



**ENERGY SAFE TECHNOLOGIES**

# **Hinged Single-Leaf Doors, Half-Hidden (HSLD H**

**OPERATION MANUAL**

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AFTER HAVING INSTALLED THE DOOR, IT IS IMPORTANT TO ADJUST THE DOOR LEAF AND CHECK THE DOOR FOR EASY AND SMOOTH OPERATION.

# 1. GENERAL INFORMATION

This manual outlines information pertaining to ProfHolod refrigeration doors: main uses, information about the doors, technical specifications and installation instructions.

ProfHolod doors are manufactured in full accordance with the drawings and documentation provided by ProfHolod LLC.

All comments and suggestions should be sent to: Zavodskaya ul. 2, Shyolkovo, Moscow region, Russia, 141108, Tel: +7 (495) 240-83-24, E-mail: info@profholod.com

# 2. PURPOSE AND USE

Doors manufactured by ProfHolod are designed for the thermal insulation of doorways for medium and low temperature refrigeration chambers, refrigerated warehouses and premises requiring sustained high temperatures.

The doors are used

- at the temperature range -45 °C (113 °F) to +55 °C (131 °F)
- humidity below 80%
- in heated and unheated rooms
- under a roof or outdoors

# 3. SPECIFICATIONS

Type of door	Opening width (mm)	Opening height (mm)	Thickness of door leaf (mm)	External material of the door leaf	Internal material of the door leaf	Threshold height (0, 60 or 80 mm)	Temperature range (L or M)	Positioning (R - Right, L - Left)
HSLD H	XXXX	XXXX	XXX	XXX-XXX	XXX-XXX	X	X	XX

## DOOR MATERIALS:

Material code	Description
RAL-0,5	Metal sheet, thickness 0.5 mm, with RAL polymer coating
Zn-0,5	Galvanized metal sheet, thickness 0.5 mm
AISI 304-0,5	304 food grade stainless steel, thickness 0.5 mm
AISI 430-0,5	430 all-purpose stainless steel, thickness 0.5 mm

Table 1 shows the range of sizes for HSLD H produced by ProfHolod.

Table 1.  
Range of HSLD H door sizes

Opening width, multiples of 10 mm	Opening height, multiples of 10 mm	Door leaf thickness
800...1400	1800...5000	80; 100; 120; 150

Standard HSLD H refrigeration doors are equipped with Fermod or Rahrbach hardware, see Figures 1, 2. HSLD H doors with height over than 2400 mm are supplied only only with Rahrbach hardware.

Figure 1.  
HSLD H hardware by Fermod:



- 1- lift-type hinge with 3-dimensional adjustments;
- 2 - outer handle with built-in lock;
- 3 - inner handle for emergency opening;
- 4 - latch.



Figure 2.  
HSLD H hardware by Rahrbach:

- 1 - hinge with 3-dimensional adjustments;
- 2 – outer rotary handle with built-in lock;
- 3 – inner rotary handle for emergency opening;
- 4 – additional latch for HSLD Hs with height more than 2400 mm.

THE KEYS FOR THE DOOR LOCKS ARE PROVIDED BY THE MANUFACTURER OF THE LOCKS, PROFHOLOD CANNOT BE HELD RESPONSIBLE FOR THE NUMBER OF UNIQUE KEYS AND LOCKS IN EACH ORDER.

## 4. TECHNICAL SPECIFICATIONS

The door leaf, including the edges, is made from 0.5 mm thick steel sheet, which protects the door leaf from impact. Rigid polyurethane foam from is used as a filler.

The foam density is 45-50 kg/m<sup>3</sup>, the thermal conductivity is 0.022 W/m·K.

The door leaves can be installed with an overlapping door frame. If opening width is less than 900 mm and opening height is less than 2200 mm, the door leaf can be installed onto sandwich panel with a framed opening. In this case, sandwich panel with a cut opening can have a length up to 9300 mm.

A rubber gasket is used to seal the refrigeration door.

For the low-temperature option, the door frames are supplied with an electric heating cable to prevent the sealing profile from freezing. All elements of the door leaf are made without cold bridges to reduce cold leakage.

Table 2.  
Specifications of the heating cable

Specifications of the heating cable	Unit	Measurement
Voltage	V	220
Frequency	Hz	50
Diameter	mm	less than 8
Power output	W/m	30 ~ 40

The door leaf is protected from minor damage by a special self-adhesive polyethylene film, which should be removed after installation. It is highly recommended to remove the film no more than three months after the door was manufactured.

