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.

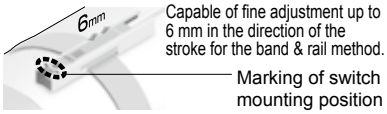
Easy mounting
Better workability has been enabled by mounting with four bolts using a general tool.

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 display and strong magnetic field proof)



· 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

Round shaped cylinder SCM Series

Variation	Model No. JIS symbol	Bore size (mm)	Standard stroke length (mm) 25	50	75	100	125	150	200	250	300	Min. stroke length (mm)	Max. stroke length (mm)	Custom stroke length (per mm)	Basic 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/ two-stage	SCM-W (Display code)	ø20/ø25/ø32	●	●	●	●	●	●	●	●	●	10	600	1	●
		ø40/ø50/ø63	●	●	●	●	●	●	●	●	●		600		●
Double acting/ tandem	SCM-W4 (Display code)	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	

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

Mounting								Cushion				Option					Accessory				Switch	Page
	Axial foot	Rod side flange	Head side flange	Eye bracket	Clevis bracket	Rod side trunnion	Head side trunnion	With two-sided air cushion	Rod side air cushion	Head side air cushion	With two-sided rubber cushion	Bellows (100°C)	Bellows (250°C)	Switch rail included at shipment	Piston rod material change	Copper and PTFE free	Rod eye	Rod clevis	Eye bracket	Clevis bracket		
	LB	FA	FB	CA	CB	TA	TB	B	R	H	D	J	L	Q	M	P6	I	Y	B1	B2		
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*1: “TA” head side trunnion is not available for the head-side position locking.
*2: “TB” rod side trunnion is not available for the rod-side position locking.

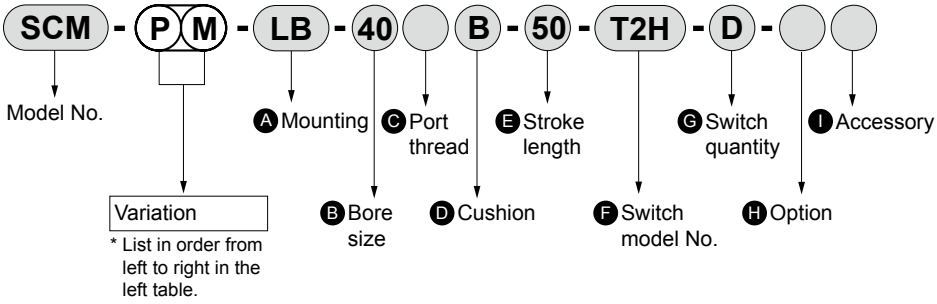
Variation and option combination selection table

◎: Option
○: Available (made-to-order product)
△: Available depending on conditions (Contact CKD.)
×: Not available

Category		Category	Variation																	Port thread			Option								
			Double acting basic	Single acting push	Single acting pull	Double acting double rod	Back to back	Two-stage	Tandem	Stroke adjustable push	Stroke adjustable pull	Rotation-stop	With air cushion	Heat resistance (120°C)	Low speed	Position locking	Low friction		NPT	G		Nylon tarpaulin with bellows	Silicone rubber with bellows	Piston rod material stainless steel	Specify piston rod end form	Copper and PTFE free	Clean-room specifications (exhaust port)	Clean-room specifications (vacuum treatment)	Switch rail included at shipment
			None	X	Y	D	B	W	W4	P	R	M	B, R, H	T	O	Q	U		N	G		J	L	M	N*	P6	P7	P71	Q
Variation	Double acting basic	Blank											◎						○	○		◎	◎	◎	○	◎	◎	◎	◎
	Single acting push	X			×	×	○	×	×	×	○	△	×	△	×	×	×		○	○		◎	◎	◎	○	◎	×	×	◎
	Single acting pull	Y				×	○	×	×	×	×	△	×	△	×	×	×		○	○		◎	◎	◎	○	◎	×	×	◎
	Double acting double rod	D					×	×	×	×	×	*2	○	○	×	○	×		○	○		◎	◎	◎	○	◎	○	○	◎
	Back to back	B						×	×	×	×	△	△	○	○	×	×		○	○		◎	◎	◎	○	◎	○	○	◎
	Two-stage	W							×	×	×	○	×	○	×	×	×		○	○		◎	◎	◎	○	◎	△	△	◎
	Tandem	W4								×	×	○	×	×	×	×	×		○	○		◎	◎	◎	○	◎	△	△	◎
	Stroke adjustable push	P									×	○	×	△	×	×	×		○	○		◎	◎	◎	○	◎	×	×	◎
	Stroke adjustable pull	R										○	×	△	○	△	×		○	○		◎	◎	◎	○	◎	×	×	◎
	Rotation-stop	M											△	×	×	△	×		○	○		◎	◎	△	○	×	×	×	◎
	With air cushion	B, R, H												*4	×	◎	×		*1	*1		◎	◎	◎	○	◎	×	×	◎
	Heat resistant (120°C)	T													×	×	×		○	○		×	◎	◎	○	×	×	×	
	Low speed	O														△	×		○	○		◎	◎	◎	○	×	×	×	◎
	Position locking	Q															×		*3	*3		△	△	◎	○	○	◎	◎	◎
	Low friction	U																	○	○		×	×	◎	○	×	×	×	◎
Port thread	NPT	N																				○	○	○	○	○	○	○	○
	G	G																				○	○	○	○	○	○	○	○
Option	Nylon tarpaulin with bellows	J																					×	○	○	○	×	×	○
	Silicone rubber with bellows	L																						○	○	○	×	×	○
	Piston rod material stainless steel	M																							○	○	○	○	○
	Specify piston rod end form	N*																								○	○	○	○
	Copper and PTFE free	P6																									×	×	○
	Clean-room specifications (exhaust port)	P7																											○
	Clean-room specifications (vacuum treatment)	P71																											○
	Switch rail included at shipment	Q																											
Accessory	Cylinder switch	Listed separately	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	×	◎	◎	◎		○	○		◎	◎	◎	○	◎	○	○	◎
	Rod eye	I	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		○	○		◎	◎	◎	○	◎	×	×	◎
	Rod clevis	Y	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		○	○		◎	◎	◎	○	◎	×	×	◎
	Eye bracket *5	B1	◎	×	×	×	×	×	×	×	×	×	×	◎	◎	◎	◎		○	○		◎	◎	◎	○	◎	×	×	◎
	Clevis bracket *6	B2	○	◎	○	○	◎	○	○	◎	○	○	○	◎	○	◎	◎		○	○		◎	◎	◎	○	◎	×	×	◎

*1: ø20/ø25 are not available for the type with air cushion.
*2: Rotation-stop is only on one side.
*3: ø20/ø25 are not available.
*4: ø20 to ø32 are not available.
*5: ø80/ø100 only
*6: ø20 to ø63 only

[Example of model No.]



Model No.: Round shaped cylinder

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

A	Mounting	: Axial foot
B	Bore size	: ø40 mm
C	Port thread	: Rc thread
D	Cushion	: With two-sided air cushion
E	Stroke length	: 50 mm
F	Switch model No.	: Proximity T2H switch, lead wire 1 m
G	Switch quantity	: 2
H	Option	: None
I	Accessory	: None

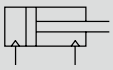
*1: The back to back includes two cylinders. Specify the model No. as below when ordering variation.
For S1 variations only, insert the variation code before the stroke length of S1.
(Example) SCM-B-32-O25-50: Only S1 is the low speed.
For S2 variations only, insert the variation code before the stroke length 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.

Round shaped cylinder Double acting/single rod

SCM Series

● Bore size: ø20/ø25/ø32/ø40/ ø50/ø63/ø80/ø100

JIS symbol



RoHS CAD

Specifications

Item		SCM							
Bore size mm		ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation		Double acting							
Working fluid		Compressed air							
Max. working pressure MPa		1.0 (≈150 psi, 10 bar)							
Min. working pressure MPa		0.1 (≈15 psi, 1 bar)				0.05 (≈7.3 psi, 0.5 bar)			
Proof pressure MPa		1.6 (≈230 psi, 16 bar)							
Ambient temperature °C		-10 (14°F) to 60 (140°F) (no freezing)							
Port size	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 mm	With rubber cushion	+1.4 0 (to 1000)			+1.4 0 (to 1500)	+2.3 0 (to 1000),		+2.7 0 (to 1500)	
	With air cushion	+1.4 0 (to 1000)			+1.4 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		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 J	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 length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
ø 20	25, 50, 75, 100, 125, 150, 200, 250, 300	1000	10
ø 25			
ø 32			
ø 40		1500	
ø 50			
ø 63			
ø 80			
ø100			

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

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

● Switch mounting method: Rail

Switch quantity	1				2			3				4				5			
Bore size (mm)	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*	
ø20	10				25			50	70	70	55	55	70	70	55	75	110	110	90
ø25	10				25			50	70	70	55	55	70	70	55	75	110	110	90
ø32	10				25			50	70	70	55	55	70	70	55	75	110	110	90
ø40	10				25			50	70	70	55	55	70	70	55	75	110	110	90
ø50	10				25			50	65	65	55	55	65	65	55	75	110	110	90
ø63	10				25			50	65	65	55	55	65	65	55	75	110	110	90
ø80	10				25			50	65	65	55	55	65	65	55	75	110	110	90
ø100	10				25			50	65	65	55	55	65	65	55	75	110	110	90

*1: For types with one switch, when the stroke length 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			
Bore size (mm)	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed	Proximity			Reed
	T2, T3	T2W, T3W	T*Y*		T0, T5 T2, T3	T2W, T3W	T*Y*		T0, T5 T2, T3	T2W, T3W	T*Y*		T0, T5 T2, T3	T2W, T3W	T*Y*		T0, T5 T2, T3	T2W, T3W	T*Y*	
ø20	10				25	30	35	25	50	55	55	50	70	75	80	70	95	100	100	95
ø25	10				25	30	35	25	50	55	55	50	70	75	80	70	95	100	100	95
ø32	10				25	30	35	25	50	55	55	50	70	75	80	70	95	100	100	95
ø40	10				25	30	35	25	50	55	55	50	70	75	80	70	95	100	100	95
ø50	10				25	30	35	25	50	55	55	50	70	75	80	70	95	100	100	95
ø63	10				25	30	35	25	50	55	55	50	70	75	80	70	95	100	100	95
ø83	10				25	30	35	25	50	55	55	50	70	75	80	70	95	100	100	95
ø100	10				25	30	35	25	50	55	55	50	70	75	80	70	95	100	100	95

Switch specifications

● 1-color/2-color display

Item	Proximity 2-wire	Proximity 2-wire			Proximity 3-wire				Reed 2-wire							Proximity 2-wire
	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 lamp	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)		Without 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)	Product weight when stroke length (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
	Basic (00)	Axial foot (LB)	Flange (FA/FB)	Clevis	Trunnion (TA/TB)				
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
ø100	3.17	4.92	4.52	4.45	-		0.098	0.10	0.010

(Example) Product weight of SCM-LB-40B-100-T2H-D
- Product weight when S = 0 mm.....0.63 kg
- Additional weight when S = 100 mm .....0.032 x $\frac{100}{10}$ = 0.32 kg
- Weight of 2 switches.....0.018 × 2 = 0.036 kg
- Product weight.....0.63 + 0.32 + 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	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	–	26.4	39.6	52.8	79.2	1.06×10^2	1.32×10^2	1.58×10^2	1.85×10^2	2.11×10^2	2.38×10^2	2.64×10^2
ø25	Push	–	49.1	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	–	41.2	61.9	82.5	1.24×10^2	1.65×10^2	2.06×10^2	2.47×10^2	2.89×10^2	3.30×10^2	3.71×10^2	4.12×10^2
ø32	Push	–	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	–	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	–	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	–	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	98.0	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	82.5	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	1.56×10^2	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	2.40×10^2	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3
ø80	Push	2.51×10^2	5.03×10^2	7.54×10^2	1.01×10^3	1.51×10^3	2.01×10^3	2.51×10^3	3.02×10^3	3.52×10^3	4.02×10^3	4.52×10^3	5.03×10^3
	Pull	2.27×10^2	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3	3.63×10^3	4.08×10^3	4.54×10^3
ø100	Push	3.92×10^2	7.85×10^2	1.18×10^3	1.57×10^3	2.36×10^3	3.14×10^3	3.93×10^3	4.71×10^3	5.50×10^3	6.28×10^3	7.07×10^3	7.85×10^3
	Pull	3.57×10^2	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3	5.72×10^3	6.43×10^3	7.15×10^3

How to order

Without 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

Ⓐ Mounting *1

Ⓑ Bore size

Ⓒ Port thread

Ⓓ Cushion

Ⓔ Stroke length

Ⓕ Switch model No. *4 *5

Ⓖ Switch quantity

Ⓗ Switch mounting

Ⓘ Option *2 *6 *8

Ⓙ Accessory *9

Code	Description								
Ⓐ Mounting									
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	●	●	●	●	●	●		

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

Ⓒ Port thread	
Blank	Rc thread
N	NPT thread (made-to-order product) With air cushion: ø32 and over
G	G thread (made-to-order product) With air cushion: ø32 and over

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

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

Ⓕ Switch model No.

Axial lead wire	Radial lead wire	Contact	Voltage AC	Voltage DC	Display	Lead wire
T0H*	**T0V***	Reed	●	●	1-color display	2-wire
T5H*	**T5V***		●	●	Without indicator lamp	
T8H*	**T8V***		●	●	1-color display	
T1H*	**T1V***	Proximity	●		1-color display	2-wire
T2H*	**T2V***			●		
T3H*	**T3V***			●		3-wire
T3PH*	**T3PV***			●	1-color display	
T2WH*	**T2WV***			●	2-color display	2-wire
T2YH*	**T2YV***			●		
T3WH*	**T3WV***			●		3-wire
T3YH*	**T3YV***			●		
T2YD*	**-**			●	2-color display for AC magnetic field	2-wire
T2YDT*	**-**			●		
T2JH*	**T2JV***			●	1-color display off-delay	2-wire

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

Ⓖ 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.)

Ⓗ Switch mounting	
Blank	Rail method
Z	Band method

Ⓘ Option			
		Max. ambient temperature	**Instantaneous max. temperature**
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		

Ⓙ Accessory

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	●	●	●	●	●	●		

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 length.
*4 : Switches other than Ⓕ 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 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-LB-40B-100-T2H-D-JI

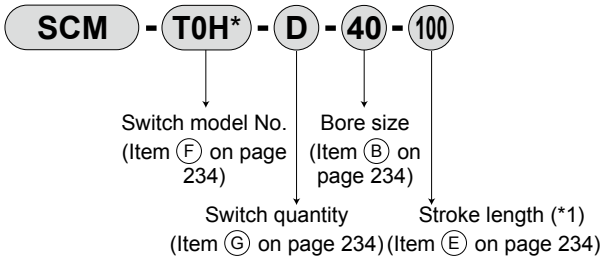
Model: Round shaped cylinder, double acting

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

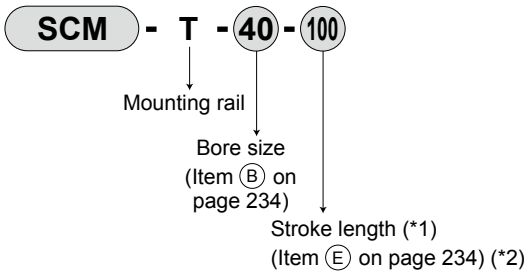
How to order switch

[Switch mounting: Rail]

● Switch body + mounting rail set



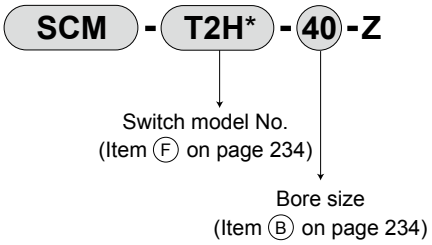
● Mounting rail only



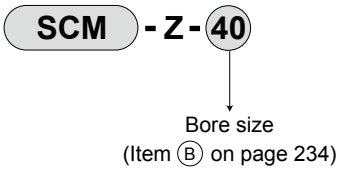
*1: Indicate X if the stroke length exceeds 300 mm.
If exceeding 300 mm, a short rail (with 100 mm switch adjustment length) will be included per switch.
*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

[Switch mounting: Band]

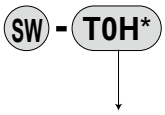
● Switch body + mounting bracket set + band



● 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) / Mounting bracket	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.

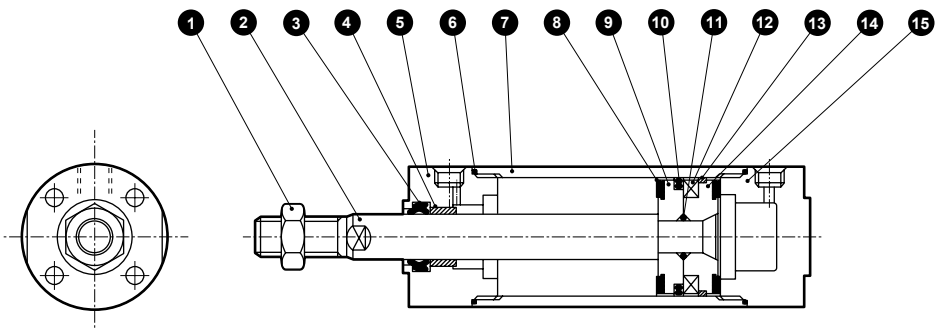
Material of mounting bracket

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

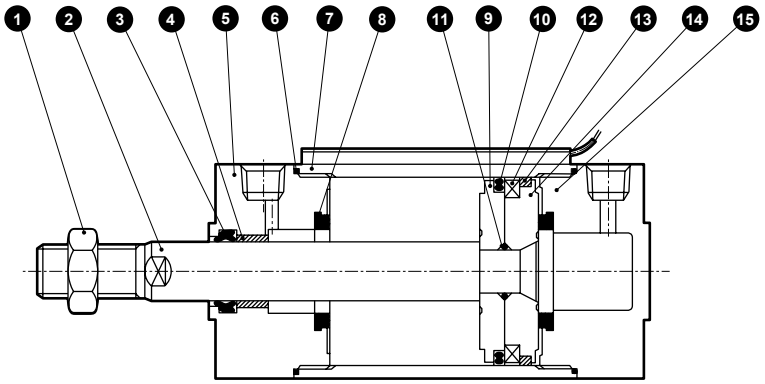
*1: Mounting bracket will be shipped with the product.
However, it will be attached to the product if the product is the type with bellows and LB, FA, or TA mounting bracket, SCM-P with LB, FB or TB mounting bracket, or SCM-R with LB, FB or TB mounting bracket.
*2: The ø50 to ø100 material is steel.

Internal structure and parts list (with rubber cushion)

● ø20 to ø40



● ø50 to ø100



No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rod nut	Steel	Nickeling	9	Piston R	ø20 to ø40: Aluminum alloy ø50 to ø100: Aluminum alloy die-casting	
2	Piston rod	ø20, ø25: Stainless steel ø32 to ø100: 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	ø20 to ø40: Aluminum alloy ø50 to ø100: Aluminum alloy die-casting	
7	Cylinder tube	Aluminum alloy	Hard alumite				
8	Cushion rubber	Urethane rubber		15	Head cover	Aluminum alloy	Hard alumite

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

Repair parts list

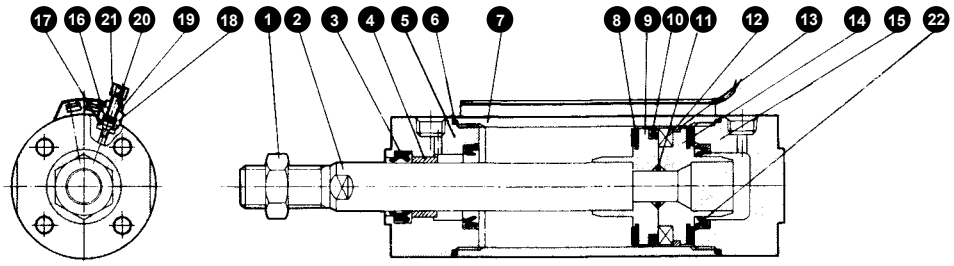
With rubber cushion

Bore size (mm)	Kit No.	Repair parts No.
ø 20	SCM-20DK	③ ⑥ ⑧ ⑩ ⑬
ø 25	SCM-25DK	
ø 32	SCM-32DK	
ø 40	SCM-40DK	
ø 50	SCM-50DK	
ø 63	SCM-63DK	
ø 80	SCM-80DK	
ø100	SCM-100DK	

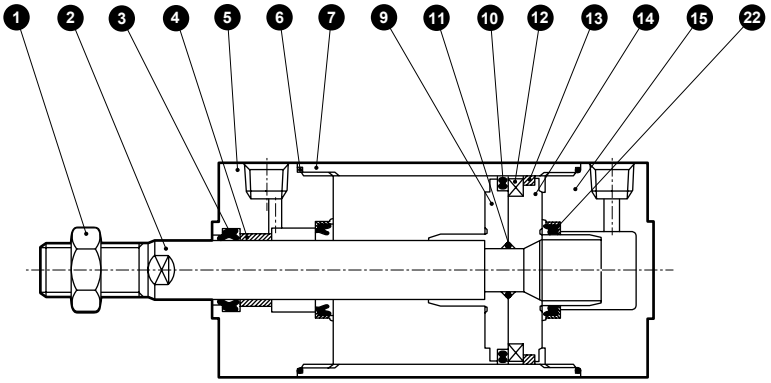
*1: Specify the kit No. when placing an order.

Internal structure and parts list (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	ø20, ø25: Stainless steel ø32 to ø100: Steel	Industrial chrome plating	13	Wear ring	Polyacetal resin	
3	Rod packing	Nitrile rubber		14	Piston H	ø20 to ø40: Aluminum alloy ø50 to ø100: 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 ø40: Aluminum alloy ø50 to ø100: Aluminum alloy die-casting		20	Needle	Stainless steel	
				21	Knob	Aluminum alloy	Chromate
10	Piston packing	Nitrile rubber		22	Cushion packing	Nitrile rubber/steel	
11	Piston gasket	Nitrile rubber					

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

Repair parts list

With air cushion

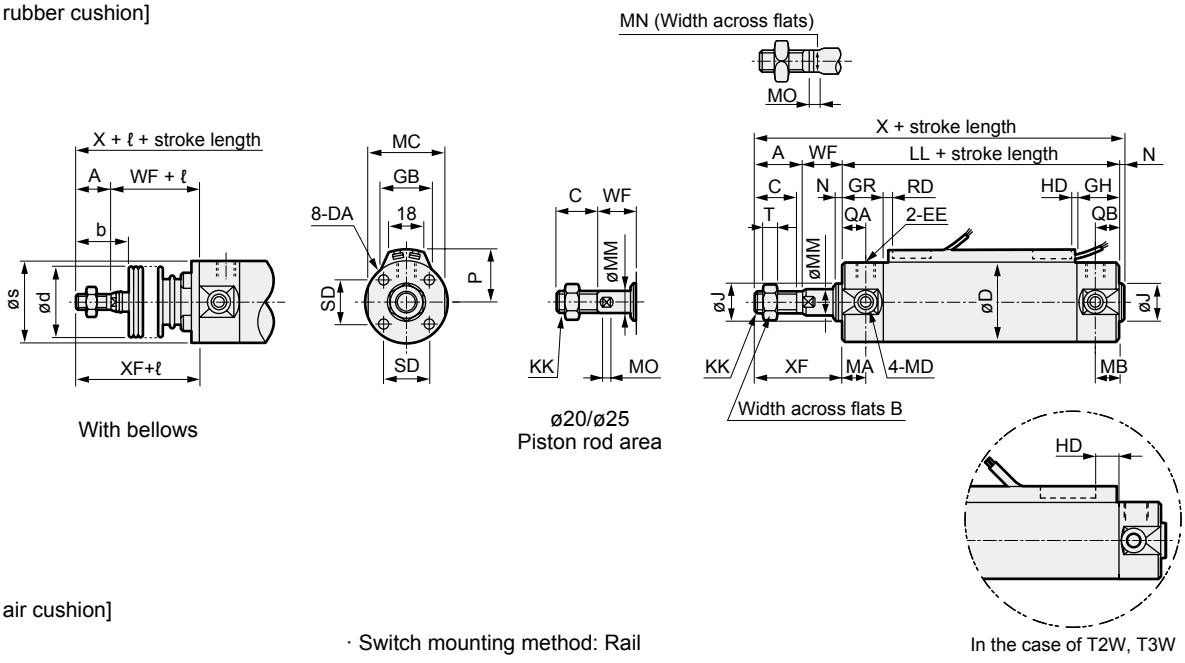
Bore size (mm)	Kit No.	Repair parts No.
ø 20	SCM-20BK	*2 3 6 8 10 13 16 17 22
ø 25	SCM-25BK	
ø 32	SCM-32BK	
ø 40	SCM-40BK	
ø 50	SCM-50BK	
ø 63	SCM-63BK	
ø 80	SCM-80BK	
ø100	SCM-100BK	

*1: Specify the kit No. when placing an order.
*2: 8 is not supplied with ø50 to ø100.

Dimensions CAD

● Basic (00) ø20 to ø100
[With rubber cushion]

· Switch mounting method: Rail



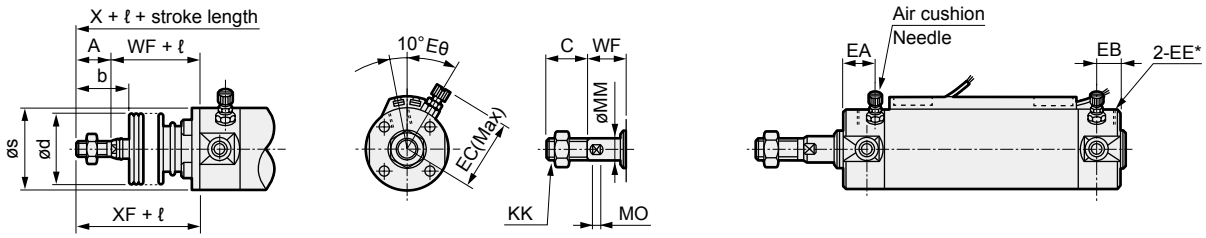
With bellows

ø20/ø25
Piston rod area

In the case of T2W, T3W

[With air cushion]

· Switch mounting method: Rail



With bellows

ø20/ø25
Piston rod area

1 : Piping port (EE) of ø20 and ø25 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 display, 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.

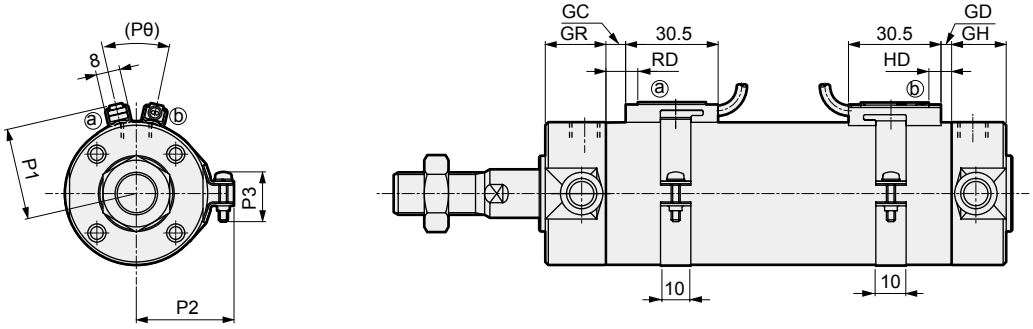
Code	Basic (00) basic dimensions																				
Bore size (mm)	A	B	C	D	DA	EE (Note)	GH	GR	J	KK	LL	MA	MB	MC	MD	MM	MN	MO	N	QA	QB	SD
ø 20	-	13	16	26	M4 depth 6.5	Rc1/8	17	19	12	M8	69	11	11	24	M5	8	6	4	2	12	10	14
ø 25	-	17	20	31	M5 depth 6.5	Rc1/8	17	19	14	M10×1.25	69	11	11	29	M6	10	8	5	2	12	10	16.5
ø 32	22	17	20	38	M5 depth 7.5	Rc1/8	17	19	18	M10×1.25	71	11	10	36	M8	12	10	5.5	2	12	10	20
ø 40	30	22	27	47	M6 depth 12	Rc1/8	19	20	25	M14×1.5	78	12	10	44	M10	16	14	6	2	13	12	26
ø 50	35	27	32	58	M8 depth 16	Rc1/4	22	25	30	M18×1.5	90	13	12	55	M12	20	17	8	2	15	12	32
ø 63	35	27	32	72	M10 depth 16	Rc1/4	22	25	32	M18×1.5	90	13	12	69	M14	20	17	8	2	15	12	38
ø 80	40	32	37	89	M10 depth 22	Rc3/8	28	28	40	M22×1.5	108	-	-	80	-	25	22	11	3	15	15	50
ø100	40	41	37	110	M12 depth 22	Rc1/2	28	28	50	M26×1.5	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	ℓ	EA	EB	EC	EE* (Note)	Eθ	P	GB	HD			RD			
																T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W
ø 20	5	19	106	35	30	30	25.7	(Stroke length/3) + 18.5	14	12	27	M5	30°	19.5	23	3.0	6.5	8.5	7.5	7.5	9.5
ø 25	6	20	111	40	35	30	30.7	(Stroke length/3) + 20.5	14	12	29.5	M5	30°	22	24.4	2.0	5.5	7.5	8.5	8.5	10.5
ø 32	6	18	113	40	31.5	35	37.7	(Stroke length/3) + 19	14	12	32.8	Rc1/8	25°	25.5	25	3.0	6.5	8.5	9.5	9.5	11.5
ø 40	8	20	130	50	40	35	46.7	(Stroke length/3) + 18.5	15	12	36.6	Rc1/8	20°	30	25.7	5.0	8.5	10.5	11.5	11.5	13.5
ø 50	11	23	150	58	46	40	57.7	(Stroke length/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
ø 63	11	23	150	58	46	40	71.7	(Stroke length/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
ø 80	13	31	182	71	55	50	88.7	(Stroke length/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
ø100	16	31	182	71	56	60	109.7	(Stroke length/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

Dimensions

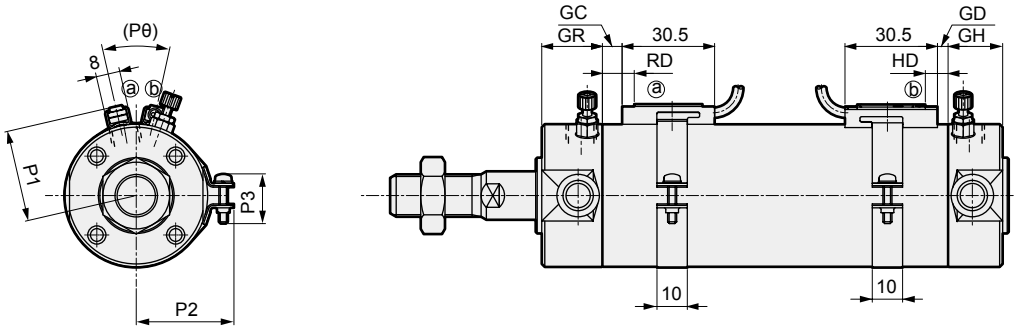
● Basic (00) ø20 to ø100
[With rubber cushion]

· Switch mounting: Band



[With air cushion]

· Switch mounting: Band

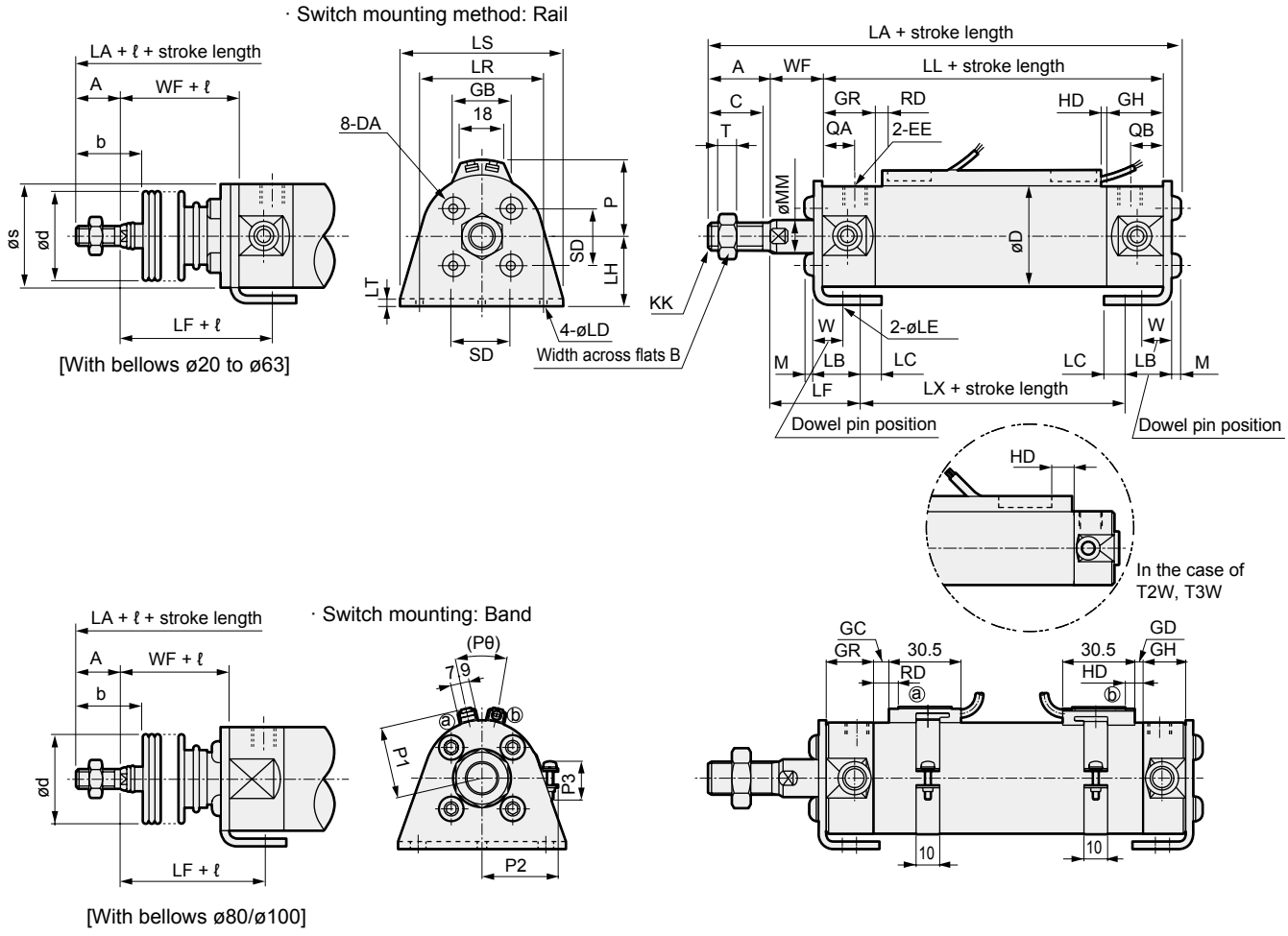


*1: Refer to page 345 for RD, HD and protruding dimensions of the 2-color display, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.
*2: For the dimensions of the accessories, refer to pages 252 and 253.

Code	Switch mounting: Band																	
Bore size (mm)	GD			GC			GH	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				
ø 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°)
ø 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°)
ø 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°)
ø 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°)
ø 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°)
ø 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°)
ø 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°)
ø100	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°)

Dimensions CAD

● Axial foot (LB)



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
ø 20	-	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
ø 25	-	17	20	31	M5	Rc1/8	17	19	M10×1.25	115.6	15.1	7.1	5.7	4	29.9	22	69	36	49	3.2	45.2	3.4	10
ø 32	22	17	20	38	M5	Rc1/8	17	19	M10×1.25	117.6	16.1	8.1	6.8	4	30.9	25	71	44	58	3.2	45.2	3.4	12
ø 40	30	22	27	47	M6	Rc1/8	19	20	M14×1.5	135.2	16.6	9.1	6.8	4	33.4	30	78	54	71	3.2	51.2	4	16
ø 50	35	27	32	58	M8	Rc1/4	22	25	M18×1.5	157.5	22	11	9	5	40.5	40	90	66	86	4.5	55	5	20
ø 63	35	27	32	72	M10	Rc1/4	22	25	M18×1.5	157.5	22	13	11	5	40.5	45	90	82	106	4.5	55	5	20
ø 80	40	32	37	89	M10	Rc3/8	28	28	M22×1.5	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	M26×1.5	192	30	16	14	6	55	65	108	120	150	6	60	7	30

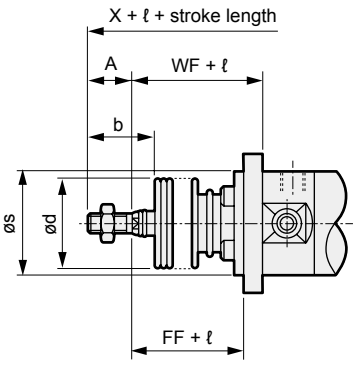
Code							With bellows				Switch mounting: Rail									Switch mounting: Band					
Bore size (mm)	QA	QB	SD	T	W	WF	b	d	s	ℓ	P	GB	HD			RD				GD			GC		
													T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W		T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W
ø 20	12	10	14	5	10	19	30	30	25.7	(Stroke length/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
ø 25	12	10	16.5	6	10	20	35	30	30.7	(Stroke length/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 length/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
ø 40	13	12	26	8	10	20	40	35	46.7	(Stroke length/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 length/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 length/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
ø 80	15	15	50	13	20	31	55	50	-	(Stroke length/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 length/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				
ø 20	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38°)
ø 25	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34°)
ø 32	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30°)
ø 40	8.5	8.5	10.5	11.5	11.5	13.5	30.2	32.1	16	(26°)
ø 50	11.0	11.0	13.0	13.0	13.0	15.0	35.7	37.4	16	(22°)
ø 63	11.0	11.0	13.0	13.0	13.0	15.0	42.7	44.4	16	(20°)
ø 80	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°)

*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 display, 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.

