

SCP□3

Pencil Shaped Cylinder®

ø6, ø10, ø16

General Type

Overview

This series is the smallest bore (ø6 to ø16), ultra-compact, and lightest among general type cylinders.



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●: Standard, ◎: Option, ○: Custom Products, ■: Not manufacturable

General Type	Variation	Model No. Circuit Diagram Symbol	Bore size (mm)	Standard Stroke (mm)				Minimum Stroke (mm)	Maximum Stroke (mm)	Producible Stroke (mm)	Intermediate stroke (mm) increments	Mounting type					Accessories				Switch	Page	General Type
				15	30	45	60					Basic type	Double Side Axial Foot Type	Single Side Axial Foot Type, Rod Side	Rod Side Flange Type	Double Clevis Type	Single Knuckle	Double Knuckle	Single Bracket	Double Yoke Bracket			
				00	LB	LS	FA					CB	I	Y	B1	B2							
SCP□3	Double Acting/ Single Rod Type	SCPD3 SCPD3-L	 ø6 ø10 ø16	●	●	●	●	5	100	105	1	●	■	●	●	■	■	■	■	○	◎	12	SCP□3
				●	●	●	●		200	210		●	●	●	●	○	○	○	○				
				●	●	●	●		260	270		●	●	●	●	○	○	○	○				
CMK2	Single Acting, Push Type	SCPS3 SCPS3-L	 ø6 ø10, ø16	●	●	●	●	5	100	105	1	●	■	●	●	■	■	■	■	○	◎	22	CMK2
				●	●	●	●		120	120		●	●	●	●	○	○	○	○				
CMA2	Single Acting, Retracting Type	SCPH3 SCPH3-L	 ø6 ø10, ø16	●	●	●	●	5	100	105	1	●	■	●	●	■	■	■	■	○	◎	22	CMA2
				●	●	●	●		120	120		●	●	●	●	○	○	○	○				
SCM	Double Acting/ Heat Resistant Type	SCPD3-T	 ø6 ø10 ø16	●	●	●	●	5	100	100	1	●	■	●	●	■	■	■	■	○	◎	34	SCM
				●	●	●	●		200	200		●	●	●	●	○	○	○	○				
				●	●	●	●		260	260		●	●	●	●	○	○	○	○				
SCA2	Double Acting/ With Rubber Air Cushion	SCPD3-□C SCPD3-L-□C	 ø6 ø10 ø16	●	●	●	●	5	100	100	1	●	■	●	●	■	■	■	■	○	◎	38	SCA2
				●	●	●	●		200	200		●	●	●	●	○	○	○	○				
				●	●	●	●		260	260		●	●	●	●	○	○	○	○				
SCS2	Double Acting/Fine Speed Type	SCPD3-F SCPD3-LF	 ø6 ø10 ø16	●	●	●	●	5	100	100	1	●	■	●	●	■	■	■	■	○	◎	46	SCS2
				●	●	●	●		200	200		●	●	●	●	○	○	○	○				
				●	●	●	●		260	260		●	●	●	●	○	○	○	○				
SCM	Double Acting/Low Speed Type	SCPD3-O SCPD3-OL	 ø6 ø10 ø16	●	●	●	●	5	100	100	1	●	■	●	●	■	■	■	■	○	◎	52	SCM
				●	●	●	●		200	200		●	●	●	●	○	○	○	○				
				●	●	●	●		260	260		●	●	●	●	○	○	○	○				
SCA2	Double Acting/ Double Rod Type	SCPD3-D SCPD3-DL	 ø6 ø10, ø16	●	●	●	●	5	60	60	1	●	●	●	●	■	■	■	■	○	◎	58	SCA2
				●	●	●	●		120	120		●	●	●	●	○	○	○	○				
SCM	Single Acting, Non-Rotating Type	SCPS3-M SCPS3-ML	 ø10, ø16	●	●	●	●	5	120	120	1	●	■	●	●	■	■	■	■	○	◎	74	SCM
				●	●	●	●		120	120		●	●	●	●	○	○	○	○				
SCM	Double Acting, Non-Rotating Type	SCPD3-M SCPD3-ML	 ø10 ø16	●	●	●	●	5	200	210	1	●	■	●	●	■	■	■	■	○	◎	74	SCM
				●	●	●	●		260	270		●	●	●	●	○	○	○	○				

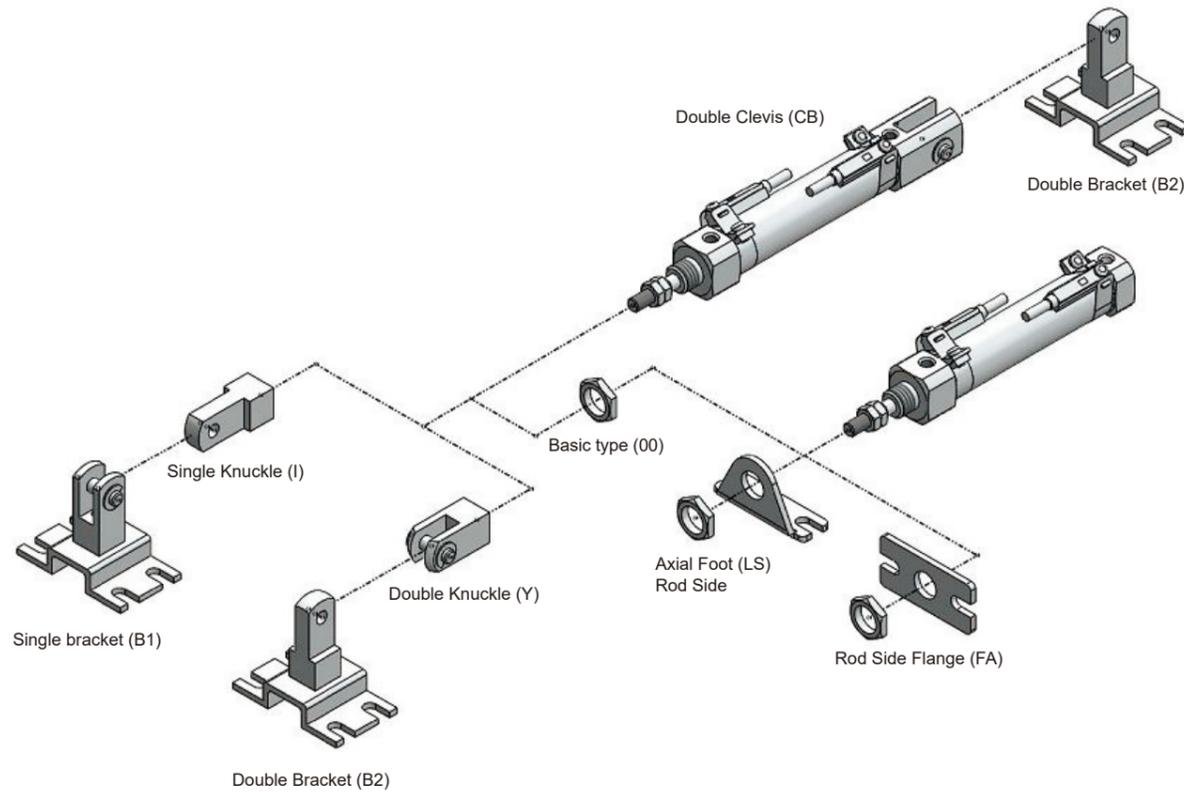
Note: For the SCPS Single Acting, Push Type (ø2.5, ø4), please refer to P. 22.

About Custom Products

The following variations are also supported.

Variation	Model No.	Bore size (mm)	Page	Variation	Model No.	Bore size (mm)	Page
Double Acting/ Double Rod/ Heat Resistant Type	SCPD3-DT	ø6	58	Single Acting, with Valve	SCPS3-V SCPS3-VL	ø10	92
		ø10				ø16	
		ø16					
Double Acting, with Speed Controller	SCPD3-Z SCPD3-ZL	ø10	66	Double Acting, with Valve	SCPD3-V SCPD3-VL	ø10	92
		ø16				ø16	
Double Acting, High Load Type	SCPD3-K SCPD3-KL	ø6	84				
		ø10					
		ø16					

Combination of Mounting Brackets and Accessories



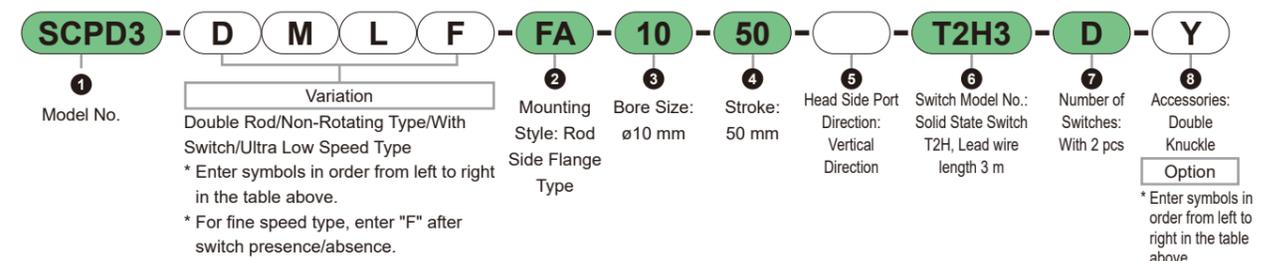
Variation / Option combinability table

Combination Availability Table for Variations and Option Items

- Mark: Option
- Mark: Custom Products
- △ Mark: Manufacturable depending on conditions (Please consult)
- × Mark: Not manufacturable
- *1: Applicable when using single acting type (S/H) as double acting method. Overall length increases when based on single acting type.
- *2: Frictional resistance is higher compared to the standard ultra low speed type (or fine speed type). Please consult after confirming operating conditions.
- *3: Low speed performance cannot be satisfied in the cushion range.
- *4: Valve-equipped specifications are only compatible with axial port positions. (The "O" code is not required.)

Category	Category	Variation											Piping thread		Cushion		Option			
		Code	None	S	H	D	M	Z	V	L	K	T	O	F	N	G	C	M	O	
Variation	Double Acting Single Rod Type	SCPD3		*1	*1															
	Single Acting, Push Type	SCPS3				×	○	×	○	×	×	×	×	×	×	×	×	○	○	
	Single Acting, Retracting Type	SCPH3				×	×	×	○	×	×	×	×	×	×	×	×	○	×	
	Double Acting Double Rod Type	SCPD3-D					○	○	×	○	○	○	*2	*2	×	×	○	○	×	
	Non-Rotating Type	M						×	○	○	×	×	*2	×	×	×	○	○	○	
	With Speed Controller	Z							×	○	×	×	○	×	×	×	×	○	○	
	With Valve	V								○	○	×	×	×	×	×	×	○	*4	
	With Cylinder Switch	L								○	×	○	○	×	×	○	○	○	○	
	High Load Type	K									×	*2	*2	×	×	○	○	○	○	
	Heat Resistant Type (120°C)	T												×	×	×	×	○	○	
	Low Speed Type	O												×	×	×	*3	○	○	
Ultra Low Speed Type	F													×	×	*3	○	○		
Piping thread	NPT	N													×	×	×	×		
	G	G														×	×	×		
Cushion	With Rubber Air Cushion	C																○	○	
Option	Rod Nut Material (Stainless Steel)	M																	○	
	Port Position Axial Direction	O																	○	
Accessories	Cylinder Switch	Shown Separately	○	○	○	○	○	○	○	○	×	○	○						○	
	Single Knuckle	I	○	○	○	○	○	○	○	○	○	○	○						○	
	Double Knuckle	Y	○	○	○	○	○	○	○	○	○	○	○						○	
	B1 Bracket	B1	○	○	○	○	○	○	○	○	○	○	○						○	
	B2 Bracket	B2	○	○	○	○	○	○	○	○	○	○	○						○	

[Model No. Notation Method]





Pencil Shaped Cylinder Double Acting Single Rod Type

SCPD3 Series

● Bore size: $\phi 6$, $\phi 10$, $\phi 16$

Circuit Diagram Symbol



SCPD 3 Series Model No. Notation Method

6 Number of Switches

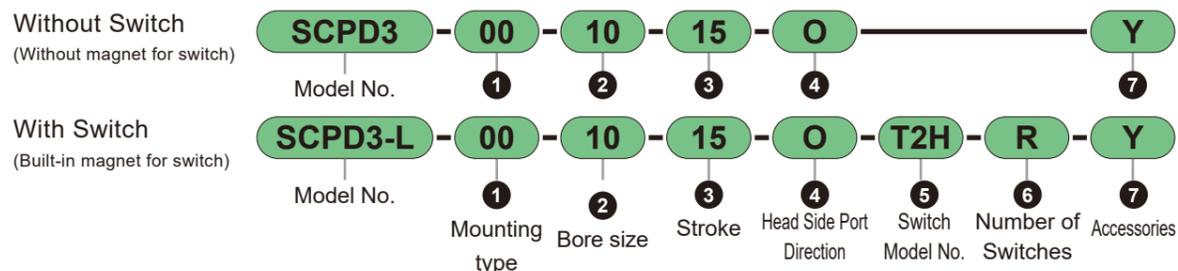
Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

7 Accessories

Code	Content	
I	Single Knuckle	
Y	Double Knuckle (pin and retaining ring included)	
B1	Single Bracket	
B2	Double Yoke Bracket	

*1: "I" and "Y" cannot be selected at the same time.
*2: Accessories cannot be selected for $\phi 6$.

Model No. Notation Method



1 Mounting type

Mounting brackets are included to the product and shipped.

Code	Contents	
00	Basic type	
LS	Axial Foot Type (Rod Side)	
FA	Rod Side Flange Type	
CB	Double Clevis Type (Pin and retaining ring included) ($\phi 10$, $\phi 16$)	

*1: If port direction is "0" (axial), mounting type "CB" cannot be selected.

2 Bore size (mm)

Code	Content
6	$\phi 6$
10	$\phi 10$
16	$\phi 16$

3 Stroke (mm)

Bore size	Stroke	Intermediate Stroke
$\phi 6$	5 to 100	Every 1 mm
$\phi 10$	5 to 200	
$\phi 16$	5 to 260	

Note: For minimum stroke with switch, refer to P. 14.

4 Head Side Port Direction

Code	Content	
Blank	Vertical Direction	
O	Axial Direction	

Note: If port direction is "0" (axial), mounting type "CB" cannot be selected.

5 Switch Model No.

For switch details, please refer to page 971. Switches are included to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V)		Load Current (mA)		Lead Wire *1	
			AC	DC	AC	DC	Straight	L-shape
Solid State	1-Color	2-wire	—	10 to 30	—	5 to 20 *2	T2H□	T2V□
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□
		3-wire (PNP)	—	30 or less	—	100 or less	T3PH□	T3PV□
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□
		3-wire (PNP)	—	30 or less	—	50 or less	T3WH□	T3WV□
		2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□
	No Indicator Lamp	2-wire	110	5/12/24	20 or less	50 or less	T5H□	T5V□

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (-) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH ③
5 m TOH ⑤

About Custom Product Specifications

Code	Contents
Rod End Shape Modification	Refer to Ending 11.

Clean Specification (Catalog No. CB-033SAA)

Dust prevention structure usable in cleanrooms

SCPD3 - F - ... - P7*

SCPD3 - ... - P5*

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

● Uses food grade grease that can be used in food manufacturing processes

SCPD3 - ... - FP1

Rechargeable Battery Compatible Specification (Catalog No. CC-1226AA)

● Design compatible with rechargeable battery manufacturing process

SCPD3 - ... - P4*

*Please contact us for details.

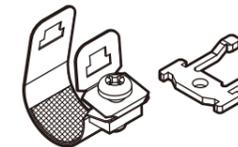
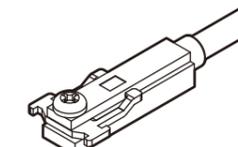
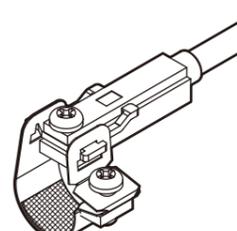
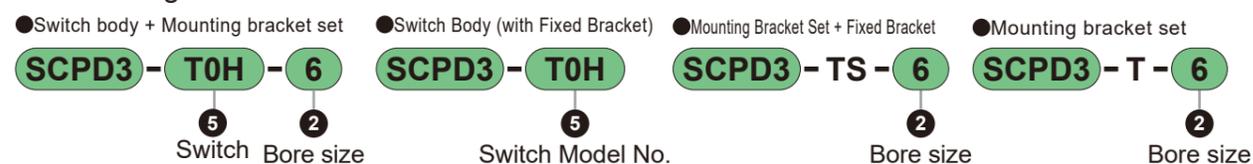
High Durability Components HP Series (Catalog No. CC-1421AA)

Long-life actuator that contributes to productivity improvement with stable operation

SCPD3 - ... - HP□

*For combinations of variations and options, see P. 11.

Switch Single Unit Model No. Notation Method



Note) T-type standard switch and fixing bracket Phillips pan head screw are different.

For purchases of 20 or more, items will be packed together.

For purchases of 20 or more, items will be packed together.

*1: For "□" in the switch model number, enter the code selected from the "Lead wire length, connector specification" table.

*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)

*3: This does not guarantee the water resistance of the cylinder.

*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

Specifications

Item	SCPD3 SCPD3-L			
	mm	ø6	ø10	ø16
Bore size	mm	ø6	ø10	ø16
Actuation method		Double Acting Type		
Operating Fluid		Compressed Air		
Max. Operating Pressure	MPa	1.0		
Min. Operating Pressure	MPa	0.15	0.1	
Proof Pressure	MPa	1.6		
Ambient Temperature	°C	-10 to 60 (Provided that freezing does not occur)		
Port Size		M5		
Stroke tolerance	mm	+1.0 0		
Operating piston speed	mm/s	50 to 750		
Cushion		Rubber Cushion		
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)		
Allowable Absorption Energy	J	0.012	0.041	0.162

Cylinder Mass

(Unit: g)

Item	Mounting Bracket Mass			Product Mass at Stroke 0 mm	Added Mass per Stroke = 10 mm	Switch Mass (Per switch)	Switch Mounting Bracket Mass
	Foot Type LS	Flange Type FA	Clevis Type CB				
ø6	6	4	-	13	1	Refer to the weight listed in the switch specifications on P. 971.	2
ø10	6	4	4	21	2		
ø16	15	12	10	42	3		

(Example) Product mass of SCPD3-L-LS-10-30-T0H-D

- Mounting Bracket Weight (Foot type): 6 g
- Product Weight at Stroke = 0 mm: 21 g
- Added Weight at Stroke = 30 mm: 2×30/10= 6 g
- Switch Weight: 2×(18+2)=40 g
- Product Weight: 6+21+6+40=73 g

Stroke

Bore size (mm)	Standard Stroke (mm)	Maximum Stroke (mm)	Producibile Stroke (mm)	Min. Stroke (mm)	
SCPD3	ø6	15, 30, 45, 60	100	105	5
	ø10		200	210	
	ø16		260	270	

Note: Intermediate strokes can be produced in 1 mm increments.

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø6	Push	-	4.24	5.65	8.48	11.3	14.1	17.0	19.8	22.6	25.4	28.3
	Pull	-	3.18	4.24	6.36	8.48	10.6	12.7	14.8	17.0	19.1	21.2
ø10	Push	7.85	11.8	15.7	23.6	31.4	39.3	47.1	55.0	62.8	70.7	78.5
	Pull	6.60	9.90	13.2	19.8	26.4	33.0	39.6	46.2	52.8	59.4	66.0
ø16	Push	20.1	30.2	40.2	60.3	80.4	1.01 × 10 ²	1.21 × 10 ²	1.41 × 10 ²	1.61 × 10 ²	1.81 × 10 ²	2.01 × 10 ²
	Pull	18.1	27.2	36.3	54.4	72.6	90.7	1.09 × 10 ²	1.27 × 10 ²	1.45 × 10 ²	1.63 × 10 ²	1.81 × 10 ²

Min. Stroke with Switch

Diagram	With 1 pc.		With 2 pcs.	
	Rod Side Mounting	Head Side Mounting	For different surface mounting	
Min. Stroke	T0, 5, T2 (W), T3 (W) 5 mm	T2WL 30 mm	T0, 5, T2 (W), T3 (W) 5 mm	T2WL 30 mm

Mounting Bracket Model No. Notation Method

Bore size (mm)	ø6	ø10	ø16
Mounting bracket			
Foot (LS)	P2-LS-6	P2-LS-10	P2-LS-16
Flange (FA)	P2-FA-6	P2-FA-10	P2-FA-16

Note: Foot (LS) type mounting brackets come as 1 pc./set.

General Type

SCP3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

General Type

SCP3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

Cylinder Switch

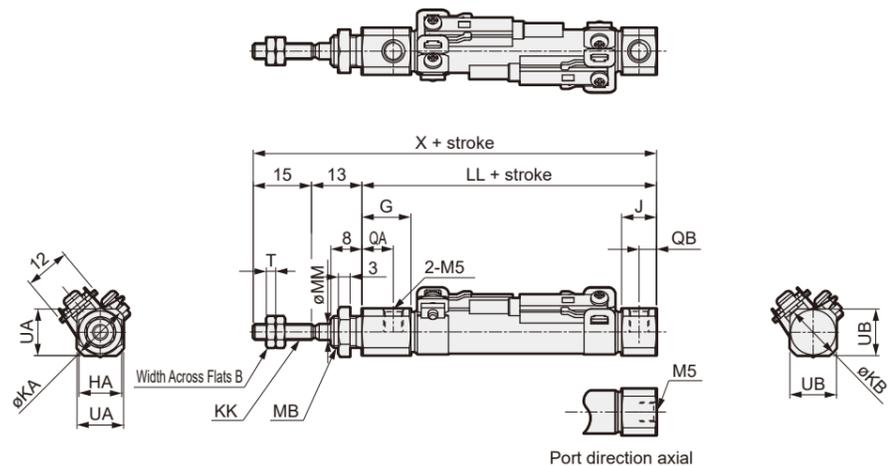
Ending

Cylinder Switch

Ending

Outline Dimension Drawing

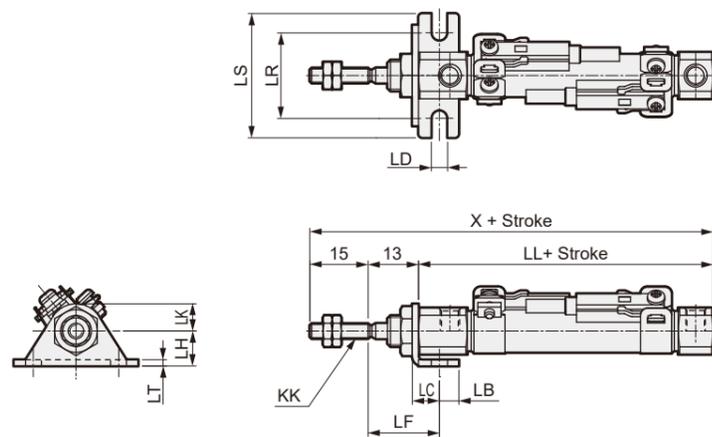
● SCPD3-(L) Basic Type (OO)



Code	Basic Type (OO) Basic Dimensions															
Bore size (mm)	B	G	HA	J	KA	KB	KK	LL	MB	MM	QA	QB	T	UA	UB	X
ø6	5.5	17	8	8	13.5	13.5 (10)	M3	47	M6	3	13	4	1.8	11	11 (9)	75
ø10	7	12.5	11	9	14.5	14.5	M4	46	M8 × 1.0	4	8	4.5	2.4	12	12	74
ø16	8	13	14	9	21.5	21.5	M5	46	M10 × 1.0	5	8.5	4.5	3.2	18	18	74

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
 *2: Values in () are for port direction axial type.
 *3: For dimensions of models with switches, see P. 101.
 *4: For outline dimension drawings of accessories, see P. 19.

● Single Side Axial Foot Type (LS)

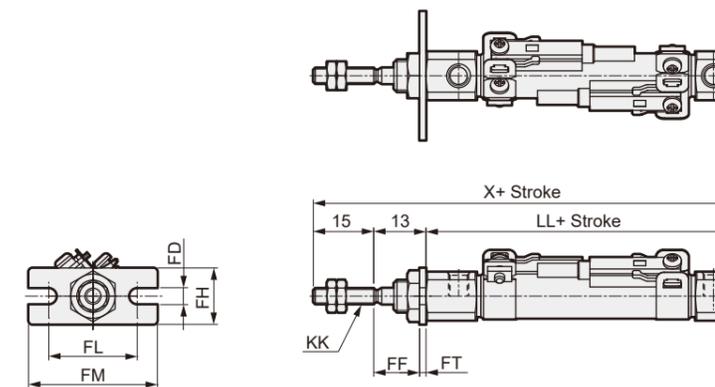


Code	Single Side Axial Foot Type (LS) Mounting Dimensions											
Bore size (mm)	KK	LL	X	LB	LC	LD	LF	LH	LK	LR	LS	LT
ø6	M3	47	75	5	7	4.2	18.4	9	7	22	32	1.6
ø10	M4	46	74	5	7	4.2	18.4	9	7	22	32	1.6
ø16	M5	46	74	6	9	5.2	19.7	14	10	29	42	2.3

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
 *2: For dimensions of models with switches, see P. 101.
 *3: For outer dimensions diagram of accessories, refer to P. 19.

Outline Dimension Drawing

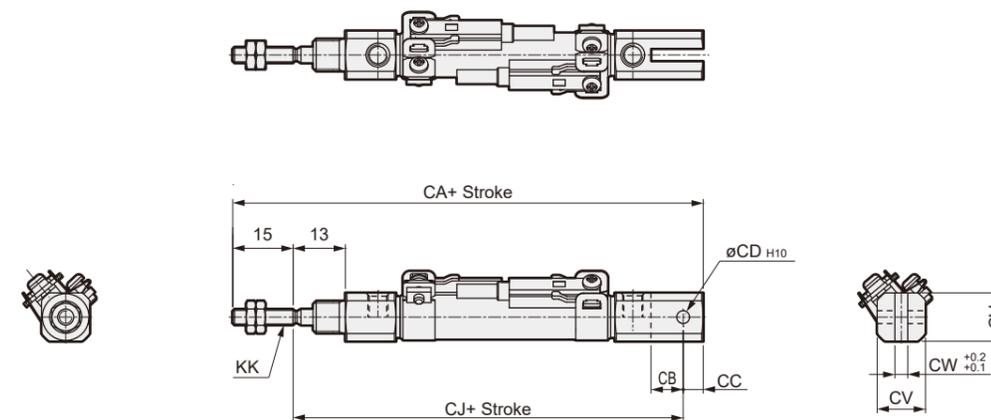
● Rod Side Flange Type (FA)



Code	Rod Side Flange Type (FA) Mounting Dimensions									
Bore size (mm)	KK	LL	X	FD	FF	FH	FL	FM	FT	
ø6	M3	47	75	4.2	11.4	14	22	32	1.6	
ø10	M4	46	74	4.2	11.4	14	22	32	1.6	
ø16	M5	46	74	5.2	10.7	20	29	42	2.3	

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
 *2: For dimensions of models with switches, see P. 101.
 *3: For outer dimensions diagram of accessories, refer to P. 19.

● Double clevis type (CB)

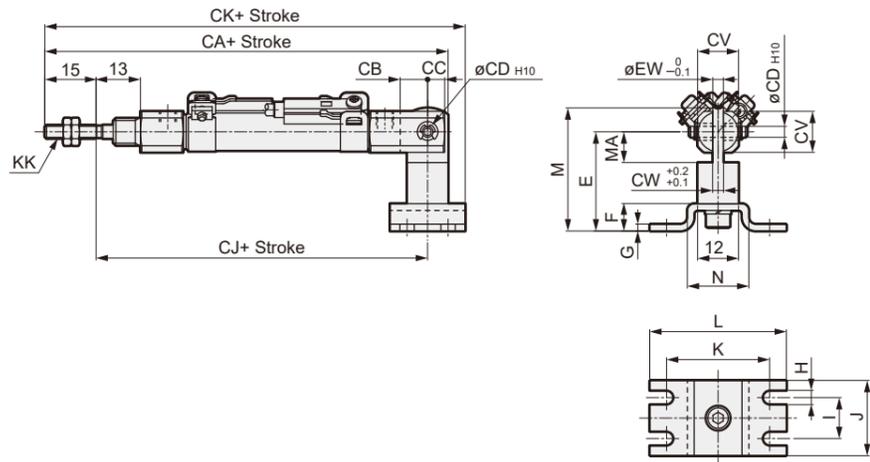


Code	Double Clevis Type (CB) Mounting Dimensions							
Bore size (mm)	KK	CA	CB	CC	CD	CJ	Cv	CW
ø10	M4	87	8	5	3.2	67	12	3.2
ø16	M5	94	10	10	5	69	18	6.5

*1: The thread depth of ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
 *2: Pin and retaining clip are attached.
 *3: For dimensions of models with switches, see P. 101.
 *4: For outline dimension drawings of accessories, see P. 19.

Outline Dimension Drawing

● Double Clevis Type (CB) With Single Bracket (Option Symbol B1)



Code	Double Clevis Type (CB) With Single Bracket (Option Symbol B1) Mounting Dimensions										
Bore size (mm)	KK	CA	CB	CC	CD	CJ	CK	Cv	CW	E	EW
ø10	M4	87	8	5	3.2	67	107	12	3.2	29	3.1
ø16	M5	94	10	10	5	69	118	18	6.5	35	6.4

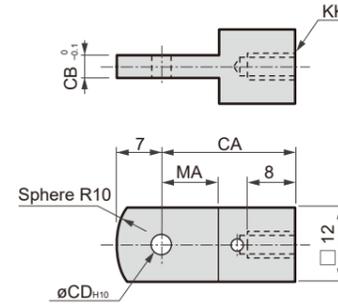
Code	Mounting Dimensions										
Bore size (mm)	F	G	H	I	J	K	L	M	N	MA	
ø10	8	2	4.2	12	22	30.2	40	36	18	9	
ø16	10	2.3	5.2	16	28	35.2	48	42	20	14	

*1: The thread depth of ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
 *2: Pin and retaining clip are attached.
 *3: For dimensions of models with switches, see P. 101.
 *4: For outline dimension drawings of accessories, see P. 19.

