



THK Electrical Actuator Clean Series

CKSF

INSTRUCTION MANUAL

No.5050-1(0) E

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1. Introduction

1-1 Acknowledgment

Thank you for purchasing the Clean Series CKSF.

This product is an actuator suitable for using in a clean environment.

This product is designed and manufactured to be incorporated in devices with wide range of application including conveyance system, implementing equipment, automated assemblers, and positioning equipment, etc.

We hope our creative inventions and unique technologies contribute to your further prosperity.

1-2 About this manual

1-2-1 Intended audience

The person in charge of designing embedded systems of the product and installing, wiring, and maintaining the product, and the person who actually uses the product.

1-2-2 Using this manual

This manual describes correct handling methods and precautions for the product.

For the maximum performance and long life of the product, carefully read and understand this manual to safely and correctly use the product.

If you use the printed version of this manual, be sure to keep it in the place that the audience can refer to it when needed.

1-2-3 Notice and attention

- Do not use or handle the product in the ways that are not described in this manual.
- Do not reproduce, reprint, or lend the whole contents or a part of this manual without permission.
- Please note that the description in this manual is subject to change without prior notice in the future, due to improvements of the product or other reasons.
- We have made all possible efforts to make the content of this manual accurate. However, if you find any mistake or uncertainty in this manual, please contact THK.
- Drawings throughout this manual are only intended as typical examples, and may differ from your product.
- Note that THK shall not be liable for any result incurred by applying this manual, regardless of the reason.
- This manual is also applied to custom products. However, the descriptions provided in the delivery specification drawings or delivery specification documents of those custom products take precedence over this manual.

* Custom products represent the products that have different materials and specifications from those of the standard products on catalogs.

1-2-4 Notation of this manual

Important

- Notes that can lead to unsatisfactory functions, errors, or damages of the product if not observed while using the product.

Supplement

- Supplementary information for the description.

Reference

- Reference information for the description.

1-3 How to use this product

- This product must not be used for the devices or systems that are used under the situations that may be fatal to human life.
- If you consider using this product for special applications such as passenger movement vehicle, medical, aerospace, nuclear power, and electric power devices or systems, be sure to consult with THK in advance.
- This product is manufactured under the strict quality control, however, that does not mean that the product is free from failure. For applications to the equipment that may suffer serious accidents or loss from the failure of this product, install safety devices or backup devices that prevent such serious accidents or loss.

Important

- If you purchase this product with a motor, THC is the applicable driver controller. Please note that driver controllers other than the above cannot be used.

1-4 About product support

We have made all possible efforts to make the content of this manual accurate. However, if you find any mistake or uncertainty in this manual, please contact our Sales Division, and Customer Support, or IMT Operation Division.

For the following information, please contact THK.

- Technical support for this product

1-5 About related instruction manuals

- When you use the actuator CKSF, read the following instruction manuals as necessary.

· Controller series	Driver controller THC
· Controller series	Network unit TNU
· Controller series	Setup tool D-STEP
· Controller series	Digital operator TDO

1-6 Product and company information

To find the latest product and company information, we recommend you to periodically access our website.

The CKSF4-16 and CKSF10 models listed in this manual are those scheduled for release in Spring 2016.

- Website URL: <https://www.thk.com/>
- Technical support website URL: <http://www.tech.thk.com/>

2. Safety precautions

2. Safety Precautions

2-1

Warning indications on safety

This manual uses the following warning indications according to safety matters. The descriptions next to warning indications on safety are important messages. Be sure to observe those descriptions.



Warning “Erroneous handling may cause death or serious injury to a person”



Caution “Erroneous handling may cause injury to a person or property damage only”



“Prohibitions (don’t)”.



“Obligations (do)”.

2-2

Safety precautions

This section describes important precautions that you must observe.



Warning



■ General

- **While this product is operating or operable, do not enter the working area of any moving part.**
Otherwise, it may cause you to touch the moving part, leading to injury.
- **While the motor or sensor is energized, do not move or install this product.**
Otherwise, it may cause electric shocks, or cause malfunction that could lead to injury.



■ Installation and operation

- **If any moving part may fall by its own weight in vertical application or the like, provide a safeguard for preventing the part from falling.**
If any moving part falls, it may cause injury or damage.



- **While this product is operating, do not touch any moving part or rotating part.**
Otherwise, it may cause your hand to be caught and injured.



■ Maintenance

- **Turn off the machine (turning power off) before conducting any maintenance.**
Otherwise, it may cause electric shocks, or cause malfunction that could lead to injury.



- **If two or more people are involved in the operation, confirm the procedures such as sequences, signs, and abnormalities in advance, and appoint another person for monitoring the operation.**

Failure to do so may cause an unexpected accident.

 **Caution****■ General**

- **Do not stand on this product or the packaging box.**
Otherwise, it may cause fault or damage, or cause falling that could lead to injury.
- **Do not impact this product.**
Otherwise, it may cause fault or damage, or injure you.
- **Do not apply a load that exceeds the permissible level.**
Otherwise, it may cause fault or damage, or cause abnormal operation that could lead to injury.
* For your reference, see the Appendix, which contains the static permissible moment and permissible input torque for each model number.



- **Do not disassemble or alter this product.**
Otherwise, it may cause foreign material to enter the product, which could result in fault or adversely affect the performance or service life, or cause abnormal operation that could lead to injury.

**■ Unpacking**

- **Be careful not to hit your hands or body against protruded parts.**
Otherwise, it may cause injury, or cause fault or fracture of the product.
- **Check whether the delivered product is the product you ordered.**
Using a wrong product may cause malfunction that could lead to injury or fault.
- **Check whether the product has any fractured parts.**
Using a fractured product may cause injury or fault.
* If you find any defect, contact our Sales Division.

**■ Transportation**

- **Do not drop or hit this product.**
Otherwise, it may cause injury or fracture, or a functional loss.
- **When transporting this product, do not hold any moving part or the cover.**
Do not hold the side cover from the both sides.
Otherwise, it may cause the product to fall, leading to injury, or cause fault or fracture of the product.
- **Do not grasp the strip seal of this product.**
It may injure you.
Some parts of the strip seal may be sharp. Take care not to cut your hands or fingers.
Also, the strip seal must be replaced when it is scratched, pitted or dented.
Use of the strip seal in this state may cause early breakage or other damages.



- **When transporting this product, do not hold the motor, the sensor or the cable.**
Otherwise, it may cause the product to fall, leading to injury, or cause fault or fracture of the product.



- **When carrying this product, hold the bottom face of the product. CKSF8 and CKSF10 are heavy articles (20 kg or heavier). Two or more people should hold the product as necessary.**
Otherwise, it may cause the product to fall, leading to injury, or cause fault or fracture of the product.
* For more information on the weight of the product, see the catalog of the Clean Series CKSF/CKRF.

■ Installation and operation**● Firmly secure this product before operating it.**

Failure to do so may cause abnormal operation that could cause injury, fault or fracture.

● If anomaly occurs, immediately stop the machine.

Failure to do so may cause abnormal operation that could cause injury, fault or fracture.

● Anti-rust oil is applied on the table mounting surface and ball screw shaft end. Thoroughly wipe off the oil before operating the product.**● Do not exceed the maximum speed when using the product.**

Otherwise, it may cause fault or damage, or cause abnormal operation that could lead to injury.

For your reference, see the specification (→ P.4-1), which contains the maximum speed for each model number at each stroke.

● Do not use the failed and broken product.

Otherwise, it may cause injury or machine failure.



2. Safety precautions

2. Safety Precautions

2-3

Checking the precautions/instruction labels

This product is affixed with precautions/instruction labels. Identify them when unpacking the product.

Fig.1 shows the affixing position.

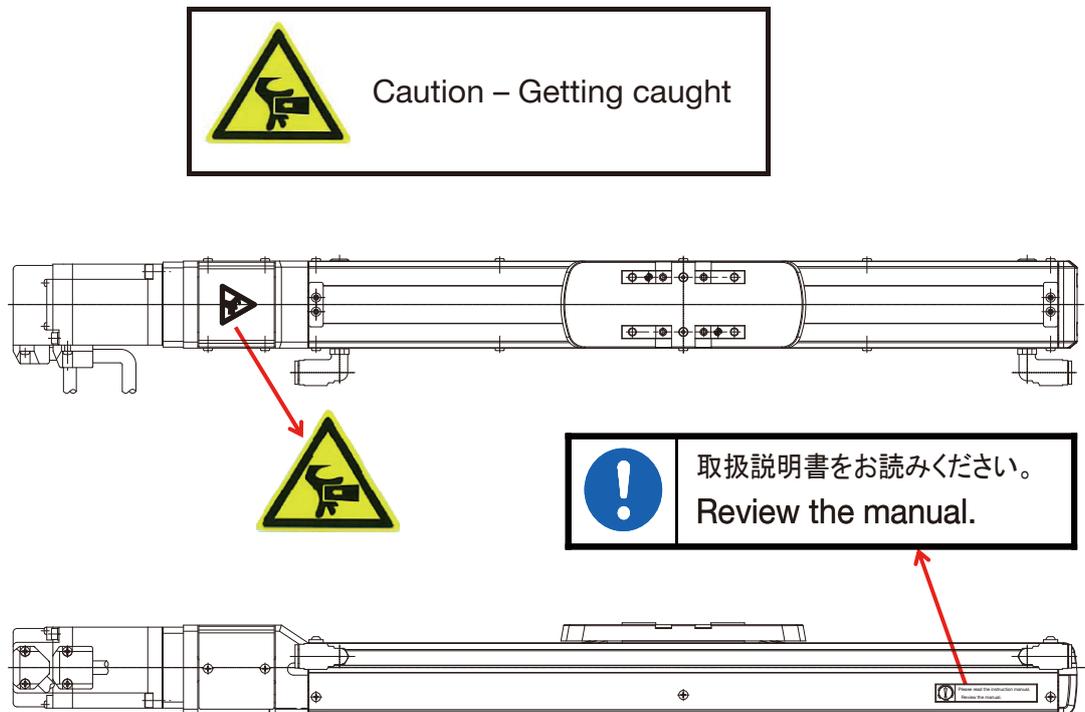


Fig. 1 CKSF Precautions/instruction labels affixing positions

3. Nameplates Display

3. Nameplates Display

3-1

Nameplates display and serial number

Fig. 2 shows the nameplate format of the Clean Series CKSF.

TYPE No.: Actuator model

SERIAL No.: Serial number

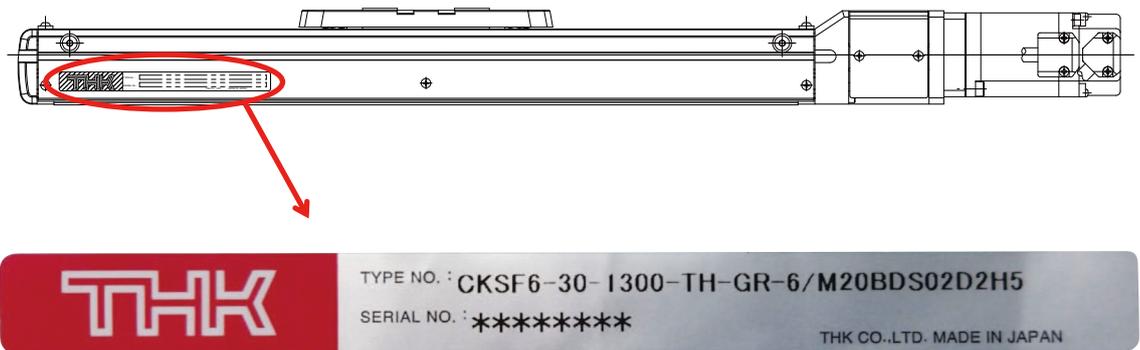


Fig. 2 CKSF Nameplate details

5. Structure and Model Numbers

5-1 Structure and part names

The name of each part of this product is shown in Fig. 3.

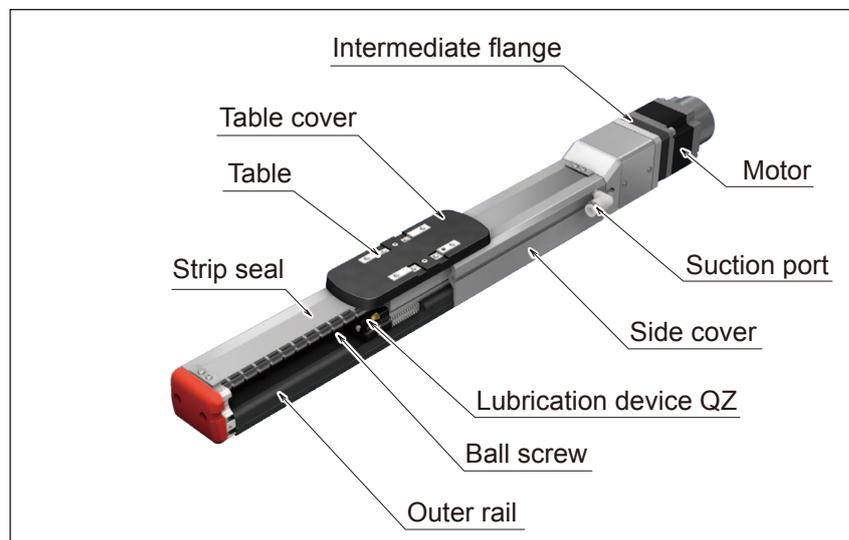


Fig. 3 The structure and part names of CKSF

- * For details such as the dimensions and accuracy, see the delivery specification drawings or catalog of Clean Series CKSF/CKRF.
If you have any question, contact THK.

