B L A S T
C H I L L E R S

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ISO 9001
Cert. N° 0412/2

SERVICE MANUAL

Cod. 71503601/0 - 03/2004 - **Rev. 000**

WARNING !!!

THE FOLLOWING OPERATIONS AND THOSE HIGHLIGHTED BY THIS SYMBOL MUST NOT BE PERFORMED BY THE APPLIANCE USER

1. ELECTRICAL CONNECTIONS

2. WATER CONNECTIONS

3. INSTALLATION

4. TESTING

5. REPAIRING MACHINE COMPONENTS

6. DISASSEMBLY OF THE APPLIANCE AND/OR ITS COMPONENTS

7. ADJUSTMENTS AND CALIBRATION

8. CLEANING THE APPLIANCE AND MAINTENANCE OF:
- **ELECTRICAL PARTS,**
- **ELECTRONIC PARTS,**
- **MECHANICAL PARTS,**
- **REFRIGERATION SYSTEM PARTS**

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1. GENERAL DOCUMENTATION

1.1. General information

- This manual is an integral part of the product, providing all the information required to ensure correct installation, operation and maintenance of the machine.
- Read the manual carefully, making reference to it for machine operation. Keep the manual in a safe place where it can be accessed by all authorised operators (installers, operators and service personnel).
  The machine has been constructed in compliance with the directives 73/23/CEE (low-voltage), 89/336/CEE (electromagnetic compatibility) and 98/37/CE (machines; for certain models only).
- The machine has been designed for professional applications only and should only be operated by qualified personnel.
- The machine must only be used for the purposes for which it was designed, i.e. for chilling and freezing food products.

The machine must not be used for products requiring constant temperature control and recording, such as:
- heat-sensitive chemicals,
- medicines or
- blood products.

- The manufacturer declines all responsibility for any damage caused by incorrect or unreasonable machine use, such as:
  - improper use by untrained persons;
  - technical modifications or operations not suited to specific models;
  - use of non-original or non-specific spare parts;
  - failure to follow the instructions given in this manual.

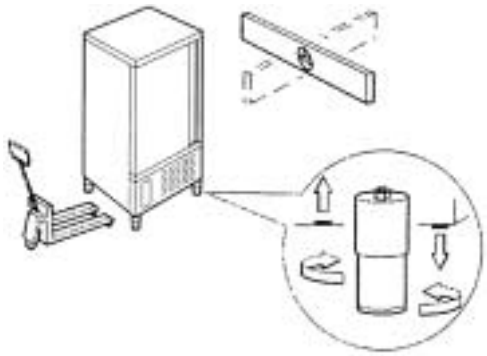
1.2 Installation

The machine must be installed by a specialised technician authorised by Tecnomac and in compliance with the instructions given in this manual.

In the event that the machine is fitted with a remote condenser unit, the installation technician is responsible for checking all connections in compliance with the instructions given by Castelmac for plant and machine installation.

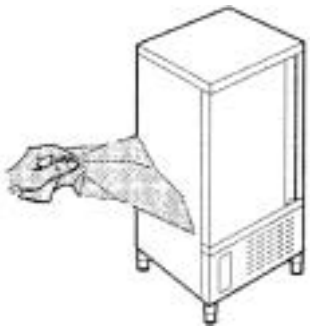
1.3 Transport and handling

- To load or unload the machine and/or components from/onto the means of transport, use a lift truck or fork lift equipped with forks that are at least half the length of the machine housing; use a crane if the machine is fitted with eye bolts. Select the lifting equipment suited to the weight and overall dimensions of the packaged machine/components.
- When handling the machine/ components, apply all precautions to prevent damage, in compliance with the information given on the packaging material (fig. 1).



1.4 Unpacking

- Remove all cardboard, wood or other materials from the wood base on which the machine is set. Lift the machine/components with suitable means (e.g. lift truck), remove the wood base, then position the machine/components in the allocated site.
- Once all packing material has been removed, check that the machine has not been damaged in any way.
- Remove the protective PVC film on the



stainless steel panels from all internal and external surfaces (fig. 2).

• ***Always wear protective gloves when handling packing material and the wood base.***

• NB Dispose of packing materials in compliance with disposal regulations applied in the country where the machine is to be installed. Never dispose of materials in the environment.

1.5 General safety regulations

Failure to observe the recommendations made by the present manual will be at the entire responsibility of the machine user. The main safety regulations are as follows:

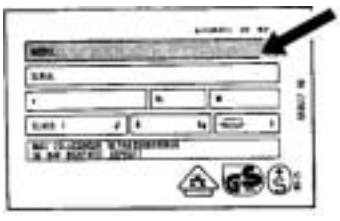
- **do not touch the machine with moist or wet hands or feet;**
- **never operate the machine while barefoot;**
- **do not insert screwdrivers, cooking utensils or any other object between the guards and moving parts;**
- **before performing cleaning or routine maintenance operations, disconnect the machine from the power supply at the master switch and the main knife switch (if present);**
- **never pull on the power cable to disconnect the machine from the power supply.**

WARNING !!!
THESE OPERATIONS MUST BE PERFORMED BY A CERTIFIED INSTALLATION TECHNICIAN ONLY.

2. INSTALLATION

2.1 Data plate information

- Check that the data specified on the plate correspond to the characteristics of the power supply (V, kW, Hz, no. phases and power available).
- The dataplate with appliance specifications is located at the rear exterior of the machine and/or on the electrical boards (fig. 3).

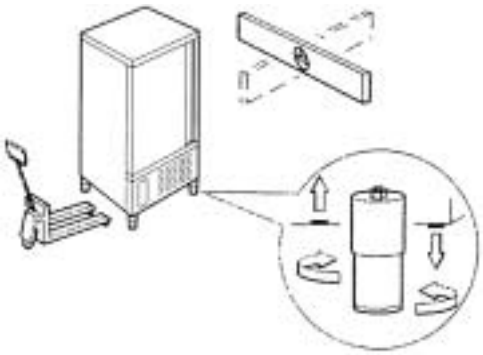


The set-up of individual units and the installation of condensers are subject to the fire-safety regulations of the country in which the machine is installed; seek all necessary advice from the local fire-fighting authorities.

Bear in mind that the intervention of safety valves or plug fuses in the refrigerating circuit will lead to the immediate discharge of refrigerant into the environment.

2.2 Positioning

- The machine must be installed and commissioned in complete compliance with safety regulations, procedures and standing laws.
- The installation technician bears the responsibility of ensuring compliance with fire safety requirements; seek all necessary advice from the local fire-fighting authorities.
- Position the machine in the allocated site.
- Adjust the machine feet until the appliance is perfectly level. In the case of particularly heavy equipment, use appropriate lifting means

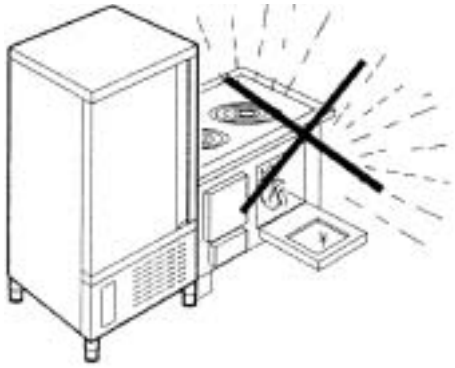


(fig. 1).

- If the appliance is not perfectly level, correct operation and condensate flow-off will not be assured.

AVOID

- direct exposure to sunlight;
- closed sites with high temperatures and poor air circulation;
- installing the machine near sources of



heat (fig. 4).

2.3 Ambient temperature and air circulation

For air-cooled appliances, the maximum ambient temperature for operation is 32°C. Correct operation cannot be guaranteed at higher temperatures.

The machine may operate safely to a maximum temperature of 38°C.

Remote condensing units must be installed in special rooms or outdoors, protected against direct sunlight by a shelter or roof structure (at the cost of the purchaser).

Sufficient air circulation must be guaranteed at all times.

2.4 Electrical connections

A dedicated thermal-magnetic circuit breaker compliant with established regulations must be installed on the appliance power line.

- Connected electrical cables must correspond to the technical data (as specified on electrical drawings provided by the installation technician).

Connect the earthing conductor to an efficient earthing system.

THE MANUFACTURER DECLINES ALL LIABILITY AND GUARANTEE OBLIGATIONS IN THE EVENT OF INJURY TO PERSONS OR DAMAGE TO EQUIPMENT AND OBJECTS DUE TO INCORRECT INSTALLATION AND/OR FAILURE TO COMPLY WITH STANDING INSTALLATION REGULATIONS.

2.5 Refrigeration component connections - remote assemblies

Appliance power lines are sized for installation distances of up to 10 metres. For greater distances, seek advice from Castelmac.

2.6 Condensate drainage connection

Fit a condensate/wash water drainage hose with a minimum diameter of 1" ("Geberit" or similar type).

2.7 Information for the installation technician

Before starting up the machine, check that it has been correctly installed and commissioned (test report).

1. Check that there are no gas leaks from weldings or joints made during installation works.
2. Check that the pipes connecting the condenser to the remote condensing unit have been well insulated.
3. Check all wiring connections.
4. Check electrical input.
5. Check the standard pressure in the refrigerant system.
6. Check the water connections and effi-

ciency of the pressure switch valve during operation, as well as the flow of condensing water (in water-cooled units).

7. Perform at least one blast freezing cycle (to the SET temperature) and one manual defrosting cycle.

In the event that the appliance or the remote condensing unit have not been transported in a vertical position (e.g. on the back) or have been overturned during installation works, allow at least 4 hours before starting up the equipment.

- Inform the customer of the exact purpose of the appliance, with specific reference to the use and requirements of the customer.

The appliance must be installed and put into service by a technician authorised by Castelmac.

2.8 Safety and control systems

- Door microswitch: shuts down fan operation in the cell when the door is opened.
- General fuses: protect the power circuit against short circuiting and overloads.
- Compressor heat relay: intervenes in the event of overloads or operating faults.
- Safety pressure switch: intervenes in the event of excessive pressure in the refrigerant circuit.
- Plug fuses: intervene in the event of overpressure or operating fault in the safety pressure switch (see above).
- Chamber temperature control: operated by the electronic board by means of a probe inside the cell.
- Temperature control end defrost cycle: controlled by the electronic board by means of the probe in the evaporator.

2.9 Appliance disposal

Demolish and dispose of the machine in compliance with the regulations applied in the country of installation, particularly in regards to refrigerant gas and compressor lubricant oil.

3. ADVICE TO ENSURE EFFICIENT APPLIANCE OPERATION

3.1 Shut-down procedures

In the event of emergency, shut down the appliance by switching off power at the main panel, by means of the knife switch or by removing the plug from the power socket.

3.2 Operating tips

Before starting up the appliance, clean the inside of the cell thoroughly.

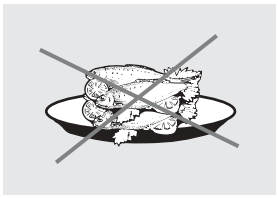
3.2.1 Pre-cooling

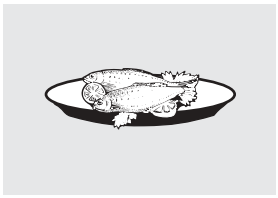
Before using the appliance for the first time, or after a prolonged period of disuse, pre-cool the cell by running an empty cycle until the set operating temperature has been reached.

To ensure optimal performance without any alteration to food quality: arrange food products in such a way as to favour the circulation of cold air throughout the cell; open the door as little as possible.

3.2.2 Loading the appliance

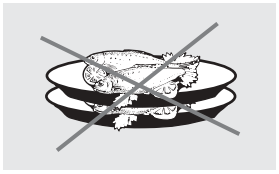
a) Ensure that foods to be chilled and/or frozen are separate and do not have a thickness greater than 50-80 mm. Do not load the appliance beyond the quantity recommended by the manufacturer.

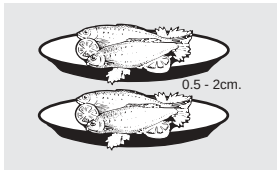




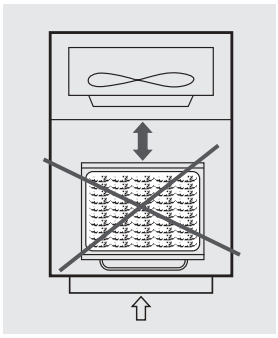
b) Ensure that there is sufficient clearance between trays to enable free air circulation.

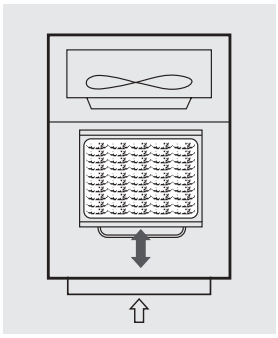
If the appliance is not completely full, distribute the trays and foods evenly throughout the available space.





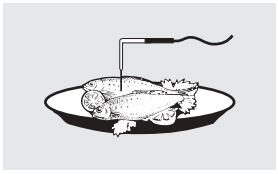
c) Position trays inside the tray compartment as far as they will go, as close as possible to the evaporator.





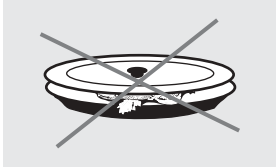
d) Position the core probe at the centre of the largest product or food item; make sure that the tip of the probe does not protrude or touch the tray.

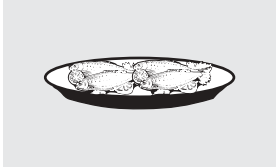
The probe must be cleaned and sanitised before each new cycle (operation) to prevent inadvertent contamination.



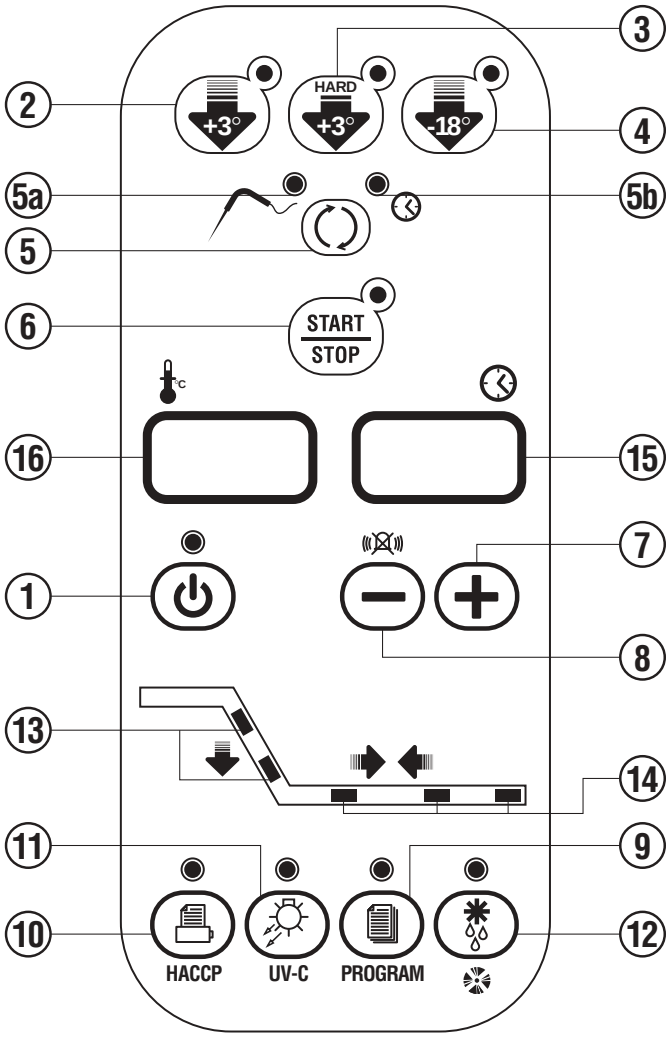
e) Avoid covering the trays and/or containers with insulating covers or film. The more the product is insulated, the more time is required for chilling or freezing.

Trays must be packaged when the product has been chilled, before being placed in storage.

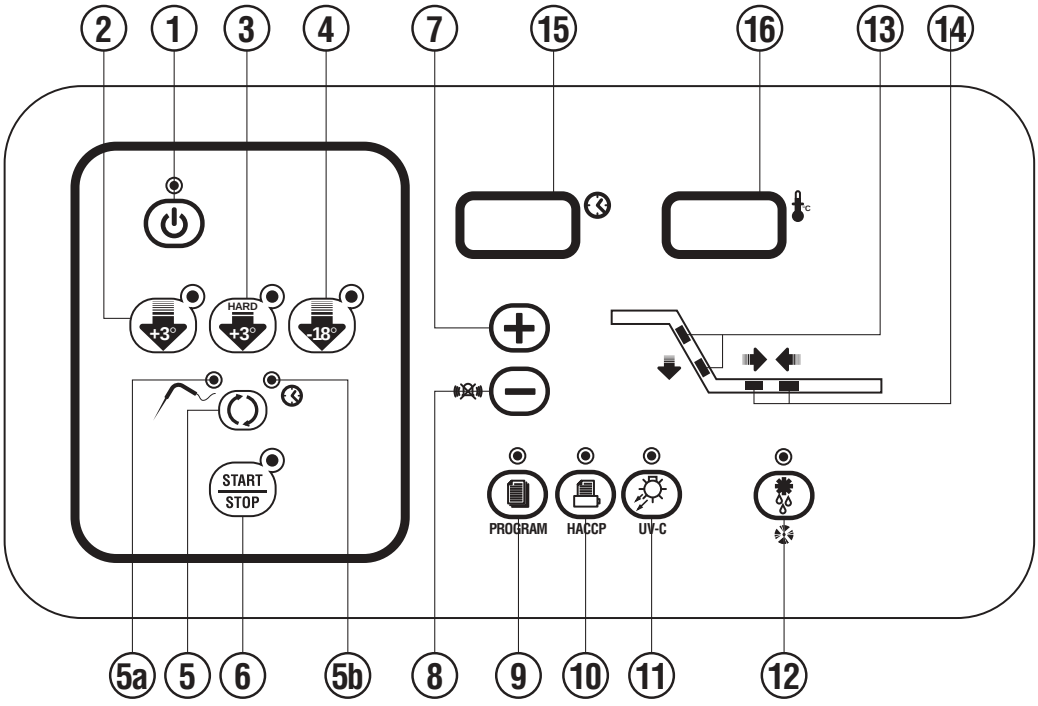




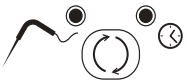
4. DESCRIPTION OF THE VERTICAL CONTROL PANEL



DESCRIPTION OF THE ORIZONTAL CONTROL PANEL



4.1 PUSH-BUTTONS :

1. ON /OFF (STAND BY)
2. SOFT BLAST CHILLING CYCLE (+3 °C)
3. HARD BLAST CHILLING CYCLE (+3°C)
4. BLAST FREEZING CYCLE (-18°C)
5.  END CYCLE BY TIME / PROBE (TEMPERATURE)
5A. PROBE CHILLING INDICATOR LED
5B. TIMED CHILLING INDICATOR LED
6. CYCLE START / STOP
7. INCREASE VALUE
8. DECREASE VALUE
9. RECIPE PROGRAMS (CHILLING CYCLES)
10. HACCP AND PRINTER (OPTIONAL)
11. STERILIZATION BY UV-C LAMP (OPTIONAL)
12. DEFROSTING / FORCED VENTILATION
13. CHILLING / FREEZING CYCLE INDICATOR LED
14. STORAGE INDICATOR LED
15. TIME DISPLAY
16. TEMPERATURE DISPLAY

5. PROGRAMMING AND OPERATING INSTRUCTIONS

IMPORTANT!!!
IN THE EVENT OF MALFUNCTION, SEEK THE ASSISTANCE OF A CERTIFIED TECHNICIAN

5.1 STARTING UP THE APPLIANCE

When the appliance is powered up, it can be:

- **ON** displays 15 and 16 and left LED 5A on push-button 5 on, LED 1 off
- **OFF-STAND-BY** LED on push-button 1 on

To switch from one status to another, press push-button 1 .

Whenever the appliance switches from STAND-BY status to ON, a self-test is carried out: all LEDs and displays are switched on, push-buttons are checked, then the installed software version is displayed.

OPERATION
The main work cycles (chilling/freezing) performed by the appliance:

- **SOFT BLAST CHILLING (+3°C)**
  Pre-cooked food is rapidly chilled (90') to a temperature of +3°C, thus preventing proliferation of bacteria and preventing dehydration of the cooked food due to evaporation. Food can thus be stored perfectly for 5 to 7 days without altering its original qualities.
- **HARD BLAST CHILLING (+3°C)**
  This process is designed to cool food products with a thickness greater than 2-3 cm. Variable air temperatures are used to accelerate penetration of cold into the product.
- **BLAST FREEZING (-18°C)**
  This function freezes the product completely to a temperature of -18°C in less than 4 hours. The rapidity of the process prevents formation of macrocrystals essential to ensure that the product retains its original consistency and quality when thawed for consumption.
- **AUTOMATIC CONSERVATION**
  At the end of each cycle (chilling or freezing), the appliance will automatically switch to the required storage temperature.

