

ISO6432 STANDARD CYLINDER SCWR Series



ISO6432 STANDARD CYLINDER SCWR SERIES



$\phi 8 \sim \phi 16$

Equipped with switch holder and locking gasket



$\phi 20, 25$

Switch is directly clipped into switch bracket, featuring three-side contact, no rotation, safe, reliable & easily adjustable



Interchangeable

Conforming to ISO6432 standard, easy to use, & Complying with interchangeability.

Stainless steel is used

Suitable for many different environment & application. Bright silver metallic design provides elegant appearance.

CKD standard switch applicable

Switches can be optionally mounted to meet different needs.

Series variation



ISO6432 Standard Cylinder SCWR Series

Variation	Model	Bore size (mm)	Standard stroke length											
			10	15	20	25	30	35	40	45	50	60	80	100
Double acting · single rod	SCWR SCWR-L	φ 8	●	●	●	●	●	●	●	●	●	●	●	●
		φ 10	●	●	●	●	●	●	●	●	●	●	●	●
		φ 12	●	●	●	●	●	●	●	●	●	●	●	●
		φ 16	●	●	●	●	●	●	●	●	●	●	●	●
		φ 20	●	●	●	●	●	●	●	●	●	●	●	●
		φ 25	●	●	●	●	●	●	●	●	●	●	●	●

〈How to order〉

Without switch

SCWR - **00** - **10** - **30**

With switch

SCWR-L - **00** - **10** - **30** - **T2H** - **D**

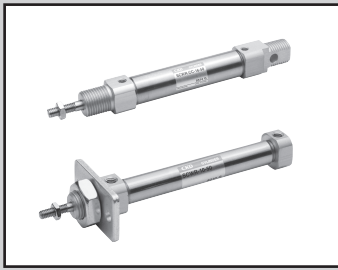
A Model No.
B Mounting style
C Bore size
D Stroke length
E Switch model No.
F Switch quantity

Model No.: ISO6432 standard cylinder SCWR-L-00-10-30-T2H-D

- A** Model No. : Double acting (with switch)
- B** Mounting style : Basic
- C** Bore size : φ 10
- D** Stroke length : 30mm
- E** Switch model No. : Proximity switch T2H, lead wire length 1m
- F** Switch quantity : 2

●: Standard ◎: Option □: Unavailable

Length(mm)										Min. stroke length (mm)	Max. stroke length (mm)	Middle stroke length (mm)	Mounting style						Switch	
													Basic type	Rod eye with thread type	Rod side flange type	Head side flange type	One-side axial foot type	Two-side axial foot type		
0	125	150	160	200	250	300	320	400	500	5	100	1	00	CC	FA	FB	LS	LB	◎	
●	□	□	□	□	□	□	□	□	□				●	●	●	●	●	●	◎	
●	●	●	●	●	□	□	□	□	□				200	●	●	●	●	●	◎	
●	●	●	●	●	□	□	□	□	□				200	●	●	●	●	●	●	◎
●	●	●	●	●	●	●	●	●	●				650	●	●	●	●	●	●	◎
●	●	●	●	●	●	●	●	●	●				650	●	●	●	●	●	●	◎



ISO6432 Standard Cylinder

SCWR Series

● Bore size: $\phi 8 / \phi 10 / \phi 12 / \phi 16 / \phi 20 / \phi 25$

Symbol:



Specifications

Description		SCWR					
Bore size	mm	$\phi 8$	$\phi 10$	$\phi 12$	$\phi 16$	$\phi 20$	$\phi 25$
Actuation		Double acting					
Working fluid		Clean compressed air					
Max. working pressure	MPa	1.0					
Min. working pressure	MPa	0.1					
Withstanding pressure	MPa	1.6					
Ambient temperature	°C	-10 to 60 (no freezing)					
Port size		M5			G1/8		
Stroke tolerance	mm	+1.0 0			Stroke length 0 to 100mm: +1.5 0 Stroke length 100 to 200mm: +2.0 0 Stroke length above 200mm: +2.4 0		
Working piston speed	mm/s	50 to 500					
Cushion		Rubber cushion					
Lubrication		Not required (when lubrication, use turbine oil Class 1 ISO VG32)					
Allowable energy absorption	J	0.020	0.035	0.060	0.090	0.166	0.308

Stroke length

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
$\phi 8$	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 80, 100	100	5
$\phi 10$			
$\phi 12$	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 80, 100, 125, 150, 160, 200	200	
$\phi 16$			
$\phi 20$	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 80, 100, 125, 150, 160, 200, 250, 300, 320, 400, 500	650	
$\phi 25$			

Note: Middle stroke lengths are available in 1 mm increments.

Switch specifications

Description	Proximity 2-wire		Proximity 3-wire		Reed 2-wire			
	T2H/T2V	T2WH/T2WV	T3H/T3V	T3WH/T3WV	T0H/T0V		T5H/T5V	
Applications	Programmable controller		Programmable controller, relay		Programmable controller, relay		Programmable controller, relay IC circuit (No indicator), serial connection	
Output mode	—		NPN output		—		—	
Power voltage	—		DC 10 to 28 V		—		—	
Load voltage	DC 10 to 30V	DC 24 V \pm 10%	DC 30 V or less		DC 12/24 V	AC 110 V	DC 5/12/24 V	AC 110 V
Load current	5 to 20mA		100mA or less	50 mA or less	5 to 50mA	7 to 20mA	50 mA or less	20mA or less
Light	LED (On lighting)	Red/green LED (On lighting)	LED (On lighting)	Red/green LED (On lighting)	LED (On lighting)		No indicator	
Leaking current	1mA or less		10 μ A or less		0 mA		0 mA	

Note: Switches are attached at shipment for $\phi 8$ to $\phi 16$ cylinders, and installed at shipment for $\phi 20$ to $\phi 25$ cylinders.