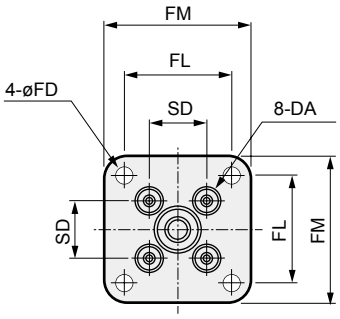
Dimensions CAD

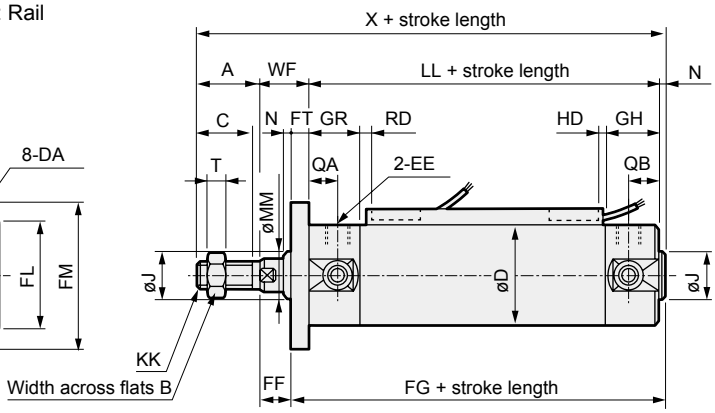
● Rod side flange (FA)

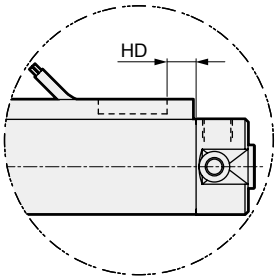


[With bellows ø20 to ø63]

· Switch mounting method: Rail

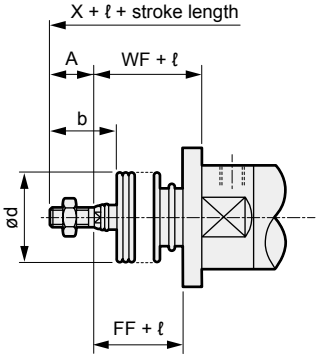




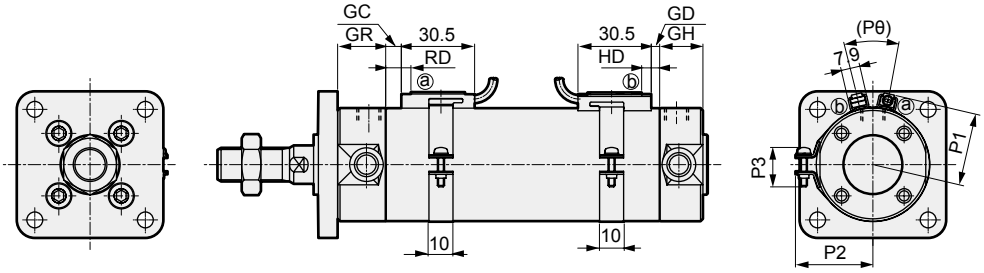


In the case of T2W, T3W

· Switch mounting: Band



[With bellows ø80/ø100]



*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 display, 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.

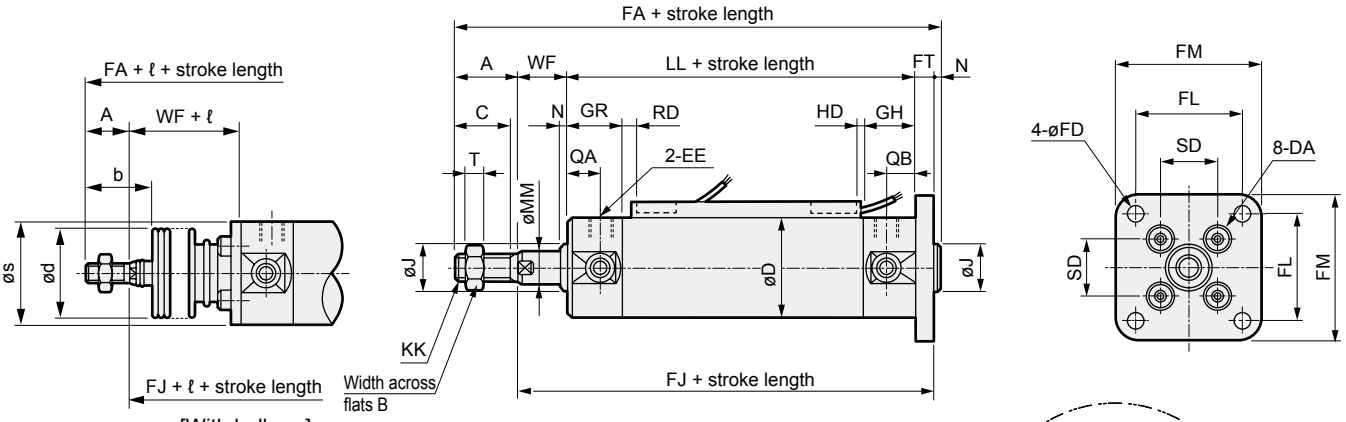
Code	Rod side flange (FA) basic dimensions																							
Bore size (mm)	A	B	C	D	DA	EE (*1)	FD	FF	FG	FL	FM	FT	GH	GR	J	KK	LL	MM	N	QA	QB	SD	T	WF	X
ø 20	-	13	16	26	M4	Rc1/8	5.5	11	77	28	40	6	17	19	12	M8	69	8	2	12	10	14	5	19	106
ø 25	-	17	20	31	M5	Rc1/8	5.5	11	78	32	44	7	17	19	14	M10×1.25	69	10	2	12	10	16.5	6	20	111
ø 32	22	17	20	38	M5	Rc1/8	6.6	11	80	38	53	7	17	19	18	M10×1.25	71	12	2	12	10	20	6	18	113
ø 40	30	22	27	47	M6	Rc1/8	6.6	12	88	46	61	8	19	20	25	M14×1.5	78	16	2	13	12	26	8	20	130
ø 50	35	27	32	58	M8	Rc1/4	9	14	101	58	76	9	22	25	30	M18×1.5	90	20	2	15	12	32	11	23	150
ø 63	35	27	32	72	M10	Rc1/4	11	14	101	70	92	9	22	25	32	M18×1.5	90	20	2	15	12	38	11	23	150
ø 80	40	32	37	89	M10	Rc3/8	11	20	122	82	104	11	28	28	40	M22×1.5	108	25	3	15	15	50	13	31	182
ø100	40	41	37	110	M12	Rc1/2	13	17	125	100	128	14	28	28	50	M26×1.5	108	30	3	15	15	60	16	31	182

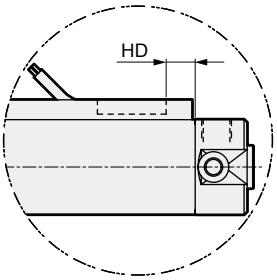
Code	With bellows				Switch mounting: Rail						Switch mounting: Band																	
Bore size (mm)	b	d	s	ℓ	HD			RD			GD			GC			HD			RD			P1	P2	P3	Pθ
					T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W				
ø 20	30	30	25.7	(Stroke length/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	35	30	30.7	(Stroke length/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°)
ø 32	31.5	35	37.7	(Stroke length/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	40	35	46.7	(Stroke length/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°)
ø 50	46	40	57.7	(Stroke length/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	46	40	71.7	(Stroke length/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°)
ø 80	55	50	-	(Stroke length/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°)
ø100	56	60	-	(Stroke length/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°)

Dimensions CAD

● Head side flange (FB)

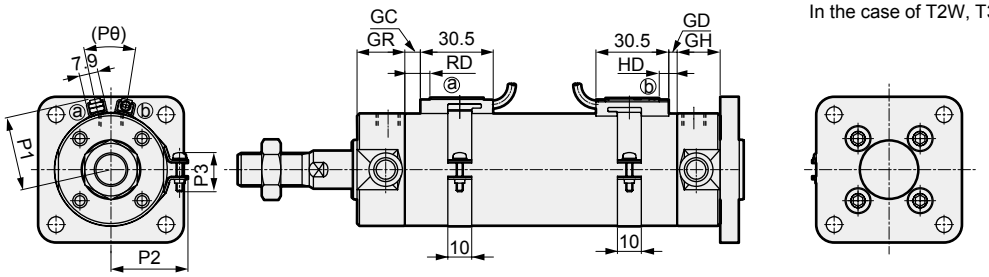
· Switch mounting method: Rail





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. (Those of ø20/ø25 are different from the basic.)
*2: Refer to page 345 for RD, HD and protruding dimensions of the 2-color display, 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 / Bore size (mm)	Rod side flange (FB) basic dimensions																							
	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	-	13	16	26	M4	Rc1/8	112	5.5	92	28	40	6	17	19	12	M8	69	8	2	12	10	14	5	19	30
ø 25	-	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	20	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
ø100	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 / Bore size (mm)	With bellows			Switch mounting: Rail						Switch mounting: Band																			
				HD			RD			GD			GC			HD			RD			P1	P2	P3	Pθ				
	d	s	ℓ	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									
ø 20	30	25.7	(Stroke length/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 length/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°)				
ø 32	35	37.7	(Stroke length/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 length/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°)				
ø 50	40	57.7	(Stroke length/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 length/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°)				
ø 80	50	88.7	(Stroke length/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°)				
ø100	60	109.7	(Stroke length/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°)				

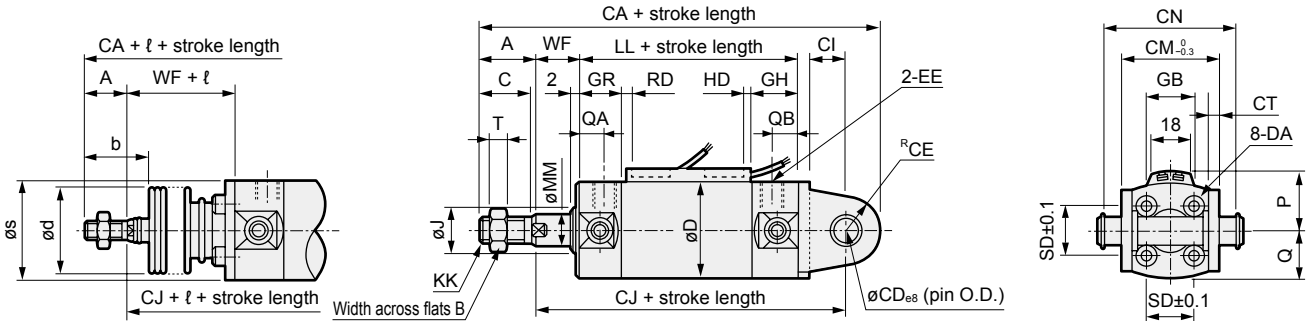
MEMO

Dimensions (ø20 to ø63)

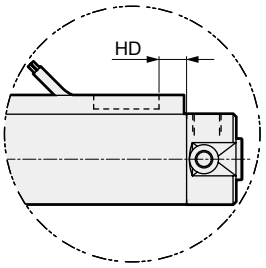
CAD

● Eye bracket (CA)

· Switch mounting method: Rail

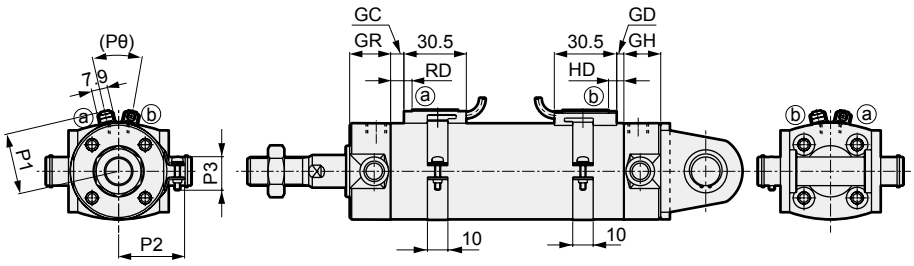


[With bellows]



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	-	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	-	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	19	30	30	25.7	(Stroke length/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	20	35	30	30.7	(Stroke length/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 length/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 length/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 length/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 length/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

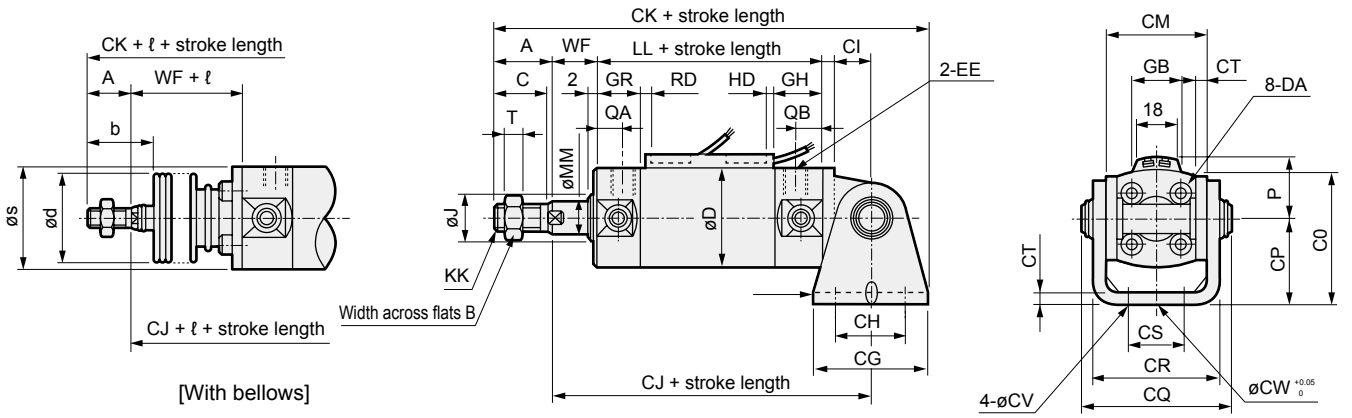
Code	Switch mounting: Band									
Bore size (mm)	HD			RD			P1	P2	P3	Pθ
	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W				
ø20	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38°)
ø25	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34°)
ø32	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30°)
ø40	8.5	8.5	10.5	11.5	11.5	13.5	30.2	32.1	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°)

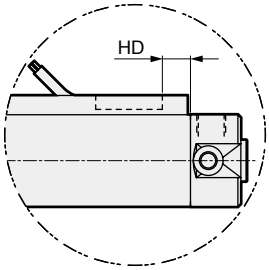
*1: Needle relational dimensions and port sizes of the type with air cushion are the same as those of the basic. Refer to pages 238 and 239. (Those of ø20/ ø25 are different from the basic.)
*2: Refer to page 345 for RD, HD and protruding dimensions of the 2-color display, off-delay, AC magnetic field 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)

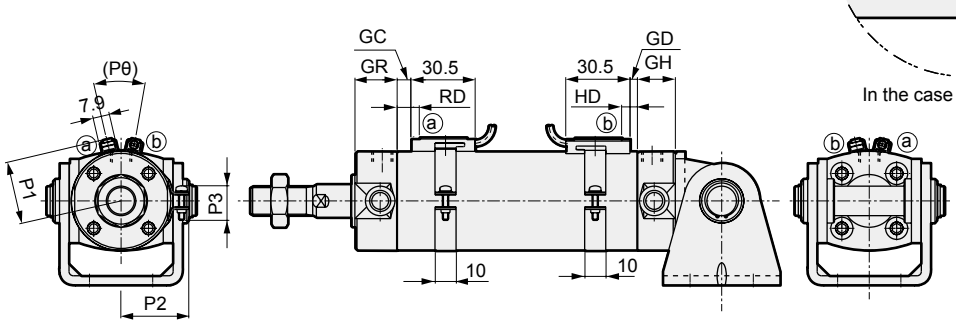
· Switch mounting method: Rail





In the case of T2W, T3W

· 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	-	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	-	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	M10×1.25
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	M10×1.25
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	M14×1.5
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	M18×1.5
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	M18×1.5

Code							With bellows				Switch mounting: Rail									Switch mounting: Band					
Bore size (mm)	LL	MM	QA	QB	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	69	8	12	10	5	19	30	30	25.7	(Stroke length/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	20	35	30	30.7	(Stroke length/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 length/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 length/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 length/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 length/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

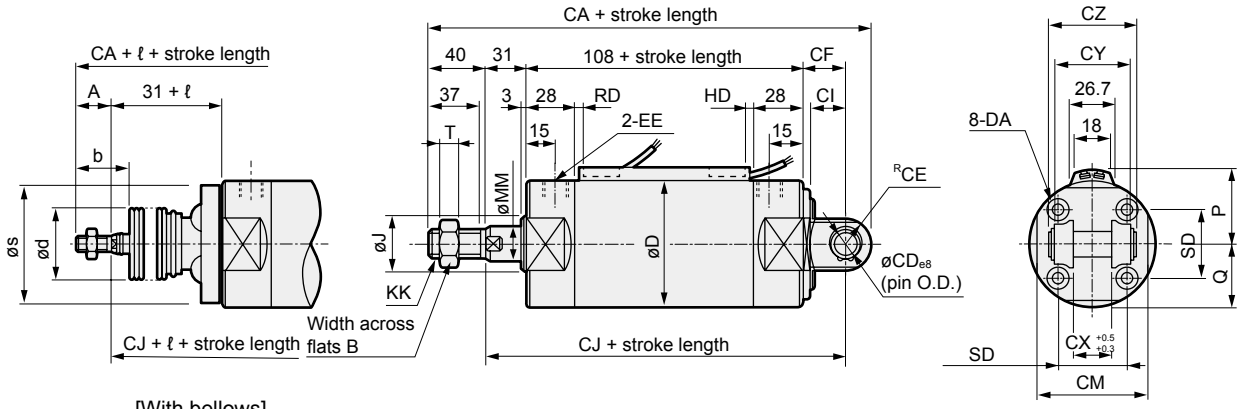
Code	Switch mounting: Band									
Bore size (mm)	HD			RD			P1	P2	P3	Pθ
	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W				
ø20	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38°)
ø25	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34°)
ø32	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30°)
ø40	8.5	8.5	10.5	11.5	11.5	13.5	30.2	32.1	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 display, 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.

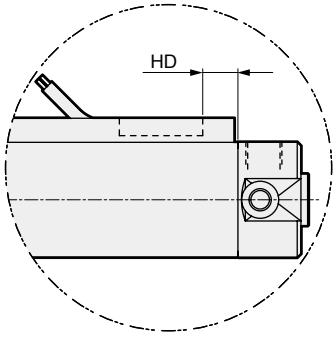
Dimensions (ø80 to ø100)

● Clevis bracket (CB)

· Switch mounting method: Rail

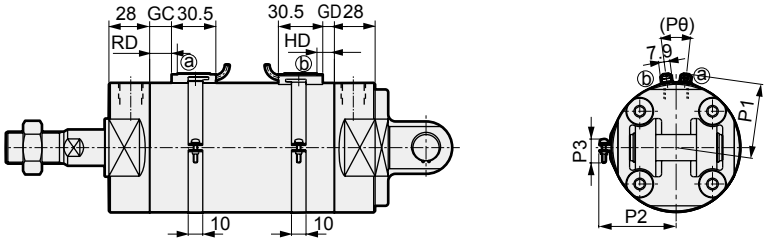


[With bellows]



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 display, 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	M22×1.5	25	44.5	50	13
ø100	41	244	22	22	43	31	182	100	32	64	72	110	M12	Rc1/2	50	M26×1.5	30	55	60	16

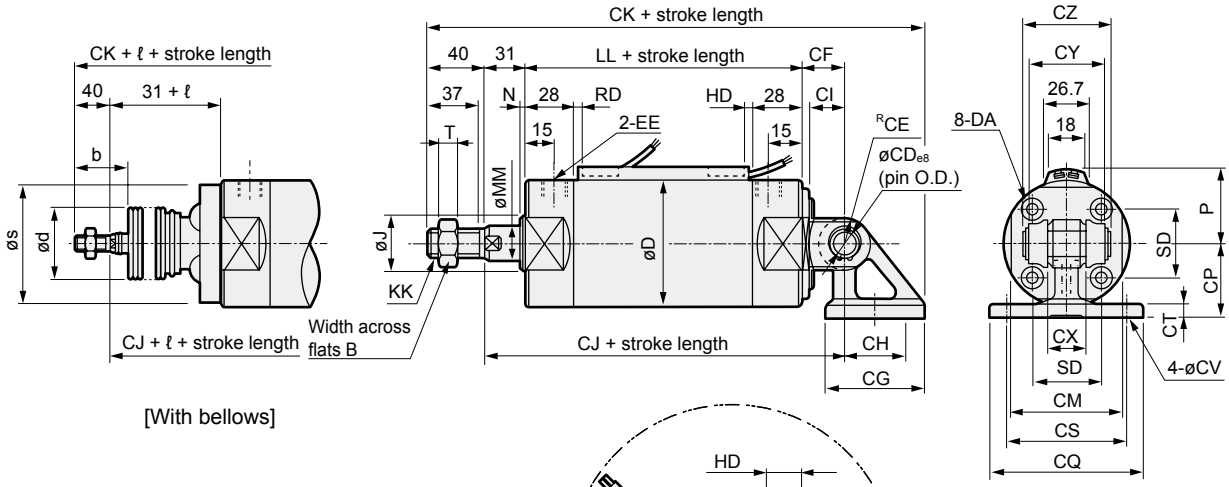
Code	With bellows				Switch mounting: Rail							Switch mounting: Band					
Bore size (mm)	b	d	s	ℓ	P	HD			RD			GD			GC		
						T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W
ø80	55	50	88.7	(Stroke length/4.3) + 14.5	51	9.5	13.0	15.0	20.0	20.0	22.0	9.0	9.0	11.0	16.0	16.0	18.0
ø100	56	60	109.7	(Stroke length/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										
Bore size (mm)	HD			RD			P1	P2	P3	Pθ
	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°)

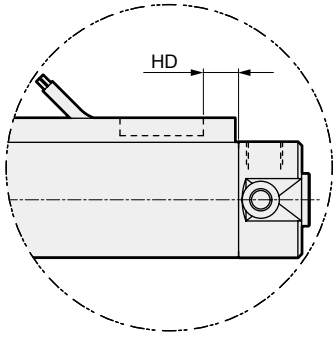
Dimensions (ø80 to ø100)

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

· Switch mounting method: Rail

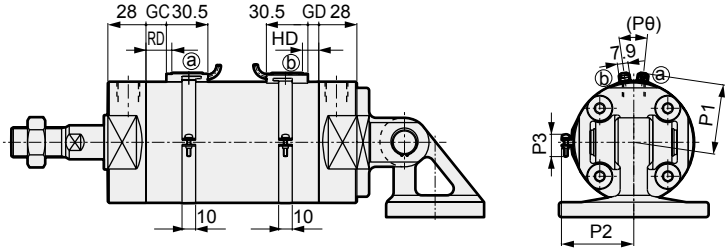


[With bellows]



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 display, 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	M22×1.5
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	M26×1.5

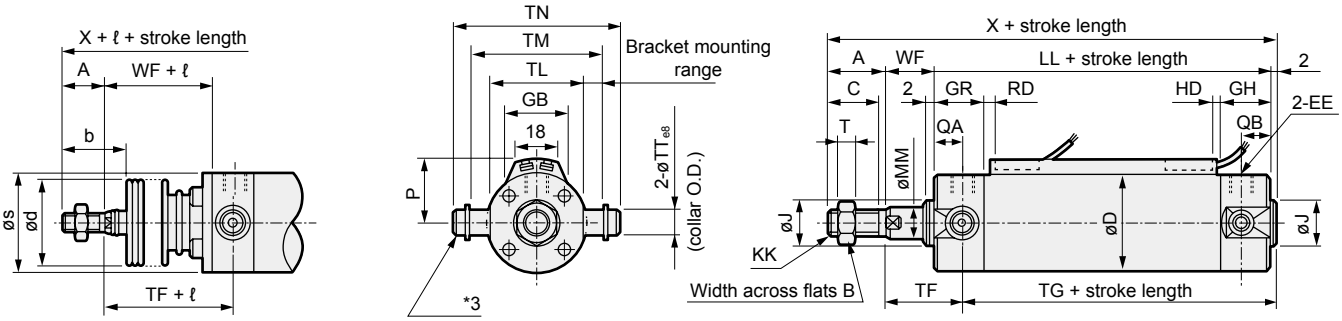
Code						With bellows					Switch mounting: Rail								Switch mounting: Band		
Bore size (mm)	LL	MM	N	SD	T	b	d	s	ℓ	P	HD			RD			GD		
											T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2, T3	T2W T3W
ø80	108	25	3	50	13	55	50	88.7	(Stroke length/4.3) + 14.5	51	9.5	13.0	15.0	20.0	20.0	22.0	9.0	9.0	11.0
ø100	108	30	3	60	16	56	60	109.7	(Stroke length/4.5) + 21	61.5	10.0	13.5	15.5	19.5	19.5	21.5	9.5	9.5	11.5

Code													
Bore size (mm)	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				
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°)

Dimensions (ø20 to ø63) CAD

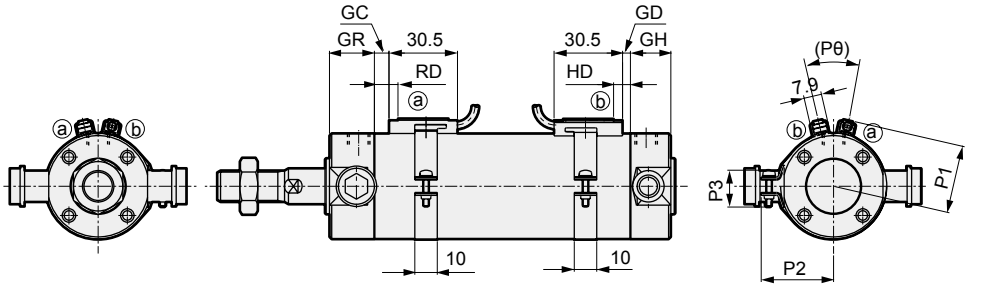
● Rod side trunnion (TA)

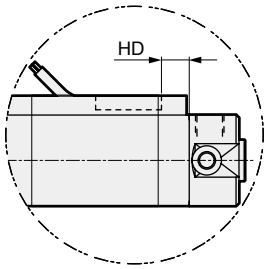
· Switch mounting method: Rail



[With bellows]

· Switch mounting: Band





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 ø20/ø25 are different from the basic.)
*2 : Refer to page 345 for RD, HD and protruding dimensions of the 2-color display, 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	-	13	16	26	Rc1/8	17	19	12	M8	69	8	12	10	5	28	60	28
ø25	-	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

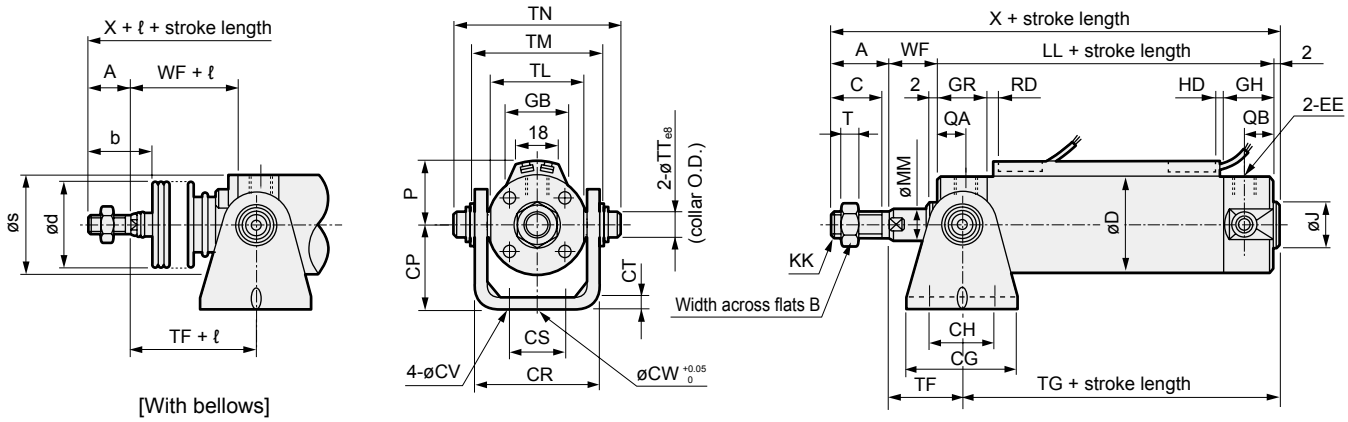
Code						With bellows				Switch mounting: Rail							
Bore size (mm)	TM	TN	TT	WF	X	b	d	s	ℓ	P	GB	HD			RD		
												T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W
ø20	39	47.6	8	19	106	30	30	25.7	(Stroke length/3) + 18.5	19.5	23	3.0	6.5	8.5	7.5	7.5	9.5
ø25	43	53	10	20	111	35	30	30.7	(Stroke length/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 length/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 length/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 length/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 length/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°)

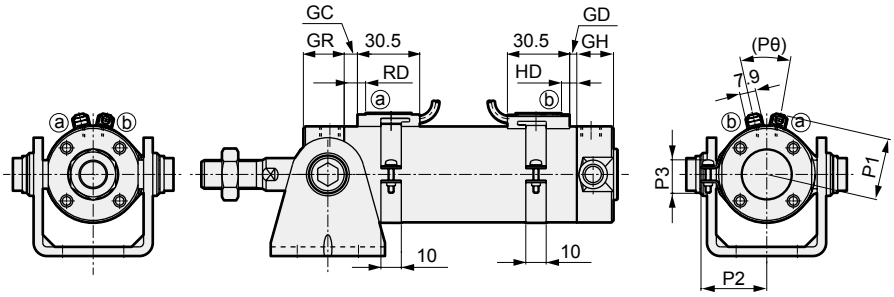
Dimensions (ø20 to ø63)

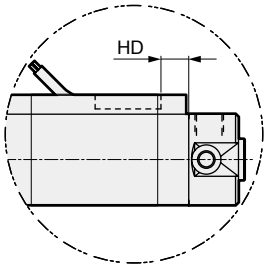
● Rod side trunnion (TA) with bracket (option code B2)

· Switch mounting method: Rail



· Switch mounting: Band





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 ø20/ø25 are different from the basic.)
*2: Refer to page 345 for RD, HD and protruding dimensions of the 2-color display, 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	-	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	-	17	20	42	28	30	39.8	20	3.2	5.5	10	31	Rc1/8	17	19	14	M10×1.25	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	M10×1.25	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	M14×1.5	78	16	13	12
ø50	35	27	32	64	36	50	72.4	36	6	9	20	58	Rc1/4	22	25	30	M18×1.5	90	20	15	12
ø63	35	27	32	74	46	60	90.4	46	8	11	20	72	Rc1/4	22	25	32	M18×1.5	90	20	15	12

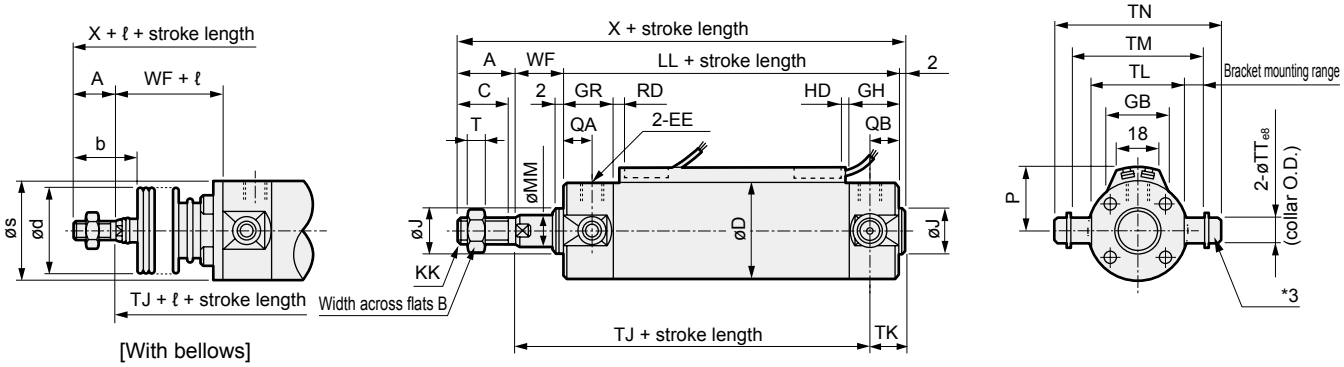
Code										With bellows				Switch mounting: Rail							
Bore size (mm)	T	TF	TG	TL	TM	TN	TT	WF	X	b	d	s	ℓ	P	GB	HD			RD		
																T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W
ø20	5	28	60	28	39	47.6	8	19	106	30	30	25.7	(Stroke length/3) + 18.5	19.5	23	3.0	6.5	8.5	7.5	7.5	9.5
ø25	6	29	60	33	43	53	10	20	111	35	30	30.7	(Stroke length/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	31.5	35	37.7	(Stroke length/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	40	35	46.7	(Stroke length/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	46	40	57.7	(Stroke length/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	46	40	71.7	(Stroke length/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°)

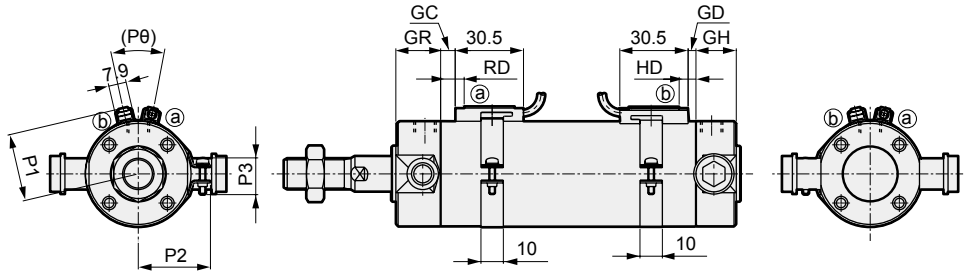
Dimensions (ø20 to ø63) CAD

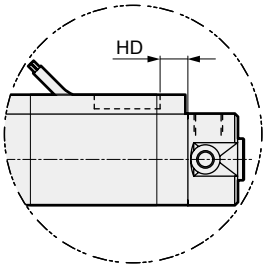
● Head side trunnion (TB)

· Switch mounting method: Rail



· Switch mounting: Band





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 ø20/ø25 are different from the basic.)
*2 : Refer to page 345 for RD, HD and protruding dimensions of the 2-color display, 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	-	13	16	26	Rc1/8	17	19	12	M8	69	8	12	10	5	75	13	28	39	47.6	8	19	106
ø25	-	17	20	31	Rc1/8	17	19	14	M10×1.25	69	10	12	10	6	76	13	33	43	53	10	20	111
ø32	22	17	20	38	Rc1/8	17	19	18	M10×1.25	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	M14×1.5	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	M18×1.5	90	20	15	12	11	101	14	60	80	98.6	16	23	150
ø63	35	27	32	72	Rc1/4	22	25	32	M18×1.5	90	20	15	12	11	101	14	74	98	119.2	18	23	150

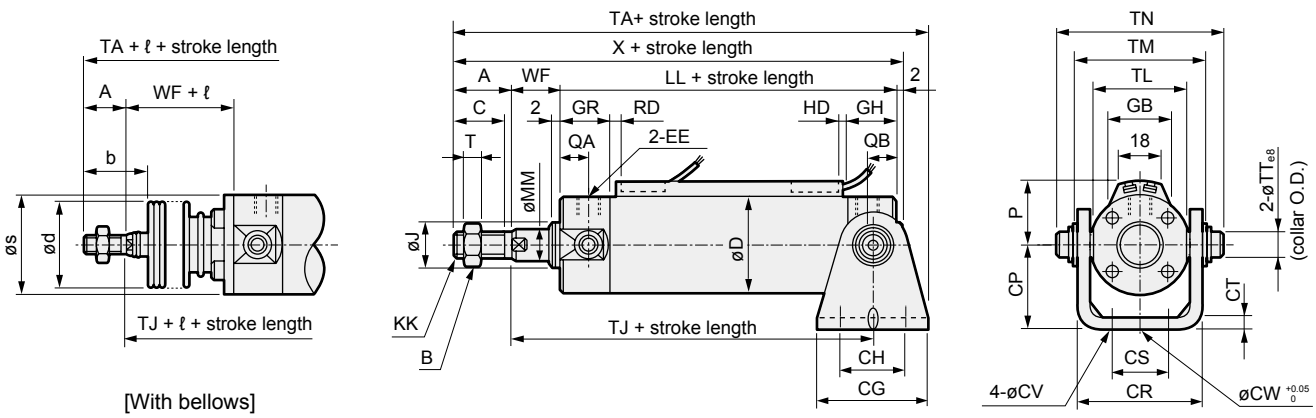
Code	With bellows				Switch mounting: Rail									Switch mounting: Band					
Bore size (mm)	b	d	s	ℓ	P	GB	HD			RD				GD			GC		
							T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W		T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W
ø20	30	30	25.7	(Stroke length/3) + 18.5	19.5	23	3.0	6.5	8.5	7.5	7.5	9.5		2.5	2.5	4.5	3.5	3.5	5.5
ø25	35	30	30.7	(Stroke length/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 length/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 length/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 length/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 length/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)	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°)
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)

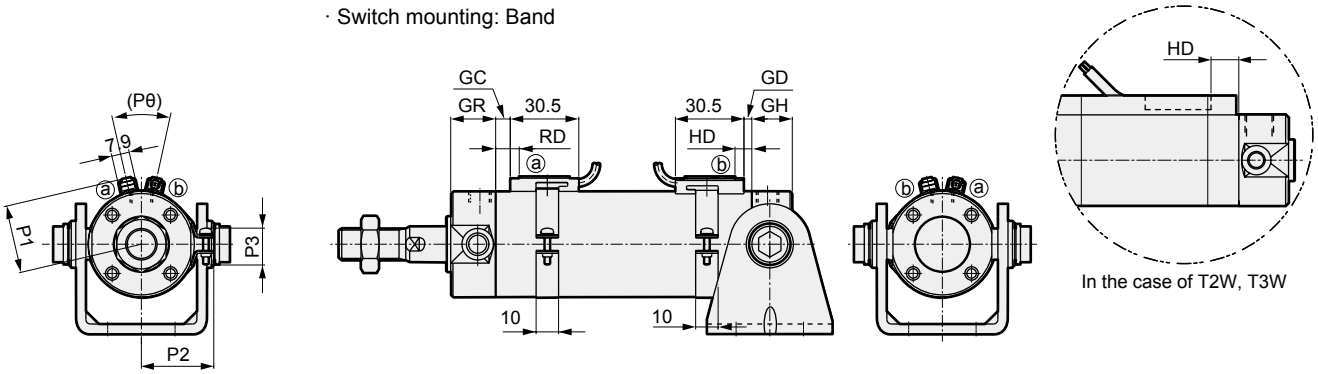
● Head side trunnion (TB) with bracket (option code B2)

· Switch mounting method: Rail



[With bellows]

· Switch mounting: Band



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 ø20/ø25 are different from the basic.)
*2: Refer to page 345 for RD, HD and protruding dimensions of the 2-color display, 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	-	13	16	42	28	25	35.4	16	3.2	5.5	10	26	Rc1/8	17	19	12	M8	69	8	12	10
ø25	-	17	20	42	28	30	39.4	20	3.2	5.5	10	31	Rc1/8	17	19	14	M10×1.25	69	10	12	10
ø32	22	17	20	48	28	35	49	22	4.5	6.6	10	38	Rc1/8	17	19	18	M10×1.25	71	12	12	10
ø40	30	22	27	56	30	40	58	30	4.5	6.6	10	47	Rc1/8	19	20	25	M14×1.5	78	16	13	12
ø50	35	27	32	64	36	50	72	36	6	9	20	58	Rc1/4	22	25	30	M18×1.5	90	20	15	12
ø63	35	27	32	74	46	60	90	46	8	11	20	72	Rc1/4	22	25	32	M18×1.5	90	20	15	12

