

# OPERATOR'S MANUAL

Cooling Unit

**LMK 5.0E**



manufactured by:

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Via G. Di Capi, 11/A  
MANTOVA  
ITALY

## **IMPORTANT !!!**

**The manufacturer does not accept responsibility for any action of the user, aimed to repair or simply to use the product covered by this guide, not in conformity to the instructions here enclosed. The manufacturer does not accept responsibility for damages to people or goods.**

- 1. INTRODUCTION**
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# INTRODUCTION • 1

Congratulations for your choice. To avoid troubles with your new cooling unit simply follow the directions of this manual.

This manual must be intended as a support to a good use of your refrigeration unit but obviously it cannot help for all the cases of problems connected to the temperature controlled transports. Therefore, for your safety and for a longer operating life, we recommend to contact the nearest service point at any time.

## PRECAUTIONS • 2

Access the unit may involve certain risks. Any operation must be made by specialists.

### SUGGESTIONS:

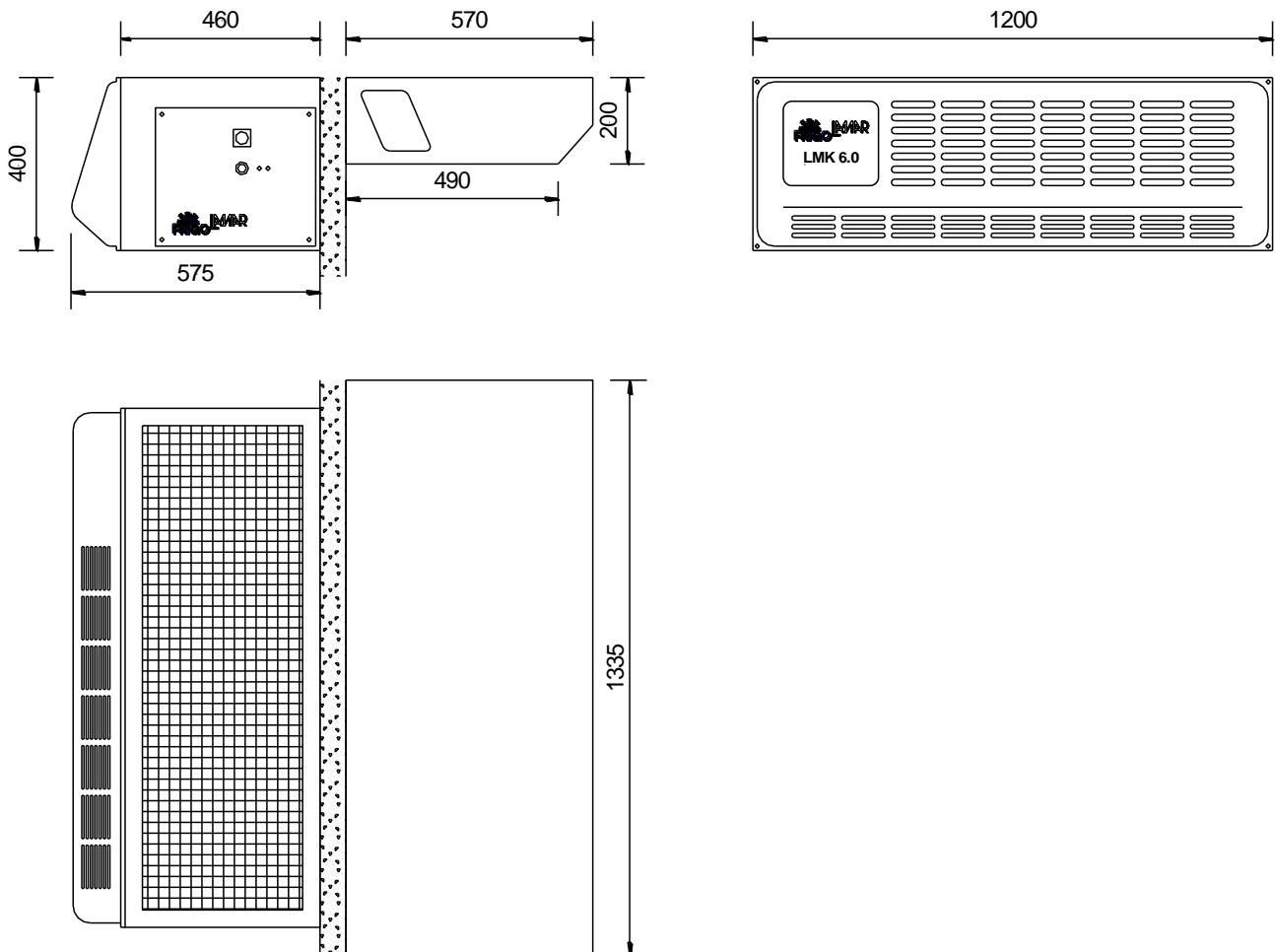
- Take every safety measures before accessing the unit.
- When performing maintenance procedures on the refrigeration unit, make sure the unit is disconnected from the power source, the cab control is in OFF position and no automatic start-up are possible.
- Pay attention to the risks due to the presence of copper pipes with dangerous temperature gas circulation (positive or negative).
- Pay attention to the risks due to the presence of dangerous line voltage.
- Pay attention to the risks due to the presence of dangerous fans. Evaporator and condenser fans are protected by safety grills.
- Pay attention to the risks due to the danger involved by the sharp fins of the evaporator and condenser heat-exchangers.