Min. stroke length with switch(mm)

Switch quantity	Mounted on different surfaces		Mounted on same surface						
	1	2	1	2					
ϕ 8	5	10	5	28					
ϕ 10									
ϕ 12									
ϕ 16									
Switch quantity	1			2			3		
	Proximity		Reed	Proximity		Reed	Proximity		Reed
Bore size	T2, T3	T2W, T3W	T0, T5	T2, T3	T2W, T3W	T0, T5	T2, T3	T2W, T3W	T0, T5
ϕ 20	10			25	30	25	50	55	50
ϕ 25	10			25	30	25	50	55	50

Cylinder weight

(Unit: g)

Description	Mounting bracket weight				Additional weight of rod eye with thread (CC)	Product weight with 0mm stroke	Additional weight per 10mm stroke	Switch weight (only 1 pc included)
	Bore size (mm)	One-side axial foot LS	Rod side flange FA	Head side flange FB				
ϕ 8	20	16	19	53	-7	31	2.1	20
ϕ 10	20	16	20	54	-6	34	2.3	
ϕ 12	43	38	49	114	-6	79	3.8	
ϕ 16	43	38	48	113	-7	76	5.4	
ϕ 20	88	81	88	212	-23	164	9.8	25
ϕ 25	88	81	90	214	-21	222	13.5	

<Example> Product weight of SCWR-L-LS-10-30-TOH-D

- Mounting bracket weight (Axial foot) 20g
- Product weight with 0mm stroke 34g
- Additional weight with 30mm stroke $2.3 \times 30/10=6.9$ g
- Switch weight $2 \times 20=40$ g
- Product weight $20+34+6.9+40=100.9$ g

SCWR Series

How to order

Without switch

SCWR - 00 - 10 - 30

With switch

SCWR-L - 00 - 10 - 30 - T2H - D

A Model No.

B Mounting style

C Bore size

D Stroke length

E Switch model No.

F Switch quantity

Symbol	Description
A Model No.	
SCWR	Double acting
SCWR-L	Double acting · with switch

B Mounting style	
00	Basic type
CC	Rod eye with thread type
FA	Rod side flange type
FB	Head side flange type
LS	One-side axial foot type
LB	Two-side axial foot type

C Bore size(mm)	
8	φ 8
10	φ 10
12	φ 12
16	φ 16
20	φ 20
25	φ 25

D Stroke length(mm)			
Bore size	Stroke length	Middle stroke length	Max. stroke
φ 8	5~100	Per 1mm	100
φ 10			
φ 12	5~200		200
φ 16			
φ 20	5~500	650	
φ 25			

E Switch model No.				
Linear type wire	L type wire	Contact	Display mode	Lead wire
T0H※	T0V※	Reed	1-color indicator	2-wire
T5H※	T5V※		No indicator	
T2H※	T2V※	Proximity	1-color indicator	2-wire
T3H※	T3V※		2-color indicator	3-wire
T2WH※	T2WV※			2-wire
T3WH※	T3WV※		3-wire	
※Lead wire length				
Blank	1m(Standard)			
3	3m			
5	5m			

F Switch quantity	
R	1 on rod side
H	1 on head side
D	Two
T	Three

⚠ Precautions for model selection

Note: No magnet is mounted on the piston for cylinders without switch; Switches are installed at shipment for φ 20 and φ 25 cylinders.

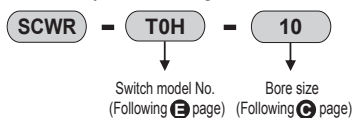
<Example of model number> SCWR-L-00-10-30-T2H-D

Model: ISO6432 standard cylinder

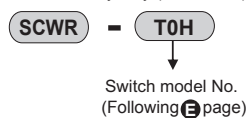
- A** Model No. : Double acting (with switch)
- B** Mounting style : Basic
- C** Bore size : φ 10
- D** Stroke length : 30mm
- E** Switch model No. : Proximity switch T2H, lead wire length 1m
- F** Switch quantity : 2

How to order switch

● Switch body + switch fixing band



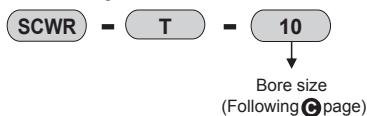
● Switch body only (φ 8~φ 16)



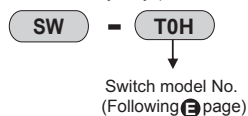
● Single switch fixing bracket (unavailable for φ 20 and φ 25 cylinders)



● Switch fixing band



● Switch body only (φ 20 and φ 25)



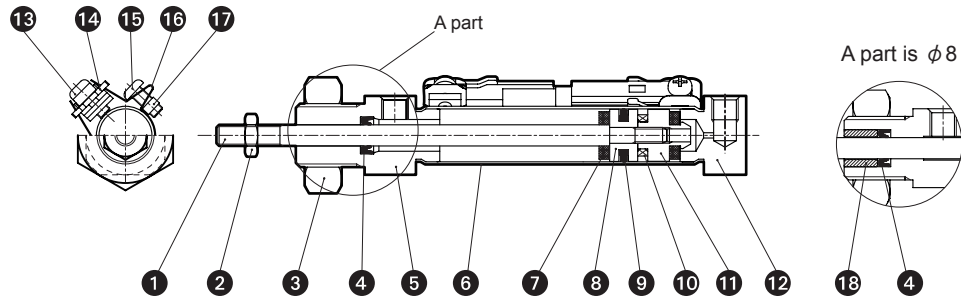
Internal structure and parts list

Double acting · single rod

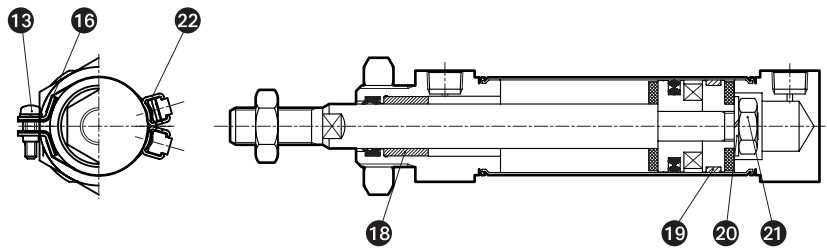
● SCWR

● SCWR-L (with switch)