Two different end-cycle modes are available for each cycle:
- **BY TEMPERATURE -** the cycle ends when the probe reaches the required temperature.
- **TIMED - cycle length is pre-set**

IMPORTANT: work cycles and modes can only be selected when the appliance is **ON** (LED on push -button 6 START STOP off)

5.2 SOFT BLAST CHILLING BY TEMPERATURE (pre-cooked, hot foods)

- To select this cycle, press push-button 2 (relative LED lights up), then press push-button 5 to select the temperature mode (LED 5A on)
- Insert the core probe into the core of the product to be chilled.
- Start up the cycle by pressing push-button 6 (START/STOP). LED 5A and those relative to the push-buttons pressed illuminate throughout the cycle, while LEDs 13 flash.
- Display 15 indicates the maximum blast chilling time (starting temperature to end of the blast chilling temperature - factory setting - 90 minutes).
- The temperature measured by the core probe is shown by display 16 .
- The instrument timer starts the countdown of the maximum blast chilling time as soon as the temperature measured by the core probe falls below the temperature of +65°C (the dot at the bottom right of display 15 flashes).
- During the blast chilling cycle, the air temperature is around 0°C.
  This function is designed to guarantee uniform cooling of the product, preventing frost formation on the surfaces. During the blast chilling cycle, the compressor may therefore stop and restart, depending on the reading of the cell temperature probe.
- The blast chilling phase ends only when the core probe (inserted in the product core) indicates that the set blast chilling temperature (+3°C) has been reached as signalled by an intermittent beep for a minute. During the beep, LEDs 13 and 14 flash.
  Display 16 indicates the temperature inside the cell, while display 15 shows blast chilling time reset to zero.
- If at the end of the maximum blast chilling interval the core probe continues to display a temperature higher than the value for the end of blast chilling, the displays will indicate an alarm for excessively long chilling (ALL 14) alternating with the temperature and time; at the same time, the alarm beep will be activated.
  The blast chilling cycle continues until the end chilling temperature has been reached; display 15 counts back the minutes remaining until the end of the cycle.

  NB: Press push-button 8 to mute the alarm; press push-button again to clear the alarm display.
- At the end of the chilling cycle, the appliance automatically switches to the set storage temperature for an indefinite interval (like a standard storage appliance).

  NB: LEDs 13 switch off while LEDs 14 light up.

- The cell temperature is constantly shown on display 16 ; during this cycle, defrost cycles are performed at regular intervals with duration set as required (parameter programming reserved for installation technician). The factory setting for positive storage temperature is +2°C.

- Press push-button 6 to set the appliance to STOP status (relative LED switches off), ready for a new cycle.

To modify the final blast chilling temperature, consult the user programming instructions.

5.3 SOFT TIMED BLAST CHILLING

- Press push-button 2 (relative LED lights up), then press push-button 5 to select the timer mode (LED 5B on). Display 15 shows the maximum chilling time (set by default to 90 minutes).

  To modify this time, press push-buttons 7 and 8 (time in minutes).

- Press push-button 6 to start the appliance. LED 5B and push-button LEDs remain on and LEDs 13 flash throughout the cycle.

- Internal cell temperature is shown on display 16 .

- When the maximum chilling time has counted back to 0, the chilling cycle is completed and the appliance automatically switches to the set positive storage temperature for an indefinite interval.

- LEDs illuminate and the beep is activated when the cycle is finished (as in the chilling cycle by temperature). The same applies for the positive storage function.

  Press push-button 6 to set the appliance to STOP status (relative LED switches off), ready for a new cycle.

IMPORTANT: Use the storage function sparingly. After chilling, food products should be placed in storage cabinets.

HARD BLAST CHILLING

When the HARD function is used, chilling takes place in two stages:
- an initial “Hard” stage when the air temperature is brought down to below 0°C in order to accelerate chilling;
- a second “Soft” stage, involving air temperatures around 0°C.

5.4 HARD BLAST CHILLING BY TEMPERATURE

- Press push-button 3 (relative LED lights up), then press push-button 5 to select the temperature mode (LED 5A on). Insert the core probe into the core of the product to be chilled.

- Start up the cycle by pressing push-button 6 . LED 5A and those relative to the push-buttons pressed illuminate throughout the cycle, while LEDs 13 flash.

- Display 15 indicates the maximum blast chilling time (starting temperature to end of the blast chilling temperature - factory setting - 90 minutes).

- The temperature measured by the core probe is shown by display 16 .

- The instrument timer starts the countdown of the maximum blast chilling time as soon as the temperature measured by the core probe falls below the temperature of +65°C (the dot at the bottom right of display 15 flashes).

- Once the cycle has been started, the appliance operates initially with an air temperature below 0°C (LED on push-button 3 flashes), then with temperatures around 0°C (LED on push-button 3 on).
  NB: The first stage of the cycle is completed when the core probe detects a temperature of +20°C in the product core.

- The blast chilling phase ends only when the core probe (inserted in the product core) indicates that the set blast chilling temperature (+3°C) has been reached as signalled by an intermittent beep for a minute. During the beep, LEDs 13 and 14 flash.
  Display 16 indicates the temperature inside the cell, while display 15 shows blast chilling time reset to zero.

- The alarm (ALL 14) and conservation functions cut in with relative indicators in the same way as for timed Soft blast chilling.

- Press push-button 6 to set the appliance to STOP status (relative LED switches off), ready for a new cycle.

IMPORTANT

HARD blast chilling affords a considerable reduction in working time, and is particularly suited to foodstuffs with a high fat content, for large pieces or for packaged products.

SOFT chilling is recommended for delicate and finely chopped products, such as vegetables, mousses, etc..

5.5 HARD TIMED BLAST CHILLING

- To select this cycle, press push-button 3 (relative LED lights up), then press push-button 5 to select the “timed” mode (LED 5B on). Display 15 shows the maximum chilling time (set by default to 90 minutes).

  To modify this time, press push-buttons 7 and 8 (time in minutes).

- To set the time of the first negative temperature stage, press push-button 3 for five seconds, then wait for display 15 to show the flashing value.

  The time setting (in minutes) can be modified by means of push-buttons 7 and 8 .

  Press push-button 3 again to return to standard display.

- Start up the cycle by pressing push-button 6 . LED 5B and push-button LEDs remain on and LEDs 13 flash throughout the cycle.

- Internal cell temperature is shown on display 16 .

- Once the cycle has been started, the appliance operates initially with an air temperature

  below 0°C (LED on push-button 3 flashes), then with temperatures around 0°C (LED on push-button 3 on). For example: HARD timed chilling cycle 90 minutes. First stage of 40 minutes with negative air temperature. Second cycle stage of 50 minutes with air temperature around 0°C.

- When the maximum chilling time has counted back to 0, the chilling cycle is completed and the appliance automatically switches to the set positive storage temperature for an indefinite interval.

- LEDs illuminate and the beep is activated when the cycle is finished (as in the temperature chilling cycle). The same applies for the storage function.

- Press push-button 6 to set the appliance to STOP status (relative LED switches off), ready for a new cycle.

5.6 BLAST FREEZING BY TEMPERATURE

- To select this cycle, press push-button 4 (relative LED lights up), then press push-button 5 to select the temperature mode (LED 5A on). Insert the core probe into the core of the product to be chilled.

- Start up the cycle by pressing push-button 6 (START/STOP). LED 5A and those relative to the push-buttons pressed illuminate throughout the cycle, while LEDs 13 flash.

- The appliance proceeds to operate in the same way as that described for the positive chilling cycle. During this cycle the compressor operates in continuous mode to enable the appliance to reach the cycle end temperature in the shortest time possible (default temperature at product core is set at -18°C). Maximum freezing time is 240 minutes.

- The alarm (ALL 14) for excessively-long freezing and conservation functions cut in with relative indicators in the same way as for timed Soft blast chilling. The factory setting for negative storage temperature is -25°C.

- LEDs illuminate and the beep is activated when the cycle is finished (as in the soft chilling cycle by temperature). The same applies for the storage function.

  Press push-button 6 (START/STOP) to set the appliance to STOP status (relative LED switches off), ready for a new cycle.

5.7 TIMED BLAST FREEZING

- Press push-button 4 (relative LED lights up), then press push-button 5 to select the timer mode (LED 5B on). Display 15 shows the maximum chilling time (set by default to 240 minutes).

  To modify this time, press push-buttons 7 (+) and 8 (−) (time in minutes).

- Start up the cycle by pressing push-button 6 (START/STOP). LED 5B and push-button LEDs remain on and LEDs 13 flash throughout the cycle.
  Internal cell temperature is shown on display 16 .

- When the maximum chilling time has counted back to 0, the cycle is completed and the appliance automatically switches to the set negative storage temperature for an indefinite interval.
  LEDs illuminate and the beep is activated when the cycle is finished (as in the freezing cycle by temperature). The same applies for the storage function. The factory setting for negative storage temperature is -25°C.

- Press push-button 6 (START/STOP) to set the appliance to STOP status (relative LED switches off), ready for a new cycle.

6. APPLIANCE FUNCTIONS

6.1 DATE AND TIME SETTINGS : PUSH-BUTTON (5)

Set the machine to **ON** .

Press and hold down push-button 5 for more than five seconds to access the date and time setting function. Display 16 indicates in sequence the abbreviations Hr (hours), Mn (minutes), dA (day), Mo (month) and Yr (year), while display 15 shows their respective settings. To scroll the abbreviations, press push-button 5.

To modify the settings, use push-buttons 7 and 8 .

6.2 ICE CREAM SURFACE HARDENING PUSH-BUTTON (6)

Set the machine to **ON** .

Press and hold down push-button 6 for more than five seconds to access the surface hardening function (push-button LED flashes). The compressor is switched on; display 15 shows the default cycle time. Set the cycle time (in minutes) by means of push-buttons 7 and 8 . Open the cell door, place the product inside, then shut the door to start the cycle. All LEDs remain off, with the exception of the Start LED. When the cycle time has elapsed, an acoustic signal is given. The appliance remains on, ready for another ice cream hardening cycle. Open the cell door, remove the hardened product, replace it, then shut the door. The machine will perform another hardening cycle for the time set for the previous one. Every time the door is opened and closed after a cycle, the time is reset.

To exit the function, press push-button 6 .

ADDITIONAL FUNCTIONS

6.3 MUTING THE BEEPER AND ALARM RESET : PUSH-BUTTON (8)

Press push-button 8 to mute the alarm beeper.
Alarms are reset :

- by pressing push-button 8 when the beeper is off;
- automatically if alarm conditions are removed;

see also section 7 (Alarm Management).

6.4 PROGRAM STORAGE: PUSH-BUTTON (9)

The programming function is used for cycles for processing products with the same characteristics. Up to 99 programs can be stored. Select the type of chilling process (Soft, Hard, Timed Freezing or by Temperature), then press and hold push-button 9 until display 16 shows the abbreviation P1 (push-button 9 LED flashes).

Use push-buttons 7 and 8 to set the number of the program on display 16 .

Start up the cycle by pressing push-button 6 . When the cycle has been completed, the appliance automatically switches to the set storage temperature for an indefinite time.

Press push-button 6 to set the appliance to STOP status (relative LED switches off), ready for a new cycle.

RECALLING A STORED PROGRAM

When the appliance is **ON** ⏻, press push-button 9 PROGRAM briefly; display 16 will show program P1. Use push-buttons 7 ⊕ and 8 ⊖ to select the required program. Start up the cycle by pressing push-button 6 START/STOP.

6.5 DISPLAYING THE THREE LATEST HACCP ALARMS (PUSH-BUTTON 10)

Set the machine to **ON** ⏻.

Press and hold down push-button 10 HACCP for more than five seconds (relative LED illuminates) to enter the alarm display function (date, hour and minute, alarm type and maximum temperature detected).

Every time the HACCP push-button is pressed, the stored data are displayed.
EXAMPLE:

ALL.11	**Display 15**	**Display 16**
	---	Str (start)
	12	hr hour
	29	min minutes
	6	day days
	8	mon month
	03	yr year
	End	end
	13	Hr
	21	min
	6	day
	8	mon
	03	yr
	24	maximum temperature detected inside the cell

6.6 PRINTING OUT STORED DATA PUSH-BUTTON (10)

With the appliance in **STAND-BY status,** press and hold down push-button 10 HACCP for more than five seconds to print out the latest work cycle.
(With the appliance in STAND-BY status, press push-button 10 HACCP once to print out HACCP data). When the appliance is operating and the printer is on, the current cycle will be printed out.

6.7 FORCED VENTILATION FUNCTION

To activate this function when the appliance is **ON** ⏻, press push-button 12 ❄ for more than five seconds. The fan will continue to operate even when the cell door is open.

During forced ventilation, display 16 will show**"dEF".**

6.8 MANUAL DEFROSTING

To activate this function when the appliance is **ON press push-button** 12 ❄ **(relative LED illuminates).**
If conditions allow it (the temperature detected by the evaporator probe must be lower than the set point in the program parameters), the appliance will perform a defrost cycle. Display 16 will show **"dEF".**
To immediately stop a defrost cycle, press push-button 12 ❄.

6.9 AUTOMATIC DEFROST CYCLES

The appliance automatically performs defrost cycles during storage. Three defrost cycles are performed during a 24-hour period(once every 8 hours).
The appliance automatically restarts once the defrost cycle has been completed.

6.10 UV-C LAMP FUNCTION

Use this function to sterilize the interior of the cell.

When the appliance is **ON** ⏻, press push-button 11 UV-C (relative LED illuminates). The UV-C lamp switches on and sterilizes the interior for a default time of 30 minutes. To interrupt the sterilization cycle, press push-button 11 UV-C or open the cell door. When the door is closed again, the lamp will remain off.

6.11 USER ENTRY TO PROGRAMMING DATA

Access for programming configuration parameters is only permitted when the appliance is **ON** and there is no data memory error **active.**

Press and hold down push-buttons 7 ⊕ and 8 ⊖ at the same time for more than five seconds; the computer will give access to the programming function. Display 16 displays PA, while display 15 will show the relative value.

Use push-button 5 to select parameter display (LED 5A illuminated), or display 16 with settings (LED 5B illuminated).

Use push-buttons 7 ⊕ and 8 ⊖ to scroll the list of parameters (if LED 5A is illuminated) or to modify the settings (if LED 5B is illuminated). The computer automatically exits the programming function after approximately 40'.

6.12 USER PARAMETER SETTINGS

	Parameter	Min.	Max.	U.M.	STAND
PA	PASSWORD	-99	+99	Numb.	-19
/	/ = PROBES PARAMETERS				
/1	Calibration (ref. to the cabinet probe)	-10	+10	°C	0
/2	Calibration (ref. to evaporator probe)	-10	+10	°C	0
/3	Calibration (ref. to core probe)	-10	+10	°C	0
/8	temperatur scale (0=Fahrenheit 1=celsius)	0	1	Flag	1
c	c = QUICK COOLING / FREEZING AND COLD STORING ON-OFF REGULATOR				
c0	Hysteresis (differential, ref. to the cabinet probe)	1	15	°C	+3
c1	Maximum lenght of chilling by temperature and by time	0	400	min	90
c2	Quick chilling temperature cut off set (ref. to the needle probe)	-55	+99	°C	3
c3	Cold-storing set (ref. to the cabinet probe)	-55	+99	°C	2
c4	Maximum lenght of the quick-freezing for temperature and for time	0	400	min	240
c5	Quick-freezing for temperature cut off set (ref. to the needle probe)	-55	+99	°C	-18
c6	Very cold-storing set (ref. to the cabinet probe)	-55	+99	°C	-25
c8	Quick-cooling/freezing for temperature enabling set (ref. to the needle probe)	-55	+99	°C	+65
cA	Needle probe reading	---	---	°C	---
cb	Quick-chilling set (ref. to cabinet probe) and during the second hard phase	-55	+99	°C	-5
cd	Hard-phase cut off set (ref. to the needle probe)	-55	+99	°C	20
cF	Hard-phase working set (ref. to cabinet probe)	-55	+99	°C	-20
d	d = DEFROST REGULATION				
d0	Defrost interval (0 = don't defrost)	0	99	hours	8 h
dA	Evaporator probe reading	---	---	°C	---
u	U = DIGITAL INPUTS				
u5	Activation lenght UV light (u5=0 function deactivate)	0	99	min	0
uA	Printer interval (uA=0 HACCP push button deactivate)	0	99	min	20

7. ALARM MANAGEMENT

7.1 Storage of data/errors

The appliance electronic controller is equipped with a system of acoustic and visual signals to indicate the intervention of safety devices. The table below gives a list of the alarms shown on the panel display

7.2 The software controls the following alarms:

	Evaporator probe alarm (ALL 01)
Cause:	Exit from operating range (-50°C / +100°C) for over 30 seconds. Probe is defective (REPLACE PROBE).
Beeper:	Activated (3 seconds, then a pause of 30 seconds) until the mute button is pressed.
Display:	Alternates message “ALL 01” with standard display
Reset:	Automatically resets only when probe reading has returned to normal.
	Core probe alarm (ALL 02)
Cause:	Exit from operating range (-50°C / +100°C) for more than 30 seconds during current chilling cycle by temperature.
Effect:	Interruption of current chilling cycle by temperature and automatic start-up of timed chilling cycle. Chilling by temperature push-button disabled. Probe is defective (REPLACE PROBE).
Beeper:	Activated (3 seconds, then a pause of 30 seconds) until the mute button is pressed.
Display:	Alternates message “ALL 02” with standard display
Alarm relay:	Not activated.
Reset:	Press the mute push-button (with beeper off). Resets automatically if probe value returns to normal, but cycle remains in timed mode. Alternatively, switch off the panel then turn it back on (stand-by).
	Cell probe alarm (ALL 03)
Cause:	Exit from operating range (-50°C / +100°C) for over 30 seconds. Probe is defective (REPLACE PROBE).

Effect:	Any current chilling cycle is interrupted. If a storage phase is in progress, the compressor and the fan set to stand-by status. When the appliance is in Stop status, press Start to set the compressor and fan to stand by.
Beeper:	Activated (3 seconds, then a pause of 30 seconds) until the mute button is pressed.
Display:	Alternates message “ALL 03” with standard display
Reset:	Automatically resets only when probe reading has returned to normal.

Optional probe alarm (ALL 04)
(disabled if no probe is connected)

Input SW2 (ALL 05) (door microswitch alarm)

Cause:	Input active for more than 5 minutes with appliance in start status. Door open (close door) Microswitch fault (replace the microswitch)
Beeper:	Activated (3 seconds, then a pause of 30 seconds) until the mute button is pressed.
Display:	Alternates message “ALL 05” with standard display
Reset:	Press the mute push-button (with beeper off). Automatically resets if input value returns to normal Alternatively, switch off the panel then turn it back on (stand-by).

Input SW1 alarm (ALL 06)
(Press. max - thermal-magnetic switch - Oil diff. pressure switch)

Cause:	Input active for more than 5 seconds
Effect:	Sets the appliance to STOP. Reset the max. pressure switch, thermal-magnetic switch or differential pressure switch.
Beeper:	Activated (3 seconds, then a pause of 30 seconds) until the mute button is pressed.
Display:	Alternates message “ALL 06” with standard display
Reset:	Press the mute push-button (with beeper off) with no alarm cause displayed

	Input SW4 alarm (ALL 07) (Automatic reset min. pressure switch)
Cause:	Input active for more than five seconds when appliance in start mode The alarm is disabled for approx. two minutes at each compressor start-up. The alarm is disabled during “pump-down”. If the alarm persists, contact SERVICE.
Effect:	Appliance sets to STOP. Start/Stop and Defrost push-buttons are disabled.
Beeper:	Activated (3 seconds, then a pause of 30 seconds) until the mute button is pressed.
Display:	Alternates message “ALL 07” with standard display
Reset:	Press the mute push-button (with beeper off). Alternatively, switch off the panel then turn it back on (stand-by).
	Input SW3 alarm (ALL 08) (Kriwan compressor automatic reset)
Cause:	Input active for more than five seconds at least three times when appliance is in start mode
Effect:	Compressor shuts down and resumes operation when input value returns to normal. The appliance sets to STOP at third alarm.
Beeper:	Activated (3 seconds, then a pause of 30 seconds) until the mute button is pressed.
Display/Led:	Alternates message “ALL 08” with standard display
Reset:	Press the mute push-button (with beeper off). Alternatively, switch off the panel then turn it back on (stand-by).
	Input Ht1 alarm (ALL 09) (Input in voltage 1 ... fuses).
	Input Ht2 alarm (ALL 10) (Input in voltage 2 ... fuses)
	Excessive temperature alarm (ALL 11)
Cause:	(only during storage) cell probe constantly detects a temperature greater than the sum of positive or negative storage set points with relative alarm delta.

