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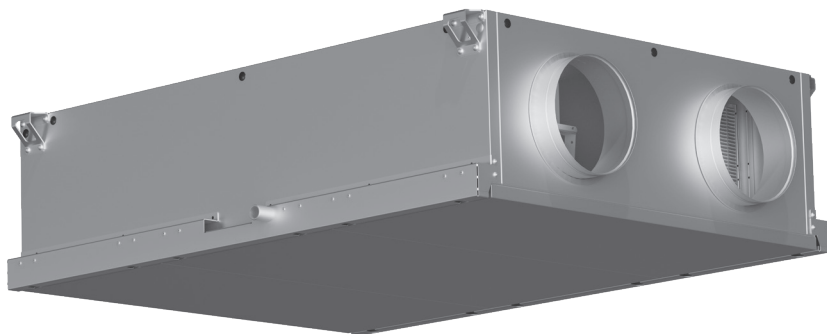# ENVU ECO (500/800/1200/1500/2200/2500)

Ceiling Type Energy / Heat / High Efficient Heat Recovery Units

Assembly & Maintenance Guide

CE

EN

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INTRODUCTION

Installation & Operation Manual has been prepared and given to customer as a guide for easy installation&operation units manufactured by ENEKO A.Ş. The manual contains description of the unit, components and basic informations and recommendations for proper and fail free operation. Please read the instructions and warnings given in this manual before starting installation, operation and maintenance works and keep this manual near the unit, within easy reach of service personnel.

⚠ Any damage, failure or hazard occurred because of use except this purpose is beyond the responsibility of manufacturer.

⚠ For technical service and questions, please contact with following information.

📞 + 90 232 328 20 80 / 103-152   🔗 www.eneko.com.tr

📱 + 90 536 713 10 00   ✉ servis@eneko.com.tr

PROHIBITED

- This unit has to be used under proper conditions according to its technical specification and design purpose. (Otherwise responsibility belongs to practitioner)
- Unauthorized personnel must not interfere in unit and/or must not use unoriginal spare parts. (Otherwise responsibility of failure that may occur belongs to practitioner)
- Do not install this product in a refrigerated warehouse, heated swimming pool or other location where temperature and humidity are significantly different. (Failure to heed this warning may result in electrical shock or malfunctioning.)
- Do not install this product where it will be directly exposed to rain. (Failure to heed this warning may result in electrical shock or malfunctioning.)
- Do not install this product in a location where acid, alkali or organic solvent vapors, paints or other toxic gases, gases containing corrosive components or high concentrations of oily smoke are present (Failure to heed this warning may result not only in malfunctioning but also fire, power leakage and electrical shock.)
- Do not use this product outside the range of its rated voltage and control capacity.

ATTENTION

- Install this product in an environment where the temperature ranges from -10 °C to +40 °C and the relative humidity is less than 60%. If condensation is expected to form, heat up the fresh outside air by a duct heater etc.
- Select an adequately sturdy position for installing the product and install it properly and securely.
- Use the designated electrical wires for the terminal board connections and connect the wires securely so that they will not be disconnected. (Failure to ensure proper connections may result in fire.)
- When passing metal ducts through wooden buildings clad with metal laths, wire laths or metal, these ducts must be installed in such a way that they will not make electrical contact with metal laths, wire laths or metal sheets. (Power leakage can cause ignition.)
- The outside ducts must be tilted at a gradient (1/30 or more) downwards toward the outdoor area from the main unit, and properly insulated. (The entry of rain water may cause power leaks, fire or damage to household property.)
- Gloves should be worn while installation. (Failure to heed this warning may result in injury.)
- A dedicated circuit breaker must be installed at the origin of mains power supply. This circuit breaker must be provided with a means for locking (lock and key).
- The body of the unit, room control panel and cables keep away the unit 3 m. distance.

- This product must not be disassembled under any circumstances. Only authorized repair technicans are qualified to conduct disassembly and repairs.
  (Failure to heed this warning may result in fire, electrical shock or injury.)

- Connect the product properly to the ground. (Malfunctioning or power leaks can cause electrical shock.)

- An isolator switch having minimum contact gap of 3 mm in all poles must be provided as a means of disconnecting the power supply.

NOTE: The installations, which is not available for installation and operation manual, is out of guarantee.