φ 8 ~ φ 16



φ 20 ~ φ 25

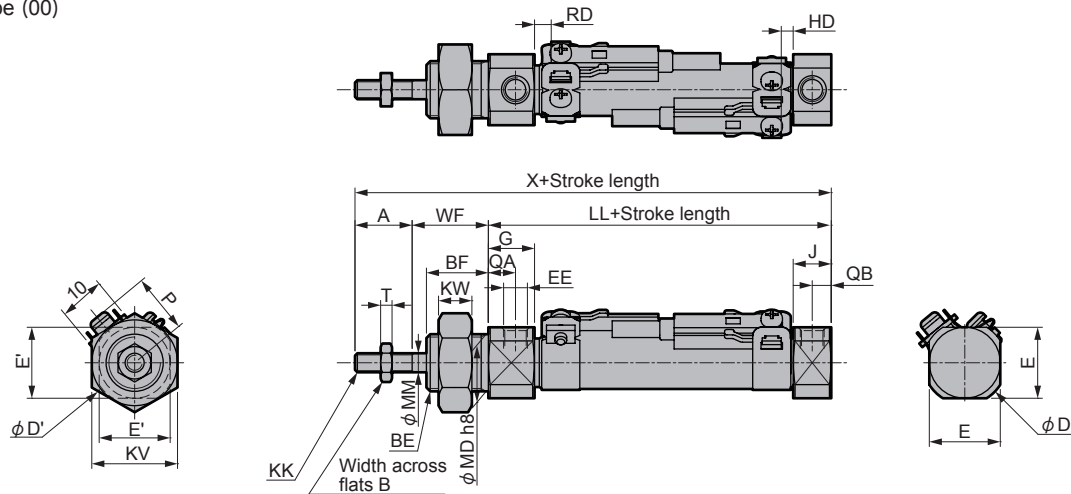


Note: This product cannot be disassembled.

No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Piston rod	Stainless steel		12	Head cover	Aluminum alloy	Hard anodized
2	Rod nut	Steel		13	Phill screw	Stainless steel	With switch only
3	Mounting nut	Steel		14	Fixing bracket	Stainless steel	With switch only
4	Rod packing	Nitrile rubber		15	Phill screw	Stainless steel	With switch only
5	Rod cover	Aluminum alloy	Hard anodized	16	Band	Stainless steel	With switch only
6	Cylinder tube	Stainless steel		17	Lock nut	Stainless steel	With switch only
7	Cushion packing seal	Urethane rubber		18	Bush	Self-lubricating bearing	Aluminum alloy for φ 8 cylinders
8	Left piston	Aluminum alloy		19	Support ring	Resin	
9	Piston seal	Nitrile rubber		20	Spacer	Steel	
10	Piston magnet		With switch only	21	Nut	Steel	
11	Right piston	Aluminum alloy		22	Switch rail	Stainless steel	With switch only

Dimensions

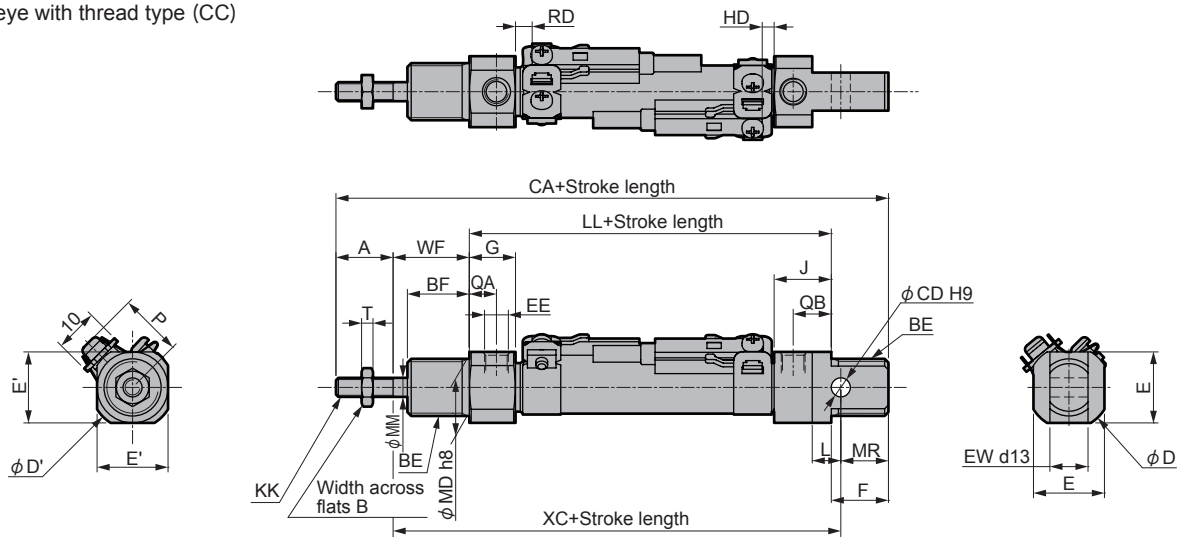
● Basic type (00)



Symbol	Basic dimensions of basic type (00)																
Bore size (mm)	A	B	BF	D	E	EE	G	J	KV	KK	KW	BE	MD	MM	D'	E'	QA
φ 8	12	7	13	17.5	14.9	M5	9.7	8	19	M4×0.7	7	M12×1.25	12	4	17.5	14.9	5.7
φ 10	12	7	13	17.5	14.9	M5	9.7	8	19	M4×0.7	7	M12×1.25	12	4	17.5	14.9	5.7
φ 12	16	10	17	21.5	18	M5	10.1	10.1	24	M6×1	8	M16×1.5	16	6	21.5	18	5.6
φ 16	16	10	17	21.5	18	M5	13.6	13.6	24	M6×1	8	M16×1.5	16	6	21.5	18	9.1

Symbol	Basic dimensions of basic type (00)					With switch				
	QB	T	WF	LL	X	T0, T5, T2, T3		T2W, T3W		P
						RD	HD	RD	HD	
φ 8	4	2.4	16	42	70	3	2.5	4.5	4.5	10.5
φ 10	4	2.4	16	42	70	3.5	2.5	5.5	4	12.5
φ 12	5.6	3.6	22	44	82	2	2.5	4.0	5.5	13
φ 16	9.1	3.6	22	51	89	2	3.5	3.5	5	15.5

● Rod eye with thread type (CC)

