



ZHK NANO

INSTRUCTION MANUAL



In addition to the instructions in this guide, subject-specific standards, as well as local, national and international regulations must be observed.



Please give this instruction manual after completion of the work to the operating staff of the AHU. Please keep the complete instruction and operating manual at your documents.



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Betriebsanleitung!
Instruction manual!
Manuale d'istruzione!



ET 174-0

The customer has to take the decision on appropriate actions, with knowledge of the situation on site. The installation technician and the operator of the air handling unit have to ensure the preventive protection in accordance with the instructions mentioned herein. In this context, it is recommended to conclude an insurance against damage caused by water and other liquids.

EUROCLIMA is not liable for damages that may arise due to leakage of the AHU, of fittings, of pipes or hoses or due to condensation.

4.2.3 General indications for the erection

The AHU sections must be precisely aligned and the front sides shall be exactly parallel to the other. If necessary, some minor corrections can be made by placing steel plates under the section.

After the prepositioning the AHU-sections can be pulled together with belts which act on the base frame, as shown on **Figure 20** and **Figure 21**.



Figure 20: Pulling AHU sections together



Figure 21: Pulling AHU sections together (detail)

For noise insulation, it is recommended, depending on the location of the erection, to underlay the AHU with cork, Mafund plates or Sylomer strips. The used absorbent material must be adjusted to the load to achieve optimum noise insulation. The providers of such products indicate the respective design criteria. For the weight specifications see the technical data sheet. For standard units without feet the maximum allowed distance between the layup points is 1500 mm. Floor units must be fixed on the foundation to secure the position. A direct coupling, see **Figure 22** left, should be avoided because of structure-borne sound transmission. If you use structure-borne sound insulated underlayment, the fixing by lugs is particularly suitable to avoid the displacement of the AHU in all directions (**Figure 22** right).

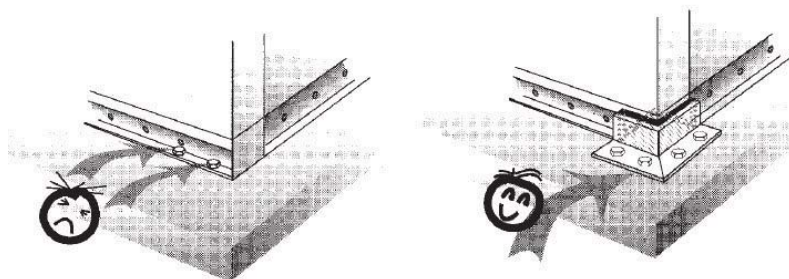


Figure 22: Securing the position on the foundation

If floor units shall be mounted on the ceiling, then the device must be fixed with the base frame on an encompassing suspension see **Figure 23** right. The handling of the structure-borne noise insulation is analogously as for floor units.

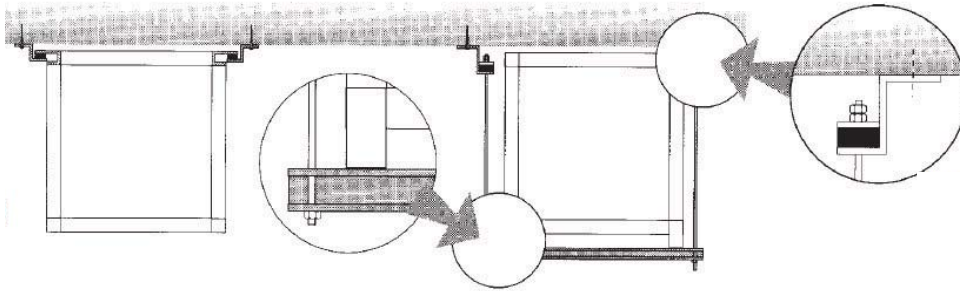


Figure 23: Suspension of ceiling units

AHU which are not designed to stack, may not be stacked (one on the other).

Lightning protection for roof units



A lightning protection, especially for roof units, must be professionally installed on site according to national rules. Otherwise, a fire can be caused by a lightning strike.

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.

