

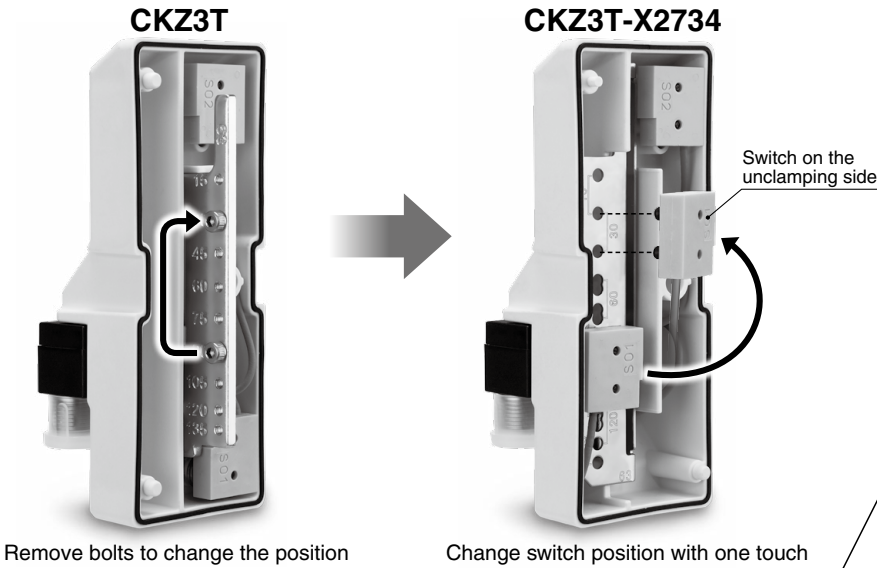
# Power Clamp Cylinder

**CKZ3T** -X2734 (Base Type)  
 -X2568 (With Manual Handle)



ø50, ø63

Simple switch adjustment greatly reduces work hours. Switch can be adjusted easily when changing the arm opening angle.



## With metal switch cassette cover

- Protects switch cassette from unexpected impact

## Weight reduced by up to 39%

- Aluminum body with greatly reduced weight
- Suitable for robot material handling

Bore size	CKZT → CKZ3T-X2734	Reduction rate
50	5.0 kg → 3.1 kg	38% reduction
63	7.1 kg → 4.3 kg	39% reduction

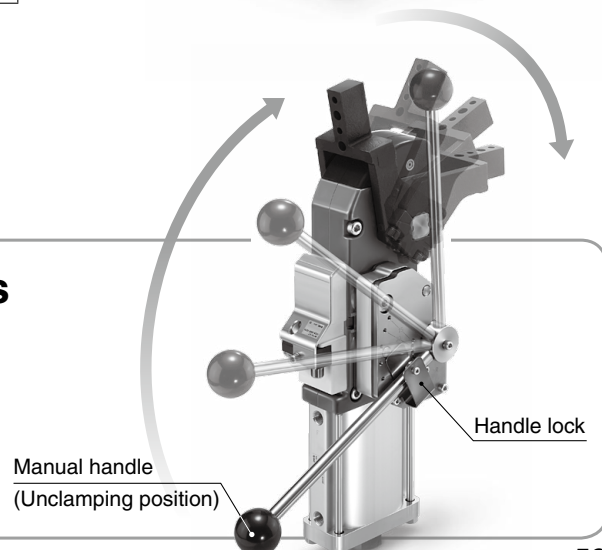
\* Arm opening angle: 90°

## High clamping force 4000 N

(ø63, Arm length: 100 mm, 0.5 MPa pressure)

## Manual handle (lock specification) is available.

- For manual workpiece setting processes
- The handle is held at unclamped position.



- CKZM16
- CKZT25/32
- CKZT40
- CKZ5T
- CKZ3T
- CKZT80
- CKZ5N
- CKZ3N
- CKZ2N

- C(L)KQG□
- C(L)KQP□
- C(L)KQ□D
- X3256
- Related Products
- C(L)KQG32
- C(L)KQ32
- C(L)KQ32
- X3036
- Flow Control Equipment
- Piping Equipment

# Power Clamp Cylinder

## CKZ3T-X2734

## CKZ3T-X2568 □

ø50, ø63



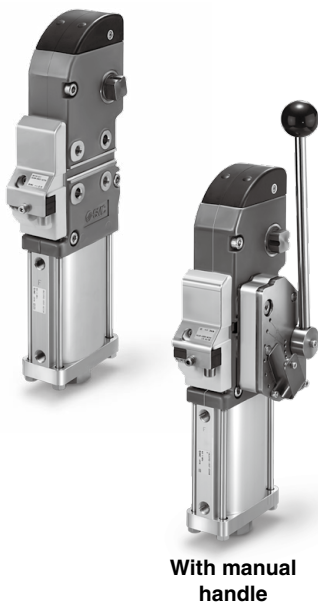
### How to Order

#### Base type

CKZ3T 50 □ - 90 T □ - X2734

#### With manual handle

CKZ3T 50 □ - 90 T □ - X2568 L



**Bore size**

50	ø50 equivalent
63	ø63 equivalent

**Cylinder port**

Nil	G
TN	NPT
TP	Rc

**Arm opening angle**

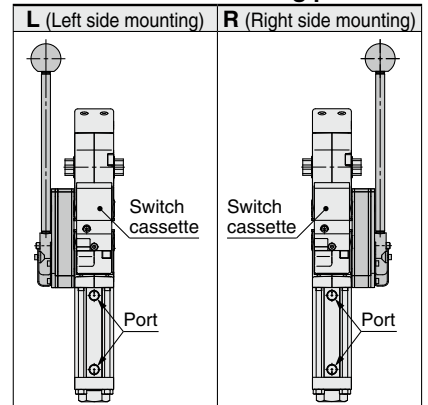
Symbol	Arm opening angle	Base type X2734	With manual handle X2568 □
15	15°	○	○
30	30°	○	○
45	45°	○	○
60	60°	○	○
75	75°	○	○
90	90°	○	○
105	105°	○	○
120	120°	○	○
135	135°	○	—

**Top cover material**

Nil	Rubber cover*1
M	Metal cover

\*1 Flame resistant (Equivalent to UL94 Standard V0)

**Manual handle mounting position**



\* Switch cassette viewed from the front

**Proximity switch**

T	TURCK
P	P&F
W	None

#### Clamp arm

CKZT 50 - A015 C S

**Bore size**

50	ø50 equivalent
63	ø63 equivalent

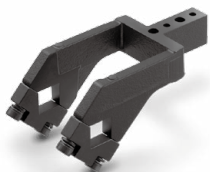
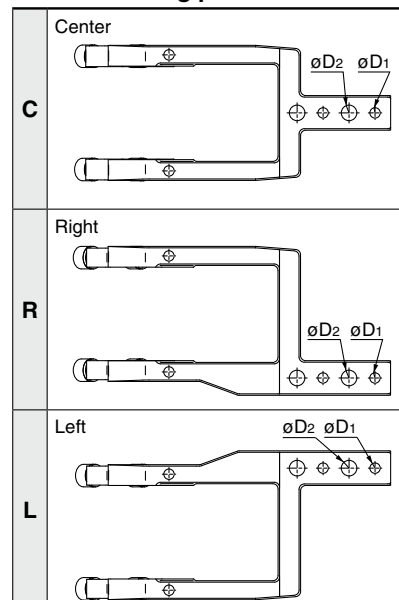
**Offset**

A015	Offset 15 mm
A045	Offset 45 mm

**Mounting hole**

Symbol	D1	D2
S	6	9
B	8	10.2

**Arm mounting position**



## Cylinder Specifications

Bore size	50	63
Action	Double acting	
Fluid	Air	
Proof pressure	1.2 MPa	
Max. operating pressure	0.8 MPa	
Min. operating pressure	0.3 MPa	
Ambient and fluid temperatures	-10 to 60°C (No freezing)	
Cushion	Clamping side: None Unclamping side: Rubber bumper	
Operating time	Clamping: 1 s or more, Unclamping: 1 s or more	
Max. allowable holding moment*1	800 N·m	1500 N·m

\*1 Refer to the maximum holding force (torque) while clamped with the operating air exhausted.  
This is not the possible holding force (torque) for normal use.

