LEM R290

pastorfrigor

ITALIAN STYLE IS COOL

User Instruction Manual

Carefully read the manual and keep it safe with the cabinet

INDEX

1. General information 4
2. Product information....9
3. Recycling and material disposal....19
4. Exploded parts....20
5. Accessories 21

APPENDIX A - Cross section....22
APPENDIX B - Discharge position, connections, tubes....23
APPENDIX C - Probes position....24
APPENDIX D - Electrical schematic....25
APPENDIX E - Declaration or conformity and certification 28

PREFACE

We would like to thank you for choosing our cabinet series “PLUG-IN” designed for the preservation and sale of packed products.

This line belongs to the “WALL DISPLAY CABINETS” different versions are available depending on the product and sales requirements. They are available in different configurations, various heights and lengths which can be connected in-line (1250, 1875, 2500), to create versatile compositions adaptable to the requirements of any business and setting.

- LEM R290

The present booklet has been written in a simple and concise way, so the reader can completely understand the product. Please, read it carefully and keep it with the machine. The manufacturer assumes no responsibility for any personal injury or property damage which may be caused by non-compliance with the instructions contained in this booklet. Whoever operates the machine must have read this manual beforehand.

NOTE: WHERE REFERRED TO "QUALIFIED PERSONELL" MEANS ONLY TECHNICIANS WHO ARE TRAINED TO WORK WITH HYDROCARBON REFRIGERANTS (A3) AND HOLD QUALIFICATIONS C&G 2079-11 AND C & G 6187-21 OR EQUIVELENT.

1. General information

1.1. Reference Standards

The responsibility of the manufacturer is limited to the correct use of the counters, as described in this manual. **The manufacturer reserves the right to make changes to its cabinets without prior notice,** moreover it declares that the counters of this manual conform to the following European standards:

2006/42/EC	Machinery Directive
2014/30/EU	Electromagnetic Compatibility
2014/35/EU	Low Voltage Directive (LVD)
2011/65/EU	Directive RoHS III
2012/19/EU	Directive WEEE
2014/68/EU	Directive PED
D.Lgs 193/2007	Food products Italian law
UNI EN 12100-1	Safety of machinery - Basic concepts, general principles for design Part 1: Basic terminology, methodology
UNI EN 12100-2	Safety of machinery - Basic concepts, general principles for design Part 2: Technical principles
UNI EN ISO 14121-1	Safety of machinery - Risk evaluation - Part 1
UNI EN ISO 13857	Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs
EN 60204	Safety of machinery, Electrical Equipment of Machines - 1 General
EN 60335	Safety of household and similar electrical appliances
CEI EN 60335-2-89	Household and similar electrical appliances – Safety Part 2-89: Particular requirements for commercial refrigerating appliances with a refrigerant condensing unit or a compressor, either incorporated or remote (for gas charge up to 150g)
UNI EN ISO 23953-2	Refrigerated display cabinets for exhibition and sale - terms and definitions
UNI EN 1672-2	Food processing machinery - Basic concepts - Part 2: Hygiene requirements

The installation must be performed by qualified personnel, and in compliance with the regulations in force, specifically in regards to electrical safety and accident/fire prevention.

The correct operation of the cabinet is guaranteed only if the instructions herein are complied with in full, and therefore must be carefully consulted and observed. The manufacturer declines any responsibility for eventual damages to persons or things, as a consequence of:

- Incorrect installation.
- Use of non-original spare parts.
- Modifications not allowed by the manufacturer.
- Incorrect use of the cabinet.
- Connection to supply system, which is not in compliance with the rules in force.
- Failure to comply with the instructions in this handbook

1.2. Identification data

Unit information is fixed on the structure of the cabinet and details:

PLATE DATA (Fig. 1.2.1)

- Model/Series
- Serial Number
- Power Supply Voltage and Frequency
- Year of production
- Protection class of electrical system
- Nominal power (including defrosting)
- Lighting power
- Anti-mist heater electrical power
- Evaporator fans electrical power
- Type of gas used in the system
- Cooling gas mass
- Working pressures
- Maximum volume
- Weight of counter
- Ambient climatic class and reference temperature
- Refrigerated display cabinet class, based on product preservation temperature

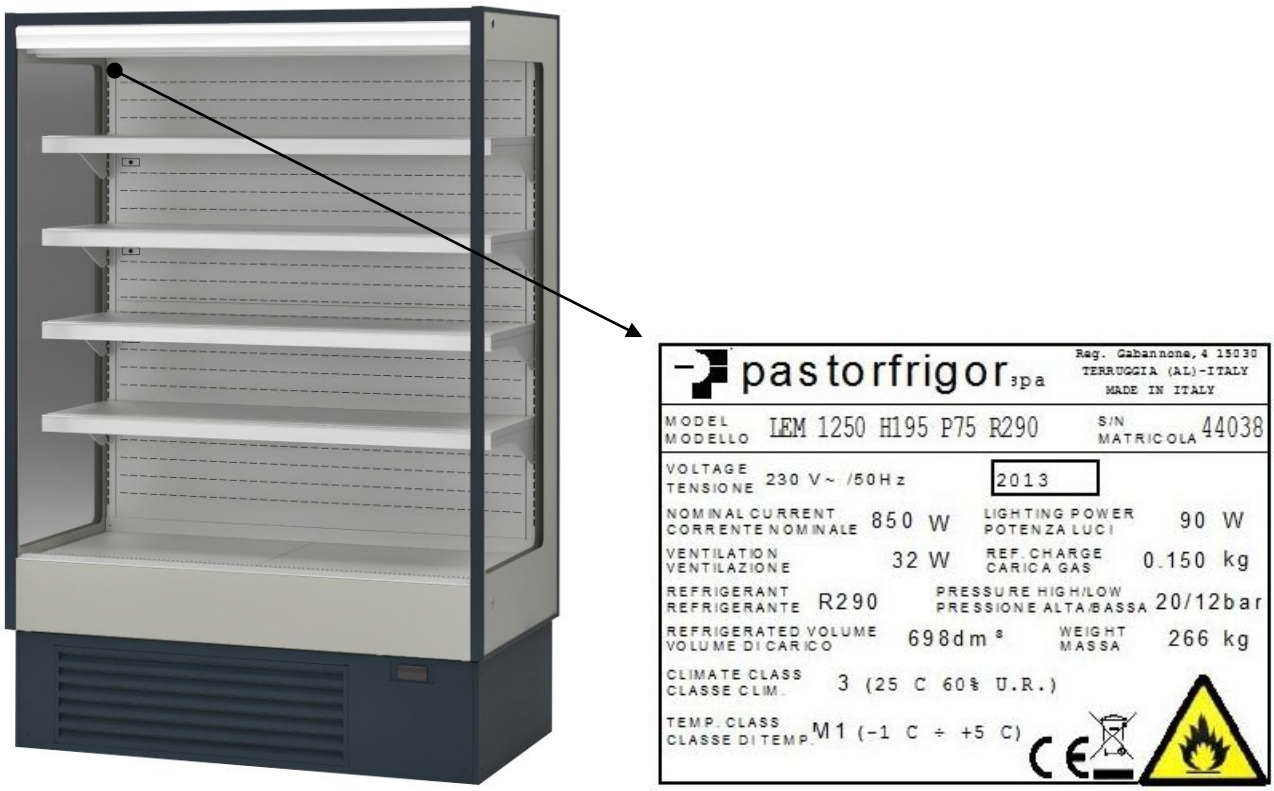


Fig. 1.2.1

1.3. Climatic class

Our cabinets are designed and tested in compliance with the UNI-EN ISO 23953-2, which classify the performance of refrigerated cabinets according two main classes:

1. ***Temperature Class and Ambient Relative Humidity (see Tab.1)***
2. ***Product Temperature Class (see Tab. 2)***

Tab. 1 Ambient Climatic Class **(UNI EN ISO** 23953-2**)**

Climatic Class	*Dry Bulb Temperature*	*Relative Humidity*	*Dew Point*
1	16	80	12
2	22	65	15
3	**25**	**60**	**17**
4	30	55	20
5	40	40	24
6	27	70	21

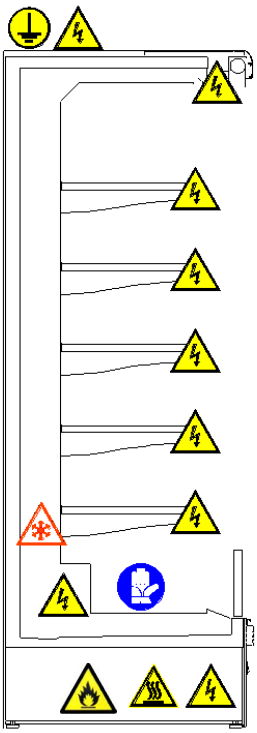
The **LEM** cabinets guarantee its performances in **Climatic Class 3**.
If the temperature and humidity values exceed those foreseen (Tab.1), the performances will have negative effects as well as an incorrect preservation of the product.
The sales area should be air conditioned to provide a suitable environment ensuring proper functioning of the cabinet. Please remember that increasing the cooling system capacity, instead of air-conditioning the sales area, is considered improper use.

