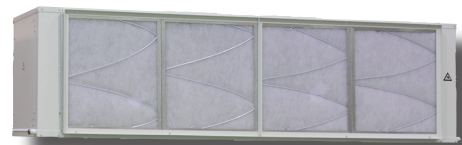


# Application guide

## AIRCOOLAIR - ANCM/ANHM



- Providing indoor climate comfort



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Lennox have been providing environmental solutions since 1895, our range of AIRCOOLAIR continues to meet the standards that have made LENNOX a household name. Flexible design solutions to meet YOUR needs and uncompromising attention to detail. Engineered to last, simple to maintain and Quality that comes as standard. Information on local contacts at [www.lennox europe.com](http://www.lennox europe.com).

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## GENERAL DESCRIPTION

The AIRCOOLAIR air conditioning range provides Cooling only and Heat Pumps units, is of Air to Air type and designed for light to large commercial comfort applications.

The Aircoolair range consist on one part designed for Outdoor installation and one or 2 Indoor units designed for installation in a Service Room or in high false ceilings. The Indoor part supply airflow for air ducts circuits.

A large range of options and accessories are also available to fit closely with each installation needs.

## CASING

Made of galvanized steel with epoxy painted finish, weather proofed with high resistant to corrosion (RAL9002).

The units are provided with metal profiles, capable of withstanding the unit and able as well of installing the unit mounted on the floor.

Both sections are thermoacoustic insulated

An insulation with aluminium protection is used for indoor units with a M1 and F1 classification, certifying that the material is auto-extinguishable and avoiding smoke formed, which may get inside the room to be conditioned. For outdoor units, the insulation is auto-extinguishable and has a M1 classification.

## COMPRESSORS

All units are provided with hermetically sealed compressors, scroll type, cooled by exhaust gas, with internal thermal insulation inside the engine, so no other additional protection is required.

The compressor is fitted on vibration mountings both inside and outside.

The compressors have a screwed connection into the pipe thus they can be more easily to assembled.

In heat pump units the compressors are provided, as standard, with a crankcase heater (optional for cooling only units), to assist evaporation of the coolant retained by the oil in the compressor so that a suitable lubrication can take place.

## FANS

Indoor sections are supplied with one or two "E" or "D" centrifugal fans respectively, fans are fitted with a common axle activated through an adjustable and variable pulley belt pulley with one activating motor.

Outdoor section are supplied with one or two axial fans.(variable speed in standard)

## AIR FILTER

Washable air filter; auto extinguishable material with M1 classification. Efficiency: G2.

## HEAT EXCHANGERS

Made of copper tubes and aluminium corrugated swirl fins, the coil heat exchanger are designed and dimensioned to obtain the maximum output. Also, the dynamic defrost cycle prevent the ice forming during winter operations.

## COOLING CIRCUIT

Made of welded deshumidifying copper tube with plugged valves in the discharge, suction and liquid lines on both indoor and outdoor sections.

The units are supplied with high and low pressure switches, with automatic reset. Silencer fitted on the compressor discharge, and expansion system through a reducing valves.

The heat pump units are equipped with dehumidifying filter to avoid liquid getting on the compressor, four way valve for reversing cycle, and one way valves.

## ELECTRICAL BOX

- Unit wiring in compliance with standard EN 60204-1.
- IP54 water protection.
- Circuit breaker protection for compressor and fan.
- Compressor and fan working contactors.
- Terminal block and wiring for power supply to the unit.

## CONTROL

- Control and check by microprocessor.
- Reading of ambient and refrigerant temperatures.
- Alarm signaling.
- Diagnostic per circuit.
- Adjustment of temperature set points and parameters adapted for operating conditions.
- Hour counter and daily balance of operating time for each compressor by "first in/first in/first out" permutation (unit with two compressors).
- Remote alarm signal.
- Fan speed control (22E-86D models).

## GENERAL DESCRIPTION

### VERSIONS

AIRCOOLAIR range is available in three different versions, depending on the digital thermostat supplied with the unit. These versions are:

- 1- Standard version, with Climatic 40 control and digital thermostat DC40. (For all the unit models).
- 2- C50 version, with Climatic 50 control. (For all the unit models).
- 3- D2 version, with two Climatic 40 controls and two independent DC40 thermostates. (Only for models 52D2 to128D2).

#### 1-Standard version:

Control made up with Climatic 40, in the outdoor unit and with a walled DC40 terminal-thermostat to be placed in the room to be conditioned; with ambient sensor inside the terminal for the regulation of the system.

DC 40 remote controller, with LCD display gives us information such as alarms, set point adjustment and running mode, automatic restarting, sleep mode, and scheduling.

Climatic 40 control, manages Low Noise function, intelligent defrost (heat pump units), alarm history and communications through MODBUS protocol

DC 40



Climatic 40



#### 2- Versión C50:

Control made up with a programmable robot and with a walled terminal thermostat (DC50), to be placed in the room to be conditioned.

Control enhanced with a 16 bit processor at 14 Mhz and a 2 Megabytes flash memory. It optimises the running time of each compressor, and have an anti short-cycle program. It is able to control 34 fault signals and manage security algorithms generating various fault signals.

This innovative control, will guaranty a better temperature accuracy, while saving energy in not bringing the full capacity when not needed. Climatic 50 looks at difference between set point and room temperature needed.

It provides 4 scheduling time zones per day on 7 days.



Confort terminal  
DC 50

End user remote controller with LCD display and very easy to use. This graphical display gives information such as running mode of the unit, status of the fan, set point, %of fresh air, and outside temperature. On/off , scheduling, set-point override 3 hours, forced unoccupied zone, clock menu and alarm history can be managed through this terminal.



Service terminal  
DS 50

Remote controller with LCD display used for extra functions as anticipation, dynamic set point, different safety protections, defrost, condensing pressure control, free cooling, communications master/slave and BMS. Maintenance personnel can use it to configurate all the parameters, and to make a complete diagnosis of the unit..



Terminal  
DM 50

Multi-Unit remote control with LCD display to make the same functions that confort terminal, but with an only terminal up to 12 units connected through a network.

As an option it is available a TCB printed board in order to get all inputs as voltage free contacts.

Communications: ModBUS, LONWORKS-Echelon y BACnet.

#### 3- Versión D2.

Control made up with two Climatic 40 and two independent DC40 thermostates, that control the units multi-split.

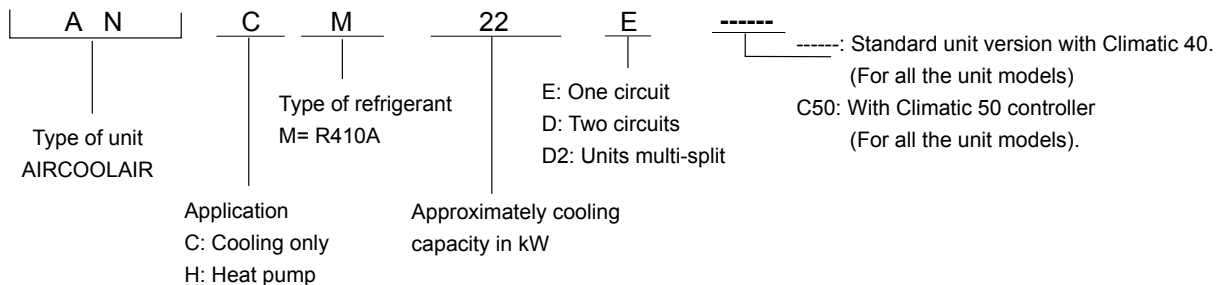
# GENERAL DESCRIPTION

## OPTIONS

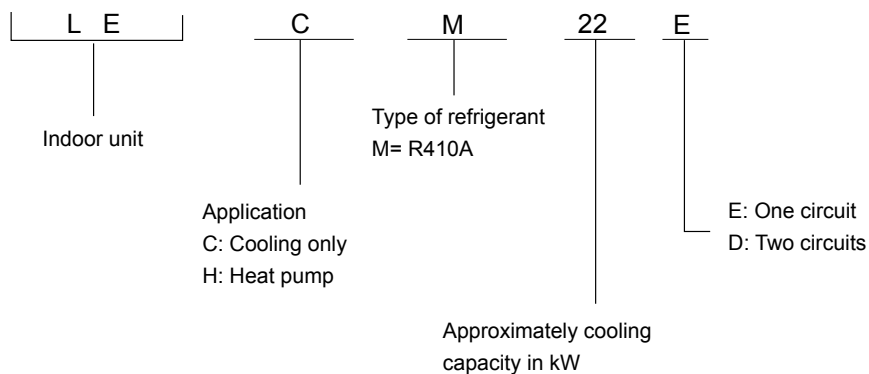
| OPTIONS   | APPLICATION |    |      |              |           |                     | DESCRIPTION   |
|---|-------------|----|------|--------------|-----------|---------------------|---|
|   | VERSION     |    |      | COOLING ONLY | HEAT PUMP | MODELS              |   |
|   | STD         | D2 | C50  |              |           |                     |   |
| <b>AUXILIARY HEATING</b>                                      |             |    |      |              |           |                     |   |
| Electrical heater 7,5kW, 1 stage.                             | X           | X  | X    | X            | X         | 22E-43E/52D         | Auxiliary heat for indoor unit.<br>(* ) Only for heat pump units.   |
| Electrical heater 11kW, 1 stage.                              | X           | X  | X    | X            | X         | 22E-86D             |   |
| Electrical heater 15kW, 1 stage.                              | X           | X  | X    | X            | X         | 22E-86D             |   |
| Electrical heater 20kW, 1 stage.                              | X           | X  | X    |              | X         | 68E-76E/64D-86D     |   |
| Electrical heater 30kW, 1 stage.                              | X           |    | X(*) | X            | X         | 112D-152D           |   |
| Electrical heater 40kW, 1 stage.                              | X           |    | X(*) | X            | X         | 112D-152D           |   |
| Electrical heater 20kW, 2 stages.                             | X           | X  | X    | X            |           | 52D/68E-76E/64D-86D |   |
| Electrical heater 30kW, 2 stages.                             | X           | X  | X    | X            |           | 68E-76E/64D-86D     |   |
| Electrical heater 40kW, 2 stages.                             |             |    | X    | X            |           | 112D-152D           |   |
| Electrical heater 60kW, 2 stages.                             |             |    | X    | X            |           | 112D-152D           |   |
| Hot water coil.   | X           | X  | X    | X            |           | 22E-152D            | Auxiliary heat for indoor unit.   |
| <b>ARCHITECTURAL INTEGRATION</b>                              |             |    |      |              |           |                     |   |
| Long distance refrigerant connection.                         | X           | X  | X    |              | X         | 22E-152D            | It allows refrigerant connection between indoor and outdoor unit until 65m.   |
| High pressure 125 Pa FP1.                                     | X           | X  | X    | X            | X         | 112D-152D           | Available static pressure for outdoor unit up to 125Pa  |
| High pressure 250 Pa FP2.                                     | X           | X  | X    | X            | X         | 112D-152D           | Available static pressure for outdoor unit up to 250Pa  |
| Square discharge plenum FP1/FP2.                              | X           | X  | X    | X            | X         | 112D-152D           | Square frames for adapting the condenser air discharge to a square duct.  |
| Inlet plenum FP1/FP2.   | X           | X  | X    | X            | X         | 112D-152D           | Accessories for adapting the condenser air intake to a duct.  |
| Auxiliary drip tray FP1/FP2.                                  | X           | X  | X    |              | X         | 112D-152D           | Water defrost collection.   |
| High pressure indoor unit                                     | X           | X  | X    | X            | X         | 22E-152D            | Increase of air available static pressure for indoor unit.  |
| Vertical air discharge  | X           | X  | X    | X            | X         | 22E-152D            | Vertical discharge for indoor unit.   |
| Outdoor installation indoor unit.                             | X           | X  | X    | X            | X         | 22E-152D            | To install indoor unit outside.   |
| <b>Indoor Air Quality</b>                                     |             |    |      |              |           |                     |   |
| Dirty filter indication.                                      | X           | X  | X    | X            | X         | 22E-152D            | Alarm with dirty filters.   |
| High efficiency air filter G4.                                | X           | X  | X    | X            | X         | 22E-152D            | Air filter high efficiency.   |
| <b>SECURITY</b>   |             |    |      |              |           |                     |   |
| Main switch.  | X           | X  | X    | X            | X         | 22E-152D            | Electrical box access protection.   |
| Softstarter.  | X           | X  | X    | X            | X         | 22E-152D            | It reduces the peak compressor starting current.  |
| Return lock three phases.                                     | X           | X  | X    | X            | X         | 22E-152D            | It assures that unit will not begin operation on detection of overvoltage, undervoltage, phase reversal fault or phase failure.   |
| Smoke detector  | X           | X  | X    | X            | X         | 22E-152D            | It stops the unit in case of smoke detection.   |
| Protection grill.   | X           | X  | X    | X            | X         | 22E-152D            | It prevents condenser coil against accidental impacts..   |
| <b>COMFORT PRECISION AND ENERGY EFFICIENCY</b>                |             |    |      |              |           |                     |   |
| Thermostatic free-cooling without return fan.                 | X           | X  | X    | X            | X         | 22E-152D            | Power saving module: use external air when outdoor temperature is lower than set point value.   |
| Enthalpic free-cooling without return fan.                    |             |    | X    | X            | X         | 22E-152D            | Power saving.<br>C50:BE 50. print board has to be selected.   |
| Exhaust fan.(Only with free-cooling and without return fan).  | X           | X  | X    | X            | X         | 22E-152D            | To reduce overpressure in the room.<br>C50: BE 50. print board has to be selected..   |
| Return fan (Only with freecooling).                           | X           | X  | X    | X            | X         | 64D-152D            | Increase of air available static pressure.  |
| Low ambient kit 0°C   | X           | X  | X    | X            |           | 22E-152D            | Operation of the unit in cooling mode until 0°C. of outdoor temperature. It is a crank case heater for the compressor.  |
| Low ambient kit -15°C or long distance refrigerant connection | X           | X  | X    | X            |           | 22E-152D            | Operation of the unit in cooling mode until -15°C. of outdoor temperature. It allows refrigerant connection between indoor and outdoor unit until 65m.                                |
| Kit low noise.  | X           | X  | X    | X            | X         | 22E-152D            | Noise level reduction. It includes compressor jacket.   |
| Duct remote sensor kit.                                       | X           | X  | X    | X            | X         | 22E-152D            | Remote sensor to be placed in the return air duct.  |
| Ambient remote sensor kit.                                    | X           | X  | STD  | X            | X         | 22E-152D            | Remote sensor to be placed in the area to be air-conditioned.   |
| Dynamic set point.  | X           | X  | STD  | X            | X         | 22E-152D            | Set-point adjustment according to outdoor temperature. Not available with free-cooling, outdoor sensor is included.   |
| Hot gas by-pass   | X           | X  | X    | X            |           | 22E-152D            | Control of capacity of evaporator by injecting hot gas by-pass.   |
| Rubber anti-vibration mounts.                                 | X           | X  | X    | X            | X         | 22E-152D            | They avoid transmission of vibrations to the floor where the unit is installed, while unit is operating.  |
| Spring anti-vibration mounts.                                 | X           | X  | X    | X            | X         | 112D-152D           |   |
| <b>SERVICE</b>  |             |    |      |              |           |                     |   |
| Factory pre-charged.  | X           | X  | X    | X            | X         | 22E-152D            | R-410A refrigerant charge and service valves.   |
| Service valves.   | X           | X  | X    | X            | X         | 22E-152D            | Liquid and gas service valves in outdoor unit.  |
| <b>COMMUNICATION CAPABILITIES</b>                             |             |    |      |              |           |                     |   |
| ModBUS.   | X           | X  | X    | X            | X         | 22E-152D            | BMS as communications protocoll.  |
| LonWorks-Echelon.   |             |    | X    | X            | X         | 22E-152D            | Communications protocoll.   |
| BACnet.   |             |    | X    | X            | X         | 22E-152D            | Communications protocoll.   |
| <b>CLIMATIC 50 ADVANCED CONTROL</b>                           |             |    |      |              |           |                     |   |
| BE50 expansion PCB.   |             |    | X    | X            | X         | 22E-152D            | Expansion module to get additional inputs and outputs. 4 analogic inputs,4digital inputs and 4 digital outputs. It is needed with options:TCB, enthalpic free-cooling or exhaust fan. |
| TCB: connection for voltage free contact.                     |             |    | X    | X            | X         | 22E-152D            | Signals for the unit available as voltage free contacts. BE50 print board is needed.  |
| Air quality probe (CO2).                                      |             |    | X    | X            | X         | 22E-152D            | Only with free-cooling.   |
| Service terminal DS50.  |             |    | X    | X            | X         | 22E-152D            | Service display for maintenance operations.   |
| Comfort terminal DC50   |             |    | X    | X            | X         | 22E-152D            | Remote controller for the unit.   |
| Terminal DM50.  |             |    | X    | X            | X         | 22E-152D            | Remote controller to connect up to 12 units.  |
| <b>EXTENDED LIFECYCLE</b>                                     |             |    |      |              |           |                     |   |
| Precoated coil for outdoor unit                               | X           | X  | X    | X            | X         | 22E-152D            | Protection from aggressive external environmental conditions of outdoor coil.   |
| Precoated coil for indoor unit.                               | X           | X  | X    | X            | X         | 22E-152D            | Protection from aggressive external environmental conditions of indoor coil.  |

## SET

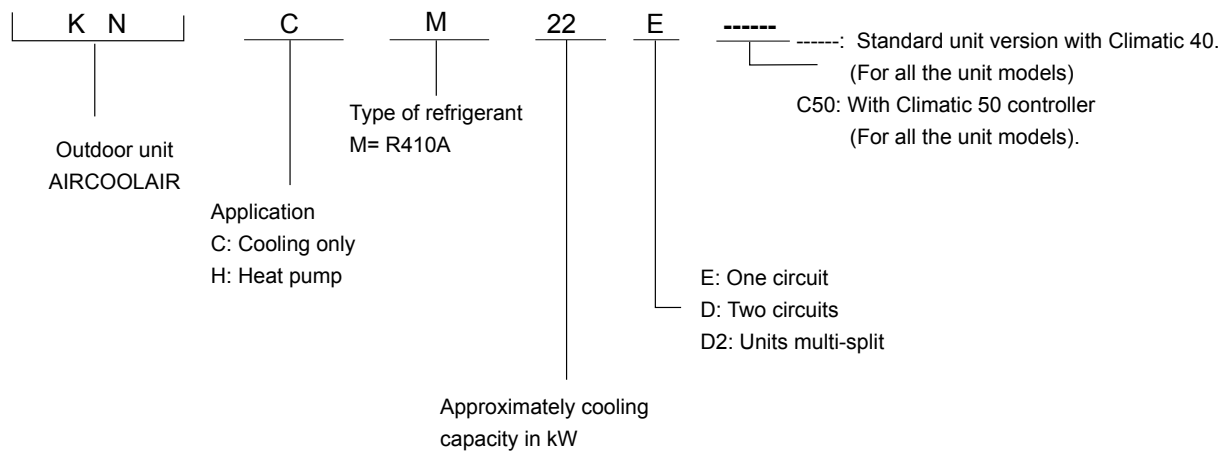
### INDOOR UNIT + OUTDOOR UNIT



## INDOOR UNIT



## OUTDOOR UNIT



## RANGE PRODUCT UNITS COOLING ONLY

### SET AND SPLIT SYSTEM

| MODEL     | OUTDOOR UNIT | INDOOR UNIT | SUPPLY       | NOMINAL CAPACITY kW | NOMINAL CONSUMPTION kW |
|-----------|--------------|-------------|--------------|---------------------|------------------------|
|           |              |             |              | COOLING             | COOLING                |
| ANCM 22E  | KNCM 22E     | LECM 22E    | 3N~400V 50Hz | 19.5                | 6.72                   |
| ANCM 26E  | KNCM 26E     | LECM 26E    | 3N~400V 50Hz | 23.5                | 8.45                   |
| ANCM 32E  | KNCM 32E     | LECM 32E    | 3N~400V 50Hz | 27.0                | 9.82                   |
| ANCM 38E  | KNCM 38E     | LECM 38E    | 3N~400V 50Hz | 35.5                | 12.4                   |
| ANCM 43E  | KNCM 43D     | LECM 43D    | 3N~400V 50Hz | 40.5                | 14.7                   |
| ANCM 52D  | KNCM 52D     | LECM 52D    | 3N~400V 50Hz | 46.5                | 17.0                   |
| ANCM 64D  | KNCM 64D     | LECM 64D    | 3N~400V 50Hz | 55.5                | 19.8                   |
| ANCM 76D  | KNCM 76D     | LECM 76D    | 3N~400V 50Hz | 69.5                | 24.8                   |
| ANCM 86D  | KNCM 86D     | LECM 86D    | 3N~400V 50Hz | 82.0                | 29.8                   |
| ANCM 112D | KNCM 112D    | LECM 112D   | 3N~400V 50Hz | 100                 | 35.7                   |
| ANCM 128D | KNCM 128D    | LECM 128D   | 3N~400V 50Hz | 111                 | 39.0                   |
| ANCM 152D | KNCM 152D    | LECM 152D   | 3N~400V 50Hz | 135                 | 48.2                   |

INDOOR UNIT  
LECM (22E-32E)



OUTDOOR UNIT  
KNCM 22E

INDOOR UNIT  
LECM (38E-52D)



OUTDOOR UNIT  
KNCM (26E-43E)

INDOOR UNIT  
LECM (64D-86D)



OUTDOOR UNIT  
KNCM (52D-86D)

INDOOR UNIT  
LECM (112D-152D)



OUTDOOR UNIT  
KNCM (112D-152D)

### MULTI-SPLIT SYSTEM

| MODEL      | OUTDOOR UNIT | INDOOR UNIT    | SUPPLY       | NOMINAL CAPACITY kW | NOMINAL CONSUMPTION kW |
|------------|--------------|----------------|--------------|---------------------|------------------------|
|            |              |                |              | COOLING             | COOLING                |
| ANCM 52D2  | KNCM 52D2    | 2xLECM 26E     | 3N~400V 50Hz | 2x23.5              | 2x8.45                 |
| ANCM 64D2  | KNCM 64D2    | 2xLECM 32E     | 3N~400V 50Hz | 2x27.0              | 2x9.82                 |
| ANCM 76D2  | KNCM 76D2    | 2xLECM 38E     | 3N~400V 50Hz | 2x35.5              | 2x12.4                 |
| ANCM 86D2  | KNCM 86D2    | 2xLECM 43E     | 3N~400V 50Hz | 2x40.5              | 2x14.7                 |
| ANCM 112D2 | KNCM 112D2   | LECM (68E+43E) | 3N~400V 50Hz | 57.0+41.5           | 20.9+13.8              |
| ANCM 128D2 | KNCM 128D2   | LECM (76E+43E) | 3N~400V 50Hz | 68.0+41.0           | 24.5+13.7              |

INDOOR UNIT  
LECM (26E-32E)



OUTDOOR UNIT  
KNCM (52D2-64D2)

INDOOR UNIT  
LECM (38E-43E)



OUTDOOR UNIT  
KNCM (76D2-86D2)

INDOOR UNIT  
LECM (68E-76E)



INDOOR UNIT  
LECM 43E

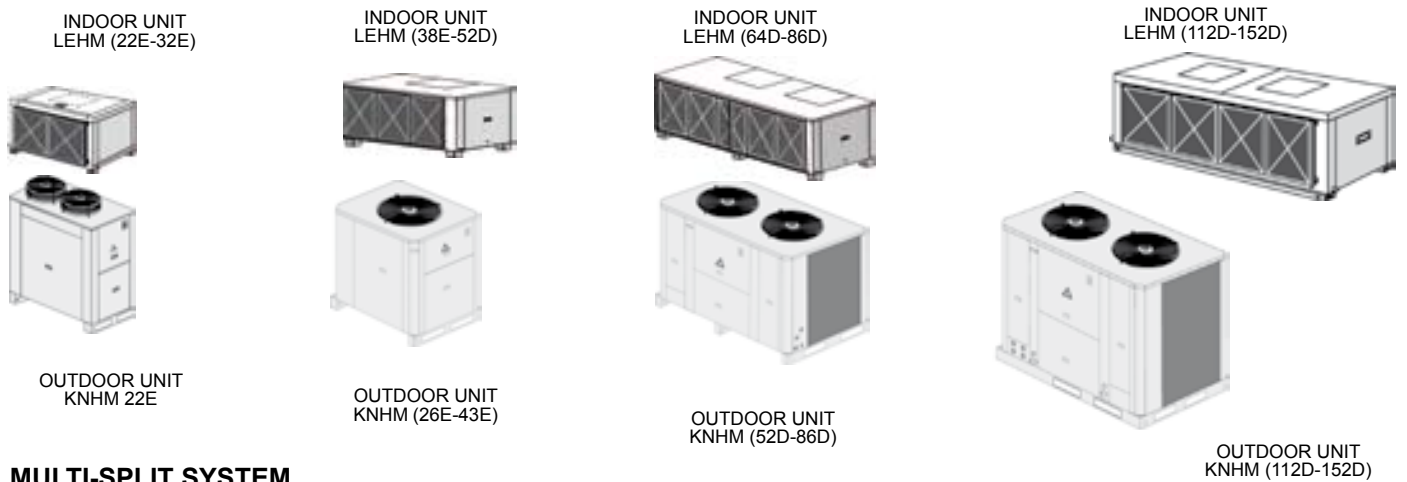


OUTDOOR UNIT  
KNCM (112D2-128D2)

## RANGE PRODUCT UNITS HEATING

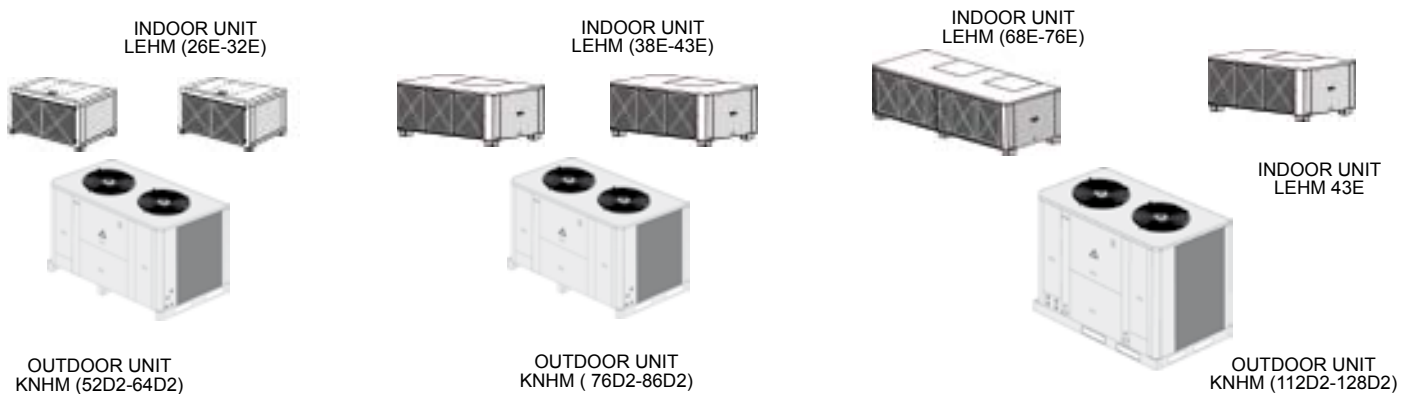
### SET AND SPLIT SYSTEM

| MODEL     | OUTDOOR UNIT | INDOOR UNIT | SUPPLY       | NOMINAL CAPACITY kW |         | NOMINAL CONSUMPTION kW |         |
|-----------|--------------|-------------|--------------|---------------------|---------|------------------------|---------|
|           |              |             |              | COOLING             | HEATING | COOLING                | HEATING |
| ANHM 22E  | KNHM 22E     | LEHM 22E    | 3N~400V 50Hz | 19.5                | 19.5    | 6.72                   | 6.50    |
| ANHM 26E  | KNHM 26E     | LEHM 26E    | 3N~400V 50Hz | 23.5                | 25.0    | 8.45                   | 8.33    |
| ANHM 32E  | KNHM 32E     | LEHM 32E    | 3N~400V 50Hz | 27.0                | 28.5    | 9.82                   | 9.66    |
| ANHM 38E  | KNHM 38E     | LEHM 38E    | 3N~400V 50Hz | 35.5                | 36.0    | 12.4                   | 11.9    |
| ANHM 43E  | KNHM 43E     | LEHM 43E    | 3N~400V 50Hz | 40.5                | 40.0    | 14.7                   | 13.3    |
| ANHM 52D  | KNHM 52D     | LEHM 52D    | 3N~400V 50Hz | 46.5                | 49.5    | 17.0                   | 17.1    |
| ANHM 64D  | KNHM 64D     | LEHM 64D    | 3N~400V 50Hz | 55.5                | 56.5    | 19.8                   | 18.8    |
| ANHM 76D  | KNHM 76D     | LEHM 76D    | 3N~400V 50Hz | 69.5                | 72.5    | 24.8                   | 24.2    |
| ANHM 86D  | KNHM 86D     | LEHM 86D    | 3N~400V 50Hz | 82.0                | 80.0    | 29.8                   | 26.7    |
| ANHM 112D | KNHM 112D    | LEHM 112D   | 3N~400V 50Hz | 100                 | 108     | 35.7                   | 34.5    |
| ANHM 128D | KNHM 128D    | LEHM 128D   | 3N~400V 50Hz | 111                 | 118     | 39                     | 38.7    |
| ANHM 152D | KNHM 152D    | LEHM 152D   | 3N~400V 50Hz | 135                 | 137     | 48.2                   | 48.6    |