## Weight (Cylinder Without Clamp Arm)

Bore size	Arm opening angle									Extra weight is due to addition of the manual handle
	15°	30°	45°	60°	75°	90°	105°	120°	135°	
50	3.2	3.2	3.1	3.1	3.1	3.1	3.1	3.1	3.0	1.7
63	4.4	4.4	4.3	4.3	4.3	4.3	4.2	4.2	4.2	1.7

\* Refer to pages 58 and 59 for the weight of clamp arms.

## Cylinder Stroke

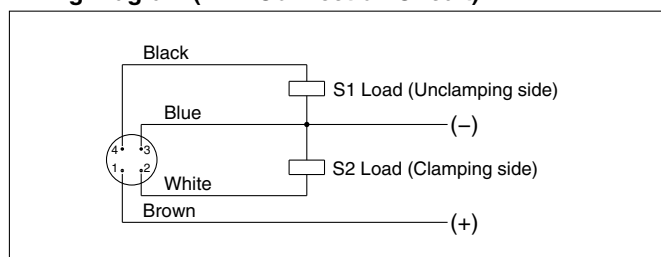
Bore size	Arm opening angle								
	15°	30°	45°	60°	75°	90°	105°	120°	135°
50	22.7	31.9	39.7	47.2	54.8	62.7	70.4	77.2	82.1
63	24.2	34.2	42.6	50.6	58.7	66.9	74.8	81.6	86.4

## Proximity Switch Specifications

Manufacturer	TURCK	P&F
Power supply voltage	10 to 30 VDC	10 to 30 VDC
Output	N.O., PNP	N.O., PNP
Continuous load current	150 mA	100 mA
Response frequency	30 Hz	25 Hz
Housing material	PBT	PA6, PBT
Output indication	Clamping side: Red Unclamping side: Yellow	Clamping side: Red Unclamping side: Yellow
Power supply indication	Green	Green
Connector	M12 connector	M12 connector

\* Switch specifications correspond to the manufacturers' technical information.

## Wiring Diagram (PNP Connection Circuit)

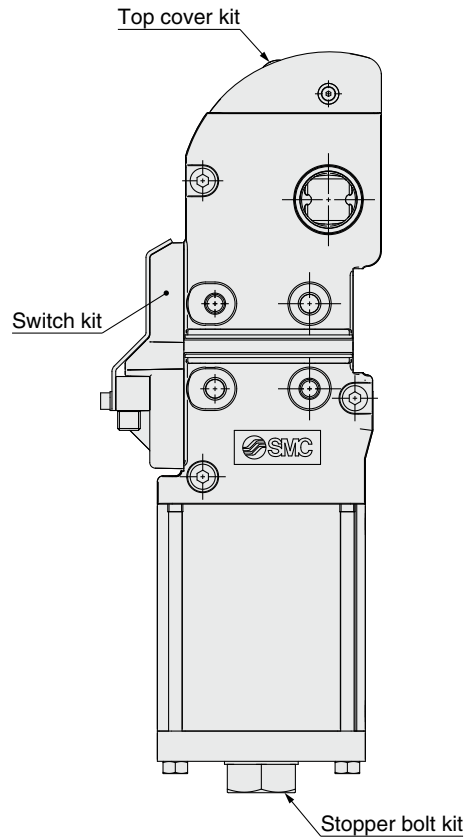


\* Applicable to both TURCK and P&F  
\* Please contact SMC for NPN specifications.

Power Clamp Cylinders  
CKZM16  
CKZT25/32  
CKZT40  
CKZ5T  
CKZ3T  
CKZT80  
CKZ5N  
CKZ3N  
CKZ2N

Related Products  
C(L)KQG□  
C(L)KQP□  
C(L)KQ□D  
-X3256  
C(L)KQG32  
C(L)KU32  
C(L)KQ32  
-X3036  
Flow Control  
Equipment  
Piping  
Equipment

## Replacement Parts



### Switch Kit No. (with Metal Switch Cassette Cover)

**CKZ3N-S 050 T-X2734**

Bore size		Proximity switch	
050	ø50 equivalent	T	TURCK
063	ø63 equivalent	P	P&F
		W	None

\* The switch kit includes a switch cassette assembly, metal switch cassette cover, and mounting brackets.

### Top Cover Kit No.

Rubber cover

**CKZ2N-T 050**

Bore size	
050	ø50 equivalent
063	ø63 equivalent

Metal cover

**CKZ3N-T 050 M**

Bore size	
050	ø50 equivalent
063	ø63 equivalent

\* The top cover kit includes a top cover and mounting brackets.

\* Refer to page 64 for procedures for changing the stopper bolt and switch positions and for top cover replacement instructions.

### Stopper Bolt Kit No.

**CKZ3N-B 050 D**

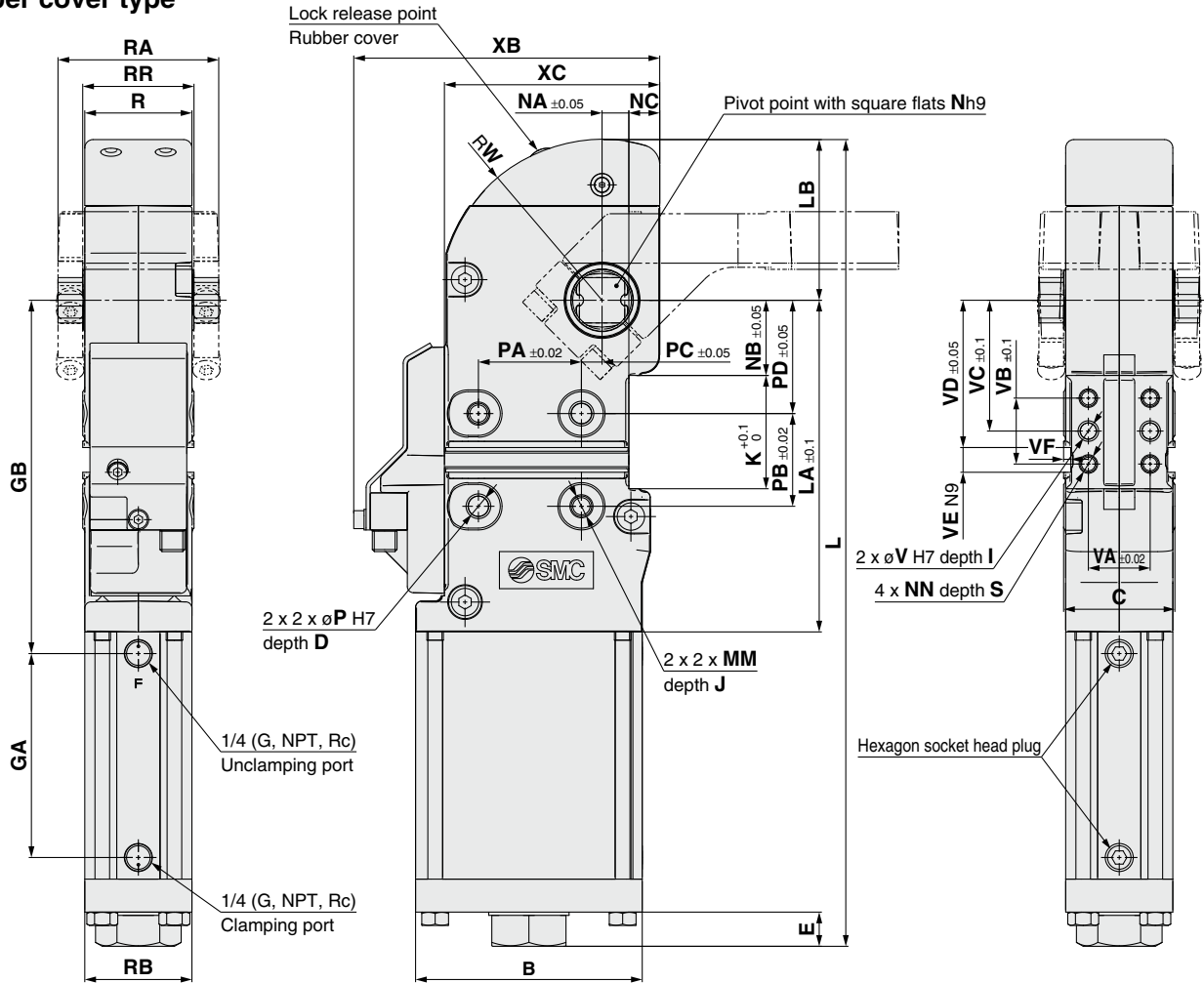
Bore size		Arm opening angle	
050	ø50 equivalent	J	15°
063	ø63 equivalent	H	30°
		G	45°
		F	60°
		E	75°
		D	90°
		C	105°
		B	120°
		A	135°

