



KW APPARECCHI SCIENTIFICI

VIA DELLA RESISTENZA 119 – 53035 MONTERIGGIONI – SIENA-ITALIA

ASSISTENZA TECNICA TEL.+39-0577-309144 FAX: +39-0577-309142 e-mail: kw@kwkw.it

MANUAL

OPERATING AND MAINTENANCE

KW

Fast Freezers for Plasma

–70°C - 80°C

SERIES KPFF48B

with controller K1PX e RTS



DIRECTIVE 93/42/CEE + S.M.I.
CLASSE IIA, REGOLA 2, ALLEGATO V

serial N°.....

REV.22_12_2020

NOTE: All the data and instructions reported in this manual refer to the models actually in production; KW reserves the right to make changes at any time, in order to obtain technical improving of the products, giving official communication only at reprinting of a new release of the manual.



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FAST FREEZERS FOR PLASMA –70°C / -80°C SERIES KPFF48B

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1. INTRODUCTION

INSTRUCTION MANUAL USE AND MAINTENANCE "KW"



*In compliance with the Directives 2006/42 / EC - 2004/108 / EC -2006 / 95 / EC
- 2014/34 / EU - 2007/47 / EC - 2014/68 / EU*

In the design and construction of the equipment, the essential requirements of Directive 89/392 and subsequent updates have been respected, with reference to the following standards: Law 791 / 77- EN 60204/1 -CEI 66-5.

The KW APPARECCHI SCIENTIFICI S.r.l., with the prestigious "KW" brand, whose creation and dissemination dates back to 1953, operates in the field of biomedical and scientific research.

Since 1979, the Management of the Company has concentrated all the activities (commercial, administrative, production and technology research labs) in the current headquarters located in Via della Resistenza, 117-119 - Le Badesse-53035 Monteriggioni - Siena.

At present, the company has a staff of about 20 units, including specialized technicians, employees, workers, engineering and biology consultants, and is present in both Italy and abroad with a sales network consisting of scientists and retailers as well as A qualified service network.

KW's commitment to the manufacture of machines to serve the new biological techniques is achieved through the synergistic effect of innovations in manufacturing and marketing processes, use of microelectronics, constant investments in applied thermodynamic research and integrated control systems ; This allows the user to offer a highly ergonomic, high-tech product range; And to have a high dynamism of the KW structure, with particular reference to:

- quality of the company - product safety - product reliability - eco-compatibility of the product.

1) refrigeration

-conductors with T operating up to -130 ° C, both horizontal and vertical, suitable for the preservation of any biological material and cold tests of various types.

Refrigerators (including T combined) for the storage of sera, vaccines, various biological materials, medicines, etc.

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- refrigerated cabinets for gel filtration and cold chromatography techniques.
- frigoemoteche
- centraline for refrigeration of liquids
- 2) Controlled T-environments
- stufe with T range up to + 250 ° C
- stufe with paraffin
- refrigerated thermostats with forced air circulation and with water heaters
- growth cells with T control and photoperiod and chambers of germination
- CO2 incubators with % CO2 control with IR electronic analyzer
- Precision thermostatic bags
- bagnomaria with oscillating / linear stirring.

1.1. General informations

The recommendations, below, should be read carefully by the user, as they provide important information regarding the safe installation, use and maintenance and eventual disposal.

Before using the equipment it is necessary that employees are educated about the contents of this instruction manual, use and maintenance.
Keep this booklet for future reference.

General Advises for the users of the machine



*obligation to read
the instructions*

This manual is an integral part of the machine / equipment and should be consulted by the operator, dall'addetto maintenance and responsible security and possibly by the department manager before making available the machine / equipment.

This information is the property of KW Scientific Instruments terms of the law strictly forbids it to reproduce or communicate them to third parties without explicit permission.

This manual can not be altered or changed in any of its parts by the purchaser penalty invalidation of the warranty granted and the assumption by the purchaser of all the civil and criminal liability arising from damage caused to people and / or things.

KW Scientific Instruments reserves the right to update production and manual, in a policy of continuous improvement of its products, without the obligation to update previous production or manuals except in exceptional cases.

The manual being considered an integral part of the machine / equipment must be kept in good condition until the final disposal of the machine / equipment. This manual should be kept in a safe, dry place, away from direct sunlight and must always be present, for consultation, near the machine / equipment itself.

The machine / equipment must not be put into service, or made available without the successful reading of the attached documentation, penalty invalidation of the warranty granted and the assumption by the purchaser of all the civil and criminal liability arising from damage caused to people and / or things.

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If some photos or drawings are not consistent with what has been delivered is likely that the pictures or drawings relate to a different machine configuration, contact the service center.

This manual reflects the technical knowledge available at the time of commercialization of the machine / equipment and the legislative requirements of national and international safety and hygiene regulations at the time of commercialization of the same; such later technological innovation, it does not affect the validity provided that the owner always checking the compliance of the system to future laws provisions.

1.2. Terms and definitions

In compliance with the Machinery Directive this documentation contains important information, knowledge of which we consider essential for both the operator and the attendant assistance, in order to be able to operate in conditions of safety.

Just as widely used terms, we consider essential explain clearly the meaning given to:

Term	Description
Operator	Person responsible for operating, adjusting, to attend to the routine maintenance, to provide for the cleaning of the machine.
Support Attaché	By skilled, specially trained and certified to carry out extraordinary maintenance as well as repairs that require a thorough knowledge of the machine, its operation, safety devices and related methods of intervention.
Dangerous area	Any zone within and / or around the machine in which the presence of an exposed person constitutes a risk to the safety and health of the same
Exposed person	Any person who has entirely or partially in a danger zone .

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1.3. Technical features

Number of pockets:	48 of 450 bags filled with 250 ml 16 of 1000 nags filled with 650 ml 12 of 1000 filled with 800 ml
Type: horizontal / vertical:	Horizontal
maximum cm External dimensions:	178 (L) x 90 (P) x 125 (H) cm.
Level loading surface plasma bags:	cm.117/H
Preset temperature (° C):	-70 / - 80°C
Weight (kg):	400
Wells Interior (N°.):	12
cockpit Dimensions (WxDxH) mm:	529 x 49 x 269
Doors:	1
door:	Solid
Max. Absorption:	10A
Ability to set the operating temperature (yes / no):	YES
Power:	400V 3N 50Hz
Gas Stage I:	R452 A (Charge 5kg)
Gas Stage II:	R508 B (Charge 3kg)

2. INSTALLATION

A) after having removed the packaging, make sure the product. If in doubt do not use the appliance and contact a service center technical assistance - tel.0577 KW / 309,144.

B) All the packaging materials used, the new device can be disposed of without risk. The board can be crushed and intended to waste for waste paper; the blades are free from polystyrene fluorocloridrici hydrocarbons and the bandage is branded nylon: these substances can be recycled, if delivered in a relevant collection point (ask all'Amm.ne Municipal).

C) The installation must be done according to the instructions of the KW Scientific Instruments srl by professionally qualified staff. Incorrect installation can cause harm to people, animals or things, for which the KW App. Science can not be held responsible.

D) The electrical safety of this equipment is guaranteed only when the same equipment is correctly connected to an efficient earthing system as specified by current electrical safety standards. And 'necessary to verify this fundamental safety requirement and, if in doubt, ask for an accurate control of the system by professionally qualified personnel. The KW App. Science can not be held responsible for any damage caused by the lack or inefficient earthing system.

E) Check that the electrical capacity and current sockets suit the maximum power indicated on the plate. If in doubt, contact professionally qualified personnel.

F) The use of any electrical equipment involves the observance of some basic rules:

* Do not touch the appliance with wet or damp hands or feet

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- * Do not use the appliance with bare feet
- * Do not use extension cords, except with special caution (and upon notice and authorization to ASSIST SERVICE. CENTRAL TECHNICAL).
- * Do not pull the power cord, or the same equipment, to pull the plug from the socket
- * Do not leave the equipment exposed to atmospheric agents
- * Do not allow the equipment to be used by people unable, without supervision
- * The fixed guards (solidly to the structure) connected fixed guards must remain in their seats, properly secured and in good working operations during all operations related to normal operation.

Before carrying out any cleaning or maintenance, disconnect the unit from the mains power supply by pulling the plug.

* In case of failure and / or malfunction, please contact your authorized technical assistance: for any repairs require the use of original spare parts. Failure to comply with the above may compromise the safety of.

2.1. Place of installation

Place of Installation: The device **MUST** be installed in the workplace and then to thermal and climatic conditions suited to being Human.

Not OUTDOOR installations and exposed weathered wings are permitted, the device adapts the installation a dry and ventilated area. The place does not **MUST** Be In direct sunlight and not **MUST** Be Near A Source Heat come a heater, a stove, Another Apparatus for dissipating heat (sterilizer, autoclave, etc.).

Particular attention should be given to the location:

One leave space of about 250 mm. At least, behind and above the refrigerator unit to allow air to move freely.

The heated air on top of the device **MUST** be able to flow without obstacles.

Not so you will have to block, in any case, The ventilation space between Apparatus coolant and the wall or ceiling.

The temperature of the room **MUST** be not less than 10 ° C or higher: 32 ° C to avoid compromising the operation Adjust.

The humidity and the atmospheric pressure will be those provided for job environments, with values of relative humidity rH comprised between 40% and 60% and normal atmospheric pressure (1013.25 mbar nominal)

The appliance must be installed in a fixed manner and level;

any unevenness in the floor will have to be offset, at your own risk.

Particular attention should be given to location:

leave a space of about 250 mm. at least, behind and on the side of right front of the cooler to allow air to circulate freely through the exchangers. (See photos

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below)



The heated air on the back and on the lat. Dx ant. the device must be able to flow unhindered.

So it will not obstruct, in any case, the space between the ventilation device and walls or ventilation grilles or heat exchange surfaces.

The appliance must be installed in a fixed manner and level;

any unevenness in the floor will have to be offset, at your own risk. The device is also equipped with wheels for easy movement.

NOTICE

This is a Class A product; in a domestic environment this product may cause radio interferences; in such cases, the user may have to take adequate measures.

ELECTRICAL CONNECTION:



Tensione elettrica
pericolosa



Connect the power cord into an outlet 32A straight steering wheel (400V 3N). Connect the corresponding socket framework in compliance with the regulations in force block. Even in the case of three-phase power supply the equipment has a circuit breaker, which must be activated after the connection to the workshop electrical panel.

ATTENTION



During installation make sure that the blood bank refrigerator is always permitted EASY PLUG FROM THE EXTRACTION OF ELECTRIC POWER GRIP

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GROUNDING INSTALLATION IS A MANDATORY SAFETY STANDARDS FOR LAW.
THE NS. NOW HAVING PREPARED IN ACCORDANCE WITH THE RULES IN
FORCE, THIS CONNECTION, DISCLAIMS ALL LIABILITY FOR DAMAGE TO
PERSONS OR PROPERTY.

2.2. Service technical assistance

The technical support of the equipment on the national territory is done through a maintenance service, both directly, either by authorized technical assistance centers spread across all regions of Italy.

The center operates in Monteriggioni (Siena), Road 119 -53 035 Resistance
 tel. 0577-309143-5 Fax 0577-309142 e-mail: service@kwkw.it

3. SAFETIES

3.1. General informations

The proposed machine / equipment has been constructed taking into account possible risks that it may cause during her lifetime.

Staff should be aware of the residual risks, about the precautions to be taken and the general accident prevention rules to follow and respect, so the operator:

- It should be properly trained
- Must Read and understand these instructions; if he had no reading skills will have to be informed verbally related to this manual information
- It must have grasped the concept of responsibility and competence



*obligation to
read the
instructions*

Machinery / equipment shall be conducted and managed exclusively by professionals who have read and heard the instructions.

Fully respect the instructions, procedures, warnings and general rules to follow in this manual.

The unauthorized tampering / replacement of one or more parts of machinery / equipment, the use of accessories, tools, expendable materials other than those indicated by the manufacturer, can be a real danger of an injury.

3.2. Intended uses, not provided for, incorrect, warnings

In order to maintain safety conditions, the operator must always be careful:

- Do not tamper for any reason none of the parts of the machine
- Avoid the presence of people not related to operations of the machine



warning

To better avoid the risks present, the operator, and to all persons other than workers, are required to become familiar with the machine / equipment so that we can better assess the correct functionality and notify us immediately of any anomalies;

not distracted during the execution of maneuvers and / or of other activities on the same machine and / or parts of it, in order to ensure their safety and any other persons exposed, while preserving the machine / equipment from possible damage .

3.3. Types of protection and safety devices

And the machine equipped with guards and Safety Devices for Prevention of accidents at work in compliance with applicable laws.



*No
ch
of the manual.*

Removing or tampering with safety barriers causes the assumption by the operator or dell'addetto

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warning

assistance, all the responsibility for the dangers that may arise and / or ensue.

Removing or tampering with safety barriers causes the assumption by the operator or dell'addetto assistance, all the responsibility for the dangers that may arise and / or ensue **KV Apparecchi Scientifici** da ogni responsabilità o coinvolgimento legale in caso di incidente.

3.4. Risks residues present during the various stages of work

During the design and manufacturing stages have been taken all measures to eliminate or reduce the risk to the user of the machine, but only the intended use of this manual can make effective these measures.

The risks can not be eliminated, or residues, are those arising from incorrect use of the machine whose probability of occurrence is limited only with proper training and information for operators.

3.5. DPI Required for installation and maintenance

The clothing and PPE (personal protective equipment) of those who work or perform maintenance on the machine / equipment must be in compliance with the essential requirements of applicable safety in their own country, as indicated in the EEC Directive 89/656 and 89/868 on the use of personal protective equipment.

For installation and maintenance phases require the use of the following DPI:

Gloves against mechanical agents	Protective glasses	Safety Shoes
		

The installation must be done according to the instructions of the KW App. Scientific srl by professionally qualified staff. Incorrect installation can cause harm to people, animals or things, for which the KW App. Science can not be considered responsabile.

3.6. INTENDED USE OF THE EQUIPMENT

This equipment must be used only for the purpose for which it was designed, ie for rapid freezing, with very low T, the plasma bags of 450 ml. (and / or 1000 ml) and / or of a material with a similar geometry and the same heat capacity mass and still water-based.

Any other use is considered improper and therefore dangerous.

The KW App. Science can not be held liable for any damages resulting from improper, incorrect or unreasonable.

4. START

The device has already been tested at the factory, and then, once positioned and properly connected to the power grid, can now be switched on (unless the information previously reported). First remove from inside the envelope containing the instructions and the keys, remove the protective cap of the nib of the disk temperature recorder (if present).

If it is instead installed a video recorder chart, see the section.

After connecting the unit to a suitable power outlet, as described above, operate the key switch "O / I", make sure the digital electronic temperature controller has the set in September to at least -70 ° C (is the T

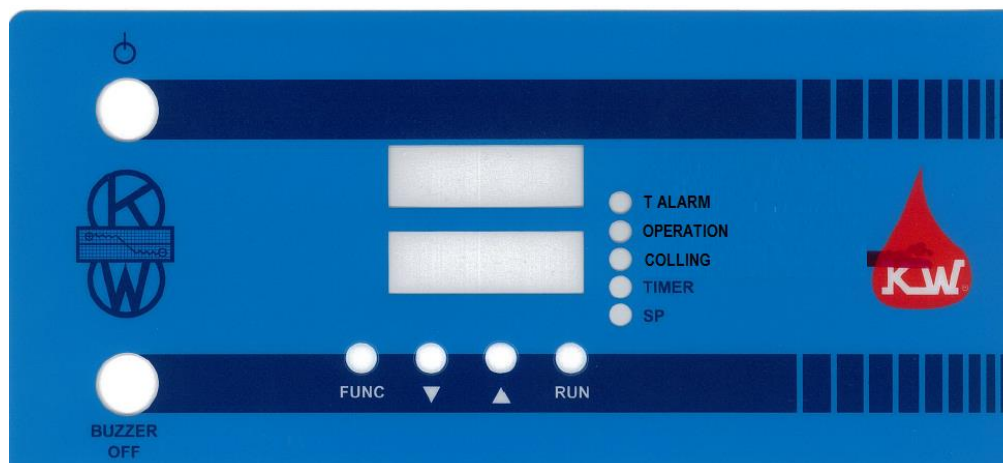


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recommended).

In order to make the appliance work better, the freezer will start to cool just after a pre-heating time of about 30 minutes.

After a few moments the Home screen appears, with its display of the set temperature, in red on the lower display and the indoor temperature, on the upper display and the unit will begin to cool as well. The user will see the red led and COOLING OPERATION



RED LED ALARM T, indicates T min / max alarm conditions

OPERATION RED LED will light along with cooling only when it is below the warning threshold

RED LED COOLING, indicates refrigeration in place

TIMER RED LED indicates function inserted thermal cycle (in progress)

LED YELLOW SP, indicates that you are changing the set point

It is advisable to start using the appliance at least 16- 24 hours after the first engine, or when you reach full stability of the internal T of freezing and storage rooms

INDICAZIONI DI CARATTERE GENERALE PER UN USO CORRETTO DEL CONGELATORE RAPIDO PER PLASMA - 70°C 80°C



The T in the room should not exceed + 30 °C; T max permissible + 32 ° C, but for limited periods; the unit also works with higher T, but in very difficult thermodynamic conditions.

