



e-MovAir

Packaged air handling unit

Installation & Operating Manual



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INTRODUCTION

All the technical and technological information contained in this manual, including any drawing and technical descriptions provided by us, remain the property of LENNOX and must not be used (except in operation of this product), reproduced, issued to or made available to third parties without the prior written agreement of LENNOX.

GENERAL DESCRIPTION

The e-MovAir range of units is a package air handling unit for cooling and heating solution for the climatic comfort of premises.

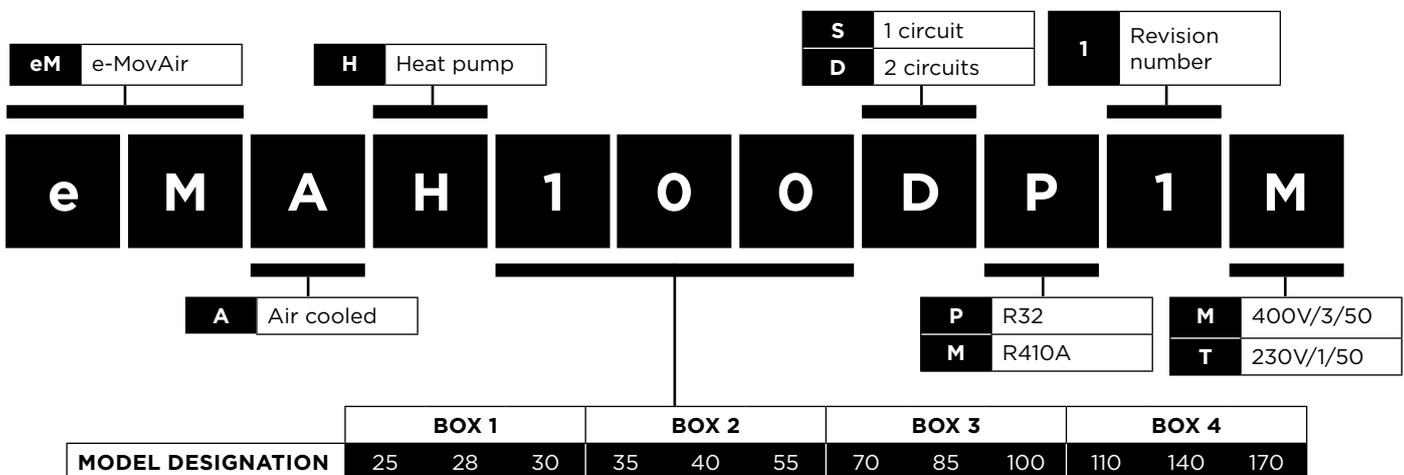
SAFETY CODES & REGULATIONS

The unit is designed for indoor and outdoor installation (if weatherproof option). The unit must be installed in accordance with local safety codes and regulations and can only be used in well ventilated area.

Inspections and requalification according pressure equipment directive must follow the local regulations where the unit is installed. Commissioning, monitoring, periodic verification and requalification obligations may be made mandatory in some countries. Please refer to it when installing the equipment. Each stakeholder in the product life cycle should take into account the recommendations of his supplier and carry out a risk analysis in order to implement all necessary measures to eliminate the risk or limit its effects if it cannot be deleted. Each stakeholder should warn their client of residual risks.

You must read and be familiar with this operating manual prior to commission the unit. Please closely follow the instructions. We would like to stress the importance of training with respect to the correct handling of the unit. Please consult LENNOX on the options available in this field. It is important that this manual is stored in a permanent location in the vicinity of the unit.

MACHINE DESIGNATION



AIR FLOR RANGE

MODEL REFERENCE		eM03AH025	eM04AH028	eM05AH030	eM06AH035	eM07AH040	eM09AH055	eM10AH070	eM13AH085	eM17AH100	eM18AH110	eM24AH140	eM30AH170		
Nominal air flow rate		3500	4500	5500	5500	7200	9900	8600	13500	18500	17500	24000	30000		
Minimum air flow rate	m ³ /h	3500	3500	4000	5500	6300	8300	8600	10000	15600	17500	20000	26000		
Maximum air flow rate		4500	5000	5500	6350	8280	9900	10000	15600	18500	20300	27600	30000		
DIMENSIONS															
Width	mm	1360				2270			2270			2270			
Length	mm	3990					4770			5070			5670		
Height	mm	1360				1460			1940			2490			
Weight*	kg	1100			1400			1750			2300				

*Average weight without options. Need confirmation depending real selection.

EMC DIRECTIVE COMPLIANCE

WARNING:

This equipment is a “B class” according EMC Directive. In an industrial environment, this device can create radio electrical noise. In this case, the owner can be asked to take appropriated actions.

The units meet the following hardest environments standards:

- EN 61000-6-3: program for environment residential, commercial and light industry.
- EN 61000-6-2: immunity for industrial environments

This applies to all machine installed with nominal amps below <75A:

- The short-circuit rate $R_{sce}=33$ is defined in the EN61000-3-12 standard relative to the harmonics readings on the supply network. The appliances compliant with the harmonic current limits equivalent to $R_{sce}=33$ can be connected in whatever connection point of the main supply system.
- The maximal allowable impedance of the main supply system $Z_{max}=0.30 \Omega$ for units C,D,E,E+ and $Z_{max}=0.143\Omega$ for units F,G,H is defined by EN 61000-3-11 standard relative to the voltage variation, fluctuation and flicker readings. The connection to the supply is a conditional connection submitted to the preliminary agreement of the power supply local provider.

The differences between the various machines are only related to the power of the compressors and equipment that are associated. For conducted and radiated emission and immunity, these differences do not alter the results.

F-GAS REGULATION

PLEASE READ THE SAFETY DATA SHEET OF THE REFRIGERANT BEFORE ANY INTERVENTION OR INSTALLATION OF THE MACHINE.

Operators of refrigeration equipment's must comply with the obligations defined in

- Regulation on Fluorinated greenhouse gases (F Gas)
- Regulation on substances that deplete the ozone layer

Non-compliance with these requirements is an offence and liable of financial penalties.

Moreover, in case of problem it is mandatory to prove to the insurance company that the equipment complies with the F gas Regulation

WARRANTY

The warranty of the unit is subject to the warranty definitions as agreed upon in the order. It is expected that the design and installation of the unit utilizes good working practices. The warranty will be legally null and void if:

- Service and maintenance have not been executed in accordance with the regulations; repairs have not been carried out by LENNOX personnel or have been implemented without prior written permission by LENNOX.
- Modifications have been made to the equipment without prior written permission by LENNOX.
- Settings and protections have been modified without prior written permission by LENNOX.
- Non-original or other than the prescribed refrigerants or lubricants are used.
- The equipment has not been installed and/or connected in accordance with the installation instructions.
- The equipment is being used improperly, incorrectly, negligently or not in accordance with its nature and/or purpose.

- A flow protection device is not fitted.
- The unit maintenance booklet is not complete or not available.

In these circumstances LENNOX is indemnified from any product liability claims from third parties.

In the event of a warranty claim the machine serial number and LENNOX order number must be quoted.