\* The stopper bolt kit includes a stopper bolt and mounting brackets.

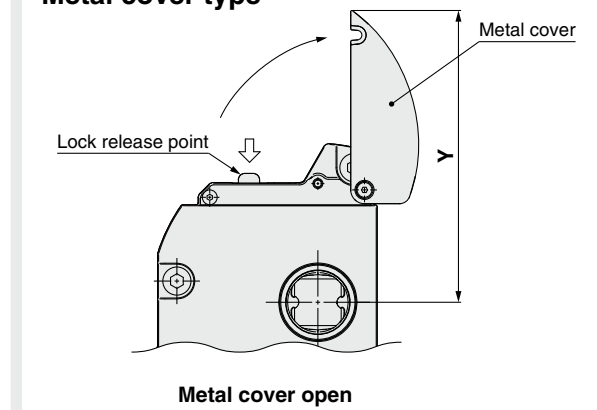
**Dimensions**

**CKZ3T-X2734**

**Rubber cover type**



**Metal cover type**



Bore size	B	C	D	E	GA	GB	I	J	K	L	LA	LB		MM	N	NA	NB	NC	NN
												Rubber cover	Metal cover						
50	92	48	12	13.7	95	166	10	12	55	376.6	155.5	78.4	78.4	M10 x 1.5	19	13	36.5	9.5	M8 x 1.25
63	110	54	12	16.6	99	171.5	10	12	55	391.6	161	78	78.4	M10 x 1.5	22	13	36.5	15	M8 x 1.25

Bore size	P	PA	PB	PC	PD	R	RA	RB	RR	S	V	VA	VB	VC	VD	VE	VF	W	XB	XC	Y
50	10	50	45	10	55	46	68	46	48	11	8	30	32	63.5	71.5	12	3.5	78.4	136	92	132
63	10	50	45	10	55	52	78	52	54	11	8	30	32	63.5	71.5	12	3.5	78	148.5	104.5	138

Power Clamp Cylinders

CKZM16
CKZT25/32
CKZT40
CKZ5T
<b>CKZ3T</b>
CKZT80
CKZ5N
CKZ3N
CKZ2N

Related Products

C(L)KQG	C(L)KQP
C(L)KQD	-X3256
C(L)KQG32	C(L)KU32
C(L)KQG32	-X3036

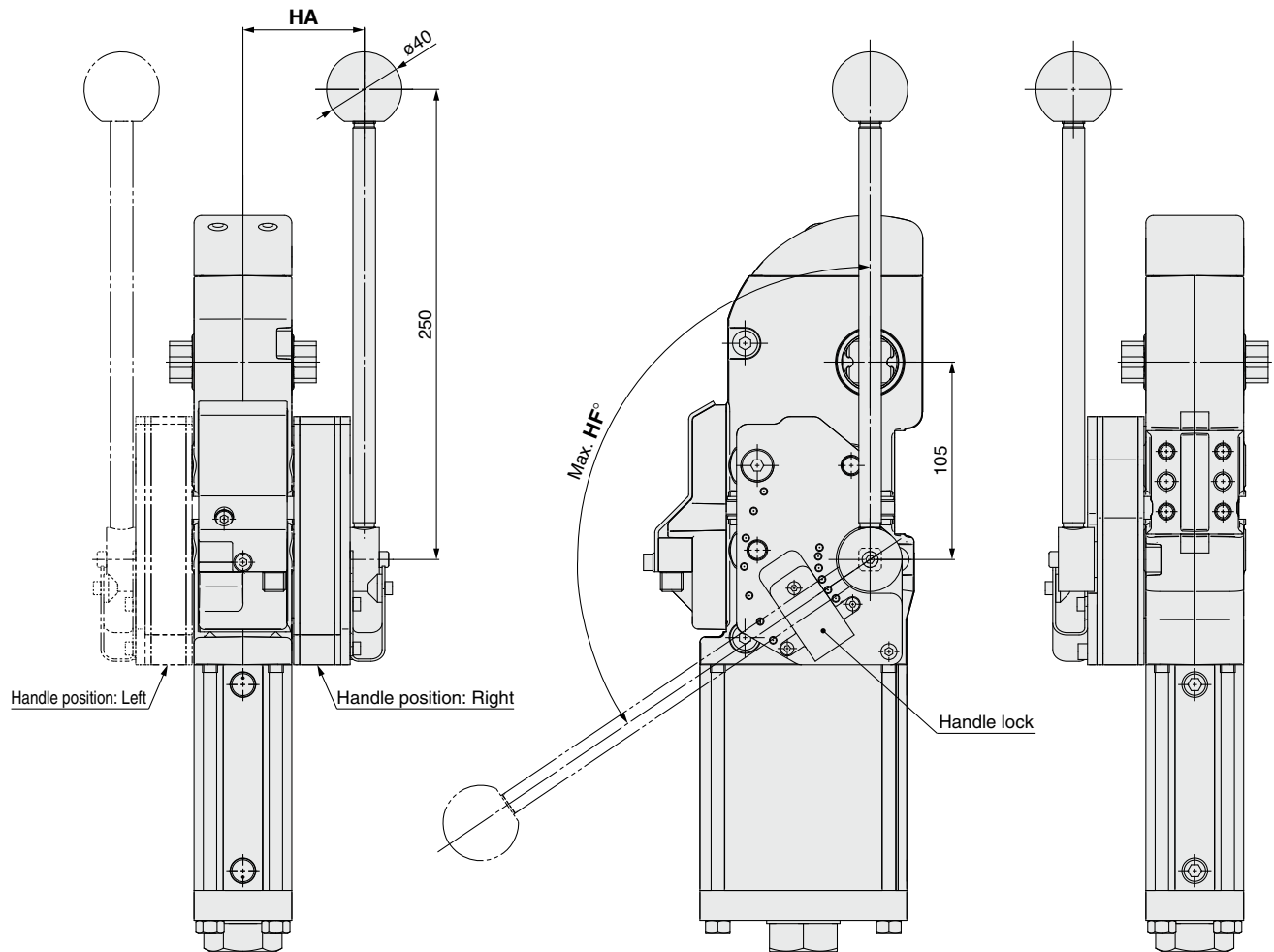
Flow Control Equipment

Piping Equipment

## Dimensions: With Manual Handle

\* Refer to the CKZ3T-X2734 (page 56) for dimensions other than those shown below.