# UNIT DESCRIPTION • 3

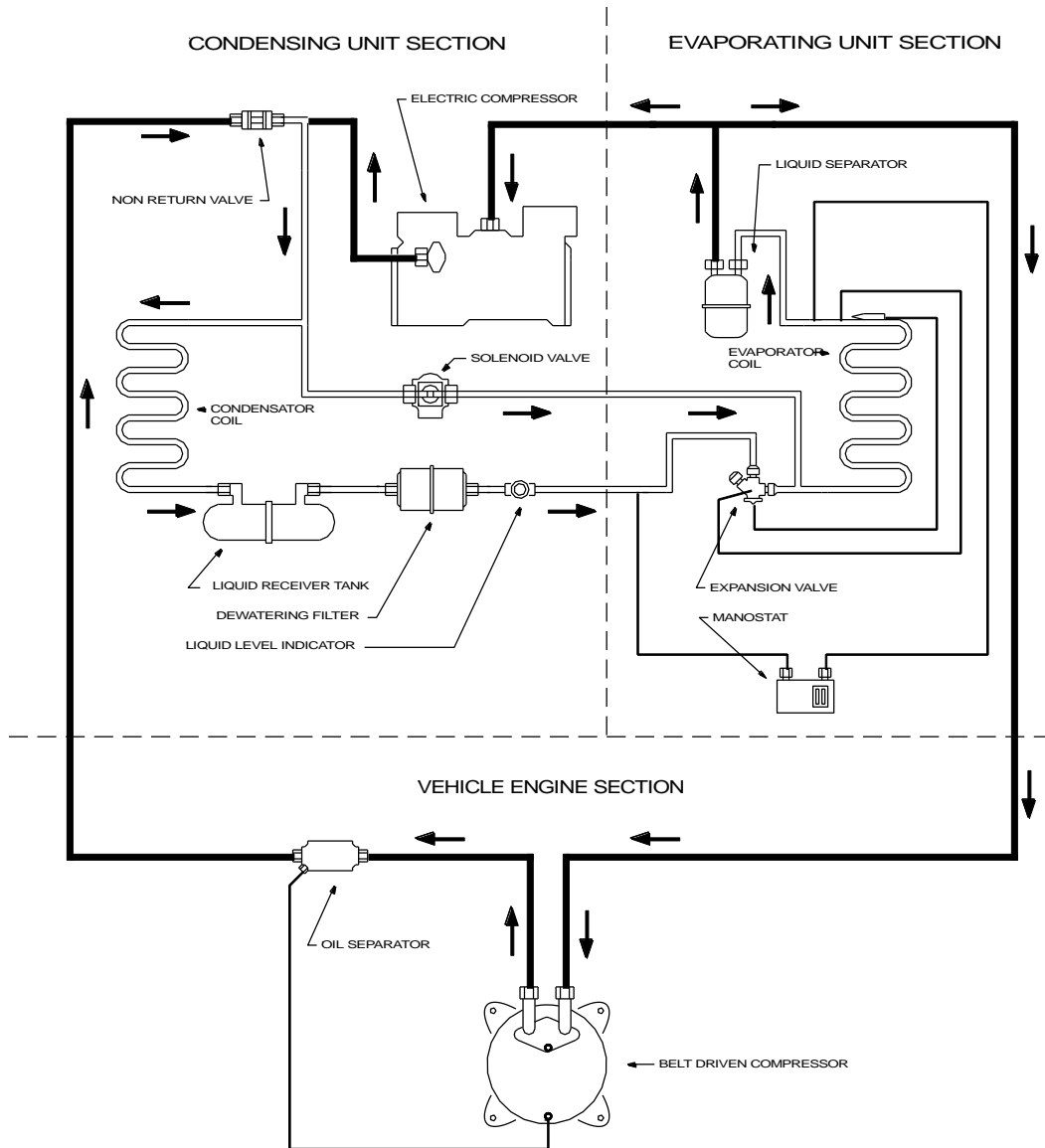
FRIGO LAMAR LMK 5.0E has been studied to equip medium/large delivery vehicles. The unit is manufactured as split-system to fit any kind of vehicle. The unit can be driven by the vehicle engine (by a belt drive compressor) during the daily use or by switching to standby (by an electric compressor) during the parking time.

- LMK 5.0E D/T: unit working only driven by engine.
- LMK 5.0E DN/TS: this unit works driven by the vehicle engine and by switching to standby.