NOTES FOR UNIT FITTED WITH GAS BURNER

THE UNIT MUST BE INSTALLED IN ACCORDANCE WITH LOCAL SAFETY CODES AND REGULATIONS AND CAN ONLY BE USED IN WELL VENTILATED AREA.

IF MACHINE IS INCLUDING GAS BURNER, MINIMUM CLEARANCE AROUND THE UNIT MUST BE AT LEAST 8M TO ALLOW A PROPER GAS FLUE DILUTION. IF NOT POSSIBLE, THE FRESH AIR INTAKE MUST BE DUCTED AT LEAST 8M AWAY FROM THE GAS BURNER EXHAUST.

PLEASE READ CAREFULLY THE MANUFACTURER'S INSTRUCTIONS BEFORE STARTING THIS UNIT

Switchgear must be installed on each unit in accordance with the Machine Directive and the standard EN 60204.

THIS MANUAL IS ONLY VALID FOR UNITS DISPLAYING THE FOLLOWING CODES:

GB IR GR DA NO FI IS

In case these symbols are not displayed on the unit, please refer to the technical documentation which will eventually detail any modifications required to the installation of the unit in a particular country.

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The technical information and specifications contained in this manual are for reference only. The manufacturer reserves the right to modify these without warning and without obligation to modify equipment already sold

SAFETY

The safety information contained in this manual is provided as a guide for the safe handling of this installation. LENNOX does not vouch for the completeness of this information and can therefore not accept liability for any possible omissions. In the roof tops, heat is being transported by a pressurized refrigerant, with changes in pressure and temperature. For air cooled roof tops, fans have been provided to discharge heat into the environment. The protection of operating and maintenance personnel was central in the design of the roof top. Safety features have been included to prevent excessive pressure in the system. Sheet metal parts have been fitted to prevent inadvertent contact with (hot) pipes. For air cooled roof tops, the fans are equipped with protective grids and the electrical control panel is completely touch-proof. This excludes some parts operating at a safe voltage (< 24 Volt). The service panels can only be opened using tools.

The electrical control panel is completely touch-proof. This excludes some parts operating at a safe voltage (< 50 Volt). The service panels can only be opened using tools.

Notwithstanding that the units are equipped with extensive safety and protection features, the utmost care and attention is needed when carrying out operations on the machine. Furthermore, ear protection should be worn when working on or in the vicinity of the roof tops. Operations on the cooling circuit or electrical equipment should be carried out by authorized personnel.

It is essential to follow non exhaustive recommendations hereunder:

Never work on a unit that is still energized. Wait 15 minutes before working on the machine after a power outage (discharge of the capacitors).

Any manipulation (opening or closing) of a shut-off valve must be carried out by a qualified and authorized engineer. These procedures must be carried out with the unit shut-down.

- Never work on any of the electrical components, until the general power supply to the unit has been cut. During any maintenance operations on the unit, lock the power supply circuit in the open position ahead of the machine. If the work is interrupted, check the lock before resuming the work.
- **WARNING:** Even if the unit has been switched off, the power circuit remains energized, unless the unit or circuit disconnect switch is open. Refer to the wiring diagram for further details.
- In case of maintenance operations on fans (grills replacement ...) ensure that the power is shut off to avoid automatic restart.
- Before the opening of the refrigerant circuit, check the pressure with manometers or pressure sensors, and purge the circuit.
- Never leave a unit stopped with valves closed on the liquid line, refrigerant could be trapped and the pressure would rise.
- All installation parts must be maintained by the personnel in charge, in order to avoid material deterioration and injuries to people. Faults and leaks must be repaired immediately. The authorized technician must have the responsibility to repair the fault immediately. Each time repairs have been carried out to the unit, the operation of the safety devices must be re-checked.
- Follow guidance and recommendations given in safety and machine standards such as EN378, ISO5149, etc.
- Do not use oxygen to purge lines or to pressurize a machine for any purpose. Oxygen gas reacts violently with oil, grease, and other common substances.
- Never exceed the specified maximum operating pressures.
- Verify the allowable maximum high- and low-side test pressures by checking the instructions in this manual and the pressures given on the unit name plate.
- Do not use air for leak testing. Use only nitrogen or dry nitrogen.
- Do not unweld or flame cut the refrigerant lines or any refrigerant circuit component until all refrigerant (liquid and vapor) has been removed from roof top. Traces of vapor should be displaced with dry air nitrogen. Refrigerant in contact with an open flame produces toxic gases.
- Do not siphon refrigerant
- Avoid spilling liquid refrigerant on skin or splashing it into the eyes. Use safety goggles. Wash any spills from the skin with soap and water. If liquid refrigerant enters the eyes, immediately and abundantly flush the eyes with water and consult a doctor

High temperatures	Electrical Voltage	Rotating parts	Sharp parts
A2L: slightly flammable	Wear of PPE (Personal protective equipment)	Warning - Inflammable dusty filters	Don't walk
Don't strap	Warning main switch supplied from bottom	Gravity center	OK to send document
Protection by water filter mandatory	Protection by strainer filter mandatory	Transport of non-flammable liquefied gas	Transport of flammable liquefied gas
Information to read	CMIM marking (Morocco)	Electrical connections can loosen during transport. Please check them before start-up.	
CE marking	CA marking (UK)		

SAFETY DEFINITION

- The rooftops meet the following safety definitions, and is provided with CE markings if applicable (for further information see EU declaration).
- EN-378-2016
- 2006/42/EC “Machine Directive”
(Directive 2014/35/EU relating to low voltages taken into account in the machine directive according to Annex 1 §1.5.1)
- EN-60204-1
- 2014/30/EU “EMC Directive”
- Pressure Equipment Directive 2014/68/EU
- EU 517/2014 F-Gas
- 2009/125/EC Ecodesign
- EU 2016/2281 Rooftop
- Gas Equipment Regulation EU 2016/426
- 2015/863/EU RoHS directive
- 2012/19/EU WEEE
- EC 1005/2009
- 1907/2006/UE REACH

LABELS

The rooftop may be marked with the following warning labels to alert to potential hazards (on or near the potentially hazardous part). The rooftop may include the following labels.

Regularly check that the warning labels are still in the correct positions on the machine and replace them if necessary.

- Attention: The high-pressure safety switches are essential elements which guarantee the system remains within the admissible operating limits. Before switching on the installation, always ensure all electrical connections are correct on these elements which are used to isolate the electrical power supply to the compressor(s) they protect. Carry out a test to ensure the electrical power supply is effectively isolated when the pressure switch attains its set value.
- In case of installation in a seismic zone or in a zone which may be effected by violent natural occurrences such as storms, tornados, floods, tidal waves, etc..., the installer and/or operator will refer to valid standards and regulations in order to ensure the devices required are available as our units are not designed to operate under such conditions without prior precautions.
- The equipment is not designed to resist fire. The installation site will therefore have to respect valid standards with regard to protection against fire (emergency instructions, map...).
- In case of exposure to corrosive external atmospheres or products, the installer and/or operator shall take the necessary precautions to avoid damage to the equipment and will make sure the equipment provided has the necessary and sufficient anti-corrosion protection.
- To respect a sufficient number of supports for the piping according to their size and weight under operating conditions and to design the piping to avoid a water hammer phenomenon
- For technical reasons, it is not possible to carry out hydrostatic tests on all our units so leak tests are carried out as a compensatory measure. (The entire circuit is checked using leak detectors). For machines charged with refrigerant, at the end of the test, an HP test is carried out in the factory to make sure the pressure switch is working properly.
- Before any work is carried out on the refrigeration circuit, the dry air or nitrogen pressure our units are supplied with must be released (For units not charged with refrigerant in the factory.)
- The emissions of refrigerant via the safety relief valves must be channeled to the exterior of the machine room. The outlet relief valve will have to be sized in compliance with EN13136.
- Installation and maintenance of these machines must be carried out by personnel qualified to work on refrigeration equipment.
- All interventions must be carried out in conformity with valid safety regulations (e. g.: EN 378), as well as the recommendations indicated on the labels and handbooks provided with the machine. All actions shall be taken to avoid access of unauthorized persons.
- It is essential that any pipework or other components of the refrigeration circuit hazardous to people because of their surface temperature are insulated or identified.
- Ensure that the installation zone (room or area) of the machine has restricted access and ensure the good condition of the covering.

