

TECHFROST

ABBATTITORI DI TEMPERATURA

BLAST CHILLER AND FREEZING

CELLULES DE REFRIGERATION RAPIDE ET CELLULES MIXTES

WARMEENTZUGSGERAT

ABATIDOR DE TEMPERATURA

AFKOEL/VRIESKAST

ABATEDORES DE TEMPERATURA

ПОНИЗИТЕЛИ ТЕМПЕРАТУРЫ

E5

E10

E15

MANUALE D'USO E INSTALLAZIONE

USE AND INSTALLATION MANUAL

MANUEL D'UTILISATION ET D'INSTALLATION

BEDIEN- UND INSTALLATIONSHANDBUCH

MANUAL DE USO E INSTALACIÓN

HANDLEIDING

MANUAL DE USO

РУКОВОДСТВО К ИСПОЛЬЗОВАНИЮ



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INTRODUCTION

TECHFROST would like to thank you for having chosen its products and we are sure that you will be more than satisfied with their performance.

To help maintain efficiency and performance in time, TECHFROST have prepared this manual that describes the correct use and maintenance of the Blast Chiller Freezer.

TYPE OF USE AND LIMITATIONS

This Blast Chiller Freezer has been designed for chilling and preserving food (it rapidly lowers the temperature of cooked food in this way preserving quality and guaranteeing freshness for several days). Any other use is considered improper and incorrect.

This Chiller cannot be installed outside and or in environments subject to weather conditions.

The manufacturer declines all responsibility for uses other than those given in this manual.

CAUTION:

THE BLAST CHILLER IS NOT A CONSERVER.

After the work cycles, the blast chiller goes in conservation, but must be considered as temperature of transaction.

The law limits the possibility to deep freeze or to freeze alimony "in just" being subordinated to the release of a qualified permission from the Sanitary Authorities of competence.

CHARACTERISTICS OF THE MACHINE

The machine to which this handbook refers, it is a blast chiller/freezer of temperature completely constructed in stainless steel AISI 304 that it works until **-40 °F of temperature**. It is an appropriate equipment with technical constructive characteristic in a position to carrying in short times the temperature to the heart of the cooked products from +158°F to +37,4°F in blast chilling and from +158°F to -0,40°F in blast freezing block with one THERMAL SHOCK the bacterial proliferation without with this:

- ALTERING ORGANOLEPTIC CONDITIONS
- MODIFYING PRODUCT'S QUALITY

It assures at the same time:

HYGIENICITY, SECURITY, PRODUCT'S QUALITY.

The blast chiller has well-defined features such as:

- INDIRECT SYSTEM OF AIR CIRCULATION
- THE SAME TEMPERATURE ON ALL SHELVES
- COOLING SYSTEM CONCEIVED FOR A QUICK COLD PENETRATION TO THE PRODUCT'S CORE

Moreover it performs peculiar features such as:

- Non-stop temperature measurement in the product's core through a **piercing probe**, when carrying out programs by means of core probe;
- Maintenance of a high humidity rate in the chilled product (80/85%) thus avoiding drying or dehydration processes and almost totally canceling the risk of weight losses;

- Excellent thermic conditions during transfer to the conservation cell.

Any product, as soon as you take it out from the oven, is at its quality peak. You can keep this high quality level unchanged only starting the chilling process soon after the cooking.

This is why, using the blast chiller, which lowers temperature rapidly, you prevent your products from:

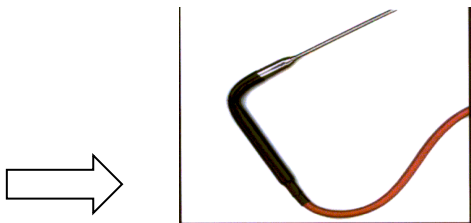
- EXTERNAL DRYING
- EARLY DETERIORATION

We may therefore have a **quality line** including the following:

- OVEN for the reaching of high temperatures destroying microorganisms without altering product's quality
- BLAST CHILLER for the reaching of lower temperatures blocking bacterial proliferation and keeping product's quality unchanged.

The blast chiller is therefore a professional instrument which guarantees, according to the regulations in force, any thermal treatments of fore- and aftercooking for GASTRONOMY, PASTRY and ICE-CREAM SHOP food products and facilitates as well application of the **HACCP System** (Hazard Analysis Critical Control Point) and compliance with ISO9000 norms.

The passage to CONSERVATION at the pre-defined temperature follows automatically the CHILLING or DEEP-FREEZING cycle thanks to the probe (OPTIONAL) located in the product's core.



AIR STERILIZATION (OPTIONAL) is made through the production of agglomerates of active oxygen atoms which destroy bacteria, virus, mildew spores, smell molecules, etc.

TESTING

The Chiller is dispatched only after it has been tested (visual inspection – electric test – functional test). Final testing is certified, for the relevant documentation please refer to the enclosed appendixes.

GENERAL SAFETY STANDARDS

The Chiller in question is manufactured conforming with the European Directives relevant to low tension 73/23-93/68/EEC, and electromagnetic compatibility 89/336/EEC; EN60335- 1, EN60335-2-24, EN55014, EN61000-3-2, EN61000-3-3, EN55104.

WHAT THE CUSTOMER MUST PROVIDE ON SITE LOCATION

It is necessary that there is an earthed power socket suitable for the electrical input indicated on the metal plate, a thermomagnetic switch with at least a 3 mm break contact.

- The chiller should be used by adults only. Do not allow children to play with it or with its control board.
- Installation and any other operation, including a possible extension of the power cable have to be carried out by **authorized personnel** only. If executed by people who do not possess the necessary technical knowledge, the operation might cause a worsening in the unit performance and cause damages to persons and things.
- Maintenance and service have to be carried out by qualified technicians belonging to our selling net. The same is to be said for spare parts, which should be original.
- Do not attempt to modify the chiller yourself: the operation might be dangerous.
- It is crucial to allow sufficient air circulation around the machine, so that the compressor does not risk superheating and consequent arrest.
- The chiller should be placed so that there remains sufficient space for air circulation in the back (at least 10 cm).
- While installing or transporting the unit make sure the cable is not squashed. Before any cleaning or installing operation remember to switch the machine off and disconnect the plug - make sure you do not pull the cable.
- The deep-freezing system, placed on the back and inside the machine, contains a refrigerant solution. Do not use sharpened objects either in the vicinity of the evaporator or cooling plate, as well as near the pipe coils located on the back and inside the chiller. The accidental perforation of the system might cause damages to the unit and to the products it contains.
- After the first installation you should wait about 30 minutes before connecting the plug to the power point; if the chiller has been transported in horizontal position, you should keep it in vertical position for at least four hours – this is because the oil contained in the compressor must be given the time to go back to its original location.
- The chiller is very heavy. When a transfer is needed, the use of gloves is highly recommended, since you may find protruding parts on its back, sides and bottom.
- **WARNING!** Do not keep explosive gases and liquids in the machine. They might explode and cause damages to persons and things. Do not keep glass bottles either, since they risk to break in pieces.
- When the “ **DEEP-FREEZING** ” process is over, you should pull food containers out by using dry gloves or cloths.
- Do not open the machine door while executing its working cycle because you may prevent the proper accomplishment of the cycle itself.
- The constructor is not liable for damages arising from improper use or installation, connection to non-authorized equipments, use of non-original fittings as well as tampering by non-authorized personnel.

CAUTION: The Blast Chiller/Blast Freezer must be powered by a single phase power supply (208 V – 60 Hz). Make sure it is level and always use qualified personnel to install, repair and service your Chiller.

REGULAR MAINTENANCE

WARNINGS

Regular maintenance work can be carried out by non-specialised personnel who, however, must always adhere to the instructions given in this manual. Before cleaning or servicing the chiller lock-off the power supply. When carrying out regular maintenance work do not remove any of the safety guards.

CLEANING THE CHILLER AND ACCESSORIES

Before using this Chiller clean on the inside and all the accessories. Use warm water and neutral soap. Rinse and dry well. Do not use solvent or powder based detergents and use a silicon wax to protect the steel.

PERIODICALLY CLEANING THE CONDENSER

The condenser should be cleaned periodically. Cleaning intervals will depend on how frequently it is used.

CAUTION: To access the condenser it is necessary to remove the safety guards. Always use qualified and specialised personnel.

*To guarantee efficiency and performance in time, it is necessary to clean the condenser periodically. It is highly recommended if located in dusty environments to clean the louvers on the refrigerating **unit once a month** and once every three months if located in closed and clean environments. To remove dust and dirt from the louvers use a brush or vacuum cleaner. Do not use sharp objects or tools that could damage the condenser. Do not clean using water jets.*

MEASURES TO TAKE WHEN OUT OF SERVICE FOR A PERIOD OF TIME

When the Chiller is out of service for a long period of time take the following measures:

- Remove the plug from the power socket;
- Remove all food and clean the inside of the Chiller and all accessories;
- Buff all the stainless steel surfaces with a cloth moistened with vaseline oil to give a protective coating;
- Leave the door ajar for air circulation to prevent bad odours;
- Periodically air the room or kitchen where the Chiller is installed.

EXTRAORDINARY MAINTENANCE

CAUTION: Extraordinary maintenance and servicing work must be carried out by qualified personnel!