WARNING: the local MINIMUM temperature must not be less than 10 ° C, otherwise the unit may not work regolarmente and reach out to potential failures

The operation of the machine is not affected by atmospheric pressure values or in that of relative humidity, it is considered, however, that the unit has to work in a closed environment and climatic conditions comfortable for operators!

The rapid KW freezer is equipped with a safety (pressure switch KP17W) on the refrigerant circuit in protection against the overpressure of the compressor and its intervention indicates to the user abnormal conditions in heat exchange; if this device were not there, in a short time, in incorrect conditions, as described above, we would have the fault to mechanical breakage of the compressor with consequent significant maintenance costs for the user and for the machine downtime inconvenience; **reconnection is automatic**

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every time the pressure switch the system fails, the compressor of the first stage stop, a first beep the: alarm goes off warning of what (and disappears to the automatic pressure switch on again); Later, with the rise of the internal T also activates the T max audio visual signal (red LED ALARM T) and therefore it is essential that the user as to prepare to receive the signal at any time of day or night. For this purpose, there is on the back of the freezer with a pin-free contacts, for the remote control signal (remote to be made by the user). Call KW assistance to additional useful information to the permanent remote alarm signals. **IT IS RECOMMENDED TO USE USERS (and connect to the installation) ALWAYS THE REMOTE SYSTEM OF ALARM SIGNAL** that launches the Panel alarm device; ie you must repeat the signal into a room used as housing, (if there is 24 h custodial staff of 24 h), or in another room where they stay with continuous frequency in the 24 hour medical or paramedical staff, trained for this purpose; or you can even connect the alarm system to a telephone dialer for remote alert the user.



The room where is located the instrument must therefore have an adequate air exchange.

through a natural circulation or, better, a forced circulation, with air conditioner / air conditioner; if T is close to + 30 ° C, it is necessary, for the warmer periods, however, include the use of an air conditioner / air conditioner act to remove the heat transferred from freezer => average reference value around 1000/1200 W.

Moreover it is absolutely necessary that the user respects the timing and the cleaning mode of the condensing surfaces, to avoid the occurrence of the machine block, described above.

The rapid freezer KW - 80 ° C is a horizontal structure, and which allows for repeated opening and closing of the door, without significant leakage of cold air and no significant increase in the internal T. Moreover, for the reasons set out above, it is very ergonomic, since. it is sufficient to equip the lab staff. protective gloves (compliant with Directive 89/686 / EEC of IPR and to EN 511) against low T, for the loading and unloading of plasma bags.

Pay attention to the DOOR: operate in a way that it remains open only for a few minutes, during the introduction and removal of the material; MAKE SURE is securely closed PROPERLY AND TO DO SO 'ALWAYS CLOSE KEY after a download. The unit is supplied with two keys, one of which must be placed in a safe place, in case of loss of the other.

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IF, TO MAKE THE OPERATIONS OF DISCHARGE, THE DOOR SHOULD REMAIN OPEN FOR LONG ENOUGH TIME TO RESULT IN L 'RAISING THE INTERNAL TEMPERATURE AND' NECESSARY TO CLOSE THE DOOR AND WAIT UNTIL THE INTERNAL TEMPERATURE INDICATED RETURNS TO THE FINANCIAL VALUE (-70 ° C OR LESS) BEFORE MAKING A NEW LOAD.

It, we recommend USERS TO USE (and connect to the installation) ALWAYS THE REMOTE SYSTEM OF ALARM SIGNAL, that launches the Panel alarm device; ie you must repeat the signal into a room used as housing, (if there is 24 h custodial staff of 24 h), or in another room where they stay with continuous frequency in the 24 hour medical or paramedical staff, trained for this purpose; or you can even connect the alarm system to a telephone dialer for remote alert the user.

KW is also willing to examine the possibility of installing a wireless sensor network in the destination laboratory. For further information about asking KW Commercial Office tel. 0577-309144 or send a message to sales@kwkw.it or management@kwkw.it.

-install at least one of T recorder with independent probe from the appliance control system (also to KW catalog in different more or less sophisticated versions), **able to describe the trend of T seamless** (purches 'controlled regularly report on battery power).

In this regard is provided in kW the following solution:

- RTS TOUCH recorder (to monitor the freezing cycles)

Complete with:

- Software to View and download the charts of the cycles to PC via USB or Ethernet **
- coded bags via barcode reader.*
- On request it is possible to encode PC.*
- 1 probe monitoring PT100 Inside House*
- 3 probes PT100 to enter pockets Champion to monitor each Freezing cycle with special connector, the device is designed to n° 6 sample probe inputs located on the back of high control panel area*
- On request it is possible to have the probes with Accredia certification.*

** The connection can be effected via the RJ45 port, the connector is used in particular for the wiring of local networks according to Ethernet standards, placed in the rear part of the freezer behind the control panel, (below the sample probe connector panel).*

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RTS-System

Rapid freezer for Plasma on contact

Ver. 1.0 - Rel. 2407141845



The user must therefore be aware of the need for continuous monitoring of equipment (even at night and on public holidays), to have the time to transfer the material to another device.

Short description

REFRIGERATOR FREEZER LOW TEMPERATURE
MOD. K. - KPFF48B SERIES
for temperature from -50 to -85 ° C
TEMPERATURE OPERATING BASE - 70 ° C / - 80 ° C

««««««««««««««««««
« CFC FREE »
««««««««««««««««««

Equipment free of chlorofluorocarbons and other substances harmful to the ozone layer and the environment.

In compliance with Law 549 of 28.12.1993

5. FAST FREEZERS FOR PLASMA ON CONTACT

Model KPFF48B

External dimensions: 178 (L) x 90 (P) x 125 (H) cm.

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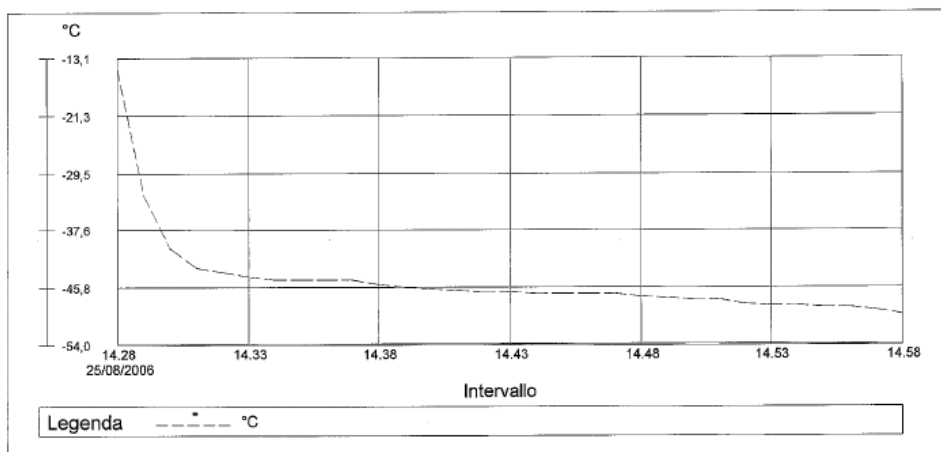


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K = Kalt **P** = Plasma **F** = Fast **F** = Freezer **48** (number from 450 ml bags.) **B** = Bags
KW offers a satisfactory solution, however the technical recommendations and standards in force, some of the plasma bags freezing times. The principle of heat exchange adopted, in this case, using a bath DIRECT CONTACT OF BAG with surfaces at about - 75 ° C - 80 ° C. The bag of plasma, to be frozen, is fed, in a vertical position, in wells where the walls are to - 75 ° C at least. The geometry of the wells is slightly frusto-conical, to facilitate the extraction and the formation of the solid bag, without any impediment to the increase in volume which occurs in the passage of state from liquid to solid. The bag is in contact with the cold walls and so the extraction of thermal energy is very intense, thus minimizing the freezing time: **<60minutes to 48 standard 450 ml bags. nominal, with a net content of the plasma of at least 250 cc. approximately and an initial temperature of the bag between + 25 ° C and + 30 ° C. KW has performed tests with bulk bags 260 gr. one.** The following are freezing curves (temperature - time) with the T probes placed both at the heart of the bag and in the freezing wells.



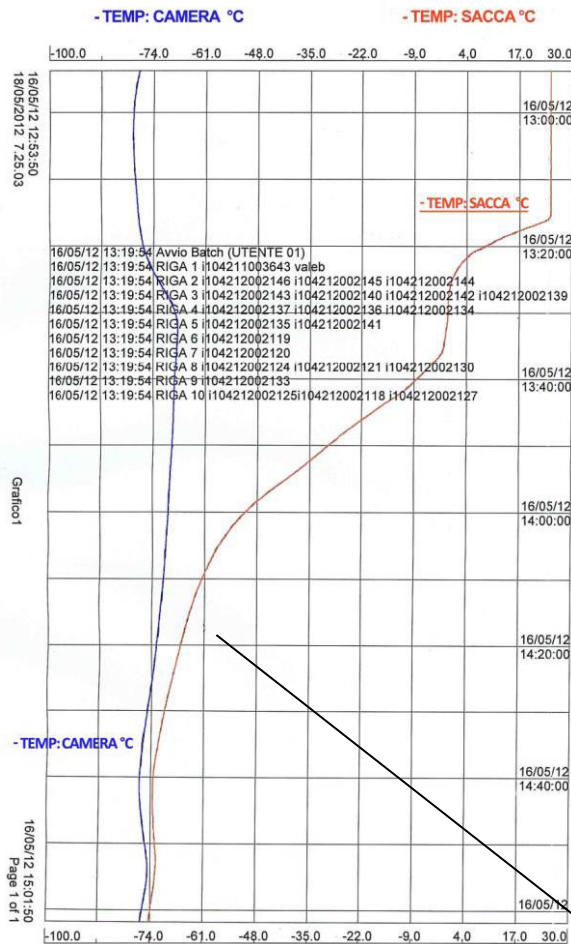
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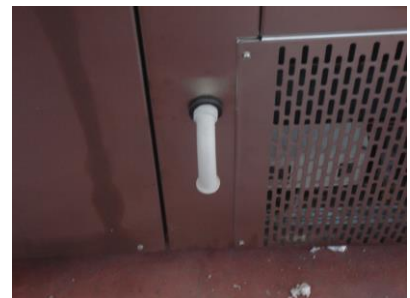
touch screen recorder curves

The storage solution in vertical wells are met, in fact, all the advantages of the chest freezer in low T, leaving prejudice to the vertical arrangement of the bag of plasma. The surface of the wells is smooth stainless steel, without edges, and therefore allows safe storage against shocks and against accidental tearing of the bags; also allows to download any escaping liquid for breakages, from the bottom, or the subsequent condensation to a stop for thawing and maintenance of the freezer, to means of discharges (one per well),

all collected and tributaries in a single outer tube.

Furthermore, the freezer box solution maintains the following advantages:

minimum alteration of the internal T during the loading phase of the plasma bags is minimal since the cold indoor air displacement, which tends to remain on the bottom of the wells: this guarantees a good cooling -



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freezing during the next contact bag - wall cockpit; it also minimizes the formation of ice, thus lengthening the intervals of thawing and drying.

- Ease of placing the bags because the operator does not feel the intense cold of the wells



adapter for 450 ml pouches.

- Minimum formation of ice in the area around the wells and nothing in seals, for minimal maintenance and an absolute guarantee of maintaining the constant temperature of $-75 / -80^{\circ}\text{C}$.
- Load A height very easy for the operator, without the introduction of any limb at very low T
- Minimum energy consumption for the same thermodynamic performance, thanks to the high insulation and to the horizontal position of the wells at -80°C .

5.1. STRUCTURE

inner case, consists of 12 wells (in KPFF48B model) stainless steel AISI 304 (AISI 316 on request) with rounded corners for easy cleaning; the external cabinet is in stainless steel AISI 304 satin, the door is painted anmche for purely aesthetic reasons; the insulation is in polyurethane resins CFC and HCFC free, expanded in situ, with a density of 40 Kg./mc. and with a thickness of over 175 mm .; the door is mounted on hinges with ABS covering (balancing systems for horizontal models).

The seal is triple silicone rubber with welded seams, heated by the refrigerant itself and virtually unlimited life. The handle has a very ergonomic design and is equipped with lock and key.

The KW guarantee on the part of the steel structure, is for life.

5.2. REFRIGERATION

The coolant system is fully sealed; it uses a cascade circuit, in innovative components and fluids in order to achieve, together, maximum reliability and maximum cooling performance; with n. 2 very quiet hermetic compressors (value Leq dB (A) <62; more than three meters <55), high-capacity cooling, equipped with protections magneto - thermal and a maximum condensing pressure control (auto reset): total reliability and no fault 1st stage; immediate detection by the user with ease of recovery of the good operating conditions. The condensation surfaces of the 1st stage (air and thermal yield superior to 5000 Watt, with room T + 25°C), are very large (with running tubeless exchangers) to meet the most stringent environmental and working conditions. So it is also for the second stage, with more exchangers, both air, for desuperheating, that countercurrent, between the two fluids in biphasic conditions, for condensation of R508B. The expansion of the refrigerating fluids is obtained through special thermostatic valves; that modulate the mass flow of refrigerant; the

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evaporator is constituted by a serpentine copper tube connected - heat - the entire external peripheral surface of the freeze wells. The solution, combined with the use of tanks for refrigerants, ensures:

- a large reserve of liquid, resulting in a prompt response to the cooling request at the time of introduction of the bag and thus a high cooling capacity (very fast cooling)
- a high uniformity of the internal temperature.

All the thermofluidodynamic circuit is made for the purpose of maximum functionality (efficiency, reliability) and of maximum ease about the maintenance operations, and especially for maximum safety of the operators and the environment, by means of interstage thermostats, pressure switches and HP LP, etc. etc.

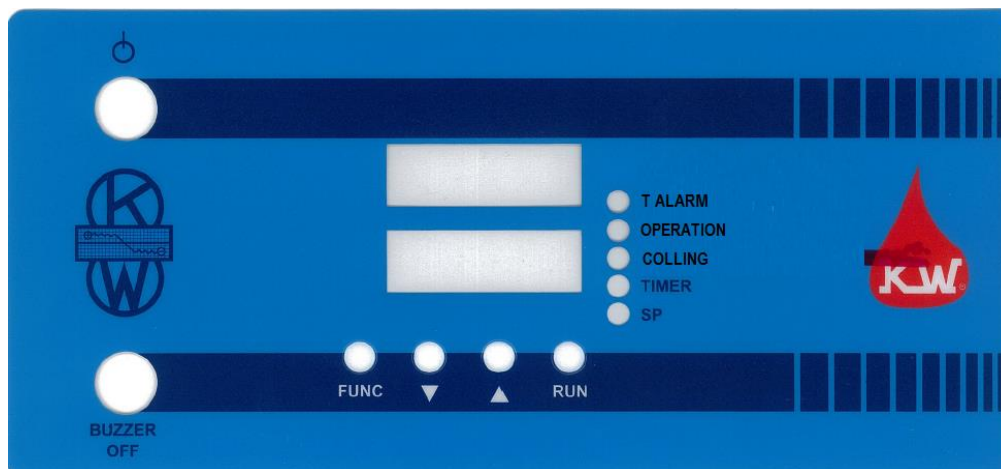
The refrigerants used are non-toxic, non-flammable, non-explosive and ecological (maximum respect for the environment) HC free, CFC free, HCFC free (ODP = 0 Ozone Depletion potentially).

R452A in the first refrigeration stage

R508B in the second refrigeration stage

5.3. TEMPERATURE CONTROL AND CONTROLS:

The electrical control system is operated by key switch (removable in both positions) for maximum safety in the management of the machine; the power of the message is shown from power LED display. The internal T regulation is managed by a control panel that includes:



- a digital electronic controller uP, with LED display with both T set and the values of T present value, with an adjustable hysteresis, for ON / OFF action.

The temperature sensors are used RTDs Pt 100 Ohm, Classée A, placed almost in the air. You can read the process T (the current one in the freezing wells) in the upper display, while the lower one can check the adjusted set point.

Alongside the above display, there are some functional leds:

- T ALARM indicates that the process value is outside of the acceptable range of T, from the set point; alarm issue of T min / max: Tset +25 ° C, by default. This alarm is both optical and visual and can be silenced by pressing the small button BUZZER OFF. The alarm visual indication (red LED on) remains as long as the system does not come out of the alarm condition.

