

Zehnder LTR Cooler

Installer manual

Instructions to be used together with the LTR-3, LTR-5 Z and LTR-7 Z
Installation instructions.

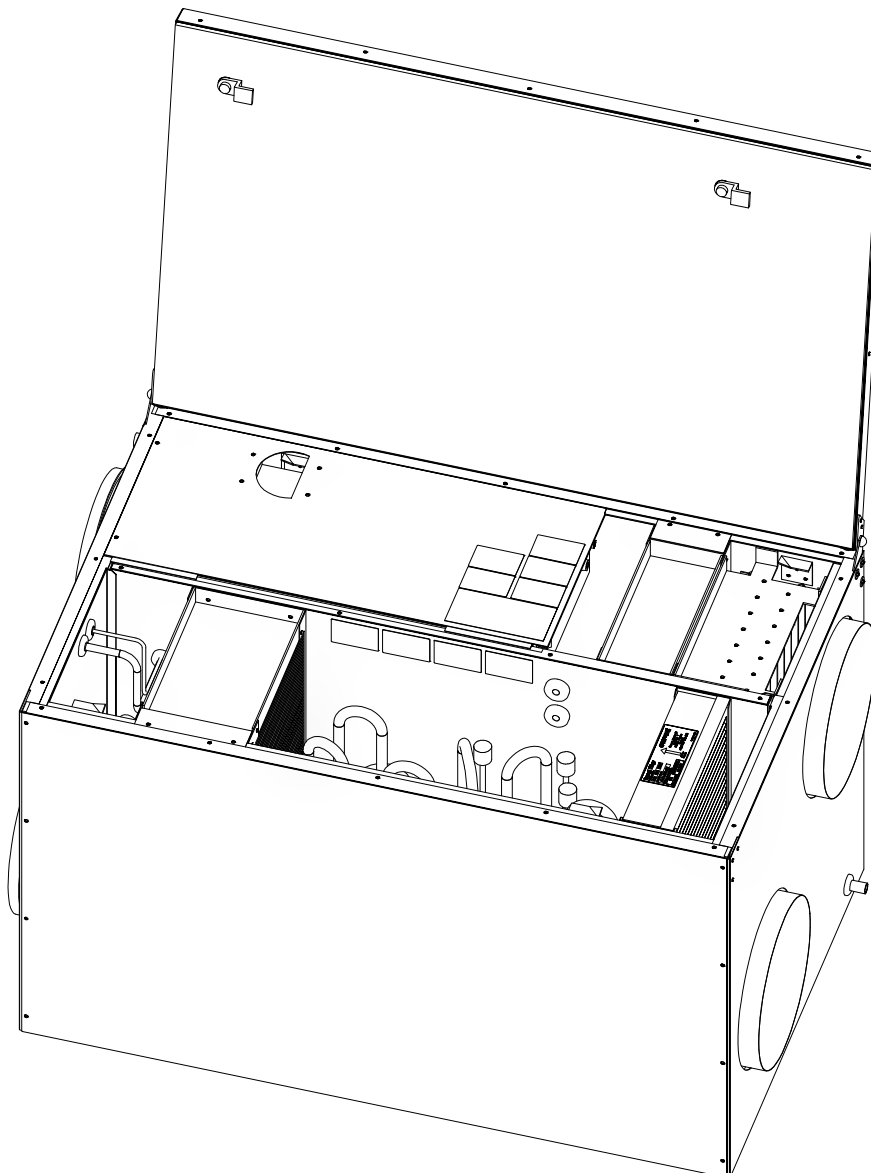


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1. Read first

This instruction manual is intended for all the persons involved in the installation of the Enervent ventilation units. Only qualified professionals may install the equipment described in this manual in accordance with the instructions in this manual and the local laws and regulations. If the instructions provided in this manual are not followed, the warranty for the equipment becomes void and damages may be caused to persons or property.

The equipment described in this manual may not be used by persons (including children) with reduced physical, sensory or mental capacity or without sufficient experience or knowledge, unless a person responsible for their safety is supervising and advising them in the use of the equipment.

The LTR Cooler is an innovative accessory module for the LTR-3, LTR-5 Z and LTR-7 Z ventilation units, containing an integrated heat pump for cooling the ventilation supply air. The Cooler module mounts directly on the LTR-5 Z ventilation unit and does not change the dimensions of the LTR-5 Z ventilation unit, except for the length. The Cooler module can also be connected by ductwork to LTR-3, LTR-5 Z and LTR-7 Z units. The Cooler module is controlled by the eAir automation in the LTR-3, LTR-5 Z and LTR-7 Z ventilation units.

The Cooler module can be delivered separately and installed on an already commissioned LTR-3, LTR-5 Z or LTR-7 Z ventilation unit, provided there is sufficient room for the Cooler module and the mounting supports the weight.

The LTR-5 Z Cooler can be also purchased as one ready-to-install unit combination.

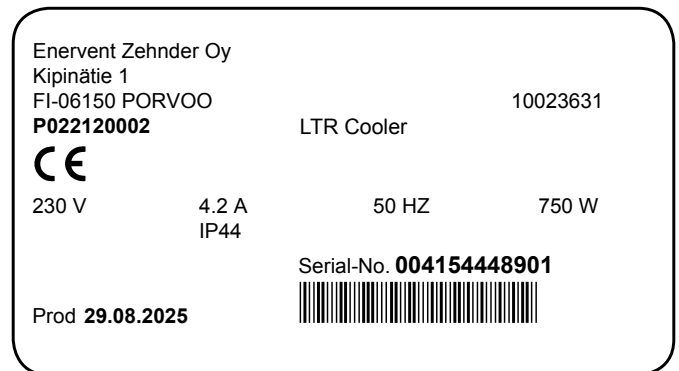
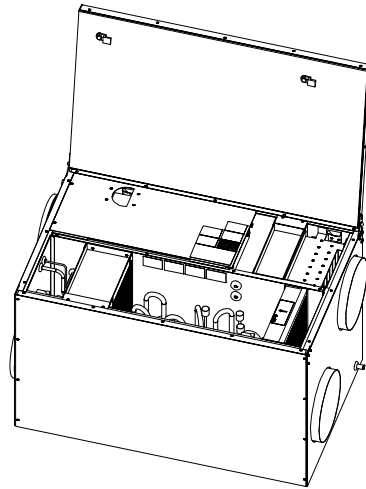
These installation instructions are to be used in conjunction with the LTR-3, LTR-5 Z and LTR-7 Z Installation instructions. If the LTR-3, LTR-5 Z or LTR-7 Z installation instructions are in conflict with the LTR Cooler installation instructions, the LTR Cooler installation instructions should be followed.

The installer must follow the instructions in these Installation instructions. Failure to follow these instructions may invalidate the warranty and cause water damage, electrical shock, or fire. The manufacturer is not responsible for any damage caused by not following these Installation instructions.

For your information

If the delivery does not contain all of the components listed in the section 'Contents of the delivery', please check the order and contact your distributor or Enervent before commencing installation.

2. Type plate






If you need technical support, please check the equipment type and serial number from the type plate.

3. Safety

3.1. General

The following pictograms are used:

Symbol	Meaning
	Important note
	Risk of damage to the system or impaired performance
	Risk of personal injury



The LTR Cooler module must be drained.



The LTR-3, LTR-5 Z and LTR-7 Z Cooler ventilation unit must be connected to a grounded power outlet.



The LTR Cooler weighs approximately 53 kg. Make sure the selected mounting is capable of supporting this weight.



There are no user serviceable parts inside the LTR Cooler module. Only a qualified electrician or refrigeration technician should open the service hatch of the Cooler module.



Only a certified electrician is allowed to make the connections between the LTR-3, LTR-5 Z and LTR-7 Z ventilation unit and the Cooler module.



Any modifications to the internal or external parts of the Cooler module are prohibited.



Only a qualified refrigeration technician is allowed to make any repair or service to the refrigeration circuit.



The LTR Cooler should be installed only by a qualified installer.



The Cooler module is not to be operated without the service hatch closed.



Danger of burns! The cooler module internal parts may be hot after use.



Danger of electric shock! There are high voltage parts inside the Cooler module capable of delivering a lethal electric shock.



Fluorinated refrigerant gas. The Cooler module contains fluorinated refrigerant gas R32.



R32 is a mildly flammable gas. Precautions must be taken to store the Cooler unit before installation in a well ventilated area without any ignition sources.



Make sure there are no ignition sources present when installing the LTR Cooler, no smoking, open flames, heat guns etc.



If the Cooler module is mechanically damaged, it must immediately be moved to a well-ventilated area without any ignition sources and checked for refrigerant leaks by a refrigerant technician with suitable equipment.

3.2. Recycling



The LTR Cooler module must not be disposed of with household waste.