UNDERSTANDING SIMPLE MALFUNCTIONS

At times malfunctions are due to simple and trivial causes and nearly always there is no need to call in a specialised technician, therefore before informing the company check for the following:

The Chiller is not powered:

- Check that it is plugged in;
- Check that there is power.

The Chiller does not reach the correct internal temperature:

- Check the temperature settings;
- Check the probe.

The Chiller is excessively noisy:

- Check that the Chiller is level. If unbalanced this could cause vibrations creating excessive noise.
- Check that the Chiller is not positioned up against other machines or objects causing vibrations.

After having proceeded with the foregoing checks and if the problem persists, contact the company giving:

- A description of the type of malfunction;
- Chiller code and serial number which are indicated on the metal plate.

WASTE DISPOSAL AND SCRAPPING

Storing waste:

It is possible to temporarily store special waste products that are to be scrapped. However, the user must observe and adhere to the local governing laws regarding waste management.

Macro – dismantling the Chiller:

Each country has its own waste management laws, therefore the user must observe and adhere to the local governing laws where the Chiller is to be scrapped.

As a general guideline the Chiller should be handed over to a special waste treatment plant. Dismantle it and divide the various components into groups according to their chemical properties. Remember that there is oil and refrigerating solutions in the condenser that can be recuperated and reused and the various components are considered special waste products and as such are treated as urban waste.

CAUTION: All dismantling operations must be carried out by specialised personnel!

**INFORMATION FOR A CORRECT WASTE
Directive on the electrical appliances waste (WEEE) (RoHS)**



In the optical of the respect of the ambient of the health and based on the sanctioned despositions from the Directive 2002/95/CE of the European Union in matter of limitation to the use of dangerous substances (RoHS), regarding:

.	LEAD (Pb)
.	MERCURY (Hg)
.	HEXAVALENT
CHROMIUM (Cr VI)	
.	CADMIUM (Cd)
.	POLYBROMINA
TED BIPHENYL (PBB)	
.	POLYBROMINA
TED DIPHENYL ETHER (PBDE)	

and according to of art. the 13, D.Lgs. 25 July 2005, n. 151 "Performance of the Directives 2002/95/CE, 2002/96/CE and 2003/108/CE, relative to the reduction of the use of dangerous substances in the equipment electronic electrical workers and, to the waste disposition, **TECHFROST** declares that its products respect such norms.



The following symbol on the side of the equipment indicates that the product must not be disposed of as urban waste.

Disposing of a household appliance separately avoids possible negative consequences for the environment and healt deriving from inappropriate disposal and enables the constituent materials to be recovered to obtain significant savings in energy and resources. As a reminder of the need to dispose of household appliances separately, the products is marked with a crossed-out wheeled dustbin.

For information on the points of collection of the wasted equipment, contact the residence borough, the local waste service or just the retailer in the case of purchase a new equipment.

The illicit waste of the product from part of the customer involves the application of the administrative endorsements of which article 50 and following of the D.Lgs n. 22/1997.

Regulation CE n° 1494/2007 of commission dated 17 December 2007

The equipment contains fluorinated greenhouse gases covered by the Kyoto Protocol.

The system is hermetically sealed and contains gas HFC

The equipment isolation is made by foam blow with fluorinated greenhouse gases. The gas contained in the foam is R 134a.

INSTRUCTION FOR THE INSTALLATION

INTRODUCTION

This manual aims at providing the user with all the necessary information to correctly use and maintain the Chiller.

Before use carefully read all the instructions given in this manual.

The manufacturer shall decline all responsibility for operations and use which disregard the instructions herein.

MATERIALS AND CHILLING SOLUTIONS

Le zone a contatto con il prodotto sono realizzate in acciaio inox.

Nei gruppi refrigerati viene impiegato fluido refrigerante consentito dalle attuali legislazioni, del tipo HFC. Il tipo e la qualità di gas utilizzato sono indicati sulla targhetta.

ELEMENTARY SAFETY STANDARDS – RISKS

The Chiller has no dangerous corners, sharp and cutting surfaces or protruding parts. All safety guards on moving parts or electrics are screwed to the cabinet. These guards avoid any form of accidental contact with parts that present a risk to the user. Always respect safety standards:

- Do not touch the Chiller with wet hands or feet;
- Not use the Chiller barefooted;
- Do not poke screwdrivers, cutlery or other objects between the safety guards mounted on moving parts;
- Before cleaning or servicing the Chiller lock-off the power supply.

INSTALLATION

Carefully follow and adhere to the instructions given in this chapter to guarantee working efficiency and safety when the Chiller is in use.

CAUTION: When transporting or moving the Chiller to the installation site do not push or drag it, lift it and position it on a trolley to avoid overturning.

LOCATION

Locate the Chiller in a ventilated area distant from heat sources such as radiators, air conditioning units, deep-fryers and ovens.

Make sure the Chiller is located at a distance not less than 3.93 inch the back wall to permit a good cooling effect for the various components.

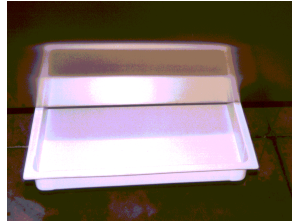
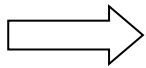
To maintain the correct internal temperature, the ambient temperature must not exceed +90°F

Adjust height and levelling using the support feet and also check the door closes. If the Chiller is not perfectly level working efficiency and condensation flow may be affected.

Remove the PVC protective film on both sides of the Chiller.

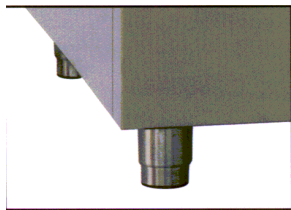
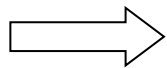
Condense collector

Insert it from the front part of the machine and make it slide along the runners placed on the bottom, pushing toward the rear.



Flat positioning

The machine should be placed over flat and firm ground. Check the steel feet position to prevent turning over. It is vital for the chiller to be positioned flat and to be well-firm on its four angles. You can adjust the steel feet yourself: make sure that the chiller does not lean against other machines.



The machine should be situated allowing adequate space around it so that proper air circulation is assured.

CONNECTING TO THE POWER SUPPLY

The BLAST CHILLER/BLAST FREEZER works off single-phase tension 208V- 60Hz.

Electric power connection:

- Connect the unit only to energy sources properly earthed.
- Do not damage the power cord (danger of electric accident). If it is damaged, it has to be replaced immediately by a qualified electrician from the assistance centre.
- Install a safety switch in case of fault currents with a specific protection for persons (30mA) on the power supply control panel.

Before starting up:

- Make sure that the ground system is properly connected with the terminal (PE) through a cable of minimum section 0.63 square inch.²
- Provide a connection against contact tensions

Make sure that the mains voltage corresponds to that indicated in the identification nameplate.

CAUTION: the manufacturer shall not be held responsible for damage or accidents caused by negligence due to the non-observance of the recommendations and regulations given or of the local governing standards and laws regarding electrical safety.

ADVICES FOR A CORRECT USE OF THE EQUIPMENT

Before using the Chiller remove all traces of glue using a detergent as there might be traces of condensate due to final testing in the factory.

Chiller efficiency when chilling and freezing depends on the following factors:

OPTIMIZATION OF THE CYCLES (useful suggestions):

PRE-COOLING

Pre-cooling is highly recommended before carrying out a chilling or rapid deep-freezing cycle to pre-cool the cell in order to reduce working times.

CORE PROBE

The core probe shall be properly positioned in the core of the thicker portion of product. Its point shall neither come out nor touch the pan. The probe shall be cleaned before starting any cycle, in order to prevent contaminations.

LIDS AND CONTAINERS

Do not cover pans and/or other containers with lids or insulating films. The more the product's surface gets in contact with the air circulating in the cell, the less it will take to chill and deep-freeze it.

Do not use cups or pans deeper than 1.57 inch.

POSITIONING OF THE PRODUCT

Do not superimpose layers of product one upon another and make sure that they are never thicker than 1.968 inch.

Do not overload the unit beyond the quantity recommended by the manufacturer.

Allow a sufficient space between the pans in order to permit the proper air circulation.

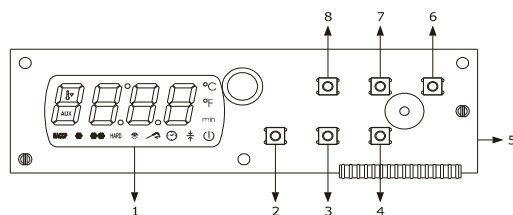
Do not put too many pans on one side of the unit, but distribute them equally.

CONSERVATION

The chilled and/or frozen product shall be covered and protected (film, airtight, hermetic sealing).

1 WORKING INSTRUCTIONS

The drawing below illustrates the aspect of the electronic card.

