

LTR-3

PLANNING, INSTALLATION AND
OPERATION INSTRUCTIONS



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MODEL

Before you begin reading, confirm the model of your appliance.
These instructions cover the following models:

LTR-3- 85
LTR-3-85 E
LTR-3-85 EP

LTR-3-120
LTR-3-120 E
LTR-3-120 EP

EXPLANATION OF THE MARKS AND NUMBERS

LTR-3-85 Fan efficiency 130 W
LTR-3-120 Fan efficiency 185 W

E Electrical heating coil 500 W (built-in), with thermostat.
EP Electrical heating coil 500 W (built-in), with Pulser regulator (cabling required) and TG-K330 temperature sensor (cabling also required, see the circuit diagrams at the end of the instruction).
E09KP-016 Electrical heating coil 900 W for installation in duct with Pulser regulator (cabling required) and TG-K330 temperature sensor (cabling also required, see the circuit diagrams at the end of the instruction).
E18KP-016 Electrical heating coil 1800 W for installation in duct with Pulser regulator (cabling required) and TG-K330 temperature sensor (cabling also required, see the circuit diagrams at the end of the instruction).

On all models the ducting connections are Ø 160 mm.

INTRODUCTION

All LTR-3 ventilation equipment has been designed for all year round use. In Finland the Enervent appliances have been installed in small premises and detached houses for over 20 years. The popularity of the appliances is increasing year by year. Using knowledge gained over the years, it has been possible to make the LTR-3 range more and more user-friendly.

The LTR-3 range is the result of long-term product development. It is very versatile and variable.

With the help of this manual it is possible to install a appliance with basic functions yourself. We recommend that installation of ventilation units with special functions and extra equipment be carried out by a qualified electrician.

We recommend that a qualified ventilation engineer performs the installation work.

Before any maintenance of the appliance is carried out, please read the warning on the next page!



GUARANTEE

Enervent Oy Ab admits a two (2) year product guarantee on the LTR-3 range. The guarantee covers the repair work with the necessary spare parts. Repair service will be carried out at the factory premises in Porvoo, Finland or as agreed.

The guarantee is not valid if the unit has been incorrectly installed, poorly maintained or mechanical damage has resulted from improper use. This guarantee does not compensate for losses indirectly caused by the use of the appliance, troubleshooting, installation after the repair or transportation.

Retain the receipt as proof of purchase, and for the start date of the guarantee period.

TABLE OF CONTENTS

MODEL	page	2
INTRODUCTION		3
GUARANTEE		3
TABLE OF CONTENTS		4
WARNING		4
OPERATING PRINCIPLE		5
INSTALLATION PARTS		5
PLANNING OF THE DUCT SYSTEM		7
EXHAUST AIR CLASSIFICATION OF LIVING AREAS		9
PHASES OF INSTALLATION		10
INSTRUCTIONS FOR THE DUCT HEATER		11
INSTALLATION OF THE DUCT HEATER		12
MAINTENANCE OF THE DUCT HEATER		13
HEAT INSULATION OF AIR DUCTS		14
OPERATION		15
MAINTENANCE		16
BELT INSPECTION AND REPLACEMENT		16
AIR FLOW REFERENCE VALUES		18
KITCHEN VENTILATION		18
TO BE OBSERVED DURING OPERATION!		19
HEAT RECOVERY EFFICIENCY		19
CHARACTERISTICS		20
ELECTRICAL WIRING DIAGRAMS		22
SYSTEM PLANNING EXAMPLE		26
FAULT / CORRECTION GUIDE		27
DECLARATION OF CONFORMITY		29
TECHNICAL DATA		30

WARNING

After opening the service hatch, wait for two (2) minutes before starting the maintenance work! Although the unit's power supply is cut when the hatch is opened, the fans still rotate and the electrical coil in E-/EP-models is still hot for a while.

There are no user-serviceable parts behind the control panel, contact a service technician for service and repairs of this part of the unit.

Clarify the cause of the fault before restarting the unit!

OPERATING PRINCIPLE

The LTR-3 ventilation unit is based on regenerative heat recovery. This is achieved with a rotating heat exchanger through the halves of which incoming air and exhaust air flow in opposite directions. Aluminium foils of the heat exchanger transfer heat from the exhaust air to the supply air.

A characteristic of the regenerative heat exchanger is its high rate of heat recovery.

The heating rate of the supply air varies from 75 % to 85 %, depending on the proportion of supply air and exhaust air (the heat from the supply air fan is taken into count). Thanks to its high heat recovery, the LTR-3 saves heating energy at the same time as it takes care of a good indoor air quality; therefore it repays itself in a relatively short time.

INSTALLATION PARTS

STANDARD PARTS

1. LTR-3 ventilation unit
(delivered with EU5 plain filters)
2. MCC-12 remote control



EXTRA EQUIPMENT

- Micro filter EU7 for duct mounting Ø 160 mm
- E09KP-016 Electrical heating coil 900 W for installation in duct with Pulser regulator and TG-K330 temperature sensor 0...30°C.
- E18KP-016 Electrical heating coil 1800 W for installation in duct with Pulser regulator and TG-K330 temperature sensor 0...30°C.

ADDITIONAL EQUIPMENT

- Plain filter EU5
- Bag filter EU5 or EU7



Pulser Triac regulator



Bag filter EU7



Filter EU7 + duct casing



Electrical heater for installation in duct



Plain filters EU5

PLANNING OF THE DUCT SYSTEM

It is recommended that the task of dimensioning the duct system is given to a professional engineer.

The ducts must be large enough, min. Ø 100 mm, to allow a sufficiently low air speed. In particular the outside feed and the waste air ducts need to be wide. The size of the outside air duct, waste air duct and the outside grille must be Ø 160 mm. Do not fit an insect net behind the grille.

Use only type approved materials, as galvanised spiral-weld or plastic pipe, for the duct system. Valves which are suitable for mechanical ventilation must be used. Valves with a diameter of 100 mm or larger are to be used for supply and exhaust air.

The outside air should be taken, if possible from the north side of the building or from a shady place where temperature variations are moderately small.

The waste air should be led out about 90 cm above the roof saddle. Use insulated factory made fittings. A cover must be installed on the end of the waste air duct to prevent rain water from entering the duct system.

To enable duct cleaning, a sufficient number of control hatches should be placed in the duct system. The control hatch locations could be marked for example on the roof trusses to make finding them easier.

The exhaust air valves are placed in the following premises: Toilet, kitchen, washroom, bathroom, clothing storage room, cleaning cupboard and utility room.

The supply air valves are placed in the following premises: bedroom, living room, separate dining recess, hobby room, dressing room and sauna. We recommend that a supply air valve is installed in the innermost corner of the sauna. The air flow from the valve should be directed above the stove.

The air from a room with supply air is supposed to flow through chinks of the doors or "free flow" door grilles to areas with exhaust air. Normally a 20 mm chink of the door is enough besides in the sauna where a 100 mm chink is needed. Additional supply air can be ducted directly to wood-burning fireplaces (in the sauna) from the outside. The duct must be closable.

Garages or workshops must not be connected into the ventilation equipment of the house; they should have their own extractor system or independent heat recovery unit.

The cooker extractor hood should not be connected into the house ventilation system. (Excess steam and grease will cause blockage of the heat exchanger).