5. Structure and Model Numbers

5-2

Model configuration

The following is an example of model number coding.

■ CKSF (type without motor)

In the case of actuator main unit only or when the motor specified by the customer is installed

<Model configuration> Without motor type

CKSF4 - 10 - 0150 - 0 - AQ - T-GR

(1)	(2)	(3)	(4)	(5)	(6)
(1) Model number	CKSF4,CKSF5,CKSF6,CKSF8,CKSF10				
(2) Ball screw lead	10 : (CKSF4, CKSF5) 16 : (CKSF4) 20 : (CKSF5, CKSF6, CKSF8) 25 : (CKSF10) 30 : (CKSF6) 40 : (CKSF8) 50 : (CKSF10)				
(3) Stroke	0150 : 150mm (50 to 1500mm) Maximum stroke = CKSF4: 900 mm (50 mm pitch), CKSF5: 900 mm (50 mm pitch), CKSF6: 1300 mm (50 mm pitch), CKSF8: 1500 mm (100 mm pitch), CKSF10: 1500 mm (100 mm pitch)				
(4) With/without motor	0 : Without motor When selecting "0", a coupling is not provided. 1 : With motor When selecting "1", the motor you specify will be installed.				
(5) Intermediate flange	A0 : No intermediate flange AQ AV AP AY AR AU AZ A5 A6				
(6) Option	No symbol : None T : Power tap GR : Gray 6 : Photo sensor J : Proximity sensor M : Proximity sensor (PNP)				

5. Structure and Model Numbers

■ CKSF (type with motor)

When combining with dedicated controller

<Model configuration> Specification of THC with motor

CKSF4 - 10 - 0150 - TH - GR-6/M10 L S02 D1 H3
 (1) (2) (3) (4) (5) (6) (7) (8) (9) (10)

(1) Model number	CKSF4,CKSF5,CKSF6,CKSF8,CKSF10
(2) Ball screw lead	10 : (CKSF4, CKSF5) 16 : (CKSF4) 20 : (CKSF5, CKSF6, CKSF8) 25 : (CKSF10) 30 : (CKSF6) 40 : (CKSF8) 50 : (CKSF10)
(3) Stroke	0150 : 150mm (50 to 1500mm) Maximum stroke = CKSF4: 900 mm (50 mm pitch), CKSF5: 900 mm (50 mm pitch), CKSF6: 1300 mm (50 mm pitch), CKSF8: 1500 mm (100 mm pitch), CKSF10: 1500 mm (100 mm pitch)
(4) Control device	TH : Driver controller THC Separate order for the control device is required.
(5) Option	No symbol : None MR : Motor right side return ML : Motor left side return MD : Motor down-turn return T : Power tap GR : Change the cover color to gray 6 : Photo sensor J : Proximity sensor
(6) Motor rated output	M10 : 100 W M10B : 100W with brake M20 : 200 W M20B : 200W with brake M40 : 400 W M40B : 400W with brake M75 : 750 W M75B : 750W with brake
(7) Motor cable direction	R : Right U : Up L : Left D : Down
(8) Origin	D00 : Motor side R00 : Reverse motor side S02 : Motor side (right side of the sensor) S03 : Reverse motor side (right side of the sensor) S20 : Motor side (left side of the sensor) S30 : Reverse motor side (left side of the sensor)
(9) Power supply voltage	D1 : 100 V D2 : 200 V
(10) Cable length	No symbol : None F3 : 3 m standard F5 : 5 m standard FA : 10 m standard H3 : 3 m high flex H5 : 5 m high flex HA : 10 m high flex Indicates the type and length of attached cables.

6. Storage and Transportation

6. Storage and Transportation

6-1

Precautions to be observed for safe use

Caution



- **Do not drop or hit this product.**

Otherwise, it may cause injury or fracture, or a functional loss.

- **When transporting this product, do not hold any moving part or the cover.**

Otherwise, it may cause the product to fall, leading to injury, or cause fault or fracture of the product.



- **Do not grasp the strip seal of this product.**

It may injure you.

Some parts of the strip seal may be sharp. Take care not to cut your hands or fingers.

Also, the strip seal must be replaced when it is scratched, pitted or dented.

Use of the strip seal in this state may cause early breakage or other damages.

- **When transporting this product, do not hold the motor, the sensor or the cable.**

Otherwise, it may cause the product to fall, leading to injury, or cause fault or fracture of the product.

- **When hoisting this product, use the base, and avoid applying load to any other parts (side cover, strip seal, housing B cover, motor, etc.).**



- **When carrying this product, hold the bottom face of the product. CKSF8 and CKSF10 are heavy articles (20 kg or heavier). Two or more people should hold the product as necessary.**

* For more information on the weight of the product, see the catalog of the Clean Series CKSF/CKRF.

6. Storage and Transportation

6. Storage and Transportation

6-2

Precautions to be observed for prevention of product fault or fracture



- **Since using an adverse storage environment may cause fault, store the product in the environment described below:**
 - Place where the ambient temperature range is 0 to 40°C indoors (no freezing)
 - Place where the ambient humidity range is 20% to 80% RH indoors (no condensation)
 - Place where the product is not exposed to water
 - Place where no flammable substance exists in the vicinity
 - Place where a vibration or shock does not transmit to the product
 - Place where liquid containing impurities such as conductive iron dust, powder such as solid abrasive, dust, oil mist, cutting oil, water content, salt content, organic solvent, or corrosive/flammable gas is not generated or does not float
 - A place where no direct sunlight nor radiation heat reaches
 - Place where no strong electric field nor strong magnetic field develops
 - Place where inspections and cleanings can be easily performed
- **This product is provided with antirust treatment and sealed before being packed. When storing the product, enclose it in a package designated by THK and store it in a horizontal orientation while avoiding high temperature, low temperature and high humidity.**
- **When you remove the suction port, be sure to turn off the power supply and stop the supply voltage first, and check that fluid in the piping has come out.**
- **After mounting, wiring, and pipework, pass fluid or connect power supply, and perform an appropriate function test and leak test. If you find any leaks or the devices not functioning properly, do not use the product and make sure that the parts are mounted correctly, it may lose the cleaning performance.**



- **Do not apply an excessive load on the package, otherwise, it may cause fault or fracture.**

7. Installation and Operation

7. Installation and Operation

7-1

Precautions to be observed for safe use

Warning



- **If any moving part may fall by its own weight in vertical application or the like, provide a safeguard for preventing the part from falling.**

If any moving part falls, it may cause injury or damage.



- **While this product is operating, do not touch any moving part or rotating part.**

Otherwise, it may cause your hand to be caught and injured.

Caution



- **Firmly secure this product before operating it.**

Failure to do so may cause abnormal operation that could cause injury, fault or fracture.

- **If anomaly occurs, immediately stop the machine.**

Failure to do so may cause abnormal operation that could cause injury, fault or fracture.

- **Do not grasp the strip seal of this product.**

It may injure you.

Some parts of the strip seal may be sharp. Take care not to cut your hands or fingers.



- **Do not exceed the permissible rotational speed when using the product.**

Otherwise, it may cause fault or damage, or cause abnormal operation that could lead to injury.

- **Do not use the failed and broken product.**

Otherwise, it may cause injury or machine failure.

7. Installation and Operation

7-2

Precautions to be observed for prevention of product fault or fracture



- **Since using an adverse service environment may cause fault, use the product in the environment described below.**
 - If air cleanliness is required
Service temperature: +16°C to +24°C (no condensation at the humidity of 50%RH or less)
 - If used in normal environments (under the usual atmosphere)
Service temperature: +10°C to +40°C (no condensation at the humidity of 20 to 80%RH or less)
 - Place where the product is not exposed to water
 - Place where no flammable substance exists in the vicinity
 - Place where a vibration or shock does not transmit to the product
 - Place where liquid containing impurities such as conductive iron dust, powder such as solid abrasive, dust, oil mist, cutting oil, water content, salt content, organic solvent, or corrosive/flammable gas is not generated or does not float
 - A place where no direct sunlight nor radiation heat reaches
 - Place where no strong electric field nor strong magnetic field develops
 - Place where inspections and cleanings can be easily performed
- **A magnet is used for adhering the strip seal. Do not use in environments where large quantities of iron powder or other magnetic substances are contained in the atmosphere. If using in such an environment, cover the actuator so that iron powder does not get inside.**
- **Certain types of coolants may cause trouble to the function of the product. If using the product in an environment where the coolant may enter into the product, contact THK.**
- **Prevent foreign materials such as dust or metallic powder from entering into the product since it may cause abnormal wear or shorten the service life.**
If foreign material enter the product, take a dustproof measure that matches the service atmosphere.
- **The mounting surface for this product must be a machined plane or have the accuracy equivalent to the machined plane. If the surface is insufficiently accurate, it may adversely affect the performance or the service life. In addition, be sure to mount the product on a sufficiently rigid base.**
- **When installing the product, provide a space sufficient to perform the maintenance.**
- **Use the product within the stroke range.**
- **Be careful not to let the parts to be mounted on the table of this product interfere with any other parts near the stroke end.**
- **Check that there is no tool or bolt in the product before operating it.**



- **The stoppers attached to both stroke ends are not for positioning. Do not use them for positioning.**
- **T slot on the side cover is provided for the sensor installation only. Do not use this in any other purpose.**



- **Do not let the table collide with the stopper.**
Collision may cause fault or fracture.



- **The standard models contain the following grease.**
THK AFF grease

7. Installation and Operation

7. Installation and Operation



- **The photomicro sensors do not have the water-proof or dust-proof structure. Do not use it in a place where much dust or oil mist is present, or where water, oil or chemical directly or indirectly flies. For other detail information, see the catalog issued by the sensor manufacturer.**
 - * Standard sensors
 - EE-SX674: OMRON Corp.
- **Do not apply external force on the strip seal.**

Otherwise, the strip seal might become scratched, pitted or dented. Use of the strip seal in this state may cause early breakage or other damages. The strip seal must be replaced when it is scratched or dented.
- **Do not drop objects on the strip seal, or scratch, pit or dent it.**

The strip seal must be replaced when it is scratched, pitted or dented as a result of a tool or other object falling on it.

Use of the strip seal in this state may cause early breakage or other damages.

Also, if there is the risk of tools or other items falling onto the main unit during work, cover the top surface of the main unit (strip seal section) with shock absorber (e.g. thickish (3mm or thicker) natural rubber or PVC resin). This will make it harder for the strip seal to be damaged by falling objects.

During work, take sufficient care not to damage the strip seal or other parts.
- **Check the strip seal for dirt or adhesion of foreign material.**

Adhesives, paints or other viscous items or solids sticking to the strip seal or other parts might cause the slider to malfunction or damage the strip seal. If it becomes dirty, wipe off the dirt using a clean waste cloth soaked with alcohol-based detergent.

7-3

Other precautions

- **If you use proximity sensors close to each other, they may interfere with each other. To avoid such mutual interference, consider taking an appropriate measure such as keeping a sufficient distance between the sensors and using sensors of different frequencies.**

For details, see the catalog issued by the sensor manufacturer.
- **If a stainless steel sensor dog is used when a proximity sensor is used, note that the detection distance is shorter than that of an iron dog.**

For details, see the catalog issued by the sensor manufacturer.