Accessories Outline Dimension Drawing

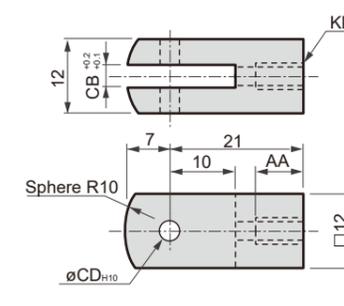
Accessories Outline Dimension Drawing

● Single Knuckle (I) Material: Steel Zinc Chromate



Model No.	Applicable	CA	CB	CD	KK	MA	Weight (g)
P2-I-10	ø10	21	3.1	3.2	M4	9	17
P2-I-16	ø16	25	6.4	5	M5	14	21

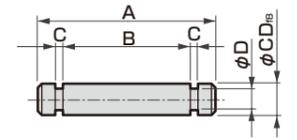
● Double Knuckle (Y) Material: Steel Zinc Chromate



Model No.	Applicable	AA	CB	CD	KK	Weight (g)
P2-Y-10	ø10	8	3.2	3.2	M4	25
P2-Y-16	ø16	11	6.5	5	M5	20

Note: The pin and retaining ring are included.

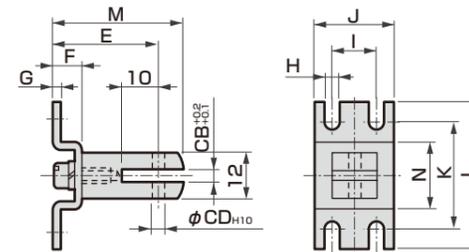
● Pin for Knuckle Bracket (P) Clevis Material: Stainless Steel



Model No.	Applicable Bore Size (mm)	Applicable	A	B	C	CD	D	Weight (g)
P2-P-10	ø10	Knuckle/Bracket/Clevis	17	13	0.6	3.2	2.5	1.2
P2-P-10Z		Clevis for Z	20	16				1.4
P2-P-16	ø16	Knuckle/Bracket	18	13	0.7	5	4	3.0
P2-P-16A		Clevis	24	19	0.7	5	4	3.9

*1: The pin and retaining clip for use with the double knuckle are included with the product.
 *2: Retaining ring is attached.

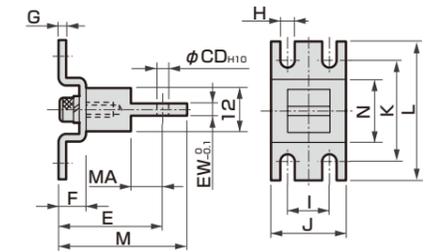
● Double Bracket (B2) Material: Steel Zinc Chromate



Model No.	Applicable	CD	E	CB	F	G	H	I	J	K	L	M	N	Weight (g)
P2-B2-10	ø10	3.2	29	3.2	8	2	4.2	12	22	30.2	40	36	18	44
P2-B2-16	ø16	5	31	6.5	10	2.3	5.2	16	28	35.2	48	38	20	44

Note: The pin and retaining ring are included.

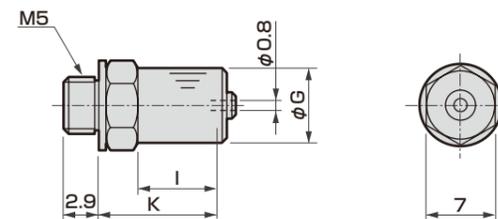
● Single Bracket (B1) Material: Steel Zinc Chromate



Model No.	Applicable	CD	E	EW	F	G	H	I	J	K	L	M	N	MA	Weight (g)
P2-B1-10	ø10	3.2	29	3.1	8	2	4.2	12	22	30.2	40	36	18	9	37
P2-B1-16	ø16	5	35	6.4	10	2.3	5.2	16	28	35.2	48	42	20	14	48

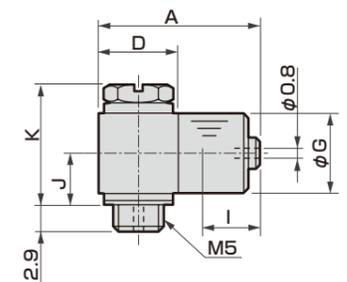
Hose Nipple for Pencil Cylinder (Sales Unit: 10 pcs/bag)

● Barb Fitting Straight/FCS



Model No.	Applicable Tube Outer Diameter	G	I	K	Weight (g)	Effective Area (mm ²)
FCS4-M5P	ø4	7	4.3	11.7	3.2	0.35
FCS6-M5P	ø6	9	5	12.4	4.5	0.35

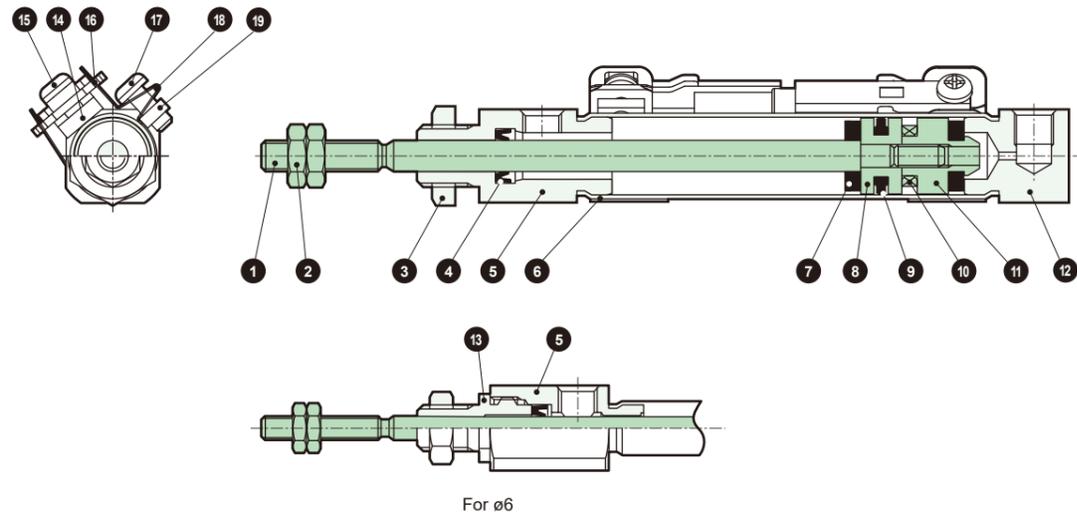
● Elbow/FCL



Model No.	Applicable Tube Outer Diameter	A	D	G	I	J	K	Weight (g)	Effective Area (mm ²)
FCL4-M5P	ø4	16.1	8	7	4.3	5.1	11.6	6.8	0.35
FCL6-M5P	ø6	17.8	9	9	5	6.1	13.6	10.1	0.35

Internal Structure Diagram / Material

● Double Acting Type
SCPD3-(L)



Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod	Stainless Steel		11	Spacer	Aluminum Alloy	
2	Rod Nut	Steel	Nickel Plating	12	Head Cover	Aluminum Alloy	Hard Anodized
3	Hexagon Nut	Steel	Nickel Plating	13	Rod Metal	Aluminum Alloy	Hard Anodized
4	Rod Packing	Nitrile Rubber		With Switch			
5	Rod Cover	Aluminum Alloy	Hard Anodized	14	Switch		
6	Cylinder Tube	Stainless Steel		15	Phillips Pan Head Screw	Stainless Steel	
7	Cushion Rubber	Urethane Rubber		16	Fixing Bracket	Stainless Steel	
8	Piston	Aluminum Alloy		17	Phillips Pan Head Screw	Stainless Steel	
9	Piston Packing	Nitrile Rubber		18	Band	Stainless Steel	
10	Magnet		With switch only	19	Fixing Nut	Stainless Steel	

Mounting Bracket Material

Mounting type	Material
Foot (LS)	Steel
Flange (FA)	Steel

MEMO

General Type

SCP_3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

Cylinder Switch

Ending

General Type

SCP_3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

Cylinder Switch

Ending



Pencil Cylinder Single Acting/Push Type / Single Acting/Retracting Type

SCPS/SCPS3/SCPH3 Series

● Bore Size: $\phi 2.5$, $\phi 4$, $\phi 6$, $\phi 10$, $\phi 16$

Circuit Diagram Symbol



SCPS / SCPS3 / SCPH3 Series

Model No. Notation Method

Switch Model No.

For switch details, please refer to P. 971. Switches are attached to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V)		Load Current (mA)		Lead Wire *1	
			AC	DC	AC	DC	Straight	L-shape
Solid State	1-Color	2-wire	—	10 to 30	—	5 to 20 *2	T2H□	T2V□
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□
		3-wire (PNP)	—	30 or less	—	100 or less	T3PH□	T3PV□
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□
	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□
1-Color Flexible Lead Wire Type	2-wire	—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□
	No Indicator Lamp	2-wire	110	5/12/24	20 or less	50 or less	T5H□	T5V□

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (-) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.
Example) Lead wire length
1 m TOH [3]
3 m TOH [3]
5 m TOH [5]

*1: For "□" in the switch model number, enter the code selected from the "Lead wire length, connector specification" table.

*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)

*3: This does not guarantee the water resistance of the cylinder.

*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

Number of Switches

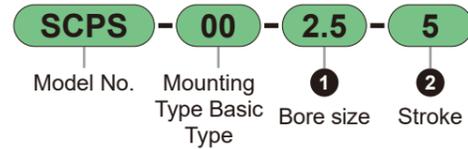
Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

Accessories

Code	Content
I	Single Knuckle
Y	Double Knuckle (pin and retaining ring attached)
B1	Single Bracket
B2	Double Yoke Bracket

*1: "I" and "Y" cannot be selected at the same time.
*2: Accessories cannot be selected for $\phi 6$.

Model No. Notation Method



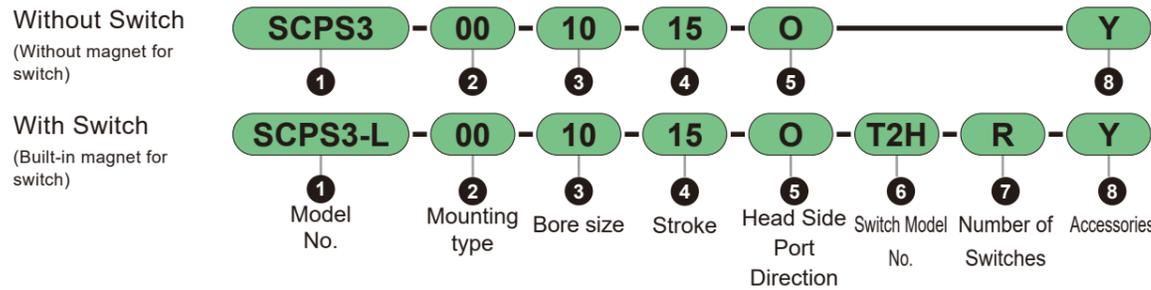
① Bore size (mm)

Code	Content
2.5	$\phi 2.5$
4	$\phi 4$

② Stroke (mm)

Bore size	Stroke	Intermediate Stroke
$\phi 2.5$	5 to 10	Every 1 mm
$\phi 4$	5 to 20	

Model No. Notation Method



① Model No.

Code	Contents
SCPS3	Single Acting, Push Type
SCPS3-L	Single Acting/Push Type/With Switch
SCPH3	Single Acting, Retracting Type
SCPH3-L	Single Acting/Retracting Type/With Switch

② Mounting type

Code	Contents	SCPS3	SCPH3
00	Basic type		
LS	Single Side Axial Foot Type (Rod Side)		
FA	Rod Side Flange Type		
CB	Double Clevis Type (Pin and retaining ring attached) ($\phi 10$, $\phi 16$)		

*1

*1: When ⑤ port direction is "O" (axial), mounting style "CB" cannot be selected.

③ Bore size (mm)

Code	Content
6	$\phi 6$
10	$\phi 10$
16	$\phi 16$

④ Stroke (mm)

Bore size	Stroke	Intermediate Stroke
$\phi 6$	5 to 100	Every 1 mm
$\phi 10$	5 to 120	
$\phi 16$	5 to 120	

Note: For minimum stroke with switch, refer to P. 24.

⑤ Head Side Port Direction

Code	Content
Blank	Vertical Direction
O	Axial Direction

*1

*2

*1: If port direction is "O" (axial), mounting type "CB" cannot be selected.

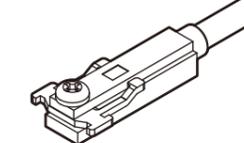
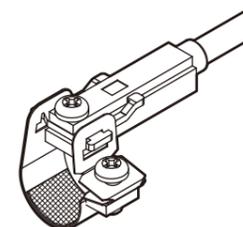
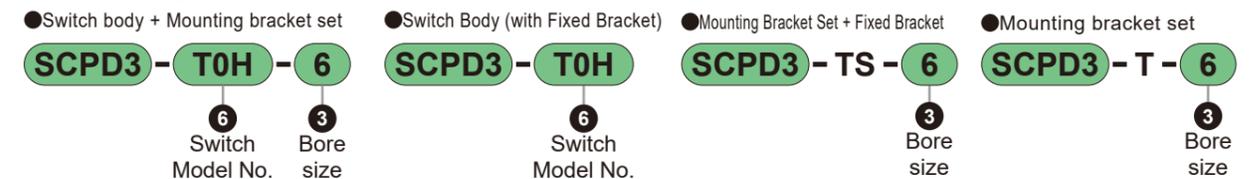
*2: SCPH3(-L) cannot be selected.

About Custom Product Specifications

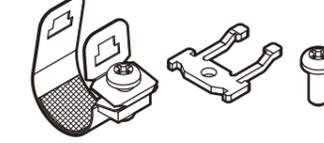
Code	Contents
Rod End Shape Modification	Refer to End of Volume P. 11.

*For combinations of variations and options, see P. 11.

Switch Single Unit Model No. Notation Method



Note) T-type standard switch and fixing bracket Phillips pan head screw are different.



For purchases of 20 or more, items will be packed together.



For purchases of 20 or more, items will be packed together.

Specifications

Item	SCPS		SCPS3 SCPS3-L			SCPH3 SCPH3-L		
	ø2.5	ø4	ø6	ø10	ø16	ø6	ø10	ø16
Bore size mm	ø2.5	ø4	ø6	ø10	ø16	ø6	ø10	ø16
Actuation method	Single Acting, Push Type				Single Acting, Retracting Type			
Operating Fluid	Compressed Air							
Max. Operating Pressure MPa	1.0							
Min. Operating Pressure MPa	0.35		0.3	0.15		0.39		0.2
Proof Pressure MPa	1.6							
Ambient Temperature °C	-10 to 60 (Provided that freezing does not occur)							
Port Size	Fitting for Tube (Tube ø2.5 × ø4)			M5				
Stroke tolerance mm	+0.5 0		+1.0 0					
Operating piston speed mm/s	50 to 300			50 to 750				
Cushion	None			Rubber Cushion				
Lubrication	Not required (When lubricating, use turbine oil Class 1 ISO VG32)							
Allowable Absorption Energy J	1.5 × 10 ⁻⁴	4 × 10 ⁻⁴	0.012	0.041	0.162	0.012	0.041	0.162

Note: Do not leave single acting cylinders pressurized. If left pressurized, the piston rod may not return by spring load when the pressure is released.

Stroke

	Bore size (mm)	Standard Stroke (mm)	Maximum Stroke (mm)	Min. Stroke (mm)
SCPS	ø2.5	5, 10	10	5
	ø4	5, 10, 15, 20	20	
SCPS3 SCPH3	ø6	15, 30, 45, 60	100	
	ø10		120	
	ø16			

Note: Intermediate strokes can be produced in 1 mm increments.

Min. Stroke with Switch

Diagram	With 1 pc.		With 2 pcs.	
	Rod Side Mounting	Head Side Mounting	For different surface mounting	
Min. Stroke	T0, 5, T2 (W), T3 (W) 5 mm	T2WL 30 mm	T0, 5, T2 (W), T3 (W) 10 mm	T2WL 30 mm

Single Acting Type Spring Load (SCPS/SCPS3/SCPH3)

(Unit: N)

Bore size (mm)	At Stroke 0 mm	At Full Stroke Operation
ø2.5	0.73	1.17
ø4	1.76	2.84
ø6	1.7	3.7
ø10	3.2	7.5
ø16	6.4	14.9

Cylinder Mass

Item	Mounting Bracket Mass			Product Mass at Stroke 0 mm	Added Mass per Stroke = 10 mm	Switch Mass (Per switch)	Switch Mounting Bracket Weight	Stroke (Unit: g)		
	Foot Type LS	Flange Type FA	Clevis Type CB					Bore size (mm)	5st	10st
ø6	6	4	-	9	2	Refer to the weight listed in the switch specifications on P. 971.	2	ø2.5	1.6	1.7
ø10	6	4	4	20	4			ø4	7	8
ø16	15	12	10	35	8					

(Example) Product mass of SCPS3-L-LS-10-30-T0H-D

- Mounting Bracket Weight (Foot type): 6 g
- Product Weight at Stroke = 0 mm:20 g
- Added Weight at Stroke = 30 mm: 4×30/10=12 g
- Switch Weight: 2×(18+2)=40 g
- Product Weight: 6+20+12+40=78 g

Theoretical Thrust Table

Bore size (mm)	Operating Pressure MPa (Unit: N)								
	0.35	0.4	0.5	0.6	0.7	0.8	0.9	1.0	
ø2.5	0.694	0.793	1.28	1.78	2.27	2.76	3.25	3.74	
ø4	1.92	2.19	3.44	4.70	5.96	7.21	8.47	9.73	

Bore size (mm)	Operating Pressure MPa									
	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø6	-	-	4.8	7.6	10.4	13.3	16.1	18.9	21.7	24.6
ø10	6.2	8.2	16.1	23.9	31.8	39.6	47.5	55.3	63.2	71.0
ø16	19.0	25.3	45.4	65.5	85.6	105.7	125.8	145.9	166.1	186.2

Bore size (mm)	Operating Pressure MPa								
	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø6	-	-	4.8	6.9	9.0	11.1	13.3	15.4	17.5
ø10	5.7	12.3	18.9	25.5	32.1	38.7	45.3	51.9	58.5
ø16	21.4	39.5	57.7	75.8	94.0	112.1	130.2	148.4	166.5

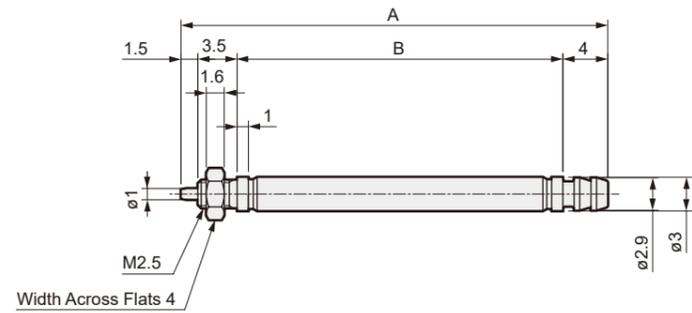
Mounting Bracket Model No. Notation Method

Bore size (mm)	ø6	ø10	ø16
Mounting bracket			
Foot (LS)	P2-LS-6	P2-LS-10	P2-LS-16
Flange (FA)	P2-FA-6	P2-FA-10	P2-FA-16

Note: Foot (LS) type mounting brackets come as 1 pc./set.

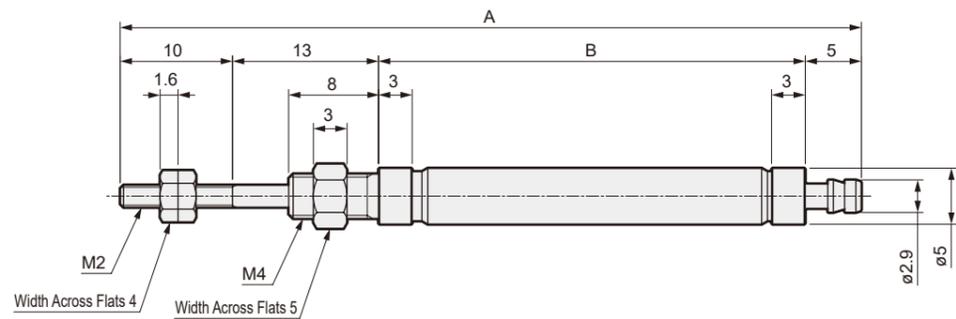
Outline Dimension Drawing

●SCPS Basic Type (00) ø2.5



Code	A	B
Stroke (mm) 5	33	24
Stroke (mm) 10	38	29

●SCPS Basic Type (00) ø4

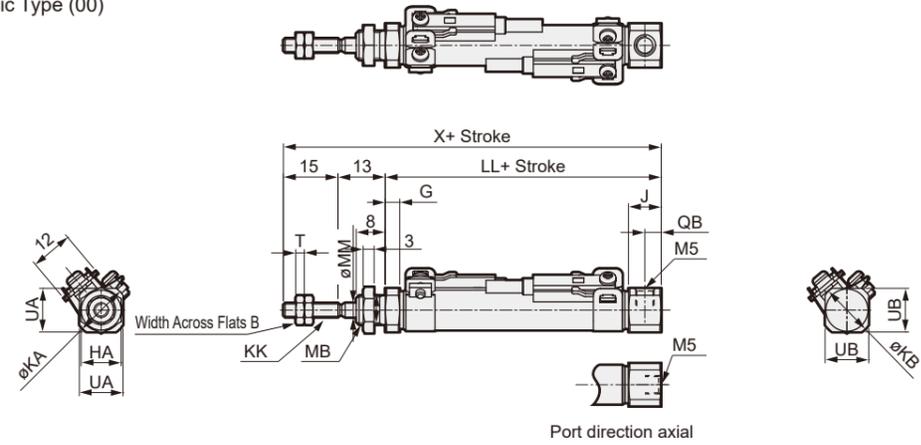


Code	A	B
Stroke (mm) 5	60.5	32.5
Stroke (mm) 10	65.5	37.5
Stroke (mm) 15	81.0	53.0
Stroke (mm) 20	86.0	58.0

Single Acting, Push Type

Outline Dimension Drawing

●SCPS3-(L) Basic Type (00)

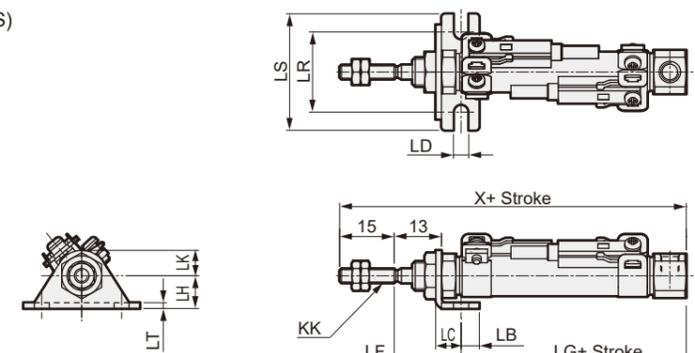


Code	Basic Type (00) Basic Dimensions															
	Basic Dimensions							LL								
Bore size (mm)	B	G	HA	J	KA	KB	KK									
	ø6	5.5	3	8	8	10.5	13.5 (10.5)	M3	15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less
ø10	7	4	11	9	14.5	14.5	M4	43.5	48.5	63.5	68.5	83.5	88.5	103.5	97	
ø16	8	4	14	9	21.5	21.5	M5	47	52	62	67	77	82	92	97	

Code	X															
	Basic Dimensions							X								
Bore size (mm)	MB	MM	QB	T	UA	UB										
	ø6	M6	3	4	1.8	9	11 (9)	15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less	
ø10	M8 × 1.0	4	4.5	2.4	12	12	71.5	76.5	91.5	96.5	111.5	116.5	131.5	-		
ø16	M10 × 1.0	5	4.5	3.2	18	18	75	80	90	95	105	110	120	125		

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
 *2: Dimensions in () are for head side port direction "O" (axial).
 *3: For dimensions of models with switches, see P. 101.
 *4: For outline dimension drawings of accessories, see P. 19.

●Single Side Axial Foot Type (LS)



Code	Single Side Axial Foot Type (LS) Mounting Dimensions													
	Bore size (mm)	KK	X							LB	LC	LD	LF	
15 or less			>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105	>105 to ≤120					
ø6	M3	71.5	76.5	91.5	96.5	111.5	116.5	131.5	-	5	7	4.2	18.4	
ø10	M4	75	80	90	95	105	110	120	125	5	7	4.2	18.4	
ø16	M5	75	80	90	95	105	110	120	125	6	9	5.2	19.7	

Code	LG													
	Bore size (mm)	LG							LH	LK	LR	LS	LT	
15 or less		>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105	>105 to ≤120						
ø6	38.1	43.1	58.1	63.1	78.1	83.1	98.1	-	9	7	22	32	1.6	
ø10	41.6	46.6	56.6	61.6	71.6	76.6	86.6	91.6	9	7	22	32	1.6	
ø16	40.3	45.3	55.3	60.3	70.3	75.3	85.3	90.3	14	10	29	42	2.3	

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
 *2: For dimensions of models with switches, see P. 101.
 *3: For outer dimensions diagram of accessories, refer to P. 19.

General Type

SCP_3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

General Type

SCP_3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

Cylinder Switch

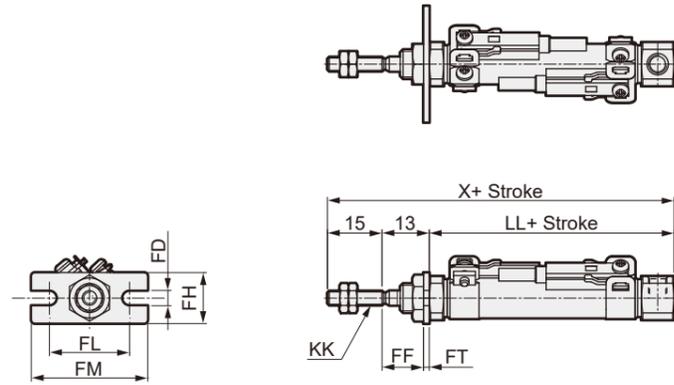
Ending

Cylinder Switch

Ending

Outline Dimension Drawing

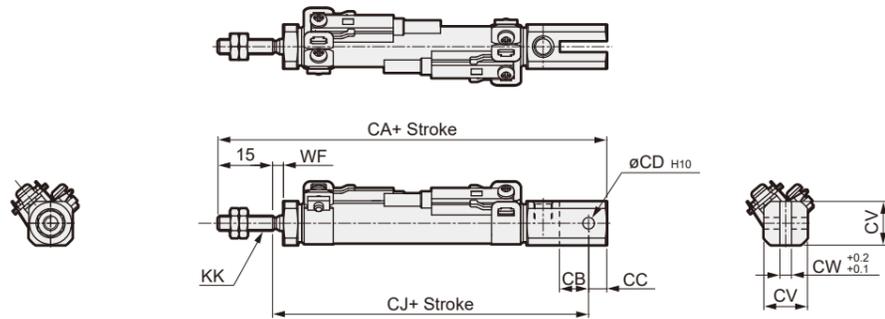
●Rod Side Flange Type (FA)



Code	Rod Side Flange Type (FA) Mounting Dimensions															
	Bore size (mm)	KK	LL							X						
			15 or less	>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105	>105 to ≤120	FD	FF	FH	FL	FM	FT
ø6	M3	43.5	48.5	63.5	68.5	83.5	88.5	103.5	-							
ø10	M4	47	52	62	67	77	82	92	97							
ø16	M5	47	52	62	67	77	82	92	97							

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
 *2: For dimensions of models with switches, see P. 101.
 *3: For outer dimensions diagram of accessories, refer to P. 19.

●Double clevis type (CB)

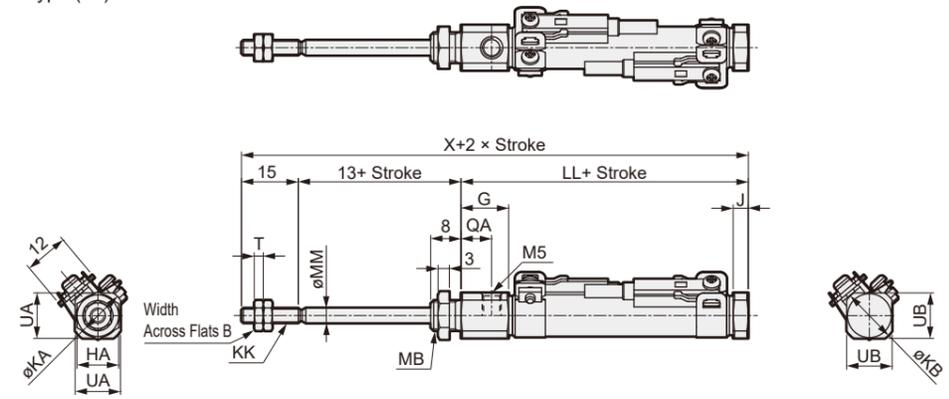


Code	Double Clevis Type (CB) Mounting Dimensions																			
	Bore size (mm)	KK	CA							CB	CC	CD	CJ							
			15 or less	>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105				>105 to ≤120	15 or less	>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105
ø10	M4	80	92	104	116	128	140	152	164	8	5	3.2	60	72	84	96	108	120	132	144
ø16	M5	87	99	111	123	135	147	159	171	10	10	5	62	74	86	98	110	122	134	146

*1: Pin and retaining clip are attached.
 *2: For dimensions of models with switches, see P. 101.
 *3: For outer dimensions diagram of accessories, refer to P. 19.

Outline Dimension Drawing

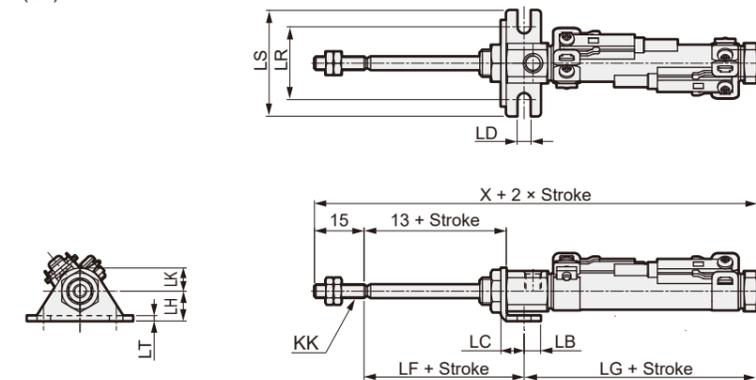
●SCPH3-(L) Basic Type (00)



Code	Basic Type (00) Basic Dimensions														
	Bore size (mm)	B	G	HA	J	KA	KB	KK	LL						
									15 or less	>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105
ø6	5.5	17	8	3	13.5	10.5	M3	52.5	57.5	72.5	77.5	92.5	97.5	112.5	-
ø10	7	12.5	11	4	14.5	14.5	M4	51	56	66	71	81	86	96	101
ø16	8	13	14	4	21.5	21.5	M5	51	56	66	71	81	86	96	101

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
 *2: For dimensions of models with switches, see P. 101.
 *3: For outer dimensions diagram of accessories, refer to P. 19.

