Assembly instructions

Envistar Top

Size 04-28

Translation of the original instructions

Documentation for your unit:

1. Go to *docs.ivprodukt.com (*Order Portal) or scan the QR code.
2. Enter your order number.
3. Press ENTER or click on search.
4. Select your order.

Order Portal

Is any documentation missing?

See information in section
"2.1 Documentation and support", page 10.

TABLE OF CONTENTS

1 SAFETY

This section addresses important safety aspects of assembly, with the aim of raising safety awareness and avoiding personal injuries and damage to surroundings and units.

- This manual contains important instructions. Read it carefully and follow the instructions.
- Pay special attention to warning and information messages, as well as markings on the product.
- Keep the manual for future use.

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1.1 Intended use

Intended use

The product is intended to be used air handling unit for comfort ventilation in properties.

Intended users

The contents of this manual are intended for personnel assembling the unit on site.

Intended user environment

- The unit is usually placed indoors, but is also available as an outdoor version.
- When installed indoors, the unit must be assembled in a ventilated area that maintains a temperature between +7 and +30 °C, and that maintains a moisture content of <3.5 g/kg in dry air in the winter.
- The unit can also be equipped for assembly in cold attics.

1.2 Unintended uses

Any use other than specified in Intended use is prohibited unless specifically permitted by IV Produkt. It is not permitted to use the unit in potentially explosive environments.

1.3 General safety

Failure to comply with the safety precautions may result in injury to persons or damage to air handling units. To avoid personal injuries and damage to surroundings or units:

- Follow national and local laws/regulations for safe work, e.g. fall protection when working at a height.
- Do not wear loose clothing or jewellery that may get fasten.
- Do not step or climb on the unit.
- Use appropriate tools.
- Use appropriate personal protective equipment.
- Note the unit’s markings: product signs, information and warning stickers.

Personal Protective Equipment (PPE)

Personal protective equipment must always be used based on the risks present in the work-place. For example, wear protective shoes with steel toecaps, hearing protection, protective helmet, gloves, safety glasses or goggles, fully-covering clothing, safety overalls, face mask/ respiratory protection and/or fall protection as necessitated by the task and work environ-ment.

1.4 Structure of warning notices

Warning notices in the instruction warn of risks when handling and assembling the product. Carefully follow the instructions contained in warning notices.

The warning symbol  indicates that a risk exists.

WARNING! indicates a potential risk that, if not avoided, can cause **life-threatening or serious**situations that can lead to death or personal injury.

CAUTION! indicates a potential risk that, if not avoided, could cause **material damage** to the product or surroundings as well as impairment of product function.

"Risk of xxxxxx." Indicates the risk in a short risk title.

A description in italics provides more detailed information about what the risk entails.

- The bullet points indicate how the user avoids harm.

1.5 General warning notices

WARNING!
Risk of life-threatening or serious personal injury.
Electrical voltage can cause electric shock, burns and death. The product must not be energised during assembly.

- Electrical connection and electrical work may only be carried out by a qualified electrician.
- For initial start-up of the unit, see Operation and Maintenance of the unit on IV Produkt's order portal.

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WARNING!
Risk of life-threatening or serious crushing or compression injury.
High unit parts, as well as unit parts with a high or offset centre of gravity, mean a greater risk of tipping.

- Follow the lifting and assembly instructions in this manual.
- Use lifting equipment where available.
- Use appropriate protective equipment.
- Exercise caution when working between unit parts.

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WARNING!
Risk of life-threatening or serious crushing or compression injury.
The unit parts are often heavy and cannot be lifted by hand. See weights indicated on the layout drawing.

- Follow the lifting and assembly instructions in this manual.
- Use lifting equipment where available.
- Use appropriate protective equipment.

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WARNING!
Risk of serious crushing injury.
A falling unit when lifting can cause crushing injuries.

- Follow the instructions for lifting in this manual.
- Never exceed the specified weight for the respective lifting method or lifting equipment.
- Slide stops must be fitted when lifting, if bracket is used.
- Replace used T-bolts and nuts with new ones after each lift.

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WARNING!
Risk of cutting.
Sharp edges can cause cuts.

- Use appropriate personal protective equipment when the work requires it.

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1.6 Signs on the unit

Keep signs and stickers free of dirt. Replace missing, damaged or unreadable signs and stickers on the machine. Contact IV Product for replacement stickers by specifying the article number.

1.6.1 Type plates

The unit and any associated cooling unit/reversible heat pump have a type plate affixed to the front. The type plate is used, among other things, for identification of the product.

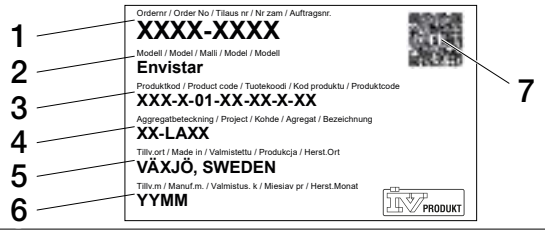

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Figure: Example of a unit type plate

1. Order number
2. Product name/model
3. Product code
4. Unit designation
5. Place of manufacture
6. Date of manufacture
7. QR code

1.7 Product liability

The unit complies with industry requirements for quiet air handling units with high-efficiency recovery systems for heating and cooling.

CE marking (EU)
The air handling unit is CE marked and meets the applicable requirements according to specified directives and standards in the Declaration of Conformity. The marking applies to the unit in the configuration in which it was delivered and provided that it has been assembled and commissioned in accordance with IV Produkt's instructions. The declaration does not cover units that have been modified, retrofitted components, or other systems in which the unit may be included. The unit may not be put into service until the system in which it is included complies with the requirements for CE marking.

The Declaration of Conformity can be found at IV Produkt's order portal, *"2.1 Documentation and support", page 10*.

Manufacturer
The Air Handling Unit is manufactured by IV Produkt AB, Sjöuddevägen 7, S-350 43 VÄXJÖ, Sweden.

Warranty
For proper function and for the warranty to be valid, the assembly instructions must be followed.

Extended warranty
Extended warranty is a supplement to the order and to claim extended warranty (5 years), according to ABM 07 with Appendix ABM-V 07 or according to NL 17 with Appendix VU 20, a complete documented and signed IV Produkt Service and Warranty book must be presented.

Disclaimer
Continuous product development may give rise to specification changes without notice.

1.8 Lifting the units, functional section

Lifting should be carried out according to lifting instructions in this document, *"5 LIFTING THE UNIT", page 17* as well as according to markings and signs on the unit. If there are no lifting instructions or markings, lifting must be carried out according to lifting methods prepared by the transport industry.

1.9 After the product's service life

To disassemble and decommission the unit, refer to Operation and Maintenance.

2 GENERAL INFORMATION

2.1 Documentation and support

The documentation for your unit can be found in the Order Portal. See *"2.1 Documentation and support", page 10*.

It can take up to two weeks for all documentation to be available in the Order Portal. The text "Documentation in progress" appears until the documentation is complete. In case of missing or incorrect documentation, contact DU/Documentation. For other support, please contact the relevant department. Contact details are listed on the last page of the manual.

2.2 Information messages, not safety-related

Symbol together with information text highlights difficulties and also gives tips and recommendations.

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2.3 Spare parts

Spare parts list can be found in the Order Portal. Order spare parts and accessories from IV Produkt. See contact details on the last page of the manual. When contacting a department, state the order number and unit designation as shown on the type plate located on the unit.

2.4 Terms and abbreviations used in the manual

Term	Explanation
Rotor	Rotary heat exchanger
Unit part	Part of the unit. Can contain a function (for example, fan, media, etc.) but can also be an empty part.

2.5 Symbols on dimension drawings and in the manual

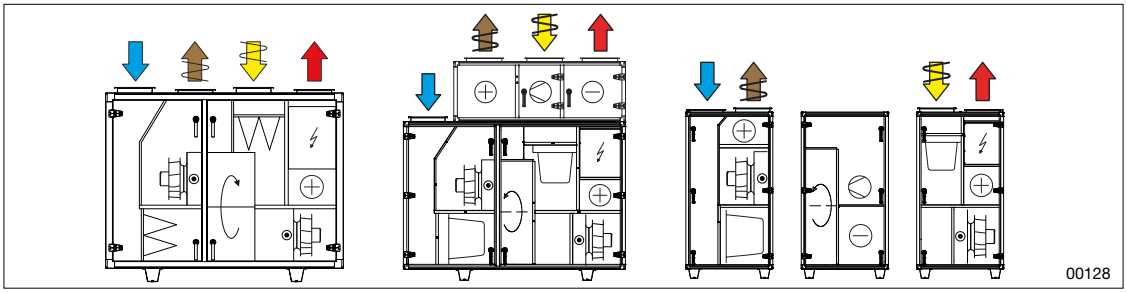


Figure: Example of a layout drawing

	Outdoor air		Extract air
	Supply air		Exhaust air
	Fan		Filter
	Shut-off damper		Trim damper
H_2O	Cooling coil water	H_2O	Heating coil water
	Heating coil electric		Sound attenuator
	Rotary heat exchanger		Cross-flow heat exchanger
	Counter-flow heat exchanger		Compressor
	Cooling unit	DX	Cooling/heating pump
	Media section		Quick connector

2.6 Signs/markings on the unit

All parts are marked with stickers that show what function the part has.


Filter


Rotary heat exchanger


Plate heat exchanger


Fan


Air cooler water


Air heater liquid


Air heater electric


Damper


Noise attenuator


Smoke by-pass


Air turner


Smoke by-pass from above


Media


Empty


Humidifier


Angle


Inspection section


Temperature sensors


Earth

3 DESCRIPTION OF THE UNIT

3.1 Configuration of the unit

The unit can be supplied with or without control and adjustment equipment. See "11 ASSEMBLE CONTROL EQUIPMENT", page 41.

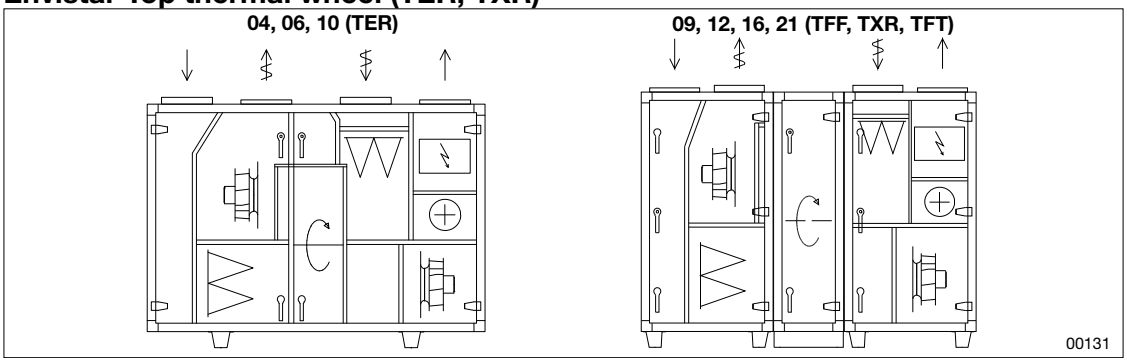
The unit is supplied as a complete compact unit (unit version) or in blocks/parts (block version). Units in block version require assembly.

The units are on legs (hat profiles) that can be equipped with adjustable feet (accessories), adjustable to different heights.

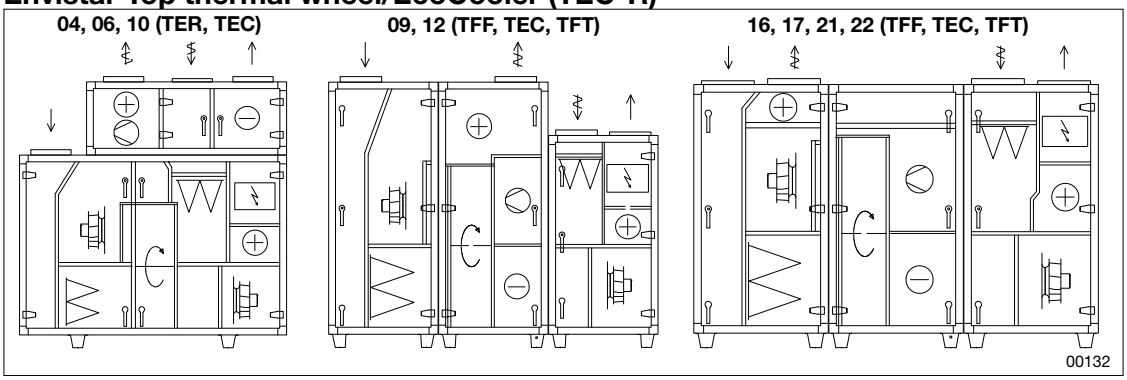
The unit's framework consists of aluminium profiles, 50 x 50 mm (50 profile).