	Blackout alarm (ALL 12)
Cause:	(only during storage) after the return of power the cell probe detects a temperature greater than the sum of positive or negative storage set points with relative alarm delta. This alarm is disregarded if the storage probe is already in alarm status.
	Compressor preventive maintenance alarm (ALL 13)
Cause:	Compressor operating time is a whole multiple of hours set under password.
	Temperature not reached in set time alarm (ALL 14)
Cause:	Blast chilling by temperature has lasted longer than the time set for Timeout
Effect:	Store the alarm in HACCP memory Chilling cycle continues.
Beeper:	Activated (3 seconds, then a pause of 30 seconds) until the mute button is pressed.
Display:	Alternates message “ALL 14” with standard display
Alarm relay:	Not activated.
Reset:	Press the mute push-button (with beeper off). Alternatively, switch off the panel then turn it back on (stand-by).
	Keyboard/membrane alarm (ALL 15)
Cause:	A pressed push-button has been detected when panel is switched on.
Effect:	All keys are disabled. All relays are disabled. All inputs are disregarded. The LED indicator of the pressed button flashes.
Beeper:	Activated (3 seconds, then a pause of 30 seconds) until the mute button is pressed.
Display:	Alternates message “ALL 15” with standard display
Reset:	Switch off the panel then turn it back on (stand-by).
NB:	The appliance cannot be used until this alarm has been removed.

INFORMATION ON ALARMS:

During alarms, the beeper is activated and the display shows the message “ALL xx”.

The alarm message is alternated on the display even when the beeper has been silenced, until the alarm has been cleared.

Alarm relays remain activated as long as the alarm is displayed.

In the case that more than one alarm has been activated, each one is alternately displayed.

When the beeper is activated, the operator can silence it by pressing the relative push-button, after which the alarm can be cleared, by pressing the beeper reset button again.

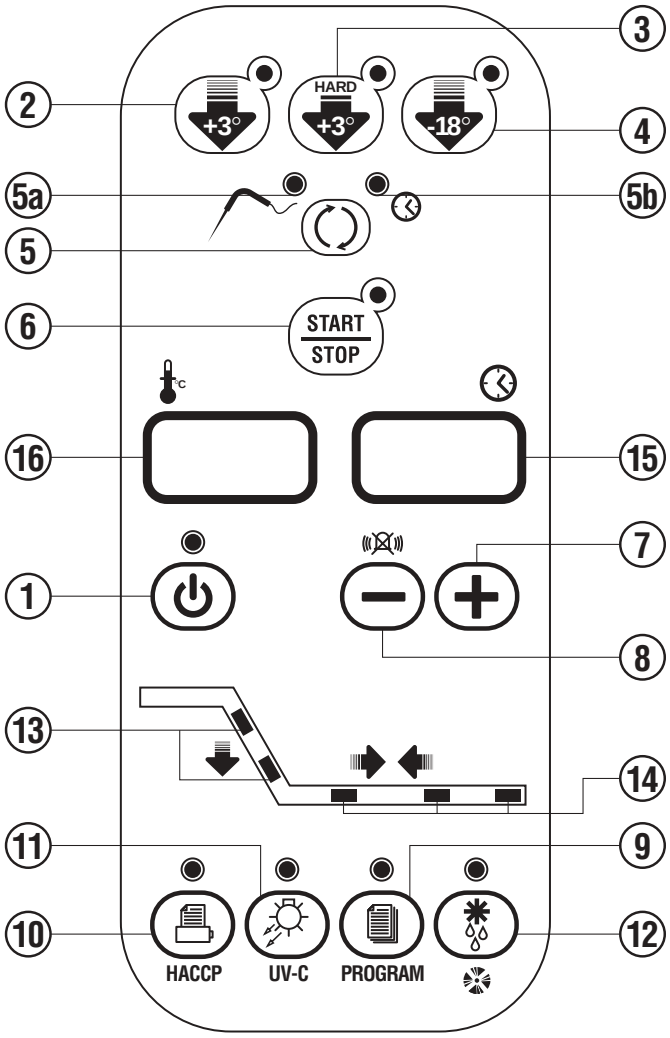
Power failures will not erase current alarms.

List of other operating faults not indicated:

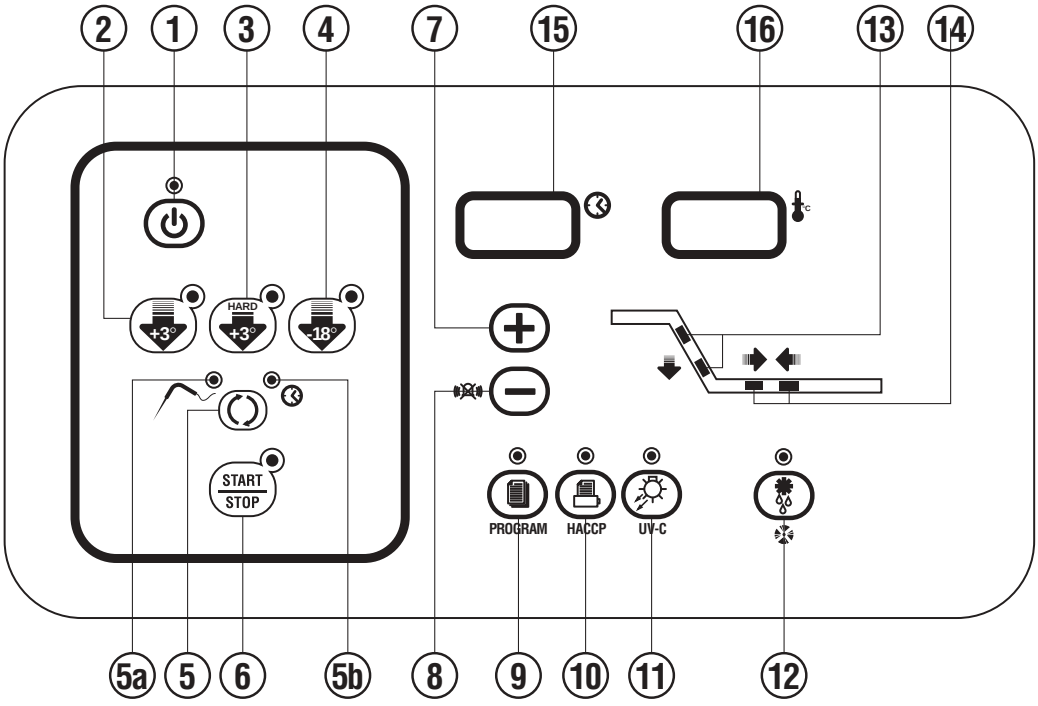
FAULT	CAUSE	SOLUTION
Compressor does not operate	1 - Overload switch has cut in	1 - Seek assistance from a service technician
	2 - Power failure	2 - Check connection to power lines
Fans do not rotate	1 - Power failure	1 - Check connection to power lines
	2 - Fan fault	2 - Seek assistance from a service technician to replace fan
	3 - Condenser fault	3 - Seek assistance from a service technician to replace condenser
	4 - Protective fuse faulty	4 - Seek assistance from a service technician to replace fuse
Electronic panel does not switch on	1 - Power failure	1 - Check connection to power lines
	2 - Protective fuses broken	2 - Seek assistance from a service technician to replace fuses
Compressor operates but does not cool cell	1 - Shortage of refrigerant gas	1 - Seek assistance from a service technician
	2 - Solenoid valve fault	2 - Seek assistance from a service technician
	3 - Condenser is soiled	3 - Clean the condenser (see par. 4.2)

8. TECHNICAL INSTRUCTION FOR THE SERVICE

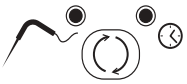
DESCRIPTION OF THE VERTICAL CONTROL PANEL



DESCRIPTION OF THE ORIZONTAL CONTROL PANEL



4.1 PUSH-BUTTONS :

1. ON /OFF (STAND BY)
2. SOFT BLAST CHILLING CYCLE (+3 °C)
3. HARD BLAST CHILLING CYCLE (+3°C)
4. BLAST FREEZING CYCLE (-18°C)
5.  END CYCLE BY TIME / PROBE (TEMPERATURE)
5A. PROBE CHILLING INDICATOR LED
5B. TIMED CHILLING INDICATOR LED
6. CYCLE START / STOP
7. INCREASE VALUE
8. DECREASE VALUE
9. RECIPE PROGRAMS (CHILLING CYCLES)
10. HACCP AND PRINTER (OPTIONAL)
11. STERILIZATION BY UV-C LAMP (OPTIONAL)
12. DEFROSTING / FORCED VENTILATION
13. CHILLING / FREEZING CYCLE INDICATOR LED
14. STORAGE INDICATOR LED
15. TIME DISPLAY
16. TEMPERATURE DISPLAY

9. DESCRIPTION OF PARAMETERS

9.1. CLASSIFICATION OF PARAMETERS

9.1.1. ***General***

This instrument has a non-volatile memory in which the operating parameters are stored.
The parameters can be changed using the “program parameters“ procedure.

Program parameters
All the procedures listed below will start provided that:
- there is no eeprom error alarm.
- no other programming procedures are in progress.

9.1.2 USER ENTRY TO PROGRAMMING DATA

Access for programming configuration parameters is only permitted when the appliance is **ON** and there is no data memory error **active.**

Press and hold down push-buttons 7 ⊕ and 8 ⊖ at the same time for more than five seconds; the computer will give access to the programming function. Display 16 displays PA, while display 15 will show the relative value.

Use push-button 5 to select parameter display (LED 5A illuminated), or display 16 with settings (LED 5B illuminated).
Use push-buttons 7 ⊕ and 8 ⊖ to scroll the list of parameters (if LED 5A is illuminated) or to modify the settings (if LED 5B is illuminated). The computer automatically exits the programming function after approximately 40’.

9.1.3 SERVICE ENTRY TO PROGRAMMING DATA

1.Proceed to Access for programming configuration as per user entry to programming data.
2. On the display nr. 16 where you read **“PA“** , set the password value (- 19) passing from the position 5A to 5B by pressing the push button 5 , therefore from display 16 to display 15 .
At this point press in the same time the two push buttons 7 ⊕ and 8 ⊖ for more then 5 seconds till appear the first parameter on the display 16 .

In this way you've access to factory parameters.

It's possible to see all the parameters on the display 16 , by pressing the push buttons 7 ⊕ or 8 ⊖ having previously passed on the led 5A by pressing the push buttons 5 .

While it's possible to modify the value of the parameter you need using the push buttons 7 ⊕ and 8 ⊖ having previously passed on the led 5B by pressing the push botton 5 .

The value modified is automatically memorized.

To enter in the next parameter , it's necessary to shift by pressing the push button 5 and go to the led 5A and go on by pressing the push buttons 7 ⊕ or 8 ⊖ .

9.2 LIST OF PARAMETERS

The parameters are organized in families indicated by the first letter of the parameter name, making for ease of identification according to function.

The tables below are structured as follows:

r=main regulator	ut	u.m.	min	max	ut	note
(1) (2)	(3)	(4)	(5)	(6)	(7)	(8)

Key:

(1) letter identifying the family of parameters (e.g. r=parameters of main regulator).
(2) brief description of parameter.
(3) ut = if there is an asterisk, the parameter is visible at user level.
(4) u.m. = unit of measure.
(5) min = minimum value permitted for the parameter.
(6) max = maximum value permitted for the parameter.
(7) def = factory setting
(8) note = refer to explanatory notes.

9.2.1 CONFIGURATION PARAMETERS
Machine models. Blast chillers cod. 33580166/0

	Parameter	Note	Min.	Max.	U.M.	STAND
PA	PASSWORD	user	-99	+99	Numb.	-19
/	/ = PROBES PARAMETERS					
/1	Calibration (ref. to the cabinet probe)	user	-10	+10	°C	0
/2	Calibration (ref. to evaporator probe)	user	-10	+10	°C	0
/3	Calibration (ref. to core probe)	user	-10	+10	°C	0
/8	temperatur scale (0=Fahrenheit 1=celsius)	user	0	1	Flag	1
c	c = QUICK COOLING / FREEZING AND COLD STORING ON-OFF REGULATOR					
c0	Hysteresis (differential, ref. to the cabinet probe)	user	1	15	°C	+3
c1	Maximum lenght of chilling by temperature and by time	user	0	400	min	90
c2	Quick chilling temperature cut off set (ref. to the needle probe)	user	-55	+99	°C	3
c3	Cold-storing set (ref. to the cabinet probe)	user	-55	+99	°C	2
c4	Maximum lenght of the quick-freezing for temperature and for time	user	0	400	min	240
c5	Quick-freezing for temperature cut off set (ref. to the needle probe)	user	-55	+99	°C	-18
c6	Very cold-storing set (ref. to the cabinet probe)	user	-55	+99	°C	-25
c7	Threshold for needle probe properly positioned fast-test		0	+99	°C	5
c8	Quick-cooling/freezing for temperature enabling set (ref. to the needle probe)	user	-55	+99	°C	+65
c9	Alarm buzzer activation lenght when a quick-cooling/freezing ends		0	99	sec	60
cA	Needle probe reading	user	---	---	°C	---
cb	Quick-chilling set (ref. to cabinet probe) and during the second hard phase	user	-55	+99	°C	-5
cd	Hard-phase cut off set (ref. to the needle probe)	user	-55	+99	°C	20
cE	During of the needle probe properly positioned differential-test (with cE=0 test off)		0	99	sec	0
cF	Hard-phase working set (ref. to cabinet probe)	user	-55	+99	°C	-20
t	t = INTENSIVE PHASE					
t0	Ice cream quick cooling phase		1	400	min	10
th	Hard-phase time lenght		1	400	min	30
C	C = COMPRESSOR OUTPUT PROTECTION					
C0	Disabling time at the compressor activation from the instrument start		0	9	min	2
C2	Disabling time at the compressor activation from the precedenting deactivation		0	99	min	3
C4	Delay compressor start		0	9	sec	0
C5	Cycle time for the output activation in case cabinet probe failure		0	99	min	10
C6	Output activation lenght during the cold-storing in case of cabinet probe failure		0	99	min	3
C7	Output activation lenght during the very cold-storing in case of cabinet probe failure		0	99	min	8
C8	Pump down time lenght		0	999	sec	10
C9	Reading compressor working time		0	999	hours	---
CA	Compressor maintenance time		0	999	hours	999
d	d = DEFROST REGULATION					
d0	Defrost interval (0 = don't defrost)	user	0	99	hours	8 h
d1	Kind of defrost		0	2	Numb.	1
d2	Defrost cut off set (ref. to evaporator probe)		-55	+99	°C	+2
d3	Maximum defrost lenght		1	99	min	20
d4	Defrost at the beginning of the uick-cooling/freezing (0=NO 1=YES)		0	1	Flag	0
d5	First defrost intervall from the begin of the cold-storing phase		0	999	min	99
d7	Dripping lenght		0	9	min	2
d9	Forced defrost (delays override)		0	1	Flag	1
dA	Evaporator probe reading	user	---	---	°C	---
dc	Delay hot gas valve-compressor during defrosting		0	99	sec	5
dd	Temperature set activadion door heater		0	99	°C	0
F	F = EVAPORATOR FAN'S REGULATOR					
F3	Output deactivate fans if the compressor is deactivated (0 = No / 1 = Yes)		0	1	Flag	1
F4	Output deactivate fans during the defrost (0 = No / 1 = Yes)		0	1	Flag	1
F5	Disabling time at the output fans activation from the end of the dripping		0	9	min	3
u	U = DIGITAL INPUTS					
u1	Door switch deactivate evaporator fans output (0 = N.O. / 1 = N.C.)		0	1	Flag	1
u2	Door switch input polarity (0 = N.O. / 1 = N.C.)		0	1	Flag	1
u3	locking input polarity high pressure (0 = N.O. / 1 = N.C.)		0	1	Flag	1
u4	Disabling time of the locking high pressure input on alarm		0	999	sec	5
u5	Activation lenght UV light (u5=0 function deactivate)	user	0	99	min	0
u6	Locking input polarity low pressure (0 = N.O. / 1 = N.C.)		0	1	Flag	1
u7	Alarm delay low pressure		0	999	sec	5
u8	Inlet polarity Kriwan alarm (0 = N.O. / 1 = N.C.)		0	1	Flag	1
u9	Alarm delay Kriwan		0	999	sec	5
uA	Printer interval (uA=0 HACCP push button deactivate)	user	0	99	min	20
ub	Inlet alarm polarity fuse 1 (0 = N.O. / 1 = N.C.)		0	1	Flag	0
uc	Alarm delay fuse 1		0	999	sec	5
ud	Inlet alarm polarity fuse 2 (0 = N.O. / 1 = N.C.)		0	1	Flag	0
uE	Alarm delay fuse 2		0	999	sec	5
uF	Alarm delay door micro-switch (with working machine)		0	99	min	5
A	A = TEMPERATURE ALARM REGULATOR					
A2	Upper temperature alarm set relative to the cold-storing set (set. to the cabinet probe) (A2=0 no alarm)		0	99	°C	5
A4	Upper temperature alarm set relative to the very cold-storing set (set. to the cabinet probe) (A4=0 no alarm)		0	99	°C	15
A5	Disabling time of the alarm temperature from the beginning of the cold-storing or from end defrosting		0	240	min	30
A6	Acquisition time of the alarm temperature		0	240	min	20
L	L = NETWORK CONNECTION					
L1	In line instrument address (not used)		1	15	Numb.	1
L2	EL card expansion type installation and HACCP (L2=0)		0	1	Flag	1
M	M = CONFIGURATIONS					
M0	Machine configuration (for the printer) (0=GENERIC 1=T5 2=T14 3=T20 4=T24 5=T40 6=AS1 7=MT 8=ASC 9=SC1 10=XXX ---19=XXX)		0	19	Numb.	0
M1	Machine type (for the printer) (0=GENERIC 1=TECNOMAC 2=ICEMATIC 3=XXX ---9=XXX)		0	9	Numb.	0
M4	Starting chilling/freezing type (M4=0 the same as turning off)		0	6	Numb.	0

