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Enervent eWind

ENG Installation instruction

enervent

Approvals and version history

Revision	Date	Description of change	Approved by
0.0	2016-01-25		
1.0	2017-07-12		

Contents

EN

READ ME FIRST

This document is intended for everyone involved in installation of Enervent ventilation units. The equipment described in this manual must be installed by skilled persons only, according to the instructions given in this manual and local law and regulations. Failure to comply with instructions in this manual voids the warranty of the equipment, and possibly results in harm to people or property.

The equipment described in this manual must not be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the equipment by a person responsible for their safety.

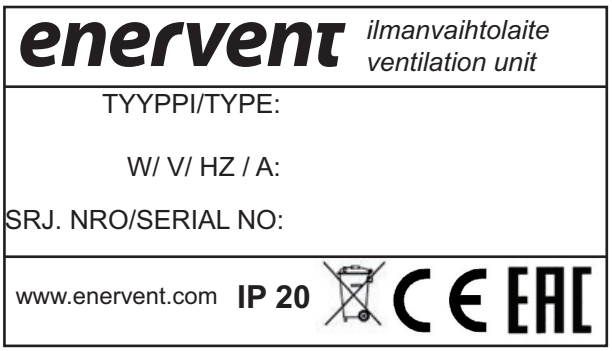
Tables at the end of this manual list:

- Ventilation units introduced in this document
- Components included in the delivery.

NOTE: If your delivery does not include all the components listed in the Models and components table at the end of this manual, check your order and contact your seller or Enervent before starting installation.

Type plate

The type plate is located near the main power switch or inside the ventilation unit. Before you start reading, check the type of the unit from the plate.



Type designation

The type designation contains three parts:

1. The first part of the type designation indicates the chassis of the ventilation unit, for instance LTR-3, or Pandion.
2. The next letters indicate the type of automation that the ventilation unit is equipped with, in this case eWind.
3. The next letter of the type designation indicates the type of supply air heater that the ventilation unit is equipped with, E= electrical, W= water.
4. The next letters if any, indicate the type of pre-heater/pre-cooler or supply air cooler, CHG= Cooling Heating Geo, CG=Cooling Geo.

Example: Pandion eWind-E-CHG.

SAFETY

General

DANGER

DANGER: Before opening the service hatch, always make sure that the unit's supply voltage is switched off.

WARNING

WARNING: In case of malfunction, always find out the cause for it before restarting the unit.

WARNING

WARNING: After switching off the unit power, wait two (2) minutes before starting maintenance work. Even though the power is switched off, the fans continue spinning and the after-heater coil remains hot for some time.

CAUTION

CAUTION: All ventilation units that come with a water coil must be equipped with dampers to avoid freezing of the coil during possible power failure.

Electrical

DANGER

DANGER: Only a qualified electrician may open the electrical box.

DANGER

DANGER: Follow the local regulations for electrical installations.

CAUTION

CAUTION: Make sure that the unit is fully detached from the electrical network before carrying out voltage tests, insulation resistance measuring or other electrical work or measuring. This kind of work can cause damage to sensitive electronic equipment.

CAUTION

CAUTION: Control equipment used in ventilation units can cause leakage current. This can affect the functionality of fault current protection.

CAUTION

CAUTION: All ventilation units with a control system must be equipped with over voltage protection.

TERMINOLOGY

Term	Explanation
CG, CHG, AGH	CG (Cooling Geo) is cooling of the supply air using brine, which circulates in pipes under ground. CHG (Cooling Heating Geo) is cooling or pre-heating using brine, which circulates in pipes under ground. AGH (Air Ground Heat exchanger) is cooling or pre-heating using air, which flows in ducts under ground.
after-heating	After-heating warms the supply air after the heat recovery wheel. It ensures that the incoming air is not too cold. After-heating can be realized with either an electrical or water coil. Suitable temperature for the incoming air is 5°C less than the room temperature if no extra heating of the room is desired.
click models	New ceiling installation method for models Pingvin and Pandion.
eWind	Control panel for managing the ventilation unit.
exhaust air (waste air)	Air removed from house after-heat recovery.
extract air	Outbound air flow from rooms.
Modbus	Communication protocol that is used here for communication between ventilation unit and home automation systems (+ possible accessories).
outside air	Outside air supply to ventilation unit.
supply air	Inbound air flow to rooms.
%RH	Relative humidity percent that is used here for determining whether ventilation should be boosted to remove excessive humidity.
active cooling	Cooling created by a cooling unit included in some ventilation units.
cool recovery	In the summer the rotating heat recovery wheel can cool the supply air, if the extract air is cooler than the outside air. The function is automatic.

BEFORE INSTALLATION

Selecting installation location

Before you start installing the ventilation unit, make sure that the installation location is suitable for the model you are installing.

Pinion, Pingvin, Pingvin XL, Pandion, Pelican, Pegasos and Pegasos XL

Installation location:

Unit	Installing location
Pinion, Pingvin, Pingvin XL and Pandion	On the wall.
Pinion, Pingvin, Pingvin XL and Pandion	Hanging from the ceiling. • Requires ceiling installation plate, (sold as accessory).
Pandion, Pelican, Pegasos and Pegasos XL	On the floor • On a suitable flat plane.

Installation space:

Unit	Installation space
Pinion, Pingvin, Pingvin XL, Pandion, Pelican, Pegasos and Pegasos XL	Warm space (over +5°C).

- We recommend the unit is installed in a technical space.
- Do not install the unit in spaces with high temperature and high humidity level.
  - In certain conditions these can cause condensation on the unit's outer shell.
- Consider the unit noise level when choosing the installation location.
  - If possible, install the unit on a soundproof wall.
  - Do not install the ventilation unit directly outside a bedroom, since even though the ventilation unit is quiet, it is never completely silent.
- Install an insulating plate at the back of the ventilation unit, or otherwise try to prevent structure borne noise.
  - Soft, foamed plastic sheets are recommended for this (not included in the delivery).
- Make sure that it is possible to connect the condensate water drain and water lock.
  - Consider the space needed for the condensate water connection.
- Make sure that you install fire shutoff valves if the unit is placed in a separate fire area.
- Install wall mounted units on a partition wall rather than on an exterior wall.
- Consider the unit maintenance tasks when installing the unit.
  - Doors of the unit must be fully opened for maintenance work.
  - Leave minimum 15 mm space surrounding the ventilation unit to the sides. Otherwise, the service doors cannot be fully opened.
- Consider the space needed for duct coils (if included).

LTR-2, LTR-3, LTR-4, LTR-6, LTR-7 and LTR-7 XL

Installation location:

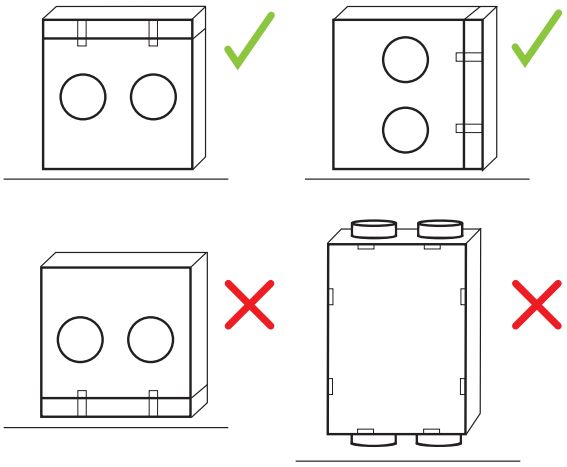
Unit	Installing location
All LTR-2, LTR-3 and LTR-4	In two positions: • Maintenance hatch up. • Maintenance hatch on the side.
Standard LTR-6, LTR-7 units and LTR-7 XL	Maintenance hatch up. • On request, units can be made for installation with the hatch on the side. This must be mentioned when the unit is ordered.
LTR-4, LTR-6, LTR-7 and LTR-7 XL ventilation units equipped with built in cooling coil	We recommend to order with the maintenance hatch to the side. • This will enable the condensation formed in the cooling coil to drain more easily.

Installation space:

Unit	Installation space
LTR-2, LTR-3, LTR-4, LTR-6, LTR-7 and LTR-7 XL	Either warm or cold space. • For example in a storage space or attic.

CAUTION

CAUTION: Do not install any LTR units so that the maintenance hatch is facing downwards or so that the unit is standing upright. Always make sure that one of the condensate water drain is downwards.



- Consult the ventilation planner regarding possible need for additional insulation of the unit if mounted in a cold space.
  - If you use solid (hard) insulation, make sure that the insulation does not carry sound to the frame of the house.
- Do not install the unit in spaces with high temperature and high humidity level.
  - In certain conditions these can cause condensation on the unit's outer shell.
- Consider the unit noise level when choosing the installation location.
  - Do not install the ventilation unit directly outside a bedroom, since even though the ventilation unit is quiet, it is never completely silent.
- Set the unit on top of a soundproofing 100 mm insulation.
- Make sure that it is possible to connect the condensate water drain and water lock.
  - Consider the space needed for the condensate water connection.
- Make sure that you install fire shutoff valves if the unit is placed in a separate fire area.
- Consider the unit maintenance tasks when installing the unit.
  - Make sure that there is enough space in front of or above the maintenance hatch:

Unit	Free space in front of the hatch
LTR-2 and LTR-3	min. 50 cm
LTR-4 and LTR-6	min. 60 cm
LTR-7 and LTR-7 XL	min. 70 cm

- Make sure that the electrical connections can be easily accessed.
- Take into account the space needed for opening the maintenance hatch locking latches.
  - Consider the space needed for duct coils (if included).

BUILDING THE VENTILATION SYSTEM

Designing the ventilation system must be done by a professional ventilation designer. By following closely the design plan when building the ventilation system, you ensure the operation of the whole ventilation system and customer satisfaction. Use the Enervent Energy Optimizer calculation program at the Enervent home page to calculate the performance and estimated heating/cooling power of a particular ventilation unit.

- Use type-approved factory made materials when building the ventilation system.
- Use valves that are suitable for mechanical ventilation.
- Do not cover the outside air grating with mosquito net.
  - This would make it very difficult to keep clean.
- Prevent rain water and snow from entering the outside air and exhaust air duct.
- Install enough inspection hatches in the ventilation network to enable cleaning of the ventilation ducts.
  - To make it easier to find the inspection hatches, mark their location for example on the rafters.
- Ventilation systems for different fire areas must be separate.
  - For example garage is one fire area whereas living quarters are another fire area, which means that they cannot be connected to the same ventilation system.
- Use an extractor hood with its own fan, above the stove.
  - The extractor hood must have its own extract duct directly out.
  - A motorless extractor hood can be connected to the ventilation unit only if the ventilation unit has an extractor hood connection.
  - The extractor hood used must be equipped with a grease filter and a timer controlled flap that prevents any airflow through the extractor hood when not in use.
- A drying cabinet with its own fan can be indirectly connected to the outlet valve using the connection system of the drying cabinet.
  - A part of the extract air is taken from the living space and a part from the drying cabinet.
  - The extract air must flow through the valve at a speed of 12 litres / second minimum.
- Install silencers at least in the supply and extract ducts.

- The amount of silencers must be considered case by case.

- We recommend that automatically closing dampers are installed in outside and exhaust air ducts.
  - In case of a power failure, the dampers will close and block out cold air, preventing any water coil from freezing.
  - If cold air gets into ventilation ducts, it will create condensate when mixing with warm air.

NOTE: The ventilation ducts must be blanked off until the ventilation system is taken into use. This is in order to keep warm air from flowing into the duct. Warm air causes condensation if it meets cold outside air or surfaces in the duct. Furthermore the plugging keeps dirt and other unwanted particles from clogging the system.

Insulating ventilation ducts

Insulate the ventilation ducts appropriately. This is especially important when the ventilation unit comes with a cooling functionality.

Ventilation ducts must be thermally insulated to prevent water from condensing to the inner or external duct surfaces in any circumstances. Additionally, the air temperature must not decrease or increase excessively in the ducts because of external factors. The ventilation engineer calculates the insulation requirements depending on the placement of the ducts and the air temperatures.

Ventilation duct thermal insulation in heating use	
Supply air duct from the ventilation unit to the supply valve.	The insulation must be designed and implemented so that the maximum air temperature change in the duct is less than 1°C.
Extract air duct from the extract valve to the ventilation unit.	The insulation must be designed and implemented so that the maximum air temperature change in the duct is less than 1°C.

Ventilation duct thermal insulation in cooling use	
Supply air duct from the ventilation unit to the supply valve.	The insulation must be designed and implemented so that the maximum air temperature change in the duct is less than 1°C. At least 19 mm of cellular rubber insulation on the duct surface.
Extract air duct from the extract valve to the ventilation unit.	The insulation must be designed and implemented so that the maximum air temperature change in the duct is less than 1°C.

Ventilation duct insulation examples

NOTE: Sound insulation is not taken into account in these insulation instructions and examples.

NOTE: Semi-warm space = +5°C - +15°C. A semi-warm space refers also to dropped ceilings, sub-floors, and casings.

Outside air duct (fresh air duct)

Cold spaces

- 100 mm of sheet, mat, or pipe-covering insulation (plus the blown wool, when used).

Warm/semi-warm spaces, dropped ceilings, sub-floors, and casings

- Option 1
  - 80 mm insulation with vapour-proof external surface.
- Option 2
  - 20 mm of cellular rubber insulation on the duct surface and 50 mm insulation with vapour-proof external surface.

The insulation must prevent water vapour from condensing to the external duct surface and excessive air temperature rise during summer.

Supply air duct

Cold/semi-warm spaces and also by dropped ceilings, sub-floors, and casings:

- In standard ventilation the insulation must be designed and implemented so that the maximum air temperature change in the duct is less than 1°C.
- For example, 100 mm of sheet, mat, or pipe-covering insulation can be used (plus the blown wool, when used).

Warm spaces

- Insulation is not required in standard ventilation.

In heating and cooling use see tables "Ventilation duct thermal insulation in heating use" on page 11 and "Ventilation duct thermal insulation in cooling use" on page 11.

Extract air duct

Warm spaces

- Insulation is not required in standard ventilation.

Cold/semi-warm spaces

- In standard ventilation the insulation must be designed and implemented so that the maximum air temperature change in the duct is less than 1°C.
  - For example, 100 mm of sheet, mat, or pipe-covering insulation can be used (plus the blown wool, when used).

In heating and cooling use see tables "Ventilation duct thermal insulation in heating use" on page 11 and "Ventilation duct thermal insulation in cooling use" on page 11.

Exhaust air duct

Cold spaces

- 100 mm of sheet, mat, or pipe-covering insulation.

Warm/semi-warm spaces

- Option 1
  - 80 mm insulation with vapour proof external surface.
- Option 2
  - 20 mm of cellular rubber insulation on the duct surface and 50 mm insulation with vapour proof external surface.

The insulation must prevent water vapour from condensing to the external and internal duct surfaces.

Extractor hood duct

- The extractor hood duct must be insulated and constructed in accordance with local building and fire safety regulations.

Installing duct coils

Duct coils are used in several unit models both as pre-heaters, after-heaters and coolers. For information what type of coils are used with your ventilation unit model, refer to tables listing models with duct coils at the end of this manual. For correct mounting of duct coils, refer to the principal diagrams at the end of this manual.

Ventilation unit models equipped with duct coils for after-heating or cooling (see table "Models with duct coils" on page 36).

- These coils are installed in the supply air duct (after the ventilation unit).

Ventilation unit models equipped with pre-heating/pre-cooling coils (see table "Pre-heating and pre-cooling coils" on page 37).

- These coils are installed in the outside air duct (before the ventilation unit).
- Duct coils must be accommodated in the ventilation ducts.
- There must also be sufficient room for maintenance and draining of condensate water.

NOTE: For more technical details about the coils, see the technical data table at the end of this manual.

Duct coil for fluids

When installing duct coils:

- Place the duct coil in the supply air duct after the ventilation unit or in the outside air duct before the ventilation unit depending on its function.
- Make sure that there is a filter before pre-heater coils in the outside air duct to prevent dirt from entering the coil.
- Do not install the coil too close to a fan outlet or a bend in the ducting.
  - This can result in lower efficiency.
  - Connect the coil so that the system is easy to empty for maintenance.
- Install duct heaters in a horizontal or a vertical duct with optional direction of airflow.
  - To facilitate venting of the coil, the unit must be fitted with the longitudinal tubes horizontal.
- Install duct coolers in a horizontal duct with airflow in the direction of the arrow.
  - Insulate the cooler externally to prevent the formation of condensation.
  - Connect the cooler to a condensate drain and water trap and tilt it at an angle of 10-15 degrees to the horizontal in the direction of the drain.
- Insert the coil into standard spiral ducting and attach it to the ducting with screws.
  - Support the weight of the coil.
  - Connect the coil with clamping ring connectors.

- Connect the water inlet to the lowest pipe connector in order to facilitate venting of the coil.
- Consult the principal drawings at the end of this manual on how to construct the hydronic circulating system.
- Install a venting valve near the coil or at the highest point in the system.
- Inspect the duct coil and its connections for leaks immediately after the system has been filled with liquid.
- Place the supply air temperature sensor (TE10) in the duct after the coil.
- Place the water coil return water sensor (TE45) on the return water pipe of the coil, if the coil is mounted in the supply air duct.
- Place the outside air temperature sensor (TE01) in the outside air duct before the coil, if the coil is mounted in the outside air duct.
- Connect the sensor to the ventilation unit control circuit board.
- Refer to the electrical schematics at the end of this manual for correct connections.

Electrical duct coils

NOTE: The heater is designed for insertion into standard spiral ducting and is fixed to the ducting with screws.

NOTE: The air must flow through the heater in the direction indicated by the arrow on the side of the connection box.

To install:

- Install the heater in either horizontal or vertical ducting.
  - The heater must only be fitted in ducts that are made of incombustible and heat-and-cold resistant material.
  - The connection box can be freely placed facing upwards or sideways to a maximum angle of 90°.

CAUTION

CAUTION: Do not install the connection box facing downwards.

- The distance from (to) the heater to (from) a duct bend, valve, filter, etc., must be at least twice the duct diameter.
  - Otherwise there is a risk that the airflow through the heater will be uneven which can cause activation of the overheating cut-out.
- Insulate the duct heater in accordance with local regulations for ventilation ducting.
  - Make sure that the insulation is incombustible.
  - Do not cover the lid with insulation, since the rating plate must be visible and the lid must be removable.
  - Do not cover any heatsinks, nor the side of the connection box where the SCR's (Triac's) are mounted with insulation.
- The duct heater must be accessible for replacement and inspection.
- Make sure that the distance from the heater metal casing to any wood or other combustible material is at least 30 mm.
- Install the duct sensor TE10 (delivered with the heater) in the duct after the heater, if the heater is mounted in the supply air duct.
  - If the heater is mounted in the outside air duct, install the temperature sensor (TE01) before the heater in the outside air duct and connect the sensor(s) to the ESC control circuit board.

NOTE: We recommend installing a safety switch for the electric heater.

Installing ventilation unit ceiling installation plate (OPTIONAL)

NOTE: Ceiling installation plate is separately sold extra equipment available for ventilation unit models Pinion, Pingvin, Pingvin XL and Pandion.

Before installation:

- Make sure that the ceiling is even so that the plate will be stable and straight when installed.
- The gap between the plate and the back wall must be at least 10 mm (recommendation) and at least 15 mm between the plate and the side walls.
- The ceiling installation plate top surface must not be more than 15 mm above the ceiling inner height.
  - Otherwise you will not be able to hook the ventilation unit front on to the ceiling installation plate.

To install:

1. Prepare the holes in the ceiling for the ventilation ducts.
2. Attach the plate on the ceiling using screws that are suitable for the ceiling material.
3. Seal the ceiling installation plate against the ceiling's vapor barrier using for example duct tape.
4. Attach the ducts to the ceiling installation plate with rivets.
    - Make sure that there are no gaps between the insulation and the ducts.
    - Consider the unit's weight when screwing the plate to the ceiling.
    - The ceiling installation plate must be absolutely rigid.
    - Weights for all units are found in the technical table in the end of this manual.

Installing geo-cooling equipment

If a geothermal heat pump is in use, the cold brine in the ground loop can be used in the summertime to cool the incoming air.

The system can be implemented in two ways:

- In a standard delivery, a separate pump is used (Option 1).
- Alternatively, the brine is circulated through the geothermal pump (Option 2).

The cooling coil can be either built in the ventilation unit or it can be a duct coil, depending on the model. A duct coil is mounted in the supply air duct after the ventilation device.

Detailed principal charts are found at the end of this manual.

Option 1 (standard)

A separate pump is used for circulating brine in the supply air coil.

The delivery includes:

- A relay for starting up the circulation pump for the ventilation unit's cooling coil.
    - The relay is situated on the unit motherboard connection DO8.
- A 3-way control valve (Belimo R3) needed for cooling.
- An actuator (Belimo TR24-SR).

The temperature is controlled using the ventilation unit's own automatic control. The ventilation unit controls the circulation pump and the 3-way valve.The heat pump is not started up for ventilation cooling.

To install:

1. Install the cooling coil in the supply air duct (in case of a duct coil).
2. Connect the condense water outlet.
3. Build a separate pump group with valve and actuator for circulating cool brine adjacent to the ventilation unit cooling coil.
4. Isolate the pipes carefully with vapour proof insulation to prevent condensation on the outside of the pipes in warm and semi-warm spaces.
    - Follow the principal chart at the end of this manual.

NOTE: The valve and actuator must be in the same position when connected. When the valve is in the open position, the actuator is turned counter-clockwise before connecting, and when the valve is closed, the actuator is turned clockwise before connecting. Figure 1 on page 15 shows the valve and markings on valve spindle in valve open (cooling/heating on max) position.

5. Prepare / connect wiring between the ventilation unit, the geothermal pump and the actuator, as shown in the connection diagram at the end of this manual.

Option 2

A geothermal heat pump is used for circulating brine also in the supply air coil.

The delivery includes:

- A relay for starting up the brine pump.
    - The relay is situated on the unit motherboard connection DO8.
- A 3-way control valve (Termomix D32S) needed for cooling.
- An actuator (Belimo NRYD24-SR-W + installation set MS-NRE).

The temperature is controlled using the ventilation unit's own automatic control. The ventilation unit controls the geothermal heat pump and the 3-way valve.

To install:

1. Install the cooling coil horizontally in the supply air duct (in case of a duct coil).
2. Isolate a separate loop for the cooling coil.
    - Make sure to include the one-way valve.
    - Follow the principal chart at the end of this manual.
3. Connect the condense water outlet.
4. Install the 3-way valve and the actuator in the ground collector's piping.

- The actuator controls the brine flow to the cooling coil as needed.

5. Isolate the pipes carefully with vapour proof insulation to prevent condensation on the outside of the pipes in warm and semi-warm spaces.

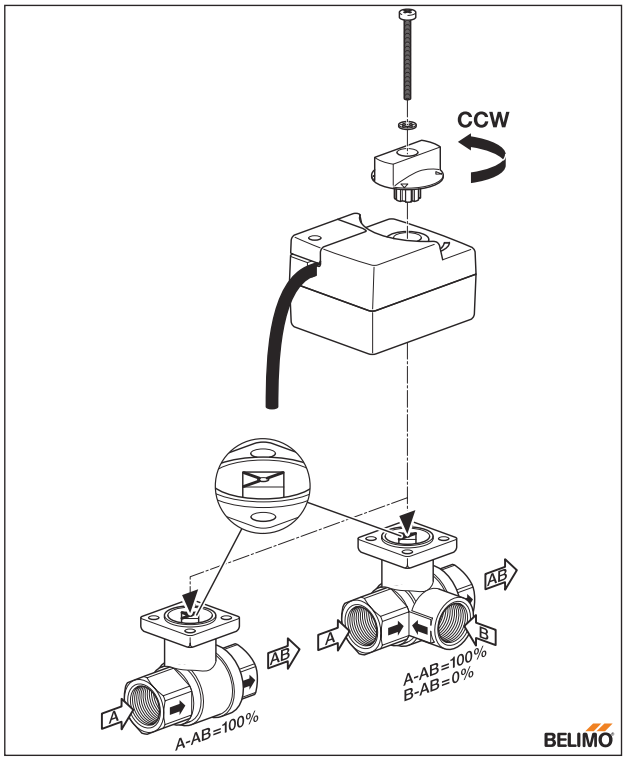


Figure 1. Valve and actuator open counter-clockwise and close clockwise. The figure shows the valve and actuator in the fully open position. Also, shown is the allowed direction of the liquid flow.

NOTE: The valve and actuator must be in the same position when connected. When the valve is in the open position, the actuator is turned counter-clockwise before connecting, and when the valve is closed, the actuator is turned clockwise before connecting. Figure 1 above shows the valve and markings on valve spindle in valve open (cooling/heating on max) position.

6. Prepare / connect the wiring between the ventilation unit, the geothermal pump and the actuator.

Installing CHG geothermal pre-heating / pre-cooling equipment

A geothermal pre-heating / pre-cooling coil for improving the system energy efficiency can be installed in the ventilation system. A duct coil is always used when a hydronic pre-heating coil is needed. The coil is installed in the outdoor air duct before the ventilation unit. The duct or the coil must have a filter to keep dirt out of the coil.

To avoid freezing the coil, the brine used in the coil system must meet the local rated temperature value.

- For example in Helsinki, the brine must still be functional at -26°C whereas in Lapland the temperature value is -38°C.

It is also possible to use earth to air heat exchangers (earth tubes) for pre-heating or pre-cooling. The earth tube must be combined with a normal outside air duct and a damper that switches the outside air flow between the earth tube and the normal outside air duct depending on the actual need for pre-cooling and pre-heating. The damper can be controlled from the same relay that controls the circulation pump for the hydronic pre-cooler / heater.

The CHG pre-heating / pre-cooling system can be built as a separate system (option 1) or as a part of the geo-thermal heat system (option 2).

Detailed principal charts are found at the end of this manual.

Option 1

A ground loop is built for the pre-heating / cooling coil. To avoid freezing of the system, brine in the loop must meet the local rated temperature value. The ventilation unit automatic control regulates the system's temperature. The ventilation unit controls the circulation pump and the 3-way valve.

To install:

1. Install the cooling / heating coil in the outside air duct.
2. Connect the condense water outlet.
3. Build a separate pump group for circulating cool brine adjacent to the ventilation unit cooling / heating coil.
4. Isolate the pipes carefully with vapour proof insulation to prevent condensation on the outside of the pipes in warm and semi-warm spaces.
5. Prepare / connect wiring between the ventilation unit, the circulation pump and the actuator.
6. Install and connect the outside air temperature sensor (TE01) in the outside air duct before the duct coil.
   - Refer to the electrical connection diagrams at the end of this manual.

Option 2

A separate loop is isolated from the geothermal pump brine loop for the cooling coil. To avoid freezing the coil, brine in the loop must meet the local rated temperature value. In addition to this, a heat exchanger is installed in the coil system to ensure the functionality of the geothermal pump. For the pre-heating / pre-cooling coil to yield any benefits there must be some flow in the collector of the geothermal pump.

Temperature is controlled using the ventilation unit's own automatic control. The ventilation unit controls the circulation pump and the 3-way valve.

To install:

1. Install the cooling coil in the outside air duct.
2. Connect the condense water outlet.
3. Build a separate pump group for circulating cool brine adjacent to the ventilation unit cooling coil.
4. Isolate the pipes carefully with vapour proof insulation to prevent condensation on the outside of the pipes in warm and semi-warm spaces.
5. Install a heat exchanger in the coil system.
6. Install and connect the outside air temperature sensor (TE01) in the outside air duct before the duct coil.
7. Prepare / connect wiring between the ventilation unit, the geothermal pump and the actuator. Refer to the electrical connection diagrams at the end of this manual.

The functions and accessories listed in the following table may need external wiring or connecting to function:

eWind external connections				
Connection/Functionality	**Location on eWind controller card**	**Voltage/current**	**Cable (example)**	**Wiring outside AHU**
AI NTC				
TE01 Outside air temperature	TE01	3.3VDC	Quick connector 5m cable supplied with AHU	Yes, if pre-heater/ preecooler (CHG/ AGH) or electrical duct mounted pre-heater
TE10 Supply air temperature	TE10	3.3VDC	Quick connector 5m cable supplied with AHU	Yes, if duct heater/ cooler coil
TE45/TE46 Heating/cooling coil return water temperature	TE45	3.3VDC	Quick connector 5m cable supplied with AHU	Yes, if duct heater/ cooling coil (W/E-CG)
Digital outputs DO		Potential free contact		
ON/OFF Control for heating	DO2	Max 250VAC/50VDC 8A/2A inductive load	MMJ 3x1.5	Yes, if hydronic heating (W)
ON/OFF Control for dampers	DO5	Max 250VAC/50VDC 8A/2A inductive load	MMJ 3x1.5	Yes
A alarm output (NO) (Default) ON/OFF Control for pre-heating (CHG/AGH or electrical pre-heater) ON/OFF Control for cooling (CG)	DO8	Max 250VAC/50VDC 8A/2A inductive load	MMJ 3x1.5	Yes, except built in pre-heater coil
Analog inputs AI				
%RH or CO2 external transmitter	AI1 (user configurable)	0-10VDC	KLM 4x0.8	Yes
Analog Outputs AO				
Control voltage for heating	AO5	0-10VDC 10mA	KLM 2x0.8	Yes, if hydronic heating (W)
Control voltage for pre-heater / Control voltage for cooling (CHG/CG)	AO6	0-10VDC 10mA	KLM 2x0.8	Yes, except built in pre-heater
Digital inputs DI		Potential free NO contact		
Emergency stop	DI1 (fixed)	24VDC	KLM 2x0.8	Yes
Manual boost mode	DI4	24VDC	KLM 2x0.8	Yes
Away mode	DI5	24VDC	KLM 2x0.8	Yes
Overpressure mode	DI6	24VDC	KLM 2x0.8	Yes
Miscellaneous connections				
Operating panel connectors	OP1, OP2		10m cable supplied with AHU	Yes
Modbus-RTU	X26		Instrumentation cable 2x2x0.5	Yes

ELECTRICAL CONNECTIONS

DANGER

DANGER: Only an authorized electrician is allowed to perform electrical work on the ventilation units.

Refer to the electrical drawings at the end of this manual.

Preparing for electrical installations

Before you start the installation, make sure that:

- Appropriate power supply is available for the ventilation unit.
- At least 30 mA fault current protection is installed.
  - Because of this, no other electrical appliances should be plugged into the same outlet.
- There is appropriate cabling between the unit and the control panel wall mount.
  - The cable must run inside a protective conduit of at least Ø 20 mm.
  - The cable included in the basic delivery is 10 m. Optionally a 30 m cable is available.
  - The cable heads are type RJ4P4C.

eWind card connections

eWind card connections	
NTC sensors	
Input	Use
TE01	Outdoor temperature measuring TE01.
TE05	Supply air temperature after-heat recovery TE05.
TE10	Supply air temperature TE10
TE32	Exhaust air temperature TE32
TE02	Pre-heated outside air temperature TE02 (CHG/ AGH)
TE45	Return water temperature TE45 (W) Return water temperature TE46 Option (CG).
Analog inputs AI 0-10V	
Analog input AI1 for voltage range 0-10V Functionality of this input is decided by user. (Parameter c27)	
Input	Use
AI1	External CO2 or %RH transmitter
Analog inputs AI7 - AI8 for voltage range 0-5V Functionality of these inputs are locked by software.	
AI7	Extract air humidity RH30
AI8	Extract air temperature TE30

eWind card connections	
Analog Outputs AO 0 - 10V	
Output	Use
AO1	Control voltage for supply fan
AO2	Control voltage for extract fan
AO4	Control voltage for HRW
AO5	Control voltage for heating
AO6	Control voltage for electrical pre-heater. Control voltage for (CHG). Control voltage for cooler (CG)
Digital outputs DO relays, potential free normally open contacts.	
Output	Use
DO2	ON/OFF Control for heating
DO5	ON/OFF Control for dampers
DO8	A/AB alarm output NO (Default) ON/OFF control for pre-heating (optional) ON/OFF control for cooling (CG/CHG/AGH) (optional)
Digital inputs DI (buttons and indications). Connection to GND only! No voltage allowed to be connected to digital inputs.	
Input	Use
DI1	Emergency stop
DI2	External electrical after-heater or pre-heater alarm
DI4	Manual boost
DI5	Away mode. Away mode is active as long as the input is grounded.
DI6	Fireplace/extractor hood mode. The fireplace switch is a momentary push-button switch. Fireplace mode is active 10 minutes from when input is grounded. If connected to a changeover switch, the circuit must be cut for the mode to reactivate. The extractor hood mode is active as long as the input is grounded. The selection between fireplace mode or extractor hood mode is done in parameter c12.
DI11	Supply fan tacho input
DI12	Extract fan tacho input
Miscellaneous connections	
OP1, OP2	Operating panel connections for eWind
X26	ModBus RTU
24VDC	+24VDC
GND	GND

External sensors

It is possible that external sensors must be installed depending on model of ventilation unit.

- The sensor element for duct mounted temperature, RH and CO2 sensors must be installed inside the duct.
- Most temperature sensors are supplied with a readymade 5 m long cable.
- RH and CO2 sensors need wiring on site.

To install:

1. Choose the place for the sensor according to the unit of measurement that is to be measured. Refer to the control diagram at the end of this manual.
2. Place the sensor in the duct at a straight segment, at least 2x the duct Ø before and after any duct coil, bends or fittings.
3. Drill a suitable hole for the sensor and a rubber grommet in the duct.
4. Push sensors attached to a cable trough the rubber grommet so that the sensor element is a few centimetres inside the duct.
   The rubber grommet must be air tight, and tight enough that the sensor cable cannot slip through by itself.
   - You can use a cable tie to lock the sensor in place.
5. Install sensors with rigid pipe type sensor elements through an adjustable flange mounted to the duct.
   - Push the sensor element through the flange and lock in place with a screw at suitable depth.
   - Conduct electrical connections according to the electrical schematics at the end of this manual.
   - The functions and accessories listed in the table "eWind external connections" on page 16 may need external wiring or connecting to function:
   - Make sure the cable grommets in the duct and ventilation unit are absolutely air and water tight. If in doubt, use an elastic sealer to seal the grommets.
6. To select a CO2 sensor active the CO2 boosting function must be selected "*on*" from parameter c27.

For more information on electrical connections, see the control and connection diagrams at the end of this manual.

Installing eWind control panel

The eWind control panel (see chapter "Control system, eWind operating panel" on page 26) is installed in a wall mounted recessed junction box, or using the supplied surface mounted junction box. One ventilation unit can be controlled with the maximum of 2 panels.

Installing one control panel

To install:

1. Install the connection cable supplied with the unit.
2. Attach the connection cable to the connector on the eWind control panel.
3. Install the eWind control panel to the wall junction box.
4. Attach the connection cable to connector OP1 of the eWind controller card.

- Make sure the cable grommets in the ventilation unit are absolutely air and water tight.
  - If in doubt, use an elastic sealer to seal the grommets.

Installing two control panels

If the ventilation unit is controlled with two control panels, each panel is attached to the eWind controller card with its own cable.

To install:

1. Install the eWind control panels as instructed above. Attach the connection cable of the first eWind panel to connector OP1 and cable of the second eWind control panel to connector OP2 of the eWind controller card.
2. Remove jumper J1 from the eWind controller card.

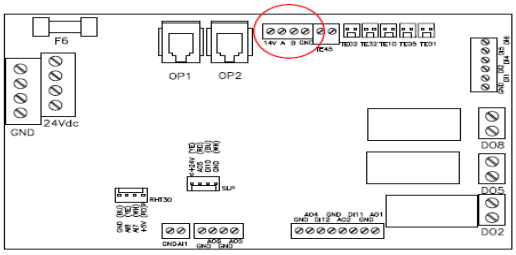
Installing with Modbus

The ventilation unit can also be controlled via Modbus connector X26.

Specification of Modbus:

- Modbus address 1 (default)
- Communication standard RS485
- Modbus traffic via Modbus connector X26 of controller card
- Speed 9600, 19200 or 115200 bps
- 8 bit
- No parity or parity.

The order of Freeway connector's pins is marked on the controller card.



Modbus registers are available on Enervent webpage www.enervent.fi

CAUTION

CAUTION: Do not connect the external bus to the motherboard before the bus is programmed and compatible with the unit control.

INSTALLATION

NOTE: Before you install the ventilation unit, make sure that there are no foreign objects in the ventilation unit and duct system.

- Refer to the model-specific dimensional drawings in the back of this manual for your specific ventilation unit type.
- Inspect the order of duct connections to avoid cross connections.
- Do not start the ventilation unit when it is installed until the building is taken into use.
  - If the ventilation unit is started too early, the ventilation system can be contaminated by building dust.
- Make sure that the ventilation unit duct connections are the same size as the duct.
  - Use a circular duct fitting to connect the unit to the duct.
- Insulate the duct all the way to the unit casing.

Additional installation materials

Material	Description of use
Screws	For hanging the rear attachment bracket and ventilation unit on the wall (if applicable). Select the screws according to the wall material.
Sheet metal screws	For attaching the rear attachment bracket onto the ventilation unit.
Wall mounting box	For installing eWind operating panel.
Cables	As specified in chapter "Preparing for electrical installations" on page 17.
Duct tape	For sealing.
Insulation sheets (soft foamed plastic)	For preventing structure-borne noise.
Insulation material (foamed plastic and/ or wool, depending on where the unit will be installed)	For retaining heat and coolness.
Rivets	For attaching the ventilation ducts onto the unit.
Spirit level	For making sure that the unit is level.
Water pipe	For connecting duct coils and for disposing of condensate water.
Water trap	For condensate water drain.
Reducing fittings for duct connections	For fitting the ducts in the ventilation system. NOTE: Always use reducing fittings, if necessary.
Dampers	To keep cold air out.
Silencers	To reduce possible noise.
Suitable grommets for duct mounted sensors	For mounting sensors in the ducts.
Shut-off valves	To facilitate servicing of unit.
Hydronic balancing valves	To properly adjust the water flow.

