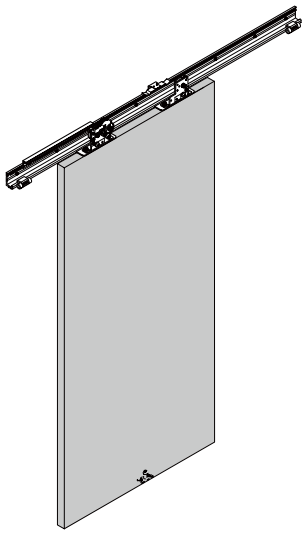
LAMP®

# SELF-CLOSING SLIDING DOOR SYSTEM (W/O COVER)
# LM-80 Installation Manual

**Thank you for selecting our product.**
**Before starting installation, please read this manual thoroughly to ensure correct installation.**
**Please keep this manual at hand for future reference.**



## ■About the product

- **This hardware makes door self-close and can for example be used for entrances to washrooms, examination rooms etc.**
- **The braking device (damper) of the one-way clutch mechanism (damper) will close the door softly.**
- **The door can close automatically without using a motor due to the system's tilted rail.**
- **Equipped with a catch function which will hold the door fully open.**
- **By re-combining the included parts it is possible to use the door for both left and right handed openings.**

## For your safety work and operation

| | |
|---|---|
| ⃠ | **This symbol denotes prohibited actions.** |
| ❗ | **This symbol denotes what must be done.** |

### ⚠ Warning — If these warnings are not followed, it may result in death or serious injury.

❗ It is necessary to manufacture the frame with sufficient strength so it endures the weight of the door and impact shocks upon opening/closing the door. Also make sure to only use the designated screws and to fasten them firmly.
A frame with poor strength or loose screws might result in improper and slower movement of the door. In the worst case, the door might drop down and cause injury.

⃠ Do not try to use this product for any other purposes than originally intended for. Do not use the parts for applications that are out of specification.

⃠ Do not disassemble nor modify any parts other than those described in this document.

### ⚠ Caution — If these cautions are not followed, it may result in injury or damage.

❗ This sliding door system should be installed by an experienced person who has correct knowledge.
If the system is not installed correctly, the door will not operate smoothly, and or may cause injury.

❗ This is a part for sliding door system. After installation, make sure to test the finished product thoroughly to ensure that it is well-functioning and safe.

❗ Make sure to follow the designated measurements and specifications as well as horizontal and verticals angles.
Make sure that frame and door are not warped nor bent, since it may affect the movement of the door.

❗ If cutting any parts, make sure to remove any burr before installation. Also check the upper rail for any left-over burr or scrap and remove these.

❗ Make sure to test the screws for slack at regular intervals
(one month from first usage, half year and then one time every year is recommended).

❗ If the brake is damaged, there is a danger of injury when the door slams shut.
If the brake does not work properly even after doing speed adjustment, replace the parts.

⃠ Do not use excessive force to open or close the door. Doing so may damage it.

❗ To prevent the door from falling, it is recommended to use the recessed mount type door together with a rail which has an embedded doorstop.

❗ For your safety work and to avoid unnecessary stress on the parts, carry out the installation by two people.

## ■Specifications

| Applicable door thickness | Applicable door weight | Applicable door width | Max. door travel | Closing drive system | Control type | Control time | Initial door opening force |
|---|---|---|---|---|---|---|---|
| 28～40mm | 30～80kg | 700～1200 mm | 1100 mm (when door width 1200 mm) | Rail inclination (3.5/300) | Fluid friction resistance type | 7.0 to 11.0 sec (at a door opening distance of 900 mm) | 5.4～12.5N |