The counter-flow exchanger (TXM) can be delivered in block form (sectioned configuration) and must be assembled before being put in place with the other unit parts.

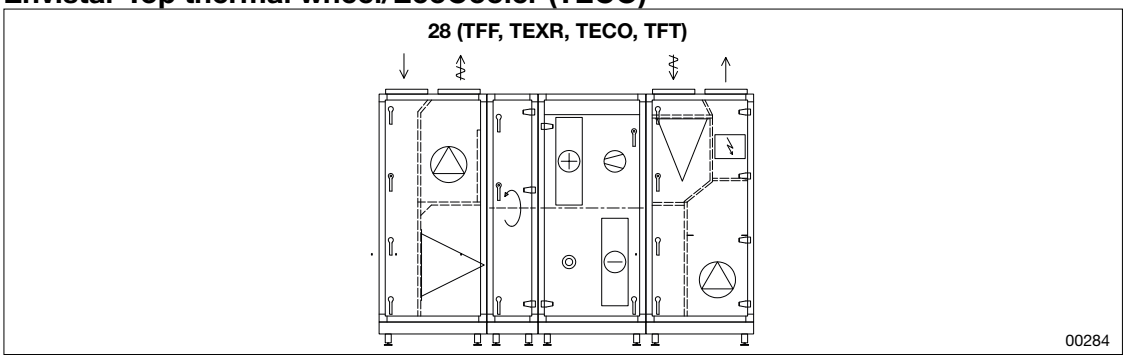
Envistar Top thermal wheel (TER, TXR)



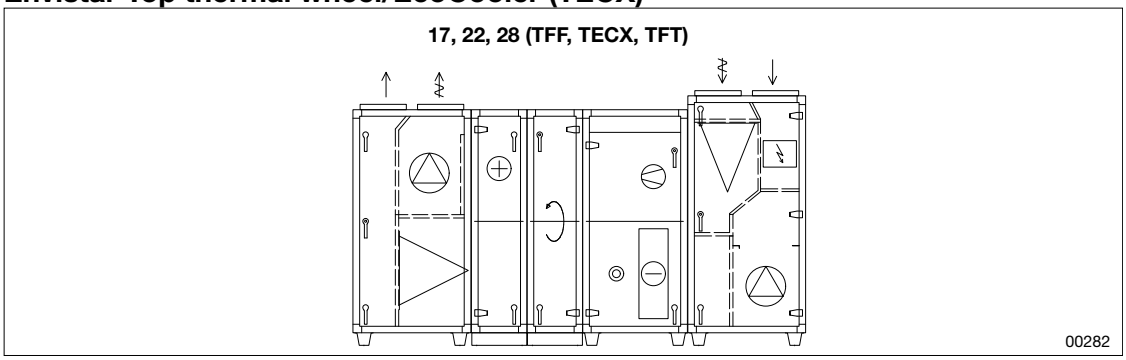
Envistar Top thermal wheel/EcoCooler (TEC-R)



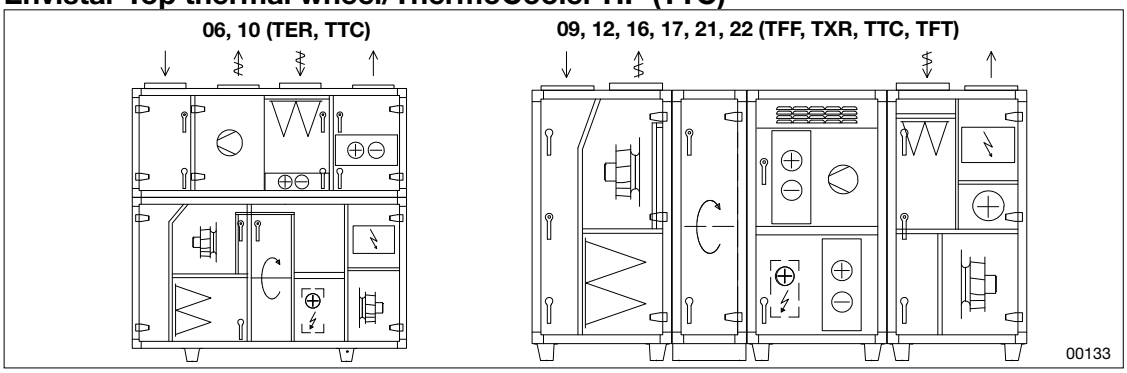
Envistar Top thermal wheel/EcoCooler (TECO)



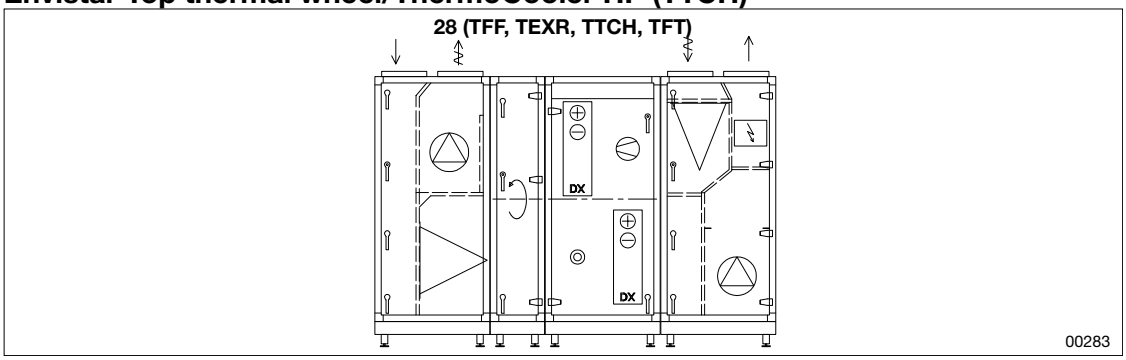
Envistar Top thermal wheel/EcoCooler (TECX)



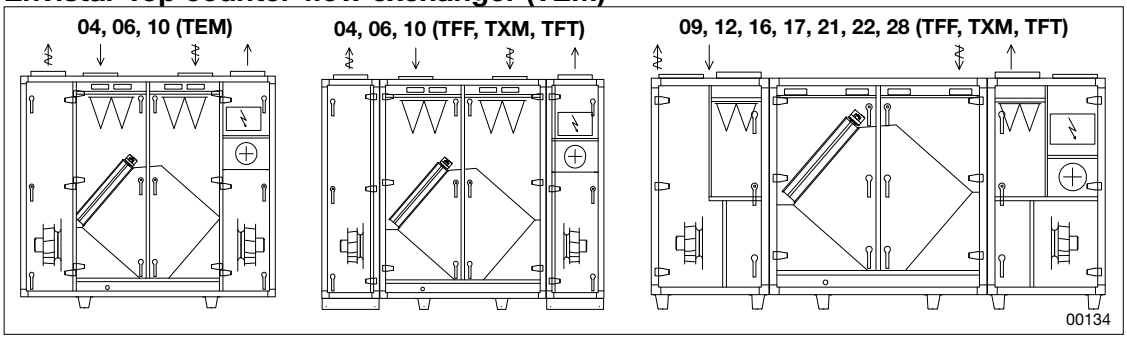
Envistar Top thermal wheel/ThermoCooler HP (TTC)



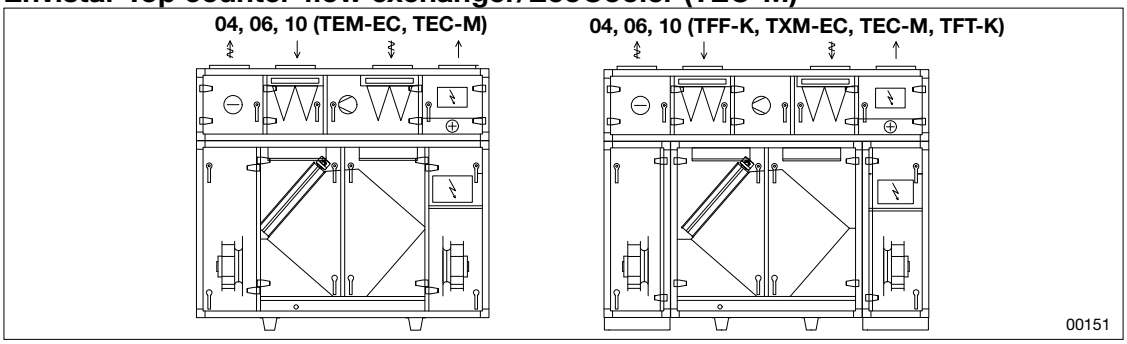
Envistar Top thermal wheel/ThermoCooler HP (TTCH)



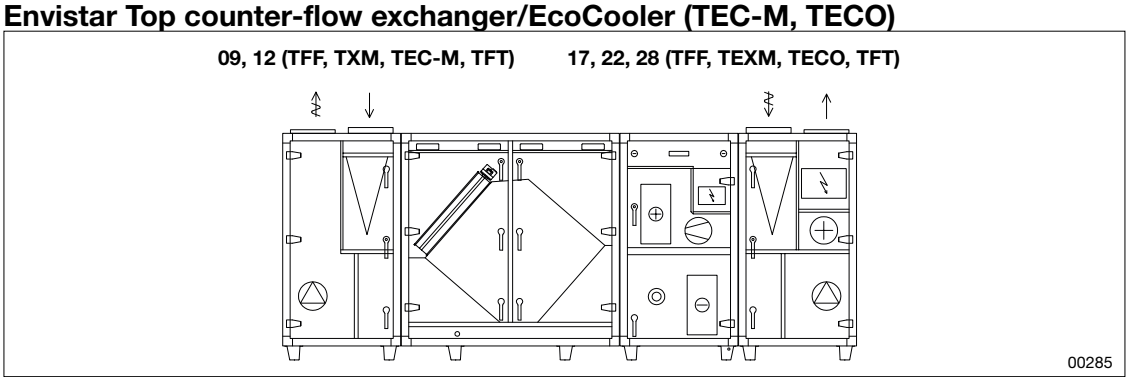
Envistar Top counter-flow exchanger (TEM)



Envistar Top counter-flow exchanger/EcoCooler (TEC-M)



Envistar Top counter-flow exchanger/EcoCooler (TEC-M, TECO)



3.2 Orientation of the unit's sides/parts

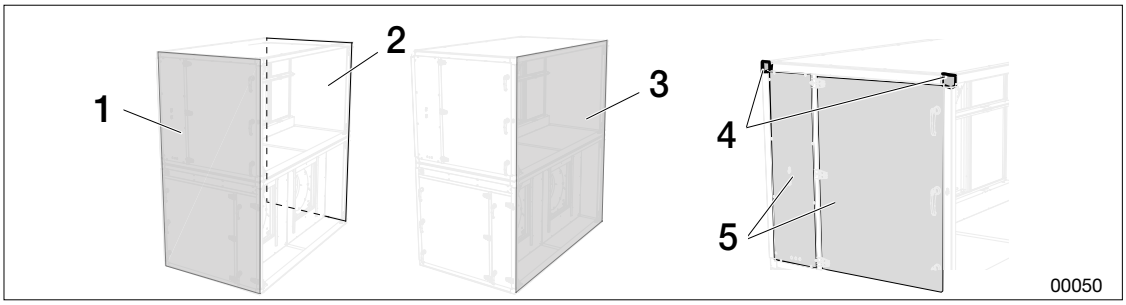


Figure: Parts of the unit

1. Access side
2. Back
3. Gable side
4. Corner fitting
5. Covers

4 DELIVERY RECEPTION / WAREHOUSING

4.1 Receive, unpack

Upon arrival, check the goods and their packaging. Make sure there is no damage.

4.2 Packaging and protection

The product's packaging is intended to protect the product from rain and dirt during transport and storage.

The product should be stored in its original packaging for as long as appropriate. If the packaging is removed, the product must be protected so that particles (e.g. dust and dirt) or water do not penetrate the functional sections.

If the goods are dirty on arrival, rinse the unit with water and, if necessary, clean according to the instructions for the unit's surfaces in *"14 AFTER ASSEMBLY", page 47*.

4.3 Recommended storage

Before assembly, the product must be stored on a flat surface, preferably in a dry and warm area.

If stored outdoors, the product must be protected from weather conditions such as rain, snow and direct sunlight. Ventilation inside the assembly parts must be ensured during storage. The product can be stored in both warm and cold conditions (temperature range -40 °C to +50 °C.

Small amounts of condensation water, which occurs during storage in fluctuating temperatures, will dry up when the unit is put in operation, ensure that:

- there is good air circulation between the packaging and unit as well as inside functional sections. the packaging is opened to let air in if necessary.
- the product is protected against extreme temperatures and weather conditions.
- the product is protected against water ingress so that large volumes of stagnant water do not accumulate inside the unit.

5 LIFTING THE UNIT

WARNING!
Risk of life-threatening or serious crushing or compression injury.
High unit parts, as well as unit parts with a high or offset centre of gravity, mean a greater risk of tipping.