Tab. 2 Product Temperature Class **(UNI EN ISO** 23953-2**)**

Product Temperature Class	*Highest temperature of the hottest product (°C)*	*Lowest temperature of the coldest product (°C)*	*Lowest temperature of the hottest product (°C)*
L 1	**≤ -15**	**-**	**≤ -18**
L 2	**≤ -12**	**-**	**≤ -18**
M0	**≤ +4**	**≥ -1**	
M1	**≤ +5**	**≥ -1**	
M2	**≤ +7**	**≥ -1**	
H	**≤ +10**	**≥ +1**	
S	Special classification		

Example: a refrigerated cabinet designed in class **3M1** undergoes tests in Ambient Climatic Class **3**, while the product class is **M1**

1.4. Lay-out of safety signs



Refrigerant R290 (Care 40, Propane)

The mass of refrigerant in this appliance does not exceed 150g. It can be situated in any location, regardless of room volume. Note that all charge limits apply per single refrigerant circuit.
In questo apparecchio la massa di refrigerante non eccede i 150g. Può essere installato in qualsiasi ambiente, indipendentemente dal volume del locale. Si noti che tutti i limiti di carica sono da intendersi per singolo circuito frigorifero.

Note: Only engineers who have been trained in the safe handling and use of hydrocarbon (HC) refrigerants can work on this system.
Nota: solo i tecnici che sono stati opportunamente formati all'uso ed alla manutenzione di apparecchi contenenti fluidi refrieranti idrocarburi (HC) hanno il permesso di lavorare su questo apparecchio.

Any maintenance on this system must be done in a well ventilated area or outside.
Qualsiasi manutenzione su questo apparecchio deve essere fatta in un area ben ventilata o all'esterno.

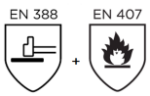
There must be no naked flames or electrical components that might create a spark within 3 m of your work area.
Non devono essere presenti fiamme libere o dispositivi elettrici che potrebbero generare scintilla entro 3 metri dall'area di lavoro.

When replacing components, use components with the same technical specification.
Nel caso in cui sia necessario sostituire un componente, utilizzare componenti con identiche caratteristiche tecniche.

Remove all HC from the system before brazing any components.
Prima di svolgere operazioni di brasatura sull'apparecchio, assicurarsi che non vi siano più tracce di fluido refrigerante HC all'interno del sistema.

Use refrigerant grade propane (R290 or CARE 40).
Utilizzare propano refrigerante (R290 o CARE 40).

LEGEND:

SYMBOL	DESCRIPTION	NOTE
	EARTH	Earthed point
	HIGH VOLTAGE	The danger will cease after disconnected the power supply by operating the switch.
	HOT SURFACES	The danger ceases once the panels are correctly fitted.
	FIRE RISK	The cabinet contains R290 refrigerant gas that, according to the ANSI/ASHRAE standards, is identified as A3 class flammable gas
	COLD BURNS WARNING	The danger ceases once the panels are correctly fitted.
	PROTECTIVE GLOVES REQUIRED, COMPLIANT WITH:  against mechanical and thermal risks	Protective gloves must be worn during cabinet assembly or cleaning operations.

Max load single shelf	70 kg (load uniform distributed)
Max load single span	250 kg (regardless the number of shelves)

WARNING:

- **FOR CABINET ON WHEELS: SET THE WHEEL BRAKE LEVER TO "LOCKED" POSITION BEFORE STARTING THE INSTALLATION**
- **KEEP THE VENTILATION OPENINGS OF THE APPLIANCE HOUSING OR OF THE BUILT-IN UNIT FREE FROM ANY OBSTRUCTION**
- **DO NOT USE MECHANICAL DEVICES OR OTHER MEANS TO SPEED UP THE DEFROSTING PROCESS OTHER THAN THOSE RECOMMENDED BY THE MANUFACTURER**
- **DO NOT DAMAGE THE REFRIGERANT CIRCUIT**
- **DO NOT STORE EXPLOSIVE SUBSTANCES SUCH AS AEROSOL CANS WITH A FLAMMABLE PROPELLANT INSIDE THE APPLIANCE**
- **R290 GAS IS DENSER THAN AIR (2.005 kg/m³ AT 0°C FOR R290 GAS AGAINST 1.293 kg/m³ AT 0°C FOR AIR). MAKE SURE THERE IS NO WELLS OR DRAININGS UNDER THE CABINET**

1.5. Various warnings

- It is strictly prohibited to display pharmaceutical products **(Fig. 1.5.1)**;
- Do not touch the cabinet with wet feet or hands **(Fig. 1.5.2)**;
- Do not remove the side and/or front and rear protection devices;
- Never load the cabinet with hot products, but load with products at the temperature they must be kept;
- Provide adequate protection against damage caused by collisions with shopping trollies etc.;
- Do not allow children to use the equipment;
- **The user is not authorized to perform maintenance operations. If a malfunction occurs to the cabinet, contact the technical service.**

Fig. 1.5.1

Fig. 1.5.2

2. Product information

2.1 Delivery

Fig. 2.1.1

The cabinet is contained in special packaging and provided with a wooden pallet for fork-truck handling.

Be careful when unpacking, within the packaging there may be parts and/or accessories required for installation.

Check that the cabinet has not suffered any damage during transportation.

The packaging consists of wood, polystyrene, cardboard, polythene and PVC straps, they must be disposed of separately. **(Fig. 2.1.1)**

WARNING:

- **WE RECOMMEND THE USE OF LIFTING DEVICES WITH AN ADEQUATE LOAD CAPACITY FOR THE WEIGHT OF THE CABINET**
- **DO NOT MOVE THE CABINET BY FORCING ON THE SIDEWALLS OR ON GLASS PARTS**
- **REMOVE THE WOODEN PALLET, FULLY TIGHTEN THE ADJUSTING FEET BEFORE HANDLING**

2.2 Ambient operating conditions

- Position the cabinet away from heat sources, direct sunlight, beams of light. **(Fig. 2.2.1)**
- Place the cabinet so as to avoid exposure to air currents, away from doors, channels and/or air conditioner diffusers, convectors, fans, etc. The cabinet has been tested to operate with a maximum air velocity of 0,2 m/second +0/-0,1m/s.
- Fluorescent lighting is recommended for the illumination of the area where the cabinet is positioned, avoid using spot lights on the cabinet. **(Fig. 2.2.2)**
- Place it at a distance more than 60 mm to avoid condensation forming on the outer surfaces of the cabinet therefore allowing sufficient air circulation.
- Climatic conditions worse than those of the test limits, with a high relative humidity ratio, causes the formation of condensation on glass parts and seriously reduces the performances.
- To reduce the losses of heat and power consumption, we recommend using the special insulated covers, during night-hours and closure of the sales room. **(Fig. 2.2.3)**

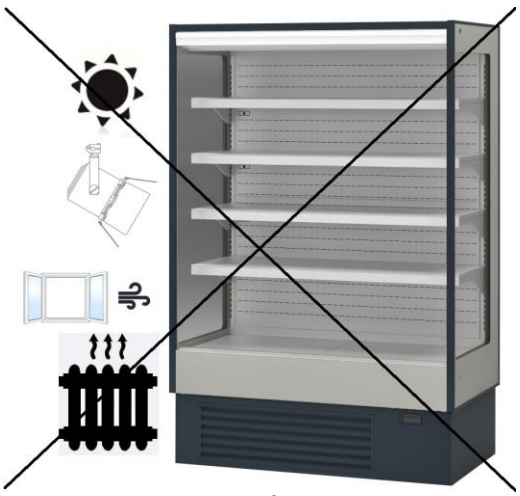


Fig. 2.2.1

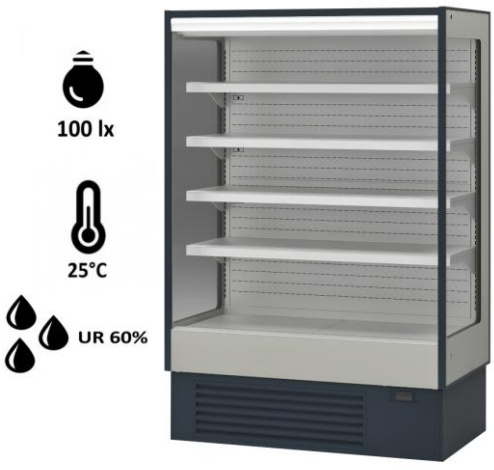


Fig. 2.2.2

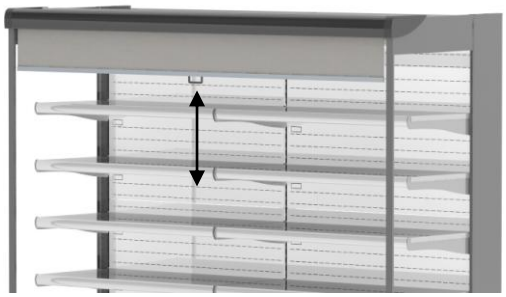


Fig. 2.2.3

2.3. Installation

- To eliminate the wooden pallet, unscrew the feet and remove the wooden pallet.
- With the adjusting feet almost completely tightened (leave 10 mm of thread) level the unit using a spirit level by unscrewing the feet **(Fig. 2.3.1)**.
- Adjust the cabinets to the same hight, bring the cabinets toghether and join using the locating pins.
- With the locating pins located, hold the cabinets together using pliers and/or clamps; insert the bolts, check the alignment and then finish tightenin g the bolts.
- Make sure that all the feet touch the floor, so that you have uniformly distributed the weight and the unit is stable.
- Seal between the units using (NON-TOXIC) silicone, especially where water or condensate may accumulate

Fig. 2.3.1

ATTENTION:

- **YOU SHOULD CAREFULLY CHECK THAT THE UNIT IS LEVEL, IF THE UNIT IS NOT LEVEL IT COULD PREVENT THE CONDENSATE FROM CORRECTLY DRAINING.**

WARNING:

- **INSTALL THE TWO WALL SPACERS ON THE BACK SIDE OF THE CABINET. THESE SPACERS GUARANTEE A PROPER DISTANCE IN BETWEEN THE CABINET AND THE REAR WALL (Fig. 2.3.2).**

Fig. 2.3.2

- **In the event that two or more cabinets shall run close to each other, it is recommended to place them so that the sides are in contact with each other or, alternatively, that there is a minimum distance of 50 mm in between the sides of the adjacent units. This precaution is necessary to avoid vibrations, or any condensation on sides due to insufficient air flow (Fig. 2.3.12).**

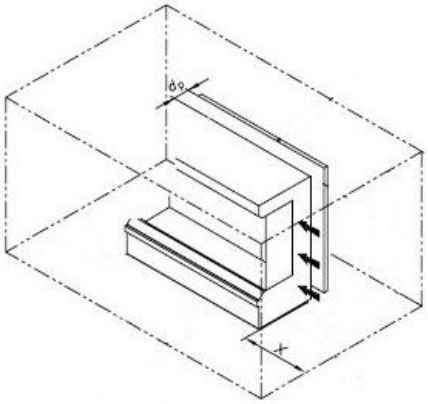
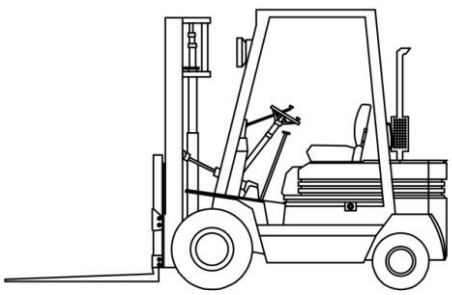
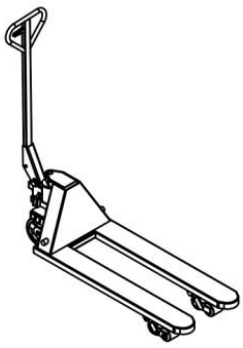


Fig. 2.3.12

- **IT IS RECOMMENDED TO VERIFY CAREFULLY THE LEVELLING OF THE CABINET BECAUSE A WRONG SLOPE COULD AFFECT THE CORRECT FLOW OF THE WASTE WATER.**

- **IN CASE IT IS NECESSARY, THE CABINET SHALL BE MOVED BY TWO PEOPLE WITH THE HELP OF A FORKLIFT TRUCK OR A HAND PALLET TRUCK. DO NOT DRAG THE CABINET ON ITS OWN FEET.**





- **THE USE OF LIFTING DEVICES, SUITABLE FOR THE WEIGHT OF THE CABINET, IS RECOMMENDED**

- **DO NOT MOVE THE CABINET FORCING ON SIDES AND GLASSES**

2.4. Electrical connection instructions

WARNING:

- **THE CABINET CONTAINS R290 REFRIGERANT GAS (PROPANE) THAT IS IDENTIFIED AS A3 CLASS FLAMMABLE GAS. SPECIFIC PRECAUTIONS AND SPECIFIC ELECTRICAL COMPONENTS HAVE BEEN ADOPTED IN THE DESIGN PHASE IN ORDER TO COMPLY WITH THE RELEVANT PRODUCT STANDARDS.**
  MAKE SURE THAT SPARK PRODUCING DEVICES ARE NOT USED/INSTALLED UNDERNEATH OR WITHIN A SAFETY DISTANCE (50CM) TO THE CABINET.
  KEEP AWAY FROM HEAT, OPEN FLAME, HOT SURFACES AND OTHER POSSIBLE SOURCES OF IGNITION. NO SMOKING.

- **INSTALLATION, MAINTENANCE, INSPECTION AND DECOMMISSION OF THE CABINET SHOULD BE COMPLETED BY QUALIFIED PERSONNEL IN COMPLIANCE WITH THE SAFETY STANDARDS AND REGULATIONS.**

After the mechanical parts, have been assembled, it is necessary to connect the electrical connections, following the information in the following diagrams.
La the voltage is shown on the 'manufactures plate' **(220-240V 50Hz)**, make sure the mains voltage is the same.
The maximum variation is **±6%** on the Vn (nominal voltage). The voltage should be checked when the refrigerator is operating.
The refrigerated cabinet should have its own dedicated power supply.

- The cabinet should be protected with a suitable automatic thermo magnetic switch, which also operates as a mains circuit breaker.
- The automatic thermo magnetic switch should not be able to open the circuit on neutral without simultaneously opening the phases and in any case the opening distance of the contacts should be at least 3mm.
- The dimensioning of the power supply cables, the protection cable and the type of conductor and insulation is the responsibility of the installation technician. Approximately, the power circuit cabling should be carried out with non-flammable insulated flexible copper plait conductors, of an adequate section and should not be smaller than 2.5 mm² and equipped with insulated compression cable terminals and identification collars. The cabling of the auxiliary circuits should be carried out with non-flammable PVC insulated conductors, of an adequate section and not smaller than 1.5 mm², equipped with cable terminals and identification collars.
- In the event of a temporary break in the power supply, make sure that the cabinet can restart without causing the intervention of the electrical protections and without overloading
- To avoid expensive interruptions of the power supply, make sure that the cabling and the electrical protections are in efficient working order.

WARNING:

- **Check the efficiency of the earthing system.**
- **After connecting the electrical connections, remember to replace and secure the covers and protection devices with screws, to prevent access to live electrical parts.**

Electronic control:

Includes: digital electronic programmable controller with an automatic defrosting cycle **(Fig. 2.4.1-2)**.

Fig. 2.4.1

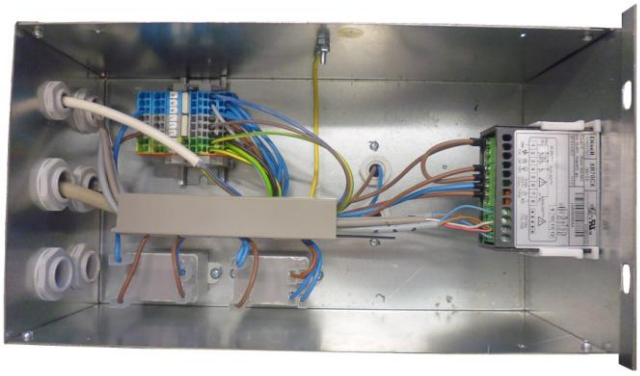


Fig. 2.4.2 - Control board

2.5. Draining the condensate

Water formed during the counter's defrosting cycle is evaporated by a hot gas system. The water is conveyed to an evaporating basin, located on the motor pan **(Fig. 2.6.1)** by tubing equipped with a U-bend. During cabinet operation, the gas exiting from the compressor passes through the copper tubing inside the evaporator basin and ensures evaporation of the collected water. The cabinet drain has a 1 inch gas drain grate - ø 32 mm and a drain pipe with ø int. 32 mm.

Fig. 2.5.1

2.6. Product introduction

- The cabinet has been designed to keep the temperature constant; therefore, it is necessary that the goods be introduced at the operating temperature. The cabinet should not have the task of lowering the product temperature.
- Introduce the product only after the cabinet has reached the operating temperature set according to its climatic class.
- Check that the cabinet is always able to maintain the operating temperature.
- Periodically check the temperature of the cabinet and the product (at least 4-6 times a day).
- Do not block the air inlet and outlet with, the product, wrappers or containers, to avoid operating problems of the condensing unit **(Fig. 2.7.1)**.

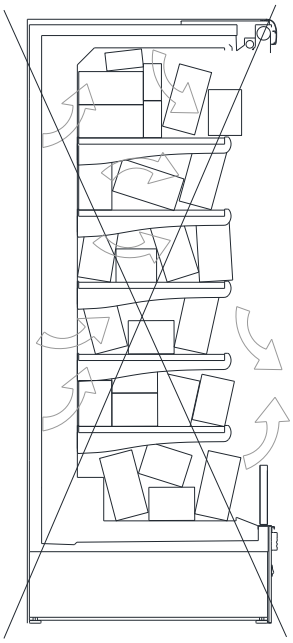


Fig. 2.6.1

- Observe and do not exceed the load limit for food products indicated in the chapters **(Fig. 2.6.2)**.
- Position the product leaving a space between the packets for the circulation of air, distribute the products uniformly on the display shelf, to avoid compromising the correct air circulation inside the cabinet and reducing its **(Fig. 2.6.3)**.