EN

Installing models Pinion, Pingvin, Pingvin XL, Pandion, Pelican, Pegasos and Pegasos XL

Wall installation

Pinion, Pingvin, Pingvin XL and Pandion

To prepare:

1. Prepare the holes in the wall.
2. Bring in the ducts through the cross cut in the vapor barrier to the height to which the unit will be mounted.
3. Seal the gap between the duct and the vapor barrier using for example duct tape.
4. Install an insulating plate at the back of the ventilation unit or otherwise prevent the structure borne noise.
   - Soft foamed plastic sheets are recommended (not included in the delivery).
5. Install an extra layer of insulation outside the ventilation unit (for example foamed plastic), if the unit is installed with its side against exterior wall or if there is any other reason to suspect that the outside of the unit will condensate.
   - Condensation risk is present in areas where the climate is cold.
   - Installation varies for different models.

To install:

1. Install the rear attachment bracket at the desired height.
2. Lift the unit on the bracket.

NOTE: Remove the heat exchanger before you lift the unit. This will make the unit much lighter to handle. Remove or secure the doors so that they do not open during lifting.

3. Attach the unit to the wall by the upper mounting lugs.
   - Make sure to install the rubber bushings for the fastening screws. (Pingvin and Pandion only).
4. Attach the rear attachment bracket to the unit's base using sheet metal screws.

NOTE: It is essential for the proper disposal of condensate water that a Pingvin unit is installed slightly tilted backwards. This must be verified using a spirit level.

   - Make sure that the ventilation ducts are insulated according to the instructions in chapter "Insulating ventilation ducts" on page 11.
5. Make the applicable electrical and plumbing connections according to the electrical and principal diagram at the end of this manual.

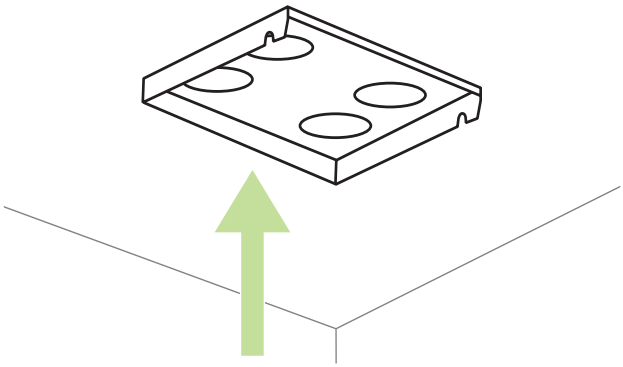
Ceiling installation

Pinion, Pingvin, Pingvin XL and Pandion

The dimensional drawings for each of the models can be found at the end of this manual.

To install:

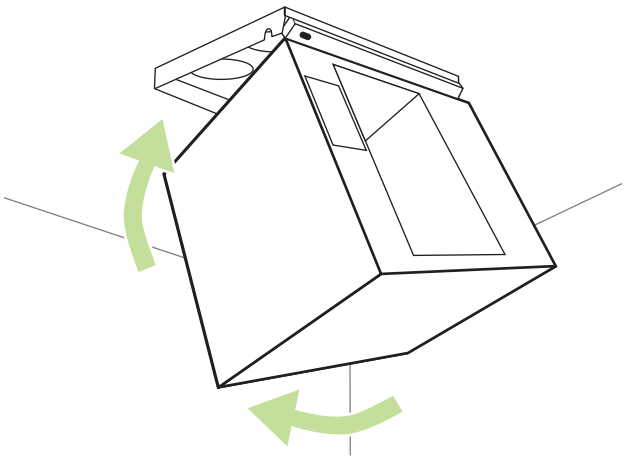
1. Install the installation plate on the ceiling.



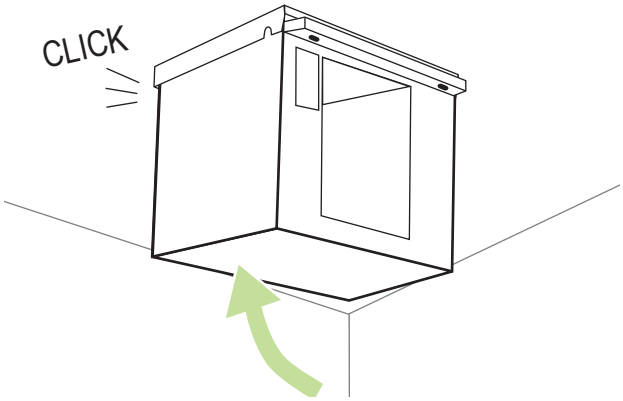
2. Install the supplied duct couplings and insulation rings (Pingvin, Pingvin XL and Pandion), or insulation sheet (Pinion) on top of the unit.
3. Unscrew the cover of the electrical cabinet.
   - Prepare the lead-ins on unit for the cables coming through the ceiling.
   - Leave the electrical cabinet cover open.
4. Guide the unit power cable to run in front of the hook to keep the cables from squashing between the unit and the ceiling installation plate.

NOTE: Remove the heat exchanger before you lift the unit. This will make the unit much lighter to handle. Remove or secure the doors so that they do not open during lifting.

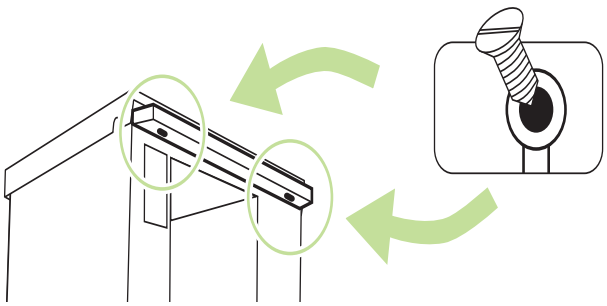
   - Make sure that there is enough space underneath the ceiling plate to fit the unit.
5. Lift the unit up.
6. Hook the unit to the front side of the ceiling installation plate.



7. Connect the cable(s) coming through the ceiling plate to the electrical enclosure box.
   - Make sure that the unit is hanging straight, directly in the middle of the ceiling plate.
8. Push the base of the unit upwards until it locks onto the ceiling plate.



9. Secure the unit in place by tightening the two security screws on both sides of the ceiling plate.
   - The locking screws for Pinion units are below the ventilation unit.



10. Put the heat exchanger back in the unit and close the electrical cabinet door.
11. Reinstall the doors if you removed them before the lifting.
12. Make the applicable electrical and plumbing connections according to the electrical and principal diagram at the end of this manual.

NOTE: Make sure to leave the cables loose in case the unit must be taken down for some reason.

NOTE: It is essential for the proper disposal of condensate water that a Pingvin unit is installed slightly tilted backwards. The unit is automatically installed tilted in the ceiling installation plate.

Taking down ceiling installed units

DANGER

DANGER: Before taking the unit down, make sure that the unit's supply voltage has been switched off.

CAUTION

CAUTION: Make sure you are holding the unit in its place when opening the locking plates. When the locking plates are opened, the unit's back side disengages from the ceiling plate. Make sure that you have enough space under the unit for it to swing down.

To take down:

1. Open the security screws.
2. Open the electrical cabinet and disconnect the cables coming from the ceiling.
3. Holding the unit securely in its place, twist both of the locking plates open (towards you) using a screwdriver.
4. Lift down the unit.

Floor installation

Pandion, Pelican, Pegasos and Pegasos XL

Dimensional drawings for each of the models can be found at the end of this manual.

To install:

1. Set the ventilation unit on the floor or on the platform standing on its own rubber feet.
   - Make sure there is at least a 10 mm gap all around the unit.
   - If the unit is installed with its side against a wall, a 15 mm gap is required so the hatch can be fully opened.
2. Note the space needed for disposing of condensate water and the water trap under the unit (if applicable).
   - Make sure there is at least 95 cm of space in front of the unit's maintenance hatch and that the electrical connections can be easily accessed.
3. Connect the unit to a condensate water disposal drain with water trap.
4. Connect the ducts to the ventilation unit using rivets.
5. Insulate the ducts according to the instructions in Insulating ventilation ducts section.
6. Make the applicable electrical and plumbing connections according to the electrical and principal diagram at the end of this manual.

Installing models LTR-2, LTR-3, LTR-4, LTR-6, LTR-7 and LTR-7 XL

Dimensional drawings for each of the models can be found at the end of this manual.

Consult the ventilation planner regarding possible need for additional insulation of the unit if mounted in a cold space.

If you are using solid (hard) insulation, avoid fastening the isolation in a way that conducts sound and vibration to the house frame.

To install:

1. Set the unit on top of an insulating plate.
   - For example a chipboard covered with 100 mm of hard insulating wool – above the rafters in the attic or on a separate shelf in a storage etc.
2. Note the space needed for disposal of condensate water and the water trap.
   - Make sure that there is enough space left in front of or above the maintenance hatch:
   - Tilt the unit slightly in the direction of the condensation drain.

Unit	Free space
LTR-2 and LTR-3	min. 50 cm
LTR-4 and LTR-6	min. 60 cm
LTR-7 and LTR-7 XL	min. 70 cm

3. Note the space needed for opening the maintenance hatch locks.
   - Make sure the electrical connections can be easily accessed.
4. Connect the ducts to the ventilation unit with circular duct fittings using rivets.
5. Insulate the ducts according to the instructions in chapter "Insulating ventilation ducts" on page 11.
6. Connect the unit to a condensate water disposal drain with water trap.
   - If the ventilation unit is equipped with a built-in cooling coil it is recommended to install the unit with the service hatch to the side to enable the condensate water to drain more easily.
   - LTR-4 units with cooling coil have two optional 32 mm condensation drains. One drain is welded shut and the other is ready to use. Depending on the way the LTR-4 unit is installed, the drain that becomes lower is to be used. If the lower drain is the welded one, a short piece of the pipe is sawed off to open the pipe, and the water trap is connected to the pipe.
   - The unused condensation drain must be plugged.
7. Make the applicable electrical and plumbing connections according to the electrical and principal diagram at the end of this manual.

Installing model eWind W

Principal, control and wiring diagrams for each model can be found at the end of this manual.

Check the principal charts for units with fluid coil. Install and connect the water pipes according to these charts.

To install:

1. Install the dampers and damper motors.
2. Install and connect the water pipes.
3. Install the valve and the valve actuator.

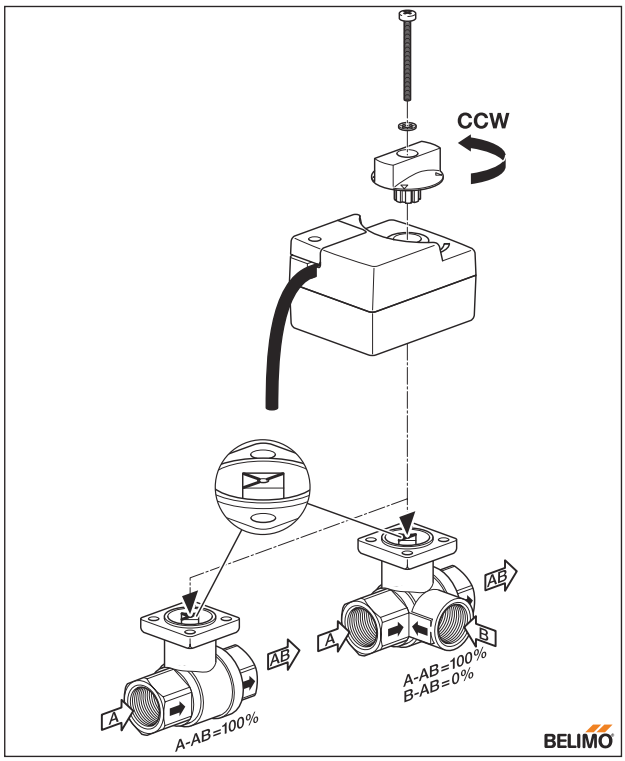


Figure 2. Valve and actuator open counter-clockwise and close clockwise. The figure shows the valve and actuator in the fully open position. Also, shown is the allowed direction of the liquid flow.

NOTE: Do not install the actuator so that the manual control faces downwards.

4. Connect the water.
   - Do not connect to a point where the water circulation ends for example during hot water production.
5. Check the duct coil and its connections for leaks immediately after the system has been filled with water.
   - The water heating coil needs a steady flow of sufficiently warm water without large temperature fluctuations.
   - Adjust the water flow in the heating coil according to the technical features table at the end of this manual.
   - If the water is taken for instance from a ground source heat pump, the heating coil needs its own circulation pump.
   - If the installation is done in wintertime it is recommended not to let water in the coil until the ventilation is running. This is in order to prevent cold air from entering the ventilation system and possibly freezing the coil.
6. Connect the external cables such as the cable between the unit and the control panel, supply sensor, actuator and pump.
   - Do not connect Modbus until all installation and commissioning work is done.
7. Install over voltage protection to the unit.
8. Open the unit's maintenance hatch and make sure that:
   - The unit is clean from the inside
   - There are no unwanted objects inside
   - The filters are in place and
   - The condensate drain works.
9. Close the hatch carefully.
10. Connect the unit to an appropriate electric supply.

NOTE: The valve and actuator must be in the same position when connected. When the valve is in open position, the actuator is turned counter-clockwise before connecting, and when the valve is closed, the actuator is turned clockwise before connecting. Figure 2 on page 23 shows the valve and markings on valve spindle in valve open (cooling/heating on max) position.

Draining condensate water

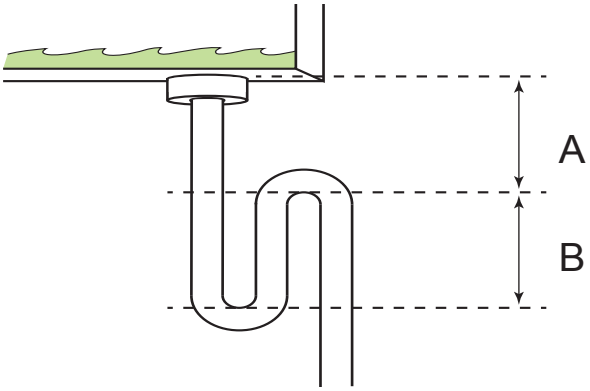
All Enervent ventilation units must be drained. When air cools down (condenses), condense water forms. For example in winter time when humid inside air meets cold heat recovery wheel, or when warm outside air meets the cooling coil in the ventilation unit (if applicable).

CAUTION

CAUTION: The condense water drain must not be directly connected to a sewer pipe.

- The condensate water should be led in a falling, at least Ø15 mm pipe, through a water trap to a floor drain or such.
- The pipe must at all times lie lower than the condensate water drip pan / condensate water connection of the ventilation unit.
- There must not be any longer horizontal sections on the pipe.
- The condensation drain pipe must be insulated if mounted in spaces where freezing can occur.
- Only one water lock is allowed for each condensate water drain.
- If the unit is equipped with more than one condense water drains, each one must have a water lock of its own.
- There is underpressure in the ventilation unit. We recommend a height difference of (A) 75 mm, or at least the underpressure divided with 10 in millimeters (i.e. 500 Pa under pressure -> 50 mm), between the unit drain and the water lock drain.

- We recommend that the height of backwater in the water lock (B) is 50 mm, or at least the underpressure divided with 20 in millimeters (i.e. 500 Pa under pressure -> 25 mm height of backwater). The above also applies to duct coils for cooling mounted in the outside air duct or extract air duct.
- There are over pressure inside duct coils mounted in the supply air duct. We recommend the height difference (A) between the duct coil drain and the water lock drain is 25 mm. The water lock height of backwater (B) must be 75 mm, or at least the over pressure divided with 10 in millimeters (i.e. 500 Pa under pressure -> 50 mm).
- The water lock must be filled with water before starting up the unit. The water lock might dry up if water is not accumulated in it. If this happens, air might get into the pipe and hinder water from entering the water lock, which might result in an irritating "bubbling" sound.
- The functionality of the water lock must be checked every year before the heating season and also in the spring if the ventilation unit is equipped with cooling.



CONDENSATE WATER DRAIN TABLE			
Unit	**1/4" (inner thread)**	**DN32**	**G½" (VEAB, outer thread)**
Pinion eWind (E)/(W)	•		
Pingvin eWind (E)/(W)	•		
Pingvin eWind E-CG/CHG	•		•
Pingvin XL eWind (E)/(W)	•		
Pingvin XL eWind E-CG/CHG	•		•
Pandion eWind (E)/(W)	••		
Pandion eWind E-CG	•	•	•'
Pandion eWind E-CHG	••		•
Pelican eWind (E)/(W)	••		
Pelican eWind E-CG	•	•	•'
Pelican eWind E-CHG	••		•
Pegasos eWind (E)/(W)	••		
Pegasos eWind E-CG	•	•	
Pegasos eWind E-CHG	••		•
Pegasos XL eWind (E)/(W)	••		
Pegasos XL eWind E-CG/CHG	••		•
LTR-2 eWind (E)/(W)	••		
LTR-2 eWind E-CHG	••		•
LTR-3 eWind (E)/(W)	••		
LTR-3 eWind E-CG/CHG	••		•
LTR-4 eWind (E)/(W)	••		
LTR-4 eWind E-CG	••	••	•'
LTR-4 eWind E-CHG	••		•
LTR-6 eWind (E)/(W)	••		
LTR-6 eWind E-CG	••	•	•'
LTR-6 eWind E-CHG	••		•
LTR-7 eWind (E)/(W)	••		
LTR-7 eWind E-CG/CHG	••		•
LTR-7 XL eWind (E)/(W)	••		
LTR-7 XL eWind E-CG/CHG	••		•

- • condensate drain
- •• two condensate drains of the same size
- •' option

COMMISSIONING

Requirements

For the ventilation unit to start running, it needs:

- Minimum +8 °C return water temperature (if applicable)
- Supply and extract air below +55 °C.

For the ventilation unit to stay running, it needs:

- Minimum +10 °C measured extract air temperature
- Above +5 °C heat recovery supply air
- Above +10 °C supply air temperature
- All foreign objects removed from the ventilation system.
- Both fans operating.

Calibrating airflow

After the unit has been switched on, the airflows must be calibrated to the planned values.

- The airflow calibration is performed at start-up of the ventilation unit.
- The airflow calibration is done separately for both fans for each mode selection (=fan speed) of the ventilation unit.

When calibrating, make sure that:

- All filters are clean
- All supply and extract air valves, the roof pass-through and the outside air grating are in place.

NOTE: Do not cover the grating with a mosquito net.

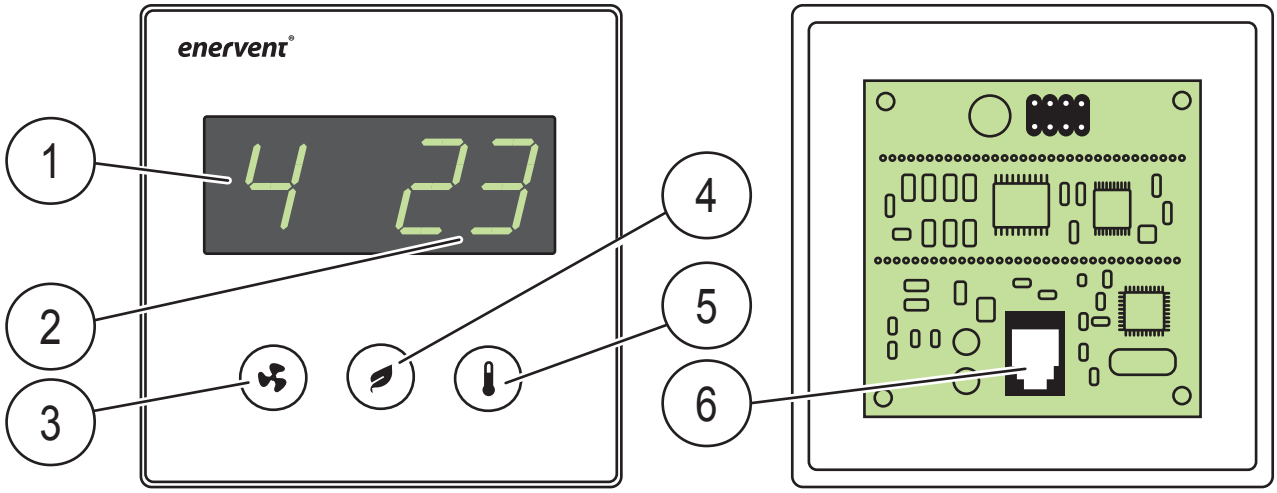
To achieve optimal values during calibration the airflows must be measured at each duct opening. A suitable measuring instrument is a thermo anemometer or differential pressure meter. With the help of registered values, airflow can be regulated to achieve the projected values.

A correctly calibrated ventilation unit is quiet and gives a good heat return and also upholds a small under-pressure in the house. The underpressure prevents humidity from entering the walls and ceiling.

Commissioning checklist

Item	Checked	Notes
The unit has been installed in its place according to the installation instructions provided by the manufacturer.		
Condensate water disposal pipe has been connected to the drain's water lock and tested.		
Silencers have been installed in the supply and extract air ducts.		
For models with water coils: dampers have been installed.		
All liquid coils are connected, the liquid flow(s) adjusted, and the connections are checked for leaks		
All external valves and valve actuators are connected and checked for correct operation.		
For CHG model: coil, control valve, valve actuator and temperature sensor for outside air duct have been installed and connected, checked for correct operation, and the brine flow adjusted. The freezing point of the brine liquid checked to be sufficient.		
Terminal devices have been connected to the ventilation network.		
Outside air grating has been installed for fresh air intake. **NOTE**: Do not cover the grating with a mosquito net. It will make it very difficult to clean.		
Unit is connected to an appropriate electric supply.		
Control panel has been connected.		
All external sensors have been connected and checked for correct operation.		
The ventilation ducts are insulated according to the ventilation plan.		

Control system, eWind operating panel



1.	*Mode (in basic display)*	*2.*	*Temperature (in basic display)*	*3.*	*Mode button*
4.	*Eco button*	*5.*	*Temperature button*	*6.*	*Cable connector*

Important to know about control system

Factory settings are suitable for most installations.

The fan speed settings for different operating modes are installation specific and must be specified and set separately for each installation. Otherwise, do not change the factory setting, unless otherwise specified in the ventilation system plan.

Make sure that you have all the necessary information at hand before starting the setup.

Setting up fan speeds

The fan speed settings for each operating mode must be specified and set separately for the installation. Refer to the parameter table for settings

To set up:

1. Press the **Eco** and **Temperature** buttons simultaneously three times.
2. Use the **Mode** and **Eco** buttons to select parameters c1-c 32.
   - Refer to "Parameter list" on page 27 for meaning of each parameter.
3. Press the **Temperature** button for 3 seconds select the parameter to adjust.
4. Use the **Mode** and **Eco** buttons to change the parameter value.
5. Press the **Temperature** button to confirm the value and return to selection of parameters c1 - c32.
6. Press the **Eco** and **Temperature** buttons simultaneously once to exit the setup.

Parameter list					
Parameter	**Description**	**Factory setting**	**Remark**	**Modbus registration**	**Field setting**
c1	Extract fan speed, mode 1, range: 20-100%, step: 1%	36%	Away mode	102	
c2	Supply air fan speed, mode 1, range: 20-100%, step: 1%	35%	Away mode	100	
c3	Extract fan speed, mode 2, range: 20-100%, step: 1%	56%	Home mode	52	
c4	Supply air fan speed, mode 2, range: 20-100%, step: 1%	55%	Home mode	51	
c5	Extract fan speed, mode 3 range: 20-100%, step: 1%	83%	Maximum effect also by RH ja CO2 boost mode	74	
c6	Supply air fan speed, mode 3 range: 20-100%, step: 1%	80%	Maximum effect also by RH ja CO2 boost mode	72	
c7	Extract fan speed, mode 4 range: 20-100%, step: 1%	100%	Manual boost mode	68	
c8	Supply air fan speed, mode 4 range: 20-100%, step: 1%	100%	Manual boost mode	67	
c9	Manual boost time limit (mode 4) range: 1...4 h, step: 1 h	2 h		66	
c10	Extract fan speed, fireplace/extractor hood mode range: 20-100%, step: 1%	30%	Overpressure mode	55	
c11	Supply air fan speed, fireplace/extractor hood mode range: 20-100%, step: 1%	50%	Overpressure mode	54	
c12	Overpressure mode time limit range: 5...15 min step: 1 min	10 min	Extractor hood mode selected when set to 0	56	
c13	Heat recovery defrosting on or oFF	oFF		Coil 55	
c14	Service reminder interval 4 or 6 months	4	Register value in days	538	
c15	CHG/AGH pre-heating and AGH pre-cooling, on or oFF	on		Coil 58	
c16	CHG/AGH outside temperature TE01, below which pre-heating is used range: 0…10°C, step 1°C, (for pre-heating)	5°C		592	
c17	CHG/AGH pre-heating not in use when outside air temperature (TE01) rises above value (c16) + (c17) range: 1…5°C, step 1°C	1°C		593	
c18	CG cooling or CHG pre-cooling on/oFF	on	Valid for CG and CHG heat exchangers	Coil 52	
c19	Outside temperature TE01, above which cooling is allowed	17°C		164	
c20	AGH outside temperature above which earth channel is used range: 15…25°C, step 1°C, (for pre-cooling)	20°C		629	
c21	AGH pre-cooling not in use when outside air temperature (TE01) drops below value (c20-c21) range: 1…5°C, step 1°C	2°C		630	
c22	Temperature setup for air temperature after electric pre-heater range: -10…-20°C, step: 1°C	-15°C		591	
c23	Humidity boosting on or oFF	on		Coil 19	

Parameter list					
Parameter	**Description**	**Factory setting**	**Remark**	**Modbus registration**	**Field setting**
c24	Summer/winter temperature threshold, range -10…+10 °C, step 1 °C	4 °C	Outside air 24 h temperature average. When over threshold, RH boosting is in summer mode, when under threshold, in winter mode.	137	
c25	RH boosting threshold, range 10…100 %RH, step 5%	45%	In winter mode RH boosting starts when RH value exceeds the threshold.	69	
c26	Humidity boosting start threshold range: 5…30% RH exceeding 48h average, step 5%	15%	In summer mode RH boosting starts, when RH exceeds the 48 h RH average by the threshold value.	70	
c27	CO2 boosting on or oFF	oFF	If on configures AI1 for external CO2 sensor	Coil 21	
c28	CO2 boosting start threshold range: 600...1200 ppm, step: 100 ppm	1000 ppm		76	
c29	Boosted dehumidification with HRW rotor on or oFF	oFF		Coil 24	
c30	Display dimmed in stand-by on or oFF	oFF	Panel specific setting oFF: display off in stand-by, on: dimmed display in stand-by.	Internal	
c31	eWind motherboard Modbus address range: 1...99, step: 1	1		640	
c32	Modbus bus speed 1=9600, 2=19200, 3=115200	2	19200bps	733	

Information view

You can view the active functions from eWind Info list shown in the information display.

eWind Info list

To open:

1. Press **Eco** and **Temperature** buttons simultaneously once.
   - A parameter (n1..nn) is shown in the display.
2. Browse the Info list with **Mode** and **Eco** buttons.

To return to the basic view:

1. Press the **Eco** and **Temperature** buttons simultaneously once.

NOTE: Without input the menu closes after 5 minutes and the panel switches back to basic display.

eWind Info list	
Designation	**Explanation**
n0	Basic mode in use
n1	Ventilation boosted by %RH
n2	Ventilation boosted by CO2
n3	Heat recovery in use
n4	After-heating by electrical or water coil in use
n5	Outside air pre-heating by CHG/AGH or electrical pre-heater in use
n6	Supply air cooling by CG, CHG or AGH in use
n7	Cool recovery by rotating heat exchanger in use
n8	Ventilation manually boosted
n9	Away mode in use
n10	Rotor dehumidification in use
n11	Defrosting in use
n12	ECO mode in use
n13	Service reminder; Days remaining to next filter change
n14	Unit starting up

Measurements view

You can follow the temperature, humidity, heat recovery efficiency among other measurements in the eWind Measurements list shown in the measurements display.

•

eWind Measurements list

To open:

1. Press the **Eco** and **Temperature** buttons simultaneously twice.
   - A parameter (r1..rn) and the value of the parameter are shown in the display.
2. Press the **Mode** or **Eco** buttons to scroll the parameter list up or down.

To return to the basic view:

1. Press the **Eco** and **Temperature** buttons simultaneously once.

eWind Measurements list				
Designation	**Explanation**	**Designation in schematics and connection on eWind main board**	**Note**	**Modbus-register**
r1	Outside air temperature, °C	TE01	All models	6
r2	Supply air temperature after-heat recovery, °C	TE05	All models	7
r3	Supply air temperature, °C	TE10	All models	8
r4	Extract air temperature, °C	TE30	All models	10
r5	Exhaust air temperature, °C	TE32	All models	9
r6	Return water temperature of water heating coil, °C	TE45	W only. Other models show "0"	12
r7	Pre-heated outside air temperature (CHG/AGH/electrical pre-heater), °C	TE02	Only if equipped with CHG/ AGH or electrical pre-heater)	32
r8	Relative humidity of extract air, %RH	RH30	All models	13
r9	CO2 level, ppm		Without external CO2 sensor (accessory) showing "--"	23
r10	External relative humidity measurement, %RH		Without external %RH sensor (accessory) showing "--"	23
r11	Supply air heat recovery temperature efficiency, %		All models Calculated value	29
r12	Extract air heat recovery temperature efficiency, %		All models Calculated value	30

Documenting commissioning

- Fill in the warranty.
- Mark down the possible changes you made to the factory settings to the column *Field settings* in the table "Parameter list" on page 27.
- Fill out the air amount measuring document. A copy of the measuring document is provided at the end of this manual.

NOTE: The warranty does not apply for units with no documented air amount measuring.

NOTE: It is very important to write down all the changes made to the parameters. This way the information is backed up in case the automation gets damaged (for example by a lightning).

USING THE EQUIPMENT

Introduce the end user to proper use of the ventilation unit and the control panel.

NOTE: If you run into problems while using the ventilation unit, please consult the Troubleshooting guide at the end of this manual.

General

CAUTION

CAUTION: Do not switch the ventilation unit off. It must always be kept running at the power specified by the ventilation designer.

- Ventilation must be sufficient.
- If the ventilation is insufficient, the humidity indoors becomes too high and can result in the formation of condensation on cold surfaces.
- Indoor humidity levels must be checked regularly.
  - In winter an indoor relative humidity of max. 40 - 45% is recommended (room temperature of +20 - 22°C). At these levels the humidity will be at a healthy level and the risk of condensation is drastically diminished. Humidity levels can be checked with a hygrometer. When the humidity rises above 45 %, ventilation needs to be increased, and when the humidity goes lower than 40%, ventilation can usually be lowered.
- Cleanliness of the filters must be checked regularly.
  - During winter the extract air filter usually become dirty sooner than the supply air filter. As a result of this, the extract air flow decreases, which leads to a higher indoor humidity. This also leads to poor heat recovery.

NOTE: If you run into problems while using the ventilation unit, please see the chapter "MAINTENANCE" on page 32.

- Make sure monthly that the heat exchanger is rotating correctly.

NOTE: For more information on checking and cleaning the heat exchanger, please see chapter "MAINTENANCE" on page 32.

- If the unit is not to be used for a longer period of time, it can be shut down if you cover both the outside air intake and the exhaust air outtake.
- In this way you stop moisture from condensing on for example the fans' electric motors.
- Before the heating season in the Autumn and before there is cooling need (if unit is equipped with cooling) the functionality of the condensation drain(s) must be checked by pouring water into the drain and checking that the water is drained away.

Fans

When electricity is connected to the ventilation unit the relay controlling the dampers activates and heat recovery turn on full power. After a while the extract fan starts up and after a small delay, also the supply fan. After that the ventilation unit runs according to the defined settings.

The fans are operating at specific speed, based on the prevailing mode. During commissioning of ventilation unit, a specific fan speed is assigned to each mode. Supply and extract fans have each their own fan speeds.

Modes that affect the operating speed of the fans are:

- Mode 1, 2, 3 or 4
- CO_2 (accessory) or %RH boosting
- Away
- Manual boosting
- Overpressure
- Alarm modes A and AB

Supply and extract fan speed is assigned to each of these modes, not including alarm modes.

CO_2 (accessory) and humidity boosting of fans

The ventilation unit fan speed is controlled by data received from humidity and/or CO2 (accessory) sensors.

When CO2 boosting is selected, the external analog input (AI1) is automatically configured as a CO2 sensor input.

CO_2 and/or humidity content of a space is meant to be kept below the limit set in the control panel. Humidity control commands the fans based on data from internal and possible external humidity transmitters of the ventilation unit. One built-in humidity sensor is included in the standard unit delivery.

CO_2 boosting and humidity boosting may activate in mode 2 or 3. Additionally, humidity boosting may activate also in mode 1.

If humidity boosting is not sufficient to remove excess humidity from the premises, the rotor dehumidification function can be activated. When humidity boosting is active, rotor dehumidification activates automatically if the outside air temperature is below 0 °C and the functionality has been activated. This functionality slows the heat exchanger rotation down, so creating conditions for extracting greater volumes of humidity.

Fireplace/extractor hood mode

Fireplace mode control can be activated directly from the control panel or by using a separate button (extra equipment), which makes lighting of a fireplace easier. Length of overpressure and supply and extract fan speed can be set in the control panel. Fireplace mode can be aborted from the control panel. Fireplace mode lowers the extract fan speed and accelerates the supply fan speed for 10 minutes (default setting).

NOTE: Fireplace mode is only to be used as a temporary help for lighting of the fireplace. The combustion air for the fireplace must be brought by other means than the ventilation unit.

The extractor hood mode is selected by selecting 0 min as the fireplace mode activation time (parameter c12). This disables the fireplace mode selection from the eWind operating panel. The extractor hood mode is active as long as the extractor hood flap is open.

Manual boosting

Boosting or airing function is started directly from the control panel. Boosting accelerates both fans for a pre-defined time (default setting is 2 hours). Boosting can be aborted from the control panel.

Temperature control

Heat recovery

Heat recovery is on when the supply air temperature drops below the temperature set-point of the supply air.

Cooling recovery

During summer, the heat exchanger turns fully on when the outside air temperature is more than 1 °C higher than the temperature of extract air. The heat exchanger stops when the outside air temperature is lower than the temperature of extract air. This will help in keeping the room temperature cooler.

Heat recovery anti-freezing

The control phases the running of the heat exchanger based on data from temperature measuring, thus preventing freezing of heat exchanger. After the threat of freezing has passed, the heat exchanger operation returns to normal. Anti-freezing automation can be initiated in the control panel.

Heat recovery efficiency

The efficiency of the supply and extract air heat recovery is reported as percent value in the control panel.

Alarms

In alarm modes the ventilation unit either stops altogether (A alarms, for example fire alarm) or remains running in a fault state where the fans runs at minimum speed (so called AB alarms, e.g. when supply air is too cold). Refer to the table "Troubleshooting" on page 40 for more information about the alarm.

MAINTENANCE

The unit needs almost no maintenance. The maintenance is mostly limited to:

- Changing filters
- Cleaning heat exchanger
- Cleaning fans
- Inspecting the condensation drain.

DANGER

DANGER: Before you start maintenance, cut the power from the main power switch or from the LTR-series unit by removing the service hatch. Wait for approximately two (2) minutes before starting maintenance work. Although the unit's power supply is cut, the fans will rotate and the electrical coil will be hot for a while.

The equipment includes moving parts (e.g. fans, HRW motor and belt, compressors and pumps) that are subjected to wear. Due to normal wear these parts will have to be changed during the lifetime of the equipment. The normal lifetime of the parts subjected to wear depends on the operating conditions and the operating times, therefore it is not possible to state a normal lifetime for these consumable parts.

Service reminder

The control panel prompts you to perform the regular maintenance tasks. The control panel display shows the reminder prompt **FILS** when the service period has expired.

- To acknowledge the service reminder press any button on the eWind panel for 5 seconds.

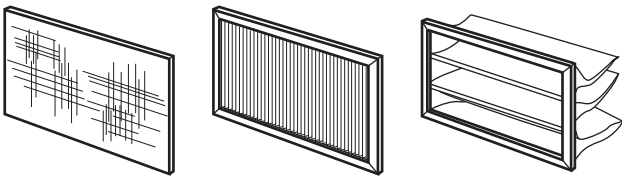
NOTE: When performing a maintenance task on one part of equipment, always inspect the wear and cleanliness of the other parts, as well.

NOTE: Visit the HelpCenter on our web page www.enervent.fi for videos showing the maintenance tasks.

Filters

Filter types

There are three different types of filters.



Plain filter, pleated filter and bag filter

The recommended maximum service intervals are:

Filter type	Service interval
Plain filter	4 months
Pleated filter	4 months
Bag filter	6 months

If class M5 bag filters are used the time between filter changes can be prolonged to one (1) year by vacuuming the filters on the inside.

CAUTION

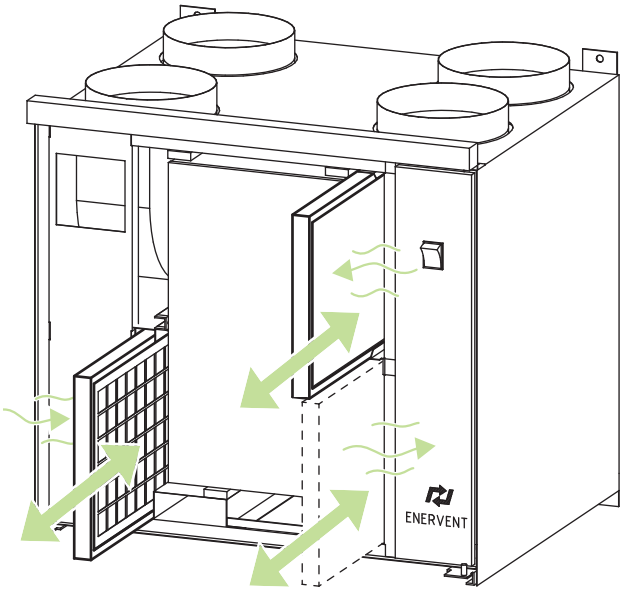
CAUTION: Vacuuming/cleaning of the M5 plain and F7 bag filters is not allowed.