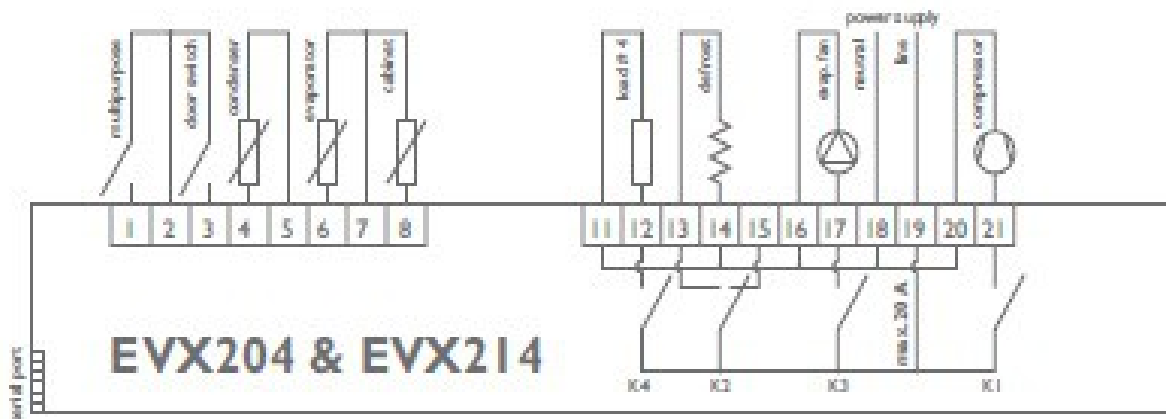


1	display
2	blast chilling key
3	blast freezing key
4	hard blast chilling or soft blast freezing key, then also named “HARD/SOFT key”
5	serial door with MODBUS reference communication
6	on/off/start/stop key, then also named “START/STOP key”
7	increase key, then also named “UP key”
8	decrease key, then also named “DOWN key”

For further informations, please consult the following chapters.

2 ELECTRIC CONNECTION

The following drawing illustrates the electric connection of the electronic card.



The fourth entry function depends on the parameter P5, in the following way:

- entry high pressure (digital entry, P5 = 0)
- condenser probe (analogical entry, P5 = 1, default formulation).

For the formulations related to the parameters please consult chapter 9 "Configuration."



The use managed by the exit K2 depends on the parameter u0, in the following way:

- defrosting (u0 = 0)
- evaporator fan (u0 = 1, default formulation).

For the formulations related to the parameters please consult chapter 9 "Configuration"



The serial door is the door for the connection of the inspector to the followings further products:

- key of planning EVKEY
- software system of set-up Parameters Manager
- monitoring and supervision system for RICS installation
- recording data, download of recorded (street USB) data, for the upload and the download of parameters of configuration EVUSBREC01 device. The door must not contemporarily be used with more than one of these products.

3 USER INTERFACE

3.1 Preliminary instructions

There are the following state of working:

- the state "off" (the device is not fed)
- the state "stand-by" (the device is fed and it is out)
- the state "on" (the device is fed, you/he/she has turned on and it is waiting for the start of a cycle of operation)
- the state "run" (the device is fed, you/he/she has turned on and a cycle of operation is in progress).

Then, with "lighting of the device" he intends the transition from the state "stand-by" to the state "on" and with "turning off of the device" it is named the transition from the state "on" to the state "stand-by."

If an interruption of the feeding occurs during the state "stand-by" or during the state "on", at the restoration of the feeding the device will propose the same state.

If an interruption of the feeding occurs during the state "run", at the restoration of the feeding the device will work in the following way:

- if a temperature blast chilling cycle or a temperature blast freezing cycle was in progress, it will be restarted from the beginning
- if a time blast chilling cycle or a time blast freezing cycle was in progress:
- it will be restarted by the instant in which the interruption of the feeding will be manifested with a maximum error of 10 min
- if a conservation cycle was in progress, the conservation cycle will be proposed again.

3.2 Blast chiller switching on/off

Please operate in the following way:

1. Please make sure that the keyboard is not jammed and that some procedure is not in progress.
2. Please keep pressed the key START / Stop for 1 s: the LED \odot will ignite / extinguish.

3.3 The display

During the state "off" and during the state "stand-by" the display is out.

During the state "on" the display visualizes the temperature of the cell.

During the state "run" the device will work in the following way:

- if a temperature blast chilling cycle or a temperature blast freezing cycle is in progress, the display will visualize the temperature noticed by the core probe
- if a time blast chilling cycle or a time blast freezing cycle is in progress, the display will visualize the residual cycle time
- if a maintenance is in progress, the display will visualize the temperature of the cell.

3.4 Cell temperature display

Please operate in the following way:

1. Please make sure that the keyboard is not jammed and that some procedure is not in progress.
2. Please keep the key DOWN pressed for 1 s: the display will visualize the first available label.
3. Please press and to release the key UP or the key DOWN to select "Pb1."
4. Please press and to release the BLAST CHILLING key: the display will visualize the temperature of the cell.

To leave the procedure please operate in the following way:

5. Please press and to release the BLAST CHILLING key or do not operate for 15 s: the display will again visualize "Pb1."
6. Please press and to release the UP key or the DOWN key until the display visualizes the suitable greatness in the paragraph 5.3 "the display" or do not operate for 60 s.

3.5 Core probe temperature display

Please operate in the following way:

1. Please make sure that the keyboard is not jammed and that some procedure is not in progress.
2. Please keep the DOWN key pressed for 1 s: the display will visualize the first available label.
3. Please press and release the UP key or the DOWN key to select "Pb2."
4. Please press and release the Blast chilling key: the display will visualize the temperature noticed by the core probe.

To leave the procedure please operate in the following way:

5. Please press and release the BLAST CHILLING key or do not operate for 15 s: the display will again visualize "Pb2."
6. Please press and release the UP key or the DOWN key until the display visualizes the suitable greatness in the paragraph 5.3 "the display" or not to operate for 60 s.

If the core probe is not trained, or if the parameter P3 is planned to 0, the label "Pb2" won't be visualized.

3.6 Evaporator temperature display

Please operate in the following way:

1. Please make sure that the keyboard is not jammed and that some procedure is not in progress.
2. Please keep the DOWN key pressed for 1 s: the display will visualize the first available label.
3. Please press and to release the UP key or the DOWN key to select "Pb3."
4. Please press and to release the BLAST CHILLING key: the display will visualize the temperature of the evaporator.

To leave the procedure please operate in the following way:

5. Please press and release the BLAST CHILLING key or do not operate for 15 s: the display will again visualize "Pb3."
6. Please press and release the UP key or the DOWN key until the display visualizes the suitable greatness in the paragraph 5.3 "the display" or not to operate for 60 s.

If the evaporator probe is not trained, or if the parameter P4 is planned to 0, the label "Pb3" it won't be visualized.

3.7 Condenser temperature display

Please operate in the following way:

1. Please make sure the keyboard is not jammed and that some procedure is not in progress.
2. Please keep the DOWN key pressed for 1 s: the display will visualize the first available label.
3. Please press and release the UP key or the DOWN key to select "Pb4."
4. Please press and release the BLAST CHILLING: the display will visualize the temperature of the condenser.


To leave the procedure to operate in the following way:

5. Please press and release the BLAST CHILLING key or do not operate for 15 s: the display will again visualize "Pb4."
6. To press and to release the key UP or the key DOWN up to when the display visualizes the suitable greatness in the paragraph 5.3 "the display" or not to operate for 60 s.

If the condenser probe is not trained, or if the parameter P5 is planned to 0, the label "Pb4" won't be visualized.

3.8 Manual defrosting starting

Please operate in the following way:

1. Please make sure that a maintenance is in progress.
2. Please make sure the keyboard is not jammed and that some procedure is not in progress.
- 3.1 Please keep the UP key pressed for 4 s: the LED  will switch on.

If the evaporator probe is trained, or if the parameter P4 is planned to 1 and when the defrosting cycle starts the temperature of the evaporator it is above that established with the parameter d2, the defrosting cycle won't be activated.

3.9 Keyboard Block/unblock

To stop the keyboard please operate in the following way:

1. Please make sure some procedure is not in progress.
2. Please keep the DOWN and the START / STOP key pressed for 1 s: the display will visualize "Loc" for 1 s.

If the keyboard is jammed, the following operations won't be allowed:

- device switching on/off
- cell temperature display (with the procedure brought in the paragraph 5.4)
- core probe display (with the procedure brought in the paragraph 5.5)
- evaporator temperature display
- condenser temperature display
- manual defrosting starting
- operation cycle start/stop
- lighting of the light UV for the cycle of sterilization
- core probe heating

- alarms HACCP informations display
- alarms HACCP informations cancellation
- compressor working hours display
- compressor working hours cancellation
- formulation of the day and real time.

To unlock the keyboard please operate in the following way:

1. Please make sure that some procedure is not in progress.
2. Please keep the DOWN key and the START / STOP key pressed for 1 s: the display will visualize "UnL" for 1 s.

3.10 Buzzer off

Please operate in the following way:

1. Please make sure that some procedure is not in progress.
2. Please press and release a key.

4 FUNCTIONING Blast Chiller/Blast Freezer

4.1 Preliminary instructions

The following types of operation cycles can be managed:

- blast chilling and conservation
- hard blast chilling and conservation
- blast freezing and conservation
- hard blast freezing and conservation.

For further information please consult the following paragraphs.

Every cycle of operation can be preceded by a pre-cooling cycle; please consult paragraph 6.6 "Pre-cooling."

The temperature cycles are preceded by a test for the verification of the correct insertion of the core probe; please consult paragraph 6.7 "correct insertion of the core probe checking test"

If the core probe is not trained, or if the parameter P3 is planned to 0, the temperature cycles will be started to time.

4.2 Blast chilling and conservation

The cycle of temperature blast chilling and conservation it is composed by the followings two phases:

- blast chilling
- conservation


When the first phase finishes the device automatically passes to the following one.