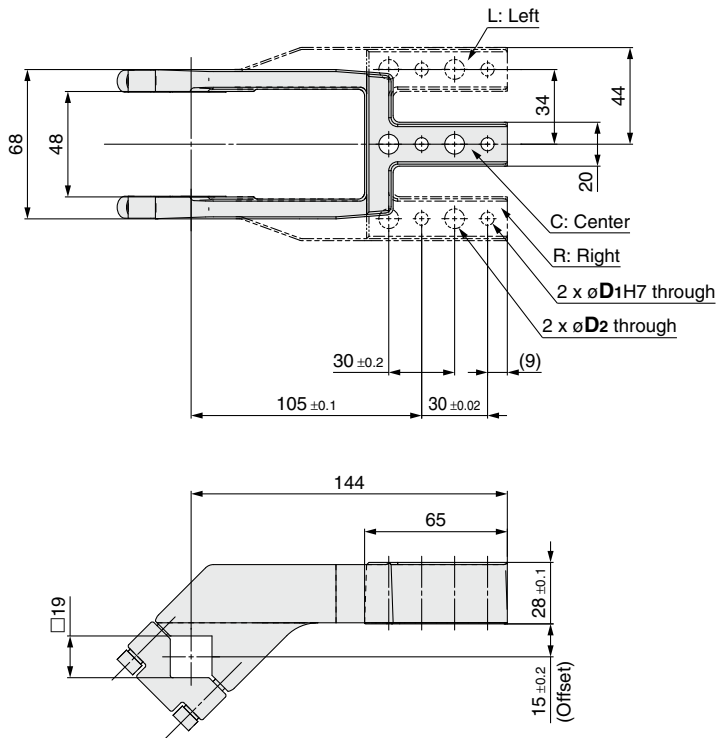
### CKZ3T-X2568<sup>L</sup><sub>R</sub>



[mm]			
Bore size	Arm opening angle [°]	HA	HF <sup>o</sup>
50	15	61.5	36
	30		49
	45		61
	60		73
	75		87
	90		101
	105		114
	120		124
63	15	64.5	41
	30		55
	45		68
	60		81
	75		94
	90		107
	105		117
	120		124

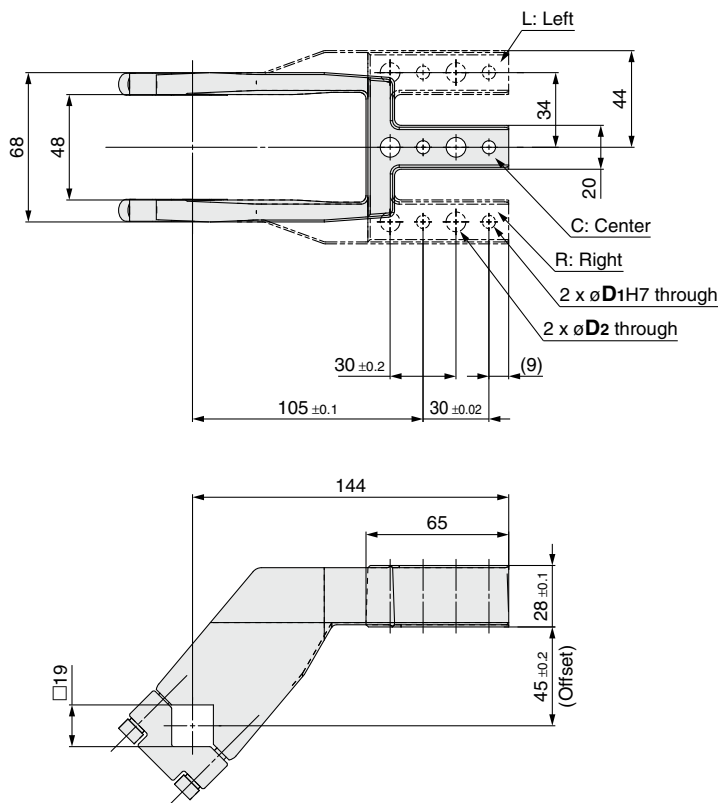
**Dimensions: Clamp Arm** **Bore Size 50**

Offset 15 mm



Model	D <sub>1</sub>	D <sub>2</sub>	Weight [kg]
CKZT50-A015CS	6	9	0.8
CKZT50-A015CB	8	10.2	0.8
CKZT50-A015RS	6	9	0.9
CKZT50-A015RB	8	10.2	0.9
CKZT50-A015LS	6	9	0.9
CKZT50-A015LB	8	10.2	0.9

Offset 45 mm

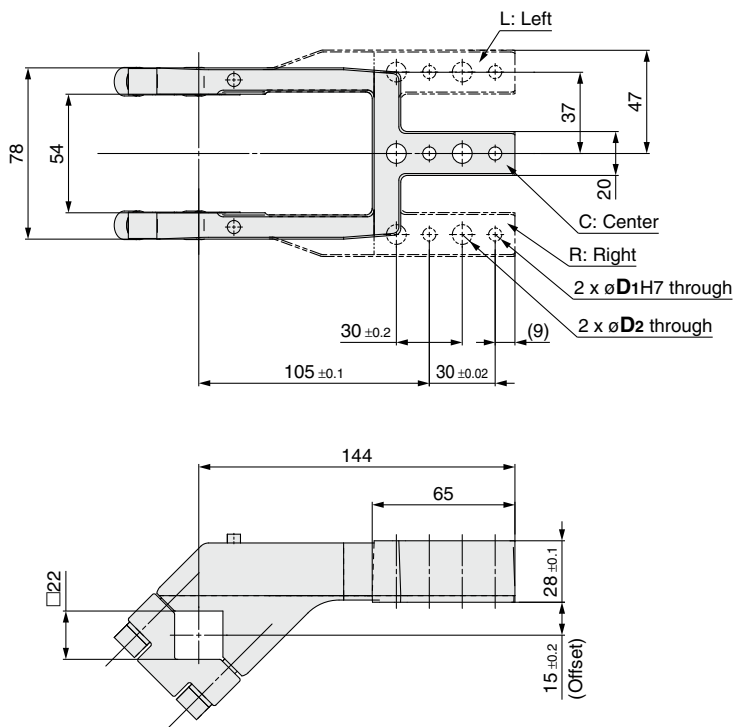


Model	D <sub>1</sub>	D <sub>2</sub>	Weight [kg]
CKZT50-A045CS	6	9	0.9
CKZT50-A045CB	8	10.2	0.9
CKZT50-A045RS	6	9	1.0
CKZT50-A045RB	8	10.2	1.0
CKZT50-A045LS	6	9	1.0
CKZT50-A045LB	8	10.2	1.0

- CKZM16
- CKZT25/32
- CKZT40
- CKZ5T
- CKZ3T
- CKZT80
- CKZ5N
- CKZ3N
- CKZ2N
- Related Products
- C(L)KQG□
- C(L)KQP□
- C(L)KQ□□
- X3256
- C(L)KQG32
- C(L)KU32
- C(L)KQG32
- X3036
- Flow Control Equipment
- Piping Equipment