Pleated filters may be cleaned with compressed air, thereby extending the change interval to max six (6) months.

NOTE: The compressed air must be oil free and dry.

The rubber gaskets for the filters is recommended to be lubricated by silicone oil. This will greatly increase the lifespan for the gaskets.

Replacing filters



Replacing filters (generic view)

NOTE: Vacuum the inside of the unit for better performance and cleaner indoor air.

Bag filter

To replace:

DANGER

DANGER: Before opening the service hatch, always make sure that the unit's supply voltage is switched off.

NOTE: For LTR-series units: The power cuts off when the service hatch is opened.

1. Open the service hatch.
2. Release the filter locking levers, if there are any.
3. Pull the old filter out of the unit.
4. Insert a new filter.
5. Close the filter locking levers, if there are any.
6. Close the service hatch properly.
7. Switch the power on.

TIP: Remove the metal frame from the used bag filter and recycle it along with metal waste. The filter fabric can be disposed of along with mixed waste.

Plain filter

To replace:

DANGER

DANGER: Before opening the service hatch, always make sure that the unit's supply voltage is switched off.

NOTE: For LTR-series units: The power cuts off when the service hatch is opened.

1. Open the service hatch.
2. Remove the filter from the ventilation device.
3. Remove the filter fabric from the frame.
4. Replace the filter fabric with a new one.
5. Insert the filter back into the unit so that the support grid faces the heat recovery wheel.
6. Close the service hatch properly.
7. Switch the power on.

TIP: Replace only the fabric part of the plain filter. Reuse the metal frame with a clean filter. The filter fabric can be disposed of along with mixed waste.

Pleated filter

To replace:

DANGER

DANGER: Before opening the service hatch, always make sure that the unit's supply voltage is switched off.

NOTE: For LTR-series units: The power cuts off when the service hatch is opened.

1. Open the service hatch.
2. Remove the filter from the ventilation device.
3. Insert the new filter.
   - Pay attention to the arrow on the filter showing the airflow through the filter.
4. Close the service hatch properly.
5. Switch the power on.

TIP: The filter can be disposed of along with mixed waste.

Fans

Inspecting

To inspect:

DANGER

DANGER: Before opening the service hatch, always make sure that the unit's supply voltage is switched off.

1. Inspect the cleanness of the fans visually when changing the filters.
   - If they look dirty, clean them.

TIP: Vacuum the inside of the unit for better performance and cleaner indoor air.

Cleaning

To clean:

DANGER

DANGER: Before opening the service hatch, always make sure that the unit's supply voltage is switched off.

1. Remove the fans from the unit.
2. Clean the fans with a toothbrush or pressurized air.
   - Do not disturb the balancing weights on the fan blades.
3. Place the fans back into the unit.

When restarting the unit after cleaning, make sure that the heat exchanger wheel and the fans turn freely.

Heat exchanger

Inspecting

To inspect:

1. Check the cleanness of the heat exchanger visually when changing the filters.
   - If it looks dirty, clean it.

TIP: Vacuum the inside of the unit for better performance and cleaner indoor air.

Cleaning

To clean:

DANGER

DANGER: Before opening the service hatch, always make sure that the unit's supply voltage is switched off.

1. Remove the heat exchanger from the unit.
2. Wash the heat exchanger with water and neutral detergent or use pressurized air.

WARNING

WARNING: Do not submerge the heat exchanger in water. The electric motor inside the exchanger must not get wet.

WARNING

WARNING: The use of a pressure washer is strictly forbidden.

3. Dry the heat exchanger properly.
4. Place the heat exchanger back into the unit.
5. Start the unit up to verify the rotation.
6. Close the service hatch.

When restarting the unit after cleaning, make sure that the heat exchanger wheel turns freely.

Replacing heat exchanger belt

If the heat exchanger has stopped rotating, the reason for it may be a broken drive belt. Check the condition of the belt from the round opening at the front of the heat exchanger. There is one spare belt attached to all heat exchangers.

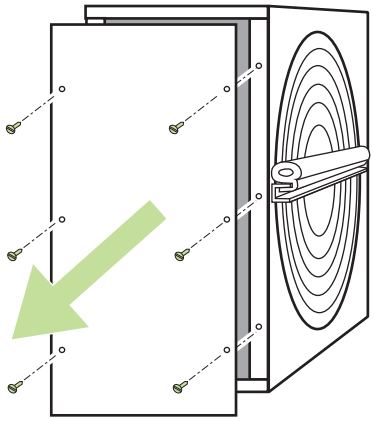
NOTE: Visit the HelpCenter on our webpage www.enervent.fi for videos showing the maintenance tasks.

To replace:

DANGER

DANGER: Turn off the ventilation unit by switching off the main power supply, by removing the fuse or by disconnecting the wall plug.

1. Detach the bayonet connector from the socket.
2. Remove the heat exchanger from the unit carefully.
3. Unscrew the six screws on the heat exchanger maintenance hatch lid at the front side of the heat exchanger.

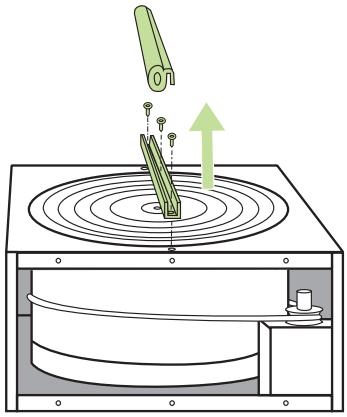


4. Open the maintenance hatch with the help of a flat tool.
   - Use for example a Stanley knife.
5. Pull off the broken heat exchanger belt.
6. Inspect the belt wheel to make sure it is undamaged, in its place and rotating properly.
7. Clean the heat exchanger and the belt wheel.
   - Use water and neutral detergent with a soft, lint-free cloth.
   - Rotate the heat exchanger to make sure everything gets cleaned.
   - Make sure that the heat exchanger is rotating freely, without excessive force. You should be able to rotate the heat exchanger with only one finger.

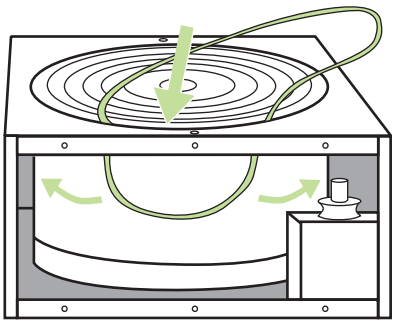
Go to step 8 if a spare belt is not attached on your heat exchanger.

   - Pull the spare exchanger belt from the holders by rotating the exchanger.
   - Leave the holders on the heat exchanger.

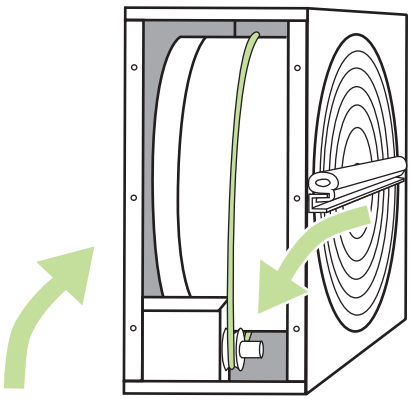
8. Loosen the U-beam on one side of the heat exchanger by removing the screws under the U-beam rubber gasket.



9. Unscrew the hexagonal screw of the axle in the middle of the U-beam and remove the beam.
10. Slide the new belt inside around the heat exchanger through the opening in the casing and the gasket.



11. Rotate the heat exchanger to get the belt properly in place.
12. Replace the U-beam and reattach the axle and U-beam screws.
13. Go through the new belt with the cleaning cloth to make sure it is free of dirt.
14. Pull the belt onto the belt wheel.



15. Rotate the heat exchanger to see that the belt is in its place and everything looks fine.
16. Vacuum clean the heat exchanger casing.
    - Rotate the heat exchanger when you are vacuuming to be sure to clean everywhere.
17. Close the maintenance hatch.
18. Add some silicone onto the rubber strips outside the heat exchanger casing.
19. Place the heat exchanger back into the unit.
20. Reconnect the bayonet connector to the socket.
21. Reconnect the power.
22. Make sure the heat exchanger rotates.

Models with duct coils

Unit	Hydronic (water) after-heating coil (LxDxH) Duct connection Ø mm	Hydronic (brine) cooling coil (LxDxH) Duct connection Ø mm	Right hand / left hand change	Condensate drain connection	External sensors
Pinion eWind W	VEAB CWW 125-3-2,5 276x313x255 mm Ø 125 mm		No	No	TE10 supply air sensor TE45 return water sensor
Pinion eWind E-CHG		VEAB CWK 200-3-2,5-L/R 395x415x330 mm Ø 200 mm	Yes	Yes G ½" external thread	TE01 outside air sensor
Pingvin eWind E-CG/CHG		VEAB CWK 200-3-2,5-L/R 395x415x330 mm Ø 200 mm	Yes	Yes G ½" external thread	TE10 supply air sensor (CG) TE01 outside air sensor (CHG)
Pingvin eWind W	VEAB CWW 160-3-2,5 276x313x255 mm Ø 160 mm		No	No	TE10 supply air sensor TE45 return water sensor
Pingvin XL eWind E-CG/CHG		VEAB CWK 200-3-2,5-L/R 395x415x330 mm Ø 200 mm	Yes	Yes G ½" external thread	TE10 supply air sensor (CG) TE01 outside air sensor (CHG)
Pingvin XL eWind W	VEAB CWW 200-3-2,5 276x398x330 mm Ø 200 mm		No	No	TE10 supply air sensor TE45 return water sensor
Pandion eWind E-CHG		VEAB CWK 200-3-2,5-L/R 395x415x330 mm Ø 200 mm	Yes	Yes G ½" external thread	TE01 outside air sensor
Pelican eWind E-CHG		VEAB CWK 250-3-2,5-L/R 395x491x405 mm Ø 250mm	Yes	Yes G ½" external thread	TE01 outside air sensor
Pegasos eWind E-CHG		VEAB CWK 400-3-2,5-L/R 450x715x529 mm Ø 400 mm	Yes	Yes G ½" external thread	TE01 outside air sensor
Pegasos XL eWind E-CG		VEAB CWK 315-3-2,5 276x560x504 mm Ø 315 mm	No	Yes G ½" external thread	TE10 supply air sensor
Pegasos XL eWind E-CHG		VEAB CWK 400-3-2,5-L/R 450x715x529 mm Ø 400 mm	Yes	Yes G ½" external thrEad	TE01 outside air sensor
LTR-2 eWind E-CHG		VEAB CWK 200-3-2,5-L/R 395x415x330 mm Ø 200 mm	Yes	Yes G ½" external thread	TE01 outside air sensor
LTR-3 eWind E-CG/CHG		VEAB CWK 200-3-2,5-L/R 395x415x330 mm Ø 200 mm	Yes	Yes G ½" external thread	TE10 supply air sensor (CG) TE01 outside air sensor (CHG)

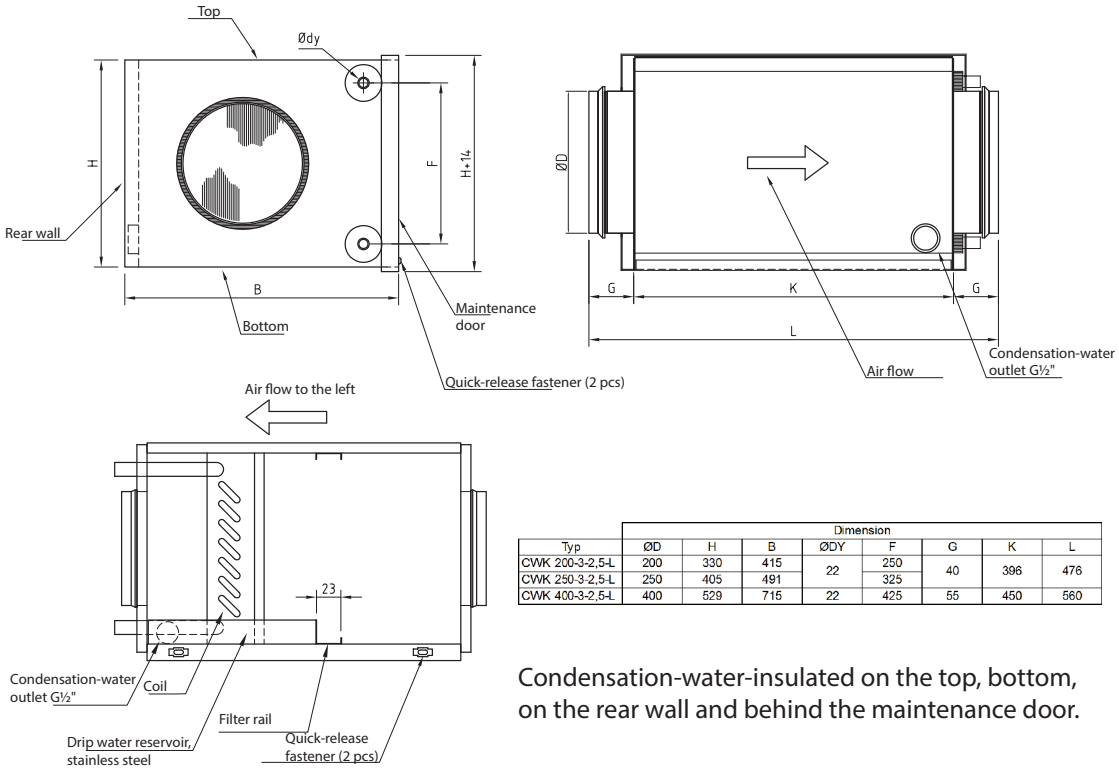
Unit	Hydronic (water) after-heating coil (LxDxH) Duct connection Ø mm	Hydronic (brine) cooling coil (LxDxH) Duct connection Ø mm	Right hand / left hand change	Condensate drain connection	External sensors
LTR-3 eWind W	VEAB CWW 160-3-2,5 276x313x255 mm Ø 160 mm		No	No	TE10 supply air sensor TE45 return water sensor
LTR-4 eWind E-CHG		VEAB CWK 200-3-2,5-L/R 395x415x330 mm Ø 200 mm	Yes	Yes G ½" external thread	TE01 outside air sensor
LTR-6 eWind E-CHG		VEAB CWK 250-3-2,5-L/R 395x491x405 mm Ø 250mm	Yes	Yes G ½" external thread	TE01 outside air sensor
LTR-7-eWind E-CG		VEAB CWK 250-3-2,5-L/R 395x491x405mm Ø 250mm	Yes	Yes G ½" external thread	TE10 supply air sensor
LTR-7-eWind E-CHG		VEAB CWK 400-3-2,5-L/R 450x715x529 mm Ø 400mm	Yes	Yes G ½" external thread	TE01 outside air sensor
LTR-7-XL eWind E-CG		VEAB CWK 315-3-2,5 276x560x504 mm Ø 400mm	No	Yes G ½" external thread	TE10 supply air sensor (CG)
LTR-7-XL eWind E-CHG		VEAB CWK 400-3-2,5-L/R 450x715x529 mm Ø 400mm	Yes	Yes G ½" external thread	TE01 outside air sensor (CHG)

CHG Pre-heating and pre-cooling coils

These coils are installed in the outside air duct (before the ventilation unit).

Definition	CHG 200	CHG 250	CHG 400
Coil type	VEAB CWK 200-3-2,5-L/R	VEAB CWK 250-3-2,5-L/R	VEAB CWK 400-3-2,5-L/R
Product code.	L: K930040501V (left) R: K930040501 (right)	L: K930040502V (left) R: K930040502 (right)	L: K930040503V (left) R: K930040503 (right)
Suits listed Enervent units (NOTE It is possible to use a bigger coils than listed here)	Pinion, Pingvin, Pingvin XL, Pandion, LTR-2, LTR-3, LTR-4	Pelican, LTR-6	Pegasos, LTR-7
Coil duct connection.	Ø 200 mm	Ø 250 mm	Ø 400 mm
Coil outer dimensions and weight dry/with fluid.	L 395 x H 330 x D 415 mm, 10/11 kg	L 395 x H 405 x D 491 mm, 12/13,5 kg	L 450 x H 529 x D 715 mm, 22/24,7 kg
Filter (plain filter)	1 pcs, filtering class G3. 379 x 296 x 13 mm Spare filter package, 6 pcs filters (no mesh).	1 pcs, filtering class G3 454 x 372 x 13 mm Spare filter package, 6 pcs filters (no mesh).	1 pcs, filtering class G3 679 x 472 x 13 mm Spare filter package, 6 pcs filters (no mesh).
Fluid pipe connections **Condense water drain (underpressure)**	22 mm ½ ", must be equipped with water trap.	22 mm ½ ", must be equipped with water trap.	22mm ½ ", must be equipped with water trap.
Valve and valve actuator.	Belimo "R313" (R3015-4-S1), 3-way, kvs 4, DN 15 TR24-SR, 0-10V	Belimo "R317" (R3020-4-S2), 3-way, kvs 4, DN 20 HRYD24-SR, 0-10V	Belimo "R322" (R3025-6P3-S2), 3-way, kvs 6,3, DN 25 HRYD24-SR, 0-10V
Additional outside air sensor	1 pcs 5 m sensor	1 pcs 5 m sensor	1 pcs 5 m sensor

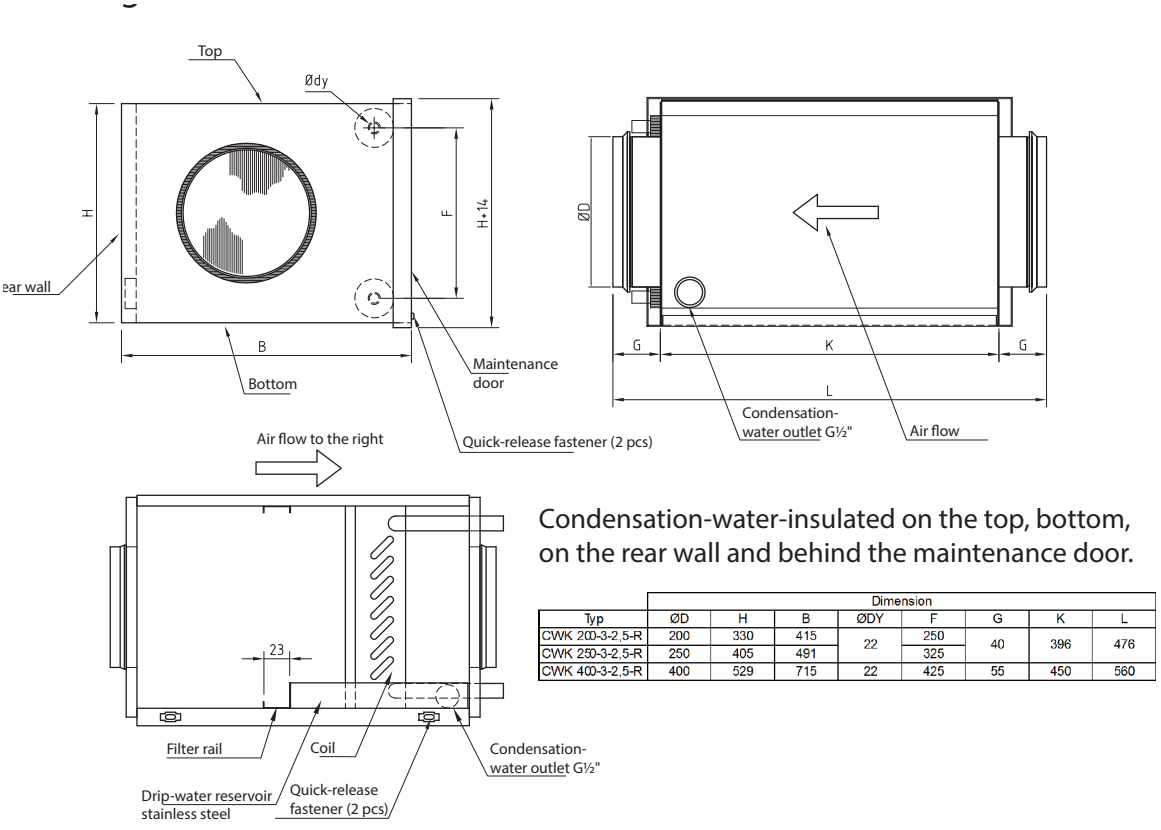
CHG Left-handed coil



	Dimension							
Typ	ØD	H	B	ØDY	F	G	K	L
CWK 200-3-2,5-L	200	330	415	22	250	40	396	476
CWK 250-3-2,5-L	250	405	491		325			
CWK 400-3-2,5-L	400	529	715	22	425	55	450	560

Condensation-water-insulated on the top, bottom, on the rear wall and behind the maintenance door.

CHG Right-handed coil



Condensation-water-insulated on the top, bottom, on the rear wall and behind the maintenance door.

	Dimension							
Typ	ØD	H	B	ØDY	F	G	K	L
CWK 200-3-2,5-R	200	330	415	22	250	40	396	476
CWK 250-3-2,5-R	250	405	491		325			
CWK 400-3-2,5-R	400	529	715	22	425	55	450	560

List of extra equipment

EXTRA EQUIPMENT AVAILABLE	
Code	**Explanation**
K58 004 0001	eWind control panel package. The package includes the control panel, a surface mounted junction box, and 10 m cable.
K93 003 0004	CO2 carbon dioxide transmitter for installation on the wall 0-10V / 24V
M23 010 0007	Built-in CO2 carbon dioxide sensor T8031
K91 103 0022	CO carbon monoxide sensor
K93 003 0006	%RH humidity transmitter for installation on the wall 0-10V / 24V
M23 011 0002	% RH humidity transmitter for installation in the duct KLK 100
K93 003 0008	Push button for activating over pressure/boosting
K93 003 0029	KNX gateway
K93 014 0004	Damper Ø 125 mm (without isolation, tightness class 3)
K93 002 0001	Damper Ø 160 mm (without isolation, tightness class 3)
K93 002 0002	Damper Ø 200 mm (without isolation, tightness class 3)
K93 002 0003	Damper Ø 250 mm (without isolation, tightness class 3)
K93 002 0004	Damper motor with spring return 230 VAC, 4 Nm

Troubleshooting

Alarm	Description	Alarm limit	Symptoms	Possible reason	Action	Notes
FILS	Service reminder.	4 or 6 months		**Time for regular maintenance.**	Change filters. Inspect ventilation unit. Clean as needed. Look for damages.	Press any button for 5 seconds to acknowledge
Err	Sensor malfunction.			**A sensor is short- or open circuited.**	Check the connections and wiring of sensors	
- - - -	Downloading			**eWind panel is downloading data from eWind main board.**	Normal at start-up. Otherwise check the eWind connection cable.	
oFFE	Stop mode.		Ventilation off.	**Ventilation unit is commanded to stop mode by an external control system.**		
AL1	Water heater coil in danger of freezing.	+8 °C	Supply air cold.	**Water coil has frozen / is about to freeze:** • Circulation pump has stopped. • Heat exchanger is not rotating. • Actuator of the water coil's control valve is faulty. • Extract fan has stopped.	Restart the pump. Replace the motor or the belt. Replace the actuator. Find out why / replace the fan.	The unit will not start before the alarm condition has been removed and the alarm acknowledged by pressing any button on the operating panel.
AL2	Supply air after HRW is cold.	+5 °C	Supply air cold.	**Heat exchanger is not rotating:** • Drive belt is broken. • Drive belt is slipping. • Heat exchanger motor has broken down.	Replace the drive belt. Clean or change the belt and the heat exchanger. Replace the heat exchanger motor.	The ventilation unit enters the malfunction status, which means that the fans are at minimum speed. The alarm is automatically acknowledged after the fault condition is removed.
AL3	Supply air cold.	+10 °C	Supply air cold.	**Extract fan has stopped.**	Replace the fan.	
				Extract filter is blocked.	Replace filter.	
				Ventilation is adjusted incorrectly / not adjusted at all.	Readjust/adjust ventilation according to the ventilation system design, using appropriate measuring tools.	
				Heat insulation for the ducts is inadequate.	Check the thickness of the insulation in supply and extract air ducts and add insulation, if needed.	
				Ventilation unit fan speed is incorrect.	Always use the fan speed specified by the ventilation system designer (even in winter)	
AL4	Supply fan failure.		No Supply air.	**Supply air fan has stopped.**	Repair or change the supply fan.	The unit will not start before the alarm condition has been removed and the alarm acknowledged by pressing any button on the operating panel.
AL5	Extract fan failure.		No Extract air.	**Extract air fan has stopped.**	Repair or change the extract fan	

Alarm	Description	Alarm limit	Symptoms	Possible reason	Action	Notes
AL6	Extract air cold.	+10 °C	Supply air cold.	**Indoor temperature is low.**	Rise the indoor temperature.	The ventilation unit enters the malfunction status, which means that the fans are at minimum speed. The alarm is automatically acknowledged after the fault condition is removed.
				Extract air duct heat insulation is insufficient.	Check the insulation of the ducts and add insulation if needed.	
				Ventilation unit service hatch is open.	Close the service hatch.	
				TE30 temperature sensor is faulty.	Repair or change the sensor.	
AL7	Supply air hot. Fire hazard.	+55 °C	Supply air hot.	**Fire hazard.**	Check for any heat sources.	The unit will not start before the alarm condition has been removed and the ventilation unit restarted.
				Electrical after-heater is malfunctioning.	Repair or replace the electrical after-heater.	
				Water after-heater valve actuator is malfunctioning.	Repair or replace the valve actuator.	
				TE10 temperature sensor is faulty.	Repair or replace the temperature sensor.	
AL8	Electric after-heater or pre-heater overheating.		Supply air hot.	**Electric pre- or after-heater is not functioning:**		
				• Overheating protector has tripped.	Find out the reason for overheating and acknowledge the error message.	
				• Supply air fan has stopped.	Find out reason / replace the fan.	
				• Supply air filter is blocked.	Replace the filter.	
				• Outside air grating is blocked.	Clean the grating. Remove possible mosquito net.	
				• Controller card of heater is broken.	Replace the controller card.	
				• Heater is broken.	Replace the heater.	

Models and components

*HVAC planner defines the size of the circulation pump

				Water-to-air after-heating*		Liquid circulation cooling (geo-cooling)*		Liquid circulation precooling/ heating (CHG)*	Air – ground heat exchanger (AGH)
Model	**eWind control system with eWind panel**	**No after-heating / -cooling**	**Built-in electrical after-heating**	**Built-in**	**Duct coil**	**Built-in**	**Duct coil**	**Duct coil**	**Ground ducting not available from Enervent**
Components included in the delivery	**eWind panel set**			**Freeze protection system, 2-way valve, valve actuator, relay control for pump**	**Duct coil, freeze protection system, 2-way valve, valve actuator, duct sensor, relay control for pump**	**3-way valve, valve actuator, relay control for pump**	**Duct coil for cooling, 3-way valve, valve actuator, relay control for pump, duct sensor**	**Duct coil, 3-way valve, valve actuator, relay control for pump, duct sensor**	**Outdoor air sensor, relay control for changeover damper**
Pinion eWind E	X		X						
Pinion eWind W	X				X				
Pinion eWind E-CHG	X		X					X	
PinioneWind E-AGH	X		X						X
Pingvin eWind E	X		X						
Pingvin eWind W	X				X				
Pingvin eWind E-CG	X		X				X		
Pingvin eWind E-CHG	X		X					X	
Pingvin eWind E-AGH	X		X						X
Pingvin XL eWind E	X		X						
Pingvin XL eWind W	X				X				
Pingvin XL eWind E-CG	X		X				X		
Pingvin XL eWind E-CHG	X		X					X	
Pingvin XL eWind E-AGH	X		X						X
Pandion eWind E	X		X						
Pandion eWind W	X			X					
Pandion eWind E-CG	X		X			X			
Pandion eWind E-CHG	X		X					X	
Pandion eWind E-AGH	X		X						X
Pelican eWind E	X		X						
Pelican eWind W	X			X					

				Water-to-air after-heating*		Liquid circulation cooling (geo-cooling)*		Liquid circulation precooling/ heating (CHG)*	Air – ground heat exchanger (AGH)
Model	**eWind control system with eWind panel**	**No after-heating / -cooling**	**Built-in electrical after-heating**	**Built-in**	**Duct coil**	**Built-in**	**Duct coil**	**Duct coil**	**Ground ducting not available from Enervent**
Pelican eWind E-CG	X		X			X			
Pelican eWind E-CHG	X		X					X	
Pelican eWind E-AGH	X		X						X
Pegasos eWind E	X		X						
Pegasos eWind W	X			X					
Pegasos eWind E-CG	X		X			X			
Pegasos eWind E-CHG	X		X					X	
Pegasos eWind E-AHG	X		X						X
Pegasos XL eWind E	X		X						
Pegasos XL eWind W	X			X					
Pegasos XL eWind E-CG	X		X				X		
Pegasos XL eWind E-CHG	X		X					X	
Pegasos XL eWind E-AGH	X		X						X
LTR-2 eWind E	X		X						
LTR-2 eWind W	X			X					
LTR-2 eWind E-CHG	X		X					X	
LTR-2 eWind E-AGH	X		X						X
LTR-3 eWind E	X		X						
LTR-3 eWind W	X				X				
LTR-3 eWind E-CG	X		X				X		
LTR-3 eWind E-CHG	X		X					X	
LTR-3 eWind E-AGH	X		X						X
LTR-4 eWind E	X		X						
LTR-4 eWind W	X			X					
LTR-4 eWind E-CG	X		X			X			
LTR-4 eWind E-CHG	X		X					X	
LTR-4 eWind E-AGH	X		X						X
LTR-6-190 eWind E	X		X						

				Water-to-air after-heating*		Liquid circulation cooling (geo-cooling)*		Liquid circulation precooling/ heating (CHG)*	Air – ground heat exchanger (AGH)
Model	**eWind control system with eWind panel**	**No after-heating / -cooling**	**Built-in electrical after-heating**	**Built-in**	**Duct coil**	**Built-in**	**Duct coil**	**Duct coil**	**Ground ducting not available from Enervent**
LTR-6-190 eWind W	X			X					
LTR-6-190 eWind E-CG	X		X			X			
LTR-6-190 eWind E-CHG	X		X					X	
LTR-6-190 eWind E-AGH	X		X						X
LTR-7 eWind E	X		X						
LTR-7 eWind W	X			X					
LTR-7 eWind E-CG	X		X				X		
LTR-7 eWind E-CHG	X		X					X	
LTR-7 eWind E-AGH	X		X						X
LTR-7 XL eWind E	X		X						
LTR-7 XL eWind W	X			X					
LTR-7 XL eWind E-CG	X		X				X		
LTR-7 XL eWind E-CHG	X		X					X	
LTR-7 XL eWind E-AGH	X		X						X

Technical features

Technical features are subject to change without prior notice. The declared AHU performance values are indicative only. The performance of a given AHU under certain conditions must be checked from the Energy Optimizer calculation program on the Ensto Enervent web site.

PINION, PINGVIN, PINGVIN XL, PANDION, PELICAN, PEGASOS, PEGASOS XL								
	UNIT	**PINION**	**PINGVIN**	**PINGVIN XL**	**PANDION**	**PELICAN**	**PEGASOS**	**PEGASOS XL**
	Width	589 mm	580 mm	780 mm	785 mm	998 mm	1 250 mm	1 250 mm
	Depth	320 mm	500 mm	555 mm	543 mm	590 mm	677 mm	677 mm
	Height	630 mm	540 mm	540 mm	895 mm	1 270 mm	1 400 mm	1 400 mm
	Weight	53 kg	50 kg	63 kg	90 kg	125 kg	203 kg	203 kg
	Duct size	Ø 125 mm	Ø 160 mm	Ø 160 mm	Ø 160 mm	Ø 200 mm	Ø 250 mm	Ø 250 mm
	EC fans supply and extract	118 W / 1,0 A	118 W / 1,0 A	163 W / 1,3 A	163 W / 1,3 A	170 W / 1,22 A	520 W / 3,15 A	545 W / 3,5 A
	Control card 5x20 mm Glass tube fuse	T0,8 A	T0,8 A	T0,8 A	T0,8 A	T0,8 A	T0,8 A	T0,8 A
	Heat exchanger motor with heat protection	5 W, 0.04 A	5 W, 0.04 A	5 W, 0.04 A	5 W, 0.04 A	5 W, 0.04 A	5 W, 0.04 A	5 W, 0.04 A

PINION, PINGVIN, PINGVIN XL, PANDION, PELICAN, PEGASOS, PEGASOS XL								
	UNIT	**PINION**	**PINGVIN**	**PINGVIN XL**	**PANDION**	**PELICAN**	**PEGASOS**	**PEGASOS XL**
E-models	Power of standard electrical afterheater coil	800 W	400 W	800 W	800 W	2 000 W	4 000 W	4 000 W
	Power of optional electrical afterheater coil	-	800 W	-	-	4 000 W	6 000 W	6 000 W
	Mains supply	230 V~/ 50 Hz 10 A	230 V~/ 50 Hz 10 A	230 V~/ 50 Hz 10 A	230 V~/ 50 Hz 10 A	230 V~/ 50 Hz 16 A	400 V 3~/ 50 Hz 3x16 A	400 V 3~/ 50 Hz 3x16 A
W-models	Hydronic afterheater location	In duct	In duct	In duct	Built-in	Built-in	Built-in	Built-in
	35/25°C total coil power	1,2 kW*	1,5 kW*	2,5 kW*	2,6 kW	-	6,4 kW*	7,7 kW*
	30/20°C total coil power	-	1,3 kW	-	2,8 kW*	3,2 kW*	-	-
	60/40°C total coil power	0.9 kW	2,0 kW	2,7 kW	3,0 kW	3,5 kW	6,2 kW	6,7 kW
	Mains supply	230 V~/ 50 Hz 10 A	230 V~/ 50 Hz 10 A	230 V~/ 50 Hz 10 A	230 V~/ 50 Hz 10 A	230 V~/ 50 Hz 10 A	230 V~/ 50 Hz 10 A	230 V~/ 50 Hz 10 A
	Pipe connection	*10 mm*	*10 mm*	*10 mm*	*15 mm*	*15 mm*	*28 mm*	*28 mm*
	Water flow	*0,03 l/s*	*0,04 l/s*	*0,03 l/s*	*0,07 l/s*	*0,08 l/s*	*0,15 l/s*	*0,19 l/s*
	Water system pressure loss	*4 kPa*	*10,3 kPa*	*5,9 kPa*	*6,6 kPa*	*9,2 kPa*	*3,3 kPa*	*3,3 kPa*
	Kvs value of valve	*0,63*	*0,63*	*1,0*	*1,0*	*1,6*	*4,0*	*4,0*
	Valve connection DN	*15*	*15*	*15*	*15*	*15*	*15*	*15*
	Dimensions of duct coils (w x h x l) mm	*313x255x276* *Ø 125 mm*	*313x255x276* *Ø 160 mm*	*398×330×276* *Ø 200 mm*	-	-	-	-
CG-models	Cooling (CG) coil location	-	-	In duct	Built in	Built-in	Built-in	In duct
	Total coil power	-	-	1.2 kW	1.5 kW (built-in)* 1.2 kW (duct)	1.7 kW	3.2 kW	3.5 kW
	Pipe connection	-	-	22 mm	15 mm (built-in)* 22 mm (duct)	15 mm	28 mm	22 mm
	Brine flow	-	-	0.06 l/s	0.08 l/s (built-in)* 0.07 l/s (duct)	0.09 l/s	0.16 l/s	0.17 l/s
	Water system pressure loss	-	-	7.9 kPa	1.5 kPa (built-in)* 7.7 kPa (duct)	2.0 kPa	3.4 kPa	8.5 kPa
	Kvs value of valve	-	-	2.6	1.6	4.0	4.0	6.3
	Valve connection DN	-	-	15	15	15	20	25
	Dimensions of duct coil (w x h x l) mm	-	-	415×330×395 Ø 200 mm	415x330x395 Ø 200 mm	-	-	560x504x276 Ø 315 mm

PINION, PINGVIN, PINGVIN XL, PANDION, PELICAN, PEGASOS, PEGASOS XL								
	UNIT	**PINION**	**PINGVIN**	**PINGVIN XL**	**PANDION**	**PELICAN**	**PEGASOS**	**PEGASOS XL**
CHG-models	Total coil power summer/winter	0,8 / 1,5 kW	1.0 / 2.1 kW	1.3 / 3.1 kW	1.3 / 3.1 kW	1.9 / 4.5 kW	3.6 / 8.1 kW	3.8 / 8.9 kW
	Pipe connection	22 mm	22 mm	22 mm	22 mm	22 mm	22 mm	22 mm
	Brine flow summer/winter	0,05 / 0,11 l/s	0.05 / 0.11 l/s	0.07 / 0.17 l/s	0.07 / 0.17 l/s	0.10 / 0.24 l/s	0.19 / 0.43 l/s	0.2 / 0.47 l/s
	Water system pressure loss	3,5 / 11 kPa	4.2 / 12.2 kPa	5.7 / 32.5 kPa	5.7 / 32.5 kPa	5.7 / 6.3 kPa	6.6 / 27.7 kPa	7.1 / 35.5 kPa
	Kvs value of valve	4,0	4.0	4.0	4.0	4.0	6.3	6.3
	Valve connection DN	15	15	15	15	20	25	25
	Dimensions of duct coil (w x h x l) mm	415x330x395 Ø 200 mm	415x330x395 Ø 200 mm	415x330x395 Ø 200 mm	415x330x395 Ø 200 mm	491x405x395 Ø 250 mm	715x529x450 Ø 400 mm	715x529x450 Ø 400 mm
* = standard coil = *standard coil information*								

