



MANUALE D'USO E MANUTENZIONE USE AND MAINTENANCE MANUAL



UMZ

PRODUCT CODE	
PRODUCT DESCRIPTION	
PRODUCTION DATE	
CUSTOMER	

GENCATUMZ_IT_EN - ED08 - 04.2023



TABLE OF CONTENTS

1.	GENERAL INFORMATIONS.....	47
2.	WARRANTY.....	48
3.	DESCRIPTION OF THE MONOBLOCK.....	49
4.	IDENTIFICATION PLATE.....	58
5.	PRECAUTIONS FOR USE AND MAINTENANCE.....	59
6.	SAFETY PRINCIPLES.....	60
7.	PROPER AND IMPROPER USE OF THE MACHINE.....	61
8.	TRANSPORT AND HANDLING.....	61
9.	STORAGE.....	61
10.	PREPARATION FOR INSTALLATION.....	62
11.	INSTALLATION.....	63
12.	ELECTRICAL CONNECTION.....	66
13.	STARTUP OF THE MONOBLOCK.....	66
14.	OPERATION OF THE MACHINE.....	67
15.	USER INTERFACE AND CONTROL LOGIC	68
16.	FOOD STORAGE.....	81
17.	FOOD PRESERVATION.....	81
18.	ORDINARY MAINTENANCE.....	82
19.	EXTRAORDINARY MAINTENANCE AND REPAIRS.....	83
20.	RECYCLING AND DISPOSAL.....	84
21.	WARRANTY TERMS.....	85
22.	ANNEXES.....	87

1. GENERAL INFORMATIONS

General informations:

This use and maintenance handbook is an integral part of the UMZ block, (identified as "MACHINE" in the following pages, manufactured by MTH. For this purpose it should follow the machine if transferred to a new user or owner.

This manual has the function of providing operators and maintenance technicians the essential instructions to operate correctly and safely; for this reason it must be carefully stored throughout the life cycle of the machine.

This handbook assumes that in the environments in which the machine is installed, the regulations in force regarding occupational safety and hygiene are observed, and that the personnel in charge of operation and maintenance are trained to be able to correctly comprehend the information provided.

The configuration of some parts or devices described or depicted in this manual may differ from that with which the machine is equipped in the specific set-up. The dimensioned drawings and photographs in this text are provided as an example as a reference for easier understanding of the text.

In the manual there are images that depict the machine open or without guards, these are shown for illustrative purposes only, it is strictly forbidden to use the machine in these conditions.

MTH S.r.l. reserves the right to update part or all of the contents of this manual without notifying the customer of any changes.

Property of information:

This handbook contains confidential informations.

All rights reserved.

The use of his handbook is only allowed by the client who received it with the MACHINE and only for the purpose of installation, use and maintenance of the unit to which the manual refers.

MTH S.r.l. does not assume any responsibility for direct or indirect damage to persons, property or domestic animals as a result of use of the machine in conditions different from those planned.

Contents of the Use and maintenance handbook:

This manual is intended for operators and technicians so that they can know and use the machine properly. In fact, the manual contains a functional description of the machine and its main components.

In addition, the main directions for transport and installation, proper use and adjustment, cleaning and maintenance of the machine are provided.

Finally, inside the manual are the main instructions for meeting the most basic safety and accident prevention rules.

2. WARRANTY

All equipment and refrigeration units are covered by **WARRANTY**.

The **WARRANTY CERTIFICATE** is attached with this booklet for each product supplied. For the guarantee to be effective, it is necessary to keep the documentation relating to the purchase together with the receipt to be shown, if necessary, to the staff of the guarantee service.

Refer to the "Warranty Conditions" section of this manual for warranty conditions.

WARRANTY LAPSE

As stated in Section 5 of the "Warranty Conditions" chapter, the warranty claim expires, and therefore any interventions by MTH technicians or those commissioned by it will be charged if even one of the following circumstances occurs:

- a) breaking of tamper-resistant seals placed by MTH S.r.l.;
- b) damage resulting from force majeure in general or occurring during transport: delivery is made EXW (Incoterms of the ICC); responsibility for these damages is of the carrier, and therefore to the same must be contested upon receipt. Likewise, any damage resulting from improper installation or maintenance of the equipment will not be accepted as a valid issue of contestation for warranty purposes;
- c) installation of the machine in different conditions from those specified in this manual;
- d) connection to the electrical and/or plumbing network through a system of insufficient capacity or that does not comply with current regulations. In particular, reference is made to the technical regulations and good engineering practices relating to the ground connection of equipment;
- e) lack of operation due to power failure, grid voltage variations, or similar accidents and resulting failures;
- f) failures due to accidental breakage (by way of example but not limited to: disconnected plugs, blown fuses), and other inconveniences resulting in any case from external factors and from the Buyer's negligence;
- g) any disassembly, modification or tampering of the machine or its components performed by the user or unauthorized personnel;
- h) use of spare parts that are not original or not specified by MTH S.r.l.;
- i) use in violation of what is specified by the regulations in force in the country of use;
- j) destination of the equipment for uses other than those for which it was prepared;
- k) use of the appliance in a manner not in accordance with the contents of this Operation and Maintenance Manual;
- l) total or partial non-observance of the instructions in this Manual;
- m) missing or incorrect maintenance;
- n) changing the setting parameters of the supplied controller; the Buyer or user may only change the temperature set point and defrost interval (IdF).

To exercise the warranty right, the Buyer must submit to the Seller:

- a) **WARRANTY CERTIFICATE**;
- b) one of the following documents evidencing the date of delivery: **INVOICE, TRANSPORT DOCUMENT**. The absence of one of the documents does not allow to assess the validity of the warranty and therefore the intervention will be considered at the expense of the Buyer and charged to the same;
- c) the Buyer must provide the unit and all electrical cables and accessories supplied with the machine. These accessories must be in integral condition or the warranty will be invalidated;
- d) the customer must provide the unit with the seals placed by MTH S.r.l. undamaged.

Service Centers

(Sales, Support, Parts and Sales Representation)



For any need concerning the use, maintenance or request for spare parts, the Customer is encouraged to contact the authorized service centers, specifying the equipment details shown on the license plates.

3. DESCRIPTION OF THE MONOBLOCK

The machine discussed in this document is a monoblock refrigeration system called UMZ, designed to be installed on the wall of refrigerated cells. The monoblock consists of a condensing unit and an evaporator connected by suitable self-supporting brackets to permit installation on the cell wall. Refrigeration is accomplished by exploiting the physical characteristics of the refrigerant which flows in a sealed circuit in the machine, by means of a compression refrigeration cycle.

The monoblock is equipped with a logic control unit that can be programmed via the electronic controller screen. This makes the UMZ monoblock a machine, in accordance with the Machinery Directive 2006/42/CE. The machine is produced in two versions:

- MBP models for positive temperature, with operating temperature between +5°C and -5°C, under ambient temperature conditions between +15°C and +43°C;
- LBP models for low temperature, with operating temperature range from -15°C to -25°C, under ambient temperature conditions between +15°C and +43°C. LBP models are equipped with an automatic defrosting system that is programmable in frequency and duration.

Machines pressurized with R452A (GWP=2141) are equipped with electric resistance defrost system while machines pressurized with propane (R290, with GWP=3) are equipped with hot gas defrost.

The machines are manufactured with single refrigerant circuit or dual circuit depending on the cooling capacity delivered, the type of refrigerant used and the permitted charge limitations (a maximum of 150g per single refrigerant circuit is provided for flammable gases). Differences in structure between the two models are highlighted on page 10.

The main characteristics of the machine can be determined by correctly reading the code on the identification plate.

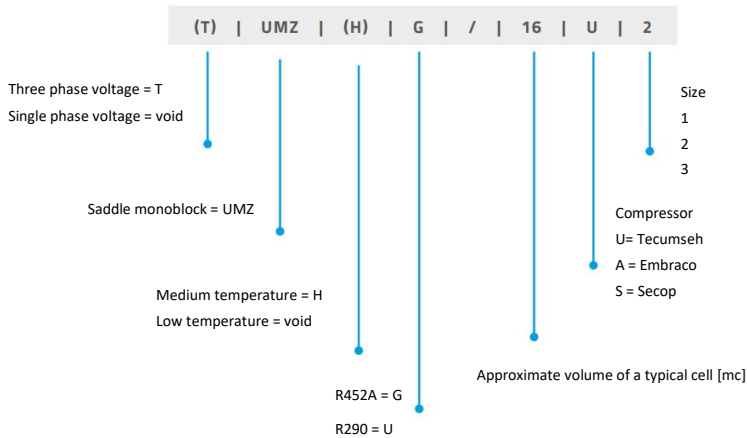


Fig. 1 Example of machine identification code

In Tab.1 and Tab.2 are displayed correspondences between part number, UMZ monoblock model, frame version, size, refrigerant gas type, and number of circuits by which the machine is characterized.

UMZ LBP					
MTH code	Model	Gas type	Size	Frame version	N° circuits
19105030	UMZG/03A1	R452a	1	V2	1
19105050	UMZG/05A1	R452a	1	V2	1
19105081	UMZG/08U2	R452a	2	V1	1
19105111	UMZG/11U2	R452a	2	V1	1
19106151	TUMZG/15U3	R452a	3	V1	1
19106171	TUMZG/17U3	R452a	3	V1	1
19135030	UMZU/03S1	R290	1	V2	1
19135040	UMZU/04A1	R290	1	V2	1
19135080	UMZU/08S2	R290	2	V2	2
19135130	UMZU/13A3	R290	3	V2	2

Tab.1 UMZ LBP Models

UMZ MBP

MTH code	Model	Gas type	Size	Frame version	N° circuits
19101040	UMZHG/04A1	R452a	1	V2	1
19101050	UMZHG/05A1	R452a	1	V2	1
19101070	UMZHG/07A1	R452a	1	V2	1
19101080	UMZHG/08A1	R452a	1	V2	1
19101123	UMZHG/12A2	R452a	2	V1	1
19101163	UMZHG/16A2	R452a	2	V1	1
19102191	TUMZHG/19U3	R452a	3	V1	1
19102231	TUMZHG/23U3	R452a	3	V1	1
19131040	UMZHU/04S1	R290	1	V2	1
19131050	UMZHU/05S1	R290	1	V2	1
19131090	UMZHU/09S2	R290	2	V2	2
19131120	UMZHU/12S2	R290	2	V2	2
19131180	UMZHU/18A3	R290	3	V2	2

Tab.2 UMZ MBP models

MAIN COMPONENTS UMZ SINGLE REFRIGERATION CIRCUIT

FRAME V1 ELECTRICAL RESISTANCE DEFROST

Components on board:

- 1) Condenser
- 2) Compressor
- 3) Compressor box
- 4) Thermostat – Control interface
- 5) Electrical box
- 6) Condenser fan
- 7) Mounting bracket
- 8) Evaporator
- 9) Evaporator fan
- 10) Condensate collection tray
- 11) Cell temperature sensor
- 12) Evaporator condensate collection tray
- 13) Drier filter
- 14) Insulated suction tube
- 15) Hot cable for condensate discharge
- 16) Condensate discharge fitting
- 17) Defrost electrical resistance
- 18) Power button

WARNING: The pictures show the machine without the outer frame and side guards, these are for illustrative purposes only. It is strictly forbidden to use the machine open or without guards.

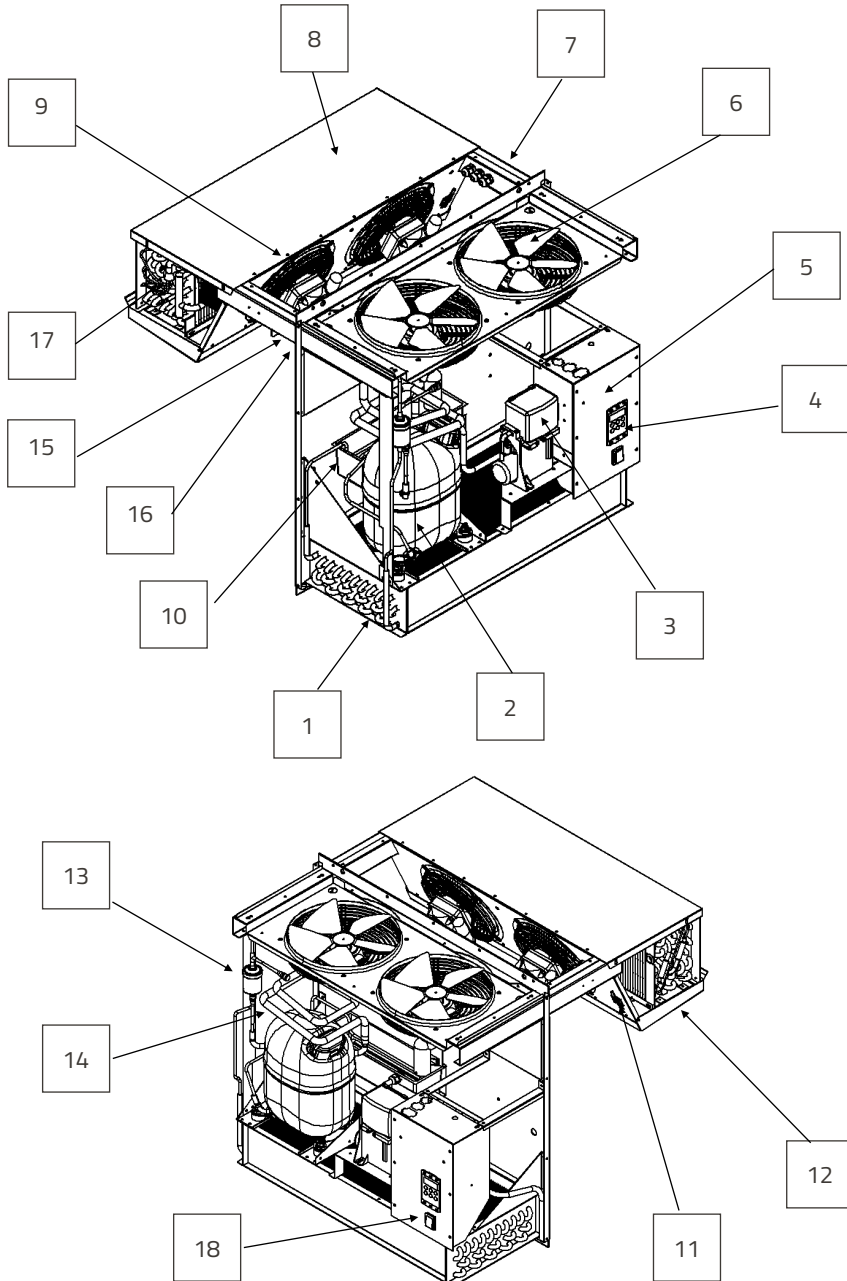


Fig.2 Representation of UMZ single refrigeration circuit V1 with electrical resistance defrost

MAIN COMPONENTS UMZ SINGLE REFRIGERATION CIRCUIT

FRAME V2 ELECTRICAL RESISTANCE DEFROST

Components on board:

- 1) Condenser
- 2) Compressor
- 3) Compressor box
- 4) Thermostat – Control interface
- 5) Electrical box
- 6) Condenser fan
- 7) Mounting bracket
- 8) Evaporator
- 9) Evaporator fan
- 10) Condensate collection tray
- 11) Cell temperature sensor
- 12) Evaporator condensate collection tray
- 13) Drier filter
- 14) Insulated suction tube
- 15) Hot cable for condensate discharge
- 16) Condensate discharge fitting
- 17) Defrost electrical resistance

WARNING: The pictures show the machine without the outer frame and side guards, these are for illustrative purposes only. It is strictly forbidden to use the machine open or without guards.