MAIN SAFETY RECOMMENDATIONS

All work on the unit must be carried out by a qualified and authorized employee.

Non-compliance with the following instructions may result in injury or serious accidents.

WORK ON THE UNIT:

The risk analyses of our machines are carried out taking into account operation in a standard environment with unpolluted air. For all specific applications (Kitchen, industry, ...) please contact your local sales representative.

- The unit shall be isolated from the electrical supply by disconnection and locking using the main isolating switch.
- Workers shall wear the appropriate personal protective equipment (helmet, gloves, glasses, etc.).

WORK ON THE ELECTRICAL SYSTEM:

- Work on electric components shall be performed with the power off by employees having valid electrical qualification and authorization.

WORK ON THE REFRIGERATING CIRCUIT(S):

- Monitoring of the pressures, draining and filling of the system under pressure shall be carried out using connections provided for this purpose and suitable equipment.
- To prevent the risk of explosion due to spraying of coolant and oil, the relevant circuit shall be drained and at zero pressure before any disassembly or unbrazing of the refrigerating parts takes place.
- There is a residual risk of pressure build-up by degassing the oil or by heating the exchangers after the circuit has been drained. Zero pressure shall be maintained by venting the drain connection to the atmosphere on the low pressure side.
- The brazing shall be carried out by a qualified brazier. The brazing shall comply with standard EN1044 AG107 (minimum 30% silver).
- Companies and personnel working on the machine must have their certificate of capacity for the company and certificate of competence for the operators.

REPLACING COMPONENTS:

- Replacement of components shall be carried out using spare parts, or using parts approved by Lennox.
- Only the refrigerant shown on the manufacturer's nameplate shall be used.

PARAMETERING AND CONTROL:

- For any intervention related to component parameterization, controls and unit operation management, refer to Control manual.

FILTERS:

- Do the filters fire classification's choice according to local regulations

TRANSPORT - HANDLING

- Never lift the unit without forklift protections
- Remove the forklift protection before installation
- An approach ramp must be installed if the unit's installation requirements tell that it's necessary to reach the main switch. This recommendation is valid for installations in general and in particular for return and curbs. It's also valid to reach other parts of the unit: filters, refrigerant circuit, etc...
- It's advised to fix curbs and roofcurbs to the unit
- Installation of the unit and accessibility must be compliant with the local regulations. Ensure that all access equipment allow maintenance operation in safety (electrical cabinet, main switch, panels, filter, refrigerant circuit...)
- It is strictly forbidden to walk or store equipment or material on top of the rooftop unit
- Equipment designed to withstand transport and handling according to the established protocol (for the handling protocol, please refer to the installation instructions for the relevant product range).
- All unloading operations must be carried out with suitable equipment (crane, forklift truck, etc.).
- When using a forklift truck, you must respect the positions and the direction of handling indicated on the products.
- The equipment must be handled with care to avoid damage to the bodywork, pipework, condenser, etc.

ROOFTOP INSTALLATION IN HEAVY WIND LOCATIONS

- The roofcurbs (vertical & horizontal) and rooftops installations are designed to withstand winds up to 80 km/h. Above this limit, it's recommended to take appropriate actions to secure the installation.
- Ensure the fresh air inlet does not face prevailing wind direction.

COMMISSIONING:

- It must only be carried out by trained refrigeration engineers.
- Don't forget to open the insulation valve on the liquid line before starting the unit

FAN COMPARTMENT

- Stop the power before accessing the fan compartment.

Warning: the unit is working under pressure. Never open the panels when the unit is working. Even after shutting down the unit, wait for 2 minutes until the fans are completely stopped before opening any panel.

GAS

- Any work on gas module must be carried out by qualified personnel
- A unit with gas module must be installed in accordance with local safety codes and regulations and can only be used in planned installation conditions for outdoor.
- Before commissioning this type of unit, it's mandatory to ensure that the gas distribution system is compatible with the adjustment and settings of the unit.

WARNING

- The units are not designed to resist to a fire. The installation site must comply with the standards relating to fire protection.
- In case of installation of the units in an area recognized as being potentially at risk for natural phenomena (tornado, earthquake, tidal wave, lightning...), please follow the standards and regulations, and provide the necessary devices to prevent from these risks.
- In the event of fire, refrigerating circuits can cause an explosion and spray coolant gas and oil.

DELIVERY CHECKS

On receipt of a new equipment please check the following points. It is the customer's responsibility to ensure that the products are in good working order:

- The exterior has not been damaged in any way.
- The lifting and handling equipment are suitable for the equipment and comply with the specifications of the handling instructions enclosed here-in.
- Accessories ordered for on-site installation have been delivered and are in good working order.
- The equipment supplied corresponds to the order and matches the delivery note.

If the product is damaged, exact details must be confirmed in writing by registered post to the shipping company within 48 hours of delivery (working days). A copy of the letter must be addressed to Lennox and the supplier or distributor for information purposes. Failure to comply will invalidate any claim against the shipping company.

RATING PLATE

The rating plate provides a complete reference for the model and ensures that the unit corresponds to the model ordered. It states the electrical power consumption of the unit on start-up, its rated power and its supply voltage. The supply voltage must not deviate beyond: +5/-5%. The start-up power is the maximum value likely to be achieved for the specified operational voltage. The customer must have a suitable electrical supply. It is therefore important to check whether the supply voltage stated on the unit's rating plate is compatible with that of the mains electrical supply. The rating plate also states:

- year of manufacture
- weight of the unit
- type of refrigerant used + GWP*
(*Global warming potential)
- required charge for each circuit
- operating Pressure min/max
- operating Temperature min/max

CE marking: 5 possible cases

- CE
- CE0038
- CE1312
- CE0038 + CE1312
- Absence of CE marking (outside the EC only)

1.0. CHECKS BEFORE SHIPMENT

All of the e-MovAir series air handling units, before being sent, undergo a series of strict checks, as listed below.