Code										With bellows				Switch mounting: Rail							
Bore size (mm)	T	TA	TJ	TL	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	5	114	75	28	39	47.6	8	19	106	30	30	25.7	(Stroke length/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	20	111	35	30	30.7	(Stroke length/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 length/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 length/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 length/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 length/3.6) + 18.5	42.5	26.5	7.5	11.0	13.0	13.0	13.0	15.0

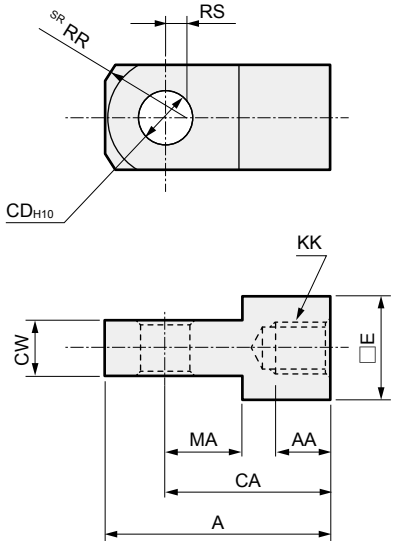
Code	Switch mounting: Band															
Bore size (mm)	GD			GC			HD			RD			P1	P2	P3	Pθ
	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W				
ø20	2.5	2.5	4.5	3.5	3.5	5.5	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38°)
ø25	1.5	1.5	3.5	4.5	4.5	6.5	5.5	5.5	7.5	8.5	8.5	10.5	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°)

Accessory dimensions

● Rod eye

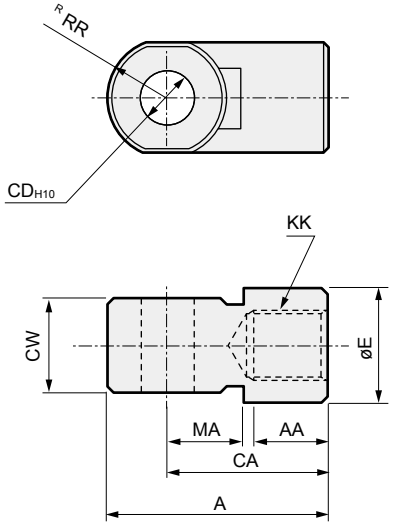
● SCM-I-ø20 to ø32

Material: Steel
Chromate treatment



● SCM-I-ø40 to ø100

Material: Cast iron
Painting

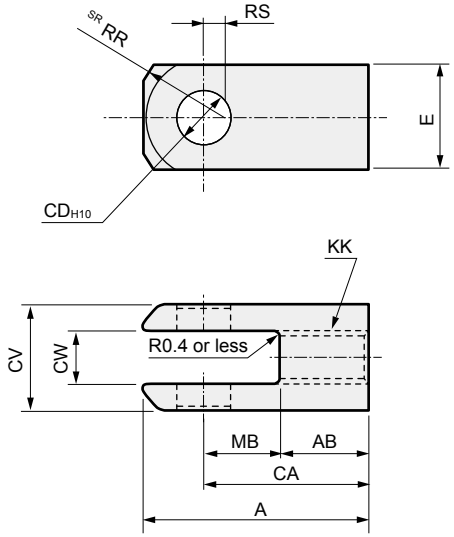


Model No.	Applicable bore size (mm)	A	AA	CA	CD	CW	E	KK	MA	RR	RS	Weight (g)
SCM-I-20	20	34	8.5	25	8	$8^{-0.2}_{-0.4}$	16	M8	11.5	13.4	3.1	39
SCM-I-25	25, 32	41	10.5	30	10	$10^{-0.2}_{-0.4}$	20	M10×1.25	14	17.1	4.5	72
SCM-I-40	40	42	14	30	10	$18^{-0.3}_{-0.5}$	22	M14×1.5	14	12	-	152
SCM-I-50	50, 63	56	18	40	14	$22^{-0.3}_{-0.5}$	28	M18×1.5	20	16	-	158
SCM-I-80	80	71	21	50	18	$28^{-0.3}_{-0.5}$	38	M22×1.5	27	21	-	395
SCM-I-100	100	79	21	55	22	$32^{-0.3}_{-0.5}$	44	M26×1.5	31	24	-	564

● Rod clevis

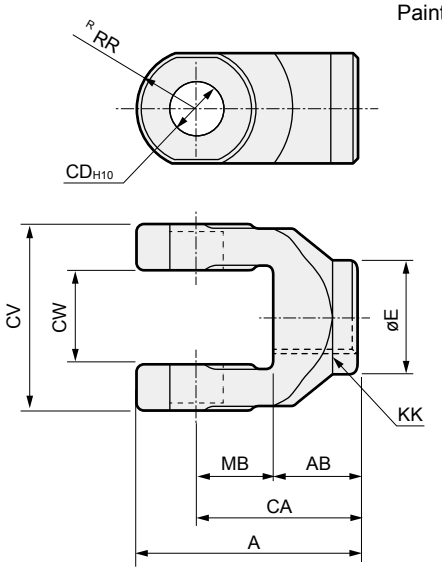
● SCM-Y-ø20 to ø32

Material: Steel
Chromate treatment



● SCM-Y-ø40 to ø100

Material: Cast iron
Painting



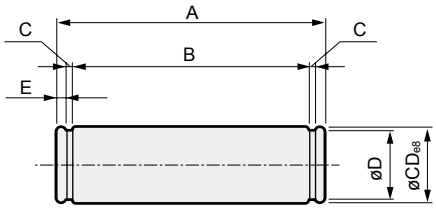
Model No.	Applicable bore size (mm)	A	AB	CA	CD	CV	CW	E	KK	MB	RR	RS	Applicable pin No.	Weight (g)
SCM-Y-20	20	34	13.5	25	8	16	$8^{+0.4}_{+0.2}$	16	M8	11.5	13.4	3.1	SCM-P-20	46
SCM-Y-25	25, 32	41	16	30	10	20	$10^{+0.4}_{+0.2}$	20	M10×1.25	14	17.1	4.5	SCM-P-25	85
SCM-Y-40	40	42	16	30	10	36	$18^{+0.5}_{+0.3}$	22	M14×1.5	14	12	-	SCM-P-40	122
SCM-Y-50	50, 63	56	20	40	14	44	$22^{+0.5}_{+0.3}$	28	M18×1.5	20	16	-	SCM-P-50	258
SCM-Y-80	80	71	23	50	18	56	$28^{+0.5}_{+0.3}$	38	M22×1.5	27	21	-	SCM-P-80	590
SCM-Y-100	100	79	24	55	22	64	$32^{+0.5}_{+0.3}$	44	M26×1.5	31	24	-	SCM-P-100	909

Note: A pin and a snap ring are included.

Accessory dimensions

● Pin for clevis CAD

Material: Steel
Chromate treatment

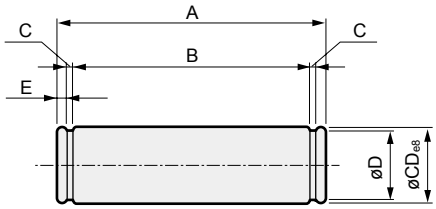


Model No.	Bore size (mm)	A	B	C	CD	D	E	Shaft snap ring	Weight (g)
SCM-P1-20	20	43.4	38.6	0.9	8	7.6	1.5	C for shaft 8	17
SCM-P1-25	25	48	42.6	1.15	10	9.6	1.6	C for shaft 10	30
SCM-P1-32	32	59.4	54	1.15	12	11.5	1.6	C for shaft 12	52
SCM-P1-40	40	71.4	65	1.15	14	13.4	2.1	C for shaft 14	85
SCM-P1-50	50	86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

Material: Steel
Chromate treatment



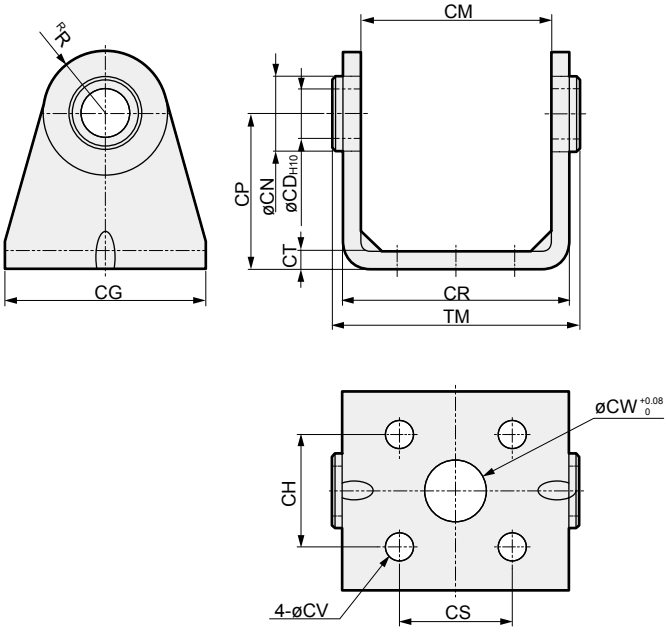
Model No.	Bore size (mm)	A	B	C	CD	D	E	Shaft snap ring	Weight (g)
SCM-P-20	20	21	16.2	0.9	8	7.6	1.5	C for shaft 8	9
SCM-P-25	25, 32	25.6	20.2	1.15	10	9.6	1.6	C for shaft 10	16
SCM-P-40	40	41.6	36.2	1.15	10	9.6	1.6	C for shaft 10	26
SCM-P-50	50, 63	50.6	44.2	1.15	14	13.4	2.1	C for shaft 14	60
SCM-P-80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

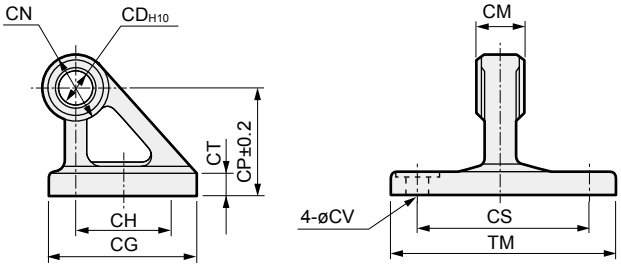
● Clevis bracket (B2)
SCM-B2-ø20 to ø63

Material: Steel
Chromate treatment



● Eye bracket (B1)
SCM-B1-ø80 to ø100

Material: Cast iron
Painting



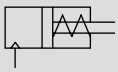
Model No.	Applicable bore size (mm)	CD	CG	CH	CM	CN	CP	CR	CS	CT	CV	CW	R	TM	Weight (g)
SCM-B2-20	20	8	42	28	$29^{+0.4}_{+0.1}$	13	25	35.8	16	3.2	5.5	10	11	38	72
SCM-B2-25	25	10	42	28	$33^{+0.4}_{+0.1}$	15	30	39.8	20	3.2	5.5	10	13	42	90
SCM-B2-32	32	12	48	28	$40^{+0.5}_{+0.1}$	17	35	49.4	22	4.5	6.6	10	15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

Round shaped cylinder
Single acting/push

SCM-X Series

● Bore size: ø20/ø25/ø32/ø40

JIS symbol



RoHS CAD

Specifications

Item	SCM-X			
Bore size mm	ø20	ø25	ø32	ø40
Actuation	Single acting/push			
Working fluid	Compressed air			
Max. working pressure MPa	1.0 (≈150 psi, 10 bar)			
Min. working pressure MPa	0.2 (≈29 psi, 2 bar)			
Proof pressure MPa	1.6 (≈230 psi, 16 bar)			
Ambient temperature °C	-10 (14°F) to 60 (140°F) (no freezing)			
Port size	Rc1/8			
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 length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
ø20	25, 50, 75 100, 125 150, 200	200	5
ø25			
ø32			
ø40			

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

Spring load

(Unit: N)

Bore size (mm)	At stroke length of 0 mm	At full stroke length operation
ø20	11.8	38
ø25	12.5	40.2
ø32	24.3	54.9
ø40	28.4	100

Number of installed switches and min. stroke length (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	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*		T2, T3	T2W, T3W	T*Y*	
ø20	10				25			50	70	70	55	55	70	70	55	75	110	110	90
ø25	10				25			50	70	70	55	55	70	70	55	75	110	110	90
ø32	10				25			50	70	70	55	55	70	70	55	75	110	110	90
ø40	10				25			50	70	70	55	55	70	70	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*	
ø20	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø25	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø32	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø40	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 length 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 display

Item	Proximity 2-wire	Proximity 2-wire			Proximity 3-wire				Reed 2-wire							Proximity 2-wire
	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 lamp	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)		Without 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 length: 5 to 50 (Unit: kg)

Item/mounting / Bore size	Product weight when stroke length (S) = 0 mm: Basic	Axial foot	Flange	Clevis	Trunnion	Switch weight (per 1 pc)	Additional weight per S = 10 mm	Added weight /S = 10 mm (with rail)	Band weight per switch
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 length: 51 to 100 (Unit: kg)

Item/mounting / Bore size	Product weight when stroke length (S) = 0 mm: Basic	Axial foot	Flange	Clevis	Trunnion	Switch weight (per 1 pc)	Additional weight per S = 10 mm	Added weight /S = 10 mm (with rail)	Band weight per switch
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 length: 101 to 150 (Unit: kg)

Item/mounting / Bore size	Product weight when stroke length (S) = 0 mm: Basic	Axial foot	Flange	Clevis	Trunnion	Switch weight (per 1 pc)	Additional weight per S = 10 mm	Added weight /S = 10 mm (with rail)	Band weight per switch
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 length: 151 to 200 (Unit: kg)

Item/mounting / Bore size	Product weight when stroke length (S) = 0 mm: Basic	Axial foot	Flange	Clevis	Trunnion	Switch weight (per 1 pc)	Additional weight per S = 10 mm	Added weight /S = 10 mm (with rail)	Band weight per switch
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

Without 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

Ⓐ Mounting *1

Ⓑ Bore size

Ⓒ Port thread

Ⓓ Cushion

Ⓔ Stroke length

Ⓕ Switch model No. *3 *4

Ⓖ Switch quantity *5

Ⓗ Switch mounting

Ⓘ Option *5, *7

Ⓙ Accessory *8

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

Ⓑ Bore size (mm)

20	ø20
25	ø25
32	ø32
40	ø40

Ⓒ Port thread

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

Ⓓ Cushion

D	With two-sided rubber cushion

Ⓔ Stroke length (mm)

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

Ⓕ Switch model No.

Axial lead wire	Radial lead wire	Contact	Voltage AC	Voltage DC	Display	Lead wire
T0H*	**T0V***	Reed	●	●	1-color display	2-wire
T5H*	**T5V***	Reed	●	●	Without indicator lamp	2-wire
T8H*	**T8V***	Reed	●	●	1-color display	2-wire
T1H*	**T1V***	Proximity	●		1-color display	2-wire
T2H*	**T2V***	Proximity		●	1-color display	2-wire
T3H*	**T3V***	Proximity		●	1-color display	3-wire
T3PH*	**T3PV***	Proximity		●	1-color display	3-wire
T2WH*	**T2WV***	Proximity		●	2-color display	2-wire
T2YH*	**T2YV***	Proximity		●	2-color display	2-wire
T3WH*	**T3WY***	Proximity		●	2-color display	3-wire
T3YH*	**T3YV***	Proximity		●	2-color display	3-wire
T2YD*	**-**	Proximity		●	2-color display AC magnetic field	2-wire
T2YDT*	**-**	Proximity		●	2-color display AC magnetic field	2-wire
T2JH*	**T2JV***	Proximity		●	1-color display off-delay	2-wire

*** Lead wire length**

Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

Ⓖ 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.)

Ⓗ Switch mounting

Blank	Rail method
Z	Band method

Ⓘ Option

		Max. ambient temperature	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		

Ⓙ Accessory

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

⚠ 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 length.
*3 : Switches other than Ⓕ 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

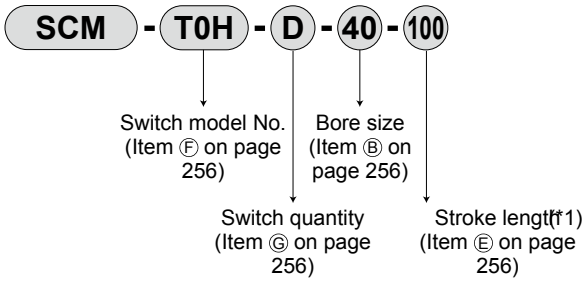
Model: Round shaped cylinder, single acting/push

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

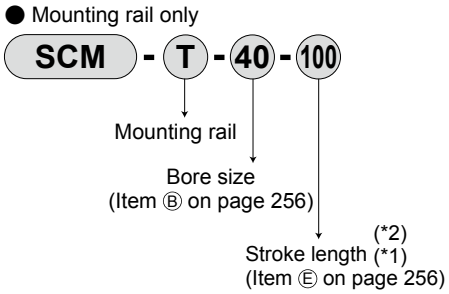
How to order switch

[Switch mounting: Rail]

● Switch body + mounting rail set



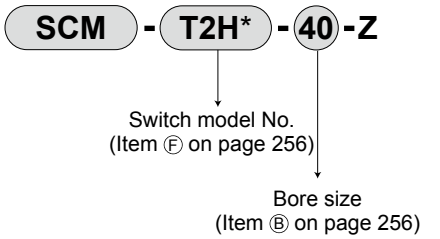
● Mounting rail only



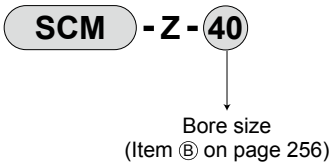
*1: Indicate X if the stroke length exceeds 300 mm.
If exceeding 300 mm, a short rail (with 100 mm switch adjustment length) will be included per switch.
*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

[Switch mounting: Band]

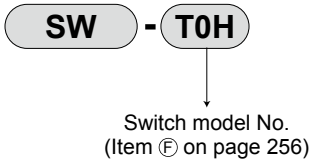
● Switch body + mounting bracket set + band



● Mounting bracket set + band



[Switch body only]



How to order mounting bracket

Bore size (mm) / Mounting bracket	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.

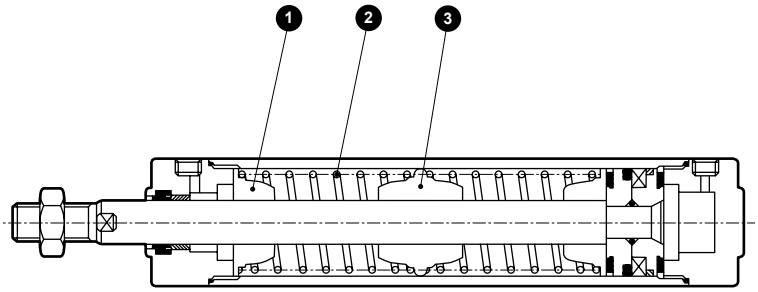
Theoretical thrust table

(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	1.19×10^2	1.50×10^2	1.82×10^2	2.13×10^2	2.45×10^2	2.76×10^2
ø25	58	1.07×10^2	1.56×10^2	2.05×10^2	2.54×10^2	3.03×10^2	3.52×10^2	4.02×10^2	4.51×10^2
ø32	1.06×10^2	1.86×10^2	2.67×10^2	3.47×10^2	4.28×10^2	5.08×10^2	5.88×10^2	6.69×10^2	7.49×10^2
ø40	1.51×10^2	2.77×10^2	4.03×10^2	5.28×10^2	6.54×10^2	7.80×10^2	9.05×10^2	1.03×10^3	1.16×10^3

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

Internal structure and parts list



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.

Repair parts list

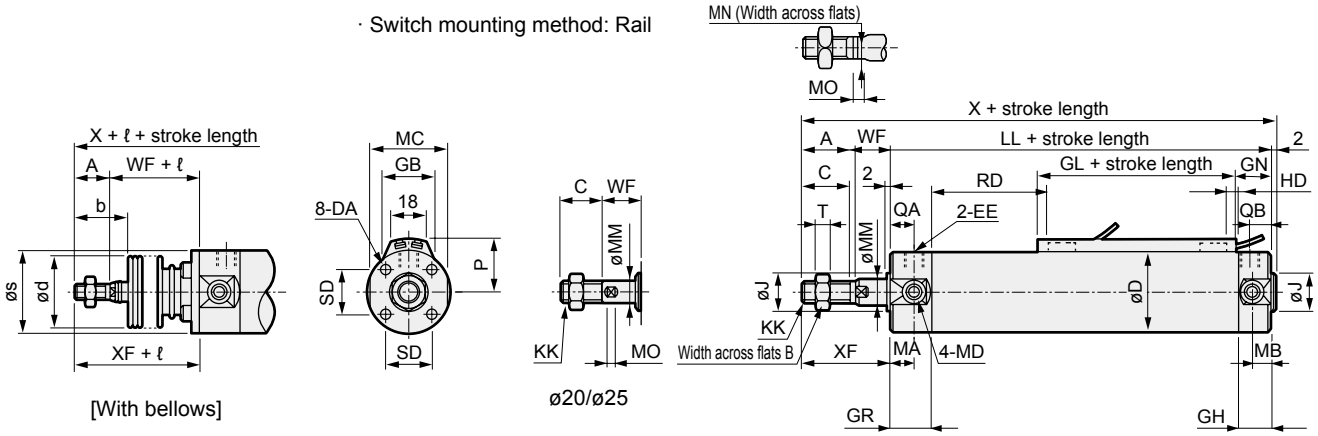
Numbering of repair parts follows that in the internal structure of the SCM Series (page 236).

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

Dimensions

● Single acting push

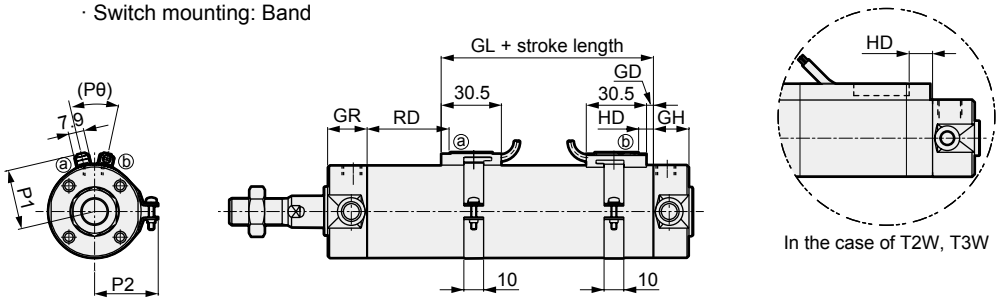
· Switch mounting method: Rail



[With bellows]

ø20/ø25

· Switch mounting: Band



In the case of T2W, T3W

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

Code	Basic (00) basic dimensions										LL															
Bore size (mm)	A	B	C	D	DA	EE	GR	GH	J	KK	5 to 50ST	51 to 100	101 to 150	151 to 200	MA	MB	MC	MD	MM	MN	MO	QA	QB	SD	T	WF
ø20	-	13	16	26	M4 depth 6.5	Rc1/8	19	17	12	M8	96	123	150	177	11	11	24	M5	8	6	4	12	10	14	5	19
ø25	-	17	20	31	M5 depth 6.5	Rc1/8	19	17	14	M10×1.25	99	129	159	189	11	11	29	M6	10	8	5	12	10	16.5	6	20
ø32	22	17	20	38	M5 depth 7.5	Rc1/8	19	17	18	M10×1.25	101	131	161	191	11	10	36	M8	12	10	5.5	12	10	20	6	18
ø40	30	22	27	47	M6 depth 12	Rc1/8	20	19	25	M14×1.5	108	138	168	198	12	10	44	M10	16	14	6	13	12	26	8	20

Code	X					With bellows				Switch mounting: Rail																
															HD			RD								
																		T0/T5				T2, T3				
Bore size (mm)	5 to 50ST	51 to 100	101 to 150	151 to 200	XF	b	d	s	ℓ	P	GB	GN	GL	T0/T5	T2 T3	T2W T3W	5 to 50	51 ≤ 100	101 ≤ 150	151 ≤ 200	5 to 50	51 ≤ 100	101 ≤ 150	151 ≤ 200
ø20	133	160	187	214	35	30	30	25.7	(Stroke length/3) + 18.5	19.5	23	18.5	30	4	7	9.5	33.5	60.5	87.5	114.5	34.5	61.5	88.5	115.5
ø25	141	171	201	231	40	35	30	30.7	(Stroke length/3) + 20.5	22	24.4	18.5	30	3	6	8.5	37.5	67.5	97.5	127.5	38.5	68.5	98.5	128.5
ø32	143	173	203	233	40	31.5	35	37.7	(Stroke length/3) + 19	25.5	25	18.5	32	4	7	9.5	38.5	68.5	98.5	128.5	39.5	69.5	99.5	129.5
ø40	160	190	220	250	50	40	35	46.7	(Stroke length/3) + 18.5	30	25.7	20.5	36	6	9	11.5	40.5	70.5	100.5	130.5	41.5	71.5	101.5	131.5

Code					Switch mounting: Band																								
					GL		HD			RD																			
	T2W, T3W				T0, T5	T2, T3 T2W, T3W	T0/T5	T2 T3	T2W T3W	T0/T5				T2, T3				T2W, T3W				GD	P1	P2	P3	Pθ		
Bore size (mm)	5 to 50	51 ≤ 100	101 ≤ 150	151 ≤ 200						5 to 50	51 ≤ 100	101 ≤ 150	151 ≤ 200	5 to 50	51 ≤ 100	101 ≤ 150	151 ≤ 200	5 to 50	51 ≤ 100	101 ≤ 150	151 ≤ 200							
ø20	35.5	62.5	89.5	116.5	30.5	29.5	5.5	6.5	9.5	33.5	60.5	87.5	14.5	34.5	61.5	88.5	115.5	35.5	62.5	89.5	116.5	1.5	19.6	21.5	14	(38°)		
ø25	39.5	69.5	99.5	129.5	29.5	28.5	4.5	5.5	8.5	37.5	67.5	97.5	127.5	38.5	68.5	98.5	128.5	39.5	69.5	99.5	129.5	0.5	22.1	23.9	14	(34°)		
ø32	40.5	70.5	100.5	130.5	30.5	29.5	5.5	6.5	9.5	38.5	68.5	98.5	128.5	39.5	69.5	99.5	129.5	40.5	70.5	100.5	130.5	1.5	25.6	27.6	16	(30°)		
ø40	42.5	72.5	102.5	132.5	32.5	31.5	7.5	8.5	11.5	40.5	70.5	100.5	130.5	41.5	71.5	101.5	131.5	42.5	72.5	102.5	132.5	3.5	30.2	32.1	16	(26°)		

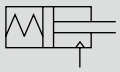
* Installation dimensions other than X and LL of the mounting are the same as those of SCM (double acting). Refer to pages 240 to 251.
* For the dimensions of the accessories, refer to pages 252 and 253.

Round shaped cylinder
Single acting/pull

SCM-Y Series

● Bore size: ø20/ø25/ø32/ø40

JIS symbol



RoHS CAD

Specifications

Item	SCM-Y			
Bore size mm	ø20	ø25	ø32	ø40
Actuation	Single acting/pull			
Working fluid	Compressed air			
Max. working pressure MPa	1.0 (≈150 psi, 10 bar)			
Min. working pressure MPa	0.2 (≈29 psi, 2 bar)			
Proof pressure MPa	1.6 (≈230 psi, 16 bar)			
Ambient temperature °C	-10 (14°F) to 60 (140°F) (no freezing)			
Port size	Rc1/8			
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 length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
ø20	25, 50, 75 100, 125 150, 200	200	5
ø25			
ø32			
ø40			

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

Spring load

(Unit: N)

Bore size (mm)	When stroke length = 0	At full stroke length operation
ø20	11.8	38
ø25	12.5	40.2
ø32	24.3	54.9
ø40	28.4	100

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

● Switch mounting method: Rail

Switch quantity	1				2				3				4				5			
Bore size (mm)	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*	
ø20	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø25	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø32	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø40	10				25				50	70	70	55	55	70	70	55	75	110	110	90

● Switch mounting: Band

Switch quantity	1				2				3				4				5			
Bore size (mm)	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*	
ø20	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø25	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø32	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø40	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 length 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 display

Item	Proximity 2-wire	Proximity 2-wire			Proximity 3-wire				Reed 2-wire				Proximity 2-wire
	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	≤20 mA	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA
Indicator lamp	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)		Without 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 length 5 to 50 (Unit: kg)

Item/mounting	Product weight when stroke length (S) = 0 mm					Switch weight	Additional weight	Additional weight per	Band weight
Bore size	Basic	Axial foot	Flange	Clevis	Trunnion	(per 1 pc)	per S = 10 mm	S = 10 mm (with rail)	per switch
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 length 51 to 100 (Unit: kg)

Item/mounting	Product weight when stroke length (S) = 0 mm					Switch weight	Additional weight	Additional weight per	Band weight
Bore size	Basic	Axial foot	Flange	Clevis	Trunnion	(per 1 pc)	per S = 10 mm	S = 10 mm (with rail)	per switch
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 length 101 to 150 (Unit: kg)

Item/mounting	Product weight when stroke length (S) = 0 mm					Switch weight	Additional weight	Additional weight per	Band weight
Bore size	Basic	Axial foot	Flange	Clevis	Trunnion	(per 1 pc)	per S = 10 mm	S = 10 mm (with rail)	per switch
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 length 151 to 200 (Unit: kg)

Item/mounting	Product weight when stroke length (S) = 0 mm					Switch weight	Additional weight	Additional weight per	Band weight
Bore size	Basic	Axial foot	Flange	Clevis	Trunnion	(per 1 pc)	per S = 10 mm	S = 10 mm (with rail)	per switch
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

How to order

Without 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

Ⓐ Mounting *1
Ⓑ Bore size
Ⓒ Port thread
Ⓓ Cushion
Ⓔ Stroke length
Ⓕ Switch model No. *3 *4
Ⓖ Switch quantity
Ⓗ Switch mounting
Ⓘ Option *5, *7
Ⓙ Accessory *8

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

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

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

Ⓓ Cushion	
D	With two-sided rubber cushion

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

Ⓕ Switch model No.

Axial lead wire	Radial lead wire	Contact	Voltage AC	Voltage DC	Display	Lead wire
T0H*	**T0V***	Reed	●	●	1-color display	2-wire
T5H*	**T5V***	Reed	●	●	Without indicator lamp	2-wire
T8H*	**T8V***	Reed	●	●	1-color display	2-wire
T1H*	**T1V***	Proximity	●		1-color display	2-wire
T2H*	**T2V***	Proximity		●	1-color display	2-wire
T3H*	**T3V***	Proximity		●	1-color display	3-wire
T3PH*	**T3PV***	Proximity		●	1-color display	3-wire
T2WH*	**T2WV***	Proximity		●	2-color display	2-wire
T2YH*	**T2YV***	Proximity		●	2-color display	2-wire
T3WH*	**T3WV***	Proximity		●	2-color display	3-wire
T3YH*	**T3YV***	Proximity		●	2-color display	3-wire
T2YD*	**-**	Proximity		●	2-color display for AC magnetic field	2-wire
T2YDT*	**-**	Proximity		●	2-color display for AC magnetic field	2-wire
T2JH*	**T2JV***	Proximity		●	1-color display off-delay	2-wire

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

Ⓖ 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.)

Ⓗ Switch mounting	
Blank	Rail method
Z	Band method

Ⓘ 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		

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

⚠ 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 length.
*3 : Switches other than Ⓕ 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

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

How to order mounting bracket

Bore size (mm) / Mounting bracket	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.

How to order switch

[Switch mounting: Rail]

● Switch body + mounting rail set

SCM - T0H - D - 40 - 100

- T0H: Switch model No. (Item Ⓕ on page 262)
- D: Switch quantity (Item Ⓖ on page 262)
- 40: Bore size (Item Ⓑ on page 262)
- 100: Stroke length (*1) (Item Ⓔ on page 262)

● Mounting rail only

SCM - T - 40 - 100

- T: Mounting rail
- 40: Bore size (Item Ⓑ on page 262)
- 100: Stroke length (*1) (*2) (Item Ⓔ on page 262)

*1: Indicate X if the stroke length 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

SCM - T2H* - 40 - Z

- T2H*: Switch model No. (Item Ⓕ on page 262)
- 40: Bore size (Item Ⓑ on page 262)

● Mounting bracket set + band

SCM - Z - 40

- 40: Bore size (Item Ⓑ on page 262)

[Switch body only]

SW - T0H

- T0H: Switch model No. (Item Ⓕ on page 262)

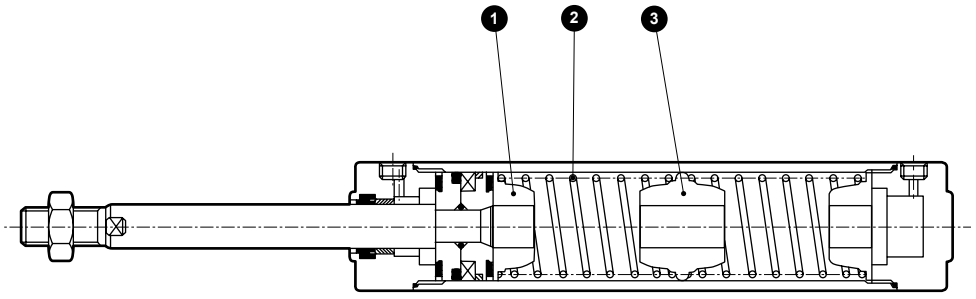
Theoretical thrust table

(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	1.20×10^2	1.47×10^2	1.73×10^2	2.00×10^2	2.26×10^2
ø25	42	84	1.25×10^2	1.66×10^2	2.07×10^2	2.48×10^2	2.90×10^2	3.31×10^2	3.72×10^2
ø32	83	1.52×10^2	2.22×10^2	2.91×10^2	3.60×10^2	4.29×10^2	4.98×10^2	5.67×10^2	6.36×10^2
ø40	1.11×10^2	2.17×10^2	3.22×10^2	4.28×10^2	5.33×10^2	6.39×10^2	7.44×10^2	8.50×10^2	9.56×10^2

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

Internal structure and parts list



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.

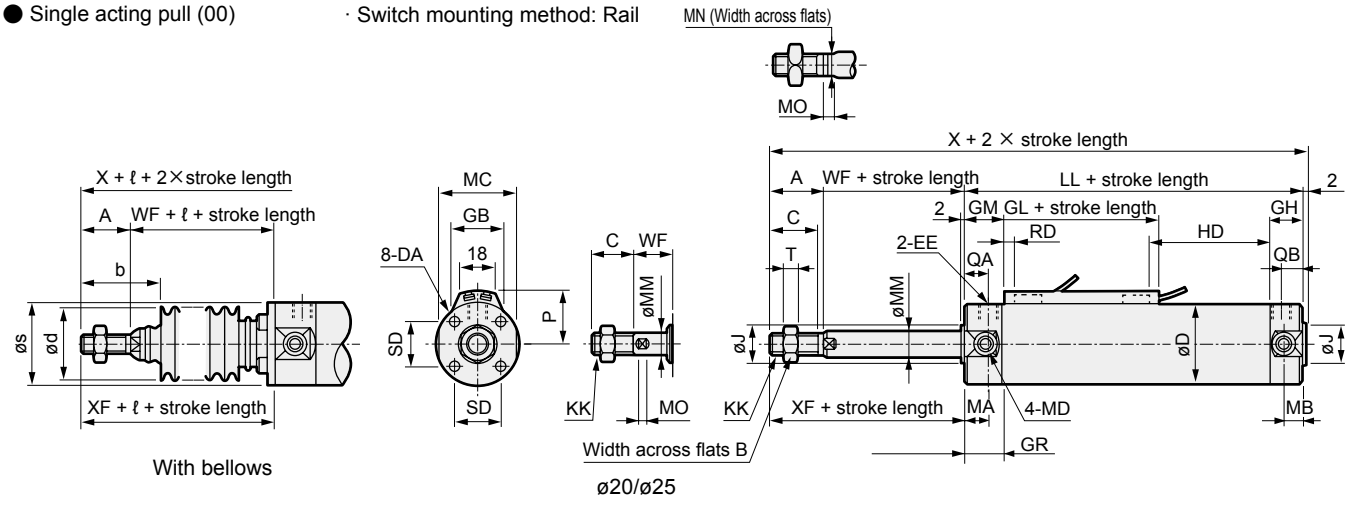
Repair parts list

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

Bore size (mm)	Kit No.	Repair parts No.
ø20	SCM-Y-20DK	❸ ❻ ❽ ❿ ⓭
ø25	SCM-Y-25DK	
ø32	SCM-Y-32DK	
ø40	SCM-Y-40DK	

Dimensions CAD

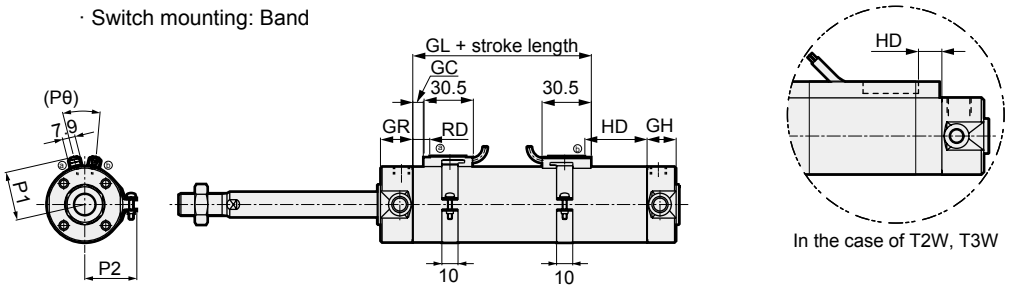
● Single acting pull (00) · Switch mounting method: Rail



With bellows

ø20/ø25

· Switch mounting: Band



In the case of T2W, T3W

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

Code	Basic (00) basic dimensions										LL										
Bore size (mm)	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	-	13	16	26	M4 depth 6.5	Rc1/8	19	17	12	M8	96	123	150	177	11	11	24	M5	8	6	
ø25	-	17	20	31	M5 depth 6.5	Rc1/8	19	17	14	M10×1.25	99	129	159	189	11	11	29	M6	10	8	
ø32	22	17	20	38	M5 depth 7.5	Rc1/8	19	17	18	M10×1.25	101	131	161	191	11	10	36	M8	12	10	
ø40	30	22	27	47	M6 depth 12	Rc1/8	20	19	25	M14×1.5	108	138	168	198	12	10	44	M10	16	14	

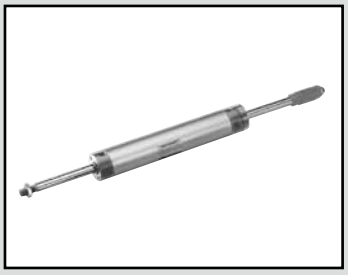
Code												With bellows				Switch mounting: Rail			
Bore size (mm)	MO	QA	QB	SD	T	WF	X 5 to 50	X Over 50 to 100	X Over 100 to 150	X Over 150 to 200	XF	b	d	s	ℓ	GM	GL	P	GB
ø20	4	12	10	14	5	19	133	160	187	214	35	30	30	25.7	(Stroke length/3) + 18.5	20.5	30	19.5	23
ø25	5	12	10	16.5	6	20	141	171	201	231	40	35	30	30.7	(Stroke length/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 length/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 length/3) + 18.5	21.5	36	30	25.7

Code																	Switch mounting: Band			
Bore size (mm)	HD T0/T5 5 to 50	HD T0/T5 Over 50 to 100	HD T0/T5 Over 100 to 150	HD T0/T5 Over 150 to 200	HD T2, T3 5 to 50	HD T2, T3 Over 50 to 100	HD T2, T3 Over 100 to 150	HD T2, T3 Over 150 to 200	HD T2W, T3W 5 to 50	HD T2W, T3W Over 50 to 100	HD T2W, T3W Over 100 to 150	HD T2W, T3W Over 150 to 200	RD T0/T5	RD T2 T3	RD T2W T3W	HD T0/T5 5 to 50	HD T0/T5 Over 50 to 100	HD T0/T5 Over 100 to 150	HD T0/T5 Over 150 to 200
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																			
Bore size (mm)	T2, T3 5 to 50	T2, T3 Over 50 to 100	T2, T3 Over 100 to 150	T2, T3 Over 150 to 200	T2W, T3W 5 to 50	T2W, T3W Over 50 to 100	T2W, T3W Over 100 to 150	T2W, T3W Over 150 to 200	RD T0/T5	RD T2 T3	RD T2W T3W	GC	P1	P2	P3	Pθ
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 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

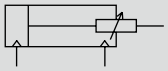


Round shaped cylinder/
Double acting/stroke adjustable/push

SCM-P Series

● Bore size:ø20/ø25/ø32/ø40/ø50/ø63

JIS symbol



RoHS CAD

Specifications

Item	SCM-P					
Bore size mm	ø20	ø25	ø32	ø40	ø50	ø63
Actuation	Double acting/stroke adjustable (push)					
Working fluid	Compressed air					
Max. working pressure MPa	1.0 (≈150 psi, 10 bar)					
Min. working pressure MPa	0.15 (≈22 psi, 1.5 bar)				0.1 (≈15 psi, 1 bar)	
Proof pressure MPa	1.6 (≈230 psi, 16 bar)					
Ambient temperature °C	-10 (14°F) to 60 (140°F) (no freezing)					
Port size	Rc1/8				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)					
Adjustable stroke range mm	25, 50					
Allowable absorbed energy J	0.1	0.2	0.5	0.9	1.6	1.6

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
ø20	25, 50, 75 100, 125, 150 200, 250, 300	600	10
ø25			
ø32			
ø40			
ø50			
ø63			

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

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

● Switch mounting method: Rail

Switch quantity	1				2				3				4				5			
Bore size (mm)	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*	
ø20	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø25	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø32	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø40	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø50	10				25				50	65	65	55	55	65	65	55	75	110	110	90
ø63	10				25				50	65	65	55	55	65	65	55	75	110	110	90

● Switch mounting: Band

Switch quantity	1				2				3				4				5			
Bore size (mm)	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*	
ø20	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø25	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø32	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø40	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø50	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø63	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 length 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 display

Item	Proximity 2-wire	Proximity 2-wire			Proximity 3-wire				Reed 2-wire							Proximity 2-wire
	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 lamp	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)		Without 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 length (S) = 0 mm Basic	Axial foot	Flange	Trunnion	Switch weight (per 1 pc)	Additional weight per S = 10 mm	Added weight /S = 10 mm (with rail)	Band weight per switch
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 ..... $0.032 \times \frac{100}{10} = 0.32$ 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	1.06×10^2	1.32×10^2	1.58×10^2	1.85×10^2	2.11×10^2	2.38×10^2	2.64×10^2
ø25	Push/Pull	-	61.9	82.5	1.24×10^2	1.65×10^2	2.06×10^2	2.47×10^2	2.89×10^2	3.30×10^2	3.71×10^2	4.12×10^2
ø32	Push/Pull	-	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push/Pull	-	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push/Pull	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push/Pull	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3

How to order

Without 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

Ⓐ Mounting *1
Ⓑ Bore size
Ⓒ Port thread
Ⓓ Cushion
Ⓔ Stroke length
Ⓕ Adjustable stroke range
Ⓖ Switch model No. *3 *4
Ⓗ Switch quantity
Ⓘ Switch mounting
Ⓙ Option *5, *7
Ⓚ Accessory *8

⚠ 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 length.
*3 : Switches other than Ⓖ 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)

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

Code	Description
Ⓐ Mounting	
00	Basic
LB	Axial foot
FA	Rod side flange
TA	Rod side trunnion
TB	Head side trunnion

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

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

Ⓓ Cushion	
D	With two-sided rubber cushion

Ⓔ Stroke length (mm)		
Bore size	**Stroke length *2**	**Custom stroke length**
ø20 to ø63	**10 to 600**	**In 1 mm increments**

Ⓕ Adjustable stroke range (mm)	
25	25
50	50

Ⓖ Switch model No.

