

# LAMP HBFN Horizontal Bi Folding Door Mechanism Instruction Manual

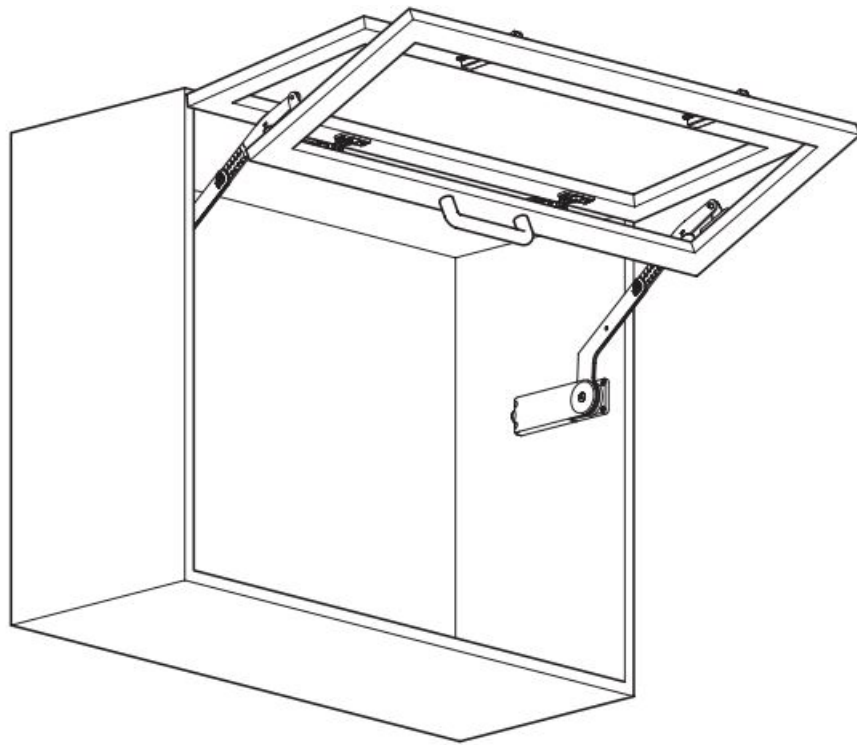
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**LAMP HBFN Horizontal Bi Folding Door Mechanism**



### Product Information

The HBFN Horizontal Bi-folding Door Mechanism is designed with Lapcon technology for shock absorption and smooth opening and closing movement. It is suitable for cabinets with a width between 450mm to 900mm and a sideboard thickness of 14mm to 20mm. The mechanism is available in five different types, namely HBFN-2S, HBFN-3S, HBFN-4S, HBFN-2M, and HBFN-3M, with a weight capacity of 2.5kg to 5.5kg per door.

### Product Usage

1. Read the installation manual carefully before installing the mechanism. Incorrect installation and improper use of the product may cause damage to the unit and also cause injury.
2. Select the suitable type of mechanism depending on the weight of the door (including the handle weight) as per Table 1.
3. Measure the cabinet door and cabinet dimensions to select a proper type of model HBFN mechanism. Refer to Figure 2 for cabinet illustration and formula for cabinet height calculation.
4. Prepare 1 piece of handle for cabinet door and 2 sets of concealed hinge for putting the door into the cabinet.
5. Use a hexagon key of 2.5mm, 5mm, and 8mm for installation work.
6. Mount the concealed hinge (overlay use) as a door-hanging device. The LAMP brand 220 series concealed hinge (product No.220-26/19T or No.220-C26/19T) is recommended.
7. Contact sales representatives in case of installing to a cabinet exceeding the indicated ranges.
8. Follow the mounting dimensions as per Figure 3 for S type arm length model with 90 opening angle door application.
9. Adjust the height accordingly using the adjustment points as per Table 2.
10. Keep the installation manual for future reference.

Read this manual carefully for proper installation and operation.