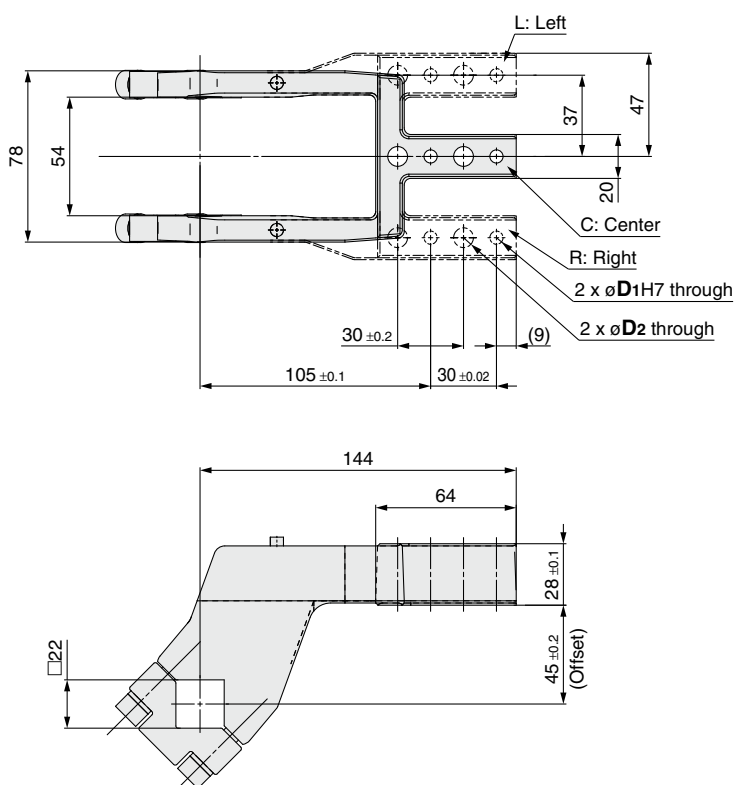
## Dimensions: Clamp Arm **Bore Size 63**

### Offset 15 mm



Model	D <sub>1</sub>	D <sub>2</sub>	Weight [kg]
CKZT63-A015CS	6	9	1.0
CKZT63-A015CB	8	10.2	1.0
CKZT63-A015RS	6	9	1.1
CKZT63-A015RB	8	10.2	1.1
CKZT63-A015LS	6	9	1.1
CKZT63-A015LB	8	10.2	1.1

### Offset 45 mm

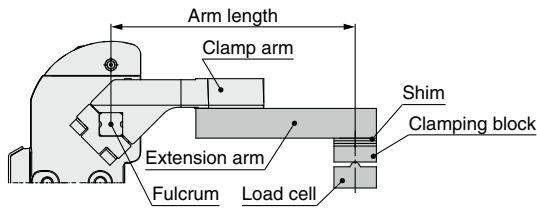


Model	D <sub>1</sub>	D <sub>2</sub>	Weight [kg]
CKZT63-A045CS	6	9	1.2
CKZT63-A045CB	8	10.2	1.2
CKZT63-A045RS	6	9	1.3
CKZT63-A045RB	8	10.2	1.2
CKZT63-A045LS	6	9	1.3
CKZT63-A045LB	8	10.2	1.2

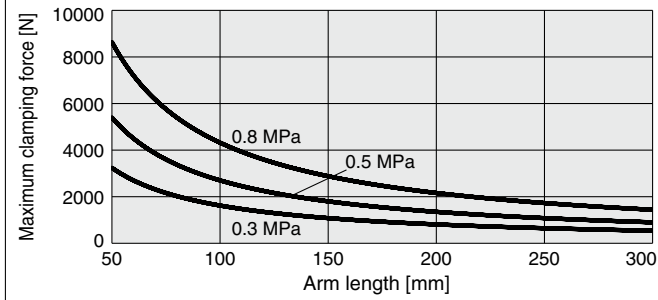


# Model Selection

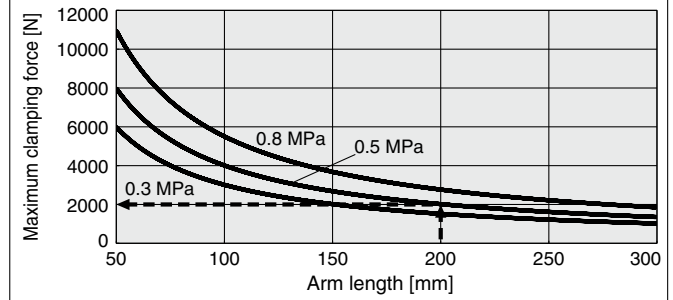
## Relation between arm length and clamping force



**Bore Size: 50**



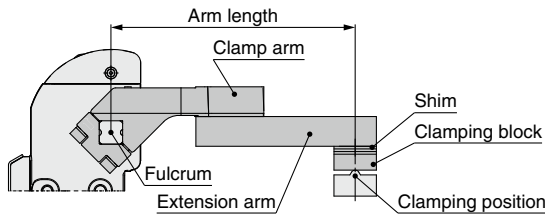
**Bore Size: 63**



**Calculation example** Bore size: 63, Arm length: 200 mm, Operating pressure: 0.5 MPa

With an arm length of 200 mm and an operating pressure of 0.5 MPa, according to the graph, the maximum clamping force is 2000 N.

## Allowable arm length



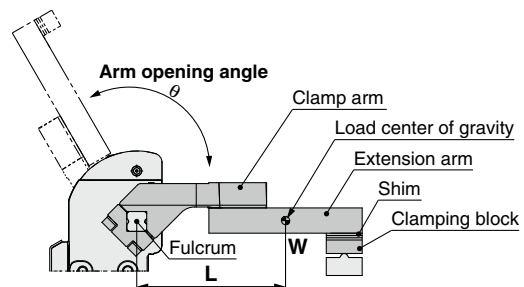
Bore size	Allowable arm length [mm]
50	300
63	300

## Allowable load mass

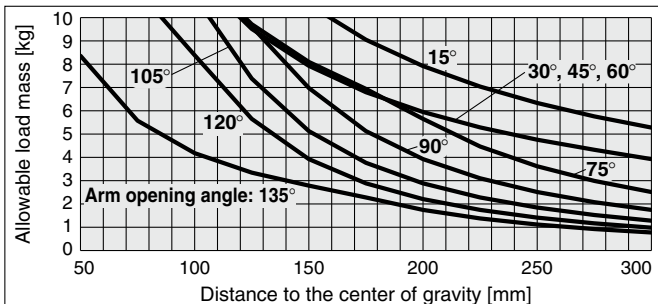
The allowable load mass changes depending on the arm opening angle. Be sure to use the product within the allowable values shown in the graphs below.  
 \* The load indicates the total weight of the clamp arm, extension arm, and clamping block.  
 \* When the operating time is 1 second

### Calculation procedure for allowable load mass

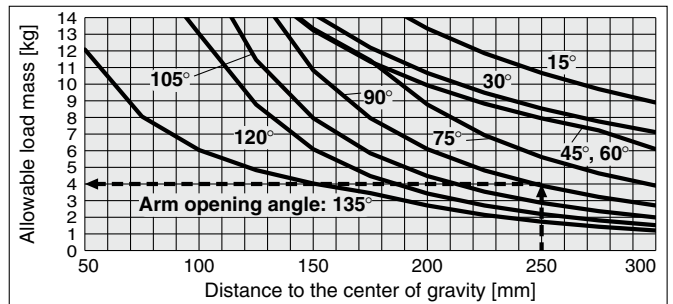
1. Calculate the distance L from the fulcrum to the load center of gravity.
2. Check the arm opening angle of the product.
3. Read the allowable load mass from the graph.



**Bore Size: 50**



**Bore Size: 63**



**Calculation example** Bore size: 63, Arm opening angle: 90°, Distance to the center of gravity L: 250 mm

With an arm opening angle of 90° and a 250 mm distance to the center of gravity, according to the graph, the maximum allowable load mass is 4.0 kg.

Power Clamp Cylinders  
 CKZM16  
 CKZT25/32  
 CKZT40  
 CKZ5T  
 CKZ3T  
 CKZT80  
 CKZ5N  
 CKZ3N  
 CKZ2N

Related Products  
 C(L)KQG □  
 C(L)KQP □  
 C(L)KQID  
 -X3256  
 C(L)KQG32  
 C(L)KQ32  
 C(L)KU32  
 -X3036  
 Flow Control Equipment  
 Piping Equipment

# Setup Procedure

## Precautions

- 1) The tightening torque of the clamp arm is 12 to 15 N·m for  $\phi 50$  and 15 to 20 N·m for  $\phi 63$ . Refer to pages 58 and 59 for details on the clamp arm.
- 2) There is a mechanical difference of 0 to  $+0.5^\circ$  at the clamping end as shown in Figure 1. Be sure to make adjustments externally using a shim. Refer to page 63.
- 3) Be sure to use a speed controller, and make adjustments according to the following conditions.