CONFIGURATION PARAMETERS
Machine models: T5 - T14 cod. 26118390/0

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	Parameter	Note	Min.	Max.	U.M.	STAND
PA	PASSWORD	user	-99	+99	Numb.	-19
/	/ = PROBES PARAMETERS					
/1	Calibration (ref. to the cabinet probe)	user	-10	+10	°C	0
/2	Calibration (ref. to evaporator probe)	user	-10	+10	°C	0
/3	Calibration (ref. to core probe)	user	-10	+10	°C	0
/8	temperatur scale (0=Fahrenheit 1=celsius)	user	0	1	Flag	1
c	c = QUICK COOLING / FREEZING AND COLD STORING ON-OFF REGULATOR					
c0	Hysteresis (differential, ref. to the cabinet probe)	user	1	15	°C	+3
c1	Maximum lenght of chilling by temperature and by time	user	0	400	min	90
c2	Quick chilling temperature cut off set (ref. to the needle probe)	user	-55	+99	°C	3
c3	Cold-storing set (ref. to the cabinet probe)	user	-55	+99	°C	2
c4	Maximum lenght of the quick-freezing for temperature and for time	user	0	400	min	240
c5	Quick-freezing for temperature cut off set (ref. to the needle probe)	user	-55	+99	°C	-18
c6	Very cold-storing set (ref. to the cabinet probe)	user	-55	+99	°C	-25
c7	Threshold for needle probe properly positioned fast-test		0	+99	°C	5
c8	Quick-cooling/freezing for temperature enabling set (ref. to the needle probe)	user	-55	+99	°C	+65
c9	Alarm buzzer activation lenght when a quick-cooling/freezing ends		0	99	sec	60
cA	Needle probe reading	user	---	---	°C	---
cb	Quick-chilling set (ref. to cabinet probe) and during the second hard phase	user	-55	+99	°C	-5
cd	Hard-phase cut off set (ref. to the needle probe)	user	-55	+99	°C	20
cE	During of the needle probe properly positioned differential-test (with cE=0 test off)		0	99	sec	0
cF	Hard-phase working set (ref. to cabinet probe)	user	-55	+99	°C	-20
t	t = INTENSIVE PHASE					
t0	Ice cream quick cooling phase		1	400	min	10
th	Hard-phase time lenght		1	400	min	30
C	C = COMPRESSOR OUTPUT PROTECTION					
C0	Disabling time at the compressor activation from the instrument start		0	9	min	2
C2	Disabling time at the compressor activation from the precedenting deactivation		0	99	min	3
C4	Delay compressor start		0	9	sec	0
C5	Cycle time for the output activation in case cabinet probe failure		0	99	min	10
C6	Output activation lenght during the cold-storing in case of cabinet probe failure		0	99	min	3
C7	Output activation lenght during the very cold-storing in case of cabinet probe failure		0	99	min	8
C8	Pump down time lenght		0	999	sec	10
C9	Reading compressor working time		0	999	hours	---
CA	Compressor maintenance time		0	999	hours	999
d	d = DEFROST REGULATION					
d0	Defrost interval (0 = don't defrost)	user	0	99	hours	8 h
d1	Kind of defrost		0	2	Numb.	1
d2	Defrost cut off set (ref. to evaporator probe)		-55	+99	°C	+2
d3	Maximum defrost lenght		1	99	min	20
d4	Defrost at the beginning of the uick-cooling/freezing (0=NO 1=YES)		0	1	Flag	0
d5	First defrost intervall from the begin of the cold-storing phase		0	999	min	99
d7	Dripping lenght		0	9	min	2
d9	Forced defrost (delays override)		0	1	Flag	1
dA	Evaporator probe reading	user	---	---	°C	---
dc	Delay hot gas valve-compressor during defrosting		0	99	sec	5
dd	Temperature set activadion door heater		0	99	°C	0
F	F = EVAPORATOR FAN'S REGULATOR					
F3	Output deactivate fans if the compressor is deactivated (0 = No / 1 = Yes)		0	1	Flag	1
F4	Output deactivate fans during the defrost (0 = No / 1 = Yes)		0	1	Flag	1
F5	Disabling time at the output fans activation from the end of the dripping		0	9	min	3
u	U = DIGITAL INPUTS					
u1	Door switch deactivate evaporator fans output (0 = N.O. / 1 = N.C.)		0	1	Flag	1
u2	Door switch input polarity (0 = N.O. / 1 = N.C.)		0	1	Flag	1
u3	locking input polarity high pressure (0 = N.O. / 1 = N.C.)		0	1	Flag	1
u4	Disabling time of the locking high pressure input on alarm		0	999	sec	5
u5	Activation lenght UV light (u5=0 function deactivate)	user	0	99	min	0
u6	Locking input polarity low pressure (0 = N.O. / 1 = N.C.)		0	1	Flag	1
u7	Alarm delay low pressure		0	999	sec	5
u8	Inlet polarity Kriwan alarm (0 = N.O. / 1 = N.C.)		0	1	Flag	1
u9	Alarm delay Kriwan		0	999	sec	5
uA	Printer interval (uA=0 HACCP push button deactivate)	user	0	99	min	20
ub	Inlet alarm polarity fuse 1 (0 = N.O. / 1 = N.C.)		0	1	Flag	0
uc	Alarm delay fuse 1		0	999	sec	5
ud	Inlet alarm polarity fuse 2 (0 = N.O. / 1 = N.C.)		0	1	Flag	0
uE	Alarm delay fuse 2		0	999	sec	5
uF	Alarm delay door micro-switch (with working machine)		0	99	min	5
A	A = TEMPERATURE ALARM REGULATOR					
A2	Upper temperature alarm set relative to the cold-storing set (set. to the cabinet probe) (A2=0 no alarm)		0	99	°C	5
A4	Upper temperature alarm set relative to the very cold-storing set (set. to the cabinet probe) (A4=0 no alarm)		0	99	°C	15
A5	Disabling time of the alarm temperature from the beginning of the cold-storing or from end defrosting		0	240	min	30
A6	Acquisition time of the alarm temperature		0	240	min	20
L	L = NETWORK CONNECTION					
L1	In line instrument address (not used)		1	15	Numb.	1
L2	EL card expansion type installation and HACCP (L2=0)		0	1	Flag	1
M	M = CONFIGURATIONS					
M0	Machine configuration (for the printer) (0=GENERIC 1=T5 2=T14 3=T20 4=T24 5=T40 6=AS1 7=MT 8=ASC 9=SC1 10=XXX ---19=XXX)		0	19	Numb.	0
M1	Machine type (for the printer) (0=GENERIC 1=TECNOMAC 2=ICEMATIC 3=XXX ---9=XXX)		0	9	Numb.	0
M4	Starting chilling/freezing type (M4=0 the same as turning off)		0	6	Numb.	0

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CONFIGURATION PARAMETERS
Machine models: AS1 cod. 26118391/0

	Parameter	Note	Min.	Max.	U.M.	STAND
PA	PASSWORD	user	-99	+99	Numb.	-19
/	/ = PROBES PARAMETERS					
/1	Calibration (ref. to the cabinet probe)	user	-10	+10	°C	0
/2	Calibration (ref. to evaporator probe)	user	-10	+10	°C	0
/3	Calibration (ref. to core probe)	user	-10	+10	°C	0
/8	temperatur scale (0=Fahrenheit 1=celsius)	user	0	1	Flag	1
c	c = QUICK COOLING / FREEZING AND COLD STORING ON-OFF REGULATOR					
c0	Hysteresis (differential, ref. to the cabinet probe)	user	1	15	°C	+3
c1	Maximum lenght of chilling by temperature and by time	user	0	400	min	90
c2	Quick chilling temperature cut off set (ref. to the needle probe)	user	-55	+99	°C	3
c3	Cold-storing set (ref. to the cabinet probe)	user	-55	+99	°C	2
c4	Maximum lenght of the quick-freezing for temperature and for time	user	0	400	min	240
c5	Quick-freezing for temperature cut off set (ref. to the needle probe)	user	-55	+99	°C	-18
c6	Very cold-storing set (ref. to the cabinet probe)	user	-55	+99	°C	-20
c7	Threshold for needle probe properly positioned fast-test		0	+99	°C	5
c8	Quick-cooling/freezing for temperature enabling set (ref. to the needle probe)	user	-55	+99	°C	+65
c9	Alarm buzzer activation lenght when a quick-cooling/freezing ends		0	99	sec	60
cA	Needle probe reading	user	---	---	°C	---
cb	Quick-chilling set (ref. to cabinet probe) and during the second hard phase	user	-55	+99	°C	-5
cd	Hard-phase cut off set (ref. to the needle probe)	user	-55	+99	°C	20
cE	During of the needle probe properly positioned differential-test (with cE=0 test off)		0	99	sec	0
cF	Hard-phase working set (ref. to cabinet probe)	user	-55	+99	°C	-20
t	t = INTENSIVE PHASE					
t0	Ice cream quick cooling phase		1	400	min	10
th	Hard-phase time lenght		1	400	min	30
C	C = COMPRESSOR OUTPUT PROTECTION					
C0	Disabling time at the compressor activation from the instrument start		0	9	min	2
C2	Disabling time at the compressor activation from the precedenting deactivation		0	99	min	3
C4	Delay compressor start		0	9	sec	5
C5	Cycle time for the output activation in case cabinet probe failure		0	99	min	10
C6	Output activation lenght during the cold-storing in case of cabinet probe failure		0	99	min	3
C7	Output activation lenght during the very cold-storing in case of cabinet probe failure		0	99	min	8
C8	Pump down time lenght		0	999	sec	10
C9	Reading compressor working time		0	999	hours	---
CA	Compressor maintenance time		0	999	hours	999
d	d = DEFROST REGULATION					
d0	Defrost interval (0 = don't defrost)	user	0	99	hours	8 h
d1	Kind of defrost		0	2	Numb.	0
d2	Defrost cut off set (ref. to evaporator probe)		-55	+99	°C	+2
d3	Maximum defrost lenght		1	99	min	20
d4	Defrost at the beginning of the uick-cooling/freezing (0=NO 1=YES)		0	1	Flag	0
d5	First defrost intervall from the begin of the cold-storing phase		0	999	min	99
d7	Dripping lenght		0	9	min	2
d9	Forced defrost (delays override)		0	1	Flag	1
dA	Evaporator probe reading	user	---	---	°C	---
dc	Delay hot gas valve-compressor during defrosting		0	99	sec	5
dd	Temperature set activadion door heater		0	99	°C	0
F	F = EVAPORATOR FAN'S REGULATOR					
F3	Output deactivate fans if the compressor is deactivated (0 = No / 1 = Yes)		0	1	Flag	1
F4	Output deactivate fans during the defrost (0 = No / 1 = Yes)		0	1	Flag	1
F5	Disabling time at the output fans activation from the end of the dripping		0	9	min	3
u	U = DIGITAL INPUTS					
u1	Door switch deactivate evaporator fans output (0 = N.O. / 1 = N.C.)		0	1	Flag	1
u2	Door switch input polarity (0 = N.O. / 1 = N.C.)		0	1	Flag	1
u3	locking input polarity high pressure (0 = N.O. / 1 = N.C.)		0	1	Flag	0
u4	Disabling time of the locking high pressure input on alarm		0	999	sec	5
u5	Activation lenght UV light (u5=0 function deactivate)	user	0	99	min	0
u6	Locking input polarity low pressure (0 = N.O. / 1 = N.C.)		0	1	Flag	0
u7	Alarm delay low pressure		0	999	sec	5
u8	Inlet polarity Kriwan alarm (0 = N.O. / 1 = N.C.)		0	1	Flag	0
u9	Alarm delay Kriwan		0	999	sec	5
uA	Printer interval (uA=0 HACCP push button deactivate)	user	0	99	min	20
ub	Inlet alarm polarity fuse 1 (0 = N.O. / 1 = N.C.)		0	1	Flag	1
uc	Alarm delay fuse 1		0	999	sec	5
ud	Inlet alarm polarity fuse 2 (0 = N.O. / 1 = N.C.)		0	1	Flag	0
uE	Alarm delay fuse 2		0	999	sec	5
uF	Alarm delay door micro-switch (with working machine)		0	99	min	5
A	A = TEMPERATURE ALARM REGULATOR					
A2	Upper temperature alarm set relative to the cold-storing set (set. to the cabinet probe) (A2=0 no alarm)		0	99	°C	5
A4	Upper temperature alarm set relative to the very cold-storing set (set. to the cabinet probe) (A4=0 no alarm)		0	99	°C	15
A5	Disabling time of the alarm temperature from the beginning of the cold-storing or from end defrosting		0	240	min	30
A6	Acquisition time of the alarm temperature		0	240	min	20
L	L = NETWORK CONNECTION					
L1	In line instrument address (not used)		1	15	Numb.	1
L2	EL card expansion type installation and HACCP (L2=0)		0	1	Flag	1
M	M = CONFIGURATIONS					
M0	Machine configuration (for the printer) (0=GENERIC 1=T5 2=T14 3=T20 4=T24 5=T40 6=AS1 7=MT 8=ASC 9=SC1 10=XXX ---19=XXX)		0	19	Numb.	0
M1	Machine type (for the printer) (0=GENERIC 1=TECNOMAC 2=ICEMATIC 3=XXX ---9=XXX)		0	9	Numb.	0
M4	Starting chilling/freezing type (M4=0 the same as turning off)		0	6	Numb.	0

CONFIGURATION PARAMETERS
Machine models: T30 - T40 - T50 cod. 26118392/0

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	Parameter	Note	Min.	Max.	U.M.	STAND
PA	PASSWORD	user	-99	+99	Numb.	-19
/	/ = PROBES PARAMETERS					
/1	Calibration (ref. to the cabinet probe)	user	-10	+10	°C	0
/2	Calibration (ref. to evaporator probe)	user	-10	+10	°C	0
/3	Calibration (ref. to core probe)	user	-10	+10	°C	0
/8	temperatur scale (0=Fahrenheit 1=celsius)	user	0	1	Flag	1
c	c = QUICK COOLING / FREEZING AND COLD STORING ON-OFF REGULATOR					
c0	Hysteresis (differential, ref. to the cabinet probe)	user	1	15	°C	+3
c1	Maximum lenght of chilling by temperature and by time	user	0	400	min	90
c2	Quick chilling temperature cut off set (ref. to the needle probe)	user	-55	+99	°C	3
c3	Cold-storing set (ref. to the cabinet probe)	user	-55	+99	°C	2
c4	Maximum lenght of the quick-freezing for temperature and for time	user	0	400	min	240
c5	Quick-freezing for temperature cut off set (ref. to the needle probe)	user	-55	+99	°C	-18
c6	Very cold-storing set (ref. to the cabinet probe)	user	-55	+99	°C	-25
c7	Threshold for needle probe properly positioned fast-test		0	+99	°C	5
c8	Quick-cooling/freezing for temperature enabling set (ref. to the needle probe)	user	-55	+99	°C	+65
c9	Alarm buzzer activation lenght when a quick-cooling/freezing ends		0	99	sec	60
cA	Needle probe reading	user	---	---	°C	---
cb	Quick-chilling set (ref. to cabinet probe) and during the second hard phase	user	-55	+99	°C	-5
cd	Hard-phase cut off set (ref. to the needle probe)	user	-55	+99	°C	20
cE	During of the needle probe properly positioned differential-test (with cE=0 test off)		0	99	sec	0
cF	Hard-phase working set (ref. to cabinet probe)	user	-55	+99	°C	-20
t	t = INTENSIVE PHASE					
t0	Ice cream quick cooling phase		1	400	min	10
th	Hard-phase time lenght		1	400	min	30
C	C = COMPRESSOR OUTPUT PROTECTION					
C0	Disabling time at the compressor activation from the instrument start		0	9	min	2
C2	Disabling time at the compressor activation from the precedenting deactivation		0	99	min	3
C4	Delay compressor start		0	9	sec	0
C5	Cycle time for the output activation in case cabinet probe failure		0	99	min	10
C6	Output activation lenght during the cold-storing in case of cabinet probe failure		0	99	min	3
C7	Output activation lenght during the very cold-storing in case of cabinet probe failure		0	99	min	8
C8	Pump down time lenght		0	999	sec	10
C9	Reading compressor working time		0	999	hours	---
CA	Compressor maintenance time		0	999	hours	999
d	d = DEFROST REGULATION					
d0	Defrost interval (0 = don't defrost)	user	0	99	hours	8 h
d1	Kind of defrost		0	2	Numb.	1
d2	Defrost cut off set (ref. to evaporator probe)		-55	+99	°C	+2
d3	Maximum defrost lenght		1	99	min	20
d4	Defrost at the beginning of the uick-cooling/freezing (0=NO 1=YES)		0	1	Flag	0
d5	First defrost intervall from the begin of the cold-storing phase		0	999	min	99
d7	Dripping lenght		0	9	min	2
d9	Forced defrost (delays override)		0	1	Flag	1
dA	Evaporator probe reading	user	---	---	°C	---
dc	Delay hot gas valve-compressor during defrosting		0	99	sec	5
dd	Temperature set activadion door heater		0	99	°C	0
F	F = EVAPORATOR FAN'S REGULATOR					
F3	Output deactivate fans if the compressor is deactivated (0 = No / 1 = Yes)		0	1	Flag	1
F4	Output deactivate fans during the defrost (0 = No / 1 = Yes)		0	1	Flag	1
F5	Disabling time at the output fans activation from the end of the dripping		0	9	min	3
u	U = DIGITAL INPUTS					
u1	Door switch deactivate evaporator fans output (0 = N.O. / 1 = N.C.)		0	1	Flag	1
u2	Door switch input polarity (0 = N.O. / 1 = N.C.)		0	1	Flag	1
u3	locking input polarity high pressure (0 = N.O. / 1 = N.C.)		0	1	Flag	1
u4	Disabling time of the locking high pressure input on alarm		0	999	sec	5
u5	Activation lenght UV light (u5=0 function deactivate)	user	0	99	min	0
u6	Locking input polarity low pressure (0 = N.O. / 1 = N.C.)		0	1	Flag	1
u7	Alarm delay low pressure		0	999	sec	5
u8	Inlet polarity Kriwan alarm (0 = N.O. / 1 = N.C.)		0	1	Flag	1
u9	Alarm delay Kriwan		0	999	sec	5
uA	Printer interval (uA=0 HACCP push button deactivate)	user	0	99	min	20
ub	Inlet alarm polarity fuse 1 (0 = N.O. / 1 = N.C.)		0	1	Flag	1
uc	Alarm delay fuse 1		0	999	sec	5
ud	Inlet alarm polarity fuse 2 (0 = N.O. / 1 = N.C.)		0	1	Flag	1
uE	Alarm delay fuse 2		0	999	sec	5
uF	Alarm delay door micro-switch (with working machine)		0	99	min	5
A	A = TEMPERATURE ALARM REGULATOR					
A2	Upper temperature alarm set relative to the cold-storing set (set. to the cabinet probe) (A2=0 no alarm)		0	99	°C	5
A4	Upper temperature alarm set relative to the very cold-storing set (set. to the cabinet probe) (A4=0 no alarm)		0	99	°C	15
A5	Disabling time of the alarm temperature from the beginning of the cold-storing or from end defrosting		0	240	min	30
A6	Acquisition time of the alarm temperature		0	240	min	20
L	L = NETWORK CONNECTION					
L1	In line instrument address (not used)		1	15	Numb.	1
L2	EL card expansion type installation and HACCP (L2=0)		0	1	Flag	1
M	M = CONFIGURATIONS					
M0	Machine configuration (for the printer) (0=GENERIC 1=T5 2=T14 3=T20 4=T24 5=T40 6=AS1 7=MT 8=ASC 9=SC1 10=XXX ---19=XXX)		0	19	Numb.	0
M1	Machine type (for the printer) (0=GENERIC 1=TECNOMAC 2=ICEMATIC 3=XXX ---9=XXX)		0	9	Numb.	0
M4	Starting chilling/freezing type (M4=0 the same as turning off)		0	6	Numb.	0

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CONFIGURATION PARAMETERS
Machine models: ASC-SC1 3º cod. 26118393

	Parameter	Note	Min.	Max.	U.M.	STAND
PA	PASSWORD	user	-99	+99	Numb.	-19
/	/ = PROBES PARAMETERS					
/1	Calibration (ref. to the cabinet probe)	user	-10	+10	°C	0
/2	Calibration (ref. to evaporator probe)	user	-10	+10	°C	0
/3	Calibration (ref. to core probe)	user	-10	+10	°C	0
/8	temperatur scale (0=Fahrenheit 1=celsius)	user	0	1	Flag	1
c	c = QUICK COOLING / FREEZING AND COLD STORING ON-OFF REGULATOR					
c0	Hysteresis (differential, ref. to the cabinet probe)	user	1	15	°C	+3
c1	Maximum lenght of chilling by temperature and by time	user	0	400	min	90
c2	Quick chilling temperature cut off set (ref. to the needle probe)	user	-55	+99	°C	3
c3	Cold-storing set (ref. to the cabinet probe)	user	-55	+99	°C	2
c4	Maximum lenght of the quick-freezing for temperature and for time	user	0	400	min	240
c5	Quick-freezing for temperature cut off set (ref. to the needle probe)	user	-55	+99	°C	-18
c6	Very cold-storing set (ref. to the cabinet probe)	user	-55	+99	°C	-25
c7	Threshold for needle probe properly positioned fast-test		0	+99	°C	5
c8	Quick-cooling/freezing for temperature enabling set (ref. to the needle probe)	user	-55	+99	°C	+65
c9	Alarm buzzer activation lenght when a quick-cooling/freezing ends		0	99	sec	60
cA	Needle probe reading	user	---	---	°C	---
cb	Quick-chilling set (ref. to cabinet probe) and during the second hard phase	user	-55	+99	°C	-5
cd	Hard-phase cut off set (ref. to the needle probe)	user	-55	+99	°C	20
cE	During of the needle probe properly positioned differential-test (with cE=0 test off)		0	99	sec	0
cF	Hard-phase working set (ref. to cabinet probe)	user	-55	+99	°C	-20
t	t = INTENSIVE PHASE					
t0	Ice cream quick cooling phase		1	400	min	10
th	Hard-phase time lenght		1	400	min	30
C	C = COMPRESSOR OUTPUT PROTECTION					
C0	Disabling time at the compressor activation from the instrument start		0	9	min	2
C2	Disabling time at the compressor activation from the precedenting deactivation		0	99	min	3
C4	Delay compressor start		0	9	sec	0
C5	Cycle time for the output activation in case cabinet probe failure		0	99	min	10
C6	Output activation lenght during the cold-storing in case of cabinet probe failure		0	99	min	3
C7	Output activation lenght during the very cold-storing in case of cabinet probe failure		0	99	min	8
C8	Pump down time lenght		0	999	sec	10
C9	Reading compressor working time		0	999	hours	---
CA	Compressor maintenance time		0	999	hours	999
d	d = DEFROST REGULATION					
d0	Defrost interval (0 = don't defrost)	user	0	99	hours	8 h
d1	Kind of defrost		0	2	Numb.	1
d2	Defrost cut off set (ref. to evaporator probe)		-55	+99	°C	+2
d3	Maximum defrost lenght		1	99	min	20
d4	Defrost at the beginning of the uick-cooling/freezing (0=NO 1=YES)		0	1	Flag	0
d5	First defrost intervall from the begin of the cold-storing phase		0	999	min	99
d7	Dripping lenght		0	9	min	2
d9	Forced defrost (delays override)		0	1	Flag	1
dA	Evaporator probe reading	user	---	---	°C	---
dc	Delay hot gas valve-compressor during defrosting		0	99	sec	5
dd	Temperature set activadion door heater		0	99	°C	0
F	F = EVAPORATOR FAN'S REGULATOR					
F3	Output deactivate fans if the compressor is deactivated (0 = No / 1 = Yes)		0	1	Flag	1
F4	Output deactivate fans during the defrost (0 = No / 1 = Yes)		0	1	Flag	1
F5	Disabling time at the output fans activation from the end of the dripping		0	9	min	3
u	U = DIGITAL INPUTS					
u1	Door switch deactivate evaporator fans output (0 = N.O. / 1 = N.C.)		0	1	Flag	1
u2	Door switch input polarity (0 = N.O. / 1 = N.C.)		0	1	Flag	1
u3	locking input polarity high pressure (0 = N.O. / 1 = N.C.)		0	1	Flag	0
u4	Disabling time of the locking high pressure input on alarm		0	999	sec	5
u5	Activation lenght UV light (u5=0 function deactivate)	user	0	99	min	0
u6	Locking input polarity low pressure (0 = N.O. / 1 = N.C.)		0	1	Flag	0
u7	Alarm delay low pressure		0	999	sec	5
u8	Inlet polarity Kriwan alarm (0 = N.O. / 1 = N.C.)		0	1	Flag	0
u9	Alarm delay Kriwan		0	999	sec	5
uA	Printer interval (uA=0 HACCP push button deactivate)	user	0	99	min	20
ub	Inlet alarm polarity fuse 1 (0 = N.O. / 1 = N.C.)		0	1	Flag	0
uc	Alarm delay fuse 1		0	999	sec	5
ud	Inlet alarm polarity fuse 2 (0 = N.O. / 1 = N.C.)		0	1	Flag	0
uE	Alarm delay fuse 2		0	999	sec	5
uF	Alarm delay door micro-switch (with working machine)		0	99	min	5
A	A = TEMPERATURE ALARM REGULATOR					
A2	Upper temperature alarm set relative to the cold-storing set (set. to the cabinet probe) (A2=0 no alarm)		0	99	°C	5
A4	Upper temperature alarm set relative to the very cold-storing set (set. to the cabinet probe) (A4=0 no alarm)		0	99	°C	15
A5	Disabling time of the alarm temperature from the beginning of the cold-storing or from end defrosting		0	240	min	30
A6	Acquisition time of the alarm temperature		0	240	min	20
L	L = NETWORK CONNECTION					
L1	In line instrument address (not used)		1	15	Numb.	1
L2	EL card expansion type installation and HACCP (L2=0)		0	1	Flag	1
M	M = CONFIGURATIONS					
M0	Machine configuration (for the printer) (0=GENERIC 1=T5 2=T14 3=T20 4=T24 5=T40 6=AS1 7=MT 8=ASC 9=SC1 10=XXX ---19=XXX)		0	19	Numb.	0
M1	Machine type (for the printer) (0=GENERIC 1=TECNOMAC 2=ICEMATIC 3=XXX ---9=XXX)		0	9	Numb.	0
M4	Starting chilling/freezing type (M4=0 the same as turning off)		0	6	Numb.	0

