



Operation Manual

PRODUCT NAME

POWER CLAMP CYLINDER

MODEL / Series / Product Number

CKZ3N-X2742A/X2568 Series (ϕ 50, 63)

CKZ3T-X2734/X2568 Series (ϕ 50, 63)

SMC Corporation

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Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of %Caution,+%Warning+or %Danger.+ They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)*1) , and other safety regulations.

*1) ISO 4414: Pneumatic fluid power -- General rules relating to systems.

ISO 4413: Hydraulic fluid power -- General rules relating to systems.

IEC 60204-1: Safety of machinery -- Electrical equipment of machines .(Part 1: General requirements)

ISO 10218: Manipulating industrial robots -Safety.

etc.



Caution

Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.



Warning

Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.



Danger

Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results.

The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product.

This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly.

The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1.The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.

2.When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.

3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.

2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.

3. An application which could have negative effects on people, property, or animals requiring special safety analysis.

4.Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.



Safety Instructions

Caution

The product is provided for use in manufacturing industries.

The product herein described is basically provided for peaceful use in manufacturing industries.

If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.

If anything is unclear, contact your nearest sales branch.

Limited warranty and Disclaimer/Compliance Requirements

The product used is subject to the following %limited warranty and Disclaimer+ and %Compliance Requirements+.

Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.*2)

Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.

2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.

This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.

3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

*2) Vacuum pads are excluded from this 1 year warranty.

A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.

Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction(WMD) or any other weapon is strictly prohibited.

2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulation of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

Caution

SMC products are not intended for use as instruments for legal metrology.

Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country.

Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.

1 Common precautions for power clamp cylinder

⚠ Caution

- (1) The tightening torque of clamp arm fixing bolt is 12 to 15 N·m for $\phi 50$ and 15 to 20 N·m for $\phi 63$.

Refer to pages 23 to 26 for the CKZ3N-X2742A type and pages 32 and 33 for the CKZ3T-X2734 type for details on the clamp arm.

- (2) This product is designed to be used after being externally adjusted using a shim, and there is a mechanical difference of 0 to +0.5° at the clamping end. (Figure 1)
- (3) Adjust the angle of the clamp end so that the clamp arm contacts the workpiece at +3° or less. (Figure 1)

If the clamp arm contacts the workpiece at an angle of more than +3°, the clamp cylinder may be damaged.

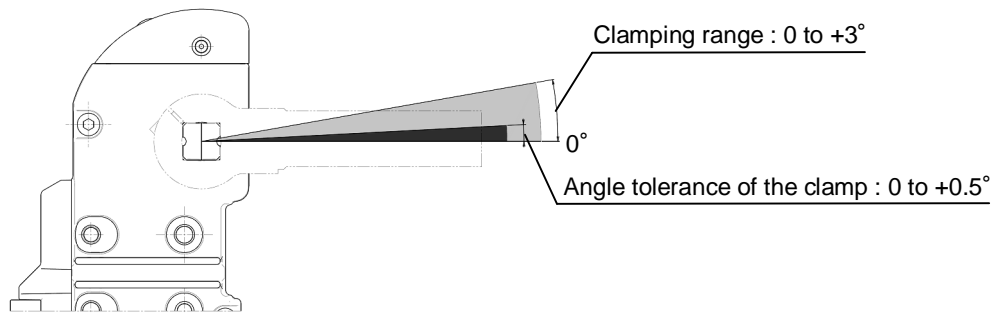
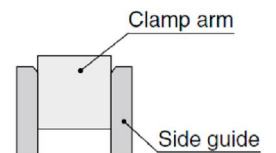


Figure 1

- (4) 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.

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



- (6) Refer to the table below for the angle tolerance of the arm during unclamping.

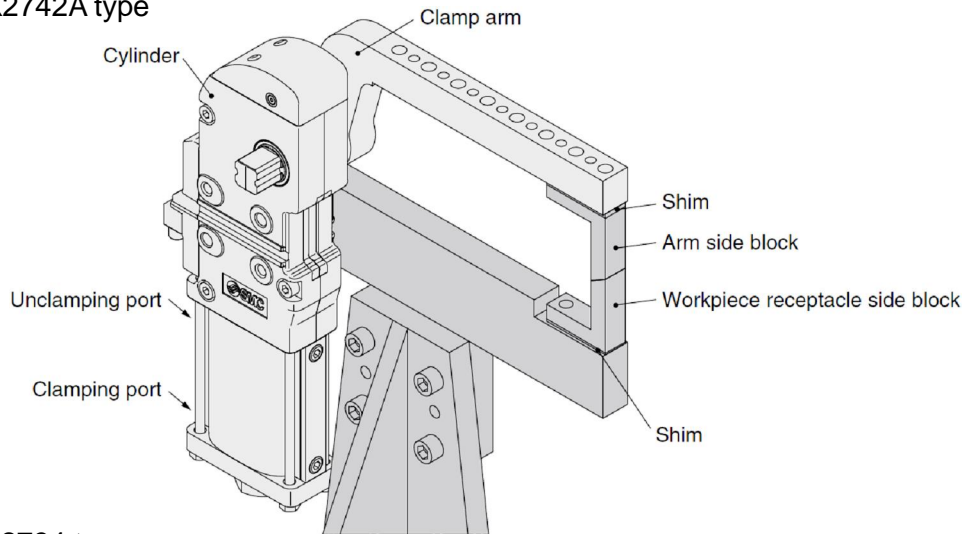
Bore (mm)	Arm angle(°)								
	15	30	45	60	75	90	105	120	135
50	15 ⁰ ₋₄	30 ⁰ ₋₅	45 ⁰ ₋₅	60 ⁰ ₋₅	75 ⁰ ₋₅	90 ⁰ ₋₅	105 ⁰ ₋₅	120 ⁰ ₋₆	135 ⁰ ₋₉
63	15 ⁰ ₋₃	30 ⁰ ₋₄	45 ⁰ ₋₅	60 ⁰ ₋₅	75 ⁰ ₋₅	90 ⁰ ₋₅	105 ⁰ ₋₅	120 ⁰ ₋₆	135 ⁰ ₋₉

- (7) 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.
- (8) 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.
- (9) Lubricating the toggle mechanism
 The toggle mechanism has been lubricated for life at the factory and can be used without any further lubrication. Do not lubricate.

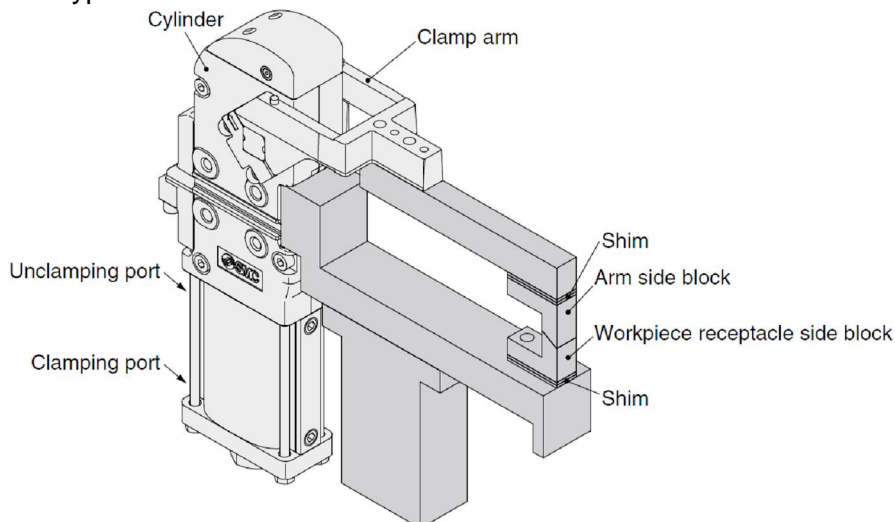
2 Power clamp cylinder mounting and setup procedure

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

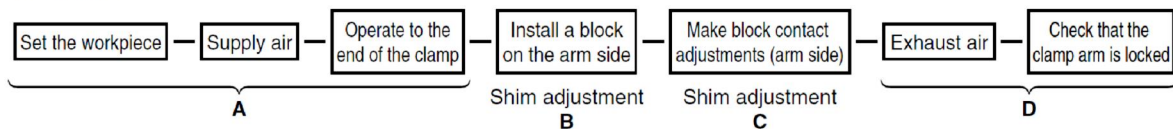
●CKZ3N-X2742A type



●CKZ3T-X2734 type



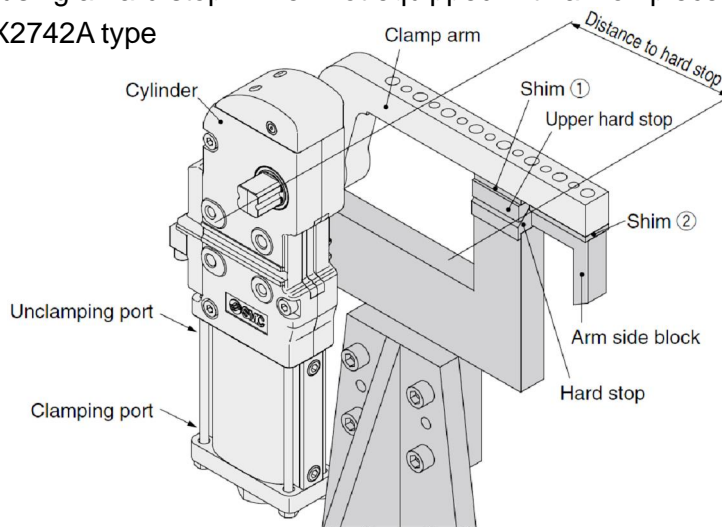
■ Procedure



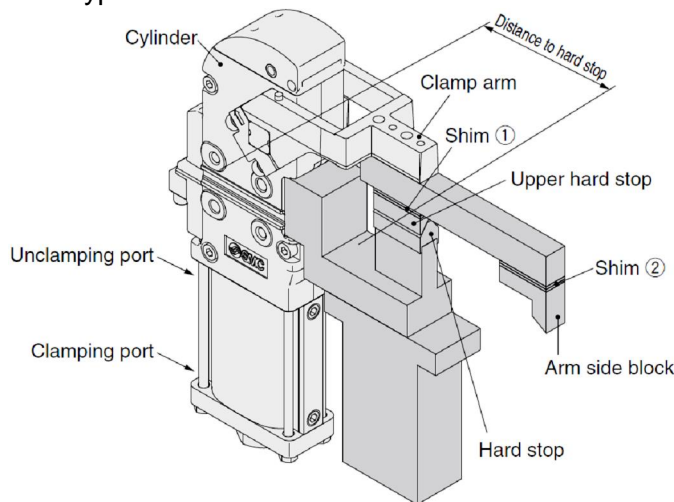
- A) Place the workpiece, supply air to the clamping port without attaching the block on the arm side, and operate the clamp arm to the end of the clamp.
- B) In the state of A), attach the workpiece and the arm side block, and adjust the shim so that there is a space of about 0 mm.
During this step, 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 8 to 10.
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.

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

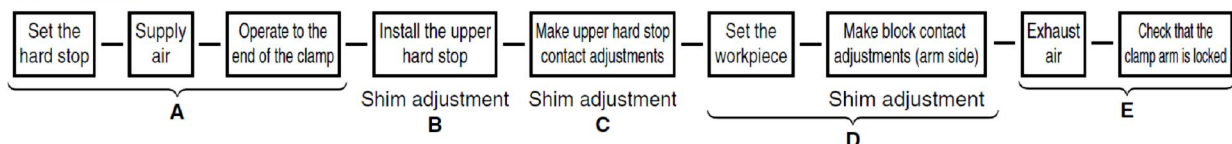
●CKZ3N-X2742A type



●CKZ3T-X2734 type



■ Procedure



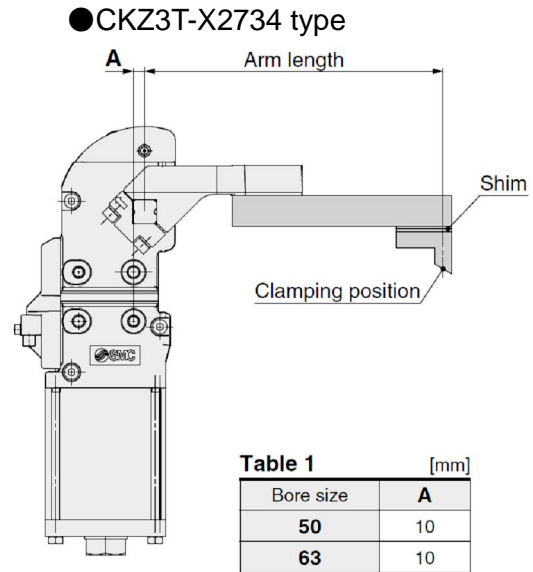
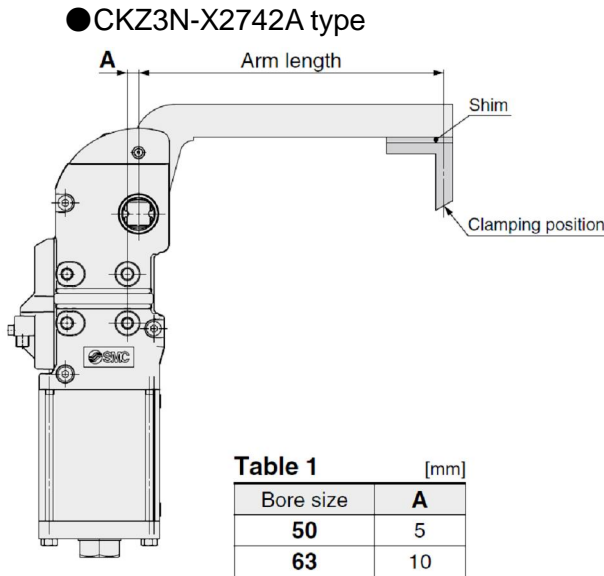
- A) Supply air to the clamping port without installing the upper hard stop, and operate the clamp arm to the end of the clamp.
- B) In the state of A), attach the upper hard stop and adjust shim ① so that there is a space of about 0 mm between the upper hard stop and the hard stop.
During this step, 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.
The thickness of the shim changes depending on the distance to the hard stop and the operating pressure.
Refer to page 8 to 10, 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.