Axial lead wire	Radial lead wire	Contact	Voltage AC	Voltage DC	Display	Lead wire
T0H*	**T0V***	Reed	●	●	1-color display	2-wire
T5H*	**T5V***	Reed	●	●	Without indicator lamp	2-wire
T8H*	**T8V***	Reed	●	●	1-color display	2-wire
T1H*	**T1V***	Proximity	●		1-color display	2-wire
T2H*	**T2V***	Proximity		●	1-color display	2-wire
T3H*	**T3V***	Proximity		●	1-color display	3-wire
T3PH*	**T3PV***	Proximity		●	1-color display	3-wire
T2WH*	**T2WV***	Proximity		●	2-color display	2-wire
T2YH*	**T2YV***	Proximity		●	2-color display	2-wire
T3WH*	**T3WV***	Proximity		●	2-color display	3-wire
T3YH*	**T3YV***	Proximity		●	2-color display	3-wire
T2YD*	**-**	Proximity		●	2-color display	2-wire
T2YDT*	**-**	Proximity		●	AC magnetic field	2-wire
T2JH*	**T2JV***	Proximity		●	1-color display off-delay	2-wire

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

Ⓗ 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.)

Ⓘ Switch mounting	
Blank	Rail method
Z	Band method

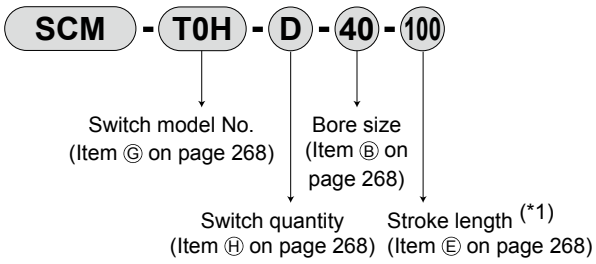
Ⓙ Option		Max. ambient temp.	Instantaneous max. temp.
J	Bellows	100°C	200°C
L	Bellows	250°C	400°C
Q	Switch rail included at shipment		
M	Piston rod material (stainless steel)		
P6	Copper and PTFE free		

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

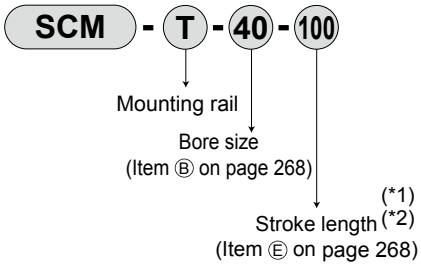
How to order switch

[Switch mounting: Rail]

● Switch body + mounting rail set



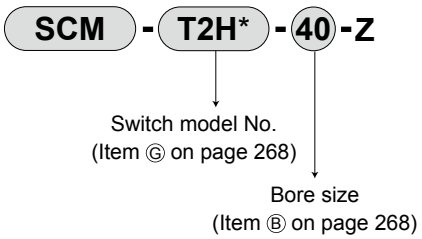
● Mounting rail only



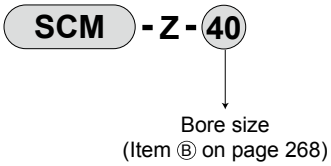
*1: Indicate X if the stroke length exceeds 300 mm.
If exceeding 300 mm, a short rail (with 100 mm switch adjustment length) will be included per switch.
*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

[Switch mounting: Band]

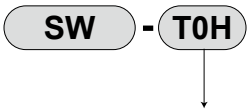
● Switch body + mounting bracket set + band



● Mounting bracket set + band



[Switch body only]

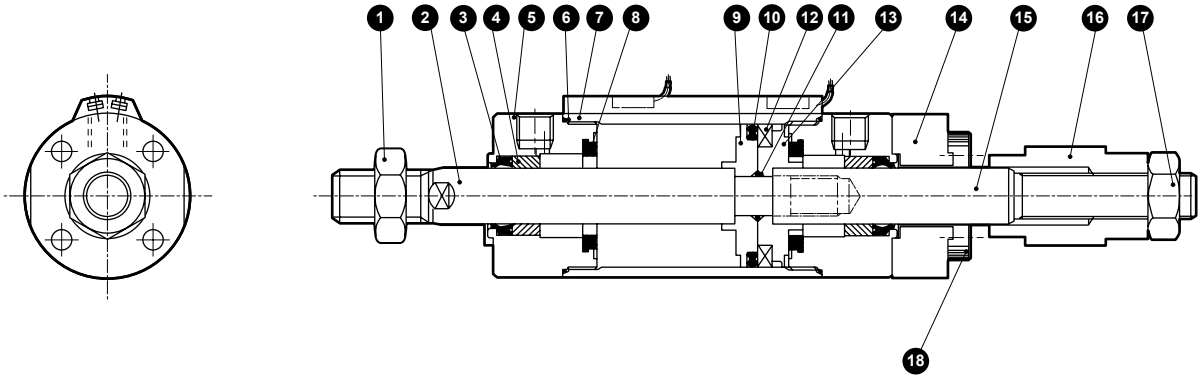


How to order mounting bracket

Bore size (mm) / Mounting bracket	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
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 and parts list



No.	Part name	Material	Remarks
1	Rod nut	Steel	Nickeling
2	Piston rod R	ø20, ø25: Stainless steel ø32 to ø63: Steel	Industrial chrome plating
3	Rod packing	Nitrile rubber	
4	Bush	Oil impregnated bearing alloy *1	
5	Rod cover	Aluminum alloy	Hard alumite
6	Cylinder gasket	Nitrile rubber	
7	Cylinder tube	Aluminum alloy	Hard alumite
8	Cushion rubber	Urethane rubber	
9	Piston R	ø20 to ø40: Aluminum alloy ø50, ø63: Aluminum alloy die-casting	

No.	Part name	Material	Remarks
10	Piston packing	Nitrile rubber	
11	Piston gasket	Nitrile rubber	
12	Magnet	Plastic	
13	Piston H	ø20 to ø40: Aluminum alloy ø50, ø63: Aluminum alloy die-casting	
14	Cover	Steel	Zinc chromate
15	Piston rod H	Steel	Industrial chrome plating
16	Stopper	Steel	Zinc chromate
17	Hexagon nut	Steel	Nickeling
18	Hex socket screw	Alloy steel	Black finish

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

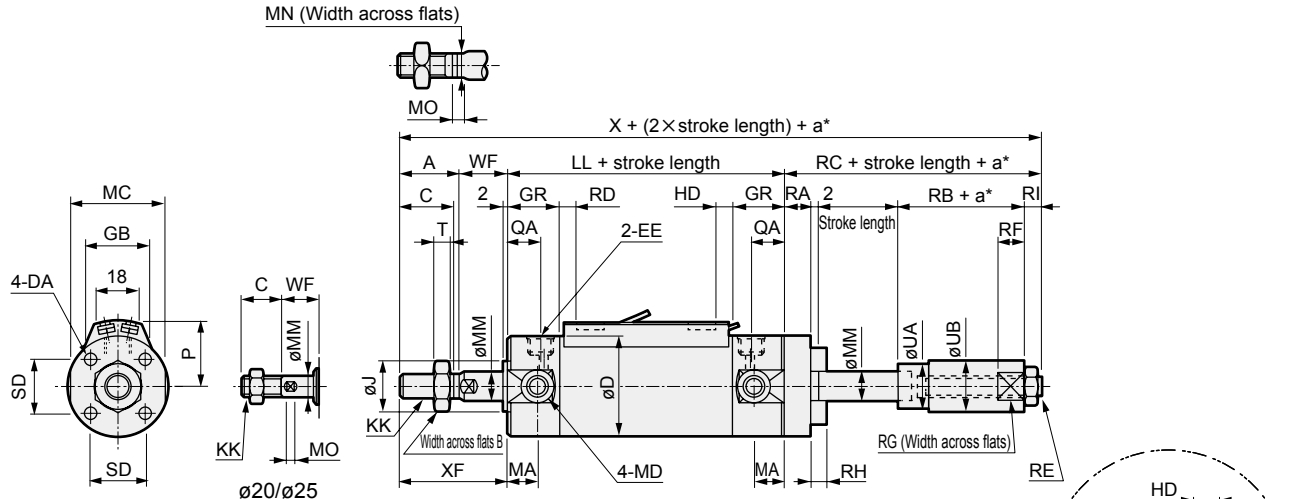
Repair parts list

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	

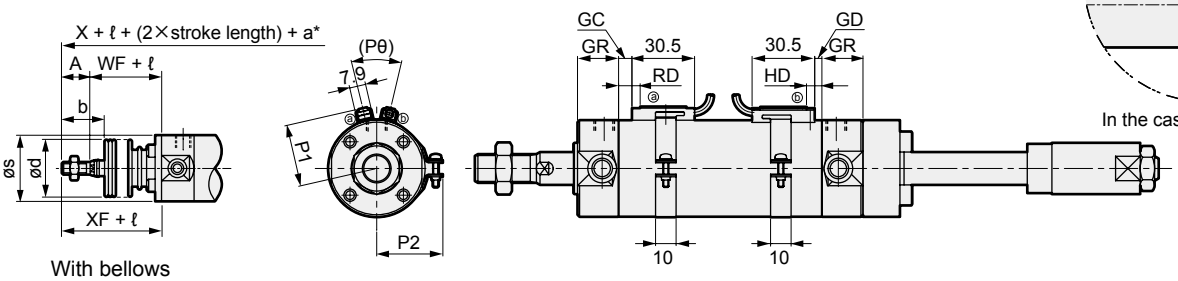
*1: Specify the kit No. when placing an order.

Dimensions

● Double acting/stroke adjustable (push) · Switch mounting method: Rail



· Switch mounting: Band



* a: Adjustable stroke length.

*1: Refer to page 345 for RD, HD and protruding dimensions of the 2-color display, 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	-	13	16	26	M4 depth 6.5	Rc1/8	19	12	M8	71	11	24	M5	8	6	4	12	14	5	19	141	35
ø25	-	17	20	31	M5 depth 6.5	Rc1/8	19	14	M10×1.25	71	11	29	M6	10	8	5	12	16.5	6	20	152	40
ø32	22	17	20	38	M5 depth 7.5	Rc1/8	19	18	M10×1.25	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	M14×1.5	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	M18×1.5	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	M18×1.5	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 length/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 length/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 length/3) + 19	25.5	25	3.0	6.5	8.5	9.5
ø40	18	30	59	M12×1.5	9	12	22	6	24	25	40	35	46.7	(Stroke length/3) + 18.5	30	25.7	5.0	8.5	10.5	11.5
ø50	20	32	66	M16×1.5	12	15	30	8	29	35	46	40	57.7	(Stroke length/3.6) + 18.5	35.5	26.2	7.5	11.0	13.0	13.0
ø63	20	32	66	M16×1.5	12	15	30	10	29	35	46	40	71.7	(Stroke length/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.

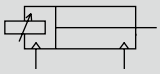
* For the dimensions of the accessories, refer to pages 252 and 253.

Round shaped cylinder/
Double acting/stroke adjustable/pull

SCM-R Series

● Bore size:ø20/ø25/ø32/ø40/ø50/ø63

JIS symbol



RoHS CAD

Specifications

Item	SCM-R					
Bore size mm	ø20	ø25	ø32	ø40	ø50	ø63
Actuation	Double acting/stroke adjustable (pull)					
Working fluid	Compressed air					
Max. working pressure MPa	1.0 (≈150 psi, 10 bar)					
Min. working pressure MPa	0.1 (≈15 psi, 1 bar)				0.05 (≈7.3 psi, 0.5 bar)	
Proof pressure MPa	1.6 (≈230 psi, 16 bar)					
Ambient temperature °C	-10 (14°F) to 60 (140°F) (no freezing)					
Port size	Rc1/8				Rc1/4	
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	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 length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
ø20	25, 50, 75 100, 125, 150 200, 250, 300	1000	10
ø25			
ø32			
ø40		1500	
ø50			
ø63			

*1: The custom stroke length is available in 1 mm increments.
*2: Stroke length of more than 600 mm will be made to order. Contact CKD for details.

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

● Switch mounting method: Rail

Switch quantity	1				2				3				4				5			
Bore size (mm)	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*	
ø20	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø25	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø32	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø40	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø50	10				25				50	65	65	55	55	65	65	55	75	110	110	90
ø63	10				25				50	65	65	55	55	65	65	55	75	110	110	90

● Switch mounting: Band

Switch quantity	1				2				3				4				5			
Bore size (mm)	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*	
ø20	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø25	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø32	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø40	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø50	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø63	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 length 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 display

Item	Proximity 2-wire	Proximity 2-wire			Proximity 3-wire				Reed 2-wire							Proximity 2-wire
	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 lamp	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)		Without 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 length (S) = 0 mm: Basic	Axial foot	Flange	Trunnion	Switch weight (per 1 pc)	Additional weight per S = 10 mm	Added weight /S = 10 mm (with rail)	Band weight per switch
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	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	-	26.4	39.6	52.8	79.2	1.06×10^2	1.32×10^2	1.58×10^2	1.85×10^2	2.11×10^2	2.38×10^2	2.64×10^2
ø25	Push	-	49.1	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	-	41.2	61.9	82.5	1.24×10^2	1.65×10^2	2.06×10^2	2.47×10^2	2.89×10^2	3.30×10^2	3.71×10^2	4.12×10^2
ø32	Push	-	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	-	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	-	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	-	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	98.0	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	82.5	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	1.56×10^2	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	2.40×10^2	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3

How to order

Without 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

Ⓐ Mounting *1

Ⓑ Bore size

Ⓒ Port thread

Ⓓ Cushion

Ⓔ Stroke length

Ⓕ Adjustable stroke range

Ⓖ Switch model No. *3 *4

Ⓗ Switch quantity

Ⓘ Switch mounting

Ⓙ Option *5 *7

Ⓚ Accessory *8

⚠ 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 length.

*3 : Switches other than Ⓖ 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-R-LB-40D-100-25-T0H-D-JI

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

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

Code	Description
Ⓐ Mounting	
00	Basic
LB	Axial foot
FA	Rod side flange
TA	Rod side trunnion
TB	Head side trunnion

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

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

Ⓓ Cushion	
D	With two-sided rubber cushion

Ⓔ Stroke length (mm)

Bore size	Stroke length *2	Custom stroke length
ø20 to ø32	**10 to 1000**	**In 1 mm increments**
ø40 to ø63	**10 to 1500**	

Ⓕ Adjustable stroke range (mm)	
25	25
50	50

Ⓖ Switch model No.

Axial lead wire	Radial lead wire	Contact	Voltage AC	Voltage DC	Display	Lead wire
T0H*	**T0V***	Reed	●	●	1-color display	2-wire
T5H*	**T5V***	Reed	●	●	Without indicator lamp	2-wire
T8H*	**T8V***	Reed	●	●	1-color display	2-wire
T1H*	**T1V***	Proximity	●		1-color display	2-wire
T2H*	**T2V***	Proximity		●	1-color display	2-wire
T3H*	**T3V***	Proximity		●	1-color display	3-wire
T3PH*	**T3PV***	Proximity		●	1-color display	3-wire
T2WH*	**T2WV***	Proximity		●	2-color display	2-wire
T2YH*	**T2YV***	Proximity		●	2-color display	2-wire
T3WH*	**T3WV***	Proximity		●	2-color display	3-wire
T3YH*	**T3YV***	Proximity		●	2-color display	3-wire
T2YD*	**-**	Proximity		●	2-color display AC magnetic field	2-wire
T2YDT*	**-**	Proximity		●	2-color display AC magnetic field	2-wire
T2JH*	**T2JV***	Proximity		●	1-color display off-delay	2-wire

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

Ⓗ 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.)

Ⓘ Switch mounting	
Blank	Rail method
Z	Band method

Ⓙ Option

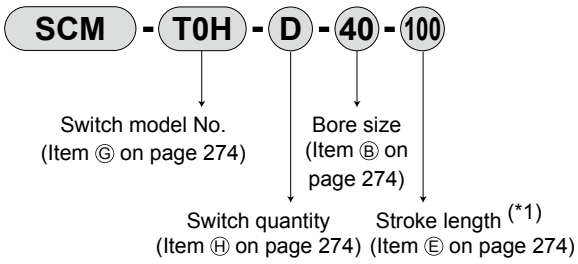
		Max. ambient temp.	Instantaneous max. temp.
J	Bellows	100°C	200°C
L	Bellows	250°C	400°C
Q	Switch rail included at shipment		
M	Piston rod material (stainless steel)		
P6	Copper and PTFE free		

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

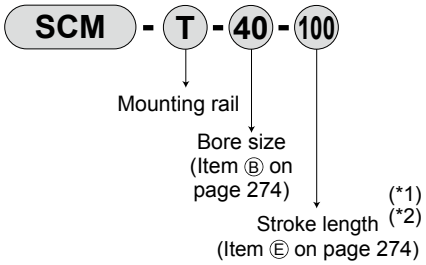
How to order switch

[Switch mounting: Rail]

● Switch body + mounting rail set



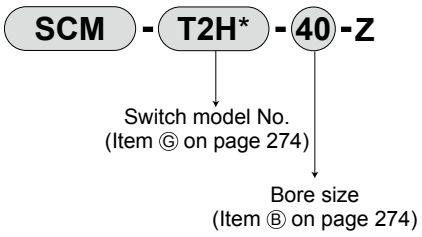
● Mounting rail only



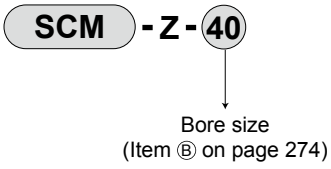
*1: Indicate X if the stroke length exceeds 300 mm.
If exceeding 300 mm, a short rail (with 100 mm switch adjustment length) will be included per switch.
*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

[Switch mounting: Band]

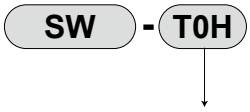
● Switch body + mounting bracket set + band



● Mounting bracket set + band



[Switch body only]

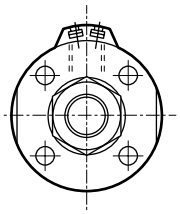


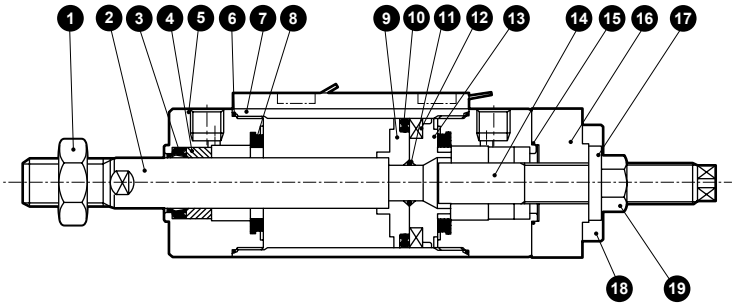
How to order mounting bracket

Bore size (mm) / Mounting bracket	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
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 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 *1		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.

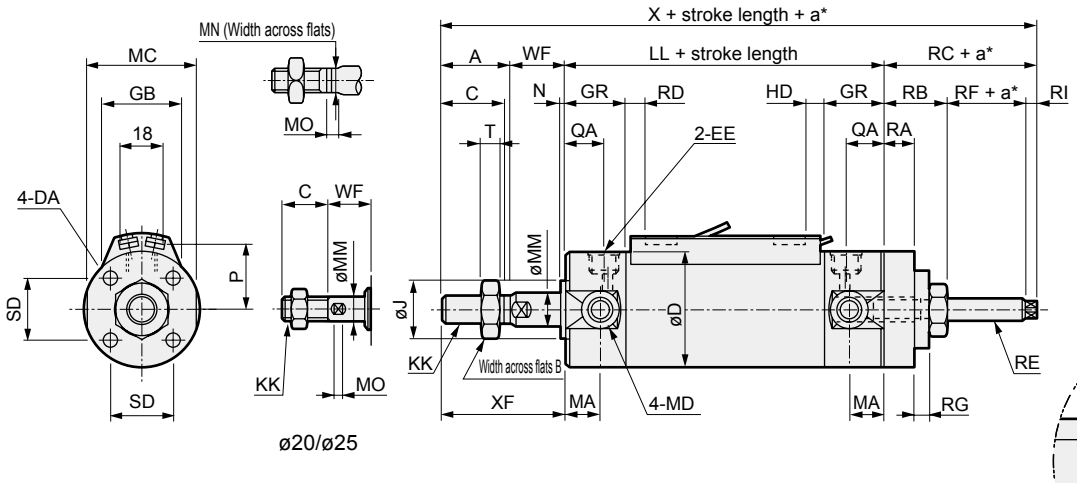
Repair parts list

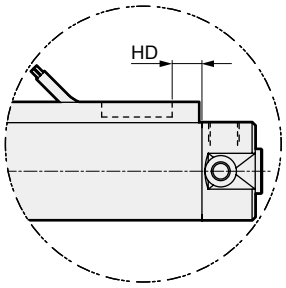
Bore size (mm)	Kit No.	Repair parts No.
ø20	SCM-R-20DK	③ ⑥ ⑩ ⑮ ⑰
ø25	SCM-R-25DK	
ø32	SCM-R-32DK	
ø40	SCM-R-40DK	
ø50	SCM-R-50DK	
ø63	SCM-R-63DK	

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

Dimensions

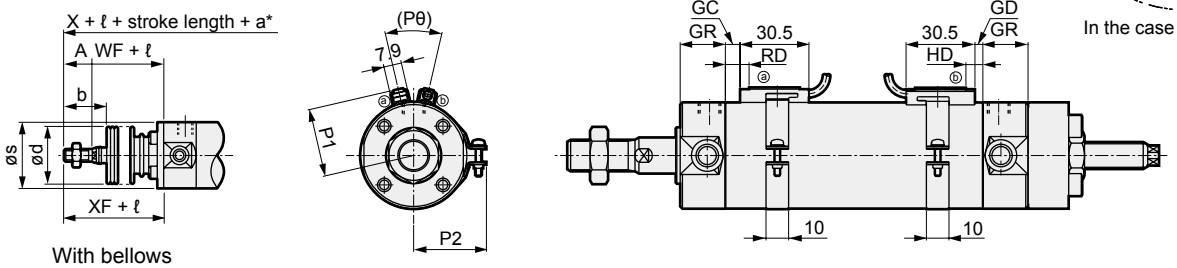
● Double acting/stroke adjustable (pull) · Switch mounting method: Rail





In the case of T2W, T3W

· Switch mounting: Band



With bellows

*: a indicates adjustable stroke length

*1: Refer to page 345 for RD, HD and protruding dimensions of the 2-color display, 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
ø20	-	13	16	26	M4 depth 6.5	Rc1/8	19	12	M8	71	11	24	M5	8	6	4	2	12	14	5	19	128.5
ø25	-	17	20	31	M5 depth 6.5	Rc1/8	19	14	M10×1.25	71	11	29	M6	10	8	5	2	12	16.5	6	20	141
ø32	22	17	20	38	M5 depth 7.5	Rc1/8	19	18	M10×1.25	73	11	36	M8	12	10	5.5	2	12	20	6	18	140
ø40	30	22	27	47	M6 depth 12	Rc1/8	20	25	M14×1.5	79	12	44	M10	16	14	6	2	13	26	8	20	169
ø50	35	27	32	58	M8 depth 16	Rc1/4	25	30	M18×1.5	93	13	55	M12	20	17	8	2	15	32	11	23	198
ø63	35	27	32	72	M10 depth 16	Rc1/4	25	32	M18×1.5	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	ℓ	P	GB	HD			RD		
															T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W
ø20	35	8	16	22.5	M6	4	2.5	4	30	30	25.7	(Stroke length/3) + 18.5	19.5	23	3.0	6.5	8.5	7.5	7.5	9.5
ø25	40	10	20	30	M8	4	6	5	35	30	30.7	(Stroke length/3) + 20.5	22	24.4	2.0	5.5	7.5	8.5	8.5	10.5
ø32	40	10	20	27	M8	4	3	5	31.5	35	37.7	(Stroke length/3) + 19	25.5	25	3.0	6.5	8.5	9.5	9.5	11.5
ø40	50	18	32	40	M12×1.5	5	3	6	40	35	46.7	(Stroke length/3) + 18.5	30	25.7	5.0	8.5	10.5	11.5	11.5	13.5
ø50	58	20	37	47	M16×1.5	7	3	8	46	40	57.7	(Stroke length/3.6) + 18.5	35.5	26.2	7.5	11.0	13.0	13.0	13.0	15.0
ø63	58	20	37	47	M16×1.5	7	3	10	46	40	71.7	(Stroke length/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°)

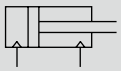
* Installation dimensions of the mounting are the same as those of SCM (double acting). Refer to pages 240 to 251.
* For the dimensions of the accessories, refer to pages 252 and 253.

Round shaped cylinder Double acting/heat resistant

SCM-T Series

● Bore size: ø20/ø25/ø32/ø40
ø50/ø63/ø80/ø100

JIS symbol



Specifications

Item		SCM-T							
Bore size mm		ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation		Double acting/heat resistant							
Working fluid		Compressed air							
Max. working pressure MPa		1.0 (≈150 psi, 10 bar)							
Min. working pressure MPa		0.1 (≈15 psi, 1 bar)				0.05 (≈7.3 psi, 0.5 bar)			
Proof pressure MPa		1.6 (≈230 psi, 16 bar)							
Ambient temperature °C		5 (41°F) to 120 (248°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	With rubber cushion	0.1	0.2	0.5	0.9	—	—	—	—
absorbed	With air cushion	—	—	—	—	8.0	14.4	25.4	45.6
energy J	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 length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
ø20	25, 50, 75 100, 125, 150 200, 250, 300	1000	10
ø25			
ø32			
ø40		1500	
ø50			
ø63			
ø80			
ø100			

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

Cylinder weight

(Unit: kg)

Item/mounting / Bore size	Product weight when stroke length (S) = 0 mm					Additional weight per S = 10 mm
	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 ..... $0.030 \times \frac{100}{10} = 0.30$ 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	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	–	26.4	39.6	52.8	79.2	1.06×10^2	1.32×10^2	1.58×10^2	1.85×10^2	2.11×10^2	2.38×10^2	2.64×10^2
ø25	Push	–	49.1	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	–	41.2	61.9	82.5	1.24×10^2	1.65×10^2	2.06×10^2	2.47×10^2	2.89×10^2	3.30×10^2	3.71×10^2	4.12×10^2
ø32	Push	–	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	–	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	–	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	–	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	98.0	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	82.5	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	1.56×10^2	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	2.40×10^2	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3
ø80	Push	2.51×10^2	5.03×10^2	7.54×10^2	1.01×10^3	1.51×10^3	2.01×10^3	2.51×10^3	3.02×10^3	3.52×10^3	4.02×10^3	4.52×10^3	5.03×10^3
	Pull	2.27×10^2	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3	3.63×10^3	4.08×10^3	4.54×10^3
ø100	Push	3.92×10^2	7.85×10^2	1.18×10^3	1.57×10^3	2.36×10^3	3.14×10^3	3.93×10^3	4.71×10^3	5.50×10^3	6.28×10^3	7.07×10^3	7.85×10^3
	Pull	3.57×10^2	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3	5.72×10^3	6.43×10^3	7.15×10^3

Dimensions

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

How to order

Without switch

SCM-T - LB - 40 ( ) D - 100 - L I

- Ⓐ Mounting *1
- Ⓑ Bore size
- Ⓒ Port thread
- Ⓓ Cushion *2
- Ⓔ Stroke length
- Ⓕ Option
- Ⓖ Accessory *3, *4

Ⓐ Mounting

Code	Description	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 included)							●	●
TA	Rod side trunnion	●	●	●	●	●	●		
TB	Head side trunnion	●	●	●	●	●	●		

Ⓑ Bore size (mm)

20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

Ⓒ Port thread

Blank	Rc thread
N	NPT thread (made-to-order product) With air cushion: ø32 and over
G	G thread (made-to-order product) With air cushion: ø32 and over

Ⓓ Cushion

	Bore size (ø) 20	25	32	40	50	63	80	100
B	With two-sided air cushion					●	●	●	●
R	Rod side air cushioned					●	●	●	●
H	Head side air cushioned					●	●	●	●
D	With two-sided rubber cushion	●	●	●	●				

Ⓔ Stroke length (mm)

Bore size	Stroke length	Custom stroke length
ø20 to ø32	**10 to 1000**	**In 1 mm increments**
ø40 to ø100	**10 to 1500**	

Ⓕ Option

		Max. ambient temp.	Instantaneous max. temp.
L	Bellows material: Silicone rubber glass cloth	250°C	400°C
M	Piston rod material (stainless steel)		

Ⓖ Accessory

	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	●	●	●	●	●	●		

⚠ 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

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

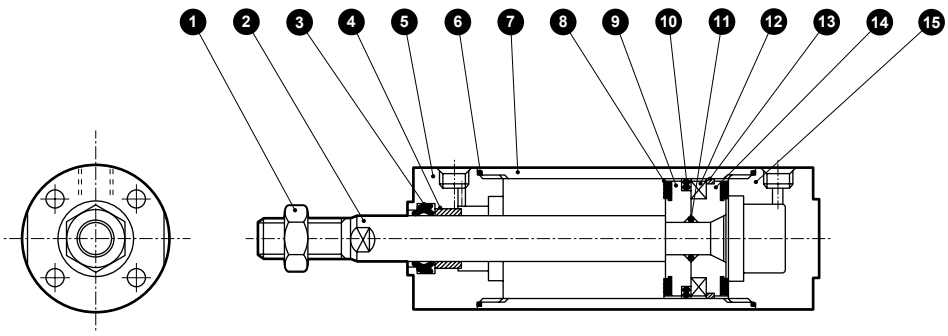
How to order mounting bracket

Bore size (mm) / Mounting bracket	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	-	-

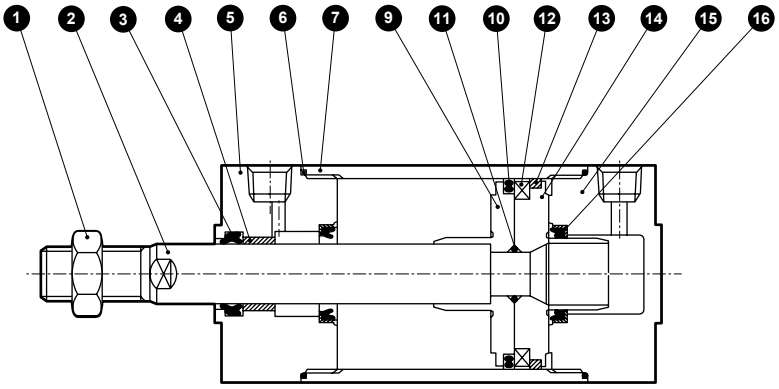
*1: All mounting brackets are supplied with mounting bolts.
*2: The foot mounting bracket is provided as 2 pcs./set.

Internal structure and parts list

● ø20 to ø40 (with rubber cushion)



● ø50 to ø100 (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	ø20, ø25: Stainless steel ø32 to ø100: Steel	Industrial chrome plating	11	Piston gasket	Fluoro rubber	
3	Rod packing	Fluoro rubber		12	Piston ring	ø20 to ø32: Aluminum alloy ø40 to ø100: Steel	ø40 to ø100: Zinc chromate
4	Bush	Oil impregnated bearing alloy		13	Wear ring	Special resin	
5	Rod cover	Aluminum alloy	Hard alumite	14	Piston H	ø20 to ø40: Aluminum alloy ø50 to ø100: Aluminum alloy die-casting	
6	Cylinder gasket	Fluoro rubber					
7	Cylinder tube	Aluminum alloy	Hard alumite	15	Head cover	Aluminum alloy	Hard alumite
8	Cushion rubber	Fluoro rubber		16	Cushion packing	Fluoro rubber/steel	
9	Piston R	ø20 to ø40: Aluminum alloy ø50 to ø100: Aluminum alloy die-casting					

Repair parts list

Bore size (mm)	Kit No.	Repair parts No.
ø20	SCM-T-20K	③ ⑥ ⑧ ⑩ ⑬
ø25	SCM-T-25K	
ø32	SCM-T-32K	
ø40	SCM-T-40K	
ø50	SCM-T-50K	③ ⑥ ⑩ ⑬ ⑯
ø63	SCM-T-63K	
ø80	SCM-T-80K	
ø100	SCM-T-100K	

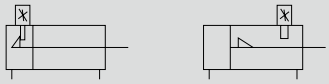
*1: Specify the kit No. when placing an order.