9.3 Micro-relays electronic card:

9.3.1 Sensor inlet PC board (check sensors type and cables lenght):

PRB 1 = Inlet room temperature sensor
PRB 2 = Inlet evaporator temperature sensor
PRB 3 = Inlet core temperature sensor
PRB 4 = Inlet free connection

Inlet PC board connection for sensor type PTC KTY 83-121 (-70°C +100°C).

9.3.2 Outlet to relay:

Relay K1 (10A AC1) = Compressor
Relay K2 (5A AC1) = Door heater
Relay K3 (5A AC1) = Solenoid valve (pump-down)
Relay K4 (5A AC1) = Evaporator fan
Relay K5 (5A AC1) = Defrosting
Relay K6 (10A AC1) = UV lamp
Relay K7 (10A AC1) = Alarm - room light

9.3.3 Digital inlet (with polarity setting under password):

Inlet SW1 = Manual reset/alarms (high pressure pressostat)
Inlet SW2 = Door micro switch
Inlet SW3 = Automatic reset alarm (Kriwan)
Inlet SW4 = Manual reset alarm (low pressure alarm)
Inlet Ht1 tension = Fuse alarm
Inlet Ht2 tension = Fuse alarm

9.3.4 Forcing relay' for the service:

It is possible to disable all the card outlets to be able then her to singly activate.
With the car in stand-by, to hold pressed for 5 seconds the push buttons defrosting and clock, then a display will visualize' the wording FFF while the other display will visualize' the nr. 1 (first relay). This number points show the relay' that we intend to force. Once selected the relay' to activate, press the push button Start / Stop to excite or not excite it.

When a relay' it's forced if we change relay' with the buttons 7 and 8 the relay previously activated is disarmed.

It's not possible to activate more' then a relay' per time.

FFF1 = it activates the exit of the relay' K1 (compressor)
FFF2 = " K2 (door heater)
FFF3 = " k3 (solenoid valve)
FFF4 = " K4 (evaporator fan)
FFF5 = " K5 (hot gas defrosting)
FFF6 = " K6 (UV light)
FFF7 = " K7 (alarm)
FFF8 = " buzzer activation

Pressing again the defrosting push buttons or standby push buttons it's possible to go out from the function.
From the function it's not possible to go out per time-out.

9.3.5 Autotest

The self-diagnosis of the card is done when we switch on the machine and when the panel is not in stand -by condition . We've the control panel displays and leds lighting.
The software version will appear on the display.

9.3.6 Microprocessor Reset

It's possible to reset the microprocessor card by pressing in the same time the three bush buttons (-18) , (+3 Soft) , (+ 3 Hard).The displays show the words " rES" and the microprocessor reset itself, clean the memory, all the outlets are disactivated, and the machine goes in stand-by.

9.3.7 Printing Connection

The pc-board send to the printer the data every 20 minutes.(parameter uA) even if this is stopped or not connected.
With machine in stand by it's possible to print :
- the last three HACCP alarms by pressing the push buttons HACCP.
- the last chilling or freezing cycle memorized , by pressing the push button HACCP for few seconds.

9.3.8 HACCP (Display).

For the HACCP there are three different types of alarm-signalling: high-temperature alarm, black-out alarm (which works only during preservation) and the alarm for a too-long blast chilling / shock freezing time.

In case of high- temperature alarm, in addition to the alarm “ALL 11” signalling, it should be possible to see the date and the time.

In case of black-out alarm, in addition to the alarm “ALL 12” signalling, it should be possible to see the date and the time.

In case of alarm for too long blast chilling or shock freezing time, in addition to the alarm “ALL 14” signalling, it should be possible to see the date and the time and, if possible, also the time in excess.

This alarms are memorized (details of the last three alarms are in memory with correspondent date/hours/time in excess) every time they appear.
To check the memory it is necessary to press (long pressure) the HACCP button when the machine is not working. To let the data run through in the screen, press many times (short pressure) the HACCP button until you go out of the function.

Note: The button HACCP and his functions are not working (parameter 2) if the SCHEZA ESPANSIONE is not working.

9.3.9 CHECK CORE PROBE INSERTION IN THE PRODUCT

The check “Core probe insertion” verifies if 25 seconds after the START, the cabinet temperature and the probe temperature are different of min. 5°C (parameter. C7).
If not, it is necessary to wait 90 seconds (parameter. CE) to check that the values of both temperature become enough different one from another. In case temperatures remains similar, the advice “o----“ appears in the screen and the buzzer plays for 60 seconds (parameter. C9) The temperature cycle changes automatically into time cycle and it lasts for the remaining time of the count down.
This function is not inserted as default.

9.3.10 DEACTIVATION OF THE FREEZING

It is possible to deactivate the freezing (parameter. C4=0) and his button.
This function allows the use of the machine only for blast chilling.

9.4 Test “A”

Example of printing for 24 hrs cycle:

PRINTING	*NOTES*
TECNOMAC	
Printed Date: day/month/year	
Time: hh:mm	
MACHINE T14	
Cycle -18°C by time	or “Cycle +3°C HARD by temp.”
	or “Cycle -18°C by temp.”
PRODOTTO	or “Cycle +3°C SOFT by time”
_____	....
- -	
- -	
_____	
Date day/month/year	Test with printing data every 5 minutes
Time hh:mm +80°C Start	
Time __:_5 +69°C	
Time __:10 +54°C	
Time __:15 +42°C	
Time hh:20 +35°C Hard->Soft	Hard/soft cycle
Time __:25 +27°C	
Time hh:26 +25°C Door open	
Time hh:26 +25°C Door close	
Time __:30 +22°C	
Time __:35 +16°C	
Time hh:39 +12°C ALL-01 ON	Allarm 01 on
Time __:40 +13°C	
Time hh:42 +15°C ALL-01 OFF	Allarm 01 off
Time __:45 +09°C	
Time __:50 +01°C	
Time __:55 -05°C	
Time _1:00 -14°C	
Time _1:05 -17°C	
Time hh:06 -18°C END freezing	End cycle and start preserving
Time _1:10 -19°C	
Time _1:15 -18°C	
Time hh:16 -18°C Door open	
Time hh:19 -10°C ALL-03 ON	Allarm 03 on
Time _1:20 -05°C	
Time hh:21 -02°C ALL-04 ON	Allarm 04 on
Time hh:21 -01°C Door close	
Time hh:21 -01°C ALL-04 OFF	Allarm 04 off
Time _1:25 -05°C	
Time _1:30 -16°C	
Time hh:32 -18°C ALL-03 OFF	Allarm 03 off
Time _1:35 -18°C	
Time hh:36 -18°C DEFROST ON	
Time _1:40 -16°C	
Time hh:43 -15°C DEFROS.OFF	
Time _1:45 -18°C	
Time hh:48 -18°C STOP	
_____	

9.4 Test “B”

Example of printing

PRINTING	*NOTES*

TECNOMAC
Printed Date: day/month/year
Time: hh:mm

MACHINE T14

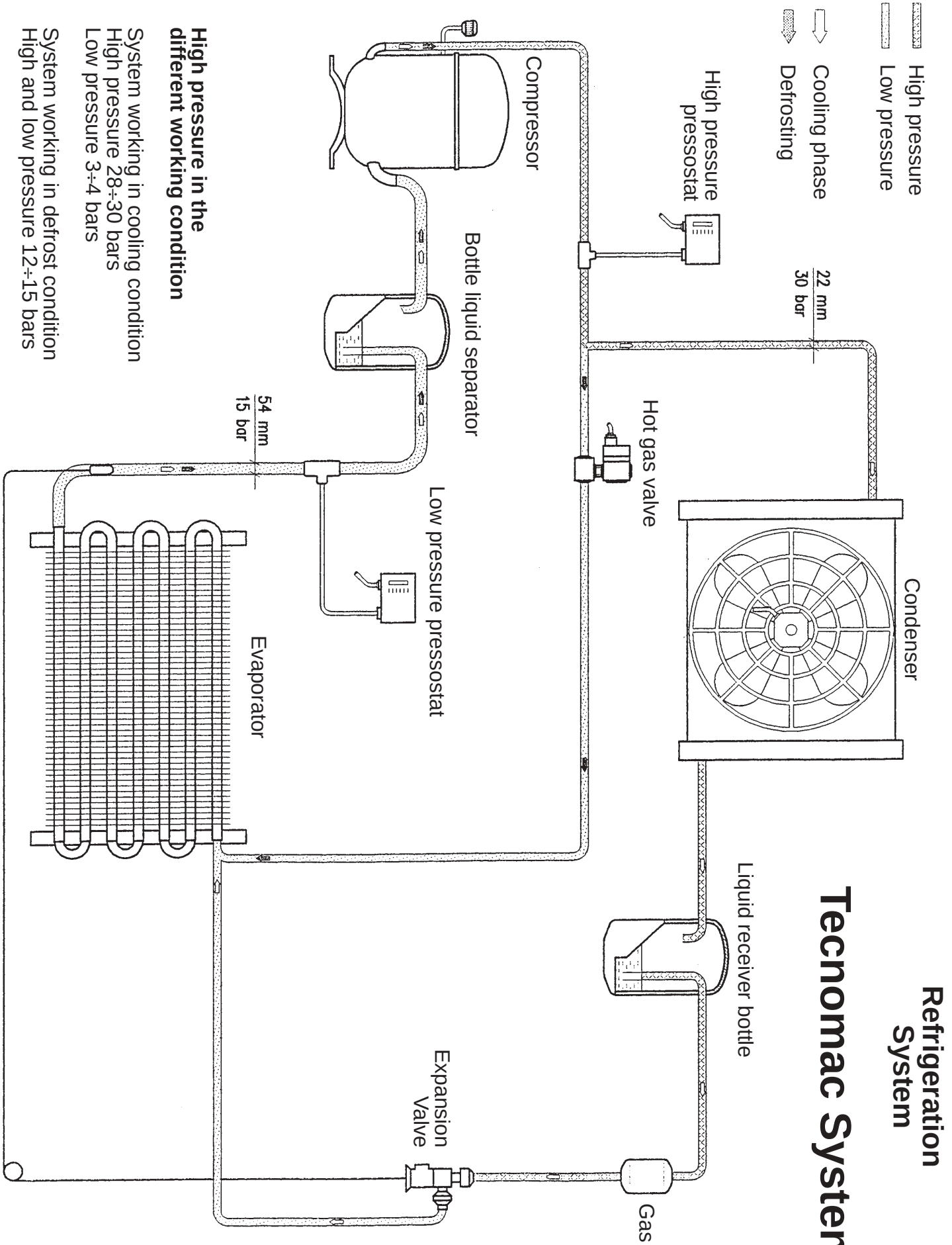
HACCP alarm

OVER TEMPERATURE ALARM
WITH +3° C SETPOINT
Start day/month/year Time: hh:mm
Max temperature +xx°C
End day/month/year Time: hh:mm

BLACK-OUT ALARM
WITH -18°C SETPOINT
End black-out elettr. line
day/month/year Time: hh:mm
Max temperature +xx°C
Temperature re-enter in the
setting temperature value
day/month/year Time: hh:mm

End

9.5 REFRIGERATION SYSTEM



Technical Characteristics - Model T5

COMPRESSOR	ASPERA J 2192 GK CSR (26 cc - 220-240V/50Hz) cod. 19165559/0
CONDENSER	Cod. 19177070/0
FAN	EMI 16/75 watt - 220/50 - Pala Ø 254x33° con griglia cod. 18562570/0
CAPILLARY / V.T.	VT DANFOSS TES2 68Z3411 campo B Mop -20 cod. 19200006/0
	orif. n° 1 cod. 19470956/0
GAS CHARGE	1300 R404a
EVAPORATOR	Cod. 19270072/0
GAS VALVE	CASTEL 1028/M10 cod. 19863036/0
RECEIVER	1,6 litres cod. 19635348/0
MINI PRESSOSTAT	Max. 19 < > 30 Bar - cod. 19550623/0

Technical Characteristics - Model T14/65

COMPRESSOR	Dorin H300 CS - R404 / -230 -400/3/50 cod. 19166047/0
CONDENSER	Cod. 19177071/0
FAN	EBM - AGE420 - AP - 02-01 230/1/50 - cod. 18562536/0
CAPILLARY / V.T.	Danfoss TES 2 campo B, mop = -20°C cod. 19200004/0
	orif. n° 3 cod. 19470957/0
GAS CHARGE	R404a / 2500 gr.
EVAPORATOR	Cod. 19270073/0
GAS VALVE	Cod. 19863034/0 Castel 1068/M10 Bobina HM2

Liquid receiver: diam. 130 x 360 h 19635349/0

Filter Castel 4316/4 19301252/0

EVAPORATOR FAN EBM A4E300 BA0102 18562532/0

MINI PRESSOSTAT Max. 19 < > 30 Bar - 19550623/0

Technical Characteristics - Model T14/40

COMPRESSOR	TFH 2511Z R404 Cod. 19165601/0
CONDENSER	STV 690 con convogliatore cod. 19177042/0
FAN	140W 230V 50Hz 0,7A Pala Ø350 con griglia
CAPILLARY / V.T.	Danfoss TES 2 campo B, mop = -20°C cod. 19200006/0 orif. n° 3 cod. 19470957/0
GAS CHARGE	R404a / 2200 gr.
EVAPORATOR	Cod. 19270073/0
GAS VALVE	Cod. 19863034/0 Castel 1068/M10 Bobina HM2

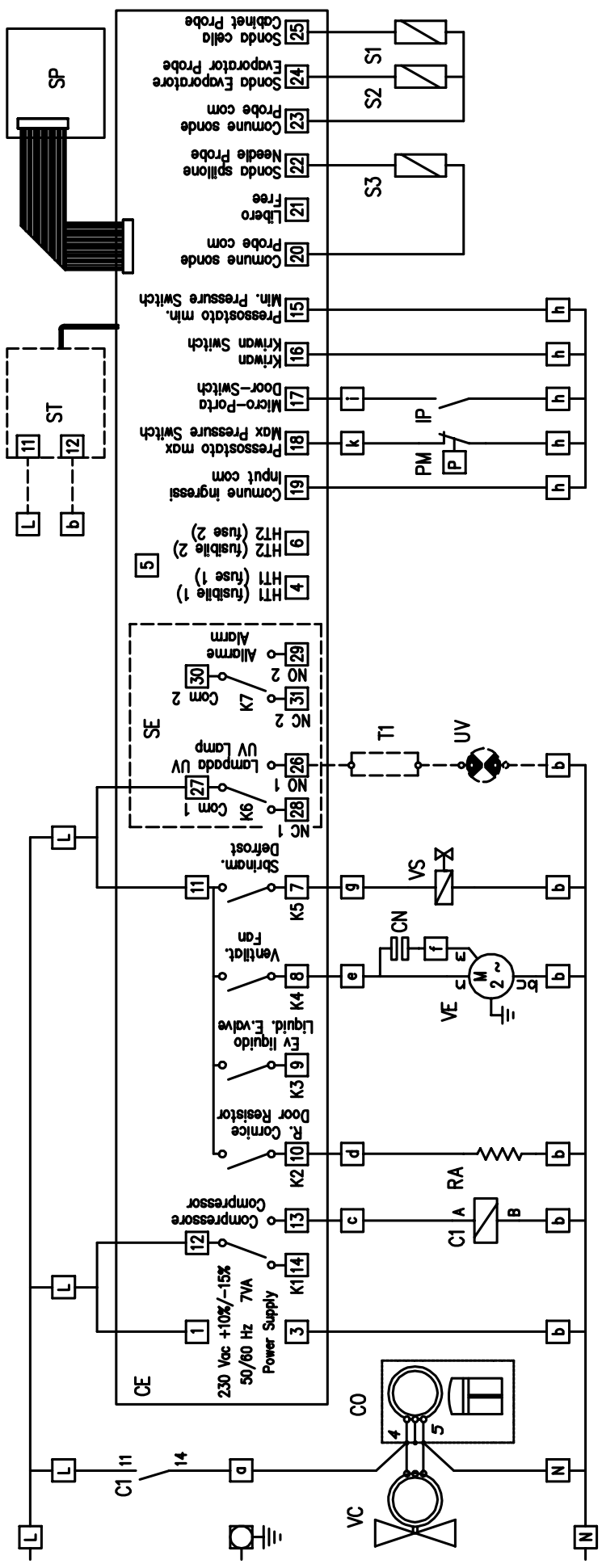
Liquid receiver: diam. 130 x 360 h 19635349/2