# 5. HSLD H WITH OVERLAPPING FRAME

The standard door frame is manufactured from 2 mm cold rolled steel and painted with powder paint in RAL 9003 or any other color according to the RAL catalogue. The frame can be produced from AISI 304 or AISI 430 stainless steel at your request. The frame is mounted on one side of the opening using a mounting kit (optional) and can be mounted in the following ways:

- Onto a wall made of sandwich panels.
- Onto an opening in a load-bearing wall, made of concrete or brick
- Onto a metalwork

The overall dimensions of the metal door frame depend on the dimensions of the opening:

- Frame width = width of the opening + 230 mm. If opening height is more than 2800 mm, then frame width = opening width + 240 mm.
- Frame height = Opening height + 80 mm + threshold height.

Figure 3.

Metal overlapping frame for HSLD H doors.

On the left - without a threshold, on the right - with a threshold

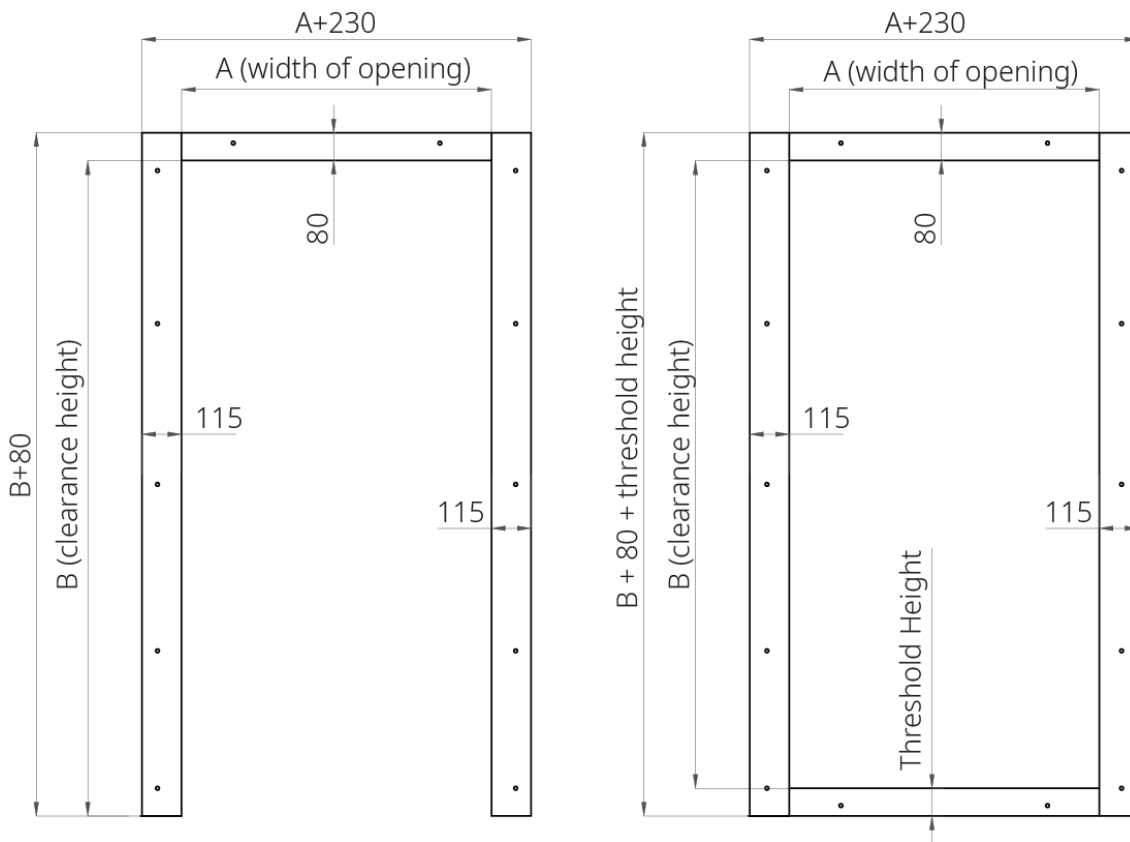


Figure 4.  
HSLD H with an overlapping metal frame. On the left - without a threshold, on the right - with a threshold

