Assembly instructions

Envistar Flex

Size 060-1580

PRODUKT

Documentation for your unit

1. Scan the QR code or type orderdocs.ivprodukt.com in your browser.
2. Enter your order number.
3. Press ENTER or click search.
4. Select your order.

Is documentation missing?

See information in section

"2.1 Documentation and support", page 11.

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Assembly instructions
Envistar Flex

1 SAFETY

This section addresses important safety aspects during assembly, with the aim of increasing safety awareness and avoiding injury to people or damage to the environment and the unit.

- 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 application

Intended use

The product is intended to be used as Air handling unit comfort ventilation in properties.

Intended users

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

Intended use environment

- The unit is usually placed indoors, but is also available in an outdoor version.
- When installed indoors, the unit should be placed in a ventilated space that maintains a temperature of +7 – +30 °C and, during winter, a humidity level of < 3.5 g/kg dry air.
- The AHU (air handling unit) can also be equipped for assembly in cold attics.

1.2 Unintended use

Any use other than that specified in Intended Application is prohibited unless specifically permitted by IV Produkt. The unit is not permitted to be used or installed in an explosive environment.

1.3 General safety

Failure to follow the safety instructions may result in personal injury or damage to the air handling unit. To avoid injury to persons, or damage to surroundings or equipment:

- Follow national and local laws/regulations for safe work, e.g. fall protection when working at height.
- Do not wear loose-fitting clothing or jewellery that could get caught.
- Do not step or climb on the unit.
- Use appropriate tools.
- Use appropriate personal protective equipment.
- Observe the unit's markings; product labels, information and warning stickers.

Personal protective equipment

Personal protective equipment should always be used based on the risks that occur in the workplace. For example, use safety shoes with steel toecaps, hearing protection, a hard hat, gloves, safety glasses, covering clothing, protective overalls, a face mask/protective mask and/or fall protection where the work and work environment require it.

1.4 Structure of warning messages

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

The warning symbol  indicates that a risk exists.

WARNING! indicates a potential hazard which, if not avoided, could result in death or **serious** injury.

CAUTION! indicates a potential hazard which, if not avoided, could result in **material damage** to the product or its surroundings, as well as impaired product function.

"Risk for xxxxxx." indicates the risk in a short risk title.

Descriptions in italics provide more detailed information about what the risk entails.

- The points indicate how the user can avoid harm.

1.5 General warning messages

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.
- Exercise caution when placing unit parts on the support.
- Use the support to secure the parts against possible tipping risk.

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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.

00179

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.
- Replace used T-bolts and nuts with new ones after each lift (EMMT-12). 00180

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 decals clean from dirt. Replace missing, damaged or illegible signs and decals on the machine. Contact IV Produkt for replacement decals, specify the part number.

1.6.1 Type plate

The AHU (air handling unit) and any associated cooling unit/reversible heat pump have a type plate affixed to the front. The type plate is used to identify the product.

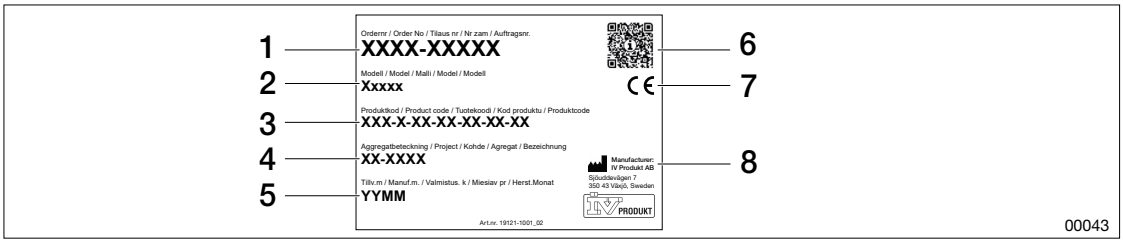

Figure: Example image: Unit type plate

1. Order number
2. Product name/model
3. Product code
4. AHU designation
5. Date of manufacture
6. QR code
7. CE marking
8. Manufacturer

1.7 Accidents and incidents

Report accidents and incidents according to national and local laws/regulations.

1.8 Product liability

The AHU (air handling 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 covers the unit in the version in which it was delivered and provided that it has been assembled and put into operation according to IV Produkt's instructions. This does not cover units that have been modified, components that have been added later, 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 downloaded from IV Produkt's order portal, *"2.1 Documentation and support", page 11*.

Manufacturer
The air handling unit is manufactured by IV Produkt AB, Sjöuddevägen 7, S-350 43 VÄXJÖ.

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

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

Disclaimer
Ongoing product development may result in changes without prior notice.

1.9 Lifting unit, functional parts

Lifting should be carried out according to the lifting instructions in this document, *"5 LIFTING UNIT", page 16* and following markings and signs on the unit. If there are no lifting instructions or markings, lifting must be carried out according to lifting methods developed by the transport industry.

1.10 After the product's lifetime

For dismantling and decommissioning of the unit, see Operation and maintenance.

2 GENERAL INFORMATION

2.1 Documentation and support

The documentation for your unit is available at IV Produkt's order portal. See *"2.1 Documentation and support", page 11*.

It may take up to two weeks before all documentation is available on IV Produkt's order portal. The text "Documentation in progress" is displayed until the documentation is complete. If documentation is missing or incorrect, please contact DU/Documentation. For other support, contact the department to which the case applies. See contact information on the back of the manual.

2.2 Informational message, 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 is available at IV Produkt's order portal. Order spare parts and accessories from IV Produkt. See contact information on the back of the manual. Please state the order number and AHU designation from the type plate, located on the unit.

2.4 Terms and abbreviations in the manual

Term	Explanation
Thermal wheel	Rotary heat exchanger
Unit part	Part of the unit. May contain function (for example fan, media etc) but may also be an empty part.

2.5 Symbols on drawings and in manual

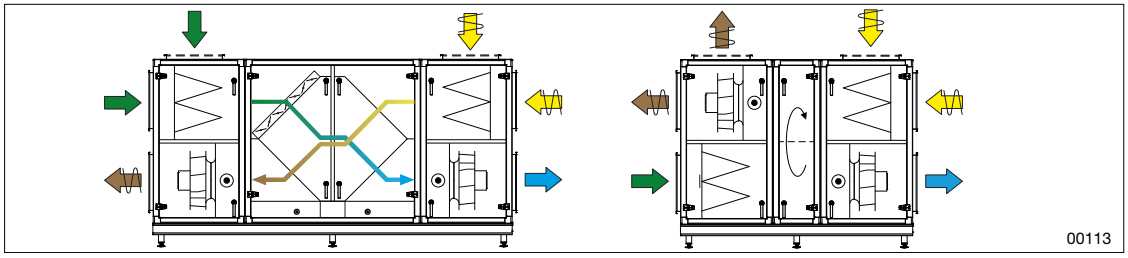

Figure: Example installation drawing

	Outdoor air		Extract air
	Supply air		Exhaust air
	Fan		Filter
	Shut-off damper		Trim damper
H_2O	Air cooler water	H_2O	Air heater liquid
	Air heater electric		Sound attenuator
	Rotary heat exchanger		Plate heat exchanger
	Counter-flow heat exchanger		Compressor
	Cooling unit		Reversible heat pump
	Media section		Quick contact
	Blank with connection for flue gas bypass		Inspection section with connection for flue gas bypass
	2-level section with connection for flue gas bypass		Duct turner with connection for flue gas bypass

3 DESCRIPTION OF UNIT

3.1 Unit design

The AHU (air handling unit) can be supplied with or without control and adjustment equipment. See "11 ASSEMBLE CONTROL EQUIPMENT", page 59.

The AHU (air handling unit) is supplied as a complete compact unit (unit version) or in blocks/parts (block version). Block version AHUs (air handling units) require assembly.

Indoor units are mounted on supports (aluminium profiles) with legs and adjustable feet, adjustable to different heights.

The framework of the unit consists of aluminium profiles:

- Size 060-980: 50 x 50 mm (50 profile)
- Size 1080-1580: 60 x 60 mm (60 profile).

Outdoor units are pre-assembled on beam frames (aluminium profiles) with a fixed height of 100 mm (for 50 profile) or 160 mm (for 60 profile) and cannot be fitted with legs or adjustable feet.

AHU (air handling unit) parts that have pre-assembled supports have lifting lugs mounted under the cross beams of the support.

AHU (air handling unit) parts can be supplied in sections or divisible, known as sectioned configuration, to simplify moving them in through confined spaces.

3.2 Orientation of the unit sides/parts

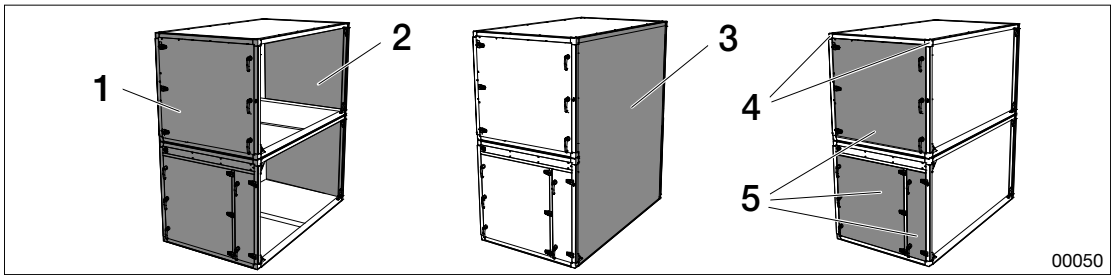

Figure: Parts of the unit

1. Access side
2. Back
3. Gable side
4. Assemble cover detail on joint
5. Covers

3.3 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


Sound attenuator


Flue gas bypass


Air turner


Flue gas bypass from above


Media


Empty


Humidifier


Angle


Inspection section


Temperature sensor


Earth

4 DELIVERY RECEIPT / STOCKHOLDING

4.1 Receive, unpack

Upon receipt, 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 (such as dust and dirt) or water do not enter the functional parts.

If the goods are dirty upon arrival, rinse the unit with water and, if necessary, clean according to the instructions for the unit surfaces in *"14 AFTER ASSEMBLY", page 64*.

4.3 Recommended storage

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

If the product is stored outdoors, it must be protected from weather conditions such as rain, snow and direct sunlight. Ventilation inside the unit parts must be secured during storage. The product can withstand storage in both heat and cold, temperature range -40 °C to +50 °C.

Small amounts of condensate, which occur during storage in changing temperatures, will dry up when the unit is put into operation, but make sure:

- good air circulation between packaging and unit and inside functional parts. Open the packaging to let in air if necessary.
- that the product is protected against extreme temperatures and weather conditions.
- that the product is protected against water penetration so that large amounts of stagnant water do not collect inside the unit.

5 LIFTING 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.
- Exercise caution when placing unit parts on the support.
- Use the support to secure the parts against possible tipping risk.

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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.
- Replace used T-bolts and nuts with new ones after each lift (EMMT-12).

00180

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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- Lifting of some thermal wheel sizes must be carried out according to separate instructions. See "5.8 Thermal wheel sizes 1250-D1, 1540-D1 - Lifting from truck", page 21 and "5.9 Thermal wheel size 1580 - Lifting with brackets", page 22.

5.1 Lifting AHU (air handling unit) parts with forklift

See also *"5.9 Thermal wheel size 1580 - Lifting with brackets", page 22*.

When lifting with a forklift, the lifting forks must be as long as the unit packaging or longer.

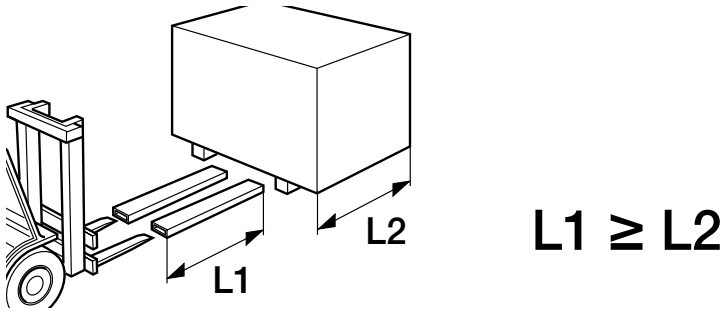

Figure: Lift with forklift

1. Fork length
2. Aggregate packaging

5.2 Lifting brackets, pre-assembled lifting eyes, spreader bars

- Maximum angle of the lifting hook is 80°
- The maximum tilt of unit parts when lifting is 15°. If the tilt is greater than 15°, the chains/straps should be shortened or extended until the angle is less than 15°.
- The spreader bar should be 100–400 mm wider than the unit.

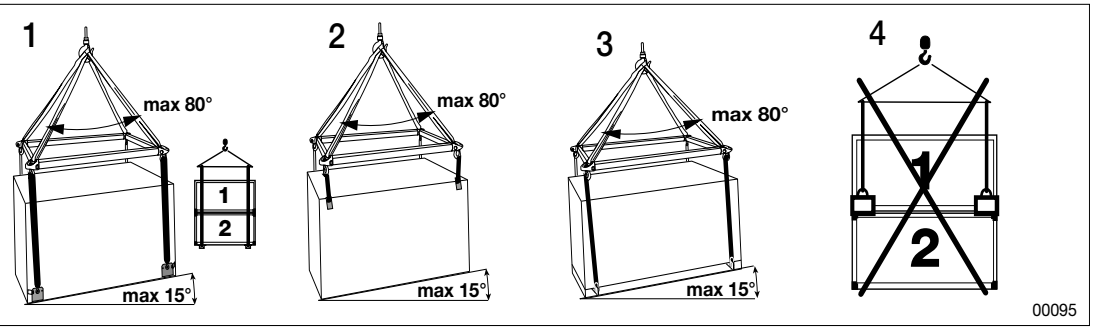

Figure: Example image of lifting with spreader bar and tilt

1. Lift with EMMT-08 with spreader bar
2. Lift with EMMT-12 with spreader bar
3. Lift in base frame with spreader bar
4. Incorrectly mounted lifting brackets in the centre profile

5.3 Lift of double stacked parts (parts on top of each other)

- Total weight ≤ 1600 kg - to be lifted with lifting brackets EMMT-12, mounted at the bottom of the lower part.
- Total weight > 1600 kg - to be lifted with pre-mounted lifting lugs. See *"5.6 Lifting of AHU (air handling unit) pre-mounted on support", page 20.*

5.4 Lift with bracket EMMT-08, for 50-profile

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.
- Replace used T-bolts and nuts with new ones after each lift (EMMT-12). 00180

- The bracket does not fit the 60 profile.
- Load per lifting bracket ≤ 400 kg.
- Load if all four brackets are used ≤ 1600 kg.
- A safety factor of 1.6 has been practiced in static testing of lifting brackets.
- Use a shackle with a safety factor of 6:1.
- The bracket must not be mounted downwards or sideways.
- Lifting brackets must not be mounted in the middle profile of two-level sections.

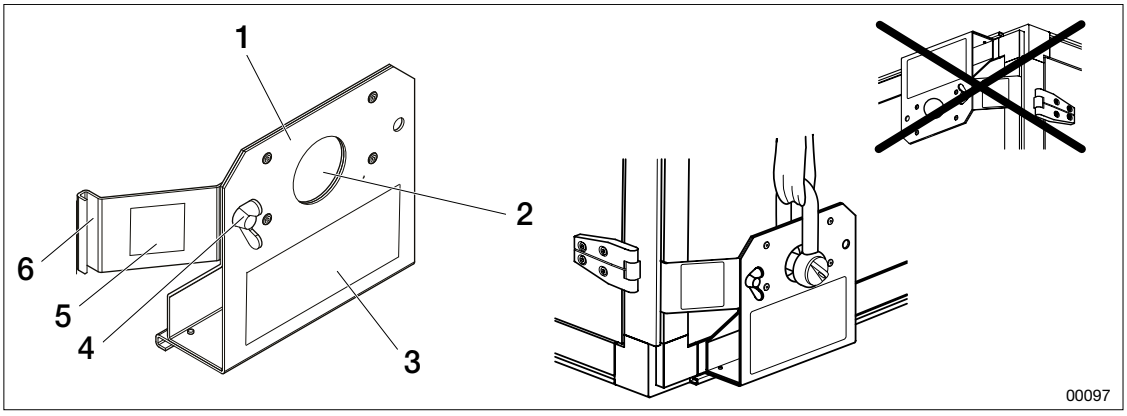

Figure: Lifting bracket EMMT-08

1. Lifting bracket EMMT-08
2. Lifting eye
3. Lift stop sticker
4. Wing nut
5. Decal slip stop
6. Slip stop

EMMT-08 are delivered in sets of four.

1. Place the lifting brackets in the lower four corners of the unit or unit section (on the longest sides of the section), with the lifting eye facing up.
2. Slide the brackets into the horizontal groove in the unit's aluminium profile.
3. Slide the slip stop into the vertical groove in the unit's aluminium profile.
4. Lock by tightening the wing nut.

5.5 Lift with bracket EMMT-12, for 60-profile

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.
- Replace used T-bolts and nuts with new ones after each lift (EMMT-12). 00180

- The bracket does not fit the 50 profile.
- Load per lifting bracket ≤ 500 kg.
- Load if all four brackets are used ≤ 2000 kg.
- A safety factor of 2.0 has been practiced in static testing of lifting brackets.
- Use a shackle with a safety factor of 6:1.
- The bracket must not be mounted downwards or sideways.
- Lifting brackets must not be mounted in the middle profile of two-level sections.
- Lift only one part at a time.

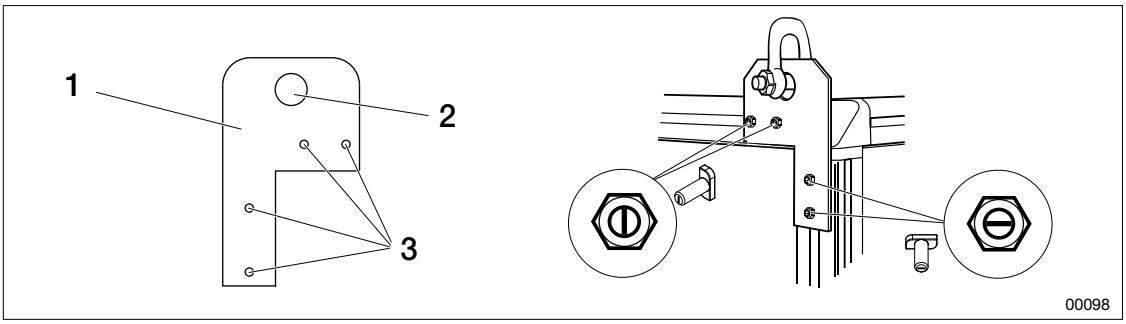

Figure: Lifting bracket EMMT-12

1. Lifting bracket EMMT-12
2. Lifting eye
3. Attachment holes

EMMT-12 are delivered in sets of four.

1. Place the lifting brackets over the top four corners of the AHU (air handling unit) (on the longest sides), with the lifting lug upwards.
2. Insert the supplied T-bolts (MB 8×19 FZB 8.8), through the brackets and into the track in the aluminium profile.
3. Turn the T-bolts, with a tightening torque of 24 Nm, so that they are at90° to the profile groove and are firmly secured under the edges of the groove.