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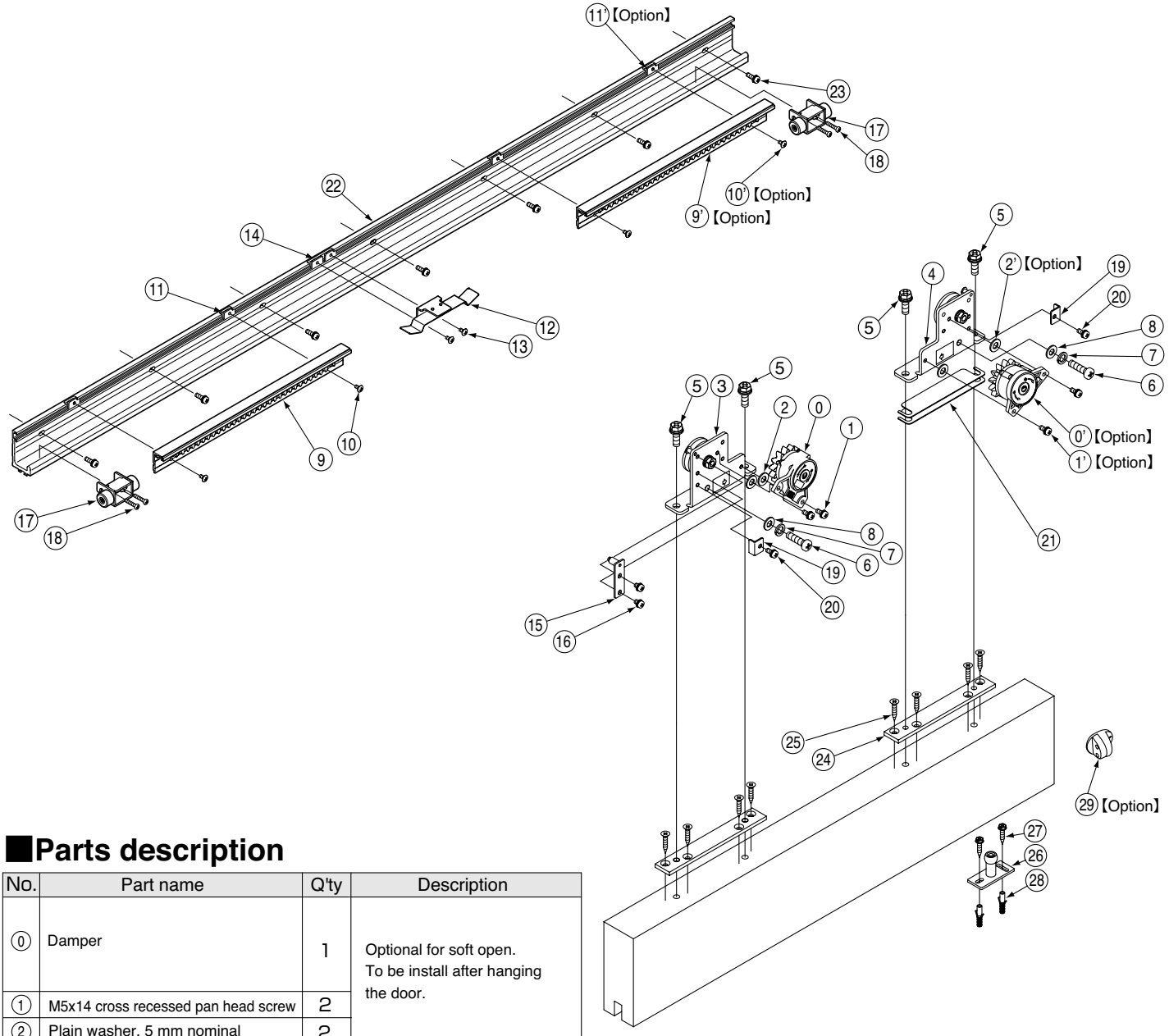
## Parts description

The parts can be used for both right open and left open.
This drawing shows the right open type.

