

# SCM

## Round shaped cylinder

### Standard

ø20/ø25/ø32/ø40/  
ø50/ø63/ø80/ø100

#### Overview

Medium bore size (ø20 to ø100) series of general purpose cylinders that have a slim body and a wide variety of bore sizes and variations. The series is the smallest in the standard cylinders.

#### Features

##### Slim body

Simple and functional design

##### Easy cushion needle adjustment

A knob has been attached to the cushion needle for easy adjustment.

##### Easy mounting

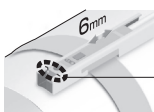
Better workability has been enabled by mounting with four bolts using a general tool.

##### Selectable switch mounting style



##### Band method

- Switch mounting position is clear at a glance  
Thanks to the marking on the switch rail for mounting it at the max. sensitivity position, the time for position setting of switch during maintenance can be reduced significantly. (Limited to detection of stroke end. Excluding 2-color LED and strong magnetic field proof)



Capable of fine adjustment up to 6 mm in the direction of the stroke for the band & rail method.

Marking of switch mounting position

- Capable of free rotation of switch

Just by loosening the fixing screw, the switch rail can be rotated freely to the circumference direction without changing the position of the band fixing section. Thus, mounting switches and adjusting positions on site will be easy.

- Fixing screw fallout prevention

The rubber for preventing slip is attached inside the band.

The screws will not fall out even if loosened.



##### Fixed rail

- Rail with integrated switch

A miniature switch has been encased in the switch rail. A lead wire can also be stored in the same rail. Moving and mounting the cylinder switch can be completed by simply adjusting the screw.



## CONTENTS

Series variation	228
Variation and option combination selection table	230
● Double acting/single rod (SCM)	232
● Single acting/push (SCM-X)	254
● Single acting/pull (SCM-Y)	260
● Double acting/stroke adjustable/push (SCM-P)	266
● Double acting/stroke adjustable/pull (SCM-R)	272
● Double acting/heat resistant (SCM-T)	278
● Double acting/position locking (SCM-Q)	282
● Double acting/fine speed (SCM-F)	292
● Double acting/low speed (SCM-O)	298
● Double acting/low friction (SCM-U)	302
● Double acting/double rod (SCM-D)	308
● Double acting/back to back (SCM-B)	316
● Double acting/2-stage (SCM-W)	322
● Double acting/tandem (SCM-W4)	328
● Double acting/rotation-stop (SCM-M)	334
● Double acting/direct mounting foot (SCM-LD)	340
SCM Series common accessory dimensions	252
⚠ Safety precautions	346

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

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/IN2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

















Ending

# Series variation



# Round shaped cylinder SCM Series

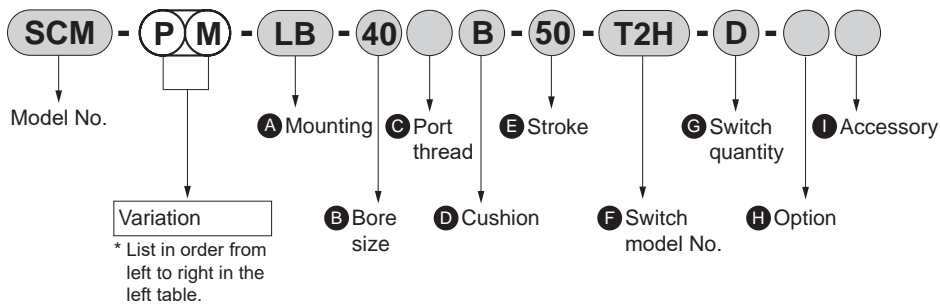
- SCP\*3
- CMK2
- CMA2
- SCM**
- SCG
- SCA2
- SCS2
- CKV2
- CAV2/  
COVPIN2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/  
MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd  
Contr
- Ending

Variation	Model No.  JIS symbol	Bore size  (mm)	Standard stroke (mm)									Min. stroke (mm)	Max. stroke (mm)	Custom stroke (per mm)	Basic	
			25	50	75	100	125	150	200	250	300				00	
Double acting/ single rod	SCM 	ø20/ø25/ø32	●	●	●	●	●	●	●	●	●	10	1000	1	●	
		ø40/ø50/ø63	●	●	●	●	●	●	●	●	●		1500		●	
		ø80/ø100	●	●	●	●	●	●	●	●	●		1500		●	
Single acting/push	SCM-X 	ø20/ø25/ø32/ø40	●	●	●	●	●	●	●			5	200	1	●	
Single acting/pull	SCM-Y 	ø20/ø25/ø32/ø40	●	●	●	●	●	●	●			5	200	1	●	
Double acting/stroke adjustable (push)	SCM-P 	ø20/ø25/ø32	●	●	●	●	●	●	●	●	●	10	600	1	●	
		ø40/ø50/ø63	●	●	●	●	●	●	●	●	●		600		●	
Double acting/stroke adjustable (pull)	SCM-R 	ø20/ø25/ø32	●	●	●	●	●	●	●	●	●	10	1000	1	●	
		ø40/ø50/ø63	●	●	●	●	●	●	●	●	●		1500		●	
Double acting/ heat resistant	SCM-T 	ø20/ø25/ø32/ø40	●	●	●	●	●	●	●	●	●	10	1000	1	●	
		ø50/ø63	●	●	●	●	●	●	●	●	●		1500		●	
		ø80/ø100	●	●	●	●	●	●	●	●	●		1500		●	
Double acting/ position locking	SCM-Q 	ø20/ø25/ø32	●	●	●	●	●	●	●	●	●	10	1000	1	●	
		ø40/ø50/ø63	●	●	●	●	●	●	●	●	●		1500		●	
		ø80/ø100	●	●	●	●	●	●	●	●	●		1500		●	
Double acting/fine speed	SCM-F 	ø20/ø25/ø32/ø40	●	●	●	●	●	●	●	●	5	500	1	●		
Double acting/ low speed	SCM-O 	ø20/ø25/ø32	●	●	●	●	●	●	●	●	●	10	1000	1	●	
		ø40/ø50/ø63	●	●	●	●	●	●	●	●	●		1500		●	
		ø80/ø100	●	●	●	●	●	●	●	●	●		1500		●	
Double acting/ low friction	SCM-U 	ø20/ø25/ø32	●	●	●	●	●	●	●	●	●	10	1000	1	●	
		ø40/ø50/ø63	●	●	●	●	●	●	●	●	●		1500		●	
		ø80/ø100	●	●	●	●	●	●	●	●	●		1500		●	
Double acting/ double rod	SCM-D 	ø20/ø25/ø32	●	●	●	●	●	●	●	●	●	10	600	1	●	
		ø40/ø50/ø63	●	●	●	●	●	●	●	●	●		600		●	
		ø80/ø100	●	●	●	●	●	●	●	●	●		600		●	
Double acting/ back to back	SCM-B 	ø20/ø25/ø32	●	●	●	●	●	●	●	●	●	10	500	1	●	
		ø40/ø50/ø63	●	●	●	●	●	●	●	●	●		750		●	
Double acting/2-stage	SCM-W  (Indicator)	ø20/ø25/ø32	●	●	●	●	●	●	●	●	●	10	600	1	●	
		ø40/ø50/ø63	●	●	●	●	●	●	●	●	●		600		●	
Double acting/ tandem	SCM-W4  (Indicator)	ø20/ø25/ø32	●	●	●	●	●	●	●	●	●	10	600	1	●	
		ø40/ø50/ø63	●	●	●	●	●	●	●	●	●		600		●	
Double acting/ rotation-stop	SCM-M 	ø20/ø25/ø32	●	●	●	●	●	●	●	●	●	10	600	1	●	
		ø40/ø50/ø63	●	●	●	●	●	●	●	●	●		600		●	
Double acting/direct mounting foot	SCM-LD 	ø20/ø25/ø32/ø40/ø50/ø63	●	●	●	●	●	●	●	●	●	10	300	1		





### [Example of model No.]



Model No.: Round shaped cylinder

- Variation: Adjustable stroke (push-out)/rotation-stop

- A Mounting : Axial foot
- B Bore size :  $\phi 40$  mm
- C Port thread : Rc thread
- D Cushion : With two-sided air cushion
- E Stroke : 50 mm
- F Switch model No.: Proximity T2H switch, lead wire 1 m
- G Switch quantity : 2
- H Option : None
- I Accessory : None

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

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

(Example) SCM-B-32-O25-50: Only S1 is the low speed.

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

(Example) SCM-B-32-25-O50: Only S2 is the low speed.

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

(Example) SCM-BO-32-25-50: Both S1 and S2 are the low speed.

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/

COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/

MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd

Contr

Ending

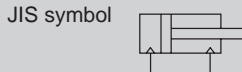




Round shaped cylinder Double acting/single rod

# SCM Series

● Bore size:  $\varnothing 20/\varnothing 25/\varnothing 32/\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80/\varnothing 100$



## Specifications

Item		SCM							
Bore size	mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$
Actuation		Double acting							
Working fluid		Compressed air							
Max. working pressure	MPa	1.0 ( $\approx 150$ psi, 10 bar)							
Min. working pressure	MPa	0.1 ( $\approx 15$ psi, 1 bar)				0.05 ( $\approx 7.3$ psi, 0.5 bar)			
Proof pressure	MPa	1.6 ( $\approx 230$ psi, 16 bar)							
Ambient temperature	$^{\circ}\text{C}$	-10 ( $14^{\circ}\text{F}$ ) to 60 ( $140^{\circ}\text{F}$ ) (no freezing)							
Port size	With rubber cushion	Rc1/8				Rc1/4		Rc3/8	Rc1/2
	With air cushion	M5	Rc1/8			Rc1/4		Rc3/8	Rc1/2
Stroke tolerance	With rubber cushion	+1.4 (to 1000) 0			+1.4 (to 1500) 0	+2.3 (to 1000), 0		+2.7 (to 1500) 0	
	With air cushion	+1.4 (to 1000) 0			+1.4 (to 1500) 0	+1.4 (to 1000), 0		+1.8 (to 1500) 0	
Working piston speed	mm/s	30 to 1000 (Operate within the allowable absorbed energy.)							
Cushion		Either rubber cushion or air cushion can be selected.							
Effective air cushion length	mm	8.1	8.1	8.6	8.6	13.4	13.4	15.4	15.4
Lubrication		Not required (use turbine oil ISO VG32 if necessary for lubrication)							
Allowable absorbed energy	With rubber cushion	0.1	0.2	0.5	0.9	1.6	1.6	3.3	5.8
	With air cushion	0.8	1.2	2.5	3.7	8.0	14.4	25.4	45.6
	Without cushion	-	-	-	-	0.057	0.057	0.112	0.153

\*1: The values of allowable absorbed energy for "No cushion" are the allowable absorbed energy on the non-specified side when an air cushion is selected for the other side ("R"→ Head side, "H"→ Rod side).

\*2: Without any cushion, this product cannot absorb large energy generated by an external load. Provide a shock absorber on the outside.

## Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\varnothing 20$	25, 50, 75, 100, 125, 150, 200, 250, 300	1000	10
$\varnothing 25$			
$\varnothing 32$			
$\varnothing 40$			
$\varnothing 50$	1500	1500	10
$\varnothing 63$			
$\varnothing 80$			
$\varnothing 100$			

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

## Number of installed switches and min. stroke (mm)

● Switch mounting method: Rail

Switch quantity	1				2				3				4				5			
	Proximity			Reed	Proximity		Reed	Proximity		Reed	Proximity		Reed	Proximity		Reed	Proximity		Reed	
	T2, T3	T2W, T3W	T*Y*		T2, T3	T*Y*		T2, T3	T2W, T3W		T*Y*	T2, T3		T2W, T3W	T*Y*		T2, T3	T2W, T3W		T*Y*
Bore size (mm)																				
$\varnothing 20$	10				25				50 70 70 55				55 70 70 55				75 110 110 90			
$\varnothing 25$	10				25				50 70 70 55				55 70 70 55				75 110 110 90			
$\varnothing 32$	10				25				50 70 70 55				55 70 70 55				75 110 110 90			
$\varnothing 40$	10				25				50 70 70 55				55 70 70 55				75 110 110 90			
$\varnothing 50$	10				25				50 65 65 55				55 65 65 55				75 110 110 90			
$\varnothing 63$	10				25				50 65 65 55				55 65 65 55				75 110 110 90			
$\varnothing 80$	10				25				50 65 65 55				55 65 65 55				75 110 110 90			
$\varnothing 100$	10				25				50 65 65 55				55 65 65 55				75 110 110 90			

\*1: For types with one switch, when the stroke is between 10 and 24 mm, the trunnion mounting is not available since the switch rail mounting position is different. Refer to page 345 for mounting position.

● Switch mounting: Band

Switch quantity	1				2				3				4				5			
	Proximity			Reed	Proximity		Reed	Proximity		Reed	Proximity		Reed	Proximity		Reed	Proximity		Reed	
	T2, T3	T2W, T3W	T*Y*		T <sub>0</sub> , T <sub>5</sub> T <sub>2</sub> , T <sub>3</sub>	T2W, T3W		T*Y*	T <sub>0</sub> , T <sub>5</sub> T <sub>2</sub> , T <sub>3</sub>		T2W, T3W	T*Y*		T <sub>0</sub> , T <sub>5</sub> T <sub>2</sub> , T <sub>3</sub>	T2W, T3W		T*Y*	T <sub>0</sub> , T <sub>5</sub> T <sub>2</sub> , T <sub>3</sub>		T2W, T3W
Bore size (mm)																				
$\varnothing 20$	10				25 30 35 25				50 55 55 50				70 75 80 70				95 100 100 95			
$\varnothing 25$	10				25 30 35 25				50 55 55 50				70 75 80 70				95 100 100 95			
$\varnothing 32$	10				25 30 35 25				50 55 55 50				70 75 80 70				95 100 100 95			
$\varnothing 40$	10				25 30 35 25				50 55 55 50				70 75 80 70				95 100 100 95			
$\varnothing 50$	10				25 30 35 25				50 55 55 50				70 75 80 70				95 100 100 95			
$\varnothing 63$	10				25 30 35 25				50 55 55 50				70 75 80 70				95 100 100 95			
$\varnothing 83$	10				25 30 35 25				50 55 55 50				70 75 80 70				95 100 100 95			
$\varnothing 100$	10				25 30 35 25				50 55 55 50				70 75 80 70				95 100 100 95			

### Switch specifications

● 1-color/2-color LED

Item	2-wire proximity		2-wire proximity		3-wire proximity				2-wire reed			2-wire proximity			
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V	T2YD (*4) T2YDT			
Applications	For programmable controller, relay, compact solenoid valve	Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay	For programmable controller, relay (no lamp), serial	For programmable controller, relay	Dedicated for programmable controller			
Output method	-				NPN output	PNP output	NPN output	NPN output	-						
Pwr. supp. V.	-				10 to 28 VDC				-						
Load voltage	85 to 265 VAC	10 to 30 VDC	24 VDC ±10%	30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA	5 to 20 mA (*3)		100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	No indicator lamp	LED (Lit when ON)	Red/green LED (Lit when ON)			
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less		10 µA or less				0 mA				1 mA or less			
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80			1 m:33 3 m:87 5 m:142	1 m:61 3 m:166 5 m:272			

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

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

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

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

### Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke (S) = 0 mm					Switch weight (per 1 pc)	Additional weight per S = 10 mm	Additional weight per S = 10 mm <small>(With switch rail)</small>	Band weight per switch
	Bore size (mm)	Basic (00)	Axial foot (LB)	Flange (FA/FB)	Clevis				
ø 20	0.10	0.21	0.13	0.15	0.11	Refer to the weight in the switch specifications.	0.01	0.012	0.007
ø 25	0.17	0.30	0.21	0.25	0.19		0.014	0.016	0.007
ø 32	0.26	0.42	0.32	0.41	0.29		0.018	0.02	0.007
ø 40	0.41	0.63	0.49	0.64	0.46		0.03	0.032	0.007
ø 50	0.77	1.25	1.11	1.17	0.91		0.044	0.046	0.008
ø 63	1.07	1.79	1.57	1.75	1.21		0.052	0.054	0.009
ø 80	2.04	3.00	2.75	2.75	-		0.07	0.072	0.010
ø 100	3.17	4.92	4.52	4.45	-		0.098	0.10	0.010

(Example) Product weight of SCM-LB-40B-100-T2H-D	$\left\{ \begin{array}{l} \\ \\ \\ \\ \end{array} \right.$	$\left\{ \begin{array}{l} \text{Product weight when } S = 0 \text{ mm} \dots\dots\dots 0.63 \text{ kg} \\ \text{Additional weight when } S = 100 \text{ mm} \dots\dots\dots 0.032 \times \frac{100}{10} = 0.32 \text{ kg} \\ \text{Weight of 2 switches} \dots\dots\dots 0.018 \times 2 = 0.036 \text{ kg} \\ \text{Product weight} \dots\dots\dots 0.63 + 0.32 + 0.036 = 0.986 \text{ kg} \end{array} \right.$
--	--	---

### Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	-	31.4	47.1	62.8	94.2	1.26x10 <sup>2</sup>	1.57x10 <sup>2</sup>	1.88x10 <sup>2</sup>	2.20x10 <sup>2</sup>	2.51x10 <sup>2</sup>	2.83x10 <sup>2</sup>	3.14x10 <sup>2</sup>
	Pull	-	26.4	39.6	52.8	79.2	1.06x10 <sup>2</sup>	1.32x10 <sup>2</sup>	1.58x10 <sup>2</sup>	1.85x10 <sup>2</sup>	2.11x10 <sup>2</sup>	2.38x10 <sup>2</sup>	2.64x10 <sup>2</sup>
ø25	Push	-	49.1	73.6	98.2	1.47x10 <sup>2</sup>	1.96x10 <sup>2</sup>	2.45x10 <sup>2</sup>	2.95x10 <sup>2</sup>	3.44x10 <sup>2</sup>	3.93x10 <sup>2</sup>	4.42x10 <sup>2</sup>	4.91x10 <sup>2</sup>
	Pull	-	41.2	61.9	82.5	1.24x10 <sup>2</sup>	1.65x10 <sup>2</sup>	2.06x10 <sup>2</sup>	2.47x10 <sup>2</sup>	2.89x10 <sup>2</sup>	3.30x10 <sup>2</sup>	3.71x10 <sup>2</sup>	4.12x10 <sup>2</sup>
ø32	Push	-	80.4	1.21x10 <sup>2</sup>	1.61x10 <sup>2</sup>	2.41x10 <sup>2</sup>	3.22x10 <sup>2</sup>	4.02x10 <sup>2</sup>	4.83x10 <sup>2</sup>	5.63x10 <sup>2</sup>	6.43x10 <sup>2</sup>	7.24x10 <sup>2</sup>	8.04x10 <sup>2</sup>
	Pull	-	69.1	1.04x10 <sup>2</sup>	1.38x10 <sup>2</sup>	2.07x10 <sup>2</sup>	2.76x10 <sup>2</sup>	3.46x10 <sup>2</sup>	4.15x10 <sup>2</sup>	4.84x10 <sup>2</sup>	5.53x10 <sup>2</sup>	6.22x10 <sup>2</sup>	6.91x10 <sup>2</sup>
ø40	Push	-	1.26x10 <sup>2</sup>	1.88x10 <sup>2</sup>	2.51x10 <sup>2</sup>	3.77x10 <sup>2</sup>	5.03x10 <sup>2</sup>	6.28x10 <sup>2</sup>	7.54x10 <sup>2</sup>	8.80x10 <sup>2</sup>	1.01x10 <sup>3</sup>	1.13x10 <sup>3</sup>	1.26x10 <sup>3</sup>
	Pull	-	1.06x10 <sup>2</sup>	1.58x10 <sup>2</sup>	2.11x10 <sup>2</sup>	3.17x10 <sup>2</sup>	4.22x10 <sup>2</sup>	5.28x10 <sup>2</sup>	6.33x10 <sup>2</sup>	7.39x10 <sup>2</sup>	8.44x10 <sup>2</sup>	9.50x10 <sup>2</sup>	1.06x10 <sup>3</sup>
ø50	Push	98.0	1.96x10 <sup>2</sup>	2.95x10 <sup>2</sup>	3.93x10 <sup>2</sup>	5.89x10 <sup>2</sup>	7.85x10 <sup>2</sup>	9.82x10 <sup>2</sup>	1.18x10 <sup>3</sup>	1.37x10 <sup>3</sup>	1.57x10 <sup>3</sup>	1.77x10 <sup>3</sup>	1.96x10 <sup>3</sup>
	Pull	82.5	1.65x10 <sup>2</sup>	2.47x10 <sup>2</sup>	3.30x10 <sup>2</sup>	4.95x10 <sup>2</sup>	6.60x10 <sup>2</sup>	8.25x10 <sup>2</sup>	9.90x10 <sup>2</sup>	1.15x10 <sup>3</sup>	1.32x10 <sup>3</sup>	1.48x10 <sup>3</sup>	1.65x10 <sup>3</sup>
ø63	Push	1.56x10 <sup>2</sup>	3.12x10 <sup>2</sup>	4.68x10 <sup>2</sup>	6.23x10 <sup>2</sup>	9.35x10 <sup>2</sup>	1.25x10 <sup>3</sup>	1.56x10 <sup>3</sup>	1.87x10 <sup>3</sup>	2.18x10 <sup>3</sup>	2.49x10 <sup>3</sup>	2.81x10 <sup>3</sup>	3.12x10 <sup>3</sup>
	Pull	2.40x10 <sup>2</sup>	2.80x10 <sup>2</sup>	4.20x10 <sup>2</sup>	5.61x10 <sup>2</sup>	8.41x10 <sup>2</sup>	1.12x10 <sup>3</sup>	1.40x10 <sup>3</sup>	1.68x10 <sup>3</sup>	1.96x10 <sup>3</sup>	2.24x10 <sup>3</sup>	2.52x10 <sup>3</sup>	2.80x10 <sup>3</sup>
ø80	Push	2.51x10 <sup>2</sup>	5.03x10 <sup>2</sup>	7.54x10 <sup>2</sup>	1.01x10 <sup>3</sup>	1.51x10 <sup>3</sup>	2.01x10 <sup>3</sup>	2.51x10 <sup>3</sup>	3.02x10 <sup>3</sup>	3.52x10 <sup>3</sup>	4.02x10 <sup>3</sup>	4.52x10 <sup>3</sup>	5.03x10 <sup>3</sup>
	Pull	2.27x10 <sup>2</sup>	4.54x10 <sup>2</sup>	6.80x10 <sup>2</sup>	9.07x10 <sup>2</sup>	1.36x10 <sup>3</sup>	1.81x10 <sup>3</sup>	2.27x10 <sup>3</sup>	2.72x10 <sup>3</sup>	3.17x10 <sup>3</sup>	3.63x10 <sup>3</sup>	4.08x10 <sup>3</sup>	4.54x10 <sup>3</sup>
ø100	Push	3.92x10 <sup>2</sup>	7.85x10 <sup>2</sup>	1.18x10 <sup>3</sup>	1.57x10 <sup>3</sup>	2.36x10 <sup>3</sup>	3.14x10 <sup>3</sup>	3.93x10 <sup>3</sup>	4.71x10 <sup>3</sup>	5.50x10 <sup>3</sup>	6.28x10 <sup>3</sup>	7.07x10 <sup>3</sup>	7.85x10 <sup>3</sup>
	Pull	3.57x10 <sup>2</sup>	7.15x10 <sup>2</sup>	1.07x10 <sup>3</sup>	1.43x10 <sup>3</sup>	2.14x10 <sup>3</sup>	2.86x10 <sup>3</sup>	3.57x10 <sup>3</sup>	4.29x10 <sup>3</sup>	5.00x10 <sup>3</sup>	5.72x10 <sup>3</sup>	6.43x10 <sup>3</sup>	7.15x10 <sup>3</sup>

## How to order

No switch (built-in magnet for switch)

**SCM-LB-40-B-100** ————— **J I**

With switch (built-in magnet for switch)

**SCM-LB-40-B-100-T2H-D** ————— **J I**

**A** Mounting  
\*1

**B** Bore size

**C** Port thread

**D** Cushion

**E** Stroke

**F** Switch model No.

\*4

\*5

## ⚠ Precautions for model No. selection

- \*1 : Mounting bracket will be shipped with the product.
- \*2 : If the product is supplied with bellows and the mounting bracket is LB, FA, or TA, it will be shipped assembled.
- \*3 : Refer to page 232 for the number of installed switches and the min. stroke.
- \*4 : Switches other than **F** Switch model No. are also available. (Made to order)  
Refer to Ending Page 16 for details.
- \*5 : T8H/V switches cannot be mounted when the bore size is from  $\phi 20$  to  $\phi 40$  and the switch mounting style is the rail.
- \*6 : The instantaneous max. temperature is the temperature when sparks, cutting chips, etc., instantaneously contact the bellows.
- \*7 : Refer to Ending Page 85 for custom specifications of rod end form.
- \*8 : "Q" (switch rail enclosed at shipment) is not available for the "Z" switch mounting.
- \*9 : "I" and "Y" cannot be selected together.
- \*10 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

## [Example of model No.]

**SCM-LB-40B-100-T2H-D-JI**

Model: Round shaped cylinder, double acting

- A** Mounting : Axial foot
- B** Bore size :  $\phi 40$  mm
- C** Port thread : Rc thread
- D** Cushion : With two-sided air cushion
- E** Stroke : 100 mm
- F** Switch model No. : Proximity T2H switch, lead wire 1 m
- G** Switch Quantity : 2 pcs. included
- H** Switch mounting : Rail
- I** Option : Bellows material for max. ambient temperature 100°C
- J** Accessory : Rod eye

**I** Option

\*2

\*6

\*8

**G** Switch quantity

**H** Switch mounting

**I** Option

\*2

\*6

\*8

**J** Accessory

\*9

Code	Description								
<b>A Mounting</b>									
	Bore size ( $\phi$ )	20	25	32	40	50	63	80	100
<b>00</b>	Basic	●	●	●	●	●	●	●	●
<b>LB</b>	Axial foot	●	●	●	●	●	●	●	●
<b>FA</b>	Rod side flange	●	●	●	●	●	●	●	●
<b>FB</b>	Head side flange	●	●	●	●	●	●	●	●
<b>CA</b>	Eye bracket	●	●	●	●	●	●	●	●
<b>CB</b>	Clevis bracket (pin and snap ring incl.)							●	●
<b>TA</b>	Rod side trunnion	●	●	●	●	●	●		
<b>TB</b>	Head side trunnion	●	●	●	●	●	●		

<b>B Bore size (mm)</b>	
<b>20</b>	$\phi 20$
<b>25</b>	$\phi 25$
<b>32</b>	$\phi 32$
<b>40</b>	$\phi 40$
<b>50</b>	$\phi 50$
<b>63</b>	$\phi 63$
<b>80</b>	$\phi 80$
<b>100</b>	$\phi 100$

<b>C Port thread</b>	
<b>Blank</b>	Rc thread
<b>N</b>	NPT thread (made-to-order product) With air cushion: $\phi 32$ and over
<b>G</b>	G thread (made-to-order product) With air cushion: $\phi 32$ and over

<b>D Cushion</b>	
<b>B</b>	With two-sided air cushion
<b>R</b>	Rod side air cushioned
<b>H</b>	Head side air cushioned
<b>D</b>	With two-sided rubber cushion

<b>E Stroke (mm)</b>		
Bore size	Stroke *2	Custom stroke
$\phi 20$ to $\phi 32$	<b>10 to 1000</b>	In 1 mm increments
$\phi 40$ to $\phi 100$	<b>10 to 1500</b>	

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

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

<b>G Switch quantity</b>	
<b>R</b>	1 on rod side
<b>H</b>	1 on head side
<b>D</b>	2
<b>T</b>	3
<b>4</b>	4 (when there are more than 4 switches, indicate switch quantity.)

<b>H Switch mounting</b>	
<b>Blank</b>	Rail method
<b>Z</b>	Band method

<b>I Option</b>			
		Max. ambient temp.	Instantaneous max. temp.
<b>J</b>	Bellows	100°C	200°C
<b>L</b>	Bellows	250°C	400°C
<b>Q</b>	Switch rail included at shipment		
<b>M</b>	Piston rod material (stainless steel)		
<b>P6</b>	Copper and PTFE free		

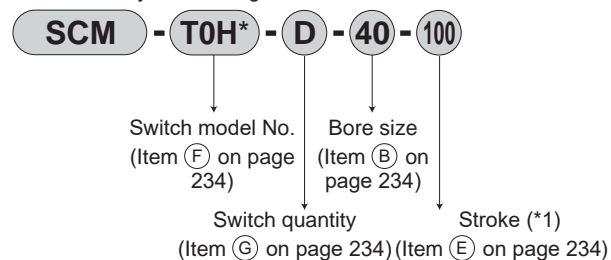
<b>J Accessory</b>									
	Bore size ( $\phi$ )	20	25	32	40	50	63	80	100
<b>I</b>	Rod eye	●	●	●	●	●	●	●	●
<b>Y</b>	Rod clevis (pin and snap ring included)	●	●	●	●	●	●	●	●
<b>B1</b>	Eye bracket							●	●
<b>B2</b>	Clevis bracket	●	●	●	●	●	●		



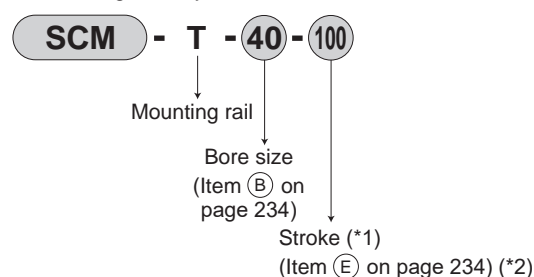
### How to order switch

#### [Switch mounting: Rail]

- Switch body + mounting rail set



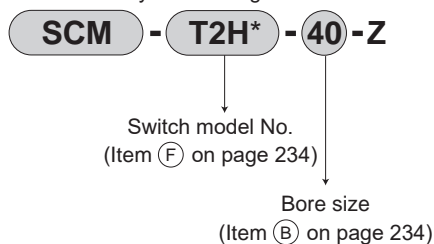
- Mounting rail only



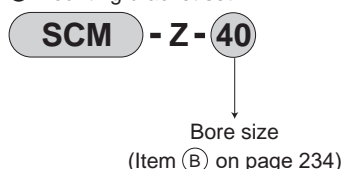
- \*1: Indicate X if the stroke exceeds 300 mm. If exceeding 300 mm, a short rail (with 100 mm switch adjustment length) will be included per switch.
- \*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

#### [Switch mounting: Band]

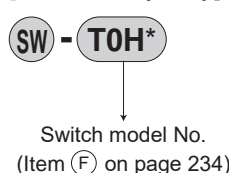
- Switch body + mounting bracket set + band



- Mounting bracket set + band



#### [Switch body only]



### Clean-room specifications (Catalog No. CB-033SA)

- Anti-dust generation structure for use in cleanrooms

SCM - ..... - P7\*

SCM - ..... - P5\*

### Specifications for rechargeable battery (Catalog No. CC-1226A)

- Design compatible with rechargeable battery manufacturing process

SCM - ... - P4\*

\* Contact CKD for details.

### How to order mounting bracket

Bore size (mm)	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63	SCM-LB-80	SCM-LB-100
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63	SCM-FA-80	SCM-FA-100
Eye bracket (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40	SCM-CA-50	SCM-CA-63	-	-
Clevis bracket (CB)	-	-	-	-	-	-	SCM-CB-80	SCM-CB-100
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63	-	-

- \*1: All mounting brackets are supplied with mounting bolts.
- \*2: The foot mounting bracket is provided as 2 pcs./set.

### Material of mounting bracket

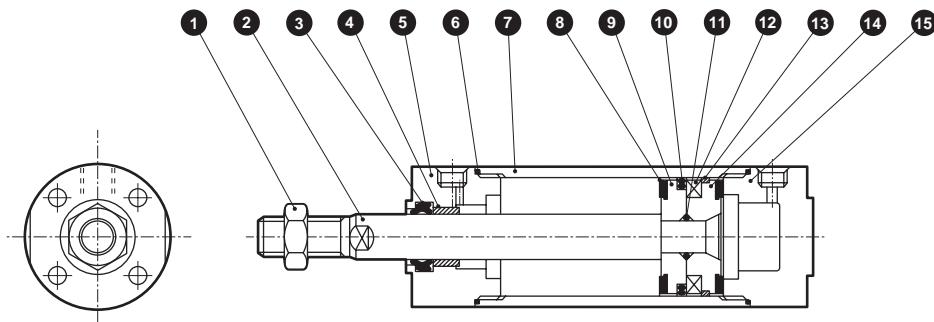
Mounting	Material
LB	Steel
FA/FB	Aluminum *2
TA/TB	Steel
CA	Steel
CB	Cast iron

- \*1: Mounting bracket will be shipped with the product. However, it will be attached to the product if the product is the type with bellows and LB, FA, or TA mounting bracket, SCM-P with LB, FB or TB mounting bracket, or SCM-R with LB, FB or TB mounting bracket.
- \*2: The ø50 to ø100 material is steel.

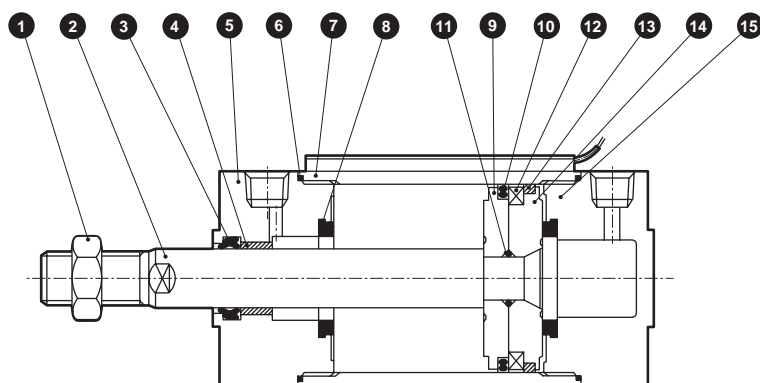
SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

## Internal structure and parts list (with rubber cushion)

●  $\phi 20$  to  $\phi 40$



●  $\phi 50$  to  $\phi 100$



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rod nut	Steel	Nickeling	9	Piston R	$\phi 20$ to $\phi 40$ : Aluminum alloy $\phi 50$ to $\phi 100$ : Aluminum alloy die-casting	
2	Piston rod	$\phi 20, \phi 25$ : Stainless steel $\phi 32$ to $\phi 100$ : Steel	Industrial chrome plating	10	Piston packing	Nitrile rubber	
3	Rod packing	Nitrile rubber		11	Piston gasket	Nitrile rubber	
4	Bush	Oil impregnated bearing alloy *1		12	Magnet	Plastic	
5	Rod cover	Aluminum alloy	Hard alumite	13	Wear ring	Polyacetal resin	
6	Cylinder gasket	Nitrile rubber		14	Piston H	$\phi 20$ to $\phi 40$ : Aluminum alloy $\phi 50$ to $\phi 100$ : Aluminum alloy die-casting	
7	Cylinder tube	Aluminum alloy	Hard alumite	15	Head cover	Aluminum alloy	Hard alumite
8	Cushion rubber	Urethane rubber					

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

## Repair parts list

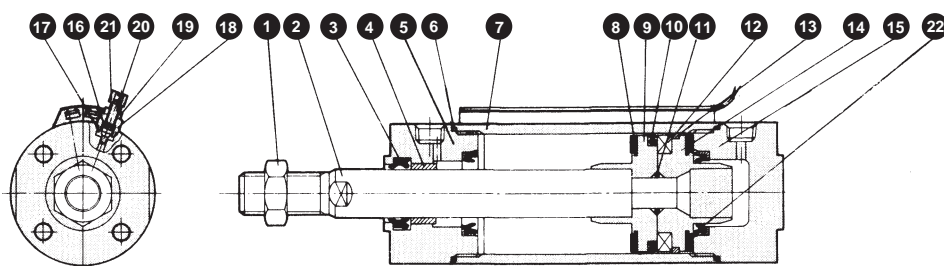
With rubber cushion

Bore size (mm)	Kit No.	Repair parts No.
$\phi 20$	SCM-20DK	
$\phi 25$	SCM-25DK	
$\phi 32$	SCM-32DK	
$\phi 40$	SCM-40DK	3 6 8 10 13
$\phi 50$	SCM-50DK	
$\phi 63$	SCM-63DK	
$\phi 80$	SCM-80DK	
$\phi 100$	SCM-100DK	

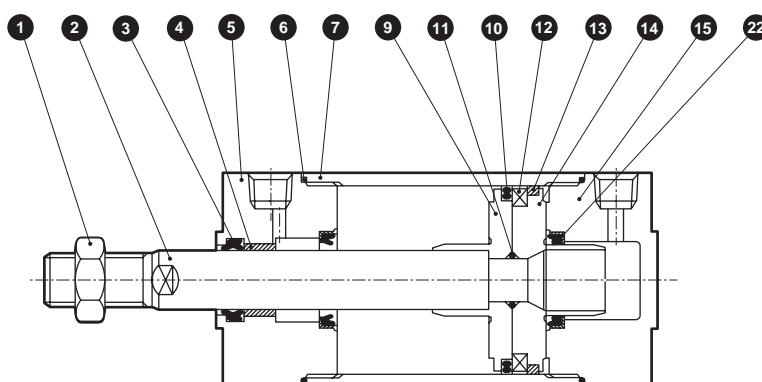
\*1: Specify the kit No. when placing an order.

### Internal structure and parts list (with air cushion)

●  $\varnothing 20$  to  $\varnothing 40$



●  $\varnothing 50$  to  $\varnothing 100$



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rod nut	Steel	Nickeling	12	Magnet	Plastic	
2	Piston rod	$\varnothing 20, \varnothing 25$ : Stainless steel $\varnothing 32$ to $\varnothing 100$ : Steel	Industrial chrome plating	13	Wear ring	Polyacetal resin	
3	Rod packing	Nitrile rubber		14	Piston H	$\varnothing 20$ to $\varnothing 40$ : Aluminum alloy $\varnothing 50$ to $\varnothing 100$ : Aluminum alloy die-casting	
4	Bush	Oil impregnated bearing alloy *1		15	Head cover	Aluminum alloy	Hard alumite
5	Rod cover	Aluminum alloy	Hard alumite	16	Needle gasket	Nitrile rubber	
6	Cylinder gasket	Nitrile rubber		17	Holder gasket	Nitrile rubber	
7	Cylinder tube	Aluminum alloy	Hard alumite	18	Needle holder	Aluminum alloy	
8	Cushion rubber	Urethane rubber		19	Lock nut	Steel	Nickeling
9	Piston R	$20$ to $\varnothing 40$ : Aluminum alloy $\varnothing 50$ to $\varnothing 100$ : Aluminum alloy die-casting		20	Needle	Stainless steel	
10	Piston packing	Nitrile rubber		21	Knob	Aluminum alloy	Chromate
11	Piston gasket	Nitrile rubber		22	Cushion packing	Nitrile rubber/steel	

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

### Repair parts list

With air cushion

Bore size (mm)	Kit No.	Repair parts No.
$\varnothing 20$	SCM-20BK	
$\varnothing 25$	SCM-25BK	
$\varnothing 32$	SCM-32BK	
$\varnothing 40$	SCM-40BK	
$\varnothing 50$	SCM-50BK	*2 3 6 8 10 13 16 17 22
$\varnothing 63$	SCM-63BK	
$\varnothing 80$	SCM-80BK	
$\varnothing 100$	SCM-100BK	

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

\*2: 8 is not supplied with  $\varnothing 50$  to  $\varnothing 100$ .

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

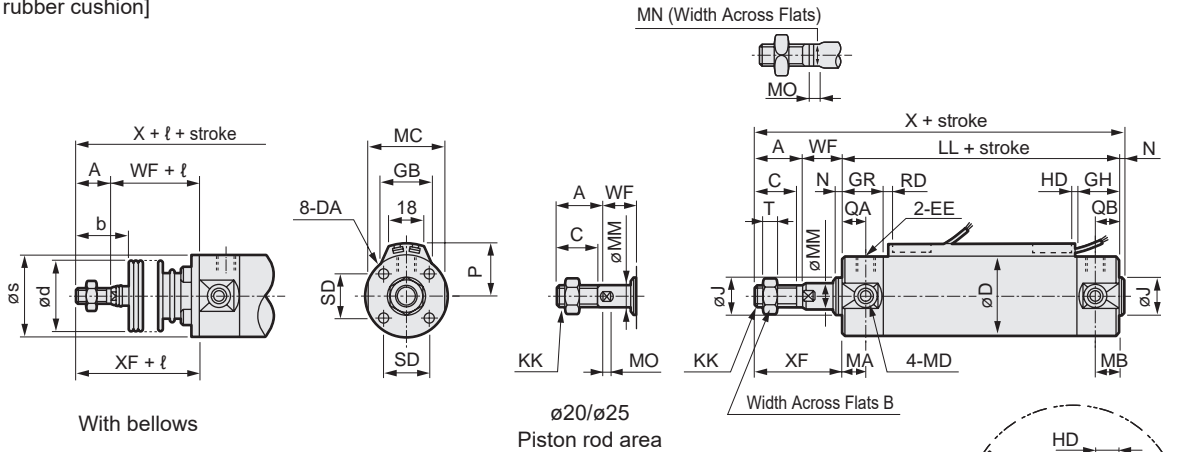
Ending

## dimensions



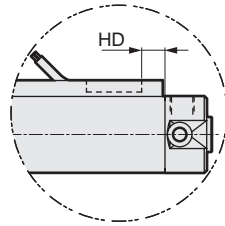
● Basic (00)  $\phi 20$  to  $\phi 100$   
[With rubber cushion]

• Switch mounting: Rail



With bellows

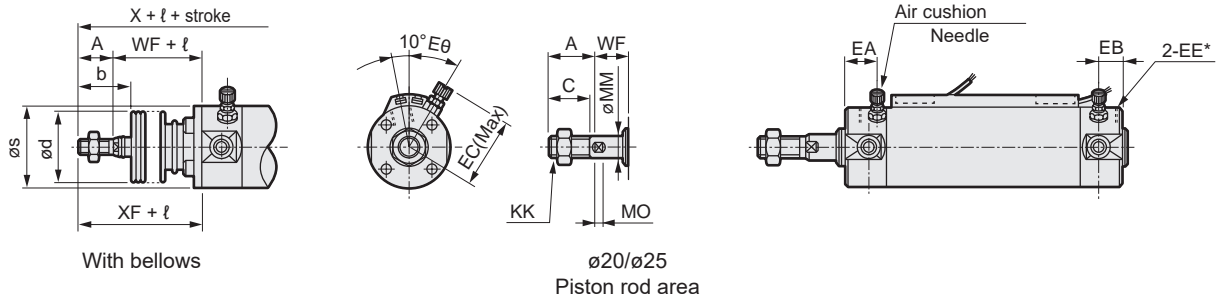
$\phi 20/\phi 25$   
Piston rod area



In the case of T2W, T3W

[With air cushion]

• Switch mounting: Rail



With bellows

$\phi 20/\phi 25$   
Piston rod area

\*1: Piping port (EE) of  $\phi 20$  and  $\phi 25$  is different. Refer to the dimensions (EE\*) of the type with air cushion.

\*2: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

\*3: For the dimensions of the accessories, refer to pages 252 and 253.

Code	Basic (00) Basic dimensions																					
Bore size (mm)	A	B	C	D	DA	EE (Note)	GH	GR	J	KK	LL	MA	MB	MC	MD	MM	MN	MO	N	QA	QB	SD
$\phi 20$	18	13	16	26	M4 depth 6.5	Rc1/8	17	19	12	M8	69	11	11	24	M5	8	6	4	2	12	10	14
$\phi 25$	22	17	20	31	M5 depth 6.5	Rc1/8	17	19	14	M10 $\times$ 1.25	69	11	11	29	M6	10	8	5	2	12	10	16.5
$\phi 32$	22	17	20	38	M5 depth 7.5	Rc1/8	17	19	18	M10 $\times$ 1.25	71	11	10	36	M8	12	10	5.5	2	12	10	20
$\phi 40$	30	22	27	47	M6 depth 12	Rc1/8	19	20	25	M14 $\times$ 1.5	78	12	10	44	M10	16	14	6	2	13	12	26
$\phi 50$	35	27	32	58	M8 depth 16	Rc1/4	22	25	30	M18 $\times$ 1.5	90	13	12	55	M12	20	17	8	2	15	12	32
$\phi 63$	35	27	32	72	M10 depth 16	Rc1/4	22	25	32	M18 $\times$ 1.5	90	13	12	69	M14	20	17	8	2	15	12	38
$\phi 80$	40	32	37	89	M10 depth 22	Rc3/8	28	28	40	M22 $\times$ 1.5	108	-	-	80	-	25	22	11	3	15	15	50
$\phi 100$	40	41	37	110	M12 depth 22	Rc1/2	28	28	50	M26 $\times$ 1.5	108	-	-	100	-	30	27	13	3	15	15	60

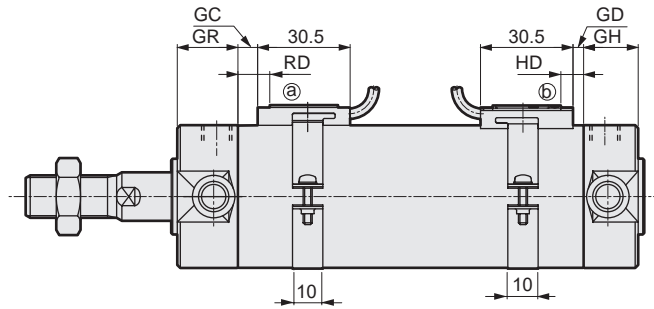
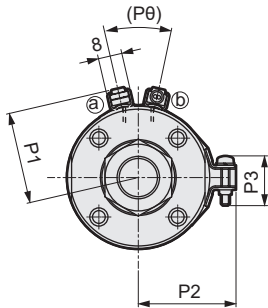
Code	With bellows				With air cushion					Switch mounting: Rail												
Bore size (mm)	T	WF	X	XF	b	d	s	$\ell$	EA	EB	EC	EE* (Note)	E $\theta$	P	GB	HD			RD			
																T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W	
$\phi 20$	5	17	106	35	30	30	25.7	(stroke/3) + 18.5	14	12	27	M5	30°	19.5	23	3.0	6.5	8.5	7.5	7.5	7.5	9.5
$\phi 25$	6	18	111	40	35	30	30.7	(stroke/3) + 20.5	14	12	29.5	M5	30°	22	24.4	2.0	5.5	7.5	8.5	8.5	8.5	10.5
$\phi 32$	6	18	113	40	31.5	35	37.7	(stroke/3) + 19	14	12	32.8	Rc1/8	25°	25.5	25	3.0	6.5	8.5	9.5	9.5	9.5	11.5
$\phi 40$	8	20	130	50	40	35	46.7	(stroke/3) + 18.5	15	14	36.6	Rc1/8	20°	30	25.7	5.0	8.5	10.5	11.5	11.5	13.5	13.5
$\phi 50$	11	23	150	58	46	40	57.7	(stroke/3.6) + 18.5	18.5	15.5	43	Rc1/4	20°	35.5	26.2	7.5	11.0	13.0	13.0	13.0	15.0	15.0
$\phi 63$	11	23	150	58	46	40	71.7	(stroke/3.6) + 18.5	18.5	15.5	50	Rc1/4	20°	42.5	26.5	7.5	11.0	13.0	13.0	13.0	15.0	15.0
$\phi 80$	13	31	182	71	55	50	88.7	(stroke/4.3) + 14.5	20	20	58.5	Rc3/8	20°	51	26.7	9.5	13.0	15.0	20.0	20.0	22.0	22.0
$\phi 100$	16	31	182	71	56	60	109.7	(stroke/4.5) + 21	20	20	69	Rc1/2	20°	61.5	26.7	10.0	13.5	15.5	19.5	19.5	21.5	21.5

## Dimensions



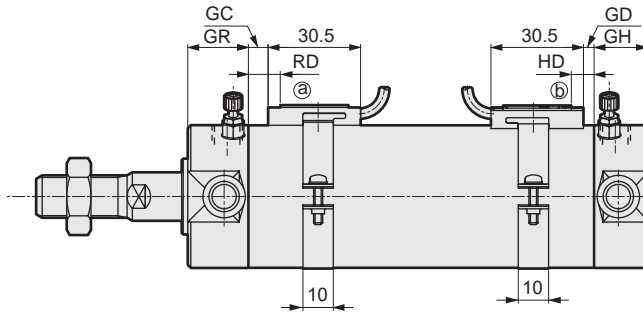
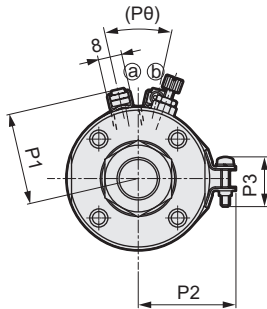
● Basic (00)  $\phi 20$  to  $\phi 100$   
[With rubber cushion]

· Switch mounting: Band



[With air cushion]

· Switch mounting: Band



\*1: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

\*2: For the dimensions of the accessories, refer to pages 252 and 253.

Code	Switch mounting: Band																	
	GD			GC			GH	GR	HD			RD			P1	P2	P3	P0
	T0/T5	T2, T3	T2W/T3W	T0/T5	T2, T3	T2W/T3W			T0/T5	T2, T3	T2W/T3W	T0/T5	T2, T3	T2W/T3W				
$\phi 20$	2.5	2.5	4.5	3.5	3.5	5.5	17	19	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38°)
$\phi 25$	1.5	1.5	3.5	4.5	4.5	6.5	17	19	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34°)
$\phi 32$	2.5	2.5	4.5	5.5	5.5	7.5	17	19	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30°)
$\phi 40$	4.5	4.5	6.5	7.5	7.5	9.5	19	20	8.5	8.5	10.5	11.5	11.5	13.5	30.2	32.1	16	(26°)
$\phi 50$	7.0	7.0	9.0	9.0	9.0	11.0	22	25	11.0	11.0	13.0	13.0	13.0	15.0	35.7	37.4	16	(22°)
$\phi 63$	7.0	7.0	9.0	9.0	9.0	11.0	22	25	11.0	11.0	13.0	13.0	13.0	15.0	42.7	44.4	16	(20°)
$\phi 80$	9.0	9.0	11.0	16.0	16.0	18.0	28	28	13.0	13.0	15.0	20.0	20.0	22.0	51.2	53.0	16	(16°)
$\phi 100$	9.5	9.5	11.5	15.5	15.5	17.5	28	28	13.5	13.5	15.5	19.5	19.5	21.5	61.7	63.5	16	(16°)

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

Ending

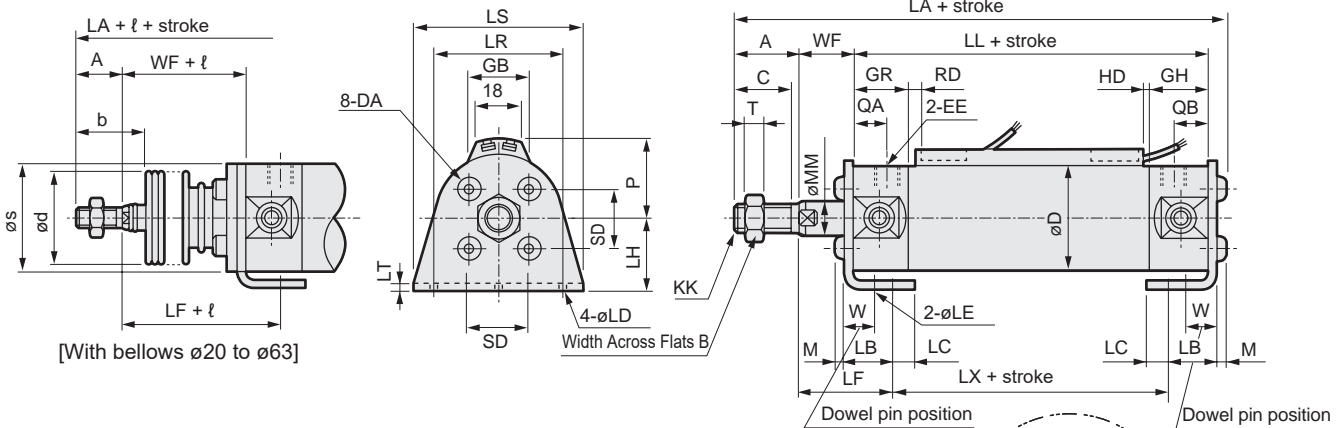


## dimensions



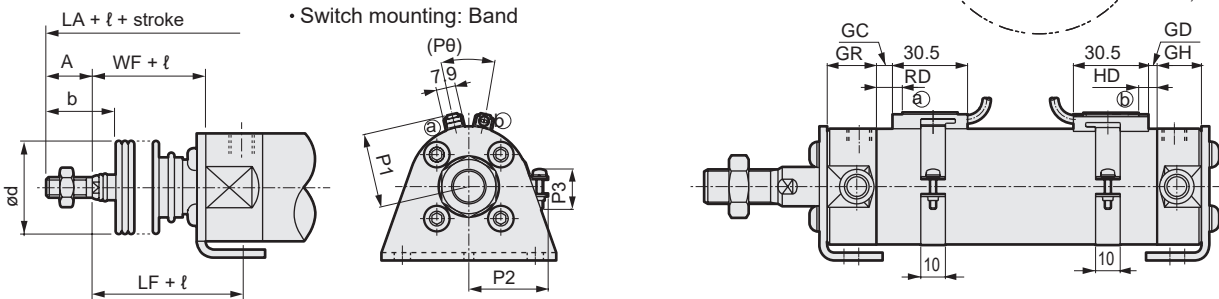
### ● Axial foot (LB)

• Switch mounting: Rail



[With bellows ø20 to ø63]

• Switch mounting: Band



[With bellows ø80/ø100]

Code	Axial foot (LB) Basic dimensions																								
	Bore size (mm)		A	B	C	D	DA	EE (*1)	GH	GR	KK	LA	LB	LC	LD	LE	LF	LH	LL	LR	LS	LT	LX	M	MM
FC*	ø 20		18	13	16	26	M4	Rc1/8	17	19	M8	109.8	15.1	7.1	5.7	4	28.9	20	69	32	44	3.2	45.2	2.6	8
STK	ø25		22	17	20	31	M5	Rc1/8	17	19	M 10 x 1.25	115.6	15.1	7.1	5.7	4	29.9	22	69	36	49	3.2	45.2	3.4	10
	ø32		22	17	20	38	M5	Rc1/8	17	19	M 10 x 1.25	117.6	16.1	8.1	6.8	4	30.9	25	71	44	58	3.2	45.2	3.4	12
SRL3	ø40		30	22	27	47	M6	Rc1/8	19	20	M 14 x 1.5	135.2	16.6	9.1	6.8	4	33.4	30	78	54	71	3.2	51.2	4	16
	ø50		35	27	32	58	M8	Rc1/4	22	25	M 18 x 1.5	157.5	22	11	9	5	40.5	40	90	66	86	4.5	55	5	20
	ø63		35	27	32	72	M10	Rc1/4	22	25	M 18 x 1.5	157.5	22	13	11	5	40.5	45	90	82	106	4.5	55	5	20
SRG3	ø80		40	32	37	89	M10	Rc3/8	28	28	M 22 x 1.5	189.5	28.5	14	11	6	55	55	108	100	125	4.5	60	6	25
	ø100		40	41	37	110	M12	Rc1/2	28	28	M 26 x 1.5	192	30	16	14	6	55	65	108	120	150	6	60	7	30

Code	Bore size (mm)	With bellows					Switch mounting: Rail					Switch mounting: Band													
		QA	QB	SD	T	W	WF	b	d	s	ℓ	P	GB	HD	RD	GD	GC								
SRT3	ø 20	12	10	14	5	10	17	30	30	25.7	(Stroke/3) + 18.5	19.5	23	3.0	6.5	8.5	7.5	7.5	9.5	2.5	2.5	4.5	3.5	3.5	5.5
MRL2	ø 25	12	10	16.5	6	10	18	35	30	30.7	(Stroke/3) + 20.5	22	24.4	2.0	5.5	7.5	8.5	8.5	10.5	1.5	1.5	3.5	4.5	4.5	6.5
	ø 32	12	10	20	6	10	18	31.5	35	37.7	(Stroke/3) + 19	25.5	25	3.0	6.5	8.5	9.5	9.5	11.5	2.5	2.5	4.5	5.5	5.5	7.5
MRG2	ø 40	13	12	26	8	10	20	40	35	46.7	(Stroke/3) + 18.5	30	25.7	5.0	8.5	10.5	11.5	11.5	13.5	4.5	4.5	6.5	7.5	7.5	9.5
	ø 50	15	12	32	11	17.5	23	46	40	57.7	(Stroke/3.6) + 18.5	35.5	26.2	7.5	11.0	13.0	13.0	13.0	15.0	7.0	7.0	9.0	9.0	9.0	11.0
	ø 63	15	12	38	11	17.5	23	46	40	71.7	(Stroke/3.6) + 18.5	42.5	26.5	7.5	11.0	13.0	13.0	13.0	15.0	7.0	7.0	9.0	9.0	9.0	11.0
SM-25	ø 80	15	15	50	13	20	31	55	50	-	(Stroke/4.3) + 14.5	51	26.7	9.5	13.0	15.0	20.0	20.0	22.0	9.0	9.0	11.0	16.0	16.0	18.0
	ø100	15	15	60	16	20	31	56	60	-	(Stroke/4.5) + 21	61.5	26.7	10.0	13.5	15.5	19.5	19.5	21.5	9.5	9.5	11.5	15.5	15.5	17.5

Code	Bore size (mm)	HD				RD				P1	P2	P3	Pθ
		T0/T5	T2/T3	T2W/T3W	T0/T5	T2/T3	T2W/T3W						
FJ	ø 20	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38)		
	ø25	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34)		
FK	ø32	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30)		
	ø40	8.5	8.5	10.5	11.5	11.5	13.5	30.2	32.1	16	(26)		
Spd Contr	ø50	11.0	11.0	13.0	13.0	13.0	15.0	35.7	37.4	16	(22)		
	ø63	11.0	11.0	13.0	13.0	13.0	15.0	42.7	44.4	16	(20)		
	ø80	13.0	13.0	15.0	20.0	20.0	22.0	51.2	53.0	16	(16)		
Ending	ø100	13.5	13.5	15.5	19.5	19.5	21.5	61.7	63.5	16	(16)		

\*1: Needle relational dimensions and port sizes of the type with air cushion are the same as those of the basic. Refer to pages 238 and 239. (Those of ø20/ø25 are different from the basic.)

\*2: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

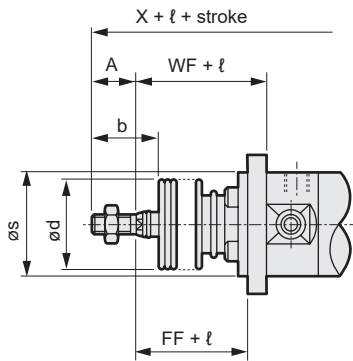
\*3: For the dimensions of the accessories, refer to pages 252 and 253.

### dimensions

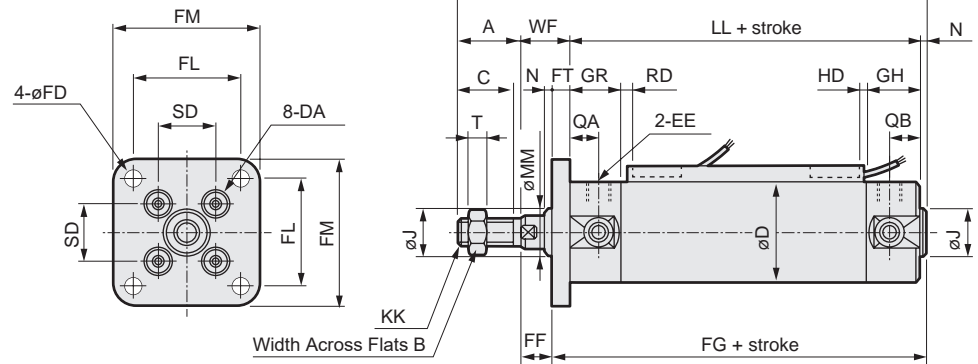


#### ● Rod side flange (FA)

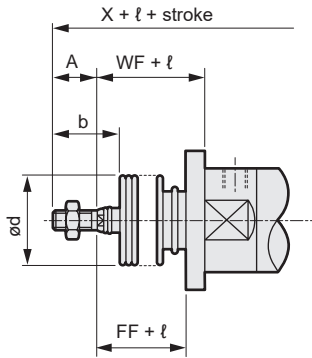
##### • Switch mounting: Rail



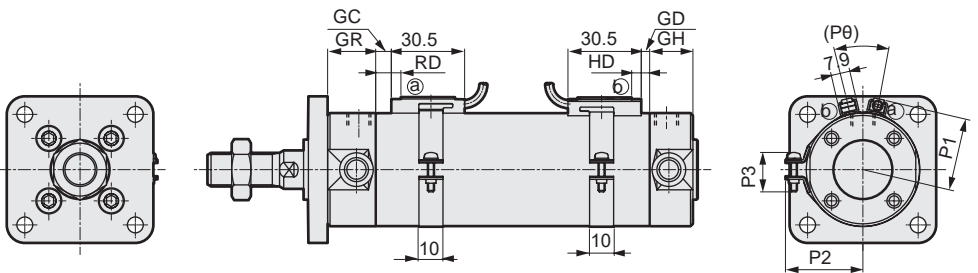
[With bellows  $\varnothing 20$  to  $\varnothing 63$ ]



##### • Switch mounting: Band



[With bellows  $\varnothing 80/\varnothing 100$ ]



In the case of T2W, T3W

\*1: Needle relational dimensions and port sizes of the type with air cushion are the same as those of the basic. Refer to pages 238 and 239. (Those of  $\varnothing 20/\varnothing 25$  are different from the basic.)

\*2: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

\*3: For the dimensions of the accessories, refer to pages 252 and 253.

Code	Rod side flange (FA) Basic dimensions																								
Bore size (mm)	A	B	C	D	DA	EE (*1)	FD	FF	FG	FL	FM	FT	GH	GR	J	KK	LL	MM	N	QA	QB	SD	T	WF	X
$\varnothing 20$	18	13	16	26	M4	Rc1/8	5.5	11	77	28	40	6	17	19	12	M8	69	8	2	12	10	14	5	17	106
$\varnothing 25$	22	17	20	31	M5	Rc1/8	5.5	11	78	32	44	7	17	19	14	M10 x 1.25	69	10	2	12	10	16.5	6	18	111
$\varnothing 32$	22	17	20	38	M5	Rc1/8	6.6	11	80	38	53	7	17	19	18	M10 x 1.25	71	12	2	12	10	20	6	18	113
$\varnothing 40$	30	22	27	47	M6	Rc1/8	6.6	12	88	46	61	8	19	20	25	M14 x 1.5	78	16	2	13	12	26	8	20	130
$\varnothing 50$	35	27	32	58	M8	Rc1/4	9	14	101	58	76	9	22	25	30	M18 x 1.5	90	20	2	15	12	32	11	23	150
$\varnothing 63$	35	27	32	72	M10	Rc1/4	11	14	101	70	92	9	22	25	32	M18 x 1.5	90	20	2	15	12	38	11	23	150
$\varnothing 80$	40	32	37	89	M10	Rc3/8	11	20	122	82	104	11	28	28	40	M22 x 1.5	108	25	3	15	15	50	13	31	182
$\varnothing 100$	40	41	37	110	M12	Rc1/2	13	17	125	100	128	14	28	28	50	M26 x 1.5	108	30	3	15	15	60	16	31	182

Code	With bellows				Switch mounting: Rail									Switch mounting: Band												
Bore size (mm)	b	d	s	ℓ	HD			RD			GD			GC			HD			RD			P1	P2	P3	P8
					T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W				
$\varnothing 20$	30	30	25.7	(stroke/3)+18.5	3.0	6.5	8.5	7.5	7.5	9.5	2.5	2.5	4.5	3.5	3.5	5.5	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38)
$\varnothing 25$	35	30	30.7	(stroke/3)+20.5	2.0	5.5	7.5	8.5	8.5	10.5	1.5	1.5	3.5	4.5	4.5	6.5	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34)
$\varnothing 32$	31.5	35	37.7	(stroke/3)+19	3.0	6.5	8.5	9.5	9.5	11.5	2.5	2.5	4.5	5.5	5.5	7.5	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30)
$\varnothing 40$	40	35	46.7	(stroke/3)+18.5	5.0	8.5	10.5	11.5	11.5	13.5	4.5	4.5	6.5	7.5	7.5	9.5	8.5	8.5	10.5	11.5	11.5	13.5	30.2	32.1	16	(26)
$\varnothing 50$	46	40	57.7	(stroke/3.6)+18.5	7.5	11.0	13.0	13.0	13.0	15.0	7.0	7.0	9.0	9.0	9.0	11.0	11.0	11.0	13.0	13.0	13.0	15.0	35.7	37.4	16	(22)
$\varnothing 63$	46	40	71.7	(stroke/3.6)+18.5	7.5	11.0	13.0	13.0	13.0	15.0	7.0	7.0	9.0	9.0	9.0	11.0	11.0	11.0	13.0	13.0	13.0	15.0	42.7	44.4	16	(20)
$\varnothing 80$	55	50	-	(stroke/4.3)+14.5	9.5	13.0	15.0	20.0	20.0	22.0	9.0	9.0	11.0	16.0	16.0	18.0	13.0	13.0	15.0	20.0	20.0	22.0	51.2	53.0	16	(16)
$\varnothing 100$	56	60	-	(stroke/4.5)+21	10.0	13.5	15.5	19.5	19.5	21.5	9.5	9.5	11.5	15.5	15.5	17.5	13.5	13.5	15.5	19.5	19.5	21.5	61.7	63.5	16	(16)

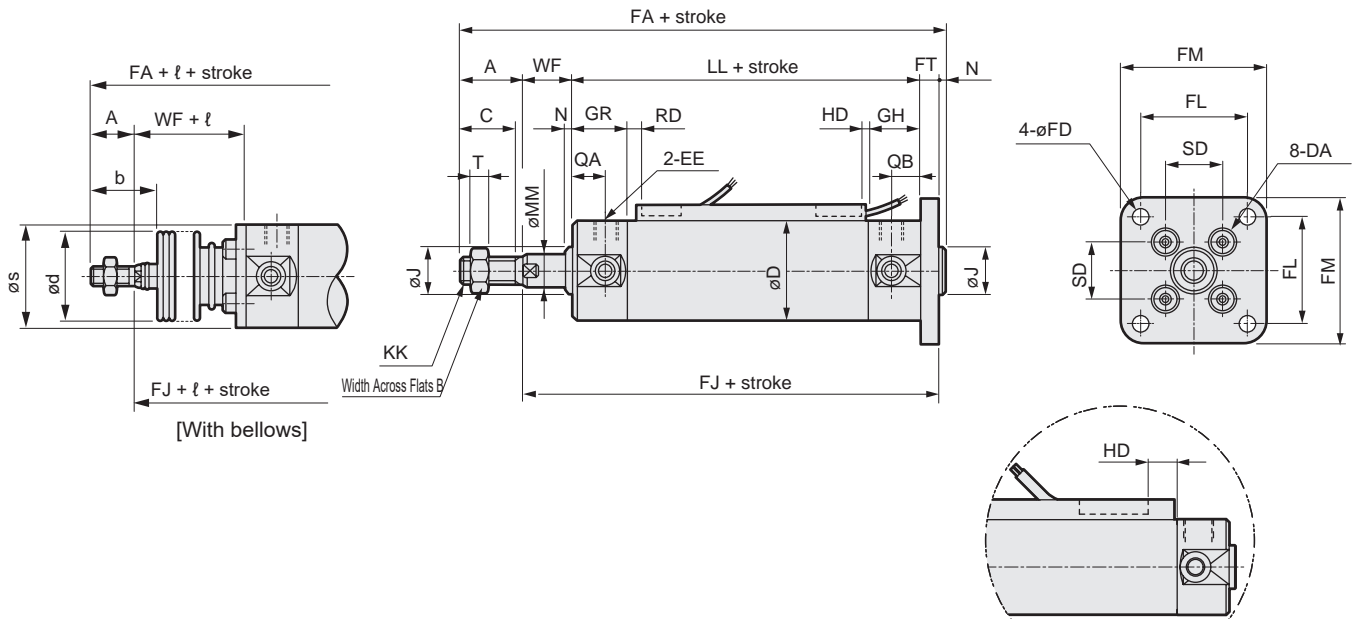
- SCP\*3
- CMK2
- CMA2
- SCM**
- SCG
- SCA2
- SCS2
- CKV2
- CAV2/COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/MSDG
- FC\*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd Contr
- Ending

## dimensions

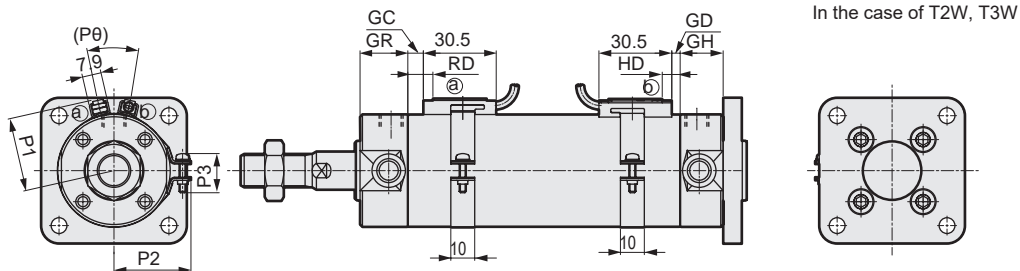


### ● Head side flange FB

• Switch mounting: Rail



• Switch mounting: Band



\*1: Needle relational dimensions and port sizes of the type with air cushion are the same as those of the basic. Refer to pages 238 and 239. (Those of ø20/ø25 are different from the basic.)