3 Relation between shim thickness and clamping force

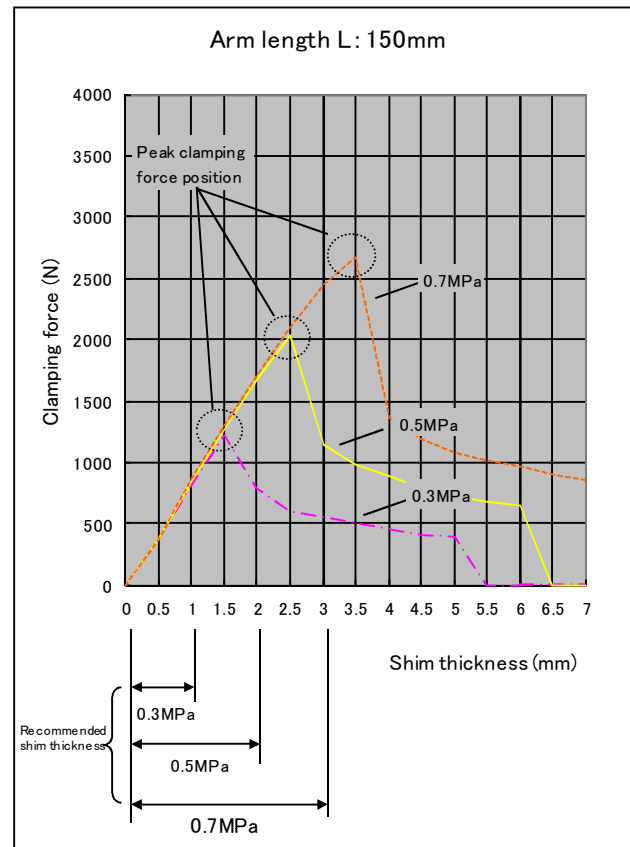
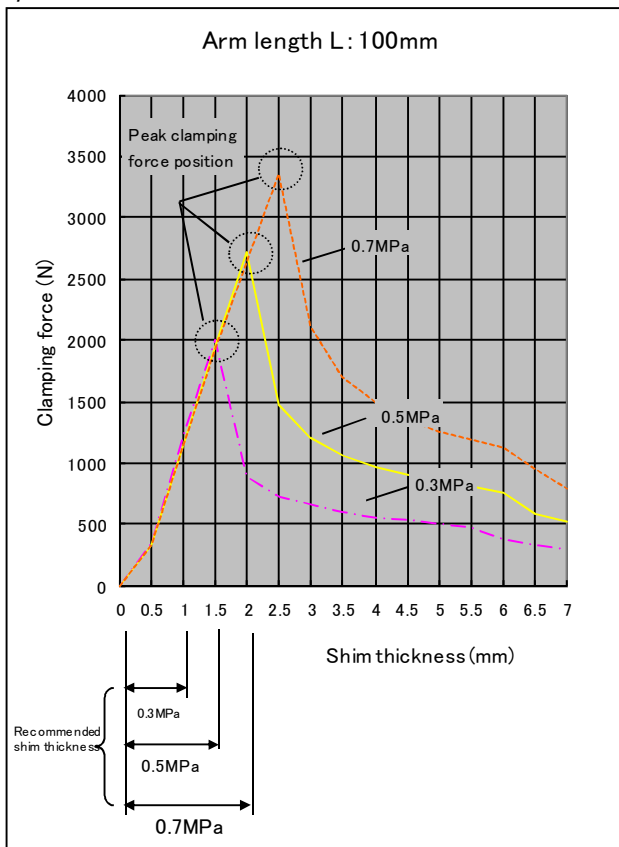
- * Use this figure as a guide as there is a tolerance of about 10% in the clamp cylinder body.
- * When a shim exceeding the peak clamping force position on the graph is inserted, the lock will not be activated when clamped.

Insert a shim of the appropriate thickness.

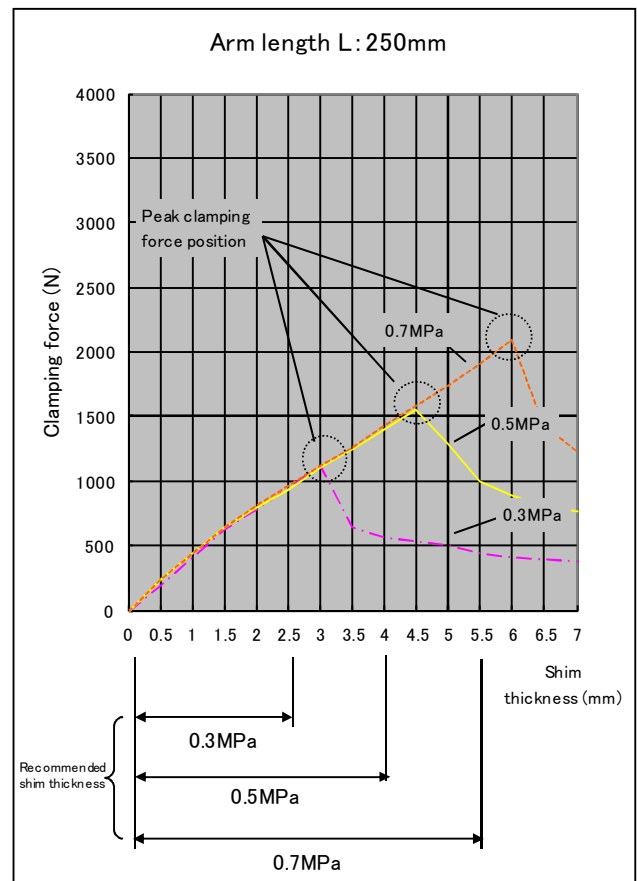
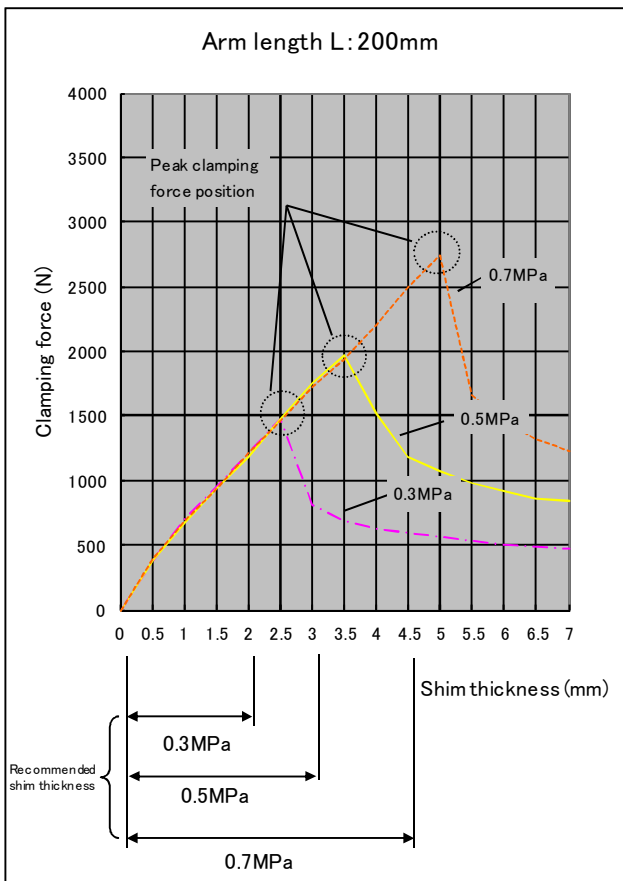
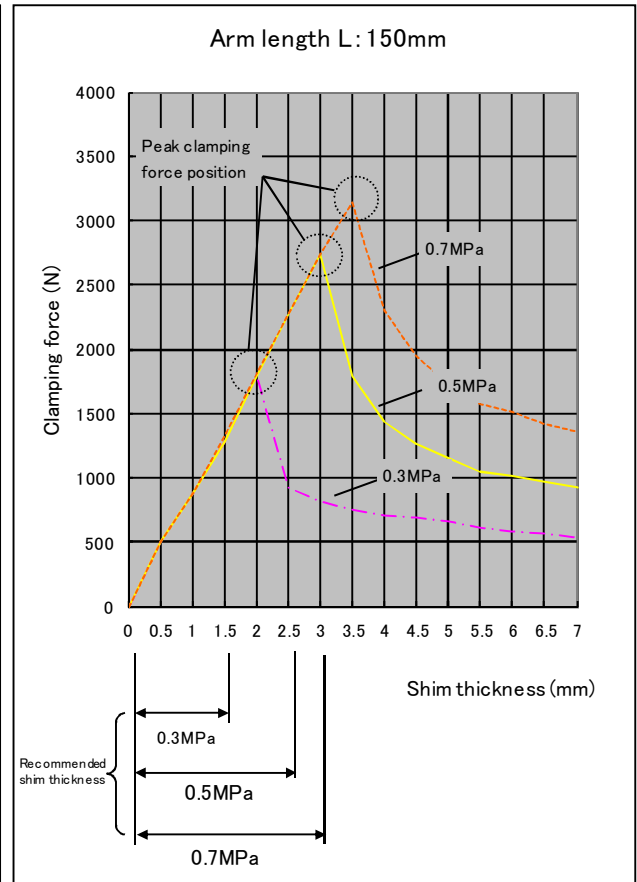
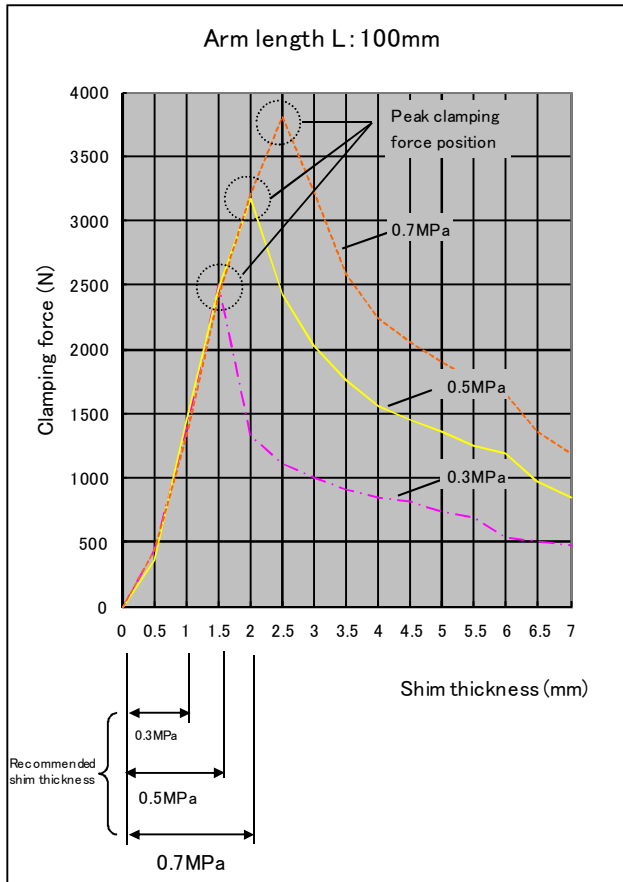
- * The arm length indicates the distance between the clamp arm shaft and the clamping position. For distance **A** between the knock positioning pinhole and the clamp arm shaft, refer to Table 1.



