
euroclima

5 Assembly

5.1 Assembly of casing

5.1.1 Actions before the assembly of casing

If several AHU sections have to be connected, then the procedure after the pre-positioning of the sections is as follows:

Remove crane lugs
If lifting lugs are mounted, remove them. To set the unit in the exact assembling position, it can be moved by a rod (leverage).Use the rod only on the base frame profile.

Remove external panels at butt joints
For aligning and connecting the delivery sections, the external panels shall be removed, unless heat exchanger fittings or similar components prevent this.

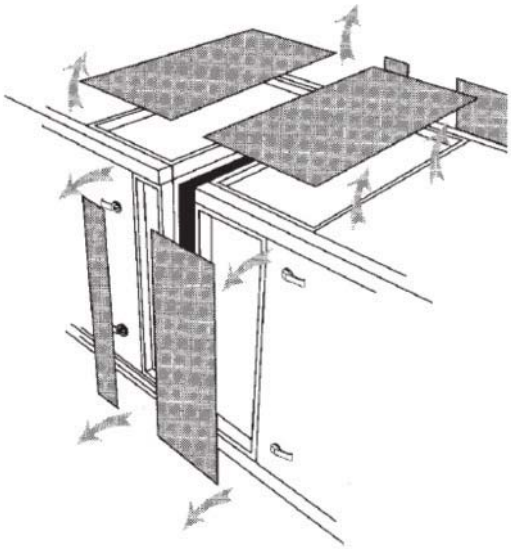

Figure 33: Removable external panels

Procedure:
To remove the external panel - start at the corners - use a screwdriver – refer to **Figure 34**. After removing the external panel, remove the insulation.

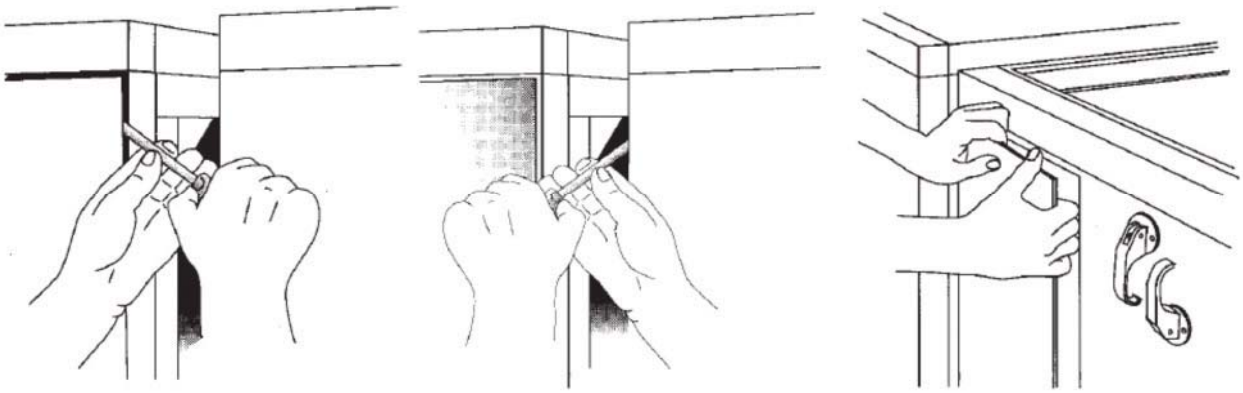

Figure 34: Removal of the external panel

Applying the sealing strip
The supplied self-adhesive sealing strip (**Figure 35**) has to applied on the inner edge of the section flange, refer to **Figure 36**.

Figure 35: Sealing strip

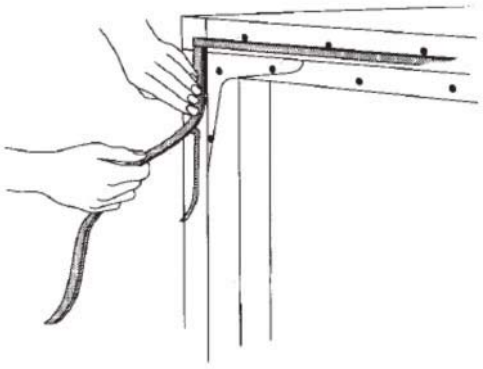

Figure 36: Applying the sealing strip

For roof units as well as at device separations directly before or after a wet area (e.g. cooler, humidifier, air washer), special actions for sealing the AHU must be carried out by using the supplied sealing agent (Sikaflex). Further information will follow in **chapter 5.1.5 (Special features for roof units and device separations at wet areas)**.