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- OPERATION indicates that the unit is working when you turn a cooling only when it is below the warning threshold (the cooling system is working)

- COOLING indicates that we are facing the cooling (the cooling system is working)

- TIMER indicates that it is in place, the set interval (set by the user) freezing. Pressing on FUNC twice will appear on the display at the top of the bill at 60.00 minutes timer, while in the bottom remains the indication of the process T in the wells. When the cycle is finished, or when the time set by the user has elapsed, you will see the End visual signaling on the lower display

N.B. WHEN ON THE TIMER LED ON THE T ALARM, AND 'AN ALARM THAT VIRTUAL will switch off' AT THE END OF THE CYCLE

5.4. POWER FAIL

Fast freezer for Plasma also has an audible alarm Power failure powered by its own battery (battery life estimated in about 3 years) 12 Vdc 1.2 Ah that recharges automatically return of AC power, using a switching power supply. The buzzer can be silenced, pressing the small button BUZZER OFF.

5.5. REMOTE SIGNALS

All alarms are integrated and connected to a remote signal repeating units, including socket and its pin (5A), ready for wiring according to user requirements (ringtones and visual signaling devices in laboratories, tele units - alarm, etc.).



5.6. ACCESSORIES

(available on request)

- Open door alarm
- tele Device - Alarm
- Disk recorder with weekly cycle with battery supply 1.5 Vdc
- Strip electronic recorder - chart in one or more tracks
- electronic video recorder with complete management of the loading plane, both as regards the codes of the stored bags, both for the T-time diagram of the freezing cycle; possibility of a single document printing, downloading with memory card or a USB port, or Ethernet, etc.
- Network extra water condensation device with barostatica automatic valve, for the optimization of water consumption
- Internal Temperature sensor for connection to external acquisition system and recording T
- Internal wiring holes - external \varnothing 25 mm. with outer cap rubber or plastic material
- Electrical system modified for three-phase power connection 400V 3N 50Hz
- Park / crushing sacs in rapid plasma freezers and KPFF24B KPFF48B

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With freezer turned on and without activation of the cycle, and / or off with a freezer compartment, the system always remains open, both the door is open, that the door is closed.

And it is impossible to close, even accidentally.

freezing cycle

When the freezer is at a temperature set point, and then the insertion of the bags into the wells,

the operator must close the door and start the freezing cycle by pressing the RUN button (in the control panel) for 3 sec. : The start of the cycle is indicated by a red LED TIMER; simultaneously start of the cycle, and with the door closed (necessary condition), it also activates the positioning motion / crushing of the bags; that is activated with a slight delay, configurable, about 5 to 8 sec.

If you open the door during a cycle, the system is closed.

If you wish to reopen the system in question, it is necessary to have the door closed and simultaneously disable the cycle, pressing the RUN button again (in the control panel) for 3 sec.

freezing cycle end

When the countdown timer is completed, the system automatically opens again, even with the door closed.

The operator, by opening the door, can withdraw the bags

5.7. POSITIONING OF BAGS

in freezing wells and their extracion



In carrying out these operations it is mandatory to use protective gloves to control the low temperature to prevent damage to cooling and freezing fingers.

**Wells can contain from 450 ml bags. or 1000 ml bags. ;
max thermal capacity guranteed with
48 standard bags filled with 240/260 ml =11,52 / 12,48 liters of
plasma by plasmapheresis
or 16 of 1000 ml bags filled with 600/650 ml. = 9.6 / 10.4 liters of
plasma**

or 12 of 1000 ml bags filled with 800 ml = 9.6 liters of plasma

For 450 ml bags. you should use the appropriate adapters (aluminum alloy) for the best possible frozen form: max uniformity in the thickness, and therefore minimum thickness equally distributed over the entire length of the bag.

See Pictures attached

The procedure is as follows: (see the figure on the next page)

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- It introduces the adapter / deflector inside the single well (1 adapter / deflector for n. 1 well), paying attention to his posizionamento on the edge of the recess, as shown;
- Then introduce the bags to freeze, making sure to use the media for most pockets piccole (450 ml.) So they do not fall on the bottom of the well; for those of 1000 ml. no support is necessary (see photos on the following pages)
- Finally moves the deflector / adapter affinché crush the bags against the walls of the wells, so as to ensure the maximum uniformity in the pockets of the same thickness

see Figure and photos next



Bag after freezing

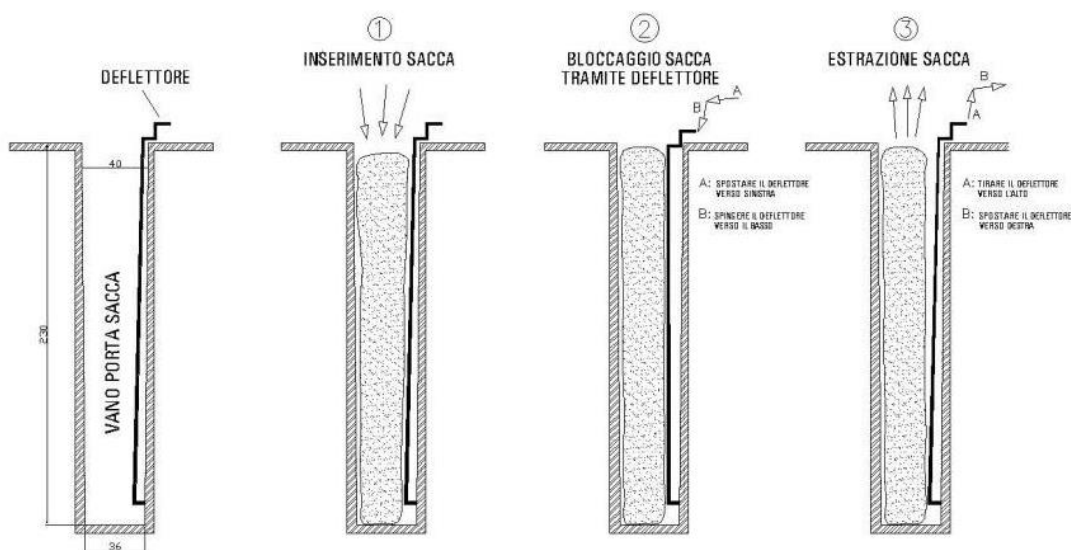
- at the end of the freezing, it must move in the direction opposite to the previous phase, the baffle / adapter, to free up space and extract the bags one after the other.

DIMENSIONS OF THE BAGS:

standard 130x190 bag (h) + 50 (h) mm. pipes nominal volume 450 ml max.

bag plasmapheresis 130x300 (h) + 50 (h) mm. pipes nominal volume max 1000 ml.

GUIDE TO THE CORRECT INSERTION OF THE BAGS AND THE LOCK THROUGH THE DEFLECTOR



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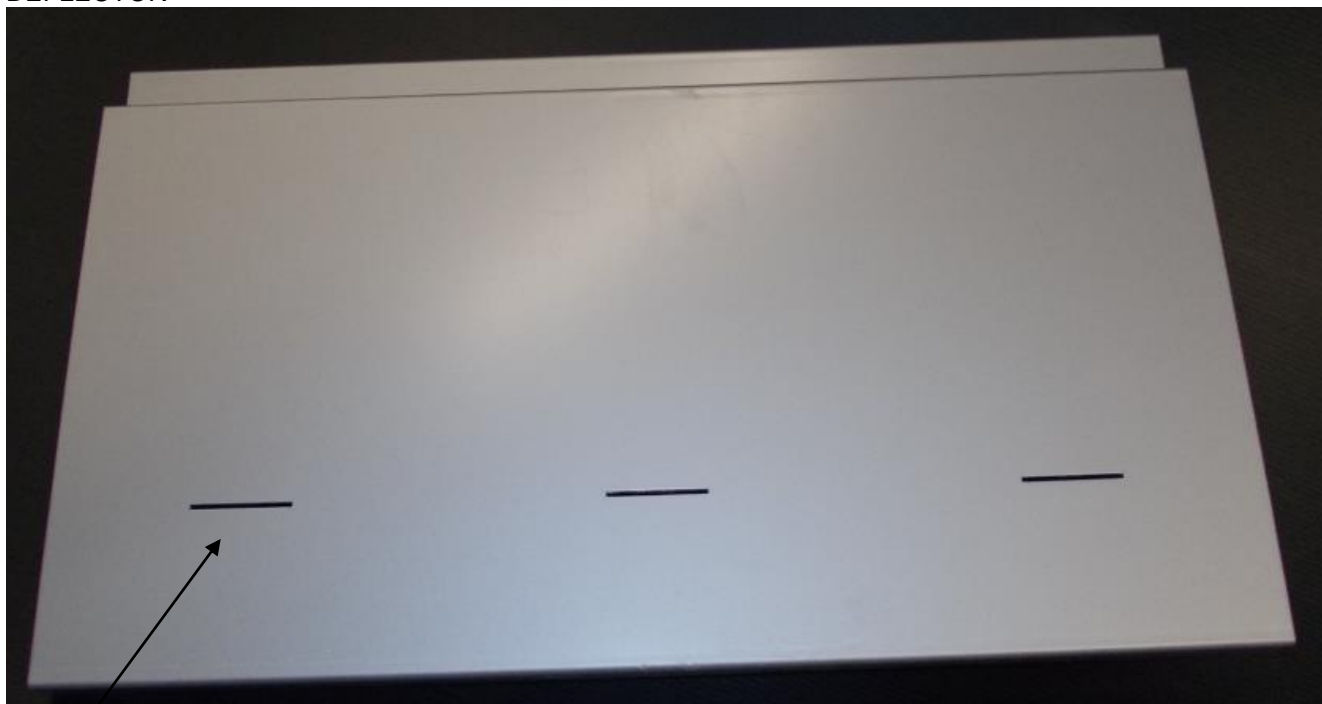
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POSITIONING IN BAGS DEFLECTOR

DEFLECTOR



Slots for the insertion of the support for the 450 ml bags.

BOTTOM DEFLECTOR (AS FOUND IN THE PACKAGING)



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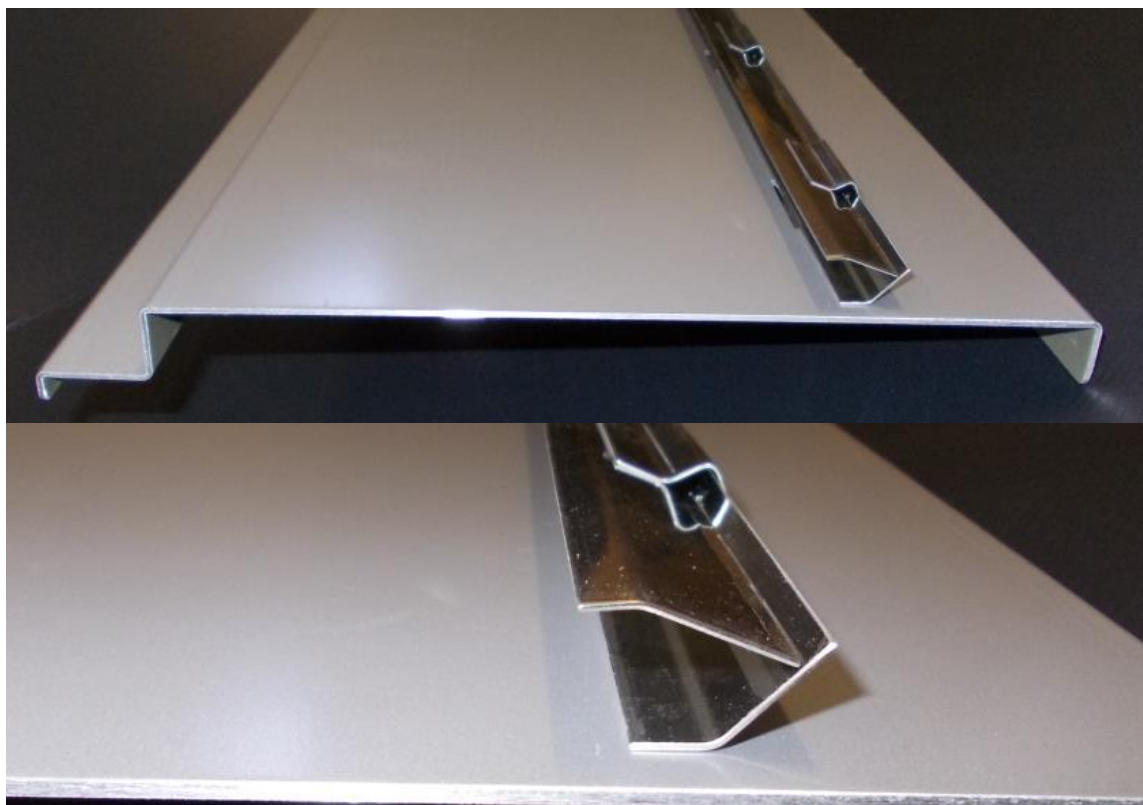
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POSITIONING IN THE LOWER DEFLECTOR



Support inserted in the slots of the deflector / Adapter



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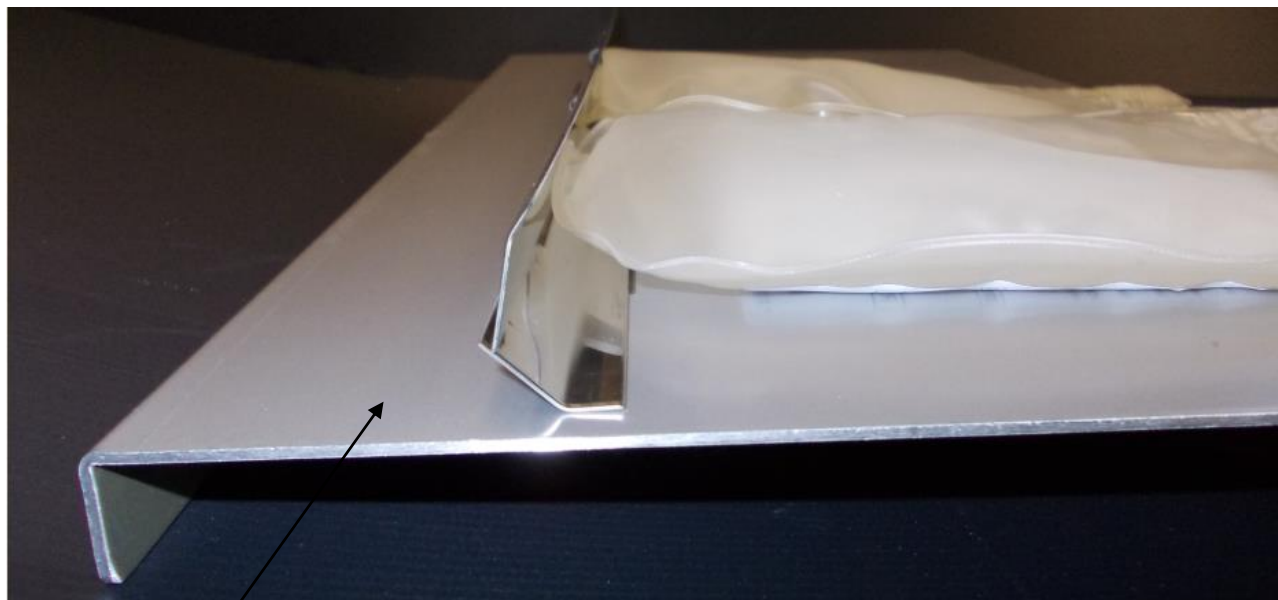
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POSITIONING OF BAGS FROM 260ml IN DEFLECTOR



Positioning support 450 ml pouches.



Also on the positioning dele 450 ml bags.

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Positioning of 1000 ml bags. (Without support) RECOMMENDED N°2 for well

INSTRUCTIONS FOR STARTING OPERATION AND SETTING FREEZERS -70 ° C - 80 ° C range KPFF48B

ATTENTION: Do not insert pockets if it has not reached the operating temperature; otherwise you might have negative consequences, such as:

- Formation of ice in the bag-wall contact, and this would make it difficult to extract the frozen bags
- High freezing times
- In planning the loading and unloading of the bags, always keep in mind the time needed to do to reach the operating temperature of the machine, if it is turned off, after verification of proper and complete drying of the internal surfaces of the freezing wells

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6. INSTALLATION AND START UP

6.1 LOCATION:

You remember to leave a space of about 200 mm-250 mm. behind the unit and on the front right side of the refrigerator to allow air to circulate freely, also make sure that near the equipment there are no heat sources.

6.2 CONNECTIONS:

Connect the power cord to a suitable wall outlet (see page 7)

ATTENTION. The device is designed to be powered at 400V 3N 50 Hz; Make sure there is an outlet 32 A, full of N + T and with plug with lock, for the purposes of electrical safety max.

6.3 START

(after the plug connection to the outlet of the lab in point 1.2):

- Switch on the circuit breaker at the back of the device,
- Act on the key 0 / I on the control panel

6.4 TEMPERATURE CONTROL:

To change the temperature from the set value, follow these instructions:

- Press the FUNC key, the lower display shows S.SP; with ▼ and ▲ keys, set the new value set and store the new value by pressing the FUNC button. The T of the most appropriate set for a rapid freezing, is -70 ° C. **This prevails because the increase of coolant flow, compared to T.**

6.5 SETTING THE TEMPERATURE ALARMS:

The T alarms are already set (default values) + 25 ° C above set point.