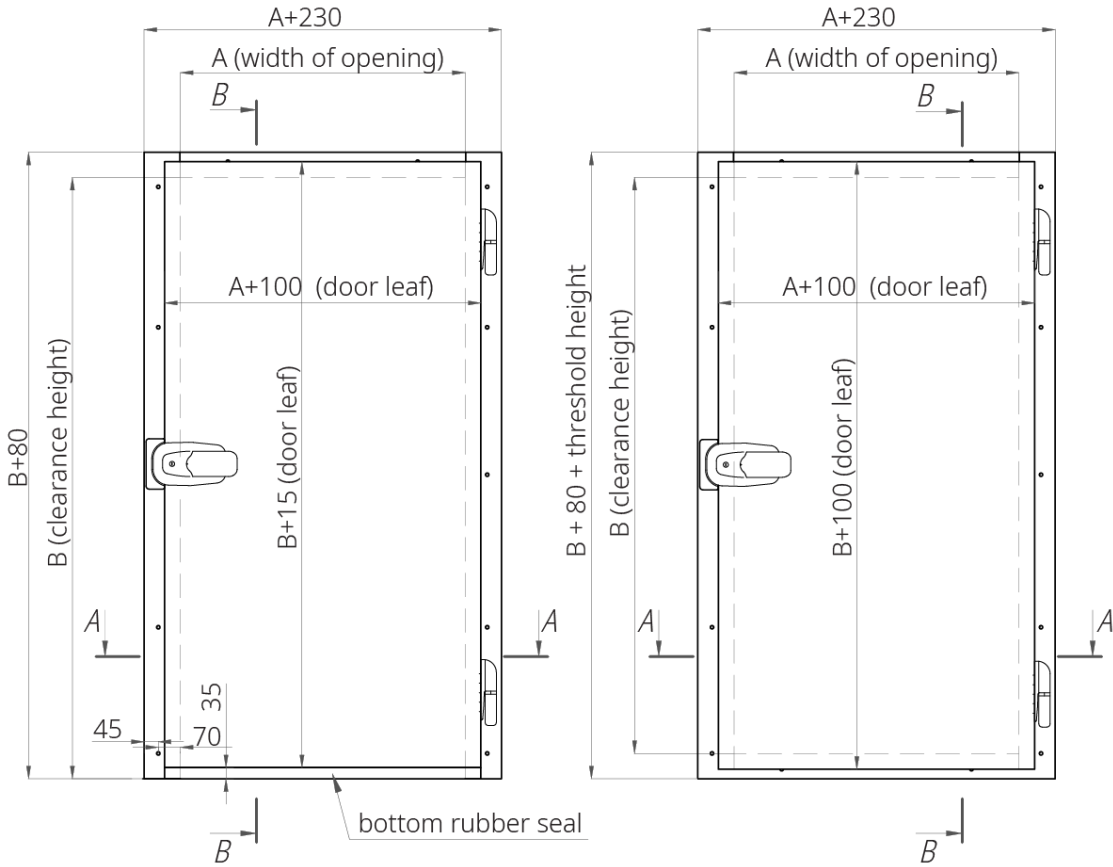


Figure 5.  
Cross-section A-A. On the left – 100 or 120 mm thick door leaf. On the right – 80 mm thick door leaf

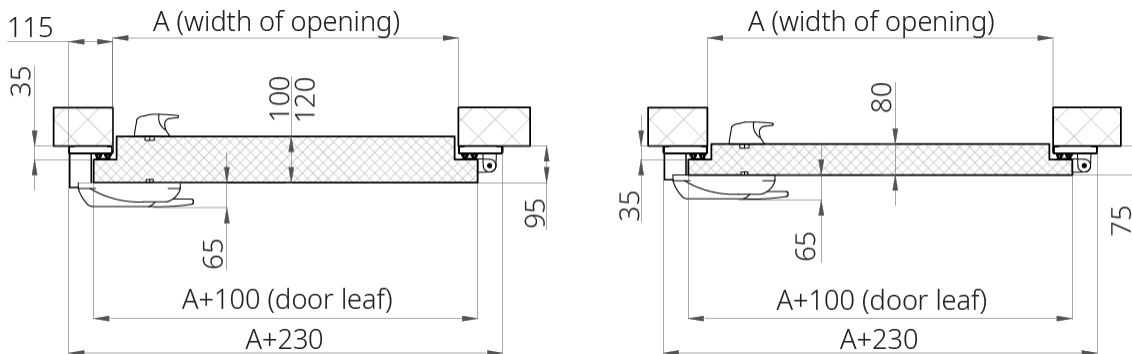
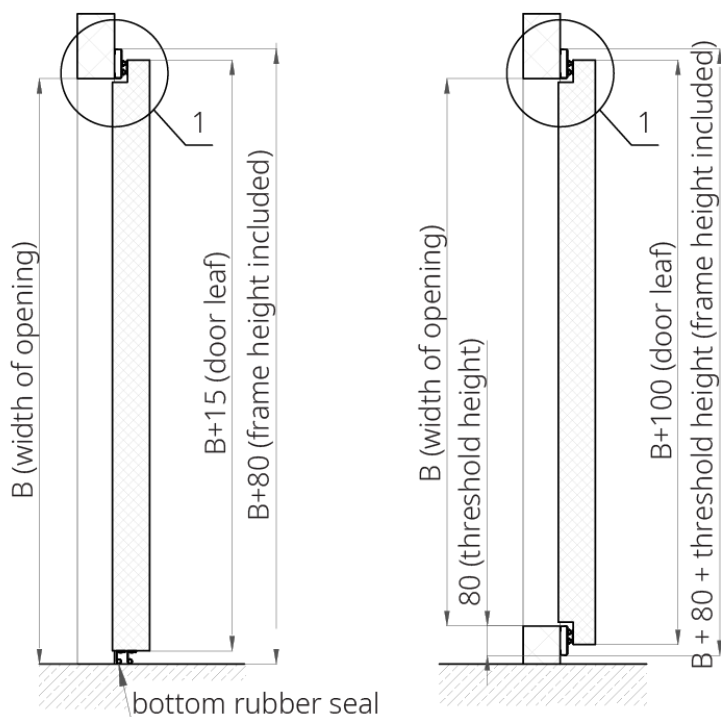


