INSTRUCTION FOR INSTALLATION, USAGE AND MAINTENANCE

CE

Ed. 10/2014
EN

technogel

MANTE 15-45
MANTE 20-60
MANTE 30-100

MANTE 15-45 ICE-CREAM/WATER ICE
MANTE 20-60 ICE-CREAM/WATER ICE

Introduction

Dear Customers

thank you for having chosen a machine and have a Good day.

To help you maintain your machine effective and reliable in time, we recommend carefully reading this **use and maintenance manual** in particular, with regard to the "**Machine use**", "**Safe use of machine**" and "**Routine maintenance**" chapters of your competence.

We also recommend, to have "**Extraordinary maintenance**" carried out by a qualified and authorised technician upon the set-up deadlines.

Keep this manual in a safe and protected place. It contains machine data and, in time, it will be useful.

The descriptions and illustrations in this manual are not to be considered binding: Therefore, **Technogel Spa** reserves the right to make any modifications to machine parts at any time without notice, should it consider it necessary for any type of constructive and/or commercial requirement.

SUMMARY

➢ 1.1 Declaration of conformity

technogel Spa
MACCHINE E IMPIANTI PER GELATO
ICE CREAM EQUIPMENTS AND MACHINES
Via Boschetti, 51 - 24050 Grassobbio (BG) ITALY
Tel. ++39 035 4522062 Website: www.technogel.com
Fax ++39 035 4522682 E-mail: info@technogel.com

DICHIARAZIONE DI CONFORMITA' - DECLARATION OF CONFORMITY

COMPANY : TECHNOGEL S.p.A.

ADDRESS: Via Boschetti 51, 24050 GRASSOBBIO (BG) ITALY

We, subscriber of the present, declare, under our own responsibility that the machine:

Model: MANTE

Type: BATCH FREEZER

Gas: R 404 ABuilt in: 2010

is in accordance with what established in the "Equipment Directive" n. 2006/42/EEC and with the PR 459/96, and as per directions , EN 1672-2 UNI EN ISO 12100-1:2005, UNI EN ISO 12100-2:2005 CEI 44-5, rule n. 791/1977, rule "Low Tension" n.2006/95/EEC and as per Legislative Decree n. 615/96, directives "EMC" Electromagnetic Compatibility n. 2004/108/EEC .

è conforme a quanto prescritto dalla direttiva "macchine" 2006/42/CE e dal DPR 459/96, nonché a quanto prescritto dalle norme armonizzate EN 1672-2 UNI EN ISO 12100-1:2005, UNI EN ISO 12100-2:2005 CEI 44-5, alla legge n.791/1977, direttiva "Bassa Tensione" n.2006/95/CEE ed al Decreto Legislativo n. 615/96, direttiva "EMC" Compatibilità Elettromagnetica n. 2004/108/CEE

Est conforme à ce qu'il est prescrit dans le directive « machines » 2006/42/CEE et meme à ce qu'il est prescrit par les normes, EN 1672-2 UNI EN ISO 12100-1:2005, UNI EN ISO 12100-2:2005 CEI 44-5 à la loi n.791/1977, directive « Basse Tension » n. 2006/95/CEE et à l'Acte Législatif n. 615/96, directive « EMC » Compatibilité Elettromagnétique n. 2004/108/CEE

Risponde a lo prescrito por la directiva "maquinas" 2006/42/CEE y DPR 459/96, a lo esteblecido por el consunto de norme , EN 1672-2 UNI EN ISO 12100-1:2005, UNI EN ISO 12100-2:2005 CEI 44-5,a la ley numero n.791/1977, directiva "Baja Tension" n. 2006/95/CEE y al Decreto Legislativo n.615/96, directiva "EMC" Compatibilidad Elettromagnética n. 89/336/CEE.

der Vorschrifte 2006/42/CEE und DPR n.459/96, sowie den harmonisierten Normen EN 1672-2 UNI EN ISO 12100-1:2005, UNI EN ISO 12100-2:2005 CEI 44-5 und dem Gesetz Nr. 791/1977 Niederspannungvorschrift" Nr. 2006/95/CEE und der Rechtsverordnung Nr. 615/96, "EMC" Vorschrift Elektomagnetische Verträglichkeit Nr. 2004/108/CEE

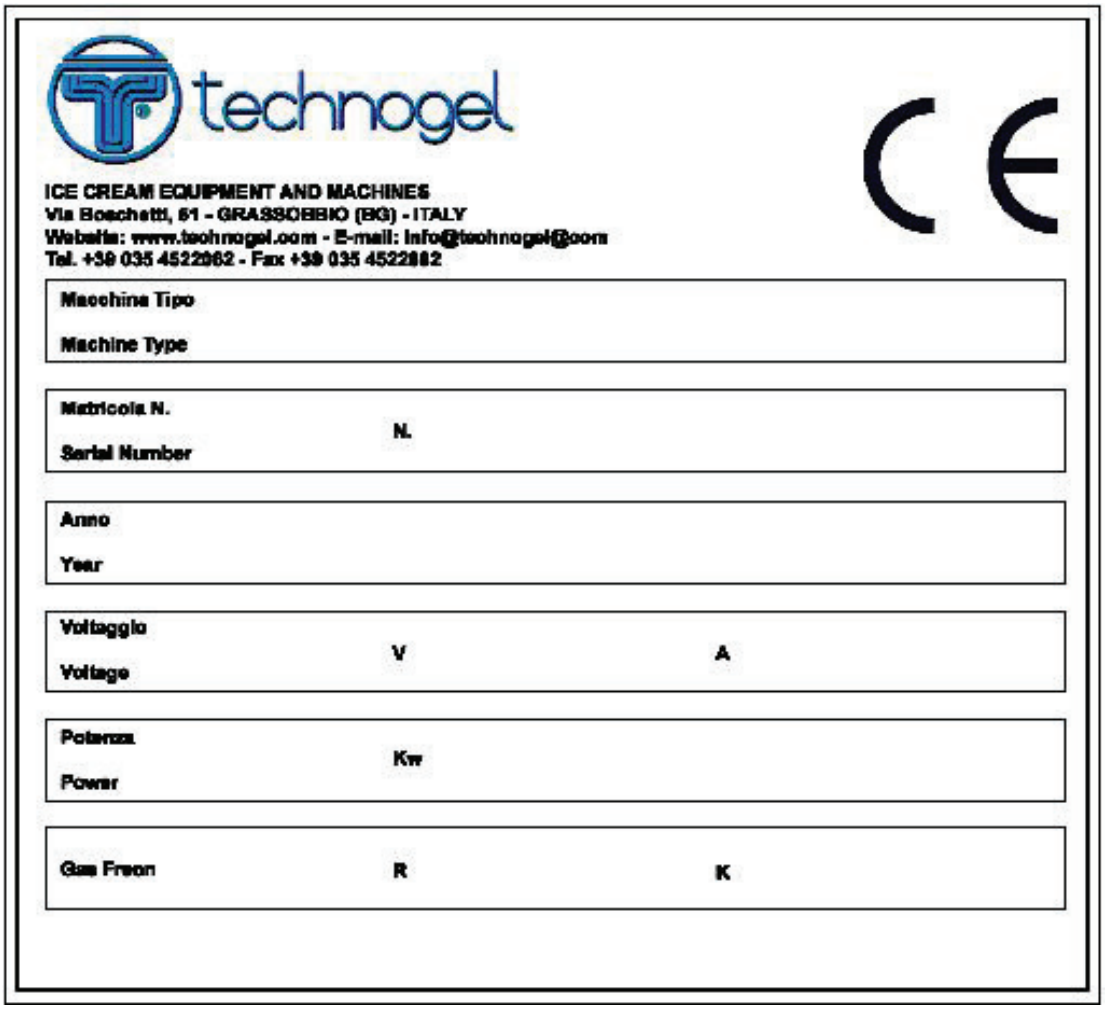
Grassobbio,03/12/2010

➢ 1.2 Machine identification

Each machine is fitted with a serial plate with:

- **Machine TYPE**
- **Serial number**
- **Year of manufacture**
- **Voltage, hertz and maximum absorption in Amps**
- **Power supply**
- **Type of frigorific gas and quantity**

The plate is applied externally, on back of the machine. Here below is the serial plate of this machine:



When ordering spare parts and requesting technical assistance, please supply the main information given on the serial plate to precisely identify the machine: Type, Serial n. and Year.

ACCEPTABLE AND UNACCEPTABLE USE
CONDITIONS OF USAGE OF MACHINE
SAFETY WARNINGS

2.1 ACCEPTABLE AND UNACCEPTABLE USE

All **TECHNOGEL** Batch Freezers, series **MANTE**, have been designed to elaborate **mixes for ice-cream, water ice and sherbets only**.

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

2.2 Conditions of usage of the machine

Below are the **minimum** and **maximum** mixing doses for ice-cream, that the various machines can process; the doses are in Kg. of mix to introduce inside the machine at a time:

	minimum load	maximum load
MANTE 1545	**2 Kg.**	**7 Kg.**
MANTE 2060	**3 Kg.**	**10 Kg.**
MANTE 30 100	**5 Kg.**	**17 Kg.**

IF THE DOSES ARE BELOW THE MINIMUM DESCRIBED, THE BLADES SCRAPING THE ICE-CREAM CAN PREMATURELY WEAR.

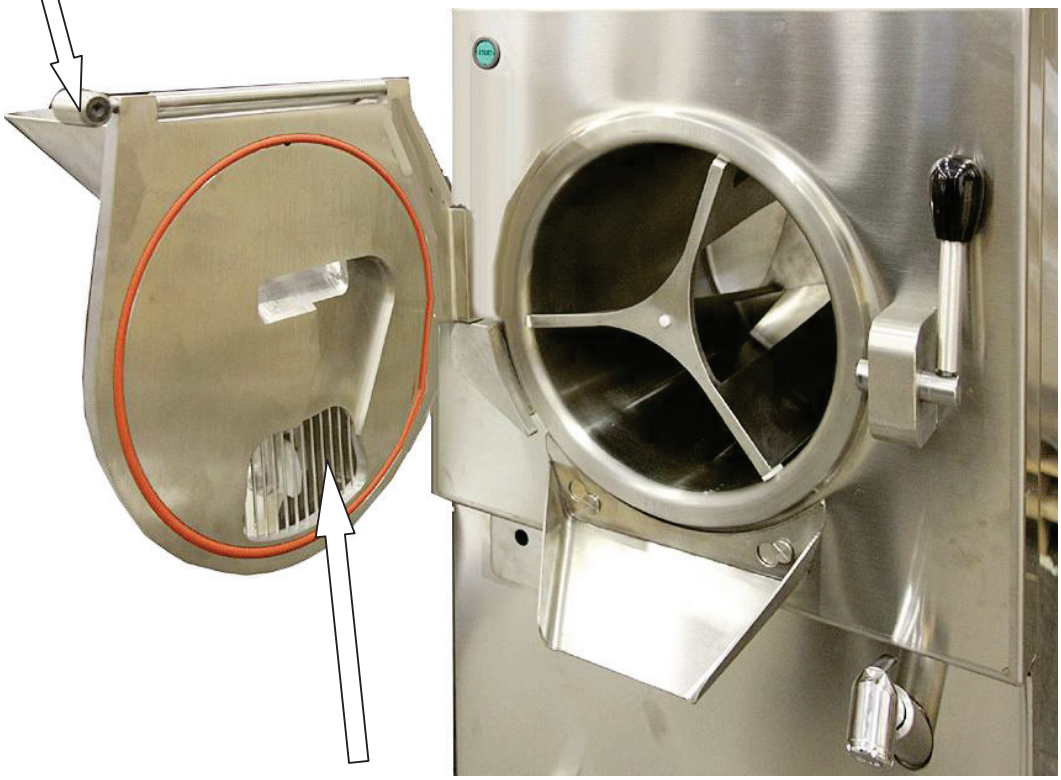
IF THE DOSES ARE ABOVE THOSE DESCRIBED, THE OBTAINED ICE-CREAM WILL NO LONGER HAVE THE CORRECT PROPORTION AIR/MIX.

➢ 2.3 Safety warnings

Do not tamper with or modify the safety grid of the GR hopper

Do not tamper with the safety sensor

The machine does not start



Do not tamper with or modify the output safety grid of the ice-cream.