Applying the sealing strip

The supplied self-adhesive sealing strip (**Figure 24**) has to be applied on the inner edge of the section flange, refer to **Figure 25**.



Figure 24: Sealing strip

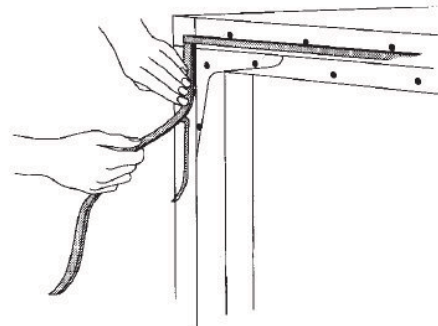


Figure 25: Applying the sealing strip

For roof units as well as at device separations directly before or after a wet area (e.g. cooler), special actions for sealing the AHU must be carried out by using the supplied sealing agent (Sikaflex). Further information will follow in **chapter 5.1.4 (Special features for roof units and device separations at wet areas)**.



Figure 26: Sealing agent (Sikaflex)

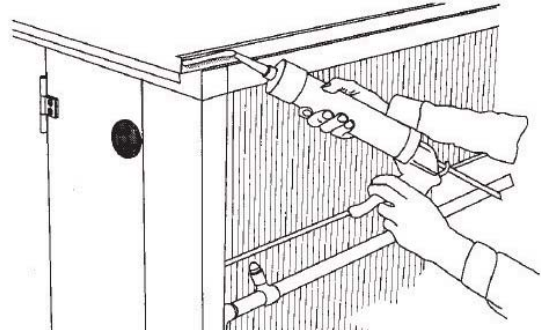


Figure 27: Applying the sealing agent

5.1.2 Standard connections and connection components

Base frame connection



Figure 28: Hexagon bolt with locknut M8x20 / M10x30 / M12x40



Figure 29: Screw connection of base frames

Connection via connection angles and comfort compound

- Connection angle



Figure 30: Hexagon bolt with locknut M8x20



Figure 31: Connection angle



Figure 32: Connection via connection angle

- Comfort compound



Figure 33: Comfort compound

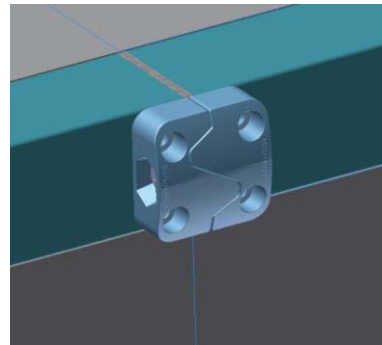


Figure 34: Connection via comfort compound

In any case, it is necessary to connect the device parts via the base frame, the connection angle as well as the comfort compound.

5.1.3 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 35**).
- In the connection angles located in the upper corners of the unit (**Figure 36**).
- For roof units in the roof flange.

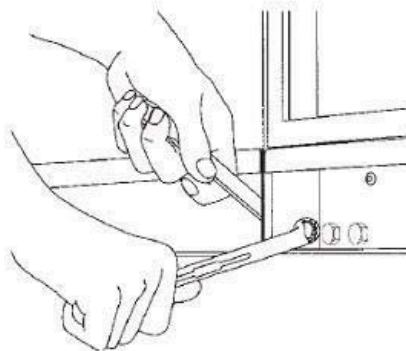


Figure 35: Screw connection base frame

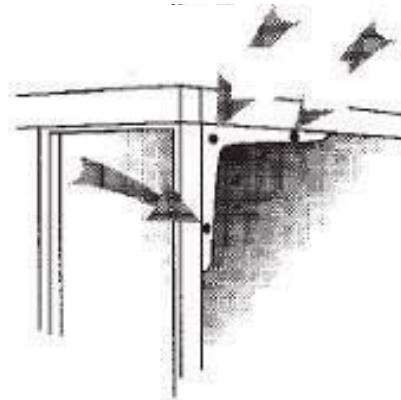


Figure 36: Screw connection angles

After placing all the screws loosely they shall be tightened - starting with the base frame – in two stages.

