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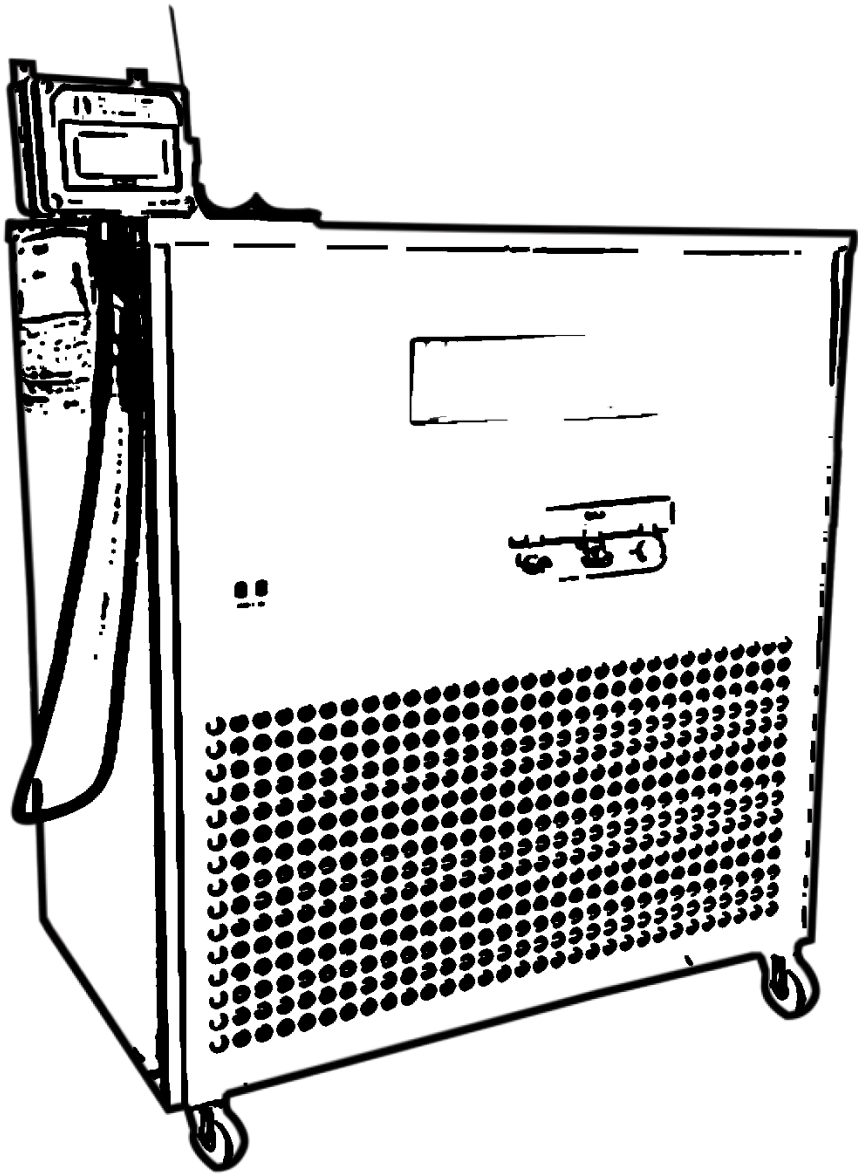
user and maintenance **manual**



CE

Continuous flow **water chiller** CWR 100D

INSPECTION TABLE

CHAPTER	DESCRIPTION	REVISION	DATE
AV	Warnings	0.0	02.07.2018
1	Technical specifications	0.0	02.07.2018
2	Operating conditions	0.0	02.07.2018
3	Operator	0.0	02.07.2018
4	Transport	0.0	02.07.2018
5	Installation of the equipment	0.0	02.07.2018
6	Start and stop	0.0	02.07.2018
7	Control panel	0.0	02.07.2018
8	General safety information	0.0	02.07.2018
9	Maintenance	0.0	02.07.2018
10	Safety pictograms on the equipment	0.0	02.07.2018

WARNINGS

1. TECHNICAL SPECIFICATIONS

2. OPERATING CONDITIONS

3. OPERATOR

4. TRANSPORT AND LIFTING

5. INSTALLATION OF THE EQUIPMENT

6. TOUCH SCREEN

7. GENERAL SECURITY INFORMATION

8. MAINTENANCE

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ATTACHMENT LIST

PREMISE

This *User and Maintenance Manual* of theWater Chiller CWR 100 RD TOUCH, contains the instructions that allow the operator to use the equipment to the best of its operational capabilities and provides all necessary information and instructions to operate in observance of the Machinery Directive 2006/42/EC.
In this chapter some warnings are reported that allow the safe use of the equipment.

The following warnings will be reproduced in more detail, which must be perfectly understood in order to perform correctly the operations indicated in the various chapters.

Its accurate design eliminates or significantly reduces any risks to the user being the operator. The robust construction of the equipment, allows for reliable and safe operation.
It is therefore possible to affirm that the Water Chiller is safe when used correctly.

The user is required to strictly follow the instructions provided herein and particularly those pertaining to safety regulations.
A single copy of the User and Maintenance Manual is provided when the equipment is delivered. If the operator is not able to keep the manual safe without ruining it, it is necessary to prepare a photocopied copy of it. In any case it is possible to contact the Manufacturer to ask for another copy.
This manual is an integral part of the equipment and must be kept safe along with the equipment with the utmost care and follow this last one in each and every eventual property passes.
Manufacturercompany will not be held liable for any inaccuracies in the instruction manual if due to printing errors or inadvertent errors..
Furthermore, the **manufacturer**reserves the right to make modifications to their machines as it deems necessary or useful without undermining the essential characteristics.

INTRODUCTION

Purpose and contents of the User and Maintenance Manual

The user and maintenance manual describes the Water Chiller CWR 100 RD. The equipment has been designed to refrigerate the water used in the production of bakery and pastry products.
The User and Maintenance Manual is a document issued by the **manufacturer**company as an integral part of the equipment relating to a specific order.

The User and Maintenance Manual and the related documentation mentioned or attached are reserved according to the regulations in force with the prohibition of disclosure or transmission to third parties without explicit authorization of the manufacturer.

For an easy consultation of the manual the Water Doserwill hereinafter simply be referred to as the "equipment".

The manual is written to put operators in a position to:

– know the equipment and use it safely and permanently;

– gain knowledge of issues relating to the equipment;

– safe working according to the specific legislation on workplace safety in force in the state where the equipment is installed.

The purpose of the Manual is therefore to provide the Customer and all staff responsible for interacting with the equipment all the information necessary for the correct use and maintenance of this equipment under optimal conditions, with particular regard to ensuring that this is done in the highest safety conditions.
In the Manual the operators will find the instructions and information regarding the use and correct maintenance from transport to demolition, together with the safety regulations and accidents prevention.
It is forbidden to use the Water Chillerin disagreement with the indications contained in this manual.
Any other use of the equipment must be previously authorized by the Manufacturer.

NOTE: The equipment may undergo upgrades or aesthetic changes and therefore present details different from those shown in the pictures or tables, without prejudice to the descriptions contained in these instructions.

General warnings

Before proceeding with the equipment starting procedure the operator has to read carefully this manual and must have vested a deep knowledge of the technical specifications and of the equipment commands.
They contain important information for:

– the safety of people involved in installation, use and maintenance;
– the safety and efficiency of the equipment;

Operation of the equipment is not allowed if there is any doubt regarding the correct interpretation of the instructions. Contact the Manufacturer or service center if further clarification is required.

Terminology used in the User and Maintenance Manual

– **DANGEROUS AREA**: Any zone next to the equipment in which a person is exposed to a risk for his safety or health.

– **EXPOSED PERSON**: Any person in a dangerous area.

– **OPERATOR**: person entrusted with using, adjustment, observing the correct running of the equipment, each within his or her own field of competence.

– **QUALIFIED TECHNICIAN**: a specialised person, employed by the Manufacturer or by the authorised service center, specifically trained and authorised to make interventions of extraordinary maintenance (of electric or mechanical nature) or repairs which require a particular knowledge of the equipment, their functioning, of the safety devices provided and of their modes of intervention.

In the following manual will be defined the tasks, the skills and the work limitations of the various operators.

Operators must not perform operations reserved for maintenance technicians or qualified technicians. The Manufacturer will not be held liable for damages arising from the failure of such prohibition.

Certain activities (such as opening the packaging, assembly, installation and starting, calibrate and initial registration, repairing, revisioning and disposal of the equipment) require the presence of qualified technicians employed by the Manufacturer or by the authorised service center.

In order to understand the instructions (text and pictures), the equipment operators must meet (or acquire, through training and instruction) at least the following requisites:

- a sufficient level of general and technical knowledge to read and understand the content of those parts of the manual that concern him/her, and to be able to interpret the drawings and diagrams correctly;

- knowledge of the main hygiene, safety and technology standards;
- know where the equipment is located inside the plant;
- know how to behave in case o fan emergency, where to find Individual Protection Devices and how to use them correctly (IPD).

Maintenance technicians must meet the same requisites and also have a good level of technical knowledge obtained by a professional qualification and/or adequate experience in their field of work.
They must also have the specific and specialized technical knowledge (mechanical, electrical) that are required for the tasks proposed in the User and Maintenance Manual.

Important!

The RESPONSIBLE FOR SECURITY inside the plant mustverify that staff actually possess the required level of knowledge to read and fully understand the User and Maintenance Manual.

Warning! All the operations involving residual risks must be carried out only after the explicit consent of theresponsible for internal security.

Searching and consulting information in the User and Maintenance Manual

The information and instructions contained in each chapter are collected and organized in paragraphs and can easily be found by consulting the index at the beginning of the Manual.
The page number belonging to the chapter in question is shown on the right side of each page.
The numbering of paragraphs is represented by two or more numbers separated by periods. The first number indicates the chapter, the following numbers indicate the paragraphs and subparagraphs in logical order (ex: 2.1.2 indicates chapter 2, paragraph 1, subparagraph 2).

Obligation to keep the User and Maintenance Manual safe

You must keep this manual and all attached documents in an easily accessible place, near the equipment, and known to all users (operators and maintenance staff).

The operators and maintenance staff must be able to quickly locate and consult, in any situation, the User and Maintenance Manual.
In case of exchange of information with the Manufacturer, or with the assistance personnel authorized by the Manufacturer, refer to the equipment serial number(see EC Declaratoin of Conformity).

THE MANUAL IS AN INTEGRAL PART OF THE EQUIPMENT FOR SAFETY REASONS.
Therefore:

- must be kept intact (in all its parts) for the whole life of the equipment.
- must follow the equipment in each and every eventual property passes until its disposal (even when moved, rented, etc.).

In case of damage, the user is required to acquire a new copy of the manual to be requested from the Manufacturer.

Managing reviews of the User and Maintenance Manual

The manual reflects the layout of the Imprint forming equipment and complies with all the regulations in force at the time the equipment was placed on the market. Therefore, the manual cannot be considered inadequate only because it is updated following repairs and/or modifications authorized in writing by the Manufacturer.

To update parts of the User and Maintenance Manual, respect the following procedure:

a) The authorised operator (Technician employed by the Manufacturer or by the authorisd technical assistancecentres) will modify one or more parts of the User and Maintenance Manual;

b)Add the modifications in the User and Maintenance Manual and make two copies: one for the Customer-user and one for the Manufacturer;

c) Update the “REVIEWS TAB” at the beginning of the Manual where is indicated:

- reviewed chapter;
- progressive number of the review;

- date of the last review.

d) Make a double copy of the Reviews Tab updated: one to send to the Customer-user and one to the Manufacturer.

ManufacturerDetails

Cooperation with the Customer

The Manufactuer is at Customers' disposal in order to:

- Givefurther information.
- Consider emprovementsaddice on the Manual.

In case of transfer, the Operating and Maintenance Manual always hasto be attached to the equipment.
The Customer is therefore asked to inform the Manufacturer on the address of the new user, so that it is possible to contact him for possible communications and/or Manual updates.

Technical Assistance

The Technical Assistance Service is available for Customers to:

- provide instructions and information;
- programmation of possible interventions at the Customer's premises, by sending specialized technical staff;
- send spare parts/components.

Requests can be made directly to the Manufacturer or to the competent assistance center; they can be forwarded by fax.

For any intervention on the equipment not provided for in this Use and Maintenance Manual, contact the Service Department of the **manufacturer** directly at the following contacts:

Phone:
Fax:

E-mail:

For any technical service or spare parts order, always quote the serial number of the equipment.

IMPORTANT!

- **the Customer is always required to buy either original parts or the ones authorized in writing by the Manufacturer;**
- **the assembly and removal of parts must be entrusted and performed by qualified technicians, and carried out in accordance with the Manufacturer's instructions;**
- **the use of non-original parts and/or defective or incorrect assembly relieve the Manufacturer of any liability AND VOID THE WARRANTY.**

Warranty

The following paragraph shows the warranty obligations relating to the general conditions of sale of the manufacturer**.**

Manufacturer guarantees that the product is free of quality defects. Products are not consumer goods and are intended exclusively for use in the industrial and professional sectors.

IMPORTANT! The warranty period for all components is 12 months from the start date and in any case not longer than 18 months from the date of shipment.

Conditions for the validity of the warranty:

1. The use of circuits that do not require cooling powers greater than the power indicated on the plate;
2. Full compliance with the rules in the User and Maintenance Manual;
3. Demonstration by the client in a documentary form of the regular conduct of preventive maintenance performed by adequately trained personnel.

Conditions of invalidity of the warranty:

1. Alteration or modification of the equipment structure or circuits;
2. Introduction in the refrigerating circuit of different gas, in quality or quantity, from the one indicated in the label;
3. Introduction to the circuit of liquids with impurities;
4. Operation of the equipment in environments with acid or corrosive atmosphere;
5. Appliance operation with temperatures higher than + 35 ° C and lower than + 10 ° C.

The warrantylapses:

1. In the case of applications where the quality of the fluids used in the hydraulic parts is not guaranteed and demonstrated. In the presence of corrosion or erosion, the customer must prove the purity of fluids, air or water used by the dosing system.
2. In the case of use of products intended for special use, that is, with use different from the standard application, for which there is no experience resulting from specific applications, such as those requested by the customer and for which the customer has not paid the study , development and tests; the indications provided by the manufacturer regarding the use and characteristics of the product are merely consultative and non-binding. For products not present in the commercial catalog, the spare parts must be purchased together with the product as the manufacturer does not guarantee a prompt availability in case of need.

For each part that is found to be defective, during the warranty period, manufacturer will, at its sole discretion, repair or replace, at its premises or in companies authorized by the manufacturer, , without charge, the faulty results components. All other expenses that may arise, with regard to removal, handling and installation will not be reimbursed by the manufacturer.

The interventions, also under warranty, requested to the manufacturer by the customer at his headquarters, will be billed according to rates in force at the time of the request. For the purposes of the warranty terms, the repaired or replaced products do not change the start and end times of the warranty.

Manufacturer provides a warranty period of 6 months for replaced components and repair work.

Return of products

The return of the returns to the **manufacturer** must be previously authorized, the return will be assigned an authorization number to be indicated on the transport document.

The authorization number of the return must be requested to the **manufacturer** exclusively by direct customers through the "Request technical assistance" form, in the case of equipment to be repaired or modified, or through the "Request return" form, in the case of equipment to be returned for accreditation, replacement, account viewing, (products whose owner will be **manufacturer's company**).

Rememberthat:

1. Unless otherwise agreed, the transport costs for returning to the company and any return of the material are charged to the customer.**Manufacturer** does not accept shipping costs for shipments made by customers in freight forwarding by non-affiliated couriers. Should such cases occur, **manufacturer** will not collect the returned material.
2. The materials must be returned via a transport document bearing the return authorization number. If you use couriers that make withdrawals through delivery notes, you are asked to enter the transport document in the packaging or to apply it on the packaging.
3. The warehouse responsible for receiving the goods will not accept material without a "return authorization number" quoted on the transport document. Returns for credit due to incorrect order or non-sale by the customer are subject to economic deduction to cover the costs of control, accommodation and administrative costs incurred by the **manufacturer**, , which may vary depending on the conditions in which the returned goods. The minimum deduction amount is 15% of the value of the asset.
4. **Manufacturer** will charge a customer 50.00 Euros as verification costs of equipment made for out-of-warranty repair in case of refusal of the estimate issued for repair. Also **Manufacturer** will return the un-repaired equipment by debiting the costs of transport to the customer.

Additional Warnings

Manufactorer cannot be indentified as responsible for injuries or damages of any kind happened to people, things or other, caused by the inappropriate use or abuse of the equipment.

The modification or deletion of parts of the equipment or the modification/deletion of the protections and safety devices provided for by the equipment, manufactured by theproducer, will lead to the loss of warranty.

All the control devices are active only if all the protections and safeties operate correctly.