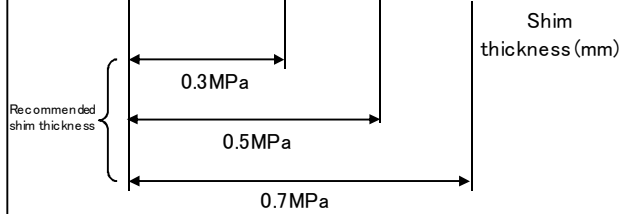
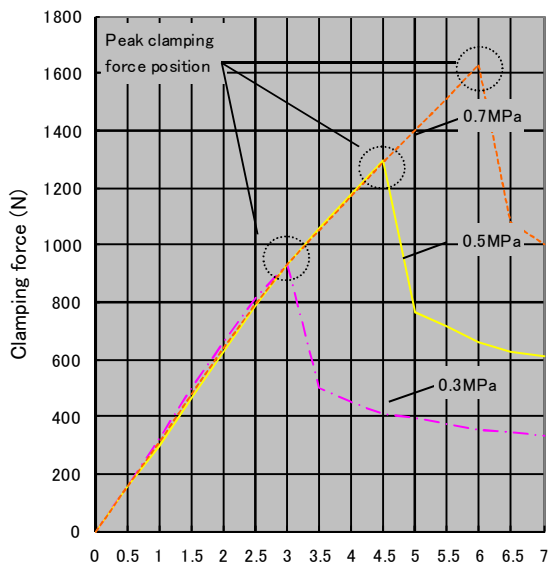
φ50



φ63



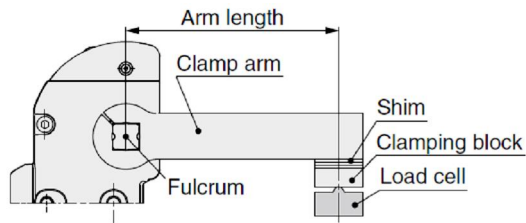
Arm length L : 300mm



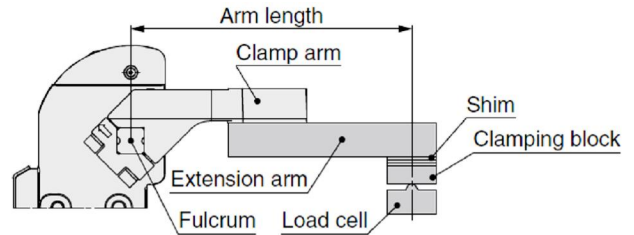
4 Clamp arm

Relation between arm length and clamping force

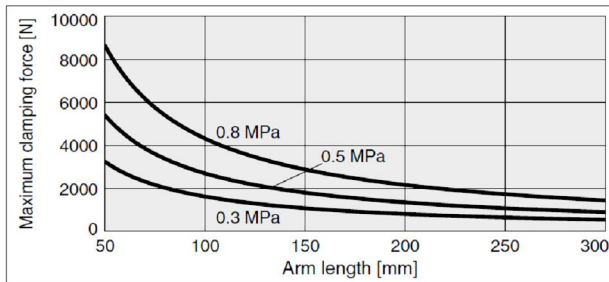
●CKZ3N-X2742A type



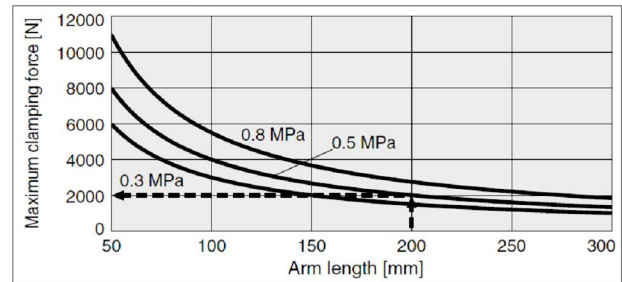
●CKZ3T-X2734 type



Bore size: 50



Bore size: 63

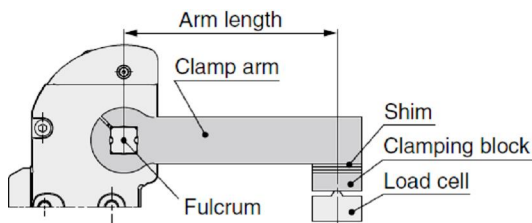


Calculation example Bore size: 63, Arm length: 200 mm, Operating pressure: 0.5 MPa

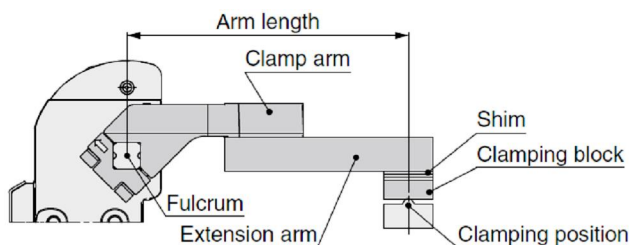
With an arm length of 200 mm and an operating pressure of 0.5 MPa, according to the graph, the maximum clamping force is 2000 N.

Allowable arm length

●CKZ3N-X2742A type



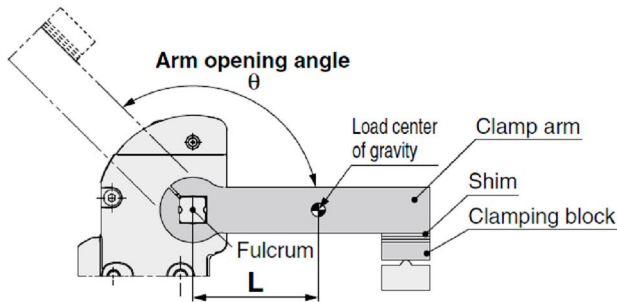
●CKZ3T-X2734 type



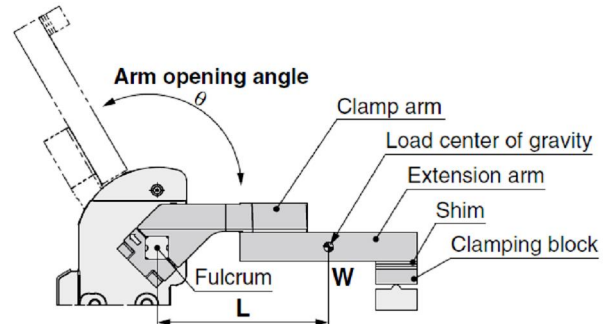
[mm]	
Bore size	Allowable arm length
50	300
63	300

■ Allowable load mass

● CKZ3N-X2742A type



● CKZ3T-X2734 type



The allowable load mass changes depending on the arm opening angle.

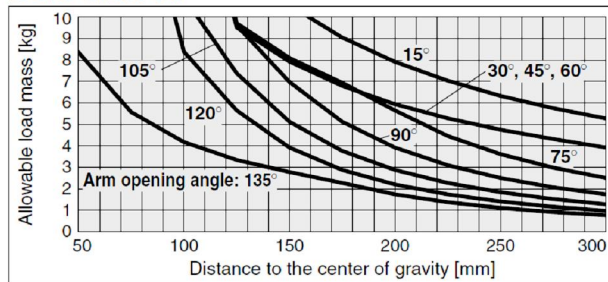
Be sure to use the product within the allowable values shown in the graphs below.

- * The load indicates the total weight of the clamp arm and clamping block.
- * When the operating time is 1 second

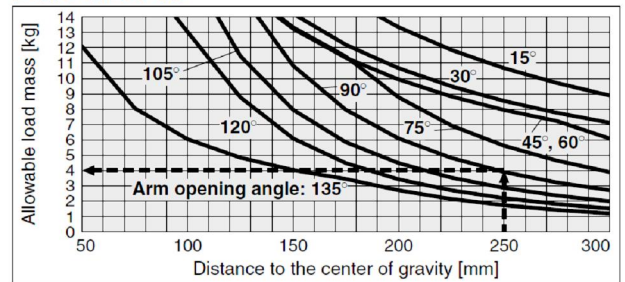
Calculation procedure for allowable load mass

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



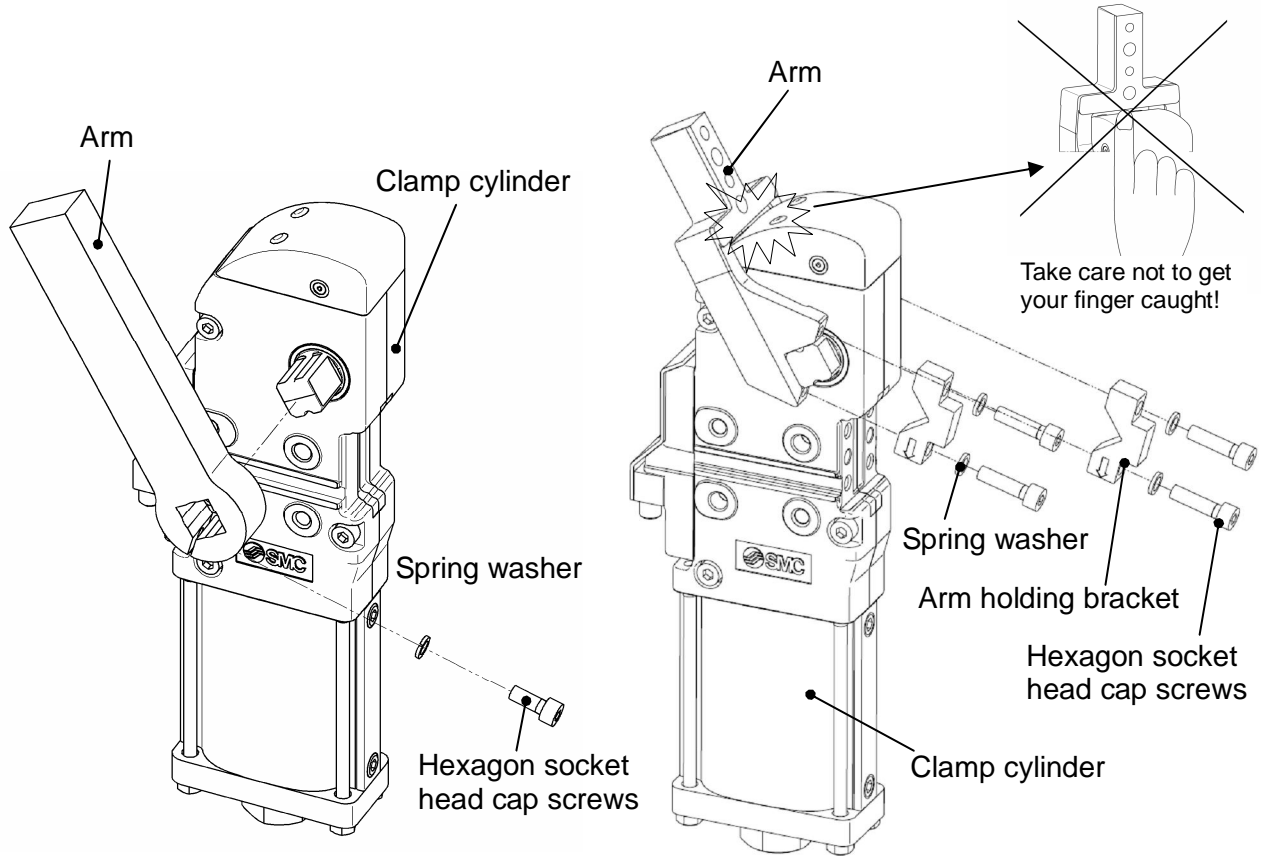
Bore size: 63



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.

■ Mounting of the arm

- 1) Make sure that the air has been discharged from the cylinder.
- 2) Mount the arm to the clamp cylinder, then tighten it with the hexagon socket head cap screws to the tightening torque below.



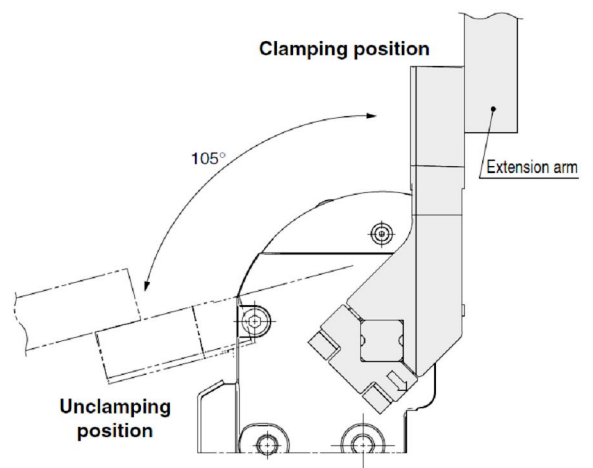
Bore size (mm)	Tightening torque (N·m)
50	12 to 15
63	15 to 20

The clamp arm may interfere with the cylinder body depending on the mounting method. Be sure to check for interference.

■ Vertical clamping (CKZ3T-X2734 type only)

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.



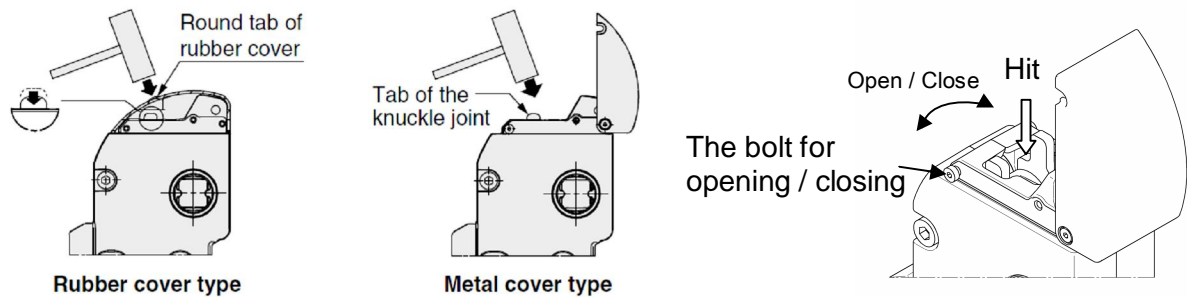
5 Manual lock release

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.