- Follow the lifting and assembly instructions in this manual.
- Use lifting equipment where available.
- Use appropriate protective equipment.
- Exercise caution when working between unit parts.

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WARNING!
Risk of life-threatening or serious crushing or compression injury.
The unit parts are often heavy and cannot be lifted by hand. See weights indicated on the layout drawing.

- Follow the lifting and assembly instructions in this manual.
- Use lifting equipment where available.
- Use appropriate protective equipment.

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WARNING!
Risk of serious crushing injury.
A falling unit when lifting can cause crushing injuries.

- Follow the instructions for lifting in this manual.
- Never exceed the specified weight for the respective lifting method or lifting equipment.
- Slide stops must be fitted when lifting, if bracket is used.
- Replace used T-bolts and nuts with new ones after each lift.

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CAUTION!
Risk of damage to the product
Chains/straps that are lying against the unit when lifting may damage the unit.

- Use spreader bars when lifting with bracket.
- Follow instructions for working with spreader bars.

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5.1 Lifting with forklift

The lifting forks (1) must be the same length as the unit packaging (2) or longer.

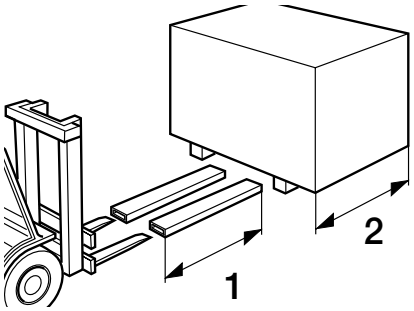

Figure: Lifting with forklift

5.2 Lifting brackets, pre-mounted lifting lugs, spreader bar

- The maximum angle at the lift hook is 80º
- The inclination slope of unit parts when lifting is 15º. If the inclination is greater than 15º, the chains/straps must be shortened or extended until the angle is less than 15º.
- The spreader bar must be 100—400 mm wider than the unit.

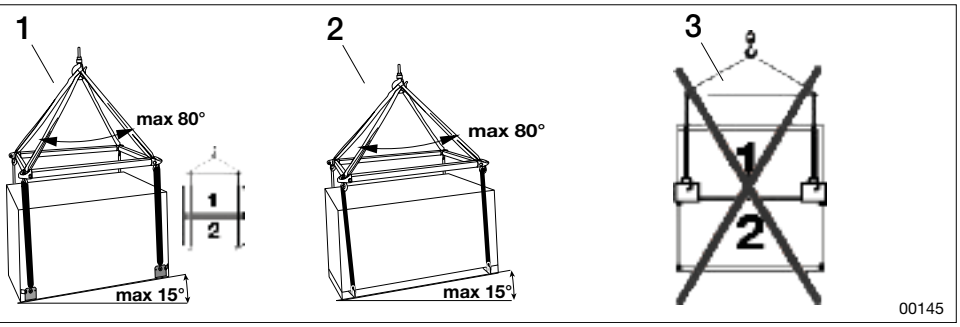

Figure: Illustration of lift with spreader bar and inclination

1. Lift with EMMT-08 with spreader bar
2. Lift in base frame with spreader bar
3. Incorrectly mounted lifting brackets in the centre profile

5.3 Lift with lifting bracket, EMMT-08, for 50 profile

- Load per lifting bracket ≤ 400 kg.
- Load if all four brackets are used ≤ 1600 kg.
- A safety factor of 1.6 has been utilised in static testing of the lifting bracket.
- Use shackle with safety factor 6:1.
- Brackets must not be mounted downwards or sideways.
- Lifting brackets must not be mounted in the middle profile of double stacked parts.

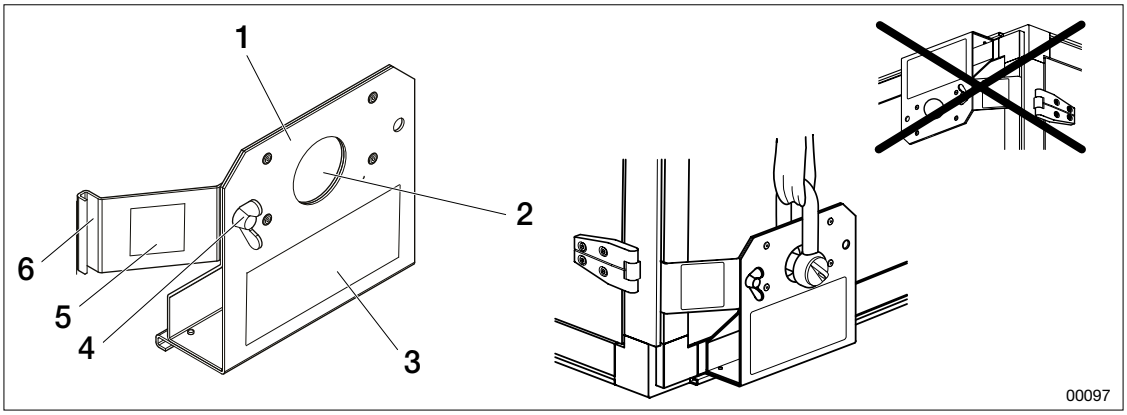

Figure: Lifting bracket EMMT-08

1. Lifting bracket EMMT-08
2. Lifting lug
3. Lift stop sticker
4. Wing nut
5. Slide stop sticker
6. Slide stop

EMMT-08 is delivered in a set of four.

1. Place the lifting brackets in the bottom four corners of the unit or unit part (on the longest sides of the part), with the lifting lug upwards.
2. Push the brackets into the horizontal track in the unit's aluminium profile.
3. Push the slide stop into the vertical track in the unit's aluminium profile.
4. Lock by tightening the wing nut.

6 PREPARE ASSEMBLY

When setting up the unit, it shall be horizontal at the longitudinal leading edge, as well as slightly inclined forward (towards the inspection side) to create proper drainage of condensation water. See *"A bag of screws, nuts, corner fittings and other items to be used for assembly is supplied with each unit. he following tools are suitable for assembly:", page 21.*

Inlet grilles and duct systems shall be designed and assembled so that:

- water is prevented from penetrating into the unit.
- recirculation and short-circuiting between the exhaust air and outdoor air is prevented.
- drainage cannot run backwards to the unit.

The duct system shall be designed and the control system configured to prevent pressure increase through filter/air ducts, for example by soft-starting fans and opening dampers when fans are operating. See *"13 DUCT CONNECTION, DUCT ACCESSORIES", page 45*.

Water trap is mounted as indicated. See *"12 CONNECT DRAINAGE, WATER TRAP", page 43.*

6.1 Sectioned configuration (Easy Access)

The counter-flow exchanger (TXM) may be delivered in pieces and must be assembled before being mounted in place on the support. See *"7 ASSEMBLY, GENERAL", page 21.*

6.2 Create service area, electrical safe distance

- The service area in front of the unit should be about 1.5 x the depth of the unit so as to allow for service, replacement of parts and cleaning.
- Follow the National Electrical Safety Board's recommendations regarding the free service space to be located in front of electrical connecting equipment.

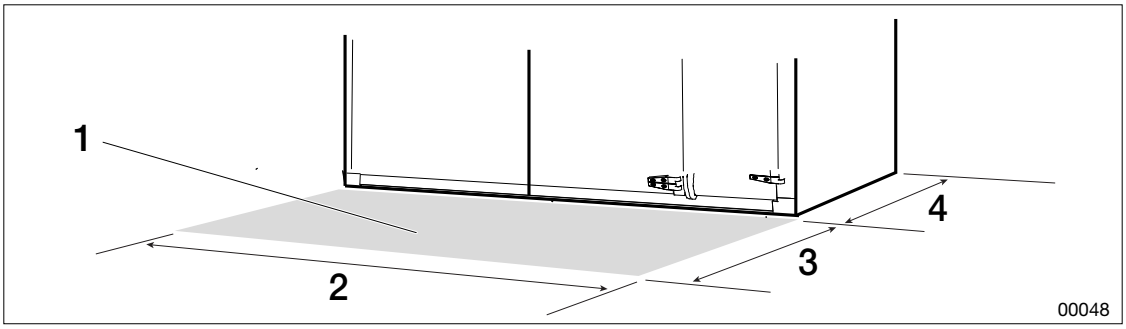

Figure: Service area on the inspection side

1. Service area
2. Service area width (width of the unit)
3. Service area depth (1.5 x depth of the unit)
4. Depth of the unit

7 ASSEMBLY, GENERAL

Read and follow each step carefully to avoid making errors and causing personal injury or damage to surroundings or unit. See *"1 SAFETY", page 6, "5 LIFTING THE UNIT", page 17, "6 PREPARE ASSEMBLY", page 20* and *"8 ASSEMBLE, VERSIONS", page 29.*

For example of set-up drawing and explanations of drawing symbols, see *"2.5 Symbols on dimension drawings and in the manual", page 11.*

WARNING!
Risk of life-threatening or serious personal injury.
Electrical voltage can cause electric shock, burns and death. The product must not be energised during assembly.

- Electrical connection and electrical work may only be carried out by a qualified electrician.
- For initial start-up of the unit, see Operation and Maintenance of the unit on IV Produkt's order portal.

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WARNING!
Risk of life-threatening or serious crushing or compression injury.
High unit parts, as well as unit parts with a high or offset centre of gravity, mean a greater risk of tipping.

- Follow the lifting and assembly instructions in this manual.
- Use lifting equipment where available.
- Use appropriate protective equipment.
- Exercise caution when working between unit parts.

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7.1 Tools required for assembly

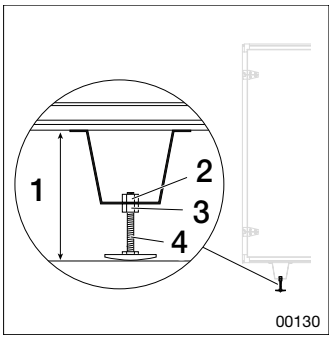
A bag of screws, nuts, corner fittings and other items to be used for assembly is supplied with each unit. he following tools are suitable for assembly:

- Power screwdriver with 16-socket, 13-socket, 1/4-inch bit and star bit
- Screwdriver
- Spirit level
- Putty syringe
- Rubber mallet
- Scissors
- Polygrip pliers
- Box spanners 13, 16, 18, 19
- Wooden blocks to lay between support and road
- Pop riveter
- Lubricating grease in spray bottle
- Pipe cutter

7.2 Assemble adjuster foot (accessory), adjust the height

The unit should tilt slightly forward (towards the inspection side) for condensation runoff and drainage. The inclination may be a maximum of 3 mm/m.

1. Tighten the lower locking nut (3) on the support foot (4).



2. Insert the top of the support foot into the hole of the hat profile and tighten the upper locking nut (2). The distance between the floor and the bottom (1) shall be 120 to 160 mm.
3. Use a spirit level and make sure that the unit is level along the inspection side/back.
4. Adjust the height and inclination of the support by turning the upper and lower nuts.
5. Secure all support feet by tightening both the top and bottom nut.

7.3 Assemble sealing strip

- For correct assembly of sealing strip on different parts, see also "8 ASSEMBLE, VERSIONS", page 29.
- The sealing strip is only fitted on one of two opposite parts.
- The sealing strip is not fitted on the rotary heat exchanger.
- For units in sectioned configuration, sealing strip must also be fitted in the division. Does not apply to ThermoCooler HP/EcoCooler.

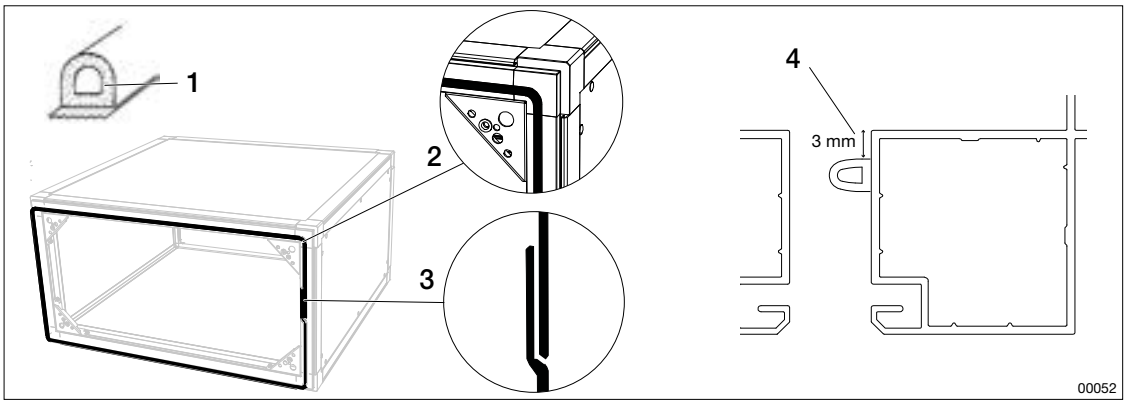


Figure: Sealing strips, location.