Figure 37: Sealing agent (Sikaflex)

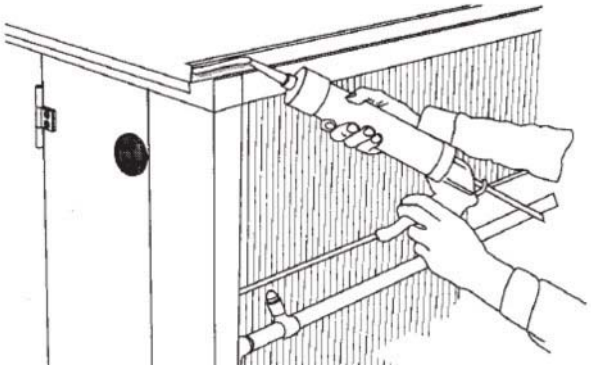

Figure 38: Applying the sealing agent

5.1.2 Standard connections and connection components

Base frame connection

Figure 39: Hexagon bolt with locknut M8x20 / M10x30 / M12x40

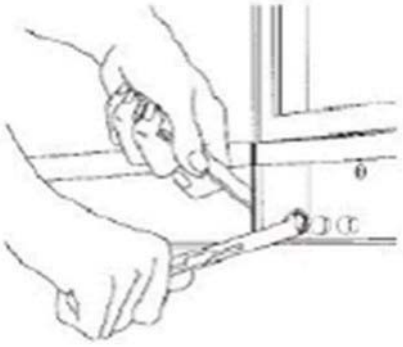

Figure 40: Screw connection of base frames

Connection via panels, connection angles and connection frame
Depending on the cross section of the AHU, cases A, B and C (as described below) can be differentiated.

- **Case A:** unit height <= 610 mm
  Screw the internal panels, screw spacing minimum 305 mm

Figure 41: Hexagon bolt with nut M6x16

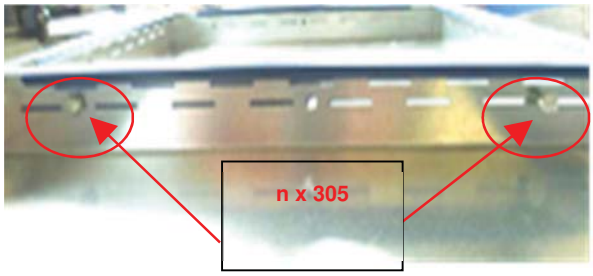

Figure 42: Hole spacing of the internal panel

- **Case B:** unit height >= 915 mm, unit width < 2.440 mm
  Connection angle

Figure 43: Hexagon bolt with locknut M8x20

Figure 44: Connection via connection angle

- **Case C:** unit width >= 2.440 mm
  Connection frame, screw spacing minimum 305 mm

Figure 45: Hexagon bolt with nut M6x6

Figure 46: Connection frame

Additionally the following rule applies:

1) Internal mounted connection angles and frames are **accessible** and the sections are **properly aligned** - The following connection is sufficient:
   - in **case B**, connection only via connection angles
   - in **case C**, connection only via connection frames
2) Internal mounted connection angles and frames are **not accessible** and/or the sections are **not properly aligned**:
   Connection between the internal panels, as described in case A, must be carried out additionally.

5.1.3 Detailed solutions and connection components

- Connection between door frame / door frame and door frame / internal panel
  Screw spacing: 152 mm