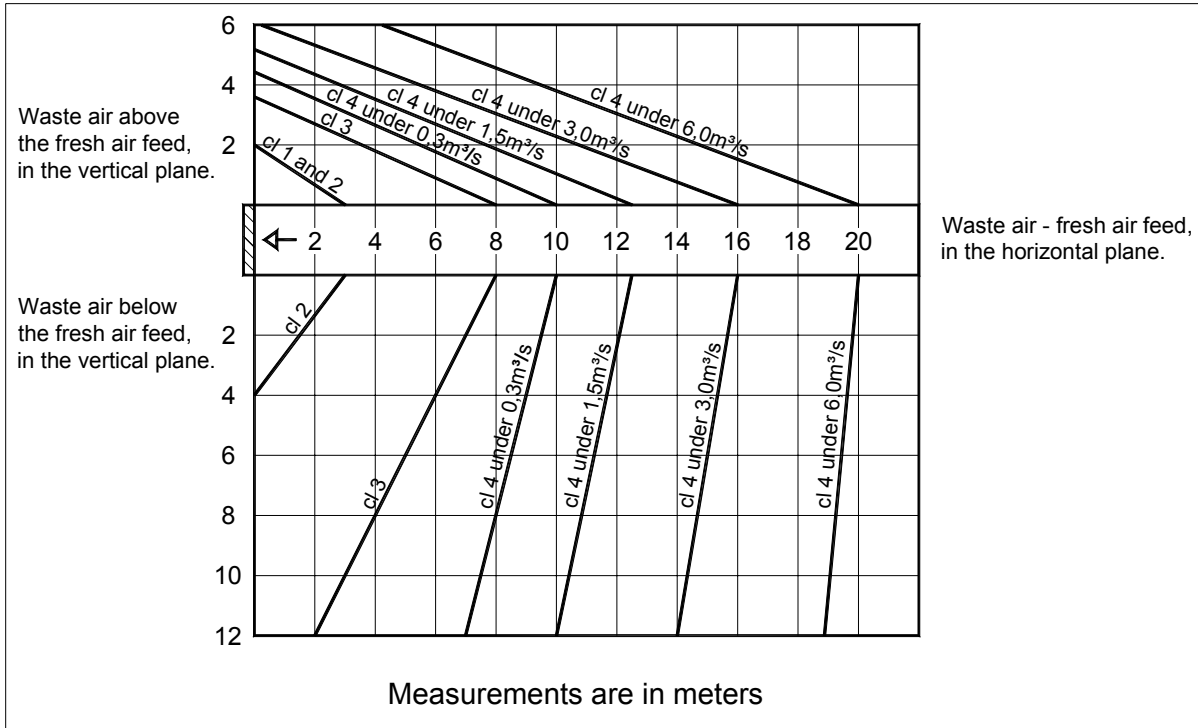
A fan assisted drying cabinet can be connected indirectly to the exhaust valve (drying cabinet - valve attachment) which allows air from both the room and the cabinet to exhaust from the same valve. The volume through the exhaust air valve has to be at least 12 l/s.

Silencers. A hard silencer 09 is recommended for the exhaust duct, silencer 09 or 06 is recommended for the supply air duct.

The distances between waste air and fresh air openings. Usually fresh air is taken from a north facing wall and the waste air is led out from the roof.

Other methods are acceptable, so long as they fall within the guidelines laid out by the Ministry of the Environment's code of building regulations (D2: Finland 2003, extract shown below), or in accordance with your local directives and regulations governing indoor climate and building ventilation.

The diagram shows how to determine the distance between the outside feed into the house and the waste from the house.



EXHAUST AIR CLASSIFICATION OF LIVING AREAS

The leading of waste air from a building is based on the following, exhaust air classification

- Class 1** Exhaust air which contains few impurities. The impurities are mainly from people or structures. Air is suitable for return air and transfer air.
- Class 2** Exhaust air which contains some impurities. The air is not used as return air of other premises but can be lead for example to the toilet and washing room as transfer air.
- Class 3** Exhaust air from premises where high humidity, processes, chemicals and smells essentially lower the quality of exhaust air. The air is not used as return air or transfer air.
- Class 4** Exhaust air which contains ill-smelling or unhealthy impurities considerably more than the acceptable contents of the indoor air. The air is not used as return air or transfer air.

Examples of exhaust air class of living areas

- Class 1** Office rooms and small adjoining storage spaces, customer service and teaching premises, meeting and business premises which are non-odorous.
- Class 2** Living rooms, dining recesses, coffee kitchens, shops, warehouses of office buildings, dressing rooms and restaurant premises where smoking is forbidden.
- Class 3** Toilets, washing rooms, saunas, apartment kitchens, distribution and teaching kitchens, copying premises of drawings.
- Class 4** Professionally used fume cupboards, grilles and target exhaust air from kitchens, car garages and driving tunnels, handling rooms of paints and solvent, dirty wash laundries, store rooms of waste food, chemical laboratories, smoking rooms, hotel and restaurant premises where smoking is permitted.

(Finland's building regulations D2 2003)

INSTALLATION PHASES

The unit can be installed in a warm, half warm or cold room. If the unit is installed in a cold room, it is to be equipped with a 100 mm thick cover of isolation. The unit can be installed i.e. in a storage room or on an attic.

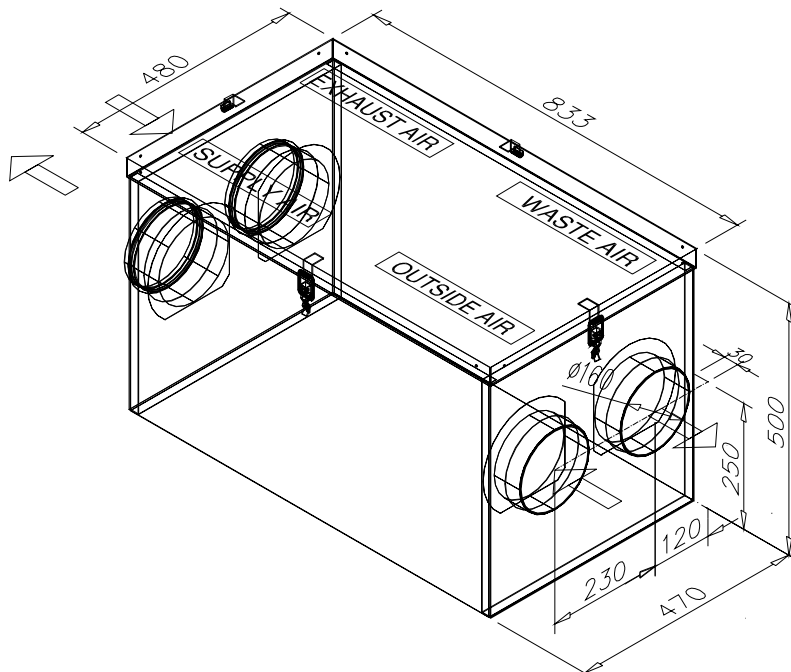
The unit should be placed on a plain surface on an elastic material that muffle sound. For instance a 100 mm thick isolation plate is suited as bedding. The unit can be mounted on its edge, so that the front edge is higher than the back edge.

If the unit is used to ventilate a facility with a swimming pool it must be drained. There are two (2) drain outlets of which the other should be taken it to use, depending of the position of the unit. At the time of delivery, both outlets are plugged.

Phases of installation:

- A. Place the unit on the isolation plate (i.e. a chipboard covered with 100 mm isolation) or in a storage room or on the attic on a custom made shelf. Take into consideration the possible drain.
- B. Check that there is at least 60 cm of free space in front of the service hatch and that the electrical inlets are accessible. Take into consideration that opening the lock bolts require a certain amount of space.
- C. Connect the ducts to the tubes on the unit. It is recommended that silencers be installed to the exhaust air and supply air ducts. Silencers, see page 7.
- F. If the unit's condensation drain is to be used, connect a pipe between the drain outlet and the nearest floor drain or water trap of a sink. Connecting the unit directly into the sewage system is not allowed. If the unit is installed in a cold room the drain pipe must be isolated so it doesn't freeze.

N.B.! To reduce the weight of the unit remove the rotor before mounting on the wall.



All LTR-3 models

INSTRUCTIONS FOR THE DUCT HEATER

Instructions for installing the duct heaters E09KP-016 and E18KP-016 in circular ducts.

NB! Read these instructions before installing and connecting the duct heaters.

1. The duct heaters are designed to operate on single phase alternating current. See the wiring diagram for the particular heater and the electrical data on the rating plate placed on the cover of the duct heater.
2. The duct heater must be connected to the mains supply with a fixed installed round cable. The heater must be equipped with a cable grommet or cable fitting designed for the cable, which ensures that the electrical protection class of the heater is retained. The standard design is IP43. Electrical protection class IP55 can be delivered if required, in which case this is specified on the cover of the heater. Design IP55 is delivered with factory-mounted cable fittings.
3. It must not be possible to switch on the power to the element unless the fan has started earlier or starts simultaneously.
4. It must not be possible to switch off the power to the fan unless the power to the element has been switched off earlier or is switched off simultaneously.
5. An all phase breaker with a contact gap of at least 3 mm must be included in the fixed installation.
6. The installation must be carried out by an authorized electrical fitter.
7. The duct heaters are designed in accordance with the following standards:
SEMKO 111 FA 1982 / EN 60335-1 / EN 60335-2-30.
8. The duct heater satisfy the requirements of the currently valid EMC standard CENELEC EN 50081-1 and EN 50082-1. The heaters are CE-marked and EMC-marked.
9. The duct heaters are S-marked, tested and approved by SEMKO.
10. The duct heater is equipped with two overheating cut-outs (one with manual reset) designed to prevent overheating when the airflow is too low or in the event of a fault in the system.
11. A drawing must be attached inside the fuse box or on the wall of the service room. The drawing shows the rating of the duct heaters and their location in the building, together with information about the measures to be taken in the event that the overheat protection cut-out(s) is activated.