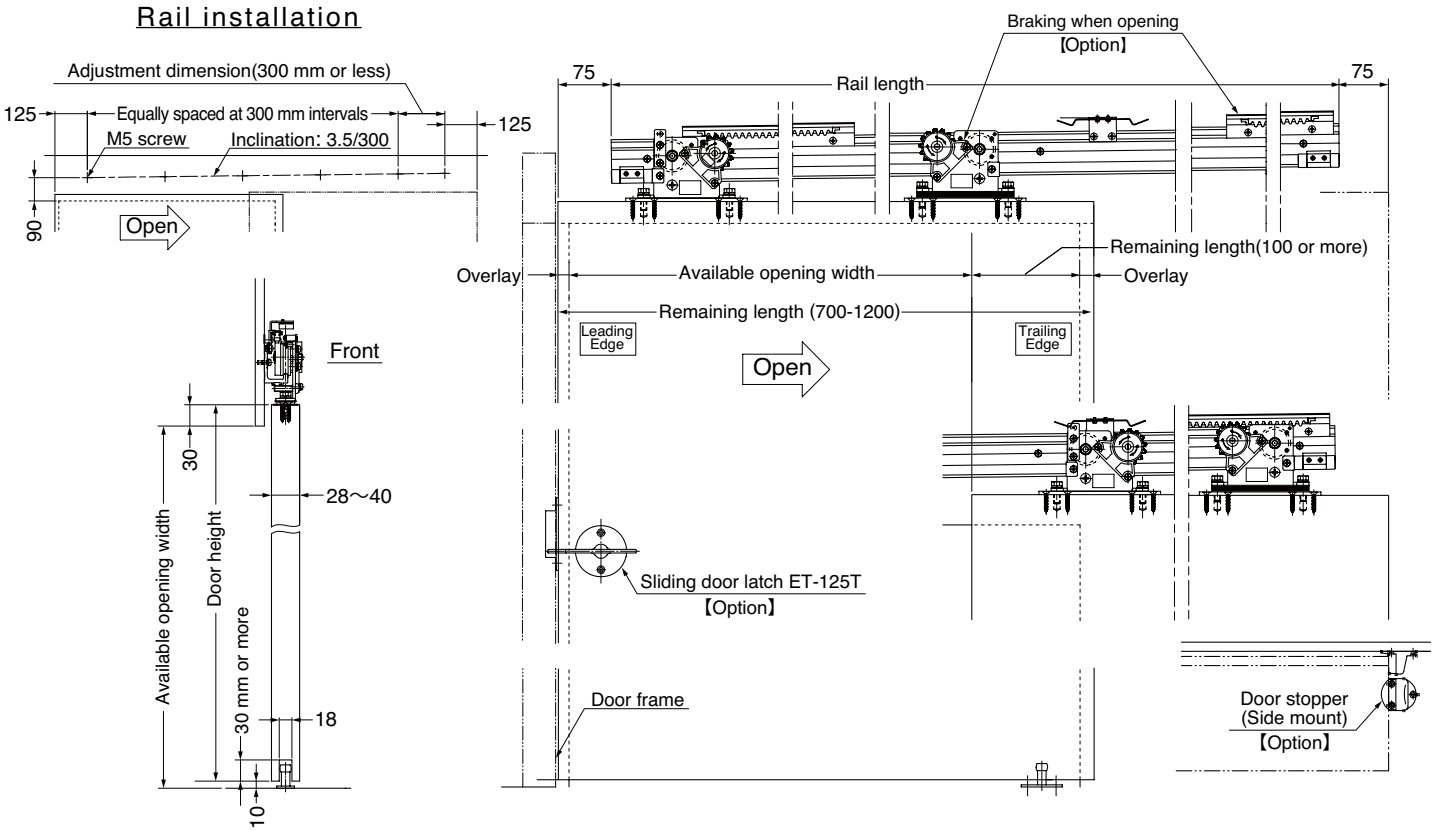



## ■Parts description

| No. | Part name | Q'ty | Description |
|---|---|---|---|
| ⓪ | Damper | 1 | Optional for soft open. To be install after hanging the door. |
| ① | M5x14 cross recessed pan head screw | 2 | |
| ② | Plain washer, 5 mm nominal | 2 | |
| ③ | Hanger A | 1 | |
| ④ | Hanger B | 1 | |
| ⑤ | M8x25 hex head bolt | 2 | For the leading edge |
| | M8x30 hex head bolt | 2 | For the trailing edge |
| ⑥ | M8x30 cross recessed pan head screw | 2 | Derail-protection screw |
| ⑦ | Spring lock washer, 8 mm nominal | 2 | For fall-prevention screws |
| ⑧ | Plain washer, 8 mm nominal | 2 | For fall-prevention screws |
| ⑨ | Gear rack set | 1 | Optional for soft open. To be installed after hanging the door. |
| ⑩ | M4x8 cross recessed truss head screw | 2 | |
| ⑪ | Plate nut | 2 | |
| ⑫ | Catch spring | 1 | |
| ⑬ | M4x8 cross recessed truss head screw | 2 | |
| ⑭ | Plate nut | 2 | |
| ⑮ | Catch roller | 1 | |
| ⑯ | M5x8 cross recessed pan head screw | 2 | |
| ⑰ | Door stopper fitting | 2 | |
| ⑱ | Nominal 5x16 cross recessed pan head tapping screw | 4 | For door stopper fixing and reinforcement |
| ⑲ | Angled plate | 2 | |
| ⑳ | M5x8 cross recessed pan head screw | 2 | |

| No. | Part name | Q'ty | Description |
|---|---|---|---|
| ㉑ | Height adjusting plate (t=1.0) | 15 | |
| | Height adjusting plate (t=0.5) | 1 | |
| ㉒ | Rail L = 2200 | 1 | |
| ㉓ | M5x16 cross recessed pan head screw | 8 | Use either one. |
| | Nominal 5x30 cross recessed truss head tapping screw | 8 | |
| ㉔ | Wood door plate | 2 | For wood door |
| ㉕ | Nominal 5x30 cross recessed flat head tapping screw | 8 | For wood door |
| ㉖ | Guide roller ( $\phi$ 16) | 1 | |
| ㉗ | Nominal 5x25 hex tapping screw | 2 | For wood and anchor plugs |
| | M5x12 hex head bolt | 2 | For steel |
| ㉘ | 6x30 Anchor plug | 2 | For concrete and mortar |
| ㉙ | Door stopper (Side mount) | | 【Option】In case vertical frame is not provided. |