Figure 47: Tapping screw ø8 x 11

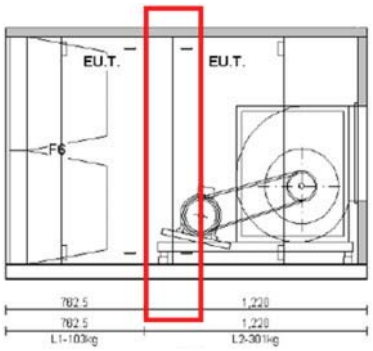

Figure 48: Joint on the AHU drawing

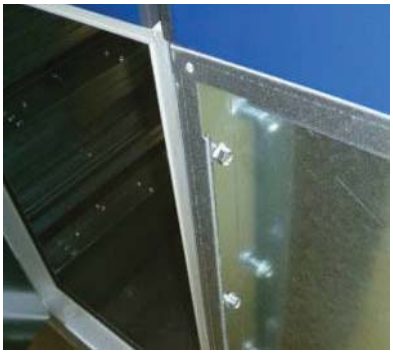

Figure 49: Connection between door frame / internal panel

- Connection of 3 mm thick casing components without holes

Figure 50: Self-tapping screw ø6,3 x 22

Figure 51: Application of self-tapping screws

- Connection of internal panels with the front side of the casing

Figure 52: Self-tapping screw TORX 25 ø4,8 x 16

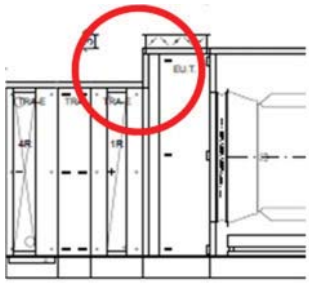

Figure 53: Joint on the AHU drawing

Figure 54: Joint at the AHU

- Connection of roof plates
  Screw spacing: minimum 305 mm

Figure 55: Hexagon bolt with nut (stainless steel) M6x16

Figure 56: Connection of roof plates

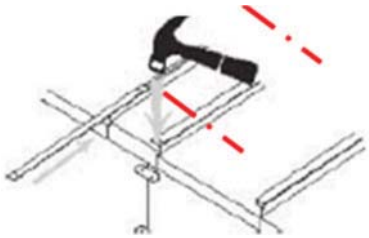

Figure 57: Mounting of the sliding bar

5.1.4 Assembly of delivery sections

Bring the delivery sections in the exact mounting position and push them together as near as possible. The screw holes on the flanges have to lie opposite now.

Moving delivery sections together
The precisely aligned and parallel flanges are connected with the enclosed screws. Initially, all screws are only loosely screwed as follows:
- In the base frame profiles (**Figure 58** left).
- If accessible, in the connection angles located in the upper corners of the unit (**Figure 58** bottom center).
- If accessible, in the circumferential connection frame (**Figure 58** top center).
- In the panels (**Figure 58** right).
- For roof units in the roof flange.

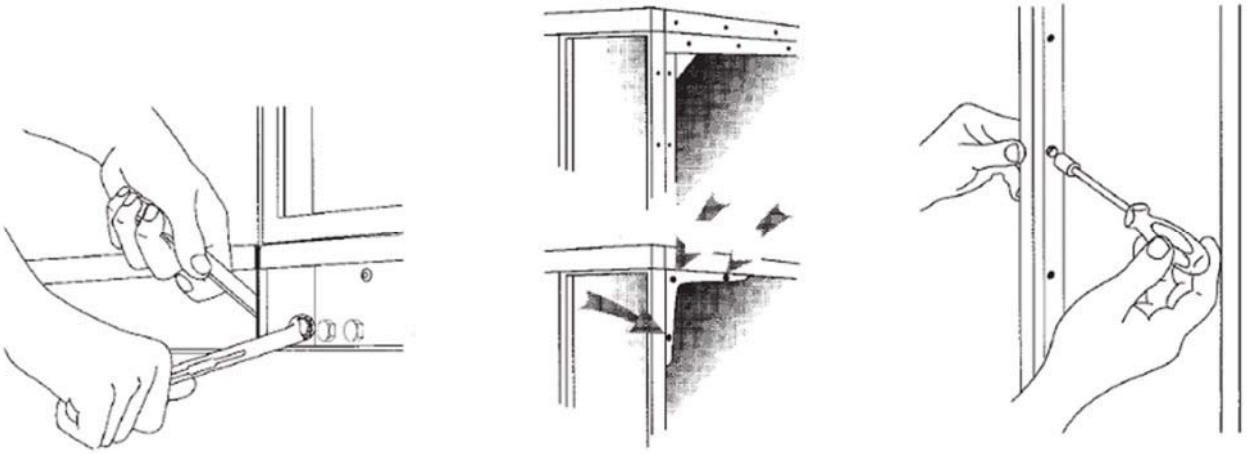

Figure 58: Screwing delivery sections together

Is only one side accessible (panels and connection frame) the tapping screws ø8 x 11 shall be used, otherwise bolts and nuts (all supplied separately):
- Screws M8 x 20 for connection angles and base frame
- Screws M6 x 16 for connection frame and panels

For the tightness at least every second hole (bolt spacing 305mm) shall be used.
After placing all the screws loosely they shall be tightened - starting with the base frame – in two stages, refer to **Figure 59**.