INSTALLATION OF THE DUCT HEATER

1. The heater is designed for insertion into standard spiral ducting and is fixed to the ducting with screws.
2. The air must flow through the heater in the direction of the arrow (located on the side of the heater close to the connection box).
3. The heater can be fitted in either horizontal or vertical ducting. The electrical connection cabinet can be freely placed facing upwards or sideways to a maximum angle of 90°. Fitting with the box facing downwards is **NOT** allowed.
4. The access opening in the heater must be equipped with a fixed mesh or an intake air device which makes it impossible to touch the element inside.
5. A warning sign must be attached close to the air outlet, stating that the air outlet must not be covered.
6. The distance from (to) the heater to (from) a duct bend, valve, filter, etc., **should correspond to at least twice the duct diameter**, otherwise there is a risk that the airflow through the heater is uneven which can cause activation of the overheating cut-out. Example: model CV 16 => min. 320 mm, CV 40 => min. 800 mm, etc.
7. The heaters may be insulated in accordance with valid regulations for ventilation ducting. However, the insulation material must be incombustible. The cover of the heater must be free from insulation so that the type plate is visible and the cover can be removed.
8. The parts of the ventilation system where heaters are installed must be kept accessible to allow replacement and service.
9. The distance from the heater's metal casing to any wood or other combustible material must **NOT** be less than 30 mm.
10. The maximum ambient temperature allowed is 40°C.
11. The air flow through the heater must have a speed of **at least 1.5 m/s**.
12. **The maximum output temperature allowed is 40°C.**

MAINTENANCE OF THE DUCT HEATER

No maintenance is required except a periodic functional test.

Overheating

When the overheating cut-out with manual reset has been activated, the following should be observed:

1. The heater must not be interfered with in any way, such as removal of the cover, except by an authorized electrical fitter.
2. Turn off the mains power.
3. Investigate carefully the reason for activation of the cut-out.
4. When the fault has been eliminated, the cut-out can be reset.

Function description Duct heater for external heating control

- The duct heater is designed for external control via a thyristor type Pulser / TTC or via a thermostat.
- The heater is equipped with an integral overheating cut-out with manual reset which can be reset on the outside of the cover.

Wiring diagrams

See chapter “Electrical wiring diagrams”

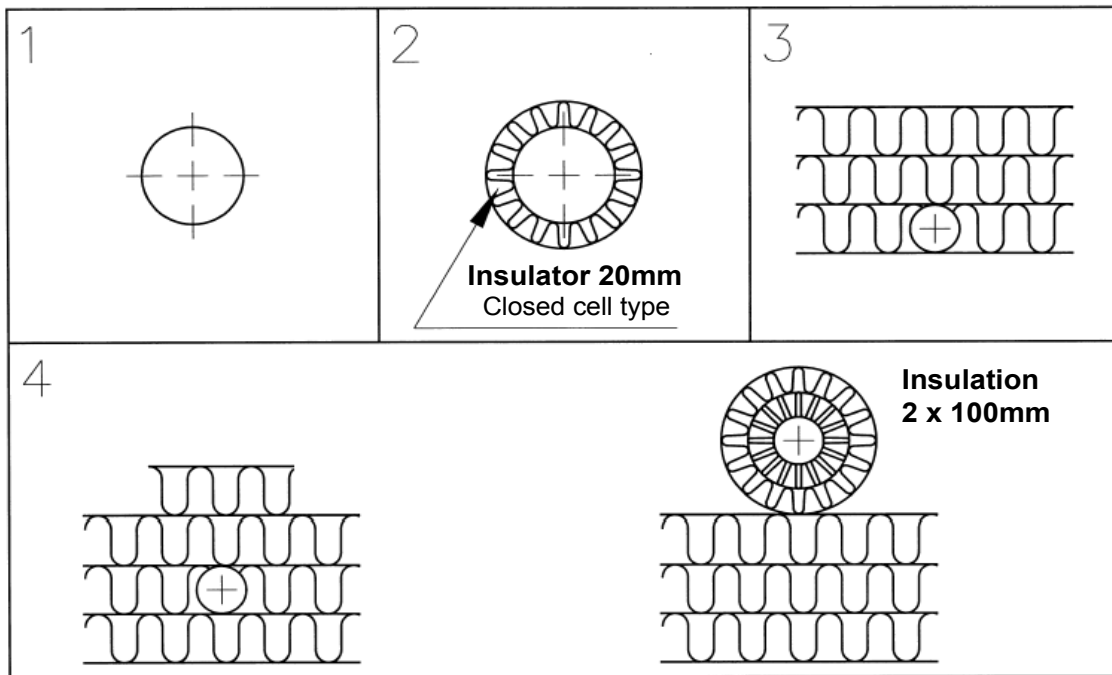
Installation of the temperature sensor

Make a Ø 12 mm hole in the supply air duct 50 cm after the heater (towards the room) and attach the temperature sensor in the duct using the sensors base. Cabling is drawn, according to regulations, from the sensor to the Pulser regulator.

Installation of the Pulser regulator

The Pulser regulator is installed according to valid regulations on a mounting box.

HEAT INSULATION OF THE DUCTING SYSTEM



The figure shows different examples of ductwork insulation.

1. Exhaust air duct in warm state (indoor, no insulation).
2. Waste air duct and fresh air duct in warm state (indoor).
Insulation, for example Armaflex™
3. Exhaust air duct on attic under the insulation but above the steam barrier.
4. All air ducts on a cold attic. The waste or fresh air ducts must not be installed immediately above the steam barrier; there should be a mineral wool insulating layer of at least 100 mm between them.

OPERATION

The ventilation unit must run continuously and the desired effect is regulated from the control panel. It is possible to switch off the heat recovery for example during the summer when the outside and inside temperatures are the same, or when one wants to cool the indoor air with cool night air. During the summer the house can be kept cool by allowing the heat exchanger to run and recover the cool inside air.

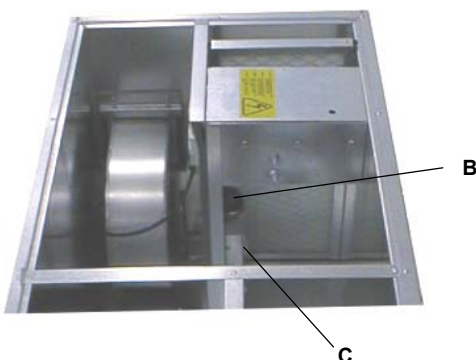
Regulating the proportion of supply air and exhaust air. The exhaust air flow should be 5 - 10 % greater than the supply air flow. This is performed by accurately measuring the air flow through all of the valves with for example a thermo anemometer and by adjusting them to the correctly calculated values. A correctly balanced system returns a good heat recovery rate and keeps a slight negative pressure in the building. The negative pressure keeps the humidity away from the structures. When an adjustment is made, the filters must be clean and all the valves and outer grilles must be in place. There must not be an insect net over the fresh air grille.



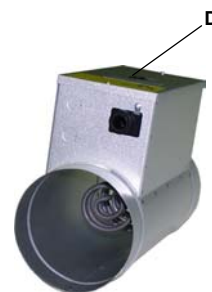
REMOTE CONTROL PANEL MCC-12
Control of fans, 4 fan speed positions.
HRW switch with indicator light.



PULSER
Heating regulator and duct temperature sensor (EP-models, E09- and E18KP-016 models)



THERMOSTAT
Capillary thermostat (E-models)
B. Supply air temperature switch
C. Overheating protection reset button



ELECTRICAL HEATER FOR INSTALLATION IN DUCT Ø 160 mm
(E09KP- and E18KP-016 models)
D. Reset button for over heating protection

MAINTENANCE

LTR-3 does not require any mechanical maintenance, only changing of the filters periodically and cleaning of the heat exchanger and fans (when needed). The power supply to the unit is cut when the service hatch is opened. Wait for two (2) minutes before starting the maintenance work! Although the units power supply is cut when the hatch is opened, the fans still rotate and the electrical coil in E-/EP-models is still hot for a while. The hatch is opened by releasing the lock bolts.