Round shaped cylinder Double acting/position locking

SCM-Q Series

● Bore size: ø20/ø25/ø32/ø40
ø50/ø63/ø80/ø100

JIS symbol



Specifications

Item		SCM-Q							
Bore size mm		ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation		Double acting/position locking							
Working fluid		Compressed air							
Max. working pressure MPa		1.0 (≈150 psi, 10 bar)							
Min. working pressure MPa		0.15 (≈22 psi, 1.5 bar)				0.1 (≈15 psi, 1 bar)			
Proof pressure MPa		1.6 (≈230 psi, 16 bar)							
Ambient temperature °C		-10 (14°F) to 60 (140°F) (no freezing)							
Port size		M5		Rc1/8		Rc1/4		Rc3/8	Rc1/2
Stroke tolerance mm		$^{+1.4}_{0}$ (to 1000)		$^{+1.4}_{0}$ (to 1500)		$^{+1.4}_{0}$ (to 1000), $^{+1.8}_{0}$ (to 1500)			
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 length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
ø20	25/50/75/100/125/150/200/250/300	1000	10
ø25			
ø32			
ø40		1500	
ø50			
ø63			
ø80			
ø100			

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

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

● Switch mounting method: Rail

Switch quantity	1				2				3				4				5			
Bore size (mm)	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*	
ø20	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø25	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø32	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø40	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø50	10				25				50	65	65	55	55	65	65	55	75	110	110	90
ø63	10				25				50	65	65	55	55	65	65	55	75	110	110	90
ø80	10				25				50	65	65	55	55	65	65	55	75	110	110	90
ø100	10				25				50	65	65	55	55	65	65	55	75	110	110	90

● Switch mounting: Band

Switch quantity	1				2				3				4				5			
Bore size (mm)	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*	
ø20	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø25	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø32	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø40	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø50	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø63	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø83	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø100	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 length 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 display

Item	Proximity 2-wire	Proximity 2-wire			Proximity 3-wire				Reed 2-wire							Proximity 2-wire
	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			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 lamp	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)		Without 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

● With rod side position locking (R)

(Unit: kg)

Item/mounting / Bore size (mm)	Product weight when stroke length (S) = 0 mm: Basic	Axial foot	Flange	Clevis	Trunnion	Switch weight (per 1 pc)	Additional weight per S = 10 mm	Additional weight per S = 10 mm (with rail)	Band weight per switch
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 length (S) = 0 mm: Basic	Axial foot	Flange	Clevis	Trunnion	Switch weight (per 1 pc)	Additional weight per S = 10 mm	Additional weight per S = 10 mm (with rail)	Band weight per switch
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 ..... $0.032 \times \frac{100}{10}$ =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	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	-	39.6	52.8	79.2	1.06×10^2	1.32×10^2	1.58×10^2	1.85×10^2	2.11×10^2	2.38×10^2	2.64×10^2
ø25	Push	-	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	-	61.9	82.5	1.24×10^2	1.65×10^2	2.06×10^2	2.47×10^2	2.89×10^2	3.30×10^2	3.71×10^2	4.12×10^2
ø32	Push	-	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	-	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	-	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	-	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3
ø80	Push	5.03×10^2	7.54×10^2	1.01×10^3	1.51×10^3	2.01×10^3	2.51×10^3	3.02×10^3	3.52×10^3	4.02×10^3	4.52×10^3	5.03×10^3
	Pull	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3	3.63×10^3	4.08×10^3	4.54×10^3
ø100	Push	7.85×10^2	1.18×10^3	1.57×10^3	2.36×10^3	3.14×10^3	3.93×10^3	4.71×10^3	5.50×10^3	6.28×10^3	7.07×10^3	7.85×10^3
	Pull	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3	5.72×10^3	6.43×10^3	7.15×10^3

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

How to order

Without 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

Ⓐ Mounting *1, *2

Ⓑ Bore size

Ⓒ Port thread

Ⓓ Cushion

Ⓔ Stroke length

Ⓕ Position locking mechanism

Ⓖ Switch model No. *4 *5

Ⓗ Switch quantity

Ⓘ Switch Installation method

Ⓙ Option *7

Ⓚ Accessory *8

Code	Description								
Ⓐ Mounting									
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)	●	●	●	●	●	●		

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

Ⓒ Port thread	
Blank	Rc thread
N	NPT thread (made-to-order product) ø32 and over
G	G thread (made-to-order product) ø32 and over

Ⓓ Cushion	
B	With two-sided air cushion
R	Rod side air cushioned
H	Head side air cushioned

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

Ⓕ Position locking mechanism	
R	With rod side position locking
H	With head side position locking

Ⓖ Switch model No.						
Axial lead wire	**Radial lead wire**	Contact	Voltage AC	Voltage DC	**Display**	**Lead wire**
T0H*	**T0V***	Reed	●	●	1-color display	2-wire
T5H*	**T5V***	Reed	●	●	Without indicator lamp	2-wire
T8H*	**T8V***	Reed	●	●	1-color display	2-wire
T1H*	**T1V***	Proximity	●		1-color display	2-wire
T2H*	**T2V***	Proximity		●	1-color display	2-wire
T3H*	**T3V***	Proximity		●	1-color display	3-wire
T3PH*	**T3PV***	Proximity		●	1-color display	3-wire
T2WH*	**T2WV***	Proximity		●	2-color display	2-wire
T2YH*	**T2YV***	Proximity		●	2-color display	2-wire
T3WH*	**T3WV***	Proximity		●	2-color display	3-wire
T3YH*	**T3YV***	Proximity		●	2-color display	3-wire
T2YD*	**-**	Proximity		●	2-color display AC magnetic field	2-wire
T2YDT*	**-**	Proximity		●	2-color display AC magnetic field	2-wire
T2JH*	**T2JV***	Proximity		●	1-color display off-delay	2-wire

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

Ⓗ 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.)

Ⓘ Switch mounting	
Blank	Rail method
Z	Band method

Ⓙ Option	
Q	Switch rail included at shipment
P6	Copper and PTFE free (made-to-order product)

Ⓚ Accessory									
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	●	●	●	●	●	●		

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 length.
*4 : Switches other than Ⓖ 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

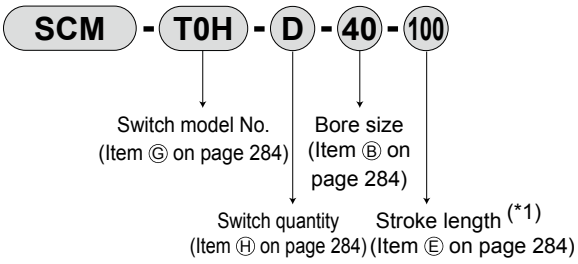
Model: Round shaped cylinder, position locking

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

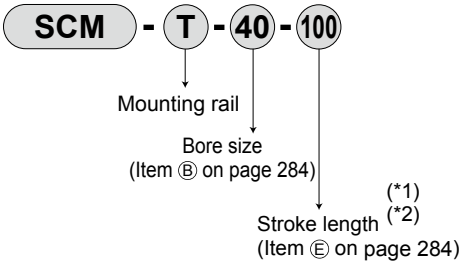
How to order switch

[Switch mounting: Rail]

● Switch body + mounting rail set

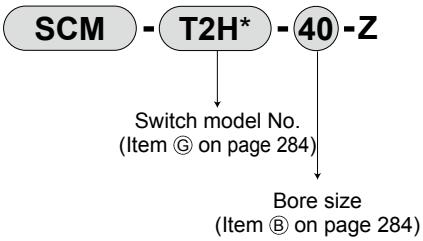


● Mounting rail only

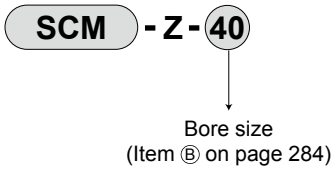


[Switch mounting: Band]

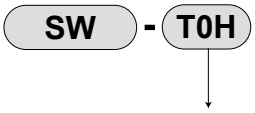
● Switch body + mounting bracket set + band



● Mounting bracket set + band



[Switch body only]



*1: Indicate X if the stroke length 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) / Mounting bracket	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.

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***

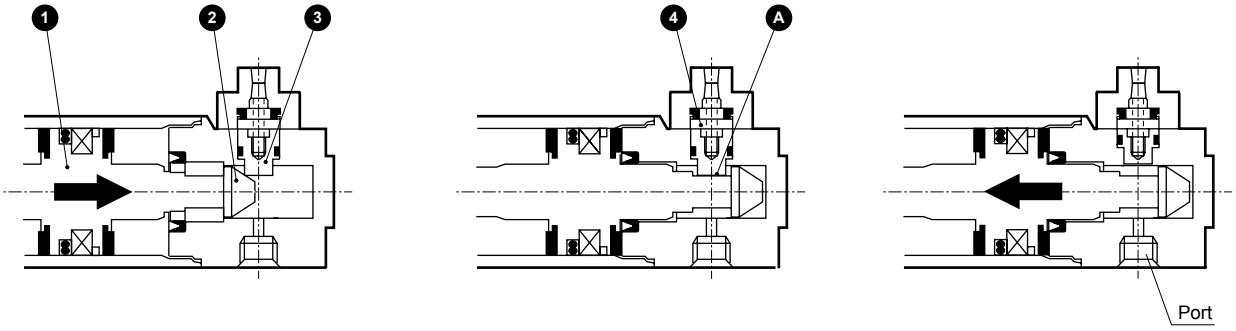
* Contact CKD for details.

Operational explanation

● 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 Ⓐ reaches the stopper piston position, the stopper piston is pushed down by the spring ④ and fits into the groove, completing the lock action.

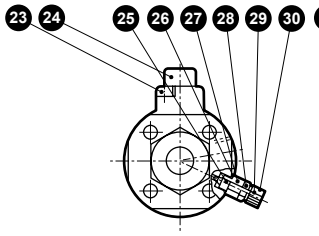
● When unlocked
When pressure is supplied to the port, the stopper piston pushes up the spring and slips out of the sleeve groove, releasing the lock.

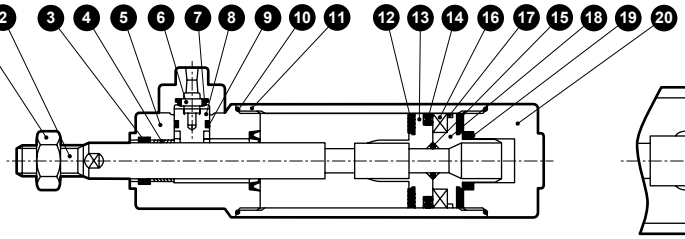


Internal structure and parts list

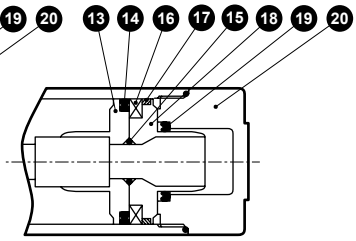
● SCM-Q (rod side position locking)

ø20 to ø40



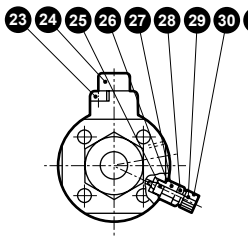


ø50 to ø100

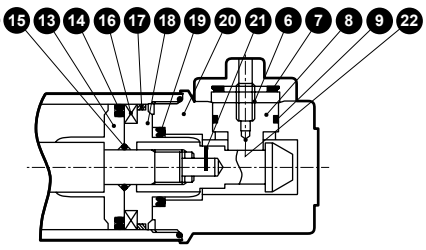


● SCM-Q (head side position locking)

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
				29	Needle	Stainless steel	
14	Piston packing (A)	Nitrile rubber		30	Knob	Aluminum alloy	Chromate
15	Piston gasket	Nitrile rubber					

Repair parts list

Bore size (mm)	Kit No.	Repair parts No.
ø20	SCM-Q-20BK	
ø25	SCM-Q-25BK	
ø32	SCM-Q-32BK	
ø40	SCM-Q-40BK	③ ⑦ ⑨ ⑩ ⑫
ø50	SCM-Q-50BK	⑭ ⑰ ⑲ ㉕ ㉖
ø63	SCM-Q-63BK	
ø80	SCM-Q-80BK	
ø100	SCM-Q-100BK	

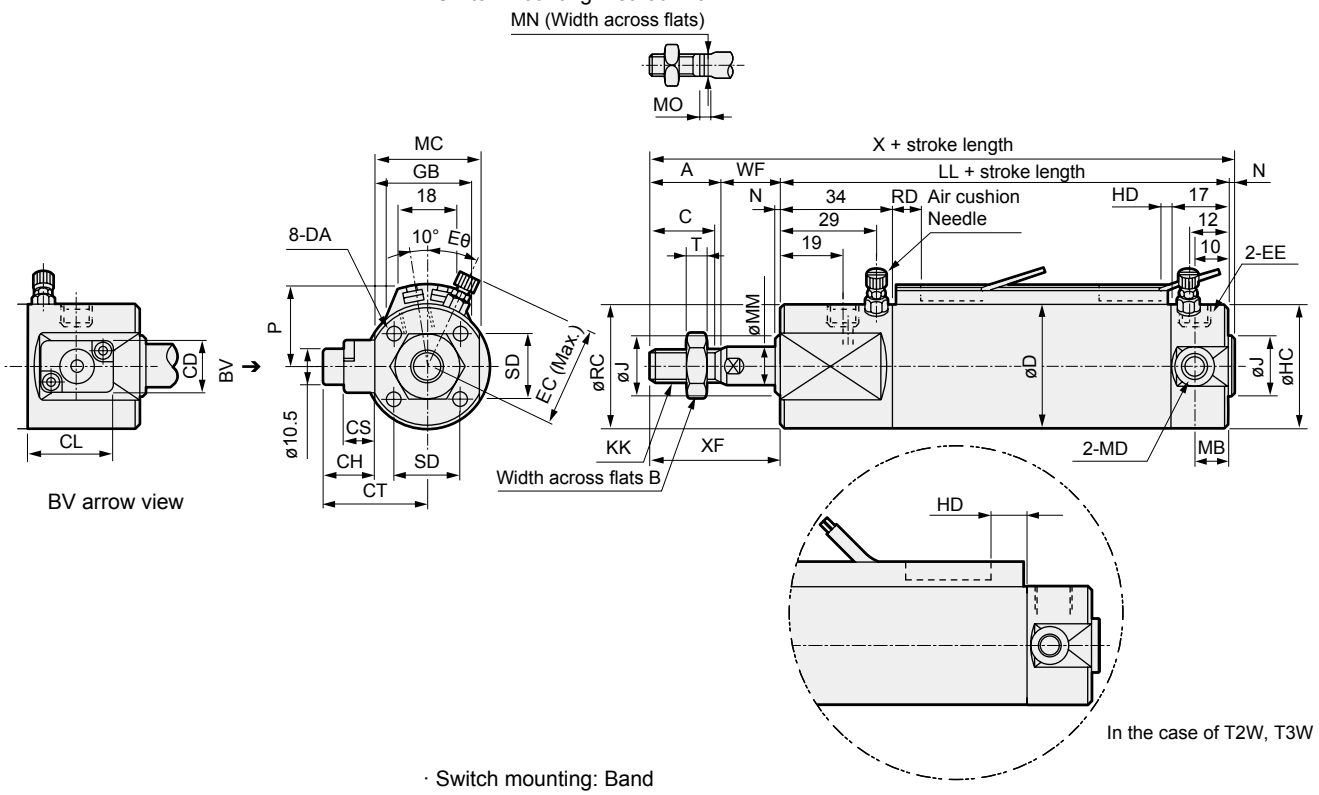
Note: Specify the kit No. when placing an order.

Dimensions (ø20 to ø32)

CAD

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

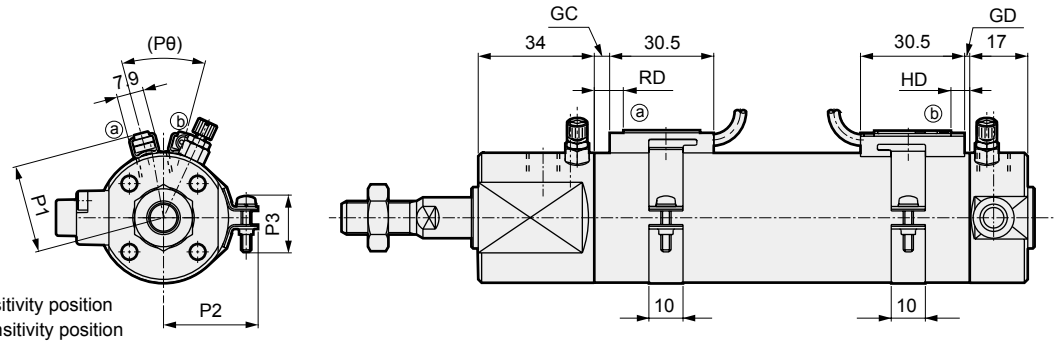
· Switch mounting method: Rail



BV arrow view

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 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 display, 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	MB	MC	MD	MM	MO
ø20	-	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	-	17	20	16	15.5	22	9.5	31	31	M5 depth 6.5	29.5	M5	30°	31	14	M10×1.25	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	M10×1.25	86	10	32	M8	12	5.5

Code									Switch mounting: Rail								Switch mounting: Band					
Bore size (mm)	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	19	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	20	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

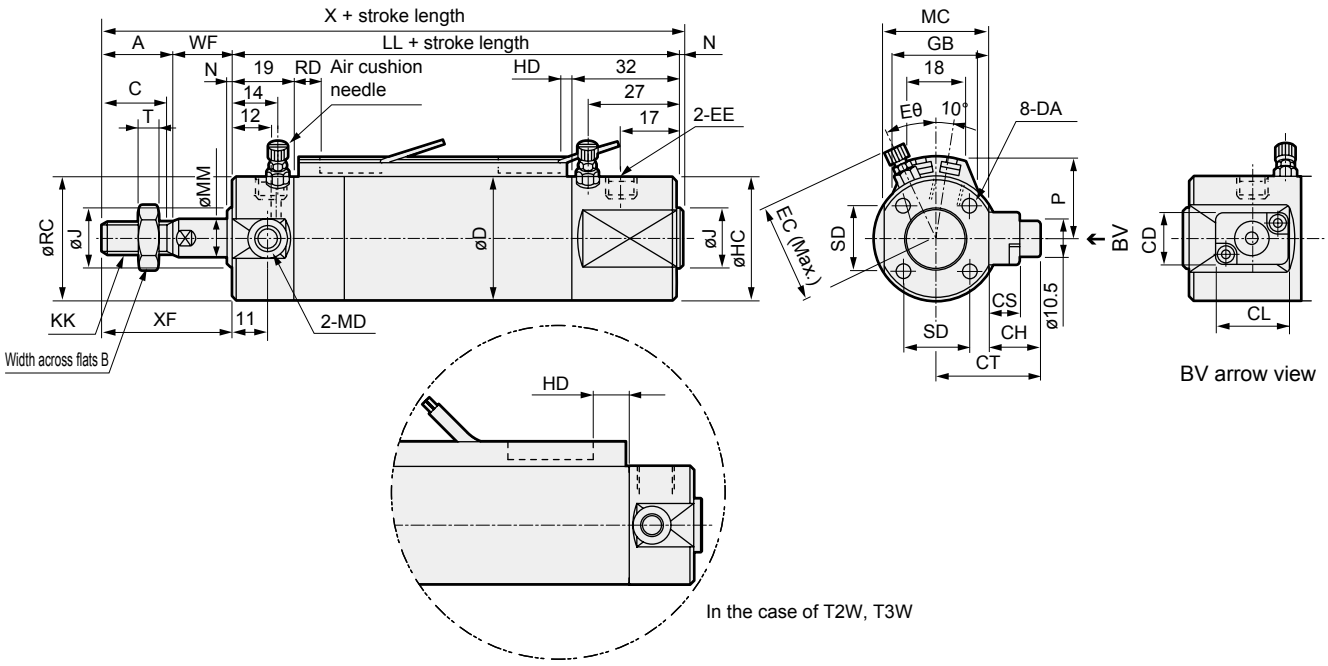
Code										
Bore size (mm)	HD			RD			P1	P2	P3	Pθ
	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W				
ø20	6.5	6.5	8.5	7.5	7.5	9.5	19.6	21.5	14	(38°)
ø25	5.5	5.5	7.5	8.5	8.5	10.5	22.1	23.9	14	(34°)
ø32	6.5	6.5	8.5	9.5	9.5	11.5	25.6	27.6	16	(30°)

* 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.

Dimensions (ø20 to ø32)

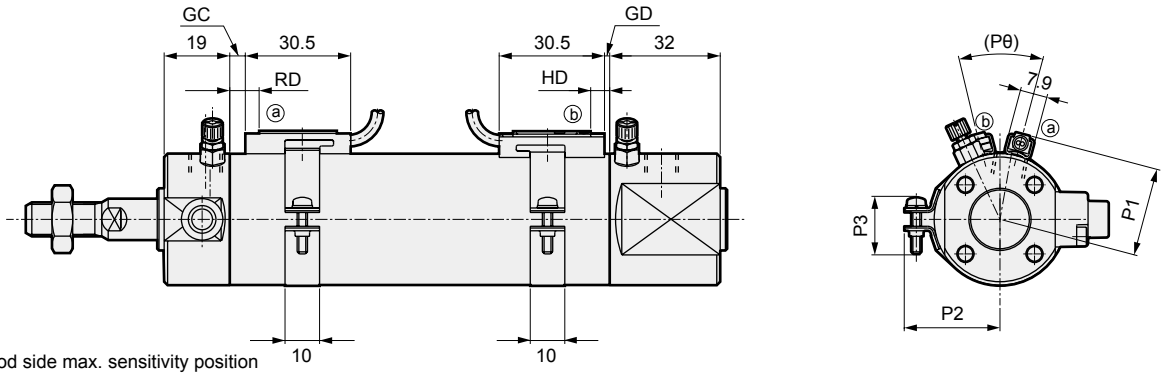
● Basic (00)
(With head side position locking)

· Switch mounting method: Rail



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 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 display, 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	-	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	-	17	20	16	15.5	22	9.5	31	31	M5 depth 6.5	29.5	M5	30°	35	14	M10×1.25	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	M10×1.25	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	19	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	20	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										
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°)

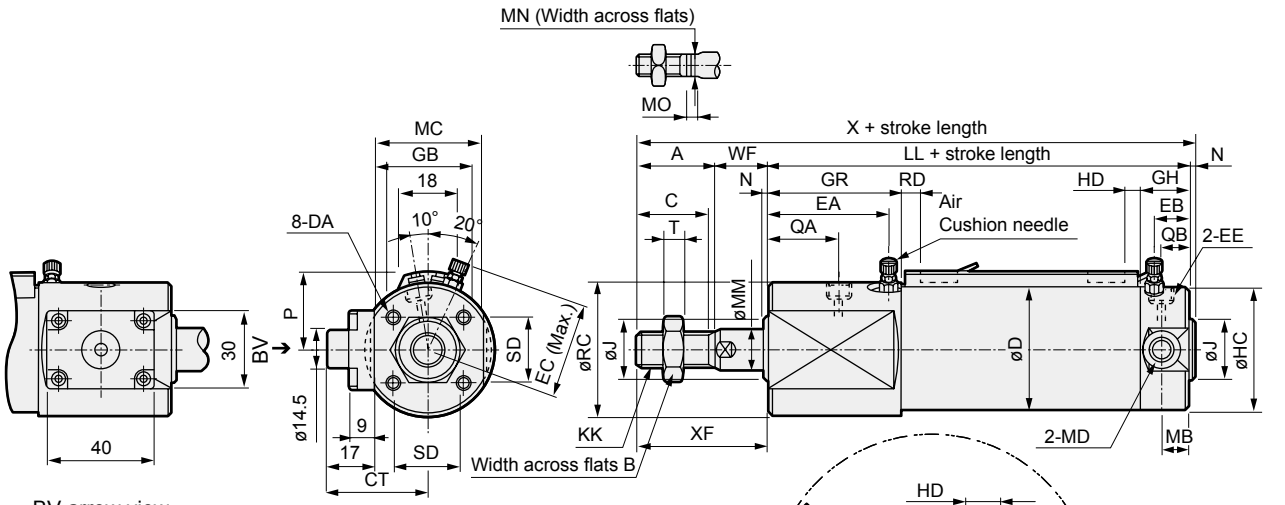
* Installation dimensions of the mounting are the same as those of SCM (double acting). Refer to pages 240 to 251.
* For the dimensions of the accessories, refer to pages 252 and 253.

Dimensions (ø40 to ø100)

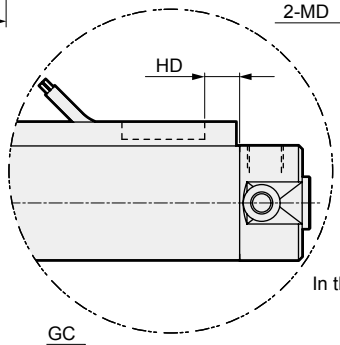
CAD

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

· Switch mounting method: Rail

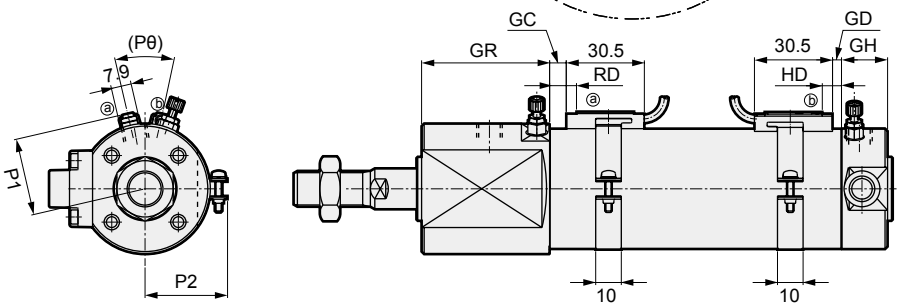


BV arrow view



In the case of T2W, T3W

· 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 display, 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	45	13	36.6	Rc1/8	19	50	47	25	M14×1.5	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	M18×1.5	120	13	12	53	M12
ø63	35	27	32	49.5	72	M10 depth 16	48.5	15.5	50	Rc1/4	22	55	72	32	M18×1.5	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	M22×1.5	138	-	-	81	-
ø100	40	41	37	68.5	110	M12 depth 22	50	20	69	Rc1/2	28	58	110	50	M26×1.5	138	-	-	103	-

Code													Switch mounting: Rail				
Bore size (mm)	MM	MO	MN	N	QA	QB	RC	SD	T	WF	X	XF	P	GB	HD		
															T0/T5	T2/T2R T3/T3P	T2W T3W
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
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
ø100	30	13	27	3	31.5	15	110	60	16	31	212	71	61.5	26.7	10.0	13.5	13.0

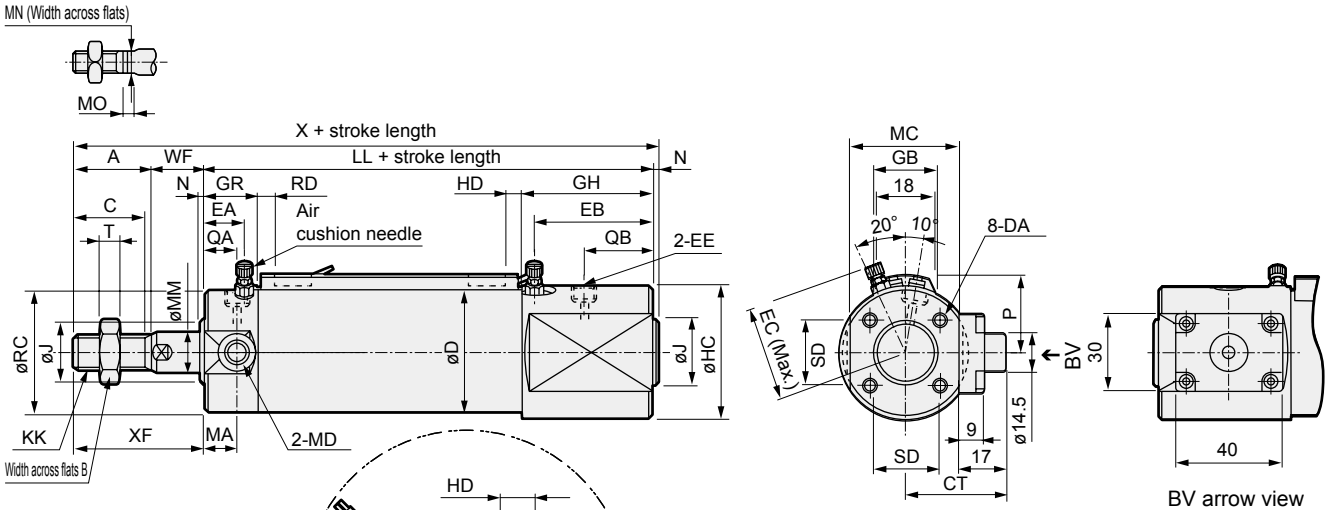
Code	Switch mounting: Band																		
Bore size (mm)	RD			GC			GD			HD			RD			P1	P2	P3	Pθ
	T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W	T0/T5	T2, T3	T2W T3W				
ø40	11.5	11.5	9.5	7.5	7.5	5.5	4.5	4.5	4.5	8.5	8.5	8.5	11.5	11.5	9.5	30.2	32.1	14	(26°)
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°)

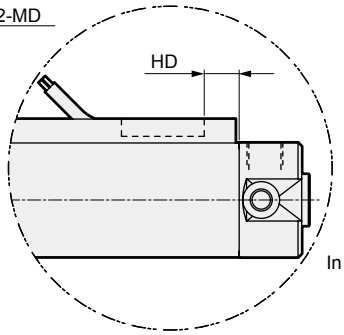
* Installation dimensions of the mounting are the same as those of SCM (double acting). Refer to pages 240 to 251.
* For the dimensions of the accessories, refer to pages 252 and 253.

Dimensions (ø40 to ø100)

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

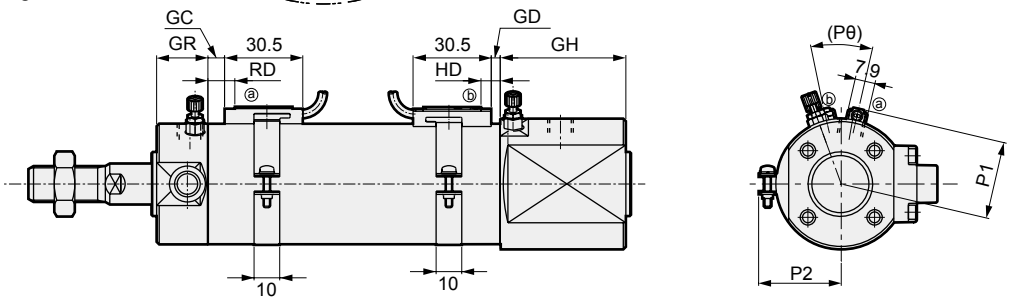
· Switch mounting method: Rail





In the case of T2W, T3W

· Switch mounting: Band



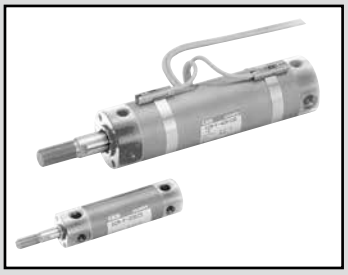
*1 : When the mounting is LB, the cylinder cannot be mounted on the frame if a bracket is already attached to the cylinder. Refer to Safety precautions for details.
*2 : Refer to page 345 for RD, HD and protruding dimensions of the 2-color display, off-delay, AC magnetic field proof, T1H/V and T8H/V 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	M14×1.5	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	M18×1.5	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	M18×1.5	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	M22×1.5	138	-	-	81	-
ø100	40	41	37	68.5	110	M12 depth 22	20	50	69	Rc1/2	58	28	110	50	M26×1.5	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°)

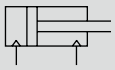
* Installation dimensions of the mounting are the same as those of SCM (double acting). Refer to pages 240 to 251.
* For the dimensions of the accessories, refer to pages 252 and 253.



Round shaped cylinder Double acting/fine speed

SCM-F Series

● Bore size: ø20/ø25/ø32/ø40

JIS symbol 

RoHS CAD

Specifications

Item	SCM			
Bore size mm	ø20	ø25	ø32	ø40
Actuation	Double acting/fine speed			
Working fluid	Compressed air			
Max. working pressure MPa	1.0 (≈150 psi, 10 bar)			
Min. working pressure MPa	0.1 (≈15 psi, 1 bar)			
Proof pressure MPa	1.6 (≈230 psi, 16 bar)			
Ambient temperature °C	-10 (14°F) to 60 (140°F) (no freezing)			
Port size	Rc1/8			
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 length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
ø20	25, 50, 75, 100, 125, 150, 200, 250, 300	500	10
ø25			
ø32			
ø40			

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

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

● Switch mounting: Rail

Switch quantity	1				2				3				4				5			
Bore size (mm)	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*	
ø20	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø25	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø32	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø40	10				25				50	70	70	55	55	70	70	55	75	110	110	90

*1: For types with one switch, when the stroke length 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			
Bore size (mm)	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*	
ø20	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø25	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø32	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø40	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95

Switch specifications

● 1-color/2-color display

Item	Proximity 2-wire	Proximity 2-wire			Proximity 3-wire				Reed 2-wire						Proximity 2-wire
	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 lamp	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)		Without 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)	Product weight when stroke length (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
	Basic (00)	Axial foot (LB)	Flange (FA/FB)	Clevis	Trunnion (TA/TB)				
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

(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 kg + 0.32 kg + 0.036 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
ø20	Push	31.4	47.1	62.8	94.2	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	26.4	39.6	52.8	79.2	1.06×10^2	1.32×10^2	1.58×10^2	1.85×10^2	2.11×10^2	2.38×10^2	2.64×10^2
ø25	Push	49.1	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	41.2	61.9	82.5	1.24×10^2	1.65×10^2	2.06×10^2	2.47×10^2	2.89×10^2	3.30×10^2	3.71×10^2	4.12×10^2
ø32	Push	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3

Dimensions

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

How to order

Without 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 | B Bore size | C Port thread | D Cushion | E Stroke length | F Switch model No. *3 *4 | G Switch quantity | H Switch mounting *6 | I Option | J Accessory *6

Code	Description
A Mounting	
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 length (mm)

Bore size	Stroke length *2	Custom stroke length
ø20 to ø40	**10 to 500**	**In 1 mm increments**

F Switch model No.

Axial lead wire	Radial lead wire	Contact	Voltage AC	Voltage DC	Display	Lead wire
T0H*	**T0V***	Reed	●	●	1-color display	2-wire
T5H*	**T5V***		●	●	Without indicator lamp	
T8H*	**T8V***		●	●	1-color display	
T1H*	**T1V***	Proximity	●		1-color display	2-wire
T2H*	**T2V***			●		
T3H*	**T3V***			●		3-wire
T3PH*	**T3PV***			●	1-color display	
T2WH*	**T2WV***			●	2-color display	2-wire
T2YH*	**T2YV***			●		
T3WH*	**T3WV***			●		3-wire
T3YH*	**T3YV***			●		
T2YD*	-			●	2-color display AC magnetic field	2-wire
T2YDT*	-			●		
T2JH*	**T2JV***			●	1-color display 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 (when there are more than 4 switches, indicate switch quantity.)

H Switch mounting	
Blank	Rail method
Z	Band method

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

J Accessory	
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 length.
*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

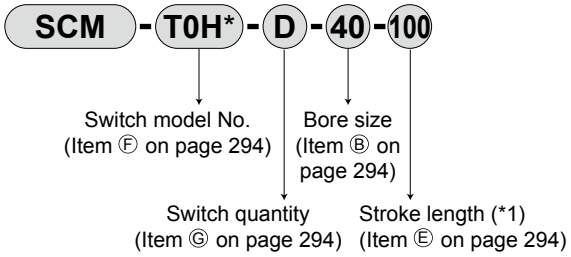
Model: Round shaped cylinder, double acting

A Mounting : Axial foot
B Bore size : ø40 mm
C Port thread : Rc thread
D Cushion : With two-sided rubber cushion
E Stroke length : 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

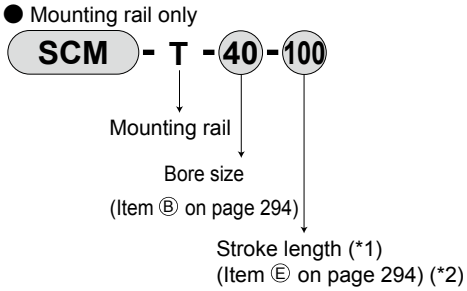
How to order switch

[Switch mounting: Rail]

● Switch body + mounting rail set

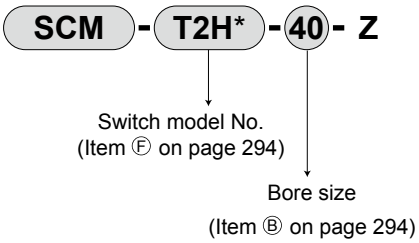


● Mounting rail only

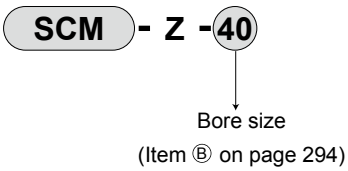


[Switch mounting: Band]

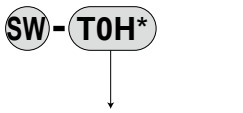
● Switch body + mounting bracket set + band



● Mounting bracket set + band



[Switch body only]



*1: Indicate X if the stroke length 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

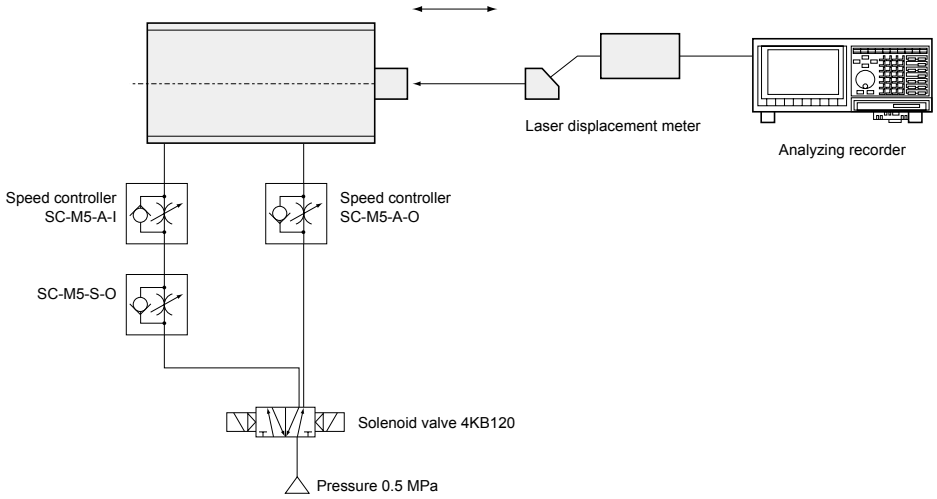
Bore size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40
Eye bracket (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40
Clevis bracket (CB)	-	-	-	-
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40

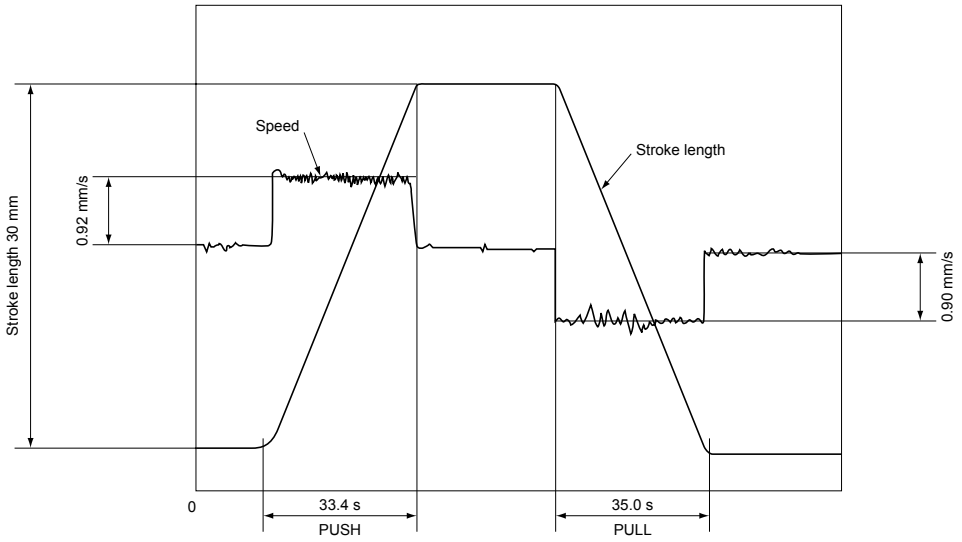
*1: All mounting brackets are supplied with mounting bolts.