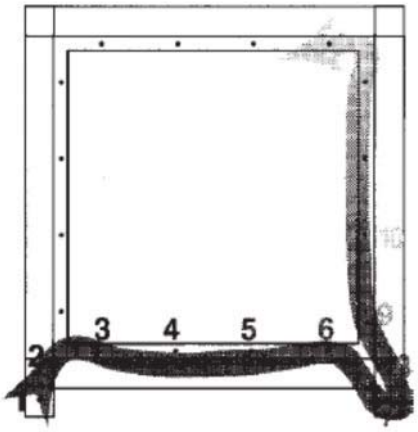

Figure 59: Tightening the screws

Reinsert the insulation and remount the external panel
From the external panels of roof units, or units with external aluminum panels the white protective film from the sealing tape must be removed before mounting (**Figure 60**).

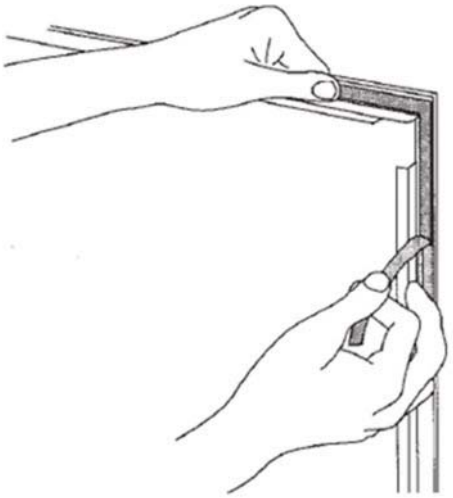

Figure 60: Removing the protective film

Start at the bottom to mount the external panels (**Figure 61**).

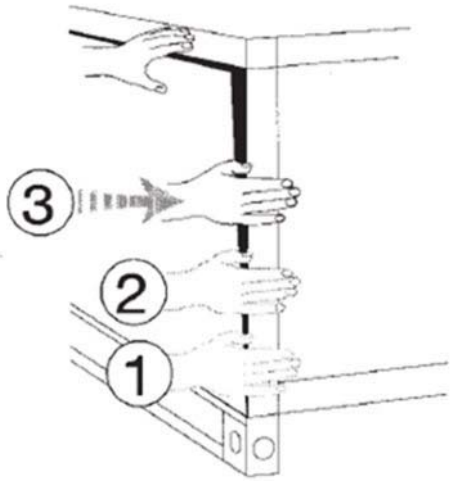

Figure 61: Pushing in the external panel

For roof units also the supplied slide bar must be mounted on the roof flange.

5.1.5 Special features for roof units and device separations at wet areas

For roof units as well as at device separations directly before or after a wet area (e.g. cooler, humidifier, air washer), special actions for sealing the AHU must be carried out:

1. The sealing agent (Sikaflex) has to be applied instead of the sealing strip across the whole flange of the unit, 5 mm from the inner edge (see **Figure 63** and **Figure 65**). Immediately thereafter, the relevant delivery sections have to be moved together and then screwed together.
2. If the unit separation is **accessible at the inside via a door** (see **Figure 66**), then the joints (**Figure 67**) have to be closed over the entire circumference with the supplied sealing agent (Sikaflex) after screwing together the delivery sections (**Figure 58** and **Figure 59**).

Note: To prevent leaks, these actions shall also be performed when extreme operating conditions are expected or wet cleaning is planned!

