DocumentNo. CKZ*-OM0005P

SMC®

Operation Manual

PRODUCT NAME

POWER CLAMP CYLINDER

MODEL/ Series/ Product Number

CKZ3N Series (Φ50、Φ63)
CKZ3T Series (Φ50、Φ63)

SMC Corporation

Contents

Contents

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 10218-1992: 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

1.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 isdelivered.*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 govemed 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 goveming that export are known and** followed.

Actuators／Precautions

Be sure to read this before handling.

Design / Selection

⚠Warning

①Confirm the specifications.

Products represented in this catalog are designed only for use in compressed air systems.
Do not operate at pressures or temperatures, etc., beyond the range of specifications, as this can cause damage or malfunction.(Refer to the specifications.)
Please contact SMC when using a fluid other than compressed air made by pneumatic equipment.
We do not guarantee against any damage if the product is used outside of the specification range.

②There is a danger of sudden action by cylinders if sliding parts of machinery are twisted, etc., and changes in forces occur.

In such cases, human injury may occur; e.g., by catching hands or feet in the machinery, or damage to the machinery itself may occur. Therefore, the machine should be designed to operate smoothly and to avoid such dangers.

③If there is a chance that the product will pose a hazard to humans, install a protective cover.

If the moving portion of the product will pose a hazard to humans or will damage machinery or equipment, provide a construction that prevents direct contact with those areas.

④Be certain that the secured portions will not loosen.

Be certain to adopt a reliable connecting method if the cylinder is used very frequently or if it is used in a location that is exposed to a large amount of vibration.

⑤Consider the possibility of power source related malfunction that could occur.

For the equipment that rely on power sources such as compressed air, electricity, or hydraulic pressure, adopt a countermeasure to prevent the equipment from causing a hazard to humans or damage to the equipment in the event of malfunction.

⑥Design the circuitry to prevent sudden lurching of driven objects.

When a cylinder is driven by an exhaust center type directional control valve or when starting up after residual pressure is exhausted from the circuit, etc., the piston and its driven object will lurch at high speed if pressure is applied to one side of the cylinder because of the absence of air pressure inside the cylinder. Therefore, select equipment and design circuits to prevent sudden lurching, because there is a danger of human injury and/or damage to equipment when this occurs.

⑦Consider the behavior of the cylinder in the event of an emergency stop.

Devise a safe system so that if a person engages the emergency stop, or if a safety device is tripped during a system malfunction such as a power outage, the movement of the cylinder will not cause a hazard to humans or damage the equipment.

⑧Avoid synchronized operation using cylinders only.

Even if multiple pneumatic cylinders are initially set to the same speed, their speed may vary due to changes in operating conditions. Therefore, avoid designs where a single load is moved by synchronizing multiple cylinder operations.

⑨Consider the action of the cylinder when restarting after an emergency stop.

Devise a safe design so that the restarting of the cylinder will not pose a hazard to humans or damage the equipment. Install manually controlled equipment for safety when the actuator has to be reset to the starting position.

⑩Intermediate stops

When intermediate stopped position is performed with a 3 position closed center type/double check valve type directional control valve, it is difficult to achieve accurate and precise stopped positions due to the compressibility of air.
Furthermore, since valves or cylinders are not guaranteed for zero air leakage, it may not be possible to hold a stopped position for an extended period of time. Please contact SMC in case it is necessary to hold a stopped position for an extended period.

⑪Do not disassemble the product or make any modifications, including additional machining.

Power clamp is completely sealed and protected from welding spatter to avoid internal contamination. Maintenance is not necessary. Do not disassemble any parts other than replaceable parts, otherwise it may reduce the performance of the clamp cylinder.

Actuators／Precautions

Be sure to read this before handling.

Design / Selection

Caution

①Use a speed controller to adjust the cylinder drive speed, gradually increasing from a low speed to the desired speed setting.

②If pressure is applied to the external cylinder parts, there is a possibility that air will get inside the cylinder from the rod seal section.

Mounting

Warning

①Operation manual

The product should be mounted and operated after the operation
manual is thoroughly read and its contents are understood.
Keep the operation manual where it can be referred to as necessary.

②Maintenance space

Allow sufficient space for maintenance and inspection.

③Observe the tightening torque for screws.

Tighten the screws to the recommended torque for mounting the product.

④Do not perform additional machining to the product.

Additional machining to the product can result in insufficient strength and cause damage to the product. This can lead to possible human injury and damage to the surrounding equipment.

⑤Do not enlarge the fixed throttle by modifying the pipe connectors.

If the hole diameter is enlarged, the product's rotation speed will increase, causing the shock force to increase and damage to the product. As a result, it could pose a hazard to humans and damage the machinery and equipment.

Mounting

Caution

①Do not scratch or gouge the sliding parts of the cylinder tube by striking or grasping it with other objects.

Cylinder bores are manufactured to precise tolerances so that even a slight deformation may cause faulty operation.

②Do not use until you verify that the equipment can operate properly.

Verify correct mounting by function and leak tests properly after compressed air and power are connected following mounting or repair.

③Be very careful when handling the product.

Depending on the handling method, there is a risk that the corners of the product will injure your hand or fingers, etc.

Actuators／Precautions

Be sure to read this before handling.

Piping

⚠ Caution

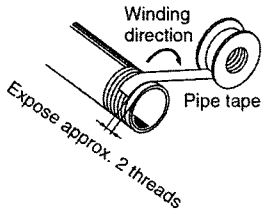
①Refer to the Fittings and Tubing Precautions (pages 38 to 41) for handling one-touch fittings.

②Preparation before piping

Before piping is connected, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil and other debris from inside the pipe.

③Wrapping of pipe tape

When screwing piping or fittings into ports, ensure that chips from the pipe threads or sealing material do not enter the piping.
Also, if pipe tape is used, leave 1.5 to 2 thread ridges exposed at the end of the threads.



Lubrication

⚠ Warning

①Lubricating the cylinder

The cylinder has been lubricated for life at the factory and can be used without any further lubrication.
However, in the event that it is additionally lubricated, be sure to use class 1 turbine oil (with no additive) ISO VG32. Do not use machine oil or spindle oil.
Stopping lubrication later may lead to malfunction because the new lubricant will displace the original lubricant.
Therefore, lubrication must be continued once it has been started.
If turbine oil is used, refer to the corresponding Material Safety Data Sheet (MSDS).

Air Supply

⚠ Warning

①Type of fluids

Please consult with SMC when using the product in applications other than compressed air.

②When there is a large amount of drainage.

Compressed air containing a large amount of drainage can cause malfunction of pneumatic equipment. An air dryer or water separator should be installed upstream from filters.

③Drain flushing

If condensation in the drain bowl is not emptied on a regular basis, the bowl will overflow and allow the condensation to enter the compressed air lines. It causes malfunction of pneumatic equipment.
If the drain bowl is difficult to check and remove, installation of a drain bowl with an auto drain option is recommended.
For compressed air quality, refer to SMC's Best Pneumatics catalog.

④Use clean air.

Do not use compressed air that contains chemicals, synthetic oils including organic solvents, salt or corrosive gases, etc., as it can cause damage or malfunction.

⚠ Caution

①When extremely dry air is used as the fluid, degradation of the lubrication properties inside the equipment may occur, resulting in reduced reliability (or reduced service life) of the equipment. Please contact SMC.

②Install an air filter.

Install an air filter upstream near the valve. Select an air filter with a filtration size of 5 ∝m or smaller.

③Take measures to ensure air quality, such as by installing an aftercooler, air dryer, or water separator.

Compressed air that contains a large amount of drainage can cause malfunction of pneumatic equipment such as valves. Therefore, take appropriate measures to ensure air quality, such as by providing an aftercooler, air dryer, or water separator.

④Ensure that the fluid and ambient temperature are within the specified range.

If the fluid temperature is 5°C or less, the moisture in the circuit could freeze, causing damage to the seals and equipment malfunction. Therefore, take appropriate measures to prevent freezing.
For compressed air quality, refer to SMC's Best Pneumatics catalog.

⑤Precautionary measures against condensation

Moisture condensation can occur inside pneumatic systems due to a drop in temperature caused by the piping or operating conditions. This can degrade or wash away grease, resulting in shortened service life or malfunctions.
For details, refer to the catalog "Precautionary measures against condensation in a pneumatic system" CAT.P-E01-11).

Actuators／Precautions

Be sure to read this before handling.

Operating Environment

Warning

①Do not use in an atmosphere having corrosive gases, chemicals, sea water, water, water steam, or where there is direct contact with any of these.

Long machined parts made by machining plated carbon steel (end threads of piston rods, double-sided chamfer portion, tie rod threads etc.) are not plated. Consider a made-to-order product (-XC6/-XC7) when using in an environment where rusting or corrosion will be a problem. Refer to each construction on drawing on the rotary actuators material.

②Do not expose the product to direct sunlight for an extended period of time.

③Do not use in a place subject to heavy vibration and/or shock.

④Do not mount the product in locations where it is exposed to radiant heat.

⑤A decrease in grease base oil may be accelerated by the properties of compressed air used in pneumatic equipment, the external environment, or operating conditions, etc., and the resulting drop in lubricating performance may have an effect on equipment service life.

Caution

①Internal lubricant and grease base oil may seep out of the cylinder depending on operating conditions. Please consult with SMC in cases where a particularly clean environment is required.

Maintenance

Warning

①Perform maintenance inspection according to the procedures indicated in the operation manual.

If handled improperly, malfunction and damage of machinery or equipment may occur.

②Maintenance work

If handled improperly, compressed air can be dangerous. Assembly, handling, repair and element replacement of pneumatic systems should be performed by a knowledgeable and experienced person.

③Drain flushing

Remove drainage from air filters regularly.

④Removal of equipment, and supply/exhaust of compressed air

When components are removed, first confirm that measures are in place to prevent workpieces from dropping, run-away equipment, etc. Then, cut off the supply pressure and electric power, and exhaust all compressed air from the system using the residual pressure release function.
When machinery is restarted, proceed with caution after confirming that appropriate measures are in place to prevent cylinders from sudden movement.

1 Common precautions for power clamp cylinder

1) Only use the clamp arm in our catalog. Do not weld an arm to the cylinder.
2) Make sure to use a speed controller and adjust it to more clamping to unclamping (or vice versa).
When changing to clamping to unclamping(or vice versa)
3) This product is designed to be used after being adjusted using a shim. For this reason, it is set to between 0° to +0.5° at the clamping end as shown in Fig. 1.
4) Adjust the angle of the clamp end so that the clamp arm contacts the workpiece at 3 degrees or less.
If the clamp arm contacts the workpiece at an angle of 3 degrees or more, the clamp cylinder may be damaged.
5) Refer to the table below for the angle tolerance of the arm during unclamping.

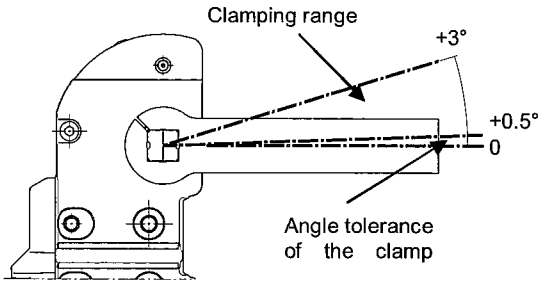
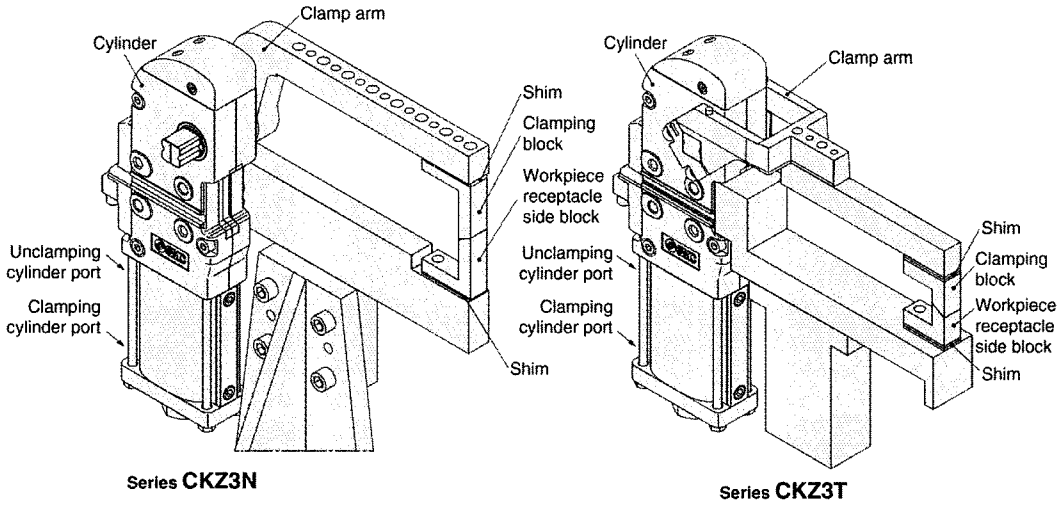


Figure 1

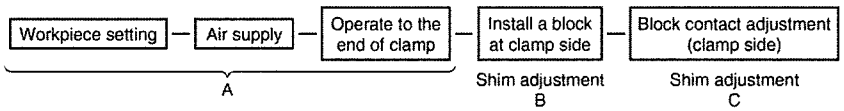
Bore (mm)	Arm angle(°)								
	15	30	45	60	75	90	105	120	135
50	15^{0}_{-4}	30^{0}_{-5}	45^{0}_{-5}	60^{0}_{-5}	75^{0}_{-5}	90^{0}_{-5}	105^{0}_{-5}	120^{0}_{-6}	135^{0}_{-9}
63	15^{0}_{-3}	30^{0}_{-4}	45^{0}_{-5}	60^{0}_{-5}	75^{0}_{-5}	90^{0}_{-5}	105^{0}_{-5}	120^{0}_{-6}	135^{0}_{-9}

2 Power clamp cylinder mounting

■ When clamping by using clamping force only
Example)



■ Mounting process



■ Procedure

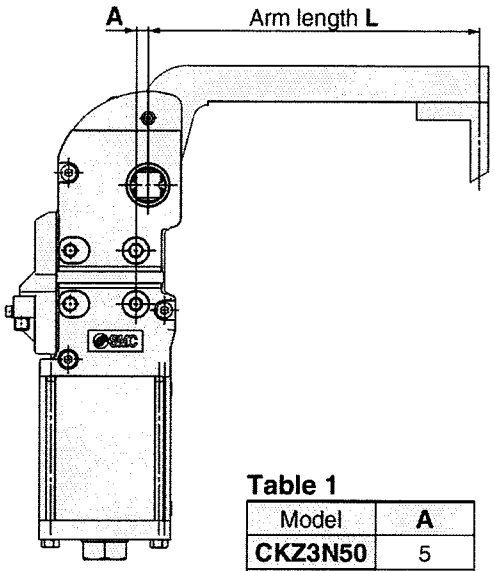
A) Place the workpiece, supply air at clamp side without installing clamping block, operate the clamp arm to the end of clamp.
B) Under the above conditions, adjust shim so that the space between the workpiece and the clamping block is about 0 mm.
Theoretically there is no clamping force for holding a workpiece under this condition.
C) In order to generate clamping force from the state described in step B, insert additional shim. The thickness of the shim differs depending on the arm length and pressure, so please refer to the graph on page 10~12 as a guide.
About 10% error may occur due to the difference in tolerance of the clamp cylinder body.

2 Power clamp cylinder mounting

■ Relation between shim thickness and clamping force

Note) When a shim that exceeds the clamping force peak plotted on the graph is inserted, the self-locking mechanism Insert a shim with appropriate thickness.