 - * Standard sensors
 - GX-F12A, GX-F12B: Panasonic Industrial Devices SUNX Co., Ltd.
- **For selection and handling of a motor, see the respective catalog and instruction manual issued by the motor manufacturer.**

For data required to select a motor, see the appendix for your reference.
- **For selection, handling and mounting of a coupling, see the respective catalog issued by the coupling manufacturer.**

Check necessary data such as permissible torque, eccentricity, deflection angle and tightening torque of the assembly bolt.
- **For handling and mounting of suction ports, see the respective catalog issued by the port manufacturer.**
- **For selection and mounting of tubes, see the respective catalog issued by the port manufacturer.**

7. Installation and Operation

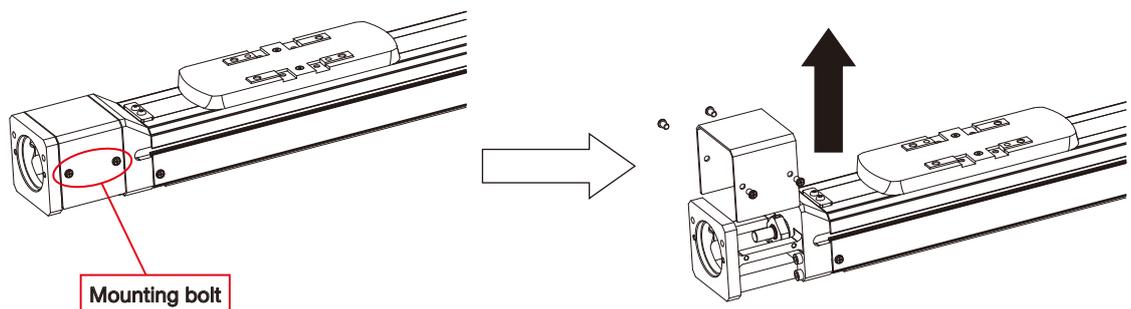
7. Installation and Operation

7-4 Motor mounting method

We have an intermediate flange to mount various motors onto CKSF.

The example below is the case of mounting a coupling by Miki Pulley Co., Ltd. and a servo motor by Tamagawa Seiki Co., Ltd. onto CKSF.

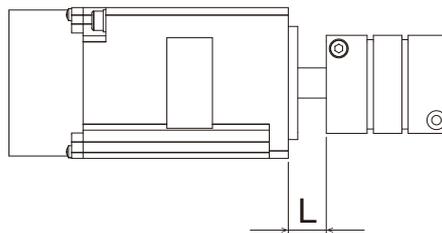
1. Remove the bolt and remove the housing A cover toward the direction of arrow.



Model	Bolt size
CKSF4	M2.6 x 5L
CKSF5	M2.6 x 5L
CKSF6	M2.6 x 5L
CKSF8	M2.6 x 5L
CKSF10	M2.6 x 5L

Bolt type: cross recessed head screw for precision devices (No. 0 pan-head screw type 3)

2. Tighten the coupling onto the motor shaft.

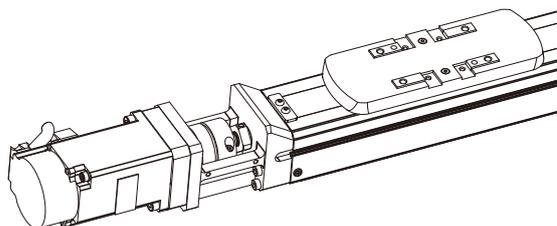


Model	Motor models	Coupling models	L dimensions [mm]	Clamping bolt size	Tightening torque [N·cm]
CKSF4	TS4603 (Tamagawa Seiki Co., Ltd.)	SFC-020DA2-6B-8B (Miki Pulley Co., Ltd.)	15	M2.5	100 to 110
CKSF5	TS4603 (Tamagawa Seiki Co., Ltd.)	SFC-020DA2-8B-8B (Miki Pulley Co., Ltd.)	14.7	M2.5	100 to 110
CKSF6	TS4607 (Tamagawa Seiki Co., Ltd.)	SFC-030DA2-9B-14B (Miki Pulley Co., Ltd.)	17.5	M3	150 to 190
CKSF8	TS4609 (Tamagawa Seiki Co., Ltd.)	SFC-030DA2-12B-14B (Miki Pulley Co., Ltd.)	17.7	M3	150 to 190
CKSF10	TS4614 (Tamagawa Seiki Co., Ltd.)	SFC-040DA2-15B-19B (Miki Pulley Co., Ltd.)	17	M4	340 to 410

Bolt type: Hexagonal-socket-head type bolt

7. Installation and Operation

3. Mount the motor.



Model	Bolt size, pcs	Tightening torque [N·cm]
CKSF4	M4 x 10L 2 pcs / flat washer / small washer 4	266
CKSF5	M4 x 10L 2 pcs / flat washer / small washer 4	398
CKSF6	M5 x 12L 4 pcs / flat washer / small washer 5	474
CKSF8	M5 x 12L 4 pcs / flat washer / small washer 5	711
CKSF10	M6 x 18L 4 pcs / flat washer / small washer 6	1140

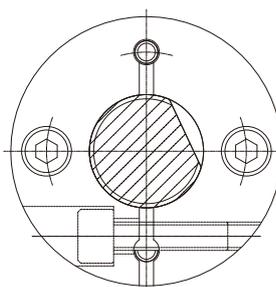
[For intermediate flange AR]

Mount the motor onto the attached intermediate flange. Next, connect the intermediate flange to housing A.

Model	Bolt size, pcs	Tightening torque [N·cm]
CKSF4	M3 x 12L 2 pcs	131
CKSF5	M3 x 12L 2 pcs	131

4. Tighten the coupling to the ball screw shaft. Take note of the position of the flat surface of the ball screw end when securing the coupling.

The flat surface should be positioned as per the figure below.



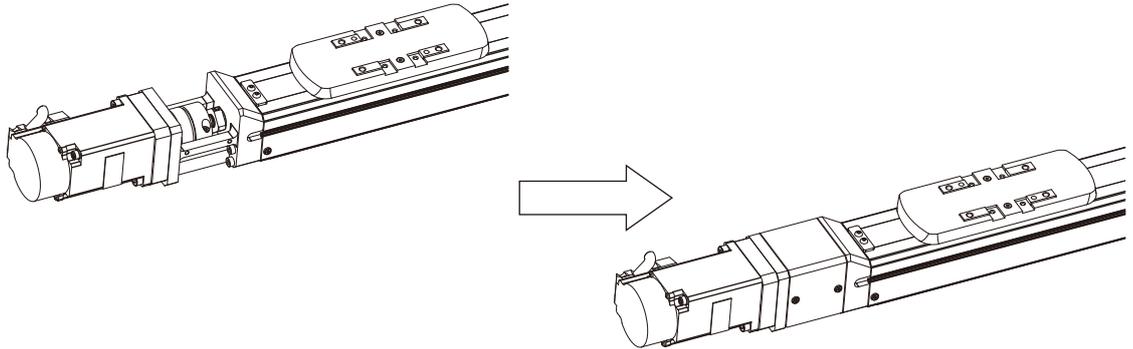
Model	Motor models	Coupling models	Clamping bolt size	Tightening torque [N·cm]
CKSF4	TS4603 (Tamagawa Seiki Co., Ltd.)	SFC-020DA2-6B-8B (Miki Pulley Co., Ltd.)	M2.5	100 to 110
CKSF5	TS4603 (Tamagawa Seiki Co., Ltd.)	SFC-020DA2-8B-8B (Miki Pulley Co., Ltd.)	M2.5	100 to 110
CKSF6	TS4607 (Tamagawa Seiki Co., Ltd.)	SFC-030DA2-9B-14B (Miki Pulley Co., Ltd.)	M3	150 to 190
CKSF8	TS4609 (Tamagawa Seiki Co., Ltd.)	SFC-030DA2-12B-14B (Miki Pulley Co., Ltd.)	M3	150 to 190
CKSF10	TS4614 (Tamagawa Seiki Co., Ltd.)	SFC-040DA2-15B-19B (Miki Pulley Co., Ltd.)	M4	340 to 410

Bolt type: Hexagonal-socket-head type bolt

7. Installation and Operation

7. Installation and Operation

5. Mount the housing A cover.



Model	Bolt size	Tightening torque [N·cm]
CKSF4	M2.6 x 5L	30
CKSF5	M2.6 x 5L	30
CKSF6	M2.6 x 5L	30
CKSF8	M2.6 x 5L	30
CKSF10	M2.6 x 5L	30

Bolt type: cross recessed head screw for precision devices (No. 0 pan-head screw type 3)

7. Installation and Operation

7. Installation and Operation

7-5

Method of mounting/removing side covers and fixing outer rails



Caution

- **Do not drop objects on the strip seal, or scratch, pit or dent it.**

The strip seal must be replaced when it is scratched, pitted or dented as a result of a tool or other object falling on it.

Use of the strip seal in this state may cause early breakage or other damages.

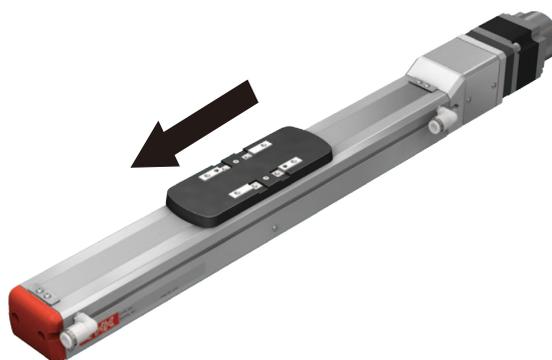
During work, take sufficient care not to damage the strip seal or other parts.

- **Make sure to wear gloves while working.**

Some parts of the strip seal of this product may be sharp. Take care not to cut your hands or fingers.

[Countersunk hole specification]

1. Move the table to the stroke center.

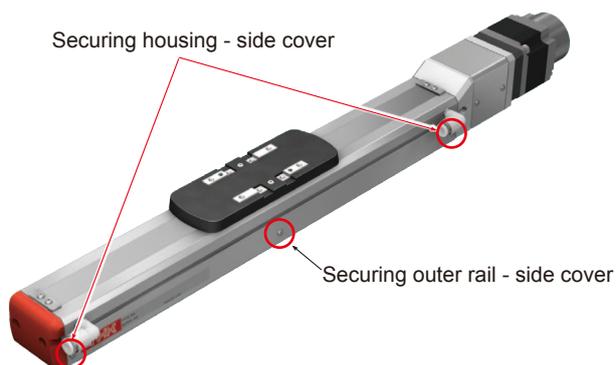


2. Remove the bolt securing the side cover.

Note) Do not remove the strip seal.

You will need the dedicated jig and adjustments when you mount the strip seal.

Always use a dedicated jig for adjustment when mounting the strip seal. See 8-9 for information regarding the strip seal mounting procedure.

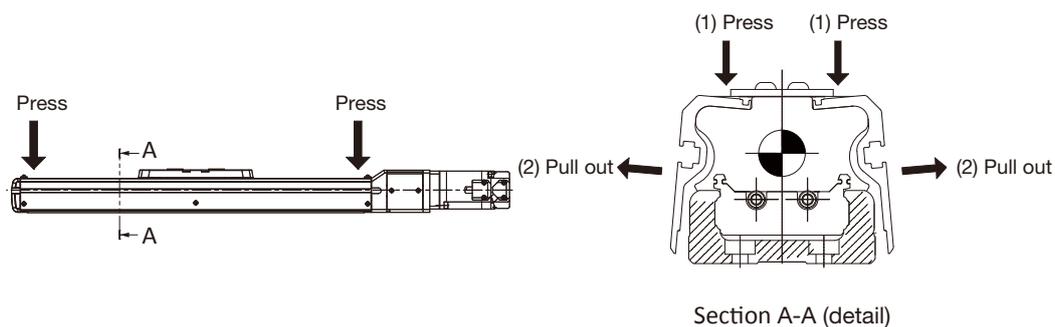
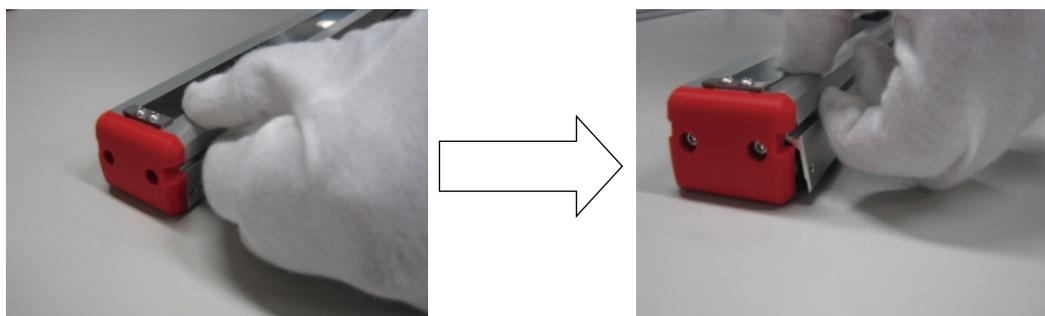


7. Installation and Operation

Model	Outer rail - Side cover	Housing - Side cover
CKSF4	M2.6 x 5L	M2.6 x 5L
CKSF5	M2.6 x 5L	M2.6 x 5L
CKSF6	M2.6 x 5L	M2.6 x 10L
CKSF8	M2.6 x 5L	M2.6 x 10L
CKSF10	M2.6 x 5L	M2.6 x 10L