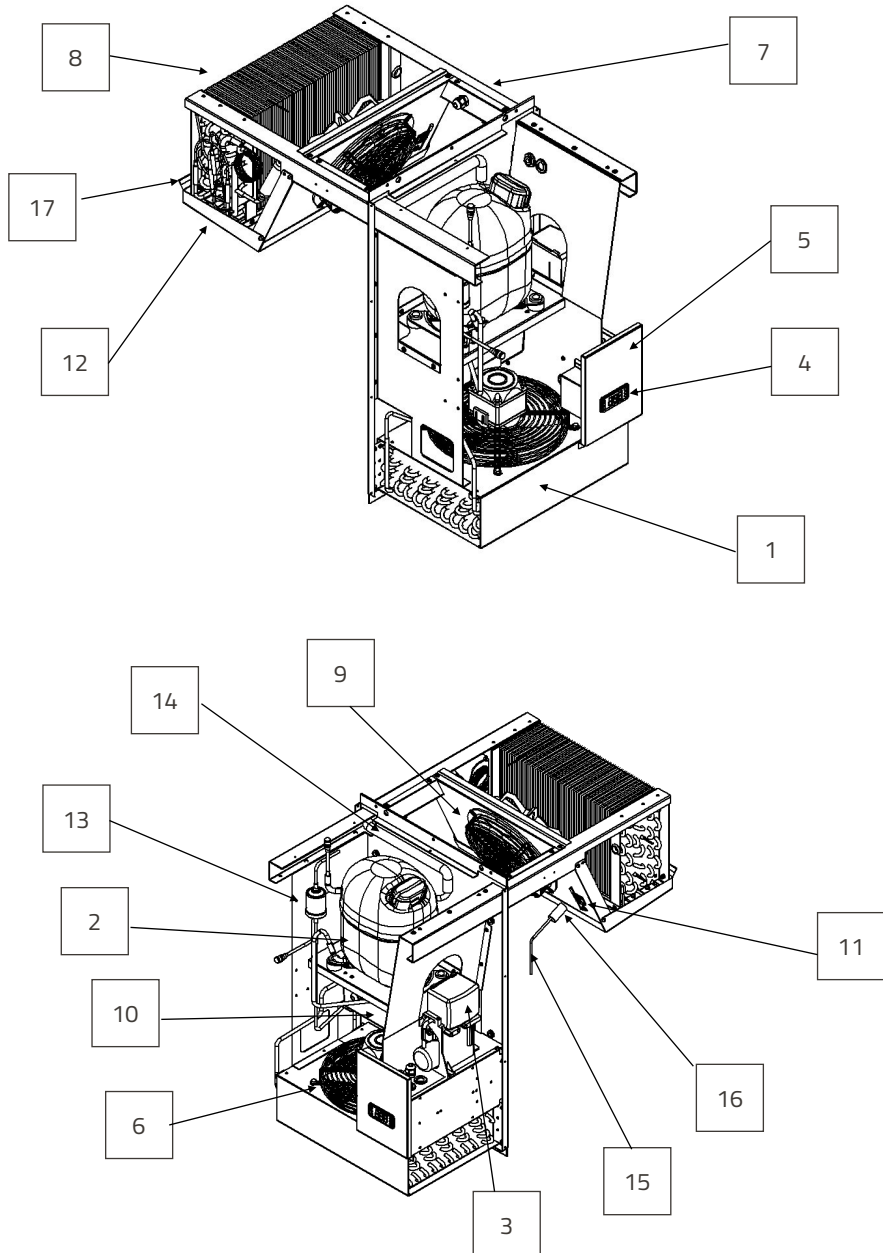


Fig.3 Representation of UMZ single refrigeration circuit V2with electrical resistance defrost

MAIN COMPONENTS UMZ DOUBLE REFRIGERATION CIRCUIT

FRAME V2 HOT GAS DEFROST

Components on board:

- 1) Condenser
- 2) Compressor
- 3) Compressor box
- 4) Thermostat – Control interface
- 5) Electrical box
- 6) Condenser fan
- 7) Mounting bracket
- 8) Evaporator
- 9) Evaporator fan
- 10) Condensate collection tray
- 11) Cell temperature sensor
- 12) Evaporator condensate collection tray
- 13) Drier filter
- 14) Insulated suction tube
- 15) Hot cable for condensate discharge
- 16) Condensate discharge fitting
- 17) Hot gas solenoid valve

WARNING: The pictures show the machine without the outer frame and side guards, these are for illustrative purposes only. It is strictly forbidden to use the machine open or without guards.

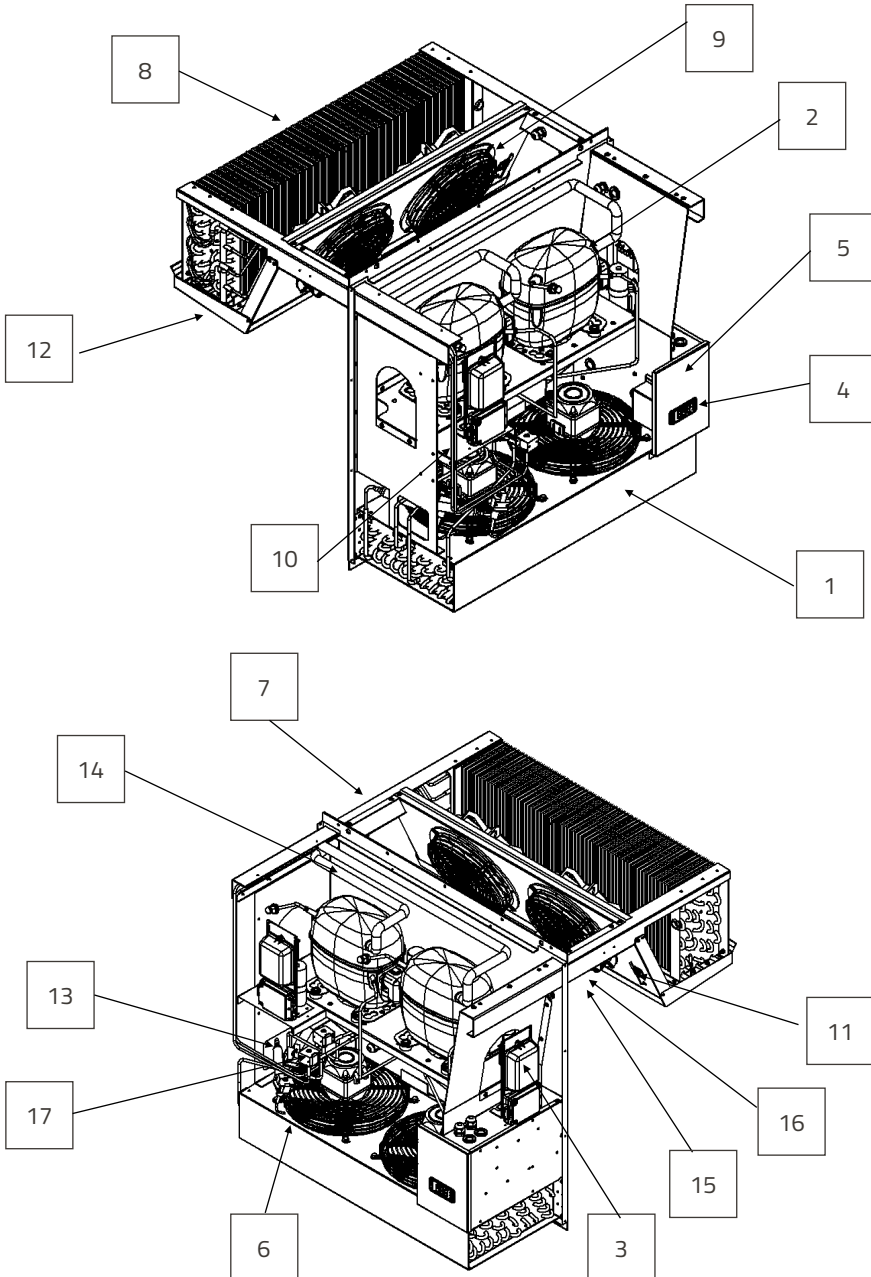


Fig.4 Representation of UMZ double refrigeration circuit V2 with hot gas defrost

4. IDENTIFICATION PLATE

For a correct and quick identification of the product, several plates containing the characteristics of the machine are placed on the monoblock. The first plate is located on the outside of the machine on the bottom right side (1), the second one is located on the compressor (2).

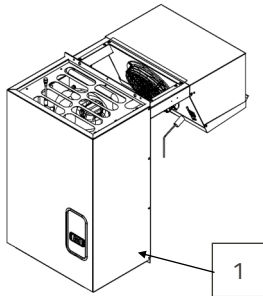


Fig.5 External plate position

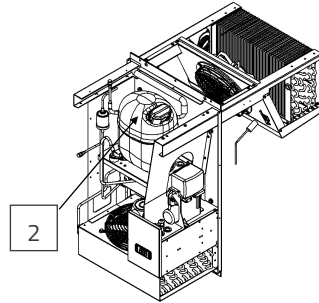


Fig.6 Internal plate position

		MTH SRL Via Rivera, 92 10040 Almese (TO) Italy www.mth.it (+39) 011.935.15.80	
		Model [A] Code [B] S/N [C] Supply [D]	
Gas [E]	Charge [F]	CO₂EQ Tonnes: [G]	
Rated Power output at 7° [H]		Ps Hp: [M]	
Rated Power output at -10° [I]		Ts Hp: [N]	
Rated Power input [J]		Ps Lp: [O]	
Rated Current [K]		Ts Lp: [P]	
Locked Rotor Amperage [L]		Compliant with P.E.D. 2014/68/UE	
Contains fluorinated greenhouse gases [Q]			

Fig.7 Identification plate of the UMZ monoblock

The data on the identification plates are listed in the following legend:

- | | | | |
|----|---|----|--|
| A. | UMZ model | J. | Rated input power [W] |
| B. | MTH code of the machine | K. | Rated current absorption [A] |
| C. | Serial number | L. | Locked rotor current [A] |
| D. | Supply voltage and frequency | M. | Max operating pressure (high pressure) [bar] |
| E. | Refrigerant gas type | N. | Max operating temperature (high pressure) [°C] |
| F. | Gas charge [kg] | O. | Max operating pressure (low pressure) [bar] |
| G. | CO ₂ equivalent Tonnes | P. | Max operating temperature (low pressure) [°C] |
| H. | Output power at 7°C (MBP) or at -23°C (LBP) [W] | Q. | Statement present only in R452a models. |
| I. | Output power at -10°C (MBP) or at -30°C (LBP) [W] | | |

5. PRECAUTIONS FOR USE AND MAINTENANCE

Before installation, commissioning and maintenance operations, read this manual carefully.

Always ensure that the operator or maintainer has correctly understood both the contents of the manual and the symbology of the plates or labels placed on the machine. Keep the labels or markings placed on the machines clean and clearly legible, and do not remove them.

The purpose of this manual is to provide the customer all the necessary information so that, in addition to proper use of the equipment, he is able to operate it as independently and safely as possible. It includes information concerning the technical aspect, operation, machine shutdown, maintenance, spare parts and safety.

Before the start-up of the machine, it is necessary to:

- always make sure that no unauthorized personnel are present and that all guards, covers and any other protective devices are mounted, secured and properly positioned. Protective guards should in any case never be removed by production operators, but in case of need (maintenance, replacement of parts, repairs, lubrication, etc.) they should only be removed by maintenance personnel who are specialized and authorized;
- verify that there has been no damage during the assembly phase;
- check with particular care the integrity of the control panel, electrical cables and piping;
- check the exact connection of all external power sources;
- check the free movement and possible free rotation of all moving parts (fans, etc.);
- check that the cold room is empty or in any case free of whatever goods or frozen products;

WARNING: Before carrying out any kind of work on the machine, it is necessary to switch it off, disconnect it from the power supply by acting on the circuit breaker and wait until there are no moving parts and hot surfaces have cooled down. It is absolutely forbidden to remove the safety guards to carry out routine maintenance operations without first disconnecting the machine from the power supply. The manufacturer disclaims any liability for accidents resulting from failure in this respect.

WARNING: All operations to be performed on the machine must always be carried out by qualified technicians, wearing all necessary personal protective equipment, using standard working tools and complying with all applicable safety regulations.

To ensure the full efficiency and safety of the machine, periodic maintenance actions must be carried out.

In case of failure or malfunction of the machine, refer only to qualified technical personnel or directly to the manufacturer company, reporting the identification data of the machine. Users must not perform operations restricted to maintenance personnel or qualified technicians.

This manual must be carefully stored and placed in a place easily accessible to the operator or maintainer.

MTH S.r.l. accepts no responsibility for any accident or damage to persons or property resulting from failure to observe the safety requirements described in this manual and those in force at national level.