- Dimensional checks to ensure that the actual dimensions of the unit comply with those described in the constructional drawing undersigned by the customer.
- Visual inspection of the finishes
- Checks to ensure all the components are integral
- Functional test on the electric motors and the humidification pumps
- Visual check to ensure the fan impeller is balanced
- Water seal test on the tanks
- Gasket seal test
- Locking of the dampers in the closing position
- Securing of the coils (medium and large sizes only) for transport, to be released after installation on site.
- Securing of the fan vibration dampers (when considered necessary for the type of transport) which must be released before starting.
- Check to ensure the unit is supplied with all the materials for assembly on site (hardware, silicon and so on). These materials, enclosed in a suitable packaging, are placed inside the ventilating section as standard.
- Application of the identification plates.
- Application of the plates marking the discharges, water fittings, power connections, lifting eyebolts.

Upon customer request, a special certificate can be issued relating to the above checks.

2.0. TRANSPORT

All the units are supplied without packaging. Only upon request, following quotation, packaging is provided in cages, normal or special water- resistant crates, etc.

- The components that, due to technical, constructional, transport or other requirements are not fitted on the unit, but sent separately either inside the unit or otherwise, are specially protected and duly described on the packing list.
- All of the units are divided into constructional sections delivered disassembled; each section can be transported by truck, with a maximum size of 2400 mm (W) x 2500 mm (H). Upon specific customer request, larger units can be made for oversized transport.
- Special care is paid during the loading (truck or container) operations. All the sections making up the units are handled and stowed using special spacers to protect any protruding parts, such as coil fittings, handles, hinges and so on.
- Except where otherwise agreed in advance, no other material must be stacked on the products: the manufacturer declines all liability in the event of damage deriving from such loads



Hinge door mechanism

THE FASTENING OF THE LOAD ON THE TRUCK IS THE RESPONSIBILITY OF THE CARRIER, AND MUST BE PERFORMED, USING STRAPS OR ROPES, SO AS TO AVOID DAMAGING THE CASING. UNDER NO CIRCUMSTANCES USE THE WATER FITTINGS OR THE DOOR HANDLES AS ANCHOR POINTS.

3.0. UNLOADING

3.1. CHECKS UPON RECEIPT

When receiving the goods, before unloading, all the material delivered must be checked to ascertain the presence of any damage caused during transport. Any damage found must be reported to the carrier, accepting the goods with reservation and specifying the type of damage on the delivery documents.

3.2. HOISTING AND HANDLING

The units are fitted as standard with a continuous base frame support, with special holes to insert lifting pipes for hoisting with cables.

Fork lift use is strictly forbidden for all e-MovAir units, except for small sizes eM03AH025 + eM04AH028 + eM05AH030 where additional support feet are provided.

It is strongly recommended:

ATTACH THE CABLES AS SHOWN IN THE FIGURE, INSERTING SPACERS OF AN ADEQUATE LENGTH TO PREVENT THE CABLES FROM DAMAGING THE CASING WHEN TIGHTENED

- Place the goods down with care, avoiding sudden movements or, worse, dropping the goods.

Where the support feet are fitted (sizes eM03AH025 + eM04AH028 + eM05AH030 only), the units can be handled by fork lift:

Caution:

- Widen the forks as much as possible so as to balance the load
- Dip the ends of the forks to avoid damaging the bottom panels

WHEN HANDLING THE UNITS, USE SUITABLE MEANS ACCORDING THE WEIGHTS INVOLVED, AS ENVISAGED BY EC DIRECTIVE 89/391 AND SUBSEQUENT AMENDMENTS

3.3. STORAGE

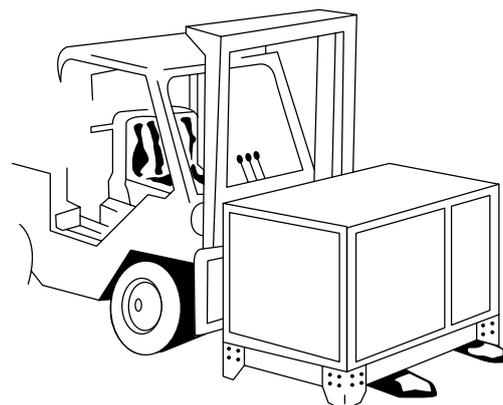
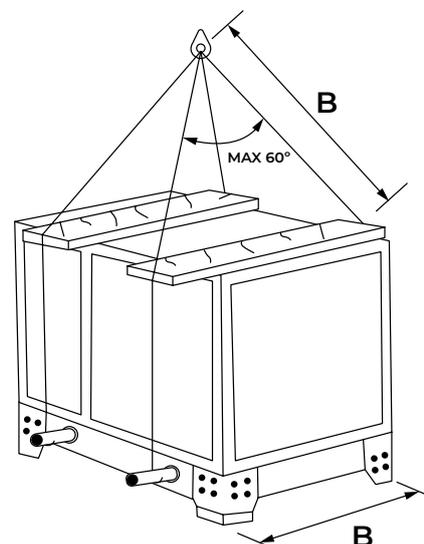
In the event of extended storage before installation, keep the units protected from dust and bad weather and away from sources of vibrations and heat.

THE MANUFACTURER DECLINES ALL LIABILITY FOR DAMAGE DERIVING FROM INCORRECT UNLOADING OR INADEQUATE PROTECTION OF THE UNITS AGAINST THE ELEMENTS.

4.0. UNIT IDENTIFICATION

The e-MovAir series air handling units feature a rating plate that describes the following:

- Address of the manufacturer;
- "CE" mark;



- Model;
- Air flow-rate in m³/h;
- Pressure gain in Pa;
- Serial number;
- Power of the motor/motors installed in kW
- Number of poles of the motor/motors
- Power supply voltage in “V”;
- Power supply frequency in “Hz”;
- Number of phases, indicated by “Ph”
- Date of manufacture.

TO ENSURE A PROMPT RESPONSE TO REQUESTS FOR INFORMATION, WHEN CONTACTING THE OFFICE PLEASE PROVIDE THE UNIT SERIAL NUMBER. THIS WILL ALLOW THE TECHNICAL-SALES DEPARTMENT TO PROVIDE THE REQUIRED INFORMATION CORRECTLY.

5.0. INSTALLATION AND COMMISSIONING

5.1. DEFINITIONS

USER – The user is the person, organisation or company that has purchased or leased the unit and that intends to use it for the purposes it has been designed for.

OPERATOR – The operator is the physical person authorised by the user to operate the machine.

SPECIALIST PERSONNEL - These are people who have been specifically trained and are thus able to identify the dangers deriving from the use of this unit and consequently avoid them.

5.2. SAFETY STANDARDS

**THE MANUFACTURER DECLINES ALL LIABILITY FOR THE FAILURE TO OBSERVE THE FOLLOWING SAFETY STANDARDS.
IT FURTHERMORE DECLINES ALL LIABILITY FOR DAMAGE CAUSED BY THE IMPROPER USE OF THE UNIT AND/OR MODIFICATIONS MADE WITHOUT AUTHORISATION.**

INSTALLATION MUST BE PERFORMED BY SPECIALIST PERSONNEL.

- During installation, always wear suitable safety clothing, for example: glasses, gloves, etc., as described in the EC 686/89 and following standards.
- During installation, all work must be performed in complete safety, in an environment that is clean and free of obstacles.
- Always observe the laws in force in the country where the unit is installed relating to the use and disposal of the packaging and the products used for the cleaning and maintenance of the unit, as well as the recommendations of the manufacturer of such products.
- Before starting the unit, check that the various components and the entire system are in perfect order.
- Never touch or stand between the moving parts.