Measurement data

● Measuring method

SSD-F-16-30





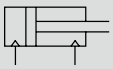
MEMO

Round shaped cylinder Double acting/low speed

SCM-O Series

● Bore size: ø20/ø25/ø32/ø40
ø50/ø63/ø80/ø100

JIS symbol



RoHS CAD

Specifications

Item	SCM-O							
Bore size mm	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation	Double acting/low speed							
Working fluid	Compressed air							
Max. working pressure MPa	1.0 (≈150 psi, 10 bar)							
Min. working pressure MPa	0.1 (≈15 psi, 1 bar)				0.05 (≈7.3 psi, 0.5 bar)			
Proof pressure MPa	1.6 (≈230 psi, 16 bar)							
Ambient temperature °C	-10 (14°F) to 60 (140°F) (no freezing)							
Port size	Rc1/8				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 length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
ø20	25, 50, 75 100, 125, 150 200, 250, 300	1000	10
ø25			
ø32			
ø40		1500	
ø50			
ø63			

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

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

● Switch mounting: Rail

Switch quantity	1				2				3				4				5			
Bore size (mm)	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*	
ø20	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø25	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø32	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø40	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø50	10				25				50	65	65	55	55	65	65	55	75	110	110	90
ø63	10				25				50	65	65	55	55	65	65	55	75	110	110	90
ø80	10				25				50	65	65	55	55	65	65	55	75	110	110	90
ø100	10				25				50	65	65	55	55	65	65	55	75	110	110	90

● Switch mounting: Band

Switch quantity	1				2				3				4				5			
Bore size (mm)	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*	
ø20	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø25	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø32	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø40	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø50	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø63	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø83	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø100	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 length 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 display

Item	Proximity 2-wire				Proximity 3-wire				Reed 2-wire							Proximity 2-wire
	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 lamp	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)		Without 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)	Product weight when stroke length (S) = 0 mm: Basic (00)	Axial foot (LB)	Flange (FA/FB)	Clevis	Trunnion (TA/TB)	Switch weight (per 1 pc)	Additional weight per S = 10 mm	Additional weight per S = 10 mm (With switch rail)	Band weight per switch
ø20	0.10	0.21	0.13	0.15	0.11	Refer to the weight in the switch 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-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	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	–	26.4	39.6	52.8	79.2	1.06×10^2	1.32×10^2	1.58×10^2	1.85×10^2	2.11×10^2	2.38×10^2	2.64×10^2
ø25	Push	–	49.1	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	–	41.2	61.9	82.5	1.24×10^2	1.65×10^2	2.06×10^2	2.47×10^2	2.89×10^2	3.30×10^2	3.71×10^2	4.12×10^2
ø32	Push	–	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	–	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	–	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	–	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	98.0	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	82.5	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	1.56×10^2	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	2.40×10^2	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3
ø80	Push	2.51×10^2	5.03×10^2	7.54×10^2	1.01×10^3	1.51×10^3	2.01×10^3	2.51×10^3	3.02×10^3	3.52×10^3	4.02×10^3	4.52×10^3	5.03×10^3
	Pull	2.27×10^2	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3	3.63×10^3	4.08×10^3	4.54×10^3
ø100	Push	3.92×10^2	7.85×10^2	1.18×10^3	1.57×10^3	2.36×10^3	3.14×10^3	3.93×10^3	4.71×10^3	5.50×10^3	6.28×10^3	7.07×10^3	7.85×10^3
	Pull	3.57×10^2	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3	5.72×10^3	6.43×10^3	7.15×10^3

How to order

Without 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

Ⓐ Mounting *1

Ⓑ Bore size

Ⓒ Port thread

Ⓓ Cushion

Ⓔ Stroke length

Ⓕ Switch model No. *4 *5

Ⓖ Switch quantity

Ⓗ Switch mounting

Ⓘ Option *2 *6 *8

Ⓙ Accessory *9

Code	Description								
Ⓐ Mounting									
	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	●	●	●	●	●	●		

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

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

Ⓓ Cushion	
D	With two-sided rubber cushion

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

Ⓕ Switch model No.

Axial lead wire	Radial lead wire	Contact	Voltage AC	Voltage DC	Display	Lead wire
T0H*	**T0V***	Reed	●	●	1-color display	2-wire
T5H*	**T5V***		●	●	Without indicator lamp	
T8H*	**T8V***		●	●	1-color display	
T1H*	**T1V***	Proximity	●		1-color display	2-wire
T2H*	**T2V***			●		
T3H*	**T3V***			●		3-wire
T3PH*	**T3PV***			●	1-color display	
T2WH*	**T2WV***			●	2-color display	2-wire
T2YH*	**T2YV***			●		
T3WH*	**T3WV***			●		3-wire
T3YH*	**T3YV***			●		
T2YD*	**-**			●	2-color display AC magnetic field	2-wire
T2YDT*	**-**			●		
T2JH*	**T2JV***			●	1-color display off-delay	2-wire

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

Ⓖ 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.)

Ⓗ Switch mounting	
Blank	Rail method
Z	Band method

Ⓘ Option			
		Max. ambient temperature	**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)		

Ⓙ Accessory									
	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	●	●	●	●	●	●		

⚠ 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 length.
*4 : Switches other than Ⓕ 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

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

How to order switch

[Switch mounting: Rail]

● Switch body + mounting rail set

SCM - T0H - D - 40 - 100

- T0H: Switch model No. (Item Ⓕ on page 300)
- D: Switch quantity (Item Ⓖ on page 300)
- 40: Bore size (Item Ⓑ on page 300)
- 100: Stroke length (*1) (Item Ⓔ on page 300)

● Mounting rail only

SCM - T - 40 - 100

- T: Mounting rail
- 40: Bore size (Item Ⓑ on page 300)
- 100: Stroke length (*1) (*2) (Item Ⓔ on page 300)

*1: Indicate X if the stroke length 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

SCM - T2H* - 40 - Z

- T2H*: Switch model No. (Item Ⓕ on page 300)
- 40: Bore size (Item Ⓑ on page 300)

● Mounting bracket set + band

SCM - Z - 40

- 40: Bore size (Item Ⓑ on page 300)

[Switch body only]

SW - T0H

- T0H: Switch model No. (Item Ⓕ on page 300)

How to order mounting bracket

Bore size (mm) / Mounting bracket	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	❸ ❻ ❽ ❿ ⓭
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

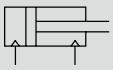
Same as standard. Refer to pages 238 to 251.

Round shaped cylinder Double acting/low friction

SCM-U Series

● Bore size: ø20/ø25/ø32/ø40/ ø50/ø63/ø80/ø100

JIS symbol



RoHS CAD

Specifications

Item		SCM-U							
Bore size	mm	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation		Double acting/low friction							
Working fluid		Compressed air							
Max. working pressure	MPa	0.7 (≈100 psi, 7 bar)							
Min. working pressure	MPa	0.03 (≈4.4 psi, 0.3 bar)							
Proof pressure	MPa	1.0 (≈150 psi, 10 bar)							
Ambient temperature	°C	5 (41°F) to 60 (140°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	ℓ /min	5						8	

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
ø20	25, 50, 75, 100, 125, 150, 200, 250, 300	1000	10
ø25			
ø32			
ø40		1500	
ø50			
ø63			
ø80			
ø100			

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

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

● Switch mounting: Rail

Switch quantity	1				2				3				4				5			
Bore size (mm)	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*	
ø20	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø25	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø32	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø40	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø50	10				25				50	65	65	55	55	65	65	55	75	110	110	90
ø63	10				25				50	65	65	55	55	65	65	55	75	110	110	90
ø80	10				25				50	65	65	55	55	65	65	55	75	110	110	90
ø100	10				25				50	65	65	55	55	65	65	55	75	110	110	90

● Switch mounting: Band

Switch quantity	1				2				3				4				5			
Bore size (mm)	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*	
ø20	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø25	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø32	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø40	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø50	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø63	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø83	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø100	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 length 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 display

Item	Proximity 2-wire	Proximity 2-wire			Proximity 3-wire				Reed 2-wire							Proximity 2-wire
	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 lamp	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)		Without 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)	Product weight when stroke length (S) = 0 mm: Basic (00)	Axial foot (LB)	Flange (FA/FB)	Clevis	Trunnion (TA/TB)	Switch weight (per 1 pc)	Additional weight per S = 10 mm	Additional weight per S = 10 mm (With switch rail)	Band weight per switch
ø20	0.10	0.21	0.13	0.15	0.11	Refer to the weight in the switch 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 kg+0.32 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	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2
	Pull	7.9	26.4	39.6	52.8	79.2	1.06×10^2	1.32×10^2	1.58×10^2	1.85×10^2
ø25	Push	14.7	49.1	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2
	Pull	12.4	41.2	61.9	82.5	1.24×10^2	1.65×10^2	2.06×10^2	2.47×10^2	2.89×10^2
ø32	Push	24.1	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2
	Pull	20.7	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2
ø40	Push	37.7	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2
	Pull	31.7	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2
ø50	Push	58.9	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3
	Pull	49.5	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3
ø63	Push	93.5	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3
	Pull	84.1	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3
ø80	Push	15.1×10^2	5.03×10^2	7.54×10^2	1.01×10^3	1.51×10^3	2.01×10^3	2.51×10^3	3.02×10^3	3.52×10^3
	Pull	13.6×10^2	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3
ø100	Push	23.6×10^2	7.85×10^2	1.18×10^3	1.57×10^3	2.36×10^3	3.14×10^3	3.93×10^3	4.71×10^3	5.50×10^3
	Pull	21.4×10^2	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3

How to order

Without 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

Ⓐ Mounting
Rubber cushion
Ⓑ Bore size
Ⓒ Port thread
Ⓓ Stroke length
Ⓔ Switch model No. *3 *4
Ⓕ Switch quantity
Ⓖ Switch mounting
Ⓗ Option *6
Ⓘ Accessory *7

Code	Description								
Ⓐ Mounting									
	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	●	●	●	●	●	●		

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

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

Ⓓ Stroke length (mm)		
Bore size	**Stroke length *2**	**Custom stroke length**
ø20 to ø32	**10 to 1000**	**In 1 mm increments**
ø40 to ø100	**10 to 1500**	

Ⓔ Switch model No.

Axial lead wire	Radial lead wire	Contact	Voltage AC	Voltage DC	Display	Lead wire
T0H*	**T0V***	Reed	●	●	1-color display	2-wire
T5H*	**T5V***		●	●	Without indicator lamp	
T8H*	**T8V***		●	●	1-color display	
T1H*	**T1V***	Proximity	●		1-color display	2-wire
T2H*	**T2V***			●		
T3H*	**T3V***			●		3-wire
T3PH*	**T3PV***			●	1-color display	
T2WH*	**T2WV***			●	2-color display	2-wire
T2YH*	**T2YV***			●		
T3WH*	**T3WV***			●		3-wire
T3YH*	**T3YV***			●		
T2YD*	**-**			●	2-color display for AC magnetic field	2-wire
T2YDT*	**-**			●		
T2JH*	**T2JV***			●	1-color display off-delay	2-wire

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

Ⓕ 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.)

Ⓖ Switch mounting	
Blank	Rail method
Z	Band method

Ⓗ Option	
Q	Switch rail included at shipment
M	Piston rod material (stainless steel)

Ⓘ Accessory									
	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	●	●	●	●	●	●		

⚠ 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 length.
*3 : Switches other than Ⓔ 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

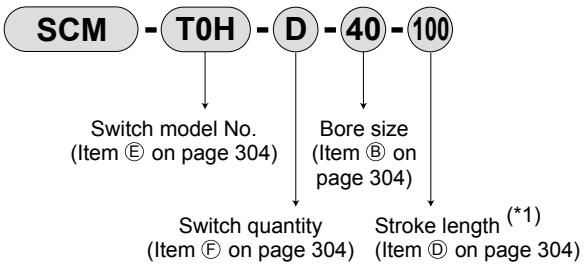
Model: Round shaped cylinder, double acting/low friction

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

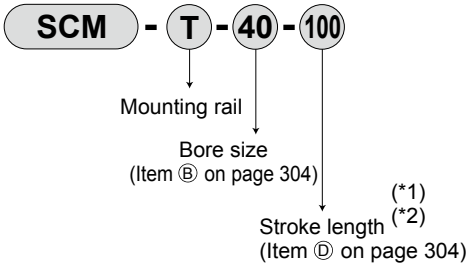
How to order switch

[Switch mounting: Rail]

● Switch body + mounting rail set



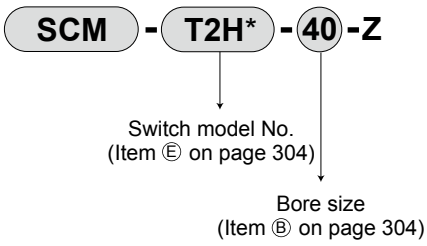
● Mounting rail only



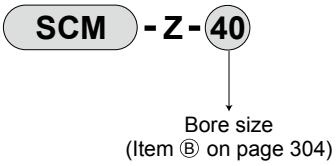
*1: Indicate X if the stroke length exceeds 300 mm.
If exceeding 300 mm, a short rail (with 100 mm switch adjustment length) will be included per switch.
*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

[Switch mounting: Band]

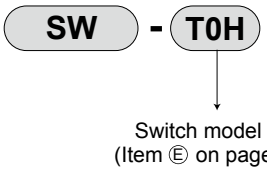
● Switch body + mounting bracket set + band



● Mounting bracket set + band



[Switch body only]



How to order mounting bracket

Bore size (mm) / Mounting bracket	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.

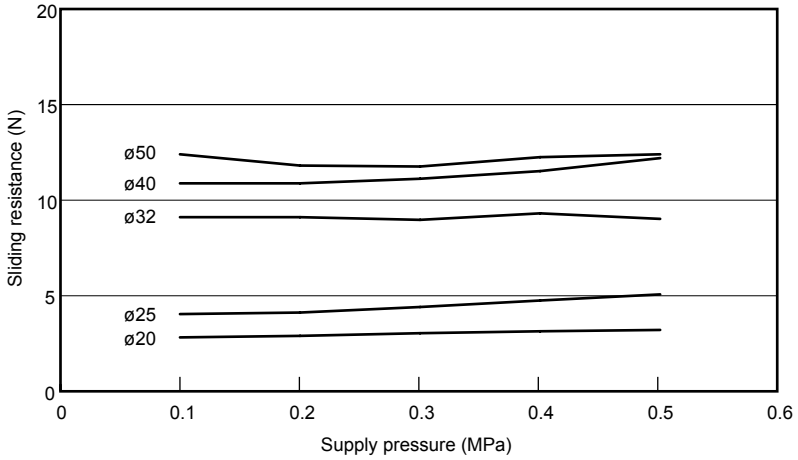
Sliding resistance

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

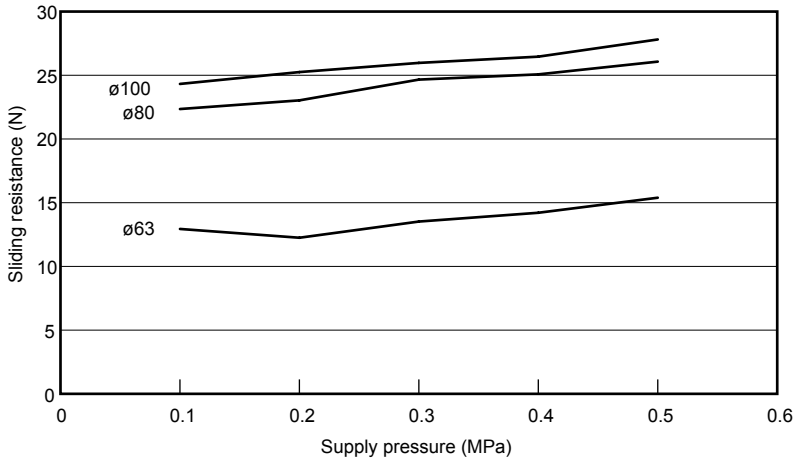
(Test conditions)

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)

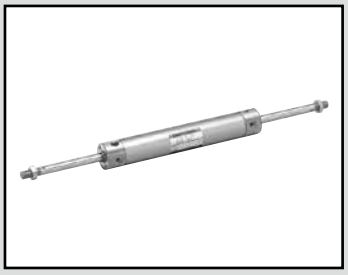
Sliding resistance (ø20 to ø50)



Sliding resistance (ø63 to ø100)



MEMO

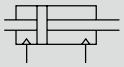


Round shaped cylinder Double acting/double rod

SCM-D Series

● Bore size: ø20/ø25/ø32/ø40
ø50/ø63/ø80/ø100

JIS symbol Double acting cylinder double rod



RoHS CAD

Specifications

Item		SCM-D							
Bore size mm		ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation		Double acting/double rod							
Working fluid		Compressed air							
Max. working pressure MPa		1.0 (≈150 psi, 10 bar)							
Min. working pressure MPa		0.15 (≈22 psi, 1.5 bar)				0.1 (≈15 psi, 1 bar)			
Proof pressure MPa		1.6 (≈230 psi, 16 bar)							
Ambient temperature °C		-10 (14°F) to 60 (140°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 mm	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 J	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 length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
ø20	25, 50, 75, 100, 125, 150, 200, 250, 300	600	10
ø25			
ø32			
ø40			
ø50			
ø63			
ø80			
ø100			

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

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

● Switch mounting: Rail

Switch quantity	1				2				3				4				5			
Bore size (mm)	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*	
ø20	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø25	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø32	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø40	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø50	10				25				50	65	65	55	55	65	65	55	75	110	110	90
ø63	10				25				50	65	65	55	55	65	65	55	75	110	110	90
ø80	10				25				50	65	65	55	55	65	65	55	75	110	110	90
ø100	10				25				50	65	65	55	55	65	65	55	75	110	110	90

● Switch mounting: Band

Switch quantity	1				2				3				4				5			
Bore size (mm)	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*	
ø20	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø25	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø32	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø40	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø50	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø63	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø83	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø100	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 length 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 display

Item	Proximity 2-wire				Proximity 3-wire				Reed 2-wire							Proximity 2-wire
	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 lamp	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)		Without 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)	Product weight when stroke length (S) = 0 mm				Switch weight (per 1 pc.)	Per S = 10 mm	Per S = 10 mm
	Basic (00)	Axial foot (LB)	Flange (FA)	Trunnion (TA)		Additional weight	Additional weight (With switch rail)
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 km
- Additional weight when S = 100 mm ····· $0.048 \times \frac{100}{10} = 0.48$ kg
- Weight of 2 switches ····· 0.018 x 2 = 0.036 kg
- Product weight ····· 0.74 + 0.48 + 0.036 = 1.256kg

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	1.06×10^2	1.32×10^2	1.58×10^2	1.85×10^2	2.11×10^2	2.38×10^2	2.64×10^2
ø25	Push/Pull	-	61.9	82.5	1.24×10^2	1.65×10^2	2.06×10^2	2.47×10^2	2.89×10^2	3.30×10^2	3.71×10^2	4.12×10^2
ø32	Push/Pull	-	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push/Pull	-	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push/Pull	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push/Pull	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3
ø80	Push/Pull	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3	3.63×10^3	4.08×10^3	4.54×10^3
ø100	Push/Pull	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3	5.72×10^3	6.43×10^3	7.15×10^3

How to order

Without 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

Ⓐ Mounting
Ⓑ Bore size
Ⓒ Port thread
Ⓓ Cushion
Ⓔ Stroke length
Ⓕ Switch model No. *4 *5
Ⓖ Switch quantity
Ⓗ Switch mounting
Ⓘ Option *2 *6 *8
Ⓙ Accessory

Code	Description

Ⓐ Mounting

	Bore size (ø)	20	25	32	40	50	63	80	100
00	Basic	●	●	●	●	●	●	●	●
LB	Axial foot	●	●	●	●	●	●	●	●
FA	Rod side flange	●	●	●	●	●	●	●	●
TA	Rod side trunnion	●	●	●	●	●	●		

Ⓑ Bore size (mm)

20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

Ⓒ Port thread

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

Ⓓ Cushion

B	With two-sided air cushion
R	Rod side air cushioned
H	Head side air cushioned
D	With two-sided rubber cushion

Ⓔ Stroke length (mm)

Bore size	Stroke length	Custom stroke length
ø20 to ø100	**10 to 600**	**In 1 mm increments**

Ⓕ Switch model No.

Axial lead wire	Radial lead wire	Contact	Voltage AC	Voltage DC	Display	Lead wire
T0H*	**T0V***	Reed	●	●	1-color display	2-wire
T5H*	**T5V***		●	●	Without indicator lamp	
T8H*	**T8V***		●	●	1-color display	
T1H*	**T1V***	Proximity	●		1-color display	2-wire
T2H*	**T2V***			●		
T3H*	**T3V***			●		3-wire
T3PH*	**T3PV***			●	1-color display	
T2WH*	**T2WV***			●	2-color display	2-wire
T2YH*	**T2YV***			●		
T3WH*	**T3WV***			●		3-wire
T3YH*	**T3YV***			●		
T2YD*	**-**			●	2-color display AC magnetic field	2-wire
T2YDT*	**-**			●		
T2JH*	**T2JV***			●	1-color display off-delay	2-wire

*** Lead wire length**

Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

Ⓖ 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.)

Ⓗ Switch mounting

Blank	Rail method
Z	Band method

Ⓘ Option

		Max. ambient temperature	Instantaneous max. temperature
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		

Ⓙ Accessory

	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	●	●	●	●	●	●		

⚠ 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 length.
*4 : Switches other than Ⓕ 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

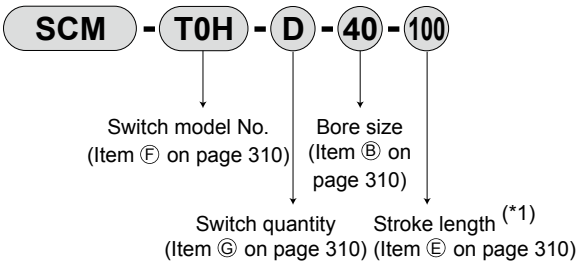
Model: Round shaped cylinder, double acting/double rod

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

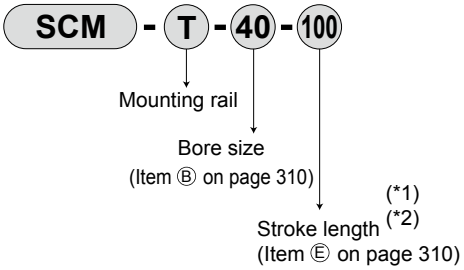
How to order switch

[Switch mounting: Rail]

● Switch body + mounting rail set



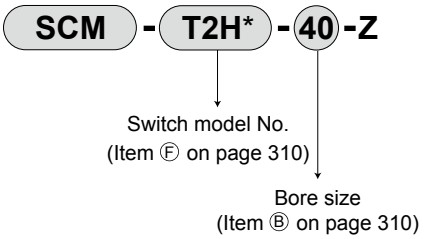
● Mounting rail only



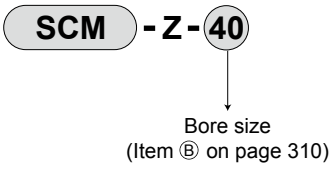
*1: Indicate X if the stroke length exceeds 300 mm.
If exceeding 300 mm, a short rail (with 100 mm switch adjustment length) will be included per switch.
*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

[Switch mounting: Band]

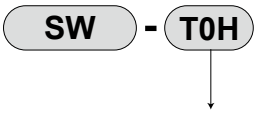
● Switch body + mounting bracket set + band



● Mounting bracket set + band



[Switch body only]



How to order mounting bracket

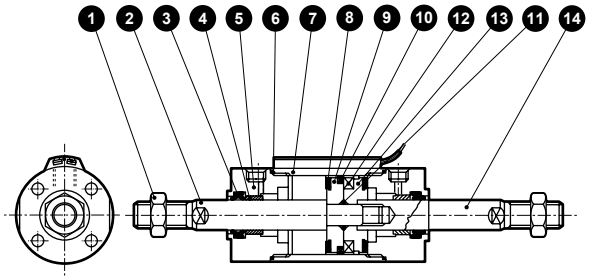
Bore size (mm) / Mounting bracket	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63	SCM-LB-80	SCM-LB-100
Flange (FA)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63	SCM-FA-80	SCM-FA-100
Trunnion (TA)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40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

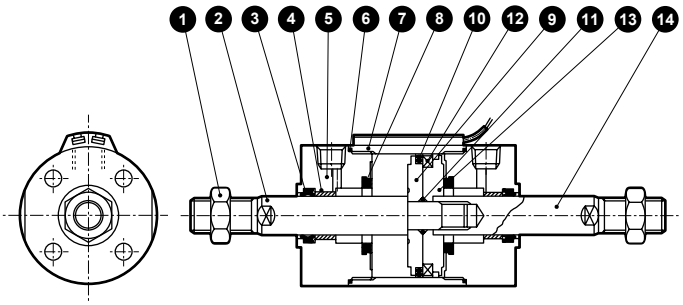
Internal structure and parts list

● With rubber cushion

ø20 to ø40

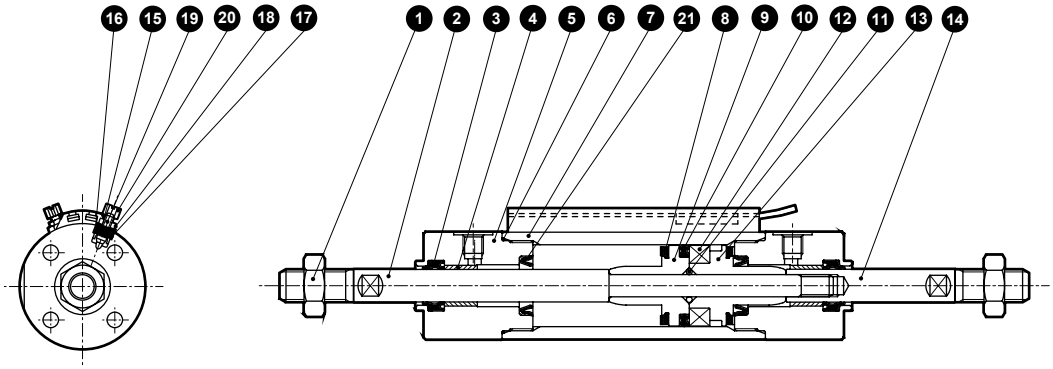


ø50 to ø100

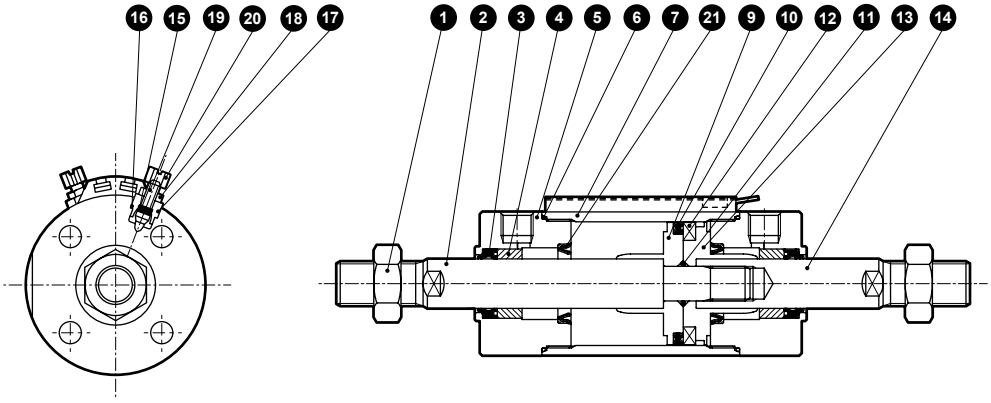


● With air cushion

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 *1					
5	Rod cover	Aluminum alloy	Hard alumite	With air cushion			
6	Cylinder gasket	Nitrile rubber		15	Needle gasket	Nitrile rubber	
7	Cylinder tube	Aluminum alloy	Hard alumite	16	Holder gasket	Nitrile rubber	
8	Cushion rubber	Urethane rubber		17	Needle holder	Aluminum alloy	
9	Piston R	ø20 to ø40: Aluminum alloy ø50 to ø100: Aluminum alloy die-casting		18	Lock nut	Steel	Nickeling
				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	❸ ❻ ❽ ❿
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	❸ ❻ ❽ ❿ ⓯ ⓰ ㉑ *2
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	

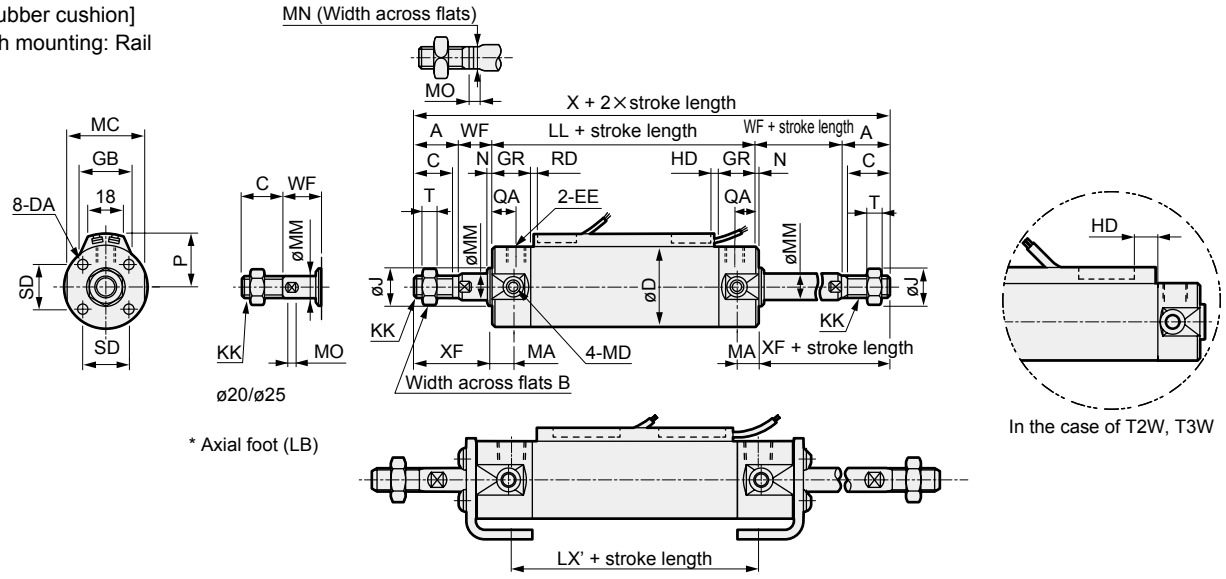
*1: ❸, ❻ and ❿ are the same as those of the type with rubber cushion.
*2: ❽ is not supplied with ø50 to ø100.

Dimensions CAD

● Double acting double rod (00)

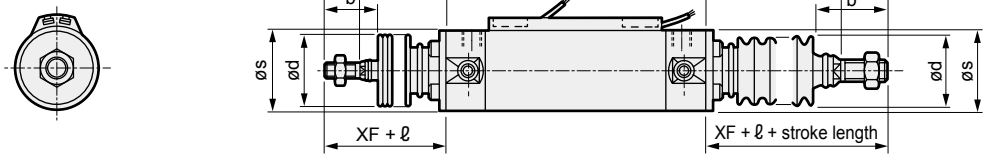
[With rubber cushion]

· Switch mounting: Rail



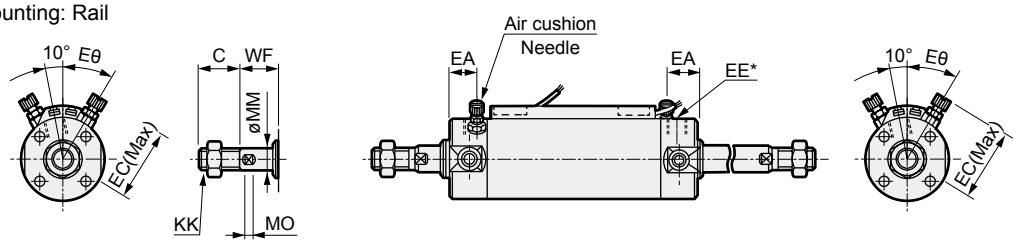
* Axial foot (LB)

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.

*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.

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

*4 : Refer to page 345 for RD, HD and protruding dimensions of the 2-color display, 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.

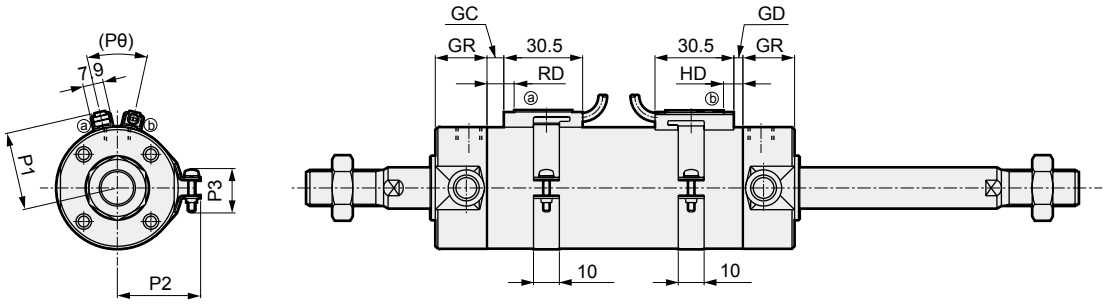
Code	Basic (00) basic dimensions																		
Bore size (mm)	A	B	C	D	DA	EE (Note)	GR	J	KK	LL	MA	MC	MD	MM	MN	MO	N	QA	SD
ø20	–	13	16	26	M4 depth 6.5	Rc1/8	19	12	M8	71	11	24	M5	8	6	4	2	12	14
ø25	–	17	20	31	M5 depth 6.5	Rc1/8	19	14	M10×1.25	71	11	29	M6	10	8	5	2	12	16.5
ø32	22	17	20	38	M5 depth 7.5	Rc1/8	19	18	M10×1.25	73	11	36	M8	12	10	5.5	2	12	20
ø40	30	22	27	47	M6 depth 12	Rc1/8	20	25	M14×1.5	79	12	44	M10	16	14	6	2	13	26
ø50	35	27	32	58	M8 depth 16	Rc1/4	25	30	M18×1.5	93	13	55	M12	20	17	8	2	15	32
ø63	35	27	32	72	M10 depth 16	Rc1/4	25	32	M18×1.5	93	13	69	M14	20	17	8	2	15	38
ø80	40	32	37	89	M10 depth 22	Rc3/8	28	40	M22×1.5	108	-	80	-	25	22	11	3	15	50
ø100	40	41	37	110	M12 depth 22	Rc1/2	28	50	M26×1.5	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	19	141	35	47.2	30	30	25.7	(Stroke length/3) + 18.5	14	27	M5	30°	19.5	23	3.0	6.5	8.5	7.5	7.5	9.5
ø25	6	20	151	40	47.2	35	30	30.7	(Stroke length/3) + 20.5	14	29.5	M5	30°	22	24.4	2.0	5.5	7.5	8.5	8.5	10.5
ø32	6	18	153	40	47.2	31.5	35	37.7	(Stroke length/3) + 19	14	32.8	Rc1/8	25°	25.5	25	3.0	6.5	8.5	9.5	9.5	11.5
ø40	8	20	179	50	52.2	40	35	46.7	(Stroke length/3) + 18.5	15	36.6	Rc1/8	20°	30	25.7	5.0	8.5	10.5	11.5	11.5	13.5
ø50	11	23	209	58	58	46	40	57.7	(Stroke length/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
ø63	11	23	209	58	58	46	40	71.7	(Stroke length/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
ø80	13	31	250	71	60	55	50	88.7	(Stroke length/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
ø100	16	31	250	71	60	56	60	109.7	(Stroke length/4.5) + 21	20	69	Rc1/2	20°	61.5	26.7	10.0	13.5	15.5	19.5	19.5	21.5

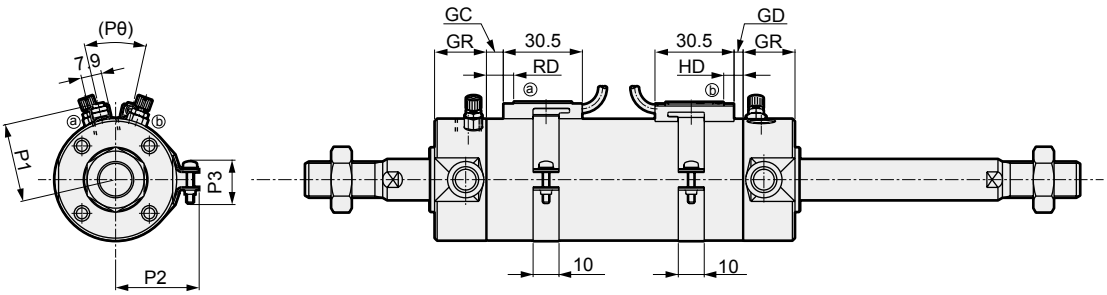
Note: Installation dimensions of the mounting are the same as those of SCM (double acting). Refer to pages 240 to 251. For axial foot (LB), refer to the figure above.

Dimensions CAD

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



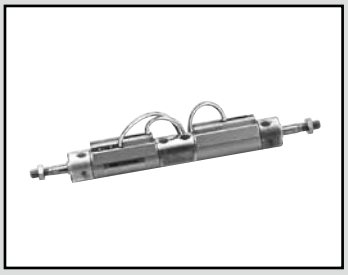
[With air cushion]
· Switch mounting: Band



*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 display, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

Code	Switch mounting: Band																
Bore size (mm)	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.

