INSTRUCTIONS FOR INSTALLATION, USE AND MAINTENANCE

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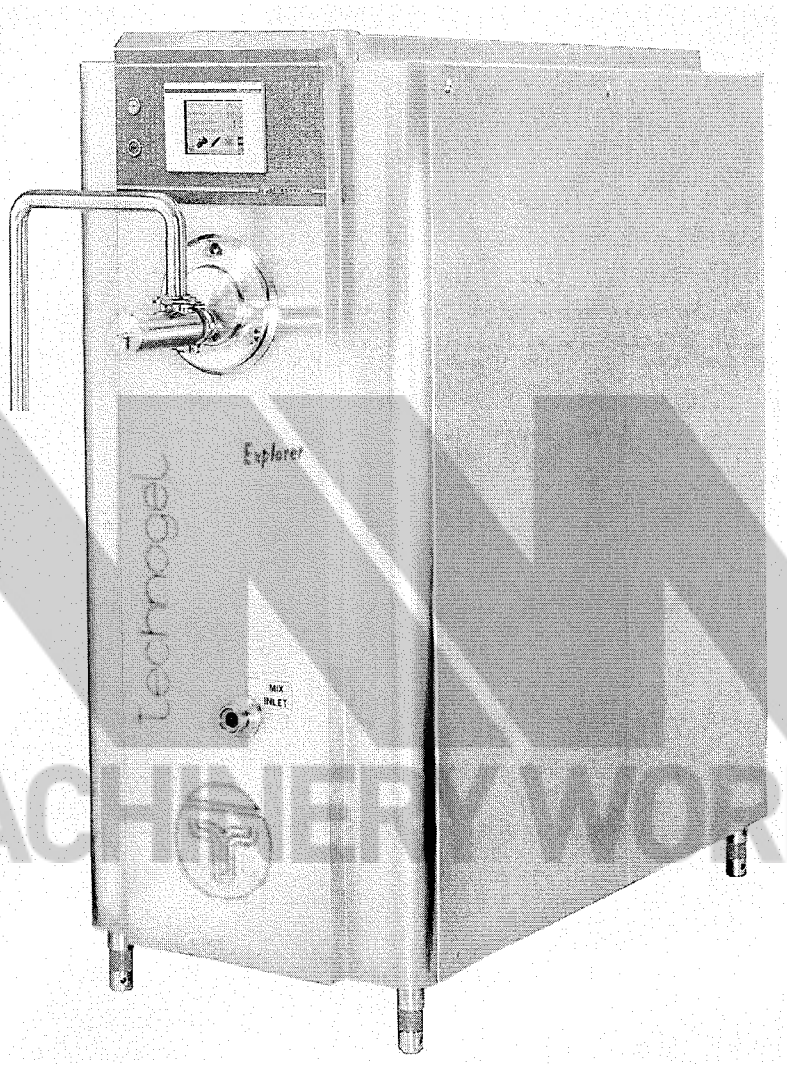

FREEZER "EXPLORER"

technogel spa

MACCHINE E IMPIANTI PER GELATO

ICE CREAM EQUIPMENTS AND MACHINES

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❖ Introduction

Thank you for choosing a Technogel machine. To ensure trouble-free operation of your machine, please read the **Instructions for the Installation, Use and Maintenance** very carefully.

The descriptions and illustrations contained in this manual are not binding. **Technogel Spa** reserves the right to make any changes to the machine for constructional and/or commercial reasons that the company feels necessary at any time and without prior warning.

In order to ensure compliance with safety laws and regulations regarding people in the work place, it is extremely important to follow the instructions given in the next two paragraphs meticulously.

⇒ People authorized to carry out work

Please note the symbols given at the side of each operation required for installation, use and maintenance :

 = **Technician**

 = **User**

When the symbol for **Technician** is given (either an electrician, plumber, refrigeration technician or mechanic depending on the situation) this means the work may be carried out only by these people; if the operations indicated are carried out by user, **this could prove dangerous for the person involved and must therefore be avoided at all costs**.

⇒ Installation and start-up

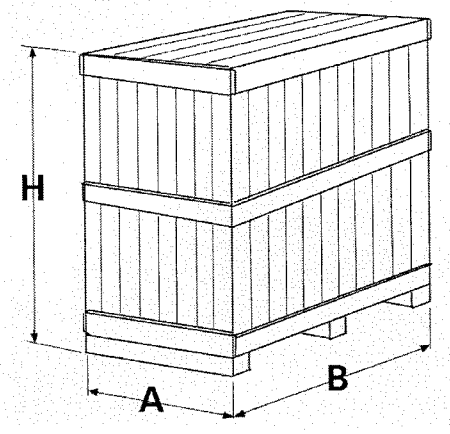
Installation and start-up of the machine must be carried out by a **technician** from **technogel** or by a technician **authorized** by **technogel.**

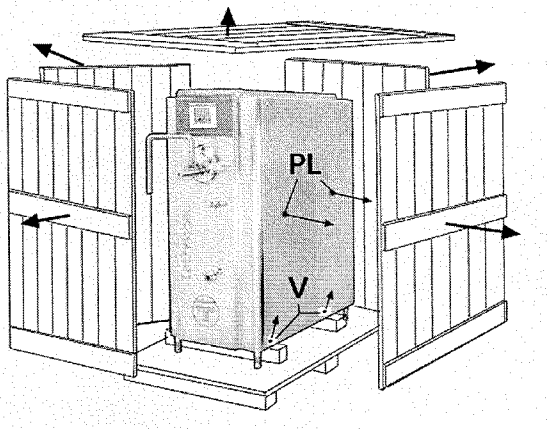
TECHNOGEL spa DECLINES ANY RESPONSIBILITY FOR INSTALLATION AND START-UP CARRIED OUT BY UNAUTHROIZED PERSONNEL

How to unpack the machine

Dimensions and weights of the EXPLORER with packing:

A mm.	B mm.	H mm.	Gross weight Kg.	Net weight Kg.
900	2000	1950	955	800

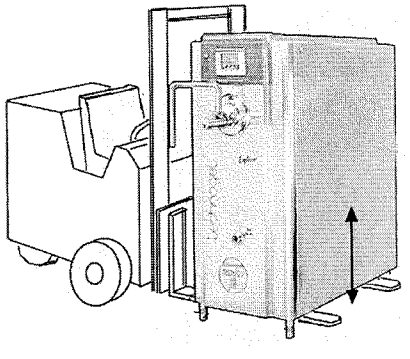


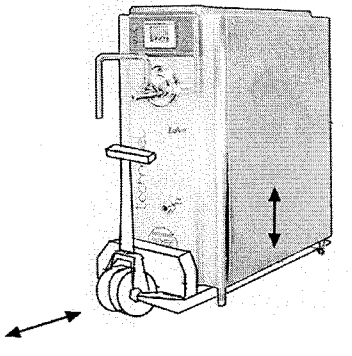


Remove the wooden side and top panels from the packing. Dismantle the side panels **PL** and unscrew the screws **V** which lock the machine to the base of the packing. Lift the machine using a fork-lift truck and place it on the ground.

THE WOOD USED FOR THE PACKING CASE IS NATURAL FIR AND DOES NOT CONTAIN ANY CHEMICALS. IT IS THEREFORE IDEALLY SUITED FOR RECYCLING.

⇒How to move the machine





The machine must be moved using a lift truck of adequate capacity or a manual pallet truck (transpallet)

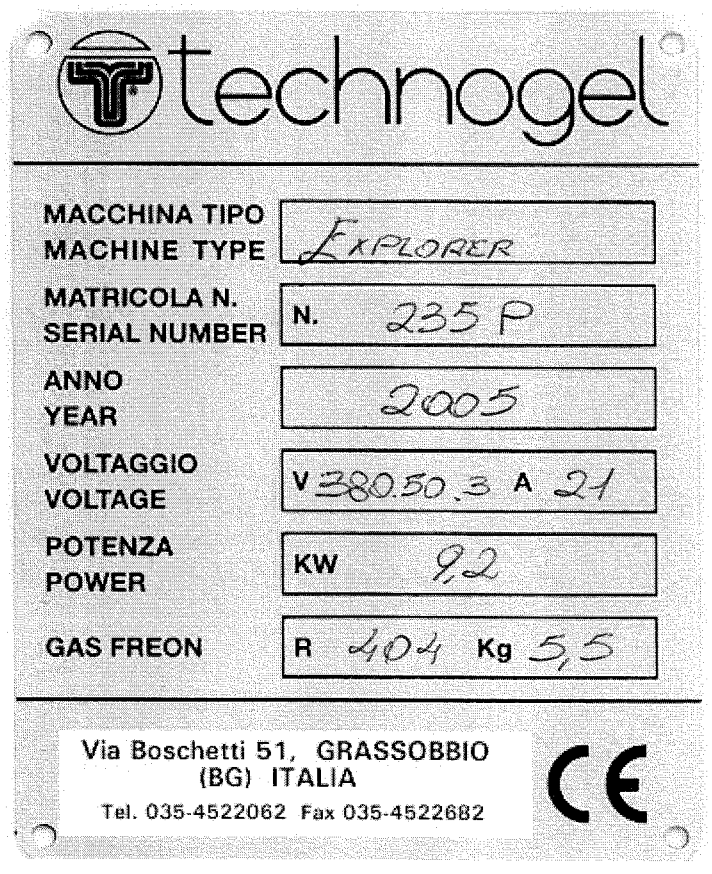
⇒Machine identification

Each machine is fitted with a plate giving the following information:

- **type of machine**
- **serial number**
- **year of manufacture**
- **voltage, and absorption**
- **electrical power**
- **type and quantity of refrigerating gas**

The plate is applied to the rear of the machine (see page 8 position **G**).

The plate for this machine is as indicated below:

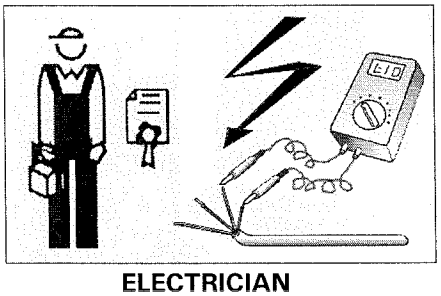


When ordering spare parts and applying for technical assistance, please give the data indicated on the serial plate to ensure precise identification of the machine:

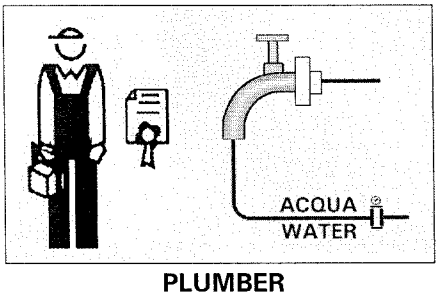
⇒ **MACHINE TYPE**	**EXPLORER**
⇒ **SERIAL N°**	235 P
⇒ **VOLTAGE**	V. 380 HZ 50

MACHINE POSITIONING AND UTILITIES

People authorized only:

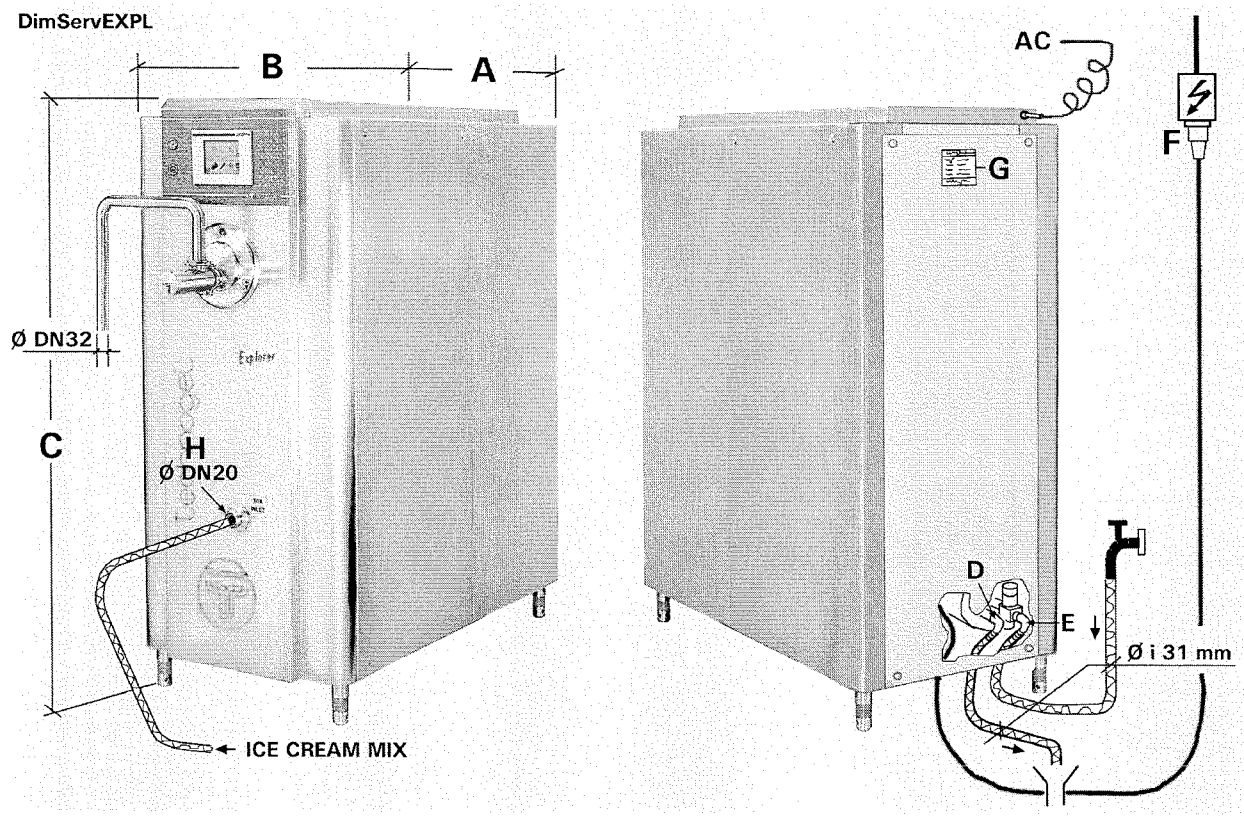


ELECTRICIAN



PLUMBER

⇒Positioning in relation to utilities



CAUTION:

The machine does not need to be anchored to the floor and no special measures need to be taken to restrict the transmission of vibrations.

There are, however, a number of important rules which must be followed:

⇒ Leave a space of at least 50 cm around the perimeter of the machine. This is essential to enable work and maintenance to be carried out without difficulty.

⇒ Connect the machine electrically to point **F** with a cable coming from above. This will prevent any danger of the cable being crushed underfoot which could happen if it is laid on the ground. For electric power details please see page **9**

⇒ Make sure the floor is strong enough to take the weight of the machine.

⇒ Check that the machine is stable and that the four feet rest firmly on the floor.

⇒ Connect the machine to the water supply at points **D** and **E** with firmly fixed piping which will withstand a minimum pressure of **10 Bar**. For details of consumption please see page **10**

⇒ Connect the machine to the air supply at point **AC** for filtered and dehumidified compressed air. For consumption and pressure details please see page **11.**

Machine dimensions:

A Width mm	**B** Depth mm.	**C** Height mm.	**Weight** Kg.
680	**1480**	**1660**	**800**

⇒ Electrical installation

The electrical system to which the machine is connected must be perfectly executed by a qualified electrician in compliance with current regulations. An efficient electrical system with adequate earthing is of vital importance to ensure trouble-free operation of your machine.

We strongly recommend installation of a wall-mounted differential circuit-breaker (see point **F** on page 4). See table (**A**) for details regarding power and absorption.
Make sure that the supply voltage is the same as the machine voltage indicated on the serial plate **G** on page 8 and in the manual on page 5.

If the power supply is 230 V the machine cable has four wires: the ***yellow/green wire*** is the ***earth*** and the other three are the ***three phases.***.

If the power supply is 380 or 415 V, the machine cable has five wires: the ***yellow/green*** wire is the ***earth*** – the ***blue*** wire is the ***neutral*** and the other three are the ***three phases.***

Table **(A):**

EXPLORER	V.230 50HZ	V.230 60HZ	V.200 50/60HZ	V.400 50HZ	V.380 60HZ
Total power **kW.**	19,6			19,6	
Maximum absorption **A.**	80			50	
Power cable N° of wires and cross-section	4 x 16 mm²			5 x 10 mm²	

TECHNOGEL spa DECLINES ALL RESPONSIBILITY FOR ANY PROBLEMS ARISING FROM INCORRECT INSTALLATION OR FAULTS IN THE POWER SUPPLY.

⇒ Water supply

The refrigeration plant has a water-cooled condenser. On the back of the machine, inside at the bottom, opposite connector **E** (page 8) **WATER INLET,** connect the pipe coming from the water supply or from the water tower system and connect to connector **D** (page 4) **WATER OUTLET,** the drainage pipe or the pipe leading to the return pipe of the water tower system. For connection of the machine to the water supply, it is important to use rubber piping suitable for operation with a pressure of at least **10 Bar**, with an internal diameter of approx. 31 mm. (suitable for use with the connectors supplied with the machine).

If, for any reason whatsoever, the indications on the water inlet and outlet are not legible, please note that the inlet pipe is the one connected to the pressure valve.

- WATER PRESSURE AND CONSUMPTION DETAILS:

If the machine operates with the mains water supply, make sure that the water coming into the machine has a minimum pressure of **1.5 Bar.**

If the machine operates with tower water, make sure that the water reaching the machine has a minimum pressure of **2.5 Bar** and a maximum temperature of **29°C.**

In both cases the maximum pressure for the incoming water must not exceed **4 Bar.**

MAINS WATER – average consumption of mains water (when the refrigeration system is in operation) is:

EXPLORER **FREEZER = 1200/1400 litres/hour***

* depending on the temperature of the water entering.

TOWER WATER – The quantity of water (maximum temperature **+29°C** and minimum pressure **2 Bar**) which must circulate in the machine in one hour, is obtained by multiplying the consumption levels given for mains water supply by 4.

If the water contains any impurities, it will be absolutely essential to fit a purifying filter to avoid any danger of build-up of scale and/or damage to the pressure valve.

⇒ Connection to the air supply

Connect the filtered and dehumidified compressed air to the rapid attachment (**AC** page 8) located on the back at the top.

The compressed air must be at a minimum pressure of **7 Bar.**

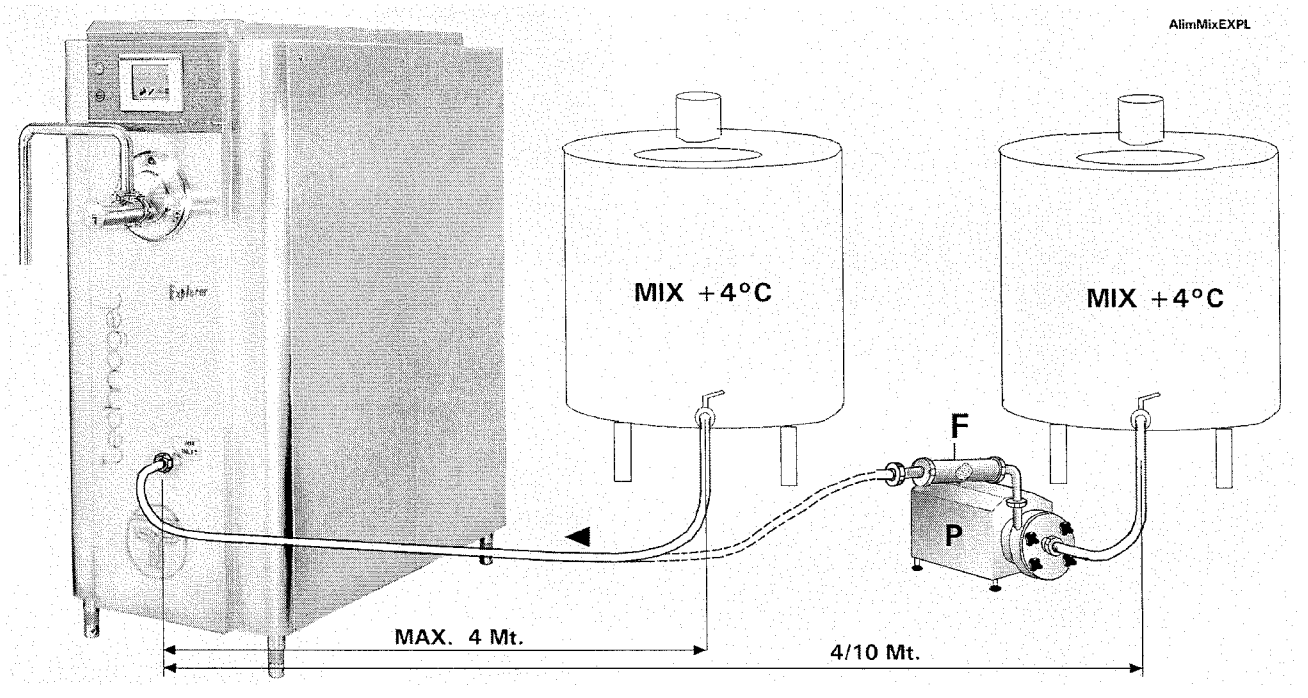
The quantity of air required is **10 litres** per minute.

⇒ "Ice-cream mix" connection

As indicated on page **8**, connect a rubber pipe with internal diameter of 21 mm and maximum length 4 metres to point **H** (rubber holder supplied with the machine).

Do not use rigid stainless steel piping for the connection.

If the piping approaching the machine is made of steel, the last piece (1 metres) must be made of rubber.



If the ageing vat from which the ice-cream mix is taken is more than 4 metres, it is possible to transfer the mix with a pump **P** providing that the pressure of the mix on arrival does not exceed 0.5 bar.

ATTENTION:
The mix must be liquid and must contain no impurities. We recommend use of a mesh filter **F** at the pump outlet which will prevent passage of any object larger than 1 mm in size.

If the mix were to contain a metal screw or a piece of o-ring which had been dropped into a vat by mistake, the filter would prevent this from reaching the Freezer pump unit and blocking it.

If you wish to order the pump, please quote the following code no.: CODE MW-00161 with Filter.

AUTHORIZED AND UNAUTHORIZED USAGE

TECHNOGEL Freezers EXPLORER, are designed and constructed exclusively for the manufacture of ice-cream.

Any attempt to use the machinery to manufacture products other than those specified is carried out at the Customer's own risk.

⇒ Conditions of usage of the machine

The machine can be set to produce the following quantities: **minimum 200 litres of ice-cream** with an increase in volume of 100%; **maximum 800 litres of ice-cream** with an increase in volume of 100%.

The temperature of the ice-cream obtained may vary from −2°C to −8°C, depending on the type of mix used, the quantity of ice-cream produced and the type of ice-cream required (liquid for products on sticks or extremely compact for extrusion).

The optimum temperature of the mix reaching the Freezer should be +4°C.

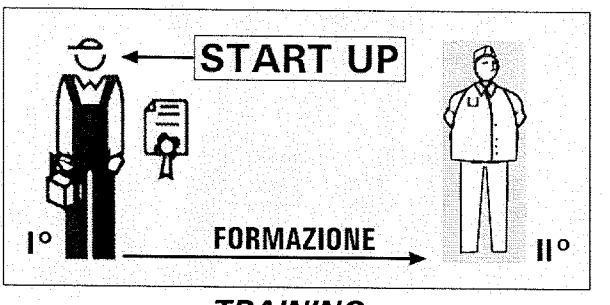
The minimum increase in volume recommended to obtain a well-textured ice-cream is 30/40%.

THE PRODUCTION FIGURES GIVEN ABOVE ARE ACHIEVED WHEN THE TEMPERATURE OF CONDENSATION IN THE REFRIGERATION SYSTEM IS BETWEEN 35°C (OPTIMUM CONDENSATION) AND 38°C.

WITH OVER 45°C OF CONDENSATION, THE MACHINE'S PRODUCTION DECREASES CONSIDERABLY. IF THE MACHINE OPERATES UNDER THESE CONDITIONS FOR LONG PERIODS OF TIME THIS COULD DAMAGE THE REFRIGERATION SYSTEM.

CHECKING AND MACHINE START-UP

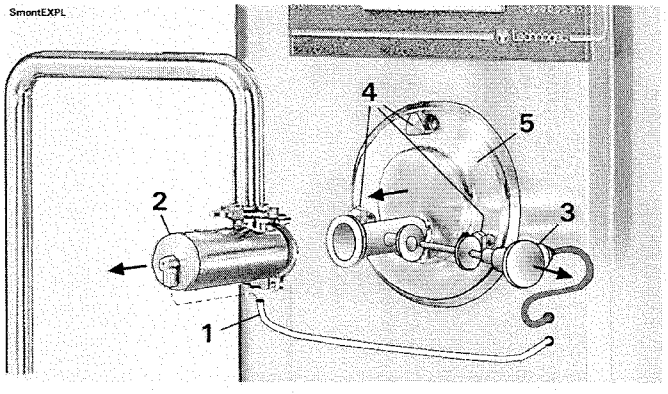
Initial start-up must be carried out by a TECHNOGEL technician together with the Operator who, after specific training, will be in charge of the machine.



TRAINING

⇒Points to be checked prior to start-up of the machine

Before starting up the machine, carry out the following checks:



Make sure that the machine is on **STOP** or disconnected from the power supply.