To operate changes in the alarm settings must request the intervention of technical personnel of KW, since you must enter the configuration of the instrument, by means of a special password; what for maximum safety.

6.6 COOLING TIME:

The chiller requires about 12-16 hours for the stabilization at the lower temperature to -70 ° C; **do not use it before it has reached operating temperature. It 'a recommended time of 24 hours for at least the first of the bags freezing activities. It 'also advisable to leave the unit on even during the hours of no activity; to guarantee full and immediate availability to freezing. The horizontal structure of the freezer and its exceptional insulation carry a very low power consumption.**

6.7 FREEZING TIME

The freezing time can be set by the user, even if KW recommends a time of 60 '48 for the complete freezing of plasma bags of 450 ml. With T max ambient + 30 ° C. To change the time, the FUNC button on the lower display shows the "t" parameter, with the ▼ and ▲ buttons, set the new value for the duration of the freeze must be pressed twice in succession and store by pressing the FUNC button. It 'possible that during the freezing cycle, the internal T rise above the alarm threshold, and thus the alarm active; In this case, press the BUZZER

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button to silence the buzzer, allowing the continuous freezing process.

During the freezing of the refrigeration compressors are in continuous running. For all the time you set.

6.8 ACTIVATION START and END FREEZING FREEZING

After the introduction of the bags in the wells, close the door and press the RUN button for 5 seconds. at this point on the lower display shows the countdown; TIMER LED starts flashing. This condition persists until hard freeze.

To view the order cycle time, press three times on FUNC wine to the top it does not appear the minutes and seconds count.

The user can interrupt the count of freezing time, pressing the RUN button and letting it down for at least 10 seconds. The LED TIMER turns off and consequently stops the batch recording.

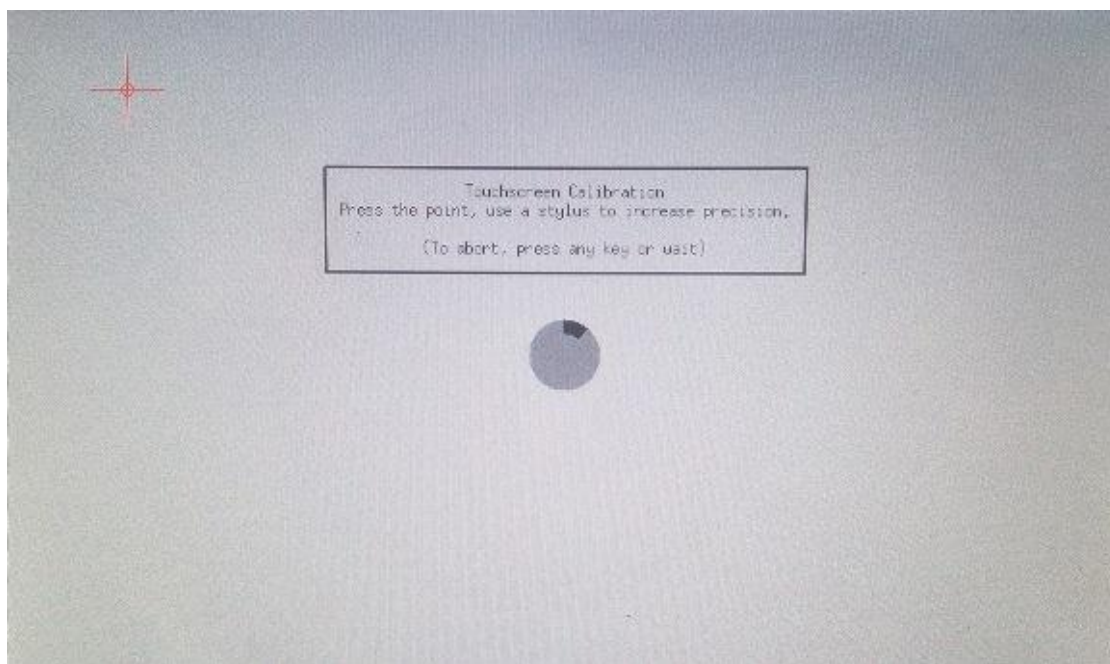
It must also enable the freezing again.

At the end of the count, or the end of the planned freeze on the lower display the End appears; to eliminate such written, the user must press the FUNC button.

7. VIDEO RECORDER RTS

7.1 HOME MENU

When the recorder is powered up, the screen below for screen calibration is presented after the software startup screens.



THE SCREEN IS ALREADY CALIBRATED TO THE ORIGIN, so it is not necessary to do anything: after about ten seconds the screen is bypassed and the display will show the

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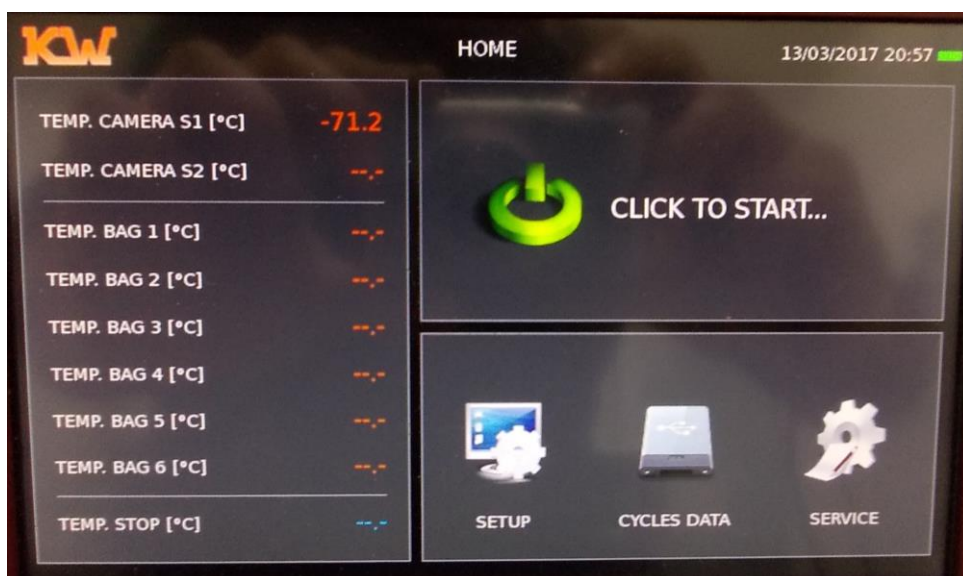
HOME main screen.

If over time it is necessary to recalibrate the screen, simply turn the machine off and on again and use the calibration screen following the instructions on the screen (just touch the crosses that appear in sequence in the 4 corners of the screen).

In the HOME menu we find on the left side, temperatures of probes S1 and S2 (the second one is optional) that detect the internal temperature of the cell..

Temp. bag 1,2,3,4,5,6 display PT00 probes inside the measuring bags to validate our Plasma freezing cycle.

Temp.Stop is an option that can be enabled by the user in order to stop the freezing cycle when all the measuring bags reach the set temperature, eg. -30 ° C.



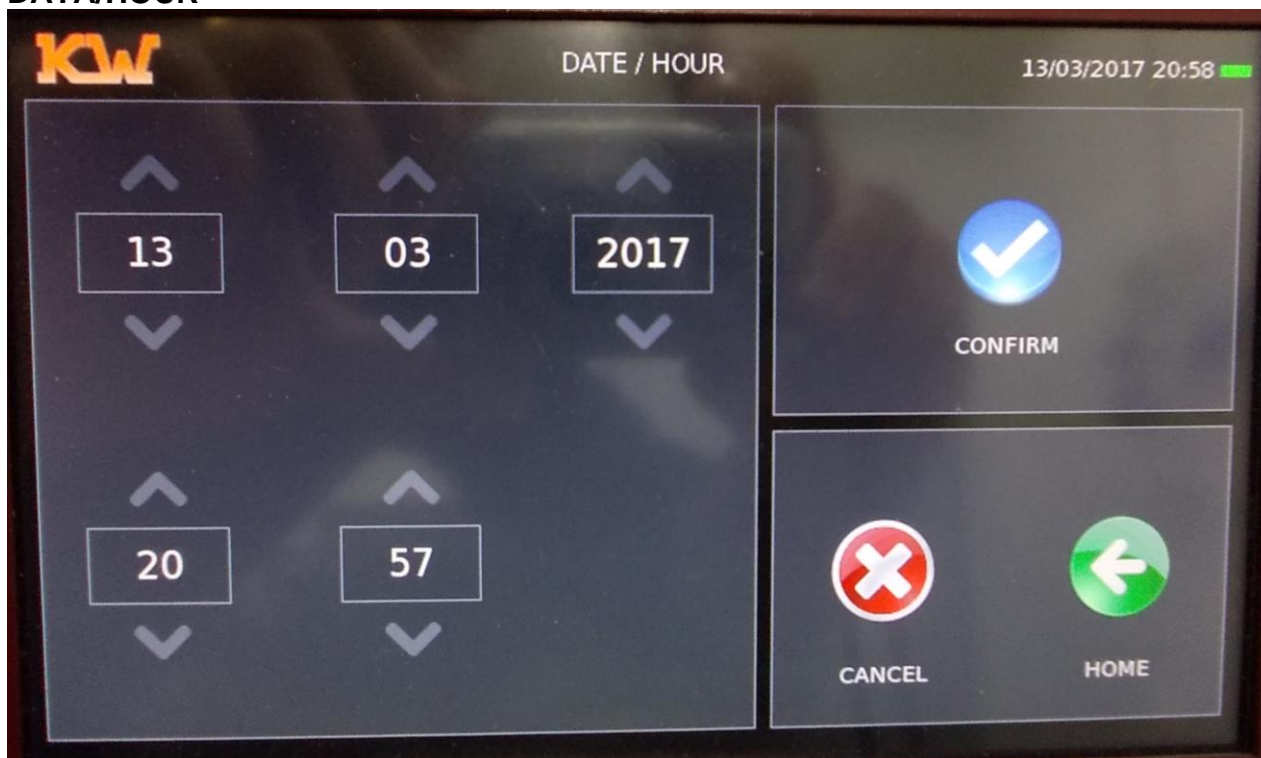
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7.1.1 SETUP

We enter the setup screen of the recorder



DATA/HOUR



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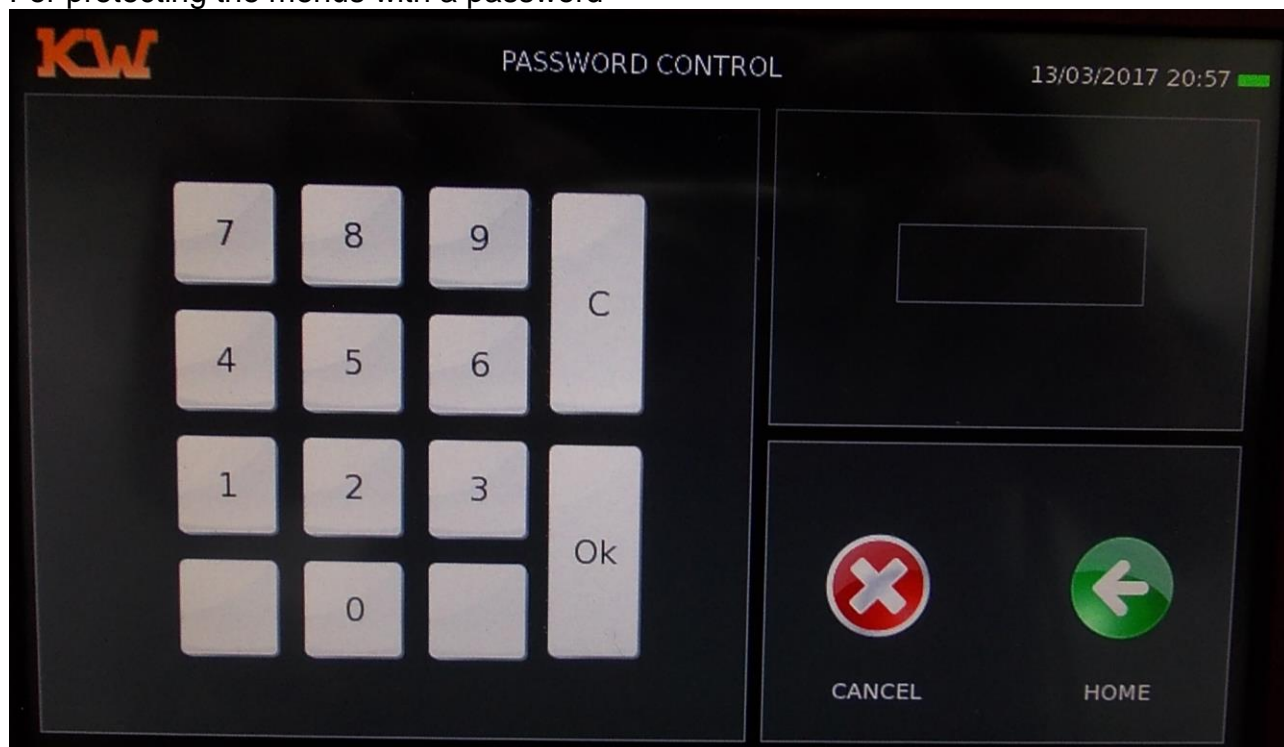
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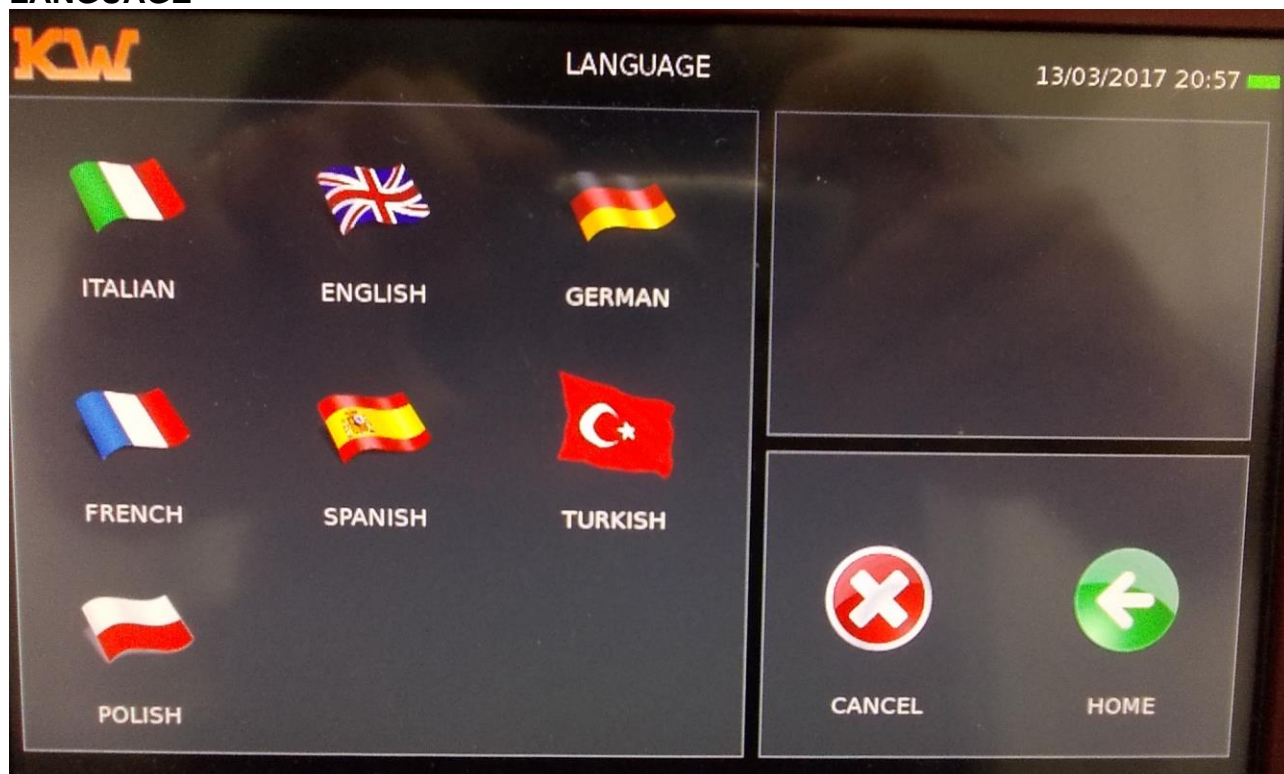
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PASSWORD CONTROL