To start the cycle please operate in the suitable way:

1. Please make sure the device is in the state "on."
2. Please make sure that the keyboard is not jammed and that some procedure is not in progress.
3. Please press and release the BLAST CHILLING key: the LED ✱ will flash.
- 4.1 If the parameter r19 is planned to 0, the display will visualize the work setpoint during the blast chilling cycle; it is also possible to plan this value through the parameter r7.
- 4.2 If the parameter r19 is planned to 1, the display will visualize the temperature of end blast chilling; it is also possible to plan this value through the parameter r3.
- 4.3 Please press and release the UP key or the DOWN key within 15 s. to modify the value of the parameter.
5. Please press and release the START / STOP key: the LED ✱ will firmly remain turned on and it will be started the test for the verification of the correct insertion of the core probe; please consult the paragraph 6.7
- 5.1 If the test is completed with success, the cycle will be started.

The calculation of the maximum duration of the demolition is started to condition that the temperature noticed by the core probe is below that the one established with the parameter r15.

- 5.2 If the test is not completed with success, the device will start a time cycle.

During the blast chilling cycle the display visualizes the residual time of the duration of the blast chilling cycle and the LED  has turned on.

To modify the residual time please operate in the suitable way:

5.2.1 Please press again and release the UP key or the DOWN key to modify the value of the time: the display will flash.


5.2.2. Don't operate for 4 s: the display will stop flashing and will permanently remain turned on.

The following parameters establish the following values:

- the parameter r1 establishes the duration of the blast chilling cycle
- the parameter r7 establishes the work setpoint during the blast chilling cycle.

To interrupt the cycle please operate in the suitable way:

6. Please keep START / STOP key pressed.

During the demolition the display visualizes the temperature noticed by the core probe and the LED  has turned on.

The following parameters establish the following values:

- the parameter r3 establishes the temperature of end blast chilling cycle
- the parameter r5 establishes the maximum duration of the blast chilling cycle
- the parameter r7 establishes the work setpoint during the blast chilling cycle


To visualize the temperature of the cell to press and to release the BLAST CHILLING key, the BLAST FREEZING key or the HARD / SOFT key; to restore the normal visualization please press again and release the same key or do not operate for 15 s.

If the temperature noticed by the core probe reaches the temperature of end blast chilling cycle within the maximum duration of the blast chilling cycle, the cycle will be completed with success, the device will automatically pass to conservation and the buzzer will be activated for the established time with the parameter AA.

To stop the buzzer please press and release a key.

During the conservation the display visualizes the temperature noticed by the cell probe and the LED has turned on.

The parameter r10 establishes the work setpoint during the conservation phase.

If the temperature noticed by the core probe doesn't reach the temperature of end blast chilling within the maximum duration of the blast chilling, it won't be completed with success but it will continue, the LED  will flash and the buzzer will be activated.

To restore the normal visualization and stop the buzzer please press and release a key.

To visualize the cell temperature please press and to release the BLAST CHILLING key; to restore the normal visualization please press again and release the key BLAST CHILLING or do not to operate for 15 s.

When the temperature noticed by the core probe reaches the temperature of end blast chilling cycle, the device automatically passes to the conservation phase with the same formalities mentioned before.



4.3 Hard blast chilling and conservation

The temperature hard blast chilling cycle and conservation are distinguished by the followings three phases:

- hard blast chilling phase
- blast chilling
- conservation.


When the first phase ends the device automatically passes to the following one.

To start the cycle please operate in the suitable way:

1. Please make sure that the device is in the state "on."
2. Please make sure that the keyboard is not jammed and that some procedure is not in progress.
3. Please press and release the BLAST CHILLING key: the LED  will flash.
4. Please press and release the HARD / SOFT key: the LED HARD will flash.
- 5.1 If the parameter r19 is planned to 0, the display will visualize the work setpoint during the blast chilling cycle; it is also possible to plan this value through the parameter r7.
- 5.2 If the parameter r19 is planned to 1, the display will visualize the blast chilling end temperature; it is also possible to plan this value through the parameter r3.
- 5.3 Please press and release the UP key or the DOWN key within 15 s to modify the value of the parameter.
6. Please press and release the START / STOP key: the LED  and the LED HARD will firmly remain turned on and it will be started the test for the verification of the correct core probe insertion; the paragraph is seen 6.7 "correct core probe insertion checking test"
- 6.1 If the test is completed with success, the cycle will be started.

The calculation of the maximum blast chilling phase duration starts only if the temperature noticed by the core probe is lower than the one established by the parameter r15.

6.2 If the test is not completed with success, the device will start a time cycle.

During the hard blast chilling phase the display visualizes the residual time of blast chilling cycle and the LED  has turned on.

To modify the residual time please operate in the suitable way:

6.2.1 Please press again and release the UP key or the DOWN key to modify the time value: the display will flash.

6.2.2 Please do not operate for 4 s: the display will stop flashing

The following parameters establish the following values:

- the parameter r9 establishes the work setpoint during the hard blast chilling phase
- the parameter r14 establishes the duration of hard blast chilling phase


During the blast chilling phase the display visualizes the blast chilling phase residual time and the LED  has turned on.

The following parameters establish the following values:

- the parameter r1 establishes the blast chilling phase duration
- the parameter r7 establishes the work setpoint during the blast chilling cycle.

To interrupt the cycle to operate in the suitable way:

7. Please keep the START/STOP key pressed.


During the hard blast chilling phase the display visualizes the temperature noticed by the core probe and the LED  has turned on.

The following parameters establish the following values:

- the parameter r5 establishes the maximum blast chilling phase duration
- the parameter r9 establishes the work setpoint during the hard blast chilling phase
- the parameter r13 establishes the hard blast chilling phase end temperature.

To visualize the cell temperature please press and release the BLAST CHILLING key, the BLAST FREEZING key or the HARD / SOFT key; to restore the normal visualization please press and release again the same key or do not operate for 15 s.

When the temperature noticed by the core probe reaches the temperature of end blast chilling phase, the device it automatically passes to the blast chilling phase.

During the blast chilling phase the display visualizes the temperature noticed by the core probe and the LED  has turned on.


The following parameters establish the following values:

- the parameter r3 establishes the end blast chilling phase temperature
- the parameter r5 establishes the maximum blast chilling phase duration
- the parameter r7 establishes the work setpoint during the blast chilling phase.


To visualize the cell temperature please press and release the BLAST CHILLING key ; to restore the normal visualization please press and release again the BALST CHILLING key or do not to operate for 15 s.

If the temperature noticed by the core probe reaches theblast chilling end temperature within the maximum duration of the blast chilling cycle, the blast chilling cycle be completed with success, the device will automatically pass to the conservation and the buzzer will be activated for the established time with the parameter AA.

To stop the buzzer please press and release a key.

During the conservation phase the display visualizes the temperature noticed by the cell probe and the LED  has turned on.

The parameter r10 establishes the work setpoint during the conservation phase.

If the temperature noticed by the core probe doesn't reach the blast chilling end cycle temperature within the maximum duration of the blast chilling, the blast chilling phase won't be completed with success but it will continue, the LED  will flash and the buzzer will be activated.

To restore the normal visualization and stop the buzzer please press and release a key.

To visualize the temperature of the cell please press and release the BLAST CHILLING key ; to restore the normal visualization please press and release again the BLAST CHILLING key or do not operate for 15 s.

When the temperature noticed by the core probe reaches the end blast chilling temperature, the device automatically passes to the conservation phase with the same formalities explained before.





4.4 Blast Freezing and Conservation

The temperature blast freezing cycle and conservation cycle are distinguished by the followings two phases:

- blast freezing
- conservation.

When the first phase ends the device automatically passes to the following one.


To start the cycle please operate in the suitable way:

1. Please make sure that the device is in the state "on."
2. Please make sure that the keyboard is not jammed and that some procedure is not in progress.
3. Please press and release the BLAST FREEZING key : the LED , the LED  and the LED HARD will flash.
- 4.1 If the parameter r19 is planned to 0, the display will visualize the work setpoint during the blast freezing cycle; it is also possible to plan this value through the parameter r8.
- 4.2 If the parameter r19 is planned to 1, the display will visualize the end blast freezing temperature ; it is also possible to plan this value through the parameter r4.
- 4.3 Please press and release the UP key or the DOWN key within 15 s to modify the value of the parameter.
5. Please press and release the START/STOP key : the LED , the LED  and the LED HARD will permanently remain turned on and the test for the verification of the correct insertion of the core probewill be started ; please consult the paragraph 6.7 " core probe correct insertion checking test."

- 5.1 If the test is completed with success, the cycle will be started.

The calculation of the maximum blast freezing phase duration is started only if the temperature noticed by the core probe is lower than the one established with the parameter r15.

- 5.2 If the test is not completed with success, the device will start a time cycle..

During the blast freezing cycle the display visualizes the blast freezing residual time and the LED  has turned on.

To modify the residual time please operate in the suitable way:


- 5.2.1 Please press and release again the UP key or the DOWN key to modify the time value: the display will flash.
- 5.2.2 Do not operate for 4 s: the display will stop flashing for to firmly remain turned on.

The following parameters establish the following values:

- the parameter r2 establishes the blast freezing cycle duration
- the parameter r8 establishes the work setpoint during the blast freezing.