Cleaning the heat exchanger. When changing the filters, check the condition of the heat exchanger. If cleaning is required, remove it from the machine and carefully wash through the air channels with a hand shower using a neutral detergent. The heat exchanger can also be cleaned by blowing through the air channels using compressed air. Do not use a pressure washer and do not submerge the heat exchanger into water!! When restarting the unit after cleaning, check that the rotor is turning freely.

Cleaning the fans. When changing filters, also check the condition of the fans. If cleaning is needed the fans are removed from the device and cleaned with a toothbrush or compressed air.

Changing of filters. The recommended time between filters changes is max four (4) months. Draw the filter cassettes from the device and loosen the filter fabric from the frame. Replace new filter fabric back into the frame. Press the filter cassette back into the machine so that the support network faces towards the heat exchanger. Vacuum-cleaning the inside of the device is recommended at this point.

BELT REPLACEMENT

The heat exchanger rotates with the aid of a belt. If this becomes worn or broken, it can be replaced as shown in the following instructions:



Picture 1: removal of cover, 6 screws Picture 2: loosening of space beam

- A. Shut off the unit by turning off the main power or unplugging from the wall power supply. Open the maintenance door.

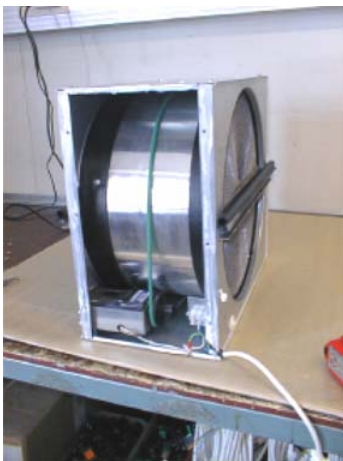
- B. Disconnect the heat exchanger plug. Pull the heat exchanger from the appliance.; Remove the cover plate by unfastening the 6 screws. Picture 1
- C. Lie the heat exchanger on its side. Remove the gasket from the space beam. Unfasten the centre socket-head screw; then the two remaining space bar screws from each end picture 2. Lift off the space beam.



Picture 3: inserting the new belt

Picture 4: pulling through the new belt.

- D Thread the new belt carefully between the gap of the outer covering and the edge of the brush gasket picture 3. At the same time draw the belt inside the heat exchanger past the brush gasket while turning the heat exchanger wheel picture 4.
- E Replace the space beam and locate the wheel centre with the socket-head screw. Replace and tighten the two end screws of the space beam. Replace the gasket.



Picture 5: belt of heat exchanger in place

- F Stand the heat exchanger up. Pull the belt over the pulley. Rotate the wheel a few revolutions to realign the belt, picture 5. Clean the inside. Replace the cover and fastening screws. Return the heat exchanger to the ventilation unit. Reconnect the heat exchangers plug.
- G Reconnect the main power to the unit. Turn on the main switch and the heat exchangers switch from the control panel. Check visually that the rotor is turning.
- H Carefully close the doors of the unit.

TARGET VALUES FOR AIR FLOWS

Target values for air flows in the living areas.

EXHAUST AIR

Kitchen	20	l/s
Bathroom	15 –17	l/s
Toilet	10 –12	l/s
Clothing room	3 –4	l/s
Hobby room	0,7	l/s, m ²
Dressing room	2,0	l/s, m ²
Washroom	15 –17	l/s
Cleaning cupboard	4,0	l/s, m ²
Utility room	15 –17	l/s

SUPPLY AIR

Living room	8 –17 l/s	0,5 l/s, m ²
Bedroom	5 –8 l/s	0,7 l/s, m ²
Sauna	8 –17 l/s	2,0 l/s, m ²
Separate dining recess		0,5 l/s, m ²
Hobby room		0,7 l/s, m ²
Dressing room		2,0 l/s, m ²

KITCHEN VENTILATION

A normal cooker hood is installed over the kitchen stove. The hood should be used only when cooking. It is still necessary to install an exhaust vent, connected into the general ventilation system. The exhaust air volume should be 20 l/s.

The cooker hood should not be connected to the LTR-3 ventilation unit.

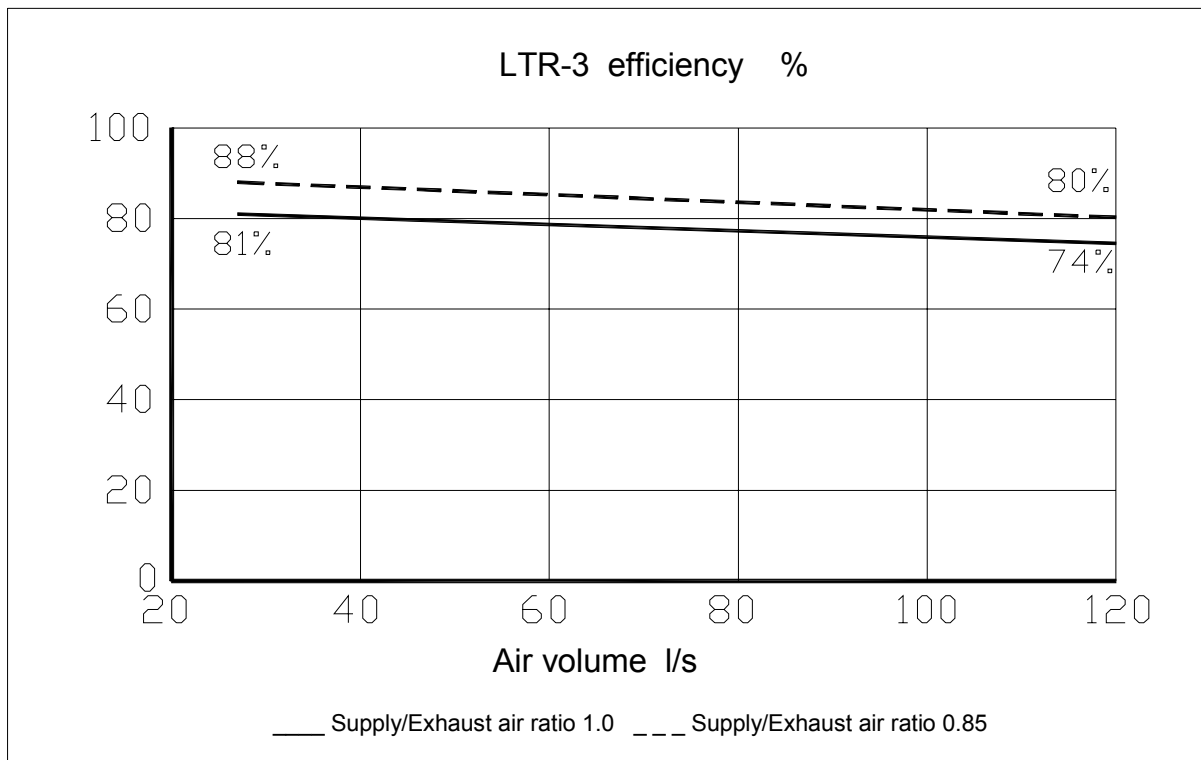
TO BE OBSERVED DURING OPERATION!

Always ventilate with a high enough efficiency! Otherwise the indoor humidity will rise too high and condensation will form on for instance cold window surfaces.

The recommended relative humidity for indoor air is 40 ...45 % (room temperature 20...22 °C). At these levels condensation will not form and the humidity is at a healthy level. By monitoring the humidity of the indoor air with a humidity sensor, the ventilation can be increased when the humidity rises over 45%. Alternatively the ventilation can be reduced if the humidity of the indoor air falls below 40%.