Disconnect tube **1** for the compressed air and remove the air tap **2.**

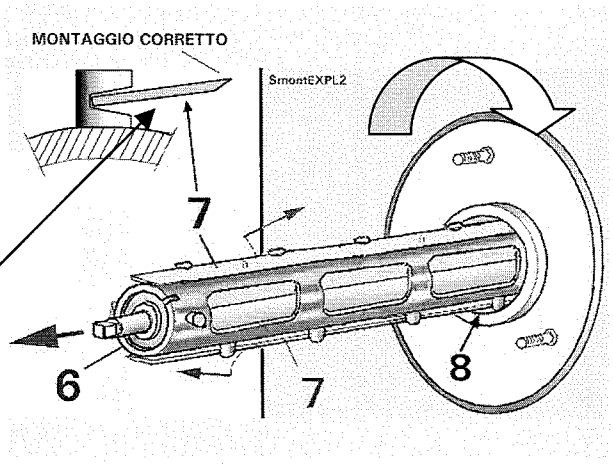
Remove the thermometric probe **3** from the flange and leave it dangling but attached to the machine.

Unscrew the handwheels **4** and dismantle flange **5** pulling it outwards.

Extract turbine **6** pulling it outward; be careful of the blades **7** which are very sharp and could easily cut the hand.

Place the turbine on a table and check the rear seal.

CAUTION:
When dismantling or re-assembling the turbine, make sure it does not hit against the edge **8** of the freezer tube which could be damaged.



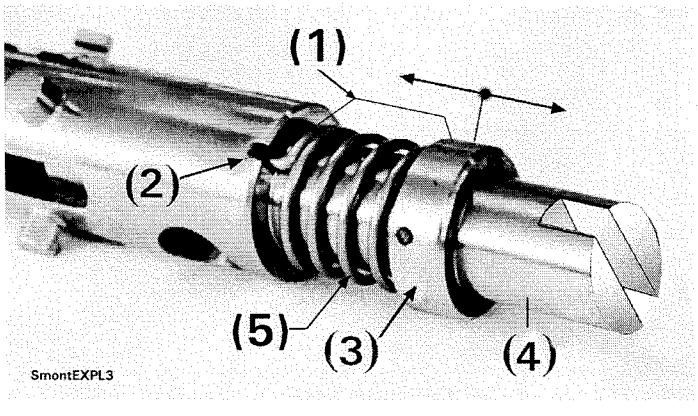
Correct assembly of the scraper blades 7 is shown here

Check the mechanical seal **1**:

The shank **2** of spring **5**, must fit in its seat.

The rotating part **3** of the mechanical seal must be free to move along the axis of the turbine **4** with the strength of the spring. If rotating part **3** of the mechanical seal is blocked with the spring all crushed, it will be necessary to dismantle it, removing it from the axis **4** and grease the O-Ring inside with vaseline.

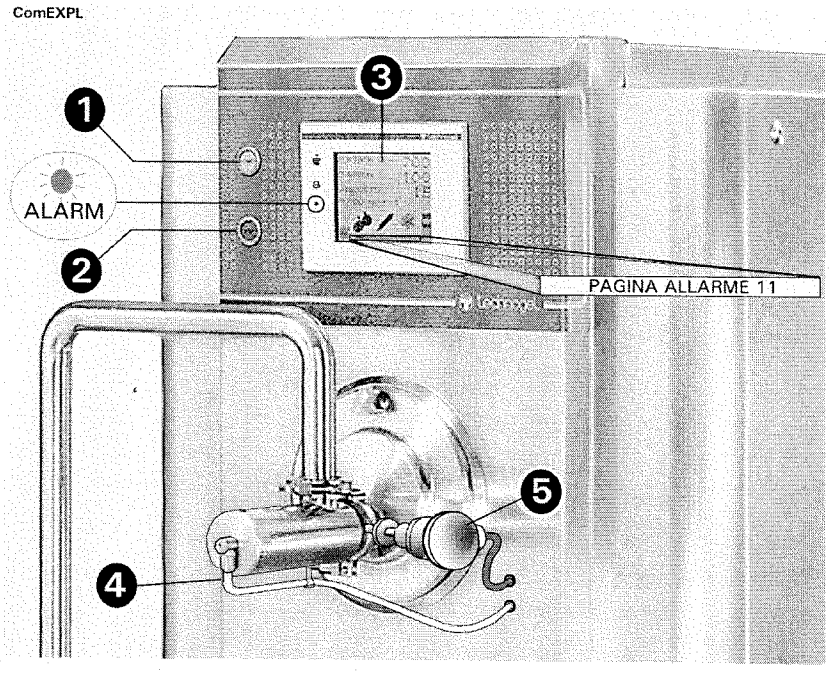
Carry out this control after each wash.



Reassemble the parts carefully and meticulously; make sure that the turbine enters completely into the freezer tube and that it fits tightly with the shaft which drives it.

Reassemble the flange and then the thermometric probe. Lastly mount the pneumatic faucet and connect it with pipe **1** for compressed air.

⇒Machine start-up



After connecting the machine to the power supply, press the pushbutton **START** 1 and screen 3 ***"touch screen"*** will come on.

Wait a few seconds while the machine processes the control programmes for the electronics until the screen gives the ***"technogel"*** logo.

At this point it is possible to set and start-up the machine simply by pressing on the screen on the various symbols and/or parameters described in the next few pages.

To stop the machine and disconnect the power supply to the ***"touch screen"***, press pushbutton **STOP** 2.

TAKE CARE DURING START-UP AND, IF AT SOME TIME IN THE FUTURE, IT IS NECESSARY TO CHANGE THE POWER POINT TO WHICH THE MACHINE IS CONNECTED:

If when the **"technogel"** logo appears the red **ALARM** warning light flashes on the left hand side of the screen (see figure), and after pressing **"next"** on the first page you get a red strip stating **"ALARM PAGE 11"**, this means that the power supply cable has been incorrectly connected (the direction of rotation is wrong) and therefore the machine does not accept any control instructions.

If this happens, press **STOP 2**, disconnect the power cable from the external power point and invert any two of the three phases. Reconnect the power supply and the machine is ready and will operate correctly.

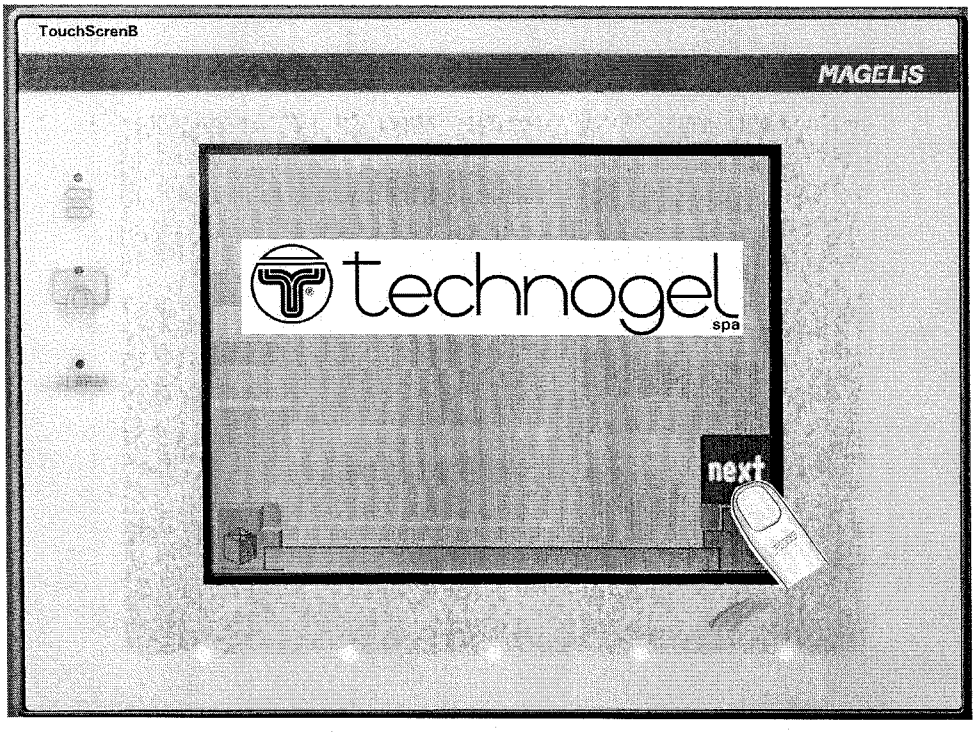
For further information please see the section on **"ALARMS"** on page 26.

CAUTION:
To ensure correction operation and to safeguard the components of the refrigeration plant, after turning on the screen, wait approximately 30 minutes before starting the machine if this has been stopped for a number of hours (from the previous evening for instance).

One work has terminated, it is better to disconnect the power supply to the machine by pressing **STOP** 2.

⇒Sequence of machine setting and controls

After connecting the machine to the power supply and pressing **START,** this is the first page which appears:

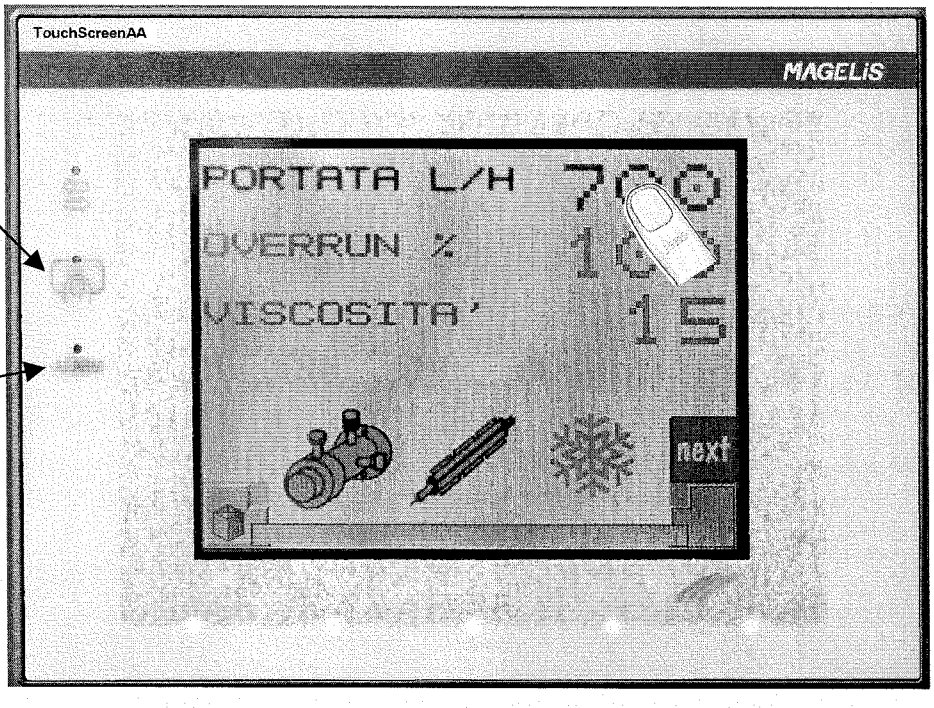


Press the glass on the word "**next**" and the second page will appear:

NOTES:

When this Led is on, this confirms that the symbol or number has been pressed correctly.

When this Led flashes, this means there is an alarm situation. Please see the section on ALARMS on page 26.



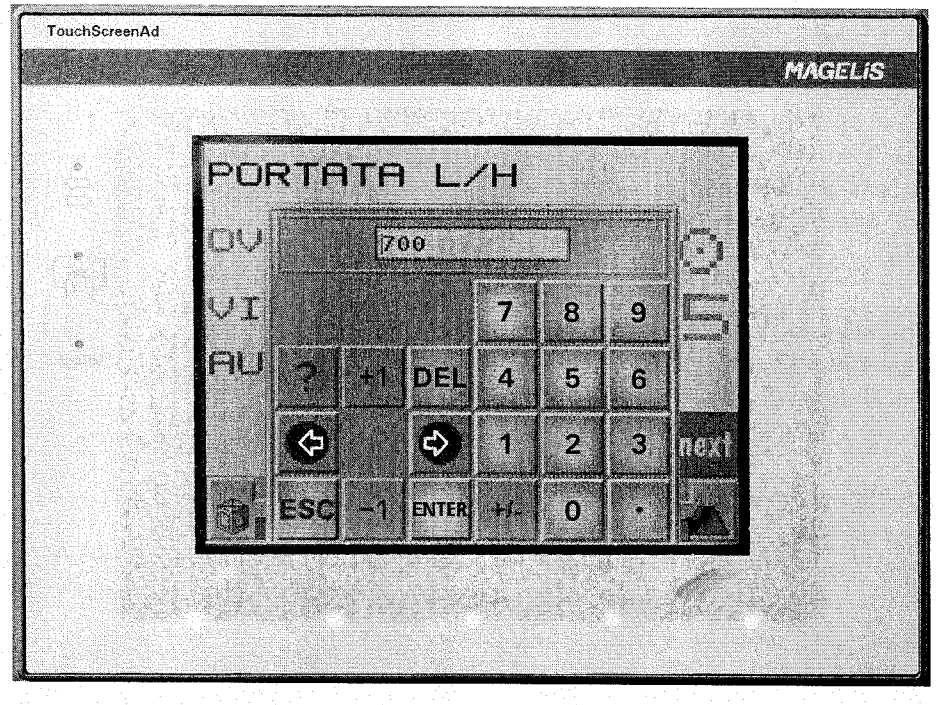
The first parameter which must be set is the quantity of ice-cream per hour which you wish to produce.

➢ Press the glass on the **FIGURE** for **CAPACITY L/H** (litres per hour) and the third page will appear for setting of production rate per hour.

⇒Instructions for setting *"how much"* ice-cream to make

Minimum setting for production	**Maximum** setting for production	Initial production rate* with ice-cream at 50% of volume increase	Initial production rate* with ice-cream at 100% of volume increase
200 litres per hour	**800 litres per hour**	**400 litres per hour**	**600 litres per hour**

*This initial production rate is indicative and serves to test whether the ice-cream produced is in compliance with what is required. It can then be changed to a higher or lower level depending on the type of ice-cream you wish to produce. E.g. If at 400 litres per hour the ice-cream is too hard, increase the production to 450 litres per hour or vice versa if the ice-cream is too soft, i.e. reduce to 350 litres per hour.

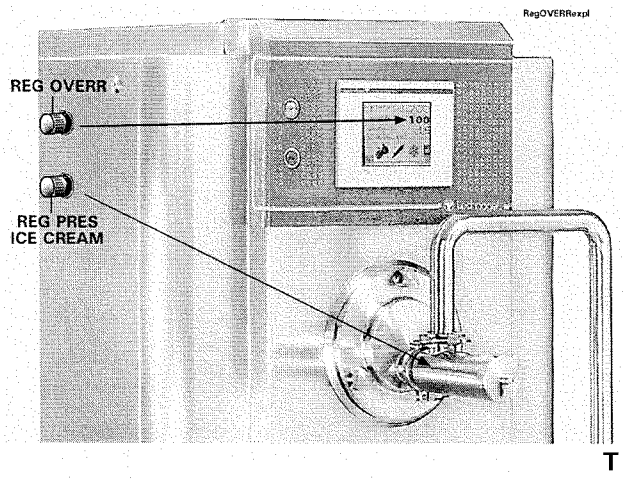


Type in the hourly production figure on the keyboard by pressing with the finger on the glassl.

From **0** to **9**	Numbers to type in the production rate
⇨	Key to move the cursor to the right onto the figure you wish to change
⇦	Key to move the cursor to the left onto the figure you wish to change
DEL	Key for use when the figure is incorrect and must be deleted
ENTER	Key to give confirmation of the figure set
ESC	Key to quit the page and return to the previous one

NOTES:
- After keying in the figure, press **ENTER** to return automatically to the previous page.
- The figure can be changed even when the machine is in operation.

⇒Actual start-up of the machine



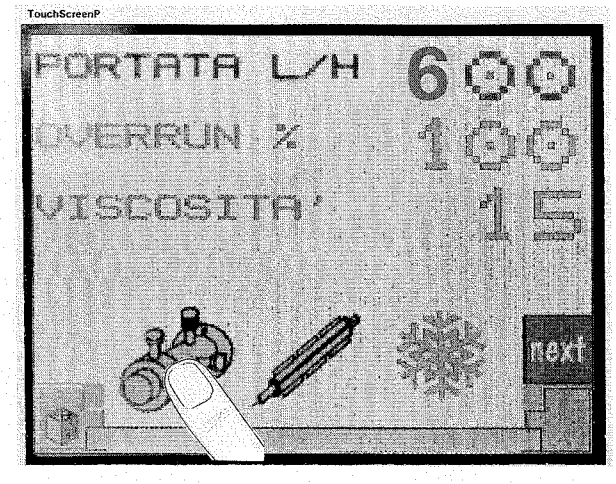
Connect the mix tube to the pump connector of the machine (see page 4).

Unscrew the knob **REG PRES** completely . This maintains the pressure inside the freezer tube.

The mix must enter freely, fill the internal tube and come out of pipe **T** on the faucet.

Press on the ***"touch screen"*** on the **"pump"** symbol and wait for the mix to come out of pipe **T**.

When the mix starts to come out, screw up the knob **REG PRES** fully and immediately after, press the **"pump"** symbol again to stop it.

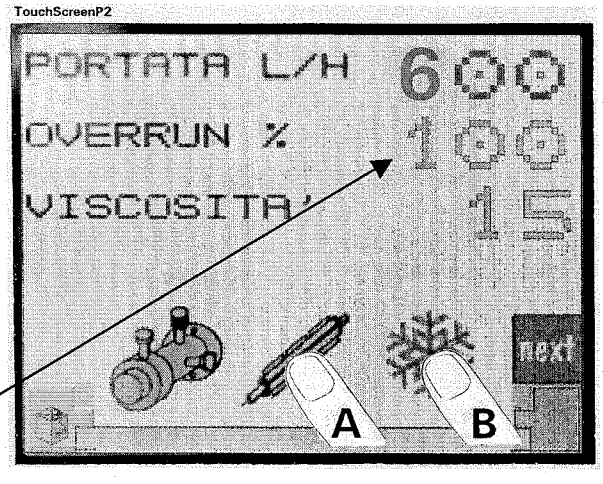


CAUTION:

When the pump symbol is **RED,** this means the corresponding motor is stopped.

When the symbol is **GREEN,** the corresponding motor is in operation.

Start the mixer turbine by pressing symbol **A** and immediately after start the refrigerator compressor by pressing symbol **B**



CAUTION:
If button **A** is not pressed first, button **B** will not be activated and therefore the refrigerator compressor will not start.

Wait for the **"VISCOSITY"** value to go up a few numbers and then start up the **"pump"** again as described above. When the knob **REG OVERR** is turned, the number beside **"OVERRUN %"** becomes the percentage required for the ice-cream.

Example:
- Capacity (Production l/h) **600**
- Overrun (Increase in volume) % **100**

Wait at least a few minutes and the ice-cream which emerges from the machine will have a volume increase of 100%. We recommend checking the actual increase in volume and, if necessary, change the % value.

After each change in %, wait for at least 4 minutes before checking once again.

NOTES: when symbol **B** is pressed (fridge compressor) start-up occurs automatically in two stages. In the first stage (the symbol becomes yellow) the compressor starts at 50% of its power capacity and, after a few seconds, during the second stage (the symbol turns green) the compressor reaches 100% capacity.

⇒ What is meant by "VISCOSITY'"

The **"VISCOSITY"** value which appears on the screen, as shown on the previous page, indicates the hardness of the ice-cream in relation to the effort made by the stirring motor in mixing it.

The higher the value, the harder the ice-cream.

The numbers which appear on the screen are the Amps of the motor's electrical absorption. Each machine has preset values which cannot be changed.

These values differ only in relation to the machine's voltage.

230V machines minimum/maximum	400V machines minimum/ maximum	
From to	From **8** to **15**	Once the maximum value is reached, the machine stops the cold (refrigerator compressor) and starts again when the value drops below the threshold set.

This values is indicative of the type of ice-cream which is being produced: for very hard ice-cream, the operator knows the value must remain very high – whereas for soft ice-cream for wrapping, the value must be medium.

If during production of ice-cream the value remains high (ice-cream too hard) and the machine's microprocessor is constantly being activated and stopping the refrigerator compressor, it will be necessary to increase the production rate per hour to prevent this happening.

If the hourly production rate cannot be changed because the Freezer is connected to a wrapping machine, it will be necessary to intervene on the **"ICE-CREAM TEMPERATURE"** Parameter.

⇒ How to change the "ICE-CREAM TEMPERATURE"

Press **"next"** on the previous mask and the third one will appear.

The parameter **ICE-CREAM T°** has two values next to it: the top one is the temperature set, the bottom one is the temperature of the ice-cream while the machine is in operation.

If the ice-cream temperature exceeds the set temperature (**-6**) and reaches **–6,5**, the automatic hot gas system comes into operation and takes the temperature back to the set value.

Minimum temperature that can be set	**Type of ice-cream**	**Maximum** temperature that can be set	**Type of ice-cream**
- 2°C	**Liquid for sticks**	**- 8°C**	**Hard for extrusion**

To vary the temperature of the ice-cream, press on the top figure next to ICE-CREAM T° and the mask will appear for numerical setting. Proceed as for Production change (see page 19).

When ice-cream is produced and there are no problems of production or packing, enter a temperature of **-8°C** and the Hot Gas system will never be activated.

⇒ "PRESSURE" value

The "**PRESSURE**" value indicated in the mask shown at the side refers to the ice-cream pressure inside the machine's freezer pipe and the number on the right is the pressure given in Bar.

The pressure indicated can be regulated using the regulator **REG PRES ICE CREAM** while the machine is in operation.

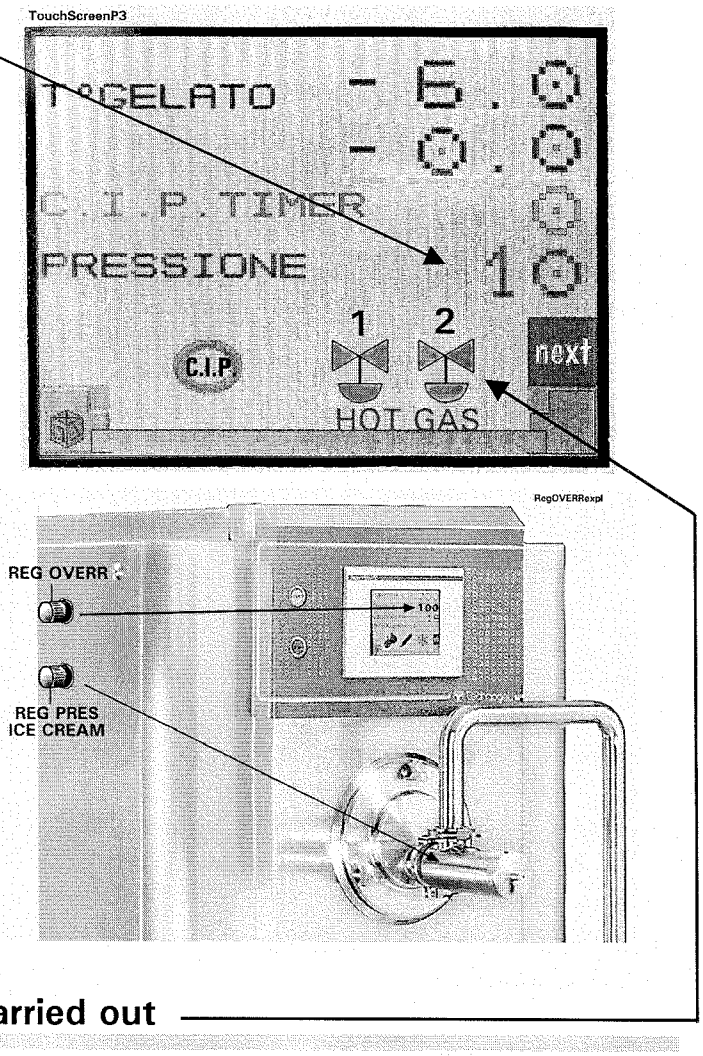
This pressure, during the production of standard ice-cream must remain at **10 Bar.**

For special ice-creams such as sorbet with increase in volume zero, this pressure can be set at zero.

CAUTION:

An operating pressure of less than 10 Bar can affect the texture of the ice-cream. It is therefore a good idea to check the pressure value during operation.

If an attempt is made to regulate the pressure and this does not change, it may mean that the pneumatic tap for the ice-cream outlet is blocked.



⇒ How HOT GAS adjustment is carried out

The **"hot gas"** system described in the previous page is carried out automatically under certain operating conditions and semi-automatically under extreme conditions. If you wish to know whether the system comes into action, see the mask above: when the system is **inactive** the symbols of the Hot Gas valves 1 and 2 above the words **HOT GAS** are **RED** in colour. When the system is **active** one or both of the valves above teh words **HOT GAS** turn **GREEN.**

Hot Gas operation:

For **ICE-CREAM T°** set from **–3 to –8°C,** only valve **1** intervenes. For **ICE-CREAM T°** set from **–2.9°** to **0°C**, valve **2** also comes into operation.

ATTENTION:

If when operating within the temperature range **–3** to **–8°C** it is impossible to have the set temperature because the hourly production rate is too low, put the compressor (while in operation) onto "**partial operation** by pressing the symbol **B** indicated by the finger on page 20. It will change from **GREEN** (compressor on full) to **YELLOW** (partial operation).