## ■Installation Drawing (Example)

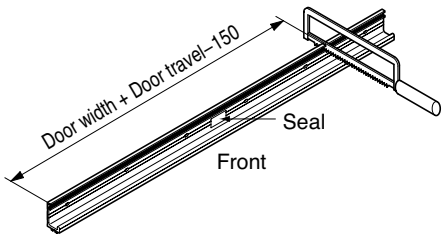


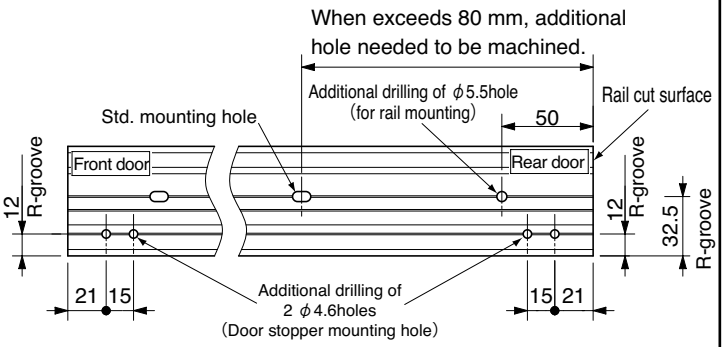

# Installation Procedure

The following describes the right handed opening type.
The left-handed opening type is a mirror image.

## 1 Installation of Rail and Mounting Plate for Rail cover

### 1 Cutting and Drilling the rail



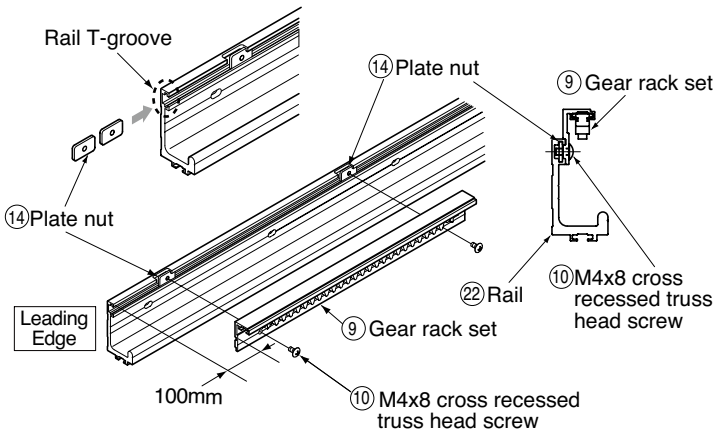




- Cut the rail to the required length shown in the left drawing.
- Cut in the direction indicated on the seal.
  - ・With the right opening door, cut the right side when viewed from the front
  - ・With the left opening door, cut the left side when viewed from the front.
- When the measure from the cut end to the exsisting hole on the rail is 80 mm or more, drill another mounting hole (ϕ5.5) at 50 mm from the cut end.
- Drill the holes (ϕ4.6) for stopper mounting, 50 mm from both ends as shown on the drawing.

**⚠Caution**

Be careful not to damage the running surface of the rail, when processing the rail.

## 2 Mounting of the Gear Rack Set

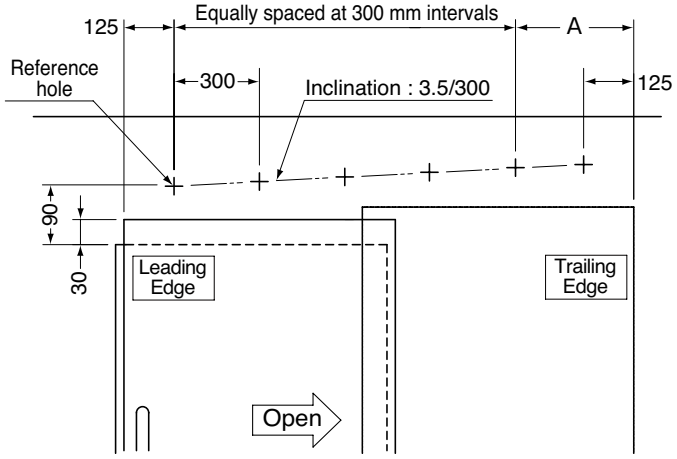



- Insert 2 plate nuts in the T-groove on the rail.
- Mount the gear rack set on the rail, using the provided screws ⑩ as shown.
- Install additional dampers on the trailing edge side for damping against opening force.