Incorrect installation and improper use of the product may cause damage to the unit and also cause injury. This manual should be kept by the user after installation.

### Lapcon mount-on series

Lapcon is an innovative technology developed and designed for ultimate shock absorption and the smoothest opening and closing movement imaginable.

## **CAUTION**

Any failure to observe the following cautions may result in personal injury and property damage.

### **Cautions for installation**

- The right-hand and left-hand side bodies of this mechanism should be installed in set.
- This is the mechanism exclusively for a horizontal bi-folding type door application. Be reminded that we can not take the responsibility for damages and injuries caused by other applications, disassembly, conversion and the application to the doors exceeding the standard ranges shown in the item "Type selection method".
- This mechanism must be installed to the cabinet correctly in accordance with the indications of this manual. Notice that the non-observance of the specified dimensions not only does not enable this mechanism to show its full performance but also may result in damage and also cause injury.
- It is necessary to use the attached screws for installing this mechanism. Otherwise, the disconnection of this mechanism may happen causing injury. For improvement, the specification may be changed without notice. As for details please verify the actual goods.
- The applicable door must have the construction for which it is difficult to induce bent or torsion.

### **Cautions for operation**

- Keep the doors from forced opening and closing. It is prohibited to open the doors over a full open angle or to close the doors with excess force.
- The working temperature range of this mechanism is 5~35°C. Opening and closing speed of the door depends on the temperature. This is not the symptom of troubles. It is prohibited to use this mechanism at the temperature exceeding the specified range. It is not permitted to apply this mechanism for the cabinet installing a heat-generating microwave oven or other similar appliances.
- Be careful not to insert a finger into the arm mechanism of the unit. Sever injury may be caused.
- It is necessary to periodically check the fixing screws for loosening. Tighten the loosened screws as required.