**Unclamping to clamping: 1 second or more**

**Clamping to unclamping: 1 second or more**

If excessive kinetic energy is applied, there is a possibility of damage.

- 4) When using a side guide: Attach the side guide so that lateral loads, such as galling, etc., are not applied to the clamp arm.

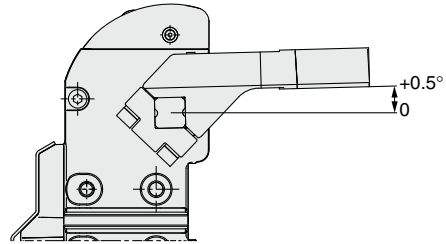
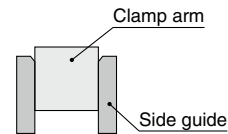
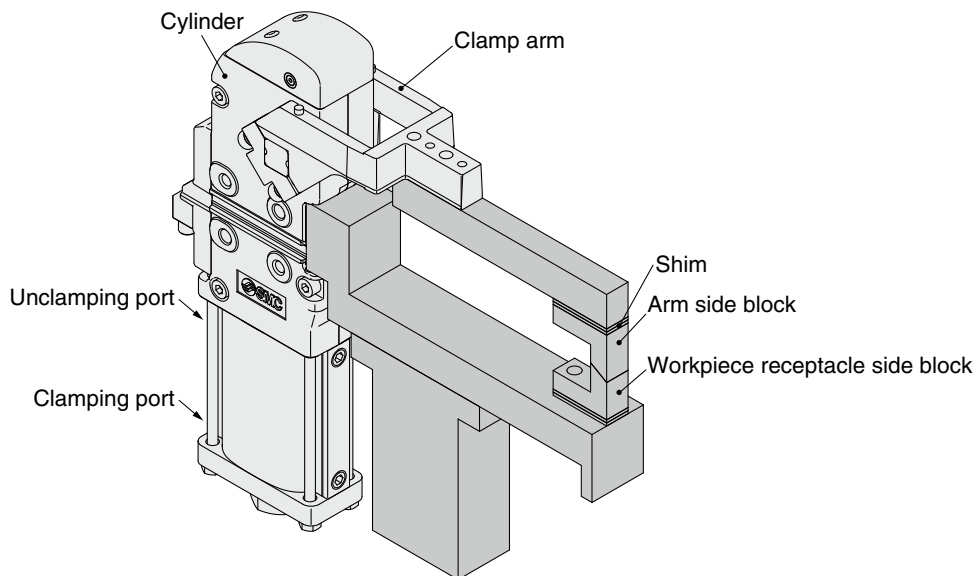


Figure 1

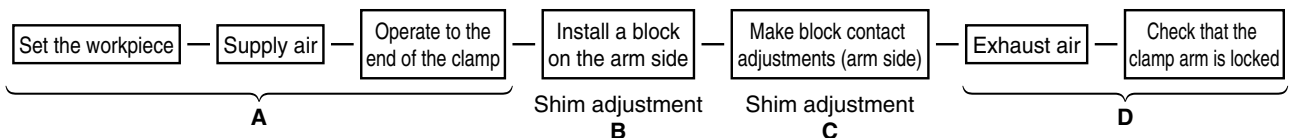


## Power clamp cylinder mounting and setup procedure

<Ex. 1 When using clamping force only: When equipped with a workpiece receptacle>



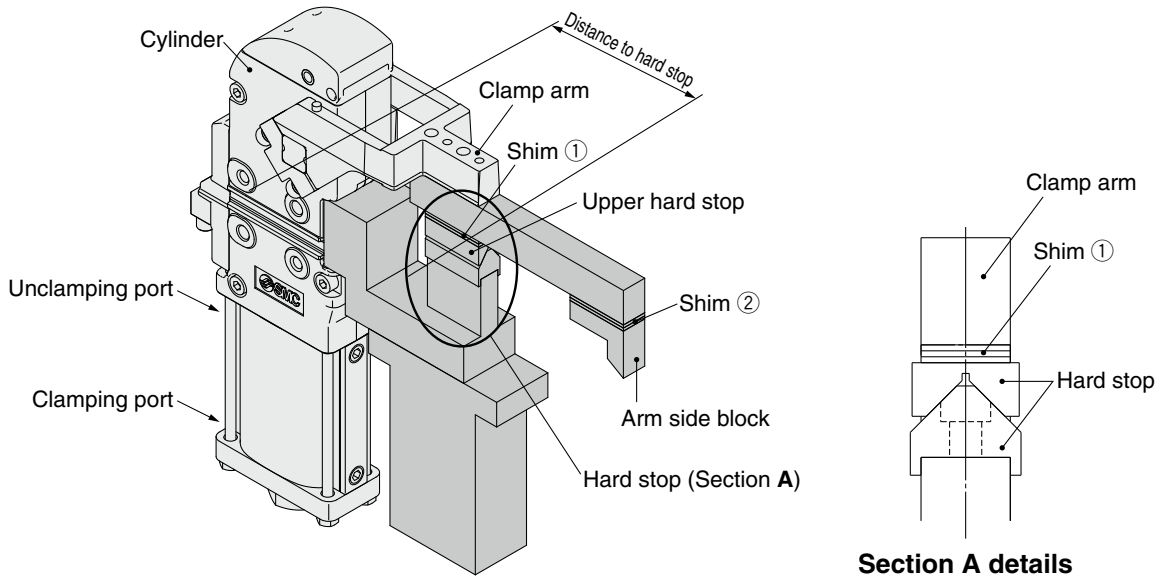
### Procedure



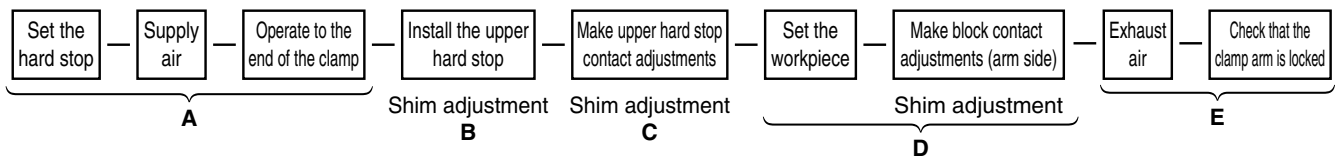
- A) Place the workpiece, supply air to the clamping port without attaching the block on the arm side, and operate the clamp arm to the end of the clamp.
- B) In the state of A), attach the arm side block, and adjust the shim so that there is a space of about 0 mm between the arm side block and the workpiece.  
During this step, theoretically, there is no clamping force pressing down on the workpiece.
- C) In order to generate a clamping force from the state described in step B), insert an additional shim.  
The thickness of the shim changes depending on the arm length and the operating pressure. Refer to page 63.  
Please note that the graph should only be used as a guide as there is a tolerance of about 10% in the clamp cylinder body.
- D) Exhaust the air while in the clamped state, and confirm that the clamp arm does not open.