**⚠Caution**

- Be sure to use the provided screws to prevent screws to hit the clutch gear of the damper.
- Firmly tighten the screws to prevent abnormal noise or malfunction of control.

## 3 Preparation of Mounting Holes on the Rail




- Prepare the holes according to the left drawing and the table below.

  ＊Preparation of holes on the solid melamine door shall be ϕ4.7, depth 10 mm. Tapping is not necessary.

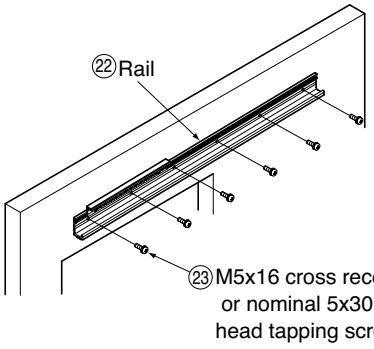
- If measurement A in the illustration is 155 mm or more, drill another hole at 125 mm from the trailing edge when the door is fully opened.

| Required number of holes (except ref. hole) | Horizontal distance from ref. hole (mm) | Height difference with ref. hole (mm) |
|---|---|---|
| 1 | 300 | 3.5 |
| 2 | 600 | 7.0 |
| 3 | 900 | 10.5 |
| 4 | 1200 | 14.0 |
| 5 | 1500 | 17.5 |
| 6 | 1800 | 21.0 |
| 7 | 2100 | 24.5 |

**⚠Caution**

Make sure that the fixing part is strong enough to endure the door weight and impact shocks upon opening/closing the door.

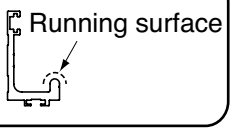
## 4 Installation of Rail




- Mount the rail with provided screws （㉓）

**⚠Caution**

Take care not to damage or soil the running surface on the rail.



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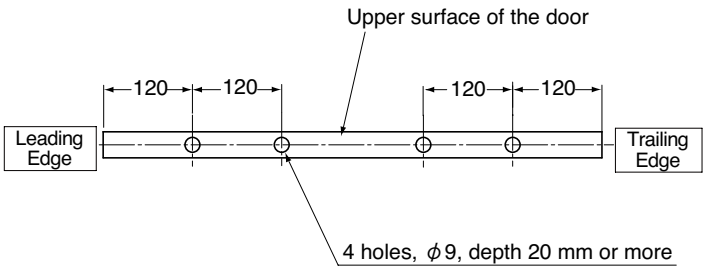
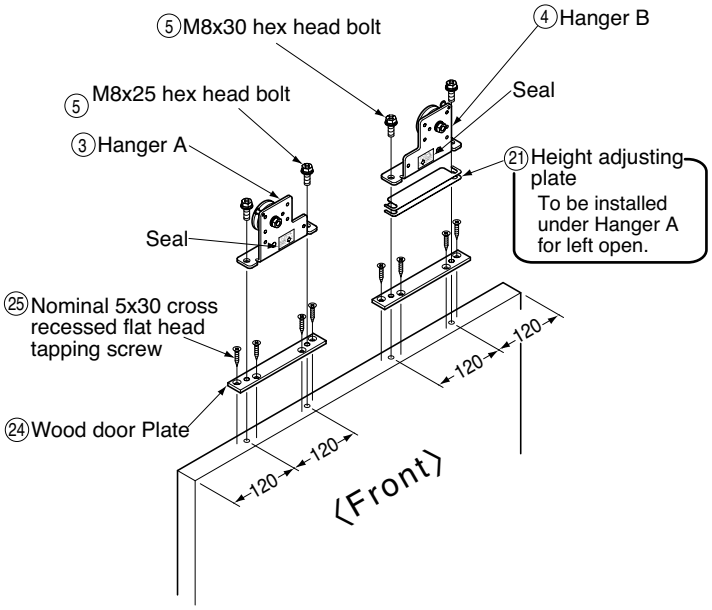
# 2 Installation of Hangers

## 1 Preparation of Holes on the Door




- Prepare ϕ9 holes on the upper surface of the door.

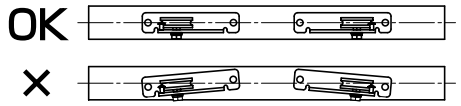
## 2 Installation of Hangers




- In order to attach hanger A and B properly, first make sure that the seal on the hangers is facing the front, then follow the instructions on the left figure for both left and right opening.

**⚠Caution**

Mount the hangers on the center line of the door.




- The number of height adjusting plates varies according to the door width. See the following table.