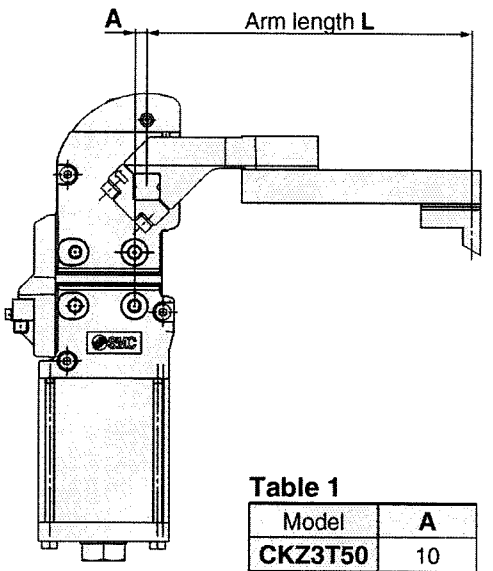
* Arm length "L" indicates the distance between the clamp arm shaft and the clamping position.
For distance "A" between knock positioning pinhole and clamp arm shaft, refer to the Table 1.



Series **CKZ3N**

Table 1

Model	A
CKZ3N50	5
CKZ3N63	10

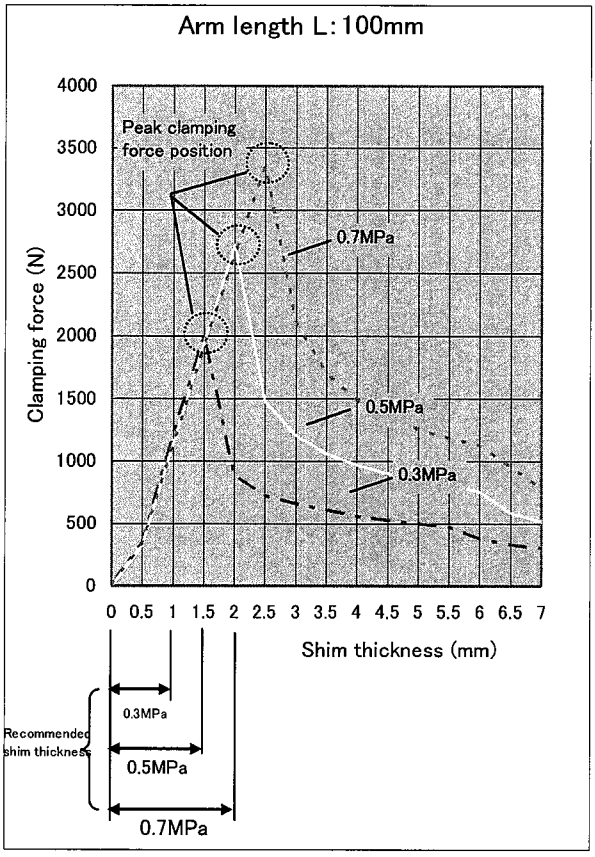


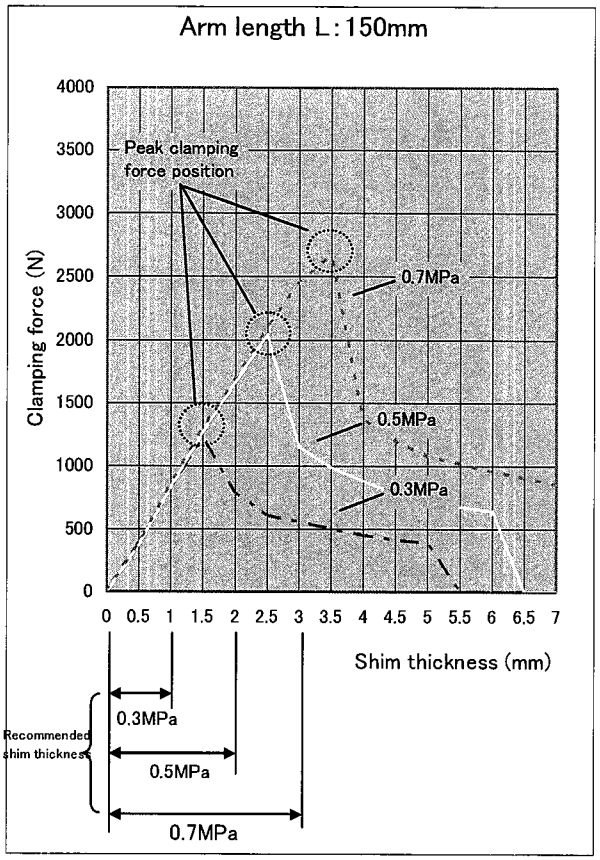
Series **CKZ3T**

Table 1

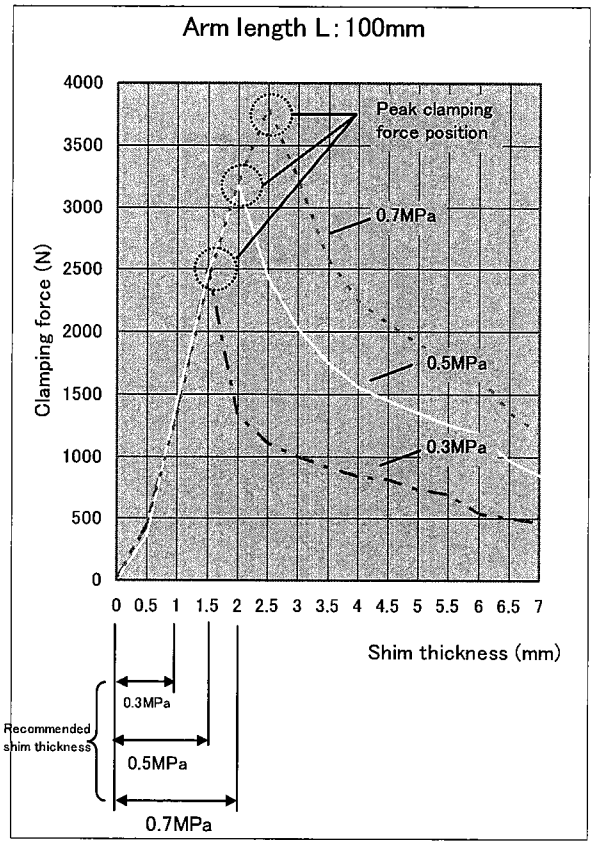
Model	A
CKZ3T50	10
CKZ3T63	10

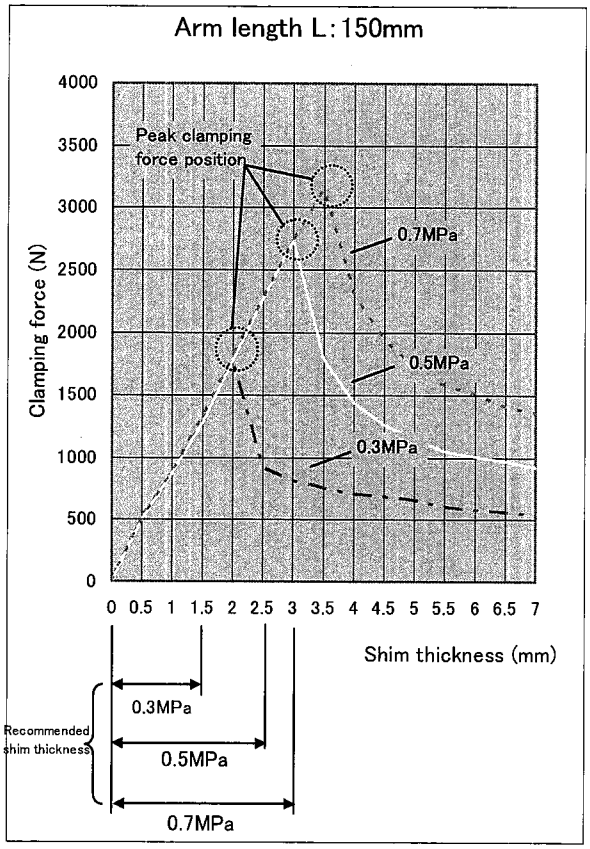
Φ 5 0

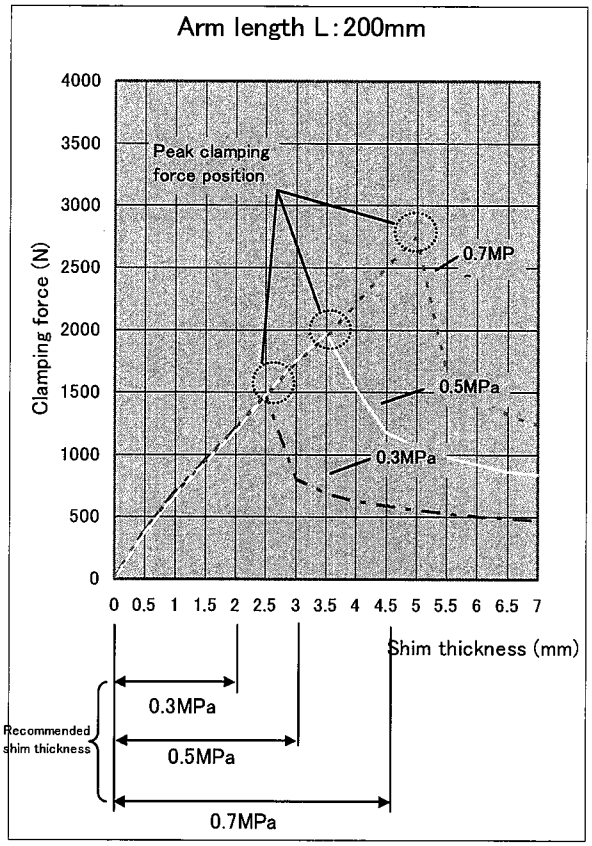


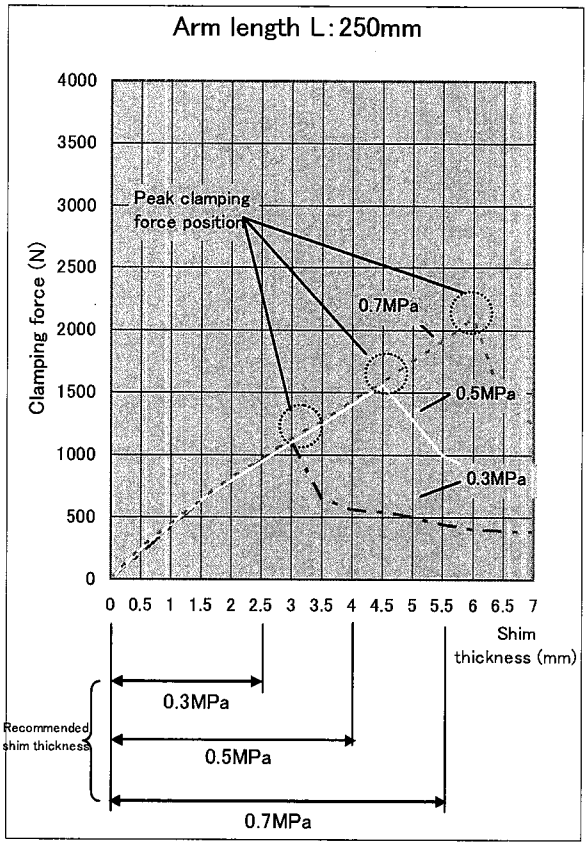


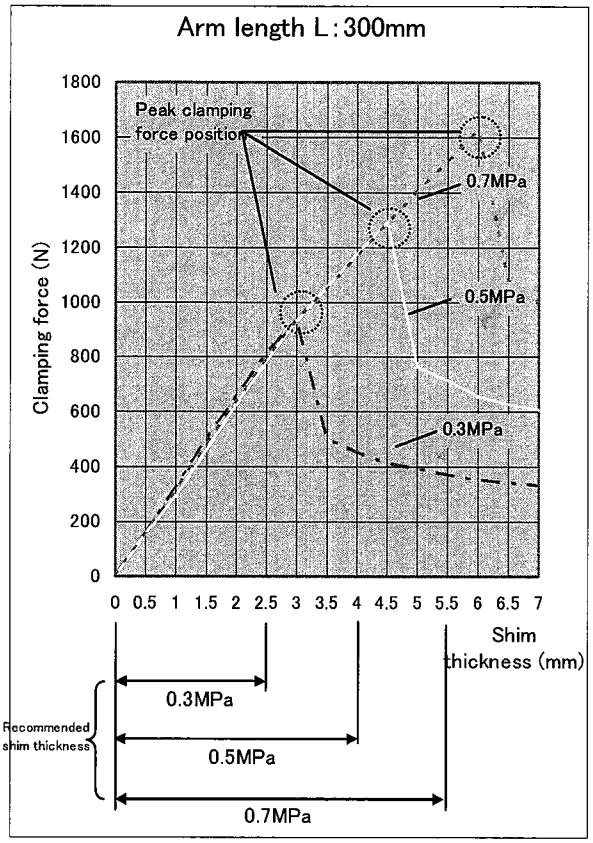
Φ６３


Arm length L: 100mm
Clamping force (N)
4000
3500
3000
2500
2000
1500
1000
500
0
Peak clamping force position
0.7MPa
0.5MPa
0.3MPa
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5 6 6.5 7
Shim thickness (mm)
Recommended shim thickness
0.3MPa
0.5MPa
0.7MPa


Arm length L: 150mm
Clamping force (N)
4000
3500
3000
2500
2000
1500
1000
500
0
Peak clamping force position
0.7MPa
0.5MPa
0.3MPa
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5 6 6.5 7
Shim thickness (mm)
Recommended shim thickness
0.3MPa
0.5MPa
0.7MPa

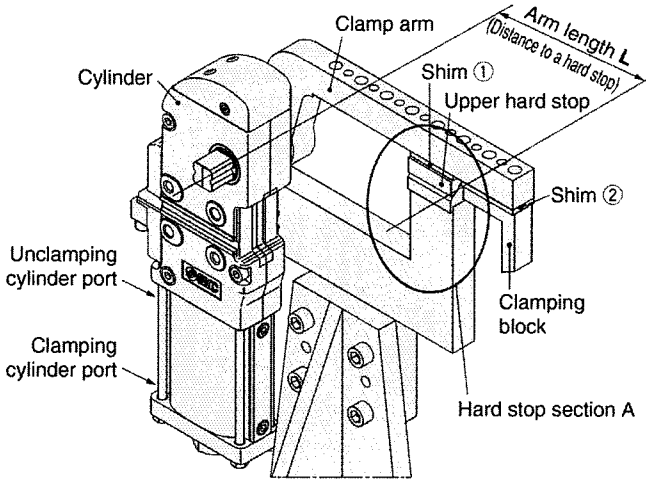

Arm length L: 200mm
Clamping force (N)
4000
3500
3000
2500
2000
1500
1000
500
0
Peak clamping force position
0.7MP
0.5MPa
0.3MPa
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5 6 6.5 7
Shim thickness (mm)
Recommended shim thickness
0.3MPa
0.5MPa
0.7MPa


Arm length L: 250mm
Clamping force (N)
4000
3500
3000
2500
2000
1500
1000
500
0
Peak clamping force position
0.7MPa
0.5MPa
0.3MPa
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5 6 6.5 7
Shim thickness (mm)
Recommended shim thickness
0.3MPa
0.5MPa
0.7MPa

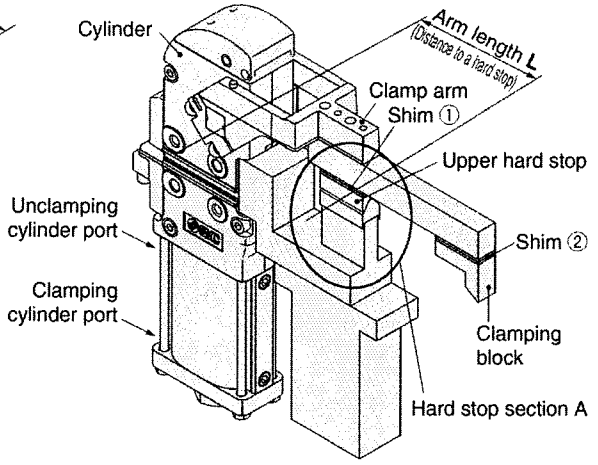

Arm length L:300mm
Clamping force (N)
1800
1600
1400
1200
1000
800
600
400
200
0
Peak clamping force position
0.7MPa
0.5MPa
0.3MPa
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5 6 6.5 7
Shim thickness (mm)
Recommended shim thickness
0.3MPa
0.5MPa
0.7MPa

2 Power clamp cylinder mounting

When using a hard stop

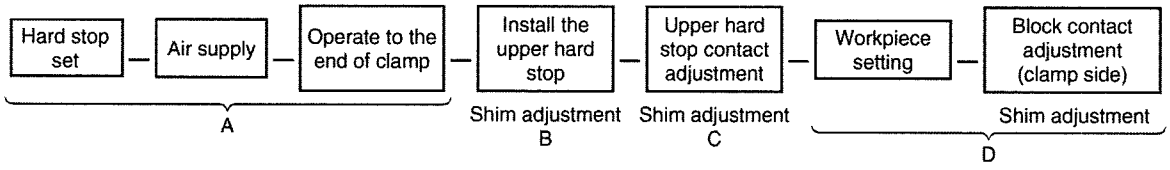


Series **CKZ3N**



Series **CKZ3T**

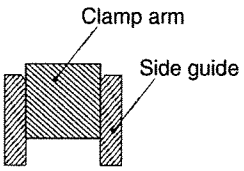
Mounting process



Procedure

A) Supply air at clamp side without installation of upper hard stop, and operate the clamp arm to the end of clamp.
B) Under the above conditions, adjust shim ① so that the space between the upper hard stop and the lower hard stop is about 0mm. Theoretically there is no clamping force to the lower hard stop under this condition.
C) In order to generate clamping force from the state described in step B, insert additional shim. The thickness of the shim differs depending on the arm length and pressure, so please refer to the graph on page 10~12 as a guide. About 10% error may occur due to the difference in tolerance of the power clamp cylinder body.
D) Under the state described in step C, adjust shim ② so there is contact between the clamping block and the workpiece.