5.1.4 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), 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 38** and **Figure 40**). 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 41**), then the joints (**Figure 42**) have to be closed over the entire circumference with the supplied sealing agent (Sikaflex) after screwing together the delivery sections.

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

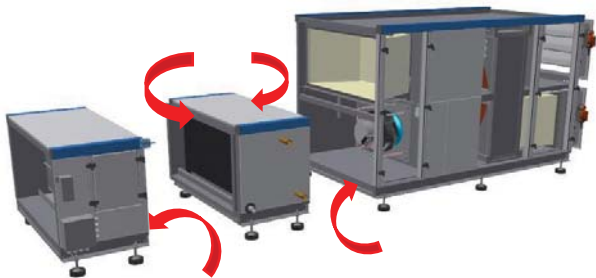


Figure 37: Sealing surfaces

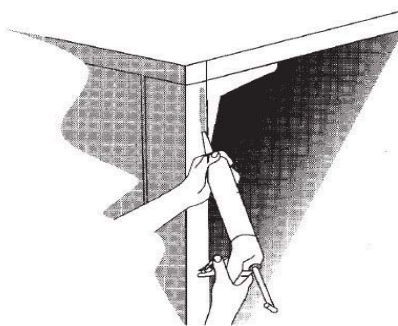


Figure 38: Sealing the frontal joints

Only careful sealing secures the long tightness of the unit. For roof units, also the roof flange is to seal, refer to **Figure 39**.