General Safety Warnings

The instructions or warnings do not intend to substitute the safety norms in force, but to integrate them and encourage observance.

The operators must signal to their direct managers every possible deficiency or potential dangerous situation that may occur.

The purpose of this paragraph is to inform operator and maintenance technicians on eventual risks and dangers particularly relevant and on the general and specific precautions in order to eliminate or neutralize them.
This paragraph contains information and instructions related to:
–Dangerous situations that may occur during the use and maintenance of the equipment;

– protections, shelters and safety devices used and their correct use;

– residual risks and behavior (general and specific precautions to eliminate or minimise risks).

To clarify information, some illustrations in this Manual show parts of the equipments without protection shelters. NEVER USE THE EQUIPMENT WITHOUT PROTECTION SHELTERS.

IT IS ALWAYS FORBIDDEN TO USE THE EQUIPMENT WITHOUT SHELTERS OR DEACTIVATED PROTECTIONS.

Operator's Training

Before using the equipment, the operators (users and maintenance technicians) must perfectly know:

- The position, function and use of all commands;
- The position, function and use of all safeties;
- The characteristics of the equipment;
- The manual and how to consult it.

The unauthorised alteration/substitution of one or more parts of the equipment, the use of accessories, utensils, materials of consumption different from those indicated by the Manufacturer, may represent a risk of injury and relieve the Manufacturer from civil and penal responsibility.

Operating Area

- The installation area must NEVER be occupied by boxes, utensils or other objects, which may represent an obstacle and lead to fall. Nothing must interfere with the freedom of movement of the operators; furthermore, in case of emergency, the personnel responsible must be able to access freely and rapidly to the equipment.
- Kept dry and clean in order to avoid that the floor and platforms become slippery causing danger of slip and fall.

The operators are responsible for making the prescription respected and signal possible non-compliances.

– ADDITIONAL WARNINGS

At this point in the User's and Maintenance Manual it is useful to provide a list of general safety requirements for the most common operating situations:

- Respect the indications provided by the labels located on the equipment;
- Do not oil, repair, record moving parts;
- The maintenance interventions must be carried out only by authorised personnel and only after having set the equipment on maintenance status (see Ch. 9 "MAINTENANCE");
- At any time do not remove shelters or fixed protections while the equipment is working;

- It is forbidden to use the equipment for a purpose different from the one specifically forecast.
- No operator must be under the effect of sedatives, drugs or alcohol when carrying out tasks on the equipment.
- Always pay attention to the safety pictograms located on the equipment or the areas nearby.
- Pay attention not to leave any kind of object on the equipment.
- If not specified differently, it is forbidden to operate the equipment in explosive atmosphere environments.
- Do not tamper the electrical system of the equipment.
- Do not eliminate or move the safety protections while using the equipment.
- All the ordinary and extraordinary maintenance operations must be exclusively carried out by specialised operators and competent in the matter.
- Check that the functioning of the equipment and of all its parts, also auxiliary, does not create situations of danger to people or things.
- If any anomalies in functioning arise, immediately stop the equipment and request a technical assistance intervention.
- The use of spare parts which do not comply with the following characteristics, the alterations or even minor tampers, relieve the Manufacturer from any responsibility related to proper use, correct functioning and safety of people and things.
- The electrical connection wires must be accurately and periodically controlled.
- Always accurately clean the equipment when it is necessary for a correct and safe functioning.
- At any time respect the safety regulations in force in the country where the equipment is used.
- Dispose the working waste (possible dry waste of the water) according to the regulations in force in the country where the equipment is used.

EXPECTED USE OF THE EQUIPMENT

The equipment is designed and made to automatically refrigerate water intended to be used in mixers for bakery.
The equipment must be connected to the water supply of the factory and goes on filling a tank for the containment of water. Once filled, the water is chilled thanks to a refrigerating unit putted under the tank. The chilled water then is conducted by the outlet water tubes to the unit to be chilled.
The temperature of the water is digitally controlledby the equipment and it can be set with a digital thermoregulator installed on the control panel.

Description of the equipment

The equipment is mostly composed by:

a) Supporting frame;

b) Fixprotection carter;

c) 1 tank for the containment of water;

d) 1 refrigeratingunit;

e) 1 switchgear on the board of the equipment with a control panel.

The technical characteristics reported in the table at Chap. 1 “TECHNICAL CHARACTERISTICS”.

Using the equipmentto obtain production values that exceed the prescribed limits is considered "IMPROPER USE". Any other use of the equipment must be authorized in advance in writing by the Manufacturer. Use without this written consent is to be considered "improper use"; in this case the Manufacturer assumes no responsibility for any damage and/or personal injury and voids the warranties of the equipment and of the accessories provided.

The equipmentisdesigned and built to operate safely, if:

• it is employed within these limits;

• the operators follow the procedures of User and Maintenance Manual;

• the operators follow the conditions provided with particular attention to:

- total production limits;
- coefficient of service (hours of work per shift);

EXPLOSIVE ATMOSPHERE

This equipment is made in standard version and can therefore not be installed and used in premises where the concentration of dust may exceed acceptable limits and create potentially explosive atmospheres.

EQUIPMENT PROTECTIONS

Fixed covers

Fixed covers installed on the equipment (examples):

The maintenance technician must keep the fixing elements of the fix covers (screws, retaining nut exc…). Moreover he has to position the disassembled cover in a safe place where it can not cause any risk or danger for surrounding people.

DISPOSAL OF THE WASTE PRODUCT

In using the equipment, during the producing process,waste substances can happen and must be recollected, recover or disposed following the current laws in the country in which the equipment has been installed:

• substituted worn parts

• grease, used lubricating oils

• post-process water

In order to proceed in the disposal on these substances consult what prescribed by the Current Norms in the specific country and act consequently.

DEMOLITION AND DISPOSAL OF THE MACHINE

Once the equipment has reached the end of its technical life, it must be put out of service so it will not be used for the intended purpose and it is not possible to reuse parts and materials.
Manufacturer assumes no liability for damages to things or people arising from the reuse of individual parts of the equipment for functions other than the original.

1. *Before proceeding with demolition, it is necessary to empty the equipment from all fluids; liquids and airy;*
2. *Inform through a written communication the organisations responsible for the task, following the regulations in force in the specific country;*
3. *Disconnect the machine from any energy source and/or supply (examples: electrical, water, etc...);*
4. *Empty the water containment tank;*
5. *Dismount the machine depending on the various groups, using tools and devices that can normally be found in maintenance stores so that it can be moved and transported. Separate main components such as:*
   - ***Plastic materials, polymer based materials, etc;***
   - ***Electrical components, cables, ecc…;***
   - ***Metal parts by type, such as steel, copper, ecc…***
6. *Proceed to the disposal of the components in accordance with applicable laws and Regulations in this country.*

In case of handling, lifting or transportation of the equipment, refer to Ch. 4 “TRANSPORT AND LIFTING”.

Always remember that the toxic waste disposal is subject of specific regulations according to the country. Before carrying out any operation of this kind, it is necessary to be aware of these regulations.

Toxic waste disposal

To proceed in disposal of such substances consult what is explained in the regulations in force in the specific country and act consequently (consult the Safety Sheets of oils and lubricants)

Any irregularity carried out by the Customer before, during or after the demolition and disposal of the equipment's components, in the interpretation and application of the regulations in force in the matter, is of exclusive responsibility of the customer himself.

For any doubt or further information, contact **manufacturer**'s technical assistance service.

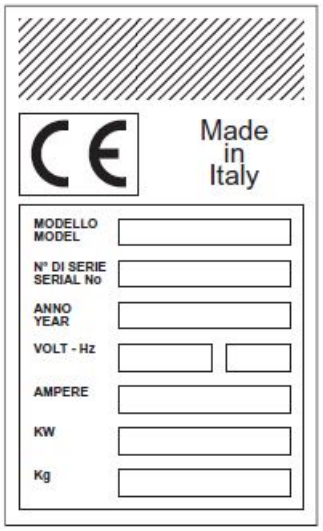
1. TECHNICAL SPECIFICATIONS

1.1 IDENTIFICATION LABEL "CE"

The following picture represents the *identification label* of the equipment it is on:

- Manufacturer data;
- CEbranding;
- Model;
- Serial number;
- Year of construction;
- Main tecnica specifications of the equipment.

The label has the **CE** symbol, which underlines the equipment certification of the main health and safety regulations on work issued by the European Community as well as the **Machines Directive2006/42/CE**.



Identificationlabel - Example

Quote the data indicated on the identification label to order spare parts and for any kind of contact with the Manufacturer (correspondence- information request)

1.1TECHNICAL CHARACTERISTICS

In the tables below you will find the technical characteristics of the equipment in Your possession:

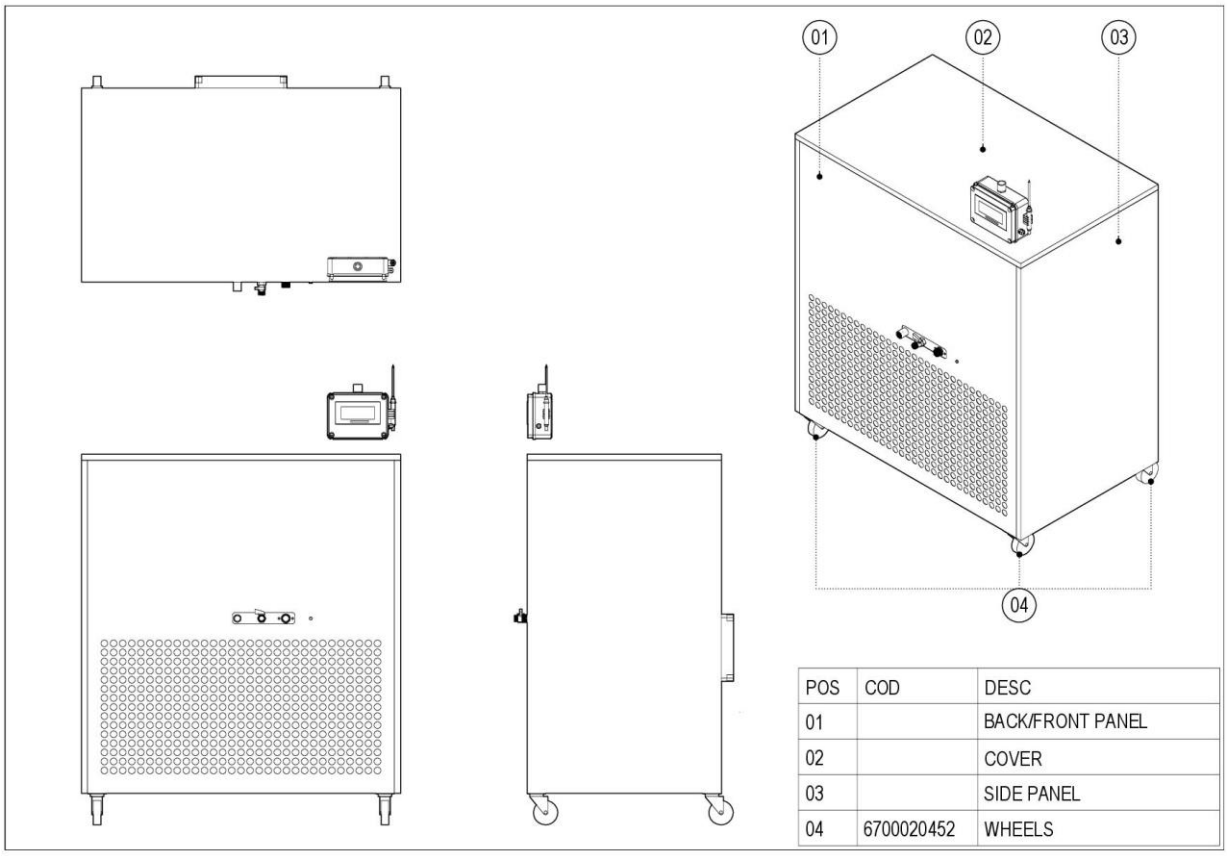
CHARACTERISTICS OF THE EQUIPMENT		
DESCRIPTION	**U.M.**	**VALUE**
Net weight	(Kg)	200
Dimensions (L x W x H)	(mm)	970 x 650 x 1150
Refrigerant gas	--	R452 A
Maximum pressure accepted	bar	30
Minimum temperature accepted	°C	+1
Maximum temperature accepted	°C	50

ELECTRICAL CHARACTERISTICS		
DESCRIPTION	**U.M.**	**VALUE**
Nominalvoltage	(V)	220
Frequency	(Hz)	50
Nominalpower	(kW)	6
Nominalcurrent	(A)	11
Current of c.c.	(kA)	6
N° phases	--	3P+N+T

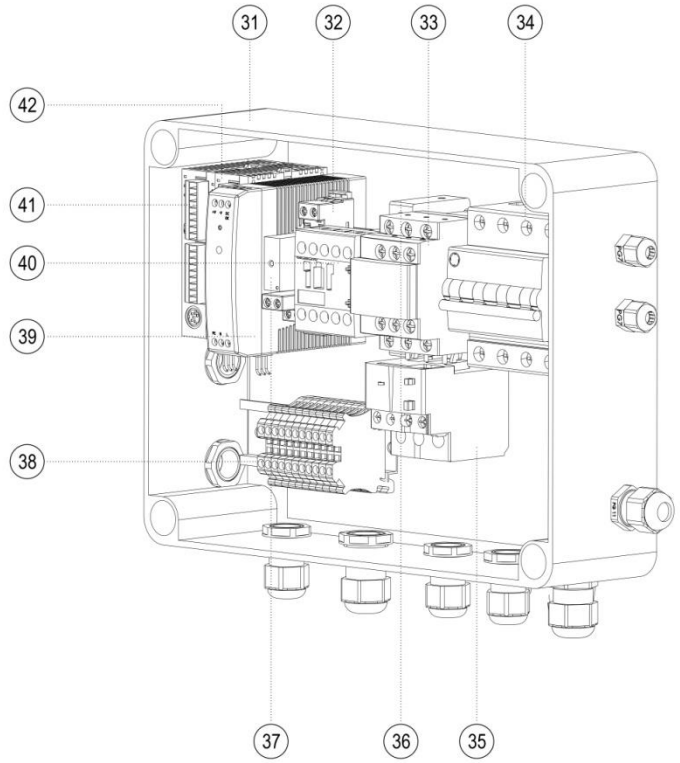
WATER CHARACTERISTICS		
DESCRIPTION	**U.M.**	**VALUE**
Too-full discharge tubes diameter	(inches)	½" F
Cold water outlet tubes diameter	(inches)	½" M
Inlet water tubesdiameter	(inches)	¾" M
Maximum inlet water pressure	(bar)	3
Minimum inlet water pressure	(bar)	1

Here below you have a representation of the equipment with a basis description of the main units and on the installed components.