1. Sealing strip of type D-profile
2. Sealing strip in corner
3. Sealing strip joint
4. Profile in cross section

1. Divide the strip into two.
2. Assemble the strip in the middle surfaces of the unit, about 3 mm from the inner edge. Remove the protective layer over the adhesive, after which the strip is glued on. Bend the strip in the corners and join it on vertical sides.

7.3.1 Join with screw joints

For better access to the inner corner struts when joining adjacent unit parts, the fan can be removed and refitted. See "7.5 Remove/refit the fan", page 24.

1. Remove any cover plugs to access the screw joints.
2. Screw together the unit parts with bolts through each corner strut.

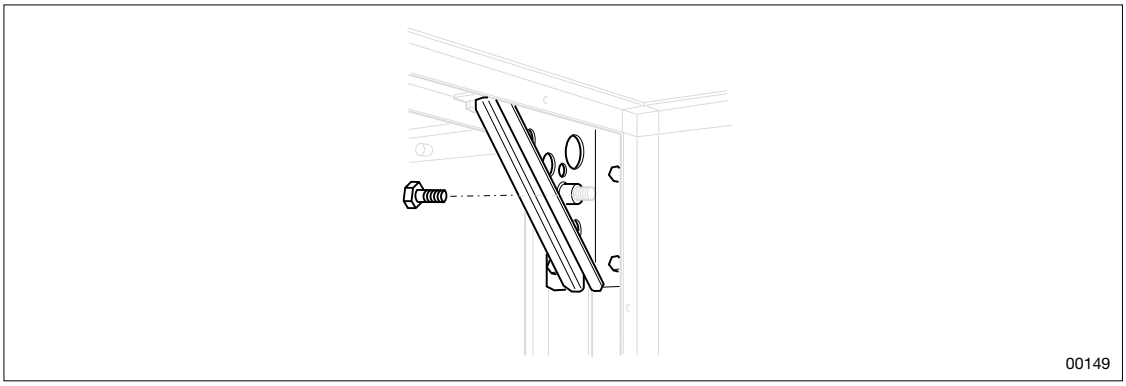


Figure: Screw joint

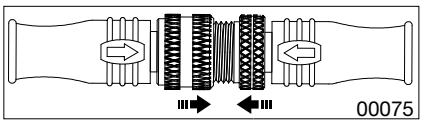
7.4 Quick connectors

See "11 ASSEMBLE CONTROL EQUIPMENT", page 41 and order-specific documentation (control diagram) on IV Produkt's order portal.

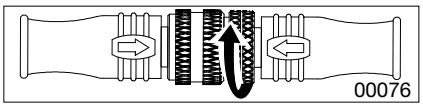
Quick connectors to be joined are marked with the same designation.

Quick connector, signal feed

1. Press together quick connectors according to marking (arrows or other).

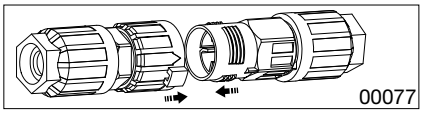


2. Screw together as hard as possible by hand.

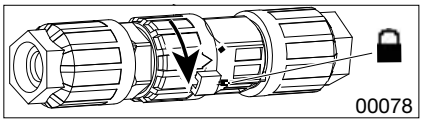


Quick connector, power supply

1. Press together quick connectors according to marking (arrows, dashes or similar).



2. Turn the arrow on the white cuff to the mark for closed (padlock).



7.5 Remove/refit the fan

7.5.1 Size 09-28

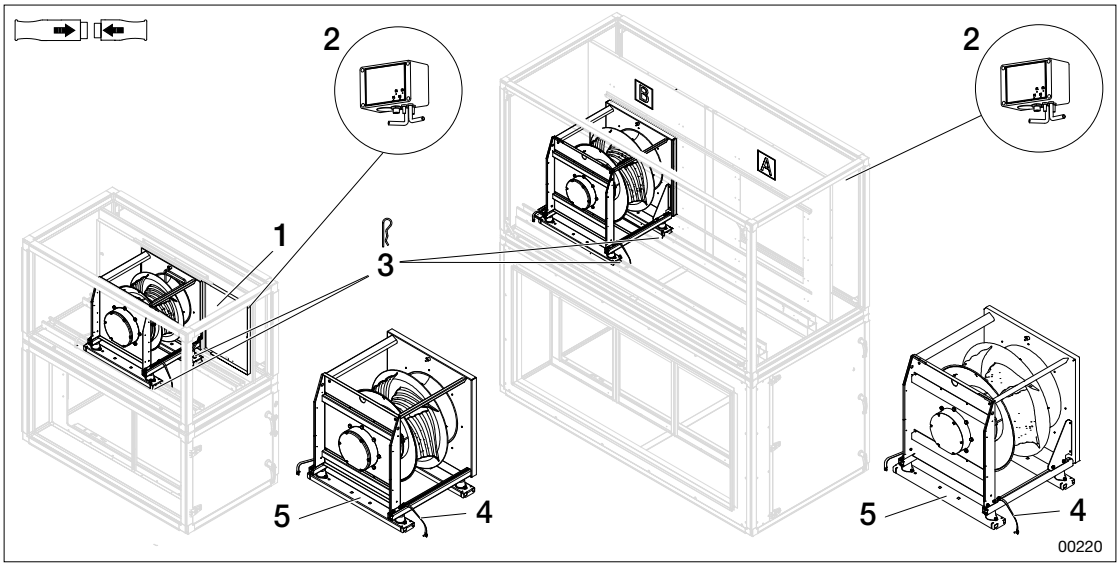


Figure: Remove the fan and reassemble

1. Cover plate
2. Pressure sensor module
3. Pins/screws
4. Earthing braid
5. Top sliding rail

To remove

1. Unscrew the cover plate.
2. Unscrew the earthing braid from the unit.
3. Loosen the temperature sensor and remove it through the hole on the fan frame.
4. Unscrew the quick connectors between the fan and the unit part. See *"7.4 Quick connectors", page 23*.
5. **Single fan:** Disconnect the pressure sensor hoses between the fan and pressure sensor module.
   Dual fan: Disconnect the pressure sensor hoses in the measuring nipple on the fan.
6. Remove the pins/screws from the rails (two per fan).
7. Pull out the fan.

To refit

- Make sure that each fan is fitted in the correct place (supply air/extract air, and placement order). See fan label.
- When connecting pressure sensor hoses, make sure that each hose is correctly connected to the pressure sensor module. The red (pink) hose must be connected to the red connector and the white (translucent) hose to the white connector.
- Ensure that hoses hang freely (not pinched).
- Ensure that hoses cannot be sucked into the fan.

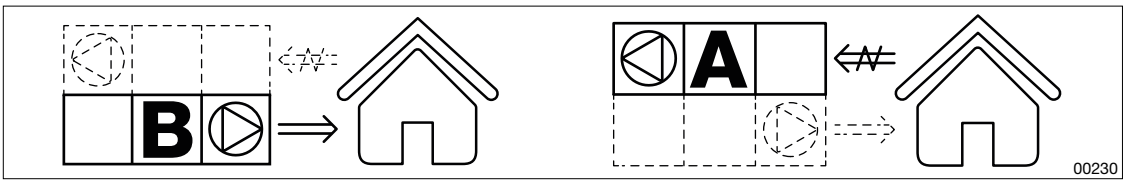


Figure: Fan label – the arrow direction indicates whether the fan is for supply air or extract air. For multi-fan installations, A/B/C, etc. indicates the fan position in the unit, as seen from the inspection door.

1. Lift the fan onto the unit's rails and slide it to the far end of the unit part. Make sure the fan is turned correctly so that hoses and cables from the pressure sensor module can be connected.
2. Reinsert the pins or attach with self-tapping screw through the holes in the rails.
3. Screw on the cover plate.
4. Screw the earthing braid to the unit's rail.
5. Firmly press the temperature sensor into the hole on the fan frame.
6. Screw the quick connectors together.
7. Shorten the pressure sensor hoses to the correct length and connect the hoses between the fan and the pressure sensor module.
8. Gather the cables together and use cable ties to fasten them to the inner wall of the unit. Make sure that they are not pinched when the inspection door closes.
9. Gather the hoses together and use cable ties to fasten them to the cables. Make sure that they are not pressed together or pinched.

7.5.2 Size 04 with fan impeller 020

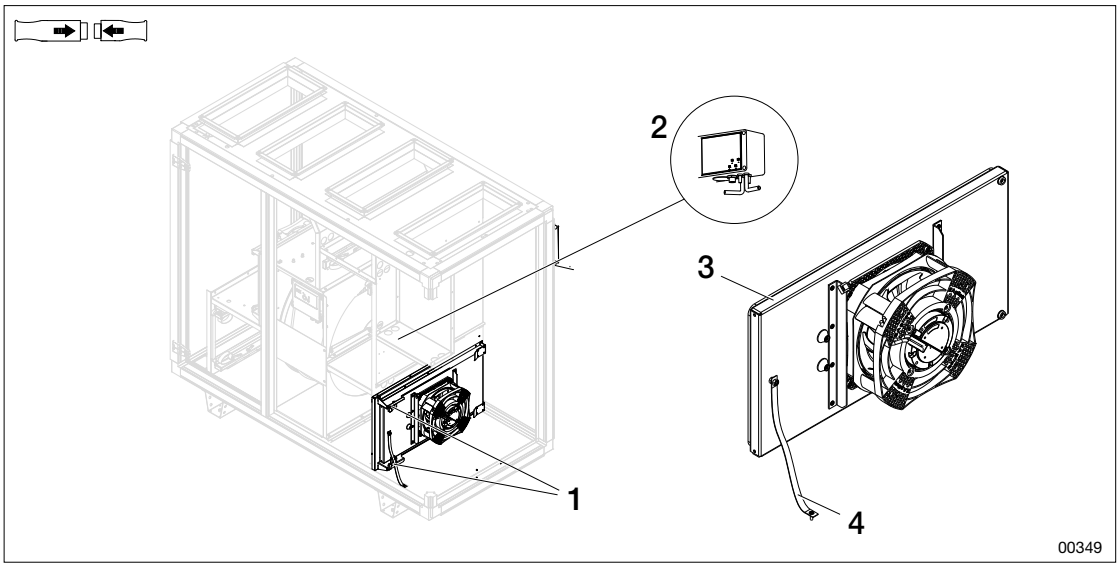


Figure: Remove the fan and refit fan 020 in Top 04

1. Snap lock
2. Pressure sensor module
3. Rear plate
4. Earthing braid

To remove

1. Unscrew the earthing braid from the unit.
2. Loosen the temperature sensor and remove it through the hole on the fan frame.
3. Unscrew the quick connectors between the fan and the unit part. See *"7.4 Quick connectors", page 23*.
4. **Single fan:** Disconnect the pressure sensor hoses between the fan and pressure sensor module.
   Dual fan: Disconnect the pressure sensor hoses in the measuring nipple on the fan.
5. Open the snap locks.
6. Pull out the plate and the fan.

To refit

1. Lift the fan and slide it to the far end of the unit part. Make sure the fan is turned correctly so that hoses and cables from the pressure sensor module can be connected.
2. Close the snap locks.
3. Screw the earthing braid to the unit's rail.
4. Firmly press the temperature sensor into the hole on the fan frame.
5. Screw the quick connectors together.
6. Shorten the pressure sensor hoses to the correct length and connect the hoses between the fan and the pressure sensor module.
7. Gather the cables together and use cable ties to fasten them to the inner wall of the unit. Make sure that they are not pinched when the inspection door closes.
8. Gather the hoses together and use cable ties to fasten them to the cables. Make sure that they are not pressed together or pinched.