## **PARTS DESCRIPTION**

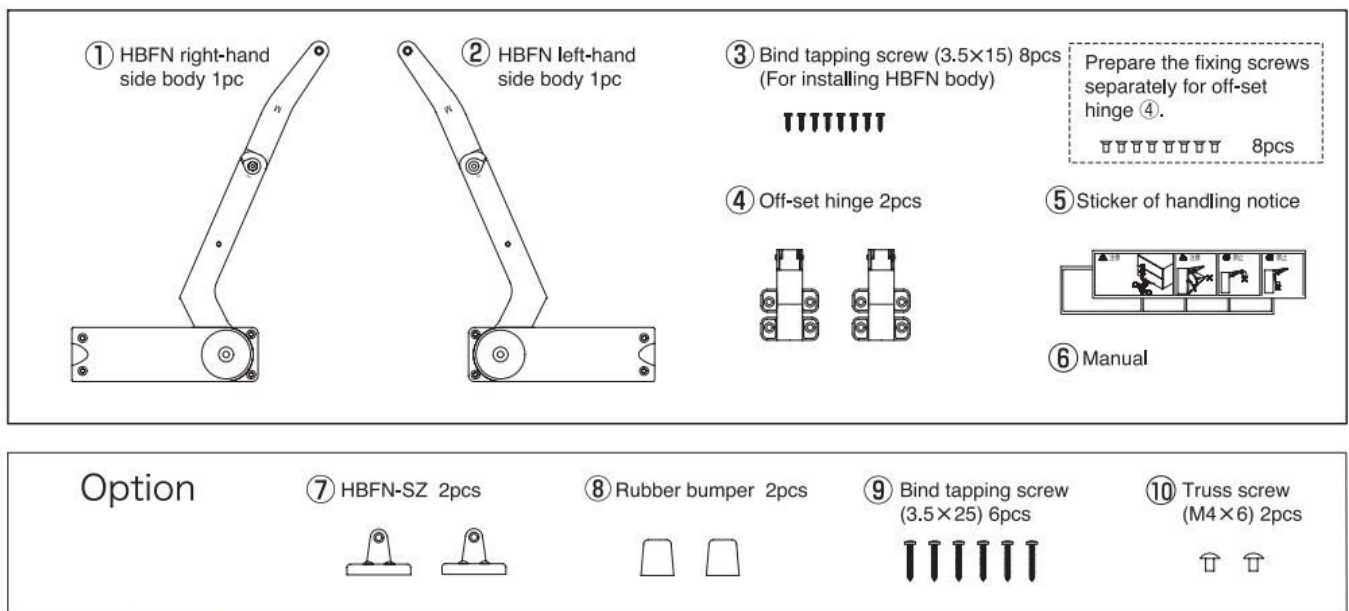


Fig. 1 Parts description

## TYPE SELECTION METHOD, MOUNTING DIMENSIONS

### TYPE SELECTION METHOD

- Select the suitable type of this mechanism depending on the weight of the applicable door (including the handle weight) as per Table 1.
- Measurements of cabinet door should be considered to select a proper type of model HBFN mechanism. ( Fig.2 )
- The dimensions as cabinet height (H 0) and cabinet door height (H 1) should meet within the specification of following formula.
- Cabinet Height (H 0)=Door Height (H 1)x2+{ (Top board thickness-Overlay)+(2mm gap between upper door and lower door)+(Bottom board thickness Overlay)}
- The dimensions of an upper door and a lower door should be the same ones. Cabinet Door Width (W 1) : 450~900mm
- Cabinet Door Thickness (T 1) : 17~20mm ( Refer to Fig. 2 )
- The concealed hinge (overlay use) should be used as a door-hanging device. The LAMP brand 220 series concealed hinge (product No.220-26/19T or No.220-C26/19T) is recommended.
- Contact our sales representatives in case of installing to a cabinet exceeding the indicated ranges.