Filter Castel 4316/4 19301252/0

EVAPORATOR FAN EBM A4E300 BA0102 18562532/0

MINI PRESSOSTAT Max. 19 < > 30 Bar - 19550623/0

9.6 WIRING DIAGRAM T5

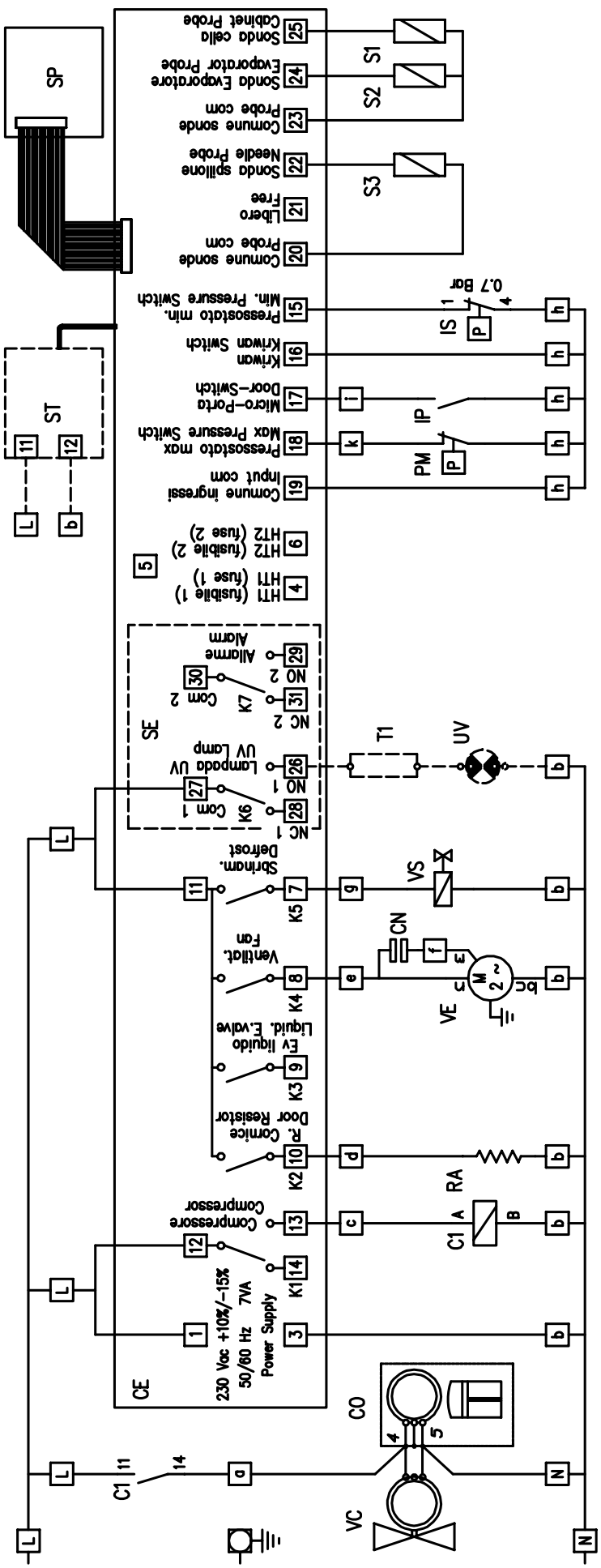


L1-N	L1-N 230V 50Hz	230V 50Hz
SP	Scheda Display/Pulsanti	Display El. Card
CE	Centralina Elettronica	Electronic Card
SE	Scheda Espansione	Expantion E. Card
C1	Rele' di Potenza	Power Relay
CO	Compressore	Compressor
VE	Ventilatore Evaporatore	Evaporator Fan
VC	Ventilatore Condensatore	Condensator Fan
VS	Valvola Sbrinamento	Defrosting Valve
PM	Pressostato di max	Max Pressure switch

RA	Resistenza Anticondensa	Door Resistor
IP	Microinterruttore porta	Door Switch
CN	Condensatore Ventilatore	Fan Capacitor
S1	Sonda Cella	Cell Probe
S2	Evaporatore	Evaporator
S3	Sonda ad ago	Neddle Probe
T1	Trasformatore per UV	UV Transformer
UV	Lampada UV (optional)	UV Lamp
ST	Stampante (optional)	Printer (optional)

COLORI CAVI / CABLES COLORS		
m	Marrone	Brown
n	Nero	Black
bc	Blu Chiaro	Light blue
bi	Bianco	Withe
gv	Giallo/Verde	Yellow/Green

WIRING DIAGRAM T5 W



L1-N	L1-N 230V 50Hz	230V 50Hz
SP	Scheda Display/Pulsanti	Display El. Card
CE	Centralina Elettronica	Electronic Card
SE	Scheda Espansione	Expantion E. Card
C1	Rele' di Potenza	Power Relay
CO	Compressore	Compressor
VE	Ventilatore Evaporatore	Evaporator Fan
VC	Ventilatore Compressore	Compressor Fan
VS	Valvola Sbrinamento	Defrosting Valve
PM	Pressostato di max	Max Pressure Switch

RA	Resistenza Anticondensa	Door Resistor
IP	Microinterruttore porta	Door Switch
CN	Condensatore Ventilatore	Fan Capacitor
S1	Sonda Cella	Cell Probe
S2	Evaporatore	Evaporator
S3	Sonda ad ago	Neddle Probe
T1	Trasformatore per UV	UV Transformer
UV	Lampada UV (optional)	UV Lamp
ST	Stampante (optional)	Printer (optional)
IS	Idrostato acqua	Water Pressure Switch

COLORI CAVI / CABLES COLORS		
m	Marrone	Brown
n	Nero	Black
bc	Blu Chiaro	Light blue
bi	Bianco	Withe
gv	Giallo/Verde	Yellow/Green

WIRING DIAGRAM T14

L1-2-3-N	400/3N+T/50
CE	Centralina Elettronica
SP	Scheda Pulsanti/Display
SE	Scheda Espansione
ST	Stampante (opzionale)
C1	Teleruttore Compressore
C2	Relè Ventilazione
MT	Magnetotermico
CO	Compressore
PV	Pressostato Ventilazione
VC	Ventilatore Condensatore
CN	Condensatore Ventilatori
RC	Resistenza Carter
KR	Kriwan
RA	Resistenza Anticondensa
VL	Elettrovalvola Liquido
VE	Ventilatori Evaporatore
VS	Elettrovalvola Sbrinamento
T1	Trasformat. UV (opzionale)
UV	Lampade UV (opzionale)
PM	Pressostato di Massima
IP	Interruttore Porta
S1	Sonda Aria Cella
S2	Sonda evaporatore
S3	Sonda Spillone/Ago

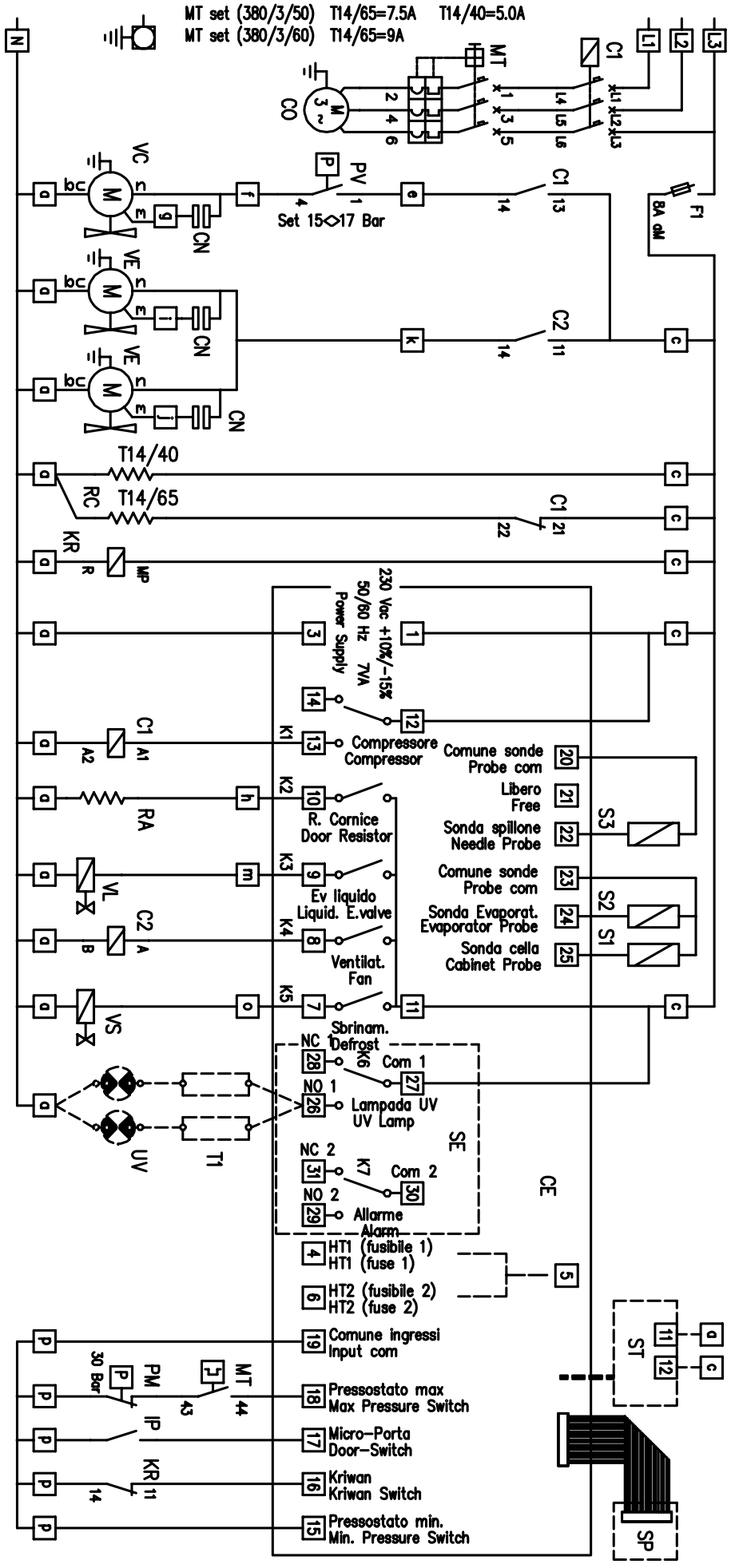
L1-2-3-N	400/3N+T/50
CE	Electronic Card
SP	Display El.Card
SE	Expantion El.Card
ST	Printer (optional)
C1	Contactor Compressore
C2	Evaporator Fans Relay
MT	Magnetothermic Switch
CO	Compressor
PV	Fan Pressure Switch
VC	Fan Condensator
CN	Fan Capacitors
RC	Resistor Carter
KR	Kriwan
RA	Door Resistor
VL	Liquid Electric Valve
VE	Evaporator Fans
VS	Defrost Electric Valve
T1	Transform. UV (opzional)
UV	UV Lights (opzional)
PM	Max Pressure Switch
IP	Door Switch
S1	Cabinet Probe
S2	Evaporator Probe
S3	Needle Probe

In caso di assenza della protezione termica compressore (KR), ponticellare i morsetti "P" della morsettiera e "16" della scheda.

If the thermic protection compressor (KR) is not installed, make a bridge from terminal "P" to terminal "16".

SEZIONE CAVI / CABLES SECTION	
1.5 mmq	1.5 mmq
2.5 mmq	2.5 mmq

COLORI CAVI / CABLES COLORS		
m	Marrone	Brown
n	Nero	Black
bc	Blu Chiaro	Light blue
bi	Bianco	Withe
gv	Giallo/Verde	Yellow/Green



WIRING DIAGRAM T14

L1-2-3-N	400/3N+T/50
CE	Centralina Elettronica
SP	Scheda Pulsanti/Display
SE	Scheda Espansione
ST	Stampante (opzionale)
C1	Teleruttore Compressore
C2	Relè Ventilazione
MT	Magnetotermico
CO	Compressore
PV	Pressostato Ventilazione
VC	Ventilatore Condensatore
CN	Condensatore Ventilatori
RC	Resistenza Carter
KR	Kriwan
RA	Resistenza Anticondensa
VL	Elettrovalvola Liquido
VE	Ventilatori Evaporatore
VS	Elettrovalvola Sbrinamento
T1	Trasformat. UV (opzionale)
UV	Lampade UV (opzionale)
PM	Pressostato di Massima
IP	Interruttore Porta
S1	Sonda Aria Cella
S2	Sonda evaporatore
S3	Sonda Spillone/Ago

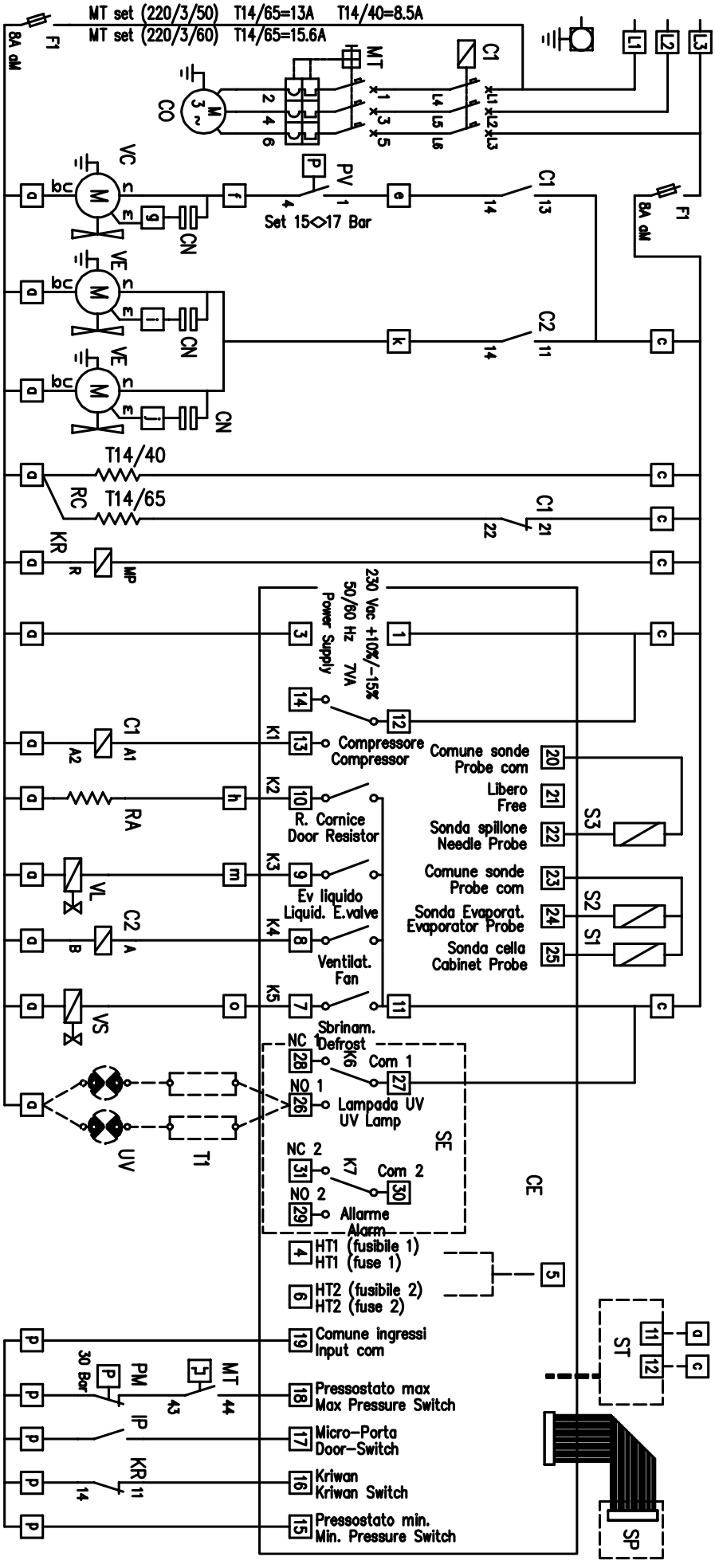
L1-2-3-N	400/3N+T/50
CE	Electronic Card
SP	Display El.Card
SE	Expantion El.Card
ST	Printer (optional)
C1	Contactor Compressore
C2	Evaporator Fans Relay
MT	Magnetothermic Switch
CO	Compressor
PV	Fan Pressure Switch
VC	Fan Condensator
CN	Fan Capacitors
RC	Resistor Carter
KR	Kriwan
RA	Door Resistor
VL	Liquid Electric Valve
VE	Evaporator Fans
VS	Defrost Electric Valve
T1	Transform. UV (opzional)
UV	UV Lights (opzional)
PM	Max Pressure Switch
IP	Door Switch
S1	Cabinet Probe
S2	Evaporator Probe
S3	Needle Probe

In caso di assenza della protezione termica compressore (KR), ponticellare i morsetti "P" della morsettiera e "16" della scheda.

If the thermic protection compressor (KR) is not installed, make a bridge from terminal "P" to terminal "16".

SEZIONE CAVI / CABLES SECTION	
1.5 mmq	1.5 mmq
2.5 mmq	2.5 mmq

COLORI CAVI / CABLES COLORS		
m	Marrone	Brown
n	Nero	Black
bc	Blu Chiaro	Light blue
bi	Bianco	Withe
gv	Giallo/Verde	Yellow/Green



WIRING DIAGRAM T14 SPLIT

L1-2-3-N	400/3N+T/50
CE	Centralina Elettronica
SP	Scheda Pulsanti/Display
SE	Scheda Espansione
ST	Stampante (opzionale)
C1	Teleruttore Compressore
C2	Relè Ventilazione
MT	Magnetotermico
CO	Compressore
PV	Pressostato Ventilazione
VC	Ventilatore Condensatore
CN	Condensatore Ventilatori
RC	Resistenza Carter
KR	Kriwan
RA	Resistenza Anticondensa
VL	Elettrovalvola Liquido
VE	Ventilatori Evaporatore
VS	Elettrovalvola Sbrinamento
T1	Trasformat. UV (opzionale)
UV	Lampade UV (opzionale)
PM	Pressostato di Massima
IP	Interruttore Porta
S1	Sonda Aria Cella
S2	Sonda evaporatore
S3	Sonda Spillone/Ago

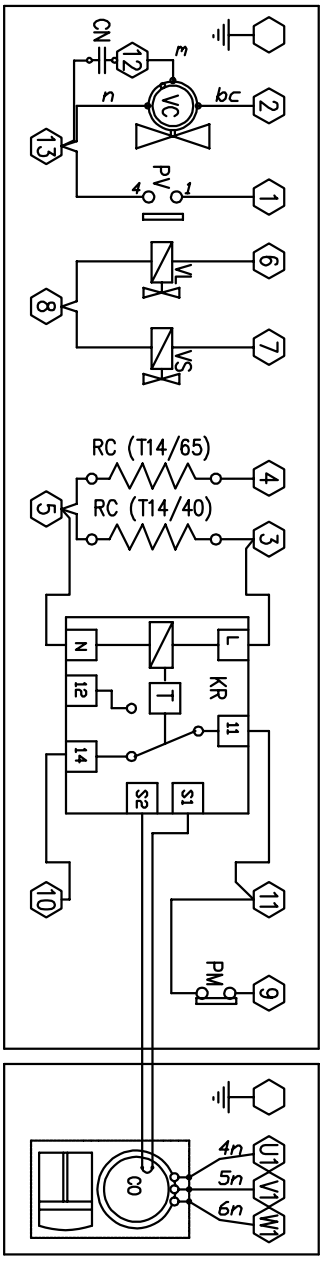
L1-2-3-N	400/3N+T/50
CE	Electronic Card
SP	Display El.Card
SE	Expantion El.Card
ST	Printer (optional)
C1	Contactor Compressore
C2	Evaporator Fans Relay
MT	Magnetothermic Switch
CO	Compressor
PV	Fan Pressure Switch
VC	Fan Condensator
CN	Fan Capacitors
RC	Resistor Carter
KR	Kriwan
RA	Door Resistor
VL	Liquid Electric Valve
VE	Evaporator Fans
VS	Defrost Electric Valve
T1	Transform. UV (opzional)
UV	UV Lights (opzional)
PM	Max Pressure Switch
IP	Door Switch
S1	Cabinet Probe
S2	Evaporator Probe
S3	Needle Probe

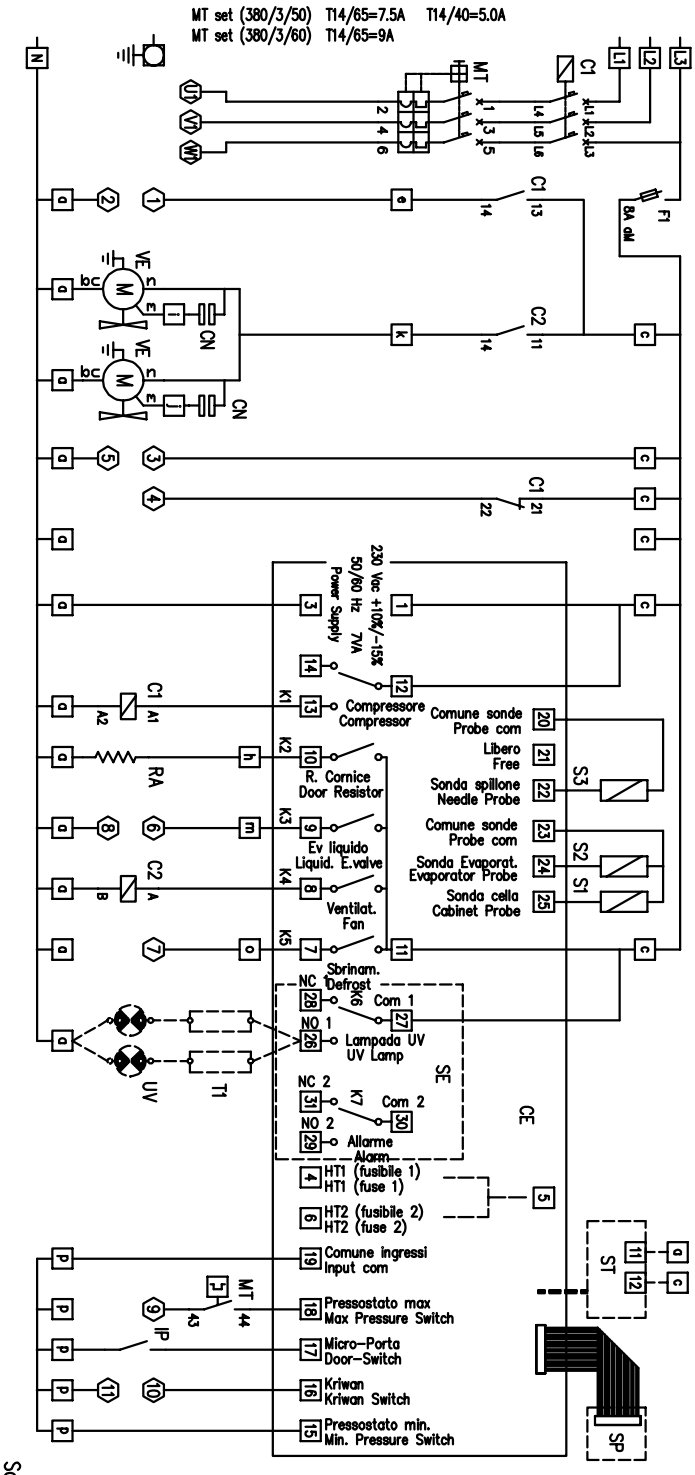
In caso di assenza della protezione termica compressore (KR), ponticellare i morsetti "P" della morsettiera e "16" della scheda.