5.6 Lifting of AHU (air handling unit) pre-mounted on support

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.
- Never loosen or move the factory-fitted sliding stops.
- The lifting straps must always be pulled through the sliding stops to prevent the lifting straps from sliding underneath the unit.
- The sliding stops cannot be fitted to certain unit sizes; the person lifting the unit must therefore ensure that the straps do not slide together or apart during lifting.

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1. Pull the straps under the AHU (air handling unit)/parts. Make sure the straps go through the lugs.
2. Lift with suitable lifting equipment.

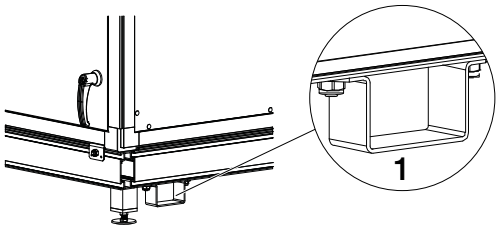

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Figure: Lug on support

1. Lugs for straps (four)

5.7 Lifting unit pre-assembled on beam frame

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.
- Never remove or move the factory-fitted lifting lugs.
- Use shackle with safety factor 6:1.
- Lifting straps must not be pulled through the lifting lugs.

00192

Aluminium beam H=100 mm:

- Maximum load=750 kg/lifting eye. Total load=3000 kg (all four lifting lugs).

Aluminium beam H=160 mm:

- Maximum load=1350 kg/lifting lug. Total load=5400 kg (all four lifting lugs).

1. Fit a shackle in each of the pre-assembled lifting eyes.
2. Pull straps through each shackle.
3. Lift with suitable lifting equipment.

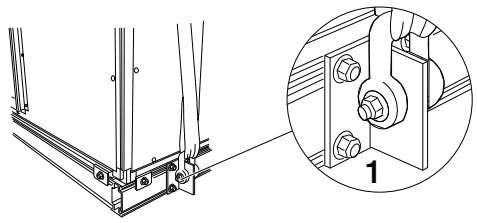

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Figure: Lifting eye pre-mounted on beam frame

1. Lifting eye with shackle (four pieces)

5.8 Thermal wheel sizes 1250-D1, 1540-D1 - Lifting from truck

Lifting brackets are placed at different points on the thermal wheel depending on the kind of lift to be performed.

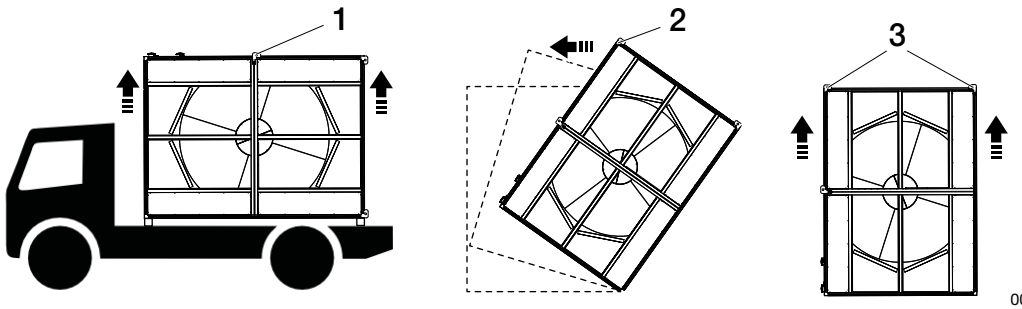

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Figure: Lifting of thermal wheel from truck

1. Brackets when lifting from truck
2. Brackets to straighten the thermal wheel to standing
3. Brackets for lifting the thermal wheel to the AHU (air handling unit)

5.9 Thermal wheel size 1580 - Lifting with brackets

The thermal wheel is lifted in pre-mounted brackets. See *"5.5 Lift with bracket EMMT-12, for 60-profile", page 19*.

WARNING!

Risk of serious injury and/or material damage.

The shape and design of the thermal wheel and its high centre of mass mean it may tip over or fall if it is lifted or transported incorrectly.

- Do not lift the thermal wheel at the upper part of the casing.
- Do not use a forklift to transport the thermal wheel.
- The thermal wheel must be lifted in the pre-fitted brackets.
- The brackets must not be moved.
- Take great care when lifting and transporting the thermal wheel.

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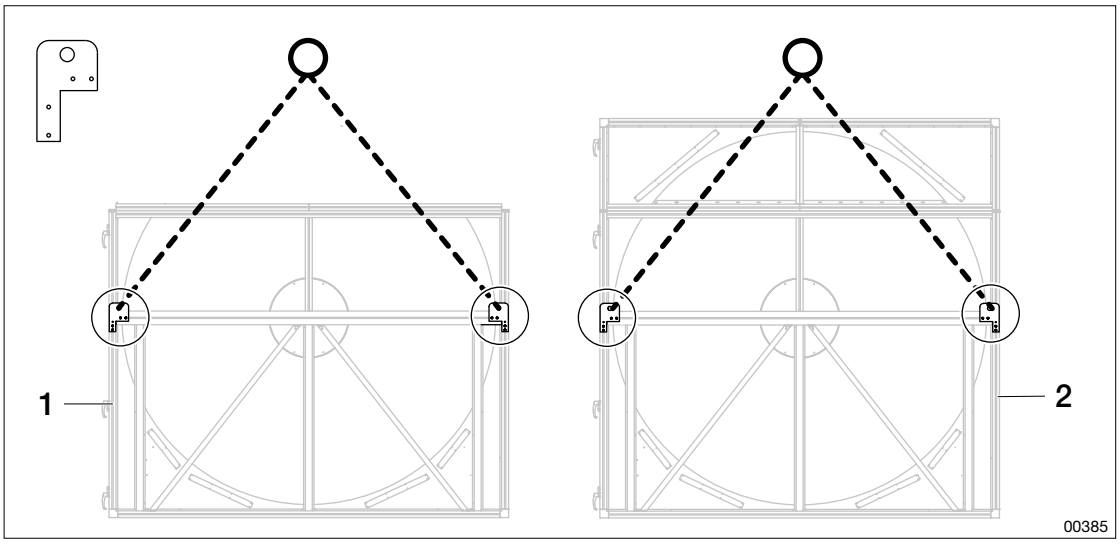

Figure: Lifting thermal wheel size 1580

1. Thermal wheel not assembled, without upper part
2. Thermal wheel assembled, with upper part

6 PREPARE FOR ASSEMBLY

When setting up the AHU (air handling unit), it must be horizontal at the longitudinal leading edge, as well as slightly inclined forward (towards the inspection side) to create proper drainage of condensation water.

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

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

The duct system must 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 63.*

Water traps are installed where indicated. See *"12 CONNECT DRAINAGE, WATER TRAP", page 61.*

6.1 Sectioned configuration (Easy Access)

AHU (air handling unit) parts supplied in sectioned configuration must be assembled before they are put into place on the support. Follow the instructions in *"7 ASSEMBLY, GENERAL", page 26* and *"8 ASSEMBLY, SECTIONED CONFIGURATION", page 35.*

6.2 Create service area, electrical safety distance

- The service area in front of the unit should be approximately 1.5 x the depth of the unit to enable service, replacement of parts and cleaning.
- Follow the recommendations of the Swedish Electrical Safety Board regarding the operating space that should be available in front of electrical switching equipment.

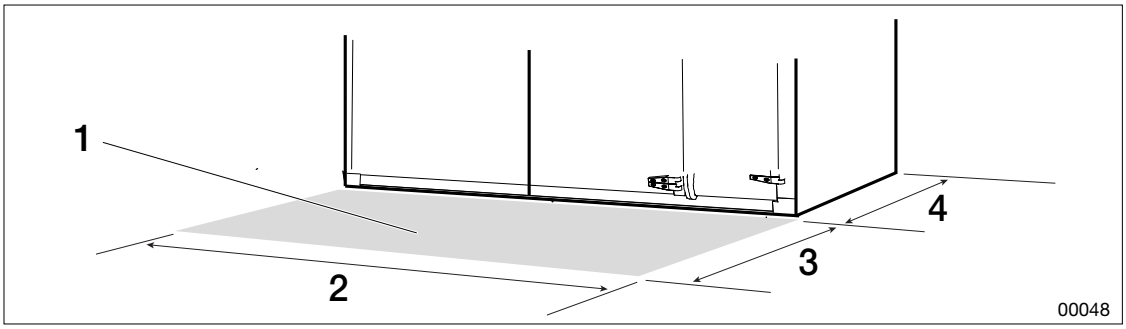

Figure: Service area on the access side

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

6.3 Preparation for outdoor version

The location of outdoor units with respect to wind direction and proximity to surrounding walls may, in adverse cases, imply the recirculation of exhaust air to outdoor air intakes. In unsafe conditions, ensure sufficient distance between exhaust air and outdoor air intakes.

For outdoor units, the unit is placed on longitudinal beams on top of a waterproof roof. Water ingress can occur between beams and unit parts.

- Underlying beams (e.g. H- or U-profile) or anchor plates are not provided by IV Produkt.
- For sealing strip for outdoor use, see *"7.4.1 Sealing strip for outdoor use", page 29.*

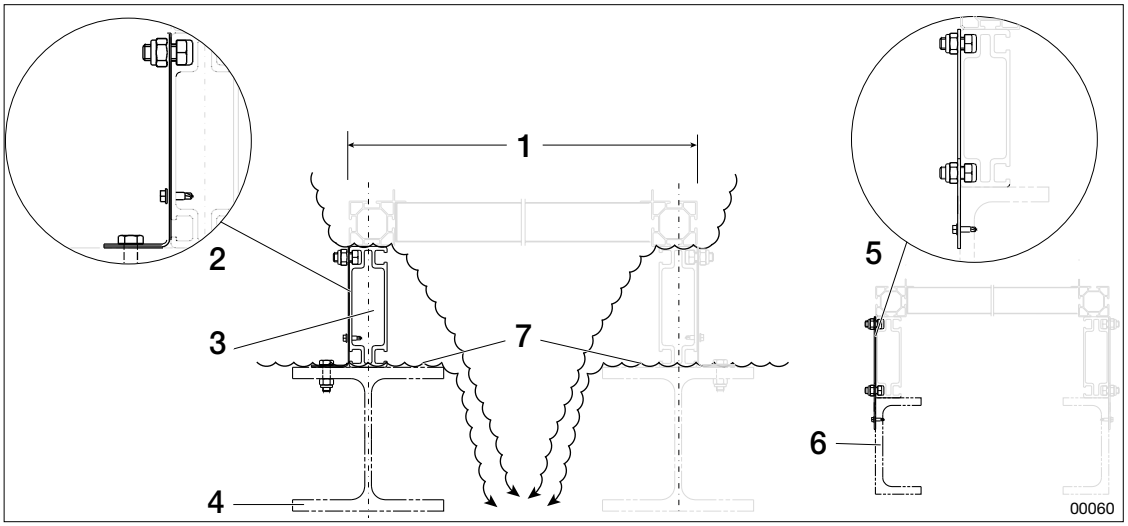

Figure: Aluminium profiles (support) and beam frames in cross-section, seen from the gable side

1. Unit width
2. Example, anchor plate on H-profile (not included in delivery)
3. The unit's aluminium beam frame
4. H-profile (not included in delivery)
5. Example, anchor plate on U-profile (not included in delivery)
6. U-profile (not included in delivery)
7. Risk of water intake

The height of the aluminium beam frames is 100 mm or 160 mm and the width is 50 mm.

Air handling units on the underlying beam frame should be dimensioned as a spread load.

Air handling units on an aluminium beam frame are self-supporting between the access side and the back and only need support under the longitudinal beam on the access side and on the back. The framework should be placed with the profile centred over the H-beam. See previous picture.

Anchoring of the beam frame to underlying beams (substrate) is carried out with anchor plates according to the example in the previous image. Anchoring plates are not included in the delivery and are installed by the customer.

With delivery of an AHU (air handling unit) in sectioned outdoor configuration, see also the order-specific drawing for cover plate assembly, on IV Produkt's order portal.

Externally mounted dampers including damper actuators must be protected from the weather if the unit is not supplied with a protective intake or extractor hood.

Connecting smoke bypass ducts and smoke bypass dampers must be weather-protected and insulated in their entirety if there is a risk of condensate forming in the duct or on the smoke bypass damper.

6.4 Support pillars at overhang (protruding section)

Protruding functional sections and ducts mounted in the upper section must be supported by support legs if the overhang is longer than 300 mm. Ducts can also be suspended.

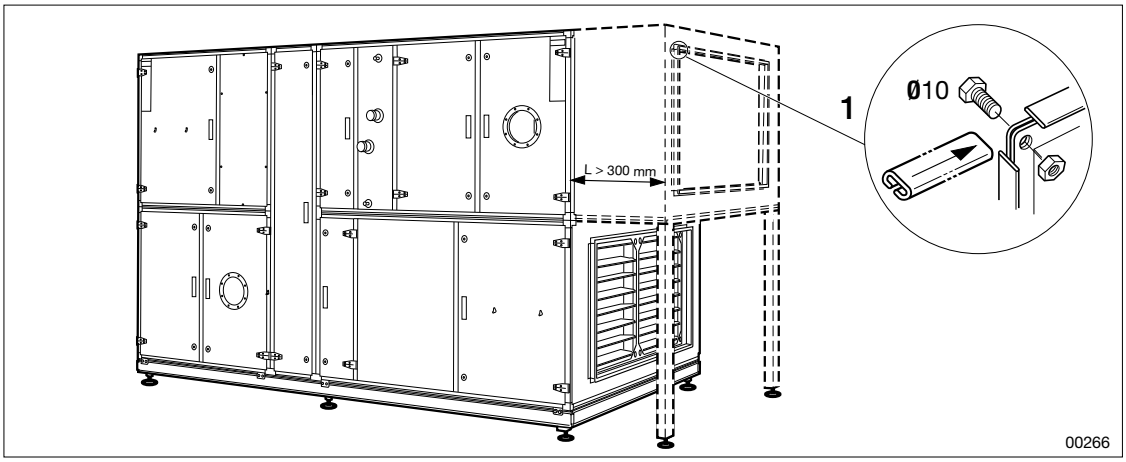

Figure: Support pillars at overhang (protruding section)

1. Connection using PG method

Ducts are connected using the PG method: gasket, guide pin and outer corner, or bolt in the corner of the connecting frame.

7 ASSEMBLY, GENERAL

Read and follow each step carefully to avoid making mistakes and causing injury to people or damage to the environment or the AHU (air handling unit). See "1 SAFETY", page 7, "5 LIFTING UNIT", page 16 and "6 PREPARE FOR ASSEMBLY", page 23 before starting assembly.

For example of set-up drawing and explanations of drawing symbols, see "2.5 Symbols on drawings and in manual", page 12.

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.
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 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.
- Exercise caution when placing unit parts on the support.
- Use the support to secure the parts against possible tipping risk.

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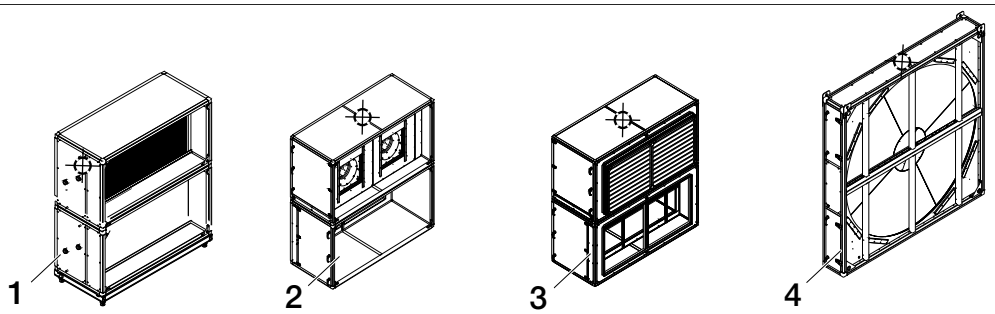

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Figure: Examples of parts with a high centre of gravity or high tipping risk

1. AHU (air handling unit) part with a high-placed coil
2. AHU (air handling unit) part with high-placed fans
3. AHU (air handling unit) part with high-placed damper section
4. Rotary heat exchanger

7.1 Tools for assembly

\Each unit is supplied with a bag of screws, nuts, corner fittings and other items to be used during assembly. The following tools are required for assembly:

- Screwdriver with 16-socket, 13-socket, 1/4-inch bit, Phillips bit
- Screwdriver
- Spirit level
- Torch/head lamp
- Sealant gun
- Rubber mallet
- Scissors
- Multi-grip pliers
- Ring spanners 13, 16, 18, 19
- Wooden blocks to lay between support and wall
- Pop rivet pliers
- Grease in spray bottle
- Pipe cutter

7.2 Assemble, step by step

AHU (air handling unit) parts in sectioned configuration must also be assembled according to the instructions in the section ASSEMBLY, SECTIONED CONFIGURATION.

1. Look at the installation drawing supplied with the unit or download it from IV Produkt's order portal (Technical data). See *"2.1 Documentation and support", page 11.*
2. Prepare the appropriate tools. See *"7.1 Tools for assembly", page 27.*
3. Assemble and adjust the support. See *"7.3 Assemble fan compartment support (EMMT-05)", page 28.*
4. Fit together AHU (air handling unit) parts in sectioned configuration. See *"8 ASSEMBLY, SECTIONED CONFIGURATION", page 35.*
5. Push the first AHU (air handling unit) part onto the stand.
6. Install sealing strip See *"7.4 Install sealing strip", page 29*.
7. Push on the next AHU (air handling unit) part and slide them together on the support.
8. Join the unit parts together. See *"7.5 Connect parts", page 30*.
9. Repeat steps 4-7 until everything is in place and correctly assembled.
10. Connect the unit parts together with quick connectors and assemble other control equipment. See *"7.6 Quick connectors", page 31*.
11. Assemble drainage and water trap. See *"12 CONNECT DRAINAGE, WATER TRAP", page 61*.
12. Assemble the cover. See *"7.8 Assemble cover detail at joint", page 34* .
13. Make sure everything is assembled correctly. See *"14 AFTER ASSEMBLY", page 64* if problems arise *"2.1 Documentation and support", page 11*.

7.3 Assemble fan compartment support (EMMT-05)

- The AHU (air handling unit) should tilt slightly forward (towards the access side) for condensation runoff and drainage. The tilt may be a maximum of 3 mm/m.
- Longitudinal beams must be level and the top of the support structure must be level.
- The support must not, at any point, bend down more than 2 mm. If the distance between the transverse beams of the support is >1700 mm (c/c), additional cross-beams must be mounted to prevent downward bending.