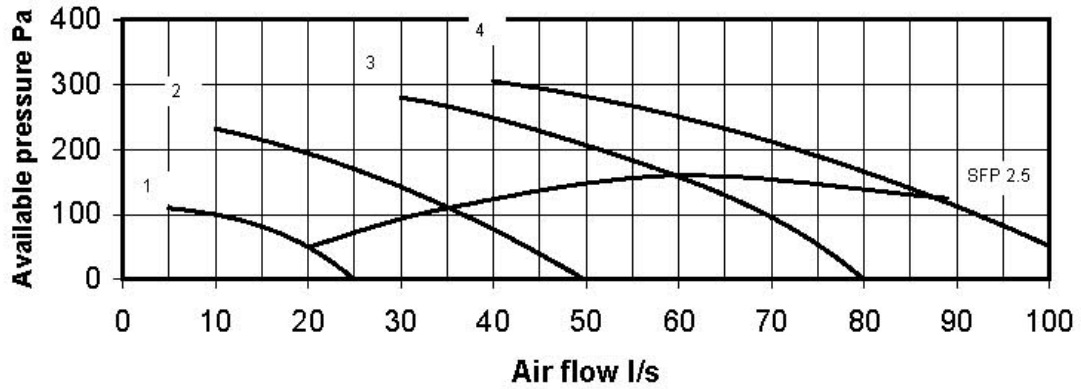
Change the filters often enough! During the winter time the exhaust air filter becomes dirty more quickly than the fresh air filter. In this case the exhaust air flow will decrease, which then leads to a rise in the humidity, and also the decline of the incoming air temperature. With every filter inspection / change, check that the heat exchanger functions correctly.

HEAT RECOVERY EFFICIENCY

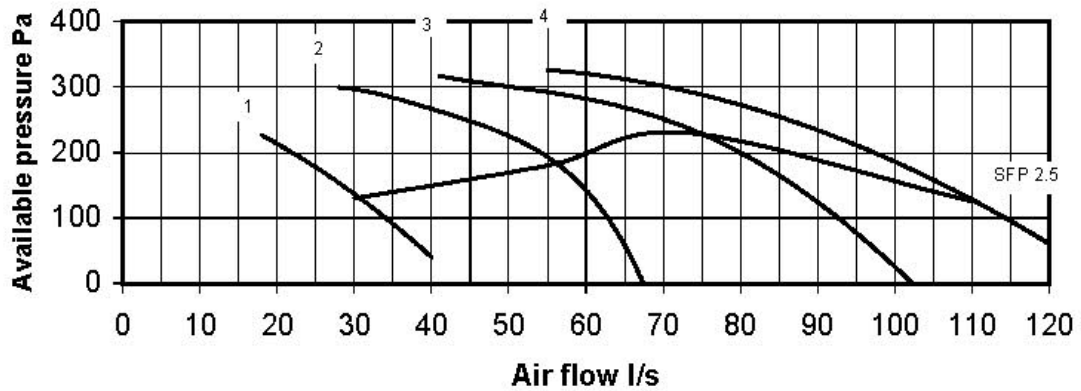


CHARACTERISTICS

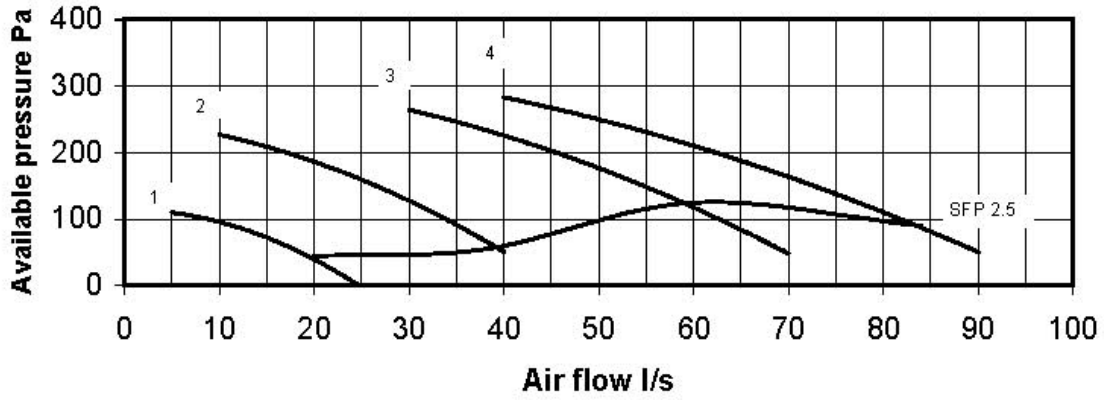
LTR-3-85 SUPPLY/ EXHAUST AIR
Characteristic curves with EU5 PLAIN FILTERS at speed 1,2,3
and 4



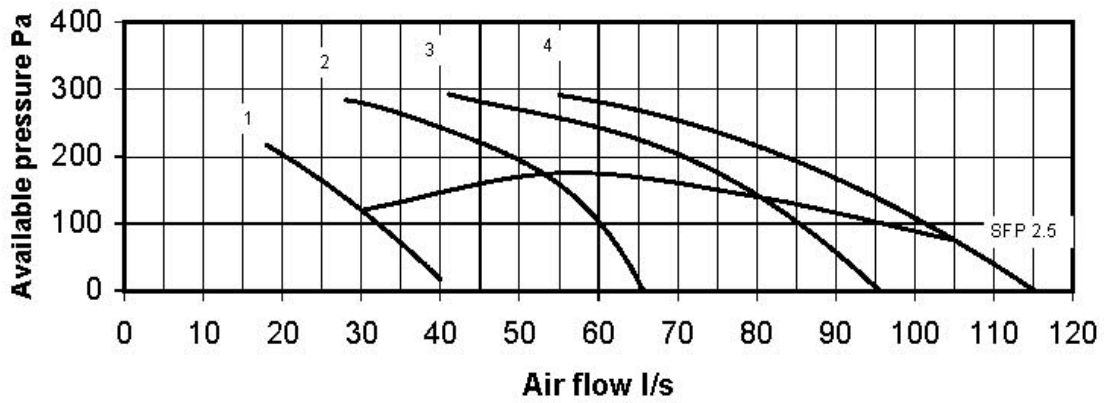
LTR-3-120 SUPPLY/ EXHAUST AIR
Characteristic curves with EU5 PLAIN FILTERS at speed 1,2,3
and 4



LTR-3-85 SUPPLY/ EXHAUST AIR
Characteristic curves with EU7 BAG FILTERS at speed
1,2,3 and 4

