NUOVAIR

INNOVATION FOR REFRIGERATION

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Operation and Maintenance Manual

Dear Customer

Thank you for purchasing the blast chiller of the INDUSTRY line.

This manual is an integral part of the machine/partly completed machinery and as such must be kept for the entire useful life of the machine/partly completed machinery.

For correct and safe use of the machine you must follow the instructions contained in this manual.

These instructions provide information regarding:

- The installation/commissioning methods.
- Use of the machine.
- Machine maintenance.
- Decommissioning and disposal.

FAILURE TO COMPLY WITH THE INDICATIONS PROVIDED MAY COMPROMISE THE SAFETY OF THE EQUIPMENT AND IMMEDIATELY VOID THE TERMS AND CONDITIONS OF THE WARRANTY

ANY INSTALLATION, MAINTENANCE, ADJUSTMENT AND REPAIR OPERATION MUST BE CARRIED OUT EXCLUSIVELY BY QUALIFIED TECHNICIANS.

The manufacturer of the machine/partly completed machinery may not be held liable for anything relating to breakages, direct and indirect harm to persons property or pets, and any inconvenience caused, due to:

- Improper/unintended use of the machine
- Installation that is incorrect or carried out by personnel not qualified.
- Incorrect power supply.
- Serious shortcomings in routine and extraordinary maintenance.
- Unauthorised modifications and operations.
- Use of spare parts that are not original or not specific to the model.
- Partial or total failure to comply with this manual.

Nuovair S.r.l. reserves the right to make any changes it deems necessary to improve its product or its technical manual by adding any variations in subsequent editions without prior notice.

TECHNICAL SUPPORT SERVICE

This manual provides the necessary information for use, operation and routine maintenance of the blast chiller to which it refers.

All service call-outs are regulated, therefore, by the terms of use and warranty of the BLAST CHILLER itself.

For any request for further information, clarifications or technical support in general, call our support centre:

e-mail : service@nuovair.com

Tel. +379 0438 489097

NOTE - When requesting support or when ordering spare parts it is necessary to always quote the blast chiller's identification data (see paragraph Identification of the blast chiller).

SAFETY WARNINGS

WARNING!

Before using the equipment it is recommended that you carefully read and observe the following safety warnings in order to to reduce residual risks:

⚠ This manual is an integral part of the machine/ partly completed machinery and as such it must be kept for its entire useful life. The manual is intended for all personnel, operators and maintenance technicians involved, with the purpose of providing the necessary indications and instructions for installation, commissioning, use, maintenance and disposal of the machine/partly completed machinery.

⚠ The user must read the warnings contained in this operation and maintenance manual carefully.

⚠ The machine is intended solely for professional use, i.e. only qualified personnel can use it. Therefore, the machine is not intended to be used by children or by persons with reduced mental, sensory and physical abilities.

⚠ This equipment must be intended solely for the use for which it was designed i.e. for freezing and blast chilling of food products. La Nuovogel S.r.l. assumes no liability for any direct and indirect damage resulting from improper use of the machine.

⚠ It is recommend to insert the packaged food or with appropriate containers equipped with lid.

⚠ At the end of each cycle the machine allows a short maintenance of the product. However, it is recommended to extract the treated product within two hours of the cycle's end.

⚠ In case of malfunction or interruption of a cycle always ensure whether the quality of the treated food has been unchanged, otherwise dispose of it.

⚠ Do not store explosive substances such as aerosol cans with a flammable propellant in this appliance.

⚠ Clean all the machine parts thoroughly before using it, in particular those in contact with food.

⚠ Installation, handling, operation, maintenance and disposal of the machine must be performed by professionally qualified and authorised personnel.

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⚠ After removing the packaging, check that the machine/partly completed machinery is intact and not damaged.

⚠ Do not leave any of the packaging within the reach of children as it could pose a potential hazard (Suocation). All parts of the packaging must be disposed of in accordance with current regulations.

⚠ Before connecting the machine to the mains, check that the rating plate data of the machine correspond to those of the mains electricity supply where the machine is connected. The manufacturer is not liable if the electrical connection is not carried out according to the regulations in force.

⚠ The electrical safety of this equipment is insured only when it is correctly connected to an eicient earthing system, as required by the regulations regarding electrical safety. The machine manufacturer assumes no liability for any direct or indirect damage to property, persons or animals caused by failure to earth the system.

⚠ If the power supply cable of the machine is damaged, ensure that it is replaced with an identical one by qualified personnel in order to reduce or eliminate any resulting risks.

⚠ Do not pull the power cable of the machine to disconnect it from the mains.

⚠ Do not pour water on live parts of the diate vicinity of the blast chiller. machine, neither on the electric cable, nor on plugs.

⚠ In the event that the equipment is immersed in liquids, due to natural or other disasters, contact an authorised service centre for repair before restarting the machine.

⚠ In the event of strange noise, smoke or odours coming from the machine, disconnect immediately and contact an authorised service centre.

⚠ Do not place the blast chiller on unsuitable surfaces, for example on uneven or sloping surfaces that have the potential to become unsuitable and which could cause instability of the machine or of the product contained therein. The machine must be levelled so that the condensate drain works properly otherwise condensate may leak from the machine door.

⚠ Before carrying out any type of routine maintenance and cleaning operation, disconnect the machine from the mains power supply by operating the general switch/ disconnector.

⚠ The core probe must be used solely for the purpose for which it is designed, i.e. to measure the temperature at the core of food products that are being frozen or chilled.

⚠ Do not insert fingers, tools or objects through the fan grilles, this could damage the machine or eject parts resulting in cutting, shearing and impact with persons in the immediate vicinity of the blast chiller.

⚠ Do not clean the blast chiller with abrasive or aggressive detergents that could damage and alter the surface properties of the cabinet's steel.

⚠ Do not use the blast chiller outdoors.

⚠ Do not use accessories and parts that are not original and not authorised by the manufacturer.

⚠ Do not place the blast chiller near heat sources or direct sunlight.

⚠ Under no circumstances should you remove the protective grilles of the fans.

⚠ In case of prolonged machine inactivity, disconnect it from the mains power supply.

⚠ Place the machine with the back side facing the wall, keeping the required distances.

INTRODUCTION

GENERAL INFORMATION

The blast chiller has been designed

considering the directives and the attached harmonised standards of the European Union, as well as the related product standards associated with it (See specific paragraph).

This manual is an integral part of the blast chiller, identified in the present manual with the term machine/partly completed machinery produced by the company Nuovair S.r.l. and part of the related technical file Before carrying out any operation on the machine/ partly completed machinery, it is recommended that you carefully read this manual so as to perform all installation, commissioning, use, maintenance, disassembly and disposal operations in a correct and safe manner.

 **NOTE:**

The blast chiller is a machine intended solely for professional use and therefore must be used only by qualified and trained personnel.

 **NOTE:**

The customer can request a copy of this documentation by writing to Nuovair S.r.l. explaining the reason for such request.

INTENDED USE

The blast chiller is a machine designed for the rapid cooling of products, substances or mixture of substances, in any state of the materia and structure not worked, partially worked, or worked, destined to be ingested by a human being (Food products) with the purpose of:

- Keep the organoleptic features of the food as unaltered as possible.
- Favor the prolongation of the average life of food by counteracting the bacterial proliferation that naturally occurs within the same both during the post-cooking cooling phases and those of food storage waiting the production of the finished product.

The blast chiller is a manually operated machine. Once the machine has started, the blast chilling or freezing cycle is managed automatically and does not require the constant presence of an operator, except for the loading and unloading of the product.

Once the cycle selected by the operator has been completed, the machine switches to a product maintenance/ preservation phase, i.e. it maintains the cabinet temperature at a predetermined value.

Rapid food cooling can be used to freeze the product or to cool it according to timing and end-of-cycle temperatures established by law.

The blast chiller is formed by two partly completed machines: Chilling cabinet and condensing unit.

REASONABLY FORESEEABLE MISUSE OF THE MACHINE

The reasonably foreseeable incorrect uses of a blast chiller are:

- Position the blast chiller in potentially explosive environments.
- Position the blast chiller in external environments.
- Position the blast chiller on unsuitable surfaces, and on uneven surfaces or with slopes which could be anomalous at times.
- Use the machine for freezing live animals.
- Use the machine for purposes other than those for which it was designed or to treat products other than food.

ABSOLUTELY FORBIDDEN USE

The absolutely forbidden uses of a blast chiller are:

- Use the blast chiller as a working surface or base to support other objects or machines.
- Get on and climb on the machine.
- Touch the internal parts of the machine with wet and nacked hands and feet.
- Insert live animals or human beings inside the machine.

- Use pressurized water jets on the evaporator.
- Use water jets on the external part of the machine.
- Expose the machine to atmospheric agents of any kind.
- Expose the internal part of the machine toexcessive concentrations of vapors, acid solutions, saline mists or extremely corrosive agents (ex. Acetic acid, yeasts, ammonia ecc.).
- Install the machine on surfaces unsuitable to bear the weight of the machine.
- Install the machine on non-insulated surfaces in case of cells without bottom.
- The use of the machine by persons with disabilities or with reduced mental abilities.
- Power the machine with voltages different from those indicated on the data plate.
- Use the machine without having blocked it securely.
- Use the machine without personal protective devices according to the provisions in the machine's use and maintenance manual.
- Perform the cleaning and maintenance of the machine (cell + condensing unit) by unqualified and trained personnel and without respecting the procedures indicated in the use and maintenance manual.
- Perform any kind of maintenance without selecting the power supply.
- Change any part of the blast chiller.
- Use the machine in a dimly lit environment.
- Use the machine in an enviroment with minimum air renewal as established by the technical sheet of the blast chiller.
- Move the machine without using specific means for lifting it.
- Use condensing units different from those supplied by the producer.
- Use the water that comes from the condensate drain.

SERVICE AREAS FOR INSTALLATION, OPERATION, AND MAINTENANCE OF THE MACHINE

The service area for installation, operation and maintanance is indicated on the use and maintenance manual.
The blast chiller is a fix machine and the dimentions of the area depend on:

- Machine model and consequent dimensions.
- By the possibility of disposing the heat generated by the condensing unit.
- By the type of used condensation.

In any case the front part of the machine must be free from things and impediments in order to ease the use of the same by the operator. Moreover it is necessary to guarantee a minimum area.

CRITICAL ENVIRONMENTS FACTORS

- Use the machine with poor visibility and lighting.
- Use the machine without having opportunely blocked it respecting the service area.
- Use the machine in potentially explosive atmospheres.
- Use the machine on sloping surfaces.

PROFESSIONALISM AND EXPERIENCE REQUIRED BY THE OPERATORS

- The operator must be properly trained for the ordinary operation and maintenance procedures; by means of the use and maintenance manual and test training alongside experienced staff.

INFORMATION OWNERSHIP

The information contained in this manual is

the property of Nuovair S.r.l. and, therefore, all rights are reserved. This manual cannot be reproduced or photocopied neither in part nor in its entirety without the written consent of the manufacturer. The use of the material contained in the following operation and maintenance manual is allowed only to the customer who purchased the machine/partly completed machinery.

Nuovair S.r.l. declares that the information contained in this manual is in accordance with the technical and safety specifications of the machine/partly completed machinery to which it refers.

The drawings, diagrams and technical data in this manual are updated at the date of publication and apply to the machine/partly completed machinery to which they are attached.

PURPOSE AND CONTENTS OF THE MANUAL

This operation and maintenance manual is an integral part of the machine/partly completed machinery and as such must be kept for its entire useful life. The manual is intended for all personnel, all operators and maintenance technicians involved in the purposes described in this point. The purpose of the manual is to provide the necessary indications and instructions for the installation, commissioning, use, maintenance, disassembly and disposal of the machine/ partly completed machinery in a correct
and safe manner. The manual also provides information regarding:

1. The technical specifications of the blast chiller.
2. How to prepare the workplace with regard to environmental characteristics and electrical connections.
3. Safety devices and warnings regarding the residual risks of the machine.
4. The intended use and reasonably foreseeable misuse Spare parts.

The topics are subdivided into sections, in turn subdivided into progressively numbered paragraphs and sub-paragraphs, in order to allow you to quickly find the required information.

The manual cannot in any way replace the special training that operators must have received previously on similar devices or which they can have on this machine/partly completed machinery under the guidance of trained staff.

STORING THE MANUAL

The manual is considered an integral part of the machine/partly completed machinery and must be kept until the machine's final dismantling and disposal. The manual must always be available for consultation and must be carefully looked after, away from dust, moisture and stored in a safe place; in case of damage that partially affects its consultation, the user is required to request a new copy from the manufacturer.

The operation and maintenance manual must accompany the machine/partly completed machinery even in the case of transfer of ownership.

GENERAL INFORMATION

⚠ **WARNING!**

The information contained in this chapter refers only and exclusively to the BLAST CHILLER and, if necessary, must be supplemented with the information relating to the safety regulations of the plant/- facility where the BLAST CHILLER is used.

The entire documentation relating to the machine/parly completed machinery has been produced considering the topics indicated by the machinery directive 2006/42/EC, by the PED directive 2014/68/EU and by other safety regulations (see dedicated paragraph).

The depiction or description relating to the configuration of some parts of the machine/ partly completed machinery may present differences between the manual and the actual machine/partly completed machinery; that is, there may be optional equipment. Therefore, some indications and procedures are of a general nature.

Unlisted drawings and photographs are used for better clarity and are provided as an example.

Failure to follow the instructions contained in this manual may render the safety conditions foreseen in the design phase inefficient and cause accidents for those who work with the machine/partly completed machinery.

REFERENCE STANDARDS

For the design of the machine/partly completed machinery, respectively, the unibody blast chiller and the chilling cabinets, the principles and concepts relating to the harmonised standards indicated in table 1 have been followed and adopted.

STANDARDS	DESCRIPTION
	NATIONAL LEGISLATION
Ministerial Decree 21.03.1973	Hygiene regulations for packaging, containers and utensils intended to come into contact with foodstuffs or with substances for personal use.
	EUROPEAN LEGISLATION
Directive 2006/42/EC	Directive of the European Parliament and of the Council, of 17 May 2006, **relating to machinery** and subsequent updates
Directive 2014/35/EU	Directive of the European Parliament and Council of 26 February 2014, known to those working in the field as **Low Voltage Directive (LVD).**
Directive 2014/68/EU	Directive concerning the harmonisation of the laws of the Member States relating to the making available on the market of pressure equipment **(PED Directive).**
Directive 2011/65/EC	Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment Text with EEA relevance.
EC Regulation 1935/2004	Concerning materials and articles intended to come into contact with foodstuffs and repealing Directives 80/590/EEC and 89/109/EEC
	EUROPEAN LEGISLATION
UNI EN ISO 12100:2010	Safety of machinery - General principles for design - Risk assessment and risk reduction. Part 1:Basic terminology, methodology. Part 2:Technical Principles.
UNI EN ISO 13857:2008	Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs.
UNI EN 13136:2014	Refrigerating systems and heat pumps - Pressure relief devices and associated piping - Methods for calculation
UNI EN 14276-2:2014	Pressure equipment for refrigerating systems and heat pumps - Part 2:Piping - General requirements.
UNI EN 12735-1:2010	Copper and copper alloys - Seamless, round copper tubes for air conditioning and refrigeration - Part 1:Tubes for piping systems
UNI EN 378-1:2017	Refrigerating systems and heat pumps - Safety and environmental requirements - Part 1:Basic requirements, definitions, classification criteria and selection.
UNI EN 378-2:2017	Refrigerating systems and heat pumps - Safety and environmental requirements - Part 2:Design, construction, testing, marking and documentation.
UNI EN 378-4:2017	Refrigerating systems and heat pumps - Safety and environmental requirements - Part 4:Operation, maintenance, repair and recovery.
CEI EN 60204-1	Safety of machinery - Electrical equipment of machines - Part 1:General requirements
CEI EN 60335-2+189	Household and similar electrical appliances - Safety - Part 2:Particular requirements for commercial refrigeration appliances with built-in or remote refrigeration unit or compressor.
CEI EN 61000-6-1	Electromagnetic compatibility (EMC) - Part 6-1:Generic standards - Immunity for residential, commercial and light-industrial environments.
CEI EN 61000-6-3	Electromagnetic compatibility (EMC) - Part 6-3:Generic standards - Standard emissions for residential, commercial and light-industrial environments.
UNI EN ISO 7010:2017	Graphical symbols - Safety colours and safety signs - Registered safety signs
UL 60335-1 6th edition	Standard for Household and Similar Electrical Appliances
UL 60335-2+189 1st edition	Standard for Commercial Refrigerating Appliances with an Incorporated or Remote Refrigerant Unit or Compressor
CAN/CSA-C22.2 No. 60335-1:16	Standard for Household and Similar Electrical Appliances
CAN/CSA-C22.2 No. 60335-2+189:17	Standard for Commercial Refrigerating Appliances with an Incorporated or Remote Refrigerant Unit or Compressor

TERMINOLOGY CONVENTIONS, DEFINITIONS AND SYMBOLS

TERMINOLOGY CONVENTIONS

The term partly completed machinery indicates both the chilling cabinet and the condensing unit.

The term machine means the functioning assembly of a chilling cabinet plus condensing unit, whether built-in or remote, connected to each other. This combination is also called a blast chiller.

USEFUL DEFINITIONS

Hazardous area: Any area near the machine/ partly completed machinery where the presence of a person poses a potential risk to said person.

User/Personnel: Any person who uses the machine formed by the combination of the condensing unit and the chilling cabinet, or who entrusts the use or the operations connected to the use to suitably trained and instructed persons.

Person exposed to hazard: Person who is inside or partly in a hazardous area or adjacent to it.

Mechanical Maintenance Technician: Qualified technician with the necessary skills to work on any mechanical part to carry out adjustments, maintenance repairs, welding and brazing.

Electrical Maintenance Technician: Qualified technician with the necessary skills for electrical operations and, where necessary, able to operate even in the presence of voltage in electrical panels or junction boxes.

Worker in charge of handling: Qualified personnel who carry out the tasks of handling the machine/partly completed machinery.

Manufacturer's technician: Qualified technician made available by the manufacturer of the machine/partly completed machinery.

Personal protective equipment: PPE, or Personal Protective Equipment, is equipment and tools that have the aim of minimising damage resulting from health and safety risks at work.

SYMBOLS USED IN THE MANUAL

This symbol identifies a situation for which failure to comply with the indicated standards could cause risks for the machine and for the operator or exposed persons with risk of injury or death.

This symbol identifies a number of suggestions and details for correct operation of the machine.

It indicates the need to use suitable head protection for carrying out the described operation.

It indicates the need to wear suitable protective gloves for the operation to be carried out.(Electrical insulating gloves in the case of live parts).

It indicates the need to wear suitable safety shoes for the operation to be carried out.

It indicates the need to wear suitable protective clothing for the operation to be carried out.

It indicates the need to suitable wear protective goggles for the operation to be carried out.

It indicates the need to wear suitable protective hair nets for the operations to be carried out.

GENERAL SAFETY RULES AND REGULATIONS

Observance of the machinery directive and compliance with the paragraphs relevant to the relative harmonised standards have allowed use to eliminate or reduce the risks connected to this machine/partly completed machinery during its life stages.

The necessary warnings and safety measures have been taken against residual risks, that is to say those risks that could not be eliminated by design choices or by using guards. For detailed information see the dedicated paragraphs.

Failure to apply these requirements could render the safety conditions foreseen in the design phase inadequate.

It is recommended to strictly follow the warnings and the rules of conduct reported here.