●Single Side Axial Foot Type (LS)



Code	Single Side Axial Foot Type (LS) Mounting Dimensions												
	Bore size (mm)	KK	X							LB	LC	LD	LF
			15 or less	>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105				
ø6	M3	80.5	85.5	100.5	105.5	120.5	125.5	140.5	-	5	7	4.2	18.4
ø10	M4	79	84	94	99	109	114	124	129	5	7	4.2	18.4
ø16	M5	79	84	94	99	109	114	124	129	6	9	5.2	19.7

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
 *2: For dimensions of models with switches, see P. 101.
 *3: For outer dimensions diagram of accessories, refer to P. 19.

General Type

General Type

SCP3

SCP3

CMK2

CMK2

CMA2

CMA2

SCM

SCM

SCG

SCG

SCA2

SCA2

SCS2

SCS2

Cylinder Switch

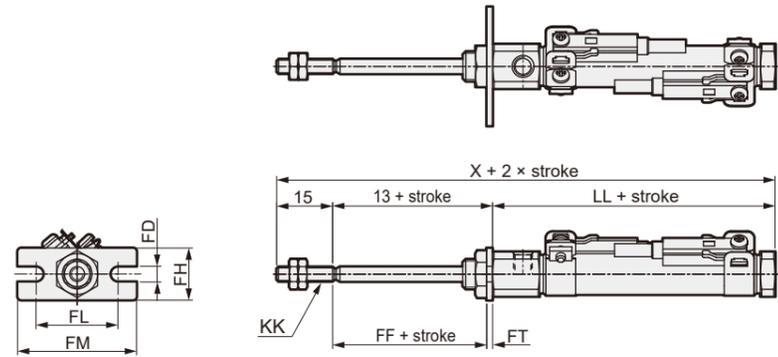
Cylinder Switch

Ending

Ending

Outline Dimension Drawing

●Rod Side Flange Type (FA)

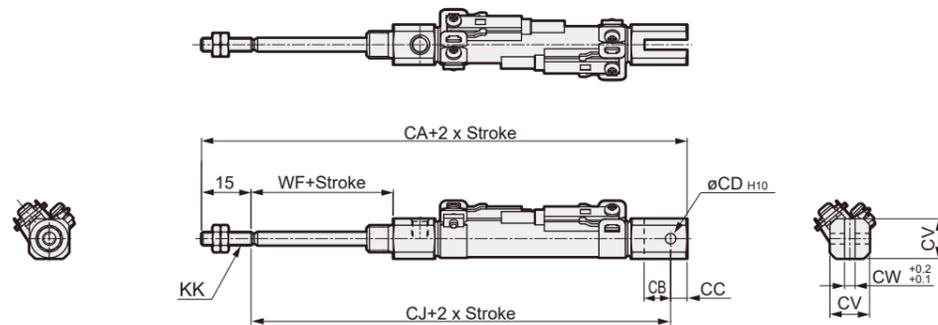


Code	Rod Side Flange Type (FA) Mounting Dimensions														
	Bore size (mm)	KK	LL							FD	FF	FH	FL	FM	FT
15 or less			>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105	>105 to ≤120						
CMK2	ø6	M3	52.5	57.5	72.5	77.5	92.5	97.5	112.5	-					
	ø10	M4	51	56	66	71	81	86	96	101					
CMA2	ø16	M5	51	56	66	71	81	86	96	101					

Code	Bore size (mm)	X							FD	FF	FH	FL	FM	FT	
		15 or less	>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105							>105 to ≤120
SCM	ø6	80.5	85.5	100.5	105.5	120.5	125.5	140.5	-	4.2	11.4	14	22	32	1.6
SCG	ø10	79	84	94	99	109	114	124	129	4.2	11.4	14	22	32	1.6
	ø16	79	84	94	99	109	114	124	129	5.2	10.7	20	29	42	2.3

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
 *2: For dimensions of models with switches, see P. 101.
 *3: For outer dimensions diagram of accessories, refer to P. 19.

●Double clevis type (CB)



Code	Double Clevis Type (CB) Mounting Dimensions																				
	Bore size (mm)	KK	CA							CB	CC	CD	CJ								
15 or less			>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105	>105 to ≤120				15 or less	>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105	>105 to ≤120	
	ø10	M4	94	106	118	130	142	154	166	178	8	5	3.2	74	86	98	110	122	134	146	158
	ø16	M5	101	113	125	137	149	161	173	185	10	10	5	76	88	100	112	124	136	148	160

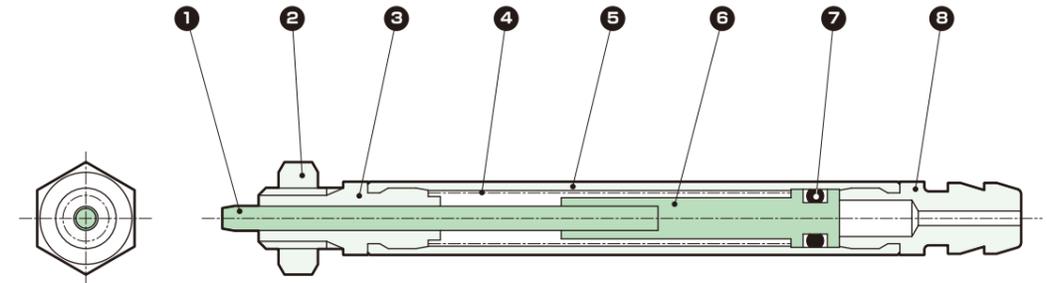
Code	Bore size (mm)	Cv	CW	WF							
				15 or less	>15 to ≤30	>30 to ≤45	>45 to ≤60	>60 to ≤75	>75 to ≤90	>90 to ≤105	>105 to ≤120
	ø10	12	3.2	15	22	24	31	33	40	42	49
	ø16	18	6.5	15	22	24	31	33	40	42	49

*1: The thread depth of ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
 *2: Pin and retaining clip are attached.
 *3: For dimensions of models with switches, see P. 101.
 *4: For outline dimension drawings of accessories, see P. 19.

Internal Structure Diagram / Material

Internal Structure Diagram / Material

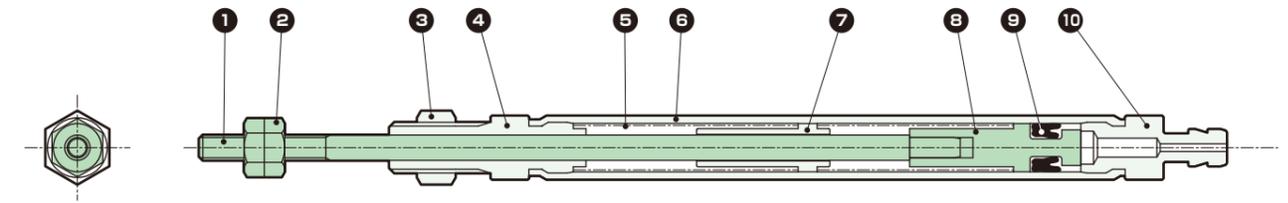
●Single Acting SCPS
 • ø2.5



Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod	Stainless Steel		5	Cylinder Tube	Stainless Steel	
2	Hexagon Nut	Copper Alloy		6	Piston	Copper Alloy	
3	Rod Cover	Copper Alloy		7	Piston Packing	Nitrile Rubber	
4	Coil Spring	Piano Wire		8	Head Cover	Copper Alloy	

• ø4



Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod	Stainless Steel		6	Cylinder Tube	Stainless Steel	
2	Rod Nut	Copper Alloy		7	Spring Retainer	Copper Alloy	
3	Hexagon Nut	Copper Alloy		8	Piston	Copper Alloy	
4	Rod Cover	Copper Alloy		9	Piston Packing	Nitrile Rubber	
5	Coil Spring	Piano Wire		10	Head Cover	Copper Alloy	

General Type

General Type

SCP3

SCP3

CMK2

CMK2

CMA2

CMA2

SCM

SCM

SCG

SCG

SCA2

SCA2

SCS2

SCS2

Cylinder Switch

Cylinder Switch

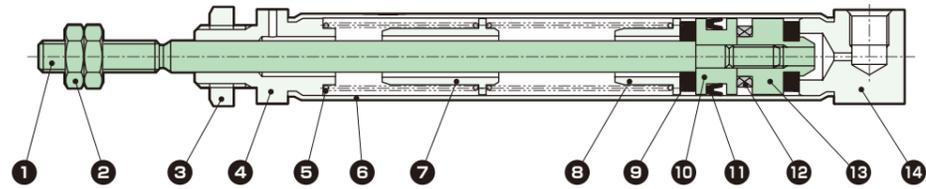
Ending

Ending

SCPS3/SCPH3 Series

Internal Structure Diagram / Material

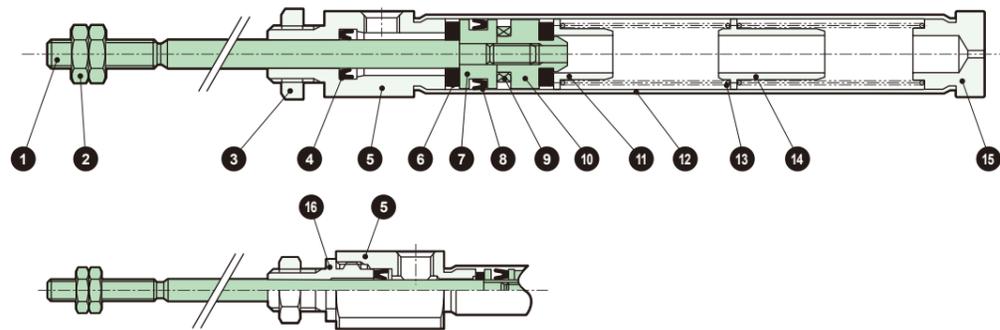
- Single Acting, Push Type
- SCPS3
- SCPS3-L (with Switch)



Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod	Stainless Steel		8	Spring Retainer (B)	Aluminum Alloy	
2	Rod Nut	Steel	Nickel Plating	9	Cushion Rubber	Urethane Rubber	
3	Hexagon Nut	Steel	Nickel Plating	10	Piston	Aluminum Alloy	
4	Rod Cover	Aluminum Alloy	Hard Anodized	11	Piston Packing	Nitrile Rubber	
5	Coil Spring	Piano Wire	Zinc Chromate	12	Magnet		With switch only
6	Cylinder Tube	Stainless Steel		13	Spacer	Aluminum Alloy	
7	Spring Retainer (A)	Aluminum Alloy		14	Head Cover	Aluminum Alloy	Hard Anodized

- Single Acting, Retracting Type
- SCPH3
- SCPH3-L (with Switch)



Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod	Stainless Steel		9	Magnet		With switch only
2	Rod Nut	Steel	Nickel Plating	10	Spacer	Aluminum Alloy	
3	Hexagon Nut	Steel	Nickel Plating	11	Spring Retainer (A)	Aluminum Alloy	
4	Rod Packing	Nitrile Rubber		12	Cylinder Tube	Stainless Steel	
5	Rod Cover	Aluminum Alloy	Hard Anodized	13	Coil Spring	Piano Wire	Zinc Chromate
6	Cushion Rubber	Urethane Rubber		14	Spring Retainer (B)	Aluminum Alloy	
7	Piston	Aluminum Alloy		15	Head Cover	Aluminum Alloy	Hard Anodized
8	Piston Packing	Nitrile Rubber		16	Rod Metal	Aluminum Alloy	Hard Anodized

MEMO



Pencil Cylinder, Double Acting, Heat Resistant Type

SCPD3-T Series

● Bore size: ø6, ø10, ø16

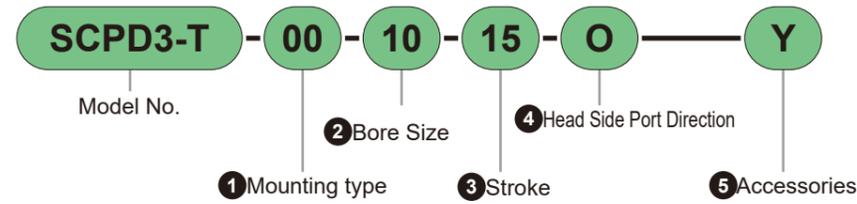
Circuit Diagram Symbol



Specifications

Item	SCPD3-T			
	ø6	ø10	ø16	
Bore size	mm	ø6	ø10	ø16
Actuation method	Double Acting/Heat Resistant Type			
Operating Fluid	Compressed Air			
Max. Operating Pressure	MPa	1.0		
Min. Operating Pressure	MPa	0.15	0.1	
Proof Pressure	MPa	1.6		
Ambient Temperature	°C	5 to 120		
Port Size		M5		
Stroke tolerance	mm	+1.0 0		
Operating piston speed	mm/s	50 to 750		
Cushion		Rubber Cushion		
Lubrication		Not Available		
Allowable Absorption Energy	J	0.012	0.041	0.162

Model No. Notation Method



1 Mounting type

Mounting brackets are attached to the product and shipped.

Code	Contents	
00	Basic type	
LS	Single Side Axial Foot Type (Rod Side)	
FA	Rod Side Flange Type	
CB	Double Clevis Type (Pin and Retaining Ring Attached) (ø10, ø16)	

*1: When port direction is "O" (axial), mounting style "CB" cannot be selected.

2 Bore size (mm)

Code	Content
6	ø6
10	ø10
16	ø16

3 Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø6	5 to 100	Every 1 mm
ø10	5 to 200	
ø16	5 to 260	

4 Head Side Port Direction

Code	Content	
Blank	Vertical Direction	
O	Axial Direction	

*1: When port direction is "O" (axial), mounting style "CB" cannot be selected.

5 Accessories

Code	Content	
I	Single Knuckle	
Y	Double Knuckle (pin and retaining ring attached)	
B1	Single Bracket	
B2	Double Yoke Bracket	

*1: "I" and "Y" cannot be selected at the same time.
*2: Accessories cannot be selected for ø6.

About Custom Product Specifications

Code	Contents
Rod End Shape Modification	Refer to End of Volume P. 11.

*For combinations of variations and options, see P. 11.

Stroke

Bore size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)
SCPD3-T	15, 30, 45, 60	100 200 260	5

Note: Intermediate strokes can be produced in 1 mm increments.

Cylinder Mass

(Unit: g)

Model	Item	Mounting Bracket Mass			Product Mass at Stroke 0 mm	Added Mass per Stroke = 10 mm
		Bore size (mm)	Foot Type LS	Flange Type FA		
SCPD3-T	ø6	6	4	-	13	1
	ø10	6	4	4	21	2
	ø16	15	12	10	42	3

(Example) Product Weight of SCPD3-T-LS-10-30

- Mounting Bracket Weight (Foot type): 6 g
- Product Weight at Stroke = 0 mm: 21 g
- Added Weight at Stroke = 30 mm: 2×30/10=6 g
- Product Weight: 6+21+6=33 g

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø6	Push	-	4.24	5.65	8.48	11.3	14.1	17.0	19.8	22.6	25.4	28.3
	Pull	-	3.18	4.24	6.36	8.48	10.6	12.7	14.8	17.0	19.1	21.2
ø10	Push	7.85	11.8	15.7	23.6	31.4	39.3	47.1	55.0	62.8	70.7	78.5
	Pull	6.60	9.90	13.2	19.8	26.4	33.0	39.6	46.2	52.8	59.4	66.0
ø16	Push	20.1	30.2	40.2	60.3	80.4	1.01 × 10 ²	1.21 × 10 ²	1.41 × 10 ²	1.61 × 10 ²	1.81 × 10 ²	2.01 × 10 ²
	Pull	18.1	27.2	36.3	54.4	72.6	90.7	1.09 × 10 ²	1.27 × 10 ²	1.45 × 10 ²	1.63 × 10 ²	1.81 × 10 ²

Outline Dimension Drawing

Same as Double Acting, Single Rod Type SCPD3 Series. Refer to P. 16 to 18. However, it does not come with a switch.

General Type

General Type

SCP3

SCP3

CMK2

CMK2

CMA2

CMA2

SCM

SCM

SCG

SCG

*1

*1

SCA2

SCA2

SCS2

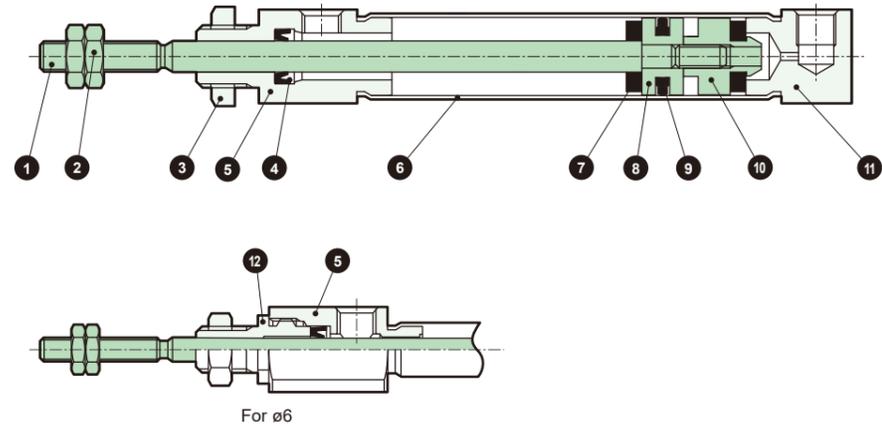
SCS2

Cylinder Switch

Cylinder Switch

Ending

Ending



Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod	Stainless Steel		7	Cushion Rubber	Fluoro Rubber	
2	Rod Nut	Steel	Nickel Plating	8	Piston	Aluminum Alloy	
3	Hexagon Nut	Steel	Nickel Plating	9	Piston Packing	Fluoro Rubber	
4	Rod Packing	Fluoro Rubber		10	Spacer	Aluminum Alloy	
5	Rod Cover	Aluminum Alloy	Hard Anodized	11	Head Cover	Aluminum Alloy	Hard Anodized
6	Cylinder Tube	Stainless Steel		12	Rod Metal	Aluminum Alloy	Hard Anodized

MEMO

General Type

SCP_3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

Cylinder Switch

Ending

General Type

SCP_3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

Cylinder Switch

Ending



Pencil Cylinder, Double Acting, with Rubber Air Cushion

SCPD3-□C Series

Bore size: ø6, ø10, ø16

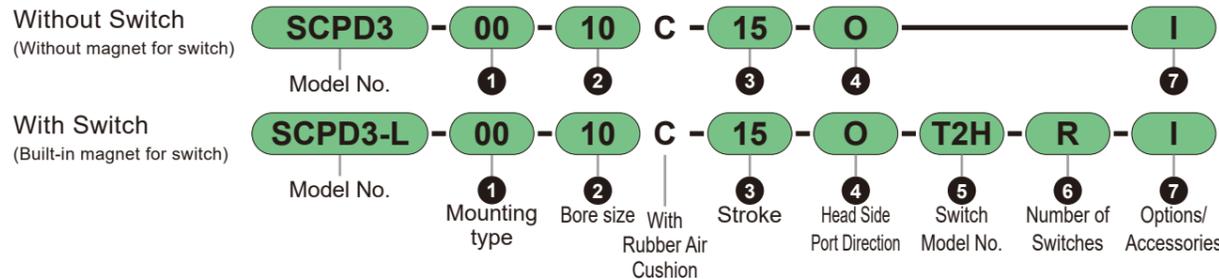
Circuit Diagram Symbol



SCPD3-□C Series

Model No. Notation Method

Model No. Notation Method



1 Mounting type

Code	Contents
00	Basic type
LS	Single Side Axial Foot Type (Rod Side)
FA	Rod Side Flange Type
CB	Double Clevis Type (ø10, ø16)

*1: When port direction is "0", "CB" cannot be manufactured.

2 Bore size (mm)

Code	Content
6	ø6
10	ø10
16	ø16

3 Stroke (mm)

Bore size	Stroke	Intermediate Stroke
ø6	5 to 100	Every 1 mm
ø10	5 to 200	
ø16	5 to 260	

Note: For minimum stroke with switch, refer to P. 40.

4 Head Side Port Direction

Code	Content
Blank	Vertical Direction
O	Axial Direction

*1: When port direction is "0", "CB" cannot be manufactured.

5 Switch Model No.

For switch details, please refer to P. 971. Switches are attached to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V)		Load Current (mA)		Lead Wire *1	
			AC	DC	AC	DC	Straight	L-shape
Solid State	1-Color	2-wire	—	10 to 30	—	5 to 20 *2	T2H□	T2V□
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□
		3-wire (PNP)	—	30 or less	—	50 or less	T3PH□	T3PV□
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□
		2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□
	No Indicator Lamp	2-wire	110	5/12/24	20 or less	50 or less	T5H□	T5V□

*1: For "□" in the switch model number, enter the code selected from the "Lead wire length, connector specification" table.

*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)

*3: This does not guarantee the water resistance of the cylinder.

*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (-) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH ③
5 m TOH ⑤

6 Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

6 Options/Accessories

Code	Content
I	Single Knuckle
Y	Double Knuckle (pin and retaining ring attached)
B1	Single Bracket
B2	Double Yoke Bracket

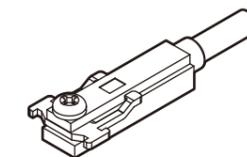
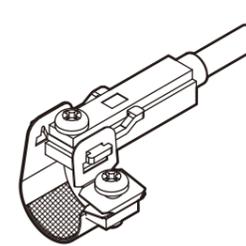
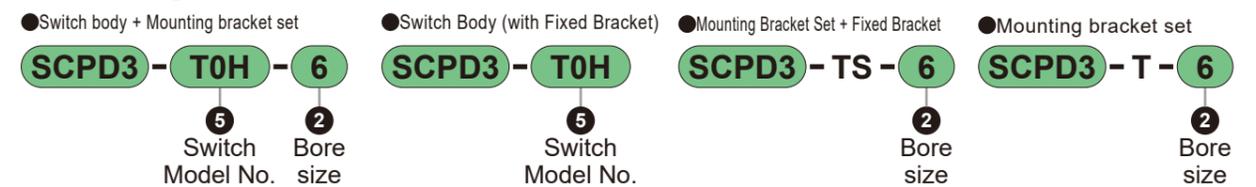
*1: "I" and "Y" cannot be selected at the same time.
*2: Options/accessories cannot be selected for ø6.

About Custom Product Specifications

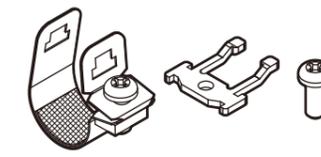
Code	Contents
Rod End Shape Modification	Refer to End of Volume P. 11.

*For combinations of variations and options, see P. 11.

Switch Single Unit Model No. Notation Method



Note) T-type standard switch and fixing bracket Phillips pan head screw are different.



For purchases of 20 or more, items will be packed together.



For purchases of 20 or more, items will be packed together.

General Type

SCP□3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

Cylinder Switch

Ending

General Type

SCP□3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

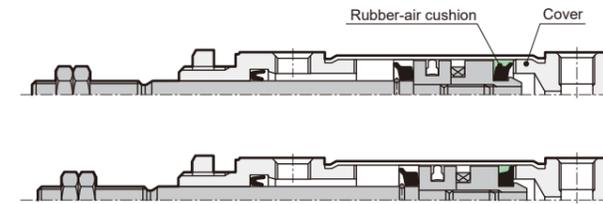
Cylinder Switch

Ending

Specifications

Item	SCPD3-□C, SCPD3-L-□C			
Bore size	mm	ø6	ø10	ø16
Actuation method	Double Acting Type			
Operating Fluid	Compressed Air			
Max. Operating Pressure	MPa	1.0		
Min. operating pressure	MPa	0.3	0.2	
Proof Pressure	MPa	1.6		
Ambient Temperature	°C	-10 to 60 (Provided that freezing does not occur)		
Port Size	M5			
Stroke tolerance	mm	+1.0 0		
Operating piston speed	mm/s	50 to 750 (Use within allowable absorbed energy.)		
Cushion	Rubber Air Cushion			
Lubrication	Not required (When lubricating, use turbine oil Class 1 ISO VG32)			
Allowable Absorption Energy	J	0.012	0.041	0.162

■ Rubber Air Cushion Mechanism



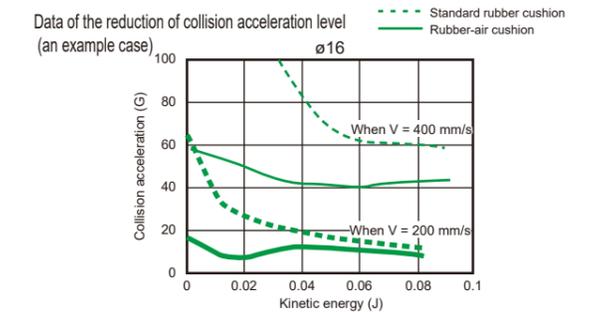
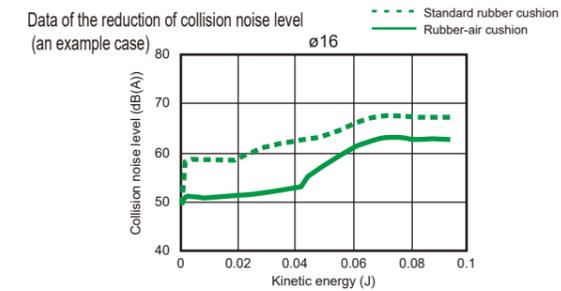
Explanation at Pull

When the piston operates and the rubber cushion contacts the cover, an enclosed air space is formed in the part. The air in this enclosed space is compressed as the piston operates, absorbing energy. At the stroke end, energy absorption due to the compressive strain of the rubber air cushion is also added.

Stroke

Bore size (mm)	Standard Stroke (mm)	Maximum Stroke (mm)	Min. Stroke (mm)
ø6	15, 30, 45, 60	100	5
ø10		200	
ø16		260	

Note: Intermediate strokes can be produced in 1 mm increments.



Min. Stroke with Switch

Diagram	With 1 pc.		With 2 pcs.	
	Rod Side Mounting	Head Side Mounting	For different surface mounting	
Min. Stroke	T0, 5, T2 (W), T3 (W) 5 mm	T2WL 30 mm	T0, 5, T2 (W), T3 (W) 10 mm	T2WL 30 mm

Cylinder Mass

(Unit: g)

Model	Item Bore size (mm)	Mounting Bracket Mass			Product Mass at Stroke 0 mm	Added Mass per Stroke = 10 mm	Switch Mass (Per switch)	Switch Mounting Bracket Mass
		Foot Type LS	Flange Type FA	Clevis Type CB				
SCPD3-□C	ø6	6	4	-	13	1	Refer to the weight listed in the switch specifications on P. 971.	2
	ø10	6	4	4	21	2		
	ø16	15	12	10	42	3		

(Example) Product Weight of SCPD3-L-LS-10C-30-T0H-D

- Mounting Bracket Weight (Foot type): 6 g
- Product Weight at Stroke = 0 mm:21 g
- Added Weight at Stroke = 30 mm: 2×30/10= 6 g
- Switch Weight: 2×(18+2)=40 g
- Product Weight: 6+21+6+40=73 g

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa									
		0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	
ø6	Push	-	8.48	11.3	14.1	17.0	19.8	22.6	25.4	28.3	
	Pull	-	6.36	8.48	10.6	12.7	14.8	17.0	19.1	21.2	
ø10	Push	-	23.6	31.4	39.3	47.1	55.0	62.8	70.7	78.5	
	Pull	-	19.8	26.4	33.0	39.6	46.2	52.8	59.4	66.0	
ø16	Push	40.2	60.3	80.4	1.01 × 10 ²	1.21 × 10 ²	1.41 × 10 ²	1.61 × 10 ²	1.81 × 10 ²	2.01 × 10 ²	
	Pull	36.3	54.4	72.6	90.7	1.09 × 10 ²	1.27 × 10 ²	1.45 × 10 ²	1.63 × 10 ²	1.81 × 10 ²	

Mounting Bracket Model No. Notation Method

Bore size (mm)	ø6	ø10	ø16
Mounting bracket			
Foot (LS)	P2-LS-6	P2-LS-10	P2-LS-16
Flange (FA)	P2-FA-6	P2-FA-10	P2-FA-16

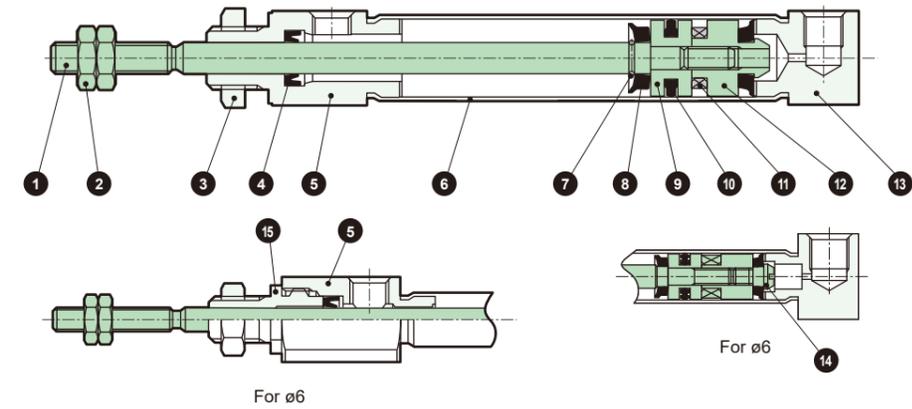
Note: Foot (LS) type mounting brackets come as 1 pc./set.

Outline Dimension Drawing

Same as Double Acting, Single Rod Type SCPD3 Series. Refer to P. 16 to 18.