### MULTI-SPLIT SYSTEM

| MODEL      | OUTDOOR UNIT | INDOOR UNIT    | SUPPLY       | NOMINAL CAPACITY kW |           | NOMINAL CONSUMPTION kW |           |
|------------|--------------|----------------|--------------|---------------------|-----------|------------------------|-----------|
|            |              |                |              | COOLING             | HEATING   | COOLING                | HEATING   |
| ANHM 52D2  | KNHM 52D2    | 2xLEHM 26E     | 3N~400V 50Hz | 2x23.5              | 2x25      | 2x8.45                 | 2x8.33    |
| ANHM 64D2  | KNHM 64D2    | 2xLEHM 32E     | 3N~400V 50Hz | 2x27.0              | 2x28.5    | 2x9.82                 | 2x9.66    |
| ANHM 76D2  | KNHM 76D2    | 2xLEHM 38E     | 3N~400V 50Hz | 2x35.5              | 2x36.0    | 2x12.4                 | 2x11.9    |
| ANHM 86D2  | KNHM 86D2    | 2xLEHM 43E     | 3N~400V 50Hz | 2x40.5              | 2x40.0    | 2x14.7                 | 2x13.3    |
| ANHM 112D2 | KNHM 112D2   | LEHM (68E+44E) | 3N~400V 50Hz | 57.0+41.5           | 61.6+46.4 | 20.9+13.8              | 20.3+14.5 |
| ANHM 128D2 | KNHM 128D2   | LEHM (76E+44E) | 3N~400V 50Hz | 68.0+41.0           | 72.5+45.5 | 24.5+13.7              | 24.3+14.3 |



## PHYSICAL DATA



INDOOR UNIT (22E-32E)



INDOOR UNIT (38E-43E)



OUTDOOR UNIT 22E



OUTDOOR UNIT (26E-43E)

| SET                           |           |                   | ANCM/ANHM<br>22E | ANCM/ANHM<br>26E | ANCM/ANHM<br>32E | ANCM/ANHM<br>38E | ANCM/ANHM<br>43E |
|-------------------------------|-----------|-------------------|------------------|------------------|------------------|------------------|------------------|
| Cooling capacity (*)          | ANCM/ANHM | kW                | 19.5             | 23.5             | 27.0             | 35.5             | 40.5             |
| Heating capacity (**)         | ANHM      | kW                | 19.5             | 25.0             | 28.5             | 36.0             | 40.0             |
| OUTDOOR UNIT                  |           |                   | KNCM/KNHM<br>22E | KNCM/KNHM<br>26E | KNCM/KNHM<br>32E | KNCM/KNHM<br>38E | KNCM/KNHM<br>43E |
| COMPRESSOR                    | Nr / Type |                   | 1 / Scroll       | 1 / Scroll       | 1 / Scroll       | 1 / Scroll       | 1 / Scroll       |
| <b>FAN</b>                    |           |                   |                  |                  |                  |                  |                  |
| Air flow                      |           | m <sup>3</sup> /h | 6800             | 9750             | 11500            | 11300            | 11000            |
| <b>NET WEIGHT</b>             | KNCM      | Kg                | 160              | 210              | 216              | 233              | 255              |
|                               | KNHM      | Kg                | 168              | 219              | 221              | 239              | 258              |
| <b>DIMENSIONS</b>             |           |                   |                  |                  |                  |                  |                  |
| Height                        |           | mm                | 1375             | 1375             | 1375             | 1375             | 1375             |
| Width                         |           | mm                | 1195             | 1195             | 1195             | 1195             | 1195             |
| Depth                         |           | mm                | 660              | 980              | 980              | 980              | 980              |
| <b>REFRIGERANT CONNECTION</b> |           |                   |                  |                  |                  |                  |                  |
| Liquid                        |           |                   | 1/2"             | 5/8"             | 5/8"             | 5/8"             | 5/8"             |
| Gas                           |           |                   | 7/8"             | 1 1/8"           | 1 1/8"           | 1 3/8"           | 1 3/8"           |
| INDOOR UNIT                   |           |                   | LECM/LEHM<br>22E | LECM/LEHM<br>26E | LECM/LEHM<br>32E | LECM/LEHM<br>38E | LECM/LEHM<br>43E |
| <b>FAN</b>                    |           |                   |                  |                  |                  |                  |                  |
| Max. air flow                 |           | m <sup>3</sup> /h | 4100             | 5500             | 6000             | 8050             | 9050             |
| Min. air flow                 |           | m <sup>3</sup> /h | 3150             | 4250             | 4650             | 6200             | 6950             |
| Max. available pressure       | (1)       | Pa                | 162              | 148              | 153              | 161              | 231              |
| <b>NET WEIGHT</b>             |           | Kg                | 108              | 111              | 115              | 150              | 160              |
| <b>DIMENSIONS</b>             |           |                   |                  |                  |                  |                  |                  |
| Height                        |           | mm                | 645              | 645              | 645              | 740              | 740              |
| Width                         |           | mm                | 1195             | 1195             | 1195             | 1445             | 1445             |
| Depth                         |           | mm                | 803              | 803              | 803              | 923              | 923              |
| <b>REFRIGERANT CONNECTION</b> |           |                   |                  |                  |                  |                  |                  |
| Liquid                        |           |                   | 1/2"             | 5/8"             | 5/8"             | 5/8"             | 5/8"             |
| Gas                           |           |                   | 7/8"             | 1 1/8"           | 1 1/8"           | 1 3/8"           | 1 3/8"           |

(1) With admissible minimum air flow.

DB.- Dry bulb temperature.

WB.- Wet bulb temperature.

(\*) Air intake temperature in the indoor exchanger: 27°C DB/19°C WB.

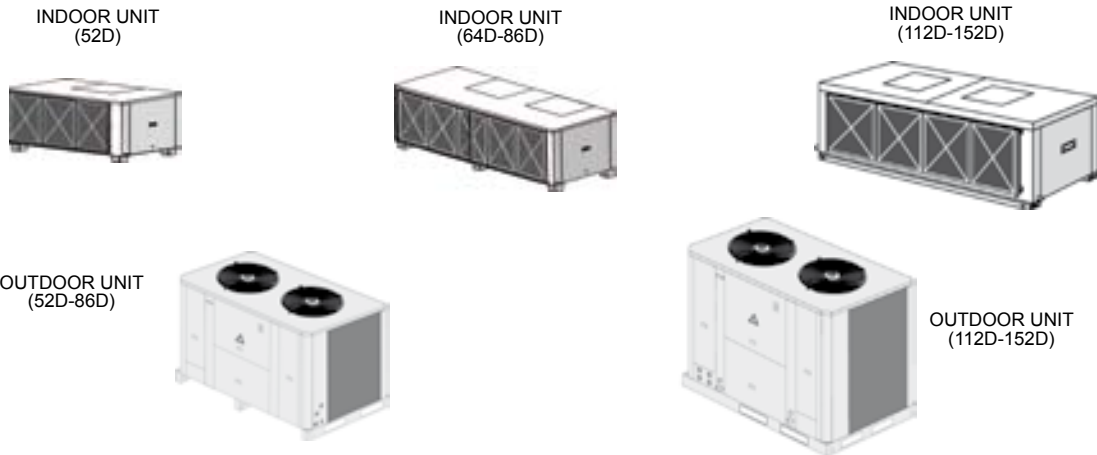
(\*) Air intake temperature in the outdoor exchanger: 35°C DB.

(\*\*) Air intake temperature in the indoor exchanger: 20°C DB.

(\*\*) Air intake temperature in the outdoor exchanger: 7°C DB / 6°C WB.



## PHYSICAL DATA



| SET                     |              |                   | ANCM<br>ANHM<br>52D | ANCM<br>ANHM<br>64D | ANCM<br>ANHM<br>76D | ANCM<br>ANHM<br>86D | ANCM<br>ANHM<br>112D | ANCM<br>ANHM<br>128D | ANCM<br>ANHM<br>152D |
|-------------------------|--------------|-------------------|---------------------|---------------------|---------------------|---------------------|----------------------|----------------------|----------------------|
| Cooling capacity (*)    | ANCM<br>ANHM | kW                | 46.50               | 55.50               | 68.50               | 79.00               | 100.00               | 111.00               | 134.00               |
| Heating capacity (**)   | ANHM         | kW                | 48.00               | 54.00               | 74.00               | 80.00               | 105.00               | 115.00               | 133.00               |
| OUTDOOR UNIT            |              |                   | KNCM<br>KNHM<br>52D | KNCM<br>KNHM<br>64D | KNCM<br>KNHM<br>76D | KNCM<br>KNHM<br>86D | KNCM<br>KNHM<br>112D | KNCM<br>KNHM<br>128D | KNCM<br>KNHM<br>152D |
| COMPRESSOR              | Nr / TYPE    |                   | 2 / Scroll          | 2 / Scroll          | 2 / Scroll          | 2 / Scroll          | 3 / Scroll           | 3 / Scroll           | 3 / Scroll           |
| FAN                     |              |                   |                     |                     |                     |                     |                      |                      |                      |
| Air flow                |              | m <sup>3</sup> /h | 9750+9750           | 11500+11500         | 11300+11300         | 11000+11000         | 22700+18100          | 22700+18100          | 22700+22700          |
| NET WEIGHT              | KNCM<br>KNHM | Kg                | 443                 | 452                 | 481                 | 520                 | 632                  | 797                  | 906                  |
| DIMENSIONS              |              |                   |                     |                     |                     |                     |                      |                      |                      |
| Height                  |              | mm                | 1375                | 1375                | 1375                | 1375                | 1875                 | 1875                 | 1875                 |
| Width                   |              | mm                | 1960                | 1960                | 1960                | 1960                | 2250                 | 2250                 | 2250                 |
| Depth                   |              | mm                | 1195                | 1195                | 1195                | 1195                | 1420                 | 1420                 | 1420                 |
| REFRIGERANT CONNECTION  |              |                   |                     |                     |                     |                     |                      |                      |                      |
| Circuit1 - Circuit2     | Liquid       |                   | 5/8" - 5/8"         | 5/8" - 5/8"         | 5/8" - 5/8"         | 5/8" - 5/8"         | 3/4" - 5/8"          | 3/4" - 5/8"          | 3/4" - 3/4"          |
|                         | Gas          |                   | 1 1/8"-1 1/8"       | 1 1/8"-1 1/8"       | 1 3/8"-1 3/8"       | 1 3/8"-1 3/8"       | 1 5/8"-1 3/8"        | 1 5/8"-1 3/8"        | 1 5/8"-1 5/8"        |
| INDOOR UNIT             |              |                   | LECM<br>LEHM<br>52D | LECM<br>LEHM<br>64D | LECM<br>LEHM<br>76D | LECM<br>LEHM<br>86D | LECM<br>LEHM<br>112D | LECM<br>LEHM<br>128D | LECM<br>LEHM<br>152D |
| FAN                     |              |                   |                     |                     |                     |                     |                      |                      |                      |
| Max. air flow           |              | m <sup>3</sup> /h | 9750                | 12850               | 15090               | 16725               | 22450                | 24950                | 24750                |
| Min. air flow           |              | m <sup>3</sup> /h | 7950                | 9950                | 12450               | 14000               | 17350                | 19300                | 21000                |
| Max. available pressure |              | Pa                | 216                 | 175                 | 197                 | 237                 | 187                  | 269                  | 276                  |
| NET WEIGHT              |              | Kg                | 170                 | 242                 | 259                 | 276                 | 470                  | 480                  | 490                  |
| DIMENSIONS              |              |                   |                     |                     |                     |                     |                      |                      |                      |
| Height                  |              | mm                | 740                 | 740                 | 740                 | 740                 | 1140                 | 1140                 | 1140                 |
| Width                   |              | mm                | 1445                | 2250                | 2250                | 2250                | 2900                 | 2900                 | 2900                 |
| Depth                   |              | mm                | 923                 | 923                 | 923                 | 923                 | 1103                 | 1103                 | 1103                 |
| REFRIGERANT CONNECTION  |              |                   |                     |                     |                     |                     |                      |                      |                      |
| Circuit1 - Circuit2     | Liquid       |                   | 5/8" - 5/8"         | 5/8" - 5/8"         | 5/8" - 5/8"         | 5/8" - 5/8"         | 3/4" - 5/8"          | 3/4" - 5/8"          | 3/4" - 3/4"          |
|                         | Gas          |                   | 1 1/8"-1 1/8"       | 1 1/8"-1 1/8"       | 1 3/8"-1 3/8"       | 1 3/8"-1 3/8"       | 1 5/8"-1 3/8"        | 1 5/8"-1 3/8"        | 1 5/8"-1 5/8"        |

(1) With admissible minimum air flow.

DB.- Dry bulb temperature.  
WB.- Wet bulb temperature.

(\*) Air intake temperature in the indoor exchanger: 27°C DB/19°C WB.

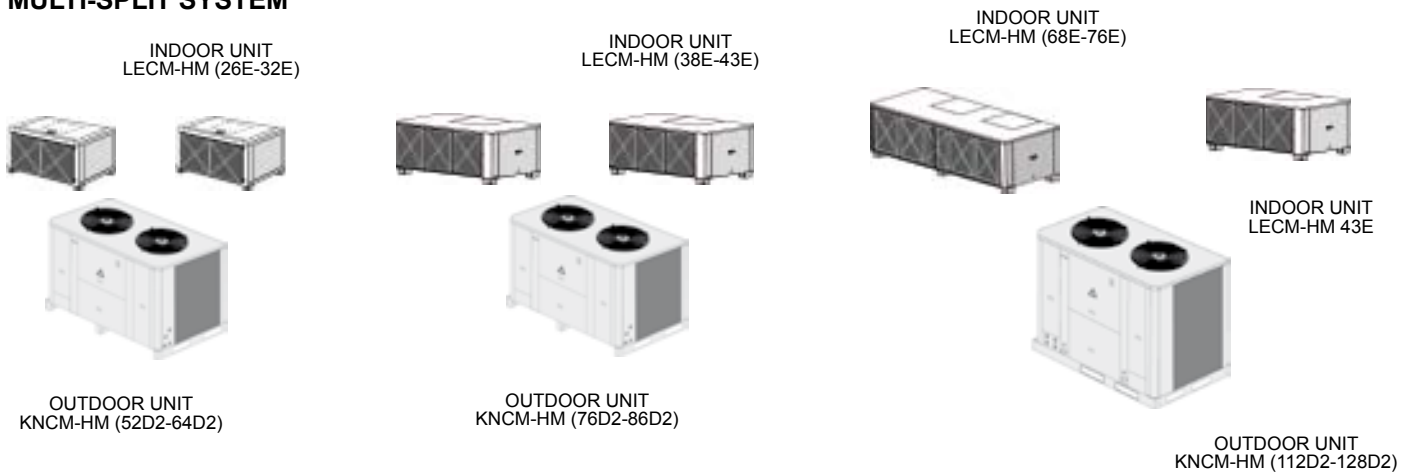
(\*) Air intake temperature in the outdoor exchanger: 35°C DB.

(\*\*) Air intake temperature in the indoor exchanger: 20°C DB.

(\*\*) Air intake temperature in the outdoor exchanger: 7°C DB / 6°C WB.

## PHYSICAL DATA

### MULTI-SPLIT SYSTEM



| SET                         |              |                   | ANCM<br>ANHM<br>52D2    | ANCM<br>ANHM<br>64D2    | ANCM<br>ANHM<br>76D2    | ANCM<br>ANHM<br>86D2    | ANCM<br>ANHM<br>112D2              | ANCM<br>ANHM<br>128D2              |
|-----------------------------|--------------|-------------------|-------------------------|-------------------------|-------------------------|-------------------------|------------------------------------|------------------------------------|
| Cooling capacity (*)        | ANCM<br>ANHM | kW                | 46.50                   | 55.50                   | 68.50                   | 79.00                   | 100.00                             | 111.00                             |
| Heating capacity (**)       | ANHM         | kW                | 48.00                   | 54.00                   | 74.00                   | 80.00                   | 105.00                             | 115.00                             |
| OUTDOOR UNIT                |              |                   | KNCM<br>KNHM<br>52D2    | KNCM<br>KNHM<br>64D2    | KNCM<br>KNHM<br>76D2    | KNCM<br>KNHM<br>86D2    | KNCM<br>KNHM<br>112D2              | KNCM<br>KNHM<br>128D2              |
| COMPRESSOR                  | Nr / TYPE    |                   | 2 / Scroll              | 2 / Scroll              | 2 / Scroll              | 2 / Scroll              | 3 / Scroll                         | 3 / Scroll                         |
| FAN                         |              |                   |                         |                         |                         |                         |                                    |                                    |
| Air flow                    |              | m <sup>3</sup> /h | 9750+9750               | 11500+11500             | 11300+11300             | 11000+11000             | 22700+18100                        | 22700+18100                        |
| NET WEIGHT                  | KNCM<br>KNHM | Kg                | 443                     | 452                     | 481                     | 520                     | 632                                | 797                                |
| DIMENSIONS                  |              |                   |                         |                         |                         |                         |                                    |                                    |
| Height                      |              | mm                | 1375                    | 1375                    | 1375                    | 1375                    | 1875                               | 1875                               |
| Width                       |              | mm                | 1960                    | 1960                    | 1960                    | 1960                    | 2250                               | 2250                               |
| Depth                       |              | mm                | 1195                    | 1195                    | 1195                    | 1195                    | 1420                               | 1420                               |
| REFRIGERANT CONNECTION      |              |                   |                         |                         |                         |                         |                                    |                                    |
| Circuit1 - Circuit2         | Liquid       |                   | 5/8" - 5/8"             | 5/8" - 5/8"             | 5/8" - 5/8"             | 5/8" - 5/8"             | 3/4" - 5/8"                        | 3/4" - 5/8"                        |
|                             | Gas          |                   | 1 1/8"-1 1/8"           | 1 1/8"-1 1/8"           | 1 3/8"-1 3/8"           | 1 3/8"-1 3/8"           | 1 5/8"-1 3/8"                      | 1 5/8"-1 3/8"                      |
| INDOOR UNIT                 |              |                   | LECM<br>LEHM<br>26E+26E | LECM<br>LEHM<br>32E+32E | LECM<br>LEHM<br>38E+38E | LECM<br>LEHM<br>43E+43E | LECM<br>68E+43E<br>LEHM<br>68E+44E | LECM<br>76E+43E<br>LEHM<br>76E+44E |
| FAN                         |              |                   |                         |                         |                         |                         |                                    |                                    |
| Max. air flow               |              | m <sup>3</sup> /h | 5500+5500               | 6000+6000               | 8050+8050               | 9050+9050               | 12850+9050                         | 15090+9050                         |
| Min. air flow               |              | m <sup>3</sup> /h | 4250+4250               | 4650+4650               | 6200+6200               | 6950+6950               | 9950+6950                          | 12450+6950                         |
| Max. available pressure (1) |              | Pa                | 148+148                 | 153+153                 | 161+161                 | 231+231                 | 175+231                            | 197+231                            |
| NET WEIGHT                  |              | Kg                | 111+111                 | 115+115                 | 150+150                 | 160+160                 | 242+160                            | 259+160                            |
| DIMENSIONS                  |              |                   |                         |                         |                         |                         |                                    |                                    |
| Height                      |              | mm                | 645+645                 | 645+645                 | 740+740                 | 740+740                 | 740+740                            | 740+740                            |
| Width                       |              | mm                | 1195+1195               | 1195+1195               | 1445+1445               | 1445+1445               | 2250+1445                          | 2250+1445                          |
| Depth                       |              | mm                | 803+803                 | 803+803                 | 923+923                 | 923+923                 | 923+923                            | 923+923                            |
| REFRIGERANT CONNECTION      |              |                   |                         |                         |                         |                         |                                    |                                    |
| Circuit1 / Circuit2         | Liquid       |                   | 5/8" - 5/8"             | 5/8" - 5/8"             | 5/8" - 5/8"             | 5/8" - 5/8"             | 3/4" - 5/8"                        | 3/4" - 5/8"                        |
|                             | Gas          |                   | 1 1/8"-1 1/8"           | 1 1/8"-1 1/8"           | 1 3/8"-1 3/8"           | 1 3/8"-1 3/8"           | 1 5/8"-1 3/8"                      | 1 5/8"-1 3/8"                      |

(1) With admissible minimum air flow.

DB.- Dry bulb temperature.  
WB.- Wet bulb temperature.

(\*) Air intake temperature in the indoor exchanger: 27°C DB/19°C WB.

(\*) Air intake temperature in the outdoor exchanger: 35°C DB.

(\*\*) Air intake temperature in the indoor exchanger: 20°C DB.

(\*\*) Air intake temperature in the outdoor exchanger: 7°C DB / 6°C WB.

## ELECTRICAL DATA



INDOOR UNIT 22E-32E



INDOOR UNIT (38E-43E)



OUTDOOR UNIT 22E



OUTDOOR UNIT (26E-43E)

### ELECTRICAL CONSUMPTION FOR STANDARD UNITS

| SET                    |         | ANCM 22E<br>ANHM 22E | ANCM 26E<br>ANHM 26E | ANCM 32E<br>ANHM 32E | ANCM 38E<br>ANHM 38E | ANCM 43E<br>ANHM 43E |
|------------------------|---------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Voltage                | Ph/V/Hz | 3N~400V 50Hz         |                      |                      |                      |                      |
| Maximum absorbed power | kW      | 9.29                 | 12.2                 | 13.9                 | 18.3                 | 20.4                 |
| Maximum current        | A       | 18.0                 | 26.6                 | 28.0                 | 32.5                 | 39.2                 |
| Start up current       | A       | 88.9                 | 99.9                 | 106                  | 141                  | 177                  |

| OUTDOOR UNIT     |         | KNCM 22E<br>KNHM 22E | KNCM 26E<br>KNHM 26E | KNCM 32E<br>KNHM 32E | KNCM 38E<br>KNHM 38E | KNCM 43E<br>KNHM 43E |
|------------------|---------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Voltage          | Ph/V/Hz | 3N~400V 50Hz         |                      |                      |                      |                      |
|                  | kW      | 8.55                 | 10.8                 | 12.5                 | 16.4                 | 17.7                 |
| Maximum current  | A       | 16.6                 | 24.0                 | 25.4                 | 29.0                 | 34.4                 |
| Start up current | A       | 87.5                 | 97.4                 | 104                  | 138                  | 172                  |

| INDOOR UNIT            |         | LECM 22E<br>LEHM 22E | LECM 26E<br>LEHM 26E | LECM 32E<br>LEHM 32E | LECM 38E<br>LEHM 38E | LECM 43E<br>LEHM 43E |
|------------------------|---------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Voltage                | Ph/V/Hz | 3~400V 50Hz          |                      |                      |                      |                      |
| Maximum absorbed power | kW      | 0.74                 | 1.45                 | 1.45                 | 1.89                 | 2.69                 |
| Maximum current        | A       | 1.40                 | 2.59                 | 2.59                 | 3.45                 | 4.80                 |
| Start up current       | A       | 6.44                 | 13.0                 | 13.0                 | 17.3                 | 26.4                 |

### ADDITIONAL ELECTRICAL CONSUMPTION FOR THE OPTIONS

#### INDOOR UNIT

| ELECTRICAL HEATER      |           | LECM-HM 22E-26E-32E-38E-43E |      |      |
|------------------------|-----------|-----------------------------|------|------|
| Voltage                | Ph/V/50Hz | 3~400V 50Hz                 |      |      |
| Maximum absorbed power | kW        | 7.50                        | 11.0 | 15.0 |
| Maximum current        | A         | 10.8                        | 15.9 | 21.7 |

| HIGH PRESSURE FAN      |         | LECM 22E<br>LEHM 22E | LECM 26E<br>LEHM 26E | LECM 32E<br>LEHM 32E | LECM 38E<br>LEHM 38E | LECM 43E<br>LEHM 43E |
|------------------------|---------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Voltage                | Ph/V/Hz | 3~400V 50Hz          |                      |                      |                      |                      |
| Maximum absorbed power | kW      | 0.72                 | 0.43                 | 0.43                 | 0.80                 | 0.00                 |
| Maximum current        | A       | 1.19                 | 0.86                 | 0.86                 | 1.35                 | 0.00                 |
| Start up current       | A       | 6.51                 | 4.30                 | 4.30                 | 9.15                 | 0.00                 |

| EXHAUST FAN            |         | LECM 22E<br>LEHM 22E | LECM 26E<br>LEHM 26E | LECM 32E<br>LEHM 32E | LECM 38E<br>LEHM 38E | LECM 43E<br>LEHM 43E |
|------------------------|---------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Voltage                | Ph/V/Hz | 1N~230V 50Hz         |                      |                      |                      |                      |
| Maximum absorbed power | kW      | 0.51                 | 0.51                 | 0.51                 | 1.33                 | 1.33                 |
| Maximum current        | A       | 2.60                 | 2.60                 | 2.60                 | 6.80                 | 6.80                 |

## ELECTRICAL DATA



INDOOR UNIT  
(38E-52D)



INDOOR UNIT  
(64D-86D)



OUTDOOR UNIT  
(112D-152D)



INDOOR UNIT  
(112D-152D)

OUTDOOR UNIT  
(52D-86D)



## ELECTRICAL CONSUMPTION FOR STANDARD UNITS

| SET                    |         | ANCM 52D<br>ANHM 52D | ANCM 64D<br>ANHM 64D | ANCM 76D<br>ANHM 76D | ANCM 86D<br>ANHM 86D | ANCM 112D<br>ANHM 112D | ANCM 128D<br>ANHM 128D | ANCM 152D<br>ANHM 152D |
|------------------------|---------|----------------------|----------------------|----------------------|----------------------|------------------------|------------------------|------------------------|
| Voltage                | Ph/V/Hz | 3N~400V 50Hz         |                      |                      |                      |                        |                        |                        |
| Maximum absorbed power | kW      | 24.3                 | 27.7                 | 36.4                 | 40.5                 | 50.7                   | 55.0                   | 66.3                   |
| Maximum current        | A       | 52.8                 | 55.6                 | 64.5                 | 77.4                 | 92.6                   | 102                    | 121                    |
| Start up current       | A       | 126                  | 134                  | 173                  | 215                  | 230                    | 239                    | 303                    |

| OUTDOOR UNIT           |         | KNCM 52D<br>KNHM 52D | KNCM 64D<br>KNHM 64D | KNCM 76D<br>KNHM 76D | KNCM 86D<br>KNHM 86D | KNCM 112D<br>KNHM 112D | KNCM 128D<br>KNHM 128D | KNCM 152D<br>KNHM 152D |
|------------------------|---------|----------------------|----------------------|----------------------|----------------------|------------------------|------------------------|------------------------|
| Voltage                | Ph/V/Hz | 3N~400V 50Hz         |                      |                      |                      |                        |                        |                        |
| Maximum absorbed power | kW      | 21.6                 | 25.0                 | 32.8                 | 35.5                 | 45.6                   | 48.7                   | 59.9                   |
| Maximum current        | A       | 48.0                 | 50.80                | 58.0                 | 68.8                 | 84.0                   | 90.4                   | 110                    |
| Start up current       | A       | 121                  | 129                  | 167                  | 206                  | 221                    | 228                    | 292                    |

| INDOOR UNIT            |         | LECM 52D<br>LEHM 52D | LECM 64D<br>LEHM 64D | LECM 76D<br>LEHM 76D | LECM 86D<br>LEHM 86D | LECM 112D<br>LEHM 112D | LECM 128D<br>LEHM 128D | LECM 152D<br>LEHM 152D |
|------------------------|---------|----------------------|----------------------|----------------------|----------------------|------------------------|------------------------|------------------------|
| Voltage                | Ph/V/Hz | 3~400V 50Hz          |                      |                      |                      |                        |                        |                        |
| Maximum absorbed power | kW      | 2.69                 | 2.69                 | 3.63                 | 5.06                 | 5.06                   | 6.38                   | 6.38                   |
| Maximum current        | A       | 4.80                 | 4.80                 | 6.48                 | 8.60                 | 8.60                   | 11.1                   | 11.1                   |
| Start up current       | A       | 26.4                 | 26.4                 | 35.6                 | 60.2                 | 60.2                   | 81.0                   | 81.0                   |

## ADDITIONAL ELECTRICAL CONSUMPTION FOR THE OPTIONS

### OUTDOOR UNIT

| OPTION FP1-FP2         |         | KNCM 112D<br>KNHM 112D<br>FP1 | KNCM 128D<br>KNHM 128D<br>FP1 | KNCM 152D<br>KNHM 152D<br>FP1 | KNCM 112D<br>KNHM 112D<br>FP2 | KNCM 128D<br>KNHM 128D<br>FP2 | KNCM 152D<br>KNHM 152D<br>FP2 |
|------------------------|---------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| Voltage                | Ph/V/Hz | 3~400V 50Hz                   |                               |                               |                               |                               |                               |
| Maximum absorbed power | kW      | 2.00                          | 2.00                          | 1.00                          | 6.20                          | 6.20                          | 5.20                          |
| Maximum current        | A       | 3.20                          | 3.20                          | 1.60                          | 9.80                          | 9.80                          | 8.20                          |
| Start up current       | A       | 3.20                          | 3.20                          | 1.60                          | 9.80                          | 9.80                          | 8.20                          |

### INDOOR UNIT

| ELECTRICAL HEATER |                        | LECM 52D    |      |      | LECM 64D-76D-86D |      |         |      | LECM 112D-128D-152D |      |         |      |          |      |
|-------------------|------------------------|-------------|------|------|------------------|------|---------|------|---------------------|------|---------|------|----------|------|
| COOLING ONLY      | Voltage                | 3~400V 50Hz |      |      |                  |      |         |      |                     |      |         |      |          |      |
|                   |                        | 1 STAGE     |      |      | 2 STAGES         |      | 1 STAGE |      | 2 STAGES            |      | 1 STAGE |      | 2 STAGES |      |
|                   | Maximum absorbed power | kW          | 7.50 | 11.0 | 15.0             | 20.0 | 11.0    | 15.0 | 20.0                | 30.0 | 30.0    | 40.0 | 40.0     | 60.0 |
|                   | Maximum current        | A           | 10.8 | 15.9 | 21.7             | 28.9 | 15.9    | 21.7 | 28.9                | 43.3 | 43.3    | 57.7 | 57.7     | 86.6 |