To interrupt the cycle please operate in the suitable way:

6. Please keep the START/STOP key pressed.

During the blast chilling phase the display visualizes the temperature noticed by the core probe and the LED  has turned on.

The following parameters establish the following values:

- the parameter r4 establishes the end blast freezing temperature
- the parameter r6 establishes the blast freezing maximum duration
- the parameter r8 establishes the blast freezing work setpoint.


To visualize the cell temperature please press and release the BLAST CHILLING key, the BLAST FREEZING key or the HARD / SOFT key; to restore the normal visualization please press and release again the same key or do not operate for 15 s.

If the temperature noticed by the core probe reaches the end blast freezing temperature within the blast freezing maximum duration , the blast freezing cycle will be completed with success, the device will automatically pass to the conservation and the buzzer will be activated for the established time with the parameter AA.

To stop the buzzer please press and release a key.

During the conservation phase the display visualizes the temperature noticed by the cell probe and the LED  has turned on.

The parameter r11 establishes the conservation work setpoint.

If the temperature noticed by the core probe doesn't reach the end blast freezing temperature within the maximum blast freezing duration , the blast freezing phase won't be completed with success but it will continue, the LED  will flash and the buzzer will be activated.

To restore the normal visualization and stop the buzzer please press and release a key.

To visualize the cell temperature please press and release the BLAST FREEZING key ; to restore the normal visualization please press and release the BLAST FREEZING key again, or do not operate for 15 s.

When the temperature noticed by the core probe reaches the end blast freezing temperature , the device automatically passes to the conservation phase with the same formalities explained before.





4.5 Soft Blast Freezing and conservation


The temperature soft blast freezing cycle and conservation cycle are distinguished by the following three phases:

- soft blast freezing
- blast freezing
- conservation.

When the first phase ends the device automatically passes to the following one.

To start the cycle please operate in the suitable way:

1. Please make sure that the device is in the state "on."
2. Please make sure that the keyboard is not jammed and that some procedure is not in progress.
3. Please press and release the BLAST FREEZING key: the LED , the LED  and the LED HARD will flash.
4. Please press and release the HARD / SOFT key: the LED HARD will turn off.
- 5.1 If the parameter r19 is planned to 0, the display will visualize the work setpoint during the blast freezing cycle; it is possible also to plan this value through the parameter r8.
- 5.2 If the parameter r19 is planned to 1, the display will visualize the end blast freezing temperature; it is possible also to plan this value through the parameter r4.
- 5.3 Please press and release the UP key or the DOWN key within 15 s to modify the value of the parameter.
6. Please press and release the START / STOP key: the LED  and the LED  will firmly remain turned on and the device will start the test for the verification of the correct core probe insertion; please consult the paragraph 6.7 "correct core probe insertion checking test"
- 6.1 If the test is completed with success, the cycle will be started.
The calculation of the blast freezing maximum duration is started only if the temperature noticed by the core probe is lower than the one established with the parameter r15.
- 6.2 If the test is not completed with success, the device will start a time cycle.


During the blast chilling cycle the display visualizes the blast freezing cycle residual time and the LED  has turned on.

To modify the residual time please operate in the suitable way:

- 6.2.1 Please press and release the UP key or the DOWN key again to modify the time value: the display will flash.
- 6.2.2 Do not operate for 4 s: the display will stop flashing and will remain permanently turned on.

The following parameters establish the following values:

- the parameter r8 establishes the work setpoint during the blast freezing phase
- the parameter r14 establishes the soft blast freezing phase duration.

During the blast freezing phase the display visualizes the blast freezing residual time and the LED  has turned on.

The following parameters establish the following values:

- the parameter r2 establishes the blast freezing phase duration
- the parameter r8 establishes the blast freezing work setpoint.

To interrupt the cycle please operate in the suitable way:

7. Please keep the START / STOP key pressed.


During the soft blast freezing phase the display visualizes the temperature noticed by the core probe and the LED  has turned on.

The following parameters establish the following values:

- the parameter r3 establishes the end blast freezing temperature
- the parameter r6 establishes the blast freezing phase maximum duration
- the parameter r7 establishes the blast freezing phase work setpoint.

To visualize the cell temperature please press and release the BLAST CHILLING key, the BLAST FREEZING key or the HARD / SOFT key; to restore the normal visualization please press and release again the same key or do not operate for 15 s.

When the temperature noticed by the core probe reaches the end soft phase temperature, the device automatically passes to the blast freezing phase.

During the blast freezing phase the display visualizes the temperature noticed by the core probe and the LED  has turned on.


The following parameters establish the following values:

- the parameter r4 establishes the end blast freezing temperature
- the parameter r6 establishes the blast freezing maximum duration
- the parameter r8 establishes the work setpoint during the blast freezing phase.


To visualize the cell temperature please press and release the BLAST FREEZING key; to restore the normal visualization please press and release the BLAST FREEZING key again or do not operate for 15 s.

If the temperature noticed by the core probe reaches the end blast freezing temperature within the maximum duration of the blast freezing, the blast freezing phase will be completed with success, the device will automatically pass to the maintenance and the buzzer will be activated for the established time with the parameter AA.

To stop the buzzer please press and release a key.

During the conservation the display visualizes the temperature noticed by the cell probe and the LED  has turned on.

The parameter r11 establishes the work setpoint during the conservation.

If the temperature noticed by the core probe doesn't reach the end blast freezing temperature within the maximum blast freezing duration, the blast freezing phase won't be completed with success but it will continue, the LED  will flash and the buzzer will be activated.

To restore the normal visualization and stop the buzzer please press and release a key.


To visualize the cell temperature please press and to release the blast BLAST FREEZING key ; to restore the normal visualization please press and release the BLAST FREEZING key again or do not operate for 15 s.

When the temperature noticed by the core probe reaches the temperature end blast freezing, the device automatically passes to the maintenance with the same formalities explained before.

4.6 Pre-cooling start

Every cycle of operation can be preceded by a pre-cooling phase.


To start the pre-cooling phase please operate in the suitable way:

1. Please make sure that the device is in the state "on."
2. Please make sure that some procedure is not in progress.
3. Please keep the BLAST CHILLING key pressed for 1 s: the LED  will flash.

To stop the pre-cooling phase please operate in the suitable way:

4. Please keep the BLAST CHILLING key pressed for 1 s or to start a cycle of operation.

The parameter r12 establishes the work setpoint during the pre-cooling phase.

When the cell temperature reaches the one established with the parameter r12 the pre-cooling phase continues, the LED  remains permanently turned on and the buzzer is activated for 1 s.


4.7 Core probe correct insertion checking test

If the core probe is trained, or if the parameter P3 is planned to 1, the temperature cycles are preceded by a test on two phases for the verification of the correct insertion of the core probe.

The second phase is performed only if the first one is not completed with success.

The first phase is completed with success if the difference "temperature noticed by the core probe - cell temperature " is higher than the one established with the parameter r17 at least in 3 controls on 5 (controls are performed to intervals of 10 s; to consider the difference without sign).

The second phase is completed with success if the difference "temperature noticed by the core probe - cell temperature " is higher than 1 °C / 1 °F, in comparison to the control performed before, at least in 6 controls on 8 (controls are performed to intervals of 1 / 8 of the time established with the parameter r18; to consider the difference without sign).

If the test is completed with success, the cycle will be started; if the test is not completed with success, the LED  will flash and the buzzer will be activated for 5 s every 15 s.

To start the temperature cycle to press the BLAST CHILLING key or the BLAST FREEZING key however; departed 1 min from the signaling that the test has not been completed with success without having operated the cycle you/he/she is started to time.

If the parameter r17 is planned to 0.0, the test won't be performed (neither the first neither the second phase).

5 COMPRESSOR WORKING HOUR CALCULATION

5.1 Compressor working hour display

Please operate in the following way:

1. Please make sure that the keyboard is not jammed and that some procedure is not in progress.
2. Please keep the DOWN key pressed for 1 s: the display will visualize the first available label.
3. Please press and release the UP key or the DOWN key to select "CH."
4. Please press and release the BLAST CHILLING key : the display will visualize the compressor working hours.

To go out of the procedure please operate in the following way:

5. Please press and release the BLAST CHILLING key or do not to operate for 15 s: the display will again visualize "Pb2."
6. Please press and release the UP key or the DOWN key until the display visualizes the suitable size in the paragraph 5.3 "the display" or do not operate for 60 s.

5.2 Compressor working hours cancellation

Please operate in the following way:

1. Please make sure that the keyboard is not jammed and that some procedure is not in progress.
2. Please pressed the DOWN key for 1 s: the display will visualize the first available label.
3. Please press and release the UP key or the DOWN key to select "rCH."
4. Please press and release the BLAST CHILLING key: the display will visualize "0."
5. Please press and release the UP key or the DOWN key within 15 s to plan "149."
6. Please press and release the BLAST CHILLING key or do not operate for 15 s: the display will visualize "- - - " flashing for 4 s and the LED HACCP he will turno off, then the device will automatically go out of the procedure and the display will visualize the suitable size in the paragraph 5.3 "the display."