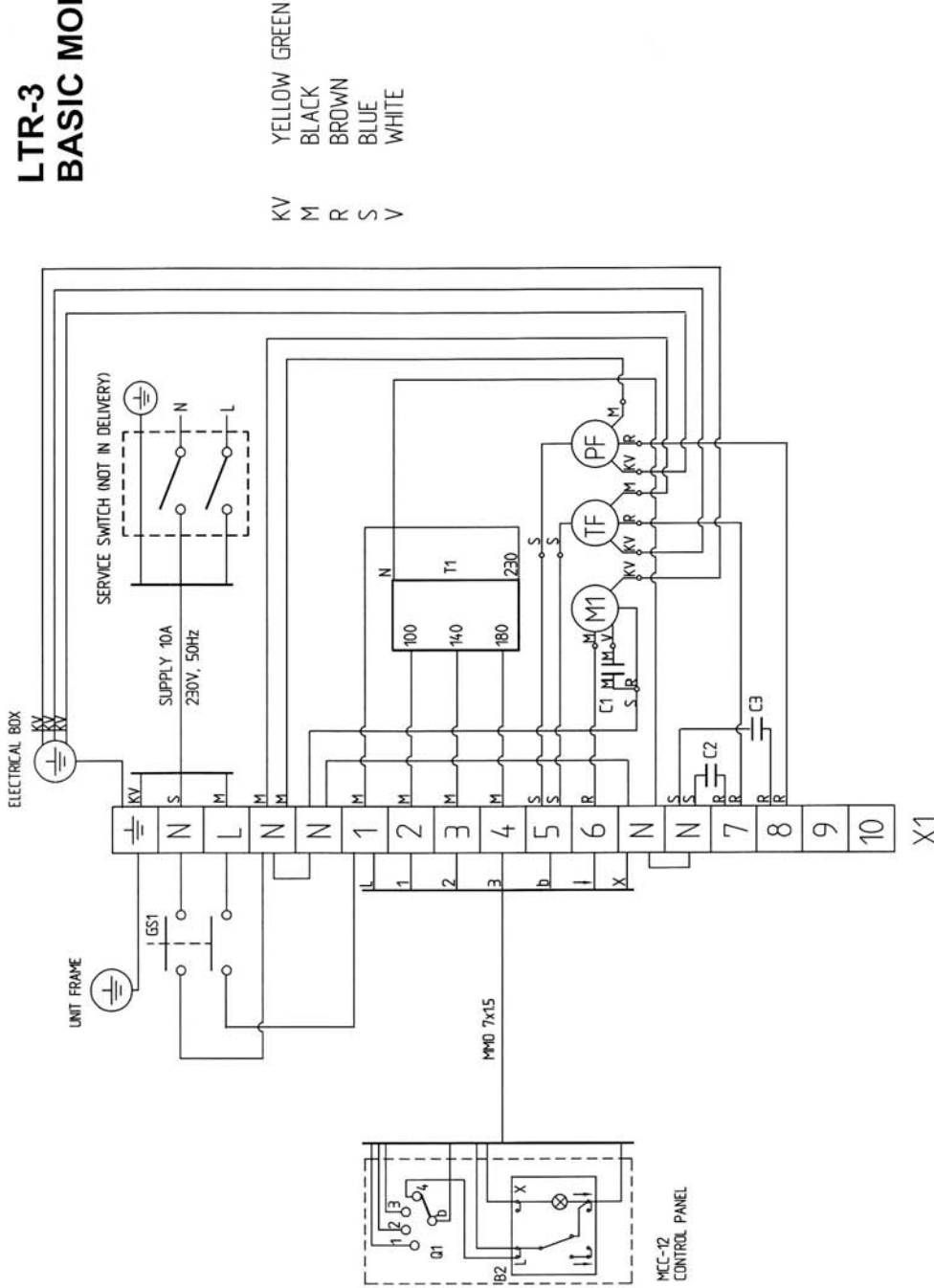


LTR-3-120 SUPPLY/ EXHAUST AIR
Characteristic curves with EU7 BAG FILTERS at speed
1,2,3 and 4



WIRING DIAGRAMS

LTR-3 BASIC MODEL



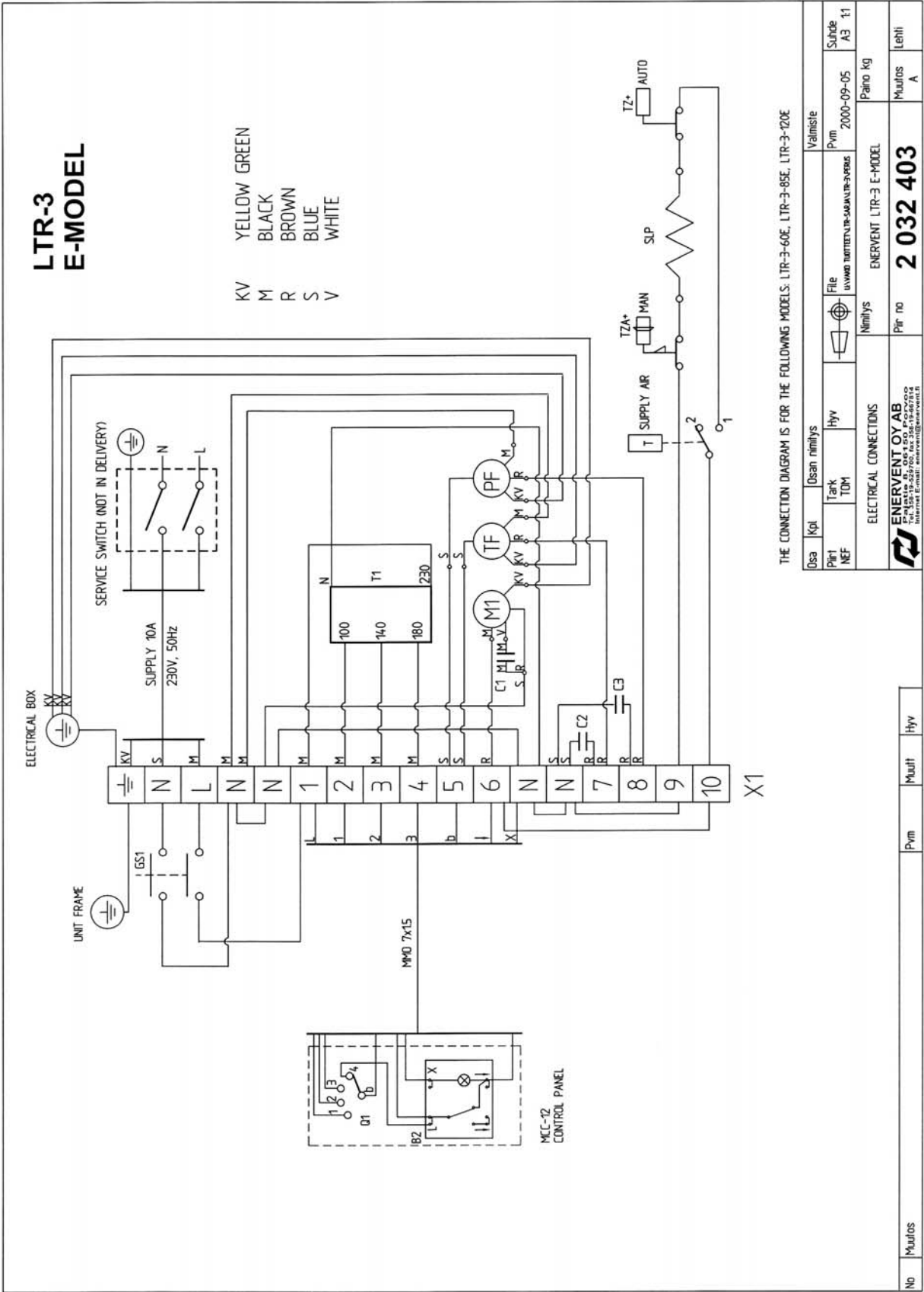
- KV YELLOW GREEN
- M BLACK
- R BROWN
- S BLUE
- V WHITE

CONNECTION DIAGRAM IS VALID FOR MODELS: LTR-3-85, LTR-3-120

Osa	kpl	Osan	nimilys	Valmistie					
Piiri	Tank	Hyv	File	Pvm	Suhde				
MD	TDM		invaio	2000-09-05	A3				
			invaio	2000-09-05	Pano		kg		
				Nimilys	ENERVENT LTR-3 BASIC				
				Pir 10	2 032 402		Maudis		
				ENERVENT OY AB		Lehti			
				Puhelin: 010 300 1000		A			
				Faksi: 010 300 1000					
				Internet: E-mail: energent@enervent.fi					
No	Maudis	Pvm	Muuti	Hyv					

LTR-3 E-MODEL

KV YELLOW GREEN
 M BLACK
 R BROWN
 S BLUE
 V WHITE



THE CONNECTION DIAGRAM IS FOR THE FOLLOWING MODELS: LTR-3-60E, LTR-3-85E, LTR-3-120E

Osa	Kpl	Osa nimitys	Valmistaja
Piiri	Tark	Hyv	Pvm
MEF	TOM		2000-09-05
		File	Subide
		UUVMO TURVETUETU-TR-SAMALTR-30RUS	A3 1:1
		Nimitys	Paino kg
		ENERVENT LTR-3 E-MODEL	Muutos
		Piiri no	A
		2 032 403	Lehti