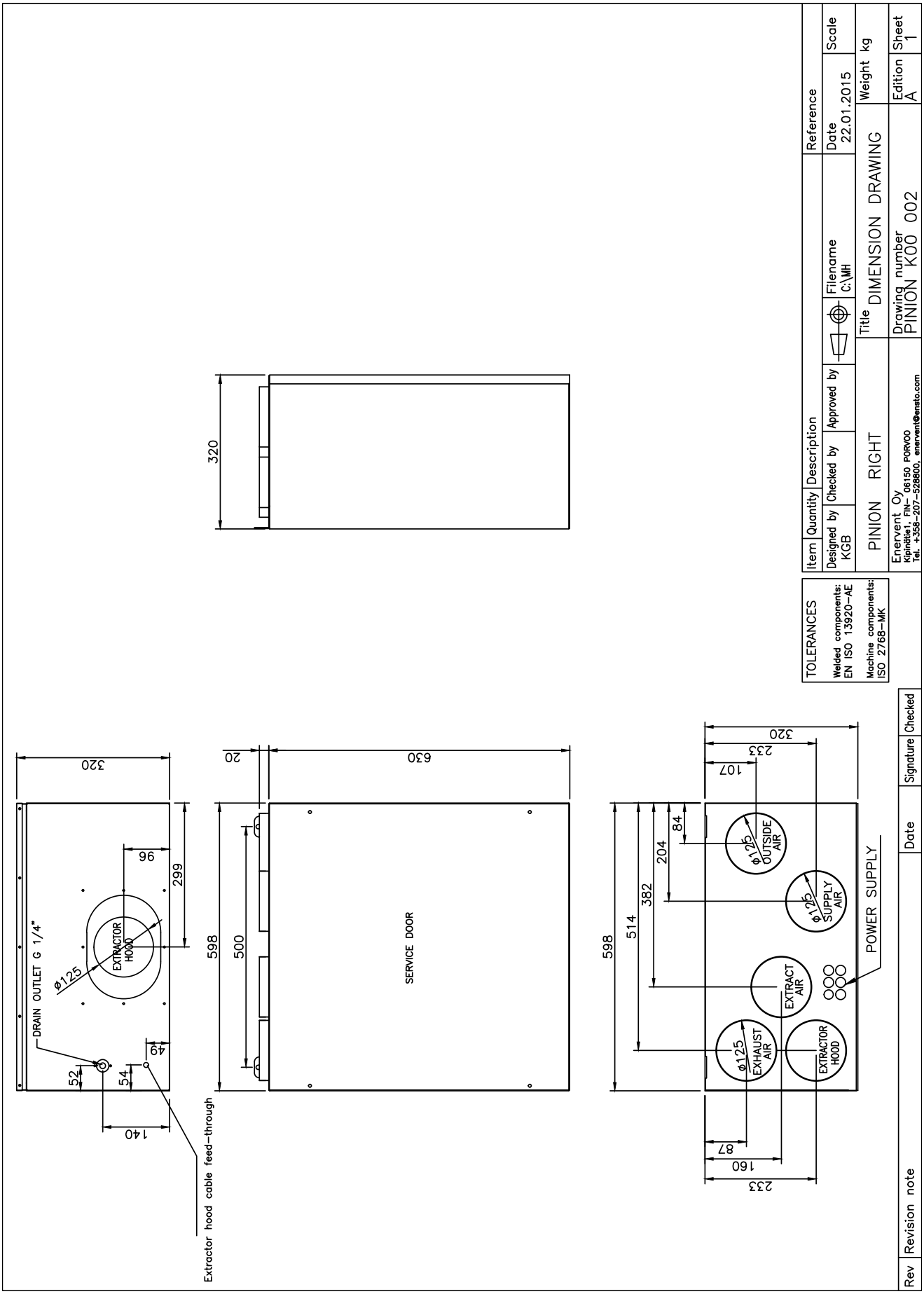
LTR-2, LTR-3, LTR-4, LTR 6, LTR 7, LTR-7-XL							
	UNIT:	**LTR-2**	**LTR-3**	**LTR-4**	**LTR-6**	**LTR-7**	**LTR-7-XL**
	Width Depth Height	972 mm 393 mm 362 mm	833 mm 480 mm 510 mm	1455 mm 536 mm 594 mm	1 190 mm 660 mm 660 mm	1 510 mm 707 mm 720 mm	1 510 mm 707 mm 720 mm
	Weight	41 kg	52 kg	85 kg	96 kg	130 kg	130 kg
	Duct size	Ø 125 mm	Ø 160 mm	Ø 200 mm	Ø 200 mm	Ø 250 mm	Ø 250 mm
	EC fans supply and extract	118 W, 1.0 A	118 W, 1.0 A	163 W, 1.30 A	170 W, 1.22 A	520 W, 3.3 A	545 W, 3.5 A
	Control card 5x20 mm Glass tube fuse	T0.8 A	T0.8 A	T0.8 A	T0.8 A	T0.8 A	T0.8 A
	Heat exchanger motor with heat protection	5 W, 0.04 A	5 W, 0.04 A	5 W, 0,04 A	5 W, 0.04 A	5 W, 0.04 A	5 W, 0.04 A
E-models	Power of standard electrical afterheater coil	400 W	500 W	800 W	2 000 W	4 000 W	4 000 W
	Power of optional electrical afterheater coil	-	800 W	-	4 000 W	6 000 W	6 000 W
	Mains supply	230 V~/50 Hz 10 A	230 V~/50 Hz 10 A	230V~/50 Hz 10 A	230 V~/50 Hz 16 A	400 V 3~/50 Hz 3x16 A	400 V 3~/50 Hz 3x16 A

LTR-2, LTR-3, LTR-4, LTR 6, LTR 7, LTR-7-XL							
	UNIT:	**LTR-2**	**LTR-3**	**LTR-4**	**LTR-6**	**LTR-7**	**LTR-7-XL**
W-models	Hydronic afterheater location	Built-in	In duct	Built-in	Built-in	Built-in	Built-in
	35/25°C total coil power	1.6 kW*	1.8 kW*	-	3.7 kW*	5.3 kW*	7.4 kW*
	30/20°C total coil power	-	-	2.6 kW*	4.3 kW	6.3 kW	7.3 kW
	60/40°C total coil power	1.7 kW	2.3 kW	2.6 kW	3.8 kW	7.1 kW	7.7 kW
	Mains supply	230 V~/50 Hz 10 A	230 V~/50 Hz 10 A	230V~/50 Hz 10 A	230 V~/50 Hz 10 A	230 V~/50 Hz 10 A	230 V~/50 Hz 10 A
	Pipe connection	*15 mm*	*10 mm*	*15 mm*	*22 mm*	*22 mm*	*28 mm*
	Water flow	*0.032 l/s*	*0.04 l/s*	*0.06 l/s*	*0.09 l/s*	*0.13 l/s*	*0.18 l/s*
	Water system pressure loss	*8.6 kPa*	*13.7 kPa*	*4.5 kPa*	*3.5 kPa*	*7.0 kPa*	*4.2 kPa*
	Kvs value of valve	*0.63*	*0.63*	*1.0*	*1.6*	*2.5*	*4.0*
	Valve connection DN	*15*	*15*	*15*	*15*	*15*	*15*
	Dimensions of duct coils (w x h x l) mm	-	*313x255x356 Ø 160 mm*	-	-	-	-
CG-models	Cooling (CG) coil location	-	In duct	Built-in	Built-in	In duct	In duct
	Total coil power	-	1.0 kW	2.0 kW**	2.4 kW	2.1 kW	3.5 kW
	Pipe connection	-	22 mm	15 mm	22 mm	22 mm	22 mm
	Brine flow	-	0.05 l/s	0.11 l/s**	0.12 l/s	0.11 l/s	0.17 l/s
	Water system pressure loss	-	6.3 kPa	16.5 kPa**	2.8 kPa	5.9 kPa	8.47 kPa
	Kvs value of valve	-	1.6	1.6	4.0	4.0	4.0
	Valve connection DN		15	15	15	15	15
	Dimensions of duct coil (w x h x l) mm	-	415x330x395 Ø 200 mm	-	-	491x405x395 Ø 250 mm	560x504x276 Ø 315 mm
CHG-models	Total coil power summer/winter	0.95 / 1.8 kW	1.1 / 2.6 kW	1.9 / 3.2 kW	2.3 / 4.7 kW	3.6 / 8.1 kW	3.8 / 8.9 kW
	Pipe connection	22 mm	22 mm	22 mm	22 mm	22 mm	22 mm
	Brine flow summer/winter	0.05 / 0.10 l/s	0.06 / 0.14 l/s	0.1 / 0.1 l/s	0.13 / 0.25 l/s	0.19 / 0.43 l/s	0.2 / 0.47 l/s
	Water system pressure loss	3.8 / 9.9 kPa	4.8 / 18.1 kPa	6.7 /7.8 kPa	7.6 / 32.9 kPa	6.6 / 27.7 kPa	7.1 / 35.5 kPa
	Kvs value of valve	4.0	4.0	4.0	4.0	6.3	6.3
	Valve connection DN	15	15	20	20	25	25
	Dimensions of duct coil (w x h x l) mm	415x330x395 Ø 200 mm	415x330x395 Ø 200 mm	491x405x395 Ø 250 mm	491x405x395 Ø 250 mm	715x529x450 Ø 400 mm	715x529x450 Ø 400 mm

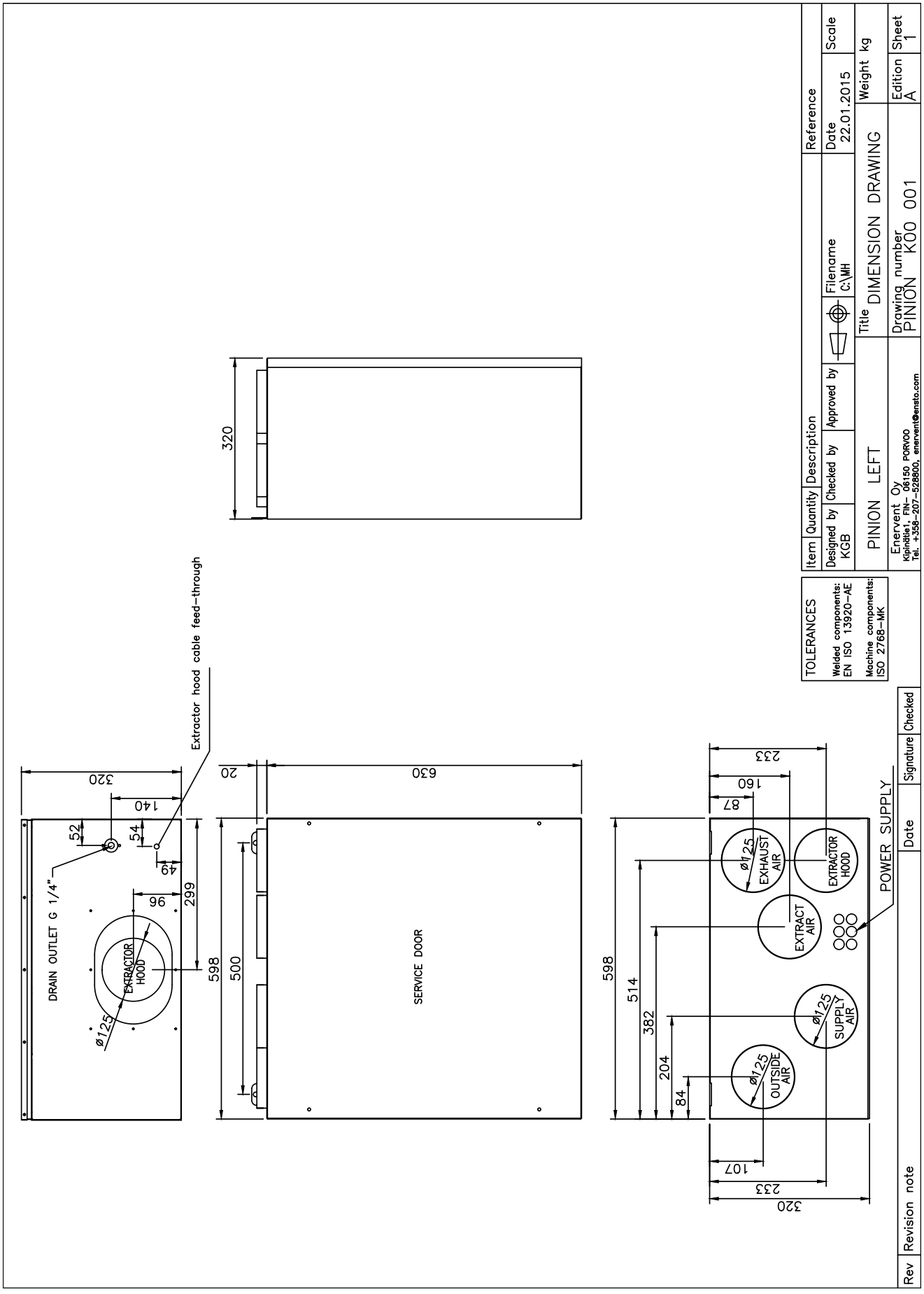
* = standard coil *= standard coil information* ** = 40% Ethylene-Glycol solution

