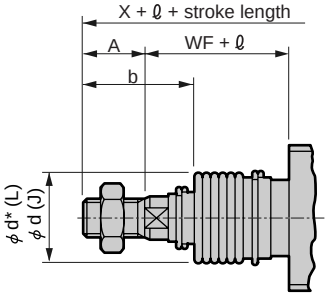
Symbol	ℓ						
Bore size (mm)	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
ϕ40	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
ϕ50	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ63	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ80	26	38	49	72	96	119	(stroke length/4.3) + 2.5
ϕ100	32	42	53	76	98	120	(stroke length/4.5) + 9

Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

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





(with bellows)

Symbol	Special head end flange type (FC) (unit: mm)																				
Bore size (mm)	A	B	C	DA	DE	DF	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	QA
ϕ40	22	22	20	M8	19	10	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	13
ϕ50	28	27	26	M8	20	10	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	14
ϕ63	28	27	26	M8	20	10	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	15
ϕ80	36	32	34	M12	22	11	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	17
ϕ100	45	41	43	M12	22	11	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	18

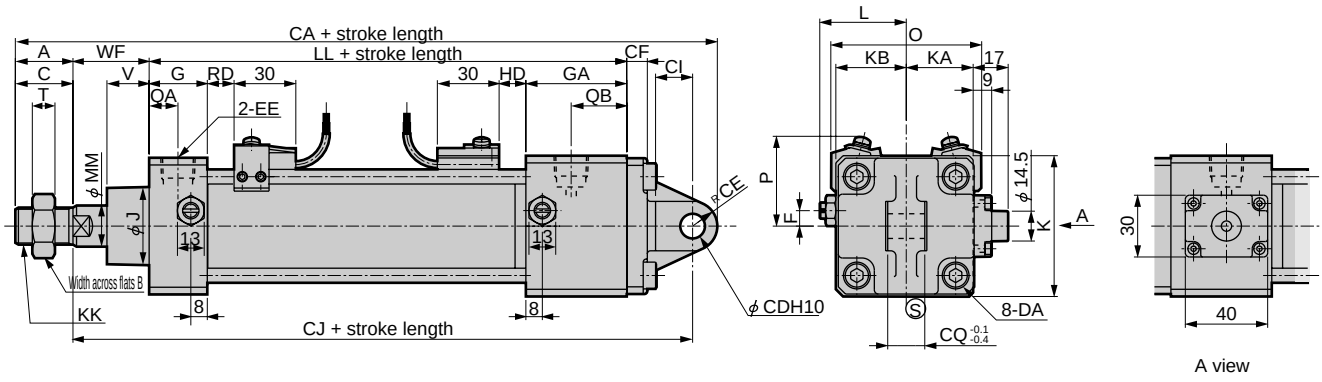
Symbol										With switch								With bellows					
Bore size (mm)	QB	T	V	WF	FA	FC	FD	FJ	FT	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YF/M, T3YF/M		T8		X	b	d	d*	ℓ	
												RD	HD	RD	HD	RD	HD					50 or less	
ϕ40	26	8	18.5	33.5	180.5	40	9	158.5	4.5	66	41.5	15.5	11	14.5	10	9.5	5	178	41	40	40	25.5	
ϕ50	27	11	17	33.5	193	47	9	165	4.5	73	43	18	13	17	12	12	7	191	47	47	48	22	
ϕ63	28	11	17	31	193.5	60	11	165.5	4.5	85	47	19	13	18	12	13	7	192	45	47	48	22	
ϕ80	27	13	18.5	43	229	74	14	193	6	105	57	23.5	14.5	22.5	13.5	17.5	8.5	226.5	58.5	53	55	14	
ϕ100	27	16	29	50	257	88	14	212	6	121	63	29.5	18.5	28.5	17.5	23.5	12.5	255	69.5	61	65	20	

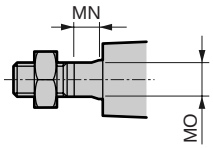
Symbol	ℓ						
Bore size (mm)	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
ϕ40	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
ϕ50	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ63	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ80	26	38	49	72	96	119	(stroke length/4.3) + 2.5
ϕ100	32	42	53	76	98	120	(stroke length/4.5) + 9

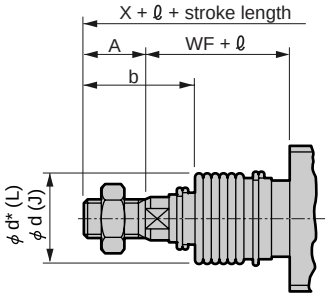
Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

● Eye bracket type (CA) head end position locking







(with bellows)

Symbol	Eye bracket type (CA) (unit: mm)																					
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	QA	QB	T
ϕ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	13	26	8
ϕ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	14	27	11
ϕ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	15	28	11
ϕ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	17	27	13
ϕ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	18	27	16

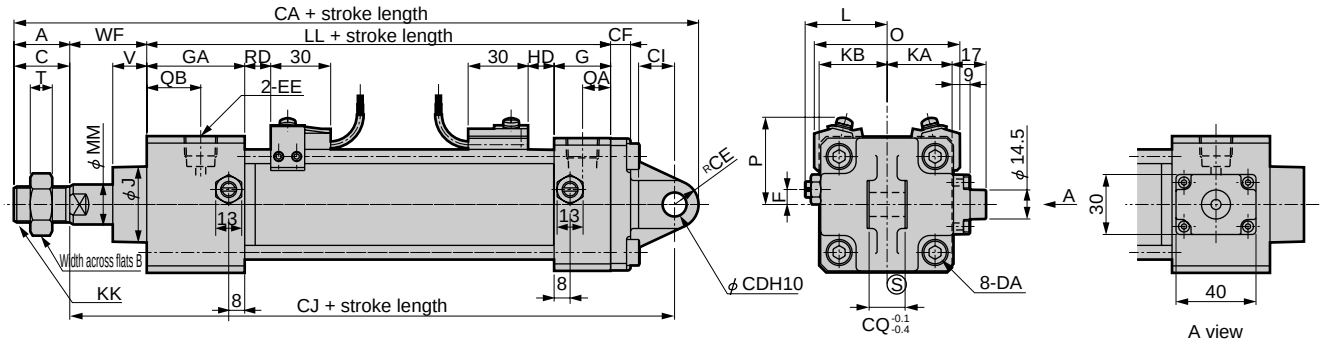
Symbol										With switch								With bellows				
Bore size (mm)	V	WF	CA	CD	CE	CF	CI	CJ	CQ	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YF/M, T3YF/M		T8		X	b	d	d*	ℓ
												RD	HD	RD	HD	RD	HD					50 or less
ϕ40	18.5	33.5	220	$12^{+0.070}_{0}$	12	10	18	186	18	66	41.5	11	15.5	10	14.5	5	9.5	178	41	40	40	25.5
ϕ50	20.5	37	236	$12^{+0.070}_{0}$	12	10	18	196	18	73	43	13	18	12	17	7	12	194.5	47	47	48	22
ϕ63	21	35	246	$14^{+0.070}_{0}$	16	10	24	202	20	85	47	13	19	12	18	7	13	196	45	47	48	22
ϕ80	23.5	48	300	$20^{+0.084}_{0}$	20	14	30	244	28	105	57	14.5	23.5	13.5	22.5	8.5	17.5	231.5	58.5	53	55	14
ϕ100	32	53	326	$20^{+0.084}_{0}$	20	16	30	261	28	121	63	18.5	29.5	17.5	28.5	12.5	23.5	258	69.5	61	65	20

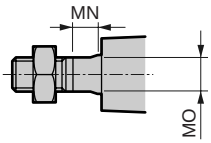
Symbol	ℓ						
Bore size (mm)	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
ϕ40	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
ϕ50	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ63	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ80	26	38	49	72	96	119	(stroke length/4.3) + 2.5
ϕ100	32	42	53	76	98	120	(stroke length/4.5) + 9

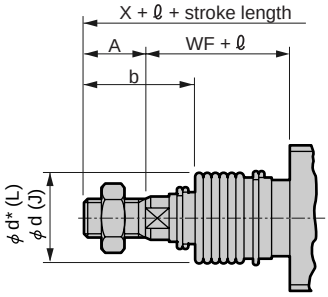
Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

● Eye bracket type (CA) rod end position locking







(with bellows)

Symbol	Eye bracket type (CA) (unit: mm)																				
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	QA	QB	T
ϕ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	13	26	8
ϕ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	14	27	11
ϕ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	15	28	11
ϕ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	17	27	13
ϕ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	18	27	16

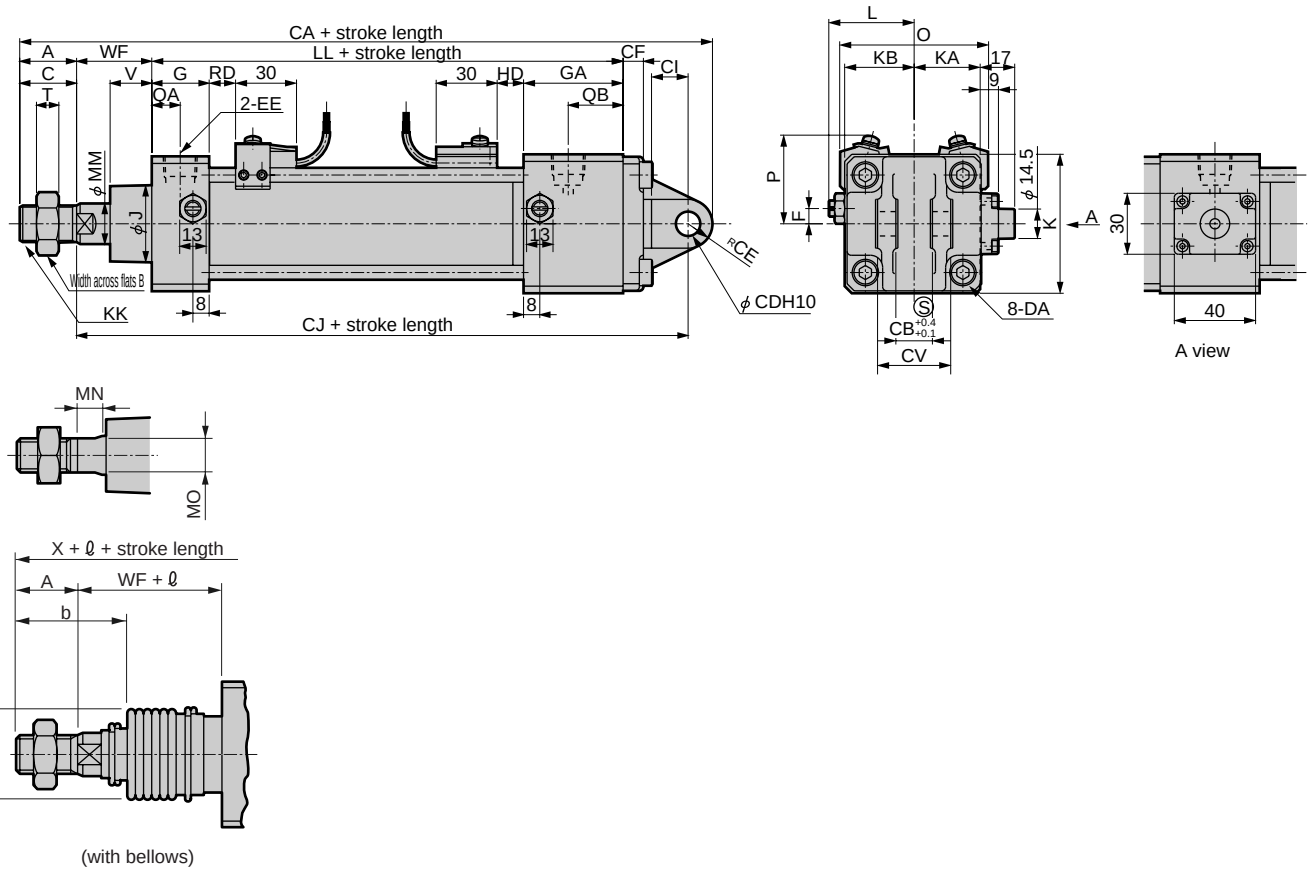
Symbol										With switch								With bellows				
Bore size (mm)	V	WF	CA	CD	CE	CF	CI	CJ	CQ	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YF/M, T3YF/M		T8		X	b	d	d*	ℓ 50 or less
												RD	HD	RD	HD	RD	HD					
ϕ40	18.5	33.5	220	$12^{+0.070}_{0}$	12	10	18	186	18	66	41.5	15.5	11	14.5	10	9.5	5	178	41	40	40	25.5
ϕ50	17	33.5	232.5	$12^{+0.070}_{0}$	12	10	18	192.5	18	73	43	18	13	17	12	12	7	191	47	47	48	22
ϕ63	17	31	242	$14^{+0.070}_{0}$	16	10	24	198	20	85	47	19	13	18	12	13	7	192	45	47	48	22
ϕ80	18.5	43	295	$20^{+0.084}_{0}$	20	14	30	239	28	105	57	23.5	14.5	22.5	13.5	17.5	8.5	226.5	58.5	53	55	14
ϕ100	29	50	323	$20^{+0.084}_{0}$	20	16	30	258	28	121	63	29.5	18.5	28.5	17.5	23.5	12.5	255	69.5	61	65	20

Symbol	ℓ						
Bore size (mm)	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
ϕ40	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
ϕ50	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ63	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ80	26	38	49	72	96	119	(stroke length/4.3) + 2.5
ϕ100	32	42	53	76	98	120	(stroke length/4.5) + 9

Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

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



(with bellows)

Symbol	Clevis bracket type (CB) (unit: mm).																				
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	QA	QB	T
ϕ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	13	26	8
ϕ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	14	27	11
ϕ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	15	28	11
ϕ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	17	27	13
ϕ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	18	27	16

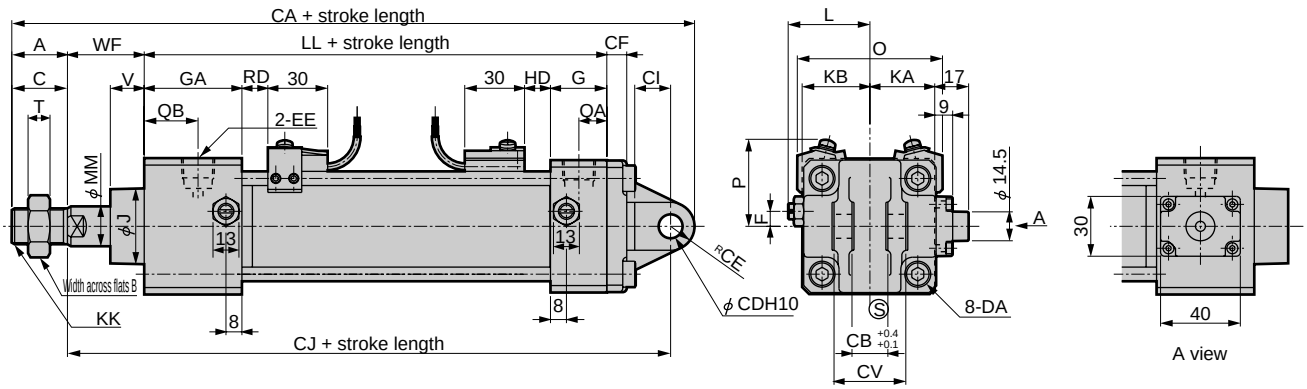
Symbol											With switch								With bellows				
Bore size (mm)	V	WF	CA	CB	CD	CE	CF	CI	CJ	CV	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YF/M, T3YF/M		T8		X	b	d	d*	
													RD	HD	RD	HD	RD	HD					
ϕ40	18.5	33.5	220	18	$12^{+0.070}_{0}$	12	10	18	186	36	66	41.5	11	15.5	10	14.5	5	9.5	178	41	40	40	
ϕ50	20.5	37	236	18	$12^{+0.070}_{0}$	12	10	18	196	36	73	43	13	18	12	17	7	12	194.5	47	47	48	
ϕ63	21	35	246	20	$14^{+0.070}_{0}$	16	10	24	202	40	85	47	13	19	12	18	7	13	196	45	47	48	
ϕ80	23.5	48	300	28	$20^{+0.084}_{0}$	20	14	30	244	56	105	57	14.5	23.5	13.5	22.5	8.5	17.5	231.5	58.5	53	55	
ϕ100	32	53	326	28	$20^{+0.084}_{0}$	20	16	30	261	56	121	63	18.5	29.5	17.5	28.5	12.5	23.5	258	69.5	61	65	

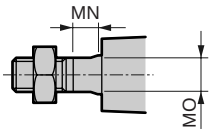
Symbol									
Bore size (mm)	ℓ								
	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500	
ϕ40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	
ϕ50	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	
ϕ63	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	
ϕ80	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	
ϕ100	20	32	42	53	76	98	120	(stroke length/4.5) + 9	

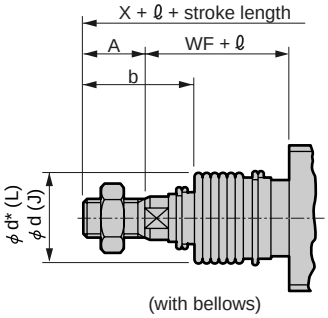
Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

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







(with bellows)

Symbol	Clevis bracket type (CB) (unit: mm).																				
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	QA	QB	T
ϕ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	13	26	8
ϕ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	14	27	11
ϕ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	15	28	11
ϕ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	17	27	13
ϕ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	18	27	16

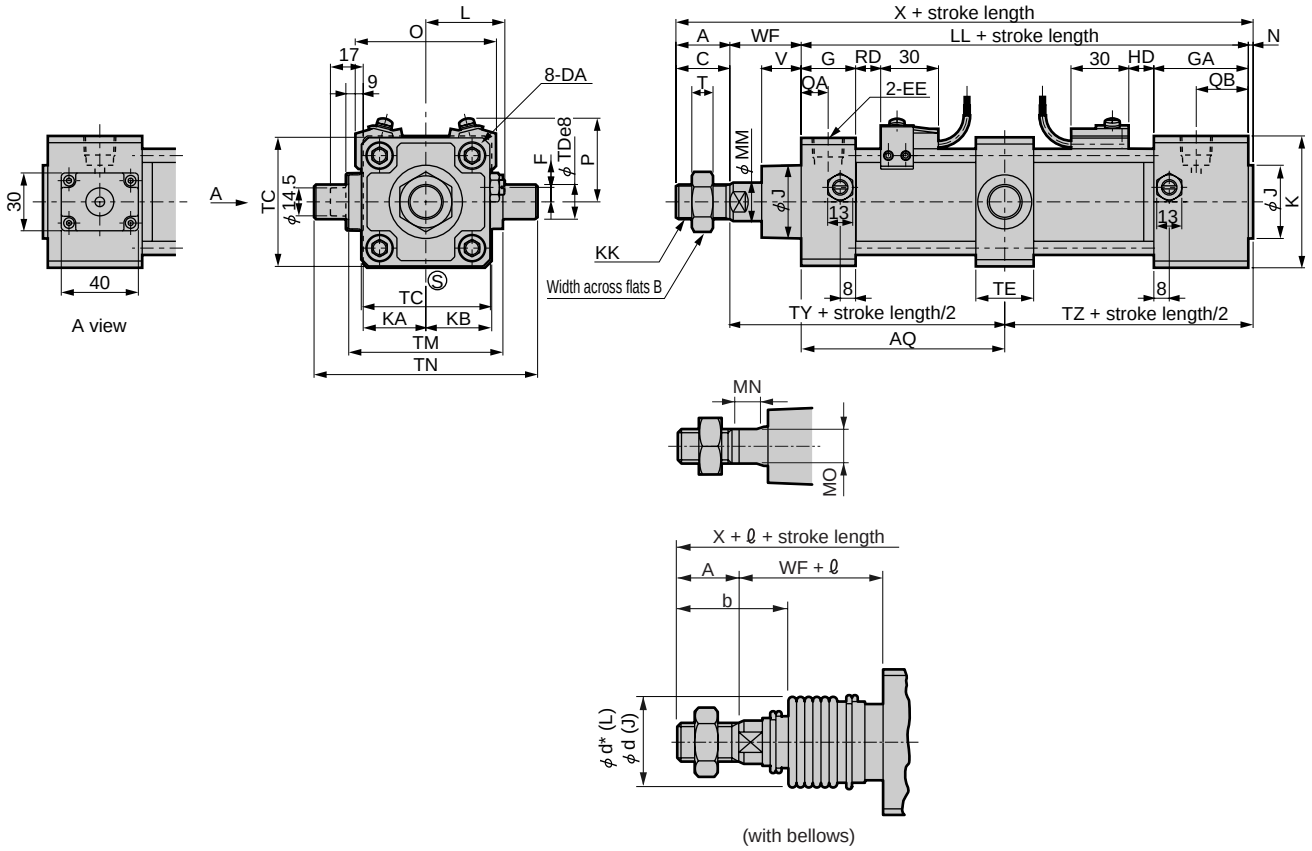
Symbol											With switch								With bellows				
Bore size (mm)	V	WF	CA	CB	CD	CE	CF	CI	CJ	CV	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YF/M, T3YF/M		T8		X	b	d	d*	
													RD	HD	RD	HD	RD	HD					
ϕ40	18.5	33.5	220	18	$12^{+0.070}_{0}$	12	10	18	186	36	66	41.5	15.5	11	14.5	10	9.5	5	178	41	40	40	
ϕ50	17	33.5	232.5	18	$12^{+0.070}_{0}$	12	10	18	192.5	36	73	43	18	13	17	12	12	7	191	47	47	48	
ϕ63	17	31	242	20	$14^{+0.070}_{0}$	16	10	24	198	40	85	47	19	13	18	12	13	7	192	45	47	48	
ϕ80	18.5	43	295	28	$20^{+0.084}_{0}$	20	14	30	239	56	105	57	23.5	14.5	22.5	13.5	17.5	8.5	226.5	58.5	53	55	
ϕ100	29	50	323	28	$20^{+0.084}_{0}$	20	16	30	258	56	121	63	29.5	18.5	28.5	17.5	23.5	12.5	255	69.5	61	65	

Symbol	ℓ							
Bore size (mm)	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
ϕ40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
ϕ50	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ63	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ80	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5
ϕ100	20	32	42	53	76	98	120	(stroke length/4.5) + 9

Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

● Center trunnion type (TC) head end position locking



(with bellows)

Symbol	Center trunnion type (TC) (unit: mm)																				
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB
φ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	2	13	26
φ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14	27
φ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15	28
φ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17	27
φ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18	27

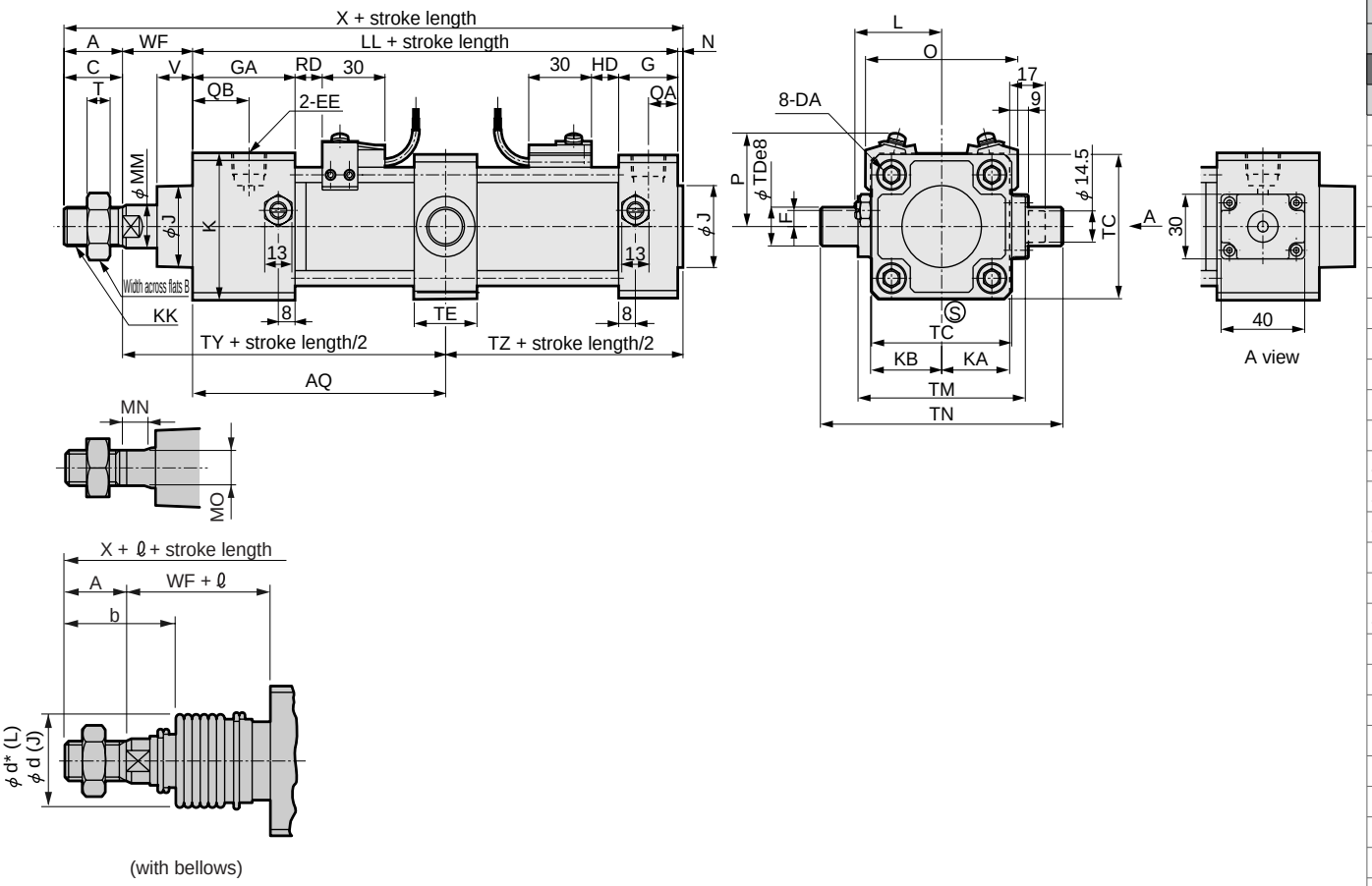
Symbol													With switch								With bellows			
Bore size (mm)	T	V	WF	X	AQ	TC	TD	TE	TM	TN	TY	TZ	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YF/M, T3YF/M		T8		X	b	d	d*
															RD	HD	RD	HD	RD	HD				
φ40	8	18.5	33.5	178	60.5+Stroke length/2	57	16 -0.032 -0.059	30	63	95	94	62	66	41.5	11	15.5	10	14.5	5	9.5	178	41	40	40
φ50	11	20.5	37	194.5	80+Stroke length/2	67	18 -0.032 -0.059	30	80	116	100.5	66	73	43	13	18	12	17	7	12	194.5	47	47	48
φ63	11	21	35	196	65+Stroke length/2	82	20 -0.040 -0.073	35	90	130	100	68	85	47	13	19	12	18	7	13	196	45	47	48
φ80	13	23.5	48	231.5	72+Stroke length/2	100	25 -0.040 -0.073	40	115	165	120	75.5	105	57	14.5	23.5	13.5	22.5	8.5	17.5	231.5	58.5	53	55
φ100	16	32	53	258	78+Stroke length/2	121	35 -0.050 -0.089	50	135	205	131	82	121	63	18.5	29.5	17.5	28.5	12.5	23.5	258	69.5	61	65

Symbol	ℓ								
Bore size (mm)	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500	
φ40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	
φ50	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	
φ63	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	
φ80	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	
φ100	20	32	42	53	76	98	120	(stroke length/4.5) + 9	

Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.
Note 2: Refer to page 598, 599 for accessory dimensions.