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CHECK LIST

In the event of unit failure and pre-commissioning checks to be made are determined as follows; after checking this information, please contact our company in case failure continues.

| Controls	√
Make sure that the unit receives power and electrical grounding is made!	
Make sure that the electricity cables are drawn from in the correct cross section! (Please check whether there is heating on cables or not.)	
Please check whether the cables in unit control panel are shielded (shielded magnetic field) or not; make sure shielding is grounded. If not, please change them!	
Make sure that fresh air and exhaust air filters are clean and they do not block the flow of air!	
Make sure there is the connection of drainage on the unit, check any possible clogging in drainage line and clean if necessary!	
Please check whether the diameter of the air duct connection of the unit and the diameter of the spigot are the same. If the duct connection is smaller, change it with the correct one.	
Make sure the electrical connections of the unit are made as suggested on the unit and in this guide, check if there is incorrect connection.	
Make sure during the installation of the unit there is enough space for the service and if there is not enough space, re-install again.	
In extremely cold climate applications, frost may occur on the exchanger, apply electric heater in fresh air intake section of the unit to get the temperature to -5 °C and above.	
After installing the unit, make sure that it does not create an abnormal sound or vibration, if there is, make sure that rubber pads are used.	

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TECHNICAL SPECIFICATIONS

Product Model Identifier			ENVU ECO 500	ENVU ECO 800	ENVU ECO 1200	ENVU ECO 1500	ENVU ECO 2200	ENVU ECO 2500
Manufacturer			ENEKO					
Erp			Yes					
Heat recovery		(EN 308)	Yes					
Heat recovery efficiency[1]	%	(EN 308)	>75					
Heat recovery efficiency[2]	%		>82					
Max. air flow range	m³/h	(at 0 Pa)	590	860	1.300	1.595	2.720	3.000
Nominal air flow range	m³/h	(at 150 Pa) (EN 308)	450	700	1.000	1.350	2.100	2.500
Max. air flow range	m³/h	(at 150 Pa)	465	730	1.120	1.370	2.490	2.770
Max. air flow range	m³/h	(at 200 Pa)	455	680	1.070	1.300	2.410	2.690
Nominal external pressure	Pa		150	150	150	150	150	150
Unit Voltage	V		230	230	230	230	400	400
Key Points			1) Low Noise (due to 30 mm insulation) 2) Easy Service access 3) Compact structure - fit in small areas					
Control options			Enecon Plus as standard					
Bypass			On/Off (Partial)					
Fan Motor			EC Fan					
Ventilator / Fan Material			Composite / Metallic Impellers as standard					
Heat Exchanger technology			Counterflow Aluminum					
Configuration / installation			Internal use only					
Installation Version			Both Right and Left versions are available					
Supply Air Filter			ISO ePM1 >50% (F7)					
Exhaust Air Filter			ISO ePM10 >50% (M5)					
Duct Connections			Round					
Casing material			Galvanize Sheet					
Insulation Panel thickness			30 mm Double Wall - Rockwool					
Deicing Control			With outdoor air temperature sensor					
Service access From below			With sliding rail solution					
Accessories / Coils			1) Electrical Heating coil as external accessory / placed in the duct. 2) Water Cooling coil / Changeover coil / DX Cooling as external accessory (droplet eliminator as standard). 3) Water heater to be placed outside the unit. 4) Filter as internal accessory. (ISO ePM1 >80% as standard)					

[1] EN 308 condition (OA = 5°C & 72%, RA = 25°C & 28%).