Personnel in charge of the operation and management of the BLAST CHILLER must be instructed by their employer on the correct use and on the residual risks posed by the machine, as well as on the safety devices installed and on the general accident prevention rules provided for by EU Directives and/or the legislation in force in the country where the machine is to be used. Personnel in charge of the operation and management of the BLAST CHILLER must have read these instructions in full.

Personnel responsible for using the blast chiller must be in optimal mental and physical condition and not be under the influence of substances which, by their nature, can alter the sense of perception or slow down their reflections.

It is absolutely forbidden for children and unsuitable persons and/or those with limited mental abilities to operate and manage the BLAST CHILLER; these persons must also be kept at a safe distance from it.

Nuovair S.r.l. assumes no liability for damage to property or persons deriving from the BLAST CHILLER or for the physical safety of the operator or third parties deriving from the non-observance of the safety rules indicated in the technical documentation supplied with the BLAST CHILLER itself.

Before starting work, operators must be fully aware of the features of the BLAST CHILLER, the position and operation of all the controls; furthermore, they must have read and fully understood this operation and maintenance manual.

⚠ WARNING!

The BLAST CHILLER must be used exclusively by operators who have taken part in the on-site training given by sta from “Nuovair S.r.l. ” (if included in the supply contract) and/or who have fully understood the instructions contained in the corresponding documents.

⚠ WARNING!

The instructions, warnings and general accident- prevention rules contained in the corresponding documents or indicated on the signs attached to the BLAST CHILLER must be respected in full.

⚠ WARNING!

Tampering or unauthorised replacement of one or more parts of the BLAST CHILLER, the use of accessories, tools, consumables other than those recommended by the manufacturer may represent a hazard to the safety of the operator and free the manufacturer from civil and criminal liability.

⚠ WARNING!

- **Before using the machine, make sure that any hazardous condition has been properly eliminated.**
- **Before using the machine, make sure that all guards or other protections are in place and that all safety devices are present and effective.**
- **After removing the packaging, make sure that the machine is intact in all its parts, otherwise contact your dealer.**

- **Do not place solid or liquid objects on top of the machine/partly completed machinery.**
- **Before carrying out any cleaning or maintenance on the machine/partly completed machine, disconnect the equipment from the mains.**
- **In the event of a fault or malfunction, always switch o the equipment. In the event of machine fault and/or malfunction, turn it o and refrain from any attempt to repair or intervene directly. Contact qualified personnel.**

CLOTHING

Those working or carrying out maintenance on the machine/partly completed machinery must always wear clothing that is adequate for the type of operation to be carried out. Furthermore, it must comply with the safety requirements of the legislation in force in the country of use of the machine/partly completed machinery itself.

In general, the operator must wear the correct PPE. The operator must wear safety footwear with non-slip soles; moccasins, clogs, slippers or other types of footwear that can compromise the mobility of the person is not allowed. Hair must be tucked under a special cap.

Clothing worn must be adequate for the work to be carried out, in particular avoid wearing:

- Loose-fitting clothes
- Wide sleeves
- Ties and scarves
- Necklaces, bracelets and rings

Both your clothes and hair could get caught in rotating parts and result in serious consequences.

ACCESS TO THE WORK AREA

The work area (in particular the areas where the control panels and emergency push buttons are installed) must never be occupied by material or anything else, so that nothing interferes with the operator's freedom of movement.

In the event of an emergency, personnel in charge must have immediate access to the BLAST CHILLER. It is advisable to prohibit access to the work area to persons not trained to use the blast chiller by using appropriate warning signs.

The use of the BLAST CHILLER is prohibited to children and all unsuitable persons; these persons must therefore be kept at a safe distance from it. During maintenance operations, especially whenoperating with guards open or safety devices disconnected, which is permitted only to personnel formally authorised and duly instructed, great care must be taken to ensure that THE WORK AREA IS INACCESSIBLE TO PERSONS not directly involved in these operations.

During maintenance operations, the area where this operation is carried out must always be clean and dry.

If it is necessary to carry out work near electrical components, always work with dry hands and wear electrical insulating gloves. At the end of maintenance operations, check that no tools used have been left inside the BLAST CHILLER and that any guards removed have been repositioned.

ENVIRONMENTAL USAGE CONDITIONS

1. TEMPERATURE AND HUMIDITY

The BLAST CHILLER must be used in rooms with an ambient temperature between + 5°F and + 32°F and with relative humidity below 55%.Exceeding this limit does not affect machine functionality. In the case of a blast chiller with a remote condensing unit (i.e. positioned outside) outside air temperatures must NOT exceed 109°F.

2. OPERATING ENVIRONMENT

The BLAST CHILLER must be used in locations protected from atmospheric agents (rain, hail, snow, fog, etc.) and only in industrial/workshop environments. In the

case of a remote condensing unit, this must be installed in a special machine room or if positioned outside it must be protected from atmospheric agents (rain, hail, snow, fog, etc.) and in a place sheltered from the sun. In any case, minimum levels of ventilation must be guaranteed. The BLAST CHILLER is not designed to be used in an explosive or partially explosive atmosphere: it is therefore forbidden for the user to use it in such conditions.

3. LIGHTING

The place where the BLAST CHILLER is installed must have a lighting system that makes it easy to identify the push buttons and the emergency stop and control devices. An indicative value of good industrial lighting for acceptable accurate working is 300-600 lux).

4. ATMOSPHERES AND AGGRESSIVE SUBSTANCES WITHIN THE CABINET

The freezing, cooling and tenderising of some food products generates the release of particularly aggressive and corrosive vapours for the evaporator coil. Despite being protected by surface treatment, caution must be exercised with some products. In particular, the surface treatment adopted for evaporator coils of trolley-type blast chillers is not suitable in the presence of:

1) NITRIC ACID.
2) SODIUM HYPOCHLORITE >5% (BLEACH).
3) SODIUM HYDROXIDE >10%.
4) CHROMIC ACID.
5) FORMIC ACID.
6) HYDROFLUORIC ACID.
7) SULPHURIC ACID.
8) MIX OF ACETONITRILE; METHANOL, TETRAHYDROFURAN; HEXANE; DICHLOROMETHANE and others.

If in doubt about the substances that can damage the evaporator, contact the La Nuovair S.r.l. support service

5. RESIDUES AND ENVIRONMENTAL CONTAMINATION

The user is required to comply with the rules and directives in force in the country where the BLAST CHILLER is used with regard the treatment of lubricants and fluids possibly used in the BLAST CHILLER.

SAFETY DEVICES

The blast chiller is equipped with active and passive safety devices. Everybody entrusted with using the blast chiller, or in any case likely to come into contact with it, must carefully read this operation and maintenance manual in which the hazardous areas and the relative safety measures adopted will be described, in addition to the so-called “residual risk” areas, i.e. those areas which, despite the measures adopted, still present a certain degree of danger.

⚠ WARNING!

The safety devices must not be removed or deactivated for any reason; any operation carried out on the BLAST CHILLER by deliberately excluding the safety devices or any type of tampering with the devices themselves is at the person’s own risk.

PASSIVE SAFETY DEVICES

The following devices and build solutions have been used for the blast chiller:

- Painted steel grilles (outside the cabinet) and non-painted steel grilles (inside the cabinet) to protect the rotating parts or technical compartments.
- Hazard warning signs have been placed on the unit to highlight the areas where particular attention must be paid and the areas with residual risk for the safety of the operator and exposed persons.

⚠ WARNING!

The removal of the signs or their non-replacement in the event of deterioration means the user takes on full liability for all the consequences that may arise or derive from the use of the BLASTER CHILLER due to non compliance with the safety conditions foreseen by the manufacturer.

ACTIVE SAFETY DEVICES

The following active safety devices have been adopted for the blast chiller:

- Safety pressure switch, where applicable.
- Safety valve, where applicable.

RISK ASSESSMENTS AND RESIDUAL RISKS

The information contained in this paragraph relates solely and exclusively to the BLAST CHILLER, therefore the user must integrate it with the factory risk assessment where the BLAST CHILLER is installed.

The assessment of the risk deriving from the use of the BLAST CHILLER has been carried out following the standards and directives in force and indicated in the paragraph “Reference Standards”. In order to avoid any hazards to persons or damage caused by residual risks, i.e. those risks that remain despite the provisions adopted, Nuovair S.r.l. recommends that all personnel working with the blast chiller follow and understand the instructions given in the following paragraphs.

It should, however, be kept in mind that the best safeguard for operator safety is that operator must always exercise caution and common sense and that greater experience acquired over time using the machine can also contribute to improving the safety margins in one’s own work.

LIFTING AND TRANSPORT

Residual risks during lifting and transport

- Possible crushing and shearing of the limbs of the operators assigned to handling due to loss of load stability, or kinetic or potential energy during handling, lifting and/or transport operations.
- Parts or components of the blast chiller hitting persons or property due to unexpected movements or incorrect behaviour by the handling operators or due to the projection of moving parts of the blast chiller not properly secured in the packing phase.
- Unhealthy postures or excessive exertion for operators assigned to handling and transport.

Personal Protective Equipment required:

Special attention to be paid during lifting and transport

During lifting and transport, special attention must be paid to the operations described below.

- Designate these operations exclusively to personnel specialised and trained in machinery handling procedures and able to choose and safely use the most suitable lifting and transport means.
- Check and make sure before moving or lifting that any movable parts are properly secured.
- DO NOT LIFT THE BLAST CHILLER, THE CHILLING CABINET OR THE CONDENSING UNITS USING NON-STRUCTURAL PARTS, BY THE LEGS OR BY THE WHEELS.
- Make sure that there is nobody near the area where the lifting, handling and unloading operations take place.
- Always forewarn the start of manoeuvres.
- Do not pass under suspended loads and always keep a safe distance.
- Never transport yourself together with

UNPACKING, INSTALLATION, CONNECTION AND TESTING LOADS.

Residual risks during unpacking, installation and connection

During installation and connection the following risks are possible:

- In case of malfunction or interruption of a cycle always ensure whether the quality of the treated food has been unchanged, otherwise dispose of it.
- Operations on machines/partly completed machinery (chilling cabinet and condensing unit) by unqualified, untrained, non-instructed or improperly equipped personnel.
- Electrocution, shock, burns, fire from contact with live parts
- Burns and injuries due to cold or heat.
- Impact, crushing and shearing by the machine/partly completed machinery handled, or by elements and components projected by it during handling and/or lifting phases.
- Suffocation caused by packaging.
- Tripping and falling caused by the electrical connections and the refrigerant piping Damage to the machine/partly completed machinery during installation and connection..
- Asphyxiation caused by gas that may escape from the machine/partly completed machinery during the installation phases.
- Explosion of parts or piping of the machine/partly completed machinery during the installation and welding of the refrigerant lines.

Personal Protective Equipment required:

Special attention to be paid during unpacking, installation and connection

During unpacking, installation and connection, special attention must be paid to the operations described below.

- Follow the instructions previously given in paragraph “lifting and transport” during the necessary machine/partly completed machinery handling operations.
- Do not dispose of the packaging in the environment and do not leave any packaging within the reach of children as it may result in suffocation. Dispose of the material in full compliance with current regulations.
- The compressor discharge piping and the suction piping could reach temperatures such as to cause burns and scalds from cold and heat. Check the temperature of the pipes before touching them. Always wear protective gloves.
- In the event of gas leaking from the refrigerant circuit during installation and maintenance, do not touch and inhale the leaked gas. It may cause cold burns and suffocation. Before returning to the area, aerate and ventilate the space as much as possible and verify the air quality (see safety data sheet of the gas used). In the event that gas leaks involve flammable fluids, in addition to the precautions of the previous point, disconnect the general power supply and evacuate the area.
- Do not weld on pipes containing refrigerant as they could explode, projecting sharp parts and/or molten parts that can hit and injure persons or animals in the surrounding area and in the most serious cases even result in death.
- After installing and maintaining the machine, check that there are no refrigerant gas leaks.
- Do not let the electrical panel and internal components come into contact with conductive liquids.
- Do not wash the machine with water jets as these could damage the machine/partly completed machinery and give rise to

electrical and mechanical problems.

- Do not insert fingers, tools or objects through the fan grilles that could damage the machine or project parts with consequences of cutting and hitting persons in the immediate vicinity of the blast chiller.
- Do not pull the blast chiller power cable as it could get damaged and cause short circuits and become conductive parts, thereby posing a risk of electrocution, fire and shock.
- Only electrical maintenance personnel must access electrical parts.
- Protect the piping connections to energy sources by means of suitable stiff sheaths or cable ducts.
- Insulate the heat transfer fluid pipes in order to eliminate condensation and avoid cold burns.
- Always carry out the required operations using compliant tools and always pay the utmost attention to elements that could lead to tripping or cause cuts and bruises.

USE

Residual risks during use

During use there are residual risks connected to:

- Operations carried out on the machine by unqualified, untrained or improperly equipped personnel.
- Burns and injuries caused by contact with objects or materials at high or low temperature.
- Slipping caused by slippery or wet machine floor.
- Tripping and falling caused by the access ramps to the machine.
- Asphyxiation caused by gas that may escape from the machine/partly completed machinery during operation.
- Entanglement, dragging, suffocation caused by rotating moving parts.
- Musculoskeletal disorders caused by low air temperatures inside the chilling cabinet.
- Trapping due to the door closing.

Personal Protective Equipment required:

Special attention to be paid during use.

- Before carrying out any cleaning operation, disconnect the machine from the mains power supply.
- Under no circumstances remove the protective fan grilles, as there are rotating parts that could result in impact, entanglement, abrasion, suocation and shearing.
- Do not insert fingers or objects through the protective grilles of the fans or at the sides of the air ducts.
- Do not work on the machine with bare feet or without suitable PPE, or with wet or damp hands.
- Do not use water jets to wash either the inside or outside of the machine.
- If the machine is submerged by liquids, before starting it, contact the manufacturer or an authorised service centre to service it.
- In the event of prolonged inactivity, disconnect the machine from the power supply.
- Do not expose persons to cold air from the blast chiller directly because it could cause muscular problems or other conditions.
- Do not place the food directly in contact with the inside of the cabinet, but in suitable food-grade containers.
- The water that drains from the condensate discharge pipe is not drinkable and therefore cannot be used in any way.
- In case of anomalous noises and/or odours and in the presence of smoke coming from the machine, disconnect the power supply cable or cut o the machine using a suitable disconnecting switch and contact the authorised service centre.
- Hair must tucked under a special cap.

Clothes worn must be adequate for the work to be carried out, in particular avoid wearing loose-fitting clothes, baggy sleeves, ties and scarves, necklaces and bracelets as they could be sucked into the fans resulting in serious injury to the operator.

- In case of fire do not use water to extinguish the fire, instead use extinguishers designed for live parts.
- If the operator gets trapped inside the cabinet during machine loading, simply push the door at the luminescent sign inside the cabinet.

MAINTENANCE AND DISMANTLING

Residual risks during maintenance and dismantling

During maintenance and dismantling there are residual risks connected to:

- Operations on partly completed machinery (chilling cabinet and condensing unit) by unqualified, untrained, non-instructed or improperly equipped personnel.
- Electrocution, shock, burns, fire from contact with live parts
- Burns and injuries caused by contact with hot parts of the machine/partly completed machinery or with instruments and equipment used.
- Impact, crushing and shearing by the machine/partly completed machinery handled, or by elements and components projected by it during handling and/or lifting phases.
- Tripping and falling caused by the electrical connections and the refrigerant piping.
- Damage to the machine/partly completed machinery during maintenance.
- Asphyxiation caused by gas that may escape from the machine/partly completed machinery during maintenance and dismantling.
- Explosion of parts or piping of the partly completed machinery during maintenance and decommissioning.
- Contact with refrigerant fluid. Personal

Protective Equipment required:

Special attention to be paid during maintenance and dismantling

During maintenance and dismantling, special attention must be paid to the operations described below.

- Always carry out the required operations using compliant tools and always pay the utmost attention to elements that could lead to tripping or cause cuts and bruises. Always wear appropriate PPE.
- Maintenance and dismantling/disposal operations must always be carried out by qualified and specially trained personnel.
- Check that supplies, signals (where applicable) and power have been suitably cut o and that no one can reactivate them before completing maintenance (including cleaning) and decommissioning. Also check that any residual energy from the heat transfer fluid has been discharged before proceeding with any operation.
- Operate on the machine/partly completed machinery and on the relative piping after having emptied them from the refrigerant gas and carry out the vacuum operations before restarting the machine.
- Restore the positioning of the protective fan grilles once the machine maintenance is finished, as rotating parts can cause impact, entanglement, abrasion, shearing and suffocation.
- Do not insert fingers or objects through the protective grilles of the fans or at the sides of the air ducts.
- Do not work on the machine with bare feet or without suitable PPE, or with wet or damp hands.

- Do not use water jets to wash either the inside or outside of the machine.
- Before restarting the machine, after maintenance or cleaning operations, check that you have not left any tools inside the machine. Check the tightening of the movable or openable parts and reposition all the safety devices removed, as well as check for the absence of refrigerant fluid leaks. Also check the correct positioning of the ballcocks and shut-off valves.
- Before carrying out any cleaning operation, disconnect the machine from the mains power supply.
- Never use gasoline, solvents or other flammable fluids for cleaning parts, only use approved, non-toxic and non-flammable detergents.
- Do not make any modifications or alterations to the machine/partly completed machinery that could compromise its safety and without first having contacted and obtained written authorisation from the manufacturer.

HAZARD WARNING SIGNS

Hazard warning signs have been attached to the machine in order to highlight the areas of the BLAST CHILLER where particular attention must be paid and the areas with residual risk for the safety of the operator and exposed persons.

⚠ **WARNING!**

The removal of the signs or their non-replacement in the event of deterioration means the user takes on full liability for all the consequences that may arise or derive from the use of the BLASTER CHILLER due to non compliance with the safety conditions foreseen by the manufacturer.

This symbol tells you that it is not possible to use water, or water/ foam extinguishers to put out fires on electrical equipment.

This symbol tells you that it is not allowed to carry out work on live systems, touch systems if not authorised, remove the safety guards and casings before having disconnected the voltage.

This symbol tells you that it is not allowed to remove the safety devices and protections installed.

This symbol warns of the danger of hot surfaces close to surfaces where it is attached. In our case this symbol is attached to the outside of the chilling cabinet but actually refers to the surfaces inside.

This symbol warns of a low temperature hazard. Also in this case the symbol is attached to the outside of the chilling cabinet but actually refers to the surfaces inside.

This symbol warns of a slipping hazard due to the chilling cabinet floor that may be icy or slippery.

This symbol identifies a live electrical system.

This symbol identifies door opening by pushing on the side on which it is attached.

This symbol warns of a cutting hazard and it is attached close to the condensing unit and to the inside of the evaporator.

This symbol warns possible moving parts.

WARRANTY

Nuovair S.r.l. guarantees that the blast chiller if free of material and manufacturing defects for a period of 12 months.

Within the aforementioned terms, “La Nuovair” undertakes, free of charge for the customer, to replace those parts which it believes to have manufacturing defects.

The warranty excludes the provision of labour, for assembly and disassembly for the replacement of defective parts, and also excludes the transport costs of the parts sent for replacement.

Nuovair S.r.l. ’s liability excludes the termination of the contract and any other liability and obligations for other expenses, direct damage deriving from the use of the equipment, both total and partial.