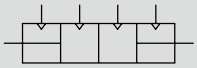


Round shaped cylinder
Double acting/back to back

SCM-B Series

● Bore size:ø20/ø25/ø32/ø40/ø50/ø63

JIS symbol



RoHS CAD

Specifications

Item	SCM-B					
Bore size mm	ø20	ø25	ø32	ø40	ø50	ø63
Actuation	Double acting/back to back					
Working fluid	Compressed air					
Max. working pressure MPa	1.0 (≈150 psi, 10 bar)					
Min. working pressure MPa	0.1 (≈15 psi, 1 bar)				0.05 (≈7.3 psi, 0.5 bar)	
Proof pressure MPa	1.6 (≈230 psi, 16 bar)					
Ambient temperature °C	-10 (14°F) to 60 (140°F) (no freezing)					
Port size	Rc1/8				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 length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
ø20	25, 50, 75 100, 125, 150 200, 250, 300	500	10
ø25			
ø32			
ø40		750	
ø50			
ø63			

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

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

● Switch mounting: Rail

Switch quantity	1				2				3				4				5			
Bore size (mm)	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*	
ø20	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø25	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø32	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø40	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø50	10				25				50	65	65	55	55	65	65	55	75	110	110	90
ø63	10				25				50	65	65	55	55	65	65	55	75	110	110	90

● Switch mounting: Band

Switch quantity	1				2				3				4				5			
Bore size (mm)	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*	
ø20	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø25	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø32	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø40	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø50	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø63	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 length 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 display

Item	Proximity 2-wire				Proximity 3-wire				Reed 2-wire							Proximity 2-wire
	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 lamp	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)		Without 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)	Weight when stroke (S) = 0 mm	Additional weight				Switch weight	Additional weight	Additional weight per	Band weight
	Basic (00)	Basic	Axial foot	Flange	Trunnion	(per 1 pc)	per S = 10 mm	S = 10 mm (With switch rail)	per switch
ø20	0.10	0.00	0.11	0.03	0.01	Refer to the weight in the switch specifications.	0.01	0.012	0.007
ø25	0.17	0.00	0.13	0.04	0.02		0.014	0.016	0.007
ø32	0.26	0.02	0.18	0.08	0.05		0.018	0.02	0.007
ø40	0.41	0.05	0.27	0.13	0.10		0.03	0.032	0.007
ø50	0.77	0.07	0.55	0.41	0.21		0.044	0.046	0.008
ø63	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·····$0.032 \times \frac{25}{10}$=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···$0.032 \times \frac{25}{10}$=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
ø20	Push	–	31.4	47.1	62.8	94.2	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	–	26.4	39.6	52.8	79.2	1.06×10^2	1.32×10^2	1.58×10^2	1.85×10^2	2.11×10^2	2.38×10^2	2.64×10^2
ø25	Push	–	49.1	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	–	41.2	61.9	82.5	1.24×10^2	1.65×10^2	2.06×10^2	2.47×10^2	2.89×10^2	3.30×10^2	3.71×10^2	4.12×10^2
ø32	Push	–	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	–	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	–	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	–	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	98.0	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	82.5	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	1.56×10^2	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	2.40×10^2	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3

How to order

Without switch (built-in magnet for switch)

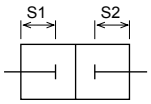
SCM-B - LB - 40 - ○ D 25 ——— ○ D 50 ——— J Y

(S_1 Cylinder 1 stroke length; S_2 Cylinder 2 stroke length)

With switch (built-in magnet for switch)

SCM-B - LB - 40 - ○ D 25 - T0H - D - ○ D 50 - T0H - R - ○ J Y

Cylinder 1 stroke length 25 mm (S1)
+ Cylinder 2 stroke length 50 mm (S2)
Total stroke length 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 length.
*4 : Switches other than Ⓕ 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

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

Ⓐ Mounting *1
Ⓑ Bore size
Ⓒ Port thread
Ⓓ Cushion
Ⓔ Stroke length =S1
Ⓔ Stroke length =S2
Ⓕ Switch model No. *4 *3
Ⓖ Switch quantity
Ⓗ Switch mounting
Ⓘ Option *2 *6 *8
Ⓙ Accessory

Code	Description
Ⓐ Mounting	
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

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

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

Ⓓ Cushion	
D	With two-sided rubber cushion

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

Ⓕ Switch model No.

Axial lead wire	Radial lead wire	Contact	Voltage AC	Voltage DC	Display	Lead wire
T0H*	T0V*	Reed	●	●	1-color display	2-wire
T5H*	T5V*	Reed	●	●	Without indicator lamp	2-wire
T8H*	T8V*	Reed	●	●	1-color display	2-wire
T1H*	T1V*	Proximity	●		1-color display	2-wire
T2H*	T2V*	Proximity		●	1-color display	2-wire
T3H*	T3V*	Proximity		●	1-color display	3-wire
T3PH*	T3PV*	Proximity		●	1-color display	3-wire
T2WH*	T2WV*	Proximity		●	2-color display	2-wire
T2YH*	T2YV*	Proximity		●	2-color display	2-wire
T3WH*	T3WV*	Proximity		●	2-color display	3-wire
T3YH*	T3YV*	Proximity		●	2-color display	3-wire
T2YD*	-	Proximity		●	2-color display	2-wire
T2YDT*	-	Proximity		●	AC magnetic field	2-wire
T2JH*	T2JV*	Proximity		●	1-color display off-delay	2-wire

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

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

Ⓗ Switch mounting	
Blank	Rail method
Z	Band method

Ⓘ Option

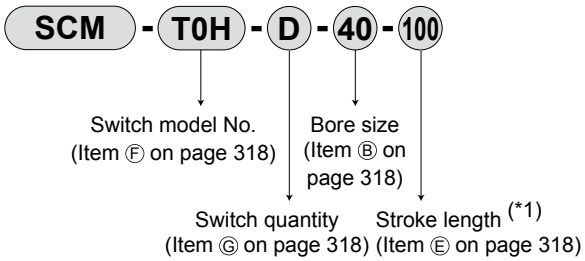
		Max. ambient temp.	Instantaneous max. temp.
J	Bellows	100°C	200°C
L	Bellows	250°C	400°C
Q	Switch rail included at shipment		
M	Piston rod material (stainless steel)		
P6	Copper and PTFE free		

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

How to order switch

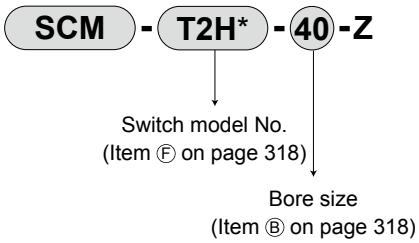
[Switch mounting: Rail]

● Switch body + mounting rail set

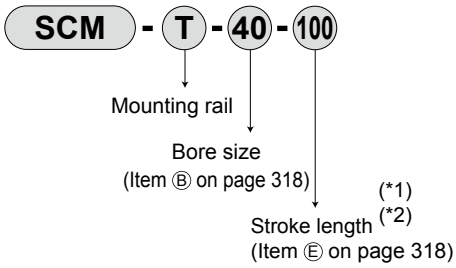


[Switch mounting: Band]

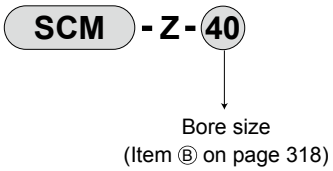
● Switch body + mounting bracket set + band



● Mounting rail only

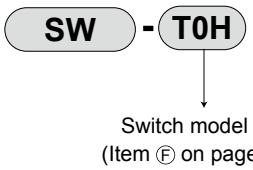


● Mounting bracket set + band



*1: Indicate X if the stroke length 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]



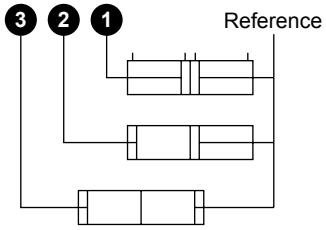
How to order mounting bracket

Bore size (mm) / Mounting bracket	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

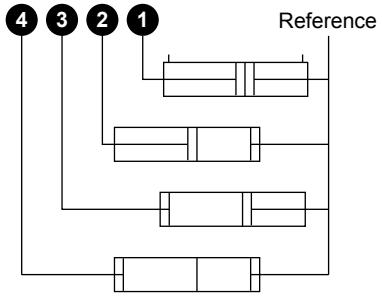
*1: All mounting brackets are supplied with mounting bolts.
*2: The foot mounting bracket is provided as 2 pcs./set.

Applications

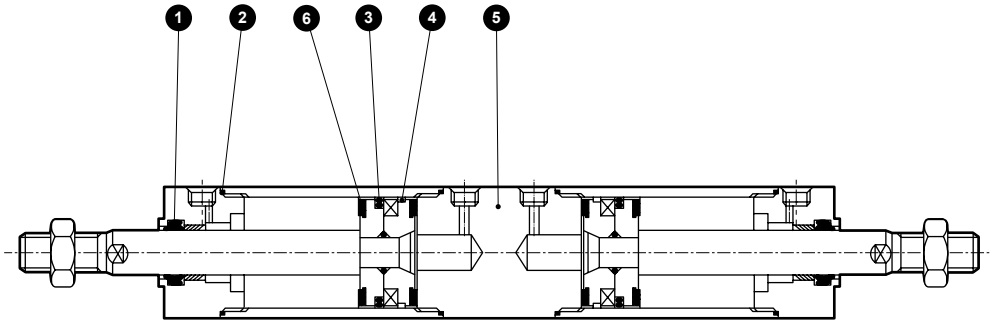
When the same stroke lengths are combined,
3 positions possible.



When different stroke lengths 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.

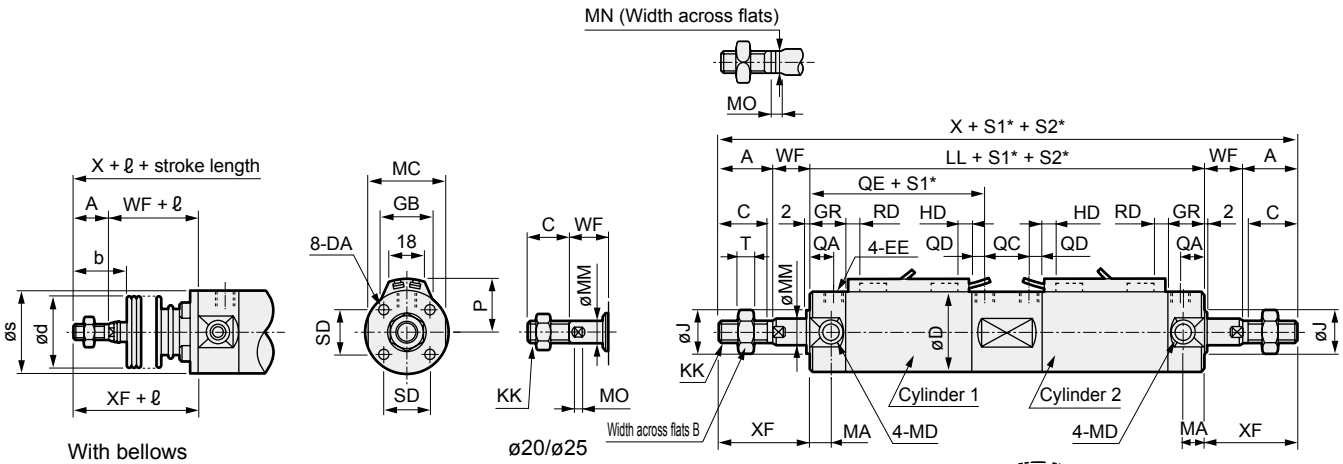
Repair parts list

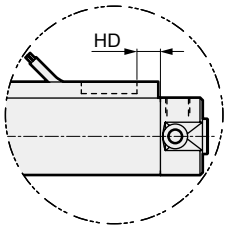
Bore size (mm)	Kit No.	Repair parts No.
ø20	SCM-B-20DK	❶❷❸❹❻
ø25	SCM-B-25DK	
ø32	SCM-B-32DK	
ø40	SCM-B-40DK	
ø50	SCM-B-50DK	
ø63	SCM-B-63DK	

Dimensions CAD

● Double acting back to back

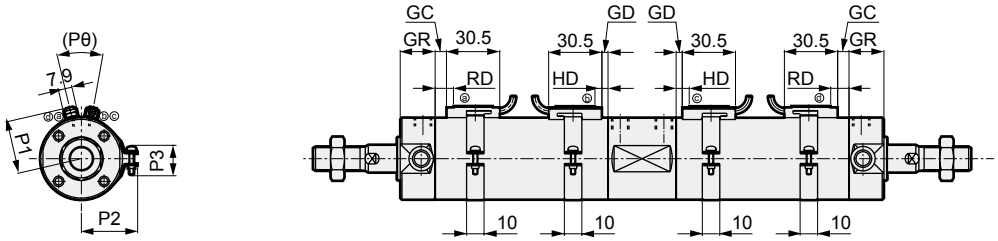
· Switch mounting: Rail





In the case of T2W, T3W

· Switch mounting: Band



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

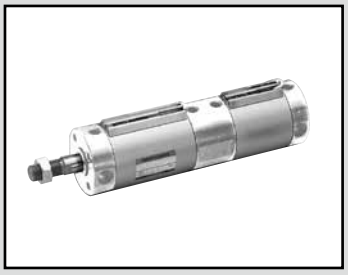
*: S1 = Cylinder 1 stroke length, S2 = Cylinder 2 stroke length

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	–	13	16	26	M4 depth 6.5	Rc1/8	19	12	M8	137	11	24	M5	8	6	4	12	19
ø25	–	17	20	31	M5 depth 6.5	Rc1/8	19	14	M10×1.25	137	11	29	M6	10	8	5	12	19
ø32	22	17	20	38	M5 depth 7.5	Rc1/8	19	18	M10×1.25	143	11	36	M8	12	10	5.5	12	21
ø40	30	22	27	47	M6 depth 12	Rc1/8	20	25	M14×1.5	157	12	44	M10	16	14	6	13	25
ø50	35	27	32	58	M8 depth 16	Rc1/4	25	30	M18×1.5	184	13	55	M12	20	17	8	15	28
ø63	35	27	32	72	M10 depth 16	Rc1/4	25	32	M18×1.5	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	19	207	35	30	30	25.7	(Stroke length/3) + 18.5	19.5	23	3.0	6.5	8.5	7.5	7.5	9.5
ø25	7	59	16.5	6	20	217	40	35	30	30.7	(Stroke length/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 length/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 length/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 length/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 length/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.



Round shaped cylinder
Double acting/two-stage

SCM-W Series

● Bore size:ø20/ø25/ø32/ø40/ø50/ø63

RoHS CAD

Specifications

Item		SCM-W					
Bore size mm		ø20	ø25	ø32	ø40	ø50	ø63
Actuation		Double acting/two-stage					
Working fluid		Compressed air					
Max. working pressure MPa		1.0 (≈150 psi, 10 bar) (*1)					
Min. working pressure MPa		0.2 (≈29 psi, 2 bar)				0.1 (≈15 psi, 1 bar)	
Proof pressure MPa		1.6 (≈230 psi, 16 bar)					
Ambient temperature °C		-10 (14°F) to 60 (140°F) (no freezing)					
Port size		Rc1/8				Rc1/4	
Stroke tolerance mm	S1	±1.4				±2.3	
	S2	+1.4 0				+2.3 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

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

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
ø20	25, 50, 75 100, 125, 150 200, 250, 300	600	10
ø25			
ø32			
ø40			
ø50			
ø63			

*1: The custom stroke length is available in 1 mm increments.
*2: The max. stroke length of S2 is 200 mm.

Number of installed switches and min. stroke length (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*	
ø20	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø25	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø32	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø40	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø50	10				25				50	65	65	55	55	65	65	55	75	110	110	90
ø63	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*	
ø20	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø25	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø32	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø40	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø50	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø63	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 length 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 display

Item	Proximity 2-wire				Proximity 3-wire				Reed 2-wire								Proximity 2-wire
	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 lamp	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)		Without 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	Weight when stroke (S) = 0 mm	Additional weight					Switch weight	Additional weight	Additional weight per	Band weight
Bore size (mm)	Basic (00)	Basic	Axial foot	Flange	Clevis	Trunnion	(per 1 pc)	per S = 10 mm	S = 10 mm (With switch rail)	per switch
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 ····· $0.032 \times \frac{100}{10} = 0.32$ 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 ····· $0.032 \times \frac{25}{10} = 0.08$ 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

How to order

Without switch (built-in magnet for switch)

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

With switch (built-in magnet for switch)

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

S1 Total stroke　S2 1st stage stroke length

Cylinder　Cylinder

Ⓐ Mounting *1

Ⓑ Bore size

Ⓒ Port thread　Ⓒ Port thread

Ⓓ Cushion　Ⓓ Cushion

1st stage stroke length 25 mm (S2)
+ 2nd stage stroke length 75 mm
Total stroke length 100 mm (S1)

Ⓔ Stroke length =S1　Ⓔ Stroke length = S2 *3

S1 S2

Ⓕ Switch model No. *5 *6　Ⓕ Switch model No.

Ⓖ Switch quantity　Ⓖ Switch quantity

Ⓗ Switch mounting

Ⓘ Option *2 *7 *9

Ⓙ Accessory *10

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 length of S2 (1st stage) is 200 mm.
*4 : Refer to page 322 for the number of installed switches and the min. stroke length.
*5 : Switches other than Ⓕ 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/two-stage

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

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

Ⓑ Bore size (mm)

20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63

Ⓒ Port thread

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

Ⓓ Cushion

D	With two-sided rubber cushion

Ⓔ Stroke length (mm)

Bore size	Stroke length *3	Custom stroke length
ø20 to ø63	**10 to 600**	**In 1 mm increments**

Ⓕ Switch model No.

Axial lead wire	Radial lead wire	Contact	Voltage AC	Voltage DC	Display	Lead wire
T0H*	**T0V***	Reed	●	●	1-color display	2-wire
T5H*	**T5V***	Reed	●	●	Without indicator lamp	2-wire
T8H*	**T8V***	Reed	●	●	1-color display	2-wire
T1H*	**T1V***	Proximity	●		1-color display	2-wire
T2H*	**T2V***	Proximity		●	1-color display	2-wire
T3H*	**T3V***	Proximity		●	1-color display	3-wire
T3PH*	**T3PV***	Proximity		●	1-color display	3-wire
T2WH*	**T2WV***	Proximity		●	2-color display	2-wire
T2YH*	**T2YV***	Proximity		●	2-color display	2-wire
T3WH*	**T3WV***	Proximity		●	2-color display	3-wire
T3YH*	**T3YV***	Proximity		●	2-color display	3-wire
T2YD*	**-**	Proximity		●	2-color display for AC magnetic field	2-wire
T2YDT*	**-**	Proximity		●	2-color display for AC magnetic field	2-wire
T2JH*	**T2JV***	Proximity		●	1-color display off-delay	2-wire

*** Lead wire length**

Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

Ⓖ 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.)

Ⓗ Switch mounting

Blank	Rail method
Z	Band method

Ⓘ 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		

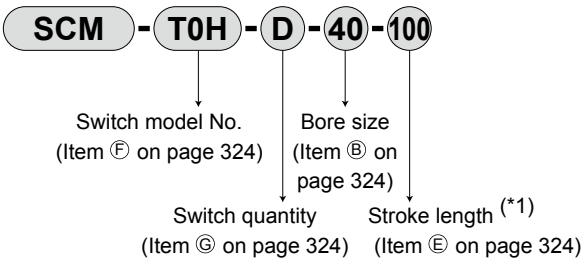
Ⓙ Accessory

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

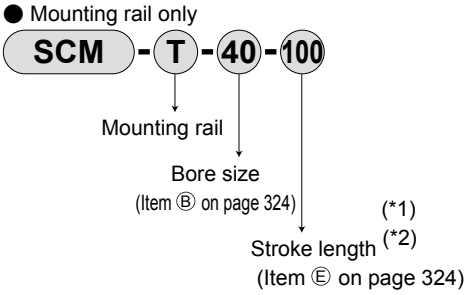
How to order switch

[Switch mounting: Rail]

● Switch body + mounting rail set



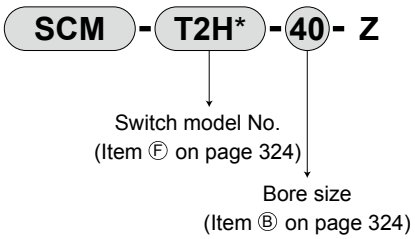
● Mounting rail only



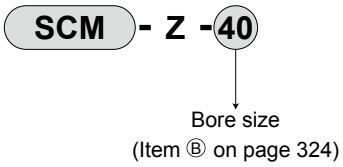
*1: Indicate X if the stroke length exceeds 300 mm.
If exceeding 300 mm, a short rail (with 100 mm switch adjustment length) will be included per switch.
*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

[Switch mounting: Band]

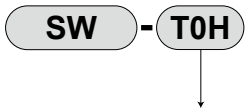
● Switch body + mounting bracket set + band



● Mounting bracket set + band



[Switch body only]



How to order mounting bracket

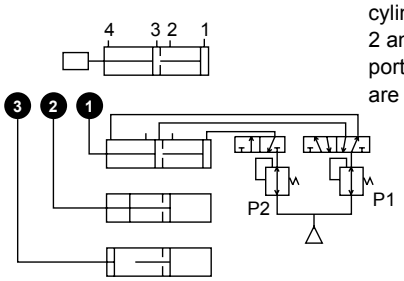
Bore size (mm) / Mounting bracket	ø20	ø25	ø32	ø40	ø50	ø63
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63
Eye bracket (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40	SCM-CA-50	SCM-CA-63
Trunnion (TA/TB)	SCM-TA-20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

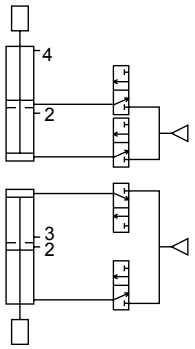
Applications

Pressure setting: P2 > P1

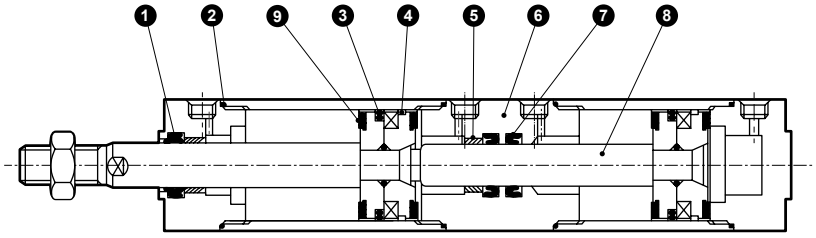
- 1st stage push
  Keeping port 4 pressurized, pressurize port 1.
- 2nd stage push
  Keeping port 1 pressurized, pressurize port 3.



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	ø20 to ø25: Stainless steel ø32 to ø63: Steel	Industrial chrome plating
4	Wear ring	Polyacetal resin					
5	Bush	Oil impregnated bearing alloy		9	Cushion rubber	Urethane rubber	

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

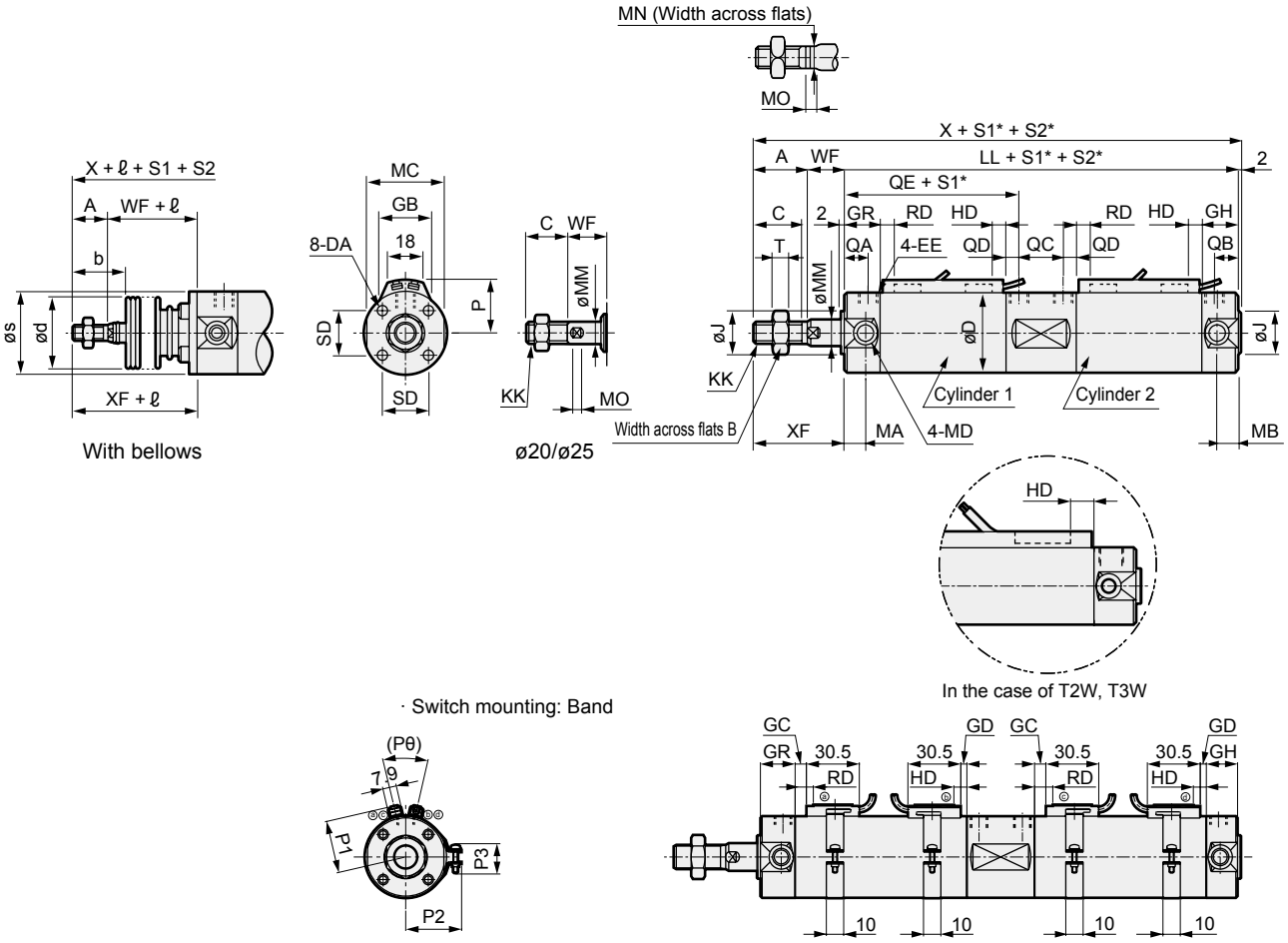
Repair parts list

Bore size (mm)	Kit No.	Repair parts No.
ø20	SCM-W-20DK	❶ ❷ ❸ ❹ ❼ ❾
ø25	SCM-W-25DK	
ø32	SCM-W-32DK	
ø40	SCM-W-40DK	
ø50	SCM-W-50DK	
ø63	SCM-W-63DK	

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

Dimensions CAD

● Double acting two-stage · Switch mounting: Rail



· Switch mounting: Band

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

*: S1 = Total stroke length, S2 = Cylinder 2 stroke length

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	–	13	16	26	M4 depth 6.5	Rc1/8	17	19	12	M8	135	11	11	24	M5	8	6	4	12	10
ø25	–	17	20	31	M5 depth 6.5	Rc1/8	17	19	14	M10×1.25	135	11	11	29	M6	10	8	5	12	10
ø32	22	17	20	38	M5 depth 7.5	Rc1/8	17	19	18	M10×1.25	141	11	10	36	M8	12	10	5.5	12	10
ø40	30	22	27	47	M6 depth 12	Rc1/8	19	20	25	M14×1.5	156	12	10	44	M10	16	14	6	13	12
ø50	35	27	32	58	M8 depth 16	Rc1/4	22	25	30	M18×1.5	181	13	12	55	M12	20	17	8	15	12
ø63	35	27	32	72	M10 depth 16	Rc1/4	22	25	32	M18×1.5	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/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W
ø20	19	7	59	14	5	19	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	20	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	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.

Round shaped cylinder
Double acting/tandem

SCM-W4 Series

● Bore size:ø20/ø25/ø32/ø40/ø50/ø63

RoHS CAD

Specifications

Item	SCM-W4					
Bore size mm	ø20	ø25	ø32	ø40	ø50	ø63
Actuation	Double acting/tandem					
Working fluid	Compressed air					
Max. working pressure MPa	0.5 (≈73 psi, 5 bar)					
Min. working pressure MPa	0.2 (≈29 psi, 2 bar)				0.1 (≈15 psi, 1 bar)	
Proof pressure MPa	1.6 (≈230 psi, 16 bar)					
Ambient temperature °C	-10 (14°F) to 60 (140°F) (no freezing)					
Port size	Rc1/8				Rc1/4	
Stroke tolerance mm	+1.4 -1.0				+2.3 -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 length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
ø20	25, 50, 75 100, 125, 150 200, 250, 300	600	10
ø25			
ø32			
ø40			
ø50			
ø63			

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

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

● Switch mounting: Rail

Switch quantity	1				2				3				4				5			
Bore size (mm)	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*	
ø20	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø25	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø32	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø40	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø50	10				25				50	65	65	55	55	65	65	55	75	110	110	90
ø63	10				25				50	65	65	55	55	65	65	55	75	110	110	90

● Switch mounting: Band

Switch quantity	1				2				3				4				5			
Bore size (mm)	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*	
ø20	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø25	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø32	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø40	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø50	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø63	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 length 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 display

Item	Proximity 2-wire				Proximity 3-wire				Reed 2-wire								Proximity 2-wire
	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 lamp	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)		Without 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	Weight when stroke (S) = 0 mm	Additional weight					Switch weight	Added weight	Additional weight per	Band weight
Bore size (mm)	Basic (00)	Basic	Axial foot	Flange	Clevis	Trunnion	(per 1 pc.)	/S = 10 mm	S = 10 mm (With switch rail)	per switch
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
- (1) Product weight when S = 0 mm ····· 0.41 kg
- (2) Additional weight when S = 100 mm ····· $0.032 \times \frac{100}{10} = 0.32$ kg
- (3) Weight of 2 switches ····· 0.036 kg
- (4) (1) + (2) + (3) should be added ····· 0.41 kg+0.32 kg+0.036 kg=0.766 kg

Product weight (Double (4) and add additional weight) ·· 0.766 kg×2+0.21 kg=1.742 kg

How to order

Without 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

Ⓐ Mounting *1

Ⓑ Bore size

Ⓒ Port thread

Ⓓ Cushion

Ⓔ Stroke length

Ⓕ Switch model No. *4 *5

Ⓖ Switch quantity

Ⓗ Switch mounting

Ⓘ Option *2 *6 *8

Ⓙ Accessory *9

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

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

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

Ⓓ Cushion	
D	With two-sided rubber cushion

Ⓔ Stroke length (mm)

Bore size	Stroke length *3	Custom stroke length
ø20 to ø63	**10 to 600**	**In 1 mm increments**

Ⓕ Switch model No.

Axial lead wire	Radial lead wire	Contact	Voltage AC	Voltage DC	Display	Lead wire
T0H*	**T0V***	Reed	●	●	1-color display	2-wire
T5H*	**T5V***	Reed	●	●	Without indicator lamp	2-wire
T8H*	**T8V***	Reed	●	●	1-color display	2-wire
T1H*	**T1V***	Proximity	●		1-color display	2-wire
T2H*	**T2V***	Proximity		●	1-color display	2-wire
T3H*	**T3V***	Proximity		●	1-color display	3-wire
T3PH*	**T3PV***	Proximity		●	1-color display	3-wire
T2WH*	**T2WV***	Proximity		●	2-color display	2-wire
T2YH*	**T2YV***	Proximity		●	2-color display	2-wire
T3WH*	**T3WV***	Proximity		●	2-color display	3-wire
T3YH*	**T3YV***	Proximity		●	2-color display	3-wire
T2YD*	-	Proximity		●	2-color display AC magnetic field	2-wire
T2YDT*	-	Proximity		●	2-color display AC magnetic field	2-wire
T2JH*	**T2JV***	Proximity		●	1-color display off-delay	2-wire

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

Ⓖ 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.)

Ⓗ Switch mounting	
Blank	Rail method
Z	Band method

Ⓘ 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		

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

⚠ 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 length.
*4 : Switches other than Ⓕ 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-W4-LB-40D-100-T0H-D-JI

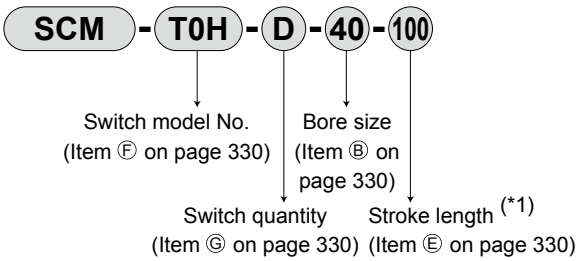
Model: Round shaped cylinder, double acting/tandem

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

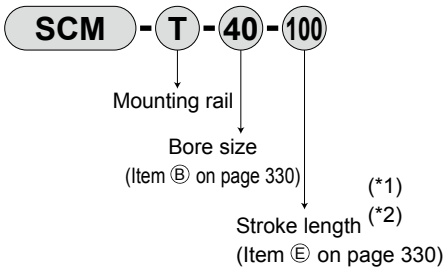
How to order switch

[Switch mounting: Rail]

● Switch body + mounting rail set



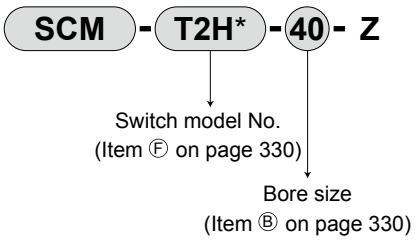
● Mounting rail only



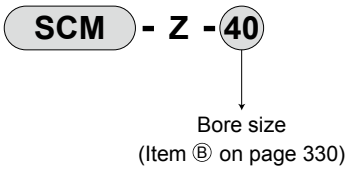
*1: Indicate X if the stroke length exceeds 300 mm.
If exceeding 300 mm, a short rail (with 100 mm switch adjustment length) will be included per switch.
*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

[Switch mounting: Band]

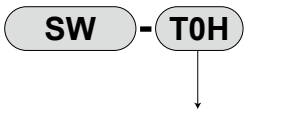
● Switch body + mounting bracket set + band



● Mounting bracket set + band



[Switch body only]

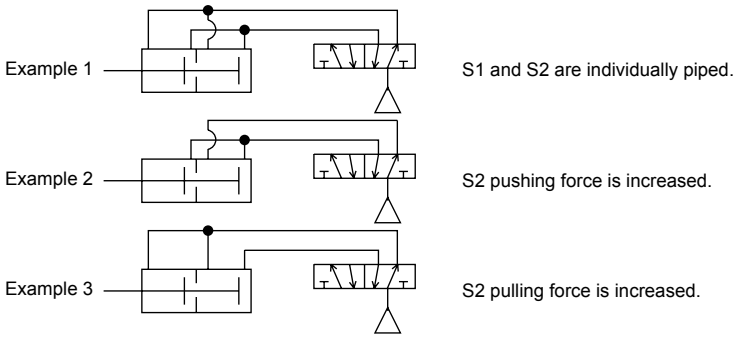


How to order mounting bracket

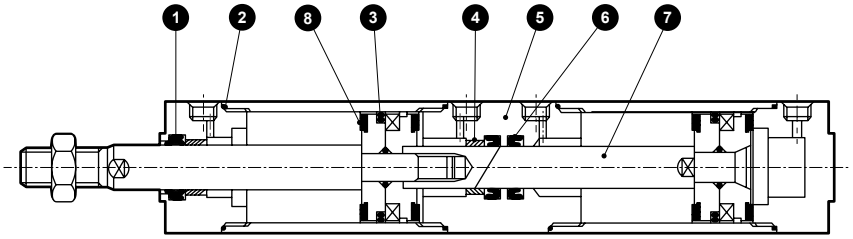
Bore size (mm) / Mounting bracket	ø20	ø25	ø32	ø40	ø50	ø63
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63
Eye bracket (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40	SCM-CA-50	SCM-CA-63
Trunnion (TA/TB)	SCM-TA-20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

Applications



Internal structure and parts list



No.	Part name	Material	Remarks
1	Rod packing	Nitrile rubber	
2	Cylinder gasket	Nitrile rubber	
3	Piston packing	Nitrile rubber	
4	Bush	Oil impregnated bearing alloy	

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

No.	Part name	Material	Remarks
5	Intermediate cover	Aluminum alloy	Hard alumite
6	Rod packing	Nitrile rubber	
7	Piston rod	ø20 to ø25: Stainless steel ø32 to ø63: Steel	Industrial chrome plating
8	Cushion rubber	Urethane rubber	

Repair parts list

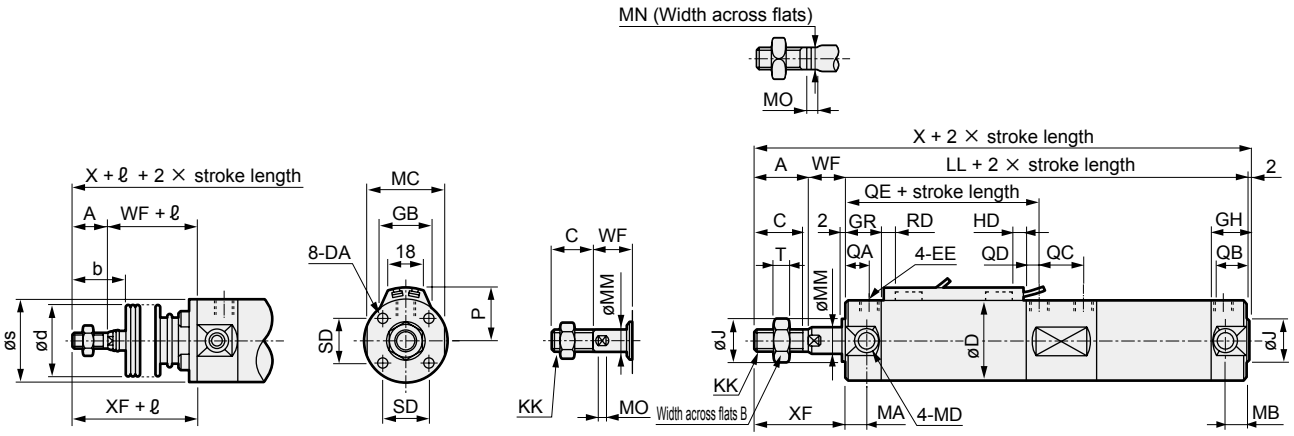
Bore size (mm)	Kit No.	Repair parts No.
ø20	SCM-W4-20DK	❶❷❸❽
ø25	SCM-W4-25DK	
ø32	SCM-W4-32DK	
ø40	SCM-W4-40DK	
ø50	SCM-W4-50DK	
ø63	SCM-W4-63DK	

*1: Specify the kit No. when placing an order.
*2: ❻Rod packing is not included in the repair parts kit since it is not replaceable.
Two ❽ cushion rubbers are included in the repair parts kit since only two of the four cushion rubbers are replaceable.