The machine subject of this manual is manufactured exclusively for cold room refrigeration and is designed to use only one refrigerant gas; it is therefore essential to use the machine in accordance with the refrigerant for which it was built and supplied by the manufacturer. The machine was designed and constructed to operate in environments where a potentially explosive atmosphere is not present. Any use of the machine differing from that described will be considered improper use and therefore, as well as any reasonably predictable misuse, will not involve the responsibility of MTH S.r.l. For further information, please contact MTH S.r.l.

6. SAFETY PRINCIPLES

The air-cooled refrigeration unit is manufactured in accordance with the provisions of EU Directive 2006/42/EC, 97/23/EC, 2006/95/EC and the relevant essential health and safety requirements.

There are no danger zones during use, as the unit is equipped with all necessary safety devices.

The machine has been designed in accordance with the principles contained in the relevant paragraphs of the standards shown in the following table so as to eliminate or minimize risks during both operation and maintenance:

STANDARD	DESCRIPTION
UNI EN ISO 12100:2010	Safety of machinery - General principles for design - Risk assessment and risk reduction
UNI EN ISO 14120:2015	Safety of machinery - Guards - General requirements for the design and construction of fixed and movable guards
UNI EN ISO 13857:2019	Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs
UNI EN 1127-1:2019	Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology
UNI EN 378-1:2021	Refrigerating systems and heat pumps - Safety and environmental requirements - Part 1: Basic requirements, definitions, classification and selection criteria
UNI EN 378-2:2017	Refrigerating systems and heat pumps - Safety and environmental requirements - Part 2: Design, construction, testing, marking and documentation
CEI EN 60204-1:2018	Safety of machinery - Electrical equipment of machines - Part 1: General requirements
IEC 60335-1:2020	Household and similar electrical appliances - Safety - Part 1: General requirements

Tab.3 Main harmonised standards used in the design of the machine

Parts and components supplied by third parts and installed in the machine are CE-marked (when required), comply with current reference directives, and are free from risks to people's health.

The machine is equipped with safety devices such as fixed guards in order to prevent hazardous conditions for people or damage to the refrigeration system caused by residual risks.

The varnishes used as corrosion protection for the evaporator are not toxic or harmful but compatible for food use.

No materials considered carcinogenic (e.g., asbestos, beryllium, etc.) or radioactive materials have been used.

If servicing and/or maintenance has to be carried out by removing guards and safety devices, always make sure that power sources have been turned off first.

For adjustment and maintenance work, **SCRUPULOUSLY** follow the technical drawings attached to this manual.

For further information or clarification, please contact the service technicians.

The declaration of incorporation will be provided to the manufacturer at the time of purchase.

7. PROPER AND IMPROPER USE OF THE MACHINE

The machine is designed to be used exclusively in industrial and commercial refrigeration in stationary location. The UMZ monoblock is designed to be installed exclusively on vertical walls of refrigerated cells.

Each machine can only use the refrigerant gas for which it is designed. The machine is designed and constructed to work in environments where a potentially explosive atmosphere is not present.

The machine must be adequately protected from the atmospheric elements.

As a precautionary measure, it is good practice to keep a dust extinguisher in the proximity of the machine. In addition, to prevent possible fires, it is necessary to keep the monoblock clean of oils, solvents, dusts and other residues.

The use of the machine for operations other than those indicated here might cause damage to persons or to the machine itself and are therefore considered improper uses for which MTH S.r.l. is not responsible.

8. TRANSPORT AND HANDLING

Transportation must be carried out by professionally qualified personnel equipped with all necessary personal protective equipment.

Handling has to be performed using a lift truck or trans-pallets equipped with forks or by means of lifting and transporting devices appropriately sized and adequate for the load transported.

Transport and handling of the machine must absolutely be carried out by ensuring that the load is balanced and maintaining the vertical position, respecting any indications placed on the packaging and checking that there are no parts not properly secured or at risk of damage.

Only lay the machine on support planes suitable for supporting its weight.

When transporting and handling, be aware of any possible suspended load.

WARNING: Damages to the machine caused during transportation and handling are not covered by WARRANTY. Repairs or replacement of damaged parts are the responsibility of the Customer.

9. STORAGE

In case of extended inactivity or in case the machine should be stored for a period of time before installation, the machine has to be stored with precautions concerning the place and time of storage:

- store the unit in an indoor location not accessible to unqualified personnel;
- keep the machine out of the atmospheric agents, in a dry and well-ventilated place;
- secure the machine and its parts from contact with dust, corrosive or flammable substances;
- prevent the machine from being subjected to high temperature fluctuations;
- maintain an ambient temperature between -20°C and $+50^{\circ}\text{C}$;
- maintain a relative air humidity between 30% and 70%;

It is also advisable to store the machine being careful to ensure:

- protection from shock and stress;
- protection from high temperature fluctuations and atmospheric agents;
- that its parts do not get in contact with corrosive or flammable substances;
- if there is packaging for some machine components, do not remove it or take appropriate precautions to protect exposed parts.

10. PREPARATION FOR INSTALLATION

Before installing the machine on the refrigerated cell, be sure to properly set up the necessary power supplies for the correct operation of the monoblock.

Install the monoblock in an environment which ensures sufficient air exchange to guarantee adequate cooling of the condenser and compressor unit.

The motor compartment must be free of any obstruction that would preclude or restrict air circulation through the condenser unit, located in the lower part of the monoblock.

To guarantee proper operation of the unit, the room temperature must be between +15°C and +43°C.

Non-compliance with these conditions would result in a serious degradation of the machine's performance, premature aging of the compressor, and significantly higher power consumption.

Ensure that the machine is not installed in the proximity of open flames or heat sources such as ovens, radiators, direct sunlight.

Ensure that the machine is not installed near electrical components or highly flammable materials.

Plan to use suitable cable ducts or rigid sleeves to secure piping and cables connecting to power sources.

When using monoblock operating with flammable refrigerant (A3, A2, A2L) or equal to R290, it is essential that the installation environment of the machine is well ventilated. Any installation of electrical refrigeration components in the environment remains the responsibility of the end user; the components in question must be suitable with respect to the explosion hazard by assessing a possible leakage of flammable gas (A3, A2, A2L) into the same environment to be refrigerated.

During the installation operations of the monoblock, the operator must wear all necessary personal protective equipment and must carry out the operations using working tools in compliance with standards paying the utmost attention to the surrounding environment and to anything that could cause loss of balance, contusions and cuts.

MTH S.r.l. accepts no responsibility for any damage to property or persons resulting from improper interventions performed by unqualified, untrained or unauthorized personnel.

Unless otherwise specified they remain the responsibility of the customer:

- transportation equipment for moving the machine to the installation site;
- tools and instruments required for installation;
- consumables and auxiliary means (e.g. cleaning tools or materials such as non-flammable and non-corrosive detergents);
- utility power supply and power supply for the operation of the machine.

The UMZ monoblock has to be installed in places where good air circulation and ventilation is guaranteed and it must be installed only on a vertical wall. In the case of a different installation it is necessary to contact MTH S.r.l.

During installation, a suitable free space must be left around the machine to perform maintenance under safe conditions. When positioning the condensing unit and evaporator, respect the minimum measurements shown in Fig.8.

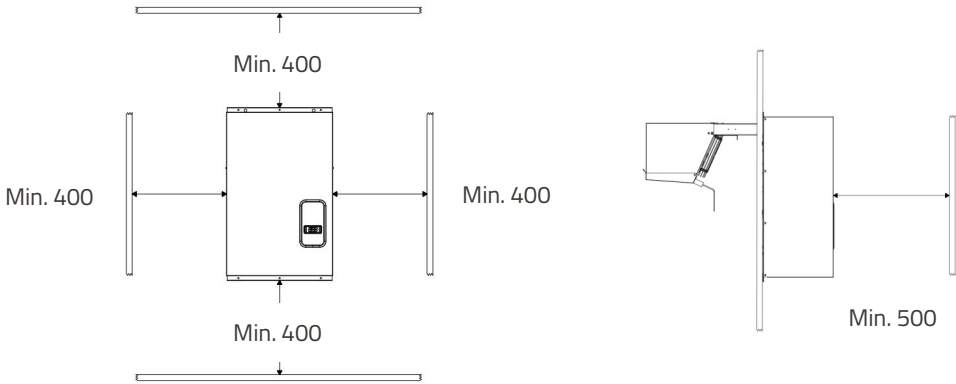


Fig.8 Minimum quota to be met

11. INSTALLATION

The UMZ monoblock should be installed in places where good air circulation and exchange is guaranteed and should be installed only on a vertical wall. In case of different installation, it is necessary to contact the company MTH S.r.l.

The following cell wall thicknesses (polyurethane insulation) are recommended for proper operation of the machine: cells MBP minimum insulation thickness 60mm, cells LBP minimum insulation thickness 100mm, with insulated floor.

The UMZ monoblock can be installed on the cell wall in saddle mode or by using the panel plug in kit.

CAUTION: The panel kit is not included with the machine and must be purchased separately. Installation of the panel kit is at the customer's responsibility.

Mounting in saddle mode:

- 1) Before mounting the cell ceiling, cut the slots provided on the top end and the condensate drain hole according to the diagram in the figure, respecting the specific dimensions related to the size and version of machine purchased (see Tab. 4).
- 2) Lift the monoblock with a forklift or other suitable lifting equipment and position the unit so that the supports correspond with the slots created in the cell wall and attach the monoblock structure to the wall by adjusting the mounting bracket as shown in Fig.10.
- 3) Connect the evaporator condensate drain tray with the condensate evaporator basin using the provided pipe.
- 4) Seal the gaps in the grooves with silicone or a suitable sealant (with properties compatible with the use of the cell) to prevent any infiltration of hot air into the cell.

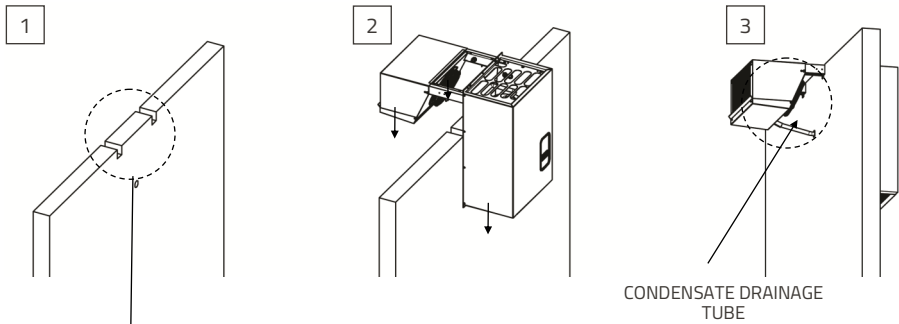
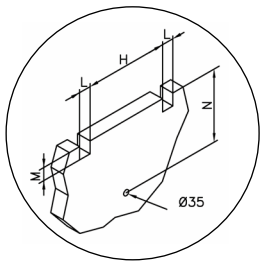


Fig.9 Installation in saddle mode



MONOBLOCK SIZE	H	L	M	N
SIZE 1	350	50	55	305*
SIZE 2	650	50	55	330**
SIZE 3	520	60	65	625

* Monoblock with frame V1
 ** Monoblock with frame V2

Tab.4 Slots and hole dimensions for mounting in saddle mode

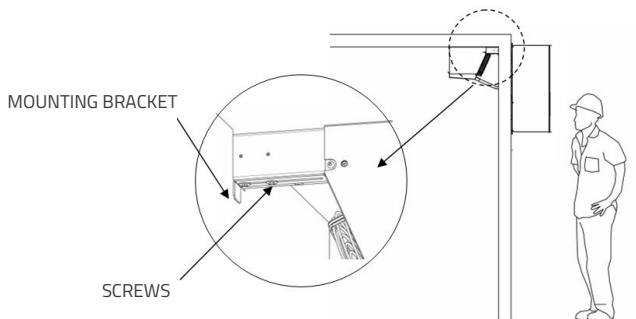


Fig.10 Mounting in saddle mode

The pad kit is an optional accessory to be purchased separately which allows the monoblock to be attached to the cell by means of a polyurethane foam panel. Check the compatibility of the panel with the dimensions of the machine purchased (see Tab.5).

Mounting by use of the plugin kit:

- 1) Attach the pad kit insulation panel to the machine.
- 2) Cut an opening in the cell wall of a size suitable for the dimension of the purchased unit and its respective panel (see tab.5 for specific measurements according to the version and size of the unit).
- 3) Lift the machine safely with a suitable lifting device (forklift or other).
- 4) Place the machine on the cell wall by fitting the evaporator into the cut opening from the outside.
- 5) Seal the perimeter of the pad with a suitable sealant (silicone or other), compatible with the end use of the cell, to prevent any infiltration of hot air inside the cell.

Panel KIT				DIMENSIONS			
SIZE	SP 60 mm	SP 80 mm	SP 100 mm	O	P	Q	R
1	KT/00191	KT/00198	KT/00194	455	500	460	510
2	KT/00192	KT/00199	KT/00195	755	500	760	610
3	KT/00193	KT/00200	KT/00196	755	600	760	610

Tab.5 Opening dimensions for the panel kit

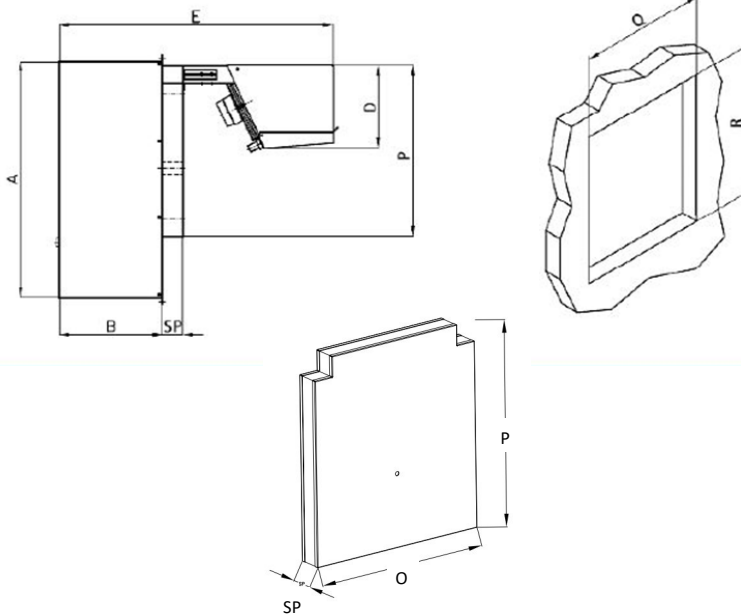


Fig.11 Mounting of the panel kit

12. ELECTRICAL CONNECTION

The electrical connection has to be made by and under the responsibility of the customer.