## ELECTRICAL DATA

### ELECTRICAL HEATER

|              |                        | LEHM 52D |             |      | LEHM 64D-76D-86D |         |      | LEHM 112D-128D-152D |         |      |
|--------------|------------------------|----------|-------------|------|------------------|---------|------|---------------------|---------|------|
| HEATING PUMP | Voltage                | Ph/V/Hz  | 3~400V 50Hz |      |                  |         |      |                     |         |      |
|              |                        |          | 1 STAGE     |      |                  | 1 STAGE |      |                     | 1 STAGE |      |
|              | Maximum absorbed power | kW       | 7.50        | 11.0 | 15.0             | 11.0    | 15.0 | 20.0                | 30.0    | 40.0 |
|              | Maximum current        | A        | 10.8        | 15.9 | 21.7             | 15.9    | 21.7 | 28.9                | 43.3    | 57.7 |

### HIGH PRESSURE FAN

|                        |         | LECM 52D<br>LEHM 52D | LECM 64D<br>LEHM 64D | LECM 76D<br>LEHM 76D | LECM 86D<br>LEHM 86D | LECM 112D<br>LEHM 112D | LECM 128D<br>LEHM 128D | LECM 152D<br>LEHM 152D |
|------------------------|---------|----------------------|----------------------|----------------------|----------------------|------------------------|------------------------|------------------------|
| Voltage                | Ph/V/Hz | 3~400V 50Hz          |                      |                      |                      |                        |                        |                        |
| Maximum absorbed power | kW      | 0.94                 | 0.94                 | 1.43                 | 1.32                 | 1.32                   | 2.41                   | 2.41                   |
| Maximum current        | A       | 1.68                 | 1.68                 | 2.12                 | 2.50                 | 2.50                   | 4.20                   | 4.20                   |
| Start up current       | A       | 9.24                 | 9.24                 | 24.6                 | 20.8                 | 20.8                   | 27.6                   | 27.6                   |

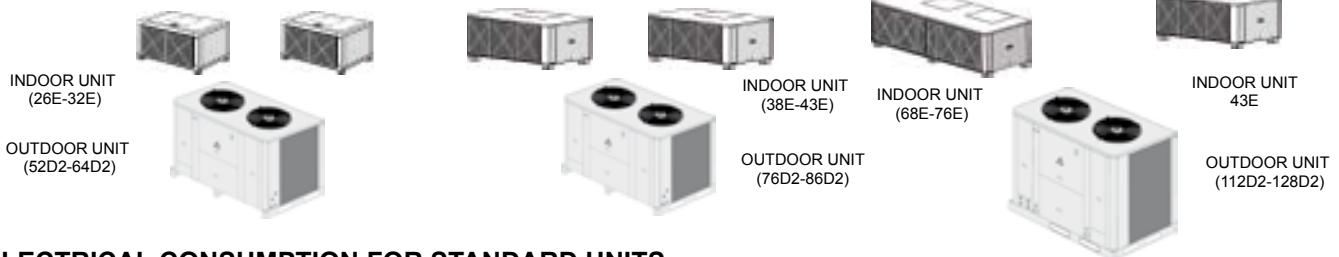
### RETURN FAN

|                        |         | LECM 64D<br>LEHM 64D | LECM 76D<br>LEHM 76D | LECM 86D<br>LEHM 86D | LECM 112D<br>LEHM 112D | LECM 128D<br>LEHM 128D | LECM 152D<br>LEHM 152D |
|------------------------|---------|----------------------|----------------------|----------------------|------------------------|------------------------|------------------------|
| Voltage                | Ph/V/Hz | 3~400V 50Hz          |                      |                      |                        |                        |                        |
| Maximum absorbed power | kW      | 2.69                 | 3.63                 | 3.63                 | 5.06                   | 6.38                   | 6.38                   |
| Maximum current        | A       | 4.80                 | 6.48                 | 6.48                 | 8.60                   | 11.1                   | 11.1                   |

### EXHAUST FAN

|                        |             | LECM 52D<br>LEHM 52D | LECM 64D<br>LEHM 64D | LECM 76D<br>LEHM 76D | LECM 86D<br>LEHM 86D | LECM 112D<br>LEHM 112D | LECM 128D<br>LEHM 128D | LECM 152D<br>LEHM 152D |
|------------------------|-------------|----------------------|----------------------|----------------------|----------------------|------------------------|------------------------|------------------------|
| Voltage                | Ph/V/Hz     | 1N~230V              | 3~400V 50Hz          |                      |                      |                        |                        |                        |
| Maximum absorbed power | kW          | 1.33                 | 2.65                 | 2.65                 | 2.65                 | 5.30                   | 5.30                   | 5.30                   |
| Maximum current        | 230V/400V A | 6.80                 | 4.50                 | 4.50                 | 4.50                 | 9.00                   | 9.00                   | 9.00                   |

### SISTEMA MULTI-SPLIT



### ELECTRICAL CONSUMPTION FOR STANDARD UNITS

| SET                    |         | ANCM 52D2<br>ANHM 52D2 | ANCM 64D2<br>ANHM 64D2 | ANCM 76D2<br>ANHM 76D2 | ANCM 86D2<br>ANHM 86D2 | ANCM 112D2<br>ANHM 112D2 | ANCM 128D2<br>ANHM 128D2 |
|------------------------|---------|------------------------|------------------------|------------------------|------------------------|--------------------------|--------------------------|
| Voltage                | Ph/V/Hz | 3N~400V 50Hz           |                        |                        |                        |                          |                          |
| Maximum absorbed power | kW      | 24.5                   | 27.9                   | 36.6                   | 40.9                   | 51.0                     | 55.0                     |
| Maximum current        | A       | 55.2                   | 56.0                   | 64.9                   | 78.4                   | 93.6                     | 102                      |
| Start up current       | A       | 200                    | 213                    | 282                    | 353                    | 340                      | 376                      |

### OUTDOOR UNIT

|                        |         | KNCM 52D2<br>KNHM 52D2 | KNCM 64D2<br>KNHM 64D2 | KNCM 76D2<br>KNHM 76D2 | KNCM 86D2<br>KNHM 86D2 | KNCM 112D2<br>KNHM 112D2 | KNCM 128D2<br>KNHM 128D2 |
|------------------------|---------|------------------------|------------------------|------------------------|------------------------|--------------------------|--------------------------|
| Voltage                | Ph/V/Hz | 3N~400V 50Hz           |                        |                        |                        |                          |                          |
| Maximum absorbed power | kW      | 21.6                   | 25.0                   | 32.8                   | 35.5                   | 45.6                     | 48.7                     |
| Maximum current        | A       | 50.0                   | 50.8                   | 58.0                   | 68.8                   | 84.0                     | 90.4                     |
| Start up current       | A       | 195                    | 207                    | 275                    | 343                    | 330                      | 365                      |

### INDOOR UNIT

|                        |         | LECM/LEHM<br>2x26E | LECM/LEHM<br>2x32E | LECM/LEHM<br>2x38E | LECM/LEHM<br>2x43E | LECM 68E+43E<br>LEHM 68E+44E | LECM 76E+43E<br>LEHM 76E+44E |
|------------------------|---------|--------------------|--------------------|--------------------|--------------------|------------------------------|------------------------------|
| Voltage                | Ph/V/Hz | 3~400V 50Hz        |                    |                    |                    |                              |                              |
| Maximum absorbed power | kW      | 2x1.45             | 2x1.45             | 2x1.89             | 2x2.69             | 2.69+2.69                    | 3.63+2.69                    |
| Maximum current        | A       | 2x2.59             | 2x2.59             | 2x3.45             | 2x4.80             | 4.80+4.80                    | 6.48+4.80                    |
| Start up current       | A       | 2x13.0             | 2x13.0             | 2x17.3             | 2x26.4             | 26.4+26.4                    | 35.6+26.4                    |

## ELECTRICAL DATA

### ADDITIONAL ELECTRICAL CONSUMPTION FOR THE OPTIONS

#### OUTDOOR UNIT

| OPTION FP1-FP2         |         | KNCM 112D2<br>KNHM 112D2<br>FP1 | KNCM 128D2<br>KNHM 128D2<br>FP1 | KNCM 112D2<br>KNHM 112D2<br>FP2 | KNCM 128D2<br>KNHM 128D2<br>FP2 |
|------------------------|---------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Voltage                | Ph/V/Hz | 3~400V 50Hz                     |                                 |                                 |                                 |
| Maximum absorbed power | kW      | 2.0                             | 2.0                             | 6.2                             | 6.2                             |
| Maximum current        | A       | 3.2                             | 3.2                             | 9.8                             | 9.8                             |
| Start up current       | A       | 3.2                             | 3.2                             | 9.8                             | 9.8                             |

#### INDOOR UNIT

| ELECTRICAL HEATER |                        | LECM 2x(26E-32E-38E-43E) |                                |         | LECM (68E+43E)-(76E+43E) |         |       |                     |       |                |       |       |
|-------------------|------------------------|--------------------------|--------------------------------|---------|--------------------------|---------|-------|---------------------|-------|----------------|-------|-------|
| COOLING ONLY      | Voltage                | Ph/V/Hz                  | 3~400V 50Hz                    |         |                          |         |       |                     |       |                |       |       |
|                   |                        |                          | 2x(26E-32E-38E-43E)<br>1 STAGE |         |                          | 1 STAGE |       | 68E-76E<br>2 STAGES |       | 43E<br>1 STAGE |       |       |
|                   | Maximum absorbed power | kW                       | 2x7.50                         | 2x11.00 | 2x15.00                  | 11.00   | 15.00 | 20.00               | 30.00 | 7.50           | 11.00 | 15.00 |
|                   | Start up current       | A                        | 2x10.80                        | 2x15.90 | 2x21.70                  | 15.90   | 21.70 | 28.90               | 43.30 | 10.80          | 15.90 | 21.70 |

| ELECTRICAL HEATER |                        | LEHM 2x(26E-32E-38E-43E) |                                |         | LEHM (68E+44E)-(76E+44E) |                    |       |       |  |                |       |       |
|-------------------|------------------------|--------------------------|--------------------------------|---------|--------------------------|--------------------|-------|-------|--|----------------|-------|-------|
| HEATING PUMP      | Voltage                | Ph/V/Hz                  | 3~400V 50Hz                    |         |                          |                    |       |       |  |                |       |       |
|                   |                        |                          | 2x(26E-32E-38E-43E)<br>1 STAGE |         |                          | 68E-76E<br>1 STAGE |       |       |  | 43E<br>1 STAGE |       |       |
|                   | Maximum absorbed power | kW                       | 2x7.50                         | 2x11.00 | 2x15.00                  | 11.00              | 15.00 | 20.00 |  | 7.50           | 11.00 | 15.00 |
|                   | Maximum current        | A                        | 2x10.80                        | 2x15.90 | 2x21.70                  | 15.90              | 21.70 | 28.90 |  | 10.80          | 15.90 | 21.70 |

| HIGH PRESSURE FAN      |         | LECM/HM<br>2x26E | LECM/HM<br>2x32E | LECM/HM<br>2x38E | LECM/HM<br>2x43E | LECM 68E+43E<br>LEHM 68E+44E | LECM 76E+43E<br>LEHM 76E+44E |
|------------------------|---------|------------------|------------------|------------------|------------------|------------------------------|------------------------------|
| Voltage                | Ph/V/Hz | 3~400V 50Hz      |                  |                  |                  |                              |                              |
| Maximum absorbed power | kW      | 2x0.43           | 2x0.43           | 2x0.80           | 0.00             | 0.94+0.00                    | 1.43+0.00                    |
| Maximum current        | A       | 2x0.86           | 2x0.86           | 2x1.35           | 0.00             | 1.68+0.00                    | 2.12+0.00                    |
| Start up current       | A       | 2x4.30           | 2x4.30           | 2x9.15           | 0.00             | 9.24+0.00                    | 24.6+0.00                    |

| RETURN FAN             |         | LECM/LEHM<br>1x68E | LECM/LEHM<br>1x76E |
|------------------------|---------|--------------------|--------------------|
| Voltage                | Ph/V/Hz | 3~400V 50Hz        |                    |
| Maximum absorbed power | kW      | 2.69               | 3.63               |
| Maximum current        | A       | 4.80               | 6.48               |

| EXHAUST FAN            |         | LECM/HM<br>2x26E | LECM/HM<br>2x32E | LECM/HM<br>2x38E | LECM/HM<br>2x43E | LECM 68E+43E<br>LEHM 68E+44E | LECM 76E+43E<br>LEHM 76E+44E |
|------------------------|---------|------------------|------------------|------------------|------------------|------------------------------|------------------------------|
| Voltage                | Ph/V/Hz | 1N~230V 50Hz     |                  |                  |                  | (3~400V)+(1N~230V) 50Hz      |                              |
| Maximum absorbed power | kW      | 2x0.51           | 2x0.51           | 2x1.33           | 2x1.33           | 2.65+1.33                    | 2.65+1.33                    |
| Maximum current        | A       | 2x2.60           | 2x2.60           | 2x6.80           | 2x6.80           | 4.50+6.80                    | 4.50+6.80                    |

## FAN PERFORMANCES

### STANDARD INDOOR FAN PERFORMANCES

| 22E             |               |                   |                               |      |      | 26E  |        |     |                               |      |      |      |      |
|-----------------|---------------|-------------------|-------------------------------|------|------|------|--------|-----|-------------------------------|------|------|------|------|
| AIR FLOW        |               | m <sup>3</sup> /h | 3150                          | 3425 | 3700 | 4100 | r.p.m. |     | m <sup>3</sup> /h             | 4250 | 4625 | 5000 | 5500 |
|                 |               | r.p.m.            | Available static pressure Pa. |      |      |      |        |     | Available static pressure Pa. |      |      |      |      |
| PULLEY POSITION | CLOSED PULLEY | 806               | 162                           | 156  | 145  | ●    | 818    | 148 | 137                           | 115  | 85   |      |      |
|                 | 1 TURN        | 771               | 147                           | 136  | 130  | 112  | 783    | 133 | 117                           | 95   | 65   |      |      |
|                 | 2 VUeltas     | 737               | 127                           | 121  | 110  | 97   | 747    | 113 | 92                            | 70   | 40   |      |      |
|                 | 3 VUeltas     | 702               | 112                           | 106  | 95   | 77   | 712    | 93  | 77                            | 55   | 20   |      |      |
|                 | 4 VUeltas     | 667               | 97                            | 86   | 75   | 57   | 677    | 73  | 57                            | 30   | n/a  |      |      |

| 32E             |               |                   |                               |      |      | 38E  |        |     |                               |      |      |      |      |
|-----------------|---------------|-------------------|-------------------------------|------|------|------|--------|-----|-------------------------------|------|------|------|------|
| AIR FLOW        |               | m <sup>3</sup> /h | 4650                          | 5050 | 5450 | 6000 | r.p.m. |     | m <sup>3</sup> /h             | 6200 | 6650 | 7100 | 8050 |
|                 |               | r.p.m.            | Available static pressure Pa. |      |      |      |        |     | Available static pressure Pa. |      |      |      |      |
| PULLEY POSITION | CLOSED PULLEY | 818               | 153                           | 134  | 113  | 80   | 735    | 161 | 140                           | 122  | 72   |      |      |
|                 | 1 TURN        | 783               | 130                           | 113  | 90   | 52   | 704    | 136 | 118                           | 97   | 44   |      |      |
|                 | 2 TURNS       | 747               | 110                           | 90   | 65   | 27   | 672    | 116 | 95                            | 75   | 17   |      |      |
|                 | 3 TURNS       | 712               | 90                            | 69   | 45   | 2    | 640    | 91  | 71                            | 48   | n/a  |      |      |
|                 | 4 TURNS       | 677               | 70                            | 47   | 20   | n/a  | 609    | 71  | 48                            | 26   | n/a  |      |      |

| 43E-44E         |               |                   |                               |      |      | 52D  |        |     |                               |      |      |      |      |
|-----------------|---------------|-------------------|-------------------------------|------|------|------|--------|-----|-------------------------------|------|------|------|------|
| AIR FLOW        |               | m <sup>3</sup> /h | 6950                          | 7550 | 8150 | 9050 | r.p.m. |     | m <sup>3</sup> /h             | 7950 | 8675 | 9400 | 9750 |
|                 |               | r.p.m.            | Available static pressure Pa. |      |      |      |        |     | Available static pressure Pa. |      |      |      |      |
| PULLEY POSITION | CLOSED PULLEY | 829               | 231                           | 210  | 185  | 138  | 829    | 216 | 187                           | 150  | 129  |      |      |
|                 | 1 TURN        | 794               | 201                           | 180  | 154  | 103  | 794    | 186 | 155                           | 115  | 93   |      |      |
|                 | 2 TURNS       | 758               | 174                           | 150  | 122  | 70   | 758    | 156 | 122                           | 80   | 56   |      |      |
|                 | 3 TURNS       | 722               | 147                           | 121  | 90   | 36   | 722    | 124 | 88                            | 45   | 21   |      |      |
|                 | 4 TURNS       | 686               | 119                           | 93   | 60   | 3    | 686    | 223 | 57                            | 10   | n/a  |      |      |

| 64D-68E         |               |                   |                               |       |       | 76D-76E |        |     |                               |       |       |       |       |
|-----------------|---------------|-------------------|-------------------------------|-------|-------|---------|--------|-----|-------------------------------|-------|-------|-------|-------|
| AIR FLOW        |               | m <sup>3</sup> /h | 9950                          | 10825 | 11700 | 12850   | r.p.m. |     | m <sup>3</sup> /h             | 12450 | 13550 | 14650 | 15090 |
|                 |               | r.p.m.            | Available static pressure Pa. |       |       |         |        |     | Available static pressure Pa. |       |       |       |       |
| PULLEY POSITION | CLOSED PULLEY | 755               | 175                           | 163   | 150   | 127     | 843    | 197 | 175                           | 150   | ●     |       |       |
|                 | 1 TURN        | 715               | 150                           | 138   | 124   | 100     | 798    | 164 | 142                           | 115   | 104   |       |       |
|                 | 2 TURNS       | 675               | 127                           | 114   | 100   | 74      | 753    | 134 | 109                           | 80    | 69    |       |       |
|                 | 3 TURNS       | 635               | 104                           | 184   | 74    | 47      | 709    | 104 | 78                            | 47    | 34    |       |       |
|                 | 4 TURNS       | 595               | 82                            | 68    | 50    | 22      | 664    | 95  | 47                            | 15    | 0     |       |       |

| 86D             |               |                   |                               |       |       | 112D  |        |     |                               |       |       |       |       |
|-----------------|---------------|-------------------|-------------------------------|-------|-------|-------|--------|-----|-------------------------------|-------|-------|-------|-------|
| AIR FLOW        |               | m <sup>3</sup> /h | 14000                         | 15125 | 16250 | 16725 | r.p.m. |     | m <sup>3</sup> /h             | 17350 | 18875 | 20400 | 22450 |
|                 |               | r.p.m.            | Available static pressure Pa. |       |       |       |        |     | Available static pressure Pa. |       |       |       |       |
| PULLEY POSITION | CLOSED PULLEY | 941               | 237                           | 214   | 185   | ●     | 672    | 187 | 167                           | 144   | ●     |       |       |
|                 | 1 TURN        | 891               | 200                           | 172   | 140   | 127   | 636    | 157 | 135                           | 111   | 73    |       |       |
|                 | 2 TURNS       | 841               | 162                           | 132   | 105   | 84    | 601    | 128 | 106                           | 80    | 40    |       |       |
|                 | 3 TURNS       | 791               | 287                           | 92    | 58    | 42    | 565    | 99  | 76                            | 49    | 7     |       |       |
|                 | 4 TURNS       | 741               | 250                           | 54    | 18    | 1     | 529    | 72  | 47                            | 19    | n/a   |       |       |

| 128D            |               |                   |                               |       |       | 152D  |        |     |                               |       |       |       |       |
|-----------------|---------------|-------------------|-------------------------------|-------|-------|-------|--------|-----|-------------------------------|-------|-------|-------|-------|
| AIR FLOW        |               | m <sup>3</sup> /h | 19300                         | 21000 | 22700 | 24950 | r.p.m. |     | m <sup>3</sup> /h             | 21000 | 22250 | 23500 | 24750 |
|                 |               | r.p.m.            | Available static pressure Pa. |       |       |       |        |     | Available static pressure Pa. |       |       |       |       |
| PULLEY POSITION | CLOSED PULLEY | 766               | 269                           | 247   | 225   | ●     | 766    | 276 | 263                           | 246   | ●     |       |       |
|                 | 1 TURN        | 725               | 231                           | 207   | 182   | ●     | 725    | 236 | 221                           | 204   | ●     |       |       |
|                 | 2 TURNS       | 684               | 193                           | 167   | 142   | 98    | 684    | 196 | 181                           | 162   | 142   |       |       |
|                 | 3 TURNS       | 644               | 156                           | 130   | 102   | 58    | 644    | 159 | 142                           | 123   | 100   |       |       |
|                 | 4 TURNS       | 603               | 120                           | 94    | 65    | 17    | 603    | 123 | 104                           | 83    | 60    |       |       |

(●) WRONG STATUS ON ACCOUNT OF MOTOR POWER LIMIT.

Nominal factory setting.

NOTE: Additional pressure drop with the option high efficiency air filter-EU4 is 50Pa.

NOTE: With long distance option, it is not suitable unit working below nominal airflow.

## FAN PERFORMANCES

### OPTIONS

#### 1.- INDOOR FAN PERFORMANCES WITH KIT HIGH STATIC PRESSURE (OPTIONAL TRANSMISSION)

|                       |               | <b>22E</b>        |                               |      |      |      | <b>26E</b>        |      |      |      |      |
|-----------------------|---------------|-------------------|-------------------------------|------|------|------|-------------------|------|------|------|------|
| <b>AIR FLOW</b>       |               | m <sup>3</sup> /h | 3150                          | 3425 | 3700 | 4100 | m <sup>3</sup> /h | 4250 | 4625 | 5000 | 5500 |
|                       |               | r.p.m.            | Available static pressure Pa. |      |      |      |                   |      |      |      |      |
| MOTOR PULLEY POSITION | CLOSED PULLEY | 1090              | 322                           | 316  | 310  | 300  | 1098              | 320  | 310  | 298  | 279  |
|                       | 1 TURN        | 1043              | 292                           | 286  | 280  | 270  | 1051              | 288  | 279  | 267  | 245  |
|                       | 2 TURNS       | 996               | 265                           | 258  | 252  | 240  | 1003              | 258  | 247  | 235  | 212  |
|                       | 3 TURNS       | 949               | 237                           | 231  | 224  | 212  | 956               | 230  | 217  | 203  | 179  |
|                       | 4 TURNS       | 902               | 211                           | 204  | 198  | 185  | 909               | 201  | 189  | 173  | 146  |

|                       |               | <b>32E</b>        |                               |      |      |      | <b>38E</b>        |      |      |      |      |
|-----------------------|---------------|-------------------|-------------------------------|------|------|------|-------------------|------|------|------|------|
| <b>AIR FLOW</b>       |               | m <sup>3</sup> /h | 4650                          | 5050 | 5450 | 6000 | m <sup>3</sup> /h | 6200 | 6650 | 7100 | 8050 |
|                       |               | r.p.m.            | Available static pressure Pa. |      |      |      |                   |      |      |      |      |
| MOTOR PULLEY POSITION | CLOSED PULLEY | 1098              | 326                           | 317  | 305  | ●    | 944               | 327  | 315  | 301  | 267  |
|                       | 1 TURN        | 1051              | 295                           | 284  | 270  | 248  | 894               | 285  | 272  | 258  | 220  |
|                       | 2 TURNS       | 1003              | 263                           | 252  | 237  | 212  | 844               | 247  | 232  | 218  | 175  |
|                       | 3 TURNS       | 956               | 234                           | 222  | 205  | 178  | 794               | 207  | 192  | 176  | 131  |
|                       | 4 TURNS       | 909               | 205                           | 190  | 173  | 143  | 744               | 170  | 155  | 136  | 87   |

|                       |               | <b>43E-44E</b>    |                               |      |      |      | <b>52D</b>        |      |      |      |      |
|-----------------------|---------------|-------------------|-------------------------------|------|------|------|-------------------|------|------|------|------|
| <b>AIR FLOW</b>       |               | m <sup>3</sup> /h | 6950                          | 7550 | 8150 | 9050 | m <sup>3</sup> /h | 7950 | 8675 | 9400 | 9750 |
|                       |               | r.p.m.            | Available static pressure Pa. |      |      |      |                   |      |      |      |      |
| MOTOR PULLEY POSITION | CLOSED PULLEY | 944               | 327                           | 448  | 450  | ●    | 944               | 320  | 295  | 264  | 247  |
|                       | 1 TURN        | 894               | 284                           | 267  | 244  | 204  | 894               | 274  | 247  | 213  | 194  |
|                       | 2 TURNS       | 844               | 243                           | 224  | 200  | 154  | 844               | 228  | 200  | 163  | 142  |
|                       | 3 TURNS       | 794               | 202                           | 181  | 154  | 107  | 794               | 185  | 153  | 113  | 91   |
|                       | 4 TURNS       | 744               | 163                           | 140  | 111  | 59   | 744               | 142  | 262  | 63   | 41   |

|                       |               | <b>64D-68E</b>    |                               |       |       |       | <b>76D-76E</b>    |       |       |       |       |
|-----------------------|---------------|-------------------|-------------------------------|-------|-------|-------|-------------------|-------|-------|-------|-------|
| <b>AIR FLOW</b>       |               | m <sup>3</sup> /h | 9950                          | 10825 | 11700 | 12850 | m <sup>3</sup> /h | 12450 | 13550 | 14650 | 15090 |
|                       |               | r.p.m.            | Available static pressure Pa. |       |       |       |                   |       |       |       |       |
| MOTOR PULLEY POSITION | CLOSED PULLEY | 1049              | 386                           | 376   | 367   | ●     | 1045              | 354   | 336   | 318   | ●     |
|                       | 1 TURN        | 993               | 341                           | 331   | 323   | ●     | 990               | 308   | 290   | 270   | 261   |
|                       | 2 TURNS       | 937               | 298                           | 383   | 278   | 262   | 934               | 264   | 245   | 223   | 214   |
|                       | 3 TURNS       | 882               | 259                           | 249   | 238   | 220   | 879               | 222   | 203   | 180   | 169   |
|                       | 4 TURNS       | 826               | 221                           | 211   | 197   | 179   | 823               | 182   | 160   | 135   | 123   |

|                       |               | <b>86D</b>        |                               |       |       |       | <b>112D</b>       |       |       |       |       |
|-----------------------|---------------|-------------------|-------------------------------|-------|-------|-------|-------------------|-------|-------|-------|-------|
| <b>AIR FLOW</b>       |               | m <sup>3</sup> /h | 14000                         | 15125 | 16250 | 16725 | m <sup>3</sup> /h | 17350 | 18875 | 20400 | 22450 |
|                       |               | r.p.m.            | Available static pressure Pa. |       |       |       |                   |       |       |       |       |
| MOTOR PULLEY POSITION | CLOSED PULLEY | 1063              | 346                           | 324   | 301   | 288   | 854               | 358   | 343   | 326   | ●     |
|                       | 1 TURN        | 1007              | 298                           | 274   | 249   | 238   | 809               | 314   | 297   | 278   | 247   |
|                       | 2 TURNS       | 951               | 251                           | 227   | 201   | 186   | 764               | 269   | 252   | 233   | 202   |
|                       | 3 TURNS       | 894               | 206                           | 179   | 151   | 136   | 719               | 229   | 210   | 188   | 157   |
|                       | 4 TURNS       | 838               | 163                           | 134   | 103   | 88    | 673               | 189   | 169   | 146   | 115   |

|                       |               | <b>128D</b>       |                               |       |       |       | <b>152D</b>       |       |       |       |       |
|-----------------------|---------------|-------------------|-------------------------------|-------|-------|-------|-------------------|-------|-------|-------|-------|
| <b>AIR FLOW</b>       |               | m <sup>3</sup> /h | 19300                         | 21000 | 22700 | 24950 | m <sup>3</sup> /h | 21000 | 22250 | 23500 | 24750 |
|                       |               | r.p.m.            | Available static pressure Pa. |       |       |       |                   |       |       |       |       |
| MOTOR PULLEY POSITION | CLOSED PULLEY | 852               | 356                           | 337   | 318   | 283   | 852               | 346   | 354   | 341   | 324   |
|                       | 1 TURN        | 806               | 310                           | 290   | 268   | 231   | 806               | 299   | 305   | 290   | 272   |
|                       | 2 TURNS       | 761               | 263                           | 242   | 220   | 181   | 761               | 251   | 257   | 241   | 223   |
|                       | 3 TURNS       | 716               | 221                           | 200   | 172   | 133   | 716               | 209   | 212   | 195   | 176   |
|                       | 4 TURNS       | 671               | 181                           | 155   | 128   | 86    | 671               | 164   | 167   | 149   | 124   |

(●) WRONG STATUS ON ACCOUNT OF MOTOR POWER LIMIT.

Nominal factory setting

NOTE: Additional pressure drop with the option high efficiency air filter-EU4 is 50Pa.

NOTE: With low distance option it is not suitable unit working below nominal airflow.