After following the instructions given above, if the Hot Gas on continuous operation still does not maintain the temperature set, this means that the quantity of product produced by the machine is insufficient and adjustment does not fall within the required range. Increase the hourly production rate and the system will operate correctly.

⇒ Calculation of ice-cream overrun

To discover the exact increase in volume of the ice-cream in production, follow the instructions below:

- Take a 1-litre container, fill it with the liquid mix and weigh it. Then subtract the tare (weight of the empty container) to obtain the net weight of one litre of mix.
- Apply the following formula to obtain the increase in volume as a %.

$$\frac{\text{WEIGHT OF MIX - WEIGHT OF ICE-CREAM}}{\text{WEIGHT OF ICE-CREAM}} \times 100 = \%$$

Example: 1 litre of mix weighs 1.050 kg. and 1 litre of ice-cream made with the same mix weighs 0.580 kg. =

$$\frac{1{,}050 - 0{,}580}{0.580} \times 100 = \frac{0{,}470}{0.580} \times 100 = 0.81 \times 100 = \underline{81\%}$$

The litre of ice-cream which weighs 0.580 kg. has an increase in volume of 81%.

To increase or reduce the increase in volume, increase or decrease the pressure of air injected by the pump using the knob **REG OVERR** (see page 16).

It is advisable to increase or decrease the overrun **5%** at a time; wait for the ice-cream to change inside the machine and after checking the new increase in volume, if necessary, change again.

It is possible that by increasing or decreasing the air pressure, the production of ice-cream will increase or decrease. Check if it is necessary to change this by increasing or decreasing **"Production L/H"**, the hourly production rate (please see page 13).

Once the right balance has been found for **"Hourly production, increase in volume** and **ice-cream viscosity**, this information will serve to set the Freezer for future use with this type of product.

⇒ Calculation of how much ice-cream the Freezer is producing in one hour

Using the same data given in the example above and assuming that the 1 litre container, which weighs 0.580 kg, has been filled in 6 seconds, we can calculate both the hourly production in litres and the hourly production in kilos.

Hourly production rate in litres	Hourly production rate in Kg.	Observations
sec.3600:6 = 600 ⇩ 1-litre family packs produced in 1 hour = n°600 Litres of ice-cream produced in 1 hour = **600**	n°600xkg.0.580 = 348 ⇩ Kg. of ice-cream produced in 1 hour = **348**	The production figure in litres is required when the machine is connected to a wrapping machine to determine the number of pieces per hour. The production figure in Kg. is required to find out how much mix the machine needs for one hour's production of that type of ice-cream.

⇒ Checking operation of the refrigeration plant

When initial start-up of the machine is carried out, it is necessary to check whether the refrigeration plant is operating correctly.

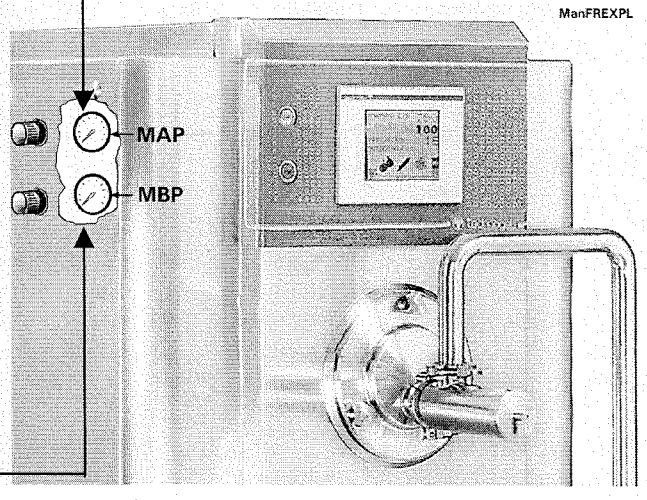
In order to do this, dismantle the left hand panel of the machine and check the readings on the special gauges:

- **MAP red** high pressure gauge **(condensation).**

This gauge measures condensation; note the scale corresponding to the **Gas** in the machine (**R404**). The temperature when the machine is in operation must read:

minimum = +35°C – maximum = +40°C

If the temperature reading is over +40°C (this must be checked after 5 minutes because on start-up it is normal for the temperature to go up and then drop) this means that there is insufficient cooling water reaching the machine. The flow of water to the machine must therefore be increased.



- **MBP blue** low pressure gauge **(evaporation).**

This gauge measures evaporation, i.e. the cold produced by the machine; note the scale corresponding to the **Gas** in the machine (**R404**). The temperature must fall within the range **-29°C to -35°C.**

VERY IMPORTANT

IT IS OF VITAL IMPORTANCE WHEN APPLYING FOR ASSISTANCE TO THE TECHNICAL SERVICE TO SUPPLY THE DATA REGARDING PRESSURE AND TEMPERATURE GIVEN BY THE GAUGES MAP and MBP.

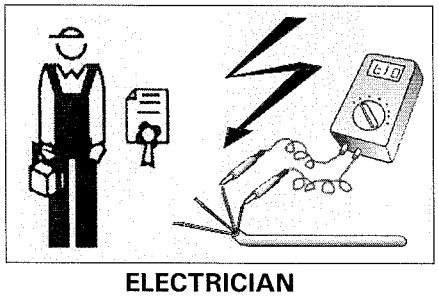
THE READINGS MUST ALWAYS BE TAKEN WITH THE MACHINE IN OPERATION

ANY TECHNICAL INTERVENTION CARRIED OUT BY UNAUTHORIZED PERSONNEL INSIDE THE MACHINE COULD PROVE EXTREMELY DANGEROUS FOR THEIR SAFETY.

ALARMS

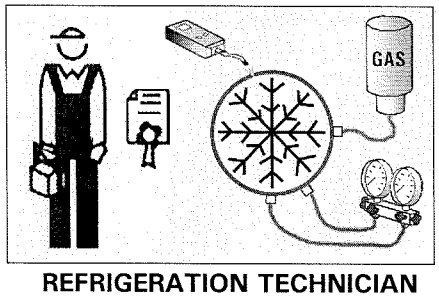
Qualified personnel to be called as indicated in the alarm displayed.

ELECTRIC FAULT



ELECTRICIAN

REFRIGERATION FAULT



REFRIGERATION TECHNICIAN

⇒Self diagnosis

If a fault occurs or there is a breakdown during operation, at the bottom of the Touch Screen there will be an explanation of what has happened. The example shown in the photo indicates **"PUMP THERMAL RELAY"**.

When you press directly on the **"THERMAL PUMP RELAY**, the video displays the photo of the thermal pump relay involved which has set off the alarm. Press the fube on the left and then, on the mask which appears, press the "help" ikon to get the useful instructions which will tell you what has happened, whether it is possible to solve the fault and who should carry out the work required.

This is what appears on the screen when the fault in question is **"PUMP THERMAL RELAY"**:

Indications on the screen after pressing **"help"**	Observations
INTERVENTION OF PUMP THERMAL RELAY PROTECTION. **- CAUSES:** **- CURRENT ABSORPTION HIGER THAN VALUES ON PLATE.** **- REMEDIES:** **- CHECK THE THREE PHASES OF THE MOTOR ARE CORRECTLY SUPPLIED.** **- CHECK THE CONDITION OF THE MOTOR.** **(INTERVENTION BY SPECIALIZED TECHNICIANS REQUIRED)** **- RESET PRESSING BLACK PUSHBUTTON ONCE RESTORE CORRECT OPERATING CONDITIONS.**	In this case the most important point is the one which states: **(INTERVENTION BY SPECIALIZED TECHNICIAN REQUIRED)** The work must be carried out by an electrician. After checking he will establish whether it is sufficient to reset the magnetothermal protection or whether the protection was activated because the motor in question burnt out, in which case a spare part will be required to replace it. After replacement, check whether the motor burnt out for a specific reason which must be investigated to prevent the same thing happening again.

CAUTION:
Depending on the type of fault, check whether the machine operator can carry out the work or whether specialized personnel must intervene. If the fault is electric, an **"electrician"** will be required – if the fault lies in the refrigeration plant, a **refrigeration technician** must be called – if there is a mechanical fault, call a **mechanic.**

DO NOT CARRY OUT WORK ON THE MACHINE IF YOU ARE NOT QUALIFIED AND/OR AUTHORIZED TO DO SO. TECHNOGEL DISCLAIMS ALL RESPONSIBILITY FOR DAMAGE CAUSED BY WORK CARRIED OUT BY UNAUTHORIZED AND UNQUALIFIED PERSONS.

List of all alarms existing in the machine for purposes of self diagnosis.

ALARM N° 4

INTERVENTION OF MOTOR DASHER THERMAL RELAY PROTECTION.

- CAUSES:
- CURRENT ABSORPTION HIGER THAN VALUES ON PLATE.
- REMEDIES:
- CHECK THE THREE PHASES OF THE MOTOR ARE CORRECTLY SUPPLIED.
- CHECK THE CONDITION OF THE MOTOR.

(INTERVENTION BY SPECIALIZED TECHNICIANS REQUIRED)

- CHECK THE DASHER IS NOT BLOCKED INSIDE THE FREEZING TUBE
- RESET PRESSING BLUE PUSHBUTTON ONCE RESTORE CORRECT OPERATING CONDITIONS.

ALARM N° 5

INTERVENTION OF COMPRESSOR THERMAL RELAY PROTECTION.

- CAUSES:
- CURRENT ABSORPTION HIGER THAN VALUES ON PLATE.
- REMEDIES:
- CHECK THE THREE PHASES OF THE MOTOR ARE CORRECTLY SUPPLIED.
- CHECK CONDITION OF COMPRESSOR MOTOR.

(INTERVENTION BY SPECIALIZED TECHNICIANS REQUIRED)

- RESET PRESSING BLUE PUSHBUTTON ONCE RESTORE CORRECT OPERATING CONDITIONS.

ALARM N° 3

INTERVENTION OF PUMP THERMAL RELAY PROTECTION.

- CAUSES:
- CURRENT ABSORPTION HIGER THAN VALUES ON PLATE.
- REMEDIES:
- CHECK THE THREE PHASES OF THE MOTOR ARE CORRECTLY SUPPLIED.
- CHECK THE CONDITION OF THE MOTOR.

(INTERVENTION BY SPECIALIZED TECHNICIANS REQUIRED)

- RESET PRESSING BLACK PUSHBUTTON ONCE RESTORE CORRECT OPERATING CONDITIONS.

ALARM N° 6

INTERVENTION OF HIGH PRESSURE SWITCH IN REFRIGERATION CIRCUIT.

- CAUSES:
- INSUFFICIENT WATER CAPACITY TO CONDENSER
- CONDENSER IS DIRTY

REMEDIES:
- CHECK EVAPORATION TOWER AND COOLING WATER CIRCULATION SYSTEM.
- RESET USING THE PUSHBUTTON POSITIONED ON THE TOP PART OF THE PRESSURE SWITCH SHOWN IN THE PHOTO AFTER RESTORING CORRECT OPERATING CONDITIONS.

ALARM N° 7

INTERVENTION OF LOW LEVEL PRESSURE SWITCH IN REFRIGERATION CIRCUIT.

- CAUSES:
- PRESSURE LEVEL AT MINIMUM ACCEPTABLE IN SUCTION/EVAPORATION PART OF THE REFRIGERATION CIRCUIT.
- CONDENSER IS DIRTY

REMEDIES:
- CHECK AND ELIMINATE ANY OBSTRUCTIONS (SHUTTERS CLOSED, FORMATION OF ICE DUE TO HUMIDITY ON THERMOSTATIC VALVE ORIFICE IN THE SUCTION PART OF REFRIGERATION SYSTEM.
- RESET USING THE PUSHBUTTON POSITIONED ON THE TOP PART OF THE PRESSURE SWITCH SHOWN IN THE PHOTO AFTER RESTORING CORRECT OPERATING CONDITIONS.

ALARM N° 1

INTERVENTION OF LUBRIFICANT OIL PRESSURE SWITCH.
- CAUSE OF ALARM:
- INSUFFICIENT OIL UNDER PRESSURE FOR COMPRESSOR LUBRIFICATION.
- INSUFFICIENT GAS IN REFRIGERATING SYSTEM
- COMPRESSOR SUMP ELEMENT NOT OPERATING.

REMEDIES:
- CHECK AND ELIMINATE CAUSES LISTED ABOVE AND CONSULT SPECIALIZED TECHNICIAN.

CAUTION:
BEFORE USING RESET BUTTON MAKE SURE THERE IS OIL IN THE SUMP: SERIOUS RISK OF COMPRESSOR SEIZING UP.

ALARM N° 2

FAULT IN PLC INTERNAL POWER SUPPLY.

CAUSE OF ALARM:
- FLAT BATTERY.

REMEDIES:
- REPLACE BATTERY SPARE PART CODE CC-12149.6

(INTERVENTION BY SPECIALIZED TECHNICIANS REQUIRED)

ALARM N° 8

INTERVENTION OF COMPRESSOR PROTECTION SWITCHBOARD.
- CAUSES:
- HIGH TEMPERATURE OF ELECTRIC WINDINGS OF MOTOR.

REMEDIES:
- CHECK THE THREE PHASES OF THE MOTOR ARE CORRECTLY SUPPLIED.

(INTERVENTION BY SPECIALIZED TECHNICIANS REQUIRED)

ALARM N° 9

INTERVENTION OF MINIMUM PRESSURE SWITCH ON COMPRESSED AIR CIRCUIT.
- CAUSES:
- INSUFFICIENT PRESSURE IN AIR SUPPLY INSTALLATION (LESS THAN 4 BAR).

REMEDIES:
- CHECK THERE ARE NO OBSTRUCTIONS IN THE PLANT.
- CHECK THE AIR CAPACITY IS ADEGUATE.
- CHECK CORRECT OPERATION OF PRESSURE SWITCH.

ALARM N° 11

CONNECTION PHASES INVERTED.

- CAUSES:
- WRONG ROTATION OF THE DASHER.

REMEDIES:
- INVERT TWO OF THE THREE PHASES AS SHOWN IN THE PICTURE.

(INTERVENTION BY SPECIALIZED TECHNICIANS REQUIRED)

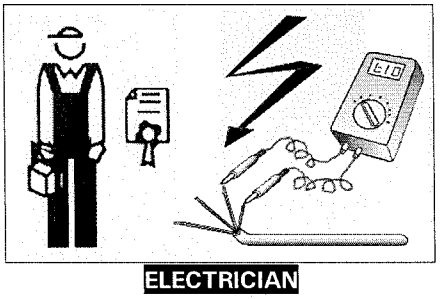
ALARM N° 10

INTERVENTION OF INVERTER THERMAL RELAY PROTECTION
- CAUSES:
- BLOCKAGE OF PUMP MECHANISM.
- ELECTRICAL FAULT IN MOTOR AND/OR INVERTER.

REMEDIES:
- MAKE SURE THERE IS NO SEIZING OF REDUCTION UNIT OR PUMP PISTONS. CHECK AND REMOVE ANY CAUSE.
- MAKE SURE THE POWER SUPPLY TO 3 PHASES MOTOR AND INVERTER IS OK..
- CHECK THE ALARM MESSAGE ON INVERTER DISPLAY (SEE PHOTO) TAKE MEASURES RECOMMENDED IN ENCLOSED OPERATIONAL MANUAL OF SPEED VARIATION UNIT (INVERTER).

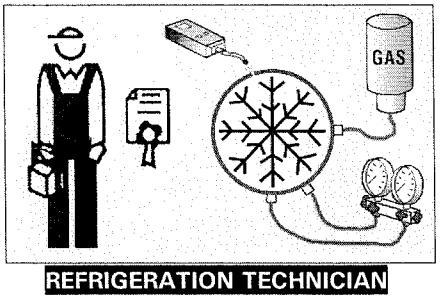
(INTERVENTION BY SPECIALIZED TECHNICIANS REQUIRED)

ALARMS: 2-3-4-5-10-11



ELECTRICIAN

ALARM: 1-6-7-8

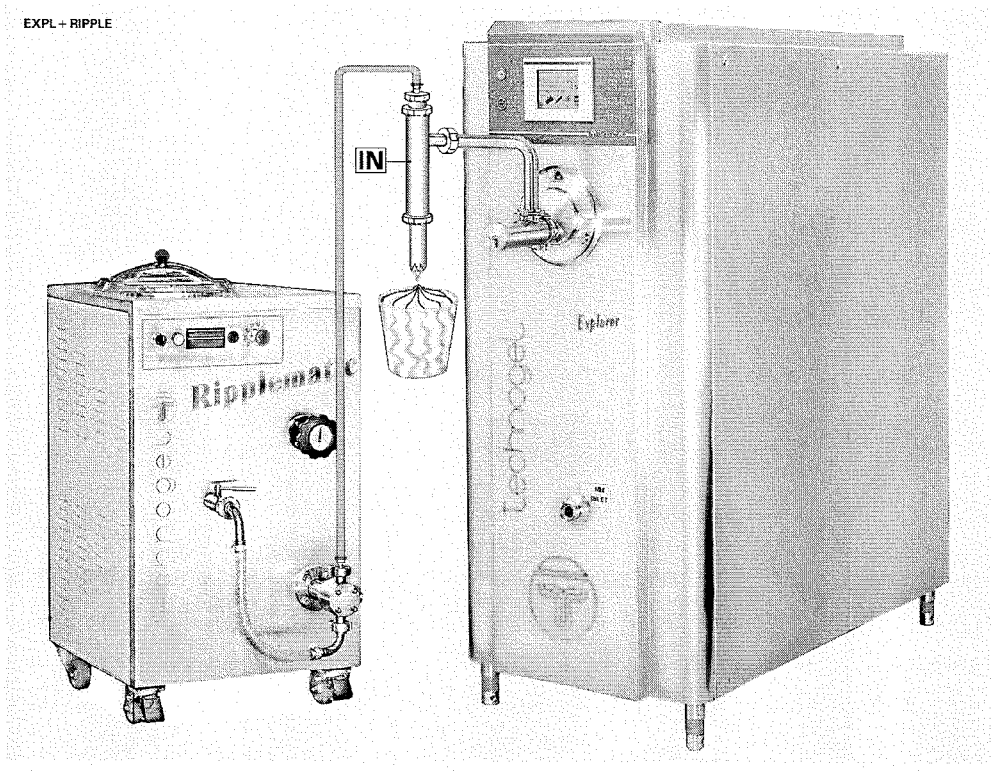


REFRIGERATION TECHNICIAN

If the instructions which appear on the video are not clear or if the problem which has arisen continues, please call the **AUTHORIZED TECHNICAL SERVICE** or **TECHNOGEL SPA.**

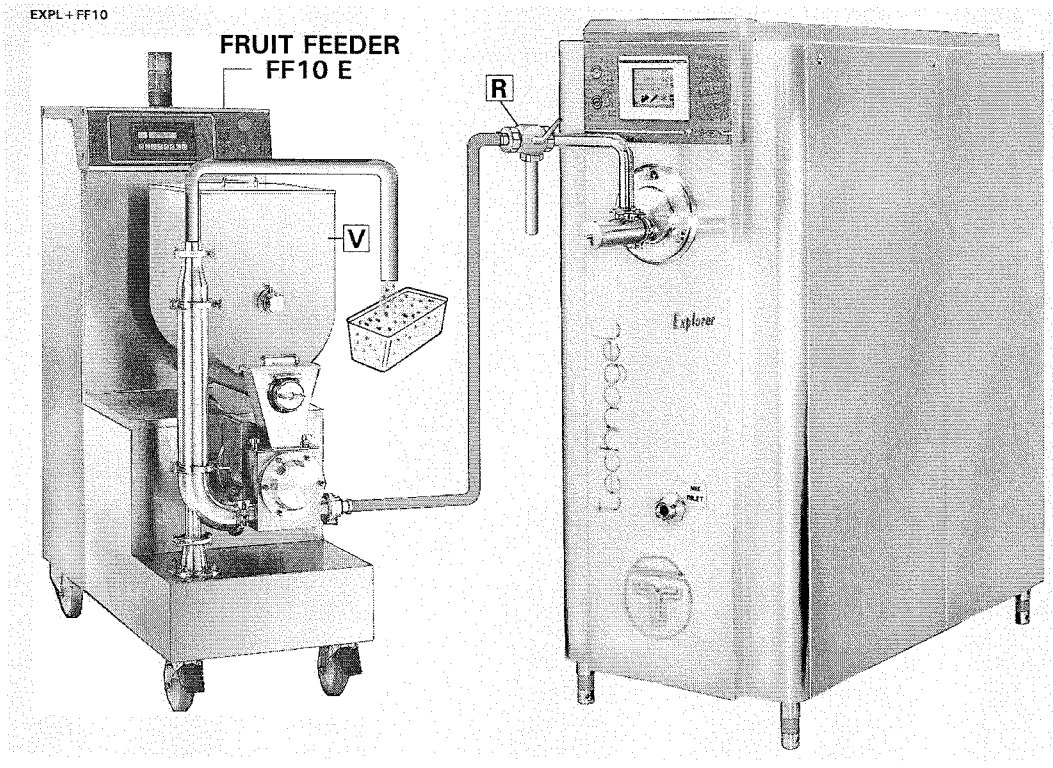
INSTRUCTIONS FOR CONNECTING THE *"EXPLORER"* FREEZER TO OTHER ACCESSORY EQUIPMENT

⇒ Instructions for producing "ripple" ice-cream



Connect the ***EXPLORER*** Freezer to **Technogel's "RIPPLEMATIC" model** syrup pump machine complete with injection tube **IN.**

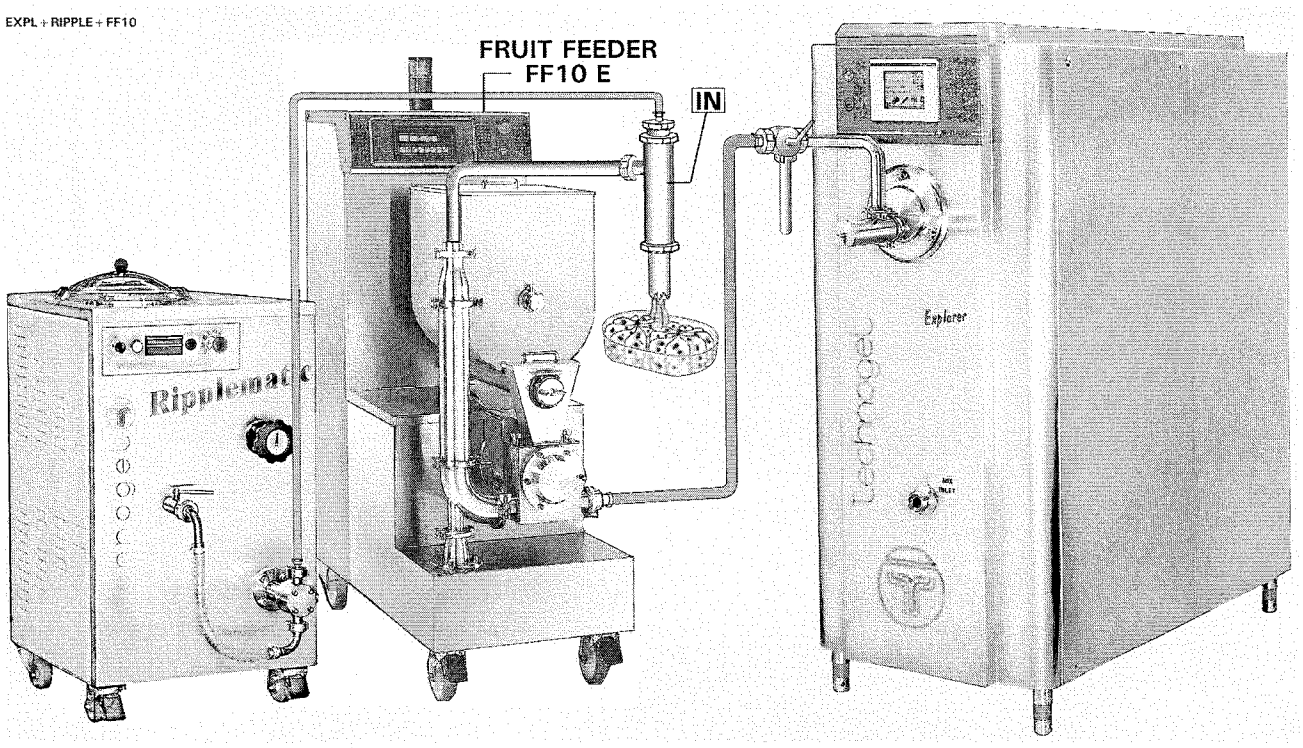
⇒ Instructions for producing ice-cream with pieces of fruit, chocolate, etc.



Connect the ***EXPLORER*** Freezer to **Technogel's "FF10E" model** fruit dispenser machine. If the tank V is replaced by a special heater supplied as an optional, it is possible to insert hot chocolate bits into the ice-cream to produce **"stracciatella" chocolate chip ice-cream.** A 3-way tap **R** must be fitted at the Freezer outlet.