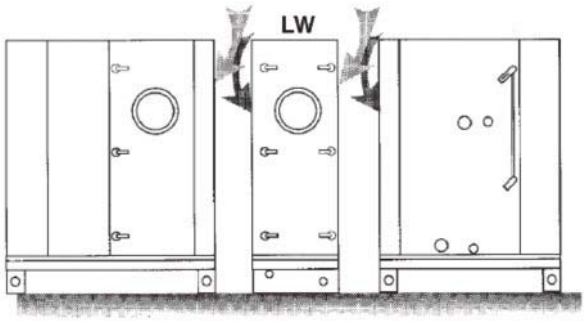

Figure 62: Sealing surfaces

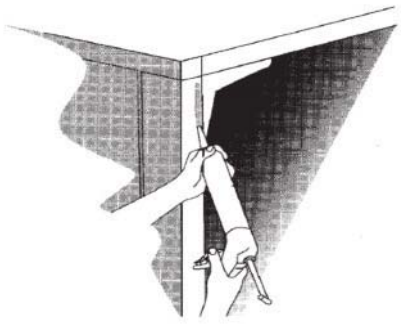

Figure 63: Sealing the frontal joints

Only careful sealing secures the long tightness of the unit. For roof units, also the roof flange is to seal, refer to **Figure 64**.