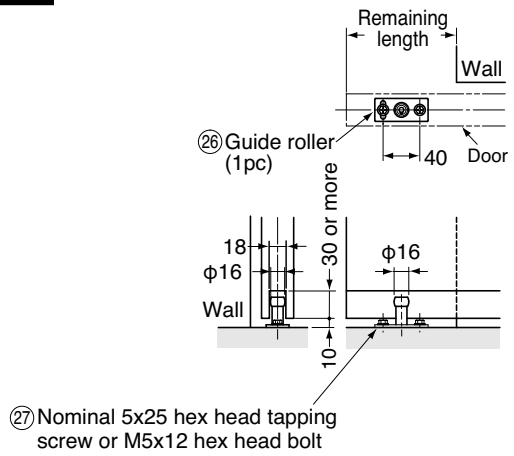
### Height adjusting plates

(For left opening, insert the plates under Hanger A.)

| Door Width (mm) | Plates |
|---|---|
| 700- 800 or less | 6 |
| 800- 900 or less | 7 |
| 900-1000 or less | 8 |
| 1000-1100 or less | 9 |
| 1100-1200 or less | 10 |

- Please attach the supplied M8 screws (㉕) to the wooden door leaf as shown in the left figure.

# 3 Installation of Guide Roller



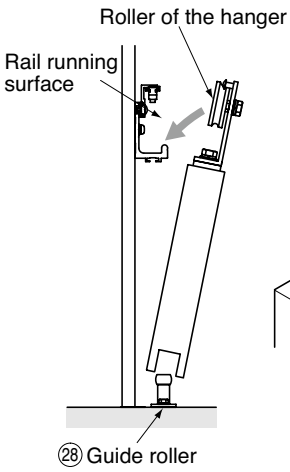

- Install on the part of remaining length of the door.
- It must be fixed to the position which let the door vertical.
- For the concrete or mortar floor, use provided anchor plugs. (Diameter ϕ6)

**⚠Caution**

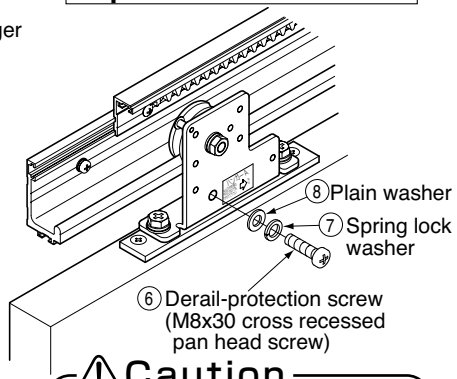
Be sure to install guide rollers.

# 4 Door Hanging

**Door Hanging**




**Mounting of Derail-protection screw**




**⚠Caution**

Securely tighten the screws to prevent the door from falling off.

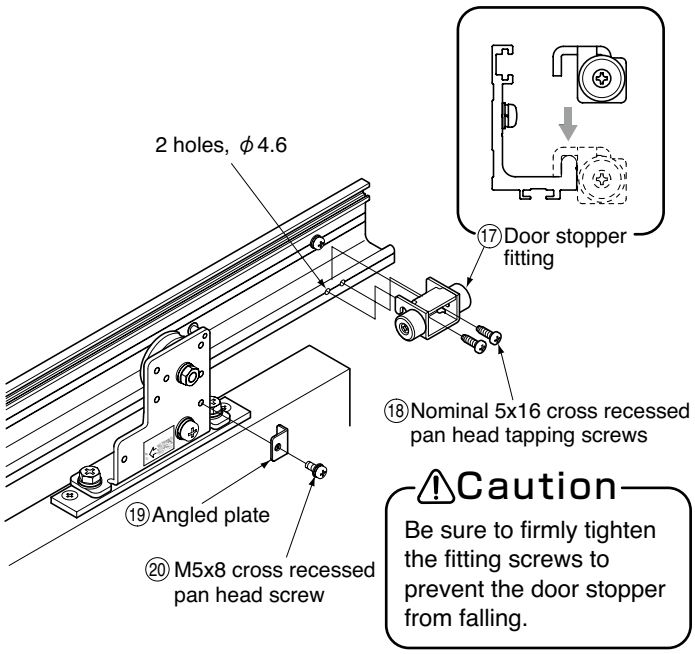
- Before hanging the door, wipe off the dirt on the running surface of the rail.
- Inserting the bottom of the door between the guide rollers, hang the rollers on the running surface of the rail.
- Make sure that the door moves smoothly.
- Adjust the height of the door by increasing or reducing height adjusting plates.

**⚠Caution**

- When hanging the door, be careful not to damage the gear rack or running surface of the rail.
- Do not assemble the damper before hanging the door, since it may be damaged when hanging the door.

