

PROMAG

le macchine per il gelato



USE AND MAINTENANCE
INSTRUCTION MANUAL FOR
WHIPPED-ICE-CREAM MACHINE

STARGEL HF 35

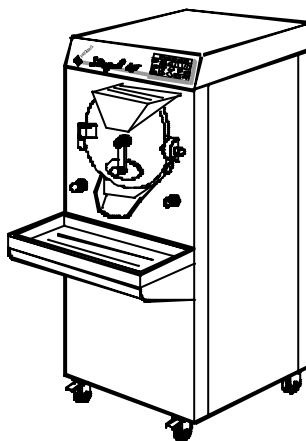
STARGEL HF 60

STARGEL HF 90

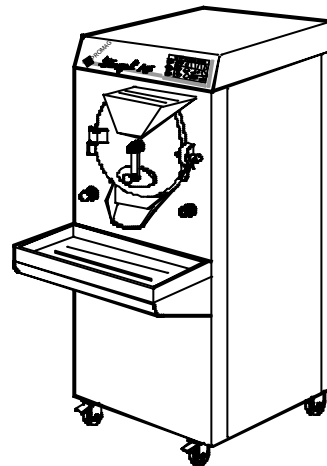
with R404A

MW
MACHINERY WORLD

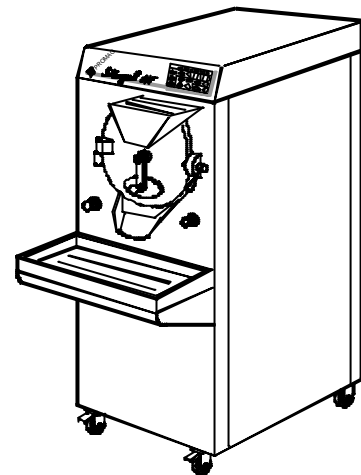
STARGEL HF35/60/90 English TECHNICIAN-INSTALLER



**STARGEL
HF 35**



**STARGEL
HF 60**



**STARGEL
HF 90**

**INSTRUCTIONS
FOR TECHNICIAN-INSTALLER**

09 - 2001



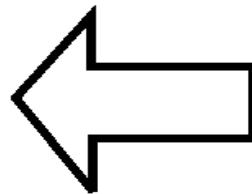
The technical data for each machine model is shown in the enclosed tables and on the data plate located on the rear side of the machine. This data is used as a reference when performing inspections or checks.



Bar code

PROMAG <small>S. GIULIANO MILANESE - ITALY - ITALY</small>					
Matricola		Codice			
Modello macchina					
Tensione	N° Fasi	Continua Alternata	Frequenza	Potenza	
☰ Fusibile					
Tipo Gas		Peso			

A = air condensation
W = water condensation



This plate is an exact copy of that located on the rear side of the machine, for this reason the manual forms an integral part of the machine and must be kept together with it.

Manufacturer

PROMAG OTT

Via Emilia, 45/A
 40011 Anzola Emilia
 Bologna Italy
 Tel. +39-051-6505358
 Telefax +39-051-6505253

Safe machine operation is assured by correctly following the instructions given in this manual. Therefore, we suggest you keep the manual in a safe place where it can be readily consulted as required.

page 7 / 46 _____ INSTRUCTIONS FOR USER — **A**

page 45/60 _____ INSTRUCTIONS FOR TECHNICIAN-INSTALLER — **B**



page 61/71 _____ SPARE PARTS

INTRODUCTION

This manual gives all assembly, operating and maintenance instructions required for assuring excellent operating results and a long machine service life.

Before starting to use the machine, read these instructions and follow them very carefully.



Please do not hesitate to contact us for any assistance you may require.

Failure to abide by the norms included in this manual will invalidate the guarantee.

If the machine is sold or otherwise put into another person's possession, ensure that the manual accompanies the machine, therefore allowing the new owner to correctly follow the operating procedures and abide by the relative precautions.

This machine is destined exclusively for the pasteurization, maintenance and maturation of ice cream mixtures.

Do not use this machine for any other use other than that described above.

A similar use shall be considered improper.

This machine is designed to be used by adults. Keep children away from the machine: they should not be allowed to play with it.

Any attempt to modify this machine will not only invalidate the guarantee but it will also be extremely dangerous.

In order to assure efficient, correct machine operation, carefully follow the manufacturer's instructions and only allow professionally qualified personnel to perform any necessary maintenance.

Never try to repair the machine yourselves, as any attempt to make repairs by non-competent persons will not only be dangerous but may also cause serious injuries.