Internal Structure Diagram / Material

- With Rubber Air Cushion
- SCPD3-□C
- SCPD3-L-□C (with Switch)



Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod	Stainless Steel		9	Piston	Aluminum Alloy	
2	Rod Nut	Steel	Nickel Plating	10	Piston Packing	Nitrile Rubber	
3	Hexagon Nut	Steel	Nickel Plating	11	Magnet		With switch only
4	Rod Packing	Nitrile Rubber		12	Spacer	Aluminum Alloy	
5	Rod Cover	Aluminum Alloy	Hard Anodized	13	Head Cover	Aluminum Alloy	Hard Anodized
6	Cylinder Tube	Stainless Steel		14	Pin	Stainless Steel	ø6 only
7	Retaining Ring	Stainless Steel		15	Rod Metal	Aluminum Alloy	Hard Anodized
8	Rubber Air Cushion	Hydrogenated Nitrile Rubber					

General Type

General Type

SCP_3

SCP_3

CMK2

CMK2

CMA2

CMA2

SCM

SCM

SCG

SCG

SCA2

SCA2

SCS2

SCS2

Cylinder Switch

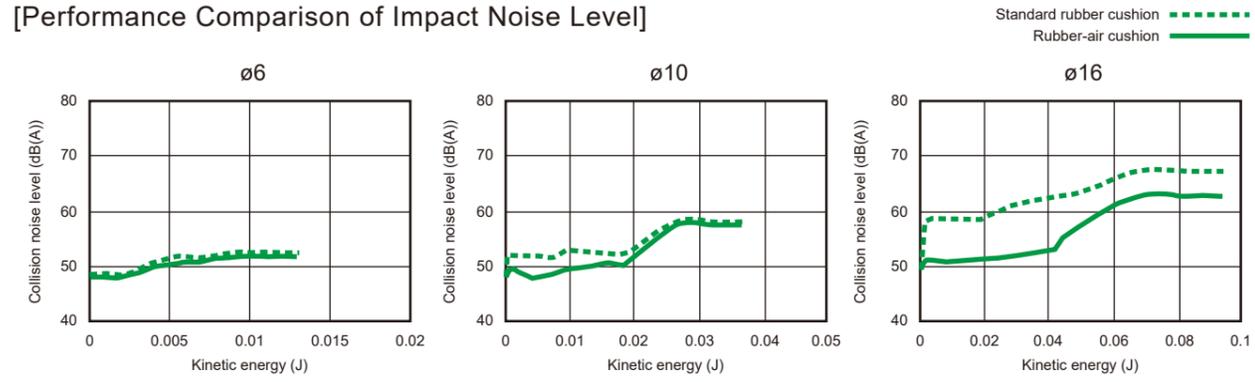
Cylinder Switch

Ending

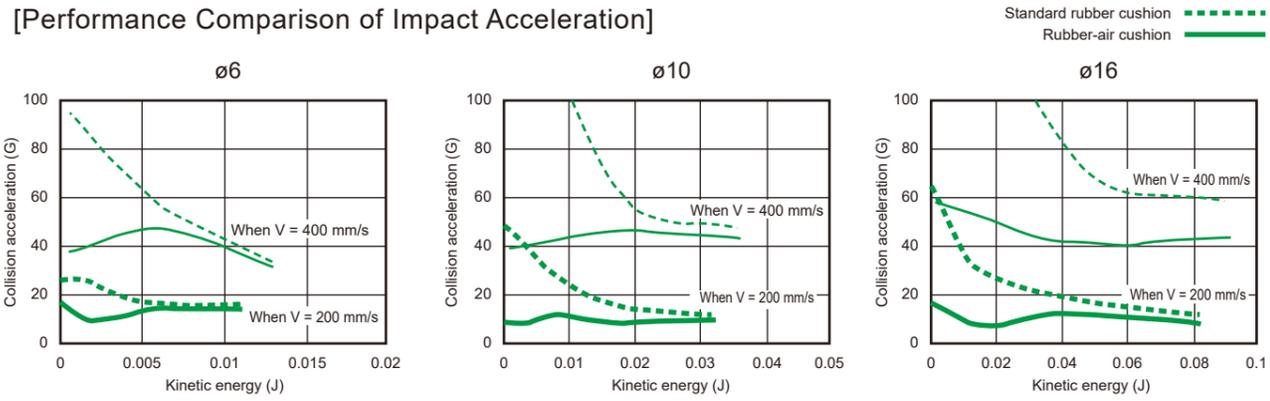
Ending

Technical Data

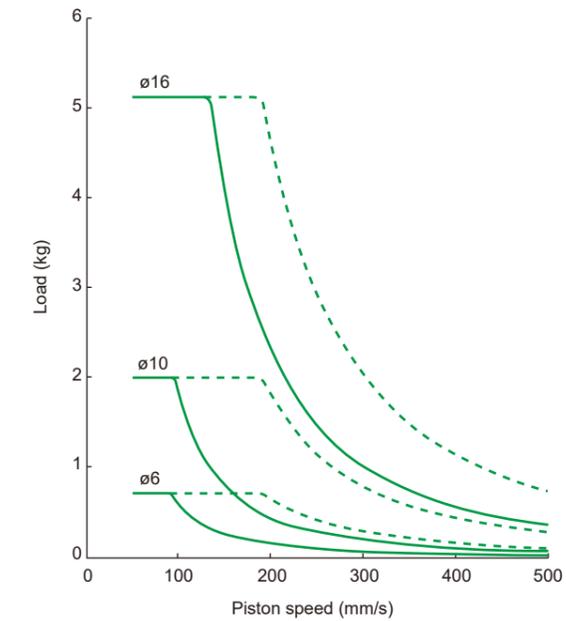
[Performance Comparison of Impact Noise Level]



[Performance Comparison of Impact Acceleration]



[Recommended Energy Range]



The usable range is to the lower left of the curve. Use is possible even in the range indicated by --- in the diagram, but it is recommended to use within the range of the solid line to achieve more effective noise reduction and damping effects.

MEMO



General Type

SCP_3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

General Type

SCP_3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

Cylinder Switch

Ending

Cylinder Switch

Ending



Pencil Cylinder, Double Acting, Fine Speed Type

SCPD3-F Series

● Bore size: $\phi 6$, $\phi 10$, $\phi 16$

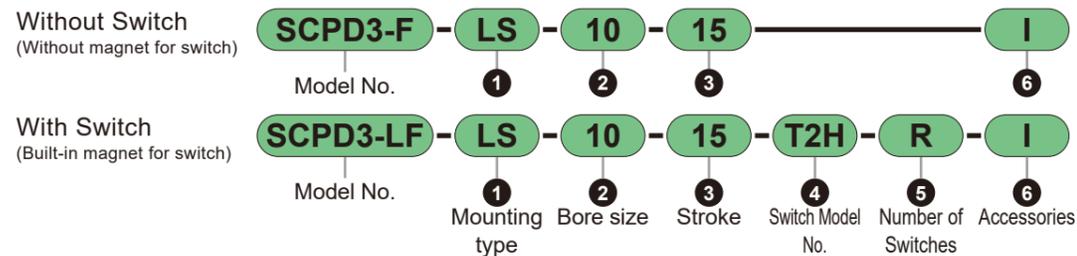
Circuit Diagram Symbol



SCPD3-F Series

Model No. Notation Method

Model No. Notation Method



5 Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

6 Accessories

Code	Content	Image
I	Single Knuckle	
Y	Double Knuckle (pin and retaining ring attached)	
B1	Single Bracket	
B2	Double Yoke Bracket	

*1: "I" and "Y" cannot be selected at the same time.
*2: Accessories cannot be selected for $\phi 6$.

About Custom Product Specifications

Code	Contents
Rod End Shape Modification	Refer to End of Volume P. 11.

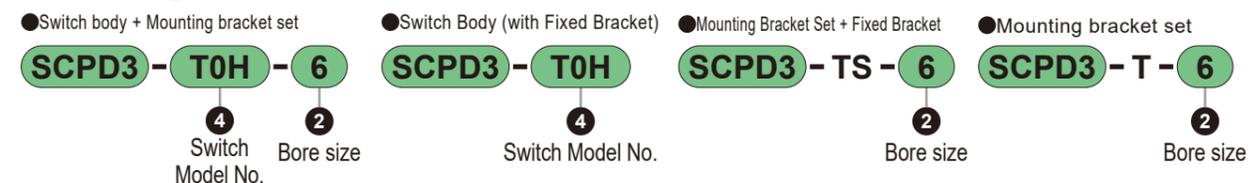
Clean Specification (Catalog No. CB-033SAA)

Dust prevention structure usable in cleanrooms

SCPD3 - F - ... - **P7***
SCPD3 - F - ... - **P5***

* For combinations of variations and options, see P. 11.

Switch Single Unit Model No. Notation Method



1 Mounting type

Mounting brackets are attached to the product and shipped.

Code	Contents	Image
00	Basic type	
LS	Single Side Axial Foot Type (Rod Side)	
FA	Rod Side Flange Type	
CB	Double Clevis Type (Pin and retaining ring attached) ($\phi 10$, $\phi 16$)	

2 Bore size (mm)

Code	Content
6	$\phi 6$
10	$\phi 10$
16	$\phi 16$

3 Stroke (mm)

Bore size	Stroke	Intermediate Stroke
$\phi 6$	5 to 100	Every 1 mm
$\phi 10$	5 to 200	
$\phi 16$	5 to 260	

Note: For minimum stroke with switch, refer to P. 48.

4 Switch Model No.

For switch details, please refer to P. 971. Switches are attached to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V)		Load Current (mA)		Lead Wire *1		Image
			AC	DC	AC	DC	Straight	L-shape	
Solid State	1-Color	2-wire	—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—	—	—	—	T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
		2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator Lamp		110	5/12/24	20 or less	50 or less	T5H□	T5V□	

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (-) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

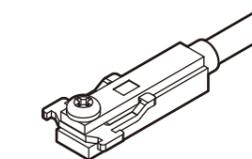
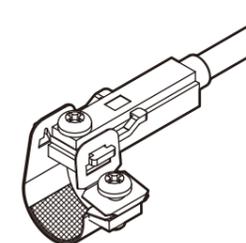
Example) Lead wire length
1 m TOH
3 m TOH ③
5 m TOH ⑤

*1: For "□" in the switch model number, enter the code selected from the "Lead wire length, connector specification" table.

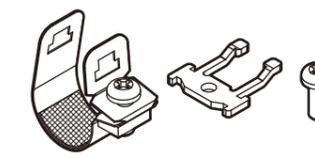
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)

*3: This does not guarantee the water resistance of the cylinder.

*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.



Note) T-type standard switch and fixing bracket Phillips pan head screw are different.



For purchases of 20 or more, items will be packed together.



For purchases of 20 or more, items will be packed together.

Specifications

Item	SCPD3-F / SCPD3-LF (with Switch)			
	mm	ø6	ø10	ø16
Bore size	mm	ø6	ø10	ø16
Actuation method		Double Acting Type		
Operating Fluid		Compressed Air		
Max. Operating Pressure	MPa	1.0		
Min. Operating Pressure	MPa	0.15	0.1	
Proof Pressure	MPa	1.6		
Ambient Temperature	°C	5 to 60		
Port Size		M5		
Stroke tolerance	mm	+1.0 0		
Operating piston speed	mm/s	1 to 200		
Cushion		Rubber Cushion		
Lubrication		Not Available		
Allowable Absorption Energy	J	0.012	0.041	0.162

Stroke

Bore size (mm)	Standard Stroke (mm)	Maximum Stroke (mm)	Min. Stroke (mm)
ø6	15, 30, 45, 60	100	5
ø10		200	
ø16		260	

Note: Intermediate strokes can be produced in 1 mm increments.

Min. Stroke with Switch

Diagram	With 1 pc.		With 2 pcs.	
	Rod Side Mounting	Head Side Mounting	For different surface mounting	
Min. Stroke	T0, 5, T2 (W), T3 (W) 5 mm	T2WL 30 mm	T0, 5, T2 (W), T3 (W) 10 mm	T2WL 30 mm

Cylinder Mass

(Unit: g)

Model	Item	Mounting Bracket Mass			Product Mass at Stroke 0 mm	Added Mass per Stroke = 10 mm	Switch Mass (Per switch)	Switch Mounting Bracket Mass
		Foot Type LS	Flange Type FA	Clevis Type CB				
SCPD3-F	ø6	6	4	-	13	1	Refer to the weight listed in the switch specifications on P. 971.	2
	ø10	6	4	4	21	2		
	ø16	15	12	10	42	3		

(Example) Product Weight of SCPD3-LF-LS-10-30-T0H-D

- Mounting Bracket Weight (Foot type): 6 g
- Product Weight at Stroke = 0 mm: 21 g
- Added Weight at Stroke = 30 mm: 2×30/10= 6 g
- Switch Weight: 2×(18+2)=40 g
- Product Weight: 6+21+6+40=73 g

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø6	Push	-	4.24	5.65	8.48	11.3	14.1	17.0	19.8	22.6	25.4	28.3
	Pull	-	3.18	4.24	6.36	8.48	10.6	12.7	14.8	17.0	19.1	21.2
ø10	Push	7.85	11.8	15.7	23.6	31.4	39.3	47.1	55.0	62.8	70.7	78.5
	Pull	6.60	9.90	13.2	19.8	26.4	33.0	39.6	46.2	52.8	59.4	66.0
ø16	Push	20.1	30.2	40.2	60.3	80.4	1.01 × 10 ²	1.21 × 10 ²	1.41 × 10 ²	1.61 × 10 ²	1.81 × 10 ²	2.01 × 10 ²
	Pull	18.1	27.2	36.3	54.4	72.6	90.7	1.09 × 10 ²	1.27 × 10 ²	1.45 × 10 ²	1.63 × 10 ²	1.81 × 10 ²

Mounting Bracket Model No. Notation Method

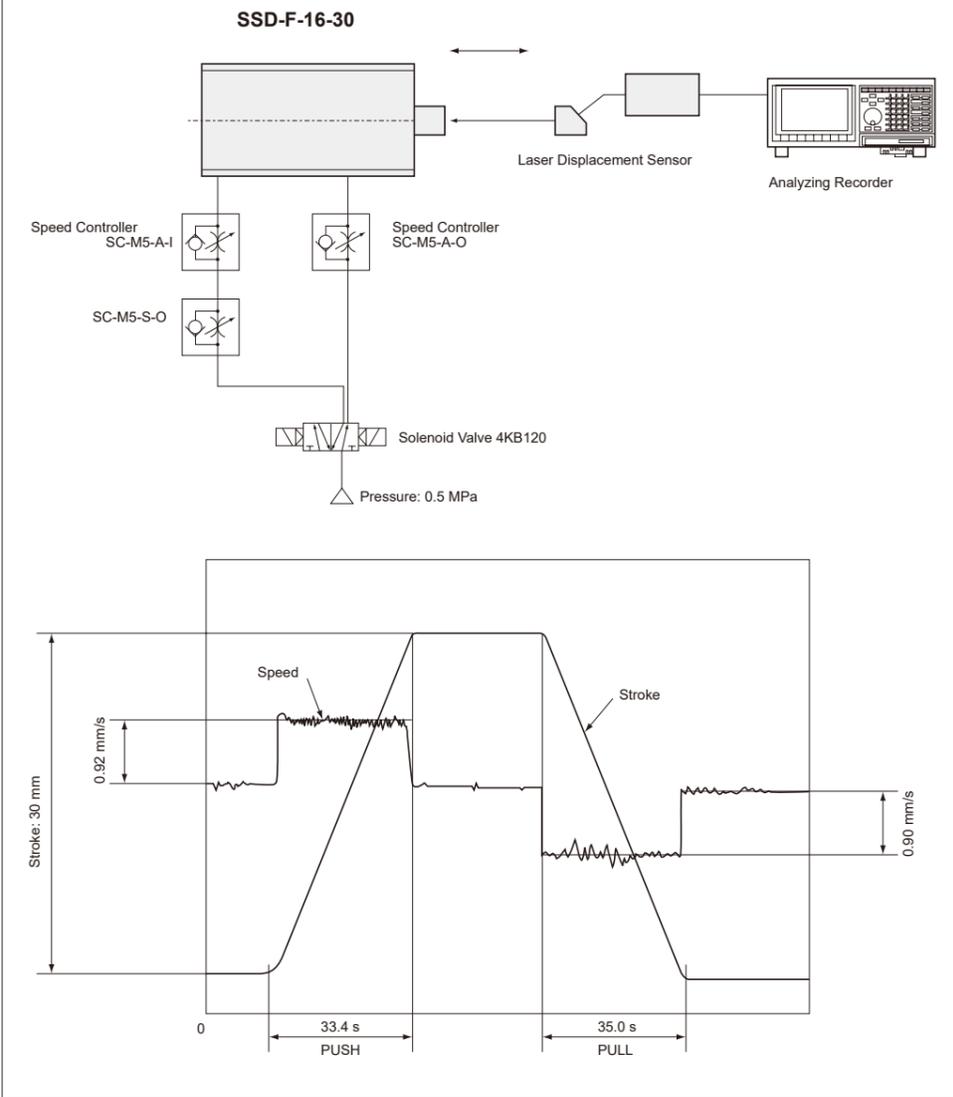
Bore size (mm)	ø6	ø10	ø16
Mounting bracket			
Foot (LS)	P2-LS-6	P2-LS-10	P2-LS-16
Flange (FA)	P2-FA-6	P2-FA-10	P2-FA-16

Note: Foot (LS) type mounting brackets come as 1 pc./set.

Outline Dimension Drawing

Same as Double Acting, Single Rod Type SCPD3 Series. Refer to P. 16 to 18.

● Measurement Method





Pencil Cylinder, Double Acting, Low Speed Type

SCPD3-O Series

● Bore size: $\phi 6$, $\phi 10$, $\phi 16$

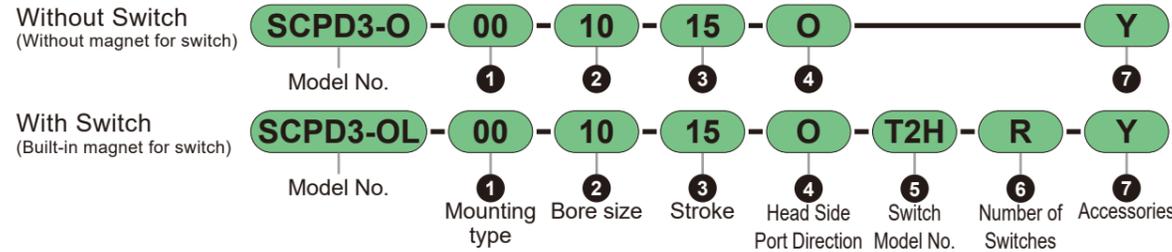
Circuit Diagram Symbol



SCPD3-O Series

Model No. Notation Method

Model No. Notation Method



1 Mounting type

Mounting brackets are attached to the product and shipped.

Code	Contents
00	Basic type
LS	Axial Foot Type (Rod Side)
FA	Rod Side Flange Type
CB	Double Clevis Type (Pin and retaining ring attached) ($\phi 10$, $\phi 16$)

*1: If port direction is "O" (axial), mounting type "CB" cannot be selected.

2 Bore size (mm)

Code	Content
6	$\phi 6$
10	$\phi 10$
16	$\phi 16$

3 Stroke (mm)

Bore size	Stroke	Intermediate Stroke
$\phi 6$	5 to 100	Every 1 mm
$\phi 10$	5 to 200	
$\phi 16$	5 to 260	

Note: For minimum stroke with switch, refer to P. 54.

4 Head Side Port Direction

Code	Content
Blank	Vertical Direction
O	Axial Direction

*1: If port direction is "O" (axial), mounting type "CB" cannot be selected.

5 Switch Model No.

For switch details, please refer to P. 971. Switches are attached to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V)		Load Current (mA)		Lead Wire *1	
			AC	DC	AC	DC	Straight	L-shape
Solid State	1-Color	2-wire	—	10 to 30	—	5 to 20 *2	T2H□	T2V□
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□
		3-wire (PNP)	—	—	—	—	T3PH□	T3PV□
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□
		2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□
	No Indicator Lamp	2-wire	110	5/12/24	20 or less	50 or less	T5H□	T5V□

*1: For "□" in the switch model number, enter the code selected from the "Lead wire length, connector specification" table.

*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)

*3: This does not guarantee the water resistance of the cylinder.

*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (-) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m TOH
3 m TOH ③
5 m TOH ⑤

6 Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

7 Accessories

Code	Content
I	Single Knuckle
Y	Double Knuckle (pin and retaining ring attached)
B1	Single Bracket
B2	Double Yoke Bracket

*1: "I" and "Y" cannot be selected at the same time.

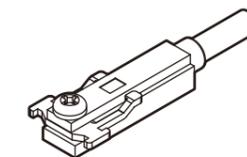
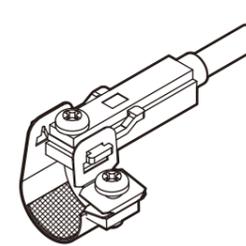
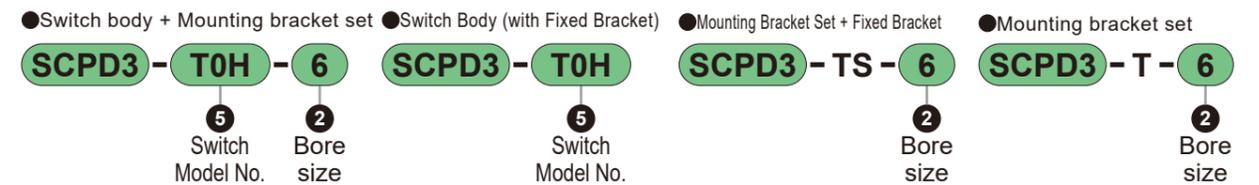
*2: Accessories cannot be selected for $\phi 6$.

About Custom Product Specifications

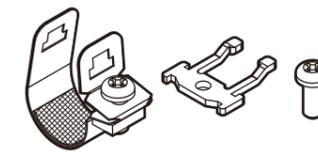
Code	Contents
Rod End Shape Modification	Refer to End of Volume P. 11.

*For combinations of variations and options, see P. 11.

Switch Single Unit Model No. Notation Method



Note) T-type standard switch and fixing bracket Phillips pan head screw are different.



For purchases of 20 or more, items will be packed together.



For purchases of 20 or more, items will be packed together.

Specifications

Item	SCPD3-O SCPD3-OL			
	mm	ø6	ø10	ø16
Bore size	mm	ø6	ø10	ø16
Actuation method		Double Acting/Low Speed Type		
Operating Fluid		Compressed Air		
Max. Operating Pressure	MPa	1.0		
Min. operating pressure	MPa	0.15	0.1	
Proof Pressure	MPa	1.6		
Ambient Temperature	°C	-10 to 60 (Provided that freezing does not occur)		
Port Size		M5		
Stroke tolerance	mm	+1.0 0		
Operating piston speed	mm/s	10 to 200		
Cushion		Rubber Cushion		
Lubrication		Not Available		
Allowable Absorption Energy	J	0.012	0.041	0.162

Stroke

Bore size (mm)	Standard Stroke (mm)	Maximum Stroke (mm)	Min. Stroke (mm)
SCPD3-O	ø6	15, 30, 45, 60	100
	ø10		200
	ø16		260
			5

Note: Intermediate strokes can be produced in 1 mm increments.

Min. Stroke with Switch

Diagram	With 1 pc.		With 2 pcs.	
	Rod Side Mounting	Head Side Mounting	For different surface mounting	
Min. Stroke	T0, 5, T2 (W), T3 (W)	T2WL	T0, 5, T2 (W), T3 (W)	T2WL
	5 mm	30 mm	10 mm	30 mm

Cylinder Mass

(Unit: g)

Model	Item Bore size (mm)	Mounting Bracket Mass			Product Mass at Stroke 0 mm	Added Mass per Stroke = 10 mm	Switch Mass (Per switch)	Switch Mounting Bracket Mass
		Foot Type LS	Flange Type FA	Clevis Type CB				
SCPD3-O	ø6	6	4	-	13	1	Refer to the weight listed in the switch specifications on P. 971.	2
	ø10	6	4	4	21	2		
	ø16	15	12	10	42	3		

(Example) Product Weight of SCPD3-OL-LS-10-30-T0H-D

- Mounting Bracket Weight (Foot type): 6 g
- Product Weight at Stroke = 0 mm: 21 g
- Added Weight at Stroke = 30 mm: 2×30/10=6 g
- Switch Weight: 2×(18+2)=40 g
- Product Weight: 6+21+6+40=73 g

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø6	Push	-	4.24	5.65	8.48	11.3	14.1	17.0	19.8	22.6	25.4	28.3
	Pull	-	3.18	4.24	6.36	8.48	10.6	12.7	14.8	17.0	19.1	21.2
ø10	Push	7.85	11.8	15.7	23.6	31.4	39.3	47.1	55.0	62.8	70.7	78.5
	Pull	6.60	9.90	13.2	19.8	26.4	33.0	39.6	46.2	52.8	59.4	66.0
ø16	Push	20.1	30.2	40.2	60.3	80.4	1.01 × 10 ²	1.21 × 10 ²	1.41 × 10 ²	1.61 × 10 ²	1.81 × 10 ²	2.01 × 10 ²
	Pull	18.1	27.2	36.3	54.4	72.6	90.7	1.09 × 10 ²	1.27 × 10 ²	1.45 × 10 ²	1.63 × 10 ²	1.81 × 10 ²

Mounting Bracket Model No. Notation Method

Bore size (mm)	ø6	ø10	ø16
Mounting bracket			
Foot (LS)	P2-LS-6	P2-LS-10	P2-LS-16
Flange (FA)	P2-FA-6	P2-FA-10	P2-FA-16

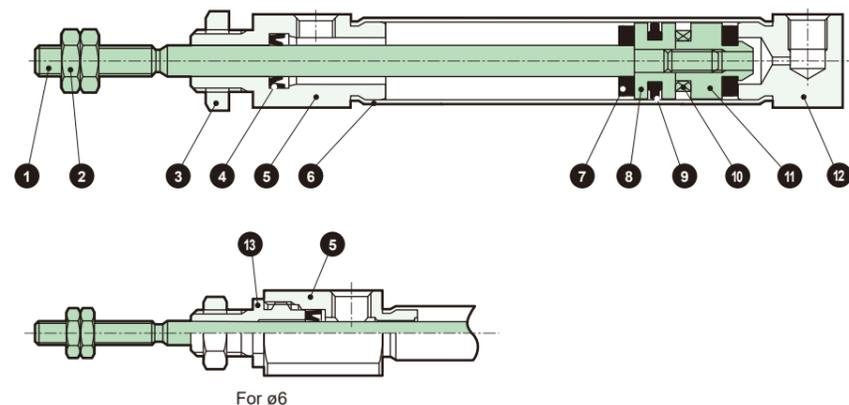
Note: Foot (LS) type mounting brackets come as 1 pc./set.

Outline Dimension Drawing

Same as Double Acting, Single Rod Type SCPD3 Series. Refer to P. 16 to 18.

Internal Structure Diagram / Material

● Double Acting Type
SCPD3-O(L)



Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod	Stainless Steel		8	Piston	Aluminum Alloy	
2	Rod Nut	Steel	Nickel Plating	9	Piston Packing	Nitrile Rubber	
3	Hexagon Nut	Steel	Nickel Plating	10	Magnet		With switch only
4	Rod Packing	Nitrile Rubber		11	Spacer	Aluminum Alloy	
5	Rod Cover	Aluminum Alloy	Hard Anodized	12	Head Cover	Aluminum Alloy	Hard Anodized
6	Cylinder Tube	Stainless Steel		13	Rod Metal	Aluminum Alloy	Hard Anodized
7	Cushion Rubber	Urethane Rubber					

Mounting Bracket Material

Mounting type	Material
Foot (LS)	Steel
Flange (FA)	Steel

MEMO

General Type

SCP_3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

Cylinder Switch

Ending

General Type

SCP_3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

Cylinder Switch

Ending

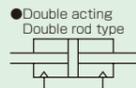


Pencil Cylinder, Double Acting, Double Rod Type SCPD3-D/SCPD3-DT Series

● Bore size: $\phi 6$, $\phi 10$, $\phi 16$

DT is Custom Order Product

Circuit Diagram Symbol



SCPD3-D Series Model No. Notation Method

6 Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

7 Accessories

Code	Contents
I	Single Knuckle
Y	Double Knuckle (pin and retaining ring attached)

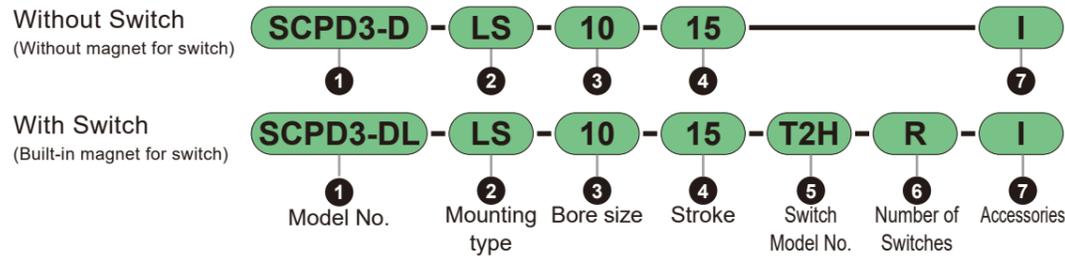
*2: Accessories cannot be selected for $\phi 6$.

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

● Uses food grade grease that can be used in food manufacturing processes

SCPD3-D - - FP1

Model No. Notation Method



1 Model No.

Code	Contents
SCPD3-D	Double rod type
SCPD3-DL	Double Rod Type, with Switch
SCPD3-DT	Double Rod Heat Resistant (Custom Order Product)

2 Mounting type

Mounting brackets are attached to the product and shipped.

Code	Contents
00	Basic type
LS	Single Side Axial Foot Type (Rod Side)
LB	Double Side Axial Foot Type
FA	Rod Side Flange Type

3 Bore size (mm)

Code	Content
6	$\phi 6$
10	$\phi 10$
16	$\phi 16$

4 Stroke (mm)

Bore size	Stroke	Intermediate Stroke
$\phi 6$	5 to 60	Every 1 mm
$\phi 10$	5 to 120	
$\phi 16$	5 to 120	

Note: For minimum stroke with switch, refer to P. 60.

5 Switch Model No.

For switch details, please refer to P. 971. Switches are attached to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V)		Load Current (mA)		Lead Wire *1	
			AC	DC	AC	DC	Straight	L-shape
Solid State	1-Color	2-wire	—	10 to 30	—	5 to 20 *2	T2H□	T2V□
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□
		3-wire (PNP)	—	—	—	—	T3PH□	T3PV□
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□
		2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□
	No Indicator Lamp	2-wire	110	5/12/24	20 or less	50 or less	T5H□	T5V□

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (-) Lead Wire 0.3 m

*6

*6: Only T2WLH and T2WLV can be selected.