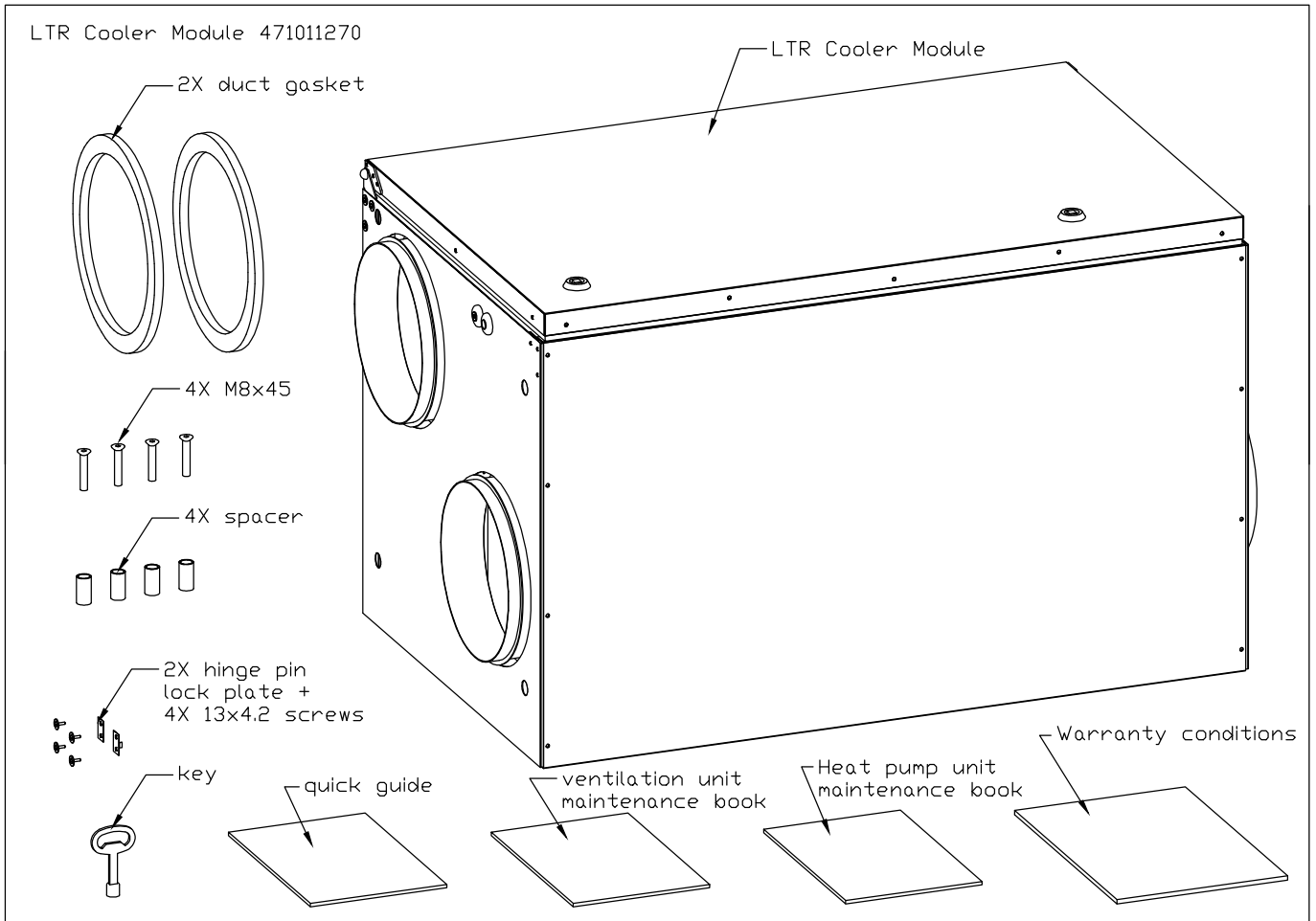


The Cooler module should be disposed of by a qualified refrigeration technician or delivered to a collecting point for hazardous waste.

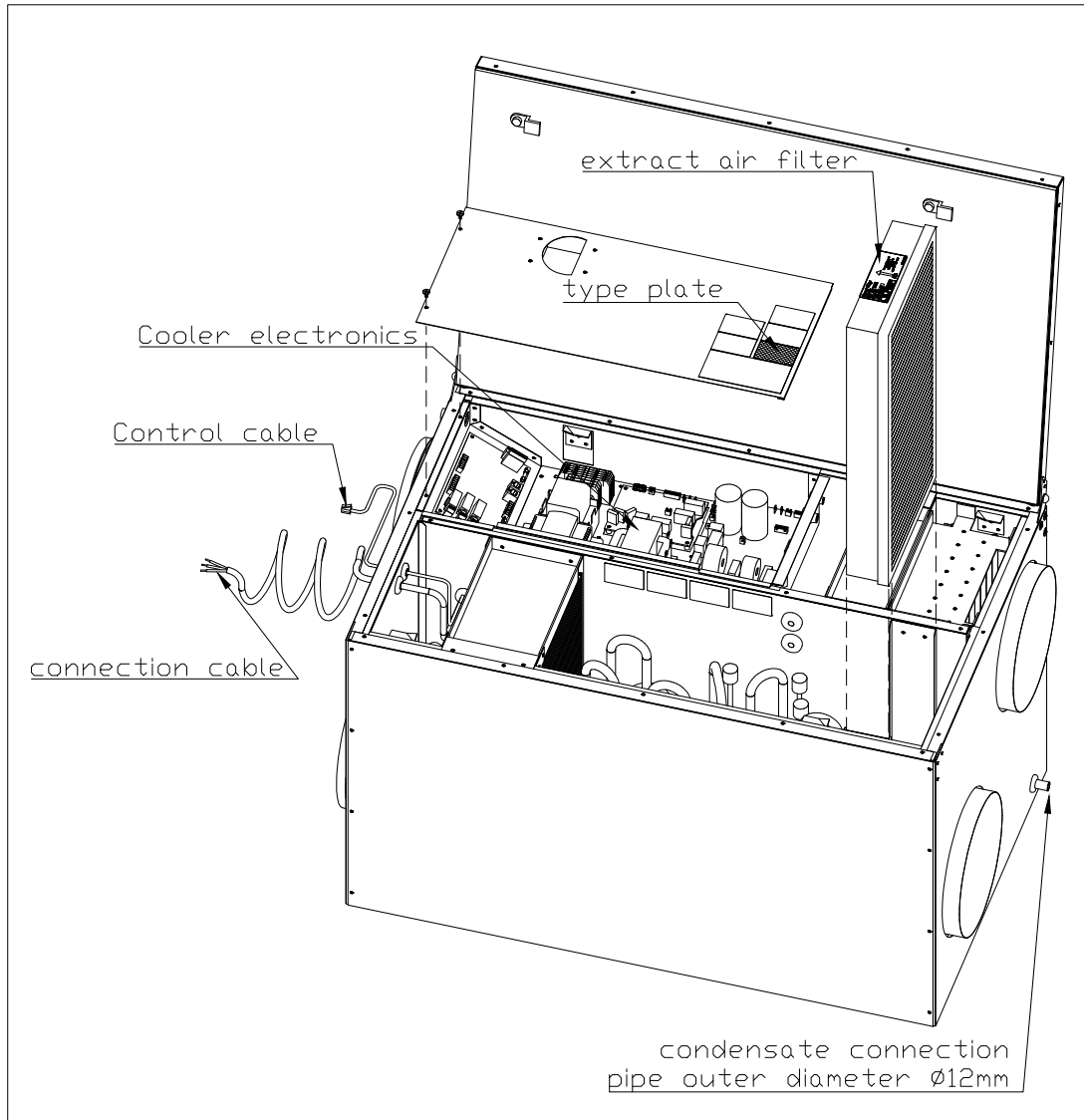


Follow local regulations and laws regarding recycling of heat pumps and fluorinated refrigerant gases.

4. Contents of the delivery

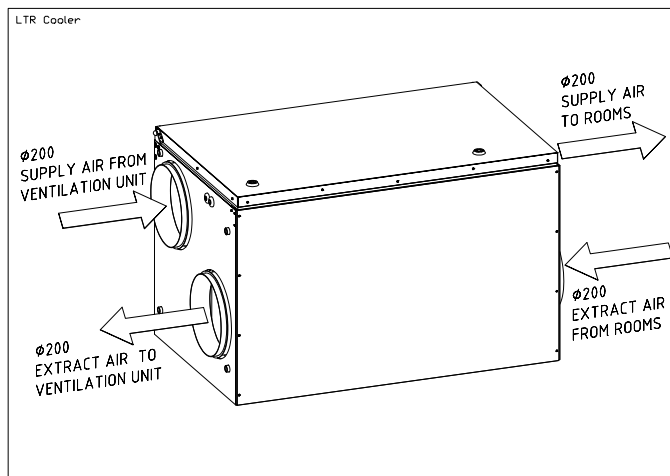


5. Technical specifications of the unit



LTR Cooler module	
Width	830 mm
Height	528 mm
Depth	523 mm
Weight	53 kg
Duct connection (duct size)	ø 200 mm
Input power	1203W/230V, 1~/50Hz/7,9A
Max recommended airflow when cooling	200 l/s, 720 m3/h
Minimum airflow when cooling	60 l/s, 216 m3/h
Cooling Power (total)	3,3 kW @150 l/s
Refrigerant	R32 / 0.7 kg
Mains supply:	
LTR Cooler + LTR-3 eAir E	230 V, 1~, 50Hz, 1C16A
LTR Cooler + LTR-5 Z eAir E	230 V, 1~, 50Hz, 1C16A
LTR Cooler + LTR-7 Z eAir E 3kW	230 V, 1~, 50Hz, 1B20A
LTR Cooler + LTR-7 Z eAir E 4kW	400 V, 3~, 50Hz, 3C16A
NOTE! Separate supply 1C16A + safety switch for LTR Cooler! NOT INCLUDED IN DELIVERY	

6. Duct connections



7. Before installation



The Cooler module must be drained.