When using the side guide



Precaution

When using the side guide to the clamp arm to prevent lateral motion, make sure not to apply a lateral load or galling to the clamp arm.

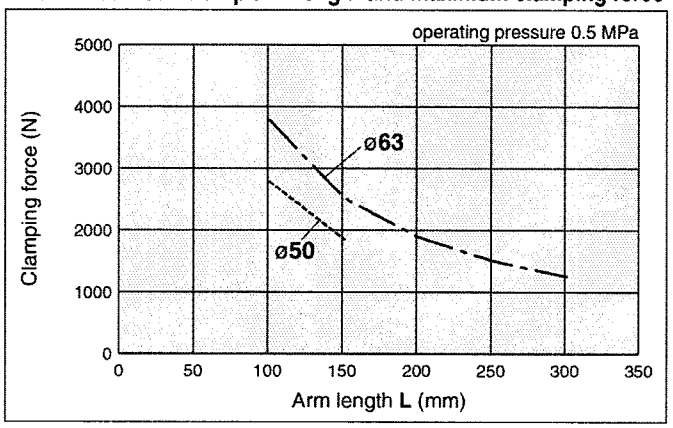
3 Clamp arm

Use the clamp arm in the catalog.

The length of the clamp arm "L" should be the length given below or less.

Model	Arm length L
CKZ3N50 CKZ3T50	150 mm
CKZ3N63 CKZ3T63	300 mm

Relation between clamp arm length and maximum clamping force



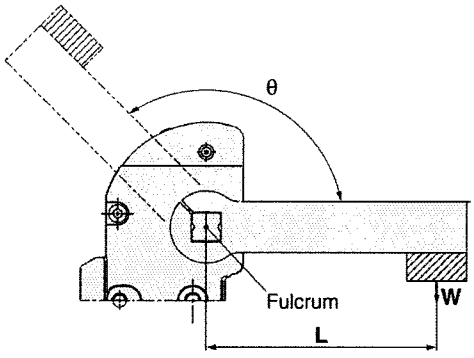
Series CKZ3N

Allowable load for clamp arm end

Refer to the graph on P15 for parts weight of the arm.
Note) The value shows parts weight only, it does not include arm weight.

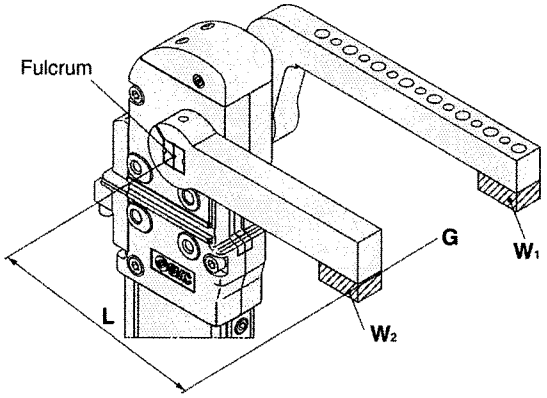
Single-side-arm type (R/L)

Use within the allowable arm end load range according to the distance "L" from the fulcrum to the mounting tool's center position and the arm opening angle "Θ".



Two-side-arm type (D)

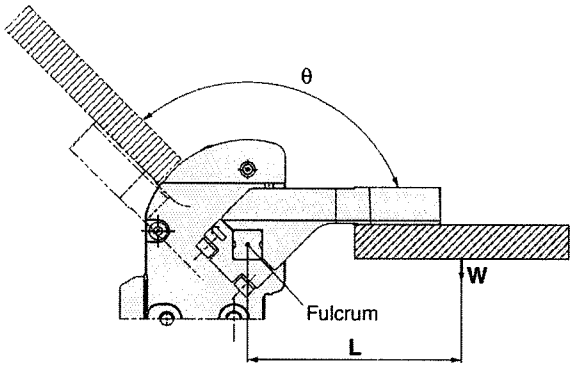
Consider the weight of allowable arm end load according to the center position "G" of each arm end load ($W_1 + W_2$), the distance "L" to the fulcrum and the arm opening angle "Θ". Use within the allowable range of ($W_1 + W_2$), in this case.



Series CKZ3T

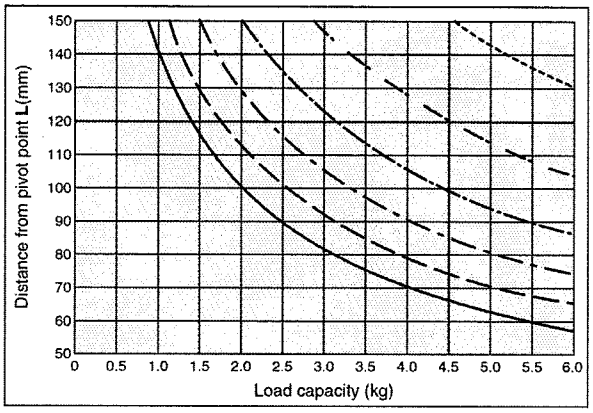
Allowable load for clamp arm end

Refer to the graph on P15 for parts weight of the arm.
Note) The value shows parts weight only, it does not include arm weight.

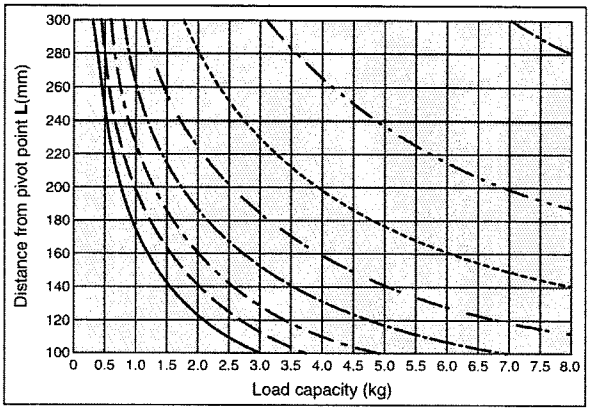


3 Clamp arm

ø50



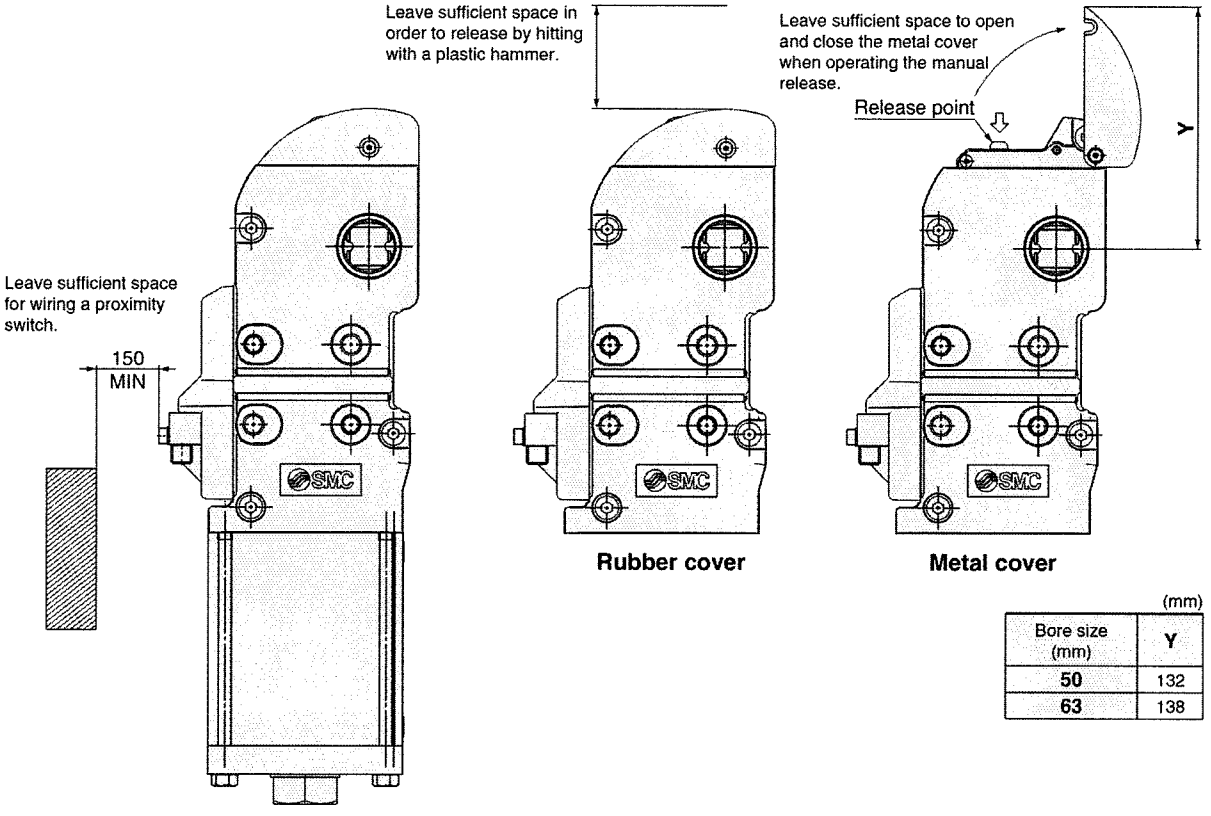
ø63



Arm opening angle θ
30° 60° 90° 120°
45° 75° 105° 135°

4 Space in design

Leave sufficient space in the below position.



Rubber cover **Metal cover**

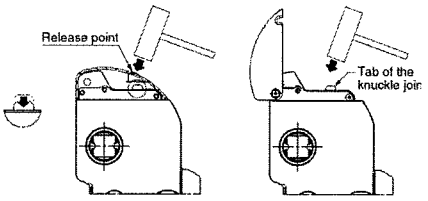
(mm)

Bore size (mm)	Y
50	132
63	138

5 Manual unlocking of the self lock

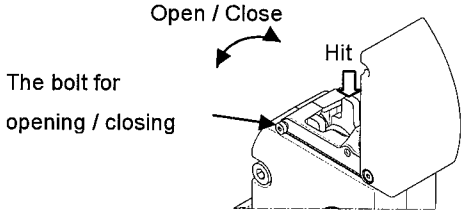
Manual toggle release

Confirm the air has been discharged from the cylinder before trying to release the manual toggle.
The clamp arm may suddenly operate during manual release.
For a product with rubber cover, the toggle link mechanism can easily be released by hitting the round tab on the cover with a plastic hammer (made of soft material).
For a product with metal cover, the toggle link mechanism can easily be released by performing procedure A.
Do not let debris such as spatter get into the clamp cylinder.



Procedure A

①Loosen the bolt for opening / closing the metal cover.
②Open the metal cover.
③Hit the tab of the knuckle joint with a plastic hammer (made of soft material).
④Close the metal cover.
⑤Tighten the bolt for opening / closing [Tightening torque: 1.5 to 2.0N·m]



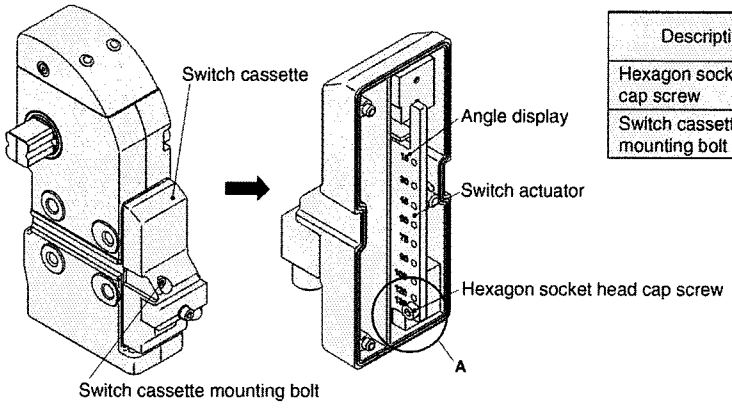
6 Arm opening angle change

9 types of arm opening angles (unclamping angles) 15°, 30°, 45°, 60°, 75°, 90°, 105°, 120° and 135° are available for each standard size.

■ Arm opening angle change procedure

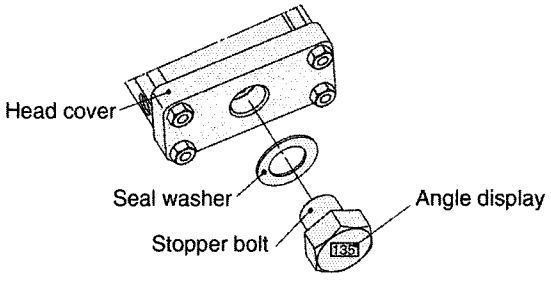
The stopper bolt kit (sold separately) is necessary to change the arm opening angle.
Refer to the replacement kit list of CKZ3N:P23, and CKZ3T:P33.

1) When changing the arm opening angle, be sure to operate the cylinder to the clamping end, and confirm that the air inside the cylinder has been exhausted.
2) Loosen the switch cassette mounting screw, and remove the switch cassette.
3) Remove the hexagon socket head cap screw (part A), and change the position of the screw to the required angle position, and tighten it to the tightening torque shown below.
4) Mount the switch cassette to the body, and tighten the switch cassette mounting bolt to the tightening torque shown below.



Description	Bore size (mm)	Tightening torque (N·m)
Hexagon socket head cap screw	50	0.6 to 1.0
	63	0.6 to 1.0
Switch cassette mounting bolt	50	2.6 to 3.5
	63	2.6 to 3.5

5) Remove the stopper bolt of the head cover, and mount a different stopper bolt for other angles using the tightening torque below. When replacing the stopper bolt, fix the head cover securely. If the stopper bolt is replaced without fixing the head cover, the head cover may be displaced, causing air leakage. (Confirm the direction of the angle display.)
For the applicable stopper bolt part numbers, refer to page 23 for CKZ3N, and page 15 for CKZ3T.