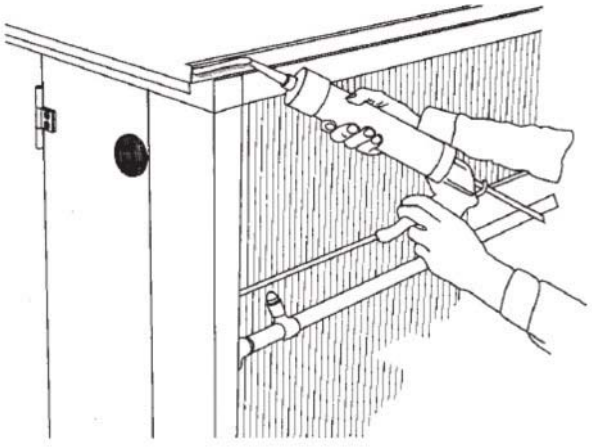

Figure 64: Sealing the roof flange

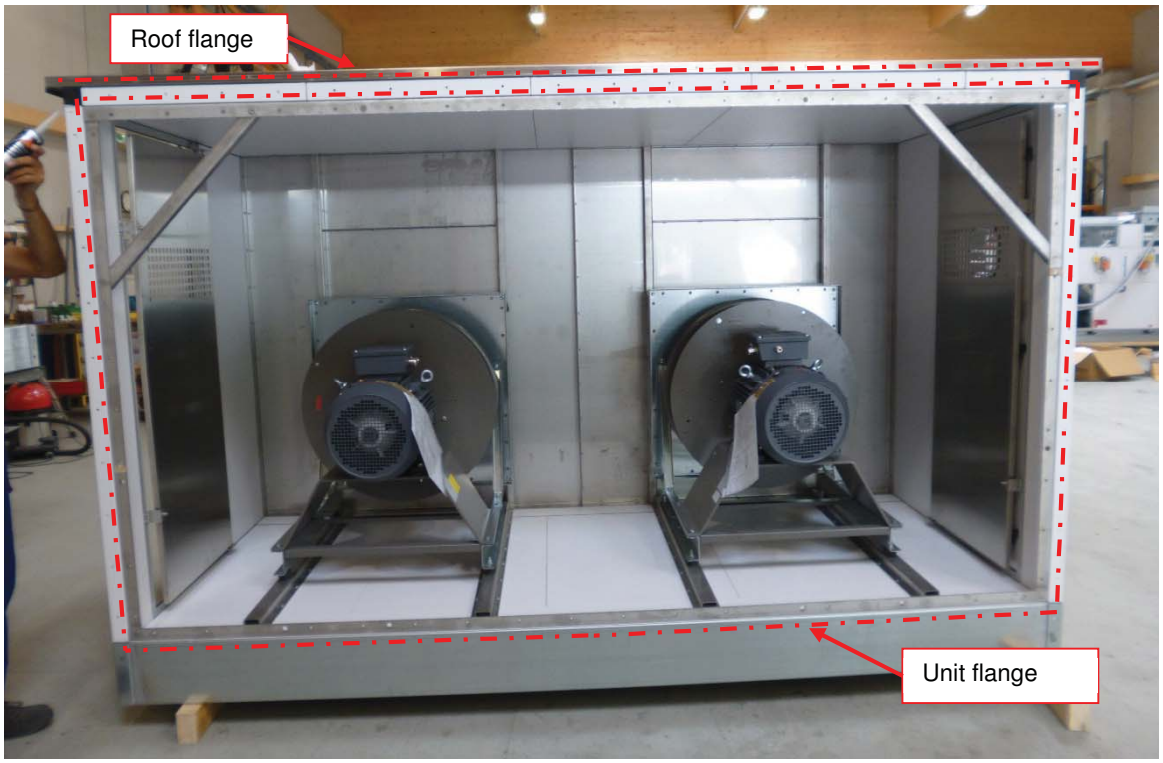

Figure 65: Applying the sealing agent on the frontal joints

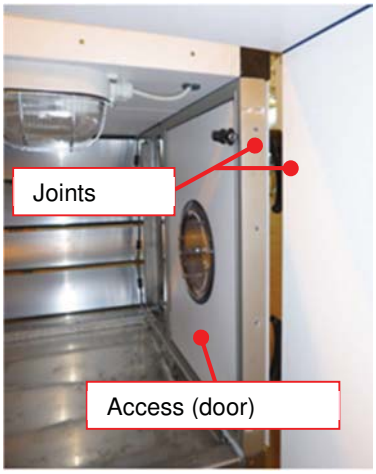

Figure 66: Unit separation accessible via door

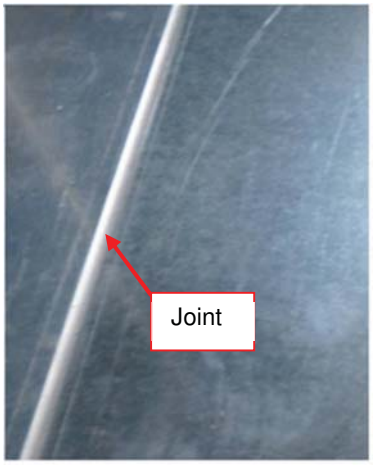

Figure 67: Sealing the section connection (joint) with the sealing agent

5.1.6 Cable gland

For the connection of engines, pumps, electric heaters, sensors, etc., EUROCLIMA loosely supplies material for cable glands (**Figure 71**), which must be installed properly. The following procedure is recommended:

1. Drilling through unit casing (at right angles to the surface).
2. Enlarge drillings on external panel and internal panel according to **Table 3** (by using a step drill – see **Figure 68**).

Size (of the cable gland)	External drilling diameter (for screwing)	Internal drilling diameter (for sleeve)
M 16	17	19
M 20	21	23
M 25	26	28
M 32	33	35
M 40	41	43
M 50	51	55
M 63	64	71

Table 3: Drilling diameters for cable glands

Figure 68: Step drill

3. Insert sleeve (inside – see **Figure 69**) and screwing (outside – see **Figure 70**) into the drillings and screw them together (see **Figure 71**).

Figure 69: Sleeve

Figure 70: Screwing

Figure 71: Cable gland

A drilling with the diameter for the corresponding screwing (see **Table 3**, column 2) is sufficient for the insertion of cables into a cabinet or a single walled housing. In this case the screw is locked with the supplied locknut from the inside.

Transport lock
Remove the, on fan-motor base frame of spring isolators mounted transport lock (signed with red point) according to **Figure 72** below.
1. Remove nuts and bolts of position 1, 2 and 3
2. Remove z-shaped metal sheet (position 4)
3. Again fasten the nut of position 1, including the potential compensation wire

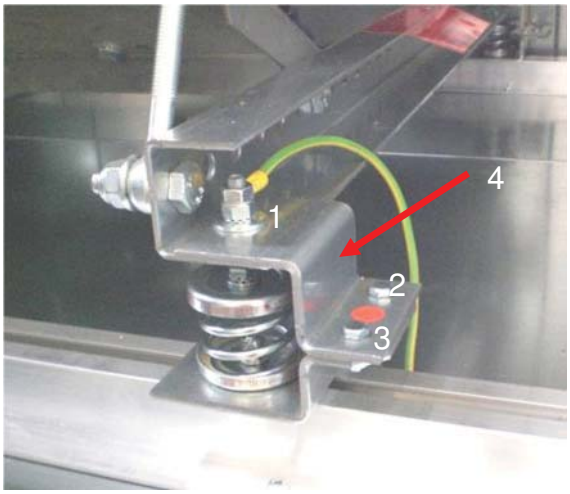

Figure 72: Transport lock

5.2 Doors

Hinged doors
The EU-hinge doors have the following design features:
- Space-saving design
- Operated by a handle lever.