It can be very dangerous and cause damages to the operator's limbs

➢ During washing

Never introduce rubber hoses (4) inside the hopper (1) to fill the machine with water for washing and forget them. Whereas, use the hose spray provided with the machine holding it with a hand.

Do not use knives (5) or blades or metal spongers for cleaning the controls plate, it may cut. Use only soft cloths or rubber sponges (6) without abrasive parts.

➢ During ice-cream production

While machine is functioning, do not introduce the ice-cream slice between the ice-cream outlet bars (2), it may hit against the working mixing turbine, ruining the bars and the turbine. Use rubber slices to spatula the ice-cream exiting the machine.

➢ 2.4 Environmental conditions

The machine has been designed to work in these environmental conditions:

Power supply voltage	+/- 10%
Minimum air temperature	10°C
Maximum air temperature	40°C
Minimum water temperature	10°C
Maximum water temperature	30°C
Minimum water pressure	0.1 MPa (1 bar)
Maximum water pressure	0.4 MPa (4 bar)
Maximum air relative humidity	85%

The ambient where the machine works is not subject to explosion Standards. The use of the machine is therefore only intended in conform ambients and with normal atmosphere.

Attention danger machine breaking

During the winter season, it the laboratory does not work, ensure the temperature in the ambient housing the machinery never drops below 0° C.
The machine is water cooled and if the water freezes the refrigerating plant could be seriously damaged and would be costly to repair.

Have the **AUTHORISED TECHNICAL SERVICE** drain the water from inside the refrigerator system.

Noise level

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

Disposal of packaging material

Upon opening of the packaging crate, ensure dividing the materials used by type and to arrange for their disposal according to the current Standards in the country of destination.

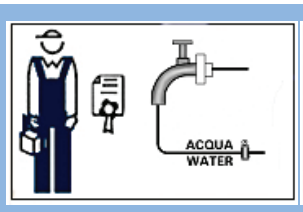
Ecology warning

"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."

INSTALLATION

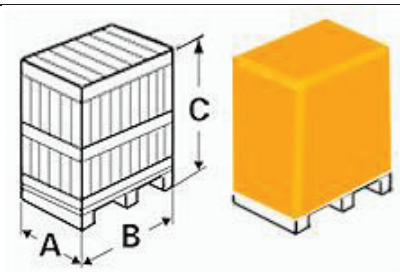
Operation to be carried out and necessary personnel:

UNPACKING of machine		**GENERAL OPERATOR**

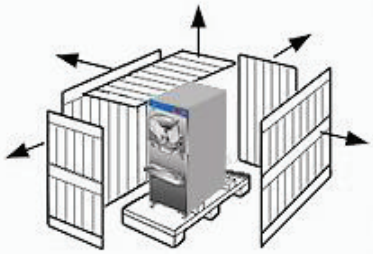
INSTALLATION and **positioning** of machine:		
	PLUMBER	**ELECTRICIAN**
	Enabled and authorised personnel	

Where the symbol of the **Technician** is given (either an electrician, a plumber or a mechanic) this means that the work which must be carried out can be done exclusively by these people. If the operations are carried out by the user **this could prove dangerous and must be avoided at all costs.**

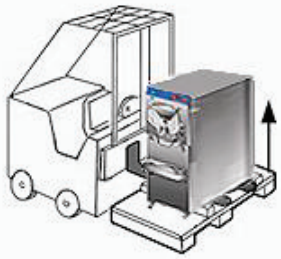
➢ 3.1 How to unpack the machine



		GROSS WEIGHT	A	B	C
MANTE 15 45	=	KG. 380	mm. 730	1030	1730
MANTE 20 60	=	KG. 400	mm. 730	1100	1730
MANTE 30 100	=	KG. 565	mm. 730	1320	1730



Remove the wooden side and top panels from the packing.

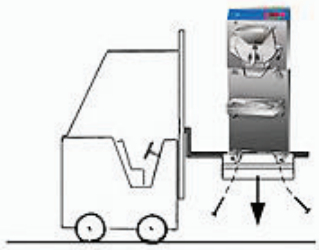


Lift the machine using a fork-lift truck introducing the lifting blades between the bottom of the machine and the base of the crate.

ATTENTION: DUE TO THE TIGHT AND TALL SHAPE, THE MACHINE MAY BECOME UNSTABLE DURING LIFTING.

Loosen the four bolts holding the blocking the machine from underneath the base of the crate.

ATTENTION!
After having remove the bolts the bottom of the crate comes away from the machine bottom.



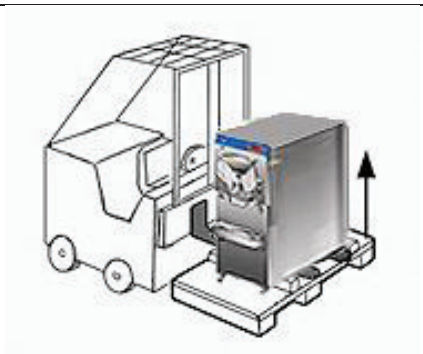
After having removed the crate, lower the lift and deposit the machine on the ground.

THE TYPE OF WOOD USED FOR THE PACKAGING CRATE IS NATURAL FIR WITHOUT ANY CHEMICAL SUBSTANCE, THEREFORE PERFECTLY RECYCLABLE.

THE PACKAGING CAN IN CERTAIN CASES BE OF MIXED MATERIAL: THE BOTTOM OF THE CRATE IN WOOD AND THE COVER IN CARDBOARD, ALSO RECYCLABLE.

➢ 3.2 How to lift the machine

	NET WEIGHT	A	B	C
MANTE 15 45 1500	**= KG. 220**	**mm. 520**		**1100**
MANTE 20 60 1500	**= KG. 260**	**mm. 520**		**1100**
MANTE 30 100 1520	**= KG. 435**	**mm. 520**		**1300**

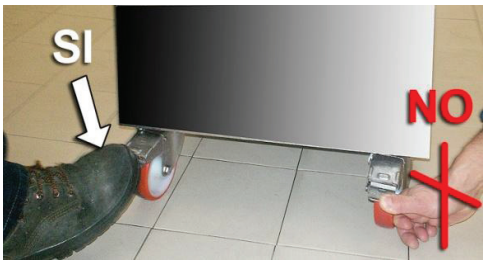


<u>ATTENTION!</u> DUE TO THE TIGHT AND LONG SHAPE, THE MACHINE MAY BECOME UNSTABLE DURING LIFTING.

Lift the machine using a fork-lift truck introducing the lifting blades at the side of the machine, between the front and rear wheels.

Lift the machine using belts, holding them as in figure near the front and rear wheels.

The tie-rod lifting the machine must position exactly at the centre of the machine.

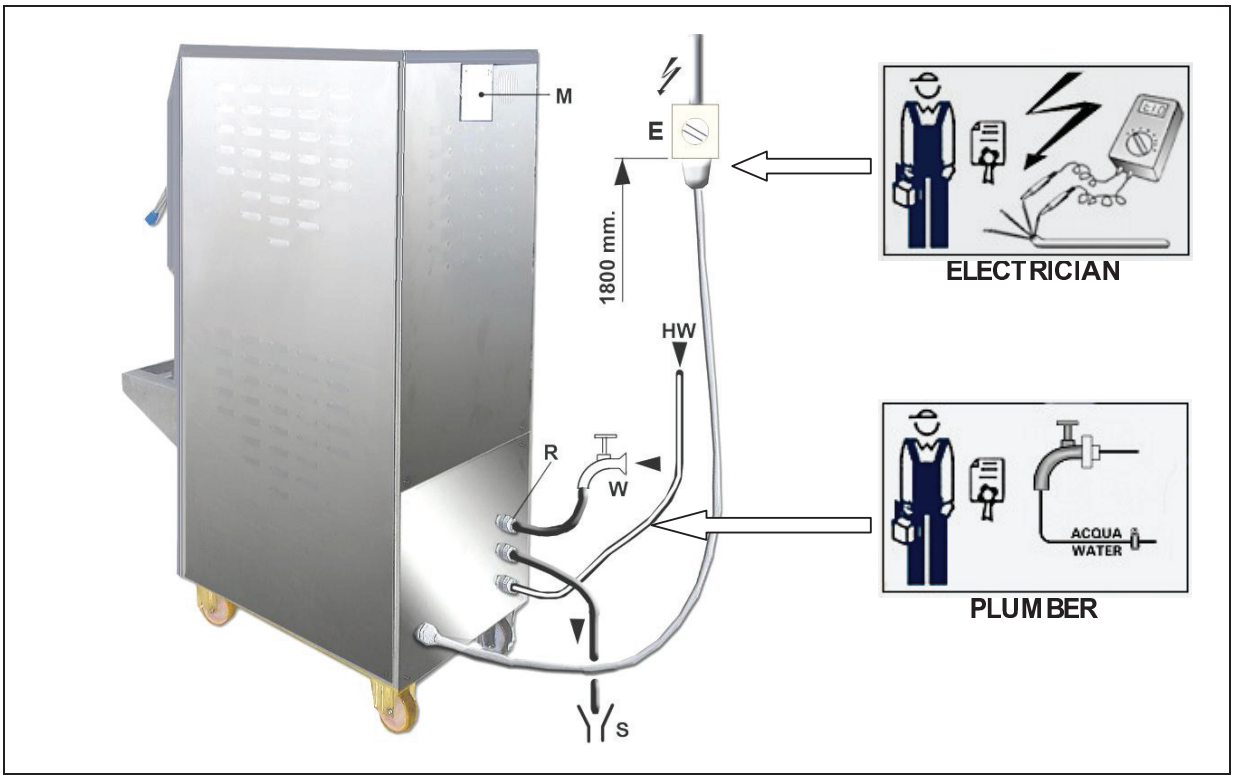


Move the machine by holding the handle of the flange with one hand and the corner of the machine with the other hand.

After having positioned the machine, block the brakes of the front wheels using the feet.

<u>DO NOT USE HANDS</u>

➢ 3.3 How to position and connect the water and electricity to the water condensing machine



Valid for: MANTE 15 45 MANTE 20 60 and MANTE 30 100

WARNINGS:

For good functioning, the machine does not require anchoring to the floor, or are technical precautions necessary to limit vibrations.

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

Provide a 5 cm space between one machine and the other, essential for the hot air produced by the machine to easily disperse from the bodywork louvres.

Ascertain machine stability by blocking the brakes of the front wheels using the feet (**do not use hands**).

Electrically connect the machine (**E**) ensuring the electric cable comes from above to avoid it being crushed if laid on the floor. For power, voltage and absorption data, before powering, check the serial plate **M** to ensure they correspond with those of the customer.

Connect the **water supply** to the machine (**W**) with water load and drain for condensing the refrigerator system. Connect the water **HW**, hot or cold, for washing the machine. The water pressure must be at least **1.5 Bar** and must not exceed **4 Bar**. The used rubber hoses must resist to 10 Bar of pressure and must be long enough to move the machine forward by 50 cm, to enable cleaning the rear. The **R** fittings have a ¾" diameter thread Gas for MANTE 20 60 and MANTE 30 100; of ½" Gas for MANTE 15 45.

⇒ 3.2 ELECTRICAL INSTALLATION (machines with water condensation)

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 recommend installing an automatic wall differential switch. See tables below for power and absorption data depending on the machine and voltage.