Dimensional drawings

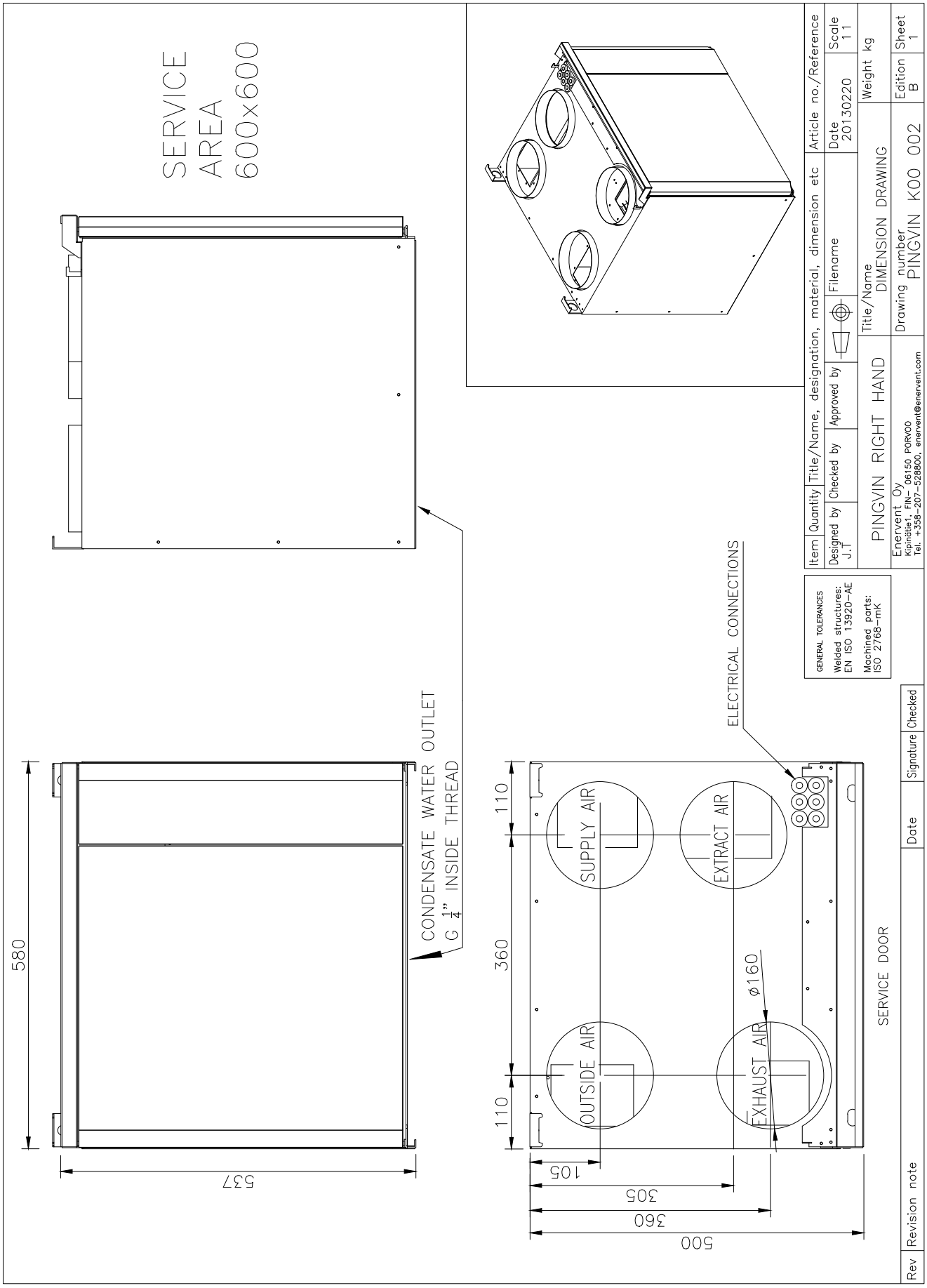
Pinion right hand



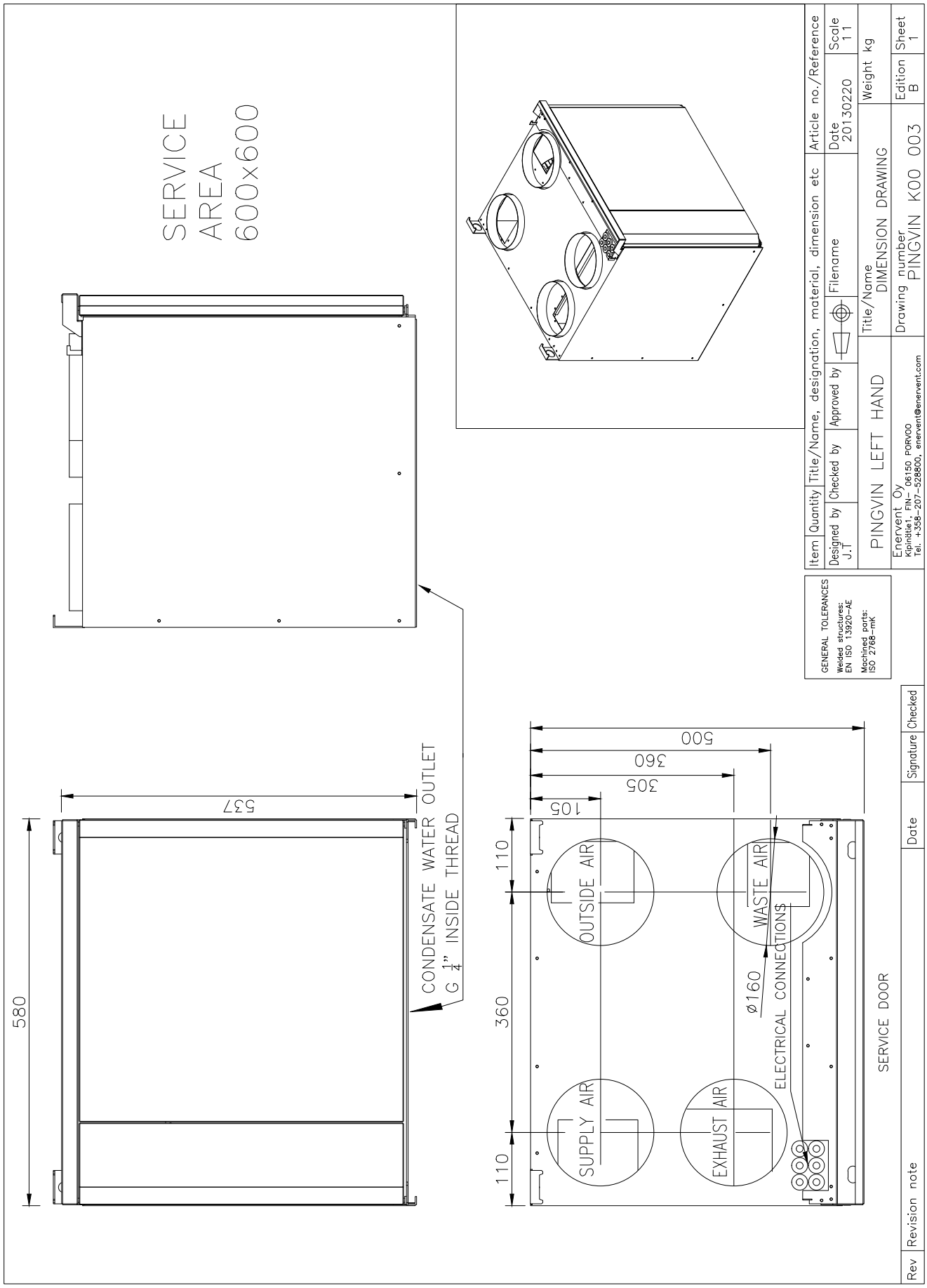
Pinion left hand



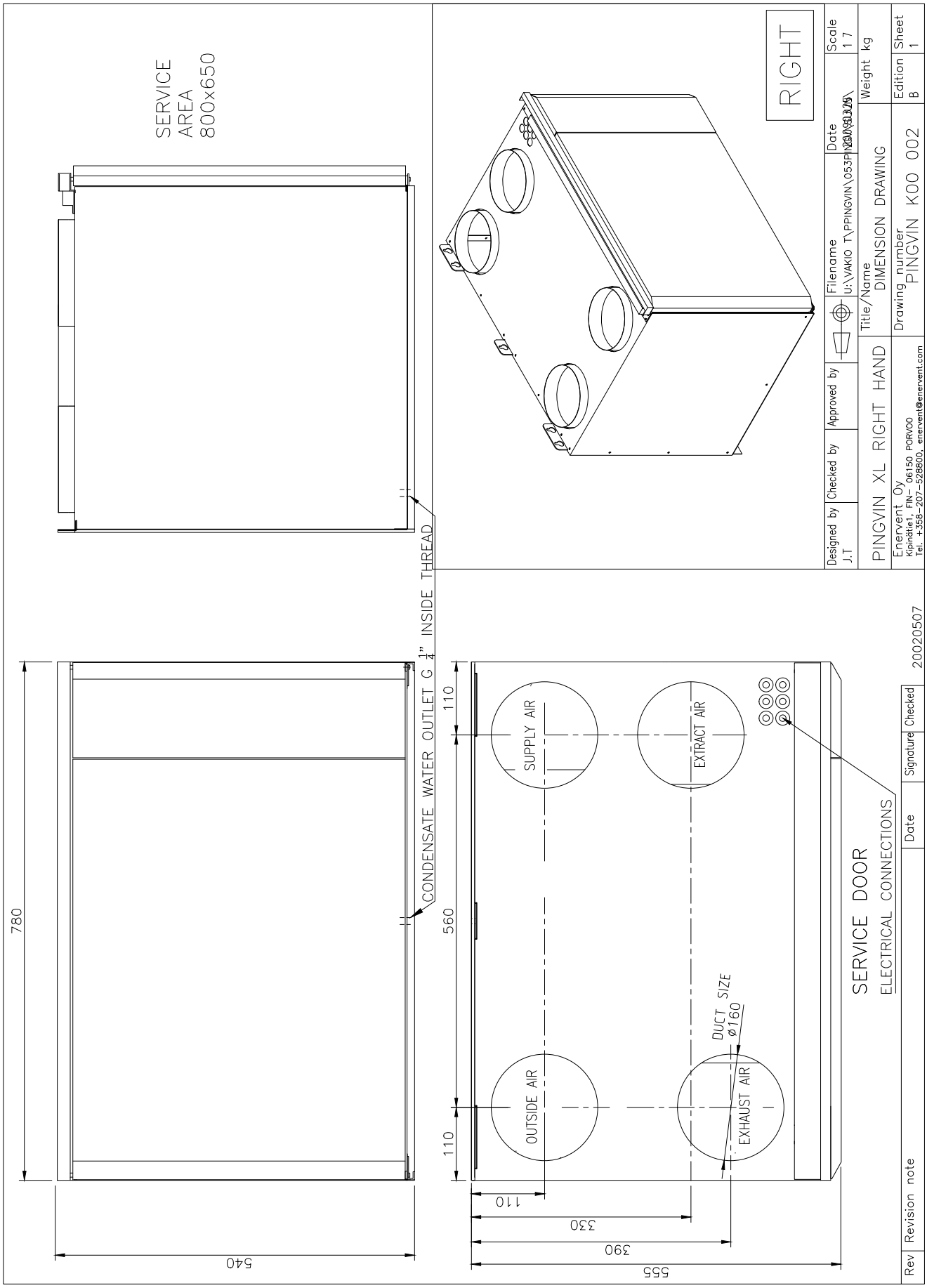
Pingvin right hand



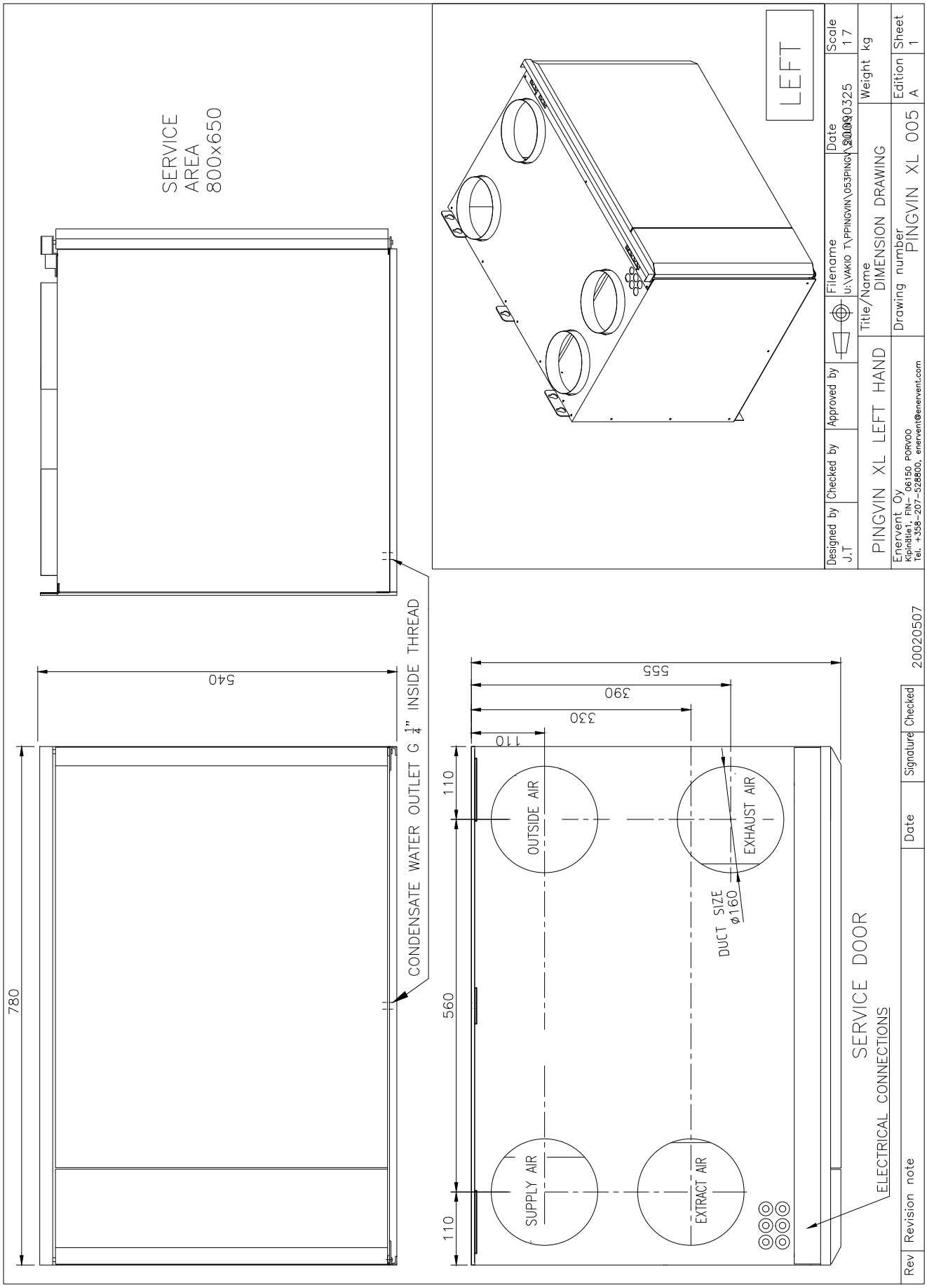
Pingvin left hand



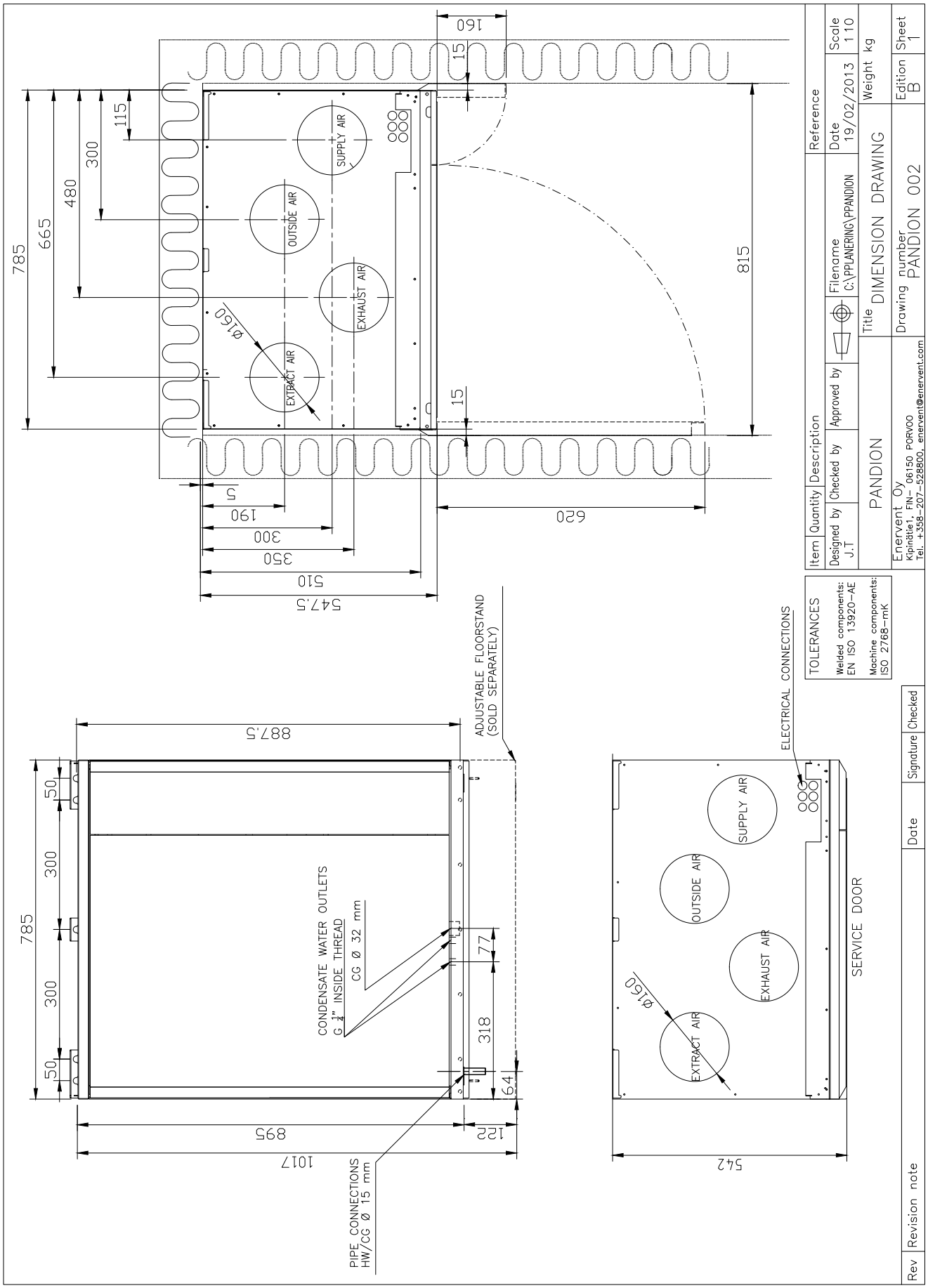
Pingvin XL right hand



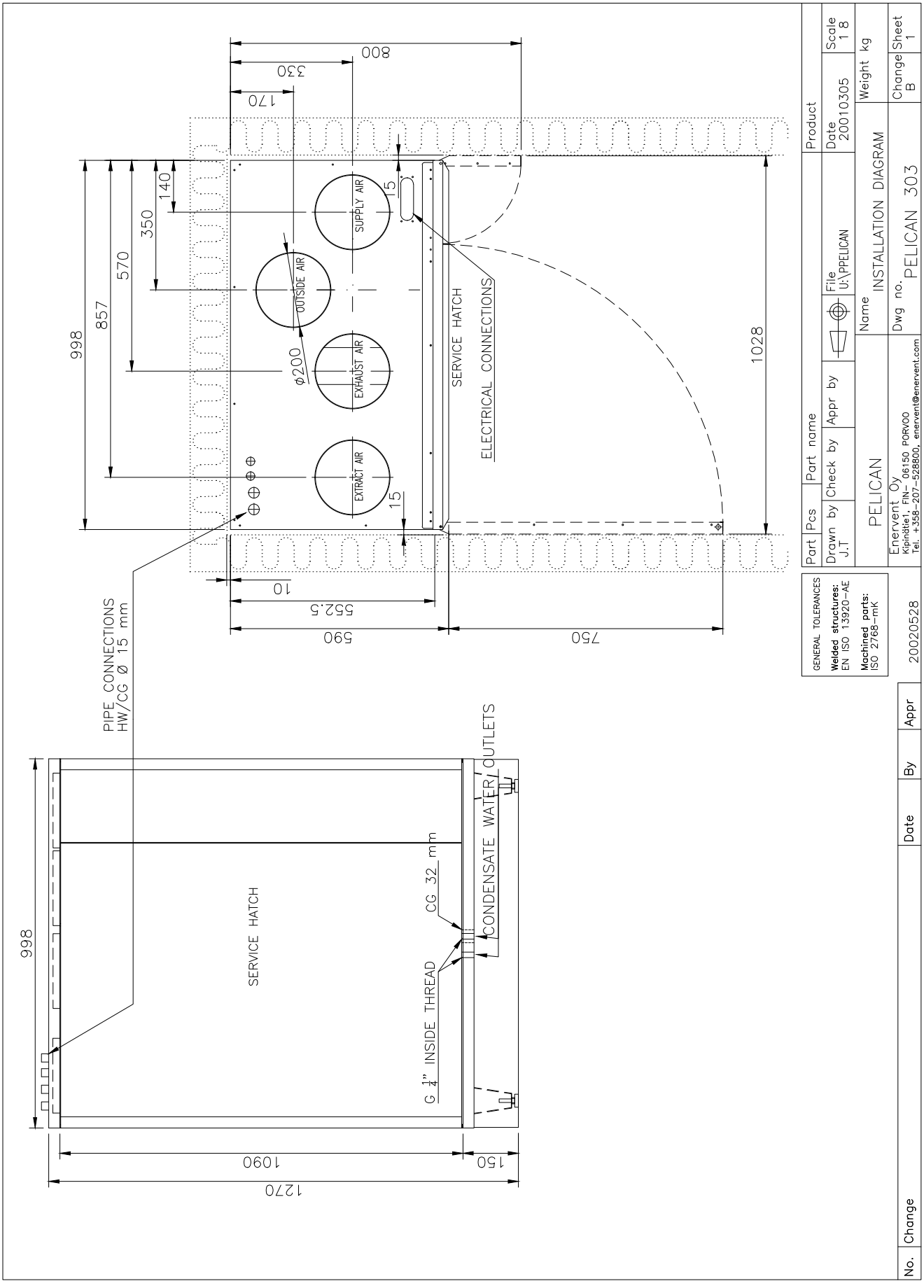
Pingvin XL left hand

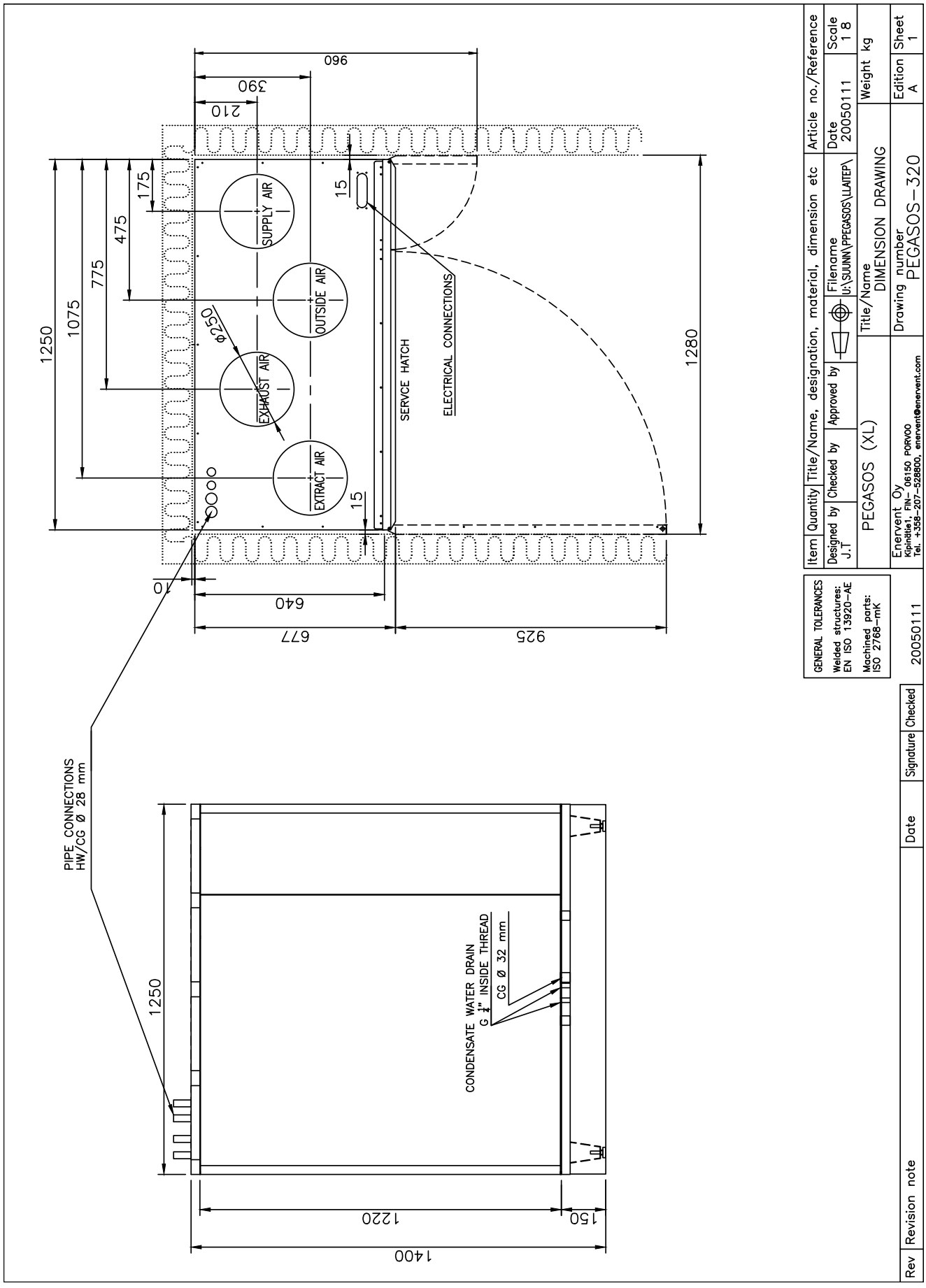


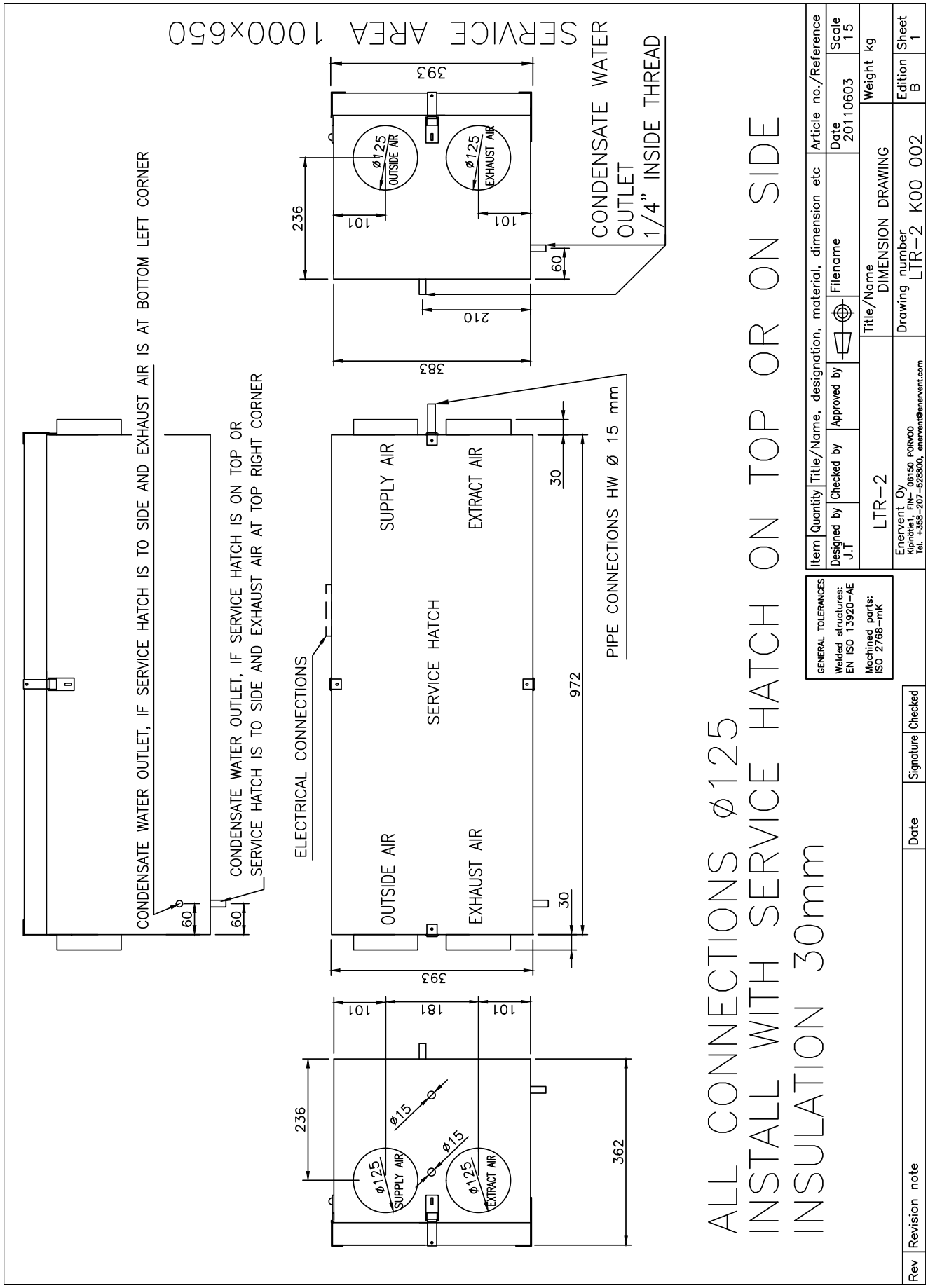
Pandion

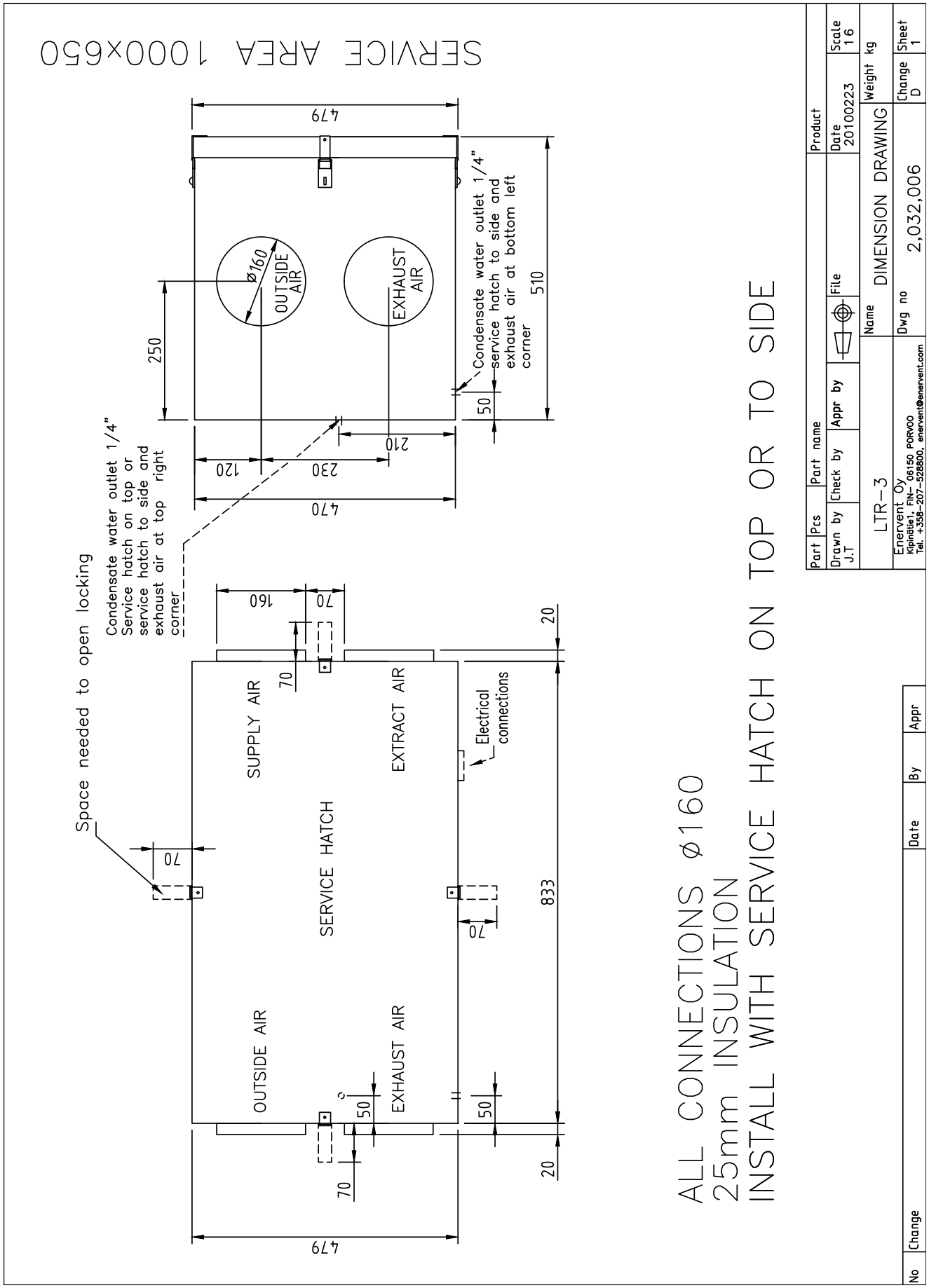

785
665
480
300
115
160
15
SUPPLY AIR
OUTSIDE AIR
EXHAUST AIR
EXTRACT AIR
Ø160
815
15
5
190
300
350
510
547,5
620
ADJUSTABLE FLOORSTAND
(SOLD SEPARATELY)
887,5
50
300
300
50
785
CONDENSATE WATER OUTLETS
G 1¼" INSIDE THREAD
CG Ø 32 mm
77
318
64
895
122
1017
PIPE CONNECTIONS
HW/CG Ø 15 mm
ELECTRICAL CONNECTIONS
SERVICE DOOR
542
TOLERANCES
Welded components:
EN ISO 13920-AE
Machine components:
ISO 2768-mK
Item | Quantity | Description | Reference
Designed by J.T | Checked by | Approved by | Filename C:\PPLANERING\PPANDION | Date 19/02/2013 | Scale 1:10
PANDION
Title DIMENSION DRAWING
Weight kg
Drawing number PANDION 002
Edition B
Sheet 1
Enervent Oy
Kipinätie1, FIN- 06150 PORVOO
Tel: +358-207-528800, enervent@enervent.com
Rev | Revision note | Date | Signature | Checked

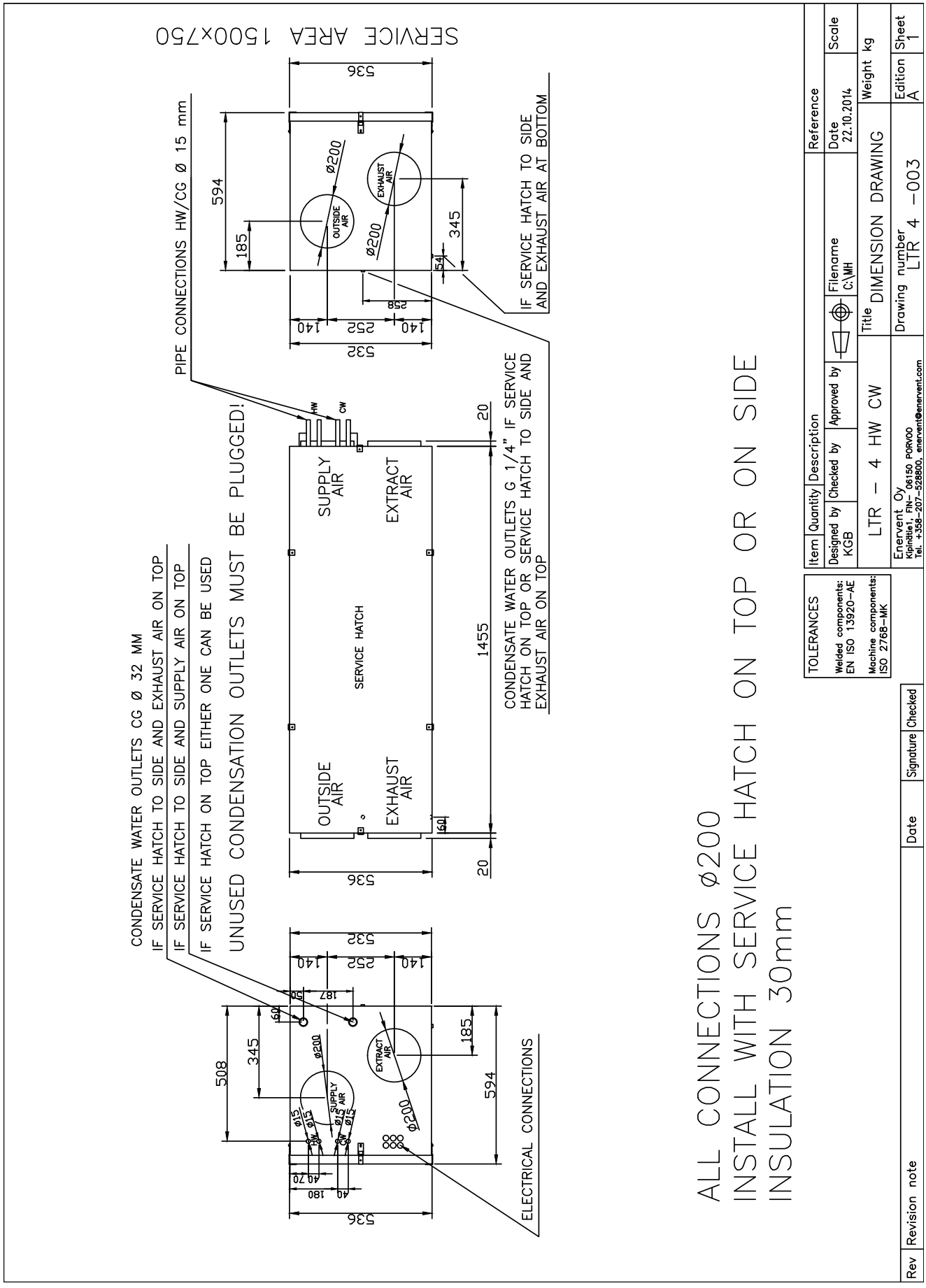
Pelican


800
330
170
998
857
570
350
140
SUPPLY AIR
OUTSIDE AIR
EXHAUST AIR
EXTRACT AIR
15
15
ø200
SERVICE HATCH
ELECTRICAL CONNECTIONS
1028
10
552.5
590
750
PIPE CONNECTIONS
HW/CG Ø 15 mm
998
SERVICE HATCH
CG 32 mm
G 1" INSIDE THREAD
CONDENSATE WATER OUTLETS
1090
150
1270
Product
Part Pcs
Part name
Drawn by J.T
Check by
Appr by
PELICAN
Enervent Oy
Kipinätie1, FIN- 06150 PORVOO
Tel. +358-207-528800, enervent@enervent.com
File U:\PPELICAN
Name INSTALLATION DIAGRAM
Dwg no. PELICAN 303
Date 20010305
Weight kg
Scale 1 8
Change B
Sheet 1
GENERAL TOLERANCES
Welded structures: EN ISO 13920-AE
Machined parts: ISO 2768-mK
No. Change Date By Appr
20020528

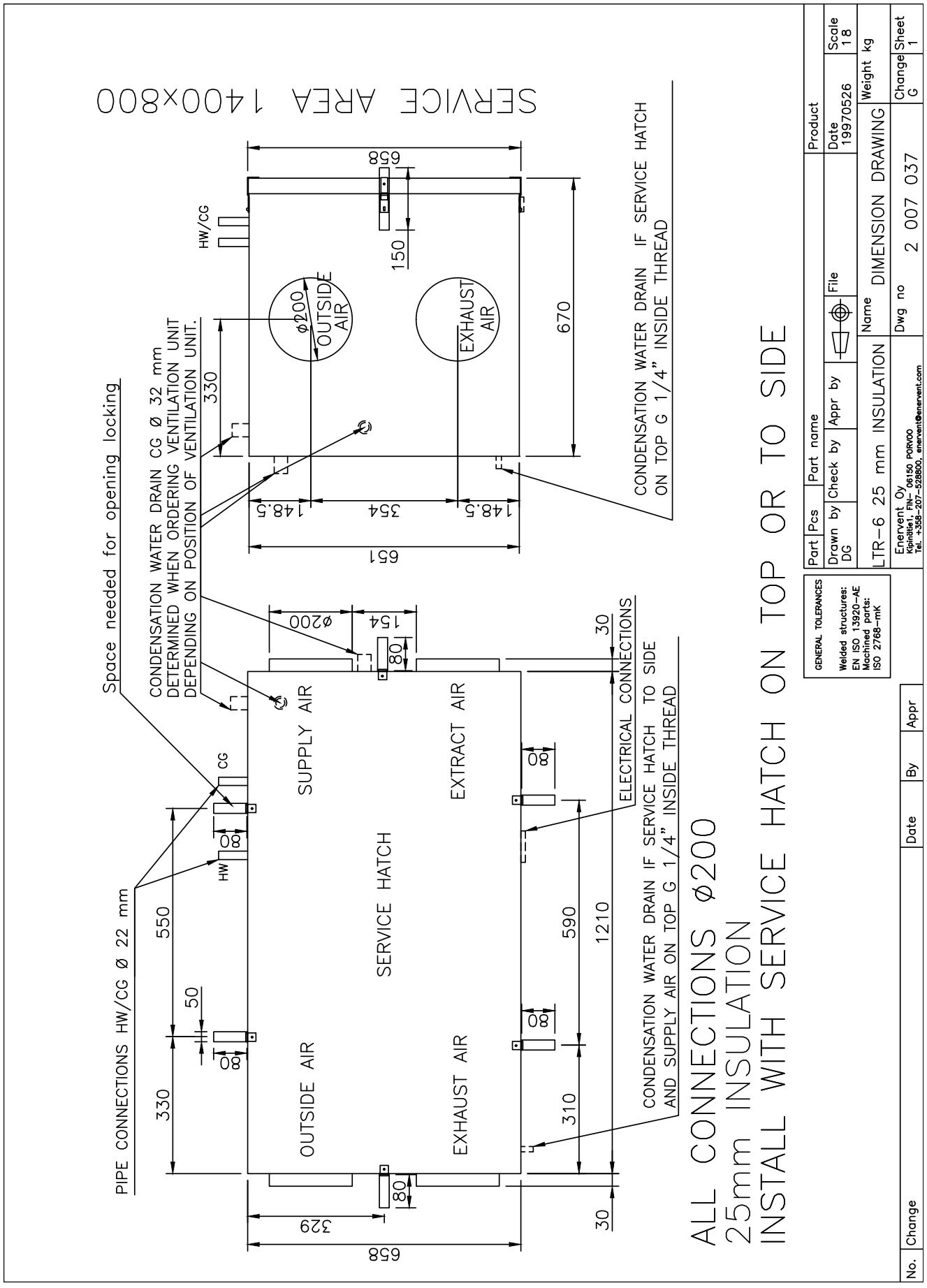

960
390
210
175
475
775
1075
1250
15
SUPPLY AIR
OUTSIDE AIR
EXHAUST AIR
EXTRACT AIR
ϕ250
SERVCE HATCH
ELECTRICAL CONNECTIONS
1280
15
10
640
677
925
PIPE CONNECTIONS
HW/CG Ø 28 mm
1250
CONDENSATE WATER DRAIN
G 1" INSIDE THREAD
CG Ø 32 mm
1220
150
1400
Item | Quantity | Title/Name, designation, material, dimension etc | Article no./Reference
Designed by J.T | Checked by | Approved by | Filename U:\SUUNN\PPEGASOS\LLAITEP\ | Date 20050111 | Scale 1 8
PEGASOS (XL) | Title/Name DIMENSION DRAWING | Weight kg
Enervent Oy Kipinätie 1, FIN-06150 PORVOO Tel. +358-207-528800, enervent@enervent.com | Drawing number PEGASOS-320 | Edition A | Sheet 1
GENERAL TOLERANCES
Welded structures: EN ISO 13920-AE
Machined parts: ISO 2768-mK
20050111
Rev | Revision note | Date | Signature | Checked


ALL CONNECTIONS ø125
INSTALL WITH SERVICE HATCH ON TOP OR ON SIDE
INSULATION 30mm
SERVICE AREA 1000x650
CONDENSATE WATER OUTLET
1/4" INSIDE THREAD
CONDENSATE WATER OUTLET, IF SERVICE HATCH IS TO SIDE AND EXHAUST AIR IS AT BOTTOM LEFT CORNER
CONDENSATE WATER OUTLET, IF SERVICE HATCH IS ON TOP OR SERVICE HATCH IS TO SIDE AND EXHAUST AIR AT TOP RIGHT CORNER
ELECTRICAL CONNECTIONS
PIPE CONNECTIONS HW Ø 15 mm
SUPPLY AIR
EXTRACT AIR
OUTSIDE AIR
EXHAUST AIR
SERVICE HATCH
ø125 OUTSIDE AIR
ø125 EXHAUST AIR
ø125 SUPPLY AIR
ø125 EXTRACT AIR
ø15
393
383
362
236
210
181
101
60
30
972
GENERAL TOLERANCES
Welded structures: EN ISO 13920-AE
Machined parts: ISO 2768-mK
Item | Quantity | Title/Name, designation, material, dimension etc | Article no./Reference
Designed by J.T | Checked by | Approved by | Filename | Date 20110603 | Scale 1:5
LTR-2 | Title/Name DIMENSION DRAWING | Weight kg
Enervent Oy Kipinätie 1, FIN- 06150 PORVOO Tel. +358-207-528800, enervent@enervent.com | Drawing number LTR-2 K00 002 | Edition B | Sheet 1
Rev | Revision note | Date | Signature | Checked

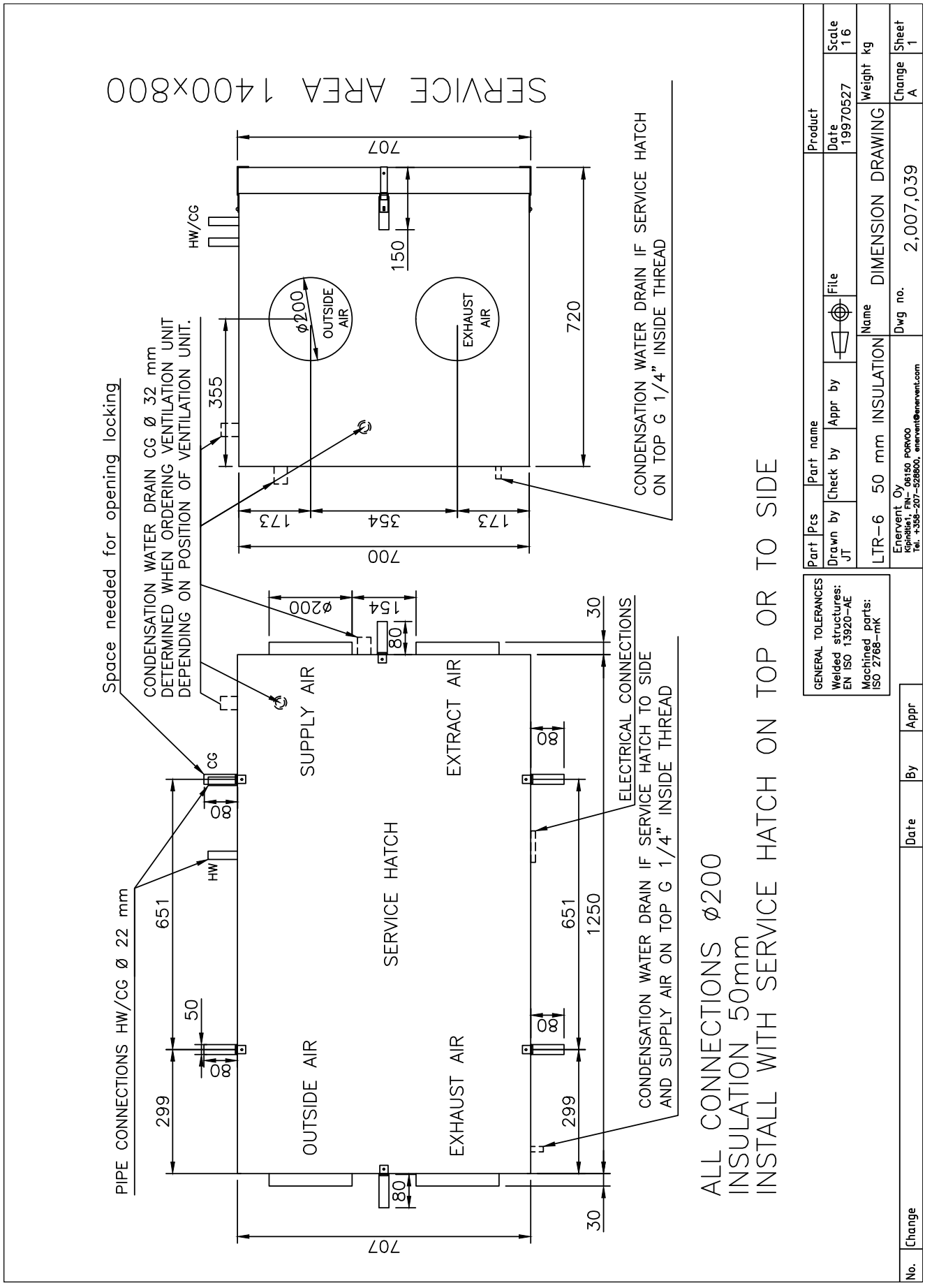

SERVICE AREA 1000x650
479
ø160
OUTSIDE AIR
EXHAUST AIR
250
Condensate water outlet 1/4"
service hatch to side and
exhaust air at bottom left
corner
510
50
210
120
230
470
Condensate water outlet 1/4"
Service hatch on top or
service hatch to side and
exhaust air at top right
corner
Space needed to open locking
160
70
70
SUPPLY AIR
EXTRACT AIR
Electrical
connections
20
SERVICE HATCH
70
833
70
OUTSIDE AIR
EXHAUST AIR
50
50
70
20
479
ALL CONNECTIONS ø160
25mm INSULATION
INSTALL WITH SERVICE HATCH ON TOP OR TO SIDE
No
Change
Date
By
Appr
Part
Pcs
Part name
Product
Drawn by
J.T
Check by
Appr by
File
Date
20100223
Scale
1:6
LTR-3
Name
DIMENSION DRAWING
Weight kg
Enervent Oy
Kipinätie1, FIN- 06150 PORVOO
Tel. +358-207-528800, enervent@enervent.com
Dwg no
2,032,006
Change
D
Sheet
1

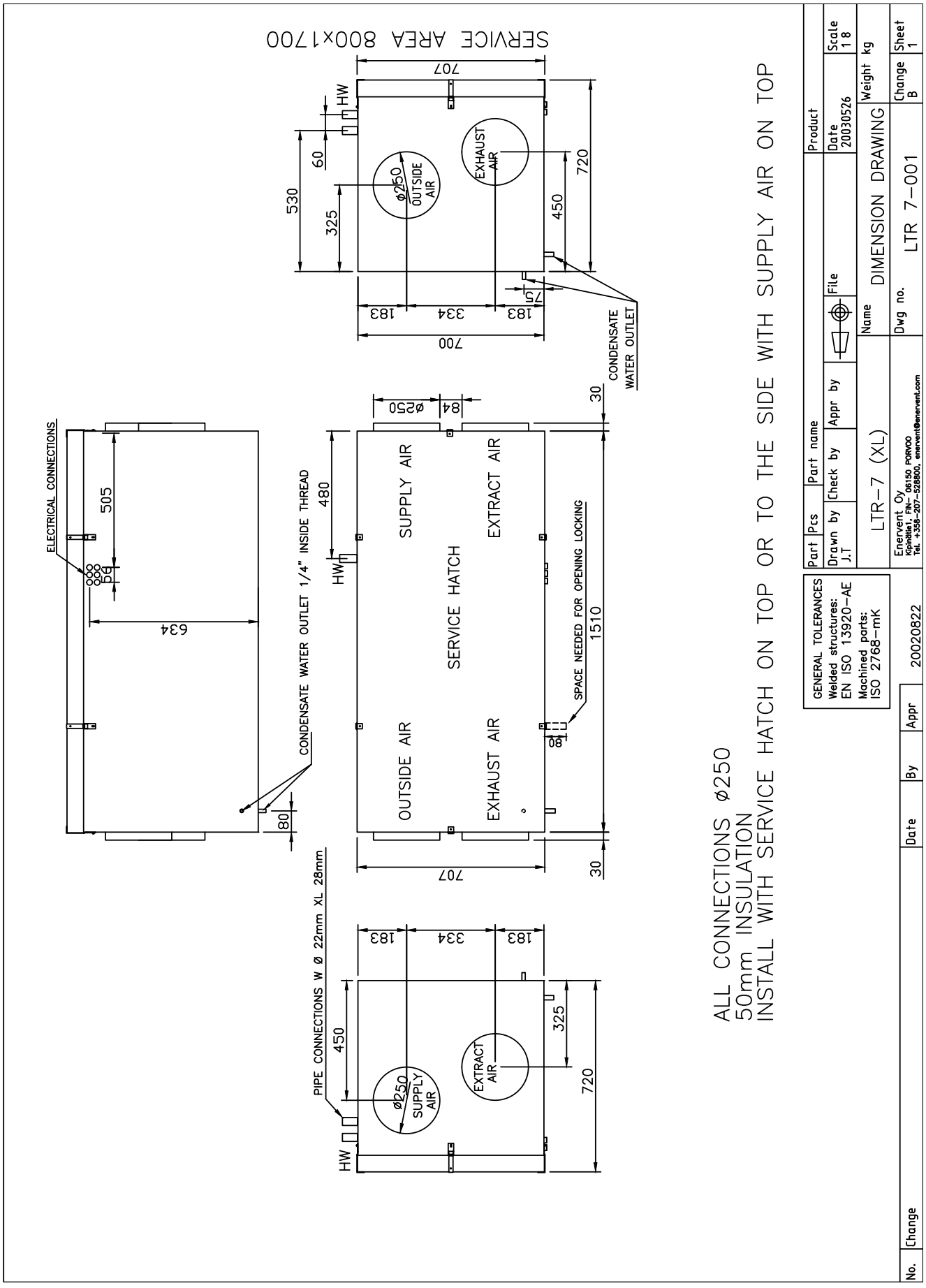

SERVICE AREA 1500x750
PIPE CONNECTIONS HW/CG Ø 15 mm
CONDENSATE WATER OUTLETS CG Ø 32 MM
IF SERVICE HATCH TO SIDE AND EXHAUST AIR ON TOP
IF SERVICE HATCH TO SIDE AND SUPPLY AIR ON TOP
IF SERVICE HATCH ON TOP EITHER ONE CAN BE USED
UNUSED CONDENSATION OUTLETS MUST BE PLUGGED!
IF SERVICE HATCH TO SIDE AND EXHAUST AIR AT BOTTOM
CONDENSATE WATER OUTLETS G 1/4" IF SERVICE HATCH ON TOP OR SERVICE HATCH TO SIDE AND EXHAUST AIR ON TOP
ELECTRICAL CONNECTIONS
SUPPLY AIR
EXTRACT AIR
OUTSIDE AIR
EXHAUST AIR
SERVICE HATCH
HW
CW
Ø200
Ø15
536
532
252
140
594
508
345
185
1455
20
60
54
187
70
40
180
ALL CONNECTIONS Ø200
INSTALL WITH SERVICE HATCH ON TOP OR ON SIDE
INSULATION 30mm
TOLERANCES
Welded components: EN ISO 13920-AE
Machine components: ISO 2768-MK
Item | Quantity | Description | Reference
Designed by KGB | Checked by | Approved by | Filename C:\MH | Date 22.10.2014 | Scale
LTR - 4 HW CW
Title DIMENSION DRAWING
Weight kg
Enervent Oy
Kipinätie1, FIN- 06150 PORVOO
Tel. +358-207-528800, enervent@enervent.com
Drawing number LTR 4 -003
Edition A
Sheet 1
Rev | Revision note | Date | Signature | Checked

LTR 6 25 mm


ALL CONNECTIONS ø200
25mm INSULATION
INSTALL WITH SERVICE HATCH ON TOP OR TO SIDE
SERVICE AREA 1400x800
Space needed for opening locking
PIPE CONNECTIONS HW/CG Ø 22 mm
CONDENSATION WATER DRAIN CG Ø 32 mm
DETERMINED WHEN ORDERING VENTILATION UNIT
DEPENDING ON POSITION OF VENTILATION UNIT.
CONDENSATION WATER DRAIN IF SERVICE HATCH
ON TOP G 1/4" INSIDE THREAD
CONDENSATION WATER DRAIN IF SERVICE HATCH TO SIDE
AND SUPPLY AIR ON TOP G 1/4" INSIDE THREAD
ELECTRICAL CONNECTIONS
SUPPLY AIR
EXTRACT AIR
OUTSIDE AIR
EXHAUST AIR
SERVICE HATCH
HW
CG
HW/CG
ø200
OUTSIDE AIR
EXHAUST AIR
330
550
50
80
154
590
1210
310
30
329
658
651
354
148.5
670
150
GENERAL TOLERANCES
Welded structures: EN ISO 13920-AE
Machined parts: ISO 2768-mK
Part
Pcs
Part name
Product
Drawn by DG
Check by
Appr by
File
Date 19970526
Scale 1:8
LTR-6 25 mm INSULATION
Name DIMENSION DRAWING
Weight kg
Enervent Oy
Kipinätie1, FIN- 06150 PORVOO
Tel. +358-207-528800, enervent@enervent.com
Dwg no 2 007 037
Change G
Sheet 1
No.
Change
Date
By
Appr

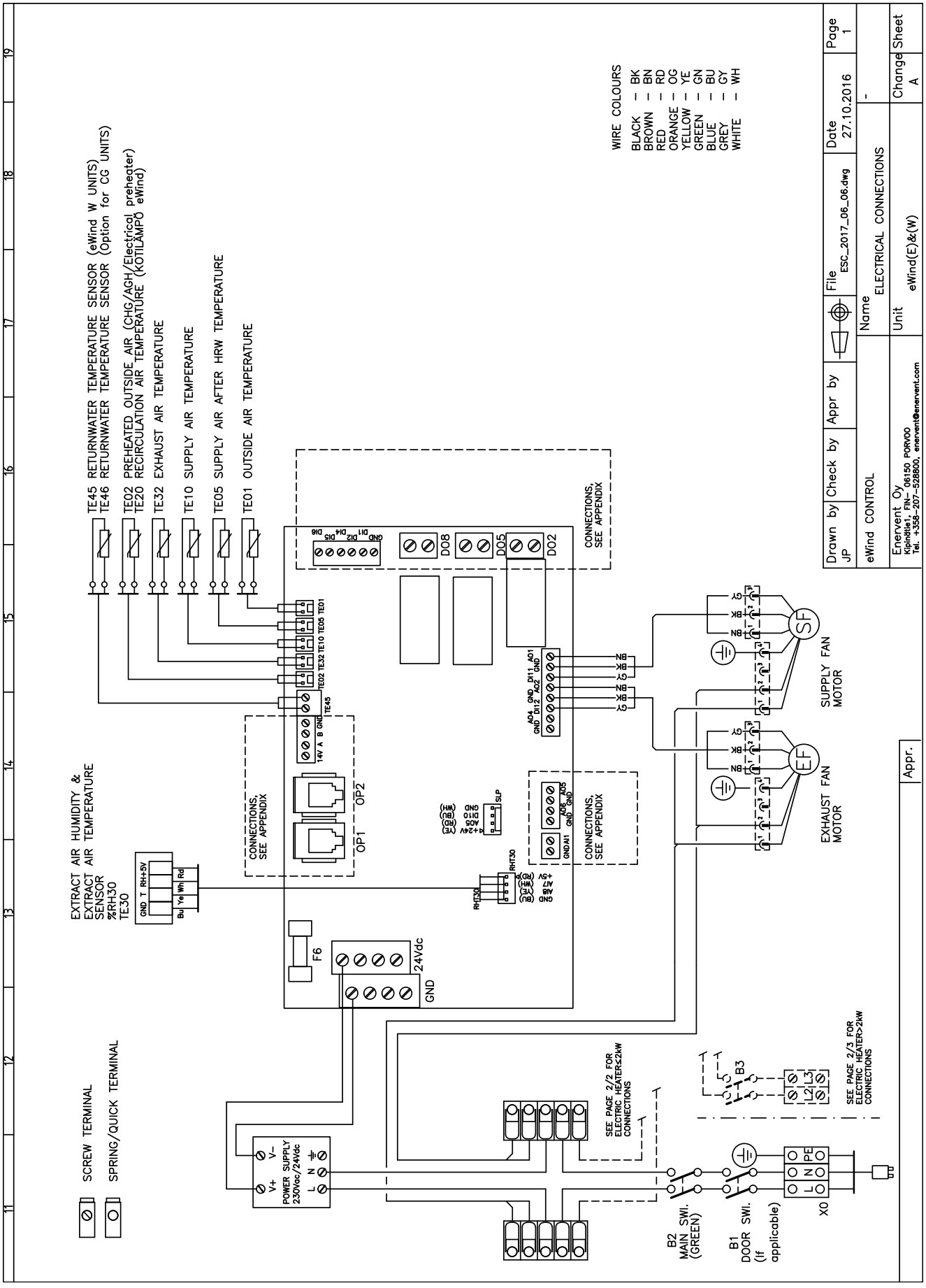
EN


SERVICE AREA 1400x800
707
150
HW/CG
ø200
OUTSIDE AIR
EXHAUST AIR
720
355
CONDENSATION WATER DRAIN IF SERVICE HATCH ON TOP G 1/4" INSIDE THREAD
CONDENSATION WATER DRAIN CG Ø 32 mm DETERMINED WHEN ORDERING VENTILATION UNIT DEPENDING ON POSITION OF VENTILATION UNIT.
Space needed for opening locking
173
354
173
700
ø200
154
80
30
SUPPLY AIR
EXTRACT AIR
CG
80
HW
651
50
299
SERVICE HATCH
ELECTRICAL CONNECTIONS
CONDENSATION WATER DRAIN IF SERVICE HATCH TO SIDE AND SUPPLY AIR ON TOP G 1/4" INSIDE THREAD
651
1250
299
OUTSIDE AIR
EXHAUST AIR
PIPE CONNECTIONS HW/CG Ø 22 mm
707
30
ALL CONNECTIONS ø200
INSULATION 50mm
INSTALL WITH SERVICE HATCH ON TOP OR TO SIDE
GENERAL TOLERANCES
Welded structures: EN ISO 13920-AE
Machined parts: ISO 2768-mK
Part | Pcs | Part name | Product
Drawn by JT | Check by | Appr by | File | Date 19970527 | Scale 1:6
LTR-6 50 mm INSULATION | Name DIMENSION DRAWING | Weight kg
Enervent Oy Kipinätie 1, FIN-06150 PORVOO Tel. +358-207-528800, enervent@enervent.com | Dwg no. 2,007,039 | Change A | Sheet 1
No. | Change | Date | By | Appr