If the thermic protection compressor (KR) is not installed, make a bridge from terminal "P" to terminal "16".

SEZIONE CAVI / CABLES SECTION	
1.5 mmq	1.5 mmq
2.5 mmq	2.5 mmq

COLORI CAVI / CABLES COLORS		
m	Marrone	Brown
n	Nero	Black
bc	Blu Chiaro	Light blue
bi	Bianco	Withe
gv	Giallo/Verde	Yellow/Green





Electric Diagram Split Condensing-Unit
Schema Elettrico Unità Condensatrice Split (remota)

WIRING DIAGRAM T14 W

L1-2-3-N	400/3N+T/50
CE	Centralina Elettronica
SP	Scheda Pulsanti/Display
SE	Scheda Espansione
ST	Stampante (opzionale)
C1	Teleruttore Compressore
C2	Relè Ventilazione
MT	Magnetotermico
CO	Compressore
IS	Idrostato (min) acqua
VC	Ventilatore Compressore
CN	Condensatore Ventilatori
RC	Resistenza Carter
KR	Kriwan
RA	Resistenza Anticondensa
VL	Elettrovalvola Liquido
VE	Ventilatori Evaporatore
VS	Elettrovalvola Sbrinamento
T1	Trasformat. UV (opzionale)
UV	Lampade UV (opzionale)
PM	Pressostato di Massima
IP	Interruttore Porta
S1	Sonda Aria Cella
S2	Sonda evaporatore
S3	Sonda Spillone/Ago

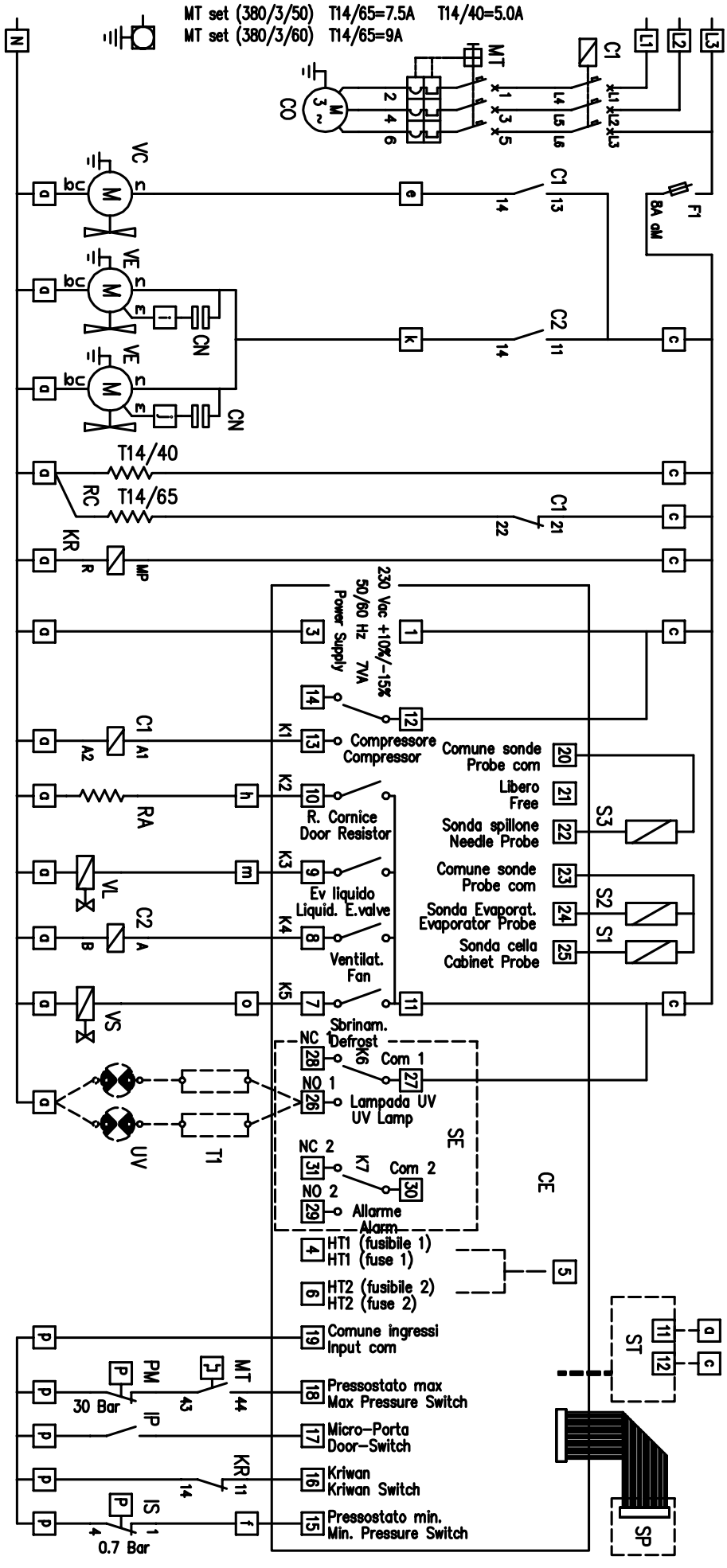
L1-2-3-N	400/3N+T/50
CE	Electronic Card
SP	Display El.Card
SE	Expantion El.Card
ST	Printer (optional)
C1	Contactor Compressore
C2	Evaporator Fans Relay
MT	Magnetothermic Switch
CO	Compressor
IS	Min. Water Pressure Switch
VC	Compressor Fan
CN	Fan Capacitors
RC	Resistor Carter
KR	Kriwan
RA	Door Resistor
VL	Liquid Electric Valve
VE	Evaporator Fans
VS	Defrost Electric Valve
T1	Transform. UV (opzional)
UV	UV Lights (opzional)
PM	Max Pressure Switch
IP	Door Switch
S1	Cabinet Probe
S2	Evaporator Probe
S3	Needle Probe

In caso di assenza della protezione termica compressore (KR), ponticellare i morsetti "P" della morsettiera e "16" della scheda.

If the thermic protection compressor (KR) is not installed, make a bridge from terminal "P" to terminal "16".

SEZIONE CAVI / CABLES SECTION	
1.5 mmq	1.5 mmq
2.5 mmq	2.5 mmq

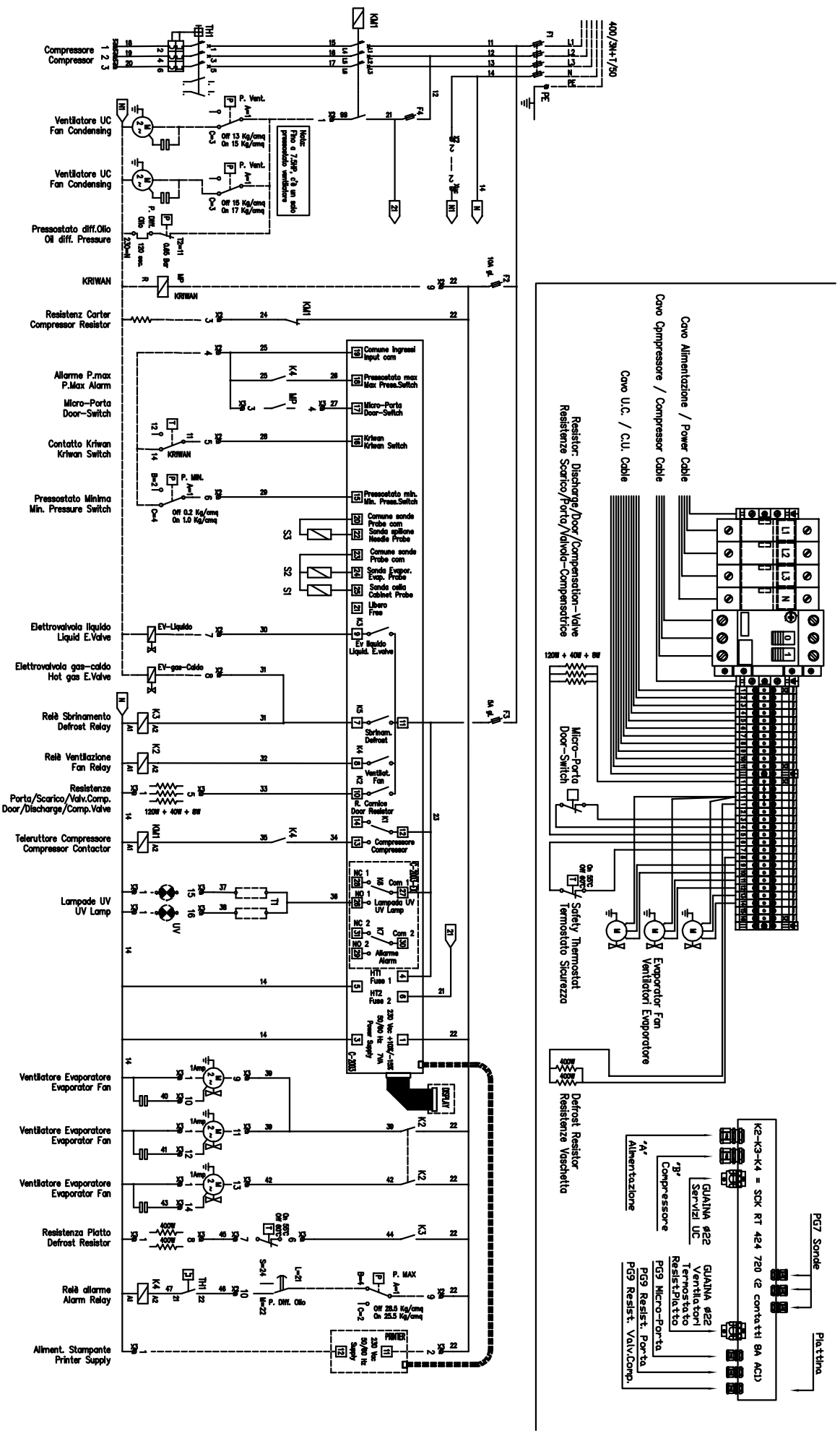
COLORI CAVI / CABLES COLORS		
m	Marrone	Brown
n	Nero	Black
bc	Blu Chiaro	Light blue
bi	Bianco	Withe
gv	Giallo/Verde	Yellow/Green



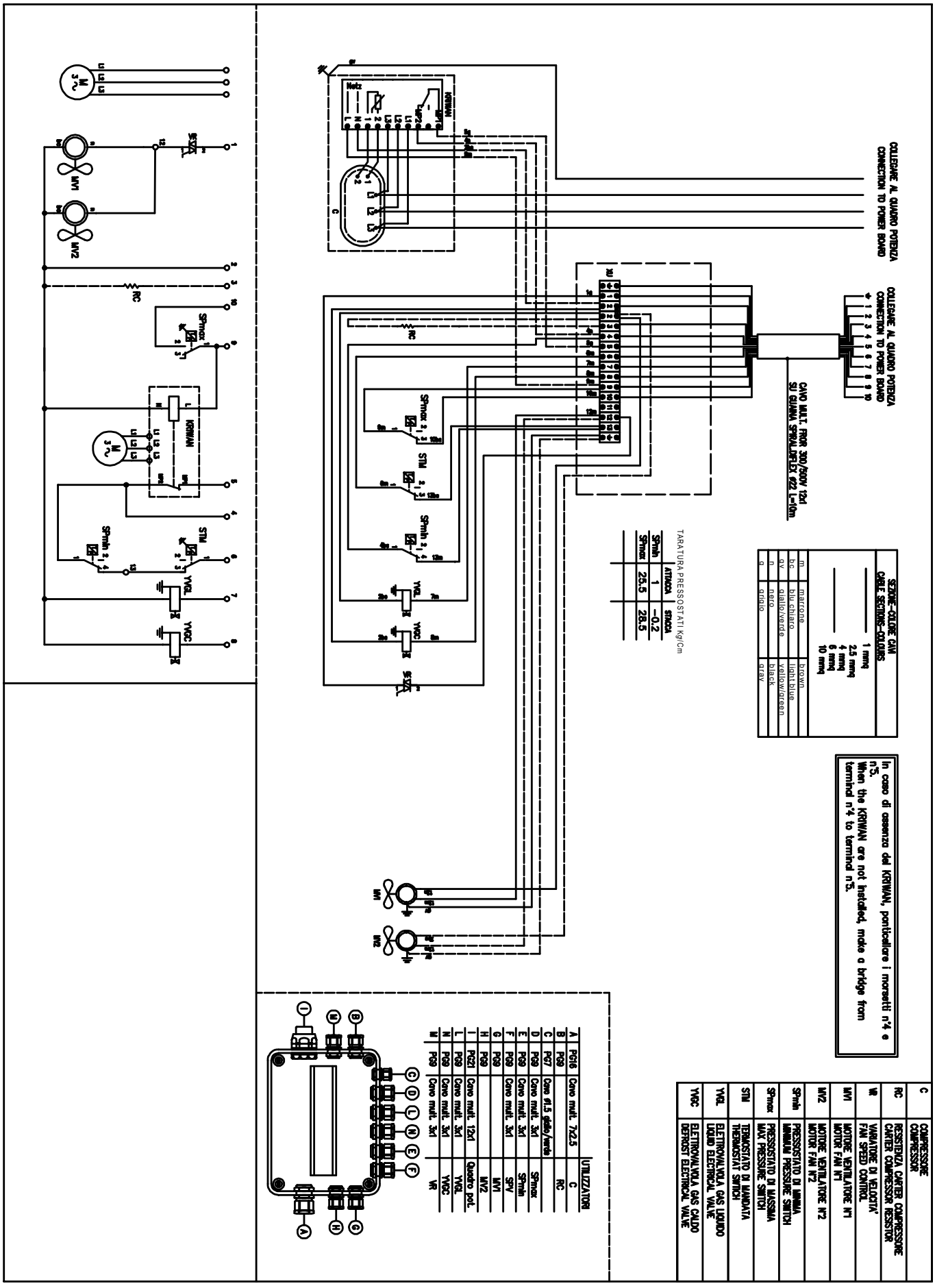
WIRING DIAGRAM T20-T30-T40

Compress.	Amp Compr.	Amp Ventilatori	F4	KM1	Codice Quadro pot.	TH1	F1	Sezione cavi Compr./Aliment.	'A' e 'B'
2 HP	4.5	0.5	.	LC1-D09	.	4-6.3 A	10A aM	2.5 mmq	.
3 Hp	7.3	0.5+0.5	4 aM	LC1-D12	8156241/0	6-10 A	16A aM	2.5 mmq	Guaina. ø22
4 Hp	8.9	0.7+0.7							
5.5Hp	11.5	1+1	6 aM	LC1-D18	8156242/0	9-14 A	25A aM	4 mmq	Guaina. ø22
7.5Hp	14	1.5+1.5							

Alimentazione	In	Icc Spunto	Tenuta al C.C.
.	.	.	.
400/3N+T/50	12A	70A	3 kA
400/3N+T/50	18A	75A	3 kA

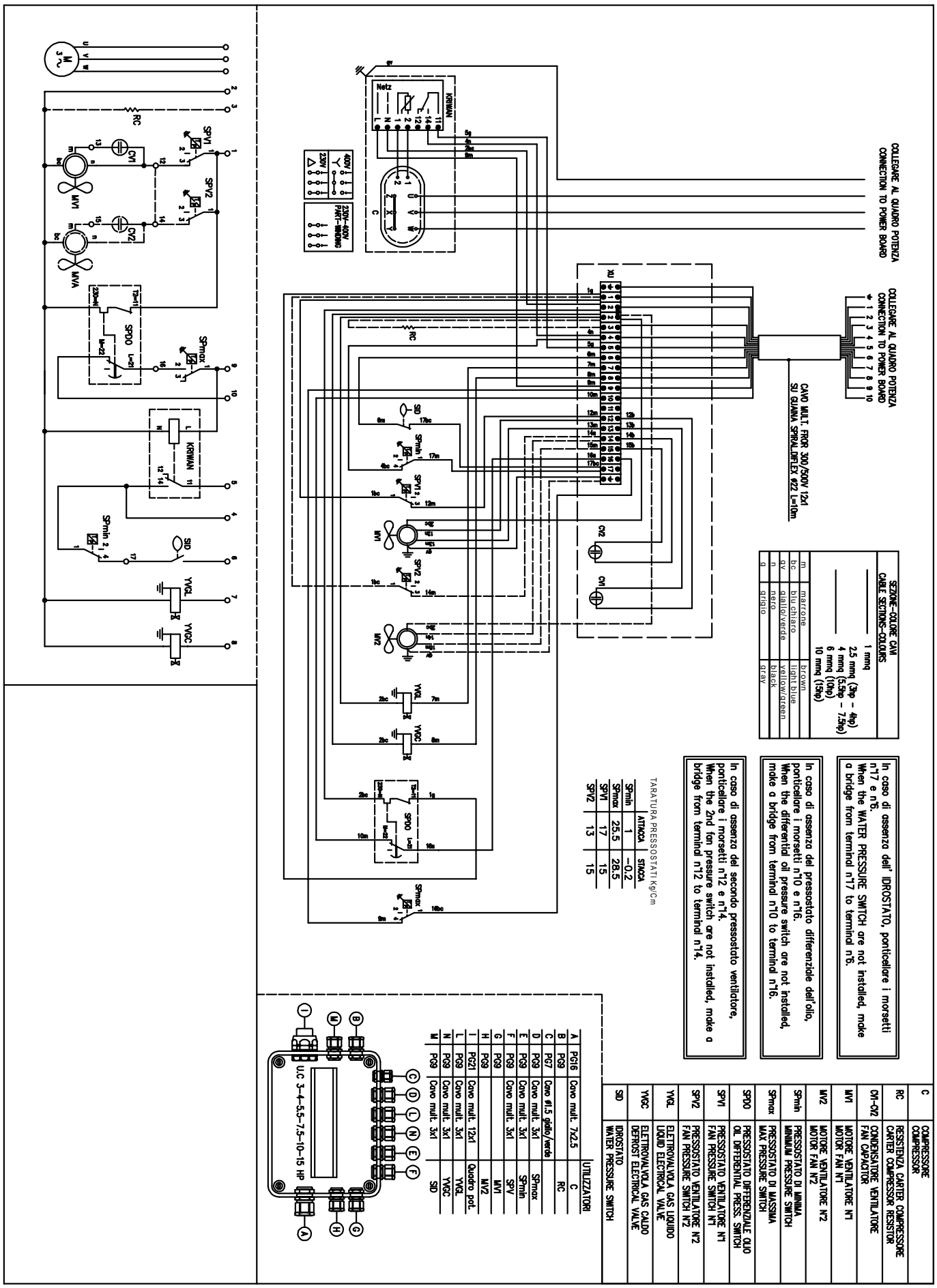


WIRING DIAGRAM T20-T30-T40



C	COMPRESSORE COMPRESSOR
RC	RESISTENZA CARTER COMPRESSORE CARTER COMPRESSOR HEATER
VR	VARIATORE DI VELOCITA' FAN SPEED CONTROL
MV1	MOTORE VENTILATORE N°1 MOTOR FAN N°1
MV2	MOTORE VENTILATORE N°2 MOTOR FAN N°2
SPmin	PRESSOSTATO DI MINIMA MINIMUM PRESSURE SWITCH
SPmax	PRESSOSTATO DI MASSIMA MAX PRESSURE SWITCH
STM	TERMOSTATO DI MANDATA THERMOSTAT SWITCH
YVGL	ELETTROVALVOLA GAS LIQUIDO LIQUID ELECTRICAL VALVE
YVGC	ELETTROVALVOLA GAS CALDO DEFROST ELECTRICAL VALVE