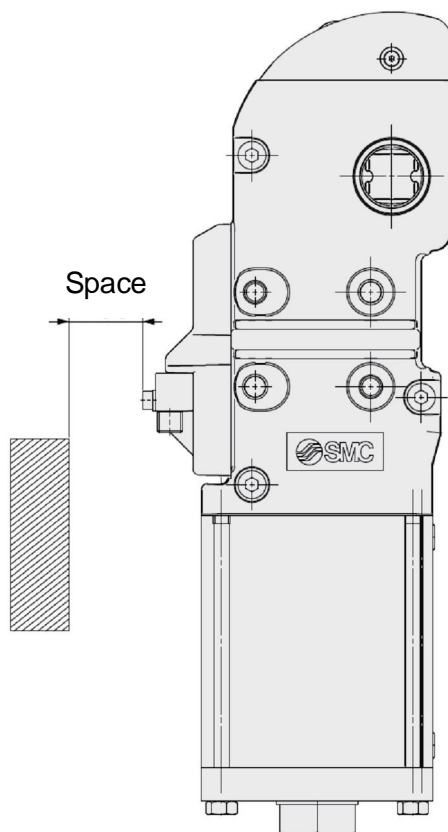
[Tightening torque of the clamp arm is 1.5 to 2.0 N · m]



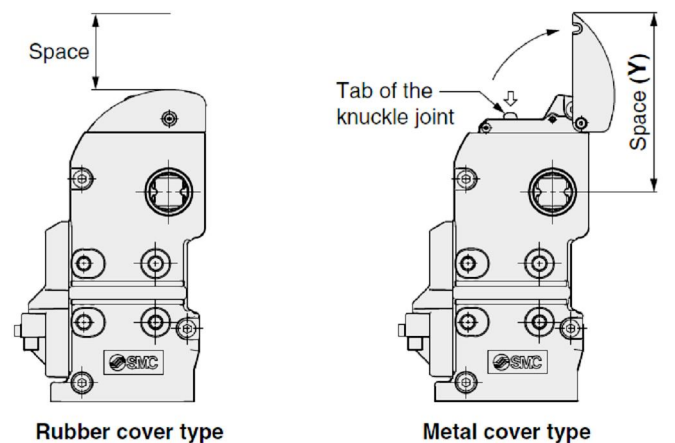
6 Space in design

Leave sufficient space in the below position.

- Space to wiring a proximity switch



- Space to perform a manual lock release



Bore size	Y [mm]
50	132
63	138

7 To change the arm opening angle

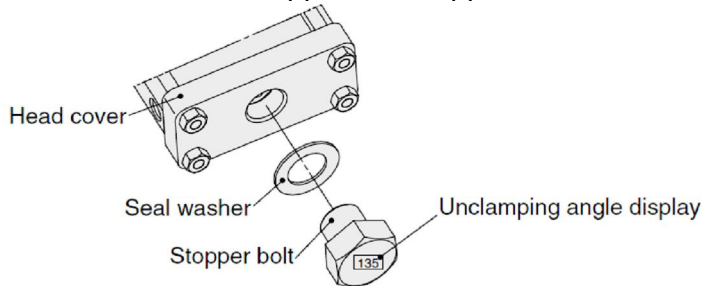
⚠ Caution Be sure to confirm safety, and perform the work while the air is exhausted.

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 (CKZ3N-X2742A : P.20., CKZ3T-X2734 : P.29) for the part numbers of the applicable stopper bolts.



Stopper Bolt Tightening Torque

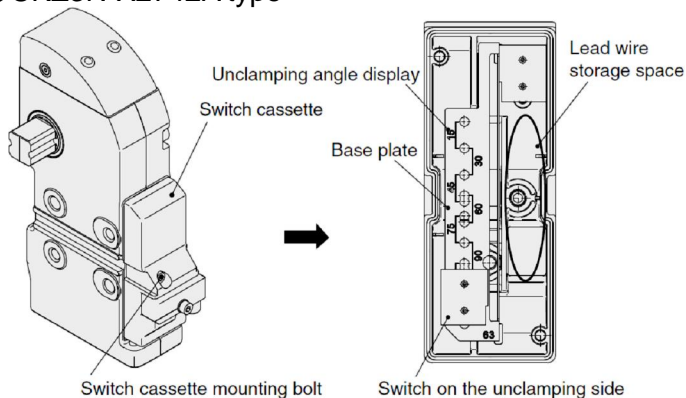
Bore size	Tightening torque [N·m]
50	45 to 65
63	85 to 115

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 (CKZ3N-X2742A : P.20, CKZ3T-X2734 : P.29) for the part numbers of the switch cassette replacement parts.

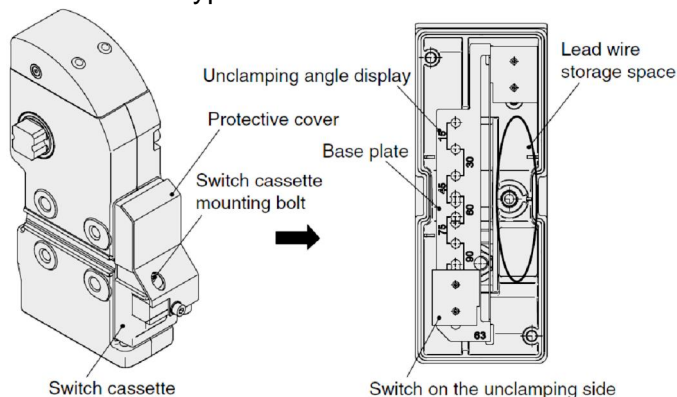
●CKZ3N-X2742A type



Switch Cassette Mounting Bolt Tightening Torque

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

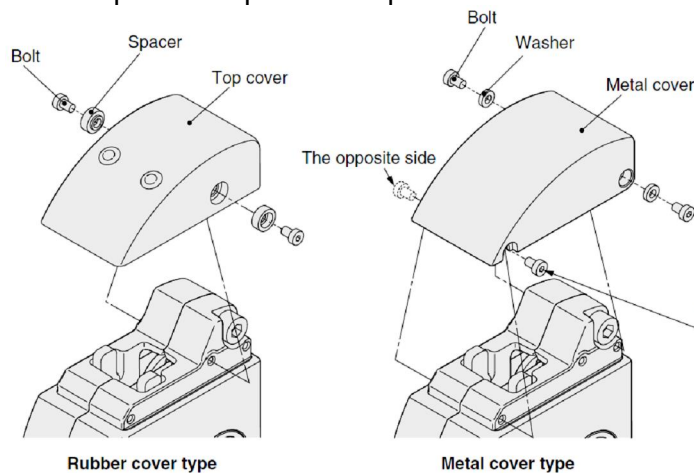
●CKZ3T-X2734 type



8 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 (CKZ3N-X2742A : P.20, CKZ3T-X2734 : P.29) for the part numbers of the top cover replacement parts.

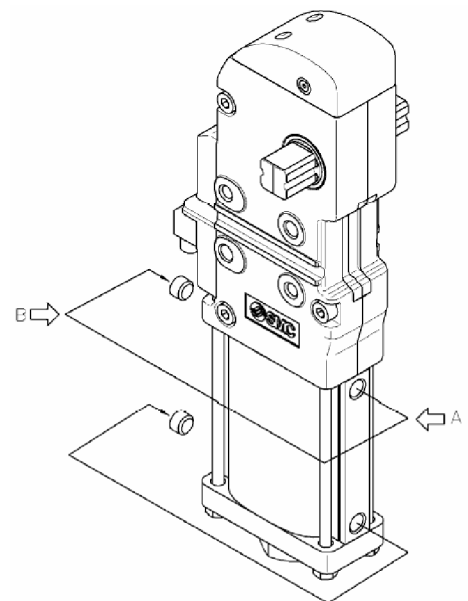


Top Cover Mounting Bolt Tightening Torque

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

9 Change of the piping port position

- 1) Make sure that the air has been discharged from the cylinder.
- 2) If the piping port of side A below is used, remove the plug and plug the port of side B with it. Apply seal tape around the plug so that air will not leak during operation.
(Seal tape is not necessary for the G port plug)

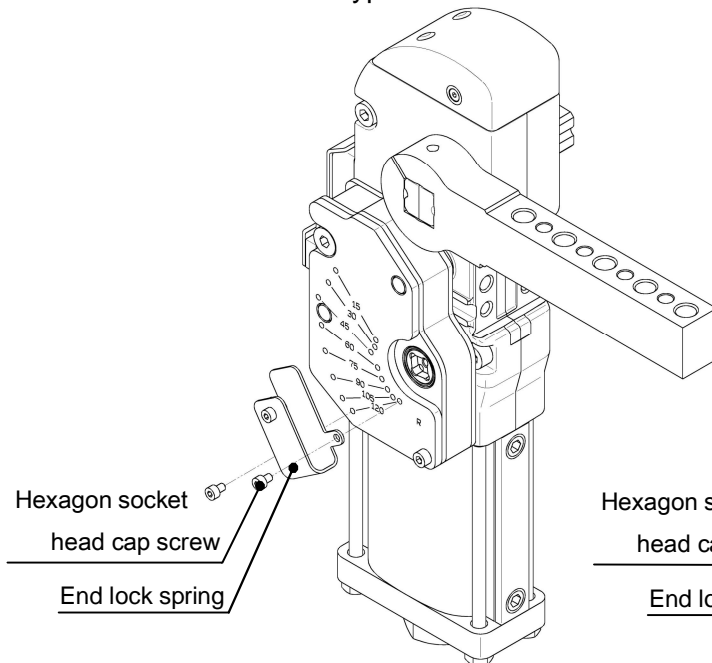


10 Mounting of end lock spring and handle (for X2568)

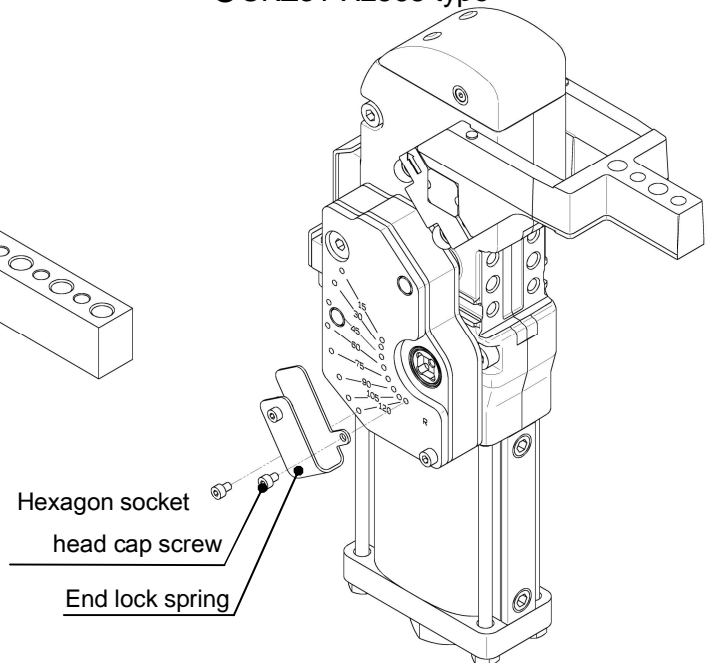
- 1) Place the end lock spring according to the adjusted opening angle which can be seen on end lock plate display.

[Tightening torque : 1.5 to 2.0 N · m]

●CKZ3N-X2568 type



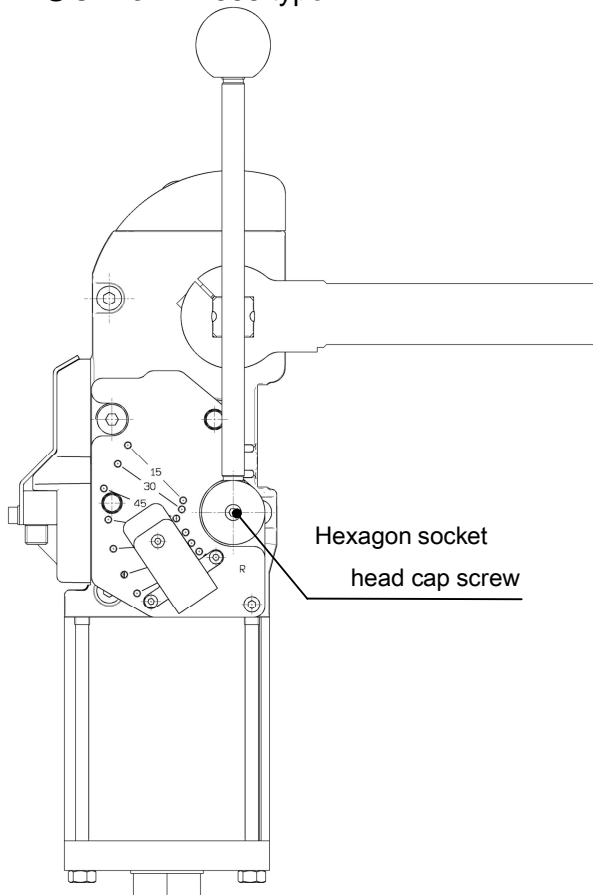
●CKZ3T-X2568 type



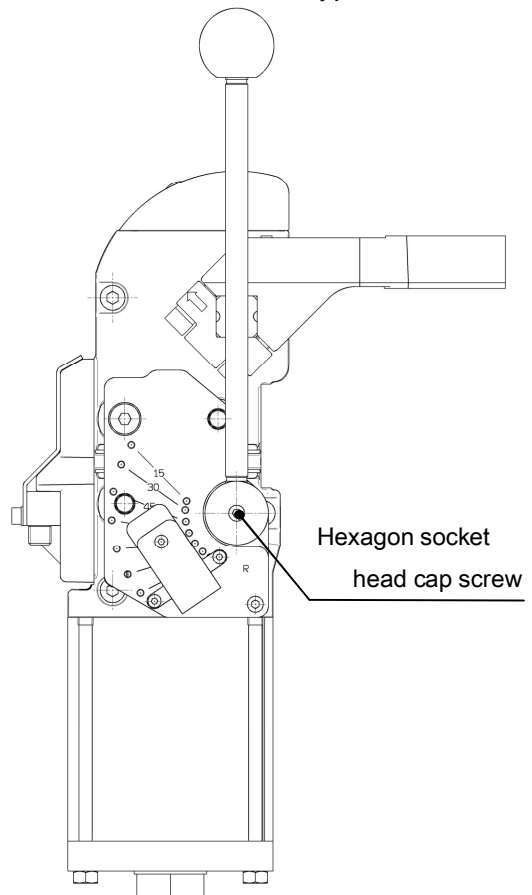
- 2) Mount the manual handle vertically in the clamp position.