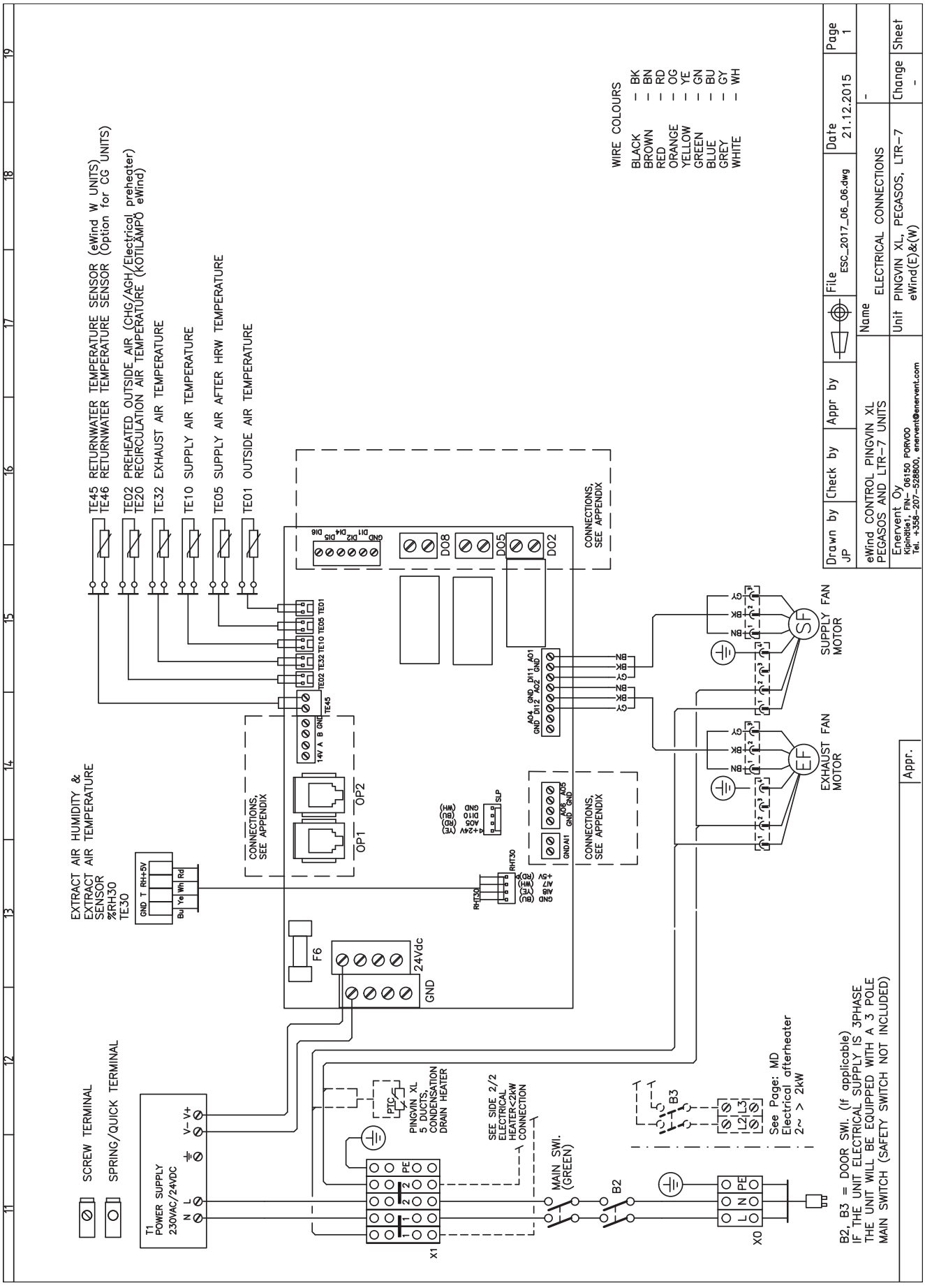

SERVICE AREA 800x1700
ELECTRICAL CONNECTIONS
CONDENSATE WATER OUTLET 1/4" INSIDE THREAD
PIPE CONNECTIONS w Ø 22mm XL 28mm
SUPPLY AIR
EXTRACT AIR
OUTSIDE AIR
EXHAUST AIR
SERVICE HATCH
SPACE NEEDED FOR OPENING LOCKING
CONDENSATE WATER OUTLET
ALL CONNECTIONS Ø250
50mm INSULATION
INSTALL WITH SERVICE HATCH ON TOP OR TO THE SIDE WITH SUPPLY AIR ON TOP
GENERAL TOLERANCES
Welded structures:
EN ISO 13920-AE
Machined parts:
ISO 2768-mK
LTR-7 (XL)
DIMENSION DRAWING
LTR 7-001
Enervent Oy
Kipinätie1, FIN- 06150 PORVOO
Tel. +358-207-528800, enervent@enervent.com
20030526
20020822

Wiring digrams

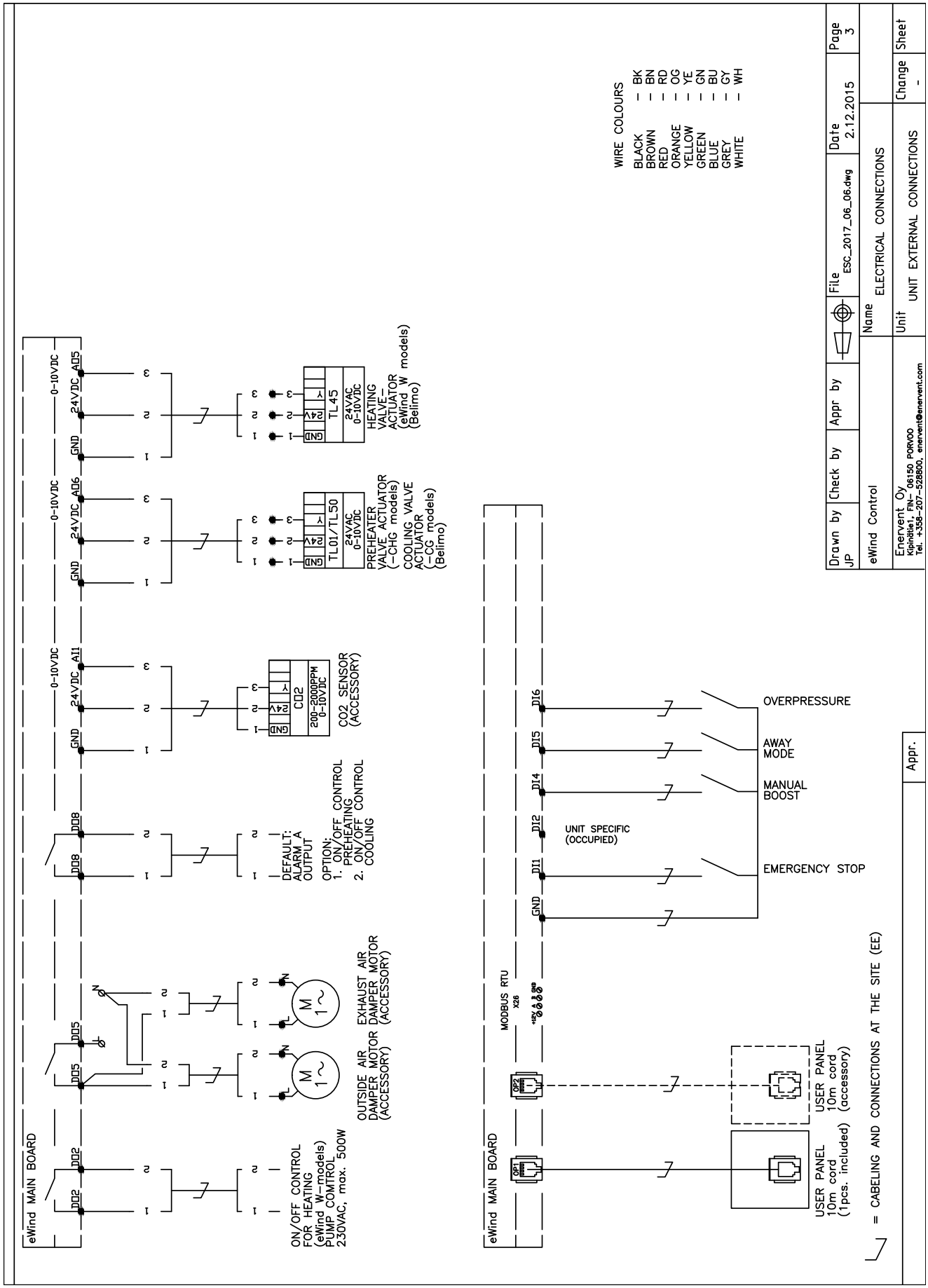
eWind basic wiring diagram



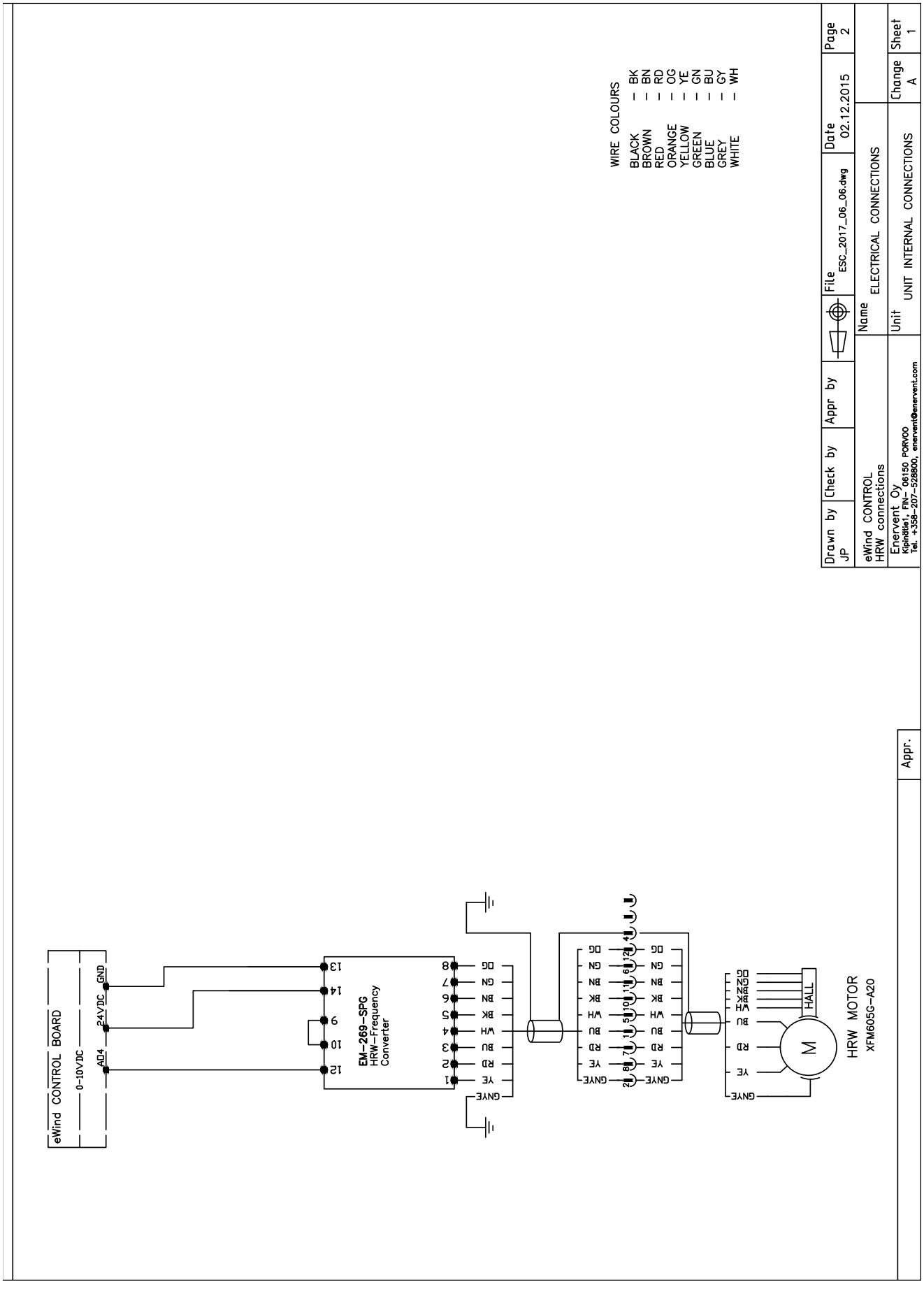
eWind basic wiring diagram Pingvin XL, Pegasos and LTR-7