The electrical power supply for the machine must be made in accordance with current standards and using suitable materials to ensure non-flammability.

The available power supply must be sufficient to properly feed the machine. Check that the network voltage rating corresponds with what is indicated on the nameplate of the monoblock.

Size the power supply cables correctly, so that the conductor cross-section is adequately sized for the current drawn by the machine.

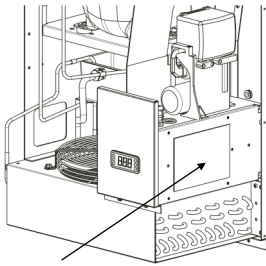
Connection must be made using well laid power cables, without any loops or overlaps, placed in a protected position from possible accidental shock or damage. Keep cables away from liquids, water or heat sources. If cables are damaged, they must be replaced by qualified personnel.

Provide a suitably sized differential thermo-magnetic circuit breaker between the power line and the machine.

UMZ size 1 versions are equipped with power cables complete with 16A European plug while the other versions are supplied with power cables without plugs.

CAUTION: The connection of the machine to a grounding circuit is required by law.

MTH S.r.l. will decline any responsibility if this requirement is not respected or if the electrical system to which the monoblock is connected is not realized in compliance with current standards.



WIRING DIAGRAM

Fig.12 Location of the wiring diagram

For better availability of the system and to facilitate maintenance operations, the wiring diagram has been attached to the side of the electrical box, as shown in Fig.12.

CAUTION: Please note that before carrying out maintenance work on the electrical box, it is necessary to disconnect the machine from the power supply.

Wiring diagrams of UMZ units are attached to the manual. The correspondence between the purchased monoblock model, wiring diagram, and maximum absorption of the unit can be read in the tables AN2 and AN3 in the annex.

13. STARTUP OF THE MONOBLOCK

CAUTION: The refrigerated cell must be empty before proceeding with the installation and initial start-up of the machine.

The Personnel in charge of the use and installation of the machine, must possess (or acquire by appropriate training and instruction) the requirements set forth below, and be, in addition, familiar with this manual and all information relating to safety:

- general and technical knowledge at a level sufficient to understand the contents of the manual;
- knowledge of the main hygiene, accident prevention and technological regulations.

Before putting into operation, it is necessary to carry out a series of checks and controls in order to prevent errors or accidents during the start-up phase.

- check for evidence of damage during the assembly phase;
- check, very carefully, the integrity of the control panel, electrical cables and piping;
- check the exact connection of all external power sources;
- check the free movement and free rotation of all moving parts (fans, etc.).

CAUTION: If the equipment was accidentally placed upside down during transport, wait about 2 hours after it has been positioned vertically before starting it up.

Temperature should be chosen by considering:

- the type of product to be stored in the cell;
- the ambient temperature;
- the frequency of door opening.

Keep in mind, that negative temperature cells ($-10^{\circ}\text{C}/-25^{\circ}\text{C}$) are suitable for storing frozen products for long periods and for freezing small quantities of small sized fresh goods.

In any case, before loading the product wait until the cell has reached temperature by checking it on the on-board thermometer. If you have short interruptions in the power supply it is likely that the compressor will re-start with some delay. This is perfectly normal.

CAUTION: During the initial start-up operation, it is advisable (especially for low-temperature cells) to initially set an intermediate working temperature and perform manual defrost at approximately 2-hour intervals to allow cleaning of accumulated condensate on the evaporator.

14. OPERATION OF THE MACHINE

UMZ monoblock is a refrigeration system operated by a hermetic reciprocating compressor, powered by electricity (single-phase or three-phase). Depending on the model, the refrigerant gas used can be R452A or R290, this fluid flows in a sealed circuit inside the machine

During normal operation of the monoblock, refrigerant in liquid phase circulates through the evaporator located inside the refrigerated cell. The fluid extracts heat from the environment inside the cold room, cooling the air and allowing the refrigerant to change state from liquid to vapor. The fluid flows into the condenser unit installed outside the cold room, where it undergoes a compression process. Through the condenser, the refrigerant releases heat to the external environment and returns to a liquid state. The last step in the refrigeration cycle is lamination, which consists in causing a pressure drop and preparing the refrigerant to return to the evaporator and begin a new cycle.

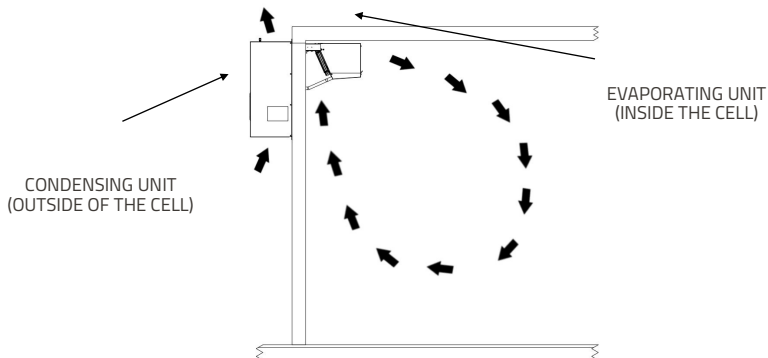


Fig.13 Operation of the machine and direction of the air flow

15. USER INTERFACE AND CONTROL LOGIC

Depending on the acquired product versions, the machine interface has two different types of controller

- **V2 version:** equipped with **Dixell XR70CH** multifunction controller for temperature regulation inside the cell. The main setting parameters of this controller are given in the following table
- **V1 version:** equipped with **Dixell Wing XW60VS** multifunction controller for temperature control inside the cell. The main setting parameters of this controller are given in the following table

In addition, the V1 version is equipped with a switch-on button inside the unit, green with an luminous light, whose lightning warning that the unit is switched on and that the internal circuits are energized.



Fig.14 V1 version with controller Dixell Wing XW60VS



Fig.15 V2 version with controller Dixell XR70CH

Fig.14-17 shows the quadrants and main controls of the two Dixell controllers, together with instructions for performing some simple operations (change set point temperature, perform manual defrost).














The parameters for setting the controllers depending on the monoblock version purchased, the refrigerant fluid used in the cycle and the defrosting methodology implemented on the machine, are attached to the manual.








Additional information regarding the setting of the machine control logic can be found in the Dixell controller instruction manual, available on the manufacturer's website.

CAUTION: Changing the setting parameters of the supplied controller will invalidate the warranty claim. The buyer or user may only change the temperature set point and defrost interval (IdF).






Fig.16 Interface of the controller Dixell Wing XW60V


KEY	FUNCTION	
	To display and modify target set point; in programming mode it selects a parameter or confirm an operation. By holding it pressed for 3s when max or min temperature is displayed it will be erased.	
	To see the max. stored temperature; in programming mode it browses the parameter codes or increases the displayed value. By holding it pressed for 3s the fast freezing cycle is started.	
	To see the min stored temperature; in programming mode it browses the parameter codes or decreases the displayed value.	
	By holding it pressed for 3s the defrost is started.	
	Switch ON and OFF the light of the cold-room	
	Switch ON and OFF the instrument.	
KEY COMBINATION		
	To lock and unlock the keyboard.	
	To enter the programming mode.	
	To exit the programming mode.	
USE OF LEDS		
LED	MODE	Function
	ON	The compressor is running
	FLASHING	Programming Phase (flashing with LED ) Anti-short cycle delay enabled
	ON	The fan is running

	FLASHING	Programming Phase (flashing with LED )
	ON	The defrost is enabled
	FLASHING	Drip time in progress
	ON	The Fast Freezing cycle is enabled
	ON	ALARM signal - In "Pr2" indicates that the parameter is also present in "Pr1"
	ON	The light is on

HOW TO SEE AND MODIFY THE SET POINT

	<ol style="list-style-type: none"> 1. Push and immediately release the SET key: the display will show the Set point value; 2. The SET LED start blinking; 3. To change the Set value push the  or  arrows within 10s. 4. To memorise the new set point value push the SET key again or wait 10s.
--	--






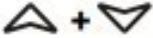


TO START A MANUAL DEFROST





	Push the DEF key for more than 2 seconds and a manual defrost will start
--	--






Tab. 6 Main function of the controller Dixell Wing XW60V




Fig.17 Interface of the controller Dixel XR70CH

KEY	FUNCTION
SET	To display target set point; in programming mode it selects a parameter or confirm an operation.
	(DEF) To start a manual defrost.
	(UP) To see the max stored temperature; in programming mode it browses the parameter codes or increases the displayed value.
	(DOWN) To see the min stored temperature; in programming mode it browses the parameter codes or decreases the displayed value.
	To switch the instrument on and off (when oA3=OFF).
	To switch on and off the light (when oA3=LiG).
KEY COMBINATION	
	To lock & unlock the keyboard.
SET + 	To enter in programming mode.
SET + 	To return to the room temperature display.

USE OF LEDS		
LED	MODE	FUNCTION
	ON	Compressor enabled
	FLASHING	Anti-short cycle delay enabled
	ON	Defrost enabled
	FLASHING	Drip time in progress

	ON	Fans enabled
	FLASHING	Fans delay after defrost in progress
	ON	An alarm is occurring
	ON	Continuous cycle is running
ECO	ON	Energy saving enabled
	ON	Light on
AUX	ON	Auxiliary relay on
°C	ON	Measurement unit
°C	FLASHING	Programming phase


HOW TO: SEE THE SET POINT

	1.	Push and immediately release the SET key: the display will show the Set point value.
	2.	Push and immediately release the SET key or wait for 5 sec to display the probe value again.

HOW TO CHANGE THE SET POINT

1.	Push the SET key more than 2 sec to change the Set point value.
2.	The value of the set point will be displayed and the "°C" or "°F" LED will start blinking.
3.	To change the Set value push the UP or DOWN arrows within 10 sec.
4.	To save the new set point value, push the SET key again or wait for 10 sec

HOW TO START A MANUAL DEFROST

	Push the DEF key for more than 2 sec and a manual defrost will start.
--	---

Tab.7 Main function of the controller Dixell XR70CH

Setting parameters

UMZ Monoblocks equipped with Dixell XW60V

Name		Level	REGULATION	
			MBP	LBP
Set	Adjusting cold room temperature	Pr1	min -5	min -25
Hy	Differential	Pr1	3	3
LS	Minimum set point limit	Pr2	-5	-25
US	Maximum set point limit	Pr2	15	0
OdS	Outputs activation delay at start up	Pr2	1	1
AC	Anti-short cycle del	Pr1	1	1
CCT	Thermostat override	Pr2	0	0
CO _n	Compressor ON time with faulty probe	Pr2	15	15
CO _F	Compressor OFF time with faulty probe	Pr2	15	15
			DISPLAY	
CF	Temperature measurement unit	Pr2	°C	°C
rES	Resolution	Pr1	dE	dE
Lod	Local display	Pr2	P1	P1
			DEFROST	
tdF	Defrost type	Pr1	rE	rE
EdF	Defrost mode	Pr2	IN	IN
SdF	Set point for Smart Frost	Pr2	0	0
dtE	Defrost termination temperature	Pr1	16	20
ldF	Interval between defrosts	Pr1	6	4
MdF	(Maximum) duration of defrost	Pr1	40	45
dFd	Display during defrost	Pr2	DEF	DEF
dAd	Defrost display time out	Pr2	0	0
dSd	Start defrost delay	Pr2	0	0
Fdt	Drain down time	Pr2	6	2
dPO	First defrost after start-up	Pr2	N	N
dAF	Defrost delay after fast freezing	Pr2	0	0

Name		Level	REGULATION	
			MBP	LBP
			FANS	
FnC	Fan operating mode	Pr2	O-n	O-n
Fnd	Fan delay after defrost	Pr2	4	4
FSt	Fan stop temperature	Pr2	15	3
			ALARMS	
ALC	Temperature alarm configuration	Pr2	RE	RE
ALU	High temperature alarm setting	Pr1	20	15
ALL	Low temperature alarm setting	Pr1	20	15
AFH	Temperature alarm and fan differential	Pr2	2	2
ALd	Temperature alarm delay	Pr2	15	15
dAO	Delay of temperature alarm at start-up	Pr2	5	5
EdA	Alarm delay at the end of defrost	Pr2	60	60
dot	Delay of temperature alarm after closing the door	Pr2	15	15
dOA	Open door alarm delay	Pr2	1	1
nPS	Pressure switch number	Pr2	0	0
			PROBE INPUTS	
Ot	Thermostat probe calibration	Pr1	0	-2
OE	Evaporator probe calibration	Pr2	0	0
P2P	Evaporator probe presence	Pr2	Y	Y
HES	Temperature increase during the Energy Saving cycle	Pr2	-1	-1
			DIGITAL INPUTS	
Odc	Compressor and fan status when open door	Pr2	F-C	F-C
l2P	Configurable digital input polarity	Pr2	CL	CL
i2F	Digital input operating mode	Pr2	dor	dor
dld	Time interval/delay for digital input alarm	Pr2	5	5
			OTHER	
PbC	Type of probe	Pr2	ntc	ntc
rEL	Release software	Pr2	2	2
Ptb	Parameter table	Pr2	6	6
Prd	Probes display	Pr2	---	---
Pr2	Access to the protected parameter list	Pr1	---	---

Tab. 8 Parameters of the controller Dixell Wing XW60V

Setting parameters UMZ Monoblocks equipped with Dixell XR70CH - Electrical defrost