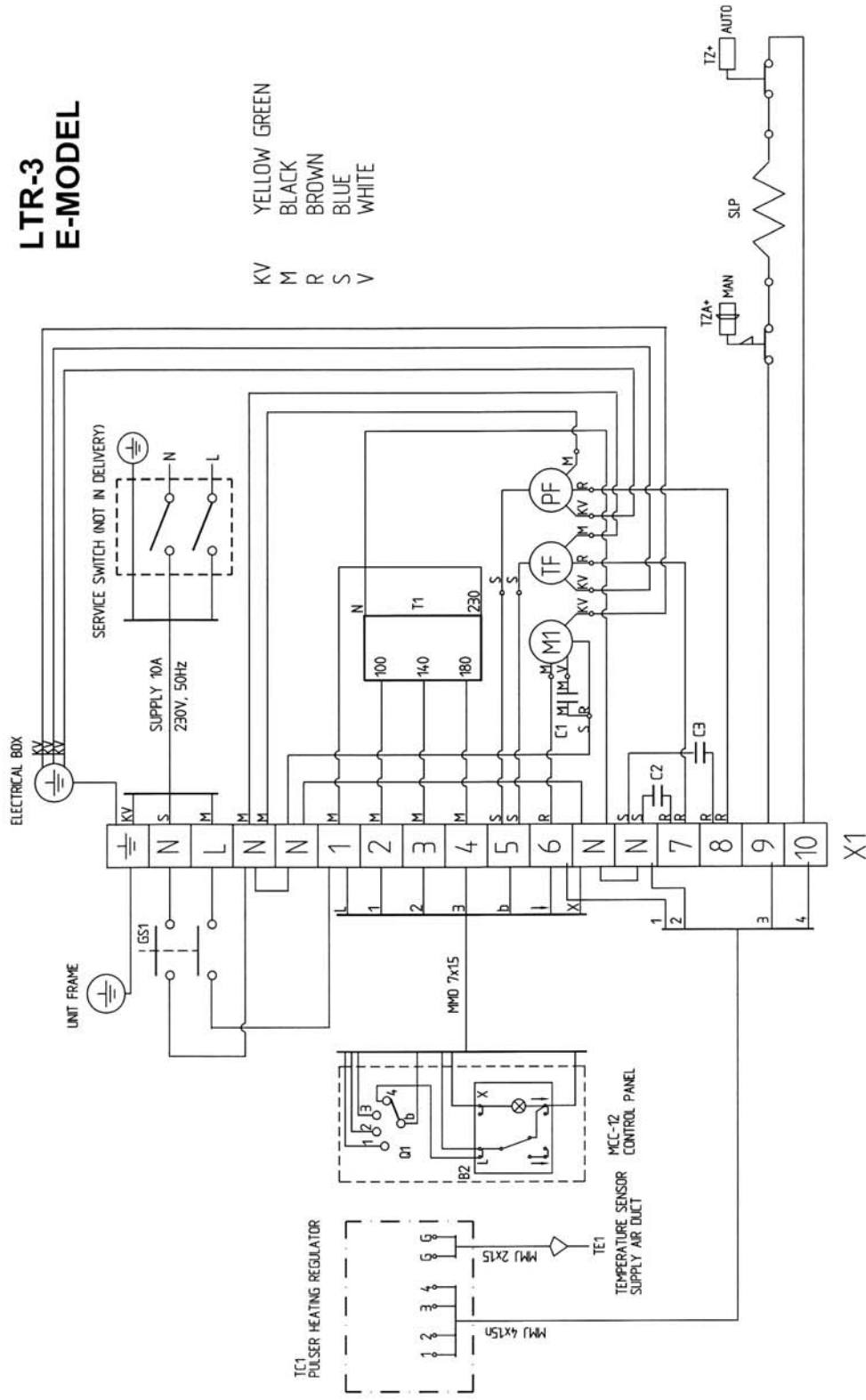


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Muut Pvm Muut Hyv

No Muutos

LTR-3 E-MODEL

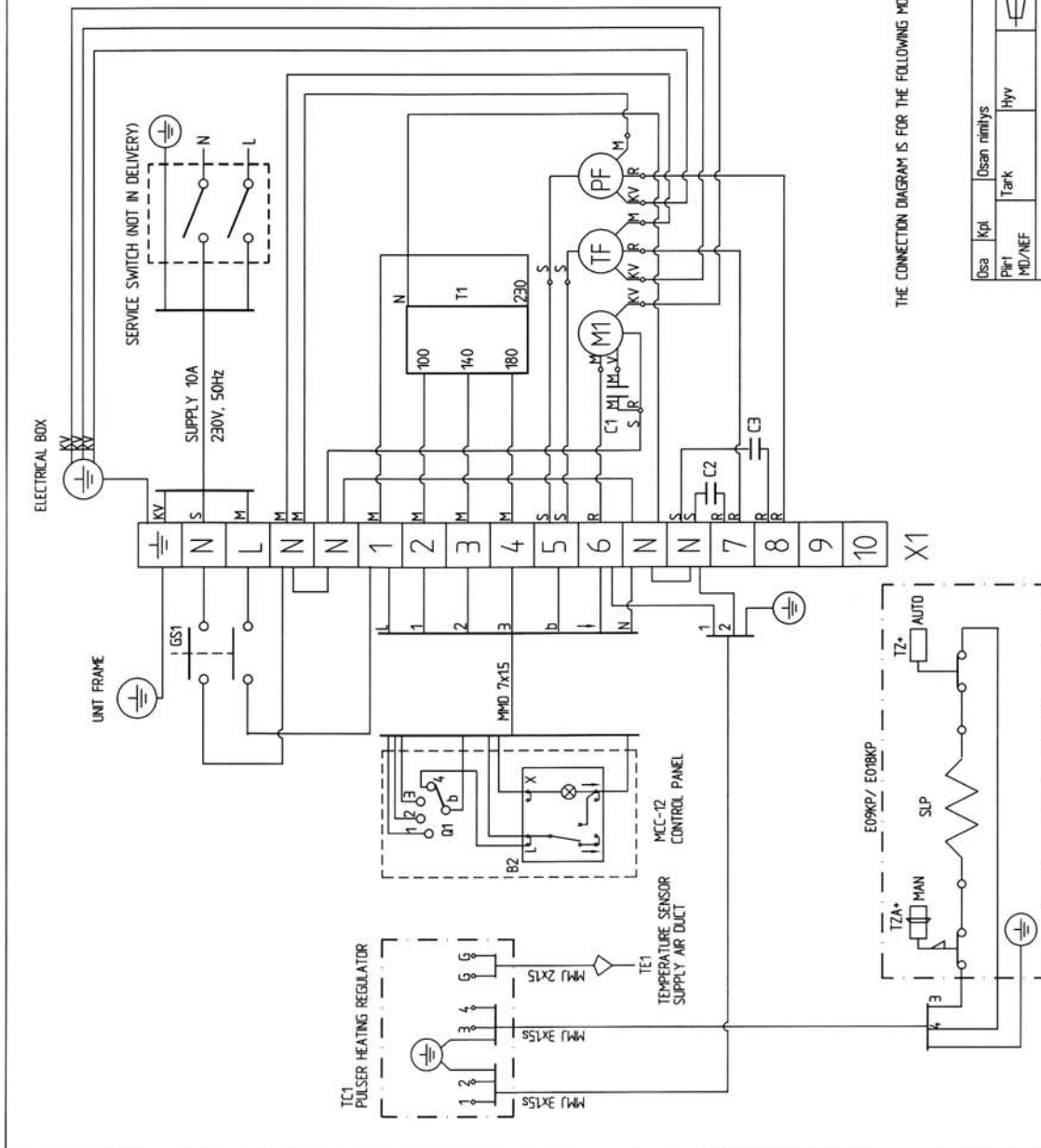


THE CONNECTION DIAGRAM IS FOR THE FOLLOWING MODELS: LTR-3-60EP, LTR-3-85EP, LTR-3-120EP

Dsa	Kpl	Osan	nimitys	Valmisie
Pir1	NEF	Tark	TDM	Hyv
				Pvm
				2000-10-17
				Subide
				A3
				11
ELECTRICAL CONNECTIONS				
				Paino
				kg
				Muutos
				A
				Lehli
ENERVENT OY AB				
Pir no 2 032 404				
Internet E-mail: enervent@enervent.fi				