Consider the noise level of the cooling compressor when choosing installation location. Prevent structural noise through the building structure as well as noise through the ducting.



Make sure the supply air duct is sufficiently insulated with vapor barrier insulation to prevent condensation on the supply air duct surface and prevent the cooled supply air from heating up in the duct reducing the cooling effect.



Make sure the mounting is sturdy and capable of supporting the LTR Cooler weight (approximately 53 kg).



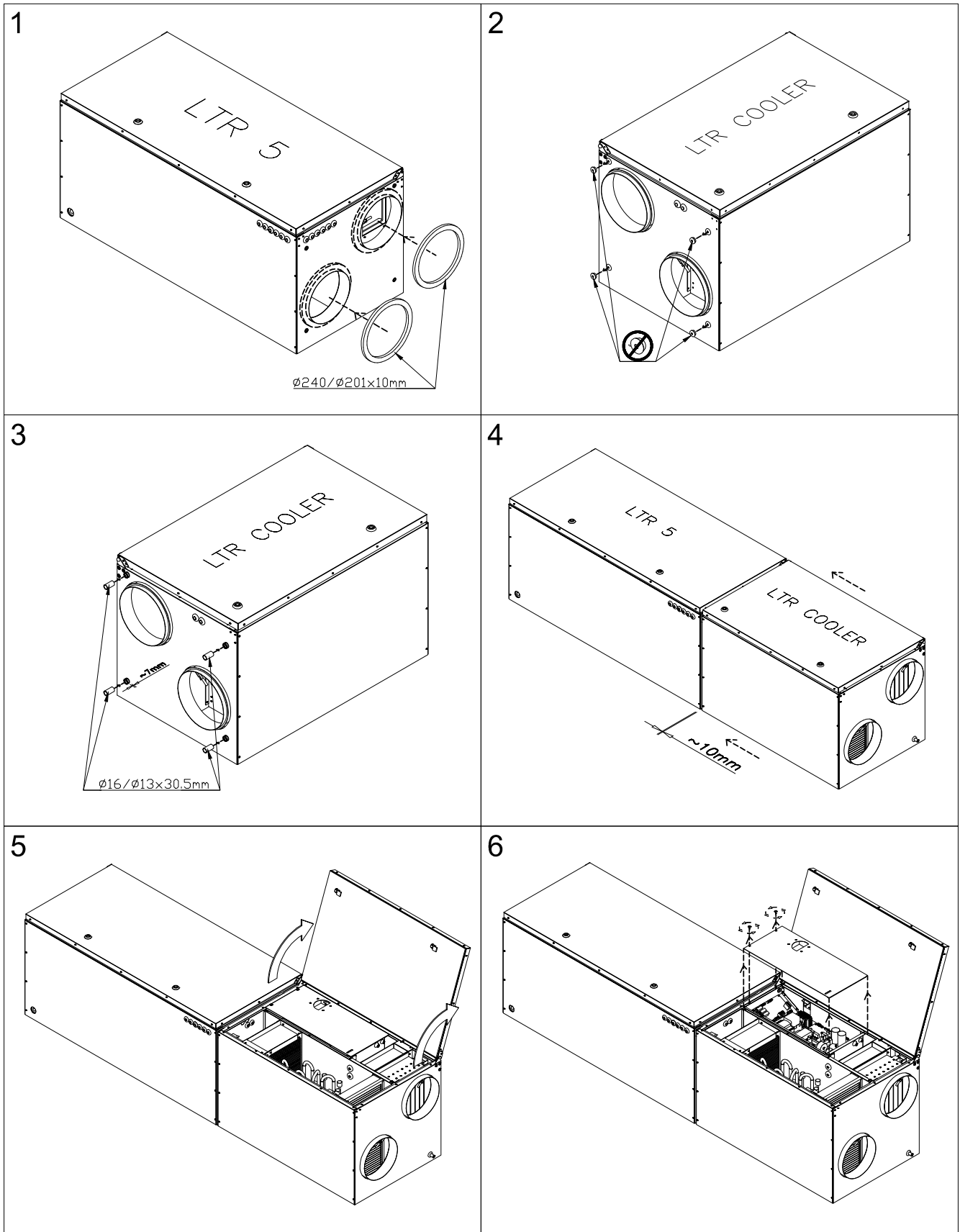
The condensation drain should be regularly checked for functionality during use. At least before the cooling season it is mandatory to check that there is a small amount of airflow from the end of the drainpipe or hose when the LTR Cooler unit is operating. If there is no airflow, the drain should be checked for clogging. A clogged drain can cause serious water damage to the LTR Cooler unit or its surroundings.

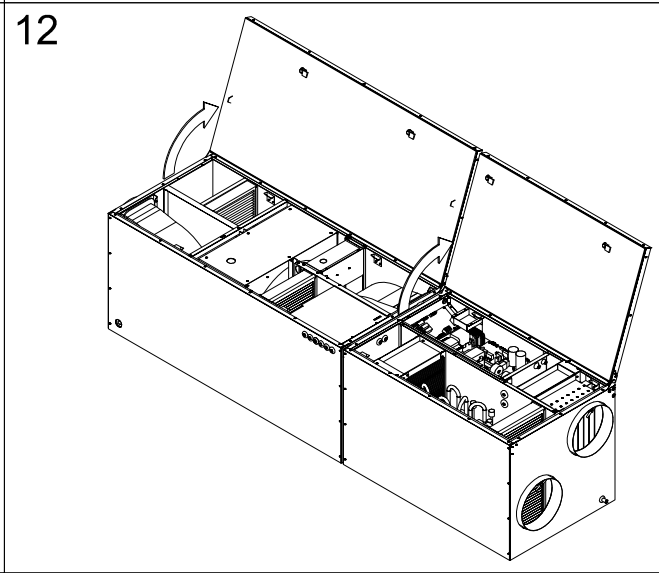
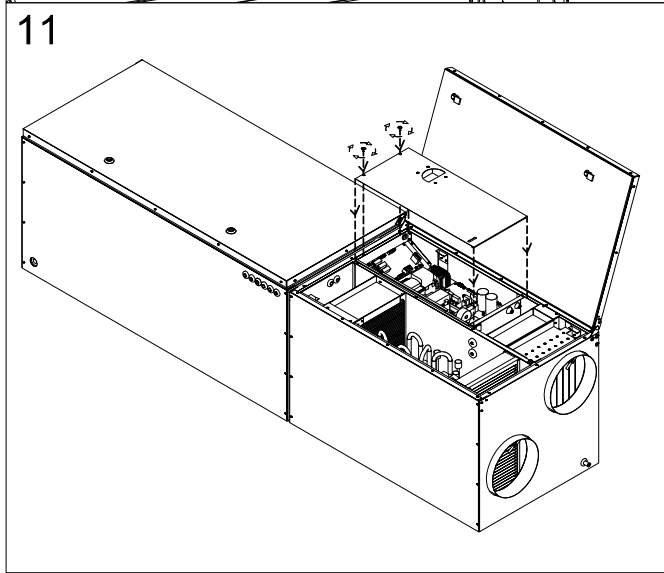
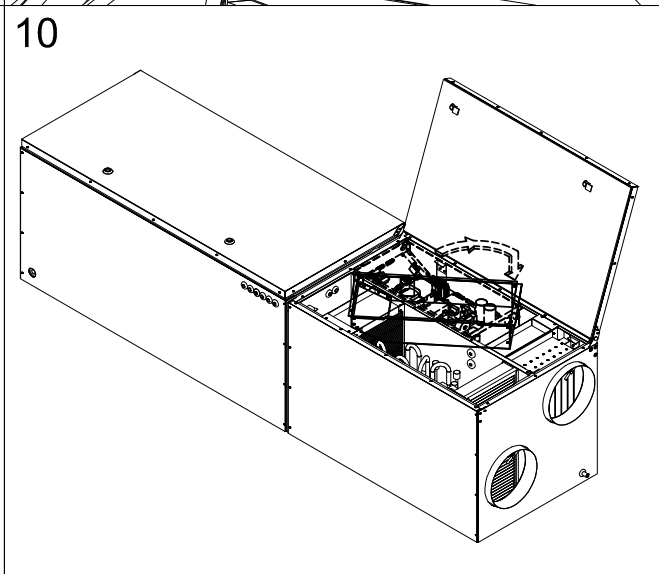
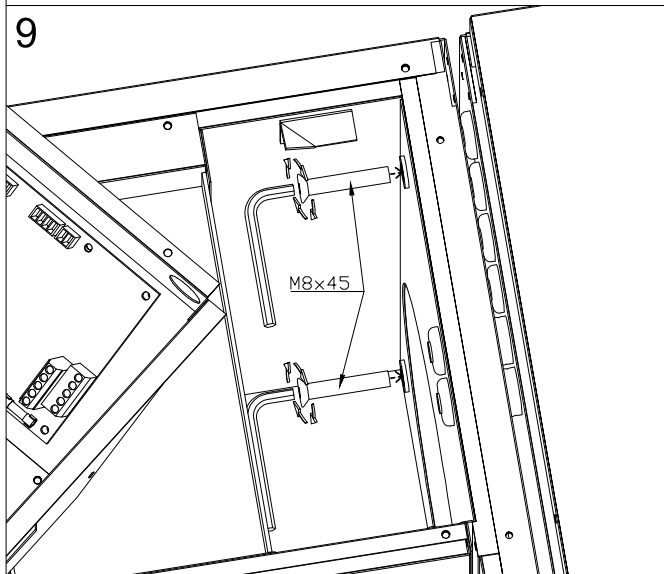
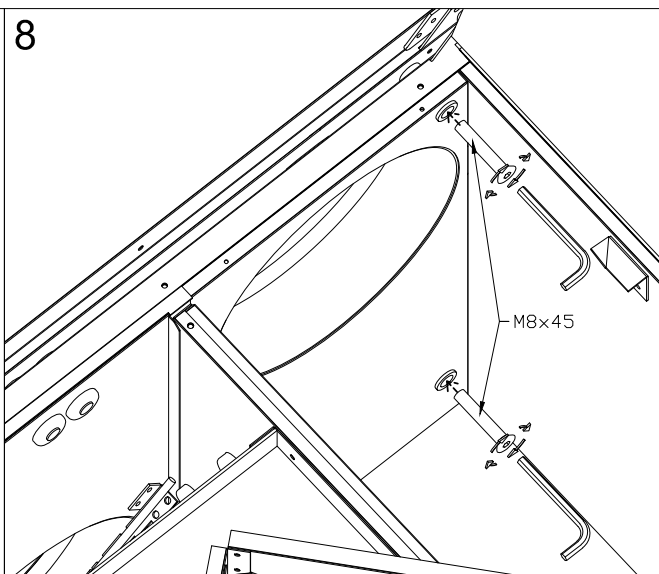
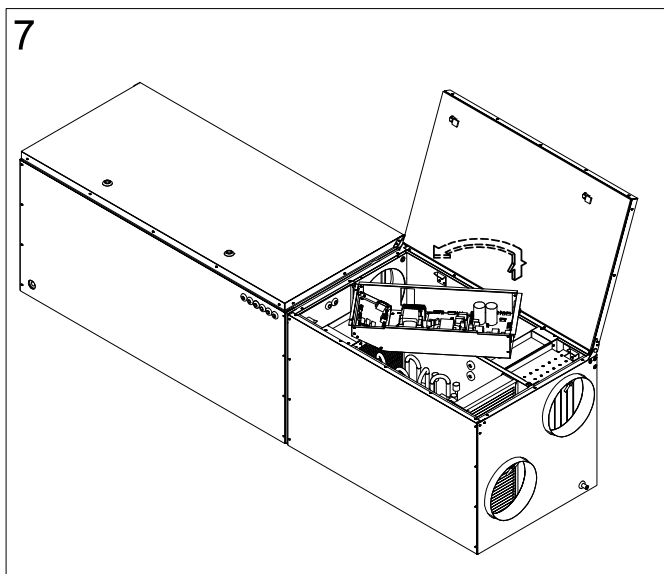
Would you like to know more?