Label	Name	Level	REGULATION	
			MBP	LBP
Set	Set point	Pr1	min -5	min -25
Hy	Differential	Pr1	3	3
LS	Minimum set point	Pr2	-5	-25
US	Maximum set point	Pr2	15	-5
Ot	Thermostat probe calibration	Pr1	0	-2
P2P	Evaporator probe presence	Pr1	Y	Y
oE	Evaporator probe calibration	Pr2	0	0
P3P	Third probe presence	Pr2	n	n
o3	Third probe calibration	Pr2	0	0
P4P	Fourth probe presence	Pr2	n	n
o4	Fourth probe calibration	Pr2	0	0
OdS	Outputs delay at start up	Pr2	1	1
AC	Anti-short cycle delay	Pr1	1	1
rtr	P1-P2 percentage for regulation	Pr2	100	100
CCt	Continuous cycle duration	Pr2	0	0
CCS	Set point for continuous cycle	Pr2	-5	-25
CO _n	Compressor ON time with faulty probe	Pr2	15	15
CO _F	Compressor OFF time with faulty probe	Pr2	15	15
			DISPLAY	
CF	Temperature measurement unit	Pr2	°C	°C
rES	Resolution	Pr1	dE	dE
Lod	Probe displayed	Pr2	P1	P1
dLy	Display temperature delay	Pr2	0	0
dtr	P1-P2 percentage for display	Pr2	50	50
			DEFROST	
tdF	Defrost type	Pr1	EL	EL
dFP	Probe selection for defrost termination	Pr2	P2	P2
dtE	Defrost termination temperature	Pr1	16	20
ldF	Interval between defrost cycles	Pr1	6	4
MdF	(Maximum) length for defrost	Pr1	40	45
dSd	Start defrost delay	Pr2	0	0
dFd	Displaying during defrost	Pr2	DEF	DEF
dAd	MAX display delay after defrost	Pr2	6	6
Fdt	Draining time	Pr2	6	3
dPO	First defrost after start-up	Pr2	N	N

Label	Name	Level	REGULATION	
			MBP	LBP
dAF	Defrost delay after fast freezing	Pr2	0	0
FANS				
FnC	Fan operating mode	Pr1	O-n	O-n
Fnd	Fan delay after defrost	Pr1	4	4
FCt	Differential of temperature for forced activation of fans	Pr2	0	0
FSt	Fan stop temperature	Pr1	15	3
Fon	Fan on time with compressor on	Pr2	1	0
Foff	Fan off time with compressor off	Pr2	1	0
FAP	Probe selection for fan management	Pr2	P2	P2
ALARMS				
ALC	Temperat. alarms configuration	Pr2	RE	RE
ALU	MAXIMUM temperature alarm	Pr1	20	15
ALL	Minimum temperature alarm	Pr1	20	15
AFH	Differential for temperat. alarm recovery	Pr2	2	2
ALd	Temperature alarm delay	Pr2	15	15
dAO	Delay of temperature alarm at start up	Pr2	5	5
CONDENS. ALARM				
AP2	Probe for temperat. alarm of condenser	Pr2	P4	P4
AL2	Condenser for low temperat. alarm	Pr2	-40	-40
AU2	Condenser for high temperat. alarm	Pr2	110	110
AH2	Differ. for condenser temp. alar. recovery	Pr2	5	5
Ad2	Condenser temperature alarm delay	Pr2	15	15
dA2	Delay of cond. temper. alarm at start up	Pr2	2	2
bLL	Compr. off for condenser low temperature alarm	Pr2	n	n
AC2	Compr. off for condenser high temperature alarm	Pr2	n	n
FOURTH RELAY				
tbA	Alarm relay disabling	Pr2	Y	Y
oA3	Fourth relay configuration	Pr2	Lig	Lig
AoP	Alarm relay polarity (oA3=ALr)	Pr2	cL	cL
DIGITAL INPUTS				
i1P	Alarm relay polarity	Pr1	CL	CL
i1F	Digital input configuration	Pr1	dor	dor
did	Digital input alarm delay	Pr1	5	5
nPS	Number of activation of pressure switch	Pr2	15	15

Label	Name	Level	REGULATION	
			MBP	LBP
Odc	Compress and fan status when open door	Pr2	F-C	
rrd	Regulation restart with door open alarm	Pr2	Y	
HES	Differential for Energy Saving	Pr2	-1	
			OTHER	
Adr	Serial address	Pr2	1	1
Pbc	Kind of probe	Pr1	ntc	ntc
onF	on/off key enabling	Pr2	OFF	OFF
dP1	Room probe display	Pr2	---	---
dP2	Evaporator probe display	Pr1	---	---
dP3	Third probe display	Pr1	---	---
dP4	Fourth probe display	Pr1	---	---
rSE	Real set	Pr2	---	
rEL	Software release	Pr2	---	---
Ptb	Map code	Pr2	---	---
Prd	Probes display	Pr2	---	---

Tab. 9 Parameters of the controller Dixell XR70CH Electrical defrost

Setting parameters

UMZ Monoblocks equipped with Dixell XR70CH - Hot gas defrost

Label	Name	Level	REGULATION	
			MBP	LBP
Set	Set point	Pr1	min -5	min -25
Hy	Differential	Pr1	2	2
LS	Minimum set point	Pr2	-5	-25
US	Maximum set point	Pr2	15	0
Ot	Thermostat probe calibration	Pr1	0	-2
P2P	Evaporator probe presence	Pr1	Y	Y
oE	Evaporator probe calibration	Pr2	0	0
P3P	Third probe presence	Pr2	n	n
o3	Third probe calibration	Pr2	0	0
P4P	Fourth probe presence	Pr2	n	n
o4	Fourth probe calibration	Pr2	0	0
OdS	Outputs delay at start up	Pr2	0	0
AC	Anti-short cycle delay	Pr1	1	1
rtr	P1-P2 percentage for regulation	Pr2	100	100
CCt	Continuous cycle duration	Pr2	0	0
CCS	Set point for continuous cycle	Pr2	-5	-25
CO _n	Compressor ON time with faulty probe	Pr2	15	15
CO _F	Compressor OFF time with faulty probe	Pr2	15	15
			DISPLAY	
CF	Temperature measurement unit	Pr2	°C	°C
rES	Resolution	Pr1	dE	dE
Lod	Probe displayed	Pr2	P1	P1
dLy	Display temperature delay	Pr2	0	0
dtr	P1-P2 percentage for display	Pr2	50	50
			DEFROST	
tdF	Defrost type	Pr1	in	in
dFP	Probe selection for defrost termination	Pr2	P2	P2
dtE	Defrost termination temperature	Pr1	6	0
ldF	Interval between defrost cycles	Pr1	6	4
MdF	(Maximum) length for defrost	Pr1	30	35
dSd	Start defrost delay	Pr2	0	0
dFd	Displaying during defrost	Pr2	DEF	DEF
dAd	MAX display delay after defrost	Pr2	6	6
Fdt	Draining time	Pr2	4	2
dPO	First defrost after start-up	Pr2	N	N

Label	Name	Level	REGULATION	
			MBP	LBP
dAF	Defrost delay after fast freezing	Pr2	0	0
FANS				
FnC	Fan operating mode	Pr1	C-n	C-n
Fnd	Fan delay after defrost	Pr1	4	4
FCt	Differential of temperature for forced activation of fans	Pr2	0	0
FSt	Fan stop temperature	Pr1	15	3
Fon	Fan on time with compressor on	Pr2	1	0
Foff	Fan off time with compressor off	Pr2	1	0
FAP	Probe selection for fan management	Pr2	P2	P2
ALARMS				
ALC	Temperat. alarms configuration	Pr2	RE	RE
ALU	MAXIMUM temperature alarm	Pr1	20	15
ALL	Minimum temperature alarm	Pr1	20	15
AFH	Differential for temperat. alarm recovery	Pr2	2	2
ALd	Temperature alarm delay	Pr2	15	15
dAO	Delay of temperature alarm at start up	Pr2	2	2
CONDENS. ALARM				
AP2	Probe for temperat. alarm of condenser	Pr2	P4	P4
AL2	Condenser for low temperat. alarm	Pr2	-40	-40
AU2	Condenser for high temperat. alarm	Pr2	110	110
AH2	Differ. for condenser temp. alar. recovery	Pr2	5	5
Ad2	Condenser temperature alarm delay	Pr2	15	15
dA2	Delay of cond. temper. alarm at start up	Pr2	2	2
bLL	Compr. off for condenser low temperature alarm	Pr2	n	n
AC2	Compr. off for condenser high temperature alarm	Pr2	n	n
FOURTH RELAY				
tbA	Alarm relay disabling	Pr2	Y	Y
oA3	Fourth relay configuration	Pr2	Lig	Lig
AoP	Alarm relay polarity (oA3=ALr)	Pr2	cL	cL
DIGITAL INPUTS				
i1P	Alarm relay polarity	Pr1	CL	CL
i1F	Digital input configuration	Pr1	dor	dor
did	Digital input alarm delay	Pr1	5	5
nPS	Number of activation of pressure switch	Pr2	15	15
Odc	Compress and fan status when open door	Pr2	F-C	F-C
rrd	Regulation restart with door open alarm	Pr2	Y	Y

Label	Name	Level	REGULATION	
			MBP	LBP
HES	Differential for Energy Saving	Pr2	0	0
			<i>OTHER</i>	
Adr	Serial address	Pr2	1	1
Pbc	Kind of probe	Pr1	ntc	ntc
onF	on/off key enabling	Pr2	OFF	OFF
dP1	Room probe display	Pr2	---	---
dP2	Evaporator probe display	Pr1	---	---
dP3	Third probe display	Pr1	---	---
dP4	Fourth probe display	Pr1	---	---
rSE	Real set	Pr2	---	---
rEL	Software release	Pr2	---	---
Ptb	Map code	Pr2	---	---
Prd	Probes display	Pr2	---	---

Tab. 10 Parameters of the controller Dixell XR70CH Hot gas defrost

16. FOOD STORAGE

In order to achieve the best performance of the refrigerator, the following guidelines should be followed:

- do not introduce any hot food or uncovered liquids inside the cell;
- wrap foods or protect them in other ways, especially if they contain flavorings or cream;
- arrange food inside the cabinet so that air circulation is not restricted by unnecessary obstructions;
- avoid frequent and prolonged opening of doors as much as possible;
- wait a few moments before re-opening the door once it has been closed.

17. FOOD PRESERVATION

The main cause of the degradation of food and organic substances in general is the proliferation of bacteria contained in the cells that constitute the food itself. The production of bacteria can be greatly slowed down by lowering the temperature of the product, in fact, each product, according to its organoleptic characteristics, needs suitable temperatures and environmental conditions.

In order to benefit in the best possible way from the equipment purchased, it is advisable to pay attention to the:

- freezing point,
- characteristics and conservation information of some frozen products.

FOOD TYPE	STORAGE TEMPERATURE (°C)
Fish	+0 / +4
Meats	+2 / +4
Poultry	+1 / +4
Vegetables	+4 / +10
Fruit	+4 / +8
Eggs and egg products	+6 / +8
Pasteurised milk and fresh dairy products	+2 / +6
Cold meats and cheeses	+4 / +8
Frozen meat	-12
Ice cream	-20
Frozen food	-18

Tab.11 Indicative food storage temperatures

18. ORDINARY MAINTENANCE

In order to ensure full efficiency and safety of the machine, it is necessary to carry out regular maintenance and cleaning. Preventive maintenance carried out correctly and within the recommended timeframe extends the overall functionality of the machine over time, and also ensures safety for operators and maintenance staff.

CAUTION: All operations to be performed on the machine must always be carried out by qualified technicians, wearing all the necessary personal protective equipment, using standardised working tools and complying with all applicable safety regulations.

CAUTION: Before carrying out any work on the machine, it is necessary to switch it off, disconnect it from the power supply by acting on the circuit breaker and wait until there are no moving parts and hot surfaces have cooled down. It is absolutely forbidden to remove the safety guards to carry out routine maintenance work without first disconnecting the machine from the power supply. The manufacturer accepts no liability for accidents resulting from failure to comply with this obligation.

Do not use solvents or flammable fluids to clean the components, but use only approved non-flammable, non-toxic and non-corrosive cleaning agents. Clean the finned packs (condenser and evaporator) with an air jet or dry stiff bristle brush and/or brush, removing dust and lint deposited on the fins with a vertical movement.

The machines containing flammable refrigerant (R290) are supplied with a factory sealed refrigerant circuit; any intervention on it is therefore strictly forbidden. In the event of problems with the refrigeration system, the partly completed machine must be returned to the manufacturer.

Do not tamper with the partly completed machine and do not apply transformations, variations or replacement of components with non-serial components without written authorisation from the manufacturer.

It is essential to reposition all fixed guards upon completion of the maintenance operations listed below.

The main ordinary maintenance operations are the following ones:

- **CLEANING OF EXTERNAL PARTS:**
Clean the external parts of the machine weekly with a damp cloth and using only approved non-flammable, non-toxic, non-corrosive and non-abrasive neutral detergents (do not use solvents). Check the integrity of electrical cables and parts;
CAUTION: Presence of sharp components, use protective gloves avoiding direct contact with sharp surfaces or any hot surfaces;
- **CLEANING THE CONDENSER:**
Clean the condenser by removing dust and grease periodically and at least once a month. If the machine operates in a very dusty environment, carry out cleaning operations more frequently. Failure to periodically clean the finned condenser pack would increase the risk of condenser clogging and compromise the efficiency of the refrigeration system. Verify that there are no refrigerant leaks by visually checking the entire refrigerant circuit. Leaks are generally indicated by the presence of lubricant.
CAUTION: Presence of sharp components, use protective gloves avoiding direct contact with sharp surfaces or any hot surfaces;
- **CLEANING THE EVAPORATOR UNIT:**
Once a month, visually check the integrity of the refrigerant circuit in the evaporating part by checking for refrigerant leaks. Generally, any leaks are evidenced by the presence of lubricant. Also check the correct functioning of the condensate drain in the collection tray and the absence of a thick layer of ice in the evaporating pack. If the evaporating pack is dirty, the food must be temporarily moved from the cabinet and cleaned.
CAUTION: Presence of sharp components, use protective gloves avoiding direct contact with sharp surfaces or any hot surfaces;
- **CONDENSATION WATER DISCHARGE:**
Regularly check that the condensation water drain is not clogged and that the drain heater is working properly.

19. EXTRAORDINARY MAINTENANCE AND REPAIRS

Extraordinary maintenance and repairs are tasks reserved exclusively for specialised personnel authorised by the manufacturer.

No liability is accepted for work carried out by the user, by unauthorised personnel or for the use of non-original or unsuitable spare parts.