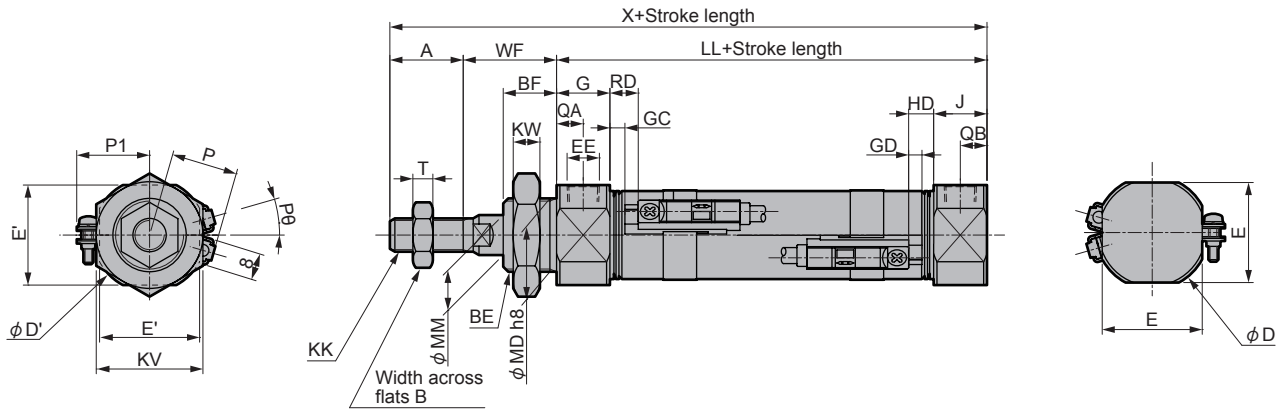


Symbol	Basic dimensions of rod eye with thread type (CC)																		
Bore size (mm)	A	B	BF	D	E	EE	G	J	KK	BE	L	MR	CD	EW	F	MD	MM	D'	E'
φ 8	12	7	13	17.5	14.9	M5	9.7	12	M4×0.7	M12×1.25	6	10	4	8	12	12	4	17.5	14.9
φ 10	12	7	13	17.5	14.9	M5	9.7	12	M4×0.7	M12×1.25	6	10	4	8	12	12	4	17.5	14.9
φ 12	16	10	17	21.5	18	M5	10.1	16.1	M6×1	M16×1.5	9	14	6	12	17	16	6	21.5	18
φ 16	16	10	17	21.5	18	M5	13.6	18.6	M6×1	M16×1.5	9	13	6	12	17	16	6	21.5	18

Symbol	Basic dimensions of rod eye with thread type (CC)							With switch				
	QA	QB	T	WF	XC	LL	CA	T0, T5, T2, T3		T2W, T3W		P
								RD	HD	RD	HD	
φ 8	5.7	8	2.4	16	64	46	86	3	2.5	4.5	4.5	10.5
φ 10	5.7	8	2.4	16	64	46	86	3.5	2.5	5.5	4	12.5
φ 12	5.6	11.6	3.6	22	75	50	105	2	2.5	4.0	5.5	13
φ 16	9.1	14.1	3.6	22	82	56	111	2	3.5	3.5	5	15.5

Dimensions

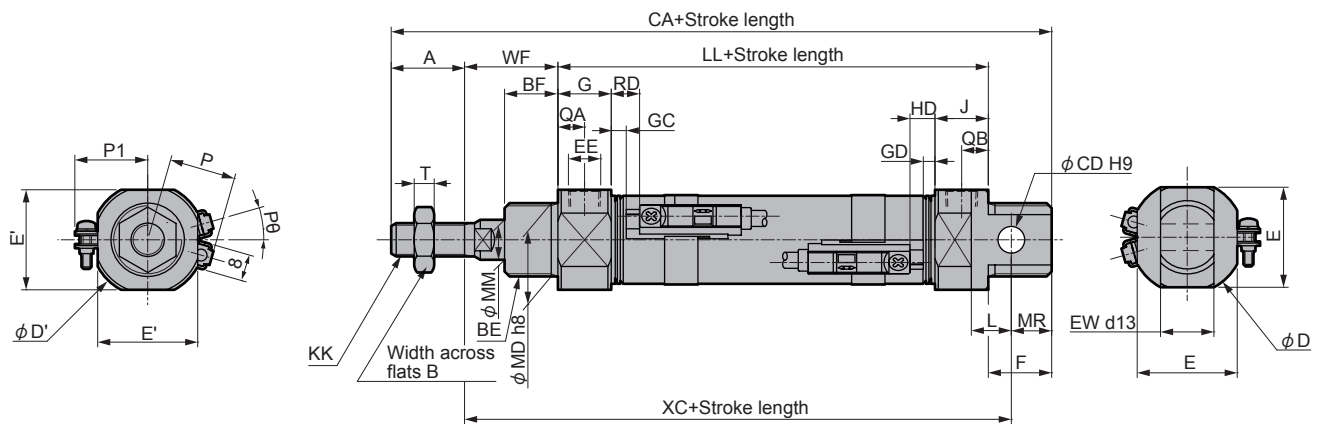
● Basic type (00)



Symbol	Basic dimensions of basic type (00)																
Bore size (mm)	A	B	BF	D	E	EE	G	J	KV	KK	KW	BE	MD	MM	D'	E'	QA
φ 20	20	13	14	32	27	G1/8	16	16	32	M8×1.25	8	M22×1.5	22	10	32	27	8
φ 25	22	17	16	34	30	G1/8	16	16	32	M10×1.25	8	M22×1.5	22	12	34	30	8

Symbol	Basic dimensions of basic type (00)					With switch										
	QB	T	WF	LL	X	T0, T5, T2, T3				T2W, T3W				P	P1	(Pθ)°
						RD	HD	GC	GD	RD	HD	GC	GD			
φ 20	8	5	24	66.2	110.2	8	7	4	3	10	9	6	5	17.3	19.5	22
φ 25	8	6	28	69.1	119.1	9.5	8.5	5.5	4.5	11.5	10.5	7.5	6.5	19.8	22	18

● Rod eye with thread type (CC)

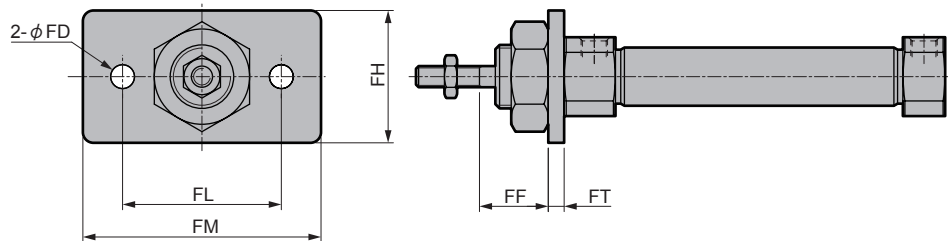


Symbol	Basic dimensions of rod eye with thread type (CC)																		
Bore size (mm)	A	B	BF	D	E	EE	G	J	KK	BE	L	MR	CD	EW	F	MD	MM	D'	E'
φ 20	20	13	14	32	27	G1/8	16	16	M8×1.25	M22×1.5	12	12.2	8	16	17	22	10	32	27
φ 25	22	17	16	34	30	G1/8	16	16	M10×1.25	M22×1.5	12	12.1	8	16	19	22	12	34	30