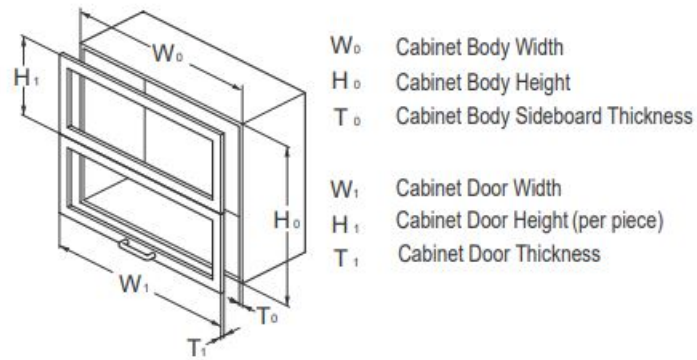


Fig.2 Cabinet illustration

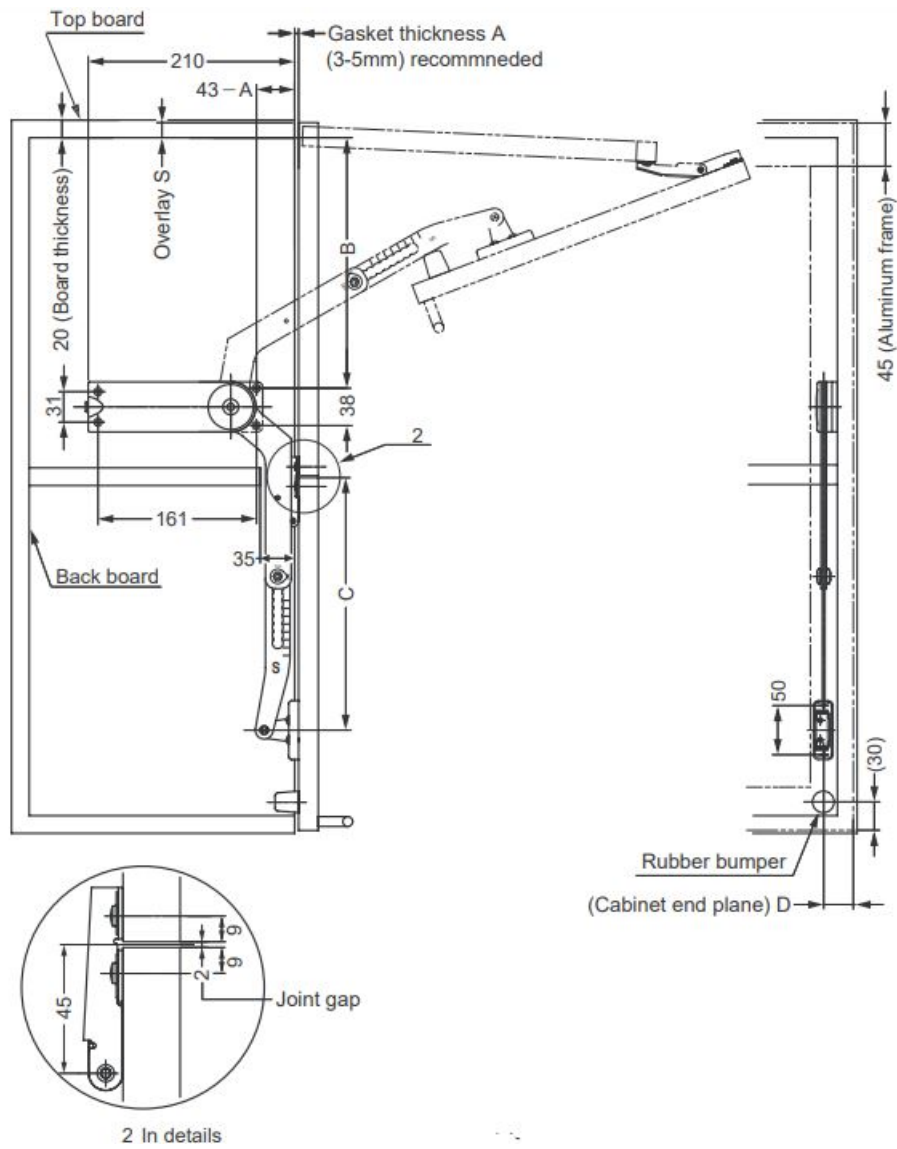
Table 1. Type and suitable door height & weight

| Type                 | Door height/pc.(mm) | Door weight/pc.(kg) |
|----------------------|---------------------|---------------------|
| HBFN-2S              | 260 ~ 320           | 2.5 ~ 3.5           |
| HBFN-3S              |                     | 3.5 ~ 4.5           |
| HBFN-4S              |                     | 4.5 ~ 5.5           |
| HBFN-2M              | 320 ~ 370           | 2.5 ~ 3.5           |
| HBFN-3M              |                     | 3.5 ~ 4.5           |
| HBFN-4M              |                     | 4.5 ~ 5.5           |
| HBFN-2L <sub>1</sub> | 370 ~ 420           | 2.5 ~ 3.5           |
| HBFN-3L <sub>1</sub> |                     | 3.5 ~ 4.5           |
| HBFN-4L <sub>1</sub> |                     | 4.5 ~ 5.5           |

<sub>1</sub> : Available for project based order

## MOUNTING DIMENSIONS

Below drawing shows the mounting dimensions of S type arm length model with 90°opening angle door application.



$$D = 14 + T_0 - \left( \frac{W_0 - W_1}{2} \right)$$

$T_0$  Cabinet Body Sideboard Thickness

$W_0$  Cabinet Body Width

$W_1$  Cabinet Door Width (Fig. 2)