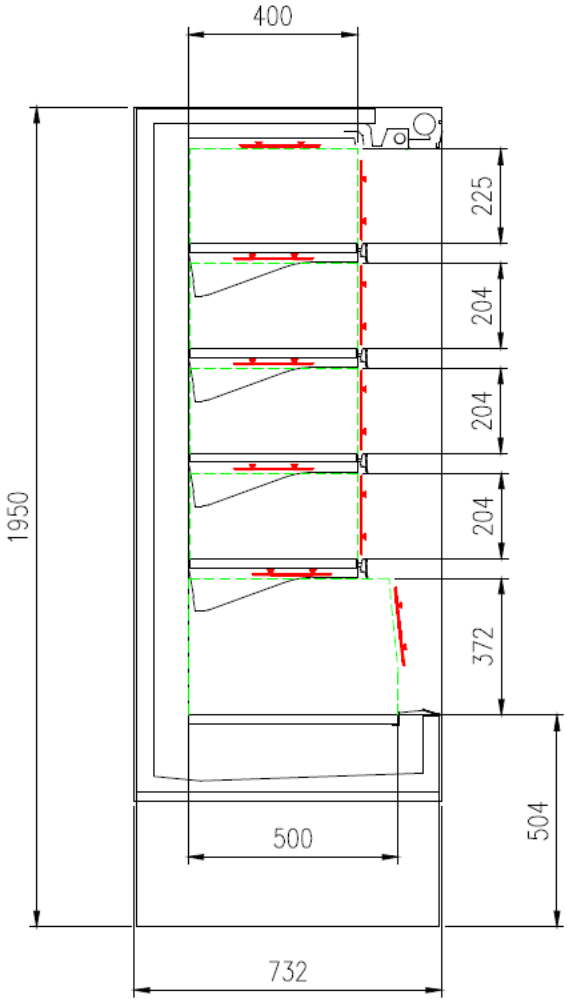


Fig. 2.6.2

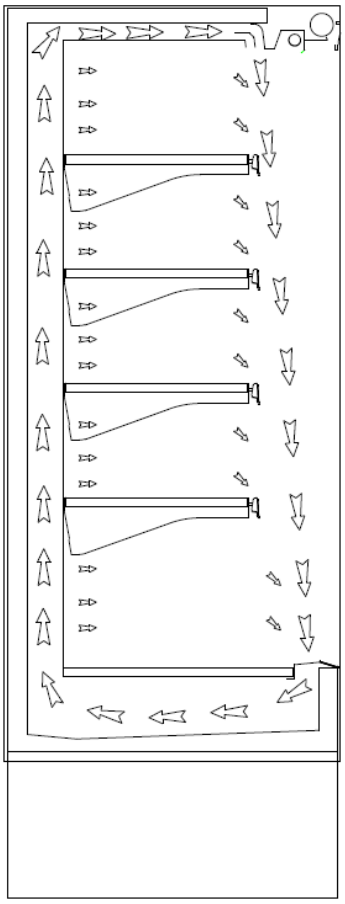


Fig. 2.6.3

2.7. Adjusting and controlling the temperature

The temperature is adjusted by an electronic controller **(Fig. 2.8.1)**.
It is recommended setting the temperature according to the product that is to be preserved 0 °C ÷ +5 °C (see attachments for information on the controller).
The cabinet reaches the operating temperature approximately 30 mins after start-up.
Check the temperature on the **electronic controller (Fig. 2.8.1)**, the value should read between 0°C÷+5°C (or other values depending on the product classification).

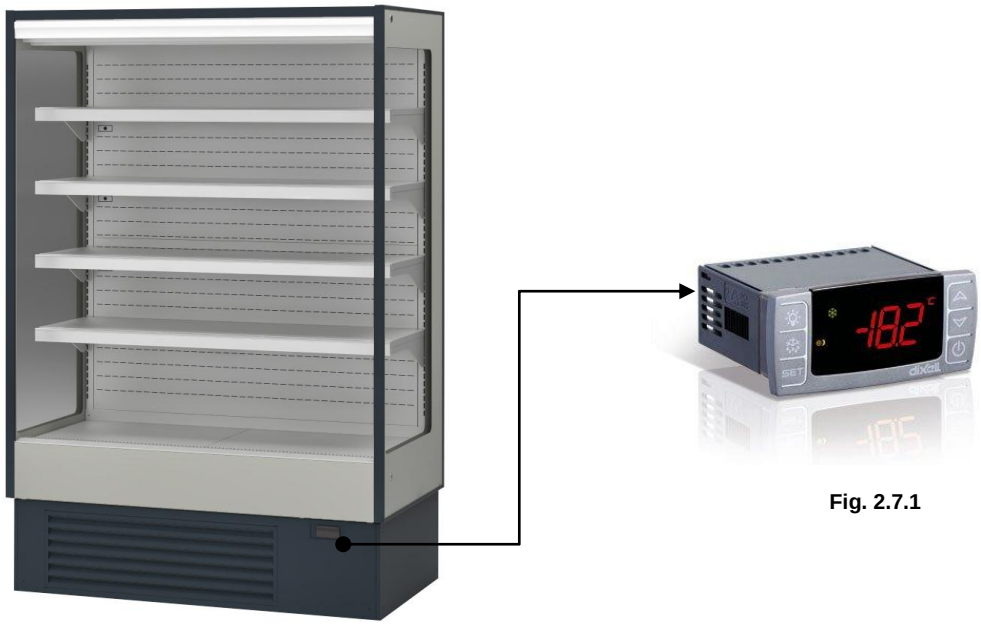


Fig. 2.7.1

2.8. Defrosting

The automatic evaporate defrosting system has without defrost heaters (compressor stop). Four cycles will occur during 24 hours.

The defrosting finishes when the sensor (defrosting end thermometer), positioned between the evaporator fins, reaches the set temperature of +10°C.

The safety time is set at 30 minutes. If a fault occurs to the defrosting end sensor, the cycle will finish when the safety time has elapsed.

Upon completion and during each defrosting, the temperature reading on the thermometer will temporarily increase and then return to the normal value after approximately 25 minutes following the completion of defrosting

WARNING:

- **An excessive accumulation of ice on the evaporator prevents air circulation and reduces performance. In this case, perform a manual defrost and if it is not sufficient contact the technical assistance.**

2.9. Periodic cleaning

- Before starting any cleaning operation, always switch OFF and disconnect the cabinet from the electric power supply and wait for parts subject to heating to cool down completely **(Fig. 2.10.1)**.
- During cleaning operations, the use of protective gloves is mandatory;
- Before start-up, thoroughly clean all the internal parts.
- Remove the protective film from the surfaces.
- Use soft cloths and non-abrasive detergents to remove any traces of dirt.
- Use exclusively non-corrosive products for cleaning and disinfecting.
- Use substances/products compatible with food.
- Then rinse with water and thoroughly dry.
- Do not use flammable or high-acid content (corrosive) products
- Do not use direct jets of water on the cabinet.
- Do not clean any part of the cabinet with wire brushes or with abrasive materials, which could compromise its integrity.

The equipment does not require any particular maintenance, except those indicated in the table:

DESCRIPTION	FREQUENCY
Clean and check the air outlet grille	monthly
Complete cabinet defrosting	Three monthly
Check drains, U-bends and any traps	5 times a year
Condenser	5 times a year

We recommend checking the drains at the same time as carrying out the internal cleaning, proceeding in the following way:

- wear gloves;
- lift all the removable internal parts (bottom shelves, grilles, etc);
- disassemble the right and left side of the fan holders;
- remove all dirty items that may have fallen inside and blocked the drain, U-bend, check for any obstruction from the exterior by removing the front plate.

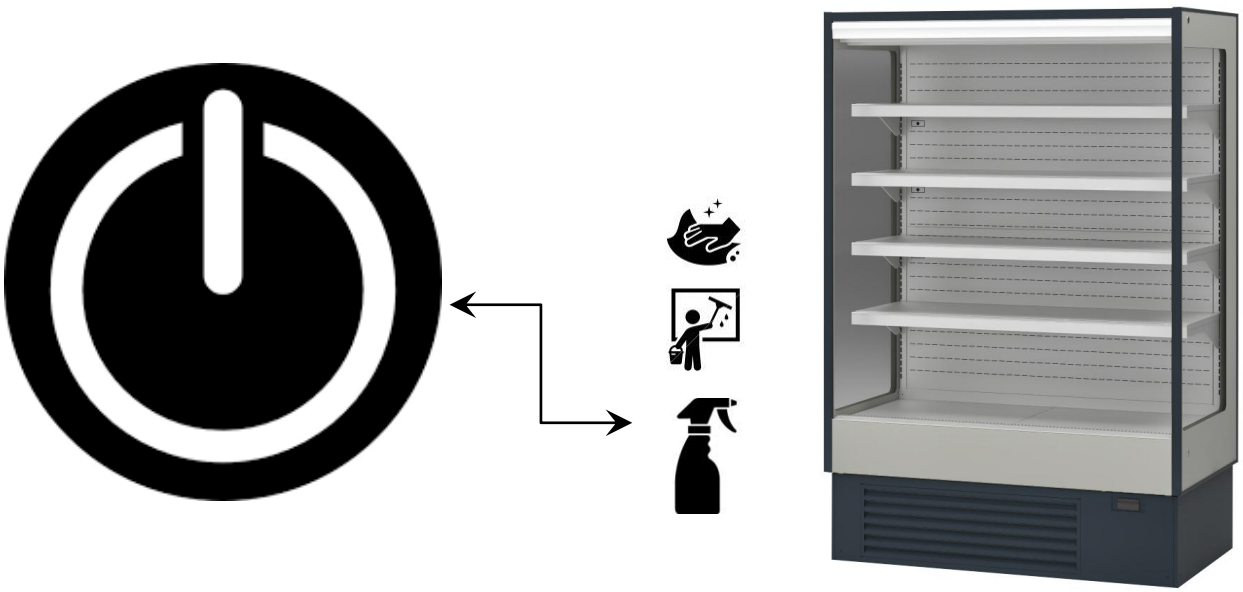


Fig. 2.9.1

WARNING:

- **Do not wet areas identified as "electrical parts", with the following symbol**
- **Do not bump or force any parts "under pressure" of the refrigerator circuit.**

SUGGESTION: We recommend scheduling a periodic check with the Assistance Service to guarantee the efficiency and safety of the system.