Symbol	Basic dimensions of rod eye with thread type (CC)					With switch												
	QA	QB	T	WF	XC	LL	CA	T0, T5, T2, T3				T2W, T3W				P	P1	(Pθ)°
								RD	HD	GC	GD	RD	HD	GC	GD			
φ 20	8	8	5	24	95	66.2	127.2	8	7	4	3	10	9	6	5	17.3	19.5	22
φ 25	8	8	6	28	104	69.1	138.1	9.5	8.5	5.5	4.5	11.5	10.5	7.5	6.5	19.8	22	18

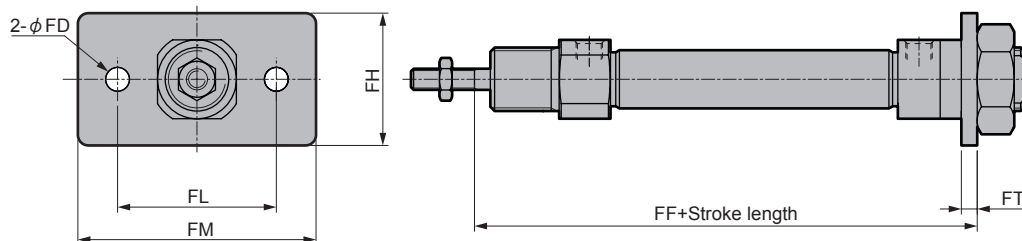
Dimensions

● Rod side flange type (FA)



Mounting model No.	Bore size (mm)	FD	FF	FH	FL	FM	FT
SCWR-FA-8	$\phi 8$	4.5	13	22	30	40	3
SCWR-FA-10	$\phi 10$	4.5	13	22	30	40	3
SCWR-FA-12	$\phi 12$	5.5	18	30	40	52	4
SCWR-FA-16	$\phi 16$	5.5	18	30	40	52	4
SCWR-FA-20	$\phi 20$	6.6	19	40	50	66	5
SCWR-FA-25	$\phi 25$	6.6	23	40	50	66	5

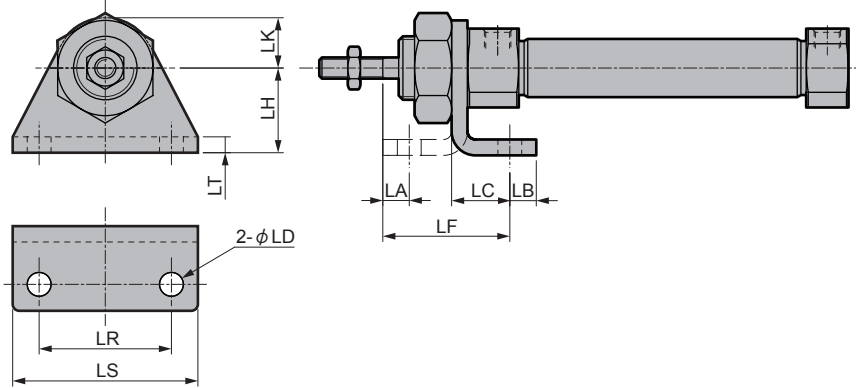
● Head side flange type (FB)



Mounting model No.	Bore size (mm)	FD	FF	FH	FL	FM	FT
SCWR-FB-8	$\phi 8$	4.5	65	22	30	40	3
SCWR-FB-10	$\phi 10$	4.5	65	22	30	40	3
SCWR-FB-12	$\phi 12$	5.5	76	30	40	52	4
SCWR-FB-16	$\phi 16$	5.5	82	30	40	52	4
SCWR-FB-20	$\phi 20$	6.6	95.2	40	50	66	5
SCWR-FB-25	$\phi 25$	6.6	102.1	40	50	66	5

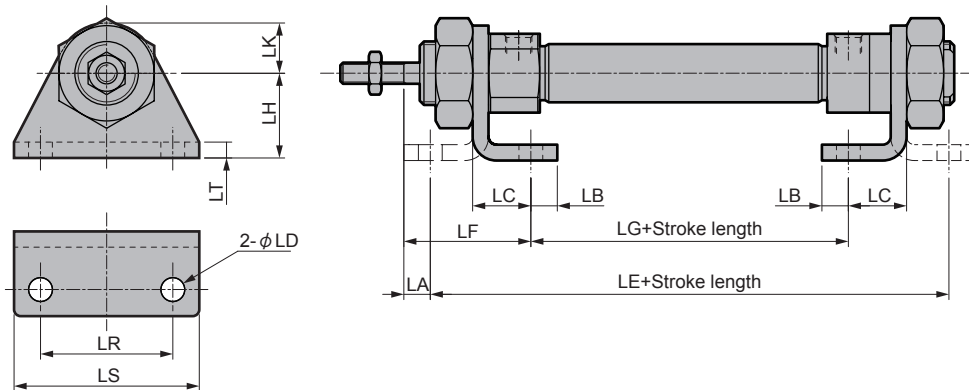
Dimensions

● One-side axial foot type (LS)



Mounting model No.	Bore size (mm)	LA	LB	LC	LD	LF	LH	LK	LR	LS	LT
SCWR-LS-8	φ8	5	5	11	4.5	24	16	10	25	35	3
SCWR-LS-10	φ10	5	5	11	4.5	24	16	10	25	35	3
SCWR-LS-12	φ12	8	6	14	5.5	32	20	15	32	44	4
SCWR-LS-16	φ16	8	6	14	5.5	32	20	15	32	44	4
SCWR-LS-20	φ20	7	8	17	6.6	36	25	20	40	54	5
SCWR-LS-25	φ25	11	8	17	6.6	40	25	20	40	54	5

● Two-side axial foot type (LB)



Mounting model No.	Bore size (mm)	LA	LB	LC	LD	LE	LF	LG	LH	LK	LR	LS	LT
SCWR-LB-8	φ8	5	5	11	4.5	68	24	30	16	10	25	35	3
SCWR-LB-10	φ10	5	5	11	4.5	68	24	30	16	10	25	35	3
SCWR-LB-12	φ12	8	6	14	5.5	78	32	30	20	15	32	44	4
SCWR-LB-16	φ16	8	6	14	5.5	84	32	36	20	15	32	44	4
SCWR-LB-20	φ20	7	8	17	6.6	100.2	36	42.2	25	20	40	54	5
SCWR-LB-25	φ25	11	8	17	6.6	103.1	40	45.1	25	20	40	54	5



Safety Precautions

Be sure to read this section before use.