For protecting the menus with a password



LANGUAGE



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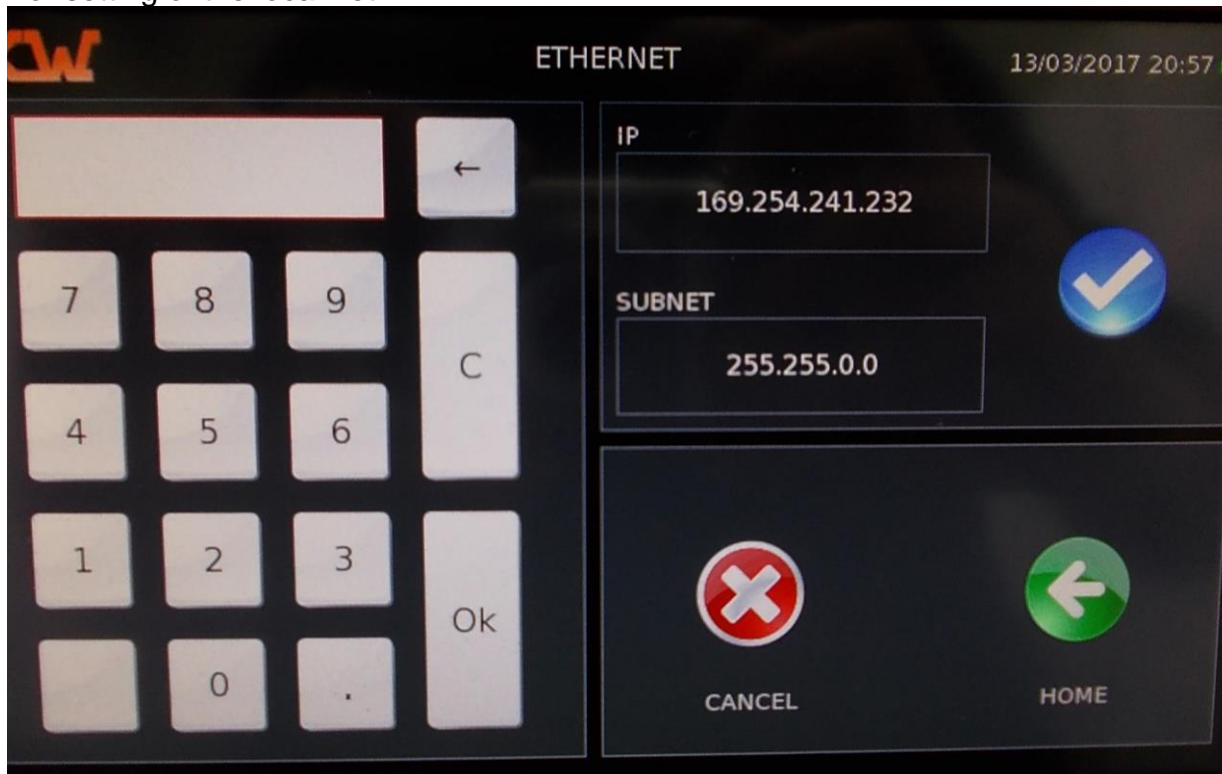
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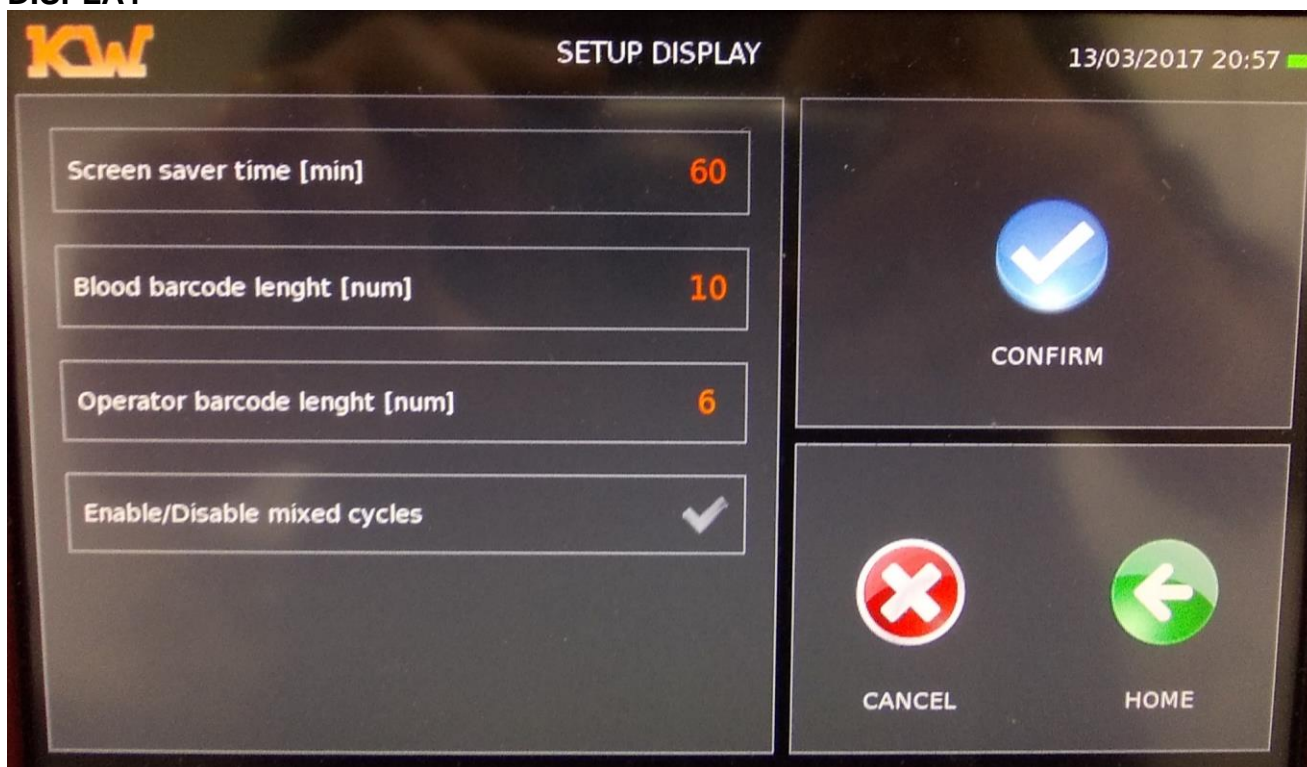
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ETHERNET SETUP

For setting of the local net



DISPLAY



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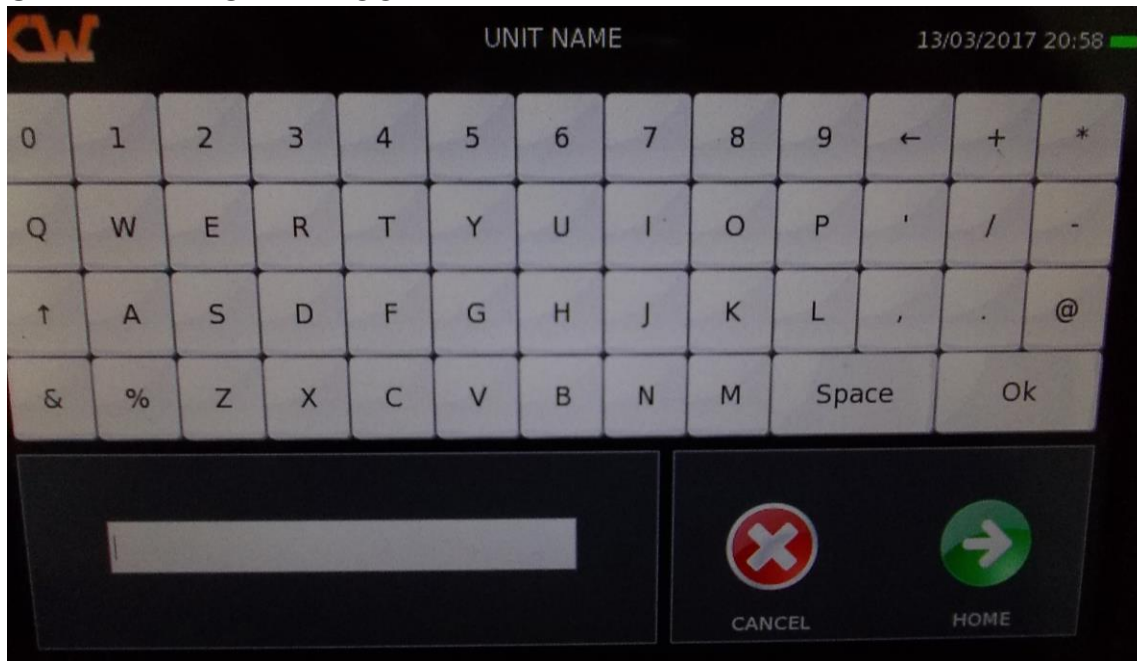


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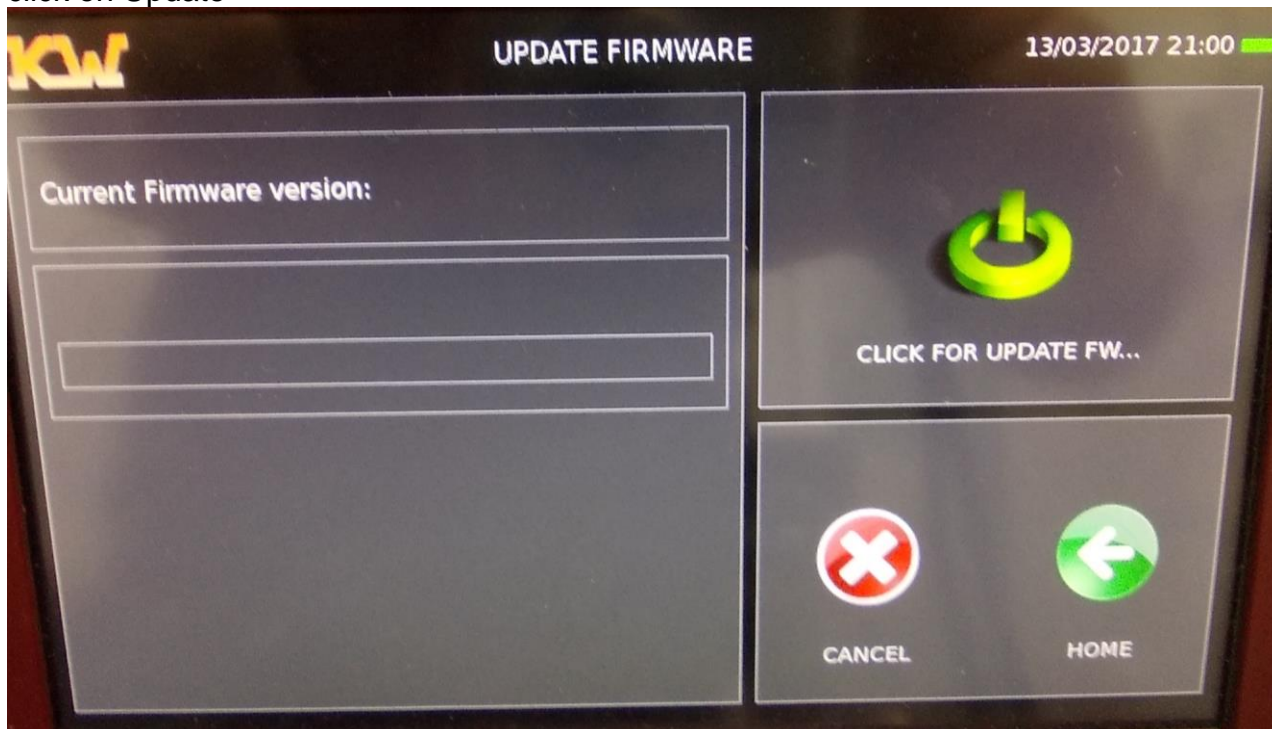
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UNIT NAME-NOME MACCHINA



UPDATE TFT – UPDATE FW

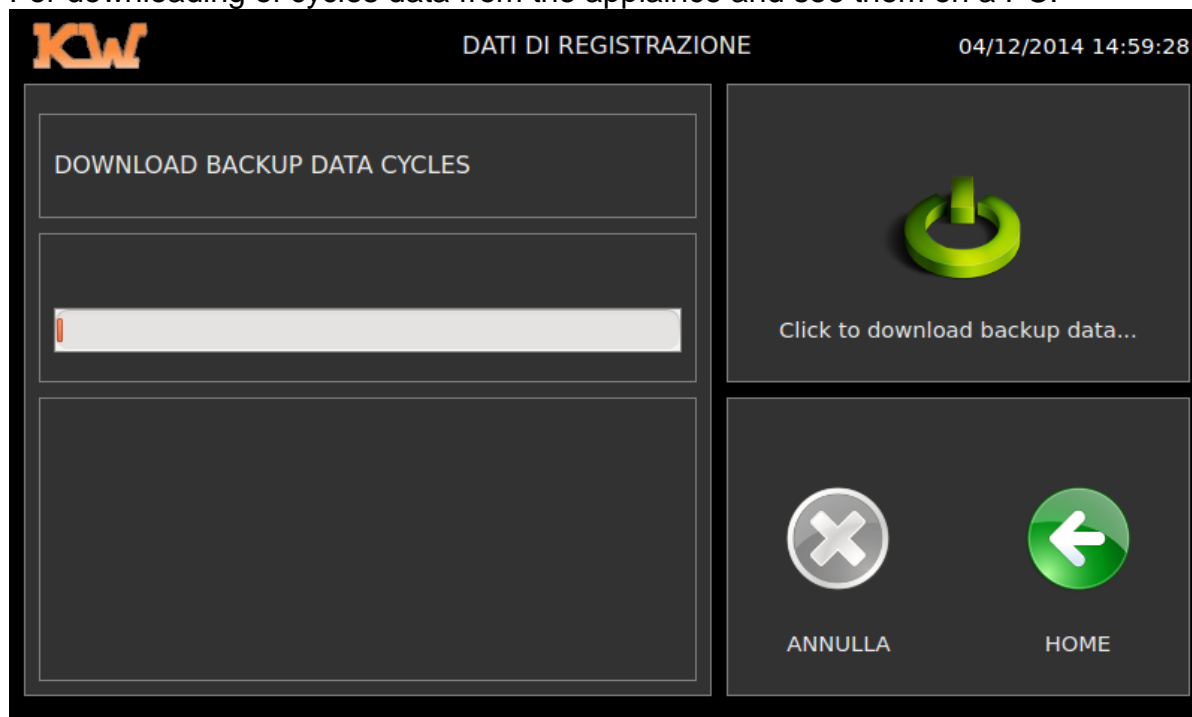
For updating of software and firmware: insert USB pen drive with updating files inside and click on Update



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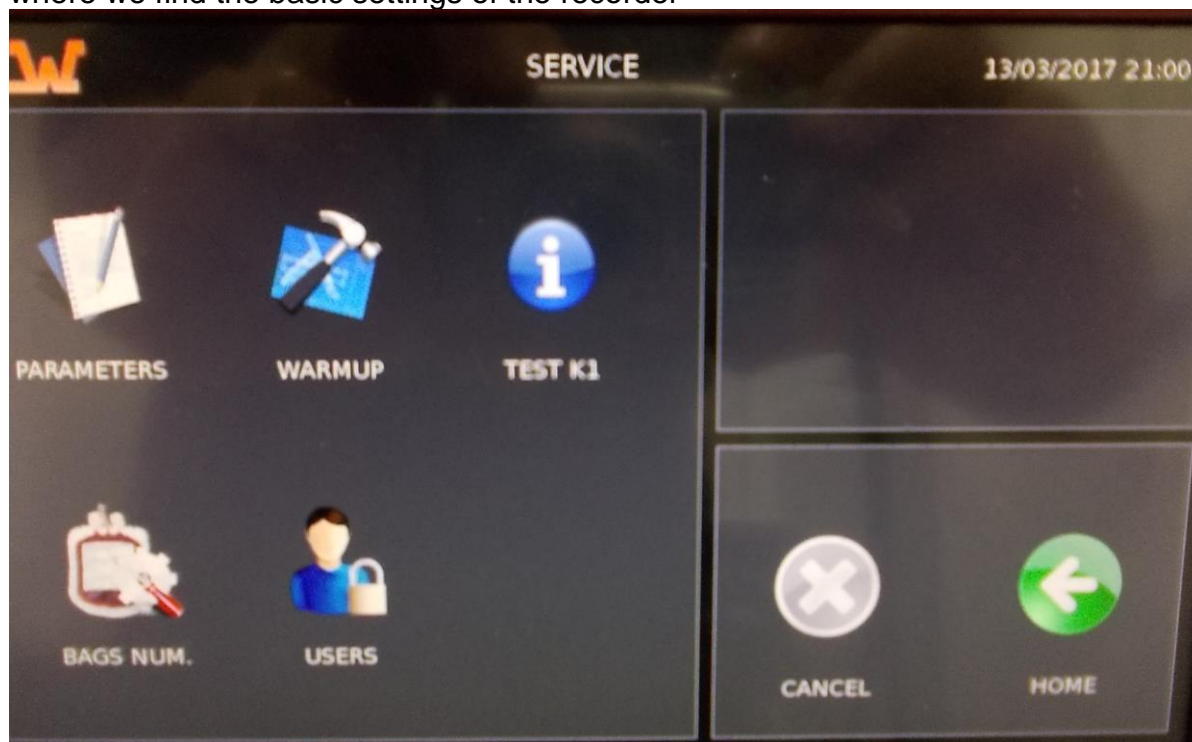
7.1.2 CYCLES DATA

For downloading of cycles data from the appliance and see them on a PC.