[Tightening torque : 3.0 to 3.9 N · m]

●CKZ3N-X2568 type



CKZ3T-X2568 type



NAAMS Standards Compliant Power Clamp Cylinder

CKZ3N-X2742A -X2568□

ø50, ø63

How to Order

Base type

With manually operated handle

With manually operated handle

Metal switch cassette cover

Nil (None)	C (With cover)

Front mounting hole

Nil (No)	F (Yes)

Top cover

Nil	Rubber cover (Equivalent to UL94 Standard V0: Flame resistant)
M	Metal cover

Manually operated handle mounting position

L (Left side mounting)	R (Right side mounting)

* Switch cassette viewed from the front.

CKZ3N 63 □ - 120 R T □ F □ - X2742A

CKZ3N 63 □ - 120 R T C F □ - X2568 L

Bore size

50	ø50 equivalent
63	ø63 equivalent

Cylinder port

Nil	NPT
TF	G
TP	Rc

Arm opening angle

Symbol	Arm opening angle	X2742A	X2568□
15	15°	○	○
30	30°	○	○
45	45°	○	○
60	60°	○	○
75	75°	○	○
90	90°	○	○
105	105°	○	○
120	120°	○	○
135	135°	○	—

Clamp arm position

R	L	D
Right	Left	Both sides

* Proximity switch mounting surface viewed from the front.

Proximity switch

T	TURCK
P	P&F
W	None

Clamp arm

CKZ-63 A002

Mounted arm

Bore size

50	ø50 equivalent
63	ø63 equivalent

Clamp arm code
(Refer to pages 23 to 26.)

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 sec. or more, Unclamping: 1 sec. or more	
Max. allowable holding moment*1	800 N·m	1500 N·m

*1 Refers 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 position	Arm opening angle									Additional weight of the manually operated handle [kg]
		15°	30°	45°	60°	75°	90°	105°	120°	135°	
50	R/L	3.3	3.3	3.3	3.3	3.2	3.2	3.2	3.2	3.2	1.7
	D	3.4	3.3	3.3	3.3	3.3	3.3	3.3	3.2	3.2	
63	R/L	4.6	4.6	4.5	4.5	4.5	4.4	4.4	4.4	4.4	1.7
	D	4.7	4.7	4.6	4.6	4.6	4.5	4.5	4.5	4.5	

* Refer to pages 23 to 26 for the weight of clamp arms.

Cylinder Stroke

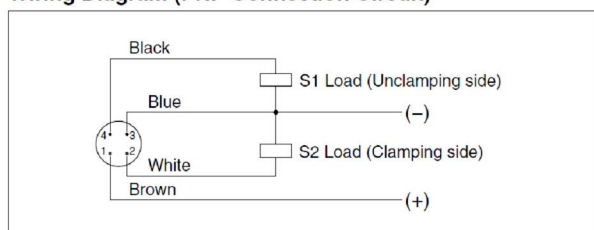
Bore size	Arm opening angle									[mm]
	15°	30°	45°	60°	75°	90°	105°	120°	135°	
50	22.7	31.9	39.7	47.2	54.8	62.7	70.4	77.2	82.1	
63	24.2	34.2	42.6	50.6	58.7	66.9	74.8	81.6	86.4	

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
Voltage indication	Green	Green
Connector	M12 connector	M12 connector

* Switch specifications correspond to the manufacturers' technical information.

Wiring Diagram (PNP Connection Circuit)



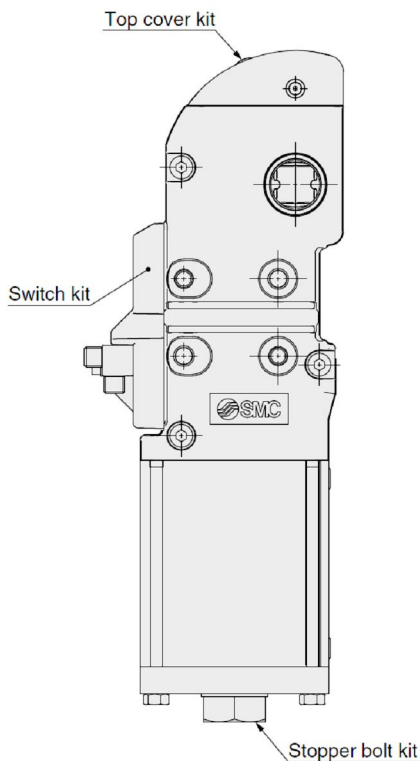
Connection (Female side) Connector Cable

Use M12-4 pin socket (female) A cord.

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

CKZ3N-X2742A -X2568□

Replacement Parts



Switch kit no.

CKZ3N-S 050 T - X2742A

Bore size

050	ø50 equivalent
063	ø63 equivalent

Proximity switch

T	TURCK
P	P&F
W	None

Metal switch cassette cover

X2742A	None
X2734	With cover

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

Stopper bolt kit no.

CKZ3N-B 050 D

Bore size

050	ø50 equivalent
063	ø63 equivalent

Arm opening angle

J	15°
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.

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

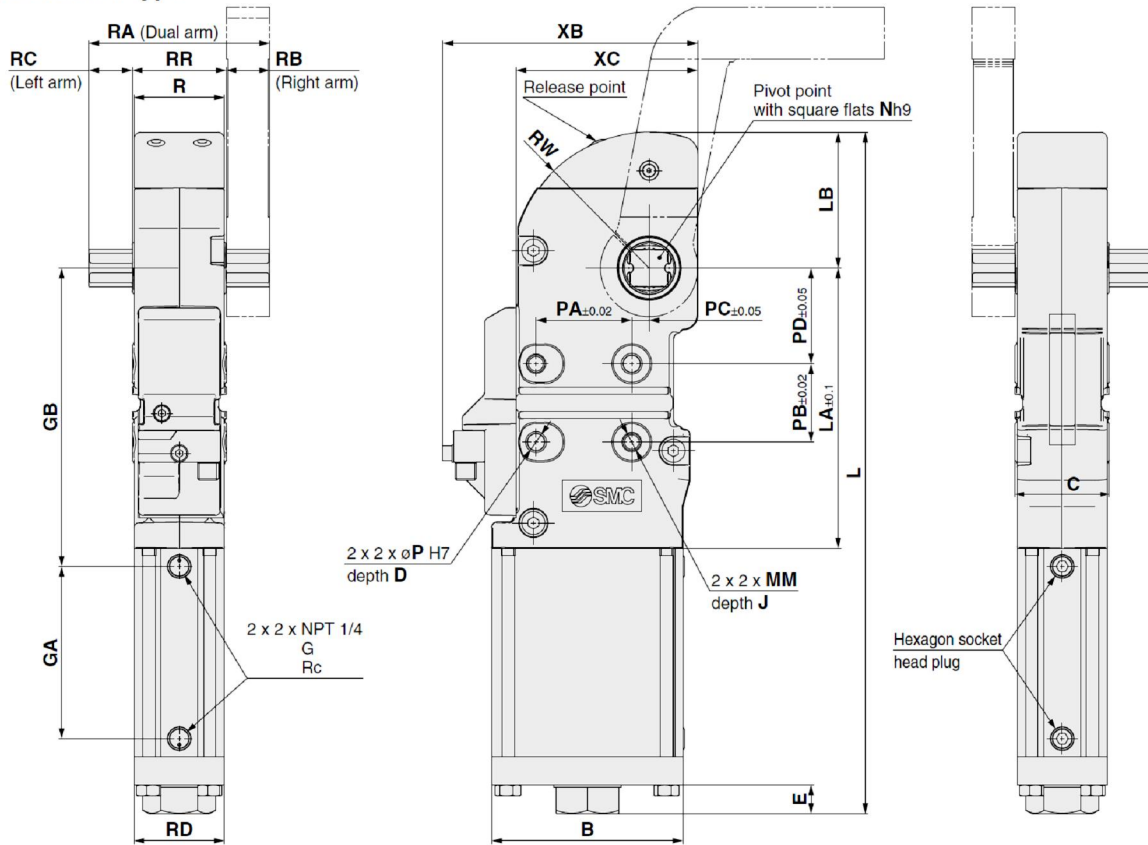
050	ø50 equivalent
063	ø63 equivalent

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

* Refer to page 15 and 16 for procedures for changing the stopper bolt and switch positions and for top cover replacement instructions.

Dimensions: Base Type

Rubber cover type

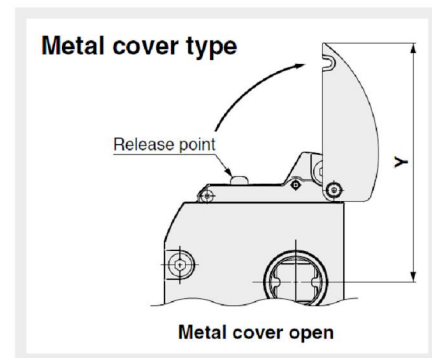
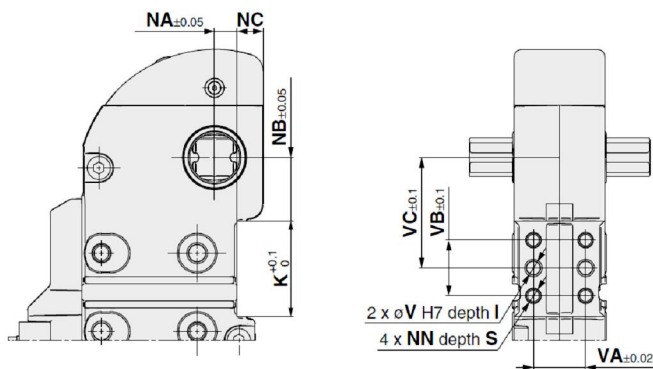


[mm]

Bore size	B	C	D	E	GA	GB	J	L	LA	LB		MM	N	P
										Rubber cover	Metal cover			
50	92	48	12	13.7	95	166	12	376.6	155.5	78.4	78.4	M8 x 1.25	19	8
63	110	54	15	16.6	99	171.5	12	391.6	161	78	78.4	M10 x 1.5	22	10

Bore size	PA	PB	PC	PD	R	RA	RB	RC	RD	RR	W	XB		XC	Y
												Without switch cover	With switch cover		
50	45	45	5	40	46	88	20	20	46	48	78.4	134	136	92	132
63	55	45	10	55	52	104	25	25	52	54	78	146.5	148.5	104.5	138

With front mounting hole

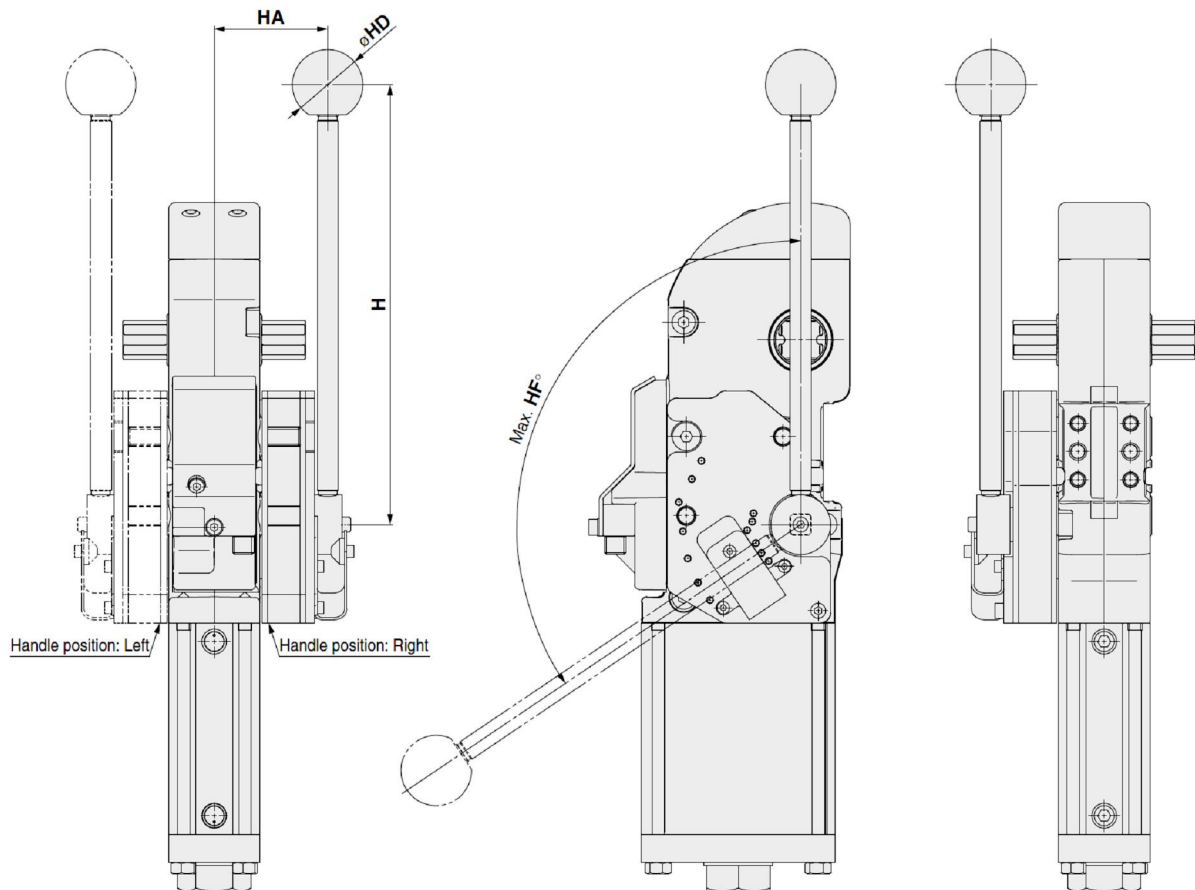


[mm]