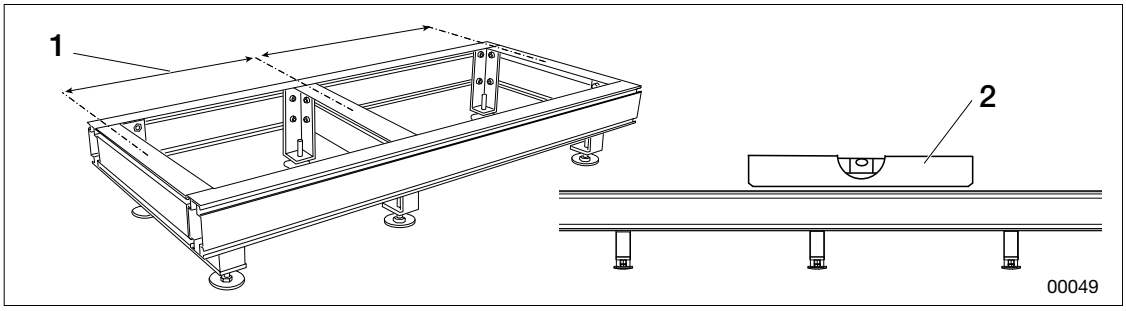
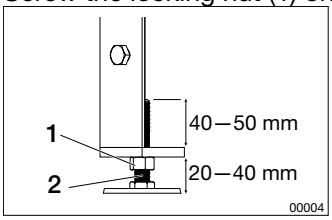


Figure: Support

1. Distance between transverse beams (c/c)
2. Longitudinal beam level

A general support drawing is included in the delivery of the support. The order-specific support drawing is available at IV Produkt's order portal (Technical data). See *"2.1 Documentation and support", page 11.*

1. Screw the locking nut (1) onto the support feet (2) and make sure it is screwed in a little.



2. Screw all feet into the threaded holes in each angle profile.
3. Push in and locate, in the track of the profile, the screws that will later be used to tighten the corner stays. Make sure you have the right number (2 per corner stay).
4. Screw the angle profiles and support legs together.
5. Use a spirit level and ensure that the longitudinal beam of the AHU (air handling unit) is level.
6. Adjust the height and inclination of the support by screwing the support feet.
7. Lock all feet with the locking nut.

7.4 Install sealing strip

- The sealing strip is mounted only on one of two opposing parts.
- The sealing strip is not fitted on the rotary heat exchanger.
- For sectioned configuration AHUs (air handling units), the sealing strip must also be fitted in the joint. Does not apply to ThermoCooler HP/ EcoCooler.
- For outdoor units, the sealing strip must also be installed on the outer edge, see "7.4.1 Sealing strip for outdoor use", page 29.
- See also "8 ASSEMBLY, SECTIONED CONFIGURATION", page 35.

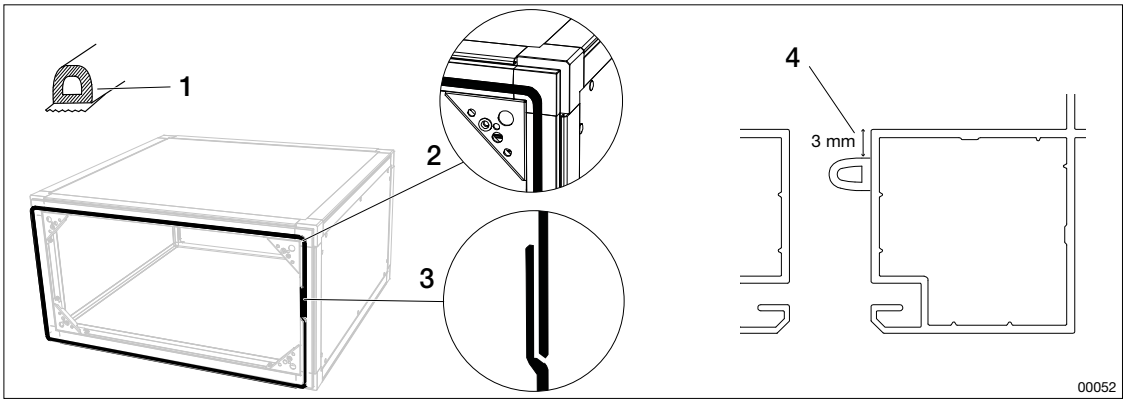


Figure: Sealing strips, placement.

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

1. Divide the strip into two strips.
2. Install the strip in the intermediate surfaces of the unit, approximately 3 mm from the inner edge. Peel off the protective layer over the adhesive as the strip is glued on. Bend the strip at the corners and join the vertical sides.

7.4.1 Sealing strip for outdoor use

On outdoor units, a strip must also be installed on the outer edges.

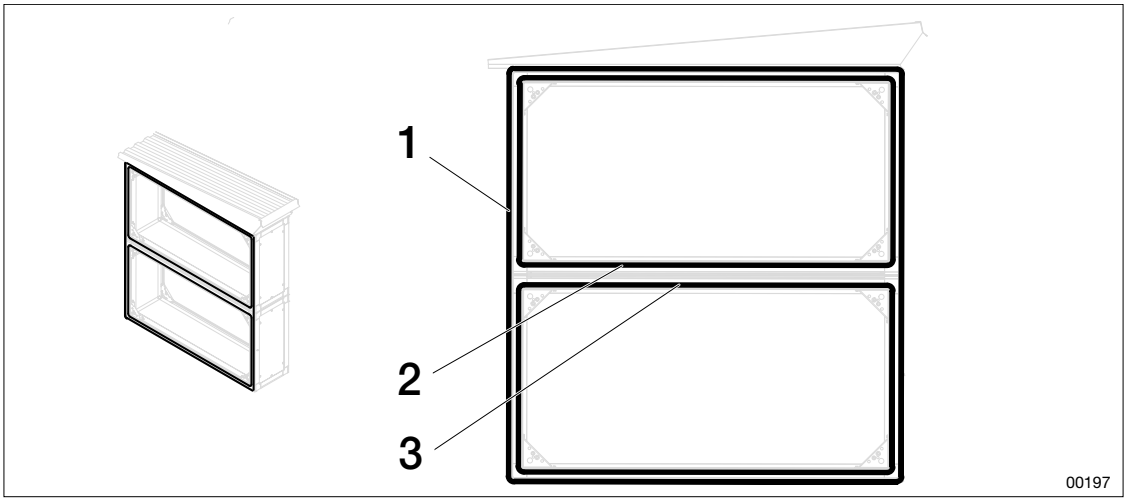


Figure: Location of sealing strips in outdoor version

1. Sealing strip on the outer edge around the entire two-story section
2. Sealing strip around the upper part
3. Sealing strip around the bottom

7.5 Connect parts

50 profile (unit size 060-980):

- Usually, the unit parts are joined together with screw joints.
- Otherwise, (where there is a lack of space/ability to screw), the unit parts are joined together with guide pins.

60 profile (unit size 1080-1540):

- On larger units, the unit parts are joined together with tensioning lugs.

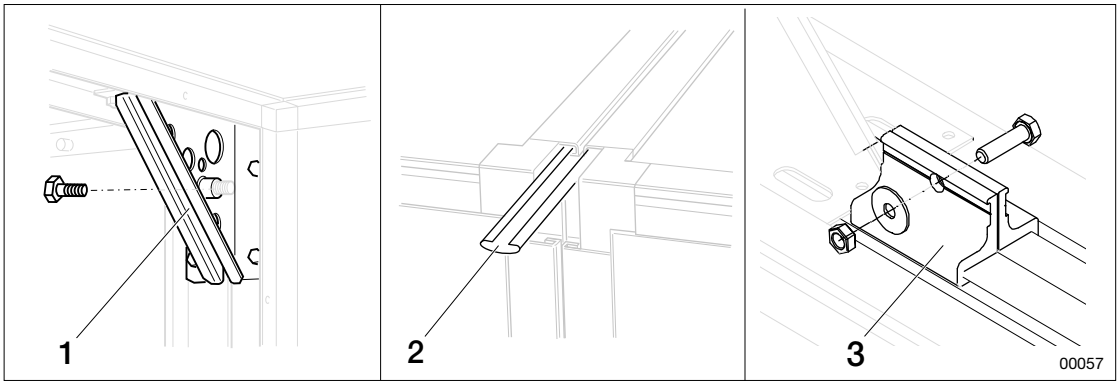


Figure: Screw connections and guide pins

1. Screw connection
2. Guide pins
3. Tensioning lug

7.5.1 Join with screw connections

1. Remove any cover plugs to access the screw connections.
2. Screw the unit parts together with bolts through the respective corner braces.

7.5.2 Join with tensioning lugs

On larger sizes, tensioning lugs are used. 8 tensioning lugs are installed next to the bolted joints.

1. Put part of the tensioning lug on each side of the profile.
2. Put in the bolt and screw together with a washer under the nut.
3. The tensioning lugs are located according to the following figure:

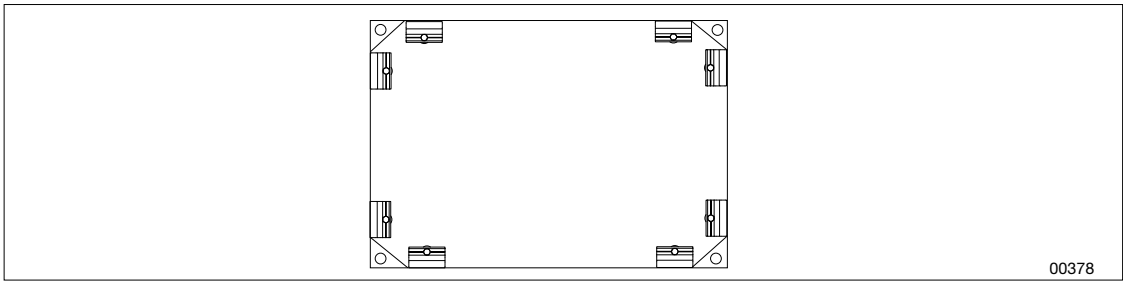


Figure: Assembly of screw joints and tensioning lugs

7.5.3 Join with guide pins

- The guide pin must always be inserted all the way from corner to corner of the unit parts, as well as on the opposite side.
- If two flush parts are assembled vertically with guide pins, the pins must be inserted through both parts (over the division).

Make sure that the unit parts are pushed together completely.

1. Pull the parts together with straps.
2. Slide the guide pin into the profile's groove, all the way to the other end of the unit.
3. Do the same on the opposite side of the unit.

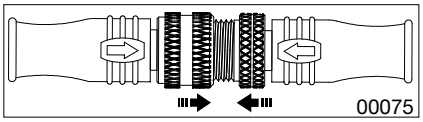
7.6 Quick connectors

See *"11 ASSEMBLE CONTROL EQUIPMENT", page 59* and order-specific documentation (control diagram) on IV Produkt's order portal.

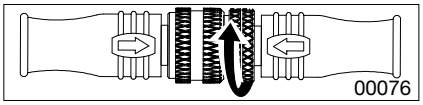
Quick connectors that are to be connected together are marked with the same designation.

7.6.1 Quick connector, signal input

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

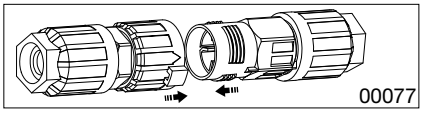


2. Screw together as tightly as possible by hand.

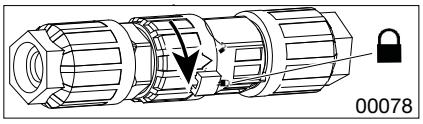


7.6.2 Quick connector, power supply

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



2. Turn the arrow on the white cuff towards the closed (padlock) marking.



7.7 Disassemble/Reassemble/Refit Fan

The fan can be disassembled for better access to the inner corner stays when joining adjacent AHU (air handling unit) sections.

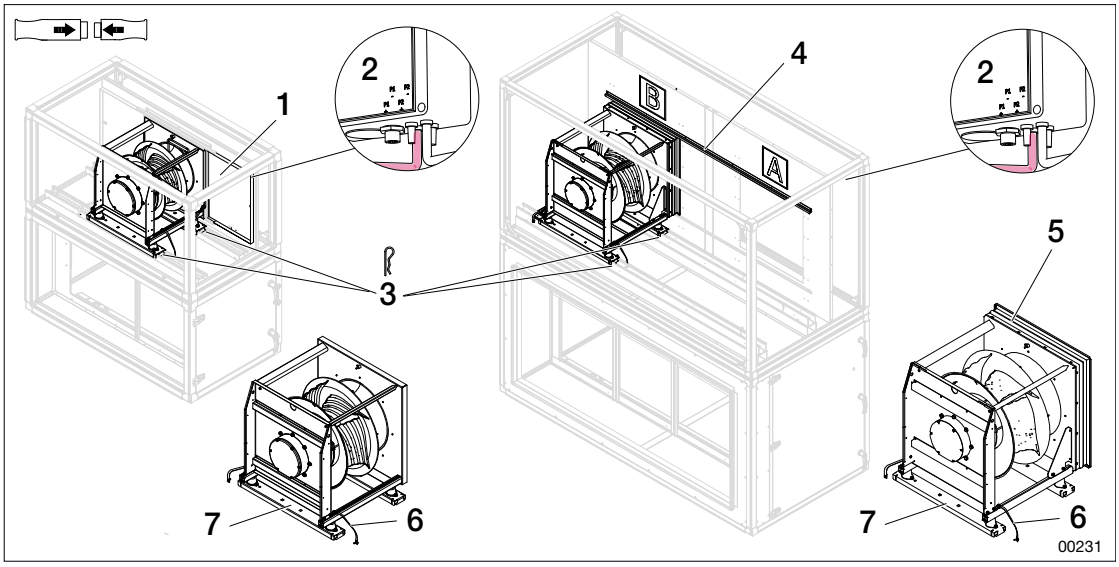


Figure: Remove the fan and reassemble

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

7.7.1 Removing the fan

1. Unscrew the pressure sensor module, but make sure to not loosen hoses or cables attached to the module.
2. Fan without sleeve: Unscrew the cover plate and lift it out (including the screws).
3. Unscrew the earthing braid from the rail on the unit part.
4. Loosen the temperature sensor and remove it through the hole on the fan frame.
5. Unscrew the quick connectors between the fan and the unit part. See *"7.6 Quick connectors", page 31*.
6. Disconnect the pressure sensor hoses between the fan and pressure sensor module.
7. Pull the pins/screws out of the rails (two per fan) and pull the fan out.
8. Screw the corner struts together against the adjacent unit parts. See *"7.5 Connect parts", page 30*.

7.7.2 Reassemble/Refit fan

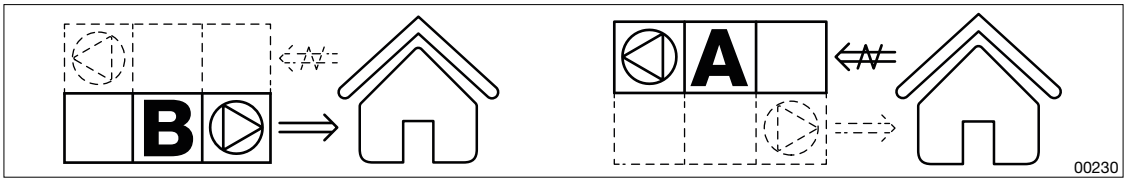


Figure: Fan label – the arrow direction indicates whether the fan is for supply air or extract air. For multi-fan installations, A/B/C, etc. indicates the fan position in the unit, as seen from the inspection door.

- Before inserting the fan, make sure that the pressure sensor module is not in the way. If necessary, remove it as per the instructions in "7.7.1 Removing the fan", page 32.
- Make sure that each fan is fitted in the correct place (supply air/extract air, and placement order). See fan label (pictured above).
- 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.

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. If the fan has a sleeve, this must also be inserted into the sleeve rail.
2. Fan without sleeve: Screw on the cover plate.
3. Screw the earthing braid to the unit's rail. If the fan is refitted, use the supplied self-tapping screw.
4. Insert the pins or self-tapping screw through the holes in the rails.
5. Firmly press the temperature sensor into the hole on the fan frame.
6. Screw the quick connectors together. See "7.6 Quick connectors", page 31.
7. Shorten the pressure sensor hoses to the correct length and connect the hoses between the fan and the pressure sensor module. See info box above.
8. Gather the cables together and use cable ties to fasten them to the inner wall of the unit. Ensure 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.
10. Screw on the pressure sensor module with the front facing outwards.

7.7.3 Connect hoses for air flow control

- The image shows the location of the hoses for standard assembly. For custom installation, see the unit’s dimension drawings.

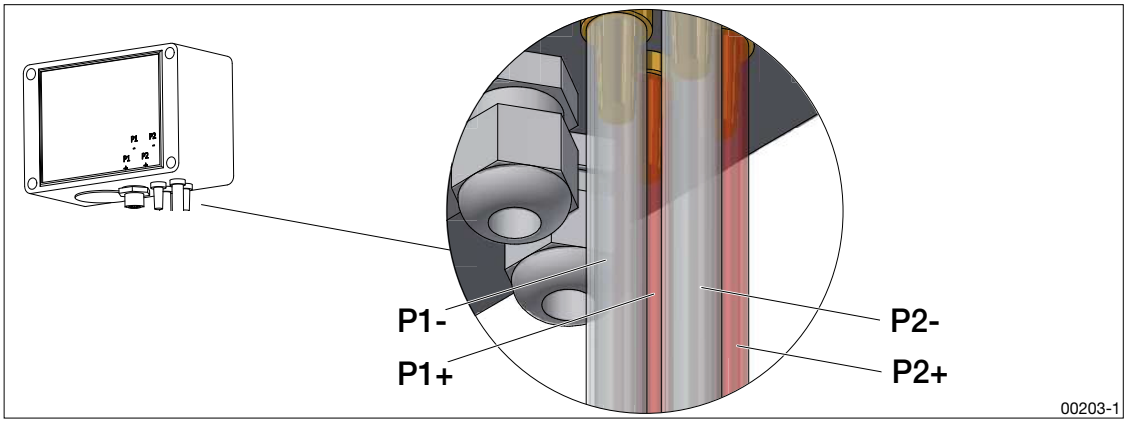


Figure: Hoses for air flow control

P1- Fan cone - Transparent hose

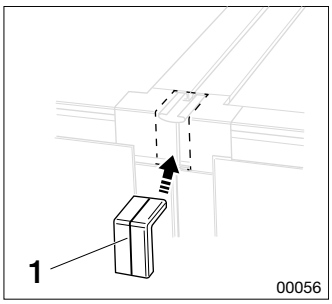
P1+ Fan suction side - Red hose

P2- Filter to fan - Transparent hose

P2+ Filter at intake - Red hose

7.8 Assemble cover detail at joint

1. Once the unit parts have been joined, install the cover (1) over the joint.



2. Make sure it is firmly attached.

8 ASSEMBLY, SECTIONED CONFIGURATION

This section's instructions are a supplement to the general instructions in "7 ASSEMBLY, GENERAL", page 26. Follow the instructions in both sections.

For the parts to be provided with drainage, see "12 CONNECT DRAINAGE, WATER TRAP", page 61.

For the parts that have electrical connection, see "11 ASSEMBLE CONTROL EQUIPMENT", page 59.

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.
- Exercise caution when placing unit parts on the support.
- Use the support to secure the parts against possible tipping risk.

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8.1 Assemble control cabinet

CAUTION!

Risk of damage to the product.

The disassembled control cabinet can be damaged if it falls. The main switch, under the control cabinet, can be damaged if the control cabinet is placed on a high edge.

- Make sure that the cabinet is held up when the pins are removed. Once the pins are pulled out, the cabinet is completely detached and may fall.
- Always place the disassembled control cabinet with its back down on a flat surface.

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In sectioned configuration, the control cabinet is fixed to the unit on a hanging bracket. The control cabinet can be disassembled from the unit.