\*2: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

\*3: For the dimensions of the accessories, refer to pages 252 and 253.

Code	Rod side flange (FB) Basic dimensions																								
Bore size (mm)	A	B	C	D	DA	EE (*1)	FA	FD	FJ	FL	FM	FT	GH	GR	J	KK	LL	MM	N	QA	QB	SD	T	WF	b
ø 20	18	13	16	26	M4	Rc1/8	112	5.5	92	28	40	6	17	19	12	M8	69	8	2	12	10	14	5	17	30
ø 25	22	17	20	31	M5	Rc1/8	118	5.5	94	32	44	7	17	19	14	M10×1.25	69	10	2	12	10	16.5	6	18	35
ø 32	22	17	20	38	M5	Rc1/8	120	6.6	96	38	53	7	17	19	18	M10×1.25	71	12	2	12	10	20	6	18	31.5
ø 40	30	22	27	47	M6	Rc1/8	138	6.6	106	46	61	8	19	20	25	M14×1.5	78	16	2	13	12	26	8	20	40
ø 50	35	27	32	58	M8	Rc1/4	159	9	122	58	76	9	22	25	30	M18×1.5	90	20	2	15	12	32	11	23	46
ø 63	35	27	32	72	M10	Rc1/4	159	11	122	70	92	9	22	25	32	M18×1.5	90	20	2	15	12	38	11	23	46
ø 80	40	32	37	89	M10	Rc3/8	193	11	150	82	104	11	28	28	40	M22×1.5	108	25	3	15	15	50	13	31	55
ø 100	40	41	37	110	M12	Rc1/2	196	13	153	100	128	14	28	28	50	M26×1.5	108	30	3	15	15	60	16	31	56

Code	With bellows			Switch mounting: Rail									Switch mounting: Band													
	d	s	ℓ	HD			RD			GD			GC			HD			RD			P1	P2	P3	Pø	
				T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W								
FJ	ø 20	30	25.7	(stroke/3) + 18.5	3.0	6.5	8.5	7.5	7.5	9.5	2.5	2.5	4.5	3.5	3.5	5.5	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38)
	ø 25	30	30.7	(stroke/3) + 20.5	2.0	5.5	7.5	8.5	8.5	10.5	1.5	1.5	3.5	4.5	4.5	6.5	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34)
FK	ø 32	35	37.7	(stroke/3) + 19	3.0	6.5	8.5	9.5	9.5	11.5	2.5	2.5	4.5	5.5	5.5	7.5	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30)
	ø 40	35	46.7	(stroke/3) + 18.5	5.0	8.5	10.5	11.5	11.5	13.5	4.5	4.5	6.5	7.5	7.5	9.5	8.5	8.5	10.5	11.5	11.5	13.5	30.2	32.1	16	(26)
Spd Contr	ø 50	40	57.7	(stroke/3.6) + 18.5	7.5	11.0	13.0	13.0	13.0	15.0	7.0	7.0	9.0	9.0	9.0	11.0	11.0	11.0	13.0	13.0	13.0	15.0	35.7	37.4	16	(22)
	ø 63	40	71.7	(stroke/3.6) + 18.5	7.5	11.0	13.0	13.0	13.0	15.0	7.0	7.0	9.0	9.0	9.0	11.0	11.0	11.0	13.0	13.0	13.0	15.0	42.7	44.4	16	(20)
Ending	ø 80	50	88.7	(stroke/4.3) + 14.5	9.5	13.0	15.0	20.0	20.0	22.0	9.0	9.0	11.0	16.0	16.0	18.0	13.0	13.0	15.0	20.0	20.0	22.0	51.2	53.0	16	(16)
	ø 100	60	109.7	(stroke/4.5) + 21	10.0	13.5	15.5	19.5	19.5	21.5	9.5	9.5	11.5	15.5	15.5	17.5	13.5	13.5	15.5	19.5	19.5	21.5	61.7	63.5	16	(16)

SCP\*3

CMK2

CMA2

**SCM**

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

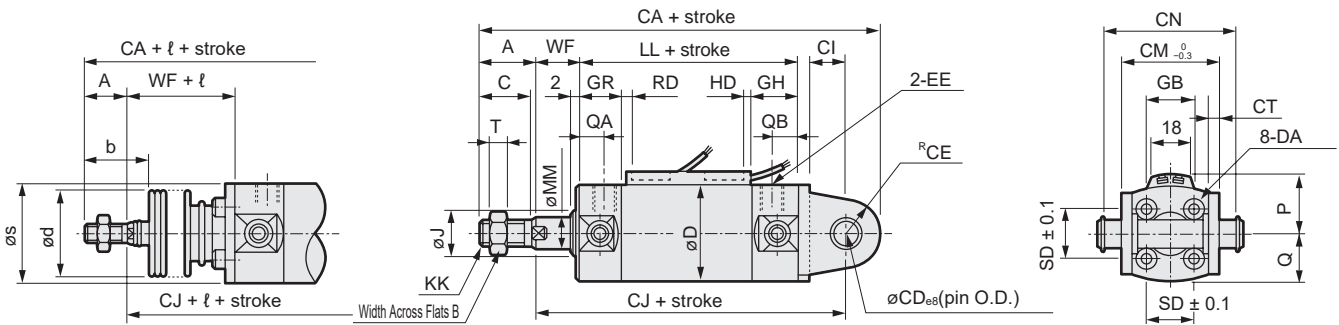
Ending



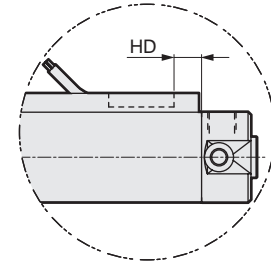
## Dimensions (ø20 to ø63)

● Eye bracket (CA)

• Switch mounting: Rail

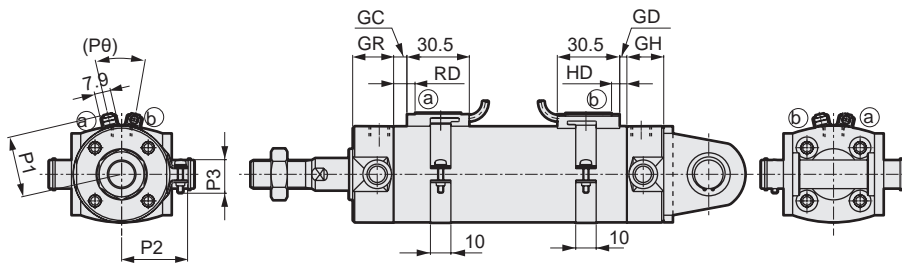


[With bellows]



In the case of T2W, T3W

• Switch mounting: Band



Code	Eye bracket (CA) Basic dimensions																				
Bore size (mm)	A	B	C	CA	CD	CE	CT	CI	CJ	CM	CN	D	DA	EE (*1)	GH	GR	J	KK	LL	MM	Q
ø20	18	13	16	129	8	11	3.2	10.8	100	29	38.6	26	M4	Rc1/8	17	19	12	M8	69	8	13
ø25	22	17	20	138	10	13	3.2	12.8	103	33	42.6	31	M5	Rc1/8	17	19	14	M10×1.25	69	10	15.5
ø32	22	17	20	145.5	12	15	4.5	15.5	108.5	40	54	38	M5	Rc1/8	17	19	18	M10×1.25	71	12	19
ø40	30	22	27	167.5	14	18	4.5	17.5	119.5	49	65	47	M6	Rc1/8	19	20	25	M14×1.5	78	16	23.5
ø50	35	27	32	192.5	16	20	6	19	137.5	60	79.6	58	M8	Rc1/4	22	25	30	M18×1.5	90	20	29
ø63	35	27	32	199.5	18	22	8	22	142.5	74	97.8	72	M10	Rc1/4	22	25	32	M18×1.5	90	20	36

Code	With bellows										Switch mounting: Rail						Switch mounting: Band							
Bore size (mm)	QA	QB	SD	T	WF	b	d	s	ℓ		P	GB	HD			RD			GD			GC		
													T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W
ø20	12	10	14	5	17	30	30	25.7	(Stroke/3) + 18.5		19.5	23	3.0	6.5	8.5	7.5	7.5	9.5	2.5	2.5	4.5	3.5	3.5	5.5
ø25	12	10	16.5	6	18	35	30	30.7	(Stroke/3) + 20.5		22	24.4	2.0	5.5	7.5	8.5	8.5	10.5	1.5	1.5	3.5	4.5	4.5	6.5
ø32	12	10	20	6	18	31.5	35	37.7	(Stroke/3) + 19		25.5	25	3.0	6.5	8.5	9.5	9.5	11.5	2.5	2.5	4.5	5.5	5.5	7.5
ø40	13	12	26	8	20	40	35	46.7	(Stroke/3) + 18.5		30	25.7	5.0	8.5	10.5	11.5	11.5	13.5	4.5	4.5	6.5	7.5	7.5	9.5
ø50	15	12	32	11	23	46	40	57.7	(Stroke/3.6) + 18.5		35.5	26.2	7.5	11.0	13.0	13.0	13.0	15.0	7.0	7.0	9.0	9.0	9.0	11.0
ø63	15	12	38	11	23	46	40	71.7	(Stroke/3.6) + 18.5		42.5	26.5	7.5	11.0	13.0	13.0	13.0	15.0	7.0	7.0	9.0	9.0	9.0	11.0

Code	Switch mounting: Band									
Bore size (mm)	HD			RD			P1	P2	P3	P8
	T0/T5	T2/T3	T2W T3W	T0/T5	T2/T3	T2W T3W				
ø20	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38)
ø25	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34)
ø32	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30)
ø40	8.5	8.5	10.5	11.5	11.5	13.5	30.2	32.1	16	(26)
ø50	11.0	11.0	13.0	13.0	13.0	15.0	35.7	37.4	16	(22)
ø63	11.0	11.0	13.0	13.0	13.0	15.0	42.7	44.4	16	(20)

\*1: Needle relational dimensions and port sizes of the type with air cushion are the same as those of the basic. Refer to pages 238 and 239. (Those of ø20/ø25 are different from the basic.)

\*2: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

\*3: For the dimensions of the accessories, refer to pages 252 and 253.

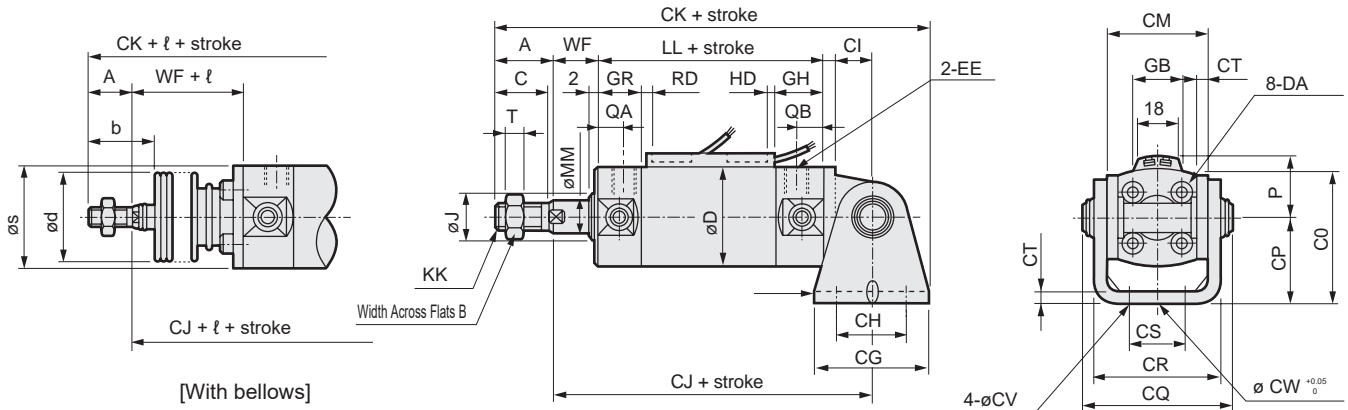


## Dimensions (ø20 to ø63)

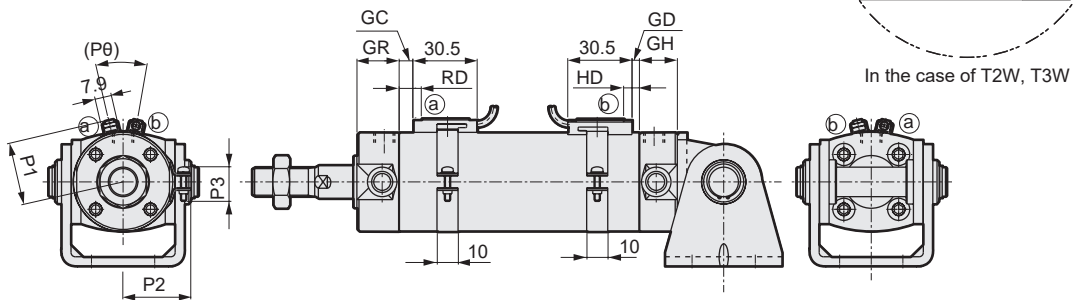


● Eye bracket (CA) with bracket (option code B2)

• Switch mounting: Rail



• Switch mounting: Band



Code	Eye bracket (CA) with bracket (option code B2) Basic dimensions																							
Bore size (mm)	A	B	C	CG	CH	CI	CJ	CK	CM	CO	CP	CQ	CR	CS	CT	CV	CW	D	DA	EE (*1)	GH	GR	J	KK
ø20	18	13	16	42	28	10.8	100	139	29	38	25	43.4	35.8	16	3.2	5.5	10	26	M4	Rc1/8	17	19	12	M8
ø25	22	17	20	42	28	12.8	103	146	33	45.5	30	48	39.8	20	3.2	5.5	10	31	M5	Rc1/8	17	19	14	M 10 x 1.25
ø32	22	17	20	48	28	15.5	108.5	154.5	40	54	35	59.4	49.4	22	4.5	6.6	10	38	M5	Rc1/8	17	19	18	M 10 x 1.25
ø40	30	22	27	56	30	17.5	119.5	177.5	49	63.5	40	71.4	58.4	30	4.5	6.6	10	47	M6	Rc1/8	19	20	25	M 14 x 1.5
ø50	35	27	32	64	36	19	137.5	204.5	60	79	50	86	72.4	36	6	9	20	58	M8	Rc1/4	22	25	30	M 18 x 1.5
ø63	35	27	32	74	46	22	142.5	214.5	74	96	60	105.4	90.4	46	8	11	20	72	M10	Rc1/4	22	25	32	M 18 x 1.5

Code	Bore size (mm)	With bellows									Switch mounting: Rail								Switch mounting: Band																												
		LL			MM			QA			QB			T			WF			b			d			s			ℓ			P		GB		HD			RD			GD			GC		
		T0/T5	T2/T3	T2W/T3W	T0/T5	T2/T3	T2W/T3W	T0/T5	T2/T3	T2W/T3W	T0/T5	T2/T3	T2W/T3W	T0/T5	T2/T3	T2W/T3W	T0/T5	T2/T3	T2W/T3W	T0/T5	T2/T3	T2W/T3W	T0/T5	T2/T3	T2W/T3W	T0/T5	T2/T3	T2W/T3W	T0/T5	T2/T3	T2W/T3W	T0/T5	T2/T3	T2W/T3W	T0/T5	T2/T3	T2W/T3W										
ø20	69	8	12	10	5	17	30	30	25.7	(Stroke/3) + 18.5			19.5	23	3.0	6.5	8.5	7.5	7.5	9.5	2.5	2.5	4.5	3.5	3.5	5.5																					
ø25	69	10	12	10	6	18	35	30	30.7	(Stroke/3) + 20.5			22	24.4	2.0	5.5	7.5	8.5	8.5	10.5	1.5	1.5	3.5	4.5	4.5	6.5																					
ø32	71	12	12	10	6	18	31.5	35	37.7	(Stroke/3) + 19			25.5	25	3.0	6.5	8.5	9.5	9.5	11.5	2.5	2.5	4.5	5.5	5.5	7.5																					
ø40	78	16	13	12	8	20	40	35	46.7	(Stroke/3) + 18.5			30	25.7	5.0	8.5	10.5	11.5	11.5	13.5	4.5	4.5	6.5	7.5	7.5	9.5																					
ø50	90	20	15	12	11	23	46	40	57.7	(Stroke/3.6) + 18.5			35.5	26.2	7.5	11.0	13.0	13.0	13.0	15.0	7.0	7.0	9.0	9.0	9.0	11.0																					
ø63	90	20	15	12	11	23	46	40	71.7	(Stroke/3.6) + 18.5			42.5	26.5	7.5	11.0	13.0	13.0	13.0	15.0	7.0	7.0	9.0	9.0	9.0	11.0																					

Code	Bore size (mm)	Switch mounting: Band									
		HD			RD			P1	P2	P3	Pø
		T0/T5	T2/T3	T2W/T3W	T0/T5	T2/T3	T2W/T3W				
ø20	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38)	
ø25	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34)	
ø32	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30)	
ø40	8.5	8.5	10.5	11.5	11.5	13.5	30.2	32.1	16	(26)	
ø50	11.0	11.0	13.0	13.0	13.0	15.0	35.7	37.4	16	(22)	
ø63	11.0	11.0	13.0	13.0	13.0	15.0	42.7	44.4	16	(20)	

\*1: Needle relational dimensions and port sizes of the type with air cushion are the same as those of the basic. Refer to pages 238 and 239. (Those of ø20/ø25 are different from the basic.)

\*2: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

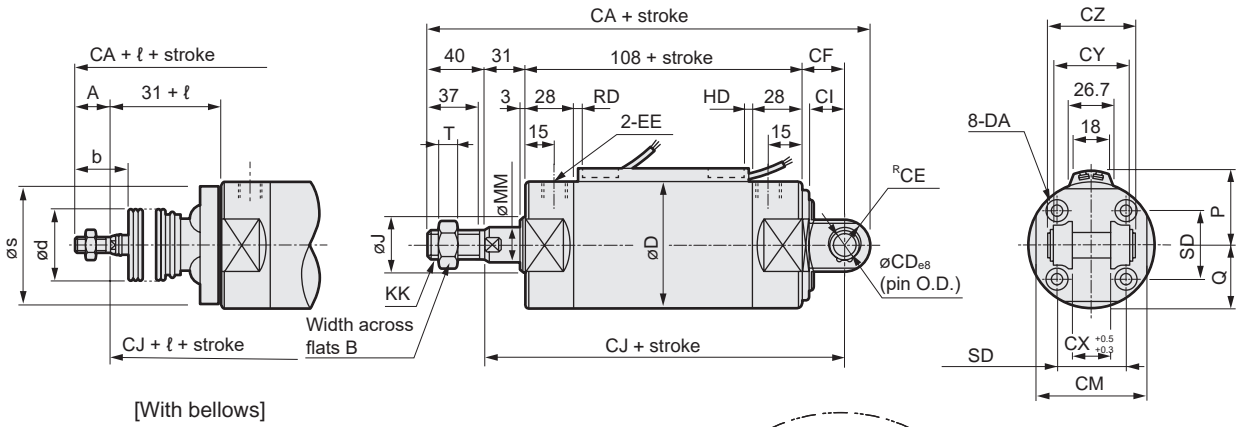
\*3: For the dimensions of the accessories, refer to pages 252 and 253.



## Dimensions (ø80 to ø100)

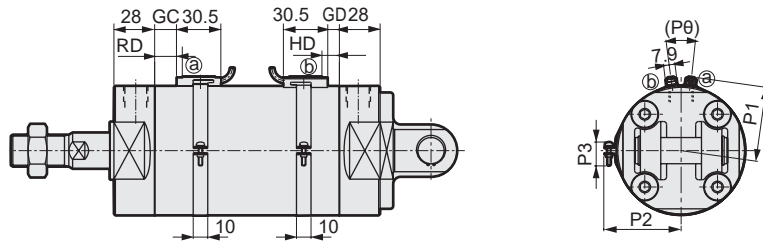
● Clevis bracket (CB)

· Switch mounting method: Rail



In the case of T2W, T3W

· Switch mounting: Band



\*1: Needle relational dimensions and port sizes of the type with air cushion are the same as those of the basic. Refer to pages 238 and 239.

\*2: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

\*3: For the dimensions of the accessories, refer to pages 252 and 253.

Code	Clevis bracket (CB) Basic dimensions																			
Bore size (mm)	B	CA	CD	CE	CF	CI	CJ	CM	CX	CY	CZ	D	DA	EE (*1)	J	KK	MM	Q	SD	T
ø80	32	232	18	18	35	25	174	80	28	56	64	89	M10	Rc3/8	40	M22x1.5	25	44.5	50	13
ø100	41	244	22	22	43	31	182	100	32	64	72	110	M12	Rc1/2	50	M26x1.5	30	55	60	16

Code	With bellows				Switch mounting: Rail						Switch mounting: Band						
Bore size (mm)	b	d	s	l	P	HD			RD			GD			GC		
						T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W
ø80	55	50	88.7	(Stroke/4.3) + 14.5	51	9.5	13.0	15.0	20.0	20.0	22.0	9.0	9.0	11.0	16.0	16.0	18.0
ø100	56	60	109.7	(Stroke/4.5) + 21	61.5	10.0	13.5	15.5	19.5	19.5	21.5	9.5	9.5	11.5	15.5	15.5	17.5

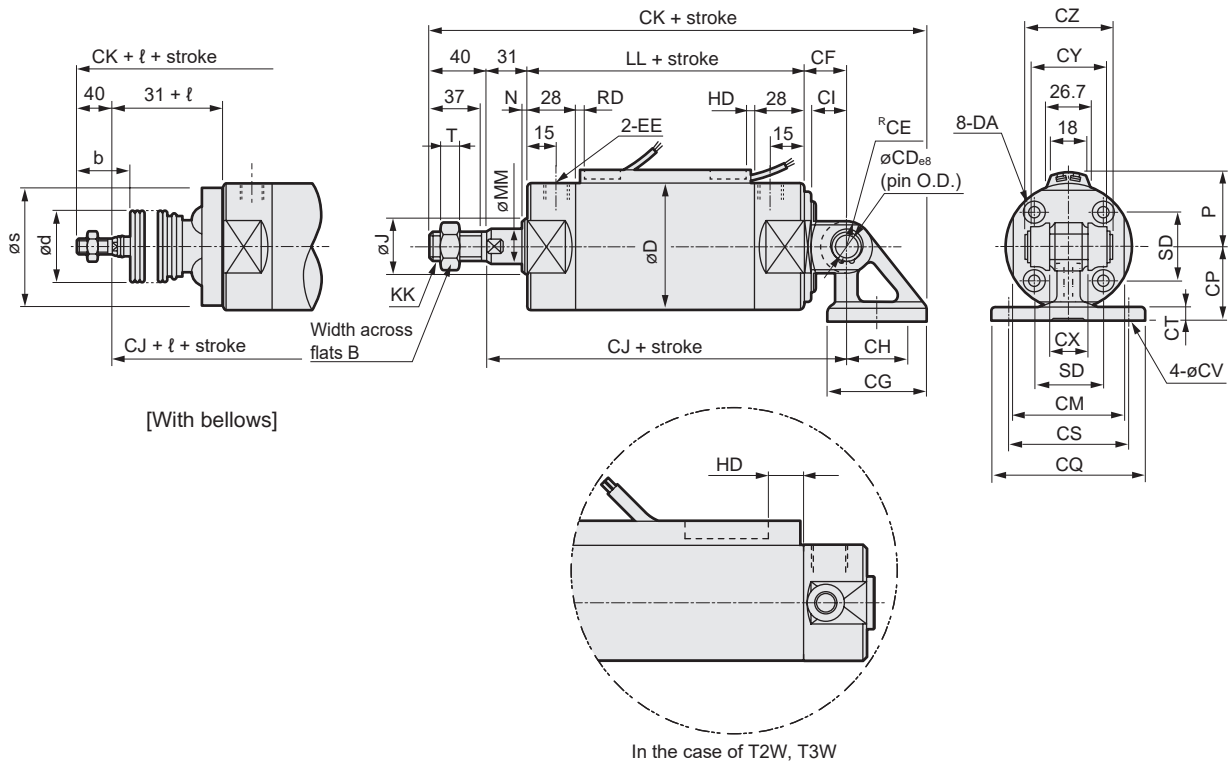
Code	Switch mounting: Band									
Bore size (mm)	HD			RD			P1	P2	P3	P0
	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W				
ø80	13.0	13.0	15.0	20.0	20.0	22.0	51.2	53.0	16	(16°)
ø100	13.5	13.5	15.5	19.5	19.5	21.5	61.7	63.5	16	(16°)

## Dimensions (ø80 to ø100)

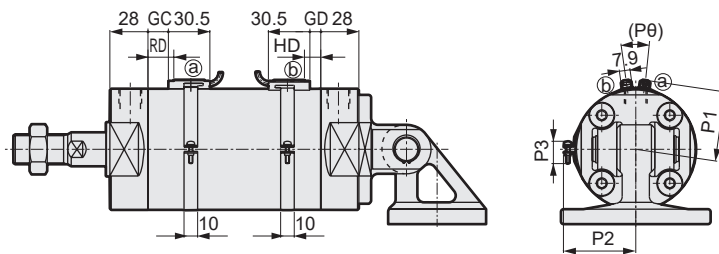


● Clevis bracket (CB) with bracket (option code B1)

· Switch mounting method: Rail



· Switch mounting: Band



\*1: Needle relational dimensions and port sizes of the type with air cushion are the same as those of the basic. Refer to pages 238 and 239.

\*2: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

\*3: For the dimensions of the accessories, refer to pages 252 and 253.

Code	Clevis bracket (CB) with bracket (option code B1) Basic dimensions																						
Bore size (mm)	B	CD	CE	CF	CG	CH	CI	CJ	CK	CM	CP	CQ	CS	CT	CV	CX	CY	CZ	D	DA	EE (*1)	J	KK
ø80	32	18	18	35	72	45	25	174	272.5	80	55	110	85	11	11	28	56	64	89	M10	Rc3/8	40	M22x1.5
ø100	41	22	22	43	93	60	31	182	298.5	100	65	130	100	12	13.5	32	64	72	110	M12	Rc1/2	50	M26x1.5
Code	With bellows										Switch mounting: Rail						Switch mounting: Band						
Bore size (mm)	LL	MM	N	SD	T	b	d	s	l	P	HD			RD			GD						
	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W		T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W				
ø80	108	25	3	50	13	55	50	88.7	(Stroke/4.3) + 14.5	51	9.5	13.0	15.0	20.0	20.0	22.0	9.0	9.0	11.0				
ø100	108	30	3	60	16	56	60	109.7	(Stroke/4.5) + 21	61.5	10.0	13.5	15.5	19.5	19.5	21.5	9.5	9.5	11.5				
Code	With bellows										Switch mounting: Rail						Switch mounting: Band						
Bore size (mm)	GC			HD			RD			P1	P2	P3	P0										
	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W														
ø80	16.0	16.0	18.0	13.0	13.0	15.0	20.0	20.0	22.0	51.2	53.0	16	(16°)										
ø100	15.5	15.5	17.5	13.5	13.5	15.5	19.5	19.5	21.5	61.7	63.5	16	(16°)										

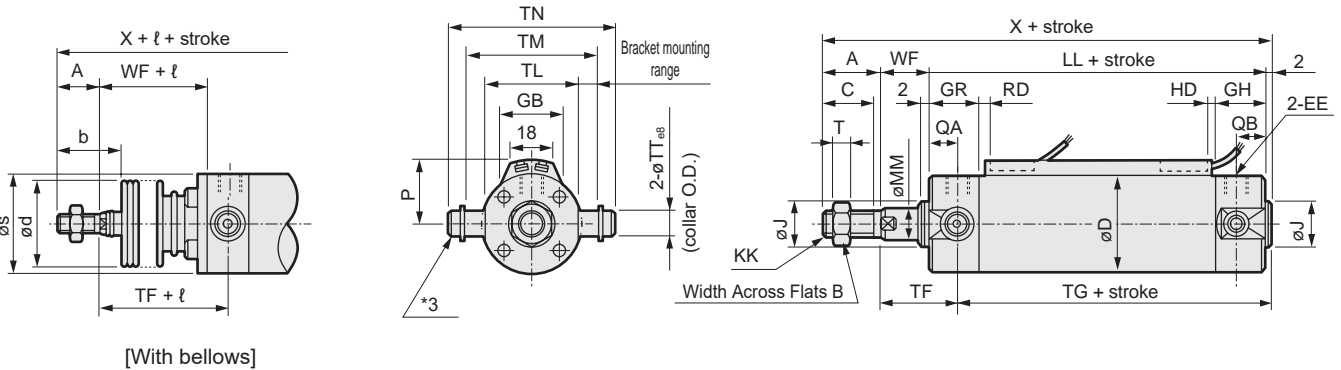
SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending



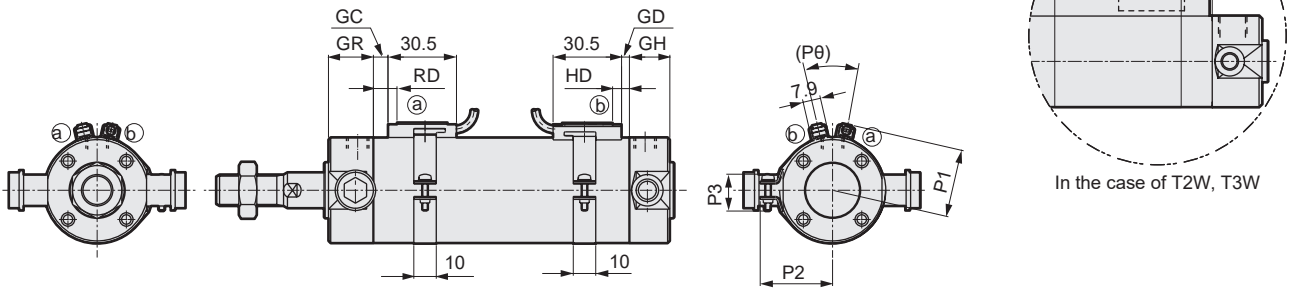
## Dimensions (ø20 to ø63)

● Rod side trunnion (TA)

• Switch mounting: Rail



• Switch mounting: Band



\*1: Needle relational dimensions and port sizes of the type with air cushion are the same as those of the basic. Refer to pages 238 and 239. (Those of ø20/ø25 are different from the basic.)

\*2: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

\*3: Composed of a collar, plain washer and hexagon socket head cap screw.

\*4: For the dimensions of the accessories, refer to pages 252 and 253.

Code	Rod side trunnion (TA) Basic dimensions																
Bore size (mm)	A	B	C	D	EE (*1)	GH	GR	J	KK	LL	MM	QA	QB	T	TF	TG	TL
ø20	18	13	16	26	Rc1/8	17	19	12	M8	69	8	12	10	5	28	60	28
ø25	22	17	20	31	Rc1/8	17	19	14	M10×1.25	69	10	12	10	6	29	60	33
ø32	22	17	20	38	Rc1/8	17	19	18	M10×1.25	71	12	12	10	6	29	62	40
ø40	30	22	27	47	Rc1/8	19	20	25	M14×1.5	78	16	13	12	8	32	68	49
ø50	35	27	32	58	Rc1/4	22	25	30	M18×1.5	90	20	15	12	11	36	79	60
ø63	35	27	32	72	Rc1/4	22	25	32	M18×1.5	90	20	15	12	11	36	79	74

Code	With bellows								Switch mounting: Rail								
Bore size (mm)	TM	TN	TT	WF	X	b	d	s	ℓ	P	GB	HD			RD		
												T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W
ø20	39	47.6	8	17	106	30	30	25.7	(stroke/3) + 18.5	19.5	23	3.0	6.5	8.5	7.5	7.5	9.5
ø25	43	53	10	18	111	35	30	30.7	(stroke/3) + 20.5	22	24.4	2.0	5.5	7.5	8.5	8.5	10.5
ø32	54.5	67.7	12	18	113	31.5	35	37.7	(stroke/3) + 19	25.5	25	3.0	6.5	8.5	9.5	9.5	11.5
ø40	65.9	81.1	14	20	130	40	35	46.7	(stroke/3) + 18.5	30	25.7	5.0	8.5	10.5	11.5	11.5	13.5
ø50	80	98.6	16	23	150	46	40	57.7	(stroke/3.6) + 18.5	35.5	26.2	7.5	11.0	13.0	13.0	13.0	15.0
ø63	98	119.2	18	23	150	46	40	71.7	(stroke/3.6) + 18.5	42.5	26.5	7.5	11.0	13.0	13.0	13.0	15.0

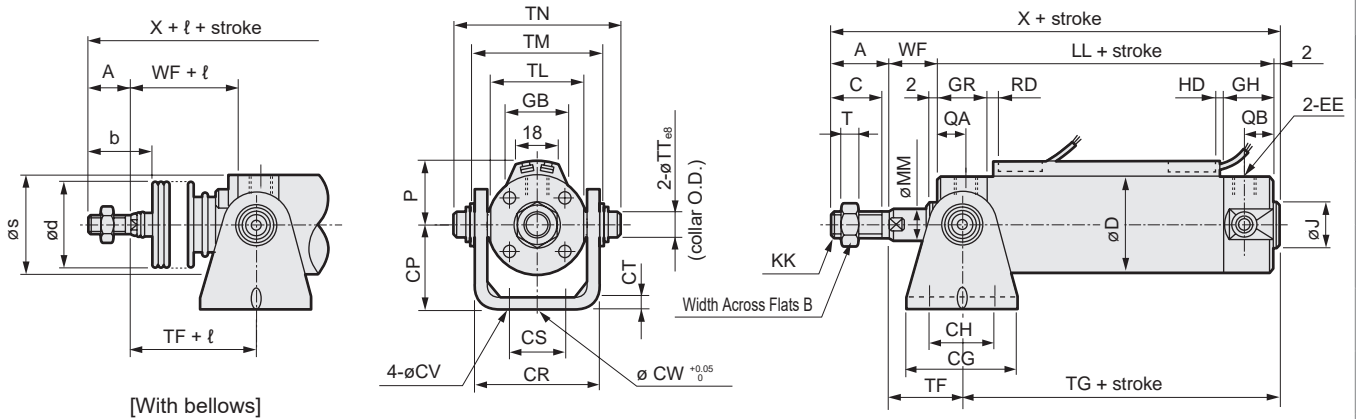
Code	Switch mounting: Band															
Bore size (mm)	GD			GC			HD			RD			P1	P2	P3	P8
	T0/T5	T2/T3	T2W T3W	T0/T5	T2/T3	T2W T3W	T0/T5	T2/T3	T2W T3W	T0/T5	T2/T3	T2W T3W				
ø20	2.5	2.5	4.5	3.5	3.5	5.5	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38°)
ø25	1.5	1.5	3.5	4.5	4.5	6.5	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34°)
ø32	2.5	2.5	4.5	5.5	5.5	7.5	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30°)
ø40	4.5	4.5	6.5	7.5	7.5	9.5	8.5	8.5	10.5	11.5	11.5	13.5	30.2	32.1	16	(26°)
ø50	7.0	7.0	9.0	9.0	9.0	11.0	11.0	11.0	13.0	13.0	13.0	15.0	35.7	37.4	16	(22°)
ø63	7.0	7.0	9.0	9.0	9.0	11.0	11.0	11.0	13.0	13.0	13.0	15.0	42.7	44.4	16	(20°)

## Dimensions (ø20 to ø63)



● Rod side trunnion (TA) with bracket (option code B2)

• Switch mounting: Rail



• Switch mounting: Band

\*1: Needle relational dimensions and port sizes of the type with air cushion are the same as those of the basic. Refer to pages 238 and 239. (Those of ø20/ø25 are different from the basic.)

\*2: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

\*3: For the dimensions of the accessories, refer to pages 252 and 253.

Code	Rod side trunnion (TA) with bracket (option code B2) Basic dimensions																				
Bore size (mm)	A	B	C	CG	CH	CP	CR	CS	CT	CV	CW	D	EE (*1)	GH	GR	J	KK	LL	MM	QA	QB
ø20	18	13	16	42	28	25	35.8	16	3.2	5.5	10	26	Rc1/8	17	19	12	M8	69	8	12	10
ø25	22	17	20	42	28	30	39.8	20	3.2	5.5	10	31	Rc1/8	17	19	14	M 10 x 1.25	69	10	12	10
ø32	22	17	20	48	28	35	49.4	22	4.5	6.6	10	38	Rc1/8	17	19	18	M 10 x 1.25	71	12	12	10
ø40	30	22	27	56	30	40	58.4	30	4.5	6.6	10	47	Rc1/8	19	20	25	M 14 x 1.5	78	16	13	12
ø50	35	27	32	64	36	50	72.4	36	6	9	20	58	Rc1/4	22	25	30	M 18 x 1.5	90	20	15	12
ø63	35	27	32	74	46	60	90.4	46	8	11	20	72	Rc1/4	22	25	32	M 18 x 1.5	90	20	15	12

Code	With bellows										Switch mounting: Rail									
Bore size (mm)	T	TF	TG	TL	TM	TN	TT	WF	X	l	P	GB	HD			RD				
													T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W		
ø20	5	28	60	28	39	47.6	8	17	106	(Stroke/3) + 18.5	19.5	23	3.0	6.5	8.5	7.5	7.5	9.5		
ø25	6	29	60	33	43	53	10	18	111	(Stroke/3) + 20.5	22	24.4	2.0	5.5	7.5	8.5	8.5	10.5		
ø32	6	29	62	40	54.5	67.7	12	18	113	(Stroke/3) + 19	25.5	25	3.0	6.5	8.5	9.5	9.5	11.5		
ø40	8	32	68	49	65.9	81.1	14	20	130	(Stroke/3) + 18.5	30	25.7	5.0	8.5	10.5	11.5	11.5	13.5		
ø50	11	36	79	60	80	98.6	16	23	150	(Stroke/3.6) + 18.5	35.5	26.2	7.5	11.0	13.0	13.0	13.0	15.0		
ø63	11	36	79	74	98	119.2	18	23	150	(Stroke/3.6) + 18.5	42.5	26.5	7.5	11.0	13.0	13.0	13.0	15.0		

Code	Switch mounting: Band															
Bore size (mm)	GD			GC			HD			RD			P1	P2	P3	P0
	T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W				
ø20	2.5	2.5	4.5	3.5	3.5	5.5	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38)
ø25	1.5	1.5	3.5	4.5	4.5	6.5	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34)
ø32	2.5	2.5	4.5	5.5	5.5	7.5	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30)
ø40	4.5	4.5	6.5	7.5	7.5	9.5	8.5	8.5	10.5	11.5	11.5	13.5	30.2	32.1	16	(26)
ø50	7.0	7.0	9.0	9.0	9.0	11.0	11.0	11.0	13.0	13.0	13.0	15.0	35.7	37.4	16	(22)
ø63	7.0	7.0	9.0	9.0	9.0	11.0	11.0	11.0	13.0	13.0	13.0	15.0	42.7	44.4	16	(20)

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

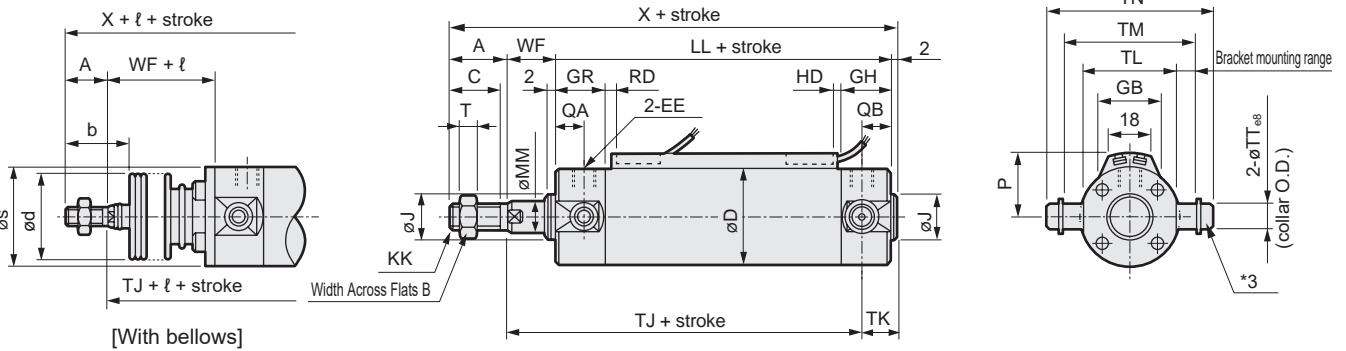




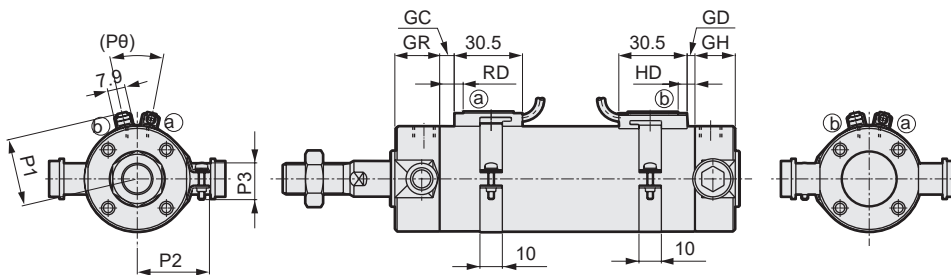
## Dimensions (ø20 to ø63)

### ● Head side trunnion (TB)

• Switch mounting: Rail



• Switch mounting: Band



\*1: Needle relational dimensions and port sizes of the type with air cushion are the same as those of the basic. Refer to pages 238 and 239. (Those of ø20/ø25 are different from the basic.)

\*2: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

\*3: Composed of a collar, plain washer and hexagon socket head cap screw.

\*4: For the dimensions of the accessories, refer to pages 252 and 253.

Code	Head side trunnion (TB) Basic dimensions																					
Bore size (mm)	A	B	C	D	EE (*1)	GH	GR	J	KK	LL	MM	QA	QB	T	TJ	TK	TL	TM	TN	TT	WF	X
ø20	18	13	16	26	Rc1/8	17	19	12	M8	69	8	12	10	5	75	13	28	39	47.6	8	17	106
ø25	22	17	20	31	Rc1/8	17	19	14	M 10 x 1.25	69	10	12	10	6	76	13	33	43	53	10	18	111
ø32	22	17	20	38	Rc1/8	17	19	18	M 10 x 1.25	71	12	12	10	6	79	12	40	54.5	67.7	12	18	113
ø40	30	22	27	47	Rc1/8	19	20	25	M 14 x 1.5	78	16	13	12	8	88	12	49	65.9	81.1	14	20	130
ø50	35	27	32	58	Rc1/4	22	25	30	M 18 x 1.5	90	20	15	12	11	101	14	60	80	98.6	16	23	150
ø63	35	27	32	72	Rc1/4	22	25	32	M 18 x 1.5	90	20	15	12	11	101	14	74	98	119.2	18	23	150

Code	With bellows				Switch mounting: Rail									Switch mounting: Band						
Bore size (mm)	b	d	s	ℓ	P	GB	HD			RD			GD			GC				
							T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W		
ø20	30	30	25.7	(Stroke/3) + 18.5	19.5	23	3.0	6.5	8.5	7.5	7.5	9.5	2.5	2.5	4.5	3.5	3.5	5.5		
ø25	35	30	30.7	(Stroke/3) + 20.5	22	24.4	2.0	5.5	7.5	8.5	8.5	10.5	1.5	1.5	3.5	4.5	4.5	6.5		
ø32	31.5	35	37.7	(Stroke/3) + 19	25.5	25	3.0	6.5	8.5	9.5	9.5	11.5	2.5	2.5	4.5	5.5	5.5	7.5		
ø40	40	35	46.7	(Stroke/3) + 18.5	30	25.7	5.0	8.5	10.5	11.5	11.5	13.5	4.5	4.5	6.5	7.5	7.5	9.5		
ø50	46	40	57.7	(Stroke/3.6) + 18.5	35.5	26.2	7.5	11.0	13.0	13.0	13.0	15.0	7.0	7.0	9.0	9.0	9.0	11.0		
ø63	46	40	71.7	(Stroke/3.6) + 18.5	42.5	26.5	7.5	11.0	13.0	13.0	13.0	15.0	7.0	7.0	9.0	9.0	9.0	11.0		

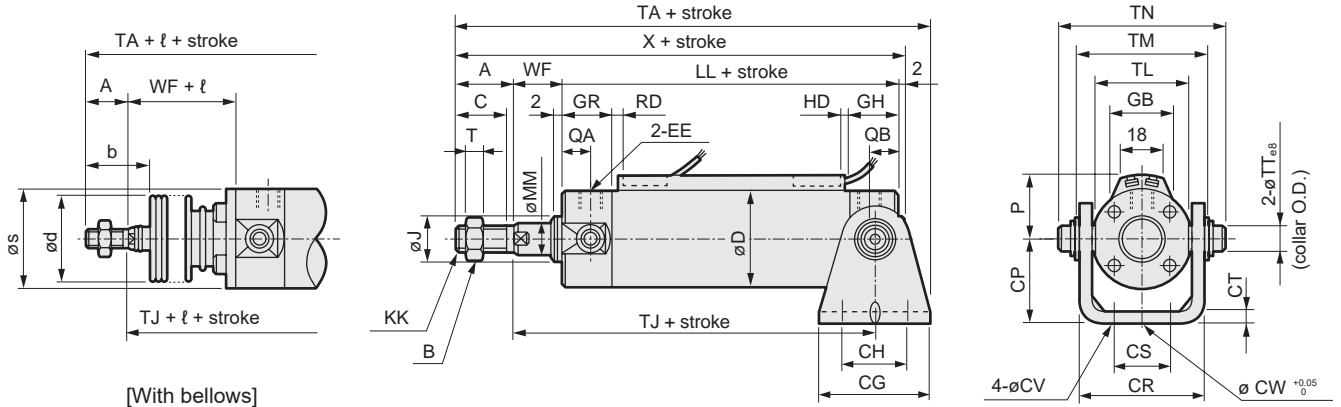
Code	Head side trunnion (TB) Basic dimensions									
Bore size (mm)	HD			RD			P1	P2	P3	P8
	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W				
ø20	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38)
ø25	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34)
ø32	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30)
ø40	8.5	8.5	10.5	11.5	11.5	13.5	30.2	32.1	16	(26)
ø50	11.0	11.0	13.0	13.0	13.0	15.0	35.7	37.4	16	(22)
ø63	11.0	11.0	13.0	13.0	13.0	15.0	42.7	44.4	16	(20)

## Dimensions (ø20 to ø63)

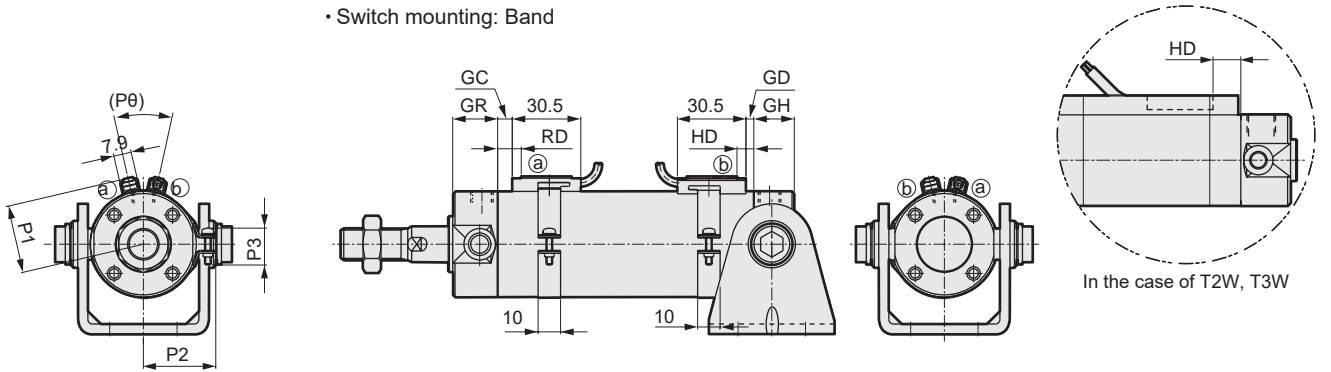


### ● Head side trunnion (TB) with bracket (option code B2)

• Switch mounting: Rail



• Switch mounting: Band



- \*1: Needle relational dimensions and port sizes of the type with air cushion are the same as those of the basic. Refer to pages 238 and 239. (Those of ø20/ø25 are different from the basic.)
- \*2: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.
- \*3: For the dimensions of the accessories, refer to pages 252 and 253.

Code	Head side trunnion (TB) with bracket (option code B2) Basic dimensions																				
Bore size (mm)	A	B	C	CG	CH	CP	CR	CS	CT	CV	CW	D	EE (*1)	GH	GR	J	KK	LL	MM	QA	QB
ø20	18	13	16	42	28	25	35.8	16	3.2	5.5	10	26	Rc1/8	17	19	12	M8	69	8	12	10
ø25	22	17	20	42	28	30	39.8	20	3.2	5.5	10	31	Rc1/8	17	19	14	M 10 x 1.25	69	10	12	10
ø32	22	17	20	48	28	35	49.4	22	4.5	6.6	10	38	Rc1/8	17	19	18	M 10 x 1.25	71	12	12	10
ø40	30	22	27	56	30	40	58.4	30	4.5	6.6	10	47	Rc1/8	19	20	25	M 14 x 1.5	78	16	13	12
ø50	35	27	32	64	36	50	72.4	36	6	9	20	58	Rc1/4	22	25	30	M 18 x 1.5	90	20	15	12
ø63	35	27	32	74	46	60	90.4	46	8	11	20	72	Rc1/4	22	25	32	M 18 x 1.5	90	20	15	12

Code	With bellows										Switch mounting: Rail							
Bore size (mm)	T	TA	TJ	TL	TM	TN	TT	WF	X	ℓ	P	GB	HD			RD		
	b	d	s	ℓ	T0/T5	T2/T3	T2W/T3W	T0/T5	T2/T3	T2W/T3W								
ø20	5	114	75	28	39	47.6	8	17	106	30 30 25.7 (Stroke/3) + 18.5	19.5	23	3.0	6.5	8.5	7.5	7.5	9.5
ø25	6	119	76	33	43	53	10	18	111	35 30 30.7 (Stroke/3) + 20.5	22	24.4	2.0	5.5	7.5	8.5	8.5	10.5
ø32	6	125	79	40	54.5	67.7	12	18	113	31.5 35 37.7 (Stroke/3) + 19	25.5	25	3.0	6.5	8.5	9.5	9.5	11.5
ø40	8	146	88	49	65.9	81.1	14	20	130	40 35 46.7 (Stroke/3) + 18.5	30	25.7	5.0	8.5	10.5	11.5	11.5	13.5
ø50	11	168	101	60	80	98.6	16	23	150	46 40 57.7 (Stroke/3.6) + 18.5	35.5	26.2	7.5	11.0	13.0	13.0	13.0	15.0
ø63	11	173	101	74	98	119.2	18	23	150	46 40 71.7 (Stroke/3.6) + 18.5	42.5	26.5	7.5	11.0	13.0	13.0	13.0	15.0

Code	Switch mounting: Band															
Bore size (mm)	GD			GC			HD			RD			P1	P2	P3	Pθ
	T0/T5	T2,T3	T2W/T3W	T0/T5	T2,T3	T2W/T3W	T0/T5	T2,T3	T2W/T3W	T0/T5	T2,T3	T2W/T3W				
ø20	2.5	2.5	4.5	3.5	3.5	5.5	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38)
ø25	1.5	1.5	3.5	4.5	4.5	6.5	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34)
ø32	2.5	2.5	4.5	5.5	5.5	7.5	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30)
ø40	4.5	4.5	6.5	7.5	7.5	9.5	8.5	8.5	10.5	11.5	11.5	13.5	30.2	32.1	16	(26)
ø50	7.0	7.0	9.0	9.0	9.0	11.0	11.0	11.0	13.0	13.0	13.0	15.0	35.7	37.4	16	(22)
ø63	7.0	7.0	9.0	9.0	9.0	11.0	11.0	11.0	13.0	13.0	13.0	15.0	42.7	44.4	16	(20)

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



## Accessory dimensions

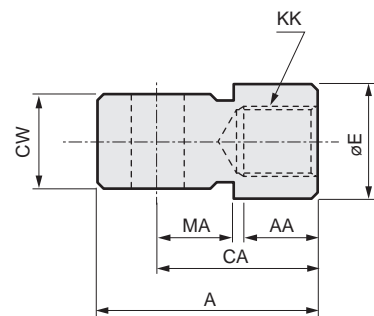
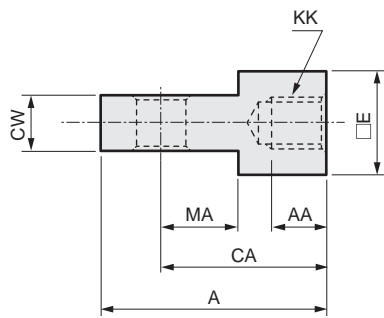
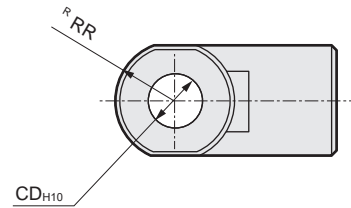
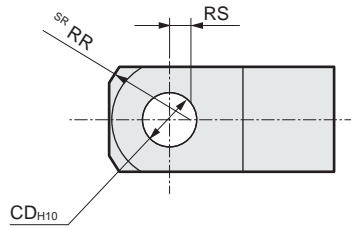
### ● Rod eye

● SCM-I- $\phi$ 20 to  $\phi$ 32

Material: Steel  
Chromate  
treatment

● SCM-I- $\phi$ 40 to  $\phi$ 100

Material: Cast iron  
Painted



Model No.	Applicable bore size (mm)	A	AA	CA	CD	CW	E	KK	MA	RR	RS	Weight (g)
SCM-I-20	20	34	8.5	25	8	8 <sup>-0.2</sup> <sub>-0.4</sub>	16	M8	11.5	13.4	3.1	39
SCM-I-25	25, 32	41	10.5	30	10	10 <sup>-0.2</sup> <sub>-0.4</sub>	20	M10x1.25	14	17.1	4.5	72
SCM-I-40	40	42	14	30	10	18 <sup>-0.3</sup> <sub>-0.5</sub>	22	M14x1.5	14	12	-	152
SCM-I-50	50, 63	56	18	40	14	22 <sup>-0.3</sup> <sub>-0.5</sub>	28	M18x1.5	20	16	-	158
SCM-I-80	80	71	21	50	18	28 <sup>-0.3</sup> <sub>-0.5</sub>	38	M22x1.5	27	21	-	395
SCM-I-100	100	79	21	55	22	32 <sup>-0.3</sup> <sub>-0.5</sub>	44	M26x1.5	31	24	-	564

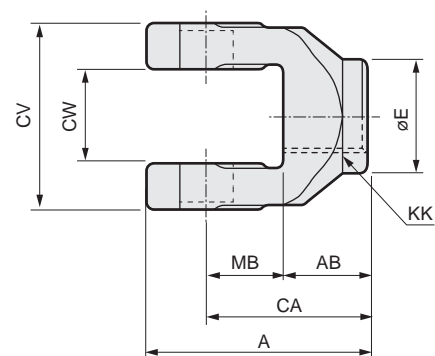
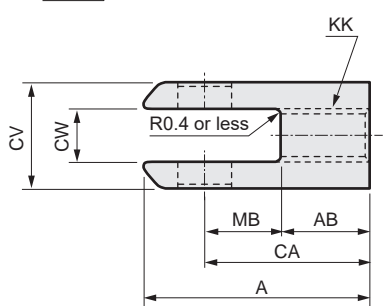
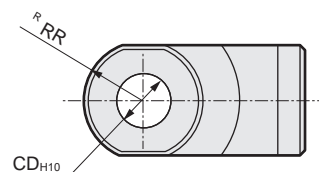
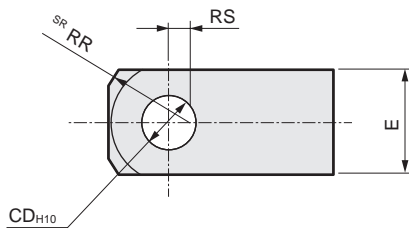
### ● Rod clevis

● SCM-Y- $\phi$ 20 to  $\phi$ 32

Material: Steel  
Chromate  
treatment

● SCM-Y- $\phi$ 40 to  $\phi$ 100

Material: Cast iron  
Painted



Model No.	Applicable bore size (mm)	A	AB	CA	CD	CV	CW	E	KK	MB	RR	RS	Applicable pin No.	Weight (g)
SCM-Y-20	20	34	13.5	25	8	16	8 <sup>+0.4</sup> <sub>+0.2</sub>	16	M8	11.5	13.4	3.1	SCM-P-20	46
SCM-Y-25	25, 32	41	16	30	10	20	10 <sup>+0.4</sup> <sub>+0.2</sub>	20	M10x1.25	14	17.1	4.5	SCM-P-25	85
SCM-Y-40	40	42	16	30	10	36	18 <sup>+0.5</sup> <sub>+0.3</sub>	22	M14x1.5	14	12	-	SCM-P-40	122
SCM-Y-50	50, 63	56	20	40	14	44	22 <sup>+0.5</sup> <sub>+0.3</sub>	28	M18x1.5	20	16	-	SCM-P-50	258
SCM-Y-80	80	71	23	50	18	56	28 <sup>+0.5</sup> <sub>+0.3</sub>	38	M22x1.5	27	21	-	SCM-P-80	590
SCM-Y-100	100	79	24	55	22	64	32 <sup>+0.5</sup> <sub>+0.3</sub>	44	M26x1.5	31	24	-	SCM-P-100	909

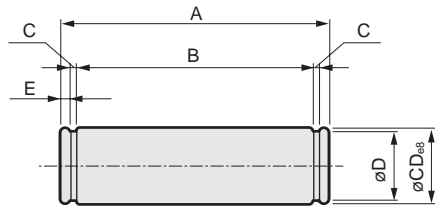
Note: A pin and a snap ring are included.

## Accessory dimensions

● Pin for clevis



Material: Steel  
Chromate treatment



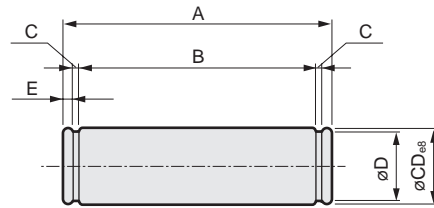
Model No.	Bore size (mm)	A	B	C	CD	D	E	Shaft snap ring	Weight (g)
SCM-P1-20	20	43.4	38.6	0.9	8	7.6	1.5	C for shaft 8	17
SCM-P1-25	25	48	42.6	1.15	10	9.6	1.6	C for shaft 10	30
SCM-P1-32	32	59.4	54	1.15	12	11.5	1.6	C for shaft 12	52
SCM-P1-40	40	71.4	65	1.15	14	13.4	2.1	C for shaft 14	85
SCM-P1-50	50	86	79.6	1.15	16	15.2	2.1	C for shaft 16	133
SCM-P1-63	63	105.4	97.8	1.35	18	17	2.5	C for shaft 18	207

\*1: A pin and a snap ring are attached to the eye bracket and clevis bracket.  
\*2: For bore sizes ø80 and ø100, the dimension is the same as the pin for rod eye.

● Rod eye pin



Material: Steel  
Chromate treatment



Model No.	Bore size (mm)	A	B	C	CD	D	E	Shaft snap ring	Weight (g)
SCM-P-20	20	21	16.2	0.9	8	7.6	1.5	C for shaft 8	9
SCM-P-25	25, 32	25.6	20.2	1.15	10	9.6	1.6	C for shaft 10	16
SCM-P-40	40	41.6	36.2	1.15	10	9.6	1.6	C for shaft 10	26
SCM-P-50	50, 63	50.6	44.2	1.15	14	13.4	2.1	C for shaft 14	60
SCM-P-80	80	64	56.2	1.35	18	17	2.6	C for shaft 18	126
SCM-P-100	100	72	64.2	1.35	22	21	2.6	C for shaft 22	213

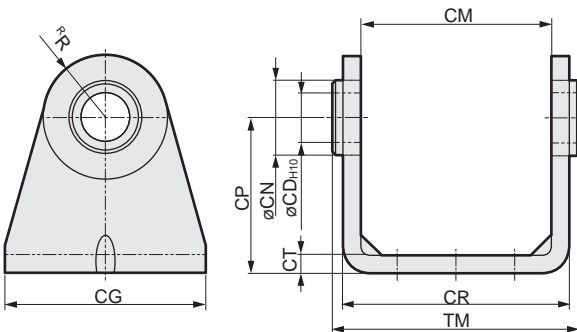
Note: A pin and a snap ring are included with the rod clevis.

● No.2 bracket



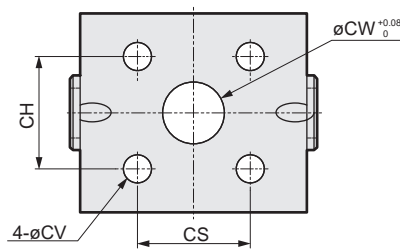
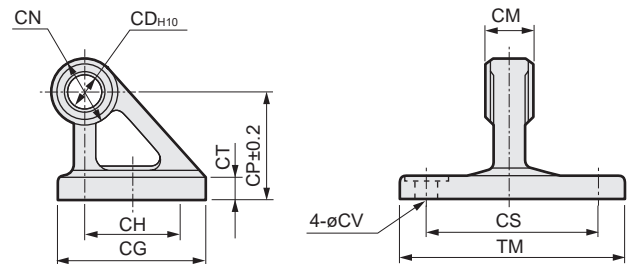
● Clevis bracket (B2)  
SCM-B2-ø20 to ø63

Material: Steel  
Chromate treatment



● Eye bracket (B1)  
SCM-B1-ø80 to ø100

Material: Cast iron  
Painted



Model No.	Applicable bore size (mm)	CD	CG	CH	CM	CN	CP	CR	CS	CT	CV	CW	R	TM	Weight (g)
SCM-B2-20	20	8	42	28	29 <sup>+0.4</sup> <sub>+0.1</sub>	13	25	35.8	16	3.2	5.5	10	11	38	72
SCM-B2-25	25	10	42	28	33 <sup>+0.4</sup> <sub>+0.1</sub>	15	30	39.8	20	3.2	5.5	10	13	42	90
SCM-B2-32	32	12	48	28	40 <sup>+0.5</sup> <sub>+0.1</sub>	17	35	49.4	22	4.5	6.6	10	15	53.4	166
SCM-B2-40	40	14	56	30	49 <sup>+0.5</sup> <sub>+0.1</sub>	21	40	58.4	30	4.5	6.6	10	18	64.4	239
SCM-B2-50	50	16	64	36	60 <sup>+0.5</sup> <sub>+0.1</sub>	24	50	72.4	36	6	9	20	20	78.8	417
SCM-B2-63	63	18	74	46	74 <sup>+0.7</sup> <sub>+0.1</sub>	26	60	90.4	46	7.5	11	20	22	96.6	754
SCM-B1-80	80	18	72	45	28 <sup>-0.1</sup> <sub>-0.3</sub>	36	55	-	85	11	11	-	-	110	1000
SCM-B1-100	100	22	93	60	32 <sup>-0.1</sup> <sub>-0.3</sub>	50	65	-	100	12	13.5	-	-	130	1735

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



Round shaped cylinder  
Single acting/push

# SCM-X Series

● Bore size:  $\phi 20/\phi 25/\phi 32/\phi 40$

JIS symbol



## Specifications

Item	SCM-X			
Bore size mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Actuation	Single acting/push			
Working fluid	Compressed air			
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)			
Min. working pressure MPa	0.2 ( $\approx 29$ psi, 2 bar)			
Proof pressure MPa	1.6 ( $\approx 230$ psi, 16 bar)			
Ambient temperature $^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ ) (no freezing)			
Port size	Rc1/8			
Stroke tolerance mm	+2.0			
	0			
Working piston speed mm/s	50 to 1000 (Operate within the allowable absorbed energy.)			
Cushion	Rubber cushion			
Lubrication	Not required (use turbine oil ISO VG32 if necessary for lubrication)			
Allowable absorbed energy J	0.1	0.2	0.5	0.9

Note: Do not leave the single acting cylinder pressurized for a long time. If it is left pressurized for long periods, the piston rod may not return due to spring load when the pressure is released.

## Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\phi 20$	25, 50, 75	200	5
$\phi 25$			
$\phi 32$			
$\phi 40$			

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

## Spring load

(Unit: N)

Bore size (mm)	At stroke of 0 mm	At full stroke operation
$\phi 20$	11.8	38
$\phi 25$	12.5	40.2
$\phi 32$	24.3	54.9
$\phi 40$	28.4	100

## Number of installed switches and min. stroke (mm)

● Switch mounting method: Rail

Switch quantity	1				2				3				4				5					
	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed		
	T2, T3	T2W, T3W	T*Y*		T2, T3	T*Y*	T2, T3		T2W, T3W	T*Y*	T2, T3		T2W, T3W	T*Y*	T2, T3		T2W, T3W	T*Y*	T2, T3		T2W, T3W	T*Y*
$\phi 20$	10			25	25			55	50	70	70	55	55	70	70	55	75	110	110	90		
$\phi 25$	10				25				50	70	70		55	55	70		70	55	75		110	110
$\phi 32$	10				25				50	70	70		55	55	70		70	55	75		110	110
$\phi 40$	10				25				50	70	70		55	55	70		70	55	75		110	110

● Switch mounting: Band

Switch quantity	1				2				3				4				5						
	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed			
	T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*				
$\phi 20$	10			25	25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95			
$\phi 25$	10				25	30	35		25	50	55		55	50	75		75	80	70		95	100	100
$\phi 32$	10				25	30	35		25	50	55		55	50	75		75	80	70		95	100	100
$\phi 40$	10				25	30	35		25	50	55		55	50	75		75	80	70		95	100	100

\*1: For types with one switch, when the stroke is between 10 and 24 mm, the trunnion mounting is not available since the switch rail mounting position is different. Refer to page 345 for mounting position.