Dimensions

● Center trunnion type (TC) rod end position locking



(with bellows)

Symbol	Center trunnion type (TC) (unit: mm)																			
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB
ϕ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	2	13	26
ϕ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14	27
ϕ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15	28
ϕ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17	27
ϕ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18	27

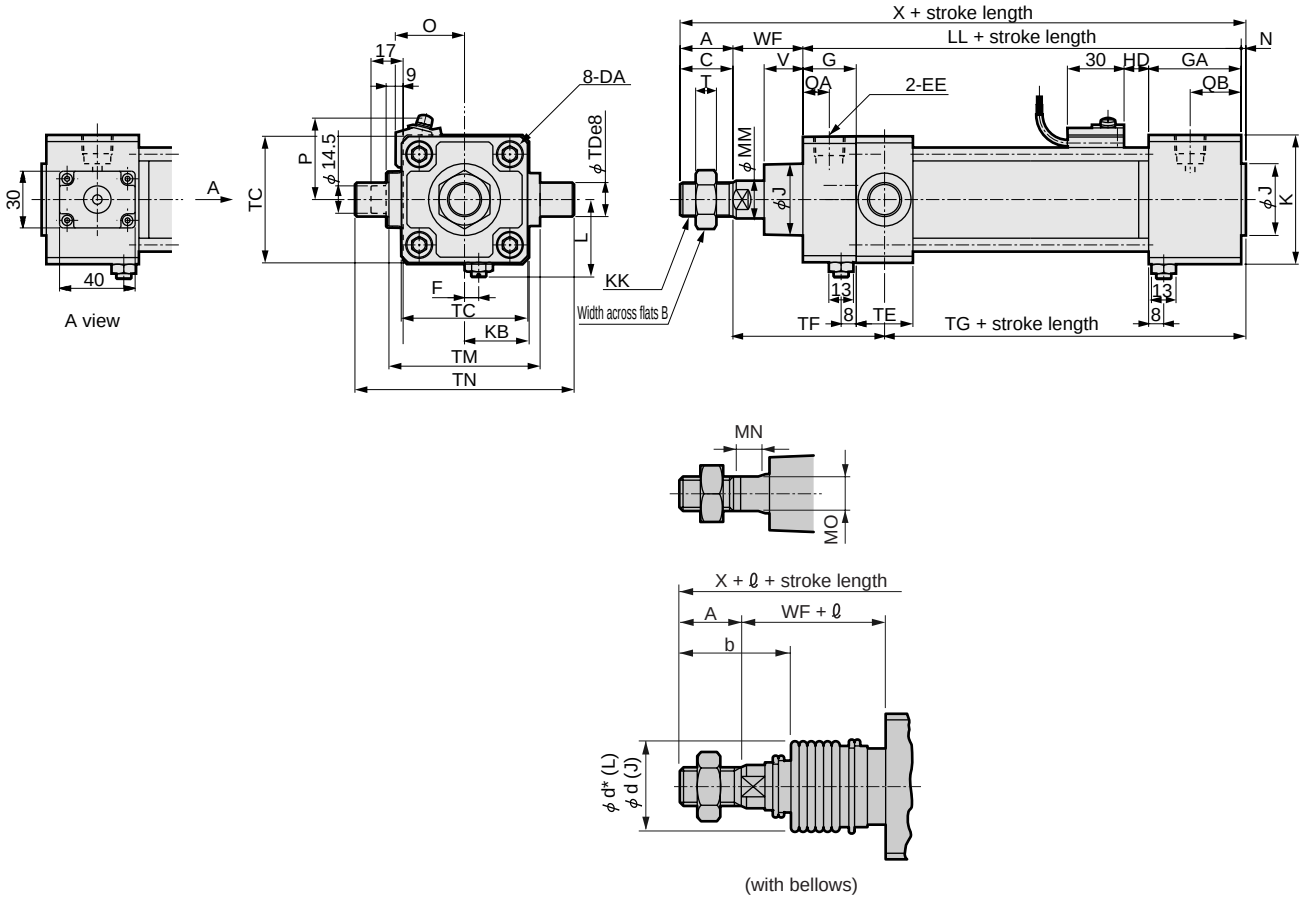
Symbol													With switch								With bellows			
Bore size (mm)	T	V	WF	X	AQ	TC	TD	TE	TM	TN	TY	TZ	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YF/M, T3YF/M		T8		X	b	d	d*
															RD	HD	RD	HD	RD	HD				
ϕ40	8	18.5	33.5	178	$60.5+\frac{\text{Stroke length}}{2}$	57	$16^{-0.032}_{-0.059}$	30	63	95	94	62	66	41.5	15.5	11	14.5	10	9.5	5	178	41	40	40
ϕ50	11	17	33.5	191	$63.5+\frac{\text{Stroke length}}{2}$	67	$18^{-0.032}_{-0.059}$	30	80	116	97	66	73	43	18	13	17	12	12	7	191	47	47	48
ϕ63	11	17	31	192	$65+\frac{\text{Stroke length}}{2}$	82	$20^{-0.040}_{-0.073}$	35	90	130	96	68	85	47	19	13	18	12	13	7	192	45	47	48
ϕ80	13	18.5	43	226.5	$72+\frac{\text{Stroke length}}{2}$	100	$25^{-0.040}_{-0.073}$	40	115	165	115	75.5	105	57	23.5	14.5	22.5	13.5	17.5	8.5	226.5	58.5	53	55
ϕ100	16	29	50	255	$78+\frac{\text{Stroke length}}{2}$	121	$35^{-0.050}_{-0.089}$	50	135	205	128	82	121	63	29.5	18.5	28.5	17.5	23.5	12.5	255	69.5	61	65

Symbol	ℓ								
Bore size (mm)	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500	
ϕ40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	
ϕ50	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	
ϕ63	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	
ϕ80	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	
ϕ100	20	32	42	53	76	98	120	(stroke length/4.5) + 9	

Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

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



Symbol	Rod end trunnion type (TA) (unit: mm)																				
Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB
ϕ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	2	13	26
ϕ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14	27
ϕ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15	28
ϕ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17	27
ϕ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18	27

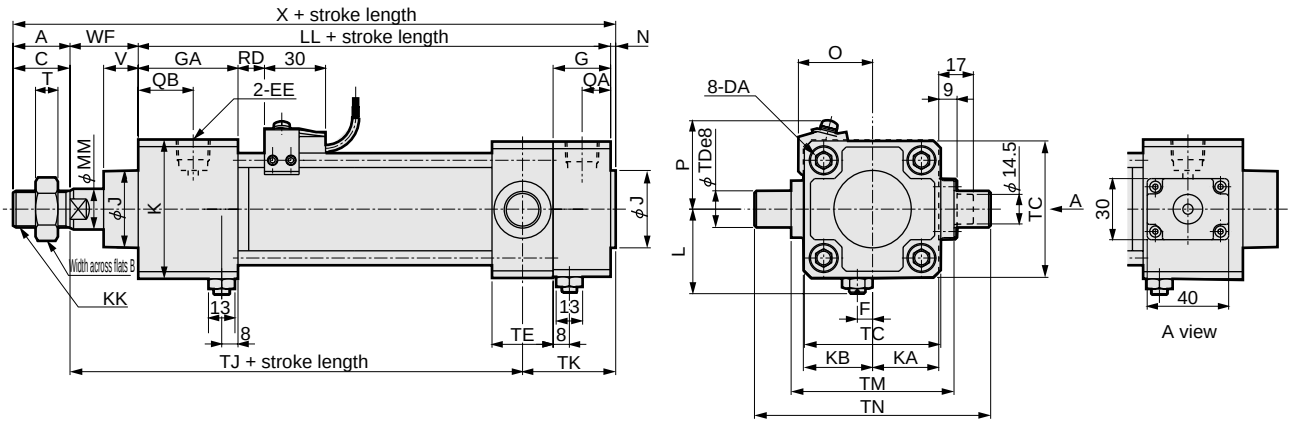
Symbol												With switch					With bellows			
Bore size (mm)	T	V	WF	X	TC	TD	TE	TF	TG	TM	TN	O	P	HD T0, T5, T2, T3	HD T1, T2Y, T3Y T2YF/M, T3YF/M	HD T8	X	b	d	d*
ϕ40	8	18.5	33.5	178	57	16 $^{-0.032}_{-0.059}$	30	74.5	81.5	63	95	66	41.5	15.5	14.5	9.5	178	41	40	40
ϕ50	11	20.5	37	194.5	67	18 $^{-0.032}_{-0.059}$	30	80	86.5	80	116	73	43	18	17	12	194.5	47	47	48
ϕ63	11	21	35	196	82	20 $^{-0.040}_{-0.073}$	35	82.5	85.5	90	130	85	47	19	18	13	196	45	47	48
ϕ80	13	23.5	48	231.5	100	25 $^{-0.040}_{-0.073}$	40	102	93.5	115	165	105	57	23.5	22.5	17.5	231.5	58.5	53	55
ϕ100	16	32	53	258	121	35 $^{-0.050}_{-0.089}$	50	114	99	135	205	121	63	29.5	28.5	23.5	258	69.5	61	65

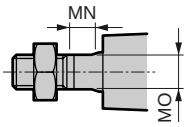
Symbol	ℓ								
Bore size (mm)	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500	
ϕ40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	
ϕ50	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	
ϕ63	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	
ϕ80	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	
ϕ100	20	32	42	53	76	98	120	(stroke length/4.5) + 9	

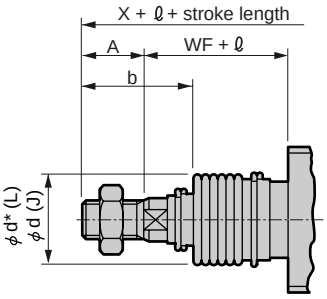
Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.
Note 4: A cushion needle position can not be changed.

Dimensions

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







(with bellows)

Symbol / Bore size (mm)	A	B	C	DA	EE	F	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB
	Head end trunnion type (TB) (unit: mm)																				
ϕ40	22	22	20	M8	Rc1/4	7.5	26	49	31	60	30	30	M14 x 1.5	38 to 39.5	120.5	16	8	14	2	13	26
ϕ50	28	27	26	M8	Rc3/8	0	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14	27
ϕ63	28	27	26	M8	Rc3/8	0	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15	28
ϕ80	36	32	34	M12	Rc1/2	0	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17	27
ϕ100	45	41	43	M12	Rc1/2	0	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18	27

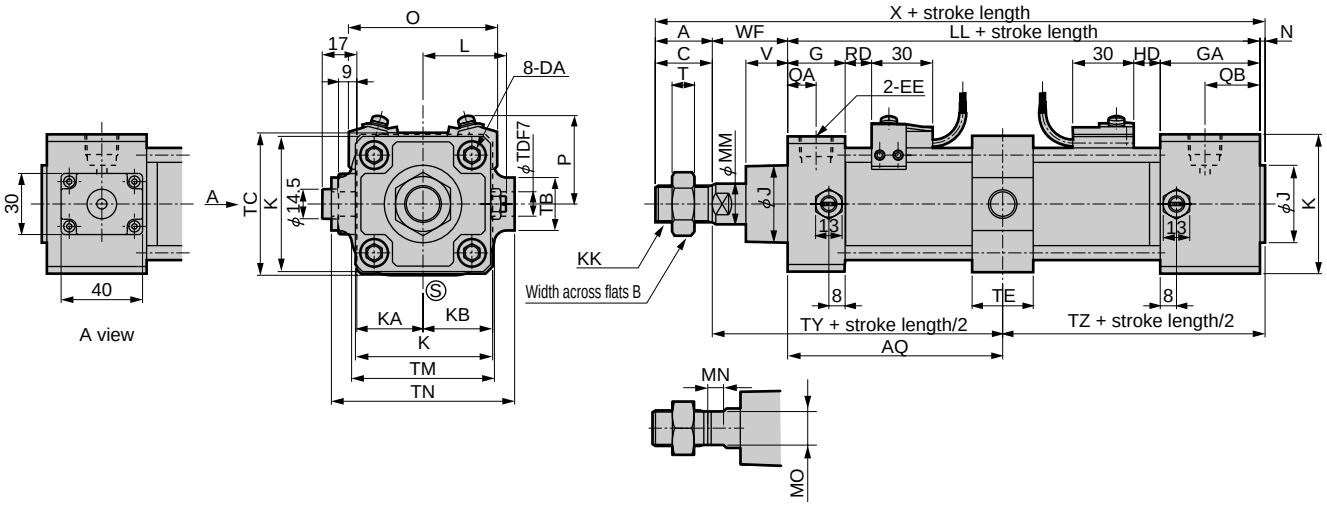
Symbol / Bore size (mm)	T	V	WF	X	TC	TD	TE	TJ	TK	TM	TN	With switch O	With switch P	With switch RD: T0, T5, T2, T3	With switch RD: T1, T2Y, T3Y T2YF/M, T3YF/M	With switch RD: T8	With bellows X	With bellows b	With bellows d	With bellows d*
ϕ40	8	18.5	33.5	178	57	$16^{-0.032}_{-0.059}$	30	112.5	43.5	63	95	66	41.5	15.5	14.5	9.5	178	41	40	40
ϕ50	11	17	33.5	191	67	$18^{-0.032}_{-0.059}$	30	117	46	80	116	73	43	18	17	12	191	47	47	48
ϕ63	11	17	31	192	82	$20^{-0.040}_{-0.073}$	35	113	51	90	130	85	47	19	18	13	192	45	47	48
ϕ80	13	18.5	43	226.5	100	$25^{-0.040}_{-0.073}$	40	132.5	58	115	165	105	57	23.5	22.5	17.5	226.5	58.5	53	55
ϕ100	16	29	50	256	121	$35^{-0.050}_{-0.089}$	50	144.5	65.5	135	205	121	63	29.5	28.5	23.5	255	69.5	61	65

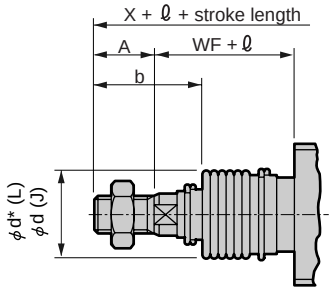
Symbol / Bore size (mm)	ℓ: 50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
ϕ40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
ϕ50	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ63	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ80	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5
ϕ100	20	32	42	53	76	98	120	(stroke length/4.5) + 9

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

Dimensions

● Intermediate supporting hole (TF) head end position locking





(with bellows)

Symbol	Intermediate supporting hole (TF) (unit: mm)																			
Bore size (mm)	A	B	C	DA	EE	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB
φ50	28	27	26	M8	Rc3/8	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14	27
φ63	28	27	26	M8	Rc3/8	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15	28
φ80	36	32	34	M12	Rc1/2	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17	27
φ100	45	41	43	M12	Rc1/2	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18	27

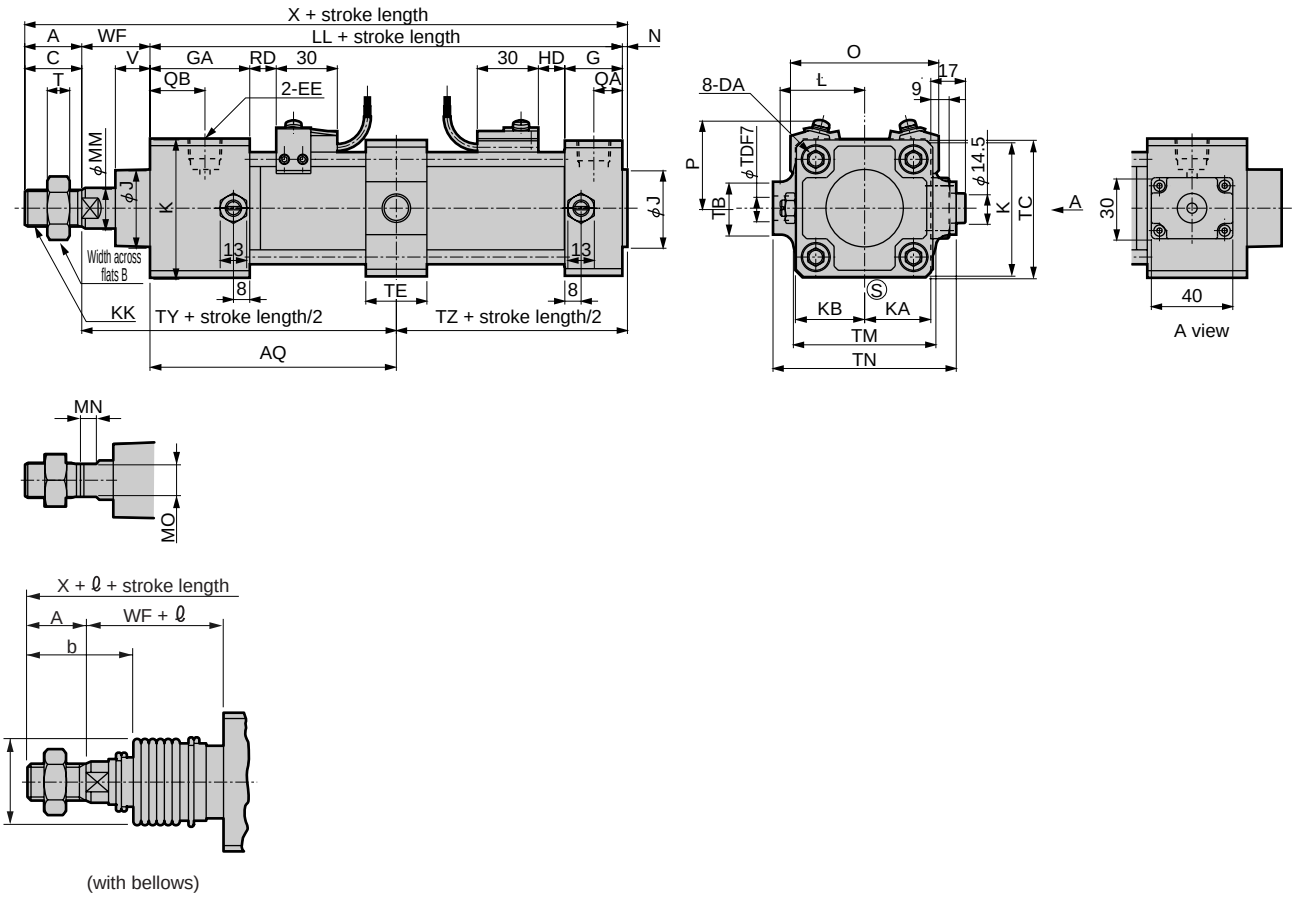
Symbol														With switch								With bellows	
Bore size (mm)	T	V	WF	X	AQ	TB	TC	TD	TE	TM	TN	TY	TZ	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YF/M, T3YF/M		T8		X	b
																RD	HD	RD	HD	RD	HD		
φ50	11	20.5	37	194.5	$63.5+\frac{Stroke}{2}$	26	67	12	30	70	90	97	66	73	43	13	18	12	17	7	12	194.5	47
φ63	11	21	35	196	$65+\frac{Stroke}{2}$	30	82	14	35	86	104	96	68	85	47	13	19	12	18	7	13	196	45
φ80	13	23.5	48	231.5	$72+\frac{Stroke}{2}$	35	100	20	40	105	134	115	75.5	105	57	14.5	23.5	13.5	22.5	8.5	17.5	231.5	58.5
φ100	16	32	53	258	$78+\frac{Stroke}{2}$	40	121	20	40	127	150	128	82	121	63	18.5	29.5	17.5	28.5	12.5	23.5	258	69.5

Symbol			ℓ								
Bore size (mm)	d	d*	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500	
φ50	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	
φ63	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	
φ80	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	
φ100	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	

Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

● Intermediate supporting hole (TF) rod end position locking



(with bellows)

Symbol	Intermediate supporting hole (TF) (unit: mm)																			
Bore size (mm)	A	B	C	DA	EE	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB
ϕ50	28	27	26	M8	Rc3/8	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14	27
ϕ63	28	27	26	M8	Rc3/8	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15	28
ϕ80	36	32	34	M12	Rc1/2	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17	27
ϕ100	45	41	43	M12	Rc1/2	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18	27

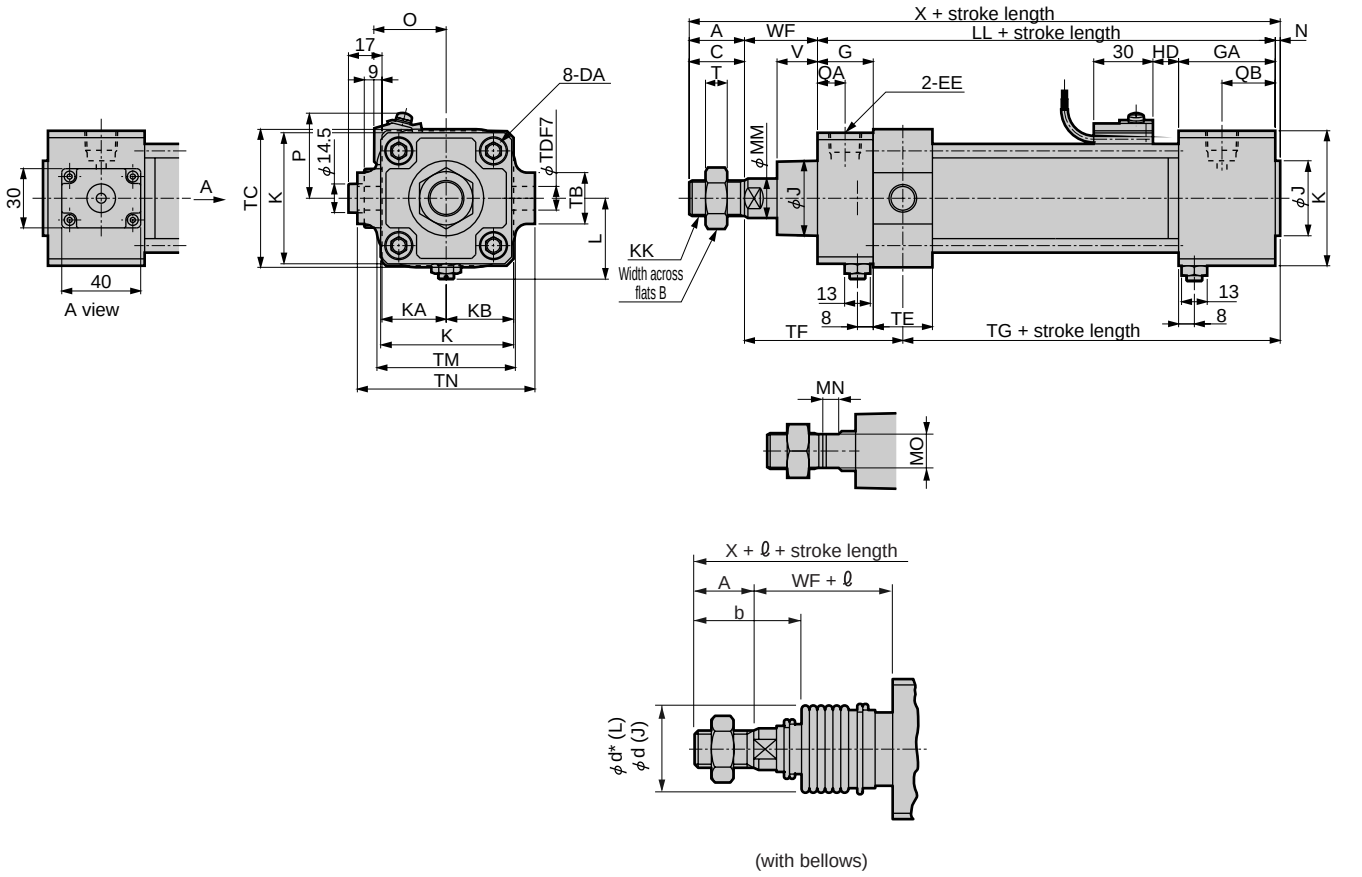
Symbol														With switch									
Bore size (mm)	T	V	WF	X	AQ	TB	TC	TD	TE	TM	TN	TY	TZ	O	P	T0, T5, T2, T3		T1, T2Y, T3Y T2YF/M, T3YF/M		T8			
																RD	HD	RD	HD	RD	HD		
ϕ50	11	17	33.5	191	63.5+Stroke/2	26	67	12	30	70	90	97	66	73	43	18	13	17	12	12	7		
ϕ63	11	17	31	192	65+Stroke/2	30	82	14	35	86	104	96	68	85	47	19	13	18	12	13	7		
ϕ80	13	18.5	43	226.5	72+Stroke/2	35	100	20	40	105	134	115	75.5	105	57	23.5	14.5	22.5	13.5	17.5	8.5		
ϕ100	16	29	50	255	78+Stroke/2	40	121	20	40	127	150	128	82	121	63	29.5	18.5	28.5	17.5	23.5	12.5		

Symbol	With bellows										
Bore size (mm)	b	d	d*	50 or less	ℓ						
					50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
ϕ50	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ63	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ80	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5
ϕ100	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9

Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

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



(with bellows)

Symbol	Rod end supporting hole (TD) (unit: mm)																			
Bore size (mm)	A	B	C	DA	EE	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB
φ50	28	27	26	M8	Rc3/8	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14	27
φ63	28	27	26	M8	Rc3/8	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15	28
φ80	36	32	34	M12	Rc1/2	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17	27
φ100	45	41	43	M12	Rc1/2	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18	27

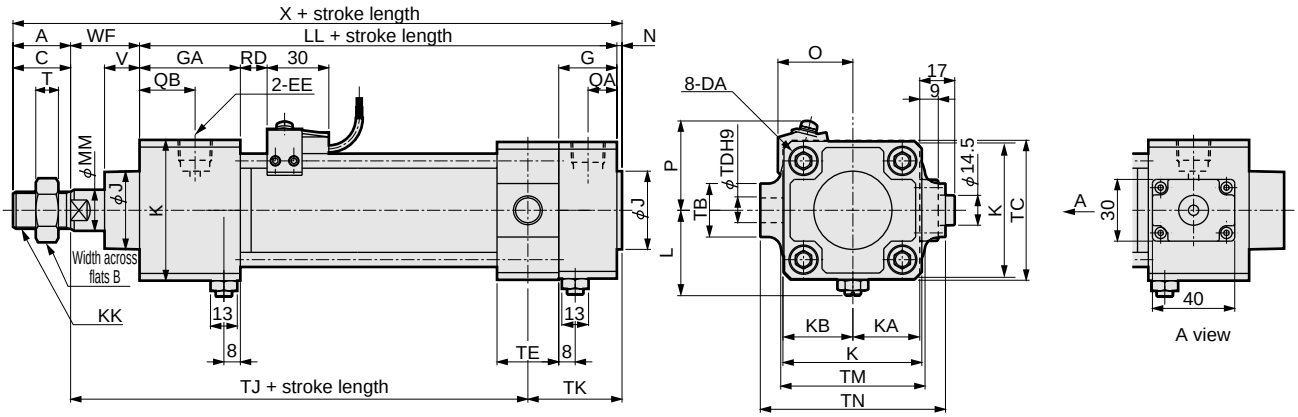
Symbol															With switch					
Bore size (mm)	T	V	WF	X	TB	TC	TD	TE	TF	TG	TJ	TK	TM	TN	O	P	HD			
																	T0, T5, T2, T3	T1, T2Y, T3Y T2YF/M, T3YF/M	T8	
φ50	11	20.5	37	194.5	26	67	12	30	80	86.5	117	46	70	90	73	43	18	17	12	
φ63	11	21	35	196	30	82	14	35	82.5	85.5	113	51	86	104	85	47	19	18	13	
φ80	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	
φ100	16	32	53	258	40	121	20	40	109	104	144.5	65.5	127	150	121	63	29.5	28.5	23.5	

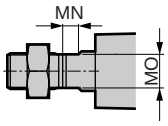
Symbol	With bellows									
Bore size (mm)	b	d	d*	ℓ						
				50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
φ50	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
φ63	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
φ80	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5
φ100	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9

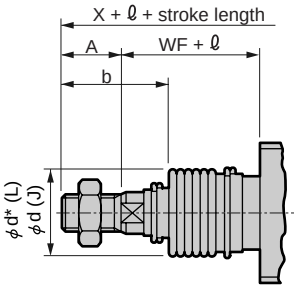
Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.
Note 4: A cushion needle position can not be changed.

Dimensions

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







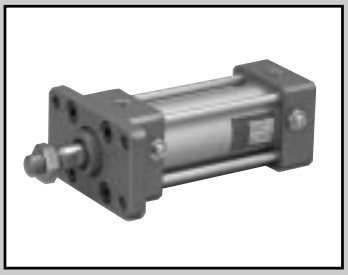
(with bellows)

Symbol	Head end supporting hole (TE) (unit: mm)																			
Bore size (mm)	A	B	C	DA	EE	G	GA	J	K	KA	KB	KK	L	LL	MM	MN	MO	N	QA	QB
ϕ50	28	27	26	M8	Rc3/8	28	49	38	68	32.5	34	M18 x 1.5	41 to 43.5	127	20	8	17	2.5	14	27
ϕ63	28	27	26	M8	Rc3/8	30	49	38	80	38	40	M18 x 1.5	47.5 to 50	130	20	8	17	3	15	28
ϕ80	36	32	34	M12	Rc1/2	34	53	43	100	49	50	M22 x 1.5	56 to 59	144	25	11	22	3.5	17	27
ϕ100	45	41	43	M12	Rc1/2	36	53	51	118	58.5	59	M26 x 1.5	66 to 69	156	30	13	27	4	18	27

Symbol													With switch					With bellows		
Bore size (mm)	T	V	WF	X	TB	TC	TD	TE	TJ	TK	TM	TN	O	P	RD T0, T5, T2, T3	RD T1, T2Y, T3Y T2YF/M, T3YF/M	RD T8	b	d	d*
ϕ50	11	17	33.5	191	26	67	12	30	117	46	70	90	73	43	18	17	12	47	47	48
ϕ63	11	17	31	192	30	82	14	35	113	51	86	104	85	47	19	18	13	45	47	48
ϕ80	13	18.5	43	226.5	35	100	20	40	132.5	58	105	134	105	57	23.5	22.5	17.5	58.5	53	55
ϕ100	16	29	50	255	40	121	20	40	149.5	60.5	127	150	121	63	29.5	28.5	23.5	69.5	61	65

Symbol	ℓ								
Bore size (mm)	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500	
ϕ50	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	
ϕ63	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	
ϕ80	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	
ϕ100	20	32	42	53	76	98	120	(stroke length/4.5) + 9	

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

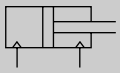


Medium bore size cylinder
Double acting, low friction type (low pressure (0.2 MPa or less) low friction)

SCA2-O Series

● Bore size: ϕ40, ϕ50, ϕ63, ϕ80, ϕ100

JIS symbol



RoHS CAD

Specifications

Descriptions		SCA2-O (low friction type)				
Bore size mm		ϕ40	ϕ50	ϕ63	ϕ80	ϕ100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure MPa		1.0				
Min. working pressure MPa		0.01				
Withstanding pressure MPa		1.6				
Ambient temperature ℃		5 to 60				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance mm		$^{+0.9}_{0}$(Up to 360) $^{+1.4}_{0}$(Up to 800)				
Working piston speed mm/s		10 to 200 (Use within the allowable energy absorption.)				
Cushion		None				
Effective cushion length mm		14.6	16.6	16.6	20.6	23.6
Lubrication		Not available				
Allowable energy absorption J	no cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Stroke length

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

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

Min. stroke length of type with switch

● T0/T5 type min. stroke length with switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ40	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)
ϕ50	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)
ϕ63	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)
ϕ80	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)
ϕ100	15 (15)	25 (25)	45 (45)	70 (70)	15 (15)	25 (25)	70 (55)	70 (70)	125 (95)	125 (95)	125 (115)	125 (115)	60 (45)	60 (45)

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

● T8 type min. stroke length with switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ40	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)
ϕ50	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)
ϕ63	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)
ϕ80	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)
ϕ100	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	110 (80)	110 (80)	125 (125)	125 (125)	55 (40)	55 (40)

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

Switch specifications

● T2/T3 type min. stroke length with switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
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

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

Note 1: Value in ( ) for T*V (Radial lead wire). Note that radial lead wire (V) is not available for T2YD.
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

Switch specifications (T type switch)

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

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

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

● With preventive maintenance output

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

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

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

Cylinder weight

(Unit: kg)

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

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

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

How to order

Without switch

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

With switch

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

Ⓐ Mounting style Note 1

Ⓑ Bore size

Ⓒ Port thread type

Ⓓ Cushion

Ⓔ Stroke length Note 2

Ⓕ Switch model no.

Ⓖ Switch quantity Note 4

Ⓗ Option

Ⓘ Accessory Note 5

Symbol	Descriptions
Ⓐ Mounting style	
00	Basic type
LB	Axial foot type
FA	Rod end flange type
FB	Head end flange type
FC	Special head end flange type
CA	Eye bracket type
CB	Clevis bracket type (pin and snap ring attached)
TC	Center trunnion type
TA	Rod end trunnion type
TB	Head end trunnion type
TF	Intermediate supporting hole (ϕ40 cannot be selected.)
TD	Rod end supporting hole (ϕ40 cannot be selected)
TE	Head end supporting hole (ϕ40 cannot be selected.)
Ⓑ Bore size (mm)	
40	ϕ 40
50	ϕ 50
63	ϕ 63
80	ϕ 80
100	ϕ 100
Ⓒ Port thread type	
Blank	Rc thread
N	NPT thread (custom order)
G	G thread (custom order)
Ⓓ Cushion	
N	No cushion

Ⓔ Stroke length (mm)

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

Ⓕ Switch model no.	
Refer to the switch model no. table on the following page.	
***Lead wire length**	
Blank	1m (standard)
3	3m (option)
5	5m (option)
Ⓖ Switch quantity	
R	One on rod end
H	One on head end
D	Two
T	Three
Ⓗ Option	
M	Piston rod material (stainless steel)
P6	Copper and PTFE free (custom order)
Ⓘ Accessory	
I	Rod eye
Y	Rod clevis (pin and snap ring attached)
B1	Eye bracket
B2	Clevis bracket (pin and snap ring attached)
B3	Eye bracket
B4	Trunnion type No. 2 bracket

Note on model no. selection

Note 1: The mounting bracket is shipped with the product. (However, trunnion type is attached to the product when shipped.)
Note 2: If the maximum stroke is exceeded, refer to Ending 74.
Note 3: Refer to page 508 for min. stroke length.
Note 4: When selecting TA or TB for mounting, the number of switches is limited to "H" (one on head side) for TA, and "R" (one on rod side) for TB.
Note 5: "I" and "Y" can not be selected at the same time.
Note 6: Refer to Ending 89 for custom specifications of rod end form.
Note 7: Refer to page 436 for variation and option combination.