WIRING DIAGRAM T20-T30-T40 W



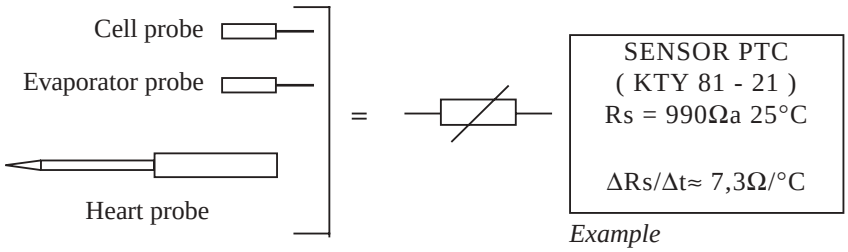
														UTILIZZATORI
A	PG16	Cavo mult. 7x2,5												C
B	PG9													RC
C	PG7	Cavo ø1,5 giallo/verde												
D	PG9	Cavo mult. 3x1												SPmax
E	PG9	Cavo mult. 3x1												SPmin
F	PG9	Cavo mult. 3x1												SPV
G	PG9													MV1
H	PG9													MV2
I	PG21	Cavo mult. 12x1												Quadro pot.
L	PG9	Cavo mult. 3x1												YVGL
N	PG9	Cavo mult. 3x1												YVGC
M	PG9	Cavo mult. 3x1												SID

C	
COMPRESSORE	COMPRESSOR
RC	RESISTENZA CARTER COMPRESSORE CARTER COMPRESSOR RESISTOR
CV1-CV2	CONDENSATORE VENTILATORE FAN CAPACITOR
MV1	MOTORE VENTILATORE N°1 MOTOR FAN N°1
MV2	MOTORE VENTILATORE N°2 MOTOR FAN N°2
SPmin	PRESSOSTATO DI MINIMA MINIMUM PRESSURE SWITCH
SPmax	PRESSOSTATO DI MASSIMA MAX PRESSURE SWITCH
SPDO	PRESSOSTATO DIFFERENZIALE OLIO OIL DIFFERENTIAL PRESS. SWITCH
SPV1	PRESSOSTATO VENTILATORE N°1 FAN PRESSURE SWITCH N°1
SPV2	PRESSOSTATO VENTILATORE N°2 FAN PRESSURE SWITCH N°2
YVGL	ELETTROVALVOLA GAS LIQUIDO LIQUID ELECTRICAL VALVE
YVGC	ELETTROVALVOLA GAS CALDO DEFROST ELECTRICAL VALVE
SID	IDROSTATO WATER PRESSURE SWITCH

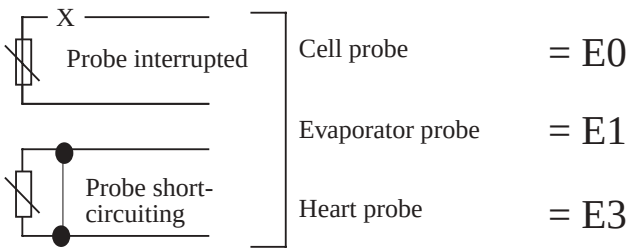
GB

9.7 ERROR

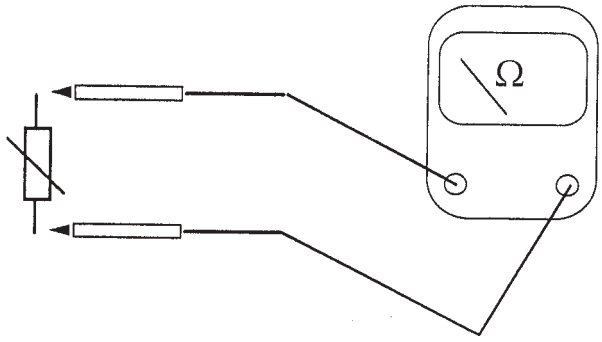
EC 8-820
SENSOR MALFUNCTION ERROR SENSORS

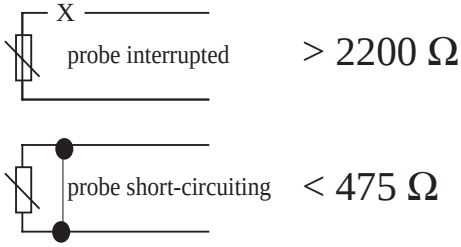


Example
A 20°C: Rs ≈ 990 - 7,3x (25°C - 20°C)

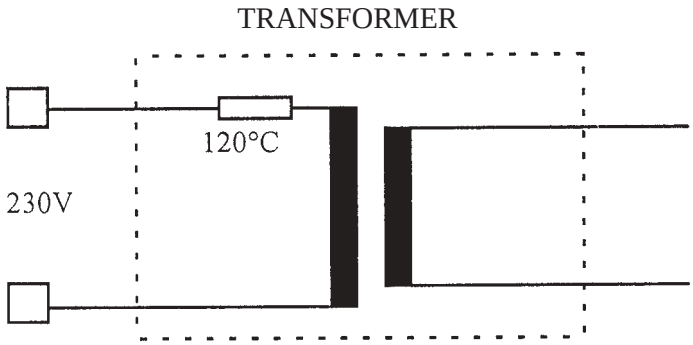


EC 8-820
SENSORS- PROBE TEST METHOD





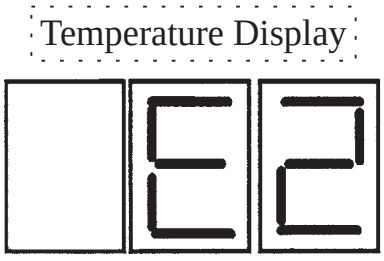
EC 8-820
DATA MEMORY ERROR



IN THE EVENT OF THERMAL OVERLOAD (SHORT-CIRCUITING OF THE SECONDARY, HIGH ROOM TEMPERATURES, PRIMARY SUPPLY VOLTAGE OUTSIDE THE TOP LIMIT) THE THERMAL CUT-OUT WILL BREAK THE PRIMARY CIRCUIT

OPERATIONS CAN ONLY BE RESTORED BY REPLACING THE TRANSFORMER

EC 8-820
DATA MEMORY ERROR



THE ELECTRONIC CONTROL WILL NOT ALLOW ANY OPERATION TO BE PERFORMED. ALL THE OUTPUTS ARE SET TO OFF.
THE ELECTRONIC CONTROL TRIGGERS A BUZZER

TRY TURNING THE MACHINE OFF AND THEN ON AGAIN.
IF THE PROBLEM PERSISTS, REPLACE THE CONTROL

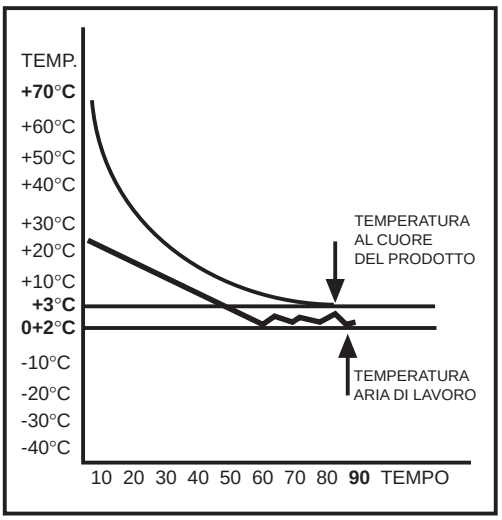
10. THE GREAT ADVANTAGES OF THE TECHNOLOGY AND THE PROCESS

It is wrong to put food which has just been cooked straight into cold storage! The cooling action is static and weak, the time taken to chill the food is too long, and bacteria will proliferate swiftly in great numbers.
Only with a refrigeration system using TECNOMAC forced air circulation type heat exchange is it possible to be sure of preserving the initial high quality of food: appearance, colour, flavour, aroma.
Cold, like heat, can spoil food noticeably if not managed and regulated properly.
Since every type of food has its own characteristics, it is important that there should be a specific chilling procedure available in each case. TECNOMAC equipment is notable for its versatility and for the fact that a given machine offers a number of functions:

- **"Soft" rapid chill for thin and delicate food products**
- **"Hard" rapid chill for all thick, dense or packaged foods.**
- **Fast freeze.**

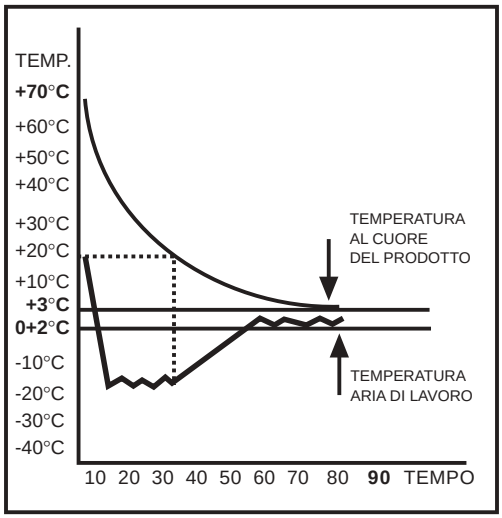
10.1 "SOFT" CHILL

From +70 °C to 3 °C at the core of the food product in 90 minutes maximum, with positive air temperatures only (0/+2 °C), so that any problems attributable to freezing on the surface of the food are avoided.



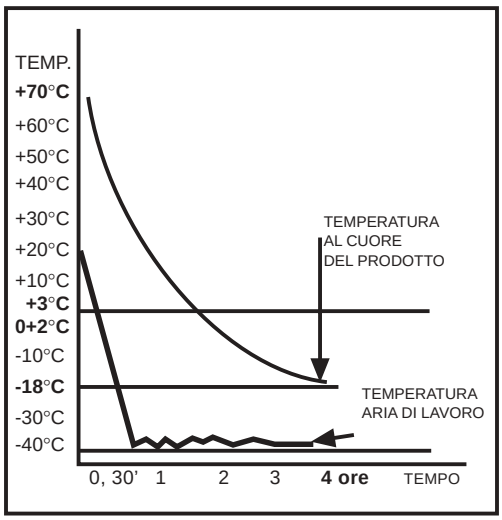
10.2 "HARD" CHILL

From +70 °C to +3 °C at the core of the food product in 90 minutes maximum, with air temperature in the cabinet variable and regulated automatically by computer. Compared to the "Soft" cycle this system saves time (typically 25-30%!).



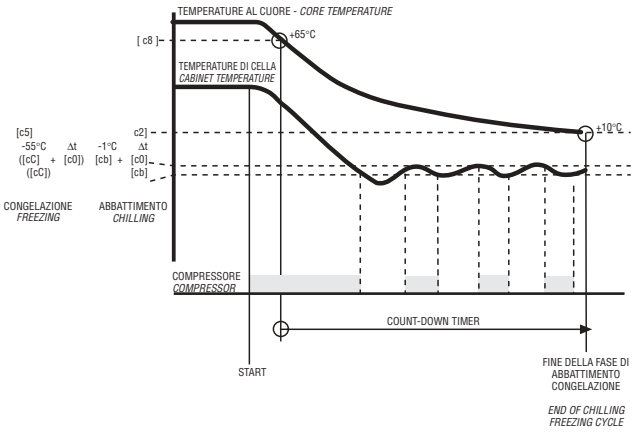
10.3 FAST FREEZE

Function available on T5, T14, T20, T20C, T20R, T24 and T40.
From +70 °C to -18 °C at the core of the product as rapidly as possible and in any event inside 4 hours with cabinet air temperature -40 °C. The rapid rate of cold penetration prevents the water form forming large crystals, so that the consistency and integrity of the food remains unaffected.

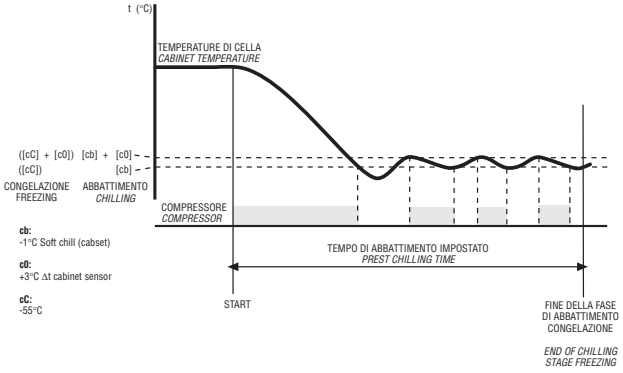


Each cycle can be controlled **manually**, with a timer, or automatically using a core probe. The functions of **automatic preserving** at end-of-cycle **and automatic and manual defrost** round off the exceptional equipment package of TECNOMAC blast chillers.

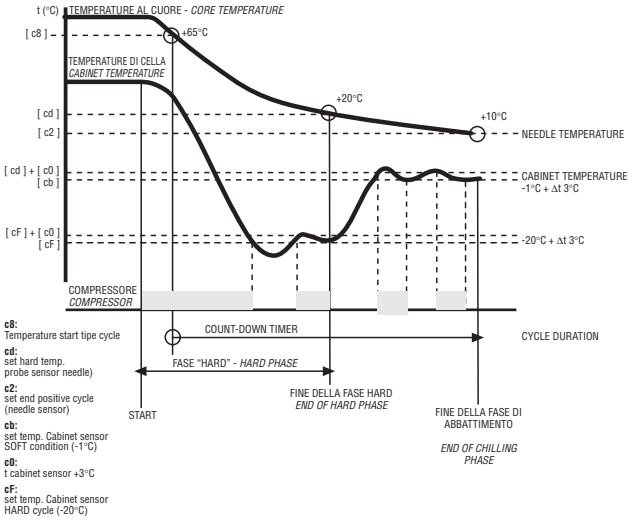
CHILLING (FREEZING) NORMAL BY TEMPERATURE



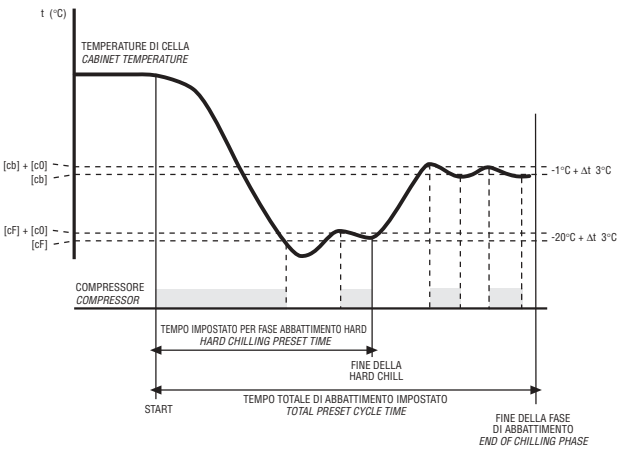
CHILLING (FREEZING) NORMAL BY TIME.



"HARD" CHILLING BY TEMPERATURE



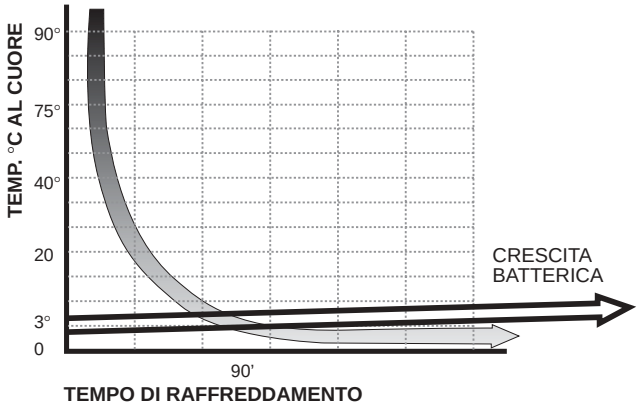
"HARD" CHILLING BY TIME



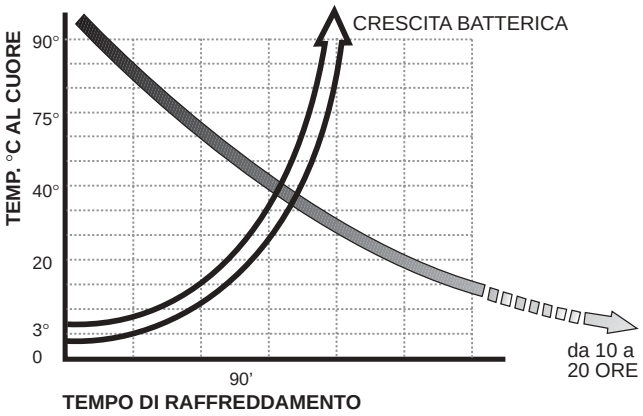
11. PROCESS AND HYGIENE GUARANTEE

Hygiene today is becoming a broader and broader concept. It is no longer enough to have a "clean" environment; operators must make certain that bacteria are eliminated entirely. It is no longer enough to store processed and/or cooked foods in refrigerators since it is known that the growth of bacteria becomes most dangerous as food is cooling , when a temperature of between +70 °C and +3 °C favours proliferation. Statutory regulations implementing the HACCP (Hazard Analysis and Critical Control Points) guidelines confirm the importance of bringing about a rapid drop in temperature.

WITH CHILLER



WITHOUT CHILLER



TECNOMAC blast chillers reduce the temperature at the core of the product from +70 °C to +3 °C in a maximum time of 90 minutes, as opposed to the 10-15 hours necessary for traditional cooling at ambient temperature.

The advantages have been scientifically proven in laboratory testing ***but, above all, they can be seen and tasted!***

12. MAINTENANCE AND CLEANING

WARNING !!!
THESE OPERATIONS MUST BE PERFORMED BY A CERTIFIED INSTALLATION TECHNICIAN ONLY.

The information and instructions given in this section address all persons operating the appliance: the user, the maintenance technician and non-specialised personnel.
Ensure that the electrical power to the system has been disconnected before carrying out any cleaning or maintenance work on the appliance.

12.1 GENERAL SAFETY REGULATIONS

Recall the following regulations to ensure that all cleaning and routine maintenance operations are conducted safely.

- do not touch the machine with moist or wet hands or feet;
- never operate the machine while barefoot; - do not insert screwdrivers, cooking utensils or any other object between the guards and moving parts.
- before performing cleaning or routine maintenance operations, disconnect the machine from the power supply at the master switch and by pulling out the plug;
- never pull on the power cable to disconnect the machine from the power supply.

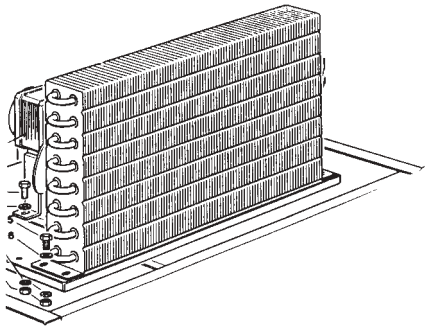
Removal of guards and safety devices for the purposes of routine maintenance is strictly prohibited. The manufacturer declines all responsibility for accidents causedby failure to observe the above regulation.

Before starting up the appliance, clean the inside of the cell thoroughly, as described in par. 3.2.

12.2 CLEANING THE CONDENSER

To ensure correct and efficient air condenser operation, it must be kept clean to allow free circulation of air. This operation should be performed at least once a month. Use a non-metal brush to remove all dust and debris from the condenser blades.
Use a vacuum cleaner to prevent the dust removed from being dispersed in the surrounding area. To remove greasy deposits, use a brush dipped in alcohol.

NEVER USE POINTED OR ABRASIVE INSTRUMENTS TO SCRAPE APPLIANCE SURFACES.



PERFORM THIS OPERATION ONLY AFTER THE APPLIANCE HAS BEEN SHUT DOWN

IMPORTANT
The condenser has sharp edges. Always wear protective gloves, goggles and masks when carrying out the above operations.

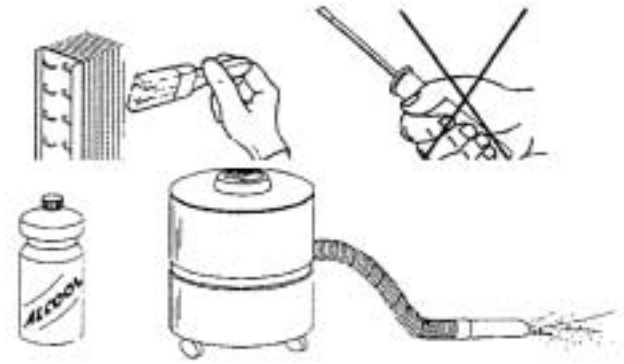
12.3 CLEANING THE CELL

To guarantee hygiene and ensure the quality of processed foods, clean the interior of the cell frequently, according to the type of food stored.

Weekly cleaning is recommended.

The cell interior and components can be cleaned with a soft cloth or sponge.

Clean with water and non-abrasive neutral detergents. Rinse with a damp cloth or sponge, or with a gentle jet of water (no stronger than mains pressure). Do not use pointed or abrasive instruments to scrape appliance surfaces. NEVER USE ABRASIVE FLUIDS, SOLVENTS OR THINNERS.



NB Always wear protective gloves while cleaning.

12.4 DEFROST WATER DRAINAGE

The system is prearranged for automatic and manual defrosting, as necessary.
Make sure that the water from the evaporator drains out into the collecting tray, and that the drain tube is not clogged.

Notes:

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