OPERATIONS THAT MAY VOID THE WARRANTY

Nuovair S.r.l. is not liable for defects attributable to incorrect operation of the equipment by the user or due to modifications or repairs performed by the user or third parties without the written consent of Nuovair S.r.l. , regardless of the accountability between such changes or repairs and the facts revealed. All tools and consumables supplied by the manufacturer are excluded from the warranty.

The manufacturer is only liable for the inherent defects in the parts supplied and found in compliance with the conditions of use envisaged (see paragraphs Intended use of the BLAST CHILLER, Unintended use of the BLAST CHILLER, Prohibited uses).The manufacturer is also relieved of any liability in the following cases:

- Installing the blast chiller in conditions other than those specified in Chapter “TRANSPORT AND INSTALLATION”.
- Installation of the blast chiller that does not comply with the specifications shown in Chapter “TRANSPORT AND INSTALLATION”.
- Total or partial failure to comply with the instructions in this manual.
- Lacking of or incorrect maintenance.
- Use of non-original spare parts.
- Non-compliance with contractual obligations.
- Any complaint must be communicated directly to Nuovair S.r.l. by the user within eight days of receipt of the equipment or of a spare part.

The material replaced under warranty must be kept by the buyer and kept at the disposal of Nuovair S.r.l. who will decide on any eventual returns at its own expense.

Even in the event of a valid complaint, the buyer may not suspend payments or other obligations relating to the purchase. This warranty cancels and replaces any other form of warranty, ex-pressed or implied; any change has no value, unless specified in an official document issued by Nuovair S.r.l.

INSTALLATION

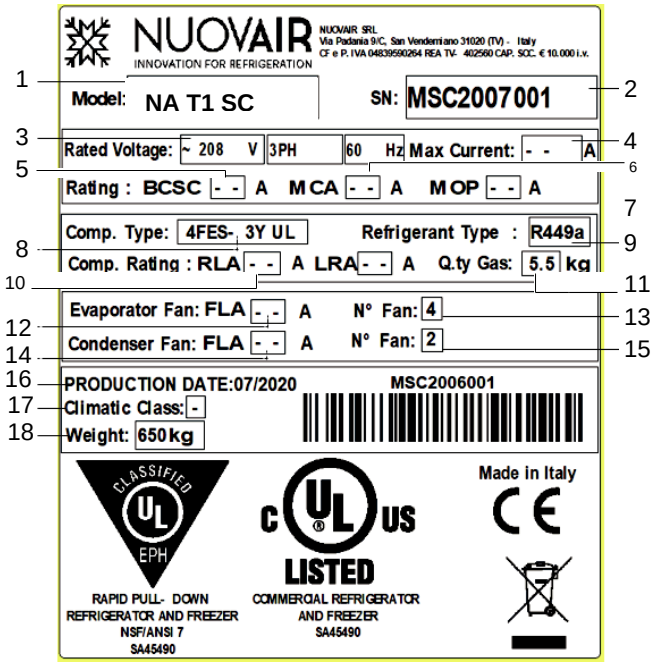
BLAST CHILLER IDENTIFICATION

1

A specific identification label with CE marking is attached to identify the machine/partly-completed machinery. For panel blast chillers, the label is attached to the side of the electrical panel, while for unibody blast chillers, it is attached to the rear of the blast chiller.

Specifically, the plate contains the following data:

1. Model.
2. Serial Number.
3. Supply voltage (Volt / Ph / Hz).
4. Consumption in (A)
5. Branch circuit selection current BCSC (A)
6. Minimum circuit ampacity MCA (A)
7. Maximum Overcurrent Protection MOP (A)
8. Compressor type
9. Refrigerant type
10. Motor compressor ratings RLA and LRA (A)
11. Quantity of refrigerant (kg)
12. Motor evaporator ratings FLA (A)
13. Quantity of Motor evaporator
14. Motor condenser ratings FLA (A)
15. Quantity of Motor condenser
16. Production date
17. Climatic class
18. Equipment weight



1

WARNING!

The blast chiller is accompanied by the EC declaration of conformity. This document must be carefully kept by the owner of the blast chiller and be shown at the request of the competent authorities.

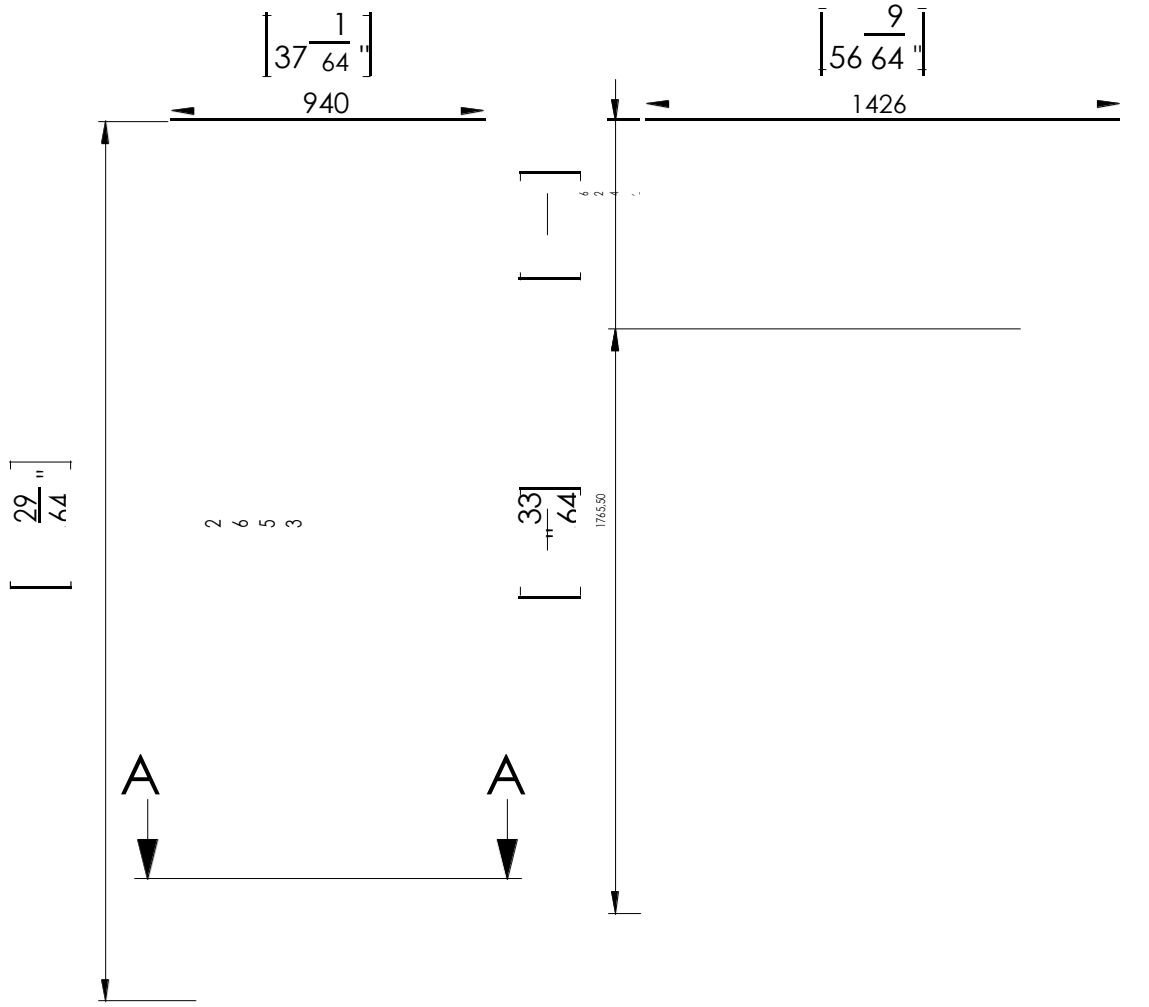
The EC declaration of conformity is a document that is an integral part of the machine and in case of transfer of the same it must be given to the new owner.

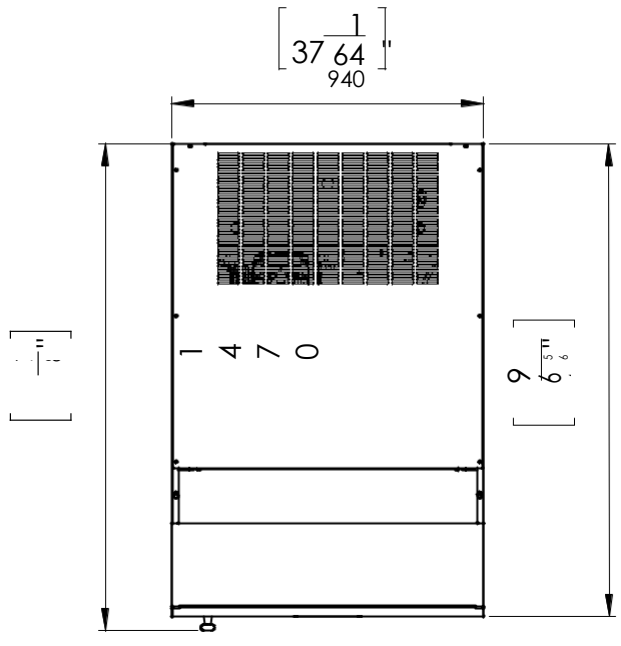
IDENTIFICATION OF THE CONDENSING UNIT IN TROLLEY-TYPE BLAST CHILLERS

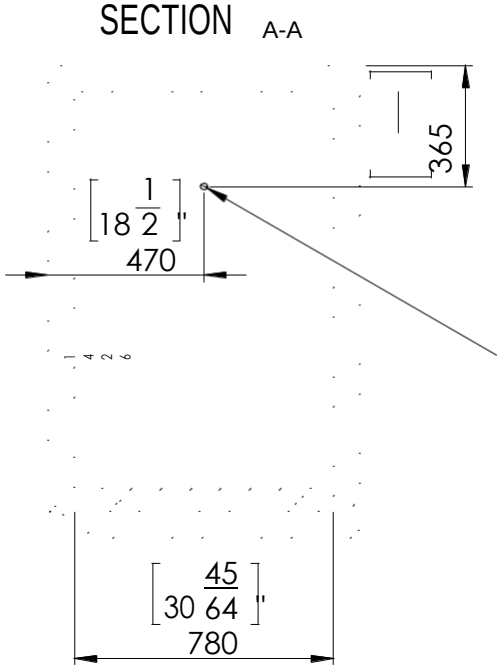
In trolley blast chillers the condensing unit has its own label, generally placed on one side of the condensing unit. For more details, see the condensing unit manual.

DIMENSIONS AND OVERALL FOOTPRINT OF THE CABINETS

NA T1 SC







TECHNICAL SPECIFICATIONS CONDENSING UNITS (OPTIONAL)

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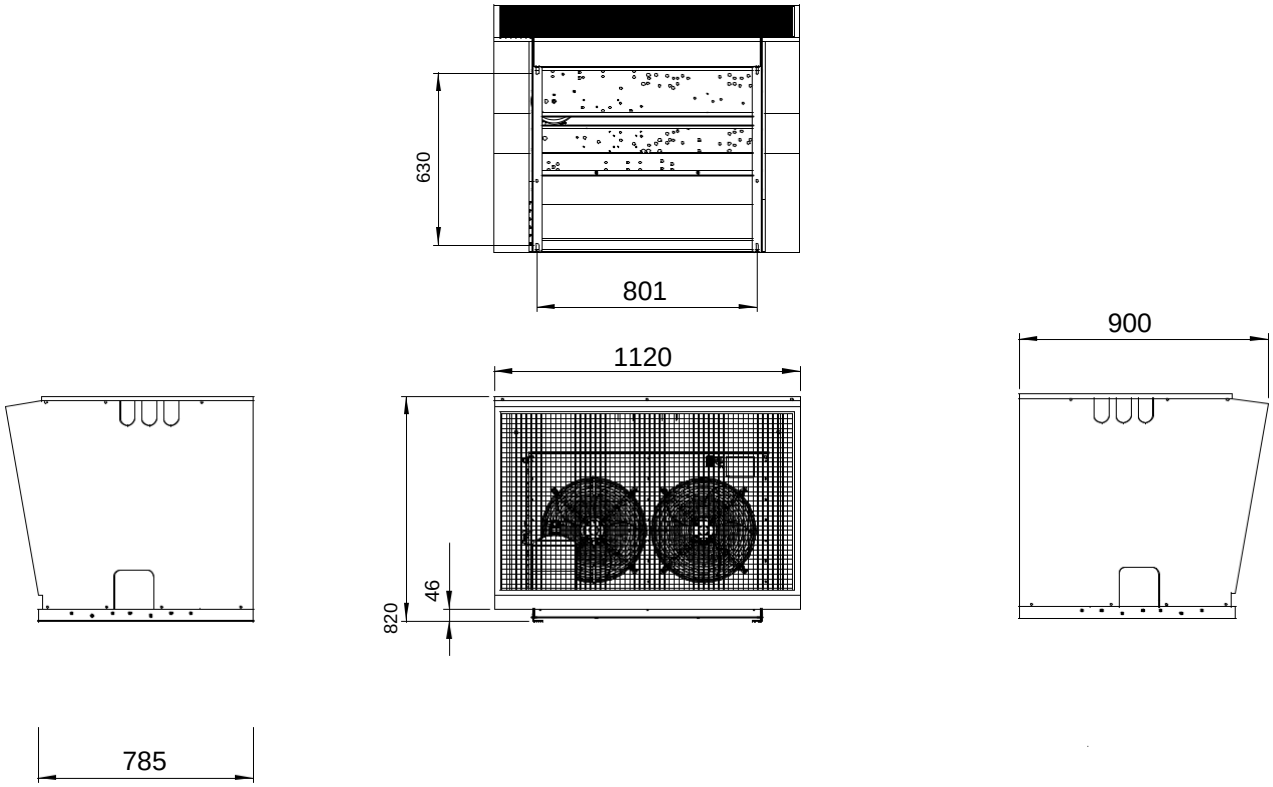


PRELIMINARY OPERATIONS

Strictly follow the operations listed below in order to correctly set up the blast chiller in designated work area. The blast chiller has suitable packaging in order to protect it from damage during transport. The packaging may vary: cardboard box with wooden bottom, wooden crate etc. Unless otherwise stated, the purchaser or installer are responsible for the following:

- Preparation of the tools necessary for installation.
- Preparation of auxiliary means and consumables.

We recommend keeping the packaging for the entire warranty period. “Nuovair S.r.l. ” reserves the right to accept equipment sent to the service centre or without its original packaging.

TRANSPORT, UNLOADING AND UNPACKING

Do not stack multiple blast chillers on top of each other unless they are packed in a crate or cage. It is recommended that the machine/partly-completed machinery be transported always and only in a vertical position to prevent the oil present in the compressor from moving inside the piping to other components (plate, compressor valves) as well as to prevent the springs that support the compressor motor, which can cause possible damage to them during transport. If the blast chiller is tilted for handling or transport, once the vertical position is restored, wait at least 12 hours before starting the machine; in this way it will allow the oil to flow from the components towards the lower part of the compressor.

WARNING!

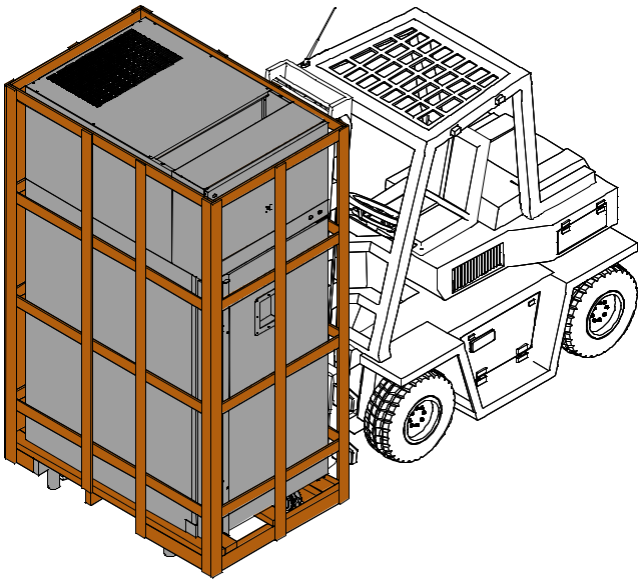
The temperature of the machine/partly-completed machinery during transport must not exceed 55°C.

WARNING!

Special attention must be paid during lifting and transport. Designate these operations exclusively to personnel specialised and trained in machinery handling procedures and able to choose and safely use the most suitable lifting and transport means. No liability is accepted for non-compliance with the safety regulations in force in the country where the blast chiller is installed.

The operations of lifting, handling and positioning of the blast chiller can be carried out with any suitable means that guarantees effective and safe lifting and handling. Handling operations, for example, can be carried out with a pallet jack or forklift truck with suitable fork length or with the aid of a crane in the case in which the machine/ partly-completed machinery is set up for such handling.

Before removing the blast chiller from the packaging, check that it is intact, notifying and writing any damage found on the carrier’s delivery note before signing it. Take photographs of any external damage. Proceed with the removal of the protective transport casing and the protective sheets of the steel parts, taking due care not to damage or scratch the blast chiller. Do not leave any of the packaging within the reach of children or animals as it could pose a danger (suffocation, cutting). Packing components must be disposed of in compliance with the regulations in force in the country where the machine/partly-completed machinery is used and must not be dispersed in the environment. After removing the packaging, make sure the appliance is intact; if it is damaged, promptly notify the retailer or manufacturer. If the damage is such as to compromise the safety or functionality of the machine, do not proceed with the installation until a qualified technician has been called out.



WARNING!

- Never stand under suspended loads.
- Never use two lifting devices at the same time.
- If using steel ropes for positioning, be careful not to create extreme bends.
- The maximum weight that can be lifted by an adult male is 25 kg and an adult female 20 kg, heavier loads could lead to musculoskeletal problems.

Operators must also wear personal protective equipment. The personal protective equipment required in these phases is:

POSITIONING

We recommend to move the machine forklifting the pallet in its pre-arranged lateral holes. Once reached the placement, remove the packaging, take from inside the machine the supplied feet and lift the machine with the aid of an appropriate vehicle, making sure to forklift it from the back, where there are the pre-arranged lateral holes of the pallet. Once you lift the machine, install the four feet, already adjusted to the desired height, with the supplied screws.

The machine/partly-completed machinery must be installed and tested in full compliance with the accident prevention laws in force in the country of use of the machine/partly-completed machinery. For safety reasons, all the operations of handling and positioning of the machine/partly-completed machinery must be performed by qualified technicians.

The installer must verify any restrictions imposed by local authorities and regulations.

The personal protective equipment required in this phase is:

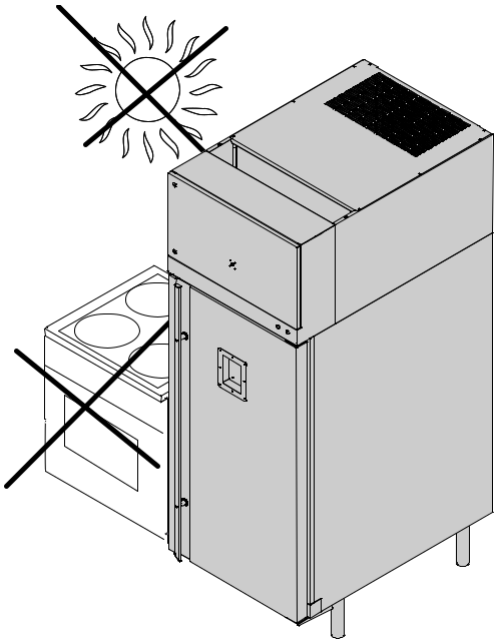
POSITIONING OF THE UNIBODYBLAST CHILLER OR CHILLING CABINET

For proper installation of the blast chiller with air condensing unit built into the machine compartment it is necessary to check that in the installation area there are no obstructions of the inlet and outlet air vents. Any blockage of the air inlets compromises the correct operation of the machine/partly completed machinery.