**Table 2. Applicable door height and installation measurements per type of arm**

| Arm     | Door X2 | Opening Angle 90° |        |     | Opening Angle 105° |        |     |
|---------|---------|-------------------|--------|-----|--------------------|--------|-----|
|         | Height  | Adjustment point  | B      | C   | Adjustment point   | B      | C   |
| S       | 260     | 1                 | 171- S | 189 | 2                  | 162- S | 190 |
|         | 270     | 2                 | 176- S | 192 | 3                  | 171- S | 195 |
|         | 280     | 3                 | 182- S | 196 | 4                  | 180- S | 202 |
|         | 290     | 4                 | 187- S | 199 | 5                  | 189- S | 209 |
|         | 300     | 5                 | 192- S | 202 | 6                  | 198- S | 216 |
|         | 310     | 6                 | 198- S | 206 | 7                  | 207- S | 223 |
|         | 320     | 7                 | 203- S | 209 | 8                  | 216- S | 230 |
| M       | 320     | 1                 | 247- S | 241 | 4                  | 226- S | 244 |
|         | 330     | 2                 | 252- S | 244 | 5                  | 234- S | 250 |
|         | 340     | 3                 | 258- S | 248 | 6                  | 243- S | 257 |
|         | 350     | 4                 | 263- S | 251 | 7                  | 251- S | 263 |
|         | 360     | 5                 | 269- S | 255 | 8                  | 259- S | 269 |
|         | 370     | 6                 | 274- S | 258 | 9                  | 267- S | 275 |
| X1<br>L | 370     | 1                 | 289- S | 269 | 4                  | 291- S | 295 |
|         | 380     | 2                 | 295- S | 273 | 5                  | 300- S | 302 |
|         | 390     | 3                 | 300- S | 276 | 6                  | 308- S | 308 |
|         | 400     | 4                 | 306- S | 280 | 7                  | 317- S | 315 |
|         | 410     | 5                 | 313- S | 285 | 8                  | 327- S | 323 |
|         | 420     | 6                 | 320- S | 290 | 9                  | 336- S | 330 |

1. Available for project based order
2. In addition door height is also slightly adjustable in the range of  
± 5mm by the adjustment screw of HBFN-SZ mounting plate.  
( Refer to Fig.10 )