⇒Instructions for producing ripple ice-cream with pieces of fruit

EXPL + RIPPLE + FF10

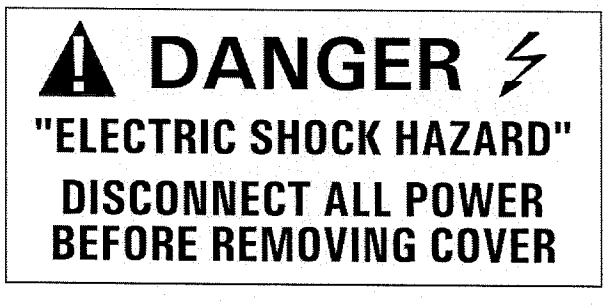


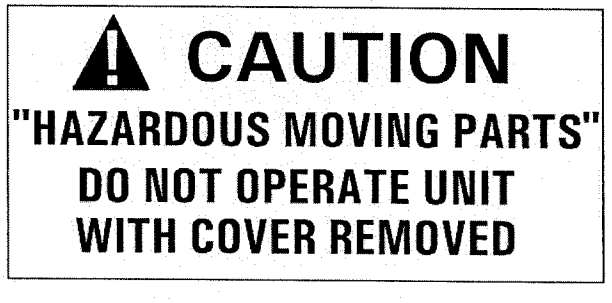
Connect the **EXPLORER** FREEZER to **Technogel's "FF10E" model** fruit dispenser machine fitted with a special injector tube **IN**. This is connected to the tube of the "**RIPPLEMATIC**". A 3-way tap **R** must be fitted at the Freezer outlet.

TROUBLE-SHOOTING

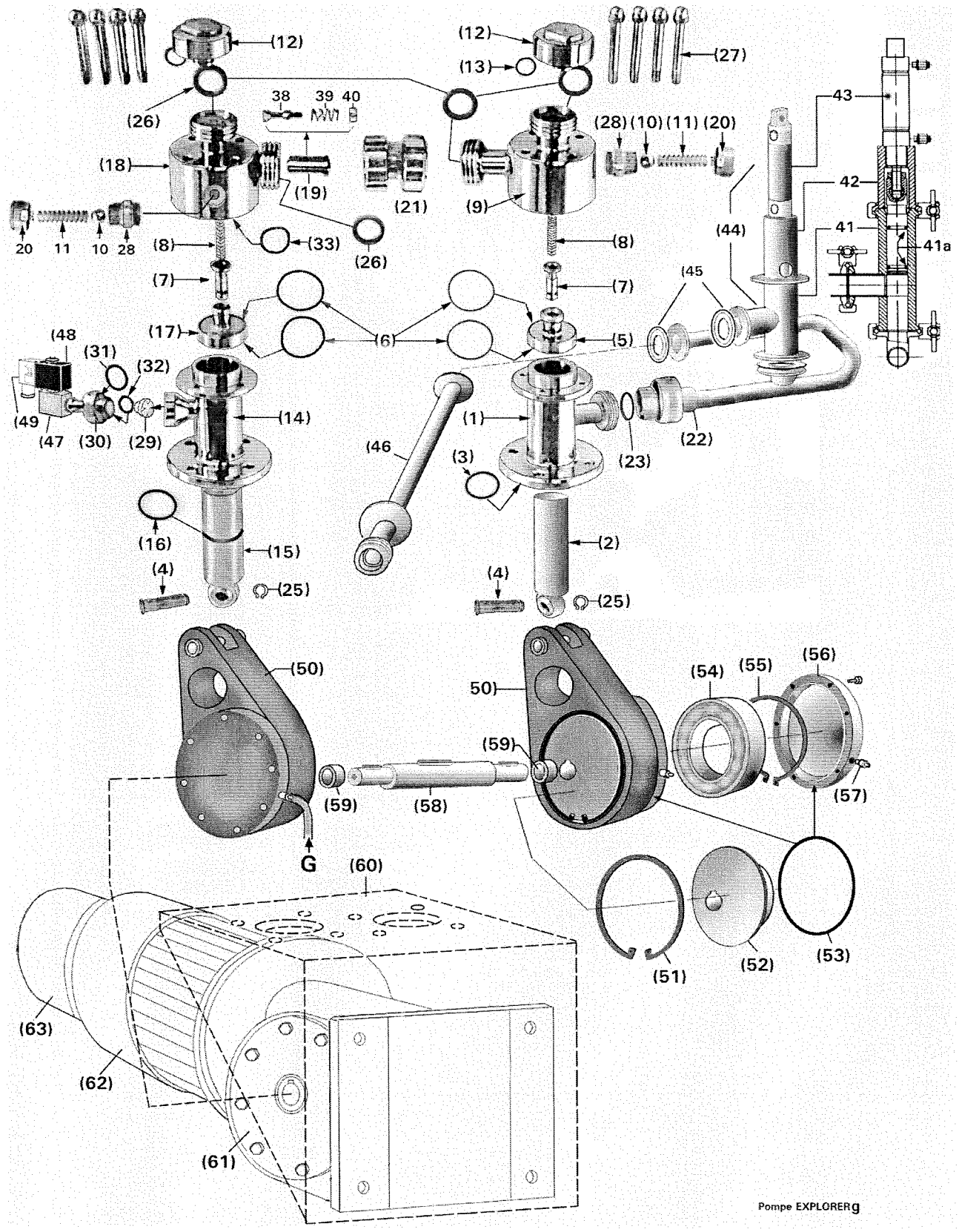
CAUTION:

If for some reason it is necessary to carry out work inside the machine, first disconnect the machine by pressing the "STOP" button.



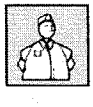


⇒Trouble-shooting in the "Pump" unit



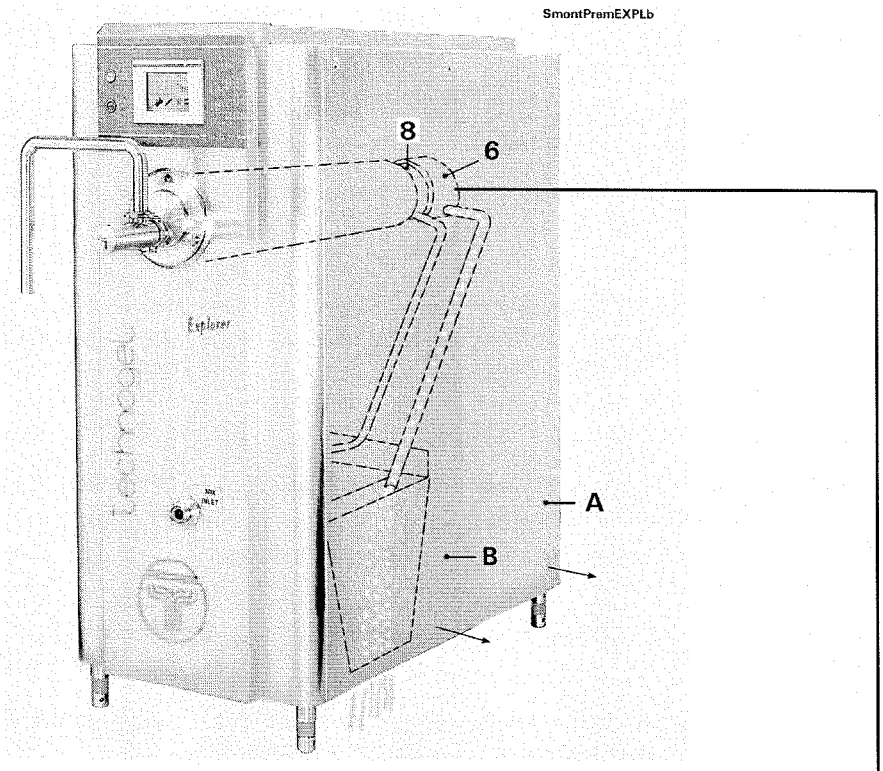
The user can only carry out work on the machine without danger to himself when the symbol given indicates this.

In all other cases, work must be carried out **exclusively** by an **Authorized Technician.**

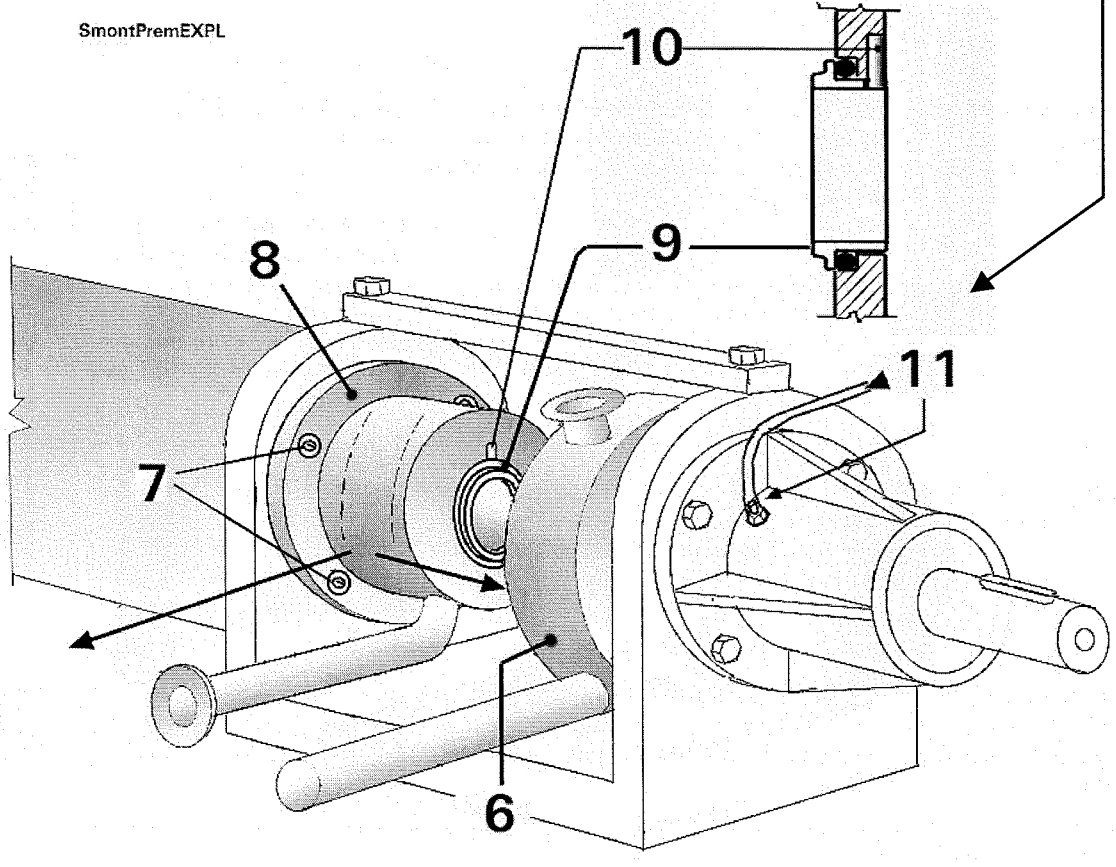
FAULT	POSSIBLE CAUSES	REMEDY	
During operation, the pumps turn without pumping or do not pump as they should.	*One or both of springs 8 may be broken.* *Check valve 19 may be blocked or dirty. One or both of the slide valves may be blocked.*	Check and if necessary replace the broken or faulty pieces. Check the paragraph on spare parts for the code numbers for use when ordering.	
There is leakage of the mix under the machine close to the pump unit.	*O-rings (3) and (16) of the pump pistons are worn..*	Check and replace if necessary.	
The ice-cream does not take in air, (does not increase in volume).	*Compressed air is not reaching the machine.* *Air is not coming through solenoid valve (47) and therefore compressed air does not reach the pump.* *Check valve for compressed air (29) may be blocked or stuck to washer (32).*	Check the compressed air unit inside the machine. Check solenoid valve (47). Check and replace O-ring (32).	
The ice-cream takes in too much air though the increase in volume is low.	*The mix reaching the machine is too cold and therefore more viscous and the pump in the first stage has difficulty in sucking it up.* *pump* *The mix storage vat is too far away (over 4 metres and the pump for the first stage can't cope and finds it difficult to suck it up.*	Check the temperature of the mix. Check the distance of the vat and if it is not possible to bring it closer, use a servofreezer pump positioned close to the vats which will send the mix to the Freezer.	
One or both of the pumps sprays mix from outlet (20).	*The pneumatic faucet on the ice-cream outlet is blocked and safety valves (10) e (11) come into action letting off excess pressure.*	Check whether the faucet is blocked or whether the air pressure which feeds it is too high (unscrew the REG PRESS knob page 16).	
During operation the pumps turn without pumping or if operating do not pump as they should.	*By-pass valve (44) is not tight and product is therefore leaking out. This is caused by a foreign body inside.* .	Dismantle by-pass valve (44) and check the seal (41a) on pieces (41) and (42).	

⇒Leakage from mechanical seal

SmontPremEXPLb

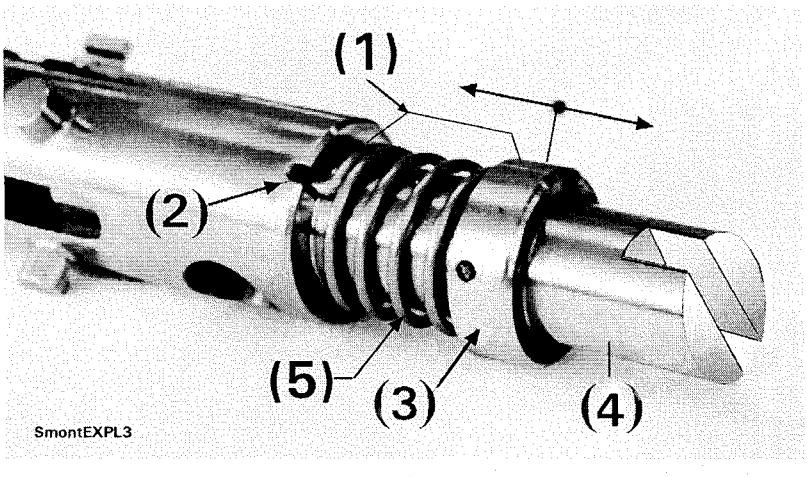


SmontPremEXPL



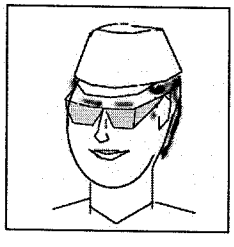
⇒ Trouble-shooting for leakage from the mechanical seal

FAULT	POSSIBLE CAUSES	REMEDY
While the machine is in operation there are leaks under the machine on the right hand side. Or Ice-cream is leaking from part (8) at point 9 while the machine is in operation.	*Mechanical seal 1 or 9 is leaking and the mix is dripping onto the floor.*	Check rotating part 1 of the mechanical seal on the dasher and follow the instructions for dismantling and re-assembly given on page 16.
	Spring 5 of the mechanical seal has lost its elasticity.	Replace spring 5 of the mechanical seal.
	The fixed part (9) of the mechanical seal mounted in component (8) is worn. *CAUTION:* *Fixed part (9) or rotating part (3) can become worn for three different reasons:* - *normal wear and tear in operation* - *because the machine was left on during washing without any water inside the freezer pipes.* - *because the machine was left on for too long even though there was water inside.*	To dismantle part (8): - pull the part (6) towards the right. - unscrew screws 7 locking part 8 and remove it from the machine - check the fixed mechanical seal part 9 and if it is worn, replace it. CAUTION: Always change any part or parts complete with washer. When remounting part (9) make sure that it fits into plug (10) on the part 8 (culatta). Remount the part 8 (culatta) e cover it pulling the part 6 (copriculatta) towards the left.



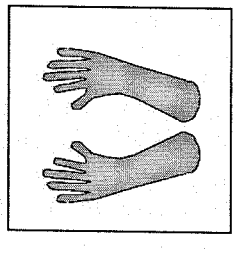
WASHING THE MACHINE

CAUTION !!

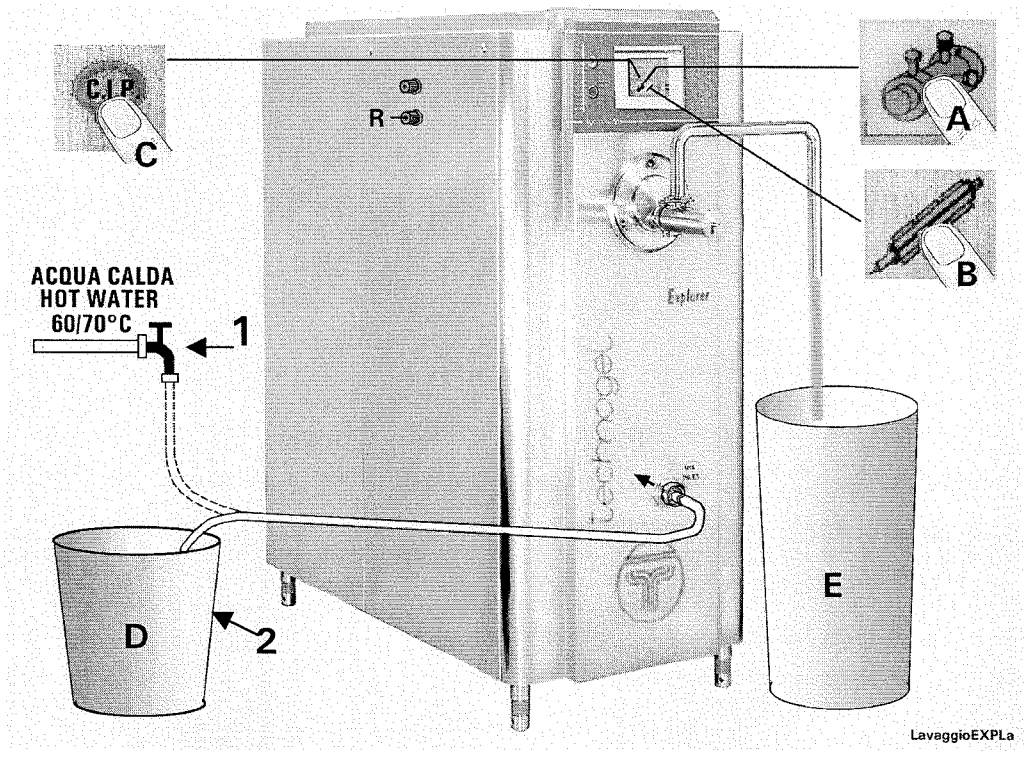


DURING THE WASHING, WEAR PROTECTIVE GLASSES AND LONG RUBBER GLOVES

COVERING THE FOREARM DESIGNED TO PROTECT AGAINST ACID AND/OR ALKALINE SUBSTANCES



⇒Instructions for washing the machine



After finishing production of the ice-cream it is necessary to wash the machine. There are two ways of doing this, as indicated below in points**"1"** and **"2"**

1) Connect the pump of the Freezer directly to a hot water tap, turn on the tap and unscrew knob **R** completely, press the symbol **C.I.P.** on the touch screen indicated as **C)**, and any remaining ice-cream left in the machine will start to flow out of the Freezer outlet pipe mixed with water. When the water starts to run clean, press s ymbol **C.I.P.** again to terminate washing, turn off the hot water tap and the washing operation is complete.

2) Connect the Freezer pump directly to a receptacle (pos. **D)** containing hot water a, (70° approx) mixed with detergent and disinfectant , place the pipe in the receptacle and then start the pump (pos.**A) CAUTION, do not use KEY "C.I.P.".** The pump must operate continuously while the turbine (Pos.**B) must operate on impulse mode,** each one lastingapprox. 30 seconds. During the remaining time unscrew knob pos.**R).** Rinse thoroughly using copious hot, clean water.

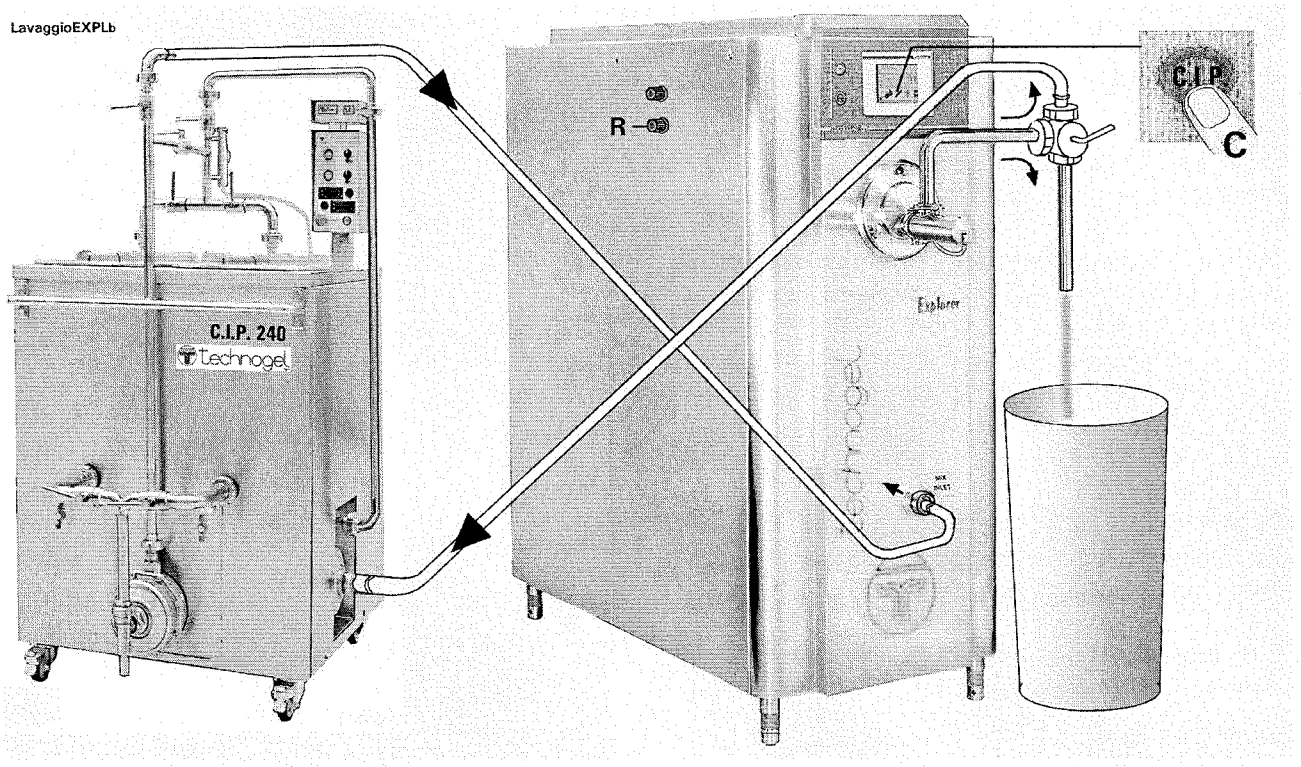
CAUTION: washing can be carried out <u>from start to finish</u> with hot or cold water (we recommend hot water). It is IMPORTANT TO AVOID rapid changes in temperature which could cause mechanical problems.

For the best type of detergent and disinfectant to use, please ask specialized firms for information on their products, e.g. DIVERSEY, LEVER, HENKEL etc, as they will be able to provide the best specific products for the purpose.
all'uso.

For the type of detergent and disinfectant Technogel advises the customer to request information from a specialized company such as DIVERSEY/LEVER or HENKEL etc. who will supply a specific product for this purpose.

CHLORINE MUST NEVER BE USED UNDER ANY CIRCUMSTANCES. IT WOULD DAMAGE THE INTERNAL SURFACES OF THE MACHINE.

⇒ WASHING WITH C.I.P. EQUIPMENT OR WITH CENTRALIZED C.I.P. EQUIPMENT



If a **C.I.P. 240 Technogel** machine is available like the one shown in the figure, connect the C.I.P. delivery pipe to the Freezer pump and the outlet pipe, on which a three-way faucet will be fitted, to the C.I.P. return pump. If there is a centralized C.I.P. system, connected the delivery from the C.I.P. to the Freezer pump and the return to the C.I.P. to the Freezer outlet pipe.

The multinational **Diversey/Lever,** whose products are available practically worldwide, manufactures a product called **SU 559**. This single product has a detergent effect combined with Nitric Acid.

Washing cycle carried out with **Technogel's C.I.P. 240 machine** and with the **Diversey/Lever SU 559 product**:

Average washing stage	Temperature °C	Duration of stage
Rinsing with water	60°C	5 minutes draining away
Acid wash – **SU 559 1.5%**	60°C	15 minutes recycling
Final rinsing with water	60°C	5 minutes draining away

Before starting washing, press on the screen on the **C.I.P.** (**C**) symbol so that the Freezer pumps and the turbine rotate intermittently thus avoiding wear and tear owing to the lack of lubrication. To stop the C.I.P. mode, press symbol **C** again.

During the rinsing stages, the 3-way tap on the Freezer outlet must be turned onto drainage and knob **R** must be almost totally unscrewed.

During the Acid stage, the tap must be turned so that the water is recycled between the C.I.P. and the Freezer for the desired length of time; knob **R** must be rotated half a turn.

Once washing is completed, carry out the checks described on the next page.

⇒ Checks to be carried out before starting the machine

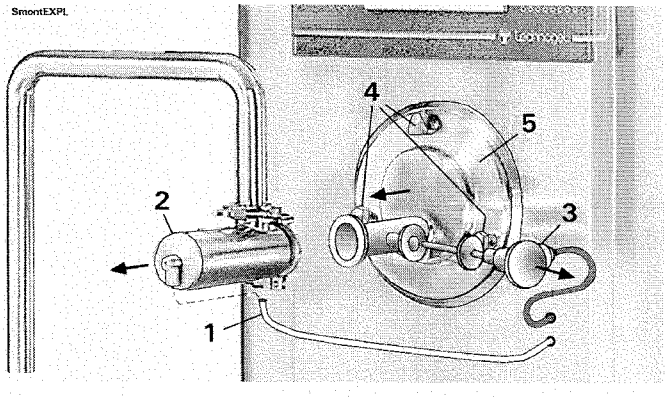
Before starting the machine:

Make sure the machine is on **STOP** or disconnected.