**Power clamp cylinder mounting and setup procedure**

**<Ex. 2 When using a hard stop: When not equipped with a workpiece receptacle>**



**Procedure**

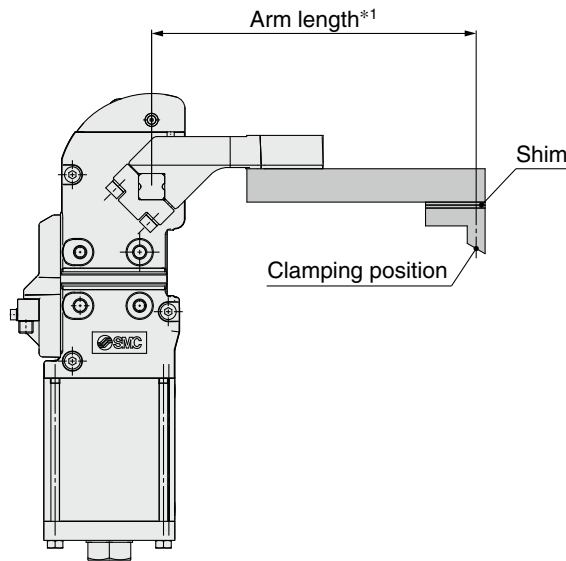


- A) Supply air to the clamping port without installing the upper hard stop, and operate the clamp arm to the end of the clamp.
- B) In the state of A), attach the upper hard stop and adjust shim ① so that there is a space of about 0 mm between the upper hard stop and the hard stop.  
During this step, theoretically, there is no clamping force applied to the hard stop.
- C) In order to generate a clamping force from the state described in step B), insert an additional shim ①.  
The thickness of the shim changes depending on the distance to the hard stop and the operating pressure. Refer to page 63, and consider the distance to the hard stop as the arm length.  
Please note that the graph should only be used as a guide as there is a tolerance of about 10% in the clamp cylinder body.
- D) In the state of C), adjust shim ② so that the arm side block contacts the workpiece.
- E) Exhaust the air while in the clamped state, and confirm that the clamp arm does not open.

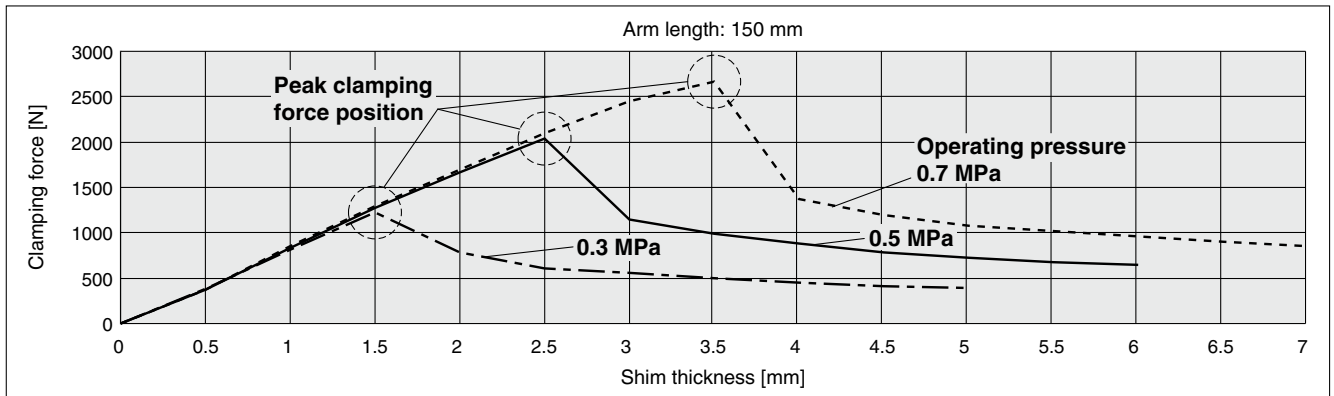
CKZM16
CKZT25/32
CKZT40
CKZ5T
<b>CKZ3T</b>
CKZT80
CKZ5N
CKZ3N
CKZ2N
CL)KQG□
CL)KQP□
CL)KQ□□
-X3256
CL)KQG32
CL)KU32
CL)KQG32
-X3036
Flow Control Equipment
Piping Equipment

## Relation between shim thickness and clamping force

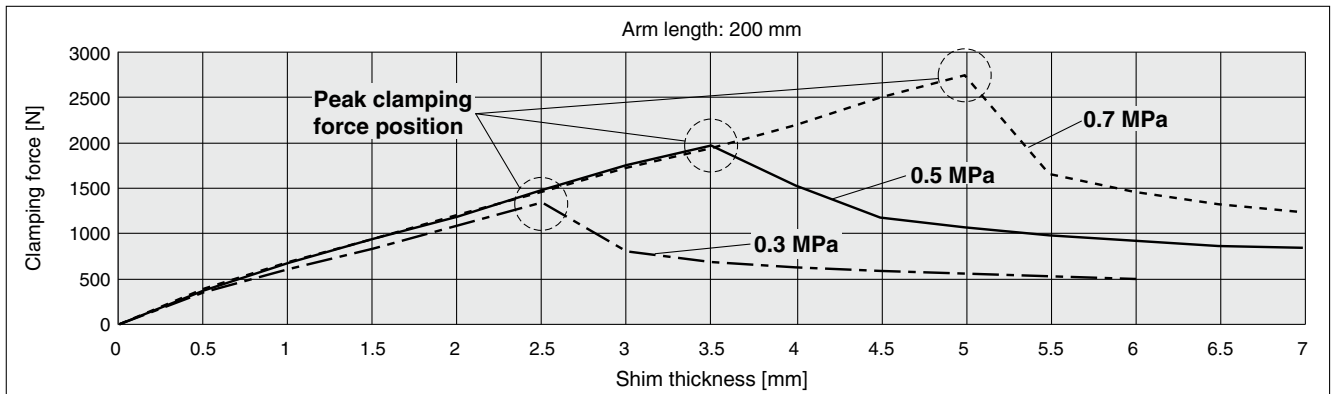
- \* Use this figure as a guide as there is a tolerance of about 10% in the clamp cylinder body.
- \* When a shim exceeding the peak clamping force position on the graph is inserted, the lock will not be activated when clamped. Insert a shim of the appropriate thickness.
- \*1 The arm length indicates the distance between the clamp arm shaft and the clamping position.



### Bore Size: 50



### Bore Size: 63

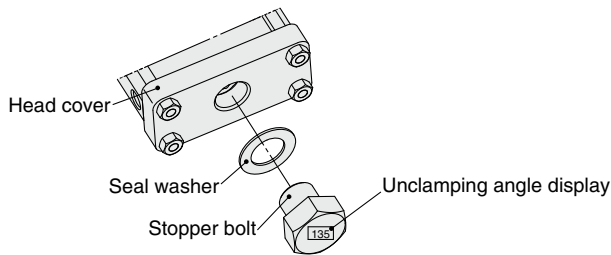


## To change the arm opening angle

**⚠ Caution** Be sure to confirm safety, and perform the work while the air is exhausted.

### 1 Procedure for changing the stopper bolt position

- 1) Remove the stopper bolt of the head cover, and replace with a stopper bolt for the desired angle using the tightening torque below. When tightening the stopper bolt, hold the head cover.  
Refer to "Replacement Parts" (page 55) for the part numbers of the applicable stopper bolts.

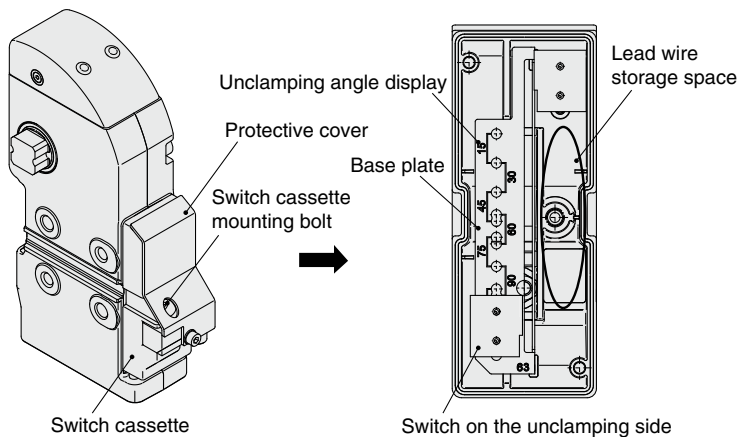


#### Stopper Bolt Tightening Torque

Bore size	Tightening torque [N·m]
50	45 to 65
63	85 to 115

### 2 Procedure for changing the switch position

- 1) Loosen the switch cassette mounting bolt, and remove the switch cassette.
- 2) Remove the switch on the unclamping side, and attach it in the position of the desired angle. Store the lead wire in the storage space.
- 3) Mount the switch cassette to the body, and tighten the switch cassette mounting bolt to the tightening torque shown below.  
Refer to "Replacement Parts" (page 55) for the part numbers of the switch cassette replacement parts.