In the case of a malfunction, contact the distributor from whom the machine was bought. He can give you the address of the Authorized Service Centre closest to you.

Only use original spare parts for any necessary replacements.

If you decide to no longer use the machine, we advise you to cut the electrical cord so that it cannot be used (after disconnecting the plug from the power socket).

In addition:

- In no circumstances should the refrigerant gas or compressor oil be allowed to escape and thus contaminate the environment.
- See that the machine is disassembled and that the parts are disposed of in accordance with the national regulations in force.

This machine contains R404A. gas which could be harmful to the environment in the case of incorrect maintenance operations or disassembly.

Therefore, any such operations must be done in accordance with the national regulations in force, and must only be performed by authorized maintenance personnel.

PROMAG reserves the right to make any and all modifications it deems necessary in order to keep the machine updated - technically or otherwise - as well as to allow it to meet the requirements of certain individual countries.

For any additional information or technical help you may require, please contact your authorized service centre.

This manual is made up of three parts:

Part A:
instructions and information for the User and the Technician-Installer

Part B:
instructions and information for the Technician - the Shipper the Installer - the Maintenance Man the Repair Man

Part C:
electrical diagrams and spare parts

Copy of the conformity declaration found with the machine



- 1) *La ditta PROMAG, con la firma del suo delegato alla sicurezza del prodotto, dichiara sotto la propria esclusiva responsabilità che la macchina:*
- 2) *The company PROMAG hereby declares under its own sole responsibility, through the signature of its product safety manager, that the machine:*
- 3) *La société PROMAG, parla signature de son délégué à fa sécurité du produit, déclare sous sa propre et exclusive responsabilité que la machine:*
- 4) *Die Firma PROMAG erklärt unter ihrer ausschließlichen Verantwortung mit der Unterschrift ihres Beauftragten für die Produkt-Sicherheit, daß die Maschine:*
- 5) *Het bedrijf PROMAG verklaart hierbij uitsluitend op eigen verantwoordelijkheid, door middel van de handtekening van zijn manager produktveiligheid, dat de machine:*
- 6) *La empresa PROMAG, mediante la firma de su encargado para la seguridad del producto, declara bajo su propia y exclusiva responsabilidad que la máquina:*
- 7) *A firma PROMAG, com a assinatura do seu delegado para a segurança do produto, declara sob a própria e exclusiva responsabilidade que a máquina:*
- 8) *Firmaet PROMAG erklærer hermed, gennem den produktsikkerhedsansvarliges underskrift og under eget ansvar, at maskinen:*
- 9) *Yhtiö PROMAG vakuuttaa täten tuoteturvallisuudesta vastaavansa allekirjoittamana ja omalla vastuullaan, että kone:*
- 10) *Härmed intygat företaget PROMAG, genom underskrift av sin produktsäkerhetsansvarige och på eget ansvar, att maskinen:*
- 11) *Firmaet PROMAG erklærer herved, ved den produktsikkerhedsansvarliges underskrift og under sitt eneansvar, at maskinen:*

STARGEL HF- 35/60/90 Matr.....

- 1) *mantecatore orizzontale per la produzione del gelato, è conforme ai requisiti essenziali previsti dalle Direttive CEE 89/392, 91/368, 89/336, 73/23 e 93/68.*
- 2) *horizontal mixer for ice cream production, complies with the essential requirements indicated in EEC directive 89/392, 91/368, 89/336, 73/23 and 93/68.*
- 3) *machine horizontale pour le travail et pour la production de la glace, est conforme aux conditions requises essentielles prévues par les directives CEE 89/392, 91/368, 89/336, 73/23 et 93/68.*
- 4) *Horizontal-Eismaschine für die Zubereitung von Speiseeis, den grundlegenden, von den EWG-Richtlinien 89/392, 91/368, 89/336, 73/23 und 93/68 gestellten Anforderungen genügt.*
- 5) *horizontale mixer voor het bereiden van consumptieijs, voldoet aan de essentiële voorwaarden vervat in de EEG-Richtlijnen 89/392, 91/368, 89/336, 73/23 en 93/68.*
- 6) *mantecador horizontal para la producción de helado, es conforme a los requisitos esenciales previstos por las Directivas CEE 89/392, 91/368, 89/336, 73/23y 93/68.*
- 7) *Batedeira horizontal para a produção de sorvete, é feita conforme os requisitos principais previstos pelas Normas CEE 89/392, 91/368, 89/336, 73/23 e 93/68.*
- 8) *horisontal mixer til is-fremstilling, overensstemmer med de væsentligste krav anført i EU direktiv 89/392, 91/368, 89/336, 73/23 og 93/68.*
- 9) *jäätelöntuotantoon käytettävä vaakasuora mikseri noudattaa EU direktiiveissä 89/392, 91/368, 89/336, 73/23 ja 93/68 ilmaistuja olennaisia vaatimuksia.*
- 10) *horisontal mixer för glassframställning uppfyller de väsentliga kraven i EU-direktiv 89/392, 91/368, 89/336, 73/23 och 93/68.*
- 11) *maskin for tilberedning og pasteurisering av deig-og iskremprodukter er i samsvar med de vesentligste krav angitt i EU-direktiv 89/392, 91/368, 89/336, 73/23 og 93/68.*