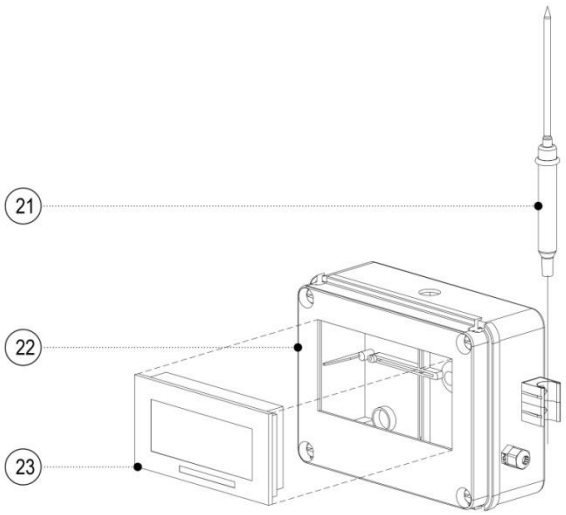
Water chiller



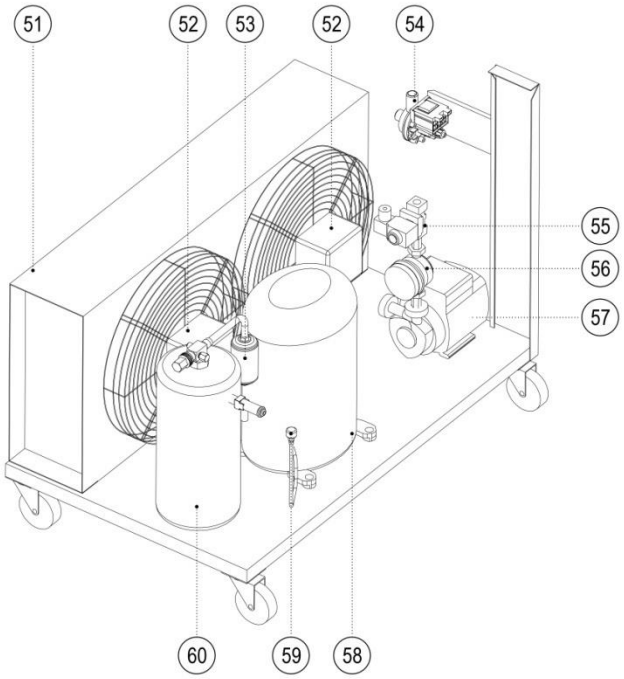
POS	COD	DESC
01		BACK/FRONT PANEL
02		COVER
03		SIDE PANEL
04	6700020452	WHEELS



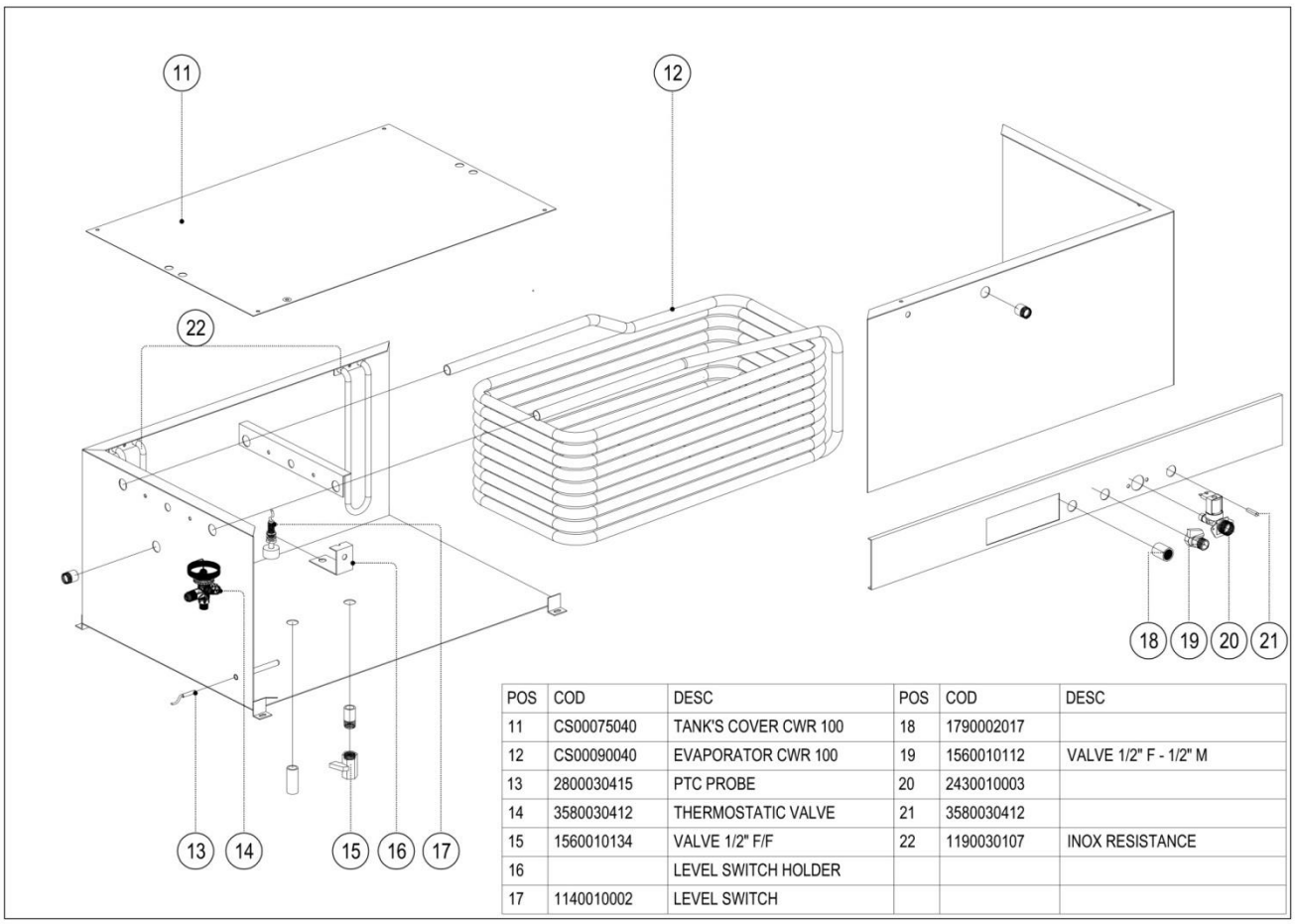
POS	COD	DESC
31	3600030120	ELECTRIC BOX
32	3600030447	SOCKET FOR RELAY
33	3600030035	CONTACTOR
34	3500030272	SWITCH
35	3600030533	THERMAL RELAY
36	1140030005	FUSE SOCKET DF 101
37	3600030446	RELAY
38	3500030298	TERMINAL
39	3500030619	POWER SUPPLY
40	3600030040	CONTACTOR
41	3500030600	PLC
42	3500030601	PLC EXPANSION



POS	COD	DESC
21	4100030445	PIERCING PROBE
22	3600030498	ELECTRIC BOX
23		TOUCH SCREEN



POS	COD	DESC	POS	COD	DESC	POS	COD	DESC
51		CONDENSER	55	6700030023	SOLENOID VALVE	59		PRESSURESTAT
52		FAN	56	1810030430	WATER METER	60		LIQUID RECEIVER
53		FILTER	57	2414000039	PUMP			
54	2430010005	RECIRCULATION PUMP	58		COMPRESSOR			



POS	COD	DESC	POS	COD	DESC
11	CS00075040	TANK'S COVER CWR 100	18	1790002017	
12	CS00090040	EVAPORATOR CWR 100	19	1560010112	VALVE 1/2" F - 1/2" M
13	2800030415	PTC PROBE	20	2430010003	
14	3580030412	THERMOSTATIC VALVE	21	3580030412	
15	1560010134	VALVE 1/2" F/F	22	1190030107	INOX RESISTANCE
16		LEVEL SWITCH HOLDER			
17	1140010002	LEVEL SWITCH			

2. OPERATING CONDITIONS

2.1 OPERATING ENVIRONMENT

This kind of equipment must operate exclusively in closed environments.

The area defined as “respect of the operator area” must be as dry and free from obstacles which may obstruct the normal movement of the operator during all phases of ordinary and extraordinary work of the equipment as possible.

2.2 SAFETY DISTANCE

It is necessary to provide a *respect area* on the anterior side of the equipment for at least 800mm in order to allow a comfortable execution of the starting and control of the equipment work execution.

2.3 CHARACTERSTICS OF THE OPERATING ENVIRONMENT

This equipment has been designed and manufactured to operate compulsorily in the following environmental conditions:

1. Environmental temperature of the room, between **+10 °C e +35 °C**.
2. Maximum relative non-condensed humidity: **75 %**.
3. Height: **1000 m s.l.m.**

2.4 LIGHTING IN THE OPERATING ENVIRONMENT

The place where the equipment works must have sufficient natural light, in order to guarantee to the operator an adequate visibility both for normal operations of the equipment and of maintenance nature. This facility must also be equipped with devices that can provide suitable artificial lighting for the aforementioned purposes (at least 150 lux).

The lighting system in the facility must be compliant with legislation in force in the country where the equipment is installed.

In any case the lighting must always be uniform and must guarantee a good visibility on any point of the equipment, without creating any dangerous reflection and allowing a clear vision of the control panel.

Lighting must permit the safe realization of the maintenance interventions specified in the present manual. As for the interventions in particular zones (such as internal zones of the equipment), it could be necessary the use of a local lighting tool.

Moreover you must remember that the local lighting tools can not represent another source of risk.

2.5 VIBRATIONS EMISSION

The equipment does not spread on the ground vibrations that may:

A. compromise the stability of the equipment or of the single components/devices that compose it;

B. compromise the precision of possible devices or other equipments placed nearby.

C. cause harm directly or indirectly to the health of the operator or to the people in proximity of the equipment.

Possible irregular vibrations may be caused by a breakdown of mechanical nature (as loosing flanges, belts etc.). such breakdown must be immediately signaled and eliminated not to compromise the safety of the equipment.

In this case it it necessary to intervene according to the instructions contained in this Manual (in particular see Ch.9 “MAINTENANCE”). If the phenomena persist, immediately contact the Manufacturer or the assistance centre indicated in the chapter “WARNINGS” and stop the equipment operation until the problem has been resolved.

2.6 NOISE POWER EMISSION

The equipment has been designed and manufactured in order to significantly reduce the level of noise power emission at the source. Although there is a relation between levels of emission and levels of ex position, this cannot be used in a reliable way to establish if further precautions are necessary or not.

The factors determining the ex position level to which the work force is subject include the duration of ex position, the operating environment characteristics and other noise sources (quantity of equipments, adjacent processes etc.).

Furthermore, also the allowed levels of exposition may vary according to the country of destination of the equipment. Anyway, the quoted information will allow the operator of the equipment to carry out a better evaluation of the danger and risk he is exposed.

To respect the regulations in force, it is the Consumer-user duty to carry out the acoustic pressure measurements before starting the equipment's operation.

The measurements must be carried out in the effective environmental conditions of operation and in the worst operation hypothesis of the equipment.

The noise emission level can be evaluated referring to the comparing data of similar equipment emission.

WARNING! Changing material or conditions o fuse the values of acoustic power change.
Possible abnormal noises reveal problems of mechanical nature (like flange or belts loosing etc.)

In this case, it is necessary to intervene according to the maintenance instructions contained in this manual (in particular, see Ch. 9 "MAINTENANCE"). If the phenomena persists, immediately contact the Manufacturer or the assistance service centre indicated in the chapter "WARNINGS" and stop the equipments operations until the problem has been resolved.

2.7 EMISSIONS IN THE ATMOSPHERE

During the normal cycle of operation the equipment does not generate dangerous emissions (gas, fumes, dust, etc.) to the health of the operator.

2.8 RADIATIONS

During the normal cycle of operation the equipment does not generate electromagnetic field with high frequency, nor radiations dangerous to the health of the operator.

3. OPERATOR

This chapter is an informative and precautionary source of the technical prudence that the operator must follow during the equipment functioning (set up, start and stop) and during maintenance.

Since the equipment is installed and used at the same time with other equipments in the same operational area, everyone who use it must be aware of the precautions showed in this section.

Furthermore, all the dispositions related to the operation of the working equipments established by the regulations in force, must be followed.

The operator authorised to use the equipment must be:

- Suitable for the task according to the regulations in force;
- Psychologicallybalanced;
- responsible;
- trained on the measures for injuries prevention;
- trained on the knowledge and use of the equipment.

3.1 OPERATOR'S TRAINING

It is a Manufacturer's duty, when delivering the equipment, to provide the user with the necessary information to a correct and safe use of all machine parts.

In particular, the user must have knowledge to carry out the procedures contained in this Manual safely and wear the Individual Protection Devices established by the safety on the workplace regulations in force

The User and Maintenance Manual is a fundamental document in order to operate in absolute safety conditions, therefore reading its contents is **MANDATORY before using the equipment.**

All the operations described in this manual may lead, if wrongly executed, to risks for the exposed people safety.

The unauthorised personnel must stay out of the area of work during the operations.

Never intervene, unless explicitly requested, to eliminate a breakdown, to regulate or re-place a safety device; their tampering may provoke serious damages to the equipment.

3.2 WORKWEAR

The operator must wear an adequate workwear for the operations required by the equipment.

During the USAGE of the equipment it is essential:

- **overall**
- **safetyshoes**

During all MAINTENANCE operations on the equipment it is essential to use:

- **gloves**
- **overall**
- **safetyshoes**

3.3 COMMAND AND CONTROL POSITION

The command and control position of the equipment is expected in front of the front control panel.
This position allows the user to carry out the command functions and monitor the correct functioning of the equipment at the beginning.

Operator's position (front side)

Mounting on parts of the equipment while it is operating is strictly forbidden

For the set up and start of the equipment only **one** operator is enough.

The constant presence of the operator during the equipment's functioning is not expected. However, monitoring the first minutes of operation of the equipment is always suggested, with particular attention to any abnormal situation that may occur (abnormal noises or vibrations, water losses etc.)

In this case, immediately stop the equipment and activate the maintenance service to identify the breakdown. NEVER OPERATE THE EQUIPMENT IN CASE OF ANOMALIES.

3.4 GENERAL TASKS

3.4.1 Operator

The operator's main task is to start and stop the equipment. Furthermore, it is his duty to periodically monitor the correct functioning of the equipment.

The operator must have knowledge of possible anomalies, malfunctions or conditions of danger for himself or other people and at all times has to follow the following prescriptions in the indicated order:

A. immediately stop the equipment pushing the main switch;

B. never carry out interventions regarding tasks not included in your own tasks and technical knowledge;

C. immediately inform your manager avoiding taking personal initiatives.

The operator always has to make sure that, during the maintenance phases, the maintenance technician operates on the equipment in safety conditions.

Furthermore, it is the operator's duty to keep the equipment clean and make sure there are no ruined or damaged parts (in the event, immediately ask for the maintenance technician's intervention) or not well-fixed (intervene as long as it is part of your abilities)

The operator is therefore not exposed to risks if he follows:

– the expected use of the equipment;

– the work areas;

– the procedures described in the User and Maintenance manual.

3.4.2 Qualified personnel

With the term "qualified personnel" is meant personnel aware of the installation, assembling, fixing and equipment service modalities who has a specific technical qualification, for instance:

- a technical training that authorizes to operate according to the safety standards related to the dangers that the presence of electricity, circuits under pressure, etc may represent;
- A technical or specific training on the safe use and maintenance procedures of the equipment;
- A training on the basic first aid interventions.

3.5 AUTHORIZED TO WORK AND INTERVENE ON THE EQUIPMENT OPERATORS' CATEGORIES

Here below you will find the list of the categories of operators that are authorized to work on the equipment for productive aims, or intervene for maintenance reasons.

3.5.1 Users

This category of operators must be trained and authorized to operate on the equipment.

Expectedtasks:

- Starting of the equipment;
- Equipment'sordinarycleaning;
- Supervision of the right functioning of the equipment;
- Equipment's stop.

3.5.2 Ordinarymaintenancetechnicians

Educated and authorized operators (technicians) for making ordinary maintenance interventions, respecting each one's competences (mechanical or electrical):

- **Mechanical maintenance technicians**: Maintenance technicians educated and authorized to intervene on the mechanical parts and on the fluid, liquid and gaseous systems.
- **Electrical maintenance technicians**: Maintenance technicians educated and authorized to intervene on the electric and/or electronic parts, devices and systems.

They are authorized to use, clean and make the ordinary maintenance, that is:

Tasksduring the functioning:

- Reactivate the normal using conditions after a breakdown stop;
- Verify the right functioning of the equipment and of the work cycle;
- Makeusualoperator'sinterventions.

Expected tasks during the maintenance phase:

- Check of the elements particularly worn and substitution of them.

Specialized and qualified technicians (linked to the Manufacturer or to the authorized assistance centre) authorized and educated to make extraordinary maintenance interventions and the complex and/or dangerous operations.

During the use,maintenance and/or dismantling they make:

- Fixing interventions on electric and/or mechanical breakdowns;
- Substitution of worn or broken parts;
- Substitution of safety components and systems;
- Possible interventions on the electric part (essential just in case of breakdown);
- All the typical interventions of the ordinary maintenance technicians and of the conductors (on the contrary an ordinary maintenance technician can not make any task consigned to an extraordinary maintenance technician).

We remind you that the area used for the installation of the equipment has to be closed to the passage of people or means of transport (forklifts or similar).

3.6 EXPOSITIONS TO DANGERS AND RISKS CAUSED BY THE MATERIALS

The materials the equipment is made of do not create any risk or danger for the operators.

The residual materials of the maintenance operations and/or interventions can, on the contrary, represent a danger for the location, if not treated accurately:

- Exhausted lubricants (possibly contact the disposal consortium);
- Substitutedwornparts;
- post-process water.

These materials must be recollected and disposed of respecting the current laws in this field of the country in which the equipment has been installed.

3.7 OPERATORS EDUCATION

The manager, the directors and the people in charge, in their specific competences and responsibilities, guarantee that each operator receive a sufficient and appropriate education about safety and health, linked in particular to their own workplace and tasks.

The education must happen at:

- the installation;
- the moving or change of tasks;
- the introduction of new equipment or new technologies, new units or complete lines.

The education must be periodically repeated related to the evolution of risks, that is the uprising of new risks linked to new configurations of the equipment or its components.

4. TRANSPORT AND LIFTING

In the following table you will find a list of the dimensional characteritics of the equipment in Your possession:

EQUIPMENT CHARACTERISTICS		
DESCRIPTION	**U.M.**	**VALUE**
Weight of the equipment	(Kg)	200
Dimensions (L x W x H)	(mm)	970 x 650 x 1150

4.1 GENERAL PREVENTIVES

Lifting, moving and transport operations must be consigned exclusively to expert operators in this field (lift-truck driver, signalman).