The line cable has four wires: the **yellow/green** wire is the **earth** and the other three are the three **phases.**

MANTE 1545	V.220 50 HZ	V.220 60 HZ	V.400 50 HZ
Total power **KW.**	5	5	**5**
Maximum absorption **A.**	**22**	**22**	**16**
Line cable N. wires and section	**4 x 4 mm²**	**4 x 4 mm²**	**4 x 2.5 mm²**

MANTE 2060	V.220 50 HZ	V.220 60 HZ	V.400 50 HZ
Total power **KW.**	**7,3**	7,3	**6**
Maximum absorption **A.**	**43**	**43**	**21**
Line cable N. wires and section	**4 x 6 mm²**	**4 x 6 mm²**	**4 x 4 mm²**

MANTE 30 100	V.220 50 HZ	V.220 60 HZ	V.400 50 HZ
Total power **KW.**	12	12	**11**
Maximum absorption **A.**	**55**	**55**	**25**
Line cable N. wires and section	**4 x10 mm²**	**4 x 10 mm²**	**4 x 6 mm²**

⇒ 3.5 WATER INSTALLATION AND CONSUMPTION

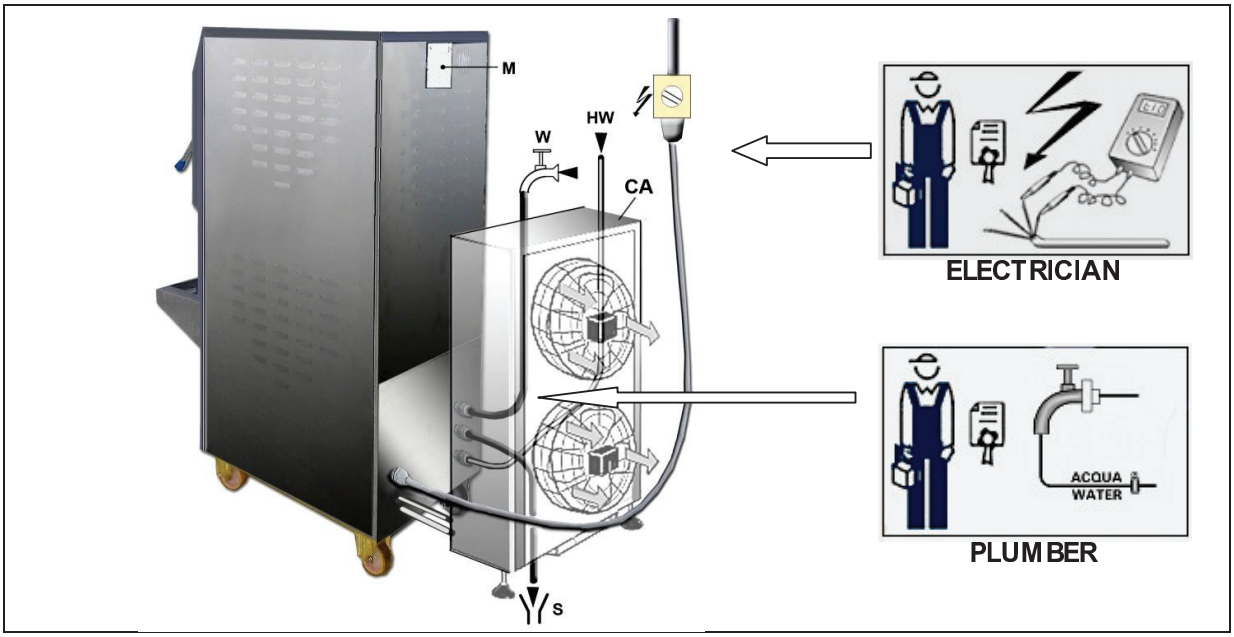
Connect the fitting with the writing **ENTRATA ACQUA - WATER INLET** to the hose from the water mains; connect the fitting with the writing **USCITA ACQUA - WATER OUTLET** to the drain hose.

If the machine works with mains water supply (medium temperature **20°C**), make sure that the water coming into the machine has a **minimum pressure of 1.5 bar.** If the water pressure is above **5 bar,** have the plumber mount a pressure reducer that reduces it to **4 bar.**

The average consumption of **non salty** mains or well water (when the refrigerator system works) is:	If the machine works with Tower water, this must have a maximum inlet temperature of **29°C**.
⇒ **- MANTE 15 45 = 100/190 litres/hour*** ⇒ **- MANTE 20 60 = 150/250 litres/hour*** ⇒ **- MANTE 30 100 = 300/450 litres/hour*** ***** **depending on inlet water temperature**	The amount of water that must circulate at a minimum pressure of **2.5 Bar** must be: ⇒ **- MANTE 15 45 = 300/600 litres/hour*** ⇒ **- MANTE 20 60 = 450/750 litres/hour*** ⇒ **- MANTE 30 100 = 900/1350 litres/hour*** ***** **depending on inlet water temperature**

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 and condenser of the refrigerator system.

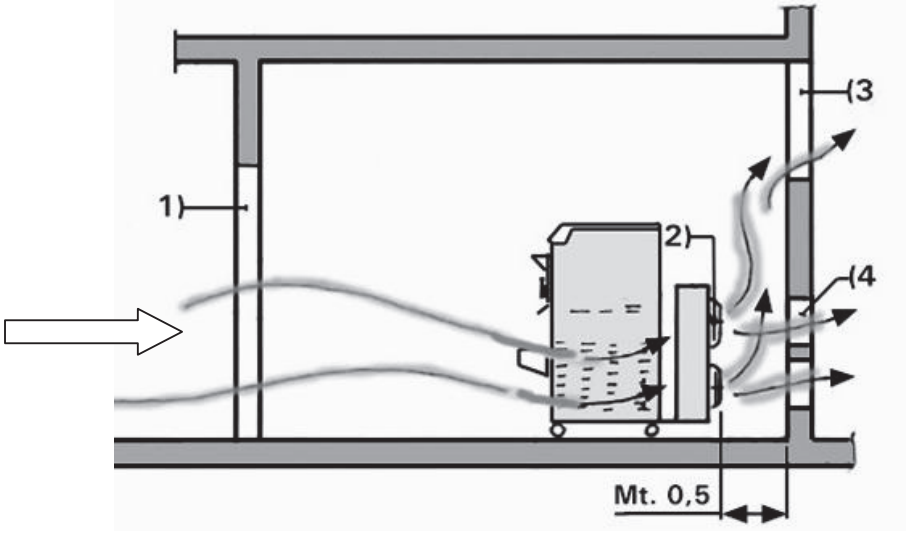
➢ 3.6 How to position and connect the water and electricity to the water/air condensing machine



Valid for: MANTE 15 45 MANTE 20 60 Air/Water

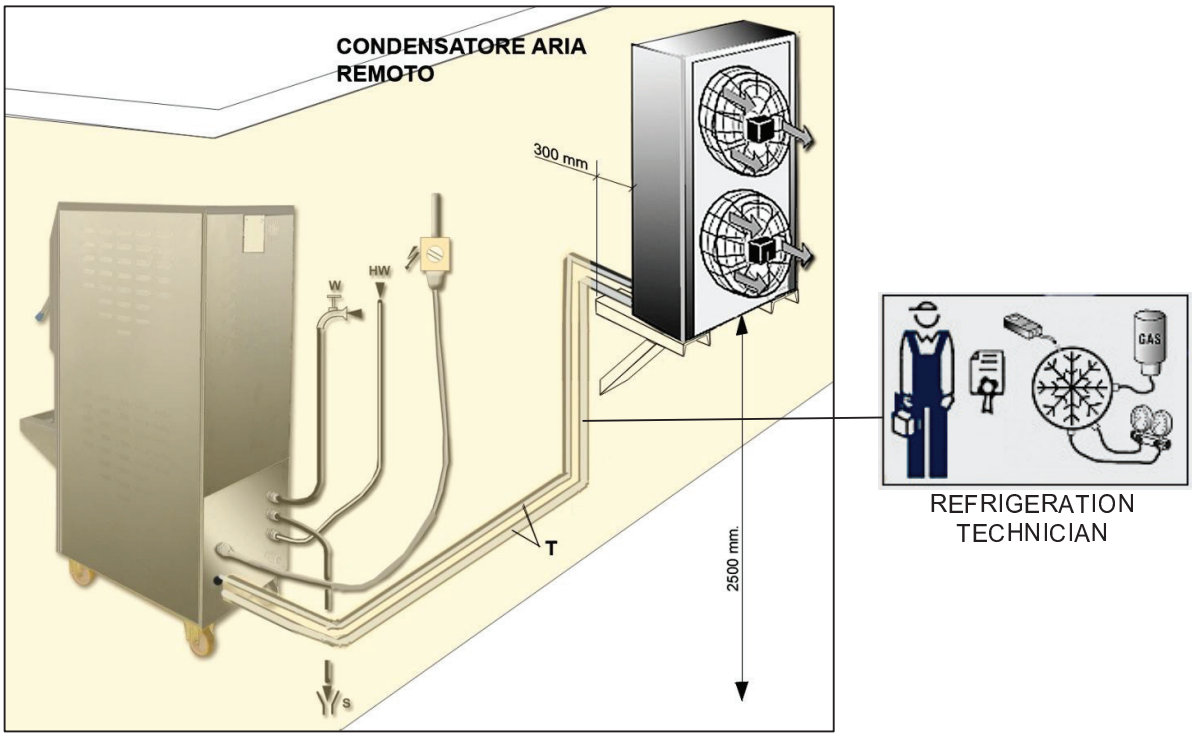
Connections are the same as the water condensing machine (see page). Having, in addition, the **CA** air condenser, it is possible to choose whether to condensate with air only or, if very hot, with water and air together.

It is very important to position the machine in a large environment, with doors and window for the air overheated by the machine is refreshed. **It is essential that the rear of the machine is at least 0.5 m away from the wall.**



TECHNOGEL spa DOES NOT ANSWER FOR DAMAGES CAUSED BY MACHINE POSITIONING IN UNSUITABLE ENVIRONMENTS. ALSO, IT DOES NOT ANSWER FOR DROPS IN YIELD OF THE MACHINE OBTAINED BY WORKING IN LIMIT CONDITIONS.

⇒ 3.7 How to position and connect the remote air condenser



To avoid air overheating problems, when possible, mount the remote air condenser.

ATTENTION:

The copper or flexible piping (**T**) bringing the Refrigerator gas from the machine to the condenser and vice-versa, must not be longer than 4 metres.

The condenser must be fixed on to wall brackets in high position (2.5 m) so that it cannot be reached with hands by persons of average height.

As in figure, the condenser must be away from the wall by at least 300 mm, so that the air can be drawn without problems. It would also be useful to place a small protective roof against rain water.

The machine must be connected by a refrigeration technician who will subsequently check that the amount of Gas inside the machine is suitable for best functioning.

⇒ 3.8 ELECTRICAL INSTALLATION (machines with remote AIR condensation)

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 recommend installing an automatic wall differential switch. See tables below for power and absorption data depending on the machine and voltage.

The line 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.**

MANTE 1545	V.220 50 HZ	V.220 60 HZ	V.400 50 HZ
Total power **KW.**			**5**
Maximum absorption **A.**			**16**
Line cable N. wires and section	**4 x 4 mm²**	**4 x 4 mm²**	**4 x 2.5 mm²**

MANTE 2060	V.220 50 HZ	V.220 60 HZ	V.400 50 HZ
Total power **KW.**			**6**
Maximum absorption **A.**			**21**
Line cable N. wires and section	**4 x 6 mm²**	**4 x 6 mm²**	**4 x 4 mm²**

⇒ 3.9 WATER INSTALLATION AND CONSUMPTION

Connect the fitting with the writing **ENTRATA ACQUA - WATER INLET** to the hose from the water mains; connect the fitting with the writing **USCITA ACQUA - WATER OUTLET** to the drain hose.

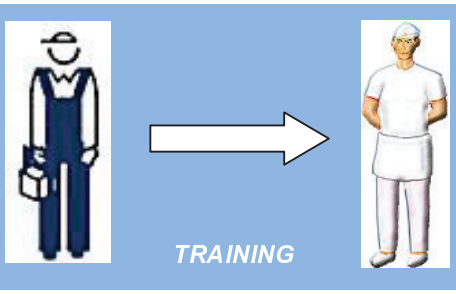
If the machine works with mains water supply (medium temperature **20°C**), make sure that the water coming into the machine has a **minimum pressure of 1.5 bar.** If the water pressure is above **5 bar,** have the plumber mount a pressure reducer that reduces it to **4 bar.**

The average consumption of **non salty** mains or well water (when the refrigerator system works) is:	If the machine works with Tower water, this must have a maximum inlet temperature of **29°C**.
⇒ **- MANTE 15 45 = 100/190 litres/hour*** ⇒ **- MANTE 20 60 = 150/250 litres/hour*** *** depending on inlet water temperature**	The amount of water that must circulate at a minimum pressure of **2.5 Bar** must be: ⇒ **- MANTE 15 45 = 300/600 litres/hour*** ⇒ **- MANTE 20 60 = 450/750 litres/hour*** *** depending on inlet water temperature**

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 and condenser of the refrigerator system.

MACHINE FUNCTIONS WITH PRELIMINARY CHECKS AND INSPECTIONS

The explanation of the machine functions, the preliminary inspections and checks must be carried out by the TECHNOGEL Technician, in collaboration with the User who, after adequate training, will work on the machine.