## FAN PERFORMANCES

### OPTIONS

#### 2.- FREE-COOLING

Return fan performances for each models are:

#### 64D-68E

| AIR FLOW              |               | m <sup>3</sup> /h | 9950                          | 10825 | 11700 | 12850 |
|-----------------------|---------------|-------------------|-------------------------------|-------|-------|-------|
|                       |               | r.p.m             | Available static pressure Pa. |       |       |       |
| MOTOR PULLEY POSITION | CLOSED PULLEY | 755               | 255                           | 257   | 260   | 260   |
|                       | 1 TURN        | 715               | 230                           | 232   | 234   | 233   |
|                       | 2 TURNS       | 675               | 207                           | 208   | 210   | 207   |
|                       | 3 TURNS       | 635               | 184                           | 184   | 184   | 180   |
|                       | 4 TURNS       | 595               | 162                           | 162   | 160   | 155   |

#### 76D-76E

| AIR FLOW              |               | m <sup>3</sup> /h | 12450                         | 13550 | 14650 | 15090 |
|-----------------------|---------------|-------------------|-------------------------------|-------|-------|-------|
|                       |               | r.p.m             | Available static pressure Pa. |       |       |       |
| MOTOR PULLEY POSITION | CLOSED PULLEY | 755               | 260                           | 260   | 258   | 255   |
|                       | 1 TURN        | 715               | 235                           | 233   | 228   | 225   |
|                       | 2 TURNS       | 675               | 208                           | 205   | 198   | 195   |
|                       | 3 TURNS       | 635               | 182                           | 176   | 168   | 165   |
|                       | 4 TURNS       | 595               | 157                           | 150   | 140   | 135   |

#### 86D

| AIR FLOW              |               | m <sup>3</sup> /h | 14000                         | 15125 | 16250 | 16725 |
|-----------------------|---------------|-------------------|-------------------------------|-------|-------|-------|
|                       |               | r.p.m             | Available static pressure Pa. |       |       |       |
| MOTOR PULLEY POSITION | CLOSED PULLEY | 755               | 260                           | 255   | 250   | ●     |
|                       | 1 TURN        | 715               | 230                           | 225   | 215   | 212   |
|                       | 2 TURNS       | 675               | 202                           | 195   | 183   | 178   |
|                       | 3 TURNS       | 635               | 173                           | 165   | 153   | 145   |
|                       | 4 TURNS       | 595               | 145                           | 135   | 120   | 115   |

#### 112D

| AIR FLOW              |               | m <sup>3</sup> /h | 17350                         | 18875 | 20400 | 22450 |
|-----------------------|---------------|-------------------|-------------------------------|-------|-------|-------|
|                       |               | r.p.m             | Available static pressure Pa. |       |       |       |
| MOTOR PULLEY POSITION | CLOSED PULLEY | 672               | 293                           | 293   | 291   | ●     |
|                       | 1 TURN        | 636               | 263                           | 261   | 258   | 251   |
|                       | 2 TURNS       | 601               | 234                           | 232   | 227   | 218   |
|                       | 3 TURNS       | 565               | 205                           | 202   | 196   | 185   |
|                       | 4 TURNS       | 529               | 178                           | 173   | 166   | 153   |

#### 128D

| AIR FLOW              |               | m <sup>3</sup> /h | 19300                         | 21000 | 22700 | 24750 |
|-----------------------|---------------|-------------------|-------------------------------|-------|-------|-------|
|                       |               | r.p.m             | Available static pressure Pa. |       |       |       |
| MOTOR PULLEY POSITION | CLOSED PULLEY | 766               | 381                           | 380   | 380   | 373   |
|                       | 1 TURN        | 725               | 343                           | 340   | 337   | 330   |
|                       | 2 TURNS       | 684               | 305                           | 300   | 297   | 287   |
|                       | 3 TURNS       | 644               | 268                           | 263   | 257   | 245   |
|                       | 4 TURNS       | 603               | 232                           | 227   | 220   | 205   |

#### 152D

| AIR FLOW              |               | m <sup>3</sup> /h | 21000                         | 22700 | 24750 |
|-----------------------|---------------|-------------------|-------------------------------|-------|-------|
|                       |               | r.p.m             | Available static pressure Pa. |       |       |
| MOTOR PULLEY POSITION | CLOSED PULLEY | 766               | 380                           | 380   | 373   |
|                       | 1 TURN        | 725               | 340                           | 337   | 330   |
|                       | 2 TURNS       | 684               | 300                           | 297   | 287   |
|                       | 3 TURNS       | 644               | 263                           | 257   | 245   |
|                       | 4 TURNS       | 603               | 227                           | 220   | 205   |

● WRONG STATUS ON ACCOUNT OF MOTOR POWER LIMIT.

□ Nominal factory setting.

NOTE: Additional pressure drop with the option high efficiency air filter-EU4 is 50Pa.

NOTE: With long distance option it is not suitable unit working below nominal airflow.

Air flows with exhaust fan for option “free-cooling without return fan”

#### 22E-26E-32E

| AIR FLOW                      | m <sup>3</sup> /h | 2000 | 2500 | 2750 |
|-------------------------------|-------------------|------|------|------|
| AVAILABLE STATIC PRESSURE Pa. |                   | 160  | 105  | 75   |

#### 38E-43E-44E-52D

| AIR FLOW                      | m <sup>3</sup> /h | 3000 | 3500 | 4000 |
|-------------------------------|-------------------|------|------|------|
| AVAILABLE STATIC PRESSURE Pa. |                   | 210  | 180  | 130  |

#### 68E-76E 64D-76D-86D

| AIR FLOW                      | m <sup>3</sup> /h | 6000 | 7000 | 8000 |
|-------------------------------|-------------------|------|------|------|
| AVAILABLE STATIC PRESSURE Pa. |                   | 260  | 200  | 90   |

#### 112D

| AIR FLOW                      | m <sup>3</sup> /h | 13200 | 14300 | 15400 | 16500 |
|-------------------------------|-------------------|-------|-------|-------|-------|
| AVAILABLE STATIC PRESSURE Pa. |                   | 230   | 200   | 150   | 50    |

#### 128D-152D

| AIR FLOW                      | m <sup>3</sup> /h | 13200 | 14300 | 15400 | 16500 |
|-------------------------------|-------------------|-------|-------|-------|-------|
| AVAILABLE STATIC PRESSURE Pa. |                   | 230   | 200   | 150   | 50    |

## FAN PERFORMANCES

### OPTIONS

#### 3.- OUTDOOR UNIT WITH AVAILABLE HIGH PRESSURES FAN

##### Air flow data with FP1 option.

| MODELS                        |     | 112D-128D-152D   |             |
|-------------------------------|-----|--|-------------|
| Fan type                      |     | Axial-Direct coupling 900 r.p.m.<br>(Low speed) 3~400V |             |
| Nr fans:                      |     | 2  |             |
| Available static pressure Pa. | 50  | Air flow m <sup>3</sup> /h                             | 19000+19000 |
|                               |     | Absorbed power kW                                      | 5           |
|                               | 75  | Air flow m <sup>3</sup> /h                             | 18000+18000 |
|                               |     | Absorbed power kW                                      | 5.1         |
|                               | 100 | Air flow m <sup>3</sup> /h                             | 17000+17000 |
|                               |     | Absorbed power kW                                      | 5.2         |
|                               | 125 | Air flow m <sup>3</sup> /h                             | 15000+15000 |
|                               |     | Absorbed power kW                                      | 5.3         |

##### Air flow data with FP2 option.

| MODELS                        |     | 112D-128D-152D  |             |
|-------------------------------|-----|---|-------------|
| Fan type                      |     | Axial "short case"-Direct coupling<br>1450 r.p.m. (High speed) 3~400V |             |
| Nr fans:                      |     | 2   |             |
| Available static pressure Pa. | 150 | Air flow m <sup>3</sup> /h  | 22000+22000 |
|                               |     | Absorbed power kW   | 9.2         |
|                               | 200 | Air flow m <sup>3</sup> /h  | 20000+20000 |
|                               |     | Absorbed power kW   | 9.3         |
|                               | 250 | Air flow m <sup>3</sup> /h  | 18000+18000 |
|                               |     | Absorbed power kW   | 9.4         |

## TECHNICAL DATA

### SOUND PRESSURE / SOUND POWER LEVELS FOR INDOOR UNIT

| LECM<br>LEHM |                   | Spectrum per octave band (dB) |     |     |      |      |      |      | SOUND<br>POWER<br>Lw dB(A) | SOUND<br>PRESSURE (1)<br>Lp dB(A) 2m |
|--------------|-------------------|-------------------------------|-----|-----|------|------|------|------|----------------------------|--------------------------------------|
|              |                   | 125                           | 250 | 500 | 1000 | 2000 | 4000 | 8000 |                            |                                      |
| 22E          | Indoor unit       | 76                            | 69  | 68  | 69   | 67   | 62   | 54   | 73                         | 51                                   |
|              | Indoor unit HP    | 84                            | 75  | 72  | 72   | 71   | 68   | 60   | 78                         | 56                                   |
| 26E          | Indoor unit       | 81                            | 73  | 73  | 74   | 72   | 68   | 61   | 78                         | 55                                   |
|              | Indoor unit HP    | 85                            | 80  | 75  | 75   | 75   | 72   | 65   | 81                         | 58                                   |
| 32E          | Indoor unit       | 82                            | 75  | 74  | 75   | 73   | 70   | 63   | 80                         | 55                                   |
|              | Indoor unit HP    | 85                            | 80  | 76  | 76   | 76   | 73   | 66   | 82                         | 57                                   |
| 38E          | Indoor unit       | 78                            | 79  | 76  | 75   | 74   | 71   | 65   | 80                         | 55                                   |
|              | Indoor unit HP    | 83                            | 80  | 78  | 76   | 76   | 73   | 68   | 82                         | 57                                   |
| 43E-44E      | Indoor unit       | 81                            | 81  | 78  | 77   | 77   | 74   | 69   | 83                         | 58                                   |
|              | Indoor unit HP    | 83                            | 81  | 79  | 77   | 77   | 75   | 69   | 83                         | 58                                   |
| 68E          | Indoor unit       | 79                            | 79  | 75  | 74   | 74   | 71   | 64   | 80                         | 53                                   |
|              | Indoor unit+RF    | 83                            | 82  | 79  | 78   | 77   | 74   | 68   | 84                         | 57                                   |
|              | Indoor unit HP    | 88                            | 82  | 81  | 77   | 77   | 75   | 70   | 84                         | 57                                   |
|              | Indoor unit HP+RF | 89                            | 84  | 82  | 79   | 79   | 77   | 71   | 86                         | 59                                   |
| 76E          | Indoor unit       | 85                            | 82  | 80  | 79   | 78   | 76   | 70   | 85                         | 58                                   |
|              | Indoor unit+RF    | 87                            | 85  | 83  | 81   | 81   | 78   | 73   | 88                         | 61                                   |
|              | Indoor unit HP    | 89                            | 84  | 85  | 80   | 80   | 79   | 73   | 87                         | 60                                   |
|              | Indoor unit HP+RF | 90                            | 86  | 86  | 82   | 82   | 80   | 75   | 89                         | 62                                   |
| 52D          | Indoor unit       | 84                            | 83  | 81  | 80   | 80   | 77   | 73   | 86                         | 61                                   |
|              | Indoor unit HP    | 86                            | 83  | 82  | 80   | 80   | 78   | 73   | 87                         | 62                                   |
| 64D          | Indoor unit       | 79                            | 79  | 75  | 74   | 74   | 71   | 64   | 80                         | 53                                   |
|              | Indoor unit+RF    | 83                            | 82  | 79  | 78   | 77   | 74   | 68   | 84                         | 57                                   |
|              | Indoor unit HP    | 88                            | 82  | 81  | 77   | 77   | 75   | 70   | 84                         | 57                                   |
|              | Indoor unit HP+RF | 89                            | 84  | 82  | 79   | 79   | 77   | 71   | 86                         | 59                                   |
| 76D          | Indoor unit       | 85                            | 82  | 80  | 79   | 78   | 76   | 70   | 85                         | 58                                   |
|              | Indoor unit+RF    | 87                            | 85  | 83  | 81   | 81   | 78   | 73   | 88                         | 61                                   |
|              | Indoor unit HP    | 89                            | 84  | 85  | 80   | 80   | 79   | 73   | 87                         | 60                                   |
|              | Indoor unit HP+RF | 90                            | 86  | 86  | 82   | 82   | 80   | 75   | 89                         | 62                                   |
| 86D          | Indoor unit       | 87                            | 84  | 83  | 80   | 80   | 78   | 73   | 87                         | 60                                   |
|              | Indoor unit+RF    | 87                            | 87  | 85  | 83   | 83   | 81   | 76   | 89                         | 62                                   |
|              | Indoor unit HP    | 88                            | 85  | 85  | 81   | 81   | 79   | 74   | 88                         | 61                                   |
|              | Indoor unit HP+RF | 88                            | 87  | 86  | 84   | 84   | 81   | 76   | 90                         | 63                                   |
| 112D         | Indoor unit       | 84                            | 83  | 81  | 79   | 79   | 76   | 68   | 85                         | 58                                   |
|              | Indoor unit+RF    | 87                            | 86  | 84  | 82   | 82   | 79   | 71   | 88                         | 61                                   |
|              | Indoor unit HP    | 89                            | 86  | 83  | 81   | 80   | 79   | 72   | 87                         | 60                                   |
|              | Indoor unit HP+RF | 91                            | 88  | 85  | 83   | 83   | 80   | 74   | 89                         | 62                                   |
| 128D         | Indoor unit       | 85                            | 84  | 84  | 81   | 81   | 78   | 71   | 87                         | 60                                   |
|              | Indoor unit+RF    | 89                            | 88  | 87  | 84   | 84   | 82   | 75   | 91                         | 64                                   |
|              | Indoor unit HP    | 87                            | 85  | 84  | 81   | 81   | 79   | 72   | 88                         | 61                                   |
|              | Indoor unit HP+RF | 90                            | 88  | 87  | 84   | 84   | 82   | 75   | 91                         | 64                                   |
| 152D         | Indoor unit       | 87                            | 86  | 86  | 83   | 83   | 81   | 74   | 89                         | 62                                   |
|              | Indoor unit+RF    | 90                            | 89  | 89  | 86   | 86   | 84   | 77   | 92                         | 65                                   |
|              | Indoor unit HP    | 89                            | 87  | 86  | 83   | 83   | 81   | 75   | 90                         | 63                                   |
|              | Indoor unit HP+RF | 91                            | 90  | 89  | 86   | 86   | 84   | 77   | 93                         | 66                                   |

(1) Sound pressure level estimated in duct according to intake and discharge duct acoustic attenuation. It is considered a room with normal acoustic absorption and ducts length according with the unit size. Ducts with normal absorption isolation, installation without vibrations and suitable air speed in the dampers.

It is an orientative values and must always consider for each installation the value of sound power level in the table to calculate the value of sound pressure level.

NOTE: **HP**: High pressure **RF**: Free-cooling with return fan.

#### EXHAUST FAN SOUND LEVEL

| UNIT              | Lw dB(A)* |
|-------------------|-----------|
| LECM/HM 22E-32E   | 64        |
| LECM/HM 38E-52D   | 66        |
| LECM/HM 68E-86D   | 73        |
| LECM/HM 112D-152D | 76        |

\*Free-field noise measurement at 1m

**SOUND PRESSURE / SOUND POWER LEVELS FOR OUTDOOR UNIT**

| KNCM/KNHM  |            | Spectrum per octave band (dB) |        |        |         |         |         |         | Sound power Lw dB(A) | Sound pressure at 10 m Lp dB(A) |    |
|------------|------------|-------------------------------|--------|--------|---------|---------|---------|---------|----------------------|---------------------------------|----|
|            |            | 125 Hz                        | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | 8000 Hz |                      |                                 |    |
| 22E        | (1)        | 68                            | 71     | 71     | 71      | 69      | 67      | 59      | 76                   | 48                              |    |
|            | (2)        | 68                            | 71     | 71     | 71      | 68      | 65      | 58      | 75                   | 47                              |    |
| 26E        | (1)        | 74                            | 70     | 72     | 70      | 73      | 70      | 62      | 78                   | 50                              |    |
|            | (2)        | 74                            | 70     | 70     | 66      | 72      | 67      | 62      | 76                   | 48                              |    |
| 32E        | (1)        | 80                            | 72     | 74     | 75      | 76      | 71      | 65      | 81                   | 53                              |    |
|            | (2)        | 80                            | 72     | 73     | 74      | 74      | 66      | 65      | 79                   | 51                              |    |
| 38E        | (1)        | 80                            | 72     | 74     | 75      | 75      | 69      | 62      | 80                   | 52                              |    |
|            | (2)        | 80                            | 72     | 73     | 74      | 73      | 65      | 62      | 79                   | 51                              |    |
| 43E        | (1)        | 80                            | 72     | 74     | 76      | 76      | 68      | 63      | 81                   | 53                              |    |
|            | (2)        | 80                            | 72     | 73     | 74      | 74      | 65      | 63      | 79                   | 51                              |    |
| 52D        | (1)        | 77                            | 72     | 75     | 73      | 76      | 73      | 65      | 81                   | 53                              |    |
|            | (2)        | 77                            | 72     | 73     | 69      | 75      | 70      | 65      | 79                   | 51                              |    |
| 64D        | (1)        | 83                            | 75     | 77     | 78      | 79      | 74      | 68      | 84                   | 56                              |    |
|            | (2)        | 83                            | 75     | 76     | 77      | 77      | 69      | 68      | 82                   | 54                              |    |
| 76D        | (1)        | 83                            | 75     | 77     | 78      | 78      | 72      | 65      | 83                   | 55                              |    |
|            | (2)        | 83                            | 75     | 76     | 77      | 76      | 68      | 65      | 82                   | 54                              |    |
| 86D        | (1)        | 83                            | 75     | 77     | 79      | 79      | 71      | 66      | 84                   | 56                              |    |
|            | (2)        | 83                            | 75     | 76     | 77      | 77      | 68      | 66      | 82                   | 54                              |    |
| 112D       | Low speed  | (1)                           | 73     | 71     | 75      | 78      | 77      | 71      | 65                   | 82                              | 54 |
|            |            | (2)                           | 73     | 71     | 72      | 75      | 71      | 63      | 65                   | 78                              | 50 |
|            | High speed | (1)                           | 82     | 78     | 79      | 83      | 82      | 76      | 67                   | 87                              | 59 |
|            |            | (2)                           | 82     | 78     | 78      | 82      | 81      | 74      | 67                   | 86                              | 58 |
| 128D       | Low speed  | (1)                           | 73     | 71     | 75      | 78      | 78      | 72      | 66                   | 83                              | 55 |
|            |            | (2)                           | 73     | 71     | 72      | 75      | 72      | 63      | 66                   | 79                              | 51 |
|            | High speed | (1)                           | 82     | 78     | 79      | 83      | 82      | 76      | 68                   | 87                              | 59 |
|            |            | (2)                           | 82     | 78     | 78      | 82      | 81      | 74      | 68                   | 86                              | 58 |
| 152D       | Low speed  | (1)                           | 75     | 73     | 77      | 82      | 84      | 77      | 69                   | 87                              | 59 |
|            |            | (2)                           | 75     | 73     | 74      | 77      | 76      | 66      | 69                   | 81                              | 53 |
|            | High speed | (1)                           | 84     | 81     | 81      | 85      | 86      | 80      | 71                   | 90                              | 62 |
|            |            | (2)                           | 84     | 81     | 80      | 84      | 84      | 77      | 71                   | 88                              | 60 |
| FP1 OPTION | 112D       | (1)                           | 84     | 81     | 81      | 84      | 81      | 74      | 68                   | 87                              | 59 |
|            |            | (2)                           | 84     | 81     | 80      | 84      | 80      | 72      | 68                   | 87                              | 59 |
|            | 128D       | (1)                           | 84     | 81     | 80      | 84      | 82      | 75      | 69                   | 88                              | 60 |
|            |            | (2)                           | 84     | 81     | 80      | 84      | 80      | 72      | 69                   | 87                              | 59 |
|            | 152D       | (1)                           | 84     | 81     | 81      | 85      | 85      | 78      | 71                   | 90                              | 62 |
|            |            | (2)                           | 84     | 81     | 80      | 84      | 81      | 72      | 71                   | 87                              | 59 |
| FP2 OPTION | 112D       | (1)                           | 96     | 94     | 92      | 93      | 89      | 86      | 82                   | 97                              | 69 |
|            |            | (2)                           | 96     | 94     | 92      | 93      | 89      | 86      | 82                   | 97                              | 69 |
|            | 128D       | (1)                           | 96     | 94     | 92      | 93      | 90      | 86      | 82                   | 97                              | 69 |
|            |            | (2)                           | 96     | 94     | 92      | 93      | 89      | 86      | 82                   | 97                              | 69 |
|            | 152D       | (1)                           | 96     | 94     | 92      | 93      | 90      | 87      | 82                   | 97                              | 69 |
|            |            | (2)                           | 96     | 94     | 92      | 93      | 89      | 86      | 82                   | 97                              | 69 |

(1) The above data shows noise levels **without** compressor isolation (option).

(2) The above data shows noise levels **with** compressor isolation.

For units: KSCM/KSHM 112D to 214D

- **Low speed:** - For ambient temperatures < +35°C and unit working on cooling mode.  
- For ambient temperatures > +7°C and unit working on heating mode.
- **High speed:** - For ambient temperatures ≥ +35°C and unit working on cooling mode.  
- For ambient temperatures ≤ +7°C and unit working on heating mode.
- Global sound power level measured in compliance with ISO standard 3744 and under Eurovent certification program.
- Sound pressure in dB(A) calculated at 10 m, in a free field on a reflecting surface, is given as a guide only and with a directivity of +/- 3 dBA.
- Only the sound power spectrum and the global sound power value are used in determining pressure characteristics on site.

**Remark for FP1/FP2 option:**

Total Lw, is global sound power level radiated for the fan motor AT FREE DISCHARGE. Sound pressure level (Lp) has to be calculated according the pressure drop introduce in the installation considering the type of the air duct, isolation class, duct length, etc ... This value is orientative and must always consider for each installation the value of sound power level in the table to calculate the vau of sound presure level.



## COOLING CAPACITIES

### CAPACITY PARTIALITY "STD UNITS"

| ANCM / ANHM      | 22E   | 26E to 43E | 52D to 86D | 112D        | 128D        | 152D        |
|------------------|-------|------------|------------|-------------|-------------|-------------|
| Capacity steps % | 0-100 | 0-100      | 0-55-100   | 0-35-59-100 | 0-38-62-100 | 0-30-50-100 |

### CAPACITY PARTIALITY "MODELS D2"

| ANCM / ANHM D2               | 52D2  | 64D2  | 76D2  | 86D2  | 112D2 | 128D2 |
|------------------------------|-------|-------|-------|-------|-------|-------|
| LECM /LEHM                   | 2x26E | 2x32E | 2x38E | 2x43E | 1x68E | 1x43E |
| % Total capacity - circuit 1 | 50    | 50    | 50    | 50    | 58    | 63    |
| % Total capacity - circuit 2 | 50    | 50    | 50    | 50    | 42    | 37    |

### CALCULATION OF COOLING CAPACITY DEPENDING ON AIR FLOW

Data based on the following nominal indoor fan air flow.

| MODELS                            | 22E  | 26E  | 32E  | 38E  | 43E  | 52D  | 64D/68E | 76D/76E | 86D   | 112D  | 128D  | 152D  |
|-----------------------------------|------|------|------|------|------|------|---------|---------|-------|-------|-------|-------|
| INDOOR AIR FLOW m <sup>3</sup> /h | 3700 | 5000 | 5450 | 7100 | 8150 | 9400 | 11700   | 14650   | 16250 | 20400 | 22700 | 24750 |

CORRECTION COEFICIENT TO FIX TO  
THE CAPACITY OF DIFFERENT  
INDOOR AIR FLOW:

| MODELS: 22E TO 152D |                    |      |      |      |      |
|---------------------|--------------------|------|------|------|------|
|                     | % NOMINAL AIR FLOW |      |      |      |      |
|                     | 70%                | 80%  | 90%  | 100% | 110% |
| TOTAL CAPACITY      | 0.94               | 0.96 | 0.98 | 1    | 1    |
| SENSIBLE CAPACITY   | 0.86               | 0.91 | 0.95 | 1    | 1.02 |
| POWER INPUT         | 0.98               | 0.99 | 1    | 1    | 1.04 |

Data based on the following nominal outdoor fan air flow:

| MODELS                             | 22E  | 26E  | 32E   | 38E   | 43E   | 52D       | 64D/68E     | 76D/76E    | 86D         | 112D        | 128D        | 152D        |
|------------------------------------|------|------|-------|-------|-------|-----------|-------------|------------|-------------|-------------|-------------|-------------|
| OUTDOOR AIR FLOW m <sup>3</sup> /h | 6800 | 9750 | 11500 | 11300 | 11000 | 9750+9750 | 11500+11500 | 11300+1300 | 11000+11000 | 22700+18100 | 22700+18100 | 22700+22700 |

### CORRECTION FACTORS FOR CAPACITY AND EFFICIENCY DEPENDING ON LINES LENTGH

Data on the tables have been calculated for 7.5 m of refrigerant lines length between indoor and outdoor unit. To find out the performances for units when the distance between indoor and outdoor unit is more than 7.5 m apply the following coefficients for capacity and EER.

|                   | COOLING  |      |
|-------------------|----------|------|
|                   | Capacity | EER  |
| Lines length 30 m | 0.98     | 0.99 |
| Lines length 65 m | 0.96     | 0.98 |

### CORRECTION FACTORS

To find out the performances for units installed with air ducts, apply the following coefficients for capacity and consumption, over the performance tables of stadard fan units without ducts.

| AVAILABLE STATIC PRESSURE | VERSION | MODELS       | Available static pressure Pa | Maximum ambient temperature °C | Correction coefficient capacity Cool | Correction coefficient consumption ((1) Only FP1/FP2) |       |
|---------------------------|---------|--------------|------------------------------|--------------------------------|--------------------------------------|---|-------|
|                           | 50Pa    | STANDARD     | 22E-152D                     | 30                             | 43                                   | 0.95  | 1.06  |
| 50                        |         |              |                              | 39                             | 0.89                                 | 1.16  |       |
| 50                        |         |              |                              | 45                             | 0.964                                | 1.072   |       |
| 125Pa                     |         | FP1          | 112D/D2-152D                 | 75                             | 42                                   | 0.935   | 1.094 |
|                           |         |              |                              | 100                            | 38                                   | 0.9   | 1.171 |
|                           |         |              |                              | 125                            | 36                                   | 0.856   | 1.269 |
| 250Pa                     | FP2     | 112D/D2-152D | 150                          | 47                             | 1.01                                 | 0.98  |       |
|                           |         |              | 200                          | 44                             | 0.97                                 | 1.037   |       |
|                           |         |              | 250                          | 41                             | 0.94                                 | 1.099   |       |

(1) After to apply correction coefficient consumption is needed to add the following power input to get total power consumption:

| EXTRA POWER CONSUMPTION |         |         |      |
|-------------------------|---------|---------|------|
| MODELS                  | 112D/D2 | 128D/D2 | 152D |
| FP1                     | 1.95    | 1.95    | 1    |
| FP2                     | 6.25    | 6.25    | 5.3  |

### OPERATING LIMITS FOR (COOLING ONLY) UNITS

| COOLING CYCLE OPERATION | MAXIMUM TEMPERATURE   |                   | MINIMUM TEMPERATURE                |
|-------------------------|---|-------------------|------------------------------------|
|                         | INDOOR TEMPERATURE  | 32°C DB / 23°C WB |                                    |
| OUTDOOR TEMPERATURE     | 45°C (22E-26E-32E-52D-64D)<br>47°C (38E-43E-76D-86D-112D-128D-152D) |                   | +10°C STANDARD UNIT<br>(*)<br>(**) |

DB.- Dry bulb temperature.  
WB.- Wet bulb temperature.

(\*) With option kit low temperature 0°C.

(\*\*) With option kit low temperature -15°C or long distance.