## 1. DRAWING:



## 2. CIRCUIT DIAGRAM:



### Protection devices:

Protection devices under described protect the parts of the unit LMK 5.0E. It's imprudent any action not executed by specialist personnel.

**FUSES:** four 15A fuses protect the fans, they are located into the electrical equipment box; a 8A fuse protects the transformer, this fuse is located into the electrical equipment box; a 800 mA fuse protects the cab-control, this fuse is located into the electric circuit box on a green socket; general protection is guaranteed by a 50A fuse, this fuse is located near the battery of the vehicle.

**HIGH PRESSURE MANOSTAT:** stops the working of the unit in case of elevation beyond the concurred limits of the cooling gas pressure (due to a malfunctioning of the fan of the condenser, as an example). It is located into the evaporator box.

**LOW PRESSURE MANOSTAT:** stops the working of the unit in case of lowering beyond the concurred limits of the cooling gas pressure (due to a leak in the gas circuit or to the gas filter, as an example). It is located into the evaporator box.

# UNIT OPERATION • 4

Before starting the unit:

- Check the good general condition and the belt tension of the engine driven compressor.
- Frequently get a look to the unit looking for leaks, loss of oil or gas, not working parts and whatever.
- Frequently make sure, at the end of the working day, to see water under the vehicle close to the drain hose. If you don't see water apply to your dealer to check for obstructions of the hose.

The unit is controlled by the cab-control. The unit works by standby during the parking time or by the engine of the vehicle on road.

Use of the unit by the Cab-control:

START: switching on the cab-control the message **Std** slides on the display when the default parameters are stored or **HtC**, followed by the software version, when the set parameters have changed. Finally the display will show the inside temperature (CE1).

SETTING OF THE SETPOINT (default: SP1=02 °C, SP2= 06 °C): Press the key **Set** until the display will show the sliding message **Setpoint**; release the key: the display will show **SP1** and the value of the setpoint. Increase or decrease the setpoint value by pressing the keys **Set** o **<?>**. When the new setpoint value start flashing it has been stored. To set the second setpoint (for bodies with partition wall) press once the key **Set** and when the display will show the message **SP2** you can proceed as done for **SP1**.

SET OF THE CLOCK: Press **<?>** + **Set** : the display will show the message **PAS**, release the keys. Wait until the display will show the message **000** and the message **hxx** (xx is the hour). Increase or decrease the time by pressing the keys **Set** o **<?>**. Release and wait until the display will show **mxx** (now xx are the minutes). Set the minutes. Release the keys and wait until the display shows **dxx** (now xx means the day date). Set the day date. Release the keys and wait for the message **Mxx** (now xx is the month). Set the month. Release and wait for the message **Yxx** (now yy are the last two numbers of the current year). Now you have only to wait until the display shows the setpoint value. All the data have been stored.

For the complete setting of the parameters please refer to the specific manual supplied to the service center.



A few suggestions:

- Check for abnormal noises when the unit is working.
- Pre-cool the van for 20/30 minutes before loading the goods.
- Evacuate the existing humidity by operating a manual defrost (this is possible only at proper temperatures).
- When loading check the temperature of the products to ensure they are at a proper temperature to be transported.
- The cooling unit has been engineered to maintain the temperature of pre-cooled products not to refrigerate warm goods.
- In order to enable a good air-flow circulation, around and through the load, pay attention to leave free space enough between the load and the box walls.
  
- If the cab-control does not switch on check the efficiency of the 800 mA fuse located located into the electric circuit box on a green socket;
- If the unit does not work on road, check the efficiency of the 50A fuse located close to the battery of the vehicle;
- If the unit does not cool enough check the level of the refrigerant gas (2,8 kg of R134a), looking at the window located on the gas filter.
- If the compressor does not work on road check the thermal protection into the electrical equipment box (also check the standby supply cable is disconnected).
- If the condenser fan or the evaporator fan do not work check the efficiency of the 15A fuses located into the electrical equipment box (also check the standby supply cable is disconnected).

**THE UNIT STARTS UP AUTOMATICALLY.**  
**KEEP WELL AWAY FROM MOVING PARTS**  
**(BELTS, PULLEYS, FANS)**

**FOR ANY PROBLEM DO NOT HESITATE TO CONTACT**  
**YOUR SERVICE CENTER**

## TECHNICAL FEATURES • 5

Power supply:	380/400 V – 3 phases
Max electrical current absorption:	55 A
Refrigeration power at 0°C (ext. temp. = 30°C):	4265 W – 4500 W
Refrigeration power at -20°C (ext. temp. = 30°C):	1660 W – 2450 W
Belt driver compressor:	SANDEN 7H15
Electric compressor:	FRASCOLD F 4 24
Condenser fan:	2 SPAL Ø 305 mm (3010-2006)
Evaporator fans:	2 SPAL Ø 255 mm (3010-0128)
Thermostatic valve:	DANFOSS TEN 2
Refrigerant gas:	R134a/R404A