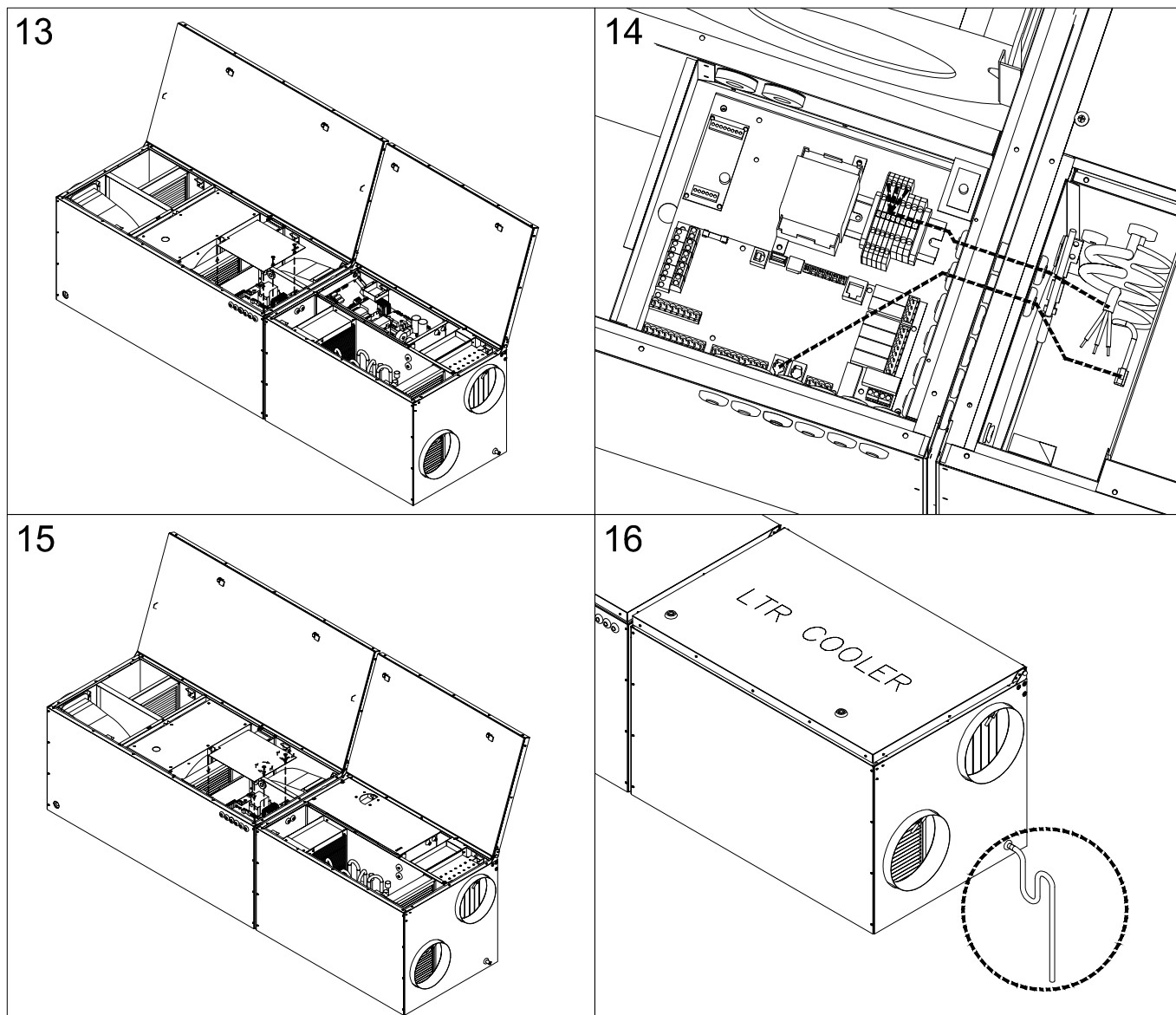
If you would like to know more about the construction of ventilation systems and the insulation of ventilation ducts, you can read about them on our website at www.enervent.com.