Description	Bore size (mm)	Tightening torque (N·m)
Stopper bolt	50	130 to 150
	63	160 to 200

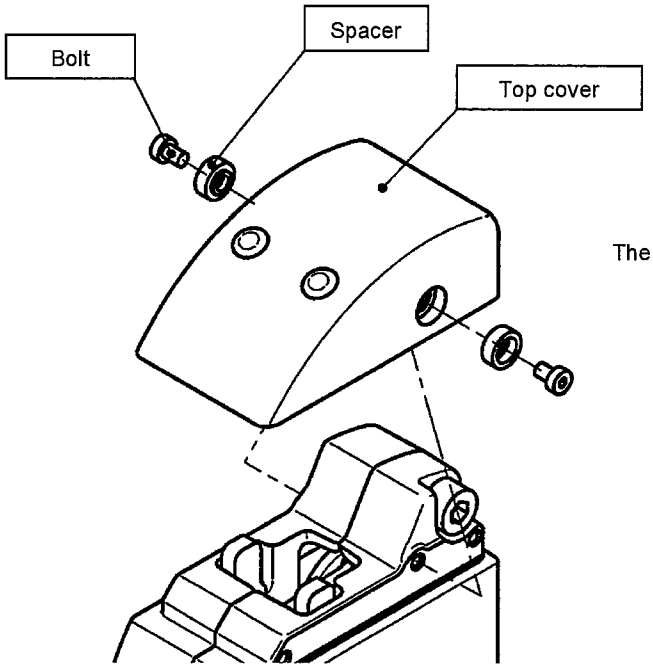
7 Top cover replacement

1) Make sure that the air has been discharged from the cylinder.

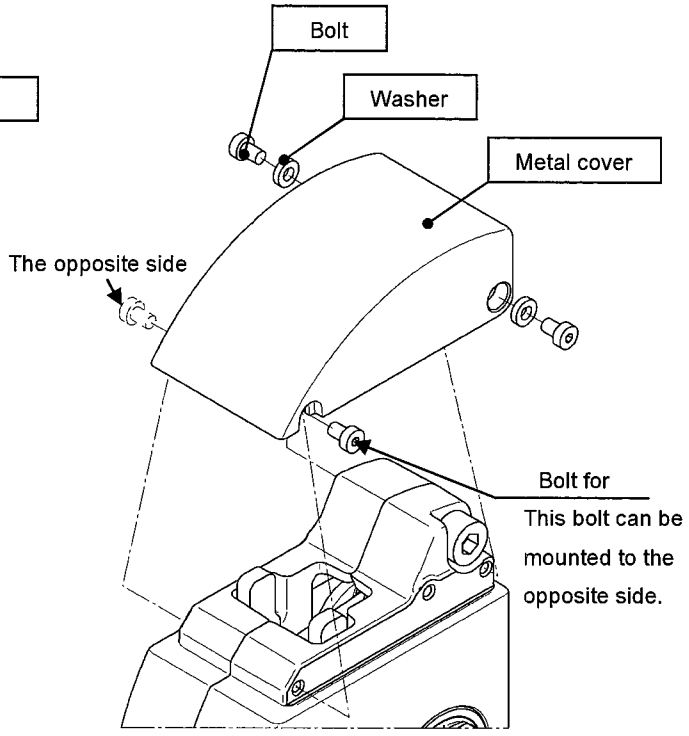
2) In order to replace the top cover, the top cover kit (sold separately) is necessary.
For the applicable top cover kit part numbers, refer to page 23 for CKZ3N, and page 33 for CKZ3T.

3) Mount the top cover to the clamp cylinder, then tighten to the specified tightening torque below.

4) It is possible to change from the rubber cover type to metal cover type.



Rubber cover type

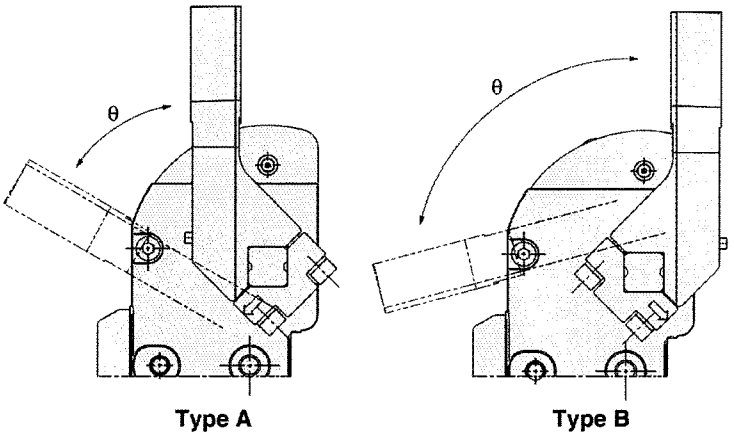


Metal cover type

Description	Bore size (mm)	Tightening torque (N·m)
Top cover kit	**50**	1.5 to 2.0
	63	1.5 to 2.0

8 Vertical clamping(CKZ3T only)

When mounting the clamping arm in a vertical clamping position, note that the maximum angle will change.



Type A **Type B**

Maximum angle θ

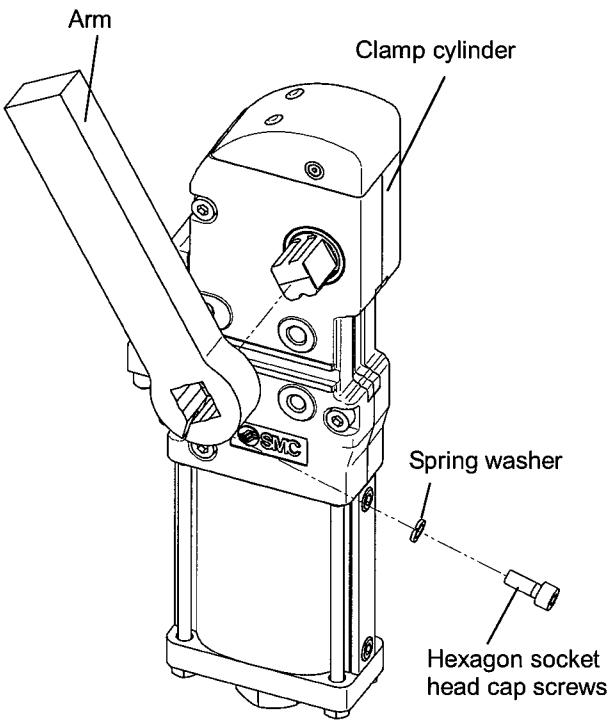
Model	Type A	Type B
CKZ3T50	75°	105°
CKZ3T63	60°	105°

9 Mounting of the arm

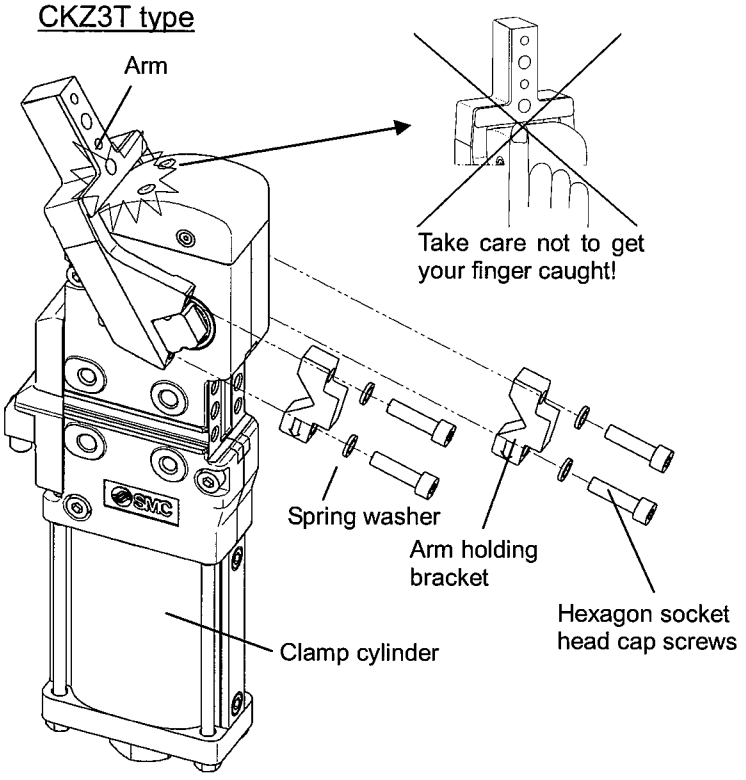
1) Make sure that the air has been discharged from the cylinder.

2) Mount the arm to the clamp cylinder, then tighten it with the hexagon socket head cap screws to the tightening torque below.

CKZ3N type



CKZ3T type



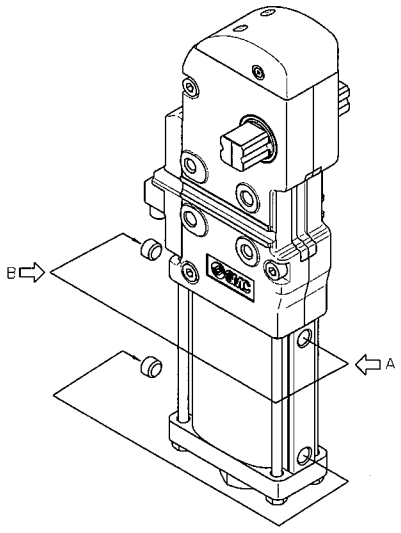
Bore size (mm)	Tightening torque (N·m)
50	12 to 15
63	15 to 20

Clamp cylinder is not clamped when shipped.
Note the direction of the arm for mounting.

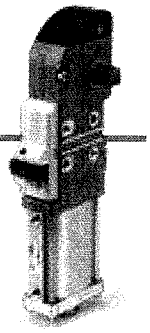
10 Change of the piping port position

1) Make sure that the air has been discharged from the cylinder.

2) It 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)



Power Clamp Cylinder
Complies to NAAMS standard
Series CKZ3N
ø50, ø63



How to Order

Clamp Cylinder (Without Arm)

CKZ3N [63] [TF] – [120] [R] [T] [F] [M]

Power clamp cylinder
North American type
Complies to NAAMS standard
Aluminum clamp body type

Bore size

50	ø50 Equivalent
63	ø63 Equivalent

Cylinder port

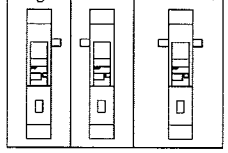
Nil	NPT
TF	G
TP	Rc

Arm opening angle

15	15°
30	30°
45	45°
60	60°
75	75°
90	90°
105	105°
120	120°
135	135°

Arm mounting position

R	L	D
Right	Left	Both sides



Proximity switch

T	TURCK
P	P&F
W	None

Front mounting

Nil	No
F	Yes

Top cover

Nil	Rubber cover
M	Metal cover

Arm

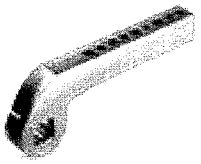
CKZ – [63] [A002]

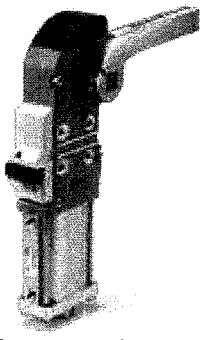
Power clamp cylinder
North American type

Bore size

50	ø50 Equivalent
63	ø63 Equivalent

Arm code





Arm mounted

Arm Code

Bore size	SMC Part Number	Arm code	NAAMS code
50	**CKZ-50A001**	A001	ACA201M
	CKZ-50A002	A002	ACA202M
	CKZ-50A003	A003	ACA203M
	CKZ-50A004	A004	ACA206M
	CKZ-50A005	A005	ACA207M
	CKZ-50A006	A006	ACA208M
	CKZ-50A007	A007	ACA211M
	CKZ-50A008	A008	ACA212M
	CKZ-50A009	A009	ACA213M
	CKZ-50A010	A010	ACA216M
	CKZ-50A011	A011	ACA217M
	CKZ-50A012	A012	ACA218M
	CKZ-50A013	A013	ACA221M
	CKZ-50A014	A014	ACA222M
	CKZ-50A015	A015	ACA223M
	CKZ-50A016	A016	ACA226M
	CKZ-50A017	A017	ACA227M
	CKZ-50A018	A018	ACA228M
	CKZ-50A019	A019	ACA236M
	CKZ-50A020	A020	ACA237M
	CKZ-50A021	A021	ACA238M
	CKZ-50A022	A022	ACA246M
	CKZ-50A023	A023	ACA247M
	CKZ-50A024	A024	ACA248M
	CKZ-50A025	A025	ACA256M
	CKZ-50A026	A026	ACA257M
	CKZ-50A027	A027	ACA258M

Bore size	SMC Part Number	Arm code	NAAMS code
63	**CKZ-63A001**	A001	ACA001M
	CKZ-63A002	A002	ACA002M
	CKZ-63A003	A003	ACA003M
	CKZ-63A004	A004	ACA004M
	CKZ-63A005	A005	ACA005M
	CKZ-63A006	A006	ACA006M
	CKZ-63A007	A007	ACA007M
	CKZ-63A008	A008	ACA008M
	CKZ-63A009	A009	ACA009M
	CKZ-63A010	A010	ACA010M
	CKZ-63A011	A011	ACA011M
	CKZ-63A012	A012	ACA012M
	CKZ-63A013	A013	ACA013M
	CKZ-63A014	A014	ACA014M
	CKZ-63A015	A015	ACA015M
	CKZ-63A016	A016	ACA016M
	CKZ-63A017	A017	ACA017M
	CKZ-63A018	A018	ACA018M
	CKZ-63A019	A019	ACA019M
	CKZ-63A020	A020	ACA020M
	CKZ-63A021	A021	ACA021M
	CKZ-63A022	A022	ACA022M
	CKZ-63A023	A023	ACA023M
	CKZ-63A024	A024	ACA024M
	CKZ-63A025	A025	ACA025M
	CKZ-63A026	A026	ACA026M
	CKZ-63A027	A027	ACA027M
	CKZ-63A028	A028	ACA028M
	CKZ-63A029	A029	ACA029M
	CKZ-63A030	A030	ACA030M
	CKZ-63A031	A031	ACA031M
	CKZ-63A032	A032	ACA032M
	CKZ-63A033	A033	ACA033M
	CKZ-63A034	A034	ACA034M
	CKZ-63A035	A035	ACA035M
	CKZ-63A036	A036	ACA036M
	CKZ-63A037	A037	ACA037M
	CKZ-63A038	A038	ACA038M
	CKZ-63A039	A039	ACA039M
	CKZ-63A040	A040	ACA040M
	CKZ-63A041	A041	ACA041M
	CKZ-63A042	A042	ACA042M
	CKZ-63A043	A043	ACA043M
	CKZ-63A044	A044	ACA044M
	CKZ-63A045	A045	ACA045M
	CKZ-63A046	A046	ACA046M
	CKZ-63A047	A047	ACA047M
	CKZ-63A048	A048	ACA048M

Cylinder Specifications

Bore size	ø50 Equivalent	ø63 Equivalent
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 temperature	−10 to 60° (No freezing)	
Cushion	Clamping side: None Unclamping side: Rubber bumper	
Min. operating time	1.0 second to clamp, 1.0 second to unclamp	

Weight (Cylinder Without Arm)

Unit: kg

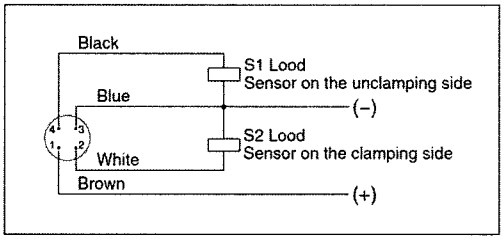
Bore size (mm)	Arm position	Arm angle								
		15°	30°	45°	60°	75°	90°	105°	120°	135°
50	R/L	3.31	3.29	3.27	3.25	3.23	3.21	3.20	3.18	3.17
	D	3.37	3.34	3.32	3.31	3.29	3.27	3.25	3.23	3.22
63	R/L	4.58	4.55	4.52	4.49	4.46	4.43	4.40	4.38	4.36
	D	4.67	4.64	4.61	4.58	4.55	4.52	4.49	4.47	4.45

Switch Specifications

Manufacturer	TURCK	P&F
Operating range	2 mm ±10%	2 mm ±10%
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

Note) Switch specifications are corresponding to manufacturer's technical information.