➢ 4.1 Machine commissioning

ATTENTION IMPORTANT

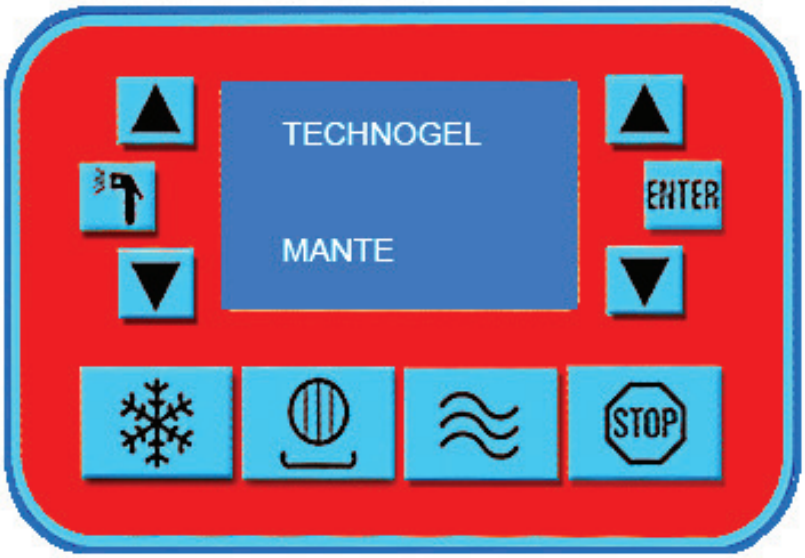
UPON COMMISSIONING, PRESS "*START*" AND WAIT AT LEAST 60 MINUTES BEFORE STARTING THE REFRIGERATOR COMPRESSOR.

IF THE MACHINE IS DISCONNECTED FOR ONE OR MORE DAYS, AFTER HAVING PRESSED "*START*", IT IS NECESSARY TO WAIT AT LEAST 60 MINUTES BEFORE STARTING THE REFRIGERATOR COMPRESSOR.

IF THE MACHINE IS NEVER DISCONNECTED FROM THE ELECTRIC VOLTAGE, START-UP CAN BE IMMEDIATE.

➢ 4.2 Control console functions

Screen appearing after having pressed the "**START**" key.



ATTENTION:

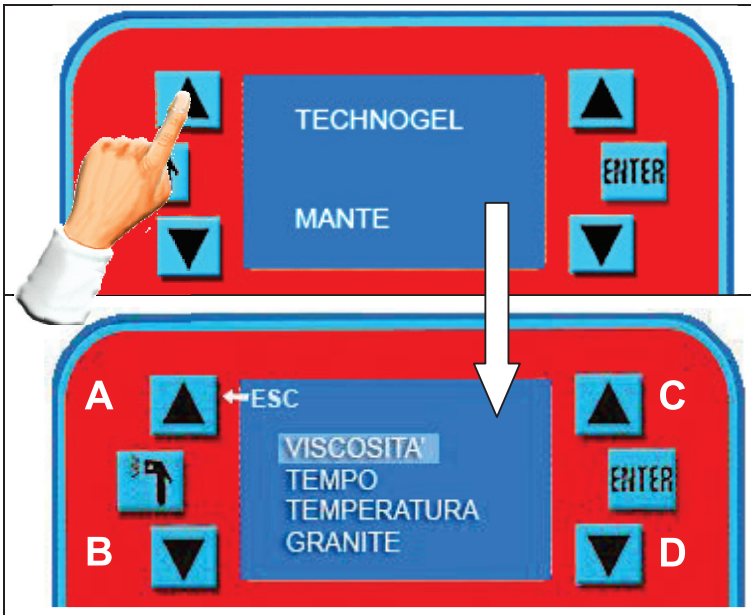
for the control to be accepted, keep the key pressed for more than half a second.

Valid for all machine functioning keys.

Machine functioning keys

	**STOP**: Stops any machine functioning cycle.
	**ICE**: Starts the batch freezing cycle firstly starting the mixer motor at low speed and then, after a few seconds, the refrigerator compressor.
	**ICE-CREAM OUTLET**: Starts the fast ejecting of the ready ice-cream from the machine.
	**WASHING**: Starts slow stirring of the washing water for a maximum time of 20 seconds and then stops. If more stirring is required, press again.
	**HOSE SPRAY**: Electrically activates the arrival of water to the manual hose spray for 2 minutes and then interrupts. If more water is required, press again.

➢ 4.3 Ice-cream production



Press any key and the second screen appears with the available list of **METHODS** for checking the ice-cream:

- **VISCOSITY**
- **TIME**
- **TEMPERATURE**
- **WATER ICE**

To choose which **Method** to use, move the white cursor underneath the work "**VISCOSITY**'" or other Method by pressing the A or B keys.

Confirm choice by pressing **ENTER** and the next screen appears. (see next page)

HOW THE VARIOUS METHODS ACT:

METHOD		Cycle start	Cycle end	Cycle end
VISCOSITY or consistency use this Method for ice-cream	Motor effort in % from **0** (machine still) to **100%** (maximum batch freezing effort) Measuring of consistency of the ice-cream regardless of the temperature. Effort measure of the motor batch freezing the ice-cream.	Minimum effort with liquid mix **About 60%**	Effort to batch freezing the Ice-cream with half load of inserted mix **From 68% to 85%**	Effort to batch freezing the Ice-cream with full load of inserted mix **From 75% to 100%**
TIME	The machine continuously cools for the time set and at the end of the time warns with buzzer.		Time to set with half load of mix **From 3 to 9 minutes**	Time to set with full load of mix **From 6 to 14 minutes**
TEMPERATURE	Method to use to produce sherbets. Not recommended for ice-cream.	Temperature for Sherbets: **from –2°C to -5°C**	Temperature to set for ice-cream **From -5 to -8°C**	Minimum load of mix: M 15 45 = **4 litres** M 20 60 = **7 litres** M 30 100 = **10 litres**
WATER ICE	For this Method see specific paragraph at page			

Choose if making **cream** ice-cream with full or medium load or **fruit ice-cream** with full or medium load, by moving the white cursor using the **A** or **B** keys.

Confirm choice by pressing **ENTER** and the next screen appears.

If the shown value of viscosity is inadequate, increase or decrease using the **C** or **D** key and then press **ENTER** to confirm.

To return to previous page and change the value of the second entry, press the arrow near **ESC.**

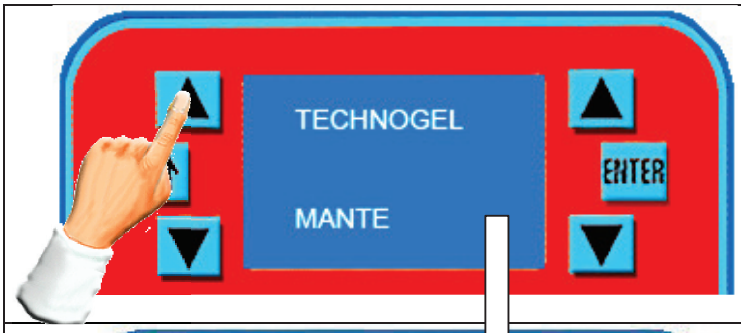
This is the standard **% Data** entered by default on PLC for each entry:

	MANTE 1545	MANTE 2060	MANTE 30 100
FULL LOAD CREAM	(with 6 Kg.) **92%**	(with 8 Kg.) **90%**	(with 16 Kg.) **94%**
HALF LOAD CREAM	(with 4 Kg.) **85%**	(with 4 Kg.) **80%**	(with 8 Kg.) **87%**
FULL LOAD FRUIT	(with 6 Kg.) **75%**	(with 8 Kg.) **74%**	(with 16 Kg.) **82%**
HALF LOAD FRUIT	(with 4 Kg.) **70%**	(with 4 Kg.) **68%**	(with 8 Kg.) **74%**

The **Viscosity (%)** data in the table refer to the freezing of mixes in Kg that, with the increase of medium volume by 35%, can fill the various commonly used vats.

Each Customer can adapt the data depending on own ice-cream. The data will remain in the memory and only require recalling before batch freezing.

➢ 4.4 Sicilian water ice production (only for machines with inverter)

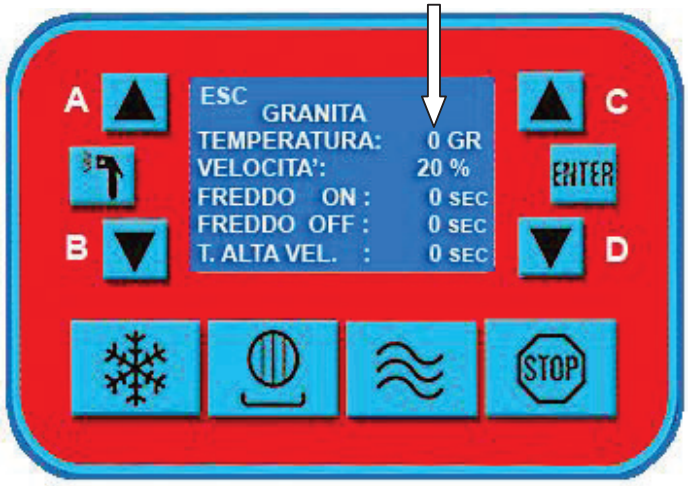


Press any key and the second screen appears with the available list of **METHODS** for checking the ice-cream:

- **VISCOSITY**
- **TIME**
- **TEMPERATURA**
- **WATER ICE**

Choose the WATER ICE **Method** by moving the white cursor on the word "**WATER ICE**" by pressing the **A** or **B** keys.

Confirm choice by pressing **ENTER** and the next screen appears.



Set the values as the table below, highlighting the 5 parameters and confirming them one at a time with ENTER.

To move the highlighted row, use the arrows **A** and **B**

To vary the values, use the keys **C** and **D**

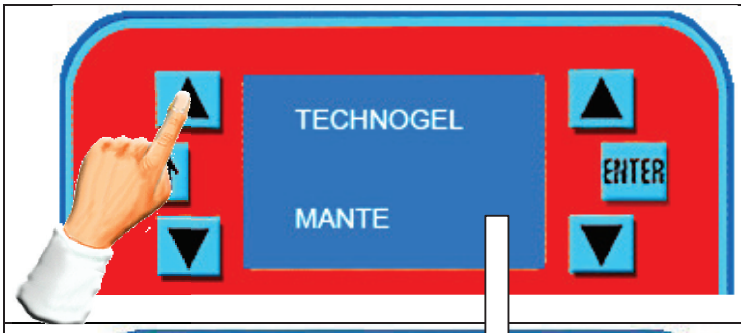
To confirm all, press the A arrow near **ESC** and the machine is ready to produce **WATER ICE** by pressing the STAR key.

The entered data remains memorised

VALUES TABLE FOR WATER ICE PRODUCTION	Coffee Water ice	LEMON Water ice and other flavours	Others More flavours
TEMPERATURE °C	(below) **- 4*C**	(below) **- 4*C**	
SPEED from 30 min to max 100%.	**20%**	**20%**	
COLD ON (works)	**45** sec.	**50** sec.	
COLD OFF (does not work)	**60** sec.	**60** sec.	
HIGH SPEED TIME	**0** sec.	**20** sec.	

The values entered in Table are indicative and must be verified with the user's recipe.

➢ 4.5 Water ice production for machine without inverter

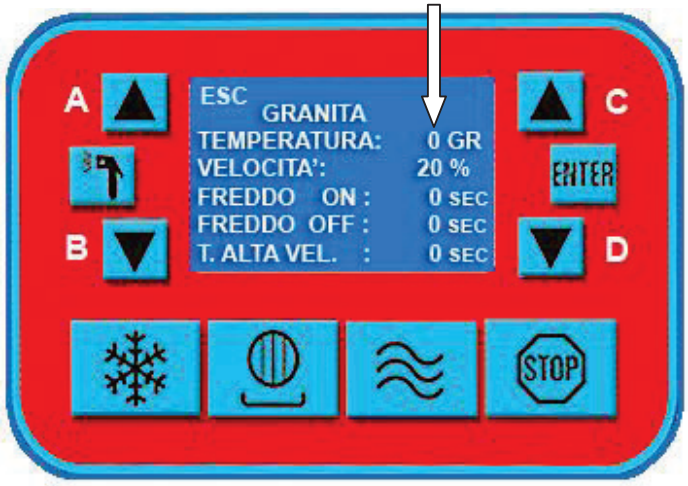


Press any key and the second screen appears with the available list of **METHODS** for checking the ice-cream:

- **VISCOSITY**
- **TIME**
- **TEMPERATURA**
- **WATER ICE**

Choose the WATER ICE **Method** by moving the white cursor on the word "**WATER ICE**" by pressing the **A** or **B** keys.