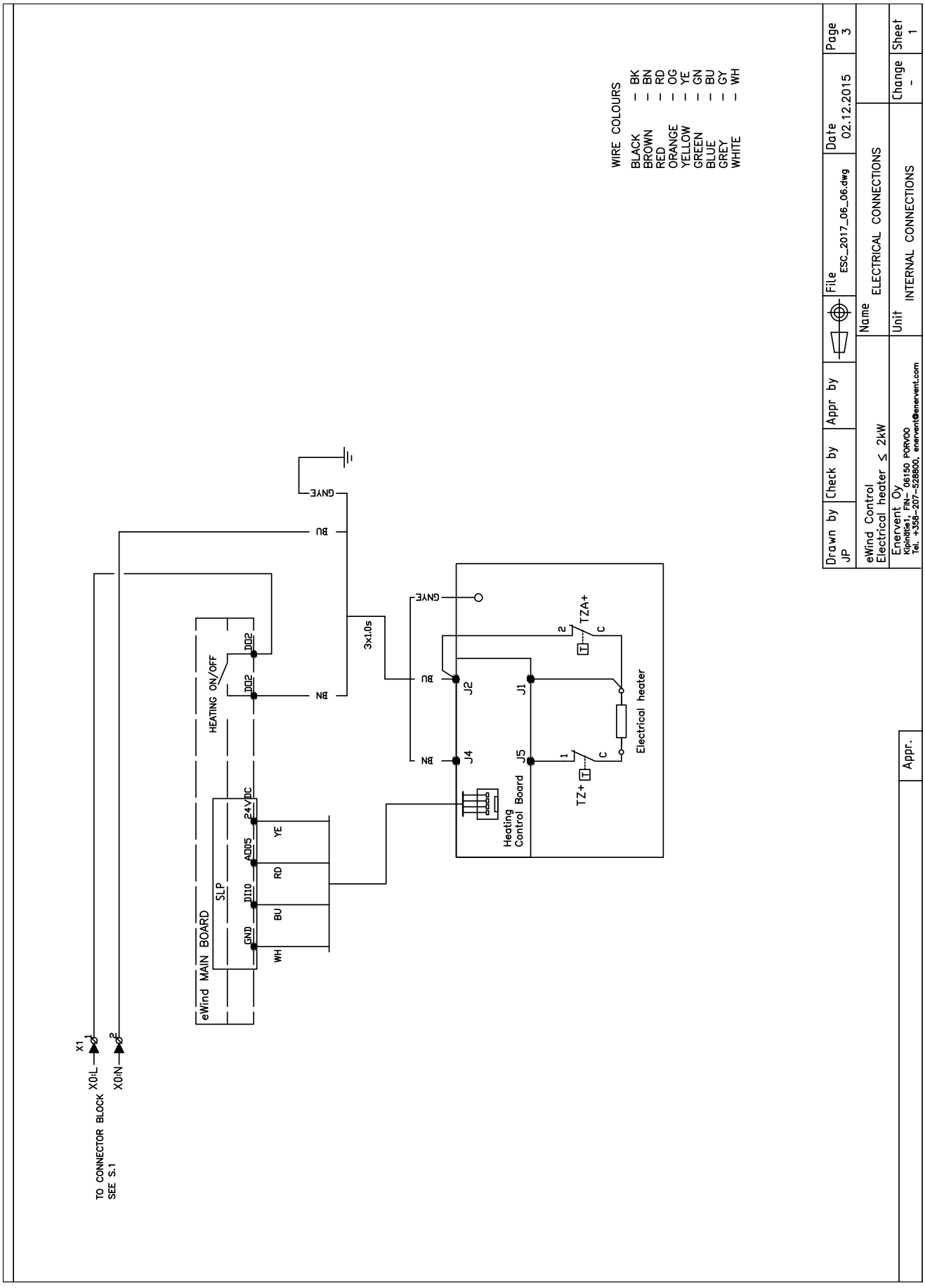
eWind basic external connections



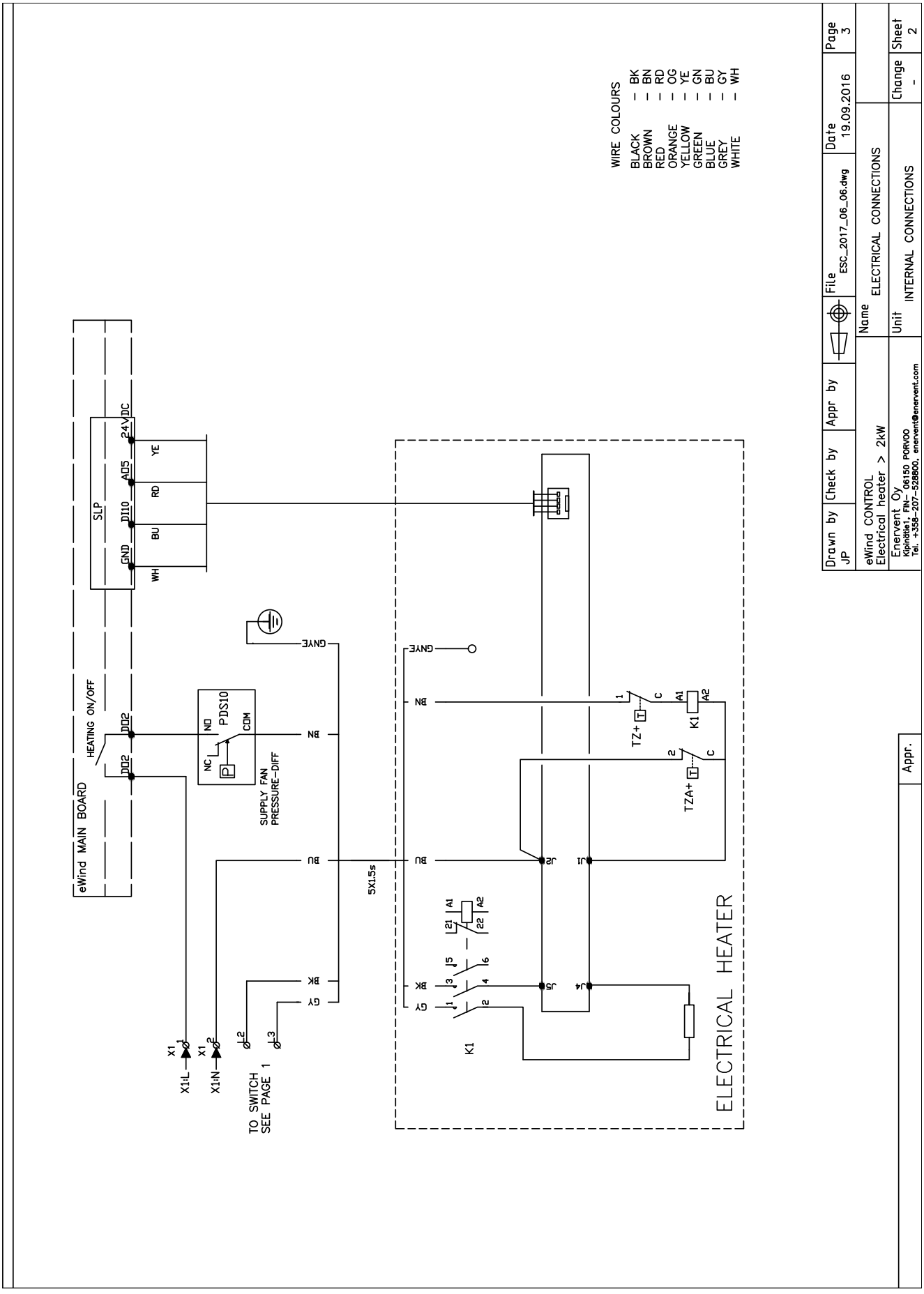
eWind basic internal connections



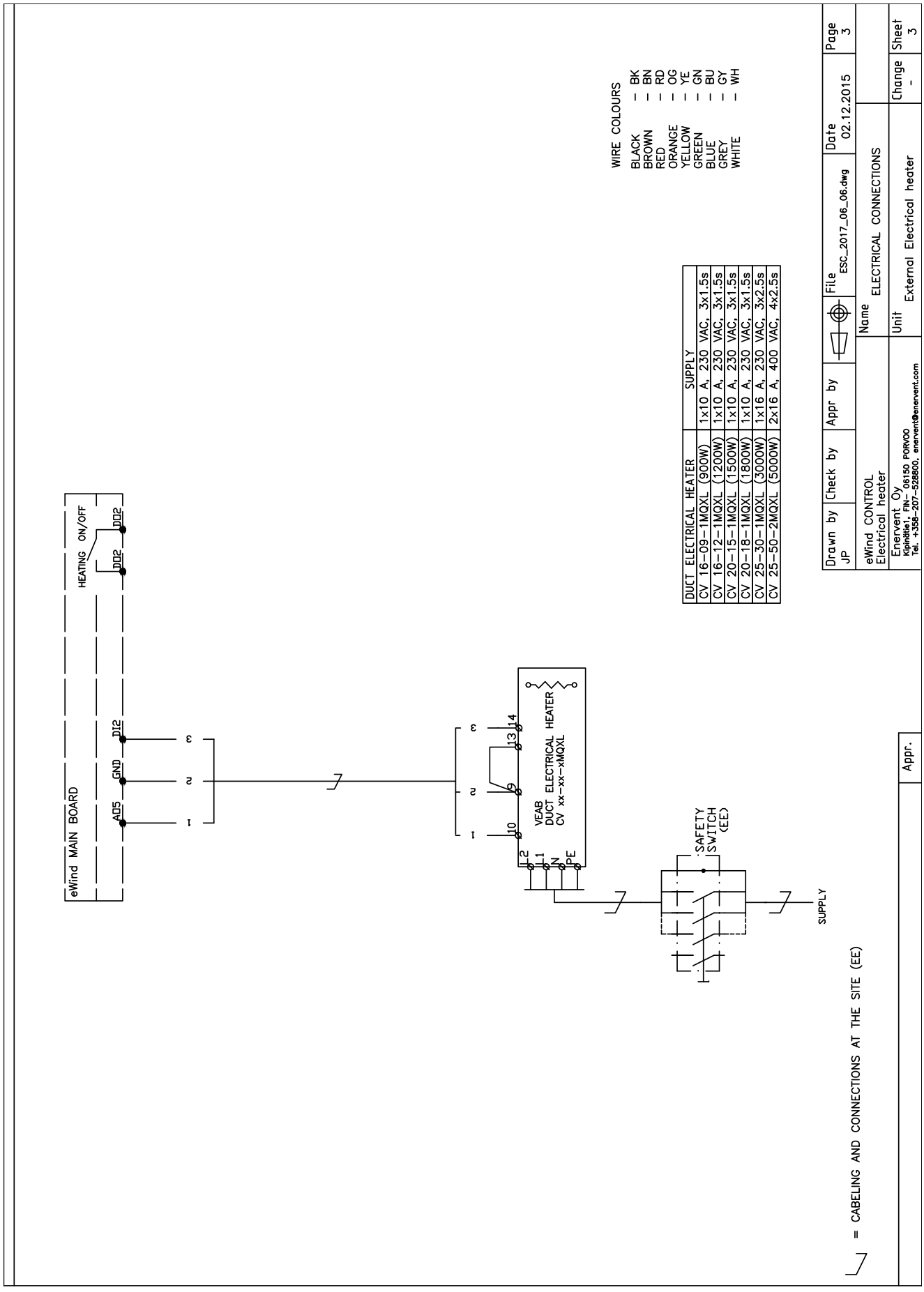
eWind electrical heater ≤ 2kW



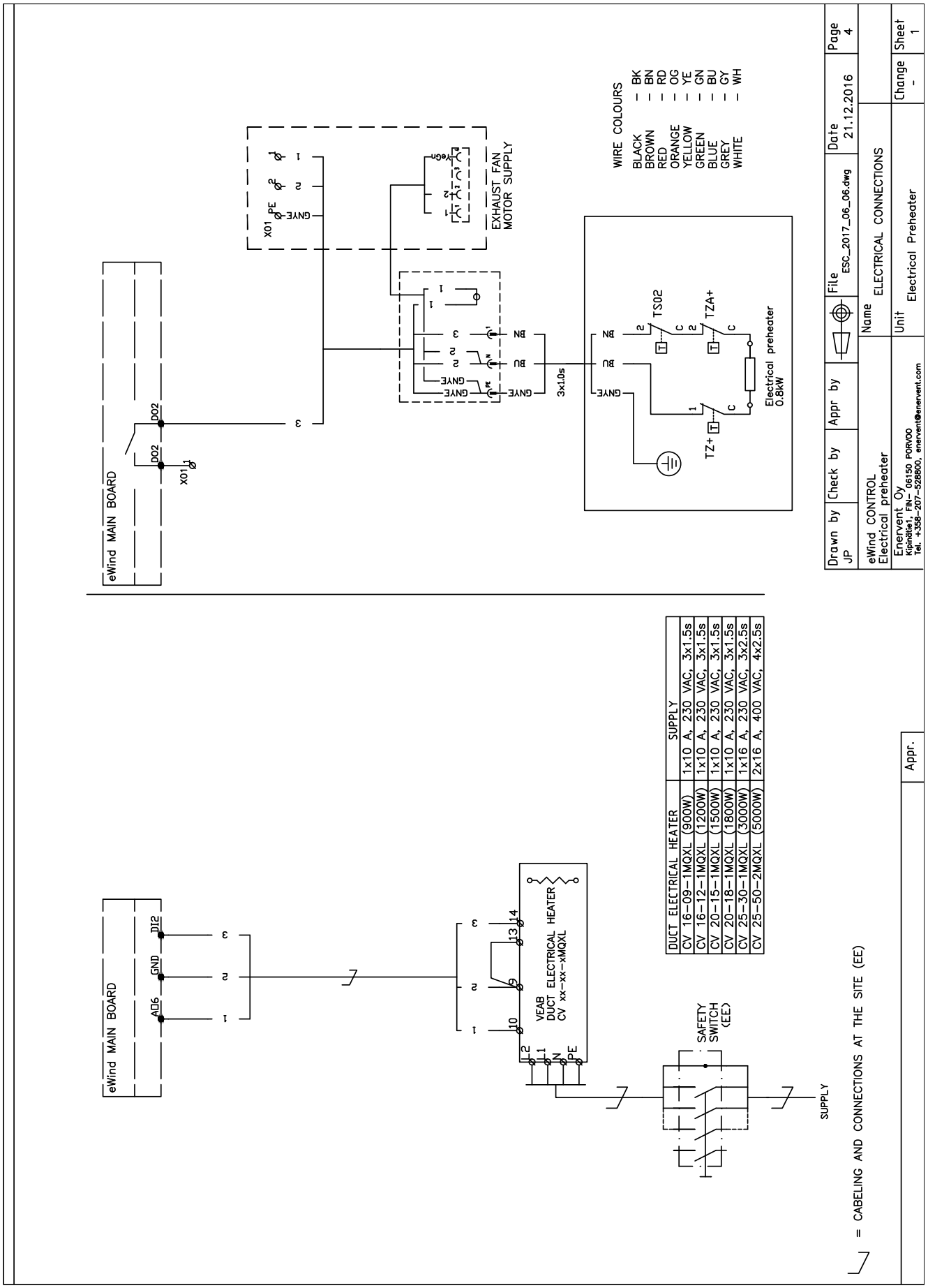
eWind electrical heater > 2kW



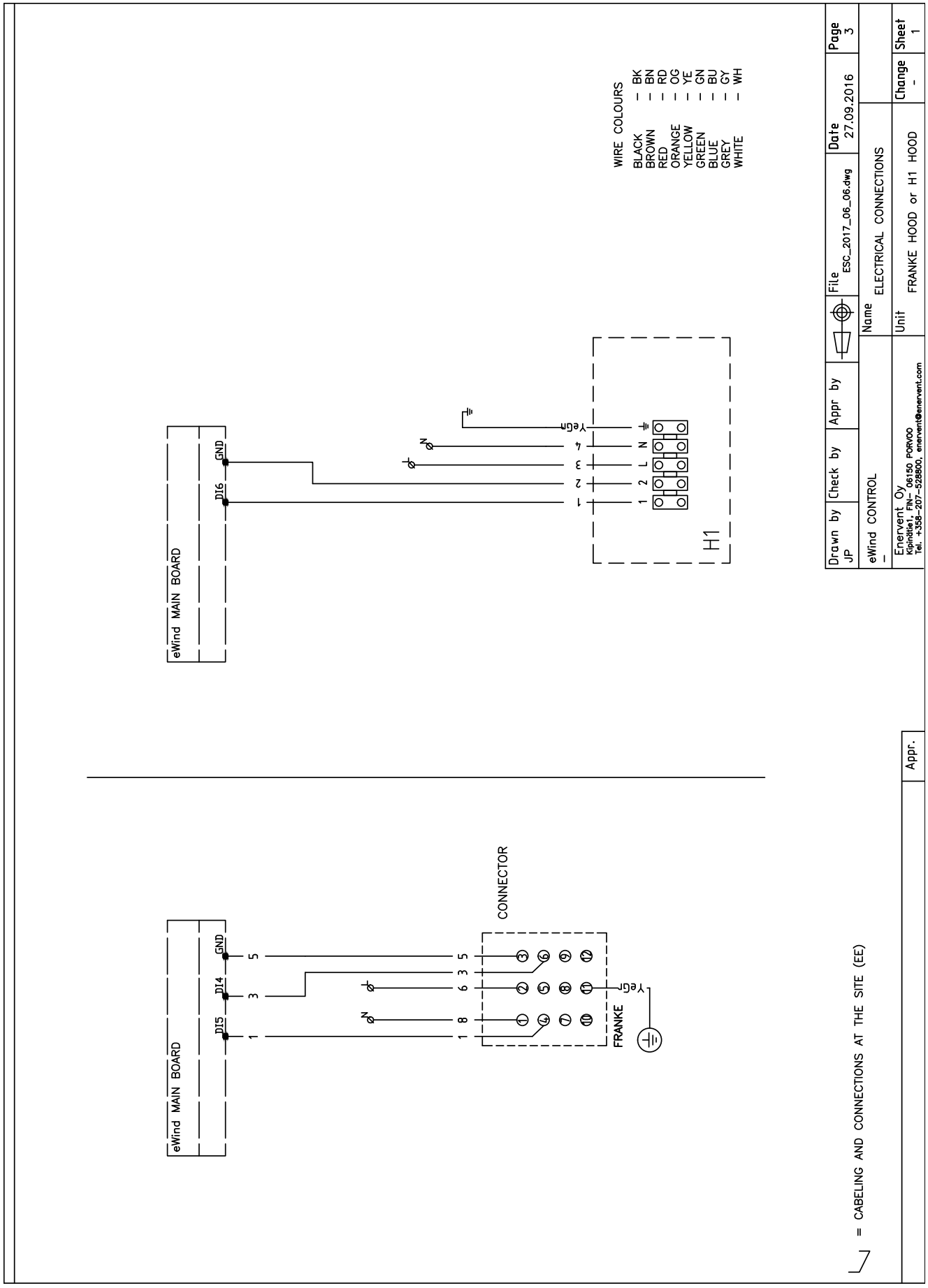
eWind external electrical heater



eWind electrical pre-heater



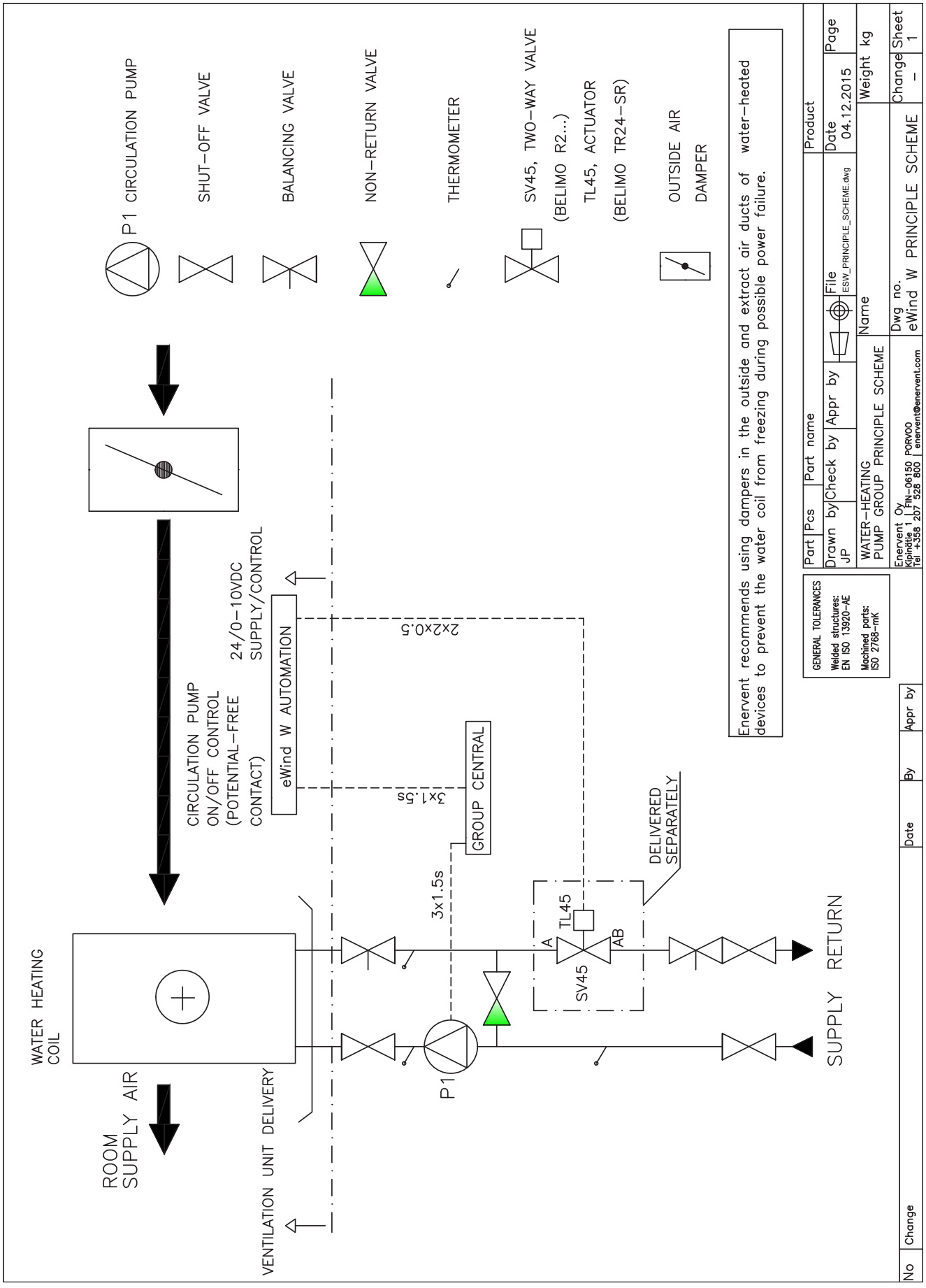
eWind extractor hood connections



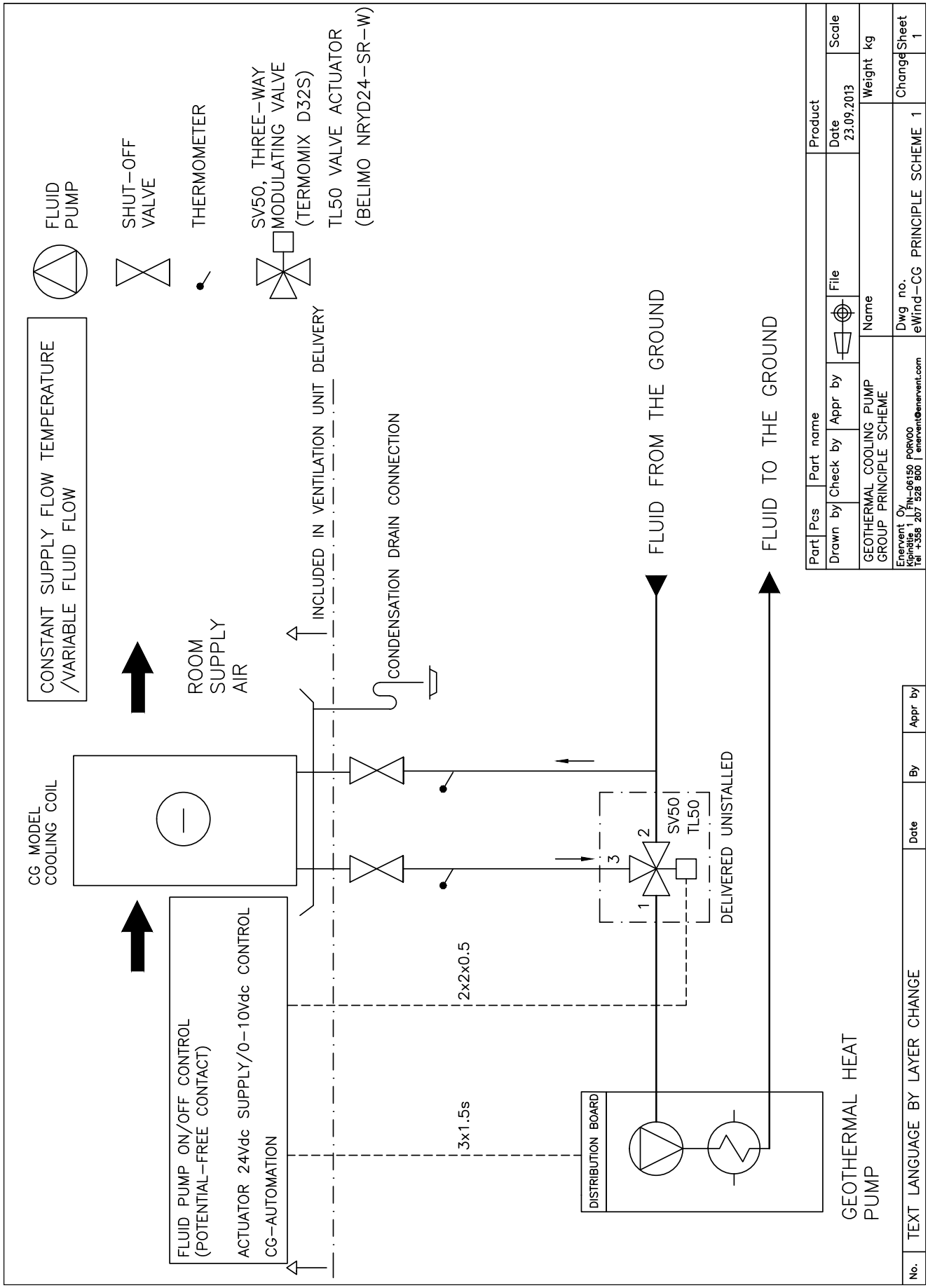
EN

Principal diagrams

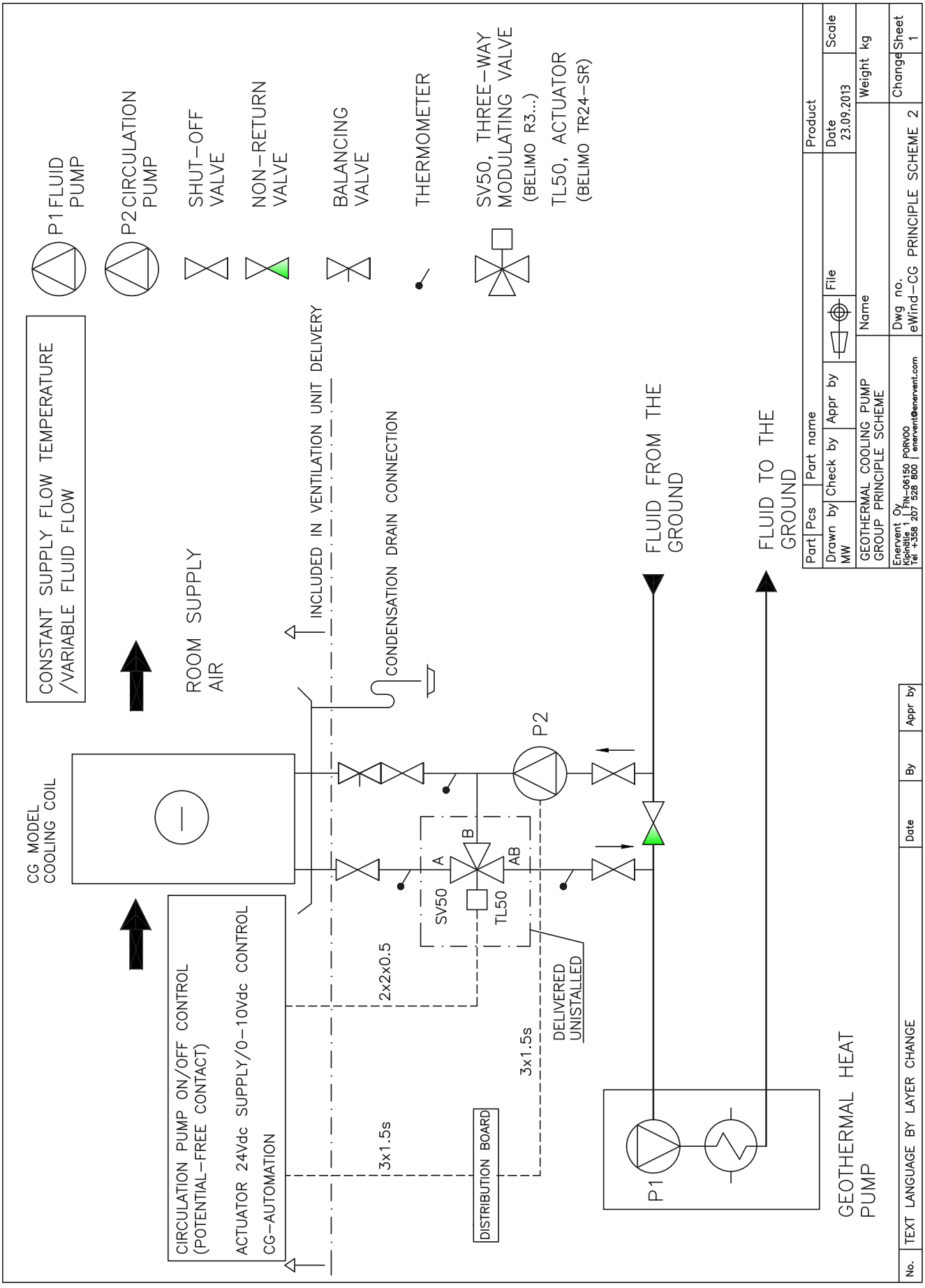
eWind HW principle scheme



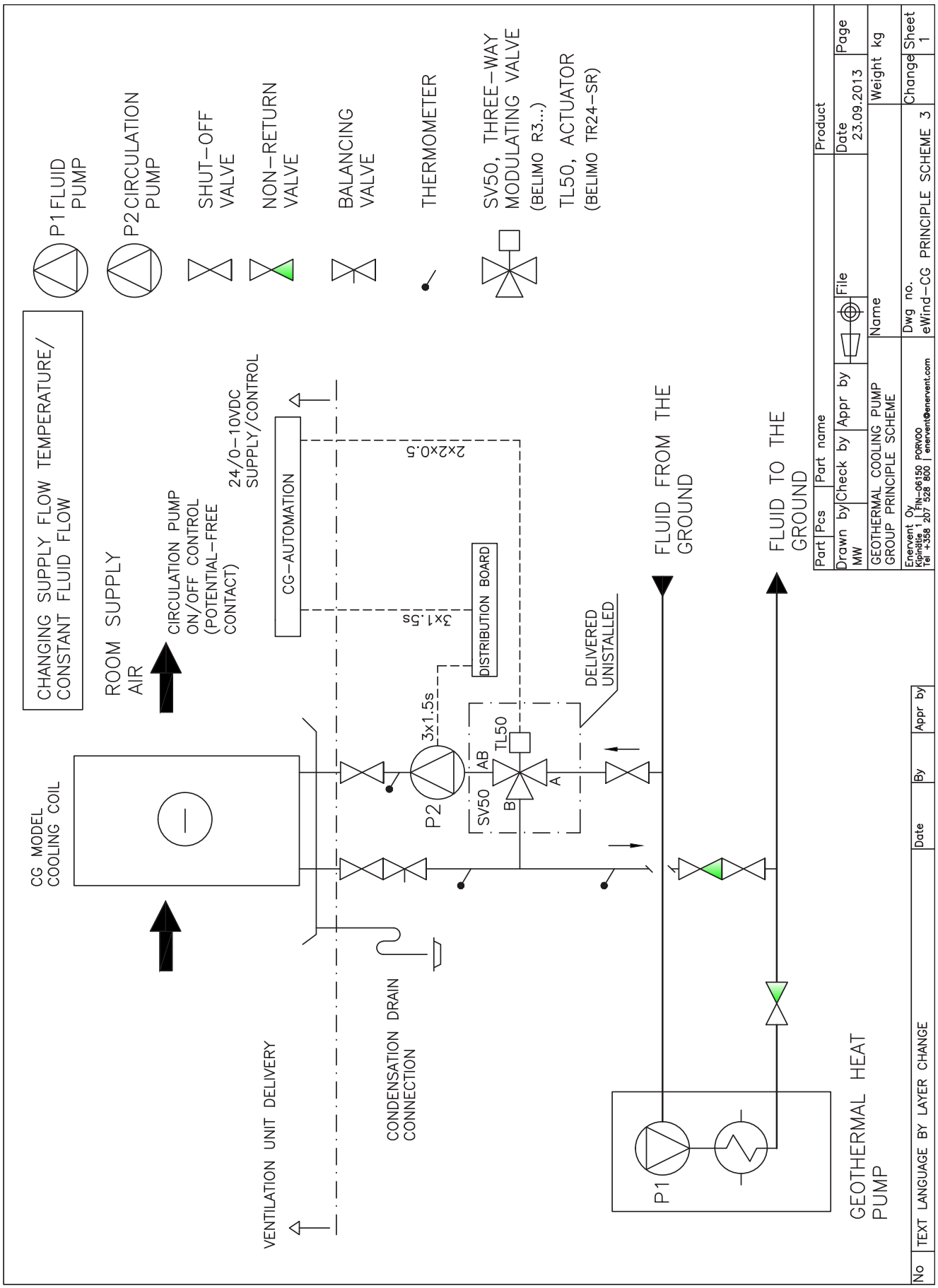
eWind CG principle scheme 1



eWind CG principle scheme 2

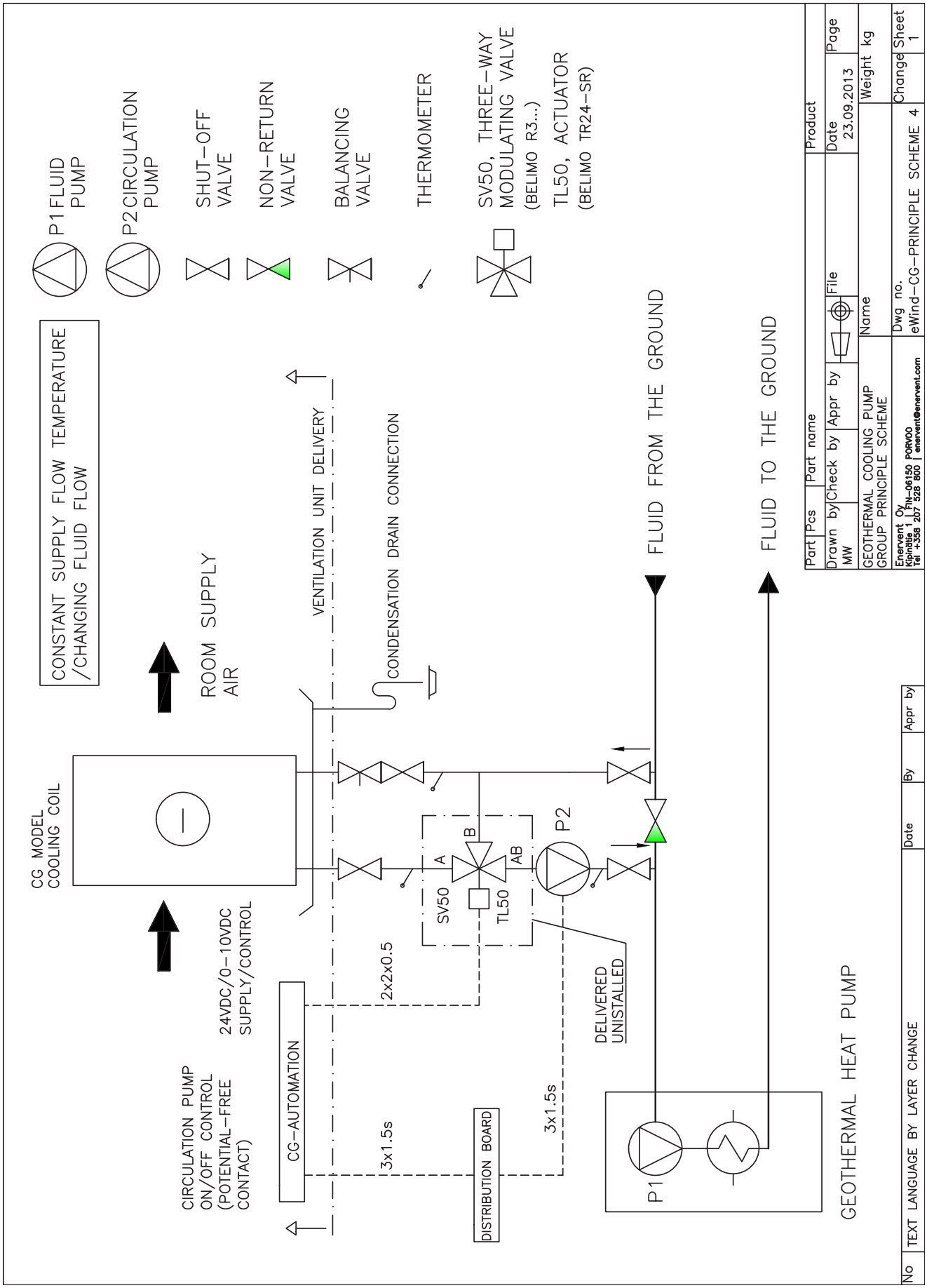


eWind CG principle scheme 3

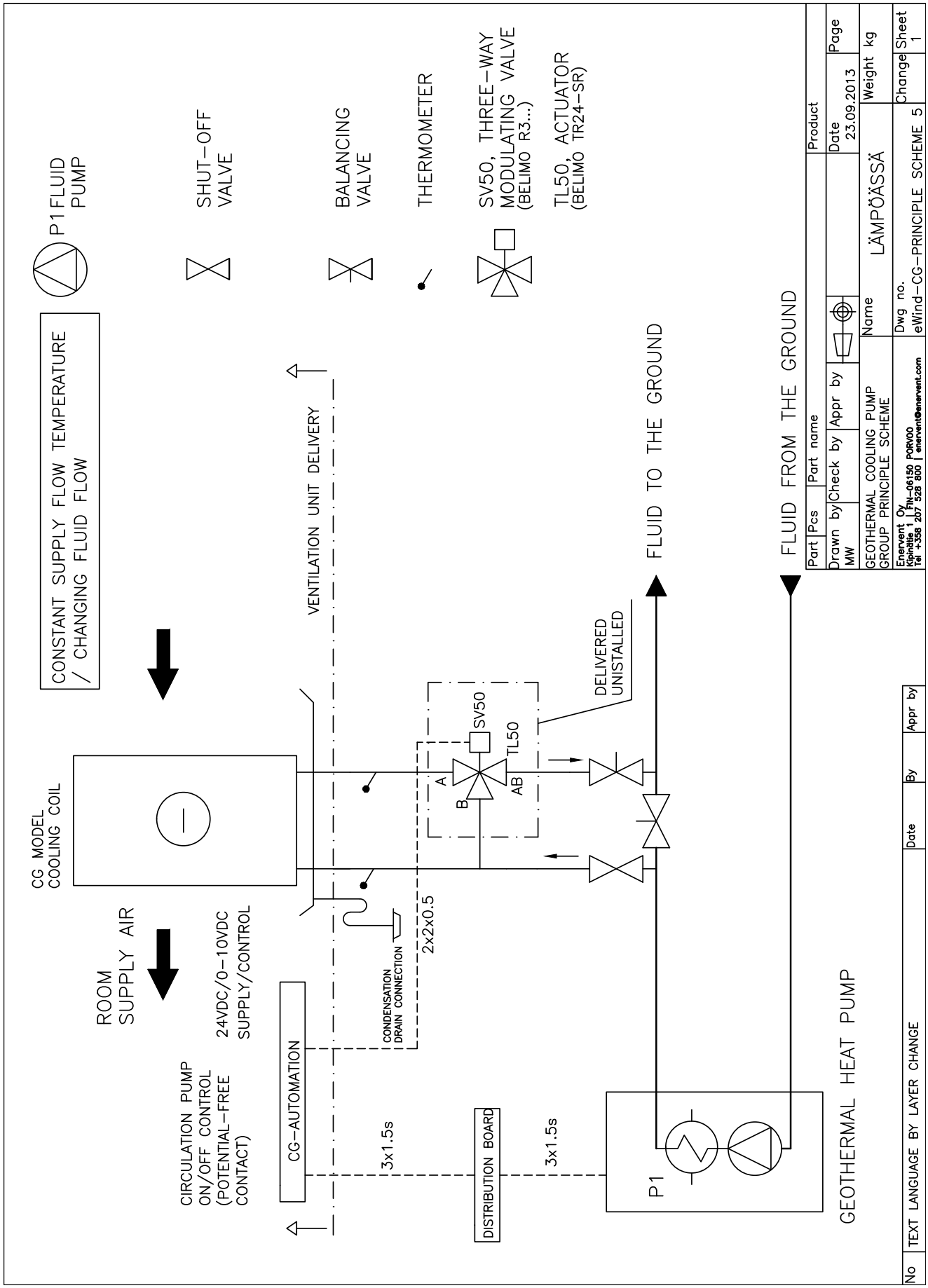


EN

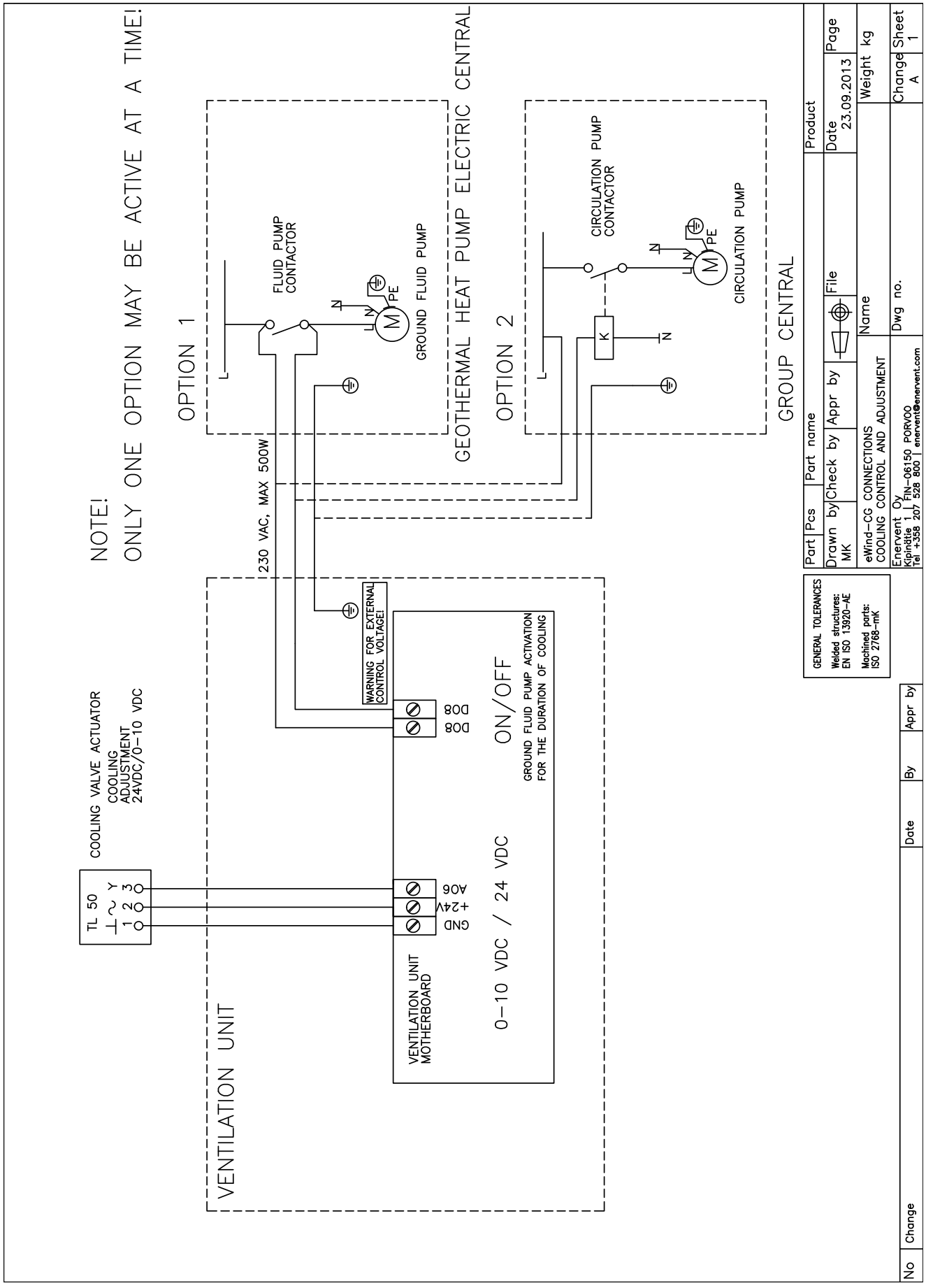
eWind CG principle scheme 4



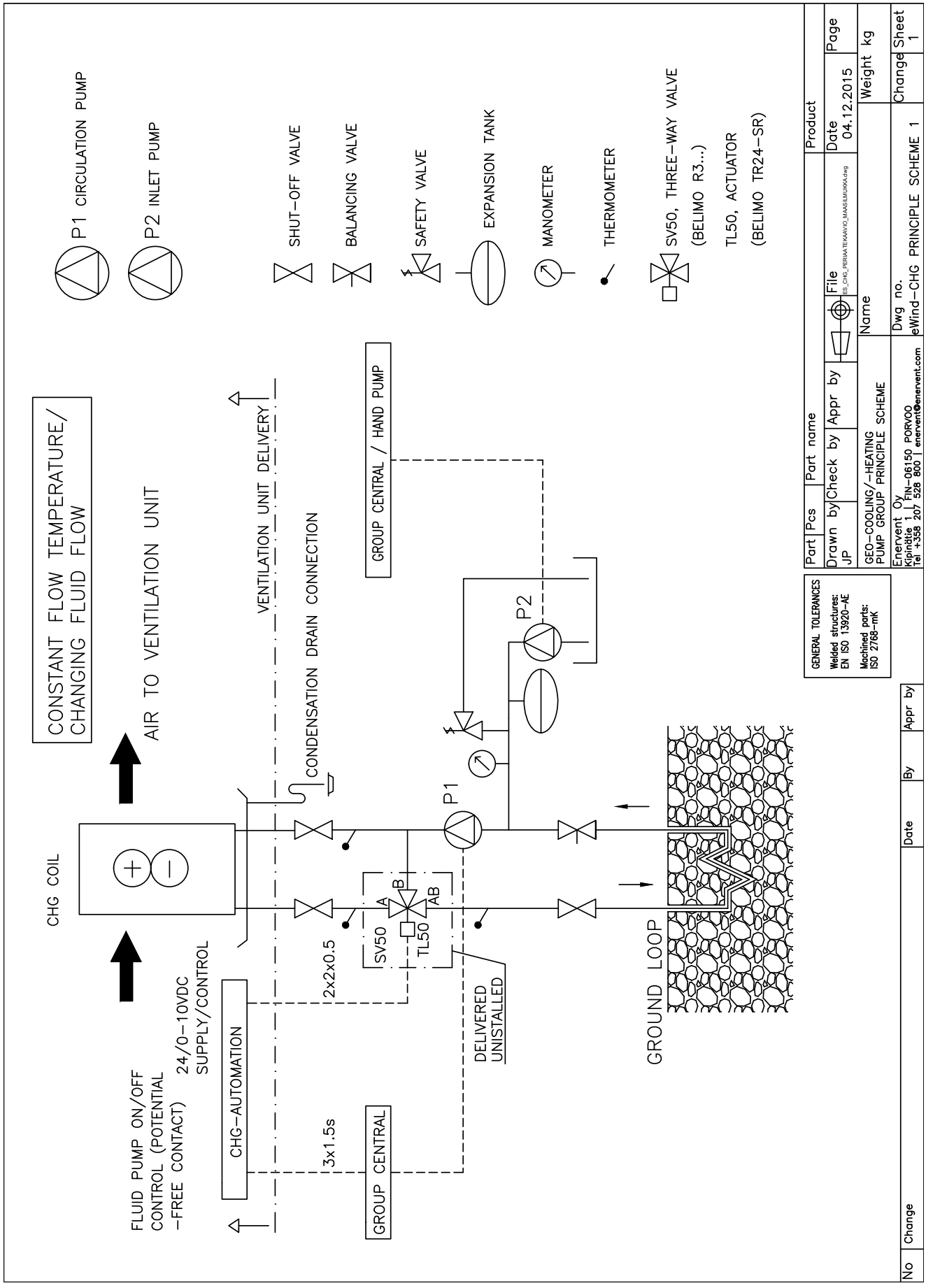
eWind CG principle scheme 5



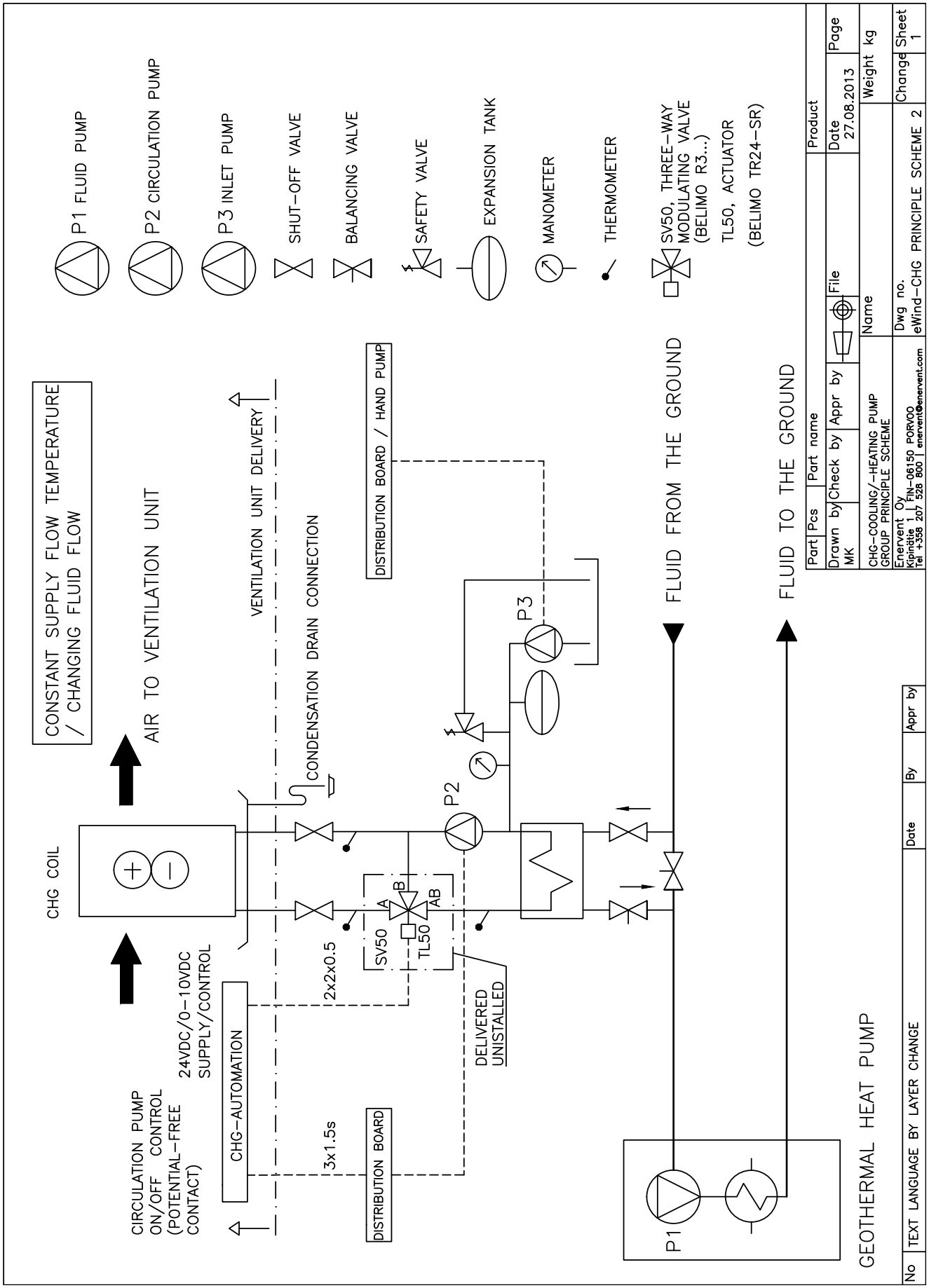
eWind CG connections



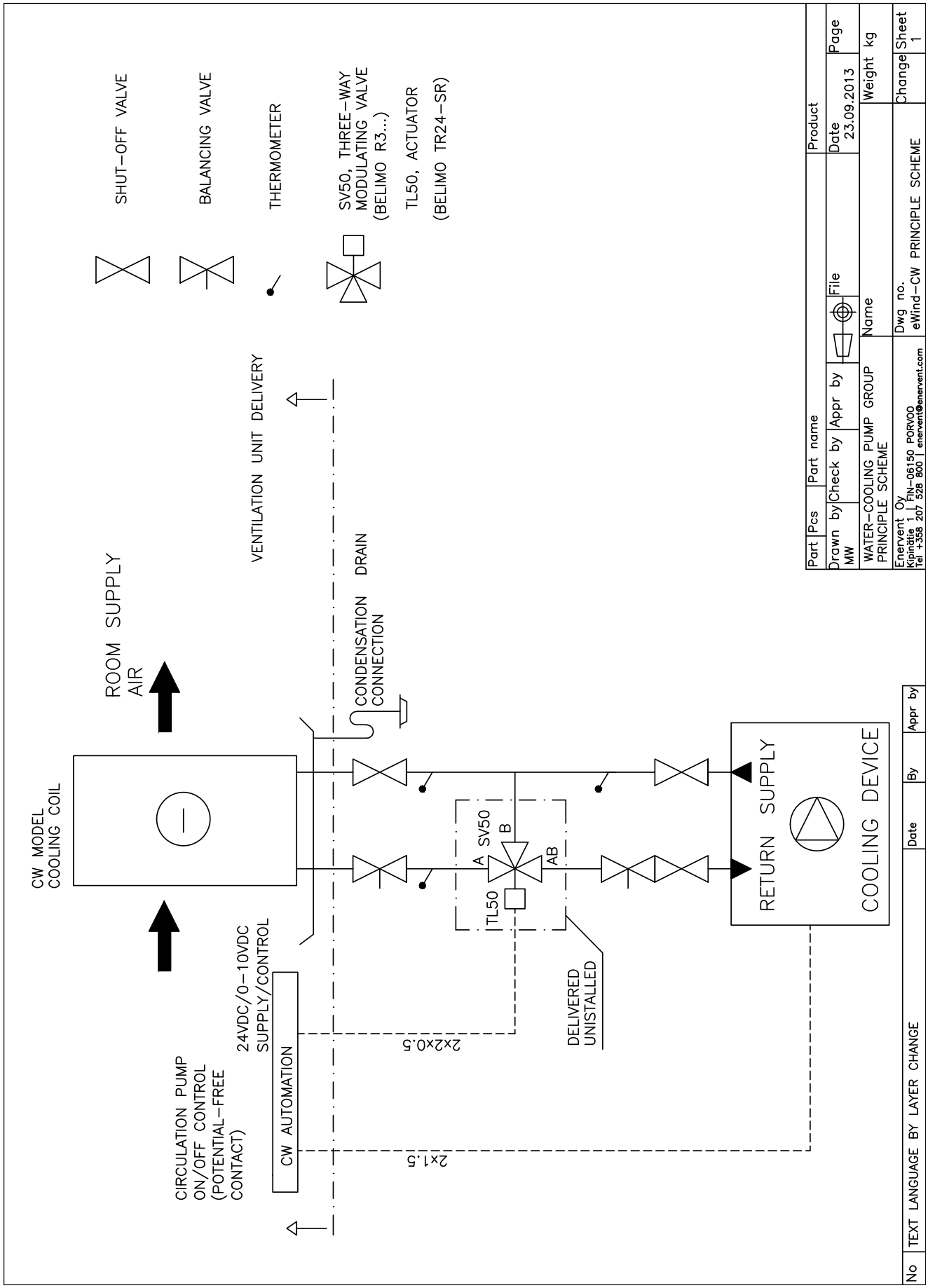
eWind CHG principle scheme ground loop



eWind CHG principle scheme heat exchanger



eWind CW principle scheme

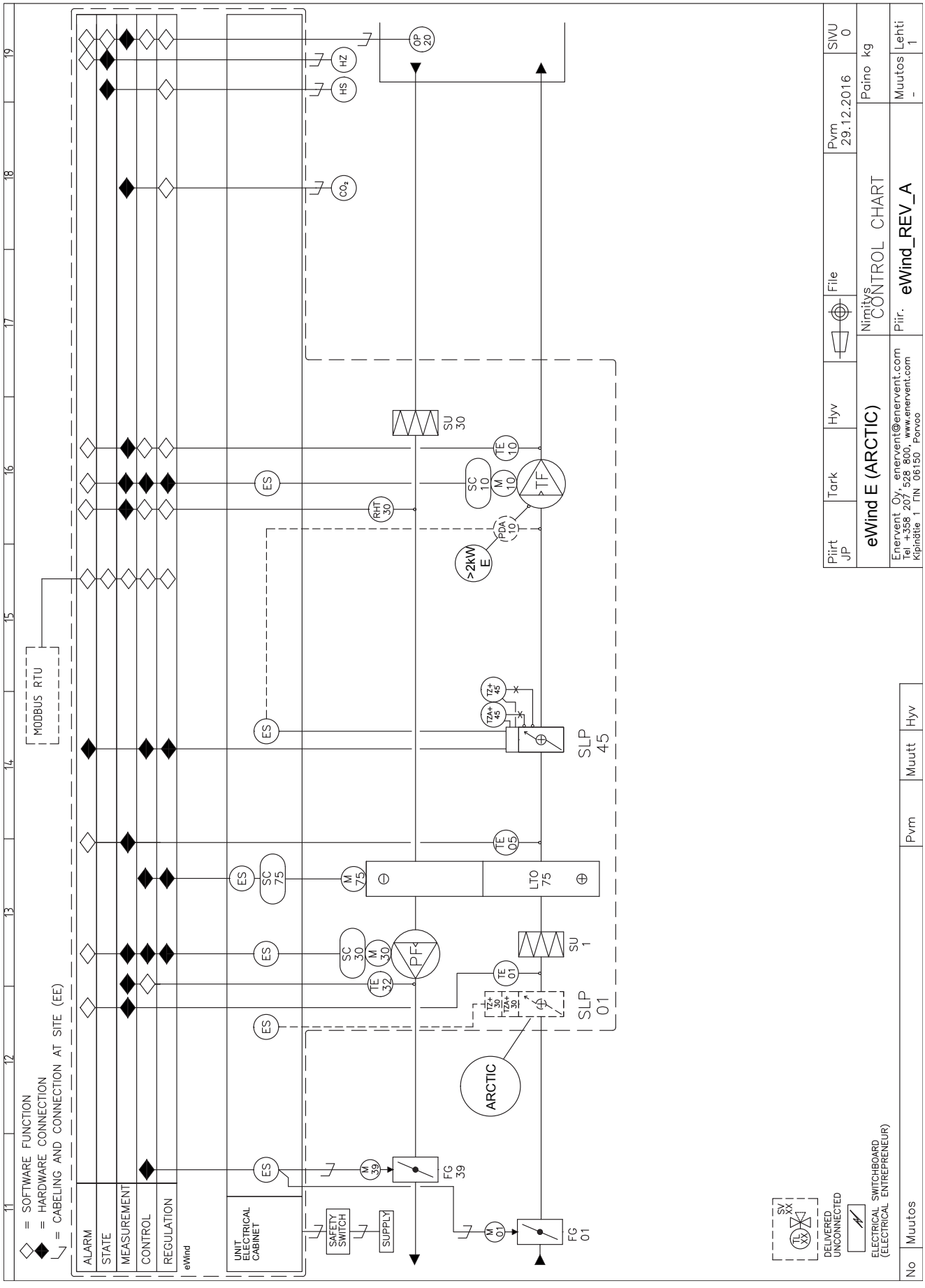


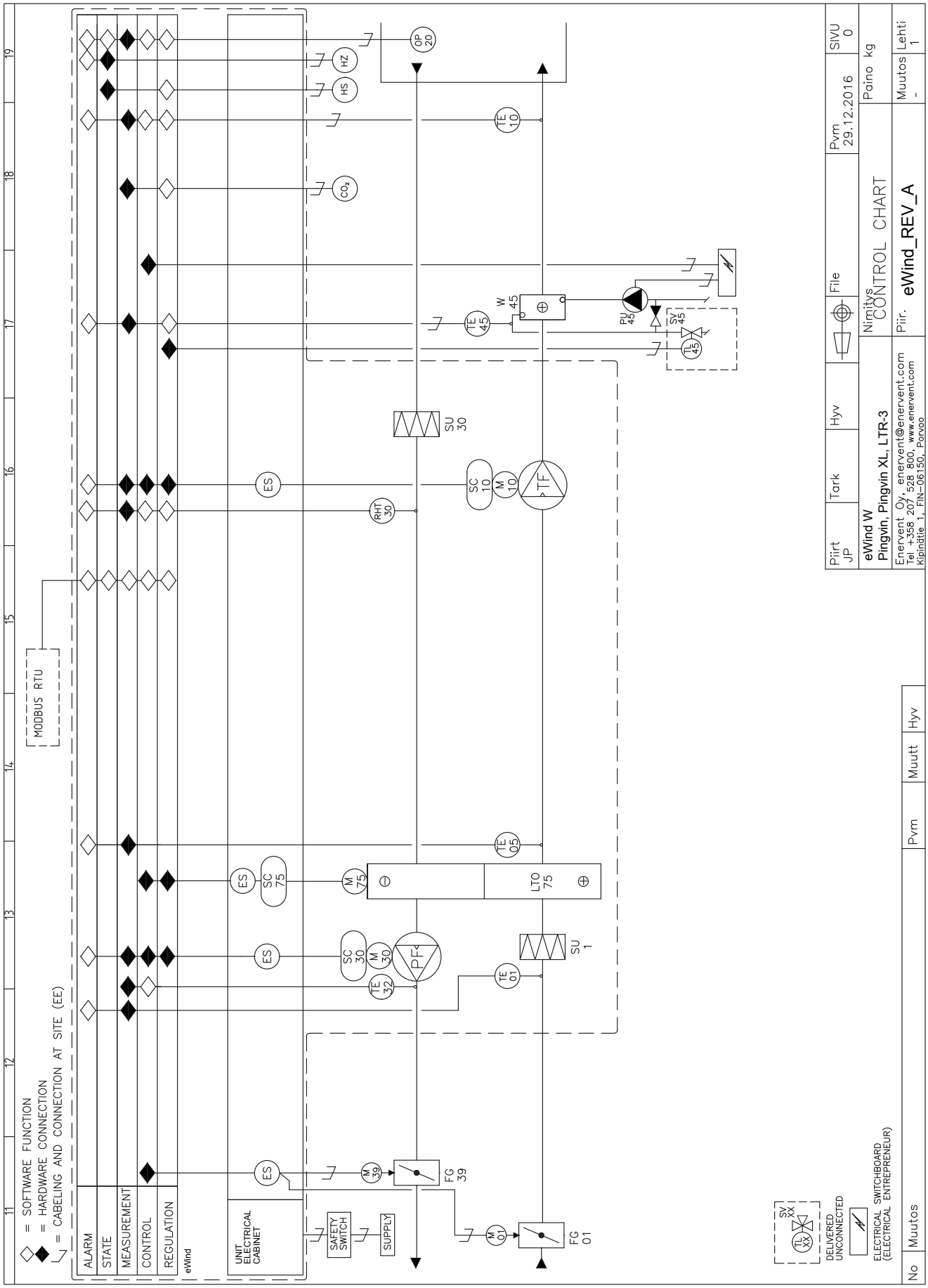
11	12	13	14	15	16	17	18	19
Air handling unit, component catalog								
Designation	Name		Equipment		Technical data		Note	
OP20	Control panel		1 pc standard delivery		eWind delivery, contains cabel			
TE01	Fresh air temperature		Standard		NTC-10			
TE05	Supply air, after heat recovery		Standard		NTC-10			
TE10	Supply air temperature		Standard		NTC-10			
RHT30	Extraxt air; temperature and humidity		Standard		Sender			
TE32	Exhaust air temperature		Standard		NTC-10			
SU1	Fresh air filter		Standard		Standard M5		Alternatively F7	
SU30	Extract air filter		Standard		Standard M5		Alternatively F7	
LTO75	Rotating heat exchanger		Standard					
M75+SC75	HRW motor + control		Standard		EC motor, max effect 15 W			
TF10+M10+SC10	Supply fan		Standard		EC motor			
PF30+M30+SC30	Exhaust fan		Standard		EC motor			
SLP45	Supply air reheater, electrical		E-models				Effect acc. to Unit size	
W45	Supply air reheater, water		W-models				Effect acc. to Unit size	
TL45+SV45	Valve actuator + 2-way control valve		W-models		Kvs-value acc. to Unit size			
TL50+SV50	Valve actuator+ 3-way control valve		CG-models		Kvs-value acc. to Unit size			
CG50	Supply air cooler		CG-models				Effect acc. to Unit size	
TE02	Preheated outdoor air		Models with preheating		NTC-10			
CO2	CO2-measurement		Optional equipment		200-2000ppm, 0-10Vdc			
HS	Extra time, switch		Optional equipment		Pushbutton			
HZ	Emergency stop				Normally open (NO) as standard			
FG01	Fresh air dampers+Damper motor		Optional equipment					
FG39	Exhaust air dampers+Damper motor		Optional equipment					