Detach the compressed air pipe **1** and dismantle pneumatic tap **2.**

Remove the flange of the thermometric probe **3** and leave it dangling but attached to the machine.

Unscrew handwheels **4** and remove flange **5** pulling it towards the outside.

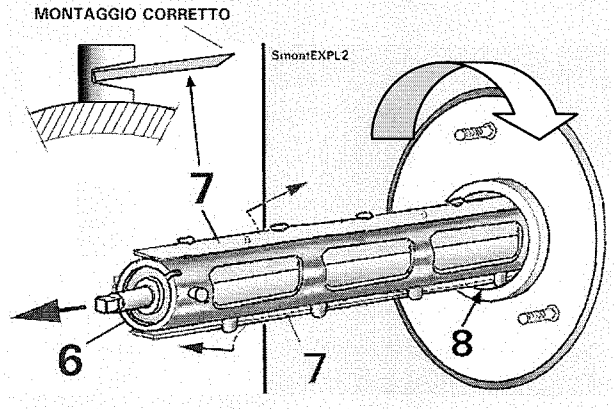


Extract turbine **6** pulling it towards the outside. Please note that blades **7** are extremely sharp and could cut you.

Rest the turbine on a table, dry it and check the rear seal.

CAUTION:
When dismantling and re-mounting the turbine, make sure it doesn't bang against edge **8** of the freezer pipe which might damage it.

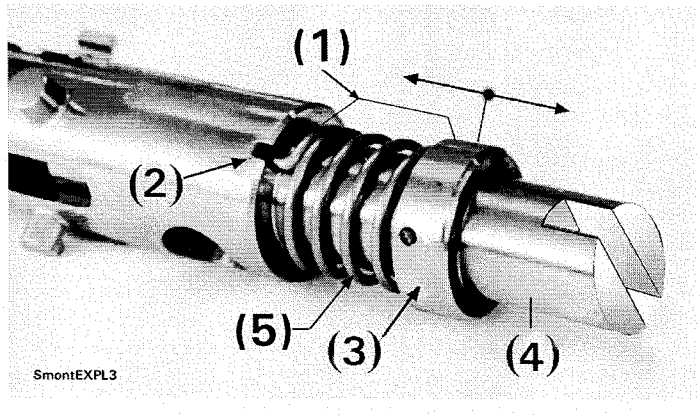
Dry the inside of the freezer pipe.



Check the mechanical seal **1**:

- Shank **2** of spring **5**, must be in its seat.
- Rotating part **3** of the mechanical seal must be free to move along the axis of turbine **4** with the force of the spring. If rotating part **3** of the mechanical seal remains blocked iwth the spring crushed, it will be necessary to dismantle it removing it from axle **4** and **lubricate the O-ring inside with vaseline**

This control must be carried out after each washing process.



Reassemble everything carefully and meticulously, making sure that the turbine enters the freezer pipe completely and fits into the shaft which drives it.

Re-mount the flange and then the thermometric probe and then lastly the pneumatic tap, connecting it with the compressed air pipe 1.

At this point the machine is ready to ice-cream production once again.

MAINTENANCE

Except for page 46 (operations which can be carried out by the User), for all the rest:

TECHNICAL INTERVENTION AND MAINTENANCE TO BE CARRIED OUT ONLY BY QUALIFIED TRAINED PERSONNEL

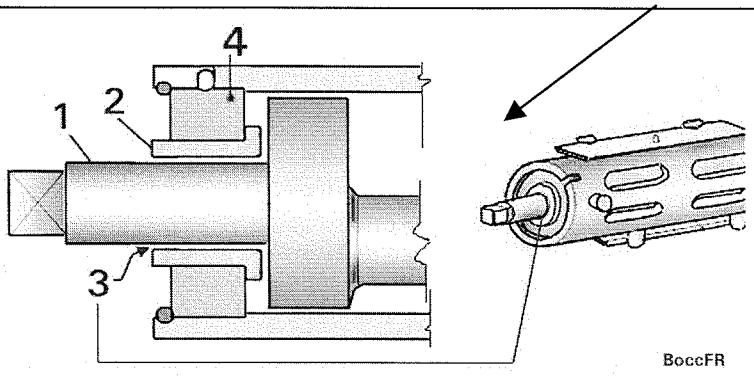
⇒ Maintenance

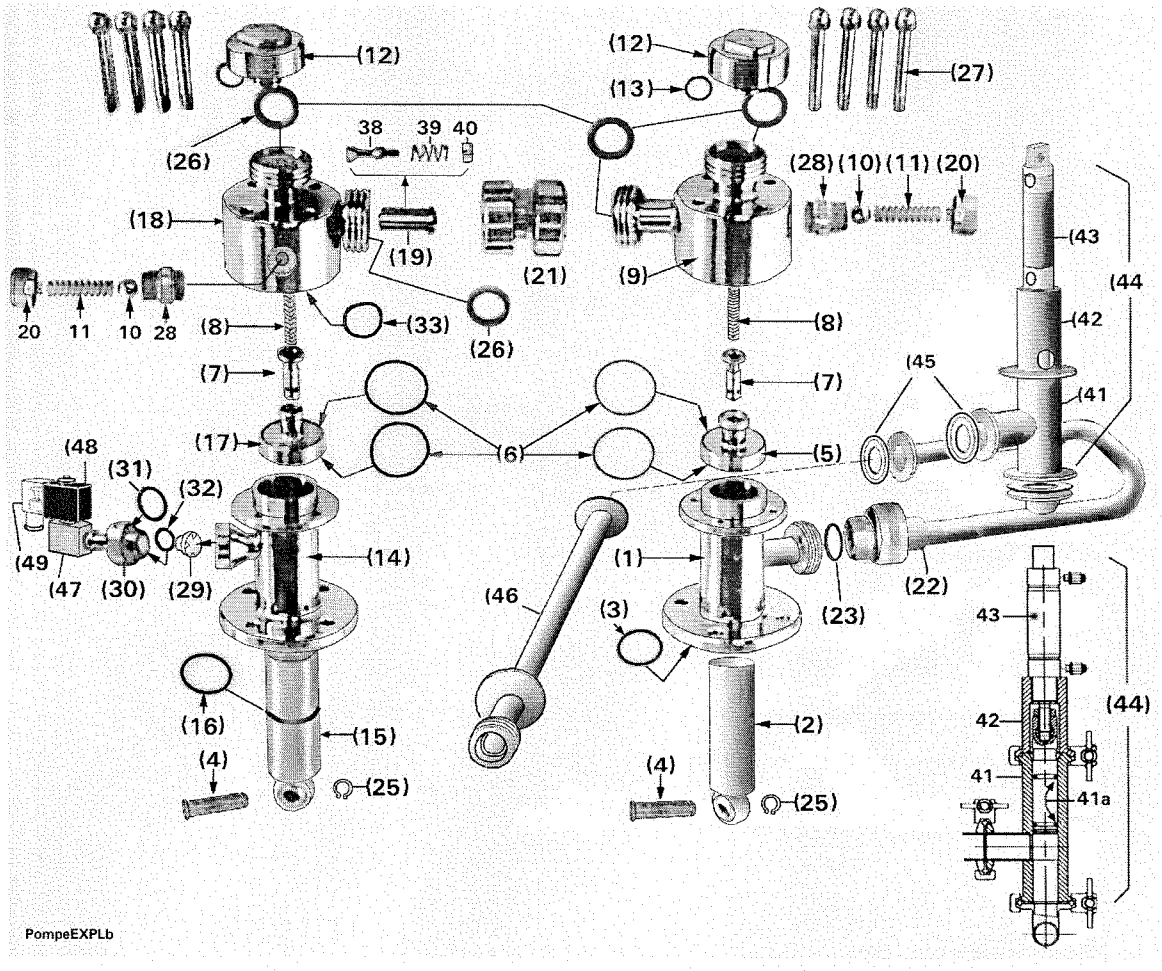
After each washing process all accessible washers should be lubricated with vaseline to ensure assembly and operation are carried out easily.

Every now and again check that there is not too much play (3) between the eccentric shaft (1) and bushing (2).

Play (3) must not exceed **0.5 mm.** maximum; if it is more than this, replace piece (4) complete with bushing (see page 69 n°3).

If the play is excessive, scraping of the ice-cream is not correct and this will cause excessive wear on the blades. will wear rapidly.



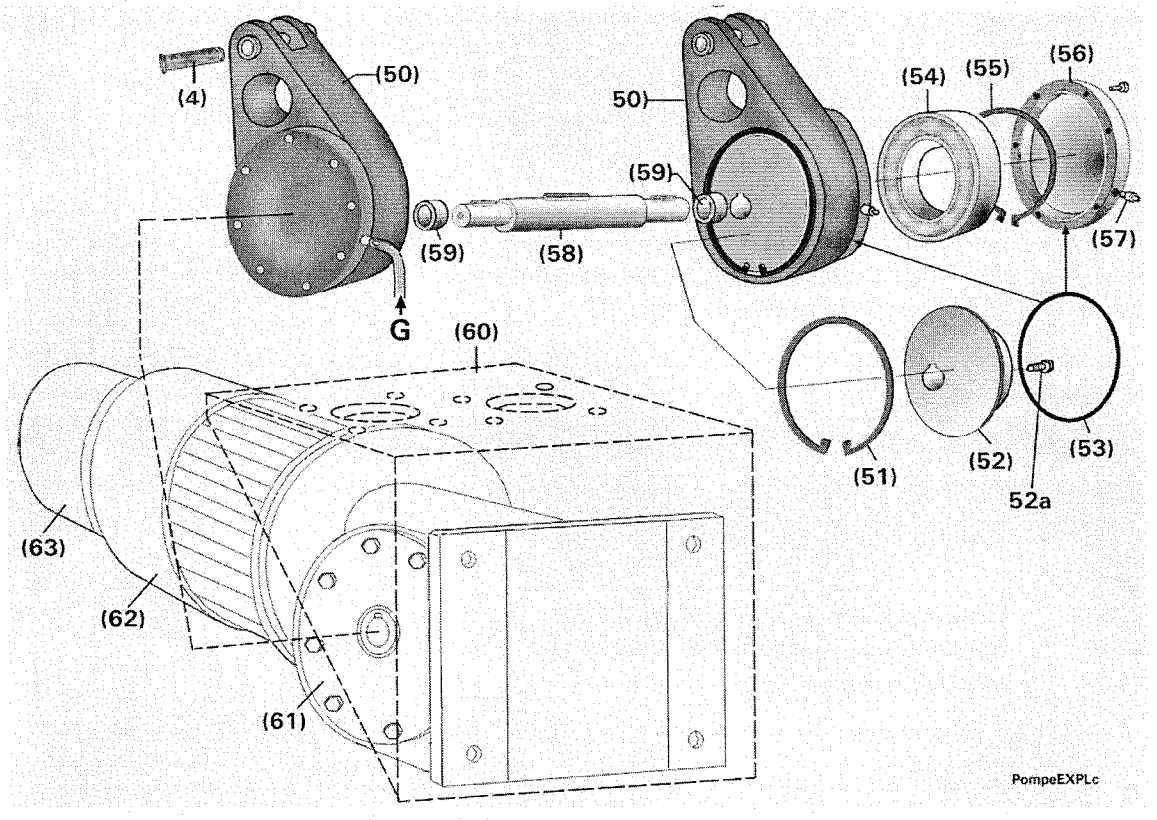


After the first month of operation, check all the washers and spring in the pump unit as this is extremely important for correct operation of the machine. If necessary, replace them.
In particular, check **springs 8** and **washers 6-32-33.** If there is any leakage under the machine close to pumps **1** and **14**, replace washers **16** and/or **3**.

For identification of Code numbers corresponding to the parts, please see the section on "Spare Parts".

After the first month, check the tension of the transmission belts on the turbine agitator motor. If even one belt is worn they must all be changed.

After each work season, check the lubrication of connecting rod **50**. Lubricate with grease and if necessary top up with a special pump from inlet **G**.
The type of grease to apply is : **SKF LGMT 2/1**

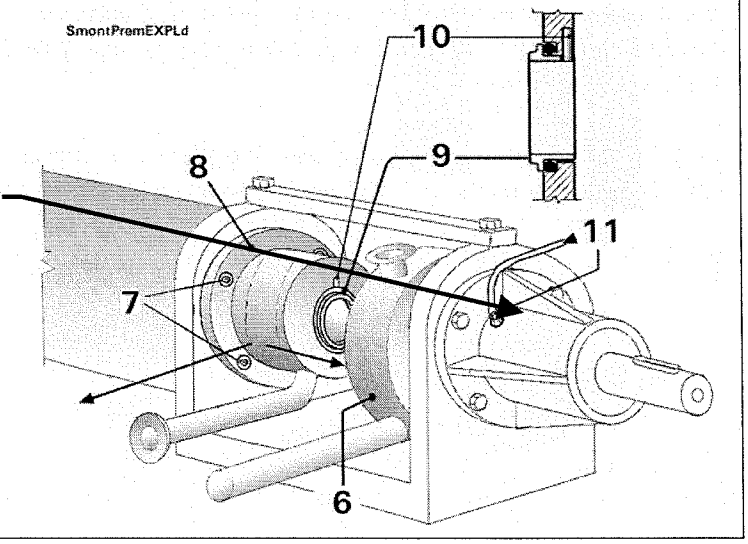


The worm reduction unit **61** is oil lubricated. After **1500 hours of operation** the oil must be changed; the oil type is: **IP TELESESIA OIL 150** or **BP ENERGOL SGXP 150 – quantity 1kg.**

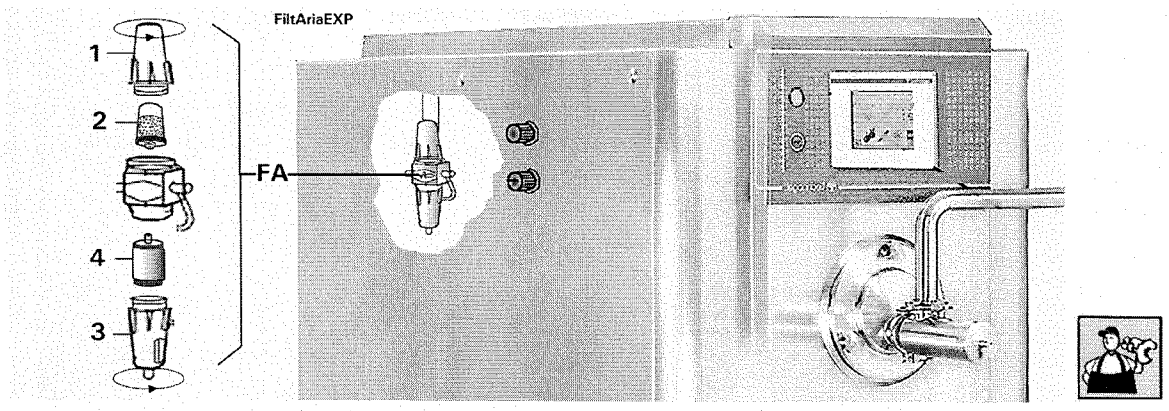
After each work season, check the state of lubrication of the turbine drive support which is lubricated with grease. Add as necessary.

Add the grease through inlet **11** using a special pump. Type of grease:

SKF LGMT 2/1



After each work season or more frequently if the compressed air is very dirty, check the state of the two filters **2** and **4** contained in the air filter unit **FA.** If necessary replace them.



To dismantle the two filters, disconnect the compressed air supply to the machine – remove the left hand side panels – locate the filter unit **FA** which is **red in colour** (see figure) – remove the top by unscrewing it with the hands and then the active carbon filter **2** – remove the bottom cap **3** unscrewing it with the hands and then red filter **4.**

At the start of each season check the condition of the refrigerating unit:

Clean the tube nest condenser

After cleaning, check the amount of frigorific gas by operating the machine and making sure that the operating pressures are correct.

- Warning of possible break-down of the machine

During the winter season, if the machine is not used, make sure that the temperature of the place where the machine is kept does not fall below 0°C at any time. The machine is water cooled and if the water freezes the refrigerating plant could be seriously damaged and would be costly to repair.

If it is not possible to keep the temperature above = °C, drain the condensation system of any remaining water. This operation must be carried out by a refrigeration technician.

⇒Noise level

With the machine in operation, the noise level measured 1 metre away is less than 70 dB (A).

- Ecology warning

CAUTION !!

"This machine contains substances which could damage the ozone layer. When its useful life is over it must be consigned to a special disposal centre. Ask the local waste disposal division of your municipal authorities for information."

TECHNICAL CHARACTERISTICS WITH DIAGRAMS

⇒Technical Characteristics: *EXPLORER FREEZER*

Semihermetic refrigerator compressor - max. current - oil	Power - 11kW (15HP) 230V 60,7A - 400V 35.1A POLYESTER 3.51
Frigorific gas	Freon R404 o R507 quantity: 7 kg.
Condensation	Minimum water pressure 1.5 Bar
Turbine motor	7.5kW (10HP) 965 rpm
Pump motor	1.1kW (1,5HP) 1400 rpm

Heat settings		200 V 50/60HZ	230 V 50HZ	220 V 60HZ	400 V 50HZ	380 V 60HZ
Refrigeration compressor	A.		60		35.1	
Dasher motor	A.		28		16	
Pump motor	A.		8		8	
Inverter protection	A.					

Electrical system fuses	230V	400V
Compressor protection	N°3 d. 14x51 63A GL	N°3 d. 14x51 40A GL
Turbine motor protection	N°3 d. 10x38 32A AM	N°3 d. 10x38 20A AM
Primary transformer F2	N°2 d. 5x20 2A rapid type	N°2 d. 5x20 2A rapid
Secondary transformer	N°1 d. 5x20 8A AM	N°1 d. 5x20 8A AM
Switchboard ventilator protection	N°1 d. 5x20 0,5A rapid	N°1 d. 5x20 0,5A rapid
Centralina elettronica compressore Frig.	N°1 d. 5x20 0,5A rapid	N°1 d. 5x20 0,5A rapid
Sump resistance + oil pressure switch	N°1 d. 5x20 0,5A rapid	N°1 d. 5x20 0,5A rapid
Pump motor ventilator	N°1 d. 5x20 0,5A rapid	N°1 d. 5x20 0,5A rapid
Compressor Solenoid	N°1 d. 5x20 2A rapid	N°1 d. 5x20 2A rapid

High/low pressure switch setting	Intervention values	Reset
Low pressure intervention value	0.2 0/-0.1 Bar (-42.5°C)	MANUAL
High pressure intervention value	24 +/-1 Bar	MANUAL
Oil pressure switch	0.7 Bar	MANUAL

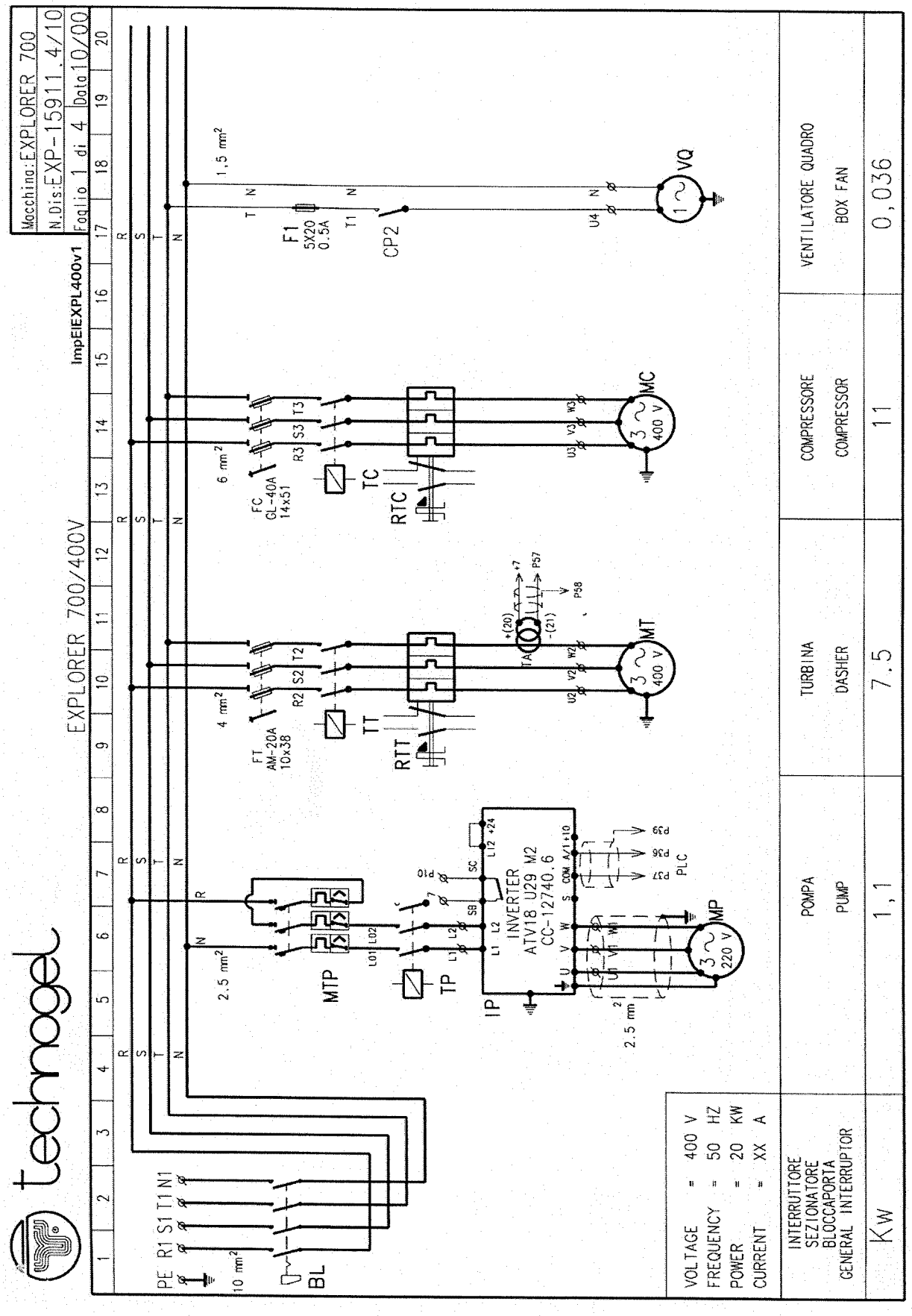
OPERATING TEMPERATURES AND PRESSURES FOR REFRIGERATION PLANT	
Condensation (high pressure)	Evaporation (low pressure)
17,5 Bar - +40 +/-2°C	-30/-35°C
Condenser safety valve intervention	28 Bar

Viscosity (fixed value)	230V	400V
		A. 15

The machine is supplied with the values and settings as given above set in the factory prior to shipment.

TECHNOGEL spa DECLINES ALL RESPONSIBILITY FOR DAMAGE TO PERSONS OR OBJECTS DERIVING FROM ANY TAMPERING WITH THE PREFIXED VALUES OR FROM THE USE OF UNSUITABLE FUSES OF DIFFERENT SIZES OR WITH DIFFERENT CHARACTERISTICS FROM THOS PRESCRIBED.