7.1.3 SERVICE

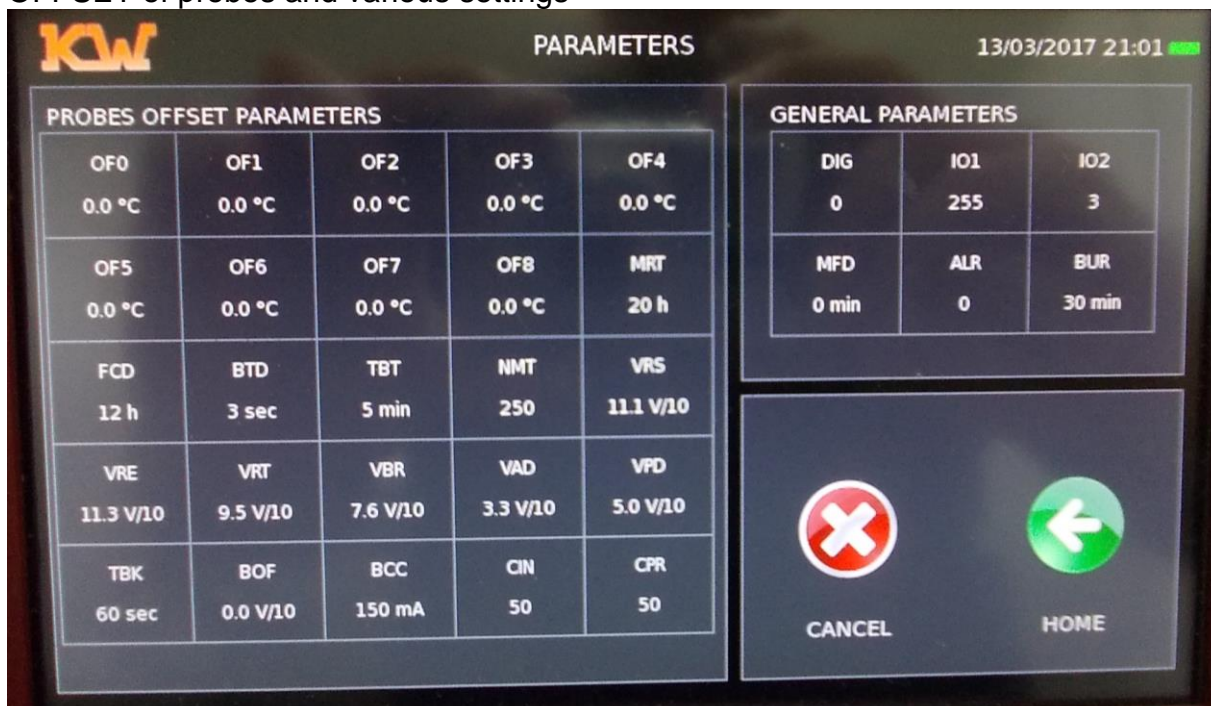
(access allowed to authorized personnel KW password protected)
where we find the basic settings of the recorder



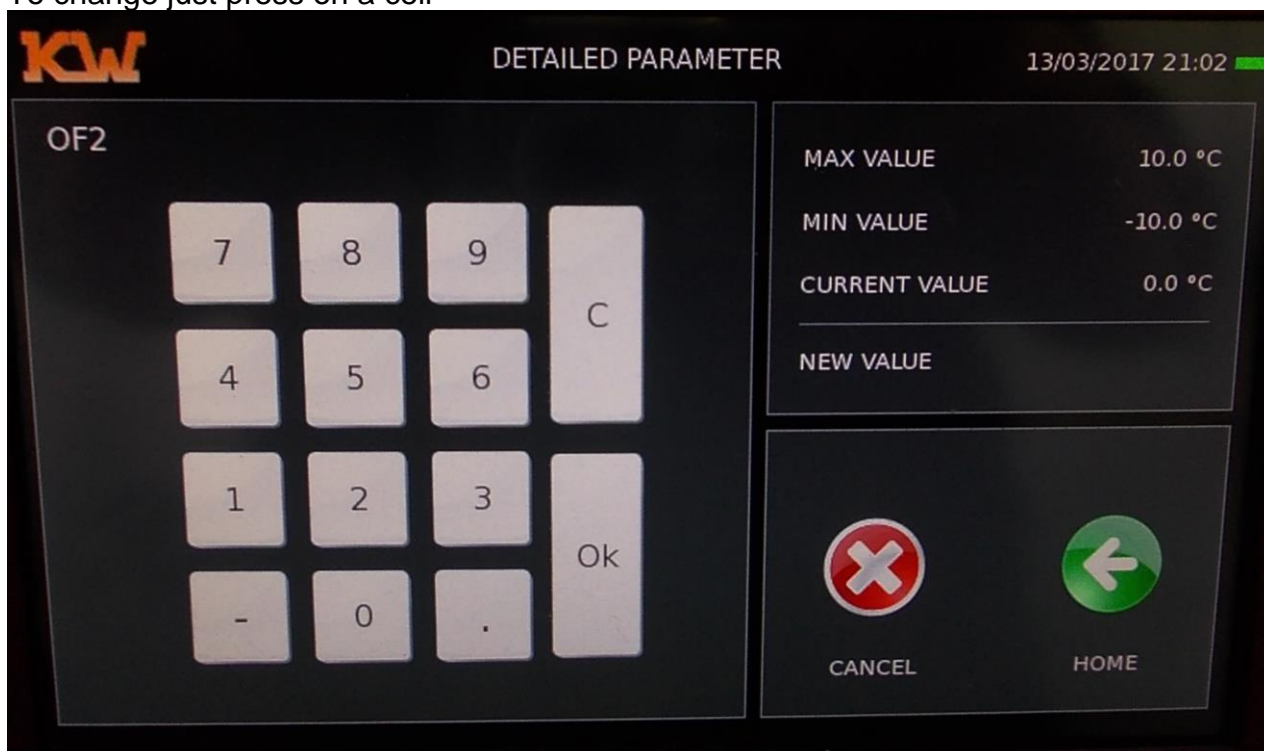
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7.1.3.1 PARAMETRI

OFFSET of probes and various settings



To change just press on a cell

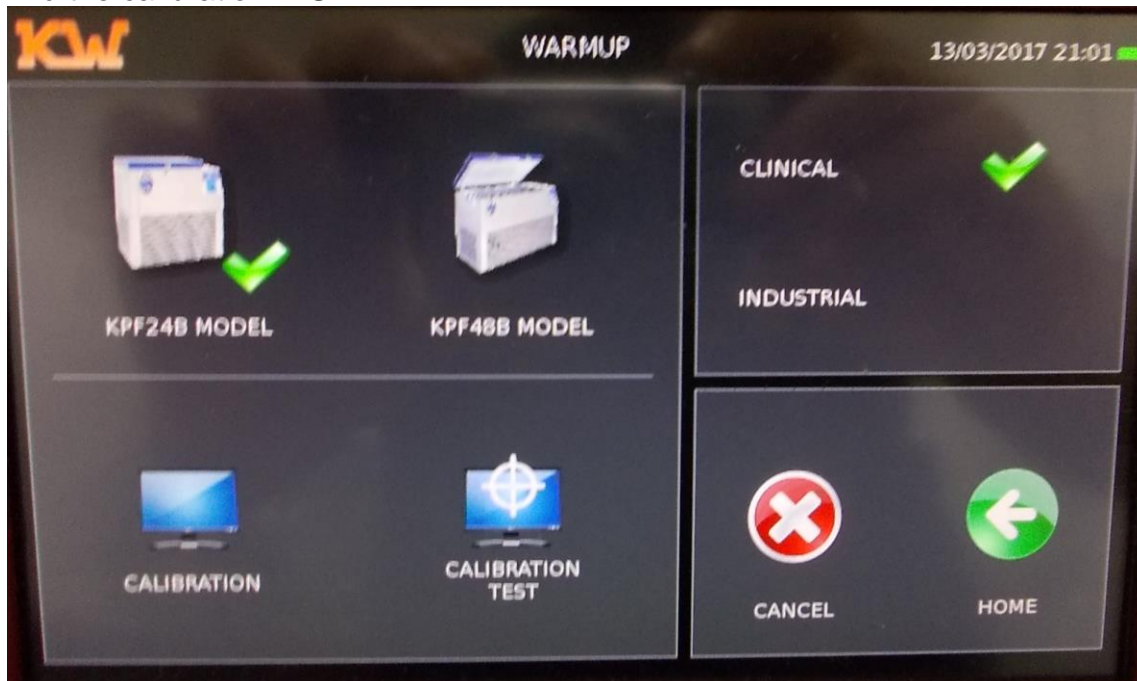


then set the value and confirm with OK and press Home

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7.1.3.2 WARMUP

For selecting the kind of appliance between **KPFF24B** or **KPFF48B** model, while below we find the calibration **DISPLAY**



7.1.3.3 BAGS NUM.



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7.1.3.4 TEST K1

Allows to check if the stops RELAY compressor works properly (when the feature of stop cycle by temperature is activated, see next paragraphs).

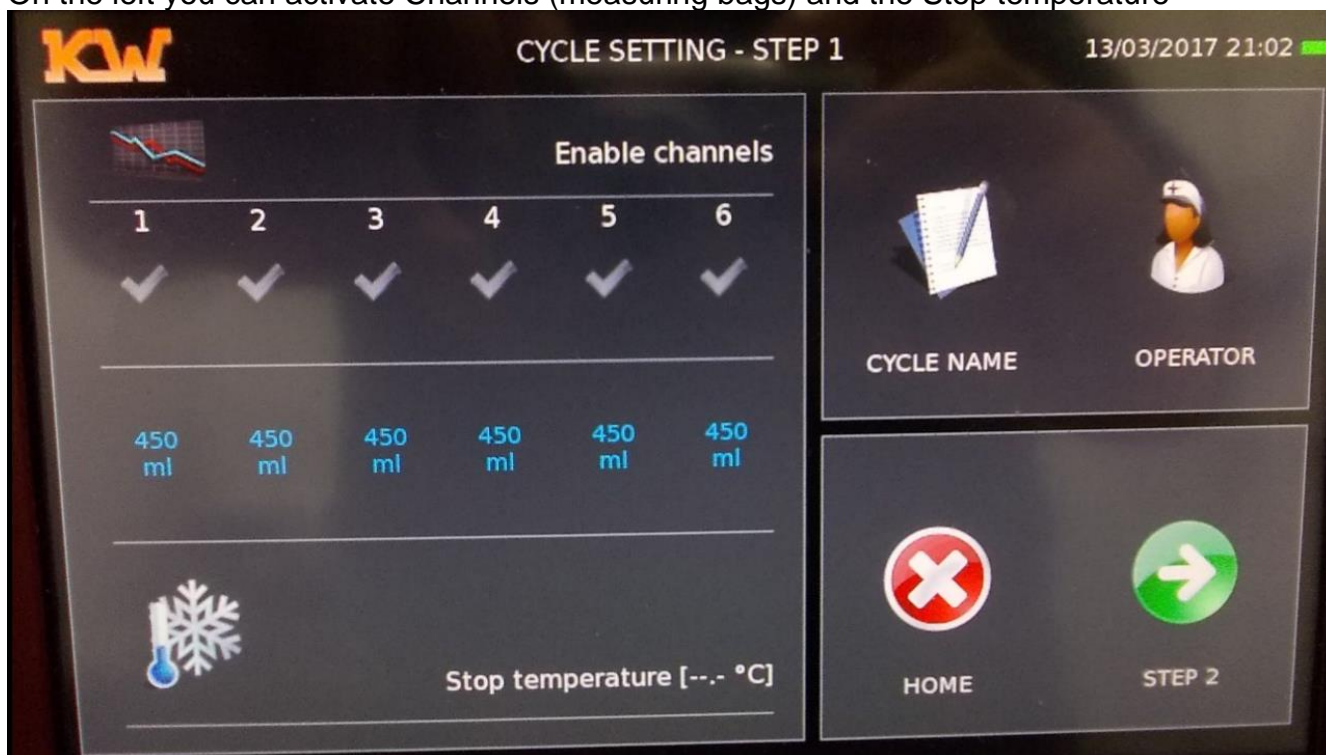
7.1.4 START CYCLE

7.1.4.1 CYCLE SETTING - STEP 1



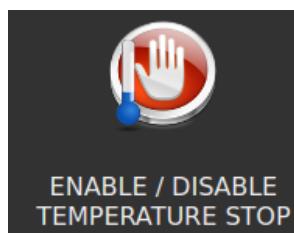
Pressing on *Cycle setting - STEP 1* will be displayed

On the left you can activate Channels (measuring bags) and the Stop temperature



Pressing *Stop Temperature*

you can set the temperature for stopping cycle (i.e. - 30°C) and confirm pressing



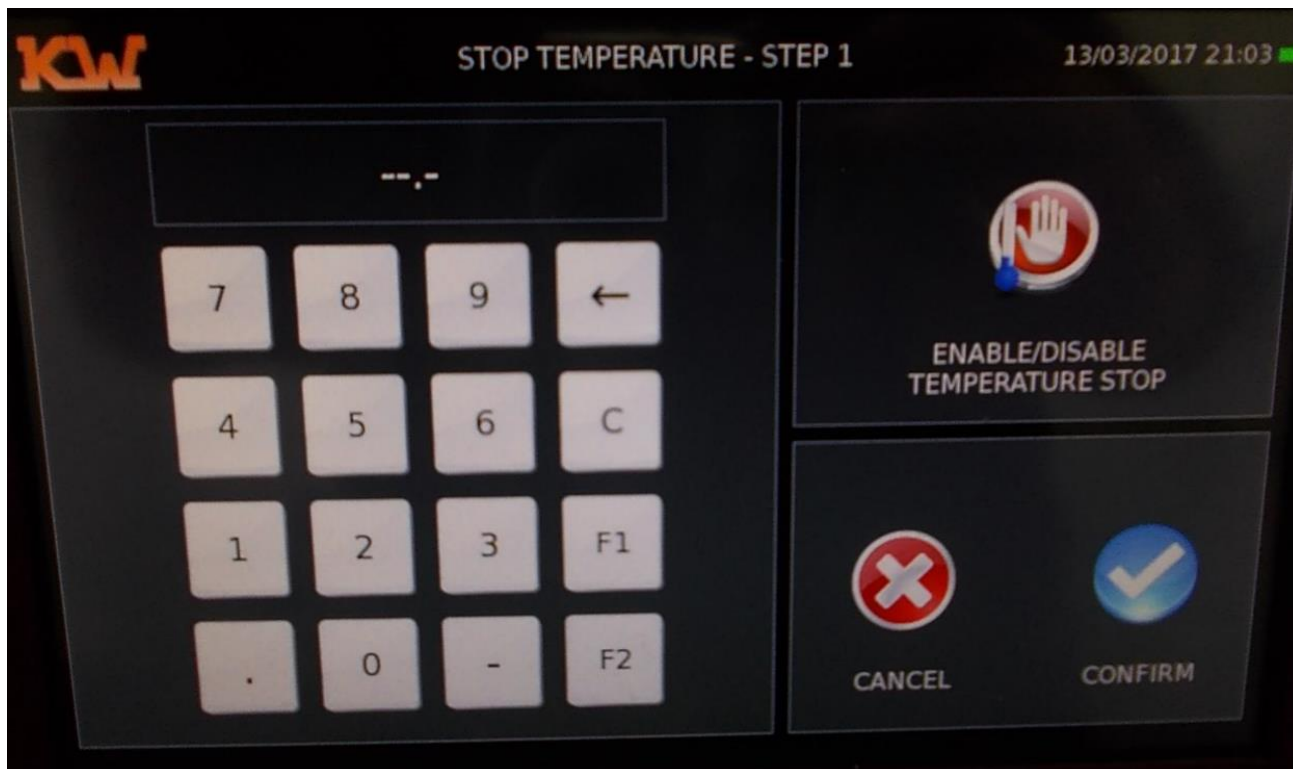
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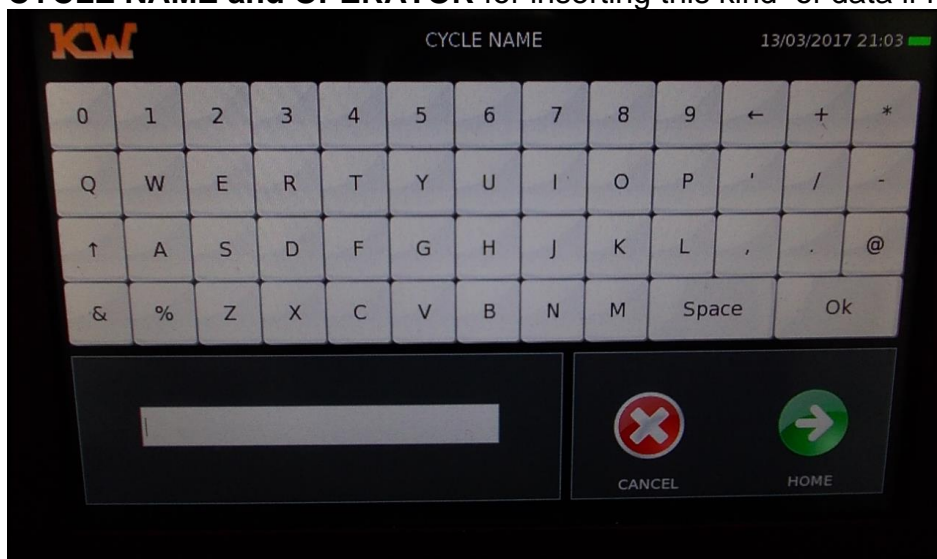
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NOTE

IF THE LAST MEASURING BAG REACHES SET TEMPERATURE BEFORE **60 min.**, COMPRESSORS WILL STOP AND DON'T START TILL TIMER REACH THE END OF COUNTDOWN OR TILL YOU PRESS RUN FOR 10 SEC.

