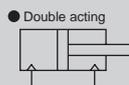


Pencil shaped cylinder
Double acting/single rod

SCPD3 Series (made to order)

● Bore size: $\phi 6/\phi 10/\phi 16$

JIS symbol



Structure and material restriction

	Structure	Material restriction			Model No.
P7 Series	Exhaust treatment				P7
	Vacuum treatment				P71
P5 Series	Exhaust treatment	Copper-based materials prohibited	Silicon-based materials prohibited	Halogen-based materials prohibited (fluorine, chlorine, bromine)	P5
	Vacuum treatment	Copper-based materials prohibited	Silicon-based materials prohibited	Halogen-based materials prohibited (fluorine, chlorine, bromine)	P51

Specifications

Descriptions	SCPD3-P7*/P5* SCPD3-L-P7*/P5*			
	mm	$\phi 6$	$\phi 10$	$\phi 16$
Bore size		$\phi 6$	$\phi 10$	$\phi 16$
Actuation	Double acting			
Working fluid	Compressed air			
Max. working pressure MPa	1.0			
Min. working pressure MPa	0.15	0.1		
Proof pressure MPa	1.6			
Ambient temperature °C	-10 to 60 (no freezing)			
Port size	M5			
Port size (relief port)	M5			
Stroke tolerance mm	$+1.0$ 0			
Working piston speed mm/s	50 to 500			
Cushion	Rubber cushion			
Lubrication	Not available			
Allowable energy absorption J	0.012	0.041	0.162	

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)*
$\phi 6$	15/30/ 45/60	100	5
$\phi 10$		200	
$\phi 16$		260	

* For types with switch, minimum stroke length varies depending on installation method. Refer to the following table.

Min. stroke length with switch

	1		2	
	Sketch	Sketch	Sketch	Sketch
Min. stroke length	5 mm		10 mm	28 mm
	3			
	Sketch	Sketch		
Min. stroke length	38 mm	54 mm		

Switch specifications

Descriptions	Proximity 2-wire		Proximity 3-wire	
	T2H/T2V	T2WH/T2WV	T3H/T3V	T3WH/T3WV
Applications	Programmable controller		Programmable controller, relay	
Output method	-		NPN output	
Power supply voltage	-		10 to 28 VDC	
Load voltage	10 to 30 VDC	24 VDC ±10%	30 VDC or less	
Load current	5 to 20 mA (*2)		100 mA or less	50 mA or less
Indicator lamp	LED (lit when ON)	Red/green LED (lit when ON)	LED (lit when ON)	Red/green LED (lit when ON)
Leakage current	1 mA or less		10 µA or less	
Weight g	1 m: 18 3 m: 49 5 m: 80		1 m: 18 3 m: 49 5 m: 80	

Descriptions	Reed 2-wire			
	T0H/T0V		T5H/T5V	
Applications	Programmable controller, relay		Programmable controller, relay IC circuit (without indicator lamp), serial connection	
Load voltage	12/24 VDC	110 VAC	5/12/24 VDC	110 VAC
Load current	5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less
Indicator lamp	LED (lit when ON)		Without indicator lamp	
Leakage current	0 mA		0 mA	
Weight g	1 m: 18 3 m: 49 5 m: 80		1 m: 18 3 m: 49 5 m: 80	

*1: Refer to page 309 for detailed switch specifications, dimensions, etc.

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

Cylinder weight

(Unit: g)

Descriptions	Mounting bracket weight		Product weight for 0 mm stroke length	Additional weight per 10 mm stroke length	Switch weight (per switch)	Mounting bracket weight
	Bore size (mm)	Foot (LS)				
ø6	6	4	23	1	Refer to weight information provided in the switch specifications.	2
ø10	6	4	34	2		
ø16	15	12	69	3		

Example: Product weight of SCPD3-L-LS-10-30-T0H-D-P7

- Mounting bracket weight (Foot) 6 g
- Product weight for 0 mm stroke length 34 g
- Additional weight for stroke length 30 mm 2 × 30/10 = 6 g
- Weight of 2 switches 2 × (18 + 2) = 40 g
- Product weight..... 6 + 34 + 6 + 40 = 86 g

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
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

- SCPD3
- SCM
- SSD2
- MDC2
- SMG
- LCM
- LCR
- LCG
- LCX
- STM
- STG
- STR2
- MRL2
- GRC
- Cylinder switch
- MN3E
MN4E
- 4GA/B
- M4GA/B
- MN4GA/B
- F.R (module unit)
- Clean F.R
- Precision R
- Press gauge
Diff. press gauge
- Electro-pneumatic R
- Speed controller
- Auxiliary valve
- Fitting/tube
- Clean air unit
- Pressure sensor
- Flow rate sensor
- Valve for air blow
- Ending

How to order

Without switch (No magnet for switch)

SCPD3 — 00 — 10 — 15 — 0 — P7

With switch (Magnet for switch incorporated)

SCPD3-L — 00 — 10 — 15 — 0 — T2V — R — P7

Model No.