⇒Electrical system: *EXPLORER* 400V

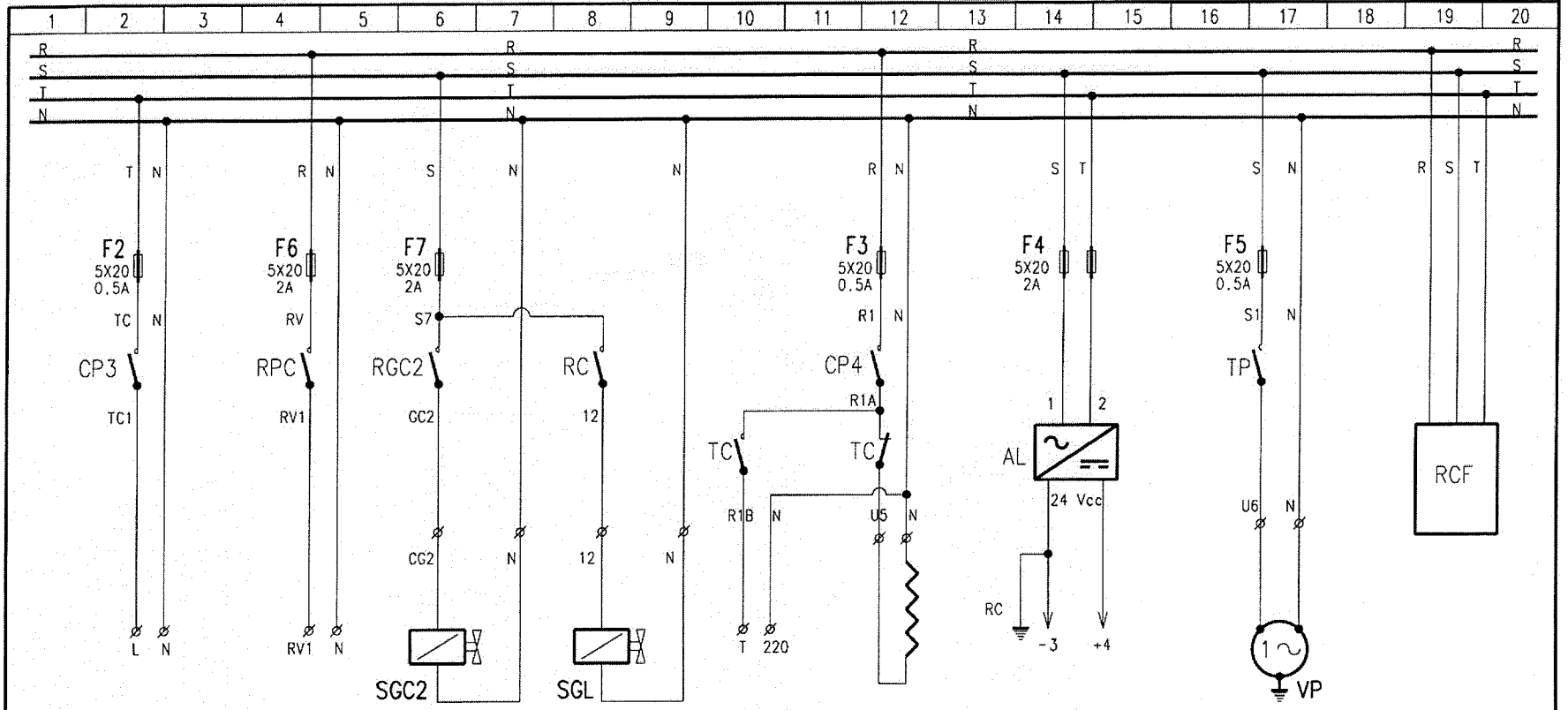


technogel

EXPLORER 700/400V

ImpElEXPL400v2

Macchina: EXPLORER 700
N.Dis: EXP-15911.4/10
Foglio 2 di 5 Data 10/00



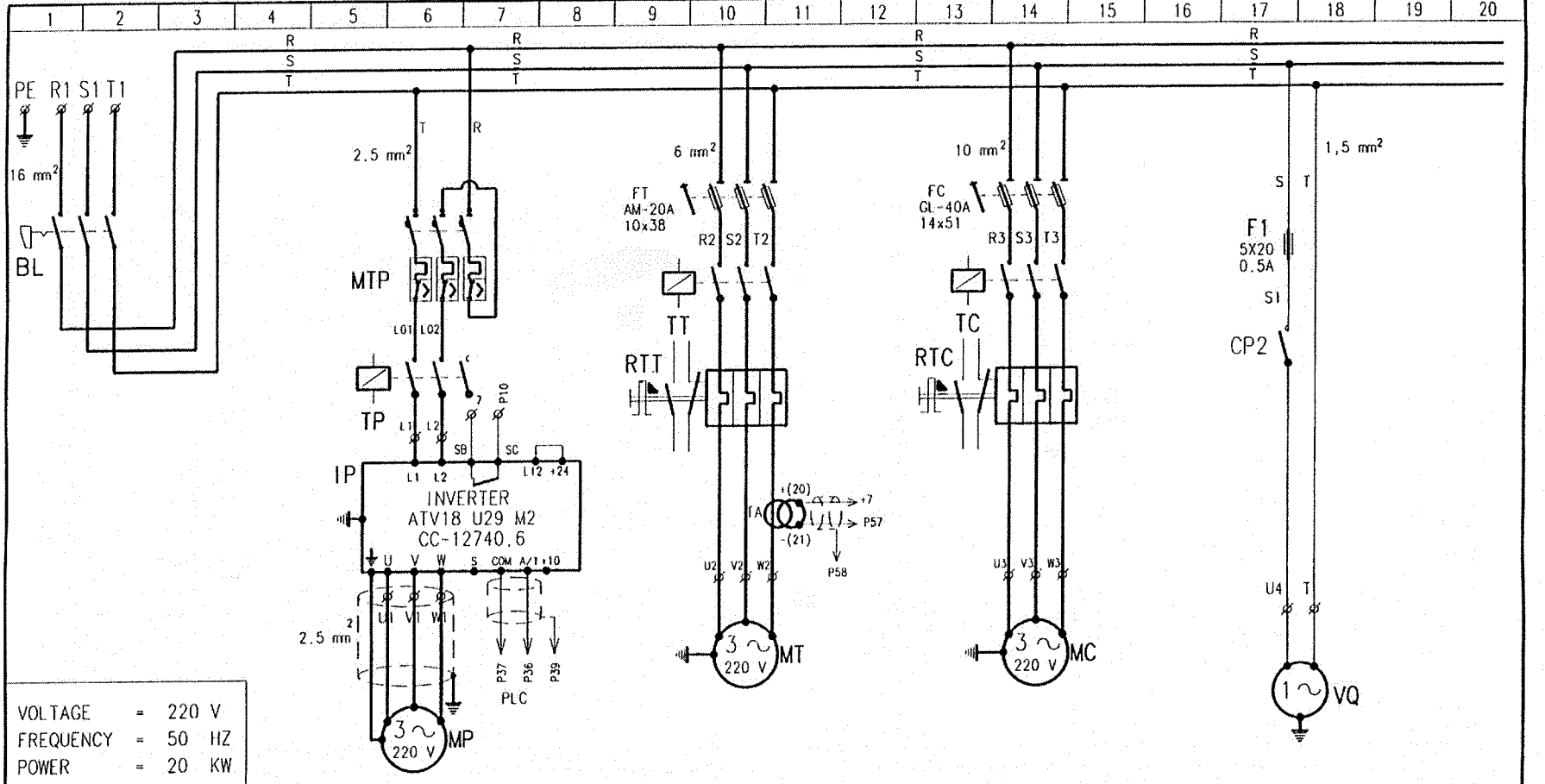
	CENTRALINA PROTEZIONE COMPRESSORE	VALVOLA PARZIALIZZ. COMPRESSORE	VALVOLA GAS CALDO 2	VALVOLA GAS LIQUIDO	PRESSOSTATO OLIO COMPRESSORE	RESISTENZA COMPRESSORE	ALIMENTATORE	VENTILATORE MOTORE POMPA	RELE' CONTROLLO FASE
		0,018	0,020	0,020		0,060	0,120	0,150	

technogel

EXPLORER 700/220V

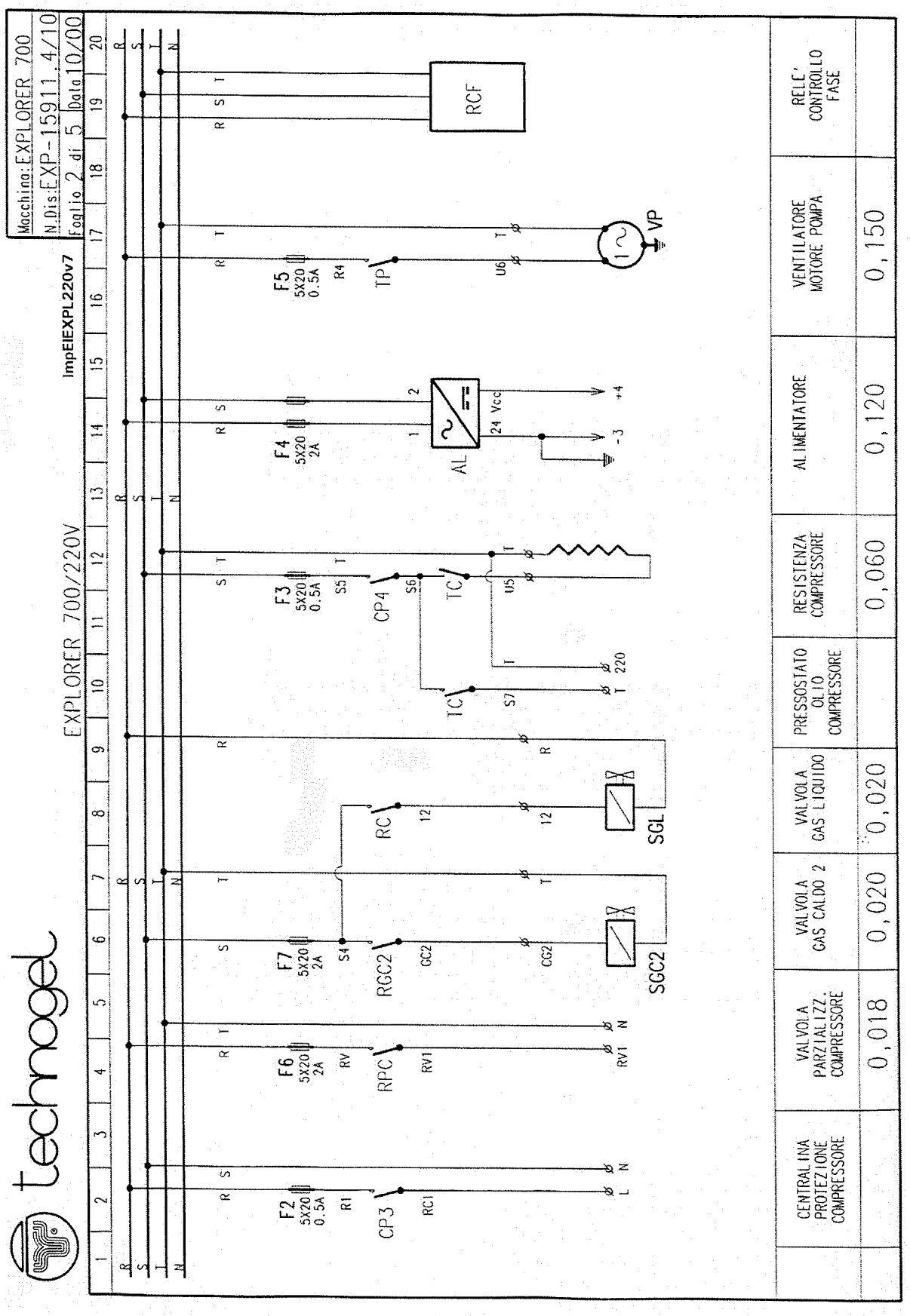
ImpElEXPL220v6

Macchina: EXPLORER 700
N.Dis: EXP-15911.4/10
Foglio 1 di 4 Data 10/00

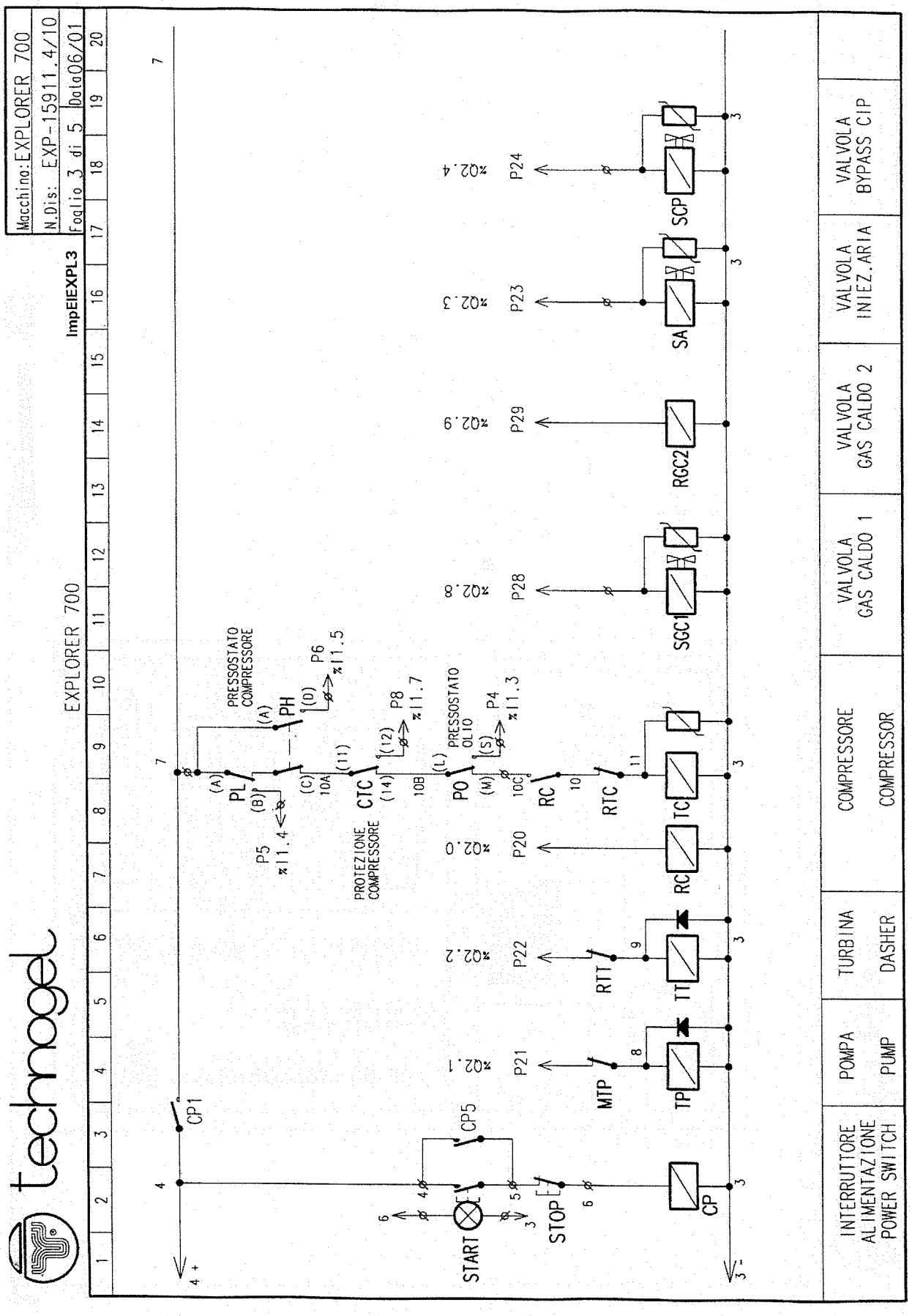


VOLTAGE = 220 V FREQUENCY = 50 HZ POWER = 20 KW CURRENT = XX A				
INTERRUTTORE SEZIONATORE BLOCCAPORTA GENERAL INTERRUPTOR	POMPA PUMP	TURBINA DASHER	COMPRESSORE COMPRESSOR	VENTILATORE QUADRO BOX FAN
Kw	1,1	7.5	11	0,036

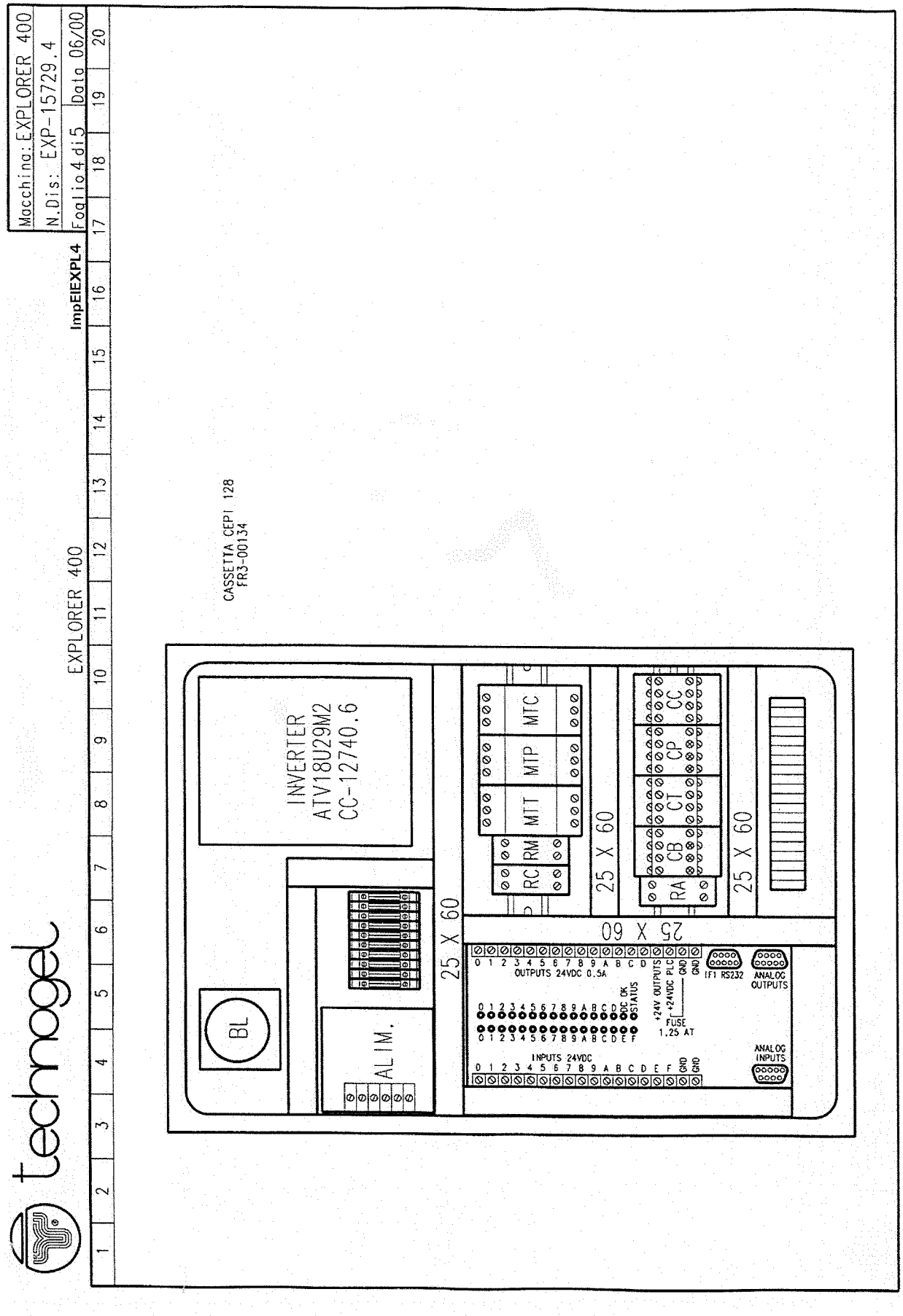
⇒Electrical system: *EXPLORER* 230V



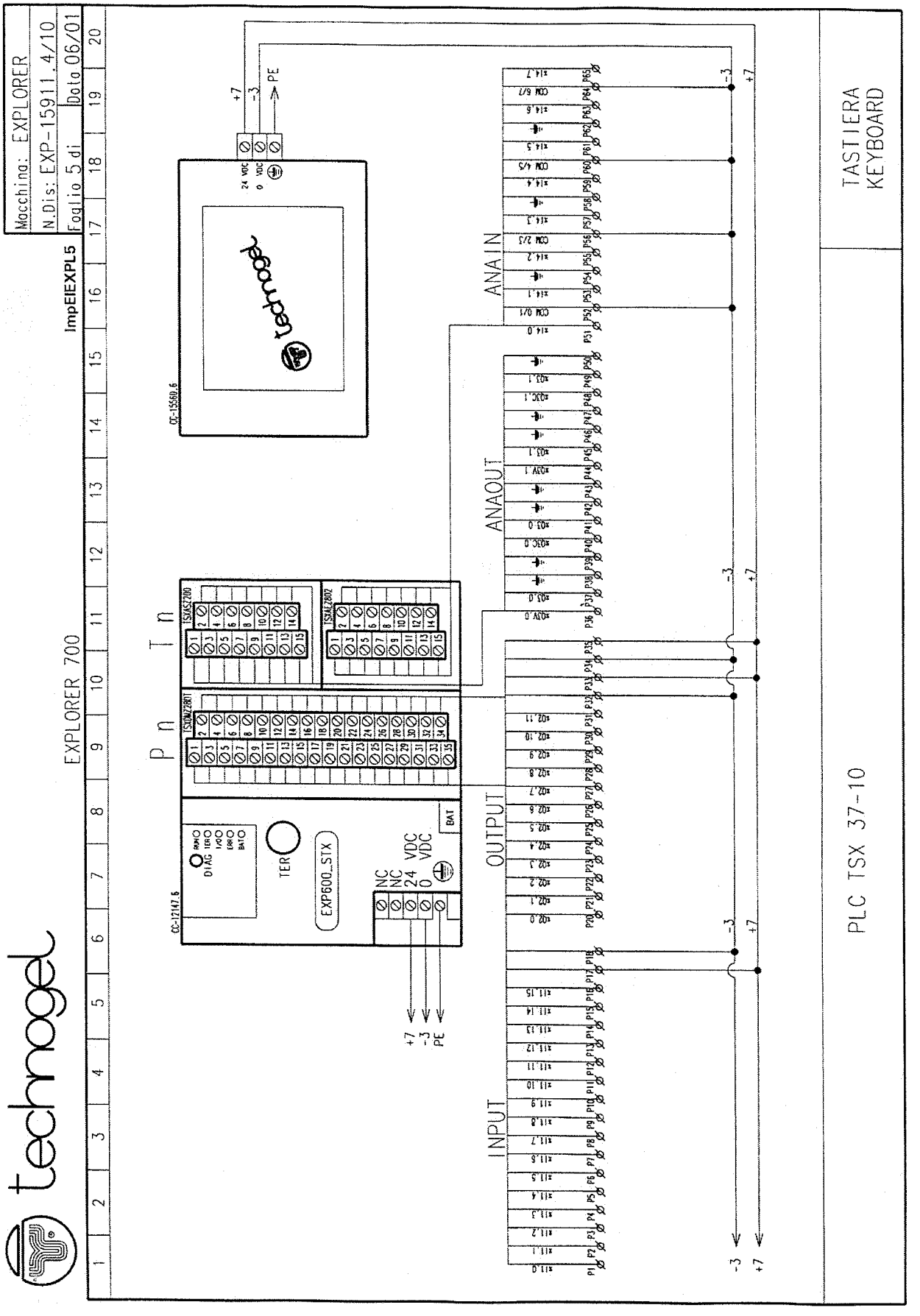
⇒ Electrical system: *EXPLORER* 400V – 230V