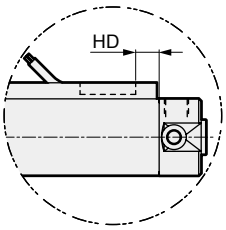
Dimensions CAD

● Double acting tandem

· Switch mounting: Rail

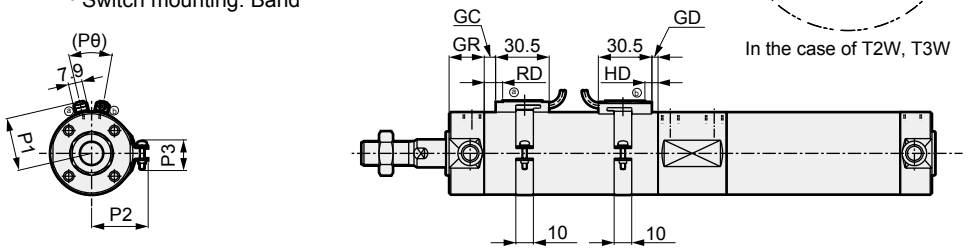


With bellows ø20/ø25



In the case of T2W, T3W

· Switch mounting: Band



*1: Refer to page 345 for RD, HD and protruding dimensions of the 2-color display, 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	–	13	16	26	M4 depth 6.5	Rc1/8	17	19	12	M8	135	11	11	24	M5	8	6	4	12	10
ø25	–	17	20	31	M5 depth 6.5	Rc1/8	17	19	14	M10×1.25	135	11	11	29	M6	10	8	5	12	10
ø32	22	17	20	38	M5 depth 7.5	Rc1/8	17	19	18	M10×1.25	141	11	10	36	M8	12	10	5.5	12	10
ø40	30	22	27	47	M6 depth 12	Rc1/8	19	20	25	M14×1.5	156	12	10	44	M10	16	14	6	13	12
ø50	35	27	32	58	M8 depth 16	Rc1/4	22	25	30	M18×1.5	181	13	12	55	M12	20	17	8	15	12
ø63	35	27	32	72	M10 depth 16	Rc1/4	22	25	32	M18×1.5	181	13	12	69	M14	20	17	8	15	12

Code									With bellows				Switch mounting: Rail						
															HD			RD	
Bore size (mm)	QC	QD	QE	SD	T	WF	X	XF	b	d	s	ℓ	P	GB	T0/T5	T2/T2R T3/T3P	T2W T3W	T0/T5	T2/T2R T3/T3P	T2W T3W
ø20	19	7	59	14	5	19	172	35	30	30	25.7	(Stroke length/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	20	177	40	35	30	30.7	(Stroke length/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 length/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 length/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 length/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 length/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	Pθ
Bore size (mm)	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.

Round shaped cylinder
Double acting/rotation-stop

SCM-M Series

● Bore size:ø20/ø25/ø32/ø40/ø50/ø63

JIS symbol

RoHS CAD

Specifications

1 MPa = 10 bar

Item	SCM-M					
Bore size mm	ø20	ø25	ø32	ø40	ø50	ø63
Actuation	Double acting/rotation-stop					
Working fluid	Compressed air					
Max. working pressure MPa	1.0 (≈150 psi, 10 bar)					
Min. working pressure MPa	0.1 (≈15 psi, 1 bar)					0.05 (≈7.3 psi)
Proof pressure MPa	1.6 (≈230 psi, 16 bar)					
Ambient temperature °C	-10 (14°F) to 60 (140°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)					
Non-rotating accuracy °	±1					
Allowable absorbed energy J	0.1	0.2	0.5	0.9	1.6	1.6

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
ø20	25, 50, 75 100, 125, 150 200, 250, 300	600	10
ø25			
ø32			
ø40			
ø50			
ø63			

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

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

● Switch mounting: Rail

Switch quantity	1				2				3				4				5			
Bore size (mm)	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*	
ø20	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø25	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø32	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø40	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø50	10				25				50	65	65	55	55	65	65	55	75	110	110	90
ø63	10				25				50	65	65	55	55	65	65	55	75	110	110	90

● Switch mounting: Band

Switch quantity	1				2				3				4				5			
Bore size (mm)	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*	
ø20	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø25	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø32	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø40	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø50	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø63	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 length 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 display

Item	Proximity 2-wire				Proximity 3-wire				Reed 2-wire								Proximity 2-wire
	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 lamp	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)		Without 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	Product weight when stroke length (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
	Basic	Axial foot	Flange	Clevis	Trunnion				
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	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	–	26.4	39.6	52.8	79.2	1.06×10^2	1.32×10^2	1.58×10^2	1.85×10^2	2.11×10^2	2.38×10^2	2.64×10^2
ø25	Push	–	49.1	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	–	41.2	61.9	82.5	1.24×10^2	1.65×10^2	2.06×10^2	2.47×10^2	2.89×10^2	3.30×10^2	3.71×10^2	4.12×10^2
ø32	Push	–	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	–	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	–	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	–	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	–	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	–	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	1.56×10^2	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	2.40×10^2	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3

How to order

Without 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

Ⓐ Mounting *1
Ⓑ Bore size
Ⓒ Port thread
Ⓓ Cushion
Ⓔ Stroke length
Ⓕ Switch model No. *4 *5
Ⓖ Switch quantity
Ⓗ Switch mounting
Ⓘ Option *2 *6 *7
Ⓙ Accessory *9

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

Ⓑ Bore size (mm)

20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63

Ⓒ Port thread

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

Ⓓ Cushion

D	With two-sided rubber cushion

Ⓔ Stroke length (mm)

Bore size	Stroke length *2	Custom stroke length
ø20 to ø63	**10 to 600**	**In 1 mm increments**

Ⓕ Switch model No.

Axial lead wire	Radial lead wire	Contact	Voltage AC	Voltage DC	Display	Lead wire
T0H*	**T0V***	Reed	●	●	1-color display	2-wire
T5H*	**T5V***	Reed	●	●	Without indicator lamp	2-wire
T8H*	**T8V***	Reed	●	●	1-color display	2-wire
T1H*	**T1V***	Proximity	●		1-color display	2-wire
T2H*	**T2V***	Proximity		●	1-color display	2-wire
T3H*	**T3V***	Proximity		●	1-color display	3-wire
T3PH*	**T3PV***	Proximity		●	1-color display	3-wire
T2WH*	**T2WV***	Proximity		●	2-color display	2-wire
T2YH*	**T2YV***	Proximity		●	2-color display	2-wire
T3WH*	**T3WV***	Proximity		●	2-color display	3-wire
T3YH*	**T3YV***	Proximity		●	2-color display	3-wire
T2YD*	-	Proximity		●	2-color display AC magnetic field	2-wire
T2YDT*	-	Proximity		●	2-color display AC magnetic field	2-wire
T2JH*	**T2JV***	Proximity		●	1-color display off-delay	2-wire

*** Lead wire length**

Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

Ⓖ 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.)

Ⓗ Switch mounting

Blank	Rail method
Z	Band method

Ⓘ 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		

Ⓙ Accessory

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

⚠ 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 length.
*4 : Switches other than Ⓕ 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-M-LB-40D-100-T0H-D-JI

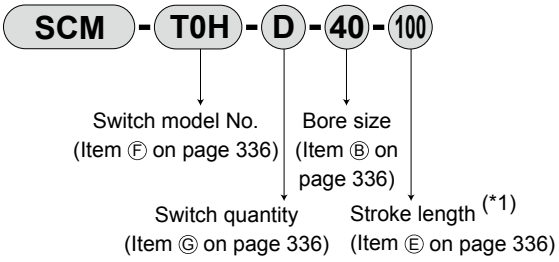
Model: Round shaped cylinder, double acting/rotation-stop

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

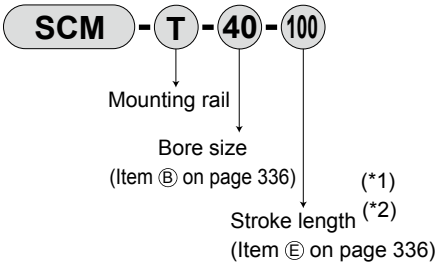
How to order switch

[Switch mounting: Rail]

● Switch body + mounting rail set

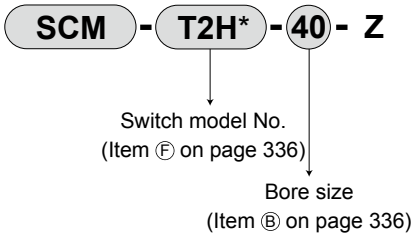


● Mounting rail only

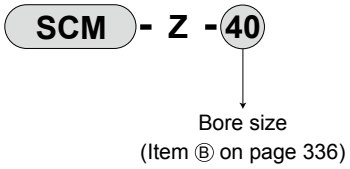


[Switch mounting: Band]

● Switch body + mounting bracket set + band

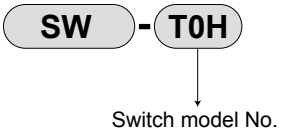


● Mounting bracket set + band



*1: Indicate X if the stroke length 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) / Mounting bracket	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.

Internal structure

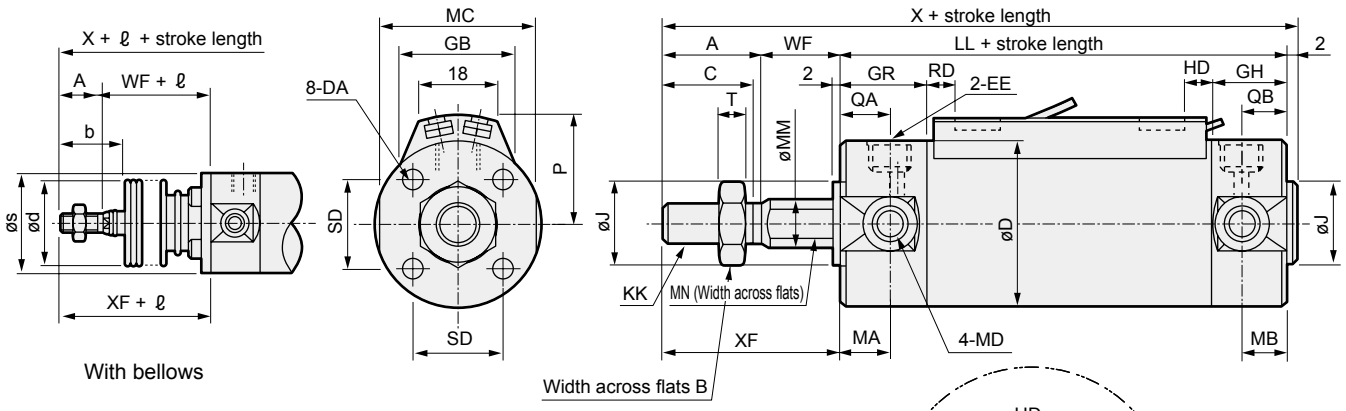
Same as standard. Refer to page 236.

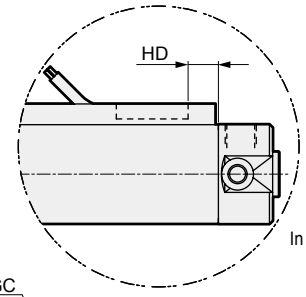
Repair parts list

Bore size (mm)	Kit No.	Repair parts No.
ø20	SCM-M-20K	❸ ❻ ❽ ❿ ⓭
ø25	SCM-M-25K	
ø32	SCM-M-32K	
ø40	SCM-M-40K	
ø50	SCM-M-50K	
ø63	SCM-M-63K	

Dimensions

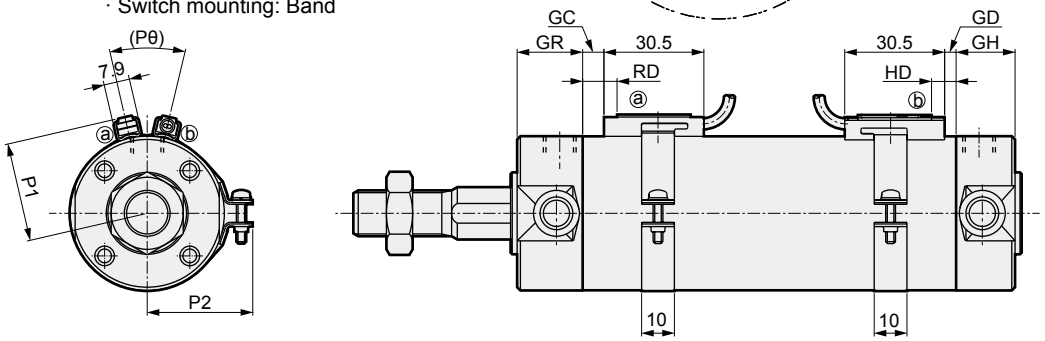
● Double acting rotation-stop





In the case of T2W, T3W

· Switch mounting: Band



*1: Refer to page 345 for RD, HD and protruding dimensions of the 2-color display, 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
ø20	18	13	16	26	M4 depth 6.5	Rc1/8	17	19	12	M8	69	11	11	24	M5	10	8	12	10
ø25	22	17	20	31	M5 depth 6.5	Rc1/8	17	19	14	M10×1.25	69	11	11	29	M6	12	10	12	10
ø32	22	17	20	38	M5 depth 7.5	Rc1/8	17	19	18	M10×1.25	71	11	10	36	M8	12	10	12	10
ø40	30	22	27	47	M6 depth 12	Rc1/8	19	20	25	M14×1.5	78	12	10	44	M10	16	14	13	12
ø50	35	27	32	58	M8 depth 16	Rc1/4	22	25	30	M18×1.5	90	13	12	55	M12	20	18	15	12
ø63	35	27	32	72	M10 depth 16	Rc1/4	22	25	32	M18×1.5	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
ø20	14	5	17	106	35	30	30	25.7	(Stroke length/3) + 18.5	19.5	23	3.0	6.5	8.5	7.5	7.5	9.5
ø25	16.5	6	18	111	40	35	30	30.7	(Stroke length/3) + 20.5	22	24.4	2.0	5.5	7.5	8.5	8.5	10.5
ø32	20	6	18	113	40	31.5	35	37.7	(Stroke length/3) + 19	25.5	25	3.0	6.5	8.5	9.5	9.5	11.5
ø40	26	8	20	130	50	40	35	46.7	(Stroke length/3) + 18.5	30	25.7	5.0	8.5	10.5	11.5	11.5	13.5
ø50	32	11	23	150	58	46	40	57.7	(Stroke length/3.6) + 18.5	35.5	26.2	7.5	11.0	13.0	13.0	13.0	15.0
ø63	38	11	23	150	58	46	40	71.7	(Stroke length/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.

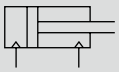
MEMO

Round shaped cylinder
Double acting/direct mounting foot

SCM-LD Series

● Bore size:ø20/ø25/ø32/ø40/ø50/ø63

JIS symbol



RoHS CAD

Specifications

Item	SCM-LD					
Bore size mm	ø20	ø25	ø32	ø40	ø50	ø63
Actuation	Double acting/direct mounting foot					
Working fluid	Compressed air					
Max. working pressure MPa	1.0 (≈150 psi, 10 bar)					
Min. working pressure MPa	0.1 (≈15 psi, 1 bar)				0.05 (≈7.3 psi, 0.5 bar)	
Proof pressure MPa	1.6 (≈230 psi, 16 bar)					
Ambient temperature °C	-10 (14°F) to 60 (140°F) (no freezing)					
Port size	Rc1/8				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 length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
ø20	25, 50, 75 100, 125, 150 200, 250, 300	300	10
ø25			
ø32			
ø40			
ø50			
ø63			

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

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

● Switch mounting: Rail

Switch quantity	1				2				3				4				5			
Bore size (mm)	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*	
ø20	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø25	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø32	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø40	10				25				50	70	70	55	55	70	70	55	75	110	110	90
ø50	10				25				50	65	65	55	55	65	65	55	75	110	110	90
ø63	10				25				50	65	65	55	55	65	65	55	75	110	110	90

● Switch mounting: Band

Switch quantity	1				2				3				4				5			
Bore size (mm)	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*	
ø20	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø25	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø32	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø40	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø50	10				25	30	35	25	50	55	55	50	75	75	80	70	95	100	100	95
ø63	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 length 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 display

Item	Proximity 2-wire				Proximity 3-wire				Reed 2-wire							Proximity 2-wire
	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 lamp	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)	Without 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)	Weight when stroke (S) = 0 mm Basic	Switch weight (per 1 pc)	Additional weight per S = 10 mm	Additional weight per S = 10 mm (with rail)	Band weight per switch
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 kg + 0.32 kg + 0.036 kg = 0.916 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	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	–	26.4	39.6	52.8	79.2	1.06×10^2	1.32×10^2	1.58×10^2	1.85×10^2	2.11×10^2	2.38×10^2	2.64×10^2
ø25	Push	–	49.1	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	–	41.2	61.9	82.5	1.24×10^2	1.65×10^2	2.06×10^2	2.47×10^2	2.89×10^2	3.30×10^2	3.71×10^2	4.12×10^2
ø32	Push	–	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	–	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	–	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	–	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	98.0	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	82.5	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	1.56×10^2	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	2.40×10^2	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3

How to order

Without 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

Ⓐ Mounting
Ⓑ Bore size
Ⓒ Port thread
Ⓓ Cushion
Ⓔ Stroke length
Ⓕ Switch model No. *2 *3
Ⓖ Switch quantity
Ⓗ Switch mounting
Ⓘ Option *5
Ⓙ Accessory *6

Code	Description
Ⓐ Mounting	
LD	Direct mounting foot

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

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

Ⓓ Cushion	
D	With two-sided rubber cushion

Ⓔ Stroke length (mm)		
Bore size	**Stroke length *1**	**Custom stroke length**
ø20 to ø63	**10 to 300**	**In 1 mm increments**

Ⓕ Switch model No.

Axial lead wire	Radial lead wire	Contact	Voltage AC	Voltage DC	Display	Lead wire
T0H*	**T0V***	Reed	●	●	1-color display	2-wire
T5H*	**T5V***	Reed	●	●	Without indicator lamp	2-wire
T8H*	**T8V***	Reed	●	●	1-color display	2-wire
T1H*	**T1V***	Proximity	●		1-color display	2-wire
T2H*	**T2V***	Proximity		●	1-color display	2-wire
T3H*	**T3V***	Proximity		●	1-color display	3-wire
T3PH*	**T3PV***	Proximity		●	1-color display	3-wire
T2WH*	**T2WV***	Proximity		●	2-color display	2-wire
T2YH*	**T2YV***	Proximity		●	2-color display	2-wire
T3WH*	**T3WV***	Proximity		●	2-color display	3-wire
T3YH*	**T3YV***	Proximity		●	2-color display	3-wire
T2YD*	**-**	Proximity		●	2-color display	2-wire
T2YDT*	**-**	Proximity		●	AC magnetic field	2-wire
T2JH*	**T2JV***	Proximity		●	1-color display off-delay	2-wire

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

Ⓖ 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.)

Ⓗ Switch mounting	
Blank	Rail method
Z	Band method

Ⓘ Option	
Q	Switch rail included at shipment
M	Piston rod material (stainless steel)
P6	Copper and PTFE free (made-to-order product)

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

⚠ Precautions for model No. selection

*1 : Refer to page 340 for the min. stroke length with switch.
*2 : Switches other than Ⓕ 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

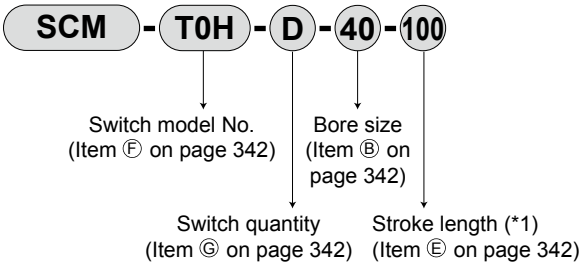
Model: Round shaped cylinder double acting/direct mounting foot

Ⓐ Mounting : Direct mounting foot
Ⓑ Bore size : ø40 mm
Ⓒ Port thread : Rc thread
Ⓓ Cushion : With two-sided rubber cushion
Ⓔ Stroke length : 100 mm
Ⓕ Switch model No. : Reed T0H switch, lead wire 1 m
Ⓖ Switch quantity : 2
Ⓗ Switch mounting : Rail
Ⓘ Option : Piston rod material (stainless steel)
Ⓙ Accessory : Rod eye

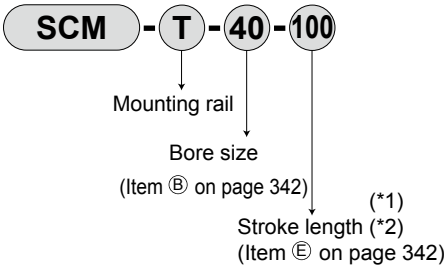
How to order switch

[Switch mounting: Rail]

● Switch body + mounting rail set

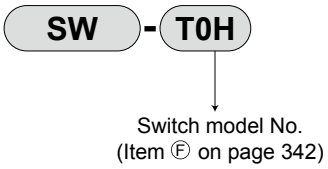


● Mounting rail only



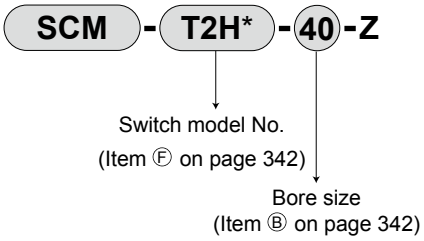
*1: Indicate X if the stroke length exceeds 300 mm.
If exceeding 300 mm, a short rail (with 100 mm switch adjustment length) will be included per switch.
*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

[Switch body only]

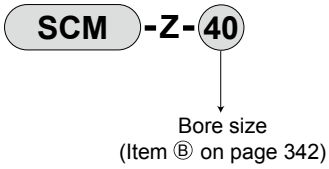


[Switch mounting: Band]

● Switch body + mounting bracket set + band



● Mounting bracket set + band



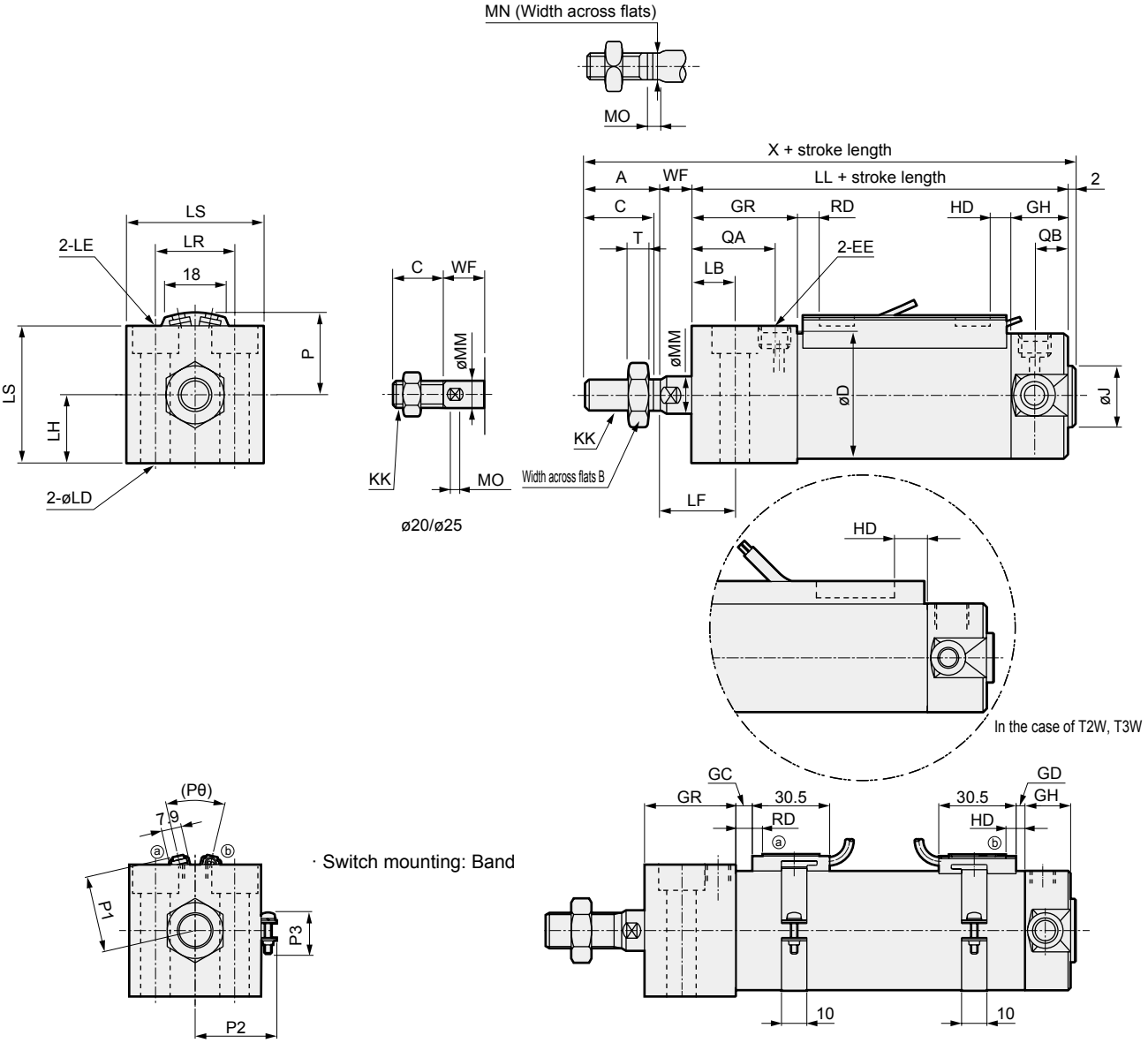
Internal structure

Same as standard. Refer to page 236.

Dimensions CAD

● Double acting/direct foot

· Switch mounting: Rail



· Switch mounting: Band

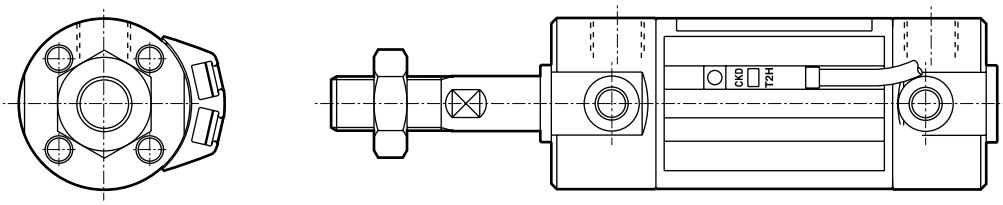
*1:Refer to page 345 for RD, HD and protruding dimensions of the 2-color display, off-delay, AC magnetic field proof, T1H/V and T8H/V switches.

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
ø20	-	13	16	26	Rc1/8	17	27	12	M8	77	8	6	4	20	10	5	11	106	11	5.5	9.5 spot face depth 5.4	20	15	18
ø25	-	17	20	31	Rc1/8	17	27	14	M10×1.25	77	10	8	5	20	10	6	12	111	12	6.6	11 spot face depth 6.5	22	18	22
ø32	22	17	20	38	Rc1/8	17	32	18	M10×1.25	84	12	10	5.5	25	10	6	10	118	13	9	14 spot face depth 8.6	23	21	24
ø40	30	22	27	47	Rc1/8	19	36	25	M14×1.5	94	16	14	6	29	12	8	9	135	16	11	17.5 spot face depth 10.8	25	26	32
ø50	35	27	32	58	Rc1/4	22	43	30	M18×1.5	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	M18×1.5	113	20	17	8	38	12	11	10	160	19	18	26 spot face depth 17.5	29	38	46

Code		Switch mounting: Rail							Switch mounting: Band														
Bore size (mm)	LS	P	HD			RD			GC			GD			HD			RD			P1	P2	P3	Pθ
			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				
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°)
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°)
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.

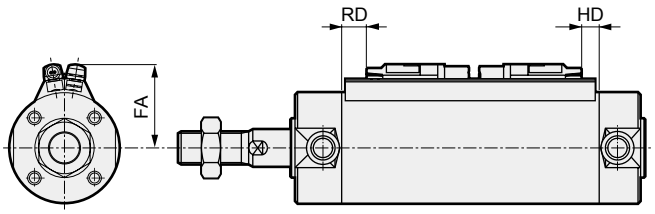
Switch rail installation position (rail installation position for stroke length of 10 mm and over and less than 25 mm with 1 switch)



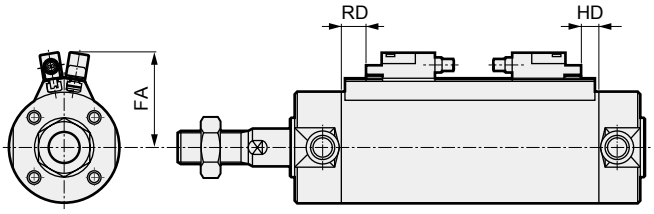
1. The switch rail is mounted at the position inclined by 90˚ from the standard position.
2. Trunnion mounting is not available because the switch rail and the bracket interfere with each other.
3. When combining one cylinder with stroke length of 10 and over and less than 25 and the other one with stroke length 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 display, AC magnetic field, off-delay, T1H/v, T8H/v switches mounted, dimensions of protruding section

● SCM-* T2YH/v, T3YH/v, T2JH/v, T8H/v



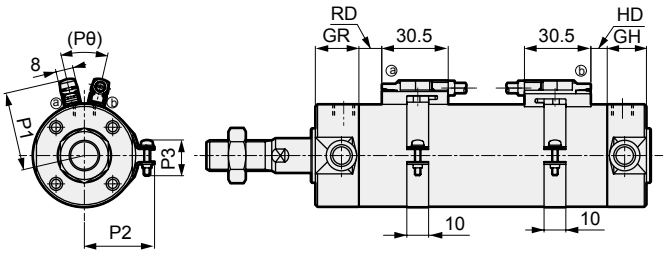
● SCM-* T2YD*, T1H/v



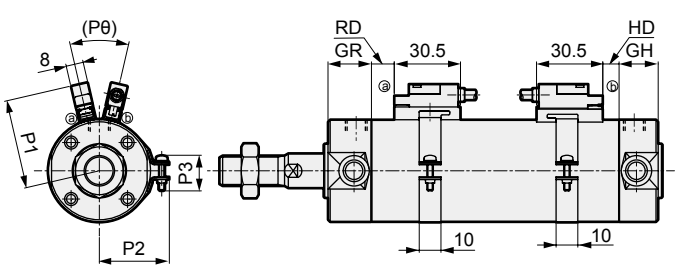
Bore size (mm)	FA				RD		HD	
	T*YH, T8H T2JH	T*YV, T8V T2JV	T2YD*, T1H	T1V	T*YH/V, T1H/V, T2JH/V, T2YD*	T8H/V	T*YH/V, T1H/V, T2JH/V, T2YD*	T8H/V
ø20	24	27	29.5	32.5	6.5	1.5	5.5	0.5
ø25	26.5	29.5	32	35	7.5	2.5	4.5	0
ø32	30	33	35.5	38.5	8.5	3.5	5.5	0.5
ø40	34.5	37.5	40	43	10.5	5.5	7.5	2.5
ø50	40	43	45.5	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 display switches mounted, AC magnetic field, off-delay, T1H/v, T8H/v switches, dimensions of protruding section

● SCM-* T2YH/v, T3YH/v, T2YH/v, T8H/v



● SCM-* T2YD*, T1H/v



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.

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
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 $Va = \frac{L}{T}$.

Va : Average speed (m/s)
L : Cylinder stroke length (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.

$Vm = \frac{L}{T} \times (1 + 1.5 \times \frac{\omega}{100})$

Vm : Stroke end speed (m/s)
ω : Cylinder load factor (%)

Use this Vm value as speed to calculate kinetic energy.

2. Fine speed SCM-F

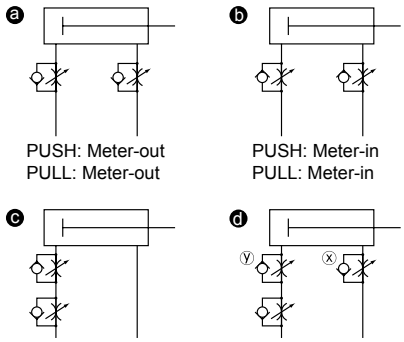
⚠ CAUTION

■ 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.

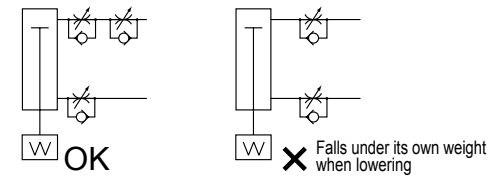
■ Stable speed control is achieved with a meter-out circuit.
When fine speed activation is performed with operating direction PUSH for the single rod cylinder, the popping out phenomenon occurs when operation starts if the load resistance is low. For countermeasures, use the ⓑ, ⓒ or ⓓ circuit. Note that the ⓓ circuit is the most stable.



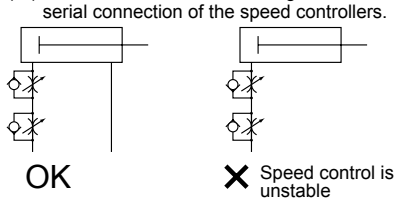
Speed adjustment method for PUSH operation of ⓓ circuit:
1. Set the speed with the speed controller x.
2. Restrict the speed with the speed controller y until there is no popping out.
3. Check the speed again.

(*1) When comparing ⓑ, ⓒ and ⓓ, the ⓓ 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 on the exhaust side (in the fine speed, suction pressure = residual pressure) + { When using horizontally: frictional force caused by load / When using vertically: load self-weight }

■ 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

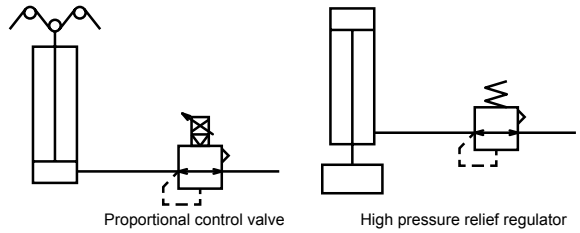
⚠WARNING

■ 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.

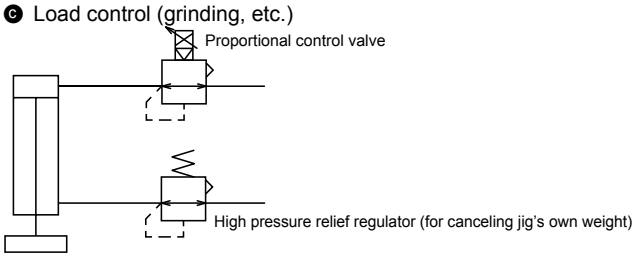
⚠CAUTION

■ 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 ⓐ to ⓒ below are recommended.

ⓐ Tension control (winding machine, etc.) ⓑ Balancer (processing machine Z-axis, etc.)



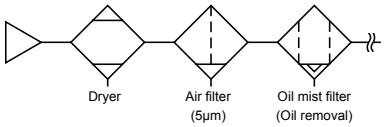
ⓒ Load control (grinding, etc.)



* 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.



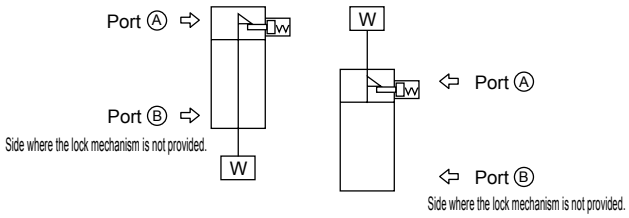
■ Assemble the speed controller near the cylinder.
When installed at a distant place from the cylinder, the adjustment becomes unstable.

■ 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 Ⓐ 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 Ⓑ. 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.

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.

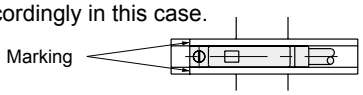
■ Remove all oil, moisture, dust, etc., from the body (tube) in order to adhere the switch rail.
(Perform adhesion by referring to instructions included with the part.)

■ Caution for type with air cushion
For ø20 and ø25, compatible fittings are limited, so see the following table to select the fitting.

Item	Port size	Applicable fittings	Inapplicable fittings
ø20	M5	SC3W-M5-4/6 SC3R-M5 GWS4-M5 GWS4-M5-S GWS6-M5 GWS6-M5-S	GWL6-M5
ø25		GWL4-M5 GWL4-M5-45 GWL4-M5-T GWL6-M5-T	GWL6-M5-45

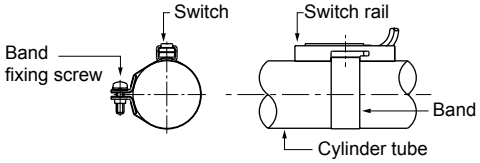
■ Switch mounting: Caution for band

● When moving the switch position to the stroke length direction
The 1-color display switch can be fine-tuned by ±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 ±3 mm, or when fine-tuning the 2-color display 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.



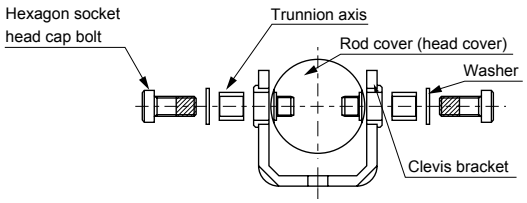
● If moving the switch position in the circumferential direction, loosen the band fixing screw, shift the switch rail in the circumferential direction, then tighten at the specified position. Tightening torque is 0.6 to 0.8 N·m.

● 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]
ø20	6
ø25	11
ø32	18
ø40	27
ø50	38
ø63	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.

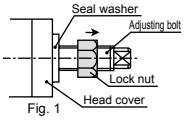


Fig. 1

(2) Second, remove the seal washer from the adaptor by hand, and make a state as shown in Fig. 2.

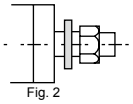


Fig. 2

(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 length. Check that the rubber section of the seal washer does not bite into the thread part.

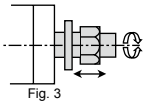


Fig. 3

(4) After adjusting the stroke, move the seal washer near the adaptor by hand as shown in Fig. 4.

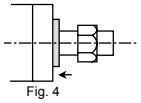


Fig. 4

(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.

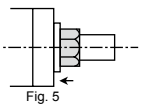


Fig. 5

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 length.

■ When the mounting style is the axial foot, the axial pitch dimension is the same as the standard.

3. Position locking SCM-Q

⚠ CAUTION

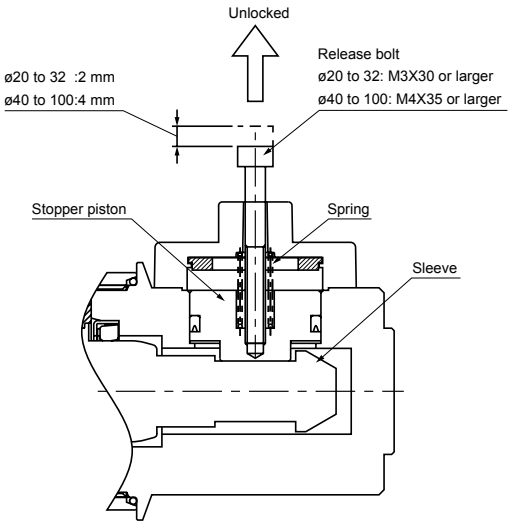
■ For the axial foot (mounting style: LB), when trying to fix the cylinder to a support, etc., with the state that the mounting bracket is attached to the cylinder, the cylinder cannot be fixed because the bolt and the stopper cover will interfere with each other. Fix the mounting bracket at the position 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 length, 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

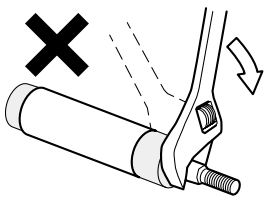
⚠ CAUTION

■ 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.



Use/maintenance

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 ø80 and ø100 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

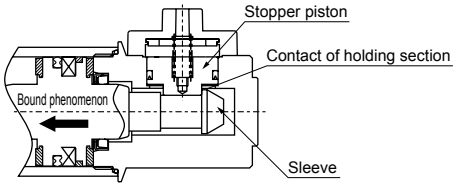
■ Do not leave the single acting cylinder pressurized. If it is left pressurized for long periods, the piston rod may not return due to spring load when the pressure is released.

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.