## HOW TO ADJUST THE ARM LENGTH, INSTALLATION PROCEDURE

### HOW TO ADJUST THE ARM LENGTH

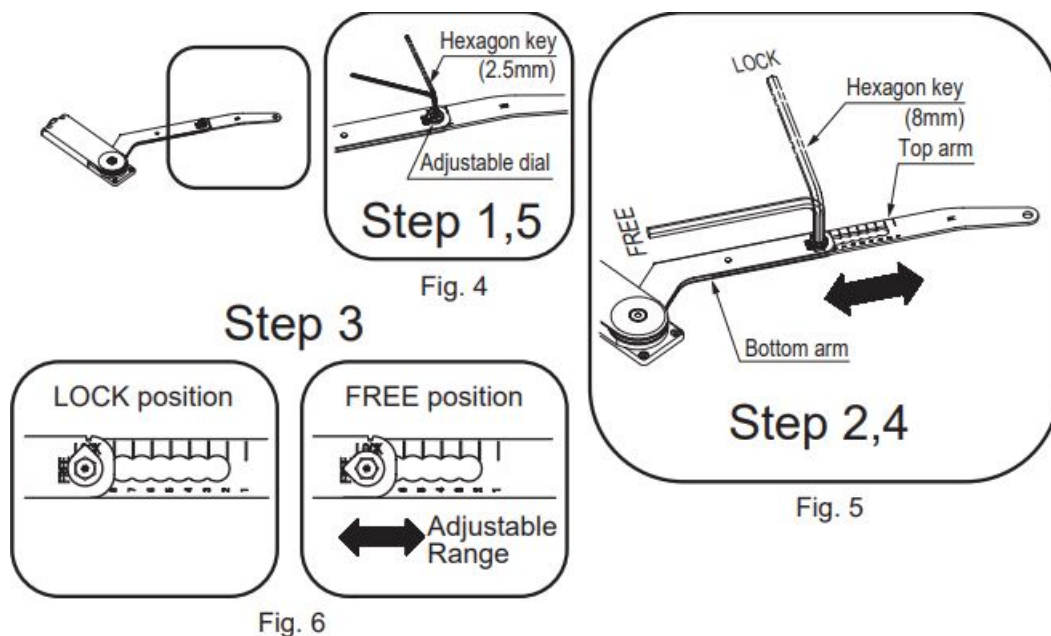


Fig. 4, 5, 6 Arm adjustment procedure (e.g. : type of arm M)

- Step 1. Using hexagon key (2.5mm) loosen the screw in the center of adjustable dial on the side-face of arm. ( Fig. 4 )
- Step 2 Using hexagon key (8.0mm) set the adjustable dial at "Free" position. ( Fig. 5 )
- Step 3 With setting the adjustable dial at "Free" position, adjust the arm length. ( Fig. 6 & Table 2 )  
Arm length adjustment is done by to set the marked line (number 1-6) shown on the side-face of the top arm to the edge of the bottom arm.
- Step 4 Using a hexagon key (8.0mm) set the adjustable dial at "Lock" position. ( Fig. 5 )
- Step 5 Using hexagon key (2.5mm) tighten the screw in the center of adjustable dial on the side-face of arm. ( Fig. 4 )

Notice: Turn the adjustable dial excessively with setting the arm adjustable position incorrect or improper may cause the unit broken. After arm adjusting, set the adjustable dial at "Lock" position and fix it by hexagon keys.

## INSTALLATION PROCEDURE

### Installation of HBFN unit body



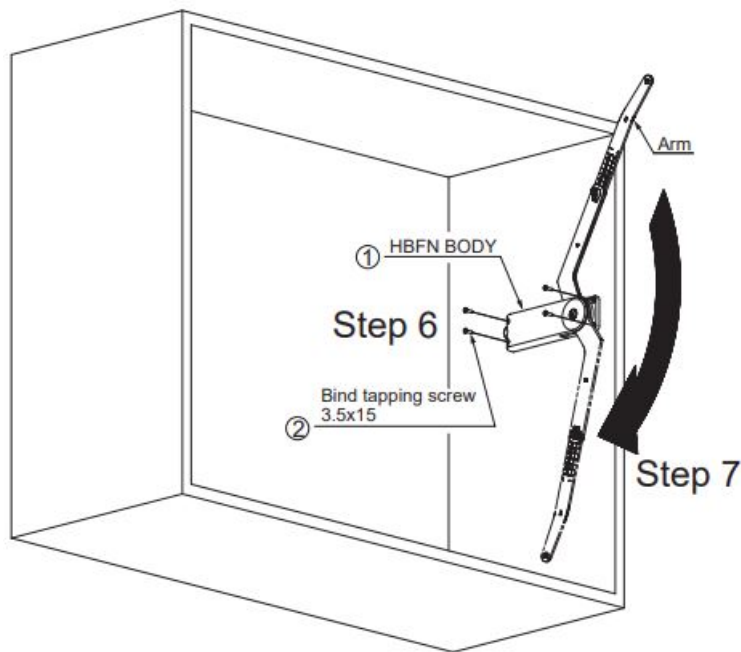


Fig. 7 Installation of side body

- Step 6. Set the unit body 1 (or 2) with the arm length adjusted according to the door height into the specified position on the inside surface of the cabinet (as for the mounting dimensions refer to Fig. 3 & Table 2), and fix the unit body 1 (or 2) with the attached bind tapping screws 3.5x15 3. (Fig. 7)
- Step 7. Pull down the arm to the arrow direction completely. (Fig. 7)

Notice: In this step, do not release your hand from the mechanism during turning its arm. It may cause injury. Be careful not to insert your fingers into the arm mechanism when turning it.