It is also necessary to maintain a service area in the front part of the blast chiller and minimum distances between the latter and the surrounding surfaces in order to guarantee a correct air flow and avoid condensation formation (see drawings).

If the blast chiller is installed in an enclosed area, to ensure proper operation it is necessary to ensure appropriate air circulation. The air recirculation values are shown in the technical tables of the blast chillers. For the environmental installation conditions see the dedicated paragraph. Furthermore, to ensure optimal operation of the blast chiller, pay attention to the following indications:

- Do not position the blast chiller in a position directly exposed sunlight and other forms of radiation such as cooking ovens, etc. (Figure 2).
- Do not position the blast chiller in outdoor environments.
- Do not position the blast chiller inside a closed recess as it compromises the correct air flow.
- Do not place trays or any object with a temperature above 85°F in direct contact with inside of the chilling cabinet as it may damage the insulation.
- Check the correct positioning of the condensate drain and the condensate drain tray in the case of unibody blast chillers.
- In the case of panel blast chillers, prepare a drainage duct near the door and convey the condensate drain pipe into the wastewater network.
- The machine must be installed on a flat, horizontal surface both to avoid problems related to the stability of the machine and for the appropriate slope for draining the condensate. If the surface is not flat it is necessary:
- To act on the feet if the machine is equipped with adjustable feet (screwing or unscrewing them) until it is level; any other installation solution must be agreed and approved by the manufacturer (Figure **3**).
- If the machine/partly-completed machinery is not equipped with adjustable feet, i.e. it is a cabinet type with modular panels, it will be necessary to use suitable shims to level the support surface of the machine/partly-completed machinery.
- If the machine/partly-completed machinery is supplied on wheels, place it in a flat, horizontal area and lock the wheels before using it.



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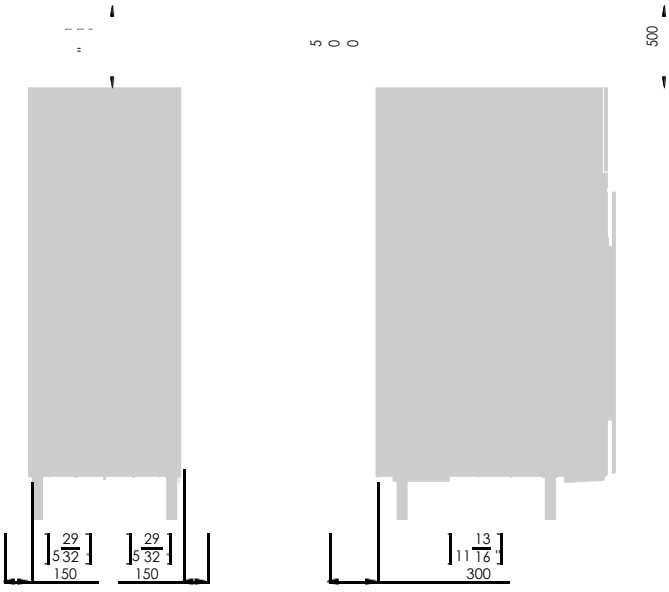


3

WARNING!

Use special lifting systems for the setting of heavier machines.

WARNING!

If the equipment is not levelled, the operation and flow of condensed water is not guaranteed.

WARNING!

If it is not possible to optimally level the blast chiller and it belongs to the panel-type blast chiller family, it is necessary to secure the panel resting on the slab to avoid abnormal displacement of the chilling cabinet. It is also advisable to seal the cracks between the bottom of the cabinet and the floor using specific silicone.

WARNING!

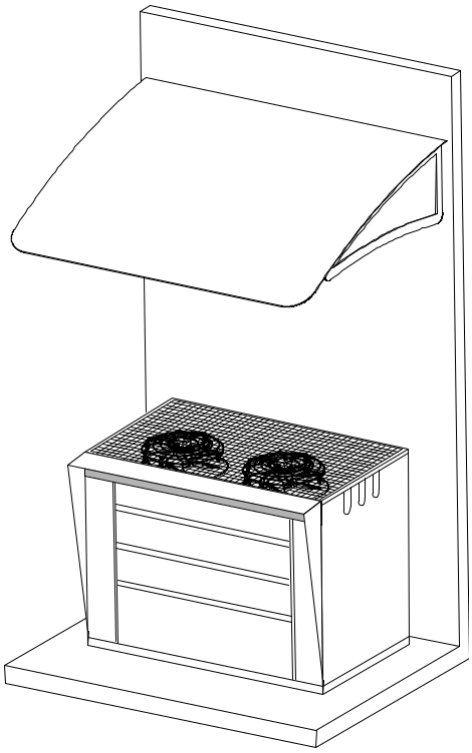
During handling it is not recommended to tilt the machine/partly-completed machinery. If for any reason this operation is necessary, wait 12 hours after positioning the machine/partly-completed machinery before starting it to allow the oil to return to the compressor.

POSITIONING OF THE REMOTE CONDENSING UNIT

4

Regarding the positioning of the remote condensing unit, i.e. not built into the machine, it is necessary to adopt the following indications:

- The installation must be carried out by qualified personnel in possession of the necessary technical requirements established by the country where the machine is installed.
- The remote condensing unit must not be installed in closed rooms where excellent air circulation is not guaranteed (at least 150 times the volume of the room where it is installed). Furthermore, it is necessary to have a visual audible warning device in the event of refrigerant gas escaping.
- Installation of the blast chiller with built-in condensing is prohibited in enclosed environments. It is advisable to protect the condensing unit by means of a canopy while maintaining adequate distances to ensure the discharge and intake of air from the condensing unit (see drawing).
- The condensing unit must be installed on a flat, horizontal surface. It is also necessary to fix the condensing unit to the ground or to secure it.
- When handling the condensing units it is necessary to use means suitable for the dimensions and weight of the equipment to be lifted.



ELECTRICAL CONNECTION

For safety reasons all electrical connection operations must be carried out by qualified and authorised personnel according to the laws in force in the country where the machine/partly-completed machinery is installed. Furthermore, the electrical connections must comply with the relevant regulations in force in the country where the machine is installed.

The machine/partly-completed machinery before being placed on the market undergoes functional and electrical testing.

The unibody machines are supplied with 1P + N + E or 3P + N + E power cable depending on whether it is single-phase or three-phase; in all other cases the power cables are not supplied.

Specifically, the following guidelines must be adopted:

- The power supply cable must be well stretched, not rolled up, overlapped or in traction, in a position not exposed to impact or crushing; it must not be a hindrance or obstacle to the performance of work and the passage of persons. Furthermore, it must not be placed near liquids, water, heat sources, or placed in contact with sharp, hot or corrosive objects or elements.

WARNING!

• The power supply cable to the mains must not be damaged, if it is, it must be replaced by qualified personnel.

Prepare a differential circuit-breaker between the pow-er supply line and the machine adequately sized for the usage and for the laws in force in the country where the machine is installed. Make sure that the supply voltage is the same as that indicated on the data plate of the ma-chine/partly-completed machinery. The allowed tolerance is 10% of the rated voltage.

WARNING!

• The differential circuit-breaker must be placed in the immediate vicinity of the machine / partly-completed machinery so that it can be clearly visible and reached by the technician in case of maintenance.

- Install a main switch in the immediate vicinity of the machine /partly-completed machinery so that it can be clearly seen and reached. If the machine is single-phase, install a double-pole switch with contact opening of at least 3mm upstream of the socket. This switch is mandatory when the load exceeds 1000W or when the machine is connected directly to the mains power supply.
- In machines with three-phase fans it is necessary to watch the fans start to check the rotation direction. If the rotation direction is incorrect, it is necessary to switch o˜ the machine, disconnect it from the mains and invert between them two phases of the power supply line. Once this operation has been completed, it is possible to reconnect the machine to the power supply and start it up.
- Make the electrical connections as shown in the wiring diagram.
- The cross section of the power supply cable must be adequate for the power consumption of the machine.

WARNING!

• It is a legal requirement to connect the machine/ partly-completed machinery to an efficient earthing system. No liability is accepted for failure to comply with this provision; furthermore, no liability is assumed if the electrical system to which you are connecting is not made according to current regulations.

WARNING!

• Nuovair S.r.l. assumes no liability nor any warranty obligation in the event of damage to equipment, persons and property due to incorrect installation and non-compliance with the regulations in force in the country where the machine is installed.

The personal protective equipment required in these phases is:

MACHINE TO PANEL ELECTRICAL COMMUNICATION CABLES CONNECTION

To connect the communication cables, refer to the specific wiring diagram for the machine purchased. If the wiring diagram is not on the unit or if it has been lost, contact the manufacturer's representative who will send another copy. In the event of a discrepancy between what is reported on the wiring diagram and the visual check of the electrical cables of the control panel, contact the manufacturer Below is a simplified connection diagram of the commu-nication cable between the chilling cabinet terminal block and the condensing unit terminal block.

WARNING!

The communication cables are powered at 220V.- DISCONNECT FROM THE MAINS POWER SUPPLY BOTH THE CONDENSING UNIT AND THE CABINET WHEN WORKING ON THE TERMINAL BLOCKS OF THE COMMUNICATION CABLES OTHERWISE THE CIRCUITS WILL ALSO REMAIN POWERED.

REMOTE ASSISTANCE SYSTEM

The remote assistance system is carried out using a mini PC Router positioned inside the electrical panel

of the chilling cabinet and connected via 2 network cables to the controller and to the machine monitor. The remote assistance system allows you to monitor the machine, perform updates and change factory settings. The configuration of the PCs for remote assistance is as follows:

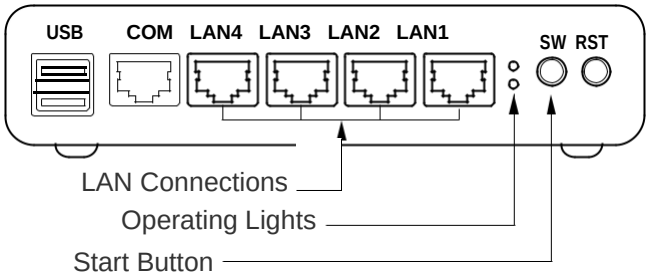
- WAN: is a network interface set in DHCP and takes settings from the customer's network.
- LAN: is a set of aggregate ports that respond as a single port with address 192.168.137.1, these ports actually create a subnet of class 192.168.137.2-244 between the monitoring PC and the monitored devices, sharing at the same time the Internet connection. The use of this specific IP address is essential as it is the standard Windows setting for sharing connectivity.

WARNING!

• It is not possible to change these settings otherwise the devices downstream of the mini pc will not be monitored

If for security reasons the customer does not allow connection to the internet, remote assistance will not be possible.

To overcome this problem it is possible to isolate the monitoring PC from the rest of the network by creating independent communication to the Internet using a VLAN or LAN2.



WARNING!

The mini PC must be connected to the mains power supply and started after the final test. Make sure the mini PC's operating lights are on or flashing. If the lights are not on, start the mini PC using the SW button.

REFRIGERANT CONNECTION

To make the refrigerant connection between the chilling cabinet and the remote condensing unit it is necessary to install the piping of the liquid and suction line according to the diameters of the ballcocks present on the machine/ partly completed machinery.

The recommended diameters and gas charges are as follows:

- Up to 15 m equivalent length of the line in the case of unibody machines with remote unit.
- Up to 25 m of equivalent length of the line in the case of panel machines.

For lengths greater than those indicated it is necessary to re-dimension the diameters of the line. The pipes must be supported on the wall in the vicinity of the bends or welding and every 2 m of straight section. The joints between the pipes must be hermetically sealed by brazing with suitable filler alloy.

If R744 is used as refrigerant fluid, it is necessary to convey the discharge of the safety valve, placed to protect the chilling cabinet, to the outside; use the appropriate diameter of the pipes. The additional requirements for R744 refrigeration systems indicated in annex A of EN 378-2 are the installer's responsibility.

WARNING!

• In the event that the refrigeration circuit is insulated from the space occupied by a ventilated enclosure, the installer will be responsible for sizing according to 378-2 in clause 6.2.14.

The personal protective equipment required in these phases is:

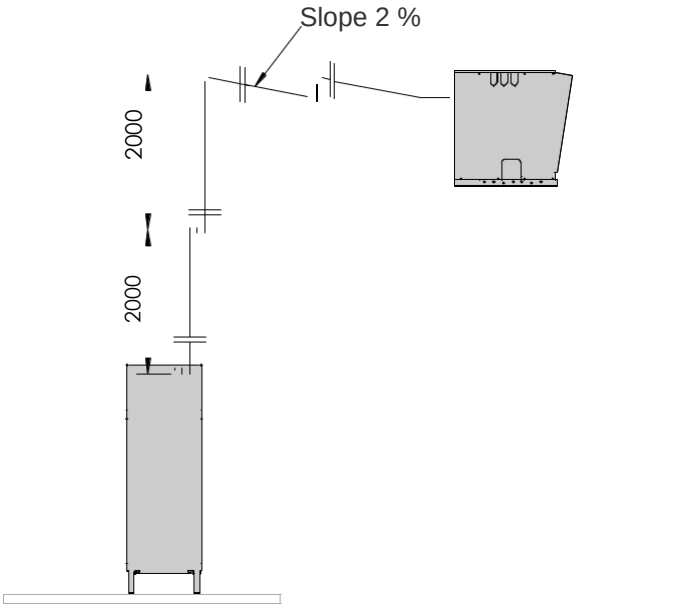
INSULATION OF REFRIGERANT LINES

Insulate the suction piping with anti-condensation pipe with a minimum thickness of 19 mm. If the refrigerant is R744 it is also necessary to insulate the liquid piping.

OIL RETURN

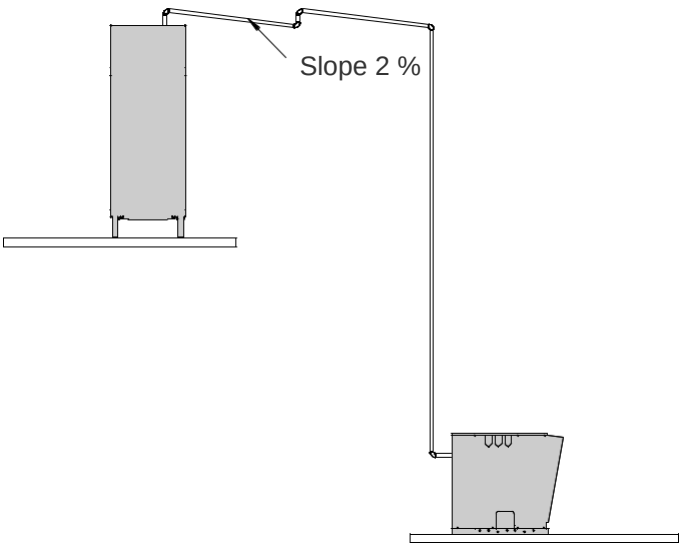
All refrigerant lines must be designed to allow correct oil return to the compressor.

If the condensing unit is positioned above the evaporator it is necessary to insert siphons at a height of every 2 metres on the vertical line section and a counter-siphon having reaching the end of the ascent section.



When there are horizontal line sections it is important that the suction pipes have a slope of at least 3% towards the condensing unit in order to facilitate the return of the oil to the compressor.

If the condensing unit is positioned below or at the same height as the cabinet, no siphon must be used, but it is sufficient to guarantee the slope of the pipes for the condensing unit.



If the line is very long, it is necessary to keep the oil level under control at the first start-up and in the following days and top up if necessary.

VACUUM

If the line is very long, it is necessary to keep the oil level under control at the first start-up and in the following days and top up if necessary.

WARNING!

. In this phase do not start the compressor to avoid irreparable damage to it.

REFRIGERANT CHARGE

In the case of machines with remote condensing unit with refrigerant lines greater than 25 m (15m in the unibody) it is necessary to charge additional gas into the system. The refrigerant gas charged must be the same as that indicated on the plate.

For a correct charging operation, once the cabinet and line vacuum have ended, carry out the “vacuum break” and start the compressor by charging the remaining part of the gas.

To properly quantify the gas charge given, use pressure gauges connected to dedicated pressure ports and a precision scale.

WARNING!

. Gas mixtures must only be charged into the system in liquid state.

WARNING!

. At the end of the charging phase, carry out a leak test with instrument sensitivity set at 3 g/year.

LEAK CHECK

It is important that periodic leak checks are carried out on the welding and on all those removable parts with methods and equipment suitable for the type of gas used.

DISASSEMBLY AND DISMANTLING

If it is necessary to disassemble the machine, proceed as follows:

- Disconnect the blast chiller from the mains power supply (both the cabinet and remote condensing unit)
- Follow in reverse order the sequence described in the installation paragraph 4.6.3 and related sub-para-graphs. Recover the refrigerant fluid.
- Proceed with moving and handling the machine/ partly-completed machinery according to the instructions given in the dedicated paragraphs.
- Arrange the components according to whether they should be transported to other locations or scrapped.

Nuovair S.r.l. is not liable for any damage to property and/or persons resulting from improper procedures

performed by unqualified, not trained or unauthorised personnel.

In any case, the following personal protective equipment is required to carry out maintenance and cleaning operations:

DISMANTLING AND DISPOSAL

When a machine has completed its life cycle, before proceeding to the final disposal, it is necessary to carry out a series of operations aimed at ensuring minimum environmental impact relative to the disposal of the components, as required by the regulations in force on waste disposal in the country of installation of the blast chiller.

The operations to follow are:

- Separate and store parts with environmental impact. That is, separating the parts that can generate pollution by sorting them by recycling categories.
- The gas contained in the system must not be dispersed in the environment.
- Dispose of both the condensing unit and the cabinet in specialised collection centres.

The crossed-out wheelie bin symbol on the appliance or on its packaging indicates that the product at the end of its life must be disposed of separately from other waste.

Separate collection of this appliance is arranged and managed by the manufacturer.

Users who want to dispose of this equipment should contact the manufacturer and follow the instructions to enable separate collection of the device at the end of its life. Adequate separate collection for the future use of the equipment assigned for environmentally compatible recycling, treatment and disposal helps to avoid possible negative effects on the environment and on human health and promotes the reuse and/or recycling of the materials of which the equipment is composed.

Illegal disposal of the product by the user may result in the application of administrative fines as stipulated by the laws in force.

Most of the components used for the packaging and construction of the BLAST CHILLER are recyclable, we recommend that the user sort them and send them to appropriate collection centres.

REFRIGERANT FLUID SAFETY DATA INDICATIONS

The machines use fluorinated gases with low GWP according the Kyoto Protocol. Based on selected refrigerant gas we invite you to read the related safety sheet where all information shall be provided.

WARNING!

With regard chemical-physical properties, for information concerning reactivity and stability, toxicological and ecological information as well as for more in-depth information on refrigerants, contact the retailer or the manufacturer.