For open door, the handle is in horizontal position; refer to **Figure 73**.
For closed door, the handle is in vertical position; see **Figure 74.**

Figure 73: Door ‚open'

Figure 74: Door ‚closed', not ‚locked'

Doors which allow access to the fan section
- are equipped with a door lock. **Figure 75** shows the lock in the position 'locked'
- offer a physical barrier as a protection against the danger zone
- stay securely in position and can be opened only by using a key
- during the operation do not permit access to the fan section

The keys are provided attached to the handle, refer to **Figure 76**.

Figure 75: Door ‚closed' and ‚locked'

Figure 76: Delivery of the keys

Abovementioned doors with lock are an effective safety device according to EN ISO 12499: there is no case where entering during fan operation is required, refer also to **chapter 2.2 (Indications for minimizing specific hazards)**.

The locking mechanism of the hinged door is on the inside of the door panel and is shown in **Figure 77** (closed position) and **Figure 78** (open position). The rolling piston can be pressure from above (if you are in the unit) with your thumb in the position 'open'.

Figure 77: ‚Closed'

Figure 78: ‚Open'

Readjustment of the door panel position
Because of the handling of AHU sections, the position of the door panel can move (see **Figure 79**). Due to the inclination of the door panel of the EU hinged doors, problems can arise when closing and sealing of the door panel. The door panel can be readjusted through the screws on the hinges. For this purpose, first the screws on the hinge (**Figure 80**) must be loosened. Then, the door panel can be brought in the correct position (**Figure 81**) and the screws can be tightened again.

Figure 79: Inclined door panel – varying slit width

Figure 80: Adjustment of the door panel

Figure 81: Adjusted – constant slit width

If the above described readjustment of the door panel is not sufficient, then unevennesses in the erection are the cause and must be appropriately corrected.

5.3 Dampers

The close position of the dampers is indicated as shown in **Figure 82.**

Figure 82: Closed position

- It is not permitted to drill in the damper, otherwise it may cause damage to the gear wheels and the function of the damper is no longer ensured.
- The dampers must not be strained.

5.4 Filters

- Filters, with the exception of laterally removable prefilters, are supplied loose and must be installed on site.
- Ensure proper insertion of the filter media (the bound filter media side on the unclean air side).

- During the installation it must be noted, that the filter bags will not be clamped or damaged. Each filter bag must freely adjust itself in the airstream.

Incorrectly mounted filters can be sucked in by the fan and lead to its destruction.

5.4.1 Laterally removable prefilters

The filters are supplied mounted and are equipped with a pull-out tool for more than one filter per guiding.

Figure 83: Pulling out the filters

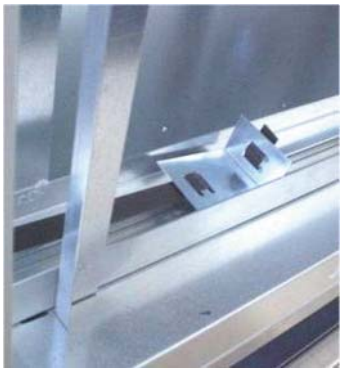

Figure 84: Pull-out tool

5.4.2 Prefilters and / or bag filters in filter frame

Filters are supplied loose and have to be fixed by clips as follows:
1. Take the filter clips, which are included in the supply and are attached in brackets on the filter frame (**Figure 85**).
2. Four filter clips have to be inserted in the respective brackets according to **Figure 86**.
3. Finally, the filter must be fixed by the clips in the filter frame (**Figure 87**).

Figure 85: Delivery of the clips

Figure 86: Insertation of the clips

Figure 87: Fixed filter

Bag filters are installed similarly. Bags shells hang vertically.