The operating instructions form an integral part of the machine. - The machine user must not perform any of the operations described in parts B and C; these must only be carried out by a qualified technician. - The user is therefore informed that if he attempts to do so he will compromise the safety and health standards with which the machine is designed and built.

INFORMATION FOR THE USER AND TECHNICIAN-INSTALLER

General Information

Thank you for having chosen this machine. Please read the instructions in this manual carefully, they will assure long machine service life.

We can guarantee that only the very best materials have been used for this machine, that it has been very carefully tested, and that we are always ready to serve and assist you in the best possible way.



IMPORTANT PRECAUTIONS

When the machine is being installed, make sure that a disconnecting switch is installed on the power supply line by a qualified technician.

Always ensure that the plug is disconnected from the mains before putting your hands inside the machine or before performing cleaning or maintenance operations.

(Contact a qualified technician whenever maintenance is required).

Never clean the machine using a water jet under pressure.

Always ensure that the plug is disconnected from the mains before removing the housing, side panels or any other protection in order to carry out any operation within the inner part of the machine.

(Such operations must only be performed by a qualified technician)

HELPFUL ADVICE

When manufacturing your products only use the very best ingredients, in order to fully satisfy even your most demanding customers.

Obtain all basic ingredients from well-established firms that have a proven reliability.

When making your products follow the instructions very carefully and do not try to change the recipe in any way.

Always keep the machine spotlessly clean.

For all necessary repair work always contact one of PROMAG's assigned maintenance firms.

If any of the operating, cleaning or maintenance instructions given in this manual are not carefully followed, and an accident occurs, PROMAG cannot be held responsible.

Thanking you once again, we wish you all the best.

A**INSTRUCTIONS FOR THE USER AND THE TECHNICIAN-INSTALLER**

A 1	Environmental conditions _____	pag.	8
A 2	Machine description _____	pag.	9
A 3	Number of users and type of work _____	pag.	10
A 4	Production cycle _____	pag.	10
A 5	Operating modes _____	pag.	10
A 6	Precautions _____	pag.	10
A 7	Safety devices _____	pag.	11
A 8	Intended machine use _____	pag.	12
A 9	Description of external components _____	pag.	12/14
A 10	Description of internal components _____	pag.	15
A 11	Dangerous points on the machine _____	pag.	16
A 12	Protection measures for machine's dangerous points _____	pag.	17
A 13	Risk information _____	pag.	17/18
A 14	Special precautionary measures _____	pag.	18/19
A 15	Installation _____	pag.	20
A 16	Machine operation _____	pag.	20
A 17	Functioning _____	pag.	21
A 18	First method _____	pag.	21
A 19	Second method _____	pag.	21
A 20	First method _____	pag.	22/28
A 21	Second method _____	pag.	29/32
A 22	Ice cream consistency variation _____	pag.	33
A 23	Holding program _____	pag.	33
A 24	Programing of holding parameters _____	pag.	33/34
A 25	Grated-ice drink program _____	pag.	35
A 26	Grated-ice drink holding program _____	pag.	35
A 27	Parameter programing _____	pag.	36
A 28	Example of Grated-ice drink production _____	pag.	37/38
A 29	Stop modes and procedures _____	pag.	39
A 30	Important _____	pag.	40
A 31	Operations to be performed after use _____	pag.	41
A 32	Cleaning _____	pag.	41/42
A 33	Dismantling _____	pag.	42
A 34	Technical characteristics _____	pag.	43



A 1 - ENVIRONMENTAL CONDITIONS

The machine must not be kept in a room where the temperature can drop below 0° C.

The machine is not designed for installation in atmospheres where there is a risk of explosion.