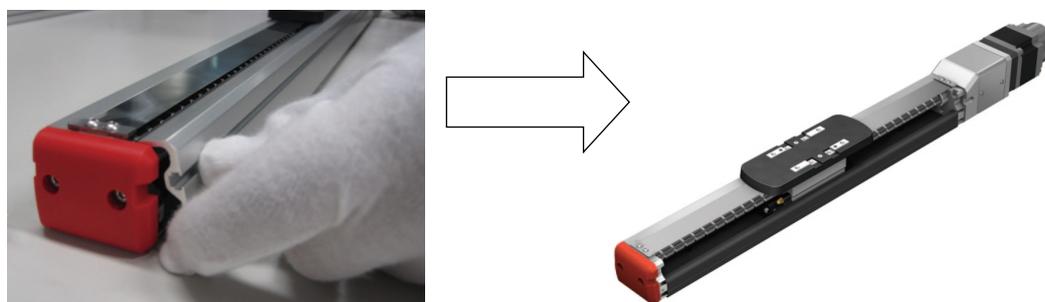
Bolt type: cross recessed head screw for precision devices (No. 0 pan-head screw 3 types)

3. Press onto the top face of both ends of the side cover and pull the T slot up to tilt the cover.



4. Remove the side cover while tilted.

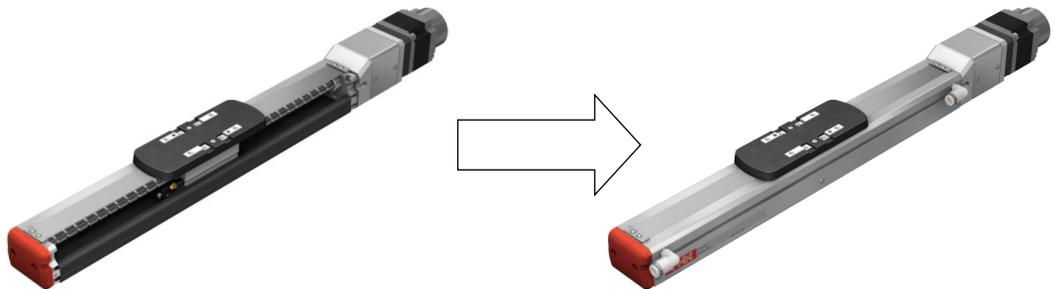
Note) Be careful not to damage the strip seal when you remove the side cover.



7. Installation and Operation

7. Installation and Operation

5. Remove the opposite side in the same manner.

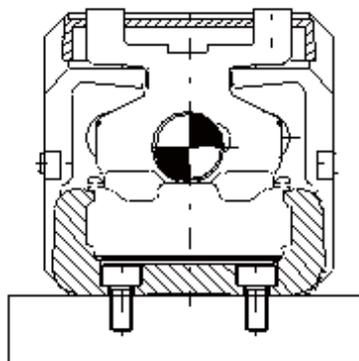


6. Secure it with a bolt.

Note) Secure the actuator using all the mounting holes.

Note) Use the bolt with the most appropriate length. See Table 1 for details.

Note) You will need a bit with a ball point attached when you tighten the bolt to secure the outer rail.



Model			CKSF4		CKSF5		CKSF6	
Bolt size			M3		M4		M5	
Bolt material (tensile strength rank)			Steel (10.9)	SUS (A2-70)	Steel (10.9)	SUS (A2-70)	Steel (10.9)	SUS (A2-70)
Fit length of screw [mm]			4.5		6		7.5	
Tightening torque [N·cm]	Material of mounting surface	Iron	170	100	345	229	616	457
		Aluminum	137	100	320	229	614	457
Model			CKSF8		CKSF10			
Bolt size			M6		M8			
Bolt material (tensile strength rank)			Steel (10.9)	SUS (A2-70)	Steel (10.9)	SUS (A2-70)		
Screw-in depth [mm]			9		12			
Tightening torque [N·cm]	Material of mounting surface	Iron	991	772	2039	1870		
		Aluminum	991	772	2039	1870		

Table 1 Outer rail tightening torque

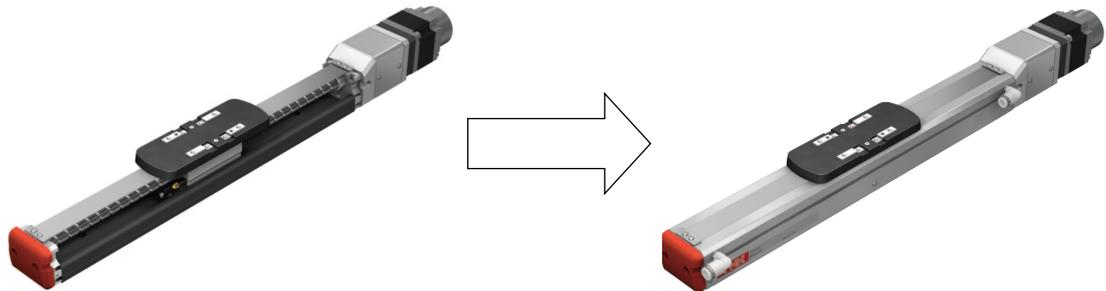
7. Installation and Operation

7. Installation and Operation

7. Move the table to the stroke center and mount the side cover.

Note) For a long stroke, the strip seal may sag depending on the installation direction. If that happens, lift up a strip seal slightly with fingers so that it will not contact the side cover. Working with 2 people is recommended if it is difficult to mount the side cover while pulling up the strip seal.

* Take care not to pull the strip seal up too far if lifting with fingers. Lifting the strip seal up too far while the strip seal holder is fastened may cause the strip seal to break or require adjustment to the mounting position.



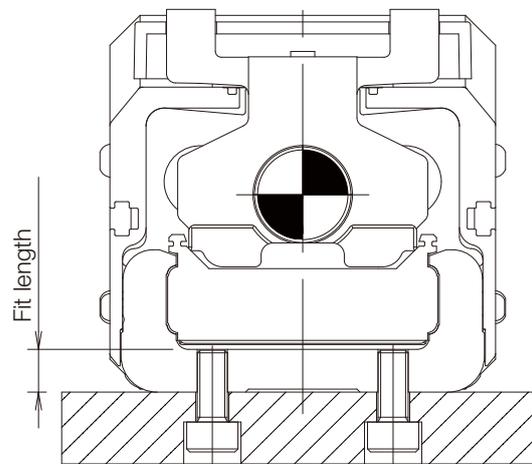
Model	Outer rail - Side cover	Housing - Side cover	Tightening torque [N-cm]
CKSF4	M2.6 x 5L	M2.6 x 5L	30
CKSF5	M2.6 x 5L	M2.6 x 5L	30
CKSF6	M2.6 x 5L	M2.6 x 10L	30
CKSF8	M2.6 x 5L	M2.6 x 10L	30
CKSF10	M2.6 x 5L	M2.6 x 10L	30

Bolt type: cross recessed head screw for precision devices (No. 0 pan-head screw type 3)

7. Installation and Operation

7. Installation and Operation

[Rear tap specifications]



Model			CKSF4		CKSF5		CKSF6	
Bolt size			M4		M5		M5	
Bolt material (tensile strength rank)			Steel (10.9)	SUS (A2-70)	Steel (10.9)	SUS (A2-70)	Steel (10.9)	SUS (A2-70)
Fit length of screw [mm]			4		5		5	
Tightening torque [N·cm]	Material of mounting surface	Iron	345	229	616	457	616	457
		Aluminum	266	229	474	457	474	457
Model			CKSF8		CKSF10			
Bolt size			M6		M8			
Bolt material (tensile strength rank)			Steel (10.9)	SUS (A2-70)	Steel (10.9)	SUS (A2-70)		
Screw-in depth [mm]			6		8			
Tightening torque [N·cm]	Material of mounting surface	Iron	991	772	2039	1870		
		Aluminum	763	763	1569	1569		

7. Installation and Operation

7-6

Mounting method for objects to be mounted

Caution

- **Do not drop objects on the strip seal.**

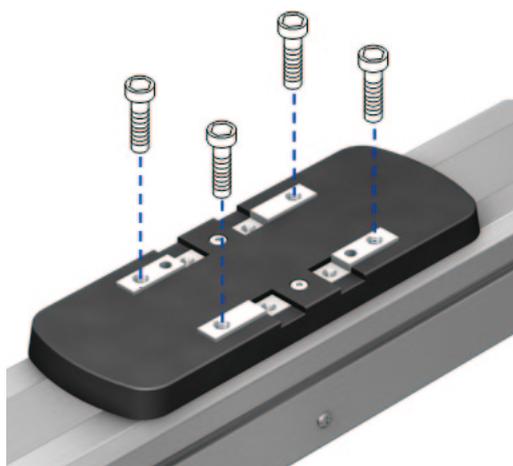
The strip seal must be replaced when it is scratched, pitted or dented as a result of a tool or other object falling on it.

Use of the strip seal in this state may cause early breakage or other damages.

Also, if there is the risk of tools or other items falling onto the main unit during work, cover the top surface of the main unit (strip seal section) with shock absorber (e.g. thickish (3mm or thicker) natural rubber or PVC resin). This will make it harder for the strip seal to be damaged by falling objects.

During work, take sufficient care not to damage the strip seal or other parts.

Secure objects to be conveyed using the taps provided on the table.



Model			CKSF4		CKSF5		CKSF6	
Bolt size			M4		M4		M5	
Bolt material (tensile strength rank)			Steel (10.9)	SUS (A2-70)	Steel (10.9)	SUS (A2-70)	Steel (10.9)	SUS (A2-70)
Screw-in depth [mm]			6		6		7.5	
Tightening torque [N·cm]	Material of mounting surface	Iron	345	229	345	229	616	457
		Aluminum	266	229	266	229	474	457
Model			CKSF8		CKSF10			
Bolt size			M6		M8			
Bolt material (tensile strength rank)			Steel (10.9)	SUS (A2-70)	Steel (10.9)	SUS (A2-70)		
Screw-in depth [mm]			9		12			
Tightening torque [N·cm]	Material of mounting surface	Iron	991	772	2039	1870		
		Aluminum	763	763	1569	1569		

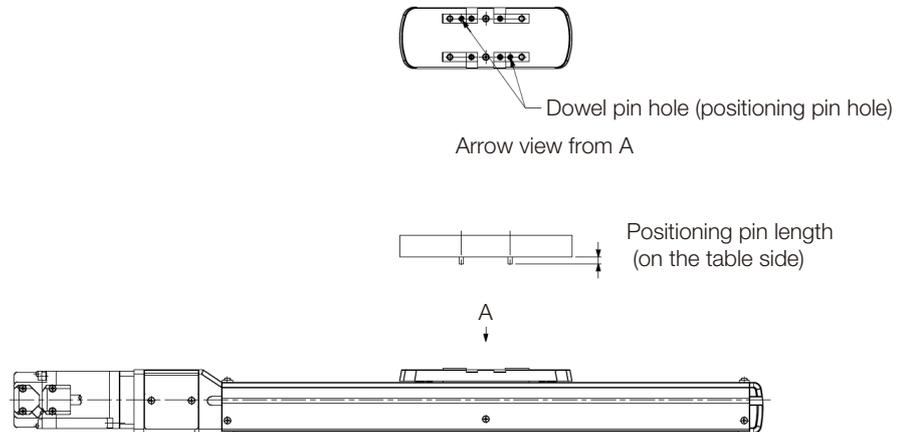
Table 2 Tightening torque for mounting table

7. Installation and Operation

7. Installation and Operation

7-7 Positioning pin length

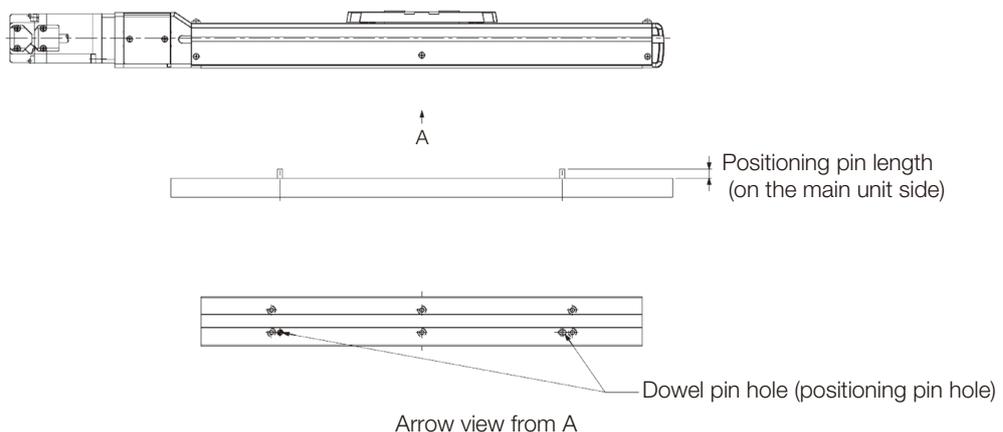
If you use the dowel pin holes for positioning pins when securing the objects to be mounted, assemble the table so that the length of the positioning pin is as shown in the table below or less.