The operators must also be:

- educated on the disposition of the equipment to be lifted, on the operations to be done and on the methods expected by the Manual of Use and Maintenance;
- authorized;
- be able to make the operations respecting the methods specified in the manual itself.

WARNING! During the interventions the assigned operators must wear individual protection means, helmets, gloves, safety boots, and working overalls or other possibly demanded by the current norm means, respecting the disposition of the operations to be accomplished.

WARNING! The operators must respect the limitations and bans provided for by the current norm about the lifting and transport operations; between the others we remind the following general behavioural rules:

- move from the load before the lifting and lowering;
- do not stop under the hanged loads;
- forbid the access to people not involved in the operations;
- during the operations keep the safety distance from the hanged load.

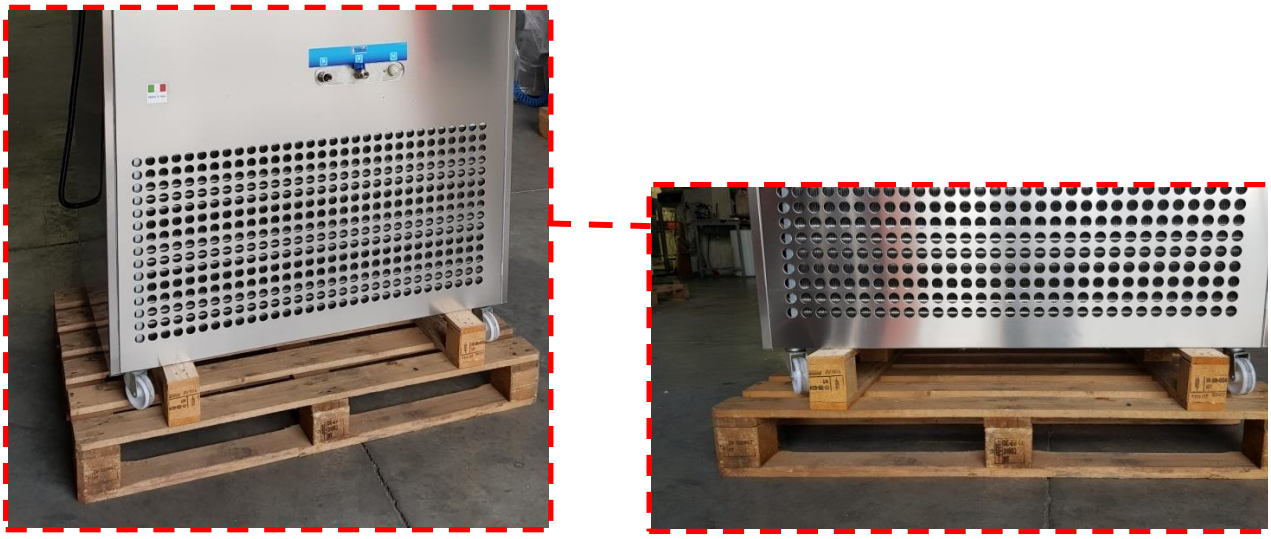
WARNING!To ignore these cautions, specified in the previous points, can cause serious accidents and/or injuries with consequent damages to the equipment and lesions to the operators .

In the most serious cases the accidents CAN CAUSE THE ASSIGNED OPERATORS' DEATH.
The operators must have understood the moving directions:

- Verify weight, dimensions and lifting points;
- Identify the lifting and moving points;
- Arrange a delimited and appropriate area, with plan flooring or base, for the equipment's discharge and setting down operations;
- Potential accessory units can be moved by hand respecting the safety national norm of the country in which the equipment is installed and used (in Italy 25 Kg for men, 15 Kg for women and male teenagersand 10 Kg for the feminine teenagers);
- Choose an appropriate lifting and moving mean minding the load to be moved, its dimensions and its lifting points;
- Make a first very slow lifting manoeuvre to verify the right balance of the load;
- Do not make any swinging during the moving;
- Discharge gently the load on its installing location.

4.2 MOVING AND LIFTING

The equipment has been designed and assembled in order to be moved without any damages caused by means of transport (fork lift-trucks).



Positioning of the chiller on the pallet (example)

The equipment is provided already completely assembled, fixed on the pallet and wrapped in a wooden or paper box.At the delivery verify that the equipment have not been damaged during the transport and the presence of all the components specified in the shipment list, including:

- The Manual of Use and Maintenance;
- The CE Declaration of compliance;
- The Circuit diagram (attached to the Manual of Use and Maintenance).

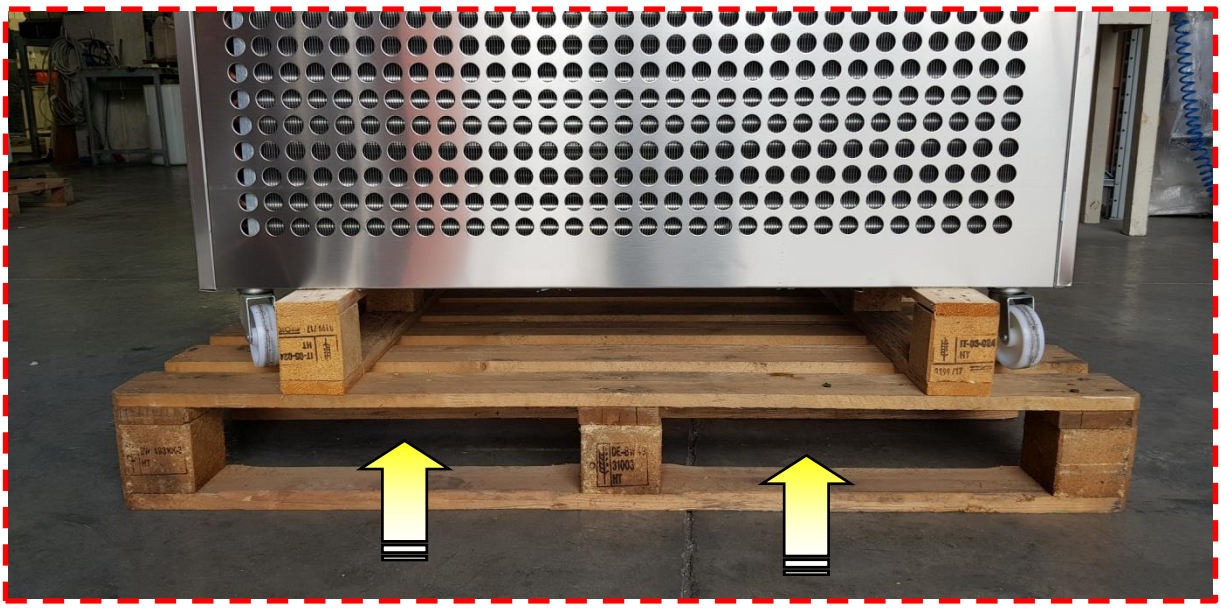
The supply is deeply analyzed before the shipment; by the way we suggest you to verify its integrity at the delivery.

Using the fork lift-truck it is essential to verify that the equipment has been well fixed in order not to glide, overturn or fall from the charging plan of the lifting mean.

4.2.1 Moving and placement

Pay attention to the position of the forks that have to be inserted, under the pallet used, in the points specified in the picture below. The forks must always stick out from the pallet's opposite crossbeam.

Points of insertion of the forks (examples)



WARNING! The means used for the moving have to be suitable for the lifting of the unit, minding:

- shape and dimensions;
- mass (weight) and its distribution;
- the expected points of lifting .

WARNING! Arrange the means of lifting in order to avoid impacts and/or pressures on the protruding parts (expecially on the control panel ecc.).

WARNING! Assign this procedure to weel-trained employees (lift-truck operators,hook-up personal ecc.). Flank someone for the warnings, as the footprint of the unit in movement could obstacle the view of the shunter. m

CHECK THE CONDITION OF THE MEANS OF LIFTING AND THEIR PAYLOAD.

USE A FORK-LIFT TRUCK WITH THESE CHARACTERISTICS:

– payload: 2.000 Kg

– fork'slenght: 2.000 mm

WARNING! EMPTY THE TANK BEFORE ANY OPERATION OF TRANSPORT OR MOVEMENT.

<u>During the use of the lift truck the operator has to:</u>

- Verify that the unit is balanced.
- Lift the unit enough to make the move.

WARNING! In no way the unit can be hang, transported, stored or located in an oblique position.

4.3 STORAGE

If the equipment is not installed in a short time, but it will have to be stored for a long time, use for the storage a place appropriate in order to guarantee the level of protection of the components installed.
In particular it is necessary to:

- Verify that the surface on which the machine will have to be put is totally plan and able to safely sustain it.
- Put always something between the floor and the equipment, wooden platforms or in other materials in order to avoid the direct contact with the floor;
- Accomplish a very accurate cleaning of the equipment and seal the machine inside a multilayer opaque nylon sack inside of which you will have to put a desiccant (silica gel). Cover the machine with a plastic material sheet in order to repair it from dust, humidity or other elements that could alter the right functioning;
- Establish the right spaces for the movements and the monoeuvre in order to let the employees make the operations of liftingcomfortably and safely.

Manufactorer refuses any responsibility for possible damages to things or people caused by the ignorance of the security laws in force about the lifting and moving of materials inside or outside the factory.

4.4 SHIPPING

The shipping of the delivery can be done choosing between the following options:

a. Transport on wheels (truck).
b. Plane transport.
c. Maritime transport.
d. Rail transport.

The choice of one of these solutions will be agreed during the contractual phase between the provider and the buyer.

4.5 DELIVERY CHECK

When the equipment will be delivered verify the integrity and the absence of any evident damages of the equipment's parts.

Check especially the good condition of:

- Protections and covers;
- Elements and pipes;
- Metallicsurfaces;
- Screw, bolts and pipe fittings' tightness.

In case of possible damages, the reception of the transported material will be done with terms as it will be necessary an integrity check. Before starting any intervention check the equipment's parts and, in case of damages, contact immediately **manufacturer.**

In case you will spot any damages or imperfections:

a. Inform immediately the courier and your agent, by telephone and by written notification with a delivery notice;

b. Inform manufactorer as explained before addressing the correspondance to:

Potential damages, caused for any reason by the transport, could hurt people and things in addition to an imperfect functioning of the equipment. For this reason we exhort the Costumer, or anyone in the stead, to make an accurate examination before the placing and the start.

The notification of potential damages or anomalies and not accordance with the packing list information has to be timely and in any case be done in 8 days from the delivery date. If this will not happen the equipment will be considered accepted.

5. INSTALLATION OF THE EQUIPMENT

5.1 PREPARATION FOR THE INSTALLATION

The operations of installation and the setting of the equipment must be done by qualified technicians expressly authorized by the manufacturer,and by the costumer himself.

It is using costumer's duty to set the water and electricity supplies. The power supplies have to be designed and dimensioned in order to guarantee the right functioning of the equipment.

For the installation it is necessary to prepare an area suitable for the equipment, minding the possible obstacles (other units, walls or similar) around the area in which the equipment will be moving.
The list of the technical information in this manual, provides the information necessary to calculate the electricity and water supplies needed to make the equipment work.

The electricity supplies have to be done by the using costumer respecting the directions of the current laws about the place of installation and they have anyway to:

- Be done with cables witha suitable section for the power needed by the equipment to work (right dimensioning);
- Must involve a secure and efficient undergrounded power supply;
- Must present a separation and automatic protection system to prevent dispersion, ground discharges, short circuit.

The electric connection can be done connecting the supply cables of the equipment to a suitable industrial threephase electrical plug. After this it is necessary to connect the plug to an industrial's factory monophasesocket.

This operation has to be done by employees specialized in electrical settings. Always refer to the wiring diagrams.

The factory's hydraulic system has to be appropriate for the characteristics of the equipment (see Chap.1 "TECNICHAL CHARACTERISTICS").

If these directions will not be respected, manufacturer will not be responsible of any potential damages to the equipment or to next services not following the technical directions provided.

5.2 WORKPLACE

It is up to the user to set a suitable place for the installation of the equipment respecting the conditions provided by the Community directives that rule the safety in the workplace.

For this reason it is necessary to:

- Verify the solidity of support surfaces,that has to be appropriate to sustain the weight of the full-charge equipment.
- Delimit the working area in order to avoid the passage and exposure of people in dangerous areas.

More over the location must :

- Have appropriate safety ways out;
- Be easily cleaned in order to guarantee appropriate hygienic conditions;
- Be well aired (good natural or artificial air flow);
- Have appropriate natural and artificial lighting in order to safeguard employees' security, health and wellness.

Choose a factory area suitable for the installation of the equipment verifying in particular:

- The presence of appropriate control and work stations.
- The ease and practicability of the escape routes in case of emergency.

It is necessary to mind:

- The related positions of the other units;
- The functional orientation of the different units;
- The possibility to make the connection to the power (electric, water) supplies.

WARNING! The location of the installation and the workplace can not present concentration of dust that could create a risking deflagration atmosphere as the equipment is not made with an AD setting (antideflagration).

5.3 WORKPLACE

The directions below are refered to both the employees supposed to use the equipment and the employees in charge for the ordinary/extraordinary maintenance of it.
The dimensions of the room have anyway to permit the respecting of the minimum distance in order to work in security, that is **800 mm**allaround the perimeter of the equipment.
This distance is necessary to permit the use(start and stop) and maintenance of the equipment.

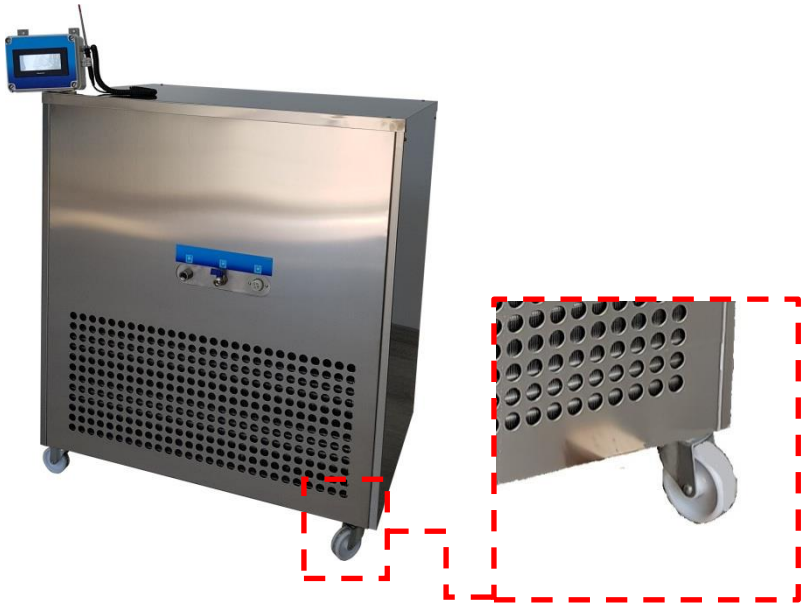
Verify that what suggested about the perimeter's security space complies with the directions of the current legislation in the place in which the equipment is installed.

WARNING! The areas around the equipment in which it is forbidden for people or handling equipment to transit, have to be identified and delimited with systems like:

- **Yellows stripes on the floor;**
- **barriers;**
- **other systems allowed by the current legislation of the country in which the equipment is installed.**

5.4 PLACING AND INSTALLATION

The placing of the equipment is basically about the **placing on a plan surface** of it and the **connection of consumers** (electric power and water supply) following the instructions of the Manual of Use and Maintenance.
The electric cables always have to be labeled with brands and checks, next to the wiring plans given in attachment, in order to avoid mistakes during the phase of assembly.
The characteristics of the water connections are described in Chap. 1 "TECHNICAL CHARACTERISTICS".



Revolving wheels

In some cases, for transport needs, some parts can be shipped disassembled from the group on which they have to be assembled. When possible the disassembled parts will be marked with the same sign of their group and will be specified on the shipping documents.

5.5 ELECTRIC CONNECTION OF THE EQUIPMENT

The Connection of the equipment to the electric supply has to be done by a qualified electrician respecting the current norms of the country in which the equipment will be used.

Respect diligently the Wiring plans attached to this manual in all the operations of: connection, setting and maintenance.

The information about the electric supply must correspond to the ones specified in the identifying label and to the ones shown on the list of the technical characteristics that you can find in the first part of this manual.

Pay attention in making the grounding system that must respect the characteristics of the current laws in the country in which the equipment will be installed.
THE GROUNDING SYSTEM IS AT THE EXPENSES OF THE COSTUMER.

Before making the electrical connection, verify that the on-load switch is turned off (line not supplied), so:

a. verify that the switch is in "O" position.
b. Connect the cable R (L1)-S (L2)-T (L3)-PE (N) to the right terminals of the threephase industrial power outletpaying attention to the level of protection.
c. Connect the green/yellow cable of grounding to the equipotential terminal in the switchgear ⏚.
   If necessary, connect the electric cable to the terminal N (see wiring diagram).