CYCLE NAME and OPERATOR for inserting this kind of data if necessary.



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So to continue the procedure will press the **STEP 2** button, or **HOME** to return to the home screen.

7.1.4.2 CYCLE SETTING - STEP 2

In this screen we have the ability to enter BarCode of the bags.

Note: before you will perform registration via Barcode RTS shoot the barcode below

This parameter specifies the intercharacter delay inserted between character transmissions.

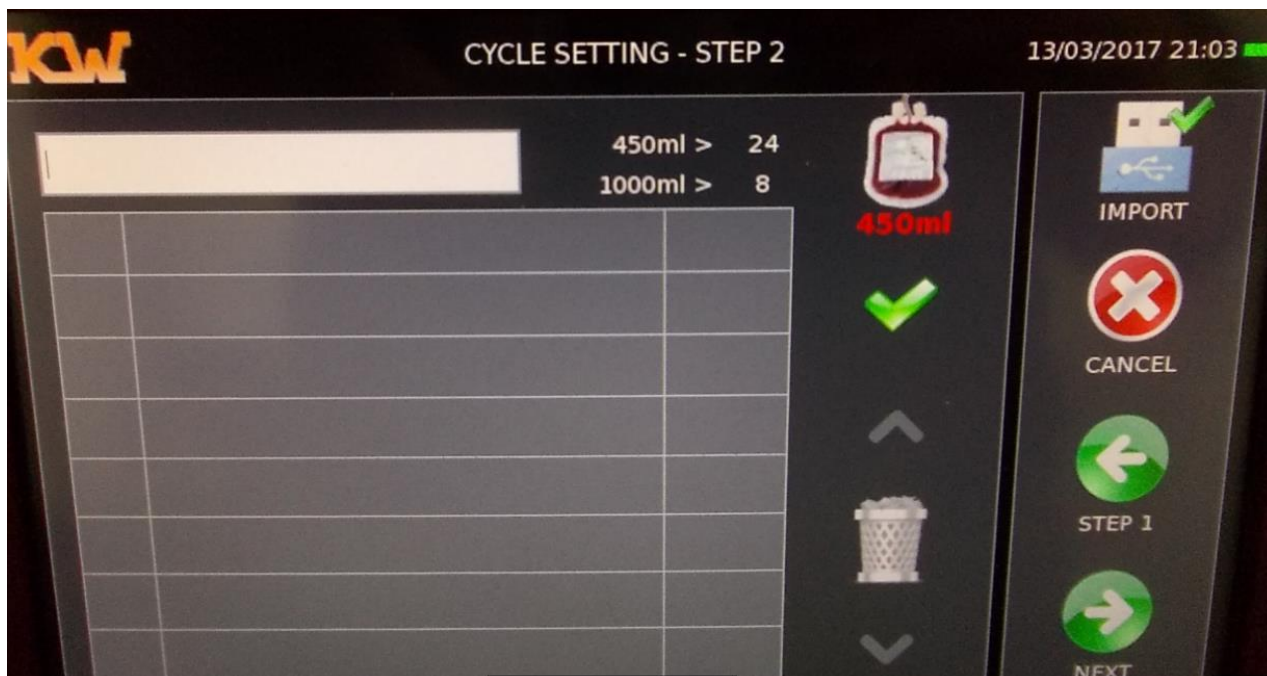


Maximum: 99 msec

THE FREEZER KPFF48B

has wells that may contain from 250/450 ml bags. or by 600/1000 ml bags. ; **max thermal capacity of freezing in 1 h:** n. 48 bags from 250/450 ml .; n. 16 bags of 600/1000 ml; n.12 bags of 800/1000 ml (**N ° 1 for cockpit**).

NOTE: from considerare that the sample bags must be recorded and then to subtract the amount to be included within.



In selecting the bags there is the possibility to modify or cancel some process through the local trash button between the two up and down arrows.

In addition there is the possibility to import the selected pockets, the button **IMPORT** (by

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inserting the USB key), you can return to the previous screen STEP 1 or continue to start **NEXT** loop or Reset all at the press CANCEL and return to HOME.

7.1.4.3 SETTING CYCLE - READY ...

Clicking on **NEXT STEP** visualize we enter the last **CYCLE NAME**, **CODE OPERATOR**, **MACHINE MODEL**, and possible **CYCLE END** temperature.

It will also be possible to display the Probes (**bags Champion**) Enable

Then press START

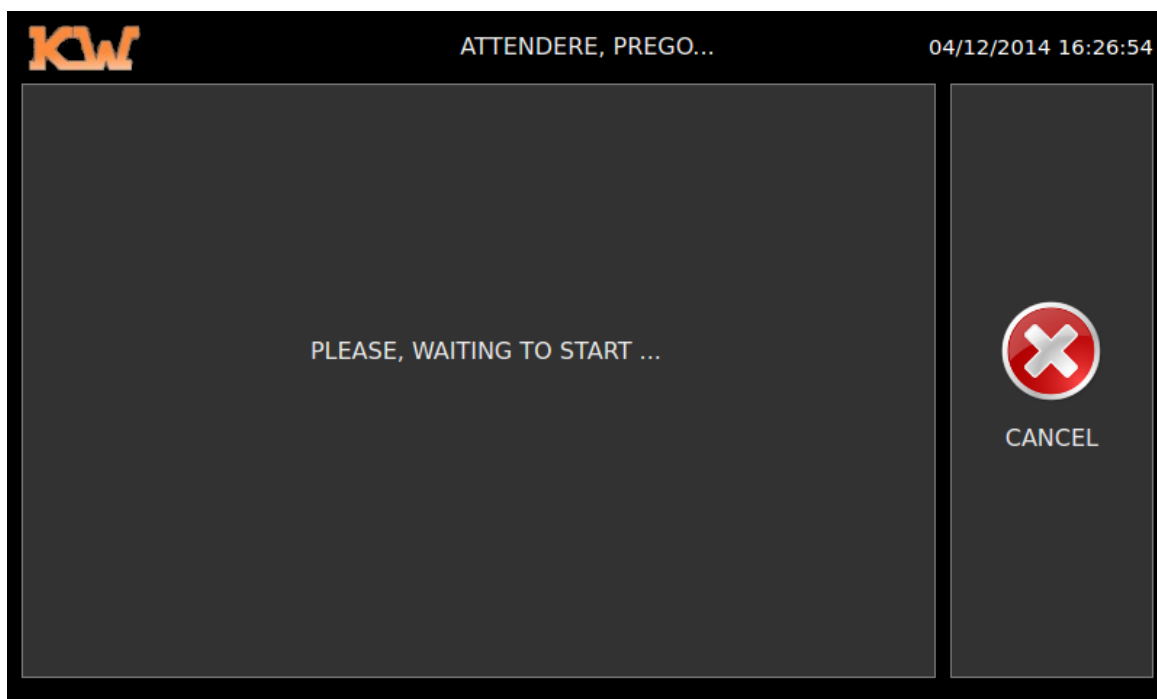
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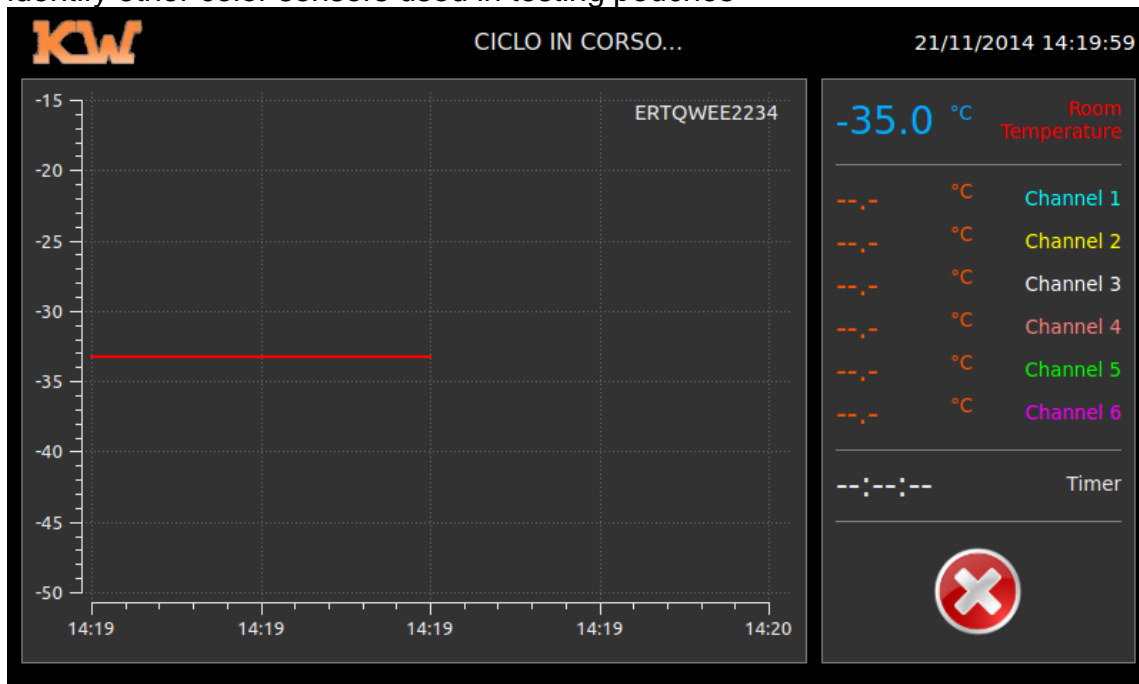
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The registration procedure is active you after the introduction of the bags in the wells, (as per page 18)

close the door and press the RUN button for 5 seconds. at this point on the lower display shows the countdown; **TIMER LED** starts flashing. This condition persists until hard freeze (as reported Paragraph 8.1 on page 24).

A cycle started The following menu will appear in red the temperature inside the freezer will identify other color sensors used in testing pouches



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8 INTENDED USE

The chiller unit is intended for quick freezing of plasma bags: maximum amount 48 bags of 450 ml. (Charging with 260 ml.) or 16 bags of 1000 ml. (With charge 600-650 ml.) or 12 bags of 1000 ml. (with charge 800 ml.)

The temperature regulator performs a regulating effect ON / OFF, with a hysteresis of 2 ° C, symmetrical to the set point value: this means that, with a SP = - 75 ° C (-80 ° C), at T = - 76 ° C



(-81 ° C), detaches the compressor on and off the axial fans records to the condensation of the refrigerant. When the T (ski in) = -74 ° C (-79 ° C), attack the compressor and the fan.

The device may not work in environments with a temperature of 35 ° C = (95 ° F). To achieve the minimum temperatures follow the specific

9 NOISE

The average value of noise level at 1 m. of distance (in front of the unit) and a height of 1.5 m., is within plus 62 dB (A). This value also depends on the status of the fans, the cleanliness of the heat exchangers for the air condensation etc.

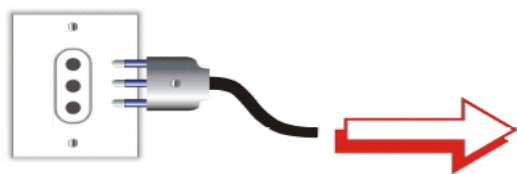
More than 3 meters away the noise down, on average, below 55 dB (A).

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10 ORDINARY MAINTENANCE

Below is information about room and the normal controls. It is forbidden any other maintenance tasks for which you need to contact your local TAC as executable only by qualified personnel in order.

10.1 ICE ELIMINATION FROM THE WALLS



The KW Apparecchi Scientifici recommended to defrost at least once every 20 days. (2-3 weeks) the device, and in any case the time interval is a function of the formation of ice on the test wells.

Pull the flaps / adapters and dry, leave the power off and the door open for a few hours; when the ice is completely melted, remove condensation on the windows with the spatula provided; and remove or vacuum debris in the

bottom of the well (which



(Fig.1)

moreover, it is equipped with discharge) to not block the drain hole. Then dry thoroughly. After svolgimento of the above operations, reposition the baffles / adapters (as shown in the preceding pages), with or without support; close the door and turn on the unit; wait a few hours before the T has reached the set point value

10.2 CONDENSERS

The air-cooled condenser must always be kept thoroughly clean; They recommend a thorough inspection and cleaning once every **three months** to check their status and the free passage of air. *To clean the condenser is recommended to always contact skilled technical personnel, using appropriate equipment to complete removal of dirt / dust on the exchanger fins.*

Always switch off the appliance before cleaning it. Switch off the main switch, pull the plug and rewind the power cord.

Fold the unit from the wall, so as to freely work in the rear of it. If you can take it to a place other than that of the normal location, as the cleaning operation could raise a lot of dust.



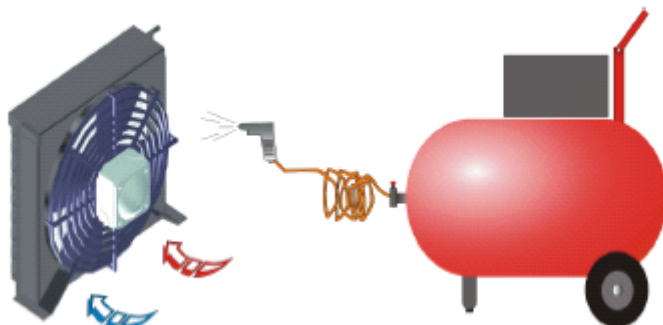
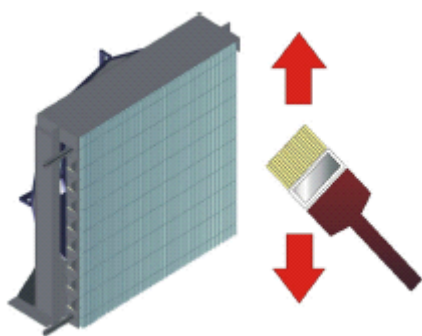
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Condensing surface side front right



Rear surface condensing

In carrying out these operations it is obliged to use protective gloves to avoid any cuts to the hands, burns on contact with high-T tubes, dust mask and goggles.



Unscrew the screws holding the grids using a Phillips screwdriver. At this point you can check the status of the condensing surfaces and proceed to their relative cleanliness. Pay Close Attention inside the compartment to wiring and the pipe system of the refrigerating.

The cleaning can be carried out using a soft bristle brush and a vacuum cleaner or compressed air, taking care not to bend the fins on the condenser. In case of use of compressed air, directing the jet in the opposite direction compared to that of normal use, that is, from inside the device, towards the outside, not to dirty the basic machine.



N.B .: if the unit has just been switched off some parts may be very hot, be careful not to touch them with your bare hands !!

After completing the cleaning, replace all grids, reposition the device, reconnect it to the mains and finally turn on the main switch.

N.B .: the machine's cleaning operations, if performed by experienced staff, requires a few tens of minutes, so it is necessary that no bag is inside the freezing wells. However, note that the internal temperature, at the end of this operation, could be climb of + 15 ° C / + 20 ° C approx. So wait at least 6-8 hours before making a new plasma bags of freezing cycle. Anyway, check that the T on the regulator indicates a value <-70 ° C. It also recommends cleaning on a day of non-activity of the lab.

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10.3 FROST ELIMINATION

It is repeated until the frost that forms in the appliance must be discarded when it reaches a thickness of 4-5 mm., And in any event with a frequency of about three weeks; activities to be carried out with a wooden or plastic spatula, or better, if possible, by thawing. This operation will be necessary about once a year; more frequently, if the openings are very frequent and prolonged, and if the lab air. it is very humid. At the end of the operation the water collects on the bottom of the wells; There is a predisposition to download the condensation on the outside; the terminal part of the collector tube (connected to discharges of all wells) is placed on the rear wall; it comes with a manual and can connected valve (by experienced technical personnel) the discharge of the lab., or simply can be downloaded on a drip tray. The user can also wash and disinfect the wells, in the event of bladder rupture, since they are to be regarded as of stainless steel sinks, a perfect watertight.