## HEATING CAPACITIES

### CAPACITY PARTIALITY "STD UNITS"

| ANCM / ANHM      | 22E   | 26E to 43E | 52D to 86D | 112D        | 128D        | 152D        |
|------------------|-------|------------|------------|-------------|-------------|-------------|
| Capacity steps % | 0-100 | 0-100      | 0-55-100   | 0-35-59-100 | 0-38-62-100 | 0-30-50-100 |

### CAPACITY PARTIALITY "MODELS D2"

| ANCM / ANHM D2               | 52D2  | 64D2  | 76D2  | 86D2  | 112D2 |       | 128D2 |       |
|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| LECM / LEHM                  | 2x26E | 2x32E | 2x38E | 2x43E | 1x68E | 1x43E | 1x76E | 1x43E |
| % Total capacity - circuit 1 | 50    | 50    | 50    | 50    | 58    | ----- | 64    | ----- |
| % Total capacity - circuit 2 | 50    | 50    | 50    | 50    | ----- | 42    | ----- | 36    |

### CALCULATION OF COOLING CAPACITY DEPENDING ON AIR FLOW

Data based on the following nominal indoor fan air flow:

| MODELS                            | 22E  | 26E  | 32E  | 38E  | 43E  | 52D  | 64D/68E | 76D/76E | 86D   | 112D  | 128D  | 152D  |
|-----------------------------------|------|------|------|------|------|------|---------|---------|-------|-------|-------|-------|
| INDOOR AIR FLOW m <sup>3</sup> /h | 3700 | 5000 | 5450 | 7100 | 8150 | 9400 | 11700   | 14650   | 16250 | 20400 | 22700 | 24750 |

CORRECTION COEFICIENT TO FIX TO  
THE CAPACITY OF DIFFERENT  
INDOOR AIR FLOW:

| MODELS: DEL 22E AL 152D |  |      |      |      |      |      |
|-------------------------|--|------|------|------|------|------|
| % NOMINAL AIR FLOW      |  |      |      |      |      |      |
|                         |  | 70%  | 80%  | 90%  | 100% | 110% |
| TOTAL CAPACITY          |  | 0.97 | 0.98 | 0.99 | 1    | 1.01 |
| POWER INPUT             |  | 1.03 | 1.02 | 1.01 | 1    | 0.98 |

Data based on the following nominal outdoor fan air flow:

| MODELS                             | 22E  | 26E  | 32E   | 38E   | 43E   | 52D       | 64D/68E     | 76D/76E    | 86D         | 112D        | 128D        | 152D        |
|------------------------------------|------|------|-------|-------|-------|-----------|-------------|------------|-------------|-------------|-------------|-------------|
| OUTDOOR AIR FLOW m <sup>3</sup> /h | 6800 | 9750 | 11500 | 11300 | 11000 | 9750+9750 | 11500+11500 | 11300+1300 | 11000+11000 | 18100+18100 | 22700+18100 | 22700+22700 |

### CORRECTION FACTORS FOR CAPACITY AND EFFICIENCY DEPENDING ON LINES LENGTH

Data on the tables have been calculated for 7.5 m of refrigerant lines length between indoor and outdoor unit. To find out the performances for units when the distance between indoor and outdoor unit is more than 7.5 m apply the following coefficients for capacity and EER.

|                   | COOLING  |      | HEATING  |      |
|-------------------|----------|------|----------|------|
|                   | Capacity | EER  | Capacity | COP  |
| Lines length 30 m | 0.98     | 0.99 | 0.95     | 0.96 |
| Lines length 65 m | 0.96     | 0.98 | 0.92     | 0.94 |

### CORRECTION FACTORS

To find out the performances for units installed with air ducts, apply the following coefficients for capacity and consumption, over the performance tables of standard fan units without ducts.

| AVAILABLE STATIC PRESSURE | VERSION  | MODELS       | Available static pressure Pa | Maximum ambient temperature °C | Correction coefficient |                                |      |
|---------------------------|----------|--------------|------------------------------|--------------------------------|------------------------|--------------------------------|------|
|                           |          |              |                              |                                | capacity Heat          | consumption ((1) Only FP1/FP2) |      |
| 50Pa                      | STANDARD | 22E-152D     | 30                           | -9                             | 0.94                   | 1.02                           |      |
|                           |          |              | 50                           | -8                             | 0.89                   | 1.03                           |      |
|                           |          |              | 50                           | -10                            | 1                      | 1                              |      |
|                           | 125Pa    | FP1          | 112D/D2-152D                 | 75                             | -8                     | 0.94                           | 1.02 |
|                           |          |              |                              | 100                            | -6                     | 0.89                           | 1.03 |
|                           |          |              |                              | 125                            | -5                     | 0.87                           | 1.04 |
| 250Pa                     | FP2      | 112D/D2-152D | 150                          | -10                            | 1.01                   | 0.99                           |      |
|                           |          |              | 200                          | -10                            | 1                      | 1                              |      |
|                           |          |              | 250                          | -8                             | 0.94                   | 1.02                           |      |

(1) After to apply correction coefficient consumption is needed to add the following power input to get total power consumption:

| EXTRA POWER CONSUMPTION |      |      |      |
|-------------------------|------|------|------|
| MODELS                  | 112D | 128D | 152D |
| FP1                     | 1.95 | 1.95 | 1    |
| FP2                     | 6.25 | 6.25 | 5.3  |

### OPERATING LIMITS FOR (Heating pump)

| COOLING CYCLE OPERATION | INDOOR TEMPERATURE  | MAXIMUM TEMPERATURE   | MINIMUM TEMPERATURE |
|-------------------------|---------------------|---|---------------------|
|                         |                     | 32°C DB / 23°C WB   | 21°C DB / 15°C WB   |
| HEATING CYCLE OPERATION | INDOOR TEMPERATURE  | 27°C DB   | 15°C DB             |
|                         |                     | 45°C (22E-26E-32E-52D-64D)<br>47°C (38E-43E-76D-86D-112D-128D-152D) | 0°C                 |
| HEATING CYCLE OPERATION | OUTDOOR TEMPERATURE | DEPENDING ON MODELS<br>(See tables for heating capacities)          | -10°C DB / -11°C WB |

DB.- Dry bulb temperature  
WB.- Wet bulb temperature

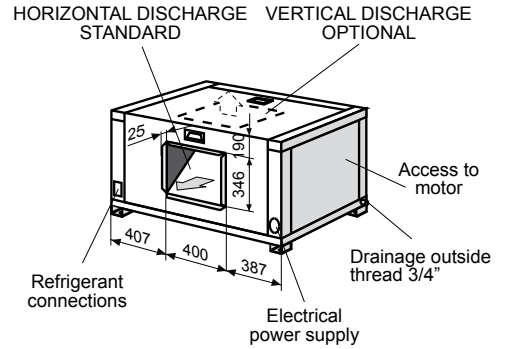
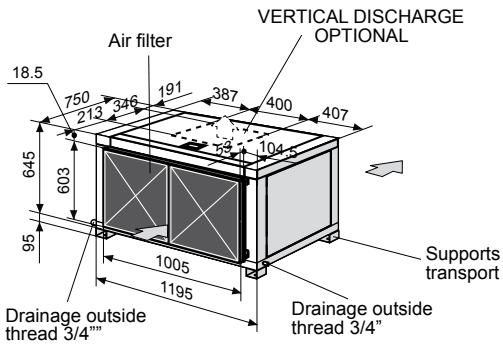
(\*) With option kit low temperature 0°C.

(\*\*) With option kit low temperature -15°C or long distance.

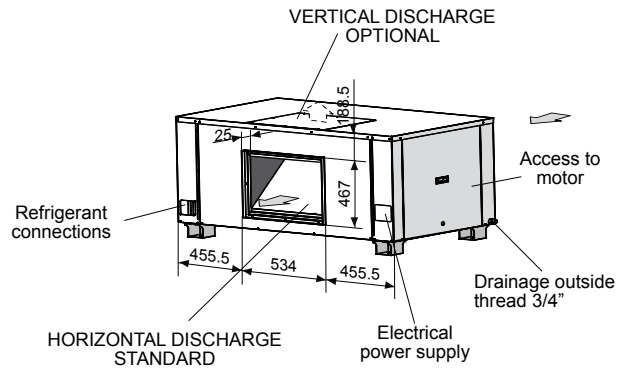
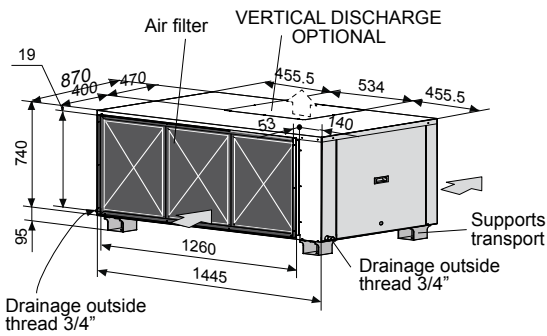


# INDOOR UNITS DIMENSIONS

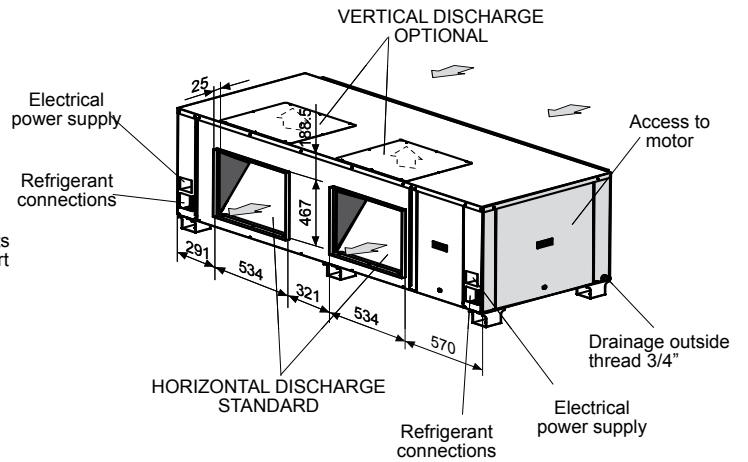
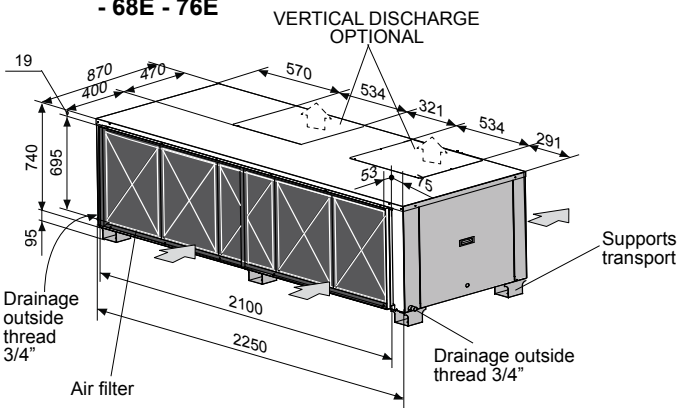
## MODELS 22E - 26E - 32E



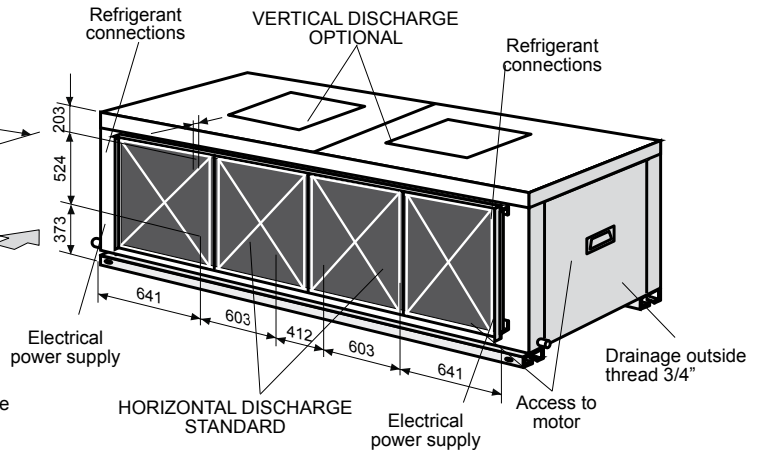
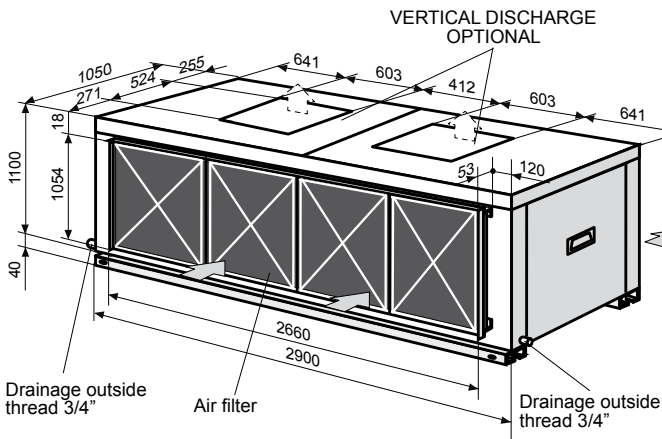
## MODELS 38E - 43E - 44E - 52D



## MODELS 64D - 76D - 86D - 68E - 76E

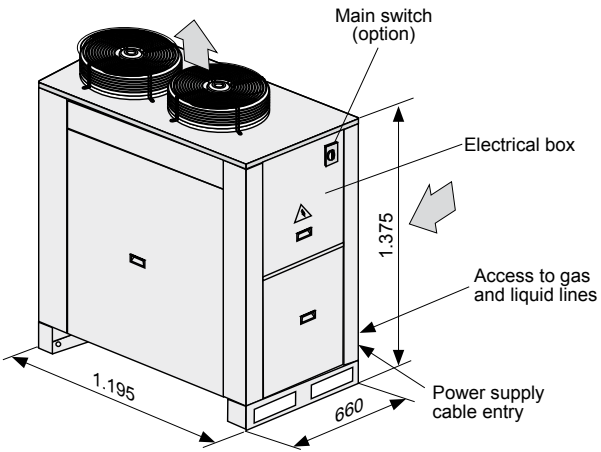


## MODELS 112D-128D-152D

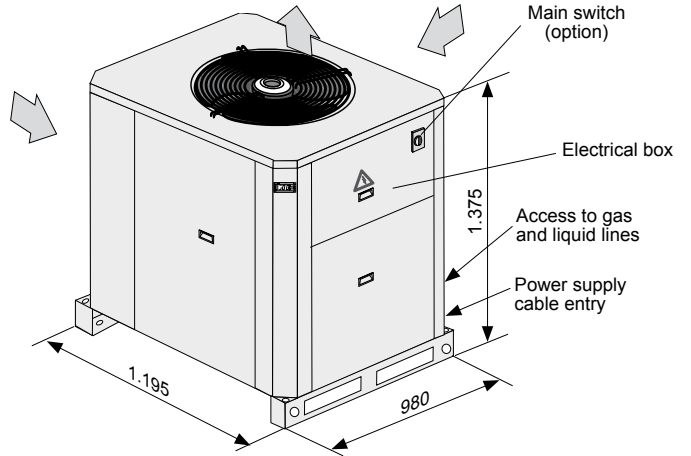


# OUTDOOR DIMENSIONS

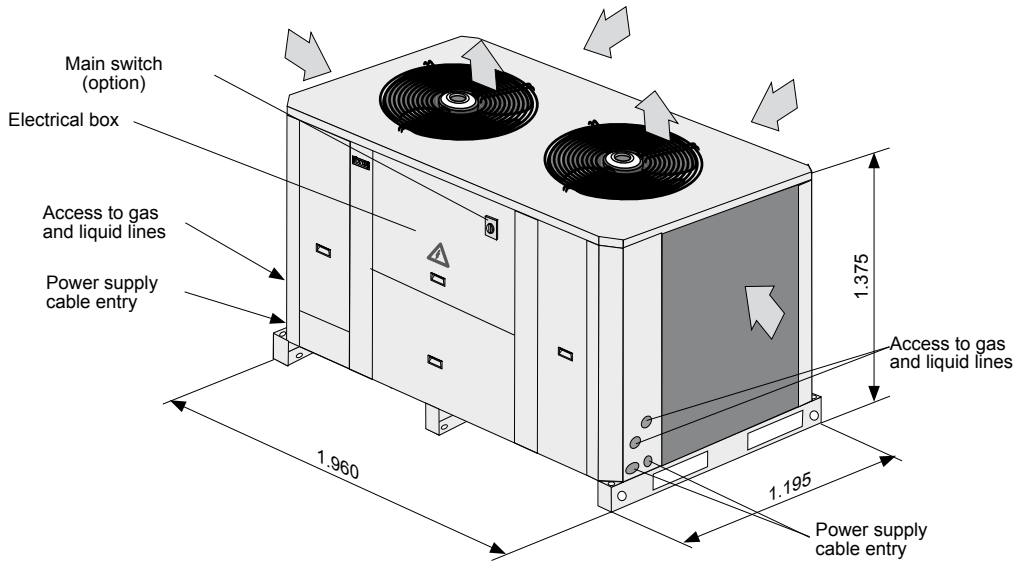
## MODEL KNCM/KNHM 22E



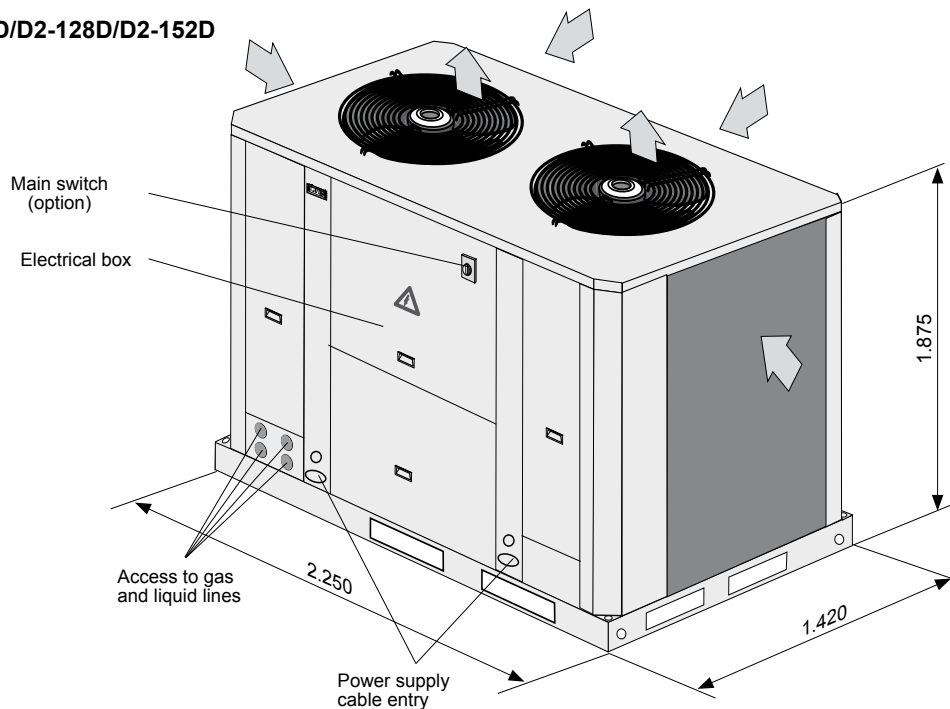
## MODELS KNCM/KNHM 26E-32E-38E-43E



## MODELS KNCM/KNHM 52D/D2-64D/D2-76D/D2-86D/D2



## MODELS KNCM/KNHM 112D/D2-128D/D2-152D

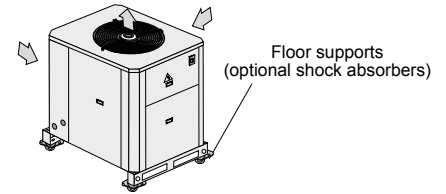


## UNIT INSTALLATION

### OUTDOOR UNIT LOCATION

- The bedplate is made up of metal channels, capable of withstanding the weight of the units.
- If the unit is floor mounted, then the profiles should be isolated with shock absorbing material such as anti-vibration or pads. Keep in mind that fans rotate at approximately 850 rpm.

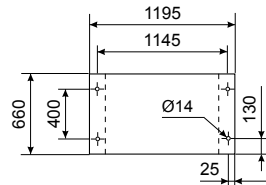
### UNIT INSTALLED ON SHOCK ABSORBERS



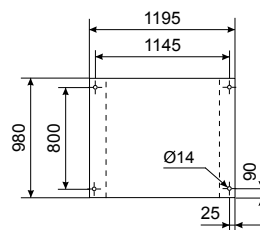
- The unit is able to work in normal radioelectronics conditions for commercials and residential installations. For any other conditions please consult.
- If the outside temperature in the area where the heat pump unit is to be installed is low or the cycle functioning are too long, it may necessary to install an electrical heater, below the likely coils on the drip tray, which avoids the causing of ice in the coil during defrost cycle.

### MOUNTING PLATES (OUTDOOR UNITS)

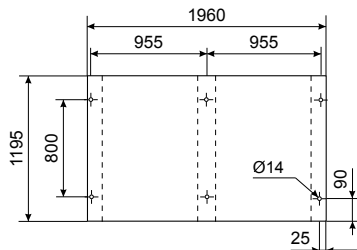
MODEL 22E



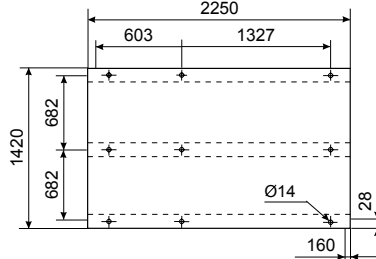
MODELS 26E-32E-38-E43E



MODELS 52D/D2-64D/D2-76D/D2-86D/D2



MODELS 112D/D2-128D/D2-152D

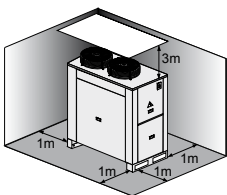


Sizes in mm.

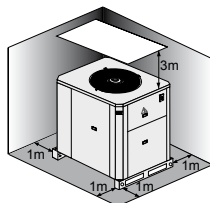
### SERVICE SPACE

Space should be left free for access or servicing, to ease the installation of cables, drainage connections, electric installation and cleaning filters, as well as easy access to the unit.

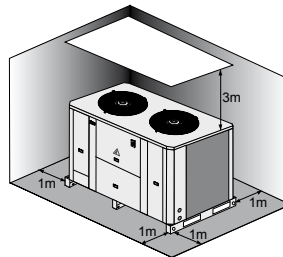
UNIDAD 22E



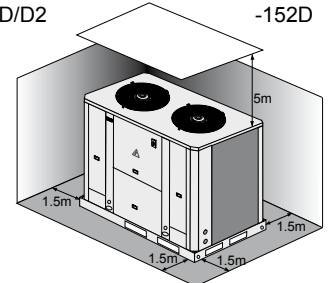
UNITS  
26E-32E-38E-43E



UNITS  
52D/D2-64D/D2-  
76D/D2-86D/D2



UNITS  
112D/D2-128D/D2  
-152D

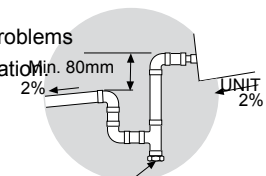


### DRAINS (INDOOR UNITS)

All the indoor sections have a 3/4" steel threaded drain pipe welded to the condensation tray.

Drainage pipes will be fitted for each tray through a siphon with a height difference of 80 mm. to avoid drainage problems from the depression formed by the fans. The pipes should have an inclination of 2% to ease drainage of condensation.

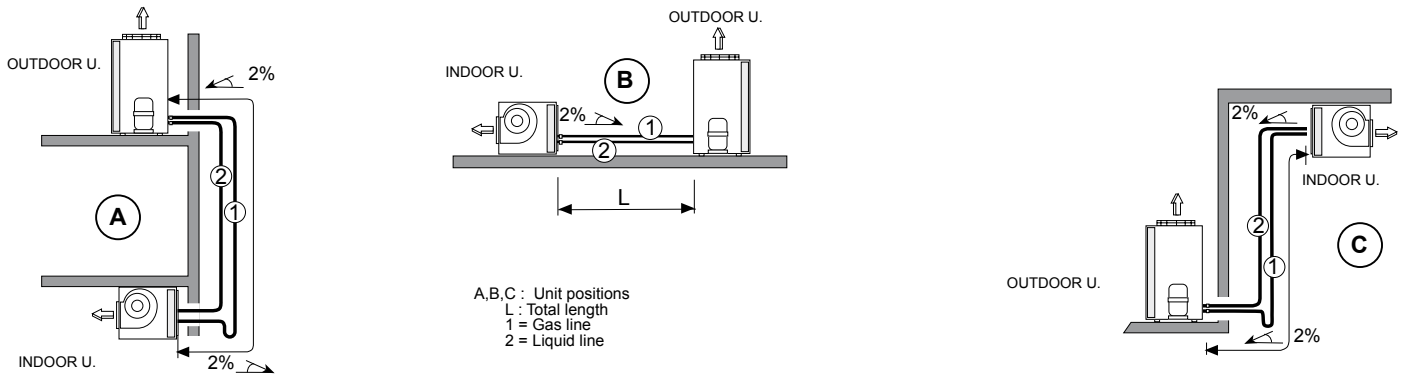
Also slightly tip the unit (2%) toward the drainage side. Check that the condensation trays are clean and free from dirt and other debris from the works and that water drains correctly.



Inspection and cleaning stopper

## REFRIGERANT CONNECTIONS

To locate the outdoor and the indoor units, refer to the following information:



POSITION A : A siphon suction must be installed on the vertical line of the gas line, and siphons must be installed every 8 meters upward. The minimum speed suction must not be below 6m/s. Maximum vertical length 16m.

POSITION B : Tip the lines toward the outdoor unit. Make special attention to line length longer than 10m, and avoid collapse on pipe lines installation.

POSITION C : Install a siphon at the base of the vertical of the gas line, no more siphons are necessary. Maximum vertical length 16m.

TABLE 1: REFRIGERANT LINES SELECTION

| REFRIGERANT LINES   |  |          | UNIT - MODEL |        |        |        |         |        |        |        |        |         |         |        |        |        |
|---|--|----------|--------------|--------|--------|--------|---------|--------|--------|--------|--------|---------|---------|--------|--------|--------|
|   |  |          | 22E          | 26E    | 32E    | 38E    | 43E-44E | 52D-D2 | 64D-D2 | 76D-D2 | 86D-D2 | 112D-D2 | 128D-D2 | 152D   |        |        |
| Total line length. (Length refrigerant lines between indoor unit and outdoor unit.) | 0 to 30 m. (Standard connection of unit) | Ø Liquid | C1           | 1/2"   | 5/8"   | 5/8"   | 5/8"    | 5/8"   | 5/8"   | 5/8"   | 5/8"   | 5/8"    | 5/8"    | 3/4"   | 3/4"   | 3/4"   |
|   |  |          | C2           | n/a    | n/a    | n/a    | n/a     | n/a    | 5/8"   | 5/8"   | 5/8"   | 5/8"    | 5/8"    | 5/8"   | 5/8"   | 3/4"   |
|   |  | Ø Gas    | C1           | 7/8"   | 1 1/8" | 1 1/8" | 1 3/8"  | 1 3/8" | 1 1/8" | 1 1/8" | 1 3/8" | 1 3/8"  | 1 3/8"  | 1 5/8" | 1 5/8" | 1 5/8" |
|   |  |          | C2           | n/a    | n/a    | n/a    | n/a     | n/a    | 1 1/8" | 1 1/8" | 1 3/8" | 1 3/8"  | 1 3/8"  | 1 3/8" | 1 3/8" | 1 5/8" |
|   | Max. Nr. of bends                        |          |              | 6      | 12     | 8      | 18      | 12     | 12     | 8      | 18     | 12      | 12      | 12     | 12     |        |
| 30 to 65 m.   | Ø Liquid                                 | C1       | 5/8"         | 5/8"   | 5/8"   | 3/4"   | 3/4"    | 5/8"   | 5/8"   | 3/4"   | 3/4"   | 7/8"    | 7/8"    | 7/8"   |        |        |
|   |  | C2       | n/a          | n/a    | n/a    | n/a    | n/a     | 5/8"   | 5/8"   | 3/4"   | 3/4"   | 3/4"    | 3/4"    | 7/8"   |        |        |
|   |  | Ø Gas    | C1           | 1 1/8" | 1 1/8" | 1 3/8" | 1 3/8"  | 1 5/8" | 1 1/8" | 1 3/8" | 1 3/8" | 1 5/8"  | 1 5/8"  | 1 5/8" | 1 5/8" |        |
|   |  |          | C2           | n/a    | n/a    | n/a    | n/a     | n/a    | 1 1/8" | 1 3/8" | 1 3/8" | 1 5/8"  | 1 5/8"  | 1 5/8" | 1 5/8" |        |
|   | Max. Nr. of bends                        |          |              | 12     | 18     | 18     | 18      | 18     | 18     | 18     | 18     | 18      | 12      | 12     | 12     |        |



**With lines length between 40 and 65m long distance option has to be selected.**

NOTE: The units are supplied with welded connections. As an option, service valves are available for liquid and gas lines.



- THE GAS LINE ALWAYS MUST BE INSULATED.

- THE HORIZONTAL LINES MUST BE TIPPED AT LEAST 2% TOWARD THE OUTDOOR UNIT.

- THE MAXIMUM SPEED INSIDE LINES, SHOULD NOT BE MORE THAN 15 m/seg.

- 112D/D2 AND 128D/D2 UNIT MODELS USES DIFFERENT SIZES OF PIPE CONNECTIONS: BIG SIZE FOR CIRCUIT 1 AND SMALL SIZE FOR CIRCUIT 2.

## REFRIGERANT CONNECTIONS



Indoor and outdoor units are factory pre-charged with Nitrogen (N<sub>2</sub>). The installer should remove this gas and charge the units with refrigerant R-410A shown on the following tables.

The unit is supplied as standard with welded connections. As an option, factory pre-charged kit is available. If so, TABLE 2 is the only to take care about (this option includes service valves).

**TABLE 2: WEIGHT OF REFRIGERANT R-410A PER METER OF LINE**

| Liquid | Gas    | gr/m |
|--------|--------|------|
| 1/2"   | 7/8"   | 108  |
| 5/8"   | 1 1/8" | 177  |
| 5/8"   | 1 3/8" | 182  |
| 3/4"   | 1 3/8" | 265  |
| 3/4"   | 1 5/8" | 271  |
| 7/8"   | 1 5/8" | 374  |

**TABLE 3.1.: CHARGE OF REFRIGERANT**

| Charge of refrigerant (gr) R-410A for 0 meters of line KNCM + LECM (Cooling only) |       |       |       |       |       |      |      |      |      |       |       |       |
|---|-------|-------|-------|-------|-------|------|------|------|------|-------|-------|-------|
|   | 22E   | 26E   | 32E   | 38E   | 43E   | 52D  | 64D  | 76D  | 86D  | 112D  | 128D  | 152D  |
| <b>C1</b>   | 4655  | 5315  | 5700  | 7950  | 9745  | 6250 | 5775 | 7870 | 9800 | 12130 | 15585 | 15500 |
| <b>C2</b>   | ----- | ----- | ----- | ----- | ----- | 6250 | 5775 | 7870 | 9800 | 10450 | 10045 | 15400 |

| Charge of refrigerant (gr) R-410A for 0 meters of line KNHM + LEHM (Heat pump) |       |       |       |       |       |      |      |      |       |       |       |       |
|--|-------|-------|-------|-------|-------|------|------|------|-------|-------|-------|-------|
|  | 22E   | 26E   | 32E   | 38E   | 43E   | 52D  | 64D  | 76D  | 86D   | 112D  | 128D  | 152D  |
| <b>C1</b>  | 4900  | 5900  | 6330  | 8835  | 10830 | 6940 | 6420 | 8740 | 10900 | 13480 | 17315 | 17230 |
| <b>C2</b>  | ----- | ----- | ----- | ----- | ----- | 6940 | 6420 | 8740 | 10900 | 11600 | 11160 | 17100 |

**TABLE 3.2.: CHARGE OF REFRIGERANT FOR MULTI-SPLIT SYSTEM**

| Charge of refrigerant (gr) R-410A for 0 meters of line KNCM + 2xLECM (Cooling only) |      |      |      |      |       |       |
|---|------|------|------|------|-------|-------|
|   | 52D2 | 64D2 | 76D2 | 86D2 | 112D2 | 128D2 |
| <b>C1</b>   | 6250 | 5775 | 7870 | 9800 | 12130 | 15585 |
| <b>C2</b>   | 6250 | 5775 | 7870 | 9800 | 10450 | 10045 |

| Charge of refrigerant (gr) R-410A for 0 meters of line KNHM + 2xLEHM (Heat pump) |      |      |      |       |       |       |
|--|------|------|------|-------|-------|-------|
|  | 52D2 | 64D2 | 76D2 | 86D2  | 112D2 | 128D2 |
| <b>C1</b>  | 6940 | 6420 | 8740 | 10900 | 13480 | 17315 |
| <b>C2</b>  | 6940 | 6420 | 8740 | 10900 | 11600 | 11160 |

**C1: Circuit 1. C2: Circuit 2.**

- 112D/D2 AND 128D/D2 UNIT MODELS USES DIFFERENT SIZES OF PIPE CONNECTIONS: BIG SIZE FOR CIRCUIT 1 AND SMALL SIZE FOR CIRCUIT 2.