### Switch specifications

● 1-color/2-color LED

Item	2-wire proximity		2-wire proximity		3-wire proximity				2-wire reed			2-wire proximity				
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V	T2YD (*4) T2YDT				
Applications	For programmable controller, relay, compact solenoid valve		Dedicated for programmable controller		For programmable controller, relay				For programmable controller, relay	For programmable controller, relay (no lamp), serial	For programmable controller, relay	Dedicated for programmable controller				
Output method	-				NPN output	PNP output	NPN output	NPN output	-							
Pwr. supp. V.	-				10 to 28 VDC				-							
Load voltage	85 to 265 VAC	10 to 30 VDC	24 VDC ±10%		30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA	5 to 20 mA (*3)		100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA	
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	No indicator lamp	LED (Lit when ON)	Red/green LED (Lit when ON)				
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less		10 µA or less				0 mA				1 mA or less				
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80			1 m:33 3 m:87 5 m:142	1 m:61 3 m:166 5 m:272				

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

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

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

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

### Cylinder weight

● Stroke: 5 to 50

(Unit: kg)

Item/mounting	Product weight when stroke (S) = 0 mm					Switch weight (per 1 pc)	Additional weight per S = 10 mm	Added weight / S = 10 mm (with rail)	Band weight per switch
	Bore size	Basic	Axial foot	Flange	Clevis				
ø20	0.15	0.26	0.18	0.20	0.16	Refer to the weight in the switch specifications.	0.010	0.012	0.007
ø25	0.24	0.37	0.28	0.32	0.26		0.014	0.016	0.007
ø32	0.36	0.52	0.42	0.51	0.39		0.018	0.020	0.007
ø40	0.59	0.81	0.67	0.82	0.64		0.030	0.032	0.007

● Stroke: 51 to 100

(Unit: kg)

Item/mounting	Product weight when stroke (S) = 0 mm					Switch weight (per 1 pc)	Additional weight per S = 10 mm	Added weight / S = 10 mm (with rail)	Band weight per switch
	Bore size	Basic	Axial foot	Flange	Clevis				
ø20	0.19	0.30	0.22	0.24	0.20	Refer to the weight in the switch specifications.	0.010	0.012	0.007
ø25	0.32	0.45	0.36	0.40	0.34		0.014	0.016	0.007
ø32	0.46	0.62	0.52	0.61	0.49		0.018	0.020	0.007
ø40	0.76	0.98	0.84	0.99	0.81		0.030	0.032	0.007

● Stroke: 101 to 150

(Unit: kg)

Item/mounting	Product weight when stroke (S) = 0 mm					Switch weight (per 1 pc)	Additional weight per S = 10 mm	Added weight / S = 10 mm (with rail)	Band weight per switch
	Bore size	Basic	Axial foot	Flange	Clevis				
ø20	0.24	0.35	0.27	0.29	0.25	Refer to the weight in the switch specifications.	0.010	0.012	0.007
ø25	0.39	0.52	0.43	0.47	0.41		0.014	0.016	0.007
ø32	0.55	0.71	0.61	0.70	0.58		0.018	0.020	0.007
ø40	0.94	1.16	1.02	1.17	0.99		0.030	0.032	0.007

● Stroke: 151 to 200

(Unit: kg)

Item/mounting	Product weight when stroke (S) = 0 mm					Switch weight (per 1 pc)	Additional weight per S = 10 mm	Added weight / S = 10 mm (with rail)	Band weight per switch
	Bore size	Basic	Axial foot	Flange	Clevis				
ø20	0.29	0.40	0.32	0.34	0.30	Refer to the weight in the switch specifications.	0.010	0.012	0.007
ø25	0.46	0.59	0.50	0.54	0.48		0.014	0.016	0.007
ø32	0.65	0.81	0.71	0.80	0.68		0.018	0.020	0.007
ø40	1.11	1.33	1.19	1.34	1.16		0.030	0.032	0.007

(Example) Product weight of SCM-X-LB-40D-100-T2H-D

Product weight when S = 0 mm	0.98 kg
Additional weight when S = 100 mm	0.032 × $\frac{100}{10}$ = 0.32 kg
Weight of 2 switches	0.036 kg
Product weight	0.98 kg + 0.32 kg + 0.036 kg = 1.336 kg



## How to order

No switch (built-in magnet for switch)

**SCM-X-LB-40-D-100** ————— **J I**

With switch (built-in magnet for switch)

**SCM-X-LB-40-D-100-T0H-D-J I**

**A** Mounting  
\*1

**B** Bore size

**C** Port thread

**D** Cushion

**E** Stroke

**F** Switch model No.  
\*3  
\*4

**G** Switch quantity  
\*5

**H** Switch mounting

**I** Option  
\*5, \*7

**J** Accessory  
\*8

### ⚠ Precautions for model No. selection

- \*1 : Mounting bracket will be shipped with the product.
- \*2 : Refer to page 254 for the number of installed switches and the min. stroke.
- \*3 : Switches other than **F** Switch model No. are also available. (Made to order)  
Refer to Ending Page 1 for details.
- \*4 : T8H/V switches cannot be mounted when the switch mounting style is the rail.
- \*5 : The instantaneous max. temperature is the temperature when sparks, cutting chips, etc., instantaneously contact the bellows.
- \*6 : Refer to Ending Page 85 for custom specifications of rod end form.
- \*7 : "Q" (switch rail enclosed at shipment) is not available for the "Z" switch mounting.
- \*8 : "I" and "Y" cannot be selected together.
- \*9 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

### [Example of model No.]

#### SCM-X-LB-40D-100-T0H-D-JI

Model: Round shaped cylinder, single acting/push

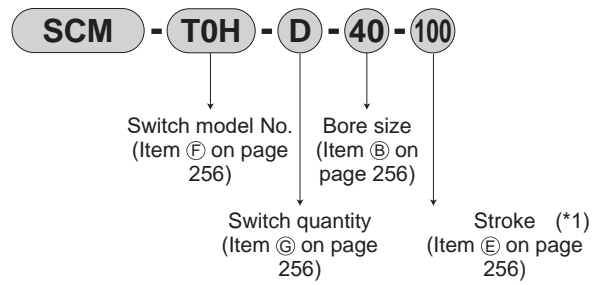
- A** Mounting : Axial foot
- B** Bore size : ø40 mm
- C** Port thread : Rc thread
- D** Cushion : With two-sided rubber cushion
- E** Stroke : 100 mm
- F** Switch model No. : Proximity T0H switch, lead wire 1 m
- G** Switch quantity : 2
- H** Switch mounting : Rail
- I** Option : Bellows material/max. ambient temperature 100°C
- J** Accessory : Rod eye

Code	Description					
<b>A Mounting</b>						
00	Basic					
LB	Axial foot					
FA	Rod side flange					
FB	Head side flange					
CA	Eye bracket					
TA	Rod side trunnion					
TB	Head side trunnion					
<b>B Bore size (mm)</b>						
20	ø20					
25	ø25					
32	ø32					
40	ø40					
<b>C Port thread</b>						
Blank	Rc thread					
N	NPT thread (made-to-order product)					
G	G thread (made-to-order product)					
<b>D Cushion</b>						
D	With two-sided rubber cushion					
<b>E Stroke (mm)</b>						
Bore size	Stroke *2	Custom stroke				
ø20 to ø40	5 to 200	In 1 mm increments				
<b>F Switch model No.</b>						
Axial lead wire	Radial lead wire	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No indicator lamp	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*	Proximity	●	●	1-color LED	2-wire
T2H*	T2V*		●	●		
T3H*	T3V*		●	●	1-color LED	3-wire
T3PH*	T3PV*		●	●		
T2WH*	T2WV*		●	●	2-color LED	2-wire
T2YH*	T2YV*		●	●		
T3WH*	T3WV*		●	●		
T3YH*	T3YV*		●	●	2-color LED	3-wire
T2YD*	-		●	●		
T2YDT*	-		●	●	2-color LED AC magnetic field	2-wire
T2JH*	T2JV*	●	●	1-color LED off-delay	2-wire	
<b>* Lead wire length</b>						
Blank	1 m (standard)					
3	3 m (option)					
5	5 m (option)					
<b>G Switch quantity</b>						
R	1 on rod side					
H	1 on head side					
D	2					
T	3					
4	4 (when there are more than 4 switches, indicate switch quantity.)					
<b>H Switch mounting</b>						
Blank	Rail method					
Z	Band method					
<b>I Option</b>						
		Max. ambient temp.	Instantaneous max. temp.			
J	Bellows material	100°C	200°C			
L	Bellows material	250°C	400°C			
Q	Switch rail included at shipment					
M	Piston rod material (stainless steel)					
P6	Copper and PTFE free					
<b>J Accessory</b>						
I	Rod eye					
Y	Rod clevis (pin and snap ring included)					
B2	Clevis bracket					

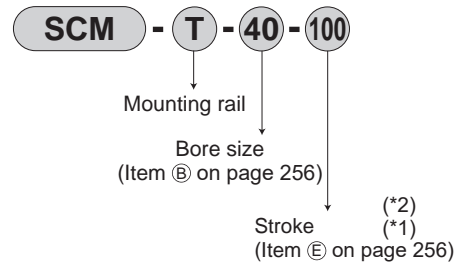
### How to order switch

#### [Switch mounting: Rail]

##### ● Switch body + mounting rail set



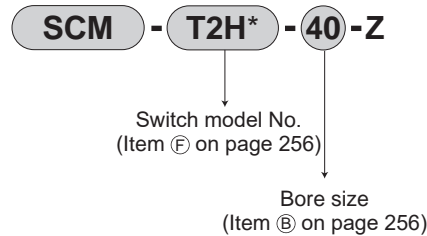
##### ● Mounting rail only



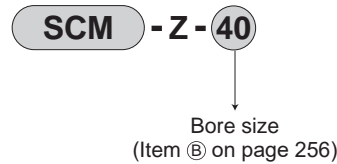
- \*1: Indicate X if the stroke exceeds 300 mm. If exceeding 300 mm, a short rail (with 100 mm switch adjustment length) will be included per switch.
- \*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

#### [Switch mounting: Band]

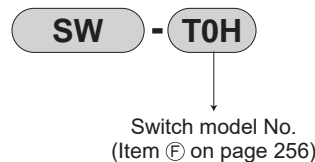
##### ● Switch body + mounting bracket set + band



##### ● Mounting bracket set + band



#### [Switch body only]



### How to order mounting bracket

Bore size (mm)	ø20	ø25	ø32	ø40
Mounting bracket				
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40
Eye bracket (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40

- \*1: All mounting brackets are supplied with mounting bolts.
- \*2: The foot mounting bracket is provided as 2 pcs./set.

### Theoretical thrust table

(Unit: N)

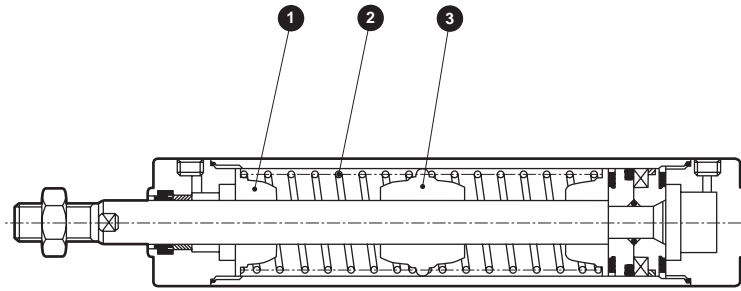
Bore size (mm)	Working pressure MPa								
	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	25	56	88	1.19x10 <sup>2</sup>	1.50x10 <sup>2</sup>	1.82x10 <sup>2</sup>	2.13x10 <sup>2</sup>	2.45x10 <sup>2</sup>	2.76x10 <sup>2</sup>
ø25	58	1.07x10 <sup>2</sup>	1.56x10 <sup>2</sup>	2.05x10 <sup>2</sup>	2.54x10 <sup>2</sup>	3.03x10 <sup>2</sup>	3.52x10 <sup>2</sup>	4.02x10 <sup>2</sup>	4.51x10 <sup>2</sup>
ø32	1.06x10 <sup>2</sup>	1.86x10 <sup>2</sup>	2.67x10 <sup>2</sup>	3.47x10 <sup>2</sup>	4.28x10 <sup>2</sup>	5.08x10 <sup>2</sup>	5.88x10 <sup>2</sup>	6.69x10 <sup>2</sup>	7.49x10 <sup>2</sup>
ø40	1.51x10 <sup>2</sup>	2.77x10 <sup>2</sup>	4.03x10 <sup>2</sup>	5.28x10 <sup>2</sup>	6.54x10 <sup>2</sup>	7.80x10 <sup>2</sup>	9.05x10 <sup>2</sup>	1.03x10 <sup>3</sup>	1.16x10 <sup>3</sup>

Note: The load above indicates thrust excluding the spring force at the push end.

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

SCP\*3 Internal structure and parts list

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



### Repair parts list

Numbering of repair parts follows that in the internal structure of the SCM Series (page 236).

No.	Part name	Material	Remarks
1	Spring holder A	Aluminum alloy	
2	Coil spring	Piano wire	Electrodeposition
3	Spring holder B	Aluminum alloy	

Parts other than the above are the same as the double acting.

Bore size (mm)	Kit No.	Repair parts No.
ø20	SCM-X-20DK	
ø25	SCM-X-25DK	3 6 8 10 13
ø32	SCM-X-32DK	
ø40	SCM-X-40DK	





Round shaped cylinder  
Single acting/pull

# SCM-Y Series

● Bore size:  $\phi 20/\phi 25/\phi 32/\phi 40$

JIS symbol



## Specifications

Item	SCM-Y			
Bore size mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Actuation	Single acting/pull			
Working fluid	Compressed air			
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)			
Min. working pressure MPa	0.2 ( $\approx 29$ psi, 2 bar)			
Proof pressure MPa	1.6 ( $\approx 230$ psi, 16 bar)			
Ambient temperature $^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ ) (no freezing)			
Port size	Rc1/8			
Stroke tolerance mm	+2.0			
	0			
Working piston speed mm/s	50 to 1000 (Operate within the allowable absorbed energy.)			
Cushion	Rubber cushion			
Lubrication	Not required (use turbine oil ISO VG32 if necessary for lubrication)			
Allowable absorbed energy J	0.1	0.2	0.5	0.9

Note: Do not leave the single acting cylinder pressurized for a long time. If it is left pressurized for long periods, the piston rod may not return due to spring load when the pressure is released.

## Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\phi 20$	25, 50, 75 100, 125 150, 200	200	5
$\phi 25$			
$\phi 32$			
$\phi 40$			

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

## Spring load

(Unit: N)

Bore size (mm)	When stroke length = 0	At full stroke operation
$\phi 20$	11.8	38
$\phi 25$	12.5	40.2
$\phi 32$	24.3	54.9
$\phi 40$	28.4	100

## Number of installed switches and min. stroke (mm)

● Switch mounting method: Rail

Switch quantity	1					2				3				4				5				
	Proximity			Reed		Proximity			Reed		Proximity			Reed		Proximity			Reed			
	T2, T3	T2W, T3W	T*Y*			T2, T3	T2W, T3W	T*Y*			T2, T3	T2W, T3W	T*Y*			T2, T3	T2W, T3W	T*Y*			T2, T3	T2W, T3W
$\phi 20$	10					25					50	70	70	55	55	70	70	55	75	110	110	90
$\phi 25$	10					25					50	70	70	55	55	70	70	55	75	110	110	90
$\phi 32$	10					25					50	70	70	55	55	70	70	55	75	110	110	90
$\phi 40$	10					25					50	70	70	55	55	70	70	55	75	110	110	90

● Switch mounting: Band

Switch quantity	1				2				3				4				5			
	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed
	T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*	
$\phi 20$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\phi 25$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\phi 32$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\phi 40$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95

\*1: For types with one switch, when the stroke is between 10 and 24 mm, the trunnion mounting is not available since the switch rail mounting position is different. Refer to page 345 for mounting position.

### Switch specifications

● 1-color/2-color LED

Item	2-wire proximity		2-wire proximity			3-wire proximity				2-wire reed			2-wire proximity				
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V		T2YD (*4) T2YDT				
Applications	For programmable controller, relay, compact solenoid valve		Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay	For programmable controller, relay (no lamp), serial		For programmable controller, relay	Dedicated for programmable controller			
Output method	-					NPN output	PNP output	NPN output	NPN output	-							
Pwr. supp. V.	-					10 to 28 VDC				-							
Load voltage	85 to 265 VAC	10 to 30 VDC		24 VDC ±10%		30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA	5 to 20 mA (*3)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	≤50 mA	≤20 mA	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA	
	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp		LED (Lit when ON)		Red/green LED (Lit when ON)		
Leakage current	≤1 mA at 100 VAC, ≤2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA					1 mA or less			
Weight g	1 m:33	1 m:18	1 m:33	1 m:18	1 m:18	1 m:33	1 m:18		1 m:18 3 m:49 5 m:80				1 m:33	1 m:61			
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49	3 m:87	3 m:49						3 m:87	3 m:166			
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80	5 m:142	5 m:80						5 m:142	5 m:272			

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

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

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

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

### Cylinder weight

● Stroke 5 to 50

(Unit: kg)

Item/mounting	Product weight when stroke (S) = 0 mm					Switch weight (per 1 pc)	Additional weight per S = 10 mm	Additional weight per S = 10 mm (with rail)	Band weight per switch
	Bore size	Basic	Axial foot	Flange	Clevis				
ø20	0.14	0.25	0.17	0.19	0.15	Refer to the weight in the switch specifications.	0.010	0.012	0.007
ø25	0.22	0.35	0.26	0.30	0.24		0.014	0.016	0.007
ø32	0.33	0.49	0.39	0.48	0.36		0.018	0.020	0.007
ø40	0.54	0.76	0.62	0.77	0.59		0.030	0.032	0.007

● Stroke 51 to 100

(Unit: kg)

Item/mounting	Product weight when stroke (S) = 0 mm					Switch weight (per 1 pc)	Additional weight per S = 10 mm	Additional weight per S = 10 mm (with rail)	Band weight per switch
	Bore size	Basic	Axial foot	Flange	Clevis				
ø20	0.17	0.28	0.20	0.22	0.18	Refer to the weight in the switch specifications.	0.010	0.012	0.007
ø25	0.28	0.41	0.32	0.36	0.30		0.014	0.016	0.007
ø32	0.40	0.56	0.46	0.55	0.43		0.018	0.020	0.007
ø40	0.67	0.89	0.75	0.90	0.72		0.030	0.032	0.007

● Stroke 101 to 150

(Unit: kg)

Item/mounting	Product weight when stroke (S) = 0 mm					Switch weight (per 1 pc)	Additional weight per S = 10 mm	Additional weight per S = 10 mm (with rail)	Band weight per switch
	Bore size	Basic	Axial foot	Flange	Clevis				
ø20	0.21	0.32	0.24	0.26	0.22	Refer to the weight in the switch specifications.	0.010	0.012	0.007
ø25	0.33	0.46	0.37	0.41	0.35		0.014	0.016	0.007
ø32	0.47	0.63	0.53	0.62	0.50		0.018	0.020	0.007
ø40	0.80	1.02	0.88	1.03	0.85		0.030	0.032	0.007

● Stroke 151 to 200

(Unit: kg)

Item/mounting	Product weight when stroke (S) = 0 mm					Switch weight (per 1 pc)	Additional weight per S = 10 mm	Additional weight per S = 10 mm (with rail)	Band weight per switch
	Bore size	Basic	Axial foot	Flange	Clevis				
ø20	0.24	0.35	0.27	0.29	0.25	Refer to the weight in the switch specifications.	0.010	0.012	0.007
ø25	0.39	0.52	0.43	0.47	0.41		0.014	0.016	0.007
ø32	0.54	0.70	0.60	0.69	0.57		0.018	0.020	0.007
ø40	0.92	1.14	1.00	1.15	0.97		0.030	0.032	0.007

(Example) Product weight of SCM-Y-LB-40D-100-T2H-D	Product weight when S = 0 mm ..... 0.89 kg Additional weight when S = 100 mm ..... $0.032 \times \frac{100}{10} = 0.32$ kg Weight of 2 switches ..... 0.036 kg Product weight ..... 0.89 kg + 0.32 kg + 0.036 kg = 1.246 kg
--	--



# SCM-Y Series

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

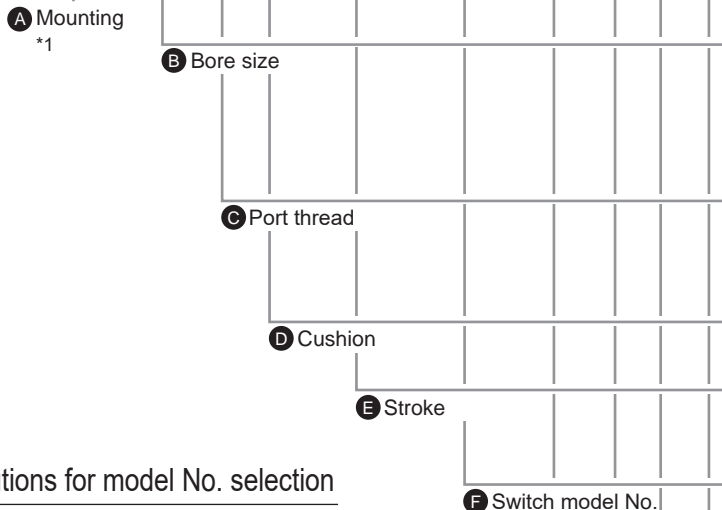
## How to order

No switch (built-in magnet for switch)

**SCM-Y - LB - 40 - D - 100 - J I**

With switch (built-in magnet for switch)

**SCM-Y - LB - 40 - D - 100 - T0H - D - J I**



## ⚠ Precautions for model No. selection

- \*1 : Mounting bracket will be shipped with the product.
- \*2 : Refer to page 260 for the number of installed switches and the min. stroke.
- \*3 : Switches other than **F** Switch model No. are also available. (Made to order)  
Refer to Ending Page 1 for details.
- \*4 : T8H/V switches cannot be mounted when the switch mounting style is the rail.
- \*5 : The instantaneous max. temperature is the temperature when sparks, cutting chips, etc., instantaneously contact the bellows.
- \*6 : Refer to Ending Page 85 for custom specifications of rod end form.
- \*7 : "Q" (switch rail enclosed at shipment) is not available for the "Z" switch mounting.
- \*8 : "I" and "Y" cannot be selected together.
- \*9 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

## [Example of model No.]

### SCM-Y-LB-40D-100-T0H-D-JI

Model: Round shaped cylinder, single acting/pull

- A** Mounting : Axial foot
- B** Bore size : ø40 mm
- C** Port thread : Rc thread
- D** Cushion : With two-sided rubber cushion
- E** Stroke : 100 mm
- F** Switch model No. : Reed T0H switch, lead wire 1 m
- G** Switch quantity : 2
- H** Switch mounting : Rail
- I** Option : Bellows material/max. ambient temperature 100°C
- J** Accessory : Rod eye

## How to order mounting bracket

Mounting bracket	Bore size (mm)			
	ø20	ø25	ø32	ø40
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40
Eye bracket (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40

- \*1: All mounting brackets are supplied with mounting bolts.
- \*2: The foot mounting bracket is provided as 2 pcs./set.

Code	Description
<b>A Mounting</b>	
00	Basic
LB	Axial foot
FA	Rod side flange
FB	Head side flange
CA	Eye bracket
TA	Rod side trunnion
TB	Head side trunnion

B Bore size (mm)	
20	ø20
25	ø25
32	ø32
40	ø40

C Port thread	
Blank	Rc thread
N	NPT thread (made-to-order product)
G	G thread (made-to-order product)

D Cushion	
D	With two-sided rubber cushion

E Stroke (mm)		
Bore size	Stroke *2	Custom stroke
ø20 to ø40	5 to 200	In 1 mm increments

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

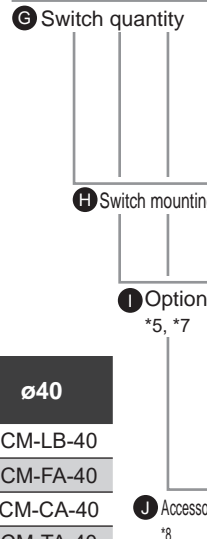
* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

G Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3
4	4 (when there are more than 4 switches, indicate switch quantity.)

H Switch mounting	
Blank	Rail method
Z	Band method

I Option			
		Max. ambient temp.	Instantaneous max. temp.
J	Bellows material	100°C	200°C
L	Bellows material	250°C	400°C
Q	Switch rail included at shipment		
M	Piston rod material (stainless steel)		
P6	Copper and PTFE free		

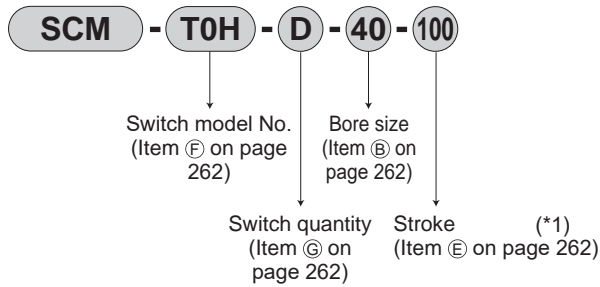
J Accessory	
I	Rod eye
Y	Rod clevis (pin and snap ring included)
B2	Clevis bracket



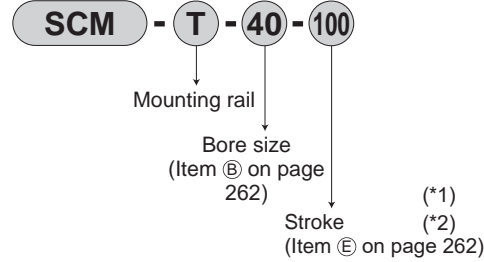
### How to order switch

[Switch mounting: Rail]

● Switch body + mounting rail set



● Mounting rail only

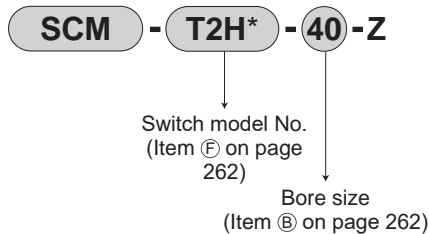


\*1: Indicate X if the stroke exceeds 300 mm. If exceeding 300 mm, a short rail (with 100 mm switch adjustment length) will be included per switch.

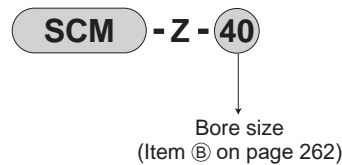
\*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

[Switch mounting: Band]

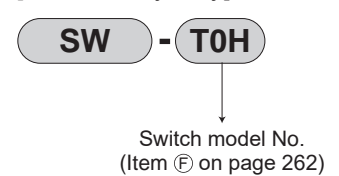
● Switch body + mounting bracket set + band



● Mounting bracket set + band



[Switch body only]



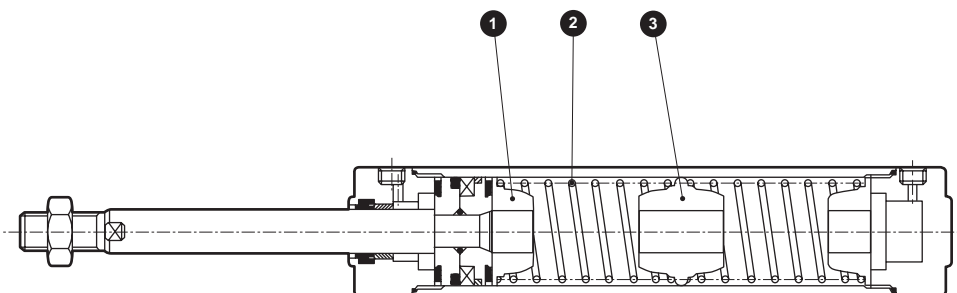
### Theoretical thrust table

(Unit: N)

Bore size (mm)	Working pressure MPa								
	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	15	41	68	94	1.20x10 <sup>2</sup>	1.47x10 <sup>2</sup>	1.73x10 <sup>2</sup>	2.00x10 <sup>2</sup>	2.26x10 <sup>2</sup>
ø25	42	84	1.25x10 <sup>2</sup>	1.66x10 <sup>2</sup>	2.07x10 <sup>2</sup>	2.48x10 <sup>2</sup>	2.90x10 <sup>2</sup>	3.31x10 <sup>2</sup>	3.72x10 <sup>2</sup>
ø32	83	1.52x10 <sup>2</sup>	2.22x10 <sup>2</sup>	2.91x10 <sup>2</sup>	3.60x10 <sup>2</sup>	4.29x10 <sup>2</sup>	4.98x10 <sup>2</sup>	5.67x10 <sup>2</sup>	6.36x10 <sup>2</sup>
ø40	1.11x10 <sup>2</sup>	2.17x10 <sup>2</sup>	3.22x10 <sup>2</sup>	4.28x10 <sup>2</sup>	5.33x10 <sup>2</sup>	6.39x10 <sup>2</sup>	7.44x10 <sup>2</sup>	8.50x10 <sup>2</sup>	9.56x10 <sup>2</sup>

Note: The load above indicates thrust excluding the spring force at the pull end.

### Internal structure and parts list



### Repair parts list

Numbering of repair parts follows that in the internal structure of the SCM Series (page 236).

No.	Part name	Material	Remarks
1	Spring holder A	Aluminum alloy	
2	Coil spring	Piano wire	Electrodeposition
3	Spring holder B	Aluminum alloy	

Parts other than the above are the same as the double acting.

Bore size (mm)	Kit No.	Repair parts No.
ø20	SCM-Y-20DK	<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">3</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">6</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">8</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">10</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">13</span>
ø25	SCM-Y-25DK	
ø32	SCM-Y-32DK	
ø40	SCM-Y-40DK	

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

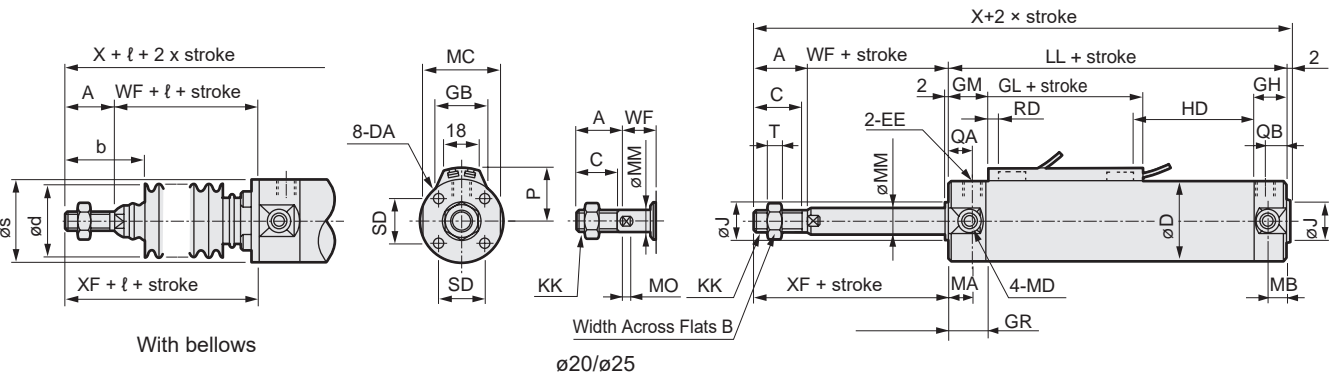
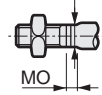
## dimensions



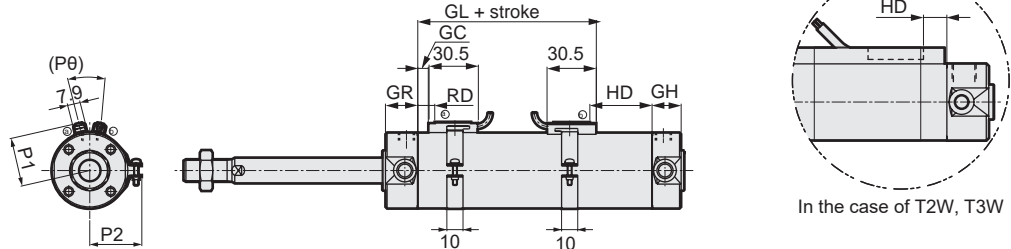
● Single acting pull (00)

• Switch mounting: Rail

MN (Width Across Flats)



• Switch mounting: Band



\*1: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

Code	Basic (00) Basic dimensions											LL								
	A	B	C	D	DA	EE	GR	GH	J	KK	5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	MA	MB	MC	MD	MM	MN
ø20	18	13	16	26	M4 depth 6.5	Rc1/8	19	17	12	M8	96	123	150	177	11	11	24	M5	8	6
ø25	22	17	20	31	M5 depth 6.5	Rc1/8	19	17	14	M 10 x 1.25	99	129	159	189	11	11	29	M6	10	8
ø32	22	17	20	38	M5 depth 7.5	Rc1/8	19	17	18	M 10 x 1.25	101	131	161	191	11	10	36	M8	12	10
ø40	30	22	27	47	M6 depth 12	Rc1/8	20	19	25	M 14 x 1.5	108	138	168	198	12	10	44	M10	16	14

Code	With bellows											Switch mounting: Rail							
	MO	QA	QB	SD	T	WF	X				XF	b	d	s	ℓ	GM	GL	P	GB
							5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200									
ø20	4	12	10	14	5	17	133	160	187	214	35	30	30	25.7	(stroke/3) + 18.5	20.5	30	19.5	23
ø25	5	12	10	16.5	6	18	141	171	201	231	40	35	30	30.7	(stroke/3) + 20.5	20.5	30	22	24.4
ø32	5.5	12	10	20	6	18	143	173	203	233	40	31.5	35	37.7	(stroke/3) + 19	20.5	32	25.5	25
ø40	6	13	12	26	8	20	160	190	220	250	50	40	35	46.7	(stroke/3) + 18.5	21.5	36	30	25.7

Code	Switch mounting: Band																		
	HD				RD				HD										
	T0/T5				T2,T3				T2W,T3W										
Bore size (mm)	5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	T0/T5	T2 T3	T2W T3W	T0/T5			
	5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	5 to 50	Over 50 to 100	Over 100 to 150
ø20	31.0	58.0	85.0	112.0	34.0	61.0	88.0	115.0	36.5	63.5	90.5	117.5	5	6	7	32.5	59.5	86.5	113.5
ø25	33.0	63.0	93.0	123.0	36.0	66.0	96.0	126.0	38.5	68.5	98.5	128.5	6	7	8	34.5	64.5	94.5	124.5
ø32	34.0	64.0	94.0	124.0	37.0	67.0	97.0	127.0	39.5	69.5	99.5	129.5	7	8	9	35.5	65.5	95.5	125.5
ø40	36.0	66.0	96.0	126.0	39.0	69.0	99.0	129.0	41.5	71.5	101.5	131.5	9	10	11	37.5	67.5	97.5	127.5

Code	Switch mounting: Band															
	T2,T3				T2W,T3W				RD			GC	P1	P2	P3	Pθ
	5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	5 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	T0/T5	T2 T3	T2W T3W					
ø20	33.5	60.5	87.5	114.5	36.5	63.5	90.5	117.5	6.5	7.5	7	2.5	19.6	21.5	14	{38}
ø25	35.5	65.5	95.5	125.5	38.5	68.5	98.5	128.5	7.5	8.5	8	3.5	22.1	23.9	14	{34}
ø32	36.5	66.5	96.5	126.5	39.5	69.5	99.5	129.5	8.5	9.5	9	4.5	25.6	27.6	16	{30}
ø40	38.5	68.5	98.5	128.5	41.5	71.5	101.5	131.5	10.5	11.5	11	6.5	30.2	32.1	16	{26}

\* Installation dimensions other than X and LL mounting are the same as those of SCM (double acting). Pages 240 to 251.

\* For the dimensions of the accessories, refer to pages 252 and 253.

---

# MEMO

---

SCP\*3

CMK2

CMA2

**SCM**

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

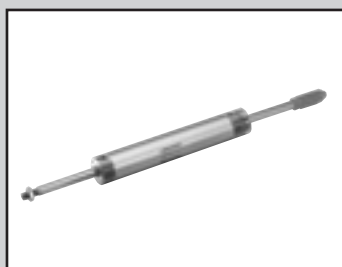
ShkAbs

FJ

FK

Spd  
Contr

Ending



Round shaped cylinder/  
Double acting/stroke adjustable/push

# SCM-P Series

● Bore size:  $\phi 20/\phi 25/\phi 32/\phi 40/\phi 50/\phi 63$

JIS symbol



## Specifications

Item	SCM-P					
Bore size mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$
Actuation	Double acting/stroke adjustable (push)					
Working fluid	Compressed air					
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)					
Min. working pressure MPa	0.15 ( $\approx 22$ psi, 1.5 bar)			0.1 ( $\approx 15$ psi, 1 bar)		
Proof pressure MPa	1.6 ( $\approx 230$ psi, 16 bar)					
Ambient temperature $^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ ) (no freezing)					
Port size	Rc1/8			Rc1/4		
Stroke tolerance mm	+1.4			+2.3		
	0			0		
Working piston speed mm/s	30 to 1000 (Operate within the allowable absorbed energy.)					
Cushion	Rubber cushion					
Lubrication	Not required (use turbine oil ISO VG32 if necessary for lubrication)					
Adjustable stroke range mm	25, 50					
Allowable absorbed energy J	0.1	0.2	0.5	0.9	1.6	1.6

## Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\phi 20$	25, 50, 75 100, 125, 150 200, 250, 300	600	10
$\phi 25$			
$\phi 32$			
$\phi 40$			
$\phi 50$			
$\phi 63$			

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

## Number of installed switches and min. stroke (mm)

● Switch mounting method: Rail

Switch quantity	1					2					3					4					5				
	Proximity				Reed	Proximity				Reed	Proximity				Reed	Proximity				Reed	Proximity				Reed
	T2, T3	T2W, T3W	T*Y*			T2, T3	T2W, T3W	T*Y*			T2, T3	T2W, T3W	T*Y*			T2, T3	T2W, T3W	T*Y*			T2, T3	T2W, T3W	T*Y*		
$\phi 20$	10					25					50	70	70	55	55	70	70	55	75	110	110	90			
$\phi 25$	10					25					50	70	70	55	55	70	70	55	75	110	110	90			
$\phi 32$	10					25					50	70	70	55	55	70	70	55	75	110	110	90			
$\phi 40$	10					25					50	70	70	55	55	70	70	55	75	110	110	90			
$\phi 50$	10					25					50	65	65	55	55	65	65	55	75	110	110	90			
$\phi 63$	10					25					50	65	65	55	55	65	65	55	75	110	110	90			

● Switch mounting: Band

Switch quantity	1					2					3					4					5				
	Proximity				Reed	Proximity				Reed	Proximity				Reed	Proximity				Reed	Proximity				Reed
	T2, T3	T2W, T3W	T*Y*			T2, T3	T2W, T3W	T*Y*			T2, T3	T2W, T3W	T*Y*			T2, T3	T2W, T3W	T*Y*			T2, T3	T2W, T3W	T*Y*		
$\phi 20$	10					25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95				
$\phi 25$	10					25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95				
$\phi 32$	10					25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95				
$\phi 40$	10					25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95				
$\phi 50$	10					25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95				
$\phi 63$	10					25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95				

\*1: For types with one switch, when the stroke is between 10 and 24 mm, the trunnion mounting is not available since the switch rail mounting position is different. Refer to page 345 for mounting position.

### Switch specifications

● 1-color/2-color LED

Item	2-wire proximity		2-wire proximity				3-wire proximity				2-wire reed						2-wire proximity	
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V		T8H/T8V				T2YD (*4) T2YDT		
Applications	For programming controller, relay, compact solenoid valve		Dedicated for programmable controller				For programmable controller, relay				For programmable controller, relay		For programmable controller, relay (no lamp), serial		For programmable controller, relay		Dedicated for programmable controller	
Output method	-				NPN output	PNP output	NPN output	NPN output	-									
Pwr. supp. V.	-				10 to 28 VDC				-									
Load voltage	85 to 265 VAC		10 to 30 VDC		24 VDC ±10%		30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA		5 to 20 mA (*3)				100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp		LED (Lit when ON)			Red/green LED (Lit when ON)		
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC		1 mA or less				10 µA or less				0 mA						1 mA or less	
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80		1 m:33 3 m:87 5 m:142		1 m:18 3 m:49 5 m:80		1 m:18 3 m:49 5 m:80			1 m:33 3 m:87 5 m:142		1 m:61 3 m:166 5 m:272		

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

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

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

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

### Cylinder weight

(Unit: kg)

Item/mounting Bore size (mm)	Adjustable stroke range	Product weight when stroke (S) = 0 mm				Switch weight (per 1 pc)	Additional weight per S = 10 mm	Added weight /S = 10 mm (with rail)	Band weight per switch
		Basic	Axial foot	Flange	Trunnion				
ø20	25	0.18	0.29	0.26	0.19	Refer to the weight in the switch specifications.	0.010	0.012	0.007
	50	0.21	0.31	0.29	0.22				
ø25	25	0.33	0.44	0.43	0.35		0.014	0.016	0.007
	50	0.37	0.48	0.47	0.39				
ø32	25	0.50	0.64	0.64	0.53		0.018	0.020	0.007
	50	0.56	0.71	0.70	0.59				
ø40	25	0.93	1.12	1.13	0.98		0.030	0.032	0.007
	50	1.03	1.22	1.23	1.08				
ø50	25	1.71	2.12	2.05	1.85		0.044	0.046	0.008
	50	1.90	2.31	2.24	2.04				
ø63	25	2.25	2.87	2.75	2.39		0.052	0.054	0.009
	50	2.44	3.06	2.94	2.58				

(Example) Product weight of SCM-P-LB-40D-100-50-T2H-D—	}	Product weight when S = 0 mm..... 1.22 kg Additional weight when S = 100 mm ..... 0.032x $\frac{100}{10}$ =0.32 kg Weight of 2 switches..... 0.036 kg Product weight..... 1.22 kg + 0.32 kg + 0.036 kg=1.576 kg
--	---	--

### Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push/Pull	-	39.6	52.8	79.2	1.06x10 <sup>2</sup>	1.32x10 <sup>2</sup>	1.58x10 <sup>2</sup>	1.85x10 <sup>2</sup>	2.11x10 <sup>2</sup>	2.38x10 <sup>2</sup>	2.64x10 <sup>2</sup>
ø25	Push/Pull	-	61.9	82.5	1.24x10 <sup>2</sup>	1.65x10 <sup>2</sup>	2.06x10 <sup>2</sup>	2.47x10 <sup>2</sup>	2.89x10 <sup>2</sup>	3.30x10 <sup>2</sup>	3.71x10 <sup>2</sup>	4.12x10 <sup>2</sup>
ø32	Push/Pull	-	1.04x10 <sup>2</sup>	1.38x10 <sup>2</sup>	2.07x10 <sup>2</sup>	2.76x10 <sup>2</sup>	3.46x10 <sup>2</sup>	4.15x10 <sup>2</sup>	4.84x10 <sup>2</sup>	5.53x10 <sup>2</sup>	6.22x10 <sup>2</sup>	6.91x10 <sup>2</sup>
ø40	Push/Pull	-	1.58x10 <sup>2</sup>	2.11x10 <sup>2</sup>	3.17x10 <sup>2</sup>	4.22x10 <sup>2</sup>	5.28x10 <sup>2</sup>	6.33x10 <sup>2</sup>	7.39x10 <sup>2</sup>	8.44x10 <sup>2</sup>	9.50x10 <sup>2</sup>	1.06x10 <sup>3</sup>
ø50	Push/Pull	1.65x10 <sup>2</sup>	2.47x10 <sup>2</sup>	3.30x10 <sup>2</sup>	4.95x10 <sup>2</sup>	6.60x10 <sup>2</sup>	8.25x10 <sup>2</sup>	9.90x10 <sup>2</sup>	1.15x10 <sup>3</sup>	1.32x10 <sup>3</sup>	1.48x10 <sup>3</sup>	1.65x10 <sup>3</sup>
ø63	Push/Pull	2.80x10 <sup>2</sup>	4.20x10 <sup>2</sup>	5.61x10 <sup>2</sup>	8.41x10 <sup>2</sup>	1.12x10 <sup>3</sup>	1.40x10 <sup>3</sup>	1.68x10 <sup>3</sup>	1.96x10 <sup>3</sup>	2.24x10 <sup>3</sup>	2.52x10 <sup>3</sup>	2.80x10 <sup>3</sup>



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

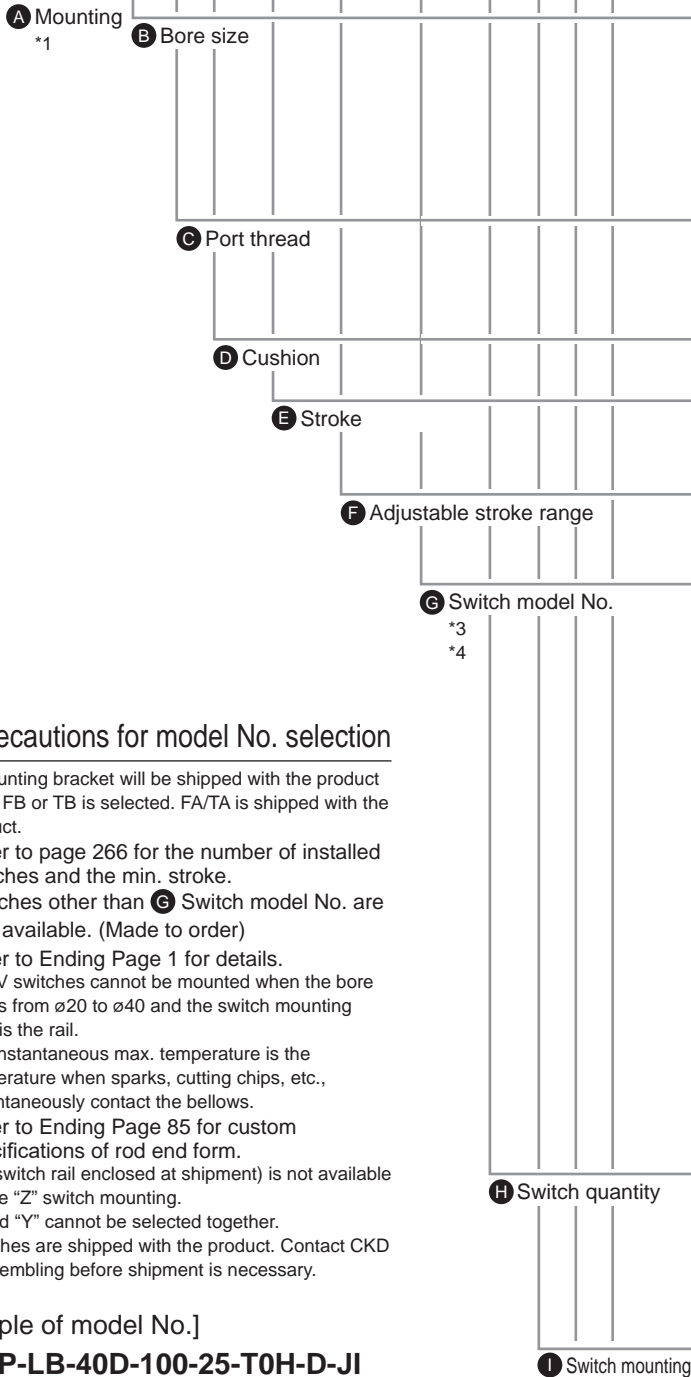
## How to order

No switch (built-in magnet for switch)

SCM-P - LB - 40 - D - 100 - 25 - J - I

With switch (built-in magnet for switch)

SCM-P - LB - 40 - D - 100 - 25 - T0H - D - J - I



### ⚠ Precautions for model No. selection

- \*1 : A mounting bracket will be shipped with the product if LB, FB or TB is selected. FA/TA is shipped with the product.
- \*2 : Refer to page 266 for the number of installed switches and the min. stroke.
- \*3 : Switches other than G Switch model No. are also available. (Made to order)  
Refer to Ending Page 1 for details.
- \*4 : T8H/V switches cannot be mounted when the bore size is from ø20 to ø40 and the switch mounting style is the rail.
- \*5 : The instantaneous max. temperature is the temperature when sparks, cutting chips, etc., instantaneously contact the bellows.
- \*6 : Refer to Ending Page 85 for custom specifications of rod end form.
- \*7 : "Q" (switch rail enclosed at shipment) is not available for the "Z" switch mounting.
- \*8 : "I" and "Y" cannot be selected together.
- \*9 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

### [Example of model No.]

**SCM-P-LB-40D-100-25-T0H-D-JI**

Model: Round shaped cylinder, double acting/stroke adjustable (push)

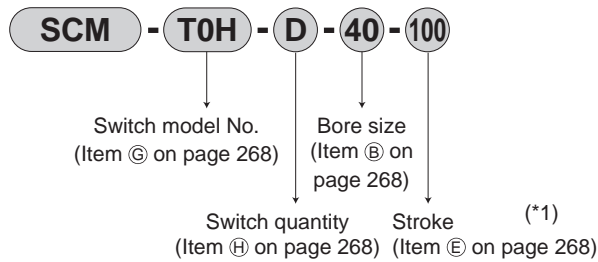
- A Mounting : Axial foot
- B Bore size : ø40 mm
- C Port thread : Rc thread
- D Cushion : With two-sided rubber cushion
- E Stroke : 100 mm
- F Adjustable stroke range : 25 mm
- G Switch model No. : Reed T0H switch, lead wire 1m
- H Switch quantity : 2
- I Switch mounting : Rail method
- J Option : Bellows material for max. ambient temperature 100°C
- K Accessory : Rod eye

Code	Description				
<b>A Mounting</b>					
00	Basic				
LB	Axial foot				
FA	Rod side flange				
TA	Rod side trunnion				
TB	Head side trunnion				
<b>B Bore size (mm)</b>					
20	ø20				
25	ø25				
32	ø32				
40	ø40				
50	ø50				
63	ø63				
<b>C Port thread</b>					
Blank	Rc thread				
N	NPT thread (made-to-order product)				
G	G thread (made-to-order product)				
<b>D Cushion</b>					
D	With two-sided rubber cushion				
<b>E Stroke (mm)</b>					
Bore size	Stroke *2	Custom stroke			
ø20 to ø63	10 to 600	In 1 mm increments			
<b>F Adjustable stroke range (mm)</b>					
25	25				
50	50				
<b>G Switch model No.</b>					
Axial lead wire	Radial lead wire	Reed Contact	Voltage	Indicator	Lead wire
T0H*	T0V*	● ●	AC DC	1-color LED	2-wire
T5H*	T5V*		● ●	No indicator lamp	
T8H*	T8V*		● ●	1-color LED	
T1H*	T1V*	●		1-color LED	2-wire
T2H*	T2V*		●		
T3H*	T3V*		●		
T3PH*	T3PV*	●		1-color LED	3-wire
T2WH*	T2WV*		●		
T2YH*	T2YV*		●		
T3WH*	T3WV*	●		2-color LED	3-wire
T3YH*	T3YV*		●		
T2YD*	-		●		
T2YDT*	-	●		AC magnetic field	2-wire
T2JH*	T2JV*		●		
<b>* Lead wire length</b>					
Blank	1 m (standard)				
3	3 m (option)				
5	5 m (option)				
<b>H Switch quantity</b>					
R	1 on rod side				
H	1 on head side				
D	2				
T	3				
4	4 (when there are more than 4 switches, indicate switch quantity.)				
<b>I Switch mounting</b>					
Blank	Rail method				
Z	Band method				
<b>J Option</b>					
		Max. ambient temp. + Instantaneous max. temp.			
J	Bellows	100°C	200°C		
L	Bellows	250°C	400°C		
Q	Switch rail included at shipment				
M	Piston rod material (stainless steel)				
P6	Copper and PTFE free				
<b>K Accessory</b>					
I	Rod eye				
Y	Rod clevis (pin and snap ring included)				
B2	Clevis bracket				

### How to order switch

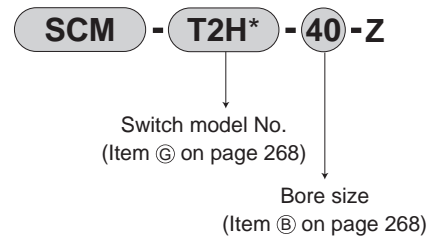
#### [Switch mounting: Rail]

- Switch body + mounting rail set

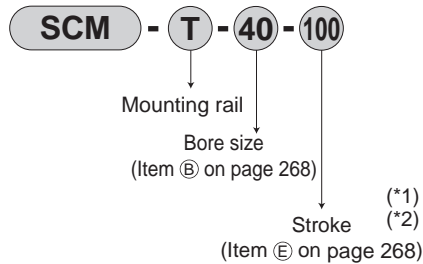


#### [Switch mounting: Band]

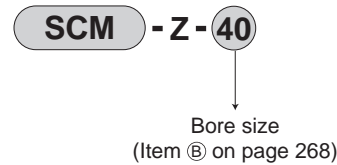
- Switch body + mounting bracket set + band



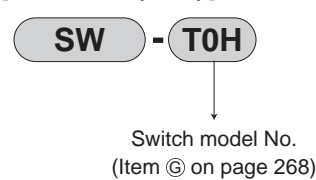
- Mounting rail only



- Mounting bracket set + band



#### [Switch body only]



- \*1: Indicate X if the stroke exceeds 300 mm.  
If exceeding 300 mm, a short rail (with 100 mm switch adjustment length) will be included per switch.
- \*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

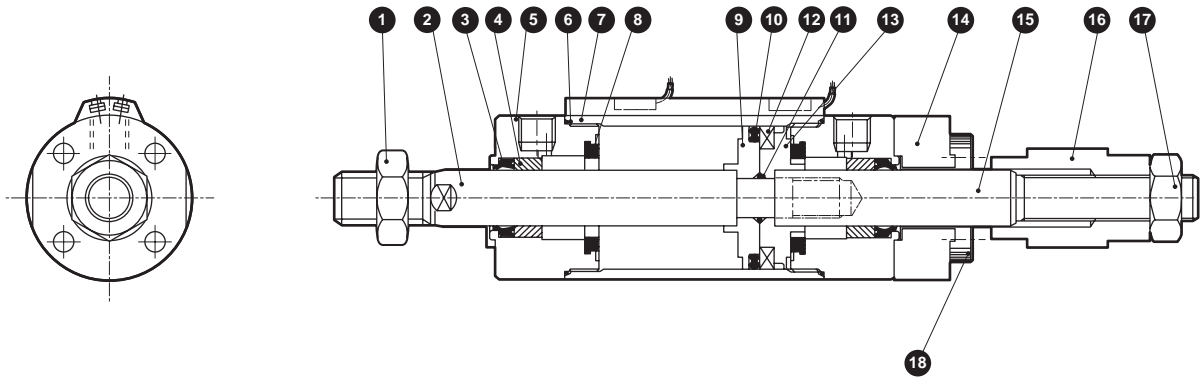
### How to order mounting bracket

Bore size (mm)	ø20	ø25	ø32	ø40	ø50	ø63
Mounting bracket						
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63

- \*1: All mounting brackets are supplied with mounting bolts.  
\*2: The foot mounting bracket is provided as 2 pcs./set.

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

## Internal structure and parts list



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rod nut	Steel	Nickeling	10	Piston packing	Nitrile rubber	
2	Piston rod R	ø20, ø25: Stainless steel ø32 to ø63: Steel	Industrial chrome plating	11	Piston gasket	Nitrile rubber	
3	Rod packing	Nitrile rubber		12	Magnet	Plastic	
4	Bush	Oil impregnated bearing alloy *1		13	Piston H	ø20 to ø40: Aluminum alloy ø50, ø63: Aluminum alloy die-casting	
5	Rod cover	Aluminum alloy	Hard alumite	14	Cover	Steel	Zinc chromate
6	Cylinder gasket	Nitrile rubber		15	Piston rod H	Steel	Industrial chrome plating
7	Cylinder tube	Aluminum alloy	Hard alumite	16	Stopper	Steel	Zinc chromate
8	Cushion rubber	Urethane rubber		17	Hexagon nut	Steel	Nickeling
9	Piston R	ø20 to ø40: Aluminum alloy ø50, ø63: Aluminum alloy die-casting		18	Hex socket screw	Alloy steel	Black finish

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

### Repair parts list

Bore size (mm)	Kit No.	Repair parts No.
ø20	SCM-D-20DK	3 6 8 10
ø25	SCM-D-25DK	
ø32	SCM-D-32DK	
ø40	SCM-D-40DK	
ø50	SCM-D-50DK	
ø63	SCM-D-63DK	

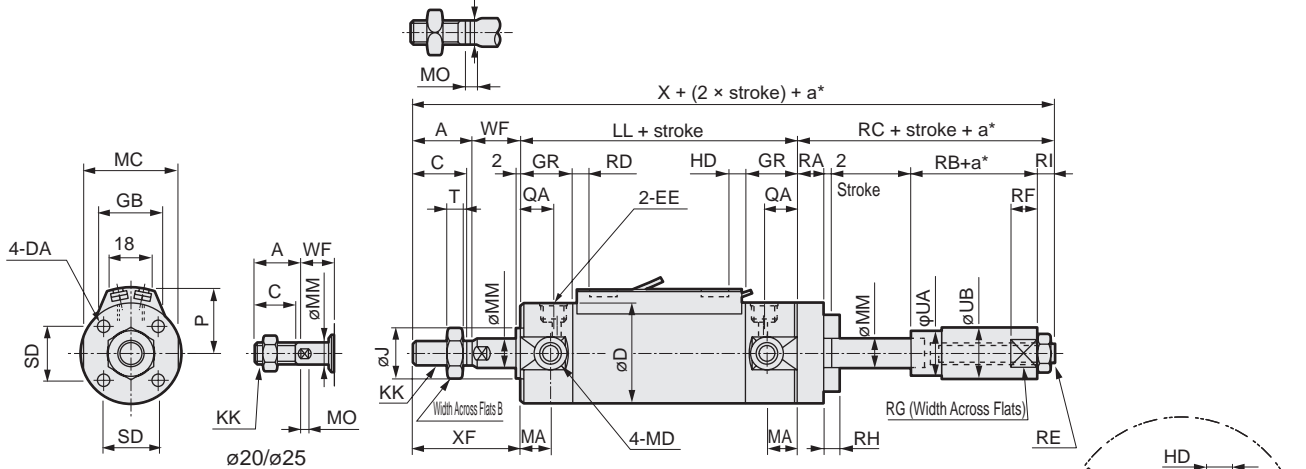
\*1: Specify the kit No. when placing an order.

### Dimensions

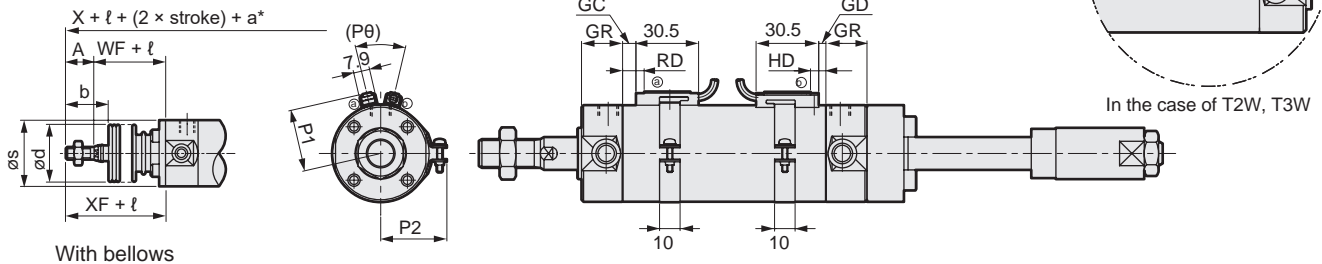


- Double acting/adjustable stroke (push)
- Switch mounting: Rail

MN (Width Across Flats)



- Switch mounting: Band



\* a: Adjustable stroke.

\*1: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

Code	Basic (00) Basic dimensions																					
Bore size (mm)	A	B	C	D	DA	EE	GR	J	KK	LL	MA	MC	MD	MM	MN	MO	QA	SD	T	WF	X	XF
ø20	18	13	16	26	M4 depth 6.5	Rc1/8	19	12	M8	71	11	24	M5	8	6	4	12	14	5	17	141	35
ø25	22	17	20	31	M5 depth 6.5	Rc1/8	19	14	M10 x 1.25	71	11	29	M6	10	8	5	12	16.5	6	18	152	40
ø32	22	17	20	38	M5 depth 7.5	Rc1/8	19	18	M10 x 1.25	73	11	36	M8	12	10	5.5	12	20	6	18	154	40
ø40	30	22	27	47	M6 depth 12	Rc1/8	20	25	M14 x 1.5	79	12	44	M10	16	14	6	13	26	8	20	188	50
ø50	35	27	32	58	M8 depth 16	Rc1/4	25	30	M18 x 1.5	93	13	55	M12	20	17	8	15	32	11	23	217	58
ø63	35	27	32	72	M10 depth 16	Rc1/4	25	32	M18 x 1.5	93	13	69	M14	20	17	8	15	38	11	23	217	58

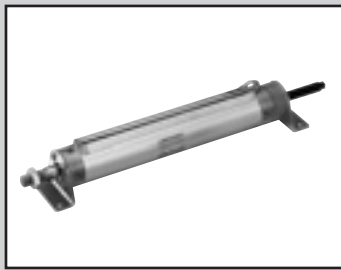
Code	With bellows												Switch mounting: Rail							
Bore size (mm)	RA	RB	RC	RE	RI	RF	RG	RH	UA	UB	b	d	s	ℓ	P	GB	HD			RD
																	T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5
ø20	8	19	35	M6	6	7	10	4	11.5	12	30	30	25.7	(stroke/3) + 18.5	19.5	23	3.0	6.5	8.5	7.5
ø25	10	22	41	M8	7	9	14	5	13.5	16	35	30	30.7	(stroke/3) + 20.5	22	24.4	2.0	5.5	7.5	8.5
ø32	10	22	41	M8	7	10	17	5	17.5	20	31.5	35	37.7	(stroke/3) + 19	25.5	25	3.0	6.5	8.5	9.5
ø40	18	30	59	M12 x 1.5	9	12	22	6	24	25	40	35	46.7	(stroke/3) + 18.5	30	25.7	5.0	8.5	10.5	11.5
ø50	20	32	66	M16 x 1.5	12	15	30	8	29	35	46	40	57.7	(stroke/3.6) + 18.5	35.5	26.2	7.5	11.0	13.0	13.0
ø63	20	32	66	M16 x 1.5	12	15	30	10	29	35	46	40	71.7	(stroke/3.6) + 18.5	42.5	26.5	7.5	11.0	13.0	13.0

Code	Switch mounting: Band																	
Bore size (mm)	RD		GD			GC			HD			RD			P1	P2	P3	Pθ
	T2/T2R T3/T3P	T2W T3W	T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W				
ø20	7.5	9.5	2.5	2.5	4.5	3.5	3.5	5.5	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38°)
ø25	8.5	10.5	1.5	1.5	3.5	4.5	4.5	6.5	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34°)
ø32	9.5	11.5	2.5	2.5	4.5	5.5	5.5	7.5	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30°)
ø40	11.5	13.5	4.5	4.5	6.5	7.5	7.5	9.5	8.5	8.5	10.5	11.5	11.5	13.5	30.2	32.1	16	(26°)
ø50	13.0	15.0	7.0	7.0	9.0	9.0	9.0	11.0	11.0	11.0	13.0	13.0	13.0	15.0	35.7	37.4	16	(22°)
ø63	13.0	15.0	7.0	7.0	9.0	9.0	9.0	11.0	11.0	11.0	13.0	13.0	13.0	15.0	42.7	44.4	16	(20°)

\* Installation dimensions of the mounting are the same as those of SCM (double acting). Refer to pages 240 to 251.

\* For the dimensions of the accessories, refer to pages 252 and 253.

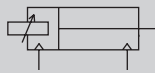


Round shaped cylinder/  
Double acting/stroke adjustable/pull

# SCM-R Series

● Bore size:  $\phi 20/\phi 25/\phi 32/\phi 40/\phi 50/\phi 63$

JIS symbol



## Specifications

Item	SCM-R						
Bore size mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	
Actuation	Double acting/stroke adjustable (pull)						
Working fluid	Compressed air						
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)						
Min. working pressure MPa	0.1 ( $\approx 15$ psi, 1 bar)				0.05 ( $\approx 7.3$ psi, 0.5 bar)		
Proof pressure MPa	1.6 ( $\approx 230$ psi, 16 bar)						
Ambient temperature $^{\circ}\text{C}$	-10 ( $14^{\circ}\text{F}$ ) to 60 ( $140^{\circ}\text{F}$ ) (no freezing)						
Port size	Rc1/8				Rc1/4		
Stroke tolerance mm	$+1.4$ (to 1000) $0$		$+1.4$ (to 1500) $0$		$+2.3$ (to 1000), $+2.7$ (to 1500) $0$		
Working piston speed mm/s	30 to 1000 (Operate within the allowable absorbed energy.)						
Cushion	Rubber cushion						
Lubrication	Not required (use turbine oil ISO VG32 if necessary for lubrication)						
Adjustable stroke range mm	25, 50						
Allowable absorbed energy J	0.1	0.2	0.5	0.9	1.6	1.6	

## Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\phi 20$	25, 50, 75 100, 125, 150	1000	10
$\phi 25$			
$\phi 32$			
$\phi 40$	200, 250, 300	1500	
$\phi 50$			
$\phi 63$			

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

\*2: Stroke of more than 600 mm will be made to order. Contact CKD for details.

## Number of installed switches and min. stroke (mm)

● Switch mounting method: Rail

Switch quantity Bore size (mm)	1				2				3				4				5			
	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed
	T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*	
$\phi 20$	10				25				50	70	70	55	55	70	70	55	75	110	110	90
$\phi 25$	10				25				50	70	70	55	55	70	70	55	75	110	110	90
$\phi 32$	10				25				50	70	70	55	55	70	70	55	75	110	110	90
$\phi 40$	10				25				50	70	70	55	55	70	70	55	75	110	110	90
$\phi 50$	10				25				50	65	65	55	55	65	65	55	75	110	110	90
$\phi 63$	10				25				50	65	65	55	55	65	65	55	75	110	110	90

● Switch mounting: Band

Switch quantity Bore size (mm)	1				2				3				4				5			
	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed
	T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*	
$\phi 20$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\phi 25$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\phi 32$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\phi 40$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\phi 50$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\phi 63$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95

\*1: For types with one switch, when the stroke is between 10 and 24 mm, the trunnion mounting is not available since the switch rail mounting position is different. Refer to page 345 for mounting position.