[2] Wet efficiency refered to nominal airflow, outdoor (-5°C/80% RH) and indoor conditions (20ºC/50%RH).
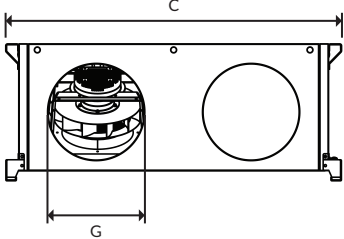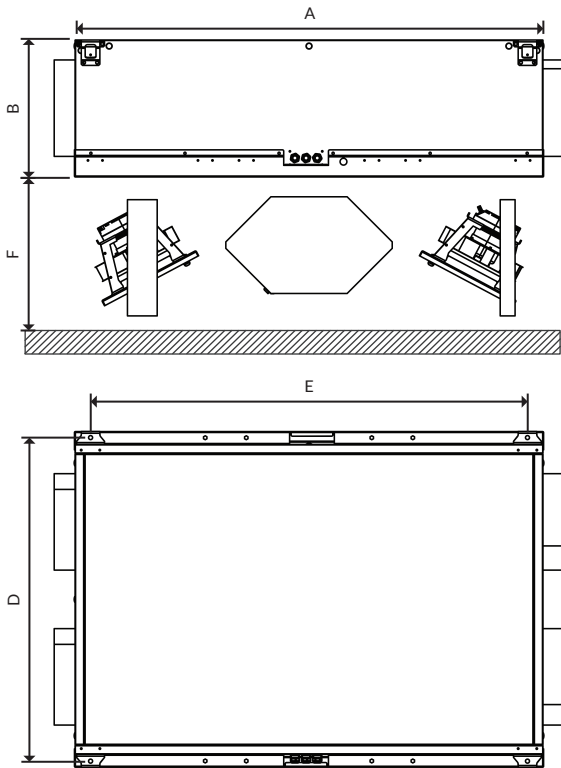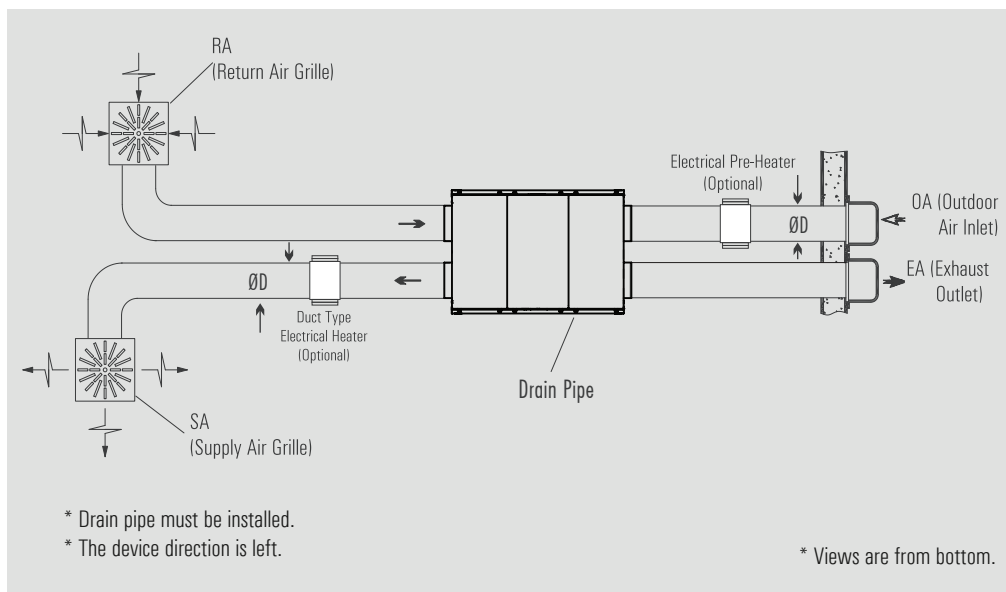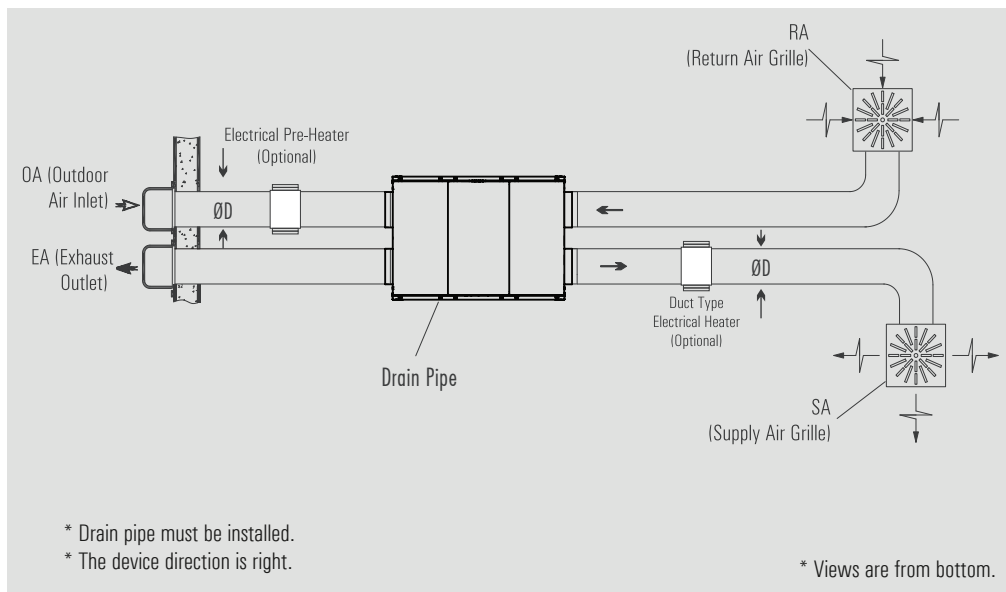
* "F" values indicate the size of the service area.
A service space of "F" must be left under the unit for fan service.
Drain pipe must be installed.