A Mounting
*1

B Bore size

C Stroke length

D Head end port direction

E Switch model No.

*3
* indicates lead wire length.

F Switch quantity

G Clean room specifications

⚠ Precautions for model No. selection

- *1: Mounting brackets are shipped with the product.
- *2: Refer to page 10 for minimum stroke lengths of the types with switch incorporated.
- *3: No magnet is installed in those without switch.

[Example of model No.]

SCPD3-L-LS-10-15-0-T2V-R-P7

Model: Pencil shaped cylinder/double acting/single rod

- A Mounting : Axial foot (single) rod end
- B Bore size : $\varnothing 10$ mm
- C Stroke length : 15 mm
- D Head end port direction : Shaft direction
- E Switch model No. : Proximity switch T2V
- F Switch quantity : 1 (on rod end)
- G Clean room specifications : Exhaust treatment

Head cover port direction

For 00, LS and FA mounting, the head cover port direction can be selected from two options: vertical to the axis direction and horizontal to the axis direction.

Code	Content
A Mounting	
00	Basic
LS	Axial foot (single) rod end
FA	Rod end flange

B Bore size (mm)	
6	$\varnothing 6$
10	$\varnothing 10$
16	$\varnothing 16$

C Stroke length (mm)		
Bore size	Stroke length *2	Custom stroke length
$\varnothing 6$	5 to 100	By 1 mm increments
$\varnothing 10$	5 to 200	
$\varnothing 16$	5 to 260	

D Head end port direction	
Blank	Vertical
0	Shaft direction

E Switch model No.						
Lead wire straight	Lead wire L-shaped	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color display	2 wires
T5H*	T5V*		●	●	Without indicator lamp	
T2H*	T2V*	Proximity		●	1-color display	2 wires
T3H*	T3V*			●		3 wires
T2WH*	T2WV*			●	2-color display	2 wires
T3WH*	T3WV*		●		2-color display	3 wires

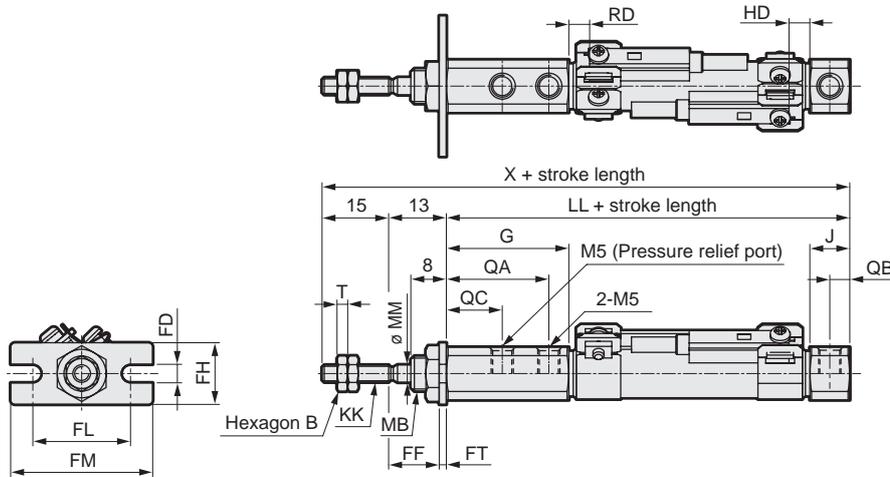
* Lead wire length	
Blank	1 m (standard)
3	3 m (optional)
5	5 m (optional)

F Switch quantity	
R	1 (on rod end)
H	1 (on head end)
D	2
T	3

G Clean room specifications		
	Structure	Material restriction
P7	Exhaust treatment	-
P71	Vacuum treatment	-
P5	Exhaust treatment	Copper-based/silicon-based/halogen-based materials (fluorine, chlorine, bromine) are prohibited
P51	Vacuum treatment	Copper-based/silicon-based/halogen-based materials (fluorine, chlorine, bromine) are prohibited

SCPD3 Dimensions

- SCPD3-L-P7*/P5* rod end flange (FA)



- The dimensions are the same in the type without switch (although magnet is not built in).
- *1: As the thread depth of $\phi 6/\phi 10$ port is 3.8 mm, use a fitting with the thread length of 3.8 mm or less if necessary.