6 SETTING

6.1 Parameters setting

Please operate in the following way:

1. Please make sure that some procedure is not in progress.
2. Please keep the UP key and the DOWN key pressed for 4 s: the display will visualize "PA."
3. Please press and release the BLAST CHILLING key: the display will visualize "0."
4. Please press and release the UP key or the DOWN key within 15 s to plan "-19."
5. Please press and release the BLAST CHILLING key or do not operate for 15 s: the display will visualize "PA." again.
6. Please keep the UP key and the DOWN key pressed for 4 s: the display will visualize "SP."

To set a parameter please operate in the following way:

7. Please press and release the UP key or the DOWN key to select the label of a parameter.
8. Please press and release the BLAST CHILLING key : the display will visualize the value of the parameter.
9. Please press and release the UP key or the DOWN key within 15 s to modify the value of the parameter.
10. Please press and release the BLAST CHILLING key or do not operate for 15 s: the display will visualize the label of the parameter again.

To go out of the procedure please operate in the following way:

11. Please keep pressed the UP key and the DOWN key pressed for 4 s or do not to operate for 60 s: the display will visualize the suitable size in the paragraph 5.3 "the display."

Please interrupt the feeding of the device after parameters of configuration setting.

6.2 Configuration parameters list

The following chart illustrates the meaning of the configuration parameters.

The management of some entries and some exits is subordinate to the value planned with some parameters in the following way:

- the management of the core probe is available only if the parameter P3 is planned to 1
- the management of the evaporator probe is available only if the parameter P4 is planned to 1
- the management of the condenser probe is available only if the parameter P5 is planned to 1
- the management of the high pressure entry is available only if the parameter P5 is planned to 0
- the management of the defrosting is available only if the parameter u0 is planned to 0
- the management of the evaporator fan is available only if the parameter u0 is planned to 1
- the management of the cell light is available only if the parameter u11 is planned to 0
- the management of the heating of the core probe is available only if the parameter u11 is planned to 1
- the management of the UV light is available only if the parameter u11 is planned to 2.

Par.	Min.	Max.	Unit	JOF 23, JOF ONE	Analogical entrance
CA1	-25.0	25.0	°C / °F (1)	0.0	offset cell probe
CA2	-25.0	25.0	°C / °F (1)	0.0	offset core probe
CA3	-25.0	25.0	°C / °F (1)	0.0	offset evaporator probe
CA4	-25.0	25.0	°C / °F (1)	0.0	offset condenser probe
P0	0	1	----	1	Probe type 0 = PTC 1 = NTC
P1	0	1	----	0	decimal degree °C point 1 = yes
P2	0	1	----	1	Unit of temperature measurement (2) 0 = °C 1 = °F
P3	0	1	----	0	Core probe qualification 1 = yes
P4	0	1	----	0	Evaporator probe qualification 1 = yes
P5	0	1	----	0	Fourth entrance function 0 = high pressure entrance (digital entrance) 1 = condensor probe entrance (analogical entrance)
P8	0	250	ds	5	delay in temperature variation noticed by the core probe displaying
Par.	Min.	Max.	Unit	JOF 23, JOF ONE	Principal regulator
r0	0.1	15.0	°C / °F (1)	4.0	differential of parameters r7, r8, r9, r10, r11 and r12
r1	1	500	min	90	time blast chilling duration
r2	1	500	min	240	time blast freezing duration

r3	-99.0	99.0	°C / °F (1)	37.4	end temperature blast chilling temperature; also end temperature soft blast freezing (temperature noticed by the core probe); please consult also parameter r5
r4	-99.0	99.0	°C / °F (1)	-0.40	end temperature blast freezing temperature (temperature noticed by core probe); please consult also parameter r6
r5	1	500	min	90	temperature blast chilling max. duration, please consult also parameter r3
r6	1	500	min	240	temperature blast freezing max. duration, please consult also parameter r4
r7	-99.0	99.0	°C / °F (1)	32.0	work setpoint during the blast chilling ; also work setpoint during the soft blast freezing phase (cell temperature); please consult also the parameter r0
r8	-99.0	99.0	°C / °F (1)	-40.0	work setpoint during the blast freezing (cell temperature); please consult also parameter r0
r9	-99.0	99.0	°C / °F (1)	-4.0	work setpoint during the hard blast chilling phase (cell temperature); please consult also parameter r0
r10	-99.0	99.0	°C / °F (1)	35.6	work setpoint during the post blast chilling conservation (cell temperature); please consult also parameter r0
r11	-99.0	99.0	°C / °F (1)	-4.0	work setpoint during the post blast freezing conservation (cell temperature); please consult also parameter r0
r12	-99.0	99.0	°C / °F (1)	41.0	work setpoint during the pre-cooling phase (cell temperature); please consult also parameter r0
r13	-99.0	99.0	°C / °F (1)	59.0	end hard blast chilling phase temperature (temperature noticed by the core probe)

r14	10	100	%	60	time hard blast chilling phase duration (as percentage of the value set by the parameter r1); also time soft blast freezing phase duration (as percentage of the value set by the parameter r2)
r15	-99.0	99.0	°C / °F (1)	149.0	temperature below which the calculation of the maximum duration of the temperature blast chilling and of the maximum duration of the temperature blast freezing is started (temperature noticed by the core probe)
r16	0	2	- - - -	1	type of functioning cycle that can be selected 0 = blast chilling and conservation 1 = blast chilling and conservation or blast freezing and conservation 2 = blast freezing and conservation
r17	0.0	99.0	°C / °F (1)	41.0	least difference "temperature noticed by the core probe – cell temperature" such to consider completed with success the first phase of the test for the correct core probe insertion checking (to consider the difference without sign) 0.0 = the test won't be performed (neither the first one neither the second phase)
r18	1	99	s	60	duration of the correct core probe insertion , second part
r19	0	1	- - - -	0	value that can be quickly changed during the state "on" before starting the functioning cycle 0 = work setpoint during the blast chilling or during the blast freezing 1 = end blast chilling or end blast freezing temperature

r20	0	1	----	1	<p>memorization of the quickly modifiable value during the state "on" before starting the functioning cycle</p> <p>0 = no (when the next cycle starts, the device will propose the values set by the parameters r7 and r3, or r4 and r8 again)</p> <p>1 = him (when the next cycle starts the device will propose the values quickly changed before starting the first cycle, again)</p>
Par.	Min.	Max.	Unit	JOF 23, JOF ONE	Compressor protection
C0	0	240	min	0	minimum pause between a feeding restoration (occurred during a working cycle) and the compressor ignition
C1	0	240	min	0 JOF23 2 JOFONE/E5	minimum pause between two consecutive compressor ignition (3)
C2	0	240	min	1 JOF23 1 JOFONE	minimum pause between the compressor switching off and the next ignition (3)
C3	0	240	s	0	minimum compressor ignition duration
C4	0	240	min	10	compressor switching off duration, during the cell probe error (code "Pr1"), which occurs during the conservation; please consult also parameter C5
C5	0	240	min	10	compressor ignition duration, during the cell probe error (code "Pr1"), which occurs during the post-blast chilling conservation. Please consult also parameter C4
C6	0	199.0	°C / °F (1)	176.0	condenser temperature over which the overheated condenser alarm is on (code "COH") (4)
C7	0	199.0	°C / °F (1)	194.0	condenser temperature over which the blocked compressor alarm is on (code "CSd")

C8	0	15	min	1	compressor blocked alarm delay (code “CSd”) (5)
C9	0	240	min	30	compressor ignition duration, during the cell probe error (code “Pr1”) which occurs during the post-blast freezing conservation; please consult also parameter C4
Par.	Min.	Max.	Unit	JOF 23, JOF ONE	Defrosting (6)
d0	0	99	h	0	Defrosting pause (7) 0 = the defrosting at intervals will never be activated
d1	0	3	----	3	Defrosting type 0 = electric (during the defrosting phase the compressor will be switched off, the defrosting exit will be activated and the evaporator fan will be switched off). 1 = hot gas (during the defrosting phase the compressor will be switched on, the defrosting exit will be activated and the evaporator fan will be switched off) 2 = air (during the defrosting phase the compressor will be switched off and the defrosting exit will be activated; the evaporator fan will be switched on , whether the door conditions or the micro door entrance conditions). 3 = air with opened door (during the defrosting cycle the compressor will be switched off and the defrosting exit will be activated; the evaporator fan will be switched on and only if the door is open, and only if the the micro door access in on and that the parameter i0 is different from 0)
d2	-99.0	99.0	°C / °F (1)	36.6	end defrosting cycle temperature (evaporator temperature); please consult also parameter d3
d3	0	99	min	20	If the parameter P4 is set at 0, defrosting duration In the parameter P4 is set at 1, maximum duration of defrosting cycle; please consult parameter d2 0 = the defrosting cycle will never be activated

d4	0	1	----	0	Defrosting at blast chilling start and at blast freezing start 1 = yes
d5	0	99	min	0	Defrosting delay, from conservation start 0 = the defrosting will be activated when the time set by parameter d0 will be passed.
d7	0	15	min	0	dripping duration (during the dripping phase the compressor and the evaporator fan will be switched off and the same for the defrosting exit).
d15	0	99	min	0	minimum starting compressor duration when the defrosting cycle starts, so it could be activated (only if the parameter d1 is set at 1) (8)
d16	0	99	min	0	pre-dripping duration (only if the parameter d1 is set at 1; during the pre-dripping cycle, the compressor and the evaporator fan will be switched off and the defrosting exit will be activated)
Par.	Min.	Max.	Unit	JOF 23, JOF ONE	Temperature Alarms (9) (10)
A1	0.0	99.0	°C / °F (1)	50.0	cell temperature under which the minimum temperature alarm is activated (relating to the work setpoint, that is "r10 – A1" during the post-blast chilling conservation and "r11 – A1" during the post-blast freezing conservation; code "AL"); please consult also parameter A11 (4)
A2	0	1	----	0	Minimum temperature alarm qualification (code "AL") 1 = yes
A4	0.0	99.0	°C / °F (1)	50.0	cell temperature over which the maximum temperature alarm is activated (referring to the work setpoint, so that "r10 + A4" during the post-blast chilling conservation, and "r11 + A4" during the post blast freezing conservation; code "AH"); please consult also parameter A11 (4)
A5	0	1	----	0	Maximum temperature alarm qualification (code "AH") 1 = yes