### Switch specifications

● 1-color/2-color LED

Item	2-wire proximity		2-wire proximity		3-wire proximity				2-wire reed			2-wire proximity				
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V	T2YD (*4) T2YDT				
Applications	For programming controller, relay, compact solenoid valve		Dedicated for programmable controller		For programmable controller, relay				For programmable controller, relay	For programmable controller, relay (no lamp), serial		For programmable controller, relay	Dedicated for programmable controller			
Output method	-				NPN output	PNP output	NPN output	NPN output	-							
Pwr. supp. V.	-				10 to 28 VDC				-							
Load voltage	85 to 265 VAC		10 to 30 VDC		24 VDC ±10%		30 VDC or less		12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA		5 to 20 mA (*3)		100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp	LED (Lit when ON)		Red/green LED (Lit when ON)		
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC		1 mA or less		10 µA or less				0 mA					1 mA or less		
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80			1 m:33 3 m:87 5 m:142		1 m:61 3 m:166 5 m:272		

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

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

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

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

### Cylinder weight

(Unit: kg)

Item/mounting	Adjustable stroke range	Product weight when stroke (S) = 0 mm				Switch weight (per 1 pc)	Additional weight per S = 10 mm	Added weight / S = 10 mm (with rail)	Band weight per switch
		Basic	Axial foot	Flange	Trunnion				
ø20	25	0.14	0.25	0.17	0.15	Refer to the weight in the switch specifications.	0.010	0.012	0.007
	50	0.15	0.25	0.18	0.16				
ø25	25	0.25	0.36	0.29	0.27		0.014	0.016	0.007
	50	0.26	0.37	0.30	0.28				
ø32	25	0.37	0.52	0.43	0.40		0.018	0.020	0.007
	50	0.38	0.52	0.44	0.41				
ø40	25	0.70	0.89	0.78	0.75		0.030	0.032	0.007
	50	0.72	0.91	0.80	0.77				
ø50	25	1.30	1.71	1.64	1.44		0.044	0.046	0.008
	50	1.33	1.75	1.67	1.47				
ø63	25	1.83	2.45	2.33	1.97		0.052	0.054	0.009
	50	1.86	2.48	2.36	2.00				

(Example) Product weight of SCM-R-LB-40D-100-25-T2H-D	Product weight when S = 0 mm..... 0.89 kg Additional weight when S = 100 mm ..... $0.032 \times \frac{100}{10} = 0.32$ kg Weight of 2 switches..... 0.036 kg Product weight..... 0.89 kg + 0.32 kg + 0.036 kg = 1.246 kg
---	---

### Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	-	31.4	47.1	62.8	94.2	$1.26 \times 10^2$	$1.57 \times 10^2$	$1.88 \times 10^2$	$2.20 \times 10^2$	$2.51 \times 10^2$	$2.83 \times 10^2$	$3.14 \times 10^2$
	Pull	-	26.4	39.6	52.8	79.2	$1.06 \times 10^2$	$1.32 \times 10^2$	$1.58 \times 10^2$	$1.85 \times 10^2$	$2.11 \times 10^2$	$2.38 \times 10^2$	$2.64 \times 10^2$
ø25	Push	-	49.1	73.6	98.2	$1.47 \times 10^2$	$1.96 \times 10^2$	$2.45 \times 10^2$	$2.95 \times 10^2$	$3.44 \times 10^2$	$3.93 \times 10^2$	$4.42 \times 10^2$	$4.91 \times 10^2$
	Pull	-	41.2	61.9	82.5	$1.24 \times 10^2$	$1.65 \times 10^2$	$2.06 \times 10^2$	$2.47 \times 10^2$	$2.89 \times 10^2$	$3.30 \times 10^2$	$3.71 \times 10^2$	$4.12 \times 10^2$
ø32	Push	-	80.4	$1.21 \times 10^2$	$1.61 \times 10^2$	$2.41 \times 10^2$	$3.22 \times 10^2$	$4.02 \times 10^2$	$4.83 \times 10^2$	$5.63 \times 10^2$	$6.43 \times 10^2$	$7.24 \times 10^2$	$8.04 \times 10^2$
	Pull	-	69.1	$1.04 \times 10^2$	$1.38 \times 10^2$	$2.07 \times 10^2$	$2.76 \times 10^2$	$3.46 \times 10^2$	$4.15 \times 10^2$	$4.84 \times 10^2$	$5.53 \times 10^2$	$6.22 \times 10^2$	$6.91 \times 10^2$
ø40	Push	-	$1.26 \times 10^2$	$1.88 \times 10^2$	$2.51 \times 10^2$	$3.77 \times 10^2$	$5.03 \times 10^2$	$6.28 \times 10^2$	$7.54 \times 10^2$	$8.80 \times 10^2$	$1.01 \times 10^3$	$1.13 \times 10^3$	$1.26 \times 10^3$
	Pull	-	$1.06 \times 10^2$	$1.58 \times 10^2$	$2.11 \times 10^2$	$3.17 \times 10^2$	$4.22 \times 10^2$	$5.28 \times 10^2$	$6.33 \times 10^2$	$7.39 \times 10^2$	$8.44 \times 10^2$	$9.50 \times 10^2$	$1.06 \times 10^3$
ø50	Push	98.0	$1.96 \times 10^2$	$2.95 \times 10^2$	$3.93 \times 10^2$	$5.89 \times 10^2$	$7.85 \times 10^2$	$9.82 \times 10^2$	$1.18 \times 10^3$	$1.37 \times 10^3$	$1.57 \times 10^3$	$1.77 \times 10^3$	$1.96 \times 10^3$
	Pull	82.5	$1.65 \times 10^2$	$2.47 \times 10^2$	$3.30 \times 10^2$	$4.95 \times 10^2$	$6.60 \times 10^2$	$8.25 \times 10^2$	$9.90 \times 10^2$	$1.15 \times 10^3$	$1.32 \times 10^3$	$1.48 \times 10^3$	$1.65 \times 10^3$
ø63	Push	$1.56 \times 10^2$	$3.12 \times 10^2$	$4.68 \times 10^2$	$6.23 \times 10^2$	$9.35 \times 10^2$	$1.25 \times 10^3$	$1.56 \times 10^3$	$1.87 \times 10^3$	$2.18 \times 10^3$	$2.49 \times 10^3$	$2.81 \times 10^3$	$3.12 \times 10^3$
	Pull	$2.40 \times 10^2$	$2.80 \times 10^2$	$4.20 \times 10^2$	$5.61 \times 10^2$	$8.41 \times 10^2$	$1.12 \times 10^3$	$1.40 \times 10^3$	$1.68 \times 10^3$	$1.96 \times 10^3$	$2.24 \times 10^3$	$2.52 \times 10^3$	$2.80 \times 10^3$



# SCM-R Series

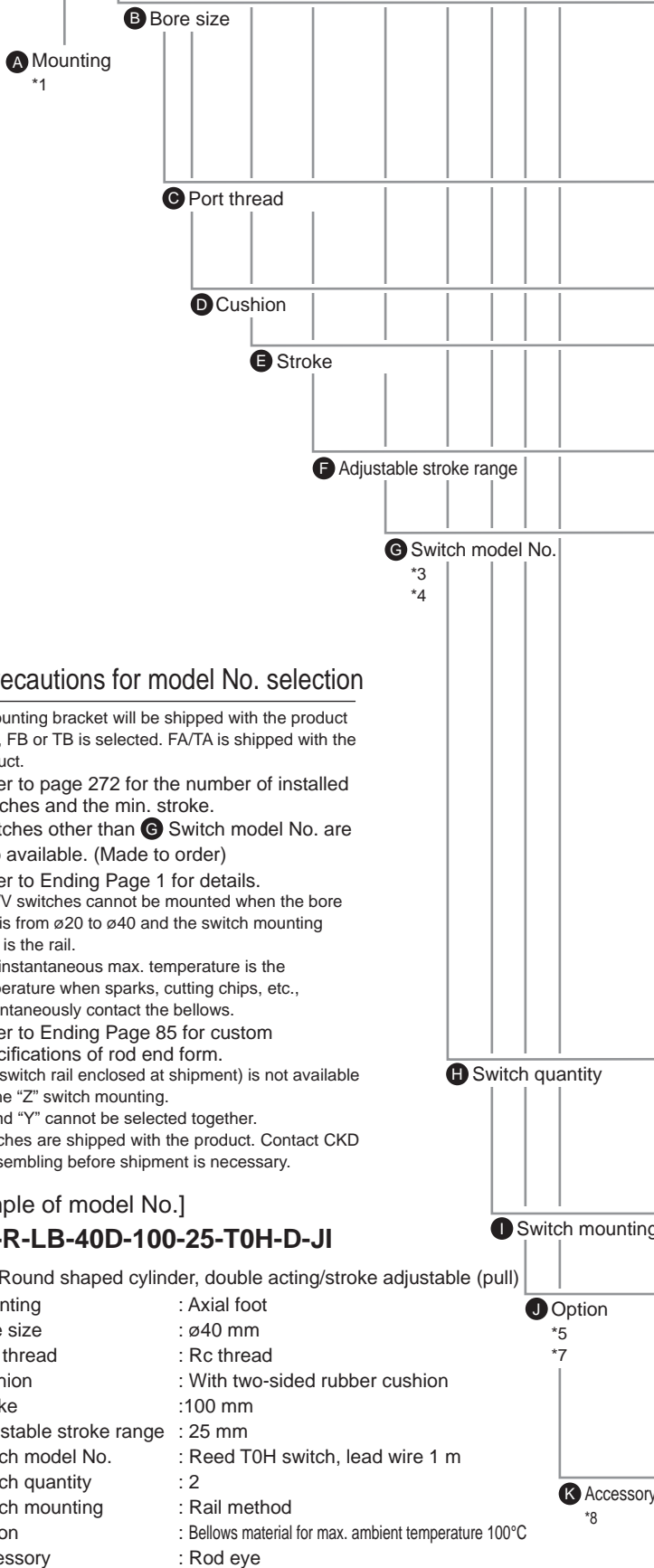
## How to order

No switch (built-in magnet for switch)

SCM-R - LB - 40 - D - 100 - 25 - J I

With switch (built-in magnet for switch)

SCM-R - LB - 40 - D - 100 - 25 - T0H - D - J I



## ⚠ Precautions for model No. selection

\*1 : A mounting bracket will be shipped with the product if LB, FB or TB is selected. FA/TA is shipped with the product.

\*2: Refer to page 272 for the number of installed switches and the min. stroke.

\*3: Switches other than G Switch model No. are also available. (Made to order)  
Refer to Ending Page 1 for details.

\*4 : T8H/V switches cannot be mounted when the bore size is from  $\phi 20$  to  $\phi 40$  and the switch mounting style is the rail.

\*5 : The instantaneous max. temperature is the temperature when sparks, cutting chips, etc., instantaneously contact the bellows.

\*6: Refer to Ending Page 85 for custom specifications of rod end form.

\*7 : "Q" (switch rail enclosed at shipment) is not available for the "Z" switch mounting.

\*8 : "I" and "Y" cannot be selected together.

\*9 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

## [Example of model No.]

**SCM-R-LB-40D-100-25-T0H-D-JI**

Model: Round shaped cylinder, double acting/stroke adjustable (pull)

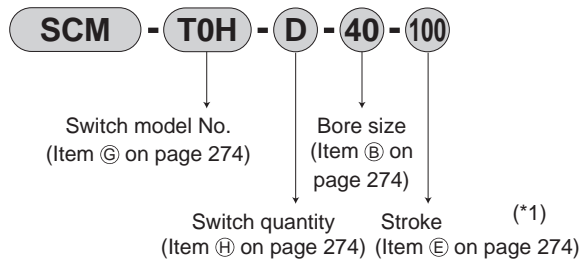
<b>A</b> Mounting	: Axial foot
<b>B</b> Bore size	: $\phi 40$ mm
<b>C</b> Port thread	: Rc thread
<b>D</b> Cushion	: With two-sided rubber cushion
<b>E</b> Stroke	: 100 mm
<b>F</b> Adjustable stroke range	: 25 mm
<b>G</b> Switch model No.	: Reed T0H switch, lead wire 1 m
<b>H</b> Switch quantity	: 2
<b>I</b> Switch mounting	: Rail method
<b>J</b> Option	: Bellows material for max. ambient temperature 100°C
<b>K</b> Accessory	: Rod eye

Code	Description					
<b>A Mounting</b>						
00	Basic					
LB	Axial foot					
FA	Rod side flange					
TA	Rod side trunnion					
TB	Head side trunnion					
<b>B Bore size (mm)</b>						
20	$\phi 20$					
25	$\phi 25$					
32	$\phi 32$					
40	$\phi 40$					
50	$\phi 50$					
63	$\phi 63$					
<b>C Port thread</b>						
Blank	Rc thread					
N	NPT thread (made-to-order product)					
G	G thread (made-to-order product)					
<b>D Cushion</b>						
D	With two-sided rubber cushion					
<b>E Stroke (mm)</b>						
Bore size	Stroke *2	Custom stroke				
$\phi 20$ to $\phi 32$	10 to 1000	In 1 mm increments				
$\phi 40$ to $\phi 63$	10 to 1500					
<b>F Adjustable stroke range (mm)</b>						
25	25					
50	50					
<b>G Switch model No.</b>						
Axial lead wire	Radial lead wire	Contact	Voltage	Indicator	Lead wire	
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No indicator lamp	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*	Proximity	●	●	1-color LED	2-wire
T2H*	T2V*		●	●		
T3H*	T3V*		●	●	1-color LED	3-wire
T3PH*	T3PV*		●	●		
T2WH*	T2WV*		●	●	2-color LED	2-wire
T2YH*	T2YV*		●	●		
T3WH*	T3WV*	●	●	2-color LED	3-wire	
T3YH*	T3YV*	●	●			
T2YD*	-	●	●	2-color LED	2-wire	
T2YDT*	-	●	●	AC magnetic field		
T2JH*	T2JV*	●	●	1-color LED off-delay	2-wire	
<b>* Lead wire length</b>						
Blank	1 m (standard)					
3	3 m (option)					
5	5 m (option)					
<b>H Switch quantity</b>						
R	1 on rod side					
H	1 on head side					
D	2					
T	3					
4	4 (when there are more than 4 switches, indicate switch quantity.)					
<b>I Switch mounting</b>						
Blank	Rail method					
Z	Band method					
<b>J Option</b>						
			Max. ambient temp.	Instantaneous max. temp.		
J	Bellows		100°C	200°C		
L	Bellows		250°C	400°C		
Q	Switch rail included at shipment					
M	Piston rod material (stainless steel)					
P6	Copper and PTFE free					
<b>K Accessory</b>						
I	Rod eye					
Y	Rod clevis (pin and snap ring included)					
B2	Clevis bracket					

### How to order switch

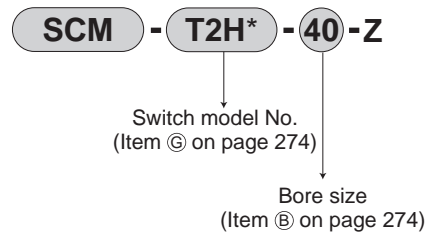
#### [Switch mounting: Rail]

- Switch body + mounting rail set

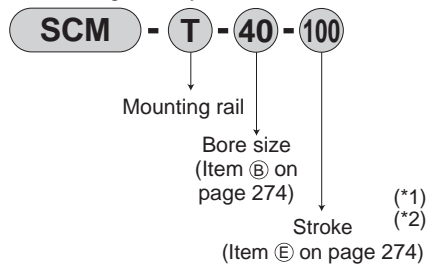


#### [Switch mounting: Band]

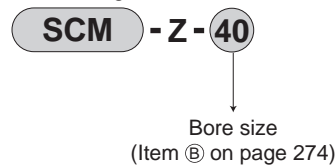
- Switch body + mounting bracket set + band



- Mounting rail only

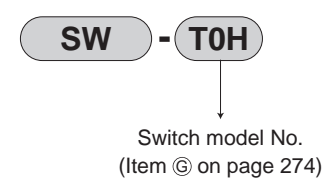


- Mounting bracket set + band



- \*1: Indicate X if the stroke exceeds 300 mm.  
If exceeding 300 mm, a short rail (with 100 mm switch adjustment length) will be included per switch.
- \*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

#### [Switch body only]



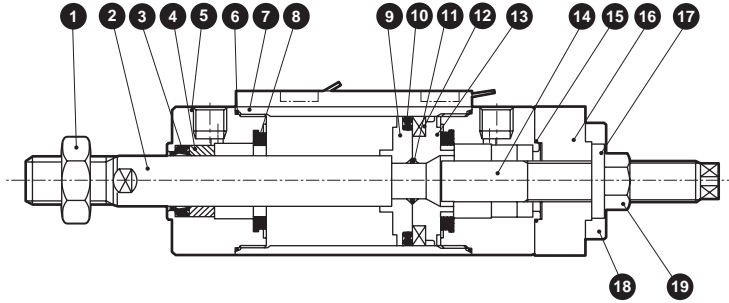
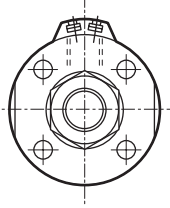
### How to order mounting bracket

Bore size (mm)	ø20	ø25	ø32	ø40	ø50	ø63
Mounting bracket						
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63

- \*1: All mounting brackets are supplied with mounting bolts.  
\*2: The foot mounting bracket is provided as 2 pcs./set.

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

## Internal structure and parts list



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rod nut	Steel	Nickeling	10	Piston packing	Nitrile rubber	
2	Piston rod	Steel	Industrial chrome plating	11	Piston gasket	Nitrile rubber	
3	Rod packing	Nitrile rubber		12	Magnet	Plastic	
4	Bush	Oil impregnated bearing alloy <sup>*1</sup>		13	Piston H	ø20 to ø40: Aluminum alloy ø50, ø63: Aluminum alloy die-casting	
5	Rod cover	Aluminum alloy	Hard alumite	14	Bolt	Steel	Zinc chromate
6	Cylinder gasket	Nitrile rubber		15	Gasket	Nitrile rubber	
7	Cylinder tube	Aluminum alloy	Hard alumite	16	Cover	Steel	Zinc chromate
8	Cushion rubber	Urethane rubber		17	Die thread	Steel + nitrile rubber	
9	Piston R	ø20 to ø40: Aluminum alloy ø50, ø63: Aluminum alloy die-casting		18	Hex socket screw	Alloy steel	Black finish
				19	Hexagon nut	Steel	Nickeling

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

### Repair parts list

Bore size (mm)	Kit No.	Repair parts No.
ø20	SCM-R-20DK	
ø25	SCM-R-25DK	
ø32	SCM-R-32DK	3 6 10 15 17
ø40	SCM-R-40DK	
ø50	SCM-R-50DK	
ø63	SCM-R-63DK	

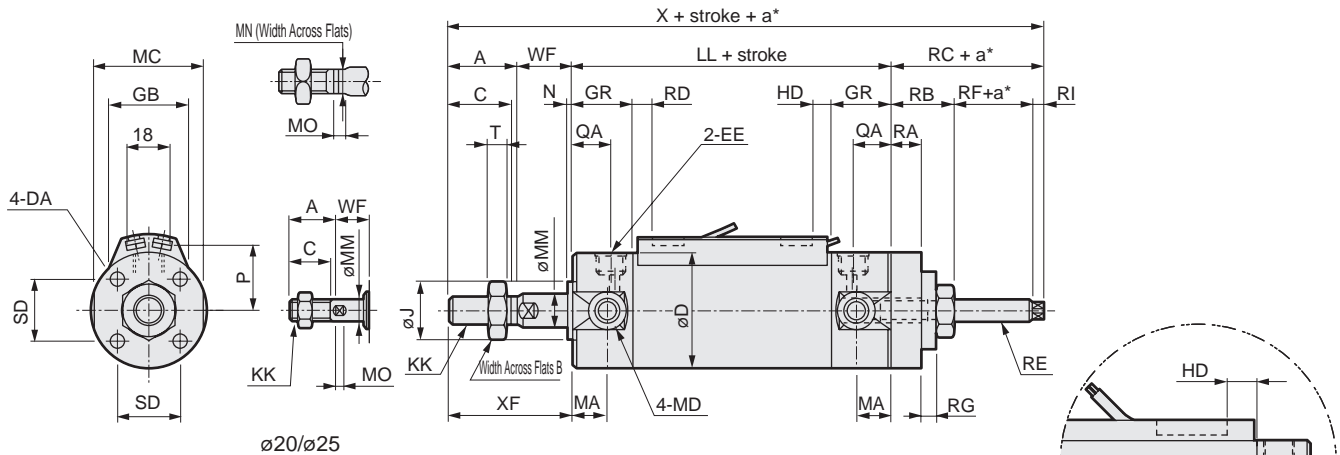
\*1: Specify the kit No. when placing an order.

### dimensions

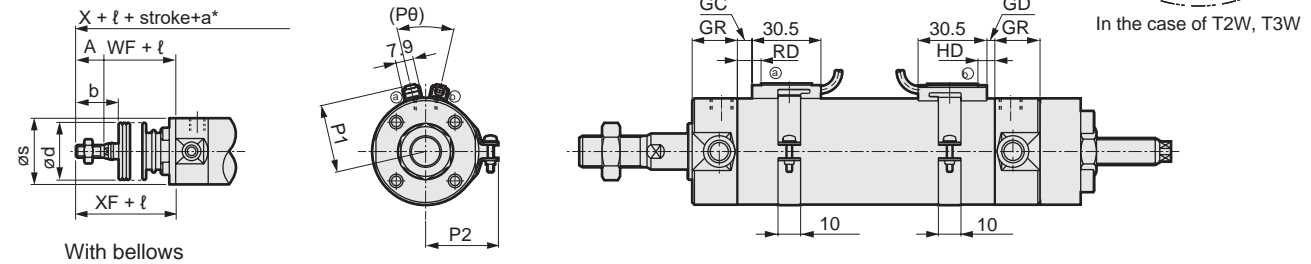


● Double acting/adjustable stroke (pull)

• Switch mounting: Rail



• Switch mounting: Band



\* a indicates adjustable stroke

\*1: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

Code	Basic (00) Basic dimensions																					
Bore size (mm)	A	B	C	D	DA	EE	GR	J	KK	LL	MA	MC	MD	MM	MN	MO	N	QA	SD	T	WF	X
$\phi 20$	18	13	16	26	M4 depth 6.5	Rc1/8	19	12	M8	71	11	24	M5	8	6	4	2	12	14	5	17	128.5
$\phi 25$	22	17	20	31	M5 depth 6.5	Rc1/8	19	14	M10 x 1.25	71	11	29	M6	10	8	5	2	12	16.5	6	18	141
$\phi 32$	22	17	20	38	M5 depth 7.5	Rc1/8	19	18	M10 x 1.25	73	11	36	M8	12	10	5.5	2	12	20	6	18	140
$\phi 40$	30	22	27	47	M6 depth 12	Rc1/8	20	25	M14 x 1.5	79	12	44	M10	16	14	6	2	13	26	8	20	169
$\phi 50$	35	27	32	58	M8 depth 16	Rc1/4	25	30	M18 x 1.5	93	13	55	M12	20	17	8	2	15	32	11	23	198
$\phi 63$	35	27	32	72	M10 depth 16	Rc1/4	25	32	M18 x 1.5	93	13	69	M14	20	17	8	2	15	38	11	23	198

Code	With bellows										Switch mounting: Rail									
Bore size (mm)	XF	RA	RB	RC	RE	RI	RF	RG	b	d	s	$\ell$	P	GB	HD			RD		
															T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W
$\phi 20$	35	8	16	22.5	M6	4	2.5	4	30	30	25.7	(stroke/3) + 18.5	19.5	23	3.0	6.5	8.5	7.5	7.5	9.5
$\phi 25$	40	10	20	30	M8	4	6	5	35	30	30.7	(stroke/3) + 20.5	22	24.4	2.0	5.5	7.5	8.5	8.5	10.5
$\phi 32$	40	10	20	27	M8	4	3	5	31.5	35	37.7	(stroke/3) + 19	25.5	25	3.0	6.5	8.5	9.5	9.5	11.5
$\phi 40$	50	18	32	40	M12 x 1.5	5	3	6	40	35	46.7	(stroke/3) + 18.5	30	25.7	5.0	8.5	10.5	11.5	11.5	13.5
$\phi 50$	58	20	37	47	M16 x 1.5	7	3	8	46	40	57.7	(stroke/3.6) + 18.5	35.5	26.2	7.5	11.0	13.0	13.0	13.0	15.0
$\phi 63$	58	20	37	47	M16 x 1.5	7	3	10	46	40	71.7	(stroke/3.6) + 18.5	42.5	26.5	7.5	11.0	13.0	13.0	13.0	15.0

Code	Switch mounting: Band															
Bore size (mm)	GC			GD			HD			RD			P1	P2	P3	P8
	T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W				
$\phi 20$	3.5	3.5	5.5	2.5	2.5	4.5	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38)
$\phi 25$	4.5	4.5	6.5	1.5	1.5	3.5	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34)
$\phi 32$	5.5	5.5	7.5	2.5	2.5	4.5	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30)
$\phi 40$	7.5	7.5	9.5	4.5	4.5	6.5	8.5	8.5	10.5	11.5	11.5	13.5	30.2	32.1	16	(28)
$\phi 50$	9.0	9.0	11.0	7.0	7.0	9.0	11.0	11.0	13.0	13.0	13.0	15.0	35.7	37.4	16	(22)
$\phi 63$	9.0	9.0	11.0	7.0	7.0	9.0	11.0	11.0	13.0	13.0	13.0	15.0	42.7	44.4	16	(20)

\* Installation dimensions of the mounting are the same as those of SCM (double acting). Refer to pages 240 to 251.

\* For the dimensions of the accessories, refer to pages 252 and 253.

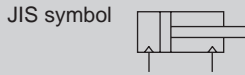
SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending



Round shaped cylinder Double acting/heat resistant

# SCM-T Series

- Bore size:  $\varnothing 20/\varnothing 25/\varnothing 32/\varnothing 40$   
 $\varnothing 50/\varnothing 63/\varnothing 80/\varnothing 100$



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

## Specifications

Item	SCM-T									
	Bore size	mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$
Actuation	Double acting/heat resistant									
Working fluid	Compressed air									
Max. working pressure	MPa	1.0 ( $\approx 150$ psi, 10 bar)								
Min. working pressure	MPa	0.1 ( $\approx 15$ psi, 1 bar)			0.05 ( $\approx 7.3$ psi, 0.5 bar)					
Proof pressure	MPa	1.6 ( $\approx 230$ psi, 16 bar)								
Ambient temperature	$^{\circ}\text{C}$	5 ( $41^{\circ}\text{F}$ ) to 120 ( $248^{\circ}\text{F}$ )								
Port size		Rc1/8			Rc1/4		Rc3/8	Rc1/2		
Stroke tolerance	mm	$+1.8$ 0 (to 1000)		$+1.8$ 0 (to 1500)	$+1.4$ 0 (to 1000)		$+1.8$ 0 (to 1500)			
Working piston speed	mm/s	30 to 1000 (Operate within the allowable absorbed energy.)								
Cushion		Rubber cushion				Air cushion				
Lubrication	*1	Not available								
Allowable absorbed energy	With rubber cushion	0.1	0.2	0.5	0.9	—	—	—	—	
	With air cushion	—	—	—	—	8.0	14.4	25.4	45.6	
	Without cushion	—	—	—	—	0.057	0.057	0.112	0.153	

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

\*2 : For absorbed energy of the type without cushion, refer to Ending Page 68.

\*3 : The values of allowable absorbed energy for "No cushion" are the allowable absorbed energy on the non-specified side when an air cushion is selected for the other side ("R"→ Head side, "H"→ Rod side).

\*4 : Without any cushion, this product cannot absorb large energy generated by an external load. Provide a shock absorber on the outside.

## Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\varnothing 20$	25, 50, 75 100, 125, 150 200, 250, 300	1000	10
$\varnothing 25$			
$\varnothing 32$			
$\varnothing 40$		1500	
$\varnothing 50$			
$\varnothing 63$			
$\varnothing 80$			
$\varnothing 100$			

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

## Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke (S) = 0 mm					Additional weight per S = 10 mm	
	Bore size	Basic	Axial foot	Flange	Clevis		Trunnion
ø20		0.10	0.21	0.13	0.15	0.11	0.010
ø25		0.17	0.30	0.21	0.25	0.19	0.014
ø32		0.25	0.41	0.31	0.40	0.28	0.018
ø40		0.40	0.62	0.48	0.63	0.45	0.030
ø50		0.75	1.23	1.09	1.15	0.89	0.044
ø63		1.05	1.77	1.55	1.73	1.19	0.052
ø80		2.02	2.98	2.73	2.73	-	0.070
ø100		3.14	4.89	4.49	4.42	-	0.098

(Example) Product weight of SCM-T-LB-40-100

Product weight when S = 0 mm..... 0.62 kg  
 Additional weight when S = 100 mm ..... 0.030x  $\frac{100}{10}$  = 0.30 kg  
 Product weight..... 0.62 kg + 0.30 kg  
 = 0.92 kg

## Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	-	31.4	47.1	62.8	94.2	1.26x10 <sup>2</sup>	1.57x10 <sup>2</sup>	1.88x10 <sup>2</sup>	2.20x10 <sup>2</sup>	2.51x10 <sup>2</sup>	2.83x10 <sup>2</sup>	3.14x10 <sup>2</sup>
	Pull	-	26.4	39.6	52.8	79.2	1.06x10 <sup>2</sup>	1.32x10 <sup>2</sup>	1.58x10 <sup>2</sup>	1.85x10 <sup>2</sup>	2.11x10 <sup>2</sup>	2.38x10 <sup>2</sup>	2.64x10 <sup>2</sup>
ø25	Push	-	49.1	73.6	98.2	1.47x10 <sup>2</sup>	1.96x10 <sup>2</sup>	2.45x10 <sup>2</sup>	2.95x10 <sup>2</sup>	3.44x10 <sup>2</sup>	3.93x10 <sup>2</sup>	4.42x10 <sup>2</sup>	4.91x10 <sup>2</sup>
	Pull	-	41.2	61.9	82.5	1.24x10 <sup>2</sup>	1.65x10 <sup>2</sup>	2.06x10 <sup>2</sup>	2.47x10 <sup>2</sup>	2.89x10 <sup>2</sup>	3.30x10 <sup>2</sup>	3.71x10 <sup>2</sup>	4.12x10 <sup>2</sup>
ø32	Push	-	80.4	1.21x10 <sup>2</sup>	1.61x10 <sup>2</sup>	2.41x10 <sup>2</sup>	3.22x10 <sup>2</sup>	4.02x10 <sup>2</sup>	4.83x10 <sup>2</sup>	5.63x10 <sup>2</sup>	6.43x10 <sup>2</sup>	7.24x10 <sup>2</sup>	8.04x10 <sup>2</sup>
	Pull	-	69.1	1.04x10 <sup>2</sup>	1.38x10 <sup>2</sup>	2.07x10 <sup>2</sup>	2.76x10 <sup>2</sup>	3.46x10 <sup>2</sup>	4.15x10 <sup>2</sup>	4.84x10 <sup>2</sup>	5.53x10 <sup>2</sup>	6.22x10 <sup>2</sup>	6.91x10 <sup>2</sup>
ø40	Push	-	1.26x10 <sup>2</sup>	1.88x10 <sup>2</sup>	2.51x10 <sup>2</sup>	3.77x10 <sup>2</sup>	5.03x10 <sup>2</sup>	6.28x10 <sup>2</sup>	7.54x10 <sup>2</sup>	8.80x10 <sup>2</sup>	1.01x10 <sup>3</sup>	1.13x10 <sup>3</sup>	1.26x10 <sup>3</sup>
	Pull	-	1.06x10 <sup>2</sup>	1.58x10 <sup>2</sup>	2.11x10 <sup>2</sup>	3.17x10 <sup>2</sup>	4.22x10 <sup>2</sup>	5.28x10 <sup>2</sup>	6.33x10 <sup>2</sup>	7.39x10 <sup>2</sup>	8.44x10 <sup>2</sup>	9.50x10 <sup>2</sup>	1.06x10 <sup>3</sup>
ø50	Push	98.0	1.96x10 <sup>2</sup>	2.95x10 <sup>2</sup>	3.93x10 <sup>2</sup>	5.89x10 <sup>2</sup>	7.85x10 <sup>2</sup>	9.82x10 <sup>2</sup>	1.18x10 <sup>3</sup>	1.37x10 <sup>3</sup>	1.57x10 <sup>3</sup>	1.77x10 <sup>3</sup>	1.96x10 <sup>3</sup>
	Pull	82.5	1.65x10 <sup>2</sup>	2.47x10 <sup>2</sup>	3.30x10 <sup>2</sup>	4.95x10 <sup>2</sup>	6.60x10 <sup>2</sup>	8.25x10 <sup>2</sup>	9.90x10 <sup>2</sup>	1.15x10 <sup>3</sup>	1.32x10 <sup>3</sup>	1.48x10 <sup>3</sup>	1.65x10 <sup>3</sup>
ø63	Push	1.56x10 <sup>2</sup>	3.12x10 <sup>2</sup>	4.68x10 <sup>2</sup>	6.23x10 <sup>2</sup>	9.35x10 <sup>2</sup>	1.25x10 <sup>3</sup>	1.56x10 <sup>3</sup>	1.87x10 <sup>3</sup>	2.18x10 <sup>3</sup>	2.49x10 <sup>3</sup>	2.81x10 <sup>3</sup>	3.12x10 <sup>3</sup>
	Pull	2.40x10 <sup>2</sup>	2.80x10 <sup>2</sup>	4.20x10 <sup>2</sup>	5.61x10 <sup>2</sup>	8.41x10 <sup>2</sup>	1.12x10 <sup>3</sup>	1.40x10 <sup>3</sup>	1.68x10 <sup>3</sup>	1.96x10 <sup>3</sup>	2.24x10 <sup>3</sup>	2.52x10 <sup>3</sup>	2.80x10 <sup>3</sup>
ø80	Push	2.51x10 <sup>2</sup>	5.03x10 <sup>2</sup>	7.54x10 <sup>2</sup>	1.01x10 <sup>3</sup>	1.51x10 <sup>3</sup>	2.01x10 <sup>3</sup>	2.51x10 <sup>3</sup>	3.02x10 <sup>3</sup>	3.52x10 <sup>3</sup>	4.02x10 <sup>3</sup>	4.52x10 <sup>3</sup>	5.03x10 <sup>3</sup>
	Pull	2.27x10 <sup>2</sup>	4.54x10 <sup>2</sup>	6.80x10 <sup>2</sup>	9.07x10 <sup>2</sup>	1.36x10 <sup>3</sup>	1.81x10 <sup>3</sup>	2.27x10 <sup>3</sup>	2.72x10 <sup>3</sup>	3.17x10 <sup>3</sup>	3.63x10 <sup>3</sup>	4.08x10 <sup>3</sup>	4.54x10 <sup>3</sup>
ø100	Push	3.92x10 <sup>2</sup>	7.85x10 <sup>2</sup>	1.18x10 <sup>3</sup>	1.57x10 <sup>3</sup>	2.36x10 <sup>3</sup>	3.14x10 <sup>3</sup>	3.93x10 <sup>3</sup>	4.71x10 <sup>3</sup>	5.50x10 <sup>3</sup>	6.28x10 <sup>3</sup>	7.07x10 <sup>3</sup>	7.85x10 <sup>3</sup>
	Pull	3.57x10 <sup>2</sup>	7.15x10 <sup>2</sup>	1.07x10 <sup>3</sup>	1.43x10 <sup>3</sup>	2.14x10 <sup>3</sup>	2.86x10 <sup>3</sup>	3.57x10 <sup>3</sup>	4.29x10 <sup>3</sup>	5.00x10 <sup>3</sup>	5.72x10 <sup>3</sup>	6.43x10 <sup>3</sup>	7.15x10 <sup>3</sup>

## Dimensions

The same dimensions as those of the standard single rod. Refer to pages 238 to 251.

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

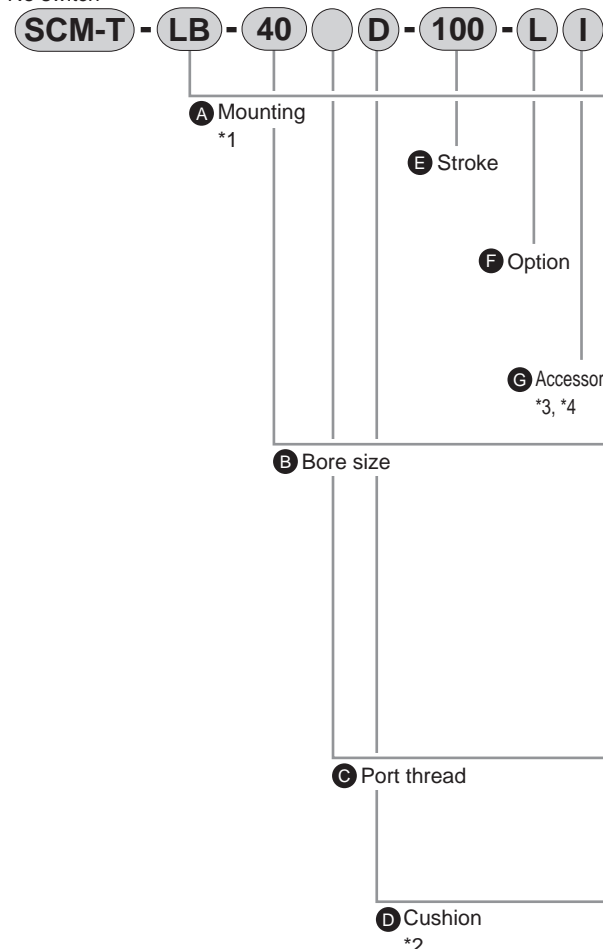


# SCM-T Series

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

## How to order

No switch



## ⚠ Precautions for model No. selection

\*1 : Mounting bracket will be shipped with the product.

\*2 : B/R/H are not available for ø20 to ø40.

Only D is available.

D is not available for ø50 to ø100.

Only B/R/H are available.

\*3 : Refer to Ending Page 85 for custom specifications of rod end form.

\*4 : "I" and "Y" cannot be selected together.

## [Example of model No.]

### SCM-T-LB-40D-100-LI

Model: Round shaped cylinder, double acting/heat resistant

- A** Mounting : Axial foot
- B** Bore size : ø40 mm
- C** Port thread : Rc thread
- D** Cushion : With two-sided rubber cushion
- E** Stroke : 100 mm
- F** Option : Bellows material for max. ambient temperature 250°C
- G** Accessory : Rod eye

## How to order mounting bracket

Bore size (mm)	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
<b>Mounting bracket</b>								
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63	SCM-LB-80	SCM-LB-100
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63	SCM-FA-80	SCM-FA-100
Eye bracket (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40	SCM-CA-50	SCM-CA-63	-	-
Clevis bracket (CB)	-	-	-	-	-	-	SCM-CB-80	SCM-CB-100
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63	-	-

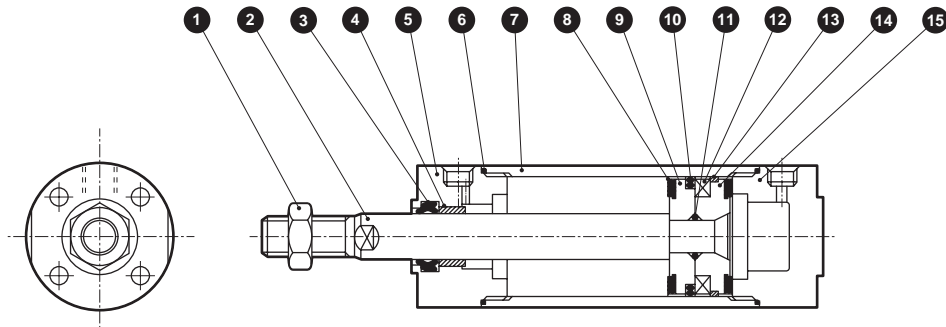
\*1: All mounting brackets are supplied with mounting bolts.

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

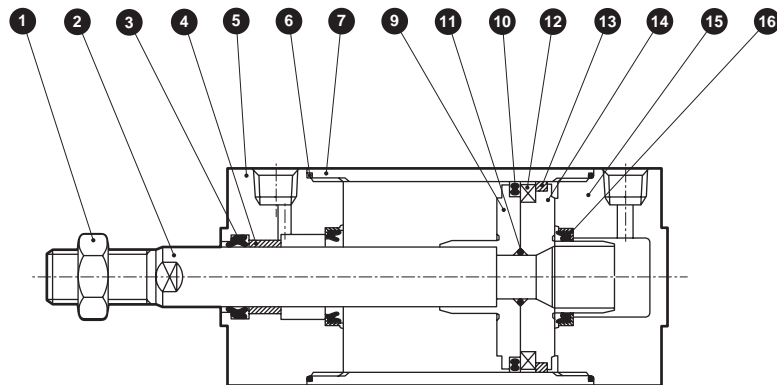
Code	Description								
<b>A Mounting</b>									
Bore size (ø)		20	25	32	40	50	63	80	100
<b>00</b>	Basic	●	●	●	●	●	●	●	●
<b>LB</b>	Axial foot	●	●	●	●	●	●	●	●
<b>FA</b>	Rod side flange	●	●	●	●	●	●	●	●
<b>FB</b>	Head side flange	●	●	●	●	●	●	●	●
<b>CA</b>	Eye bracket	●	●	●	●	●			
<b>CB</b>	Clevis bracket (pin and snap ring included)							●	●
<b>TA</b>	Rod side trunnion	●	●	●	●	●			
<b>TB</b>	Head side trunnion	●	●	●	●	●			
<b>B Bore size (mm)</b>									
<b>20</b>	ø20								
<b>25</b>	ø25								
<b>32</b>	ø32								
<b>40</b>	ø40								
<b>50</b>	ø50								
<b>63</b>	ø63								
<b>80</b>	ø80								
<b>100</b>	ø100								
<b>C Port thread</b>									
<b>Blank</b>	Rc thread								
<b>N</b>	NPT thread (made-to-order product) With air cushion: ø32 and over								
<b>G</b>	G thread (made-to-order product) With air cushion: ø32 and over								
<b>D Cushion</b>									
Bore size (ø)		20	25	32	40	50	63	80	100
<b>B</b>	With two-sided air cushion					●	●	●	●
<b>R</b>	Rod side air cushioned					●	●	●	●
<b>H</b>	Head side air cushioned					●	●	●	●
<b>D</b>	With two-sided rubber cushion	●	●	●	●				
<b>E Stroke (mm)</b>									
Bore size		Stroke		Custom stroke					
ø20 to ø32		10 to 1000		In 1 mm increments					
ø40 to ø100		10 to 1500							
<b>F Option</b>									
				Max. ambient temp.		Instantaneous max. temp.			
<b>L</b>	Bellows material: Silicone rubber glass cloth			250°C		400°C			
<b>M</b>	Piston rod material (stainless steel)								
<b>G Accessory</b>									
Bore size (ø)		20	25	32	40	50	63	80	100
<b>I</b>	Rod eye	●	●	●	●	●	●	●	●
<b>Y</b>	Rod clevis (pin and snap ring included)	●	●	●	●	●	●	●	●
<b>B1</b>	Eye bracket							●	●
<b>B2</b>	Clevis bracket	●	●	●	●	●			

### Internal structure and parts list

●  $\phi 20$  to  $\phi 40$  (with rubber cushion)



●  $\phi 50$  to  $\phi 100$  (with air cushion)



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rod nut	Steel	Nickeling	10	Piston packing	Fluoro rubber	
2	Piston rod	$\phi 20, \phi 25$ : Stainless steel $\phi 32$ to $\phi 100$ : Steel	Industrial chrome plating	11	Piston gasket	Fluoro rubber	
3	Rod packing	Fluoro rubber		12	Piston ring	$\phi 20$ to $\phi 32$ : Aluminum alloy $\phi 40$ to $\phi 100$ : Steel	$\phi 40$ to $\phi 100$ : Zinc chromate
4	Bush	Oil impregnated bearing alloy		13	Wear ring	Special resin	
5	Rod cover	Aluminum alloy	Hard alumite	14	Piston H	$\phi 20$ to $\phi 40$ : Aluminum alloy $\phi 50$ to $\phi 100$ : Aluminum alloy die-casting	
6	Cylinder gasket	Fluoro rubber		15	Head cover	Aluminum alloy	Hard alumite
7	Cylinder tube	Aluminum alloy	Hard alumite	16	Cushion packing	Fluoro rubber/steel	
8	Cushion rubber	Fluoro rubber					
9	Piston R	$\phi 20$ to $\phi 40$ : Aluminum alloy $\phi 50$ to $\phi 100$ : Aluminum alloy die-casting					

### Repair parts list

Bore size (mm)	Kit No.	Repair parts No.
$\phi 20$	SCM-T-20K	
$\phi 25$	SCM-T-25K	
$\phi 32$	SCM-T-32K	3 6 8 10 13
$\phi 40$	SCM-T-40K	
$\phi 50$	SCM-T-50K	
$\phi 63$	SCM-T-63K	3 6
$\phi 80$	SCM-T-80K	10 13 16
$\phi 100$	SCM-T-100K	

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

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

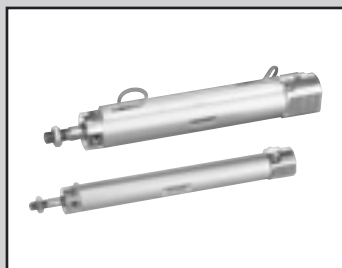
ShkAbs

FJ

FK

Spd  
Contr

Ending

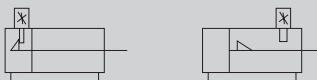


Round shaped cylinder Double acting/position locking

# SCM-Q Series

● Bore size:  $\varnothing 20/\varnothing 25/\varnothing 32/\varnothing 40$   
 $\varnothing 50/\varnothing 63/\varnothing 80/\varnothing 100$

JIS symbol



## Specifications

Item	SCM-Q									
Bore size	mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$	
Actuation	Double acting/position locking									
Working fluid	Compressed air									
Max. working pressure	MPa	1.0 ( $\approx 150$ psi, 10 bar)								
Min. working pressure	MPa	0.15 ( $\approx 22$ psi, 1.5 bar)			0.1 ( $\approx 15$ psi, 1 bar)					
Proof pressure	MPa	1.6 ( $\approx 230$ psi, 16 bar)								
Ambient temperature	$^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ ) (no freezing)								
Port size		M5		Rc1/8		Rc1/4		Rc3/8		Rc1/2
Stroke tolerance	mm	$+1.4$ (to 1000) 0		$+1.4$ (to 1500) 0		$+1.4$ (to 1000), 0		$+1.8$ (to 1500) 0		
Working piston speed	mm/s	30 to 500 (Operate within the allowable absorbed energy.)								
Cushion	Air cushion									
Effective air cushion length	mm	8.1	8.1	8.6	8.6	13.4	13.4	15.4	15.4	
Lubrication	Not required (use turbine oil ISO VG32 if necessary for lubrication)									
Position locking mechanism	Head side or rod side									
Holding force	N	Max. thrust x 0.7								
Allowable absorbed energy J	Cushioned	0.8	1.2	2.5	3.7	8.0	14.4	25.4	45.6	
	Without cushion	-	-	-	-	0.057	0.057	0.112	0.153	

\*1: The values of allowable absorbed energy for "No cushion" are the allowable absorbed energy on the non-specified side when an air cushion is selected for the other side ("R" → Head side, "H" → Rod side).

\*2: Without any cushion, this product cannot absorb large energy generated by an external load.

Provide a shock absorber on the outside.

## Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\varnothing 20$	25/50/75/ 100/125/150/ 200/250/300	1000	10
$\varnothing 25$			
$\varnothing 32$			
$\varnothing 40$		1500	
$\varnothing 50$			
$\varnothing 63$			
$\varnothing 80$			
$\varnothing 100$			

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

## Number of installed switches and min. stroke (mm)

● Switch mounting method: Rail

Switch quantity	1				2				3				4				5			
	Proximity				Proximity				Proximity				Proximity				Proximity			
	T2, T3	T2W, T3W	T*Y*	Reed	T2, T3	T2W, T3W	T*Y*	Reed	T2, T3	T2W, T3W	T*Y*	Reed	T2, T3	T2W, T3W	T*Y*	Reed	T2, T3	T2W, T3W	T*Y*	Reed
$\varnothing 20$	10				25				50	70	70	55	55	70	70	55	75	110	110	90
$\varnothing 25$	10				25				50	70	70	55	55	70	70	55	75	110	110	90
$\varnothing 32$	10				25				50	70	70	55	55	70	70	55	75	110	110	90
$\varnothing 40$	10				25				50	70	70	55	55	70	70	55	75	110	110	90
$\varnothing 50$	10				25				50	65	65	55	55	65	65	55	75	110	110	90
$\varnothing 63$	10				25				50	65	65	55	55	65	65	55	75	110	110	90
$\varnothing 80$	10				25				50	65	65	55	55	65	65	55	75	110	110	90
$\varnothing 100$	10				25				50	65	65	55	55	65	65	55	75	110	110	90

● Switch mounting: Band

Switch quantity	1				2				3				4				5			
	Proximity				Proximity				Proximity				Proximity				Proximity			
	T2, T3	T2W, T3W	T*Y*	Reed	T2, T3	T2W, T3W	T*Y*	Reed	T2, T3	T2W, T3W	T*Y*	Reed	T2, T3	T2W, T3W	T*Y*	Reed	T2, T3	T2W, T3W	T*Y*	Reed
$\varnothing 20$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\varnothing 25$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\varnothing 32$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\varnothing 40$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\varnothing 50$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\varnothing 63$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\varnothing 83$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\varnothing 100$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95

\*1: For types with one switch, when the stroke is between 10 and 24 mm, the trunnion mounting is not available since the switch rail mounting position is different. Refer to page 345 for mounting position.

### Switch specifications

● 1-color/2-color LED

Item	2-wire proximity		2-wire proximity				3-wire proximity				2-wire reed			2-wire proximity							
	T1H/T1V	T2H/T2V	T2YH/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V	T2YD (*4) T2YDT								
Applications	For programming controller, relay, compact solenoid valve		Dedicated for programmable controller				For programmable controller, relay				For programmable controller, relay	For programmable controller, relay (no lamp), serial	For programmable controller, relay	For programmable controller							
Output method	-					NPN output	PNP output	NPN output	NPN output	-											
Pwr. supp. V.	-					10 to 28 VDC								-							
Load voltage	85 to 265 VAC		10 to 30 VDC		24 VDC ±10%	30 VDC or less								12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA		5 to 20 mA (*3)			100 mA or less		50 mA or less			5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA			
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	LED (Lit when ON)		No indicator lamp	LED (Lit when ON)		Red/green LED (Lit when ON)						
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC		1 mA or less			10 µA or less			0 mA					1 mA or less							
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80			1 m:33 3 m:87 5 m:142		1 m:61 3 m:166 5 m:272						

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

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

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

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

### Cylinder weight

● With rod side position locking (R)

(Unit: kg)

Item/mounting Bore size (mm)	Product weight when stroke (S) = 0 mm					Switch weight (per 1 pc)	Additional weight per S = 10 mm	Additional weight per S = 10 mm (with rail)	Band weight per switch
	Basic	Axial foot	Flange	Clevis	Trunnion				
ø20	0.15	0.26	0.18	0.20	0.16	Refer to the weight in the switch specifications.	0.010	0.012	0.007
ø25	0.24	0.37	0.28	0.32	0.26		0.014	0.016	0.007
ø32	0.32	0.48	0.38	0.47	0.35		0.018	0.020	0.007
ø40	0.64	0.86	0.72	0.87	0.69		0.030	0.032	0.007
ø50	1.09	1.57	1.43	1.49	1.23		0.044	0.046	0.008
ø63	1.49	2.21	1.99	2.17	1.63		0.052	0.054	0.009
ø80	2.67	3.63	3.38	3.38	-		0.070	0.072	0.010
ø100	4.15	5.90	5.50	5.43	-		0.098	0.100	0.010

● With head side position locking (H)

(Unit: kg)

Item/mounting Bore size (mm)	Product weight when stroke (S) = 0 mm					Switch weight (per 1 pc)	Additional weight per S = 10 mm	Additional weight per S = 10 mm (with rail)	Band weight per switch
	Basic	Axial foot	Flange	Clevis	Trunnion				
ø20	0.15	0.26	0.18	0.20	0.16	Refer to the weight in the switch specifications.	0.010	0.012	0.007
ø25	0.24	0.37	0.28	0.32	0.26		0.014	0.016	0.007
ø32	0.35	0.51	0.41	0.50	0.38		0.018	0.020	0.007
ø40	0.69	0.91	0.77	0.92	0.74		0.030	0.032	0.007
ø50	1.19	1.67	1.53	1.59	1.33		0.044	0.046	0.008
ø63	1.60	2.32	2.10	2.28	1.74		0.052	0.054	0.009
ø80	2.86	3.82	3.57	3.57	-		0.070	0.072	0.010
ø100	4.30	6.05	5.65	5.58	-		0.098	0.100	0.010

(Example) Product weight of SCM-Q-LB-40B-100-R-T2H-D	Product weight when S = 0 mm.....	0.86 kg
	Additional weight when S = 100 mm .....	0.032x $\frac{100}{10}$ = 0.32 kg
	Weight of 2 switches.....	0.036 kg
	Product weight.....	0.86 kg + 0.32 kg + 0.036 kg = 1.216 kg

### Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	-	47.1	62.8	94.2	1.26x10 <sup>2</sup>	1.57x10 <sup>2</sup>	1.88x10 <sup>2</sup>	2.20x10 <sup>2</sup>	2.51x10 <sup>2</sup>	2.83x10 <sup>2</sup>	3.14x10 <sup>2</sup>
	Pull	-	39.6	52.8	79.2	1.06x10 <sup>2</sup>	1.32x10 <sup>2</sup>	1.58x10 <sup>2</sup>	1.85x10 <sup>2</sup>	2.11x10 <sup>2</sup>	2.38x10 <sup>2</sup>	2.64x10 <sup>2</sup>
ø25	Push	-	73.6	98.2	1.47x10 <sup>2</sup>	1.96x10 <sup>2</sup>	2.45x10 <sup>2</sup>	2.95x10 <sup>2</sup>	3.44x10 <sup>2</sup>	3.93x10 <sup>2</sup>	4.42x10 <sup>2</sup>	4.91x10 <sup>2</sup>
	Pull	-	61.9	82.5	1.24x10 <sup>2</sup>	1.65x10 <sup>2</sup>	2.06x10 <sup>2</sup>	2.47x10 <sup>2</sup>	2.89x10 <sup>2</sup>	3.30x10 <sup>2</sup>	3.71x10 <sup>2</sup>	4.12x10 <sup>2</sup>
ø32	Push	-	1.21x10 <sup>2</sup>	1.61x10 <sup>2</sup>	2.41x10 <sup>2</sup>	3.22x10 <sup>2</sup>	4.02x10 <sup>2</sup>	4.83x10 <sup>2</sup>	5.63x10 <sup>2</sup>	6.43x10 <sup>2</sup>	7.24x10 <sup>2</sup>	8.04x10 <sup>2</sup>
	Pull	-	1.04x10 <sup>2</sup>	1.38x10 <sup>2</sup>	2.07x10 <sup>2</sup>	2.76x10 <sup>2</sup>	3.46x10 <sup>2</sup>	4.15x10 <sup>2</sup>	4.84x10 <sup>2</sup>	5.53x10 <sup>2</sup>	6.22x10 <sup>2</sup>	6.91x10 <sup>2</sup>
ø40	Push	-	1.88x10 <sup>2</sup>	2.51x10 <sup>2</sup>	3.77x10 <sup>2</sup>	5.03x10 <sup>2</sup>	6.28x10 <sup>2</sup>	7.54x10 <sup>2</sup>	8.80x10 <sup>2</sup>	1.01x10 <sup>3</sup>	1.13x10 <sup>3</sup>	1.26x10 <sup>3</sup>
	Pull	-	1.58x10 <sup>2</sup>	2.11x10 <sup>2</sup>	3.17x10 <sup>2</sup>	4.22x10 <sup>2</sup>	5.28x10 <sup>2</sup>	6.33x10 <sup>2</sup>	7.39x10 <sup>2</sup>	8.44x10 <sup>2</sup>	9.50x10 <sup>2</sup>	1.06x10 <sup>3</sup>
ø50	Push	1.96x10 <sup>2</sup>	2.95x10 <sup>2</sup>	3.93x10 <sup>2</sup>	5.89x10 <sup>2</sup>	7.85x10 <sup>2</sup>	9.82x10 <sup>2</sup>	1.18x10 <sup>3</sup>	1.37x10 <sup>3</sup>	1.57x10 <sup>3</sup>	1.77x10 <sup>3</sup>	1.96x10 <sup>3</sup>
	Pull	1.65x10 <sup>2</sup>	2.47x10 <sup>2</sup>	3.30x10 <sup>2</sup>	4.95x10 <sup>2</sup>	6.60x10 <sup>2</sup>	8.25x10 <sup>2</sup>	9.90x10 <sup>2</sup>	1.15x10 <sup>3</sup>	1.32x10 <sup>3</sup>	1.48x10 <sup>3</sup>	1.65x10 <sup>3</sup>
ø63	Push	3.12x10 <sup>2</sup>	4.68x10 <sup>2</sup>	6.23x10 <sup>2</sup>	9.35x10 <sup>2</sup>	1.25x10 <sup>3</sup>	1.56x10 <sup>3</sup>	1.87x10 <sup>3</sup>	2.18x10 <sup>3</sup>	2.49x10 <sup>3</sup>	2.81x10 <sup>3</sup>	3.12x10 <sup>3</sup>
	Pull	2.80x10 <sup>2</sup>	4.20x10 <sup>2</sup>	5.61x10 <sup>2</sup>	8.41x10 <sup>2</sup>	1.12x10 <sup>3</sup>	1.40x10 <sup>3</sup>	1.68x10 <sup>3</sup>	1.96x10 <sup>3</sup>	2.24x10 <sup>3</sup>	2.52x10 <sup>3</sup>	2.80x10 <sup>3</sup>
ø80	Push	5.03x10 <sup>2</sup>	7.54x10 <sup>2</sup>	1.01x10 <sup>3</sup>	1.51x10 <sup>3</sup>	2.01x10 <sup>3</sup>	2.51x10 <sup>3</sup>	3.02x10 <sup>3</sup>	3.52x10 <sup>3</sup>	4.02x10 <sup>3</sup>	4.52x10 <sup>3</sup>	5.03x10 <sup>3</sup>
	Pull	4.54x10 <sup>2</sup>	6.80x10 <sup>2</sup>	9.07x10 <sup>2</sup>	1.36x10 <sup>3</sup>	1.81x10 <sup>3</sup>	2.27x10 <sup>3</sup>	2.72x10 <sup>3</sup>	3.17x10 <sup>3</sup>	3.63x10 <sup>3</sup>	4.08x10 <sup>3</sup>	4.54x10 <sup>3</sup>
ø100	Push	7.85x10 <sup>2</sup>	1.18x10 <sup>3</sup>	1.57x10 <sup>3</sup>	2.36x10 <sup>3</sup>	3.14x10 <sup>3</sup>	3.93x10 <sup>3</sup>	4.71x10 <sup>3</sup>	5.50x10 <sup>3</sup>	6.28x10 <sup>3</sup>	7.07x10 <sup>3</sup>	7.85x10 <sup>3</sup>
	Pull	7.15x10 <sup>2</sup>	1.07x10 <sup>3</sup>	1.43x10 <sup>3</sup>	2.14x10 <sup>3</sup>	2.86x10 <sup>3</sup>	3.57x10 <sup>3</sup>	4.29x10 <sup>3</sup>	5.00x10 <sup>3</sup>	5.72x10 <sup>3</sup>	6.43x10 <sup>3</sup>	7.15x10 <sup>3</sup>

▲ Be sure to read "Safety precautions" (3. Position locking **SCM-Q**) (pages 347, 349 and 350) before use.

# SCM-Q Series

## How to order

No switch (built-in magnet for switch)

SCM-Q - LB - 40 - B - 100 - R - Q - I

With switch (built-in magnet for switch)

SCM-Q - LB - 40 - B - 100 - R - T2H - D - Q - I

A Mounting  
\*1, \*2

B Bore size

C Port thread

D Cushion

E Stroke

F Position locking mechanism

G Switch model No.

H Switch quantity

I Switch  
Installation method

J Option  
\*7

K Accessory  
\*8

### ⚠ Precautions for model No. selection

\*1 : Mounting bracket will be shipped with the product.

\*2 : When the mounting is LB, the cylinder cannot be mounted on the frame if a bracket is already attached to the cylinder. Refer to Safety precautions for details.

\*3: Refer to page 282 for the number of installed switches and the min. stroke.

\*4: Switches other than G Switch model No. are also available. (Made to order)  
Refer to Ending Page 1 for details.

\*5: T8H/V switches cannot be mounted when the bore size is from ø20 to ø40 and the switch mounting style is the rail.

\*6: Refer to Ending Page 85 for custom specifications of rod end form.

\*7: "Q" (switch rail enclosed at shipment) is not available for the "Z" switch mounting.

\*8: "I" and "Y" cannot be selected together.

\*9: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

### [Example of model No.]

## SCM-Q-LB-40B-100-R-T2H-D-QI

Model: Round shaped cylinder, position locking

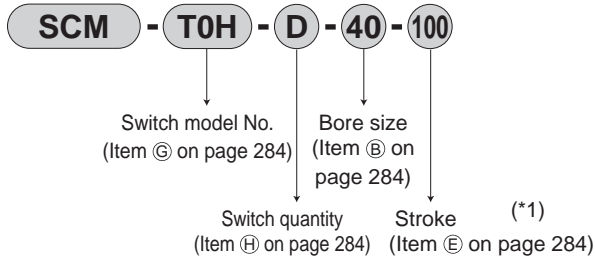
- A Mounting : Axial foot
- B Bore size : ø40 mm
- C Port thread : Rc thread
- D Cushion : With two-sided air cushion
- E Stroke : 100 mm
- F Position locking mechanism : With rod side position locking
- G Switch model No. : Proximity T2H switch, lead wire 1 m
- H Switch quantity : 2
- I Switch mounting : Rail
- J Option : Switch rail included at shipment
- K Accessory : Rod eye

Code	Description								
<b>A Mounting</b>									
	Bore size (ø)	20	25	32	40	50	63	80	100
00	Basic	●	●	●	●	●	●	●	●
LB	Axial foot	●	●	●	●	●	●	●	●
FA	Rod side flange	●	●	●	●	●	●	●	●
FB	Head side flange	●	●	●	●	●	●	●	●
CA	Eye bracket	●	●	●	●	●	●	●	●
CB	Clevis bracket (pin and snap ring incl.)							●	●
TA	Rod side trunnion (Rod side position locking N/A)	●	●	●	●	●	●		
TB	Head side trunnion (head side position locking N/A)	●	●	●	●	●	●		
<b>B Bore size (mm)</b>									
20	ø20								
25	ø25								
32	ø32								
40	ø40								
50	ø50								
63	ø63								
80	ø80								
100	ø100								
<b>C Port thread</b>									
Blank	Rc thread								
N	NPT thread (made-to-order product) ø32 and over								
G	G thread (made-to-order product) ø32 and over								
<b>D Cushion</b>									
B	With two-sided air cushion								
R	Rod side air cushioned								
H	Head side air cushioned								
<b>E Stroke (mm)</b>									
	Bore size	Stroke *2	Custom stroke						
	ø20 to ø32	10 to 1000	In 1 mm increments						
	ø40 to ø100	10 to 1500							
<b>F Position locking mechanism</b>									
R	With rod side position locking								
H	With head side position locking								
<b>G Switch model No.</b>									
	Axial lead wire	Radial lead wire	Contact	Voltage	Indicator	Lead wire			
				AC/DC					
	T0H*	T0V*	Reed	● ●	1-color LED	2-wire			
	T5H*	T5V*		● ●	No indicator lamp				
	T8H*	T8V*		● ●	1-color LED				
	T1H*	T1V*	Proximity	●	1-color LED	2-wire			
	T2H*	T2V*		●					
	T3H*	T3V*		●	1-color LED	3-wire			
	T3PH*	T3PV*		●					
	T2WH*	T2WV*		●	2-color LED	2-wire			
	T2YH*	T2YV*		●					
	T3WH*	T3WV*		●					
	T3YH*	T3YV*		●					
	T2YD*	-		●	2-color LED	2-wire			
	T2YDT*	-		●					
	T2JH*	T2JV*	●	1-color LED off-delay	2-wire				
<b>* Lead wire length</b>									
Blank	1 m (standard)								
3	3 m (option)								
5	5 m (option)								
<b>H Switch quantity</b>									
R	1 on rod side								
H	1 on head side								
D	2								
T	3								
4	4 (when there are more than 4 switches, indicate switch quantity.)								
<b>I Switch mounting</b>									
Blank	Rail method								
Z	Band method								
<b>J Option</b>									
Q	Switch rail included at shipment								
P6	Copper and PTFE free (made-to-order product)								
<b>K Accessory</b>									
	Bore size (ø)	20	25	32	40	50	63	80	100
I	Rod eye	●	●	●	●	●	●	●	●
Y	Rod clevis (pin and snap ring included)	●	●	●	●	●	●	●	●
B1	Eye bracket							●	●
B2	Clevis bracket	●	●	●	●	●	●		

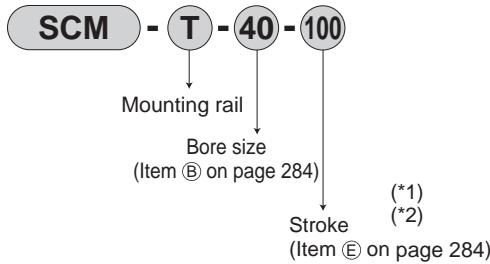
### How to order switch

#### [Switch mounting: Rail]

- Switch body + mounting rail set



- Mounting rail only

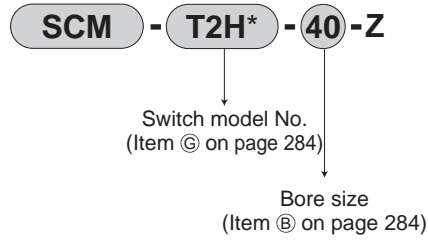


\*1: Indicate X if the stroke exceeds 300 mm.  
If exceeding 300 mm, a short rail (with 100 mm switch adjustment length) will be included per switch.

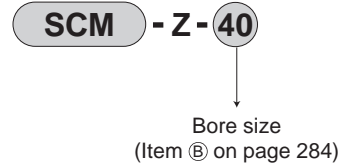
\*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

#### [Switch mounting: Band]

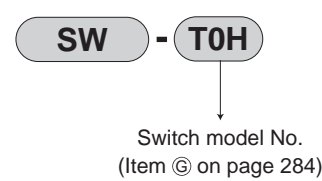
- Switch body + mounting bracket set + band



- Mounting bracket set + band



#### [Switch body only]



### How to order mounting bracket

Bore size (mm)	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63	SCM-LB-80	SCM-LB-100
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63	SCM-FA-80	SCM-FA-100
Eye bracket (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40	SCM-CA-50	SCM-CA-63	SCM-CA-80	SCM-CA-100
Clevis bracket (CB)	SCM-CB-20	SCM-CB-25	SCM-CB-32	SCM-CB-40	SCM-CB-50	SCM-CB-63	SCM-CB-80	SCM-CB-100
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63	SCM-TA-80	SCM-TA-100

\*1: All mounting brackets are supplied with mounting bolts.

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

#### Clean-room specifications (Catalog No. CB-033SA)

- Anti-dust generation structure for use in cleanrooms

SCM-Q.....- P7\*

SCM-Q.....- P5\*

#### Specifications for rechargeable battery (Catalog No. CC-1226A)

- Design compatible with rechargeable battery manufacturing process

SCM-Q-...- P4\*

\* Contact CKD for details.