Wiring Diagram



Note) Both TURCK and P&F are common.

Connection (Female side) Connector Cable

Use PCA series M12 4pin socket (female) A cord of SMC.

Allowable Locking Moment

Bore size (mm)	Allowable locking moment N·m
50	800
63	1500

* The moment when the clamp arm is locked at the time of air release in the clamped state.

Maximum Clamping Moment

Unit: N·m

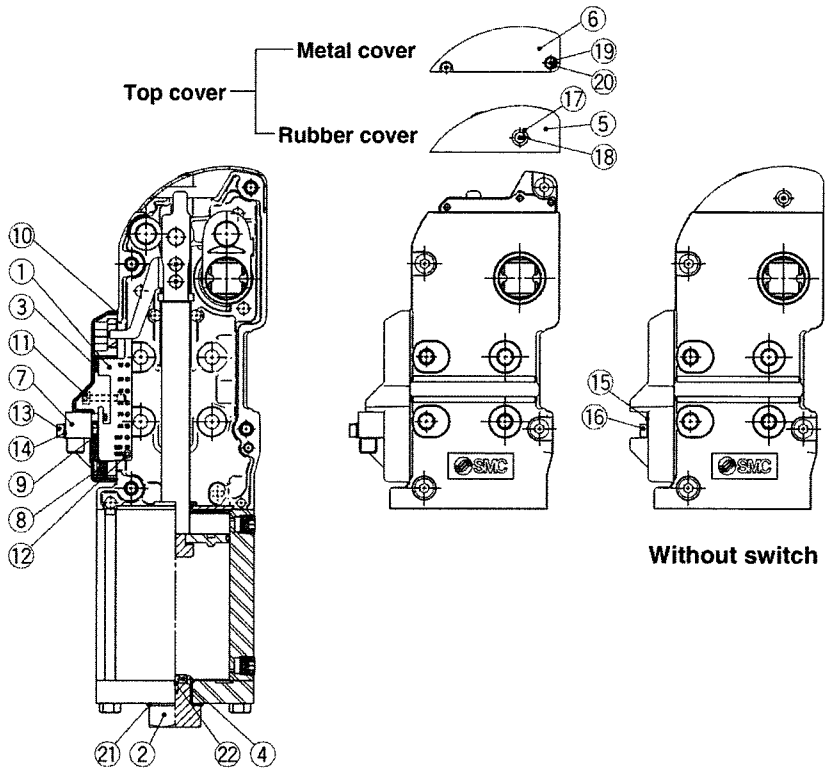
Bore size (mm)	Max. clamping moment					
	0.3 MPa	0.4 MPa	0.5 MPa	0.6 MPa	0.7 MPa	0.8 MPa
50	100	130	160	190	220	250
63	300	350	400	450	500	550

Cylinder Stroke

Unit: mm

Bore size (mm)	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

Construction



Component parts

No.	Description
1	Switch actuator
2	Stopper bolt
3	Switch holder
4	Bumper
5	Top cover
6	Metal cover
7	Proximity switch
8	Helical torsion spring
9	Hexagon nut type 3
10	Switch holder gasket
11	Hexagon socket head cover cap screw
12	Hexagon socket head cover cap screw
13	Hexagon socket head cap screw
14	Small round flat washer
15	Switch holder cover
16	Hexagon socket head cap screw
17	Spacer
18	Short head cap screw
19	Metal washer
20	Short head cap screw
21	Seal washer
22	Bumper stopper

Table 1

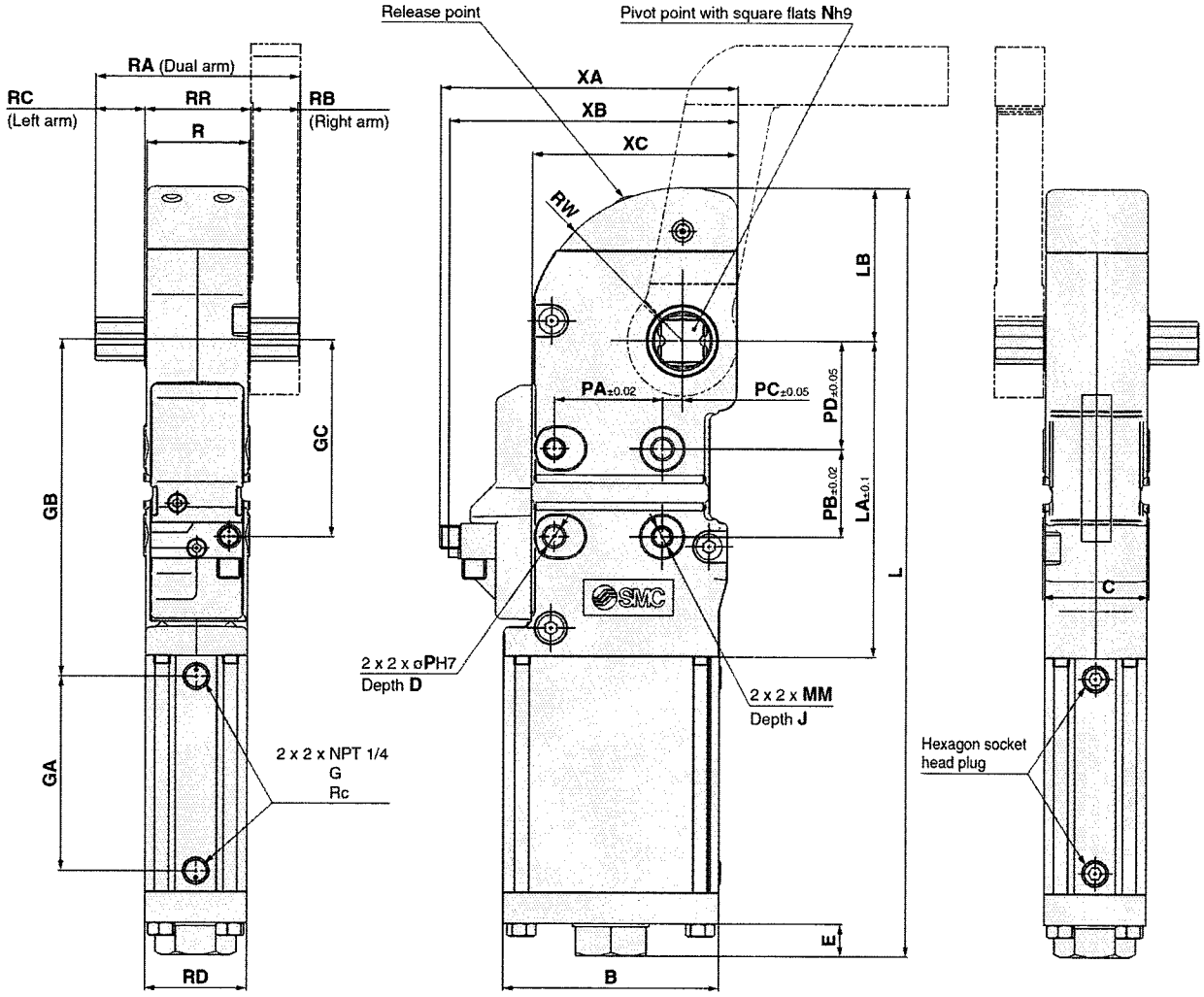
Opening angle	Code
15°	J
30°	H
45°	G
60°	F
75°	E
90°	D
105°	C
120°	B
135°	A

Replaceable kits list

Description	Bore size (mm)	Kit no.	Contents
Switch kits	50	CKZ3N-S050T Note 1)	③Switch holder ⑦Proximity switch (TURCK) ⑧Helical torsion spring ⑨Hexagon nut type 3 ⑩Switch holder gasket ⑪Hexagon socket head cover cap screw ①Switch actuator ⑫Hexagon socket head cover cap screw ⑬Hexagon socket head cap screw ⑭Small round flat washer
	63	CKZ3N-S063T Note 1)	
	50	CKZ3N-S050P Note 1)	③Switch holder ⑦Proximity switch (P&F) ⑧Helical torsion spring ⑨Hexagon nut type 3 ⑩Switch holder gasket ⑪Hexagon socket head cover cap screw ①Switch actuator ⑫Hexagon socket head cover cap screw ⑬Hexagon socket head cap screw ⑭Small round flat washer
	63	CKZ3N-S063P Note 1)	
	50	CKZ3N-S050W Note 1)	③Switch holder ⑮Switch holder cover ⑨Hexagon nut type 3 ⑩Switch holder gasket ⑪Hexagon socket head cover cap screw ⑯Hexagon socket head cap screw
	63	CKZ3N-S063W Note 1)	
Stopper bolt kits	50	CKZ3N-B050□ Note 2)	②Stopper bolt ㉑Seal washer ④Bumper ㉒Bumper stopper
	63	CKZ3N-B063□ Note 2)	
Top cover kits	50	CKZ2N-T050	⑤Rubber cover ⑰Spacer ⑱Short head cap screw
	63	CKZ2N-T063	
	50	CKZ3N-T050M	⑥Metal cover ⑲Metal washer ⑳Short head cap screw
	63	CKZ3N-T063M	

Note 1) T=TURCK, P=P&F, W=Without switch Note 2) Please specify the opening angle by the code in Table 1.

Dimensions



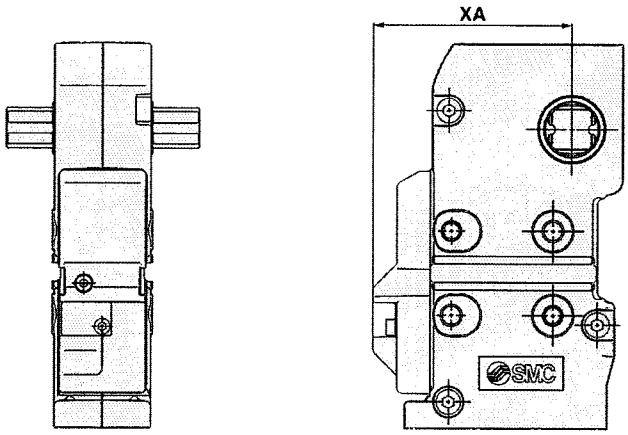
(mm)

Bore size (mm)	B	C	D	E	GA	GB	GC	J	L	LA	LB	MM	N	P
50	92	48	12	13.7	95	166	95.5	12	376.6	155.5	78.4	M8 x 1.25	19	8
63	110	54	15	16.6	99	171.5	100.5	12	391.6	161	78	M10 x 1.5	22	10

Bore size (mm)	PA	PB	PC	PD	R	RA	RB	RC	RD	RR	W	XA	XB	XC
50	45	45	5	40	46	88	20	20	46	48	78.4	138.5	134	92
63	55	45	10	55	52	104	25	25	52	54	78	151	146.5	104.5

Dimensions

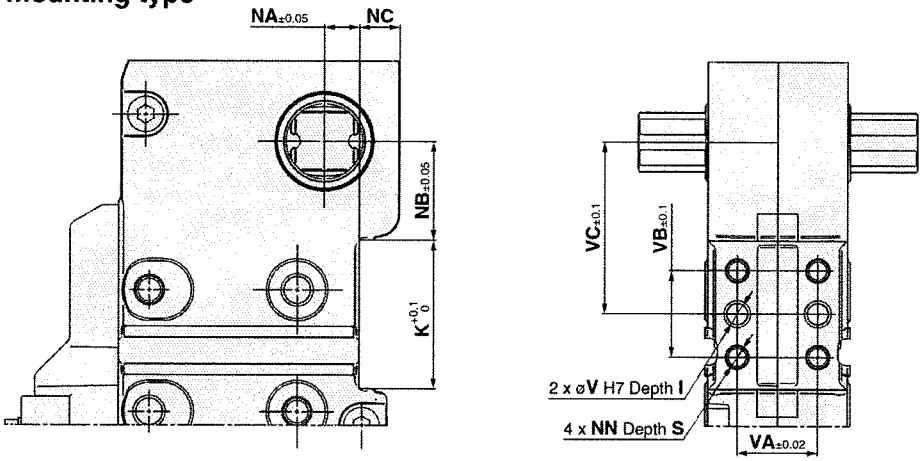
Without switch



(mm)

Bore size (mm)	XA
50	100.5
63	107.5

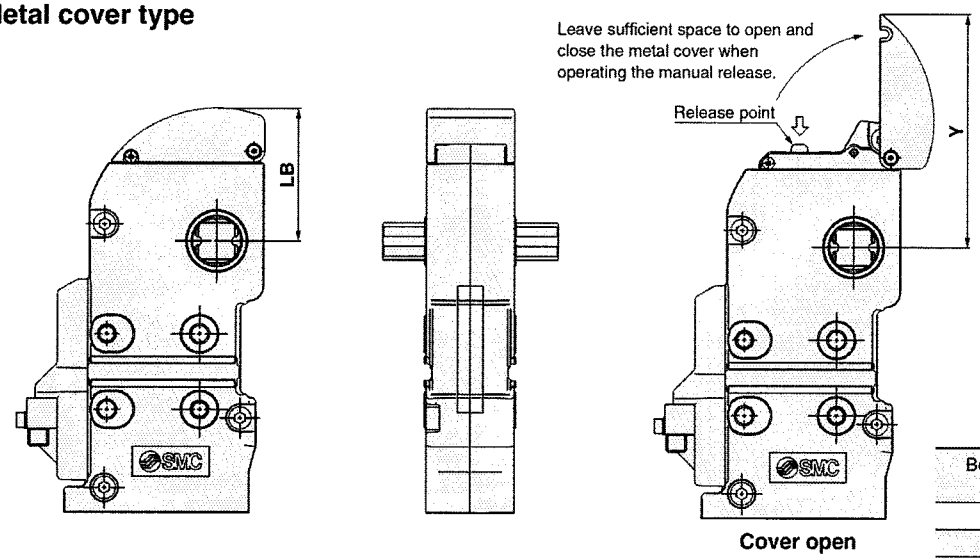
Front mounting type



(mm)

Bore size (mm)	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

Metal cover type



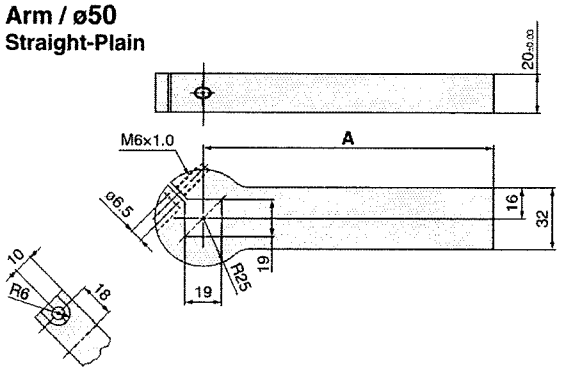
(mm)