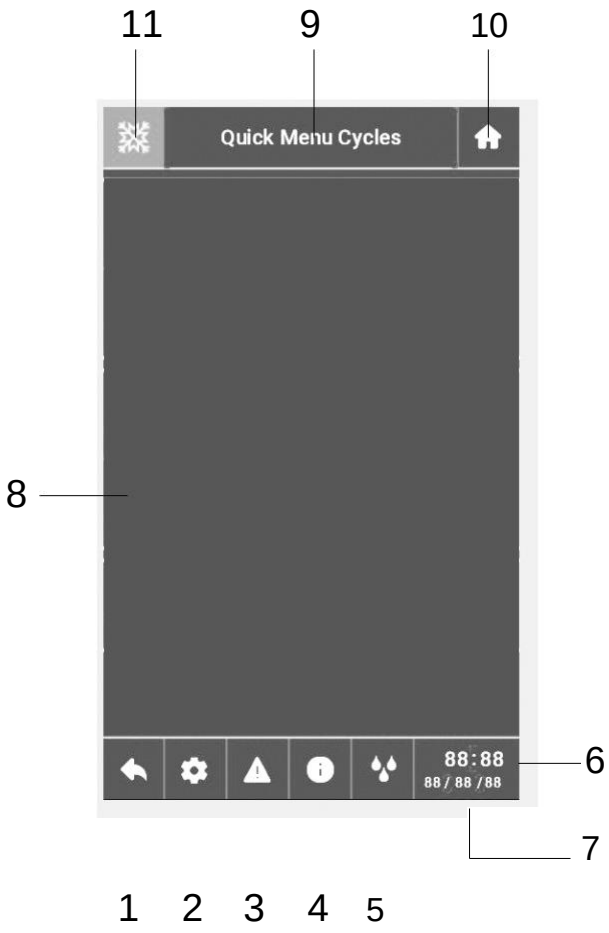
UTILIZATION

DESCRIPTION OF THE DISPLAY

The commands for setting, adjusting or displaying the functions are located on the lower section, on the upper section and on the central part of the display (fig. **5)**

Description of the standard symbols:

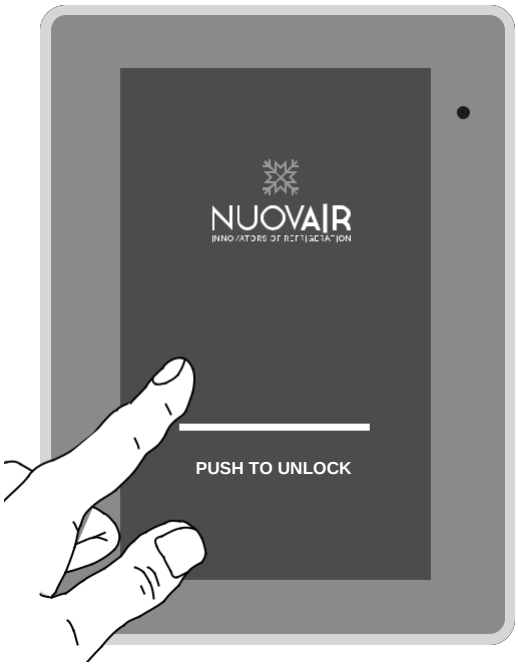
1. Returns to the previous page
2. Access to all the functions and settings of the blast chiller
3. If flashing, displays the current alarms
4. Displays useful information related to the cycle
5. Defrost cycle
6. Displays the time
7. Displays the date (day/month/year)
8. Displays all the functions
9. Displays the function or cycle in progress
10. Returns to the home page
11. “Lock screen” button, when pressed, displays the screen shown in fig. **6**



5

Lock screen (fig. **6**).

To unlock the screen, press the display for 2seconds.

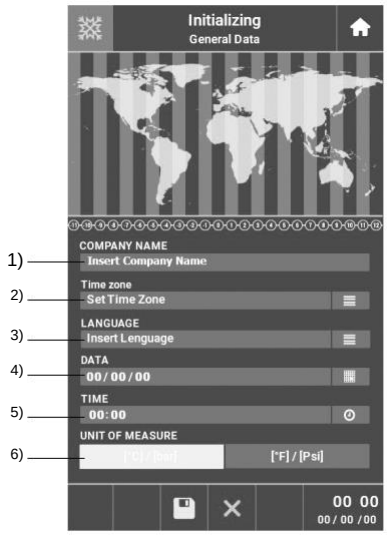


6

FIRST START-UP

After turning on the main blast chiller switch, the display lights up. Wait a few minutes for the software to load, until the screen in fig. **7** appears.

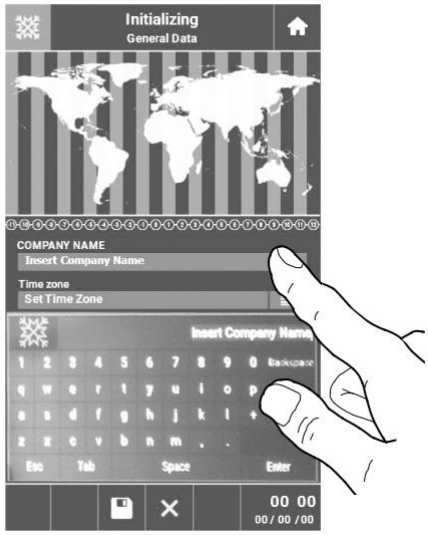
Then set all the required data.



7

ENTERING THE COMPANY NAME

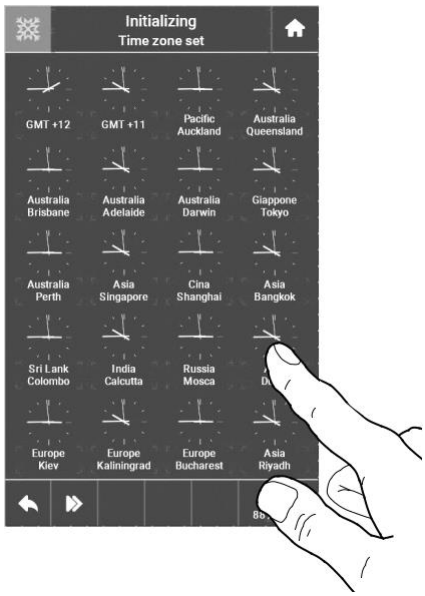
By selecting “Company Name” (figure **8**), a keyboard appears on the display which you can use to type the name, when finished, press “enter” to confirm, or “Esc” to exit.



8

SETTING THE TIME ZONE

By selecting “Time zone”, the screen shown in fig. **9** appears and you can choose the country in which the blast chiller is used.



9

LANGUAGE SELECTION

By selecting “Language”, the screen in figure **10**. is displayed. Choose the desired language.

10

DATE AND TIME SETTINGS

By selecting “Date” or “Time”, the screen in figure **11** is displayed.

Set the time (hours and minutes) using the keys + -

To set the date, press on the various fields,the keyboard with which you set the current day, month and year will appear on the display.

By pressing the button the set data will be saved automatically

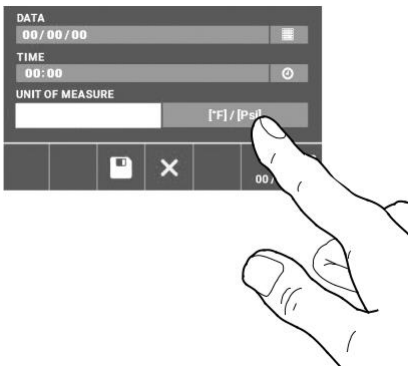
11

SELECTING UNITS OF MEASUREMENT

Choose the unit of measurement of the temperature with which you want to work by pressing the °C or °F key (figure **12**).

Press the symbol

to save all the settings entered (figure 12).



12

DESCRIPTION OF THE CYCLES

BLAST CHILLING CYCLES +37°C

Pasta/Rice
Bread
Vegetables
Meat/Fish
Soups/Sauces
Cakes +37
Creams +37
Creams +77
Cream puffs +37
Quiche +37
Croissants +37
Croissants +61
Pizza +37
Sushi +37
Tartare +37
Lettuce dryer +50
Lasagna +37
Fish +37
Meat +37

FREEZING CYCLES +0°C

Pasta/Rice
Bread Vegetables
Meat/Fish
Soups/Sauces
Cakes +0
Petit fours +0
Creams +0
Cream puffs +0
Ice Cream +0
Chocolate +18
Croissant +0
Pizza +0
Raw bread +0
Fresh Pasta +0
Remove from the mould +0
Kebab +0Shellfish +0
Tuna +0

MY CICLE

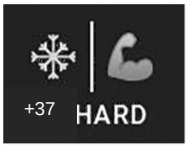
My cycle1
My cycle2
My cycle3

My cycle24

DESCRIPTION OF THE BLAST CHILLING CYCLES

1 - SOFT CHILLING

Suitable for all delicate or thin products such as vegetables, pastries, bread, rice, and pasta. It gently cools the product with chamber temperatures around 0°C. The cycle is finished when the product has reached +37°F at the core or at the end of the set time.



2 - HARD CHILLING

Suitable for all fatty or thick products such as meats, soups, and pies. It quickly cools the product with chamber temperatures below 0°C. The cycle is finished when the product has reached +37°F at the centre or at the end of the set time.

3 - BREAD

Suitable for all cooked products coming straight from a bread oven, the product is chilled to +37°F with various temperature steps avoiding the igloo effect and retaining the moisture of the product. The cycle is finished when the product has reached +37°F at the core or at the end of the set time.

4 - PIZZA

Suitable for cooked pizzas of any thickness coming straight from an oven, the product is chilled to +37°F with various temperature steps, avoiding the igloo effect and retaining the moisture of the product. The cycle is finished when the product has reached +37°F at the core or at the end of the set time.

5 - QUICHE

Suitable for cooked quiches of any thickness coming straight from an oven, the product is chilled to +37°F with various temperature steps, avoiding the igloo effect and retaining the moisture of the product. The cycle is finished when the product has reached +37°F at the core or at the end of the set time.

6 - MEAT / FISH

Suitable for cooked meat and fish of any thickness coming straight from an oven, the product is chilled to +37°F with various temperature steps, avoiding the igloo effect and retaining the moisture of the product. The cycle is finished when the product has reached +37°F at the core or at the end of the set time.

7 - SOAPS / SAUCES

Suitable for hot soups and sauces, the product is chilled to +37°F with various temperature steps, avoiding the igloo effect and retaining the moisture of the product. The cycle is finished when the product has reached +37°F at the core or at the end of the set time.

8 - FISH

Suitable for all types of cooked fish or shellfish. It gently cools the product with chamber temperatures around 0°C. The cycle is finished when the product has reached +37°F at the core or at the end of the set time.

9 - SUSHI

Suitable for SUSHI, SASHIMI. It gently cools the product with chamber temperatures around 0°F and with variable ventilation. This prevents oxidation of the product and maintains its freshness. The cycle is finished when the product has reached +37°F at the core or at the end of the set time.

10 - TARTARE

Suitable for raw meat or fish tartare. It gently cools the product with chamber temperatures around 0°F and with variable ventilation. This prevents oxidation of the product and maintains its freshness. The cycle is finished when the product has reached +37°F at the core or at the end of the set time.

11 - MEAT

Suitable for cooked meat of any thickness coming straight from an oven, the product is chilled to +37°F with various temperature steps, avoiding the igloo effect and retaining the moisture of the product. The cycle is finished when the product has reached +37°F at the core or at the end of the set time.

12 - LASAGNE

Suitable for meat and fish in puff pastry, cooked lasagna, the product is chilled to + 3°F with various temperature steps, avoiding the igloo effect and retaining the moisture of the product. The cycle is finished when the product has reached +37°F at the core or at the end of the set time.

13 - VEGETABLE

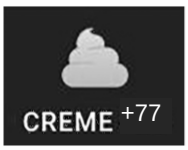
Suitable for all types of cooked vegetables. It gently cools the product with chamber temperatures around 0°F and with variable ventilation. This prevents oxidation of the product and maintains its freshness. The cycle is finished when the product has reached +37°F at the core or at the end of the set time.

14 - CAKES

Suitable for all types of cakes or tarts. It gently cools the product with chamber temperatures around 0°F and with variable ventilation. This prevents oxidation of the product and maintains its freshness. The cycle is finished when the product has reached +37°F at the core or at the end of the set time.

15 - CREME +37

Suitable for all types of creams. It gently cools the product with chamber temperatures around 0°F and with variable ventilation. This prevents oxidation of the product and maintains its freshness. The cycle is finished when the product has reached +37°F at the core or at the end of the set time.



16 - CREME +77

Suitable for all types of hot creams to be cooled for immediate use. It gently cools the product with chamber temperatures around 0°F and with variable ventilation. The cycle is finished when the product has reached +77°F at the core or at the end of the set time.

17 - BIGNE'

Suitable for all types of hot cream pu˜s. It gently cools the product with chamber temperatures around 0°F and with variable ventilation. It retains the moisture of the product. The cycle is finished when the product has reached +37°F at the core or at the end of the set time.

18 - CROISSANT +37

Suitable for all types of brioches, croissants or warm leavened products. It gently cools the product with chamber temperatures around 0°F and with variable ventilation. It retains the moisture of the product. The cycle is finished when the product has reached +37°F at the core or at the end of the set time.

19 - CROISSANT +61

Suitable for all types of brioches, croissants or warm leavened products for immediate consumption. It gently cools the product with chamber temperatures around 32°F and with variable ventilation. It retains the moisture of the product. The cycle is finished when the product has reached +61°F at the core or at the end of the set time.

20 - DRY LETTUCE

Suitable for lettuce. It cools and dries the product correctly avoiding bacterial proliferation, extending its freshness. Temperatures above 0°F and with reduced ventilation. The cycle is finished when the product has reached +50°F at the core or at the end of the set time.

21 - PASTA/RICE

Suitable for all types of cooked pasta and rice. It gently cools the product with chamber temperatures around 0°C. The cycle is finished when the product has reached +37°F at the core or at the end of the set time.

22 - 23 - 24 - MY CYCLE 1-2-3

Customisable cycles: product temperatures, chamber temperatures, phases, times and ventilation can be set.

DESCRIPTION OF THE FREEZING CYCLES

1 - SOFT FREEZING

Suitable for all hot and raw delicate products. It gently freezes the product with positive temperatures in the first phase and negative in the second phase. It prevents the igloo effect. The cycle is finished when the product has reached +0°F at the core or at the end of the set time.

2 - HARD FREEZING

Suitable for fatty or thick raw or cold products such as meats, soups, and pies. It quickly freezes the product with temperatures always below zero. The cycle is finished when the product has reached +0°F at the core or at the end of the set time.

3 - BREAD

Suitable for all raw or cooked bakery products, the product is frozen at +5°F with various temperature steps, avoiding the igloo effect and retaining the moisture of the product. The cycle is finished when the product has reached +0°F at the core or at the end of the set time.

4 - PIZZA

Suitable for all types of raw or cooked pizza. It gently freezes the product with positive temperatures in the first phase and negative in the second phase. It prevents the igloo effect and keeps the yeasts intact. The cycle is finished when the product has reached +0°F at the core or at the end of the set time.

5 - RAW BREAD

Suitable for all types of raw bread and focaccia. It gently freezes the product with positive temperatures in the first phase and negative in the second phase. It keeps the yeasts intact. The cycle is finished when the product has reached +0°F at the core or at the end of the set time.

6 - FRESH PASTA

Suitable for all types of fresh pasta. It gently freezes the product with positive temperatures in the first phase and negative in the second phase. It keeps the structure intact and avoids oxidation. The cycle is finished when the product has reached +0°F at the core or at the end of the set time.

7 - MEAT / FISH

Suitable for cooked or raw meat and fish, the product is frozen at +0°F with various temperature steps, avoiding the igloo effect and retaining the moisture of the product. The cycle is finished when the product has reached +0°F at the core or at the end of the set time.

8 - SOAPS / SAUCES

Suitable for very hot soups and sauces, the product is frozen at +0°F with various temperature steps, avoiding the igloo effect and retaining the moisture of the product. The cycle is finished when the product has reached +0°F at the core or at the end of the set time.

9 - KEBAB

Suitable for thick, raw or cooked meat, the product is frozen at +0°F with various temperature steps, avoiding the igloo effect and retaining the moisture of the product. The cycle is finished when the product has reached +0°F at the core or at the end of the set time.

10 - SEAFOOD

Suitable for all types of cooked fish or shellfish. The product is gently frozen with various temperature steps. The cycle is finished when the product has reached +0°F at the core or at the end of the set time.

11 - TUNA

Suitable for raw tuna. The product is frozen with temperatures around -40°F , this allows the fixing of the colour and avoiding oxidation. The cycle is finished when the product has reached +0°F at the core or at the end of the set time.

12 - VEGETABLE

Suitable for all types of cooked and raw vegetables. The product is gently frozen avoiding the oxidation of the product and completely retaining its freshness. The cycle is finished when the product has reached +0°F at the core or at the end of the set time.

13 - CAKES

Suitable for all types of cakes or tarts. The product is gently frozen with negative chamber temperatures and variable ventilation. This prevents oxidation of the product and maintains its freshness. The cycle is finished when the product has reached +0°F at the core or at the end of the set time.

14 - MIGNON

Suitable for petit fours. The product is gently frozen with negative chamber temperatures and variable ventilation. This prevents oxidation of the product and maintains its freshness. The cycle is finished when the product has reached +0°F at the core or at the end of the set time.

15 - CREME

Suitable for all types of creams. The product is frozen with negative temperatures and variable ventilation. This prevents oxidation of the product and maintains its freshness. The cycle is finished when the product has reached +0°F at the core or at the end of the set time.

16 - BIGNE'

Suitable for cream puffs. The product is frozen with negative temperatures and variable ventilation. This prevents oxidation of the product and maintains its freshness. The cycle is finished when the product has reached +0°F at the core or at the end of the set time.

17 - ICECREAM

Suitable for ice cream, sorbet. The product is frozen with temperatures down to -40°F in the chamber. Suitable for freezing ice cream or for thermal shock. The cycle is finished when the product has reached +0°F at the core or at the end of the set time.

18 - CHOCOLATE

Suitable for all types of chocolate. It hardens the product allowing decoration. The cycle is finished when the product has reached +18°F at the core or at the end of the set time.

19 - CROISSANT

Suitable for all types of brioches, croissants or warm and raw leavened products. The product is gently frozen with negative chamber temperatures and variable ventilation. It retains the moisture of the product. The cycle is finished when the product has reached +0°F at the core or at the end of the set time.

20 - EXT. FROM MOLD

Suitable for cooling products inside moulds to aid their removal.

21 - PASTA / RICE

Suitable for all types of cooked or raw pasta and rice. The product is gently frozen with variable chamber temperatures. It avoids the dehydration of the product thus retaining its properties. The cycle is finished when the product has reached +0°F at the core or at the end of the set time.

22 - 23 - 24 - MY CYCLE 1-2-3

Customisable cycles: product temperatures, chamber temperatures, phases, times and ventilation can be set.