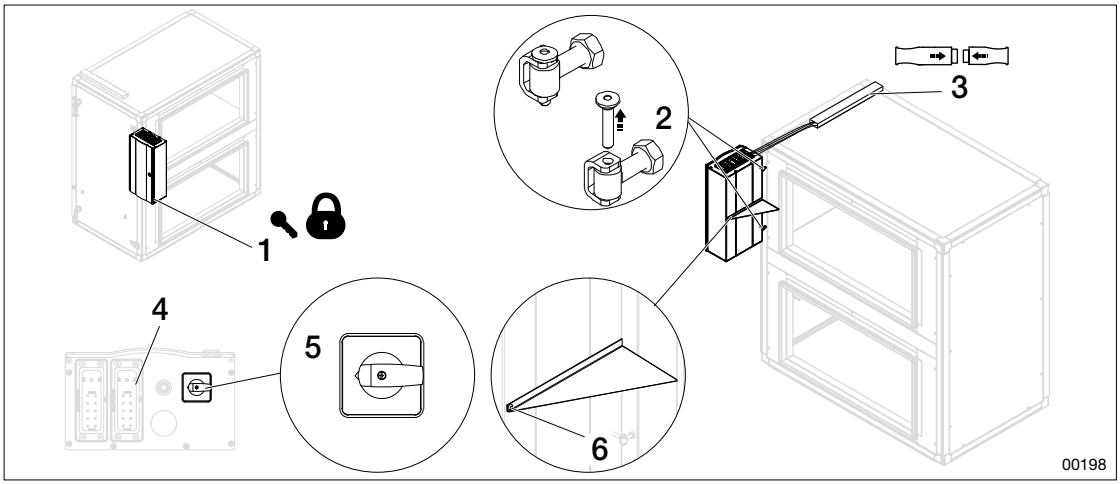

Figure: Control cabinet in sectioned configuration

1. The location of the control cabinet on delivery
2. Hinge
3. Cable strip
4. Control cabinet seen from below
5. Main switch
6. Hanging bracket with bolt in control cabinet

Remove the control cabinet from the unit

1. Lock the control cabinet with keys included.
2. Remove the cover of the cable strip on top of the unit and disconnect all the quick connectors between the control cabinet and the unit part.
3. Unscrew and lift off the bolt on the hanging bracket.
4. From below, with a rubber mallet: knock the pins in the two hinges upwards and pick out the pins. Make sure to support the control cabinet during the process.
5. Lift the control cabinet straight out from the hinges.
6. Place the control cabinet with its back down on a flat surface. Be careful with the loose hoses and cables hanging out from the control cabinet.

Reassemble the control cabinet

Follow the instruction for removal in reverse order. Be sure not to squeeze any cables or knock out hoses when handling.

8.2 Assemble fan and filter (ENF)

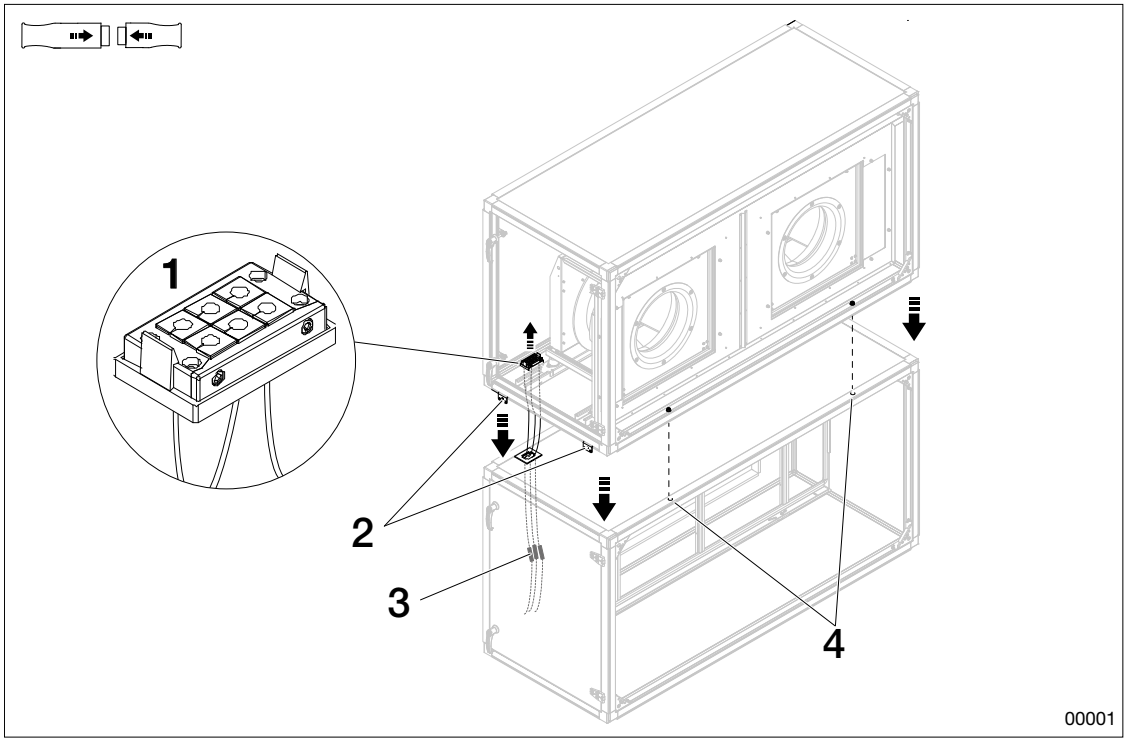

Figure: Fan and filter part (ENF)

1. Cable entry fan part
2. Fixing in middle profile
3. Quick connectors
4. Screws in middle profile

Take apart the assembled fan and filter part

1. Loosen fixings and screws from the middle profiles.
2. Divide cables at the quick connectors in the bottom part. See *"7.6 Quick connectors", page 31.*
3. Loosen the cable entry at the snap lock and pull it out completely, upwards, without disconnecting the cables from the cable entry.
4. Lift off the top part without damaging the sealing strip around the cable entry.

Fit the fan and filter part together

1. Lift up the lower part onto the support.
2. Lift the upper section onto the lower section without damaging the sealing strip.
3. Tighten fasteners and screws in the middle profiles.
4. Run the cables through the hole between the parts and snap the cable entry in place with the snap lock.
5. Connect the quick connectors. See *"7.6 Quick connectors", page 31.*

8.3 Assemble counter-flow heat exchanger (EXM)

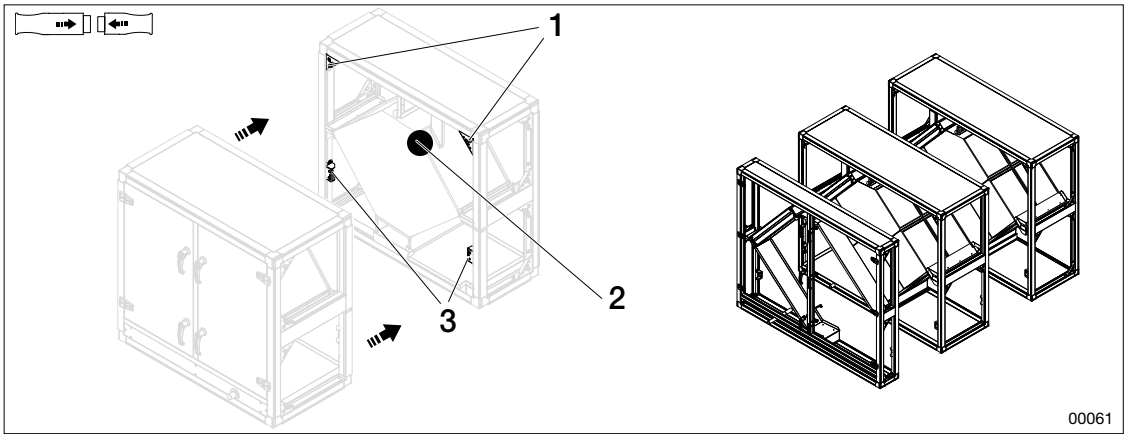

Figure: Counter-flow heat exchanger, sectioned configuration

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

Disassemble counter-flow exchanger

1. Separate quick connectors for damper motors (one on the two-part version and two on the three-part version). See *"7.6 Quick connectors", page 31.*
2. Loosen hoses.
3. Loosen and remove bolts and screws in corner struts and joint fixings.
4. For the three-part version: Cut away the putty in the joints that is affected by the dismantling.
5. 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. For the three-part version: Add new putty in those joints where the putty was cut away when dismantling.
4. Refit the hoses.
5. Put together quick connectors for damper motors. See *"7.6 Quick connectors", page 31.*
6. Connect drainage.

8.4 Installing the flue gas bypass

The flue gas bypass is fitted as standard on delivery, but can be shipped separately or may need to be dismantled to fit through narrow passageways.

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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- The AHU (air handling unit) sections may be assembled to varying degrees on delivery, follow the instructions applicable to your air handling unit.

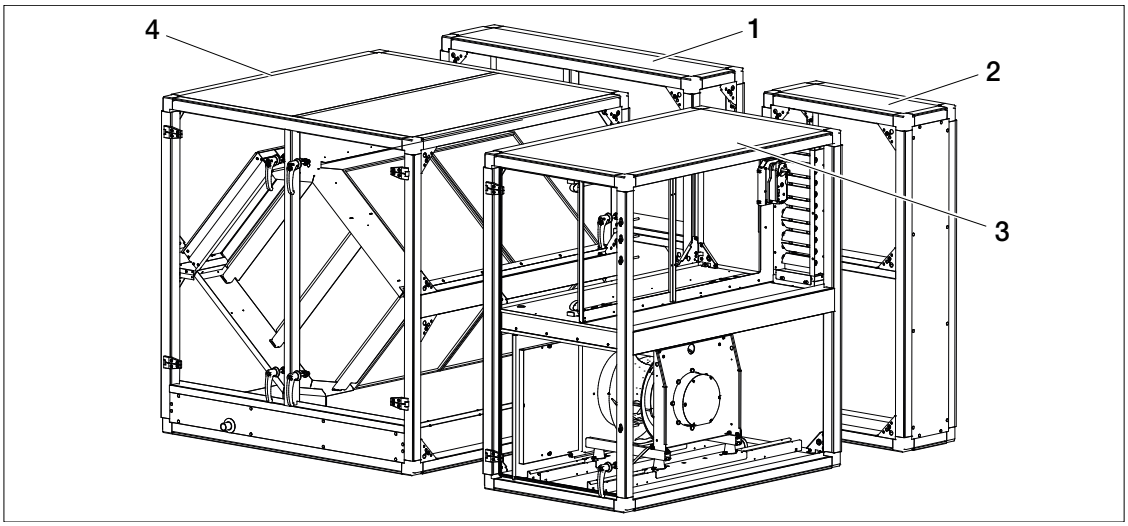


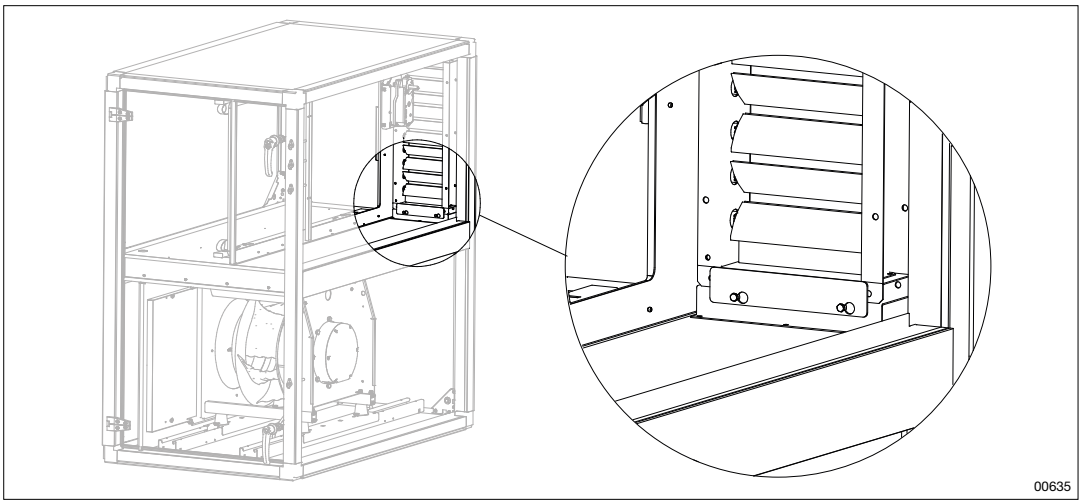
Figure: Counter-flow heat exchanger and fan/filter section with flue gas bypass

1. Flue gas bypass section for counter-flow heat exchanger
2. Flue gas bypass section for fan/filter section
3. Fan/filter section (ENF)
4. Counter-flow heat exchanger (EXM)

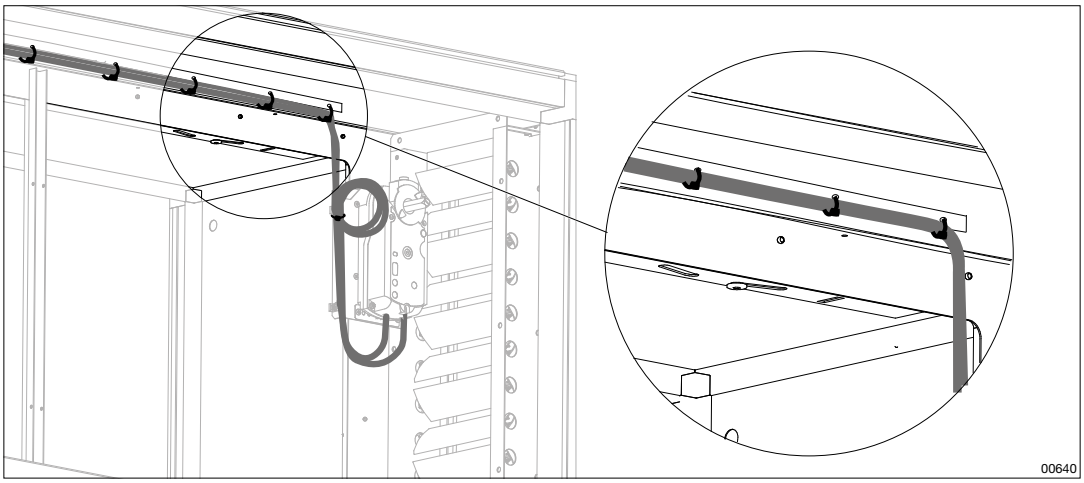
8.4.1 Disassemble the flue gas bypass

Disassemble flue gas bypass and fan/filter section (ENF)

1. Loosen the damper in the filter section by removing the two screws in the keyhole fixing plate.



2. Cut three of the cable ties that hold the cable to the damper motor in place on the roof of the filter section.



3. Pull the damper inwards and leave it in the filter section.
4. Remove and save the bolts in the corner stays of the damper opening.
5. From inside the ENF section, remove and save the bolts in the four remaining corner stays. For the location of corner stays, see *"Figure: Securing points for flue gas bypass section to ENF section/Placement of washer and gasket on M8x100 bolt", page 42*.

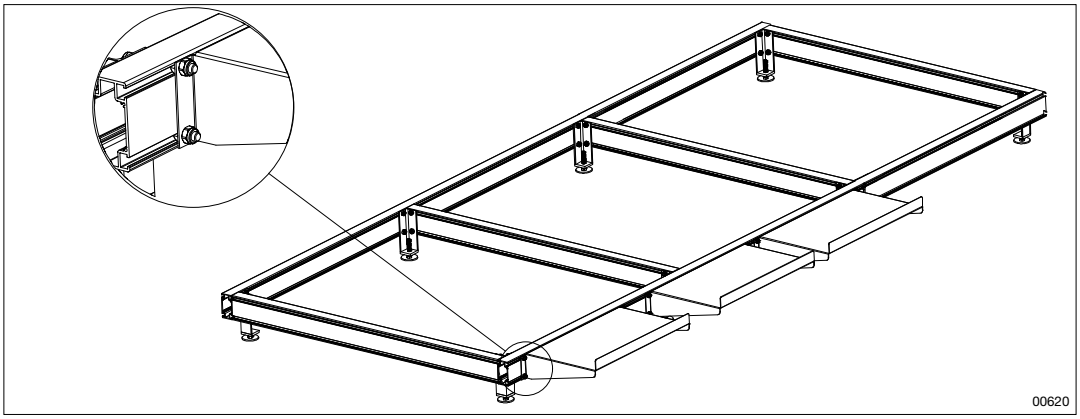
Disassemble the flue gas bypass and counter-flow heat exchanger (EXM)

1. From inside the EXM section, remove and save the six bolts holding the EXM section to the bypass section. For the location of corner stays, see *"Figure: Securing points for flue gas bypass section to EXM section/Placement of washer and gasket on M8x100 bolt", page 41*.

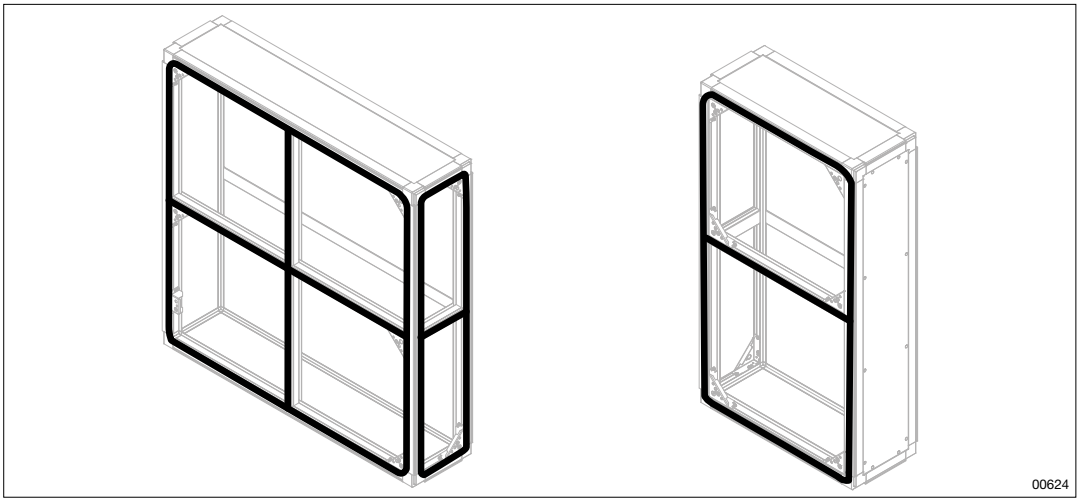
8.4.2 Assembling the flue bypass

Prepare for assembly

1. Assemble the stand according to section *"7.3 Assemble fan compartment support (EMMT-05)", page 28*.
2. Attach the mounting plates to the stand using the bolts and nuts provided. One plate must be centred behind the ENF section and two plates centred symmetrically behind the EXM section.



3. Fit the sealing strip on the bypass sections as shown. Follow the instructions for installing the sealing strip in section "7.4 Install sealing strip", page 29.



Assembling flue gas bypass and counter-flow heat exchanger (EXM)

1. Place the EXM bypass section on the two mounting plates.
2. Place the EXM section on the stand as shown in the drawing and hold the sections together.
3. From inside the EXM section, fit the bypass section into the six corner stays. Fit the M8x100 bolts with washer and gasket.