2.11 Interventions on the refrigerating system

In the event of interventions on the refrigerating system, especially when it is necessary to use open flames, it is important to respect the following instructions:

- before performing any intervention on the refrigerating system, place the cabinet in an open and ventilated environment;
- draining the system;
- perform two washing cycles of the refrigerating system with nitrogen;
- perform a blank cycle of the refrigerating system for a period of at least 5 minutes;
- perform another washing cycle of the refrigerating system with nitrogen;
- perform the repairing intervention on the refrigerating system;
- once the work has been completed, perform a full blank cycle of the refrigerating system;
- restore the original gas charge, as reported on the rating plate (**section1.2 – Identification data)**

WARNING:

ALL INTERVENTIONS ON THE REFRIGERATOR MUST BE PERFORMED BY QUALIFIED PERSONNEL.

2.12 Storage

If the cabinet isn't used immediately or is stored for long periods, we advise that it is packed correctly and in a vertical position.

The storage must be in an internal ventilated closed area, which doesn't have elements dangerous to the components of the cabinet, particularly the electrical components.

Protect unpainted parts from corrosion with special grease or spray; if necessary store with desiccants.

In any case after long inactivity periods, the cabinet must be checked;
Ask instructions from the manufacturer

2.13 Noise level

All models in this series have less than 60dB noise level measured as required by Directive 2006/42/EC in paragraph 1.7.4.2 paragraph "u" in Annex I.

3. Recycling and material disposal

Disposal must comply with regulations in force, separate materials by type and send to the recycling centre or landfill.

ATTENTION :

- **The gas of the refrigerator circuit must NOT be dispersed into the environment. It should be recovered and delivered to a special disposal centre; the cabinet is however free from substances containing CFC.**

Information for the preservation of the environment:

Dispose of packaging in compliance with recycling procedures.
In this way, it helps to reduce demand for virgin wood, using recycled materials

Recycle of the cabinet
Not dispose the cabinet together with other household waste. The recycle of this product contributes to reducing the need of new materials and the accumulation of waste.

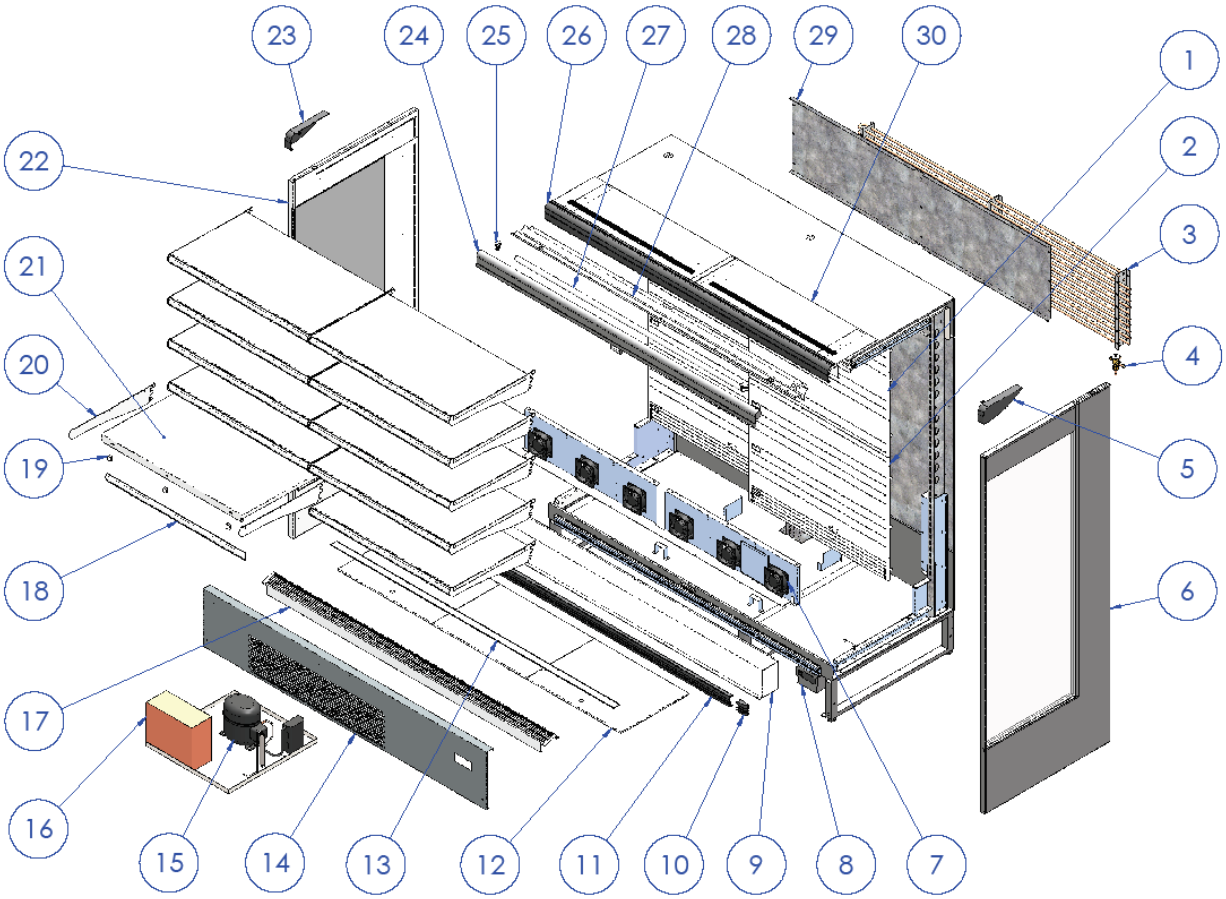
ATTENTION :

- **THE MANUFACTURER DECLINES ANY RESPONSIBILITY FOR DAMAGES CAUSED TO THE ENVIRONMENT OR FOR DIFFERENT SYSTEMS THAT ARE USED FOR THE DISPOSAL OF ITS MATERIALS.**

4. Exploded parts

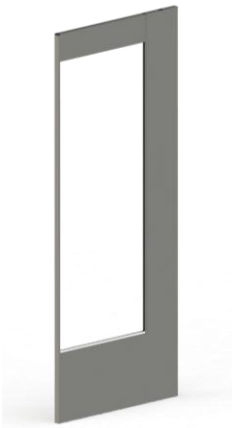
WARNING:

If any replacement of electrical components is necessary, demand only original or components certified for appliances using flammable refrigerants.



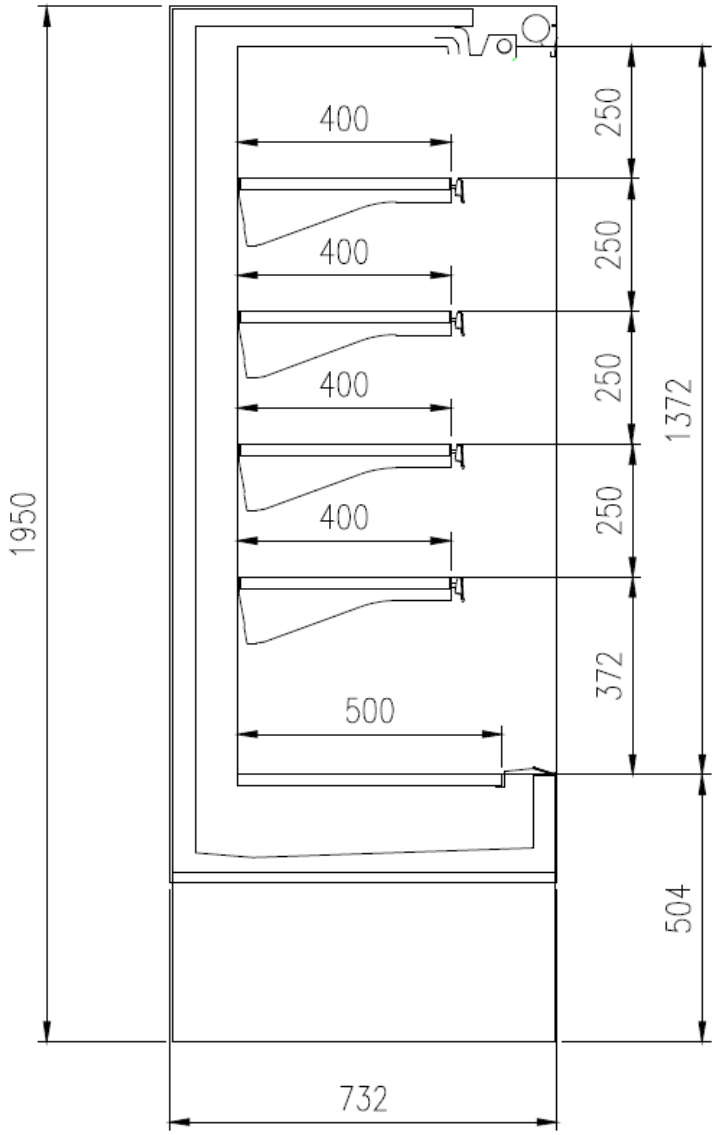
SPARE PARTS LIST LEM R290		SPARE PARTS LIST LEM R290	
No	**Component description**	**No**	**Component description**
1	UPPER OUTLET AIR PANEL	16	CONDENSER
2	LOWER OUTLET AIR PANEL	17	RETURN AIR GRILLE
3	EVAPORATOR	18	SHELF PRICE-HOLDER PROFILE
4	THERMOSTATIC VALVE	19	SHELF PRICE-HOLDER SUPPORT
5	ANGLE COVER TOP RIGHT	20	SHELF SUPPORT
6	PANORAMIC SIDE WALL	21	SHELF
7	ADDA FAN	22	SIDE MIRROR
8	CONTROL PANEL (CONTROLLER DIXELL)	23	ANGLE COVER TOP LEFT
9	REAR PANEL SUPPORT	24	NIGHT BLIND
10	TROLLEY GUARD END-CAP	25	LIGHT HOLDER 249
11	FRONT TROLLEY GUARD	26	TOP PROFILE
12	PLATE	27	LED LIGHT
13	FRONT PRICE-HOLDER PROFILE	28	LIGHT HOLDER
14	FRONTAL PANEL	29	EVAPORATOR COVER
15	COMPRESSOR	30	TOP COVER