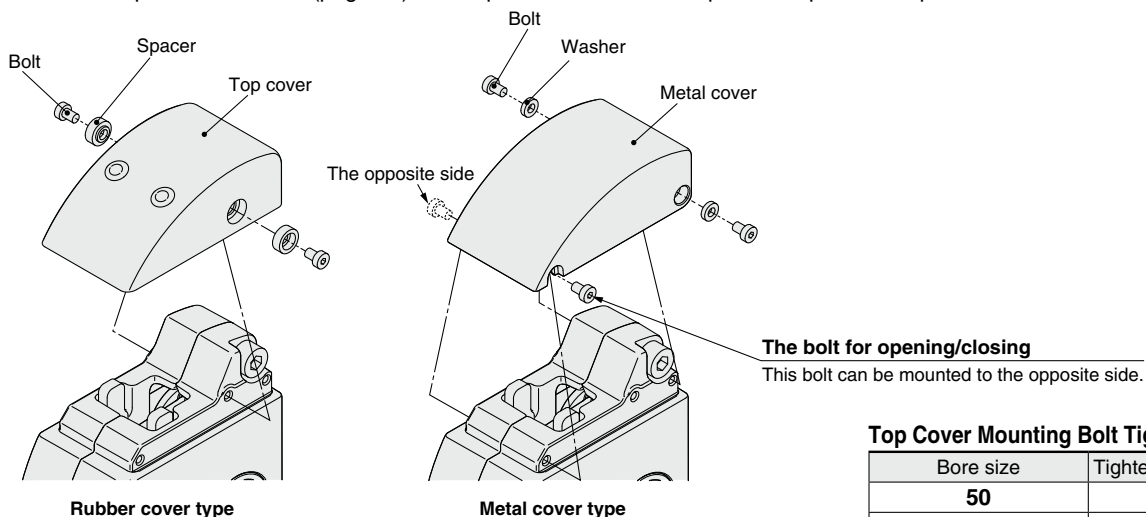
#### Switch Cassette Mounting Bolt Tightening Torque

Bore size	Tightening torque [N·m]
50	2.6 to 3.5
63	2.6 to 3.5

## Top cover replacement

**⚠ Caution** Be sure to confirm safety, and perform the work while the air is exhausted.

- 1) Mount the top cover to the clamp cylinder, then tighten it to the specified tightening torque below.
- 2) It is possible to change from a rubber cover type to a metal cover type.  
Refer to "Replacement Parts" (page 55) for the part numbers of the top cover replacement parts.



#### Top Cover Mounting Bolt Tightening Torque

Bore size	Tightening torque [N·m]
50	1.5 to 2.0
63	1.5 to 2.0

Power Clamp Cylinders  
CKZM16  
CKZT25/32  
CKZT40  
CKZ5T  
CKZ3T  
CKZT80  
CKZ5N  
CKZ3N  
CKZ2N

Related Products  
C(L)KQG  
C(L)KQP  
C(L)KQID  
-X3256  
C(L)KQG32  
C(L)KU32  
C(L)KQG32  
-X3036  
Flow Control  
Equipment  
Piping  
Equipment



**CKZ3T-X2734**  
**-X2568** □

# Specific Product Precautions

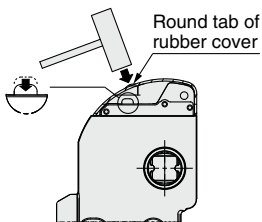
Be sure to read this before handling the products. Refer to page 179 for safety instructions. For actuator precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website: <https://www.smcworld.com>

## ⚠ Caution

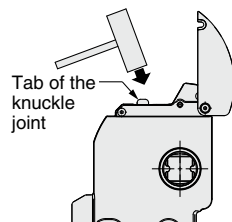
### 1. Manual lock release

Be sure to confirm safety before manually releasing the lock, and only perform work **while the air is exhausted**. Otherwise, the clamp arm may operate unexpectedly.

- In the case of a rubber cover, the lock can be released easily by hitting the round tab on the cover with a plastic hammer.
- In the case of a metal cover, the lock can be released easily by opening the cover and hitting the tab of the knuckle joint with a plastic hammer.

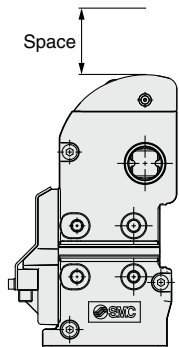


Rubber cover type

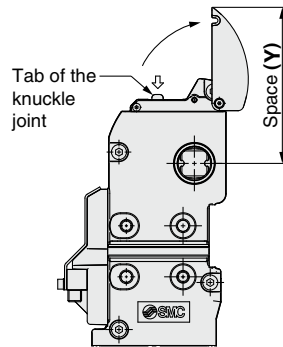


Metal cover type

- Provide enough space to perform a manual lock release.



Rubber cover type



Metal cover type

[mm]	
Bore size	Y
50	132
63	138

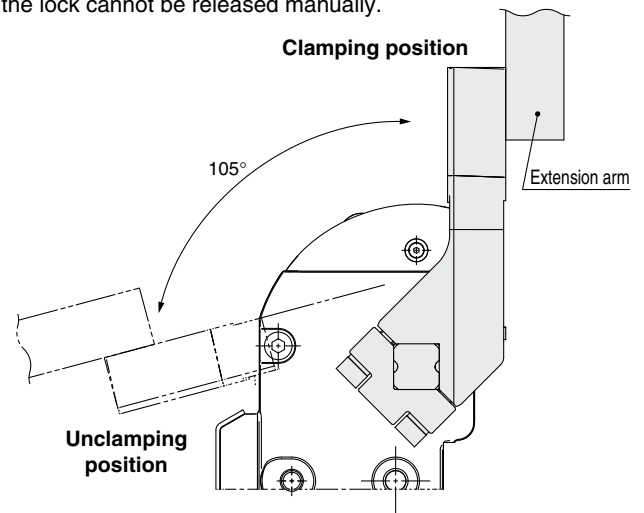
## ⚠ Caution

### 2. Do not disassemble the power clamp cylinder.

The power clamp cylinder consists of a completely sealed structure in order to protect it from welding spatter. Do not disassemble, except for when replacing any of the replaceable parts, as this may cause the performance to deteriorate.

### 3. Vertical clamping

When mounting the clamp arm in a vertical clamping position, mount as shown in the figure below. The maximum arm opening angle is 105°. In the case of a metal cover type, select a 45 mm offset for the clamp arm. When a 15 mm offset is selected, the metal cover and clamp arm will interfere and the lock cannot be released manually.



### 4. Proximity switch output

The switch output signal is output near the clamping end and the unclamping end respectively. The switch output signal on the clamping side does not output the status where the power clamp cylinder is locked by the toggle mechanism.

### 5. With manual handle

Operating force of the handle should be 150 N or less. Excessive forces applied to the handle will lead to breakage or deformation.

### 6. Operating time and allowable load mass

Fast operation (short stroke times) or excessive loads will lead to the breakage or deformation of the product. It is recommended to install shock absorbers to reduce impact force in these instances.