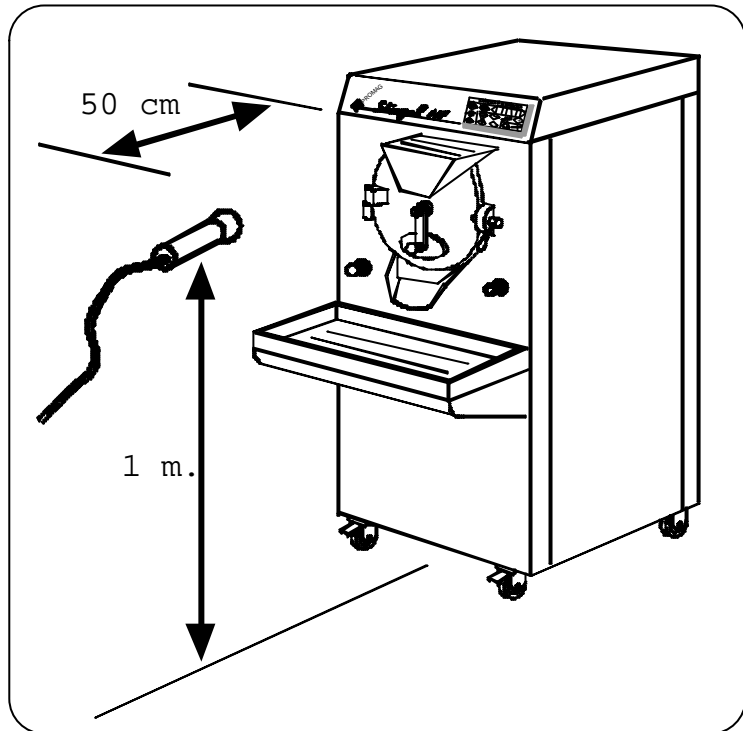
A 1.1

MACHINE OPERATING NOISE LEVELS

The acoustical pressure level produced by the machine is shown on the enclosed technical diagram.



Measurements have been made as shown in the drawing aside.



Instrument used: PHONOMETER BRUEL & KIAER

Kind: 2218 - 1613 N° 068110042

Total noise in the different functions

HF 35	Background (dBA)	46
	Production (dBA)	68
	Extraction (dBA)	72
	Cleaning (dBA)	62
HF 60	Background (dBA)	46
	Production (dBA)	72
	Extraction (dBA)	74
	Cleaning (dBA)	67,5
HF 90	Background (dBA)	47
	Production (dBA)	75
	Extraction (dBA)	77
	Cleaning (dBA)	68

A 2 - MACHINE DESCRIPTION

Function:

MACHINE FOR MAKING WHIPPED ICE CREAM

See enclosure for machine technical data

Machine components

The machine has a main parallelepiped **frame** made of stainless steel, the base of which is provided with four wheels, one at each corner.

The machine's electrical motor, transmission units, cooling circuit and whipped-ice-cream cylinder are mounted inside the frame.

The **whipped-ice-cream cylinder** is mounted horizontally and is provided with a cooling jacket containing R404A refrigerant gas.

The outlet of the cylinder is located on the front of the machine. **The ice-cream whipping shaft** , which is mounted horizontally inside the cylinder, rotates by means of a worm reduction unit.

The **cooling system** consists of a piston compressor, activated by an electric motor and a water-cooled condenser.

As mentioned previously, the whipped-ice-cream cylinder **opening** is located on the front of the machine.

This opening has a hinged **door (23)** closure which is provided with a mechanical lock.

A **funnel (15)**, complete with cover, is located at the top of the machine for feeding the mixture to be whipped into the cylinder.

The door has a magnetic microswitch and an opening which is closed by an element **(17)** which permits ice-cream dispensing without having to open the door.

On the front right of the machine there is a recess which contains a **small shower unit (25)**, commanded by a tap **(18)**, located on the left, which can be used during machine washing operations.

The **electrical cabinet** is also located inside the main frame on the right-hand side of the machine.

On the front of the machine, a stainless steel **shelf** is located below the cylinder discharge nozzle for holding the container being filled with ice cream.

The inlet water line connections for the cooling system and cleaning shower are located on the back of the machine.



A 3 - NUMBER OF USERS AND TYPE OF WORK

The machine is designed for use by just one operator who loads the mixture to be whipped, sets the production cycle and collects the produced ice cream.

A 4 - PRODUCTION CYCLE

The user closes the cylinder discharge door and pours the mixture to be whipped into the funnel.