5. Accessories

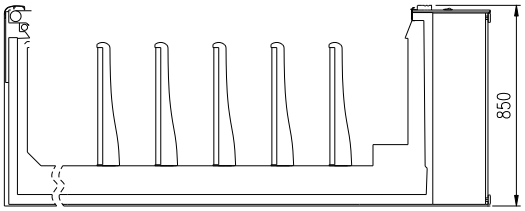
NO.	ACCESSORY	PHOTO
1.	Shelf lighting: LED	
2.	Night blind: with clutch or motor	
3.	Sides: closed, glass, with mirror	

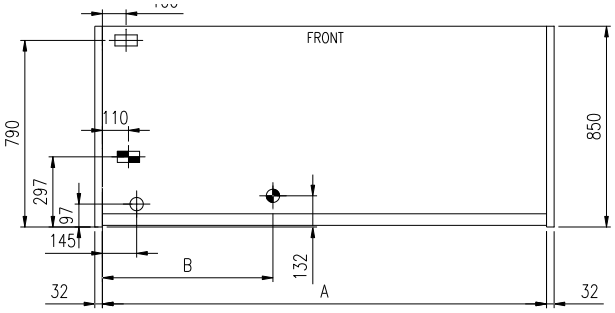
APPENDIX A - Cross section

LEM R290



APPENDIX B - Discharge position, connections, tubes

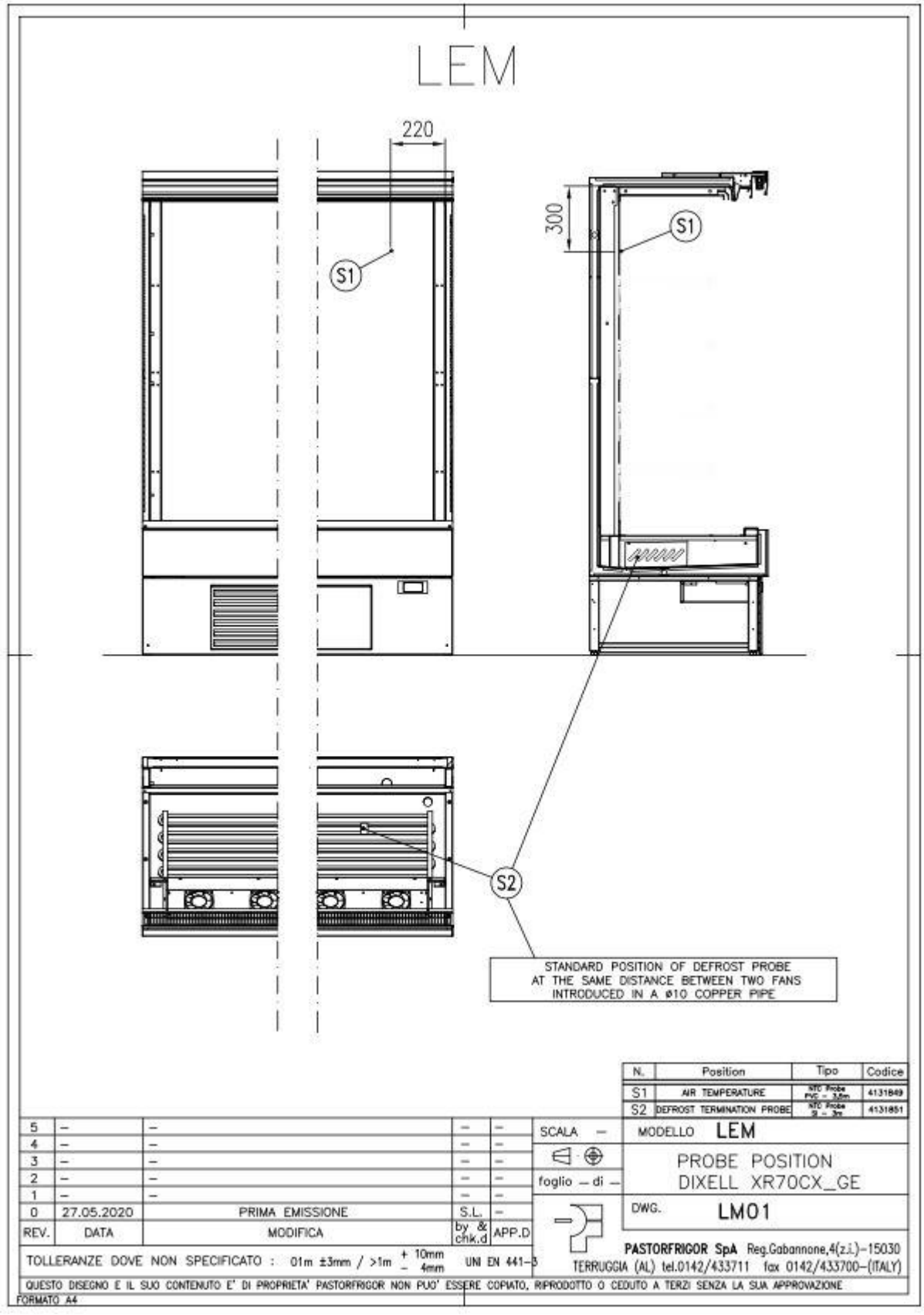




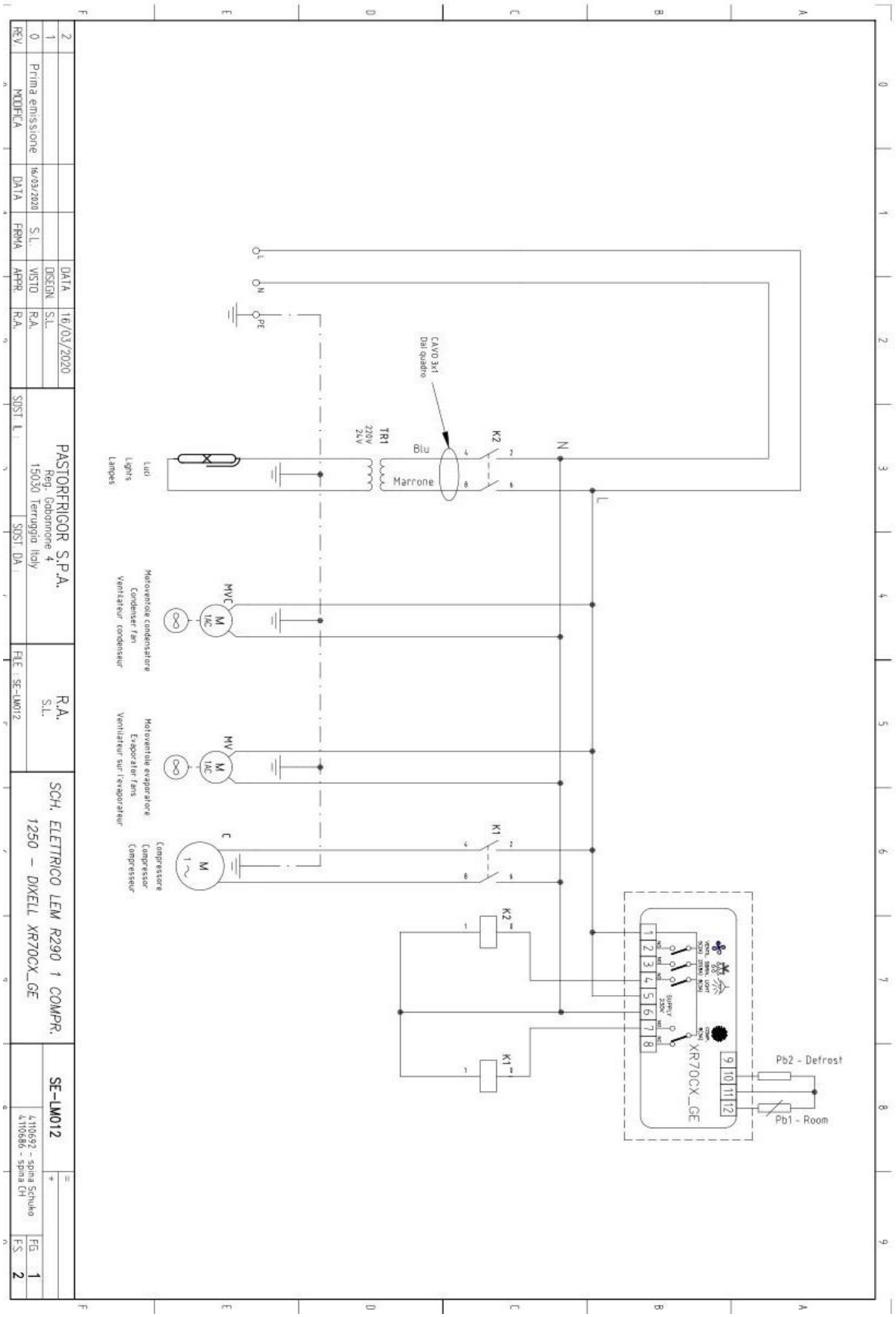
- USCITA TUBI GAS Ø8-12mm - REFRIGERANT GAS Ø8-12mm
- SCARICO VASCA 1"GAS - DRAIN 1"GAS
- QUADRO COMANDO - CONTROL BOARD
- ALLACCIAMENTI ELETTRICI - ELECTRICAL CONNECTION