A7	0	240	min	15	temperature alarm delay (code “AL” and code “AH”)
A8	0	240	min	15	maximum temperature alarm delay (code “AH”) from the stop evaporator fan ending and the conservation starting
A10	0	240	min	5	Stop feeding duration so to cause the stop feeding alarm memorization (code “PF”) when it will be restored. 0 = the alarm won't be reported
AA	0	240	s	5	buzzer starting duration when the blast chilling and freezing stop.
A11	0,1	15,0	°C / °F (1)	4,0	parameters A1 and A4 differential
A13	0	1	----	1	Memorization of temperature blast chilling or temperature blast freezing not ended within the maximum duration (code “tiME”) 1 = yes
Par.	Min.	Max.	Unit	JOF 23, JOF ONE	Evaporator and condenser fan
F0	0	2	----	1	Evaporator fan activity during the pre- cooling, blast chilling and freezing phase 0 = off 1 = on; please consult also parameters F16 and F17 2 = at the same time of compressor, please consult also parameter F9 and F17
F1	-99.0	99.0	°C / °F (1)	30.2	evaporator temperature over which the evaporator fan will be switched off during the conservation phase (only if the parameter F2 is set at 3); please consult also parameter F8 (11)

F2	0	3	----	3	Evaporator fan activity during the conservation: 0 = off 1 = on 2 = at the same time of compressor, please consult also parameter F9
F3	0	15	min	2	evaporator fan stop duration (during the evaporator fan stop the compressor can be switched on, the defrosting exit will keep deactivated and the evaporator fan will keep switched off)
F8	0.1	15.0	°C / °F (1)	4.0	parameters F1, F16 and F17 differential
F9	0	240	s	0	evaporator fan switching off delay, from compressor switching off (only if the parameter F0 and/or the parameter F2 are set at 2)
F11	0.0	99.0	°C / °F (1)	non presente	condenser temperature over which the condenser fan will be switched on (ment as "F11 + differential, and to the condition that the compressor is on); please consult also parameter F12 (4) (12) (13)
F12	0	240	s	non presente	switching off condenser fan delay, from the compressor switching off.
F15	0	240	s	15	evaporator fan delay, from the door closing; or from the micro door de-activation
F16	-99.0	99.0	°C / °F (1)	86.0	evaporator temperature over which the evaporator fan is switched off during the pre-cooling, blast chilling and blast freezing phase (only if the parameter F0 is set to 1); please consult also parameter F8 (11)
F17	-99.0	99.0	°C / °F (1)	194.0	cell temperature over which the evaporator fan is switched off during the pre-cooling, blast chilling and blast freezing phase (only if the parameter F0 is set at 1 or 2); please consult also parameter F8

Par.	Min.	Max.	Unit	JOF 23, JOF ONE	Digital entrance
i0	0	2	----	2	<p>Effect caused by the door opening, or by the micro door entrance activation</p> <p>0 = no effect</p> <p>1 = the compressor and the evaporator fan will be switched off and the cell light will be switched on, when the time set by the parameter i2 will be over, the display will show the code “id” flashing and the buzzer will be activated (until the door will be closed); please consult also the parameter F15</p> <p>2 = the evaporator fan will be switched off and the cell light will be switched on, when the time set by the parameter i2 will be over, the display will show the code “id” flashing and the buzzer will be activated (until the door will be closed); please consult also the parameter F15</p>
i1	0	1	----	1	<p>Micro door entrance contact type</p> <p>0 = usually opened (entrance activated with contact closed)</p> <p>1 = usually closed (entrance activated with contact opened).</p>
i2	-1	120	min	1	<p>Open door alarm delay (code “id”)</p> <p>-1 = the alarm won’t be shown</p>
i5	0	1	----	1	<p>Effect caused by the antrance high pressure activation</p> <p>0 = no effect</p> <p>1 = the compressor and the evaporator fan will be switched off and the condenser fan will be switched on, when the time set by the parameter i7 will be over, the display will show the code “HP” flashing and the buzzer will be activated (until the entrance will be de-activated).</p>
i6	0	1	----	0	<p>Entrance high pressure type of contact</p> <p>0 = usually opened (entrance activated with closed contact)</p> <p>1 = usually closed (entrance activated with opened contact)</p>
i7	-1	240	s	-1	<p>High pressure alarm delay (code “HP”)</p> <p>-1 = the alarm won’t be shown</p>

Par.	Min.	Max.	Unit	JOF 23, JOF ONE	Digital Exit
u0	0	1	----	1	Use managed by the exit K2 (16) 0 = defrosting (in this case the parameters “d” will have a meaning) 1 = evaporator fan (in this case the parameters “F” will have a meaning)
u1	0	1	----	not present	Use managed by the exit K4 (16) 0 = door resistors (in this case the parameter u5 will have a meaning) 1 = condenser fan (in this case the parameters P5, F11 and F12 will have a meaning)
u2	0	1	----	not present	Switching on/off cell light qualification, by manual way, during the state “stand-by” (17) 1 = yes
u5	-99.0	99.0	°C / °F (1)	not present	cell temperature over which the resistors door are switched off (4)
u6	1	240	min	not present	if the parameter u11 is set at 1, maximum core probe warm up, please consult also parameter u7 if the parameter u11 is set at 2, UV light switching on duration for the sterilization cycle
u7	-99.0	99.0	°C / °F (1)	not present	core probe end warm up temperature (temperature reveled by the core probe); please consult also parameter u6
u11	0	2	----	not present	Use managed by the exit K5 (16) 0 = cell light (in this case the AUXILIARY button and the parameters i0 and u2 will have a meaning) 1 = core probe warm up (in this case the AUXILIARY button and the parameters u6 and u7 will have a meaning). 2 = UV light (in this case the AUXILIARY button and the parameter u6 will have a meaning)
Par.	Min.	Max.	Unit	JOF 23, JOF ONE	Serial Communication (MODBUS)

LA	1	247	----	247	Device address
Lb	0	3	----	2	baud rate 0 = 2.400 baud 1 = 4.800 baud 2 = 9.600 baud 3 = 19.200 baud
LP	0	2	----	2	Equality 0 = none (no equality) 1 = odd 2 = even

Note:






- 1) The unit of measurement depends on the parameter P2
- 2) Please set correctly the parameters related to the controllers, once you changed parameter P2
- 3) The time set by the parameter is charged also during the state “on” and “stand by”
- 4) The differential of the parameter is 2°C/4°F
- 5) If when you switch on the device the condenser unit is over the one set by the parameter C7, the parameter C8 won't have any effect.
- 6) The defrosting cycle is on only during the conservation phase, except the start-blast chilling and the start-blast freezing defrosting, which can be set by the parameter d4
- 7) The device memorize the defrosting break calculation every 30 min; the parameter d0 change has an effect from the previous defrosting break (or from the manual defrosting activation)
- 8) If at the defrosting starting the previous compressor start was in a time lower than the one set by the parameter d15, the compressor will keep on for the necessary time to complete it.
- 9) temperature alarms are on just during the conservation phase
- 10) During the defrosting , pre- dripping and dripping cycle, and the evaporator fan stop, the temperature alarms are not on, only if they are activated after defrosting cycle start; during the door opening, or if the micro door access is on and the parameter i0 is set at values different from 0, the maximum temperature alarm is not activated, only if it came after door opening.
- 11) if the parameter P4 is set at 0, the device will work as the parameters F0 and F2 are set at 2
- 12) the condenser fan is switched off when the compressor is off, when the time set by the parameter F12 is over.
- 13) if the parameter P5 is set to 0, the condenser fan will work parallel to the compressor
- 14) the opened door alarm is on only during the state “run”
- 15) if the door is opened during the defrosting phase or during the evaporator fan stop, the opening won't cause any effect on the compressor.
- 16) to avoid any damage to the device, please change the parameter during the state “standby”
- 17) if the parameter u2 is set at 0, the device switching off will cause the cell light switching off and at the next cell light switching on the light will keep off; if the parameter u2 is set at 1, the device switching off won't cause the cell light switching off and at the next switching on the light will keep on.

7 ADVICES AND INSTRUCTIONS

7.1 Advices:

The following chart illustrates the meaning of the LED signs.