### Installation of mounting plate HBFN-SZ and off-set hinge

- Step 8. Fix the HBFN-SZ mounting plates 7 tightly and place the rubber bumpers 8 to the specified position of the back of the lower door with the attached bind tapping screw 3.5x25 9. (Fig. 8)
- Step 9. The off-set hinges 4 should be used for the connection of the upper door and the lower door. The installing position of the off-set hinges should be set the hinge center at the lower door side. (Fig. 8)

Notice: The fixing screws for the offset hinge are not supplied in this package. Prepare 8 pcs. of them separately (M3.5-M4 truss screw is recommended).

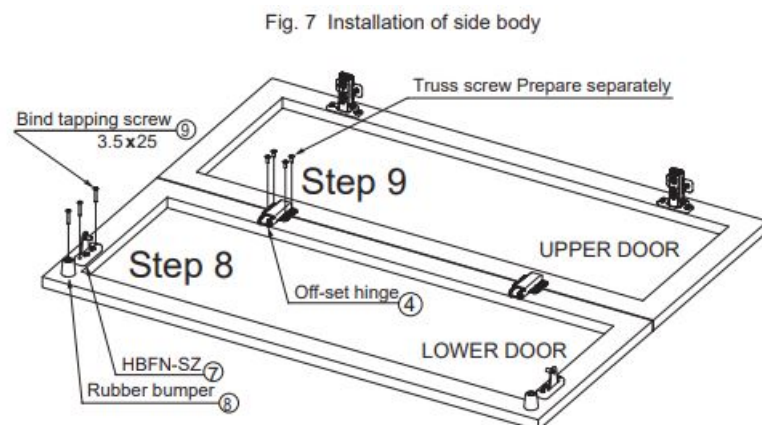


Fig. 8 Installation of HBFN-SZ mounting plate and off-set hinge

## INSTALLATION OF THE DOORS TO CABINET

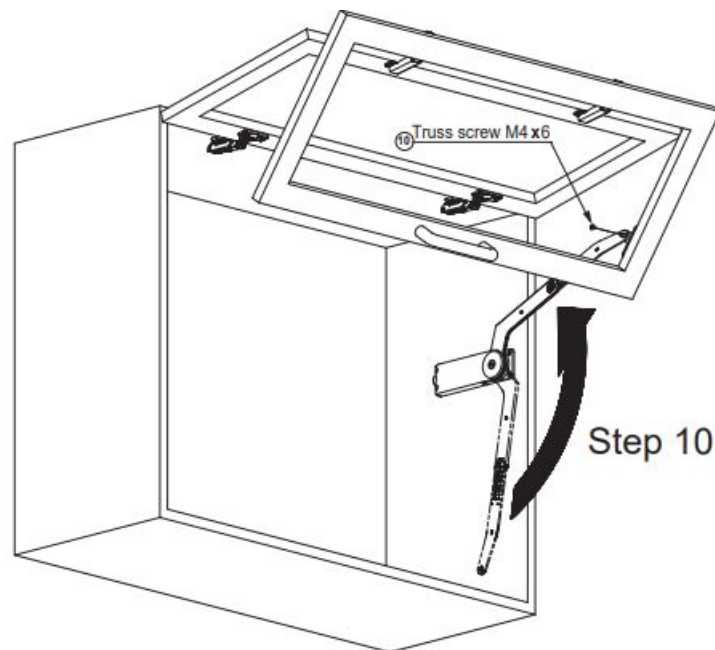


Fig. 9 Installation of the doors

- Step 10. Set the doors (which are connected the upper door and the lower door with the off-set hinges 4 in Step 7) to the cabinet. In case of easy attachable concealed hinges, make sure that the concealed hinge could connect with its mounting plate firmly. Place the arm top hole into the axis of HBFN-SZ mounting plate 7. Fix the both of arm (right-side and left side) to the HBFN-SZ mounting plates with the attached truss screws M4 x 6 10 tightly.