NEVER START ANY MAINTENANCE OR CLEANING WORK UNTIL THE POWER SUPPLY HAS BEEN DISCONNECTED.

- Maintenance and the replacement of damaged or worn parts must only be performed by specialist personnel, following the instructions provided in this manual.
- The spare parts must correspond to the requirements defined by the manufacturer.

- When decommissioning the unit, observe the legislation in force relating to the prevention of pollution.

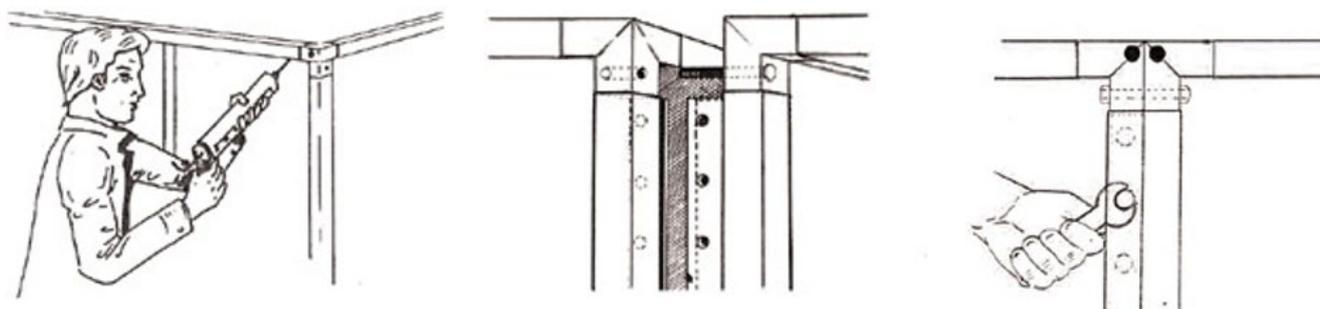
N.B. When operating the unit, the installer and user must consider and prevent all other types of risk relating to the system. For example, risks deriving from the introduction of foreign matter, or alternatively risks due to the intake of dangerous flammable or toxic gases at high temperature

5.3. SELECTING THE SITE OF INSTALLATION

- Make sure that the support surface is able to support the weight of the unit(units) and will not cause vibrations.
- Make sure that the support surface is perfectly horizontal so as to allow the correct coupling of the various sections, if necessary, making up the unit.
- Make sure the unit is level, using, if necessary, spacers below the supports, so as to ensure that the doors open correctly and the pans are drained.
- Never position the unit in rooms where there are flammable gases or acidic, aggressive or corrosive substances that may irreparably damage the various components.
- Leave a minimum amount of free space around the unit, as shown in the figure, so as to allow for installation, maintenance and the replacement of components, such as coils, filters etc.
- If the unit is hung from the ceiling, given the weights involved, all the sections that make up the air handling unit must be connected to the ceiling.

As the motor-fan assembly and the moving parts feature vibration dampers and are dynamically insulated from the structure by the vibration dampers on the base and the flexible joint on the outlet, external vibration dampers are not required.

If, for technical-structural requirements, vibration damping supports are installed between the unit and the support base, elastic joints must also be used on the water fittings (coils, humidifier, drains, etc.) and on the air fittings (air outlets, fan openings, etc.).



5.4. JOINING THE SECTIONS

A special slide-in joint acts as a guide for coupling the various sections together, and ensures perfect seal when assembly is complete.

AS MENTIONED IN PAR. 1.1, THE MATERIALS REQUIRED FOR ASSEMBLY ARE ALL SENT INSIDE THE VENTILATING SECTION

- To assemble the sections making up the unit, proceed as follows:
- Make sure that the support surface is level.
- Apply a bead of silicon, supplied, around the entire perimeter of the joint.
- Bring the sections together, using the slide-in joint as a reference.
- Fasten the self-threading screws, supplied, into the holes provided. These must be screwed in from inside the unit, through the inspection doors or by removing the panels adjacent to the joint, according to the dimensions or the configuration of the unit.

5.5 CONNECTIONS TO THE DUCTS

IMPORTANT: THE UNITS MUST NEVER BE OPERATED IF THE FAN OUTLETS ARE NOT DUCTED OR PROTECTED BY SAFETY MESH, AS PER THE UNI 9219 AND FOLLOWING STANDARDS.

- The ducts must be sized according to the ratings of the system and the characteristics of the fans. Incorrect calculation of the size of the ducting may lead to a drop or an increase in output, causing the activation of any safety devices in the system.
- To prevent the formation of condensate and attenuate the level of noise, insulated ducts should be used.
- Electrical continuity between the duct and the unit must be guaranteed by an earth wire.

5.6. WATER CONNECTIONS

The installation and connection of the pipes are operations that may compromise the correct operation of the system, or worse, cause irreversible damage to the unit. These operations must be performed by specialist person.

5.6.1. COIL WATER CONNECTIONS

The units are supplied with coils with threaded “male” fittings. Upon request, flanged fittings can be supplied.

THE WATER INLET AND OUTLET MUST BE FITTED SO AS TO ALLOW COUNTER-CURRENT HEAT EXCHANGE BETWEEN THE AIR AND THE FLUID (WATER OR WATER AND ANTI-FREEZE MIXTURE), WITH THE INLET AT THE BOTTOM AND THE OUTLET AT THE TOP. FOR THIS REASON, APPROVAL IS ALWAYS REQUIRED OF THE CONSTRUCTIONAL DRAWINGS THAT HIGHLIGHT THE SIDE OF THE FITTINGS. MOREOVER, THE UNITS ARE FITTED WITH SPECIAL PLATES THAT INDICATE THE WATER INLET AND OUTLET.

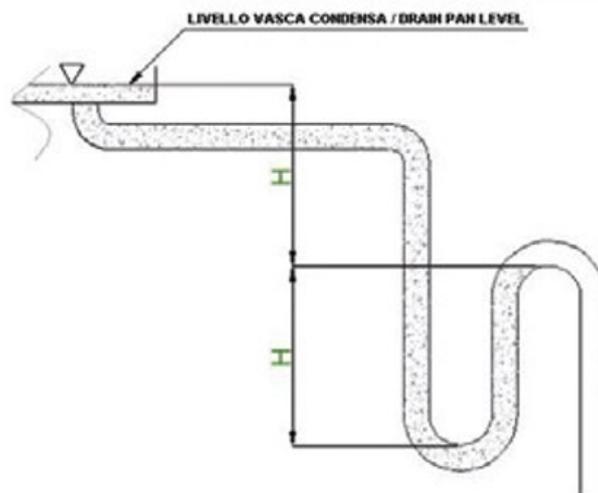
- The direct expansion coils have welded fittings.
- The connections should be tightened with care taken to avoid damage.
- The path of the pipes must be designed so as not to create obstacles when removing the coil or the filter from the unit and to guarantee access to the inspection doors.
- Suitably support the pipes outside of the unit to avoid loading the weight of these onto the coil.
- When the pipes have been connected, push the external rubber gasket firmly against the panel, to avoid air leaks.
- The insulation must touch against the panel, to avoid the risk of burns / condensation.
- Install on-off valves to isolate the coil from the rest of the circuit in the event of special maintenance.
- In the case of installation in particularly cold areas, if the use of an electric anti-freeze device or the addition of anti-freeze (glycol) to the water are not envisaged, empty the system when it remains inactive for extended periods.
- Remove, where envisaged, the fastening bolts for transport so as to restore the play required to guarantee the expansion of the pipes

WARNING: ALWAYS USE TWO SPANNERS WHEN TIGHTENING THE COIL FITTINGS TO THE PIPES, SO AS TO AVOID STRESS (TORSION, THRUST) THAT MAY DAMAGE THE MANIFOLDS INSIDE THE UNIT.