### CHARGE OF REFRIGERANT FOR THE SET:

EXAMPLE:

To install a KNHM 32E + LEHM 32E set, with 22m refrigerant line length between outdoor and indoor unit, then the refrigerant charge must be calculated as follow:

1<sup>ST</sup> The TABLE 1 shows, that for 22m of line length between indoor unit and outdoor unit, the sline sizes are: liquid 5/8" and gas 1 1/8".

2<sup>nd</sup> TABLE 2 shows, for line sizes of 5/8"-1 1/8", the charge per meter line is: 177 gr/m x 22m = 3894 gr.

3<sup>rd</sup> TABLE 3.1 shows, cahрге of refrigerant for the set with 0m of line length is: 6330 gr.

4<sup>th</sup> To determine the cahrge of the set:

Add charge of the refrigerant lines + charge of refrigerant indoor unit and outdoor unit.

**Total charge for the set: 3894 + 6330 = 10224 gr**

Note: If the outdoor unit includes factory pre-charged kit, only take care of weight of refrigerant per meter of line in TABLE 2.

# ELECTRICAL CONNECTION

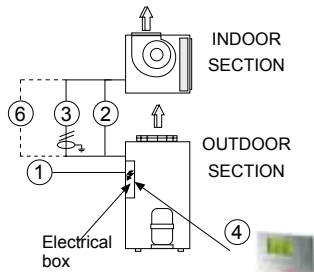


- BEFORE MAKING ANY ELECTRICAL CONNECTIONS, BE SURE THAT ALL CIRCUIT BREAKERS ARE OPEN.  
 - IN ORDER TO CARRY OUT THE ELECTRICAL CONNECTIONS, FOLLOW THE ELECTRICAL DIAGRAM SUPPLIED WITH THE UNIT.

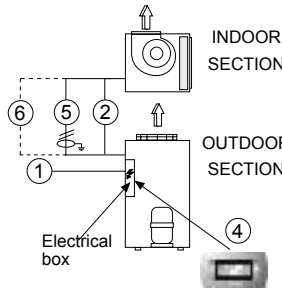
## UNITS WITHOUT FREE-COOLING

- ① Power supply.
- ② Indoor motor fan electrical connection.
- ③ Indoor coil sensor. (STD and D2 Only).
- ④ Terminal connection (see electrical connection for the controller).
- ⑤ Discharge sensor (C50 Only).
- ⑥ Connection BE (option).

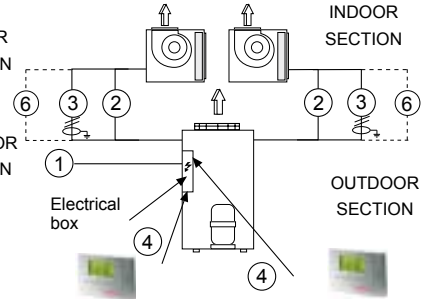
**STANDARD VERSIONS**



**C50 VERSIONS**



**D2 VERSIONS**



### VERSIONS: STANDARD + C50

|             | Supply without BE               | Supply with BE                  | Supply FM                      | Indoor coil sensor               | Discharge sensor C50   | Supply BE (mm <sup>2</sup> )     |                                  |
|-------------|---------------------------------|---------------------------------|--------------------------------|----------------------------------|--|----------------------------------|----------------------------------|
|             | 1                               | 1"                              | 2                              | 3                                | 5  | 1 STAGE                          | 2 STAGES                         |
| <b>22E</b>  | 5 x 4 mm <sup>2</sup>           | 5 x 10 mm <sup>2</sup>          | 4 x 1.5 mm <sup>2</sup>        | 2 x 1 mm <sup>2</sup> shielded   | 2 x 1 mm <sup>2</sup> shielded                                 | 4 x 4 + 3 x 1.5 mm <sup>2</sup>  |                                  |
| <b>26E</b>  | 5 x 6 mm <sup>2</sup>           | 5 x 16 mm <sup>2</sup>          |                                |                                  |  |                                  |                                  |
| <b>32E</b>  | 5 x 6 mm <sup>2</sup>           | 5 x 16 mm <sup>2</sup>          |                                |                                  |  |                                  |                                  |
| <b>38E</b>  | 5 x 6 mm <sup>2</sup>           | 5 x 16 mm <sup>2</sup>          |                                |                                  |  |                                  |                                  |
| <b>43E</b>  | 5 x 10 mm <sup>2</sup>          | 5 x 16 mm <sup>2</sup>          |                                |                                  |  |                                  |                                  |
| <b>52D</b>  | 5 x 16 mm <sup>2</sup>          | 3 x 25 + 2 x 16 mm <sup>2</sup> | 4 x 1 mm <sup>2</sup> shielded | 4 x 6 + 3 x 1.5 mm <sup>2</sup>  |  | 4 x 10 + 4 x 1.5 mm <sup>2</sup> |                                  |
| <b>64D</b>  | 5 x 16 mm <sup>2</sup>          | 3 x 35 + 2 x 16 mm <sup>2</sup> |                                |                                  |  |                                  |                                  |
| <b>76D</b>  | 3 x 25 + 2 x 16 mm <sup>2</sup> | 3 x 35 + 2 x 16 mm <sup>2</sup> |                                |                                  |  |                                  |                                  |
| <b>86D</b>  | 3 x 25 + 2 x 16 mm <sup>2</sup> | 3 x 50 + 2 x 25 mm <sup>2</sup> |                                |                                  |  |                                  |                                  |
| <b>112D</b> | 3 x 35 + 2 x 16 mm <sup>2</sup> | 3 x 70 + 2 x 35 mm <sup>2</sup> |                                |                                  |  |                                  |                                  |
| <b>128D</b> | 3 x 35 + 2 x 16 mm <sup>2</sup> | 3 x 70 + 2 x 35 mm <sup>2</sup> | 4 x 2.5 mm <sup>2</sup>        | 4 x 16 + 3 x 1.5 mm <sup>2</sup> | 40 Kw: 2x (4 x 6) mm <sup>2</sup> +<br>4 x 1.5 mm <sup>2</sup> |                                  |                                  |
| <b>152D</b> | 3 x 50 + 2 x 25 mm <sup>2</sup> | 3 x 70 + 2 x 35 mm <sup>2</sup> |                                |                                  |  | 4 x 2.5 mm <sup>2</sup>          | 4 x 16 + 3 x 1.5 mm <sup>2</sup> |

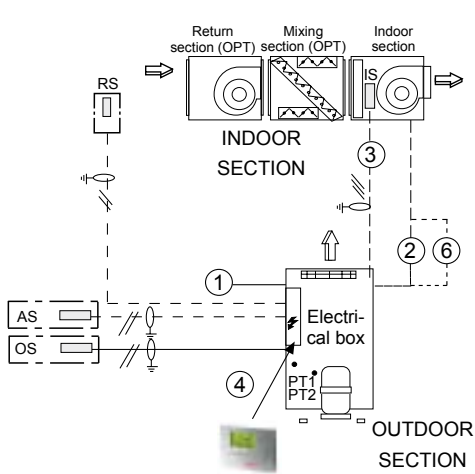
### VERSION: D2

|              | Supply without BE               | Supply with BE                  | Supply FM                     | Indoor coil sensor             | Discharge sensor | Supply BE (mm <sup>2</sup> )                          |  |
|--------------|---------------------------------|---------------------------------|-------------------------------|--------------------------------|------------------|---|--|
|              | 1                               | 1"                              | 2                             | 3                              | 5                | 1 STAGE   | 2 STAGES   |
| <b>52D2</b>  | 5 x 16 mm <sup>2</sup>          | 3 x 35 + 2 x 16 mm <sup>2</sup> | 2 x (4 x 1.5) mm <sup>2</sup> | 2 x 1 mm <sup>2</sup> shielded |                  | 2 x (4 x 4 + 3 x 1.5) mm <sup>2</sup>                 |  |
| <b>64D2</b>  | 5 x 16 mm <sup>2</sup>          | 3 x 35 + 2 x 16 mm <sup>2</sup> | 2 x (4 x 1.5) mm <sup>2</sup> |                                |                  |   |  |
| <b>76D2</b>  | 3 x 25 + 2 x 16 mm <sup>2</sup> | 3 x 50 + 2 x 25 mm <sup>2</sup> | 2 x (4 x 1.5) mm <sup>2</sup> |                                |                  |   |  |
| <b>86D2</b>  | 3 x 25 + 2 x 16 mm <sup>2</sup> | 3 x 50 + 2 x 25 mm <sup>2</sup> | 2 x (4 x 2.5) mm <sup>2</sup> |                                |                  |   |  |
| <b>112D2</b> | 3 x 35 + 2 x 16 mm <sup>2</sup> | 3 x 70 + 2 x 35 mm <sup>2</sup> | 2 x (4 x 2.5) mm <sup>2</sup> |                                |                  |   |  |
| <b>128D2</b> | 3 x 35 + 2 x 16 mm <sup>2</sup> | 3 x 70 + 2 x 35 mm <sup>2</sup> | 2 x (4 x 2.5) mm <sup>2</sup> | 2 x (4 x 2.5) mm <sup>2</sup>  |                  | (4 x 6 + 3 x 1.5) + (4 x 4 + 3 x 1.5) mm <sup>2</sup> | (4 x 10 + 4 x 1.5) + (4 x 4 + 4 x 1.5) mm <sup>2</sup> |

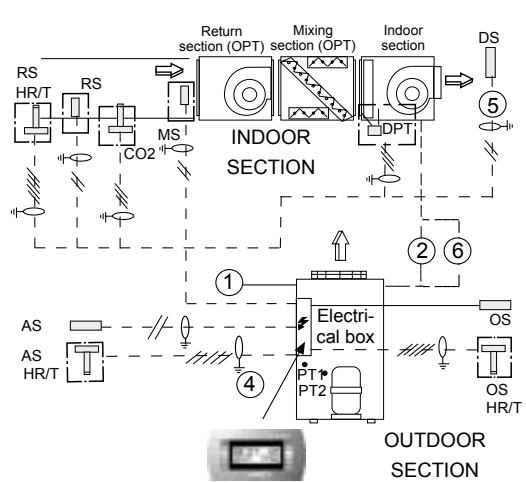
# ELECTRICAL CONNECTION

## UNITS CON FREE-COOLING

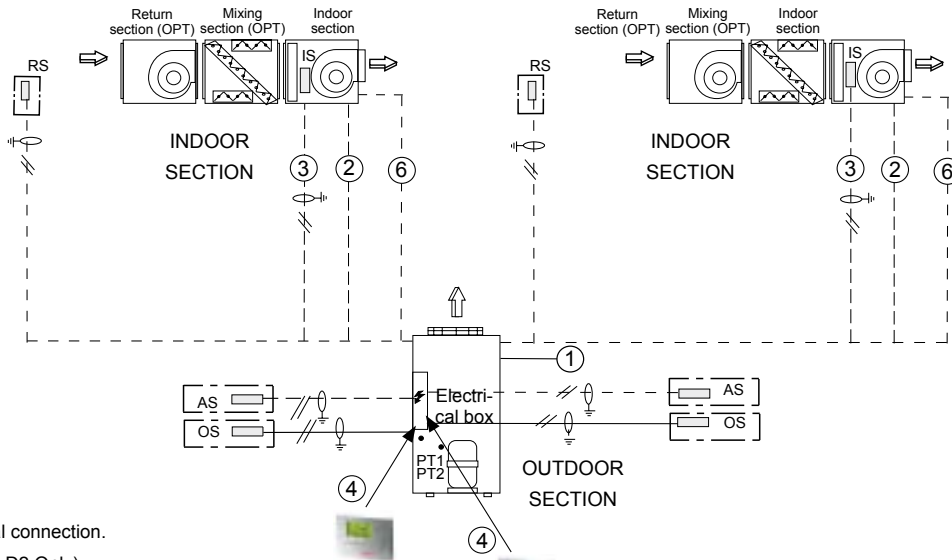
### STANDARD VERSION



### C50 VERSION



### D2 VERSION



- ① Electrical supply.
- ② Indoor motor fan electrical connection.
- ③ Indoor coil sensor (STD y D2 Only).
- ④ Terminal connection (see electrical connection for the controller).
- ⑤ Discharge sensor (C50 Only).
- ⑥ Connection BE (option).

Option  
 To connect by installer

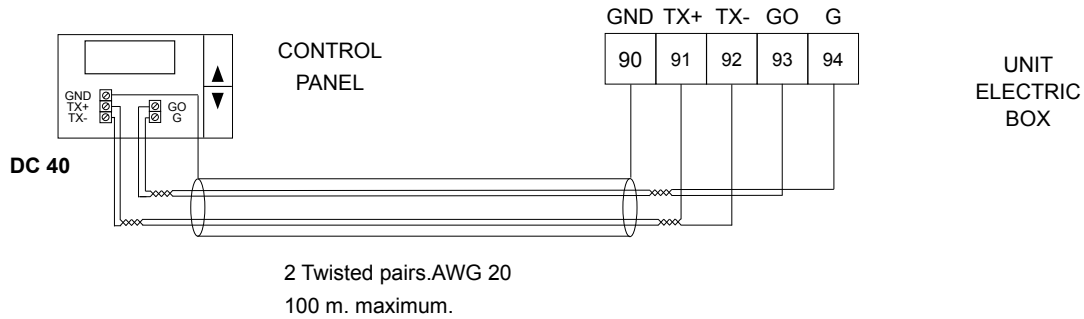
### CONTROL CONNECTION ELEMENTS:

| COMPONENTS  | VERSIONS | STANDARD | C50      | D2       | Nr OF CABLES X SECTION           |
|---|----------|----------|----------|----------|----------------------------------|
| DS (Discharge sensor).  |          |          | STANDARD |          | 2 x 1 mm <sup>2</sup> (shielded) |
| OS (Outdoor sensor).  |          | OPTION   | STANDARD | OPTION   | 2 x 1 mm <sup>2</sup> (shielded) |
| AS (Remote ambient sensor).   |          | OPTION   | STANDARD | OPTION   | 2 x 1 mm <sup>2</sup> (shielded) |
| RS (Duct sensor). It replaces AS.   |          | OPTION   | OPTION   | OPTION   | 2 x 1 mm <sup>2</sup> (shielded) |
| IS (Liquid-gas pipe sensor).  |          | STANDARD |          | STANDARD | 2 x 1 mm <sup>2</sup> (shielded) |
| MS (Duct sensor for thermostatic and enthalpic free cooling).                                   |          |          | OPTION   |          | 2 x 1 mm <sup>2</sup> (shielded) |
| RS HR/T (Duct remote sensor) for enthalpic free-cooling.  |          |          | OPTION   |          | 5 x 1 mm <sup>2</sup> (shielded) |
| CO <sub>2</sub> (CO <sub>2</sub> Air quality probe) available only with enthalpic free-cooling. |          |          | OPTION   |          | 3 x 1 mm <sup>2</sup> (shielded) |
| DPT (Air differential pressure transducer).   |          |          | OPTION   |          | 3 x 1 mm <sup>2</sup> (shielded) |
| OS HR/T (Outdoor sensor) for enthalpic free-cooling.  |          |          | OPTION   |          | 5 x 1 mm <sup>2</sup> (shielded) |
| AS HR/T (Remote ambient sensor) for enthalpic free-cooling.                                     |          |          | OPTION   |          | 5 x 1 mm <sup>2</sup> (shielded) |

VOLTAGE OPERATING LIMITS: 342-462V

## ELECTRICAL CONNECTION

### DC 40 THERMOSTAT, ELECTRICAL CONNECTION



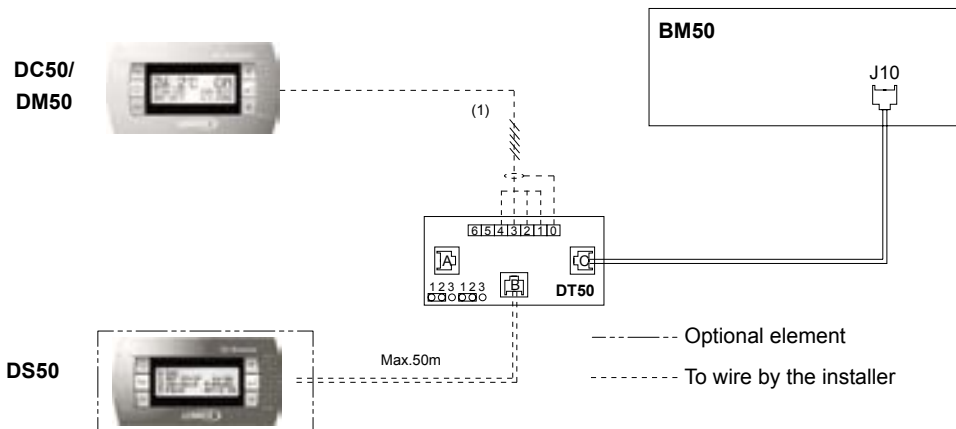
#### IMPORTANT

THE SHIELDED CONNECTION CABLE BETWEEN THE CONTROL PANEL AND THE UNIT MUST BE SEPARATE FROM ANY OTHER TYPE OF ELECTRICAL WIRING. CONNECT IT TO THE ELECTRIC BOX LOCATED IN THE OUTDOOR UNIT.

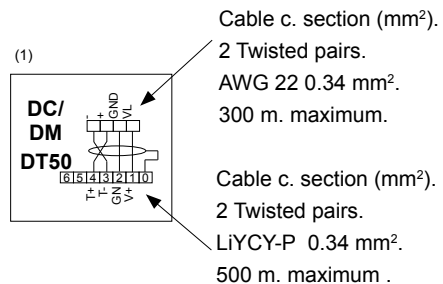
#### NOTES:

- For securing and connecting the Control Panel, consult the control Panel Manual supplied with the unit.
- Connection between DC40 and unit must be done with shielded twisted pair cables (where the screen are connected to the control and to the unit electrical box)
- The T+ and T- polarity must strictly agree with the electrical diagram supplied with the unit.

### TERMINAL COMFORT AND SERVICE CONNECTION (CONTROL CLIMATIC 50)



NOTE: Jumpers in the expansion module BE50 have to be connected between 1 and 2 in order to get power supply available to all connectors





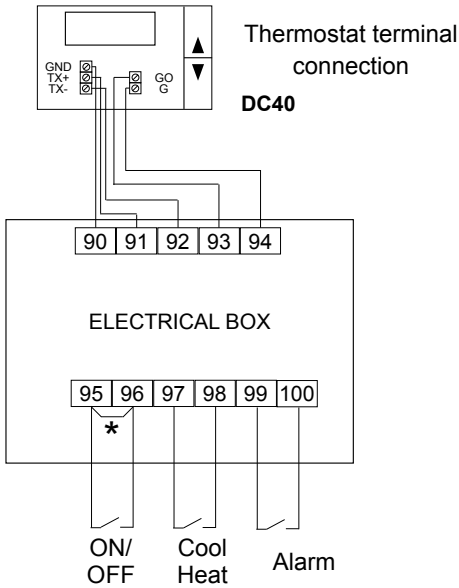
# ELECTRICAL CONNECTION

## ELECTRICAL CONNECTION "REMOTE SIGNALS"

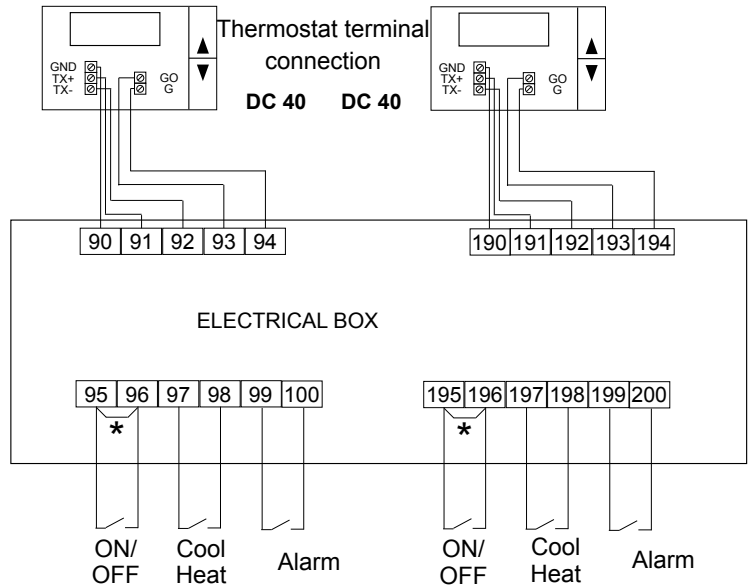
The electrical box of all the range, lets you obtain the following functions:

- Remote ON / OFF.
- One alarm signal.
- The change winter/summer remote .(Standard and D2 units).

### STANDARD VERSION

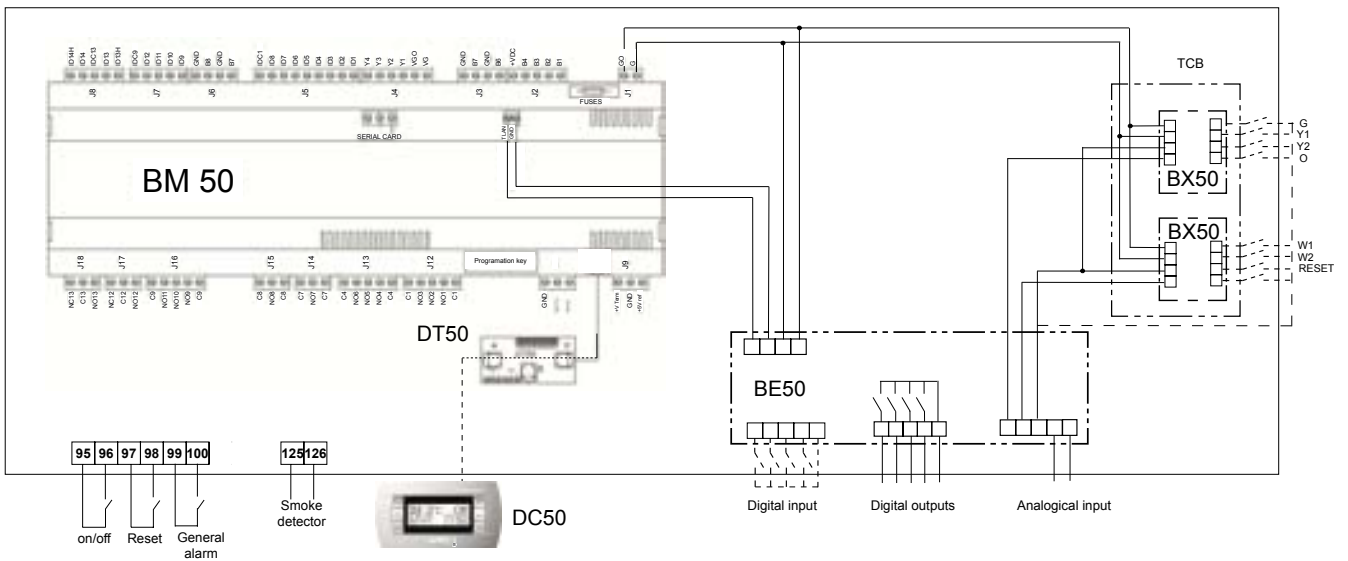


### D2 VERSION



\* Remove link for remote ON/OFF operation.

### VERSIÓN C50



## OPTIONS

### 1.- AUXILIARY HEATING

#### **ELECTRICAL HEATER**

Made of aligned shielded elements, supplied mounted on the unit as drawing shows.

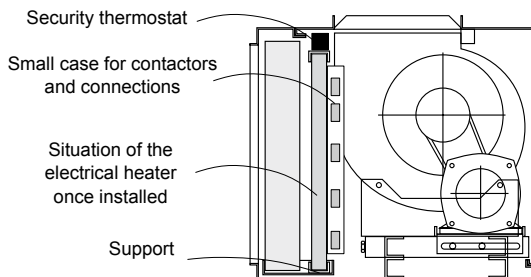
All the range has three security elements: 2 security thermostats, one automatic, other manual reset, and an air flow security pressure switch, which makes the electrical heater stop when air flow is not enough.

The electrical heater must be supplied from the unit's electrical box.

An small case on the electrical heater protects contactors and electrical connections.



Expansion PCB (Only D2 version) has to be selected with electrical heater for LECM/LEHM 68E-76E units and without free-cooling.



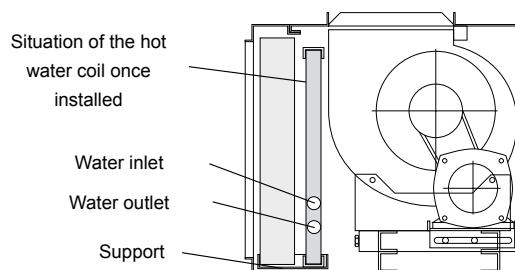
| MODELS LECM/LEHM (INDOOR UNIT) | 22E-26E-32E-38E-43E | 52D | 64D-76D 86D             | 112D-128D 152D |
|--------------------------------|---------------------|-----|-------------------------|----------------|
| <b>WEIGHT kg (*)</b>           | 10                  | 20  | 64D y 76D=20;<br>86D=30 | 45             |

(\*) Add to the unit's weight.

#### **HOT WATER COIL**

The hot water coil consists of a refrigerating coil made of copper tubing, with aluminum swirl fins with inlet and outlet water connections.

it is supplied mounted inside the unit as picture shows.



| MODELS LECM/LEHM INDOOR UNIT (CAPACITY W) | DIFFERENCE IN TEMPERATURES BETWEEN HOT WATER INTAKE AND THE AIR WHICH ENTERS THE COIL |      |      | WATER FLOW L/H | WATER COIL PRESSURE DROP kPa | AIR PRESSURE DROP Pa |                  | Nr ROWS | WEIGHT Kg | WATER OUT-LET DIAMETER Inches |
|---|---|------|------|----------------|------------------------------|----------------------|------------------|---------|-----------|-------------------------------|
|   | 50°C  | 60°C | 70°C |                |                              | Nominal air flow     | Minimum air flow |         |           |                               |
| 22E                                       | 24  | 29   | 34   | 2100           | 36                           | 17                   | 13               | 2       | 10        | 3/4"                          |
| 26E                                       | 29  | 35   | 41   | 2500           | 54                           | 27                   | 21               | 2       | 10        | 3/4"                          |
| 32E                                       | 30  | 37   | 43   | 2600           | 57                           | 31                   | 24               | 2       | 10        | 3/4"                          |
| 38E                                       | 42  | 51   | 60   | 3700           | 40                           | 25                   | 20               | 2       | 12        | 1"                            |
| 43E                                       | 46  | 56   | 65   | 4000           | 47                           | 31                   | 24               | 2       | 16        | 1"                            |
| 52D                                       | 50  | 60   | 71   | 4400           | 56                           | 39                   | 30               | 2       | 20        | 1"                            |
| 64D/68E                                   | 69  | 83   | 98   | 6000           | 30                           | 24                   | 18               | 2       | 20        | 1 1/4"                        |
| 76D/76E                                   | 79  | 96   | 112  | 6900           | 39                           | 34                   | 26               | 2       | 24        | 1 1/4"                        |
| 86D                                       | 86  | 104  | 122  | 7500           | 46                           | 43                   | 32               | 2       | 30        | 1 1/4"                        |
| 112D                                      | 129   | 156  | 183  | 11300          | 42                           | 24                   | 19               | 2       | 40        | 1 1/2"                        |
| 128D                                      | 138   | 167  | 195  | 12100          | 52                           | 30                   | 22               | 2       | 40        | 1 1/2"                        |
| 152D                                      | 146   | 175  | 206  | 12700          | 58                           | 33                   | 25               | 2       | 40        | 1 1/2"                        |

#### PROTECTION AGAINST FREEZING:

• Use glycol water. GLYCOL IS THE ONLY EFFECTIVE PROTECTION AGAINST FREEZING.

This kit includes a security thermostat with a probe located inside the hot water coil. When the temperature is below 4°C, the unit will stop in order to protect hot water coil and to prevent unit working with very low evaporating temperatures.

Five wires between indoor and outdoor unit have to be added with this option.

Hot water coil includes regulation valve:

- ON/OFF for standard and D2 version.
- Proportional (0-10V), for C50 version.

You must ensure that the manual or automatic air vents have been installed on all high points in the system. In order to drain the system check that all the drain cocks have been installed on all low points of the system.



A HEATING COIL FROZEN DUE TO LOW AMBIENT CONDITIONS IS NOT COVERED BY THE WARRANTY.

## OPTIONS

### 2.- ARCHITECTURAL INTEGRATION

#### **KIT LONG DISTANCE REFRIGERANT CONNECTION (HEAT PUMP UNITS) (For cooling only units see 5 section).**

It allows refrigerant connection between indoor and outdoor unit until 65m.

This option includes a solenoid valve in the liquid line and suction receiver which size is bigger than standard one to prevent liquid return in the compressor. Heat pump units. includes cranked case heater as standard.