LED	Meaning
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	<p>Blast chilling LED</p> <p>If it's on:</p> <ul style="list-style-type: none"> -a blast chilling cycle is running <p>If it's flashing:</p> <ul style="list-style-type: none"> -a blast chilling and conservation cycle is running
	<p>Blast freezing LED</p> <p>If it's on:</p> <ul style="list-style-type: none"> -a soft blast freezing cycle is running <p>If it's flashing:</p> <ul style="list-style-type: none"> -a soft blast freezing and conservation cycle is running
HARD	<p>Hard blast chilling/freezing LED</p> <p>If it's on:</p> <ul style="list-style-type: none"> -an hard blast chilling or freezing cycle is running <p>If it's flashing:</p> <ul style="list-style-type: none"> -a hard blast chilling and conservation cycle or a blast freezing and conservation cycle is running
	<p>Temperature Blast chilling/temperature blast freezing LED</p> <p>If it's on:</p> <ul style="list-style-type: none"> -a temperature blast chilling and conservation cycle or a temperature blast freezing and conservation cycle is running -a temperature blast chilling or a temperature blast freezing is running <p>If it's flashing:</p> <ul style="list-style-type: none"> -the correct core probe insertion test has not been completed correctly -the core probe warm up is running
	<p>Time blast chilling/blast freezing LED.</p> <p>If it's on:</p> <ul style="list-style-type: none"> -a time blast chilling and conservation cycle or a time blast freezing cycle is running -a time blast chilling cycle or a time blast freezing cycle is running <p>If it's flashing:</p> <ul style="list-style-type: none"> -day and time setting is running
	<p>Conservation LED</p> <p>If it's on:</p> <ul style="list-style-type: none"> -a conservation cycle is running

❄	Defrosting LED. If it's on: -a defrosting cycle is running
❄	Pre-cooling LED. If it's on: -a pre-cooling cycle is running and the cell temperature reaches the temperature set by the parameter r12. If it's flashing: -a pre-cooling cycle is running and the cell temperature doesn't reach the temperature set by the parameter r12
AUX	Auxiliary LED If it's on: -the cell light is on -the core probe warm up is running -the UV light is on
°C	Celsius Degree LED. If it's on: -the temperature unit of measurement will be Celsius Degree
°F	Fahrenheit Degree LED. If it's on: -the temperature unit of measurement will be Fahrenheit Degree
min	Minutes LED If it's on: -the time unit of measurement will be minute.
⏻	On/Stand by LED. If it's on: -the device will be in the state "stand-by"

7.2 Instructions

The following chart illustrates the instructions code meaning

Code	Meaning
Loc	The keyboard is blocked; please consult paragraph 5.10 "Keyboard Block/Unblocking".
UnL	The keyboard is unblocked; please consult paragraph 5.10 "Keyboard Block/Unblocking".

8 ALARMS

8.1 Alarms

The following chart illustrates the alarm codes meaning.

Codie	Meaning
AL	Minimum temperature alarm. Remedy: -please check the cell temperature -please check the parameters A1 e A2 parameters Main consequences: -the device will run normally
id	Open door alarm. Remedy: -please check the door conditions -please check the parameters i0 e i1 values Main consequences: -the effect set by the parameter i0
HP	High pressure alarm. Remedy: -please check the high pressure entrance consitions -please check the parameters i5 e i6 values. Main consequences: -the effect set by the parameter i5
COH	Condenser overheated alarm. Remedy: -please check the condenser temperature -please check the parameter C6 value Main consequences: -the condenser fan will be activated
CSd	Compressor blocked alarm. Remedy: -please check the condenser temperature -please check the parameter C7 value -please disconnect the device feeding and clean the condenser Main consequences: -if the error occurs during the state “stand-by”, it won’t be possible to select or start any cycle -if the error occurs during the fonctionning cycle, the cycle will be stopped.

ESt	<p>Download configuration parameters alarm not completed correctly.</p> <p>Remedy:</p> <ul style="list-style-type: none"> -please press and release a key to restore the normal visualization -please make the configuration parameters download again <p>Main consequences:</p> <ul style="list-style-type: none"> -the device will work normally
CEr	<p>Configuration parameters (EVKEY) firmware alarm not coincided with the device</p> <p>Remedy:</p> <ul style="list-style-type: none"> -please stop the device feeding -please check that the configuration parameters (EVKEY) firmware coincides with the one of the display -please make the configurations parameters download again <p>Main consequences:</p> <ul style="list-style-type: none"> -the device will work normally
Erd	<p>Configuration parameters upload alarm not completed</p> <p>Remedy:</p> <ul style="list-style-type: none"> -please restore the factory setting -please make the configuration parameter upload again. <p>Main consequences:</p> <ul style="list-style-type: none"> -the digital exit will be switched off.

9 ERRORS

9.1 Errors

The following chart illustrates the error code meaning.

Codie	Meaning
Pr1	<p>Cell probe error.</p> <p>Remedy:</p> <ul style="list-style-type: none"> -please check the parameter P0 value -please check the cell probe intact state -please check the device-probe connection -please check the cell temperature <p>Main consequences:</p> <ul style="list-style-type: none"> -if the error occurs during the state “stand-by”, it won’t be possible to select or start any cycle -if the error occurs during the blast chilling or the blast freezing, the cycle will be stopped -if the error occurs during the conservation, the compressor activity will depend on the parameters C4 and C5 or C9 -the defrosting won’t never be started -the door restors won’t never be switched on -the minimum temperature alarm (code “AL”) won’t never be activated -the maximum temperature alarm (code “AH”) won’t never be activated

<p>Pr2</p>	<p>Core probe error.</p> <p>Remedy:</p> <ul style="list-style-type: none"> -the same errors of the cell probe (code “Pr1”) but relating to the core probe. <p>Main consequences:</p> <ul style="list-style-type: none"> -if the error occurs during the state “stand-by”, the temperature fonctionning cycle will be activated by time -if the error occurs during the temperature blast chilling, the cycle will stop within the time set by the parameter r1 -if the error occurs during the temperature blast freezing , the cycle will stop within the time set by the parameter r2 -if the error occurs during the core probe warm up, the cycle will be stopped.
<p>Pr3</p>	<p>Evaporator probe error.</p> <p>Remedy:</p> <ul style="list-style-type: none"> -the same cell probe errors (code “Pr1”) but referred to the evaporator probe. <p>Main consequences:</p> <ul style="list-style-type: none"> -if the parameter P4 is set to 1, the defrosting cycle will be completed within the time set by the parameter d3 -if the parameter F0 is set to 1, the parameter F16 won’t have any effect -if the parameter F4 is set to 1, the device will work as the parameter would be set to 2
<p>Pr4</p>	<p>Condenser probe error.</p> <p>Remedy:</p> <ul style="list-style-type: none"> -the same cell probe errors (code “Pr1”) but referred to the condenser probe <p>Main consequences:</p> <ul style="list-style-type: none"> -the condenser fan will work parallel to the compressor. -the condenser overheated alarm (code “COH”) won’t never be activated -the compressor blocked alarm (code “CSd”) won’t never be activated

WARRANTY

Warranty of good functioning

TECHFROST warrants for the good functioning of the goods object of this sale for a period of twelve months starting from purchase date to the original purchaser.

Successive purchasers are not warranted any rights.

The warranty hereto provides for the replacement of defected parts returned ex-factory, workmanship excluded. The replacement of the parts within warranty period does not prolong the same warranty. The purchaser has no compensation rights as far as damages due to non-use of the machine are concerned.

The warranty is not applicable in the following cases:

- If the purchaser does not comply with the terms of payment;
- If damages are due to unskillfulness, unconventional use, overloading, poor care, tampering or modifications which were not authorized by the manufacturer, lacks of or unstable power supply;
- If damages are due to force majeure;
- If the defects are not made known to **TECHFROST** in writing within eight days from their discovery, upon pain of ineffectiveness;
- If the statement does not include the detailed description of the claimed defect as well as its possible causes;

This warranty is not applicable to ordinary wearing of the machine.

TECHFROST does not shoulder responsibility for the quality of the products obtained from the machine since the latter depends on different factors such as: skillfulness and technique of the operator, quality and quantities of the ingredients or materials employed.

In the event that the statement is accepted, **TECHFROST** will replace those parts of the unit that are found damaged or defected, on condition that the malfunctioning is due to production defects.

In the event that the statement is not accepted **TECHFROST** reserves the right to hold this warranty valid, thus making known this intention in writing (fax is admitted) or by phone, within five days from statement receipt, on pain of ineffectiveness.

To the benefit of the validity of the warranty here to, the existence of a production defect shall be stated by **TECHFROST** through its personnel and technical staff.

The warranty of good functioning does not cover defects due to improper use of the product by the purchaser.

The warranty hereto does not include (and therefore the corresponding expenses are covered by the purchaser):

- cleaning actions;
- repair works carried out to repair the unit when the unit could be repaired by the purchaser according to the instruction manual;
- any ordinary maintenance works needed for the normal use of the unit;
- any repair work carried out on the unit to remove damages due to power circuit failure or due to causes related to the professional, commercial and industrial activity performed by the purchaser;
- any action performed to repair functioning defects due to bad maintenance of the unit by the purchaser or third parties appointed by the purchaser or in case that the maintenance was not performed according to the provisions given by **TECHFROST**
- any action performed to remove functioning defects due to abuses of the unit by the purchaser or third parties;
- actions performed to repair damages of the unit due to transport of the good from the seat of **TECHFROST** to its delivery place. The warranty hereto does not cover damages suffered by the purchaser due to non-use of the unit.

MADE BY

TECHFROST

FOR



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