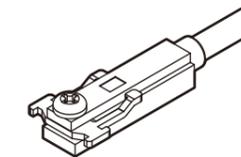
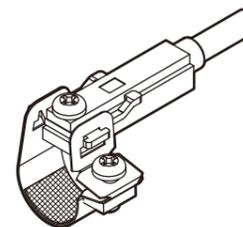
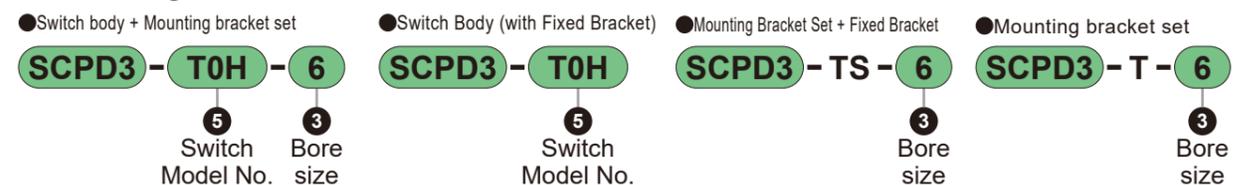
Example) Lead wire length
1 m TOH
3 m TOH ③
5 m TOH ⑤

About Custom Product Specifications

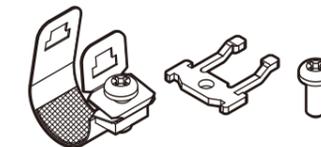
Code	Contents
Rod End Shape Modification	Refer to End of Volume P. 11.

*For combinations of variations and options, see P. 11.

Switch Single Unit Model No. Notation Method



Note) T-type standard switch and fixing bracket Phillips pan head screw are different.



For purchases of 20 or more, items will be packed together.



For purchases of 20 or more, items will be packed together.

*1: For "□" in the switch model number, enter the code selected from the "Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.
*5: Switch cannot be selected for SCPD3-DT (Double Rod Heat Resistant Type).

Specifications

Item	SCPD3-D SCPD3-DL			SCPD3-DT			
	mm	ø6	ø10	ø16	ø6	ø10	ø16
Bore size	mm	ø6	ø10	ø16	ø6	ø10	ø16
Actuation method		Double Acting/Double Rod Type			Double Acting, Double Rod Heat Resistant Type		
Operating Fluid		Compressed Air					
Max. Operating Pressure	MPa	1.0					
Min. Operating Pressure	MPa	0.2	0.1		0.2	0.1	
Proof Pressure	MPa	1.6					
Ambient Temperature	°C	-10 to 60 (Provided that freezing does not occur)			5 to 120		
Port Size		M5					
Stroke tolerance	mm	+1.0 0					
Operating piston speed	mm/s	50 to 750			50 to 750		
Cushion		Rubber Cushion					
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)			Not Available		
Allowable Absorption Energy	J	0.012	0.041	0.162	0.012	0.041	0.162

Stroke

Bore size (mm)	Standard Stroke (mm)	Maximum Stroke (mm)	Min. Stroke (mm)
ø6	15, 30, 45, 60	60	5
ø10			
ø16		120	

Note: Intermediate strokes can be produced in 1 mm increments.

Min. Stroke with Switch

Diagram	With 1 pc.		With 2 pcs.	
	Rod Side Mounting	Head Side Mounting	For different surface mounting	
Min. Stroke	T0, 5, T2 (W), T3 (W) 5 mm	T2WL 30 mm	T0, 5, T2 (W), T3 (W) 10 mm	T2WL 30 mm

Cylinder Mass

(Unit: g)

Model	Item Bore size (mm)	Mounting Bracket Mass			Product Mass at Stroke 0 mm	Added Mass per Stroke = 10 mm	Switch Mass (Per switch)	Switch Mounting Bracket Mass
		Foot Type LS	Foot Type LB	Flange Type FA				
SCPD3-D	ø6	6	12	4	18	2	Refer to the weight listed in the switch specifications on P. 971.	2
SCPD3-DT	ø10	6	12	4	28	3		
	ø16	15	30	12	55	5		

(Example) Product Weight of SCPD3-DL-LS-10-30-T0H-D

- Mounting Bracket Weight (Foot type): 6 g
- Product Weight at Stroke = 0 mm: 28 g
- Added Weight at Stroke = 30 mm: 2×3/10=9 g
- Switch Weight: 2×(18+2)=40 g
- Product Weight: 6+28+9+40=83 g

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø6	Push/Pull	-	-	4.24	6.36	8.48	10.6	12.7	14.8	17.0	19.1	21.2
ø10	Push/Pull	6.60	9.90	13.2	19.8	26.4	33.0	39.6	46.2	52.8	59.4	66.0
ø16	Push/Pull	18.1	27.2	36.3	54.4	72.6	90.7	1.09 × 10 ²	1.27 × 10 ²	1.45 × 10 ²	1.63 × 10 ²	1.81 × 10 ²

General Type

General Type

SCP3

SCP3

CMK2

CMK2

CMA2

CMA2

SCM

SCM

SCG

SCG

SCA2

SCA2

SCS2

SCS2

Cylinder Switch

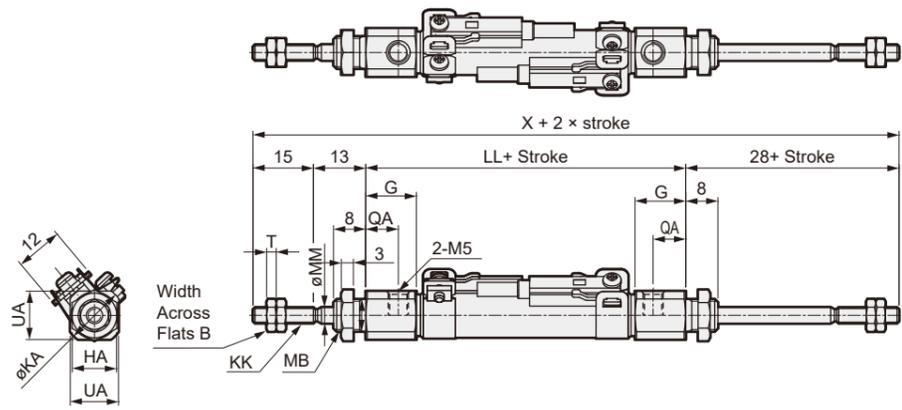
Cylinder Switch

Ending

Ending

Outline Dimension Drawing

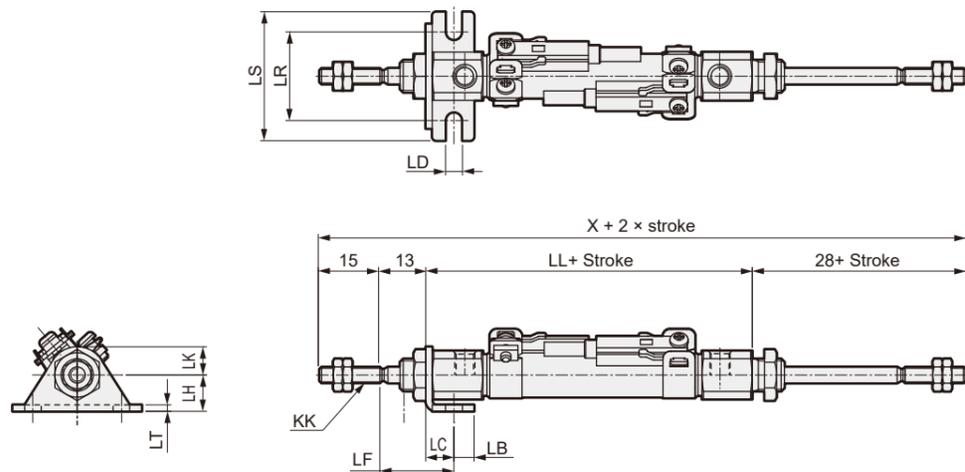
●SCPD3-D (L), DT Basic Type (OO)



Code	Basic Type (OO) Basic Dimensions											
Bore size (mm)	B	G	HA	KA	KK	LL	MB	MM	QA	T	UA	X
ø6	5.5	17	8	13.5	M3	56	M6	3	13	1.8	11	112
ø10	7	12.5	11	14.5	M4	54.5	M8 × 1.0	4	8	2.4	12	110.5
ø16	8	13	14	21.5	M5	55	M10 × 1.0	5	8.5	3.2	18	111

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
 *2: For dimensions of models with switches, see P. 101.
 *3: For outer dimensions diagram of accessories, refer to P. 19.

●Single Side Axial Foot Type (LS)



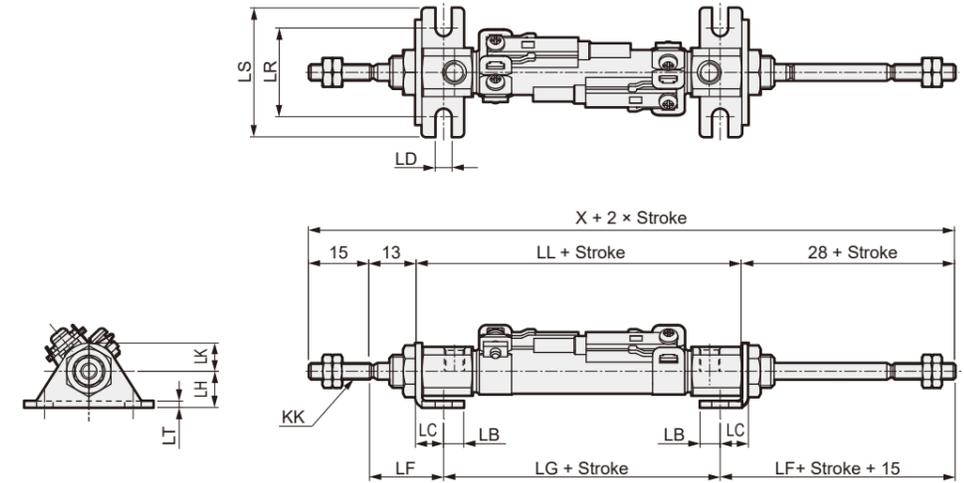
Code	Single Side Axial Foot Type (LS) Mounting Dimensions											
Bore size (mm)	KK	LL	X	LB	LC	LD	LF	LH	LK	LR	LS	LT
ø6	M3	56	112	5	7	4.2	18.4	9	7	22	32	1.6
ø10	M4	54.5	110.5	5	7	4.2	18.4	9	7	22	32	1.6
ø16	M5	55	111	6	9	5.2	19.7	14	10	29	42	2.3

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
 *2: For dimensions of models with switches, see P. 101.
 *3: For outer dimensions diagram of accessories, refer to P. 19.

Double Acting/Double Rod Type

Outline Dimension Drawing

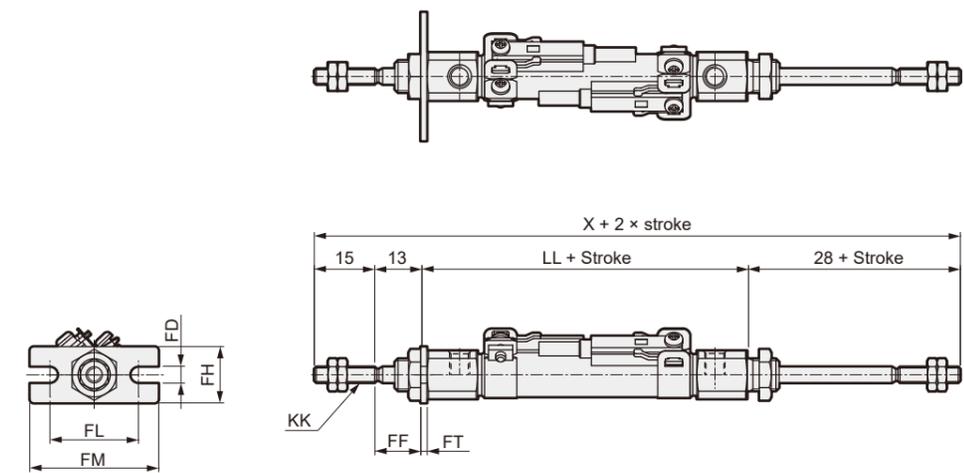
●Both Sides Axial Foot Type (LB)



Code	Both Sides Axial Foot Type (LB) Mounting Dimensions												
Bore size (mm)	KK	LL	X	LB	LC	LD	LF	LH	LG	LK	LR	LS	LT
ø6	M3	56	112	5	7	4.2	18.4	9	45.2	7	22	32	1.6
ø10	M4	54.5	110.5	5	7	4.2	18.4	9	43.7	7	22	32	1.6
ø16	M5	55	111	6	9	5.2	19.7	14	41.6	10	29	42	2.3

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
 *2: For dimensions of models with switches, see P. 101.
 *3: For outer dimensions diagram of accessories, refer to P. 19.

●Rod Side Flange Type (FA)

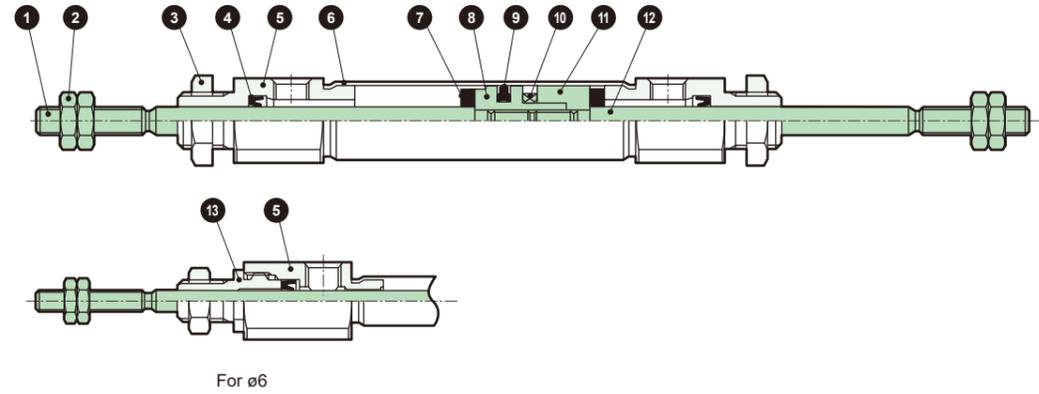


Code	Rod Side Flange Type (FA) Mounting Dimensions									
Bore size (mm)	KK	LL	X	FD	FF	FH	FL	FM	FT	
ø6	M3	56	112	4.2	11.4	14	22	32	1.6	
ø10	M4	54.5	110.5	4.2	11.4	14	22	32	1.6	
ø16	M5	55	111	5.2	10.7	20	29	42	2.3	

*1: The thread depth of ø6 and ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
 *2: For dimensions of models with switches, see P. 101.
 *3: For outer dimensions diagram of accessories, refer to P. 19.

Internal Structure Diagram / Material

- Double rod type
SCPD3-D
SCPD3-DL (with Switch)

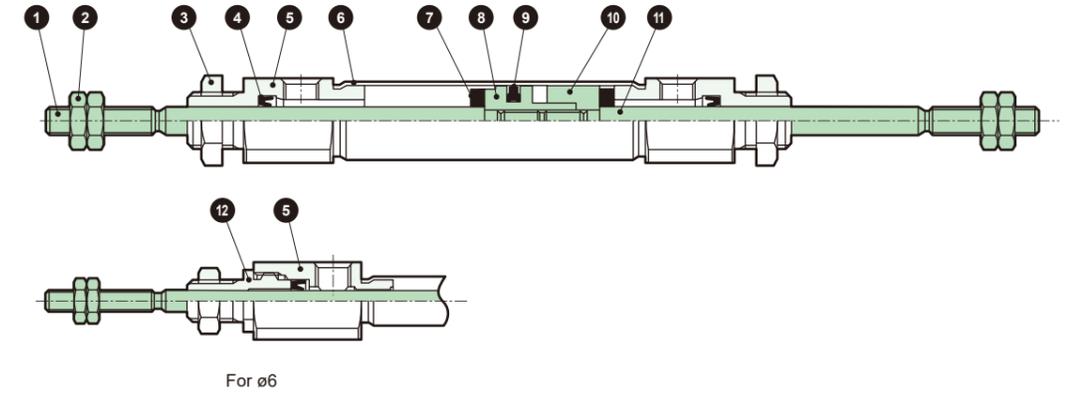


Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod 1	Stainless Steel		8	Piston	Aluminum Alloy	
2	Rod Nut	Steel	Nickel Plating	9	Piston Packing	Nitrile Rubber	
3	Hexagon Nut	Steel	Nickel Plating	10	Magnet		With switch only
4	Rod Packing	Nitrile Rubber		11	Spacer	Aluminum Alloy	
5	Rod Cover	Aluminum Alloy	Hard Anodized	12	Piston Rod 2	Stainless Steel	
6	Cylinder Tube	Stainless Steel		13	Rod Metal	Aluminum Alloy	Hard Anodized
7	Cushion Rubber	Urethane Rubber					

Internal Structure Diagram / Material

- Double Rod Heat Resistant Type
SCPD3-DT



Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod 1	Stainless Steel		7	Cushion Rubber	Fluoro Rubber	
2	Rod Nut	Steel	Nickel Plating	8	Piston	Aluminum Alloy	
3	Hexagon Nut	Steel	Nickel Plating	9	Piston Packing	Fluoro Rubber	
4	Rod Packing	Fluoro Rubber		10	Spacer	Aluminum Alloy	
5	Rod Cover	Aluminum Alloy	Hard Anodized	11	Piston Rod 2	Stainless Steel	
6	Cylinder Tube	Stainless Steel		12	Rod Metal	Aluminum Alloy	Hard Anodized

General Type

SCP_3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

Cylinder Switch

Ending

General Type

SCP_3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

Cylinder Switch

Ending



Pencil Cylinder
Double Acting, with Speed Controller
SCPD3-Z Series

● Bore size: $\phi 10$, $\phi 16$

Circuit Diagram Symbol



Custom Products



SCPD3-Z Series
Model No. Notation Method

5 Number of Switches

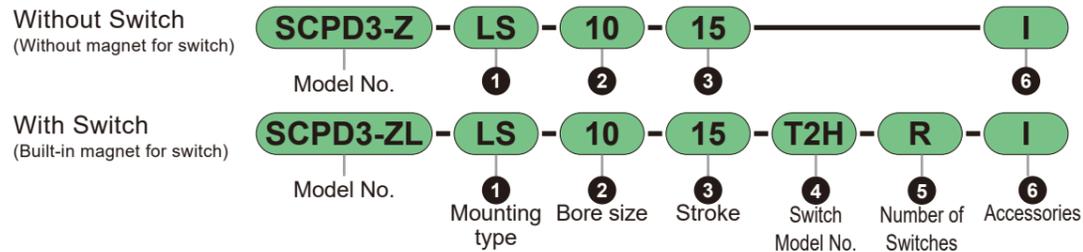
Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

6 Accessories

Code	Contents
I	Single Knuckle
Y	Double Knuckle (pin and retaining ring attached)

Note: I and "Y" cannot be selected simultaneously.

Model No. Notation Method

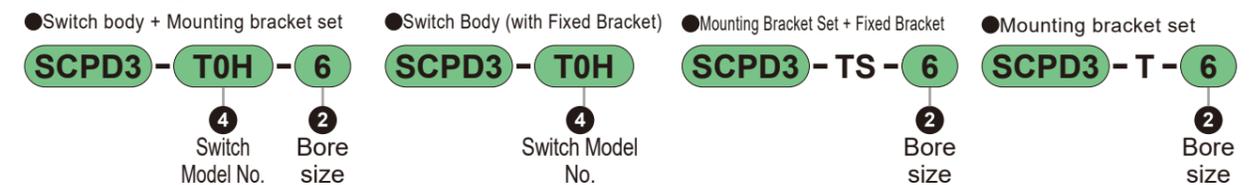


About Custom Product Specifications

Code	Contents
Rod End Shape Modification	Refer to End of Volume P. 11.

*For combinations of variations and options, see P. 11.

Switch Single Unit Model No. Notation Method



1 Mounting type

Mounting brackets are attached to the product and shipped.

Code	Contents
00	Basic type
LS	Single Side Axial Foot Type (Rod Side)
FA	Rod Side Flange Type
CB	Double Clevis Type (Pin and retaining ring attached)

2 Bore size (mm)

Code	Content
10	$\phi 10$
16	$\phi 16$

3 Stroke (mm)

Bore size	Stroke	Intermediate Stroke
$\phi 10$	5 to 200	Every 1 mm
$\phi 16$	5 to 260	

Note: For minimum stroke with switch, refer to P. 68.

4 Switch Model No.

For switch details, please refer to P. 971. Switches are attached to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V)		Load Current (mA)		Lead Wire *1	
			AC	DC	AC	DC	Straight	L-shape
Solid State	1-Color	2-wire	—	10 to 30	—	5 to 20 *2	T2H□	T2V□
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□
		3-wire (PNP)	—	30 or less	—	50 or less	T3PH□	T3PV□
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□
Reed	2-Color Improved Water Resistance	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□
	1-Color Flexible Lead Wire Type		—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3
1-Color	No Indicator Lamp	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□
			110	5/12/24	20 or less	50 or less	T5H□	T5V□

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (-) Lead Wire 0.3 m

*5

*5: Only T2WLH and T2WLV can be selected.

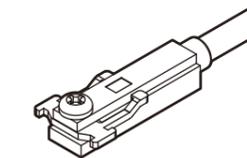
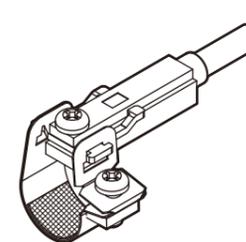
Example) Lead wire length
1 m T0H
3 m T0H ③
5 m T0H ⑤

*1: For "□" in the switch model number, enter the code selected from the "Lead wire length, connector specification" table.

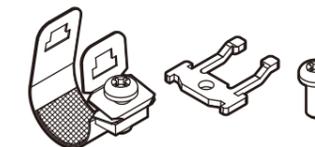
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)

*3: This does not guarantee the water resistance of the cylinder.

*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.



Note) T-type standard switch and fixing bracket Phillips pan head screw are different.



For purchases of 20 or more, items will be packed together.



For purchases of 20 or more, items will be packed together.

General Type

General Type

SCP3

SCP3

CMK2

CMK2

CMA2

CMA2

SCM

SCM

SCG

SCG

SCA2

SCA2

SCS2

SCS2

Cylinder Switch

Cylinder Switch

Ending

Ending

Specifications

Item	SCPD3-Z SCPD3-ZL	
	mm	mm
Bore size	ø10	ø16
Actuation method	Double Acting, with Speed Controller	
Operating Fluid	Compressed Air	
Max. Working Pressure	1.0 MPa	
Min. Operating Pressure	0.1 MPa	
Proof Pressure	1.6 MPa	
Ambient Temperature	-10 to 60 (No freezing) °C	
Port Size	M5	
Stroke tolerance	+1.0 0 mm	
Operating Piston Speed	50 to 750 mm/s	
Cushion	Rubber Cushion	
Lubrication	Not Required (When lubricating, use Turbine Oil ISO VG32)	
Allowable Absorbed Energy	0.041 J	0.162 J

Cylinder Mass

(Unit: g)

Model	Stroke Bore size (mm)	Without Switch				With Switch (2 Switches Attached)				Switch Mounting Bracket Mass	Switch Mass (Per Switch)
		15 st	30 st	45 st	60 st	15 st	30 st	45 st	60 st		
SCPD3-Z	ø10	36	41	46	51	84	89	94	99	2	Refer to the weight listed in the switch specifications on P. 971.
	ø16	66	74	82	90	114	122	130	138		

Mounting Bracket Mass

(Unit: g)

Applicable Bore size	Mounting type		
	Foot Type LS	Flange Type FA	Clevis Type CB
ø10	6	4	4
ø16	15	12	10

Stroke

Bore size (mm)	Standard Stroke (mm)	Maximum Stroke (mm)	Min. Stroke (mm)
ø10	15, 30, 45, 60	200	5
ø16		260	

Note: Intermediate strokes can be produced in 1 mm increments.

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø10	Push	7.85	11.8	15.7	23.6	31.4	39.3	47.1	55.0	62.8	70.7	78.5
	Pull	6.60	9.90	13.2	19.8	26.4	33.0	39.6	46.2	52.8	59.4	66.0
ø16	Push	20.1	30.2	40.2	60.3	80.4	1.01 × 10 ²	1.21 × 10 ²	1.41 × 10 ²	1.61 × 10 ²	1.81 × 10 ²	2.01 × 10 ²
	Pull	18.1	27.2	36.3	54.4	72.6	90.7	1.09 × 10 ²	1.27 × 10 ²	1.45 × 10 ²	1.63 × 10 ²	1.81 × 10 ²

Min. Stroke with Switch

Diagram	With 1 pc.		With 2 pcs.	
	Rod Side Mounting	Head Side Mounting	For different surface mounting	
Min. Stroke	T0, 5, T2 (W), T3 (W) 5 mm	T2WL 30 mm	T0, 5, T2 (W), T3 (W) 10 mm	T2WL 30 mm

Mounting Bracket Model No. Notation Method

Bore size (mm)	ø10	ø16
Mounting bracket		
Foot (LS)	P2-LS-10M	P2-LS-16M
Flange (FA)	P2-FA-10M	P2-FA-16M

Note: Foot (LS) type mounting brackets come as 1 pc./set.

General Type

SCP_3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

Cylinder Switch

Ending

General Type

SCP_3

CMK2

CMA2

SCM

SCG

SCA2

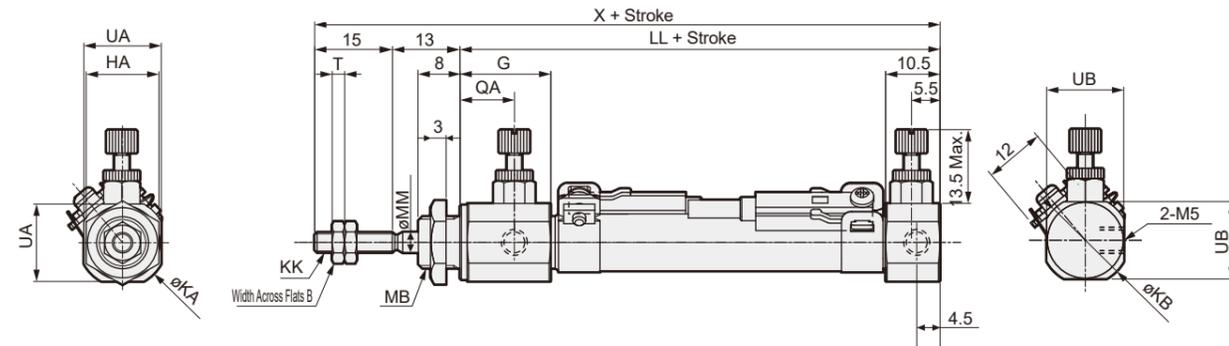
SCS2

Cylinder Switch

Ending

Outline Dimension Drawing

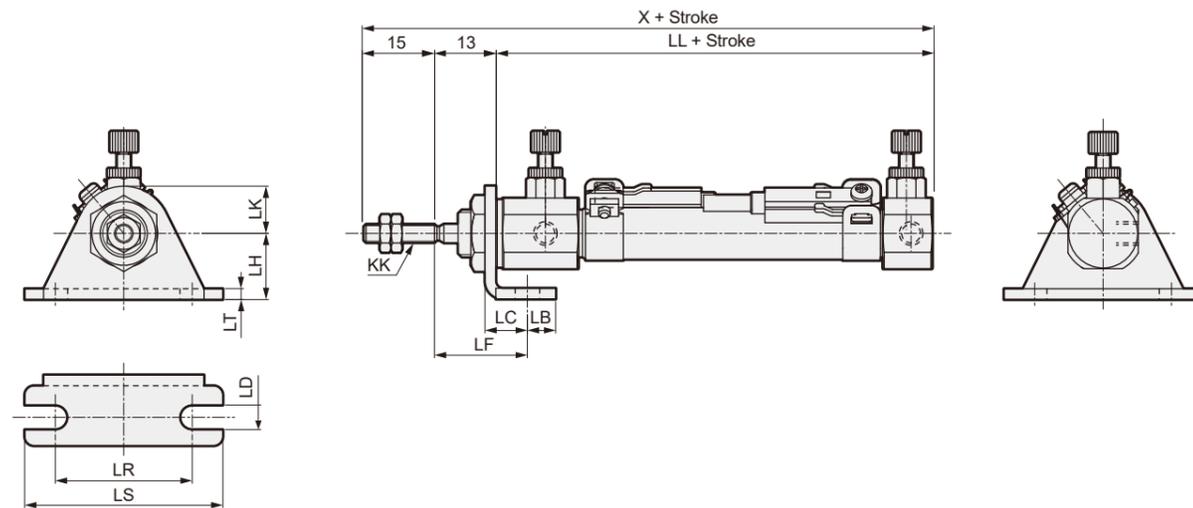
●SCPD3-Z(L) Basic Type (OO)



Code	Basic Type (OO) Basic Dimensions													
Bore size (mm)	B	G	HA	KA	KB	KK	LL	MB	MM	QA	T	UA	UB	X
ø10	7	17.5	14	17.5	17.5	M4	52.5	M10 × 1.0	4	10.5	2.4	15	15	80.5
ø16	8	18	17	21.5	21.5	M5	52.5	M12 × 1.0	5	11	3.2	18	18	80.5

*1: The thread depth of ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
 *2: For dimensions of models with switches, see P. 101.
 *3: For outer dimensions diagram of accessories, refer to P. 19.