When designing and manufacturing equipment using CKD products, the manufacturer is obligated to ensure that the safety of the mechanism, pneumatic control circuit and/or water control circuit and the system that runs the electrical controls are secured. It is important to select, use, handle, and maintain CKD products appropriately to ensure their safe usage. Observe warnings and precautions, etc. to ensure device safety. Check that device safety is ensured, and manufacture a safe device.

WARNING

- 1 This product is designed and manufactured as a general industrial machine part. Therefore, it must be handled by an operator with sufficient knowledge and experience.**
 - 2 Use the product within the specifications range.**
Use the product within the specifications range.
This product must be used within its stated specifications. In addition, never modify or additionally machine this product. This product is intended for use in general industrial machinery equipment or parts. It is not intended for use outdoors or for use under the following conditions or environments.
(Note that this product can be used when CKD is consulted prior to its usage and the customer consents to the CKD product specifications. The customer should provide safety measures to avoid danger in the event of problems.)
 - Use for applications requiring safety, including nuclear energy, railways, aircraft, marine vessels, vehicles, medical devices, devices or applications in contact with beverages or foodstuffs, amusement devices, emergency cutoff circuits, press machines, brake circuits, or safety devices or applications.
 - Use for applications where life or assets could be significantly affected, and special safety measures are required. Check that device safety is ensured, and manufacture a safe device.
 - 3 Observe industrial standards and legal regulations, etc., pertaining to the safety of equipment design and management.**
ISO4414, JIS B 8370 (General Rules for Pneumatic Systems)
JFPS2008 (Principles for pneumatic cylinder selection and use)
Including High Pressure Gas Safety Act, Industrial Safety and Health Act, other safety rules, body standards and regulations, etc.
 - 4 Do not operate, pipe, or remove devices before confirming safety.**
 - Inspect and service the machine and devices after confirming the safety of all systems related to this product.
 - Note that there may be hot or charged sections even after operation is stopped.
 - When inspecting or servicing the device, turn OFF the energy source (gas supply or water supply), turn OFF power to the facility, and discharge any compressed air and fluid from the system to avoid gas leakage and leakage of electricity.
 - When starting or restarting a machine or device that incorporates pneumatic components, make sure to secure system safety, such as pop-out prevention measures.
 - 5 Observe the following warnings and cautions to prevent accidents.**
- Precautions are ranked as "DANGER", "WARNING", and "CAUTION" in this section.

 **Danger:**
(DANGER)

In the case where mishandled product operation may lead to fatalities or serious injuries, and the urgency of a dangerous situation is high.

 **Warning:**
(WARNING)

A dangerous situation may occur if handling is mistaken, leading to fatal or serious injuries.

 **Caution:**
(CAUTION)

A dangerous situation may occur if handling is mistaken, leading to minor injuries or property damage.

Note that some items indicated with "CAUTION" may lead to serious results depending on the conditions. All items contain important information and must be observed.

Disclaimer regarding shipping

- 1 Warranty period**
This warranty is valid for one (1) year after delivery to the customer's designated site.
- 2 Scope of warranty**
In case any defect clearly attributable to CKD is found during the warranty period, CKD shall, at its own discretion, repair the defect or replace the relevant product in whole or in part and at no cost, according to its own judgment.
Note that the following failures are excluded from the warranty scope:
 - ① When used outside of conditions/environment described in product specifications.
 - ② Failures resulting from factors other than the delivered product.
 - ③ When used not for the intended purposes.
 - ④ Failures resulting from modification or repair not related to CKD.
 - ⑤ Failures caused by matters that could not be predicted with the technologies in practice when the product was delivered.
 - ⑥ Failures resulting from natural disasters for which CKD is not liable.
 As well, the warranty described herein is limited to the delivered product itself, and does not cover damages incurred due to abnormality of the delivered product.
- 3 Compatibility check**
The customer is responsible for confirming the compatibility of CKD products with the customer's systems, machines, and equipment.



Pneumatic Components Safety Precautions

Be sure to read this section before use.

Product-specific cautions: ISO6432 SCWR series

Install · Assemble · Adjust

1. General precautions

⚠ CAUTION

■ To prevent switch malfunction, when mounting cylinders with switch closely side-by-side, observe the following distance requirements as shown in Table 1 below.

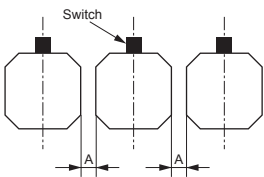


Table 1: Dimensions of A

Switch	T0·T5	T2·T3
Bore size (mm)	Reed	Proximity
φ 8	above 0	above 3
φ 10	above 0	above 3
φ 12	above 0	above 3
φ 16	above 0	above 3
φ 20	above 0	above 3
φ 25	above 0	above 3

■ To prevent switch malfunction, when mounting cylinders with switch closely to other components, observe the following distance requirements as shown in Table 2 below.

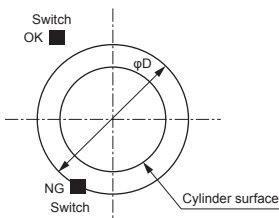


Table 2: Dimensions of D

Switch	T0·T5	T2·T3
Bore size (mm)	Reed	Proximity
φ 8	above 15	above 25
φ 10	above 21	above 26.5
φ 12	above 21	above 30
φ 16	above 34	above 35
φ 20	above 35	above 46
φ 25	above 41	above 53

■ Installation of pipe

1. Use a suitable torque wrench to tighten the pipe as shown in Figure 1, applying force by hand as closely to the wrench head as possible.

See the following table for tightening torque.

Piping thread	Tightening torque(N·m)
M5	1.0~1.5
G1/8	3.0~5.0

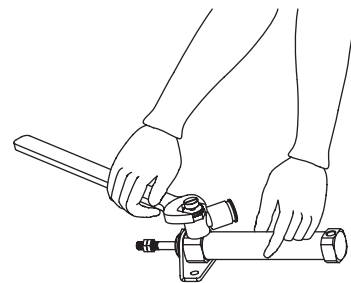


Figure 1

2. Figure 2 shows an incorrect use of a wrench, which is excessively large; Figure 3 shows an incorrect way to apply force.