8. Installation

8.1. LTR Cooler module installation to LTR-5 Z eAir unit, if delivered separately





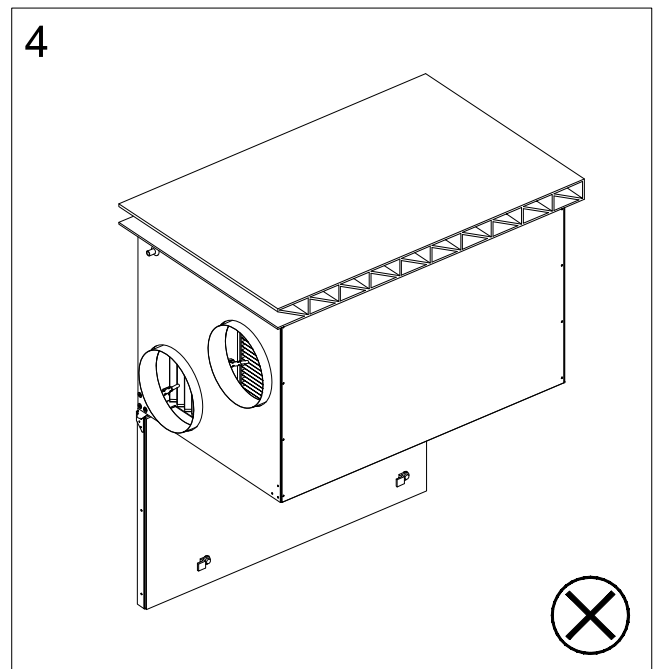
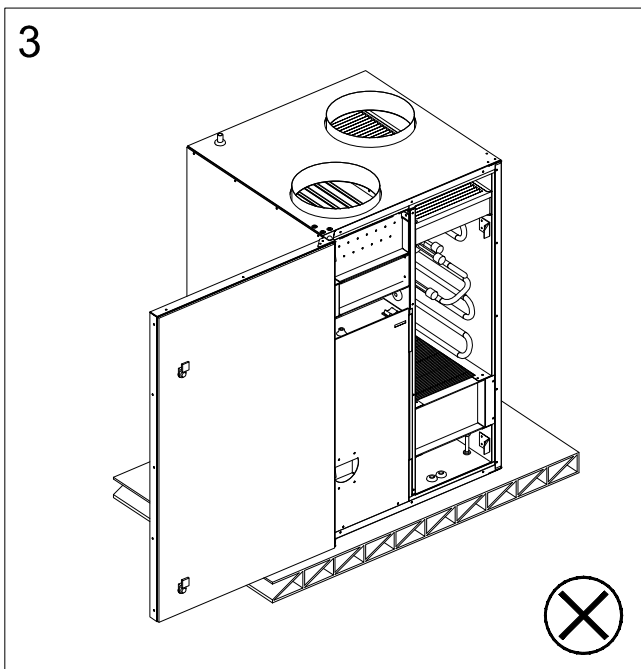
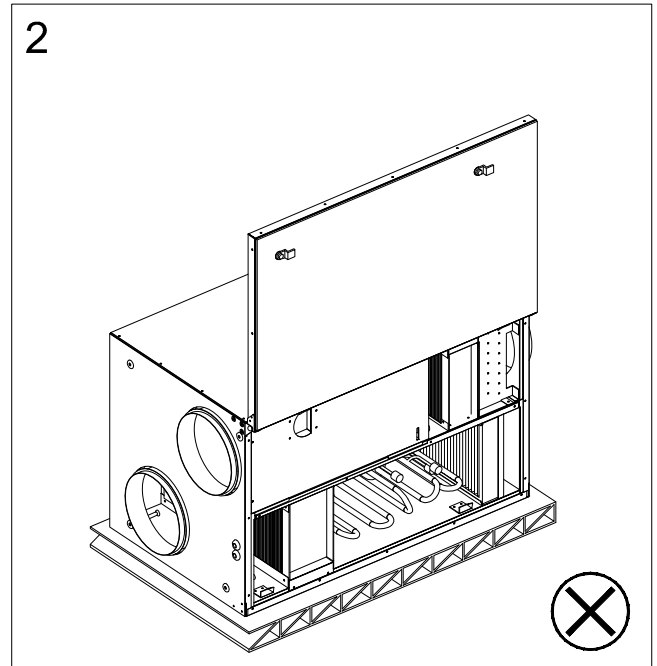
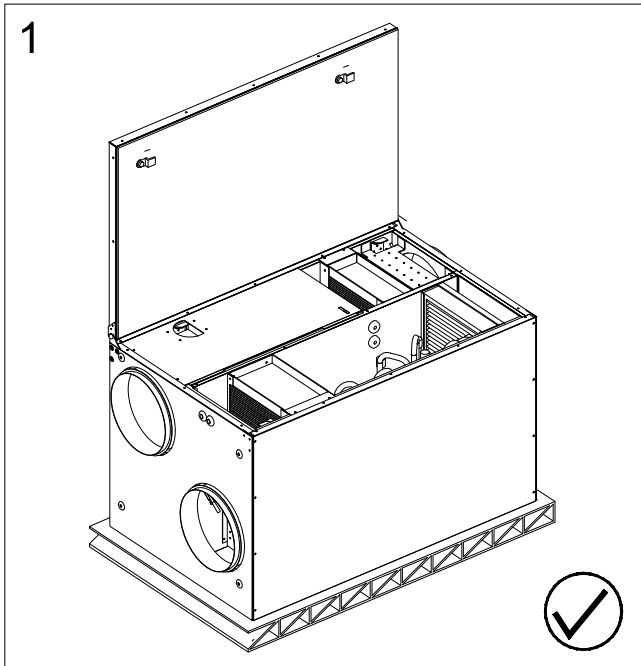


 Before installing the ventilation unit, check that the unit and the ductwork do not have any foreign objects inside them.

8.2. Software update when LTR Cooler module delivered separately

 Please contact Enervent Zehnder technical support.

8.3. Floor mounting



8.4. Installing the eAir control panel

The eAir control panel (See section "Control system and eAir control panel" in the LTR-3, LTR-5 Z or LTR-7 Z eAir Installation instructions) is installed on a mounting box, or installed with a surface installation box (optional extra).



Only one eAir operating panel can be used when LTR Cooler is connected to LTR-3, LTR-5 Z or LTR-7 Z units

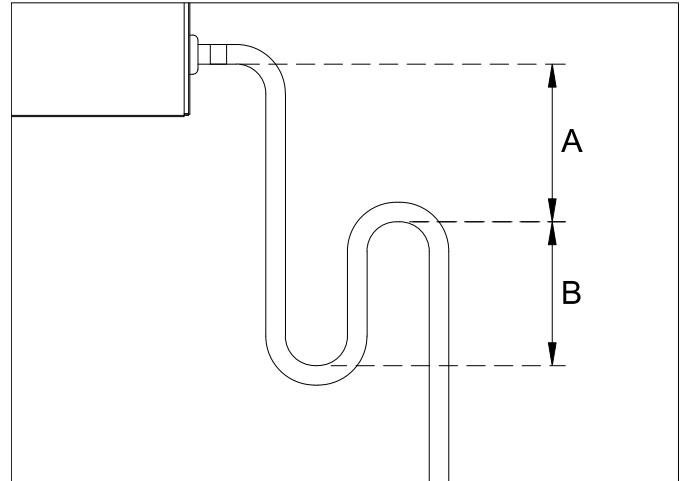
9. Draining condensate water

All Enervent ventilation units should be drained. If the ventilation unit is equipped with active cooling, draining is mandatory. When air cools down, condensate water can form on cold surfaces. For example in winter time when warm and humid inside air meets the cold heat recovery wheel, or when warm outside air meets the cooling coil in the ventilation unit (if applicable).



The condensate water drain must not be directly connected to a sewer pipe, but to a floor drain or equivalent.

- The condensate water should be led in a falling, at least Ø15 mm pipe or hose, 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.
- Also duct coils used for cooling must be drained and use a water trap.
- Each drain connection must have a separate water trap.
- Two or more water traps can be connected to the same drain pipe, provided they are connected together downstream from the water traps.
- If using an S-type water trap, the height of the back-water in the water trap should be minimum 50 mm (pic. 1, dimension B). The height difference between the drain point and the water trap should be minimum 50 mm (pic. 1, dimension A).
- Make sure there is always water in the water trap.
- Enervent Zehnder recommends the usage of membrane type water traps that do not depend on water for sealing.
- The functionality of the drain, including the duct coil drains, should be checked by pouring water into the drain at every filter change.



10. Commissioning

During commissioning the fan speed settings for the “minimum fan speed” setting when the compressor is operating, must be set to achieve at least minimum allowed airflow when the LTR Cooler unit is cooling the supply air (see technical specifications). If normal home mode airflow is greater than the specified minimum airflow during cooling, the “minimum fan speed” setting is preferably set to the same values as in the “home mode setting”.

11. EU Declaration of conformity



EU DECLARATION OF CONFORMITY

We declare that our product follows the provisions of low voltage directive LVD 2014/35/EU, electromagnetic compatibility directive EMC 2014/30/EU, pressure equipment directive PED 2014/68/EU, machine directive MD 2006/42/EC, ROHS II directive 2011/65/EU and waste electrical and electronic equipment directive WEEE 2012/19/EU.

Manufacturer: Enervent Zehnder 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: Cooling module for ventilation unit

Trade name of the product: LTR Cooler

The products are in conformity with the following standards:

LVD EN 60335-1:2012/A15:2021
EN 60335-2-40
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