●Single Side Axial Foot Type (LS)

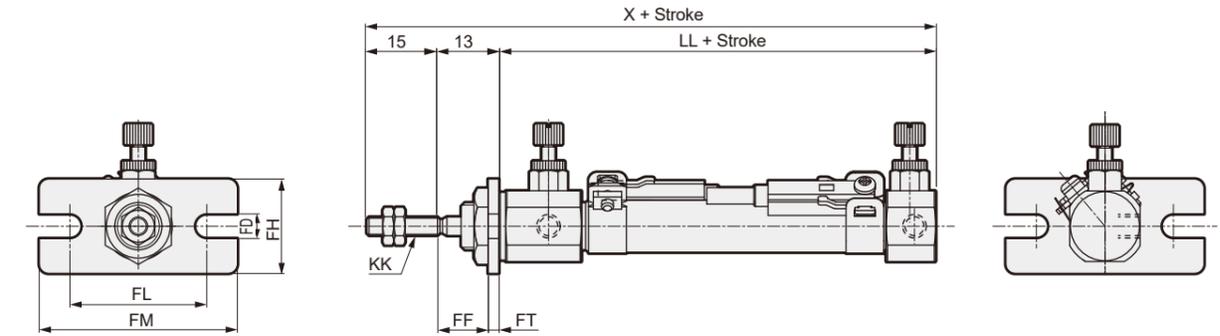


Code	Single Side Axial Foot Type (LS) Mounting Dimensions												
Bore size (mm)	KK	LL	X	LB	LC	LD	LF	LH	LK	LR	LS	LT	
ø10	M4	52.5	80.5	6	9	5.2	19.7	14	10	29	42	2.3	
ø16	M5	52.5	80.5	6	9	5.2	19.7	14	10	29	42	2.3	

*1: The thread depth of ø10 ports is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
 *2: For dimensions of models with switches, see P. 101.
 *3: For outer dimensions diagram of accessories, refer to P. 19.

Outline Dimension Drawing

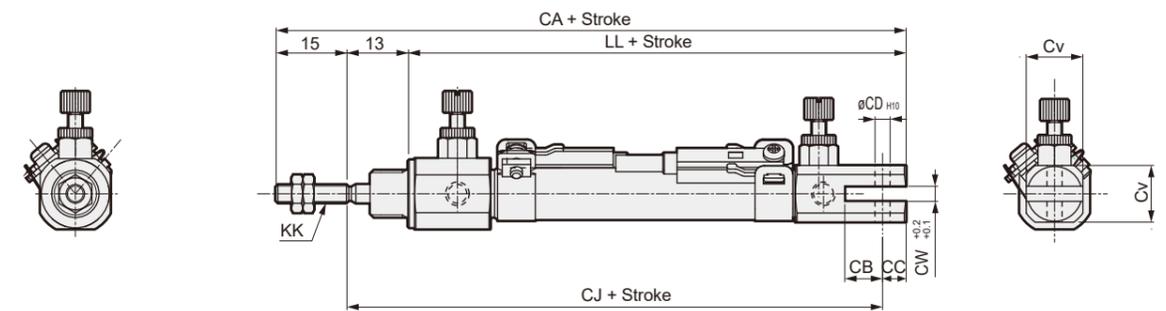
●Rod Side Flange Type (FA)



Code	Rod Side Flange Type (FA) Mounting Dimensions									
Bore size (mm)	KK	LL	X	FD	FF	FH	FL	FM	FT	
ø10	M4	52.5	80.5	5.2	10.7	20	29	42	2.3	
ø16	M5	52.5	80.5	5.2	10.7	20	29	42	2.3	

*1: The thread depth of the ø10 port is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
 *2: For dimensions of models with switches, see P. 101.
 *3: For outer dimensions diagram of accessories, refer to P. 19.

●Double clevis type (CB)



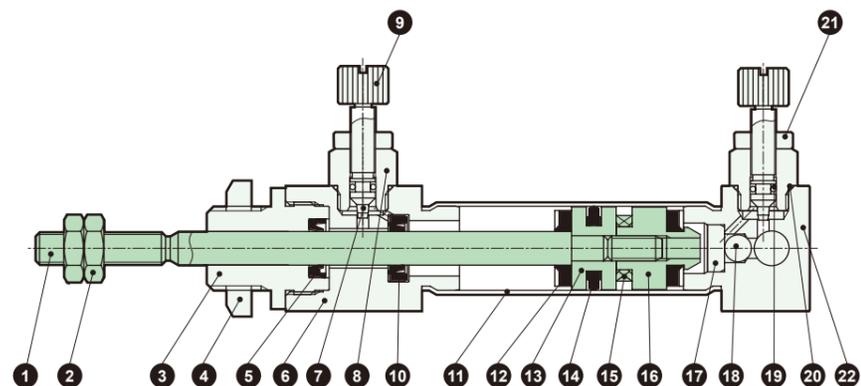
Code	Double Clevis Type (CB) Mounting Dimensions									
Bore size (mm)	KK	LL	CA	CB	CC	CD	CJ	Cv	CW	
ø10	M4	65.5	93.5	8	5	3.2	73.5	15	3.2	
ø16	M5	72.5	100.5	10	10	5	75.5	18	6.5	

*1: The thread depth of the ø10 port is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
 *2: For dimensions of models with switches, see P. 101.
 *3: For outer dimensions diagram of accessories, refer to P. 19.

SCPD3-Z Series

Internal Structure Diagram / Material

- Double Acting, with Speed Controller
SCPD3-Z
SCPD3-ZL (with Switch)



Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod	Stainless Steel		12	Cushion Rubber	Urethane Rubber	
2	Rod Nut	Steel	Nickel Plating	13	Piston	Aluminum Alloy	
3	Rod Metal	Aluminum Alloy	Hard Anodized	14	Piston Packing	Nitrile Rubber	
4	Hexagon Nut	Steel	Nickel Plating	15	Magnet		With switch only
5	Rod Packing	Nitrile Rubber		16	Spacer	Aluminum Alloy	
6	Rod Cover	Aluminum Alloy	Hard Anodized	17	Check Ball Retainer	Aluminum Alloy	
7	Needle B	Stainless Steel		18	Check Ball	Urethane Rubber	
8	Needle Holder	Aluminum Alloy	Hard Anodized	19	O-ring	Nitrile Rubber	
9	Knob	Aluminum Alloy	Chromate	20	O-ring	Nitrile Rubber	
10	Check Packing	Nitrile Rubber		21	Lock Nut	Aluminum Alloy	Chromate
11	Cylinder Tube	Stainless Steel		22	Head Cover	Aluminum Alloy	Hard Anodized

MEMO

General Type

SCP_3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

Cylinder Switch

Ending

General Type

SCP_3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

Cylinder Switch

Ending



Pencil Shaped Cylinder

Single Acting, Push, Non-Rotating

Double Acting, Non-Rotating

● Bore size: $\phi 10$, $\phi 16$



Circuit Diagram Symbol

SCPS-M Series

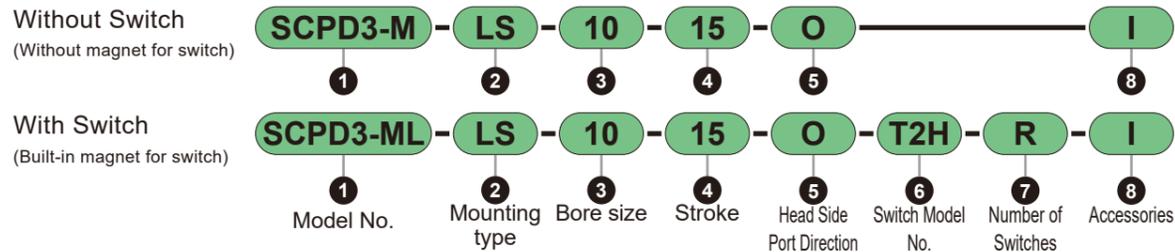
SCPD3-M Series



SCP_DS3-M Series

Model No. Notation Method

Model No. Notation Method



1 Model No.

Code	Contents
SCPS3-M	Single Acting Push, Non-Rotating Type
SCPS3-ML	Single Acting Push, Non-Rotating Type, with Switch
SCPD3-M	Double Acting, Non-Rotating Type
SCPD3-ML	Double Acting, Non-Rotating Type, with Switch

2 Mounting type

Code	Contents
00	Basic type
LS	Single Side Axial Foot Type (Rod Side)
FA	Rod Side Flange Type
CB	Double Clevis Type (Pin and retaining ring included)

*1: If ⑤ port direction is "0" (axial), mounting type "CB" cannot be selected.

3 Bore size (mm)

Code	Content
10	$\phi 10$
16	$\phi 16$

4 Stroke (mm)

Bore size	Stroke	Intermediate Stroke
$\phi 10$	5 to 200 (5 to 120)	Every 1 mm
$\phi 16$	5 to 260 (5 to 120)	

*1: For minimum stroke with switch, refer to P. 76.
*2: () indicates SCPS3-M (L).

5 Head Side Port Direction

Code	Content
Blank	Vertical Direction
0	Axial Direction

*1: If port direction is "0" (axial), ② mounting type "CB" cannot be selected.

6 Switch Model No.

For switch details, please refer to page 971. Switches are included to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V)		Load Current (mA)		Lead Wire *1	
			AC	DC	AC	DC	Straight	L-shape
Solid State	1-Color	2-wire	—	10 to 30	—	5 to 20 *2	T2H□	T2V□
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□
		3-wire (PNP)	—	30 or less	—	100 or less	T3PH□	T3PV□
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□
		2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□
	No Indicator Lamp	2-wire	110	5/12/24	20 or less	50 or less	T5H□	T5V□

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (-) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1 m T0H
3 m T0H ③
5 m T0H ⑤

*1: For "□" in the switch model number, enter the code selected from the "Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

7 Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

8 Accessories

Code	Content
I	Single Knuckle
Y	Double Knuckle (pin and retaining ring included)
B1	Single Bracket
B2	Double Yoke Bracket

*1: "I" and "Y" cannot be selected at the same time.

Food Manufacturing Process Compatible Specification (Catalog No. CC-1271AA)

● Uses food grade grease that can be used in food manufacturing processes

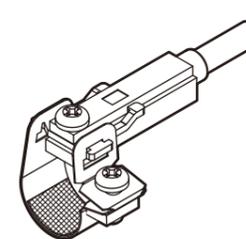
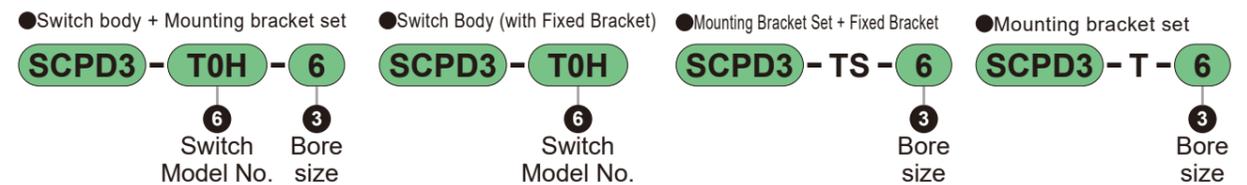
SCPD3-M - - FP1

About Custom Product Specifications

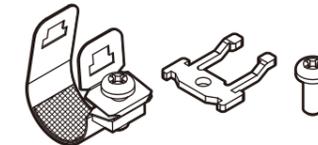
Code	Contents
Rod End Shape Modification	Refer to Ending 11.

*For combinations of variations and options, see P. 11.

Switch Single Unit Model No. Notation Method



Note) T-type standard switch and fixing bracket Phillips pan head screw are different.



For purchases of 20 or more, items will be packed together.



For purchases of 20 or more, items will be packed together.

Specifications

Item	SCPS3-M SCPS3-ML		SCPD3-M SCPD3-ML		
	ø10	ø16	ø10	ø16	
Bore size	mm	ø10	ø16	ø10	ø16
Actuation method	Single Acting, Non-Rotating Type		Double Acting, Non-Rotating Type		
Operating Fluid	Compressed Air				
Max. Operating Pressure	MPa 1.0				
Min. operating pressure	MPa 0.15		MPa 0.1		
Proof Pressure	MPa 1.6				
Ambient Temperature	°C -10 to 60 (Provided that freezing does not occur)				
Port Size	M5				
Stroke tolerance	mm	+1.0 0			
Operating piston speed	mm/s	50 to 750			
Cushion	Rubber Cushion				
Lubrication	Not required (When lubricating, use turbine oil Class 1 ISO VG32)				
Non-Rotating Accuracy (Note)	±2°				
Allowable Absorption Energy	J	0.041	0.162	0.041	0.162

Note: Value at 0 stroke. (Excluding piston rod deflection.)

Stroke

Bore size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)
SCPS3-M	ø10	15, 30, 45, 60	120
	ø16		
SCPD3-M	ø10	200	5
	ø16	260	

Note: Intermediate strokes can be produced in 1 mm increments.

Min. Stroke with Switch

Diagram	With 1 pc.		With 2 pcs.	
	Rod Side Mounting	Head Side Mounting	For different surface mounting	
Min. Stroke	T0, 5, T2 (W), T3 (W) 5 mm	T2WL 30 mm	T0, 5, T2 (W), T3 (W) 5 mm	T2WL 30 mm

Single Acting Type Spring Load (SCPS3-M)

(Unit: N)

Bore size (mm)	At Stroke 0 mm	At Full Stroke Operation
ø10	3.2	7.5
ø16	6.4	14.9

Cylinder Weight

(Unit: g)

Model	Item Bore size (mm)	Mounting Bracket Weight			Product Weight at Stroke 0 mm	Added Weight per Stroke = 10 mm	Switch Weight (Per switch)	Switch Mounting Bracket Weight
		Foot Type LS	Flange Type FA	Clevis Type CB				
SCPS3-M	ø10	6	4	4	20	4	Please refer to the weight listed in the switch specifications on P. 971.	2
	ø16	15	12	10	35	8		
SCPD3-M	ø10	6	4	4	21	2		
	ø16	15	12	10	42	3		

(Example) Product Weight of SCPS3-ML-LS-10-30-T0H-D

- Mounting Bracket Weight (Foot Type)..... 6 g
- Product Weight at Stroke = 0 mm20 g
- Added Weight at Stroke = 30 mm: 4×30/10=12 g
- Switch Weight: 2×(18+2)=40 g
- Product Weight: 6+20+12+40=78 g

Theoretical Thrust Table

●SCPS3-M (Unit: N)

Bore size (mm)	Operating Pressure MPa									
	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø10	7.01	9.34	17.2	25.0	32.9	40.8	48.6	56.5	64.3	72.2
ø16	21.5	28.7	48.8	68.9	89.0	1.09 × 10 ²	1.29 × 10 ²	1.49 × 10 ²	1.69 × 10 ²	1.90 × 10 ²

●SCPD3-M

Bore size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø10	Push	7.85	11.8	15.7	23.6	31.4	39.3	47.1	55.0	62.8	70.7	78.5
	Pull	6.60	9.90	13.2	19.8	26.4	33.0	39.6	46.2	52.8	59.4	66.0
ø16	Push	20.1	30.2	40.2	60.3	80.4	1.01 × 10 ²	1.21 × 10 ²	1.41 × 10 ²	1.61 × 10 ²	1.81 × 10 ²	2.01 × 10 ²
	Pull	18.1	27.2	36.3	54.4	72.6	90.7	1.09 × 10 ²	1.27 × 10 ²	1.45 × 10 ²	1.63 × 10 ²	1.81 × 10 ²

Mounting Bracket Model No. Notation Method

Bore size (mm)	ø10	ø16
Mounting bracket		
Foot (LS)	P2-LS-10M	P2-LS-16M
Flange (FA)	P2-FA-10M	P2-FA-16M

Note: Foot (LS) type mounting brackets come as 1 pc./set.

General Type

SCP₃

CMK2

CMA2

SCM

SCG

SCA2

SCS2

General Type

SCP₃

CMK2

CMA2

SCM

SCG

SCA2

SCS2

Cylinder Switch

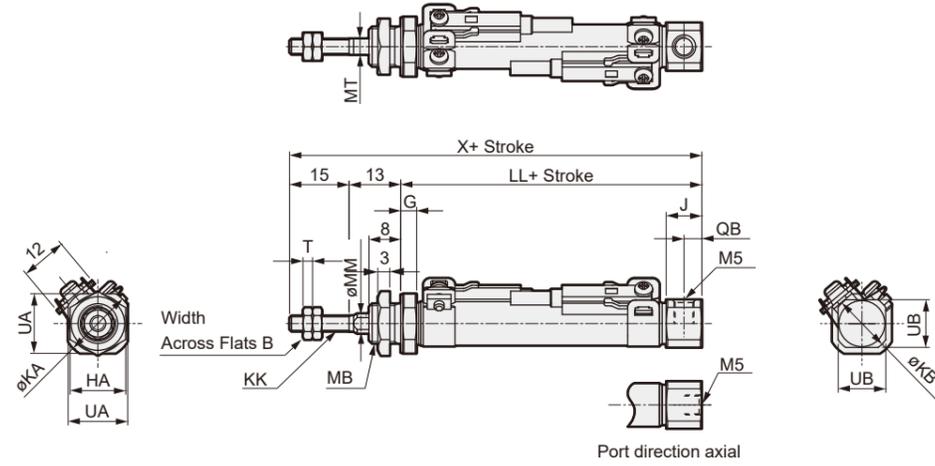
Ending

Cylinder Switch

Ending

Outline Dimension Drawing

●SCPS3-M (L) Basic Type (00)

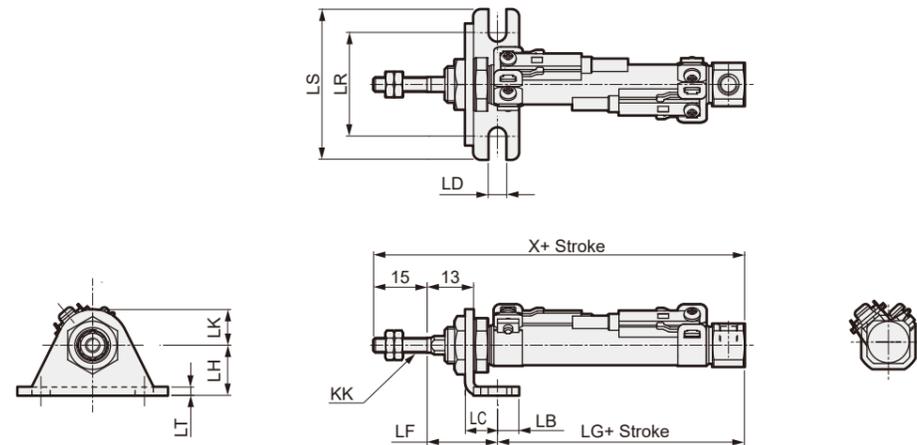


Code	Basic Type (00) Basic Dimensions														
	Bore size (mm)	B	G	HA	J	KA	KB	KK	LL						
15 or less									Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less
ø10	7	4	14	9	17.5	14.5	M4	47	52	62	67	77	82	92	97
ø16	8	4	17	9	21.5	21.5	M5	47	52	62	67	77	82	92	97

Code	Bore size (mm)	MB	MM	MT	QB	T	UA	UB	X							
									15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less
ø10	M10 × 1.0	5	4	4.5	2.4	15	12	75	80	90	95	105	110	120	125	
ø16	M12 × 1.0	6	5	4.5	3.2	18	18	75	80	90	95	105	110	120	125	

*1: The thread depth of the ø10 port is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
 *2: For dimensions of models with switches, see P. 101.
 *3: For outer dimensions diagram of accessories, refer to P. 19.

●Single Side Axial Foot Type (LS)



Code	Single Side Axial (LS) Mounting Dimensions													
	Bore size (mm)	KK	X								LB	LC	LD	LF
15 or less			Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less					
ø10	M4	75	80	90	95	105	110	120	125	6	9	5.2	19.7	
ø16	M5	75	80	90	95	105	110	120	125	6	9	5.2	19.7	

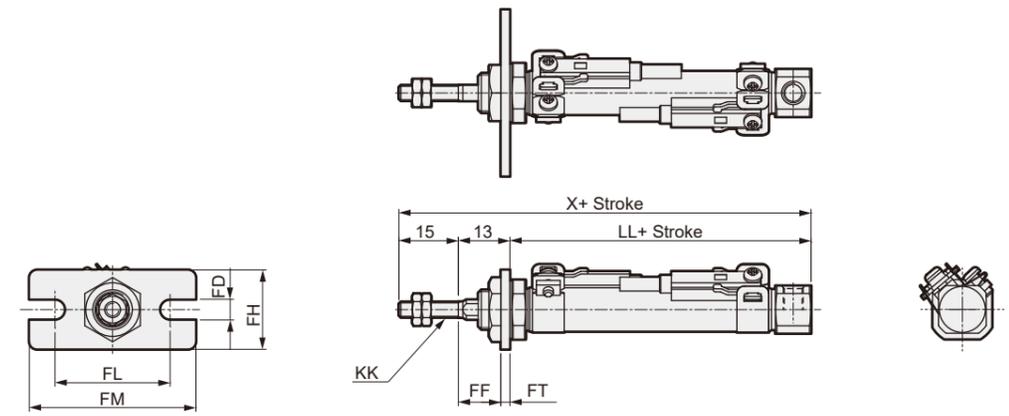
Code	Bore size (mm)	LG										LH	LK	LR	LS	LT
		15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less							
ø10	40.3	45.3	55.3	60.3	70.3	75.3	85.3	90.3	14	10	29	42	2.3			
ø16	40.3	45.3	55.3	60.3	70.3	75.3	85.3	90.3	14	10	29	42	2.3			

*1: The thread depth of the ø10 port is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
 *2: For dimensions of models with switches, see P. 101.
 *3: For outer dimensions diagram of accessories, refer to P. 19.

Single Acting, Non-Rotating Type

Outline Dimension Drawing

●Rod Side Flange Type (FA)

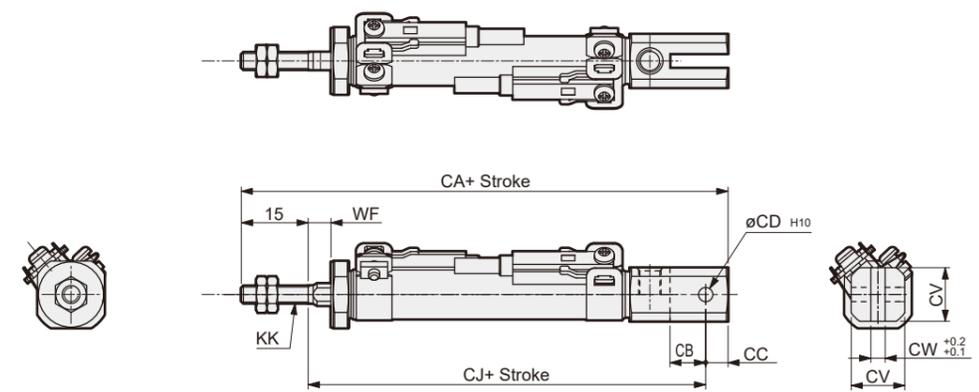


Code	Rod Side Flange Type (FA) Mounting Dimensions														
	Bore size (mm)	KK	LL								FD	FF	FH	FL	FM
15 or less			Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less						
ø10	M4	47	52	62	67	77	82	92	97	5.2	10.7	20	29	42	2.3
ø16	M5	47	52	62	67	77	82	92	97	5.2	10.7	20	29	42	2.3

Code	Bore size (mm)	X										FD	FF	FH	FL	FM	FT
		15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less								
ø10	75	80	90	95	105	110	120	125	5.2	10.7	20	29	42	2.3			
ø16	75	80	90	95	105	110	120	125	5.2	10.7	20	29	42	2.3			

*1: The thread depth of the ø10 port is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
 *2: For dimensions of models with switches, see P. 101.
 *3: For outer dimensions diagram of accessories, refer to P. 19.

●Double Clevis Type (CB) with Pin



Code	Double Clevis Type (CB) Mounting Dimensions																			
	Bore size (mm)	KK	CA								CB	CC	CD	CJ						
15 or less			Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less	15 or less				Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less
ø10	M4	80	92	104	116	128	140	152	164	8	5	3.2	60	72	84	96	108	120	132	144
ø16	M5	87	99	111	123	135	147	159	171	10	10	5	62	74	86	98	110	122	134	146

Code	Bore size (mm)	Cv	CW	WF							
				15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less
ø10	12	3.2	5	12	14	21	23	30	32	39	
ø16	18	6.5	5	12	14	21	23	30	32	39	

*1: The thread depth of the ø10 port is 3.8 mm. When using fittings, use fittings with a thread length of 3.8 mm or less.
 *2: For dimensions of models with switches, see P. 101.
 *3: For outer dimensions diagram of accessories, refer to P. 19.

General Type

SCP_3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

Cylinder Switch

Ending

General Type

SCP_3

CMK2

CMA2

SCM

SCG

SCA2

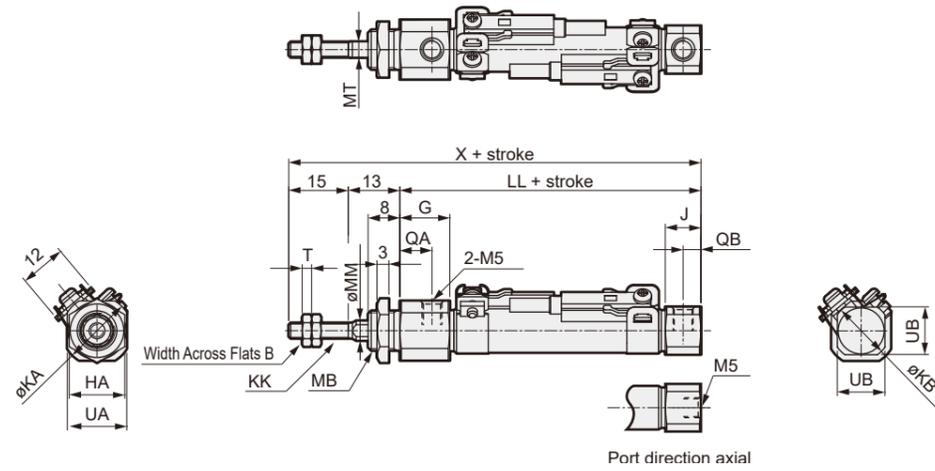
SCS2

Cylinder Switch

Ending

Outline Dimension Drawing

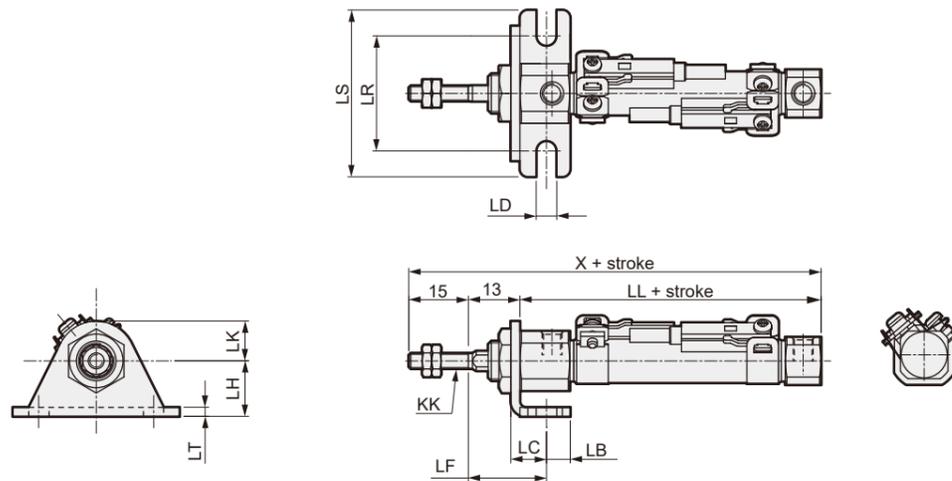
●SCPD3-M (L) Basic Type (00)



Code	Basic Type (00) Basic Dimensions																
Bore size (mm)	B	HA	G	J	KA	KB	KK	LL	MB	MM	MT	QA	QB	T	UA	UB	X
ø10	7	14	12.5	9	17.5	14.5	M4	46	M10 × 1.0	5	4	8	4.5	2.4	15	12	74
ø16	8	17	13.0	9	21.5	21.5	M5	46	M12 × 1.0	6	5	8.5	4.5	3.2	18	18	74

*1: For dimensions of models with switches, see P. 101.
*2: For outer dimensions diagram of accessories, refer to P. 19.

●Single Side Axial Foot Type (LS)



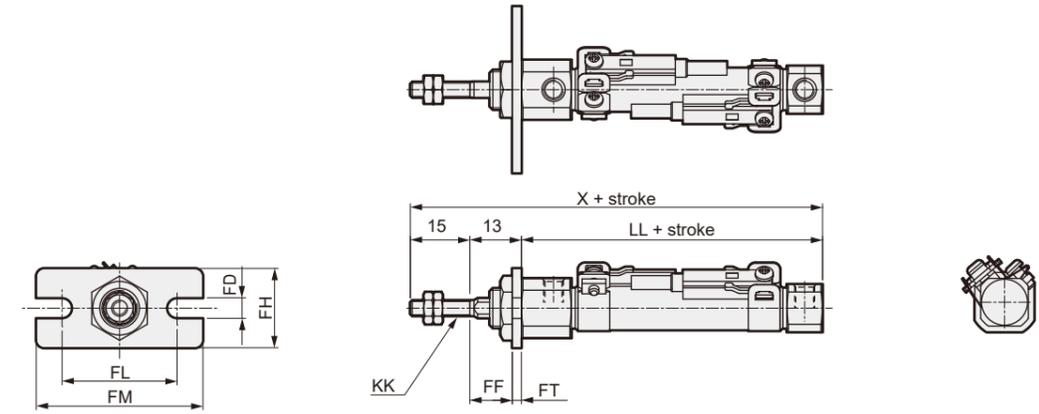
Code	Single Side Axial Foot Type (LS) Mounting Dimensions												
Bore size (mm)	KK	LL	X	LD	LH	LB	LT	LC	LK	LR	LS	LF	
ø10	M4	46	74	5.2	14	6	2.3	9	10	29	42	19.7	
ø16	M5	46	74	5.2	14	6	2.3	9	10	29	42	19.7	

*1: For dimensions of models with switches, see P. 101.
*2: For outer dimensions diagram of accessories, refer to P. 19.