After having made the electric connection of the plug, make the electric connection of the equipment by inserting the plug in the socket of the factory.

Threephase power outletand example of plug with disconnecting switch

For detailed information about the connection, the connection to the general supply, the section of the cables and the current absorption, check the wiring plan attached to the Manual of Use an Maintenance.

WARNING: The equipment has to be protected by a circuit breaker of appropriate capability. The circuit breaker is an electrotechnical system able to interrupt the circuit in case of fault towards the ground (electric dispersion) or ground-phase electrocution living protection also to direct or indirect electric macro-shock. It does not offer protection face to overcurrent or short circuit between phase and neutral, for the ones it is necessary a thermal-magnetic circuit breaker.

BAN: It is forbidden to connect the equipment to a power supply not protected by a circuit breaker.

5.5.1 INTERVENTIONS

All the interventions on electrical systems can be done exclusively by competent and qualified employees respecting the local current directions in this field. The manufacturer company does not take any responsibilities about the connection of electrical supplies.

ONLY THE ELECTRICIANS CAN OPEN THE DOORS AND MAKE OPERATIONS OR FIXINGS.

N.W.:
Before connecting the equipment to the main supplies you need to:

- Verify that the cables and the connections are perfectly intact, so that they have not been damaged during the assembly operations.

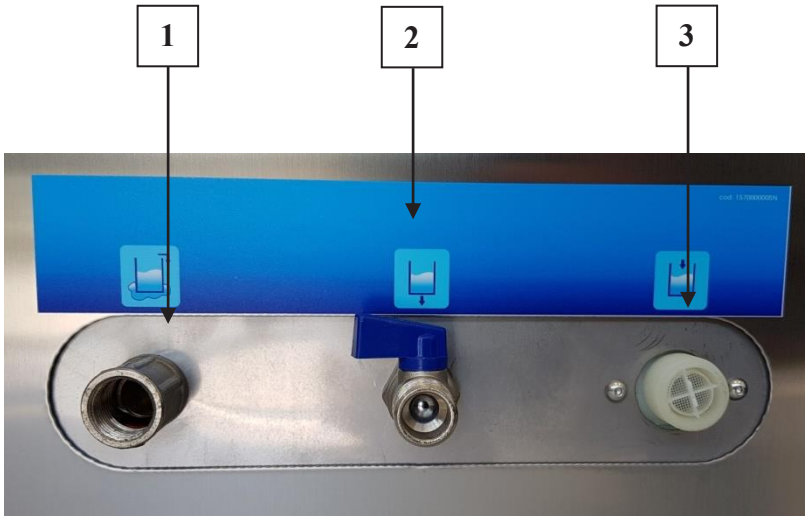
Verify that all the electric connections have been done correctly following the representations and drawings present in this manual.

5.6 WATER CONNECTION OF THE EQUIPMENT

The connection to the water supply is on the costumer, that will have to prepare the connection to the water supply **n.3** (enter), to the chilled unit **n.2** (inlet) and to the system of discharge of water **n.1** (inlet).
For the connection use adaptors for screws of the right diameter (check chap.1 "Technical Characteristics") with a sealant system in order to avoid leaks (seals, teflon tape, etc.).

The equipment must be filled with drinking water. We suggest you to install a filter on the line of the water entering (not provided) in order to reduce the concentration of limestone and salts that could damage the unit by creating fouling and accumulation.

N.W.: The tubes connected to the factory line and the connectors are not provided with the unit.



Hydraulic connection

If not already present, it is suggested to install a manual shut-off valve (not provided) on the inlet line of the water or in proximity of the equipment.
The tubes must not present any shrinkage or bottleneck.

The connection has to be done respecting the diameter of the connectors already present on the unit as specified in chap.1 "TECHNICAL CHARACTERISTICS". Do not connect the equipment with temporary and unprofessional systems (electrical tape, etc.).

5.7 REFRIGERANT GAS CIRCUIT

The equipment is shipped already charged with refrigerant gas.
The gas R-452A is a mixture not azeotropic from hydrofluorolefin (HFO) and hydrofluorocarbons (HFC) family that reduce the impact on the environment of the 45%.
It is a fluid not flammable and not toxic.
During the phase of installation verify the right quantity of gas needed to make the unit work (check the label of identification on the unit board).
DO NOT INSERT FLUIDS DIFFERENT FROM THE ONE SPECIFIED FROM THE MANUFACTURER.

5.8 PRELIMINARY CHECKS

Before using the equipment read diligently all the instructions of the Manual of Use and Maintenance and check visually the state of the unit.
Moreover it is necessary to :

- Check that the voltage corresponds to the one needed for the unit to work;
- Check that the covers for the accident protection are well positioned;
- Check that all the screws are well tightened;
- Check that the central line of water distribution guarantee the amount of water needed;
- Check the connection to the grounding system of the factory.

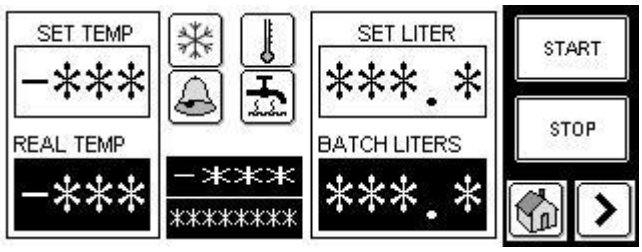
5.9 TEST

The equipment has already been tested in **manufacturer**'s factory, where all the mechanic calibrations and the dimensional settings have already been done.

For the right installation, do not forget to follow the geometric characteristics prescribed during the designing and defined in the mechanical drawings.
These characteristics must be diligently respected by the technicians in charge of the assembly.

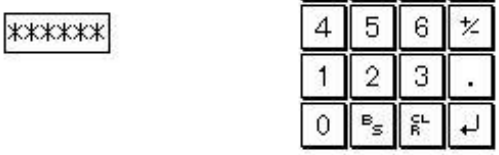
6 TOUCH SCREEN

6.1 START



Home page

with this page, touching relative fields appears numeric keyboard



With this you can set up**SET TEMP**and desider liters **SET LITER** necessary for the recipe,hisname, if you stored, is shown in the center , below the display of temperature detected by manual probe **PROBE°C** .

symbollow water level

symbolindicates that water cooling is in progress

symbol indicates that water heating is in progress

symbol indicates that there is an alarm in progress

REAL TEMP : shows the real water temperature inside the tank

BATCH LITERS : displays liters during the dosing

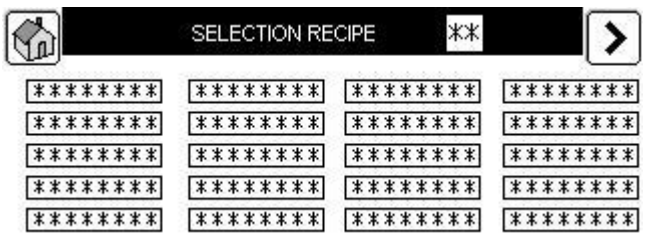
START start dosage

STOP stop dosage and

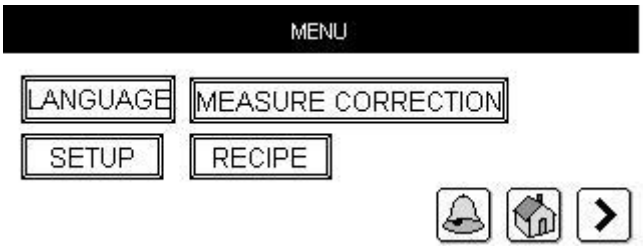
if you press it 2 sec.you can reset the value set in **SET LITER**

Press **RECIPE** you can go on the page where it isdisplayed

SELECTION RECIPE

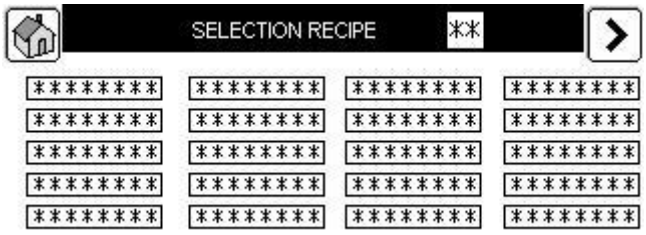


Press to change page . On Home Page you can go to **MENU**

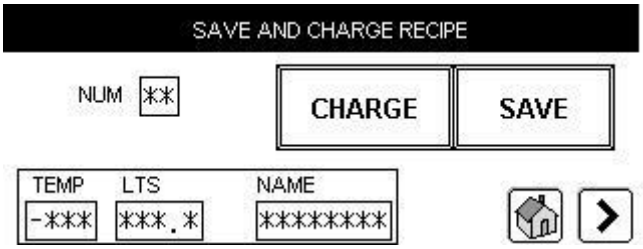


Touching desciption keys are accessed under management menu for the desired function.

6.2 SELECTION RECIPE



Press name on the recipe list to open the page

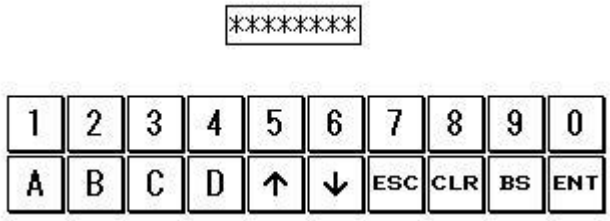


For charge recipe press **CHARGE**

6.3 SAVE AND CHARGE RECIPE

On page**SAVE AND CHARGE RECIPE** it is possible to save a recipe previously set on the Home Page.

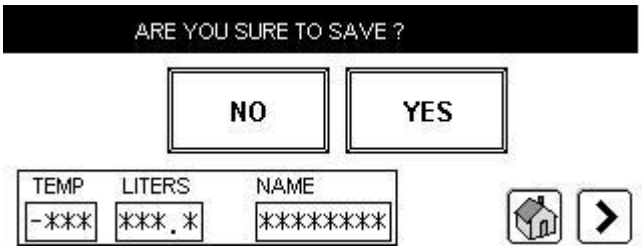
To name , press **DESCRIPTION** show number key



you can write name of recipe

,

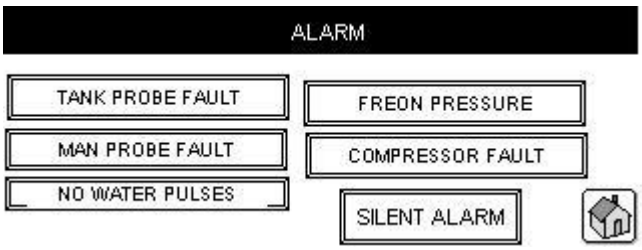
then press **SAVE** and show page for confirm



Press **YES** for save **NO**for come back

6.4 ALARM

In case of failure of a component, it will show the symbol ,press it and go to page ALARM . In this page you show list of anomalies



7. GENERAL SECURITY INFORMATION

Before starting any operation of maintenance on the unit, it is necessary to interrupt the ele supply . Electricity and water combined together can constitute a danger, mortal in cas inappropriate charges on the unit.

Hang warning labels close to the general switch (ex. Equipment in maintenance – do not i supplies).

7.1 GENERAL WARNINGS

- The failure connection of the equipment to the ground can cause damages to people. Al verify the presence of the connections to the ground and their respect of the specific nor
- Always avoid the use of flammable or toxic fluids like petrol, benzene, ether or alcohol.
- Always ensure, before starting to use the equipment, that the employees in charge fo maintenance keep the security distance and that the tools or materials do not be close t unit.
- Always use appropriate protection systems during the maintenance operations or equipment.
- **Any intervention inside the electric box will have to be done just after having disconne the supply plug from the factory socket.**
- Verify the perfect condition of the tools to be used, and the presence of insulating handl them,if needed. Check also the integrity of the cables and conductors' insulation o equipment, so the absence of any sign of damage or break.

WARNING! Before starting the installation of the unit, the Costumer has to adapt the work to the local current norms about the "security in workplaces" and set appropriate Indiv protection systems, for qualified employees and operators, in order to safeguard the "Safe health during work".

- Before starting the equipment after a breakdown, it has to be carefully analyzed and che in order to evidence possible damages.
- Dry air can be used during the interior cleaning too, but just with a pressure not superio bar.

- Always use tools in perfect state of conservation and appropriate for the operations to be done; the use of inappropriate or inefficient tools can cause serious damages.
- Always verify the presence of lubrication in the motors(pump and compressor). The lack of lubricant can damage the equipment. Check the manufacturer's manuals to know the timing of the maintenance interventions.

WARNING! All the preventive operations of maintenance, ordinary or extraordinary,mustbe done respecting the timing specified in this Manual of Use and Maintenance.

Moreover it is severely forbidden to:

- Use the unit with not authorized people inside the workplace;
- Use the unit with inappropriate tools;
- Modify the control and command systems;
- Ignore the directions and warnings provided by this manual;
- Ignore the safe and appropriate norms about the workplace;
- Let not expert or not rightly educated employees use the unit

8. MAINTENANCE

The concept of "MAINTENANCE" includes the following fields of interventions:

- **Inspection**:
  The inspection includes measures intended to recognize the effective condition, that is tc indentify the reasons and ways for which the wear reserve decreases.

- **Reinstatement**:
  The reinstatement includes the measures intended to obtain the wanted condition, that is to compensate for the decrease of the performances and to refresh the wear reserve.
  The employees in charge for the using and maintenance of the unit have to be sufficiently trained and they must have a deep knowledge of the anti-hardship norms.

The not authorized employees have to stay outside the workplace during the maintenance operations.

The anti-hardship precautions must be always strictly respected during the use and maintenance of the equipment, in order to avoid damages to people or to the unit itself.

N.W.: Mnufactorer is willing for any periodic and/or extraordinary maintenance intervention.

8.1 REDUCTION OF THE STOP TIME AFTER A BREAKDOWN

It is important to remember that the well done interventions of maintenance can reduce to the minimum the stop time after a breakdown. A fixing made in the right time avoids other degenerations.

Use, if possible, original spare parts and do in an accurate fixing of the broken component inside your factory or send it to the **manufacturer**company for the fixing.

For any problem or to order spare parts refer to Technical Service of Assistance of the **manufacturer**.

8.2 ENERGY SOURCE EXCLUSION

Ordinary and extraordinary maintenance operators must work on the equipment for maintenance and fixing interventions, just when the unitis not in function and/or on tension.

Before any setting, fixing, maintenance intervention it is necessary to put the equipment in security, or better:

- **Interrupt the electricsupply.**
- **Interrupt water supply.**
- **Empty the tank from the water (if necessary).**

WARNING! THE NEGLIGENCE OF THESE PRECAUTIONS CAN CAUSE SERIOUS DAMAGES TO PEOPLE, THINGS AND TO THE EQUIPMENT ITSELF. IN THE MOST SERIOUS CASES IT CAN CAUSE DEATH BY ELECTROCUTION.

Safety condition can be reached with "MAINTENANCE STATE SETTING" measure described in paragraph 9.4 "ORDINARY MAINTENANCE".

The MAINTENANCE STATE SETTING and the maintenance interventions can be exclusively done by maintenance technicians, each of them with his competences, as specified in Chap. 3 "OPERATOR".

IT IS FORBIDDEN FOR THE (USING) OPERATORS TO MAKE MAINTENANCE INTERVENTIONS.

Before proceeding with the maintenance intervention:

1. Exhibit the poster "**MAINTENANCE IN PROGRESS**" in visible points ;

1. Permit the access to the equipment just to **authorized employees**;
2. Use solvents for the cleaning making sure not to damage especially the cables. Do not use organic solvents close to the hot surfaces. Wesuggestyou to use water-basedsolvents;
3. Do not change or alter the equipment's structure, the functioning sequence or more, without a written communication by **manufacturer**;
4. Make notes of the maintenance interventions creating, for example, a " *maintenance interventions table"* in which you will write down the date, the kind of intervention and the sign of the operator who did the intervention. Keep the updatedtableclose to the unit.

Each maintenance intervention has to follow what written in this chapter.

8.3 OPERATOR'S INTERVENTION TO THE UNIT IN FUNCTION

Avoid to make any setting or maintenance intervention with bare hands.

If the setting and maintenance interventions would have to be done with one or two operating unit's functions, specific directions have to be given so that:

- There will always be at least two people present : the operator that will have to supervise the security of the operator working and the maintenance technician;
- The operator at the control of the unit and the maintenance technician will always have to be watching each other in order to make the communication between the two easy and unmistakable;
- The operator will work following the maintenance technician directions;
- Before passing from a static position of any element to a moving one, the maintenance technician will have to keep a safe position, getting closer to the moving parts just once ensured that the operator understood exactly his directions;
- The setting and maintenance interventions will always have to be done with the right lighting;
- The maintenance technician has to be precisely informed of any function and movement of each part of the unit, or electric component.