Code	Rod end flange (FA) basic dimensions												Installation dimensions				
Bore size (mm)	B	G	J	KK	LL	MB	MM	QA	QB	QC	T	X	FD	FF	FH	FL	FM
$\phi 6$	5.5	27	8	M3	57	M6	3	23	4	12.5	1.8	85	4.2	11.4	14	22	32
$\phi 10$	7	27.5	9	M4	61	M8 x 1.0	4	23	4.5	12.5	2.4	89	4.2	11.4	14	22	32
$\phi 16$	8	28	9	M5	61	M10 x 1.0	5	23.5	4.5	13	3.2	89	5.2	10.7	20	29	42

Code	With switch						
Bore size (mm)	FT	T0, T5, T2, T3			T2W, T3W		P
		RD	HD	RD	HD		
$\phi 6$	1.6	2	2	4	3.5	11.5	
$\phi 10$	1.6	3.5	2.5	5.5	4	13.5	
$\phi 16$	2.3	2	3.5	3.5	5	17	

SCPD3

SCM

SSD2

MDC2

SMG

LCM

LCR

LCG

LCX

STM

STG

STR2

MRL2

GRC

Cylinder
Switch

MN3E
MN4E

4GA/B

M4GA/B

MN4GA/B

F.R. (module
unit)

Clean
F.R

Precision
R

Press gauge
Diff. press gauge

Electro-
pneumatic R

Speed
controller

Auxiliary
valve

Fitting/
tube

Clean
air unit

Pressure
sensor

Flow rate
sensor

Valve for
air blow

Ending

SCPD3

SCM

SSD2

MDC2

SMG

LCM

LCR

LCG

LCX

STM

STG

STR2

MRL2

GRC

Cylinder
switchMN3E
MN4E

4GA/B

M4GA/B

MN4GA/B

F.R (module
unit)Clean
F.RPrecision
RPress gauge
Diff. press gaugeElectro-
pneumatic RSpeed
controllerAuxiliary
valveFitting/
tubeClean
air unitPressure
sensorFlow rate
sensorValve for
air blow

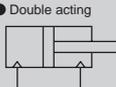
Ending



Pencil shaped cylinder
Double acting/fine speed

SCPD3-F Series (made to order)

● Bore size: $\phi 6/\phi 10/\phi 16$

JIS symbol 



Structure and material restriction

	Structure	Model No.
P7 Series	Exhaust treatment	P7
	Vacuum treatment	P71

Specifications

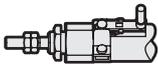
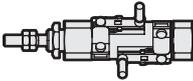
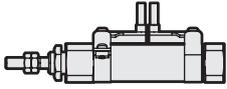
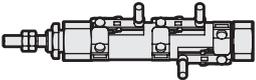
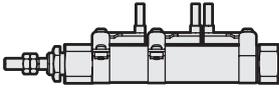
Descriptions	SCPD3-F-P7*/SCPD3-LF-P7* (with switch)		
	$\phi 6$	$\phi 10$	$\phi 16$
Bore size mm	$\phi 6$	$\phi 10$	$\phi 16$
Actuation	Double acting		
Working fluid	Compressed air		
Max. working pressure MPa	1.0		
Min. working pressure MPa	0.15	0.1	
Proof pressure MPa	1.6		
Ambient temperature °C	5 to 60		
Port size	M5		
Stroke tolerance mm	$\begin{matrix} +1.0 \\ 0 \end{matrix}$		
Working piston speed mm/s	1 to 200		
Cushion	Rubber cushion		
Lubrication	Not available		
Allowable energy absorption J	0.012	0.041	0.162

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm) *
$\phi 6$	15/30/ 45/60	100	5
$\phi 10$		200	
$\phi 16$		260	

* For types with switch, minimum stroke length varies depending on installation method. Refer to the following table.

Min. stroke length with switch

	1		2	
	Rod end installation	Head end installation	Different surface installation	Same surface installation
Sketch				
Min. stroke length	5 mm		10 mm	28 mm
	3			
	Different surface installation	Same surface installation		
Sketch				
Min. stroke length	38 mm	54 mm		

Switch specifications

Descriptions	Proximity 2-wire		Proximity 3-wire	
	T2H/T2V	T2WH/T2WV	T3H/T3V	T3WH/T3WV
Applications	Programmable controller		Programmable controller, relay	
Output method	-		NPN output	
Power supply voltage	-		10 to 28 VDC	
Load voltage	10 to 30 VDC	24 VDC ±10%	30 VDC or less	
Load current	5 to 20 mA		100 mA or less	50 mA or less
Indicator lamp	LED (lit when ON)	Red/green LED (lit when ON)	LED (lit when ON)	Red/green LED (lit when ON)
Leakage current	1 mA or less		10 µA or less	
Weight g	1 m: 18 3 m: 49 5 m: 80		1 m: 18 3 m: 49 5 m: 80	