PED EN 378-2 :2016

MD EN ISO 12100:2010

ROHS EN IEC 63000:2018

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

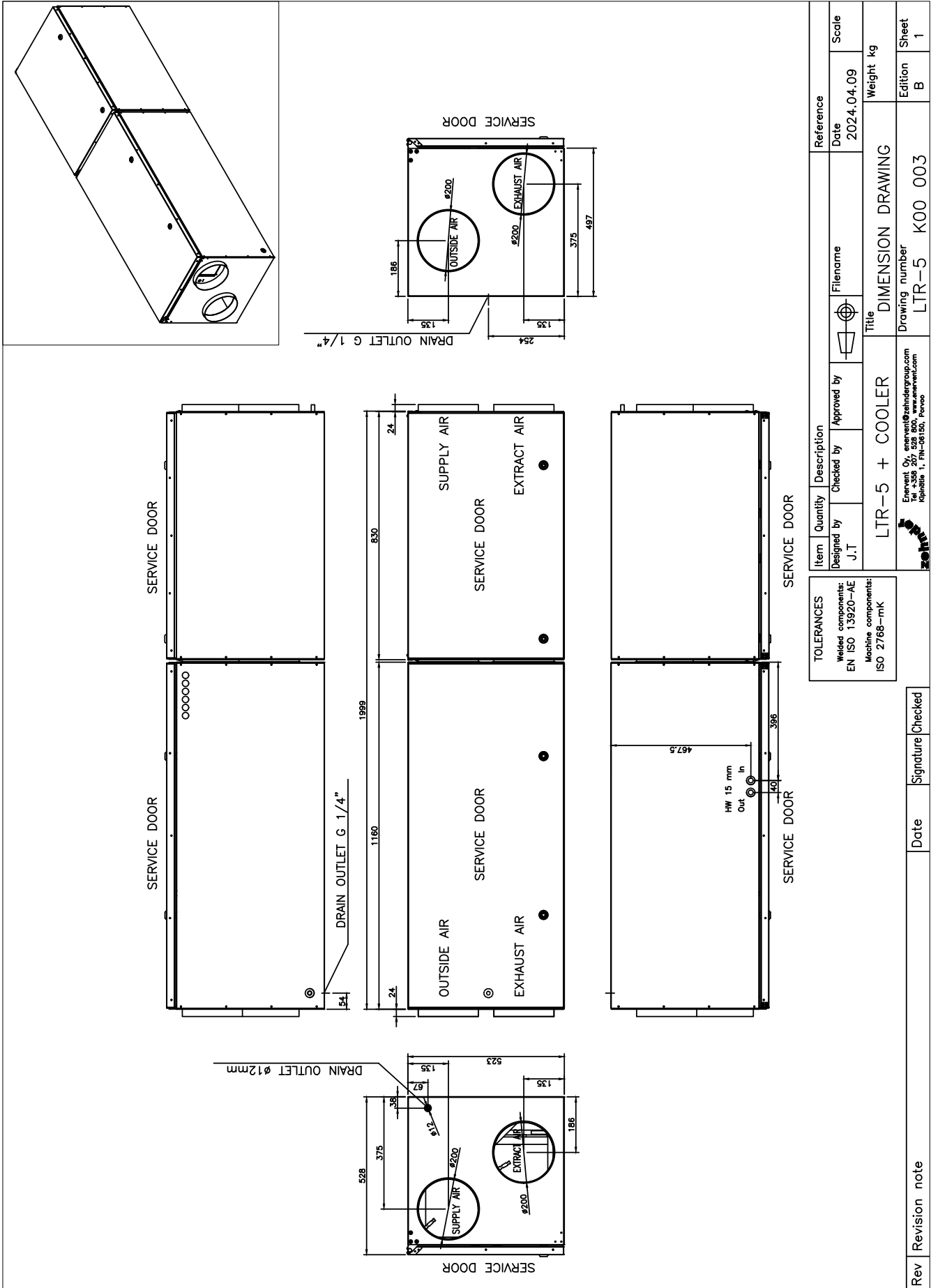
LTR Cooler is part of the system and is intended to be used only together with ventilation units with Enervent Zehnder's eAir control.
Responsible for the final CE marking is the one who brings the device into working order.

Product is CE-marked year 2026.