Table

Model	CKSF4	CKSF5	CKSF6	CKSF8	CKSF10
Table hole diameter	$\phi 3H7$	$\phi 3H7$	$\phi 3H7$	$\phi 5H7$	$\phi 5H7$
Table hole depth [mm]	5	5	5	10	10
Positioning pin length [mm]	4	4	4	9	9

Table 3 Table positioning pin hole details



Outer rail

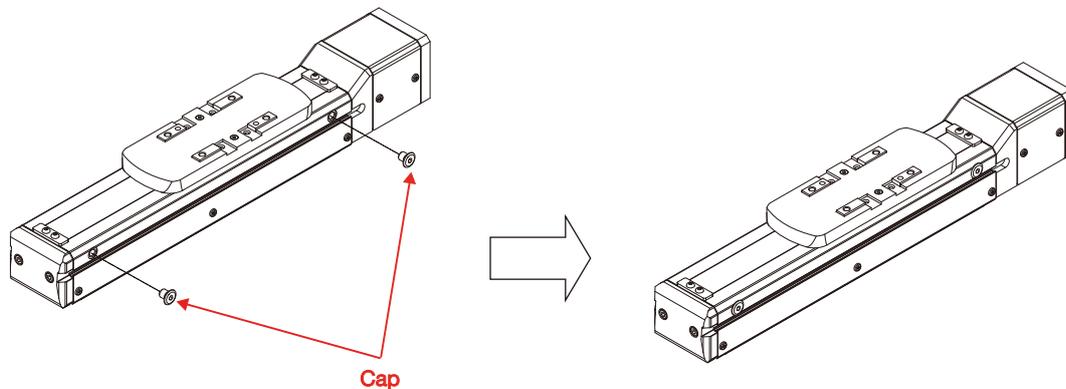
Model	CKSF4	CKSF5	CKSF6	CKSF8	CKSF10
Table hole diameter	$\phi 4H7$	$\phi 4H7$	$\phi 5H7$	$\phi 5H7$	$\phi 5H7$
Table hole depth [mm]	4	4	5	5	5
Positioning pin length [mm]	3	3	4	4	4

Table 4 Main unit positioning pin hole details

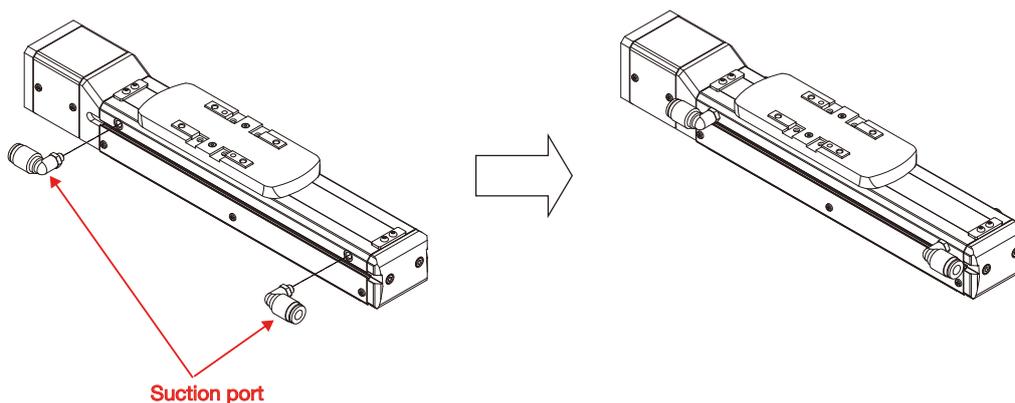
7. Installation and Operation

7-8 Port mounting method

1. Mount the attached cap onto the side cover. Wrap sealing tape around the threads.



2. Mount the suction port onto the side cover opposite to that on which the cap was mounted. Wrap sealing tape around the threads.



Model	Cap size, pcs
CKSF4	Ultra-low hexagonal-socket-head type bolt M5 x 0.8 x 6L 2 pcs
CKSF5	Ultra-low hexagonal-socket-head type bolt M5 x 0.8 x 6L 2 pcs
CKSF6	Sunk head plug R1/8 2 pcs
CKSF8	Sunk head plug R1/8 2 pcs
CKSF10	Sunk head plug R1/8 2 pcs

8. Maintenance

8. Maintenance

8-1

Precautions to be observed for safe use

Warning



- **Turn off the machine (turning power off) before conducting any maintenance.**
Otherwise, it may cause electric shocks, or cause malfunction that could lead to injury.
- **If two or more people are involved in the operation, confirm the procedures such as sequences, signs, and abnormalities in advance, and appoint another person for monitoring the operation.**
Failure to do so may cause an unexpected accident.

Caution



- **When handling grease, wear a protective glasses and protective gloves.**
If grease gets into eyes or touch the skin, it may affect your body such as causing inflammation.



- **Do not expose grease to a flame, spark or high-temperature object.**
Otherwise, it may ignite the grease, which could cause fire.

* For other information on handling grease, see the precautions indicated on the grease package or catalog. We have "Material Safety Data Sheets" for THK original greases. Contact THK for details.
- **Do not grasp the strip seal of this product.**
It may injure you.
Some parts of the strip seal may be sharp. Take care not to cut your hands or fingers.

8-2

Precautions to be observed for prevention of product fault or fracture



- **To have this product fully exert its functions, it is essential to lubricate the product. Be sure to supply grease on a regular basis.**
Using the product with insufficient lubrication may shorten the service life.
- **Do not let foreign materials enter into the LM guide or the ball screw.**
Otherwise, it may cause fault, or could adversely affect the performance or service life.



- **Do not mix different types of grease.**
Otherwise, it may affect the performance.

8. Maintenance

8. Maintenance

8-3 Daily inspection

- **Before operating the product, visually check any exterior damage or stain.**
- **Check the grease state (stain, etc.). If the grease is significantly stained, wipe off the grease, and then supply new grease. (Supply the new grease until it comes out from the inner block, and exhaust the stained grease.)**
- **Check whether abnormal noise or vibration occurs during operation. If abnormal noise or vibration occurs, immediately stop the machine and inspect the state of the product.**
Insufficient lubrication or loosening of a mounting bolt can be a cause of abnormal noise or vibration. Check for insufficient lubrication or loosening of a mounting bolt.
- **Check the strip seal for dirt or adhesion of foreign material.**
Adhesives, paints or other viscous items or solids sticking to the strip seal or other parts might cause the slider to malfunction or damage the strip seal. If it becomes dirty, wipe off the dirt using a clean waste cloth soaked with alcohol-based detergent.
- **Check the strip seal for scratches, pits or dents.**
Use of the strip seal in this state may cause early breakage or other damages. The strip seal must be replaced when it is scratched or dented.

8-4 Periodical inspection

- **Perform more detailed inspection approximately once every 3 to 6 months.**
 - Check the lubrication state, and then clean the product and replenish the grease.
 - Inspect whether each mounting bolt has loosened, and if any of them has loosened, retighten it.
- **For the suction port, check the following and replace it as needed:**
 - 1) Scratch, dent, wear, and corrosion
 - 2) Air leaks
 - 3) Twist, crush, or distortion of a tube
 - 4) Hardening, deterioration, or softness of a tube
- **Visually check abnormal wear, scratches, or cracks on the surface of the strip seal.**
 - If you find any abnormalities, replace the strip seal.
 - For the replacement procedure, see “Replacement of the strip seal procedure”.

8. Maintenance

8. Maintenance

8-5

Lubrication

- **The standard models are supplied with the following grease before shipment.**
THK AFF grease
See the appendix for details of the greases.
- **Basically, this is the long-term maintenance-free product not requiring greasing, but depending on your operating conditions and service environment, greasing may be needed. We recommend you set up a greasing interval at the initial inspection. In addition, if you use the product exceeding 10000 km travel distance, replenish grease approximately every six months or 100 km travel distance, whichever comes first.**
 - * Note that the greasing interval becomes shorter than usual in case of high-load use or under the environment where oil content decreases.

8. Maintenance

8. Maintenance

8-6

Method for supplying grease

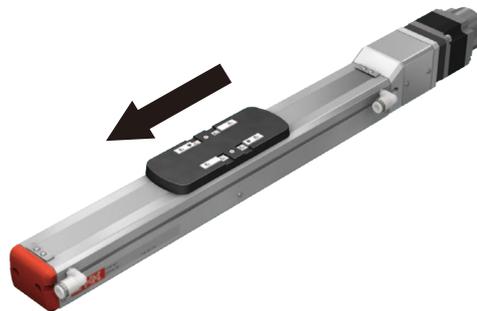
⚠ Caution

- **Do not drop objects on the strip seal, or scratch, pit or dent it.**
The strip seal must be replaced when it is scratched, pitted or dented as a result of a tool or other object falling on it.
Use of the strip seal in this state may cause early breakage or other damages.
During work, take sufficient care not to damage the strip seal or other parts.
- **Make sure to wear gloves while working.**
Some parts of the strip seal of this product may be sharp. Take care not to cut your hands or fingers.
- **When you remove the suction port, be sure to turn off the power supply and stop the supply voltage first, and check that fluid in the piping has come out.**

The following figure shows a CKSF representative greasing method for your reference.

Procedure

1. Move the table to the stroke center.

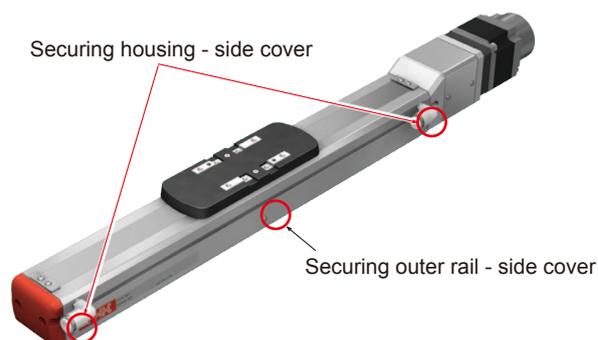


2. Remove the bolt securing the side cover.

Note) Do not remove the strip seal.

You will need the dedicated jig and adjustments when you mount the strip seal.

Always use a dedicated jig for adjustment when mounting the strip seal. See 8-9 for information regarding the strip seal mounting procedure.



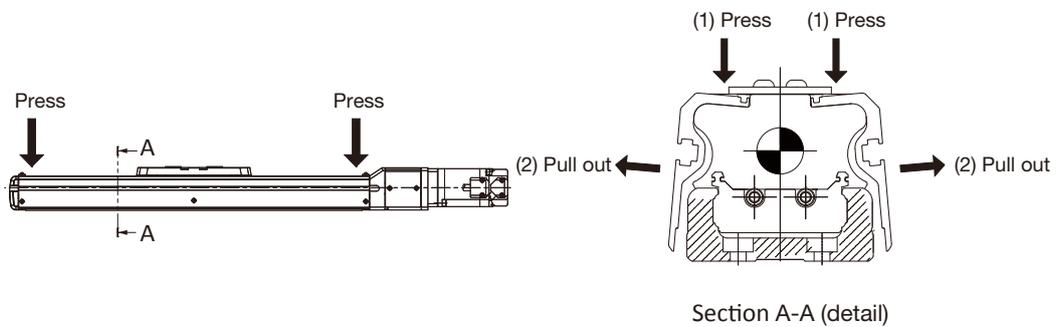
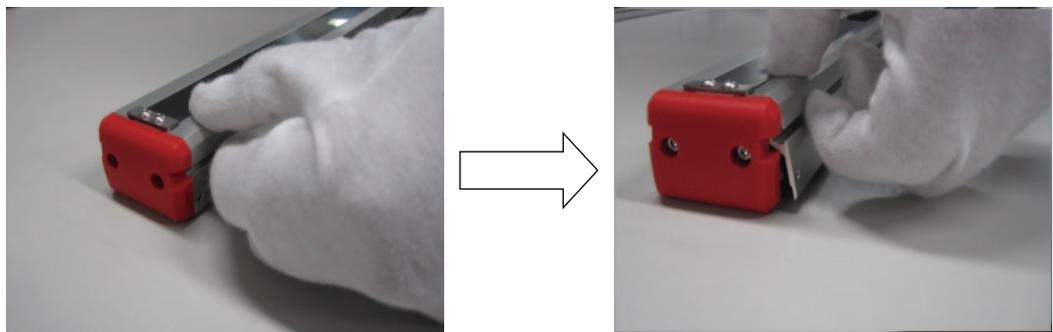
8. Maintenance

8. Maintenance

Model	Outer rail - Side cover	Housing - Side cover
CKSF4	M2.6 x 5L	M2.6 x 5L
CKSF5	M2.6 x 5L	M2.6 x 5L
CKSF6	M2.6 x 5L	M2.6 x 10L
CKSF8	M2.6 x 5L	M2.6 x 10L
CKSF10	M2.6 x 5L	M2.6 x 10L