- Tighten the derail-protection screws (M8x30 cross recessed pan head screws) into the hangers A and B.

# 5 Installation of Door Stopper




**⚠Caution**

Be sure to firmly tighten the fitting screws to prevent the door stopper from falling.

- Mount the angled plate with provided screws ⑳ on the hangers, both leading edge side and trailing edge side of the door.
- Insert the door stopper fitting on the running surface of the rail. Adjust the hole of the stopper to the ϕ4.6 hole, which was prepared in advance, and fix it using the provided screws ⑱.
- As for the mounting position of the stopper, refer to **1** - 1 Cutting of rail, additional processing of mounting holes

**⚠Caution**

Install optional Door stopper (side mount ㉙) if the vertical frame is not provided.

㉙Door stopper (Side mount) 【Option】



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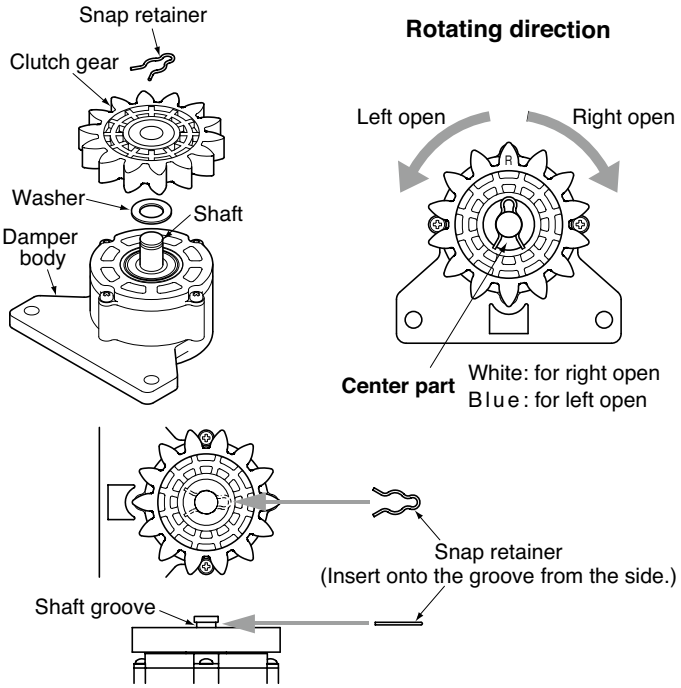
# 6 Installation of the Damper

## 1 Installation and Removal of Clutch Gear




The braking device becomes non-handed by changing the direction of the clutch gear.

### (1) Mounting of the clutch gear:

Please insert the clutch gear and washer to the shaft portion of the braking device body (see table below for direction).

| | When installing, the color of the center portion of the clutch gear should be in the front. | |
|---|---|---|
| | Braking when closing | Braking when opening [option] |
| Right open | white | blue |
| Left open | blue | white |

- One the groove on top of the shaft,set the snap retainer from the side.

### (2) Removal of Clutch Gear

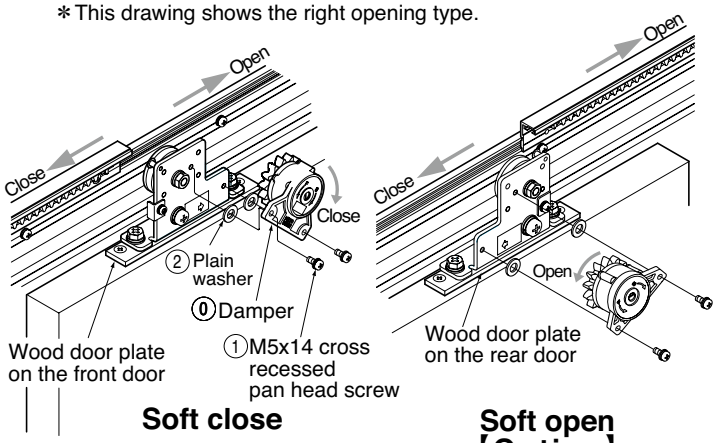
Detach the clutch gear according to the reverse procedure of installation. (Detach it by rotating in the same direction as the time of installation.)

**⚠Caution**

Be sure to Insert and detach the clutch gear with rotating it in the specified direction. Rotating by too much force or in reverse direction may damage the clutch gear.

## 2 Installation of the Damper

＊This drawing shows the right opening type.




- Use the attached screws (①) to attach the braking device and the flat washer to the door end hanger.

**Braking when closing**

With the door opened more than 600 mm, attach the damper in a position that does not touch the rack set.