The operator then puts the funnel cover in place, sets the appropriate parameters and starts the production cycle.

When the cycle has been completed, the operator opens the door covering the cylinder outlet port

and presses the appropriate button to make the whipping shaft turn at high speed and dispense the ice cream.

If necessary, after the ice cream has been dispensed, the cylinder should be cleaned before proceeding with the subsequent production cycles.



A 5 - OPERATING MODES

The machine is designed so that once the whipped-ice-cream button has been pressed the machine operates uninterruptedly.

The machine stops automatically and the ten LED come on together with an acoustic signal. The machine can also be stopped by pressing the normal stop button.

A 6 - PRECAUTIONS

Danger points

The machine has certain danger points and areas in which accidents can occur if the following precautions are not observed.

- It is dangerous to access the machine's whipped-ice-cream cylinder when it is turned on and/or in motion.
- It is dangerous to carry out repairs on any component or part of the machine, whether mechanical or electrical, when the machine is in operation.

Refer to the enclosures for the electrical and hydraulic systems.

- Never leave the machine unattended while it is operating.
- It is dangerous to put your hands or fingers or any other object whatsoever between the vertical bars in the cylinder or funnel cover opening.

- It is dangerous to try turning the machine on or off at the wall switch with wet hands.

- Never, under any circumstances, access the electrical box in any way.

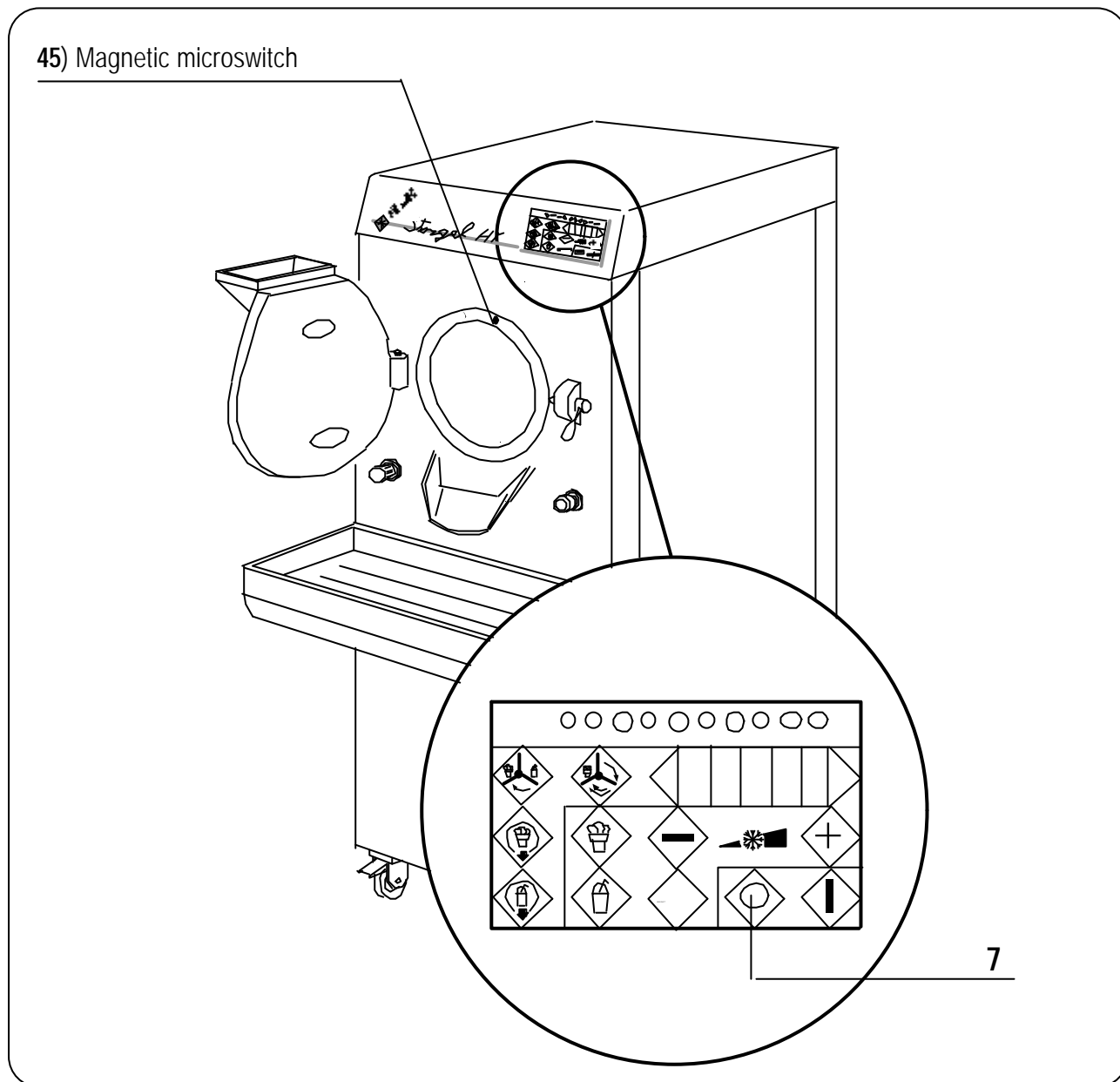
- It is dangerous to bring magnetic material of any kind close to the machine as this could interfere with the magnetic safety microswitches located on the upper front part of the machine.