Bolt type: cross recessed head screw for precision devices (No. 0 pan-head screw type 3)

3. Press onto the top face of both ends of the side cover and tilt the cover.

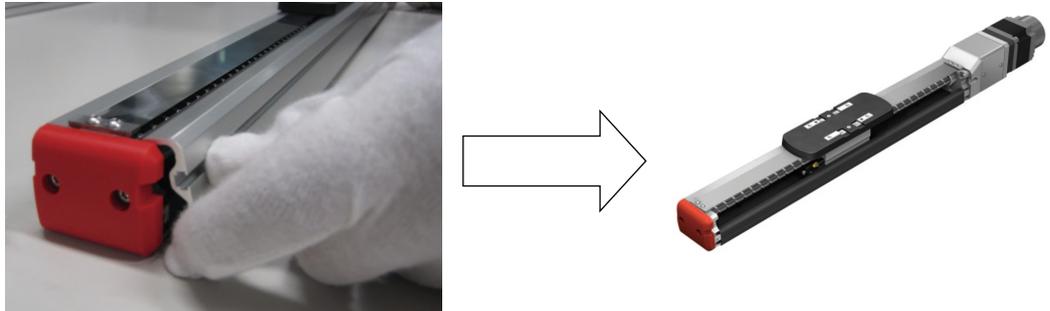


8. Maintenance

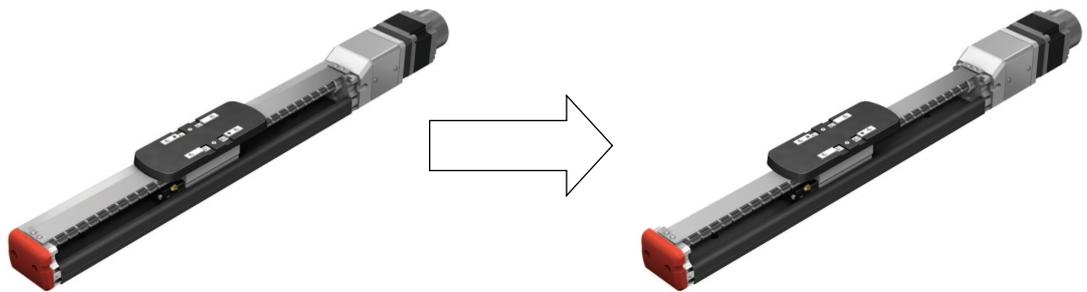
8. Maintenance

4. Remove the side cover while tilted.

Note) Be careful not to damage the strip seal when you remove the side cover.



5. Remove the opposite side in the same manner.



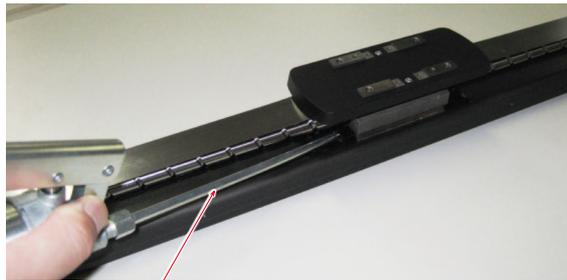
8. Maintenance

8. Maintenance

6. Supply grease using a grease gun as indicated in the figure below.

Lubrication of LM Guide

- (1) Mount the nozzle and attachment to the grease gun.
 - CKSF4/5/6/8: Dedicated nozzle U type + N type attachment
 - CKSF10: H type
- (2) Supply AFF grease from the grease nipple.
- (3) Stroke the table to apply the grease.



Grease gun

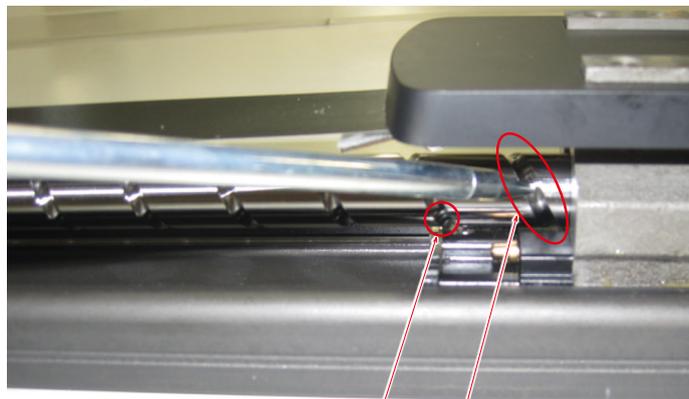


Grease nipple

Ball screw lubrication

- (1) Mount the dedicated U type nozzle and N type attachment to the grease gun.
- (2) Supply grease directly to the raceway of the ball screw.
- (3) Stroke the table to apply the grease.

Note) Supply it on the raceway on the slider side close to the felt.



Felt Raceway

8. Maintenance

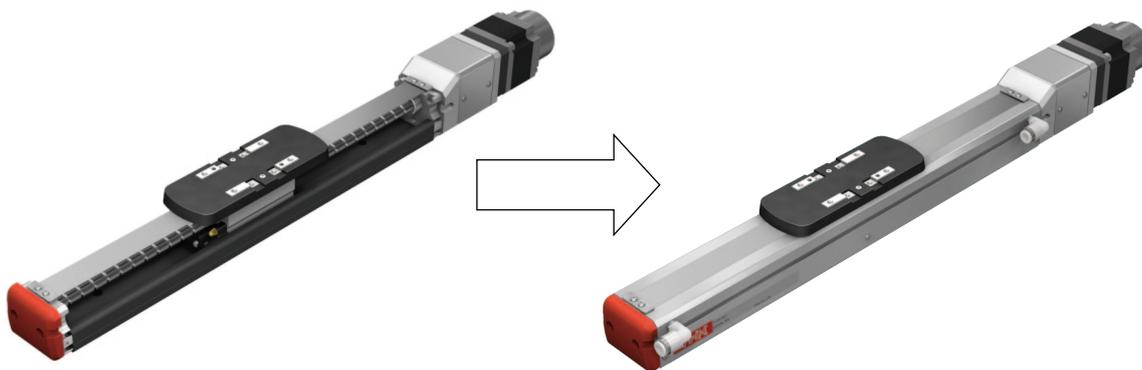
8. Maintenance

Model	Ball screw lead [mm]	Amount of filled grease [cc]	
		LM guide part	Ball screw part
CKSF4	10	0.4	0.3
	16		0.3
CKSF5	10	0.8	0.7
	20		0.4
CKSF6	20	1.2	0.6
	30		0.6
CKSF8	20	2.4	5.6
	40		1.8
CKSF10	25	4.7	4.2
	50		2.5

7. Move the table to the stroke center and mount the side cover.

Note) For a long stroke, the strip seal may sag depending on the installation direction. If that happens, lift up a strip seal slightly with fingers so that it will not contact the side cover. Working with 2 people is recommended if it is difficult to mount the side cover while pulling up the strip seal.

* Take care not to pull the strip seal up too far if lifting with fingers. Lifting the strip seal up too far while the strip seal holder is fastened may cause the strip seal to break or require adjustment to the mounting position.



Model	Outer rail - Side cover	Housing - Side cover	Tightening torque [N·cm]
CKSF4	M2.6 x 5L	M2.6 x 5L	30
CKSF5	M2.6 x 5L	M2.6 x 5L	30
CKSF6	M2.6 x 5L	M2.6 x 10L	30
CKSF8	M2.6 x 5L	M2.6 x 10L	30
CKSF10	M2.6 x 5L	M2.6 x 10L	30

Bolt type: cross recessed head screw for precision devices (No. 0 pan-head screw type 3)

8. Maintenance

8. Maintenance

8-7

How to replace the strip seal

⚠ Caution

- **Do not drop objects on the strip seal, or scratch, pit or dent it.**

The strip seal must be replaced when it is scratched, pitted or dented as a result of a tool or other object falling on it.

Use of the strip seal in this state may cause early breakage or other damages.

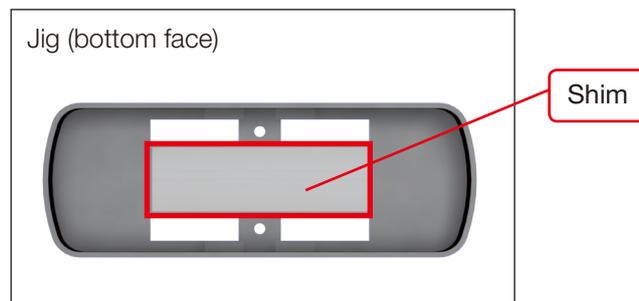
During work, take sufficient care not to damage the strip seal or other parts.

- **Do not grasp the strip seal of this product.**

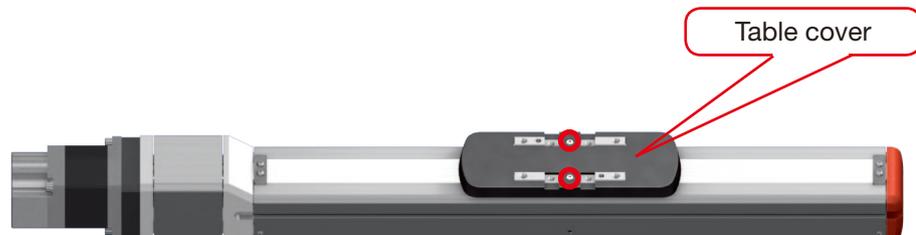
It may injure you.

Some parts of the strip seal may be sharp. Take care not to cut your hands or fingers.

When you adjust the strip seal, you will need the strip seal adjustment jig with the shim pasted on the back of the table cover. Please contact THK for details.



1. Remove the table cover.



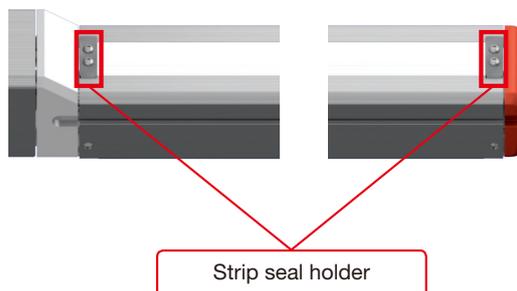
Model	Bolt size
CKSF4	M2.6 x 4L
CKSF5	M2.6 x 4L
CKSF6	M3 x 5L
CKSF8	M3 x 5L
CKSF10	M3 x 5L

Thin head FH type screws

8. Maintenance

8. Maintenance

2. Remove the strip seal holder.



Model	Bolt size
CKSF4	M2.5 x 4L
CKSF5	M2.5 x 4L
CKSF6	M3 x 5L
CKSF8	M3 x 5L
CKSF10	M3 x 5L

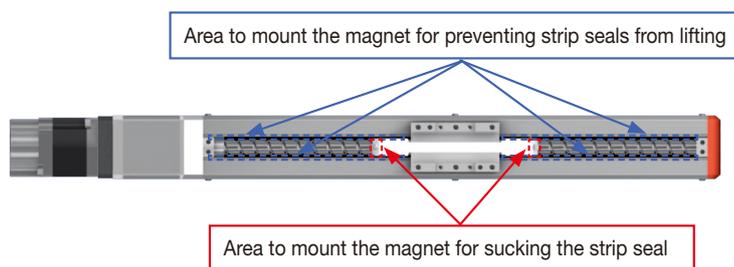
Hexagonal-socket-head type button bolt

3. Remove the strip seal from the main unit.



⚠ Caution

The CKSF table has magnets with strong magnetic fields attached at the two areas for sucking up the strip seal. Be careful handling it because magnetic bodies may stick to the magnets. It also has a belt-like magnet mounted to the top of the side cover to prevent the strip seal from lifting.



8. Maintenance

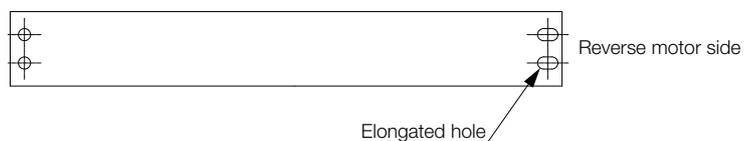
8. Maintenance

- Temporary mount a new strip seal and adjust the strip seal position.