5.6.2. DISCHARGE CONNECTIONS

Connect the discharges from each condensate collection pan to the sewerage system either directly or via the manifold.

- On each pan with discharge, fit a drain trap of suitable height so as to prevent air entering into the system by depression, and stopping the correct drainage of the water. A correct drain trap also prevents the infiltration of bad odours.
- The sizing and the construction of the drain trap must comply with the following formula: $H \geq P$, where P, expressed in mm w.c., is equal to the pressure gain of the unit installed.
- The drain trap must be fitted with a bleeding cap at the lowest point, and must be made so as to allow quick dismantling for more complete cleaning.
- The path of the condensate drain pipe must always slope down towards the outside.
- Check that the condensate drain pipe does not stress the discharge fitting on the unit.



5.7. ELECTRICAL CONNECTIONS

BEFORE STARTING ANY OPERATIONS, MAKE SURE THAT THE MAIN POWER LINE IS DISCONNECTED.

- The electrical connections must be performed by specialist personnel.
- Check that the voltage and frequency shown on the unit's rating plate match the mains power supply.

CONNECT THE UNIT AND ALL ITS ACCESSORIES USING LES WITH A SUITABLE CROSS-SECTION FOR THE POWER RATINGS AND IN COMPLIANCE WITH THE LOCAL STANDARDS IN FORCE. THE SIZE OF THE CABLES MUST IN ANY CASE GUARANTEE A VOLTAGE DROP WHEN STARTING OF LESS THAN 3% OF THE RATED VALUE.

- Never use adapters, multiple sockets and/or extensions in the main power supply to the unit.

THE INSTALLER MUST ENSURE THAT A POWER DISCONNECTING SWITCH AND ANY OTHER DEVICES THAT PROTECT THE ELECTRICAL PARTS ARE INSTALLED AS NEAR AS POSSIBLE TO THE UNIT.

- All the ventilating sections are fitted with door lock safety micro-switches; the connections to the micro-switch must be made by the installer. The micro-switch disconnects power to the motor when opening the inspection door.

CAUTION: WAIT 60 SECONDS BEFORE APPROACHING AND ENTERING THE VENTILATING SECTION, SO AS TO ALLOW THE VENTILATING ASSEMBLY TO COME TO A COMPLETE STOP.

- Connect the unit to an effective earth wire.

6.0. CHECK BEFORE STARTING

Before starting, the air handling unit should undergo the following checks.

1. Check that the discharges are properly connected, ensuring the correct draining of the condensate.

2. Check the perfect operation of the damper mechanisms.
3. Check that the pre-filters are correctly installed.
4. Once realized the connection of the motor(s) of the fan(s), verify with accuracy that the contacts of the electrical clip are suitable according to the power supply.
5. Verify that all electrical components are correctly cabled such as micro switch on doors, lights.
6. Control the ground connection of the structure.
7. Check the protection of the installation according to the actual standards.
8. Check that any blocks of the dampers, fans, compressors, if present, have been removed.
9. Check the sequence of the phases and the correct rotation cycle of the compressors.
10. Check the sequence of the phases and the correct rotation cycle of the plug fans.
11. Control the alignment of the pulleys and the strain level of the belts.
12. Check the refrigerant gas level watching the liquid indicator.
13. Check the oil level of the compressors watching the control light.
14. Check the strain of the belts.
15. Check the electrical absorption of each electrical component installed.
16. Check the methane gas level supply from the pressure gauge.

ALL THE MEASUREMENTS MUST BE MADE WITH THE DOORS CLOSED. THE DOORS SHOULD ONLY BE OPENED WHEN THE UNIT IS OFF.

Generals:

- Rotate by hand all the axles of the fans, to make sure they freely rotate.
- Clean the fans and all internal components of the unit from dirt, in case they remained for long time exposed to external agents.
- Check the blades of the fans, they don't have to be damaged during transport operations.
- Check the seal of the panels and of the inspection doors. Unlock the supports of the compressors before the start-up. Unlock the supports of the fans (if present) before the start-up.
- Check if the connection used is correct, it has to be compliant to what indicated in the electrical diagrams and/or in the electrical panel clips.
- Check that the syphons are realized for all drain pipes and they allow the correct emptying of the drain pans during working time.
- Check the air diffusion elements placed in the rooms, the correct opening of the regulation and fire break shutters.
- Check if the aeraulic connection are correct.
- Check if the electrical connection of the auxiliary components are correct.
- Check the correct rotation sense of the fans (centrifugal and axial). If it is not correct, reverse the electrical connection in the electrical panel.
- Check the power absorption of the motors of the fans. The current data have to be at least 20% lower than nominal plaque data of the motor.
- Check the correct working of the regulating shutter of the Roof Top.



Drain pan connection

- Power the compressors with the air handling unit turned off for at least 8 hours before the start-up of the refrigerant section, in order to obtain the oil heating by mean of the internal electric resistance inside the compressor.
- Check the opening of the valves in the delivery or the aspiration of the compressor (if present).
- Start-up the unit according to the specifics of the controller.
- Check the oil level from the proper control light.
- Once the unit has been activated check the correct exchange between Freon/air and air/water (if present water coils) by measuring the thermo-hygrometric conditions in the input of the coil and in the air flow

7.0. GENERAL INFORMATION ON MAINTENANCE

BEFORE PERFORMING ANY MAINTENANCE OPERATIONS, MAKE SURE THAT THE MACHINE IS NOT AND CANNOT BE ACCIDENTALLY POWERED. CONSEQUENTLY, THE POWER SUPPLY MUST BE DISCONNECTED FOR ALL MAINTENANCE.

The purchaser is responsible for ensuring that all maintenance operations are performed.

The maintenance operations must be performed by trained and qualified personnel only.

ALWAYS USE WORK GLOVES TO PROTECT THE HANDS DURING THE MAINTENANCE OPERATIONS.

The number and the frequency of the operations to be completed for the correct maintenance of the air handling unit depends mainly on the quality of the fluids treated, that is, air and water.

The air may be particularly damaging if it contains significant amounts of pollutants or aggressive substances:

- Industrial exhausts
- Salinity
- Chemical fumes
- Heavy dust

These substances, on coming into contact with the inside and outside surfaces of the unit, via the air flow or by direct exposure, may over time and in the event of insufficient regular maintenance, cause the structural and functional deterioration of the unit

8.0. MAINTENANCE INSTRUCTION

A chart should be prepared and filled in listing the procedures and the date of the inspections and the regular maintenance operations.