Bore size (mm)	LB	Y
50	78.4	132
63	78.4	138

Dimensions

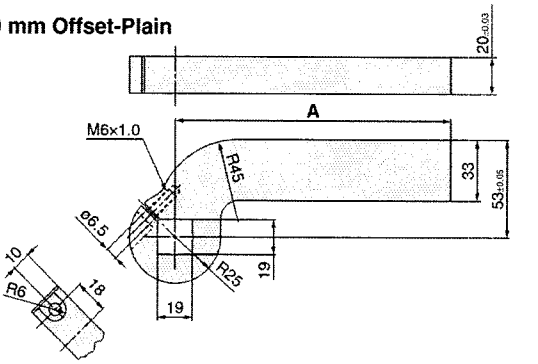
Arm / ø50

Straight-Plain



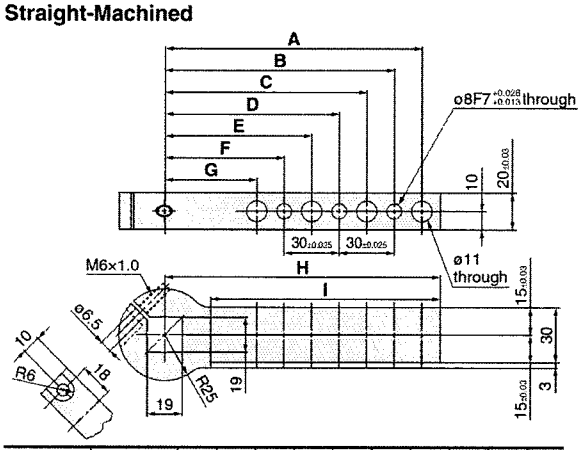
Part no.	NAAMS code	A	Weight kg
CKZ-50A001	ACA201M	90.0	0.6
CKZ-50A002	ACA202M	120.0	0.7
CKZ-50A003	ACA203M	150.0	0.9

20 mm Offset-Plain



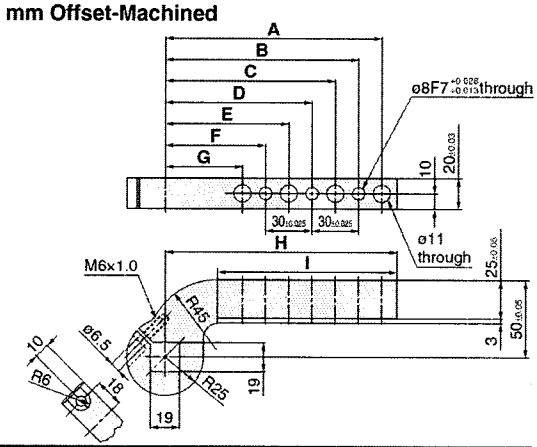
Part no.	NAAMS code	A	Weight kg
CKZ-50A007	ACA211M	90.0	0.7
CKZ-50A008	ACA212M	120.0	0.8
CKZ-50A009	ACA213M	150.0	1.0

Straight-Machined



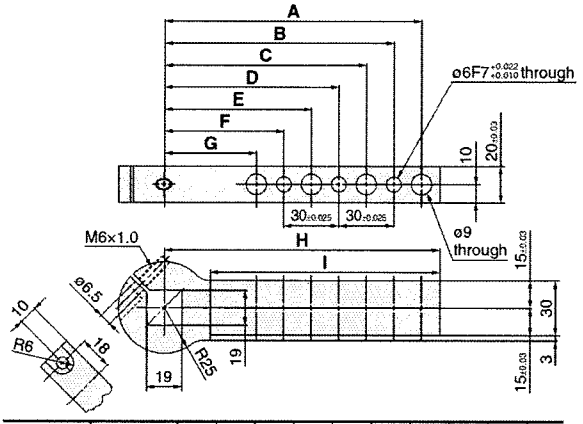
Part no.	NAAMS code	A	B	C	D	E	F	G	H	I	Weight kg
CKZ-50A004	ACA206M	80.0	65.0	50.0	–	–	–	–	90.0	65.0	0.5
CKZ-50A005	ACA207M	110.0	95.0	80.0	65.0	50.0	–	–	120.0	95.0	0.6
CKZ-50A006	ACA208M	140.0	125.0	110.0	95.0	80.0	65.0	50.0	150.0	125.0	0.7

25 mm Offset-Machined



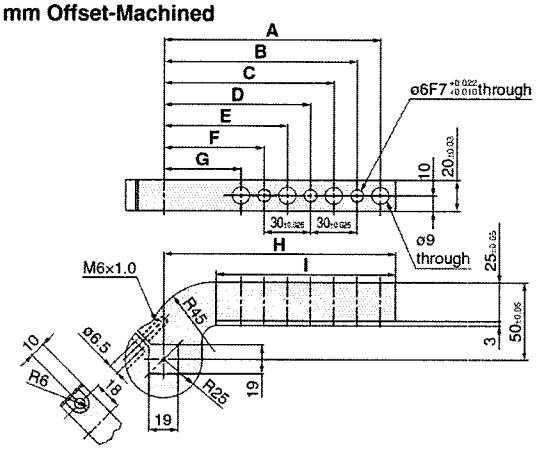
Part no.	NAAMS code	A	B	C	D	E	F	G	H	I	Weight kg
CKZ-50A010	ACA216M	80.0	65.0	50.0	–	–	–	–	90.0	56.0	0.5
CKZ-50A011	ACA217M	110.0	95.0	80.0	65.0	50.0	–	–	120.0	86.0	0.6
CKZ-50A012	ACA218M	140.0	125.0	110.0	95.0	80.0	65.0	50.0	150.0	116.0	0.7

Straight-Machined



Part no.	NAAMS code	A	B	C	D	E	F	G	H	I	Weight kg
CKZ-50A019	ACA236M	80.0	65.0	50.0	–	–	–	–	90.0	65.0	0.5
CKZ-50A020	ACA237M	110.0	95.0	80.0	65.0	50.0	–	–	120.0	95.0	0.6
CKZ-50A021	ACA238M	140.0	125.0	110.0	95.0	80.0	65.0	50.0	150.0	125.0	0.7

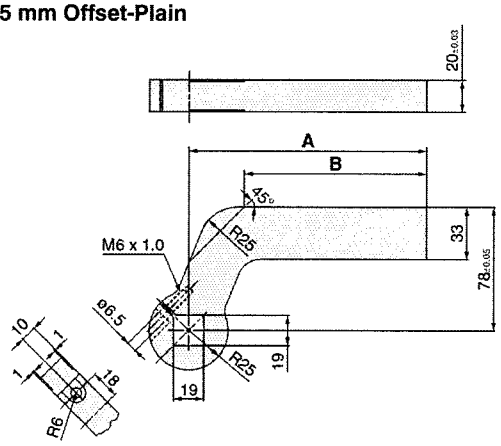
25 mm Offset-Machined



Part no.	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

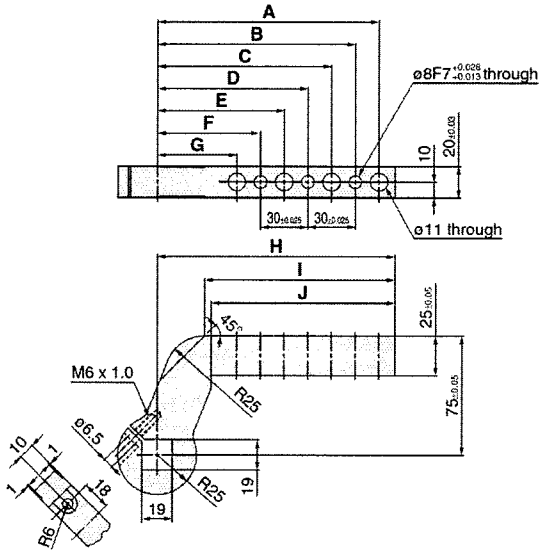
Dimensions

45 mm Offset-Plain



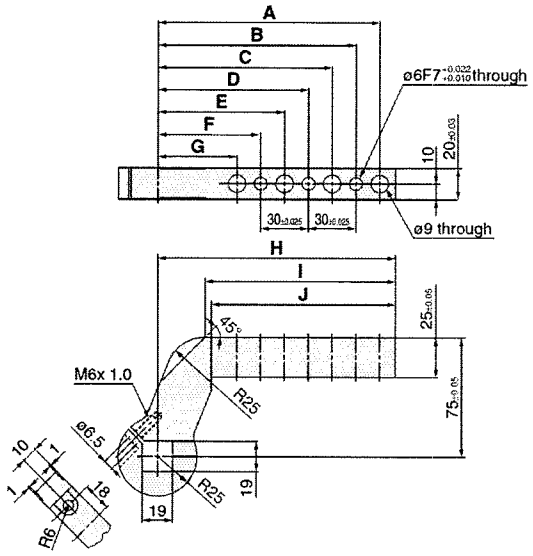
Part no.	NAAMS code	A	B	Weight kg
CKZ-50A013	ACA221M	90.0	55.0	0.8
CKZ-50A014	ACA222M	120.0	85.0	0.9
CKZ-50A015	ACA223M	150.0	115.0	1.1

50 mm Offset-Machined



Part no.	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

50 mm Offset-Machined

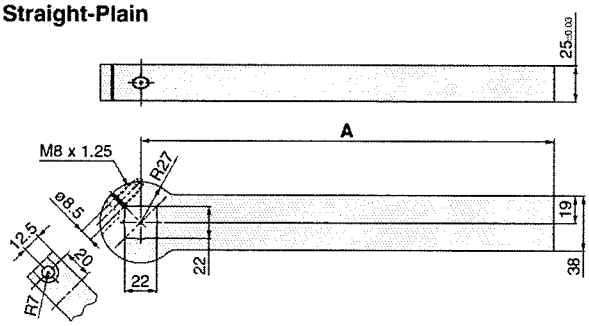


Part no.	NAAMS code	A	B	C	D	E	F	G	H	I	J	Weight kg
CKZ-50A025	ACA256M	80.0	65.0	50.0	–	–	–	–	90.0	60.0	56.0	0.6
CKZ-50A026	ACA257M	110.0	95.0	80.0	65.0	50.0	–	–	120.0	90.0	86.0	0.7
CKZ-50A027	ACA258M	140.0	125.0	110.0	95.0	80.0	65.0	50.0	150.0	120.0	116.0	0.8

Dimensions

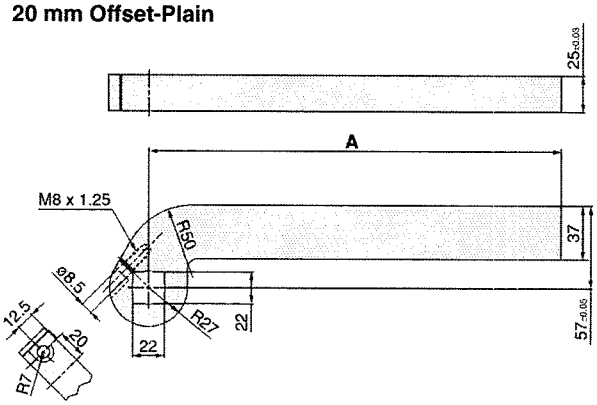
Arm / ø63

Straight-Plain



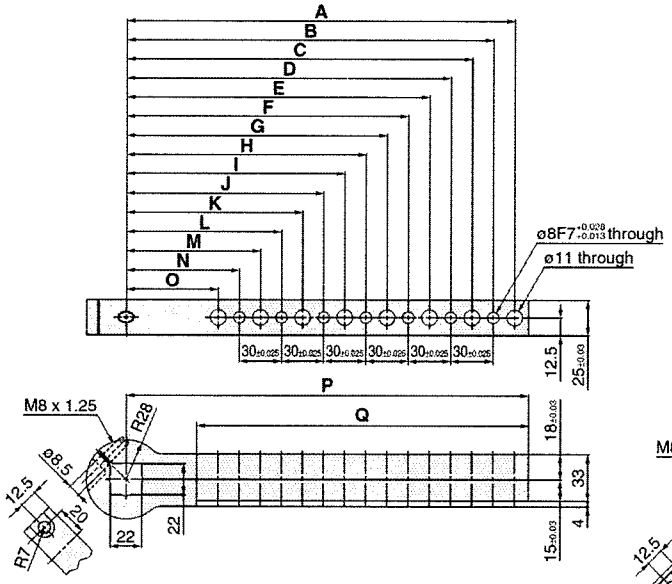
Part no.	NAAMS code	A	Weight kg
CKZ-63A001	ACA001M	135.0	1.2
CKZ-63A002	ACA002M	165.0	1.4
CKZ-63A003	ACA003M	195.0	1.6
CKZ-63A004	ACA004M	225.0	1.8
CKZ-63A005	ACA005M	255.0	2.1
CKZ-63A006	ACA006M	285.0	2.3

20 mm Offset-Plain



Part no.	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

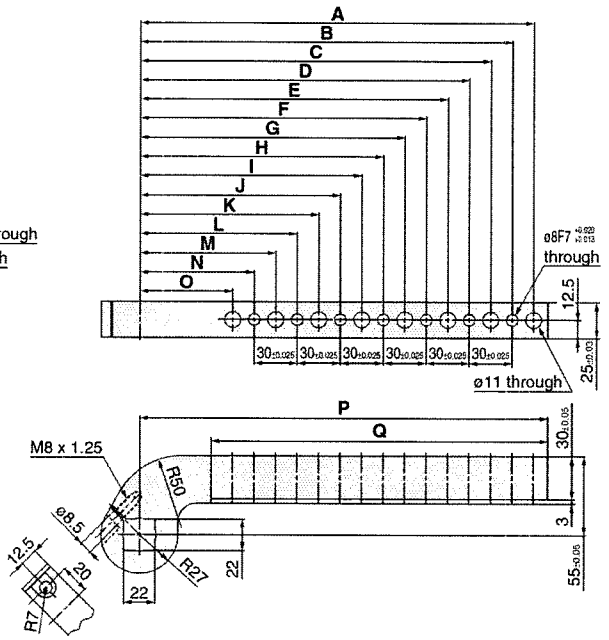
Straight-Machined



Part no.	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

Part no.	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

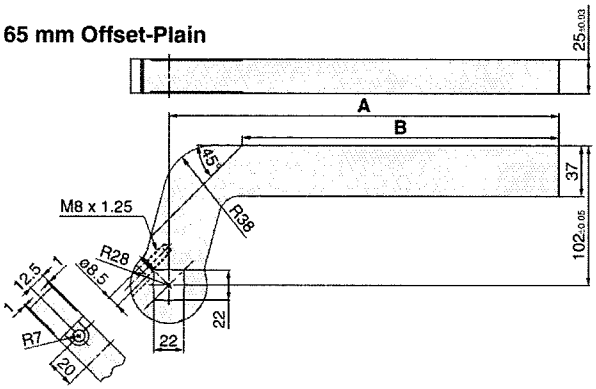


Part no.	NAAMS code	A	B	C	D	E	F	G	H	I
CKZ-63A019	ACA019M	125.0	110.0	95.0	80.0	65.0	—	—	—	—
CKZ-63A020	ACA020M	155.0	140.0	125.0	110.0	95.0	80.0	65.0	—	—
CKZ-63A021	ACA021M	185.0	170.0	155.0	140.0	125.0	110.0	95.0	80.0	65.0
CKZ-63A022	ACA022M	215.0	200.0	185.0	170.0	155.0	140.0	125.0	110.0	95.0
CKZ-63A023	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