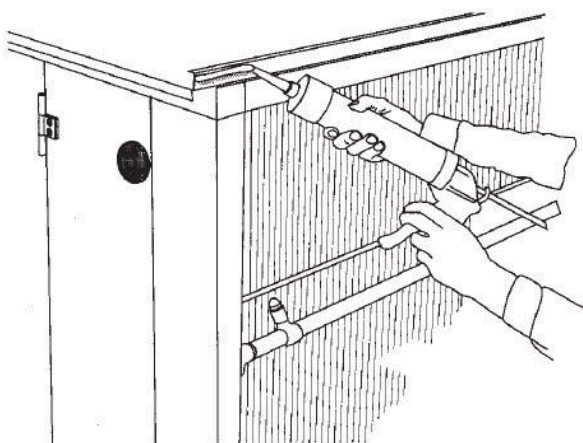


Figure 39: Sealing the roof flange

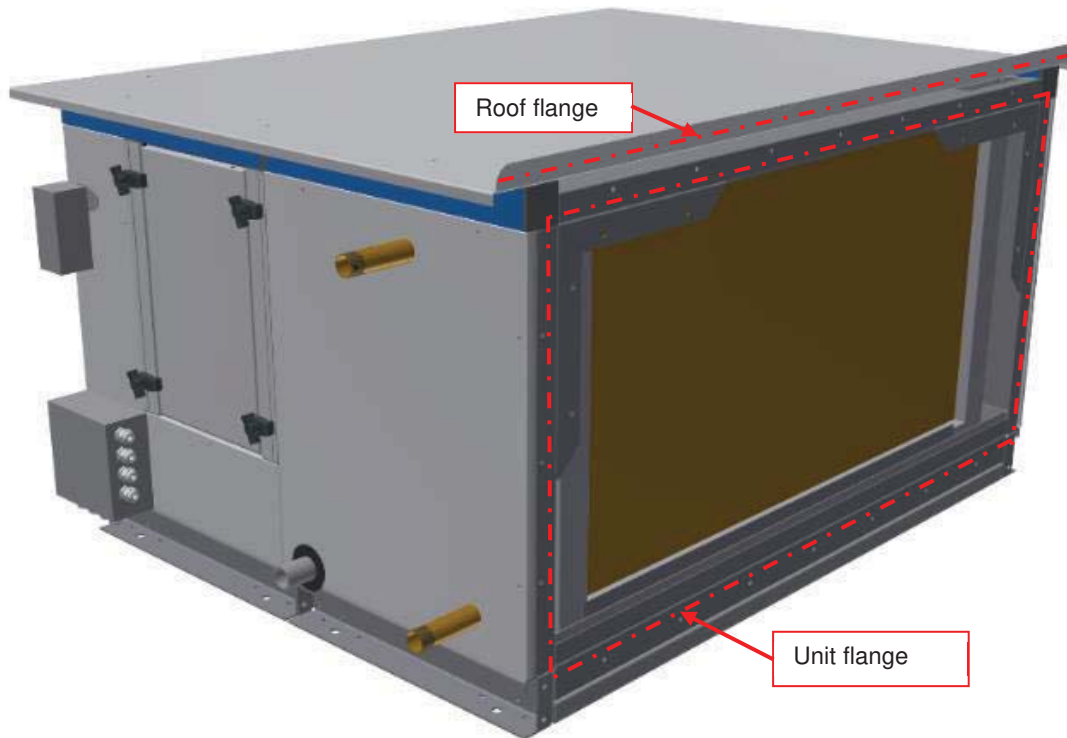


Figure 40: Applying the sealing agent on the frontal joints



Figure 41: Unit separation accessible via door



Figure 42: Sealing the section connection (joint) with the sealing agent

5.2 Doors

Hinged doors ZHK (EU.T.)

The EU-hinged doors in ZHK execution 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 43**.

For closed door, the door is closed, but not locked, the handle is in vertical position, the locking slit is in horizontal position; see **Figure 44**.

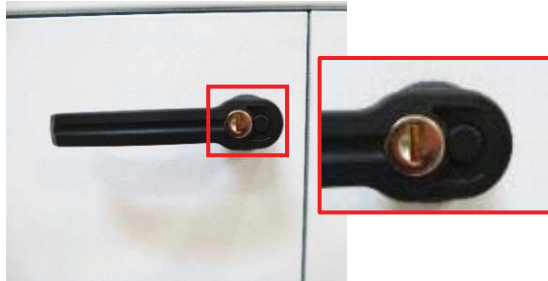


Figure 43: Door 'open'



Figure 44: Door 'closed', not 'locked'

Doors which allow access to the fan section

- are equipped with a door lock. **Figure 45** shows the lock in the position 'locked', locking slit is in vertical position.
- 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 46**.

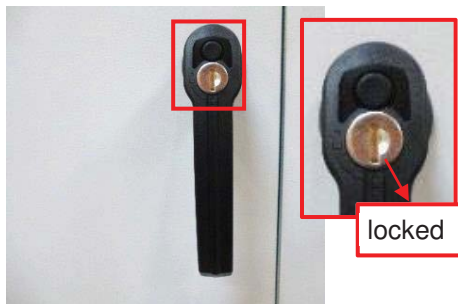


Figure 45: Door 'closed' and 'locked'



Figure 46: 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 47** (closed position) and **Figure 48** (open position). The rolling piston can be pressure from above (if you are in the unit) with your thumb in the position 'open'. Thereby an accidentally trapped person is able to open the locked door from the inside of the unit.



Figure 47: ‚Closed‘



Figure 48: ‚Open‘

Readjustment of the door panel position

Because of the handling of AHU sections, the position of the door panel can move. 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 must be loosened. Then, the door panel can be brought in the correct position and the screws can be tightened again.

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

Doors with hinged lock INOVA

Door panels with hinged lock can be opened optionally to the right or to the left. Additional, this lock mechanism enables the easy removal of the door panel from the door frame.

In order to swivel the door to the left, proceed as follows:

1. Open the hinged locks to the right (**Figure 50**)
2. Pull on the flaps in order to swivel the door panel and to get access to the components inside (**Figure 51**)