Figure 6.  
Cross-section B-B. On the left - without a threshold, on the right - with a threshold



## 6. INSTALLATION KIT

The metal frame and the door leaf are attached to the wall using a mounting kit (optional).  
HSLD H installation:

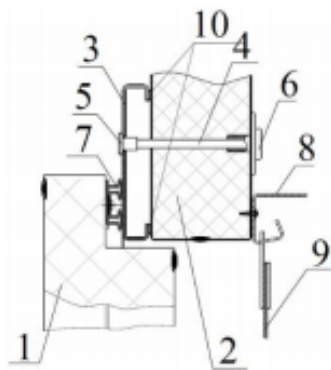
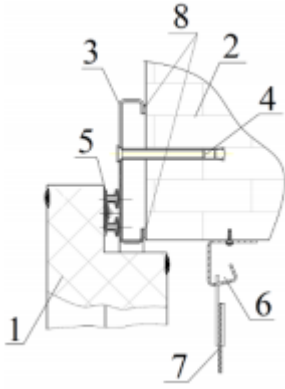


Figure 7.  
Assembly unit 1 (cross-section B-B). Fastening the metal overlapping door frame to a sandwich panel.

- 1 - HSLD H door leaf
- 2 - Wall sandwich panel
- 3 - Metal frame
- 4 - Threaded rod M8
- 5 - Erickson nut
- 6 - PVC thermal washer with PVC thermal nut
- 7 - Seal
- 8 - Comb for hanging PVC tapes
- 9 - PVC tapes
- 10 - PPE tape 3x10 to break the cold bridge

Figure 8.  
Assembly unit 2



- 1 – HSLD H door leaf
- 2 - Concrete or brick wall
- 3 - Metal frame
- 4 - Anchor bolt 10x92
- 5 - Seal
- 6 - Comb for hanging PVC tapes
- 7 - PVC tapes
- 8 - PPE tape 3x10 to break the cold bridge

## 7. INSTALLATION HSLD H ON A SANDWICH PANEL WITH A PRE-FRAMED OPENING

If the opening width is 800 mm or 900 mm and the opening height is less than 2200 mm, the door leaf can be supplied in a wall sandwich panel and a wall pre-framed casing.

In this case, the length of the wall panel is determined by the height of the refrigeration chamber. The opening is framed with a U-shaped molding to break a cold bridge. If you are using the low-temperature version, the door kit includes an electric heating cable, which is attached using adhesive foil onto the inner side of the frame, where the rubber gasket sits.

Figure 9.