7.5.3 Size 04-06 with fan impeller 025

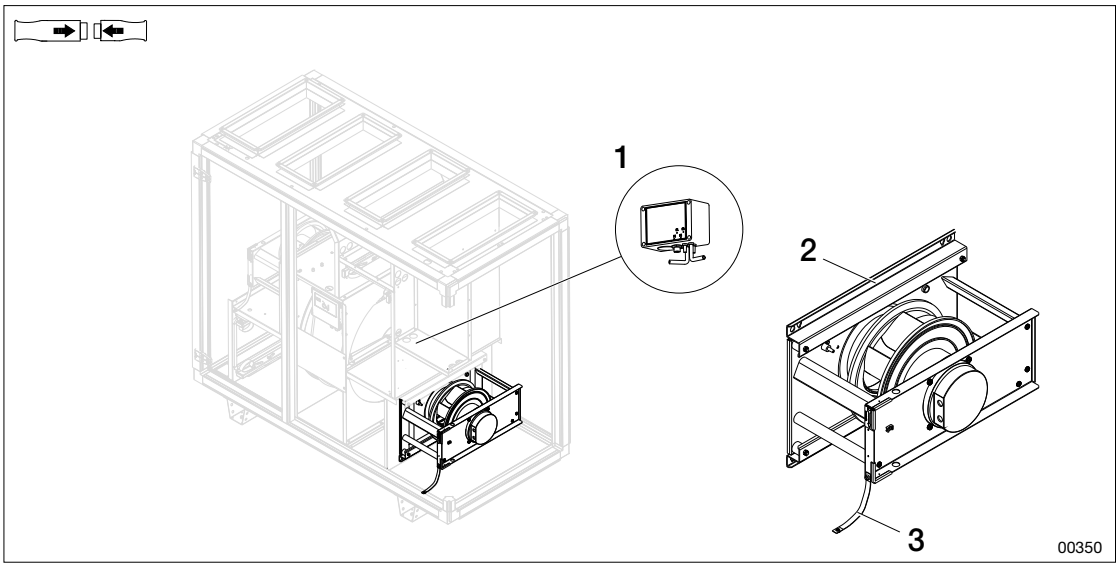


Figure: Remove the fan and refit fan 025 in Top 04

1. Pressure sensor module
2. Rail
3. Earthing braid

To remove

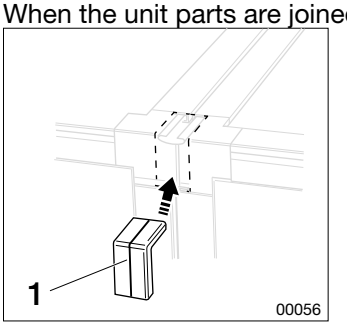
1. Unscrew the earthing braid from the unit.
2. Loosen the temperature sensor and remove it through the hole on the fan frame.
3. Unscrew the quick connectors between the fan and the unit part. See *"7.4 Quick connectors", page 23*.
4. **Single fan:** Disconnect the pressure sensor hoses between the fan and pressure sensor module.
   Dual fan: Disconnect the pressure sensor hoses in the measuring nipple on the fan.
5. Loosen the screws in the keyholes on the plate.
6. Lift out the fan.

To refit

1. Lift up the fan and align the plate's keyhole over the screws in the unit.
2. Screw in the screws.
3. Screw the earthing braid to the unit's rail.
4. Firmly press the temperature sensor into the hole on the fan frame.
5. Screw the quick connectors together.
6. Shorten the pressure sensor hoses to the correct length and connect the hoses between the fan and the pressure sensor module.
7. Gather the cables together and use cable ties to fasten them to the inner wall of the unit. Make sure that they are not pinched when the inspection door closes.
8. Gather the hoses together and use cable ties to fasten them to the cables. Make sure that they are not pressed together or pinched.

7.6 Fit cover detail on join

1. When the unit parts are joined together, put the cover detail (1) over the join.



2. Make sure it is really well fixed.

8 ASSEMBLE, VERSIONS

WARNING!
Risk of life-threatening or serious crushing or compression injury.
High unit parts, as well as unit parts with a high or offset centre of gravity, mean a greater risk of tipping.

- Follow the lifting and assembly instructions in this manual.
- Use lifting equipment where available.
- Use appropriate protective equipment.
- Exercise caution when working between unit parts.

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WARNING!
Risk of life-threatening or serious crushing or compression injury.
The unit parts are often heavy and cannot be lifted by hand. See weights indicated on the layout drawing.

- Follow the lifting and assembly instructions in this manual.
- Use lifting equipment where available.
- Use appropriate protective equipment.

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8.1 Before assembly

- See "1 SAFETY", page 6
- See "5 LIFTING THE UNIT", page 17
- See "6 PREPARE ASSEMBLY", page 20
- See "7 ASSEMBLY, GENERAL", page 21 for detailed instructions in the steps.
- Get the layout drawing on IV Produkt's order portal (Technical data). See "2.1 Documentation and support", page 10.

8.2 Assembly Envistar Top thermal wheel (TER, TXR)

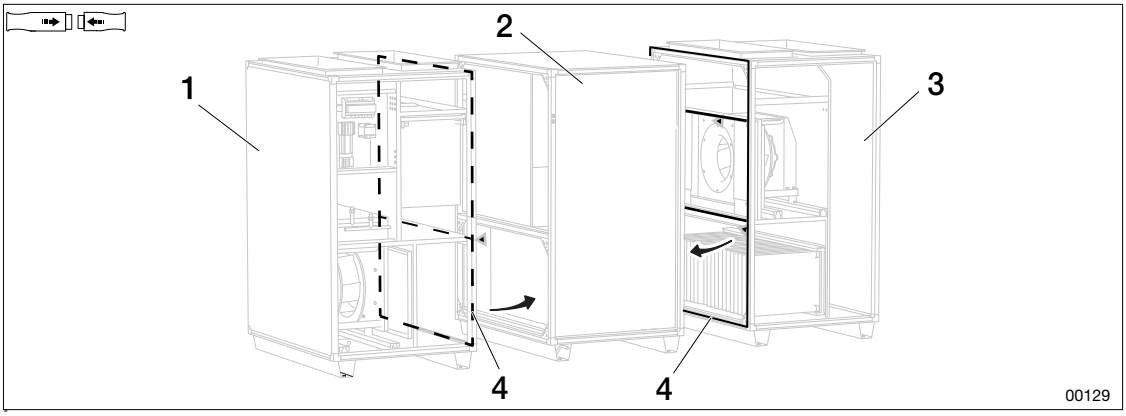

Figure: Envistar Top thermal wheel in left-hand version: location of sealing strips

1. Supply air part
2. Thermal wheel part (no sealing strip)
3. Exhaust air part
4. Sealing strips

1. Read "*8.1 Before assembly*", page 29.
2. Get out layout drawings and tools.
3. Assemble adjuster feet (accessories) if these are included.
4. Assemble sealing strips. Note in particular the horizontal sealing strips on profile/plate edges, above and below fan inlet as shown in the previous figure.
5. Push together and assemble together the thermal wheel part and the exhaust air part.
6. Push together and assemble together the supply air part and the thermal wheel part.
7. Connect the unit parts together with quick connectors and assemble other control equipment.
8. Assemble cover details at the joints.
9. Reassemble cover plugs to prevent internal leakage.
10. Connect drainage and water trap. See "*12.3 Connect drainage pipe to floor drain*", page 44.
11. Ensure that everything is correctly assembled.

8.3 Assembly Envistar Top thermal wheel/EcoCooler (TECO/TECX)

See "*7 ASSEMBLY, GENERAL*", page 21.

8.4 Assembly Envistar Top thermal wheel/EcoCooler (TEC-R)

The drainage pipe must not cause a high pressure drop. Avoid long and/or thin pipeline or hose.

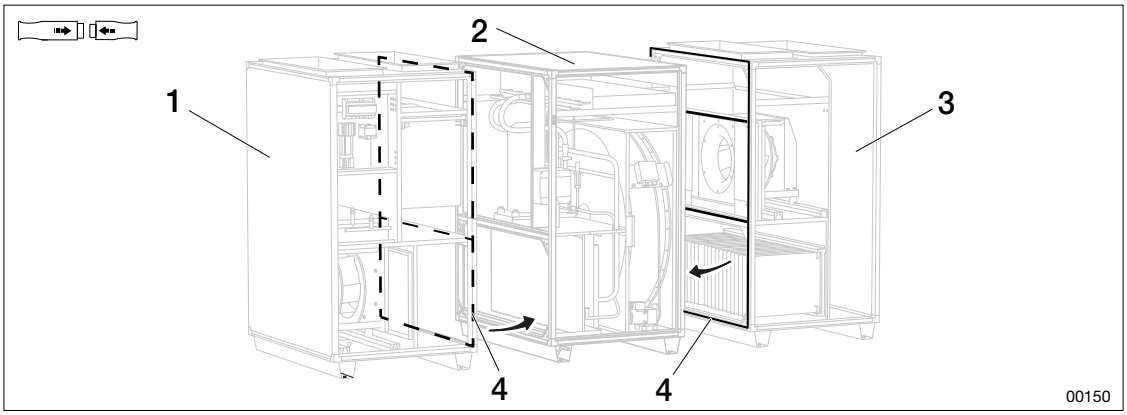

Figure: Envistar Top thermal wheel/EcoCooler in left-hand version: location of sealing strips

1. Supply air part
2. Cooling part (no sealing strip)
3. Exhaust air part
4. Sealing strips

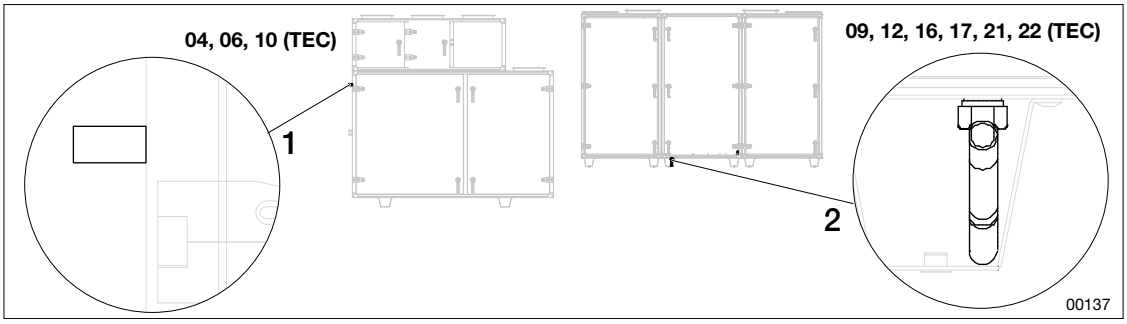

Figure: Envistar Top EcoCooler

1. Condensation drain sizes 04, 06, 10
2. Integrated water trap on sizes 09, 12, 16, 17, 21, 22

1. Read "*8.1 Before assembly*", *page 29.*
2. Get out layout drawings and tools.
3. Assemble adjuster feet (accessories) if these are included.
4. Assemble sealing strips. Note in particular the horizontal sealing strips on profile/plate edges, above and below fan inlet as shown in the previous figure.
5. Push together and assemble the cooling part and the exhaust air section.
6. **For sizes 16, 17, 21, 22: Remove the transport safety devices (straps) on the condenser header and the unit's metal stay and slide the condenser over to the exhaust air section until it drops down and hooks into its final position. Ensure that the condenser is close against the sealing strips.**
7. Push together and assembly together the supply air part and the cooling part.
8. Connect the unit parts together with quick connectors and assemble other control equipment.
9. Size 04, 06,10: Connect the condensation drain to the drain of the building, preferably via water trap in case of overpressure.
10. Install cover details at the joints.
11. Refit the cover plugs to prevent internal leakage.
12. Sizes 09, 12, 16, 17, 21, 22: Connect the integrated water trap to the drain.
13. Ensure that everything is correctly assembled.

8.5 Assembly Envistar Top thermal wheel/ThermoCooler HP (TTC/TTCH)

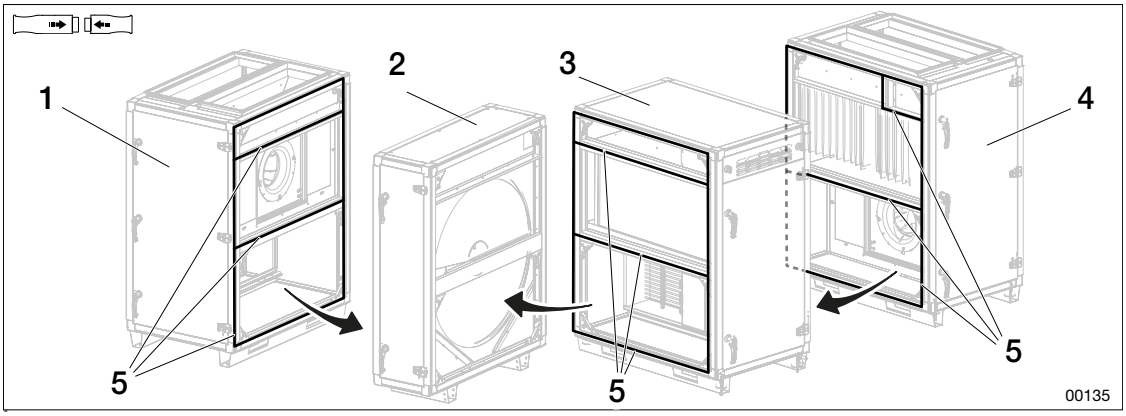

Figure: Envistar Top thermal wheel/ThermoCooler HP in right-hand version: location of sealing strips

1. Exhaust air part
2. Thermal wheel part (no sealing strip)
3. ThermoCooler HP
4. Supply air part
5. Sealing strips

1. Read *"8.1 Before assembly", page 29.*
2. Get out layout drawings and tools.
3. Assemble adjuster feet (accessories) if these are included.
4. Assemble sealing strips. Note in particular the horizontal sealing strips on profile/plate edges, above and below fan inlet as shown in the previous figure.
5. Push together and assemble together ThermoCooler HP with the supply air part.
6. Push together and assembly together the thermal wheel part and ThermoCooler HP.
7. Push together and assembly together the exhaust air part and the thermal wheel part.
8. Connect the unit parts together with quick connectors and assemble other control equipment.
9. Assemble cover details at the joints.
10. Reassemble cover plugs to prevent internal leakage.
11. Connect drainage and water trap. See *"12.3 Connect drainage pipe to floor drain", page 44.*
12. Ensure that everything is correctly assembled.