For the drying operation we recommend the use of equipment (with interchangeable cloth) supplied with the freezer and allowing the manual drying of the bottom and side walls.

It is also recommended to leave at least a few hours the door open for a full airing of the room.

Alternatively or in more rapid completion of the above activities, the use of a hot air electric dryer is good thing, but not essential

.

10.4 PERIODS OF INACTIVITY 'FREEZER

During periods when the appliance is not in operation you must take the following precautions:

Remove the plug from the socket.

Make sure that no product is stored inside.

Clean and dry all accessories and interior parts. See also the drying operation mentioned above.

Leave DOOR open to facilitate air circulation, so as to avoid the possible formation of unpleasant odors.

10.5 CABINET EXTERNAL / INTERNAL

With a soft brush, a mop or a vacuum cleaner to remove the dust that has settled on the freezer.

The outside of the appliance should be cleaned with a special cloth and spray for stainless steel. Or with a wet cloth and a neutral pH detergent diluted with water; it is recommended not use abrasive cleansers or even less of the volatile substances, nor use water jet.

10.6 SEALS

Every 2-3 weeks, simultaneously with the cleaning and drying inside, the seal of the lid or door must be controlled from the point of view of the seal; if ice forms off by thawing, do not tear the seal. And 'appropriate to keep it lubricated with silicone grease or other fat-freezing type.

IMPORTANT; the lid or door should be kept as far as possible closed and the openings reduced to the minimum time necessary for the operations of extraction and introduction of the bags.

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11 TEMPERATURE RECORDER DISC CYCLE WEEKLY (OPTIONAL)

- In addition to the following notes, see the specific instructions included in the back of the manual

- Remove the protective cap of the pen gently lifting the rod pen holder and sliding it down.

- Check the position of the chart by making sure that the tip of the pen begins to draw in time correspondence in which the recording starts. To do this, simply rotate the diagram after loosening the latch fixing the same on the plot brings hard and raising slightly the auction pen holder.

- Check that the path is readable and otherwise increase the pressure of the pen on the disc through the knurled screw that is at the beginning auction pen holder.

11.1 NIB REPLACEMENT

- Pull gently brings the stylus pen from the auction;

- Insert the new stylus by making sure that the pen holder rod enters the guide that is located on the top of the stylus; Carefully follow the instructions at the end of dedicated manual.

For proper writing (track) must nibs used are original.

11.2 CORRECTION OF SETTING

If you ask small adjustments of the instrument calibration, do the following:

1. Build up of a thermometer with which to compare the sample of the recorder reading (possibly perform the comparison by immersing the sensitive parts of the two instruments in a reference bath at a temperature in the measurement range of the recorder, to reproduce the same conditions for both);

2. Wait for the reading of the instruments has stabilized;

3. Turn the micrometer screw rod pen holder, using the plastic wrench supplied with the instrument, until the nib is in correspondence with the value measured by the standard thermometer.

4. Repeat the previous steps if necessary changing the temperature of the reference bath.

If you do not manage to obtain the necessary conditions or the tool always indicates the scale value, this must be sent to KW for a more thorough check.

11.3 VERSION WITH WATCHES QUARTZ

These watchmaker work with batteries 1.5V type and the charge lasts about a year.

The operation is ongoing from the moment you insert the battery; if you do not want to do the recording, you must replace the cap on the pen or lift the pen holder rod through the thumb screw until there is no contact between chart and pen.

11.4 DIAGRAM REPLACEMENT

- Move the lever stops diagram that is located at the center of the disc outwards and then lift it up to beams that are perpendicular to the disk itself;

- Raise the rod pen holder and pull the diagram upwards;

- Place the new diagram based on the time to start recording, making sure that this fits

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into the watchmaking lever and special fins that are found at the extremes of the diagram disc door;

- Carefully lower the rod pen holder.

11.5 REPLACEMENT BATTERY

Remove the diagram by repeating the above steps;

Remove the old battery from the battery holder and insert the new (alkaline 1.5V AA) making sure the polarity.

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12 FAULTS

PROBLEMS	CAUSES	RIMEDIES
The machine does not start	No mains power supply	Check that there is power at the mains socket
	Power cable interrupted	Check the cable and that there are no internal interruptions
	blown fuses	Check fuses
The door will not open	Ice formation in the compensation valve	Clean the valve
The door will not close	icing on the gaskets	Remove ice, record the hinges (Ass. KW)
	excessively protruding objects from the inner case	Remove the object
poor cooling	Ambient temperature > + 30 ° C	T ° control the environment and properly ventilate the room
	dirty condenser	Clean the condenser
	vents blocked (unit against the wall)	Correctly position the device
By booting the device takes the Q.E. switch	Short circuits	Search short-circuit and call the Ass. KW
	Earth leakage in the plant	Search for dispersions and call the Ass. KW
The display does not signal	electronics faulty	Call the Ass. KW
noisy equipment	mobile location not stable	To verify
	Something is in contact with mobile	To verify
	The fans are dirty and / or damaged	Check and if necessary replace them (ASS. KW)
The chart recorder is not working properly	Does not scroll paper	Check and replace the battery
The machine does not start	He does not write the ° T	Check and replace the nib
	There is no movemen	Call ASS. KW

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13 ALARMS

Please refer to the reading of the pages of this manual related to temperature control, in which shows all the possible alarms and related reports.

13.1 OVERPRESSURE CONDENSING ALARM

In case of pressure of the refrigerant (R452A) > 24 actual bar, the pressure switch is triggered KP17W auto reset. In this case it is necessary to call in skilled and trained technical personnel, as such alarm almost certainly derives from a major problem on the device, which must immediately be identified and eliminated.

The rapid KW freezer is equipped with a safety (pressure switch KP17W) on the refrigerant circuit in protection against the overpressure of the compressor and its intervention it indicates to the user abnormal conditions in heat exchange; if this device were not there, in a short time, in incorrect conditions, as described above, we would have the fault to mechanical breakage of the compressor with consequent significant maintenance costs for the user and for the machine downtime inconvenience; reconnection is automatic every time the pressure switch the system fails, the compressor of the first stage stop, a first beep the: alarm goes off warning of what (and disappears to the automatic pressure switch on again); Later, with the rise of the internal T also activates the visual audio signal max T (red LED ALARM T) and therefore it is essential that the user as to prepare to receive the signal at any time of day or night.

For other anomalies, refer to the manual for the attached controller and possibly chidere assistance by reporting the defects to the manufacturer KW:

phone 0577-309144

Fax 0577 309142

ATTENTION

The KW accepts no responsibility for any damage that occurred in the use of Equipment by this produced or marketed, if the recommendations made were not observed accurately and scrupulously by the user.

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14 SPARE PARTS

List required original parts (in stock KW).



For maintenance and repairs must be used only the original components to be collected in the regional service centers (CAT) authorized

SPARE PARTS LIST (IN STOCK KW)

Description	code	Bulder
COMPRESSOR UNITE 'ERM. FH2511Z	FH 2511 Z	Unite' Ermetique
EXCHANGER PIPES Coaxial the KPFF	0	KW
EXCHANGE DANFOSS HE1,0	HE 1,0	DANFOSS
LU-VE CONDENSER STVF 520	STVF 520	LU-VE
LIQUID RECEIVER 353	RV7-180x353	FRIGOMEC
SOLENOID	018F7952	DANFOSS
SOLENOID VALVE	EVR3 032F1207	DANFOSS
THERMOSTATIC VALVE	068Z34	DANFOSS
BOTTLE ANTILQUIDO 18	04/S-ODS 18	FRIGOMEC
PRESSURE SWITCH	KP 17 W	DANFOSS
TAPS	6010/2	CASTELL
COMPRESSOR UNITE ERM. FH2480Z	FH 2480 Z	Unite' Ermetique
OIL SEPARATOR	901	TEMPRITE
LU-VE CONDENSER STVF 273	STVF 273	LU-VE
LIQUID RECEIVER 275	RV5-180x275	FRIGOMEC
SOLENOID HONEYWELL	MD103MMS	HONEYWELL
THERMOSTATIC VALVE HONEYWELL	TLEX-00395	HONEYWELL
EXCHANGER PIPES Coaxial ii KPFF	0	KW
TAP FOR LIQUID RECEIVER	PMRQ 1312	FRIGOMEC
BRACKETS FOR PRESSURE	0	DANFOSS
THERMOREGULATOR K1PX	K1PX	ERO ELECTRONICS
PROBES PT100	LM1P3A6050D20	TERMOTEC
MAGNETIC THERMAL 32A 4 POLES S204C32	S204C32	ABB
BATTERY LEAD 12VOLT 2.3Ah	BEG8665	BEGHELLI
FUSE HOLDER	5X20	WEIDMULLER
POWER SUPPLY FOR DIN RAIL MOUNTING Ahal / DIN 812/1	AHAL/DIN 812/1	AHAL/DIN
CONTACTOR SCHNEIDER	LC1D32M7	SCHNEIDER
FUSE 5X20	5X20	WEIDMULLER
POWER CABLES <HAR>	H07RN-F	PECSO

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15 SETTING PARAMETERS AND TEMPERATURE CONTROL



MAKE SURE THE SET POINT VALUES MAY BE SET BETWEEN -70 ° C and -80 ° C (DEFAULT VALUES).

The set parameters on the device are attached to the end of this manual.

For further information and significance of the various parameters, see the attached manual of the temperature controller.

16 INSTRUCTIONS FOR TRANSPORTATION

The product is packed in KW Scientific Instruments to ensure data integrity during transport.

STORAGE / TRANSPORT in which the temperature is kept between + 5 ° C and + 40 ° C and the humidity is between 20% and 85% with Atmospheric pressure from 100kPa and 80kPa

The packaging is customized for the various models while ensuring a protection of the surfaces by means of coating paperboard and / or polystyrene, and a corner with stretch polyethylene film and strapping.

The appliance if it is not provided with wheels is placed on a pallet which facilitates the displacement by means of mechanical aids (pallet truck, forklift), in the presence of the wheels using the same for the handling.

In no case it is provided sockets, lashing eyes because it is not allowed to move in a different way from the above.

The transport takes place by courier authorized trained on how to load, transport and unload, especially on the need to keep the device always in a vertical position.

At installation at the user the device is moved to the previously described, unpacked and positioned flat (leveled). The packaging materials are collected by the carrier itself.

The KPFF48B model is transported with packaging made of a wooden case to make. In the event you need to transport the instrument will be required in its original packaging (or equivalent) in KW SCIENTIFIC EQUIPMENT SRL. The KW is not liable for any damage arising from the instrument transport in unsuitable packaging.

There are no special restrictions on exposure to weather conditions during the immagazzinamento and transportation

Alarm is silenced (BUZZER OFF)

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In the case in which the instrument is to be in an alarm condition, it activates the acoustic signal and visual alarm status. By acting on the small button BUZZER OFF, the visual alarm indication (red LED on) remains as long as the system does not come out of the alarm condition, while the acoustic signal is immediately silenced. This feature is intended to avoid disturbing or damage to the activities that take place near the machine, while maintaining the visual evidence of alarm status.

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17 DELCARATION OF CONFORMITY



DECLARATION OF CONFORMITY CE

BRAND: KW APPARECCHI SCIENTIFICI S.R.L.

Via della Resistenza 119 53035 Monteriggioni (SI) –ITALIA

Tel.0577/309144, Fax.0577/309143

e-mail: kw@kwkw.it, web: www.kwkw.it

Trademark: KW APPARECCHI SCIENTIFICI S.R.L.

DECLARES, under its own responsibility that the set:

Model: KPFF 48B S/N _____

Year _____

IS COMPLIANT TO THE FOLLOWING DIRECTIVES:

- MEDICAL DEVICES

2007/47/CE

Class IIa, rule 2, annex V,

- PED

2014/68/UE

Category II, Annex II

TECHNICAL STANDARDS:

- CEI EN 61010-1:2013

- CEI EN 61326-1:2013

- UNI EN 378-2: 2016

L'attrezzatura è stata marcata CE con i seguenti dati: *The equipment is EC marked with the following information*

DESCRIZIONE	1° Circuito - Stadio II Categoria – Modulo “A1” Category II - Modul “A1”	2° Circuito -Stadio II Categoria – Modulo “A1” Category II - Modul “A1”
PT (bar):	Hp; 24,2 / Lp; 19,8	Hp; 24,2 / Lp; 19,8
PS (bar):	Hp; 22 / Lp; 18	Hp; 22 / Lp; 18
TS (°C):	HP; - 40 + 100 / Lp; - 60 + 100	HP; 0 + 100 / Lp; - 50 + 100
FLUIDO GRUPPO E CARICA: GROUP FLUID AND CHARGE:	R452 A Gr.2 (Carica Kg 5)	R508 B Gr.2 (Carica Kg 3)

Monteriggioni,

**General manager
(Ing. Fabiani Stefano)**

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e-mail: kw@kwkw.it, web: www.kwkw.it

Trademark: KW APPARECCHI SCIENTIFICI S.R.L.

DECLARES:

The Divece : **MODEL:**_____ **Serial:** _____

It is in conformity with the provisions of the following directives:

Directive 2011/65/UE the European Parliament and of the Council of 8 June 2011 on the restriction of certain hazardous substances in electrical and electronic equipment.

The object of the declaration described above is in conformity with Directive 2011/65 / EU of the European Parliament and of the Council of 8 June 2011 on the restriction of certain hazardous substances in electrical and electronic equipment (*).

Name : Ing. Fabiani Stefano

Position: Direttore Generale

Signature_____

Monteriggioni date,

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18 WARRANTY RULES:

This appliance is guaranteed for the period of:

☐ 12 months ☐ 24 months ☐ 36 months ☐ other _____

the date of the sales invoice. Within this period the purchaser has the right in case of imperfect operation of the device, the free replacement of parts unfit for ascertained defect of material, as long as they are returned to KW defective parts and do the actual defect is detected.

The warranty does not cover parts normally subject to wear such as gaskets, light bulbs, batteries. Does not cover faults and / or malfunctions resulting from failure to periodic cleaning of the condenser, as the cases of block machine, due to the intervention of the automatic resetting safety pressure (KP17W), no further includes interventions in the event of bad or impossible to open the door, because of the obstruction of the compensation valve, due to its lack of regular cleaning.

This warranty is void if the products are used in a manner inconsistent with the instructions given in the company manual or if they are modified, repaired or dismantled outside the workshop of the company, or by people who do not have authorized this in writing to the repairs. And especially in the case of incorrect intervention on the general temperature regulator.

In this regard KW assumes no liability for electrical failures that have their certain cause or presumed likely in the incorrect installation of the device, specifically in connection to the laboratory mains.

This also applies in cases where the environment of intended purpose of the safety standards are not being met.

The warranty is void in the event of failures and / or malfunctions attributable to the local temperatures above 32 ° C, and if the room itself is not guaranteed supply of fresh air.

p.la KW APPARECCHI SCIENTIFICI

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SIGNATURE USER / CUSTOMER



The non-observance of the information in this publication will result in the immediate loss of the warranty granted and the assumption by the purchaser of all the civil and criminal liability in case of injury to property and / or persons

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19 LABELS CE:

CE 0051

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MONTERIGGIONI - SIENA - ITALIA

ANNO di COSTRUZIONE

MATRICOLA

MODELLO

MARCHIO KW®

ALIMENT. _____ V _____ Hz

POTENZA _____ VA I: _____ A

REFRIGERANTE _____ gr.

REFRIGERANTE _____ gr.

CLASSE _____ TIPO _____

DIRETTIVA 93/42/CEE

INDICATE IF VERSION
PHASE V 400 3N

STANDARD VALUE TO BE CHECKED
PHASE: 230 X ABSORPTION
THREE: 3 X 230 X ABSORPTION
(ROUND UP EXCESS)

STANDARD VALUE TO BE CHECKED
MAX. VALUE MEASURED WITH THE
INSTRUMENT (8A)

CE 2761

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MATRICOLA MODELLO ANNO

1° STADIO

PS (Hp) ba	22	PT (Hp) bar	24,2	PS (Hp) ba	-20+100
PS (Lp) bar	18	PS (Lp) bar	19,8	PS (Lp) bar	-20+100

REFRIGERANTE **R452A** gr.

2° STADIO

PS (Hp) ba	22	PT (Hp) bar	24,2	PS (Hp) ba	-20+100
PS (Lp) bar	18	PS (Lp) bar	19,8	PS (Lp) bar	-80+100

REFRIGERANTE **R508B** gr.

ALIMENTAZIONE _____ FREQUENZA _____

POTENZA _____ ASSORBIMENTO _____

DIRETTIVA 2014/68/UE

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Symbols on the machine



under power appliance



connection to the ground rod



read the instructions

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