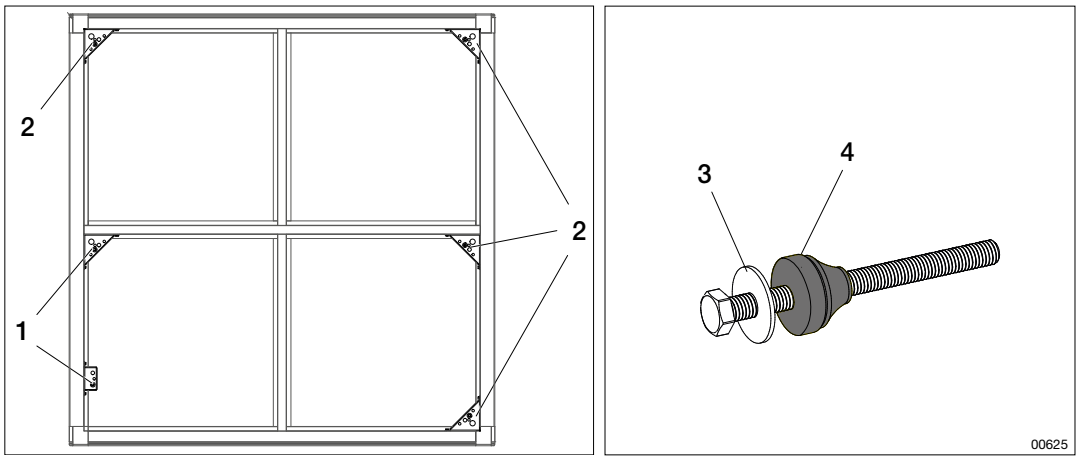
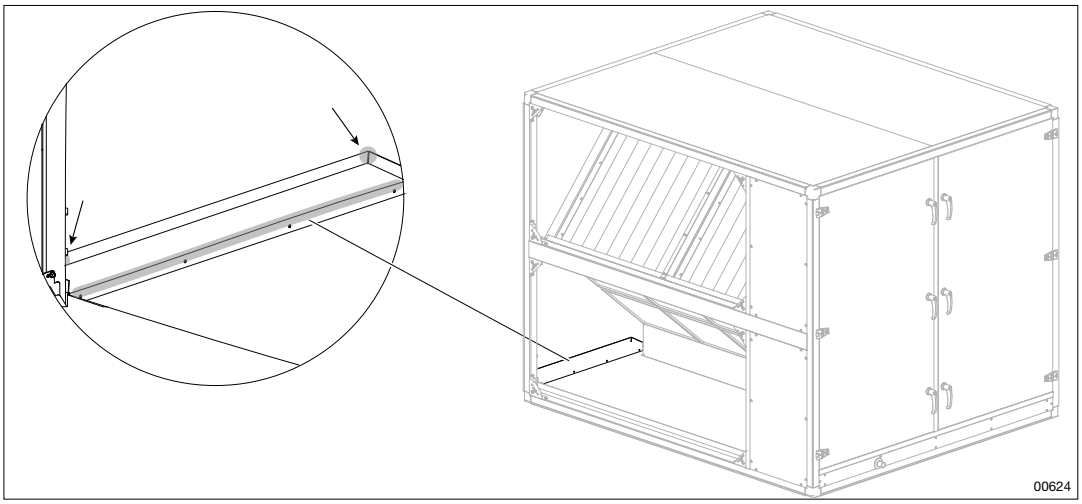


Figure: Securing points for flue gas bypass section to EXM section/Placement of washer and gasket on M8x100 bolt

1. Assemble with M8x35 bolts
2. Assemble with M8x100 bolts
3. Washer
4. Gasket

4. In the exhaust air section of the EXM section, mount the splash guard plate on the drip tray using four self-tapping screws (not supplied).

5. Seal with putty in the corners and all the way between the splash guard and drip tray.



Assembling the flue gas bypass and fan/filter section (ENF)

1. Place the ENF bypass section on the mounting plate.
2. Place the ENF section on the stand and hold the parts together. If the damper is removed, proceed to point 3. Mounted damper is removed according to section "*Disassemble flue gas bypass and fan/filter section (ENF)*", *page 39*
3. From inside the ENF section, fit the bypass section into the six corner stays. Fit the bolts with a washer and gasket.

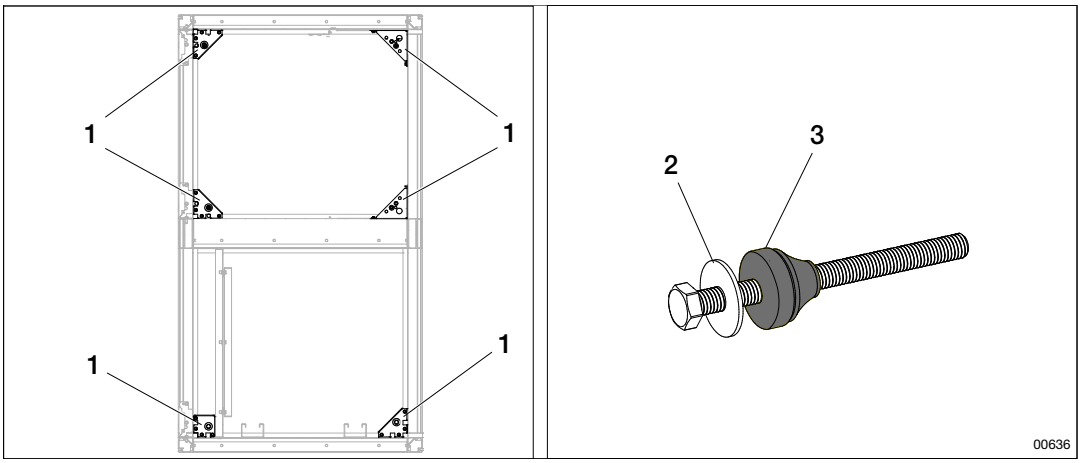


Figure: Securing points for flue gas bypass section to ENF section/Placement of washer and gasket on M8x100 bolt

1. Assemble with M8x100 bolts
2. Washer
3. Gasket

4. Install the damper:
   a. Inside the filter section, insert the damper towards the notch in the ceiling
   b. Screw the plate with keyhole fastening to the cap moulding strip

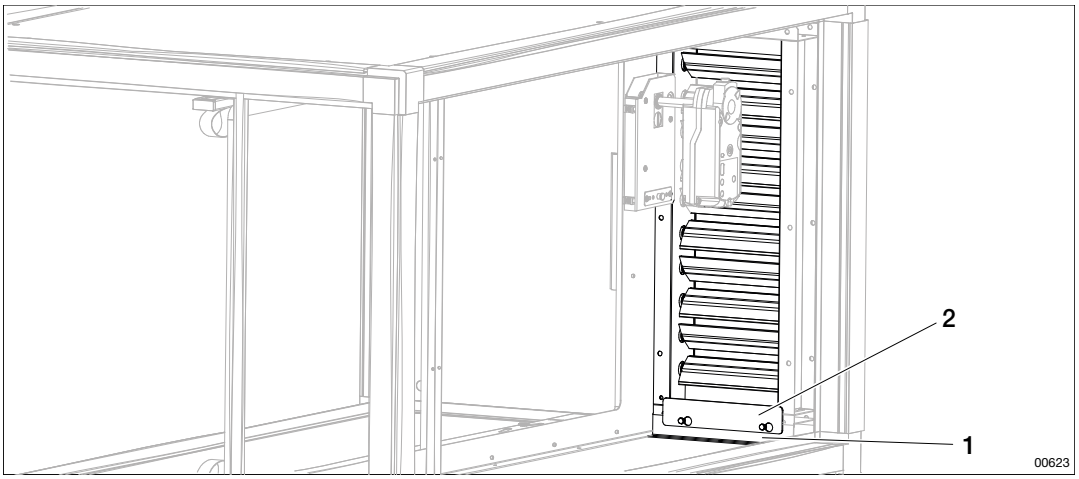


Figure: Assembly of damper

1. Cap moulding strip
2. Sheet metal with keyhole fastening

   c. Attach the cables for the damper motor to the roof of the filter section with cable ties (not included)
5. Make sure the damper is open.

8.5 Assemble rotary heat exchanger (EXR)

WARNING!
Risk of cuts and crushing injuries
Sharp edges on the thermal wheel casing can cause hand injuries.
- Wear appropriate protective equipment, such as gloves.
- Be careful when handling the thermal wheel casing and make sure that no hands or fingers get stuck between the parts.
- Lift and hold by the framework, not any other parts.

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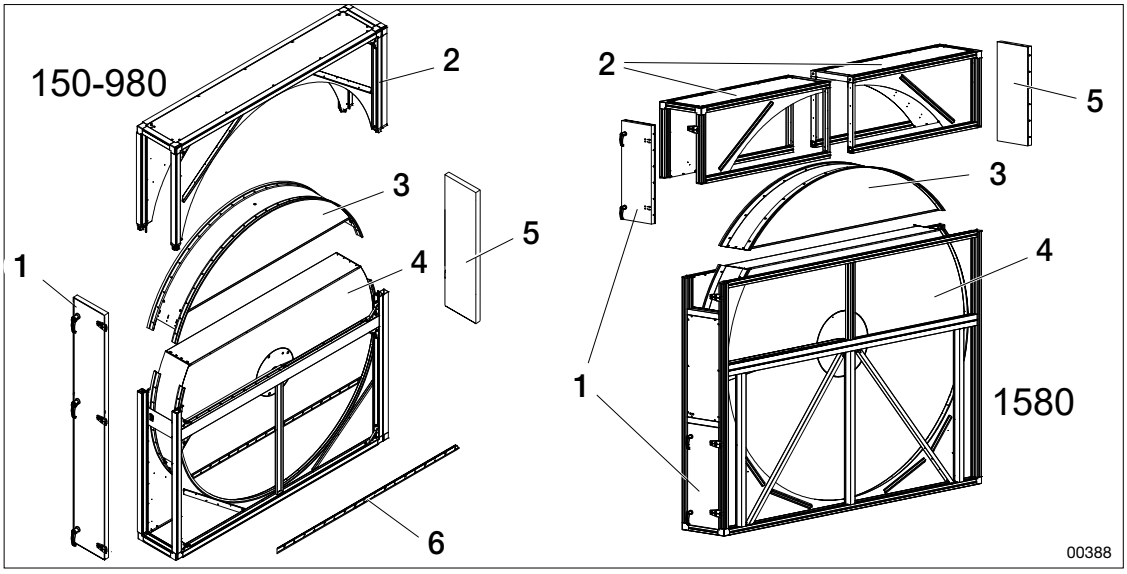


Figure: The parts of the thermal wheel

1. Inspection hatch
2. Upper part of casing Size 1580 is in 2 pieces.
3. Upper part of thermal wheel
4. Lower part of thermal wheel
5. Rear cover hatch
6. Jointing strip

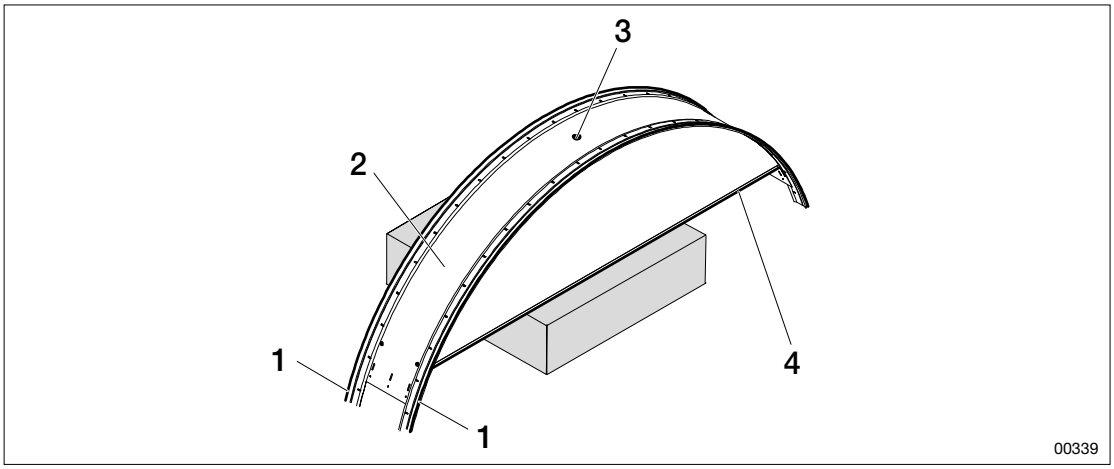


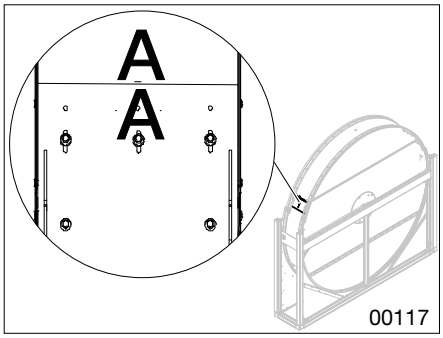
Figure: Upper part of thermal wheel

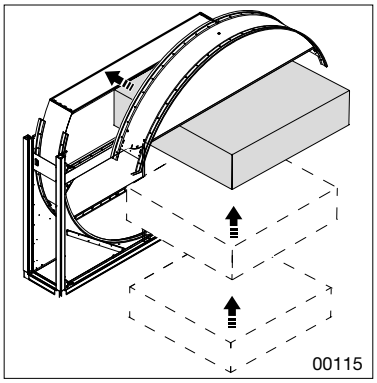
1. Brush strip
2. Shell
3. Hole for mounting lifting lug
4. Straight sheet underneath

- The top of the thermal wheel must not be lifted into or placed onto the shell.
- Remove the lifting lug immediately after use.
- Use the attached self-tapping screws for joints.
- The rotary heat exchanger must be fully assembled before being placed on the support.
- See also "7 ASSEMBLY, GENERAL", page 26.

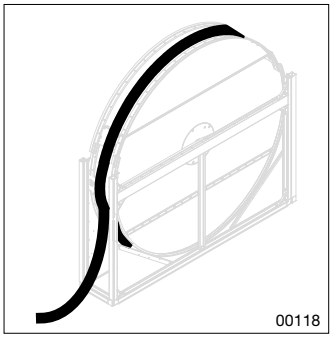
8.5.1 Thermal wheel sizes 150-980

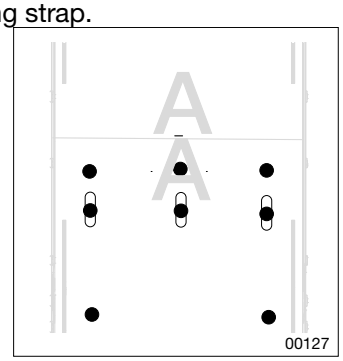
1. Place the upper part of the thermal wheel on the pallet, so that it rests on the lower, straight sheet. Before lifting, make sure the A mark is in the same direction as the A mark on the lower part of the thermal wheel. Lift with forklift truck under the straight plate or use mounted lifting lug. Lift up the upper part of the thermal wheel level with the flat surface on top of the lower part of the thermal wheel and push the upper part of the thermal wheel onto the lower part of the thermal wheel until it is located in the middle of it.



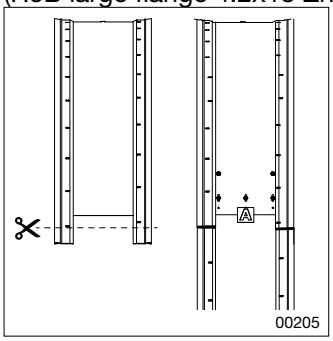


2. Place a tensioning strap around the thermal wheel and tighten. Assemble the shell at the joints (letter markings) with self-tapping screws (JT2 5.5x35) in both oval holes and round holes. Remove the tensioning strap.

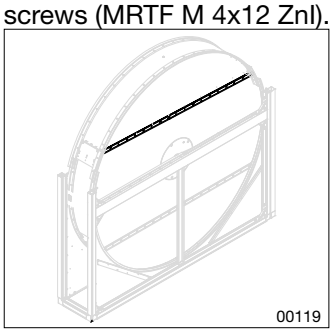




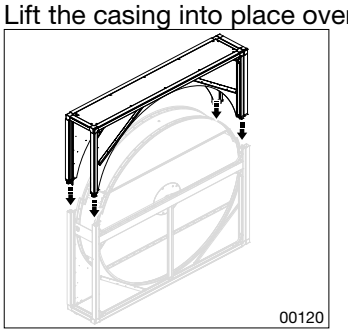
3. Cut off the bristle strip on the top of the thermal wheel so that the edges are tight against the edge of the lower part. Screw on the bristle strip at the joint using self-tapping screw (R6B large flange 4.2x13 ZnNi).



4. Place the motor belt around the thermal wheel.
5. Screw on the jointing strips, one on each side of the thermal wheel, with self-tapping screws (MRTF M 4x12 Znl). When reassembling, all screw holes must be used.

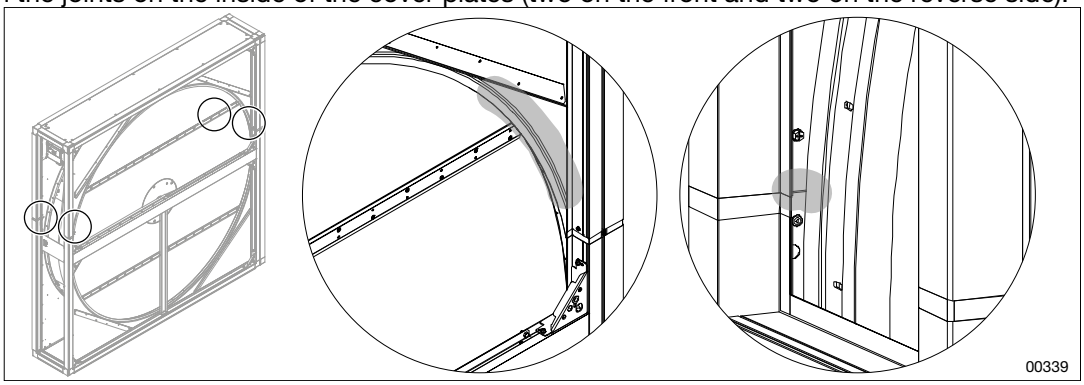


6. Lift the casing into place over the thermal wheel and down into the bottom frame.



7. On the inspection side, cut off the sealing strip on the upper part of the thermal wheel so that the cut edge meets the edge of the sealing strip of the lower part. Attach the strip.
8. Apply sealant:

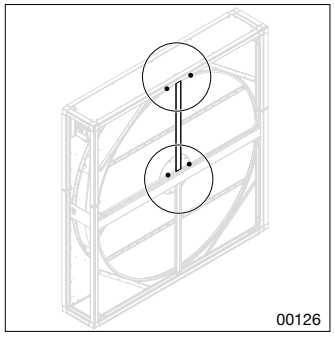
- in the joint on the inside of the thermal wheel, between the bristle strip and the thermal wheel (two at the front and two on the reverse side).
- in the joints on the inside of the cover plates (two on the front and two on the reverse side).



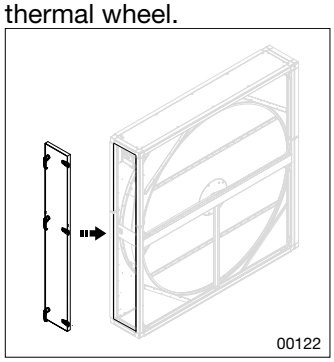
9. Unscrew both transport safety devices, marked with yellow stickers.