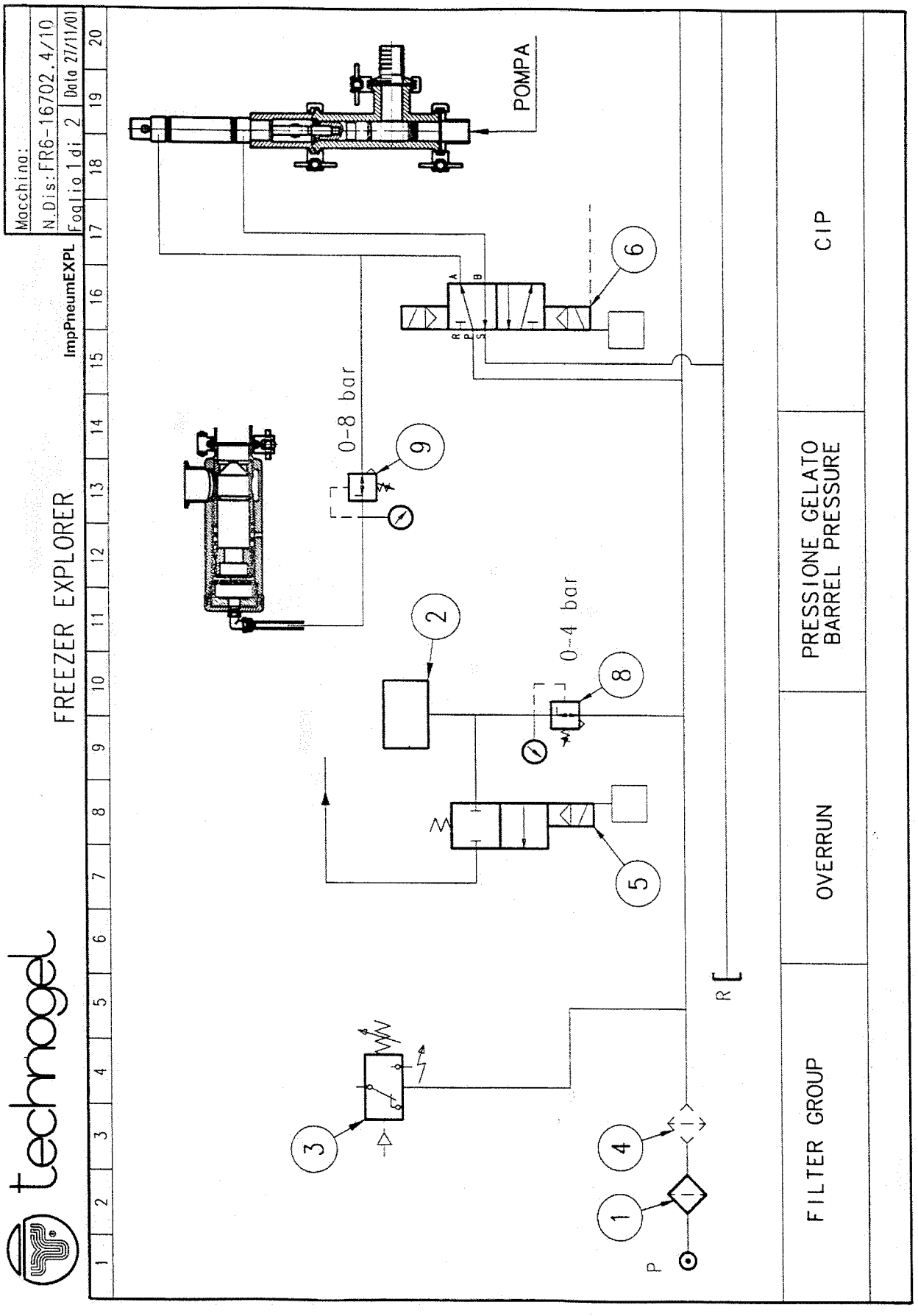
⇒ Electrical system: *EXPLORER* 400V



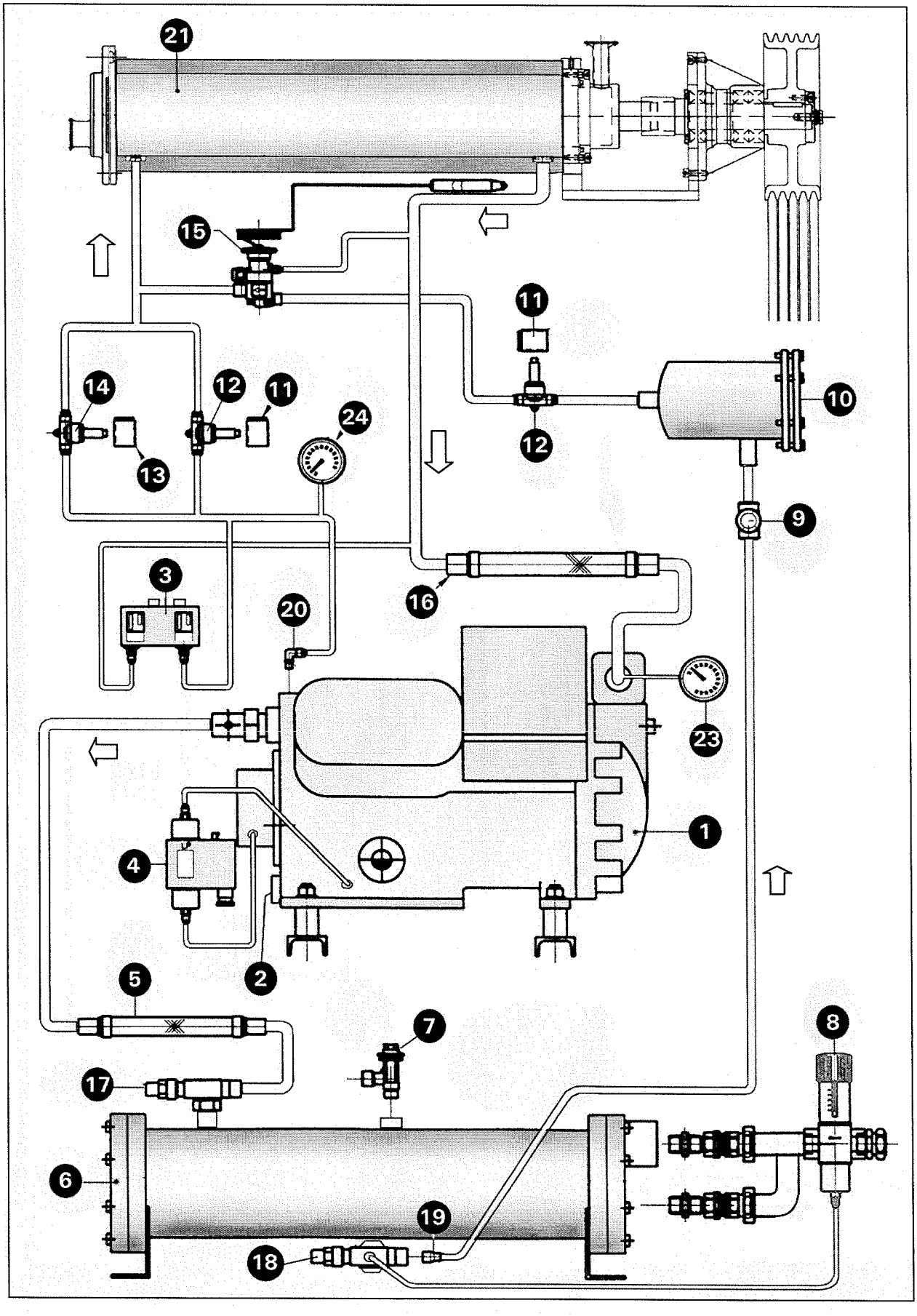
⇒ Electrical system: *EXPLORER* 400V – 230V



⇒ Pneumatic system: *EXPLORER*



⇒Refrigeration plant *EXPLORER*



SPARE PARTS

The next few pages describe the various units comprising the machine.

When ordering **spare parts,** please quote the following:

- **Type of machine**
- **Serial number of the machine** (see page 5)
- **Voltage of the machine** (for electrical spare parts)
- **Code number of the piece indicated, or the number corresponding to the piece required with the page number of the manual where the piece is shown.**

Forward the request to the Authorized retailer

Authorized retailer

Factory:

technogel spa

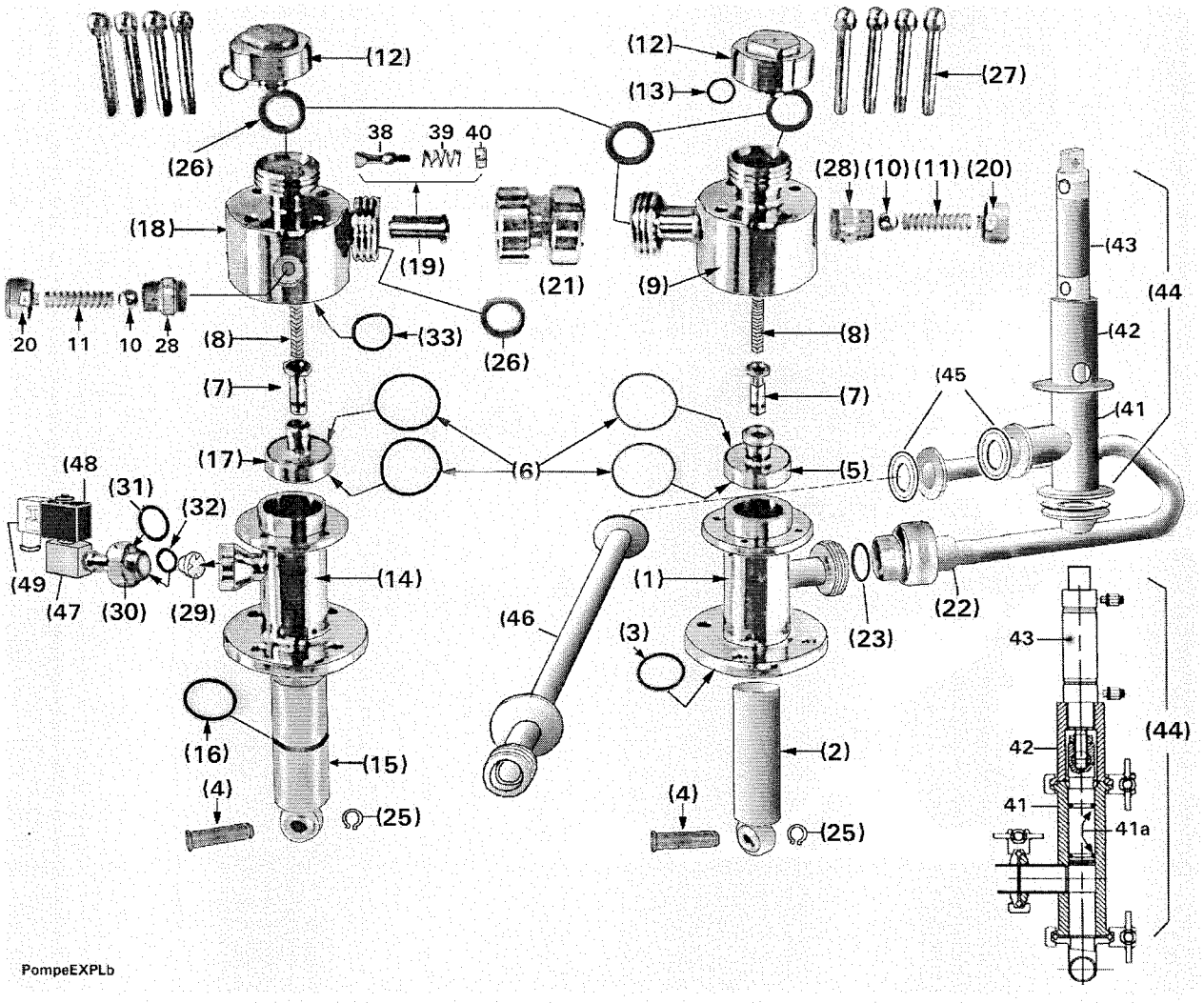
MACCHINE E IMPIANTI PER GELATO

ICE CREAM EQUIPMENTS AND MACHINES

Sede (factory): Via Boschetti, 51 - 24050 Grassobbio (BG) ITALY
Tel.: + +39 035 4522062 Fax: + +39 035 4522682
Website: www.technogel.com
E-mail: info@technogel.com

TECHNOGEL SHALL NOT BE HELD RESPONSIBLE FOR ANY DAMAGE OR FAULTS IN OPERATION ARISING FROM THE USE OF NON-ORIGINAL SPARE PARTS, i.e. PARTS NOT APPROVED FOR ASSEMBLY ON MACHINERY MANUFACTURED BY THE COMPANY.

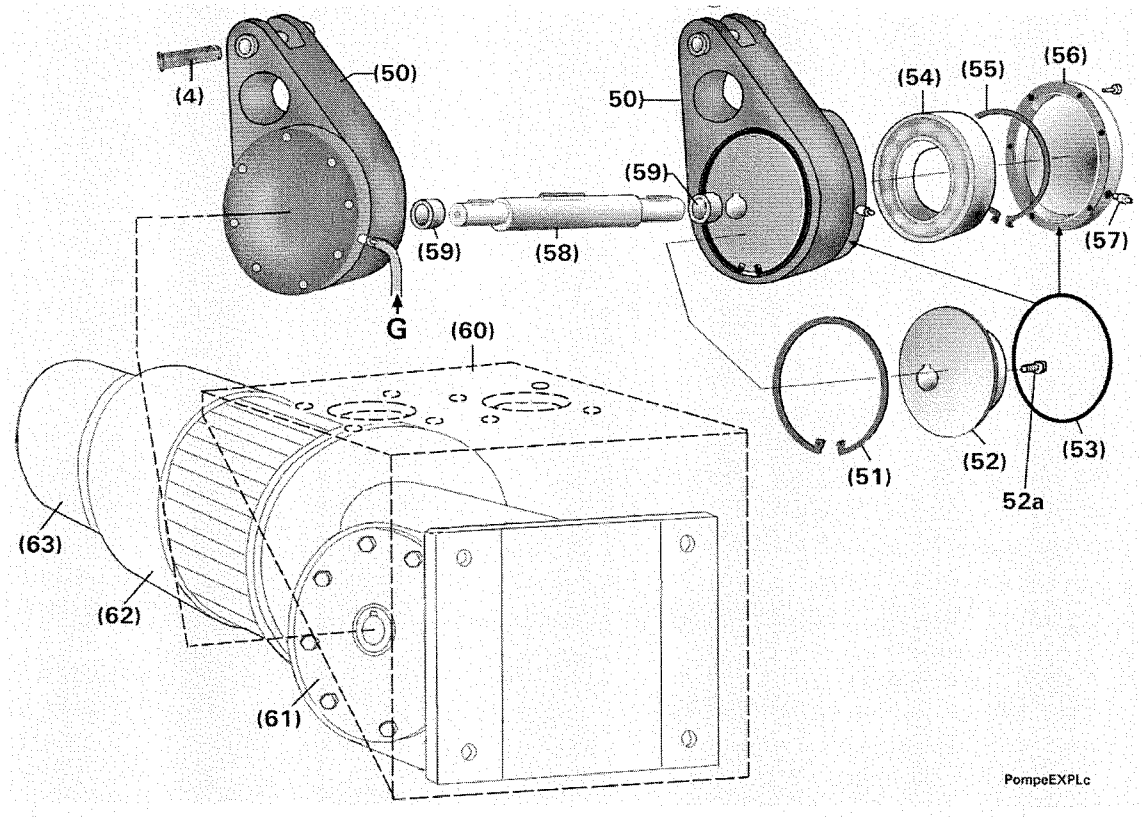
➢ Complete pump unit



PUMP UNIT COMPONENTS

Pos. N°	Pc. N°	Name of component	Code No.
1	1	Pump body for 1st stage (right hand pump)	FR6-5421.3/10
2	1	Pump piston 1st stage	FR3-2219.3/20
3	1	Pump O-ring 1st stage	FR3-0054
4	2	Tempered piston pin	FR1-2220.0/11
5	1	Valve seat 1st stage	FR6-6431.0
6	4	O-ring for valve seat	FR6-0186
7	2	Chrome plated slide valve	FR6-6430.0
8	2	Spring for slide valve	ML-6434.6
9	1	Pump head 1st stage (right hand head)	FR6-5040.3/10
10	2	Safety valve ball	FR3-0074
11	2	Safety valve spring	FR1-2062.0
12	2	Complete spring guide cap with pulley	
13	2	O-ring for spring guide cap	RR-0076
14	1	Pump body 2nd stage (left hand pump)	FR6-5037.3
15	1	Pump piston 2nd stage	FR6-5027.3
16	1	O-ring for piston 2nd stage	OM-0003
17	1	Valve seat 2nd stage	FR6-6432.0
18	1	Pump head 2nd stage (left hand head)	FR6-5022.3/10
19	1	Check valve: - (19) valve seat - (38) shank only of conical valve - (39) spring only for shank - (40) spring guide only	 FR6-5031.0 FR6-5032.0/10 FR6-0189 FR6-5033.0
20	2	Safety valve locking nut	FR1-3099.3
21	1	Connector for pumps complete with pulleys - O-ring only for connector	 FR6-0188
22	1	Bypass valve holder U tube	
23	1	O-ring	MX-0003
25	2	Seeger piston pin lock	SEEI-14E
26	5	Washer type DN 20	R-013.20
27	8	Head locking screws	FR1-2226.0
28	2	Safety valve nipple	FR1-2061.0
29	1	Compressed air check valve in Delrin	FR6-0248
30	1	Raccordo attacco aria	FR6-5036.0
31	1	O-ring for air attachment connector	MX-0003
32	1	O-ring for check valve seal	FR6-0240
33	1	O-ring for valve seat seal 2nd stage	FR6-0187
41	1		
42	1		
43	1		
44	1	Complete pneumatic by-pass valve	
45		Tri-clamp washer	
46	1	Mix inlet pipe	
47	1	Solenoid valve body for air inlet to the pump	
48	1	Bobina per valvola solenoide	
49	1	Relay for coil	

➢ Transmission of movement to the pumps

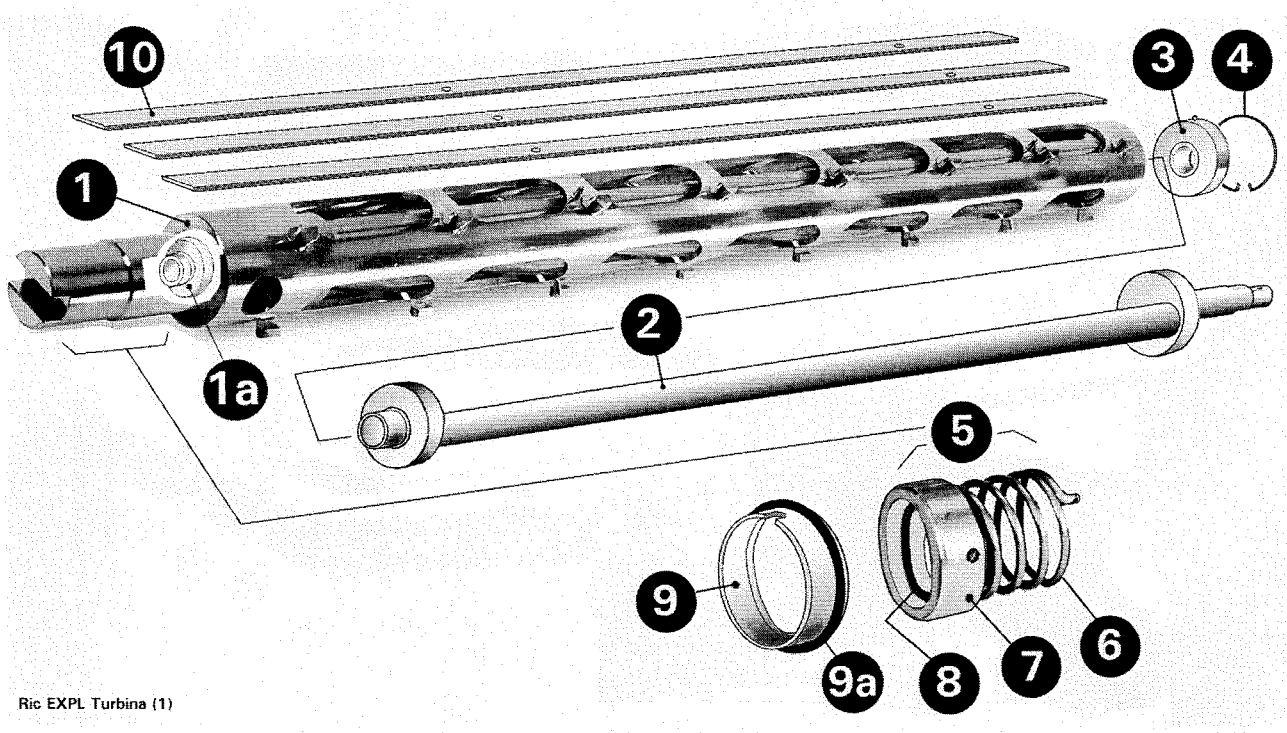


Pos.	Name of component	Code No.
4	Tempered piston pin for pump drive	FR1-2220.0/11
50	Complete connecting rod	FR6-7081.4
51	Seeger for interiors	SEEA-90E
52	Connecting rod cover with shaft hole	FR6-0041
53	Complete washer	OM-0053
54	Connecting rod bearing	FR6-0292
55	Seeger for exteriors	SEEA-1401
56	Connecting rod cover	FR6-7076.0
57	Greaser for connecting rod	GU-7331.6
58	Worm screw reduction shaft	FR6-2397.0/20
59	Distanziere tra biella e riduttore	FR6-2394.0/10
60	Aluminium transmission holder and pump unit sump	FR6-2401.0/01
61	**Worm reduction unit RMI 85D 1/15?**	**RV-15083.6 ?**
62	Motor reduction unit 1.5 Hz 1400 rpm V.230 -50Hz	
63	Supplementary motor cooling ventilator	DFA-5048.6

To remove the connecting rods, first dismantle the connecting rod cover (56), then unscrew screw (52a) and remove the connecting rod from shaft (58).

If all the reduction unit is removed from the machine, when it is reassembled, it must be perfectly aligned with the pump pistons before it is locked into position.

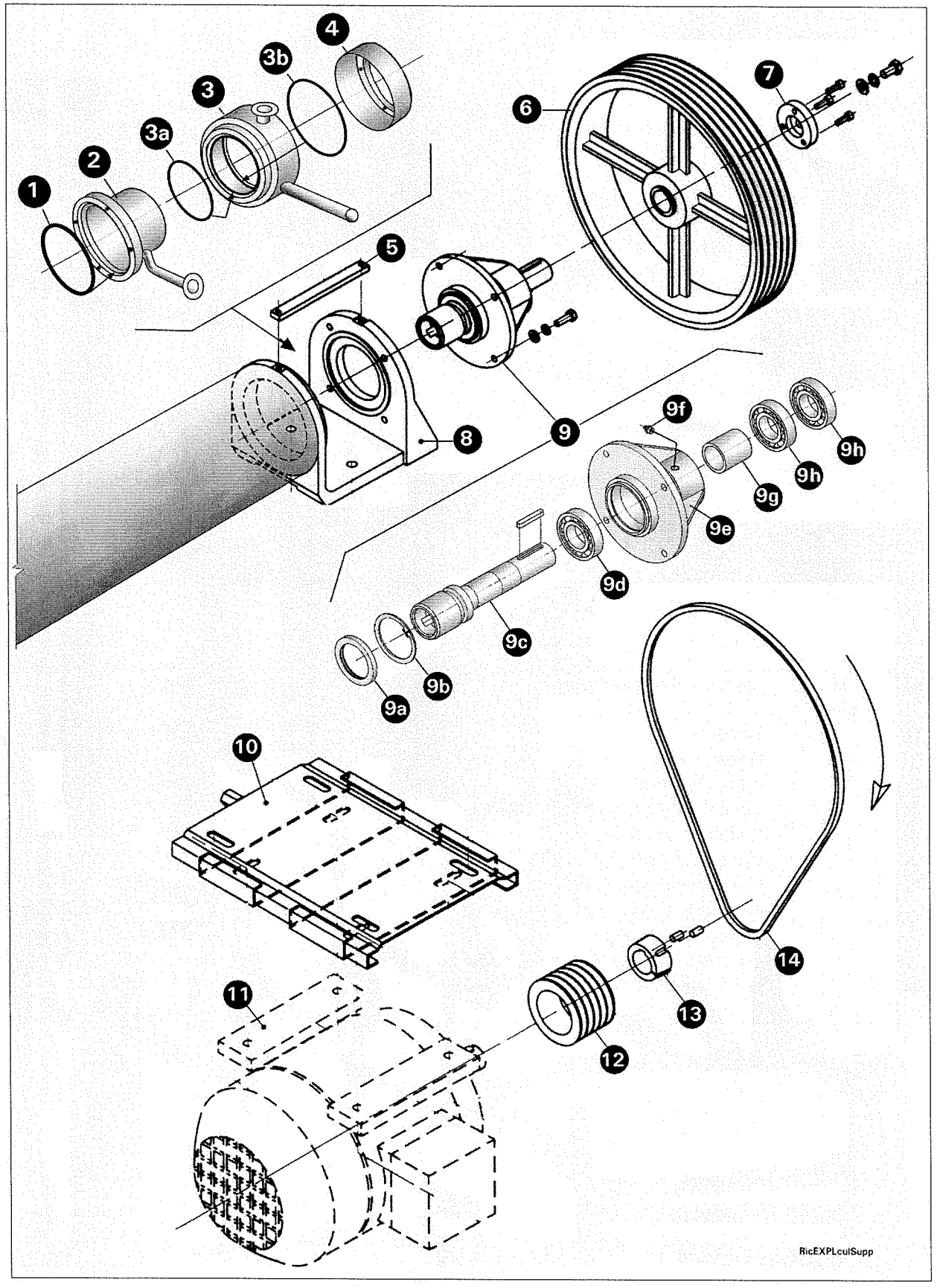
➢ Dasher and mechanical seal



Ric EXPL Turbina (1)

Pos.	N° piece	Name of component	Code
1a	1	Boccola	FR6-15436.0/01
1	1	Dasher body	FR6-18379.3
2	1	Eccentric shaft	FR6-15435.0
3	1	Eccentric shaft support bushing	FR6-15440.3/10
4	1	Bushing lock Seeger	FR6-15441.0
5	1	Complete mechanical seal (rotating part)	GU-16722.3
6	1	Mechanical seal spring	ML-16721.6
7	1	Mechanical seal part	GU-16723.6
8	1	Metal part O-ring	GU-16724.6
9	1	Complete mechanical seal (fixed part in rear door)	GU-16725.3/01
9a	1	Fixed part O-ring	GU-16727.6
10	3	Scraper blades	FR6-15336.0/01