Bore size	I	K	NA	NB	NC	NN	S	V	VA	VB	VC
50	12	55	13	36.5	9.5	M8 x 1.25	11	8	30	32	63.5
63	15	55	13	36.5	15	M8 x 1.25	13	8	30	32	63.5

CKZ3N-X2742A -X2568□

Dimensions: With Manually Operated Handle



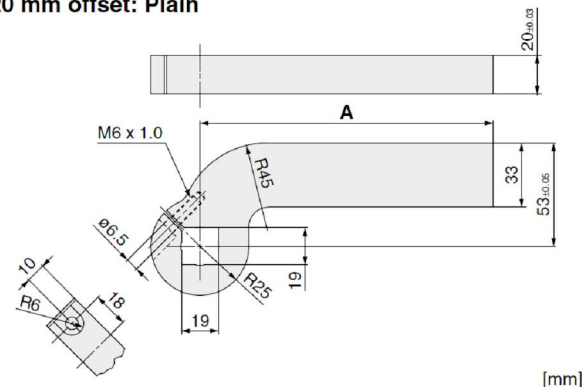
[mm]			
Bore size	H	HA	HD
50	250	61.5	40
63	250	64.5	40

Bore size	Arm opening angle	HF°
50	15°	36
	30°	49
	45°	61
	60°	73
	75°	87
	90°	101
	105°	114
63	120°	124
	15°	41
	30°	55
	45°	68
	60°	81
	75°	94
	90°	107
	105°	117
	120°	124

CKZ3N-X2742A -X2568

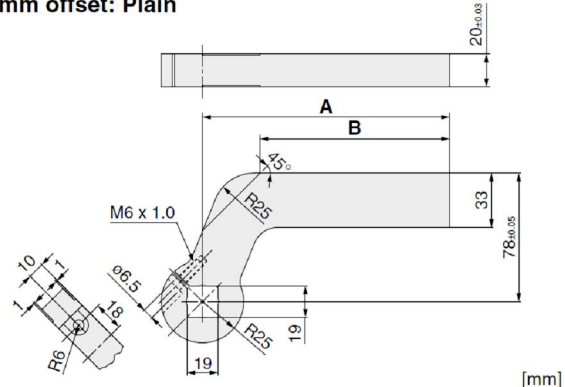
Dimensions: Clamp Arm **Bore Size 50**

20 mm offset: Plain



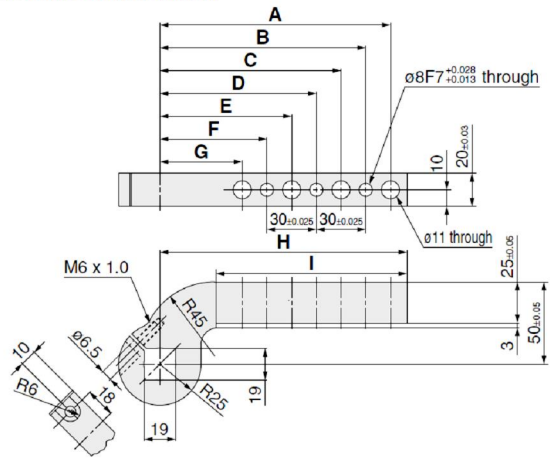
Model	NAAMS code	A	Weight [kg]
CKZ-50A007	ACA211M	90.0	0.7
CKZ-50A008	ACA212M	120.0	0.8
CKZ-50A009	ACA213M	150.0	1.0

45 mm offset: Plain



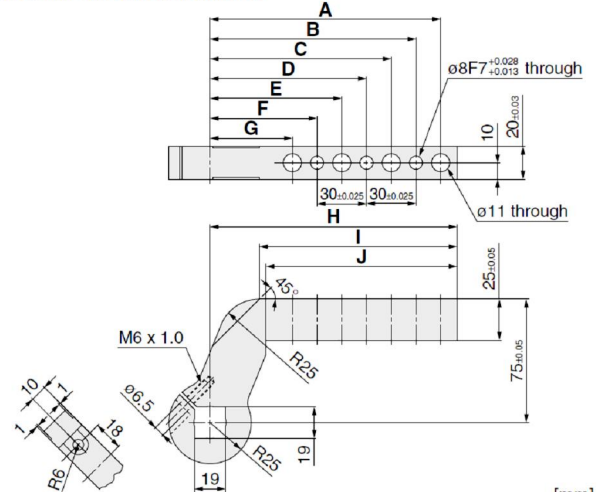
Model	NAAMS code	A	B	Weight [kg]
CKZ-50A013	ACA221M	90.0	55.0	0.8
CKZ-50A014	ACA222M	120.0	85.0	0.9
CKZ-50A015	ACA223M	150.0	115.0	1.1

25 mm offset: Machined



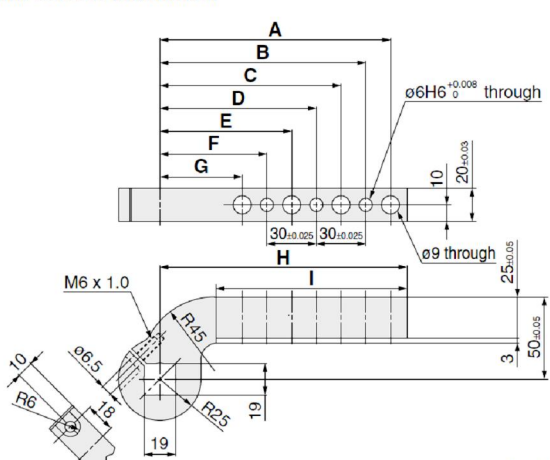
Model	NAAMS code	A	B	C	D	E	F	G	H	I	Weight [kg]
CKZ-50A010	ACA216M	80.0	65.0	50.0	—	—	—	—	90.0	56.0	0.5
CKZ-50A011	ACA217M	110.0	95.0	80.0	65.0	50.0	—	—	120.0	86.0	0.6
CKZ-50A012	ACA218M	140.0	125.0	110.0	95.0	80.0	65.0	50.0	150.0	116.0	0.7

50 mm offset: Machined



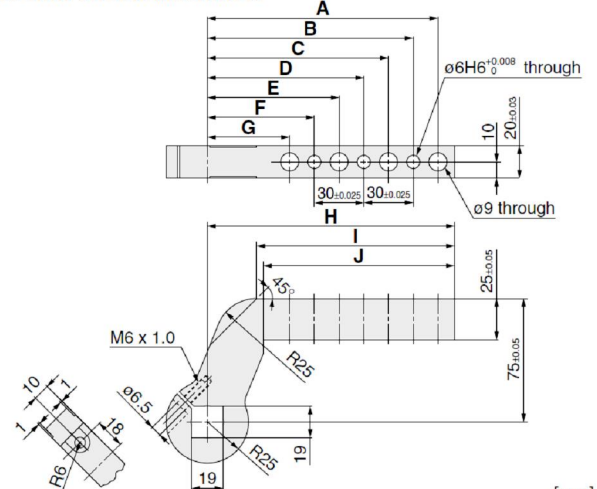
Model	NAAMS code	A	B	C	D	E	F	G	H	I	J	Weight [kg]
CKZ-50A016	ACA226M	80.0	65.0	50.0	—	—	—	—	90.0	60.0	56.0	0.6
CKZ-50A017	ACA227M	110.0	95.0	80.0	65.0	50.0	—	—	120.0	90.0	86.0	0.7
CKZ-50A018	ACA228M	140.0	125.0	110.0	95.0	80.0	65.0	50.0	150.0	120.0	116.0	0.8

25 mm offset: Machined



Model	NAAMS code	A	B	C	D	E	F	G	H	I	Weight [kg]
CKZ-50A022	ACA246M	80.0	65.0	50.0	—	—	—	—	90.0	56.0	0.5
CKZ-50A023	ACA247M	110.0	95.0	80.0	65.0	50.0	—	—	120.0	86.0	0.6
CKZ-50A024	ACA248M	140.0	125.0	110.0	95.0	80.0	65.0	50.0	150.0	116.0	0.7

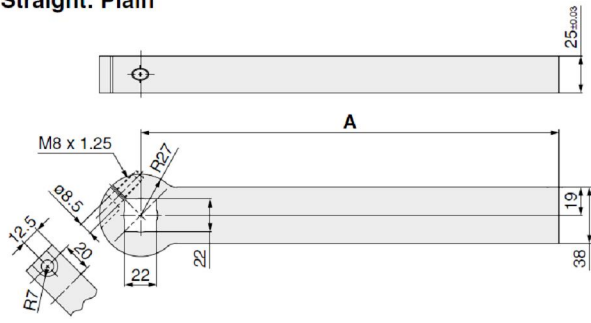
50 mm offset: Machined



Model	NAAMS code	A	B	C	D	E	F	G	H	I	J	Weight [kg]
CKZ-50A025	ACA256M	80.0	65.0	50.0	—	—	—	—	90.0	60.0	56.0	0.6
CKZ-50A026	ACA257M	110.0	95.0	80.0	65.0	50.0	—	—	120.0	90.0	86.0	0.7
CKZ-50A027	ACA258M	140.0	125.0	110.0	95.0	80.0	65.0	50.0	150.0	120.0	116.0	0.8

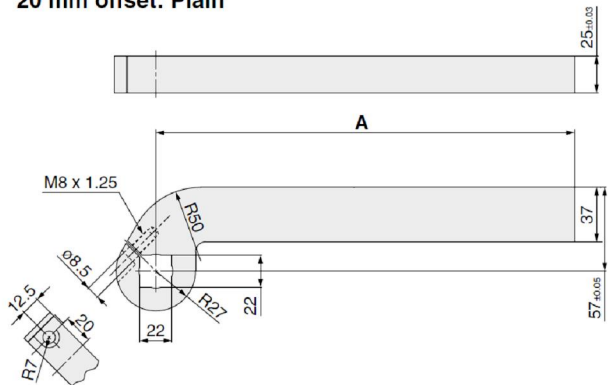
Dimensions: Clamp Arm Bore Size 63

Straight: Plain



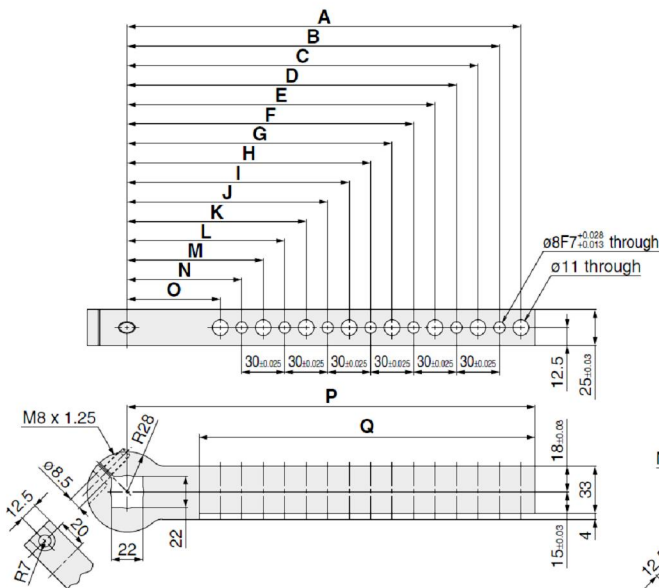
Model	NAAMS code	A	Weight [kg]
CKZ-63A001	ACA001M	135.0	1.2
CKZ-63A002	ACA002M	165.0	1.4
CKZ-63A003	ACA003M	195.0	1.6
CKZ-63A004	ACA004M	225.0	1.8
CKZ-63A005	ACA005M	255.0	2.1
CKZ-63A006	ACA006M	285.0	2.3