#### **KIT HIGH PRESSURE 125Pa FP1 (Only available for outdoor units 112D/D2-128D/D2-152D)**

Units with high pressure fans.

Available static pressure up to 125 Pa.

| MODELS KNCM/HM | 112D/D2 | 128D/D2 | 152D |
|----------------|---------|---------|------|
| WEIGHTS Kg (*) | 40      | 40      | 40   |

(\*) Add to the unit's weight.

#### **KIT HIGH PRESSURE 250Pa FP2 (Only available for outdoor units 112D/D2-128D/D2-152D)**

Units with high pressure fans.

Available static pressure up to 250 Pa.

| MODELS KNCM/HM | 112D/D2 | 128D/D2 | 152D |
|----------------|---------|---------|------|
| WEIGHTS Kg (*) | 40      | 40      | 40   |

(\*) Add to the unit's weight.

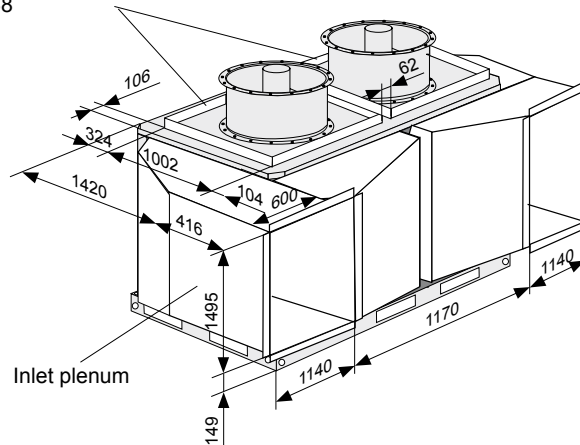
#### **INLET PLENUM (FP1 and FP2 unit versions only)**

It is an accessory for adapting the condenser air intake to accept a duct.

#### **SQUARE DISCHARGE DUCT (FP1 and FP2 unit versions only)**

It is formed by 1 or 2 square frames, for adapting discharge air from the outdoor unit to a square duct.

Square discharge duct 848x848



#### **AUXILIARY DRIP TRAY (Only available for heat pump units with FP1/FP2 option)**

Heat pump outdoor units during defrost cycle produce a lot of quantity of water. You can use an auxiliary drip tray under the unit in order to get all the defrost water and take it where you decided.

#### **KIT MORE STATIC PRESSURE OF AIR DISCHARGE (indoor unit)**

It is a specific fan to obtain more available static pressure up to 400 Pa for indoor unit. See air flow data section for optional fan performances.

| MODELS LECM/LEHM (INDOOR UNIT) | 22E  | 26E  | 32E  | 38E  | 43E | 52D  | 68E-64D | 76E-76D | 86D   | 112D  | 128D | 152D |
|--------------------------------|------|------|------|------|-----|------|---------|---------|-------|-------|------|------|
| WEIGHT kg (*)                  | 6.50 | 3.00 | 3.00 | 5.00 | 0   | 3.00 | 3.00    | 3.00    | 13.00 | 13.00 | 8.00 | 8.00 |

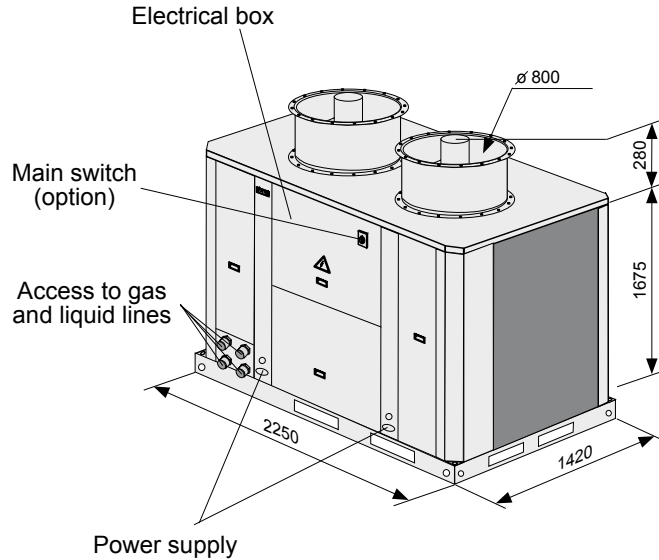
(\*) Add to the standard unit's weights.

#### **VERTICAL DISCHARGE FOR INDOOR UNIT**

Accessories to make indoor air discharge become vertical.

#### **OUTDOOR INSTALLATION INDOOR UNIT**

Accessories to install indoor unit outside.



## OPTIONS

### 3.- INDOOR AIR QUALITY.

#### **DIRTY FILTER INDICATION**

To be installed on the indoor unit.

Based on an air flow security pressure switch, which detects the available static pressure through the air filter.

In case the filters are dirty, the detector is activated showing an alarm, only if the fan is ON.

For standard and D2 version it is only a dirty filter indication signal and for C50 version an alarm in the display which indicates dirty filters, unit without filters or belts damaged.

#### **HIGH EFFICIENCY AIR FILTER G4**

This kit includes an high efficiency air filter G4.

### 4.- SAFETY

#### **MAIN SWITCH**

The main switch is located on the access panel to the electrical box of the outdoor unit.

The main switch is equipped with a clutch gadget, which allows opening the panel of the electrical box, when it is on OFF position.

Verify that the main switch is large enough to handle the current for the unit if electric heaters are installed.

#### **PHASE SEQUENCER**

The phase sequencer is located in the electrical box in the outdoor section, thus assuring that the unit will not begin operation while the phase connection of the compressor is not correct. Should this occur, then just switch two phase connections.

It assures the unit will not begin operation on detection of overvoltage, undervoltage, phase reversal fault or phase failure.

#### **SOFT STARTER -COMPRESSOR STARTING CURRENT CONSTRAINED, (outdoor unit)**

It is an electronic element, which reduces the peak compressor starting current up to 40% (see pages of electrical data without soft starter).

| MODELS (OUTDOOR UNIT)                   | WEIGHT (*) |
|---|------------|
| 22E-26E-32E-38E-43E                     | 3          |
| 52D/D2-64D/D2-76D/D2-86D/<br>D2-112D/D2 | 6          |
| 128D/D2-152D/D2                         | 9          |

(\*) Add to the unit's weight

#### **SMOKE DETECTOR**

Located in the indoor unit, after the filter. Photoelectric head of the smoke detector can detect any type of smoke. In this case it would initiate shutdown sequence the unit, fully close the return air damper and open the fresh air damper up to 100% and send an alarm signal to the unit.

#### **CONDENSER COIL GUARD (outdoor unit).**

The condenser coil protection grill prevents light damage to the coil when shipping and when installed. It can't protect against very heavy impacts.

### 5.- COMFORT PRECISION AND ENERGY EFFICIENCY

#### **LOW AMBIENT KIT 0° (COOLING UNITS ONLY, STANDARD FOR HEAT PUMP)**

It is a crank case heater for the compressor which allows operation cooling operation until 0°C of outdoor temperature.

The purpose of the crank case heater is while the compressor is stopped, so that it can be properly lubricated when starts again.

#### **LOW AMBIENT KIT -15°C OR LONG DISTANCE CONNECTION (COOLING ONLY UNITS)**

With this option the unit will be able to operate in cooling mode with outdoor temperatures until -15°C and also with this option refrigerant lines distance between indoor and outdoor unit can be up to 65m.

This option includes a solenoid valve in the liquid line and suction receiver which size is bigger than standard one to prevent liquid return in the compressor, crank case heater to keep the oil in the compressor at the optimal temperature and proportional condensing pressure control to regulate condensing temperature through speed fan regulation.

#### **KIT LOW NOISE.**

Each compressor is fitted with a compressor acoustic jacket this provides attenuation of the compressor noise that radiates from the unit.

---

## OPTIONS

### **REMOTE AMBIENT SENSOR AND REMOTE DUCT SENSOR**

Standard or D2 version, are available as option. These sensors may be used in conjunction with remote controller or allowing the controller to be mounted in a room away from the conditioned space.

C50 version: Ambient sensor is included as standard and only remote duct sensor is available as option.

- REMOTE DUCT SENSOR: The sensor will be located in the return-air duct, detecting the air temperature of the air being air-conditioned.

- REMOTE AMBIENT SENSOR: The sensor will be placed in the area to be air-conditioned. Of series in the standard version.

### **DYNAMIC SET POINT.**

It changes cooling and heating set point according ambient temperature (an extra sensor must be installed).

C50 Version: standard (See User Manual for the control)

Standard version:

1.-It includes outdoor sensor and adjustment of parameters.

2.-Not necessary with free-cooling option because outdoor sensor is included. In case you select free-cooling and desire dynamic set point, adjust the parameters. (See User Manual for the control)

### **HOT GAS BY-PASS VALVE (COOLING ONLY UNITS)**

Hot gas by-pass valve is an option that serves as extra stage of capacity control of the evaporator, with evaporating temperatures below +2°C, by injecting hot gas from high pressure side to the low pressure side, after the expansion valve.

It can reduce the capacity of the unit until 80%.

HGBP valve has to be adjusted in the installation to regulate unit capacity, taking into account evaporating temperature in the compressor can not be below -2°C to prevent ice forming in the indoor coil.

The protection of indoor coil sensor is disabled by HGBP valve action.

### **RUBBER ANTI-VIBRATION MOUNTS (outdoor unit)**

To install under the unit to avoid transmission of vibrations to the floor where unit is installed, while unit is operating.

They are designed for low sensibility zones to vibration

### **SPRING ANTI-VIBRATION MOUNTS (Only 112-152D units) (outdoor unit)**

To install under the unit to avoid transmission of vibrations to the floor where unit is installed, while unit is operating.

They are designed for medium and high sensibility zones to vibration.

## OPTIONS

### FREE COOLING

#### 1.- DEFINITION

FREE-COOLING is a saving system in the Cooling cycle, this makes the unit take air from the outside to take advantage of its energy, this system acting as a first cold stage.

Free-cooling allows as well fresh air management.

#### 2.- TYPES OF FREE COOLING

According to outside air parameters which have to be measured, the types are:

##### - Thermostatic free cooling:

Measures and compares the outside air temperature with the temperature of the room that has to be conditioned.

##### - Enthalpic free cooling:

Measures and compares the outside air enthalpy with the return air enthalpy from the room that has to be conditioned.

The enthalpy measures temperature and humidity of air.

With C50 units version and enthalpic free cooling as option, BE50 expansion module is needed too.

#### 3.- COMPONENTS OF FREE COOLING

The main components are:

-Accessories: Their function is to detect the outside and indoor air conditions through the probes, deciding when free cooling should operate.

-The servomotor and system transmission: They manage the opening and closing of dampers proportionally.

-Adjustable dampers.

-Mixing section: Where fresh and return air are mixed.

Also a return fan is available, which applies an additional static pressure on the suction and return air duct. (models 64D to 152D).

For more details about components and drawings see pages 38 to 45.

#### 4.- OPERATION

The control compares the values of temperature/enthalpy between outside air and room air through the probes, if it is a negative difference and the security elements allow (discharge temperature probes) then the control acts over the servomotor, which produces the opening of the outside damper and close the return one, entering cool outside air to the room.

The damper regulation is proportional.

If indoor air demand is not great, could be enough only the free cooling to condition the room, if the air demand is greater it is possible need the free cooling working and the unit working on different cooling mode stages.

#### 5.- SUPPLY AND INSTALLATION

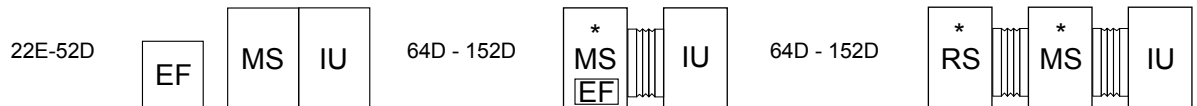
The free cooling option can be delivered as a packaged system or as a split system.

Mixing section will be delivered with the unit for models 22E to 52D and as split system for the rest of the models.

Return fan section will be delivered with the unit.

Configuration of free cooling supply:

INDOOR  
UNIT



EF: Exhaust fan.

MS: Mixing section.

RS: Return fan section.

IU: Indoor unit.

Flexible duct to install by the customer.

\* Mixing and return fan section can be near or not.

#### 6.- EXHAUST FAN

Elimination of the air overpressure in the room

| LECM/HM (INDOOR.) | 22E | 26E | 32E | 38E | 43E | 52D | 52D2  | 64D | 64D2  | 76D | 76D2  | 86D | 86D2  | 112D | 112D2 | 128D | 128D2 | 152D |
|-------------------|-----|-----|-----|-----|-----|-----|-------|-----|-------|-----|-------|-----|-------|------|-------|------|-------|------|
| WEIGHTS Kg (*)    | 25  | 25  | 25  | 28  | 28  | 28  | 25+25 | 37  | 25+25 | 37  | 28+28 | 37  | 28+28 | 65   | 37+28 | 65   | 37+28 | 65   |

(\*) Add to the unit's weight + freecooling, without return fan.

With C50 units version and exhaust fan as option, BE50 expansion module is needed too.

#### 7.-RETURN FAN (Only for indoor units 64D to 152D).

If an extra static pressure is required on the return air duct, the free-cooling should add a return fan section which includes a discharge damper.

The operation dampers, free-cooling and return fan is: as much as the air intake damper opens, that much the by-pass damper closes and the discharge air damper opens, for the air return section.

This means that at the same time reach a free cooled of the room, the discharge of return air and the air on the room gets removable.

# OPTIONS

## FREE COOLING

### 9.- SELECTION OF THE UNIT AND FREE COOLING SYSTEM

There are different types of free cooling system, different possibilities of dampers installations, and it could be supplied mounted or loose. In order to provide the customer the needed one, fill in the following table and send it to the order department:

INSTALLER COMPANY NAME: \_\_\_\_\_ Contact person name: \_\_\_\_\_  
 Tf.: \_\_\_\_\_ Fax \_\_\_\_\_ e-mail \_\_\_\_\_

ATTENTION TO: Lennox Refac S.A. \_\_\_\_\_ Contact person name: \_\_\_\_\_  
 Tf.: \_\_\_\_\_ Fax \_\_\_\_\_ e-mail \_\_\_\_\_  
 Order number : \_\_\_\_\_

A.- Select the unit needed: split or multi-split: Split  Multi-split

B.- Select if you need exhaust fan with the free cooling. (It is not possible exhaust fan with return fan.  
 With exhaust fan  Without exhaust fan

C.- Select if you need return fan with the free cooling. (It is not possible return fan with exhaust fan. (Only for units 64D to 152D and 68E-76E).  
 With return fan  Without return fan

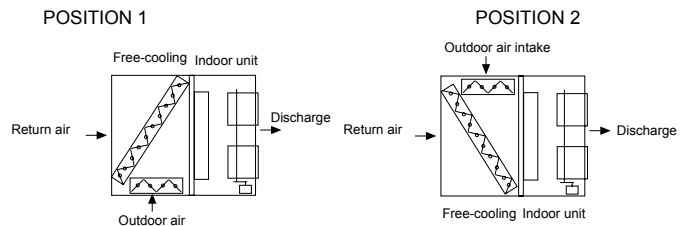
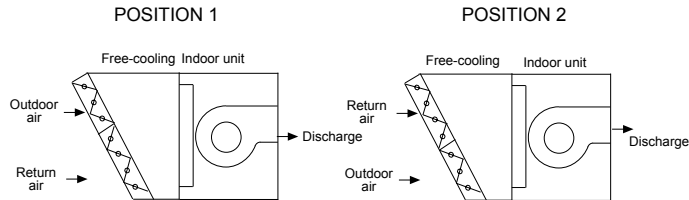
D.- Select the dampers configuration for the free cooling, as following. (In order to be adapted to the ducts of the installation).

#### INDOOR UNITS 22E-26E-32E-38E-43E-44E-52D

#### INDOOR UNITS 68E-76E-64D-76D-86D-112D-128D-152D

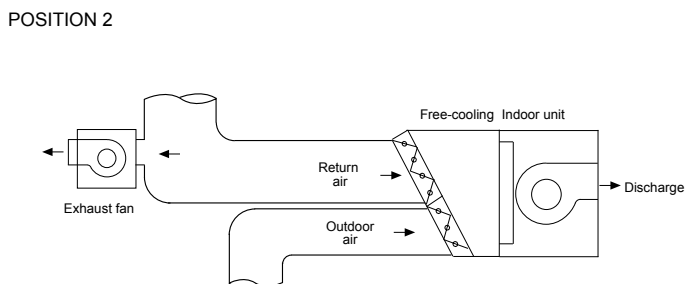
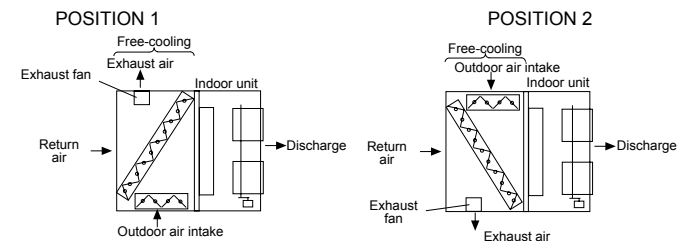
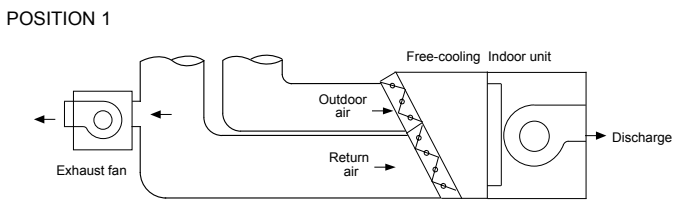
D.1.- Free cooling dampers position WITHOUT exhaust fan.  
 The drawings are lateral view of the indoor unit and free cooling.

D.1.- Free cooling dampers position WITHOUT return fan:  
 The drawings are an upper view of the indoor unit and free cooling.

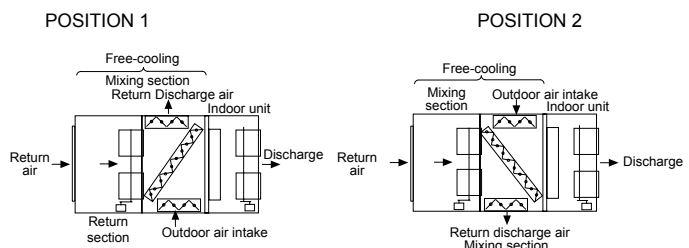


D.2.- Free cooling dampers position WITH exhaust fan:  
 The drawings are lateral view of the indoor unit and free cooling.

D.2.- Free cooling dampers position WITHOUT return fan and with exhaust fan optional:  
 The drawings are an upper view of the indoor unit and free cooling.



D.3.- Free cooling dampers position WITH return fan:  
 The drawings are an upper view of the indoor unit and free cooling.



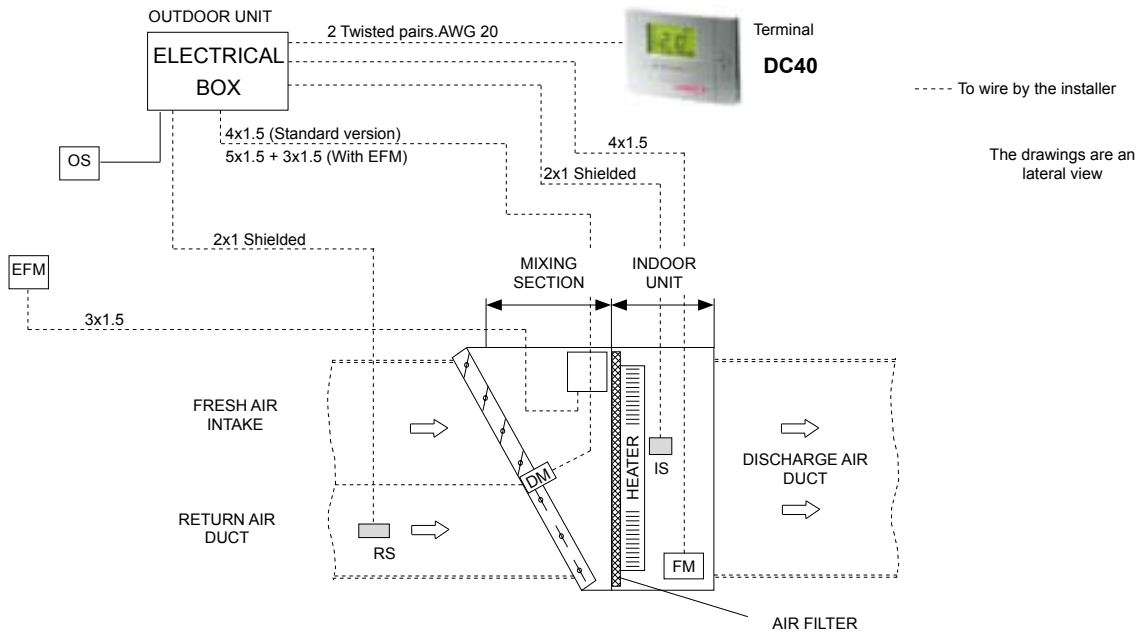
NOTE: Drawings only show dampers and fans situation, but they are not according to the delivery of the different sections (unit, mixing and return fan).

OPTIONS

**FREE-COOLING**

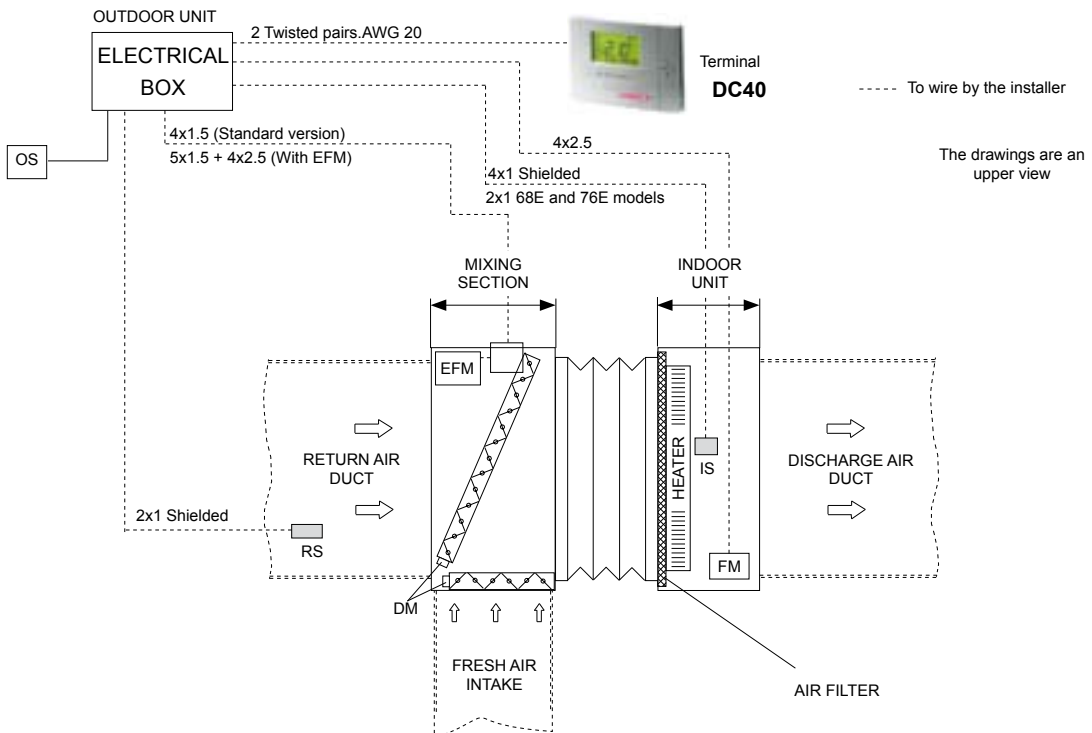
THERMOSTATIC FREE-COOLING WITHOUT RETURN FAN LECM/LEHM 22E A 52D.

**STANDARD VERSION**



THERMOSTATIC FREE-COOLING WITHOUT RETURN FAN LECM/LEHM 64D A 152D AND 68E TO 76E.

**STANDARD VERSION**



OS: Outdoor temperature sensor.  
EFM: Exhaust fan motor.

DM: Damper actuator.  
IS: Liquid-gas pipe sensor

FM: Indoor fan motor.  
RS: Return sensor (option).

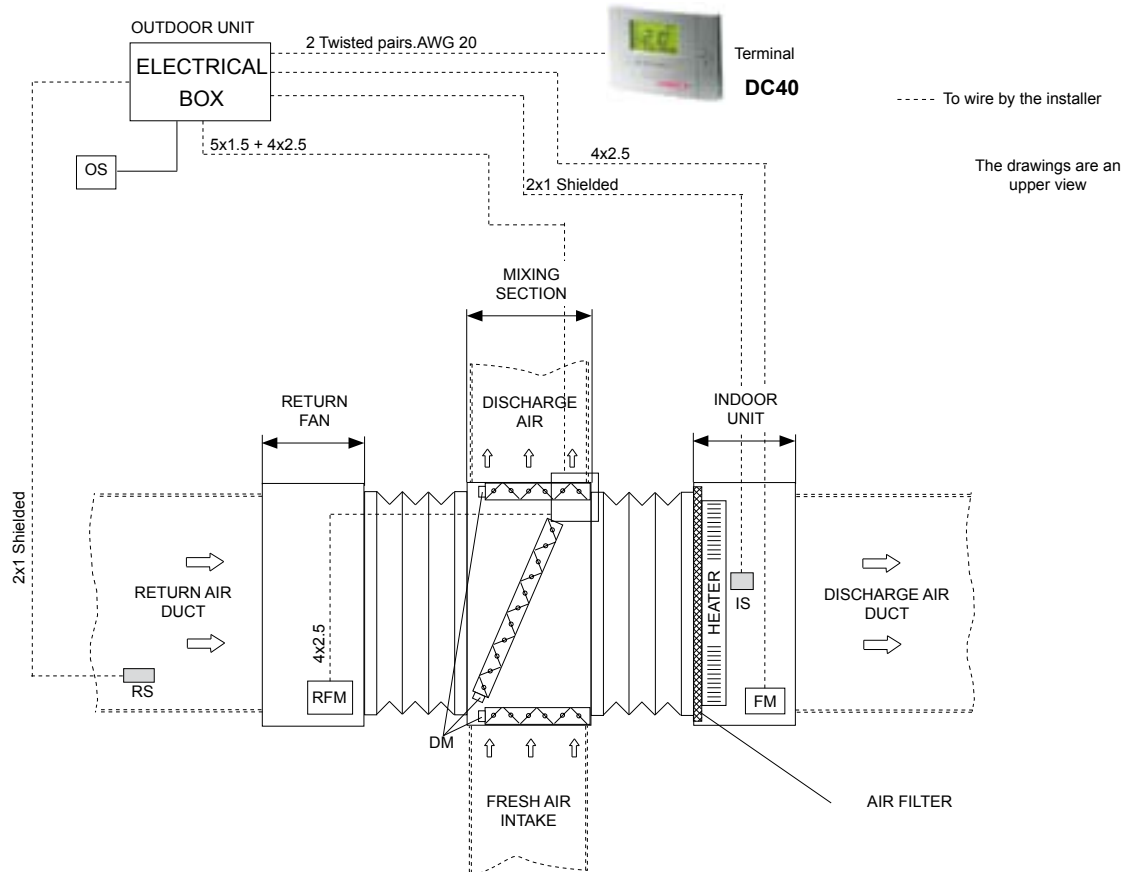


## OPTIONS

### FREE-COOLING

THERMOSTATIC FREE-COOLING WITH RETURN FAN LECM/LEHM 64D A 152D AND 68E TO 76E.

#### STANDARD VERSION



OS: Outdoor temperature sensor.  
RFM: Return fan motor.

DM: Damper actuator.  
IS: Liquid-gas pipe sensor.

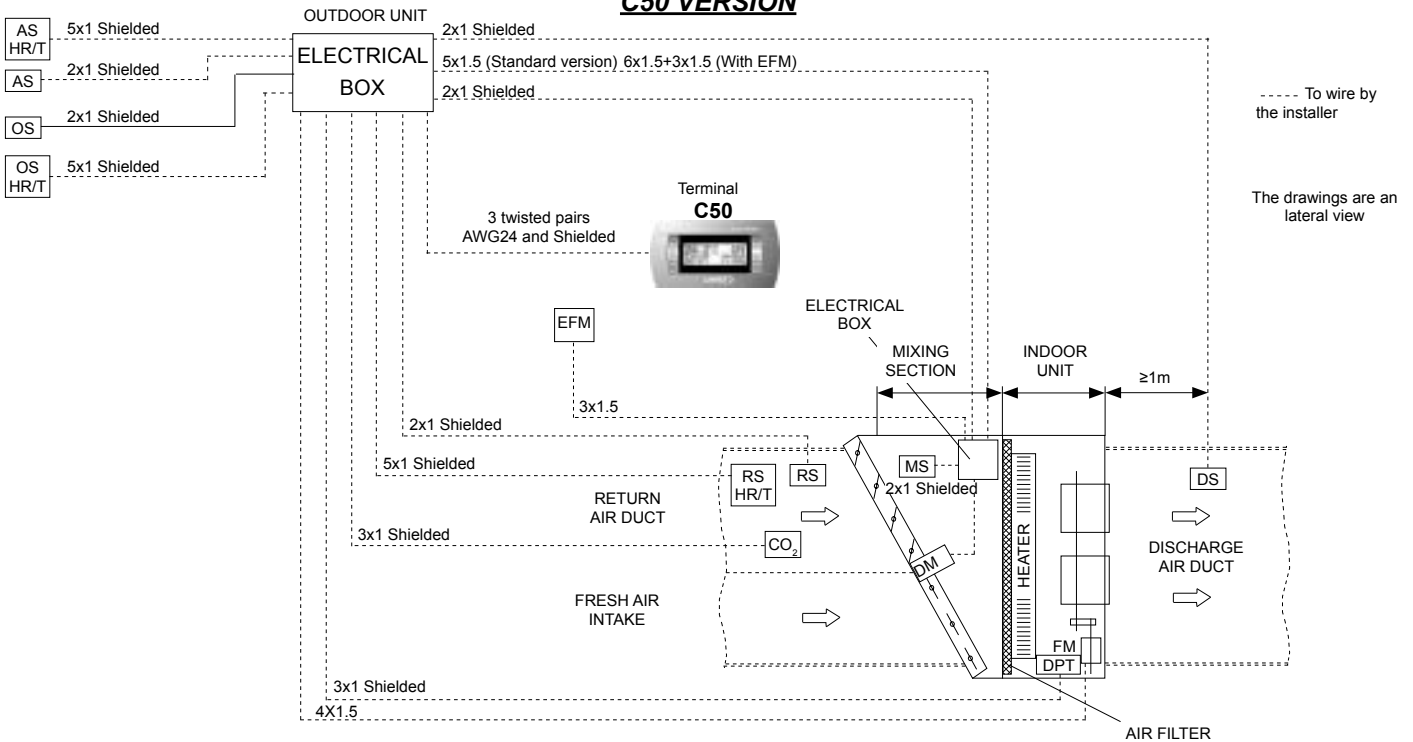
FM: Indoor fan motor.  
RS: Return sensor (option).