Step 11. The HBF-SZ mounting plates have vertical adjustable function in the range of  $\pm 5\text{mm}$ , so that the arm mechanical movement can be tweaked for more proper door closing movement even after the installation.

( Fig. 10 )

Notice: In case using this adjustment function, tighten the adjustable screw of the HBFN-SZ mounting plates after all procedures.

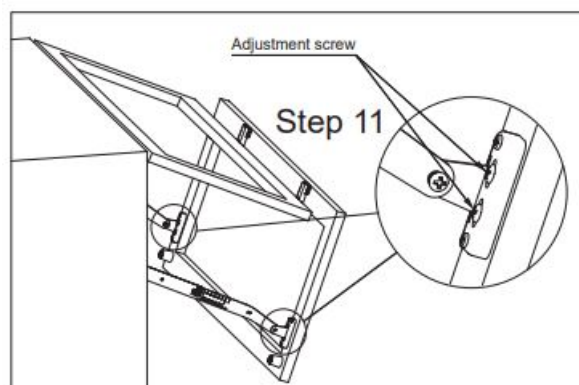


Fig. 10 Adjustment screw in detail

## ADJUSTMENT OF DOOR CLOSING SPEED

- Step 12.

Adjust the door closing speed with the speed-adjusting screw of the body backside. Speed adjustment is carried out with the 5mm Hexagon key. ( Fig. 11 )

Turn it clockwise: faster, counterclockwise: slower. Notice: Turn the speed-adjusting screw carefully. Too much force or torque to the speed-adjusting screw may cause product damage.

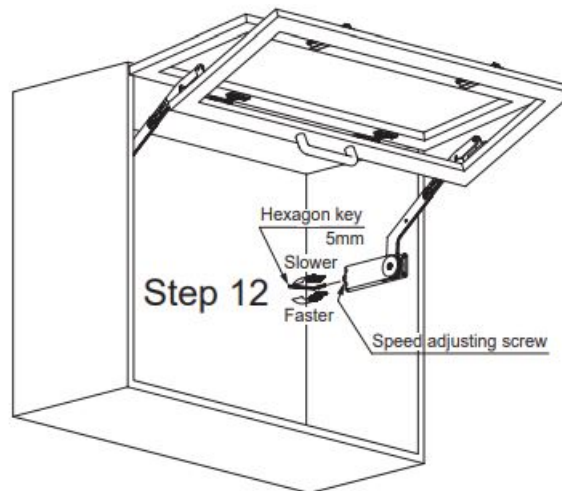


Fig. 11 Adjustment of door closing speed

#### For Overseas Customers

SUGATSUNE KOGYO CO., LTD.

1-8-11 HigashiKanda, Chiyoda-ku,

Tokyo 101-8633, Japan

TEL:+81-3-3866-2260 FAX:+81-3-3866-4447

<http://www.sugatsune.co.jp>

E-mail : [export@sugatsune.co.jp](mailto:export@sugatsune.co.jp)

ISO9001(JSAQ384) ISO14001(JSAE597) CERTIFICATE

#### For North American Customers

SUGATSUNE AMERICA, INC.

221 East Selandia Lane,

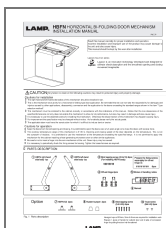
Carson, CA 90746, U.S.A.

TEL:+1-310-329-6373 FAX:+1-310-329-0819

TOLL FREE:(800) 562-5267 (from U.S.A & Canada only) <http://www.sugatsune.com>

E-mail : [sales@sugatsune.com](mailto:sales@sugatsune.com)

#### Documents / Resources



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HBFN Horizontal Bi Folding Door Mechanism, HBFN, Horizontal Bi Folding Door Mechanism, Door Mechanism

#### References

- [VCM](#)
- [Architectural & Industrial Component Hardware | Sugatsune](#)