8.6 Assembly Envistar Top counter-flow exchanger (TEM, TXM)

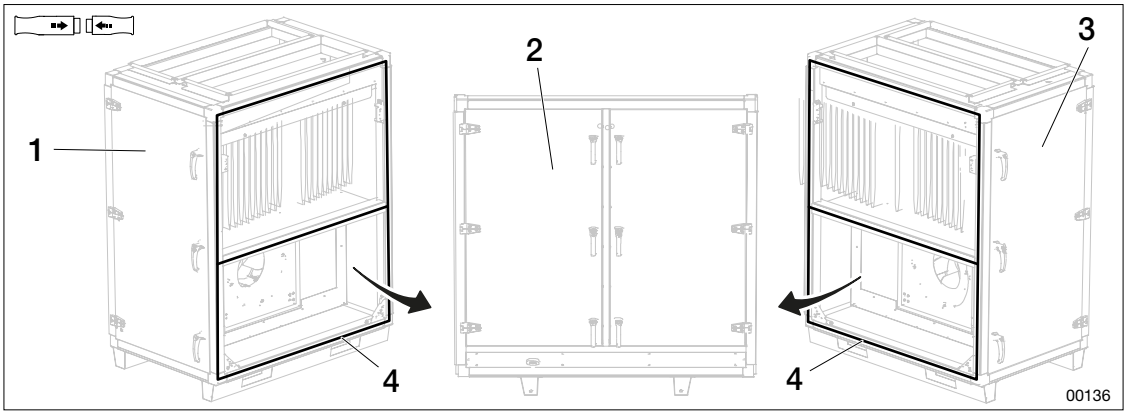

Figure: Envistar Top thermal wheel/EcoCooler in left-hand version: location of sealing strips

1. Exhaust air part
2. Counter-flow exchanger part (no sealing strip)
3. Supply air part
4. Sealing strips

1. Read "8.1 Before assembly", page 29.
2. Get out layout drawings and tools.
3. Assemble adjuster feet (accessories) if these are included.
4. Assemble sealing strips.
5. If the counter-flow exchanger is in sectioned configuration, assemble the part according to."8.8 Assemble counter-flow exchanger in sections", page 35.
6. Push together and assemble together the exhaust air part and supply air part with the counter-flow exchanger part.
7. For sizes 04, 06 and 10 in block design: Pull the red hoses (plus) from the supply air part and the exhaust air part to the counter-flow exchanger part and connect with the respective hose ends up in the filter part.
8. Connect the unit parts together with quick connectors and assemble other control equipment.
9. Assemble cover details at the joints.
10. Reassemble cover plugs to prevent internal leakage.
11. Connect drainage and water trap. See "12.3 Connect drainage pipe to floor drain", page 44.
12. Ensure that everything is correctly assembled.

8.7 Assembly
Envistar Top counter-flow exchanger/EcoCooler (TEC-M)

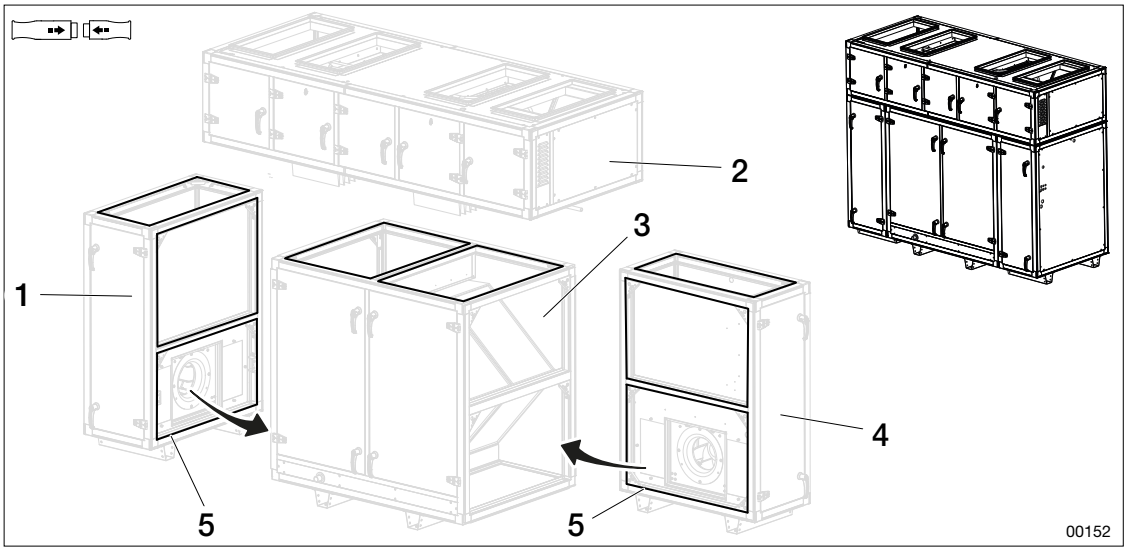

Figure: Envistar Top thermal wheel/EcoCooler in left-hand version: location of sealing strips

1. Exhaust air part
2. Cooling part (no sealing strip)
3. Counter-flow exchanger part (no sealing strip)
4. Supply air part
5. Sealing strips

1. Read *"8.1 Before assembly", page 29.*
2. Get out layout drawings and tools.
3. Assemble adjuster feet (accessories) if these are included.
4. Assemble sealing strips.
5. If the counter-flow exchanger is in sectioned configuration, assemble the part according to *"8.8 Assemble counter-flow exchanger in sections", page 35*
6. Push together and assemble together the exhaust air part and supply air part with the counter-flow exchanger part.
7. For sizes 04, 06 and 10 in block design: Pull the red hoses (plus) from the supply air part and the exhaust air part to the counter-flow exchanger part and connect with the respective hose ends up in the filter part.
8. Lift up the cooling part and place over the other parts.
9. Attach the cooling part to the other parts.
10. Connect the unit parts together with quick connectors and assemble other control equipment.
11. Assemble cover details at the joints.
12. Reassemble cover plugs to prevent internal leakage.
13. Connect drainage and water trap. See *"12.3 Connect drainage pipe to floor drain", page 44.*
14. Ensure that everything is correctly assembled.

8.8 Assemble counter-flow exchanger in sections

The counter-flow exchanger can be disassembled for easier passage through confined spaces.

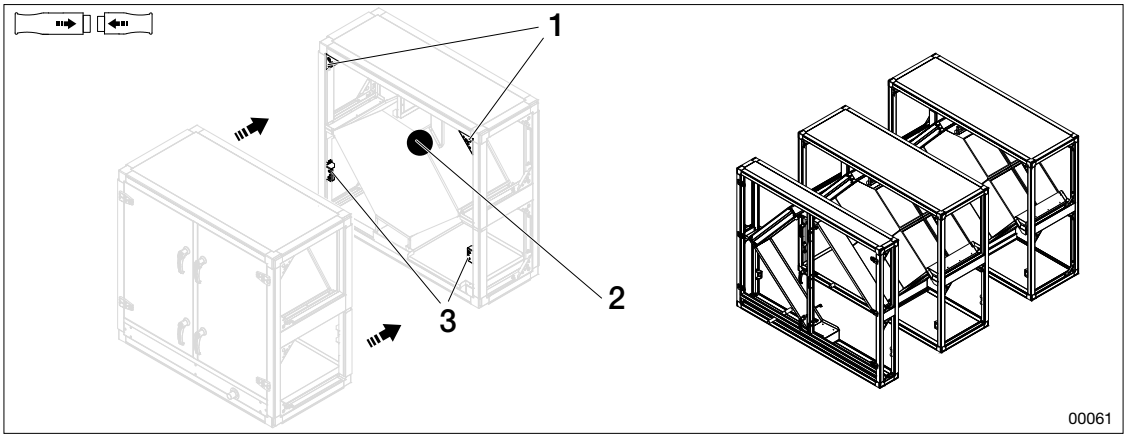

Figure: Counter-flow heat exchanger, sectioned configuration

1. Corner strut
2. Approximate location of quick connectors
3. Joint fixings

Take apart counter-flow heat exchanger

1. Divide the electric quick connectors for the damper motors. See *"7.4 Quick connectors", page 23*.
2. Loosen hoses.
3. Loosen and remove bolts and screws in corner struts and joint fixings.
4. Pull the parts apart without damaging the sealing strip between the parts.

Assemble counter-flow exchanger.

1. Slide the parts together without damaging the sealing strip.
2. Screw the parts together on the corner struts and joint fixings.
3. Fit back hoses.
4. Put together the quick connectors for the damper motors.
5. Connect drainage.

9 CONNECT COIL, WATER

9.1 Connect coil to pipelines

- In order not to damage the air heater, always use a counterhold when connecting.
- Ensure that connecting pipes (including insulation) do not block inspection hatches.

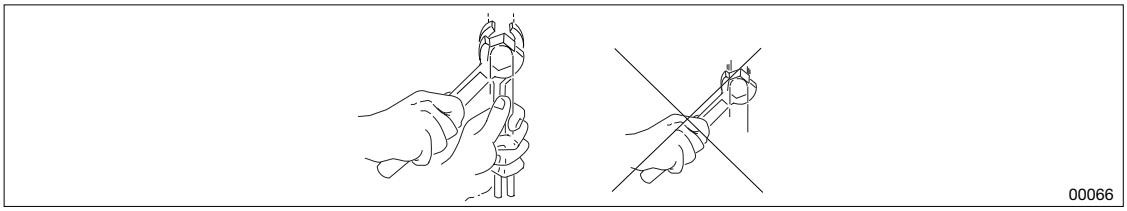

Figure: Pipe connection counterhold

9.2 Connect heating coil, water

1. Connect coil to pipeline.
2. Connect frost protection on heating coil.
3. Connect bleeding and drainage.

9.2.1 Heating coil, water (ETAB-VV) in unit

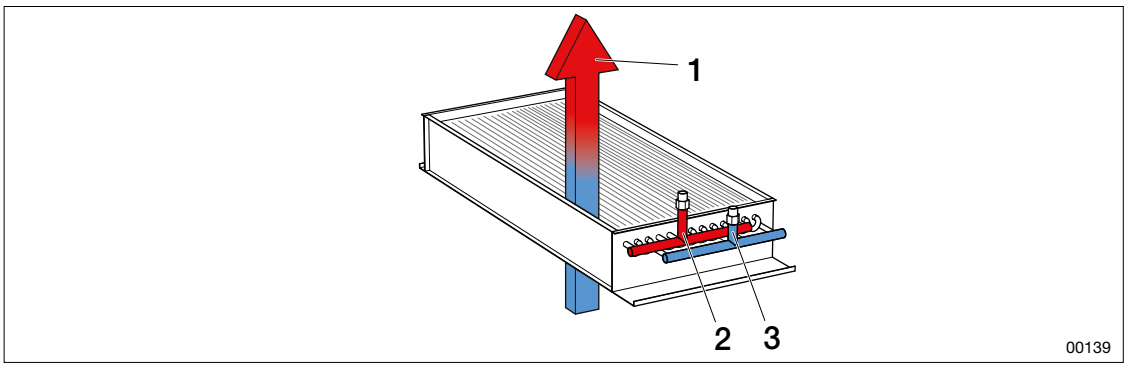

Figure: Connection coil, waterborne heating (ETAB-VV)

1. Air direction
2. Connection incoming pipes (heating water)
3. Connection return pipe (heating water)

Connection pipe for incoming hot water must be connected in the counter-flow direction.

9.2.2 Heating coil, water (ETAB-TV) in unit

The pressure relief valve for excess fluid should be mounted vertically on the return pipe, in connection with drainage that cannot be closed off.