Part no.	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

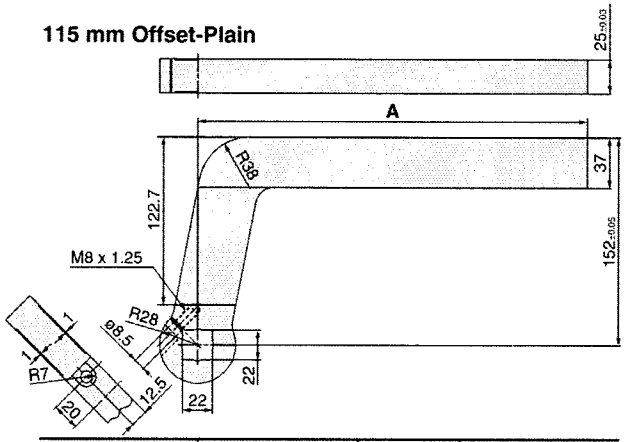
Dimensions

65 mm Offset-Plain



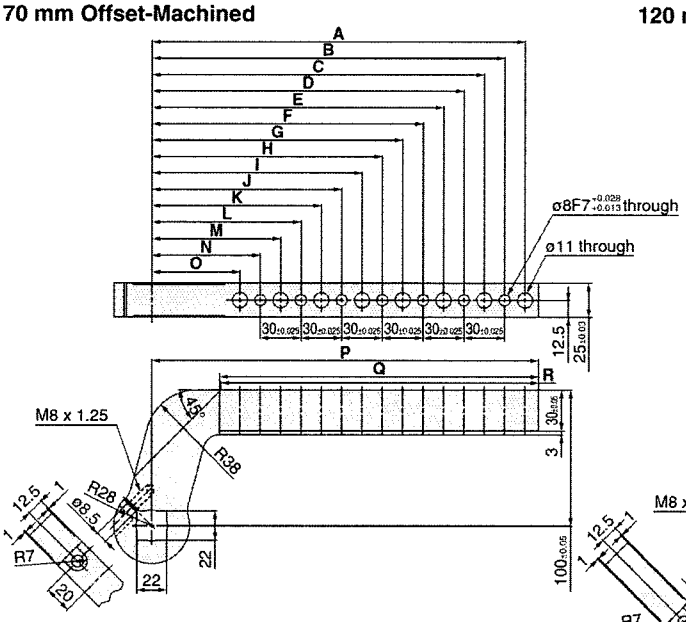
Part no.	NAAMS code	A	B	Weight kg
CKZ-63A025	ACA025M	135.0	81.3	1.7
CKZ-63A026	ACA026M	165.0	111.3	1.9
CKZ-63A027	ACA027M	195.0	141.3	2.1
CKZ-63A028	ACA028M	225.0	171.3	2.3
CKZ-63A029	ACA029M	255.0	201.3	2.5
CKZ-63A030	ACA030M	285.0	231.3	2.7

115 mm Offset-Plain



Part no.	NAAMS code	A	Weight kg
CKZ-63A037	ACA037M	135.0	2.1
CKZ-63A038	ACA038M	165.0	2.3
CKZ-63A039	ACA039M	195.0	2.5
CKZ-63A040	ACA040M	225.0	2.7
CKZ-63A041	ACA041M	255.0	2.9
CKZ-63A042	ACA042M	285.0	3.1

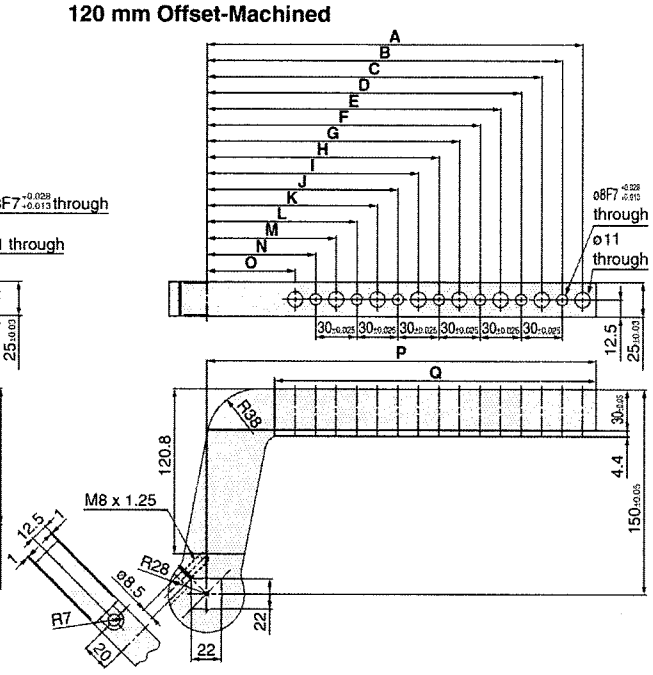
70 mm Offset-Machined



Part no.	NAAMS code	A	B	C	D	E	F	G	H	I	J
CKZ-63A031	ACA031M	125.0	110.0	95.0	80.0	65.0	—	—	—	—	—
CKZ-63A032	ACA032M	155.0	140.0	125.0	110.0	95.0	80.0	65.0	—	—	—
CKZ-63A033	ACA033M	185.0	170.0	155.0	140.0	125.0	110.0	95.0	80.0	65.0	—
CKZ-63A034	ACA034M	215.0	200.0	185.0	170.0	155.0	140.0	125.0	110.0	95.0	80.0
CKZ-63A035	ACA035M	245.0	230.0	215.0	200.0	185.0	170.0	155.0	140.0	125.0	110.0
CKZ-63A036	ACA036M	275.0	260.0	245.0	230.0	215.0	200.0	185.0	170.0	155.0	140.0

Part no.	NAAMS code	K	L	M	N	O	P	Q	R	Weight kg
CKZ-63A031	ACA031M	—	—	—	—	—	135.0	85.0	84.0	1.4
CKZ-63A032	ACA032M	—	—	—	—	—	165.0	115.0	114.0	1.6
CKZ-63A033	ACA033M	—	—	—	—	—	195.0	145.0	144.0	1.8
CKZ-63A034	ACA034M	65.0	—	—	—	—	225.0	175.0	174.0	1.9
CKZ-63A035	ACA035M	95.0	80.0	65.0	—	—	255.0	205.0	204.0	2.1
CKZ-63A036	ACA036M	125.0	110.0	95.0	80.0	65.0	285.0	235.0	234.0	2.3

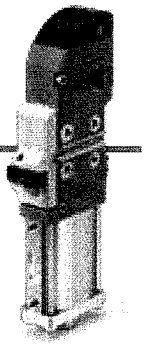
120 mm Offset-Machined



Part no.	NAAMS code	A	B	C	D	E	F	G	H	I	J
CKZ-63A043	ACA043M	125.0	110.0	95.0	80.0	65.0	—	—	—	—	—
CKZ-63A044	ACA044M	155.0	140.0	125.0	110.0	95.0	80.0	65.0	—	—	—
CKZ-63A045	ACA045M	185.0	170.0	155.0	140.0	125.0	110.0	95.0	80.0	65.0	—
CKZ-63A046	ACA046M	215.0	200.0	185.0	170.0	155.0	140.0	125.0	110.0	95.0	80.0
CKZ-63A047	ACA047M	245.0	230.0	215.0	200.0	185.0	170.0	155.0	140.0	125.0	110.0
CKZ-63A048	ACA048M	275.0	260.0	245.0	230.0	215.0	200.0	185.0	170.0	155.0	140.0

Part no.	NAAMS code	K	L	M	N	O	P	Q	Weight kg
CKZ-63A043	ACA043M	—	—	—	—	—	135.0	85.0	1.8
CKZ-63A044	ACA044M	—	—	—	—	—	165.0	115.0	2.0
CKZ-63A045	ACA045M	—	—	—	—	—	195.0	145.0	2.1
CKZ-63A046	ACA046M	65.0	—	—	—	—	225.0	175.0	2.3
CKZ-63A047	ACA047M	95.0	80.0	65.0	—	—	255.0	205.0	2.5
CKZ-63A048	ACA048M	125.0	110.0	95.0	80.0	65.0	285.0	235.0	2.6

Power Clamp Cylinder
Series CKZ3T
ø50, ø63



How to Order

Clamp Cylinder (Without Arm)

CKZ3T 63 ☐ - 120 T M

Power clamp cylinder
European type
Aluminum clamp body type

Bore size

50	ø50 Equivalent
63	ø63 Equivalent

Cylinder port

Nil	G
TN	NPT
TP	Rc

Arm opening angle

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
M	Metal cover

Arm

CKZT 63 - A015 C S

Power clamp cylinder
European type

Bore size

50	ø50 Equivalent
63	ø63 Equivalent

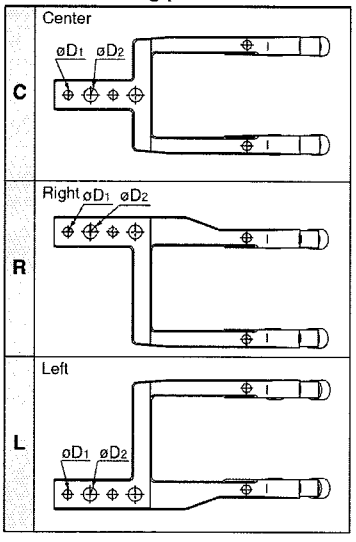
Offset

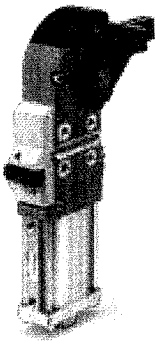
A015	Offset 15
A045	Offset 45

Mounting hole

Symbol	D_1	D_2
S	6	9
B	8	10.2

Arm mounting position





Arm mounted

Series CKZ3T

Cylinder Specifications

Bore size	ø50 Equivalent	ø63 Equivalent
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 temperature	−10 to 60° (No freezing)	
Cushion	Clamping side: None Unclamping side: Rubber bumper	
Min. operating time	1.0 second to clamp, 1.0 second to unclamp	

Weight (Cylinder Without Arm)

Unit: kg

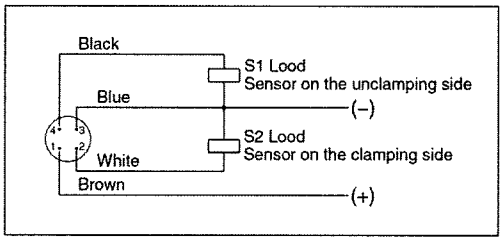
Bore size (mm)	Arm angle								
	15°	30°	45°	60°	75°	90°	105°	120°	135°
50	3.29	3.26	3.25	3.23	3.21	3.19	3.17	3.15	3.14
63	4.56	4.53	4.50	4.47	4.44	4.41	4.38	4.36	4.34

Switch Specifications

Manufacturer	TURCK	P&F
Operating range	2 mm ±10%	2 mm ±10%
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

Note) Switch specifications are corresponding to manufacturer's technical information.

Wiring Diagram



Note) Both TURCK and P&F are common.

Connection (Female side) Connector Cable

Use PCA series M12 4pin socket (female) A cord of SMC.

Allowable Locking Moment

Bore size (mm)	Allowable locking moment N·m
50	800
63	1500

* The moment when the clamp arm is locked at the time of air release in the clamped state.

Maximum Clamping Moment

Unit: N·m

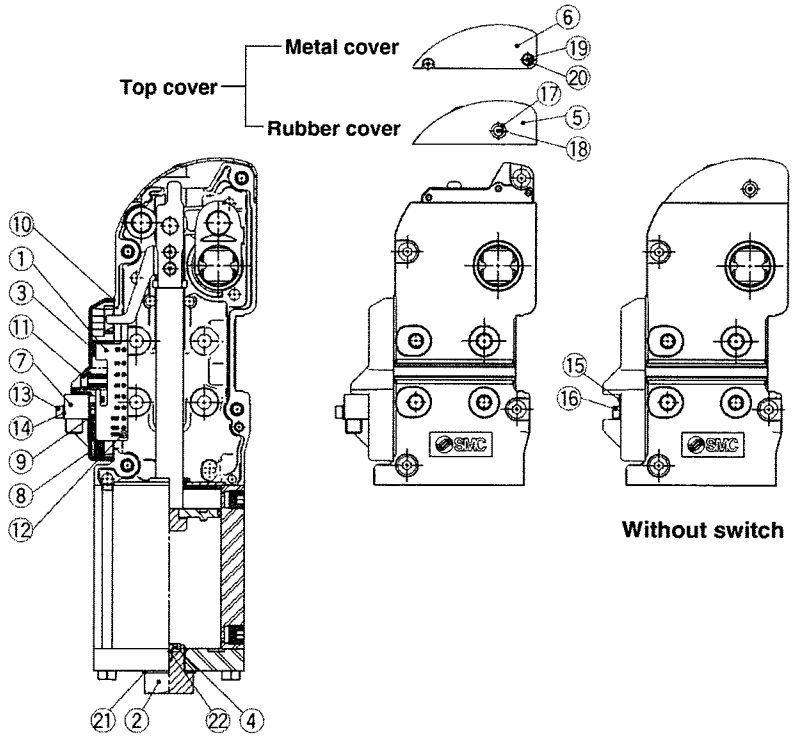
Bore size (mm)	Max. clamping moment					
	0.3 MPa	0.4 MPa	0.5 MPa	0.6 MPa	0.7 MPa	0.8 MPa
50	100	130	160	190	220	250
63	300	350	400	450	500	550

Cylinder Stroke

Unit: mm

Bore size (mm)	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

Construction



Component parts

No.	Description
1	Switch actuator
2	Stopper bolt
3	Switch holder
4	Bumper
5	Top cover
6	Metal cover
7	Proximity switch
8	Helical torsion spring
9	Hexagon nut type 3
10	Switch holder gasket
11	Hexagon socket head cover cap screw
12	Hexagon socket head cover cap screw
13	Hexagon socket head cap screw
14	Small round flat washer
15	Switch holder cover
16	Hexagon socket head cap screw
17	Spacer
18	Short head cap screw
19	Metal washer
20	Short head cap screw
21	Seal washer
22	Bumper stopper

Table 1

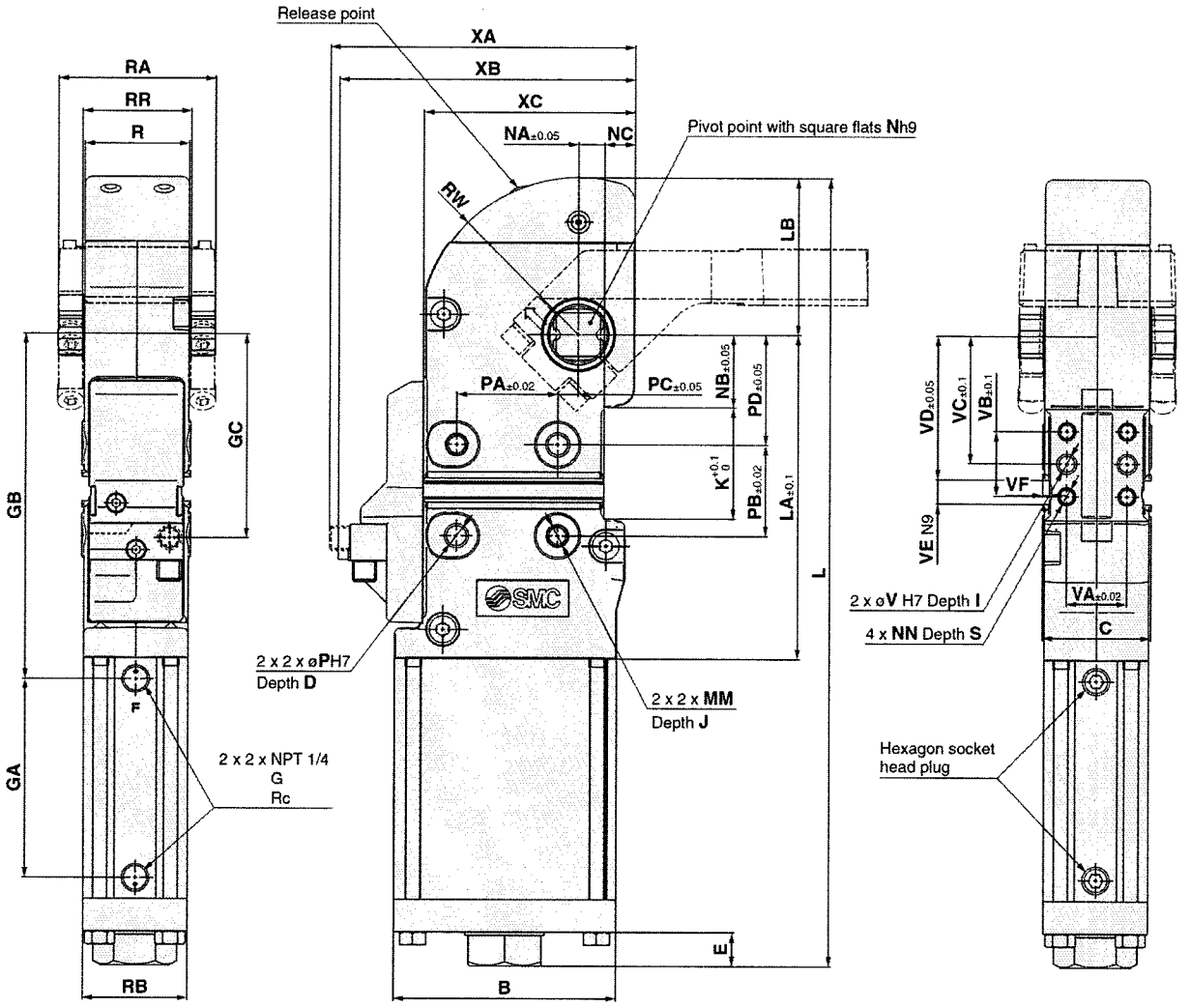
Opening angle	Code
15°	J
30°	H
45°	G
60°	F
75°	E
90°	D
105°	C
120°	B
135°	A