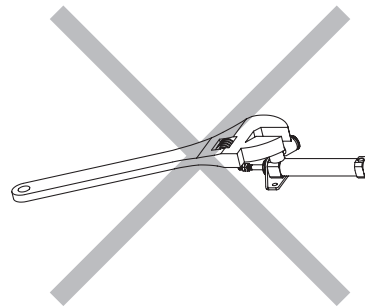


Figure 2

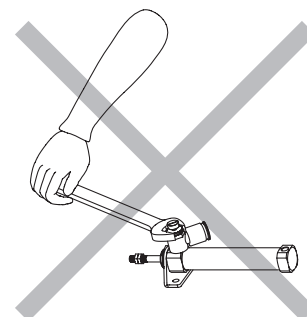


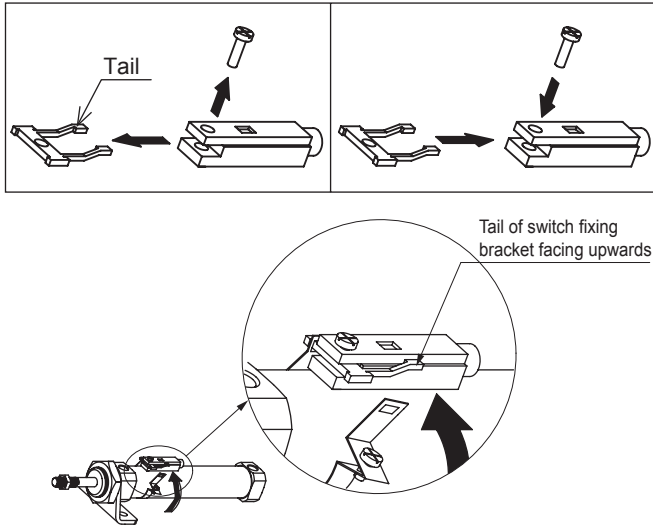
Figure 3

Install · Assemble · Adjust

Installation of T-type switch

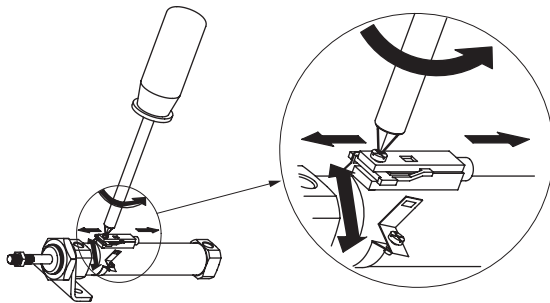
■ $\phi 8 \sim 16$

1. Set the switch fixing bracket in the square hole of the switch fixing band (SCWR-T-*) and mount it onto the cylinder, with its tail facing upwards.



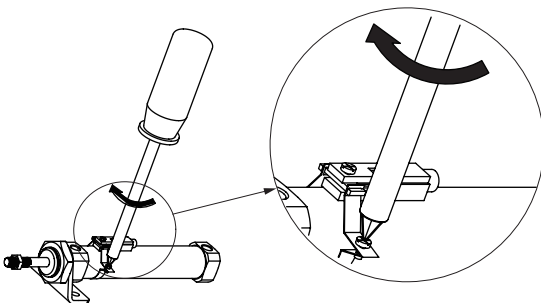
2. Adjust the position slowly with the switch screw, and fix by tightening the screw at the most suitable position. When tightening, the upper surface of the washer of the switch fixing bracket should firmly adhere to the switch.

Tightening torque: 0.1 to 0.15 N·m



3. Tighten the screw of the band.

Tightening torque: 0.1 to 0.15 N·m



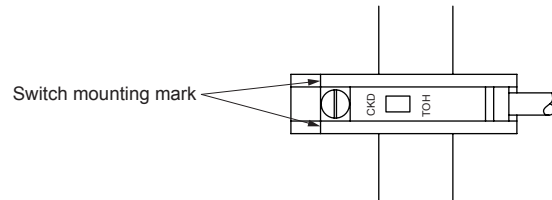
■ $\phi 20 \sim 25$

■ When moving the switch position in stroke direction

1. For an 1-color indicator switch, it is possible to perform fine adjustment of approx. ± 3 mm from the factory set mounting position. For adjustment amount in excess of ± 3 mm and fine position adjustment of a 2-color indicator switch, please move the band position.

2. Loosen the switch mounting screw, move the switch along the rail, and tighten at a given position. For T2, T3, T0 and T5, tighten the switch fixing screw with a minus screwdriver 5 to 6mm in handle diameter, less than 2.4mm in front shape width and less than 0.3mm in thickness (screwdriver for watchmaker, precision screwdriver, etc.), using a tightening torque of 0.1~0.2 N·m.

3. There is a mark on the switch rail that is 4mm away from the end face. Use it as a reference for mounting position during switch replacement. The mark of switch rail is set at the factory set maximum sensitivity position of the switch. When the switch type is changed or the band is moved, the maximum sensitivity position will become different, so adjust the position accordingly.



■ When moving the switch position in circle direction

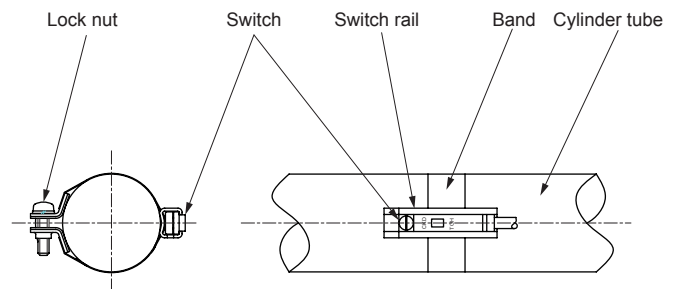
● Loosen the band fixing screw, move the switch rail in circle direction, and tighten the screw at a given position.

Tightening torque is 0.6 to 0.8 N·m.

■ When moving the band position

● Loosen the band fixing screw, move the switch rail and band along the cylinder tube, and tighten the screw at a desired position.

Tightening torque is 0.6 to 0.8 N·m.



Note: For the switch mounting position, refer to the dimensions of RH and HD in the "Dimension" drawing.