Confirm choice by pressing **ENTER** and the next screen appears.



The entered data remains memorised

Set the values as the table below, highlighting the 4 parameters and confirming them one at a time with ENTER.
(the SPEED parameter cannot be adjusted)

To move the highlighted row, use the arrows **A** and **B**

To vary the values, use the keys **C** and **D**

To confirm all, press the A arrow near **ESC** and the machine is ready to produce **WATER ICE** by pressing the STAR key.

VALUES TABLE FOR WATER ICE PRODUCTION	**LEMON Water ice and other flavours**	
TEMPERATURE °C	(below) **- 4*C**	
SPEED fixed at 100%	**20%**	**Not adjustable**
COLD ON (works)	**50** sec.	
COLD OFF (does not work)	**60** sec.	
HIGH SPEED TIME	**20** sec.	

The values entered in Table are indicative and must be verified with the user's recipe.

Control panel functions – *Selection of* "USA/ITA MODE"*

Depending on whether or not the USA method has been enabled in the SET-UP, you can choose between two different mixing modes when whipping the ice cream:

- **"*ITA*" *Mode*** (Standard Operation) **:**

  In the ***"ITA" mode,*** by pressing the key **GELATO** the mixer turbine works for the entire whipping time at **low speed.**

  How to turn on the"*ITA*" mode:

  The machine is usually set on the "***I T A***" mode. If it is not, scroll through the rows using the arrows on the left until you reach the last row.
  Use the arrows on the right to select ITA

ITA

- **"*USA*" mode:**

  In the ***"USA" mode,*** by pressing the key **GELATO** the mixer turbine works for about 10 seconds at **low speed**, for about 3 minutes at **high speed** and then again at **low speed** until the end of the cycle.

  How to turn on the "*USA*" mode:

  In the main menu, use the arrows on the left to scroll through the rows until you reach the last one, which will usually be "***I T A***".
  Use the arrows on the right to display the mode "***U S A***". At this point, go back to the top rows using the arrows on the left and select the other modes.

USA

ATTENTION:
The ***USA*** method only works in VISCOSITY mode only if there is a 20% difference between the current viscosity and the set one.

➢ 4.6 Preliminary checks

Rotation direction

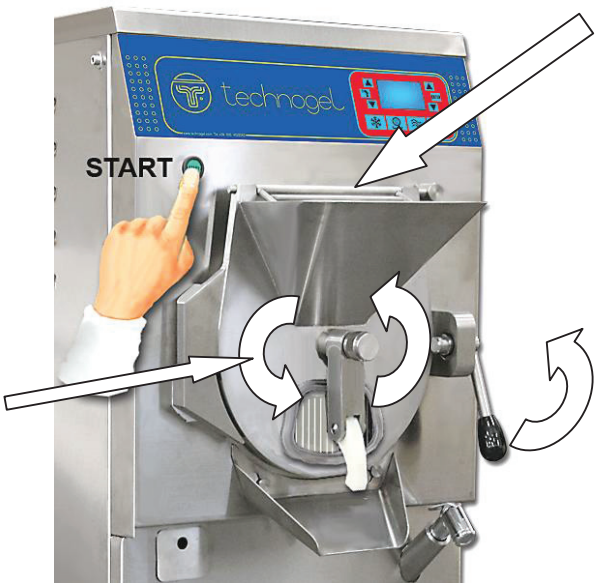
Press this key and observe the hopper.
the mixing turbine must turn **anti-clockwise**

LOW SPEED

Press this key and observe the hopper.
the mixing turbine must turn **anti-clockwise**

HIGH SPEED

Stop the machine by pressing **STOP**

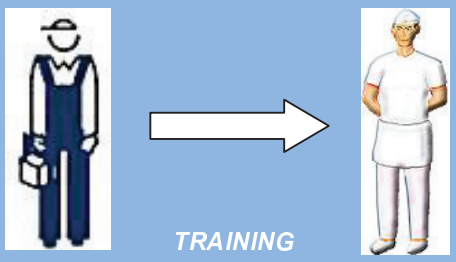


Safety check

Lift the hopper grid: the mixing turbine **must stop.**

Open the flange lock lever by lifting it;: the mixing turbine **must stop**.

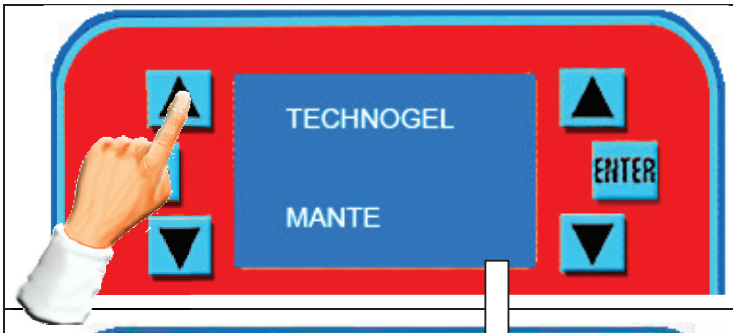
MACHINE COMMISSIONING WITH ICE-CREAM PRODUCTION



Commissioning (START-UP) must be carried out by a TECHNOGEL spa Authorised Technician.

The user will be trained by the technician who, after adequate training, will be able to work autonomously.

➢ 5.1 First ice-cream production with VISCOSITY method



Press any key and the second screen appears with the list of **METHODS** for checking the ice-cream:

- **VISCOSITY**
- **TIME**
- **TEMPERATURE**
- **WATER ICE**

The highlighted **Method** appearing in automatic is "**VISCOSITY**'".

Confirm by pressing **ENTER** and the next screen appears.

If the amount of ice-cream to be produced is that highlighted
(**FULL LOAD CREAM**)

confirm by pressing **ENTER** and the next screen appears.

The value appearing under VISCOSITY is the value entered in the table at page 27:

Machine **MANTE 20 60**
FULL LOAD CREAM
VISCOSITY: **90%**

Pour the mix inside the hopper and start batch freezing by pressing

the key  .

The last image appears on the display with the real time of batch freezing control.

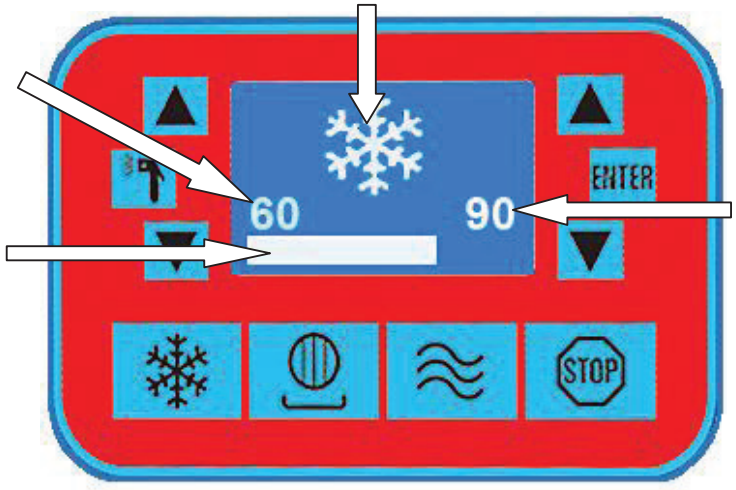
WORK SCREEN

Cooling in progress

Start percentage with liquid mix: this value can vary slightly depending on the type of machine.

Forward bar of batch freezing:

the white strip moves forward until reaching the set value



Set value

Upon reaching of this Value and after having kept it for at least 1.5 seconds, the machine stops the cold and with a buzzer warns the ice-cream is ready and can be removed.

If not removed, after 10 seconds the machine starts freezing again and continuously brings the ice-cream to threshold.

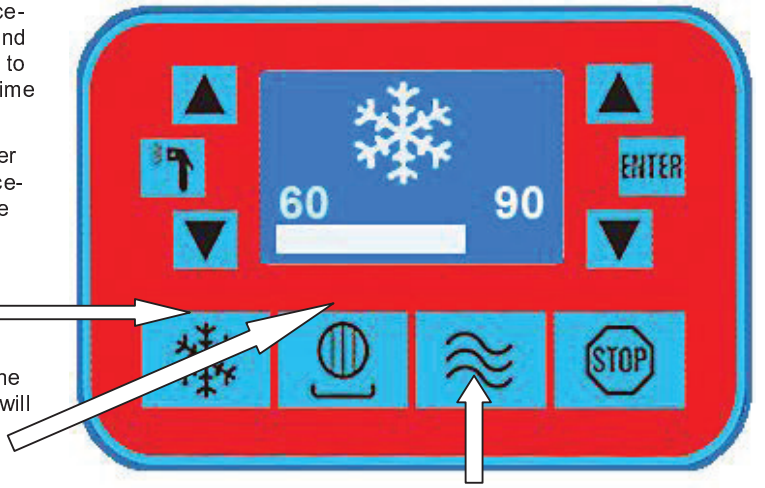
The stirring motor never stops.

ICE-CREAM REMOVAL

While the machine is working, open the ice-cream outlet plate and leave the ice-cream to slowly exit to have time to set it in the tub.

If we want the buzzer to interrupt during ice-cream outlet and the cooling to work intermittently, press this key

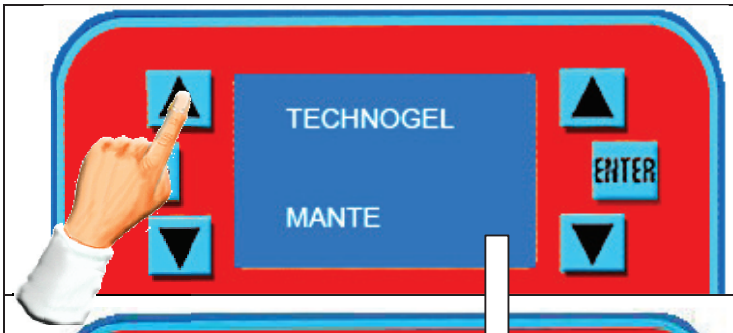
If we want the ice-cream to exit faster, press this button. The intermittent cooling will continue to work



If we want to remove the ice-cream at low speed and without cooling, press this key.
After 20 seconds it stops. If time is not sufficient press again.

ATTENTION:
During ice-cream removal, **Never place the machine in STOP switching from one key to another:**
if in batch freezing and wanting to switch to quick outlet, do not press STOP but ice-cream outlet

➢ 5.2 First ice-cream production with TIME method



Press any key and the second screen appears with the list of **METHODS** for checking the ice-cream:

- **VISCOSITY**
- **TIME**
- **TEMPERATURE**
- **WATER ICE**

The highlighted **Method** appearing in automatic is "**VISCOSITY**'".

Press key **B** and move the cursor on "**TIME**"

Confirm by pressing **ENTER** and the next screen appears.

If the TIME the machine normally takes to batch freeze is 8 minutes, it must be entered as in figure, using the **C** key to increase and **D** key to decrease.

At every touch of the keys, the time increases or decreases by 10 seconds.

confirm by pressing **ENTER**

Pour the mix inside the hopper and start batch freezing by pressing

the key  .

The last image appears on the display with the real time of batch freezing control.

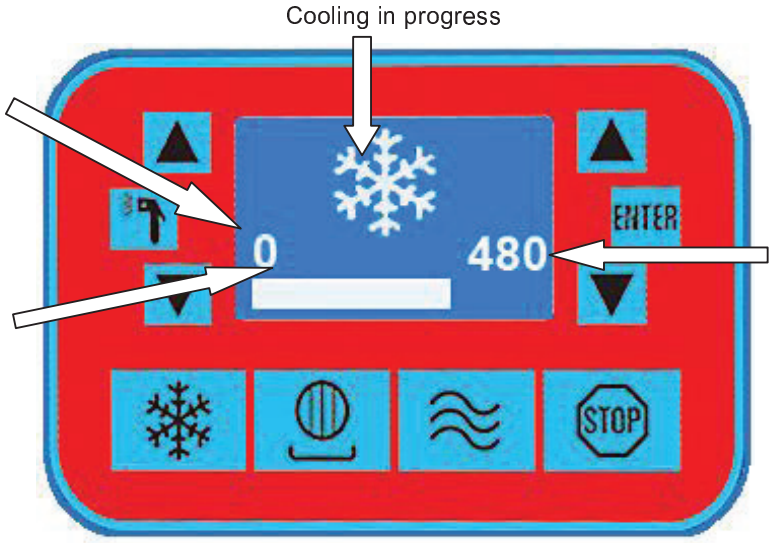
The entered and confirmed value 8.00 remains in the memory and will appear each time the time Method is recalled.