	A	B	C	D	E	F	ØG	Unit Weight
ENVU-ECO 500	1310	290	783	744	1210	522	200	57
ENVU-ECO 800	1410	380	1083	1044	1310	621	250	85
ENVU-ECO 1200	1510	440	1083	1044	1410	662	300	118
ENVU-ECO 1500	1510	440	1287	1250	1410	662	315	130
ENVU-ECO 2200	1760	500	1287	1250	1660	744	355	145
ENVU-ECO 2500	1760	500	1587	1550	1660	744	355	150

* All measurement values are mm.
* Unit weight is kg.

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RA
(Return Air Grille)

Electrical Pre-Heater
(Optional)

OA (Outdoor
Air Inlet)

ØD

EA (Exhaust
Outlet)

Duct Type
Electrical Heater
(Optional)

ØD

Drain Pipe

SA
(Supply Air Grille)

* Drain pipe must be installed.
* The device direction is right.

* Views are from bottom.

RA
(Return Air Grille)

Electrical Pre-Heater
(Optional)

OA (Outdoor
Air Inlet)

ØD

EA (Exhaust
Outlet)

ØD

Duct Type
Electrical Heater
(Optional)

Drain Pipe

SA
(Supply Air Grille)

* Drain pipe must be installed.
* The device direction is left.

* Views are from bottom.

NOTE: Bottom view * The gaps of the maintenance area are specified as "F" on the technical picture. ("Unit Dimension" is on page 5)

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INSTALLATION

Extremely Sharp Bends
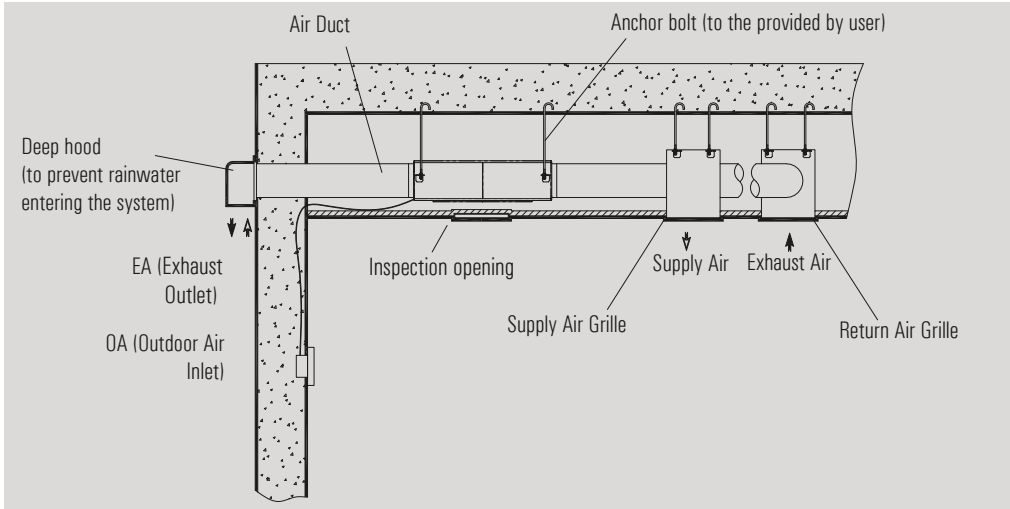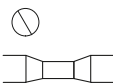
Multiple Bends

Bends right next to the outlet

Extreme Reduction in the diameter of the connected ducts

Air Duct

Anchor bolt (to the provided by user)

Deep hood
(to prevent rainwater entering the system)

EA (Exhaust Outlet)

OA (Outdoor Air Inlet)