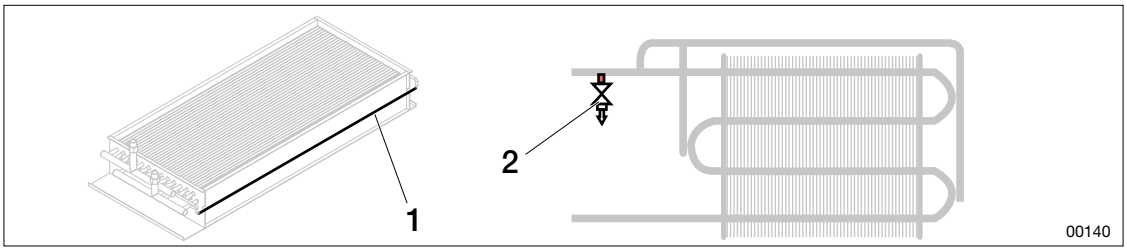

Figure: Connection Thermoguard configuration (ETAB-TV)

1. Pipe for excess fluid in case of risk of freezing
2. Pressure relief valve (Not included in IV Produkt delivery)

Thermoguard coils:

- are marked with inlet and outlet, respectively, on the fluid side, as well as air direction.
- delivered, as standard, for vertical assembly (horizontal air stream).
- must always have the possibility of pressure relief via the coil return line out to the expansion vessel, regardless of whether the control valve is open or closed. This applies to all kinds of control valves, shunt couplings and the like.

9.3 Connect cooling coil, water

1. Connect coil to pipeline.
2. Connect drainage. See *"12 CONNECT DRAINAGE, WATER TRAP", page 43.*
3. Connect bleeding and drainage.

9.3.1 Cooling coil, water (ETKB-VK) in duct

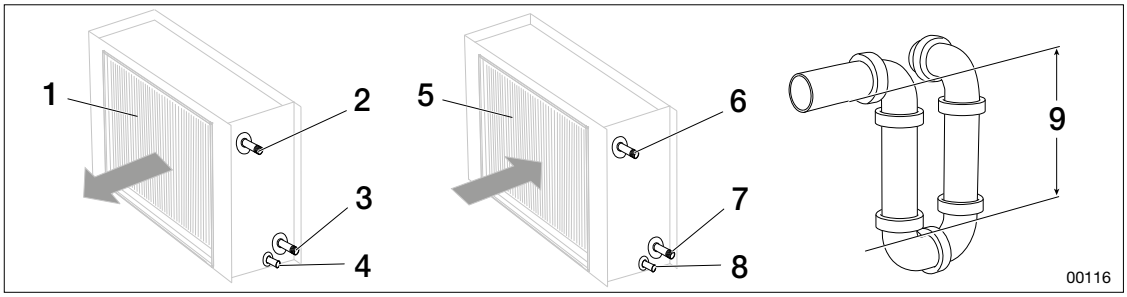

Figure: Cooling coil (ETKB-VK)

1. Cooling coil left-hand version
2. Inlet
3. Outlet
4. Connection water trap
5. Cooling coil right-hand version
6. Outlet
7. Inlet
8. Connection water trap
9. Water trap 100 mm (+ 10 mmvp/100Pa)

For duct assembly see *"13 DUCT CONNECTION, DUCT ACCESSORIES", page 45.*

The cooling coil must be connected for horizontal air stream and so that the water flows towards the air stream. The water trap must have a height of at least 100 mm (9) and be increased by 10 mm for every 100 Pa in addition to 1000 Pa.

9.4 Connect frost protection sensor

The sensor is placed at the coldest point of the coil, i.e. on the outgoing fluid assembly tubes.

Frost protection sensor is connected to prevent ice from forming in the pipe lines of the coil.

9.4.1 Contact clamp on detector

- The sensor must always be placed after any duct coils (heating/cooling) and not in a sound attenuator.
- Location of measuring sockets for pressure control should be at least 1 m from duct connection, so as to avoid disturbing turbulence.

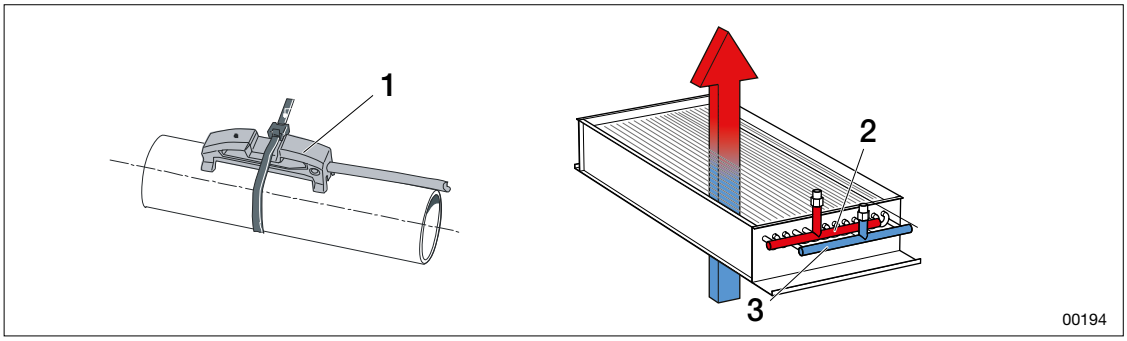

Figure: Clamp on detector

1. Clamp on detector placed on pipe
2. Outgoing fluid at top, clamp on sensor up
3. Outgoing fluid at bottom, clamp on sensor down

9.5 Connect bleeding and drainage

Connecting pipes shall be equipped with:

- venting at the highest point
- drainage at the lowest point

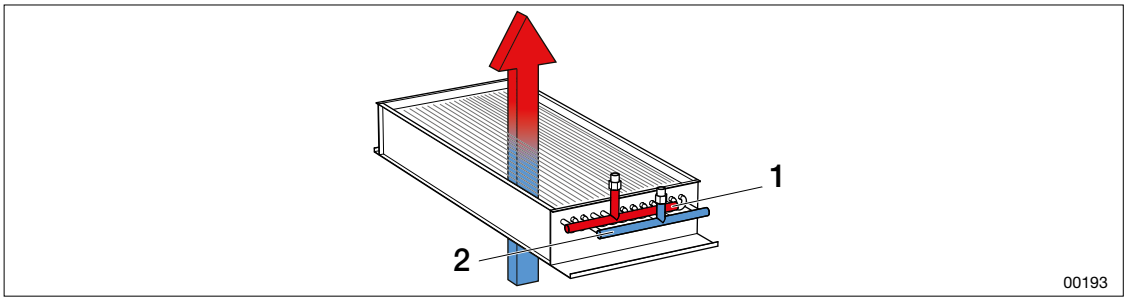

Figure: Bleeding and drainage

1. Nipple for bleeding
2. Nipple for drainage

9.6 Assemble valve actuator

Assembly is carried out according to the accompanying instructions from IV Produkt's supplier. See order-specific documentation on IV Produkt's order portal.

The control valve (shunt valve), which regulates water temperature to heating or cooling systems is operated by a valve actuator attached to a control unit. The valve may be of two- or three-way type depending on the connected heating source.

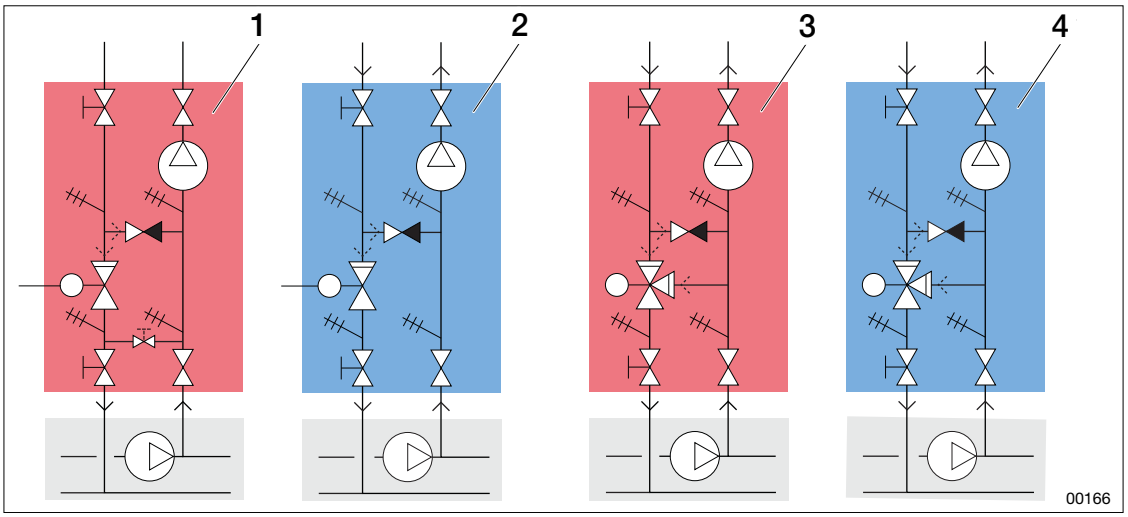

Figure: Control valve in different configurations

1. District heating - two-way valve
2. District cooling - two-way valve
3. Own heating source - three-way valve
4. Own cooling plant - three-way valve

9.7 Assemble pump, pipework package

The pump is only included in the IV Produkt accessory: Pipework package. For information and assembly, see separate product sheet "Pipework package STD-05, specification and assembly instructions" at IV Produkt's order portal. Other pumps are provided by the customer, and their installation is the customer's responsibility.

10 ASSEMBLE COIL, ELECTRIC

10.1 Assemble heating coil, electric

WARNING!
Risk of life-threatening or serious personal injury.
Electrical voltage can cause electric shock, burns and death. The product must not be energised during assembly.

- Electrical connection and electrical work may only be carried out by a qualified electrician.
- For initial start-up of the unit, see Operation and Maintenance of the unit on IV Produkt's order portal.

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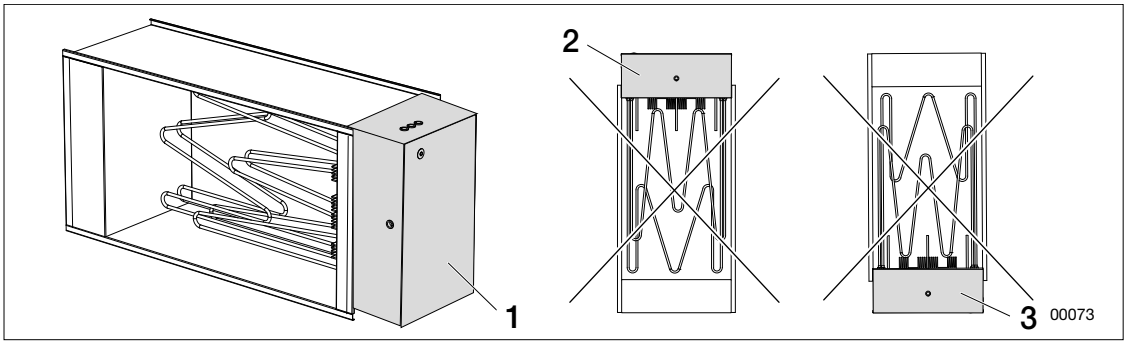

Figure: Air heater electric

1. Cover for connection box
2. Connection box - not to be mounted upwards
3. Connection box - not to be mounted downwards

The distance from the sheet metal casing of the air heater to wood or other combustible material must be 100 mm or more.

10.1.1 Heating coil, electric (ETKB-EV) in duct

The air heater, adapted for assembly in duct systems, requires separate connection. The air flow direction through the air heater must correspond with the direction arrow on the air heater. See *"13 DUCT CONNECTION, DUCT ACCESSORIES", page 45.*

The heater can be assembled in horizontal or vertical ducts with the connection box to the side.

The distance from the air heater to duct elbows, dampers, filters or the like, should be at least the distance corresponding to the diagonal measurement of the heater (from corner to corner in the heater's duct section). If the distance is smaller, the air stream through the heater can become uneven and the overheat protection can be tripped.

The air heater is insulated according to the applicable rules for ventilation ducts/ventilation units and with non-combustible insulating material. The type plate and warning plate must be fully visible and the cover must be possible to open. The air heater must be accessible for replacement and servicing.

11 ASSEMBLE CONTROL EQUIPMENT

WARNING!
Risk of life-threatening or serious personal injury.

Electrical voltage can cause electric shock, burns and death. The product must not be energised during assembly.

- Electrical connection and electrical work may only be carried out by a qualified electrician.
- For initial start-up of the unit, see Operation and Maintenance of the unit on IV Produkt's order portal.

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If the unit is supplied with control equipment, obtain order-specific drawings from IV Produkt's order portal. Connection of control equipment (power supply, fuse protection other components, fans etc.) not specified in this section is done by a competent technician as instructed in Operation and Maintenance for the unit.

11.1 Connect quick connectors between unit parts

Connect together all quick connectors between unit parts. See *"7.4 Quick connectors", page 23* and *"12 CONNECT DRAINAGE, WATER TRAP", page 43*.

11.2 Connect hoses for pressure control

- Location of measuring sockets for pressure control should be at least 1 m from duct connection, so as to avoid disturbing turbulence.