Sandwich panel wall with a pre-framed opening

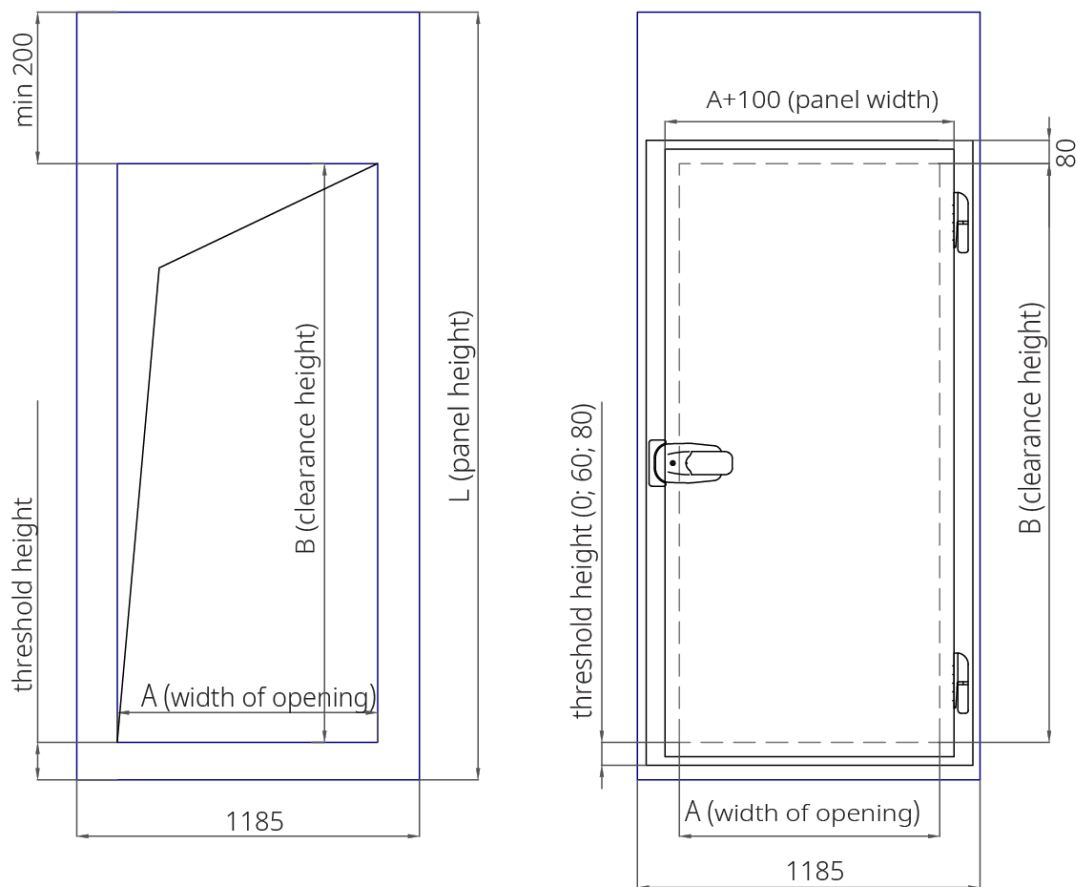




Figure 10.  
HSLD H cross-section with a wall sandwich panel



ProfHolod LLC does not guarantee the compatibility of the door set which comes installed inside the ProfHolod's insulated panel with panels of third-party manufacturers due to differences in the docking locks of the insulated panels.

## 8. INSTALLATION OF HSLD H DOORS WITH AN OVERLAPPING DOOR FRAME

The door leaf can only be installed on a prepared pre-framed opening. Opening made in sandwich panel wall must be framed. The opening of the brick wall should be prepared for finishing.

- Before installing the doors, make sure that the door leaves were not damaged during transportation. Check all parts of the door set are all right .
- Compare the dimensions of the opening to the dimensions indicated in the door specification. Dimensions of the width and height of the opening and diagonals cannot differ more than  $\pm 3$  mm.
- Remove the door leaf from the hinges.
- Install the frame into the opening and check both levels: the posts vertically and the cross-beam horizontally.
- Mark the frame mounting holes on the wall.
- Using a drill with a 9 mm drill bit, drill holes into the wall of the sandwich panels where the markings are. It is important to ensure the perpendicularity of the holes to the surface of the sandwich panel wall. If fastening the frame to a brick wall, drill holes with a 10 mm drill bit to a depth of 80-100 mm.
- On the reverse side of the leaf, drill a hole of diameter 19-24 mm using a drill or "hole saw".
- Around the perimeter of the frame, glue the PPE 3x10 sealing tape for thermal break.
- If necessary, on the reverse side of the frame, at the point where the rubber seal is fitted, install the heating wire using adhesive foil.
- Secure the frame to the opening using the appropriate mounting kit.
- Before the final tightening of the fastening nuts, check the level of the frame on both the vertical and horizontal planes
- Hang the door leaf on the hinges and tighten the fastening elements.
- Install the door hardware according to the manual provided by the manufacturer
- Adjust the pressure of the seal and the position of the leaf relative to the opening.
- Check the operation of the lock, the tightness of the door leaf to the frame, and the ease of opening and closing the door. If it does not have a threshold, make sure that there is no gap between the edge of the door leaf and the floor.

# 9. INSTALLATION AND CONNECTION OF THE ELECTRIC HEATING CABLE

It is **compulsory** to equip doors in low-temperature chambers with a heating cable to prevent the door leaf sticking to the gasket. ProfHolod **recommends** to install a heating cable to prevent the formation of condensation on the doors of medium-temperature rooms if:

- The environment inside or outside the doors has regular high humidity (rooms with increased sanitation, basements, mushroom growing chamber, etc.);
- An air conditioning unit is/will be located near the doors;
- The room is not ventilated;
- The doors are installed in a loading dock. The wire heating is always required in case of high humidity.

The door unit uses two electric heating cables:

1. On the inside of the door frame;
2. At the threshold of the doorway.

The preparation and connecting of the 40 W/m cable in metal braid should be carried out in the following order:

- Cut the braid wire at the required length (no more than 300 mm);
- Pull the cable out of the sheath and twist it into a bundle;
- Remove the rubber insulation;
- Cut off the visible section of the nichrome thread;
- Insulate the cable with PVC tape or heat shrinking tubing at the end of the rubber insulation;
- Strip the ends of the power supply wires;
- Mount the electrical connection box to the wall for the wire. The power supply point for doors with a threshold should be mounted on the upper corner of the door frame on the side with the hinges. For doors without a threshold, it should be mounted on the lower corner on the side with the lock.