(For the user only)

- **It is dangerous to try doing any work on the machine that should be done by a technician-installer.**

The removal of protective coverings, access to the inner part of the machine, the carrying out of any internal maintenance operations, repairs, installation, shipping and unpacking of the machine must only be done by qualified personnel.

A 7 - SAFETY DEVICES



A7.1

- All STARGEL machines have a magnetic microswitch located on the upper front part of the machine.

Their aim is to interrupt all the functions of the machine, in case the cylinder shutter should be opened while the machine is working.

A7.2

There is a machine stop button (7) located on the control panel at the front of the machine, which interrupts all machine functions when pressed.

A7.3

Appropriate protection is provided for cases of power failure so that the machine does not automatically start up again when power is restored.

A7.4

The control panel has a 12 volt power supply.



A 8 - INTENDED MACHINE USE

For use according to the norms

STARGEL machines are expressly designed for the preparation of whipped-ice-cream and grated-ice drinks on a non-industrial basis.

Use for any other purpose will not conform to the norms.



The manufacturer cannot be held responsible for any injury or damage resulting from improper machine use.

Any risks will be borne entirely by the user. The manufacturer's specified safety precautions regarding machine operation and maintenance must be observed.

The norms in force regarding accident prevention

and other recognized technical safety regulations must also be observed.

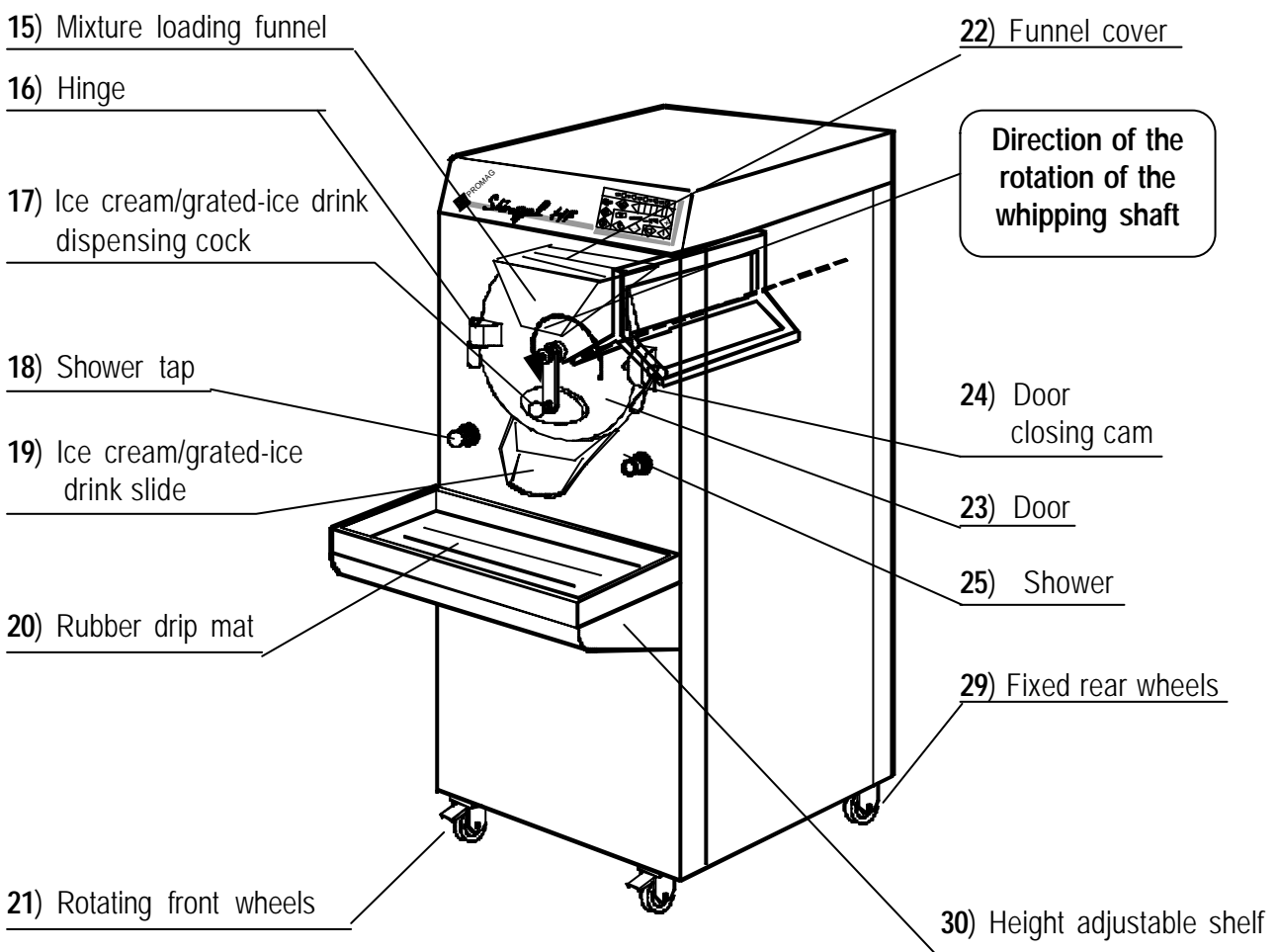
Only properly trained and qualified personnel must use, maintain or repair the machine.