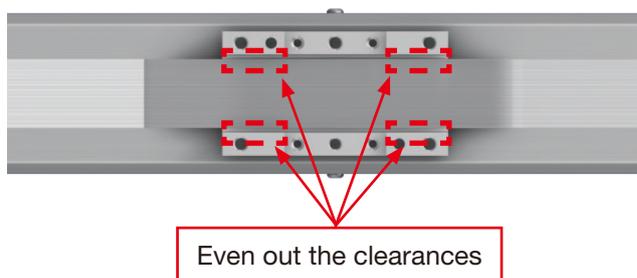


Caution

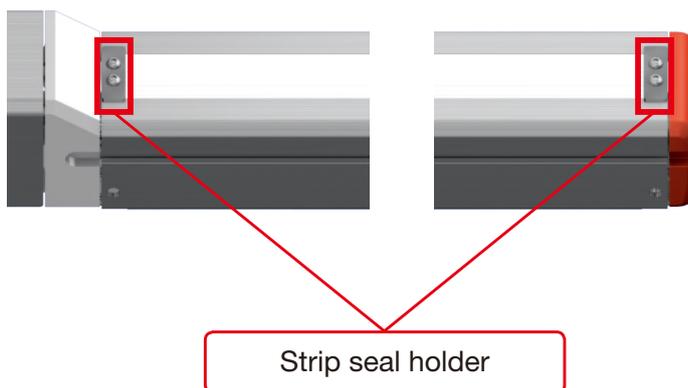
Some strip seal models must be mounted in a specific direction. For items with a combination of round and elongated mounting holes, always mount so that the elongated holes are on the reverse motor side.



- Adjust the strip seal position to be at the center of the table and even out the clearances.



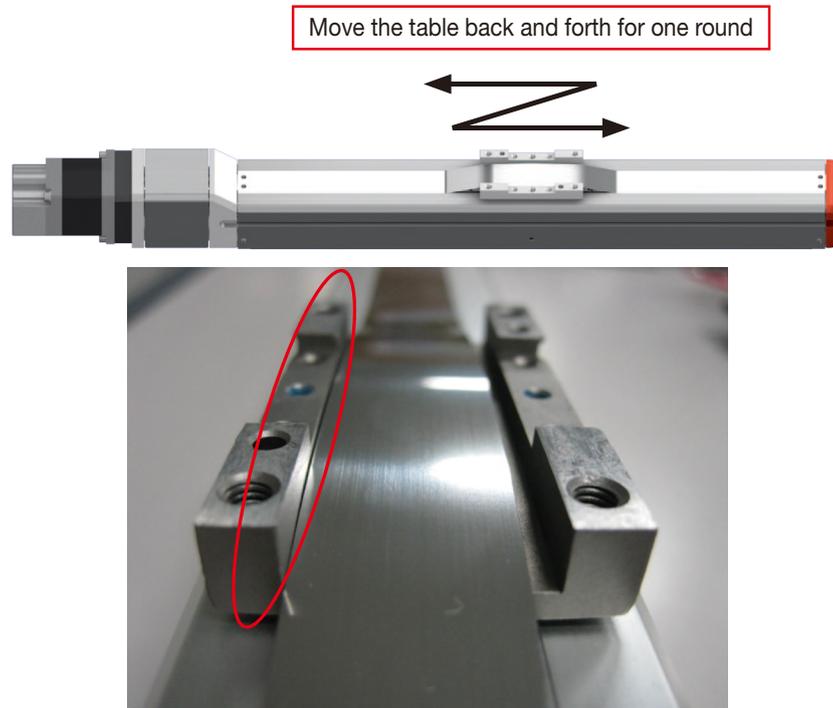
- Tighten it until the strip seal holder stays in place. Loosen the thin head screw by one turn.



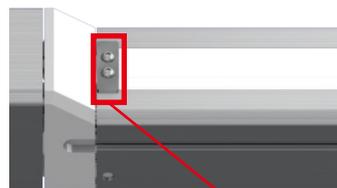
8. Maintenance

8. Maintenance

7. Move the table back and forth for one round to make sure that the strip seal will not contact the table in the entire stroke.
If they contact as shown in the photo, loosen the strip seal holders and adjust the strip seal position from step 5 once again.



8. Tighten it until the strip seal holder on the housing A side will not slide.



Strip seal holder

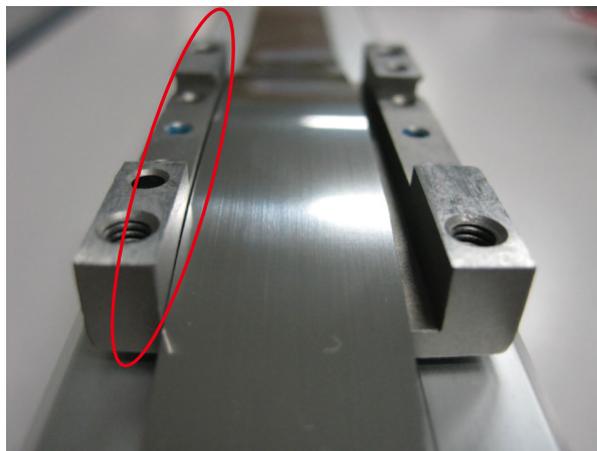
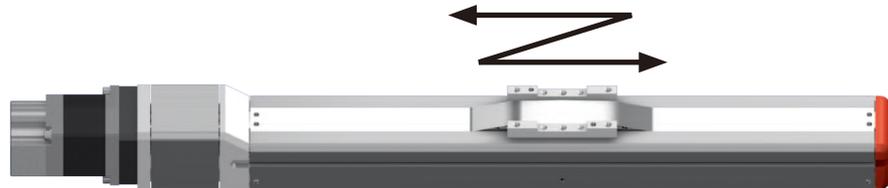
8. Maintenance

8. Maintenance

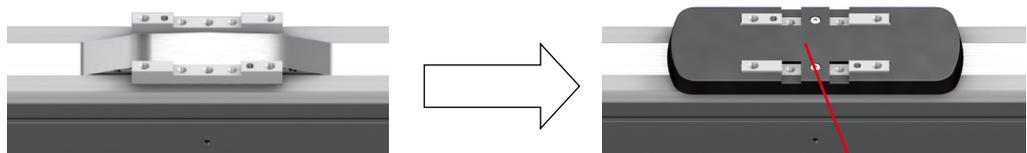
9. Move the table back and forth for one round to make sure that the strip seal will not contact the table in the entire stroke.

If they contact as shown in the photo, loosen the strip seal holders and adjust the strip seal position from step 5 once again.

Move the table back and forth for one round



10. Mount the strip seal adjustment jig.



Strip seal adjustment jig

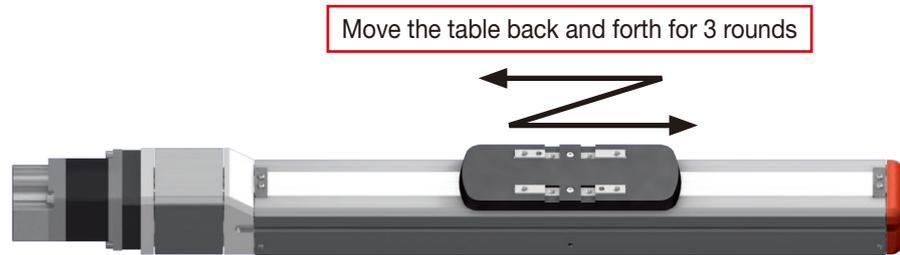
Model	Bolt size	Tightening torque [N·cm]
CKSF4	M2.6 x 4L	17
CKSF5	M2.6 x 4L	17
CKSF6	M3 x 5L	17
CKSF8	M3 x 5L	17
CKSF10	M3 x 5L	17

Bolt type: Thin head (FH type) head screws

8. Maintenance

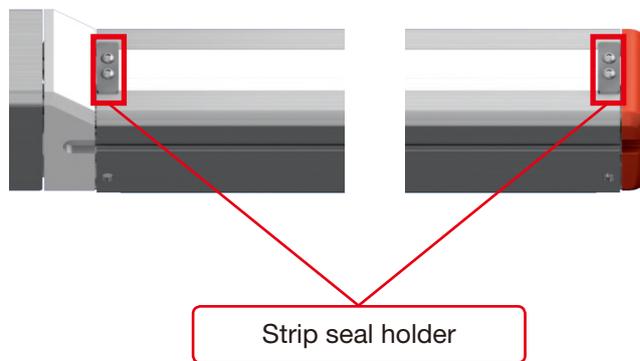
8. Maintenance

11. Move the table back and forth for three rounds covering the entire stroke. Stop the table around the stroke center.

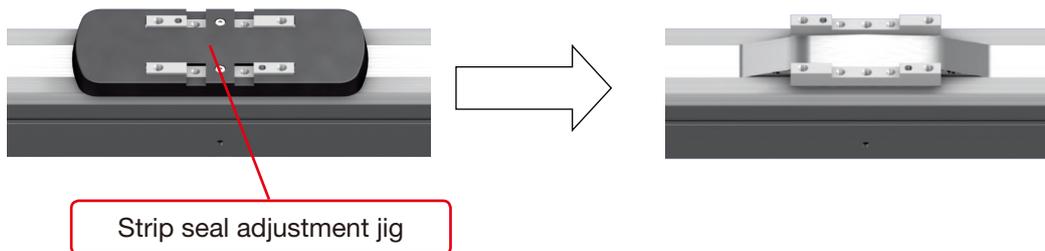


12. Fully fasten the strip seal.

Note: Never pull the strip seal toward the stroke direction when you fully fasten the strip seal.



13. Remove the strip seal adjustment jig.



Model	Bolt size
CKSF4	M2.6 x 4L
CKSF5	M2.6 x 4L
CKSF6	M3 x 5L
CKSF8	M3 x 5L
CKSF10	M3 x 5L

Thin head FH type screws

8. Maintenance

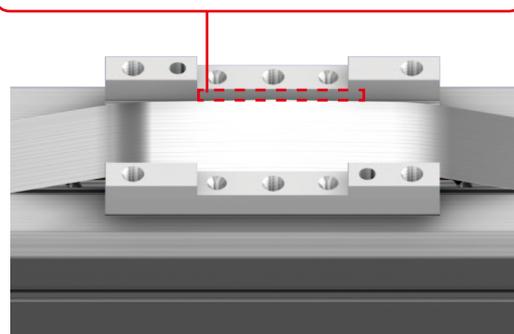
8. Maintenance

14. Check the clearance of the strip seal. Verify the height of the strip seal and table cover mounting surface to make sure that the strip seal is located lower than the table cover mounting surface. If the strip seal is higher than the table cover mounting surface, re-adjust the strip seal from the temporary assembly process.



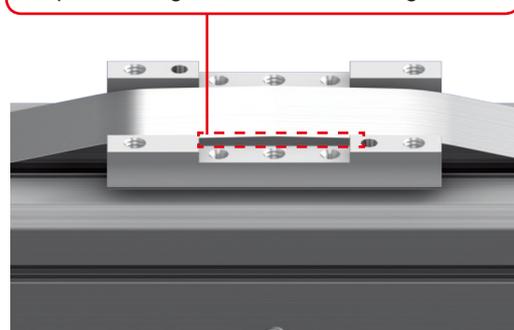
Table cover mounting surface

Strip seal is lower than the mounting surface



Example of appropriate mounting state

Strip seal is higher than the mounting surface

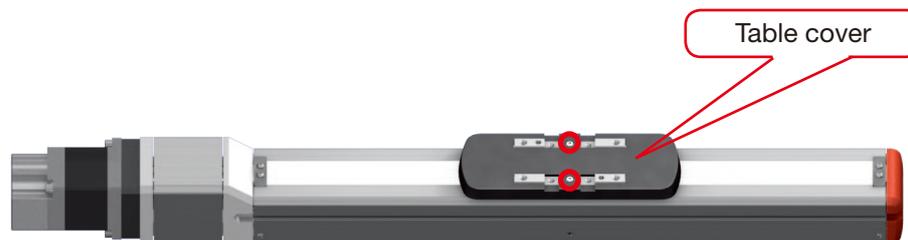


Example of inappropriate mounting state

8. Maintenance

8. Maintenance

15. Mount the table cover.



Model	Bolt size	Tightening torque [N·cm]
CKSF4	M2.6 x 4L	17
CKSF5	M2.6 x 4L	17
CKSF6	M3 x 5L	17
CKSF8	M3 x 5L	17
CKSF10	M3 x 5L	17

Thin head FH type screws

8. Maintenance

8. Maintenance

8-8 Free warranty period

The warranty period shall be 12 months from the product delivery date or 18 months from the date of shipping (based on the manufacture date), whichever is earlier.

If the free warranty period has been expired at the time of receiving notice of any defect, repair works will be charged.

8-9 Usage conditions (range)

The normal usage conditions (range) specified in our catalogs and/or instruction manuals shall apply.

8-1 Warranty scope

8-10-1 Failure diagnosis

Please inform THK of the trouble description, content, and model and serial number indicated on the product label. Then we will perform the initial diagnosis of the product failure.

When we recognize that the failure occurred within the free warranty period set forth above and the responsibility of the cause rests on us, the warranty is applied without charge. Otherwise any repair or replacement will be charged.

The final judgment of the warranty qualification is determined when we check the product in our site.

Location of the product label: **3-1 Nameplates display and serial number (→ P.3-1)**

8-10-2 Consumables and spare parts

- Cables, strip seals, a strip seal guide, and timing belt are the consumables.