LTR-3 E09KP-MODEL E18KP-MODEL

KV YELLOW GREEN
M BLACK
R BROWN
S BLUE
V WHITE



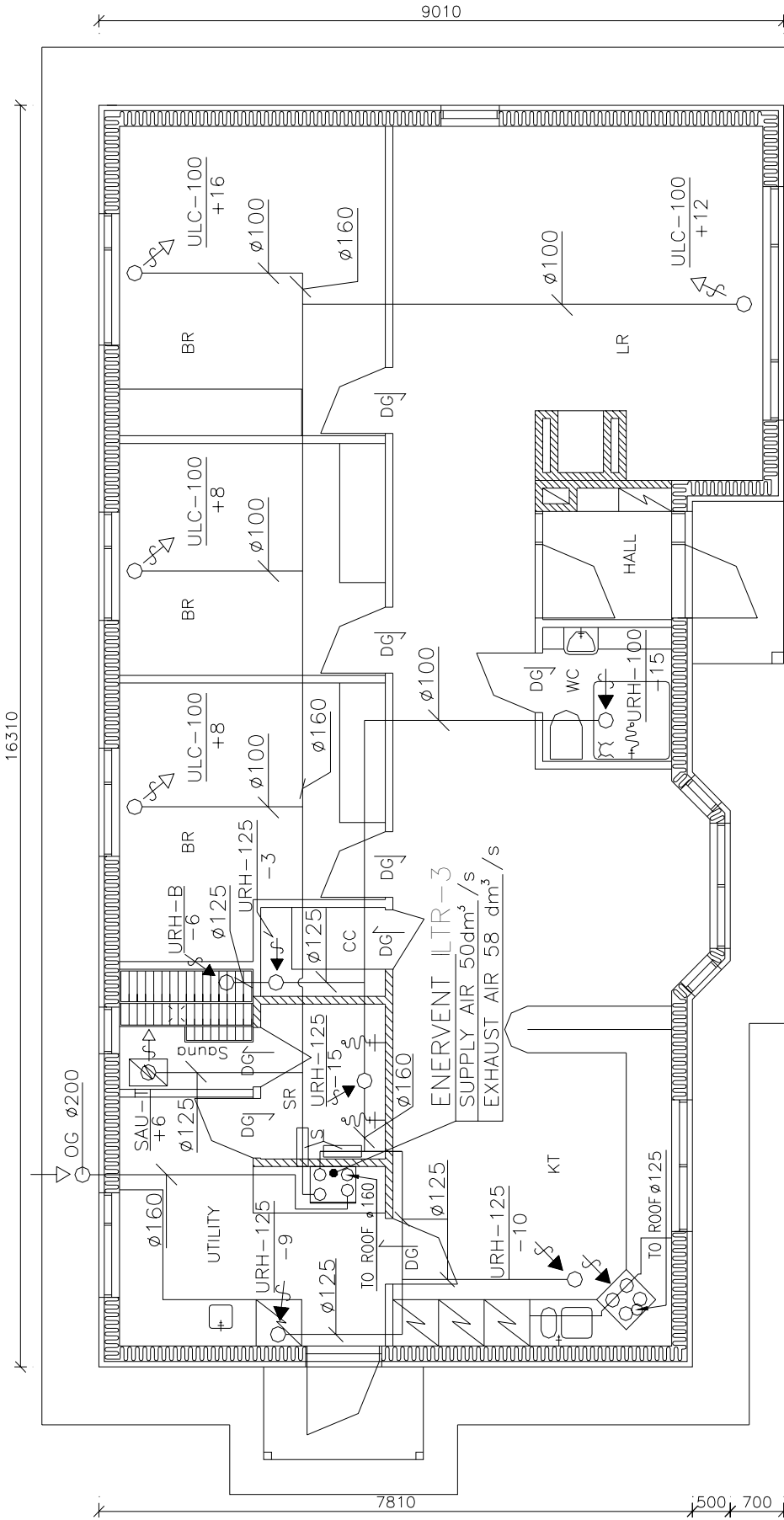
THE CONNECTION DIAGRAM IS FOR THE FOLLOWING MODELS: LTR-3-60E09KP, LTR-3-85E09KP, LTR-3-120E09KP
LTR-3-60E18KP, LTR-3-85E18KP, LTR-3-120E18KP

Osa	Kpl	Osan nimitys	Vainiste
Piiri	MD/NEF	Tarkk	Hyv
File	UUVKO TUUTETUIN-SMARTI-E09KP	2000-10-17	Paino kg
Nimitys	ENERVENT LTR-3 E09KP- and E18KP-MODELS	Muutos	A
Piiri no	2 032 405		

ENERVENT OY AB
 P.O. Box 18, 02200 AA Espoo, Finland
 Internet E-mail: enervent@enervent.fi

No	Muutos	Pvm	Muutt	Hyv
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PLANNING EXAMPLE



ULC- URH- = Vent type and diameter.
 - 8 or + 8 = Airflow dm³/s
 DG = Door gap , Cill clearance 20mm, sauna door 100mm.
 S = Silencer OG = Outside Grille.
 Ductwork to be insulated with mineral wool to a thickness of 150mm.
 Installation in accordance with Finlands building code D2 or local equivalent.
 Supply and exhaust air vents, from Halton for example.
 Cookerhood/extractor has independent exhaust ducting.

FAILURE SEARCH and TROUBLE SHOOTING

SUPPLY AIR TOO COLD

Reason

- * The rotor switch is in position 0
- * Belt of the heat exchanger broken
- * Belt greasy, causing slippage
- * The exhaust fan has stopped
- * The exhaust air filter is blocked
- * Exhaust air valves settings incorrect
- * Heat insulation of ducts inadequate

Action

- ☛ Switch to position 1
- ☛ Replace the belt
- ☛ Contact a service man
- ☛ Contact a service man
- ☛ Change the exhaust air filter
- ☛ Contact a service man
- ☛ Check the insulation thickness of the supply and exhaust air ducts and add insulation if needed.

AIR FLOW BECOMES SMALLER

Reason

- * Filters are blocked
- * Speed selector switch of the fans has been turned down
- * Blockage in the fresh air grille
- * Fan wings dirty

Action

- ☛ Change the filters
- ☛ Select higher speed
- ☛ Clean the outer grille
- ☛ Clean the fans

OPERATING SOUND LEVEL INCREASED

Reason

- * Filters blocked
- * Outer grilles are blocked
- * Fan bearings faulty
- * Problem with gear/motor of the heat exchanger
- * Fan wings dirty

Action

- ☛ Change the filters
- ☛ Clean the outer grille
- ☛ Change bearings / contact service
- ☛ Contact a service man
- ☛ Clean the fans

DECLARATION OF CONFORMITY

We declare that our products follow the provisions of low voltage directive (LVD) 73/23/EEC, 93/68/EEC, electro magnetic compatibility directive (EMC) 89/336/EEC and machine directive (MD) 98/37/EEC.

Manufacturer: Enervent Oy Ab
Manufacturer's contact: Kipinätie 1, 06150 PORVOO, FINLAND
Tel +358 207 528 800, fax +358 207 528 844
enervent@enervent.fi, www.enervent.fi

Description of the product: Ventilation unit with heat recovery

Trade name of the product: Enervent LTR-3-85, LTR-3-85E, LTR-3-85EP, LTR-3-85E09KP, LTR-3-85E18KP
Enervent LTR-3-120, LTR-3-120E, LTR-3-120EP, LTR-3-120 E09KP, LTR-3-120E18KP

Representatives for the products in the region of ETA:

Ventilair AB, Ulvsjö, 79699 ÄLVDALLEN, SVERIGE
Tel. +46 250 84080, fax +46 70 617 3759

Climatprodukter AB, Box 366, 184 24 ÅKERSBERGA,
SVERIGE
Tel. +46 8 540 87515, fax +46 8 540 67976

Ventfunktion Ab, Bangårdsgatan 9, 59135 MOTALA,
SVERIGE
Tel/fax +46 141 522 10

The products are in conformity with the following standards:


LVD EN 60 335-1 (1994) +A1 (1996), +A11 (1995), +A12 (1996), +A13 (1998), +A14 (1998),
FIMKO OY, Testlaboratory certificate nr. FI/STR 303
MD EN 292-1 (1991), EN 292-2 (1991) +A1 (1995),
FIMKO OY, Testlaboratory certificate nr. FI/STR 303
EMC HF emissions: EN 55014-1 (1997), EN 61 000-3-2 and EN 61 000-3-3
HF immunity: EN 55014-2 (1997)
FIMKO Oy, Testlaboratory certificate nr. 2000044

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

Product is CE-marked year 2000.

Porvoo 24th March 2003

Enervent Oy Ab



Tom Palmgren / R&D manager

TECHNICAL DATA

Dimensions	Height	500 mm
	Width	833+50 mm
	Depth	470 mm

Current	230 V / 50 Hz 1 phase Fuse 10 A, fast
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Fans	Exhaust air	Model	85	120
		Rating	130	185 W max.
		Current	0,57	0,80 A

Heat protection

	Supply air	Model	85	120
		Rating	130	185 W max.
		Current	0,57	0,80 A
		Heat protection		

Heat exchanger motor	Rating 25 W 0,09 A Heat protection
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Duct diameter	All models: Ø 160 mm
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Weight	52 kg
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Sound level

Sound levels from the unit in a room where it is installed. Voice absorption of 10 m².

Fan speed	Model	85	120	
Position 1		24	28	dB (A)
Position 2		33	36	dB (A)
Position 3		38	42	dB (A)
Position 4		43	47	dB (A)