Figure 11.  
Preparation of a heating cable segment for connection



Figure 12.

Layout of the wire in the overlapping frame.

On the left — installation in a frame without a threshold; on the right — with a threshold

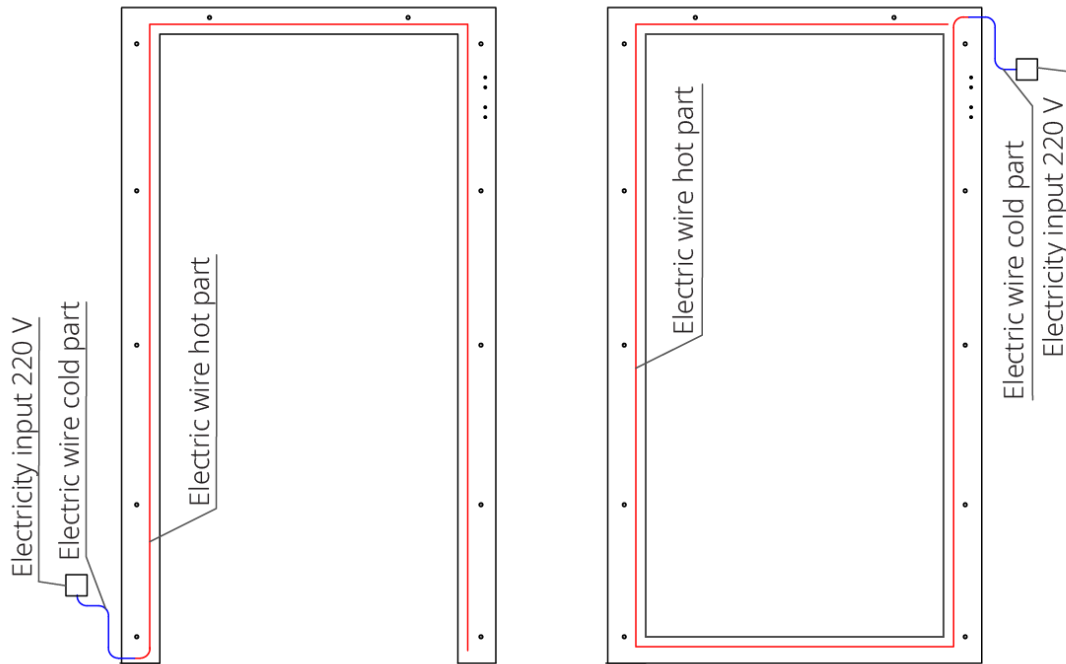
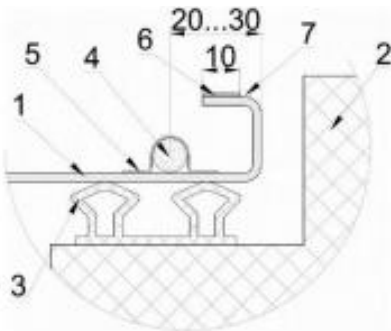


Figure 13.

Assembly unit 3. Electric cable installation



- 1 - The metal frame
- 2 - Door leaf
- 3 - Double rubber seal (Fermod 67)
- 4 - Wire with metal braid, constant power 40 W/m
- 5 - Adhesive foil tape
- 6 - PEE 3x10 tape to break the cold bridge
- 7 - Silicone sealant

The connection is made using a connector block with an AE or VA circuit breaker, with a fuse up to 6 A. Protect the connection point from moisture and dust.

**ATTENTION!**

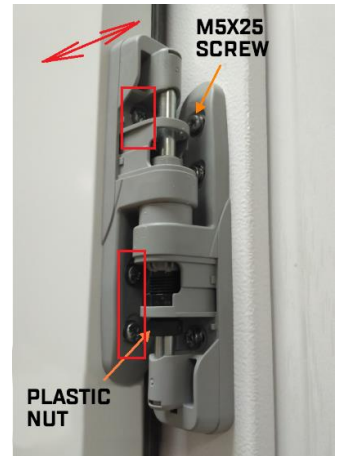
**THE HEATING ELEMENT MUST BE WIRED BY PROFESSIONAL ELECTRICIANS.**

# 10. ADJUSTING THE DOOR HARDWARE

## HSLD H WITH FERMOD HARDWARE

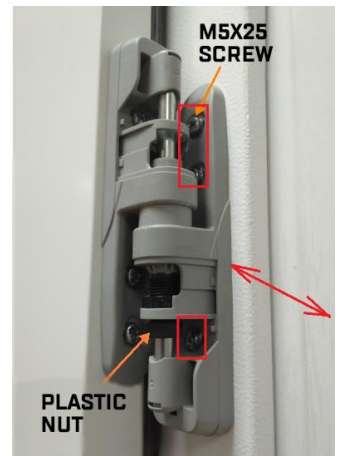
Adjusting the pressure of the gasket on the hinge side should be carried out in the following order:

1. Remove the covers from the half-hinges.
2. Mark, with a pencil, the position of the half-hinge on the door leaf.
3. Remove the door leaf from the hinges.
4. Loosen the 4 screws securing the half-hinge onto the leaf.
5. Move the half-hinge in the proper direction.
6. Tighten the screws.
7. Hang the door leaf, check the pressure of the seal.
8. Place back the half-hinge covers.



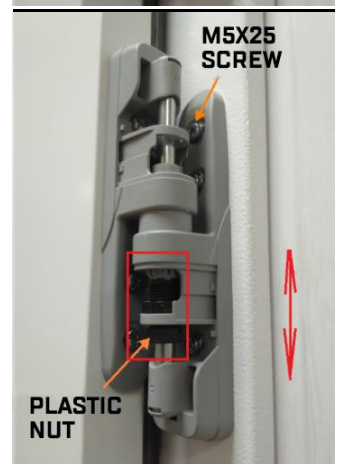
Adjusting the position of the door leaf relative to the opening should be carried out in the following order:

1. Remove the covers from the half-hinges.
2. Mark, with a pencil, the position of the half-hinge on the leaf.
3. Remove the door leaf from the hinges.
4. Loosen the 4 screws securing the half-hinge onto the leaf.
5. Move the half-hinge in the proper direction.
6. Tighten the screws.
7. Hang the door leaf, check the position of the leaf relative to the opening.
8. Place back the half-hinge covers.



Adjusting the pressure of the lower seal for doors without a threshold should be carried out in the following order:

1. Remove the covers from the half-hinges;
2. Remove the door leaf from the hinges;
3. Screw the plastic nut clockwise all the way.
4. Hang the door leaf.
5. Unscrew the plastic nut counterclockwise until there is no gap between the lower seal and the floor. To avoid the door hinge damage, it is recommended to carry out the adjustment with the door leaf removed or raised.
6. Place back the half-hinge covers.





Adjusting the seal pressure from the lock side should be carried out in the following order:

1. To remove the latch cover, unscrew the two M5x25 screws.
2. Loosen the bolt securing the latch.
3. Move the latch in the proper direction.
4. Tighten the latch bolts.
5. Check the amount of pressure of the seal from the lock side, if necessary, make the adjustment again, see paragraphs 2-4.
6. Place and fasten the latch cover.

#### HSLD H WITH RAHRBACH HARDWARE

• Adjusting the pressure of the gasket on the hinge side should be carried out in the following order:

1. Remove the covers from the half-hinges.
2. Mark, with a pencil, the position of the half-hinge on the door leaf.
3. Remove the door leaf from the hinges.
4. Loosen the 4 screws securing the half-hinge onto the leaf.
5. Move the half-hinge in the proper direction.
6. Tighten the screws.
7. Hang the door leaf, check the pressure of the seal.
8. Place back the half-hinge covers.



• Adjusting the position of the door leaf relative to the opening should be carried out in the following order:

1. Remove the covers from the half-hinges.
2. Mark, with a pencil, the position of the half-hinge on the leaf.
3. Remove the door leaf from the hinges.
4. Loosen the 4 screws securing the half-hinge onto the leaf.
5. Move the half-hinge in the proper direction.
6. Tighten the screws.
7. Hang the door leaf, check the position of the leaf relative
8. to the opening.
9. Place back the half-hinge covers.



- Adjusting the pressure of the lower seal for doors without a threshold should be carried out in the following order:
  1. Remove the covers from the half-hinges
  2. By rotating the adjusting nut with a hex key with S=6 mm, ensure that the lower seal is properly pressed to the floor
  3. Place back the half-hinge covers



- Adjusting the seal pressure from the lock side should be carried out in the following order:
  1. Mark the position of the latch with a pencil
  2. Loosen 2 M5x20 bolts which fasten the latch
  3. Move the lock latch in the proper direction, providing the necessary pressure on the seal
  4. Tighten fastening latch bolts
  5. Check the amount of pressure of the seal from the lock side, if necessary, make the adjustment again, see paragraphs 2-4
  6. Fix the position of the lock latch by twisting the two screws into the remaining holes



## 11. OPERATION AND MAINTENANCE INSTRUCTIONS

The effective operation and service life of hinged doors is largely dependent on the quality and regularity of maintenance. For a best and long-term operation of the door hardware, it is recommended to check the hardware, to tighten the fasteners and lubricate the surfaces that experience friction at least once every two weeks. The frequency of maintenance may vary depending on the frequency of the door opening-closing cycles. The door seal must be lubricated with silicone grease. Careful operation and timely replacement of damaged elements will guarantee a long-term and trouble-free life cycle.