The table shows the most frequent faults, their possible causes and remedies:

FAULT DESCRIPTION	POSSIBLE CAUSE	REMEDY
Compressor does not start and does not make sound	<ul style="list-style-type: none"> a) Thermal protection tripped b) Lack of voltage c) Electrical connections loose or incorrect 	<ul style="list-style-type: none"> a) Check electrical connections b) Check the power supply line c) Check and tighten the electrical connections according to the wiring scheme
The compressor does not start and the thermal protector trips	<ul style="list-style-type: none"> a) Improper electrical connections b) Low voltage at the compressor c) Failure of starting capacitor d) Relay blocked e) Electric motor with damaged winding 	<ul style="list-style-type: none"> a) Check electrical connections and rewire b) Identify cause and eliminate c) Identify cause and change capacitor d) Replace relay and identify cause e) Replace compressor
Compressor starts but relay does not open	<ul style="list-style-type: none"> a) Improper electrical connections b) Low voltage at the compressor c) Relay blocked d) Too high discharge pressure e) Electric motor with damaged winding 	<ul style="list-style-type: none"> a) Check electrical connections and rewire b) Identify cause and eliminate it c) Replace relay and identify cause d) Identify cause and eliminate e) Replace compressor
Thermal protector activated	<ul style="list-style-type: none"> a) Low voltage on the compressor (or unbalanced phases for three-phase motors) b) Failure of the thermal protector c) Failure of the run capacitor d) Discharge pressure too high e) Suction pressure too high f) Compressor overheated, hot return gas g) Electric motor with damaged winding 	<ul style="list-style-type: none"> a) Identify cause and eliminate it b) Verify characteristics and replace if necessary c) Identify cause and change capacitor d) Check for obstructions in the circuit of the system e) Check condensing unit sizing, replace if necessary f) Check refrigerant charge and the presence of any leaks. If necessary, add gas up to the amount indicated on the label g) Replace compressor
Compressor works only with short cycles	<ul style="list-style-type: none"> a) Thermal protector tripped b) Incorrectly set thermostat 	<ul style="list-style-type: none"> a) Identify cause (see previous point) b) Adjust settings

FAULT DESCRIPTION	POSSIBLE CAUSE	REMEDY
The refrigerating unit runs continuously but does not reach the setting temperature.	<ul style="list-style-type: none"> a) Lack of air circulation b) Condenser clogged c) Insufficient refrigerant d) System under-dimensioned compared the load e) Insufficient insulation or compromised door seal f) Frosted evaporator g) System circuit restriction 	<ul style="list-style-type: none"> a) Ventilate more b) Clean the condenser c) Contact technical assistance d) Replace the monoblock with a higher capacity one e) Check insulation and gaskets f) Perform a manual defrost g) Identify restriction and remove it
Too high cell temperature	<ul style="list-style-type: none"> a) Thermostat wrongly set b) Undersized expansion valve c) Undersized evaporator 	<ul style="list-style-type: none"> a) Set the thermostat correctly b) Replace with a suitable valve c) Contact technical assistance
Ice buildup on the evaporator	<ul style="list-style-type: none"> a) Improper use b) Control panel failure 	<ul style="list-style-type: none"> a) Stick to the use specified in this manual b) Contact technical assistance
Frosted suction piping	<ul style="list-style-type: none"> a) Expansion valve stuck open b) Evaporator fan not working c) Excessive gas charge 	<ul style="list-style-type: none"> a) Clean the valve, adjust it properly or replace it b) Identify cause and eliminate c) Check refrigerant charge
Water or ice stagnation in the drip tray	<ul style="list-style-type: none"> a) Clogged drain b) Machine not levelled 	<ul style="list-style-type: none"> a) Clean the spill and drain b) Check that the appliance is levelled
The appliance is noisy	<ul style="list-style-type: none"> a) Machine not levelled b) Contact of external objects c) Loose screws and bolts 	<ul style="list-style-type: none"> a) Check that the unit is levelled b) Check that no pipes or fan blades are in contact with foreign objects c) Tighten loose bolts and screws

Tab.12 Main machine faults and possible solutions

20. RECYCLING AND DISPOSAL

When equipment stops working and must be scrapped, care should be taken to ensure that its disposal causes the least environmental damage. Proper disposal of obsolete equipment helps prevent possible negative consequences on human health and the environment .

For more detailed information on the disposal of obsolete equipment, contact the municipality, waste disposal service or retailer where the product was purchased.

CAUTION: the refrigerant must not be discharged into the atmosphere, it must be recovered and disposed of by companies authorised to collect special waste.

CAUTION: presence of flammable refrigerant in the refrigeration system. Exercise extreme caution and do not force or tamper with the partly completed machine. For installation, handling, maintenance and/or disposal operations, rely on authorised professionals, who must take all the safety measures required by local rules and regulations.

21. WARRANTY TERMS

- 1) In these conditions of guarantee, the term "products" means the products described and offered currently and in the future by the Seller in its catalogues, price lists, etc.
- 2) The operation of the refrigerating equipment is guaranteed for twelve months from the delivery date to the Buyer. The transport document will attest the valid date. The warranty period ends 12 months after the supply even if the products have not been put in service for any reason.
- 3) The warranty covers only repairs or replacements of those parts of the device that, as incontestably determined by the Seller, may be imperfect for defects in material or manufacturing; therefore it does not include in any case the paint and the chrome (which, despite being realized in a workmanlike manner, have a duration resulting directly by the care of the Buyer) glass parts, plastic parts, removable parts, electrical components and in general all the fragile parts and / or the ones not related to the functioning of the machine. The Seller assumes no responsibility in case its products do not match the national regulations and / or the technical standards of the country of installation, but only guarantees for the compliance of its products to the standards required by Italian law.
- 4) The Seller is never required to replace the equipment, or to compensate damages to the product stored, and in general for all consequential damages, except those for which it is civilly liable under the law.
- 5) The warranty claim expires and therefore any interventions by MTH technicians or those commissioned by it, will be charged if even one of the following circumstances occurs:
 - a) breaking of tamper-resistant seals placed by MTH S.r.l.;
 - b) damage resulting from force majeure in general or occurring during transport: delivery is made EXW (Incoterms of the ICC); responsibility for these damages is of the carrier, and therefore to the same must be contested upon receipt. Likewise, any damage resulting from improper installation or maintenance of the equipment will not be accepted as a valid issue of contestation for warranty purposes;
 - c) installation of the machine in different conditions from those specified in this manual;
 - d) connection to the electrical and/or plumbing network through a system of insufficient capacity or that does not comply with current regulations. In particular, reference is made to the technical regulations and good engineering practices relating to the ground connection of equipment;
 - e) lack of operation due to power failure, grid voltage variations, or similar accidents and resulting failures;
 - f) failures due to accidental breakage (by way of example but not limited to: disconnected plugs, blown fuses), and other inconveniences resulting in any case from external factors and from the Buyer's negligence;
 - g) any disassembly, modification or tampering of the machine or its components performed by the user or unauthorized personnel;
 - h) use of spare parts that are not original or not specified by MTH S.r.l.;
 - i) use in violation of what is specified by the regulations in force in the country of use;
 - j) destination of the equipment for uses other than those for which it was prepared;
 - k) use of the appliance in a manner not in accordance with the contents of this Operation and Maintenance Manual;
 - l) total or partial non-observance of the instructions in this Manual;
 - m) missing or incorrect maintenance;
 - n) changing the setting parameters of the supplied controller; the Buyer or user may only change the temperature set point and defrost interval (IdF).
- 6) The warranty is suspended, maintaining valid the final expiration after twelve month from the delivery, in case of default by the Purchaser even of only one condition of supply.
- 7) Repairs and / or replacements of parts will not lead to an extension of the term of the warranty. If, for technical reasons, the repair could not be carried out on site the equipment must be returned to the Seller who will repair it and send it back to the customer charging the transport costs.
- 8) Requests of a technical intervention must be send directly to the Seller providing all the necessary details for an exact evaluation of the defect. The Purchaser cannot claim against the Seller if it has not sent a written communication within the irrevocable term of eight days from the date of discovery of the defect.

- 9) When the warranty expires, if the Purchaser needs a repair and / or a replacement, will be charged the expenses related to the spare parts used, the cost of labor, transport of materials and travel costs, according to the rates in force.
- 10) The warranty excludes the travel costs of the staff (hours of travel, accommodation and meals) which will always be at expense of the user.
- 11) These Warranty Conditions will be interpreted and governed according to the Italian Law.

IMPORTANT:

To exercise the warranty right, the Buyer must submit to the Seller:

- a) WARRANTY CERTIFICATE;
- b) one of the following documents evidencing the date of delivery: INVOICE, TRANSPORT DOCUMENT. The absence of one of the documents does not allow to assess the validity of the warranty and therefore the intervention will be considered at the expense of the Buyer and charged to the same;
- c) the Buyer must provide the unit and all electrical cables and accessories supplied with the machine. These accessories must be in integral condition or the warranty will be invalidated;
- d) the customer must provide the unit with the seals placed by MTH S.r.l. undamaged.

The warranty NEVER includes interventions of staff required for :

- The installation;
- The control and / or the adjustments;
- The explanations for the use;
- The modification of the doors' opening;
- The normal maintenance;

The interventions of this kind will be at expense of the Buyer.

The warranty conditions are those specified on the certificate. Any extension is responsibility of the person who has granted it putting in writing and do not ever commit the Seller.

SCHEMA IMPIANTO FRIGORIFERO - PIPING AND INSTRUMENTATION DIAGRAM - SCHEMA DER KÜHLANLAGE - DIAGRAMA DEL SISTEMA DE REFRIGERACIÓN - DIAGRAMME DU SYSTÈME DE RÉFRIGÉRATION

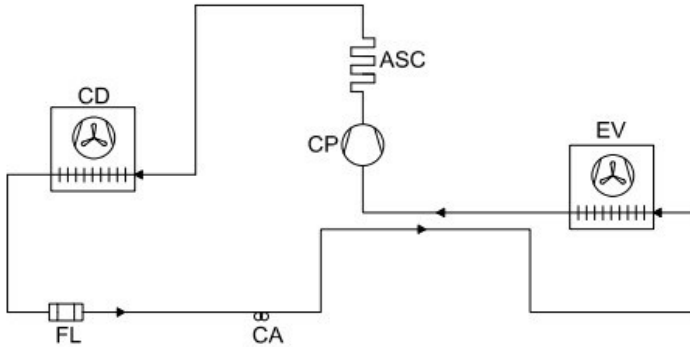


Fig. AN1 - Versione R452 sbrinamento elettrico - R452 heater defrost version
 Version R452 abtauen durch windstand - Versiòn R452 descongelaciòn por resistencia
 Version R452 dégivrage électrique

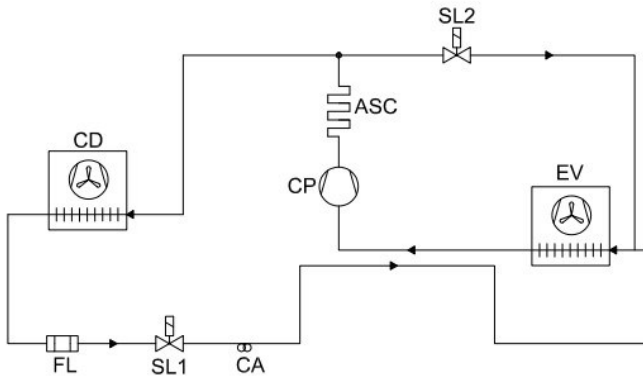


Fig. AN2 - Versione R290 sbrinamento a gas caldo - R290 hot gas defrost version
 R290 abtauen durch heißgas - R290 descongelaciòn por gas caliente
 R290 Degivrage par gas chaud

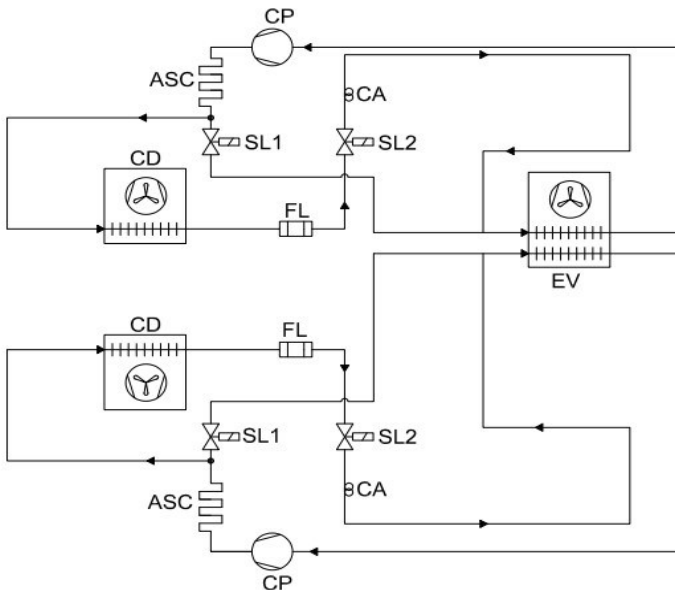
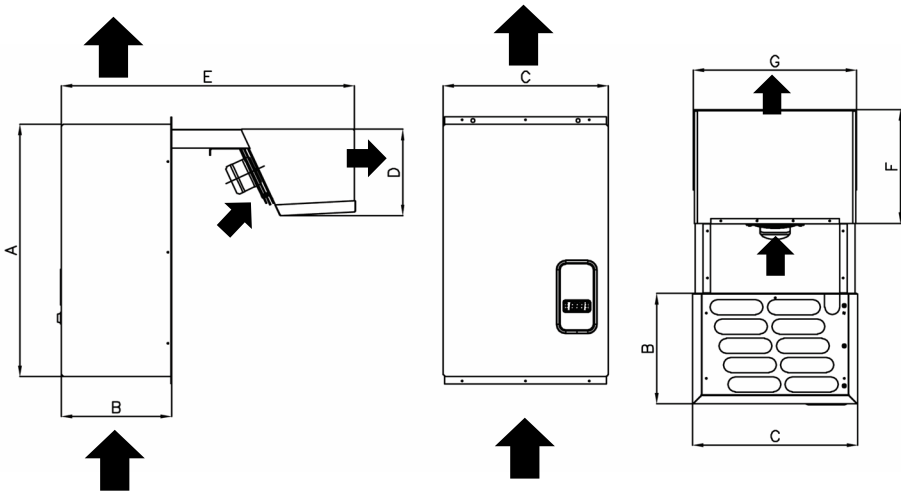