20 mm offset: Plain



Model	NAAMS code	A	Weight [kg]
CKZ-63A013	ACA013M	135.0	1.4
CKZ-63A014	ACA014M	165.0	1.6
CKZ-63A015	ACA015M	195.0	1.8
CKZ-63A016	ACA016M	225.0	2.0
CKZ-63A017	ACA017M	255.0	2.2
CKZ-63A018	ACA018M	285.0	2.4

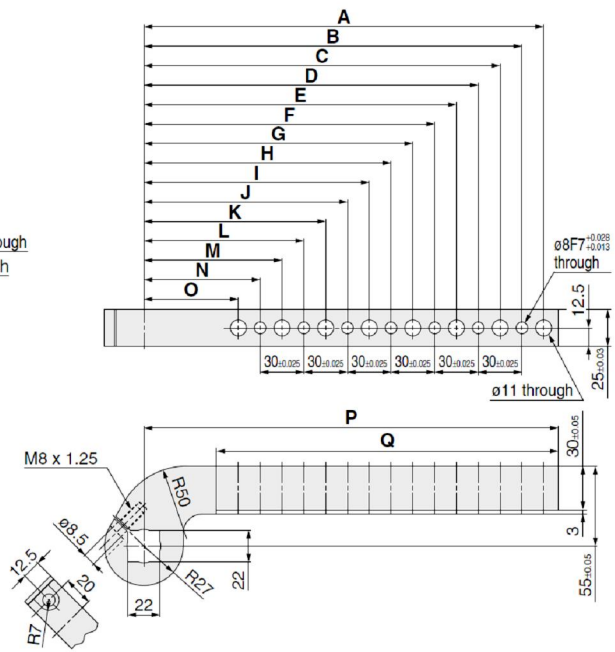
Straight: Machined



Model	NAAMS code	A	B	C	D	E	F	G	H	I
CKZ-63A007	ACA007M	125.0	110.0	95.0	80.0	65.0	—	—	—	—
CKZ-63A008	ACA008M	155.0	140.0	125.0	110.0	95.0	80.0	65.0	—	—
CKZ-63A009	ACA009M	185.0	170.0	155.0	140.0	125.0	110.0	95.0	80.0	65.0
CKZ-63A010	ACA010M	215.0	200.0	185.0	170.0	155.0	140.0	125.0	110.0	95.0
CKZ-63A011	ACA011M	245.0	230.0	215.0	200.0	185.0	170.0	155.0	140.0	125.0
CKZ-63A012	ACA012M	275.0	260.0	245.0	230.0	215.0	200.0	185.0	170.0	155.0

Model	NAAMS code	J	K	L	M	N	O	P	Q	Weight [kg]
CKZ-63A007	ACA007M	—	—	—	—	—	—	135.0	85.0	1.0
CKZ-63A008	ACA008M	—	—	—	—	—	—	165.0	115.0	1.2
CKZ-63A009	ACA009M	—	—	—	—	—	—	195.0	145.0	1.4
CKZ-63A010	ACA010M	80.0	65.0	—	—	—	—	225.0	175.0	1.5
CKZ-63A011	ACA011M	110.0	95.0	80.0	65.0	—	—	255.0	205.0	1.7
CKZ-63A012	ACA012M	140.0	125.0	110.0	95.0	80.0	65.0	285.0	235.0	1.9

25 mm offset: Machined



Model	NAAMS code	A	B	C	D	E	F	G	H	I
CKZ-63A019	ACA019M	125.0	110.0	95.0	80.0	65.0	—	—	—	—
CKZ-63A020	ACA020M	155.0	140.0	125.0	110.0	95.0	80.0	65.0	—	—
CKZ-63A021	ACA021M	185.0	170.0	155.0	140.0	125.0	110.0	95.0	80.0	65.0
CKZ-63A022	ACA022M	215.0	200.0	185.0	170.0	155.0	140.0	125.0	110.0	95.0
CKZ-63A023	ACA023M	245.0	230.0	215.0	200.0	185.0	170.0	155.0	140.0	125.0
CKZ-63A024	ACA024M	275.0	260.0	245.0	230.0	215.0	200.0	185.0	170.0	155.0

Model	NAAMS code	J	K	L	M	N	O	P	Q	Weight [kg]
CKZ-63A019	ACA019M	—	—	—	—	—	—	135.0	85.0	1.3
CKZ-63A020	ACA020M	—	—	—	—	—	—	165.0	115.0	1.5
CKZ-63A021	ACA021M	—	—	—	—	—	—	195.0	145.0	1.6
CKZ-63A022	ACA022M	80.0	65.0	—	—	—	—	225.0	175.0	1.7
CKZ-63A023	ACA023M	110.0	95.0	80.0	65.0	—	—	255.0	205.0	1.9
CKZ-63A024	ACA024M	140.0	125.0	110.0	95.0	80.0	65.0	285.0	235.0	2.1

Power Clamp Cylinder

CKZ3T-X2734

ø50, ø63

How to Order

Base type

CKZ3T 50 [] - 90 T [] - X2734

With manually operated 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	X2734	X2568
15	15°	○	○
30	30°	○	○
45	45°	○	○
60	60°	○	○
75	75°	○	○
90	90°	○	○
105	105°	○	○
120	120°	○	○
135	135°	○	—

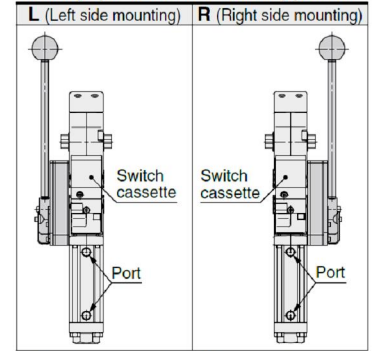
Proximity switch

T	TURCK
P	P&F
W	None

Top cover

Nil	Rubber cover (Equivalent to UL94 Standard V0: Flame resistant)
M	Metal cover

Manually operated handle mounting position



* Switch cassette viewed from the front.

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	D ₁	D ₂
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									Additional weight of the manually operated 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 32 and 33 for the weight of clamp arms.

Cylinder Stroke

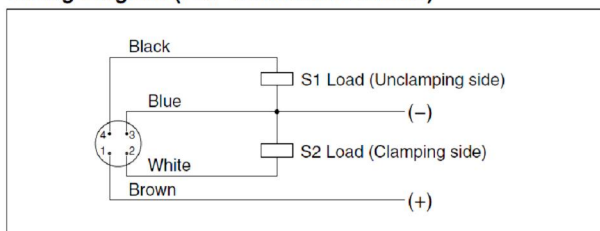
Bore size	Arm opening angle								
	15°	30°	45°	60°	75°	90°	105°	120°	135°
50	22.7	31.9	39.7	47.2	54.8	62.7	70.4	77.2	82.1
63	24.2	34.2	42.6	50.6	58.7	66.9	74.8	81.6	86.4

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
Voltage indication	Green	Green
Connector	M12 connector	M12 connector

* Switch specifications correspond to the manufacturers' technical information.

Wiring Diagram (PNP Connection Circuit)



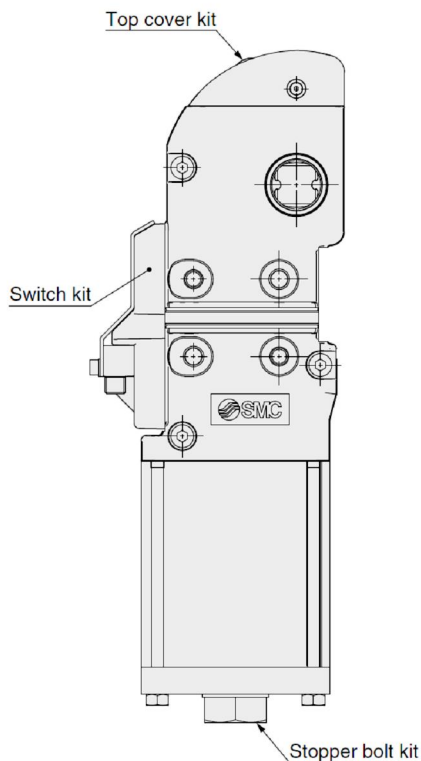
* Applicable to both TURCK and P&F.
* Please contact SMC for NPN specifications.

Connection (Female side) Connector Cable

Use M12-4 pin socket (female) A cord.

CKZ3T-X2734 -X2568

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.

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.

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

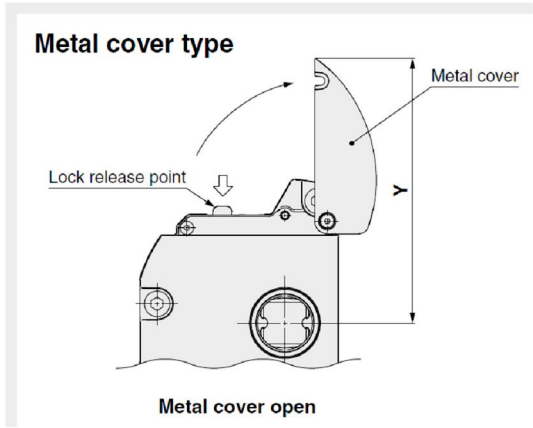
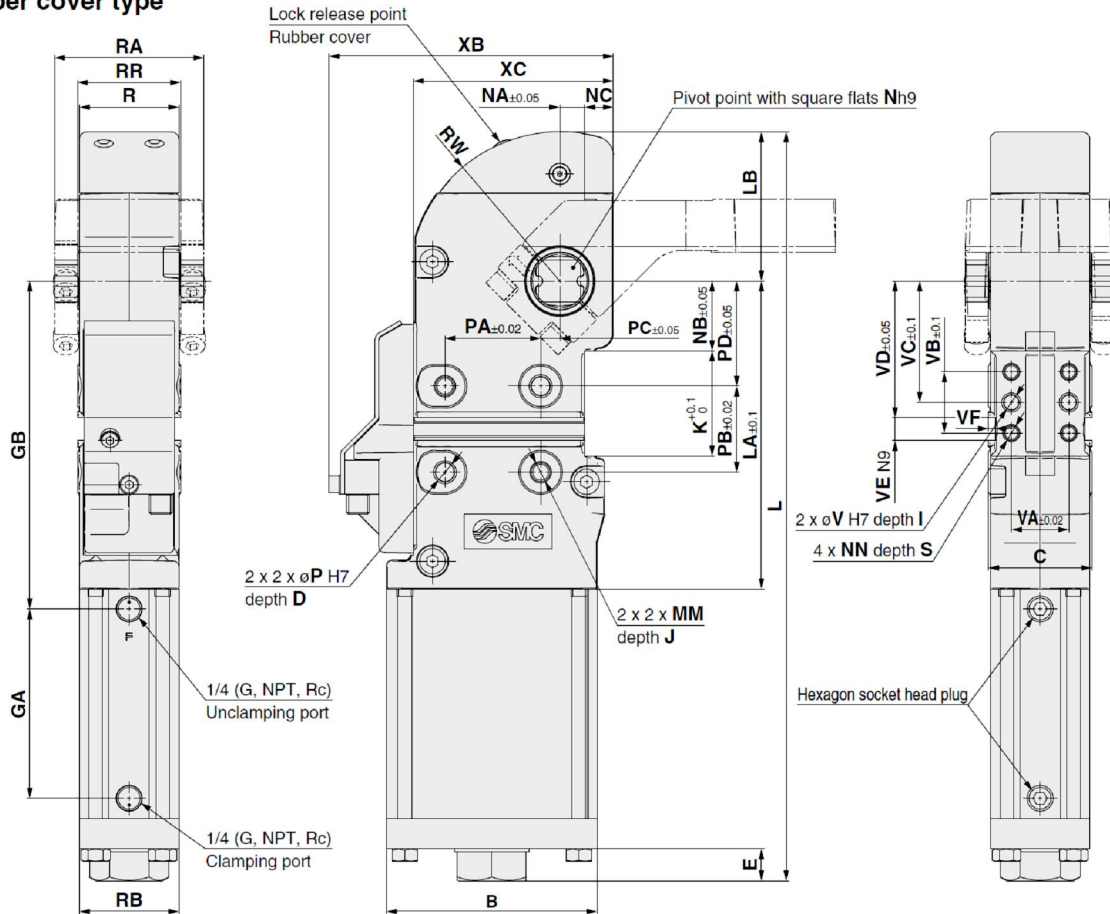
* The top cover kit includes a top cover and mounting brackets.

* Refer to page 15 and 16 for procedures for changing the stopper bolt and switch positions and for top cover replacement instructions.