Inspection opening

Supply Air Grille

Supply Air

Exhaust Air

Return Air Grille

Preparing The Sling Bolts

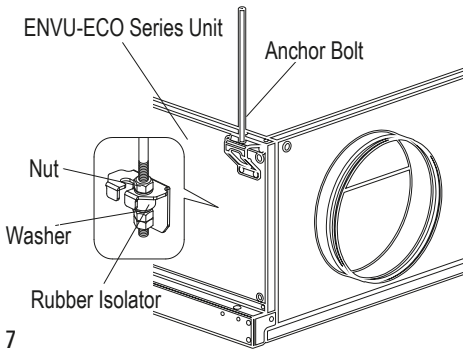Anchor Bolt (M12)

Nut

Rubber Isolator

Washer

Nut (kontra)
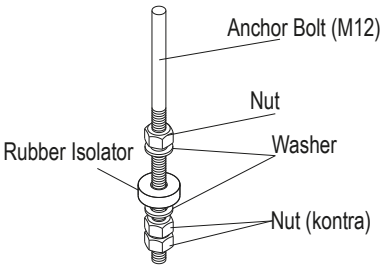
Hang the suspension braket on the anchor bolts and adjust in such a way that the unit is installed horizontally. Tighten up securely using double nuts in order to prevent looseness.

! WARNING
Check the stability of sling bolts during the installation.

Installation Of The Unit

ENVU-ECO Series Unit

Anchor Bolt

Nut

Washer

Rubber Isolator

Hang the unit on the anchor bolts and adjust in such a way that the unit is installed horizontally. Tighten up securely using double nuts in order to prevent looseness.

Unit Model ENVU-ECO	Unit Voltage (V)	Unit Power Input (kW)	Current (A)	Fuse (A)	Cable Cross-Section(mm²) for 50M and PF = 0.8
500	230	0,36	2,58	4	1,5
800	230	0,36	2,58	4	1,5
1200	230	0,74	5,18	6,3	2,5
1500	230	0,80	3,58	4	1,5
2200	400	1,76	3,18	3x4	1,5
2500	400	1,76	3,18	3x4	1,5

The data in the table shows the maximum power/current values. Please check unit label for updated values.

Cable Cross-Section Formulas

1

$$I_{current} = \frac{P}{U.CosQ}$$

$I_{cable} > I_{current}$

2

$$\%e = \frac{100.P.L}{k.S.U^2} \ , \ S = \frac{100.P.L}{k.\%e.U^2}$$

$\%e = \%3$

3

$I_{cable} > I_{fuse} \geq I_{current}$

Cable Cross-Section S = Max (S1, S2, S3, 1.5mm²)

P : Power
I : Current
U : Voltage
S : Conductor cross section
k : Conductor coefficient
L : Conductor length
%e : The voltage drop

Example of Cable Cross-Section Calculation

P : 1 kW   L : 50m
U : 230V   %e : %3
PF : CosQ: 0.8   k : 56m / Ω

1

$$I_{current} = \frac{1000 \text{ W}}{230.0,8} = 5.43 \text{ A}$$

The cable will be used, is selected from the cable cross-section table so that the equivalent ampere value in the table should be higher than calculated "I current" value.

S1 = 1.5 mm²

2

%e = %3

$$S = \frac{100.1000.50}{56.3.230^2} = 0.56 \text{ mm}^2$$

S2 ≥ 0.56 mm² ≥ 0.75mm²

S2 = 0.75mm²

3

$I_{cable} > I_{fuse} \geq I_{current}$

$I_{cable} > 10A \geq 5.43A$

"I fuse"which will be higher than "I current", is selected.

The cable will be used, is selected from the cable cross-section table so that the equivalent ampere value in the table should be higher than selected "I fuse" value.

I cable = 24A
S3 = 1.5 mm²
Cable cross-section S = Max (S1, S2, S3, 1.5 mm²)
S = Max (1.5, 0.75, 1.5, 1.5)
S = 1.5 mm²

- TURN OFF all the power switches before the maintenance is performed.
- Do not operate the system without the air filter to protect the components of the unit against being clogged.
- Clean up the air filter more than once in a year.
- Clean up the heat exchanger more than once per year.