WORK SCREEN

Start time in seconds with liquid mix:
this value will increase up to 480 seconds (corresponding to 8 minutes).

Forward bar of batch freezing:

the white strip moves forward until reaching the set value



Set value

Upon reaching of this Value, the machine stops the cold and sounds the buzzer to warn the ice-cream is ready and can be removed.

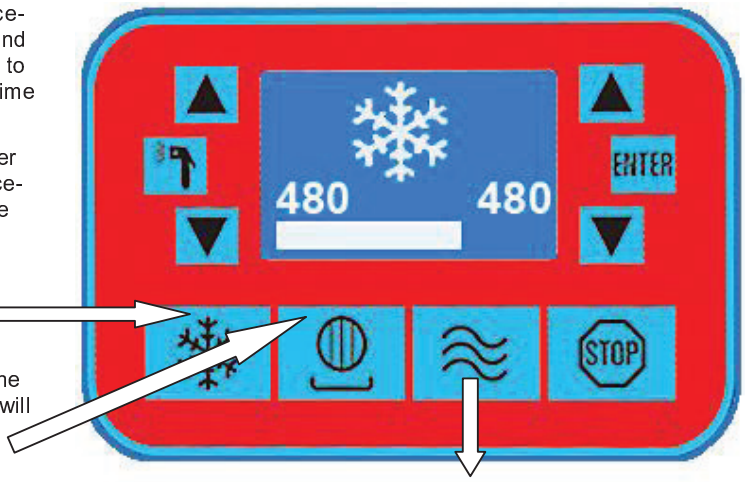
The stirring motor never stops.

ICE-CREAM REMOVAL

While the machine is working, open the ice-cream outlet plate and leave the ice-cream to slowly exit to have time to set it in the tub.

If we want the buzzer to interrupt during ice-cream outlet and the cooling to work intermittently, press this key

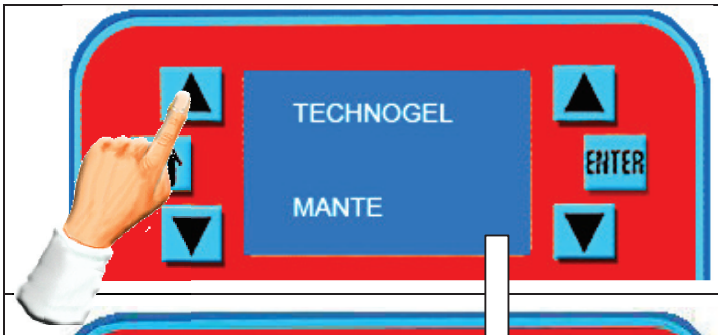
If we want the ice-cream to exit faster, press this button. The intermittent cooling will continue to work



If wanting to remove the ice-cream at low speed and without cooling, press this key.
After 20 seconds it stops. If time is insufficient press again.

ATTENTION:
During ice-cream removal, **Never place the machine in STOP switching from one key to another:**
if in batch freezing and wanting to switch to quick outlet, do not press STOP but ice-cream outlet

➢ 5.3 First ice-cream production with TEMPERATURE method



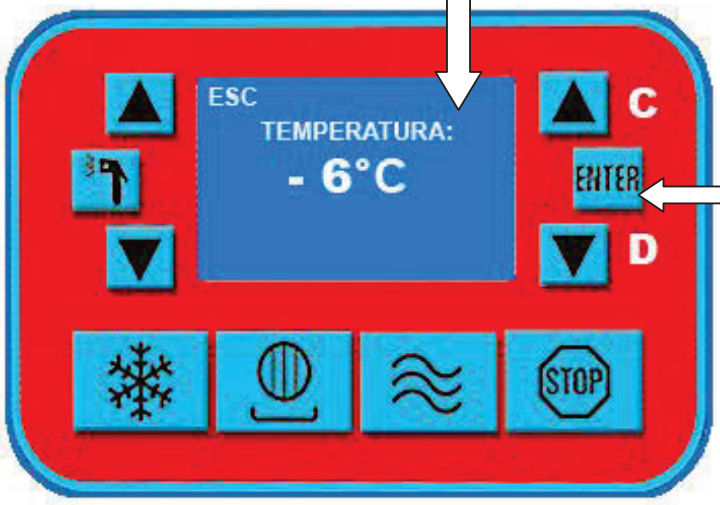
Press any key and the second screen appears with the list of **METHODS** for checking the ice-cream:

- **VISCOSITY**
- **TIME**
- **TEMPERATURE**
- **WATER ICE**

The highlighted **Method** appearing in automatic is "**VISCOSITY**'".

Press key **B** and move the cursor on "**TEMPERATURE**"

Confirm by pressing **ENTER** and the next screen appears.



If the TEMPERATURE your ready ice-cream normally has is -6°C, this value must be entered as in figure, using the **C** key to increase and **D** key to decrease.

confirm by pressing **ENTER**

Pour the mix inside the hopper (see Table below minimum amount) and start batch freezing by pressing

the key  .

The last image appears on the display with the real time of batch freezing control.

ATTENTION:

The minimum amount of mix to freeze in "**TEMPERATURE**" Method is:

MANTE 15 45 = 4 kg.	**MANTE 20 60 = 7 kg.**	**MANTE 30 100 = 10 kg.**

ATTENTION:

The maximum settable temperature is – **10°C**.

The ready ice-cream temperature depends on the type of mix used, a mixture with low amount of sugar and grease becomes ice-cream with temperature, for example, at – 5°C, one with medium sugars and greases becomes ice-cream at – 6%C and one with medium high sugars and greases sugars and greases becomes ice-cream at – 7°C. Setting 1°C more (from – 7 to – 8) significantly extends the batch freezing time, consequently increasing the times and consumptions. In some cases, it can block the machine.

We, therefore, recommend using the TEMPERATURE Method only for producing ice-cream without consistency like sherbets and frozen fruit pulps, normally use the VISCOSITY Method.

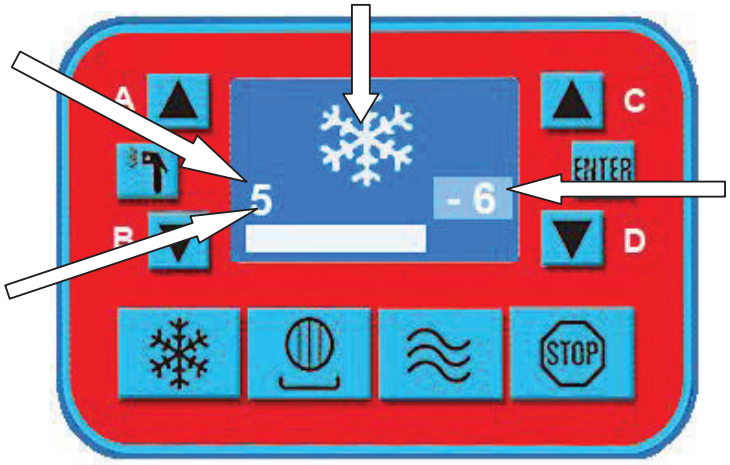
WORK SCREEN

Cooling in progress

Start temperature with liquid mix: this value will decrease until reaching the set value.

Forward bar of batch freezing:

the white strip moves forward until reaching the set value



Set value

Upon reaching of this Value
the machine stops the cold and sounds the buzzer to warn the ice-cream is ready and can be removed.

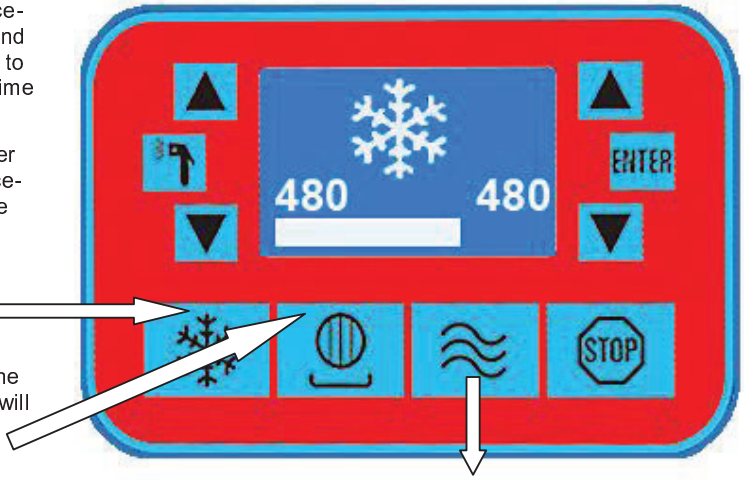
The stirring motor never stops.

ICE-CREAM REMOVAL

While the machine is working, open the ice-cream outlet plate and leave the ice-cream to slowly exit to have time to set it in the tub.

If we want the buzzer to interrupt during ice-cream outlet and the cooling to work intermittently, press this key

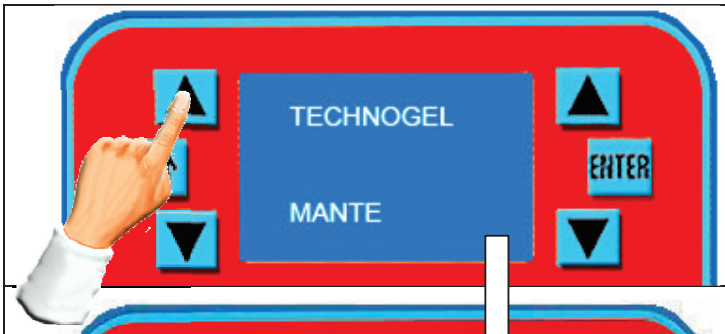
If we want the ice-cream to exit faster, press this button. The intermittent cooling will continue to work



If we want to remove the ice-cream at low speed and without cooling, press this key.
After 20 seconds it stops. If time is insufficient, press again.

ATTENTION:
During ice-cream removal, **Never place the machine in STOP switching from one key to another:**
if in batch freezing and wanting to switch to quick outlet, do not press STOP but ice-cream outlet

➢ 5.4 First production in Water ice method (without Inverter)

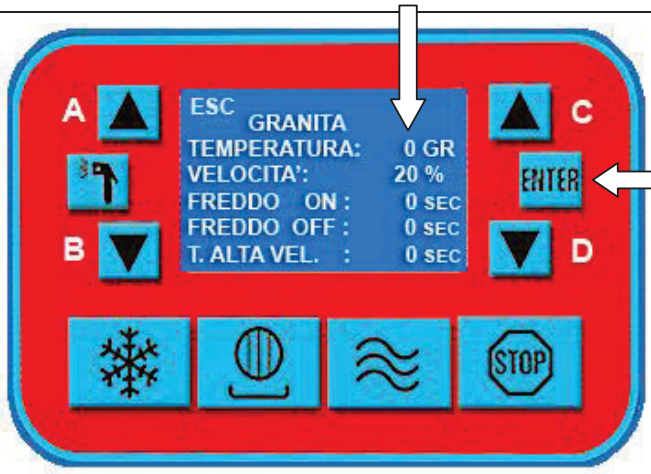


Press any key and the second screen appears with the list of **METHODS** for checking the ice-cream:

- **VISCOSITY**
- **TIME**
- **TEMPERATURE**
- **WATER ICE**

Highlight the **WATER ICE** "**MODE**'" by moving the cursor using the A and B arrows

Confirm by pressing **ENTER** and the next screen appears.



Enter the values (see table below) my moving the white cursor using the A and B arrows and increasing or decreasing the value with the arrows C and D.

confirm every time after having entered the value by pressing **ENTER**

Pour the mix inside the hopper and start batch freezing by pressing

the key  .