Descriptions	Reed 2-wire			
	T0H/T0V		T5H/T5V	
Applications	Programmable controller, relay		Programmable controller, relay IC circuit (without indicator lamp), serial connection	
Load voltage	12/24 VDC	110 VAC	5/12/24 VDC	110 VAC
Load current	5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less
Indicator lamp	LED (lit when ON)		Without indicator lamp	
Leakage current	0 mA		0 mA	
Weight g	1 m: 18 3 m: 49 5 m: 80		1 m: 18 3 m: 49 5 m: 80	

*1: Refer to page 309 for detailed switch specifications, dimensions, etc.

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

Cylinder weight

(Unit: g)

Type	Descriptions Bore size (mm)	Mounting bracket weight		Product weight for 0 mm stroke length	Additional weight per 10 mm stroke length	Switch weight (per switch)	Mounting bracket weight
		Foot LS	Flange FA				
SCPD3-F	ø6	6	4	23	1	Refer to weight information provided in the switch specifications.	2
	ø10	6	4	34	2		
	ø16	15	12	69	3		

Example: Product weight of SCPD3-LF-LS-10-30-T0H-D-P7

- Mounting bracket weight (Foot) 6 g
- Product weight for 0 mm stroke length 34 g
- Additional weight for stroke length 30 mm 2 × 30/10 = 6 g
- Weight of 2 switches 2 × (18 + 2) = 40 g
- Product weight..... 6 + 34 + 6 + 40 = 86 g

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
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

SCPD3-F Series

- SCPD3
- SCM
- SSD2
- MDC2
- SMG
- LCM
- LCR
- LCG
- LCX
- STM
- STG
- STR2
- MRL2
- GRC
- Cylinder switch
- MN3E
MN4E
- 4GA/B
- M4GA/B
- MN4GA/B
- F.R (module unit)
- Clean F.R
- Precision R
- Press gauge
Diff. press gauge
- Electro-pneumatic R
- Speed controller
- Auxiliary valve
- Fitting/tube
- Clean air unit
- Pressure sensor
- Flow rate sensor
- Valve for air blow
- Ending

How to order

Without switch (No magnet for switch)

SCPD3-F - **LS** - **10** - **15** - **P7**

With switch (Magnet for switch incorporated)

SCPD3-LF - **LS** - **10** - **15** - **T2V** - **R** - **P7**

Model No.

A Mounting

B Bore size

C Stroke length

D Switch model No.
*3
indicates lead wire length.

E Switch quantity

F Clean room specifications

Precautions for model No. selection

- *1: Mounting brackets are shipped with the product.
- *2: Refer to page 16 for minimum stroke lengths of the types with switch incorporated.
- *3: No magnet is installed in those without switch.

[Example of model No.]

SCPD3-F-LS-10-15-T2V-R-P7

Model: Pencil shaped cylinder/double acting/single rod

- A** Mounting : Axial foot (single) rod end
- B** Bore size : $\phi 10$ mm
- C** Stroke length : 15 mm
- D** Switch model No. : T2V proximity switch with lead wire of 1 m
- E** Switch quantity : 1 (on rod end)
- F** Clean room specifications : Exhaust treatment

Dimensions

Same as SCPD3 Series (double acting/single rod). Refer to pages 13 and 14.

Code	Content					
A Mounting						
00	Basic					
LS	Axial foot (single) rod end					
FA	Rod end flange					
B Bore size (mm)						
6	$\phi 6$					
10	$\phi 10$					
16	$\phi 16$					
C Stroke length (mm)						
Bore size	Stroke length *2	Custom stroke length				
$\phi 6$	5 to 100	By 1 mm increments				
$\phi 10$	5 to 200					
$\phi 16$	5 to 260					
D Switch model No.						
Lead wire straight	Lead wire L-shaped	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color display	2 wires
T5H*	T5V*		●	●	Without indicator lamp	
T2H*	T2V*	Proximity		●	1-color display	2 wires
T3H*	T3V*			●		3 wires
T2WH*	T2WV*			●	2-color display	2 wires
T3WH*	T3WV*			●		3 wires
* Lead wire length						
Blank	1 m (standard)					
3	3 m (optional)					
5	5 m (optional)					
E Switch quantity						
R	1 (on rod end)					
H	1 (on head end)					
D	2					
T	3					
F Clean room specifications						
	Structure					
P7	Exhaust treatment					
P71	Vacuum treatment					