OPERATING MODES

There are 2 operating modes:

1)FULL MODE version (72 cycles)
2) EASY MODE version

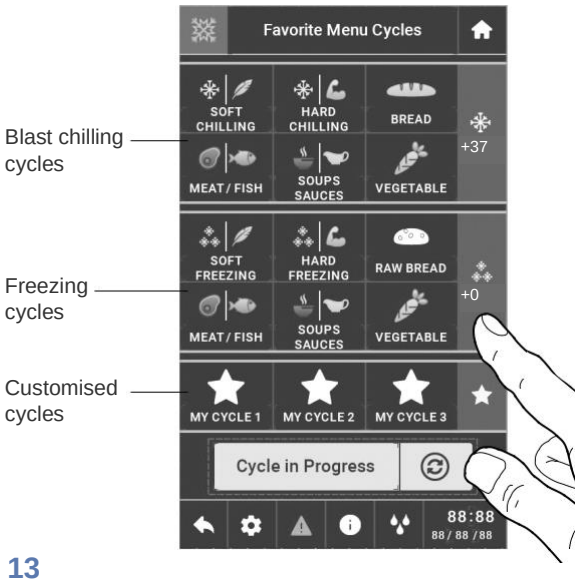
1) FULL MODE version 72 cycles (figure **13**)
With this graphic display we can select a total of 72 cycles divided by categories:

- 24 Blast chilling cycles
- 24 Freezing cycles
- 24 Customised cycles

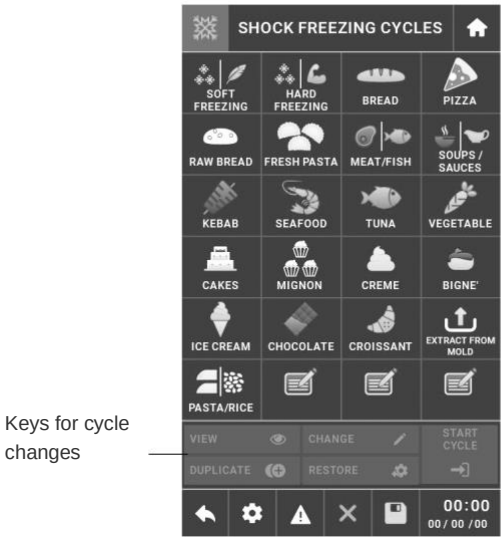
The home screen (figure **13**) displays the cycles that are most used, the customer will be able to decide the cycles to be displayed on this page according to their needs.

By pressing on the side section (+37 Blast chilling) or (+0 Freezing), the screen in fig. 12 with all programmed blast chilling or freezing cycles will appear.

All these cycles can be displayed, moved, changed, duplicated or restored using the appropriate keys (see figure **14**).



13



14

2) EASY Mode version (figure **15**)
- no. 2 blast chilling programs +37°F “Soft” and “Hard”
- no. 2 freezing programs +0°F “Soft” and “Hard”

These programs are already present and are NOT editable and can not be changed.
Press the selected cycle and start it by using the “START” button.
The blast chiller starts in timer mode, but during processing it can also be switched to the core temperature mode.

15

BLAST CHILLING/FREEZING

IN FULL MODE (72 CYCLES)

To start a blast chilling or freezing cycle, select a pre-set cycle on the Home screen or press on the side section +37 or +0 to display all the preset blast chilling or freezing cycles (Fig. **16**).

Select the desired cycle and start it by pressing the “START CYCLE” button. (Figure **17**).

The operation screen of the selected cycle will appear on the display (Figure **18**).

CYCLE OPERATION

The cycle can be started

with time priority by selecting the icon 

or with temperature priority at the core of the product by selecting the icon  .

This operation can also be performed when the cycle is started.

It is possible to change the cycle time by dragging the time selector (figure **18**), or by clicking on the clock on the side of the time selector.

By dragging the time selector to the end of the run, the machine operates in infinite cycle (max time: 4 days).

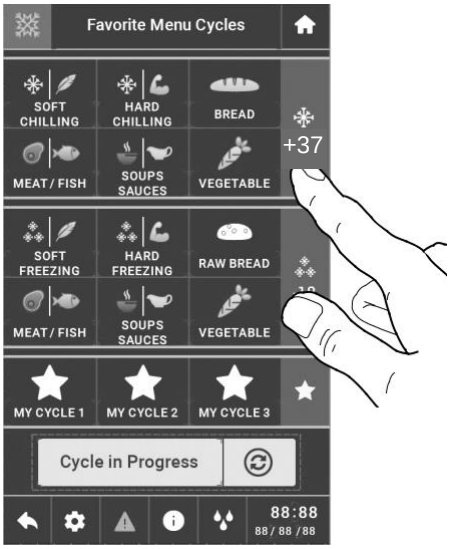
Furthermore, the air speed inside the chamber can also be changed by dragging the fan selector (figure **18**), or by clicking on the numerical value on the side of the selector.

To start the cycle, keep the key  pressed for more than one second.

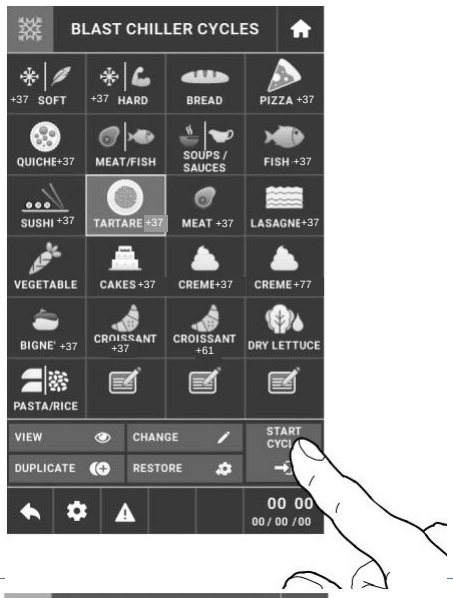
The indicator changes colour and the time and fan bars start.

Once the cycle has started, the icon  will be displayed by clicking on this icon, it is possible to view or change the parameters of the cycle in progress.

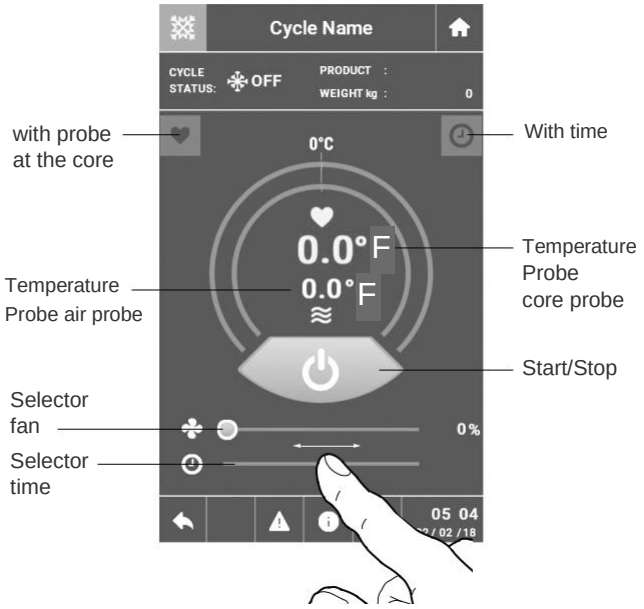
To set as default and therefore to save these changes, press the icon  , otherwise the values will be automatically restored at the next restart of the cycle.



16



17

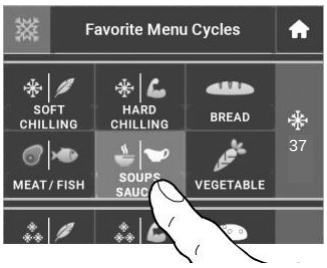


18

CYCLE CHANGES AND ADJUSTMENTS
PRESET BLAST CHILLING

REPLACING A BLAST CHILLING/FREEZING CYCLE HIGHLIGHTED ON THE HOME SCREEN

To replace a preset blast chilling/freezing cycle on the home screen, press the cycle that you want to replace from the home for 2 seconds (fig.**19**), the screen in figure 18 will appear, select the cycle you want to highlight on the home screen and press the icon  to save.



19

By using the buttons shown in Figure **20**, it is possible to display, duplicate, change or restore the blast chilling or freezing cycles;

20

DISPLAYING A BLAST CHILLING/FREEZING CYCLE

To display the contents of a blast chilling or freezing cycle, enter the cycles screen, select the cycle to display and press the button 

, all information related to that cycle will appear (figure **21**).

21

DUPLICATING A BLAST CHILLING/FREEZING CYCLE

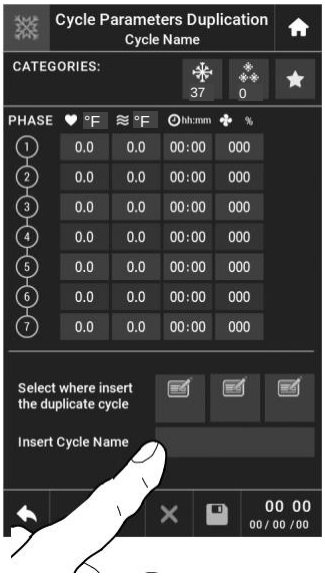
To duplicate a blast chilling or freezing cycle enter the cycles screen,

select the cycle to duplicate and press DUPLICA

The screen in figure **22** will appear, select the position in which to insert the cycle to duplicate and then enter the name of the duplicated cycle.

Before saving the duplicated cycle, you can also change one or more parameters displayed on the screen.

Then press the icon to save the duplicated cycle.



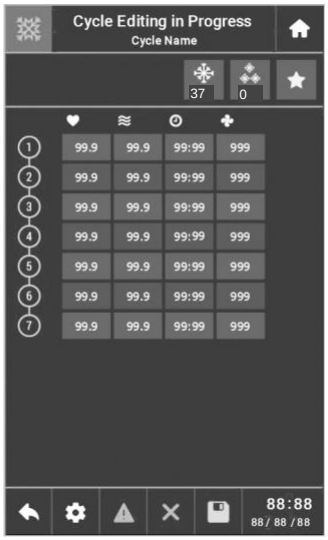
22

CHANGING PARAMETERS OF A BLAST CHILLING/FREEZING CYCLE

To change the parameters of a blast chilling or freezing cycle, enter the cycles screen, select the cycle

to change and press the MODIFICA button the screen of figure **23** will appear.

Change the content and press the icon to save changes.



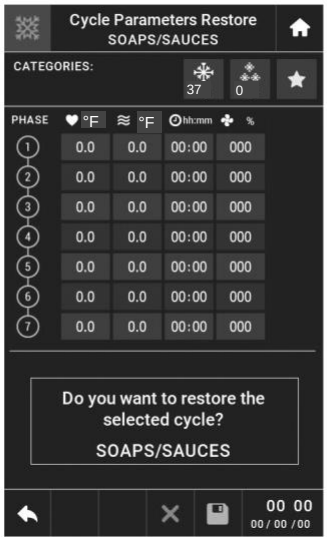
23

RESTORINGA BLAST CHILLING/FREEZING CYCLE

To restore a blast chilling or freezing cycle enter the cycles screen, select the cycle to restore and press the button RIPRISTINA

The screen of figure **24** will appear, it is possible to restore any previously changed cycle to the factory settings.

The cycle name to restore will appear, confirm and press the icon to save.



24

BLAST CHILLING OPERATION EASY MODE

To use the blast chiller Easy Mode, it is necessary to enable the operation in the “OPERATOR PARAMETERS” menu.

By pressing the symbol  on the Home screen, you access the settings screen (figure **25**).

Press “Operator Settings”.

To access the screen in figure **26**, the operator password 33333 must be entered.

Then press “Enabling Easy Mode” to access the screen in figure **27**.

Enable the Easy Mode button and then press the home page button.

The screen that will appear is that of the “EASY MODE” system of figure **28**.

- no. 2 blast chilling programs +37°F “Soft” and “Hard”
- no. 2 freezing programs +0°F “Soft” and “Hard”

These programs ARE NOT EDITABLE and can not be changed.

Press the selected cycle and start it with the “START” button, the display will show the operation screen of the selected program (figure **29**).

CYCLE OPERATION

The cycle can be started

with time priority by selecting the icon 

or with temperature priority at the core of the product by selecting the icon  .

This operation can also be performed when the cycle is started.

It is possible to change the cycle time by dragging the time selector (figure **29**), or by clicking on the clock on the side of the time selector.

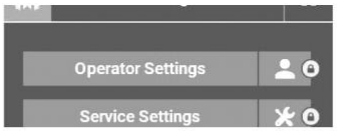
By dragging the time selector to the end of the run, the machine operates in infinite cycle (max time: 4 days).

Furthermore, the air speed inside the chamber can also be changed by dragging the fan selector (figure **29**), or by clicking on the numerical value on the side of the selector.

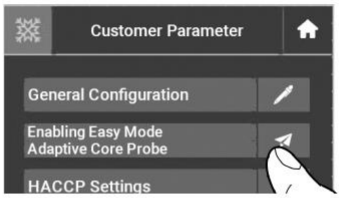
To start the cycle, keep the key  pressed for more than one second.

The indicator changes colour and the time and fan bars start.

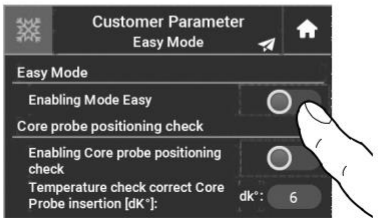
25



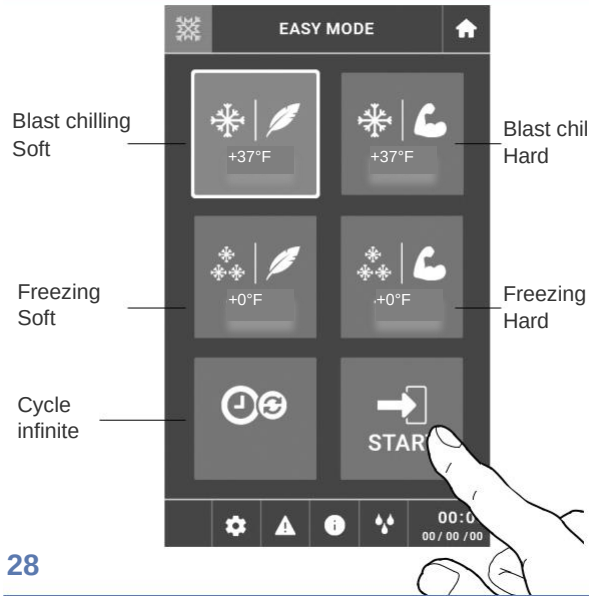
26



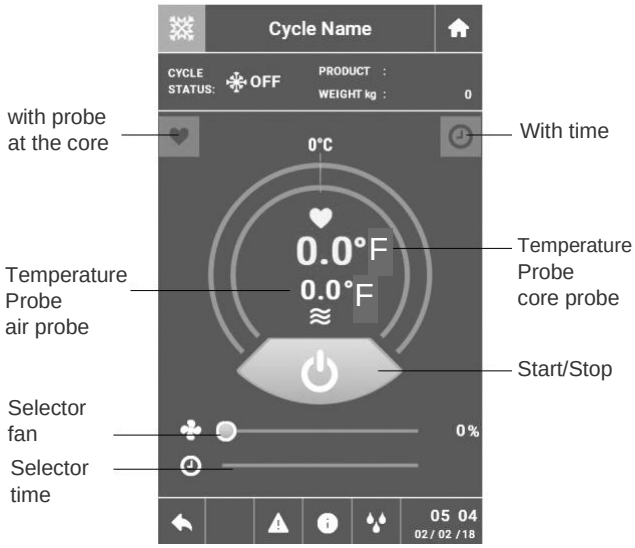
27



28



29



DEFROSTING

To start defrosting, press the icon (figure **30**)
Defrosting can be **adaptive** or **timed**. In the case of **timed** defrosting, the duration is set by the user according to the level of intensity chosen shown in the table below.

The defrosting duration is shown in the table according to the intensity.

In the case of **adaptive** defrosting, the machine will decide how long the defrost will last according to the level of ice covering the evaporator. In this configuration, the minimum defrosting duration is 15 minutes, the maximum duration is 2 hours. This defrosting mode allows you to optimise the defrosting times.

LEVELS OF DEFROST INTENSITY:

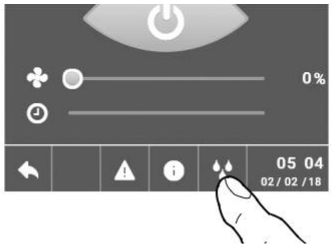
1) 15 min Defrost duration.
2) 20 min Defrost duration.
3) 25 min Defrost duration.
4) 30 min Defrost duration.
5) 35 min Defrost duration.
6) 40 min Defrost duration.
7) 45 min Defrost duration.
8) 50 min Defrost duration.
9) 55 min Defrost duration.
10) 60 min Defrost duration

To perform a defrost it is always necessary to open the door, if it is closed a message appears on the display (figure **31**). If the door is closed during defrosting, the fans stop and the time counter is blocked. Once the door has been closed properly, both the fans and the time counter will restart. Once the defrost time is up, the fans stop.

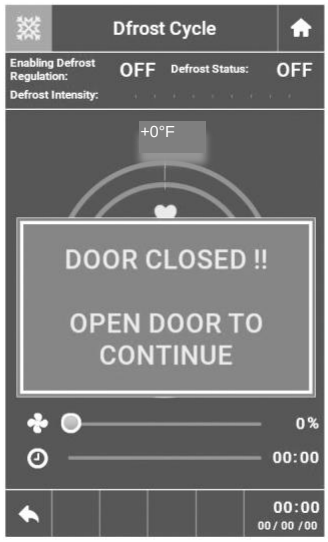
To change the defrost parameters press the symbol  on the Home screen to access the “Settings” screen, press “Operator Settings” to enter the “Customer Parameter” screen and then press on “Defrost settings” (figure **32**).

The screen of figure **33** will appear where you can change the parameters. It is also possible to enable a defrost warning message, ie the machine signals that at the next restart it would be desirable to perform a defrost to maintain optimal performance.

It is possible in some conditions that the machine also indicates to make a defrost even if apparently the evaporator does not seem to be covered in ice.

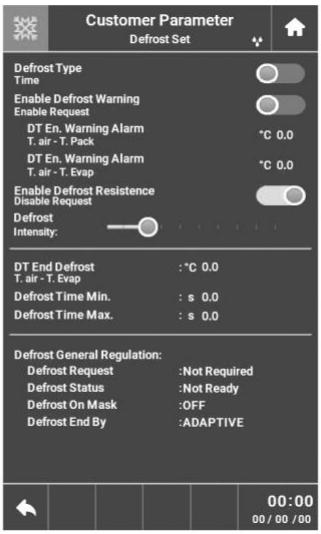


30



31

32



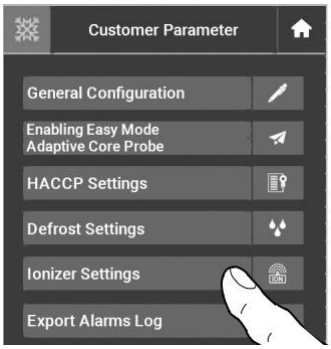
33

IONIZATION

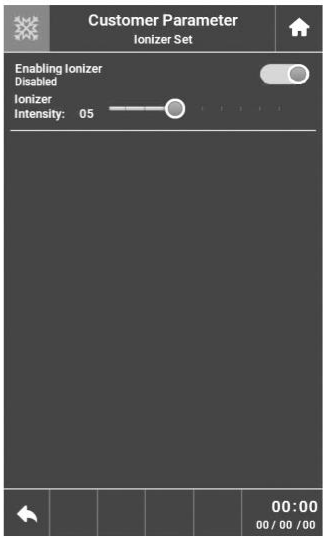
To activate ionization press the symbol  , on the Home screen to access the “Settings” screen, press “Operator Settings” to enter the “Customer Parameter” screen and then press on “Ionizer settings” (figure **34**).

The screen in figure **35** will appear where you can activate ionization and choose from 15 different levels of intensity.

In the table below you can see the characteristics of each level.