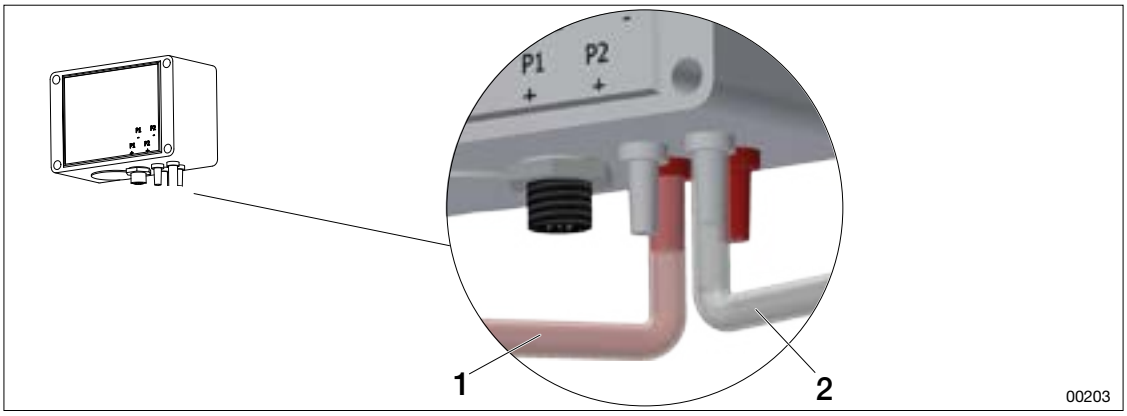

Figure: Hoses for pressure control connected to pressure sensors

1. Pink/red hose for pressure control of supply air
2. White/transparent hose for pressure control of extract air

- Connect the red hose (1) from the pressure sensor to the supply air duct (red connector).
- Connect the transparent hose (2) from the pressure sensor to the extract air duct (white connector).

11.3 Connect the supply air temperature sensor

- The supply air temperature sensor must always be placed after any duct coils (heating/cooling)
- The supply air temperature sensor must not be placed in a sound attenuator.

The sensor is connected to the control cabinet before delivery and hangs under the cabinet in a pretzel form.

1. After the unit is fitted together: pull the sensor to an appropriate point in the supply air duct.
2. Screw the holder to the sensor, in the duct.
3. Connect the sensor in the holder.

12 CONNECT DRAINAGE, WATER TRAP

- All drainages must be connected to separate water traps, which after these can be connected to a common drain.
- Use separate drainage and water traps for negative pressure and positive pressure.

For instructional videos, see IV Produkt's order portal:

Water trap site-built assembly

Water trap prefabricated MIET-CL-04 assembly.

12.1 Connect water trap MIET-CL-04 (accessories)

MIET-CL-04 must not be used with outdoor version, in case of under-pressure. Heating cable pulled through drainage lines and water trap causes the ball not to seal.

- Water traps are always assembled with the cup facing up.

Underpressure (P-) **Overpressure (P+)**

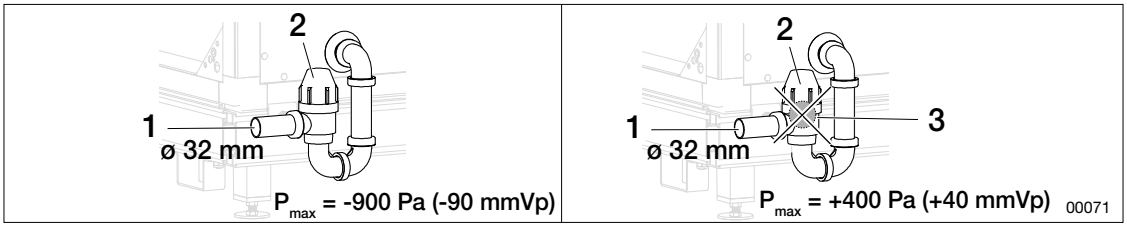

Figure: Water trap (accessory)

1. Outlet (connected to drain)
2. Cup
3. Ball (inside pipe) is removed with overpressure

12.2 Connect water trap (site built)

- Fill the water trap with water before starting the unit.
- For each additional 100 Pa (over 1000 Pa), H_1 and H_2 are increased by 10 mm.

Underpressure (P-) **Overpressure (P+)**

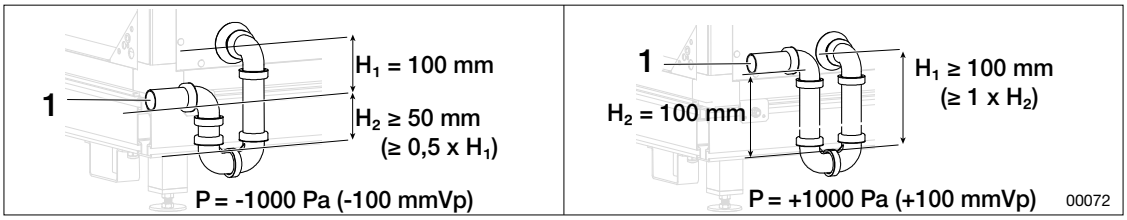

Figure: Water trap (site-built)

1. Outlet (connected to drain)

12.3 Connect drainage pipe to floor drain

The instruction applies to TEC (09, 12, 16, 17, 21, 22) and TTC (06, 09, 10, 12, 16, 17, 21, 22). The drainage pipe on the unit is connected to the floor drain pipe with an NC coupling, which is loosely taped inside the support foot (hat profile).

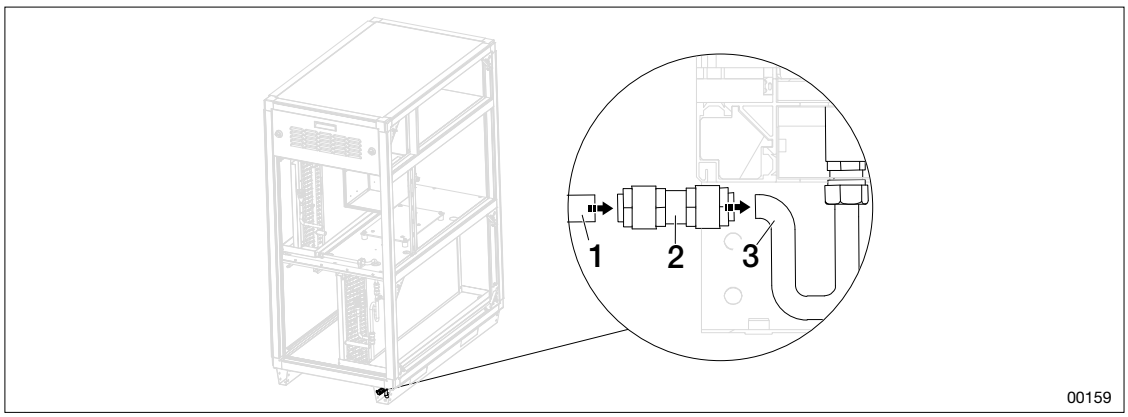

Figure: Drainage pipe and NC coupling

1. Drainage pipe to floor drain (Ø 15 mm)
2. NC coupling
3. Water trap (Ø 15 mm)

1. Remove the loose NC coupling from the hat profile.
2. Push the NC coupling over the protruding drainage pipe on the unit until it stops, about 30 mm. If it is correctly positioned, it should not be possible to twist or remove with hand force.
3. Push the floor drain drainage pipe into the open end of the NC coupling.
4. Push the drainage pipe down into the floor drain.
5. Feel and make sure that everything is securely connected and that the drainage pipe cannot jump out of the floor drain.

13 DUCT CONNECTION, DUCT ACCESSORIES

Duct accessories are placed according to set-up drawing. Order-specific drawings can be downloaded at IV Produkt's order portal (Technical Data). See *"2.1 Documentation and support", page 10.*

13.1 Connect to ducts

The unit is supplied with either rectangular or circular connection sleeves.

13.1.1 Connect to rectangular duct

Sleeve couplings on rectangular duct connections must be supplemented with sealing strip and connected with guide strips.

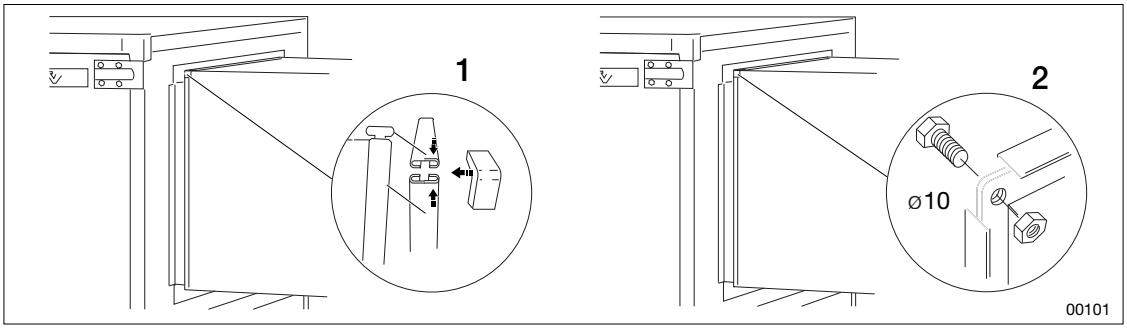

Figure: Rectangular duct connection

1. Option 1: The ducts are connected with a gasket, guide pin and outer corner.
2. Option 2: The ducts are connected with screws in the corners of the frame.

13.1.2 Connect to circular duct

Sleeve couplings on circular duct connections are equipped with rubber ring sealing.

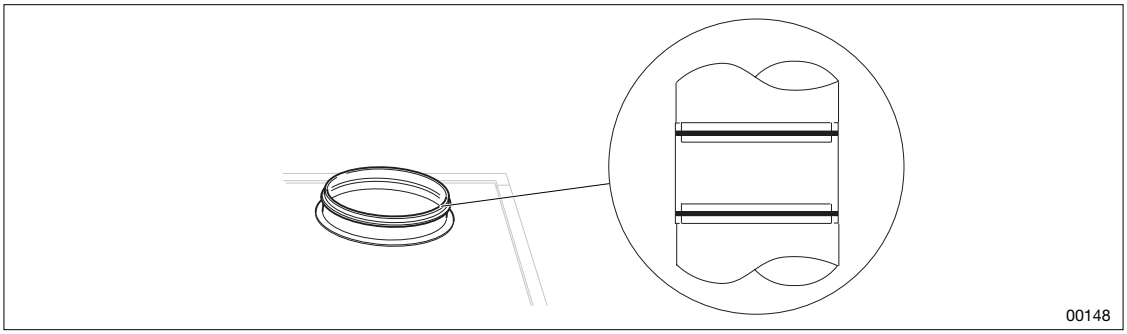

Figure: Circular duct connection with Spiro pipe

13.1.3 Connect sleeve (accessories)

If the duct sleeves are connected for dampening vibrations, the duct insulation is assembled over the entire connection.

13.2 Assemble duct coils

The distance after a duct elbow, damper or similar must be at least three times the duct dimension to obtain smooth air distribution. See *"9 CONNECT COIL, WATER", page 36* and *"10 ASSEMBLE COIL, ELECTRIC", page 40.*

The coils have a rectangular connector for the guide system.

13.3 Assemble sound attenuator (ETET-LD)

The unit is supplied with either a rectangular or circular sound attenuator depending on the size of unit and duct connections.

13.4 Assemble damper (ETSP-UM, ETSP-TR)

Dampers can be assembled for horizontal or vertical air stream. Envistar Top supplied with rectangular or circular dampers, depending on the size of the unit and duct connection.

14 AFTER ASSEMBLY

14.1 Subsequent inspection and maintenance

CAUTION!
Risk of damage to the product.
Swarf from drilling left behind after assembly can lead to corrosion in the surface layer of the unit.

- Make sure that the surfaces of the unit are clean of swarf.

00195

CAUTION!
Risk of damage to the product.
Corrosive substances and strong cleaning agents can damage the surface layer.

- Never use strong cleaning agents or corrosive substances when cleaning the unit.

00183

Area	Inspection	Notes
Covers	Ensure that inspection hatches do not jam when opening.	1. Adjust the hinges of the hatch. 2. Adjust the support feet. See *"A bag of screws, nuts, corner fittings and other items to be used for assembly is supplied with each unit. he following tools are suitable for assembly:", page 21*.
Covers	Ensure that all covers are closed before commissioning.	Close open covers.
Unit tilt	Ensure that the unit is correctly tilted for draining.	See *"A bag of screws, nuts, corner fittings and other items to be used for assembly is supplied with each unit. he following tools are suitable for assembly:", page 21*.
Unit surfaces	Ensure that the unit is clean and free of dirt and debris, such as residual swarf from drilling.	1. Vacuum or brush the surfaces. 2. Wipe with a damp cloth. Detergents such as soap and light alkaline agents can be used for stubborn dirt.
Seals	Visually ensure that all strips and seals are intact. For example, shine a torch from the inside in all joints.	Replace any damaged strips.

You are welcome to contact us

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