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

Ending



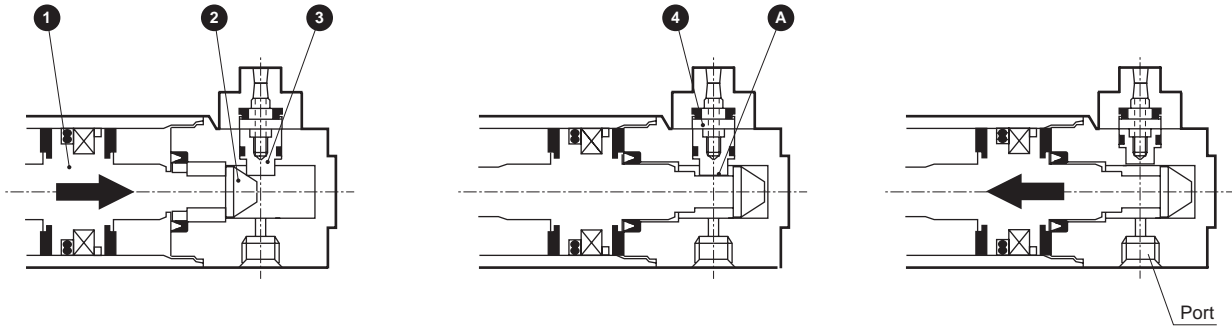
## Operational explanation

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

● When locked  
When the piston ① of the cylinder moves toward the stroke end, the stopper piston ③ is pushed up along the slope of the sleeve ②.

When the cylinder piston comes to the stroke end and the sleeve groove ④ reaches the stopper piston position, the stopper piston is pushed down by the spring ④ and fits into the groove, completing the lock action.

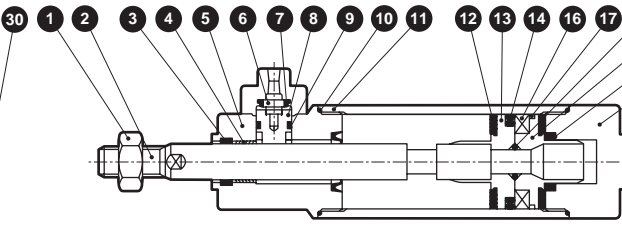
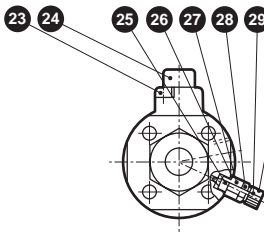
● When unlocked  
When pressure is supplied to the port, the stopper piston pushes up the spring and slips out of the sleeve groove, releasing the lock.



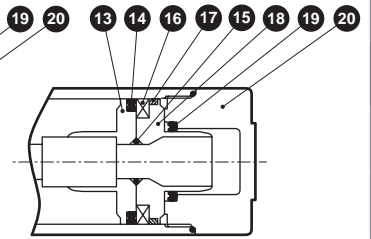
### Internal structure and parts list

#### ● SCM-Q (rod side position locking)

ø20 to ø40

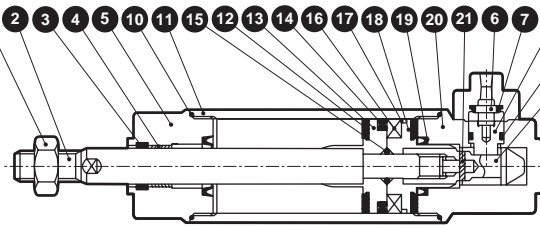
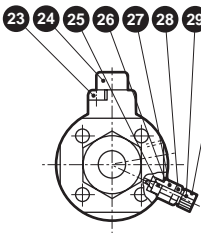


ø50 to ø100

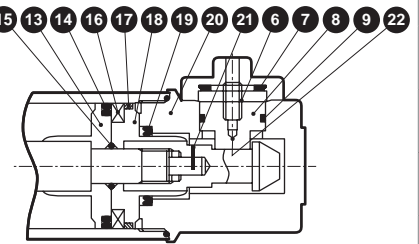


#### ● SCM-Q (head side position locking)

ø20 to ø40



ø50 to ø100



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rod nut	Steel	Nickeling	16	Magnet	Plastic	
2	Piston rod	ø20, ø25: Stainless steel ø32 to ø100: Steel	Industrial chrome plating	17	Wear ring	Polyacetal resin	
3	Rod packing	Nitrile rubber		18	Piston H	ø20 to ø40: Aluminum alloy ø50 to ø100: Aluminum alloy die-casting	
4	Bush	Oil impregnated bearing alloy		19	Cushion packing	Nitrile rubber/steel	
5	Rod cover	Aluminum alloy	Hard alumite	20	Head cover	Aluminum alloy	Hard alumite
6	Spring	Steel		21	Spring pin	Steel	
7	Cushion rubber (B)	Urethane rubber		22	Sleeve	Steel	Nitriding
8	Stopper piston	Steel	Nitriding	23	Hex socket screw	Alloy steel	Black finish
9	Piston packing (B)	Nitrile rubber		24	Stopper cover	Aluminum alloy	Chromate
10	Cylinder gasket	Nitrile rubber		25	Needle gasket	Nitrile rubber	
11	Cylinder tube	Aluminum alloy	Hard alumite	26	Holder gasket	Nitrile rubber	
12	Cushion rubber (A)	Urethane rubber		27	Needle holder	Aluminum alloy	
13	Piston R	ø20 to ø40: Aluminum alloy ø50 to ø100: Aluminum alloy die-casting		28	Lock nut	Steel	Nickeling
14	Piston packing (A)	Nitrile rubber		29	Needle	Stainless steel	
15	Piston gasket	Nitrile rubber		30	Knob	Aluminum alloy	Chromate

### Repair parts list

Bore size (mm)	Kit No.	Repair parts No.
ø20	SCM-Q-20BK	<div style="display: flex; flex-wrap: wrap; gap: 5px;"> <span>3</span> <span>7</span> <span>9</span> <span>10</span> <span>12</span>  <span>14</span> <span>17</span> <span>19</span> <span>25</span> <span>26</span> </div>
ø25	SCM-Q-25BK	
ø32	SCM-Q-32BK	
ø40	SCM-Q-40BK	
ø50	SCM-Q-50BK	
ø63	SCM-Q-63BK	
ø80	SCM-Q-80BK	
ø100	SCM-Q-100BK	

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

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

Ending

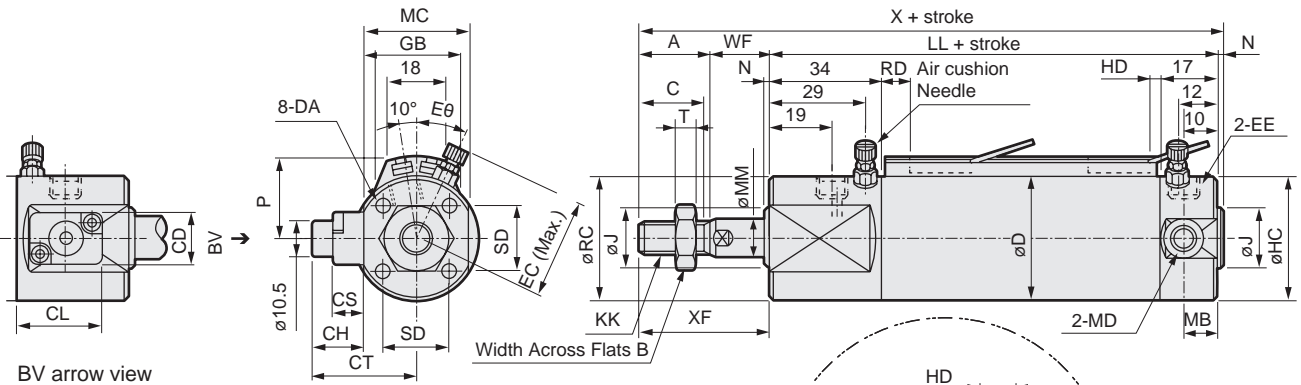


## Dimensions (ø20 to ø32)

● Basic (00)  
(With rod side position locking)

• Switch mounting: Rail

MN (Width Across Flats)



BV arrow view

Width Across Flats B

X + stroke

LL + stroke

RD Air cushion Needle

2-EE

2-MD

MB

HD

17

12

10

øJ

øH

øD

øRC

øJ

KK

XF

34

29

19

N

A

WF

C

T

18

10°

Eθ

8-DA

MC

GB

18

SD

EC (Max.)

CS

CH

CT

ø10.5

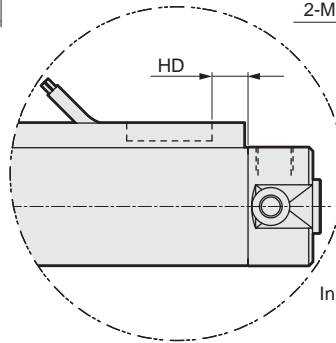
P

CL

CD

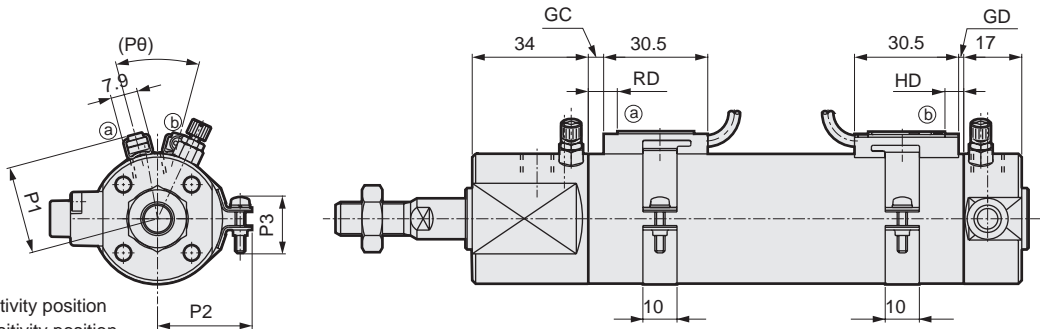
BV

CL



In the case of T2W, T3W

• Switch mounting: Band



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

\*1: When the mounting type is LB, the cylinder cannot be mounted on the frame if a bracket is already attached to the cylinder. Refer to Safety precautions for details.  
\*2: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

Code	Basic (00) Basic dimensions																					
	A	B	C	CD	CH	CL	CS	CT	D	DA	EC	EE	Eθ	HC	J	KK	LL	MB	MC	MD	MM	MO
ø20	18	13	16	16	15.5	22	9.5	28	26	M4 depth 6.5	27	M5	30°	26	12	M8	84	11	25	M5	8	4
ø25	22	17	20	16	15.5	22	9.5	31	31	M5 depth 6.5	29.5	M5	30°	31	14	M10 x 1.25	84	11	31	M6	10	5
ø32	22	17	20	16	15.5	22	9.5	31.5	38	M5 depth 7.5	32.8	Rc1/8	25°	38	18	M10 x 1.25	86	10	32	M8	12	5.5

Code	Switch mounting: Rail														Switch mounting: Band							
	MN	N	RC	SD	T	WF	X	XF	P	GB	HD			RD			GC			GD		
											T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W
ø20	6	2	30	14	5	17	121	35	19.5	23	3.0	6.5	8.5	7.5	7.5	9.5	3.5	3.5	5.5	2.5	2.5	4.5
ø25	8	2	35	16.5	6	18	126	40	22	24.4	2.0	5.5	7.5	8.5	8.5	10.5	4.5	4.5	6.5	1.5	1.5	3.5
ø32	10	2	38	20	6	18	128	40	25.5	25	3.0	6.5	8.5	9.5	9.5	11.5	5.5	5.5	7.5	2.5	2.5	4.5

Code	Switch mounting: Band									
	HD			RD			P1	P2	P3	Pθ
	T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W				
ø20	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38°)
ø25	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34°)
ø32	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30°)

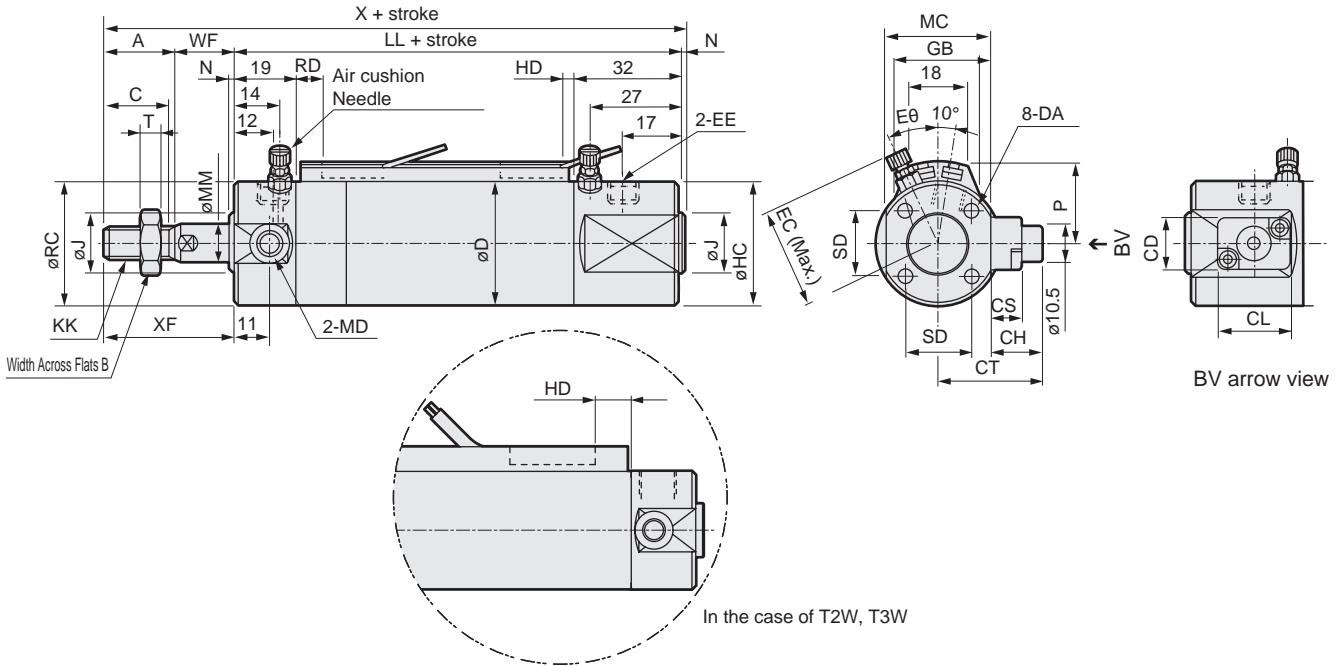
\* Installation dimensions of the mounting are the same as those of SCM (double acting). Refer to pages 240 to 251.  
\* For the dimensions of the accessories, refer to pages 252 and 253.

### Dimensions (ø20 to ø32)

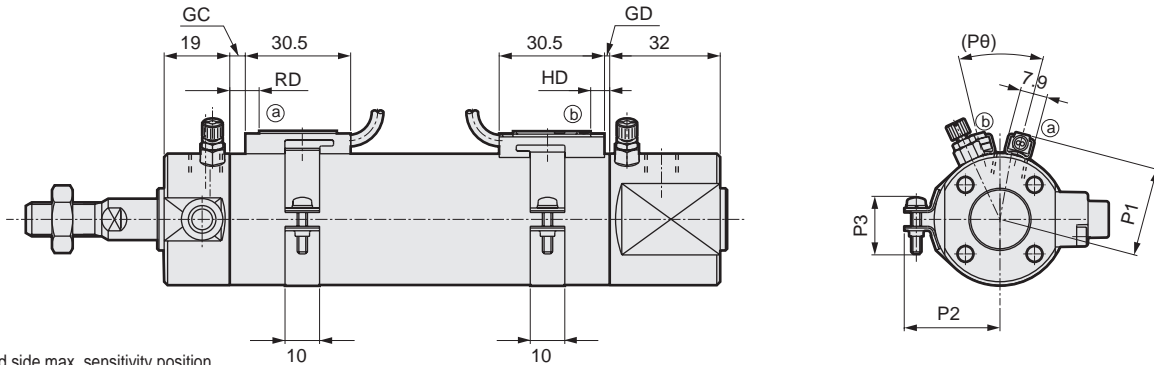


- Basic (00)  
(With head side position locking)

• Switch mounting: Rail



• Switch mounting: Band



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

- \*1: When the mounting type is LB, the cylinder cannot be mounted on the frame if a bracket is already attached to the cylinder. Refer to Safety precautions for details.
- \*2: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

Code	Basic (00) Basic dimensions																					
Bore size (mm)	A	B	C	CD	CH	CL	CS	CT	D	DA	EC	EE	Eθ	HC	J	KK	LL	MC	MD	MM	MO	MN
ø20	18	13	16	16	15.5	22	9.5	28	26	M4 depth 6.5	27	M5	30°	30	12	M8	84	25	M5	8	4	6
ø25	22	17	20	16	15.5	22	9.5	31	31	M5 depth 6.5	29.5	M5	30°	35	14	M10 x 1.25	84	31	M6	10	5	8
ø32	22	17	20	16	15.5	22	9.5	31.5	38	M5 depth 7.5	32.8	Rc1/8	25°	38	18	M10 x 1.25	86	32	M8	12	5.5	10

Code	Switch mounting: Rail														Switch mounting: Band							
	Bore size (mm)	N	RC	SD	T	WF	X	XF	P	GB	HD			RD			GC			GD		
											T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W
ø20	2	26	14	5	17	121	35	19.5	23	3.0	6.5	8.5	7.5	7.5	9.5	3.5	3.5	5.5	2.5	2.5	4.5	
ø25	2	31	16.5	6	18	126	40	22	24.4	2.0	5.5	7.5	8.5	8.5	10.5	4.5	4.5	6.5	1.5	1.5	3.5	
ø32	2	38	20	6	18	128	40	25.5	25	3.0	6.5	8.5	9.5	9.5	11.5	5.5	5.5	7.5	2.5	2.5	4.5	

Code	Switch mounting: Band										
	Bore size (mm)	HD			RD			P1	P2	P3	Pθ
		T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W				
ø20	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38°)	
ø25	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34°)	
ø32	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30°)	

- \* Installation dimensions of the mounting are the same as those of SCM (double acting). Refer to pages 240 to 251.
- \* For the dimensions of the accessories, refer to pages 252 and 253.

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

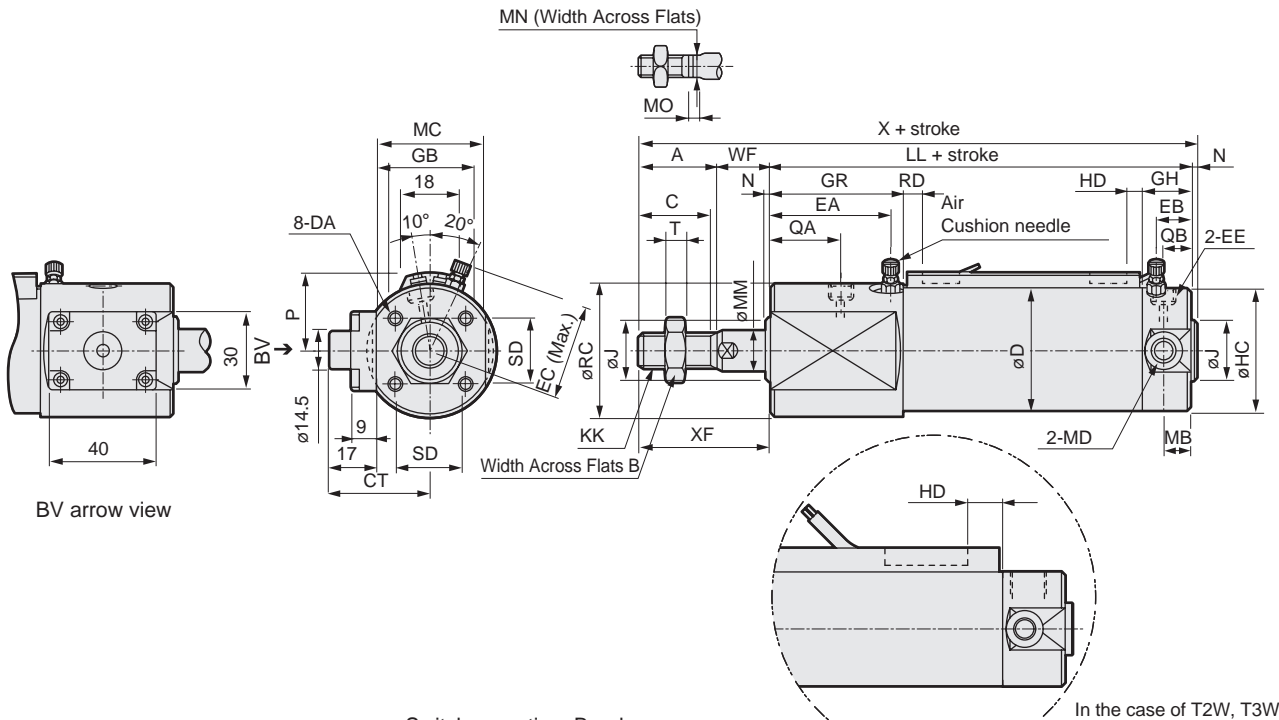


## Dimensions (ø40 to ø100)

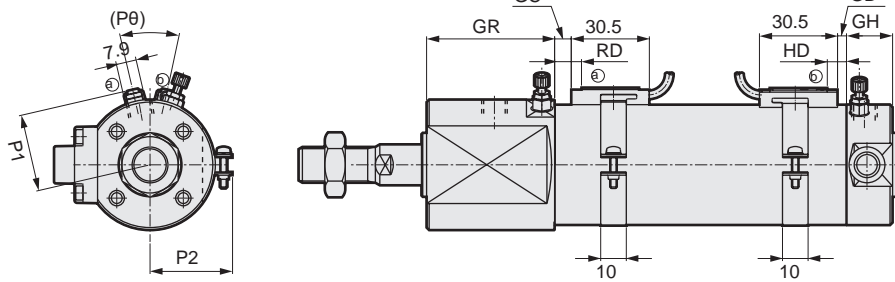
● Basic (00)

(With rod side position locking)

• Switch mounting: Rail



• Switch mounting: Band



\*1: When the mounting type is LB, the cylinder cannot be mounted on the frame if a bracket is already attached to the cylinder. Refer to Safety precautions for details.

\*2: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

Code	Basic (00) Basic dimensions																				
	A	B	C	CT	D	DA	EA	EB	EC	EE	GH	GR	HC	J	KK	LL	MA	MB	MC	MD	
Bore size (mm)	ø40	30	22	27	37.5	47	M6 depth 12	45	14	36.6	Rc1/8	19	50	47	25	M 14 x 1.5	108	12	10	41	M10
	ø50	35	27	32	43.5	58	M8 depth 16	48.5	15.5	43	Rc1/4	22	55	58	30	M 18 x 1.5	120	13	12	53	M12
Bore size (mm)	ø63	35	27	32	49.5	72	M10 depth 16	48.5	15.5	50	Rc1/4	22	55	72	32	M 18 x 1.5	120	13	12	65	M14
	ø80	40	32	37	57.5	89	M10 depth 22	50	20	58.5	Rc3/8	28	58	89	40	M 22 x 1.5	138	-	-	81	-
Bore size (mm)	ø100	40	41	37	68.5	110	M12 depth 22	50	20	69	Rc1/2	28	58	110	50	M 26 x 1.5	138	-	-	103	-

Code	Switch mounting: Rail																			
	MM	MO	MN	N	QA	QB	RC	SD	T	WF	X	XF	P	GB	HD					
Bore size (mm)													T0/T5			T2/T2R	T3/T3P	T2W	T3W	
Bore size (mm)	ø40	16	6	14	2	26.5	12	51	26	8	20	160	50	30	25.7	5.0	8.5	8.5		
	ø50	20	8	17	2	30	12	61	32	11	23	180	58	35.5	26.2	7.5	11.0	7.5		
Bore size (mm)	ø63	20	8	17	2	30	12	72	38	11	23	180	58	42.5	26.5	7.5	11.0	8.5		
	ø80	25	11	22	3	31.5	15	89	50	13	31	212	71	51	26.7	9.5	13.0	10.5		
Bore size (mm)	ø100	30	13	27	3	31.5	15	110	60	16	31	212	71	61.5	26.7	10.0	13.5	13.0		

Code	Switch mounting: Band																				
	RD			GC			GD			HD			RD			P1	P2	P3	P0		
Bore size (mm)	T0/T5	T2/T2R	T3/T3P	T2W	T3W	T0/T5	T2,T3	T2W	T3W	T0/T5	T2,T3	T2W	T3W	T0/T5	T2,T3	T2W	T3W				
ø40	11.5	11.5	9.5	7.5	7.5	5.5	4.5	4.5	4.5	8.5	8.5	8.5	11.5	11.5	9.5	30.2	32.1	14	(26)		
ø50	13.0	13.0	10.5	9.0	9.0	6.5	7.0	7.0	3.5	11.0	11.0	7.5	13.0	13.0	10.5	35.7	37.4	14	(22)		
ø63	13.0	13.0	11.5	9.0	9.0	7.5	7.0	7.0	4.5	11.0	11.0	8.5	13.0	13.0	11.5	42.7	44.4	16	(20)		
ø80	20.0	20.0	13.5	16.0	16.0	9.5	9.0	9.0	6.5	13.0	13.0	10.5	20.0	20.0	13.5	51.2	53.0	16	(16)		
ø100	19.5	19.5	15.0	15.5	15.5	11.0	9.5	9.5	9.0	13.5	13.5	13.0	19.5	19.5	15.0	61.7	63.5	16	(16)		

\* Installation dimensions of the mounting are the same as those of SCM (double acting). Refer to pages 240 to 251.

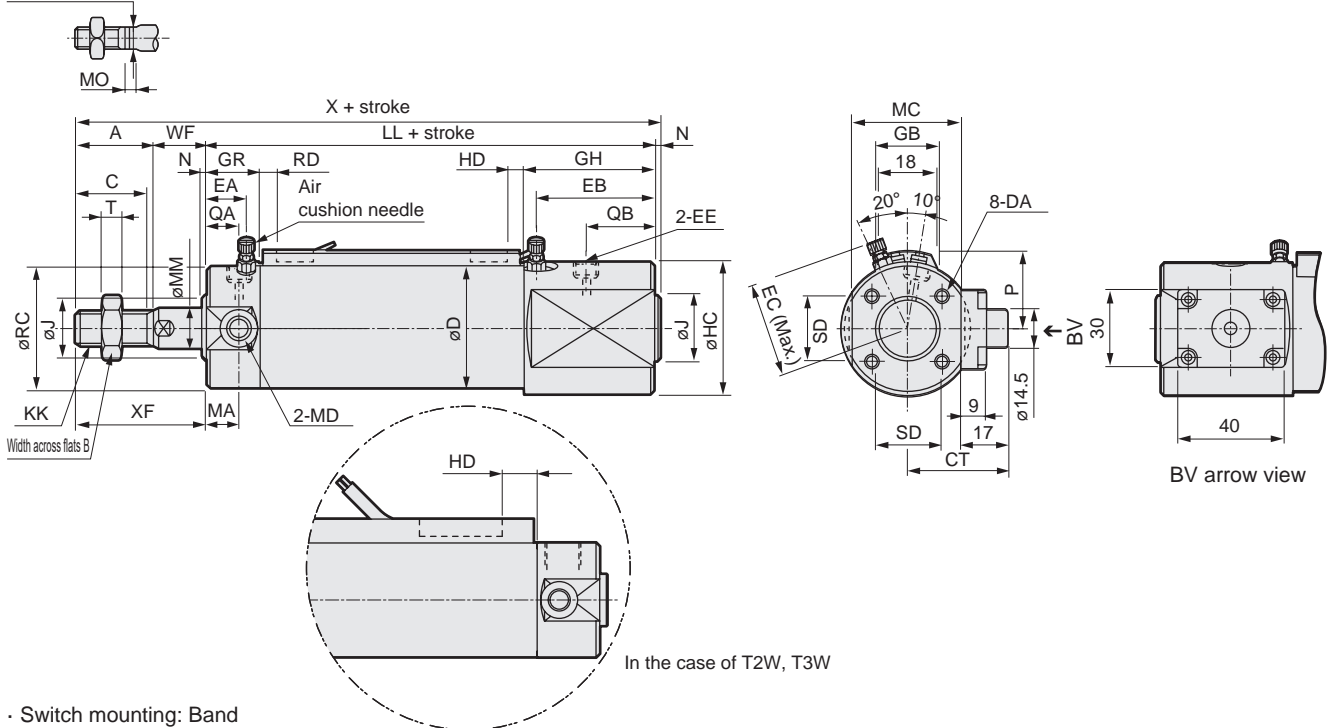
\* For the dimensions of the accessories, refer to pages 252 and 253.

### Dimensions (ø40 to ø100)

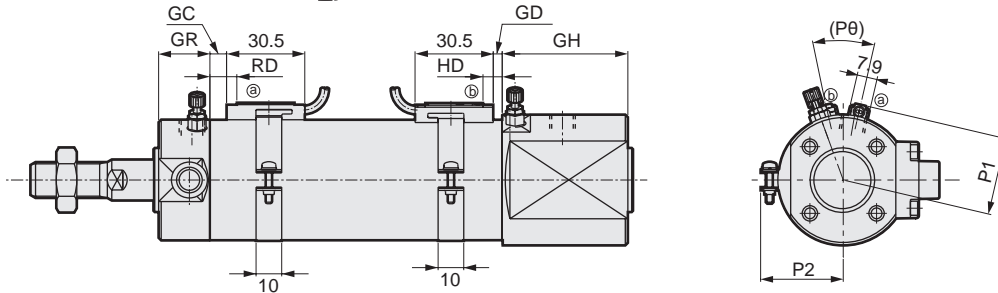


- Basic (00)  
(With head side position locking) · Switch mounting method: Rail

MN (Width across flats)



- Switch mounting: Band



\*1 : When the mounting is LB, the cylinder cannot be mounted on the frame if a bracket is already attached to the cylinder. Refer to Safety precautions for details.  
 \*2: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

Code	Basic (00) Basic dimensions																			
Bore size (mm)	A	B	C	CT	D	DA	EA	EB	EC	EE	GH	GR	HC	J	KK	LL	MA	MB	MC	MD
ø40	30	22	27	37.5	47	M6 depth 12	15	44	36.6	Rc1/8	49	20	51	25	M14x1.5	108	12	10	41	M10
ø50	35	27	32	43.5	58	M8 depth 16	18.5	45.5	43	Rc1/4	52	25	61	30	M18x1.5	120	13	12	53	M12
ø63	35	27	32	49.5	72	M10 depth 16	18.5	45.5	50	Rc1/4	52	25	72	32	M18x1.5	120	13	12	65	M14
ø80	40	32	37	57.5	89	M10 depth 22	20	50	58.5	Rc3/8	58	28	89	40	M22x1.5	138	-	-	81	-
ø100	40	41	37	68.5	110	M12 depth 22	20	50	69	Rc1/2	58	28	110	50	M26x1.5	138	-	-	103	-

Code	Switch mounting: Rail																			
Bore size (mm)	MM	MO	MN	N	QA	QB	RC	SD	T	WF	X	XF	P	GB	HD			RD		
															T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W
ø40	16	6	14	2	13	25.5	47	26	8	20	160	50	30	25.7	5.0	8.5	8.5	11.5	11.5	9.5
ø50	20	8	17	2	15	27	58	32	11	23	180	58	35.5	26.2	7.5	11.0	7.5	13.0	13.0	10.5
ø63	20	8	17	2	15	27	72	38	11	23	180	58	42.5	26.5	7.5	11.0	8.5	13.0	13.0	11.5
ø80	25	11	22	3	15	31.5	89	50	13	31	212	71	51	26.7	9.5	13.0	10.5	20.0	20.0	13.5
ø100	30	13	27	3	15	31.5	110	60	16	31	212	71	61.5	26.7	10.0	13.5	13.0	19.5	19.5	15.0

Code	Switch mounting: Band															
Bore size (mm)	GC			GD			HD			RD			P1	P2	P3	Pθ
	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W				
ø40	7.5	7.5	5.5	4.5	4.5	4.5	8.5	8.5	8.5	11.5	11.5	9.5	30.2	32.1	14	(26°)
ø50	9.0	9.0	6.5	7.0	7.0	3.5	11.0	11.0	7.5	13.0	13.0	10.5	35.7	37.4	14	(22°)
ø63	9.0	9.0	7.5	7.0	7.0	4.5	11.0	11.0	8.5	13.0	13.0	11.5	42.7	44.4	16	(20°)
ø80	16.0	16.0	9.5	9.0	9.0	6.5	13.0	13.0	10.5	20.0	20.0	13.5	51.2	53.0	16	(16°)
ø100	15.5	15.5	11.0	9.5	9.5	9.0	13.5	13.5	13.0	19.5	19.5	15.0	61.7	63.5	16	(16°)

\* Installation dimensions of the mounting are the same as those of SCM (double acting). Refer to pages 240 to 251.  
 \* For the dimensions of the accessories, refer to pages 252 and 253.

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





Round shaped cylinder Double acting/fine speed

# SCM-F Series

● Bore size:  $\varnothing 20/\varnothing 25/\varnothing 32/\varnothing 40$



## Specifications

Item	SCM			
Bore size mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
Actuation	Double acting/fine speed			
Working fluid	Compressed air			
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)			
Min. working pressure MPa	0.1 ( $\approx 15$ psi, 1 bar)			
Proof pressure MPa	1.6 ( $\approx 230$ psi, 16 bar)			
Ambient temperature $^{\circ}\text{C}$	-10 ( $14^{\circ}\text{F}$ ) to 60 ( $140^{\circ}\text{F}$ ) (no freezing)			
Port size	Rc1/8			
Stroke tolerance mm	+1.4 0			
Working piston speed mm/s	1 to 200 (Operate within the allowable absorbed energy.)			
Cushion	Rubber cushion			
Lubrication	Not available			
Allowable absorbed energy J	0.1	0.2	0.5	0.9

## Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\varnothing 20$	25, 50, 75, 100, 125, 150, 200, 250, 300	500	10
$\varnothing 25$			
$\varnothing 32$			
$\varnothing 40$			

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

## Number of installed switches and min. stroke (mm)

● Switch mounting: Rail

Switch quantity Bore size (mm)	1				2				3				4				5			
	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed
	T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*	
$\varnothing 20$	10				25				50	70	70	55	55	70	70	55	75	110	110	90
$\varnothing 25$	10				25				50	70	70	55	55	70	70	55	75	110	110	90
$\varnothing 32$	10				25				50	70	70	55	55	70	70	55	75	110	110	90
$\varnothing 40$	10				25				50	70	70	55	55	70	70	55	75	110	110	90

\*1: For types with one switch, when the stroke is between 10 and 24 mm, the trunnion mounting is not available since the switch rail mounting position is different. Refer to page 345 for mounting position.

● Switch mounting: Band

Switch quantity Bore size (mm)	1				2				3				4				5			
	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed
	T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*	
$\varnothing 20$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\varnothing 25$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\varnothing 32$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\varnothing 40$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95

### Switch specifications

● 1-color/2-color LED

Item	2-wire proximity		2-wire proximity			3-wire proximity				2-wire reed						2-wire proximity		
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V		T8H/T8V			T2YD (*4) T2YDT			
Applications	For programming controller, relay, compact solenoid valve		Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay		For programmable controller, relay (no lamp), serial		For programmable controller, relay		Dedicated for programmable controller		
Output method	-			NPN output	PNP output	NPN output	NPN output	-										
Pwr. supp. V.	-			10 to 28 VDC				-										
Load voltage	85 to 265 VAC		10 to 30 VDC		24 VDC ±10%		30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA		5 to 20 mA (*3)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA	
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp		LED (Lit when ON)		Red/green LED (Lit when ON)			
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC		1 mA or less			10 µA or less				0 mA						1 mA or less		
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80				1 m:33 3 m:87 5 m:142		1 m:61 3 m:166 5 m:272			

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

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

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

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

### Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke (S) = 0 mm					Switch weight (per 1 pc)	Additional weight per S = 10 mm	Additional weight per S = 10 mm <small>(With switch rail)</small>	Band weight per switch
	Bore size (mm)	Basic (00)	Axial foot (LB)	Flange (FA/FB)	Clevis				
∅ 20	0.10	0.21	0.13	0.15	0.11	Refer to the weight in the switch specifications.	0.01	0.012	0.007
∅ 25	0.17	0.30	0.21	0.25	0.19		0.014	0.016	0.007
∅ 32	0.26	0.42	0.32	0.41	0.29		0.018	0.02	0.007
∅ 40	0.41	0.63	0.49	0.64	0.46		0.03	0.032	0.007

(Example) Product weight of SCM-F-LB-40B-100-T2H-D

- Product weight when S = 0 mm ..... 0.63 kg
- Additional weight when S = 100 mm .....  $0.032 \times \frac{100}{10} = 0.32$  kg
- Weight of 2 switches .....  $0.018 \times 2 = 0.036$  kg
- Product weight .....  $0.63 \text{ kg} + 0.32 \text{ kg} + 0.036 \text{ kg} = 0.986$  kg

### Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
∅20	Push	31.4	47.1	62.8	94.2	$1.26 \times 10^2$	$1.57 \times 10^2$	$1.88 \times 10^2$	$2.20 \times 10^2$	$2.51 \times 10^2$	$2.83 \times 10^2$	$3.14 \times 10^2$
	Pull	26.4	39.6	52.8	79.2	$1.06 \times 10^2$	$1.32 \times 10^2$	$1.58 \times 10^2$	$1.85 \times 10^2$	$2.11 \times 10^2$	$2.38 \times 10^2$	$2.64 \times 10^2$
∅25	Push	49.1	73.6	98.2	$1.47 \times 10^2$	$1.96 \times 10^2$	$2.45 \times 10^2$	$2.95 \times 10^2$	$3.44 \times 10^2$	$3.93 \times 10^2$	$4.42 \times 10^2$	$4.91 \times 10^2$
	Pull	41.2	61.9	82.5	$1.24 \times 10^2$	$1.65 \times 10^2$	$2.06 \times 10^2$	$2.47 \times 10^2$	$2.89 \times 10^2$	$3.30 \times 10^2$	$3.71 \times 10^2$	$4.12 \times 10^2$
∅32	Push	80.4	$1.21 \times 10^2$	$1.61 \times 10^2$	$2.41 \times 10^2$	$3.22 \times 10^2$	$4.02 \times 10^2$	$4.83 \times 10^2$	$5.63 \times 10^2$	$6.43 \times 10^2$	$7.24 \times 10^2$	$8.04 \times 10^2$
	Pull	69.1	$1.04 \times 10^2$	$1.38 \times 10^2$	$2.07 \times 10^2$	$2.76 \times 10^2$	$3.46 \times 10^2$	$4.15 \times 10^2$	$4.84 \times 10^2$	$5.53 \times 10^2$	$6.22 \times 10^2$	$6.91 \times 10^2$
∅40	Push	$1.26 \times 10^2$	$1.88 \times 10^2$	$2.51 \times 10^2$	$3.77 \times 10^2$	$5.03 \times 10^2$	$6.28 \times 10^2$	$7.54 \times 10^2$	$8.80 \times 10^2$	$1.01 \times 10^3$	$1.13 \times 10^3$	$1.26 \times 10^3$
	Pull	$1.06 \times 10^2$	$1.58 \times 10^2$	$2.11 \times 10^2$	$3.17 \times 10^2$	$4.22 \times 10^2$	$5.28 \times 10^2$	$6.33 \times 10^2$	$7.39 \times 10^2$	$8.44 \times 10^2$	$9.50 \times 10^2$	$1.06 \times 10^3$

### Dimensions

Same as SCM Series (double acting/single rod). Refer to pages 240 to 251.

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

## How to order

No switch (built-in magnet for switch)

**SCM-F-LB-40-D-100-M-I**

With switch (built-in magnet for switch)

**SCM-F-LB-40-D-100-T2H-D-Z-M-I**

Model No. **A** Mounting  
\*1

**I** Option

**J** Accessory  
\*6

**B** Bore size

**C** Port thread

**D** Cushion

**E** Stroke

**F** Switch model No.  
\*3  
\*4

**G** Switch quantity

**H** Switch mounting  
\*6

Code	Description
<b>A Mounting</b>	
00	Basic
LB	Axial foot
FA	Rod side flange
FB	Head side flange
CA	Eye bracket
TA	Rod side trunnion
TB	Head side trunnion

<b>B Bore size (mm)</b>	
20	ø20
25	ø25
32	ø32
40	ø40

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

<b>D Cushion</b>	
D	With two-sided rubber cushion

<b>E Stroke (mm)</b>		
Bore size	Stroke *2	Custom stroke
ø20 to ø40	10 to 500	In 1 mm increments

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

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

<b>G Switch quantity</b>	
R	1 on rod side
H	1 on head side
D	2
T	3
4	4 (when there are more than 4 switches, indicate switch quantity.)

<b>H Switch mounting</b>	
Blank	Rail method
Z	Band method

<b>I Option</b>	
Q	Switch rail included at shipment
M	Piston rod material (stainless steel)

<b>J Accessory</b>	
I	Rod eye
Y	Rod clevis
B2	Clevis bracket

## ⚠ Precautions for model No. selection

- \*1 : Mounting bracket will be shipped with the product.
- \*2 : Refer to page 292 for the number of installed switches and the min. stroke.
- \*3 : Switches other than **F** Switch model No. are also available. (Made to order)  
Refer to Ending Page 1 for details.
- \*4 : T8H/V switches cannot be mounted when the switch mounting style is the rail.
- \*5 : Refer to Ending Page 85 for custom specifications of rod end form.
- \*6 : "Q" (switch rail enclosed at shipment) is not available for the "Z" switch mounting.
- \*7 : I and Y cannot be selected at the same time.
- \*8 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

[Example of model No.]

### SCM-F-LB-40D-100-T2H-D-ZMI

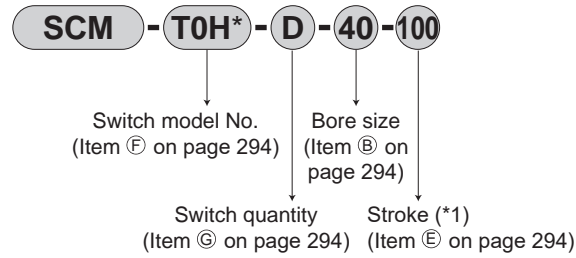
Model: Round shaped cylinder, double acting

- A** Mounting : Axial foot
- B** Bore size : ø40 mm
- C** Port thread : Rc thread
- D** Cushion : With two-sided rubber cushion
- E** Stroke : 100 mm
- F** Switch model No. : Proximity T2H switch, lead wire 1 m
- G** Switch quantity : 2
- H** Switch mounting : Band
- I** Option : Piston rod material (stainless steel)
- J** Accessory : Rod eye

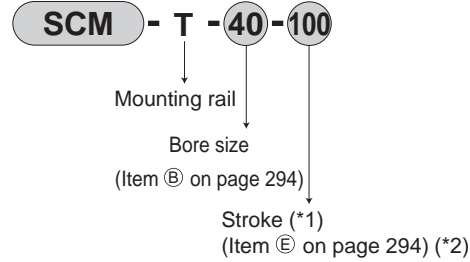
### How to order switch

#### [Switch mounting: Rail]

- Switch body + mounting rail set



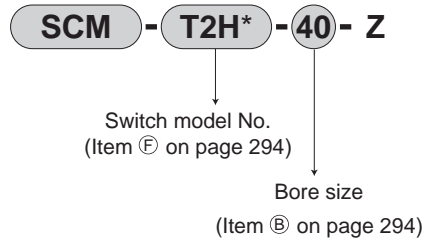
- Mounting rail only



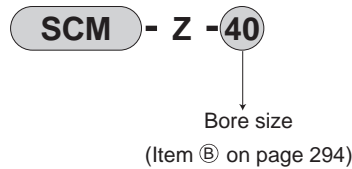
- \*1: Indicate X if the stroke exceeds 300 mm. If exceeding 300 mm, a short rail (with 100 mm switch adjustment length) will be included per switch.
- \*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

#### [Switch mounting: Band]

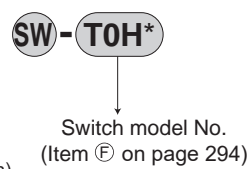
- Switch body + mounting bracket set + band



- Mounting bracket set + band



#### [Switch body only]



### How to order mounting bracket

Bore size (mm)	ø20	ø25	ø32	ø40
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40
Eye bracket (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40
Clevis bracket (CB)	-	-	-	-
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40

- \*1: All mounting brackets are supplied with mounting bolts.

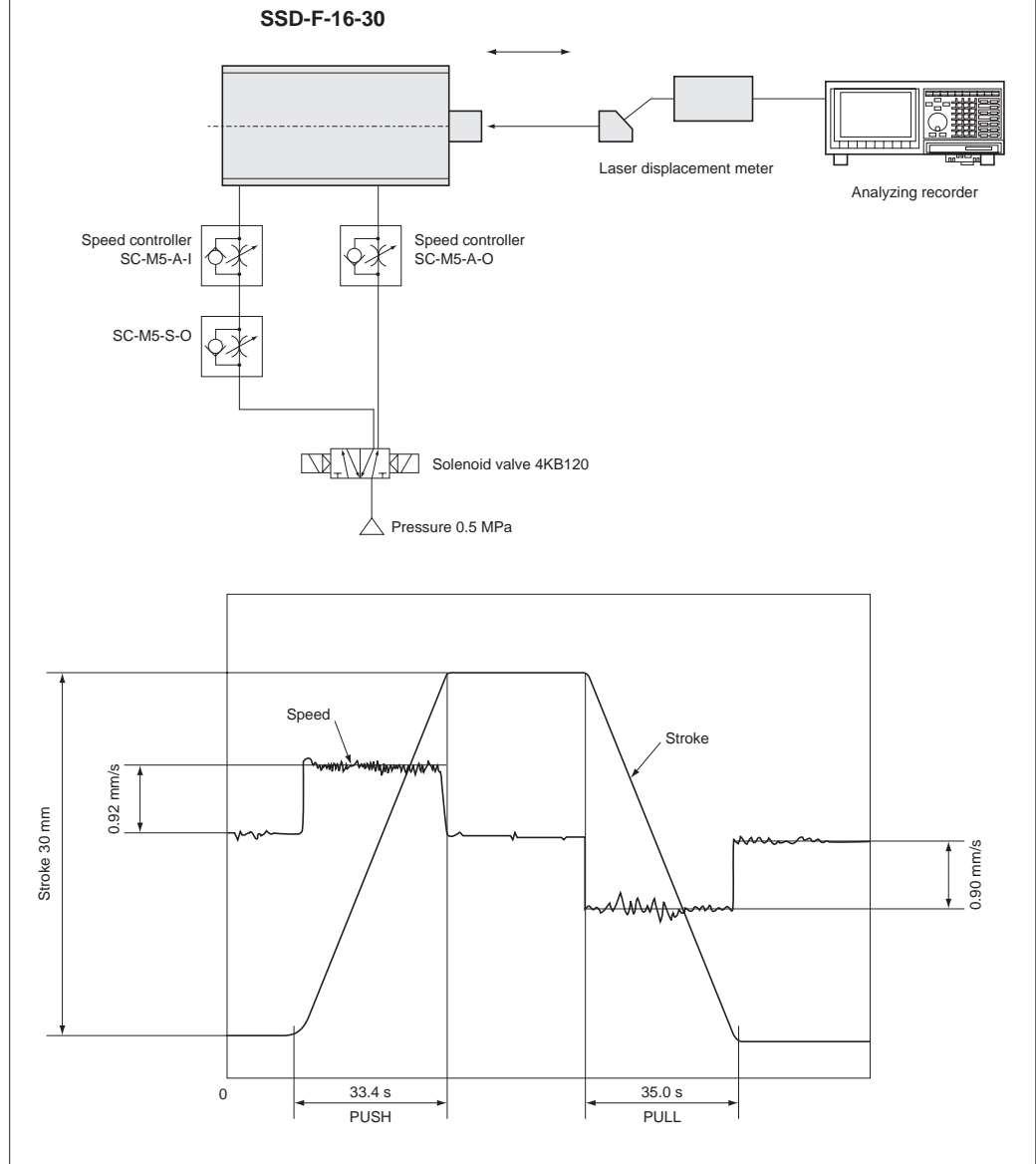
SCP*3
CMK2
CMA2
<b>SCM</b>
SCG
SCA2
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

# SCM-F Series

## Measuring method

Measurement data

### ● Measuring method



---

# MEMO

---

SCP\*3

CMK2

CMA2

**SCM**

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

Ending





Round shaped cylinder Double acting/low speed

# SCM-O Series

- Bore size:  $\phi 20/\phi 25/\phi 32/\phi 40$   
 $\phi 50/\phi 63/\phi 80/\phi 100$



## Specifications

Item	SCM-O							
Bore size mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$	$\phi 100$
Actuation	Double acting/low speed							
Working fluid	Compressed air							
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)							
Min. working pressure MPa	0.1 ( $\approx 15$ psi, 1 bar)				0.05 ( $\approx 7.3$ psi, 0.5 bar)			
Proof pressure MPa	1.6 ( $\approx 230$ psi, 16 bar)							
Ambient temperature $^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ ) (no freezing)							
Port size	Rc1/8			Rc1/4		Rc3/8	Rc1/2	
Stroke tolerance mm	$+1.4$ 0 (to 1000)		$+1.4$ 0 (to 1500)		$+2.3$ 0 (to 1000),		$+2.7$ 0 (to 1500)	
Working piston speed mm/s	10 to 200 (Operate within the allowable absorbed energy.)							
Cushion	Rubber cushion							
Lubrication	Not available							
Allowable absorbed energy J	0.11	0.2	0.53	0.91	1.6	1.6	3.3	5.8

## Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\phi 20$	25, 50, 75	1000	10
$\phi 25$			
$\phi 32$			
$\phi 40$	200, 250, 300	1500	10
$\phi 50$			
$\phi 63$			

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

## Number of installed switches and min. stroke (mm)

- Switch mounting: Rail

Switch quantity	1				2				3				4				5			
	Proximity		Reed		Proximity		Reed		Proximity		Reed		Proximity		Reed		Proximity		Reed	
	T2, T3	T2W, T3W			T*Y*	T2, T3			T2W, T3W	T*Y*			T2, T3	T2W, T3W			T*Y*	T2, T3		
$\phi 20$	10			25				50	70	70	55	55	70	70	55	75	110	110	90	
$\phi 25$	10			25				50	70	70	55	55	70	70	55	75	110	110	90	
$\phi 32$	10			25				50	70	70	55	55	70	70	55	75	110	110	90	
$\phi 40$	10			25				50	70	70	55	55	70	70	55	75	110	110	90	
$\phi 50$	10			25				50	65	65	55	55	65	65	55	75	110	110	90	
$\phi 63$	10			25				50	65	65	55	55	65	65	55	75	110	110	90	
$\phi 80$	10			25				50	65	65	55	55	65	65	55	75	110	110	90	
$\phi 100$	10			25				50	65	65	55	55	65	65	55	75	110	110	90	

- Switch mounting: Band

Switch quantity	1				2				3				4				5			
	Proximity		Reed		Proximity		Reed		Proximity		Reed		Proximity		Reed		Proximity		Reed	
	T2, T3	T2W, T3W			T*Y*	T2, T3			T2W, T3W	T*Y*			T2, T3	T2W, T3W			T*Y*	T2, T3		
$\phi 20$	10			25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95	
$\phi 25$	10			25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95	
$\phi 32$	10			25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95	
$\phi 40$	10			25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95	
$\phi 50$	10			25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95	
$\phi 63$	10			25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95	
$\phi 83$	10			25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95	
$\phi 100$	10			25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95	

\*1: For types with one switch, when the stroke is between 10 and 24 mm, the trunnion mounting is not available since the switch rail mounting position is different. Refer to page 345 for mounting position.

### Switch specifications

● 1-color/2-color LED

Item	2-wire proximity				3-wire proximity				2-wire reed			2-wire proximity				
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V	T2YD (*4) T2YDT				
Applications	For programmable controller, relay, compact solenoid valve	Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay	For programmable controller, relay (no lamp), serial	For programmable controller, relay	Dedicated for programmable controller				
Output method	-				NPN output	PNP output	NPN output	NPN output	-							
Pwr. supp. V.	-				10 to 28 VDC				-							
Load voltage	85 to 265 VAC	10 to 30 VDC	24 VDC ±10%		30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA	5 to 20 mA (*3)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	No indicator lamp	LED (Lit when ON)	Red/green LED (Lit when ON)				
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA			1 mA or less				
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80			1 m:33 3 m:87 5 m:142	1 m:61 3 m:166 5 m:272			

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

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

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

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

### Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke (S) = 0 mm					Switch weight (per 1 pc)	Additional weight per S = 10 mm	Additional weight per S = 10 mm (With switch rail)	Band weight per switch
	Bore size (mm)	Basic (00)	Axial foot (LB)	Flange (FA/FB)	Clevis				
ø20	0.10	0.21	0.13	0.15	0.11	Refer to the weight in the specifications.	0.01	0.012	0.007
ø25	0.17	0.30	0.21	0.25	0.19		0.014	0.016	0.007
ø32	0.26	0.42	0.32	0.41	0.29		0.018	0.02	0.007
ø40	0.41	0.63	0.49	0.64	0.46		0.03	0.032	0.007
ø50	0.77	1.25	1.11	1.17	0.91		0.04	0.046	0.008
ø63	1.07	1.79	1.57	1.75	1.21		0.052	0.054	0.009
ø80	2.04	3.00	2.75	2.75	-		0.07	0.072	0.010
ø100	3.17	4.92	4.52	4.45	-		0.098	0.10	0.010

(Example) Product weight of SCM-O-LB-40D-100-T2H-D	Product weight when S = 0 mm ..... 0.63 kg Additional weight when S = 100 mm ..... $0.032 \times \frac{100}{10} = 0.32$ kg Weight of 2 switches ..... 0.036 kg Product weight ..... 0.63 kg + 0.32 kg + 0.036 = 0.986 kg
--	---

### Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	-	31.4	47.1	62.8	94.2	1.26x10 <sup>2</sup>	1.57x10 <sup>2</sup>	1.88x10 <sup>2</sup>	2.20x10 <sup>2</sup>	2.51x10 <sup>2</sup>	2.83x10 <sup>2</sup>	3.14x10 <sup>2</sup>
	Pull	-	26.4	39.6	52.8	79.2	1.06x10 <sup>2</sup>	1.32x10 <sup>2</sup>	1.58x10 <sup>2</sup>	1.85x10 <sup>2</sup>	2.11x10 <sup>2</sup>	2.38x10 <sup>2</sup>	2.64x10 <sup>2</sup>
ø25	Push	-	49.1	73.6	98.2	1.47x10 <sup>2</sup>	1.96x10 <sup>2</sup>	2.45x10 <sup>2</sup>	2.95x10 <sup>2</sup>	3.44x10 <sup>2</sup>	3.93x10 <sup>2</sup>	4.42x10 <sup>2</sup>	4.91x10 <sup>2</sup>
	Pull	-	41.2	61.9	82.5	1.24x10 <sup>2</sup>	1.65x10 <sup>2</sup>	2.06x10 <sup>2</sup>	2.47x10 <sup>2</sup>	2.89x10 <sup>2</sup>	3.30x10 <sup>2</sup>	3.71x10 <sup>2</sup>	4.12x10 <sup>2</sup>
ø32	Push	-	80.4	1.21x10 <sup>2</sup>	1.61x10 <sup>2</sup>	2.41x10 <sup>2</sup>	3.22x10 <sup>2</sup>	4.02x10 <sup>2</sup>	4.83x10 <sup>2</sup>	5.63x10 <sup>2</sup>	6.43x10 <sup>2</sup>	7.24x10 <sup>2</sup>	8.04x10 <sup>2</sup>
	Pull	-	69.1	1.04x10 <sup>2</sup>	1.38x10 <sup>2</sup>	2.07x10 <sup>2</sup>	2.76x10 <sup>2</sup>	3.46x10 <sup>2</sup>	4.15x10 <sup>2</sup>	4.84x10 <sup>2</sup>	5.53x10 <sup>2</sup>	6.22x10 <sup>2</sup>	6.91x10 <sup>2</sup>
ø40	Push	-	1.26x10 <sup>2</sup>	1.88x10 <sup>2</sup>	2.51x10 <sup>2</sup>	3.77x10 <sup>2</sup>	5.03x10 <sup>2</sup>	6.28x10 <sup>2</sup>	7.54x10 <sup>2</sup>	8.80x10 <sup>2</sup>	1.01x10 <sup>3</sup>	1.13x10 <sup>3</sup>	1.26x10 <sup>3</sup>
	Pull	-	1.06x10 <sup>2</sup>	1.58x10 <sup>2</sup>	2.11x10 <sup>2</sup>	3.17x10 <sup>2</sup>	4.22x10 <sup>2</sup>	5.28x10 <sup>2</sup>	6.33x10 <sup>2</sup>	7.39x10 <sup>2</sup>	8.44x10 <sup>2</sup>	9.50x10 <sup>2</sup>	1.06x10 <sup>3</sup>
ø50	Push	98.0	1.96x10 <sup>2</sup>	2.95x10 <sup>2</sup>	3.93x10 <sup>2</sup>	5.89x10 <sup>2</sup>	7.85x10 <sup>2</sup>	9.82x10 <sup>2</sup>	1.18x10 <sup>3</sup>	1.37x10 <sup>3</sup>	1.57x10 <sup>3</sup>	1.77x10 <sup>3</sup>	1.96x10 <sup>3</sup>
	Pull	82.5	1.65x10 <sup>2</sup>	2.47x10 <sup>2</sup>	3.30x10 <sup>2</sup>	4.95x10 <sup>2</sup>	6.60x10 <sup>2</sup>	8.25x10 <sup>2</sup>	9.90x10 <sup>2</sup>	1.15x10 <sup>3</sup>	1.32x10 <sup>3</sup>	1.48x10 <sup>3</sup>	1.65x10 <sup>3</sup>
ø63	Push	1.56x10 <sup>2</sup>	3.12x10 <sup>2</sup>	4.68x10 <sup>2</sup>	6.23x10 <sup>2</sup>	9.35x10 <sup>2</sup>	1.25x10 <sup>3</sup>	1.56x10 <sup>3</sup>	1.87x10 <sup>3</sup>	2.18x10 <sup>3</sup>	2.49x10 <sup>3</sup>	2.81x10 <sup>3</sup>	3.12x10 <sup>3</sup>
	Pull	2.40x10 <sup>2</sup>	2.80x10 <sup>2</sup>	4.20x10 <sup>2</sup>	5.61x10 <sup>2</sup>	8.41x10 <sup>2</sup>	1.12x10 <sup>3</sup>	1.40x10 <sup>3</sup>	1.68x10 <sup>3</sup>	1.96x10 <sup>3</sup>	2.24x10 <sup>3</sup>	2.52x10 <sup>3</sup>	2.80x10 <sup>3</sup>
ø80	Push	2.51x10 <sup>2</sup>	5.03x10 <sup>2</sup>	7.54x10 <sup>2</sup>	1.01x10 <sup>3</sup>	1.51x10 <sup>3</sup>	2.01x10 <sup>3</sup>	2.51x10 <sup>3</sup>	3.02x10 <sup>3</sup>	3.52x10 <sup>3</sup>	4.02x10 <sup>3</sup>	4.52x10 <sup>3</sup>	5.03x10 <sup>3</sup>
	Pull	2.27x10 <sup>2</sup>	4.54x10 <sup>2</sup>	6.80x10 <sup>2</sup>	9.07x10 <sup>2</sup>	1.36x10 <sup>3</sup>	1.81x10 <sup>3</sup>	2.27x10 <sup>3</sup>	2.72x10 <sup>3</sup>	3.17x10 <sup>3</sup>	3.63x10 <sup>3</sup>	4.08x10 <sup>3</sup>	4.54x10 <sup>3</sup>
ø100	Push	3.92x10 <sup>2</sup>	7.85x10 <sup>2</sup>	1.18x10 <sup>3</sup>	1.57x10 <sup>3</sup>	2.36x10 <sup>3</sup>	3.14x10 <sup>3</sup>	3.93x10 <sup>3</sup>	4.71x10 <sup>3</sup>	5.50x10 <sup>3</sup>	6.28x10 <sup>3</sup>	7.07x10 <sup>3</sup>	7.85x10 <sup>3</sup>
	Pull	3.57x10 <sup>2</sup>	7.15x10 <sup>2</sup>	1.07x10 <sup>3</sup>	1.43x10 <sup>3</sup>	2.14x10 <sup>3</sup>	2.86x10 <sup>3</sup>	3.57x10 <sup>3</sup>	4.29x10 <sup>3</sup>	5.00x10 <sup>3</sup>	5.72x10 <sup>3</sup>	6.43x10 <sup>3</sup>	7.15x10 <sup>3</sup>

# SCM-O Series

## How to order

No switch (built-in magnet for switch)

SCM-O-LB-40-D-100-J-I

With switch (built-in magnet for switch)

SCM-O-LB-40-D-100-T2H-D-J-I

A Mounting  
\*1

B Bore size

C Port thread

D Cushion

E Stroke

F Switch model No.

\*4

\*5

G Switch quantity

H Switch mounting

I Option

\*2

\*6

\*8

J Accessory

\*9

### ⚠ Precautions for model No. selection

- \*1 : Mounting bracket will be shipped with the product.
- \*2 : If the product is supplied with bellows and the mounting bracket is LB, FA, or TA, it will be shipped assembled.
- \*3 : Refer to page 298 for the number of installed switches and the min. stroke.
- \*4 : Switches other than F Switch model No. are also available. (Made to order)  
Refer to Ending Page 1 for details.
- \*5 : T8H/V switches cannot be mounted when the bore size is from ø20 to ø40 and the switch mounting style is the rail.
- \*6 : The instantaneous max. temperature is the temperature when sparks, cutting chips, etc., instantaneously contact the bellows.
- \*7 : Refer to Ending Page 85 for custom specifications of rod end form.
- \*8 : "Q" (switch rail enclosed at shipment) is not available for the "Z" switch mounting.
- \*9 : "I" and "Y" cannot be selected together.
- \*10 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

### [Example of model No.]

**SCM-O-LB-40D-100-T2H-D-JI**

- A Mounting : Axial foot
- B Bore size : ø40 mm
- C Port thread : Rc thread
- D Cushion : With two-sided rubber cushion
- E Stroke : 100 mm
- F Switch model No. : Proximity T2H switch, lead wire 1 m
- G Switch quantity : 2
- H Switch mounting : Rail
- I Option : Bellows material for max. ambient temperature 100°C
- J Accessory : Rod eye

Code	Description								
<b>A Mounting</b>									
	Bore size (ø)	20	25	32	40	50	63	80	100
00	Basic	●	●	●	●	●	●	●	●
LB	Axial foot	●	●	●	●	●	●	●	●
FA	Rod side flange	●	●	●	●	●	●	●	●
FB	Head side flange	●	●	●	●	●	●	●	●
CA	Eye bracket	●	●	●	●	●	●	●	●
CB	Clevis bracket (pin and snap ring incl.)							●	●
TA	Rod side trunnion	●	●	●	●	●	●		
TB	Head side trunnion	●	●	●	●	●	●		

<b>B Bore size (mm)</b>	
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

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

<b>D Cushion</b>	
D	With two-sided rubber cushion

<b>E Stroke (mm)</b>		
Bore size	Stroke *2	Custom stroke
ø20 to ø32	10 to 1000	In 1 mm increments
ø40 to ø100	10 to 1500	

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

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

<b>G Switch quantity</b>	
R	1 on rod side
H	1 on head side
D	2
T	3
4	4 (when there are more than 4 switches, indicate switch quantity.)

<b>H Switch mounting</b>	
Blank	Rail method
Z	Band method

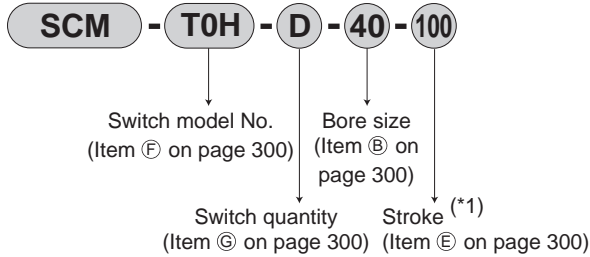
<b>I Option</b>			
		Max. ambient temp.	Instantaneous max. temp.
J	Bellows	100°C	200°C
L	Bellows	250°C	400°C
Q	Switch rail included at shipment		
M	Piston rod material (stainless steel)		

<b>J Accessory</b>									
	Bore size (ø)	20	25	32	40	50	63	80	100
I	Rod eye	●	●	●	●	●	●	●	●
Y	Rod clevis (pin and snap ring included)	●	●	●	●	●	●	●	●
B1	Eye bracket							●	●
B2	Clevis bracket	●	●	●	●	●	●		

### How to order switch

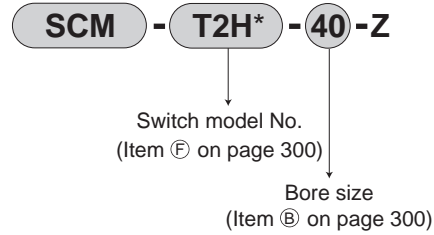
[Switch mounting: Rail]

● Switch body + mounting rail set

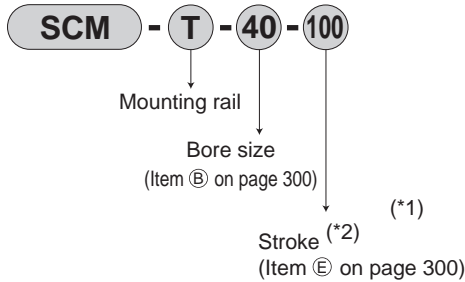


[Switch mounting: Band]

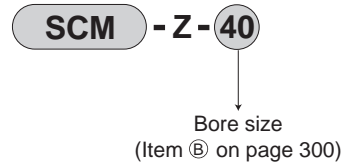
● Switch body + mounting bracket set + band



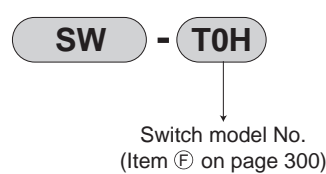
● Mounting rail only



● Mounting bracket set + band



[Switch body only]



\*1: Indicate X if the stroke exceeds 300 mm. If exceeding 300 mm, a short rail (with 100 mm switch adjustment length) will be included per switch.

\*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

### How to order mounting bracket

Bore size (mm)	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63	SCM-LB-80	SCM-LB-100
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63	SCM-FA-80	SCM-FA-100
Eye bracket (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40	SCM-CA-50	SCM-CA-63	-	-
Clevis bracket (CB)	-	-	-	-	-	-	SCM-CB-80	SCM-CB-100
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63	-	-

\*1: All mounting brackets are supplied with mounting bolts.

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

### Internal structure

Same as standard. Refer to page 236.

### Repair parts list

Bore size (mm)	Kit No.	Repair parts No.
ø20	SCM-O-20K	3 6 8 10 13
ø25	SCM-O-25K	
ø32	SCM-O-32K	
ø40	SCM-O-40K	
ø50	SCM-O-50K	
ø63	SCM-O-63K	
ø80	SCM-O-80K	
ø100	SCM-O-100K	

### Dimensions

Same as standard. Refer to pages 238 to 251.