34



35

	Time start-up fans [sec]	Time start-up ionizer [sec]	Time that elapses between the two start-ups [h]
Intensity 0	0	0	0
Intensity 1	15	180	6
Intensity 2	15	360	6
Intensity 3	15	540	6
Intensity 4	15	180	0
Intensity 5	15	360	4
Intensity 6	15	540	4
Intensity 7	15	120	3
Intensity 8	15	240	3
Intensity 9	15	360	3
Intensity 10	15	120	2
Intensity 11	15	240	2
Intensity 12	15	360	2
Intensity 13	15	120	1
Intensity 14	15	240	1
Intensity 15	15	360	1

The condenser must be cleaned at least once a month or whenever the surface is opaque.

The condenser must be replaced every year in order to ensure optimal levels of sanitisation.

The ionizer only works if the door is closed.

HACCP

(Hazard Analysis and Critical Control Point)

To activate this function press the symbol  , on the Home screen to access the “Settings” screen, press “Operator Settings” to enter the “Customer Parameter” screen and then press on “HACCP Settings” (figure **36**).

The screen of figure **37** will appear where the function can be activated.

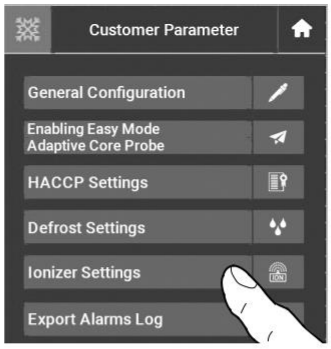
This functionality of the blast chiller allows you to record possible anomalies during the execution of a cycle or during the conservation phase. The recorded parameters are the following:

- Recording date and hour
- Door openings
- Door open alarm
- General alarm
- Condensing unit alarm
- Started cycle index
- Started cycle phase
- Start and end cycle
- Blackout alarm
- Product batch
- Product weight
- Air probe temperature
- Core temperature (average probes value)
- Core 1 temperature
- Core 2 temperature
- Core 3 temperature
- Machine ID

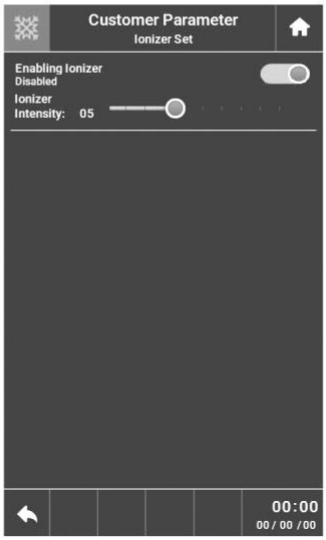
Blackout note: if during a cycle in progress or during a conservation phase a power outage occurs for a time longer than the value set the blackout alarmi is signalled. In addition, on screen the date and the time are displayed of the blackout’s interruption and duration.

Downloading the HACCP data it is possible to evaluate also the maximum temperature reached at the end of blackout.

The sampling time in the HACCP registration is variable. The temperatures are recorded when they undergo a variation of +-34 F°.



36



37

EXPORT ALARMS LOG

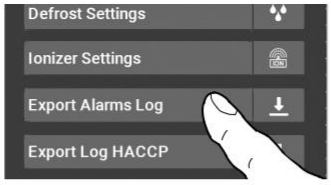
To activate this function press the symbol , on the Home screen to access the “Settings” screen, press “Operator Settings” to enter the “Customer Para-meter” screen and then press on “Export Alarms Log” (figure **38**).

The screen of figure **39** will appear where it is possible to export the log of the alarm history, it is possible to save the generated file in the controller’s internal memory or on a USB stick.

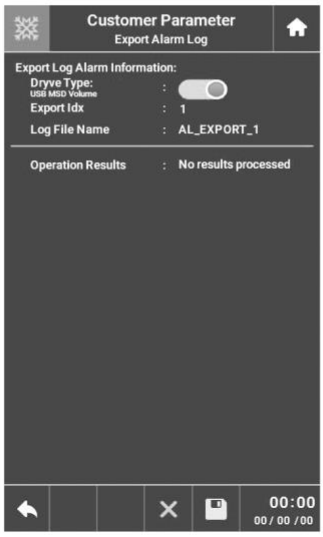
To do this, select the location where to save the file. If necessary, change the progressive number of the latter (Export Idx.) in order to avoid any overwriting (figure **39**).

Click on the icon to generate the file.

If no error messages appear, the file has been correctly created.



38



39

EXPORT LOG HACCP

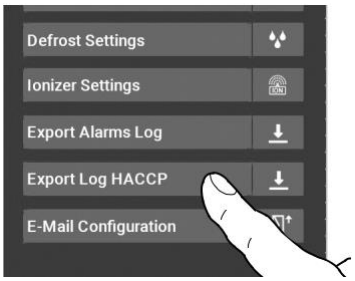
To activate this function press the symbol on the Home screen to access the “Settings” screen, press “Operator Settings” to enter the “Customer Parameter” screen and then press on “Export Log HACCP” (figure **40**).

The screen of figure **41** will appear where it is possible to export the HACCP log file. It is possible to save the generated file in the controller’s internal memory or on a USB stick.

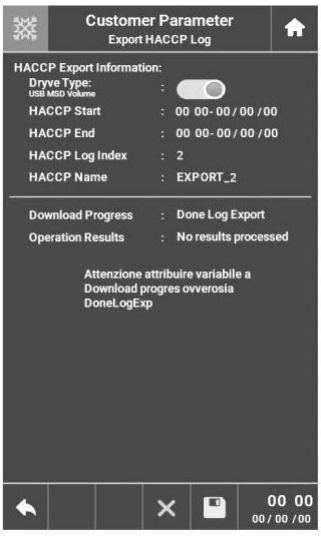
To do this, select the location where to save the file. Select the start and end date of the data download If necessary, change the progressive number of the latter (HACCP Log Index) in order to avoid any overwriting of previously generated files.

Click on the icon to generate the file.

If no error messages appear, the file has been correctly created.



40



41

IMPORT EXPORT PARAMETERS

To perform an export/import of the blast chiller parameters press the symbol on the Home screen to access the “Settings” screen, press “Operator Settings” to enter the “Customer Para-meter” screen and then press on “Import Export Para-meters” (figure **42**).

42

The screen in figure **43** will appear where it is possible to export the PARAM_EXPORT_ file. It is possible to save the generated file in the controller’s internal memory or on a USB stick.

To do this, select the location where to save the file.

If necessary, change the progressive number of the latter (Import Export Idx) in order to avoid any overwriting.

Click on the icon to create the file. If no error messages appear, the file has been correctly created.

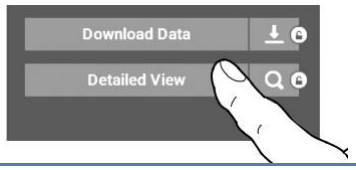
This operation must be performed every time the controller is updated to avoid losing any recipes changed by the user.

43

DETAILED DISPLAY MENU

To access the detailed display menu, on the Home screen press the symbol  you access the “Settings” screen, press “Detailed View” (Figure **44**) to enter the screen. The screen in Figure **45** appears, clicking on the relevant icons, you can access the windows describing the behaviour of some components of the machine. In particular, you can have indications on:

- Operation of the fans inside the unit.
- Operation of the electronic expansion valves.
- Operation of the condensing unit.
- Temperature trend.



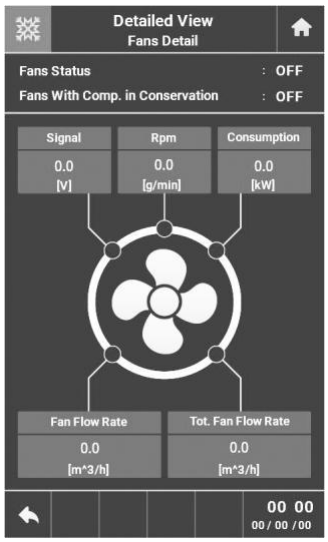
44

45

OPERATION OF THE FANS INSIDE THE UNIT

The specific fans screen (Figure **46**) allows you to display the status of the fans and the operating modes during the preservation phase of the machine. It is also possible to obtain information on:

- the signal provided by the electronics to the fan.
- the rotation speed of the blades (in rotations/min).
- the absorbed power.
- the volumetric capacity of the individual fan.
- the total volumetric capacity of all the fans inside the unit.

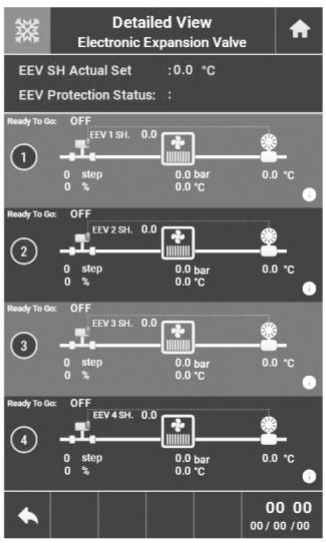


46

OPERATION OF THE ELECTRONIC EXPANSION VALVES

The specific screen for electronic thermostatic valves (Figure **47**) allows you to view the heating set and, if present, the protection enabled by the electronic thermostatic valve Protection can be:

- Low SH, low heating.
- LOP, low evaporation temperature.
- MOP, high evaporation temperature. We can also display the useful variables to know system operation:
- The opening level of the valve both as a percentage and valve steps.
- The evaporation pressure and the corresponding temperature.
- The temperature of the bulb.
- Heating of the refrigerant fluid out bound of the evaporator



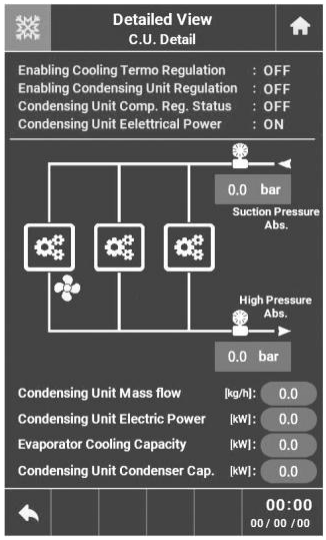
47

OPERATION OF THE CONDENSING UNIT

The specific screen of the condensing unit (Figure **48**) allows you to view the adjustment status and enable the request for refrigeration power and the presence of electrical energy on the condensing unit.

We can also estimate the following parameters:

- Refrigerant mass flow rate.
- Power absorbed by the condensing unit.
- Power to the evaporator.
- Power to discard on capacitor.

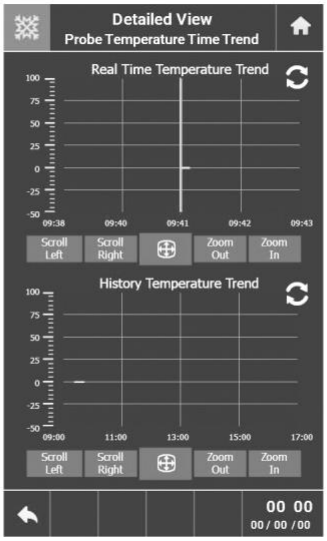


48

TEMPERATURE TREND

The “Temperature trend” screen (Figure **49**) allows you to view two graphs describing the temperature trend detected by the air probe and core probe. In particular,

- Real Time Temperature Trend: describes in real time the temperature trend of the core probe and air probe. On each access to the graph page, it resets.
- History Temperature Trend: this graph allows you to temporally scroll the temperature trend and display the history data.

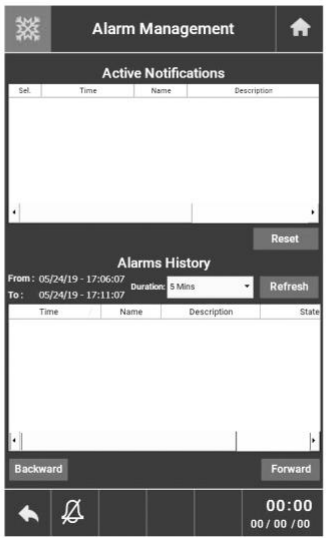


49

ALARMS DISPLAY

To access the alarms display menu, on the Home screen press the symbol  , you access the “Settings” screen, press “Alarm Management” (Figure **50**) to enter the screen. The screen in Figure **51** appears where the top part in “Active Notifications” displays all the active alarms in real time, while the bottom part, “Alarms History” displays the history of all the equipment alarms.

50



51

FAULTS AND POSSIBLE SOLUTIONS

The blast chiller is equipped with a visual system that signals the presence of an alarm. The alarms are shown on the display.

Communication of faults shown on the display:

For any other type of alarm displayed: wait a few minutes if the problem persists contact support and specify the alarm code displayed.

No.	Description	Possible cause	Possible solution	Effects
2-5	**Fan Open Door Alarm.**	•• Fan door open. •• Damage to cable, connection or micro switch of the fan door. •• Incorrect positioning of the fan door micro switch. •• Cable disconnected in the terminal board.	•• Check the status of the door. •• Check connections between the door micro switch and the terminal device. •• Check the integrity of the fan door micro switch.	•• Immediate blocking of the fans. •• Blocking of the condensing unit after 300 s. •• Signalling CYCLE IN PROGRESS GENERAL •• Signalling UNIT OR CHAMBER GENERAL ALARM. •• If there is a external network connection, send an alert e-mail.
6	**Open Door Alarm.**	•• Door open. •• Damage to cable, connection or micro switch of the door. •• Incorrect positioning of the door micro switch. •• Cable disconnected from the terminal board.	•• Check the status of the door. •• Check connections between the door micro switch and the terminal device. •• Check the integrity of the door micro switch.	•• Attention message on the cycle start screen; impossibility to start a cycle. •• Blocking of the fans after a preset time. •• Blocking of the condensing unit after 300 s •• Signalling CYCLE IN PROGRESS GENERAL ALARM. •• Signalling UNIT OR CHAMBER GENERAL ALARM. •• If there is a external network connection, send an alert e-mail.
7	**Excessive Data Writing in the Controller Memory Unit Alarm**	•• Electronic malfunction.	•• Contact the Supplier.	•• Damage to controller ROM. •• Impossibility to use the machine.
8	**Write Error in the Retain Memory alarm.**	•• Possible damage to the ROM of the controller.	•• Contact the Supplier.	•• Damage to controller ROM. •• Impossibility •• to use the machine.

No.	Description	Possible cause	Possible solution	Effects
9-12	**Low Superheating Evaporator Alarm 1-2-3-4**	•• Superheating set too low. •• Excessive compressor •• Damage to temperature or pressure transducers •• Loss of step by the valve	•• Significantly increase heating. •• Check for errors in the	•• If the alarm persists, possible liquid return to the condensing

		engaging and disengaging. •• PID config. to optimise. •• Very low evaporation temperatures. •• Damage to temperature or pressure transducers. •• Loss of step by the valve.	reading of Pressure/ Temperature probes. •• Reset the valve controller. •• Contact the Supplier.	unit. •• Possible cycle parameter threshold exceeded (The air temperature may fall below the value set by the cycle).
13-16	**Evaporation high temperature exceeded Alarm (MOP).**	•• Evaporation temperatures too high. •• Damage to temperature or pressure transducers. •• MOP Integral time set to 0. •• Loss of step by the valve	•• Check for errors in the reading of Pressure/ Temperature probes. •• Check the MOP value set. •• Change the value of the •• MOP integral time. •• Contact the Supplier.	•• High evaporation temperature/pressure •• Excessive workload for the compressor resulting in overheating and possible compressor thermal protection triggering
17-20	**Motor Electronic Thermostat Valve Alarm.**	•• Motor disconnected, damaged or incorrectly powered.	•• Check the power and communication cable between the controller (EVD) and the electronic expansion valve motor. •• Enter the diagnostic section with the machine in standby and manually change the valve opening degree. •• Contact the Supplier and decide if the motor needs replacing	•• Impossibility to start a cycle and to use the blast chiller.
21-24	**Low Temperature/ Evaporation Pressure Alarm (LOP).**	•• Excessive compressor engaging and disengaging. •• PID configuration to optimise/instability of the valve •• LOP integral time set to 0 •• Very low evaporation temperatures.	•• Significantly increase the superheating. •• Check for probe Temperature/Pressure reading errors •• Change the LOP integral time value. •• Reset the valve controller. •• Contact the Supplier.	•• Possible intervention of the low-pressure pressure switch.

No.	Description	Possible cause	Possible solution	Effects
25-28	**High Condensing Temperature Alarm.**	•• Return refrigerant liquid high temper. •• Lack of refrigerant fluid supply in the suction line. •• Condenser dirty. •• Condenser fan malfunction.	•• Check operation of fans and cleaning of the condenser. •• Check correct thermostat valve operation. •• Check the amount of refrigerant.	•• Possible intervention of the high-pressure pressure switch resulting in machine shut down.
29-32	**Electronic Thermostat Valve Pressure Probe Alarm**	•• Probe S1 S3 faulty or set alarm range exceeded.	•• Check connection and integrity of the probe. •• Check the MINIMUM and MAXIMUM alarm parameter values.	•• Incorrect operation of the electronic thermostatic valve with possible blocking of the condenser unit.
33-36	**Electric Thermostat Valve Temperature Probe Alarm**	•• Probe S2 S4 faulty or set alarm range exceeded.	•• Check connection and integrity of the probe. •• Check the MINIMUM and MAXIMUM alarm parameter values.	•• Incorrect operation of the electronic thermostatic valve with possible blocking of the condenser unit.
37-38	**EPROM damaged Alarm (EEV controller).**	•• Electronic thermostat valve memory compromised.	•• Replace the driver of the electronic valve. •• Contact the Supplier.	•• The Eprom parameters of the machine and operating parameters generates in any case the blocking of the electronic valve and impossibility to to start a cycle of the machine.
39-42	**Incomplete Closing of the Electronic Thermostat Valve Alarm.**	•• Loss of alignment of motor steps.	•• Restart the controller of the Electronic Thermostatic Valve.	•• No harmful etfect on the machine.
43-46	**Failed emergency closure alarm.**	•• Missing chamber power supply	•• Not feasible	•• None
47-48	**Incompatibility of the EEV operating system Alarm.**	•• Failure to update •• the operating system •• of the electronic thermostat valve controller.	•• Upgrade the software of the electronic thermostatic valve. •• Contact the Supplier.	•• Controller Block of the electronic thermostatic valve.

No.	Description	Possible cause	Possible solution	Effects
49-52	**Configuration of the parameters not carried out correctly alarm.**	•• Communication missing between electronic thermostat valve controller	•• Check the integrity of the connections between device and electronic thermostat valve. •• Check address of electronic thermostat valve •• Address 1: EEV Controller 1 •• Address 2: EEV Controller 2 •• Contact the Supplier. •• Consider a marked decrease of the MOP threshold.	•• Controller Block of the electronic thermostatic valve valve.
53-54	**Compressor Protection alarm.**	•• Intervention of the thermal protections of the compressor/s due to excessive superheating of the electrical motor.	•• Check operation of condensing part fans. •• Clean the condenser if necessary. •• Check the amount of refrigerant. •• Contact the Supplier.	•• Immediate condenser unit block, resulting in general alarm generation of the chamber or condenser and impossibility to start a cycle. •• If the cycle is in progress this remains active until the compressor protection alarm is restored. Generated also general alarm for cycle in progress. •• If there is an external network connection, send an email alert.
55-56	**Condenser Unit Low Pressure Alarm.**	•• Electronic thermostat valve not working. •• Electronic thermostat valve unstable. •• Ice covering the evaporator. •• Chamber fans malfunction.	•• Check the integrity of the evaporating part. •• Check correct operation of the electronic thermostat valve. •• Perform a defrost if the evaporator is covered in ice.	•• Immediate condenser unit block, resulting in alarm generation of the chamber or condenser and impossibility to start a cycle. •• If the cycle is in progress this remains active until the compressor protection alarm is restored. General alarm also triggered for cycle in progress. •• If there is an external network connection, send an email alert.