Fig. AN3 - Versione R290 doppio circuito sbrinamento a gas caldo - R290 double circuit hot gas defrost version - R290 doppel-schaltung abtauen durch heißgas - R290 doble circuito descongelación por gas caliente - R290 double circuit degivrage par gas chaud

LEGENDA - KEY LEGEND - KEY LEGENDE - LEYENDA - LEGENDE			
CD	CONDENSATORE - CONDENSER - KON- DENSATOR - CONDENSADOR - CONDEN- SATEUR	SL2	VALVOLA SOLENOIDE GAS CALDO - HOT GAS SOLENOID VALVE - SOLENOIDVENTIL HEIßGAS - VALVULA SOLENOIDE DE GAS - VANNE A SOLENOIDE GAZ CHAUD
CP	COMPRESSORE - COMPRESSOR - KOM- PRESSOR - COMPRESOR - COMPRES-	EV	EVAPORATORE - EVAPORATOR - VER- DAMPFER - EVAPORADOR - EVAPORATEUR
FL	FILTRO DEIDRATATORE - DRIER FILTER - FILTER - FILTRO - FILTRE	CA	CAPILLARE - CAPILLARY - KAPILLARE - CAPI- LAR - CAPILLAIRE
SL1	VALVOLA SOLENOIDE LIQUIDO - LIQUID SOLENOID VALVE - SOLENOIDVENTIL FLÜSSIGKEIT - VALVULA SOLENOIDE DE LIQUIDO - VANNE A SOLENOIDE LIQUIDE	ASC	SERPENTINA EVAPORA CONDENSA - CON- DENSATION DRYER - KONDENSATTROCKNER - SECADORA DE CONDENSADOS - SECHE- CONDENSATION

FIG. AN4 DIMENSIONI D'INGOMBRO DELLA MACCHINA - OVERALL DIMENSION OF THE MACHINE - GESAMTABMESSUNGEN DER MASCHINE - DIMENSIONES TOTALES DE LA MÁQUINA - DIMENSIONS GLOBALES DE LA MACHINE



Le frecce indicano il senso di circolazione dell'aria - Arrows indicate the direction of air circulation - Pfeile zeigen die Richtung der Luftzirkulation an - Las flechas indican el sentido de circulación del aire - Les flèches indiquent le sens de circulation de l'air

DIMENSIONE MONOBLOCCO MONOBLOCK DIMENSION MONOBLOCK-ABMESSUNG DIMENSIÓN MONOBLOQUE DIMENSIÓN MONOBLOQUE [mm]	A	B	C	D	E	F	G
TAGLIA 1 - SIZE 1 - SIZE 1 - TALLA 1 - TAILLE 1	700	305	455	245	810	320	445
TAGLIA 2 - SIZE 2 - SIZE 2 - TALLA 2 - TAILLE 2	700	305	755	245	810	320	745
TAGLIA 3 - SIZE 3 - SIZE 3 - TALLA 3 - TAILLE 3	800	420	755	420	1060	400	745

Tab AN1 - Dimensioni d'ingombro della macchina - Overall dimension of the machine - Gesamt-abmessungen der Maschine - Dimensiones totales de la maquina - Dimensions globales de la machine

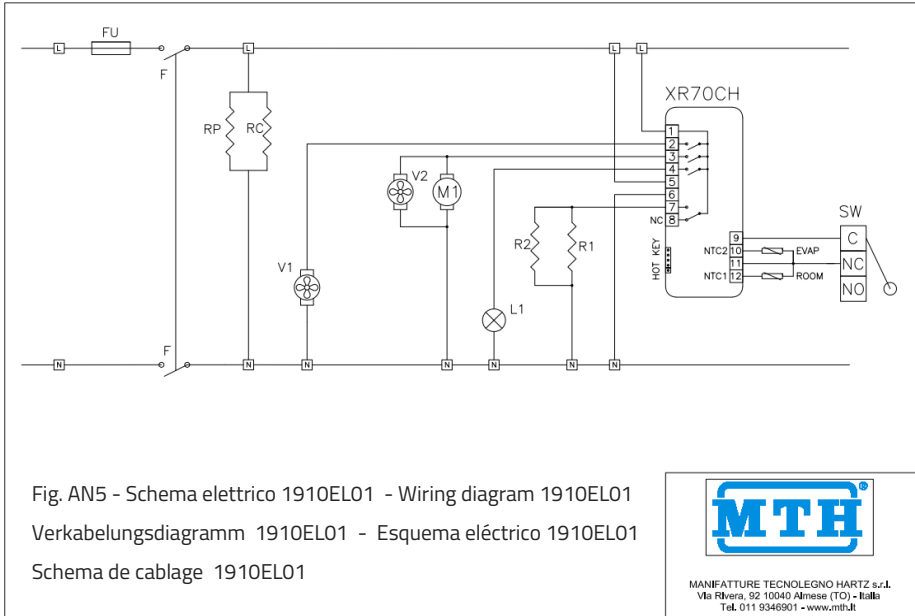
Tab. AN2 - UMZ MBP

CODICE MTH MTH CODE MTH CODE CODIGO MTH MTH CODE	MODELLO MODEL MODELL MODELO MODELE	SCHEMA ELETTRICO ELECTRIC SCHEME VERKABELUNGSDIA- GRAMM ESQUEMA ELÉCTRICO SCHÉMA DE CÂBLAGE	ASSORBIMENTO MAX [A] MAX ABSORPTION [A] MAX ABSORPTION [A] MÁXIMA ABSORCIÓN [A] ABSORPTION MAXIMALE [A]	N° CIRCUITI N° CIRCUITS ANZAHL DER STROMKREISE NÚMERO DE CIRCUI- TOS NOMBRE DE CIRCUITS
19101040	UMZHG/04A1	1910EL01	5.25	1
19101050	UMZHG/05A1	1910EL01	6.01	1
19101070	UMZHG/07A1	1910EL01	6.63	1
19101080	UMZHG/08A1	1910EL01.1	9.73	1
19101123	UMZHG/12A2	1910EL02	10.69	1
19101163	UMZHG/16A2	1910EL03	12.84	1
19102191	TUMZHG/19U3	1910EL04	7.24	1
19102231	TUMZHG/23U3	1910EL04	10.07	1
19131040	UMZHU/04S1	1913EL01	4.79	1
19131050	UMZHU/05S1	1913EL01	5.41	1
19131090	UMZHU/09S2	1913EL02	9.58	2
19131120	UMZHU/12S2	1913EL02	11.58	2
19131180	UMZHU/18A3	1913EL02	13.18	2

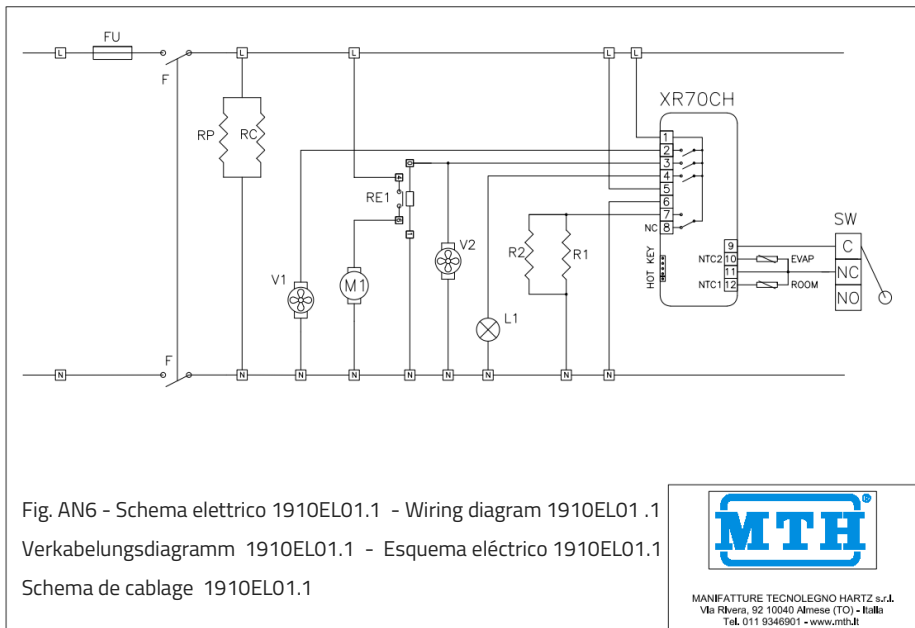
Tab. AN3 - UMZ LBP

CODICE MTH MTH CODE MTH CODE CODIGO MTH MTH CODE	MODELLO MODEL MODELL MODELO MODELE	SCHEMA ELETTRICO ELECTRIC SCHEME VERKABELUNGSDIA- GRAMM ESQUEMA ELÉCTRICO SCHÉMA DE CÂBLAGE	ASSORBIMENTO MAX [A] MAX ABSORPTION [A] MAX ABSORPTION [A] MÁXIMA ABSORCIÓN [A] ABSORPTION MAXIMALE [A]	N° CIRCUITI N° CIRCUITS ANZAHL DER STROMKREISE NÚMERO DE CIRCUITOS NOMBRE DE CIRCUITS
19105030	UMZG/03A1	1910EL01	7.66	1
19105050	UMZG/05A1	1910EL01.1	9.02	1
19105081	UMZG/08U2	1910EL03	13.51	1
19105111	UMZG/11U2	1910EL03	14.60	1
19106151	TUMZG/15U3	1910EL04	9.22	1
19106171	TUMZG/17U3	1910EL04	9.52	1
19135030	UMZU/03S1	1913EL01	6.07	1
19135040	UMZU/04A1	1913EL01	6.14	1
19135080	UMZU/08S2	1913EL02	12.14	2
19135130	UMZU/13A3	1913EL02	12.42	2

Schema elettrico e assorbimento massimo UMZ - Wiring diagram and max absorption of UMZ - Verkabelungsdiagramm und max absorption UMZ - Esquema eléctrico y maxima absorcion UMZ - Schema de cablage et absorption maximale UMZ



MANIFATTURE TECNOLOGNO HARTZ s.r.l.
 Via Riviera, 92 10040 Almese (TO) - Italia
 Tel. 011 9346901 - www.mth.it



MANIFATTURE TECNOLOGNO HARTZ s.r.l.
 Via Riviera, 92 10040 Almese (TO) - Italia
 Tel. 011 9346901 - www.mth.it

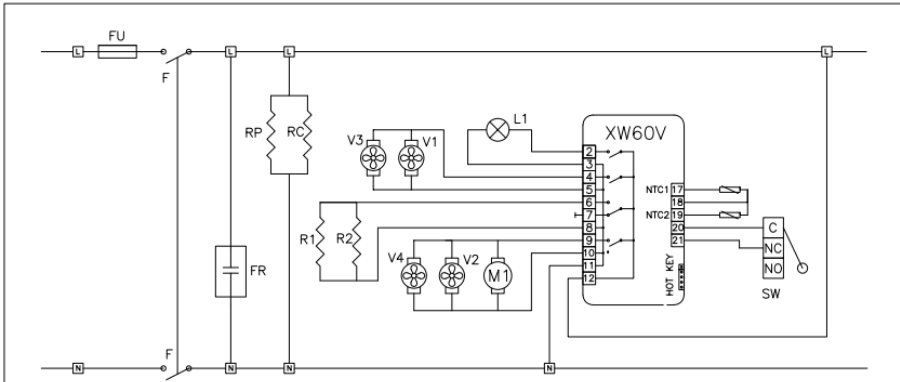


Fig. AN7 - Schema elettrico 1910EL02 - Wiring diagram 1910EL02
 Verkabelungsdiagramm 1910EL02 - Esquema eléctrico 1910EL02
 Schema de cablage 1910EL02

MANIFATTURE TECNOLEGNO HARTZ s.r.l.
 Via Rivera, 92 10040 Almese (TO) - Italia
 Tel. 011 9346901 - www.mth.it

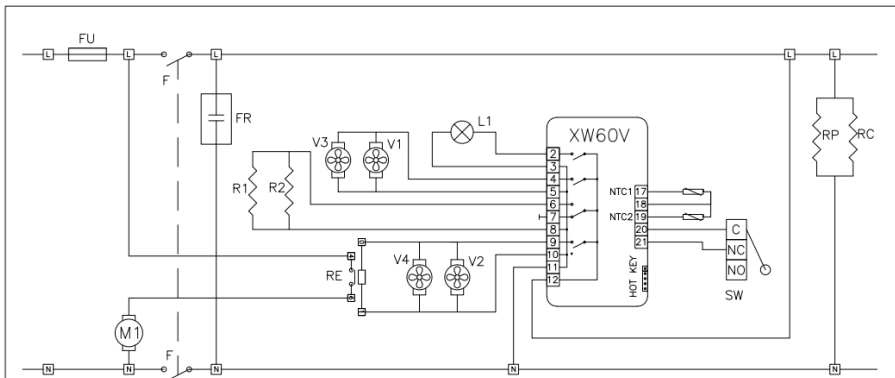
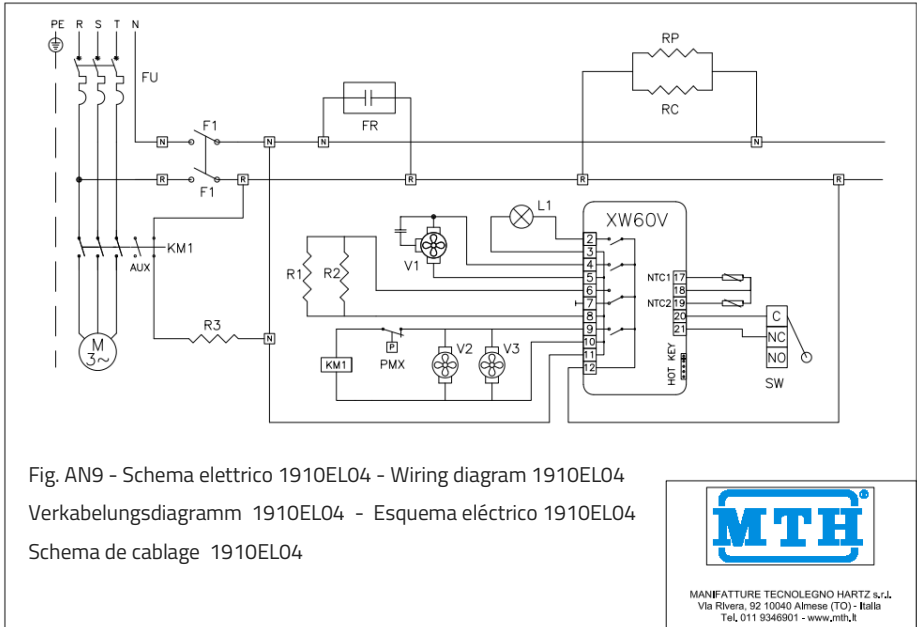