Dimensions

CKZ3T-X2734

Rubber cover type



[mm]

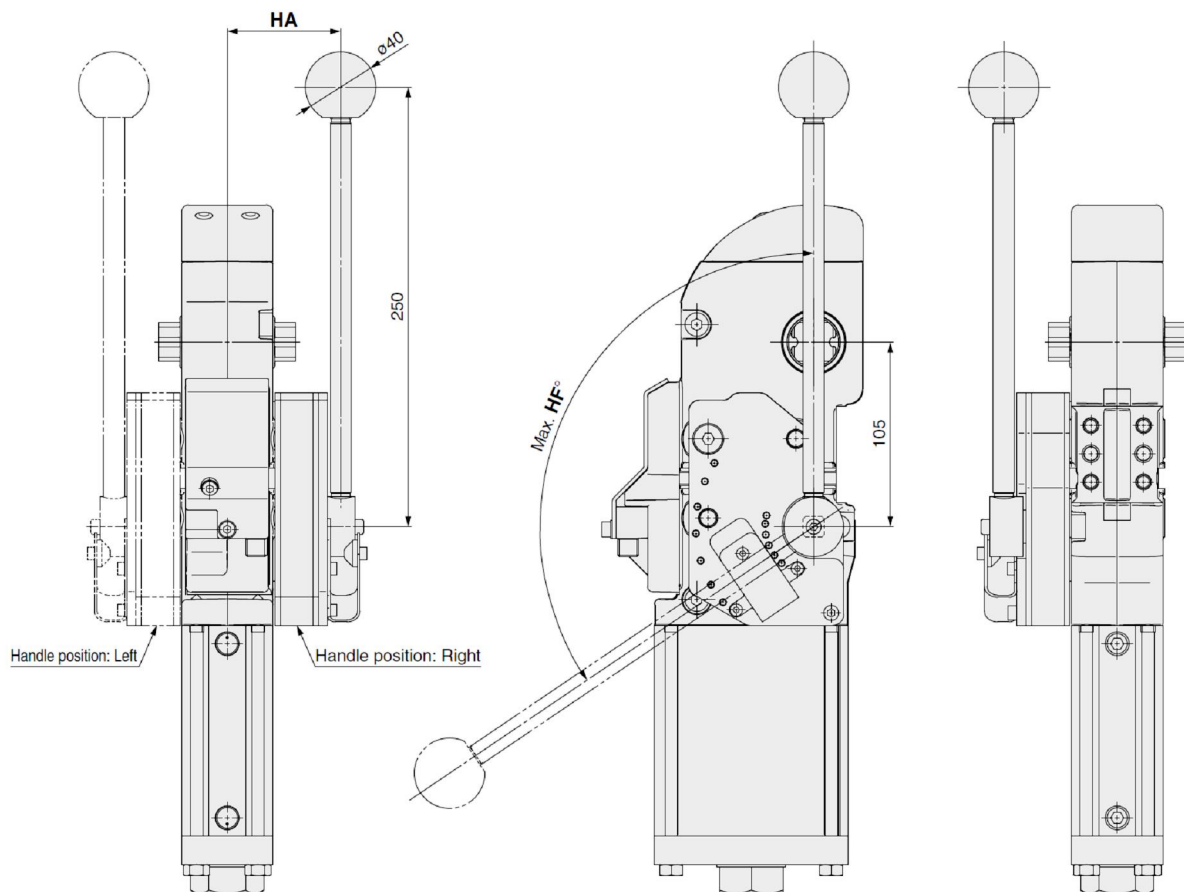
Bore size	B	C	D	E	GA	GB	I	J	K	L	LA	LB		MM	N	NA	NB	NC	NN
												Rubber cover	Metal cover						
50	92	48	12	13.7	95	166	10	12	55	376.6	155.5	78.4	78.4	M10 x 1.5	19	13	36.5	9.5	M8 x 1.25
63	110	54	12	16.6	99	171.5	10	12	55	391.6	161	78	78.4	M10 x 1.5	22	13	36.5	15	M8 x 1.25

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

CKZ3T-X2734 -X2568^L

Dimensions: With Manually Operated Handle

CKZ3T^L-^R-X2568^L

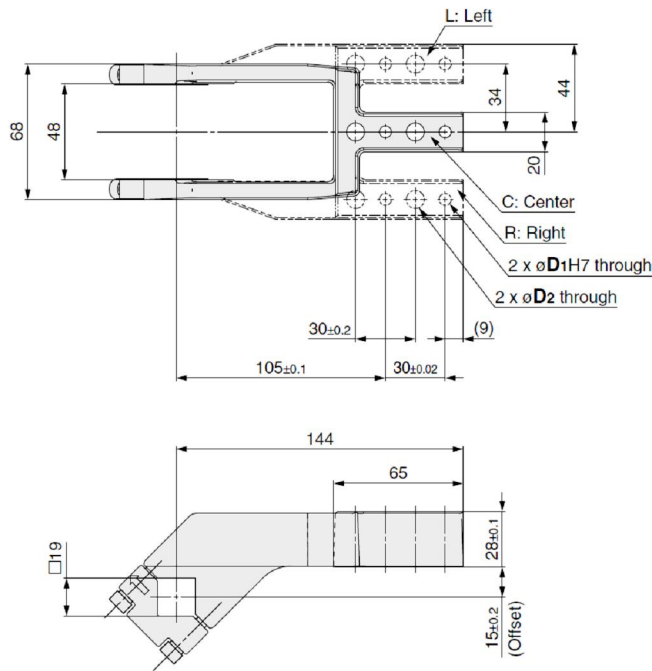


[mm]	
Bore size	HA
50	61.5
63	64.5

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

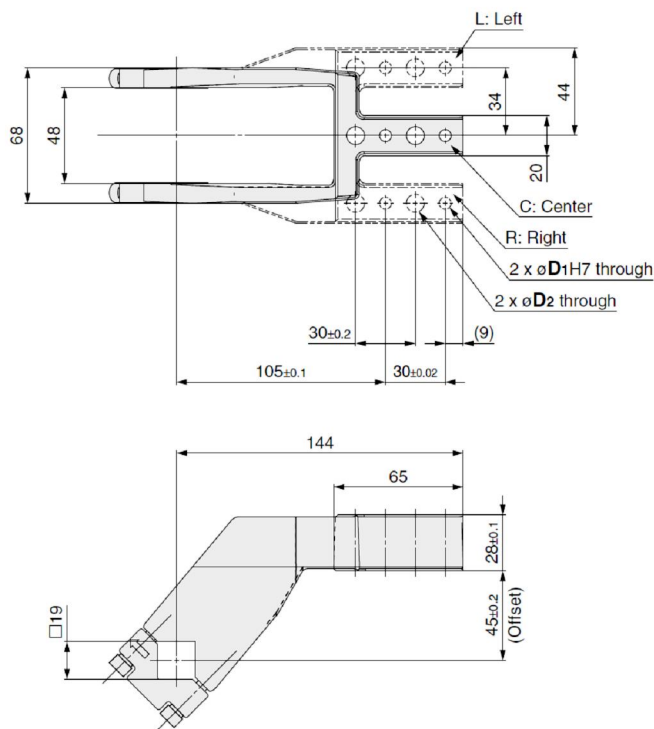
Dimensions: Clamp Arm **Bore Size 50**

Offset 15 mm



Model	D1	D2	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

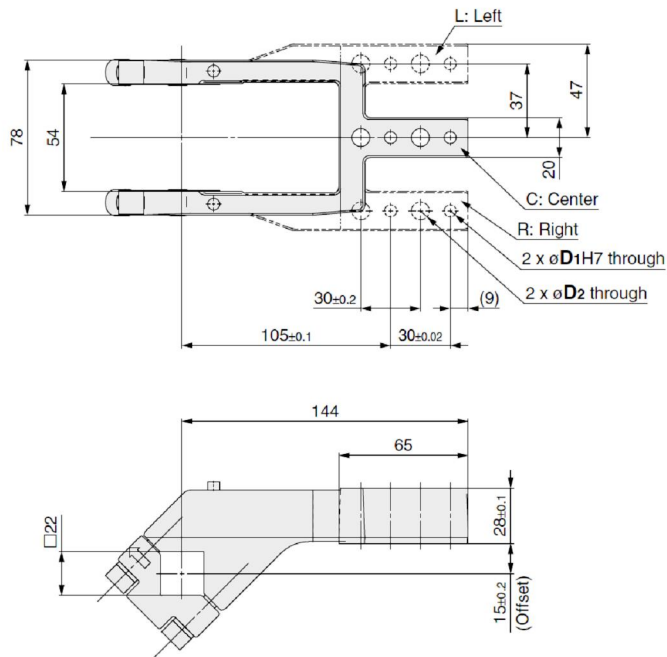


Model	D1	D2	Weight [kg]
CKZT50-A045CS	6	9	0.9
CKZT50-A045CB	8	10.2	0.9
CKZT50-A045RS	6	9	1.0
CKZT50-A045RB	8	10.2	1.0
CKZT50-A045LS	6	9	1.0
CKZT50-A045LB	8	10.2	1.0

CKZ3T-X2734 -X2568

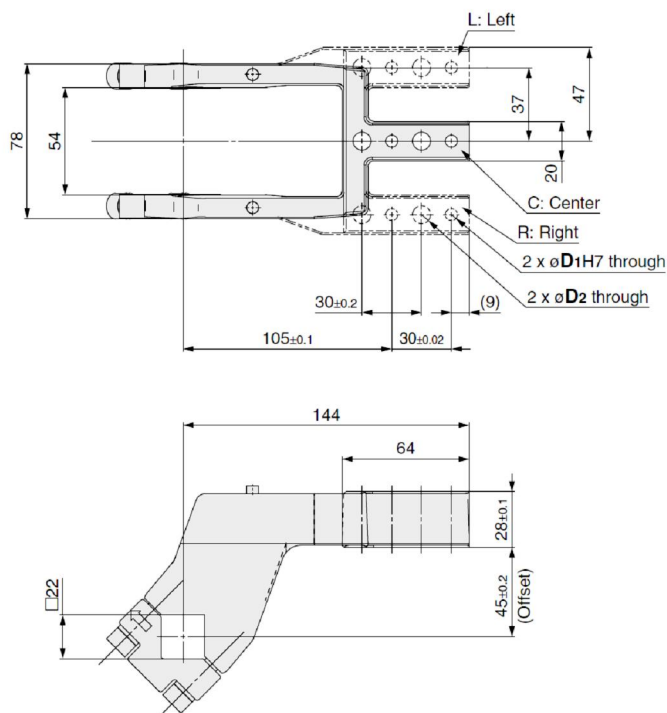
Dimensions: Clamp Arm **Bore Size 63**

Offset 15 mm



Model	D1	D2	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	D1	D2	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

Troubleshooting

Trouble	Possible cause	Countermeasures
Operation has lost smoothness.	1. Insufficient pressure.	· Supply appropriate pressure.
Force has decreased.	1. Insufficient air pressure..	· Supply appropriate pressure.
	2. Insufficient flow rate.	· The resistance in the fluid path may have increased due to deformation or foreign matter entering the product. Perform repair or cleaning.
Clamp arm operation speed is too fast.	1. Speed controller is not used.	· Use a speed controller suitable for the size of the product. Refer to the catalog and operation Manual of the speed controller for details.
	2. Insufficient fine adjustment of the speed controller.	· Select a speed controller, which can be adjusted to the required speed. Refer to the catalog and operation manual of the speed controller for details.
Clamp arm operation speed is too slow.	1. Directional control valve is too small.	· Select directional control valves with suitable size. Refer to the catalog and operation manual of the directional control valve for details.
	2. Resistance of equipment in the piping route is too large.	· Use components and equipment of an appropriate size. It affects the piping diameter and length. Equipment at the exhaust side should also be of an appropriate size. Refer to the catalog and operation manual of the components and equipment for details.
	3. Excessive load weight for clamp arm end.	· Maintain the load weight within allowable weight range.
The product sometimes does not operate.	1. Problem of equipment other than this product.	· Check all items in the system one by one to find the cause. Refer to the catalog and operation manual of the components and equipment for details.
The product has become unable to operate.	1. Problem of equipment other than this product.	· Check all items in the system one by one to find the cause. Refer to the catalog and operation manual of the components and equipment for details.
	2. Insufficient pressure	· Supply appropriate pressure.

Trouble	Possible cause	Countermeasures
Piston speed cannot be adjusted with the speed controller.	1. Incorrect speed controller selection.	<ul style="list-style-type: none"> Use a speed controller suitable for the size of the product. Refer to the catalog and operation manual of the speed controller for details.
	2. Problem of the speed controller.	<ul style="list-style-type: none"> Replace the speed controller with a new one. Refer to the catalog and operation manual of the speed controller for details.
The product has stick and slip movement.	1. Insufficient margin of output.	<ul style="list-style-type: none"> Supply appropriate pressure.
	2. Use of a meter-in circuit.	<ul style="list-style-type: none"> The operation may become unstable if the product is used with meter-in. Use of a meter-out circuit.
The product shows sudden and fast Movement after being stopped for extended periods of time.	1. Fluctuation of residual pressure in the product between continuous operation and operation after stoppage for extended periods of time.	<ul style="list-style-type: none"> Consider the use of a suitable pneumatic circuit to prevent sudden action of the product.
Switch does not turn on (Switch sometimes does not turn on)	1. Power supply failure or connection failure.	<ul style="list-style-type: none"> Check the power supply. Connect the product properly.
	2. Displacement of the switch position.	<ul style="list-style-type: none"> The switch position of the clamp side is different for 50 and 63. Check that the angle indication on the stopper bolt matches the mounting of the switch position on the unclamping side.
	3. Lowered sensitivity of the switch.	<ul style="list-style-type: none"> Eliminate the problem of ambient temperature, vibration, or impact. Replace the switch with a new one if the problem is not solved.
The clamp arm is not locked automatically.	1. The relation between the shim depth and the clamp force is not correct.	<ul style="list-style-type: none"> Adjust the shim properly.
Insufficient clamp force.	1. The relation between the shim depth and the clamp force is not correct.	<ul style="list-style-type: none"> Adjust the shim properly.

Revision history

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