<Example of model number>

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

Model: Medium bore size cylinder double acting low friction type

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

How to order mounting bracket

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

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

[F] switch model no.

T type switch model no.

Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T0H*	**T0V***	Reed	1 color indicator type	2-wire
T5H*	**T5V***		Without indicator light	
T8H*	**T8V***		1 color indicator type	
T1H*	**T1V***	Proximity	1 color indicator type	2-wire
T2H*	**T2V***			3-wire
T3H*	**T3V***			
T2YH*	**T2YV***		2 color indicator type	2-wire
T3YH*	**T3YV***			3-wire
T3PH*	**T3PV***		1 color indicator type (custom order)	3-wire
T2YFH*	**T2YFV***		2 color indicator type (Without light for preventive maintenance output)	3-wire
T3YFH*	**T3YFV***			4-wire
T2YMH*	**T2YMV***		2 color indicator type (Without light for preventive maintenance output)	3-wire
T3YMH*	**T3YMV***			4-wire
T2YD*	**-**		Strong magnetic field proof switch	2-wire
T2YDT*	**-**			
T2JH*	**T2JV***		Off-delay type	2-wire

R type switch

Grommet type	Terminal box type: Standard type	Terminal box type: Splash prf.	Contact	Indicator	Lead wire
R6*	**R6B**	**R6A**		1 color indicator type	

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

How to order switch

(T type switch)

● Switch body + mounting bracket

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

- **T0H**: Switch model no. (Item Ⓕ previous page)
- **40**: Bore size (Item Ⓑ previous page)

● Only switch body

SW - **T0H**

- **T0H**: Switch model no. (Item Ⓕ previous page)

● Switch bracket set

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

- **TS**: Bracket
- **40**: Bore size (Item Ⓑ previous page)

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

(T2YD type switch)

● Switch body + mounting bracket

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

- **T2YD**: Switch model no. (Item Ⓕ previous page)
- **40**: Bore size (Item Ⓑ previous page)

● Only switch body

SW - **T2YD**

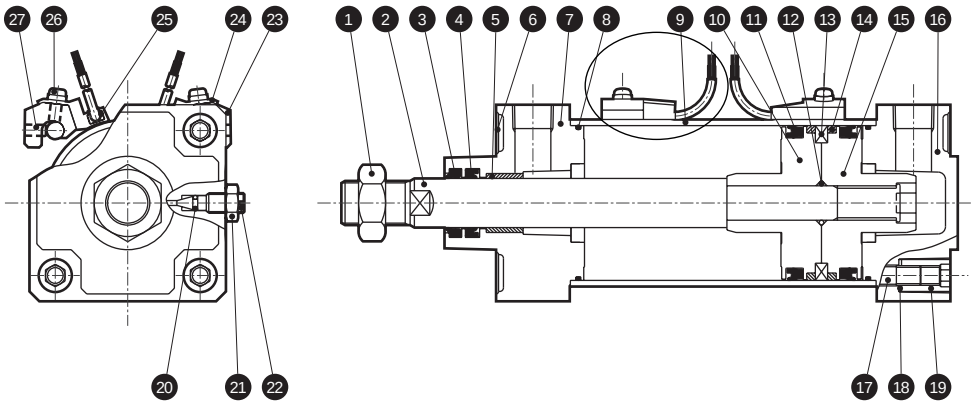
- **T2YD**: Switch model no. (Item Ⓕ previous page)

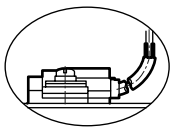
● Mounting bracket

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

- **40**: Bore size (Item Ⓑ previous page)

Internal structure and parts list





R type switch

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

Repair parts list

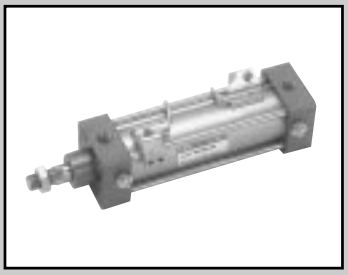
Bore size (mm)	Kit No.	Repair parts number
ϕ 40	SCA2-O-40K	3 4 8 11 14 20
ϕ 50	SCA2-O-50K	
ϕ 63	SCA2-O-63K	
ϕ 80	SCA2-O-80K	
ϕ100	SCA2-O-100K	

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

Dimensions

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

MEMO

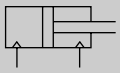


Medium bore size cylinder
Double acting, low friction type (constant friction with pressurized)

SCA2-U Series

● Bore size: ϕ40, ϕ50, ϕ63, ϕ80, ϕ100

JIS symbol



RoHS CAD

Specifications

Descriptions		SCA2-U				
Bore size		ϕ40	ϕ50	ϕ63	ϕ80	ϕ100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure	MPa	0.7				
Min. working pressure	MPa	0.03				
Withstanding pressure	MPa	1.0				
Ambient temperature	℃	5 to 60				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance	mm	$^{+0.9}_{0}$ (Up to 360), $^{+1.4}_{0}$ (Up to 800)				
Working piston speed	mm	10 to 1000				
Cushion		None				
Lubrication		Not available				
Internal leakage volume	ℓ/min.	5			8	
No cushion Allowable energy absorption	No cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Stroke length

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

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

Min. stroke length of type with switch

● T0/T5 type min. stroke length with switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ40	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)
ϕ50	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)
ϕ63	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)
ϕ80	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)
ϕ100	15 (15)	25 (25)	45 (45)	70 (70)	15 (15)	25 (25)	70 (55)	70 (70)	125 (95)	125 (95)	125 (115)	125 (115)	60 (45)	60 (45)

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

● T8 type min. stroke length with switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ40	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)
ϕ50	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)
ϕ63	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)
ϕ80	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)
ϕ100	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	110 (80)	110 (80)	125 (125)	125 (125)	55 (40)	55 (40)

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

Min. stroke length with switch

● T2/T3 type min. stroke length with switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
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

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

Note 1: Value in ( ) for T*V (Radial lead wire). Note that radial lead wire (V) is not available for T2YD.
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

Switch specifications (T type switch)

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

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

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

● With preventive maintenance output

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

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

Cylinder weight

(Unit: kg)

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

(E.g.) product weight of SCA2-U-LB-50B-200-T0H-D —
- Product weight when stroke length (S) = 0 mm ⋯ 1.45 kg
- Additional weight at stroke length 200 mm ⋯ 0.46 x $\frac{200}{100}$ = 0.92 kg
- Weight of two switches ⋯ 0.018 x 2 = 0.036 kg
- Product weight ⋯ 1.45 + 0.92 + 0.036 kg = 2.406 kg

Dimensions

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

Technical data

Refer to page 294 for technical data of a sliding resistance value.
Data on page 294 is for the "SCM-U Series", but similar trends apply to the SCA2-U Series.

How to order

Without switch

SCA2-U — LB - 40 ◯ N - 100 ——— M I

With switch

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

Ⓐ Mounting style Note 1

No cushion

Ⓑ Bore size

Ⓒ Port thread type

Ⓓ Stroke length

Ⓔ Switch model no.

Ⓕ Switch quantity Note 3

Ⓖ Option

Ⓗ Accessory Note 4

Symbol	Descriptions
Ⓐ Mounting style	
00	Basic type
LB	Axial foot type
FA	Rod end flange type
FB	Head end flange type
FC	Special head end flange type
CA	Eye bracket type
CB	Clevis bracket type (pin and snap ring attached)
TC	Center trunnion type
TA	Rod end trunnion type
TB	Head end trunnion type
TF	Intermediate supporting hole (ϕ40 cannot be selected.)
TD	Rod end supporting hole (ϕ40 cannot be selected)
TE	Head end supporting hole (ϕ40 cannot be selected.)
Ⓑ Bore size (mm)	
40	ϕ 40
50	ϕ 50
63	ϕ 63
80	ϕ 80
100	ϕ 100
Ⓒ Port thread type	
Blank	Rc thread
N	NPT thread (custom order)
G	G thread (custom order)

Ⓓ Stroke length (mm)

Bore size	Stroke length Note 2	Custom stroke length
ϕ 40	**1 to 600**	**Per 1 mm increment**
ϕ 50	**1 to 600**	
ϕ 63	**1 to 600**	
ϕ 80	**1 to 700**	
ϕ 100	**1 to 800**	

Ⓔ Switch model no.	
Refer to the switch model no. table on the following page.	
***Lead wire length**	
Blank	1m (standard)
3	3m (option)
5	5m (option)
Ⓕ Switch quantity	
R	One on rod end
H	One on head end
D	Two
T	Three
Ⓖ Option	
M	Piston rod material (stainless steel)
Ⓗ Accessory	
I	Rod eye
Y	Rod clevis (pin and snap ring attached)
B1	Eye bracket
B2	Clevis bracket (pin and snap ring attached)
B3	Eye bracket
B4	Trunnion type No. 2 bracket

⚠ Note on model no. selection

Note 1: The mounting bracket is shipped with the product. (However, trunnion type is attached to the product when shipped.)
Note 2: Refer to page 516 for min. stroke length.
Note 3: When selecting TA or TB for mounting, the number of switches is limited to "H" (one on head side) for TA, and "R" (one on rod side) for TB.
Note 4: "I" and "Y" can not be selected at the same time.
Note 5: Refer to Ending 89 for custom specifications of rod end form.
Note 6: Refer to page 436 for variation and option combination.

<Example of model number>

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

Model: Medium bore size cylinder double acting low friction type

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

How to order mounting bracket

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

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

[E] switch model no.

T type switch model no.

Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T0H*	**T0V***	Reed	1 color indicator type	2-wire
T5H*	**T5V***		Without indicator light	
T8H*	**T8V***		1 color indicator type	
T1H*	**T1V***	Proximity	1 color indicator type	2-wire
T2H*	**T2V***			3-wire
T3H*	**T3V***			
T2YH*	**T2YV***		2 color indicator type	2-wire
T3YH*	**T3YV***			3-wire
T3PH*	**T3PV***		1 color indicator type (custom order)	3-wire
T2YFH*	**T2YFV***		2 color indicator type (Without light for preventive maintenance output)	3-wire
T3YFH*	**T3YFV***			4-wire
T2YMH*	**T2YMV***		2 color indicator type (With light for preventive maintenance output (1 color))	3-wire
T3YMH*	**T3YMV***			4-wire
T2YD*	-		Strong magnetic field proof switch	2-wire
T2YDT*	-			
T2JH*	**T2JV***		Off-delay type	2-wire

R type switch

Grommet type	Terminal box type: Standard type	Terminal box type: Splash prf.	Contact	Indicator	Lead wire
R1*	**R1B**	**R1A**		1 color	
R6*	**R6B**	**R6A**		1 color indicator type	

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

How to order switch

(T type switch)

● Switch body + mounting bracket

SCA2 - T0H - 40

- T0H: Switch model no. (Item Ⓕ previous page)
- 40: Bore size (Item Ⓑ previous page)

● Only switch body

SW - T0H

- T0H: Switch model no. (Item Ⓕ previous page)

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

● Switch bracket set

SCA2 - TS - 40

- TS: Bracket
- 40: Bore size (Item Ⓑ previous page)

(T2YD type switch)

● Switch body + mounting bracket

SCA2 - T2YD - 40

- 40: Bore size (Item Ⓑ previous page)
- T2YD: Switch model no. (Item Ⓔ previous page)

● Only switch body

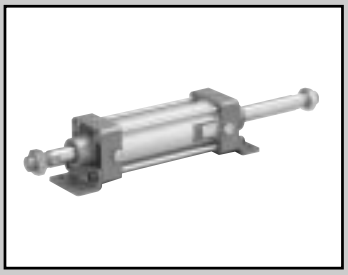
SW - T2YD

- T2YD: Switch model no. (Item Ⓔ previous page)

● Mounting bracket

SCA2 - T - 40

- 40: Bore size (Item Ⓑ previous page)

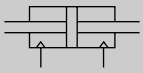


Medium bore size cylinder
Double acting, double rod type

SCA2-D Series

● Bore size: ϕ40, ϕ50, ϕ63, ϕ80, ϕ100

JIS symbol



RoHS CAD

Specifications

Descriptions		SCA2-D (double rod type)				
Bore size mm		ϕ40	ϕ50	ϕ63	ϕ80	ϕ100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure MPa		1.0				
Min. working pressure MPa		0.1				
Withstanding pressure MPa		1.6				
Ambient temperature ℃		-10 to 60 (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance mm		$^{+0.9}_{0}$(Up to 360), $^{+1.4}_{0}$(Up to 800)				
Working piston speed mm/s		50 to 1000 (use within the allowable energy absorption.)				
Cushion		Air cushion				
Effective cushion length mm		14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)				
Allowable energy absorption J	Cushioned	4.29	8.37	15.8	27.9	49.8
	No cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Stroke length

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

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

Min. stroke length of type with switch

● T0/T5 type min. stroke length with switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ40	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)
ϕ50	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)
ϕ63	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)
ϕ80	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)
ϕ100	15 (15)	25 (25)	45 (45)	70 (70)	15 (15)	25 (25)	70 (55)	70 (70)	125 (95)	125 (95)	125 (115)	125 (115)	60 (45)	60 (45)

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

● T8 type min. stroke length with switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ40	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)
ϕ50	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)
ϕ63	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)
ϕ80	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)
ϕ100	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

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
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

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

Note 1: Value in ( ) for T*V (Radial lead wire). Note that radial lead wire (V) is not available for T2YD.
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

Switch specifications (T type switch)

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

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

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

● With preventive maintenance output

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

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

Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke length (S) = 0 mm						Weight per switch (including mounting bracket)			Additional weight per S = 100 mm
	Basic type (00)	Foot type (LB)	Flange type (FA and FB)	Eye bracket type (CA)	Clevis bracket type (CB)	Trunnion type (TA, TB or TC)	T type	T2YD type		
								1 m	3 m	
ϕ40	1.15	1.32	1.56	1.47	1.51	1.53	0.018	0.08	0.17	0.55
ϕ50	1.63	1.88	2.12	2.01	2.04	2.17				0.71
ϕ63	2.06	2.43	3.15	2.63	2.68	2.91				0.75
ϕ80	3.66	4.40	5.52	4.93	5.14	5.00				1.29
ϕ100	5.70	6.61	8.44	7.34	7.52	8.27				1.67

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

- Product weight when S = 0 mm ··· 1.88 kg
- Additional weight at stroke length 200 mm ··· $0.71 \times \frac{200}{100} = 1.42$ kg.
- Weight of two switches ··· 0.018 x 2 = 0.036 kg.
- Product weight ··· 1.88 + 1.42 + 0.036 kg = 3.336 kg

How to order

Without switch

SCA2-D - LB - 40 ◯ B - 100 ——— S I

With switch

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

Ⓐ Mounting style Note 1

Ⓑ Bore size

Ⓒ Port thread type

Ⓓ Cushion

Ⓔ Stroke length Note 2

Ⓕ Switch model no.

Ⓖ Switch quantity Note 4

Ⓗ Option Note 5

Ⓘ Accessory

Symbol	Descriptions
Ⓐ Mounting style	
00	Basic type
LB	Axial foot type
FA	Rod end flange type
FB	Head end flange type
TC	Center trunnion type
TA	Rod end trunnion type
TB	Head end trunnion type
TF	Intermediate supporting hole (ϕ40 cannot be selected.)
TD	Rod end supporting hole (ϕ40 cannot be selected)
TE	Head end supporting hole (ϕ40 cannot be selected.)
Ⓑ Bore size (mm)	
40	ϕ40
50	ϕ50
63	ϕ63
80	ϕ80
100	ϕ100
Ⓒ Port thread type	
Blank	Rc thread
N	NPT thread (custom order)
G	G thread (custom order)
Ⓓ Cushion	
B	Both sides cushioned
R	Rod end cushion
H	Head end cushion
N	No cushion

Ⓔ Stroke length (mm)

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

Ⓕ Switch model no.	
Refer to the switch model no. table on the following page.	
***Lead wire length**	
Blank	1m (standard)
3	3m (option)
5	5m (option)
Ⓖ Switch quantity	
R	One on rod end
H	One on head end
D	Two
T	Three

Ⓗ Option

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

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

⚠Note on model no. selection

Note 1: The mounting bracket is shipped with the product. (However, trunnion type is attached to the product when shipped.)
Note 2: If the maximum stroke is exceeded, refer to Ending 74.
Note 3: Refer to page 522 for min. stroke length.
Note 4: When selecting TA or TB for mounting, the number of switches is limited to "H" (one on head side) for TA, and "R" (one on rod side) for TB.
Note 5: Instantaneous maximum temperature is the temperature when spark and spatter etc. instantaneously contacts to bellows.
Note 6: Refer to Ending 89 for custom specifications of rod end form.
Note 7: Refer to page 436 for variation and option combination.

<Example of model number>

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

Model: Medium bore size cylinder double acting double rod type

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

How to order mounting bracket

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

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

[F] switch model no.

T type switch model no.

Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T0H*	**T0V***	Reed	1 color indicator type	2-wire
T5H*	**T5V***		Without indicator light	
T8H*	**T8V***		1 color indicator type	
T1H*	**T1V***	Proximity	1 color indicator type	2-wire
T2H*	**T2V***			3-wire
T3H*	**T3V***		2 color indicator type	2-wire
T2YH*	**T2YV***			3-wire
T3YH*	**T3YV***		1 color indicator type (custom order)	3-wire
T3PH*	**T3PV***		2 color indicator type (Without light for preventive maintenance output)	3-wire
T2YFH*	**T2YFV***			4-wire
T3YFH*	**T3YFV***		2 color indicator type (Without light for preventive maintenance output)	3-wire
T2YMH*	**T2YMV***			4-wire
T3YMH*	**T3YMV***		Strong magnetic field proof switch	2-wire
T2YD*	-			
T2YDT*	-		Off-delay type	2-wire
T2JH*	**T2JV***			

R type switch

Grommet type	Terminal box type: Standard type	Terminal box type: Splash prf.	Contact	Indicator	Lead wire
R6*	**R6B**	**R6A**		1 color indicator type	

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

How to order switch

(T type switch)

● Switch body + mounting bracket

SCA2 - T0H - 40

- T0H: Switch model no. (Item Ⓕ previous page)
- 40: Bore size (Item Ⓑ previous page)

● Only switch body

SW - T0H

- T0H: Switch model no. (Item Ⓕ previous page)

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

● Switch bracket set

SCA2 - TS - 40

- TS: Bracket
- 40: Bore size (Item Ⓑ previous page)

(T2YD type switch)

● Switch body + mounting bracket

SCA2 - T2YD - 40

- T2YD: Switch model no. (Item Ⓕ previous page)
- 40: Bore size (Item Ⓑ previous page)

● Only switch body

SW - T2YD

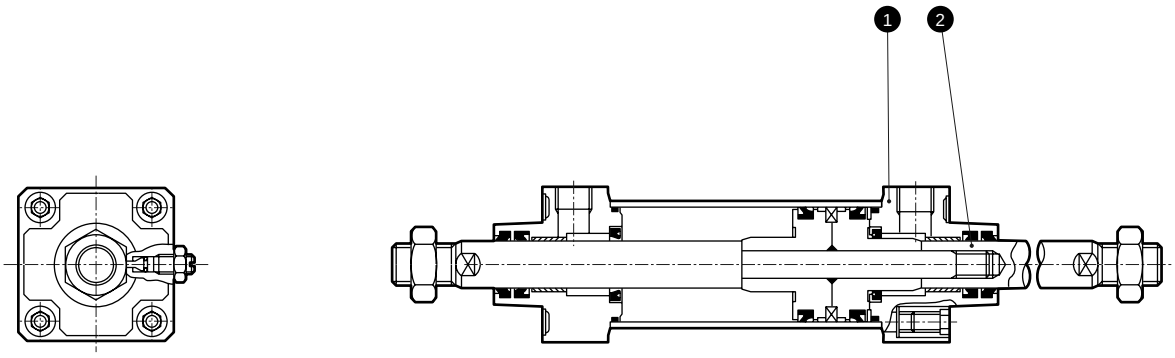
- T2YD: Switch model no. (Item Ⓕ previous page)

● Mounting bracket

SCA2 - T - 40

- 40: Bore size (Item Ⓑ previous page)

Internal structure and parts list



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

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

Repair parts list

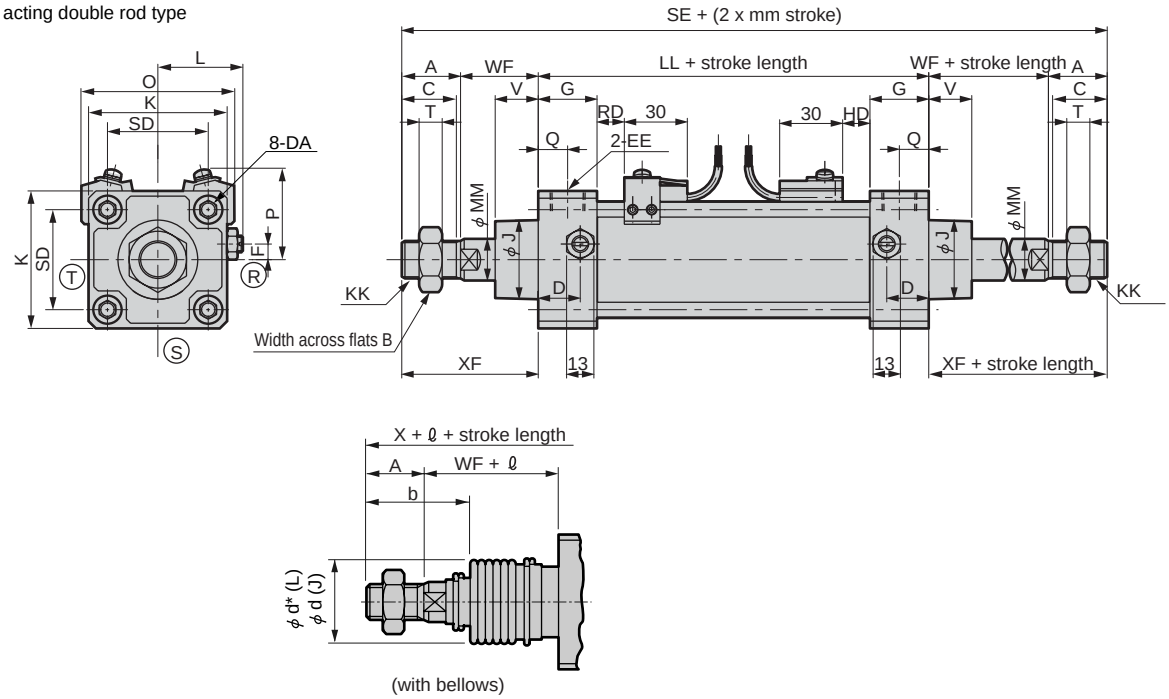
Part numbers follow the SCA2 Series internal structure drawing (page 448).

Bore size (mm)	Kit No.	Repair parts number
ϕ 40	SCA2-D-40K	❸ ❹ ❽ ❾ ⓬ ⓯ ㉑
ϕ 50	SCA2-D-50K	
ϕ 63	SCA2-D-63K	
ϕ 80	SCA2-D-80K	
ϕ 100	SCA2-D-100K	

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

Dimensions

● Double acting double rod type



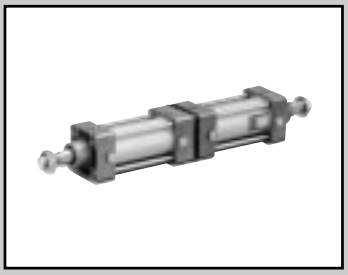
(with bellows)

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

Symbol	Basic dimensions																				
Bore size (mm)	A	B	C	D	DA	EE	F	G	J	K	KK	L	LL	MM	Q	SE	SD	T	V	WF	XF
ϕ 40	22	22	20	18	M8	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16	13	204	40.5	8	18.5	33.5	55.5
ϕ 50	28	27	26	20	M8	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20	14	231	48	11	20.5	37	65
ϕ 63	28	27	26	22	M8	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	15	231	59	11	21	35	63
ϕ 80	36	32	34	26	M12	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25	17	284	74	13	23.5	48	84
ϕ 100	45	41	43	28	M12	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30	18	324	90	16	32	53	98

Symbol	With switch							With bellows												
			T0, T5, T2, T3		T1, T2Y, T3Y, T2YF/M		T8					ℓ								
Bore size (mm)	O	P	RD	HD	RD	HD	RD/HD	A	X	b	d	d*	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
ϕ 40	66	41.5	11	11	10	10	5	22	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
ϕ 50	73	43	13	13	12	12	7	28	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ 63	85	47	13	13	12	12	7	28	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ 80	105	57	14.5	14.5	13.5	13.5	8.5	36	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5
ϕ 100	121	63	18.5	18.5	17.5	17.5	12.5	45	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9

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

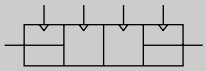


Medium bore size cylinder
Double acting, back to back type

SCA2-B Series

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

JIS symbol



RoHS

Specifications

Descriptions		SCA2-B (back to back type)				
Bore size mm		ϕ40	ϕ50	ϕ63	ϕ80	ϕ100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure MPa		1.0				
Min. working pressure MPa		0.05				
Withstanding pressure MPa		1.6				
Ambient temperature ℃		-10 to 60 (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance mm		$^{+0.9}_{0}$(Up to 360), $^{+1.4}_{0}$(Up to 800)				
Working piston speed mm/s		50 to 1000 (use within the allowable energy absorption.)				
Cushion		Air cushion				
Effective cushion length mm		14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)				
Allowable energy absorption J	Cushioned	4.29	8.37	15.8	27.9	49.8
	No cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Stroke length

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

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

Min. stroke length of type with switch

● T0/T5 type min. stroke length with switch

	Different surface installation				Same surface installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	1
ϕ40	20 (10)	20 (20)	40 (40)	60 (60)	20 (10)	60 (45)	105 (75)	150 (105)	50 (50)	50 (50)
ϕ50	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	20 (20)	65 (50)	65 (60)	60 (60)	60 (60)
ϕ63	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	20 (20)	70 (55)	70 (60)	50 (45)	50 (45)
ϕ80	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	55 (40)	55 (40)
ϕ100	15 (15)	25 (25)	45 (45)	70 (70)	15 (15)	25 (25)	70 (55)	70 (70)	60 (45)	60 (45)

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

● T8 type min. stroke length with switch

	Different surface installation				Same surface installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	1
ϕ40	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	50 (35)	95 (65)	140 (95)	45 (40)	45 (40)
ϕ50	10 (10)	20 (20)	40 (40)	60 (60)	10 (10)	20 (20)	70 (55)	70 (60)	50 (50)	50 (50)
ϕ63	10 (10)	20 (20)	40 (40)	60 (60)	10 (10)	20 (20)	70 (55)	70 (60)	45 (35)	45 (35)
ϕ80	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	50 (35)	50 (35)
ϕ100	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	55 (40)	55 (40)

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

Min. stroke length of type with switch

● T2/T3 type min. stroke length with switch

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

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

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

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

Note 1: Value in ( ) for T*V (Radial lead wire). Note that radial lead wire (V) is not available for T2YD.
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

Switch specifications (T type switch)

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

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

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

● With preventive maintenance output

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

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

Cylinder weight

(Unit: kg)

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

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

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

How to order

Without switch

SCA2-B - LB - 40 - ○ B 100 ——— ○ B 50 ——— S I

With switch

SCA2-B - LB - 40 - ○ B 100 - T0 - D - ○ B 50 - T0 - R - S I

Stroke length of cylinder 1 S1 | Stroke length of cylinder 2 S2

Cylinder 1 | Cylinder 2

Ⓐ Mounting style Note 1
Ⓑ Bore size
Ⓒ Port thread type
Ⓓ Cushion
Ⓔ Stroke length Note 2
Ⓕ Switch model no.
Ⓖ Switch quantity Note 4
Ⓗ Option Note 5
Ⓘ Accessory

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

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

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

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

Ⓔ Stroke length (mm)

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

Ⓕ Switch model no.

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

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

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

Ⓗ Option

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

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

⚠ Note on model no. selection

Note 1: The mounting bracket is shipped with the product. (However, trunnion type is attached to the product when shipped.)
Note 2: If the maximum stroke is exceeded, refer to Ending 74.
Note 3: Refer to page 530 for min. stroke length.
Note 4: When selecting TA or TB for mounting, the number of switches is limited to "H" (one on head side) for TA, and "R" (one on rod side) for TB.
Note 5: Instantaneous maximum temperature is the temperature when spark and spatter etc. instantaneously contacts to bellows.
Note 6: Refer to Ending 89 for custom specifications of rod end form.
Note 7: Refer to page 436 for variation and option combination.

<Example of model number>

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

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

Ⓐ Mounting style: Axial foot type
Ⓑ Bore size : ϕ 40 mm
Ⓒ Port thread type : Rc thread
Ⓓ Cushion : Both sides cushioned
Ⓔ Stroke length S1 : 100 mm
Ⓕ Switch model no. : Reed T0 switch, Lead wire 1 m
Ⓖ Switch quantity : 2

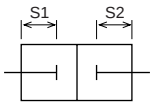
Cylinder 1

Ⓒ Port thread type : Rc thread
Ⓓ Cushion : Both sides cushioned
Ⓔ Stroke length S2 : 50 mm
Ⓕ Switch model no. : Reed T0 switch, Lead wire 1 m
Ⓖ Switch quantity : One on rod end

Cylinder 2

Ⓗ Option : Cushion needle position S
Ⓘ Accessory : Rod eye

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



How to order mounting bracket

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

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

[F] switch model no.

T type switch model no.

Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T0H*	**T0V***	Reed	1 color indicator type	2-wire
T5H*	**T5V***		Without indicator light	
T8H*	**T8V***		1 color indicator type	
T1H*	**T1V***	Proximity	1 color indicator type	2-wire
T2H*	**T2V***			
T3H*	**T3V***			3-wire
T2YH*	**T2YV***		2 color indicator type	2-wire
T3YH*	**T3YV***			3-wire
T3PH*	**T3PV***		1 color indicator type (custom order)	3-wire
T2YFH*	**T2YFV***		2 color indicator type (Without light for preventive maintenance output)	3-wire
T3YFH*	**T3YFV***			4-wire
T2YMH*	**T2YMV***		2 color indicator type (With light for preventive maintenance output (1 color))	3-wire
T3YMH*	**T3YMV***			4-wire
T2YD*	-		Strong magnetic field proof switch	2-wire
T2YDT*	-			
T2JH*	**T2JV***		Off-delay type	2-wire

R type switch

Grommet type	Terminal box type: Standard type	Terminal box type: Splash prf.	Contact	Indicator	Lead wire
R6*	**R6B**	**R6A**		1 color indicator type	

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

How to order switch

(T type switch)

● Switch body + mounting bracket

SCA2 - T0H - 40

- T0H: Switch model no. (Item Ⓕ previous page)
- 40: Bore size (Item Ⓑ previous page)

● Only switch body

SW - T0H

- T0H: Switch model no. (Item Ⓕ previous page)

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

● Switch bracket set

SCA2 - TS - 40

- TS: Bracket
- 40: Bore size (Item Ⓑ previous page)

(T2YD type switch)

● Switch body + mounting bracket

SCA2 - T2YD - 40

- T2YD: Switch model no. (Item Ⓕ previous page)
- 40: Bore size (Item Ⓑ previous page)

● Only switch body

SW - T2YD

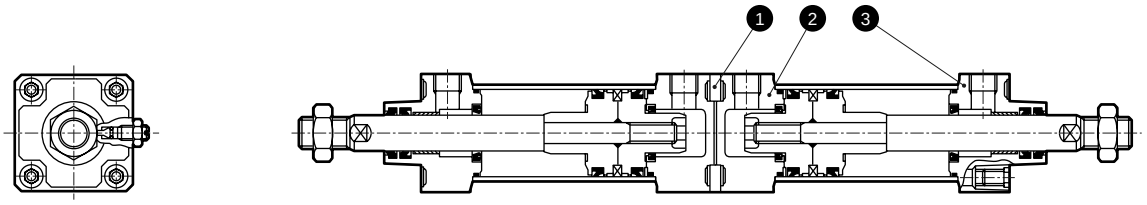
- T2YD: Switch model no. (Item Ⓕ previous page)

● Mounting bracket

SCA2 - T - 40

- 40: Bore size (Item Ⓑ previous page)

Internal structure and parts list



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

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

Repair parts list

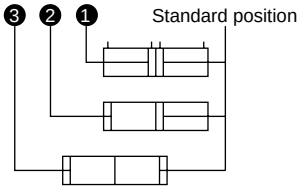
Part numbers follow the SCA2 Series internal structure drawing (page 448).

Bore size (mm)	Kit No.	Repair parts number
ϕ 40	SCA2-B-40K	❸ ❹ ❽ ❾ ⓬ ⓯ ㉑
ϕ 50	SCA2-B-50K	
ϕ 63	SCA2-B-63K	
ϕ 80	SCA2-B-80K	
ϕ100	SCA2-B-100K	

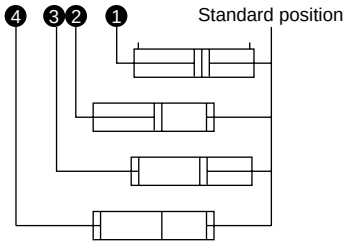
Note: Specify the kit No. when placing an order

Applications

Three positions are available when the same stroke is combined.

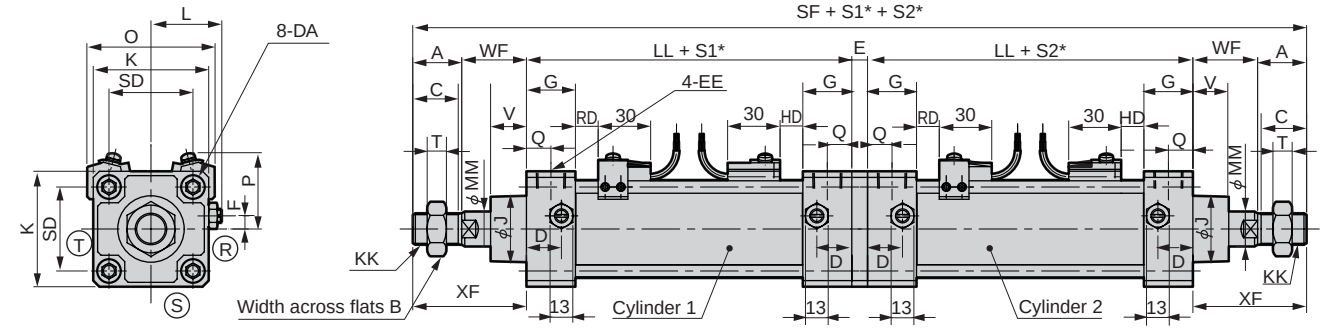


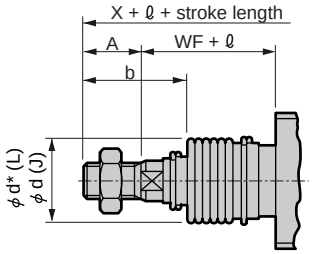
Four positions are available when different strokes are combined.



Dimensions

● Back to back type





(with bellows)

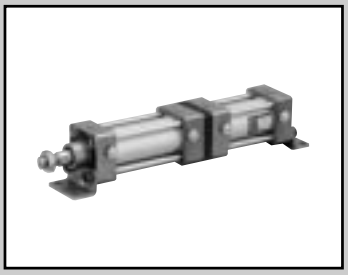
Note 1: (R)(S)(T) indicates a cushion needle position. Note 2: S1: Stroke length of cylinder 1, S2: Stroke length of cylinder 2
Note 2: Refer to page 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

Symbol / Bore size (mm)	A	B	C	D	E	F	DA	EE	G	J	K	KK	L	LL	MM	Q	SD	SF	T	V	WF	XF
ϕ40	22	22	20	18	4.5	7.5	M8	Rc1/4	26	31	57	M14 x 1.5	38 to 39.5	93	16	13	40.5	301.5	8	18.5	33.5	55.5
ϕ50	28	27	26	20	9	0	M8	Rc3/8	28	38	66	M18 x 1.5	41 to 43.5	101	20	14	48	341	11	20.5	37	65
ϕ63	28	27	26	22	9	0	M8	Rc3/8	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	15	59	345	11	21	35	63
ϕ80	36	32	34	26	12	0	M12	Rc1/2	34	43	98	M22 x 1.5	56 to 59	116	25	17	74	412	13	23.5	48	84
ϕ100	45	41	43	28	12	0	M12	Rc1/2	36	51	118	M26 x 1.5	66 to 69	128	30	18	90	464	16	32	53	98

Symbol	With switch							With bellows												
													ℓ							
Bore size (mm)	O	P	T0, T5, T2, T3		T1, T2Y, T3Y or T2YF/M		T8	A	X	b	d	d*	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
			RD	HD	RD	HD	RD/HD													
ϕ40	66	41.5	11	11	10	10	5	22	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
ϕ50	73	43	13	13	12	12	7	28	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ63	85	47	13	13	12	12	7	28	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ80	105	57	14.5	14.5	13.5	13.5	8.5	36	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5
ϕ100	121	63	18.5	18.5	17.5	17.5	12.5	45	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9

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

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



Medium bore size cylinder
Double acting, two stage type

SCA2-W Series

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

RoHS

Specifications

Descriptions		SCA2-W (two stage type)				
Bore size mm		ϕ40	ϕ50	ϕ63	ϕ80	ϕ100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure MPa		1.0 Note 1				
Min. working pressure MPa		0.1				
Withstanding pressure MPa		1.6				
Ambient temperature ℃		-10 to 60 (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance 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.				

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

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
ϕ40	25, 50, 75, 100, 150, 200, 250, 300, 350, 400, 450, 500	600	2
ϕ50			
ϕ63			
ϕ80		700	
ϕ100		800	(Total stroke length)

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

Min. stroke length of type with switch

● T0/T5 type min. stroke length with switch

	Different surface installation				Same surface installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	1
ϕ40	20 (10)	20 (20)	40 (40)	60 (60)	20 (10)	60 (45)	105 (75)	150 (105)	50 (50)	50 (50)
ϕ50	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	20 (20)	65 (50)	65 (60)	60 (60)	60 (60)
ϕ63	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	20 (20)	70 (55)	70 (60)	50 (45)	50 (45)
ϕ80	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	55 (40)	55 (40)
ϕ100	15 (15)	25 (25)	45 (45)	70 (70)	15 (15)	25 (25)	70 (55)	70 (70)	60 (45)	60 (45)

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

● T8 type min. stroke length with switch

	Different surface installation				Same surface installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	1
ϕ40	15 (10)	20 (20)	40 (40)	60 (60)	15 (10)	50 (35)	95 (65)	140 (95)	45 (40)	45 (40)
ϕ50	10 (10)	20 (20)	40 (40)	60 (60)	10 (10)	20 (20)	70 (55)	70 (60)	50 (50)	50 (50)
ϕ63	10 (10)	20 (20)	40 (40)	60 (60)	10 (10)	20 (20)	70 (55)	70 (60)	45 (35)	45 (35)
ϕ80	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	50 (35)	50 (35)
ϕ100	15 (15)	25 (25)	45 (45)	65 (65)	15 (15)	25 (25)	70 (55)	70 (65)	55 (40)	55 (40)

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

Min. stroke length of type with switch

● T2/T3 type min. stroke length with switch

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

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

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

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

Note 1: Value in ( ) for T*V (Radial lead wire). Note that radial lead wire (V) is not available for T2YD.
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

Switch specifications (T type switch)

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

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

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

● With preventive maintenance output

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

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

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

Cylinder weight

(Unit: kg)

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

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

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

How to order

Total stroke length S1 — First stage stroke length S2

Without switch

SCA2-W - LB - 40 - ( ) B 150 —— ( ) B 50 —— S I

With switch

SCA2-W - LB - 40 - ( ) B 150 - T0 - D - ( ) B 50 - T0 - R - S I

Cylinder 1 / Cylinder 2

Ⓐ Mounting style Note 1 — Ⓑ Bore size — Ⓒ Port thread type — Ⓓ Cushion — Ⓔ Stroke length Note 2 / Note 3 — Ⓕ Switch model no. — Ⓖ Switch quantity Note 5 — Ⓗ Option Note 6 — Ⓘ Accessory Note 7

Symbol	Descriptions
Ⓐ Mounting style	
00	Basic type
LB	Axial foot type
FA	Rod end flange type
FB	Head end flange type
FC	Special head end flange type
CA	Eye bracket type
CB	Clevis bracket type (pin and snap ring attached)
TA	Rod end trunnion type
TB	Head end trunnion type
TD	Rod end supporting hole (ϕ40 cannot be selected)
TE	Head end supporting hole (ϕ40 cannot be selected.)
Ⓑ Bore size (mm)	
40	ϕ **40**
50	ϕ **50**
63	ϕ **63**
80	ϕ **80**
100	ϕ **100**
Ⓒ Port thread type	
Blank	Rc thread
N	NPT thread (custom order)
G	G thread (custom order)
Ⓓ Cushion	
B	Both sides cushioned
R	Rod end cushion
H	Head end cushion
N	No cushion

Ⓔ Stroke length (mm)

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

Ⓕ Switch model no.	
Refer to the switch model no. table on the following page.	
***Lead wire length**	
Blank	1m (standard)
3	3m (option)
5	5m (option)
Ⓖ Switch quantity	
R	One on rod end
H	One on head end
D	Two
T	Three

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

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

Note on model no. selection

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

<Example of model number>

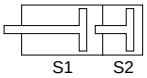
SCA2-W-LB-40-B150-T0-D-B50-T0-R-SI

Model: Medium bore size cylinder double acting two stage type

Cylinder 1
- Ⓐ Mounting style : Axial foot type
- Ⓑ Bore size : ϕ 40 mm
- Ⓒ Port thread type : Rc thread
- Ⓓ Cushion : Both sides cushioned
- Ⓔ Stroke length S1 : 150 mm
- Ⓕ Switch model no. : Reed T0 switch, Lead wire 1 m
- Ⓖ Switch quantity : 2

Cylinder 2
- Ⓒ Port thread type : Rc thread
- Ⓓ Cushion : Both sides cushioned
- Ⓔ Stroke length S2 : 50 mm
- Ⓕ Switch model no. : Reed T0 switch, Lead wire 1 m
- Ⓖ Switch quantity : One on rod end
- Ⓗ Option : Cushion needle position S
- Ⓘ Accessory : Rod eye

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



[F] switch model no.

T type switch model no.

Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T0H*	**T0V***	Reed	1 color indicator type	2-wire
T5H*	**T5V***		Without indicator light	
T8H*	**T8V***		1 color indicator type	
T1H*	**T1V***	Proximity	1 color indicator type	2-wire
T2H*	**T2V***			
T3H*	**T3V***			3-wire
T2YH*	**T2YV***		2 color indicator type	2-wire
T3YH*	**T3YV***			3-wire
T3PH*	**T3PV***		1 color indicator type (custom order)	3-wire
T2YFH*	**T2YFV***		2 color indicator type (Without light for preventive maintenance output)	3-wire
T3YFH*	**T3YFV***			4-wire
T2YMH*	**T2YMV***		2 color indicator type (With light for preventive maintenance output (1 color))	3-wire
T3YMH*	**T3YMV***			4-wire
T2YD*	-		Strong magnetic field proof switch	2-wire
T2YDT*	-			
T2JH*	**T2JV***		Off-delay type	2-wire

R type switch

Grommet type	Terminal box type: Standard type	Terminal box type: Splash prf.	Contact	Indicator	Lead wire

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

How to order switch

(T type switch)

● Switch body + mounting bracket

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

- T0H: Switch model no. (Item (F) previous page)
- 40: Bore size (Item (B) previous page)

● Only switch body

SW - **T0H**

- T0H: Switch model no. (Item (F) previous page)

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

● Switch bracket set

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

- TS: Bracket
- 40: Bore size (Item (B) previous page)

(T2YD type switch)

● Switch body + mounting bracket

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

- T2YD: Switch model no. (Item (F) previous page)
- 40: Bore size (Item (B) previous page)

● Only switch body

SW - **T2YD**

- T2YD: Switch model no. (Item (F) previous page)

● Mounting bracket

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

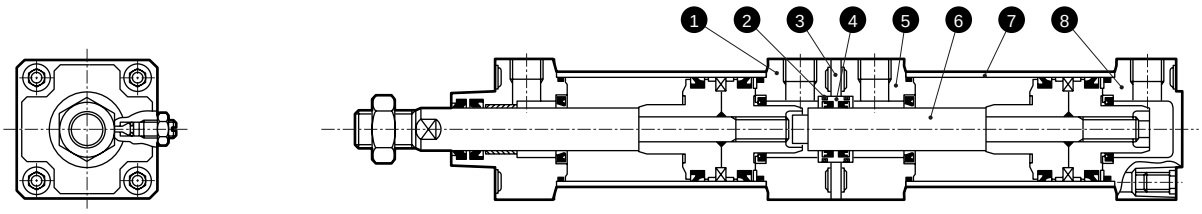
- 40: Bore size (Item (B) previous page)

How to order mounting bracket

Bore size (mm) / Mounting bracket	ϕ40	ϕ50	ϕ63	ϕ80	ϕ100
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.

Internal structure and parts list



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

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

Repair parts list

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

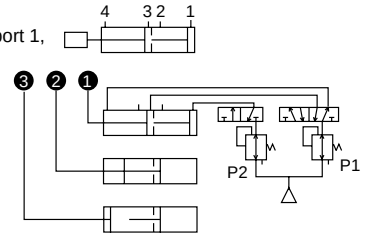
Bore size (mm)	Kit No.	Repair parts number
ϕ 40	SCA2-W-40K	❷ ❸ ❹ ❽ ❾ ⓬ ⓯ ㉑
ϕ 50	SCA2-W-50K	
ϕ 63	SCA2-W-63K	
ϕ 80	SCA2-W-80K	
ϕ 100	SCA2-W-100K	

Note: Specify the kit No. when placing an order

Applications

Pressure setting is P2 > P1.

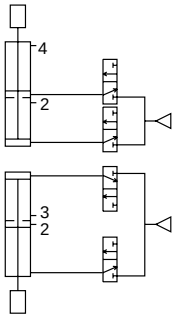
- First stage: push-out with pressurizing to port 4, upply pressure to port 1.
- Second stage : push-out with supplying pressurizing to port 1, supply pressure to port 3.



P2 = P1 is acceptable depending on a load direction.

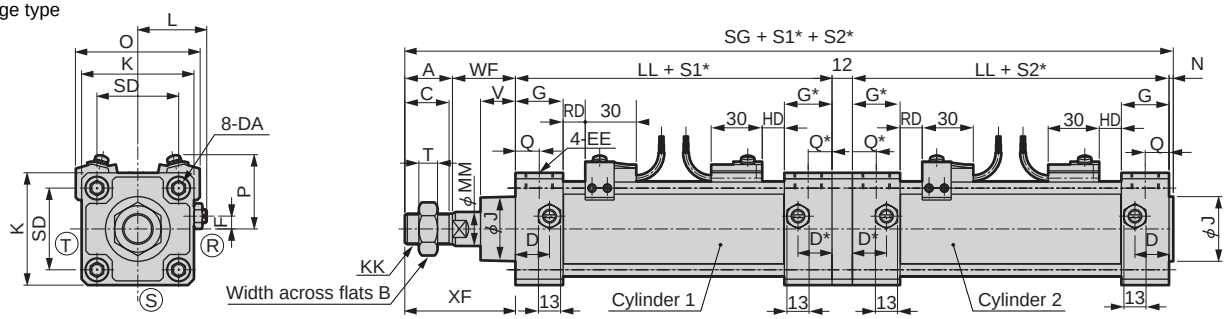
When using a single acting cylinder with a load which drops by its own weight, for the drawing above, port 2 and 4 are used as bleed holes, while for the drawing below, port 2 and 3 are used as bleed holes.

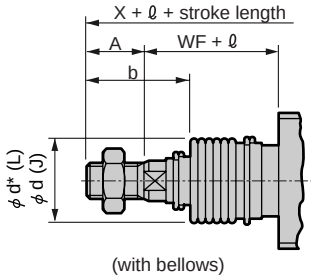
Basically, piping ports (2) not requiring piping improve the cushion effect.



Dimensions

● Two stage type





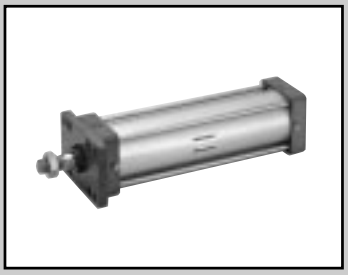
(with bellows)

Note 1: (R)(S)(T) indicates a cushion needle position.
Note 2: S1: Stroke length of cylinder 1 (total stroke length) S2: Stroke length of cylinder 2 (stroke length of first stage)
Note 3: Refer to page 597 for the projecting dimensions of T2YD switch.
Note 4: Refer to pages 598, 599 for accessory dimensions.

Symbol / Bore size (mm)	A	B	C	D	D*	DA	EE	F	G	G*	J	K	KK	L	LL	MM	N	Q	Q*	SD	SG	T
ϕ40	22	22	20	18	17.5	M 8	RC1/4	7.5	26	25.5	31	57	M14 x 1.5	38 to 39.5	92.5	16	2	13	12.5	40.5	254.5	8
ϕ50	28	27	26	20	19.5	M 8	RC3/8	0	28	27.5	38	66	M18 x 1.5	41 to 43.5	100.5	20	2.5	14	13.5	48	280.5	11
ϕ63	28	27	26	22	21.5	M 8	RC3/8	0	30	29.5	38	80	M18 x 1.5	47.5 to 50.0	104.5	20	3	15	14.5	59	287	11
ϕ80	36	32	34	26	25.5	M12	RC1/2	0	34	33.5	43	98	M22 x 1.5	56 to 59	115.5	25	3.5	17	16.5	74	330.5	13
ϕ100	45	41	43	28	28	M12	RC1/2	0	36	35.5	51	118	M26 x 1.5	66 to 69	127.5	30	4	18	18	90	369	16

Symbol / Bore size (mm)	With switch										With bellows													
	V	WF	XF	O	P	T0, T5, T2, T3		T1, T2Y, T3Y, T2YF/M		T8	A	X	b	d	d*	ℓ							
						RD	HD	RD	HD	RD/HD						50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
ϕ40	18.5	33.5	55.5	66	41.5	11	11	10	10	5	22	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
ϕ50	20.5	37	65	73	43	13	13	12	12	7	28	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ63	21	35	63	85	47	13	13	12	12	7	28	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ80	23.5	48	84	105	57	14.5	14.5	13.5	13.5	8.5	36	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5
ϕ100	32	53	98	121	63	18.5	18.5	17.5	17.5	12.5	45	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9

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

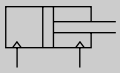


Medium bore size cylinder
Double acting, steel tube type

SCA2-K Series

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

JIS symbol



RoHS

Specifications

Descriptions		SCA2-K (steel tube type)				
Bore size mm		ϕ40	ϕ50	ϕ63	ϕ80	ϕ100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure MPa		1.0				
Min. working pressure MPa		0.05				
Withstanding pressure MPa		1.6				
Ambient temperature ℃		-10 to 60 (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance mm		$^{+0.9}_{0}$ (Up to 360), $^{+1.4}_{0}$ (Up to 800)				
Working piston speed mm/s		50 to 1000 (use within the allowable energy absorption.)				
Cushion		Air cushion				
Effective cushion length mm		14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)				
Allowable energy absorption J	Cushioned	4.29	8.37	15.8	27.9	49.8
	No cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Stroke length

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

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

Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke length (S) = 0 mm						Additional weight per S = 100 mm
	Basic type (00)	Foot type (LB)	Flange type (FA, FB)	Eye bracket type (CA)	Clevis bracket type (CB)	Trunnion type (TA, TB, TC)	
ϕ40	1.01	1.18	1.42	1.33	1.37	1.39	0.56
ϕ50	1.42	1.67	1.91	1.80	1.83	1.96	0.72
ϕ63	1.85	2.22	2.94	2.42	2.47	2.70	0.82
ϕ80	2.94	3.68	4.80	4.21	4.42	4.28	1.37
ϕ100	4.64	5.55	7.38	6.28	6.46	7.21	1.70

(E.g.) Product weight of SCA2-K-LB-50B-200
- Product weight when S = 0 mm ··· 1.67 kg
- Additional weight when S = 200 mm ··· 0.72 x $\frac{200}{100}$ = 1.44 kg
- Product weight ··· 1.67 + 1.44 = 3.11 kg

How to order

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

Ⓐ Mounting style Note 1

Ⓑ Bore size

Ⓒ Port thread type

Ⓓ Cushion

Ⓔ Stroke length Note 2

Ⓕ Option Note 4

Ⓖ Accessory Note 5

Symbol	Descriptions
Ⓐ 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.)
Ⓑ Bore size (mm)	
40	ϕ 40
50	ϕ 50
63	ϕ 63
80	ϕ 80
100	ϕ 100
Ⓒ Port thread type	
Blank	Rc thread
N	NPT thread (custom order)
G	G thread (custom order)
Ⓓ Cushion	
B	Both sides cushioned
R	Rod end cushion
H	Head end cushion
N	No cushion

Ⓔ Stroke length (mm)

Bore size	Stroke length	Available stroke length	Custom stroke length
ϕ40	**1 to 600**	**1600**	Per 1 mm increment
ϕ50	**1 to 600**	**1900**	
ϕ63	**1 to 600**	**1900**	
ϕ80	**1 to 700**	**1900**	
ϕ100	**1 to 800**	**1900**	

Ⓕ Option

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

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

⚠Note on model no. selection

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

<Example of model number>

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

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

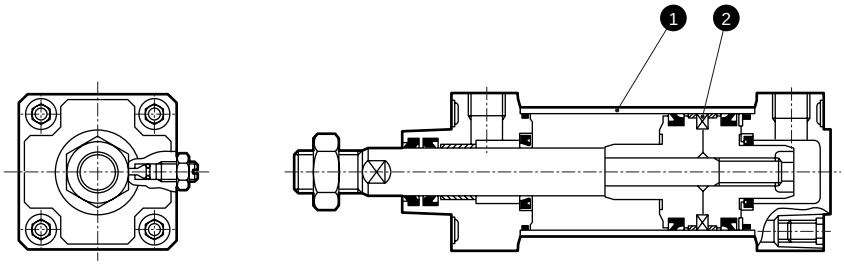
- Ⓐ Mounting style : Axial foot type
- Ⓑ Bore size : ϕ 40 mm
- Ⓒ Port thread type : Rc thread
- Ⓓ Cushion : Both sides cushioned
- Ⓔ Stroke length : 100 mm
- Ⓕ Option : Cushion needle position S
- Ⓖ Accessory : Rod eye

How to order mounting bracket

Bore size (mm) / Mounting bracket	ϕ40	ϕ50	ϕ63	ϕ80	ϕ100
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.

Internal structure and parts list



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

- Note: Materials other than right table are the same as double acting standard single rod type (SCA2) on page 488.
- O.D. for ϕ50 to ϕ100 differ from the double acting standard single rod type. Trunnion fittings are not conpatible with double acting standard single rod type.

Repair parts list

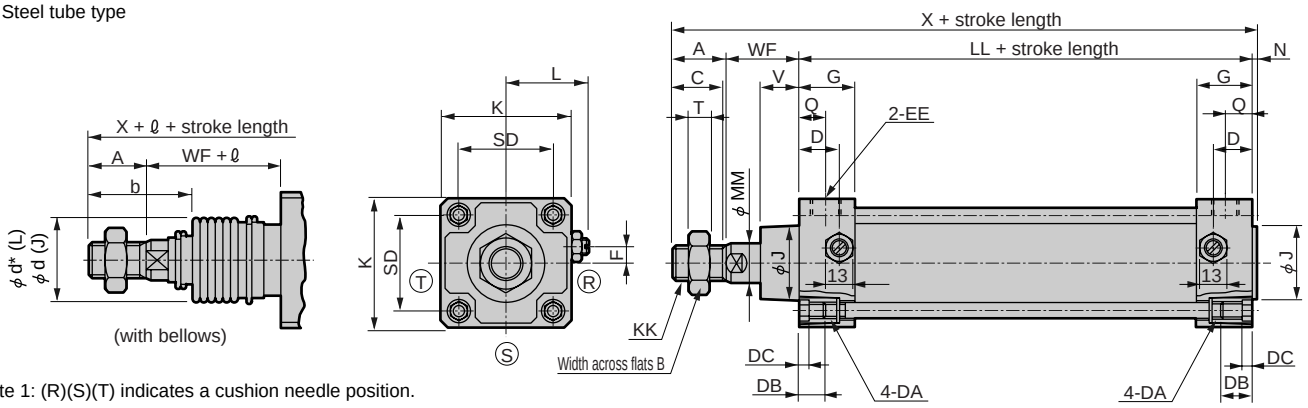
Part numbers follow the SCA2 Series internal structure drawing (page 448).

Bore size (mm)	Kit No.	Repair parts number
ϕ 40	SCA2-K-40K	③ ④ ⑧ ⑨ ⑫ ⑮ ㉑
ϕ 50	SCA2-K-50K	
ϕ 63	SCA2-K-63K	
ϕ 80	SCA2-K-80K	
ϕ100	SCA2-K-100K	

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

Dimensions

● Steel tube type

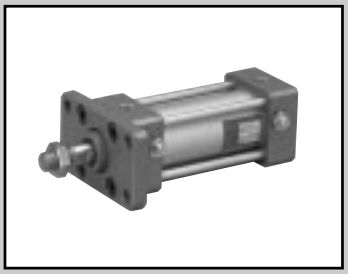


Note 1: (R)(S)(T) indicates a cushion needle position.
Note 2: Refer to page 598, 599 for accessory dimensions.

Symbol	Basic type (00) basic dimensions																						
Bore size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	J	K	KK	L	LL	MM	N	Q	SD	T	V	WF	X
ϕ40	22	22	20	18	M8	12	4	Rc1/4	7.5	26	31	57	M14 x 1.5	38.0 to 39.5	93	16	2	13	40.5	8	18.5	33.5	150.5
ϕ50	28	27	26	20	M8	12	4	Rc3/8	0	28	38	66	M18 x 1.5	41.0 to 43.5	101	20	2.5	14	48	11	20.5	37	168.5
ϕ63	28	27	26	22	M8	12	4	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20	3	15	59	11	21	35	171
ϕ80	36	32	34	26	M12	16	5	Rc1/2	0	34	43	98	M22 x 1.5	56.0 to 59.0	116	25	3.5	17	74	13	23.5	48	203.5
ϕ100	45	41	43	28	M12	16	5	Rc1/2	0	36	51	118	M26 x 1.5	66.0 to 69.0	128	30	4	18	90	16	32	53	230

Symbol	With bellows												
						ℓ							
Bore size (mm)	A	X	b	d	d*	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
ϕ40	22	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
ϕ50	28	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ63	28	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ80	36	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5
ϕ100	45	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9

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

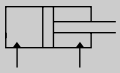


Medium bore size cylinder
Double acting, low hydraulic type

SCA2-H Series

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

JIS symbol



RoHS CAD

Specifications

Descriptions		SCA2-H (low hydraulic type)				
Bore size mm		ϕ40	ϕ50	ϕ63	ϕ80	ϕ100
Actuation		Double acting				
Working fluid Note 1		Hydraulic fluid				
Max. working pressure MPa		1.0				
Min. working pressure MPa		0.2		0.15		
Withstanding pressure MPa		1.6				
Ambient temperature ℃		5 to 50				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance mm		$^{+0.9}_{0}$ (Up to 360), $^{+1.4}_{0}$ (Up to 800)				
Cushion		Cushioned				
Effective cushion length mm		14.6	16.6	16.6	20.6	23.6
Allowable surge pressure MPa		2.9 (cushioned), 4.9 (no cushion)				
Allowable energy absorption J	Cushioned	Low hydraulic cylinder cushion performance cannot absorb large energy. So an external shock absorber should be used.				
	No cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Note 1: Working oil viscosity should be 40 mm^2/S at the working oil temperature.
The recommended oil is Fuji Kosan Fukkol Hydrol x22 or equivalent. Similar oils include Mitsubishi Diamond Power Fluid 18, Showa Shell Shell Terrace Oil 22, Esso Univis J26, Mobil Mobil DTE22, Cosmo Hydro HV22, Eneos Hiland Wide 22, and Idemitsu Daphney Super Hydro 22WR.

Stroke length

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

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

Min. stroke length of type with switch

● T0/T5 type min. stroke length with switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ40	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)
ϕ50	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)
ϕ63	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)
ϕ80	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)
ϕ100	15 (15)	25 (25)	45 (45)	70 (70)	15 (15)	25 (25)	70 (55)	70 (70)	125 (95)	125 (95)	125 (115)	125 (115)	60 (45)	60 (45)

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

● T8 type min. stroke length with switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ40	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)
ϕ50	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)
ϕ63	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)
ϕ80	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)
ϕ100	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

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
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

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

Note 1: Value in ( ) for T*V (Radial lead wire). Note that radial lead wire (V) is not available for T2YD.
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

Switch specifications (T type switch)

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

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

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

● With preventive maintenance output

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

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

Cylinder weight

(Unit: kg)

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

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

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

How to order

Without switch

SCA2-H - LB - 40 ( ) B - 100 ——— S I

With switch

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

Ⓐ Mounting style Note 1

Ⓑ Bore size

Ⓒ Port thread type

Ⓓ Cushion

Ⓔ Stroke length Note 2

Ⓕ Switch model no.