5.4.3 Laterally removable bag filters with clamping mechanism

When inserting and fixing the laterally removable bag filters with clamping mechanism has to be proceeded cautiously, so as not to damage them. The installation of laterally removable bag filters must be carried out as follows:
1. First, move all levers of the clamping rails toward the door opening (**Figure 88**).
2. Slide one filter after the other in the filter frame (**Figure 89**).
3. Press the last filter of the row against the rear panel. Then press with the lever the filter cells against the sealing (**Figure 90**).

Figure 88: Loosen the clamps

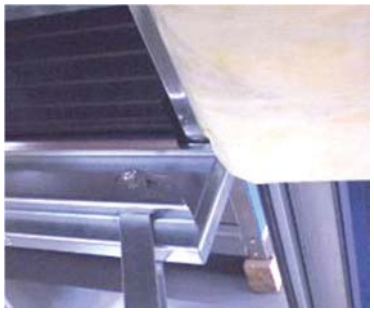

Figure 89: Slide in the filters

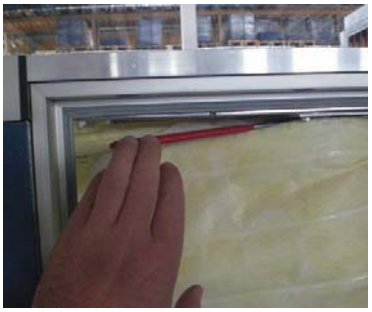

Figure 90: Clamping the filters

Attention: For soft bags the lower bags of the filter cells are to lift up in order to prevent damage with the clamping system (**Figure 91**)!

Figure 91: Lifting the filter bags

5.4.4 HEPA filters

If a sealing is not included in the manufacturer delivery, a suitable sealing is delivered (loose) by EUROCLIMA. This sealing is then to fix on the filter cell, or alternatively on the filter frame.
The assembly of the filter is done through the filter fixer supplied loose, as shown in **Figure 92** up to **Figure 95**.

Figure 92: Attaching the brackets

Figure 93: Inserting the filter cell

Figure 94: Inserting the clamps

Figure 95: Clamping the filter cell

Camfil Airopac filters
In the case of filter frame without sealing:
If you order this filter from Camfil, please ask for the type with sealing. Alternatively, another sealing must be installed on site!

5.5 Dampers with external gear wheels

At these dampers, the slats are moved via an external gear wheel connection. The installation of a suitable cover, which protects against injury and prevents the blocking of the gear wheel connection by small parts, has to be done on site in full responsibility of the customer (if not chosen as an option and supplied by EUROCLIMA).

Figure 96: Damper with external gear wheels

5.6 Hygienic AHU's

- After assembly all grooves and joints at the connection positions must be sealed with the supplied sealing agent.
- In case of exchange of components sealing must be restored.
- Access of components is ensured by door positions upstream and downstream of the component, therefore components are accessible or side removable for cleaning and maintenance.
- Carry out installation of ducts, tubes and electrical installation in order to ensure access and function of doors.

6 Installation

The following instructions shall be observed exactly!

6.1 Heat exchanger connection

6.1.1 General notes

Before connecting the heat exchanger, the piping system must be rinsed thoroughly.

To prevent damage of the heat exchanger connection, it is necessary to hold against with a pipe wrench during the screwing (**Figure 97**).

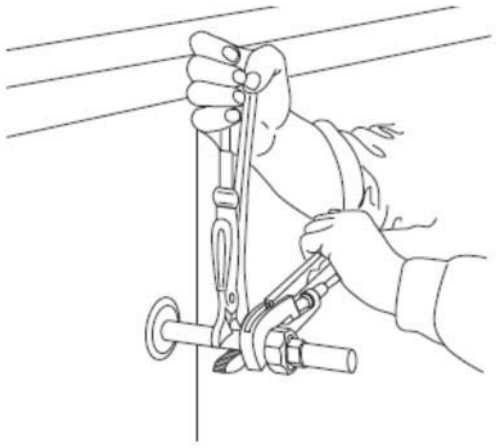

Figure 97: Holding against with a pipe wrench

An absolutely stress-free connection has to be ensured and the transmission of vibrations and longitudinal expansion between the device and the piping system must be safely prevented.