8.4 ORDINARY MAINTENANCE

8.4.1 Maintenance state setting

The maintenance state setting and the maintenance interventions can be done exclusively by maintenance technicians, each one with his competence, as specified in Chap. 3 "OPERATOR":

- **Mechanical maintenance technicians**: educated and authorized operators for maintenance interventions on mechanical parts and fluid, liquid and gaseous systems.
- **Electrician maintenance technicians**: educated and authorized operators for maintenance interventions on electric and/or electronic parts, components and systems.

The process consists in the interruption of the electric and water supply to the unit.

1) Insulation from the electricity source supply:

– the general switch on the switchgear has to be putted in "O" position.

– Disconnect the supply plug from the factory socket.

2) Insulation of the unit from the water supply:

– Insulate the unit from the water supply with the manual interception valve;

– if the manual interception valve is not present close to the outlet of the chilled water, interrupt the water supply to the unit;

– Disconnect water inlet tubes;

– Empty the water tank;

–Disconnect the tube connected to the water outlet exit;

– Disconnect the too-full discharge tubes (if installed).

Once finished the intervention and before starting again the equipment, the maintenance technician must always:

- **Verify that the potentially changed parts and/or the tools used during the intervention have been removed from the equipment.**
- **Verify that all the covers and protections potentially disassembled during the intervention, have been rightly re-assembled, and functioning positioned.**

Just once finished the maintenance intervention and after having made accurate checks, the equipment can be brought back to the functioning conditions.

8.4.2 GENERAL WARNINGS FOR SAFETY

The security of the unit and in particular of the operators depends also on the regular organization of the maintenance interventions following the manufacturer's directions.

The maintenancetechnicians must:

- Respect the limits of their competences (mechanical or electric);
- With their competences follow and respect the measures of the Manual of Use and Maintenance and the associated warnings too;
- Respect the timing and regularity specified for the planned maintenance interventions.

GENERAL WARNINGS for any situation:

– electrocution risk by direct contact with the unit's supply terminals and with the electric system's junction boxes (in some points the danger is pointed out by an appropriate safety pictogram).

– it is forbidden to open the control box, the terminals' boxes and the internal junction boxes when the unit is on tension;

– it is forbidden to make maintenance and lubricant interventions on mechanical parts in movement;

– after each maintenance intervention you always have to re-assemble the covers potentially disassembled to make the intervention.

Inspect carefully the equipment before starting it again and verify that each cover has been re-assembled and fixed in their place.

8.4.3 Electric system maintenance

Employees' tasks and competences definition.

The maintenance interventions on the electric parts, and in general on the unit's electric circuit, must always be consigned to different operators respecting the competences that will be defined in the following paragraphs.
If these directions will not be respected, the manufacturer will refuse any responsibility.

Using operator's competences (operator):

The operator is only authorized to use the commands and the device assembled on the control panel on the board of the unit.

IT IS FORBIDDEN for the operator to make any other intervention on the electric equipment.

In particular the operator must not:

– open the electric box and work on the equipment in its inside.

– remove the protections from the parts on tension and/or disconnect electric systems (remove connectors, electric systems' caps exc.).

IMPORTANT! ALL THESE INTERVENTIONS MUST BE DONE BY MAINTENANCE AND QUALIFIED TECHNICIANS.

Ordinary electrician maintenance technician's competences:

The ordinary electrician maintenance technician is the operator that has to make the electric system's ordinary maintenance intervention. This figure must have a technical preparation in this field, specific experience, knowledge of the Manual of Use and Maintenance.

The ordinary maintenance technician is authorized to:

– reactivate the functioning conditions interrupted by the intervention of safeguarding electric systems (for example the intervention of thermal-magnetic circuit breaker);

– make small interventions on the system respecting the measures specified in the Manual of Use and Maintenance;

– substitute broken fuses;

– substitute breakdown warning systems;

– substitute broken components.

WARNING!

– The broken component have to be substituted with original spare parts (or with equivalent spare parts only after the authorization of the unit's manufacturer).
The substitution has anyway to be done respecting the original connections and functionings.

– The components to be calibrated (thermal-magnetic circuit breaker, exc.) must be calibrated with the same values of the substituted original component.

It is forbidden to the ordinary maintenance technician to:

– modify the electric connections of the switchgear and in general of the unit's electric system.
– modify the wiring in the different points of the line and the equipment.

IMPORTANT! The complex fixings and the interventions that need potential changes to the electric system are exclusively on the manifacturer or on the authorized assistance centres.

8.4.4 General regulations

In order to safely make the maintenance interventions:

– use only original spare parts, appropriate and good-state tools;

– respect the assiduity of intervention specified in the Manual of Use an Maintenance for the planned (recurring or precautionary)maintenance.

– the (time) distance between an intervention and the other is to be intended as the maximum time that can pass between two interventions, so it can not be exceeded, but it can be shortened;

– a good precautionary maintenance needs constant attention and continuous supervision of the equipment.

Promptly verify the cause of potential anomalies as excess of noise, overheating, fluid's leaks, exc and fix it.
In case of doubts consult the manufacturer or the authorized assistance centre.

As for the maintenance always refer to the attached documents as the functional schemes of the systems and equipment (ex. Circuit diagrams).

8.4.5 Maintenance plan

From an executive point of view the interventions are bout mechanical and electric part.
From an operational point of view, for the maintenance technician , the operations are divided into two categories:

– ordinary planned maintenance (or precautionary).

– under condition ordinary maintenance.

The ordinary planned maintenance (recurring or precautionary) includes inspections, tests and interventions that, in order to prevent breakdowns and production stops, have to contro systematically:

– the mechanic conditions of the unit and in particular of the startings.

– the cleaning state of the unit.

The under condition ordinary maintenance is about the components or unit's parts for which it is not possible to establish wear or intervention times.

These components have to be controlled and substituted when their wear state will make them not appropriate for their task.

8.4.6 Ordinary maintenance table

In order to keep the equipment fully efficient it is necessary to respect the periods of maintenance specified by the manufacturer.
The lack of respect for what previously said dismisses the manufacturer from any responsibility or the warranty effects.
IMPORTANT! The periodicity specified refers to normal functioning conditions, that is the functioning conditions established contractually.

OPERATIONS TO BE DONE EVERY DAY

- control panel.
- Make a general cleaning of the equipment.
- Check the presence of unusual water leaks or accumulations.

OPERATIONS TO BE DONE WEEKLY

- Verify the right tightness of the expected screws and bolts.
- Verify the noise and vibrations of the moving parts.
- Verify the wear state of the water tubes of connection (not provided).
- Verify the efficiency and integrity of the line of electric supply.
- Disassemble and clean the water filter at the top of the equipment.If necessary substitute it.
- Verify the presence of dirt at the bottom of the tank. In this case the inlet water is not appropriate for the production and the filter does not work rightly.

OPERATIONS TO BE DONE MONTHLY

- Verify the presence of dirt and dust on the motors and on the chilling fans. Possiblycleanit.
- Verify the efficiency of the refrigerating gas circuit.
- Verify the presence of limescales on the inlet and outlet tubes of the unit.
- Verify the possible movement of the moving parts (for ex. fan, circulation pump, exc.).
-
- heck and clean the connections socket/plugs.
- Verify the integrity of the protection carter.

8.5 EQUIPMENT'S CLEANING

All the interventions of the unit's interior and exterior cleaning have to be done periodically, depending on the level of usage of it. Use a soft rag and an appropriate, not aggressive, detergent. Do not use hydrocarbons or similar.

8.6 MAINTENANCE OPERATIONS

As for the maintenance of the components, for example the pump, the compressor, supports, joints, exc. We suggest you to consult the provider's catalogues with the specific maintenance.

8.6.1 Electric motors (pump and compressor)

As for the maintenance of the electric motorit is necessary to make a regular check and a periodic maintenance intervention:

- Eliminate the motor interior and exterior accumulation of dust using a jet of dry and clean air (maximum pressure 2 bar);
- Ensure that the ventilation (if present) is not impeded by deposits of dust;
- Verify the absence of loosen screws, coupling joints' ones too;
- Check the absence of unusual noises or vibrations;

Verify all the electric connections.

8.6.2 Bearings

If they are not the seal ones (long life) they have to be checked and lubricated as they are parts easily deteriorating. The grease that usually passes from two holes on the external ring does not have to be injected vigorously, as not to damage it.
Check also that the bearings do not vibrate or overheat. In order to make them work their temperature has to be between -30° and +110° C.

8.7 REFRIGERANT GAS CIRCUIT

Check that the whole refrigerant gas circuit with the following tests and interventions:

- Verify that the gas circuit works at the right pressure and that the related pressure switch is calibrated at the expected intervention pressure;
- Verify that the gas charge is the one specified in the label of identification;
- Check the efficiency of the control systems (pressure switch, valves, exc.) of the whole circuit.

8.8 WATER SYSTEM

Check that the whole water system with the following tests and interventions:

- Eliminate possible water leaks allalong the conductors and in the joint points.
- Check the efficiency of the control systems (pressure switches, valves, electrovalves, exc.).

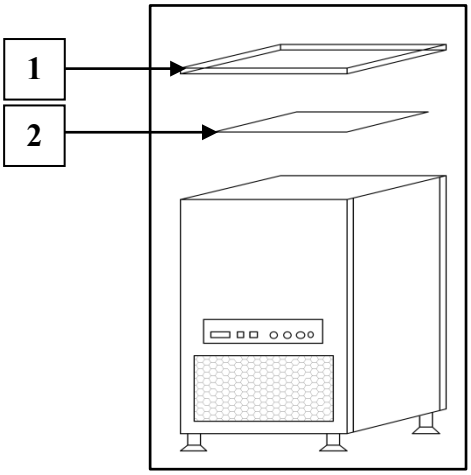
8.8.1 Empty of the water tank

1. During all the maintenance and moving operations it is necessary to proceed empting the water tank. Proceedasfollows:
2. Close the valve near the centralhydraulic connection. If not present, close the manual valve installed on the mixer device;
3. Disconnect the water outlet tubes from the chiller near the mixer and insert it in a container of adequate capacity (if water re-use is forecast) or disposable (according to the regulations in force in the country of use) ;
4. Disconnect the water inlet tubes, after having isolated it from the water system of the plant;
5. Open the water inlet valve near the central hydraulic connection.
6. Start the discharge pump putting the switch N.2 on “I”;
7. Wait for the tank to empty;
8. Stop the discharge pump putting the switch N.2 on “O”.

8.8.2 Cleaning of the water tank

In order to guarantee the efficiency and the right functioning of the equipment we suggest you tc make a periodic cleaning of the water tank with right solution, paying particular attention to the rinsing with flowing water. Make it this way:

1. Empty the tank from the water inside it as specified in the previous paragraph;
2. Remove the fixing elements from the covering cap (N.1) with the right tool;
3. Remove the tank cap(N.2);



4. Proceed with the cleaning of the tank with detergent;
5. Rinseproperly the tank;
6. Proceed with the reassembling of the caps previously removed.

8.9 ELECTROMECHANICAL DEVICES CHECK

To guarantee a regular and constant electric functioning of the unit check the components specified in the following paragraphs.

8.9.1 Junction boxes

Open the box's cap to verify the perfect tightness of the terminals, the connection terminals condition (they should not present any insulating lack) and if the conductors present any beginning of wreckage caused by vibrations or burned parts. If in the inside of the box you wil notice any dust, substitute the rubber seal assembled on the cap and blow dry and filtered air ir the inside of the box. Then clean the terminal board using alcohol to remove the dust anc antioxidant liquid to clean the electrical contacts.

8.10 EXTRAORDINARY MAINTENANCE

The extraordinary maintenance interventions must be done in case of broken parts and components for which it is necessary a specific knowledge of the breakdown.

WARNING! All the extraordinary maintenance interventions must be done exclusively with the secured switched-off equipment (equipment in "maintenance state").
the extraordinary maintenance interventions must be done by authorized employees educated by the equipment's manufacturer.
Extraordinary electrician maintenance technician's competences.

The extraordinary electrician maintenance technician is the operators that works for the equipment's manufacturer or for his authorized assistance centres.

His task is to make the extraordinary maintenance interventions on the electric system. He must have a technical preparation and certification, knowledge of the equipment and of the Manual of Use and Maintenance.
Moreover he has to be constantly updated, throughout specific classes in the manufacturer's offices, and he must have knowledge and informationessential to safely make complex interventions on the equipment.
The extraordinary maintenance technician is authorized to:

– work on risky parts of the unit;

– potentially modify connections and wirings in the electric system and on the equipment;

– substitute components and devices with others, potentially different from the original ones;

– modify parameters set on the electric devices.

The extraordinary maintenance technician takes notes of the potential modifications and/or substitutions and releases a copy of this document to the ordinary maintenance technician and to the manufacturer.

The ordinary maintenance technician has to update all the copies of the Manual of Use and Maintenance owned by the costumer; the modifications must be underlined and reported on all the copies of the Manual of Use and Maintenance on the modified equipment (directly on the original pages and adding, if needed, new updating data sheets).

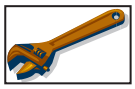
8.11 INCONVENIENTS AND BREAKDOWNS

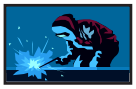
In this paragraph we will list in a table the most frequent inconvenients, their possible causes and the right remedies in order to eliminate them.

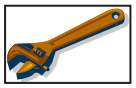
WARNING! IF THE DESCRIBED REMEDIES WOULD NOT BE SUFFICENT TO ELIMINATE THE PROBLEM, DO NOT PROCEED ON YOUR OWN, BUT CONTACT THE MANUFACTURER IN ORDER TO HAVE MORE INFORMATION ABOUT IT.

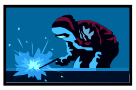
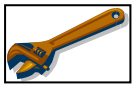
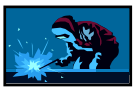
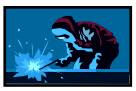
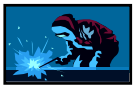
Read diligently the paragraph “Ordinary maintenance” before making any maintenance intervention.

In the following table you will find two symbols that will indicate respectivelythe OPERATOR and the MANUFACTURER:

 : intervention that can be accomplished by the operator.

 : contact the manufacturer to have more detailed information.

	INCONVENIENCE	POSSIBLE CAUSE		SOLUTION
1	The equipment does not start functioning.	Lack of electricsupply.		Check that the general switch is in “I” position. - Verify the integrity of the electric system (cables,electric connections, devices).
		Non activepump.		- Verify that the pump switch is in position “I”.
		Pressure of the hydraulic circuit below minimum		- Verify the hydraulic circuit is intact (tubes, hydraulic connections, devices).

		Gas pressure below minimum		- Verify gas circuit integrity (tubes, connections, devices).
2	The low water level lights stays on	Hydraulic circuit pressure below minimum		- Verify the hydraulic circuit integrity (tubes, connections, devices).
		The level switch is broken		Substitute
3	The equipment works but the water is not chilled	Insufficient quantity of gas in the gas circuit		Verify leak in the system Charge the equipment with adequate gas (chap. 1 “Technical Characteristics”).
4	The equipment makes an unusual noise.	Loosening of mechanical components (belts, flanges) or possible broken mechanical element.		Contact the Technical Assistance of the manufactorer.
5	The equipment makes unusual vibrations.	Loosening of mechanical components (belts, flanges) or possible broken mechanical element.		Contact the Technical Assistance of the manufacturer.

8.12 SPARE PARTS

Manufactorer's equipment has been designed and assembled in order to normally need any spare parts for breakdowns or damages.
Do not hesitate over substituting ordinary worn or deteriorated parts or components if they are no more able to guarantee safety and/or functional reliability.

WARNING! Do not make any improvised fixing.
If you need to substitute any broken part it is necessary to use exclusively original spare parts.

Manufactorer sells spare parts exclusively to its direct costumers, Distributors and Authorized Assistance Centres applying the selling conditions agreed. The shipping costs are carriage forward.

The applicant of the spare parts must provide the model, the series number and date of production on the broken equipment and a short description of the needed components.

9. BOARD-UNIT SAFETY PICTOGRAMS

Here below the list of the safety pictograms hanged on the equipment close to the most dangerous areas.

IMPORTANT! These safety signals can not be removed in any case. If the pictogram seems so deteriorated to become illegible, it is necessary to substitute it with another with its same dimensions, color and representation.

SAFETY PICTOGRAMS		BEHAVIOURAL NORM
	*Electric shock danger.*	*Do not intervene on electric parts or equipment.*
	*It is forbidden to remove safety covers.*	*Do not remove the safety covers when the equipment is switched-on. i*
	*Obligation to read the instructions.*	*Read the Manual of Use and Maintenance before using the equipment.*

9.1 OTHER AND REMAINING RISKS.

9.1.1 Explosion risk

The equipment is not appropriate to work in an explosion-risk area.

It is forbidden to install and use the equipment where the concentration can exceed the acceptable limit and create deflagration-risk atmospheres.