VALUES TABLE FOR WATER ICE PRODUCTION	LEMON Water ice and other flavours	
TEMPERATURE °C	(below) **- 4*C**	
SPEED fixed at 100%	**20%**	**Not adjustable**
COLD ON (works)	**50** sec.	
COLD OFF (does not work)	**60** sec.	
HIGH SPEED TIME	**20** sec.	

The values entered in Table are indicative and must be verified with the user's recipe.

The HIGH SPEED TIME value means that the stirrer starts at high speed after the end of the cycle, without cold for 20 seconds and once stopped, it sounds the water ice ready buzzer.

The last image appears on the display with the real time of batch freezing control.

The highlighted value is the temperature to REACH

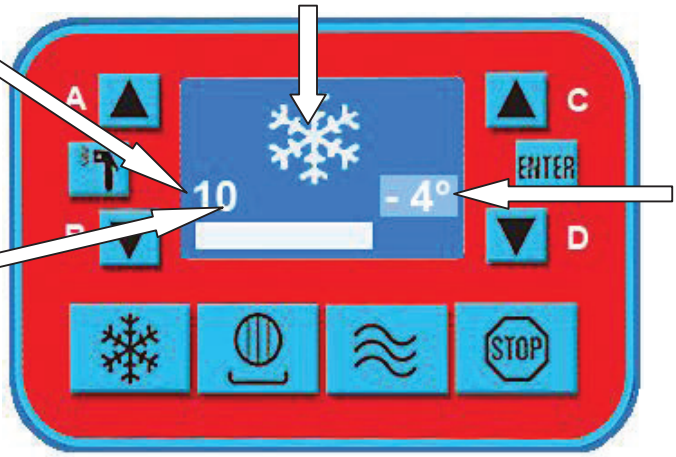
WORK SCREEN

Start temperature with liquid mix. Cooling happens at intermittence (adjustable) to establish the degree of grain of the water ice.

Forward bar of batch freezing:

the white strip moves forward until reaching the set value

Cooling in progress



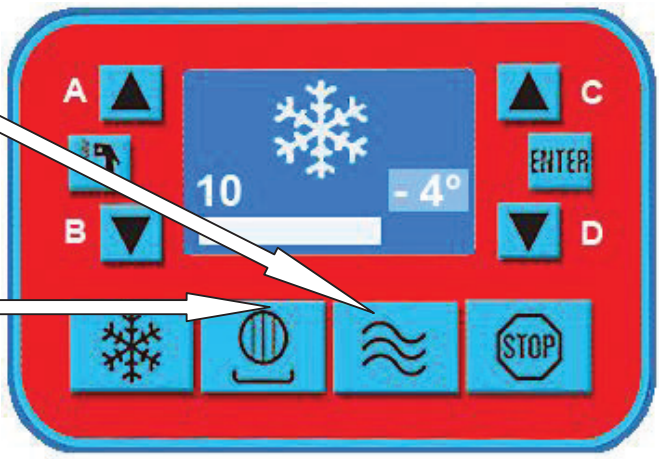
Set value

Upon reaching of this Value (water ice temperature ready), the machine stops the cold and engages the adjustable fast stirring for 20 minutes, sounding the buzzer of water ice ready for removal.

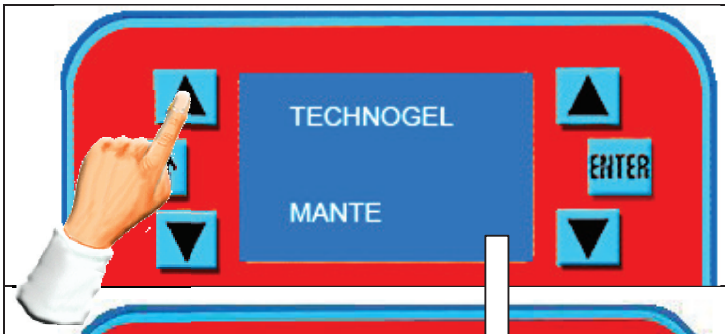
WATER ICE REMOVAL

To remove the water ice, press this key for stirring without cold and open the outlet plate.

When most of the water ice is out, press this key to quick stir for it to completely come out.



➢ 5.5 First production in Water ice method (with Inverter)

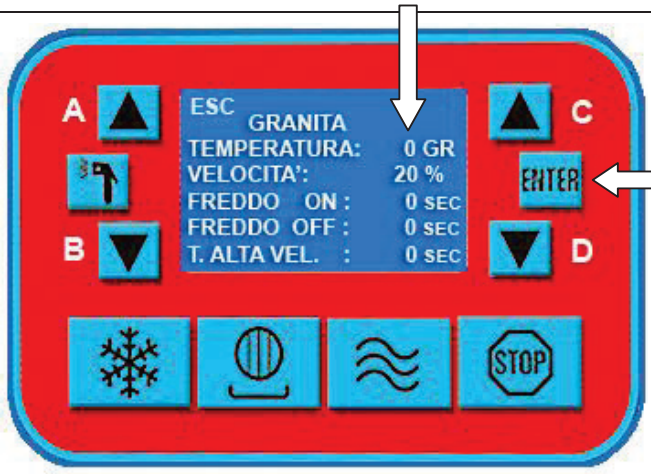


Press any key and the second screen appears with the list of **METHODS** for checking the ice-cream:

- **VISCOSITY**
- **TIME**
- **TEMPERATURE**
- **WATER ICE**

Highlight the **WATER ICE** "**METHOD**'" by moving the cursor with the A and B arrows

Confirm by pressing **ENTER** and the next screen appears.



Enter the values (see table below) my moving the white cursor using the A and B arrows and increasing or decreasing the value with the **C** and **D** arrows

confirm every time after having entered the value by pressing **ENTER**

Pour the mix inside the hopper and start batch freezing by pressing

the key  .

VALUES TABLE FOR WATER ICE PRODUCTION	Coffee Water ice	LEMON Water ice and other flavours	Others More flavours
TEMPERATURE °C	(below) **- 4*C**	(below) **- 4*C**	
SPEED from 30 min to max 100%.	**20%**	**20%**	
COLD ON (works)	**45** sec.	**50** sec.	
COLD OFF (does not work)	**60** sec.	**60** sec.	
HIGH SPEED TIME	**0** sec.	**20** sec.	

The values entered in Table are indicative and must be verified with the user's recipe.

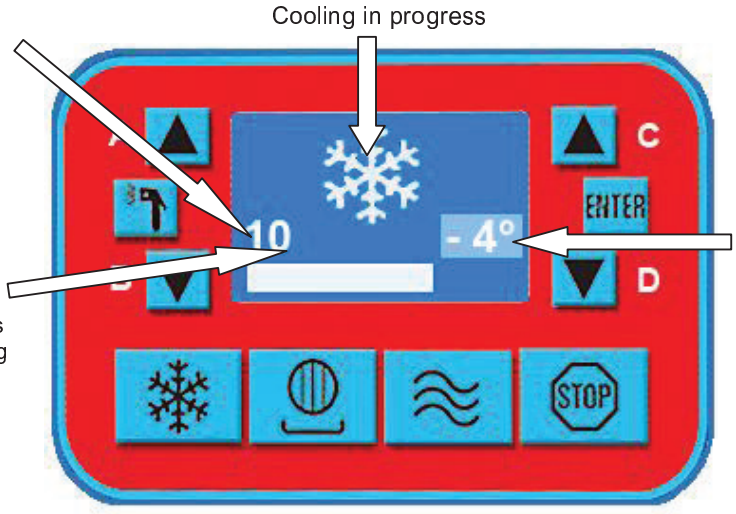
The HIGH SPEED TIME value means that the stirrer starts at high speed after the end of the cycle, without cold for 20 seconds and once stopped, it sounds the water ice ready buzzer. For the coffee water ice this time is 0 because high speed must not start.

WORK SCREEN

Start temperature with liquid mix. Cooling happens at intermittence (adjustable) to establish the degree of grain of the water ice.

Forward bar of batch freezing:

the white strip moves forward until reaching the set value



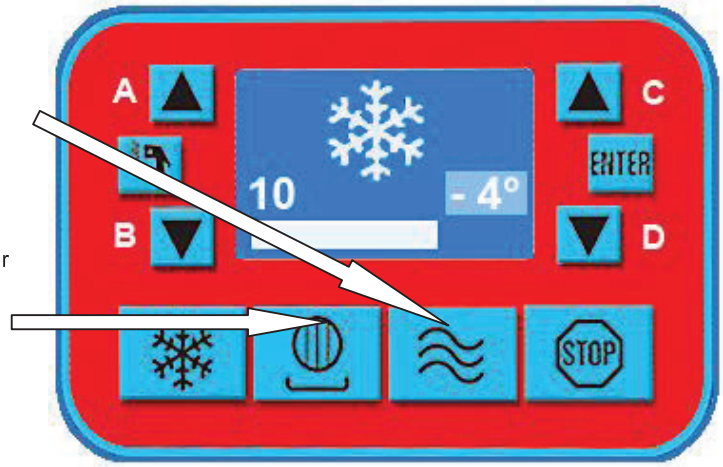
Set value

Upon reaching of this Value (water ice temperature ready) and after having maintained it for at least 1.5 seconds, the machine stops the cold and: **do not engage high speed stirring for the coffee but sound the water ice ready buzzer.**
For other flavours, engage fast stirring for 20 adjustable seconds, warn with the buzzer the water is is ready and can be removed.

WATER ICE REMOVAL

To remove the water ice, press this key for stirring without cold and open the outlet plate.

When most of the water ice is out, press this key to quick stir for it to completely come out.



ATTENTION:

Never remove the coffee water ice at high speed. It will become white and foamy

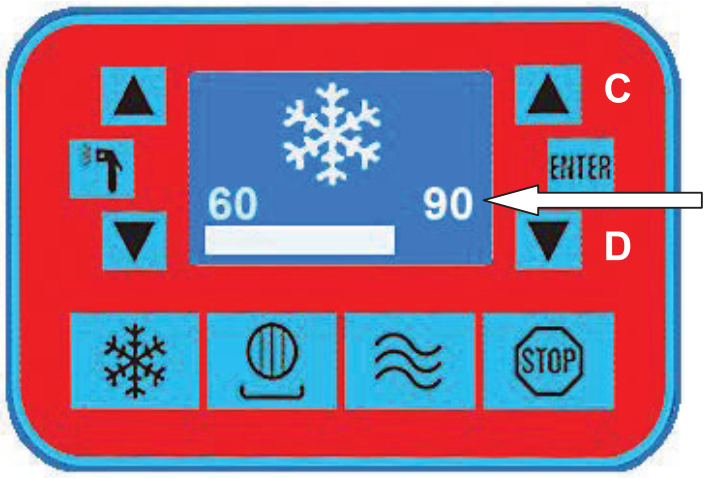
Below are some Test recipes

COFFEE WATER ICE Recipe	**LEMON and STRAWBERRY WATER ICE** Recipe:
- Long coffee* **1000 g** - Saccharine sugar **200 g** - 1 teaspoon or walnut paste *variation: - Strong coffee **300 g** - Water **700 g** + **200 g** of sugar or: - Mocha coffee **1000 g** + **200 g** of sugar	- Lemon juice **200 g** - Saccharine sugar **200 g** - Water **600 g** Strawberry Recipe: - Strawberry puree **300 g** - Saccharine sugar **200 g** - Water **500 g**

It is also possible to produce FROZEN FRUIT PULP

➢ 5.6 Settings modification during production

Modification of **VISCOSITY** during ice-cream production



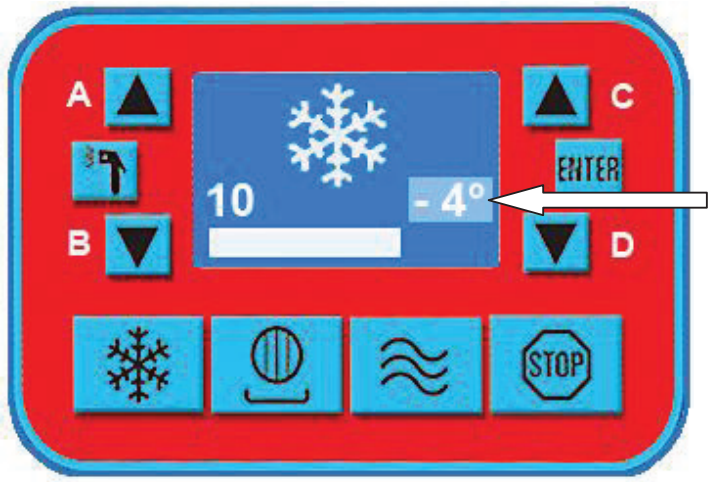
Set value

If wanting to modify viscosity in more or less during ice-cream production, act on arrows C and D and the value (90) will reset or lower.