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

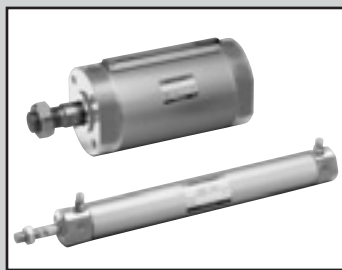
ShkAbs

FJ

FK

Spd  
Contr

Ending



Round shaped cylinder Double acting/low friction

# SCM-U Series

- Bore size:  $\varnothing 20/\varnothing 25/\varnothing 32/\varnothing 40/\varnothing 50/\varnothing 63/\varnothing 80/\varnothing 100$

JIS symbol



## Specifications

Item	SCM-U								
Bore size	mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$
Actuation		Double acting/low friction							
Working fluid		Compressed air							
Max. working pressure	MPa	0.7 ( $\approx 100$ psi, 7 bar)							
Min. working pressure	MPa	0.03 ( $\approx 4.4$ psi, 0.3 bar)							
Proof pressure	MPa	1.0 ( $\approx 150$ psi, 10 bar)							
Ambient temperature	$^{\circ}\text{C}$	5 (41 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ )							
Port size		Rc1/8			Rc1/4		Rc3/8	Rc1/2	
Stroke tolerance	mm	$^{+1.4}_0$ (to 1000)			$^{+1.4}_0$ (to 1500)		$^{+2.3}_0$ (to 1000), $^{+2.7}_0$ (to 1500)		
Working piston speed	mm/s	10 to 1000 (Operate within the allowable absorbed energy.)							
Cushion		Rubber cushion							
Lubrication		Not available							
Allowable absorbed energy	J	0.1	0.2	0.5	0.9	1.6	1.6	3.3	5.8
Internal leakage rate	$\ell/\text{min}$	5						8	

## Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\varnothing 20$	25, 50, 75, 100,	1000	10
$\varnothing 25$			
$\varnothing 32$			
$\varnothing 40$			
$\varnothing 50$	250, 300	1500	10
$\varnothing 63$			
$\varnothing 80$			
$\varnothing 100$			

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

## Number of installed switches and min. stroke (mm)

- Switch mounting: Rail

Switch quantity	1				2				3				4				5			
	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed
	T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*	
$\varnothing 20$	10			25	25			50	70	70	55	55	70	70	55	75	110	110	90	
$\varnothing 25$	10				25				50	70	70		55	55	70		70	55	75	110
$\varnothing 32$	10			25	25			50	70	70	55	55	70	70	55	75	110	110	90	
$\varnothing 40$	10				25				50	70	70		55	55	70		70	55	75	110
$\varnothing 50$	10			25	25			50	65	65	55	55	65	65	55	75	110	110	90	
$\varnothing 63$	10				25				50	65	65		55	55	65		65	55	75	110
$\varnothing 80$	10			25	25			50	65	65	55	55	65	65	55	75	110	110	90	
$\varnothing 100$	10				25				50	65	65		55	55	65		65	55	75	110

- Switch mounting: Band

Switch quantity	1				2				3				4				5			
	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed
	T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*	
$\varnothing 20$	10			25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95	
$\varnothing 25$	10				25	30	35		25	50	55		55	50	75		75	80	70	95
$\varnothing 32$	10			25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95	
$\varnothing 40$	10				25	30	35		25	50	55		55	50	75		75	80	70	95
$\varnothing 50$	10			25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95	
$\varnothing 63$	10				25	30	35		25	50	55		55	50	75		75	80	70	95
$\varnothing 83$	10			25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95	
$\varnothing 100$	10				25	30	35		25	50	55		55	50	75		75	80	70	95

\*1: For types with one switch, when the stroke is between 10 and 24 mm, the trunnion mounting is not available since the switch rail mounting position is different. Refer to page 345 for mounting position.



### Switch specifications

● 1-color/2-color LED

Item	2-wire proximity		2-wire proximity			3-wire proximity				2-wire reed						2-wire proximity
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V		T8H/T8V		T2YD (*4) T2YDT		
Applications	For programming controller, relay, compact solenoid valve	Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay	For programmable controller, relay (no lamp), serial	For programmable controller, relay		Dedicated for programmable controller			
Output method	-			NPN output	PNP output	NPN output	NPN output	-								
Pwr. supp. V.	-			10 to 28 VDC				-								
Load voltage	85 to 265 VAC	10 to 30 VDC	24 VDC ±10%		30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA	5 to 20 mA (*3)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp		LED (Lit when ON)		Red/green LED (Lit when ON)	
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA						1 mA or less	
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80		1 m:33 3 m:87 5 m:142		1 m:61 3 m:166 5 m:272				

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

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

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

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

### Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke (S) = 0 mm					Switch weight (per 1 pc)	Additional weight per S = 10 mm	Additional weight per S = 10 mm (With switch rail)	Band weight per switch
	Bore size (mm)	Basic (00)	Axial foot (LB)	Flange (FA/FB)	Clevis				
ø20	0.10	0.21	0.13	0.15	0.11	Refer to the weight in the specifications.	0.01	0.012	0.007
ø25	0.17	0.30	0.21	0.25	0.19		0.014	0.016	0.007
ø32	0.26	0.42	0.32	0.41	0.29		0.018	0.02	0.007
ø40	0.41	0.63	0.49	0.64	0.46		0.03	0.032	0.007
ø50	0.77	1.25	1.11	1.17	0.91		0.044	0.046	0.008
ø63	1.07	1.79	1.57	1.75	1.21		0.052	0.054	0.009
ø80	2.04	3.00	2.75	2.75	-		0.07	0.072	0.010
ø100	3.17	4.92	4.52	4.45	-		0.098	0.10	0.010

(Example) Product weight of SCM-U-LB-40D-100-T2H-D

- Product weight when S = 0 mm ..... 0.63 kg
- Additional weight when S = 100 mm .....  $0.032 \times \frac{100}{10} = 0.32$  kg
- Weight of 2 switches ..... 0.036 kg
- Product weight .....  $0.63 \text{ kg} + 0.32 \text{ kg} + 0.036 = 0.986$  kg

### Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa								
		0.03	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7
ø20	Push	9.4	31.4	47.1	62.8	94.2	$1.26 \times 10^2$	$1.57 \times 10^2$	$1.88 \times 10^2$	$2.20 \times 10^2$
	Pull	7.9	26.4	39.6	52.8	79.2	$1.06 \times 10^2$	$1.32 \times 10^2$	$1.58 \times 10^2$	$1.85 \times 10^2$
ø25	Push	14.7	49.1	73.6	98.2	$1.47 \times 10^2$	$1.96 \times 10^2$	$2.45 \times 10^2$	$2.95 \times 10^2$	$3.44 \times 10^2$
	Pull	12.4	41.2	61.9	82.5	$1.24 \times 10^2$	$1.65 \times 10^2$	$2.06 \times 10^2$	$2.47 \times 10^2$	$2.89 \times 10^2$
ø32	Push	24.1	80.4	$1.21 \times 10^2$	$1.61 \times 10^2$	$2.41 \times 10^2$	$3.22 \times 10^2$	$4.02 \times 10^2$	$4.83 \times 10^2$	$5.63 \times 10^2$
	Pull	20.7	69.1	$1.04 \times 10^2$	$1.38 \times 10^2$	$2.07 \times 10^2$	$2.76 \times 10^2$	$3.46 \times 10^2$	$4.15 \times 10^2$	$4.84 \times 10^2$
ø40	Push	37.7	$1.26 \times 10^2$	$1.88 \times 10^2$	$2.51 \times 10^2$	$3.77 \times 10^2$	$5.03 \times 10^2$	$6.28 \times 10^2$	$7.54 \times 10^2$	$8.80 \times 10^2$
	Pull	31.7	$1.06 \times 10^2$	$1.58 \times 10^2$	$2.11 \times 10^2$	$3.17 \times 10^2$	$4.22 \times 10^2$	$5.28 \times 10^2$	$6.33 \times 10^2$	$7.39 \times 10^2$
ø50	Push	58.9	$1.96 \times 10^2$	$2.95 \times 10^2$	$3.93 \times 10^2$	$5.89 \times 10^2$	$7.85 \times 10^2$	$9.82 \times 10^2$	$1.18 \times 10^3$	$1.37 \times 10^3$
	Pull	49.5	$1.65 \times 10^2$	$2.47 \times 10^2$	$3.30 \times 10^2$	$4.95 \times 10^2$	$6.60 \times 10^2$	$8.25 \times 10^2$	$9.90 \times 10^2$	$1.15 \times 10^3$
ø63	Push	93.5	$3.12 \times 10^2$	$4.68 \times 10^2$	$6.23 \times 10^2$	$9.35 \times 10^2$	$1.25 \times 10^3$	$1.56 \times 10^3$	$1.87 \times 10^3$	$2.18 \times 10^3$
	Pull	84.1	$2.80 \times 10^2$	$4.20 \times 10^2$	$5.61 \times 10^2$	$8.41 \times 10^2$	$1.12 \times 10^3$	$1.40 \times 10^3$	$1.68 \times 10^3$	$1.96 \times 10^3$
ø80	Push	$15.1 \times 10^2$	$5.03 \times 10^2$	$7.54 \times 10^2$	$1.01 \times 10^3$	$1.51 \times 10^3$	$2.01 \times 10^3$	$2.51 \times 10^3$	$3.02 \times 10^3$	$3.52 \times 10^3$
	Pull	$13.6 \times 10^2$	$4.54 \times 10^2$	$6.80 \times 10^2$	$9.07 \times 10^2$	$1.36 \times 10^3$	$1.81 \times 10^3$	$2.27 \times 10^3$	$2.72 \times 10^3$	$3.17 \times 10^3$
ø100	Push	$23.6 \times 10^2$	$7.85 \times 10^2$	$1.18 \times 10^3$	$1.57 \times 10^3$	$2.36 \times 10^3$	$3.14 \times 10^3$	$3.93 \times 10^3$	$4.71 \times 10^3$	$5.50 \times 10^3$
	Pull	$21.4 \times 10^2$	$7.15 \times 10^2$	$1.07 \times 10^3$	$1.43 \times 10^3$	$2.14 \times 10^3$	$2.86 \times 10^3$	$3.57 \times 10^3$	$4.29 \times 10^3$	$5.00 \times 10^3$



# SCM-U Series



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

## How to order

No switch (built-in magnet for switch)

**SCM-U-LB-40**  **D-100** ————— **M I**

With switch (built-in magnet for switch)

**SCM-U-LB-40**  **D-100-T2H-D**  **M I**

**A** Mounting

Rubber cushion

**B** Bore size

**C** Port thread

**D** Stroke

**E** Switch model No.

\*3

\*4

**F** Switch quantity

**G** Switch mounting

**H** Option

\*6

**I** Accessory

\*7

### ⚠ Precautions for model No. selection

\*1 : Mounting bracket will be shipped with the product.

\*2 : Refer to page 302 for the number of installed switches and the min. stroke.

\*3 : Switches other than **E** Switch model No. are also available. (Made to order)

Refer to Ending Page 1 for details.

\*4 : T8H/V switches cannot be mounted when the bore size is from ø20 to ø40 and the switch mounting style is the rail.

\*5 : Refer to Ending Page 85 for custom specifications of rod end form.

\*6 : "Q" (switch rail enclosed at shipment) is not available for the "Z" switch mounting.

\*7 : "I" and "Y" cannot be selected together.

\*8 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

[Example of model No.]

**SCM-U-LB-40D-100-T2H-D-MI**

Model: Round shaped cylinder, double acting/low friction

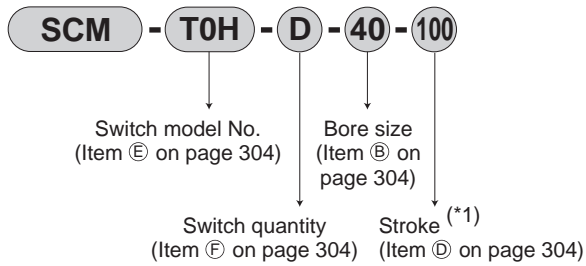
- A** Mounting : Axial foot
- B** Bore size : ø40 mm
- C** Port thread : Rc thread
- D** Stroke : 100 mm
- E** Switch model No. : Proximity T2H switch, lead wire 1 m
- F** Switch quantity : 2
- G** Switch mounting : Rail
- H** Option : Piston rod material/stainless steel
- I** Accessory : Rod eye

Code	Description							
<b>A Mounting</b>								
	Bore size (ø)							
	20	25	32	40	50	63	80	100
<b>00</b>	Basic	●	●	●	●	●	●	●
<b>LB</b>	Axial foot	●	●	●	●	●	●	●
<b>FA</b>	Rod side flange	●	●	●	●	●	●	●
<b>FB</b>	Head side flange	●	●	●	●	●	●	●
<b>CA</b>	Eye bracket	●	●	●	●	●		
<b>CB</b>	Clevis bracket (pin and snap ring incl.)						●	●
<b>TA</b>	Rod side trunnion	●	●	●	●	●		
<b>TB</b>	Head side trunnion	●	●	●	●	●		
<b>B Bore size (mm)</b>								
<b>20</b>	ø20							
<b>25</b>	ø25							
<b>32</b>	ø32							
<b>40</b>	ø40							
<b>50</b>	ø50							
<b>63</b>	ø63							
<b>80</b>	ø80							
<b>100</b>	ø100							
<b>C Port thread</b>								
<b>Blank</b>	Rc thread							
<b>N</b>	NPT thread (made-to-order product)							
<b>G</b>	G thread (made-to-order product)							
<b>D Stroke (mm)</b>								
<b>Bore size</b>		<b>Stroke *2</b>			<b>Custom stroke</b>			
ø20 to ø32		10 to 1000			In 1 mm increments			
ø40 to ø100		10 to 1500						
<b>E Switch model No.</b>								
<b>Axial lead wire</b>	<b>Radial lead wire</b>	<b>Contact</b>	<b>Voltage</b>		<b>Indicator</b>		<b>Lead wire</b>	
			<b>AC</b>	<b>DC</b>				
<b>T0H*</b>	<b>T0V*</b>	Reed	●	●	1-color LED		2-wire	
<b>T5H*</b>	<b>T5V*</b>		●	●	No indicator lamp			
<b>T8H*</b>	<b>T8V*</b>		●	●	1-color LED			
<b>T1H*</b>	<b>T1V*</b>	Proximity	●	●	1-color LED		2-wire	
<b>T2H*</b>	<b>T2V*</b>		●	●	1-color LED			
<b>T3H*</b>	<b>T3V*</b>		●	●	1-color LED		3-wire	
<b>T3PH*</b>	<b>T3PV*</b>		●	●	1-color LED			
<b>T2WH*</b>	<b>T2WV*</b>		●	●	2-color LED			
<b>T2YH*</b>	<b>T2YV*</b>		●	●	2-color LED		2-wire	
<b>T3WH*</b>	<b>T3WV*</b>		●	●	2-color LED			
<b>T3YH*</b>	<b>T3YV*</b>	●	●	2-color LED		2-wire		
<b>T2YD*</b>	-	●	●	for AC magnetic field				
<b>T2YJT*</b>	-	●	●	1-color LED off-delay		2-wire		
<b>T2YH*</b>	<b>T2JV*</b>	●	●	1-color LED off-delay		2-wire		
<b>* Lead wire length</b>								
<b>Blank</b>	1 m (standard)							
<b>3</b>	3 m (option)							
<b>5</b>	5 m (option)							
<b>F Switch quantity</b>								
<b>R</b>	1 on rod side							
<b>H</b>	1 on head side							
<b>D</b>	2							
<b>T</b>	3							
<b>4</b>	4 (when there are more than 4 switches, indicate switch quantity.)							
<b>G Switch mounting</b>								
<b>Blank</b>	Rail method							
<b>Z</b>	Band method							
<b>H Option</b>								
<b>Q</b>	Switch rail included at shipment							
<b>M</b>	Piston rod material (stainless steel)							
<b>I Accessory</b>								
	Bore size (ø)							
	20	25	32	40	50	63	80	100
<b>I</b>	Rod eye	●	●	●	●	●	●	●
<b>Y</b>	Rod clevis (pin and snap ring included)	●	●	●	●	●	●	●
<b>B1</b>	Eye bracket						●	●
<b>B2</b>	Clevis bracket	●	●	●	●	●		

### How to order switch

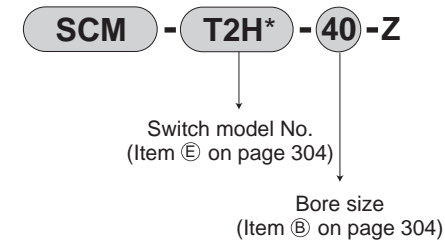
[Switch mounting: Rail]

● Switch body + mounting rail set

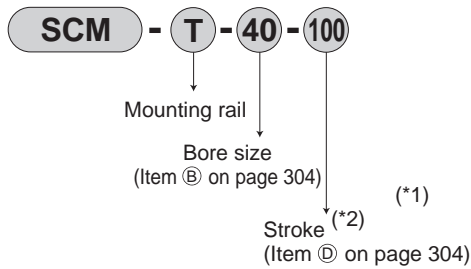


[Switch mounting: Band]

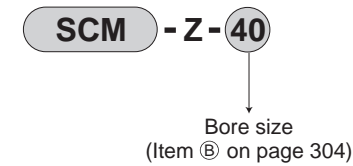
● Switch body + mounting bracket set + band



● Mounting rail only

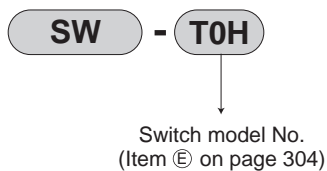


● Mounting bracket set + band



- \*1: Indicate X if the stroke exceeds 300 mm.  
If exceeding 300 mm, a short rail (with 100 mm switch adjustment length) will be included per switch.
- \*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

[Switch body only]



### How to order mounting bracket

Bore size (mm)	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63	SCM-LB-80	SCM-LB-100
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63	SCM-FA-80	SCM-FA-100
Eye bracket (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40	SCM-CA-50	SCM-CA-63	-	-
Clevis bracket (CB)	-	-	-	-	-	-	SCM-CB-80	SCM-CB-100
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63	-	-

- \*1: All mounting brackets are supplied with mounting bolts.  
\*2: The foot mounting bracket is provided as 2 pcs./set.

### Dimensions

Same as SCM Series (double acting/single rod). Refer to pages 238 to 251.

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

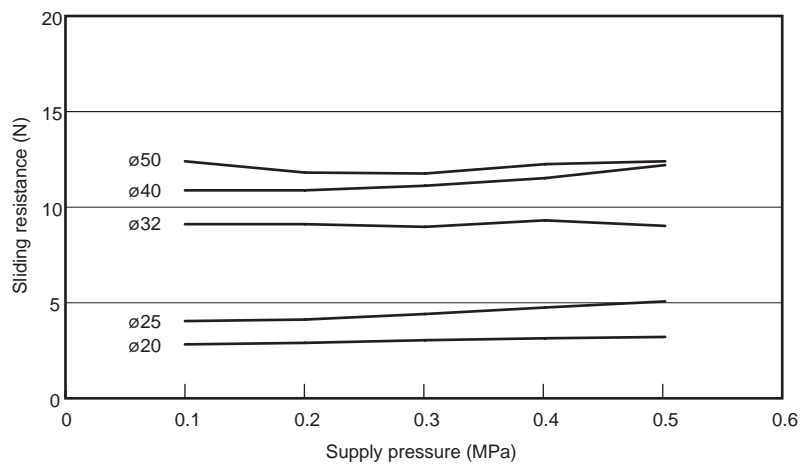
## Sliding resistance

Values are measured under the following conditions. As the values vary with the installation method, pressurizing direction, etc., they are not guaranteed.

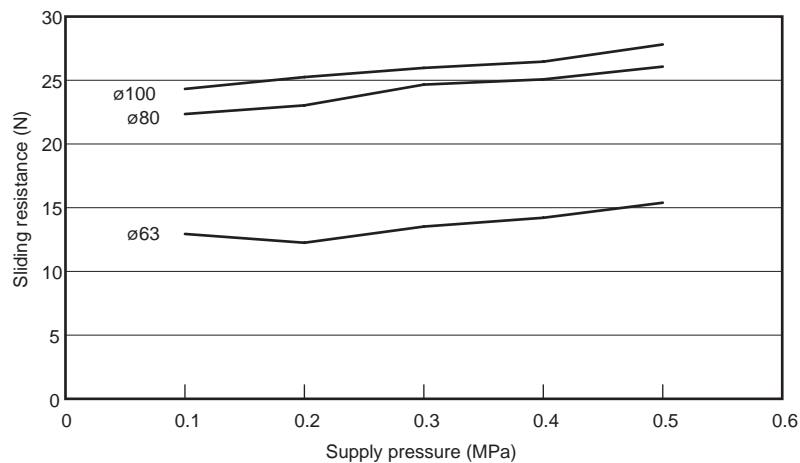
(Test conditions)

Cylinder	SCM-U
Mounting direction of cylinder	Vertical
Cylinder speed	10 mm/min (driven by external motor)
Cylinder pressurizing direction	Head side (the rod end is open to atmosphere)

Sliding resistance (ø20 to ø50)



Sliding resistance (ø63 to ø100)



---

# MEMO

---

SCP\*3

CMK2

CMA2

**SCM**

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

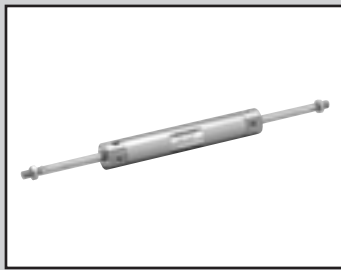
ShkAbs

FJ

FK

Spd  
Contr

Ending

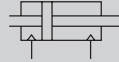


Round shaped cylinder Double acting/double rod

# SCM-D Series

● Bore size:  $\phi 20/\phi 25/\phi 32/\phi 40$   
 $\phi 50/\phi 63/\phi 80/\phi 100$

JIS symbol Double acting cylinder double rod



## Specifications

Item		SCM-D							
Bore size	mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$	$\phi 100$
Actuation		Double acting/double rod							
Working fluid		Compressed air							
Max. working pressure	MPa	1.0 ( $\approx 150$ psi, 10 bar)							
Min. working pressure	MPa	0.15 ( $\approx 22$ psi, 1.5 bar)				0.1 ( $\approx 15$ psi, 1 bar)			
Proof pressure	MPa	1.6 ( $\approx 230$ psi, 16 bar)							
Ambient temperature	$^{\circ}\text{C}$	-10 ( $14^{\circ}\text{F}$ ) to 60 ( $140^{\circ}\text{F}$ ) (no freezing)							
Port size	With rubber cushion	Rc1/8				Rc1/4		Rc8/3	Rc1/2
	With air cushion	M5	Rc1/8			Rc1/4		Rc8/3	Rc1/2
Stroke tolerance	With rubber cushion	+1.4 0				+2.3 0 (to 600)			
	With air cushion	+1.4 0				+1.4 0 (to 600)			
Working piston speed	mm/s	30 to 1000 (Operate within the allowable absorbed energy.)							
Cushion		Either rubber cushion or air cushion can be selected.							
Effective air cushion length	mm	8.1	8.1	8.6	8.6	13.4	13.4	15.4	15.4
Lubrication		Not required (use turbine oil ISO VG32 if necessary for lubrication)							
Allowable absorbed energy	With rubber cushion	0.1	0.2	0.5	0.9	1.6	1.6	3.3	5.8
	With air cushion	0.8	1.2	2.5	3.7	8.0	14.4	25.4	45.6
Without cushion		-	-	-	-	0.057	0.057	0.112	0.153

\*1: The values of allowable absorbed energy for "No cushion" are the allowable absorbed energy on the non-specified side when an air cushion is selected for the other side ("R" → Head side, "H" → Rod side).

\*2: Without any cushion, this product cannot absorb large energy generated by an external load. Provide a shock absorber on the outside.

## Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\phi 20$	25, 50, 75, 100, 125, 150, 200, 250, 300	600	10
$\phi 25$			
$\phi 32$			
$\phi 40$			
$\phi 50$			
$\phi 63$			
$\phi 80$			
$\phi 100$			

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

## Number of installed switches and min. stroke (mm)

● Switch mounting: Rail

Switch quantity	1				2				3				4				5			
	Proximity		Reed	T*Y*	Proximity		Reed	T*Y*	Proximity		Reed	T*Y*	Proximity		Reed	T*Y*	Proximity		Reed	T*Y*
Bore size (mm)	T2, T3	T2W, T3W			T2, T3	T2W, T3W			T2, T3	T2W, T3W			T2, T3	T2W, T3W			T2, T3	T2W, T3W		
$\phi 20$	10				25				50 70 70 55				55 70 70 55				75 110 110 90			
$\phi 25$	10				25				50 70 70 55				55 70 70 55				75 110 110 90			
$\phi 32$	10				25				50 70 70 55				55 70 70 55				75 110 110 90			
$\phi 40$	10				25				50 70 70 55				55 70 70 55				75 110 110 90			
$\phi 50$	10				25				50 65 65 55				55 65 65 55				75 110 110 90			
$\phi 63$	10				25				50 65 65 55				55 65 65 55				75 110 110 90			
$\phi 80$	10				25				50 65 65 55				55 65 65 55				75 110 110 90			
$\phi 100$	10				25				50 65 65 55				55 65 65 55				75 110 110 90			

● Switch mounting: Band

Switch quantity	1				2				3				4				5			
	Proximity		Reed	T*Y*	Proximity		Reed	T*Y*	Proximity		Reed	T*Y*	Proximity		Reed	T*Y*	Proximity		Reed	T*Y*
Bore size (mm)	T2, T3	T2W, T3W			T2, T3	T2W, T3W			T2, T3	T2W, T3W			T2, T3	T2W, T3W			T2, T3	T2W, T3W		
$\phi 20$	10				25 30 35 25				50 55 55 50				75 75 80 70				95 100 100 95			
$\phi 25$	10				25 30 35 25				50 55 55 50				75 75 80 70				95 100 100 95			
$\phi 32$	10				25 30 35 25				50 55 55 50				75 75 80 70				95 100 100 95			
$\phi 40$	10				25 30 35 25				50 55 55 50				75 75 80 70				95 100 100 95			
$\phi 50$	10				25 30 35 25				50 55 55 50				75 75 80 70				95 100 100 95			
$\phi 63$	10				25 30 35 25				50 55 55 50				75 75 80 70				95 100 100 95			
$\phi 83$	10				25 30 35 25				50 55 55 50				75 75 80 70				95 100 100 95			
$\phi 100$	10				25 30 35 25				50 55 55 50				75 75 80 70				95 100 100 95			

\*1: For types with one switch, when the stroke is between 10 and 24 mm, the trunnion mounting is not available since the switch rail mounting position is different. Refer to page 345 for mounting position.

### Switch specifications

● 1-color/2-color LED

Item	2-wire proximity				3-wire proximity				2-wire reed			2-wire proximity				
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V		T2YD (*4) T2YDT			
Applications	For programming controller, relay, compact solenoid valve		Dedicated for programmable controller		For programmable controller, relay				For programmable controller, relay	For programmable controller, relay (no lamp), serial		For programmable controller, relay		Dedicated for programmable controller		
Output method	-				NPN output	PNP output	NPN output	NPN output	-							
Pwr. supp. V.	-				10 to 28 VDC				-							
Load voltage	85 to 265 VAC		10 to 30 VDC		24 VDC ±10%		30 VDC or less		12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA		5 to 20 mA (*3)		100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp		LED (Lit when ON)		Red/green LED (Lit when ON)	
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC		1 mA or less		10 µA or less				0 mA					1 mA or less		
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80			1 m:33 3 m:87 5 m:142		1 m:61 3 m:166 5 m:272		

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

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

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

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

### Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke (S) = 0 mm				Switch weight (per 1 pc.)	Per S = 10 mm	
	Bore size (mm)	Basic (00)	Axial foot (LB)	Flange (FA)		Trunnion (TA)	Additional weight
ø20	0.12	0.23	0.20	0.13	Refer to the weight in the switch specifications.	0.014	0.016
ø25	0.21	0.34	0.31	0.23		0.020	0.22
ø32	0.32	0.48	0.46	0.35		0.026	0.028
ø40	0.52	0.74	0.72	0.57		0.046	0.048
ø50	0.96	1.44	1.30	1.10		0.068	0.070
ø63	1.27	1.99	1.77	1.41		0.076	0.078
ø80	2.41	3.37	3.12	-		0.108	0.110
ø100	3.73	5.48	5.08	-		0.154	0.156

(Example) Product weight of SCM-D-LB-40B-100-T2H-D

- Product weight when S = 0 mm ..... 0.74 kg
- Additional weight when S = 100 mm .....  $0.048 \times \frac{100}{10} = 0.48$  kg
- Weight of 2 switches .....  $0.018 \times 2 = 0.036$  kg
- Product weight .....  $0.74 + 0.48 + 0.036 = 1.256$  kg

### Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push/Pull	-	39.6	52.8	79.2	$1.06 \times 10^2$	$1.32 \times 10^2$	$1.58 \times 10^2$	$1.85 \times 10^2$	$2.11 \times 10^2$	$2.38 \times 10^2$	$2.64 \times 10^2$
ø25	Push/Pull	-	61.9	82.5	$1.24 \times 10^2$	$1.65 \times 10^2$	$2.06 \times 10^2$	$2.47 \times 10^2$	$2.89 \times 10^2$	$3.30 \times 10^2$	$3.71 \times 10^2$	$4.12 \times 10^2$
ø32	Push/Pull	-	$1.04 \times 10^2$	$1.38 \times 10^2$	$2.07 \times 10^2$	$2.76 \times 10^2$	$3.46 \times 10^2$	$4.15 \times 10^2$	$4.84 \times 10^2$	$5.53 \times 10^2$	$6.22 \times 10^2$	$6.91 \times 10^2$
ø40	Push/Pull	-	$1.58 \times 10^2$	$2.11 \times 10^2$	$3.17 \times 10^2$	$4.22 \times 10^2$	$5.28 \times 10^2$	$6.33 \times 10^2$	$7.39 \times 10^2$	$8.44 \times 10^2$	$9.50 \times 10^2$	$1.06 \times 10^3$
ø50	Push/Pull	$1.65 \times 10^2$	$2.47 \times 10^2$	$3.30 \times 10^2$	$4.95 \times 10^2$	$6.60 \times 10^2$	$8.25 \times 10^2$	$9.90 \times 10^2$	$1.15 \times 10^3$	$1.32 \times 10^3$	$1.48 \times 10^3$	$1.65 \times 10^3$
ø63	Push/Pull	$2.80 \times 10^2$	$4.20 \times 10^2$	$5.61 \times 10^2$	$8.41 \times 10^2$	$1.12 \times 10^3$	$1.40 \times 10^3$	$1.68 \times 10^3$	$1.96 \times 10^3$	$2.24 \times 10^3$	$2.52 \times 10^3$	$2.80 \times 10^3$
ø80	Push/Pull	$4.54 \times 10^2$	$6.80 \times 10^2$	$9.07 \times 10^2$	$1.36 \times 10^3$	$1.81 \times 10^3$	$2.27 \times 10^3$	$2.72 \times 10^3$	$3.17 \times 10^3$	$3.63 \times 10^3$	$4.08 \times 10^3$	$4.54 \times 10^3$
ø100	Push/Pull	$7.15 \times 10^2$	$1.07 \times 10^3$	$1.43 \times 10^3$	$2.14 \times 10^3$	$2.86 \times 10^3$	$3.57 \times 10^3$	$4.29 \times 10^3$	$5.00 \times 10^3$	$5.72 \times 10^3$	$6.43 \times 10^3$	$7.15 \times 10^3$



# SCM-D Series

## How to order

No switch (built-in magnet for switch)

**SCM-D-LB-40-B-100** ————— **J I**

With switch (built-in magnet for switch)

**SCM-D-LB-40-B-100-T2H-D** ————— **J I**

**A** Mounting

**B** Bore size

**C** Port thread

**D** Cushion

**E** Stroke

**F** Switch model No.

\*4

\*5

**G** Switch quantity

**H** Switch mounting

**I** Option

\*2

\*6

\*8

**J** Accessory

## ⚠ Precautions for model No. selection

\*1 : Mounting bracket will be shipped with the product.

\*2 : If the product is supplied with bellows and the mounting bracket is LB, FA, or TA, it will be shipped assembled.

\*3 : Refer to page 308 for the number of installed switches and the min. stroke.

\*4 : Switches other than **F** Switch model No. are also available. (Made to order)

Refer to Ending Page 1 for details.

\*5 : T8H/V switches cannot be mounted when the bore size is from ø20 to ø40 and the switch mounting style is the rail.

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

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

\*8 : "Q" (switch rail enclosed at shipment) is not available for the "Z" switch mounting.

\*9 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

## [Example of model No.]

**SCM-D-LB-40B-100-T2H-D-JI**

Model: Round shaped cylinder, double acting/double rod

**A** Mounting : Axial foot

**B** Bore size : ø40 mm

**C** Port thread : Rc thread

**D** Cushion : With two-sided air cushion

**E** Stroke : 100 mm

**F** Switch model No. : Proximity T2H switch, lead wire 1 m

**G** Switch quantity : 2

**H** Switch mounting : Rail

**I** Option : Bellows material for max. ambient temperature 100°C

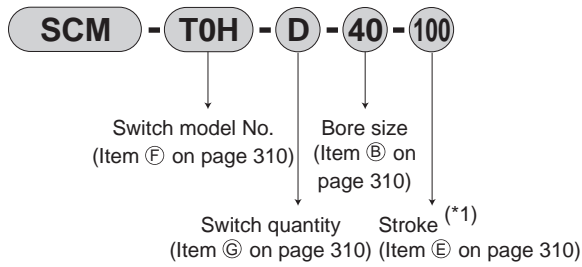
**J** Accessory : Rod eye

Code	Description								
<b>A Mounting</b>									
Bore size (ø)		20	25	32	40	50	63	80	100
00	Basic	●	●	●	●	●	●	●	●
LB	Axial foot	●	●	●	●	●	●	●	●
FA	Rod side flange	●	●	●	●	●	●	●	●
TA	Rod side trunnion	●	●	●	●	●	●	●	●
<b>B Bore size (mm)</b>									
20	ø20								
25	ø25								
32	ø32								
40	ø40								
50	ø50								
63	ø63								
80	ø80								
100	ø100								
<b>C Port thread</b>									
Blank	Rc thread								
N	NPT thread (made-to-order product)								
G	G thread (made-to-order product)								
<b>D Cushion</b>									
B	With two-sided air cushion								
R	Rod side air cushioned								
H	Head side air cushioned								
D	With two-sided rubber cushion								
<b>E Stroke (mm)</b>									
Bore size		Stroke			Custom stroke				
ø20 to ø100		10 to 600			In 1 mm increments				
<b>F Switch model No.</b>									
Axial lead wire	Radial lead wire	Contact	Voltage	Indicator	Lead wire				
T0H*	T0V*	Reed	AC	DC	1-color LED	2-wire			
T5H*	T5V*		●	●			No indicator lamp		
T8H*	T8V*		●	●			1-color LED		
T1H*	T1V*	Proximity	●		1-color LED	2-wire			
T2H*	T2V*			●			1-color LED		
T3H*	T3V*			●	1-color LED	3-wire			
T3PH*	T3PV*			●			1-color LED		
T2WH*	T2WV*			●	2-color LED	2-wire			
T2YH*	T2YV*			●			2-color LED		
T3WH*	T3WV*		●	2-color LED					
T3YH*	T3YV*		●	2-color LED	3-wire				
T2YD*	-		●			2-color LED			
T2YDT*	-		●	AC magnetic field	2-wire				
T2JH*	T2JV*		●	1-color LED off-delay	2-wire				
<b>* Lead wire length</b>									
Blank	1 m (standard)								
3	3 m (option)								
5	5 m (option)								
<b>G Switch quantity</b>									
R	1 on rod side								
H	1 on head side								
D	2								
T	3								
4	4 (when there are more than 4 switches, indicate switch quantity.)								
<b>H Switch mounting</b>									
Blank	Rail method								
Z	Band method								
<b>I Option</b>									
		Max. ambient temp.		Instantaneous max. temp.					
J	Bellows	100°C		200°C					
L	Bellows	250°C		400°C					
Q	Switch rail included at shipment								
M	Piston rod material (stainless steel)								
P6	Copper and PTFE free								
<b>J Accessory</b>									
Bore size (ø)		20	25	32	40	50	63	80	100
I	Rod eye	●	●	●	●	●	●	●	●
Y	Rod clevis (pin and snap ring included)	●	●	●	●	●	●	●	●
B2	Clevis bracket	●	●	●	●	●	●	●	●

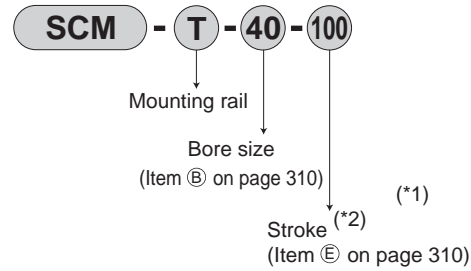
### How to order switch

[Switch mounting: Rail]

● Switch body + mounting rail set



● Mounting rail only



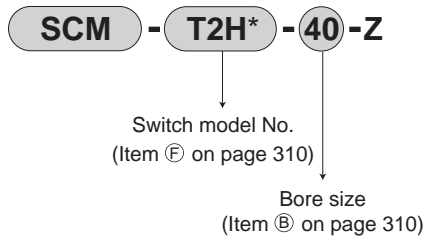
\*1: Indicate X if the stroke exceeds 300 mm.

If exceeding 300 mm, a short rail (with 100 mm switch adjustment length) will be included per switch.

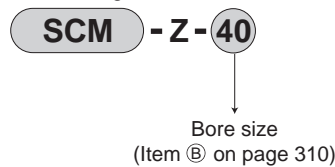
\*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

[Switch mounting: Band]

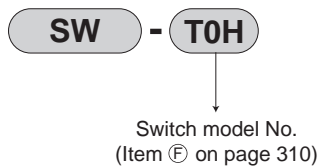
● Switch body + mounting bracket set + band



● Mounting bracket set + band



[Switch body only]



### How to order mounting bracket

Bore size (mm)	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63	SCM-LB-80	SCM-LB-100
Flange (FA)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63	SCM-FA-80	SCM-FA-100
Trunnion (TA)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63	-	-

\*1: All mounting brackets are supplied with mounting bolts.

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

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

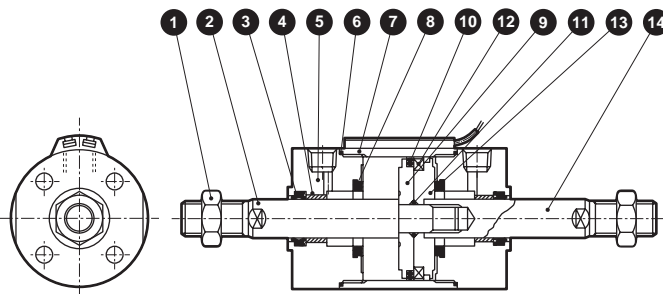
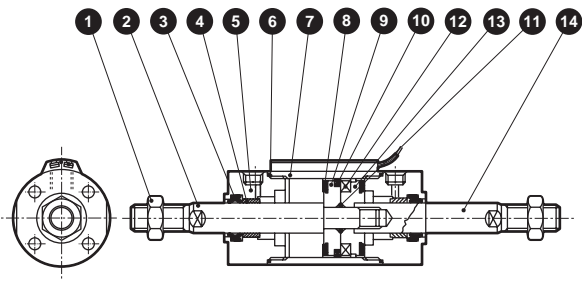
Ending

# SCM-D Series

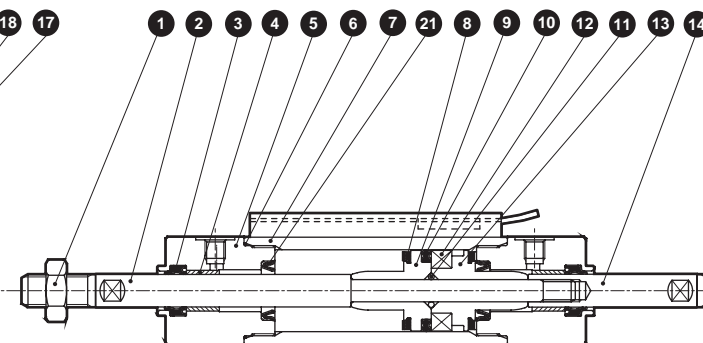
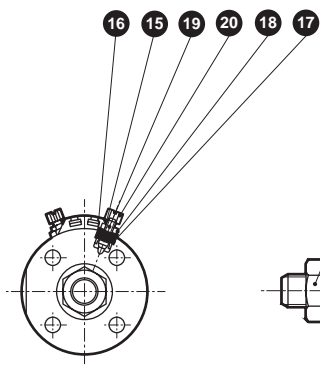
## Internal structure and parts list

● With rubber cushion  
ø20 to ø40

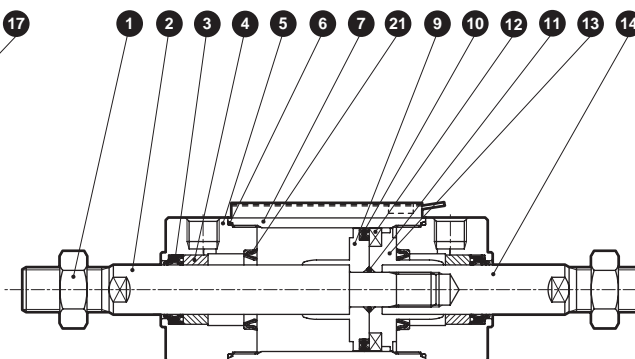
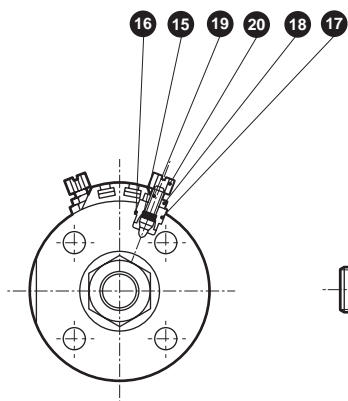
ø50 to ø100



● With air cushion  
ø20 to ø40



ø50 to ø100



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rod nut	Steel	Nickeling	12	Magnet	Plastic	
2	Piston rod A	ø20, ø25: Stainless steel ø32 to ø100: Steel	Industrial chrome plating	13	Piston H	ø20 to ø40: Aluminum alloy ø50 to ø100: Aluminum alloy die-casting	
3	Rod packing	Nitrile rubber		14	Piston rod B	ø20, ø25: Stainless steel ø32 to ø100: Steel	Industrial chrome plating
4	Bush	Oil impregnated bearing alloy <sup>*1</sup>		<b>With air cushion</b>			
5	Rod cover	Aluminum alloy	Hard alumite	15	Needle gasket	Nitrile rubber	
6	Cylinder gasket	Nitrile rubber		16	Holder gasket	Nitrile rubber	
7	Cylinder tube	Aluminum alloy	Hard alumite	17	Needle holder	Aluminum alloy	
8	Cushion rubber	Urethane rubber		18	Lock nut	Steel	Nickeling
9	Piston R	ø20 to ø40: Aluminum alloy ø50 to ø100: Aluminum alloy die-casting		19	Needle	Stainless steel	
10	Piston packing	Nitrile rubber		20	Knob	Aluminum alloy	Chromate
11	Piston gasket	Nitrile rubber		21	Cushion packing	Nitrile rubber/steel	

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

### Repair parts list

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

With rubber cushion

Bore size (mm)	Kit No.	Repair parts No.
ø20	SCM-D-20DK	
ø25	SCM-D-25DK	
ø32	SCM-D-32DK	
ø40	SCM-D-40DK	
ø50	SCM-D-50DK	
ø63	SCM-D-63DK	
ø80	SCM-D-80DK	
ø100	SCM-D-100DK	

With air cushion

Bore size (mm)	Kit No.	Repair parts No.
ø20	SCM-D-20BK	
ø25	SCM-D-25BK	
ø32	SCM-D-32BK	
ø40	SCM-D-40BK	
ø50	SCM-D-50BK	
ø63	SCM-D-63BK	
ø80	SCM-D-80BK	
ø100	SCM-D-100BK	

\*1: 3, 6 and 10 are the same as those of the type with rubber cushion.

\*2: 8 is not supplied with ø50 to ø100.

SCP\*3

CMK2

CMA2

**SCM**

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

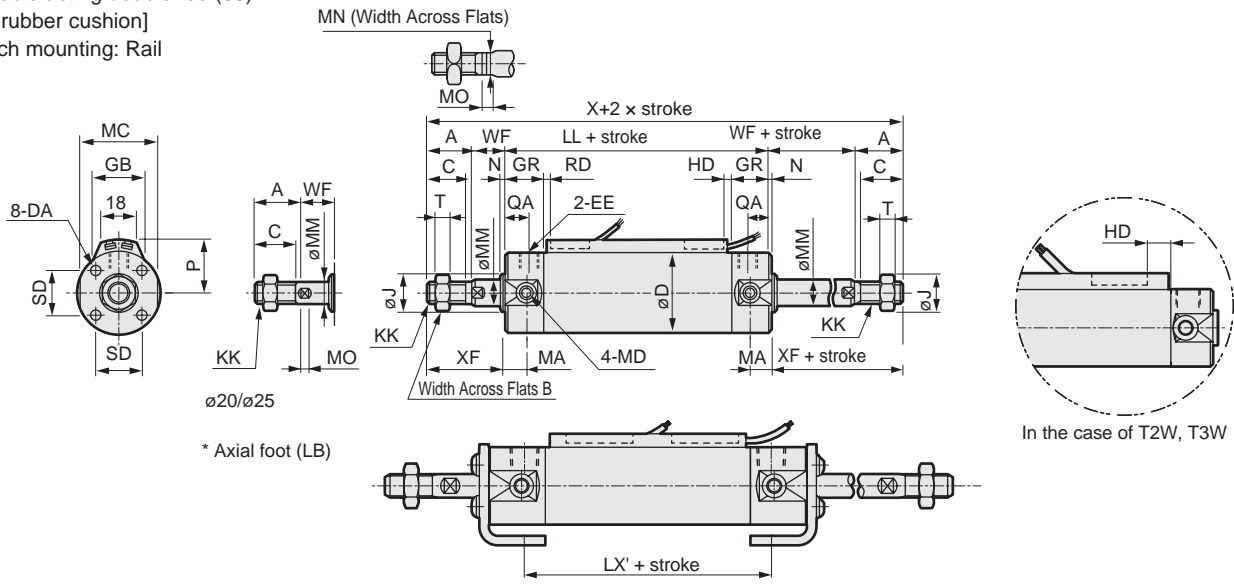
Ending

# SCM-D Series



## Dimensions

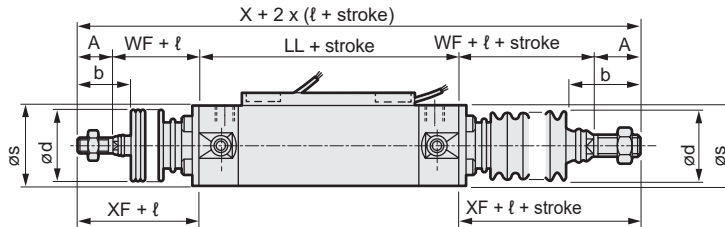
- Double acting double rod (00)
- [With rubber cushion]
- Switch mounting: Rail



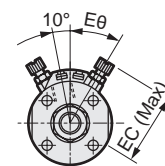
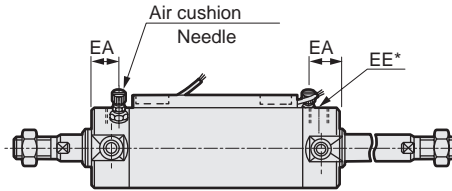
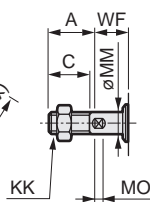
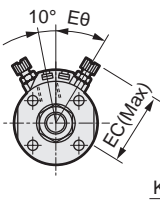
\* Axial foot (LB)

In the case of T2W, T3W

With bellows on both sides



- [With air cushion]
- Switch mounting: Rail



\*1: Piping port (EE) of ø20 and ø25 is different. Refer to the dimensions (EE\*) of the type with air cushion.

\*3: The positions for the left and right width across flats are unspecified.

\*2: Needle relational dimensions of the type with air cushion are the same as those of the double acting. Refer to pages 238 and 239.

\*4: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

\*5: For the dimensions of the accessories, refer to pages 252 and 253.

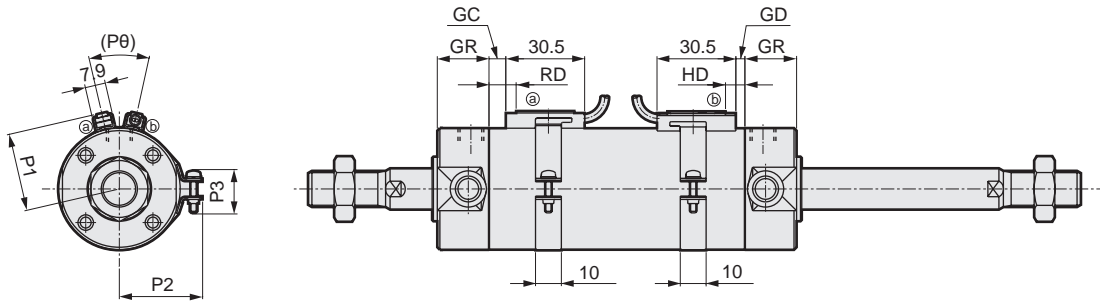
Code	Basic (00) Basic dimensions																		
Bore size (mm)	A	B	C	D	DA	EE (Note)	GR	J	KK	LL	MA	MC	MD	MM	MN	MO	N	QA	SD
ø20	18	13	16	26	M4 depth 6.5	Rc1/8	19	12	M8	71	11	24	M5	8	6	4	2	12	14
ø25	22	17	20	31	M5 depth 6.5	Rc1/8	19	14	M 10 x 1.25	71	11	29	M6	10	8	5	2	12	16.5
ø32	22	17	20	38	M5 depth 7.5	Rc1/8	19	18	M 10 x 1.25	73	11	36	M8	12	10	5.5	2	12	20
ø40	30	22	27	47	M6 depth 12	Rc1/8	20	25	M 14 x 1.5	79	12	44	M10	16	14	6	2	13	26
ø50	35	27	32	58	M8 depth 16	Rc1/4	25	30	M 18 x 1.5	93	13	55	M12	20	17	8	2	15	32
ø63	35	27	32	72	M10 depth 16	Rc1/4	25	32	M 18 x 1.5	93	13	69	M14	20	17	8	2	15	38
ø80	40	32	37	89	M10 depth 22	Rc3/8	28	40	M 22 x 1.5	108	-	80	-	25	22	11	3	15	50
ø100	40	41	37	110	M12 depth 22	Rc1/2	28	50	M 26 x 1.5	108	-	100	-	30	27	13	3	15	60

Code	With bellows										With air cushion				Switch mounting: Rail							
Bore size (mm)	T	WF	X	XF	LX'	b	d	s	l	EA	EC	EE*	Eθ	P	GB	HD		RD				
																T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W	
ø20	5	17	141	35	47.2	30	30	25.7	(stroke/3) + 18.5	14	27	M5	30°	19.5	23	3.0	6.5	8.5	7.5	7.5	7.5	9.5
ø25	6	18	151	40	47.2	35	30	30.7	(stroke/3) + 20.5	14	29.5	M5	30°	22	24.4	2.0	5.5	7.5	8.5	8.5	8.5	10.5
ø32	6	18	153	40	47.2	31.5	35	37.7	(stroke/3) + 19	14	32.8	Rc1/8	25°	25.5	25	3.0	6.5	8.5	9.5	9.5	11.5	11.5
ø40	8	20	179	50	52.2	40	35	46.7	(stroke/3) + 18.5	15	36.6	Rc1/8	20°	30	25.7	5.0	8.5	10.5	11.5	11.5	13.5	13.5
ø50	11	23	209	58	58	46	40	57.7	(stroke/3.6) + 18.5	18.5	43	Rc1/4	20°	35.5	26.2	7.5	11.0	13.0	13.0	13.0	15.0	15.0
ø63	11	23	209	58	58	46	40	71.7	(stroke/3.6) + 18.5	18.5	50	Rc1/4	20°	42.5	26.5	7.5	11.0	13.0	13.0	13.0	15.0	15.0
ø80	13	31	250	71	60	55	50	88.7	(stroke/4.3) + 14.5	20	58.5	Rc3/8	20°	51	26.7	9.5	13.0	15.0	20.0	20.0	22.0	22.0
ø100	16	31	250	71	60	56	60	109.7	(stroke/4.5) + 21	20	69	Rc1/2	20°	61.5	26.7	10.0	13.5	15.5	19.5	19.5	21.5	21.5

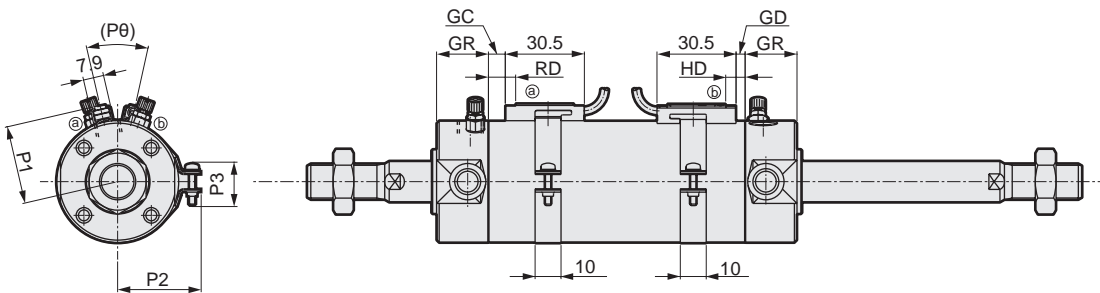
Note: Installation dimensions of the mounting types are the same as those of SCM (double acting). Refer to pages 240 to 251. For axial foot (LB), refer to the figure above.

## Dimensions

- Double acting double rod
- [With rubber cushion]
- Switch mounting: Band



- [With air cushion]
- Switch mounting: Band



\*1: Needle relational dimensions of the type with air cushion are the same as those of the double acting. Refer to pages 238 and 239.  
 \*2: The positions for the left and right widths across flats are unspecified.

\*3: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

Code	Switch mounting: Band																
	GC			GD			GR	HD			RD			P1	P2	P3	Pθ
	T0/T5	T2, T3	T2W/T3W	T0/T5	T2, T3	T2W/T3W		T0/T5	T2, T3	T2W/T3W	T0/T5	T2, T3	T2W/T3W				
ø20	3.5	3.5	5.5	2.5	2.5	4.5	19	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38°)
ø25	4.5	4.5	6.5	1.5	1.5	3.5	19	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34°)
ø32	5.5	5.5	7.5	2.5	2.5	4.5	19	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30°)
ø40	7.5	7.5	9.5	4.5	4.5	6.5	20	8.5	8.5	10.5	11.5	11.5	13.5	30.2	32.1	16	(26°)
ø50	9.0	9.0	11.0	7.0	7.0	9.0	25	11.0	11.0	13.0	13.0	13.0	15.0	35.7	37.4	16	(22°)
ø63	9.0	9.0	11.0	7.0	7.0	9.0	25	11.0	11.0	13.0	13.0	13.0	15.0	42.7	44.4	16	(20°)
ø80	16.0	16.0	18.0	9.0	9.0	11.0	28	13.0	13.0	15.0	20.0	20.0	22.0	51.2	53.0	16	(16°)
ø100	15.5	15.5	17.5	9.5	9.5	11.5	28	13.5	13.5	15.5	19.5	19.5	21.5	61.7	63.5	16	(16°)

\* For the dimensions of the accessories, refer to pages 252 and 253.

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





Round shaped cylinder  
Double acting/back to back

# SCM-B Series

● Bore size:  $\phi 20/\phi 25/\phi 32/\phi 40/\phi 50/\phi 63$

JIS symbol



## Specifications

Item	SCM-B					
Bore size mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$
Actuation	Double acting/back to back					
Working fluid	Compressed air					
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)					
Min. working pressure MPa	0.1 ( $\approx 15$ psi, 1 bar)			0.05 ( $\approx 7.3$ psi, 0.5 bar)		
Proof pressure MPa	1.6 ( $\approx 230$ psi, 16 bar)					
Ambient temperature $^{\circ}\text{C}$	-10 ( $14^{\circ}\text{F}$ ) to 60 ( $140^{\circ}\text{F}$ ) (no freezing)					
Port size	Rc1/8			Rc1/4		
Stroke tolerance mm	$+1.4$ 0 (to 500)		$+1.4$ 0 (to 750)		$+2.3$ 0 (to 750)	
Working piston speed mm/s	30 to 1000 (Operate within the allowable absorbed energy.)					
Cushion	Rubber cushion					
Lubrication	Not required (use turbine oil ISO VG32 if necessary for lubrication)					
Allowable absorbed energy J	0.1	0.2	0.5	0.9	1.6	1.6

## Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\phi 20$	25, 50, 75	500	10
$\phi 25$			
$\phi 32$			
$\phi 40$	200, 250, 300	750	10
$\phi 50$			
$\phi 63$			

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

## Number of installed switches and min. stroke (mm)

● Switch mounting: Rail

Switch quantity	1				2				3				4				5			
	Proximity		Reed		Proximity		Reed		Proximity		Reed		Proximity		Reed		Proximity		Reed	
Bore size (mm)	T2, T3	T2W, T3W	T*Y*	Reed	T2, T3	T2W, T3W	T*Y*	Reed	T2, T3	T2W, T3W	T*Y*	Reed	T2, T3	T2W, T3W	T*Y*	Reed	T2, T3	T2W, T3W	T*Y*	Reed
$\phi 20$	10				25				50 70 70 55				55 70 70 55				75 110 110 90			
$\phi 25$	10				25				50 70 70 55				55 70 70 55				75 110 110 90			
$\phi 32$	10				25				50 70 70 55				55 70 70 55				75 110 110 90			
$\phi 40$	10				25				50 70 70 55				55 70 70 55				75 110 110 90			
$\phi 50$	10				25				50 65 65 55				55 65 65 55				75 110 110 90			
$\phi 63$	10				25				50 65 65 55				55 65 65 55				75 110 110 90			

● Switch mounting: Band

Switch quantity	1				2				3				4				5			
	Proximity		Reed		Proximity		Reed		Proximity		Reed		Proximity		Reed		Proximity		Reed	
Bore size (mm)	T2, T3	T2W, T3W	T*Y*	Reed	T2, T3	T2W, T3W	T*Y*	Reed	T2, T3	T2W, T3W	T*Y*	Reed	T2, T3	T2W, T3W	T*Y*	Reed	T2, T3	T2W, T3W	T*Y*	Reed
$\phi 20$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\phi 25$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\phi 32$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\phi 40$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\phi 50$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\phi 63$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95

\*1: For types with one switch, when the stroke is between 10 and 24 mm, the trunnion mounting is not available since the switch rail mounting position is different. Refer to page 345 for mounting position.

### Switch specifications

● 1-color/2-color LED

Item	2-wire proximity				3-wire proximity				2-wire reed			2-wire proximity				
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V	T2YD (*4) T2YDT				
Applications	For programmable controller, relay, compact solenoid valve		Dedicated for programmable controller		For programmable controller, relay				For programmable controller, relay	For programmable controller, relay (no lamp), serial	For programmable controller, relay	Dedicated for programmable controller				
Output method	-				NPN output	PNP output	NPN output	NPN output	-							
Pwr. supp. V.	-				10 to 28 VDC				-							
Load voltage	85 to 265 VAC	10 to 30 VDC		24 VDC ±10%	30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA	5 to 20 mA (*3)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	No indicator lamp	LED (Lit when ON)	Red/green LED (Lit when ON)				
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA				1 mA or less			
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80			1 m:33 3 m:87 5 m:142	1 m:61 3 m:166 5 m:272			

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

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

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

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

### Cylinder weight

(Unit: kg)

Item/mounting	Weight when stroke (S) = 0 mm		Additional weight				Switch weight (per 1 pc)	Additional weight per S = 10 mm	Additional weight per S = 10 mm (With switch rail)	Band weight per switch
	Basic (00)	Basic	Axial foot	Flange	Trunnion					
∅20	0.10	0.00	0.11	0.03	0.01	Refer to the weight in the switch specifications.	0.01	0.012	0.007	
∅25	0.17	0.00	0.13	0.04	0.02		0.014	0.016	0.007	
∅32	0.26	0.02	0.18	0.08	0.05		0.018	0.02	0.007	
∅40	0.41	0.05	0.27	0.13	0.10		0.03	0.032	0.007	
∅50	0.77	0.07	0.55	0.41	0.21		0.044	0.046	0.008	
∅63	1.07	0.11	0.83	0.61	0.25		0.052	0.054	0.009	

(Example) Product weight of SCM-B-LB-40D-25-T2H-D-D50-T2H-R

[S1 weight]  
 Product weight when S = 0 mm .....0.41 kg  
 Additional weight when S = 25mm .....0.032x $\frac{25}{10}$ =0.08 kg  
 Weight of 2 switches .....0.036 kg  
 S1 weight .....0.41 kg+0.08 kg+0.036 kg=0.526 kg

[S2 weight]  
 Product weight when S = 0 mm .....0.41 kg  
 Additional weight when S = 50mm .....0.032x $\frac{25}{10}$ =0.16 kg  
 Weight of 1 switches .....0.018 kg  
 S2 weight .....0.63 kg+0.16 kg+0.018 kg=0.588 kg  
 Product weight (S1 weight + S2 weight + additional weight) .....0.526 kg+0.588 kg+0.27 kg=1.384 kg

### Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
∅20	Push	-	31.4	47.1	62.8	94.2	1.26x10 <sup>2</sup>	1.57x10 <sup>2</sup>	1.88x10 <sup>2</sup>	2.20x10 <sup>2</sup>	2.51x10 <sup>2</sup>	2.83x10 <sup>2</sup>	3.14x10 <sup>2</sup>
	Pull	-	26.4	39.6	52.8	79.2	1.06x10 <sup>2</sup>	1.32x10 <sup>2</sup>	1.58x10 <sup>2</sup>	1.85x10 <sup>2</sup>	2.11x10 <sup>2</sup>	2.38x10 <sup>2</sup>	2.64x10 <sup>2</sup>
∅25	Push	-	49.1	73.6	98.2	1.47x10 <sup>2</sup>	1.96x10 <sup>2</sup>	2.45x10 <sup>2</sup>	2.95x10 <sup>2</sup>	3.44x10 <sup>2</sup>	3.93x10 <sup>2</sup>	4.42x10 <sup>2</sup>	4.91x10 <sup>2</sup>
	Pull	-	41.2	61.9	82.5	1.24x10 <sup>2</sup>	1.65x10 <sup>2</sup>	2.06x10 <sup>2</sup>	2.47x10 <sup>2</sup>	2.89x10 <sup>2</sup>	3.30x10 <sup>2</sup>	3.71x10 <sup>2</sup>	4.12x10 <sup>2</sup>
∅32	Push	-	80.4	1.21x10 <sup>2</sup>	1.61x10 <sup>2</sup>	2.41x10 <sup>2</sup>	3.22x10 <sup>2</sup>	4.02x10 <sup>2</sup>	4.83x10 <sup>2</sup>	5.63x10 <sup>2</sup>	6.43x10 <sup>2</sup>	7.24x10 <sup>2</sup>	8.04x10 <sup>2</sup>
	Pull	-	69.1	1.04x10 <sup>2</sup>	1.38x10 <sup>2</sup>	2.07x10 <sup>2</sup>	2.76x10 <sup>2</sup>	3.46x10 <sup>2</sup>	4.15x10 <sup>2</sup>	4.84x10 <sup>2</sup>	5.53x10 <sup>2</sup>	6.22x10 <sup>2</sup>	6.91x10 <sup>2</sup>
∅40	Push	-	1.26x10 <sup>2</sup>	1.88x10 <sup>2</sup>	2.51x10 <sup>2</sup>	3.77x10 <sup>2</sup>	5.03x10 <sup>2</sup>	6.28x10 <sup>2</sup>	7.54x10 <sup>2</sup>	8.80x10 <sup>2</sup>	1.01x10 <sup>3</sup>	1.13x10 <sup>3</sup>	1.26x10 <sup>3</sup>
	Pull	-	1.06x10 <sup>2</sup>	1.58x10 <sup>2</sup>	2.11x10 <sup>2</sup>	3.17x10 <sup>2</sup>	4.22x10 <sup>2</sup>	5.28x10 <sup>2</sup>	6.33x10 <sup>2</sup>	7.39x10 <sup>2</sup>	8.44x10 <sup>2</sup>	9.50x10 <sup>2</sup>	1.06x10 <sup>3</sup>
∅50	Push	98.0	1.96x10 <sup>2</sup>	2.95x10 <sup>2</sup>	3.93x10 <sup>2</sup>	5.89x10 <sup>2</sup>	7.85x10 <sup>2</sup>	9.82x10 <sup>2</sup>	1.18x10 <sup>3</sup>	1.37x10 <sup>3</sup>	1.57x10 <sup>3</sup>	1.77x10 <sup>3</sup>	1.96x10 <sup>3</sup>
	Pull	82.5	1.65x10 <sup>2</sup>	2.47x10 <sup>2</sup>	3.30x10 <sup>2</sup>	4.95x10 <sup>2</sup>	6.60x10 <sup>2</sup>	8.25x10 <sup>2</sup>	9.90x10 <sup>2</sup>	1.15x10 <sup>3</sup>	1.32x10 <sup>3</sup>	1.48x10 <sup>3</sup>	1.65x10 <sup>3</sup>
∅63	Push	1.56x10 <sup>2</sup>	3.12x10 <sup>2</sup>	4.68x10 <sup>2</sup>	6.23x10 <sup>2</sup>	9.35x10 <sup>2</sup>	1.25x10 <sup>3</sup>	1.56x10 <sup>3</sup>	1.87x10 <sup>3</sup>	2.18x10 <sup>3</sup>	2.49x10 <sup>3</sup>	2.81x10 <sup>3</sup>	3.12x10 <sup>3</sup>
	Pull	2.40x10 <sup>2</sup>	2.80x10 <sup>2</sup>	4.20x10 <sup>2</sup>	5.61x10 <sup>2</sup>	8.41x10 <sup>2</sup>	1.12x10 <sup>3</sup>	1.40x10 <sup>3</sup>	1.68x10 <sup>3</sup>	1.96x10 <sup>3</sup>	2.24x10 <sup>3</sup>	2.52x10 <sup>3</sup>	2.80x10 <sup>3</sup>

# SCM-B Series

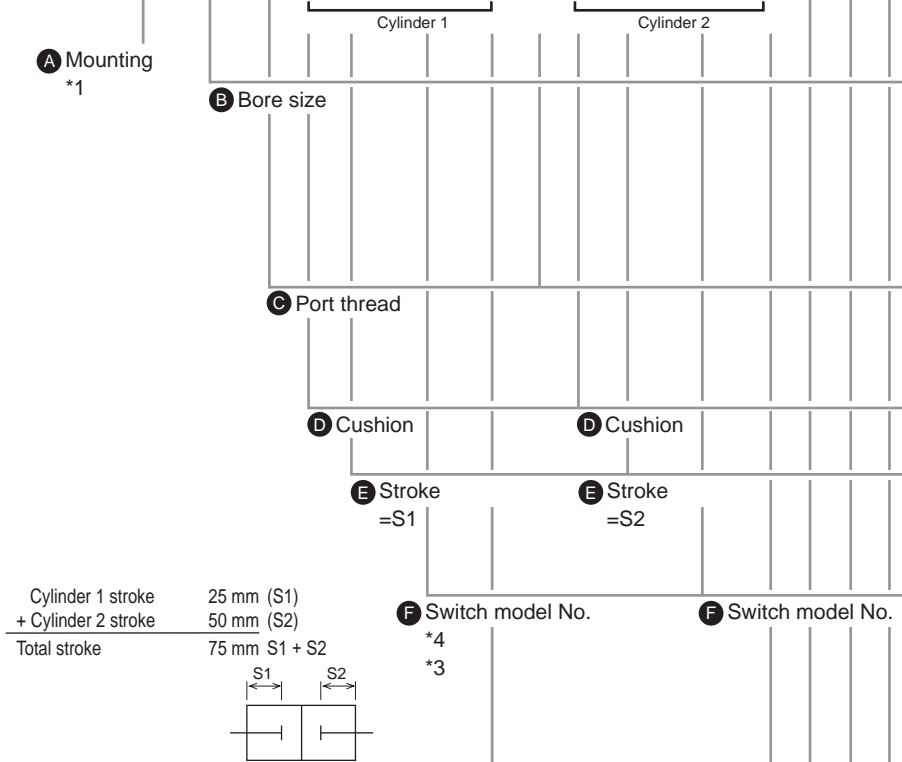
## How to order

No switch (built-in magnet for switch)

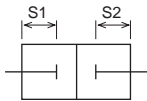
SCM-B-LB-40-D25-Cylinder 1 stroke-Cylinder 2 stroke-JY

With switch (built-in magnet for switch)

SCM-B-LB-40-D25-T0H-D-D50-T0H-R-JY



Cylinder 1 stroke 25 mm (S1)  
+ Cylinder 2 stroke 50 mm (S2)  
Total stroke 75 mm S1 + S2



### ⚠ Precautions for model No. selection

- \*1 : Mounting bracket will be shipped with the product.
- \*2 : If the product is supplied with bellows and the mounting bracket is LB, FA, or TA, it will be shipped assembled.
- \*3 : Refer to page 316 for the number of installed switches and the min. stroke.
- \*4 : Switches other than F Switch model No. are also available. (Made to order)  
Refer to Ending Page 1 for details.
- \*5 : T8H/V switches cannot be mounted when the bore size is from ø20 to ø40 and the switch mounting style is the rail.
- \*6 : The instantaneous max. temperature is the temperature when sparks, cutting chips, etc., instantaneously contact the bellows.
- \*7 : Refer to Ending Page 85 for custom specifications of rod end form.
- \*8 : "Q" (switch rail enclosed at shipment) is not available for the "Z" switch mounting.
- \*9 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

### [Example of model No.]

## SCM-B-LB-40-D25-T0H-D-D50-T0H-R-JY

Model: Round shaped cylinder, double acting/back to back

- A Mounting : Axial foot
- B Bore size : ø40 mm
- C Port thread : Rc thread
- D Cushion : With two-sided rubber cushion ] Cylinder 1
- E Stroke : S1=25 mm
- D Cushion : With two-sided rubber cushion ] Cylinder 2
- E Stroke : S2=50 mm
- F Switch model No. : Reed T0H switch,  
Lead wire 1 m
- G Switch quantity : Cylinder 1; 2 pieces included,  
Cylinder 2; 1 on rod side
- H Switch mounting : Rail
- I Option : Bellows material for max. ambient temperature 100°C
- J Accessory : Rod clevis

Code	Description
<b>A Mounting</b>	
00	Basic
LB	Axial foot
FA	Cylinder 1 side flange
FB	Cylinder 2 side flange
TA	Cylinder 1 side trunnion
TB	Cylinder 2 side trunnion

B Bore size (mm)	
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63

C Port thread	
Blank	Rc thread
N	NPT thread (made-to-order product)
G	G thread (made-to-order product)

D Cushion	
D	With two-sided rubber cushion

E Stroke (mm)		
Bore size	Stroke *2	Custom stroke
ø20 to ø32	10 to 500	In 1 mm
ø40 to ø63	10 to 750	increments

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

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

G Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3
4	4 (If > 4 switches, indicate switch quantity.)