Ⓖ Switch quantity Note 4

Ⓗ Option Note 5

Ⓘ Accessory Note 6

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

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

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

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

Ⓔ Stroke length (mm)

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

Ⓕ Switch model no.

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

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

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

Ⓗ Option

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

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

Note on model no. selection

Note 1: The mounting bracket is shipped with the product. However, trunnion type is attached to the product when shipped.
Note 2: If the maximum stroke is exceeded, refer to Ending 74.
Note 3: Refer to page 550 for min. stroke length.
Note 4: When selecting TA or TB for mounting, the number of switches is limited to "H" (one on head side) for TA, and "R" (one on rod side) for TB.
Note 5: Instantaneous maximum temperature is the temperature when spark and spatter etc. instantaneously contacts to bellows.
Note 6: "I" and "Y" can not be selected at the same time.
Note 7: Refer to Ending 89 for custom specifications of rod end form.
Note 8: Refer to page 436 for variation and option combination.

<Example of model number>

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

Model: Medium bore size cylinder double acting low hydraulic type

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

How to order mounting bracket

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

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

[F] switch model no.

T type switch model no.

Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T0H*	**T0V***	Reed	1 color indicator type	2-wire
T5H*	**T5V***		Without indicator light	
T8H*	**T8V***		1 color indicator type	
T1H*	**T1V***	Proximity	1 color indicator type	2-wire
T2H*	**T2V***			3-wire
T3H*	**T3V***		2 color indicator type	2-wire
T2YH*	**T2YV***			3-wire
T3YH*	**T3YV***		1 color indicator type (custom order)	3-wire
T3PH*	**T3PV***		2 color indicator type (Without light for preventive maintenance output)	3-wire
T2YFH*	**T2YFV***			4-wire
T3YFH*	**T3YFV***		2 color indicator type (With light for preventive maintenance output (1 color))	3-wire
T2YMH*	**T2YMV***			4-wire
T3YMH*	**T3YMV***		Strong magnetic field proof switch	2-wire
T2YD*	-			
T2YDT*	-			
T2JH*	**T2JV***		Off-delay type	2-wire

R type switch

Grommet type	Terminal box type: Standard type	Terminal box type: Splash prf.	Contact	Indicator	Lead wire
R6*	**R6B**	**R6A**		1 color indicator type	

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

How to order switch

(T type switch)

● Switch body + mounting bracket

SCA2 - T0H - 40

Switch model no. (Item F previous page)

Bore size (Item B previous page)

● Only switch body

SW - T0H

Switch model no. (Item F previous page)

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

● Switch bracket set

SCA2 - TS - 40

Bracket

Bore size (Item B previous page)

(T2YD type switch)

● Switch body + mounting bracket

SCA2 - T2YD - 40

Switch model no. (Item F previous page)

Bore size (Item B previous page)

● Only switch body

SW - T2YD

Switch model no. (Item F previous page)

● Mounting bracket

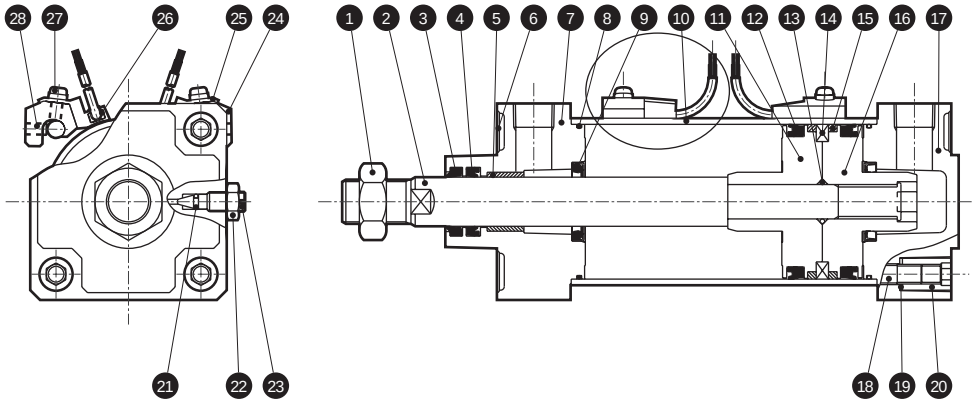
SCA2 - T - 40

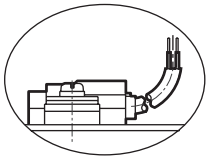
Bore size (Item B previous page)

Dimensions

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

Internal structure and parts list





R type switch

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

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

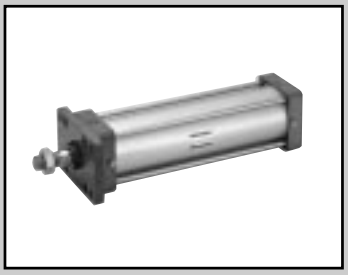
Repair parts list

Bore size (mm)	Kit No.	Repair parts number
ϕ 40	SCA2-H-40K	3 4 8 9 12 15 21
ϕ 50	SCA2-H-50K	
ϕ 63	SCA2-H-63K	
ϕ 80	SCA2-H-80K	
ϕ100	SCA2-H-100K	

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

Dimensions

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

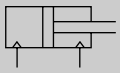


Medium bore size cylinder
Double acting, rubber scraper type

SCA2-G Series

● Bore size: ϕ40, ϕ50, ϕ63, ϕ80, ϕ100

JIS symbol



RoHS CAD

Specifications

Descriptions		SCA2-G (rubber scraper type)				
Bore size mm		ϕ40	ϕ50	ϕ63	ϕ80	ϕ100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure MPa		1.0				
Min. working pressure MPa		0.05				
Withstanding pressure MPa		1.6				
Ambient temperature ℃		-10 to 60 (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance mm		$^{+0.9}_{0}$ (Up to 360), $^{+1.4}_{0}$ (Up to 800)				
Working piston speed mm/s		50 to 1000 (use within the allowable energy absorption.)				
Cushion		Air cushion				
Effective cushion length mm		14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)				
Allowable energy absorption J	Cushioned	4.29	8.37	15.8	27.9	49.8
	No cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Stroke length

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

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

Min. stroke length of type with switch

● T0/T5 type min. stroke length with switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ40	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)
ϕ50	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)
ϕ63	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)
ϕ80	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)
ϕ100	15 (15)	25 (25)	45 (45)	70 (70)	15 (15)	25 (25)	70 (55)	70 (70)	125 (95)	125 (95)	125 (115)	125 (115)	60 (45)	60 (45)

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

● T8 type min. stroke length with switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ40	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)
ϕ50	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)
ϕ63	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)
ϕ80	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)
ϕ100	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

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.	Head end trunnion installation A position can not be detected at head side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
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

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

Note 1: Value in ( ) for T*V (Radial lead wire). Note that radial lead wire (V) is not available for T2YD.
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

Switch specifications (T type switch)

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

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

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

● With preventive maintenance output

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

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

Cylinder weight

(Unit: kg)

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

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

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

How to order

Without switch

SCA2-G - LB - 40 ( ) B - 100 ——— S I

With switch

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

Ⓐ Mounting style Note 1

Ⓑ Bore size

Ⓒ Port thread type

Ⓓ Cushion

Ⓔ Stroke length Note 2

Ⓕ Switch model no.

Ⓖ Switch quantity Note 4

Ⓗ Option

Ⓘ Accessory Note 5

Symbol	Descriptions
Ⓐ 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)
Ⓑ Bore size (mm)	
40	ϕ40
50	ϕ50
63	ϕ63
80	ϕ80
100	ϕ100
Ⓒ Port thread type	
Blank	Rc thread
N	NPT thread (custom order)
G	G thread (custom order)
Ⓓ Cushion	
B	Both sides cushioned
R	Rod end cushion
H	Head end cushion
N	No cushion

Ⓔ Stroke length (mm)

Bore size	Stroke length Note 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**		
ϕ100	**1 to 800**		

Ⓕ Switch model no.	
Refer to the switch model no. table on the following page.	
***Lead wire length**	
Blank	1m (standard)
3	3m (option)
5	5m (option)
Ⓖ Switch quantity	
R	One on rod end
H	One on head end
D	Two
T	Three
Ⓗ Option	
M	Piston rod material (stainless steel)
Blank	Cushion needle position R (standard)
S	Cushion needle position S
T	Cushion needle position T
P6	Copper and PTFE free (custom order)
Ⓘ Accessory	
I	Rod eye
Y	Rod clevis (pin and snap ring attached)
B1	Eye bracket
B2	Clevis bracket (pin and snap ring attached)
B3	Eye bracket
B4	Trunnion type No. 2 bracket

Note on model no. selection

Note 1: The mounting bracket is shipped with the product. However, trunnion type is attached to the product when shipped.
Note 2: If the maximum stroke is exceeded, refer to Ending 74.
Note 3: Refer to page 558 for min. stroke length.
Note 4: When selecting TA or TB for mounting, the number of switches is limited to "H" (one on head side) for TA, and "R" (one on rod side) for TB.
Note 5: "I" and "Y" can not be selected at the same time.
Note 6: Refer to Ending 89 for custom specifications of rod end form.
Note 7: Refer to page 436 for variation and option combination.

<Example of model number>

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

Model: Medium bore size cylinder double acting powerful scraper type

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

How to order mounting bracket

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

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

[F] switch model no.

T type switch model no.

Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T0H*	**T0V***	Reed	1 color indicator type	2-wire
T5H*	**T5V***		Without indicator light	
T8H*	**T8V***		1 color indicator type	
T1H*	**T1V***	Proximity	1 color indicator type	2-wire
T2H*	**T2V***			3-wire
T3H*	**T3V***		2 color indicator type	2-wire
T2YH*	**T2YV***			3-wire
T3YH*	**T3YV***		1 color indicator type (custom order)	3-wire
T3PH*	**T3PV***		2 color indicator type (Without light for preventive maintenance output)	3-wire
T2YFH*	**T2YFV***			4-wire
T3YFH*	**T3YFV***		2 color indicator type (With light for preventive maintenance output (1 color))	3-wire
T2YMH*	**T2YMV***			4-wire
T3YMH*	**T3YMV***		Strong magnetic field proof switch	2-wire
T2YD*	-			
T2YDT*	-			
T2JH*	**T2JV***		Off-delay type	2-wire

R type switch

Grommet type	Terminal box type: Standard type	Terminal box type: Splash prf.	Contact	Indicator	Lead wire
R6*	**R6B**	**R6A**		1 color indicator type	

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

How to order switch

(T type switch)

● Switch body + mounting bracket

SCA2 - T0H - 40

Switch model no. (Item Ⓕ previous page)
Bore size (Item Ⓑ previous page)

● Only switch body

SW - T0H

Switch model no. (Item Ⓕ previous page)

● Switch bracket set

SCA2 - TS - 40

Bracket
Bore size (Item Ⓑ previous page)

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

(T2YD type switch)

● Switch body + mounting bracket

SCA2 - T2YD - 40

Switch model no. (Item Ⓕ previous page)
Bore size (Item Ⓑ previous page)

● Only switch body

SW - T2YD

Switch model no. (Item Ⓕ previous page)

● Mounting bracket

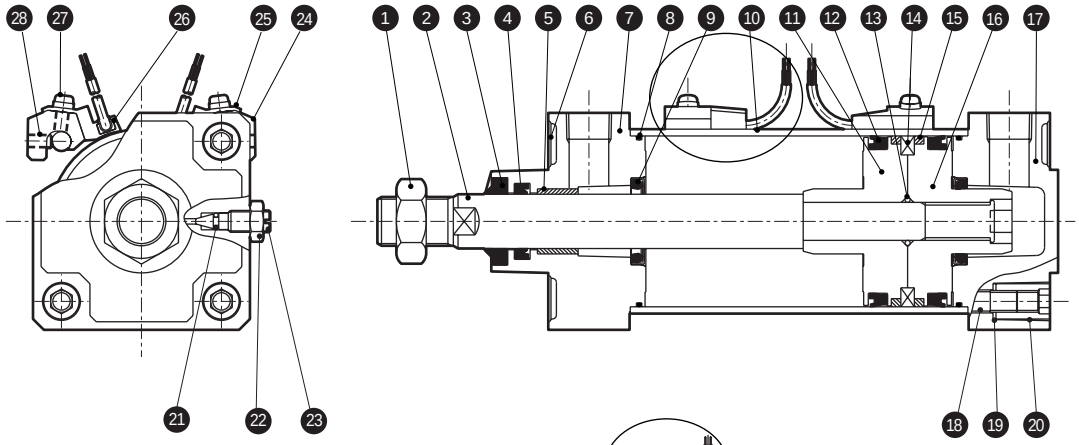
SCA2 - T - 40

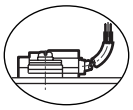
Bore size (Item Ⓑ previous page)

Dimensions

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

Internal structure and parts list





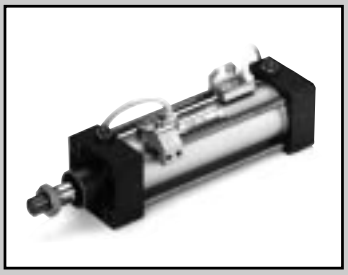
R type switch

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

Repair parts list

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

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

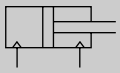


Medium bore size cylinder
Double acting, coolant proof type

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

● Bore size: ϕ40, ϕ50, ϕ63, ϕ80, ϕ100

JIS symbol



RoHS CAD

Specifications

Descriptions		SCA2-G2/G3				
Bore size mm		ϕ40	ϕ50	ϕ63	ϕ80	ϕ100
Actuation		Double acting, coolant proof type				
Working fluid		Compressed air				
Max. working pressure MPa		1.0				
Min. working pressure MPa		0.05				
Withstanding pressure MPa		1.6				
Ambient temperature ℃		-10 to 60 (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance mm		$^{+0.9}_{0}$ (Up to 360), $^{+1.4}_{0}$ (Up to 800)				
Working piston speed mm/s		50 to 1000 (use within allowable energy absorption.)				
Cushion		Air cushion				
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)				
Allowable energy absorption J	Cushioned	4.29	8.37	15.8	27.9	49.8
	No cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Stroke length

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

Note 1: Custom stroke length is available per 1mm increment.
Note 2: When using the switch, the minimum stroke differs with the mounting method. See the table below for strokes.
If the stroke is 15 mm or less, two switches may turn on simultaneously.
In this case, adjust switch positions by separating them.
Note 3: If the maximum stroke is exceeded, product specifications many not be met, depending on operating conditions. Refer to Ending 74.

● T2YL/T3YL type min. stroke length with switch

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

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

Switch specifications

Descriptions	Proximity 2-wire	Proximity 3-wire
	T2YLH/T2YLV	T3YLH/T3YLV
Applications	Programmable controller	Programmable controller, relay
Power voltage	-	10 to 28 VDC
Load voltage/current	10 to 30 VDC, 5 to 20 mA Note 1	30 VDC or less, 50 mA or less
Light	Red/green LED (ON lighting)	
Maximum shock resistance	980 m/S^2	
Leakage current	1 mA or less	10 μA or less

Note1: Max. load current above: 20 mA at 25℃. When ambient temperature around switch is more than 25℃, the value is lower than 20 mA.
(5 to 10 mA at 60 ℃)

Cylinder weight

(Unit: kg)

Bore size (mm)	Product aweight when stroke length (S) = 0 mm							Weight per switch (including mounting bracket)				Additional weight per S = 100 mm
	Basic type (00)	Foot type (LB)	Flange type (FA, FB)	Special flange type (FC)	Eye bracket type (CA)	Clevis bracket type (CB)	Trunnion type (TA, TB, TC)	T2YL type		T3YL type		
								1 m	3 m	1 m	3 m	
ϕ40	0.84	1.01	1.25	0.93	1.16	1.20	1.22	0.05	0.10	0.05	0.10	0.39
ϕ50	1.23	1.48	1.72	1.34	1.61	1.64	1.77					0.46
ϕ63	1.63	2.00	2.72	1.81	2.20	2.25	2.48					0.50
ϕ80	2.63	3.37	4.49	2.99	3.90	4.11	3.97					0.90
ϕ100	4.24	5.15	6.98	4.79	5.88	6.06	6.81					1.12

(E.g.) Product weight of SCA2-G2-LB-50-200-T2YLH-D
- Product weight when stroke length (S) = 0 mm ⋯ 1.48 kg
- Additional weight at stroke length 200 mm ⋯ 0.46 x $\frac{200}{100}$ = 0.92 kg
- Weight of two switches ⋯ 0.05 x 2 = 0.10 kg
- Product weight ⋯ 1.48 + 0.92 + 0.10 kg = 2.50 kg

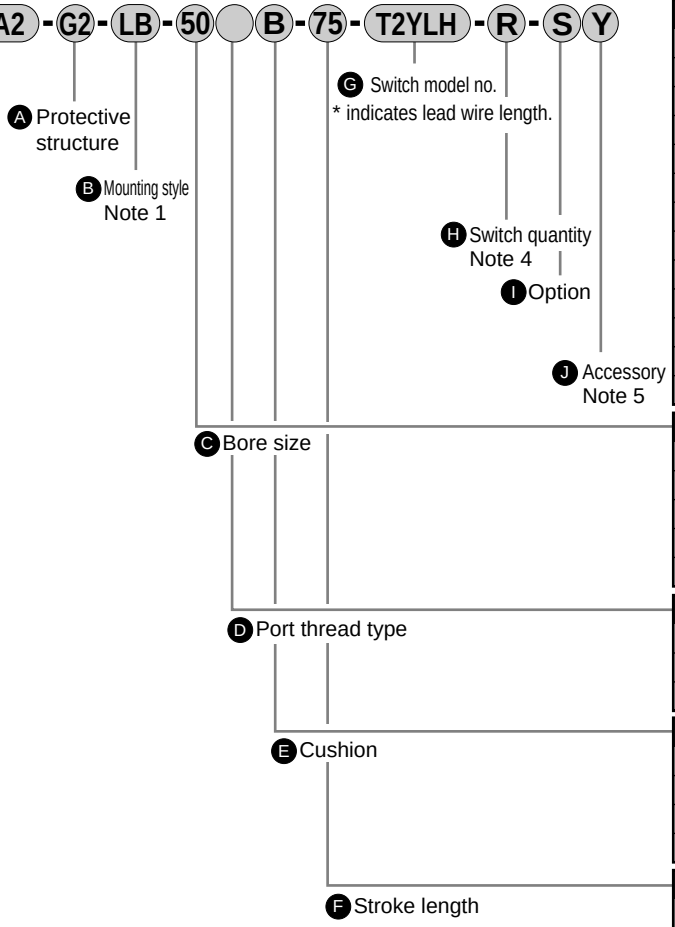
How to order

Without switch

SCA2 - G2 - LB - 50 ( ) B - 75 ——— S Y

With switch

SCA2 - G2 - LB - 50 ( ) B - 75 - T2YLH - R - S Y



Symbol	Descriptions
A Protective structure	
G2	Coolant proof scraper + packing seal NBR
G3	Coolant proof scraper + packing seal FKM

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

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

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

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

F Stroke length (mm)

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

G Switch model no.

Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T2YLH*	**T2YLV***	Proximity	2 color indicator type	2-wire
T3YLH*	**T3YLV***			3-wire

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

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

I Option	
Blank	Cushion needle position change R (standard)
S	Cushion needle position change S
T	Cushion needle position change T

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

⚠ Note on model no. selection

Note 1: The mounting bracket is shipped with the product. (However, trunnion type is attached to the product when shipped.)
Note 2: If the maximum stroke is exceeded, refer to Ending 74.
Note 3: Refer to page 566 for min. stroke length.
Note 4: When selecting TA or TB for mounting, the number of switches is limited to "H" (one on head end) for TA, and "R" (one on rod end) for TB.
Note 5: "I" and "Y" can not select a selection at the same time.
Note 6: Refer to Ending 89 for custom specifications of rod end form.
Note 7: Refer to page 436 for variation and option combination.

<Example of model number>

SCA2-G2-LB-50B-75-T2YLH-R-SI

Model: Medium bore size cylinder
- A Protective structure : Coolant proof scraper + packing seal NBR
- B Mounting style : Axial foot type
- C Bore size : ϕ 50 mm
- D Port thread type : Rc thread
- E Cushion : Both sides cushioned
- F Stroke length : 75 mm
- G Switch model no. : Proximity switch T2YLH, lead wire 1 m
- H Switch quantity : 1 on rod end
- I Option : Cushion needle position change
- J Accessory : Rod eye

How to order switch

● Switch body + mounting bracket

SCA2 - G2 - T2YLH - 40

- T2YLH: Switch model no. (Item G previous page)
- 40: Bore size (Item C previous page)

● Mounting bracket

SCA2 - G2 - T - 50

- T: Bracket
- 50: Bore size (Item C previous page)

● Only switch body

SW - T2YLH

- T2YLH: Switch model no. (Item G previous page)

How to order mounting bracket

Bore size (mm) / Mounting bracket	ϕ40	ϕ50	ϕ63	ϕ80	ϕ100
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.

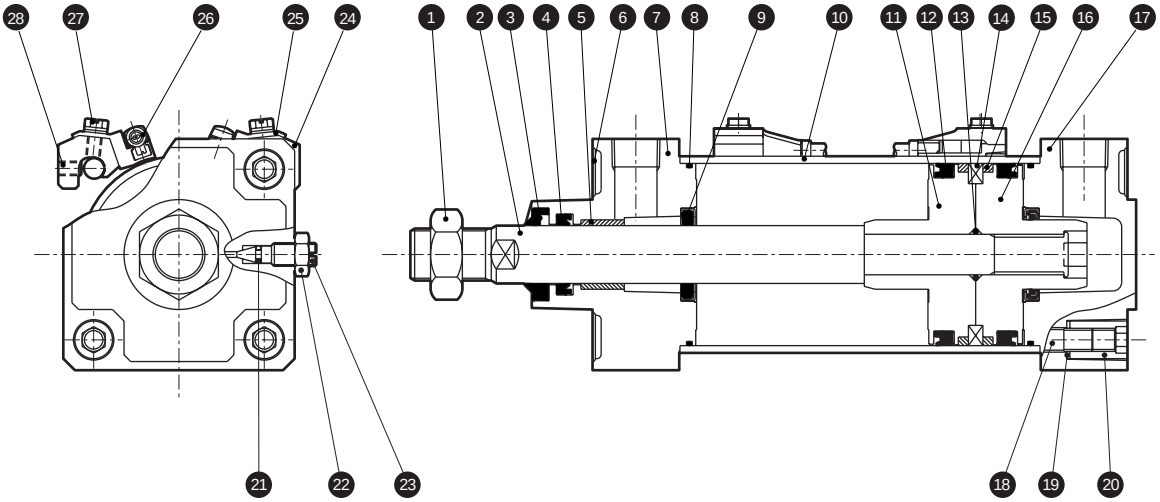
Internal structure and parts list

● Protective structure: Packing seal NBR

SCA2 - G2

● Protective structure: Packing seal FKM

SCA2 - G3



Main parts list

No.	Parts name		Material	Remarks	No.	Parts name		Material	Remarks
1	Rod nut		Stainless steel		14	Magnet		Plastic	
2	Piston rod		Stainless steel	Industrial chrome plating	15	Wear ring		Polyacetal resin	
3	Scraper	G2	Nitrile rubber		16	Piston H		Aluminum alloy	Chromate treatment
		G3	Fluoro rubber		17	Head cover		Aluminum alloy	Paint
4	Rod packing seal	G2	Nitrile rubber		18	Round nut		Steel	Zinc chromate plating
		G3	Fluoro rubber		19	Conical spring washer		Steel	Blackening
5	Bush		Oil impregnated bearing alloy		20	Tie rod		Steel	Zinc chromate plating
6	Masking plate		Aluminum alloy	Paint	21	Needle gasket	G2	Nitrile rubber	
7	Rod cover		Aluminum alloy	Paint			G3	Fluoro rubber	
8	Cylinder gasket	G2	Nitrile rubber		22	Needle nut		Copper alloy	
		G3	Fluoro rubber		23	Cushion needle		Copper alloy	
9	Cushion packing seal	G2	Urethane rubber		24	Cylinder switch			
		G3	Fluoro rubber		25	Slotted, hexagon head bolt w/washer		Stainless steel	
10	Cylinder tube		Aluminum alloy	Hard alumite treatment	26	Spring washer		Stainless steel	
11	Piston R		Aluminum alloy	Chromate treatment	27	Compact round washer		Stainless steel	
12	Piston packing seal	G2	Nitrile rubber		28	Switch holder		Aluminum alloy	Chromate treatment
		G3	Fluoro rubber		29	Switch installation unit		Aluminum alloy	Chromate treatment
13	Piston gasket	G2	Nitrile rubber		30	Hexagon socket head set screw		Stainless steel	
		G3	Fluoro rubber						

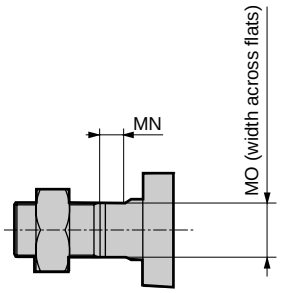
Repair parts list

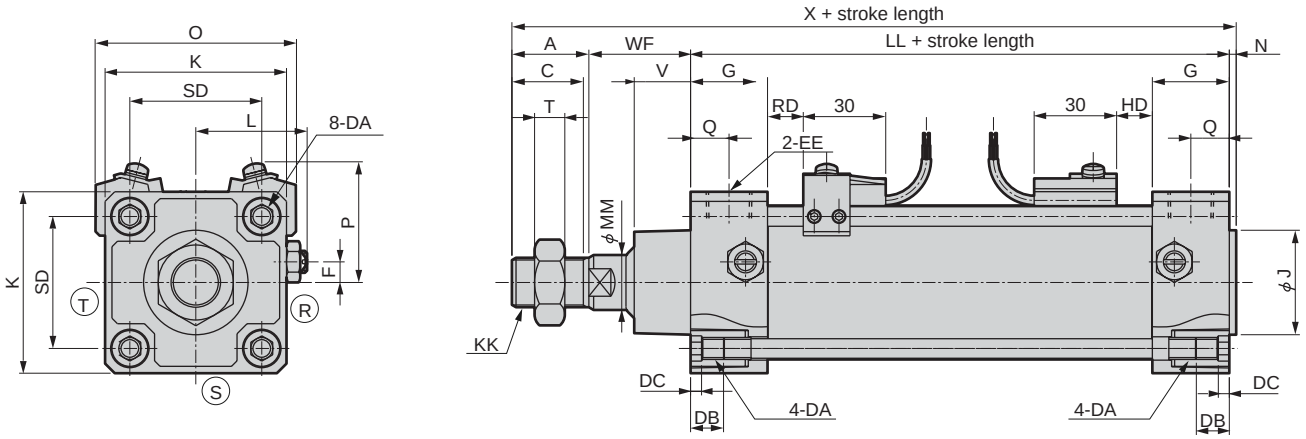
No./part / Bore size (mm)	Kit No.	Repair parts number
ϕ 40	SCA2-G2- 40K	③ ④ ⑧ ⑨ ⑫ ⑮ ㉑
	SCA2-G3- 40K	
ϕ 50	SCA2-G2- 50K	
	SCA2-G3- 50K	
ϕ 63	SCA2-G2- 63K	
	SCA2-G3- 63K	
ϕ 80	SCA2-G2- 80K	
	SCA2-G3- 80K	
ϕ 100	SCA2-G2-100K	
	SCA2-G3-100K	

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

Dimensions CAD

● Basic type with switch (00)



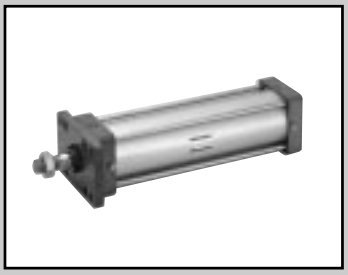


Note 1: Refer to pages 572, 573 for accessory dimensions.

Symbol	Basic type with switch (00)														
Bore size (mm)	A	C	D	DA	DB	DC	EE	F	G	J	K	KK	L	LL	MM
ϕ40	22	20	18	M8	12	4	Rc1/4	7.5	26	31	57	M14 x 1.5	38 to 39.5	93	16
ϕ50	28	26	20	M8	12	4	Rc3/8	0	28	38	66	M18 x 1.5	41 to 43.5	101	20
ϕ63	28	26	22	M8	12	4	Rc3/8	0	30	38	80	M18 x 1.5	47.5 to 50.0	105	20
ϕ80	36	34	26	M12	16	5	Rc1/2	0	34	43	98	M22 x 1.5	56 to 59	116	25
ϕ100	45	43	26	M12	16	5	Rc1/2	0	36	51	118	M26 x 1.5	66 to 69	128	30

Symbol										With switch			
Bore size (mm)	MN	MO	N	Q	SD	T	V	WF	X	HD	P	O	RD
ϕ40	8	14	2	13	40.5	8	18.5	33.5	150.5	10	42	66	10
ϕ50	8	17	2.5	14	48	11	20.5	37	168.5	12	44	73	12
ϕ63	8	17	3	15	59	11	21	35	171	12	47	84	12
ϕ80	11	22	3.5	17	74	13	23.5	48	203.5	13.5	58	104	13.5
ϕ100	13	27	4	18	90	16	32	53	230	17.5	64	120	17.5

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



Medium bore size cylinder
Double acting coil scraper type

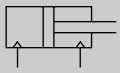
SCA2-G1 Series

Double acting spatter adherence prevention type

SCA2-G4 Series

● Bore size: ϕ40, ϕ50, ϕ63, ϕ80, ϕ100

JIS symbol



RoHS

Specifications

Descriptions		SCA2-G1·G4 SCA2-G1L2·G4L2				
Bore size mm		ϕ40	ϕ50	ϕ63	ϕ80	ϕ100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure MPa		1.0				
Min. working pressure MPa		0.05				
Withstanding pressure MPa		1.6				
Ambient temperature ℃		-10 to 60 (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance mm		$^{+0.9}_{0}$ (To 360), $^{+1.4}_{0}$ (to 800)				
Working piston speed mm/s		50 to 1000 (use within allowable energy absorption.)				
Cushion		Air cushion				
Effective cushion length mm		14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)				
Allowable energy absorption J	Cushioned	4.29	8.37	15.8	27.9	49.8
	No cushion	0.067	0.079	0.079	0.201	0.301
		The type without cushion cannot absorb a large energy generated by an external load. so an external shock absorber should be used.				

Stroke length

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

Note 1: Custom stroke length is available per 1mm increment.
Note 2: For types with switch, minimum stroke length varies depending on installation method. Refer to below table.