The following is a list of the most important inspection and maintenance operations required, with the corresponding typical frequency. It should be noted that the frequency of the operations depends on the type of installation, and therefore must be evaluated by the maintenance personnel and, if necessary, suitably increased according to the effective use of the unit.

The checks performed before starting the unit should also be repeated after each extended period of inactivity.

9.0. TROUBLESHOOT

10.0. SERIOUS MALFUNCTIONING

These are failures of the refrigerating group and are signaled with various alarms levels up to the

complete block of the unit. Failures can be divided as follow:

COMPONENT TO BE INSPECTED AND PROCEDURE	AVERAGE FREQUENCY
<p>AIR MIXING DAMPERS</p> <p>The extruded aluminium dampers with nylon gears, not having parts subject to rust, do not require special maintenance, but rather simply normal cleaning.</p>	Yearly
<p>AIR MIXING DAMPERS</p> <p>The galvanised steel dampers with movement levers must be cleaned and greased at the pins and the levers.</p>	Yearly
<p>AIR MIXING DAMPERS</p> <p>The dampers located outside require more frequent maintenance.</p>	Quarterly
<p>FILTERING SECTIONS</p> <p>The pressure drop of the filters increases proportionally as they become fouled, and therefore the filters must be cleaned or replaced according to the concentration of dust or pollutants in the air. This operation is simplified if the unit is fitted with a differential pressure gauge to visually or audibly signal the pressure drop, otherwise proceed empirically based on experience, establishing, on a case-by-case basis, the frequency of the operations. The unit must not be operated without filters. Pay special attention when reassembling the filters, so as to avoid the unwanted "bypass" of air.</p>	Monthly or fortnightly for especially dirty air
<p>REGENERABLE PLEATED SYNTHETIC PRE-FILTERS (G3/ G4)</p> <p>Cleaning is performed: by simply shaking, with compressed air or a vacuum cleaner, by washing with a jet of water.</p> <p>Replacement is left to the judgement of the maintenance personnel, however it is recommended when the filter, after cleaning, remains dark in colour and the layer is no longer transparent when held up to the light.</p>	Monthly
<p>NON-RIGID AND RIGID BAG FILTERS (EPM10 50% / EPM1 85%)</p> <p>These filters are not regenerable and, after cleaning them a few times by shaking, should be replaced, checking the gasket that must be integral and ensure perfect seal, and therefore replaced if necessary. The fastening springs must prevent the bypass of air.</p> <p>The filters should be replaced when the pressure differential exceeds 250 Pa (average value).</p> <p>When removing the dirty bags, close the inlet side so as to avoid spilling the dust contained inside. In this regard, the normal assembly of the filter allows the removal of the dirty bag from the air inlet side, except in cases where the configuration of the unit or the size limits do not allow.</p>	Monthly According to limit DP
<p>CONDENSATE COLLECTION PANS</p> <p>The water collection pans, always installed below the cooling coil sections, must be periodically washed to remove any deposits and dirt.</p> <p>An excessive accumulation of dirt may cause corrosion that attacks the internal insulation of the pan and, consequently, the metal.</p>	Monthly

<p>VENTILATING SECTION</p> <p>Before performing any operations on the motor-fan assembly, check that the power supply has been disconnected.</p> <p>Fan</p> <p>With the fan off, check that the fan impeller is centred on the shaft, that the blades do not rub on the scroll and that the blades are securely fastened and do not vibrate.</p> <p>The above-mentioned phenomena may appear over time due, for example, to the unintended presence of metal residues in the ducting or the natural loosening of the fastening bolts.</p> <p>The checks can be performed by turning the impeller manually.</p> <p>The ball bearings used on the smaller standard fans are self-aligning radial bearings, with lifetime seal and lubrication, and consequently do not require maintenance. Their theoretical life, in normal operating conditions, is around 20,000 hours.</p>	<p>Monthly</p>
<p>VARIOUS CHECKS</p> <p>Check the condition of the electrical cables.</p> <p>Check that the vibration damping supports, the panels and the inspection doors do not allow the air to leak.</p> <p>Check for any water leaks from the tanks and the supply pipes.</p>	<p>Quarterly</p>
<p>REFRIGERANT CIRCUIT SECTION</p> <p>Check the level of the refrigerant gas controlling the evaporative pressures and the condensation pressures of the circuit in summer and winter mode (heat pump). Check the proper operations of the carter resistances for each compressor.</p> <p>Check the proper operations of the pressure switch for the high pressure and the low pressure.</p> <p>Take care of the filters cleaning (if any) and of the condensation coils.</p> <p>List of the suggested maintenance operations/controls and their frequency:</p> <ul style="list-style-type: none"> • Cleaning of the internal and external coils • Cleaning of the elicoidal fans • Cleaning of the centrifugal fan • Control of the piping and their supports • Control of the insulation of the piping 	<p>Yearly</p>
<ul style="list-style-type: none"> • Control of the level of the refrigerant gas through the verification of the proper operating pressures • Control of the oil level on the proper warning light both with the compressors turned off and with the compressors switched on • Control of the electrical terminals on the control panel, tightened terminals • Control alarms and blocks (alarm list on the PLC) • Control of the remote signals • Control of the solenoid coils • Control of the air filters • Control of the bearings 	<p>Six-monthly</p>
<ul style="list-style-type: none"> • Control of the electrical absorption of the compressors • Controls of the operations of the carter resistors for each compressor • Control of the electrical absorption of the fans • Control of the voltage supply of the unit 	<p>Quarterly</p>

11.0. SAFETY STANDARDS

MALFUNCTION	POSSIBLE CAUSES	CHECK	POSSIBLE SOLUTION
Incorrect motor power input	Excessive flow-rate	Fan flow rate, static pressure and speed.	Decrease the speed of the fan, increase the pressure drop by closing the dampers
Excessive air flow-rate	Pressure drop in the distribution system overestimated	Fan flow rate, static pressure and speed.	Decrease the speed of the fan
	Inspection doors open or panels missing	Check doors and panels.	Close the doors and panels
	Filters not inserted	Check filtering sections.	Insert the filters.
Insufficient air flow-rate	Pressure drop in the distribution system overestimated.	Fan flow rate, static pressure and speed.	Increase of the speed of the fan according to the power of the motor and the max speed of the fan
	Filters dirty and/or coils fouled and/ or humidification media fouled and/or obstructions in the air circuit (ducts, grills, etc..)	Cleanliness of the components.	Clean.
	Dampers not calibrated correctly	Damper	Calibrate the damper
	The impeller turns in the wrong direction	Visually using the arrow on the scroll.	Change the electrical connections to the motor.
Noise	Excessive flow-rate	Flow-rate	Reduce the flow-rate
	Fan unbalanced	Vibrations on the base	Replace the fan
	Howling of the magnetic motor	Mains voltage	Restore correct mains voltage
	Foreign material in the scroll	Fan	Remove foreign bodies and check for damage.
Entrainment of water	Excessive flow-rate	Flow-rate	Reduce the flow-rate
	Drain trap clogged	Clogging of the drain trap	Clean the drain trap
	Drain trap absent	Presence of the drain trap	Install a drain trap
Excessive wear on the belts	Loose belts	Belt tension	Tighten the belts
	Pulleys misaligned	Pulley alignment	Align the pulleys
Desired outlet temperature not reached	Excessive air flow-rate	Air flow-rate	Reduce the flow-rate
	Air inlet temperature not envisaged	Air inlet temperature	Increase air recirculation
	Presence of air in the coil	Air vent	Vent the air
	Insufficient water flow-rate	Water flow-rate	Increase the flow-rate
	Insufficient water temperature	Water inlet temperature	Increase the temperature
	Thermodynamic circuit Off	Check thermodynamic failure	Thermodynamic circuit On
The damper doesn't open	Locked	Damper gears.	Repair the gears and remove foreign objects
		Damper frame not square	Adjust the damper frame to make it square
		Uncoupled damper shaft	Adjust the damper frame to make it square

All of the e-MovAir series air handling units are manufactured in compliance with the safety standards envisaged by the European Union Machine Directive.