10. Screw the cover hatch onto the reverse side of the thermal wheel using self-tapping screws (DK 4.2x14 PH2 Znl).
11. **Sizes 740-980:** Also mount a cover hatch to the inspection side of the thermal wheel.
12. Fit cover plugs over the screw holes.

13. **Size 740-980:** Assemble a centre post in the upper part of the thermal wheel, on both sides of the thermal wheel. Screw the centre post into in the pre-drilled holes using self-tapping screws (DK 4.2x14 PH2 Znl).



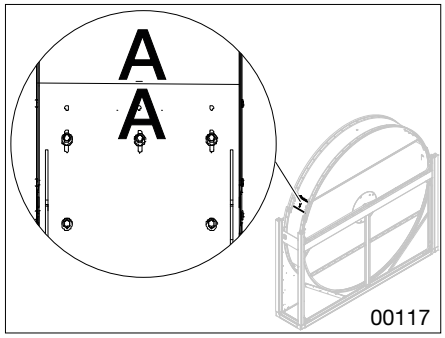
14. **Sizes 150-600:** Screw the inspection hatch onto the hinges, on the access side of the thermal wheel.

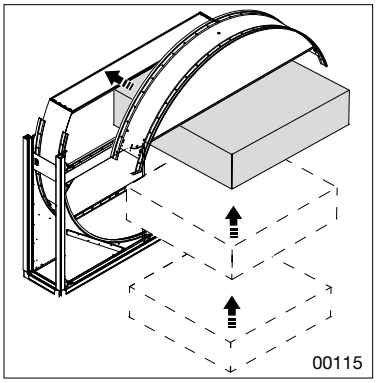


15. Slide the thermal wheel onto the support and slide together with the connecting part.

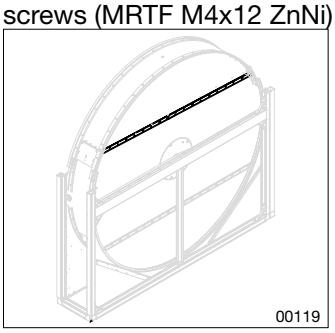
8.5.2 Thermal wheel size 1580

1. Place the upper part of the thermal wheel on the pallet, so that it rests on the lower, straight sheet. Before lifting, make sure the A mark is in the same direction as the A mark on the lower part of the thermal wheel. Lift with forklift truck under the straight plate or use mounted lifting lug. Lift up the upper part of the thermal wheel level with the flat surface on top of the lower part of the thermal wheel and push the upper part of the thermal wheel onto the lower part of the thermal wheel until it is located in the middle of it.



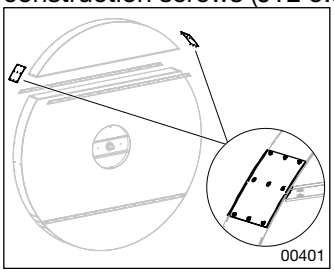


2. Screw on the jointing strips, one on each side of the thermal wheel, with self-tapping screws (MRTF M4x12 ZnNi).

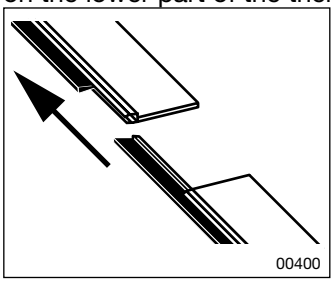


3. Unscrew both transport safety devices, marked with yellow stickers.

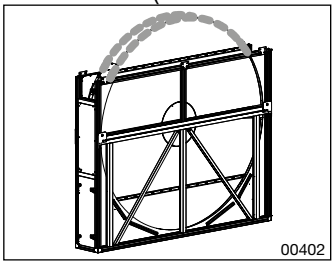
4. Screw the joint plates on the thermal wheel into the joint between the thermal wheel sections. Turn the plate so that it is centred over the joint, fastened with self-tapping construction screws (JT2 5.5x35).



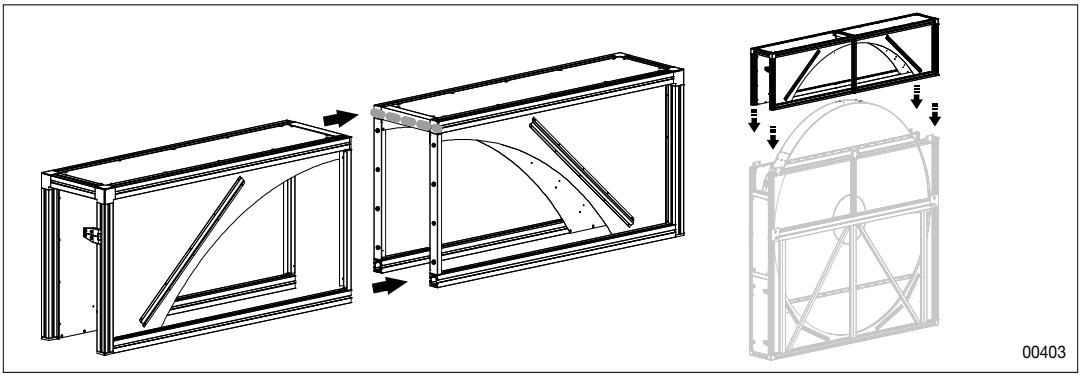
5. Fit the packaged brush strip to the upper part of the thermal wheel using R6B large flange screws (4.2x13 ZnNi). Adjust the brush in the brush strip holder so that it overlaps approximately 150 mm into the next brush strip holder and into the pre-fitted brush strip holders on the lower part of the thermal wheel.



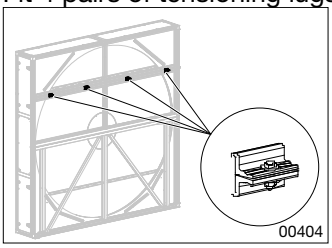
6. Seal between the thermal wheel sides and along the attached brush strip, around the entire frame (both sides of the thermal wheel).



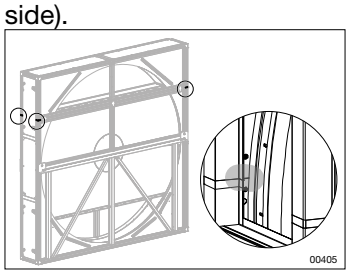
7. Lift up and insert the upper parts of the cover. Seal between the horizontal profiles before joining the parts. Screw the parts together via the vertical plate profiles. Use screw DK 4.2x14 Zn/Ni, 4 screws per side (screw in from opposite directions).



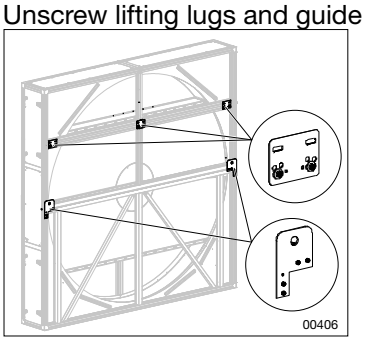
8. Fit 4 pairs of tensioning lugs per side. See ."7.5.2 Join with tensioning lugs", page 30



9. Seal in the joints on the inside of the cover plates (two on the front and two on the reverse side).



10. Unscrew lifting lugs and guide plates.



11. Fit the cover hatch on the reverse side, use screw DK 4.2x14 Zn/Ni.
12. Fit cover plugs over the screw holes.
13. On the inspection side, cut off the sealing strip on the upper part of the thermal wheel so that the cut edge meets the edge of the sealing strip of the lower part. Attach the strip. See "7.4 Install sealing strip", page 29.
14. Assemble the inspection door.
15. Fit motor belt (v-belt). Refer to Operation and Maintenance of the unit.

8.6 Assembling cooling unit EcoCooler (ECO/ECX), ThermoCooler HP

For general instructions, see also *"7 ASSEMBLY, GENERAL", page 26.*

- On the part towards the rotary heat exchanger, sealing strips should also be fitted on the upper edge of the profile to ensure tightness.

- For connecting the drain pipe to the cooling unit, see *"12.3 Connect drain pipe to cooling unit", page 62*.

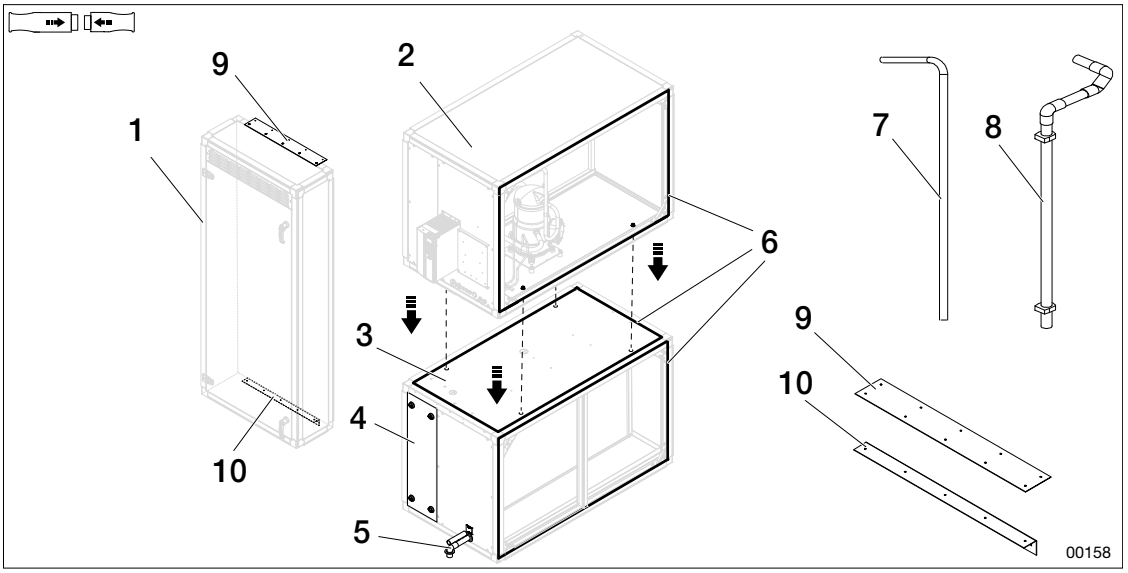
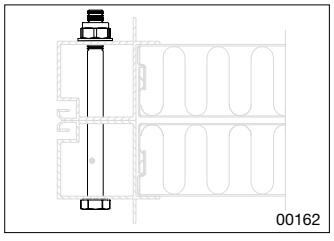


Figure: Cooling unit parts

1. Media section
2. Unit part - compressor/coil
3. Unit part - coil
4. Coil hatch
5. Drainage pipe
6. Sealing strip
7. Joint pipe
8. Drainage pipe
9. Sheet metal strip upper part
10. Sheet metal strip lower part

1. Fit sealing strip on the outer side of the upper and lower unit parts, as well as in the middle level. See *"7.4 Install sealing strip", page 29*.
2. Push the lower part up onto the support.
3. Lift and place the upper part on top of the lower part.
4. Join the upper and lower parts using the included screws M6S 10x120 FZB, washers SRB 11x22x2 FZ and lock nuts M10 FZ.



5. Slide the parts together with the rotary heat exchanger.
6. Join the unit parts together with screw joints or guide pins. See "7.5 Connect parts", page 30. If screw joints are used, the trim heater must be lifted out to make room to screw inside. See "8.6.2 Disassemble trim heater/coil", page 51.
7. Unscrew the transport safety devices from the compressor part (marked with stickers).

8. Screw the media cabinet sheet metal strips onto the unit parts with the self-tapping screws in the connecting profile. If the strips are not pre-assembled, see "8.6.1 Assemble the media cabinet sheet metal strips", page 51.

8.6.1 Assemble the media cabinet sheet metal strips

1. Mount the upper sheet metal strip on the upper side of the media cabinet, using self-tapping screws.
2. Mount the lower sheet metal strip on the lower side of the media cabinet, using self-tapping screws.

8.6.2 Disassemble trim heater/coil

1. Open the hatch in front of the coil with the four levers on the hatch.
2. Disconnect the two quick connectors under the coil (inside the unit part), without disconnecting any cables from the coil. See "7.6 Quick connectors", page 31.
3. Pull away the two pins on the rails that the coil hangs in.
4. Carefully pull out the coil without letting it fall at the end of the rails. This is easier to do with two people.

8.6.3 Reassemble trim heater/coil

1. Open the hatch in front of the coil with the four levers on the hatch.
2. Hang up the battery on the rails and push it back into the unit part.
3. Reinsert the pins.
4. Connect the quick connectors. See "7.6 Quick connectors", page 31.
5. Close the hatch.

8.7 Assemble mixing section (EEC), media section (EMR)

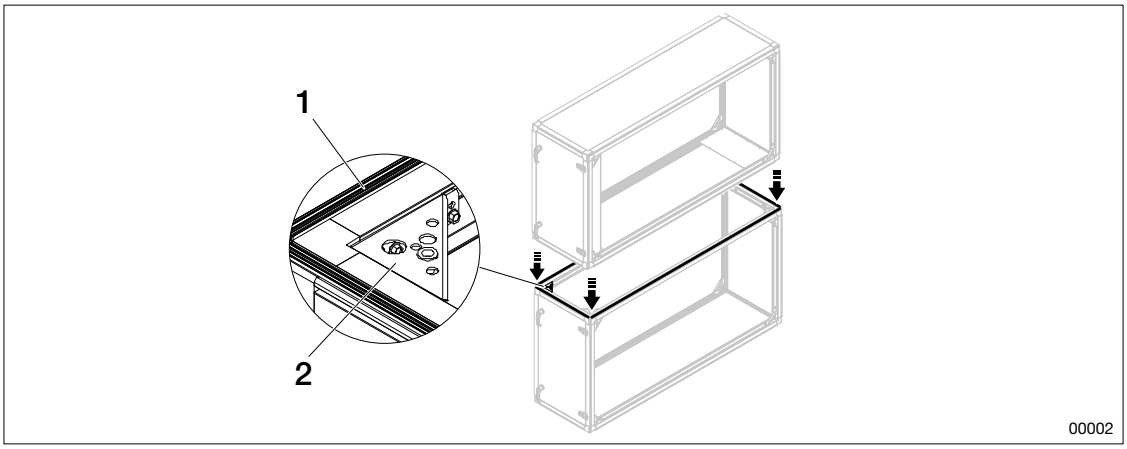


Figure: Mixing section, sectioned configuration

1. Sealing strip
2. Corner strut

1. Assemble sealing strip on the lower part.
2. Screw the upper section to the lower section in all corner struts.

8.8 Assemble smoke gas connection (EKR)

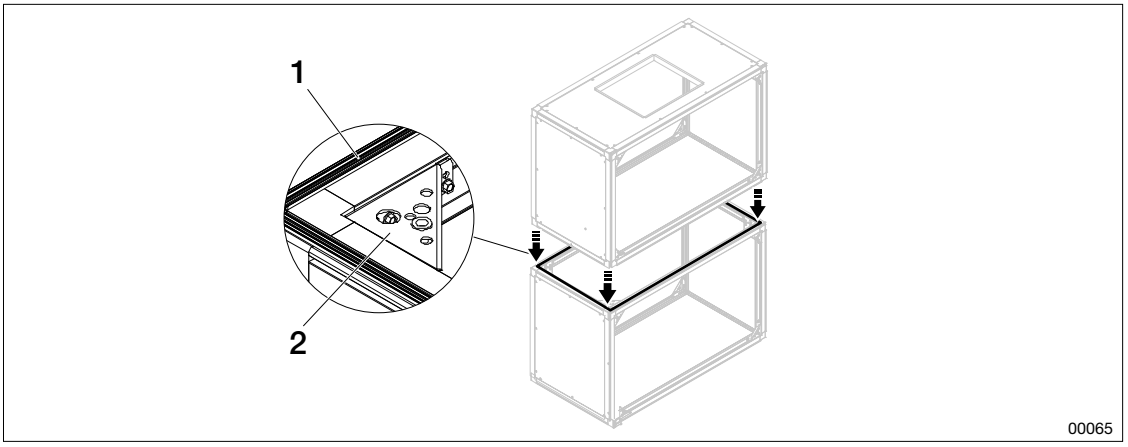


Figure: Smoke gas connection, sectioned configuration

1. Sealing strip
2. Corner strut

1. Assemble sealing strip on the lower part.
2. Screw the upper section to the lower section from below in all corner struts. Use bolts up into the intermediate level plate, which is equipped with built-in fixing nuts.

8.9 Assemble cross-flow section (ERX/EKX)

For general instructions, see also *"7 ASSEMBLY, GENERAL", page 26.*

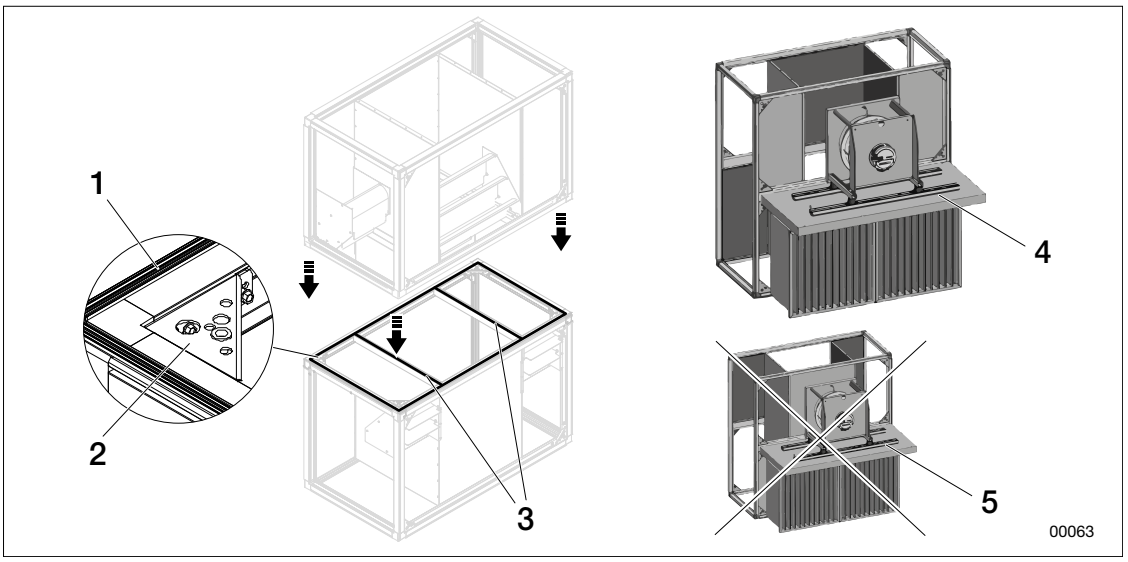


Figure: Cross-flow section, sectioned configuration

1. Sealing strip
2. Corner strut
3. Sealing strips on cross brace
4. Cross-flow section, correctly positioned towards the fan and filter section.
5. Cross-flow section, incorrectly positioned towards the fan and filter section

1. Assemble sealing strip on the lower part, at the outer edges and on the cross braces.
2. Screw the upper section to the lower section in all corner struts.