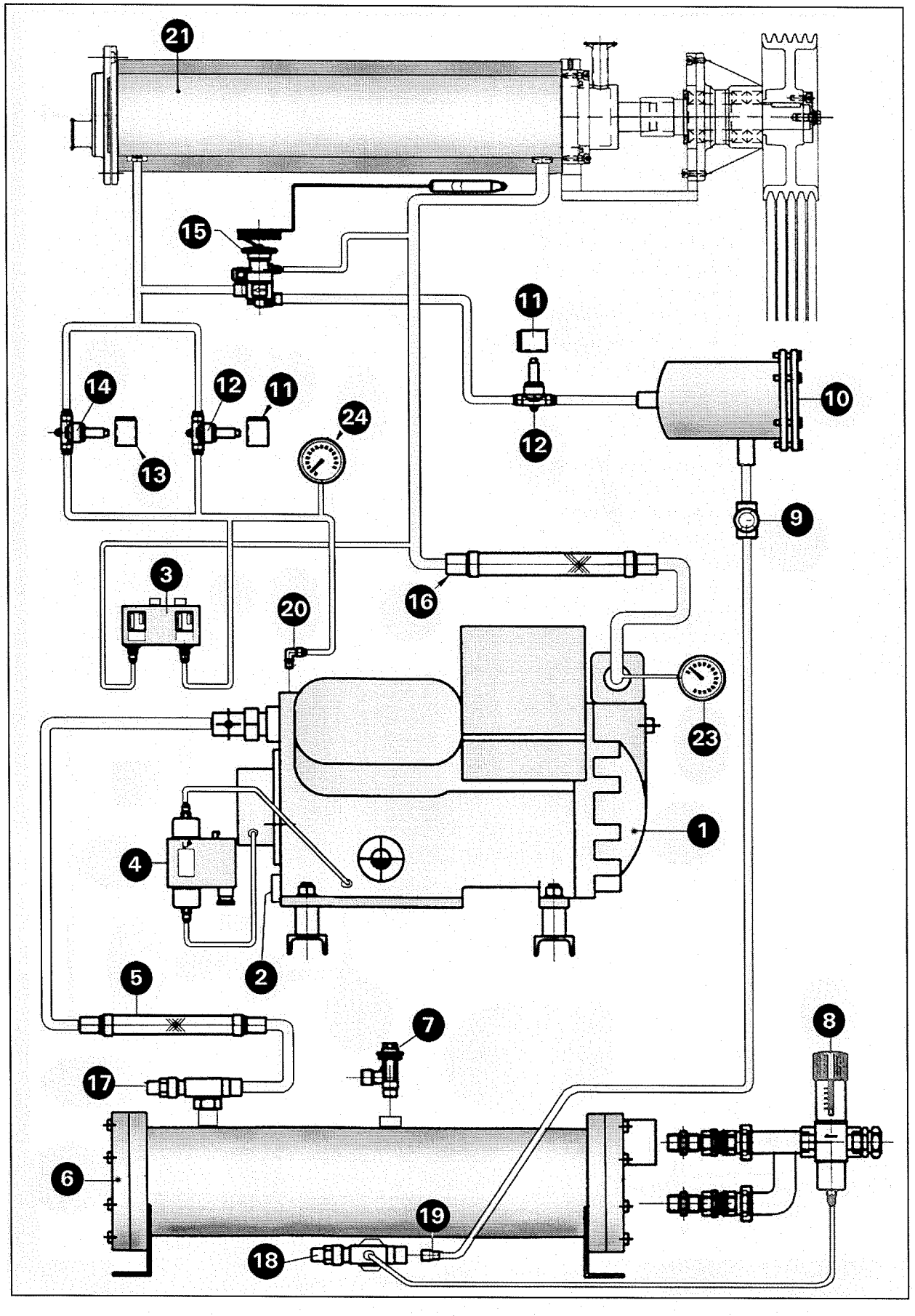
➢ Gruppo trasmissione turbina con culatta e supporto



COMPONENTI GRUPPO TRASMISSIONE TURBINA

Pos.	N° pezzi	Nome componente	Codice
1	1	Guarnizione "OR" culatta	
2	1	Culatta	FR6-15320.2/11
3	1	Copriculatta scorrevole con attacchi "MIX"	FR6-16647.2/10
3a	1	Guarnizione "OR" copriculatta	AV-00154
3b	1	Guarnizione "OR" copriculatta	AV-00068
4	1	Cuffia inox albero supporto	FR6-16648.2/10
5	1	Piatto rinforzo supporto	FR6-16693.0/10
6	1	Puleggia condotta D450	PU-16577.0/01
7	1	Piattello blocca puleggia	FR6-15324.0
8	1	Supporto tubo congelatore	FR1-3719.0/20
9	1	Supporto traino turbina completo	FR6-15442.4/10
9a		Anello tenuta albero supporto	
9b		Seeger	
9c		Albero supporto	FR6-15327.3/10
9d	1	Cuscinetto	CS-15483.6
9e		Carcassa supporto alluminio	FR6-15329.0/10
9f		Attacco ingrassatore	
9g		Distanziale supporto	FR6-16667.0
9h	2	Cuscinetto	CS-15482.6
10	1	Slitta tendicinghia	ME-6607.6
11	1	Motore traino	MO-15856.6
12	1	Puleggia motore D112	PU-16575.6
13	1	Bussola conica tipo 2012 D42	PU-16576.6
14	5	Cinghia trapezoidale	PU-16711.6

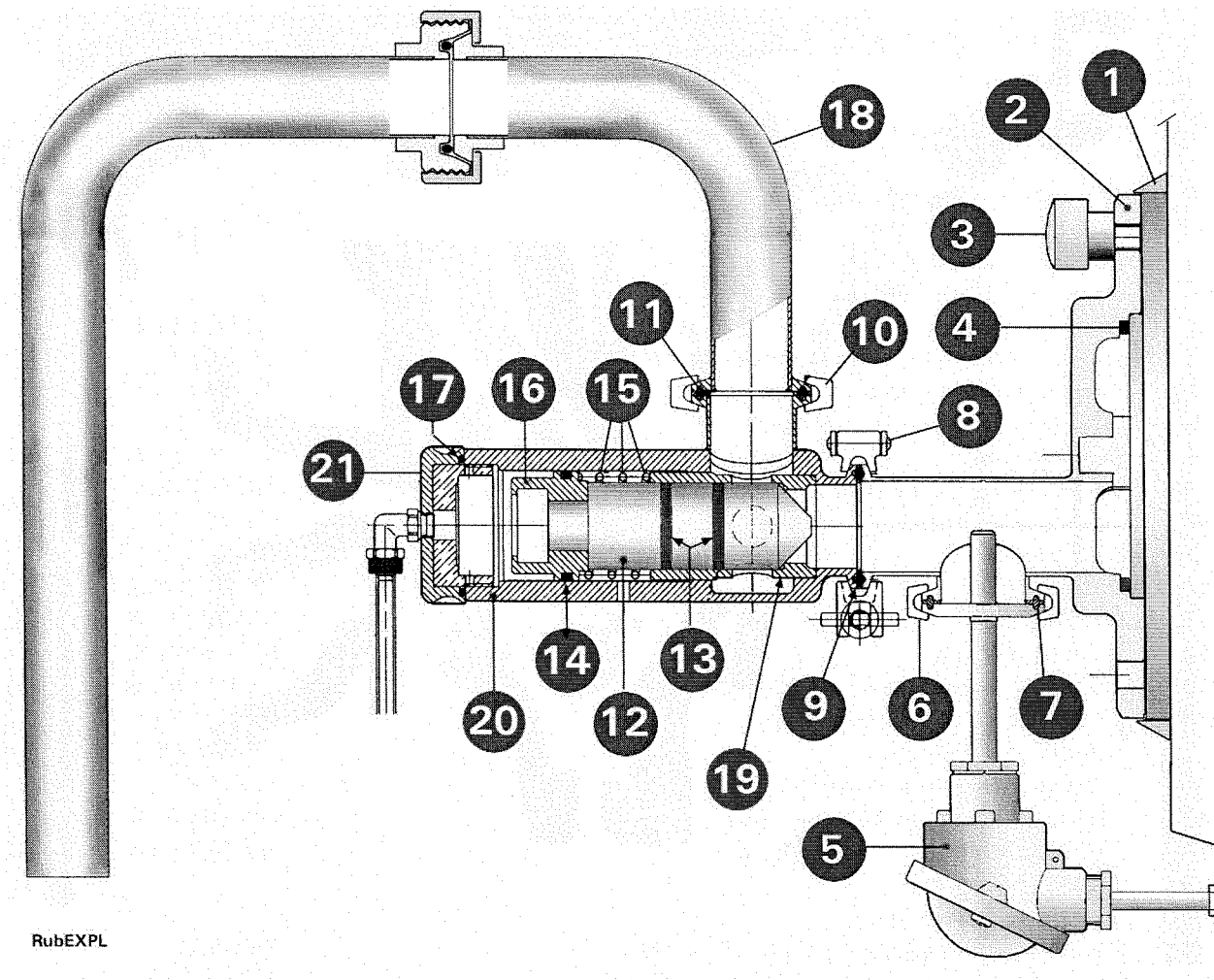
➢ Refrigeration plant *EXPLORER*



EXPLORER Refrigeration plant components

Pos.	Name of component	Code
21	Tubo congelatore "EXPLORER" cromato	FR6-15330.3/20
1	Compressore frigorifero - 400V 50HZ - 230V 50HZ - 230V 60HZ	CP-15858.6/01
2	Resistenza carter compressore	TR-16639.6
3	Pressostato di alta e bassa pressione KP 15	TR-8632.6
4	Pressostato dell'olio compressore MP SS – 120"	TR-14873.6
5	Tubo antivibrante compressione	FR3-0008
6	Condensatore a fascio tubiero	CD-16923.6
7	Valvola di sicurezza alta pressione	TR-15718.6
8	Valvola pressostatica dell'acqua	VT-15727.6
9	Spia del Gas	CD-16612.6
10	Filtro del Gas	CD-16640.4
11	Bobina valvola solenoide	VV-17053.6
12	Valvola solenoide	VV-15723.6
13	Bobina II° valvola solenoide Gas caldo	VV-15958.6
14	II° valvola solenoide Gas caldo	VV-12681.6
15	Valvola termostatica	VT-15885.4
16	Tubo antivibrante aspirazione	ME-0101
17	Rubinetto di entrata condensatore	RG-16840.6
18	Rubinetto di uscita condensatore	RG-16839.6
19	Bussola rubinetto	
20	Nipplo uscita Gas caldo	
23	Manometro di aspirazione (basa pressione)	FR6-0317
24	Manometro di compressione (alta pressione)	FR6-0318

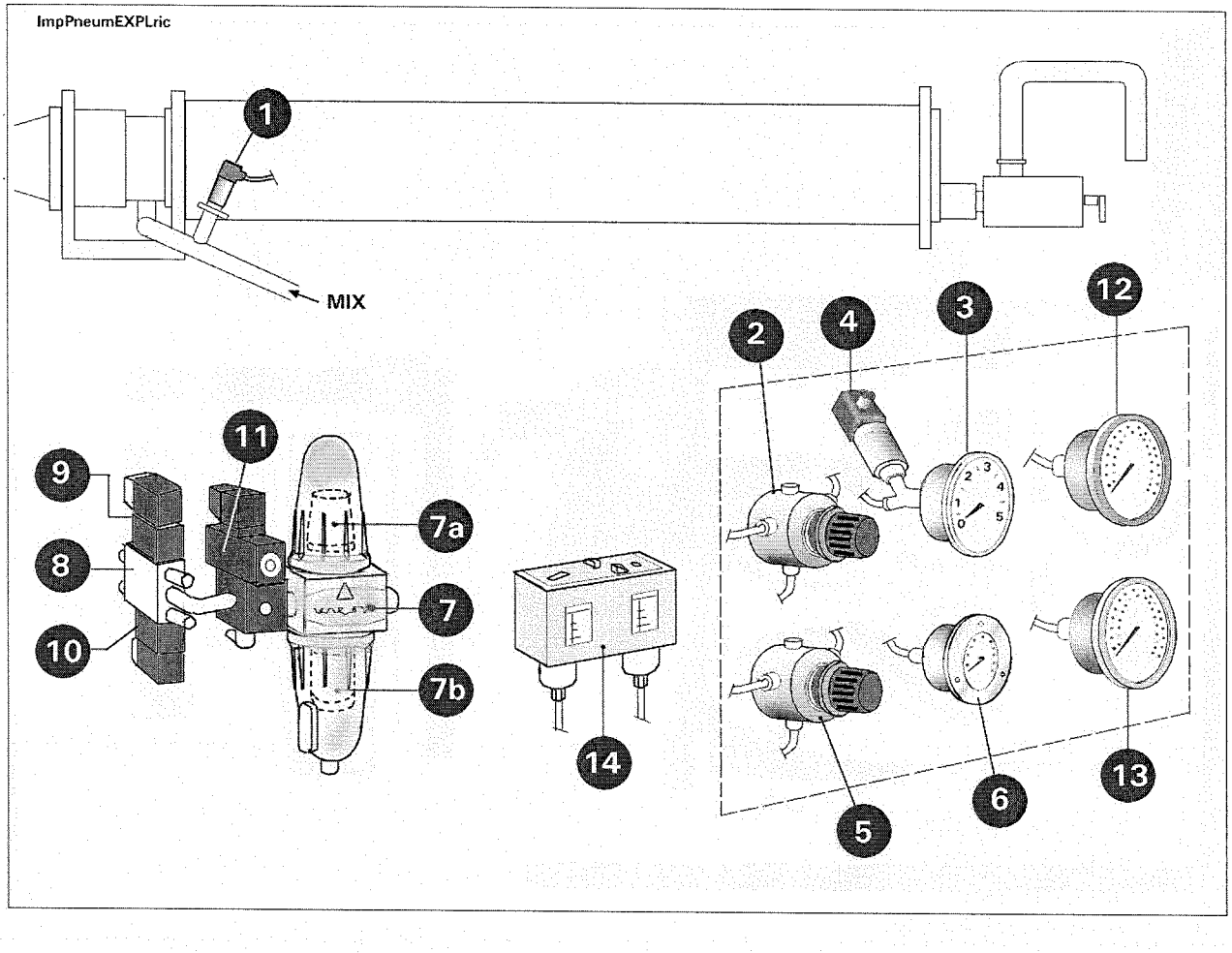
➢ Gruppo: flangia – rubinetto – sonda temperatura



RubEXPL

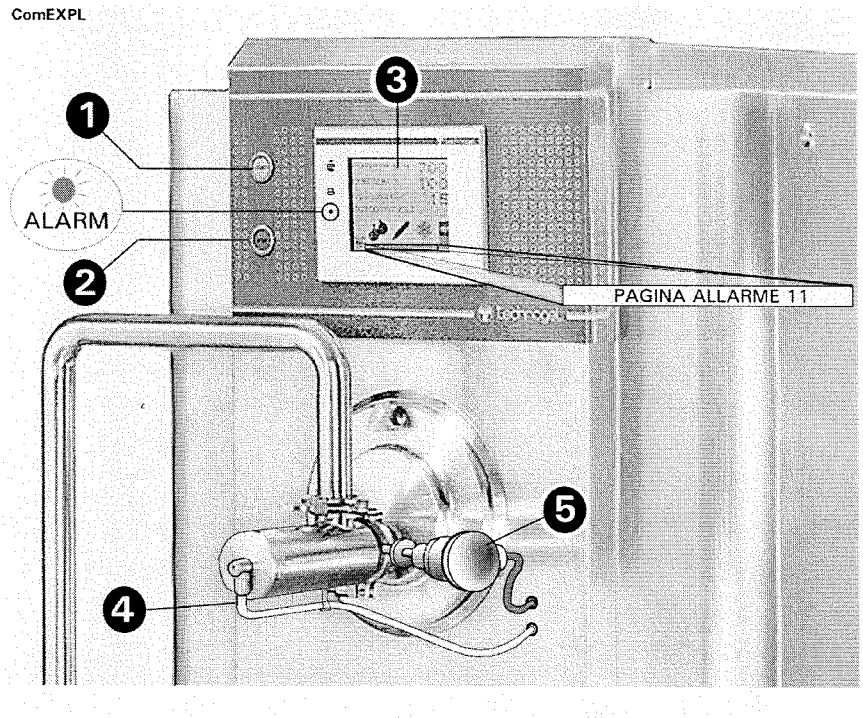
Pos.	N° Pezzi	Nome componente	Codice
1	1	Anello sottoflangia	FR6-16955.0
2	1	Flangia uscita gelato	FR615339.2/10
3	3	Volantini bloccaggio flangia	FR1-1808
4	1	Guarnizione "OR" per flangia uscita gelato	AV-00154
5	1	Sonda misurazione temperatura gelato	TR-16606.6
6	1	Morsetto Tri-clamp	US-0098
7	1	Guarnizione Tri-clamp	US-0099
8	1	Morsetto Tri-clamp	US-0098
9	1	Guarnizione Tri-clamp	US-0099
10	1	Morsetto Tri-clamp	US-0098
11	1	Guarnizione Tri-clamp	US-0099
12 + 16	1	Pistone rubinetto completo	FR6-15645.3/10
13	2	Guarnizione "OR" pistone	DFA-0229
14	1	Guarnizione "OR"	AV-00153
15	1	Molla pistone	ML-16621.0
17	1	Guarnizione "OR"	DFA-0074
18	1	Tubo uscita gelato DN32	FR6-16662.2
19 + 20	1	Corpo rubinetto completo	FR6-15642.3/10
21	1	Tappo rubinetto completo	FR6-15648.3/10

➢ Gruppo con controlli pneumatici e frigoriferi



Pos.	Nome componente	Codice
	Impianto pneumatico:	
1	Trasduttore di pressione "ICE CREAM"	PM-15969.6
2	Regolatore di pressione "OVERRUN"	PM-8803.6
3	Manometro pressione "OVERRUN"	FR6-5059.4
4	Trasduttore di pressione "OVERRUN"	PM-16579.6
5	Regolatore di pressione "ICE CREAM"	PM-8803.6
6	Manometro pressione "ICE CREAM"	RR-0051
7	Filtro aria compressa	PM-16168.6
7a	Cartuccia filtro tipo	PM-16170.6
7b	Cartuccia filtro tipo	PM-16169.6
8	Valvola pneumatica	
9		
10		
11	Pressostato aria compressa	PM-5854.6
	Impianto frigorifero:	
12	Manometro alta pressione Gas 404	FR6-0318
13	Manometro bassa pressione Gas 404	FR6-0317
14	Pressostato alta/bassa pressione circuito frigorifero	TR-8632.6

➢ Gruppo frontale macchina

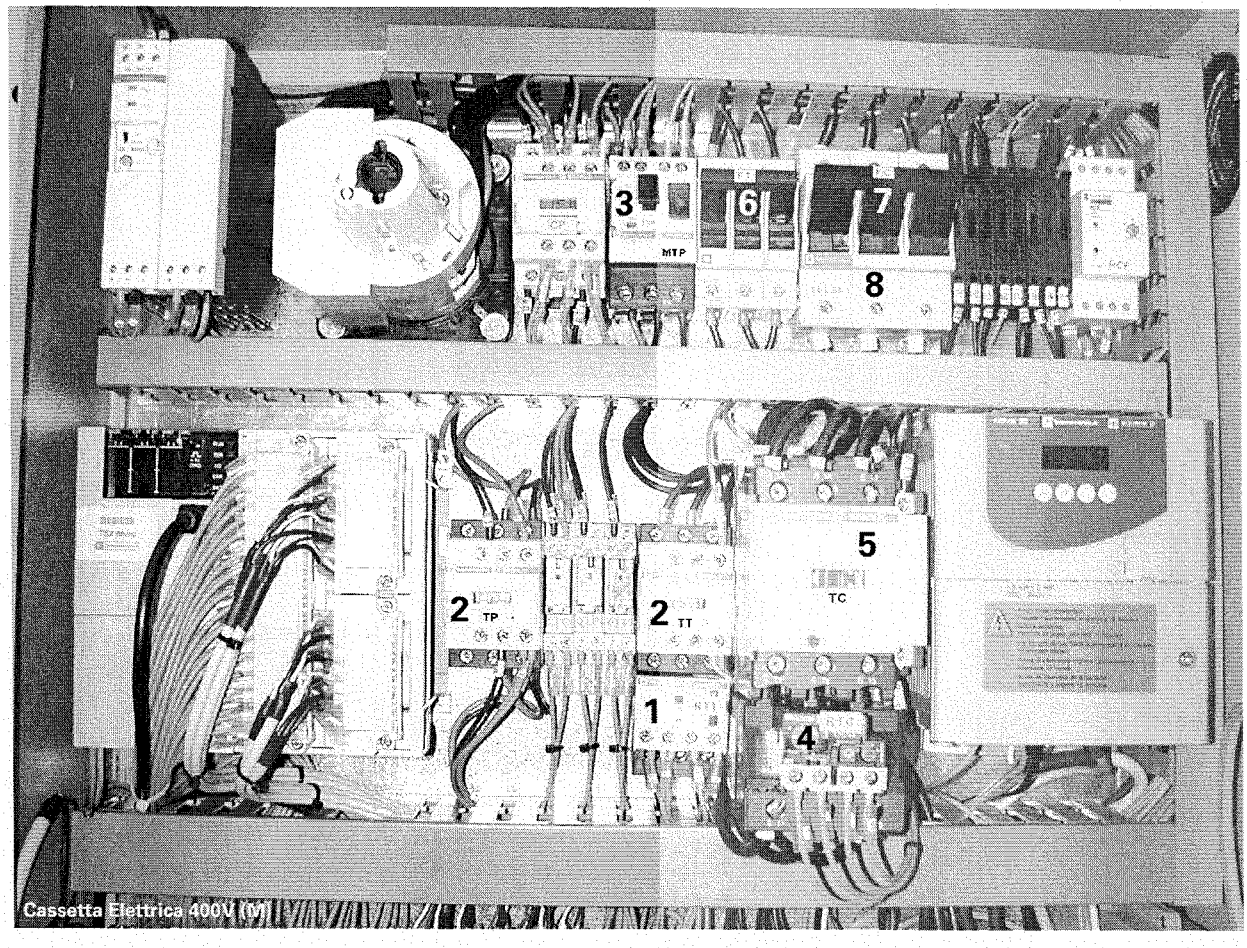


Pos.	Nome componente	Codice
1	Pulsante "START" verde	
2	Pulsante "STOP" rosso	
3	Touch screen	
5	Sonda termometrica	

➢ Cassetta Elettrica Explorer 700

Codice	Descrizione	Q.tà	
CC-10376.6	ZOCCOLO ZMEM/5 X RESISTENZA	NR	3
CC-12147.6	PLC 16I/12U TSX37-10128DT1	NR	1
CC-12149.6	PILA PER TSX37 - TSX PLP 01	NR	1
CC-12195.6	VENTILATORE 92X92X25 V.220	NR	1
CC-12196.6	GRIGLIA VENTILATORE 92X92	NR	1
CC-12197.6	PORTAFILTRO X VENTIL. CC-12195	NR	2
CC-15873.6	MODULO TSX AEZ 802	NR	1
CC-15874.6	MODULO TSX ASZ 200	NR	1
CC-16008.6	MORSETTI PORTAFUSIB. UK5-HESI	NR	7
CC-16019.6	MORSETTI ELETT. UK 10 N	NR	3
CC-16103.6	PIASTRINA TERMINALE D-UK 4/10	NR	2
CC-16163.6	CASSETTA J/2011	NR	1
CC-16353.6	CONTATTO AUSILIARIO GV-AE11	NR	1
CC-16356.6	CONTAT.AUSILIAR.TELEM.CAD-50BD	NR	1
CC-16564.6	CONTATTO AUSILIARIO LAD-N20	NR	2
CC-16565.6	FILTRO ANTIDIST. LA4-DE3E	NR	1
CC-16712.6	RELE'CONTROLLO FASE M.G.21180	NR	1
CC-17054.6	RELE' JW2SN 24VDC 5030	NR	3
CC-17537.6	MORSETTO ELETTRICO UK 10 N BU	NR	1
CC-17538.6	MORSETTO ELETTRICO UK 6 N	NR	6
CC-17759.6	ALIMENTATORE STABIL.ABL7RP2405	NR	1
CC-18847.6	TRASFORMATORE AMP. 25/225-20MA	NR	1
CC-19559.6	INVERTER ATV 31-HU11M2 KW1.1 M	NR	1
CC-20074.6	INTER.BLOCCAP.80A SAELZER 3P+N	NR	1
CC-20075.6	PROLUMGA INT.SALZER 80A	NR	1
E-00102	MORSETTI ELETT. USLKG 10N	NR	1
E-00155	PORTAFUSIBILE TRIPOL. 10 X 38	NR	1
E-00194	MORSETTI ELETT. DOPPIO UKK5	NR	50
E-00195	MORS. EL. TERMINALE D-UKK 3/5	NR	5
E-00229	MORS. EL. BLOCCAMORSETT MBKE/U	NR	2
ME-0053/0	FUSIBILE 0,5 A. VETRO 5 X 20	NR	4
ME-0053/2	FUSIBILE 2 AMP. VETRO 5X20	NR	3

➢ Cassetta Elettrica Variante 400V.



Cassetta Elettrica 400V (M)

Pos.	Codice	Descrizione	Q.tà	
1	CC-16332.6	SALV.TELEM. 12,0-18,0 LRD-21	NR	1
2	CC-16350.6	TELER.TELEM. 18A BASSO ASSOR.	NR	2
3	CC-16352.6	MAGNETO T. GV2 ME14 6/10 AMP.	NR	1
4	CC-16562.6	SALV.TELEM. 30,0-40,0 LR-3355	NR	1
5	CC-16563.6	TELER.TELEM. 40A LC1-D40BD	NR	1
6	E-00067/20AM	FUSIBILE 20 AMP. AM 10 X 38	NR	3
7	E-00157/40GL	FUSIBILE 40 AMP. GL 14 X 51	NR	3
8	T1-0042	PORTAFUSIBILE TRIPOL. 14 X 51	NR	1

➢ Cassetta Elettrica Variante 230V.

Pos.	Codice	Descrizione	Q.tà	
	CC-16334.6	SALV.TELEM. 23,0-32,0 LRD-32	NR	1
	CC-16350.6	TELER.TELEM. 18A BASSO ASSOR	NR	1
	CC-16352.6	MAGNETO T. GV2 ME14 6/10 AMP	NR	1
	CC-16354.6	SALV.TELEM. 48,0-65,0 LRD3359	NR	1
	CC-16985.6	TELER.TELEM. 38A LC1-D38BL	NR	1
	CC-16986.6	TELER.TELEM. 65A LC1-D65BD	NR	1
	E-00067/32AM	FUSIBILE 32 AMP. AM 10 X 38	NR	3
	E-00176	PORTAFUSIBILE TRIPOL. 22 X 58	NR	1
	E-00182/AM	FUSIBILE 63 AMP. AM 22 X 58	NR	3

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