Replaceable kits list

Description	Bore size (mm)	Kit no.	Contents
Switch kits	50	CKZ3N-S050T Note 1)	③Switch holder ⑦Proximity switch (TURCK) ⑧Helical torsion spring ⑨Hexagon nut type 3 ⑩Switch holder gasket ⑪Hexagon socket head cover cap screw ①Switch actuator ⑫Hexagon socket head cover cap screw ⑬Hexagon socket head cap screw ⑭Small round flat washer
	63	CKZ3N-S063T Note 1)	
	50	CKZ3N-S050P Note 1)	③Switch holder ⑦Proximity switch (P&F) ⑧Helical torsion spring ⑨Hexagon nut type 3 ⑩Switch holder gasket ⑪Hexagon socket head cover cap screw ①Switch actuator ⑫Hexagon socket head cover cap screw ⑬Hexagon socket head cap screw ⑭Small round flat washer
	63	CKZ3N-S063P Note 1)	
	50	CKZ3N-S050W Note 1)	③Switch holder ⑮Switch holder cover ⑨Hexagon nut type 3 ⑩Switch holder gasket ⑪Hexagon socket head cover cap screw ⑯Hexagon socket head cap screw
	63	CKZ3N-S063W Note 1)	
Stopper bolt kits	50	CKZ3N-B050I Note 2)	②Stopper bolt ㉑Seal washer ④Bumper ㉒Bumper stopper
	63	CKZ3N-B063I Note 2)	
Top cover kits	50	CKZ2N-T050	⑤Rubber cover ⑰Spacer ⑱Short head cap screw
	63	CKZ2N-T063	
	50	CKZ3N-T050M	⑥Metal cover ⑲Metal washer ⑳Short head cap screw
	63	CKZ3N-T063M	

Note 1) T=TURCK, P=P&F, W=Without switch Note 2) Please specify the opening angle by the code in Table 1.

Dimensions



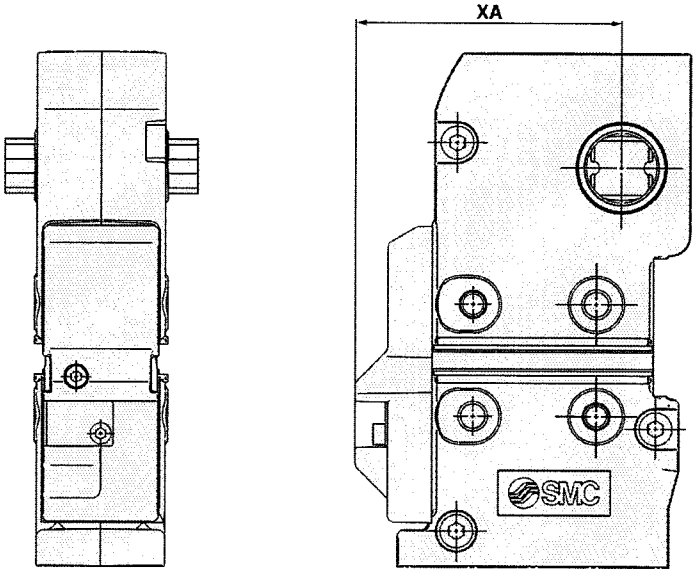
(mm)

Bore size (mm)	B	C	D	E	GA	GB	GC	I	J	K	L	LA	LB	MM	N	NA	NB	NC	NN	P
50	92	48	12	13.7	95	166	95.5	10	12	55	376.6	155.5	78.4	M10 x 1.5	19	13	36.5	9.5	M8 x 1.25	10
63	110	54	12	16.6	99	171.5	100.5	10	12	55	391.6	161	78	M10 x 1.5	22	13	36.5	15	M8 x 1.25	10

Bore size (mm)	PA	PB	PC	PD	R	RA	RB	RR	S	V	VA	VB	VC	VD	VE	VF	W	XA	XB	XC
50	50	45	10	55	46	68	46	48	11	8	30	32	63.5	71.5	12	3.5	78.4	138.5	134	92
63	50	45	10	55	52	78	52	54	11	8	30	32	63.5	71.5	12	3.5	78	151	146.5	104.5

Dimensions

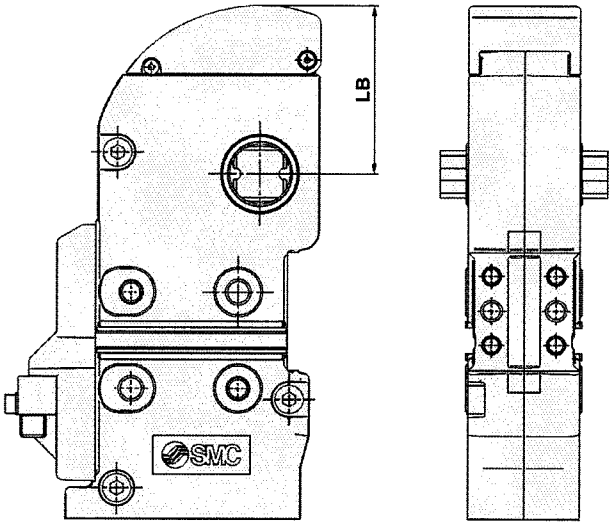
Without switch

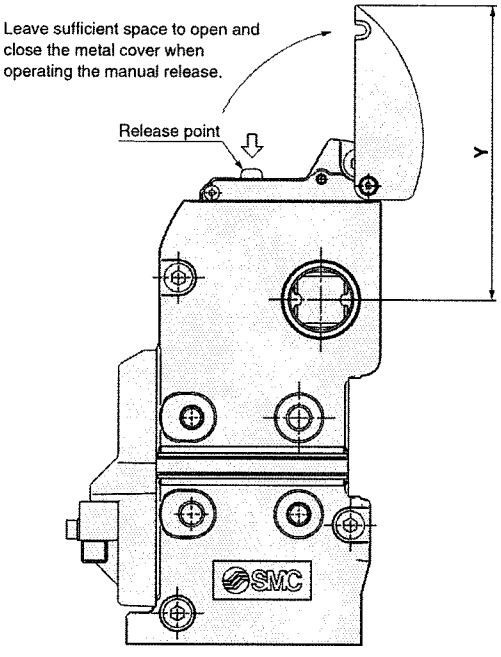


(mm)

Bore size (mm)	XA
50	100.5
63	107.5

Metal cover type



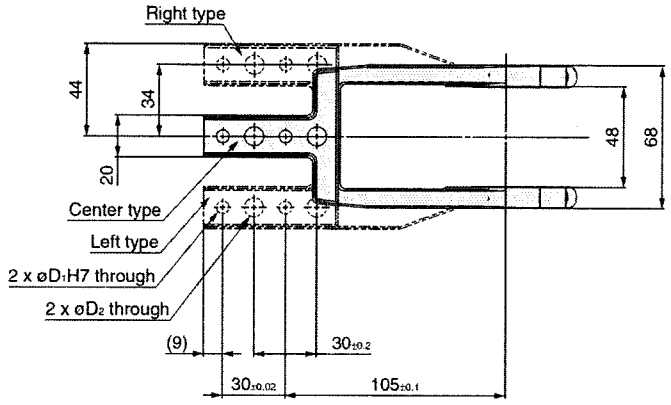


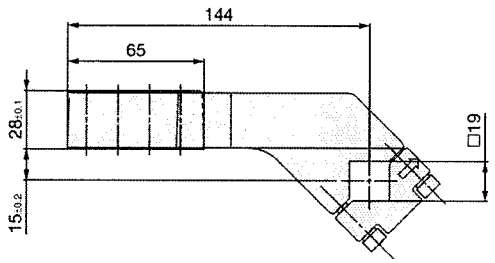
Cover open

(mm)

Bore size (mm)	LB	Y
50	78.4	132
63	78.4	138

nsions (Clamp Arm: Offset 15)





How to Order

CKZT50−A015 C S

Arm position

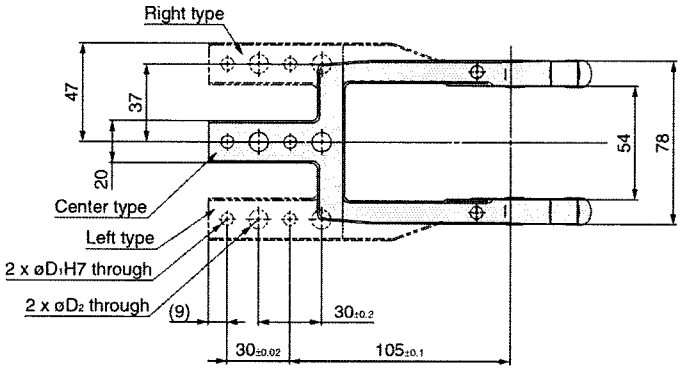
C	Center
R	Right
L	Left

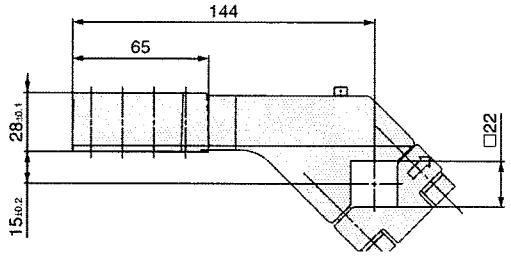
Mounting hole

Symbol	D₁	D₂
S	6	9
B	8	10.2

Weight

CKZT50-A015CS	0.79 kg
CKZT50-A015CB	0.78 kg
CKZT50-A015RS	0.90 kg
CKZT50-A015RB	0.89 kg
CKZT50-A015LS	0.90 kg
CKZT50-A015LB	0.89 kg





How to Order

CKZT63−A015 C S

Arm position

C	Center
R	Right
L	Left

Mounting hole

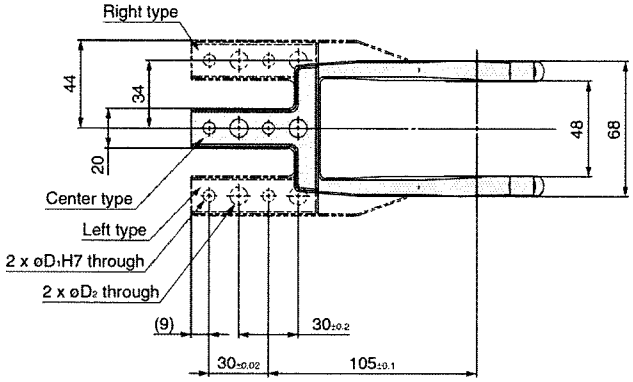
Symbol	D₁	D₂
S	6	9
B	8	10.2

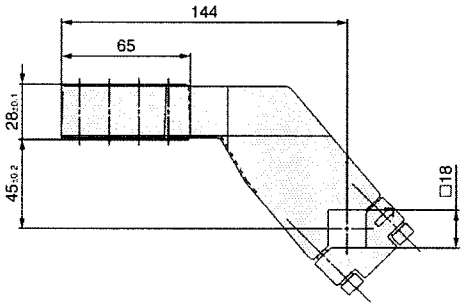
Weight

CKZT63-A015CS	1.02 kg
CKZT63-A015CB	1.01 kg
CKZT63-A015RS	1.10 kg
CKZT63-A015RB	1.08 kg
CKZT63-A015LS	1.10 kg
CKZT63-A015LB	1.08 kg

Dimensions (Clamp Arm: Offset 45)

ø50





How to Order

CKZT50−A045 C S

Arm position

C	Center
R	Right
L	Left

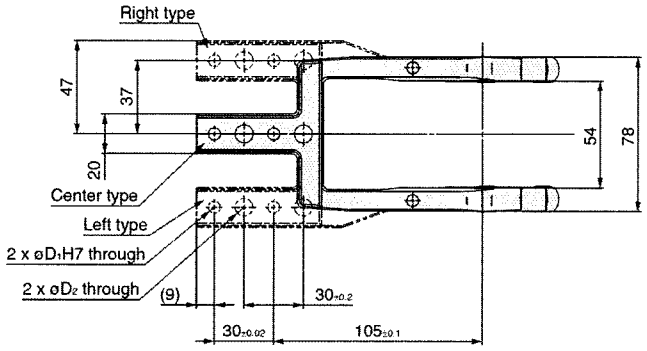
Mounting hole

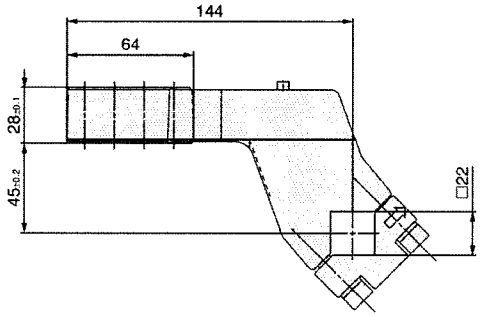
Symbol	D1	D2
S	6	9
B	8	10.2

Weight

CKZT50-A045CS	0.93 kg
CKZT50-A045CB	0.92 kg
CKZT50-A045RS	1.02 kg
CKZT50-A045RB	1.01 kg
CKZT50-A045LS	1.02 kg
CKZT50-A045LB	1.01 kg

ø63





How to Order

CKZT63−A045 C S

Arm position

C	Center
R	Right
L	Left

Mounting hole

Symbol	D1	D2
S	6	9
B	8	10.2

Weight

CKZT63-A045CS	1.19 kg
CKZT63-A045CB	1.18 kg
CKZT63-A045RS	1.25 kg
CKZT63-A045RB	1.23 kg
CKZT63-A045LS	1.25 kg
CKZT63-A045LB	1.23 kg

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.	·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.	·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.	·Supply appropriate pressure.
	2. Use of a meter-in circuit.	·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.	·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.	·Check the power supply. Connect the product properly.
	2. Displacement of the switch position.	·The switch location of the clamp side is different for Φ50 and Φ63.
	3. Lowered sensitivity of the switch.	·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.	·Adjust the shim properly.
Insufficient clamp force.	1. The relation between the shim depth and the clamp force is not correct.	·Adjust the shim properly.

Revision history

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