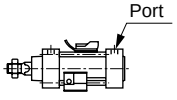
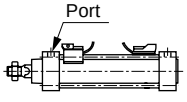
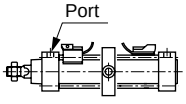
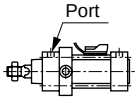
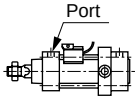
Min. stroke length of type with switch (T2YD type switch)

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod end stroke end.	Head end trunnion installation A position can not be detected at head end stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ40	20	20	25	40	20	60	105	150	105	105	165	165	50	50
ϕ50	15	15	25	40	15	15	60	60	100	100	100	100	45	45
ϕ63	15	15	25	40	15	15	60	60	105	105	105	105	50	50
ϕ80	15	15	30	45	15	15	60	60	110	110	110	110	55	55
ϕ100	10	15	0	45	10	15	60	60	120	120	120	120	60	60

Note 1: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

Min. stroke length of type with switch (H type switch)

(Unit: mm)

Sketch	Different surface installation	Same surface installation	Center (hole type) trunnion installation	Rod end (hole type) trunnion installation	Head end (hole type)) trunnion installation
				 A position can not be detected at rod end stroke end.	 A position can not be detected at head end stroke end.

Switch quantity / Bore size (mm)	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ϕ40	10	20	35	50	10	50	100	150	86	86	92	92	38	38
ϕ50	10	20	40	55	10	50	100	150	86	86	92	92	36	36
ϕ63	10	20	40	55	10	35	100	150	91	91	97	97	41	41
ϕ80	10	20	40	55	10	20	100	150	96	96	102	102	44	44
ϕ100	10	20	40	55	10	20	100	150	106	106	112	112	50	50

Note 1: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

Switch specifications

● Strong magnetic field proof proximity

Descriptions	Proximity 2 wire	
	T2YD	
Applications	Programmable controller	
Load voltage	24 VDC ±10%	
Load current	5 to 20mA	
Light	Red/green LED (ON lighting)	
Internal voltage drop	6V or less	
Leakage current	1.0mA or less	
Output delay hour Note 1 (ON/OFF delay)	30 to 60ms	
Lead wire length	1m (oil resistant vinyl cabtire cable ϕ 6, 0.5mm^2 x 2 conductor) Note 2, Note 3	0.3m (flame resistance cabtire cord ϕ 6, 0.5 mm^2 with M12 cable connector x 2 conductor)
Insulation resistance	100MΩ and over with 500 VDC megger	
Withstand voltage	No failure when 1000 VAC is applied for one minute	
Maximum shock resistance	980m/s^2	
Ambient temperature	-10 to + 60℃	
Protective structure	JIS C029 (water tight type), IEC standards IP67, oil registance	

Note 1: This shows the time from magnetic sensor detects piston magnet until outputs a signal.
Note 2: For lead wire length, 3m and 5m are available as an option.
Note 3: For lead wire material, flame resistance type is available as an option.

● Strong magnetic field proof reed 2 wire

Descriptions	Reed 2 wire		
	H0		H0Y (2 color indicator type)
Applications	Programmable controller, relay		Programmable controller
Load voltage	12/24 VDC	110 VAC	24 VDC
Load current	5 to 50mA	7 to 20mA	5 to 20mA
Internal voltage drop	5V or less		6V or less
Light	Green LED (ON lighting)		Red/green LED (ON lighting)
Leakage current	10 μA or less		
Lead wire length	1m (flame resistance cabtire cord ϕ 6, 0.5mm^2 x 2 conductor)		
Insulation resistance	100MΩ and over with 500 VDC megger		
Withstand voltage	No failure impressed at 1000 VAC for one minute		
Maximum shock resistance	294m/s^2		
Ambient temperature range	-10 to + 60℃		
Protective structure	JIS C029 (water tight type), IEC standards IP67, oil registance		

Cylinder weight

(Unit: kg)

Bore size (mm)	Product weight when stroke length (S) = 0mm							Weight per switch (including mounting bracket)				Addishonal weight per S=100mm
	Basic type (00)	Foot type (LB)	Flange type (FA, FB)	Special flange type (FC)	Eye bracket type (CA)	Clevis bracket type (CB)	Trunnion type (TA, TB, TC)	H type		T2YD type		
								1m	3m	1m	3m	
ϕ 40	0.84	1.01	1.25	0.93	1.16	1.20	1.22	0.10	0.20	0.08	0.17	0.39
ϕ 50	1.23	1.48	1.72	1.34	1.61	1.64	1.77					0.46
ϕ 63	1.63	2.00	2.72	1.81	2.20	2.25	2.48					0.50
ϕ 80	2.63	3.37	4.49	2.99	3.90	4.11	3.97					0.90
ϕ 100	4.24	5.15	6.98	4.79	5.88	6.06	6.81					1.12

(E.g.) Product weight for SCA2-G4-LB50B-200-H0-D
- Product weight when stroke length 0mm ⋯ 1.48 kg
- Additional weight when stroks rength 200mm ⋯ 0.46 x $\frac{200}{100}$ = 0.92kg
- Weight for 2 switches ⋯ 0.10 x 2 = 0.20 kg
- Product weght ⋯ 1.48 + 0.92 + 0.20 kg = 2.60 kg

How to order

Without switch

SCA2 - G4 —— LB - 40 B - 100 ———— S I

With switch

SCA2 - G4 —— LB - 40 B - 100 - T2YD - R - S I

With strong magnetic field proof (H0, H0Y) switch

SCA2 - G4 L2 - LB - 40 B - 100 - H0Y - R - S I

Ⓐ Model no.

Ⓑ Mounting style Note 1

Ⓒ Bore size

Ⓓ Cushion

Ⓔ Stroke length Note 2

Ⓕ Switch model no.

Ⓖ Switch quantity Note 4

Ⓗ Option

Ⓘ Accessory Note 5

Symbol	Descriptions
Ⓐ Model no.	
G1	Double acting coil scraper type
G4	Double acting spatter adherence prevention type

Ⓑ Mounting style

00	Basic type
LB	Axial foot type
FA	Rod end flange type
FB	Head end flange type
FC	Special head end flange type
CA	Eye bracket type
CB	Clevis bracket type
TC	Center trunnion type
TA	Rod end trunnion type
TB	Head end trunnion type
TF	Intermediate supporting hole (ϕ40 cannot be selected)
TD	Rod end supporting hole (ϕ40 cannot be selected)
TE	Head end supporting hole (ϕ40 cannot be selected)

Ⓒ Bore size (mm)

40	ϕ 40
50	ϕ 50
63	ϕ 63
80	ϕ 80
100	ϕ 100

Ⓓ Cushion

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

Ⓔ Stroke length (mm)

Bore size	Stroke length Note 3	Available stroke length	Custom stroke length
ϕ40	1 to 600	**1600**	**Per 1mm increment**
ϕ50	1 to 600	**2000**	
ϕ63	1 to 600	**2500**	
ϕ80	1 to 700		
ϕ100	1 to 800		

Ⓕ Switch model no.

Grommet type	Terminal box type: Standard type	Terminal box type: Splash-proof	Contact	Indicator	Lead wire
T2YD*	-	-	Proximity	Strong magnetic field proof switch	2-wire
T2YDT*	-	-			
H0*	-	-	Reed	Strong magnetic field proof switch Strong magnetic field 2 color indicator type	2-wire
H0Y*	-	-			

***Lead wire length**

Blank	1m (standard)
3	3m (option)
5	5m (option)

Ⓖ Switch quantity

R	1 on rod end
H	1 on head end
D	2
T	3

Ⓗ Option

Blank	Cushion needle position R (standard)
S	Cushion needle position S
T	Cushion needle position T

Ⓘ Accessory

I	Rod eye
Y	Rod clevis
B1	Eye bracket
B2	Clevis bracket
B3	Eye bracket
B4	Trunnion type No. 2 bracket

⚠ Note on model no. selection

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

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

Note 3: Refer to Page 572 for minimun stroke length of the type with switch.

Note 4: Switch quantity is limited when selected mounting style TA or TB; "H" (one on head end) for TA, "R" (one on rod end) for TB.

Note 5: "I" and "Y" can not select a selection at the same time.

Note 6: Refer to ending 89 for rod end specifications by custum oder.

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

<Example of model number>

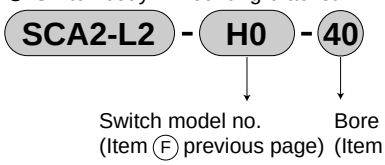
SCA2-G4-LB-40B-100-T2YD-R-SI

Model: Medium bore size cylinder

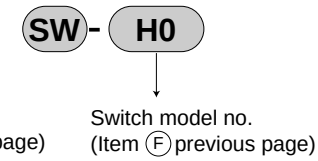
Ⓐ Model no. : Double acting spatter adherence prevention type
Ⓑ Mounting style : Axial foot type
Ⓒ Bore size : ϕ 40mm
Ⓓ Cushion : Both sides cushioned
Ⓔ Stroke length : 100mm
Ⓕ Switch model no. : Proximity switch T2YD, lead wire length 1m
Ⓖ Switch quantity : One on rod end
Ⓗ Option : Cushion needle position S
Ⓘ Accessory : Rod eye

How to order H type switch

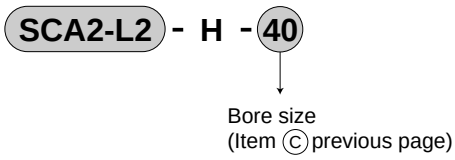
● Switch body + mounting bracket



● Only switch body

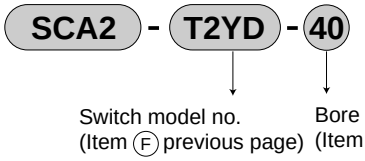


● Mounting bracket

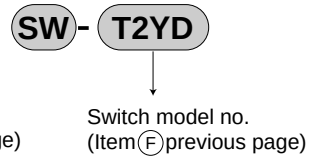


How to order T2YD type switch

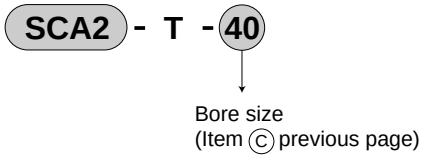
● Switch body + mounting bracket



● Only switch body



● Mounting bracket



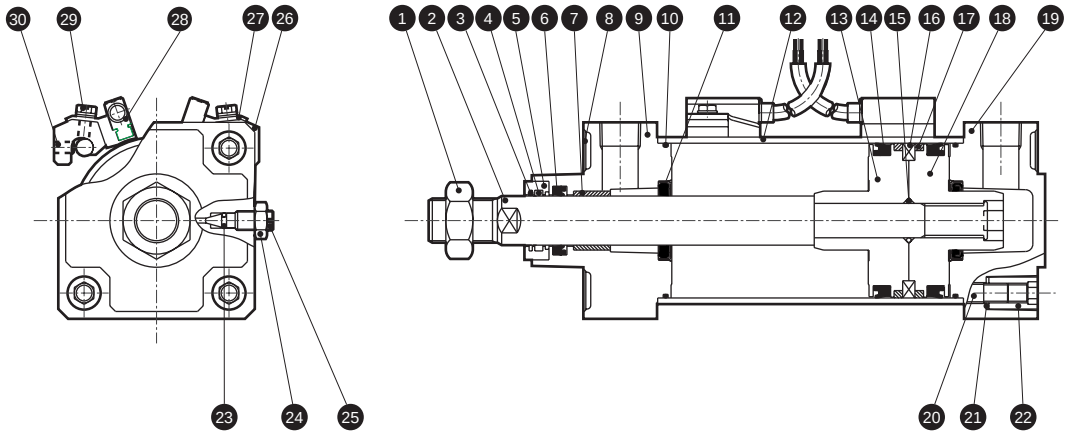
How to order mounting bracket

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

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

Internal structure and parts list

● SCA2-G1.G4



No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Rod nut	Steel	Zinc chromate	17	Wear ring	Polyacetal resin	
2	Piston rod	Steel	Industrial chrome plating	18	Piston H	Aluminum alloy die-casting	
3	Coil scraper	Phosphor bronze		19	Head cover	Aluminum alloy die-casting	Paint
4	Lube keeping structure	Special rubber	Only "G4"	20	Tie rod	Steel	Zinc chromate
5	Adaptor	Stainless steel		21	Conical spring washer	Steel	Blackening
6	Rod packing seal	Nitrile rubber		22	Round nut	Steel	Zinc chromate
7	Bush	Oil impregnated bearing alloy		23	Needle gasket	Nitrile rubber	
8	Masking plate	Aluminum alloy	Paint	24	Needle nut	Copper alloy	
9	Rod cover	Aluminum alloy die-casting	Paint	25	Cushion needle	Copper alloy	
10	Cylinder gasket	Nitrile rubber		With switch			
11	Cushion packing seal	Urethane rubber and steel	Special	26	Switch installation unit	Aluminum alloy	
12	Cylinder tube	Aluminum alloy	Hard alumite treatment	27	Switch holder	Aluminum alloy	
13	Piston R	Aluminum alloy die-casting		28	Cylinder switch		
14	Piston packing seal	Nitrile rubber		29	Slotted hexagon head bolt w/washer	Stainless steel	
15	Piston gasket	Nitrile rubber		30	Hexagon socket head set screw	Alloy steel	Blackening
16	Magnet	Plastic					

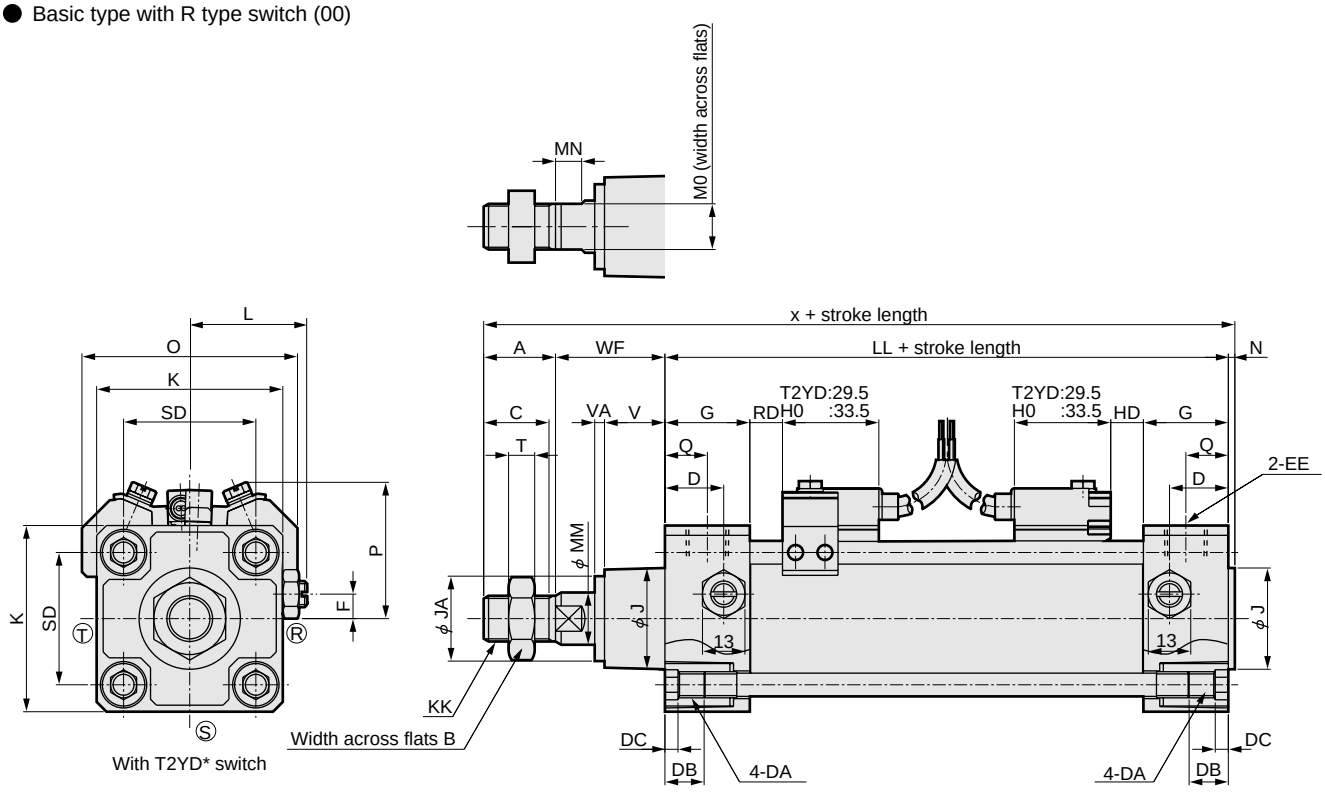
Repair parts list (SGA2-G1)

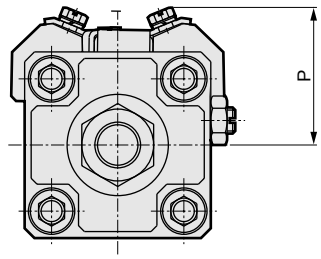
Bore size	Kit No.	Repair parts number
ϕ40	SCA2-G1-40K	❸ ❻ ❿ ⓫ ⓮ ⓱ ㉓
ϕ50	SCA2-G1-50K	
ϕ63	SCA2-G1-63K	
ϕ80	SCA2-G1-80K	
ϕ100	SCA2-G1-100K	

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

Dimensions

● Basic type with R type switch (00)





Note 1: R S T indicates a cushion needle position.
RD: Rod end max. sensitive position
HD: Head end max. sensitive position

Nore 2: Referr to pages 598 to 599 for the dimentions of attachement.

Symbol	Basic type (00) basic dimensions																									
Bore size (mm)	A	B	C	D	DA	DB	DC	EE	F	G	J	JA	K	KK	L	LL	MM	MN	MO	N	Q	SD	T	V	VA	WF	X
ϕ 40	22	22	20	18	M8	12	4	Rc1/4	7.5	26	31	26	57	M14 x 1.5	38 to 39.5	93	16	8	14	2	13	40.5	8	18.5	3	33.5	150.5
ϕ 50	28	27	26	20	M8	12	4	Rc3/8	0	28	38	32	66	M18 x 1.5	41 to 43.5	101	20	8	17	2.5	14	48	11	20.5	3	37	168.5
ϕ 63	28	27	26	22	M8	12	4	Rc3/8	0	30	38	32	80	M18 x 1.5	47.5 to 50.0	105	20	8	17	3	15	59	11	21	3	35	171
ϕ 80	36	32	34	26	M12	16	5	Rc1/2	0	34	43	37	98	M22 x 1.5	56 to 59	116	25	11	22	3.5	17	74	13	23.5	3	48	203.5
ϕ 100	45	41	43	28	M12	16	5	Rc1/2	0	36	51	42	118	M26 x 1.5	66 to 69	128	30	13	27	4	18	90	16	32	2	53	230

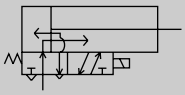
Symbol	With T2YD* switch				With H0* switch				
Bore size (mm)	HD	P	O	RD	HD	P	O	RD	
ϕ 40	10	40	66	10	4	42	66	4	
ϕ 50	12	44.5	73	12	6	44	73	6	
ϕ 63	12	50	84	12	6	47	84	6	
ϕ 80	13.5	60	104	13.5	7.5	58	104	7.5	
ϕ 100	17.5	68	120	17.5	11.5	64	120	11.5	

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

Medium bore size cylinder
Double acting, with valve

SCA2-V Series

● Bore size: ϕ40, ϕ50, ϕ63, ϕ80, ϕ100

JIS symbol  (Single solenoid, Push at energized)

RoHS

Specifications

Descriptions		SCA2-V1/V2/V (with valve)				
Bore size mm		ϕ40	ϕ50	ϕ63	ϕ80	ϕ100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure MPa		0.7				
Min. working pressure MPa		0.15				
Withstanding pressure MPa		1.05				
Ambient temperature ℃		-5 to 50 (no freezing)				
Port size		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance mm		$^{+0.9}_{0}$ (Up to 360) $^{+1.4}_{0}$ (Up to 800)				
Working piston speed Note 1 mm/s		50 to 500				50 to 450
Cushion		Air cushion				
Effective cushion length mm		14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (when lubricating, use turbine oil Class 1 ISO VG32.)				
Allowable energy absorption J	Cushioned	4.29	8.37	15.8	27.9	49.8
	No cushion	0.067	0.079	0.079	0.201	0.301
		If "No cushion" is selected, the large energy generated by the external load cannot be absorbed. So an external shock absorber should be used.				

Note 1: Use this within absorbed energy range. To increase a piston speed of ϕ100 cylinder, using silencer (SLW-10A) as substitution of metering valve (SMW-10A) enables 500 mm/s.

Valve specifications

Model no. / Descriptions	V1 SCA2-V2-40/50 V			V1 SCA2-V2-63 V			V1 SCA2-V2-80/100 V		
Model no.	4KB2*9-00-[Voltage]			4KB3*9-00-[Voltage]			4KB4*9-00-[Voltage]		
Rated voltage	100 VAC (50/60Hz)	200 VAC (50/60Hz)	24 VDC	100 VAC (50/60Hz)	200 VAC (50/60Hz)	24 VDC	100 VAC (50/60Hz)	200 VAC (50/60Hz)	24 VDC
Starting current (A)	0.056/0.044	0.028/0.022	0.075	0.046/0.042	0.023/0.021	0.075	0.046/0.042	0.023/0.021	0.075
Holding current (A)	0.028/0.022	0.014/0.011		0.028/0.021	0.014/0.011		0.028/0.022	0.014/0.011	
Power consumption (W)	1.8/1.4	1.8/1.4	1.8	1.6/1.3	1.6/1.3	1.8	1.6/1.3	1.6/1.3	1.8
Voltage fluctuation range	±10%	±10%	±10%	±10%	±10%	±10%	±10%	±10%	±10%
Insulation class	Class B molded coil	Class B molded coil	Class B molded coil	Class B molded coil	Class B molded coil	Class B molded coil	Class B molded coil	Class B molded coil	Class B molded coil
Lead wire Lead-out	Grommet lead wire (300 mm)								

Note: Refer to "Pneumatic valves" CB-23SA about valves' details.

Stroke length

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

Note 1: Custom stroke length is available per 1mm increment.
Note 2: Whether with switch or without switch, stroke length less than 50 mm is not available.

Min. stroke length of type with switch

● T0/T5 type min. stroke length with switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1
ϕ40	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)
ϕ50	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)
ϕ63	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)
ϕ80	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)
ϕ100	50 (50)	50 (50)	50 (50)	70 (70)	50 (50)	50 (50)	70 (55)	70 (70)	125 (95)	125 (95)	125 (115)	125 (115)	60 (50)

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: Stroke length less than 50 mm is not available.
Note 3: T8 type switches can not be installed.

Min. stroke length of type with switch

● T2/T3 type min. stroke length with switch

	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation A position can not be detected at rod side stroke end.
Switch quantity	1	2	3	4	1	2	3	4	1	2	3	4	1
ϕ40	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)
ϕ50	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)
ϕ63	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)
ϕ80	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)
ϕ100	50 (50)	50 (50)	50 (50)	50 (50)	50 (50)	50 (50)	60 (50)	60 (50)	125 (95)	125 (95)	125 (100)	125 (100)	60 (50)

Note 1: Value in ( ) for T*V (Radial lead wire).
Note 2: Stroke length less than 50 mm is not available.

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

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

Note 1: Value in ( ) for T*V (Radial lead wire). Note that radial lead wire (V) is not available for T2YD.
Note 2: When stroke length is shorter than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

Switch specifications (T type switch)

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

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

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

● With preventive maintenance output

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

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

Cylinder weight

● SCA2-V

(Unit: kg)

Bore size (mm)	Product weight when stroke length (S) = 0 mm						Weight per switch (including mounting bracket)			Additional weight per S = 100 mm
	Basic type (00)	Foot type (LB)	Flange type (FA, FB)	Eye bracket type (CA)	Clevis bracket type (CB)	Trunnion type (TA, TB, TC)	T type	T2YD type		
								1 m	3 m	
ϕ40	1.27	1.45	1.69	1.59	1.63	1.66	0.018	0.08	0.17	0.39
ϕ50	1.64	1.89	2.14	2.02	2.05	2.18				0.46
ϕ63	2.39	2.76	3.48	2.96	3.01	3.24				0.50
ϕ80	4.17	4.91	6.03	5.44	5.65	5.51				0.90
ϕ100	5.77	6.67	8.51	7.40	7.59	8.33				1.12

● SCA2-V1/V2

(Unit: kg)

Bore size (mm)	Product weight when stroke length (S) = 0 mm						Weight per switch (including mounting bracket)			Additional weight per S = 100 mm
	Basic type (00)	Foot type (LB)	Flange type (FA, FB)	Eye bracket type (CA)	Clevis bracket type (CB)	Trunnion type (TA, TB, TC)	T type	T2YD type		
								1 m	3 m	
ϕ40	1.23	1.40	1.64	1.55	1.59	1.61	0.018	0.08	0.17	0.39
ϕ50	1.60	1.84	2.09	1.97	2.01	2.13				0.46
ϕ63	2.28	2.65	3.38	2.85	2.91	3.13				0.50
ϕ80	4.07	4.81	5.93	5.34	5.55	5.41				0.90
ϕ100	5.67	6.57	8.41	7.30	7.49	8.23				1.12

(E.g.) Product weight of SCA2-V1-LB-50B-200-R0-D

- Product weight when S = 0 mm ··· 1.84 kg
- Additional weight at stroke length 200 mm ··· 0.46 x $\frac{200}{100}$ =0.92 kg
- Weight of two switches ··· 0.018 x 2 = 0.036 kg
- Product weight ··· 1.84 + 0.92 + 0.036 kg = 2.796 kg

How to order

Without switch

SCA2 - V1 - LB - 40 ○ B - 100 - 1 ——— S I

With switch

SCA2 - V1 - LB - 40 ○ B - 100 - 1 - T0H - R - S I

Ⓐ Operational method

Ⓑ Mounting style Note 1

Ⓒ Bore size

Ⓓ Port thread type

Ⓔ Cushion

Ⓕ Stroke length

Ⓖ Valve voltage

Ⓗ Switch model no.

Ⓘ Switch quantity Note 3

Ⓙ Option Note 4

Ⓚ Accessory Note 5

Symbol	Descriptions
Ⓐ Operational method	
V1	Push at energized, single solenoid
V2	Pull at energized, single solenoid
V	Double solenoid
Ⓑ Mounting style	
00	Basic type
LB	Axial foot type
FA	Rod end flange type
FB	Head end flange type
CA	Eye bracket type
CB	Clevis bracket type (pin and snap ring attached)
TC	Center trunnion type
TA	Rod end trunnion type
TF	Intermediate supporting hole (ϕ 40 cannot be selected.)
TD	Rod end supporting hole (ϕ 40 cannot be selected.)
Ⓒ Bore size (mm)	
40	ϕ 40
50	ϕ 50
63	ϕ 63
80	ϕ 80
100	ϕ 100
Ⓓ Port thread type	
Blank	Rc thread
N	NPT thread (custom order)
G	G thread (custom order)
Ⓔ Cushion	
B	Both sides cushioned
R	Rod end cushion
H	Head end cushion
N	No cushion

Ⓕ Stroke length (mm)

Bore size	Stroke length Note 2	Custom stroke length
ϕ 40	**50 to 600**	**Per 1 mm increment**
ϕ 50	**50 to 600**	
ϕ 63	**50 to 600**	
ϕ 80	**50 to 700**	
ϕ 100	**50 to 800**	

Ⓖ Valve voltage	
1	100 VAC
2	200 VAC
3	24 VDC
Ⓗ Switch model no.	
Refer to the switch model no. table on the following page.	
***Lead wire length**	
Blank	1m (standard)
3	3m (option)
5	5m (option)
Ⓘ Switch quantity	
R	One on rod end
H	One on head end
D	Two
T	Three

Ⓙ Option

		Max. ambient temperature	Instantaneous max. temperature
J	Bellows	100 ℃	200 ℃
L	Bellows	250 ℃	400 ℃
M	Piston rod material (stainless steel)		
Blank	Cushion needle position R (standard)		
S	Cushion needle position S		
T	Cushion needle position T		

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

Note on model no. selection

Note 1: The mounting bracket is shipped with the product. (However, trunnion type is attached to the product when shipped.)
Note 2: Refer to page 578 for min. stroke length.
Note 3: When selecting TA or TB for mounting, the number of switches is limited to "H" (one on head side) for TA, and "R" (one on rod side) for TB.
Note 4: Instantaneous maximum temperature is the temperature when spark and spatter etc. instantaneously contacts to bellows.
Note 5: "I" and "Y" can not be selected at the same time.
Note 6: Refer to Ending 89 for custom specifications of rod end form.
Note 7: Refer to page 436 for variation and option combination.

<Example of model number>

SCA2-V1-LB-40B-100-1-T0H-R-SI

Model: Medium bore size cylinder double acting with valve type

- Ⓐ Operational method : Push at energized, single solenoid
- Ⓑ Mounting style : Axial foot type
- Ⓒ Bore size : ϕ 40 mm
- Ⓓ Port thread type : Rc thread
- Ⓔ Cushion : Both sides cushioned
- Ⓕ Stroke length : 100 mm
- Ⓖ Valve voltage : 100 VAC
- Ⓗ Switch model no. : Reed T0H switch, lead wire length 1 m
- Ⓘ Switch quantity : One on rod end
- Ⓙ Option : Cushion needle position S
- Ⓚ Accessory : Rod eye

How to order mounting bracket

Bore size (mm) / Mounting bracket	ϕ40	ϕ50	ϕ63	ϕ80	ϕ100
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.

[H] switch model no.

T type switch model no.

Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire
T0H*	**T0V***	Reed	1 color indicator type	2-wire
T5H*	**T5V***		Without indicator light	
T1H*	**T1V***	Proximity	1 color indicator type	2-wire
T2H*	**T2V***			3-wire
T3H*	**T3V***		2 color indicator type	2-wire
T2YH*	**T2YV***			3-wire
T3YH*	**T3YV***		1 color indicator type (custom order)	3-wire
T3PH*	**T3PV***		2 color indicator type (Without light for preventive maintenance output)	3-wire
T2YFH*	**T2YFV***			4-wire
T3YFH*	**T3YFV***		2 color indicator type (With light for preventive maintenance output (1 color))	3-wire
T2YMH*	**T2YMV***			4-wire
T3YMH*	**T3YMV***		Strong magnetic field proof switch	2-wire
T2YD*	-			
T2YDT*	-		Off-delay type	2-wire
T2JH*	**T2JV***			

R switch/H types switch

Grommet type	Terminal box type: Standard type	Terminal box type: Splash prf.	Contact	Indicator	Lead wire
R6*	**R6B**	**R6A**		1 color indicator type	

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

How to order switch

(T type switch)

Rod end

● Switch body + mounting bracket

SCA2 - T0H - 40

Switch model no. (Item Ⓗ previous page)
Bore size (Item Ⓑ previous page)

● Only switch body

SW - T0H

Switch model no. (Item Ⓗ previous page)

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

● Switch bracket set

SCA2 - TS - 40

Bracket
Bore size (Item Ⓑ previous page)

Head end

● Switch body + mounting bracket

SCA2 - V - T0H - 40

Switch model no. (Item Ⓗ previous page)
Bore size (Item Ⓑ previous page)

● Only switch body

SW - T0H

Switch model no. (Item Ⓗ previous page)

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

● Switch bracket set

SCA2 - V - TS - 40

Bracket
Bore size (Item Ⓑ previous page)

(T2YD type switch)

● Switch body + mounting bracket

SCA2 - T2YD - 40

Switch model no. (Item Ⓗ previous page)
Bore size (Item Ⓒ previous page)

● Only switch body

SW - T2YD

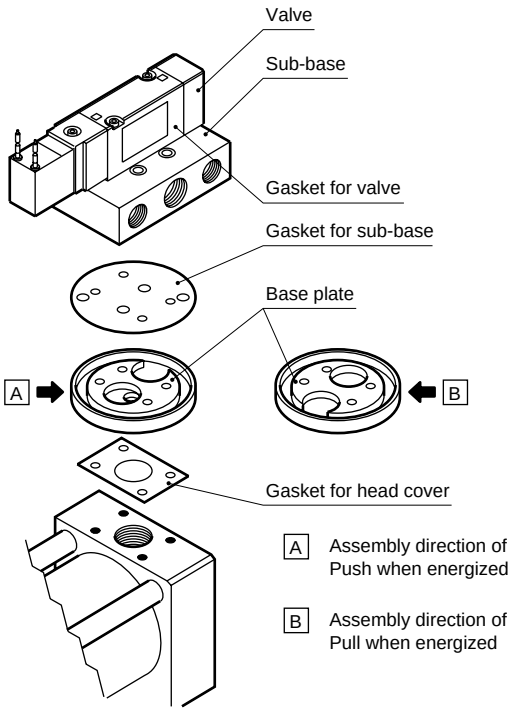
Switch model no. (Item Ⓗ previous page)

● Mounting bracket

SCA2 - T - 40

Bore size (Item Ⓒ previous page)

Change method in Push / Pull when energized

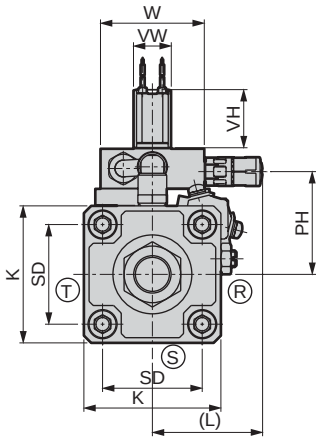


Internal structure

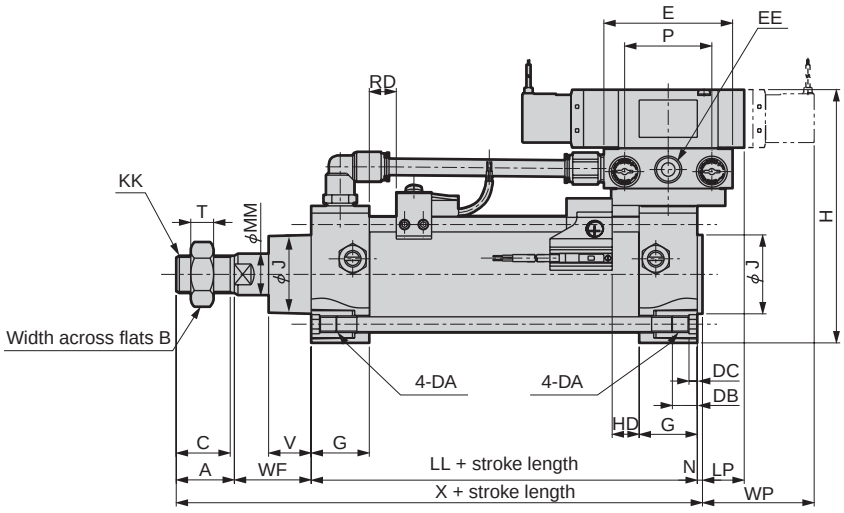
It is the same as the double acting single rod type SCA2 Series. Refer to page 448.

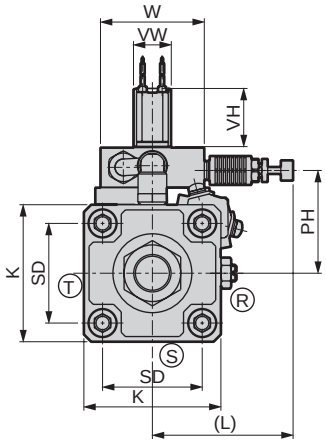
Dimensions

● Basic type (00)

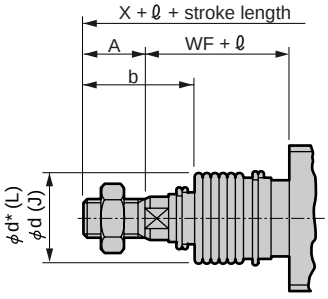


ϕ40 to ϕ63





ϕ80, ϕ100



(with bellows)

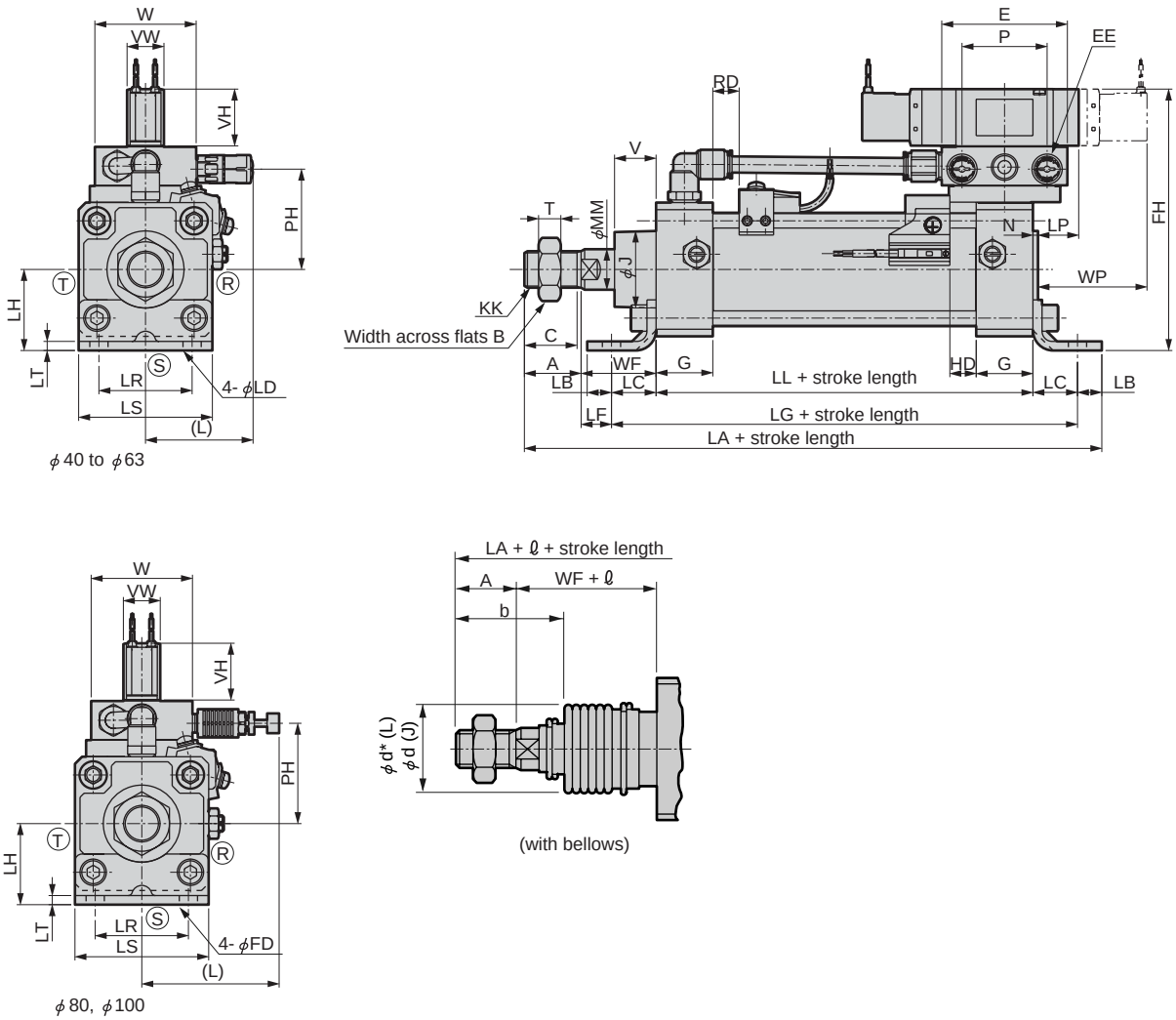
Symbol	Basic type (00) basic dimensions																											
Bore size	A	B	C	E	EE	DB	DC	G	H	J	K	KK	L	LL	LP	MM	N	P	PH	SD	T	V	VH	VW	W	WF	WP	X
ϕ40	22	22	20	62	Rc1/4	12	4	26	113	31	57	M14 x 1.5	60	93	22	16	2	42	45	40.5	8	18.5	28	18	50	33.5	55	150.5
ϕ50	28	27	26	62	Rc1/4	12	4	28	122	38	66	M18 x 1.5	60	101	20.5	20	2.5	42	49.5	48	11	20.5	28	18	50	37	53.5	168.5
ϕ63	28	27	26	76	Rc3/8	12	4	30	149	38	80	M18 x 1.5	64	105	20	20	3	51	60.5	59	11	21	36	23	60	35	62	171
ϕ80	36	32	34	94	Rc1/2	16	5	34	188	43	98	M22 x 1.5	122	116	26.5	25	3.5	64	78.5	74	13	23.5	43	29	90	48	72.5	203.5
ϕ100	45	41	43	94	Rc1/2	16	5	36	208	51	118	M26 x 1.5	122	128	25	30	4	64	88.5	90	16	32	43	29	90	53	71	230

Symbol	With switch				With bellows										
Bore size	T0, T5, T2, T3		T1, T2Y, T3Y, T2YF/M, T3YF/M		X	b	d	d*	ℓ						
	RD	HD	RD	HD					50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
ϕ40	11	11	10	10	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
ϕ50	13	13	12	12	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ63	13	13	12	12	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ80	14.5	14.5	13.5	13.5	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5
ϕ100	18.5	18.5	17.5	17.5	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9

Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to pages 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

● Axial foot type (LB)



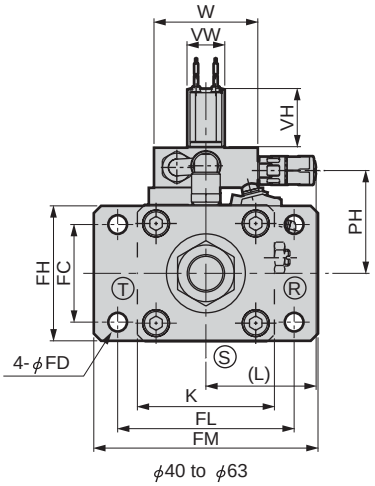
Symbol	Axial foot type (LB) basic dimensions																						Installation dimensions									
Bore size	A	B	C	E	EE	FH	G	KK	L	LL	LP	MM	N	P	PH	T	V	VH	VW	W	WF	WP	LA	LB	LC	LD	LF	LG	LH	LR	LS	LT
ϕ40	22	22	20	62	Rc1/4	124.5	26	M14 x 1.5	60	93	22	16	2	42	45	8	18.5	28	18	50	33.5	55	178	10	19.5	9	14	132	40	40	57	3.2
ϕ50	28	27	26	62	Rc1/4	129	28	M18 x 1.5	60	101	20.5	20	2.5	42	49.5	11	20.5	28	18	50	37	53.5	200	12	22	9	15	145	40	46	66	4.5
ϕ63	28	27	26	76	Rc3/8	159	30	M18 x 1.5	64	105	20	20	3	51	60.5	11	21	36	23	60	35	62	210	12	30	11	5	165	50	60	80	4.5
ϕ80	36	32	34	94	Rc1/2	199	34	M22 x 1.5	122	116	26.5	25	3.5	64	78.5	13	23.5	43	29	90	48	72.5	251	14	37	14	11	190	60	74	98	6.0
ϕ100	45	41	43	94	Rc1/2	216	36	M26 x 1.5	122	128	25	30	4	64	88.5	16	32	43	29	90	53	71	278	21	31	14	22	190	67	80	118	6.0

Symbol	With switch				With bellows										
Bore size	T0, T5, T2, T3		T1, T2Y, T3Y, T2YF/M, T3YF/M		X	b	d	d*	ℓ						
	RD	HD	RD	HD					50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
ϕ40	11	11	10	10	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
ϕ50	13	13	12	12	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ63	13	13	12	12	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ80	14.5	14.5	13.5	13.5	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5
ϕ100	18.5	18.5	17.5	17.5	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9

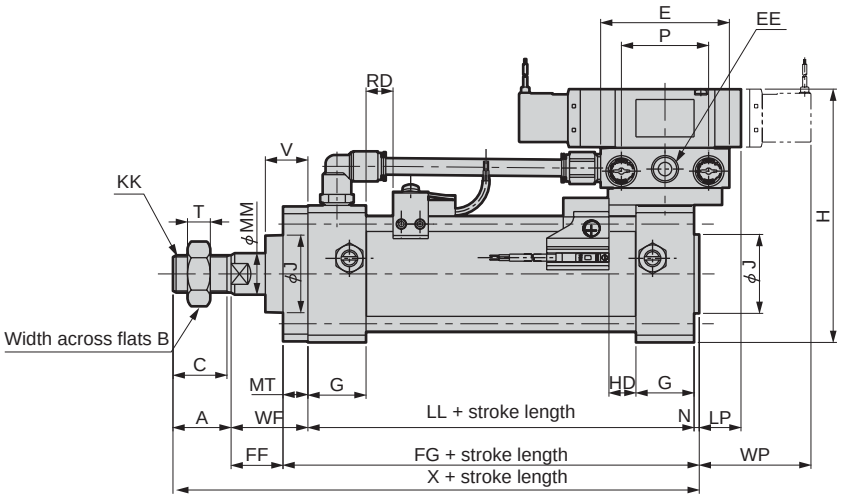
Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to pages 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

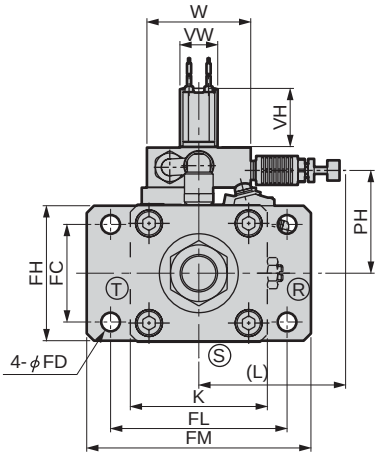
Dimensions

● Rod end flange type (FA)

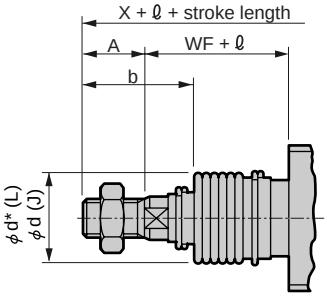


ϕ40 to ϕ63





ϕ80, ϕ100



(with bellows)

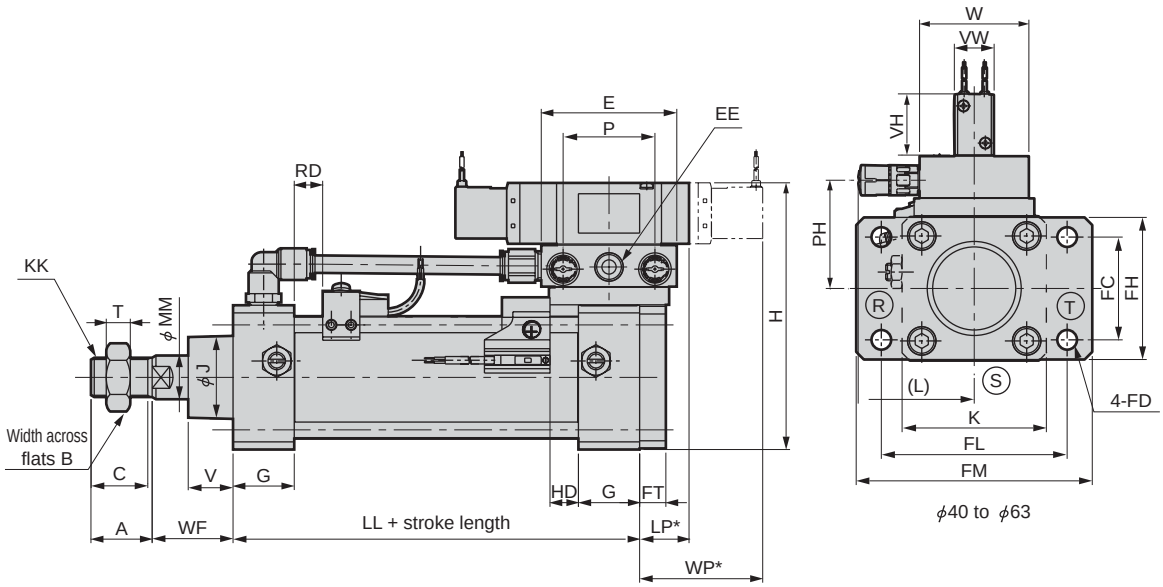
Symbol / Bore size	Basic dimensions for rod end flange type (FA)																								Installation dimensions						
	A	B	C	E	EE	G	H	J	K	KK	L	LL	LP	MM	MT	N	P	PH	T	V	VH	VW	W	WF	WP	X	FC	FD	FF	FG	FH	FL	FM
ϕ40	22	22	20	62	Rc1/4	26	113	31	57	M14 x 1.5	60	93	22	16	12	2	42	45	8	18.5	28	18	50	33.5	55	150.5	40	9	21.5	107	57	80	100
ϕ50	28	27	26	62	Rc1/4	28	122	38	66	M18 x 1.5	60	101	20.5	20	12	2.5	42	49.5	11	20.5	28	18	50	37	53.5	168.5	47	9	25	115.5	65	85	108
ϕ63	28	27	26	76	Rc3/8	30	149	38	80	M18 x 1.5	64	105	20	20	16	3	51	60.5	11	21	36	23	60	35	62	171	60	11	19	124	80	106	130
ϕ80	36	32	34	94	Rc1/2	34	188	43	98	M22 x 1.5	122	116	26.5	25	19	3.5	64	78.5	13	23.5	43	29	90	48	72.5	203.5	74	14	29	138.5	98	125	153
ϕ100	45	41	43	94	Rc1/2	36	208	51	118	M26 x 1.5	122	128	25	30	19	4	64	88.5	16	32	43	29	90	53	71	230	88	14	34	151	118	144	180

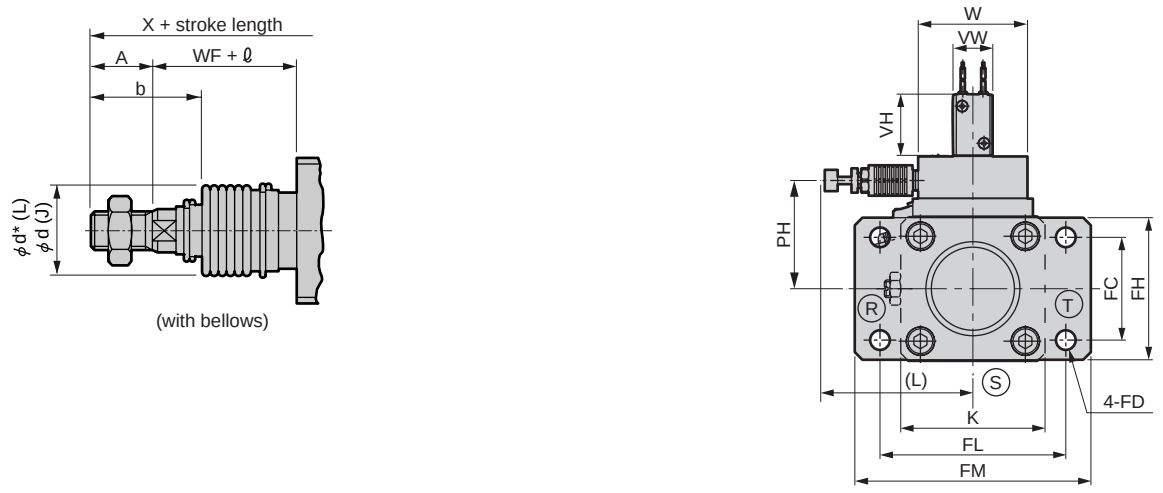
Symbol / Bore size	With switch				With bellows				ℓ							
	T0, T5, T2, T3		T1, T2Y, T3Y, T2YF/M, T3YF/M		X	b	d	d*	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
	RD	HD	RD	HD												
ϕ40	11	11	10	10	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
ϕ50	13	13	12	12	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ63	13	13	12	12	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ80	14.5	14.5	13.5	13.5	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5
ϕ100	18.5	18.5	17.5	17.5	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9

Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to pages 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

● Head end flange type (FB)





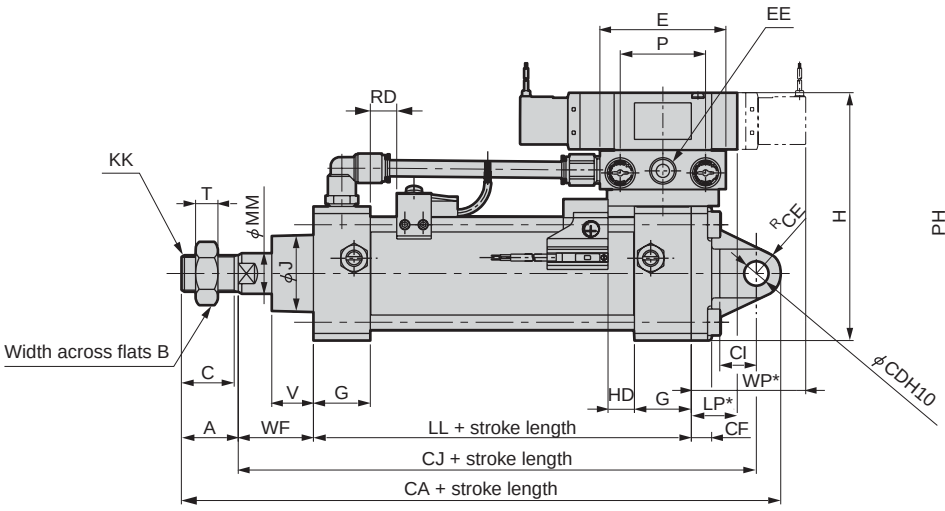
Symbol	Basic dimensions for head end flange type (FB)																					Installation dimensions						
Bore size	A	B	C	E	EE	G	H	K	KK	L	LL	LP*	MM	P	PH	T	V	VH	VW	W	WP*	FC	FD	FH	FJ	FL	FM	FT
φ40	22	22	20	62	Rc1/4	26	113	57	M14 x 1.5	60	93	20	16	42	45	8	18.5	28	18	50	57	40	9	57	131	80	100	12
φ50	28	27	26	62	Rc1/4	28	122	66	M18 x 1.5	60	101	18	20	42	49.5	11	20.5	28	18	50	56	47	9	65	142.5	85	108	12
φ63	28	27	26	76	Rc3/8	30	149	80	M18 x 1.5	64	105	17	20	51	60.5	11	21	36	23	60	65	60	11	80	144.5	106	130	16
φ80	36	32	34	94	Rc1/2	34	188	98	M22 x 1.5	122	116	23	25	64	78.5	13	23.5	43	29	90	76	74	14	98	170	125	153	19
φ100	45	41	43	94	Rc1/2	36	208	118	M26 x 1.5	122	128	21	30	64	88.5	16	32	43	29	90	75	88	14	118	187	144	180	19

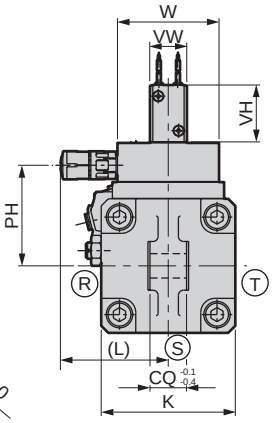
Symbol	With switch				With bellows				ℓ							
Bore size	T0, T5, T2, T3		T1, T2Y, T3Y, T2YF/M, T3YF/M		X	b	d	d*	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
	RD	HD	RD	HD												
φ40	11	11	10	10	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
φ50	13	13	12	12	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
φ63	13	13	12	12	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
φ80	14.5	14.5	13.5	13.5	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5
φ100	18.5	18.5	17.5	17.5	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9

Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to pages 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

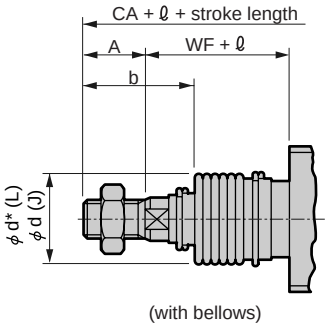
Dimensions

● Eye bracket type (CA)

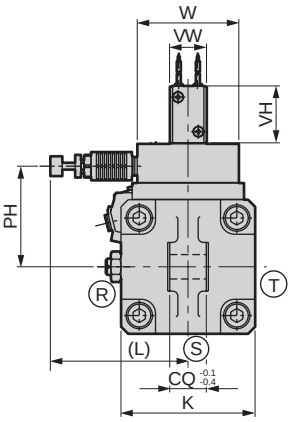




φ40 to φ63



(with bellows)



φ80, φ100

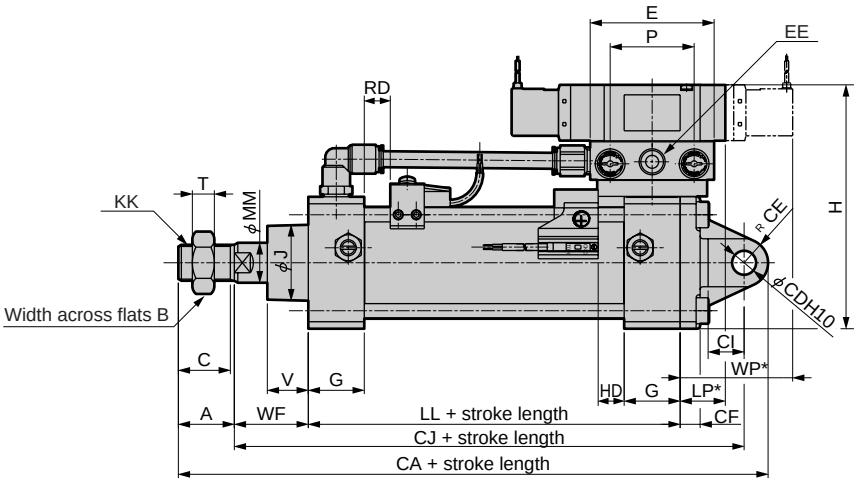
Symbol	Basic dimensions for eye bracket type (CA)																					Installation dimensions						
Bore size	A	B	C	E	EE	G	H	K	KK	L	LL	LP*	MM	P	PH	T	V	VH	VW	W	WF	WP*	CA	CD	CE	CF	CI	CJ	CQ
φ40	22	22	20	62	Rc1/4	26	113	57	M14 x 1.5	60	93	20	16	42	45	8	18.5	28	18	50	33.5	57	192.5	12	12	10	18	158.5	18
φ50	28	27	26	62	Rc1/4	28	122	66	M18 x 1.5	60	101	18	20	42	49.5	11	20.5	28	18	50	37	56	210	12	12	10	18	170	18
φ63	28	27	26	76	Rc3/8	30	149	80	M18 x 1.5	64	105	17	20	51	60.5	11	21	36	23	60	35	65	221	14	16	10	24	177	20
φ80	36	32	34	94	Rc1/2	34	188	98	M22 x 1.5	122	116	23	25	64	78.5	13	23.5	43	29	90	48	76	272	20	20	14	30	216	28
φ100	45	41	43	94	Rc1/2	36	208	118	M26 x 1.5	122	128	21	30	64	88.5	16	32	43	29	90	53	75	298	20	20	16	30	233	28

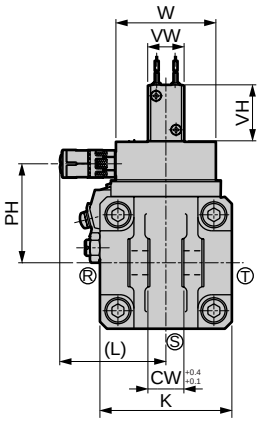
Symbol	With switch				With bellows										
Bore size	T0, T5, T2, T3		T1, T2Y, T3Y, T2YF/M, T3YF/M		X	b	d	d*	ℓ						
	RD	HD	RD	HD					50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
φ40	11	11	10	10	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
φ50	13	13	12	12	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
φ63	13	13	12	12	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
φ80	14.5	14.5	13.5	13.5	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5
φ100	18.5	18.5	17.5	17.5	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9

Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to pages 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

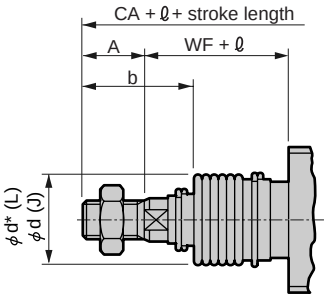
Dimensions

● Clevis bracket type (CB)

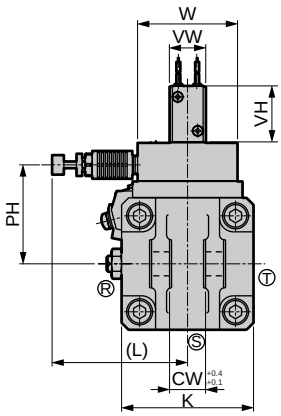




φ40 to φ63



(with bellows)