Fig. AN8 - Schema elettrico 1910EL03 - Wiring diagram 1910EL03
 Verkabelungsdiagramm 1910EL03 - Esquema eléctrico 1910EL03
 Schema de cablage 1910EL03

MANIFATTURE TECNOLEGNO HARTZ s.r.l.
 Via Rivera, 92 10040 Almese (TO) - Italia
 Tel. 011 9346901 - www.mth.it

LEGENDA - KEY LEGEND - KEY LEGENDE - LEYENDA - LEGENDE		1910E101 - 1910E101.1 - 1910E102 - 1910E103	
F	INTERRUPTORE GENERALE GENERAL SWITCH HAUPTSCHALTER INTERRUPTOR GENERAL INTERRUPTEUR PRINCIPAL	NTC2	SONDA SBRINAMENTO DEFROST PROBE ABTAUFÜHLER SONDA DE DESCONGELACIÓN SONDE DE DÉGIVRAGE
FU	FUSIBILE FUZE FUZE FUSIBLE FUZE	RC	RESISTENZA VALVOLA DI COMPENSAZIONE PRESSIO- NE BALANCING PRESSURE VALVE RESISTANCE DRUCKAUSGLEICHSVENTIL WIDERSTAND RESISTENCIA DE LA VÁLVULA DE COMPENSACIÓN DE PRESION RÉSISTANCE DE LA VALVE DE COMPENSATION DE PRESSION
FR	FILTRO RETE ELETTRICA ELECTRIC NET FILTER NETZFILTER FILTRO DE RED FILTRE PRINCIPAL	RP	RESISTENZA TELAIO PORTA DOOR FRAME HEATER TÜRRAHMENWIDERSTAND RESISTENCIA DEL MARCO DE LA PUERTA RÉSISTANCE DU CADRE DE LA PORTE
RE	RELÉ RELAY RELAIS RELEVOS RELAIS	R1	RESISTENZA SBRINAMENTO DEFROST HEATER ABTAUSTEUERUNGSWIDERSTAND RESISTENCIA DE DESESCARCHE RÉSISTANCE DE DÉGIVRAGE
L	LINEA LINE LINE LÍNEA LIGNE	R2	RESISTENZA SCARICO CONDENSA DISCHARGE PIPE HEATER KONDENSATABLASSWIDERSTAND RESISTENCIA DE PURGA DE CONDENSADOS RÉSISTANCE D'ÉVACUATION DES CONDENSATS
N	NEUTRO NEUTRAL NEUTRAL NEUTRO NEUTRE	SW	INTERRUPTORE PORTA DOOR SWITCH TÜRSCHALTER INTERRUPTOR DE LA PUERTA INTERRUPTEUR DE PORTE
L1	LUCE LIGHT LICHT LUZ LIGHT	V1/V3	MOTORI VENTOLE EVAPORATORE EVAPORATOR FAN MOTOR VERDAMPFERLÜFTERMOTOREN MOTORES DEL VENTILADOR DEL EVAPORADOR MOTEURS DU VENTILATEUR DE L'ÉVAPORATEUR
M1	COMPRESSORE COMPRESSOR KOMPRESSOR COMPRESOR COMPRESSEUR	V2/V4	MOTORI VENTOLE CONDENSATORE CONDENSER FAN MOTOR MOTOREN FÜR VERFLÜSSIGERLÜFTER MOTORES DEL VENTILADOR DEL CONDENSADOR MOTEURS DU VENTILATEUR DU CONDENSEUR
NTC1	SONDA TEMPERATURA CELLA ROOM PROBE ZELLETEMPERATURFÜHLER SONDA DE TEMPERATURA DE CÉLULA SONDE DE TEMPÉRATURE DE CELLULE		



MANIFATTURE TECNOLOGNO HARTZ s.r.l.
 Via Riviera, 92 10040 Almese (TO) - Italia
 Tel. 011 9346901 - www.mth.it

LEGENDA - KEY LEGEND - KEY LEGENDE - LEYENDA - LEGENDE		1910EL04	
F1	INTERRUTTORE GENERALE GENERAL SWITCH HAUPTSCHALTER INTERRUPTOR GENERAL INTERRUPTEUR PRINCIPAL	NTC2	SONDA SBRINAMENTO DEFROST PROBE ABTAUFÜHLER SONDA DE DESCONGELACIÓN SONDE DE DÉGIVRAGE
FU	INTERRUTTORE MAGNETO TERMICO MAGNETO THERMAL SWITCH THERMISCH-MAGNETISCHER SCHALTER INTERRUPTOR TERMOMAGNÉTICO INTERRUPTEUR MAGNÉOTHERMIQUE	RC	RESISTENZA VALVOLA DI COMPENSAZIONE PRESSIONE BALANCING PRESSURE VALVE RESISTANCE DRUCKAUSGLEICHVENTIL WIDERSTAND RESISTENCIA DE LA VÁLVULA DE COMPENSACIÓN DE PRESIÓN RÉSISTANCE DE LA VALVE DE COMPENSATION DE PRESSION
FR	FILTRO RETE ELETTRICA ELECTRIC NET FILTER NETZFILTER FILTRO DE RED FILTRE PRINCIPAL	RP	RESISTENZA TELAIO PORTA DOOR FRAME HEATER TÜRRAHMENWIDERSTAND RESISTENCIA DEL MARCO DE LA PUERTA RÉSISTANCE DU CADRE DE LA PORTE
PE	TERRA GROUND ERDE TIERRA TERRE	R1	RESISTENZA SBRINAMENTO DEFROST HEATER ABTAUSTEUERUNGSWIDERSTAND RESISTENCIA DE DESESCARCHE RÉSISTANCE DE DÉGIVRAGE
R/S/T	LINEA LINE LINE LÍNEA LIGNE	R2	RESISTENZA SCARICO CONDENSA DISCHARGE PIPE HEATER KONDENSATABLASSWIDERSTAND RESISTENCIA DE PURGA DE CONDENSADOS RÉSISTANCE D'ÉVACUATION DES CONDENSATS
N	NEUTRO NEUTRAL NEUTRAL NEUTRO NEUTRE	R3	RESISTENZA COMPRESSORE COMPRESSOR HEATER VERDICHTERWIDERSTAND RESISTENCIA DEL COMPRESOR RÉSISTANCE DU COMPRESSEUR
L1	LUCE LIGHT LICHT LUZ LIGHT	SW	INTERRUTTORE PORTA DOOR SWITCH TÜRSCHALTER INTERRUPTOR DE LA PUERTA INTERRUPTEUR DE PORTE
M3~	COMPRESSORE COMPRESSOR KOMPRESSOR COMPRESOR COMPRESSEUR	V1	MOTORI VENTOLE EVAPORATORE EVAPORATOR FAN MOTOR VERDAMPFERLÜFTERMOTOREN MOTORES DEL VENTILADOR DEL EVAPORADOR MOTEURS DU VENTILATEUR DE L'ÉVAPORATEUR
KM1	RELE' COMPRESSORE COMPRESSOR RELAY KOMPRESSOR RELAIS COMPRESOR RELEVOS RELAIS COMPRESSEUR	V2/V3	MOTORI VENTOLE CONDENSATORE CONDENSER FAN MOTOR MOTOREN FÜR VERFLÜSSIGERLÜFTER MOTORES DEL VENTILADOR DEL CONDENSADOR MOTEURS DU VENTILATEUR DU CONDENSEUR
NTC1	SONDA TEMPERATURA CELLA ROOM PROBE ZELLENTemperaturfühler SONDA DE TEMPERATURA DE CÉLULA SONDE DE TEMPÉRATURE DE CELLULE		

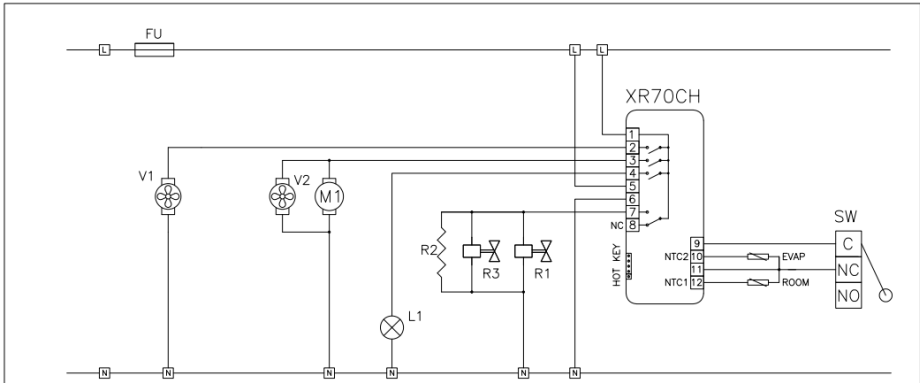


Fig. AN10 - Schema elettrico 1913EL01 - Wiring diagram 1913EL01
 Verkabelungsdiagramm 1913EL01 - Esquema eléctrico 1913EL01
 Schema de cablage 1913EL01



MANIFATTURE TECNOLEGNO HARTZ s.r.l.
 Via Rivera, 82 10040 Almese (TO) - Italia
 Tel. 011 9346901 - www.mth.it

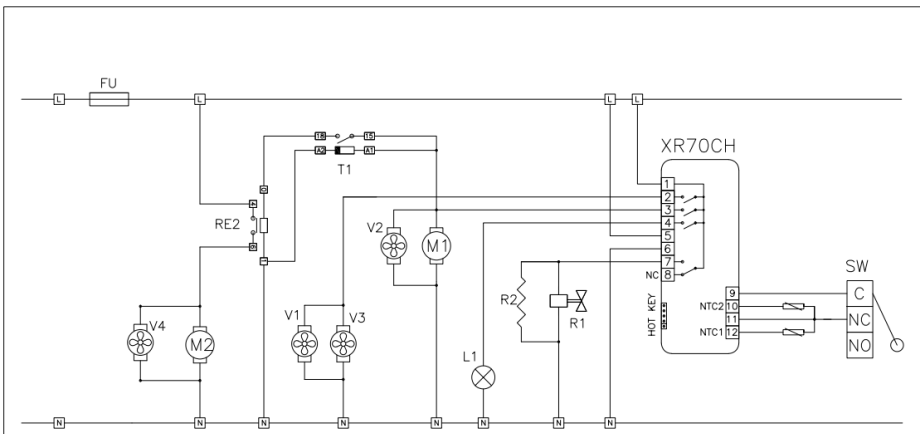


Fig. AN11 - Schema elettrico 1913EL02 - Wiring diagram 1913EL02
 Verkabelungsdiagramm 1913EL02 - Esquema eléctrico 1913EL02
 Schema de cablage 1913EL02



MANIFATTURE TECNOLEGNO HARTZ s.r.l.
 Via Rivera, 82 10040 Almese (TO) - Italia
 Tel. 011 9346901 - www.mth.it

LEGENDA - KEY LEGEND - KEY LEGENDE - LEYENDA - LEGENDE		1913EL01 - 1913EL02	
FU	FUSIBILE FUZE FUZE FUSIBLE FUZE	NTC2	SONDA SBRINAMENTO DEFROST PROBE ABTAUFÜHLER SONDA DE DESCONGELACIÓN SONDE DE DÉGIVRAGE
FR	FILTRO RETE ELETTRICA ELECTRIC NET FILTER NETZFILTER FILTRO DE RED FILTRE PRINCIPAL	T	TIMER TIMER TIMER TEMPORIZADOR TIMER
RE	RELE RELAY RELAIS RELEVOS RELAIS	R1	VALVOLA SOLENOIDE SBRINAMENTO SOLENOID DEFROST VALVE ENTEISUNGSMAGNETVENTIL ELECTROVÁLVULA DE DESESCARCHE ÉLECTROVANNE DE DÉGIVRAGE
L	LINEA LINE LINE LÍNEA LIGNE	R2	RESISTENZA SCARICO CONDENSA DISCHARGE PIPE HEATER KONDENSATABLASSWIDERSTAND RESISTENCIA DE PURGA DE CONDENSADOS RÉSISTANCE D'ÉVACUATION DES CONDENSATS
N	NEUTRO NEUTRAL NEUTRAL NEUTRO NEUTRE	SW	INTERRUTTORE PORTA DOOR SWITCH TÜRSCHALTER INTERRUPTOR DE LA PUERTA INTERRUPTEUR DE PORTE
L1	LUCE LIGHT LICHT LUZ LIGHT	V1/V3	MOTORI VENTOLE EVAPORATORE EVAPORATOR FAN MOTOR VERDAMPFERLÜFTERMOTOREN MOTORES DEL VENTILADOR DEL EVAPORADOR MOTEURS DU VENTILATEUR DE L'ÉVAPORATEUR
M1,M2	COMPRESSORI COMPRESSORS KOMPRESSOREN COMPRESORES COMPRESSEURS	V2/V4	MOTORI VENTOLE CONDENSATORE CONDENSER FAN MOTOR MOTOREN FÜR VERFLÜSSIGERLÜFTER MOTORES DEL VENTILADOR DEL CONDENSADOR MOTEURS DU VENTILATEUR DU CONDENSEUR
NTC1	SONDA TEMPERATURA CELLA ROOM PROBE ZELLENTemperaturFÜHLER SONDA DE TEMPERATURA DE CÉLULA SONDE DE TEMPÉRATURE DE CELLULE		

NOTE

A series of horizontal dotted lines for writing notes, spanning the width of the page.

NOTE

A series of horizontal dotted lines for writing notes, spanning the width of the page.



MTH srl | Via Rivera, 92 | 10040 Almese (TO) | Italy
Tel +39.011.9351580 | mthsr@gmail.com | mth.it