All of the e-MovAir series air handling units are applied with a danger sign to warn of the presence of

MALFUNCTIONING	POSSIBLE CAUSE	CONTROL	POSSIBLE SOLUTION
Warning from the low pressure regulator of the refrigerant circuit	Low level/charge of the refrigerant gas	Check of the pressure gauge	Fill up of the refrigerant gas
	Block of the thermostatic expansion valve	Of the thermostatic valve appears with frost	Substitution of the blocked valve
	No thermal exchange on the heat coil, air side	Check the fan of the flow	Check of the electrical absorption, air flow and tightness and rotation of the belt
Warning from the high pressure regulator of the refrigerant circuit	Refrigerant Gas load exceeding the request	Verify the pressure gauge	Reduce the gas load
	Obstruction of the condensing coil	Check of the flaps surfaces of the coil	Clean the surface of the coil with compressed air
	Reduction of the fans on the refrigerant side	Check the proper working of the fans and of the round regulator (if present)	Reactivation of the normal working speed

moving parts.

IT IS RECOMMENDED, EVEN IF THIS IS NOT THE MANUFACTURER’S RESPONSIBILITY:

- To fit the air handling unit with an isolating switch, especially if the electrical panel is not located nearby, so as to be able to disconnect power without the danger of interference or use by third parties.
- To install the earth system according to the standards in force.



12.0. DECOMMISSIONING

At the end of their working life, the e-MovAir units must be disposed of in accordance with the standards in force in the country in question.

The following materials are used in the construction of the unit:

- Galvanised steel plate and/or plastic coated and/or stainless steel;
- Aluminium;
- Copper;
- Polyurethane and/or glass wool or mineral wool;
- Plastic;
- Refrigerant gas R401A (to recycle and dispose with proper cycle);
- Lubrificant oil POE (to recycle and dispose with proper cycle);
- Injected polyurethane (to recycle and dispose with proper cycle);
- Rehydrating filters of the refrigerant circuit (to recycle and dispose with proper cycle).

13.0. LIST AND DESCRIPTION OF ALARMS ON DISPLAY

ALARM NUMBER	ALARMS	ALARMS DESCRIPTION	REARM
1	Clock Alarm	Clock PCO Alarm	
2	Memory Alarm	Internal memory Alarm	
3	Alarm U1	Probe broken or disconnected	
4	Alarm U2	Probe broken or disconnected	
5	Alarm U3	Probe broken or disconnected	
6	Alarm U4	Probe broken or disconnected	
7	Alarm U5	Probe broken or disconnected	
8	Alarm U6	Probe broken or disconnected	
9	Alarm U7	Probe broken or disconnected	
10	Alarm U8	Probe broken or disconnected	
11	Safety Damper Open	Safety damper not opened after movement time	Manual
12	Smoke-fire Alarm	Doors, fire, smoke sensor alarm	Manual strong (5 seconds alarm button pressed)
13	Dirty filter warning	Filter warning	Auto
14	Dirty filter Alarm	Filter alarm	Auto
15	Fans thermal prot.	Fans thermal protection	Auto
16	Alarm U9	Probe broken or disconnected	
17	Alarm U10	Probe broken or disconnected	
18	Alarm U11	Probe broken or disconnected	
19	Alarm U12	Probe broken or disconnected	
20			
21	Compr. 1 thermal prot.	Compressor 1 thermal protection	
22	Low press. switch c1	Low pressure switch circuit 1	Auto
23	High press. switch c1	High pressure switch circuit 1	Auto
24	Too many low sw c1	Too many low pressure switch alarm in monitor time	Manual strong
25	Too many high sw c1	Too many high pressure switch alarm in monitor time	Manual strong
26	Out of Enevelope c1	Compressor work out of envelope	Auto
27	Too many out Envel. c1	Too many out of envelope alarm in monitor time	Manual strong
28	High press. elec. c1	Condensation pressure over threshold circuit 1	Auto
29	Too many high elec. c1	Too many condensation pressure over threshold in monitor time	Manual strong
30	out of limit time c1	Compressor is working out of limit for long time	Auto
31	Too many out limit c1	Too many compressor out of limit in monitor time	Manual strong
32	Low press. elec. c1	Evaporation pressure under threshold circuit 1	Auto
33	Too many low elec. c1	Too many evaporation pressure under threshold in monitor time	Manual strong
34			
35			
36			
37			

ALARM NUMBER	ALARMS	ALARMS DESCRIPTION	REARM
38			
39			
40	Compr. 2 thermal prot.	Compressor 2 thermal protection	
41	Compr. 3 thermal prot.	Compressor 3 thermal protection	
42	Low press. switch c2	Low pressure switch circuit 2	Auto
43	High press. switch c2	High pressure switch circuit 2	Auto
44	Too many low sw c2	Too many low pressure switch alarm in monitor time	Manual strong
45	Too many high sw c2	Too many high pressure switch alarm in monitor time	Manual strong
46	Out of Enevelope c2	Compressor work out of envelope	Auto
47	Too many out Envel. c2	Too many out of enevelope alarm in monitor time	Manual strong
48	High press. elec. c2	Condensation pressure over threshold circuit 2	Auto
49	Too many high elec. c2	Too many condensation pressure over threshold in monitor time	Manual strong
50	out of limit time c2	Compressor is working out of limit for long time	Auto
51	Too many out limit c2	Too many compressor out of limit in monitor time	Manual strong
52	Low press. elec. c2	Evaporation pressure under threshold circuit 2	Auto
53	Too many low elec. c2	Too many evaporation pressure under threshold in monitor time	Manual strong
54			
55			
56			
57			
58			
59			
60	Safety thermostat	External safety thermostat alarm	Auto
61	electrical heater 1	Electrical heater 1 thermal protection	Auto
62	electrical heater 2	Electrical heater 2 thermal protection	Auto
63	Burner protection 1	Burner 1 thermal protection	Auto
64	Burner protection 2	Burner 2 thermal protection	Auto
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IN DEVELOPMENT / PRELIMINARY

Thank you very much for purchasing our product.
Before using your air conditioner, please read this manual carefully and keep it for future reference.

Due to LENNOX EMEA ongoing commitment to quality, the specifications, ratings and dimensions are subject to change without notice and without incurring liability.
Improper installation, adjustment, alteration, service or maintenance can cause property damage or personal injury.
Installation and service must be performed by a qualified installer and servicing agency.



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