8.10 Assemble coil recovery (EXL)

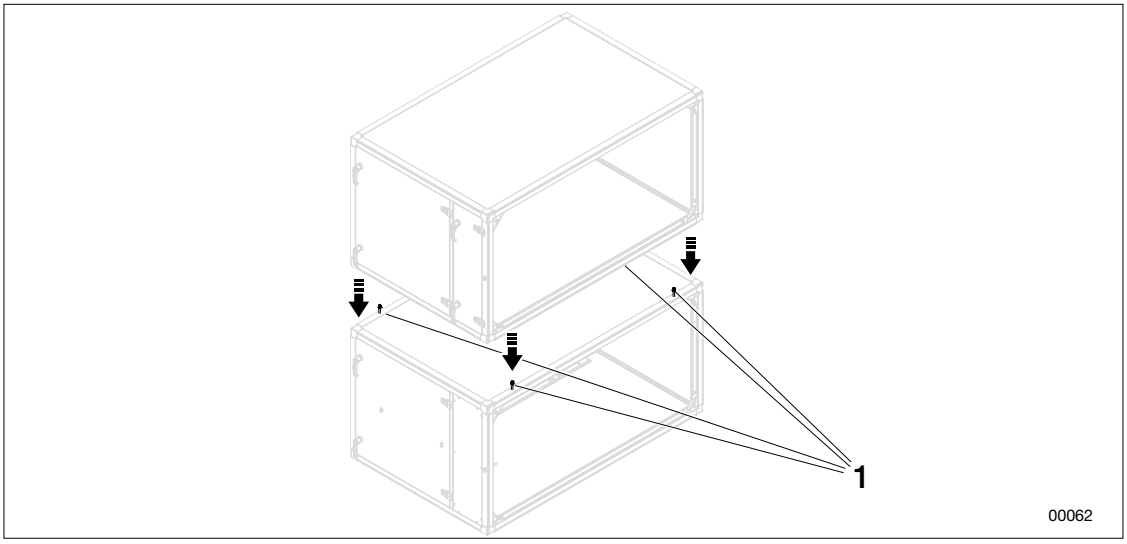


Figure: Coil recovery, sectioned configuration

1. Screws

1. Put the lower part onto the support.
2. Lift up the upper part on top of the lower.
3. Screw the parts together with the screws on the long side.

9 CONNECT COIL, WATER

9.1 Connect coil to pipelines

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

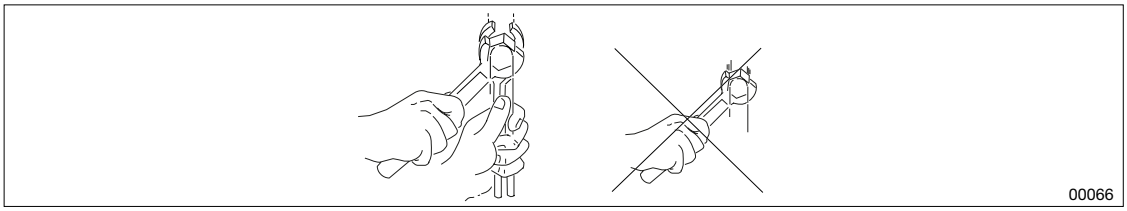


Figure: Pipe connection counterweight

9.2 Connect heating coil

1. Connect coil to pipeline.
2. Connect frost protection on heating coil.
3. Connect pipes for exhaust air and drainage.

9.2.1 Heating coil (ELEV) in unit, (EMT) in duct

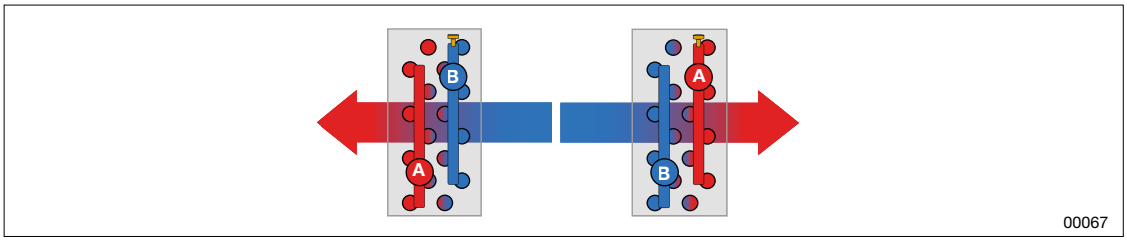


Figure: Connection pipe, heating coil (ELEV, EMT-VV)

A. Fluid in
B. Fluid out

The heating coil must be fitted with frost protection of the clamp on or immersion sensor type.

The heating coil is reversible to suit air from the right or left. Ensure that the coil is turned so that there is a counter-flow direction between air and liquid flow.

Thermoguard coils:

- marked with inlet and outlet 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

1. Connect coil to pipeline.
2. Connect drainage. See "12 CONNECT DRAINAGE, WATER TRAP", page 61.
3. Connect pipes for exhaust air and drainage.

9.3.1 Cooling coil (ELBC) in AHU (air handling unit), (ESET-VK) in duct

Cooling coil is connected for horizontal air flow. For duct assembly see "13 DUCT CONNECTION, DUCT ACCESSORIES", page 63.

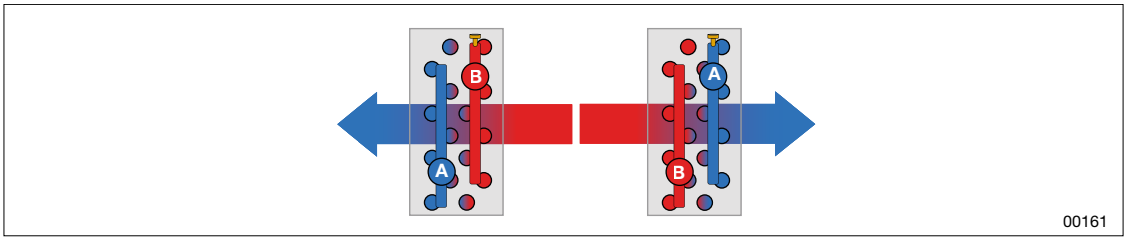


Figure: Connection pipe, cooling coil (ELBC, ESET-VK)

A. Fluid in
B. Fluid out

9.4 Connect frost protection sensor

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

The frost protection sensor must be connected to prevent ice from forming in the coil pipe lines.

The coil should be turned so that the immersion sensor socket/contact sensor for frost protection ends up on the outgoing fluid side.

9.4.1 Connect immersion sensor

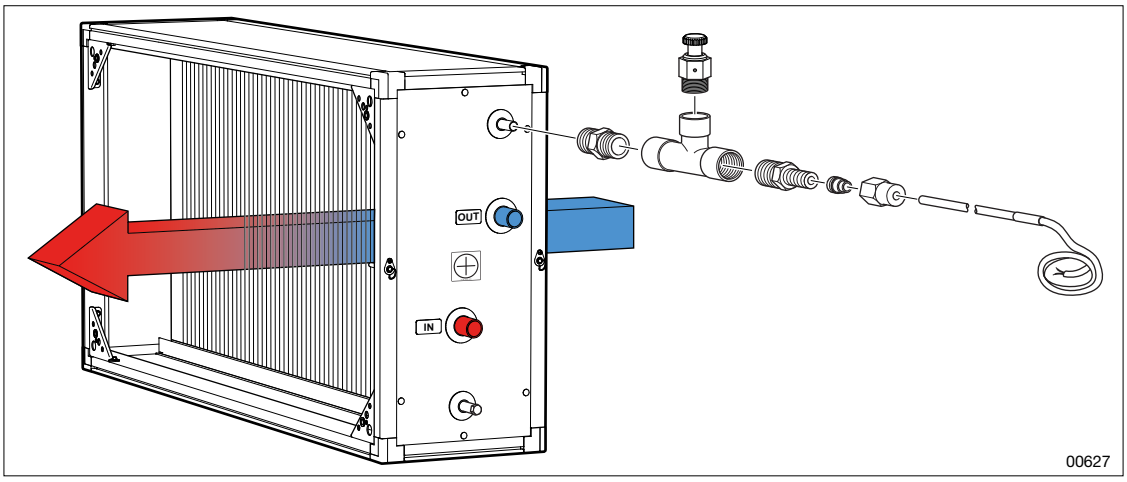


Figure: Immersion sensor mounted in drain/bleed nipple at supply air left.

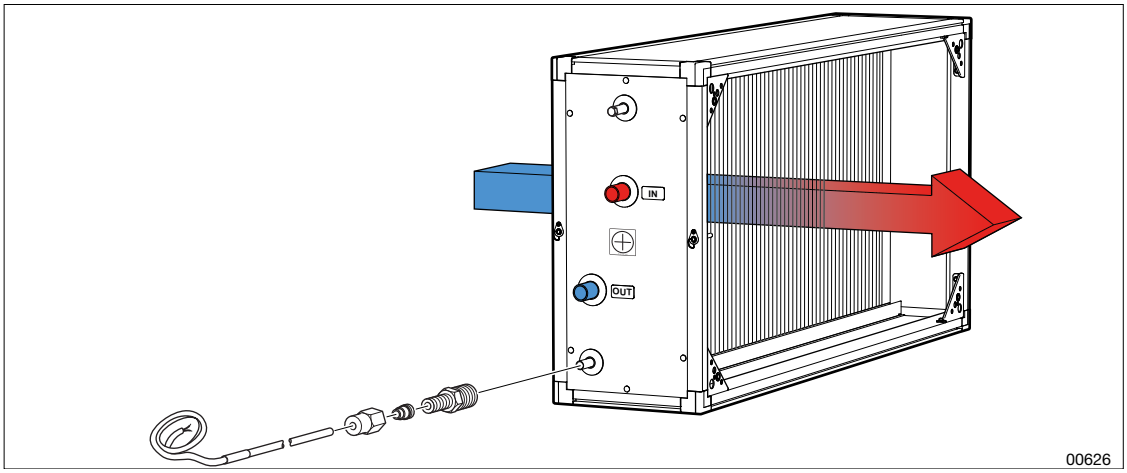


Figure: Immersion sensor mounted in drain/bleed nipple at supply air right.

Immersion sensor dimensions: diameter 4 mm, insert length maximum 240 mm.

The immersion sensor is placed in the venting nipple (T-pipe can be used to keep the opportunity of venting) or in the drainage/bleeding nipple.

9.4.2 Connect contact sensor

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

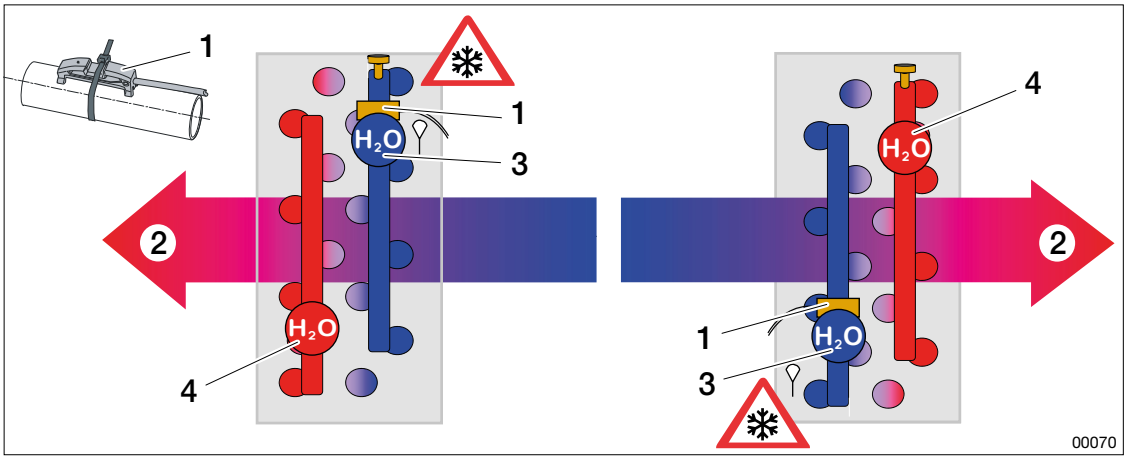


Figure: Clamp on detector

1. Clamp on detector
2. Air direction
3. Incoming fluid
4. Outgoing fluid

9.5 Connect pipes for exhaust air and drainage

The connection pipe must be equipped with exhaust air at the highest point and drainage at the lowest point.

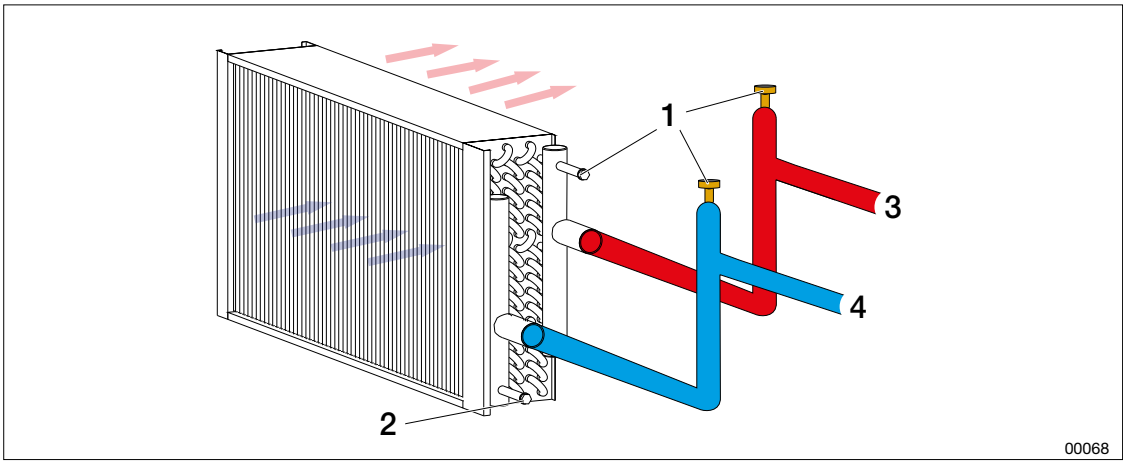


Figure: Venting and draining

1. Nipple for bleeding
2. Nipple for drainage
3. Connected pipe
4. Connected pipe

9.6 Assemble valve actuator

Assembly must be 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.

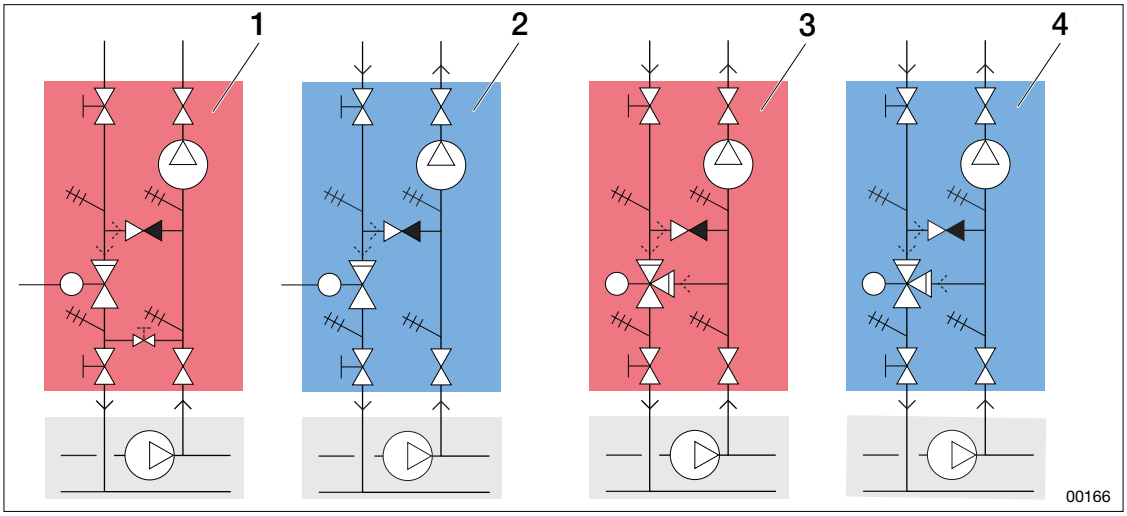


Figure: Control valve in different configurations

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 installation, see separate product sheet on 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 air heater electric (ESET-EV), (ELEE), trim heater (ECXT-EV), (TCHT-EV)

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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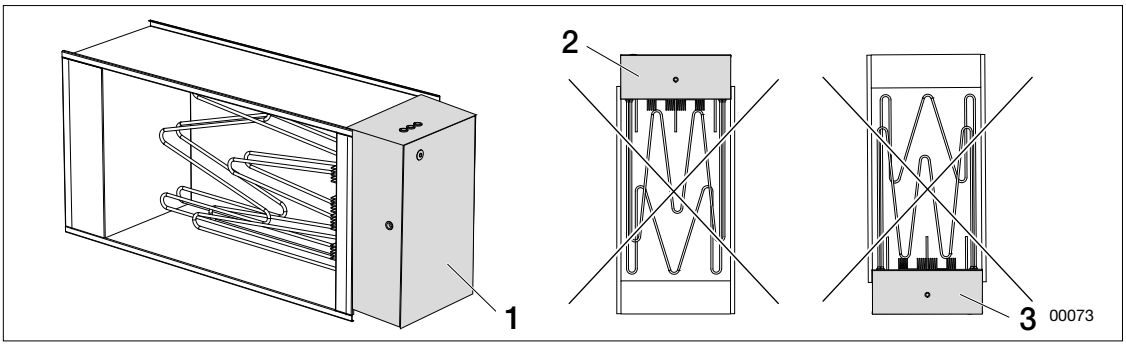


Figure: Air heater electric

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 (ESET-VK) in duct

The air heater is adapted for assembly in duct systems and requires separate connection. The air flow direction through the air heater must correspond with the direction arrow on the air heater.

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 it must be possible to open the cover. The air heater must be accessible for replacement and servicing.

10.1.2 Trim heater, EcoCooler (ECXT-EV), ThermoCooler HP (TCHT-EV)

The trim heater is integrated into EcoCooler and ThermoCooler HP and is normally already fitted on delivery. It can be lifted out to facilitate cleaning and maintenance. See instruction in *"8.6.2 Disassemble trim heater/coil", page 51* .

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.

00176

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

Interconnect all quick connectors between unit parts. See *"7.6 Quick connectors", page 31*, *"7 ASSEMBLY, GENERAL", page 26* and *"8 ASSEMBLY, SECTIONED CONFIGURATION", page 35*.

11.2 Connect hoses for pressure control

- Location of measuring sockets for pressure control should be at least 1 m from duct connections, so as to avoid disruptive turbulence.
- The image shows the location of the hoses for standard assembly. For custom installation, see the unit's dimension drawings.

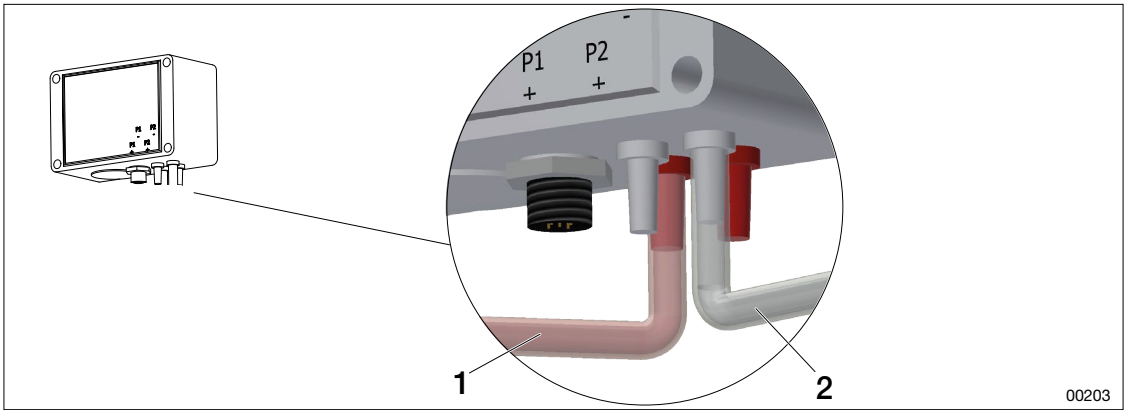


Figure: Hoses for pressure control connected to pressure sensors

- 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 twisted under the cabinet.