Double Acting, Non-Rotating Type

Outline Dimension Drawing

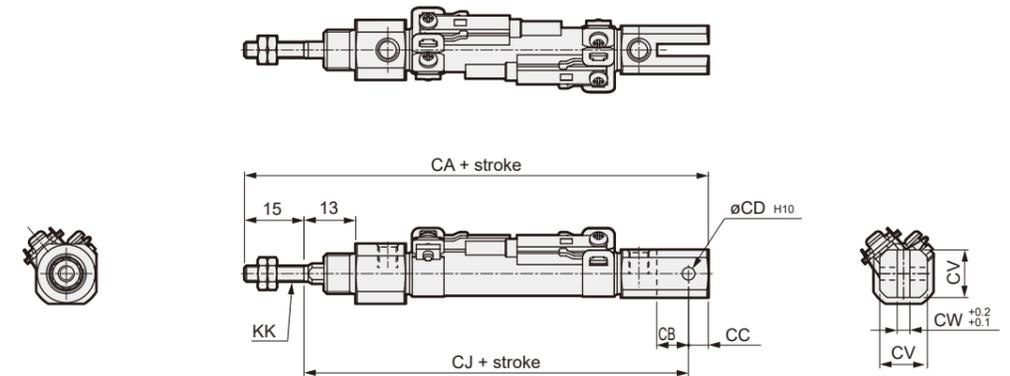
●Rod Side Flange Type (FA)



Code	Rod Side Flange Type (FA) Mounting Dimensions									
Bore size (mm)	KK	LL	X	FH	FD	FT	FL	FM	FF	
ø10	M4	46	74	20	5.2	2.3	29	42	10.7	
ø16	M5	46	74	20	5.2	2.3	29	42	10.7	

*1: For dimensions of models with switches, see P. 101.
*2: For outer dimensions diagram of accessories, refer to P. 19.

●Double Clevis Type (CB) with Pin

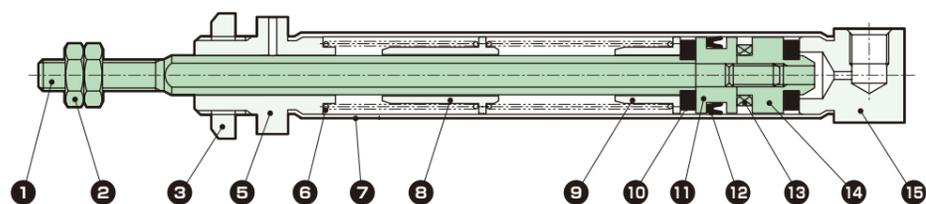


Code	Double Clevis Type (CB) Mounting Dimensions								
Bore size (mm)	KK	Cv	CW	CD	CB	CC	CJ	CA	
ø10	M4	12	3.2	3.2	8	5	67	87	
ø16	M5	18	6.5	5	10	10	69	94	

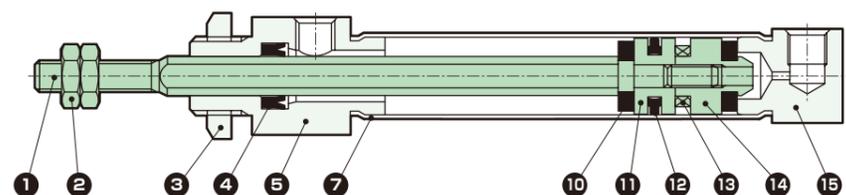
*1: For dimensions of models with switches, see P. 101.
*2: For outer dimensions diagram of accessories, refer to P. 19.

Internal Structure Diagram / Material

- Single Acting, Non-Rotating Type
SCPS3-M
SCPS3-ML (with Switch)



- Double Acting, Non-Rotating Type
SCPD3-M
SCPD3-ML (with Switch)



Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod	Stainless Steel		9	Spring Retainer (B)	Aluminum Alloy	
2	Rod Nut	Steel	Nickel Plating	10	Cushion Rubber	Urethane Rubber	
3	Hexagon Nut	Steel	Nickel Plating	11	Piston	Aluminum Alloy	
4	Rod Packing	Nitrile Rubber		12	Piston Packing	Nitrile Rubber	
5	Rod Cover	Aluminum Alloy	Hard Anodized	13	Magnet		With switch only
6	Coil Spring	Piano Wire	Zinc Chromate	14	Spacer	Aluminum Alloy	
7	Cylinder Tube	Stainless Steel		15	Head Cover	Aluminum Alloy	Hard Anodized
8	Spring Retainer (A)	Aluminum Alloy					

MEMO

General Type

SCP₃

CMK2

CMA2

SCM

SCG

SCA2

SCS2

Cylinder Switch

Ending

General Type

SCP₃

CMK2

CMA2

SCM

SCG

SCA2

SCS2

Cylinder Switch

Ending



Pencil Shaped Cylinder Double Acting, High Load Type

SCPD3-K Series

- Port Size: M5
- Bore size: $\phi 6$, $\phi 10$, $\phi 16$

Circuit Diagram Symbol

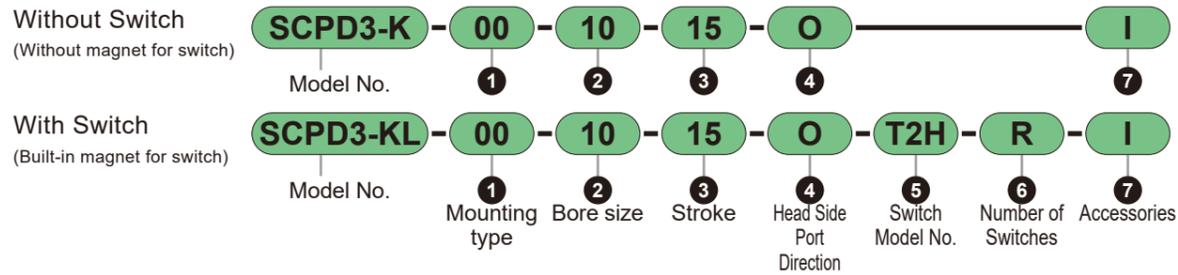
Custom Products



SCPD3-K Series

Model No. Notation Method

Model No. Notation Method



1 Mounting type

Mounting brackets are included to the product and shipped.

Code	Contents
00	Basic type
LS	Single Side Axial Foot Type (Rod Side)
FA	Rod Side Flange Type
CB	Double Clevis Type (Pin and retaining ring included) ($\phi 10$, $\phi 16$)

2 Bore size (mm)

Code	Content
6	$\phi 6$
10	$\phi 10$
16	$\phi 16$

3 Stroke (mm)

Bore size	Stroke	Intermediate Stroke
$\phi 6$	5 to 100	Every 1 mm
$\phi 10$	5 to 200	
$\phi 16$	5 to 260	

Note: For minimum stroke with switch, refer to P. 86.

4 Head Side Port Direction

Code	Content
Blank	Vertical Direction
O	Axial Direction

*1: If port direction is "O" (axial), mounting type "CB" cannot be selected.

5 Switch Model No.

For switch details, please refer to page 971. Switches are included to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V)		Load Current (mA)		Lead Wire *1	
			AC	DC	AC	DC	Straight	L-shape
Solid State	1-Color	2-wire	—	10 to 30	—	5 to 20 *2	T2H□	T2V□
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□
		3-wire (PNP)	—	—	—	—	T3PH□	T3PV□
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□
		2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□
	No Indicator Lamp	2-wire	110	5/12/24	20 or less	50 or less	T5H□	T5V□

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (-) Lead Wire 0.3 m

*5

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length

- 1 m T0H
- 3 m T0H ③
- 5 m T0H ⑤

*1: For "□" in the switch model number, enter the code selected from the "Lead wire length, connector specification" table.

*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)

*3: This does not guarantee the water resistance of the cylinder.

*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

6 Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs
T	With 3 pcs

7 Accessories

Code	Content
I	Single Knuckle
Y	Double Knuckle (pin and retaining ring included)
B1	Single Bracket
B2	Double Yoke Bracket

*1: "I" and "Y" cannot be selected at the same time.

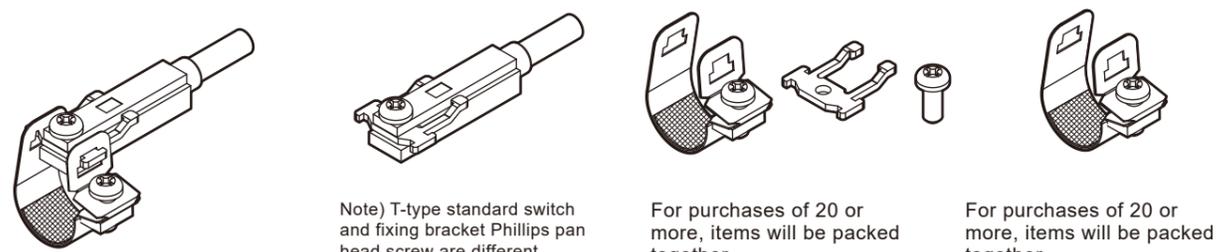
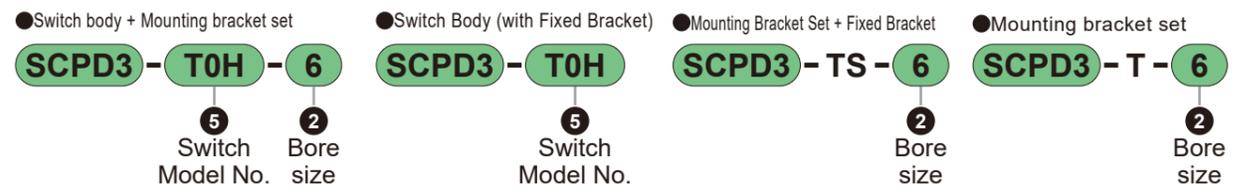
*2: Accessories cannot be selected for $\phi 6$.

About Custom Product Specifications

Code	Contents
Rod End Shape Modification	Refer to Ending 11.

*For combinations of variations and options, see P. 11.

Switch Single Unit Model No. Notation Method



Note) T-type standard switch and fixing bracket Phillips pan head screw are different.

For purchases of 20 or more, items will be packed together.

For purchases of 20 or more, items will be packed together.

General Type

SCP 3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

General Type

SCP 3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

Cylinder Switch

Ending

Cylinder Switch

Ending

Specifications

Item	SCPD3-K SCPD3-KL			
	mm	ø6	ø10	ø16
Bore size	mm	ø6	ø10	ø16
Actuation method	Double Acting, High Load Type			
Operating Fluid	Compressed Air			
Max. Working Pressure	MPa	1.0		
Min. Operating Pressure	MPa	0.15	0.1	
Proof Pressure	MPa	1.6		
Ambient Temperature	°C	-10 to 60 (No freezing)		
Port Size		M5		
Stroke tolerance	mm	+1.0		
		0		
Operating Piston Speed	mm/s	50 to 750		
Cushion	Rubber Cushion			
Lubrication	Not required (When lubricating, use turbine oil Class 1 ISO VG32)			
Allowable Absorbed Energy	J	0.012	0.041	0.162

Cylinder Weight

[Unit: g]

Model	Stroke Bore size (mm)	Without Switch				With Switch (2 Switches Attached)				Switch Mounting Bracket Weight	Switch Weight (Per Switch)
		15 st	30 st	45 st	60 st	15 st	30 st	45 st	60 st		
SCPD3-K	ø6	15	17	19	21	65	67	69	71	2	Refer to the weight listed in the switch specifications on P. 971.
	ø10	27	30	33	36	80	83	86	89		
	ø16	64	69	74	79	118	123	128	133		

Mounting Bracket Weight

(Unit: g)

Applicable Bore size	Mounting type		
	Foot Type LS	Flange Type FA	Clevis Type CB
ø6	6	4	-
ø10	6	4	4
ø16	15	12	10

Stroke

Bore size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)
ø6	15, 30, 45, 60	100	5
ø10		200	
ø16		260	

Note: Intermediate strokes can be produced in 1 mm increments.

Allowable Lateral Load

[Unit: g]

Model	Bore size (mm)	Stroke			
		15 st	30 st	45 st	60 st
SCPD3-K	ø6	132	109	93	81
	ø10	338	277	234	203
	ø16	861	705	597	518

Min. Stroke with Switch

Diagram	With 1 pc.		With 2 pcs.	
	Rod Side Mounting	Head Side Mounting	For different surface mounting	
Min. Stroke	T0, 5, T2 (W), T3 (W) 5 mm	T2WL 30 mm	T0, 5, T2 (W), T3 (W) 10 mm	T2WL 30 mm

Theoretical Thrust Table

(Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø6	Push	-	4.24	5.65	8.48	11.3	14.1	17.0	19.8	22.6	25.4	28.3
	Pull	-	3.18	4.24	6.36	8.48	10.6	12.7	14.8	17.0	19.1	21.2
ø10	Push	7.85	11.8	15.7	23.6	31.4	39.3	47.1	55.0	62.8	70.7	78.5
	Pull	6.60	9.90	13.2	19.8	26.4	33.0	39.6	46.2	52.8	59.4	66.0
ø16	Push	20.1	30.2	40.2	60.3	80.4	1.01 × 10 ²	1.21 × 10 ²	1.41 × 10 ²	1.61 × 10 ²	1.81 × 10 ²	2.01 × 10 ²
	Pull	18.1	27.2	36.3	54.4	72.6	90.7	1.09 × 10 ²	1.27 × 10 ²	1.45 × 10 ²	1.63 × 10 ²	1.81 × 10 ²

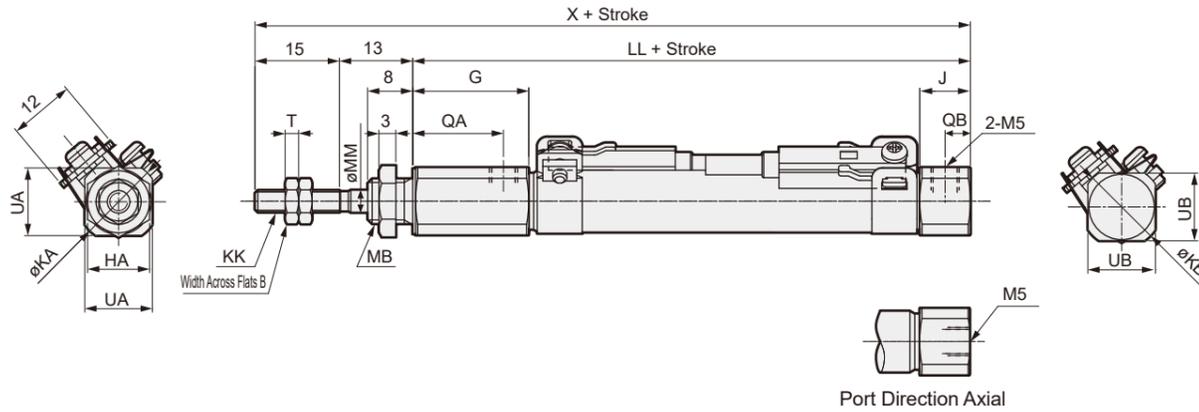
Mounting Bracket Model No. Notation Method

Bore size	ø6	ø10	ø16
Mounting bracket			
Foot (LS)	P2-LS-6	P2-LS-10	P2-LS-16
Flange (FA)	P2-FA-6	P2-FA-10	P2-FA-16

Note: Foot (LS) type mounting brackets come as 1 pc./set.

Outline Dimension Drawing

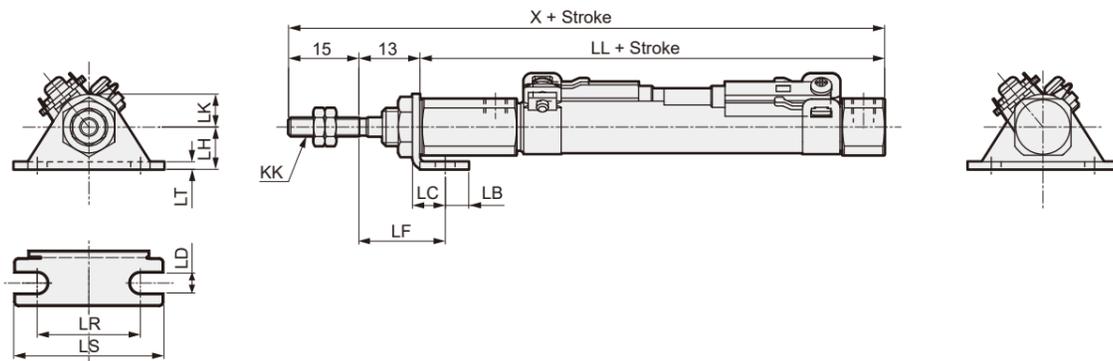
- Double Acting, High Load Type
Basic Type (00)



Code	Basic Type (00) Basic Dimensions															
Bore size (mm)	B	G	HA	J	KA	KB	KK	LL	MB	MM	QA	QB	T	UA	UB	X
ø6	5.5	20	8	8	13.5	13.5	M3	55	M6	3	16	4	1.8	11	11 (8)	83
ø10	7	20.5	11	9	14.5	14.5	M4	59	M8 × 1.0	4	16	4.5	2.4	12	12	87
ø16	8	21	14	9	21.5	21.5	M5	62	M10 × 1.0	5	16.5	4.5	3.2	18	18	90

*1: Dimensions in () are for head side port direction "0" axial type.
*2: For outer dimensions diagram of accessories, refer to P. 19.
*3: For dimensions of models with switches, see P. 101.

- Single Side Axial Foot Type (LS)

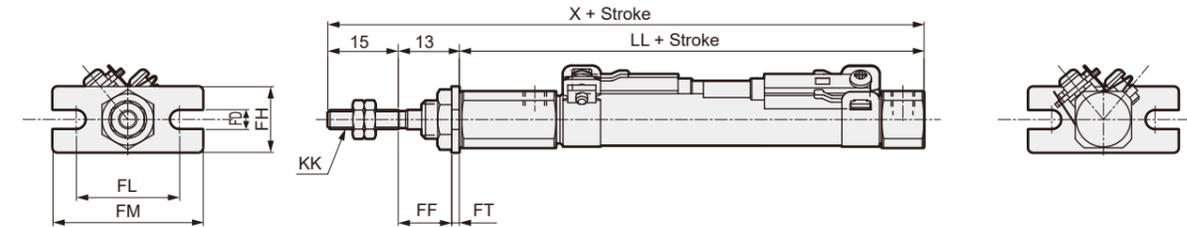


Code	Single Side Axial Foot Type (LS) Mounting Dimensions											
Bore size (mm)	KK	LL	X	LB	LC	LD	LF	LH	LK	LR	LS	LT
ø6	M3	55	83	5	7	4.2	18.4	9	7	22	32	1.6
ø10	M4	59	87	5	7	4.2	18.4	9	7	22	32	1.6
ø16	M5	62	90	6	9	5.2	19.7	14	10	29	42	2.3

*1: For outer dimensions diagram of accessories, refer to P. 19.
*2: For dimensions of models with switches, see P. 101.

Outline Dimension Drawing

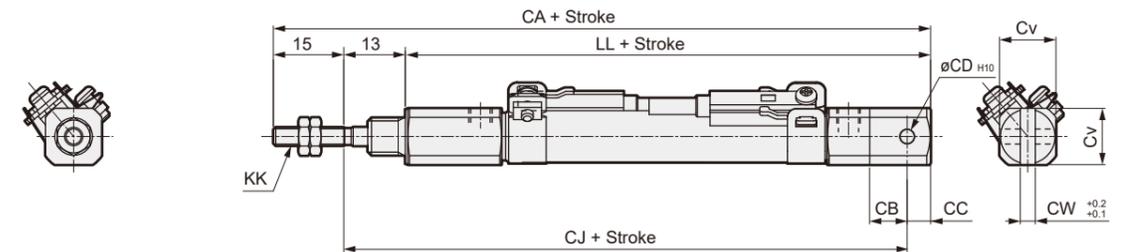
- Rod Side Flange Type (FA)



Code	Rod Side Flange Type (FA) Mounting Dimensions								
Bore size (mm)	KK	LL	X	FD	FF	FH	FL	FM	FT
ø6	M3	55	83	4.2	11.4	14	22	32	1.6
ø10	M4	59	87	4.2	11.4	14	22	32	1.6
ø16	M5	62	90	5.2	10.7	20	29	42	2.3

*1: For outer dimensions diagram of accessories, refer to P. 19.
*2: For dimensions of models with switches, see P. 101.

- Double clevis type (CB)



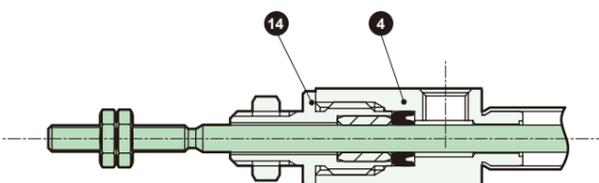
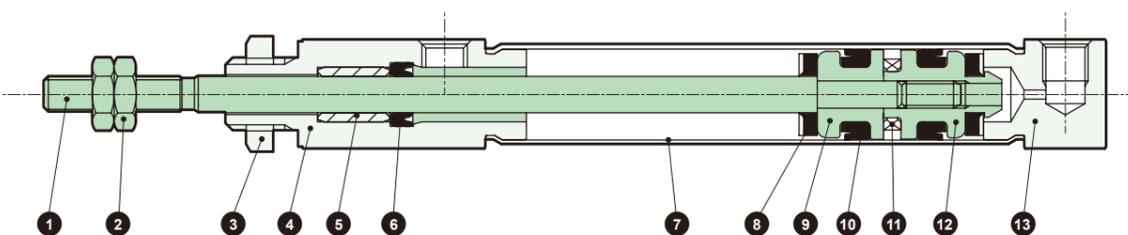
Code	Double Clevis Type (CB) Mounting Dimensions							
Bore size (mm)	KK	CA	CB	CC	CD	CJ	Cv	CW
ø10	M4	100	8	5	3.2	80	12	3.2
ø16	M5	110	10	10	5	85	18	6.5

*1: For outer dimensions diagram of accessories, refer to P. 19.
*2: For dimensions of models with switches, see P. 101.

SCPD3-K Series

Internal Structure Diagram / Material

- Double Acting, High Load Type
- SCPD3-K
- SCPD3-KL (with Switch)



For ø6

Do not disassemble

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Piston Rod	Stainless Steel		8	Cushion Rubber	Urethane Rubber	
2	Rod Nut	Steel	Nickel Plating	9	Piston (R)	Aluminum Alloy	Chromate
3	Hexagon Nut	Steel	Nickel Plating	10	Piston Packing	Nitrile Rubber	
4	Rod Cover	Aluminum Alloy	Hard Anodized	11	Magnet		With switch only
5	Bushing	Bearing Alloy		12	Piston (H)	Aluminum Alloy	Chromate
6	Rod Packing	Nitrile Rubber		13	Head Cover	Aluminum Alloy	Hard Anodized
7	Cylinder Tube	Stainless Steel		14	Rod Metal	Aluminum Alloy	Hard Anodized

MEMO

General Type

SCP_3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

Cylinder Switch

Ending

General Type

SCP_3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

Cylinder Switch

Ending

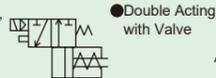


Pencil Shaped Cylinder Single Acting/with Valve, Double Acting/with Valve

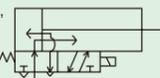
SCPS3-V Series SCPD3-V Series

● Bore size: $\phi 10$, $\phi 16$

● Single Acting, with Valve



● Double Acting, with Valve



Custom Products



SCP_DS3-V_□ Series

Model No. Notation Method

7 Number of Switches

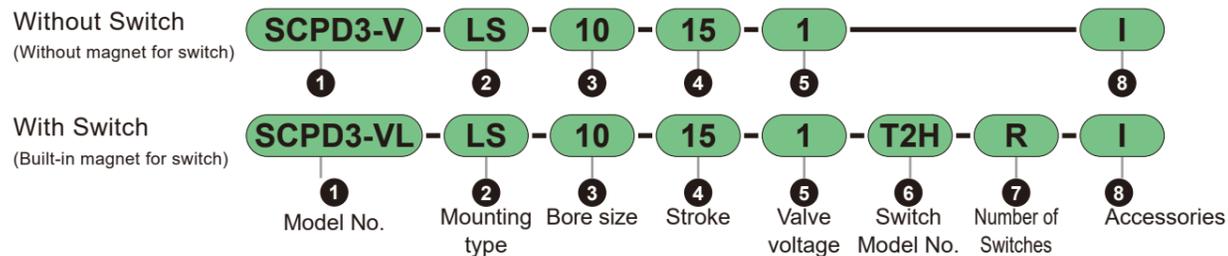
Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs

8 Accessories

Code	Content	Image
I	Single Knuckle	
Y	Double Knuckle (pin and retaining ring included)	
B1	Single Bracket	
B2	Double Yoke Bracket	

*1: "I" and "Y" cannot be selected at the same time.

Model No. Notation Method



1 Model No.

Code	Contents
SCPS3-V	Single Acting Push with Valve
SCPS3-VL	Single Acting Push with Valve With Switch
SCPD3-V	Double Acting with Valve
SCPD3-VL	Double Acting with Valve With Switch

2 Mounting type

Mounting brackets are included to the product and shipped.

Code	Contents	Image
00	Basic type	
LS	Single Side Axial Foot Type	
LB	Double Side Axial Foot Type	
FA	Rod Side Flange Type	

*1: In the case of single acting push (SCPS3), "LB" cannot be selected.

3 Bore size (mm)

Code	Content
10	$\phi 10$
16	$\phi 16$

4 Stroke (mm)

Bore size	Stroke	Intermediate Stroke
$\phi 10$	15 to 200 (15 to 120)	Every 1 mm
$\phi 16$	15 to 260 (15 to 120)	

*1: For minimum stroke with switch, refer to P. 94.

*2: () indicates SCPS3-V.

5 Valve voltage

Code	Content
1	100 VAC
2	200 VAC
3	24 VDC

6 Switch Model No.

For switch details, please refer to page 971. Switches are included to the product and shipped.

Contact	Indicator Lamp Special Function	Wiring (Output)	Load Voltage (V)		Load Current (mA)		Lead Wire *1		Image
			AC	DC	AC	DC	Straight	L-shape	
Solid State	1-Color	2-wire	—	10 to 30	—	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	—	30 or less	—	100 or less	T3H□	T3V□	
		3-wire (PNP)	—	30 or less	—	100 or less	T3PH□	T3PV□	
	2-Color	2-wire	—	24 ± 10%	—	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WH□	T3WV□	
Improved Water Resistance	2-wire	2-wire	—	24 ± 10%	—	5 to 20	T2WLH□	T2WLV□	
		3-wire (NPN)	—	30 or less	—	50 or less	T3WLH□	T3WLV□	
Flexible Lead Wire Type	1-Color	2-wire	—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
			—	10 to 30	—	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
			110	5/12/24	20 or less	50 or less	T5H□	T5V□	

*Lead wire length, connector specification

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (-) Lead Wire 0.3 m

*5: Only T2WLH and T2WLV can be selected.

Example) Lead wire length

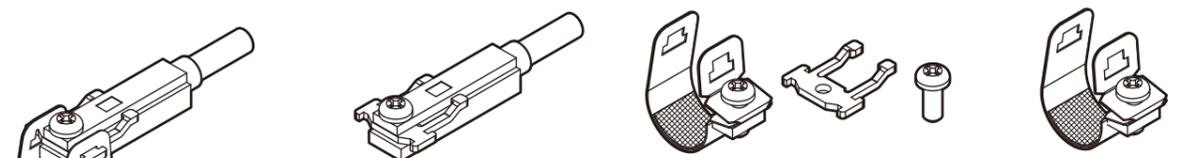
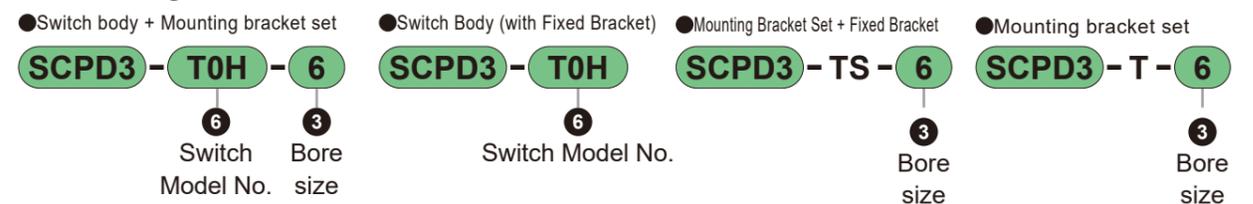
- 1 m T0H
- 3 m T0H ③
- 5 m T0H ⑤

About Custom Product Specifications

Code	Contents
Rod End Shape Modification	Refer to End of Volume P. 11.

*For combinations of variations and options, see P. 11.

Switch Single Unit Model No. Notation Method



Note) T-type standard switch and fixing bracket Phillips pan head screw are different.

For purchases of 20 or more, items will be packed together.

For purchases of 20 or more, items will be packed together.

*1: For "□" in the switch model number, enter the code selected from the "Lead wire length, connector specification" table.

*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)

*3: This does not guarantee the water resistance of the cylinder.

*4: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 971.

Specifications

Item	SCPS3-V SCPS3-VL		SCPD3-V SCPD3-VL			
	mm	ø10	ø16	mm	ø10	ø16
Bore size	mm	ø10	ø16	mm	ø10	ø16
Actuation method		Single Acting, with Valve			Double Acting, with Valve	
Operating Fluid		Compressed Air				
Max. Working Pressure	MPa	1			0.7	
Min. Operating Pressure	MPa	0.15				
Proof Pressure	MPa	1.5			1.05	
Ambient Temperature	°C	-10 to 50 (No freezing)				
Port Size		M5				
Stroke tolerance	mm	+1.0 0 (to 60), +1.5 0 (61 to 120)			+1.0 0 (to 120), (+1.5 0 121 to 200: ø10 121 to 260: ø16)	
Operating Piston Speed	mm/s	50 to 750				
Cushion		Rubber Cushion				
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)				
Manual Override		Non-locking Push Type				
Allowable Absorbed Energy	J	0.041	0.162	0.041	0.162	
Solenoid Valve Specifications						
Applicable Valve Series		P5132 (SCPS3-V, SCPS3-VL) P5142 (SCPD3-V, SCPD3-VL)				
Rated Voltage	V	100 VAC (50/60 Hz)		200 VAC (50/60 Hz)	24 VDC	
Starting Current (A)		0.056 / 0.044		0.034 / 0.026	0.075	
Holding Current (A)		0.028 / 0.022		0.017 / 0.013	0.075	
Power consumption	W	1.8 / 1.4		2.1 / 1.6	1.8	
Voltage Fluctuation Range		±10%				
Heat Resistance Class		Class B (Molded Coil)				
Temperature Rise	°C	45				

Note: Note: For details on the valve, refer to "Directional Control Valves ②" (Catalog No. RJ-012AA).

Stroke

Bore size (mm)		Standard Stroke (mm)	Maximum Stroke (mm)	Min. Stroke (mm)
SCPS3-V	Single Acting	15, 30, 45, 60	120	15
	ø10			
SCPD3-V	Double Acting	15, 30, 45, 60	200	
	ø10			
	ø16		260	

Note: About Intermediate Stroke: Manufacturable every 1 mm.