H Switch mounting	
Blank	Rail method
Z	Band method

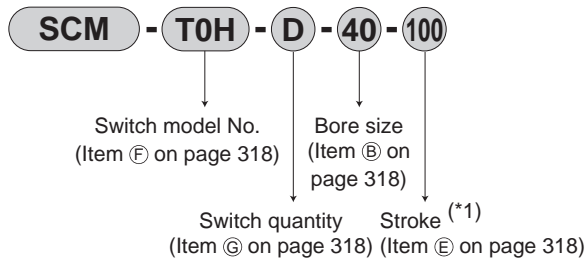
I Option			
		Max. ambient temp.	Instantaneous max. temp.
J	Bellows	100°C	200°C
L	Bellows	250°C	400°C
Q	Switch rail included at shipment		
M	Piston rod material (stainless steel)		
P6	Copper and PTFE free		

J Accessory	
I	Rod eye
Y	Rod clevis (pin and snap ring included)
B2	Clevis bracket

### How to order switch

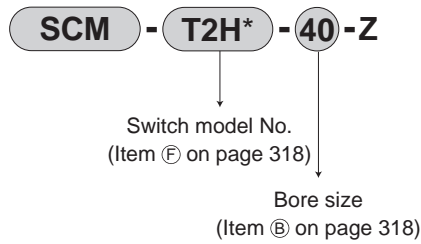
[Switch mounting: Rail]

- Switch body + mounting rail set

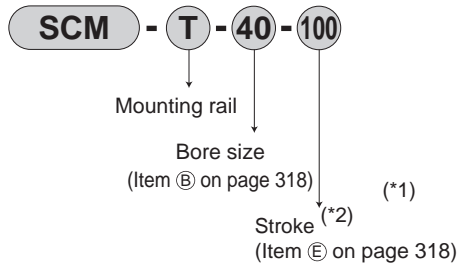


[Switch mounting: Band]

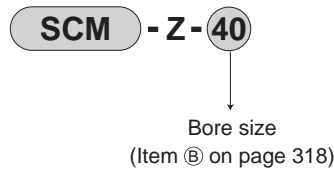
- Switch body + mounting bracket set + band



- Mounting rail only



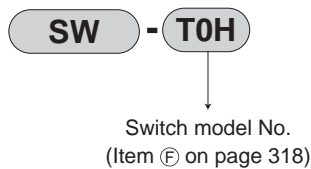
- Mounting bracket set + band



\*1: Indicate X if the stroke exceeds 300 mm.  
If exceeding 300 mm, a short rail (with 100 mm switch adjustment length) will be included per switch.

\*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

[Switch body only]



### How to order mounting bracket

Bore size (mm)	ø20	ø25	ø32	ø40	ø50	ø63
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63
Flange (FA)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63
Trunnion (TA)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63

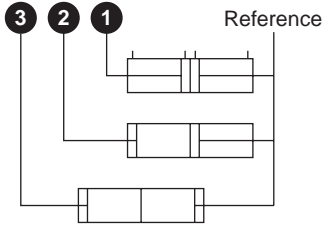
\*1: All mounting brackets are supplied with mounting bolts.

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

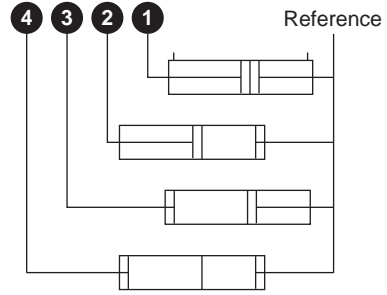
SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

## Applications

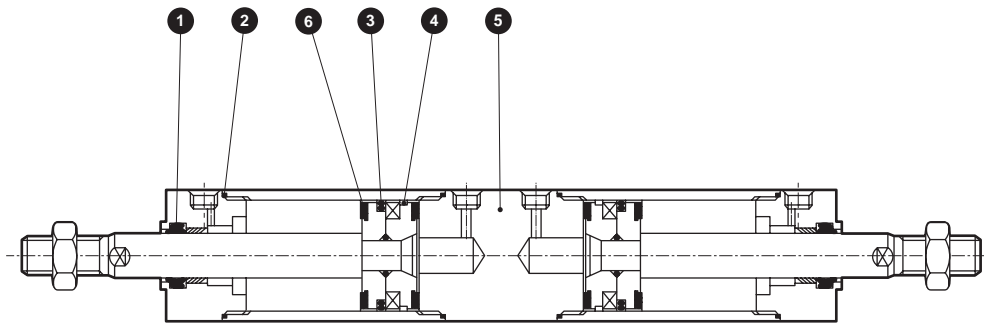
When the same strokes are combined,  
3 positions possible.



When different strokes are combined,  
4 positions possible.



## Internal structure and parts list



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rod packing	Nitrile rubber		4	Wear ring	Polyacetal resin	
2	Cylinder gasket	Nitrile rubber		5	Intermediate cover	Aluminum alloy	Hard alumite
3	Piston packing	Nitrile rubber		6	Cushion rubber	Urethane rubber	

Parts other than the above are the same as the double acting.

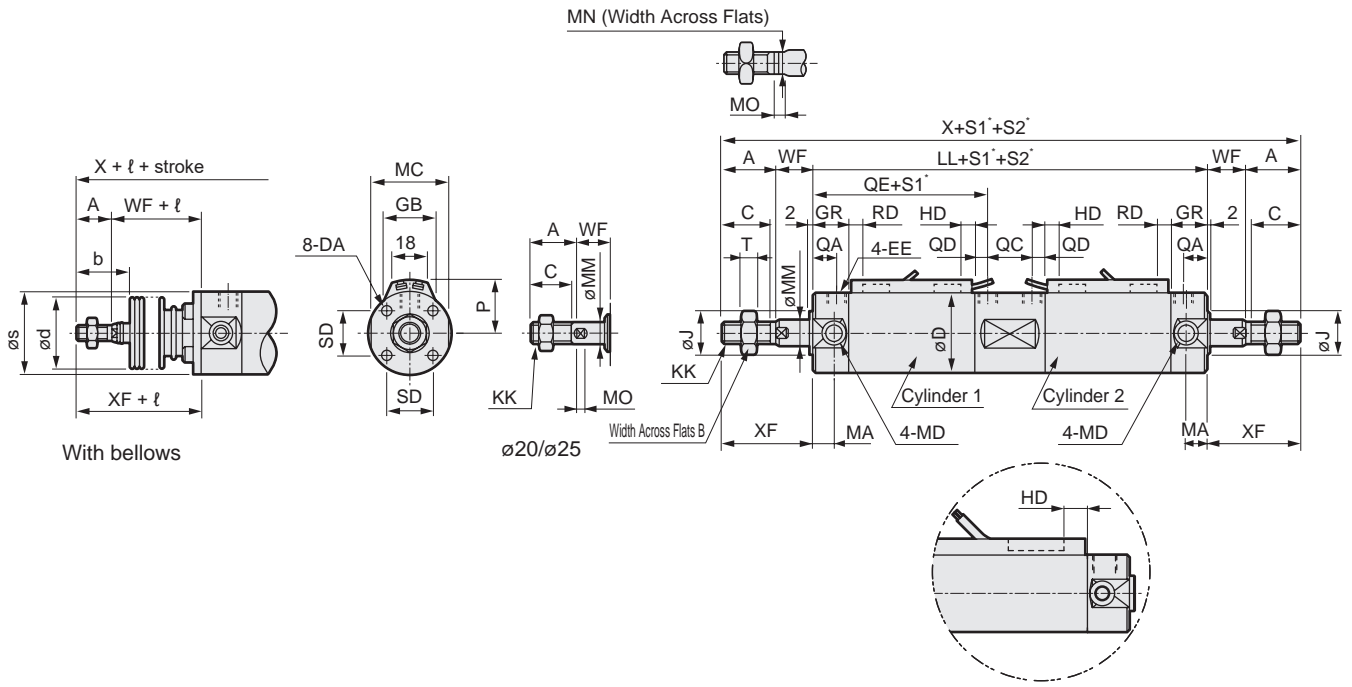
## Repair parts list

Bore size (mm)	Kit No.	Repair parts No.
ø20	SCM-B-20DK	
ø25	SCM-B-25DK	
ø32	SCM-B-32DK	
ø40	SCM-B-40DK	
ø50	SCM-B-50DK	
ø63	SCM-B-63DK	

## dimensions

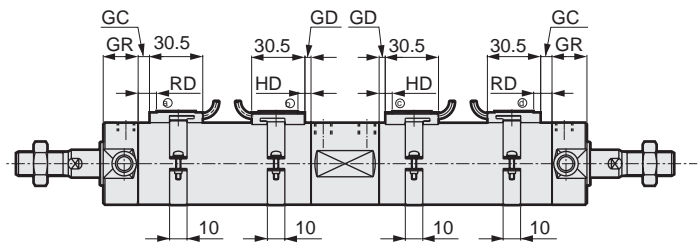
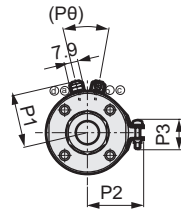
● Double acting back to back

• Switch mounting: Rail



• Switch mounting: Band

In the case of T2W, T3W



\*1: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

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

Code	Basic (00) Basic dimensions																	
Bore size (mm)	A	B	C	D	DA	EE	GR	J	KK	LL	MA	MC	MD	MM	MN	MO	QA	QC
ø20	18	13	16	26	M4 depth 6.5	Rc1/8	19	12	M8	137	11	24	M5	8	6	4	12	19
ø25	22	17	20	31	M5 depth 6.5	Rc1/8	19	14	M 10 x 1.25	137	11	29	M6	10	8	5	12	19
ø32	22	17	20	38	M5 depth 7.5	Rc1/8	19	18	M 10 x 1.25	143	11	36	M8	12	10	5.5	12	21
ø40	30	22	27	47	M6 depth 12	Rc1/8	20	25	M 14 x 1.5	157	12	44	M10	16	14	6	13	25
ø50	35	27	32	58	M8 depth 16	Rc1/4	25	30	M 18 x 1.5	184	13	55	M12	20	17	8	15	28
ø63	35	27	32	72	M10 depth 16	Rc1/4	25	32	M 18 x 1.5	184	13	69	M14	20	17	8	15	28

Code	With bellows										Switch mounting: Rail								
Bore size (mm)	QD	QE	SD	T	WF	X	XF	b	d	s	ℓ	P	GB	HD			RD		
														T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W
ø20	7	59	14	5	17	207	35	30	30	25.7	(stroke/3) + 18.5	19.5	23	3.0	6.5	8.5	7.5	7.5	9.5
ø25	7	59	16.5	6	18	217	40	35	30	30.7	(stroke/3) + 20.5	22	24.4	2.0	5.5	7.5	8.5	8.5	10.5
ø32	7	61	20	6	18	223	40	31.5	35	37.7	(stroke/3) + 19	25.5	25	3.0	6.5	8.5	9.5	9.5	11.5
ø40	7	66	26	8	20	257	50	40	35	46.7	(stroke/3) + 18.5	30	25.7	5.0	8.5	10.5	11.5	11.5	13.5
ø50	10	78	32	11	23	300	58	46	40	57.7	(stroke/3.6) + 18.5	35.5	26.2	7.5	11.0	13.0	13.0	13.0	15.0
ø63	10	78	38	11	23	300	58	46	40	71.7	(stroke/3.6) + 18.5	42.5	26.5	7.5	11.0	13.0	13.0	13.0	15.0

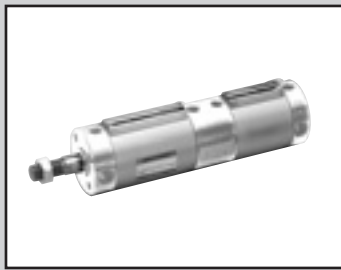
Code	Switch mounting: Band															
Bore size (mm)	GC			GD			HD			RD			P1	P2	P3	Pθ
	T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W				
ø20	3.5	3.5	5.5	2.5	2.5	4.5	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38°)
ø25	4.5	4.5	6.5	1.5	1.5	3.5	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34°)
ø32	5.5	5.5	7.5	2.5	2.5	4.5	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30°)
ø40	7.5	7.5	9.5	4.5	4.5	6.5	8.5	8.5	10.5	11.5	11.5	13.5	30.2	32.1	16	(26°)
ø50	9.0	9.0	11.0	7.0	7.0	9.0	11.0	11.0	13.0	13.0	13.0	15.0	35.7	37.4	16	(22°)
ø63	9.0	9.0	11.0	7.0	7.0	9.0	11.0	11.0	13.0	13.0	13.0	15.0	42.7	44.4	16	(20°)

\* Installation dimensions of the mounting are the same as those of SCM (double acting). Refer to pages 240 to 251.

\* For the dimensions of the accessories, refer to pages 252 and 253.

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





Round shaped cylinder  
Double acting/2-stage

# SCM-W Series

● Bore size:  $\phi 20/\phi 25/\phi 32/\phi 40/\phi 50/\phi 63$



## Specifications

Item		SCM-W					
Bore size	mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$
Actuation		Double acting/2-stage					
Working fluid		Compressed air					
Max. working pressure	MPa	1.0 ( $\approx 150$ psi, 10 bar) (*1)					
Min. working pressure	MPa	0.2 ( $\approx 29$ psi, 2 bar)			0.1 ( $\approx 15$ psi, 1 bar)		
Proof pressure	MPa	1.6 ( $\approx 230$ psi, 16 bar)					
Ambient temperature	$^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$ ) to 60 (140 $^{\circ}\text{F}$ ) (no freezing)					
Port size		Rc1/8			Rc1/4		
Stroke tolerance	S1	$\pm 1.4$			$\pm 2.3$		
	S2	+1.4			+2.3		
Working piston speed	mm/s	50 to 1000 (Operate within the allowable absorbed energy.)					
Cushion		Rubber cushion					
Lubrication		Not required (use turbine oil ISO VG32 if necessary for lubrication)					
Allowable absorbed energy	J	0.1	0.2	0.5	0.9	1.6	1.6

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

## Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\phi 20$	25, 50, 75 100, 125, 150 200, 250, 300	600	10
$\phi 25$			
$\phi 32$			
$\phi 40$			
$\phi 50$			
$\phi 63$			

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

\*2: The max. stroke of S2 is 200 mm.

## Number of installed switches and min. stroke (mm)

● Switch mounting: Rail

Switch quantity	1				2				3				4				5			
	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed
	T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*	
$\phi 20$	10				25				50	70	70	55	55	70	70	55	75	110	110	90
$\phi 25$	10				25				50	70	70	55	55	70	70	55	75	110	110	90
$\phi 32$	10				25				50	70	70	55	55	70	70	55	75	110	110	90
$\phi 40$	10				25				50	70	70	55	55	70	70	55	75	110	110	90
$\phi 50$	10				25				50	65	65	55	55	65	65	55	75	110	110	90
$\phi 63$	10				25				50	65	65	55	55	65	65	55	75	110	110	90

● Switch mounting: Band

Switch quantity	1				2				3				4				5			
	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed
	T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*	
$\phi 20$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\phi 25$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\phi 32$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\phi 40$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\phi 50$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\phi 63$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95

\*1: For types with one switch, when the stroke is between 10 and 24 mm, the trunnion mounting is not available since the switch rail mounting position is different. Refer to page 345 for mounting position.

### Switch specifications

- 1-color/2-color LED

Item	2-wire proximity				3-wire proximity				2-wire reed			2-wire proximity				
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V	T2YD (*4) T2YDT				
Applications	For programming controller, relay, compact solenoid valve	Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay	For programmable controller, relay (no lamp), serial	For programmable controller, relay	Dedicated for programmable controller				
Output method	-				NPN output	PNP output	NPN output	NPN output	-							
Pwr. supp. V.	-				10 to 28 VDC				-							
Load voltage	85 to 265 VAC	10 to 30 VDC	24 VDC ±10%		30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA	5 to 20 mA (*3)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	No indicator lamp	LED (Lit when ON)	Red/green LED (Lit when ON)				
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA			1 mA or less				
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80			1 m:33 3 m:87 5 m:142	1 m:61 3 m:166 5 m:272			

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

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

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

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

### Cylinder weight

(Unit: kg)

Item/mounting	Weight when stroke (S) = 0 mm	Additional weight					Switch weight (per 1 pc)	Additional weight per S = 10 mm	Additional weight per S = 10 mm (With switch rail)	Band weight per switch
		Basic (00)	Basic	Axial foot	Flange	Clevis				
ø20	0.10	-0.01	0.10	0.02	0.04	0.00	Refer to the weight in the switch specifications.	0.01	0.012	0.007
ø25	0.17	-0.02	0.11	0.02	0.06	0.00		0.014	0.016	0.007
ø32	0.26	-0.01	0.15	0.05	0.14	0.02		0.018	0.02	0.007
ø40	0.41	-0.03	0.19	0.05	0.20	0.02		0.03	0.032	0.007
ø50	0.77	-0.06	0.42	0.28	0.34	0.08		0.044	0.046	0.008
ø63	1.07	-0.02	0.70	0.48	0.66	0.12		0.052	0.054	0.009

(Example) Product weight of SCM-W-LB-40-D100-T2H-D-D25-T2H-R	[S1 weight] Product weight when S = 0 mm ..... 0.41 kg Additional weight when S = 100 mm ..... 0.032x $\frac{100}{10}$ = 0.32 kg Weight of 2 switches ..... 0.036 kg S1 weight ..... 0.41 kg + 0.32 kg + 0.036 kg = 0.766 kg
	[S2 weight] Product weight when S = 0 mm ..... 0.41 kg Additional weight when S = 25mm ..... 0.032x $\frac{25}{10}$ = 0.08 kg Weight of 1 switches ..... 0.018 kg S2 weight ..... 0.41 kg + 0.08 kg + 0.018 kg = 0.508 kg Product weight (S1 weight + S2 weight + additional weight) ... 0.766 kg + 0.508 kg + 0.19 kg = 1.464 kg

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

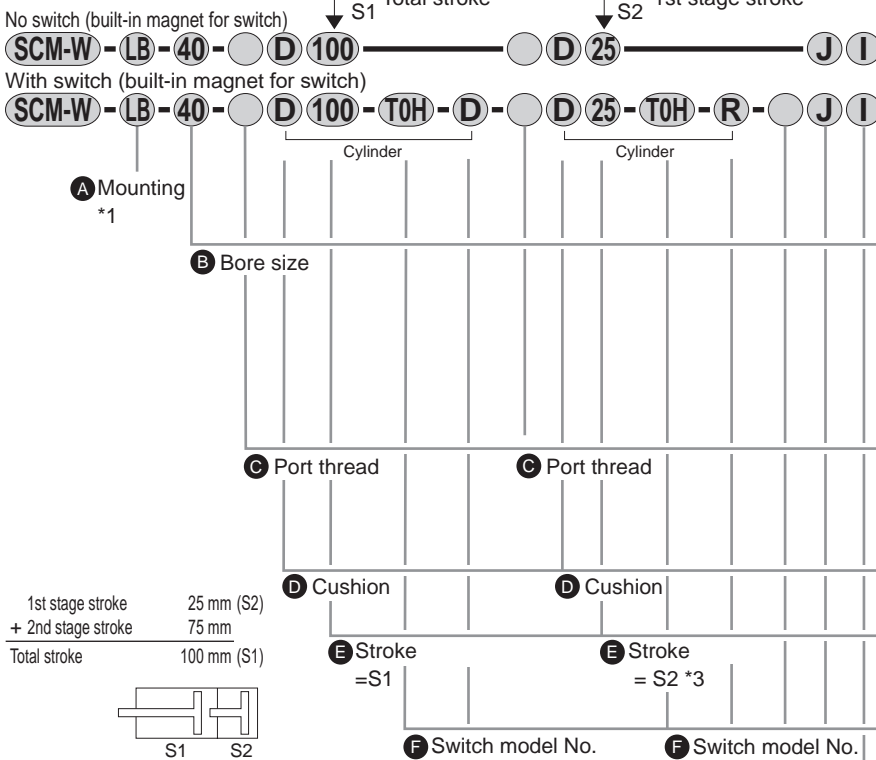
FK

Spd  
Contr

Ending

# SCM-W Series

## How to order



### ⚠ Precautions for model No. selection

- \*1 : Mounting bracket will be shipped with the product.
- \*2 : If the product is supplied with bellows and the mounting bracket is LB, FA, or TA, it will be shipped assembled.
- \*3 : The max. stroke of S2 (1st stage) is 200 mm.
- \*4 : Refer to page 322 for the number of installed switches and the min. stroke.
- \*5 : Switches other than **F** Switch model No. are also available. (Made to order) Refer to Ending Page 1 for details.
- \*6 : T8H/V switches cannot be mounted when the bore size is from ø20 to ø40 and the switch mounting style is the rail.
- \*7 : The instantaneous max. temperature is the temperature when sparks, cutting chips, etc., instantaneously contact the bellows.
- \*8 : Refer to Ending Page 85 for custom specifications of rod end form.
- \*9 : "Q" (switch rail enclosed at shipment) is not available for the "Z" switch mounting.
- \*10 : "I" and "Y" cannot be selected together.
- \*11 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

### [Example of model No.]

## SCM-W-LB-40-D100-T0H-D-D25-T0H-R-JI

Model: Round shaped cylinder, double acting/2-stage

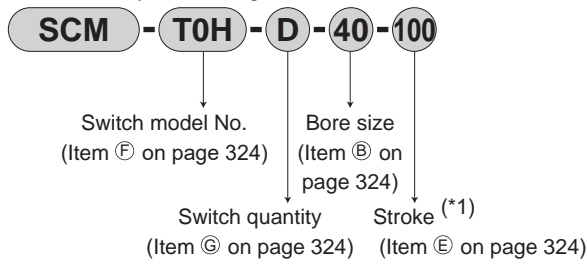
- A** Mounting : Axial foot
- B** Bore size : ø40 mm
- C** Port thread : Rc thread
- D** Cushion : With two-sided rubber cushion
- E** Stroke : S1=100 mm
- D** Cushion : With two-sided rubber cushion
- E** Stroke : S2=25 mm
- F** Switch model No. : Reed T0H switch, Lead wire 1 m
- G** Switch quantity : Cylinder 1; 2 pieces included, Cylinder 2; 1 on rod side
- H** Switch mounting : Rail
- I** Option : Bellows material for max. ambient temperature at 100°C
- J** Accessory : Rod eye

Code	Description					
<b>A Mounting</b>						
00	Basic					
LB	Axial foot					
FA	Rod side flange					
FB	Head side flange					
CA	Eye bracket					
TA	Rod side trunnion					
TB	Head side trunnion					
<b>B Bore size (mm)</b>						
20	ø20					
25	ø25					
32	ø32					
40	ø40					
50	ø50					
63	ø63					
<b>C Port thread</b>						
Blank	Rc thread					
N	NPT thread (made-to-order product)					
G	G thread (made-to-order product)					
<b>D Cushion</b>						
D	With two-sided rubber cushion					
<b>E Stroke (mm)</b>						
Bore size	Stroke *3	Custom stroke				
ø20 to ø63	10 to 600	In 1 mm increments				
<b>F Switch model No.</b>						
Axial lead wire	Radial lead wire	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No indicator lamp	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*	Proximity	●			2-wire
T2H*	T2V*			●	1-color LED	
T3H*	T3V*			●		3-wire
T3PH*	T3PV*			●	1-color LED	
T2WH*	T2WV*			●		2-wire
T2YH*	T2YV*			●	2-color LED	
T3WH*	T3WV*		●		3-wire	
T3YH*	T3YV*		●			
T2YD*	-		●		2-color LED	2-wire
T2YDT*	-		●		for AC magnetic field	
T2JH*	T2JV*		●		1-color LED off-delay	2-wire
<b>* Lead wire length</b>						
Blank	1 m (standard)					
3	3 m (option)					
5	5 m (option)					
<b>G Switch quantity</b>						
R	1 on rod side					
H	1 on head side					
D	2					
T	3					
4	4 (when there are more than 4 switches, indicate switch quantity.)					
<b>H Switch mounting</b>						
Blank	Rail method					
Z	Band method					
<b>I Option</b>						
			Max. ambient temp.	Instantaneous max. temp.		
J	Bellows		100°C	200°C		
L	Bellows		250°C	400°C		
Q	Switch rail included at shipment					
M	Piston rod material (stainless steel)					
P6	Copper and PTFE free					
<b>J Accessory</b>						
I	Rod eye					
Y	Rod clevis (pin and snap ring included)					
B2	Clevis bracket					

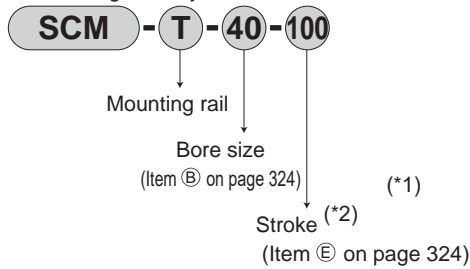
### How to order switch

#### [Switch mounting: Rail]

- Switch body + mounting rail set



- Mounting rail only

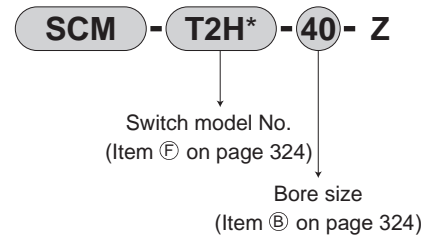


\*1: Indicate X if the stroke exceeds 300 mm. If exceeding 300 mm, a short rail (with 100 mm switch adjustment length) will be included per switch.

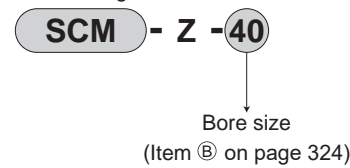
\*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

#### [Switch mounting: Band]

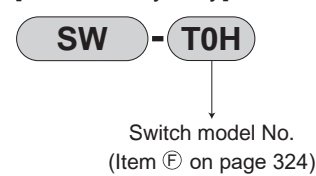
- Switch body + mounting bracket set + band



- Mounting bracket set + band



#### [Switch body only]



### How to order mounting bracket

Bore size (mm)	ø20	ø25	ø32	ø40	ø50	ø63
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63
Eye bracket (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40	SCM-CA-50	SCM-CA-63
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63

\*1: All mounting brackets are supplied with mounting bolts.

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

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

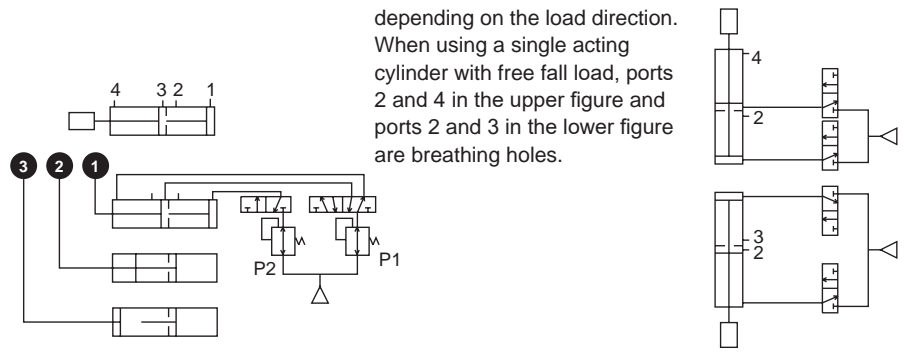
Spd  
Contr

Ending

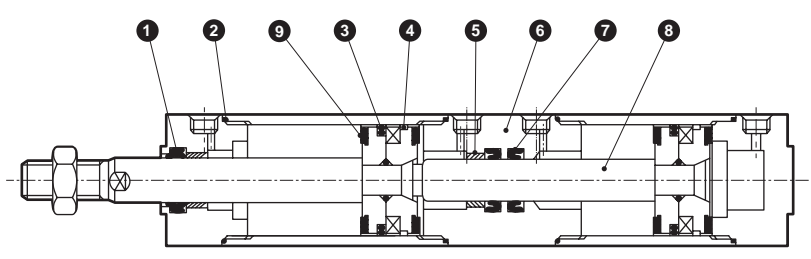
## Applications

- Pressure setting:  $P2 > P1$
- 1st stage push  
Keeping port 4 pressurized, pressurize port 1.
  - 2nd stage push  
Keeping port 1 pressurized, pressurize port 3.

$P2 = P1$  is allowed depending on the load direction. When using a single acting cylinder with free fall load, ports 2 and 4 in the upper figure and ports 2 and 3 in the lower figure are breathing holes.



## Internal structure and parts list



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rod packing	Nitrile rubber		6	Intermediate cover	Aluminum alloy	Hard alumite
2	Cylinder gasket	Nitrile rubber		7	Rod packing	Nitrile rubber	
3	Piston packing	Nitrile rubber		8	Piston rod	$\phi 20$ to $\phi 25$ : Stainless steel $\phi 32$ to $\phi 63$ : Steel	Industrial chrome plating
4	Wear ring	Polyacetal resin		9	Cushion rubber	Urethane rubber	
5	Bush	Oil impregnated bearing alloy					

Parts other than the above are the same as the double acting.

## Repair parts list

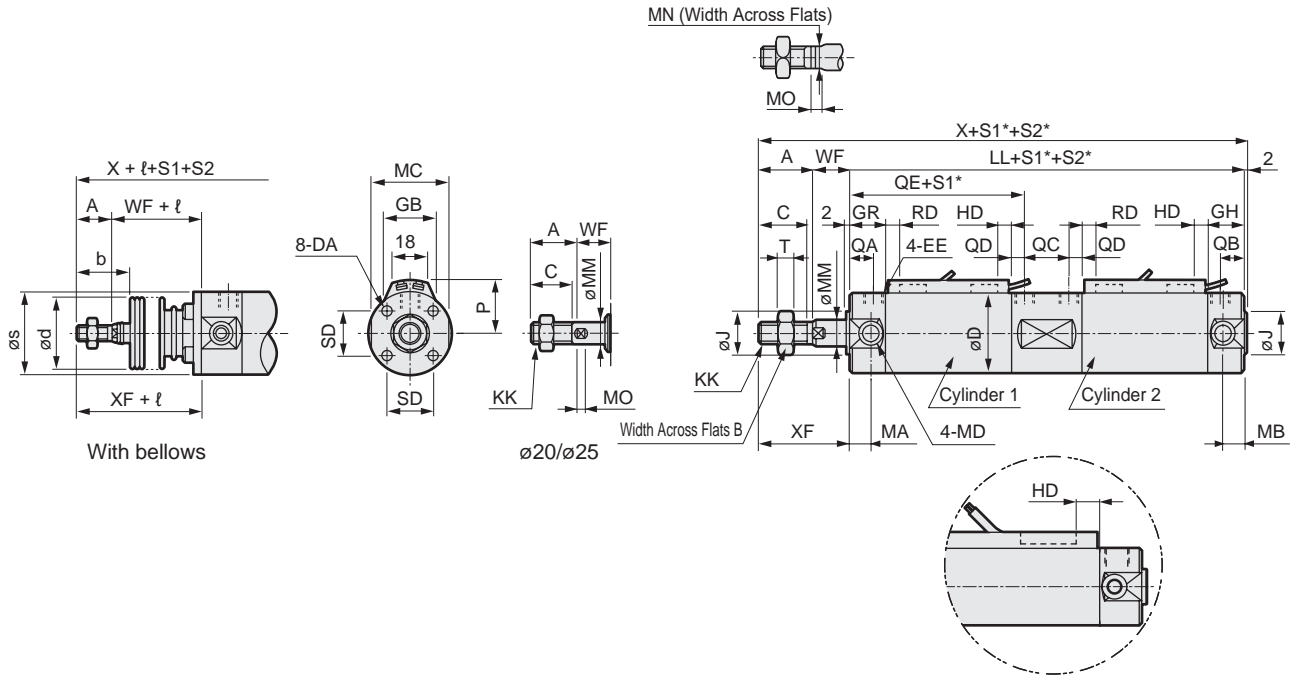
Bore size (mm)	Kit No.	Repair parts No.
$\phi 20$	SCM-W-20DK	
$\phi 25$	SCM-W-25DK	
$\phi 32$	SCM-W-32DK	
$\phi 40$	SCM-W-40DK	
$\phi 50$	SCM-W-50DK	
$\phi 63$	SCM-W-63DK	

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

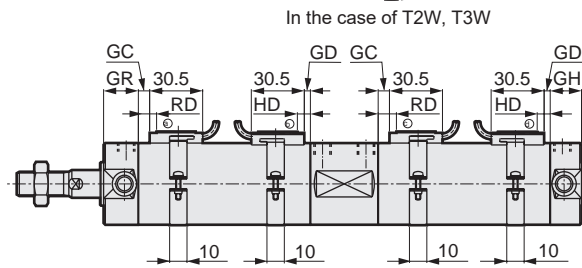
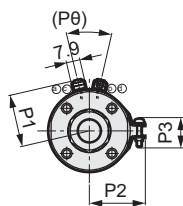
## Dimensions

● Double acting 2-stage

• Switch mounting: Rail



• Switch mounting: Band



\*1: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

\* S1 = Total stroke, S2 = Cylinder 2 stroke

Code	Basic (00) Basic dimensions																			
Bore size (mm)	A	B	C	D	DA	EE	GH	GR	J	KK	LL	MA	MB	MC	MD	MM	MN	MO	QA	QB
ø20	18	13	16	26	M4 depth 6.5	Rc1/8	17	19	12	M8	135	11	11	24	M5	8	6	4	12	10
ø25	22	17	20	31	M5 depth 6.5	Rc1/8	17	19	14	M10 x 1.25	135	11	11	29	M6	10	8	5	12	10
ø32	22	17	20	38	M5 depth 7.5	Rc1/8	17	19	18	M10 x 1.25	141	11	10	36	M8	12	10	5.5	12	10
ø40	30	22	27	47	M6 depth 12	Rc1/8	19	20	25	M14 x 1.5	156	12	10	44	M10	16	14	6	13	12
ø50	35	27	32	58	M8 depth 16	Rc1/4	22	25	30	M18 x 1.5	181	13	12	55	M12	20	17	8	15	12
ø63	35	27	32	72	M10 depth 16	Rc1/4	22	25	32	M18 x 1.5	181	13	12	69	M14	20	17	8	15	12

Code	With bellows										Switch mounting: Rail									
Bore size (mm)	QC	QD	QE	SD	T	WF	X	XF	b	d	s	ℓ	P	GB	HD			RD		
	T0/T5	T2/T3	T2W/T3W	T0/T5	T2/T3	T2W/T3W	T0/T5	T2/T3	T2W/T3W	T0/T5	T2/T3	T2W/T3W			T0/T5	T2/T2R/T3/T3P	T2W/T3W	T0/T5	T2/T2R/T3/T3P	T2W/T3W
ø20	19	7	59	14	5	17	172	35	30	30	25.7	(S1/3) + 18.5	19.5	23	3.0	6.5	8.5	7.5	7.5	9.5
ø25	19	7	59	16.5	6	18	177	40	35	30	30.7	(S1/3)+20.5	22	24.4	2.0	5.5	7.5	8.5	8.5	10.5
ø32	21	7	61	20	6	18	183	40	31.5	35	37.7	(S1/3)+19	25.5	25	3.0	6.5	8.5	9.5	9.5	11.5
ø40	25	7	66	26	8	20	208	50	40	35	46.7	(S1/3) + 18.5	30	25.7	5.0	8.5	10.5	11.5	11.5	13.5
ø50	28	10	78	32	11	23	241	58	46	40	57.7	(S1/3.6)+18.5	35.5	26.2	7.5	11.0	13.0	13.0	13.0	15.0
ø63	28	10	78	38	11	23	241	58	46	40	71.7	(S1/3.6)+18.5	42.5	26.5	7.5	11.0	13.0	13.0	13.0	15.0

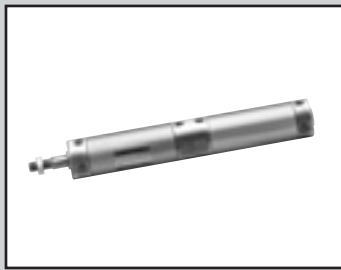
Code	Switch mounting: Band															
Bore size (mm)	GC			GD			HD			RD			P1	P2	P3	P8
	T0/T5	T2,T3	T2W/T3W	T0/T5	T2,T3	T2W/T3W	T0/T5	T2,T3	T2W/T3W	T0/T5	T2,T3	T2W/T3W				
ø20	3.5	3.5	5.5	2.5	2.5	4.5	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38°)
ø25	4.5	4.5	6.5	1.5	1.5	3.5	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34°)
ø32	5.5	5.5	7.5	2.5	2.5	4.5	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30°)
ø40	7.5	7.5	9.5	4.5	4.5	6.5	8.5	8.5	10.5	11.5	11.5	13.5	30.2	32.1	16	(26°)
ø50	9.0	9.0	11.0	7.0	7.0	9.0	11.0	11.0	13.0	13.0	13.0	15.0	35.7	37.4	16	(22°)
ø63	9.0	9.0	11.0	7.0	7.0	9.0	11.0	11.0	13.0	13.0	13.0	15.0	42.7	44.4	16	(20°)

\* Installation dimensions of the mounting are the same as those of SCM (double acting). Refer to pages 240 to 251.

\* For the dimensions of the accessories, refer to pages 252 and 253.

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





Round shaped cylinder  
Double acting/tandem

# SCM-W4 Series

● Bore size:  $\phi 20/\phi 25/\phi 32/\phi 40/\phi 50/\phi 63$



## Specifications

Item	SCM-W4						
Bore size mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	
Actuation	Double acting/tandem						
Working fluid	Compressed air						
Max. working pressure MPa	0.5 ( $\approx 73$ psi, 5 bar)						
Min. working pressure MPa	0.2 ( $\approx 29$ psi, 2 bar)				0.1 ( $\approx 15$ psi, 1 bar)		
Proof pressure MPa	1.6 ( $\approx 230$ psi, 16 bar)						
Ambient temperature $^{\circ}\text{C}$	-10 ( $14^{\circ}\text{F}$ ) to 60 ( $140^{\circ}\text{F}$ ) (no freezing)						
Port size	Rc1/8				Rc1/4		
Stroke tolerance mm	+1.4				+2.3		
	-1.0				-1.0		
Working piston speed mm/s	50 to 1000 (Operate within the allowable absorbed energy.)						
Cushion	Rubber cushion						
Lubrication	Not required (use turbine oil ISO VG32 if necessary for lubrication)						
Allowable absorbed energy J	0.1	0.2	0.5	0.9	1.6	1.6	

## Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\phi 20$	25, 50, 75 100, 125, 150 200, 250, 300	600	10
$\phi 25$			
$\phi 32$			
$\phi 40$			
$\phi 50$			
$\phi 63$			

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

## Number of installed switches and min. stroke (mm)

● Switch mounting: Rail

Switch quantity Bore size (mm)	1				2				3				4				5			
	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed
	T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*	
$\phi 20$	10			Reed	25			Reed	50	70	70	55	55	70	70	55	75	110	110	90
$\phi 25$	10				25				50	70	70	55	55	70	70	55	75	110	110	90
$\phi 32$	10				25				50	70	70	55	55	70	70	55	75	110	110	90
$\phi 40$	10				25				50	70	70	55	55	70	70	55	75	110	110	90
$\phi 50$	10				25				50	65	65	55	55	65	65	55	75	110	110	90
$\phi 63$	10				25				50	65	65	55	55	65	65	55	75	110	110	90

● Switch mounting: Band

Switch quantity Bore size (mm)	1				2				3				4				5			
	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed
	T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*	
$\phi 20$	10			Reed	25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\phi 25$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\phi 32$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\phi 40$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\phi 50$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
$\phi 63$	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95

\*1: For types with one switch, when the stroke is between 10 and 24 mm, the trunnion mounting is not available since the switch rail mounting position is different. Refer to page 345 for mounting position.

### Switch specifications

● 1-color/2-color LED

Item	2-wire proximity				3-wire proximity				2-wire reed			2-wire proximity				
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V	T2YD (*4) T2YDT				
Applications	For programming controller, relay, compact solenoid valve		Dedicated for programmable controller		For programmable controller, relay				For programmable controller, relay	For programmable controller, relay (no lamp), serial	For programmable controller, relay	Dedicated for programmable controller				
Output method	-				NPN output	PNP output	NPN output	NPN output	-							
Pwr. supp. V.	-				10 to 28 VDC				-							
Load voltage	85 to 265 VAC	10 to 30 VDC	24 VDC ±10%		30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA	5 to 20 mA (*3)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp	LED (Lit when ON)		Red/green LED (Lit when ON)		
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA				1 mA or less			
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80			1 m:33 3 m:87 5 m:142		1 m:61 3 m:166 5 m:272		

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

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

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

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

### Cylinder weight

(Unit: kg)

Item/mounting	Weight when stroke (S) = 0 mm	Additional weight					Switch weight (per 1 pc.)	Added weight /S = 10 mm	Additional weight per S = 10 mm (With switch rail)	Band weight per switch
		Basic	Axial foot	Flange	Clevis	Trunnion				
ø20	0.10	0.00	0.11	0.03	0.05	0.01	Refer to the weight in the switch specifications.	0.01	0.012	0.007
ø25	0.17	-0.01	0.12	0.03	0.07	0.01		0.014	0.016	0.007
ø32	0.26	0.00	0.16	0.06	0.15	0.03		0.018	0.02	0.007
ø40	0.41	-0.01	0.21	0.07	0.22	0.04		0.03	0.032	0.007
ø50	0.77	-0.01	0.47	0.33	0.39	0.13		0.044	0.046	0.008
ø63	1.07	0.02	0.74	0.52	0.70	0.16		0.052	0.054	0.009

(Example) Product weight of SCM-W4-LB-40D-100-T2H-D	<ul style="list-style-type: none"> <li>(1) Product weight when S = 0 mm ..... 0.41 kg</li> <li>(2) Additional weight when S = 100 mm ..... <math>0.032 \times \frac{100}{10} = 0.32</math> kg</li> <li>(3) Weight of 2 switches..... 0.036 kg</li> <li>(4) (1) + (2) + (3) should be added ..... 0.41 kg+0.32 kg+0.036 kg=0.766 kg</li> <li>Product weight (Double (4) and add additional weight) .. 0.766 kgx2+0.21 kg=1.742 kg</li> </ul>
---	---

# SCM-W4 Series

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

## How to order

No switch (built-in magnet for switch)

**SCM-W4-LB-40-D-100-J-I**

With switch (built-in magnet for switch)

**SCM-W4-LB-40-D-100-T0H-D-J-I**

**A** Mounting  
\*1

**B** Bore size

**C** Port thread

**D** Cushion

**E** Stroke

**F** Switch model No.  
\*4  
\*5

**G** Switch quantity

**H** Switch mounting

**I** Option  
\*2  
\*6  
\*8

**J** Accessory  
\*9

## ⚠ Precautions for model No. selection

- \*1 : Mounting bracket will be shipped with the product.
- \*2 : If the product is supplied with bellows and the mounting bracket is LB, FA, or TA, it will be shipped assembled.
- \*3 : Refer to page 328 for the number of installed switches and the min. stroke.
- \*4 : Switches other than **F** Switch model No. are also available. (Made to order)
- \*5 : Refer to Ending Page 1 for details.
- \*6 : T8H/V switches cannot be mounted when the bore size is from ø20 to ø40 and the switch mounting style is the rail.
- \*7 : The instantaneous max. temperature is the temperature when sparks, cutting chips, etc., instantaneously contact the bellows.
- \*8 : Refer to Ending Page 85 for custom specifications of rod end form.
- \*9 : "Q" (switch rail enclosed at shipment) is not available for the "Z" switch mounting.
- \*10 : "I" and "Y" cannot be selected together.
- \*10 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

## [Example of model No.]

### SCM-W4-LB-40D-100-T0H-D-JI

Model: Round shaped cylinder, double acting/tandem

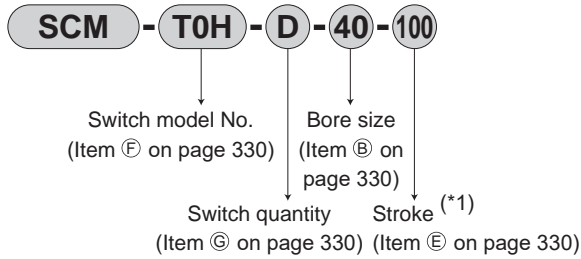
- A** Mounting : Axial foot
- B** Bore size : ø40 mm
- C** Port thread : Rc thread
- D** Cushion : With two-sided rubber cushion
- E** Stroke : 100 mm
- F** Switch model No. : Reed T0H switch, lead wire 1 m
- G** Switch quantity : 2
- H** Switch mounting : Rail
- I** Option : Bellows material for max. ambient temperature 100°C
- J** Accessory : Rod eye

Code	Description					
<b>A Mounting</b>						
00	Basic					
LB	Axial foot					
FA	Rod side flange					
FB	Head side flange					
CA	Eye bracket					
TA	Rod side trunnion					
TB	Head side trunnion					
<b>B Bore size (mm)</b>						
20	ø20					
25	ø25					
32	ø32					
40	ø40					
50	ø50					
63	ø63					
<b>C Port thread</b>						
Blank	Rc thread					
N	NPT thread (made-to-order product)					
G	G thread (made-to-order product)					
<b>D Cushion</b>						
D	With two-sided rubber cushion					
<b>E Stroke (mm)</b>						
Bore size	Stroke *3	Custom stroke				
ø20 to ø63	10 to 600	In 1 mm increments				
<b>F Switch model No.</b>						
Axial lead wire	Radial lead wire	Contact	Voltage	Indicator	Lead wire	
T0H*	T0V*	Reed	AC	DC	2-wire	
T5H*	T5V*		●	●		1-color LED
T8H*	T8V*		●	●		No indicator lamp
T1H*	T1V*		●	●		1-color LED
T2H*	T2V*	Proximity	●	●	2-wire	
T3H*	T3V*		●	●		1-color LED
T3PH*	T3PV*		●	●	1-color LED	
T2WH*	T2WV*		●	●	2-wire	
T2YH*	T2YV*		●	●		2-color LED
T3WH*	T3WV*		●	●	3-wire	
T3YH*	T3YV*		●	●		2-color LED
T2YD*	-		●	●	AC magnetic field	
T2YDT*	-		●	●	2-wire	
T2JH*	T2JV*		●	●		1-color LED off-delay
<b>* Lead wire length</b>						
Blank	1 m (standard)					
3	3 m (option)					
5	5 m (option)					
<b>G Switch quantity</b>						
R	1 on rod side					
H	1 on head side					
D	2					
T	3					
4	4 (when there are more than 4 switches, indicate switch quantity.)					
<b>H Switch mounting</b>						
Blank	Rail method					
Z	Band method					
<b>I Option</b>						
		Max. ambient temp. ↓	Instantaneous max. temp.			
J	Bellows	100°C	200°C			
L	Bellows	250°C	400°C			
Q	Switch rail included at shipment					
M	Piston rod material (stainless steel)					
P6	Copper and PTFE free					
<b>J Accessory</b>						
I	Rod eye					
Y	Rod clevis (pin and snap ring included)					
B2	Clevis bracket					

### How to order switch

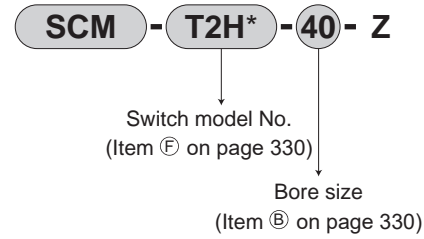
#### [Switch mounting: Rail]

- Switch body + mounting rail set

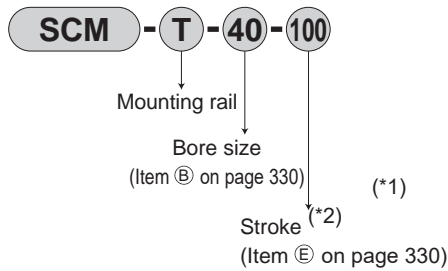


#### [Switch mounting: Band]

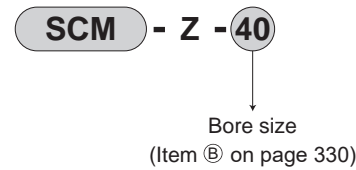
- Switch body + mounting bracket set + band



- Mounting rail only

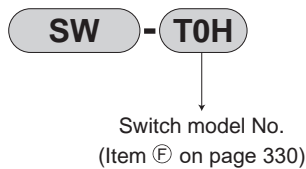


- Mounting bracket set + band



- \*1: Indicate X if the stroke exceeds 300 mm.  
If exceeding 300 mm, a short rail (with 100 mm switch adjustment length) will be included per switch.
- \*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

#### [Switch body only]



### How to order mounting bracket

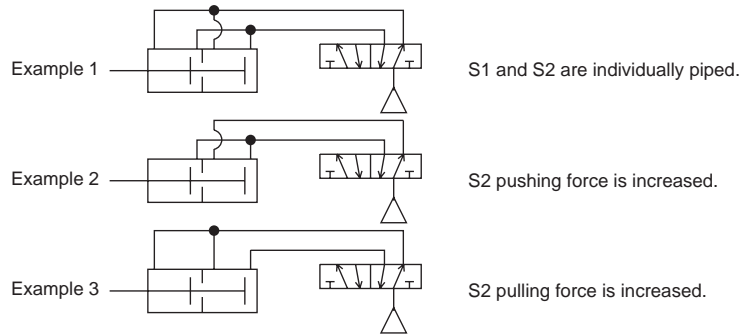
Bore size (mm)	ø20	ø25	ø32	ø40	ø50	ø63
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63
Eye bracket (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40	SCM-CA-50	SCM-CA-63
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63

- \*1: All mounting brackets are supplied with mounting bolts.  
\*2: The foot mounting bracket is provided as 2 pcs./set.

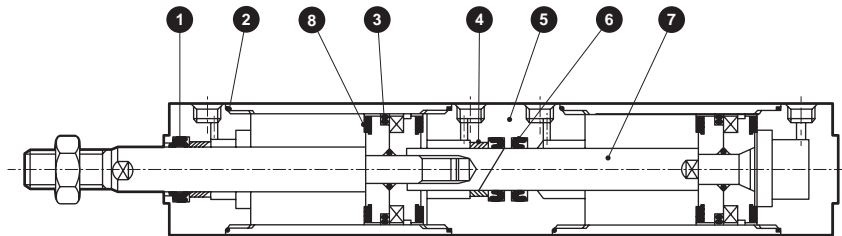
SCP*3
CMK2
CMA2
<b>SCM</b>
SCG
SCA2
SCS2
CKV2
CAV2/ COVP/N2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

## Applications

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



## Internal structure and parts list



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rod packing	Nitrile rubber		5	Intermediate cover	Aluminum alloy	Hard alumite
2	Cylinder gasket	Nitrile rubber		6	Rod packing	Nitrile rubber	
3	Piston packing	Nitrile rubber		7	Piston rod	ø20 to ø25: Stainless steel ø32 to ø63: Steel	Industrial chrome plating
4	Bush	Oil impregnated bearing alloy		8	Cushion rubber	Urethane rubber	

Parts other than the above are the same as the double acting.

## Repair parts list

Bore size (mm)	Kit No.	Repair parts No.
ø20	SCM-W4-20DK	<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">1</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">2</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">3</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">8</span>
ø25	SCM-W4-25DK	
ø32	SCM-W4-32DK	
ø40	SCM-W4-40DK	
ø50	SCM-W4-50DK	
ø63	SCM-W4-63DK	

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

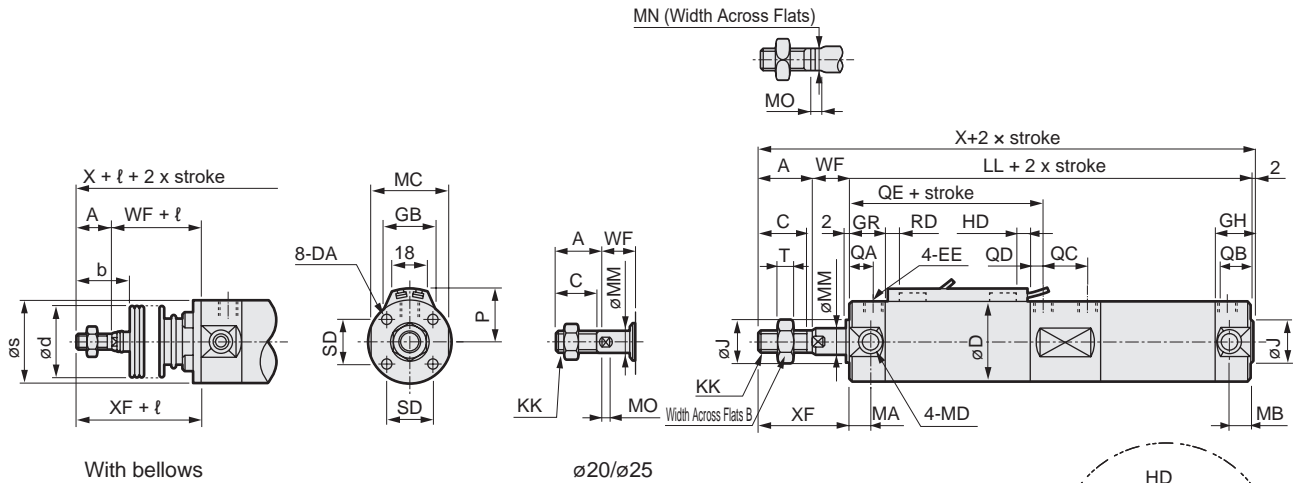
\*2: 2 Rod packing is not included in the repair parts kit since it is not replaceable.

Two 8 cushion rubbers are included in the repair parts kit since only two of the four cushion rubbers are replaceable.

## Dimensions

● Double acting tandem

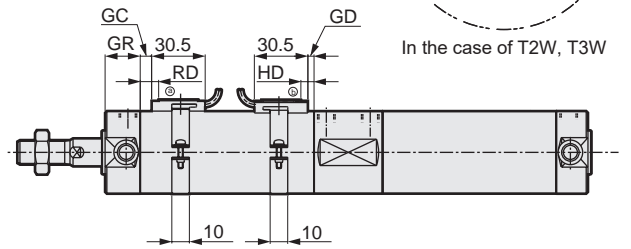
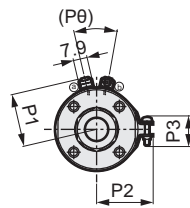
• Switch mounting: Rail



With bellows

ø20/ø25

• Switch mounting: Band



\*1: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

Code	Basic (00) Basic dimensions																			
Bore size (mm)	A	B	C	D	DA	EE	GH	GR	J	KK	LL	MA	MB	MC	MD	MM	MN	MO	QA	QB
ø20	18	13	16	26	M4 depth 6.5	Rc1/8	17	19	12	M8	135	11	11	24	M5	8	6	4	12	10
ø25	22	17	20	31	M5 depth 6.5	Rc1/8	17	19	14	M 10 x 1.25	135	11	11	29	M6	10	8	5	12	10
ø32	22	17	20	38	M5 depth 7.5	Rc1/8	17	19	18	M 10 x 1.25	141	11	10	36	M8	12	10	5.5	12	10
ø40	30	22	27	47	M6 depth 12	Rc1/8	19	20	25	M 14 x 1.5	156	12	10	44	M10	16	14	6	13	12
ø50	35	27	32	58	M8 depth 16	Rc1/4	22	25	30	M 18 x 1.5	181	13	12	55	M12	20	17	8	15	12
ø63	35	27	32	72	M10 depth 16	Rc1/4	22	25	32	M 18 x 1.5	181	13	12	69	M14	20	17	8	15	12

Code	With bellows										Switch mounting: Rail									
	QC	QD	QE	SD	T	WF	X	XF	b	d	s	ℓ	P	GB	HD			RD		
	T0/T5	T2/T3	T2W/T3W	T0/T5	T2/T3	T2W/T3W	T0/T5	T2/T3	T2W/T3W	T0/T5	T2/T3	T2W/T3W	T0/T5	T2/T3	T2W/T3W	T0/T5	T2/T2R/T3/T3P	T2W/T3W	T0/T5	T2/T2R/T3/T3P
ø20	19	7	59	14	5	17	172	35	30	30	25.7	(stroke/3) + 18.5	19.5	23	3.0	6.5	8.5	7.5	7.5	9.5
ø25	19	7	59	16.5	6	18	177	40	35	30	30.7	(stroke/3) + 20.5	22	24.4	2.0	5.5	7.5	8.5	8.5	10.5
ø32	21	7	61	20	6	18	183	40	31.5	35	37.7	(stroke/3) + 19	25.5	25	3.0	6.5	8.5	9.5	9.5	11.5
ø40	25	7	66	26	8	20	208	50	40	35	46.7	(stroke/3) + 18.5	30	25.7	5.0	8.5	10.5	11.5	11.5	13.5
ø50	28	10	78	32	11	23	241	58	46	40	57.7	(stroke/3.6) + 18.5	35.5	26.2	7.5	11.0	13.0	13.0	13.0	15.0
ø63	28	10	78	38	11	23	241	58	46	40	71.7	(stroke/3.6) + 18.5	42.5	26.5	7.5	11.0	13.0	13.0	13.0	15.0

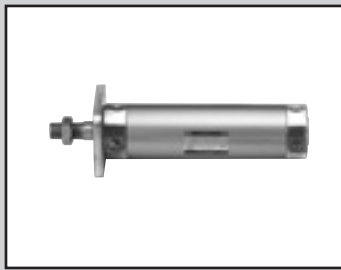
Code	Switch mounting: Band															
	GC			GD			HD			RD			P1	P2	P3	P0
	T0/T5	T2,T3	T2W/T3W	T0/T5	T2,T3	T2W/T3W	T0/T5	T2,T3	T2W/T3W	T0/T5	T2,T3	T2W/T3W	P1	P2	P3	P0
ø20	3.5	3.5	5.5	2.5	2.5	4.5	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38°)
ø25	4.5	4.5	6.5	1.5	1.5	3.5	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34°)
ø32	5.5	5.5	7.5	2.5	2.5	4.5	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30°)
ø40	7.5	7.5	9.5	4.5	4.5	6.5	8.5	8.5	10.5	11.5	11.5	13.5	30.2	32.1	16	(26°)
ø50	9.0	9.0	11.0	7.0	7.0	9.0	11.0	11.0	13.0	13.0	13.0	15.0	35.7	37.4	16	(22°)
ø63	9.0	9.0	11.0	7.0	7.0	9.0	11.0	11.0	13.0	13.0	13.0	15.0	42.7	44.4	16	(20°)

\* Installation dimensions of the mounting are the same as those of SCM (double acting). Refer to pages 240 to 251.

\* For the dimensions of the accessories, refer to pages 252 and 253.

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



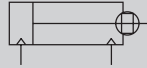


Round shaped cylinder  
Double acting/rotation-stop

# SCM-M Series

● Bore size:  $\phi 20/\phi 25/\phi 32/\phi 40/\phi 50/\phi 63$

JIS symbol



## Specifications

1 MPa = 10 bar

Item	SCM-M					
Bore size mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$
Actuation	Double acting/rotation-stop					
Working fluid	Compressed air					
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)					
Min. working pressure MPa	0.1 ( $\approx 15$ psi, 1 bar)					0.05 ( $\approx 7.3$ psi)
Proof pressure MPa	1.6 ( $\approx 230$ psi, 16 bar)					
Ambient temperature $^{\circ}\text{C}$	-10 ( $14^{\circ}\text{F}$ ) to 60 ( $140^{\circ}\text{F}$ ) (no freezing)					
Port size	Rc1/8			Rc1/4		
Stroke tolerance mm	+1.4			+2.3		
	0			0		
Working piston speed mm/s	30 to 1000 (Operate within the allowable absorbed energy.)					
Cushion	Rubber cushion					
Lubrication	Not required (use turbine oil ISO VG32 if necessary for lubrication)					
Non-rotating accuracy $^{\circ}$	$\pm 1$					
Allowable absorbed energy J	0.1	0.2	0.5	0.9	1.6	1.6

## Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\phi 20$	25, 50, 75 100, 125, 150 200, 250, 300	600	10
$\phi 25$			
$\phi 32$			
$\phi 40$			
$\phi 50$			
$\phi 63$			

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

## Number of installed switches and min. stroke (mm)

● Switch mounting: Rail

Switch quantity Bore size (mm)	1				2				3				4				5						
	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed			
	T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*				
$\phi 20$	10			25	25			50	50			55	55			55	55			75	75		
$\phi 25$	10				25				50				55				55				75		
$\phi 32$	10				25				50				55				55				75		
$\phi 40$	10				25				50				55				55				75		
$\phi 50$	10				25				50				65				65				75		
$\phi 63$	10				25				50				65				65				75		

● Switch mounting: Band

Switch quantity Bore size (mm)	1				2				3				4				5			
	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed
	T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*	
$\phi 20$	10			25	30			25	50			50	75			70	95			95
$\phi 25$	10				30				50				75				95			
$\phi 32$	10				30				50				75				95			
$\phi 40$	10				30				50				75				95			
$\phi 50$	10				30				50				75				95			
$\phi 63$	10				30				50				75				95			

\*1: For types with one switch, when the stroke is between 10 and 24 mm, the trunnion mounting is not available since the switch rail mounting position is different. Refer to page 345 for mounting position.