No	Change	Date	By	Appr

Drawn by JP	Check by	Appr by		File	Date 29.12.2016	Page 0
			Name COMPONENT CATALOGUE			Weight kg
Enervent Oy, enervent@enervent.com Tel +358 207 528 800, www.enervent.com Kipinätie 1, FIN-06150, Porvoo			Unit		Change -	Sheet 1

eWind E (ARCTIC)




◇ = SOFTWARE FUNCTION
◆ = HARDWARE CONNECTION
└ = CABELING AND CONNECTION AT SITE (EE)
ALARM
STATE
MEASUREMENT
CONTROL
REGULATION
eWind
MODBUS RTU
UNIT ELECTRICAL CABINET
SAFETY SWITCH
SUPPLY
FG 39
FG 01
SU 30
SU 1
LTO 75
PF
TF
OP 20
HZ
HS
CO2
TE 10
TE 45
W 45
PU 45
SV 45
TL 45
RHT 30
SC 10
M 10
ES
SC 75
M 75
TE 05
SC 30
M 30
TE 32
TE 01
M 39
M 01
SV XX
TL XX
DELIVERED UNCONNECTED
ELECTRICAL SWITCHBOARD (ELECTRICAL ENTREPRENEUR)
No Muutos Pvm Muutt Hyv
Piirt JP
Tark
Hyv
File
Pvm 29.12.2016
SIVU 0
eWind W
Pingvin, Pingvin XL, LTR-3
Nimitys CONTROL CHART
Paino kg
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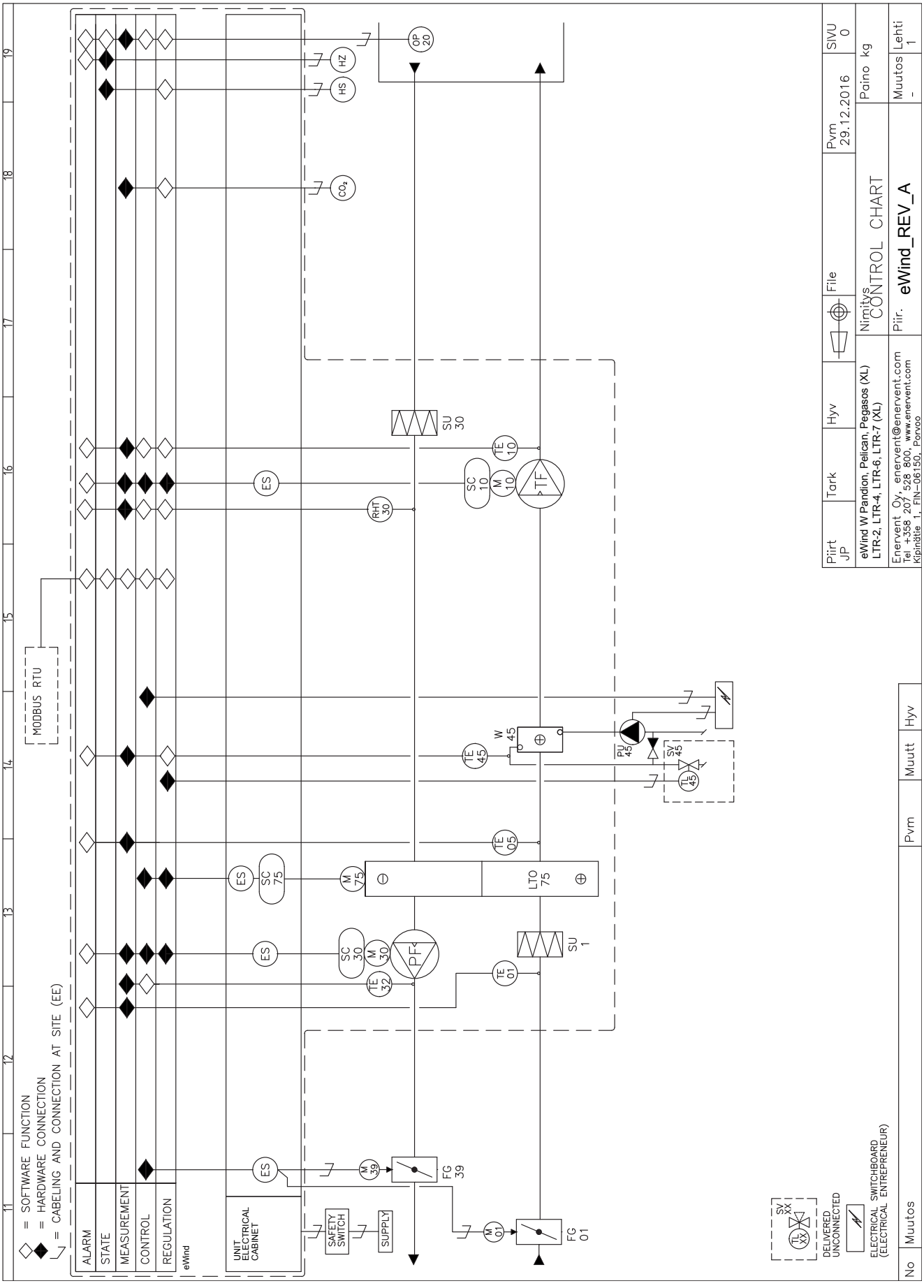
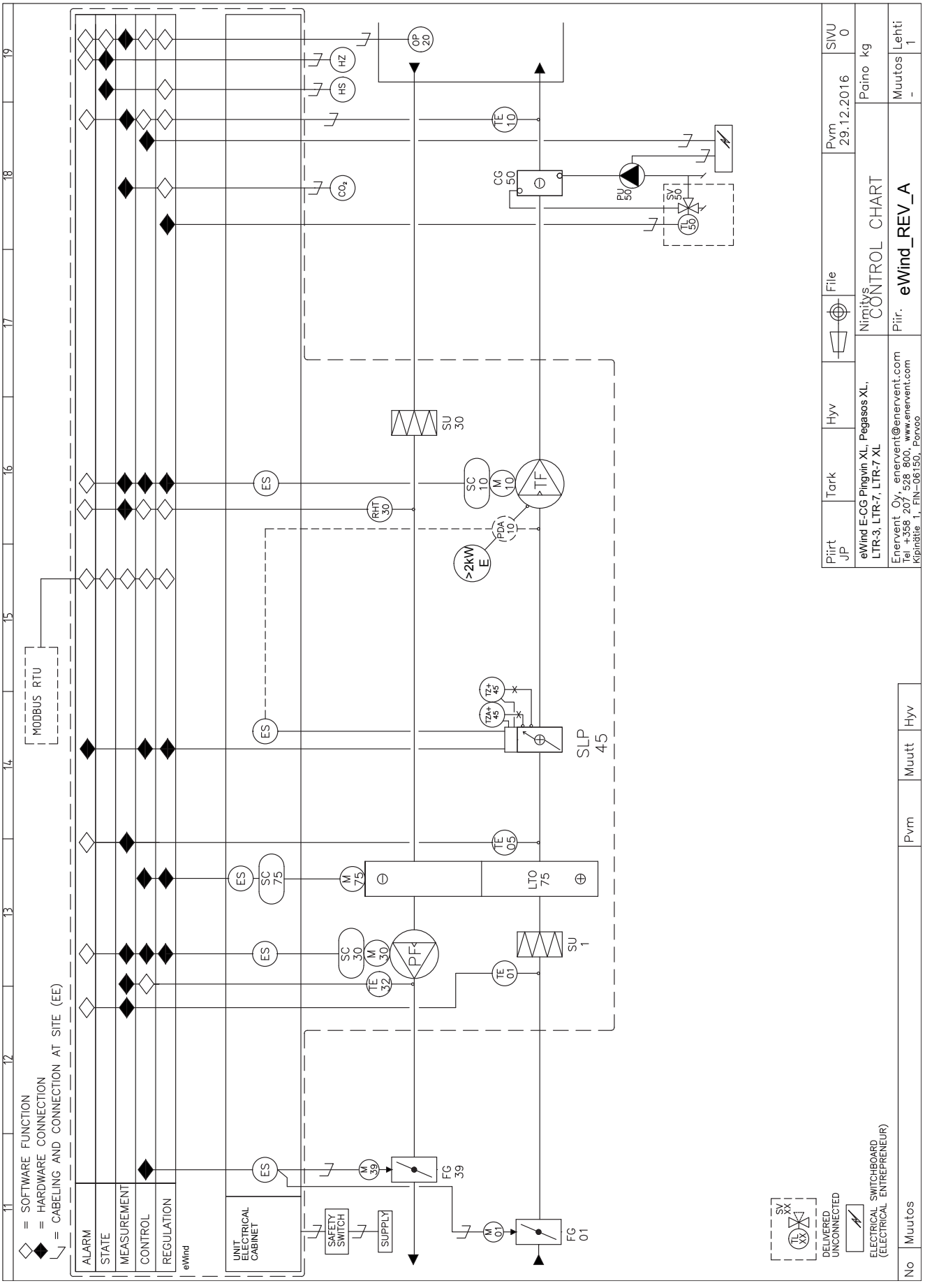
Tel +358 207 528 800, www.enervent.com
Kipinätie 1, FIN-06150, Porvoo
Piir. eWind_REV_A
Muutos -
Lehti 1

eWind W Pandion, Pelican, Pegasos, Pegasos XL, LTR-2, LTR-4, LTR-6, LTR-7, LTR-7 XL




◇◆ = SOFTWARE FUNCTION
= HARDWARE CONNECTION
= CABELING AND CONNECTION AT SITE (EE)
ALARM
STATE
MEASUREMENT
CONTROL
REGULATION
eWind
MODBUS RTU
UNIT ELECTRICAL CABINET
SAFETY SWITCH
SUPPLY
ES
OP 20
HZ
HS
CO2
TE 10
CG 50
PU 50
SV 50
TL 50
SU 30
SC 10
M 10
TF
RHT 30
PDA 10
>2kW E
TZ+ 45
TZA+ 45
SLP 45
TE 05
SC 75
M 75
LTO 75
SC 30
M 30
PF
TE 32
TE 01
SU 1
M 39
FG 39
M 01
FG 01
SV XX
TL XX
DELIVERED UNCONNECTED
ELECTRICAL SWITCHBOARD (ELECTRICAL ENTREPRENEUR)
No | Muutos | Pvm | Muutt | Hyv
Piirt JP | Tark | Hyv
eWind E-CG Pingvin XL, Pegasos XL, LTR-3, LTR-7, LTR-7 XL
File
Pvm 29.12.2016
Nimitys CONTROL CHART
Paino kg
SIVU 0
Muutos - | Lehti 1
Piir. eWind_REV_A
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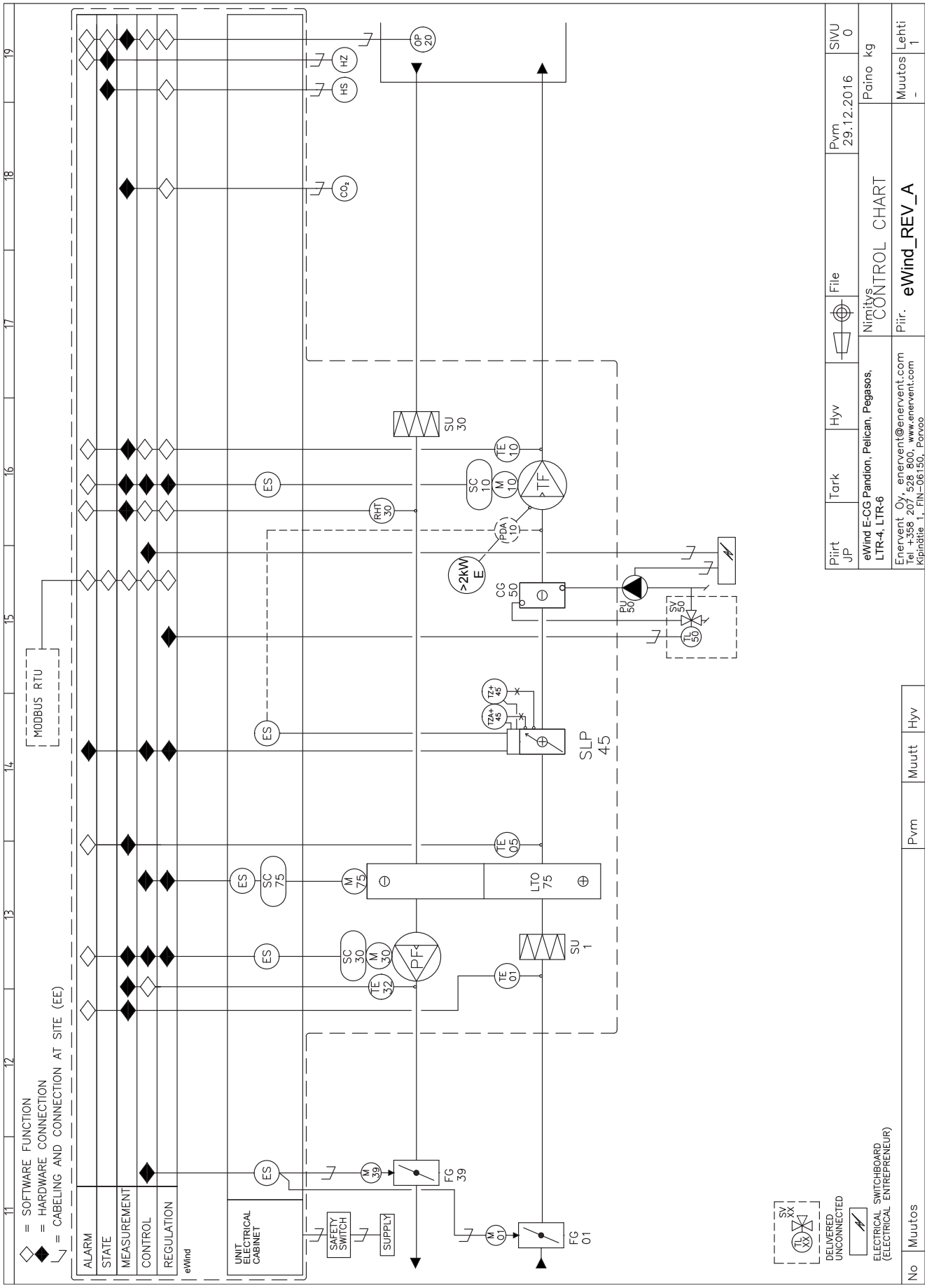
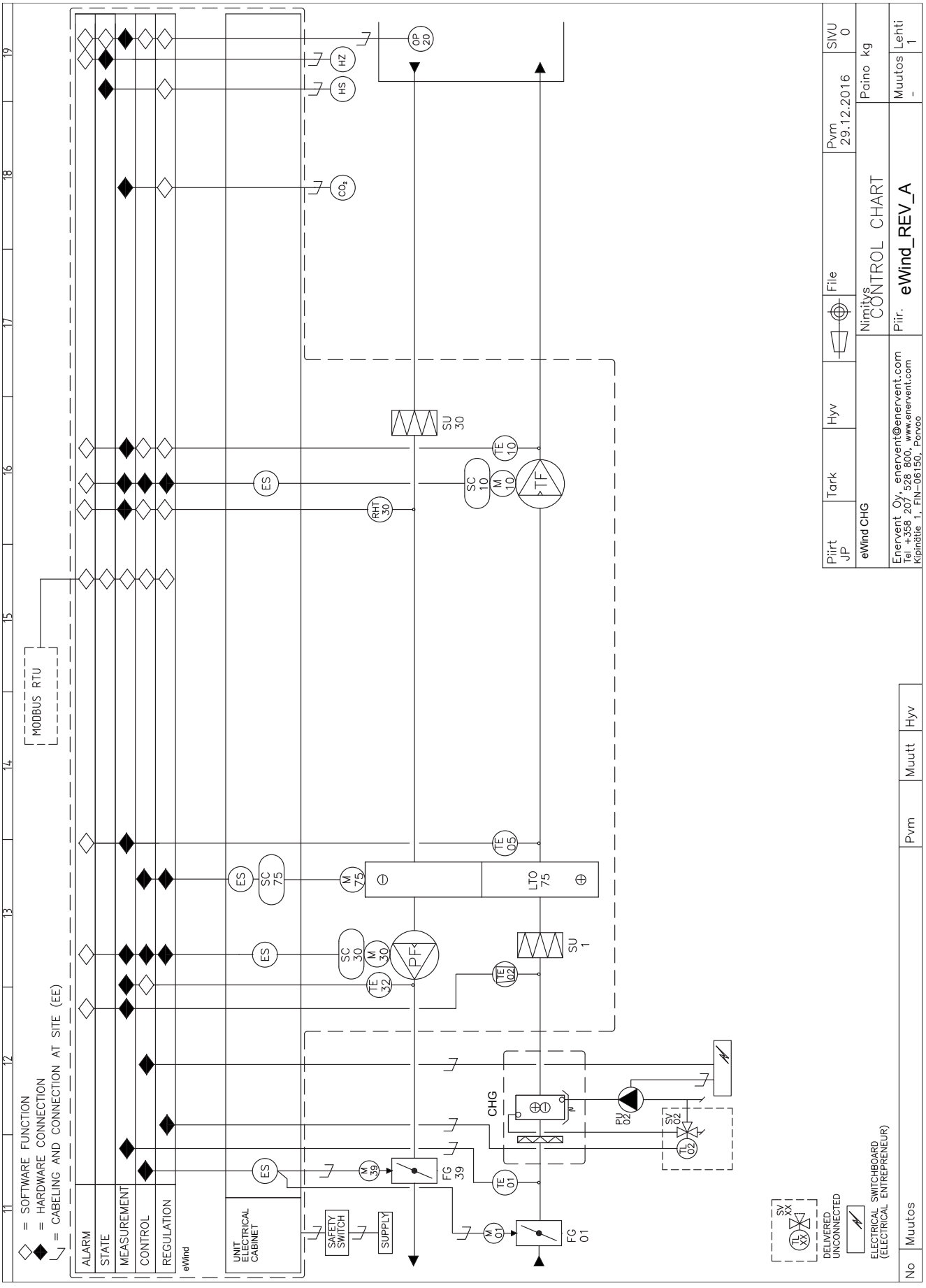
eWind E-CG Pandion, Pelican, Pegasos, LTR-4, LTR-6




◇◆ = SOFTWARE FUNCTION
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= CABELING AND CONNECTION AT SITE (EE)
ALARM
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eWind
MODBUS RTU
UNIT ELECTRICAL CABINET
SAFETY SWITCH
SUPPLY
ES
M 39
FG 39
M 01
FG 01
TE 01
CHG
PU 02
SV 02
TL 02
SV XX
TL XX
DELIVERED UNCONNECTED
ELECTRICAL SWITCHBOARD (ELECTRICAL ENTREPRENEUR)
SC 75
M 75
LTO 75
SC 30
M 30
TE 32
PF
TE 02
SU 1
TE 05
SC 10
M 10
TF
TE 10
SU 30
RHT 30
HZ
HS
CO2
OP 20
No
Muutos
Pvm
Muutt
Hyv
Piirt JP
Tark
Hyv
File
Pvm 29.12.2016
SIVU 0
eWind CHG
Nimitys CONTROL CHART
Paino kg
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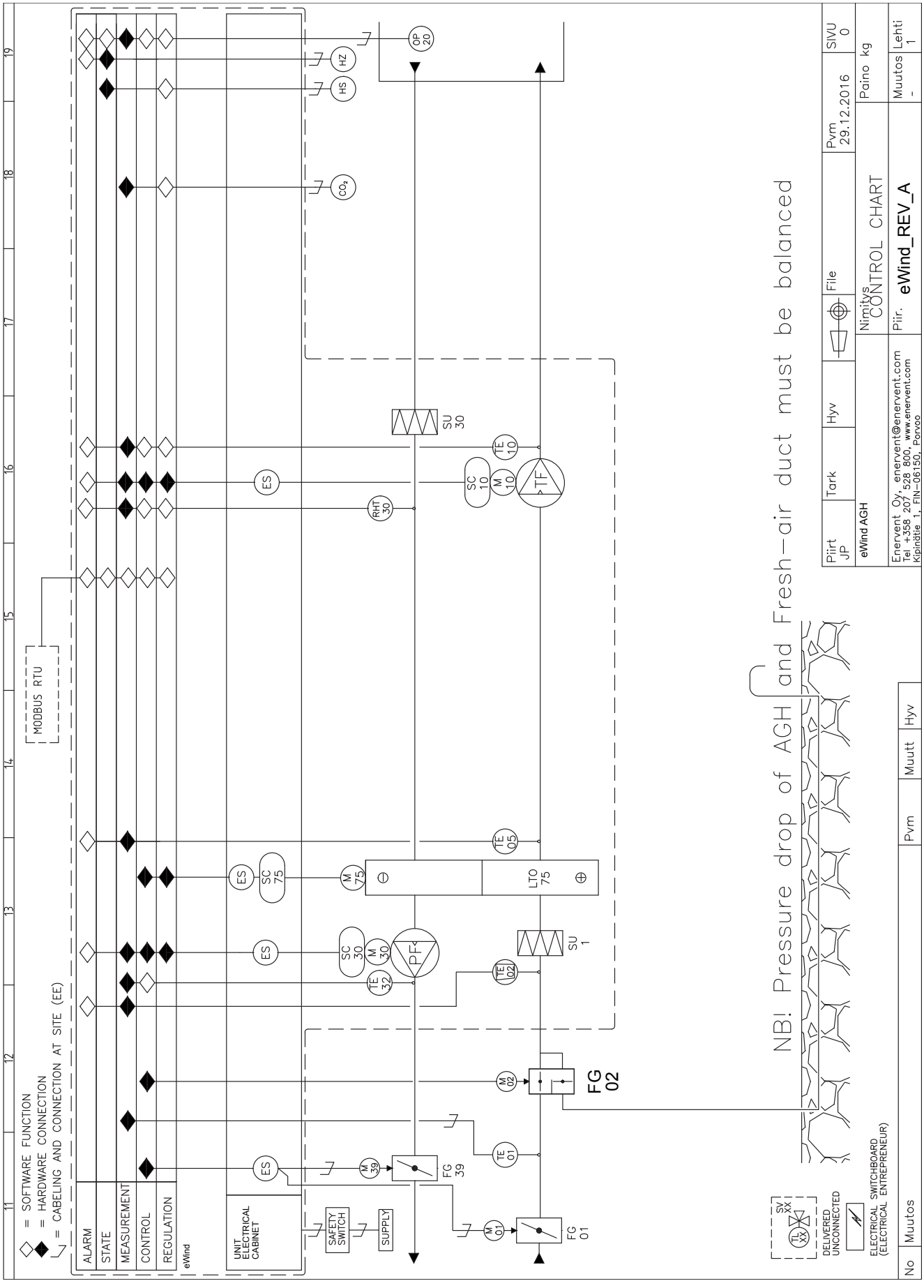
Piir. eWind_REV_A
Muutos -
Lehti 1

eWind AGH


◇ = SOFTWARE FUNCTION
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└ = CABELING AND CONNECTION AT SITE (EE)
ALARM
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SC 10
M 10
TE 10
TF
ES
SC 75
M 75
LTO 75
TE 05
SC 30
M 30
TE 32
PF
SU 1
TE 02
M 02
M 01
TE 01
M 39
NB! Pressure drop of AGH and Fresh-air duct must be balanced
SV XX
TL XX
DELIVERED UNCONNECTED
ELECTRICAL SWITCHBOARD (ELECTRICAL ENTREPRENEUR)
No | Muutos | Pvm | Muutt | Hyv
Piirt JP | Tark | Hyv | File | Pvm 29.12.2016 | SIVU 0
eWind AGH
Nimitys CONTROL CHART
Paino kg
Enervent Oy, enervent@enervent.com
Tel +358 207 528 800, www.enervent.com
Kipinätie 1, FIN-06150, Porvoo
Piir. eWind_REV_A
Muutos - | Lehti 1

RECORD OF MEASURING AIR AMOUNTS AND SOUND LEVELS
INTRIEBNAHMEPROTOKOLL

Company / Fachfirma:

Performed by / Durchgeführt von:

Date / Datum: _____
Building / Objekt: _____
Ventilation unit / Gerätetyp: _____
Serial number / Seriennummer: _____
Filter: F5/F5 ☐ F7/F5 ☐ F7/F7 ☐ ☐ l/s ☐ m^3/h

Room /measuring point / floor Raum / Etage	Supply air / Zuluft					Extract air / Abluft						
	Terminal device Luftdurch-lässe	Planned air amount Planierten luftmengen	Measured air amount Gemesste luftmengen	p Pa	Setting Anstellung	Terminal device Luftdurch-lässe	Planned air amount Planierten luftmengen	Measured air amount Gemesste luftmengen	p Pa	Setting Anstellung	Lpa dB(A)	Note! Achtung!

Total planned air amounts / Planierten luftmengen gesamt		supply air / zuluft:		extract air / abluft:	
Total realized air amounts / Gemesste luftmengen gesamt		supply air / zuluft:		extract air / abluft:	
Air amount / Luftmenge Fanspeed+difference/ Gebläse Geschwindgkeit+Abweichung	Home / zum Hause	Away / Abwesend	Boosting		
Measuring instrument / Messinstrument:					
Weather conditions / Wetterverhältnisse:					
Underpressure in the building / Unterdruck des Gebäude: Pa					

enervent

EN

EU DECLARATION OF CONFORMITY

We declare that our products follows the provisions of low voltage directive LVD 2014/35/EU, electromagnetic compatibility directive EMC 2014/30/EU, machine directive MD 2006/42/EC, radio equipment and telecommunications terminal equipment directive R&TTE 1999/5/EC, ROHS II directive 2011/65/EU, battery directive 2013/56/EU and waste electrical and electronic equipment directive WEEE 2012/19/EU.

Manufacturer:	Ensto Enervent Oy
Manufacturer´s contact:	Kipinätie 1, 06150 Porvoo, FINLAND, Tel +358 207 528 800, fax +358 207 528 844 enervent@enervent.com, www.enervent.com
Description of the product:	Ventilation unit with heat recovery
Trade name of the product:	**Enervent® series:** Piccolo, Plaza, Pinion, Pingvin, Pingvin XL, Pingvin Kotilämpö, Pandion, Pandion Twincoil, Pelican, Pelican HP, Pegasos, Pegasos XL, Pegasos HP, Pegasos Twintropic, Pallas, Pallas HP, Liggolo, LTR-2, LTR-3, LTR-4, LTR-6, LTR-7, LTR-7 XL.

The products are in conformity with the following standards:

LVD EN 60335-1:2012/A11:2014
EN 62233:2008/AC:2008

EMC EN 61000-3-2:2014 and EN 61000-3-3:2013
EN 61000-6-1:2007 and EN 61000-6-3:2007/A1:2011/AC:2012
EN 55014-1:2006/A2:2011 and EN 55014-2:1997/A2:2008

R&TTE EN 62368-1:2014/AC:2015

MD EN ISO 12100:2010

ROHS EN 50581:2012

The conformity of each manufactured product is taken care according our quality descriptions.

Product is CE-marked year 2016.

Porvoo 20th of April 2016

Enervent Oy

Tom Palmgren
Technology manager

Representatives for the products outside of Finland

Country	Contact information
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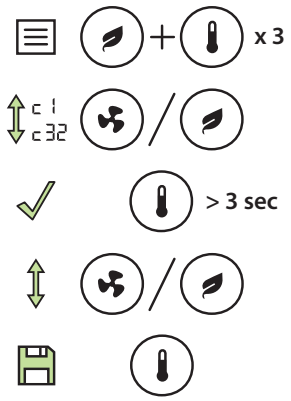
Estonia	As Comfort Ae, Jaama 1, 72712 PAIDE, ESTONIA, tel +372 38 49 430
Ireland	Entropic Ltd., Unit 3, Block F, Maynooth Business Campus, Maynooth, Co. Kildare, IRELAND, tel +353 64 34920
Germany	
Austria	M-Tec Mittermayr GmbH, 4122 ARNREIT, AUSTRIA, tel +43 7282 7009-0
Poland	Ensiwent S.C., Baldram 9A, 82-500 Kwidzyn, POLAND
Switzerland	Duc Lufttechnik GmbH, Mühlebachweg 9, 5620 BREMGARTEN, SWITZERLAND, tel +41 56 631 64 34
Russia	ООО «Интернал Системс», г. Санкт-Петербург, шоссе Революции, дом 69А, БЦ «Реформа» оф. 413, тел. + 7 (812) 642-42-70 ООО «Вентмакс», Москва, г. Зеленоград, Восточная коммунальная зона (ВКЗ), проезд 4807, дом.1, строение 9, тел. + 7 (495) 649-65-59
Denmark	Covent EMJ, Donsvej 55, 6052 VIUF, DENMARK, tel +45 7556 1288
Belgium	EUREKA CONFORT Belgium scrl, Avenue Comte Jean Dumonceau 23, 1390 GREZ-DOICEAU, BELGIUM, tel +32 10 84 3333
France	TecControl Save Energy, 12 rue Jean-Marie DAVID, 35740 PACE, Tel. +33 (0) 2 99 05 60 50

Enervent eWind

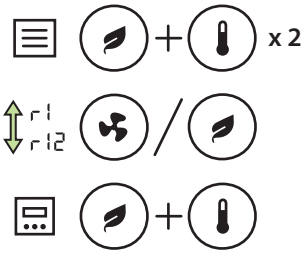
ENG Quick guide for contractor

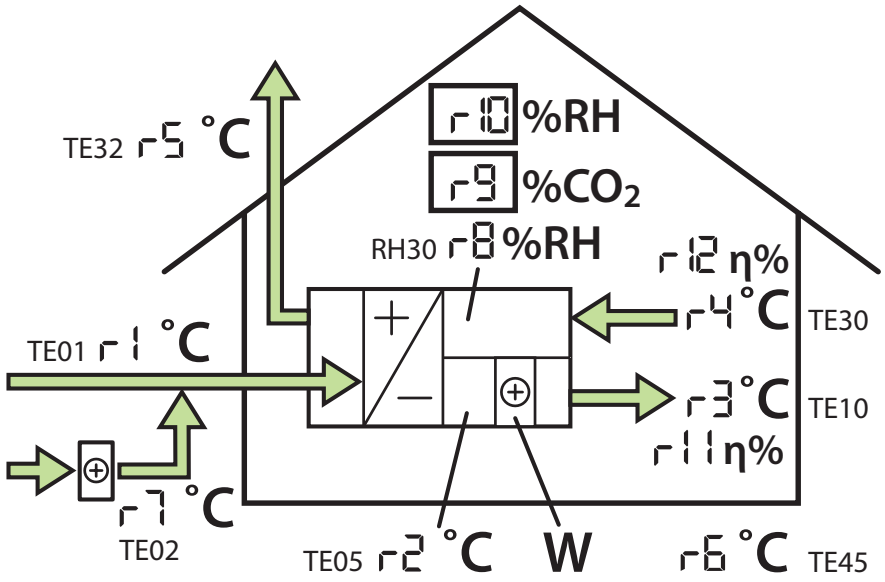


Parameters (c)		
c1		36% (20-100%)
c2		35% (20-100%)
c3		56% (20-100%)
c4		55% (20-100%)
c5		83% (20-100%)
c6		80% (20-100%)
c7		100% (20-100%) (120 min)
c8		100% (20-100%) (120 min)
c9		2 h (1...4 h)
c10		30% (20-100%)
c11		50% (20-100%)
c12		10 min (0...15 min)

Parameters (c)		
c13		oFF (on / oFF)
c14		4 (4 / 6)
c15		oFF (on / oFF)
c16	<°C	=> on, TE01 < °C, 5°C (0…10°C)
c17	>°C	=> off, TE01 > (c16 + c17), 1°C (1…5°C)
c18		on on / oFF
c19	>°C	=> on, TE01 > °C, 17°C
c20	>°C	=> on, TE01 > °C, 20°C (15…25°C)
c21	<°C	=> off, TE01 < (c20 - c21), 2°C (1…5°C)
c22	<°C	-15°C (-10…-20°C)

Parameters (c)		
c23	%RH	on (on / oFF)
c24	°C %RH	4°C (-10…+10°C)
c25	%RH	45% (10...100%RH)
c26	48 h %RH	=>on, 48 h %RH + c26, 15% (5…30%)
c27	$\%CO_2$	oFF (on / oFF)
c28	$\%CO_2$	CO_2=> on, 1000 ppm (600...1200)
c29	%RH	oFF (on / oFF)
c30		oFF (on / oFF)
c31	ESC Modbus	1 (1...99)
c32	Modbus	2 (1=9600, 2=19200, 3=115200)





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