9.1.2 Refrigerant gas

The refrigerant gas circuit does not present hurting risks caused by the ejection of pressurized gas, parts or fragments ejection and whiplash, as appropriate fastenings have been putted close to the joints.
On the contrary the risks are:

- Asphyxiation risk caused by the fast ejection of refrigerant gas in the workplace, that can be reduced if:
  - The equipment is analyzed respecting the maintenance times specified in par. 9.4.6 “Ordinary maintenance table”.
  - The area is well airy with natural or forced circulation of air.
- Fire risk. The gas used is a not flammable and not azeotropic.
- Explosion risk: Keep the equipment far from direct heat sources.

9.1.3 Risk caused by electrocution danger.

That is a risk for the maintenance technician of the electric equipment in case it would be necessary to intervene inside the control panel and the junction box when on tension.

The interventions that consist in the access inside these parts must be necessarily made by specialized and authorized “electric maintenance technicians”, that have to:

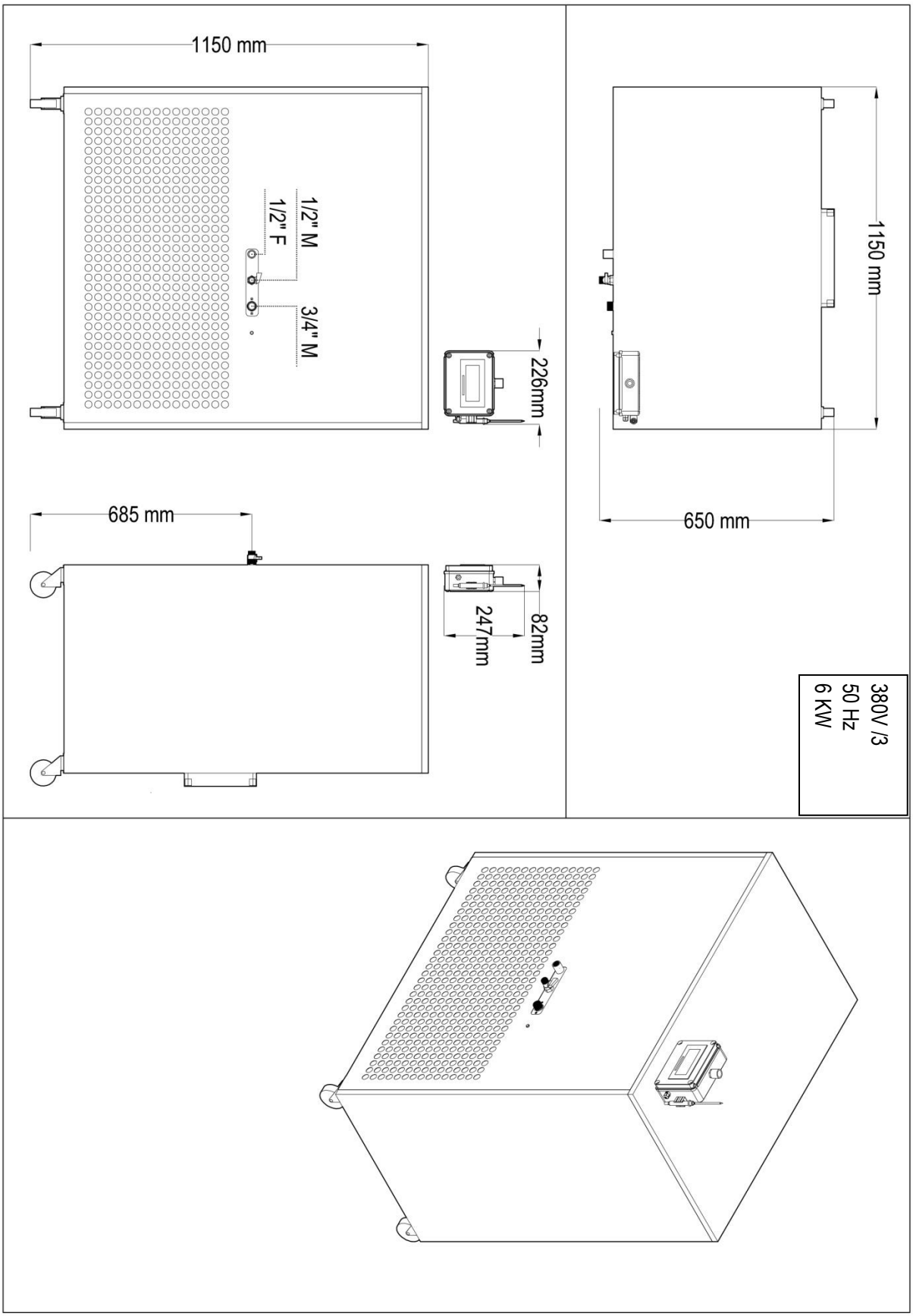
- Diligently respect all the safety norms about the electric systems;
- Respect the directions specified in the labels hanged close to the electric components;
- Have a deep knowledge of all the safety problems linked to the equipment on which they are intervening;
- Be authorized by their manager in making interventions on equipments on tension.

ATTACHMENT LIST

Attachment 1:Layout.

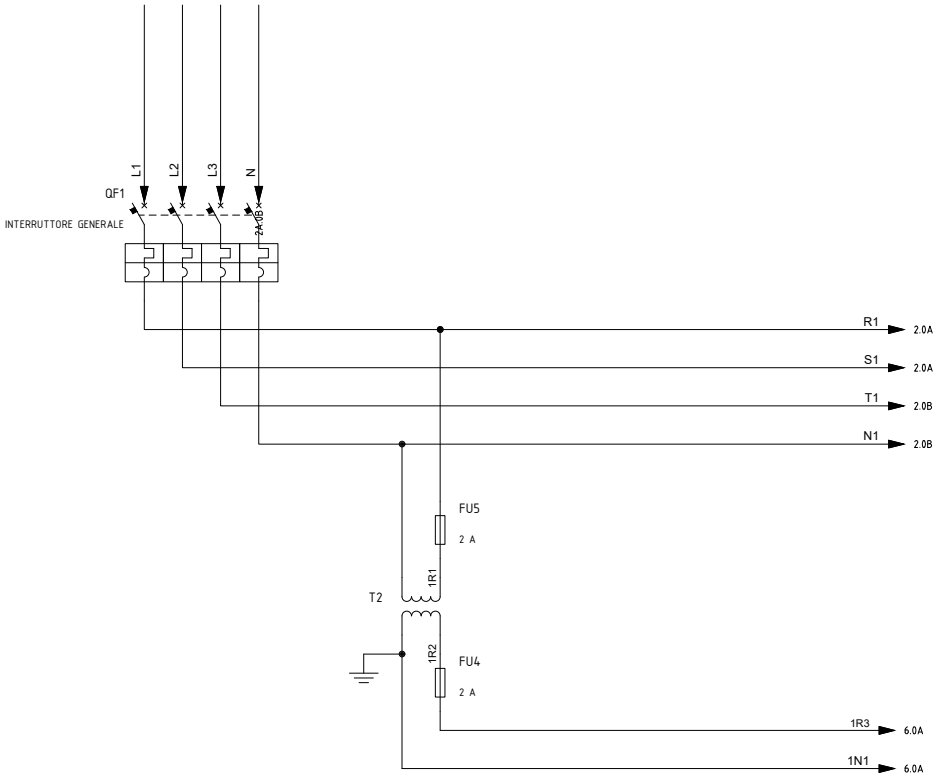
Attachment 2:Circuit diagram

Attachment 1:Layout.