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. Assemble the sensor in the holder.

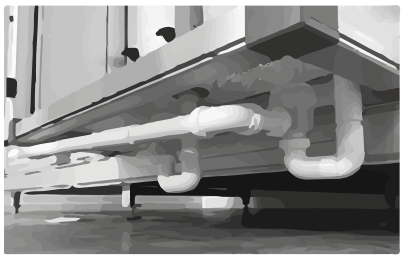
12 CONNECT DRAINAGE, WATER TRAP

- All drains should be connected to separate water traps, which can then 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.



For ThermoCooler HP and EcoCooler size 100-1280:

- On ThermoCooler HP, two individual water traps are assembled.
- On ThermoCooler HP and EcoCooler, drainage connects underneath.

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.

Negative pressure (P-) **Overpressure (P+)**

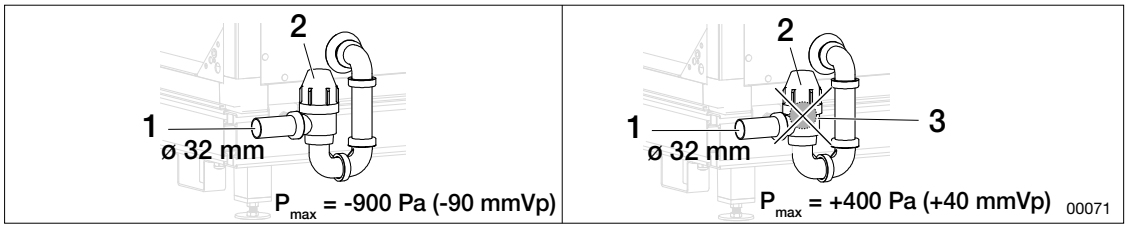


Figure: Water trap (accessory)

1. Outlet (connects to drain)
2. Cup (always mounted upwards)
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 every additional 100 Pa (over 1000 Pa), H_1 and H_2 are increased by 10 mm.

Negative pressure (P-) **Overpressure (P+)**

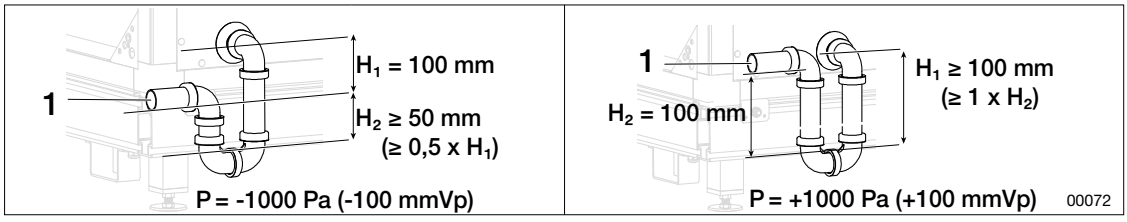
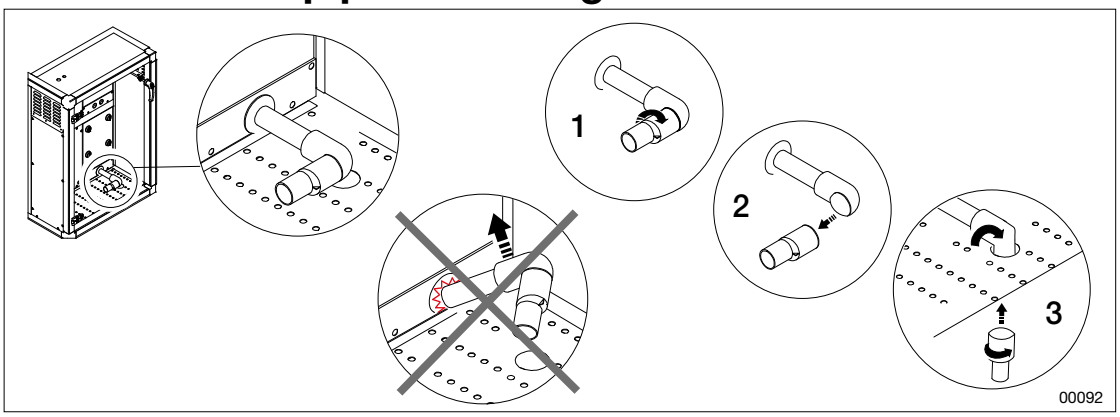


Figure: Water trap (site-built)

1. Outlet (connects to drain)

12.3 Connect drain pipe to cooling unit



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 11* and *"2.5 Symbols on drawings and in manual", page 12.*

13.1 Connect to ducts

The unit is supplied with rectangular connection sleeves.

13.1.1 Connection to rectangular duct

Connection sockets on rectangular duct connections must be supplemented with a sealing strip and connected with guide strips.

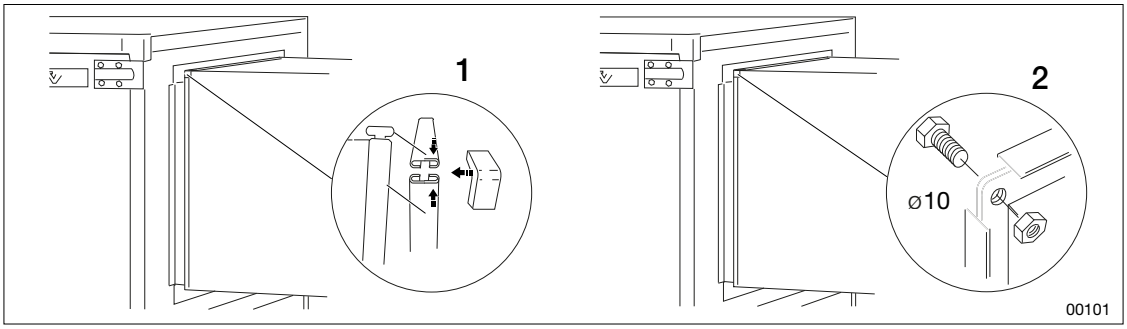


Figure: Rectangular connecting socket

1. Option 1: The channels are connected with gaskets, guide pins and outer corners.
2. Option 2: The channels are connected with screws at the corners of the frame.

13.1.2 Connect to circular duct

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

13.1.3 Connect the fabric sleeve (accessory)

If a fabric sleeve is connected for vibration damping, duct insulation must be installed 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 dimensions to obtain even air distribution. See *"9 CONNECT COIL, WATER", page 54* and *"10 ASSEMBLE COIL, ELECTRIC", page 58*.

The coils have a rectangular connector for the guide system.

13.3 Install sound attenuator (EMT-02)

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

13.4 Fit shut-off damper (EMT-01), trim damper (ESET-TR)

The damper can be mounted for horizontal or vertical air streams.

14 AFTER ASSEMBLY

14.1 Post-inspection and maintenance

CAUTION!
Risk of damage to the product.
Swarf from drilling left behind after assembly can lead to corrosion and rust on 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	Control	Comment
Covers	Make sure all covers/hatches are in place.	All sides should have gaps.
Covers	Make sure that inspection hatches do not jam when opened.	Adjust the door hinges. If it is not enough, adjust with the support feet. After adjusting the support feet, make sure that the unit does not lean backwards towards the back.
Internal surfaces of the unit	Make sure the AHU is clean and free of dirt and debris.	Vacuum or brush as needed. Use a damp cloth.
Internal surfaces of the unit	Make sure the AHU has no residual swarf from drilling.	Vacuum or brush after assembly.
Thermal wheel	Check that the thermal wheel is balanced and correctly positioned on the shaft.	See "*14.2 Check thermal wheel*", page 65.

14.2 Check thermal wheel

CAUTION!

Risk of damage to the product.

Touch and contact may damage the surface layer of the rotary heat exchanger.

- Make sure that the surface does not come in contact with tools or any part of the body.
- When working with the rotary heat exchanger, wear protective gloves. 00270

The thermal wheel is factory adjusted, but may move out of position when handling and assembling the unit. After assembling the unit, check that the thermal wheel is level and correctly positioned inside the frame.

- Thermal wheels in unit sizes of less than 400 do not need to be checked.

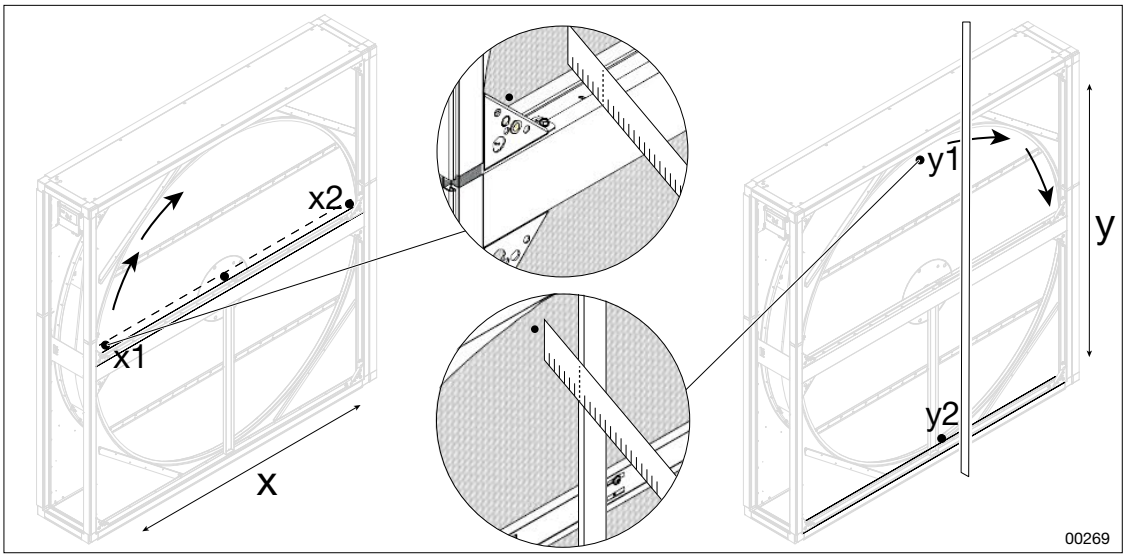


Figure: Checking the thermal wheel's horizontal and vertical positions

14.2.1 Check that the thermal wheel is straight in frame

Horizontal (x)

1. At **x1,** make a light pencil marking on the surface of the thermal wheel.
2. Measure with the mark at **x1**, from the outer edge of the strip to the thermal wheel surface.
3. Spin the thermal wheel and stop when the marking is at **x2**, then measure.
4. Compare the two measured values. They should be the same (+/- 1 mm). If the distances are different, adjust the thermal wheel, see "*14.3 Adjusting the thermal wheel*", *page 67*.

Vertical (y)

1. At **y1**, make a light pencil marking on the surface of the thermal wheel.
2. Measure with the mark at **y1**, from the outer edge of the strip to the thermal wheel surface.
3. Spin the thermal wheel and stop when the marking is at **y2**, then measure.
4. Compare the two measured values. They should be the same (+/- 1 mm). If the distances are different, adjust the thermal wheel.

14.2.2 Check that the thermal wheel is centred in frame.

1. Open the thermal wheel hatch and visually check that the brush strip is equally vertical on both sides of the thermal wheel. If the thermal wheel is offset to one side, the brush strip will be folded against the thermal wheel surface.
2. On the front and reverse side of the thermal wheel, in the middle of the thermal wheel, measure and compare the measurement to the thermal wheel surface. The values should be the same +/- 1 mm. If the distances are different, adjust the thermal wheel. The nominal measurement from the inside of the centre profile to the thermal wheel surface is 35 mm for all sizes except size 1580, where the measurement must be 65 mm.

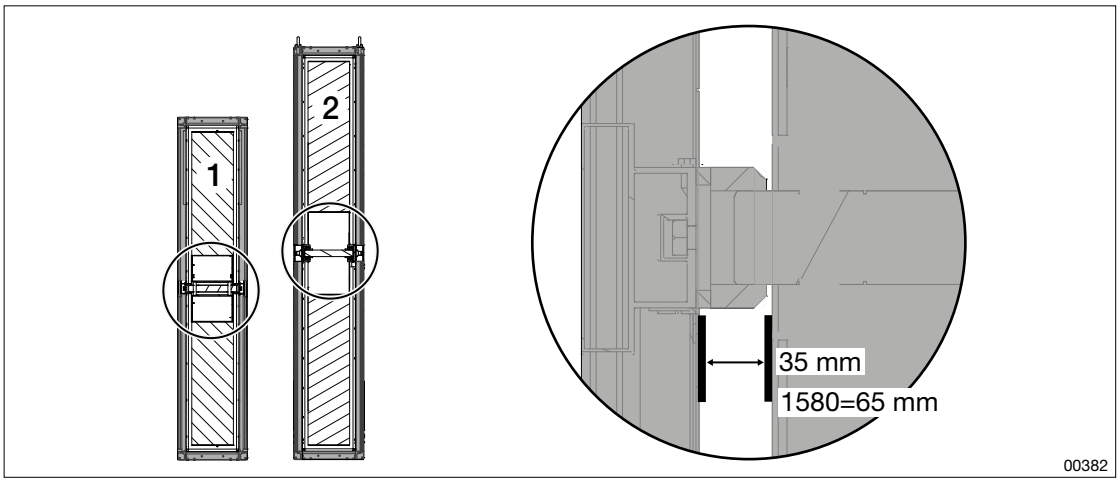


Figure: Thermal wheel in cross section

1. Thermal wheel sizes 060-600
2. Thermal wheel sizes 740-980

14.3 Adjusting the thermal wheel

WARNING!

Risk of serious crushing or compression injury.

If the bearing bolts become fully unscrewed during thermal wheel adjustment, the thermal wheel may detach from its brackets and fall down.

- Thermal wheel adjustment must be performed by technicians with the relevant expertise.
- The adjustment screws must never be fully unscrewed during adjustment.

00376

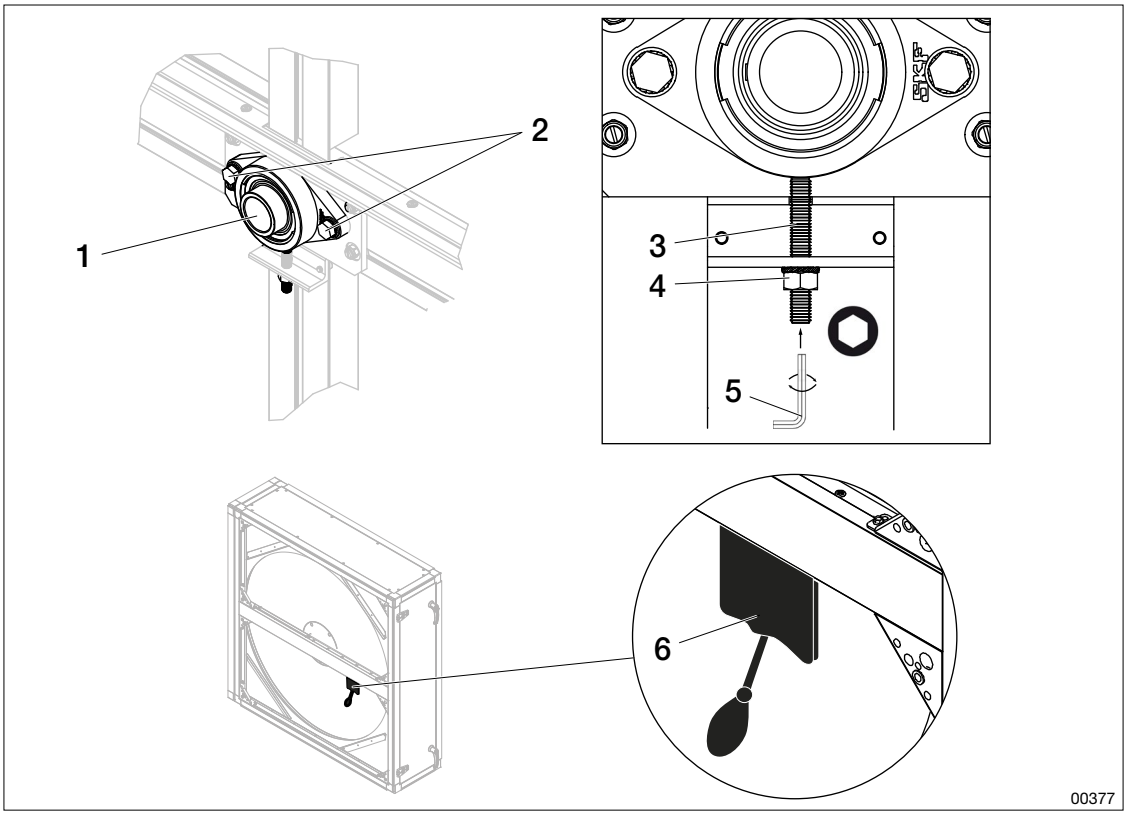


Figure: Shaft retainers on the thermal wheel

1. Shaft retainer
2. Bearing bolts
3. Adjustment screw (for Allen key)
4. Locknut
5. Allen key
6. Inflatable cushion

Horizontal (x)

1. Loosen the bearing bolts on the shaft retainers on both sides of the thermal wheel. Bearing bolts are located behind the brush strip. Screw approximately 0.5-1 turns to loosen. Do not screw out fully.
2. To adjust, manually press the thermal wheel surface at the intermediate plane. Note that the thermal wheel surface is fragile, therefore do not use tools against the thermal wheel surface. Inflatable cushions/frame pads can be used to push the thermal wheel into the correct position. See previous figure *Shaft retainer on thermal wheel*.

Vertical (y)

1. Loosen the bearing bolts on the shaft retainers on both sides of the thermal wheel. Bearing bolts are located behind the strip. Screw approximately 0.5-1 turns to loosen. Do not screw out fully.
2. Move the locknut up or down by using the Allen key to turn the adjustment screw from below. Small adjustments are usually sufficient.
3. Measure to check.
4. When the wheel is correctly positioned, tighten all the bearing bolts on the shaft retainers. Size < 600 — torque 40 Nm, Size ≥ 740 — torque 50 Nm

Feel free to contact us

IV Produkt AB, Sjöuddevägen 7, S-350 43 VÄXJÖ
+46 470 – 75 88 00
www.ivprodukt.se, www.ivprodukt.com
www.ivprodukt.no, www.ivprodukt.dk, www.ivprodukt.de

Support:

Control: +46 470 – 75 89 00, styr@ivprodukt.se
Service: +46 470 – 75 89 99, service@ivprodukt.se
Spare parts: +46 470 – 75 86 00, reservdelar@ivprodukt.se
Documentation: +46 470 – 75 88 00, du@ivprodukt.se

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