### Switch specifications

● 1-color/2-color LED

Item	2-wire proximity				3-wire proximity				2-wire reed			2-wire proximity				
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V	T2YD (*4) T2YDT				
Applications	For programming controller, relay, compact solenoid valve		Dedicated for programmable controller		For programmable controller, relay				For programmable controller, relay	For programmable controller, relay (no lamp), serial	For programmable controller, relay	Dedicated for programmable controller				
Output method	-				NPN output	PNP output	NPN output	NPN output	-							
Pwr. supp. V.	-				10 to 28 VDC				-							
Load voltage	85 to 265 VAC	10 to 30 VDC	24 VDC ±10%		30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA	5 to 20 mA (*3)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	No indicator lamp	LED (Lit when ON)	Red/green LED (Lit when ON)				
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA			1 mA or less				
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80			1 m:33 3 m:87 5 m:142	1 m:61 3 m:166 5 m:272			

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

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

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

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

### Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke (S) = 0 mm					Switch weight (per 1 pc)	Additional weight per S = 10 mm	Additional weight per S = 10 mm (with switch rail)	Band weight per switch
	Bore size	Basic	Axial foot	Flange	Clevis				
ø20	0.10	0.21	0.13	0.15	0.11	Refer to the weight in the switch specifications.	0.010	0.012	0.007
ø25	0.18	0.31	0.22	0.26	0.20		0.014	0.016	0.007
ø32	0.27	0.43	0.33	0.42	0.30		0.018	0.020	0.007
ø40	0.44	0.66	0.52	0.67	0.49		0.030	0.032	0.007
ø50	0.85	1.33	1.19	1.25	0.99		0.044	0.046	0.008
ø63	1.15	1.87	1.65	1.83	1.29		0.052	0.054	0.009

(Example) Product weight of SCM-M-LB-40D-100-T2H-D

- Product weight when S = 0 mm ..... 0.66 kg
- Additional weight when S = 100 mm .....  $0.032 \times \frac{100}{10} = 0.32$  kg
- Weight of 2 switches ..... 0.036 kg
- Product weight ..... 0.66 kg + 0.32 kg + 0.036 kg = 1.016 kg

### Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	-	31.4	47.1	62.8	94.2	1.26x10 <sup>2</sup>	1.57x10 <sup>2</sup>	1.88x10 <sup>2</sup>	2.20x10 <sup>2</sup>	2.51x10 <sup>2</sup>	2.83x10 <sup>2</sup>	3.14x10 <sup>2</sup>
	Pull	-	26.4	39.6	52.8	79.2	1.06x10 <sup>2</sup>	1.32x10 <sup>2</sup>	1.58x10 <sup>2</sup>	1.85x10 <sup>2</sup>	2.11x10 <sup>2</sup>	2.38x10 <sup>2</sup>	2.64x10 <sup>2</sup>
ø25	Push	-	49.1	73.6	98.2	1.47x10 <sup>2</sup>	1.96x10 <sup>2</sup>	2.45x10 <sup>2</sup>	2.95x10 <sup>2</sup>	3.44x10 <sup>2</sup>	3.93x10 <sup>2</sup>	4.42x10 <sup>2</sup>	4.91x10 <sup>2</sup>
	Pull	-	41.2	61.9	82.5	1.24x10 <sup>2</sup>	1.65x10 <sup>2</sup>	2.06x10 <sup>2</sup>	2.47x10 <sup>2</sup>	2.89x10 <sup>2</sup>	3.30x10 <sup>2</sup>	3.71x10 <sup>2</sup>	4.12x10 <sup>2</sup>
ø32	Push	-	80.4	1.21x10 <sup>2</sup>	1.61x10 <sup>2</sup>	2.41x10 <sup>2</sup>	3.22x10 <sup>2</sup>	4.02x10 <sup>2</sup>	4.83x10 <sup>2</sup>	5.63x10 <sup>2</sup>	6.43x10 <sup>2</sup>	7.24x10 <sup>2</sup>	8.04x10 <sup>2</sup>
	Pull	-	69.1	1.04x10 <sup>2</sup>	1.38x10 <sup>2</sup>	2.07x10 <sup>2</sup>	2.76x10 <sup>2</sup>	3.46x10 <sup>2</sup>	4.15x10 <sup>2</sup>	4.84x10 <sup>2</sup>	5.53x10 <sup>2</sup>	6.22x10 <sup>2</sup>	6.91x10 <sup>2</sup>
ø40	Push	-	1.26x10 <sup>2</sup>	1.88x10 <sup>2</sup>	2.51x10 <sup>2</sup>	3.77x10 <sup>2</sup>	5.03x10 <sup>2</sup>	6.28x10 <sup>2</sup>	7.54x10 <sup>2</sup>	8.80x10 <sup>2</sup>	1.01x10 <sup>3</sup>	1.13x10 <sup>3</sup>	1.26x10 <sup>3</sup>
	Pull	-	1.06x10 <sup>2</sup>	1.58x10 <sup>2</sup>	2.11x10 <sup>2</sup>	3.17x10 <sup>2</sup>	4.22x10 <sup>2</sup>	5.28x10 <sup>2</sup>	6.33x10 <sup>2</sup>	7.39x10 <sup>2</sup>	8.44x10 <sup>2</sup>	9.50x10 <sup>2</sup>	1.06x10 <sup>3</sup>
ø50	Push	-	1.96x10 <sup>2</sup>	2.95x10 <sup>2</sup>	3.93x10 <sup>2</sup>	5.89x10 <sup>2</sup>	7.85x10 <sup>2</sup>	9.82x10 <sup>2</sup>	1.18x10 <sup>3</sup>	1.37x10 <sup>3</sup>	1.57x10 <sup>3</sup>	1.77x10 <sup>3</sup>	1.96x10 <sup>3</sup>
	Pull	-	1.65x10 <sup>2</sup>	2.47x10 <sup>2</sup>	3.30x10 <sup>2</sup>	4.95x10 <sup>2</sup>	6.60x10 <sup>2</sup>	8.25x10 <sup>2</sup>	9.90x10 <sup>2</sup>	1.15x10 <sup>3</sup>	1.32x10 <sup>3</sup>	1.48x10 <sup>3</sup>	1.65x10 <sup>3</sup>
ø63	Push	1.56x10 <sup>2</sup>	3.12x10 <sup>2</sup>	4.68x10 <sup>2</sup>	6.23x10 <sup>2</sup>	9.35x10 <sup>2</sup>	1.25x10 <sup>3</sup>	1.56x10 <sup>3</sup>	1.87x10 <sup>3</sup>	2.18x10 <sup>3</sup>	2.49x10 <sup>3</sup>	2.81x10 <sup>3</sup>	3.12x10 <sup>3</sup>
	Pull	2.40x10 <sup>2</sup>	2.80x10 <sup>2</sup>	4.20x10 <sup>2</sup>	5.61x10 <sup>2</sup>	8.41x10 <sup>2</sup>	1.12x10 <sup>3</sup>	1.40x10 <sup>3</sup>	1.68x10 <sup>3</sup>	1.96x10 <sup>3</sup>	2.24x10 <sup>3</sup>	2.52x10 <sup>3</sup>	2.80x10 <sup>3</sup>

# SCM-M Series

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

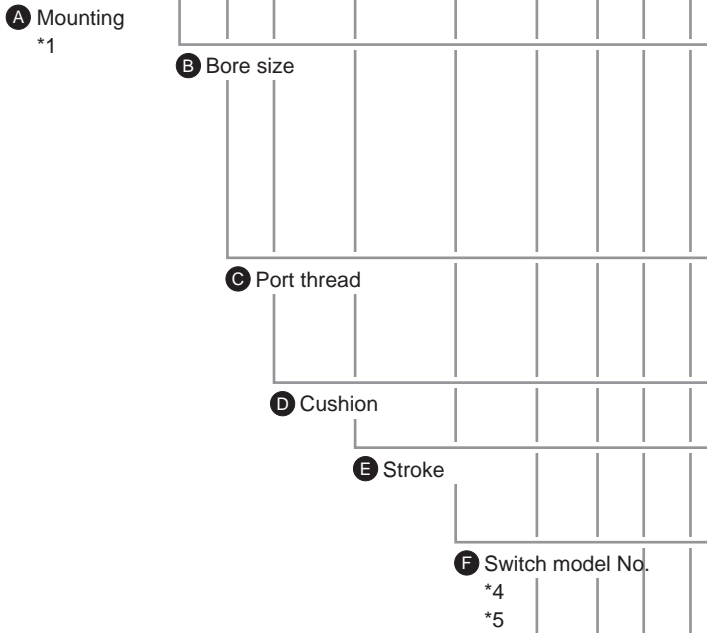
## How to order

No switch (built-in magnet for switch)

SCM-M - LB - 40 - D - 100 - J - I

With switch (built-in magnet for switch)

SCM-M - LB - 40 - D - 100 - T0H - D - J - I



## ⚠ Precautions for model No. selection

- \*1 : Mounting bracket will be shipped with the product.
- \*2 : If the product is supplied with bellows and the mounting bracket is LB, FA, or TA, it will be shipped assembled.
- \*3 : Refer to page 334 for the number of installed switches and the min. stroke.
- \*4 : Switches other than **F** Switch model No. are also available. (Made to order)  
Refer to Ending Page 1 for details.
- \*5 : T8H/V switches cannot be mounted when the bore size is from  $\varnothing 20$  to  $\varnothing 40$  and the switch mounting style is the rail.
- \*6 : The instantaneous max. temperature is the temperature when sparks, cutting chips, etc., instantaneously contact the bellows.
- \*7 : Refer to Ending Page 85 for custom specifications of rod end form.
- \*8 : "Q" (switch rail enclosed at shipment) is not available for the "Z" switch mounting.
- \*9 : "I" and "Y" cannot be selected together.
- \*10: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

## [Example of model No.]

**SCM-M-LB-40D-100-T0H-D-JI**

Model: Round shaped cylinder, double acting/rotation-stop

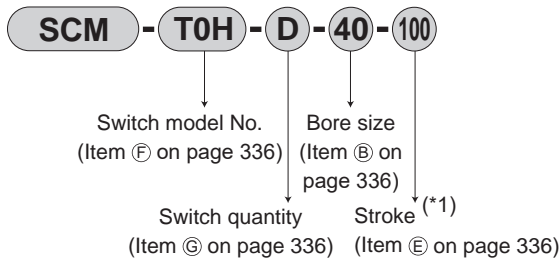
- A** Mounting : Axial foot
- B** Bore size :  $\varnothing 40$  mm
- C** Port thread : Rc thread
- D** Cushion : With two-sided rubber cushion
- E** Stroke : 100 mm
- F** Switch model No. : Reed T0H switch, lead wire 1 m
- G** Switch quantity : 2
- H** Switch mounting : Rail
- I** Option : Bellows material for max. ambient temperature 100°C
- J** Accessory : Rod eye

Code	Description				
<b>A Mounting</b>					
00	Basic				
LB	Axial foot				
FA	Rod side flange				
FB	Head side flange				
CA	Eye bracket				
TA	Rod side trunnion				
TB	Head side trunnion				
<b>B Bore size (mm)</b>					
20	$\varnothing 20$				
25	$\varnothing 25$				
32	$\varnothing 32$				
40	$\varnothing 40$				
50	$\varnothing 50$				
63	$\varnothing 63$				
<b>C Port thread</b>					
Blank	Rc thread				
N	NPT thread (made-to-order product)				
G	G thread (made-to-order product)				
<b>D Cushion</b>					
D	With two-sided rubber cushion				
<b>E Stroke (mm)</b>					
Bore size	Stroke *2	Custom stroke			
$\varnothing 20$ to $\varnothing 63$	10 to 600	In 1 mm increments			
<b>F Switch model No.</b>					
Axial lead wire	Radial lead wire	Contact			
		AC			
		DC			
		Indicator			
		Lead wire			
T0H*	T0V*	● ●	1-color LED	2-wire	
T5H*	T5V*	● ●	No indicator lamp		
T8H*	T8V*	● ●	1-color LED		
T1H*	T1V*	●		2-wire	
T2H*	T2V*		1-color LED		
T3H*	T3V*		●	3-wire	
T3PH*	T3PV*		1-color LED		
T2WH*	T2WV*		●	2-wire	
T2YH*	T2YV*		●		
T3WH*	T3WV*		●	3-wire	
T3YH*	T3YV*		●		
T2YD*	-		●	2-wire	
T2YDT*	-		●		
T2JH*	T2JV*		●	1-color LED off-delay	2-wire
<b>* Lead wire length</b>					
Blank	1 m (standard)				
3	3 m (option)				
5	5 m (option)				
<b>G Switch quantity</b>					
R	1 on rod side				
H	1 on head side				
D	2				
T	3				
4	4 (when there are more than 4 switches, indicate switch quantity.)				
<b>H Switch mounting</b>					
Blank	Rail method				
Z	Band method				
<b>I Option</b>					
		Max. ambient temp.	Instantaneous max. temp.		
J	Bellows	100°C	200°C		
L	Bellows	250°C	400°C		
Q	Switch rail included at shipment				
<b>J Accessory</b>					
I	Rod eye				
Y	Rod clevis (pin and snap ring included)				
B2	Clevis bracket				

### How to order switch

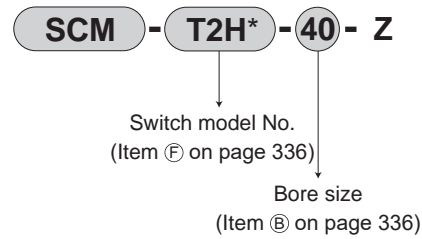
[Switch mounting: Rail]

● Switch body + mounting rail set

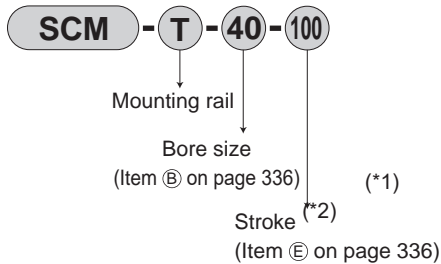


[Switch mounting: Band]

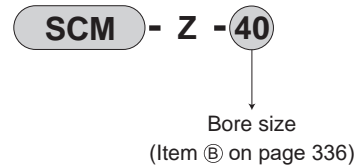
● Switch body + mounting bracket set + band



● Mounting rail only

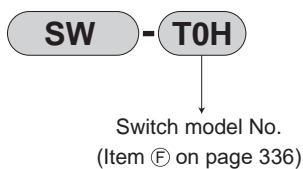


● Mounting bracket set + band



- \*1: Indicate X if the stroke exceeds 300 mm. If exceeding 300 mm, a short rail (with 100 mm switch adjustment length) will be included per switch.
- \*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

[Switch body only]



### How to order mounting bracket

Bore size (mm)	ø20	ø25	ø32	ø40	ø50	ø63
Mounting bracket						
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63
Eye bracket (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40	SCM-CA-50	SCM-CA-63
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63

- \*1: All mounting brackets are supplied with mounting bolts.
- \*2: The foot mounting bracket is provided as 2 pcs./set.

### Internal structure

Same as standard. Refer to page 236.

### Repair parts list

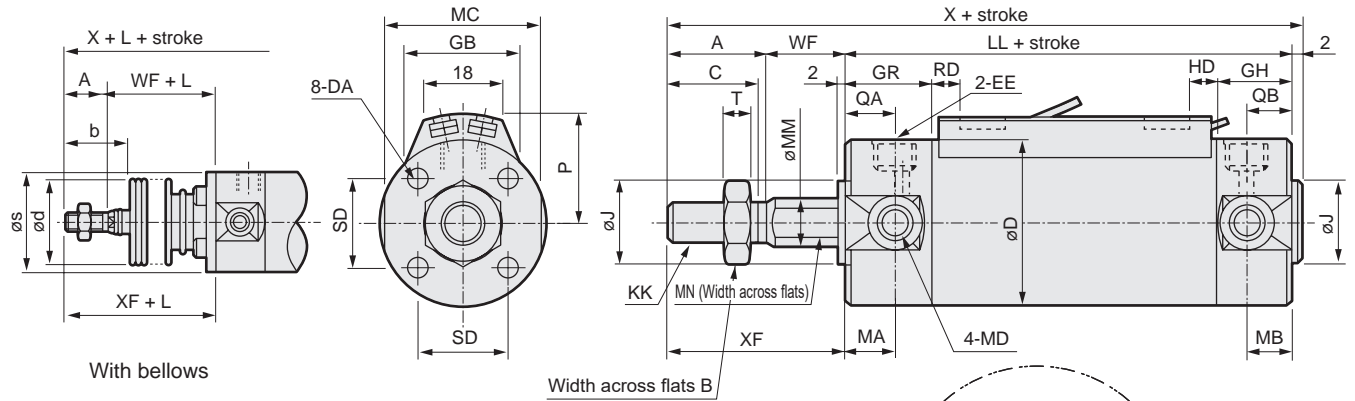
Bore size (mm)	Kit No.	Repair parts No.
ø20	SCM-M-20K	3 6 8 10 13
ø25	SCM-M-25K	
ø32	SCM-M-32K	
ø40	SCM-M-40K	
ø50	SCM-M-50K	
ø63	SCM-M-63K	

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

## Dimensions

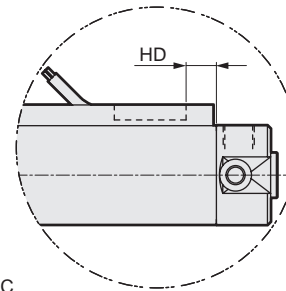
● Double acting rotation-stop

· Switch mounting: Rail



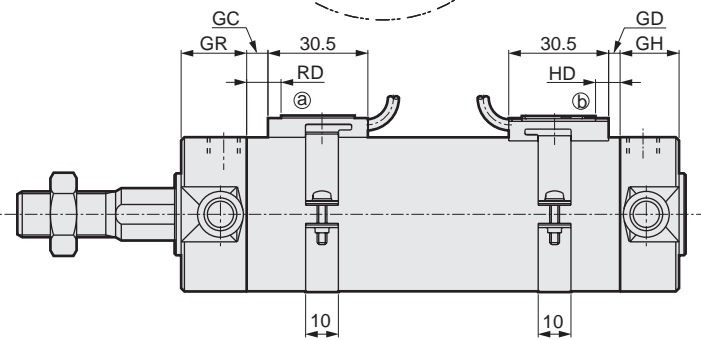
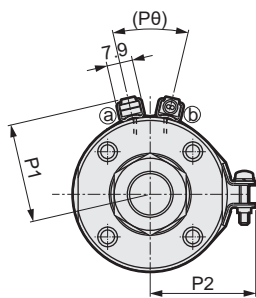
With bellows

Width across flats B



In the case of T2W, T3W

· Switch mounting: Band



\*1: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

Code	Basic (00) Basic dimensions																		
Bore size (mm)	A	B	C	D	DA	EE	GH	GR	J	KK	LL	MA	MB	MC	MD	MM	MN	QA	QB
STK	18	13	16	26	M4 depth 6.5	Rc1/8	17	19	12	M8	69	11	11	24	M5	10	8	12	10
SRL3	22	17	20	31	M5 depth 6.5	Rc1/8	17	19	14	M10x1.25	69	11	11	29	M6	12	10	12	10
	32	17	20	38	M5 depth 7.5	Rc1/8	17	19	18	M10x1.25	71	11	10	36	M8	12	10	12	10
SRG3	30	22	27	47	M6 depth 12	Rc1/8	19	20	25	M14x1.5	78	12	10	44	M10	16	14	13	12
	50	27	32	58	M8 depth 16	Rc1/4	22	25	30	M18x1.5	90	13	12	55	M12	20	18	15	12
SRM3	35	27	32	72	M10 depth 16	Rc1/4	22	25	32	M18x1.5	90	13	12	69	M14	20	18	15	12
Code	With bellows								Switch mounting: Rail										
Bore size (mm)	SD	T	WF	X	XF	b	d	s	L	P	GB	HD			RD				
												T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W		
SRM3	14	5	17	106	35	30	30	25.7	(Stroke/3) + 18.5	19.5	23	3.0	6.5	8.5	7.5	7.5	9.5		
SRT3	16.5	6	18	111	40	35	30	30.7	(Stroke/3) + 20.5	22	24.4	2.0	5.5	7.5	8.5	8.5	10.5		
MRL2	20	6	18	113	40	31.5	35	37.7	(Stroke/3) + 19	25.5	25	3.0	6.5	8.5	9.5	9.5	11.5		
MRG2	26	8	20	130	50	40	35	46.7	(Stroke/3) + 18.5	30	25.7	5.0	8.5	10.5	11.5	11.5	13.5		
SM-25	32	11	23	150	58	46	40	57.7	(Stroke/3.6) + 18.5	35.5	26.2	7.5	11.0	13.0	13.0	13.0	15.0		
	50	11	23	150	58	46	40	71.7	(Stroke/3.6) + 18.5	42.5	26.5	7.5	11.0	13.0	13.0	13.0	15.0		
Code	Switch mounting: Band																		
Bore size (mm)	GC			GD			HD			RD			P1	P2	P3	Pθ			
	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W							
FJ	3.5	3.5	5.5	2.5	2.5	4.5	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38°)			
FK	4.5	4.5	6.5	1.5	1.5	3.5	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34°)			
	5.5	5.5	7.5	2.5	2.5	4.5	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30°)			
Spd Contr	7.5	7.5	9.5	4.5	4.5	6.5	8.5	8.5	10.5	11.5	11.5	13.5	30.2	32.1	16	(26°)			
	9.0	9.0	11.0	7.0	7.0	9.0	11.0	11.0	13.0	13.0	13.0	15.0	35.7	37.4	16	(22°)			
Ending	9.0	9.0	11.0	7.0	7.0	9.0	11.0	11.0	13.0	13.0	13.0	15.0	42.7	44.4	16	(20°)			

\* Installation dimensions of the mounting are the same as those of SCM (double acting). Refer to pages 240 to 251.

\* For the dimensions of the accessories, refer to pages 252 and 253.

---

# MEMO

---

SCP\*3

CMK2

CMA2

**SCM**

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

Ending



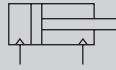


Round shaped cylinder  
Double acting/direct mounting foot

# SCM-LD Series

● Bore size:  $\phi 20/\phi 25/\phi 32/\phi 40/\phi 50/\phi 63$

JIS symbol



## Specifications

Item	SCM-LD						
Bore size mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	
Actuation	Double acting/direct mounting foot						
Working fluid	Compressed air						
Max. working pressure MPa	1.0 ( $\approx 150$ psi, 10 bar)						
Min. working pressure MPa	0.1 ( $\approx 15$ psi, 1 bar)				0.05 ( $\approx 7.3$ psi, 0.5 bar)		
Proof pressure MPa	1.6 ( $\approx 230$ psi, 16 bar)						
Ambient temperature $^{\circ}\text{C}$	-10 ( $14^{\circ}\text{F}$ ) to 60 ( $140^{\circ}\text{F}$ ) (no freezing)						
Port size	Rc1/8				Rc1/4		
Stroke tolerance mm	+1.4 0				+2.3 0		
Working piston speed mm/s	30 to 1000 (Operate within the allowable absorbed energy.)						
Cushion	Rubber cushion						
Lubrication	Not required (use turbine oil ISO VG32 if necessary for lubrication)						
J Allowable absorbed energy J	0.1	0.2	0.5	0.9	1.6	1.6	

## Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\phi 20$	25, 50, 75 100, 125, 150 200, 250, 300	300	10
$\phi 25$			
$\phi 32$			
$\phi 40$			
$\phi 50$			
$\phi 63$			

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

## Number of installed switches and min. stroke (mm)

● Switch mounting: Rail

Switch quantity	1				2				3				4				5			
	Proximity		Reed		Proximity		Reed		Proximity		Reed		Proximity		Reed		Proximity		Reed	
	T2, T3	T2W, T3W			T*Y*	T2, T3			T2W, T3W	T*Y*			T2, T3	T2W, T3W			T*Y*	T2, T3		
$\phi 20$	10				25				50 70 70 55				55 70 70 55				75 110 110 90			
$\phi 25$	10				25				50 70 70 55				55 70 70 55				75 110 110 90			
$\phi 32$	10				25				50 70 70 55				55 70 70 55				75 110 110 90			
$\phi 40$	10				25				50 70 70 55				55 70 70 55				75 110 110 90			
$\phi 50$	10				25				50 65 65 55				55 65 65 55				75 110 110 90			
$\phi 63$	10				25				50 65 65 55				55 65 65 55				75 110 110 90			

● Switch mounting: Band

Switch quantity	1				2				3				4				5			
	Proximity		Reed		Proximity		Reed		Proximity		Reed		Proximity		Reed		Proximity		Reed	
	T2, T3	T2W, T3W			T*Y*	T2, T3			T2W, T3W	T*Y*			T2, T3	T2W, T3W			T*Y*	T2, T3		
$\phi 20$	10				25 30 35 25				50 55 55 50				75 75 80 70				95 100 100 95			
$\phi 25$	10				25 30 35 25				50 55 55 50				75 75 80 70				95 100 100 95			
$\phi 32$	10				25 30 35 25				50 55 55 50				75 75 80 70				95 100 100 95			
$\phi 40$	10				25 30 35 25				50 55 55 50				75 75 80 70				95 100 100 95			
$\phi 50$	10				25 30 35 25				50 55 55 50				75 75 80 70				95 100 100 95			
$\phi 63$	10				25 30 35 25				50 55 55 50				75 75 80 70				95 100 100 95			

\*1: For types with one switch, when the stroke is between 10 and 24 mm, the trunnion mounting is not available since the switch rail mounting position is different. Refer to page 345 for mounting position.

### Switch specifications

● 1-color/2-color LED

Item	2-wire proximity				3-wire proximity				2-wire reed			2-wire proximity				
	T1H/ T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V	T2YD (*4) T2YDT				
Applications	For programming controller, relay, compact solenoid valve		Dedicated for programmable controller		For programmable controller, relay				For programmable controller, relay	For programmable controller, relay (no lamp), serial	For programmable controller, relay	Dedicated for programmable controller				
Output method	-				NPN output	PNP output	NPN output	NPN output	-							
Pwr. supp. V.	-				10 to 28 VDC				-							
Load voltage	85 to 265 VAC		10 to 30 VDC		24 VDC ±10%		30 VDC or less		12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA		5 to 20 mA (*3)		100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp	LED (Lit when ON)		Red/green LED (Lit when ON)		
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC		1 mA or less		10 µA or less				0 mA				1 mA or less			
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80			1 m:33 3 m:87 5 m:142		1 m:61 3 m:166 5 m:272		

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

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

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

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

### Cylinder weight

(Unit: kg)

Item/mounting Bore size (mm)	Weight when stroke (S) = 0 mm	Switch weight (per 1 pc)	Additional weight per S = 10 mm	Additional weight per S = 10 mm (with rail)	Band weight per switch
	Basic				
ø20	0.14	Refer to the weight in the switch specifications.	0.010	0.012	0.007
ø25	0.22		0.014	0.016	0.007
ø32	0.34		0.018	0.020	0.007
ø40	0.56		0.030	0.032	0.007
ø50	1.04		0.044	0.046	0.008
ø63	1.46		0.052	0.054	0.009

(Example) Product weight of SCM-LD-40D-100-T2H-D

- Product weight when S = 0 mm ..... 0.56 kg
- Additional weight when S = 100 mm .....  $0.032 \times \frac{100}{10} = 0.32$  kg
- Weight of 2 switches ..... 0.036 kg
- Product weight .....  $0.56 \text{ kg} + 0.32 \text{ kg} + 0.036 \text{ kg} = 0.916 \text{ kg}$

### Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa											
		0.05	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	-	31.4	47.1	62.8	94.2	$1.26 \times 10^2$	$1.57 \times 10^2$	$1.88 \times 10^2$	$2.20 \times 10^2$	$2.51 \times 10^2$	$2.83 \times 10^2$	$3.14 \times 10^2$
	Pull	-	26.4	39.6	52.8	79.2	$1.06 \times 10^2$	$1.32 \times 10^2$	$1.58 \times 10^2$	$1.85 \times 10^2$	$2.11 \times 10^2$	$2.38 \times 10^2$	$2.64 \times 10^2$
ø25	Push	-	49.1	73.6	98.2	$1.47 \times 10^2$	$1.96 \times 10^2$	$2.45 \times 10^2$	$2.95 \times 10^2$	$3.44 \times 10^2$	$3.93 \times 10^2$	$4.42 \times 10^2$	$4.91 \times 10^2$
	Pull	-	41.2	61.9	82.5	$1.24 \times 10^2$	$1.65 \times 10^2$	$2.06 \times 10^2$	$2.47 \times 10^2$	$2.89 \times 10^2$	$3.30 \times 10^2$	$3.71 \times 10^2$	$4.12 \times 10^2$
ø32	Push	-	80.4	$1.21 \times 10^2$	$1.61 \times 10^2$	$2.41 \times 10^2$	$3.22 \times 10^2$	$4.02 \times 10^2$	$4.83 \times 10^2$	$5.63 \times 10^2$	$6.43 \times 10^2$	$7.24 \times 10^2$	$8.04 \times 10^2$
	Pull	-	69.1	$1.04 \times 10^2$	$1.38 \times 10^2$	$2.07 \times 10^2$	$2.76 \times 10^2$	$3.46 \times 10^2$	$4.15 \times 10^2$	$4.84 \times 10^2$	$5.53 \times 10^2$	$6.22 \times 10^2$	$6.91 \times 10^2$
ø40	Push	-	$1.26 \times 10^2$	$1.88 \times 10^2$	$2.51 \times 10^2$	$3.77 \times 10^2$	$5.03 \times 10^2$	$6.28 \times 10^2$	$7.54 \times 10^2$	$8.80 \times 10^2$	$1.01 \times 10^3$	$1.13 \times 10^3$	$1.26 \times 10^3$
	Pull	-	$1.06 \times 10^2$	$1.58 \times 10^2$	$2.11 \times 10^2$	$3.17 \times 10^2$	$4.22 \times 10^2$	$5.28 \times 10^2$	$6.33 \times 10^2$	$7.39 \times 10^2$	$8.44 \times 10^2$	$9.50 \times 10^2$	$1.06 \times 10^3$
ø50	Push	98.0	$1.96 \times 10^2$	$2.95 \times 10^2$	$3.93 \times 10^2$	$5.89 \times 10^2$	$7.85 \times 10^2$	$9.82 \times 10^2$	$1.18 \times 10^3$	$1.37 \times 10^3$	$1.57 \times 10^3$	$1.77 \times 10^3$	$1.96 \times 10^3$
	Pull	82.5	$1.65 \times 10^2$	$2.47 \times 10^2$	$3.30 \times 10^2$	$4.95 \times 10^2$	$6.60 \times 10^2$	$8.25 \times 10^2$	$9.90 \times 10^2$	$1.15 \times 10^3$	$1.32 \times 10^3$	$1.48 \times 10^3$	$1.65 \times 10^3$
ø63	Push	$1.56 \times 10^2$	$3.12 \times 10^2$	$4.68 \times 10^2$	$6.23 \times 10^2$	$9.35 \times 10^2$	$1.25 \times 10^3$	$1.56 \times 10^3$	$1.87 \times 10^3$	$2.18 \times 10^3$	$2.49 \times 10^3$	$2.81 \times 10^3$	$3.12 \times 10^3$
	Pull	$2.40 \times 10^2$	$2.80 \times 10^2$	$4.20 \times 10^2$	$5.61 \times 10^2$	$8.41 \times 10^2$	$1.12 \times 10^3$	$1.40 \times 10^3$	$1.68 \times 10^3$	$1.96 \times 10^3$	$2.24 \times 10^3$	$2.52 \times 10^3$	$2.80 \times 10^3$

# SCM-LD Series

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

## How to order

No switch (built-in magnet for switch)

SCM-LD - 40 - D - 100 - M - I

With switch (built-in magnet for switch)

SCM-LD - 40 - D - 100 - T0H - D - M - I

A Mounting

B Bore size

C Port thread

D Cushion

E Stroke

F Switch model No.

\*2  
\*3

G Switch quantity

H Switch mounting

I Option  
\*5

J Accessory  
\*6

## ⚠ Precautions for model No. selection

\*1 : Refer to page 340 for the min. stroke with switch.

\*2 : Switches other than F Switch model No. are also available. (Made to order)

Refer to Ending Page 1 for details.

\*3 : T8H/V switches cannot be mounted when the bore size is from ø20 to ø40 and the switch mounting style is the rail.

\*4 : Refer to Ending Page 85 for custom specifications of rod end form.

\*5 : "Q" (switch rail enclosed at shipment) is not available for the "Z" switch mounting.

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

\*7 : Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

[Example of model No.]

**SCM-LD-40D-100-T0H-D-MI**

Model: Round shaped cylinder double acting/direct mounting foot

A Mounting : Direct mounting foot

B Bore size : ø40 mm

C Port thread : Rc thread

D Cushion : With two-sided rubber cushion

E Stroke : 100 mm

F Switch model No. : Reed T0H switch, lead wire 1 m

G Switch quantity : 2

H Switch mounting : Rail

I Option : Piston rod material (stainless steel)

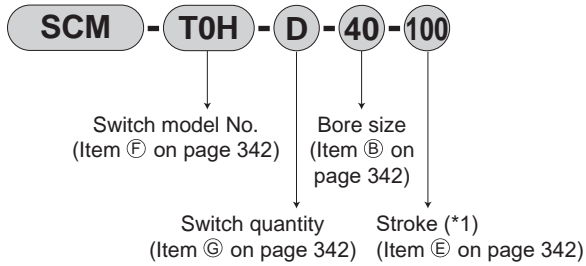
J Accessory : Rod eye

Code	Description					
<b>A Mounting</b>						
LD	Direct mounting foot					
<b>B Bore size (mm)</b>						
20	ø20					
25	ø25					
32	ø32					
40	ø40					
50	ø50					
63	ø63					
<b>C Port thread</b>						
Blank	Rc thread					
N	NPT thread (made-to-order product)					
G	G thread (made-to-order product)					
<b>D Cushion</b>						
D	With two-sided rubber cushion					
<b>E Stroke (mm)</b>						
Bore size	Stroke *1	Custom stroke				
ø20 to ø63	10 to 300	In 1 mm increments				
<b>F Switch model No.</b>						
Axial lead wire	Radial lead wire	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No indicator lamp	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*		●	●	1-color LED	2-wire
T2H*	T2V*	Proximity	●	●	1-color LED	3-wire
T3H*	T3V*		●	●	1-color LED	
T3PH*	T3PV*		●	●	1-color LED	
T2WH*	T2WV*		●	●	2-color LED	2-wire
T2YH*	T2YV*		●	●		
T3WH*	T3WV*		●	●	2-color LED	3-wire
T3YH*	T3YV*		●	●		
T2YD*	-	●	●	2-color LED	2-wire	
T2YDT*	-	●	●	AC magnetic field		
T2JH*	T2JV*	●	●	1-color LED off-delay	2-wire	
<b>* Lead wire length</b>						
Blank	1 m (standard)					
3	3 m (option)					
5	5 m (option)					
<b>G Switch quantity</b>						
R	1 on rod side					
H	1 on head side					
D	2					
T	3					
4	4 (when there are more than 4 switches, indicate switch quantity.)					
<b>H Switch mounting</b>						
Blank	Rail method					
Z	Band method					
<b>I Option</b>						
Q	Switch rail included at shipment					
M	Piston rod material (stainless steel)					
P6	Copper and PTFE free (made-to-order product)					
<b>J Accessory</b>						
I	Rod eye					
Y	Rod clevis (pin and snap ring included)					

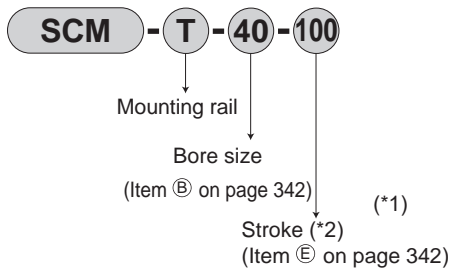
### How to order switch

#### [Switch mounting: Rail]

- Switch body + mounting rail set



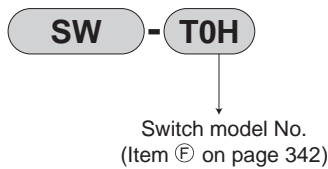
- Mounting rail only



\*1: Indicate X if the stroke exceeds 300 mm.  
If exceeding 300 mm, a short rail (with 100 mm switch adjustment length) will be included per switch.

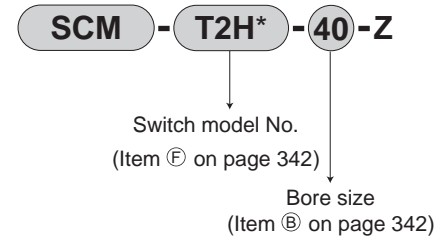
\*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

#### [Switch body only]

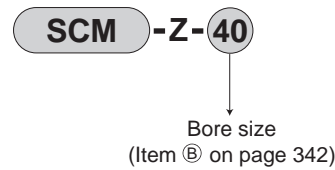


#### [Switch mounting: Band]

- Switch body + mounting bracket set + band



- Mounting bracket set + band



### Internal structure

Same as standard. Refer to page 236.

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

Ending

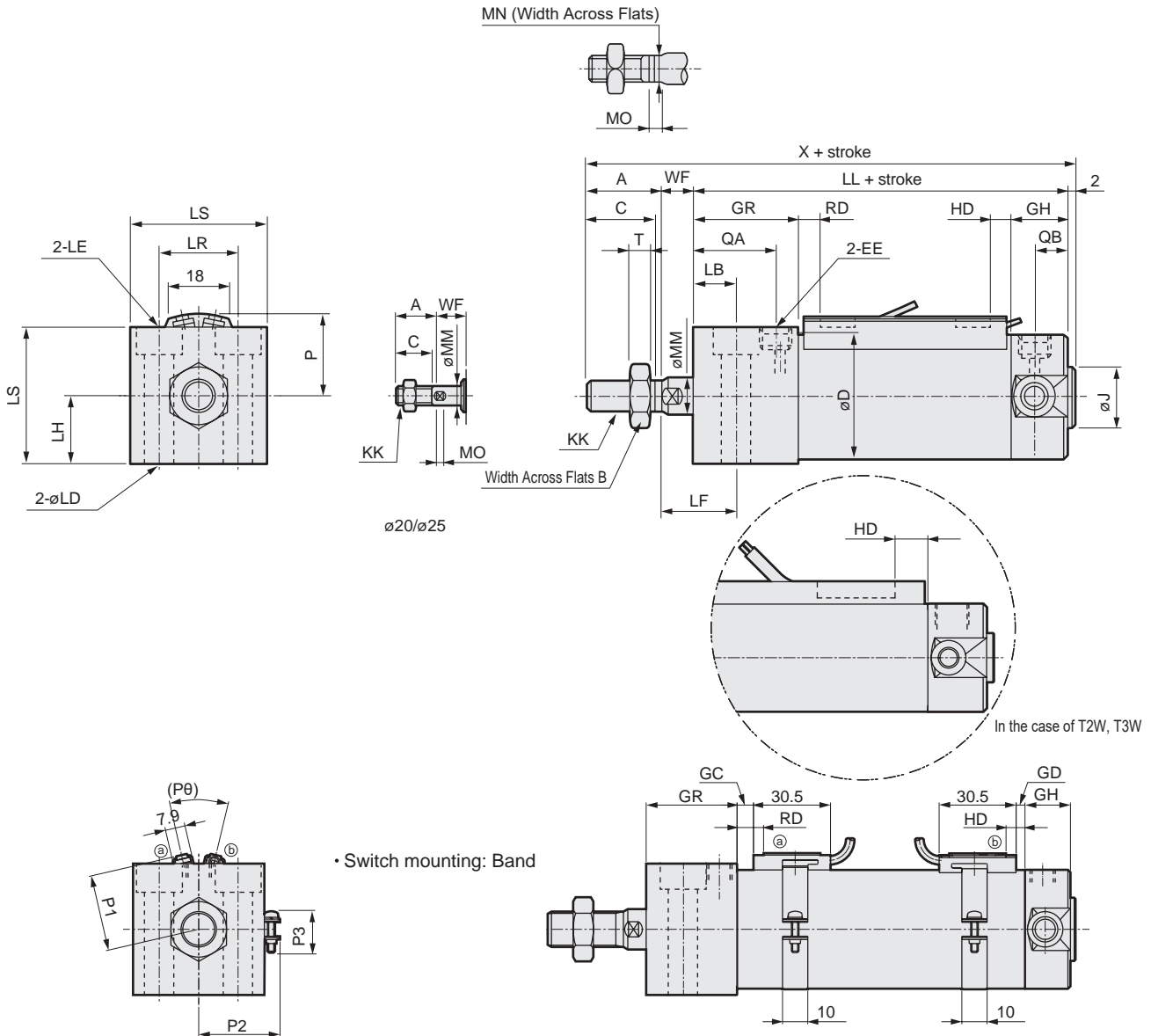
# SCM-LD Series

## Dimensions



● Double acting/direct mounting foot

• Switch mounting: Rail



• Switch mounting: Band

\*1: Refer to page 345 for RD, HD and protruding dimensions of the 2-color LED, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

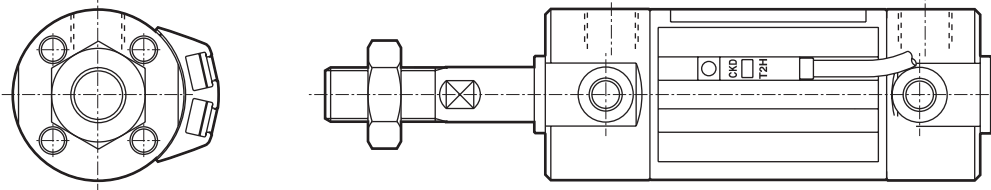
Code	Basic (00) Basic dimensions																									
	Bore size (mm)	A	B	C	D	EE	GH	GR	J	KK	LL	MM	MN	MO	QA	QB	T	WF	X	LB	LD	LE	LF	LH	LR	
SRM3	ø20	18	13	16	26	Rc1/8	17	27	12	M8	77	8	6	4	20	10	5	9	106	11	5.5	9.5 spot face depth	5.4	20	15	18
SRT3	ø25	22	17	20	31	Rc1/8	17	27	14	M 10 x 1.25	77	10	8	5	20	10	6	10	111	12	6.6	11 spot face depth	6.5	22	18	22
MRL2	ø32	22	17	20	38	Rc1/8	17	32	18	M 10 x 1.25	84	12	10	5.5	25	10	6	10	118	13	9	14 spot face depth	8.6	23	21	24
MRG2	ø40	30	22	27	47	Rc1/8	19	36	25	M 14 x 1.5	94	16	14	6	29	12	8	9	135	16	11	17.5 spot face depth	10.8	25	26	32
SM-25	ø50	35	27	32	58	Rc1/4	22	43	30	M 18 x 1.5	108	20	17	8	33	12	11	10	155	17	14	20 spot face depth	13	27	32	41
	ø63	35	27	32	72	Rc1/4	22	48	32	M 18 x 1.5	113	20	17	8	38	12	11	10	160	19	18	26 spot face depth	17.5	29	38	46

Code	Bore size (mm)	Switch mounting: Rail									Switch mounting: Band														
		LS	P	HD			RD			GC			GD			HD			RD			P1	P2	P3	P0
				T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W	T0/T5	T2,T3	T2W T3W				
FJ	ø20	30	19.5	3.0	6.5	8.5	7.5	7.5	9.5	3.5	3.5	5.5	2.5	2.5	4.5	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38°)
	ø25	36	22	2.0	5.5	7.5	8.5	8.5	10.5	4.5	4.5	6.5	1.5	1.5	3.5	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34°)
FK	ø32	42	25.5	3.0	6.5	8.5	9.5	9.5	11.5	5.5	5.5	7.5	2.5	2.5	4.5	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30°)
	ø40	52	30	5.0	8.5	10.5	11.5	11.5	13.5	7.5	7.5	9.5	4.5	4.5	6.5	8.5	8.5	10.5	11.5	11.5	13.5	30.2	32.1	16	(26°)
Spd Contr	ø50	64	35.5	7.5	11.0	13.0	13.0	13.0	15.0	9.0	9.0	11.0	7.0	7.0	9.0	11.0	11.0	13.0	13.0	13.0	15.0	35.7	37.4	16	(22°)
	ø63	76	42.5	7.5	11.0	13.0	13.0	13.0	15.0	9.0	9.0	11.0	7.0	7.0	9.0	11.0	11.0	13.0	13.0	13.0	15.0	42.7	44.4	16	(20°)

\* For the dimensions of the accessories, refer to pages 252 and 253.

## Switch rail installation position (rail installation position for stroke of 10 mm and over and less than 25 mm with 1 switch)

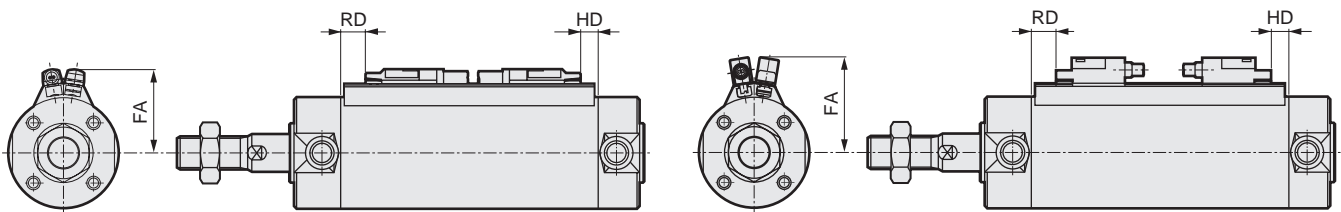


1. The switch rail is mounted at the position inclined by 90° from the standard position.
2. Trunnion mounting is not available because the switch rail and the bracket interfere with each other.
3. When combining one cylinder with stroke of 10 and over and less than 25 and the other one with stroke of 25 and over for variations B and W, the installation position of the switch rail is as shown in the figure above such that the cylinders 1 and 2 are placed at 90° to each other.

## Switch mounting: Rail 2-color LED, AC magnetic field, off-delay, T1<sup>H/V</sup>, T8<sup>H/V</sup> switches mounted, dimensions of protruding section

● SCM-\* T2Y<sup>H/V</sup>, T3Y<sup>H/V</sup>, T2J<sup>H/V</sup>, T8<sup>H/V</sup>

● SCM-\* T2YD\*, T1<sup>H/V</sup>

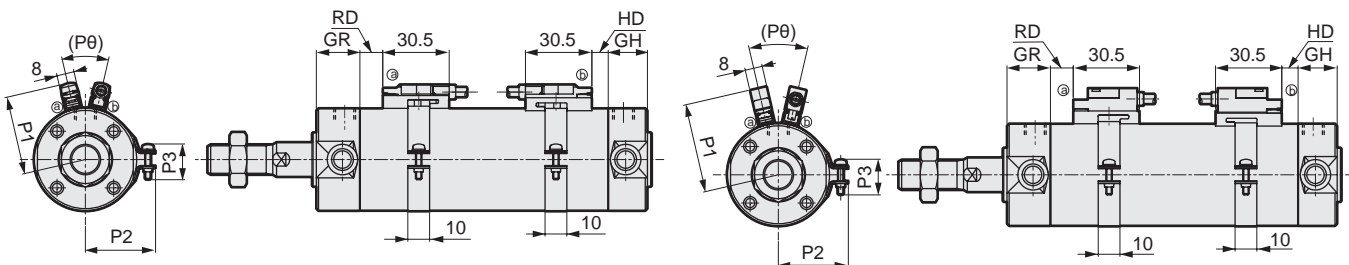


Bore size (mm)	FA				RD		HD	
	T*YH, T8H T2JH	T*YV, T8V T2JV	T2YD*, T1H	T1V	T*YH/V, T1H/V, T2JH/V, T2YD*	T8H/V	T*YH/V, T1H/V, T2JH/V, T2YD*	T8H/V
ø20	24	27	29.5	32.5	6.5	1.5	5.5	0.5
ø25	26.5	29.5	32	35	7.5	2.5	4.5	0
ø32	30	33	35.5	38.5	8.5	3.5	5.5	0.5
ø40	34.5	37.5	40	43	10.5	5.5	7.5	2.5
ø50	40	43	45.5	48.5	12	7	10	5
ø63	47	50	52.5	55.5	12	7	10	5
ø80	55.5	58.5	61	64	19	14	12	7
ø100	66	69	71.5	74.5	18.5	13.5	12.5	7.5

## Switch mounting: Band 2-color LED switches mounted, AC magnetic field, off-delay, T1<sup>H/V</sup>, T8<sup>H/V</sup> switches, dimensions of protruding section

● SCM-\* T2Y<sup>H/V</sup>, T3Y<sup>H/V</sup>, T2Y<sup>H/V</sup>, T8<sup>H/V</sup>

● SCM-\* T2YD\*, T1<sup>H/V</sup>



Bore size (mm)	P1				RD		HD	
	T*YH, T8H T2JH	T*YV, T8V T2JV	T2YD*, T1H	T1V	T*YH/V, T1H/V, T2JH/V, T2YD*	T8H/V	T*YH/V, T1H/V, T2JH/V, T2YD*	T8H/V
ø20	25.4	28.4	30.4	33.4	6.5	1.5	5.5	0.5
ø25	27.9	30.9	32.9	35.9	7.5	2.5	4.5	0
ø32	31.4	34.4	36.4	39.4	8.5	3.5	5.5	0.5
ø40	36	39	41	44	10.5	5.5	7.5	2.5
ø50	41.5	44.5	46.5	49.5	12	7	10	5
ø63	48.5	51.5	53.5	56.5	12	7	10	5
ø80	57	60	62	65	19	14	12	7
ø100	67.5	70.5	72.5	75.5	18.5	13.5	12.5	7.5





# Safety Precautions

Be sure to read this section before use.

Refer to Intro Page 73 for general information of the cylinder, and to Intro Page 80 for general information of the cylinder switch.

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

## Product-specific cautions: Round shaped cylinder SCM Series

### Design/selection

#### 1. Common

#### ⚠ CAUTION

■ As a cushion mechanism integrated in the cylinder, the rubber cushion and the air cushion are available. The purpose of the air cushion is to absorb the piston's kinetic energy by using air compressibility, avoiding collisions of piston and cover at the stroke end. Thus, the cushion is not used to decelerate the piston speed (deceleration action) near the stroke end. The following table shows the kinetic energy that can be absorbed by the cushion. If the kinetic energy exceeds these values, or if bounding caused by the air compressibility is to be avoided, use a separate buffer.

Bore size (mm)	Rubber cushion		Air cushion	
	Allowable absorbed energy J	Effective cushion length (mm)	Allowable absorbed energy J	Effective cushion length (mm)
ø20	0.1	8.1	0.8	
ø25	0.2	8.1	1.2	
ø32	0.5	8.6	2.5	
ø40	0.9	8.6	3.7	
ø50	1.6	13.4	8.0	
ø63	1.6	13.4	14.4	
ø80	3.3	15.4	25.4	
ø100	5.8	15.4	45.6	

Kinetic energy (J) =

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

(Note) Calculating kinetic energy

Average cylinder speed is obtained with  $V_a = \frac{L}{T}$ .

$V_a$  : Average speed (m/s)  
 $L$  : Cylinder stroke (m)  
 $T$  : Operating time (s)

With respect to this, the cylinder speed just before rushing into the cushion can be obtained with the following simple formula.

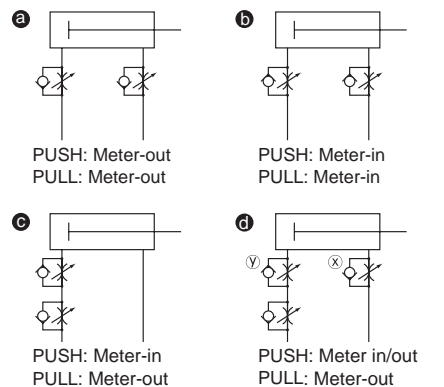
$V_m = \frac{L}{T} \times (1 + 1.5 \times \frac{\omega}{100})$   
 $V_m$  : Stroke end speed (m/s)  
 $\omega$  : Cylinder load factor (%)

Use this  $V_m$  value as speed to calculate kinetic energy.

#### 2. Fine speed SCM-F

#### ⚠ CAUTION

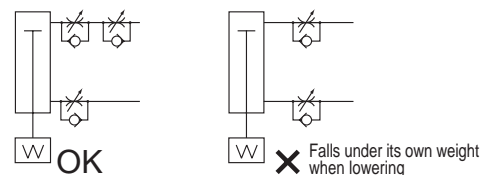
- Do not lubricate. It will cause the properties to fluctuate.
- Assemble the speed controller near the cylinder.  
When installed far from the cylinder, the speed becomes unstable. Use the SC-M3/M5, SC3W, SCD-M3/M5 or SC3U Series speed controller.
- In general, the speed is stabler at higher air pressure and lower load factor.  
Use at a 50% or less load factor.
- Stable speed control is achieved with a meter-out circuit.  
When fine speed activation is performed with operating direction PUSH for the single rod cylinder, the popping out phenomenon occurs when operation starts if the load resistance is low. For countermeasures, use the **b**, **c** or **d** circuit. Note that the **d** circuit is the most stable.



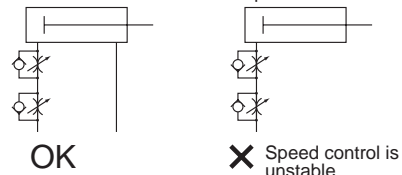
Speed adjustment method for PUSH operation of **d** circuit:  
 1. Set the speed with the speed controller x.  
 2. Restrict the speed with the speed controller y until there is no popping out.  
 3. Check the speed again.

(\*1) When comparing **b**, **c** and **d**, the **d** circuit is the most stable.

(\*2) For vertical mounting, combine the cylinder with a meter-out circuit, as it will fall under its own weight when a meter-in circuit is used.



(\*3) Use the circuit shown in the figure below for the serial connection of the speed controllers.



### Design/selection

(Guidelines for pop-out generation)

Popping out occurs in the following cases.

· Thrust > Resistance

\* Resistance: Thrust caused by residual pressure +  $\left\{ \begin{array}{l} \text{When using horizontally: frictional} \\ \text{on the exhaust side (in the fine speed, suction +} \\ \text{pressure = residual pressure)} \end{array} \right. \left. \begin{array}{l} \text{force caused by load} \\ \text{When using vertically: load self-weight} \end{array} \right.$

■ Do not apply a lateral load to the cylinder.  
With a lateral load, operation will become unstable.

■ Avoid using this product where vibration is present.  
The product will be adversely affected by vibration and operation will become unstable.

#### 3. Low friction SCM-U

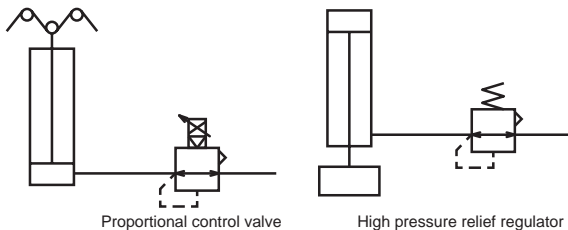
##### ⚠ WARNING

■ Durability differs based on working conditions and model characteristics.  
This cylinder is a cylinder that has internal leakage.  
Refer to specifications (page 302) for amount of leakage.

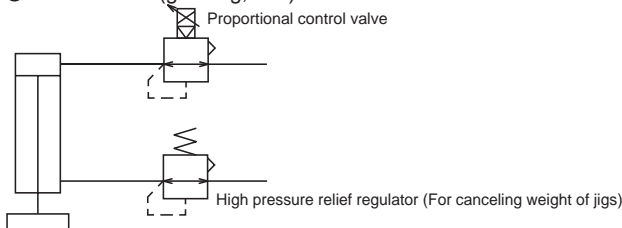
##### ⚠ CAUTION

■ Mount a speed controller on the cylinder.  
Mount the speed controller on the cylinder.  
Use each cylinder within the applicable working piston speed range.  
However, when using the cylinder for a balancer, etc., it may be advisable not to mount a speed controller in order to improve the supply and exhaust efficiency.  
Depending on applications, circuits **a** to **c** below are recommended.

**a** Tension control (winding machine, etc.)    **b** Balancer (processing machine Z-axis, etc.)



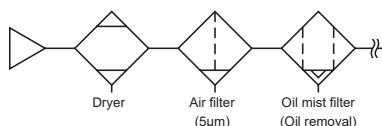
**c** Load control (grinding, etc.)



\* To improve the supply and exhaust efficiency, make the volume of piping as large as possible.

■ Do not lubricate. The properties fluctuate.

■ Because poor quality air worsens the characteristics and adversely affects the durability, use clean air with the piping below.



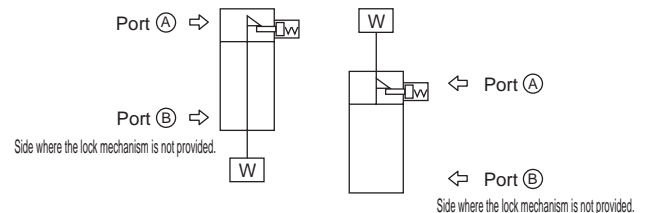
■ Assemble the speed controller near the cylinder.  
When installed at a distant place from the cylinder, the adjustment becomes unstable.

■ In general, the speed is stabler at higher air pressure and lower load factor.  
Use at a 50% or less load factor.

#### 4. Position locking SCM-Q

##### ⚠ WARNING

■ If pressure is supplied to port **A** when both ports are not pressurized and the piston is locked, the lock may not be released or the piston rod may suddenly pop out just after the lock is released. This can be extremely hazardous. To release the locking mechanism, be sure to supply pressure to port **B**. Check that a load is not applied to the locking mechanism upon release.



■ For usage where the drop rate is increased using the quick exhaust valve, the lock may not release normally because the cylinder body starts operating before the lock pin. For the position locking cylinder, do not use the quick exhaust valve.

■ Do not use 3-position valves.

Do not use the cylinder by combining with the 3-position (especially, closed center metal seal) valves. If the port at the side where the lock mechanism is provided is pressurized, the lock cannot be engaged. Even if it is locked once, the air leaked from the valve enters the cylinder, and the lock may be released after a certain period of time.

##### ⚠ CAUTION

■ Cylinder load factor must be 50% or less.

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

■ If back pressure is applied to the locking mechanism, the lock may be released. Use a single valve, or an individual exhaust manifold.

■ Do not use multiple synchronized cylinders.

Do not use so that 1 workpiece is moved by synchronizing 2 or more position locking cylinders. Cylinder lock release may fail.

SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

Ending

## Mounting, installation and adjustment

### 1. Common

#### CAUTION

Switch rails are adhered with industrial adhesive tape. If used in an atmosphere containing inorganic or organic solvents or water vapor, rails may become loose.

Main inorganic solvent/organic solvent

Inorganic solvents: Sodium hydroxide, hydrochloric acid, etc.

Organic solvents: Toluene, ethanol, hexane, gasoline, kerosene, etc.

Remove all oil, moisture, dust, etc., from the body (tube) in order to adhere the switch rail.  
(Perform adhesion by referring to instructions included with the part.)

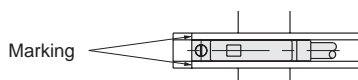
#### Caution for type with air cushion

For  $\phi 20$  and  $\phi 25$ , compatible fittings are limited, so see the following table to select the fitting.

Item	Port size	Applicable fittings	Inapplicable fittings
$\phi 20$	M5	SC3W-M5-4/6	GWL6-M5
		SC3R-M5	
$\phi 25$	M5	GWS4-M5 GWS4-M5-S	GWL6-M5-45
		GWS6-M5 GWS6-M5-S	
		GWL4-M5 GWL4-M5-45	
		GWL4-M5-T GWL6-M5-T	

#### Switch mounting: Caution for band

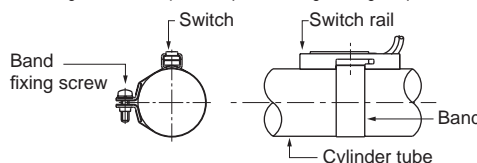
When moving the switch position to the stroke direction  
The 1-color LED switch can be fine-tuned by  $\pm 3$  mm from the default. Loosen the switch fixing screw, shift the switch along the rail, then tighten at the specified position. If the adjusting range exceeds  $\pm 3$  mm, or when fine-tuning the 2-color LED switch, move the band position. When using T2, T3, T0, or T5, use a flathead screwdriver (clockwork screwdriver, precision screwdriver, etc.) with a grip diameter of 5 to 6 mm, a 2.4 mm or smaller tip, and a thickness of 0.3 mm or less to tighten the screws with a tightening torque of 0.1 to 0.2 N·m. When using T2J, T2Y, or T3Y, tighten the screw with a tightening torque of 0.5 to 0.7 N·m. The switch bracket rail has a marking 4 mm from the rail end. Use as a guide to the mounting position when replacing the switch. Switch rail markings are set to the default switch max. sensitivity position. The max. sensitivity position will change when the switch is changed or when the band is shifted. Adjust the position accordingly in this case.



If moving the switch position in the circumferential direction, loosen the band fixing screw, shift the switch rail in the circumferential direction, then tighten at the specified position. Tightening torque is 0.6 to 0.8 N·m.

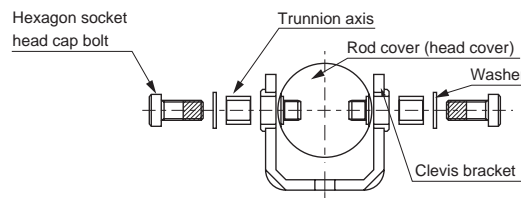
#### Shifting the band position

Loosen the band fixing screw, shift the switch rail and band along the cylinder tube, and tighten at the specified position. Tightening torque is 0.6 to 0.8 N·m.



When the mounting style is the trunnion, preassemble it as shown in the figure below and tighten the bolt using the tightening torque with reference to the table below.

Bore size	Tightening torque [N·m]
$\phi 20$	6
$\phi 25$	11
$\phi 32$	18
$\phi 40$	27
$\phi 50$	38
$\phi 63$	51



### 2. Stroke adjustable SCM-R

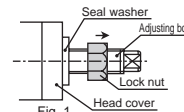
#### CAUTION

Securely lock the adjustable stroke stopper with the lock nut.

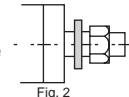
Observe steps (1) to (5) when adjusting the stroke. If adjustments are not made this way, the seal washer will be damaged after one or two adjustments

[Adjustable stroke procedure]

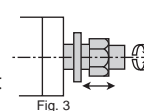
(1) First loosen the lock nut as shown in Fig. 1.



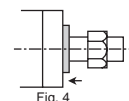
(2) Second, remove the seal washer from the adaptor by hand, and make a state as shown in Fig. 2.



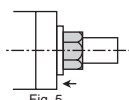
(3) Turn the angle adjustment bolt, lock nut, and seal washer together in the (2) state as shown in Fig. 3, and adjust the stroke. Check that the rubber section of the seal washer does not bite into the thread part.



(4) After adjusting the stroke, move the seal washer near the adaptor by hand as shown in Fig. 4.



(5) Tighten securely with the lock nut as shown in Fig. 5. Check that the rubber section of the seal washer does not bite into the thread part.



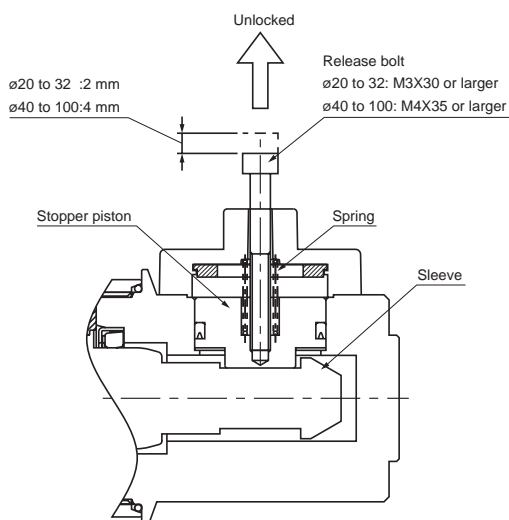
Securely tighten the lock nut after adjusting the stroke. The lock nut could be loosened in the course of usage, and this may result in external leakage.

- Because a seal washer is used for sealing the adjustment bolt, the sealing cannot withstand frequent adjustment.
- If the stroke is adjusted, the cushion cannot function at all.
- 2 types of 25 mm and 50 mm are available for adjustment stroke.
- When the mounting style is the axial foot, the axial pitch dimension is the same as the standard.

### 3. Position locking SCM-Q

#### ⚠ CAUTION

- For the axial foot (mounting style: LB), when trying to fix the cylinder to a support, etc., with the state that the mounting bracket is attached to the cylinder, the cylinder cannot be fixed because the bolt and the stopper cover will interfere with each other. Fix the mounting bracket at the position locking side to the support, etc., first, and then mount the cylinder.
- The lock mechanism functions at the stroke end, so that if the stopper is engaged during the stroke by the external stopper, the lock mechanism may not work and the piston could fall. When setting a load, make sure to check that the lock mechanism functions before installing the product.
- Supply pressure equal to or higher than the min. working pressure to the port on the lock mechanism side.
- When the piping at the side where the lock mechanism is provided is long and thin, or when the speed controller is far away from the cylinder port, note that it takes time to engage the lock. Clogging in the silencer mounted on the EXH port of the valve may cause the same result.
- Manual operation unlocking method  
By screwing the bolt (ø20 to 32: M3X30 and over, ø40 to 100: M4X35 and over) into the stopper piston and pulling the bolt 2 mm (ø20 to 32) or 4 mm (ø40 to 100) with force of 20 N or more, the stopper piston is moved and the lock is released.  
When released, the stopper piston is returned to the original position by the built-in spring and engaged in the sleeve groove, and the cylinder is locked.



### 4. Fine speed SCM-F

#### ⚠ CAUTION

- Perform adjustment such as centering so that a lateral load is not applied to the cylinder. Adjust and install the sliding guide so that it is not twisted.
  - When the load or the resistance fluctuates, operation becomes unstable.
  - With a large difference between static friction and kinematic friction of the guide, operation becomes unstable.

### 5. Low friction cylinder SCM-U

#### ⚠ CAUTION

- Perform adjustment such as centering so that lateral load is not applied to the cylinder. Adjust and install the sliding guide so that it is not twisted.
  - When the load or the resistance fluctuates, operation becomes unstable.
  - For the long stroke, the piston rod's self-weight causes the speed to become unstable. Install the guide before use.
  - With a large difference between the guide's static friction and kinematic friction, operation becomes unstable.
- Avoid using this product where vibration is present.
  - The product will be adversely affected by vibration and operation will be unstable.
- Avoid using in environments with water vapor or high humidity or in alkaline atmospheres.

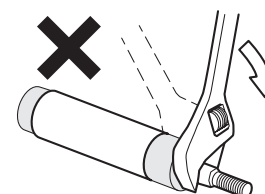
### 6. Rotation-stop SCM-M

#### ⚠ CAUTION

- Do not use the product so as to apply rotation torque to the piston rod. The bushing for the rotation lock may deform and significantly shorten the service life. When inevitable, use within the allowable torque range.

Allowable torque	ø20	ø25	ø32	ø40	ø50	ø63
N·m	0.2	0.25	0.25	0.45	0.45	0.45

- Do not apply rotation torque with impact, or with instantaneous changes in torque load direction.
- When fixing a workpiece onto the tip of the piston rod, retract the piston rod to the stroke end and apply a wrench to the protruding width across flats. Tighten so that torque is not applied to the cylinder body.



SCP\*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/  
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/  
MSDG

FC\*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd  
Contr

Ending

## Use/maintenance

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

### 1. Common

#### ⚠ CAUTION

- When disassembling the cylinder, grip the width across flats portion of either of the head cover or the rod cover with a vice, etc., apply a wrench or an adjustable wrench to the width across flats portion of the other cover and loosen it to remove the cover. When tightening it again, retighten from the position set before disassembly.
- A larger torque is required for disassembling and assembling the  $\varnothing 80$  and  $\varnothing 100$  cylinders.
- Contact your nearest CKD sales office for details, which are described in the instructions for assembling and disassembling.

### 2. Single acting SCM-X/Y

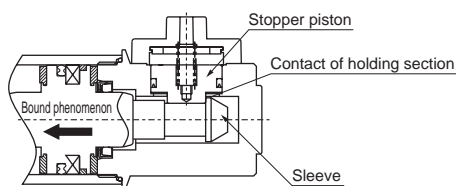
#### ⚠ CAUTION

- Do not leave the single acting cylinder pressurized. If it is left pressurized for long periods, the piston rod may not return due to spring load when the pressure is released.

### 3. Position locking SCM-Q

#### ⚠ WARNING

- For safety purposes, prevent the load from falling under its own weight during maintenance.
- In the case of the cylinder with air cushion, if the air cushion needle at the lock mechanism side is tightened excessively, the piston bounds at the stroke end and the sleeve and stopper piston collide strongly, which may result in damage to the locking mechanism. Also, if the air cushion needle is opened too much, the piston bounces off at the stroke end, which may similarly damage the mechanism. Adjust the needle of the air cushion so that there is no bound.



When stopping the piston with an external buffer device (shock absorber, etc.), adjust it similarly so that there is no bound.  
Inspect the piston once or twice a year to make sure there is no damage to the retainer caused by this phenomenon.

#### ⚠ CAUTION

- After the lock mechanism is manually operated, make sure to return the lock mechanism to the original state before use. Do not perform manual operation except for adjustment, as it is dangerous.
- When mounting or adjusting the cylinder, release the lock. If mounting work, etc., is done while the lock is engaged, the lock part may be damaged.
- Use the speed controller with meter-out. If the meter-in control is used, the lock may not be able to be released.
- At the side where the lock mechanism is attached, be sure to use the cylinder from the stroke end. If the cylinder piston does not reach the stroke end, the lock may not be engaged or the lock may not be able to be released.

### 4. Fine speed SCM-F

#### ⚠ WARNING

- Smoking with hands smeared with the fluorine grease used could generate harmful gases and cause physical harm.

### 5. Low friction SCM-U

#### ⚠ CAUTION

- Do not disassemble the product. Once disassembled, the performance may not be retained. For this product, just the repair parts are not available.