Min. Stroke with Switch

Diagram	With 1 pc.			With 2 pcs.		
	Rod Side Mounting	Head Side Mounting	T2WL	For different surface mounting		
Min. Stroke	T2, 3, T3P, T2*R 5 mm (10 mm)	T0, 5, T2W, T3W 5 mm (15 mm)	T2WL 30 mm	T2, 3, T3P, T2*R 10 mm	T0, 5, T2W, T3W 10 mm (15 mm)	T2WL 30 mm

Note: Values in () are the min. stroke length with switch of the straight switch lead wire.

Cylinder Weight

(Unit: g)

Model	Stroke Bore size (mm)	Without Switch				With Switch (2 Switches Attached)				Switch Mounting Bracket Weight	Switch Weight (Per Switch)
		15 st	30 st	45 st	60 st	15 st	30 st	45 st	60 st		
SCPS3-V	ø10	89	96	103	110	139	146	153	160	2	Refer to the weight listed in the switch specifications on P. 971.
	ø16	107	121	135	149	159	173	187	201		
SCPD3-V	ø10	131	134	138	142	181	184	188	192		
	ø16	151	156	161	166	203	208	213	218		

Mounting Bracket Weight

(Unit: g)

Applicable Bore size	Mounting type		
	Foot Type LS	Foot Type LB	Flange Type FA
ø10	6	12	4
ø16	15	30	12

Single Acting Type Spring Load (SCPS3-V)

(Unit: N)

Bore size (mm)	At 0 mm Stroke	At Full Stroke Operation
ø10	3.2	7.5
ø16	6.4	14.9

Theoretical Thrust Table

(Unit: N)

●SCPS3-V

Bore size (mm)	Operating Pressure MPa									
	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø10	7.01	9.34	17.2	25.0	32.9	40.8	48.6	56.5	64.3	72.2
ø16	21.5	28.7	48.8	68.9	89.0	1.09 × 10 ²	1.29 × 10 ²	1.49 × 10 ²	1.69 × 10 ²	1.90 × 10 ²

●SCPD3-V (Unit: N)

Bore size (mm)	Operating Direction	Operating Pressure MPa						
		0.15	0.2	0.3	0.4	0.5	0.6	0.7
ø10	Push	11.8	15.7	23.6	31.4	39.3	47.1	55.0
	Pull	9.90	13.2	19.8	26.4	33.0	39.6	46.2
ø16	Push	30.2	40.2	60.3	80.4	1.01 × 10 ²	1.21 × 10 ²	1.41 × 10 ²
	Pull	27.2	36.3	54.4	72.6	90.7	1.09 × 10 ²	1.27 × 10 ²

General Type

General Type

SCP₃

SCP₃

CMK2

CMK2

CMA2

CMA2

SCM

SCM

SCG

SCG

SCA2

SCA2

SCS2

SCS2

Cylinder Switch

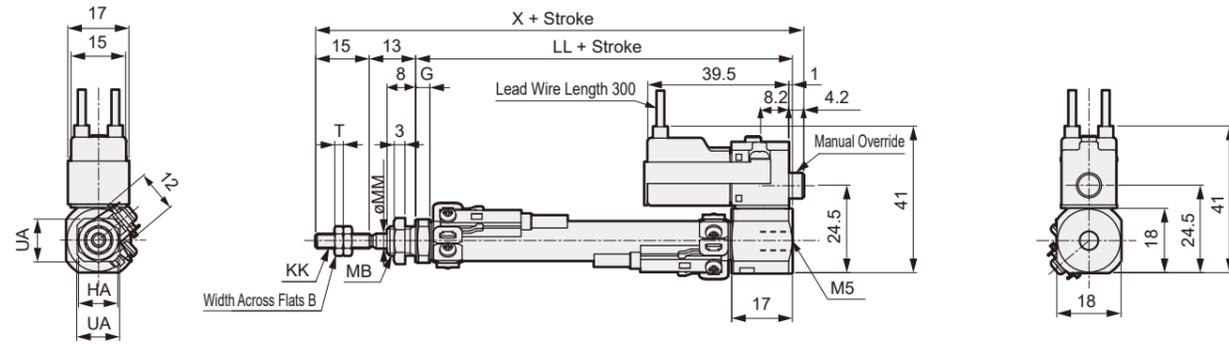
Cylinder Switch

Ending

Ending

Outline Dimension Drawing

●SCPS3-V (L) Basic Type (00)



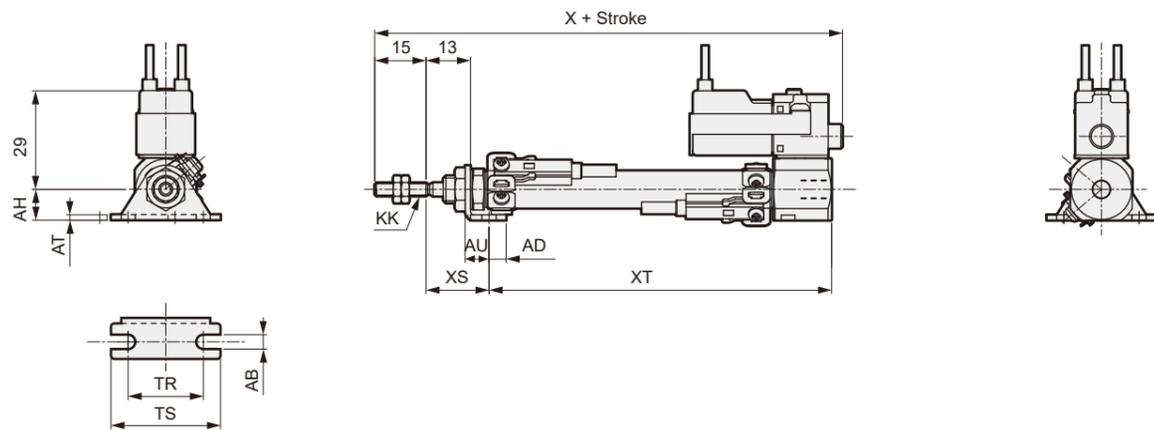
Code	Basic Type (OO) Basic Dimensions												
	Bore size (mm)	B	G	HA	KK	LL							
15 or less						Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less	
CMK2	ø10	7	4	11	M4	55	60	70	75	85	90	100	105
	ø16	8	4	14	M5	55	60	70	75	85	90	100	105

Code	Bore size (mm)	MB	MM	T	UA	X							
						15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less
SCM	ø10	M8 × 1.0	4	2.4	12	86.2	91.2	101.2	106.2	116.2	121.2	131.2	136.2
	ø16	M10 × 1.0	5	3.2	18	86.2	91.2	101.2	106.2	116.2	121.2	131.2	136.2

*1: For outer dimensions diagram of accessories, refer to P. 19.

*2: For dimensions of models with switches, see P. 101.

●Single Side Axial Foot Type (LS)



Code	Single Side Axial Foot Type (LS) Mounting Dimensions													
	Bore size (mm)	KK	X								AB	AH	AD	AU
15 or less			Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less					
	ø10	M4	86.2	91.2	101.2	106.2	116.2	121.2	131.2	136.2	4.2	9	5	7
	ø16	M5	86.2	91.2	101.2	106.2	116.2	121.2	131.2	136.2	5.2	14	6	9

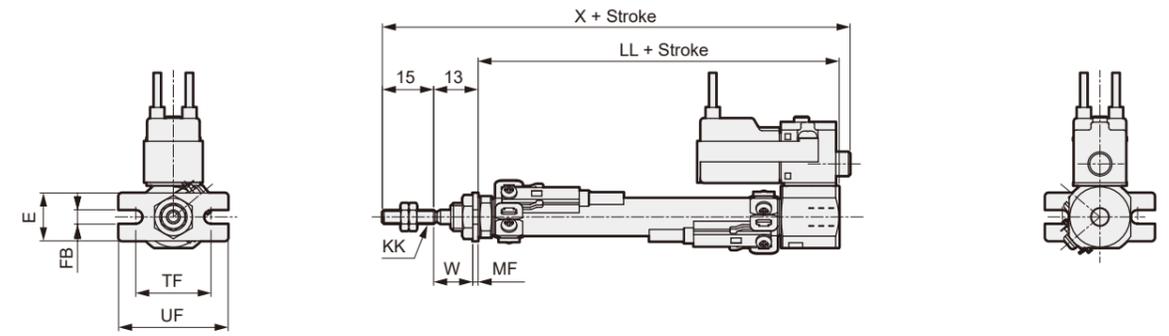
Code	Bore size (mm)	AT	TR	TS	XS	XT							
						15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less
Cylinder Switch	ø10	1.6	22	32	18.4	49.6	54.6	64.6	69.6	79.6	84.6	94.6	99.6
	ø16	2.3	29	42	19.7	48.3	53.3	63.3	68.3	78.3	83.3	93.3	98.3

*1: For outer dimensions diagram of accessories, refer to P. 19.

*2: For dimensions of models with switches, see P. 101.

Outline Dimension Drawing

●Rod Side Flange Type (FA)



Code	Rod Side Flange Type (FA) Mounting Dimensions															
	Bore size (mm)	KK	LL								E	FB	MF	TF	UF	W
15 or less			Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less							
	ø10	M4	55	60	70	75	85	90	100	105	14	4.2	1.6	22	32	11.4
	ø16	M5	55	60	70	75	85	90	100	105	20	5.2	2.3	29	42	10.7

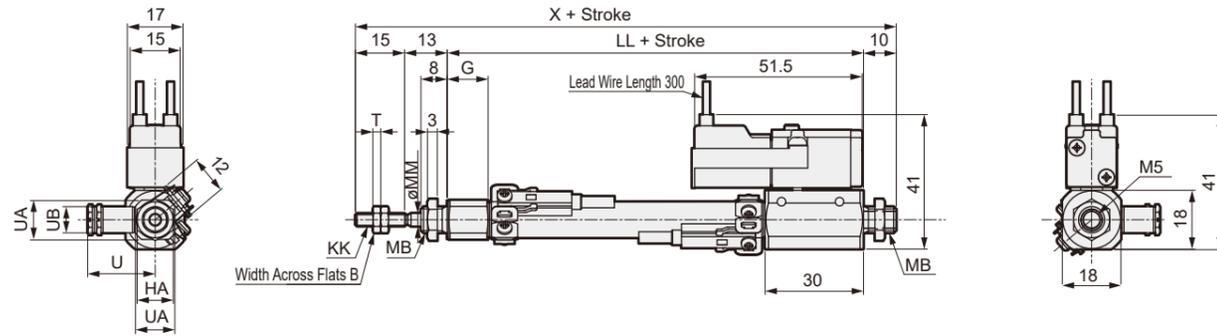
Code	Bore size (mm)	X											
		15 or less	Over 15, 30 or less	Over 30, 45 or less	Over 45, 60 or less	Over 60, 75 or less	Over 75, 90 or less	Over 90, 105 or less	Over 105, 120 or less				
	ø10	86.2	91.2	101.2	106.2	116.2	121.2	131.2	136.2				
	ø16	86.2	91.2	101.2	106.2	116.2	121.2	131.2	136.2				

*1: For outer dimensions diagram of accessories, refer to P. 19.

*2: For dimensions of models with switches, see P. 101.

Outline Dimension Drawing

●SCPD3-V (L) Basic Type (00)

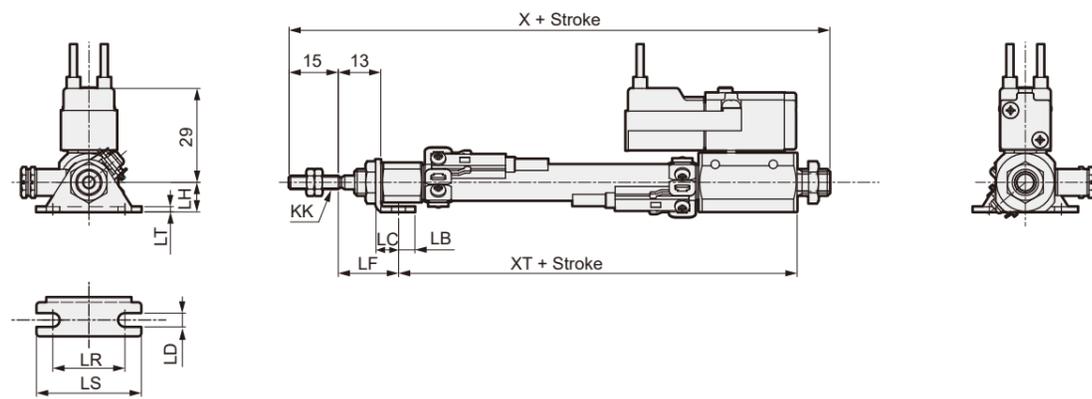


SCP₃

Code	Basic Type (00) Basic Dimensions											
Bore size	B	HA	G	KK	LL	MB	MM	T	U	UA	UB	X
ø10	7	11	12.5	M4	67	M8 × 1.0	4	2.4	21	12	8	105
ø16	8	14	13	M4	67	M10 × 1.0	5	3.2	21	18	8	105

*1: For outer dimensions diagram of accessories, refer to P. 19.
*2: For dimensions of models with switches, see P. 101.

●Single Side Axial Foot Type (LS)

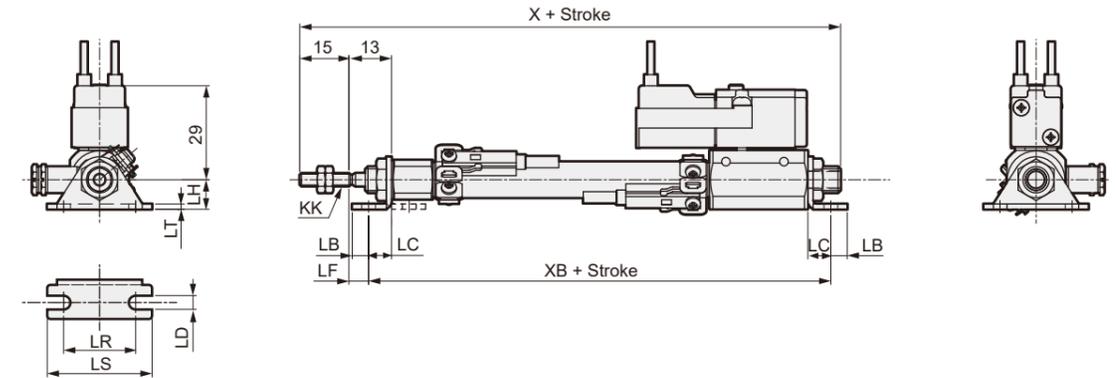


Code	Single Side Axial Foot Type (LS) Mounting Dimensions										
Bore size	KK	X	LD	LH	LB	LT	LC	LR	LS	LF	XT
ø10	M4	105	4.2	9	5	1.6	7	22	32	18.4	61.6
ø16	M5	105	5.2	14	6	2.3	9	29	42	19.7	60.3

*1: For outer dimensions diagram of accessories, refer to P. 19.
*2: For dimensions of models with switches, see P. 101.

Outline Dimension Drawing

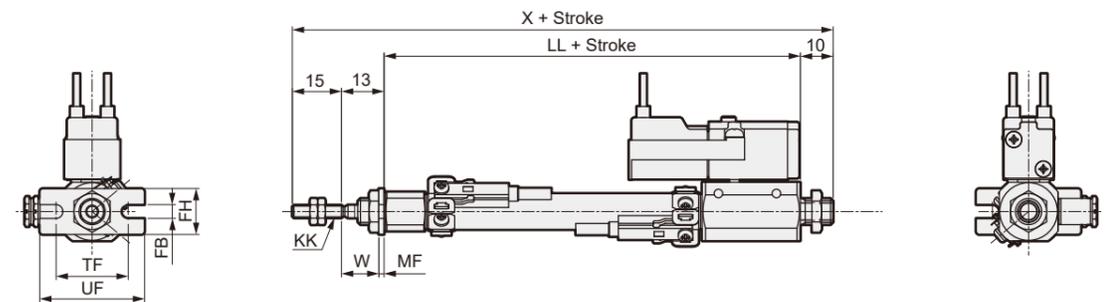
●Both Sides Axial Foot Type (LB)



Code	Both Sides Axial Foot Type (LB) Mounting Dimensions										
Bore size	KK	X	LD	LH	LB	LT	LC	LR	LS	XB	LF
ø10	M4	105	4.2	9	5	1.6	7	22	32	81	6
ø16	M5	105	5.2	14	6	2.3	9	29	42	85	4

*1: For outer dimensions diagram of accessories, refer to P. 19.
*2: For dimensions of models with switches, see P. 101.

●Rod Side Flange Type (FA)



Code	Rod Side Flange Type (FA) Mounting Dimensions									
Bore size	KK	LL	X	FB	FH	MF	TF	UF	W	
ø10	M4	67	105	4.2	14	1.6	22	32	11.4	
ø16	M5	67	105	5.2	20	2.3	29	42	10.7	

*1: For outer dimensions diagram of accessories, refer to P. 19.
*2: For dimensions of models with switches, see P. 101.

Cylinder Switch

Ending

General Type

SCP₃

CMK2

CMA2

SCM

SCG

SCA2

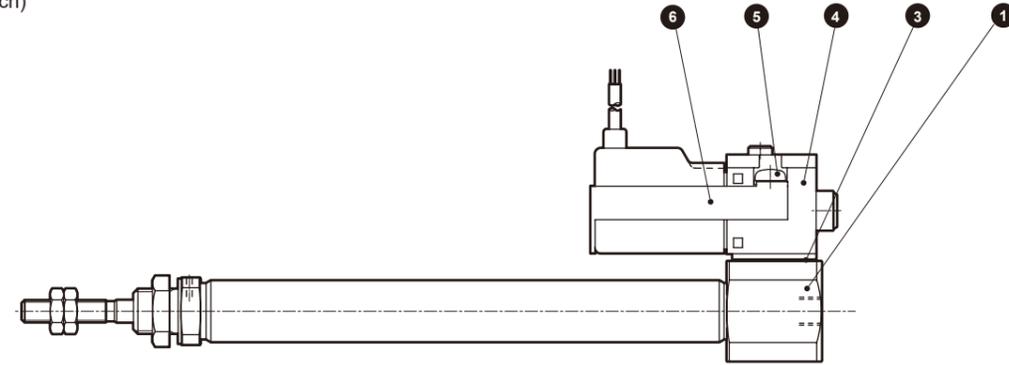
SCS2

Cylinder Switch

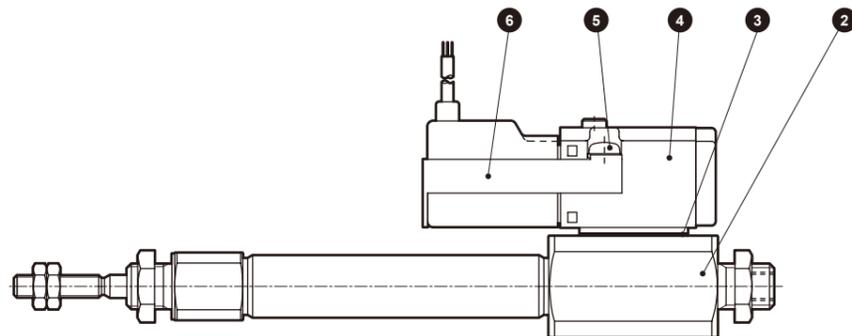
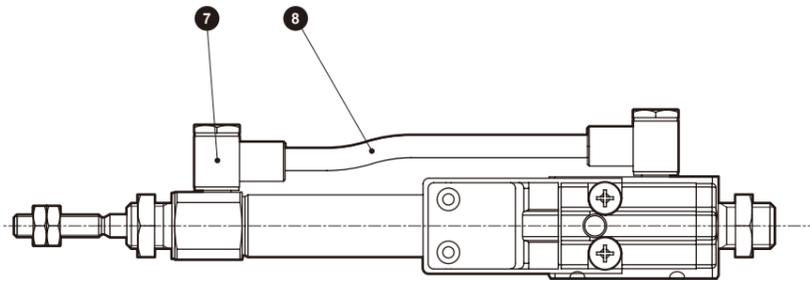
Ending

Internal Structure Diagram / Materials (with Switch)

- Single Acting, with Valve
SCPS3-V
SCPS3-VL (with Switch)



- Double Acting, with Valve
SCPD3-V
SCPD3-VL (with Switch)

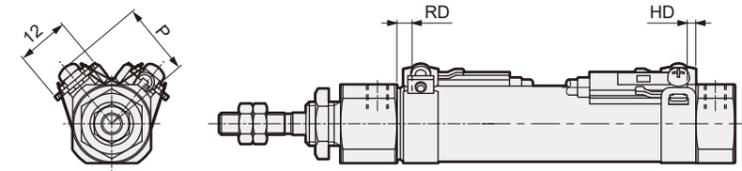


Do not disassemble

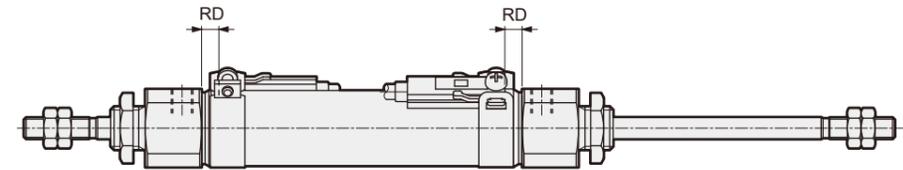
Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Pencil Shaped Cylinder, Single Acting Type		SCPS3 (CKD)	5	Pan Head Screw	Steel	Zinc Chromate
2	Pencil Shaped Cylinder, Double Acting Type		SCPD3 (CKD)	6	Shielding Plate	Steel	With Switch Only
3	Gasket	Nitrile Rubber		7	Fitting		FCL (CKD)
4	Solenoid Valve		Single acting is 3-port valve, double acting is 4-port valve	8	Nylon Tubing	Nylon	

SCP 3 Series Outer Dimensions Diagram with Switch

- T0H/V, T5H/V, T2H/V, T2R3, T3(P)H/V, T2WH/V, T3WH/V, T2WLH/V
- SCPD3-L / SCPD3-L-C / SCPD3-LF / SCPD3-OL / SCPD3-ML / SCPD3-ZL / SCPD3-KL / SCPD3-VL, SCPS3-L / SCPS3-ML / SCPS3-VL / SCPH3-L



- SCPD3-DL



Code	SCPD3-L, L-C, LF, OL, ML, ZL, KL, VL						
	Bore size (mm)	P	T0, T5, T2, T2R3, T3, T3P			T2W, T3W, T2WL	
			RD	HD	RD	HD	
ø6	11.5		2	2	4	3.5	
ø10	13.5		3.5	2.5	5.5	4	
ø16	17.0		2	3.5	3.5	5	

Code	SCPS3-L, SCPS3-ML, SCPS3-VL																		
	Bore size (mm)	P	T0, T5, T2, T2R3, T3, T3P								T2W, T3W, T2WL								
			RD								HD	RD							
ø6	11.5	12	17	32	37	52	57	72	-	2	14	19	34	39	54	59	74	-	3.5
ø10	13.5	13.5	18.5	28.5	33.5	43.5	48.5	58.5	63.5	2.5	15	20	30	35	45	50	60	65	4
ø16	17.0	11.5	16.5	26.5	31.5	41.5	46.5	56.5	61.5	3.5	13.5	18.5	28.5	33.5	43.5	48.5	58.5	63.5	5

Code	SCPH3-L																		
	Bore size (mm)	P	T0, T5, T2, T2R3, T3, T3P								T2W, T3W, T2WL								
			RD	HD								RD	HD						
ø6	11.5	2	12	17	32	37	52	57	72	-	4	13.5	18.5	33.5	38.5	53.5	58.5	73.5	-
ø10	13.5	3.5	12	17	27	32	42	47	57	62	5.5	14	19	29	34	44	49	59	64
ø16	17.0	2	13.5	18.5	28.5	33.5	43.5	48.5	58.5	63.5	3.5	15	20	30	35	45	50	60	65

Code	SCPD3-DL			
	Bore size (mm)	P	T0, T5, T2, T2R3, T3, T3P	T2W, T3W, T2WL
			RD	RD
ø6	11.5		2	4
ø10	13.5		5.5	7.5
ø16	17.0		4	6

Note: Refer to How to order for each variation when switch is not mountable.



To Use This Product Safely

Be sure to read this before use. For general cylinder information, see Intro 41, and for cylinder switches, see P. 1026.

Individual Precautions: Pencil Shaped Cylinder SCP□3 Series

During Design / Selection

1. With Rubber Air Cushion SCPD3-□C

⚠ Caution

■ Due to the structure, if the air supply is cut off, the stroke end position cannot be maintained. Please be careful. When detecting the stroke end with a switch, it may be outside the detection range, so set the switch position in an air-pressurized state.

2. Ultra Low Speed Type SCPD3-F

⚠ Caution

■ Use without lubrication.

- Lubrication may change characteristics.

■ Install the speed controller near the cylinder.

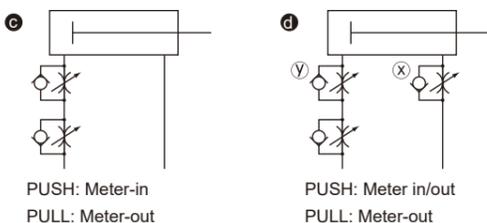
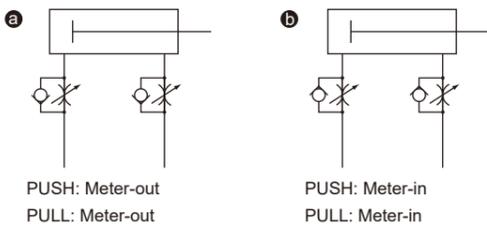
- If installed far from the cylinder, adjustment will be unstable.
- SC-M3/M5-F, SC3W, SCD-M3/M5-F series speed controllers are recommended.

■ Generally, the higher the air pressure and the lower the load factor, the more stable the speed.

- Use with a load factor of 50% or less.

■ Speed control with a meter-out circuit provides stability.

- When driving a single-rod cylinder at creep speed in the PUSH direction, if the load resistance is small, a flying-out phenomenon may occur at the start of operation. As countermeasures, use circuits b, c, or d. Circuit d is the most stable.

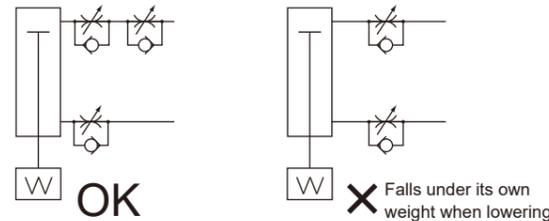


④ Speed adjustment method for PUSH operation of circuit:

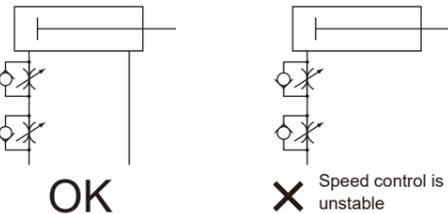
1. Set the speed with the speed controller x.
2. Restrict the speed with the speed controller y until there is no popping out.
3. Check the speed again.

(*1) When comparing ②, ③, and ④, the ④ 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 serial connection of speed controllers.



(Guideline for lurching occurrence)

Lurching occurs in the following cases:

• Thrust > Resistance

*Resistance: *Resistance: Thrust due to residual pressure on exhaust side + For horizontal use: Frictional force due to load
(For creep speed type, intake pressure = residual pressure) + For vertical use: Dead weight of the load

■ Do not apply lateral load to the cylinder.

- Operation becomes unstable when lateral load is applied.

■ Avoid use in places with vibration.

- Operation becomes unstable due to the influence of vibration.

3. With Valve SCP□3-V

⚠ Caution

■ If the energization time exceeds 20 minutes, the service life may be reduced.

■ Do not use a meter-in speed controller. Depending on the control flow rate, it may not operate at the minimum operating pressure. Consult with CKD.

During Use

1. Common

⚠ Caution

■ Do not force piping in such a way that lateral force is applied to the cylinder tube. The cylinder tube may tilt, causing malfunction.

■ Do not turn the cover.

- When mounting the cylinder and screwing pipe fittings into the ports, if the cover rotates, there is a risk of damage from the cover joint.

■ When fixing a workpiece to the tip of the piston rod, ensure that tightening torque is not applied to the cylinder body.

■ When tightening the hex nut (Part No. 3 in the internal structure and parts list on P. 20), tighten within the following tightening torque range.

- ø6: 1.46 N·m ±10%
- ø10: 4.09 N·m ±10%
- ø16: 8.78 N·m ±10%

■ This cylinder is a non-disassembly type, so do not apply excessive force to the end cover or tube.

2. Single Acting Type SCPS, SCPS3, SCPH3

⚠ Caution

■ For single acting cylinders, do not use push types in a way that applies load during piston rod retraction, or pull types in a way that applies load during piston rod extension.

The cylinder's built-in spring only has force to return the piston rod, so if a load is applied, it will not return to the stroke end.

■ For single acting types, a breather hole is provided on the cover surface, so be careful not to block the hole during installation. This will cause malfunction.

■ Do not leave single acting cylinders pressurized. If left pressurized, the piston rod may not return by spring load when the pressure is released.

3. With Rubber Air Cushion SCPD3-□C

⚠ Caution

■ Due to changes in cushion rigidity from long-term storage, the stroke may be slightly shorter than the standard value at low pressure settings. Perform a break-in operation by operating it several times or by reciprocating it at a high supply pressure.

4. Ultra Low Speed Type SCPD3-F

⚠ Caution

■ Make adjustments such as alignment so that no lateral load is applied to the cylinder. Also, adjust and install so that there is no twisting with respect to the sliding guide.

- Operation will become unstable if there are fluctuations in load or resistance.
- Guides with a large difference between static friction and dynamic friction will result in unstable operation.

5. Non-Rotating Type SCPS3-M, SCPD3-M

⚠ Caution

■ For non-rotating types, ensure that no rotational torque is applied to the piston rod. The bushing will deform, reducing service life.

■ The direction of the piston rod's width across flats is manufactured to be parallel to the side of the rod cover, but accuracy is not guaranteed.



For precautions regarding mounting, installation, adjustment, use, and maintenance, please see "Precautions for Use" in this catalog and the CKD Components Product website (<https://www.ckd.co.jp/kiki/en/>) → "Model No." → [Instruction Manual](#)