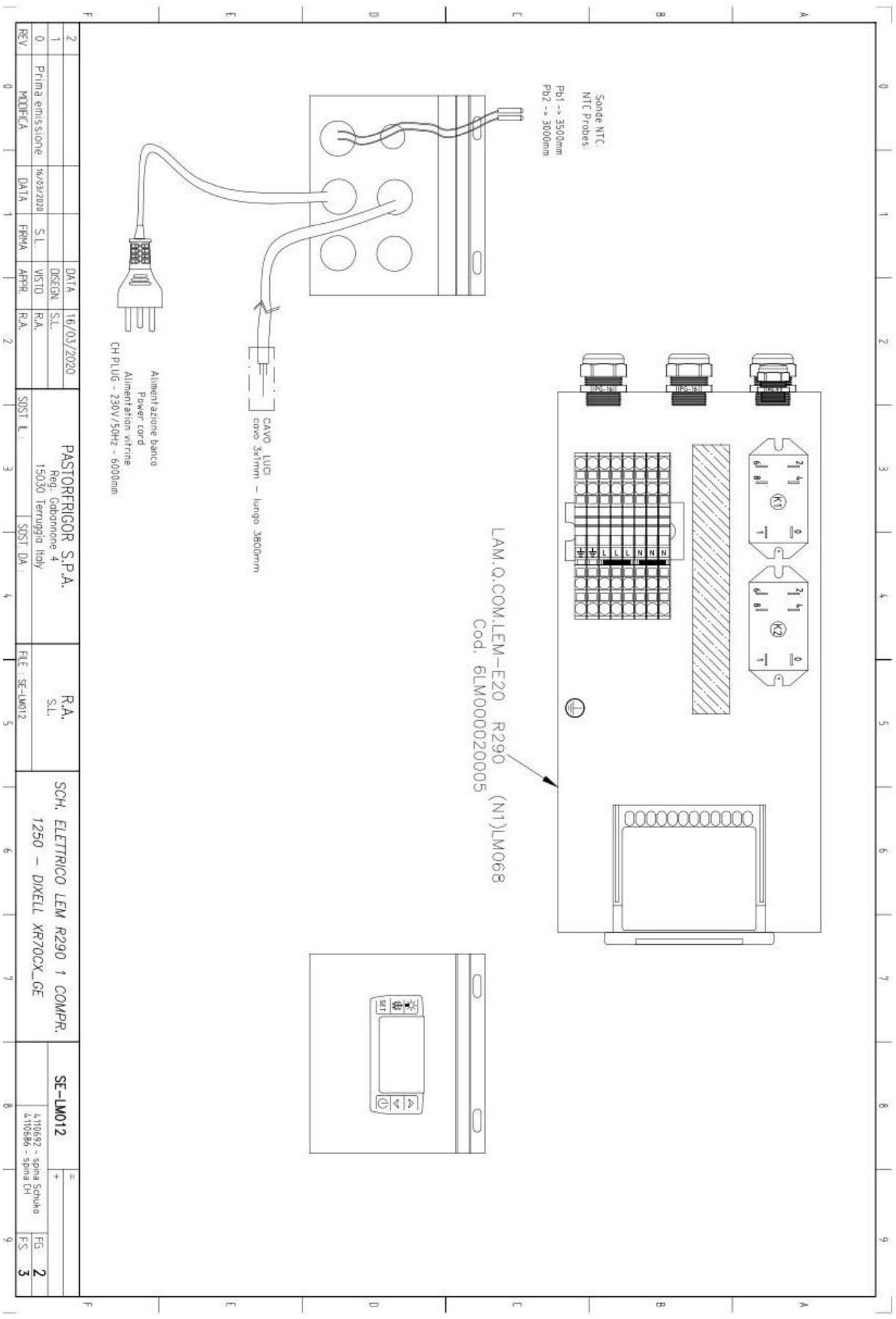
A	937	1250	1875	2500
B	283	390	720	1355

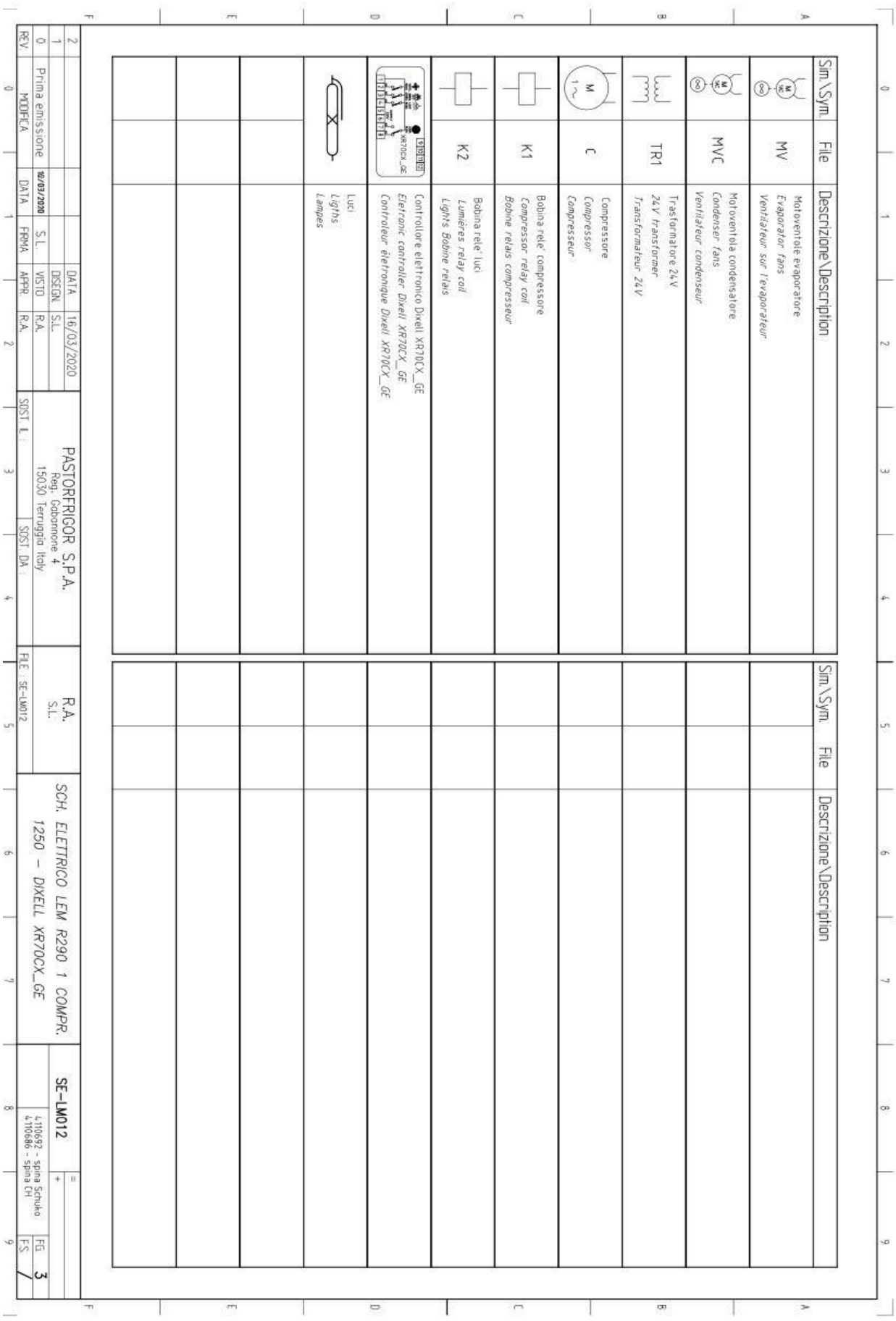
APPENDIX C - Probes position



APPENDIX D - Electrical schematic




Sonde NTC
NTC Probes:
Pb1 -> 3500mm
Pb2 -> 3000mm
CAVO LUCI
cavo 3x1mm - lungo 3800mm
Alimentazione banco
Power cord
Alimentation vitrine
CH PLUG - 230V/50Hz - 6000mm
LAM.Q.COM.LEM-E20 R290 (N1)LM068
Cod. 6LM000020005
K1
K2
SET
PASTORFRIGOR S.P.A.
Reg. Gabanmone 4
15030 Terruggia Italy
R.A.
S.L.
SCH. ELETTRICO LEM R290 1 COMPR.
1250 - DIXELL XR70CX_GE
SE-LM012
4110692 - spina Schuko
4110686 - spina CH
REV.
MODIFICA
DATA
FIRMA
APPR.
R.A.
16/03/2020
S.L.
DISEGN.
S.L.
Prima emissione
16/03/2020
S.L.
VISTO
R.A.
FILE: SE-LM012
SOST. DA:
SOST. IL:


Sim.\Sym.
File
Descrizione\Description
MV
Motoventola evaporatore
Evaporator fans
Ventilateur sur l'evaporateur
MVC
Motoventola condensatore
Condenser fans
Ventilateur condenseur
TR1
Trasformatore 24V
24V transformer
Transformateur 24V
C
Compressore
Compressor
Compresseur
K1
Bobina rele' compressore
Compressor relay coil
Bobine relais compresseur
K2
Bobina rele' luci
Lumières relay coil
Lights Bobine relais
Controllore elettronico Dixell XR70CX_GE
Eletronic controller Dixell XR70CX_GE
Controleur életronique Dixell XR70CX_GE
Luci
Lights
Lampes
REV.
MODIFICA
DATA
FIRMA
0
Prima emissione
18/03/2020
S.L.
1
DATA
16/03/2020
DISEGN.
S.L.
VISTO
R.A.
APPR.
R.A.
PASTORFRIGOR S.P.A.
Reg. Gabbanmone 4
15030 Terruggia Italy
SOST. DA :
SOST. A :
R.A.
S.L.
FILE : SE-LM012
SCH. ELETTRICO LEM R290 1 COMPR.
1250 – DIXELL XR70CX_GE
SE-LM012
4110692 - spina Schuko
4110686 - spina CH
FG 3
FS 1

APPENDIX E - Declaration or conformity and certification

PASTORFRIGOR S.p.a.
Reg. Gabannone, 4 Z.I.
15030 Terruggia (AL) Italia
☎ +39 0142 433711

DICHIARAZIONE CE DI CONFORMITA'

CE Declaration of conformity, Déclaration de conformité CE, Declaración CE de conformidad, Konformitätserklärung CE

BANCO REFRIGERATO DI TIPO COMMERCIALE DESTINATO AI NEGOZI ALIMENTARI IN GENERE.

- Refrigerated unit for preservation, display and sale of food products.
- Vitrine réfrigérée destinée aux magasins de produits alimentaires pour la conservation, l'exposition et la vente de produits alimentaires.
- Banco refrigerado de tipo comercial destinado a las tiendas de alimentos para conservar, exponer y vender productos alimenticios.
- Gekühlte, kommerzielle Kühltheke für Lebensmittelgeschäfte, zwecks Frischhaltung, Präsentation und Verkauf von Lebensmitteln.

TIPO /MODELLO: (Type/Model; Type/Modèle, Tipo/Modelo, Typ/Modell)	**TN - BT Tradizionali TN Murali remoti Murali supermercato**
MARCHIO: (Trade mark, Marque, Marca, Marke)	**Pastorfrigor**
DENOMINAZIONE COMMERCIALE: (Trade name, Dénomination Commerciale, Denominación comercial, Handelsbezeichnung)	• **Prince, Duke, Eskimo, King, Isola King, President, Diamond, Admiral** • **Genova, Roma, Lem** • **Venezia, Verona**
ANNO DI FABBRICAZIONE: (Year of production, Année de production, Año de fabricación, Baujahr)	**2021**
L'APPARECCHIO IN OGGETTO È CONFORME A QUANTO PRESCRITTO DALLE DIRETTIVE e NORMATIVE: This device complies with the current directives and regulations: L'appareil en question est conforme aux exigences directives et réglementaires applicables: Este maquinario està conforme a las directivas y normativas: Das genannte Gerät entspricht den folgenden Richtlinien und Vorschriften:	**2006/42/CE; 2014/30/UE; 2014/35/UE; 2011/65/UE; 2012/19 UE; 2014/68/UE; UNI EN 23953-2; D.Lgs 193/2007**
LA PERSONA AUTORIZZATA A COSTITUIRE IL FASCICOLO TECNICO È: Responsible person for drawing up the technical file is: La personne autorisée à rédiger le dossier technique est: La persona autorizada a mantener el fichero tecnico es: Die mit der Erstellung der technischen Unterlagen beauftragte Person ist:	**Clara Pastorello (legale rappresentante) c/o Pastorfrigor S.p.A. Regione Gabannone, 4 Z.I. 15030 Terruggia (Italy)**
LUOGO E DATA DI EMISSIONE: (Place and date of issue, Lieu et date d'émission, Lugar y fecha de expedición, Ausstellungsort und –Datum)	**Terruggia 1 gennaio 2021**
IL PROCURATORE: (The legal representative, Le fondé de Pouvoir, El Procurador, Der Bevollmächtigte)	**Clara Pastorello** PASTORFRIGOR S.p.A. PASTORELLO Clara

PASTORFRIGOR S.p.a.
Reg. Gabannone, 4 Z.I.
15030 Terruggia (AL) Italia
AutoCertificazione Ped TN Plug-in (Rev 0.doc) ☎ +39 0142 433711

Noi, firmatari della presente, dichiariamo sotto la nostra esclusiva responsabilità, che i nostri apparecchi seguono l'articolo 4.3 della **Direttiva PED 2014/68/UE** e come tali non richiedono la marcatura CE a questa direttiva.
We, the signatories of the present document, declare under our own exclusive responsibility that the cases listed below fall under the scope of art. 4.3 of the **PED Directive 2014/68/UE** and therefore do not have to bear the CE marking required by this Directive.
Nous, soussignés, déclarons sous notre seule responsabilité, que nos appareils respectent l'article 4.3 de la **Directive PED 2014/68/UE** et en tant que tels n'exigent pas du marquage CE à la présente directive.
Nosotros, los abajo firmantes, declaramos bajo nuestra exclusiva responsabilidad que nuestros equipos cumplen con el artículo 4.3 de la **Directiva de Equipos a Presión 2014/68/UE (PED),** y por lo tanto no requieren el marcado CE previsto por esta última.
Die Unterzeichneten erklären unter ihrer ausschließlichen Verantwortung, daß die von uns hergestellten Kühlmöbel den Vorschriften in Punkt 4.3. der **Richtlinie über Druckgeräte (PED) 2014/68/UE** entsprechen und demzufolge keiner CE-Kennzeichnung laut dieser Richtlinie bedürfen.

- **Descrizione dell'apparecchio** (Cabinet description, description de l'appareil, descripción del equipo, gerätebeschreibung)		**Mobile refrigerato di tipo commerciale destinato ai negozi alimentari in genere, con unità condensatrice incorporata** Refrigerated Display cabinet for preservation, display and sale of food products, with built-in condensing unit (integral cabinet) Comptoir réfrigéré de type commercial destiné aux magasins alimentaires en général, avec unité de condensation intégré Mueble refrigerado comercial para tiendas de alimentos en general, con unidad de condensación incorporada Kühlmöbel für kommerzielle Nutzung in Lebensmittelgeschäften im allgemeinen, mit Verflüssigereinheit
- **Tipo/modulo** (Type/module, type/module, tipo modulo, typ/modul)		**VS:** Prince, Duke, Eskimo **VL:** King, President, Diamond, Admiral, Ballydeck, Isola King **ES:** Panarea, Click **MV:** Genova, Roma, Lem
- PS Hp	28 bar	**Alta pressione** (High pression, haute pression, alta presión, hochdruck)
- PS Lp	20 bar	**Bassa pressione** *(Low pression,* basse pression, baja presión, niederdruck)
- TS - °C	Min.: –38 / Max: +45	**Temperatura** *(Temperature,* température, temperatura, temperatur)
- **Fluido frigorifero** (Refrigerant gas, fluide réfrigérant, líquido refrigerante, kühlmittel)		R290 (optional/en option/optional/option/auf Wunsch: R407F - R452A - R455A)
- **Anno di fabbricazione** (Year of manufacture, année de fabrication, año de producción, baujahr)		2021

Il mobile in oggetto è da considerarsi in Categoria 0 Art. 4.3
The display cabinet has to be considered in Category 0 Art. 4.3
Le comptoir en question appartient à la Catégorie 0 Art. 4.3
El mueble objeto pertenece a la Categoría 0 Art. 4.3
Dieses Kühlmöbel ist in die Kategorie 0 einzureihen Art. 4.3

Procedura di valutazione utilizzata: controllo interno di fabbricazione
Evaluation procedure followed: internal production control
Procédure d'évaluation utilisée : contrôle de fabrication en interne
Procedimiento de evaluación utilizado: inspección interna de la producción
Gewähltes Auswerteverfahren : fabrikinternes Kontrollverfahren

Normativa di riferimento (Ref. Normative, normes de référence, normas de referenzia, Angewendetes Normenwerk):

EN 378; PrEN 378-2
- Impianti refrigeranti e pompe di calore - Requisiti di sicurezza e ambientale.
- Refrigerating system and heat pumps - Safety and environmental requirements.
- Installations de réfrigérations et pompes de chaleur - Exigences de sécurité et environnementales.
- Instalaciones para la refrigeración y bombas de calor - Requisitos de seguridad y medioambientales.
- Kühlanlagen und Wärmepumpen - Anforderungen hinsichtlich Sicherheit und Umwelt

Luogo e data di emissione
Place and date of issue
Lieu et date d'émission
Lugar y fecha de emisión
Ausstellungsort und -Datum

Terruggia lì 1 gennaio 2021

Il Procuratore
The legal representative
Le Fondé de Pouvoir
El Representante Legal
Der Bevollmächtigte

C.Pastorello

PASTORFRIGOR S.p.A.
PASTORELLO Clara

PASTORFRIGOR S.p.A
Regione Gabannone, 4 – Zona Industriale
15030 TERRUGGIA (AL) ITALY
Tel. +39 0142 433711
Fax. +39 0142 433700

The manufacturer reserves the right to make changes to this manual without prior notice.