OPTIONS

**FREE-COOLING**

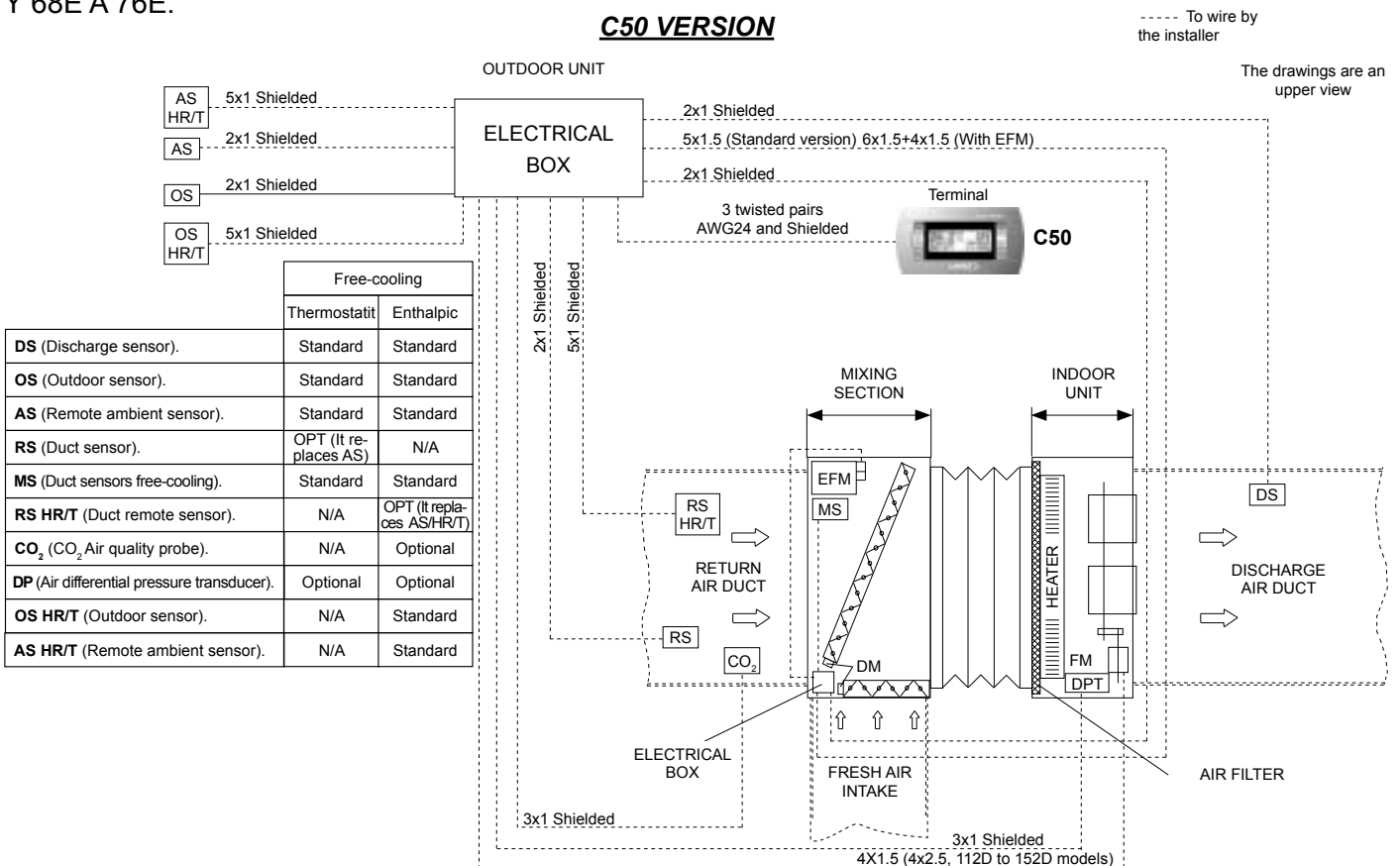
THERMOSTATIC AND ENTHALPIC FREE-COOLING WITHOUT RETURN FAN LECM/LEHM 22E A 52D.

**C50 VERSION**



THERMOSTATIC AND ENTHALPIC FREE-COOLING WITHOUT RETURN FAN LECM/LEHM 64D A 152D Y 68E A 76E.

**C50 VERSION**



DM: Damper actuator.

EFM: Exhaust fan motor.

FM: Indoor fan motor.

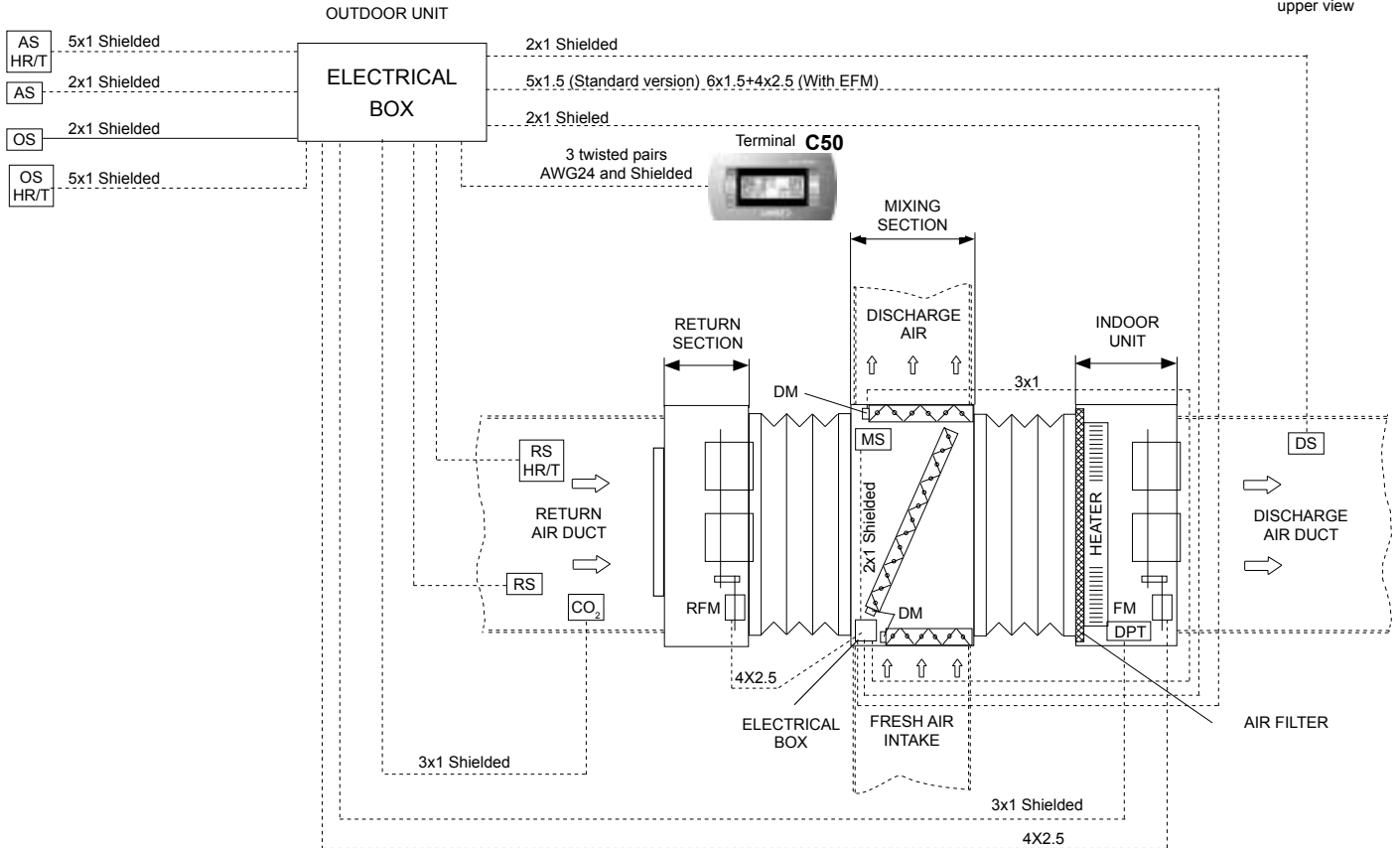
**FREE-COOLING**

THERMOSTATIC AND ENTHALPIC FREE-COOLING WITH RETURN FAN LECM/LEHM 64D A 152D Y 68E A76E.

**C50 VERSION**

----- To wire by the installer

The drawings are an upper view



DM: Damper actuator.

RFM: Return fan motor.

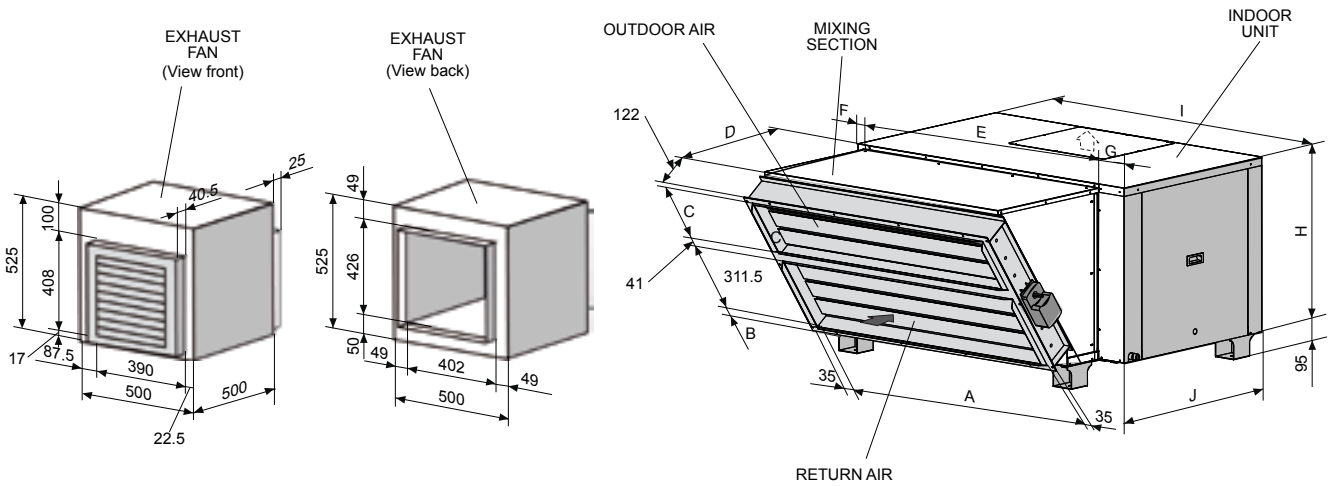
FM: Indoor fan motor.

## OPTIONS

### FREE-COOLING

#### DIMENSIONS FREE-COOLING WITHOUT RETURN FAN

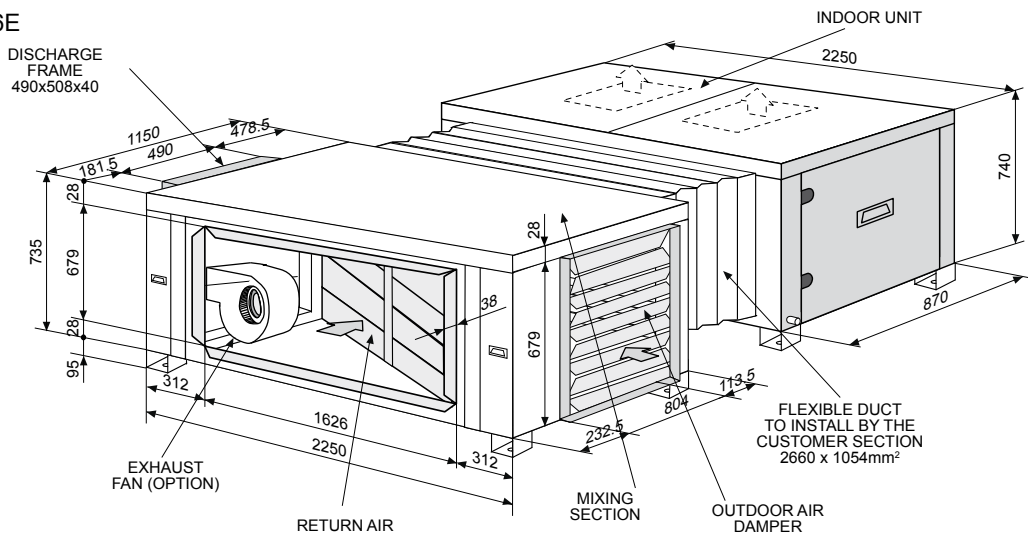
MODELS 22E-26E-32E-43E-44E-52D



The damper position can be different than the picture shows. See drawings.

| MODELOS | 22E-32E | 38E-52D |
|---------|---------|---------|
| A       | 1000    | 1250    |
| B       | 25      | 19.5    |
| C       | 147.5   | 229.5   |
| D       | 648     | 642     |
| E       | 1013    | 1268    |
| F       | 80.5    | 41      |
| G       | 100.5   | 136     |
| H       | 645     | 740     |
| I       | 1195    | 1445    |
| J       | 750     | 870     |

MODELS 64D-76D-86D  
68E-76E



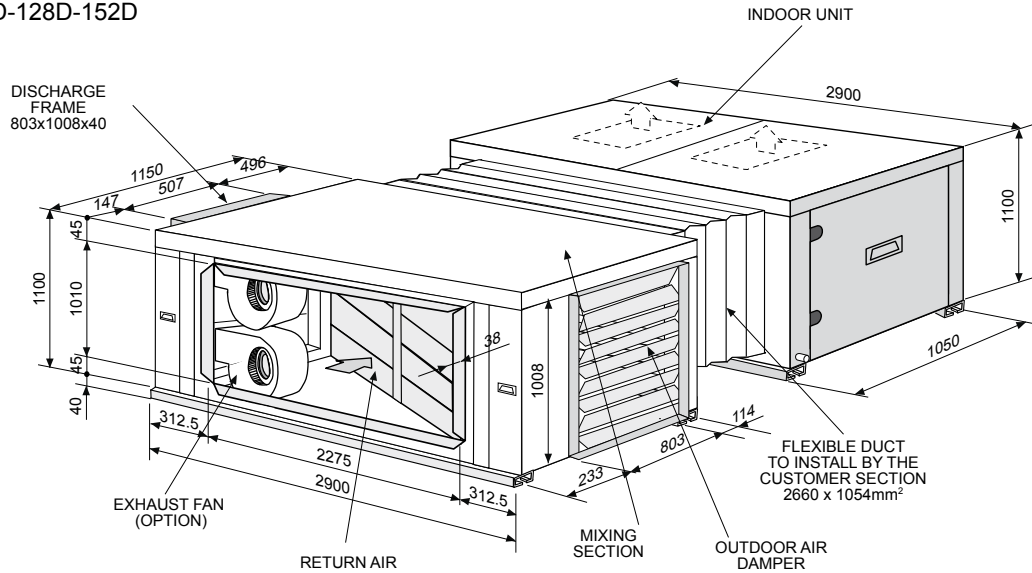
It is possible to include an exhaust fan with free cooling without return fan.

## OPTIONS

### FREE-COOLING

#### DIMENSIONS FREE-COOLING WITHOUT RETURN FAN

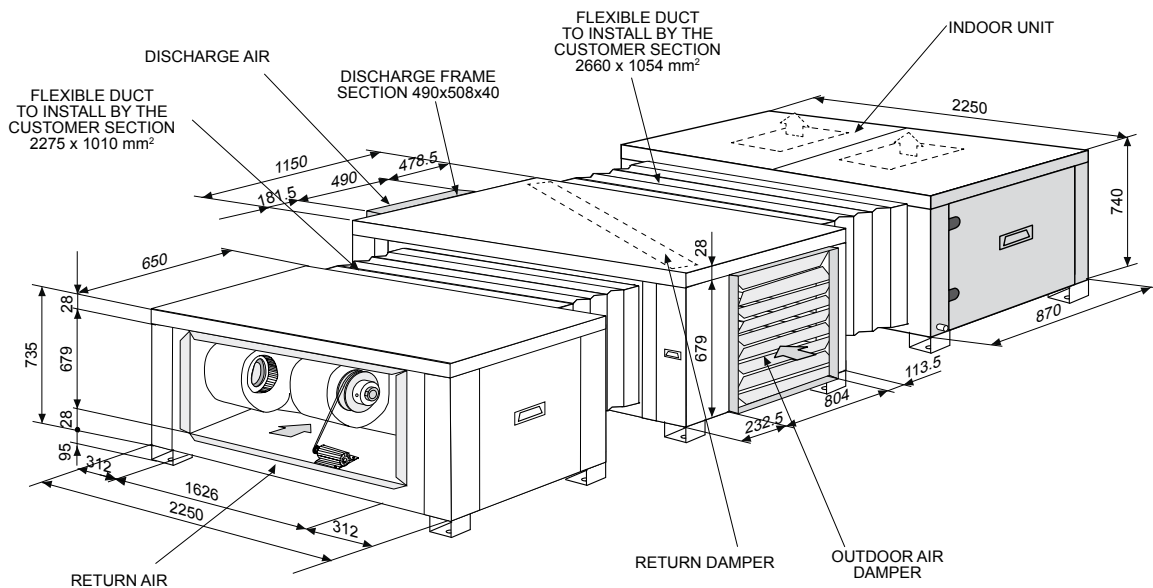
MODELS 112D-128D-152D



| MODELS |                | 22E | 26E | 32E | 38E | 43E | 52D | 64D-68E | 76D-76E | 86D | 112D | 128D | 152D |
|--------|----------------|-----|-----|-----|-----|-----|-----|---------|---------|-----|------|------|------|
| Weight | Indoor unit    | 108 | 111 | 115 | 150 | 160 | 170 | 285     | 305     | 325 | 470  | 480  | 490  |
| kg     | Mixing section | 50  | 50  | 50  | 75  | 75  | 75  | 165     | 165     | 165 | 190  | 190  | 190  |

#### DIMENSIONS FREE-COOLING WITH RETURN FAN

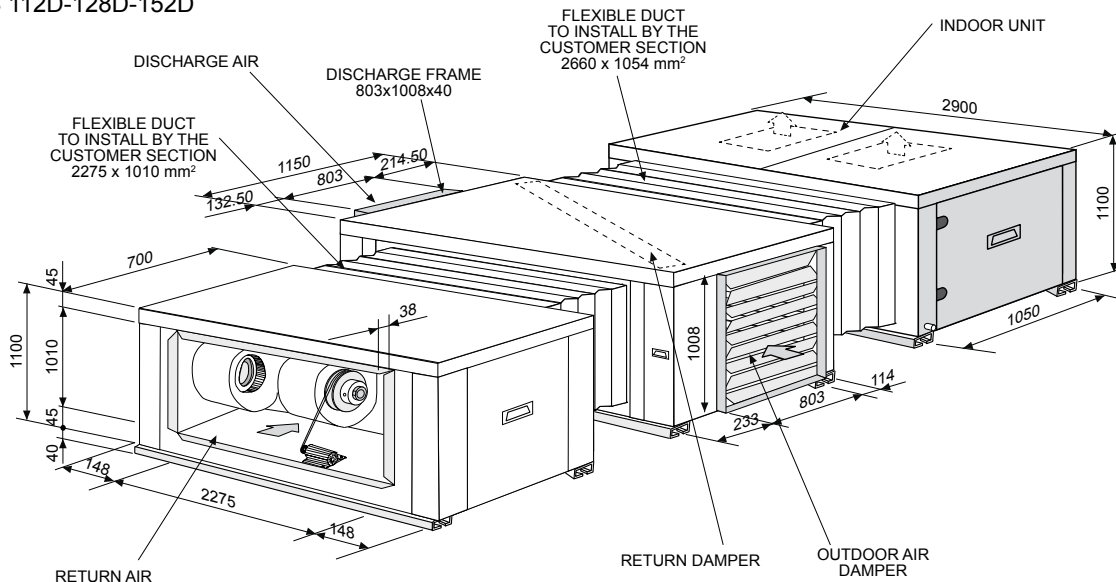
MODELS 64D-76D-86D  
68E-76E



**FREE-COOLING**

**DIMENSIONS FREE-COOLING WITH RETURN FAN**

MODELS 112D-128D-152D



| MODELS       |                | 22E | 26E | 32E | 38E | 43E | 52D | 64D-68E | 76D-76E | 86D | 112D | 128D | 152D |
|--------------|----------------|-----|-----|-----|-----|-----|-----|---------|---------|-----|------|------|------|
| Weight<br>kg | Indoor unit    | 108 | 111 | 115 | 150 | 160 | 170 | 285     | 305     | 325 | 470  | 480  | 490  |
|              | Mixing section | 50  | 50  | 50  | 75  | 75  | 75  | 310     | 310     | 310 | 420  | 420  | 420  |
|              | Return section | n/a | n/a | n/a | n/a | n/a | n/a | 145     | 145     | 145 | 230  | 230  | 230  |

n/a: Not available

**6.- SERVICE**

**R-410A REFRIGERANT FACTORY PRECHARGED (outdoor unit)**

This option includes service valves and R-410A refrigerant charged in outdoor unit (for 0 meters of connection lines)

**SERVICE VALVES (outdoor unit)**

The unit is fitted with gas and liquid service valves, in order to make easier installation and maintenance operations.



# OPTIONS

## 7.- COMMUNICATION CAPABILITIES

### 7.1. Standard and D2 versions

BMS MODBUS\_RS485 connection .

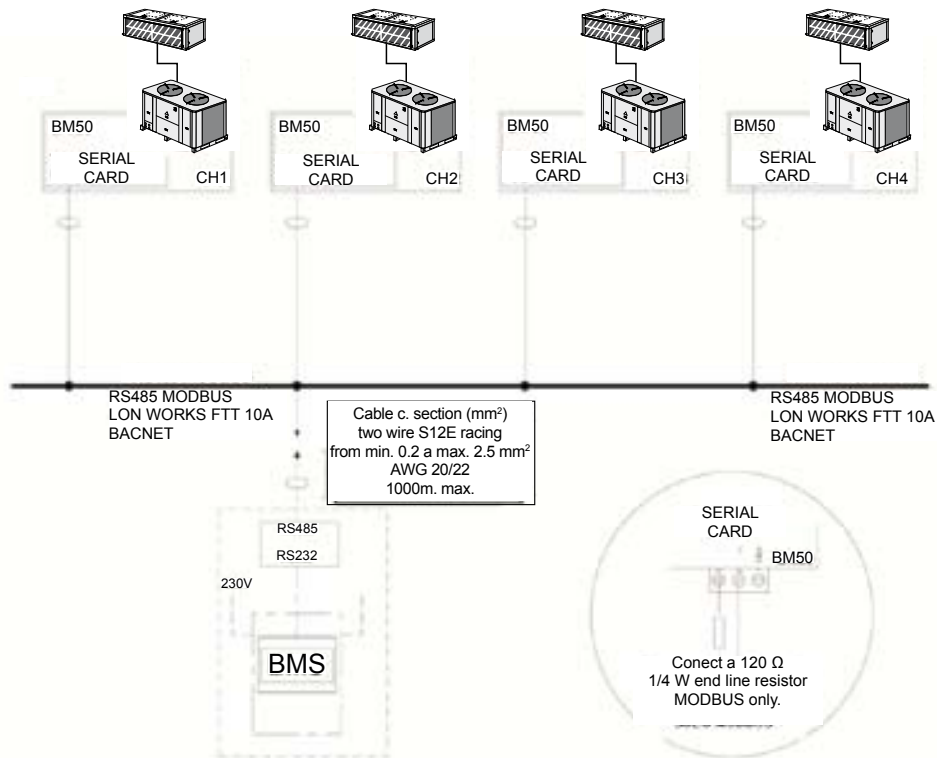
Controller Climatic 40 offers the possibility to communicate to Building Management Systems (BMS) via Modbus protocol. This option includes remote sensor and eliminates DC40 terminal-thermostat.

### 7.2. C50 Version

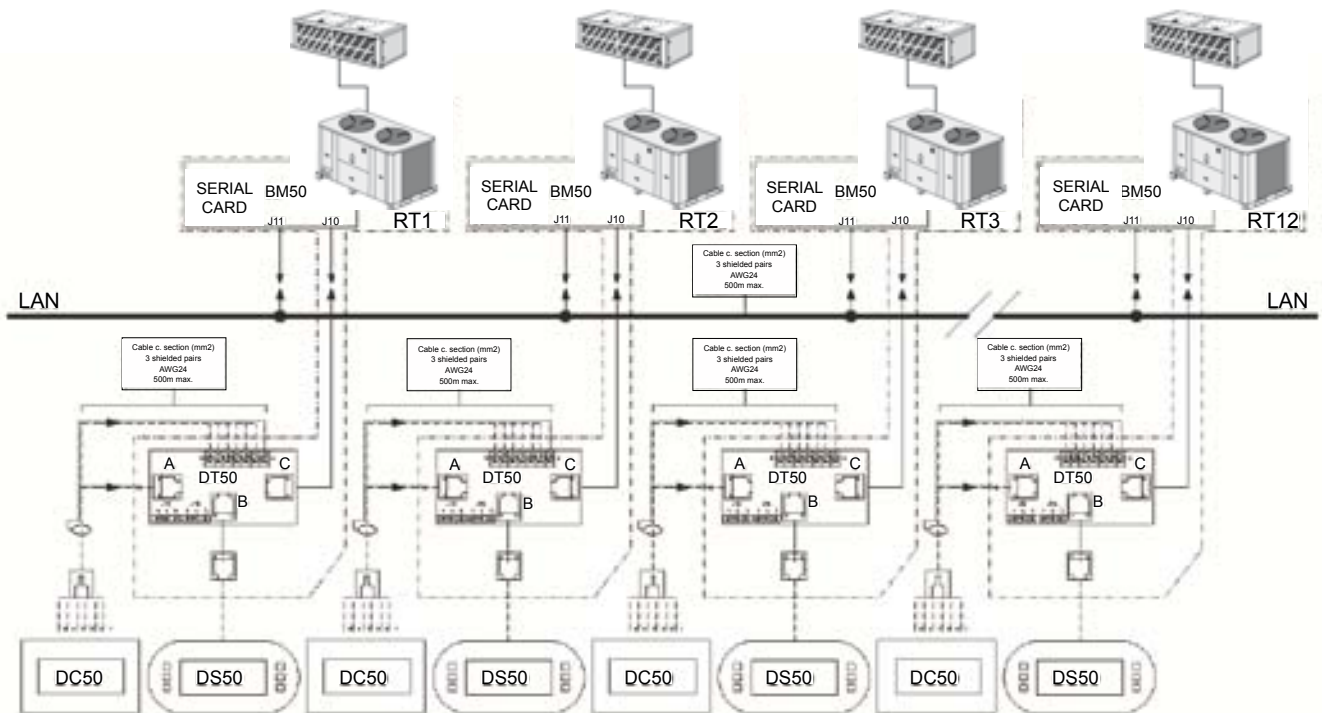
BMS MODBUS\_RS485 connection

BMS LONWORKS\_Echelon connection

BMS BACnet connection



With C50 unit version, is possible a master-slave connection:



## 8.- CLIMATIC 50 ADVANCED CONTROL

### **BE 50 EXPANSION.**

BE50 expansion module is placed in the electrical box and connected to the main control BM50 in order to get additional inputs and outputs. 4 analogical inputs, 4 digital inputs and 4 digital outputs can be used. It is needed with options: Exhaust fan, TCB for voltage free contact and enthalpic free cooling.

### **TCB CONNECTIONS FOR "Voltage Free Contact".**

For voltage free contact. All the signals, fan, compressor, electrical heater, cooling, heating, etc. Are available as voltage free contact.

BE50 expansion module is needed with this option.

### **AIR QUALITY PROBE CO<sub>2</sub>.**

It includes an air quality probe (CO<sub>2</sub>).

Air fresh damper is opened when the air quality is below the desired value.

### **SERVICE DISPLAY DS50.**

As an option it is available a service display controller, which allows service personal to set up to 90 settings, read up to 125 variables, up to 45 faults and read the history of the last 16 faults.



### **COMFORT DISPLAY DC50.**

Remote controller with LCD display and very easy to use. This graphical display gives information such as running mode of the unit, status of the fan, set point, %of fresh air, and outside temperature.

### **DM50 TERMINAL.**

Remote control with LCD display to make the same functions that comfort terminal, but with an only terminal up to 12 units connected through a network.

## 9.- EXTENDED LIFECYCLE

### **PRECOATED COIL FOR INDOOR UNIT, OUTDOOR UNIT.**

Special protection of the aluminium coil fins, to protect it from aggressive external environmental conditions. It is available for indoor unit and outdoor unit.



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NOTES





Horizontal lines for writing.



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