### Opening and Closing the Service Covers
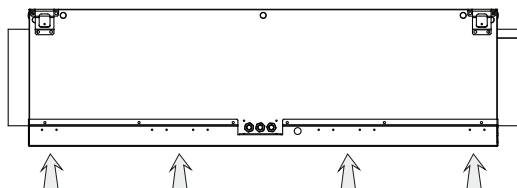
1. Carefully lower the cover and place it onto the sliding rail mechanism.
2. Slide the cover sideways along the rail to access internal components.
3. Apply the same procedure for all service covers on the unit.
4. After completing the service, slide the cover back along the rail to its original position.
5. Secure the cover in place by tightening the fastening screws.
6. Once all procedures are completed, safely restore power to the unit.

| ! CAUTION |
|---|
| Disconnect the power supply before starting any operation. Remove the screws from the connection points indicated by the arrows in the image below. |

Fan Service
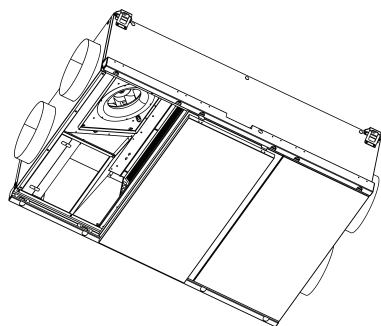
! CAUTION
Disconnect the power supply before starting any operation. Do not operate the unit unless the fan housing is securely fastened to the device.

1. Remove the screws of the unit's service cover.
2. Slide the opened covers to the side along the sliding rail to create an access area
3. Disconnect the fan's electrical connections by unplugging the sockets.
4. Unscrew the screws securing the fan assembly using an appropriate tool.
5. Gently slide the fan assembly downward and remove it from its housing.
6. Carefully place the new or existing fan assembly into the unit.
7. Secure the fan housing to the device body by tightening the screws.
8. Reconnect the fan sockets.
9. Close the unit's cover and restart the system.

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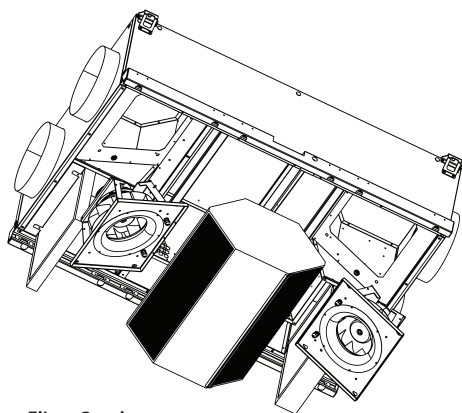
Filter Service

1. Slide the opened covers to the side along the sliding rail to create an access area
2. Rotate the filter locking plates located at the right and left corners of the filter mechanism so that they align with the filter mechanism.
3. Remove the filter gently.
4. Place the new filter into the filter slot and close the securing clip.
5. Close the unit's cover and restart the system.

! CAUTION
Disconnect the power supply before starting any operation. Remove the screws of the unit's service cover.

E-Box Service

1. Open the middle cover of the unit.
2. Remove the fastening screws to open the control box cover.
3. After completing the necessary procedures, close the control box cover.
4. Close the service cover and safely restart the system

! CAUTION
Disconnect the power supply before starting any operation.

Heat Exchanger Service

1. Open the middle cover of the unit.
2. Remove the condensate tray and carefully pull out the heat recovery heat exchanger.
3. After completing the procedure, first reinstall the heat recovery heat exchanger, then the condensate tray.
4. Close the service cover and safely restart the system

! CAUTION
Disconnect the power supply before starting any operation. The maximum weight of heat exchanger is 18kg.

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Warranty Certificate

* If the unit is used according to the instructions given in user manual and interfered in only authorized technical service that we authorize about any maintenance and repair reasons, all spare parts will be under warranty for 2 years against material, labor and production faults except motor components.
* Identifying of parts replaced and determining troubleshooting technical procedure applied, will belong to our company.
* After ex-works of goods, all faults during loading, unloading and shipment will be out of guarantee. If a falsify has been made on documents or any falsify and changing have been made on serial number, goods will be out of guarantee.

Terms of Guarantee

1. Guarantee period is 2 years as from the time of delivery.
2. All spare parts except motor components are under warranty.
3. If the goods break down during guarantee period, the time spent for maintenance will be added to guarantee period. Maintenance period is 30 days at most. 30 days begin with the notice to a service station. If there is no service station, 30 days begin with the notice to the seller, dealer, agency, agent, importer or manufacturer of the goods.
4. If production fault occurs during guarantee period; the cost of new spare part and labor will not be claimed from the customer.
5. If a fault occurs because of not using or assembling according to the instructions given in user manual, goods will be out of guarantee.

UNIT TYPE

SERIAL NO

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