Do not store, install or operate doors under direct sunlight. It is **compulsory** to install a tent above the door to protect it from the sun, snow and rain if the door is installed outside.

## 12. POSSIBLE MALFUNCTIONS AND SOLUTIONS

Possible malfunction	Likely cause	Recommended course of action
Noise when in use: squeaks or other sounds	Lack of lubrication	Lubricate the support bearings of the hinges, the hinges themselves and/or the door locks.
Failure of locks, handles or latches	Some elements are broken	Replace damaged items

# 13. SAFETY MEASURES

Before starting work, it is important to inspect the general condition of the doors. Do not use the doors if there are any issues or malfunction of parts.

Works on maintenance, malfunctions and sanitary treatment should be carried out only when all the electric wires of the door are disconnected from the power.

# 14. STORAGE AND TRANSPORTATION

To ensure the protection of the doors from any damage the doors should be transported in their original factory packaging. During transportation the door sets must be securely fastened in a stable position, any shifting or movement can lead to damage of the door leaves or frames. The doors can be shipped by any transport, if they can be securely fastened inside the truck or container. Protect surfaces of the door leaves during unloading and/or moving around the construction site from any shock or impact. The door blocks should not be exposed to direct sunlight. Storage and operation of doors in direct sunlight is also prohibited. Doors should be stored in places which are protected from any atmospheric precipitation and in a position that does not add any load stress onto the door leaves or the hardware. No more than six doors, with foam pads in between, are allowed to be stored horizontally.

Packaged products can get more heavy over time: they can absorb moisture, condensation, etc.

# 15. DISPOSAL

Disposal of heat-insulating material or polyurethane foam by incineration is **STRICTLY FORBIDDEN**. Consult your personal manager at ProfHolod for the appropriate ways of disposal.

# 16. DELIVERY SET

1. Door frame
2. Door leaf
3. Door hardware packed in a separate box

THE STANDARD DELIVERY SET OF THE DOOR INCLUDES:

1. Door leaf, sized to the dimensions of the opening, made of 0.5 mm thick galvanized metal, with RAL polymer coating. (see Table 1)
2. Metal door frame made of 2 mm thick cold-rolled steel, painted with RAL powder paint.

POSSIBLE ADDITIONS OR ADJUSTMENTS:

1. Door leaf can be made from AISI 304 or AISI 430 stainless steel.
2. Metal frame can be made from 2 mm thick AISI 304 or AISI 430 stainless steel.
3. Electric cable for the metal frame.
4. A set of fixing elements, so you can install the frame to a sandwich panel, metal structure or brick wall.
5. Cover caps.

If the door leaf is supplied on a sandwich panel with a pre-framed opening, the product will be delivered assembled and not equipped with any additional options. This door block will be part of the wall of the refrigeration (freezing) chamber, assembled from sandwich panels manufactured by ProfHolod LLC.

PROFHOLOD LLC DOES NOT GUARANTEE THE COMPATIBILITY OF THE DOOR SET WHICH COMES INSTALLED INSIDE THE PROFHOLOD'S INSULATED PANEL WITH PANELS OF THIRD-PARTY MANUFACTURERS DUE TO DIFFERENCES IN THE DOCKING LOCKS OF THE INSULATED PANELS.

# 17. WARRANTY

ProfHolod LLC guarantees that the door set will meet the design specifications and operational functionality outlined in the documentation if the customer follows the recommended rules for transportation, storage, installation and operation.

The warranty period for the door set is 1 year from the date of shipment.

During the warranty period, claims will not be accepted if:

- Instructions for installing or adjusting the door block are violated;
- Parts or assembly units are damaged as a result of installation and operation rules violation.

The warranty does not cover

- the seals.
- parts that wear out quickly.

The manufacturer reserves the right to make minor design changes to the product that are not reflected in this document.

Detailed instructions for loading and unloading, transportation, storage, installation and operation, as well as technical documentation for products manufactured by ProfHolod LLC are available on the website [www.profhod.com](http://www.profhod.com).



# Certificate of receipt

Door kit, model \_\_\_\_\_  
corresponds to the documentation and is recognized as serviceable.

The door kit serial number is located at the side of the door leaf in the right corner.

Production date: \_\_\_\_\_ 20 \_\_\_\_\_

Head of quality control department

Stamp

Date of installation \_\_\_\_\_ 20 \_\_\_\_\_