If wanting to save the new value, press ENTER and it will remain memorised in place of previous.

If not wanting to save the new value, do not press ENTER and previous value will be remain memorised.

Modification of **TEMPERATURE** during water ice or ice-cream production



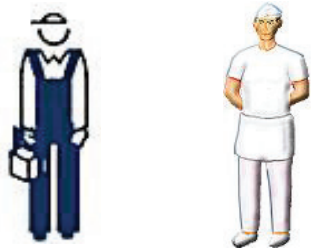
Set value

If wanting to modify temperature in more or less during water ice or ice-cream production, act on arrows C and D and the value (-4) will reset or lower.

If wanting to save the new value, press ENTER and it will remain memorised in place of previous.

If not wanting to save the new value, do not press ENTER and previous value will be remain memorised.

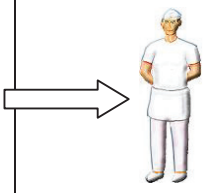
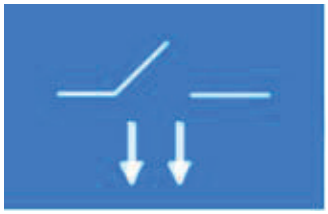
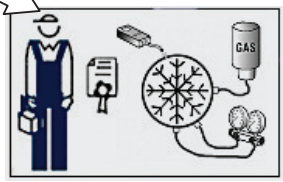
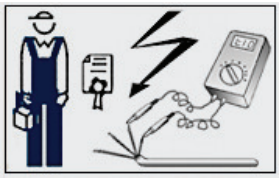
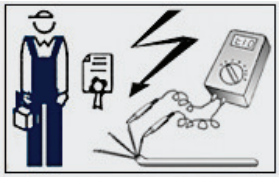
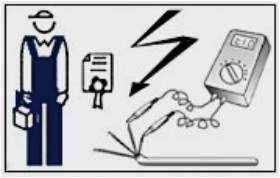
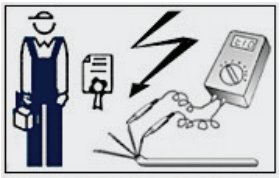
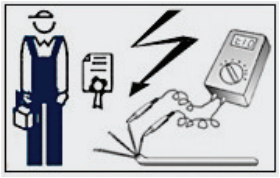
ALARMS AND THEIR SOLUTIONS



The alarms that may appear on screen can be solved by an Authorised technician or the user

<u>The user must not intervene to solve Alarms if not his competence. He may incur in dangers for his health</u>

➢ Displayed alarms and their solutions

ALARMS	CAUSES AND SOLUTIONS	WHO CAN WORK
	No or not enough water pressure to compressor condenser. Verify whether the water cock is open or pressure is insufficient. Break or malfunctioning of pressure valve. Call REFRIGERATION TECHNICIAN	 USER
	**<u>Alarm only for MANTE 30 100</u>** Probable gas leak or break of Low pressure pressure switch. Call Refrigeration Technician	 REFRIGERATION TECHNICIAN
	Intervention of overload cut-out on Low Speed of stirrer motor. Call the Electrician to re-engage the overload cut-out and verify its electric absorption.	 ELECTRICIAN
	Intervention of the overload cut out on High Speed. of the stirrer motor. Call the Electrician to re-engage the overload cut-out and verify its electric absorption.	 ELECTRICIAN
	1. Machine equipped with inverter. Inverter block for overheating or fault. If it is overheating wait and then re-start. If it is faulty, call the Electrician. 2. If the machine is not equipped with inverter, this alarm indicates that the motor rotates in the wrong direction and the phases are reversed.	 ELECTRICIAN
	Intervention of the overload cut out of the refrigerator compressor Call the Electrician to re-engage the overload cut-out and verify its electric absorption.	
	Warns the front flange is open: **Close the flange and press ENTER to reset the alarm.** If the alarm persists it means the safety sensor does not work and must be replaced.	

➢ Other problems and their solutions

PROBLEM	CAUSES AND SOLUTIONS	WHO CAN WORK
The buzzer of ice-cream ready continuously sounds upon start-up	The ice-cream viscosity value is too low. Increase viscosity value see page 25	
Batch freezing time too long. Ice-cream does not reach the set TEMPERATURE value	The viscosity value is too high. Lower the viscosity value Lower the TEMPERATURE value Wear of scraping blades with probable presence of ice-cream crust limiting thermal exchange. Replace the scraping blades.	
By pressing the "QUICK OUTLET" key upon cycle end, the machine attempts starting but is unable and after a moment motor 2 alarm appears on screen.	With ice-cream ready, do not press STOP and then QUICK OUTLET but directly QUICK OUTLET.	

WASHING AND SANITIZING THE MACHINE

➢ Washing of machine (to be carried out every working day)

Preliminary rinsing of machine

Pour hot water (50/60°C) inside the hopper and press the washing button and wait for the turbine to stop on its own after 20 seconds.
Open the outlet with **machine still** and drain the dirty water. Repeat 3 times.

Open the flange as in photo **B** and with the hose spray, spray inside the refrigerator pipe removing the last residues of dirt.
The turbine must be assembled when spraying with the hose spray inside the refrigerator chamber.

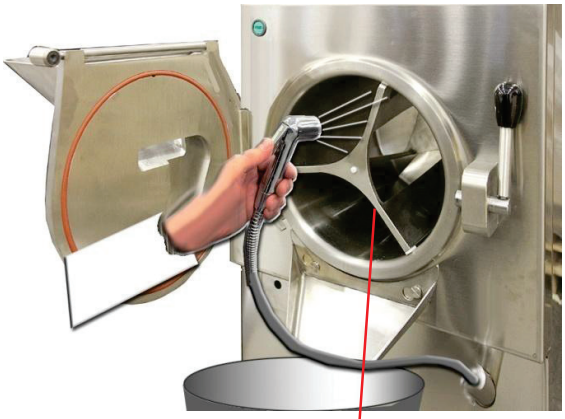
A

Washing with product

Through the hopper fill about one third of the refrigerator pipe with hot water 40°/50°C, adding some detergent, (E.g. DIVER SEY – SU91 found on the Italian market, or DIVER SEY – VK3L found on foreign markets) in product concentration at 5/10%.

Press the washing button and wait for the turbine to stop on its own after 20 seconds. Repeat 3 times.
Open the outlet with machine still and drain the dirty water.

B



Intermediate rinsing of machine

Pour cold water inside the hopper and press the washing button and wait for the turbine to stop on its own after 20 seconds.
Open the outlet with machine still and drain the dirty water. Repeat 3 times.

Open the flange as in photo **B** and with the hose spray, spray inside the refrigerator pipe removing the last residues of dirt.
The turbine must be assembled when spraying with the hose spray inside the refrigerator chamber.

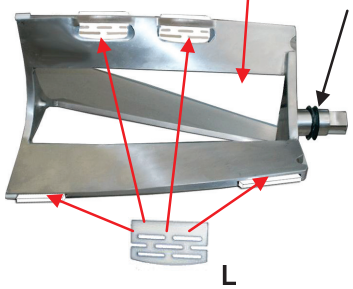
Turbine dismantling and washing

Remove turbine (**C**) from the machine and dismantle all scraping blades and rear gasket **G**. Carefully wash all with the same liquid and detergent used previous, rinse with running water.

Re-assemble all pieces placing them in their seats and place the turbine back inside the refrigerator pipe.

During the night leave the flange half open as in photo **B**.

C
G



L

➢ Sanitizing the machine

Sanitizing of machine to be carried out every working day

In the morning before starting production, sanitize the machine as follows:

Prepare a **COLD** water solution (MAX 25° C) and acid (e.g. Percitric or Peracetic) in order to obtain a final concentration of 0.1/0.3%.

Pour the solution inside the hopper and press the washing key once. Maintain the sanitizing mix in the still machine for about **5 minutes**.
Drain and accurately rinse with clean running water.

ATTENTION:

WHEN WASHING AND SANITIZING THE MACHINE, USE PROTECTIVE GOGGLES AND ANTACID GLOVES

ATTENTION DANGER:

NEVER USE HYDROGEN ACID (CHLORINE) OR OTHER ACIDS DIFFERENT FROM THOSE INDICATED FOR SANITIZING THE MACHINE.

DO NOT USE HOT WATER (ABOVE 25° C) TO PREPARE THE SOLUTION WITH THE ABOVE QUOTED ACIDS

TO AVOID SERIOUS PROBLEMS OF CORROSION, DO NOT LEAVE THE SANITIZING SOLUTION INSIDE THE MACHINE FOR LONGER THAN 10 MINUTES.

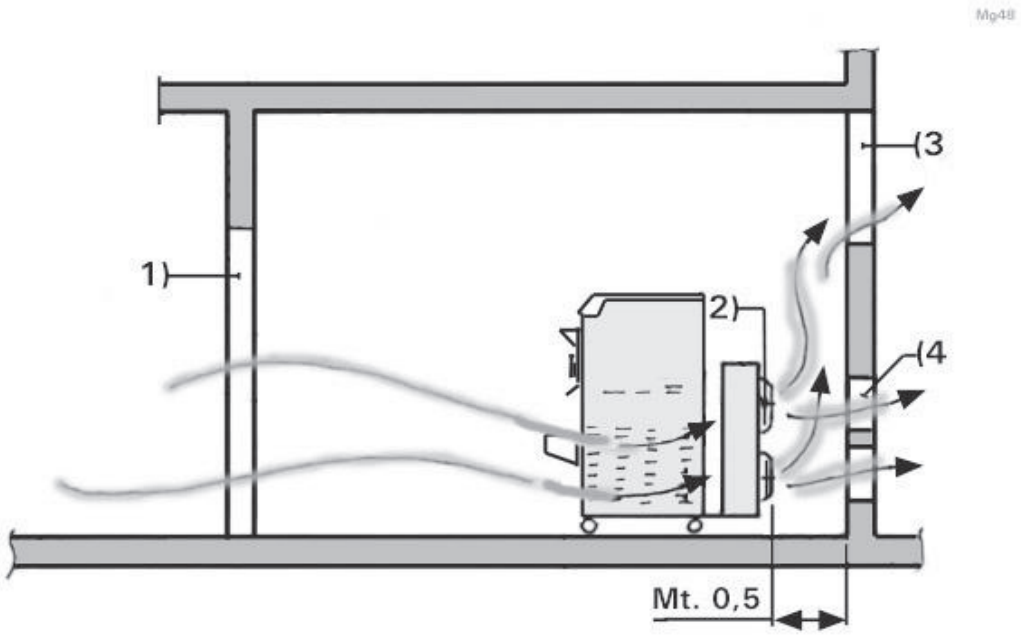
Machine positioning with air cooling

It is most important to position the machine in a roomy environment with doors and windows to facilitate ventilation of the heated air.

The rear of the machine must be at least 0.5 metres from the wall.

During machine operation the doors and windows of the room must be kept open otherwise the air heated by the machine will become extremely hot reaching a temperature as high as 50° C. If the machine operates in heated condition for long periods the machine's main components (refrigeratior compressor and turbine motor) will overheat to such an extent that the machine's operation will be adversely affected. This will lead to bad performance and thus unneceesary expense and cost. In addition excessive heat will increase electricity consumption and yield may fall to below 50%.

IDEAL POSITIONING OF THE MACHINE



As can be seen in the diagram, the air entering through door (1) is sucked in and heated during condensation from the ventilators (2). It is then pushed towards the window (3) from which it exits.

Though not always practical, the ideal solution solution is to make holes in the wall (4), corresponding to the ventilators (2). This will let the air exit freely without impediments thus ensuring a consistently optimum yield from the machine.

TECHNOGEL spa CANNOT ASSUME ANY RESPONSIBILITY FOR DAMAGE CAUSED BY POSITIONING THE MACHINE IN UNSUITABLE ENVIRONMENTS. IN ADDITION TECHNOGEL IS NOT RESPONSIBLE FOR FALLS IN MACHINE YIELD CAUSED BY OPERATING UNDER LIMITING CONDITIONS.