φ80, φ100

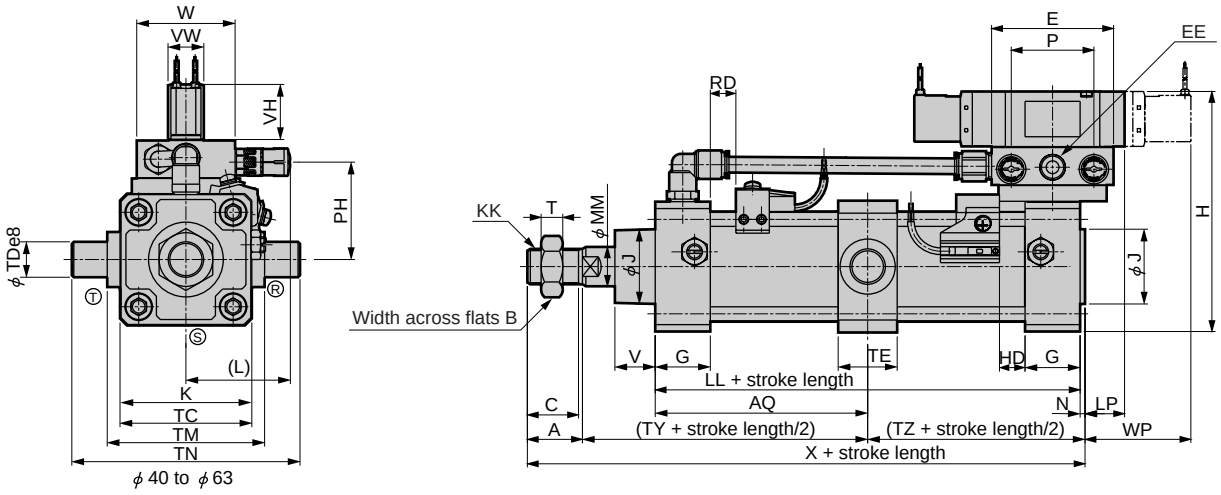
Symbol	Basic dimensions for clevis bracket type (CB)																					Installation dimensions						
Bore size	A	B	C	E	EE	G	H	K	KK	L	LL	LP*	MM	P	PH	T	V	VH	VW	W	WF	WP*	CA	CD	CE	CF	CI	CJ	CW
φ40	22	22	20	62	Rc1/4	26	113	57	M14 x 1.5	60	93	20	16	42	45	8	18.5	28	18	50	33.5	57	192.5	12	12	10	18	158.5	18
φ50	28	27	26	62	Rc1/4	28	122	66	M18 x 1.5	60	101	18	20	42	49.5	11	20.5	28	18	50	37	56	210	12	12	10	18	170	18
φ63	28	27	26	76	Rc3/8	30	149	80	M18 x 1.5	64	105	17	20	51	60.5	11	21	36	23	60	35	65	221	14	16	10	24	177	20
φ80	36	32	34	94	Rc1/2	34	188	98	M22 x 1.5	122	116	23	25	64	78.5	13	23.5	43	29	90	48	76	272	20	20	14	30	216	28
φ100	45	41	43	94	Rc1/2	36	208	118	M26 x 1.5	122	128	21	30	64	88.5	16	32	43	29	90	53	75	298	20	20	16	30	233	28

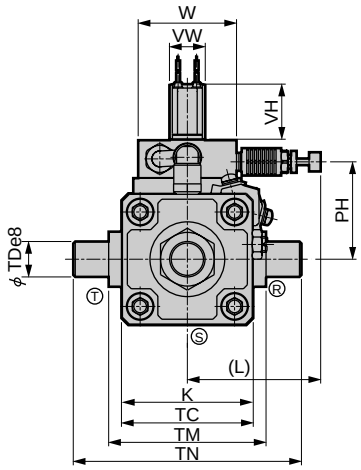
Symbol	With switch				With bellows											
Bore size	T0, T5, T2, T3		T1, T2Y, T3Y, T2YF/M, T3YF/M		X	b	d	d*	ℓ							
	RD	HD	RD	HD					50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
φ40	11	11	10	10	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
φ50	13	13	12	12	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
φ63	13	13	12	12	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
φ80	14.5	14.5	13.5	13.5	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5
φ100	18.5	18.5	17.5	17.5	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9

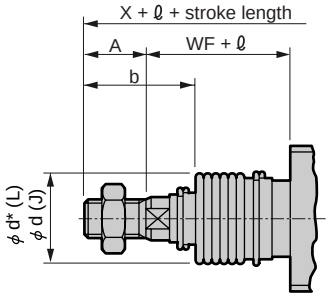
Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to pages 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

● Center trunnion type (TC)







(with bellows)

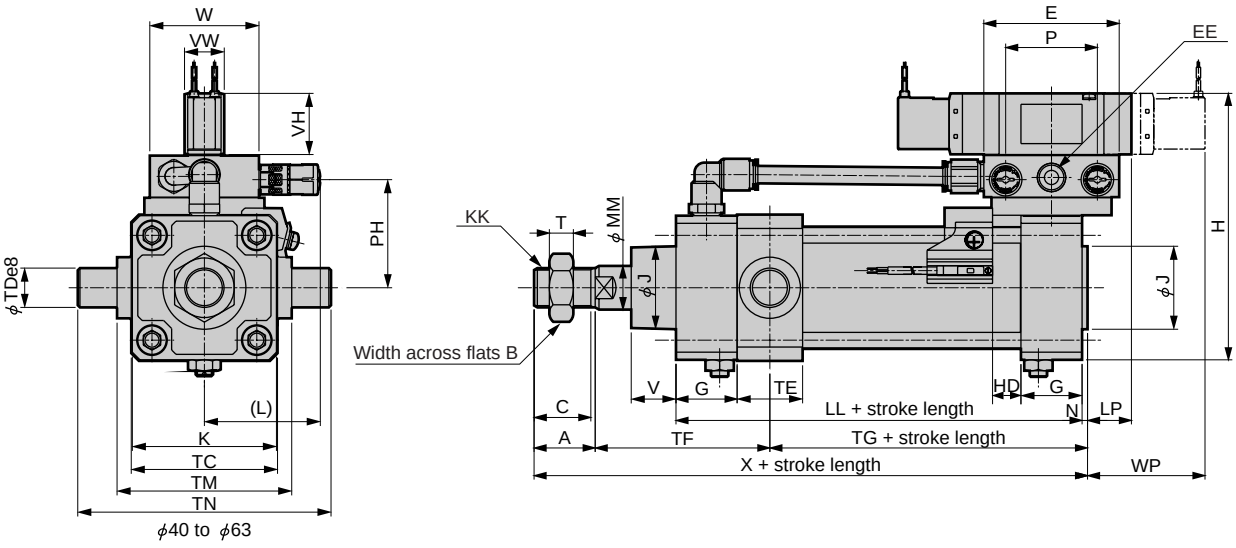
Symbol	Basic dimensions for enter trunnion type (TC)																								Installation dim.			
Bore size	A	B	C	E	EE	H	J	K	KK	L	LL	LP	MM	N	P	PH	T	V	VH	VW	W	WF	WP	X	AQ	TC	TD	TE
φ40	22	22	20	62	Rc1/4	113	31	57	M14 x 1.5	60	93	22	16	2	42	45	8	18.5	28	18	50	33.5	55	150.5	46.5+Stroke length/2	57	16	30
φ50	28	27	26	62	Rc1/4	122	38	66	M18 x 1.5	60	101	20.5	20	2.5	42	49.5	11	20.5	28	18	50	37	53.5	168.5	50.5+Stroke length/2	67	18	30
φ63	28	27	26	76	Rc3/8	149	38	80	M18 x 1.5	64	105	20	20	3	51	60.5	11	21	36	23	60	35	62	171	52.5+Stroke length/2	82	20	35
φ80	36	32	34	94	Rc1/2	188	43	98	M22 x 1.5	122	116	26.5	25	3.5	64	78.5	13	23.5	43	29	90	48	72.5	203.5	58+Stroke length/2	100	25	40
φ100	45	41	43	94	Rc1/2	208	51	118	M26 x 1.5	122	128	25	30	4	64	88.5	16	32	43	29	90	53	71	230	64+Stroke length/2	121	35	50

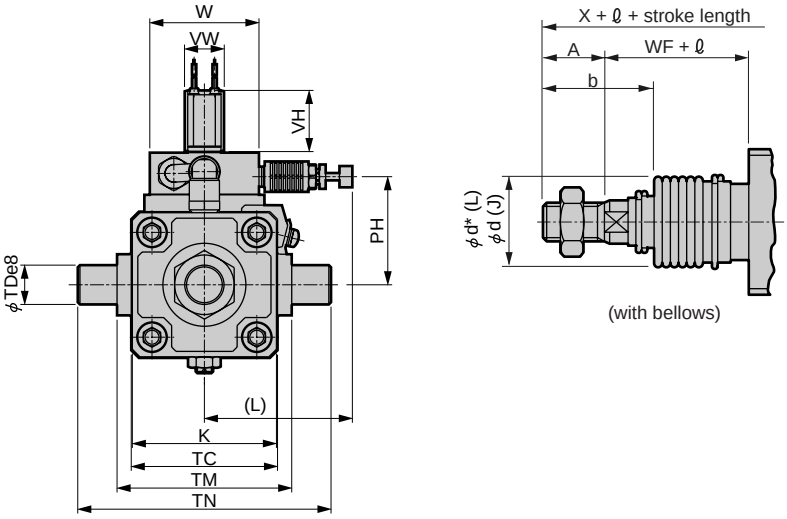
Symbol					With switch				With bellows											
Bore size	TM	TN	TY	TZ	T0, T5, T2, T3		T1, T2Y, T3Y, T2YF/M, T3YF/M		X	b	d	d*	ℓ							
					RD	HD	RD	HD					50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
φ40	63	95	80	48.5	11	11	10	10	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8
φ50	80	116	87.5	53	13	13	12	12	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
φ63	90	130	87.5	55.5	13	13	12	12	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
φ80	115	165	106	61.5	14.5	14.5	13.5	13.5	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5
φ100	135	205	117	68	18.5	18.5	17.5	17.5	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9

Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to pages 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

● Rod end trunnion type (TA)





φ80, φ100

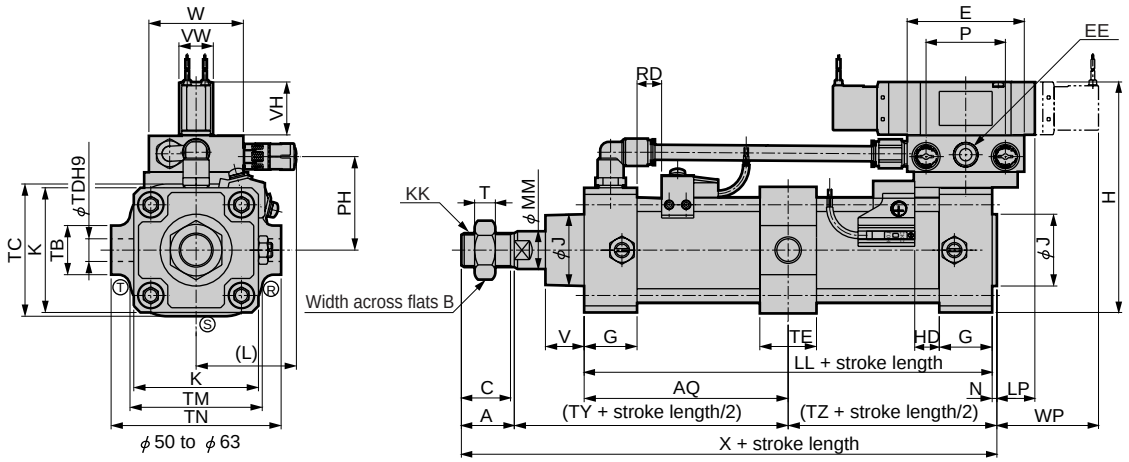
Symbol	Basic dimensions for rod end trunnion type (TA)																									Installation dim.				
Bore size	A	B	C	E	EE	G	H	J	K	KK	L	LL	LP	MM	N	P	PH	T	V	VH	VW	W	WF	WP	X	TC	TD	TE	TF	TG
φ40	22	22	20	62	Rc1/4	26	113	31	57	M14 x 1.5	60	93	22	16	2	42	45	8	18.5	28	18	50	33.5	55	150.5	57	16	30	74.5	54
φ50	28	27	26	62	Rc1/4	28	122	38	66	M18 x 1.5	60	101	20.5	20	2.5	42	49.5	11	20.5	28	18	50	37	53.5	168.5	67	18	30	80	60.5
φ63	28	27	26	76	Rc3/8	30	149	38	80	M18 x 1.5	64	105	20	20	3	51	60.5	11	21	36	23	60	35	62	171	82	20	35	82.5	60.5
φ80	36	32	34	94	Rc1/2	34	188	43	98	M22 x 1.5	122	116	26.5	25	3.5	64	78.5	13	23.5	43	29	90	48	72.5	203.5	100	25	40	102	65.5
φ100	45	41	43	94	Rc1/2	36	208	51	118	M26 x 1.5	122	128	25	30	4	64	88.5	16	32	43	29	90	53	71	230	121	35	50	114	71

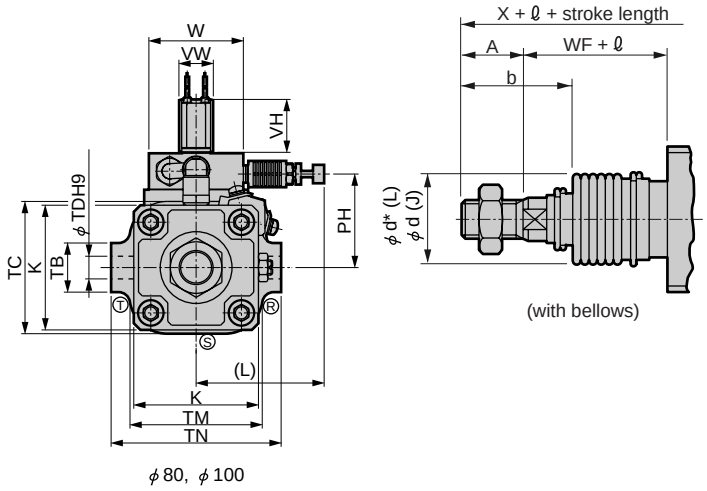
Symbol			With switch		With bellows													
Bore size	TM	TN	T0, T5, T2, T3 HD	T1, T2Y, T3Y, T2YF/M, T3YF/M HD	X	b	d	d*	ℓ 50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500	
φ40	63	95	11	10	150.5	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke length/3.0) + 8	
φ50	80	116	13	12	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	
φ63	90	130	13	12	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5	
φ80	115	165	14.5	13.5	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5	
φ100	135	205	18.5	17.5	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9	

Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to pages 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

● Intermediate supporting hole (TF)





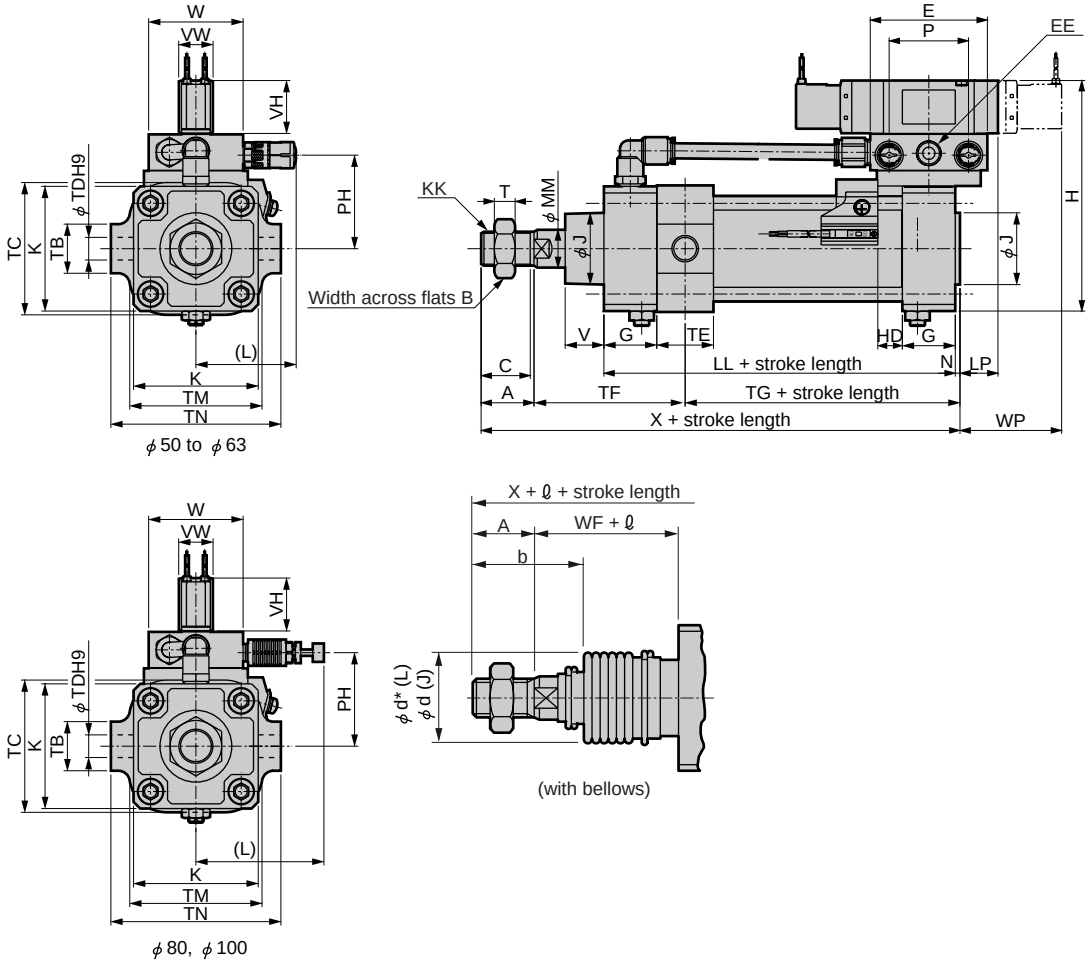
Symbol	Basic dimensions for intermediate supporting hole (TF)																						Installation dimensions						
Bore size	A	B	C	E	EE	H	J	K	KK	L	LL	LP	MM	N	P	PH	T	VH	VW	W	WP	X	AQ	TB	TC	TD	TE	TM	TN
ϕ50	28	27	26	62	Rc1/4	122	38	66	M18 x 1.5	60	101	20.5	20	2.5	42	49.5	11	28	18	50	53.5	168.5	50.5+Stroke length/2	26	67	12	30	70	90
ϕ63	28	27	26	76	Rc3/8	149	38	80	M18 x 1.5	64	105	20	20	3	51	60.5	11	36	23	60	62	171	52.5+Stroke length/2	30	82	14	35	86	104
ϕ80	36	32	34	94	Rc1/2	188	43	98	M22 x 1.5	122	116	26.5	25	3.5	64	78.5	13	43	29	90	72.5	203.5	58+Stroke length/2	35	100	20	40	105	134
ϕ100	45	41	43	94	Rc1/2	208	51	118	M26 x 1.5	122	128	25	30	4	64	88.5	16	43	29	90	71	230	64+Stroke length/2	40	121	20	40	127	150

Symbol			With switch				With bellows											
Bore size	TY	TZ	T0, T5, T2, T3		T1, T2Y, T3Y, T2YF/M, T3YF/M		X	b	d	d*	ℓ							
			RD	HD	RD	HD					50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
ϕ50	87.5	53	13	13	12	12	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ63	87.5	55.5	13	13	12	12	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ80	106	61.5	14.5	14.5	13.5	13.5	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5
ϕ100	117	68	18.5	18.5	17.5	17.5	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9

Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to pages 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

Dimensions

● Rod end supporting hole (TD)



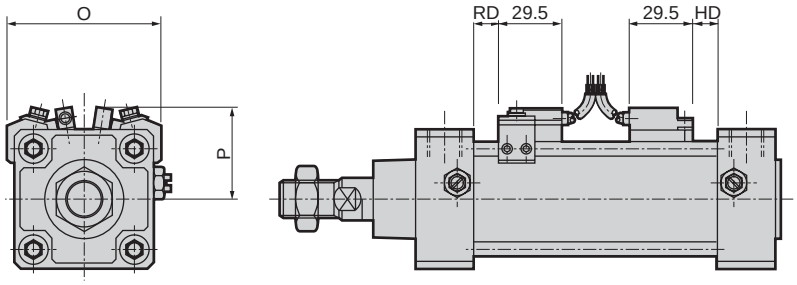
Symbol	Basic dimensions for rod end supporting hole (TD)																						Installation dimensions							
Bore size	A	B	C	E	EE	G	H	J	K	KK	L	LL	LP	MM	N	P	PH	T	VH	VW	W	WP	X	TB	TC	TD	TE	TF	TG	TM	TN
ϕ50	28	27	26	62	Rc1/4	28	122	38	66	M18 x 1.5	60	101	20.5	20	2.5	42	49.5	11	28	18	50	53.5	168.5	26	67	12	30	80	60.5	70	90
ϕ63	28	27	26	76	Rc3/8	30	149	38	80	M18 x 1.5	64	105	20	20	3	51	60.5	11	36	23	60	62	171	30	82	14	35	82.5	60.5	86	104
ϕ80	36	32	34	94	Rc1/2	34	188	43	98	M22 x 1.5	122	116	26.5	25	3.5	64	78.5	13	43	29	90	72.5	203.5	35	100	20	40	102	65.5	105	134
ϕ100	45	41	43	94	Rc1/2	36	208	51	118	M26 x 1.5	122	128	25	30	4	64	88.5	16	43	29	90	71	230	40	121	20	40	109	76	127	150

Symbol	With switch		With bellows											
Bore size	T0, T5, T2, T3	T1, T2Y, T3Y, T2YF/M, T3YF/M	X	b	d	d*	ℓ							
	HD	HD					50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	Over 500
ϕ50	13	12	168.5	47	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ63	13	12	171	45	47	48	22	36	49	63	90	119	146	(stroke length/3.6) + 7.5
ϕ80	14.5	13.5	203.5	58.5	53	55	14	26	38	49	72	96	119	(stroke length/4.3) + 2.5
ϕ100	18.5	17.5	230	69.5	61	65	20	32	42	53	76	98	120	(stroke length/4.5) + 9

Note 1: For ℓ dimensions, round up decimal places.
Note 2: Refer to pages 597 for the projecting dimensions of T2YD switch.
Note 3: Refer to page 598, 599 for accessory dimensions.

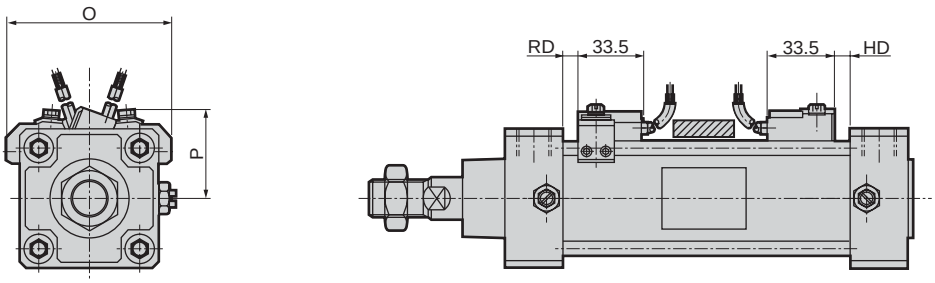
SCA2 Series common dimensions (T2YD and H0*switch installation dimension)

● With T2YD switch



Symbol / Bore size (mm)	O	P	RD	HD
ϕ40	66	40	10	10
ϕ50	73	44.5	12	12
ϕ63	84	50	12	12
ϕ80	104	60	13.5	13.5
ϕ100	120	68	17.5	17.5

● With H0* switch



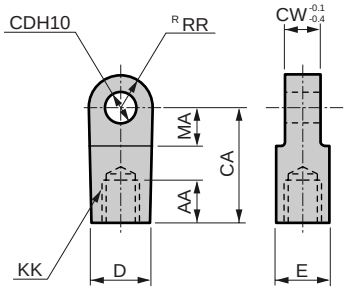
Symbol / Bore size (mm)	O	P	RD	HD
ϕ40	66	42	4	4
ϕ50	73	44	6	6
ϕ63	84	47	6	6
ϕ80	104	58	7.5	7.5
ϕ100	120	64	11.5	11.5

Dimensions for SCA2 Series common accessory (rode eye/clevis/bracket)

· Mounting dimensions ϕCD, CW, CQ for the clevis type, rod eye, and second bracket are the same, so all parts can be combined. CAD
· Designate the model No. when ordering.

● Rod eye (I)

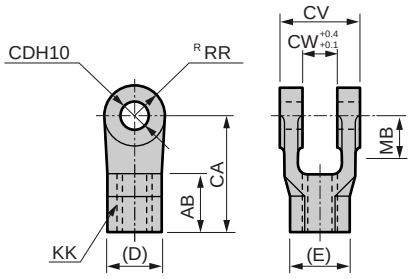
Material: Cast iron



Model no.	Applicable bore size (mm)	AA	CA	CD	CW	D	E	KK	MA	RR	Weight (kg)
S1-I-40	40	20	50	12 +0.070 0	18	27	27	M14 x 1.5	21	16	0.26
S1-I-50	50	21	50	12 +0.070 0	18	27	27	M18 x 1.5	21	16	0.24
S1-I-63	63	21	50	14 +0.070 0	20	27	27	M18 x 1.5	21	16	0.25
S1-I-80	80	30	70	20 +0.084 0	28	46	41	M22 x 1.5	30	25	0.88
S1-I-100	100	30	70	20 +0.084 0	28	46	41	M26 x 1.5	30	25	0.84

● Rod clevis (Y)

Material: Cast iron



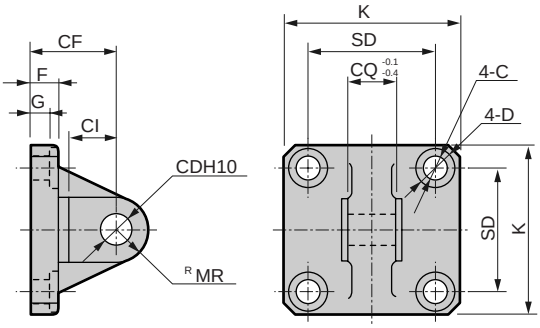
Note: Pin and snap ring are attached.

Model no.	Applicable bore size (mm)	AB	CA	CD	CV	CW	D	E	KK	MB	RR	Weight (kg)
S1-Y-40	40	24	50	12 +0.070 0	36	18	27	31.2	M14 x 1.5	19	16	0.25
S1-Y-50	50	24	50	12 +0.070 0	36	18	27	31.2	M18 x 1.5	19	16	0.24
S1-Y-63	63	24	50	14 +0.070 0	40	20	27	31.2	M18 x 1.5	19	16	0.26
S1-Y-80	80	35	70	20 +0.084 0	56	28	41	47.3	M22 x 1.5	30	25	0.90
S1-Y-100	100	35	70	20 +0.084 0	56	28	41	47.3	M26 x 1.5	30	25	0.85

Note: MB dimension indicates CW dimension effective length.

● Eye bracket (B1)

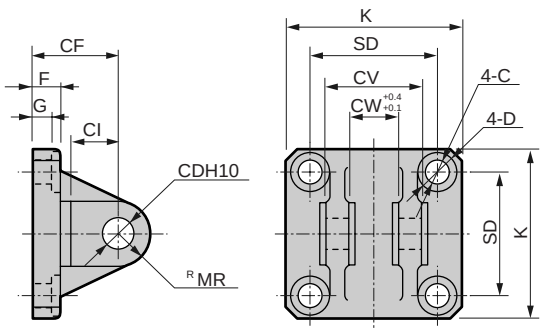
Material: Cast iron



Model no.	Applicable bore size (mm)	C	CD	CF	CI	CQ	D	F	G	K	MR	SD	Weight (kg)
S1-B1-40	40	9	12 +0.070 0	32	18	18	14	10	6.5	57	12	40.5	0.32
S1-B1-50	50	9	12 +0.070 0	32	18	18	14	10	6.5	66	12	48	0.38
S1-B1-63	63	9	14 +0.070 0	37	24	20	14	10	6.5	80	16	59	0.57
S1-B1-80	80	14	20 +0.084 0	52	30	28	20	14	10.5	98	20	74	1.27
S1-B1-100	100	14	20 +0.084 0	52	30	28	20	16	10.5	118	20	90	1.64

● Clevis bracket (B2)

Material: Cast iron

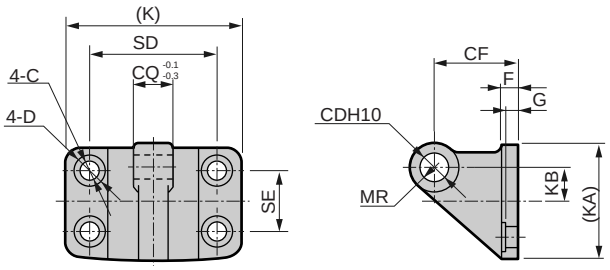


Note: Pin and snap ring are attached.

Model no.	Applicable bore size (mm)	C	CD	CF	CI	CV	CW	D	F	G	K	MR	SD	Weight (kg)
S1-B2-40	40	9	12 +0.070 0	32	18	36	18	14	10	6.5	57	12	40.5	0.36
S1-B2-50	50	9	12 +0.070 0	32	18	36	18	14	10	6.5	66	12	48	0.41
S1-B2-63	63	9	14 +0.070 0	37	24	40	20	14	10	6.5	80	16	59	0.62
S1-B2-80	80	14	20 +0.084 0	52	30	56	28	20	14	10.5	98	20	74	1.48
S1-B2-100	100	14	20 +0.084 0	52	30	56	28	20	16	10.5	118	20	90	1.82

● Eye bracket (B3)

Material: Cast iron

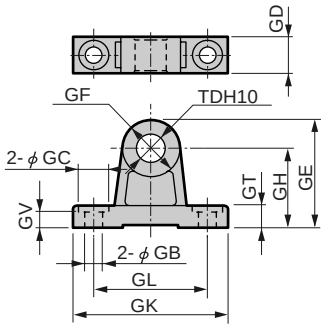


Model no.	Applicable bore size (mm)	C	CD	CF	CQ	D	F	G	K	KA	KB	MR	SD	SE	Weight (kg)
S1-B3-40	ϕ40, ϕ50	9	12	40	18	14	8	6.5	85	57	17.5	12	65	35	0.44
S1-B3-63	ϕ63	11	14	50	20	17	10	8	105	67	20	16	80	40	0.77
S1-B3-80	ϕ80, ϕ100	14	20	65	28	20	12	10	130	93	30	20	100	60	1.64

Accessory dimensions CAD

● Trunnion type No. 2 bracket dimensions

Material: Cast iron

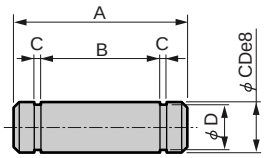


Model no. \ Symbol	GB	GC	GD	GE	GF	GH	GK	GL	GT	GV	TD	Weight (kg)
S1-B4-40	9	17	19	61	32	45	80	60	12	11	$16^{+0.070}_{0}$	0.25
S1-B4-50	9	17	19	63	36	45	85	65	12	11	$18^{+0.070}_{0}$	0.28
S1-B4-63	11	22	24	80	40	60	100	75	14	13	$20^{+0.084}_{0}$	0.52
S1-B4-80	14	24	26	85	50	60	115	85	14	13	$25^{+0.084}_{0}$	0.70
S1-B4-100	14	24	35	107	64	75	130	100	17	16	$35^{+0.100}_{0}$	1.48

● Pin dimensions

Material: Steel

Pin (P)



Model no.	Applicable bore size (mm)	A	B	C	D	CD	Snap ring	Weight (kg)
S1-P-40	40,50	43.5	36.2	1.15	11.5	$12^{-0.032}_{-0.059}$	Axis C type 12	0.04
S1-P-63	63	47.5	40.2	1.15	13.4	$14^{-0.032}_{-0.059}$	Axis C type 14	0.06
S1-P-80	80, 100	64	56.2	1.35	19	$20^{-0.040}_{-0.073}$	Axis C type 20	0.16

Note: For clevis bracket, rod clevis and clevis bracket types, a pin and a snap ring are attached.