Porvoo 3rd of March 2026

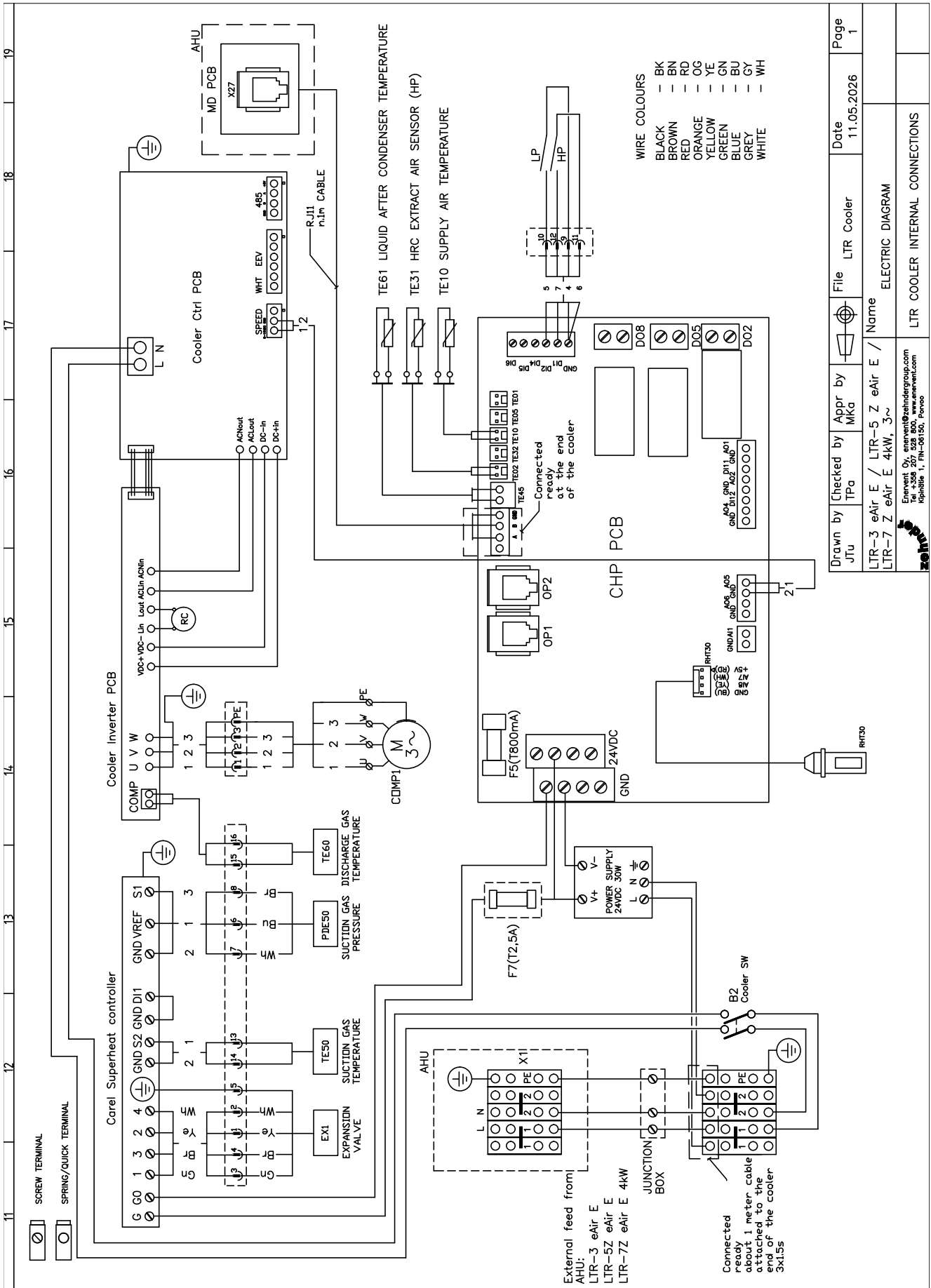
Enervent Zehnder Oy

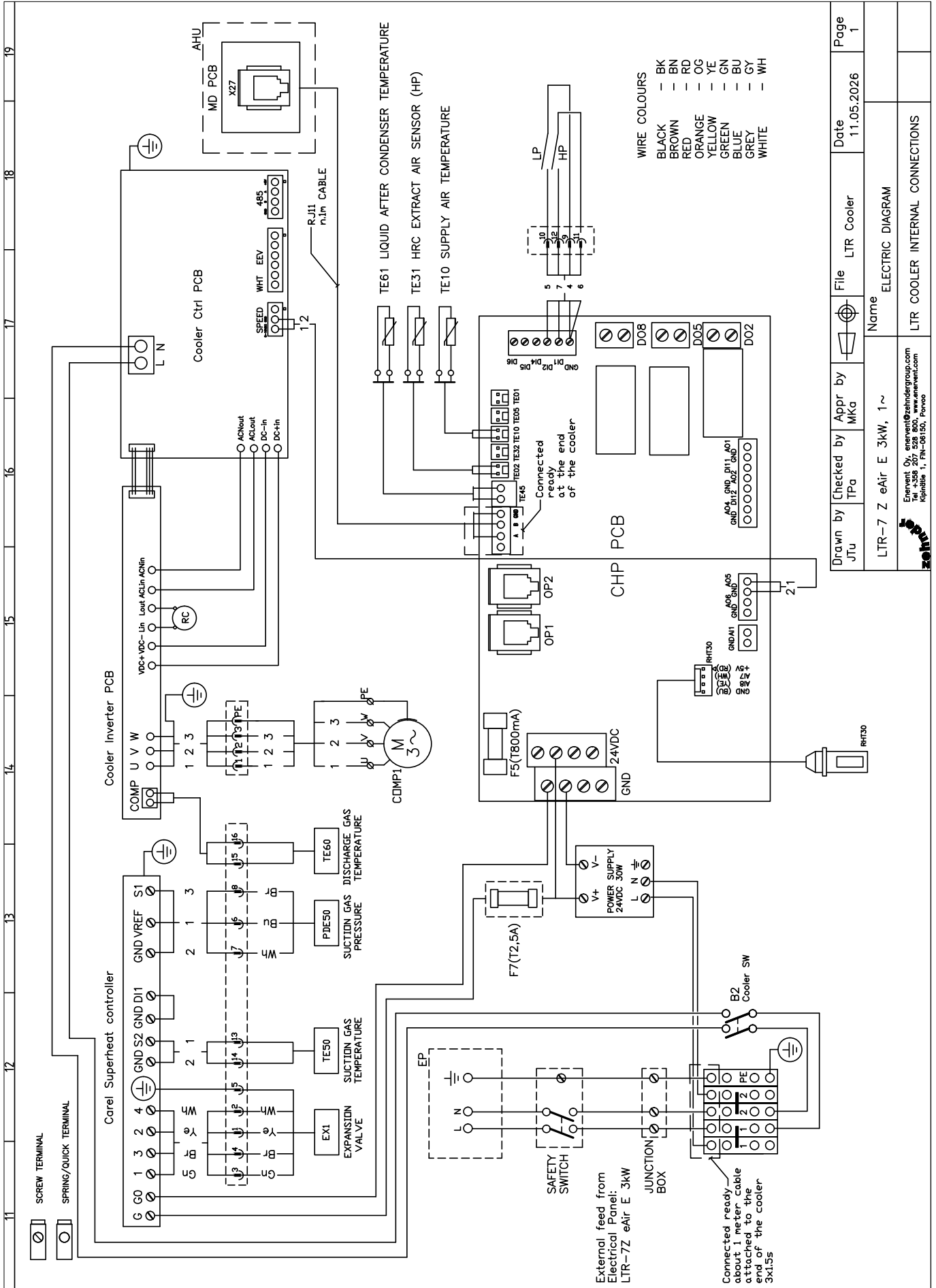
Tom Palmgren
Technology manager



Item	Quantity	Description	Designed by	Checked by	Approved by	Filename	Date	Scale
LTR-5 + COOLER			J.T				2024.04.09	
TOLERANCES Welded components: EN ISO 13920-AE Machine components: ISO 2768-mk							Reference Date 2024.04.09	
Title DIMENSION DRAWING							Weight kg 1	
Drawing number LTR-5 K00 003							Edition B	
Envent Oy, envent@ehindegroup.com Tel +358 207 528 800, www.envent.com Kopantie 1, FIN-06150, Porvoo							Sheet 1	

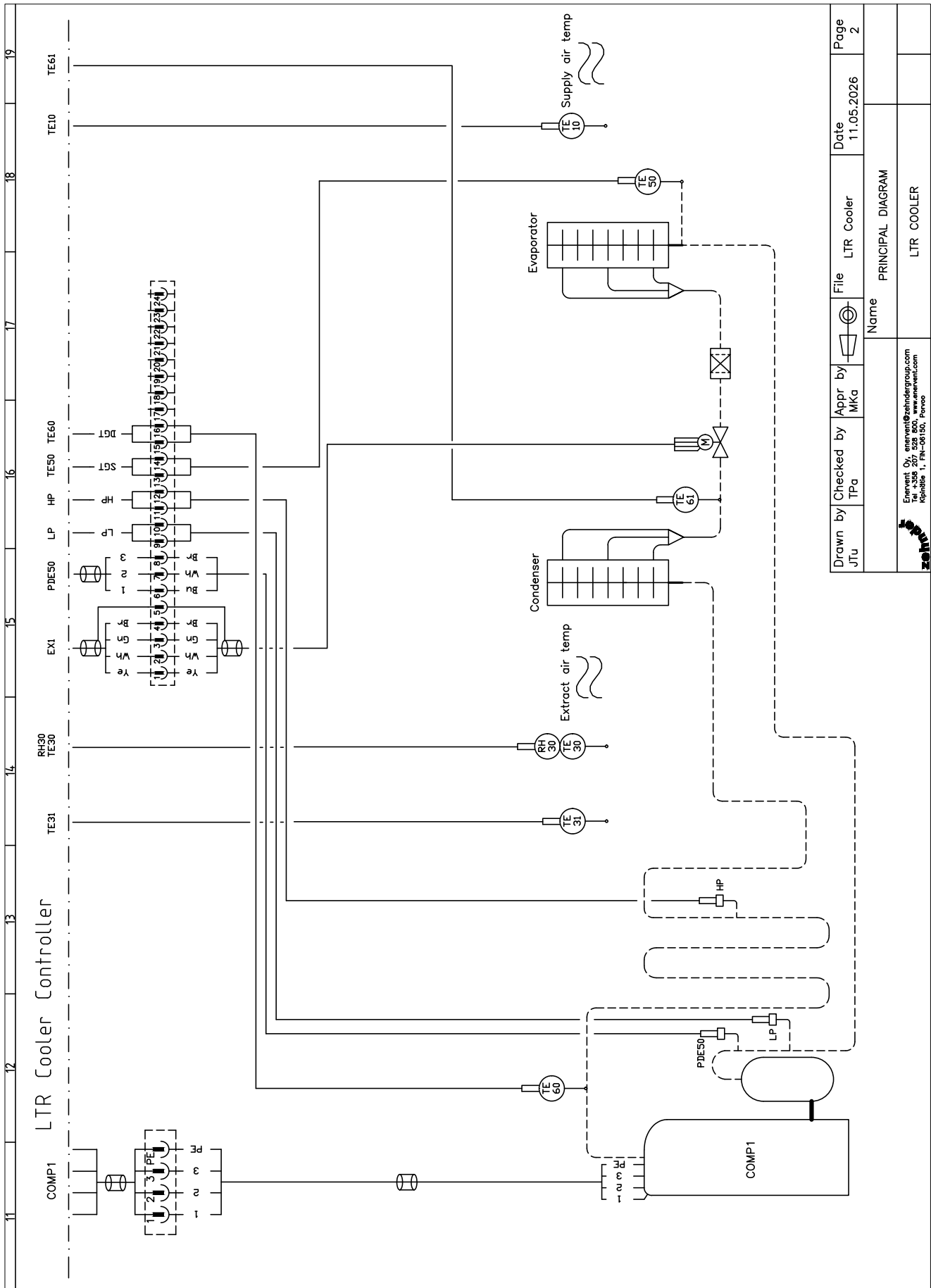
12.2. Electrical diagrams





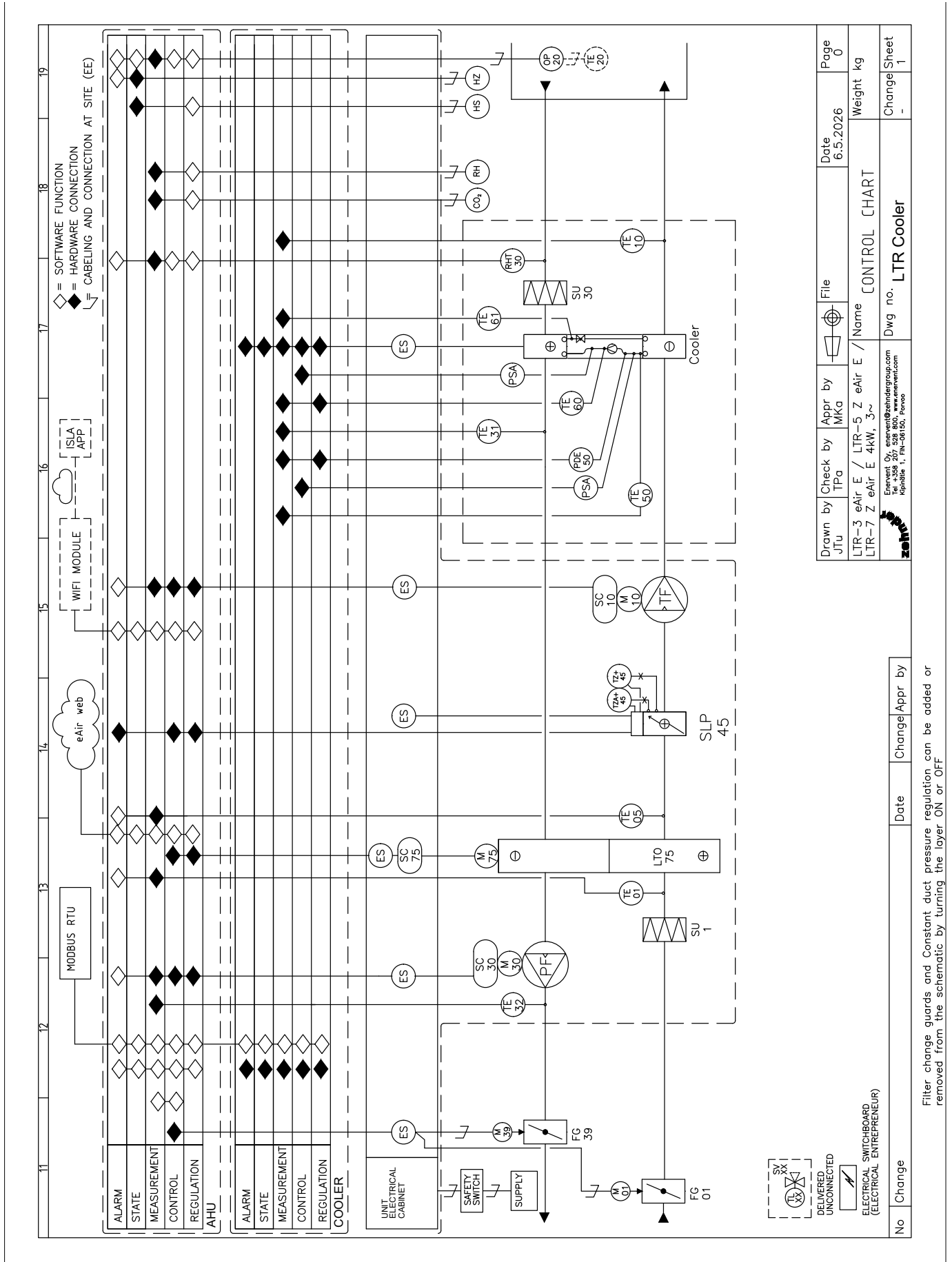
Drawn by JTU	Checked by TPa	Appr by MKa	File LTR Cooler	Date 11.05.2026	Page 1
Name LTR-7 Z eAir E 3kW, 1~			ELECTRIC DIAGRAM		
			Enervent Oy, enervent@zahnradgroup.com Tel. +358 207 528 800, www.enervent.com Alppitie 1, FIN-06150, Porvoo		
LTR COOLER INTERNAL CONNECTIONS					