**Braking when opening [option]**

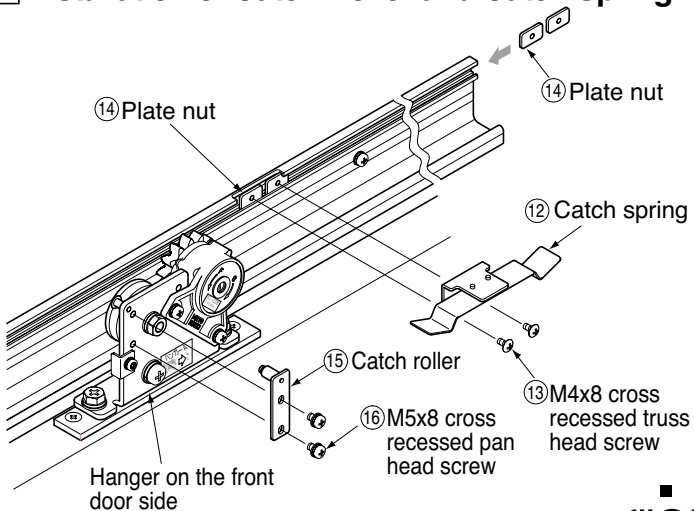
With the door closed, attach the damper in a position that does not touch the rack set.

**⚠Caution**

- Make sure the damper is for right handed use or left handed use. If the damper is assembled in the reverse direction, the system doesn't work.
- Be careful not to damage it hitting against the rail.

# 7 Installation of Catch at opened position

## 1 Installation of Catch Roller and Catch Spring

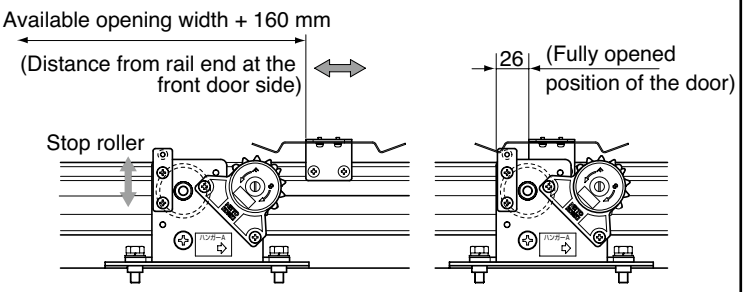



- Mount the catch roller ⑮ on the hanger of leading edge side with the provided screws ⑯.
- Insert the plate nuts into the T groove of the rail and mount the catch spring with provided screws ⑬.

**⚠Caution**

Be sure to use the provided screws to avoid interference with the othe parts.

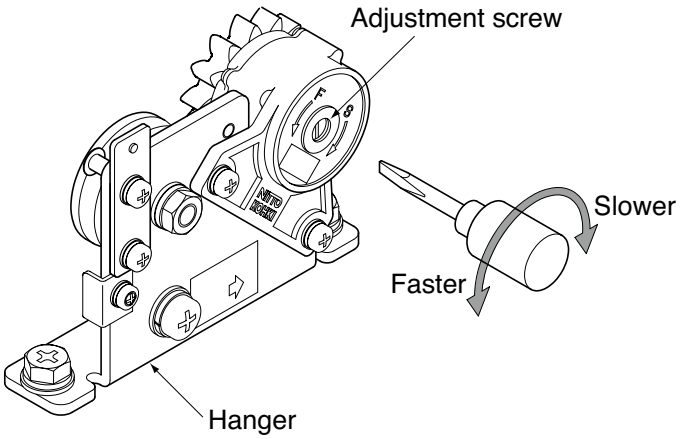
## 2 Adjustment of Catch Position and Catching Force




- Adjust the position of the catch spring so that the door stops at the fully opened position.
  Determine the position by marking on the rail according to the measurement in the illustration.

- Adjust the catching force by moving the position of the catch roller up and down.
  - To increase the catching force → raise the catch roller.
  - To reduce the catching force → lower the catch roller.

# 8 Adjustment of Closing (Opening) Speed




- **Adjustment of closing speed:**
  Let the door close automatically from a fully open position.

**To make the closing speed slower**
→ Rotate the adjustment screw to "S" direction as shown on the left drawing.

**To make the closing speed faster**
(Factory setting speed: the fastest condition)
→ shorten the control zone (move Gear rack set ⑨ toward the leading edge).

- **Adjustment of Opening Speed (Option)**
  Same as above.

The installation has been completed.

### ⚠Caution

- Lightly turn the adjustment screw. When it is turned until the end, do not turn any more.
- The closing speed varies by ambient temperature. When the temperature is high, the door closes fast; when it is low, the door closes slowly.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