Figure 49: door panel with hinged locks

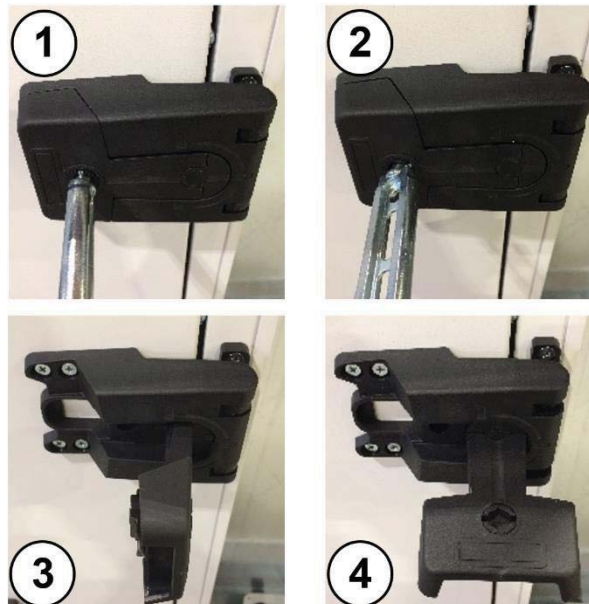


Figure 50: opening of the hinged locks

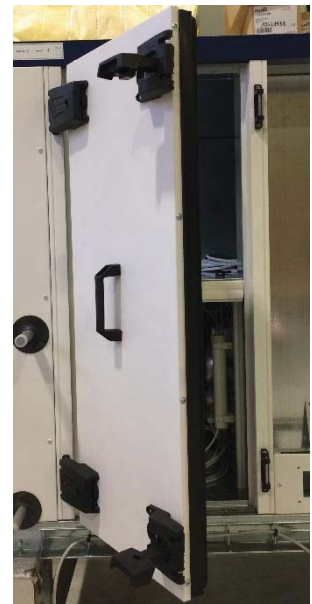


Figure 51: swiveled door panel



Pay attention at removable door panels, because after undoing the connection they could fall out and lead to injuries. Therefore, use always both hands for fixing, undoing and manipulating of door panels!



Attention: Pressure-sided doors represent an increased risk of injury. While opening. They can firstly adhere due to the pressure-difference, and then suddenly detach and fall against the user. The user could also be skidded backwards.

Therefore, particularly at opening of pressure-sided doors it must be very carefully. Open the door panel carefully and detach it slowly from the sealing. At suddenly detaching of the panel the user must be able to carry the weight of the door. At doors with a surface of $> 0,5 \text{ m}^2$ two persons are necessary.

Pressure-sided hinged doors are equipped optionally with an additional safety device against unintentional opening according to EN 1886.

On the inside of the door panel a catching lever is mounted (see **Figure 52** and **Figure 53**). The handle will be turned till this lever docks at the profile. Now, the pressure can escape. Then the door panel can be opened completely.

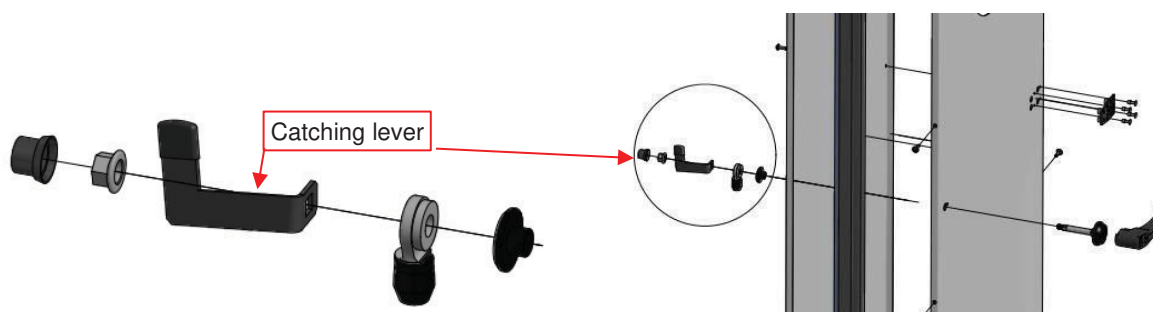


Figure 52: Safety device – catching lever

Figure 53: Assembly of safety device on door panel

5.3 Dampers

The close position of the dampers is indicated as shown in **Figure 54**.



Figure 54: 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 55: Pulling out the filters



Figure 56: Pull-out tool

5.4.2 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 57**).
2. Slide one filter after the other in the filter frame (**Figure 58**).
3. Press the last filter of the row against the rear panel. Then press with the lever the filter cells against the sealing (**Figure 59**).



Figure 57: Loosen the clamps



Figure 58: Slide in the filters



Figure 59: Clamping the filters