12.3. Principal diagram



Drawn by JTU	Checked by TPa	Appr by MKA	File LTR Cooler	Date 11.05.2026	Page 2
Name LTR COOLER			PRINCIPAL DIAGRAM		
Enervent Oy, enervent@enerventgroup.com Tel +358 207 528 800, www.enervent.com Repolite 1, FIN-06150, Porvoo					



12.4. Control diagram



Drawn by JTU	Check by TPa	Appr by MKa	File	Date 6.5.2026	Page 0
LTR-3 eAir E / LTR-5 Z eAir E / LTR-7 Z eAir E 4kW, 3~			Name CONTROL CHART		
Envent Oy, envent@ehidgroup.com Tel. +358 207 528 800, www.envent.com Kipinlie 1, FIN-06150, Porvoo			Dwg no. LTR Cooler		
No			Change		Change Sheet

Filter change guards and Constant duct pressure regulation can be added or removed from the schematic by turning the layer ON or OFF

Component catalog	Name	Equipment	Technical data	Note
Designation	Operating application	Standard	Application	Downloading from the app store
iSLa	Control panel	1 pcs Standard delivery	eAir delivery, contains cabel	
OP20	Fresh air temperature	Standard	NTC-10	
TE01	Supply air, after heat recovery	Standard	NTC-10	
TE05	Supply air temperature	Standard	NTC-10	
TE10	Extract air; temperature and humidity	Standard	Sender	
RHT30	Exhaust air temperature	Standard	NTC-10	
TE32	Fresh air filter	Standard	Standard M5	Alternatively F7
SU1	Extract air filter	Standard	Standard M5	Alternatively F7
SU30	Rotating heat exchanger	Standard		
LT075	HRW motor + control	Standard	EC motor, max effect 15 W	
M75+SC75	Supply fan	Standard	EC motor	
TF10+M10+SC10	Exhaust fan	Standard	EC motor	
PF30+M30+SC30	Supply air reheater, electrical	E-Models		Effect acc. to Unit size
SLP45	Extract air temperature entering the HRW	Standard	NTC-10	
TE31	Pressure switch	Standard		
PSA	Hot gas temperature	Standard		
TE60	Liquid temperature after condenser	Standard		
TE61	Intake gas temperature	Standard		
TE50	Intake gas pressure	Standard		
PDE50	CO2-measurement	Optional equipment	200-2000ppm, 0-10Vdc	
C02	Relative humidity measurement	Optional equipment	0-100% RH, 0-10Vdc	
RH	Extra time, switch	Optional equipment	Pushbutton	
HS	Emergency stop	Not included in delivery		Normally open (NO) as standard
HZ	Fresh air dampers+Damper motor	Optional equipment		
FG01	Exhaust air dampers+Damper motor	Optional equipment		
FG39	Fresh air filter guard	Optional equipment	0-200Pa, 0-10Vdc	Pressure measurearea changeable
PDE01	Extract air filter guard	Optional equipment	0-200Pa, 0-10Vdc	Pressure measurearea changeable
PDE31	Supply air channel pressure-error sender	Optional equipment	0-200Pa, 0-10Vdc	Pressure measurearea changeable
PDE10	Extract air channel pressure-error sender	Optional equipment	0-200Pa, 0-10Vdc	Pressure measurearea changeable
PDE30	Room temperature measurement	Optional equipment	NTC-10	
TE20				

Drawn by JTU	Check by TPa	Appr by MKa	File 	Date 7.5.2026	Page 0
LTR-3 eAir E / LTR-5 Z eAir E / LTR-7 Z eAir E 4kW, 3~			Name INSTRUMENT LIST		
LTR-3 eAir E / LTR-5 Z eAir E / LTR-7 Z eAir E 4kW, 3~			Weight kg		
 Enervent Oy, enervent@enerventgroup.com Keskitalo 1, FIN-00150, Porvoo			Dwg no. LTR Cooler		
Change			Change Sheet		
No			1		

eAir-Control general function description

Operation of Unit:

In HOME mode the unit cannot be put in STOP state. In OFFICE mode the unit is in STOP mode by default. The unit is run by timer programs or external inputs. Unit fan speeds and desired temperature settings are defined for the different modes (HOME (OFFICE) / Away / BOOST). The modes can be changed from the control-panel, with timer programs and/or external inputs (timer programs will bypass external inputs), BUS connections:

Modbus-RTU is included in the eAir control by default. The units can also be connected to KNX-bus with an external converter (optional equipment). Through the bus you can read measurements and make changes to timer programs and settings.

Fan control:

The fans can be controlled by either constant speed or constant pressure. With constant pressure the measured pressure is kept constant by stepless control of the fan rotation speed.

Heating control:

Supply air temperature TE10 is kept at its set point by help of (cooling) Heat recovery and post heater (and additional heater).

Supply air control

Setpoint is directly sensor TE10 setpoint.

Extract air control

Extract air temperature is kept at its setpoint by controlling the supply air setpoint between its minimum and maximum limits by cascade controller.

Room air control

Room air temperature is kept at its setpoint by controlling the supply air setpoint between its minimum and maximum limits by cascade controller.

Limit control

The unit is Extract air controlled within the set limits by using only heat recovery, outside the limits active cooling and heating of supply air is allowed.

Boosting functions:

Humidity boosting

eAir unit is always equipped with a built-in humidity sensor on the extract air side. The user can take humidity boosting in use when desired. In this case the controller will increase fan speeds if humidity boosting limit value is exceeded.

Temperature boosting

The user can activate temperature boosting which increases fan speeds if the desired temperature is not otherwise reached.

CO2-Boosting (Optional equipment)

The user can enable CO2-boosting if the unit is equipped with a CO2 sensor. The controller will increase fan speeds if the limit value is exceeded.

Compressor models:

The running of compressor is restricted by temperatures. In HP models the fan speeds are boosted to a set minimum speed while compressor is running.

Circulation air mode (only Pallas):

Circulation air mode is enabled with timer programs. If CO2 or relative humidity exceeds limits in extract air, circulation air mode is disabled.

Precautions and securities

General

In units with danger of fans, the unit is shut down when the door is opened for maintenance.

Dampers

The dampers are controlled with a relay. The relay is closed when unit is running.

Units with electrical heater

If the heater power exceeds 2kW the unit is equipped with a pressure guard over the supply air fan disabling the heater if there is no airflow through supply air fan. Units in OFFICE mode have a cooldown function for the heater when the unit is put in stop mode.

Units with water heater coil

If the unit is started during cold weather, the TL45 valve is pre-opened depending on the outdoor air temperature as a precaution. When the unit is in stop mode the return water temperature is kept at set stand by temperature measured by the return water temperature sensor. If the return water temperature drops below forcing limits the TL45 valve opens fully. If the return water temperature drops despite all this below alarm limits, the A-alarm is triggered. In this case the TL45 valve stays fully open and the pump relay stays on. There is an exercise function in all pump and valve outputs which runs the pump and valve from time to time to avoid them from sticking up.

Alarms

A-alarms

Class A alarms cause the unit to stop fully and trigger an alarm to the control panel and the A-alarm relay to close. The unit restarts only by resetting the alarm.

AB-alarms

Class AB alarms the unit goes in a state where supply air fan stops, and extract air fan keeps running on minimum speed. When the reason for the alarm is no longer existing, the unit returns to normal operation mode.

B-alarms

Class B alarms triggers an alarm to the control panel. If the B alarm is triggered during allowed B-alarm times the B-alarm relay is triggered (OPTION).

No	Change	Date	Change	Appr	by
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JP	MKa			4.11.2020	0
LTR-3 eAir E / LTR-5 Z eAir E / LTR-7 Z eAir E 4kW, 3~			Name	FUNCTIONAL DESCR.	Weight kg
					Change Sheet
			Dwg no.	LTR Cooler	1

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