8. Maintenance

8. Maintenance

8-10-3 Repair

We will perform free repair works or replacement for any failure occurred within the free warranty period set forth above.

However, it is our discretion whether we provide repair or replacement.

Free warranty is not applicable even within the warranty period for any of the following cases:

- Failure arising out of improper storage or handling by the customer, or software and/or hardware installed by the customer.
- Failure arising out of any alteration of our products by the customer.
- Failure arising out of any use of our products out of the usage conditions set forth in section 8-9 of this manual.
- Failure arising out of any use of the product without taking appropriate water-, oil-, and dust-proof measures.
- Lack of maintenance works specified in our instruction manual.
- Wearing caused by usage conditions.
- Wearing of consumables including cables, strip seals, a strip seal guide, and timing belt, etc.
- Failure arising out of any convulsion of nature, such as earthquake, lightning, flood and wind damage.
- Failure arising out of any factor that is not recognized as our responsibility.

* In case of any free repair work within the free warranty period, the warranty period of the pertinent product shall still be the period set forth in section 8-8, not the period originating from the time of free repair work.

* In case of any paid repair work, the warranty period of the repaired section shall be six months from the repair work regardless of the warranty period of the product itself.

* Repair work is performed at our Japanese site. Whether free or paid repair work, cost of returning the product to our site shall be customer's responsibility.

* The cost of delivering the repaired or replacing product to customer's site is our responsibility in case of free warranty, or included in the repair charge in case of a paid repair service. However, the destination must be in Japan.

8-10-4 Repair period

The warranty period of actuator CKSF shall be seven years from the date of purchase or five years from the product discontinuation date, whichever comes first.

8-11 Exclusion of warranty liability

- Regardless of whether it is within the free warranty period or not, any damage to the equipment other than our products and opportunity loss incurred by the customer due to the failure of the products are not covered by the warranty.
- We hold no responsibility for removal of the product for repair work, reinstallation after repair work, and other costs caused thereby.
- We hold no responsibility for any damage arising out of any use of the product without taking appropriate water-, oil-, and dust-proof measures.

8-12 Delivery conditions

Delivery products will be shipped by mixed cargo and passed on the car.

Unpacking, transportation, installation, on-site adjustment and trial run after delivery are not our responsibility.

9. Appendix

9. Appendix

9-1 Permissible input torque

- If you use a motor that exceeds the permissible input torque, consider taking a necessary measure such as limiting the motor torque.

Model	Permissible input torque [N·m]
CKSF4	1.2
CKSF5	1.8
CKSF6	3.1
CKSF8	7.1

Table 5 Permissible input torque

9. Appendix

9. Appendix

9-2 Static permissible moment

- Static permissible moment is shown in Table 6. For the direction of the moment, see Fig. 4. (The static moment is the value when a load is applied only to one direction.)

Model	Static permissible moment [N·m]		
	M _A direction	M _B direction	M _C direction
CKSF4	103	103	58
CKSF5	147	147	149
CKSF6	330	216	188
CKSF8	730	437	387
CKSF10	1049	712	671

Table 6 Static permissible moment

Note: The static permissible moment is the value when all of the mounting holes of the table are used.

Note: The static permissible moment is the maximum moment permissible under the static condition.

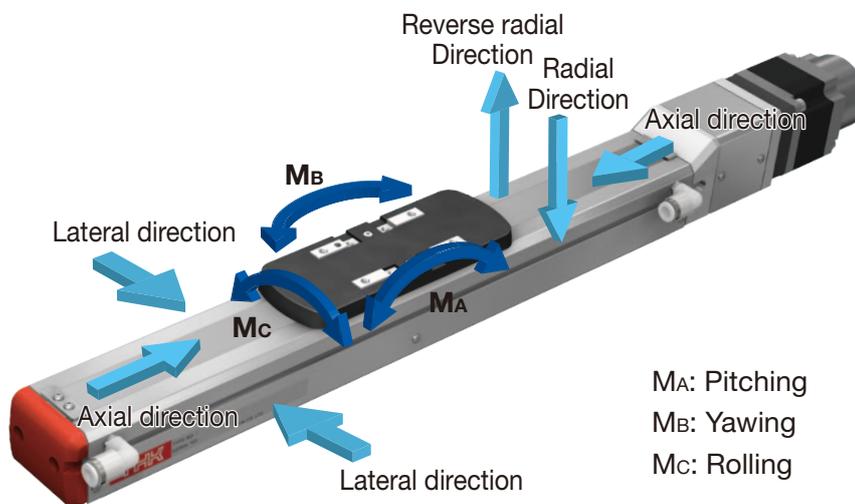


Fig. 4 Imposed load ratio and moment direction

9. Appendix

9. Appendix

9-3 Static permissible load

- Static permissible load is shown in Table 7. For the direction of the load, see Fig. 4.
(The static permissible load is the value when a load is applied only to one direction.)

Model		CKSF4		CKSF5		CKSF6	
Ball screw lead [mm]		10	16	10	20	20	30
Static permissible load [N]	Load in axial direction	738	461	1,130	565	970	647
	Radial load	12,900		17,900		33,000	
	Reverse radial load	6,423		11,254		11,254	
	Load in horizontal direction	1,720		3,069		4,833	
Model		CKSF8		CKSF10			
Ball screw lead [mm]		20	40	25	50		
Static permissible load [N]	Load in axial direction	2,229	1,115	3,894	1,947		
	Radial load	63,500		103,700			
	Reverse radial load	14,592		20,984			
	Load in horizontal direction	6,929		10,370			

Table 7 Static permissible load

Note) The static permissible load is the maximum load permissible under the static condition.

9. Appendix

9. Appendix

9-4

Introduction of the grease

THK original grease

AFF Grease

Using high-class synthetic oil and lithium-based consistency enhancer and additive, this grease has a stable rolling resistance that has not been achieved with conventional vacuum grease or low dust-generation grease.

● Characteristics

- Excels in conformability at low speed operation with a small fluctuation in rolling resistance due to a low viscose resistance.
- Optimal for use in a clean room due to excellently low dust-generation characteristics.
- Allows the greasing interval to be extended due to excellent wear resistance in micro vibrations.

● Representative properties

Test items	Representative property values	
Consistency enhancer	Lithium-based grease	
Base oil	High-class synthetic oil	
Base oil kinetic viscosity: mm ² /s (40°C)	100	
Worked penetration (25°C, 60 W)	315	
Mixing stability (100,000 W)	345	
Dropping point: °C	220	
Evaporation: mass% (99°C, 22 h)	0.7	
Oil separation rate: mass% (100°C, 24 h)	2.6	
Copper plate corrosion (B method, 100°C, 24 h)	Accepted	
Low temperature torque: mN·m (-20°C)	Startup	220
	Rotation	60
4-ball test (fusion load): N	1,236	
Operating temperature range (°C)	-40 to 120	
Appearance color	Reddish brown	



Fig. 5 Appearance of the grease tube and the product box

9. Appendix

9. Appendix

9-5

Introduction of the grease gun unit

Grease Gun Unit MG70



The grease gun unit MG70 is capable of supplying grease for KSF by replacing the dedicated nozzle. The grease gun has a slit window that allows you to visually check the remaining amount of grease. Since grease is contained in a 70 g bellows cartridge, you can replace the nozzle without soiling your hand.

Table 8 shows the specifications of the grease gun while Fig. 6 shows its appearance.

Discharge pressure	19.6 MPa max
Discharge rate	0.6 cc/stroke
Grease	70 g bellows cartridge
Overall length	235 mm (excluding nozzle)
Weight	480 g (with nozzle, excluding grease)

Table 8 Specifications of the grease gun

9. Appendix

9. Appendix

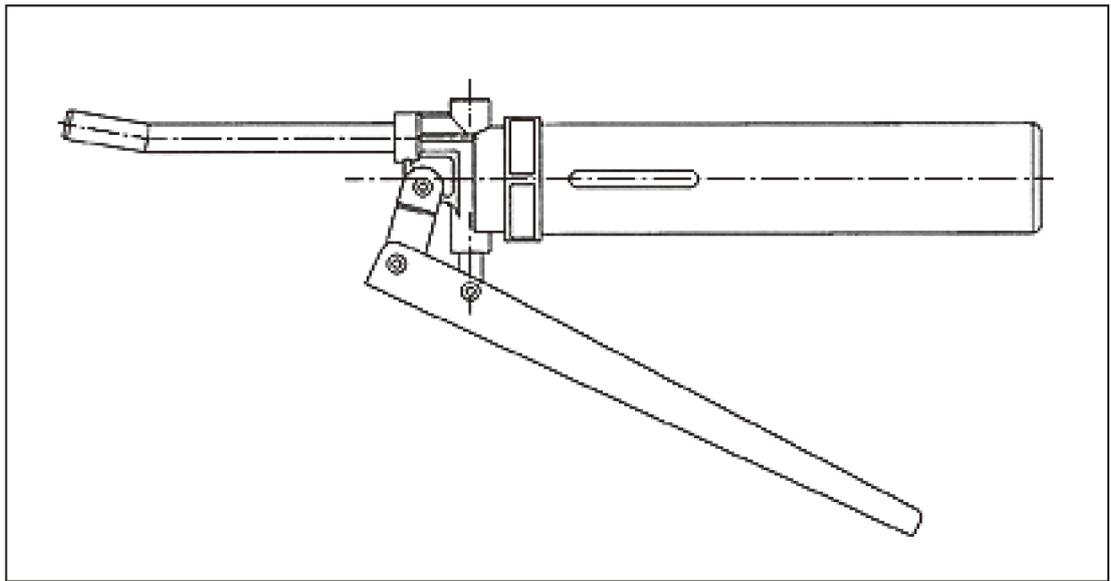


Fig. 6 Appearance of the grease gun

Fig. 7 shows the shapes of the nozzles and attachment for the grease gun used for lubrication.
 * It allows you to supply grease to a part difficult to lubricate (by dropping grease onto the raceway) by using the P type attachment.

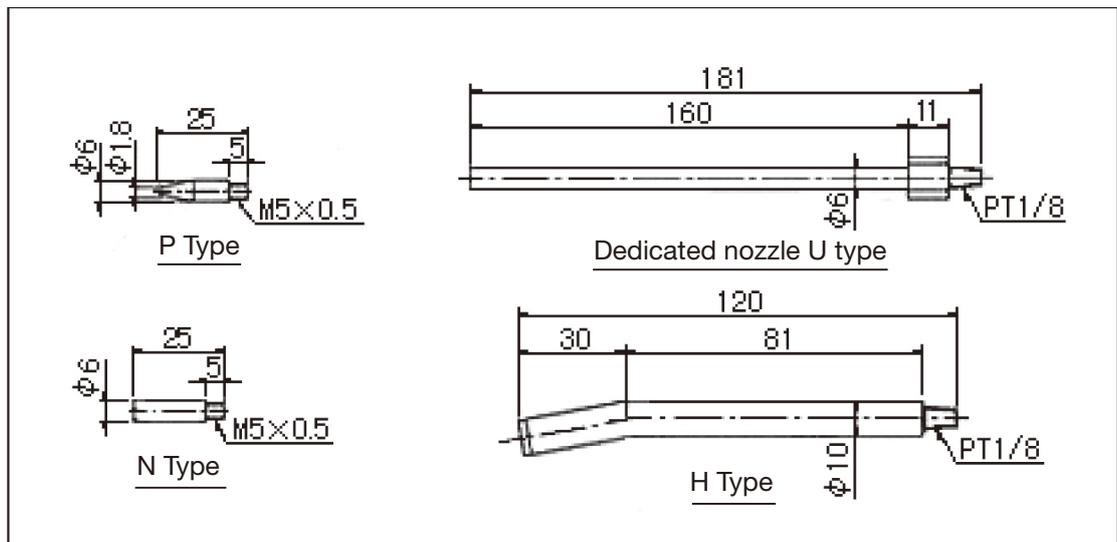


Fig. 7 Shapes of the nozzles and the attachments for the grease gun

9. Appendix

9. Appendix

9-7

Suction

The table below shows the vacuum rate for your reference.

Model	Vacuum rate (l/min)
CKSF4	30
CKSF5	50
CKSF6	60
CKSF8	160

Note) The vacuum rate does not include the effect of piping resistance. Piping resistance is dependent on the piping length and piping diameter, and can reduce the flow amount.

9-8

Suction port

The suction port has adopted the one-touch system, which makes it easier to connect using a off-the-shelf air tube.

Model	Connection screw size	Applicable tube outer diameter (mm)
CKSF4	M5	φ6
CKSF5	M5	φ6
CKSF6	R1/8	φ8
CKSF8	R1/8	φ8

Appendix

Revision history

The instruction manual No. is described on the back cover.

Date of issue	Instruction manual No.	Details
May 2016	No.5050-1(0) E	First edition



THK Electric Actuator Compact Series

CKSF

INSTRUCTION MANUAL