ELECTRIC DIAGRAM

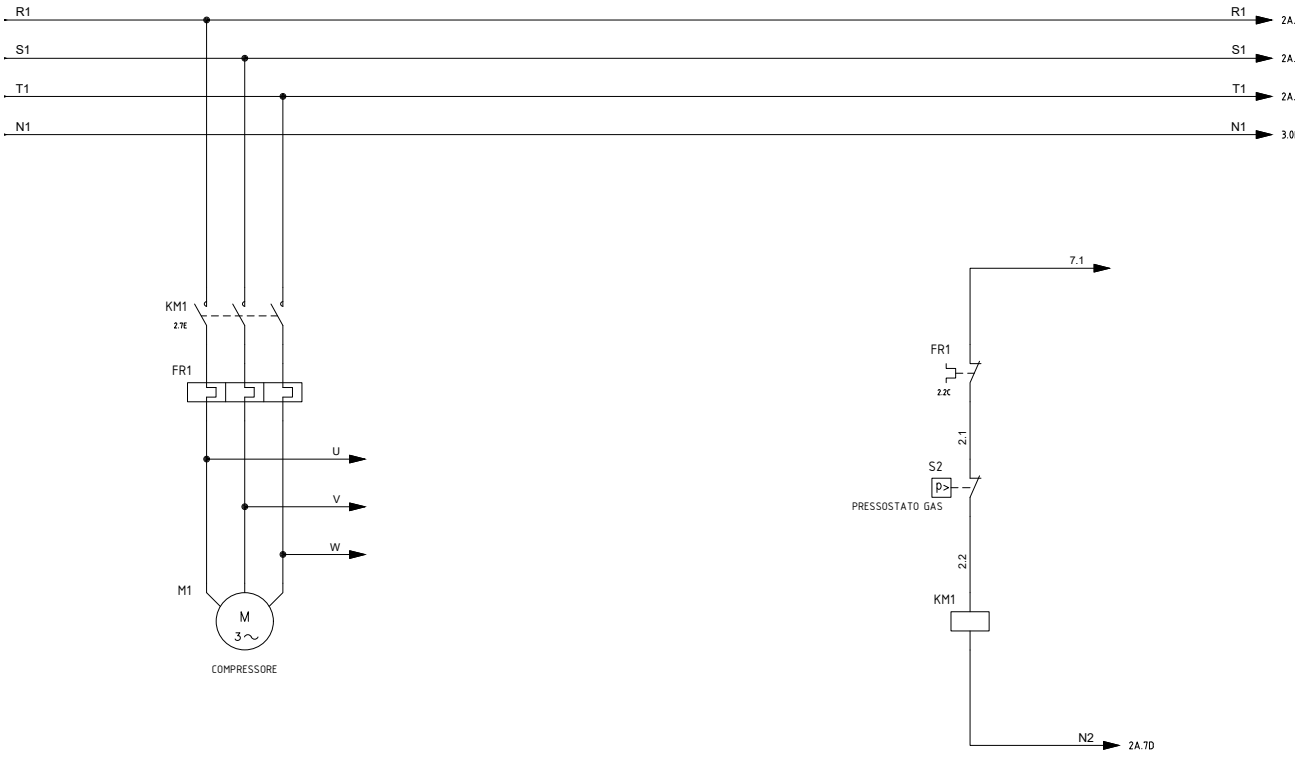
CWR 100 RD - 380-3-60+N



General main

ELECTRIC DIAGRAM

CWR 100 RD - 380-3-60+N

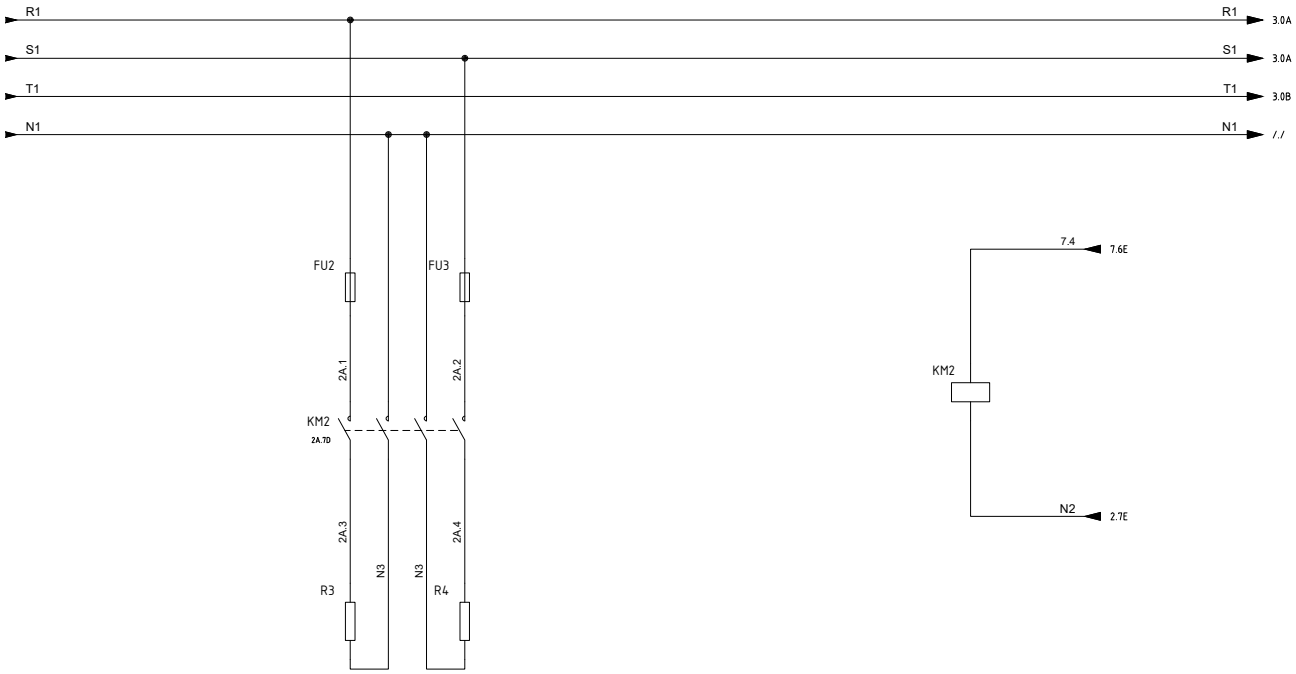


Compressor

MADE IN ITALY

ELECTRIC DIAGRAM

CWR 100 RD - 380-3-60+N

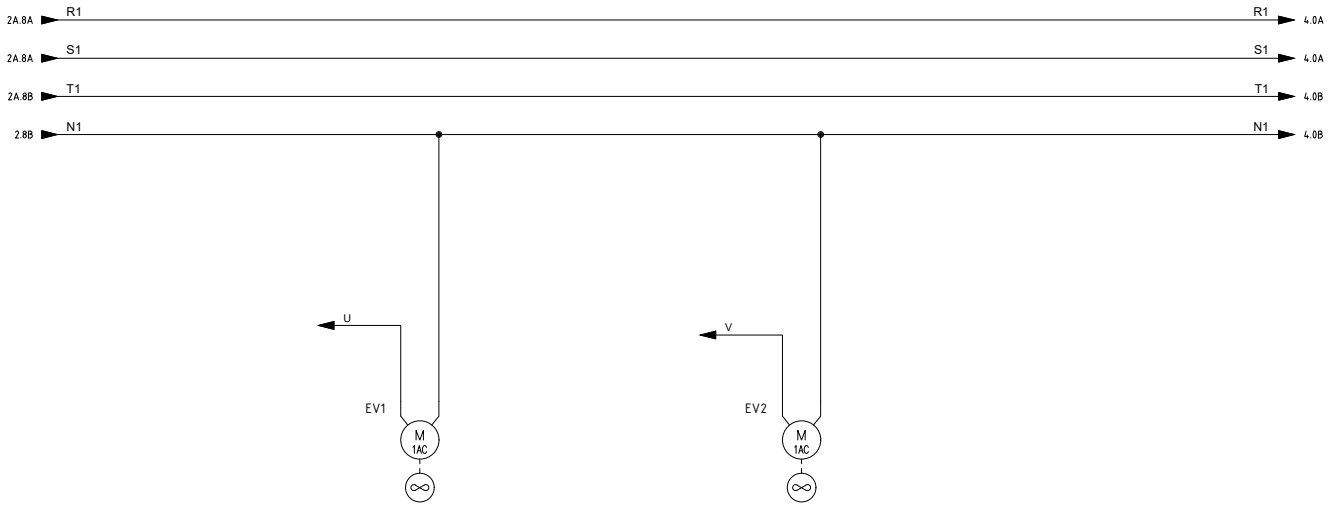


Water heating

MADE IN ITALY

ELECTRIC DIAGRAM

CWR 100 RD - 380-3-60+N

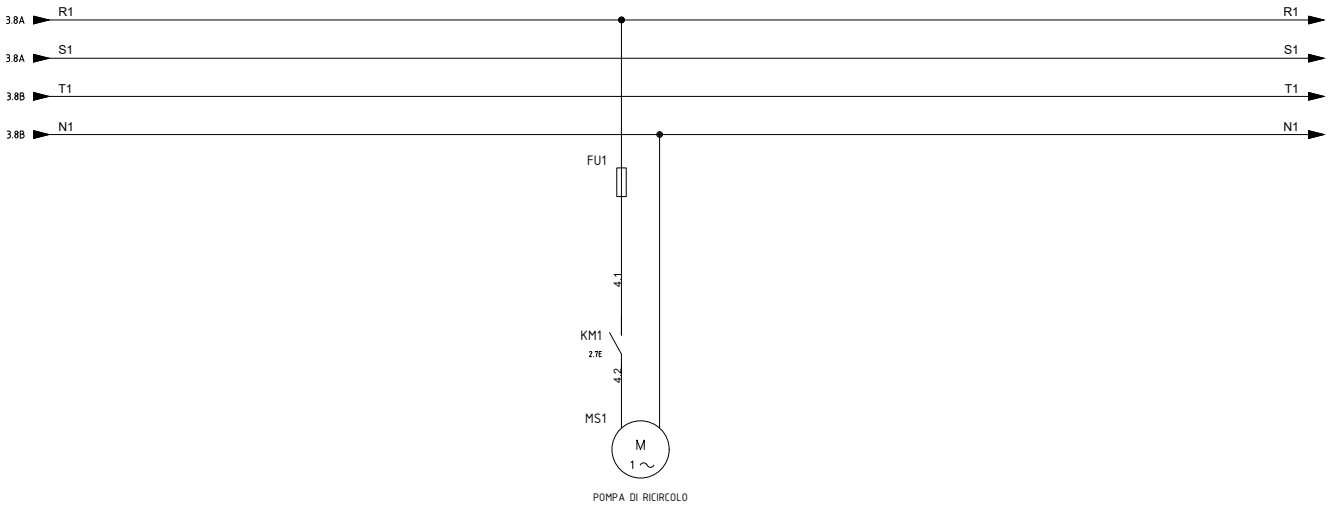


Fan

MADE IN ITALY

ELECTRIC DIAGRAM

CWR 100 RD - 380-3-60+N

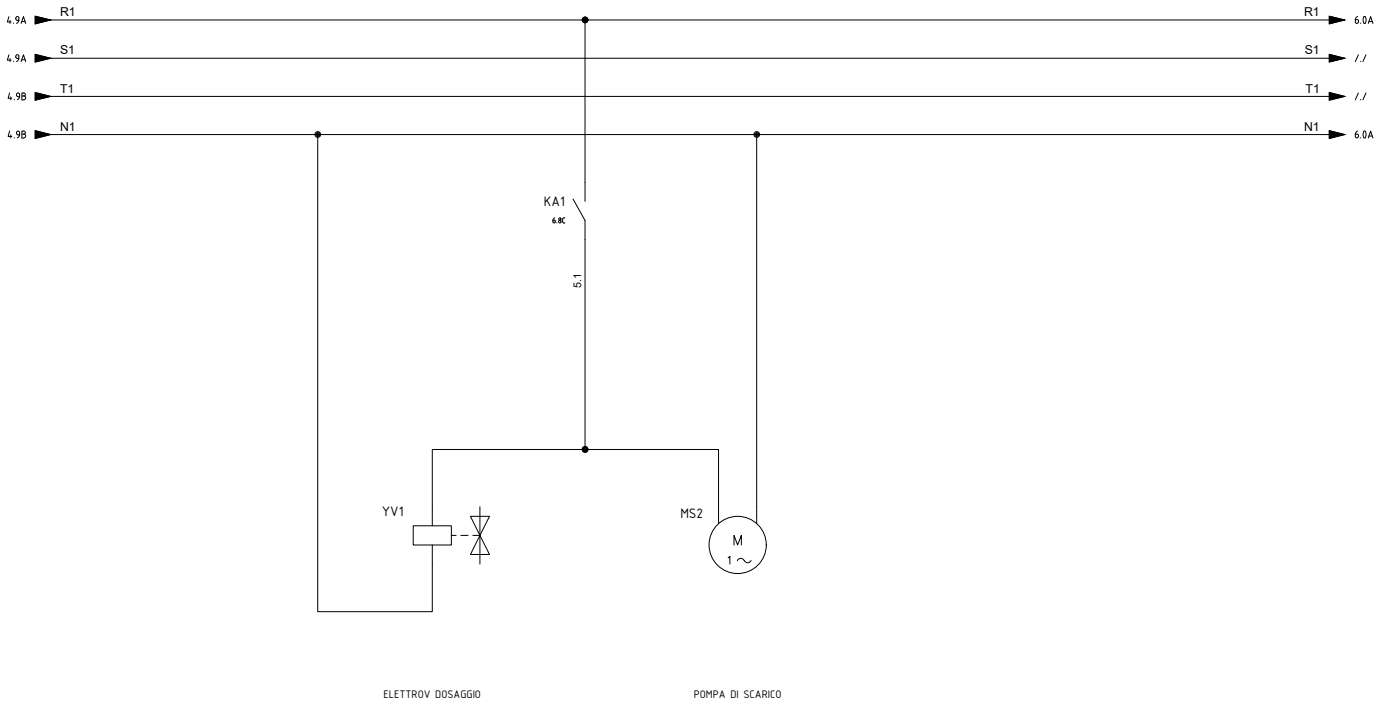


Recycling pump

MADE IN ITALY

ELECTRIC DIAGRAM

CWR 100 RD - 380-3-60+N

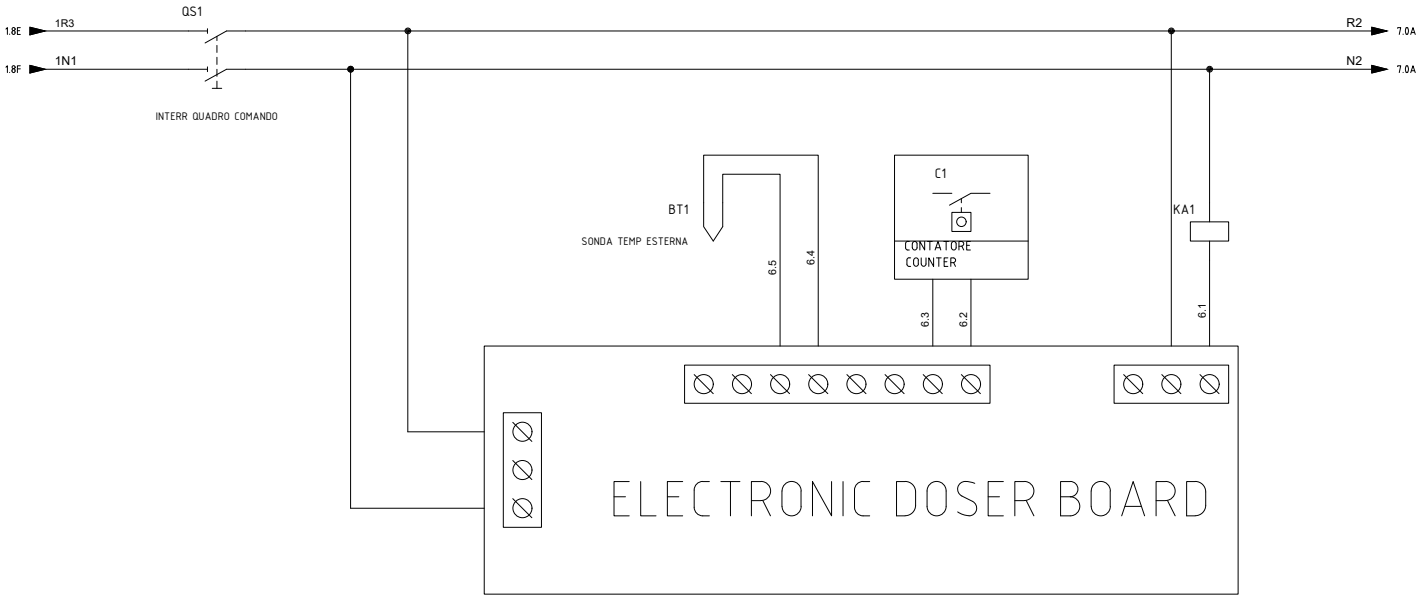


Output pump+solenoid

MADE IN ITALY

ELECTRIC DIAGRAM

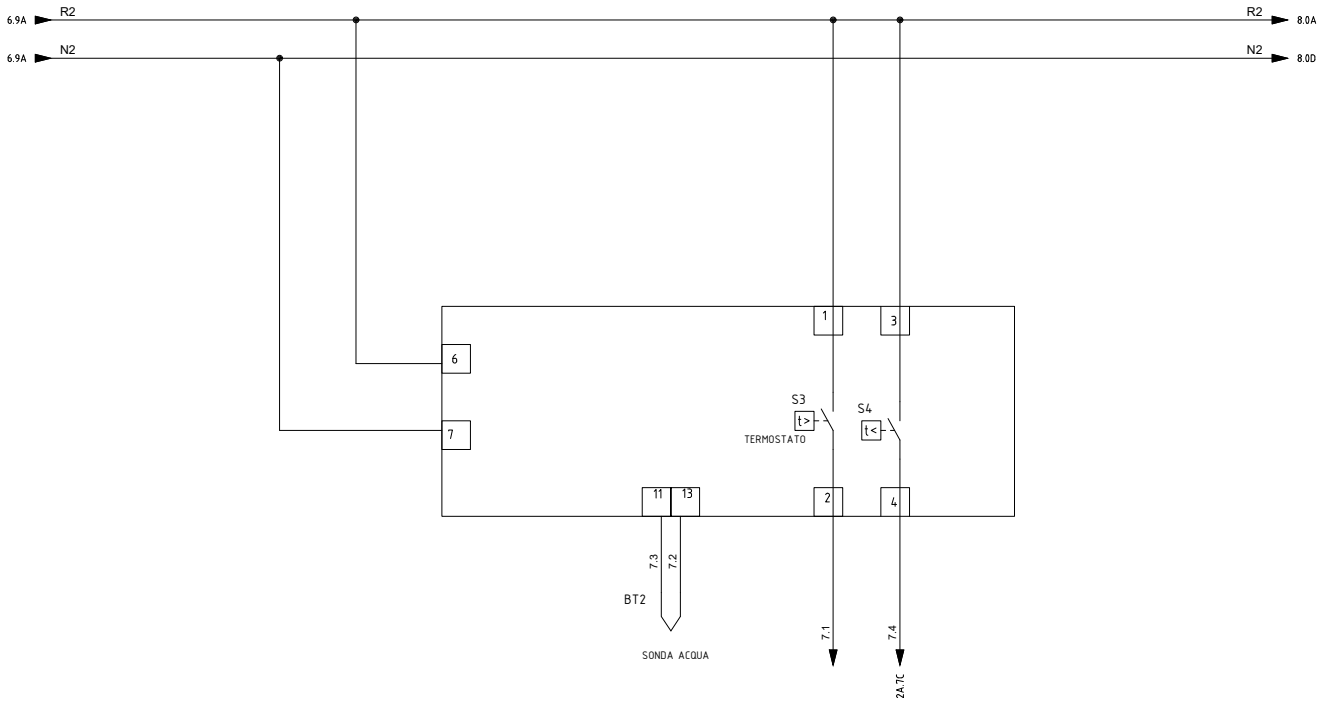
CWR 100 RD - 380-3-60+N



Electronic dosing board

ELECTRIC DIAGRAM

CWR 100 RD - 380-3-60+N

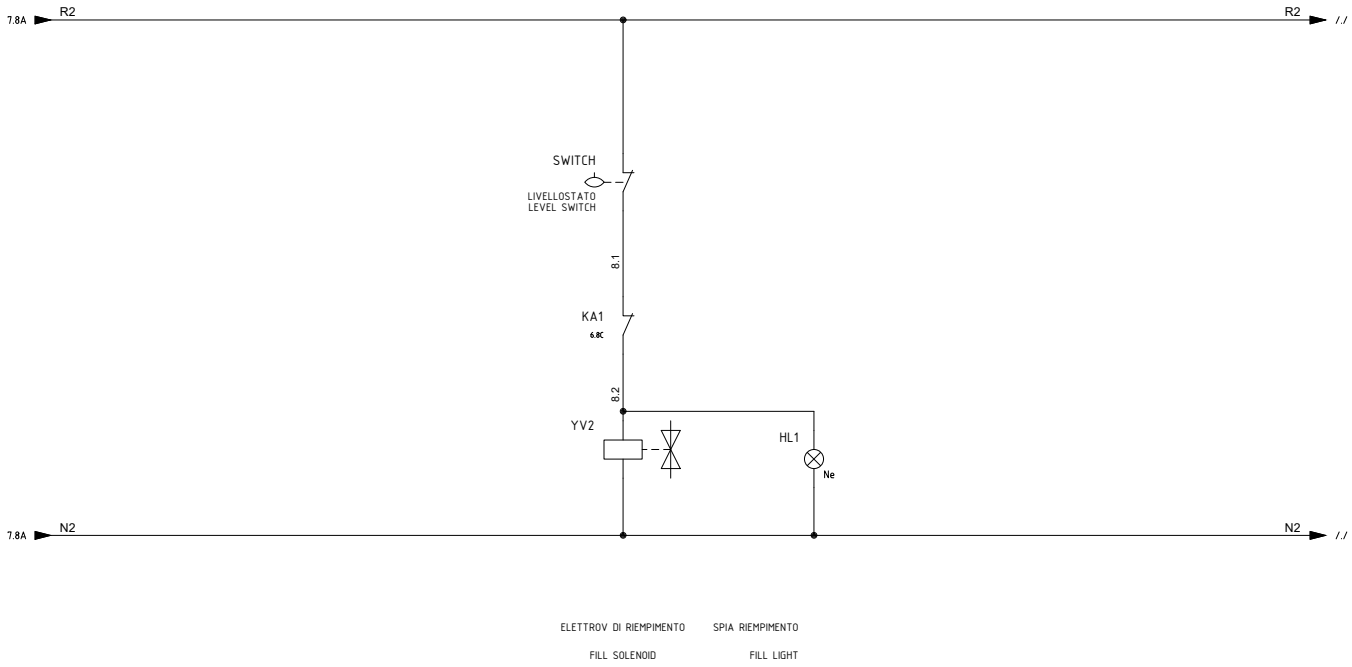


Temperature control

MADE IN ITALY

ELECTRIC DIAGRAM

CWR 100 RD - 380-3-60+N



Water level control

ELECTRIC DIAGRAM

CWR 100 RD - 380-3-60+N

Nome/Item	Tipo/Type	Descrizione/Description	Costruttore/Marke	Quadro/Board	Fg/Sh	Q.ta/Q.ty
BT1	SONDA A INFILZAGGIO	SONDA A INFILZAGGIO	SACET	=QG	6	1
BT2	P1AA36P15NPS	SONDA PTC 6x30 1,5 mt	SACET	=QG	7	1
EV1		Ventilatore monofase		=QG	3	1
EV2		Ventilatore monofase		=QG	3	1
FR1	LRD12	RELE' TERMICO 5,5-8A	Schneider Electric	=QG	2	1
FU1	DF101	PORTA-FUSIBILE 32A 10X38 1P	Schneider Electric	=QG	4	1
FU2	DF101	PORTA-FUSIBILE 32A 10X38 1P	Schneider Electric	=QG	2A	1
FU3	DF101	PORTA-FUSIBILE 32A 10X38 1P	Schneider Electric	=QG	2A	1
FU4	DF101	PORTA-FUSIBILE 32A 10X38 1P	Schneider Electric	=QG	1	1
FU5	DF101	PORTA-FUSIBILE 32A 10X38 1P	Schneider Electric	=QG	1	1
HL1	3600030476	SPIA AMBRA 220V	LALLI	=QG	8	1
KA1	601282300040	RELÈ INDUSTRIALE	Finder	=QG	6	1
KM1	LC1D09M7	CONTATTORE 9A 220VAC 50/6	Schneider Electric	=QG	2	1
KM2	LC1K09004M7	CONT K 4P VITE 220 230V 50 6	Schneider Electric	=QG	2A	1
M1		Motore asincrono trifase		=QG	2	1
MS1	290608	POMPA ASKOLL	ASKOLL	=QG	4	1
MS2	2414000042	PQM60BS 220/1/60	PEDROLLO	=QG	5	1
QF1	C16N	INTERR MAGNET 16A	Schneider Electric	=QG	1	1
QS1	8400010002	INT.BILANCERE VERDE	Rovi	=QG	6	1
R3		Resistore		=QG	2A	1
R4		Resistore		=QG	2A	1
S2	017-h4758	PRESSOSTATO GAS H/L	RANCO	=QG	2	1
S3	3600030544	TERMOSTATO NANO2 ZN02	PEGO	=QG	7	1
S4	3600030544	TERMOSTATO NANO2 ZN02	PEGO	=QG	7	1
SWITCH	LIVELLOSTATO ELETT.	LIVELLOSTATO ELETT.	STEM	=QG	8	1
T2	3600030549	TRASFORMATORE ISOLAMENTO 30VA 230/230	TECNOCABLAGGI	=QG	1	1
YV1	6700030023	ELETTROVALVOLA	CASTEL	=QG	5	2
YV2	ELETTROVALVOLA ACQUA PLAS.	ELETTROVALVOLA ACQUA PLAS.	RAGE	=QG	8	1

Materials list

mac.pan

bakery solutions since 1983