Install · Assemble · Adjust

■ Installation of mounting bracket

1. Put the mounting bracket onto the thread part of rod cover, and then screw up the end cover nut;

2. Fix the mounting bracket by clamping the rod cover with one wrench and tightening the end cover nut with another wrench, as shown in Figure 4;

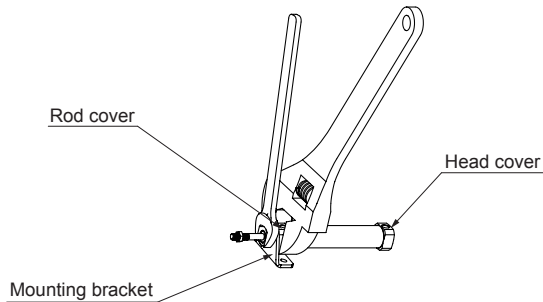


Figure 4

3. Figure 5 shows an example of incorrect installation, i.e. clamping the head cover with one wrench and tightening the end cover nut with another wrench, which tends to cause damage to the cylinder.

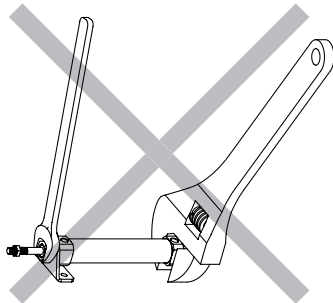


Figure 5

■ Do not apply any external horizontal force (e.g. piping force) to the cylinder tube.

- Deformation of cylinder tube may result in unstable operation.

■ When piping, use a hose joint (with fixed reducer) and a speed controller.

■ Do not rotate the end cover.

- When mounting the cylinder and screwing the pipe joint into the port, the end cover joint part may be damaged if the end cover is rotated.

■ During operation, always ensure that axial load is applied to the piston rod.

■ When the front end of the piston rod is connected to a work piece, do not apply the tightening torque to the cylinder.

■ When tightening a hexagonal nut, observe the following torque range.

Bore size (mm)	Tightening torque(N·m)
φ 8	6±10%
φ 10	
φ 12	14±10%
φ 16	
φ 20	23±10%
φ 25	

Use and service

1. General precautions

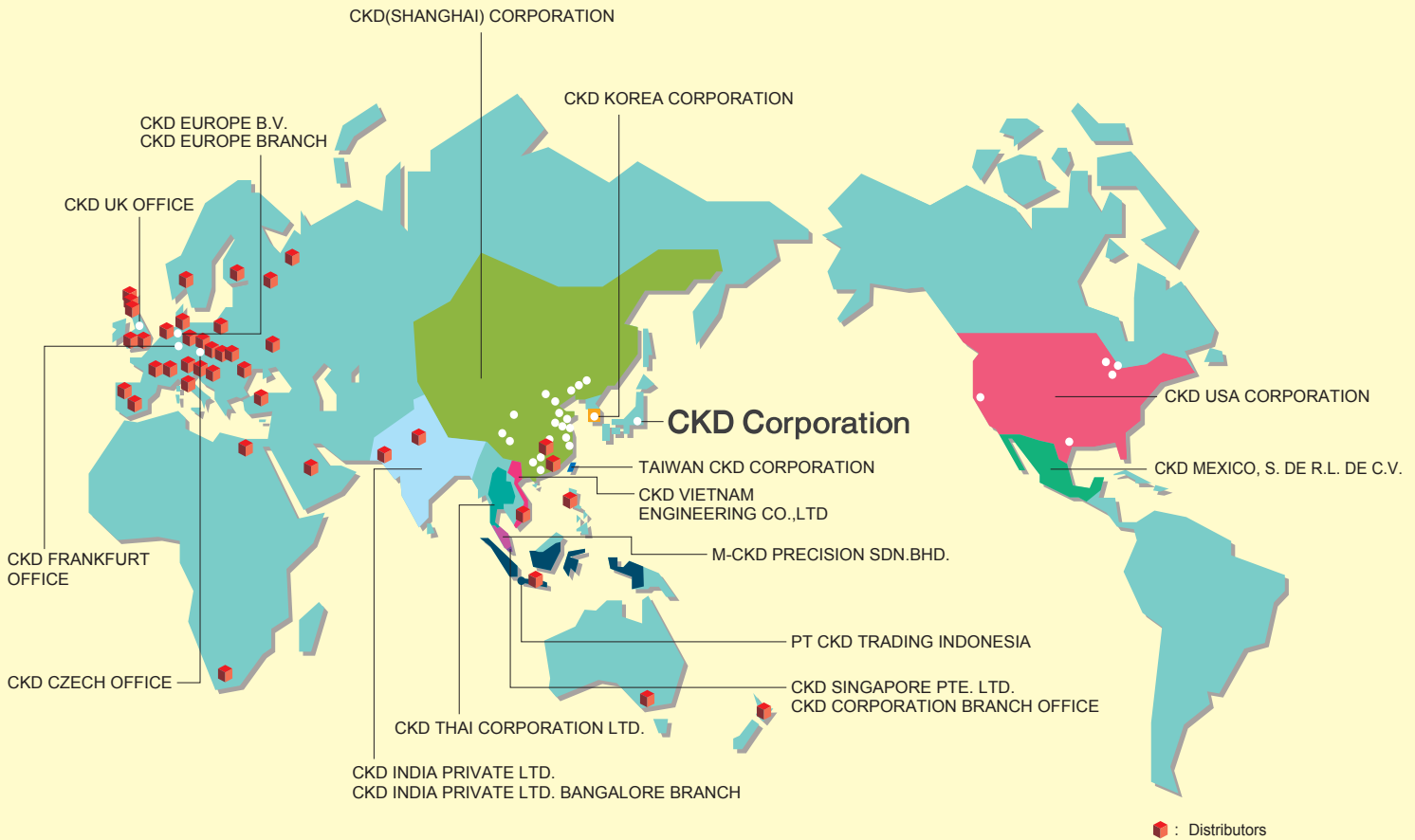
⚠ CAUTION

■ Do not rotate the end cover.

- When mounting the cylinder and screwing the pipe joint into the port, damage may occur firstly to the end cover joint part if the end cover is rotated.

⚠ CAUTION

- If a cylinder is kept unused for long time, its stroke length may become shorter than the reference value with low pressure settings due to variation of cushion rigidity. Therefore, test run the cylinder several times, or allow it to perform multiple operations or reciprocate several times under high pressure.



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