No.	Description	Possible cause	Possible solution	Effects
57-58	**Condenser Unit High Pressure Alarm.**	•• High temperatures of the refrigerant fluid returning to the compressor. •• Lack of refrigerant fluid supply in the suction nline. •• Condenser dirty. •• Condenser fan malfunction.	•• Check the integrity of the condensing part. •• Check correct operation of the fans	•• Immediate condenser unit block, resulting in general alarm generation of the chamber or condenser unit and impossibility to start a cycle. •• If the cycle is in progress this remains active until the compressor protection alarm is restored. Generated also general alarm for cycle in progress. •• If there is an external network connection, send an email alert.
59	**Chamber Fan Alarm.**	Chamber fans broken or malfunctioning.	•• Check the fan contactor. •• Replace the broken or damaged fan. •• Contact supplier	•• The cycle starts but the blast chiller works without the fans. The temperature of the machine does not go down or goes down very slowly
60-65	**Compressor Maintenance Alarm**	•• Compressor maintenance threshold exceeded	•• Contact a maintenance technician of therefrigerating unit. •• Reset the hour meter counter of maintenance.	•• None
66	**Ionizer Maintenance Alarm**	•• Ionizer maintenance threshold exceeded.	•• Contact a maintenance technician to replace the ionizer condenser. •• Reset the hour meter counter.	•• Poor sanitisation.
67	**Fan Maintenance Alarm.**	•• Fan maintenance threshold exceeded.	•• Contact a maintenance technician to check correct system operation. •• Reset the hour meter counter.	•• None

No.	Description	Possible cause	Possible solution	Effects
68	**Chamber Air Probe Alarm.**	•• Probe fault. •• Internal probe error, damaged or broken. •• Configuration error of the probe. •• Probe disconnected. •• Probe not used.	•• Check probe connection and configuration. •• Replace the probe. •• Contact the Supplier.	•• Impossibility to use the machine. •• Impossibility to use the adaptive defrost
69	**Evaporator Coil Assembly Temperature Probe Alarm.**	•• Probe fault. •• Internal probe error, damaged or broken. •• Configuration error of the probe. •• Probe disconnected. •• Probe not used.	•• Check probe connection and configuration. •• Replace the probe. •• Contact the Supplier.	•• Impossibility to use the adaptive defrost
70	**Resistors Temperature Probe Alarm.**	•• Probe fault. •• Internal probe error, damaged or broken. •• Configuration error of the probe. •• Probe disconnected. •• Probe not used.	•• Check probe connection and configuration. •• Replace the probe. •• Contact the Supplier.	•• Impossibility to use the machine.
71	**Product Temperature Probe Alarm (Needle Probe 1).**	•• Probe fault. •• Internal probe error, damaged or broken. •• Configuration error of the probe. •• Probe disconnected. •• Probe not used.	•• Check probe connection and configuration. •• Replace the probe. •• Contact the Supplier.	•• Impossibility to use the machine with the core probe. Only Time cycles will be performed.
72	**Product Temperature Probe Alarm (Needle Probe 2).**	•• Probe fault. •• Internal probe error, damaged or broken. •• Configuration error of the probe. •• Probe disconnected. •• Probe not used.	•• Check probe connection and configuration. •• Replace the probe. •• Contact the Supplier.	•• The device will not use •• Needle Probe 2.
73	**Product Temperature Probe Alarm (Needle Probe 3)**	•• Probe fault. •• Internal probe error, damaged or broken. •• Configuration error of the probe. •• Probe disconnected. •• Probe not used.	•• Check probe connection and configuration. •• Replace the probe. •• Contact the Supplier.	•• The device will not use •• Needle Probe 3.

No.	Description	Possible cause	Possible solution	Effects
74	**Condenser side Pressure Probe Alarm.**	•• Probe fault. •• Internal probe error, damaged or broken. •• Configuration error of the probe. •• Probe disconnected. •• Probe not used.	•• Check probe connection and configuration. •• Replace the probe. •• Contact the Supplier.	•• The device will not display some information on the user interface.
75	**Evaporator side Pressure Probe Alarm.**	•• Probe fault. •• Internal probe error, damaged or broken. •• Configuration error of the probe. •• Probe disconnected. •• Probe not used.	•• Check probe connection and configuration. •• Replace the probe. •• Contact the Supplier.	•• The device will not display some information on the user interface.
76	**Blackout Alarm**	•• Chamber power supply interruption during a cycle.	•• Reactivate power supply of the machine.	•• If the cycle is not in progress, no cycle alarm will be generated •• If the blackout lasts longer than 5 days, the machine remains blocked for 4.30 hours in order to avoid a start with refrigerant inside the casing of the alarm. •• If during a cycle in progress a blackout occurs with a duration longer than that set, a cycle alarm is generated see alarm 84.
77-78	**Pump Down Alarm, Pump Down not Terminated correctly**	•• End Pump Down pressure not reached. •• Solenoid valve not properly closed. •• Controller not powered.	•• Check the correct operation of the solenoid valve. •• Check the correct operation of the pressure transducers. •• Check the address of the	•• End Pump Down due to exceeding time limit threshold, with triggering of an alarm.
79+182	**Controller Alarm EVD offline.**	•• No communication between •• EVD and cPco controller.	•• EVD device. •• Check the device power supply.	•• Inability to use the machine.

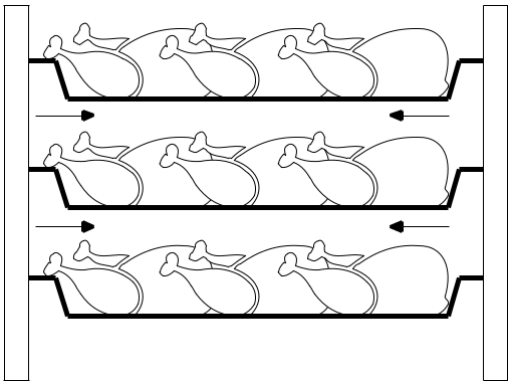
No.	Description	Possible cause	Possible solution	Effects
83	**Door Open during an active cycle alarm.**	•• If during a cycle in progress the door is opened for a time above the set limit the alarm door open is triggered. •• Door micro switch damaged	•• Check that the door is closed. •• Check connections •• and integrity of the door micro switch.	•• Blocking of the cycle in progress; •• If the alarm is restored, the cycle restarts. •• CYCLE IN PROGRESS GENERAL ALARM signal. •• If there is an external network connection, send an email alert.
84	**Blackout Alarm during the cycle.**	•• Power failure during a cycle in progress.	•• Restore electric power supply.	•• Alarm signal in the event that the blackout exceeds the time threshold set and there is a cycle in progress. •• CYCLE IN PROGRESS GENERAL ALARM signal. •• If there is an external network connection, send an email alert.
85	**Chamber High Temperature Alarm.**	•• High temperature detected internal chamber (above the set limit).	•• Check the temperature inside the chamber. If required, act to restore the chamber temperature. •• In case the problem occurs with an empty chamber, switch off the machine. •• Contact the supplier.	•• Alarm signal with fan blocking.
86	**Door Closed Alarm during defrost cycle.**	•• A defrost cycle has been started with a closed door •• Door micro switch damaged	•• Check that the door is open. •• Check connections and integrity of the door micro switch.	•• Blocking of the defrost cycle in progress.
87	**Cycle in Progress General Alarm**	•• Alarms Concatenation	•• See other alarms.	•• CYCLE GENERAL ALARM signal. •• If there is an external network connection, send an email alert.

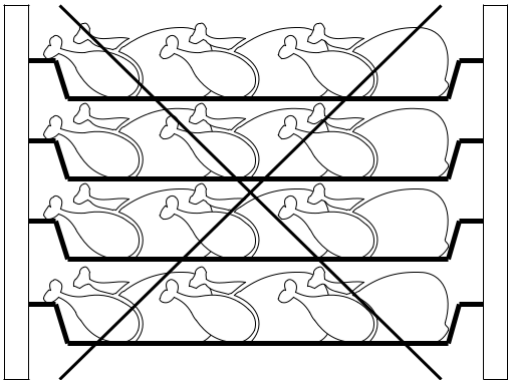
No.	Description	Possible cause	Possible solution	Effects
88	**Condenser Unit or Chamber General Alarm.**	•• Alarms Concatenations.	•• See other alarms.	•• CYCLE IN PROGRESS GENERAL ALARM signal. •• If there is an external network connection, send an email alert.
89	**Chamber High Temperature Alarm during a cycle**	•• High temperature detected inside chamber during a cycle.	•• Review cycle parameters. •• Contact Suppliers.	•• Switching off the resistors if present. •• CYCLE GENERAL ALARM signal. •• If there is an external network connection, send an email alert.
90	**Condenser Unit electric power supply absence alarm**	•• Condenser unit electric power supply absence.	•• Restore condenser unit electric connections.	•• The cycle remains in progress but there is no cold generation •• CYCLE IN PROGRESS GENERAL ALARM signal. •• If there is an external network connection, send an email alert

ADVICE ON USE

To ensure proper use of the equipment it is recommended to take on board the following suggestions:

- Place the trolley with trays inside the chilling cabinet in front of the fans, in line with the trolley guides on the fan door.
- Avoid wedging in products touching the walls of the cabinet because this would prevent air circulation that guarantees temperature uniformity inside the chilling cabinet.
- Do not load the machine above the limits established by the manufacturer.
- It is recommended to use suitable trays and conta ners with a maximum height of 6.5 cm. Ensure there is sufficient space for air circulation between the trays.
- It is possible to cover food with lids or protective layers, however the blast chilling and freezing times nincrease according to the type of cover used.
- If possible, in the centre of the tray place the product that due to its composition or size is more critical.
- When inserting the core probe pay attention not to pass the needle all the way through the product.
- Once you have finished using the Wi-Fi (if present) core probe, put it back in its holder. This operation extends the battery life.





⚠ WARNING!

To ensure proper use of the equipment it is recommended to follow these tips:

- Keep the condensing unit clean.
- Avoid obstructing the evaporator fan intake.
- Cover the foods that, due to their low weight, could be sucked into the fans.
- Reduce as much as possible the number of times and length of time the blast chiller door is opened.
- As a rule, the blast chiller should be only used for storing for a short time and not as a permanent storage device.
- To avoid bacterial or biological cross contamination between different foods it is necessary to clean and disinfect the needle after each use.
- Use protective gloves and hair net when handling the products during freezing and chilling, as well as for loading and unloading the product.

⚠ WARNING!

Personal protective equipment needed when using the machine:

NOTE

MAINTENANCE

ROUTINE AND EXTRAORDINARY MACHINE MAINTENANCE

GENERAL INFORMATION ON MAINTENANCE

To guarantee the maximum reliability and functionality of the machine and to avoid hazardous conditions, carefully follow the indications given below.

In addition, for safety reasons, all maintenance and cleaning operations described in this chapter must be performed by qualified personnel equipped with appropriate personal protective equipment.

In any case, to carry out maintenance and cleaning operations, the following personal protective equipment is required:

WARNING!

Before carrying out any cleaning and maintenance operation it is necessary to disconnect the blast chillerfrom the mains power supply.

WARNING!

The manufacturer assumes no liability for any damage to property or persons resulting from improper operations performed by personnel who are unqualified, untrained, not adequately equipped or unauthorised.

WARNING!

During maintenance or cleaning it is essential to display appropriate signs stating that such operations are in progress. Only authorised personnel during operations can access the work area.

WARNING!

Entrust the disposal of material with a high environmental impact to specialist companies.

MAINTENANCE AND CLEANING OF THE CHILLING CABINET

Routine maintenance consists of daily cleaning:

- of all the parts that are in contact with food,
- of the stainless steel parts inside the cabinet.

To be also regularly checked:

- optimal sealing of the door gasket,
- the correct positioning of the door,
- cleaning the evaporator and the tray support. Good maintenance allows better performance and longer equipment life.

For correct cleaning of the cabinet:

- Perform a defrost by leaving the door open.
- Do not use pressurised water jets to wash internal and external parts of the blast chiller.
- Do not use metal tools such as screwdrivers to remove ice or accumulated residues; if required use wooden or plastic spatulas.
- Do not use solvents, thinners or preparations containing salts, acids or any other substance that can leaveresidues that are harmful, toxic or hazardous for human health.
- It is essential to clean the needle probe of the blast chiller daily. Use products appropriate for cleaning stainless steel. It is recommended to rinse the surfaces well after having treated them with the appropriate detergents.
- Do not use solvents, thinners or preparations containing salts, acids or any other substance that can damage the protective oxide layer of stainless steel.
  It is advisable to clean stainless steel appliances with specific detergents. Do not use detergents containing abrasive powders or bleaching substances of any kind. If required, it is possible to use a mild solution of water and washing up liquid. Surfaces treated with detergent must always be rinsed with plenty of water and then dried.
- Avoid cleaning the surfaces of the blast chiller with scourers or steel wool or with water containing iron due to rusty pipes as it could trigger corrosion and compromise the protective oxide layer.
- If the machine is not being used, always leave the door open so that the chilling cabinet is well ventilated.

WARNING!

• Stainless steel should not remain in contact for prolonged periods with food products containing acids or extremely high salt concentrations such as sauces, gravies, etc. as under certain conditions they can damage the protective oxide layer of the steel. In this case, it is a good idea to rinse such surfaces with water. Maintenance and

CLEANING OF THE CONDENSING UNIT AND ELECTRICAL SYSTEM

WARNING!

• Before carrying out any cleaning and maintenance operation it is necessary to disconnect the blast chiller from the mains power supply. Also wait for the hot surfaces to cool down.

WARNING!

When replacing components, use original spare parts.

WARNING!

• The manufacturer assumes no liability for any damage to property, persons or animals due to improper or incomplete maintenance.

The most important routine maintenance operations are listed in blast chiller manual or that of the condensing unit.

The most important operations are listed below:

- Clean the condensing unit once a month by removing dust, grease and all the material that can accumulate in the suction. If the environment where the machine is installed is very dusty, increase the cleaning frequency.
- Check the electrical terminals, both inside the panel and in the terminal blocks of each service.
- Visually check the refrigerant circuit every 4 months looking for any refrigerant leaks. Such leaks can be identified by oil stains where the leak is.
- Check for refrigerant gas leaks:
  - Annually if the charge is between 3 Kg and 30 Kg.
  - Every six months if the charge is between 30 Kg and 300 Kg.
  - Quarterly if the charge is greater than 300 Kg
- If a refrigerant leak is discovered, it is necessary to intervene promptly. Check the normal refrigerant flow using the liquid sight glass. Also check the colour of the moisture indicator of the sight glass. Green indicates the absence of moisture, yellow indicates the presence of moisture. If the sight glass is yellow, stop the machine and immediately replace the filter, the refrigerant and the compressor oil.
- Also check the correct oil level using the sight glass on the compressor crankcase. In the case of a water-coo-led plate condensing unit, cleaning can be carried out with a chemical treatment by circulating inside the channels a solution that allows the elimination of organic residues present.

MAINTENANCE AND CLEANING OF THE EVAPORATOR

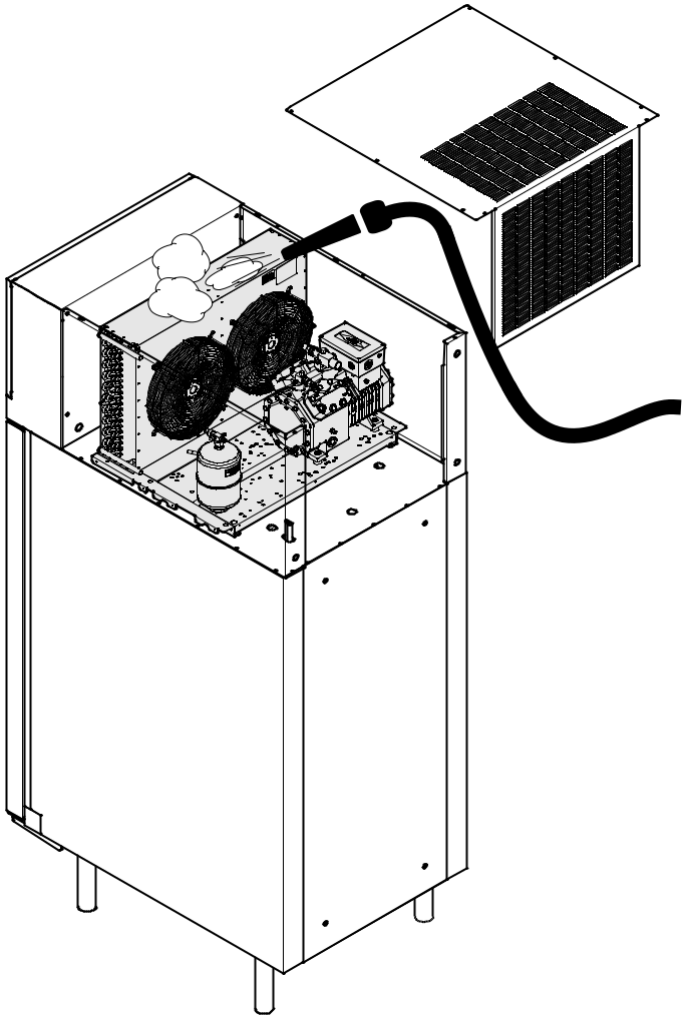
WARNING!

• Before carrying out any cleaning and maintenance operation it is necessary to disconnect the blast chiller from the mains power supply.

For correct cleaning of the evaporator:

- Perform a defrost by leaving the door open.
- Do not use pressurised water jets to wash the evaporator coil as this operation could damage the aluminium fins that make up the finned unit.
- Do not use metal tools such as screwdrivers to remove ice or accumulated residues, as they could damage the protective surface layer or the evaporator coil piping.
- Do not use solvents, thinners or preparations containing salts, acids or any other substance that can leave residues that are harmful, toxic or hazardous for human health.
- Do not use aggressive products to clean the evaporator coil (See the list of substances in paragraph: “ATMOSPHERES AND AGGRESSIVE SUBSTANCES INSIDE THE CABINET.”)

To access the evaporator, open the chilling cabinet door. Then unlock the padlockable lever of the fan doors and open them (figure **52**). When cleaning is carried out on the evaporator, pay particular attention to not bend the aluminium fins and, if present, also pay attention to the condenser of the sanitiser. The latter could be damaged by impact.



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IONISER MAINTENANCE

Ioniser units require simple maintenance which consists of periodic cleaning of the quartz condensers. Cleaning is important because it guarantees the efficiency of the devices and increases the life of the condensers.

Recommended maintenance frequency depends on the chemical composition of the air and the quantity. Lack of adequate maintenance of the device may result in operational deterioration.

The frequency of cleaning depends on the usage: 1 to 3 months, depending on the quality of the air treated. It is recommended to replace the condenser after about 8,000 hours of continuous operation or when the quartz appears extremely opaque. It is the customer’s responsibility to carry out all maintenance operations on the device. If you find a malfunction, it is necessary to disconnect the machine from the mains power and seeks the assistance of specialised personnel.

SUPPORT

The technical support service of La Nuovair S.r.l. provides:

- Telephone support regarding operations.
- Sending documentary material.

Details for contacting the support service:

Via Padania 9/C,
31020 San Vendemiano (TV) – Italy
Telefono : +379.0438.489097
Fax : +379.0438.488807
e-mail : service@nuovair.com

NOTE

NUOVAIR
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