Most of the machine is made of AISI - 304 stainless steel, of a thickness ranging from 10/10 to 35 mm, and plastic material of the kind used in the food industry. (POM).

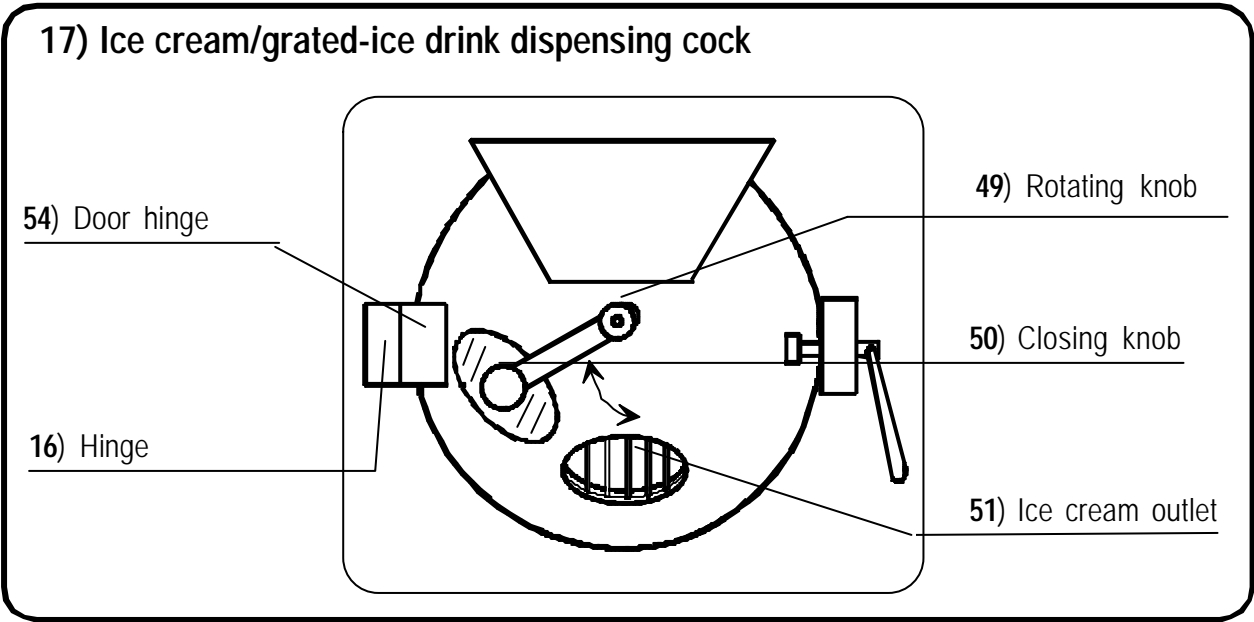
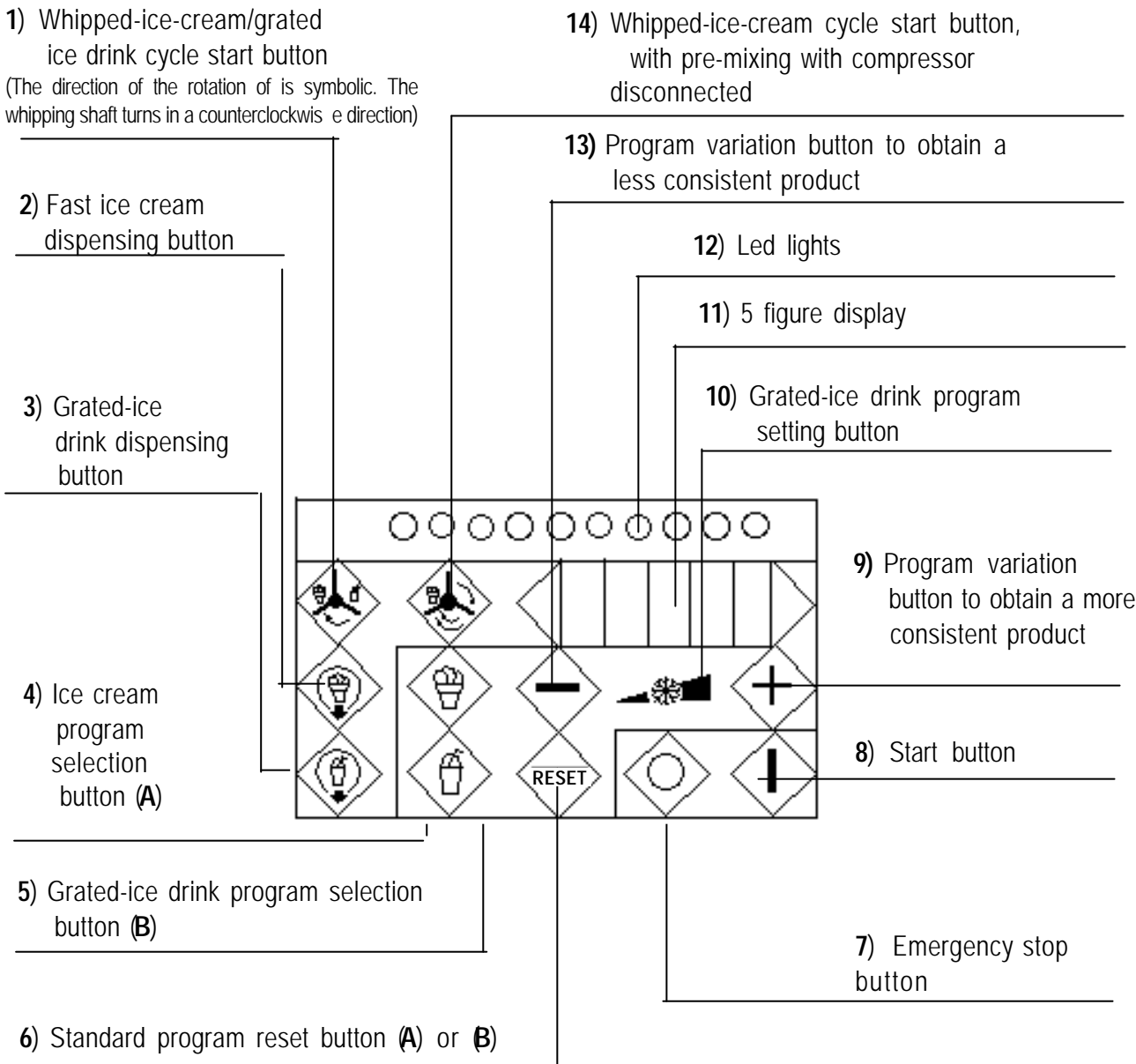
Any arbitrary modifications made to the machine will completely exonerate the manufacturer from any responsibility in the case of damage and/or injury.

The machine must only be used with original accessories and parts made by the manufacturer.

A 9 - DESCRIPTION OF EXTERNAL COMPONENTS (front view)



A 9 - DESCRIPTION OF EXTERNAL COMPONENTS (control panel)



A 9 - DESCRIPTION OF EXTERNAL COMPONENTS (rear view)

33)
Water outlet

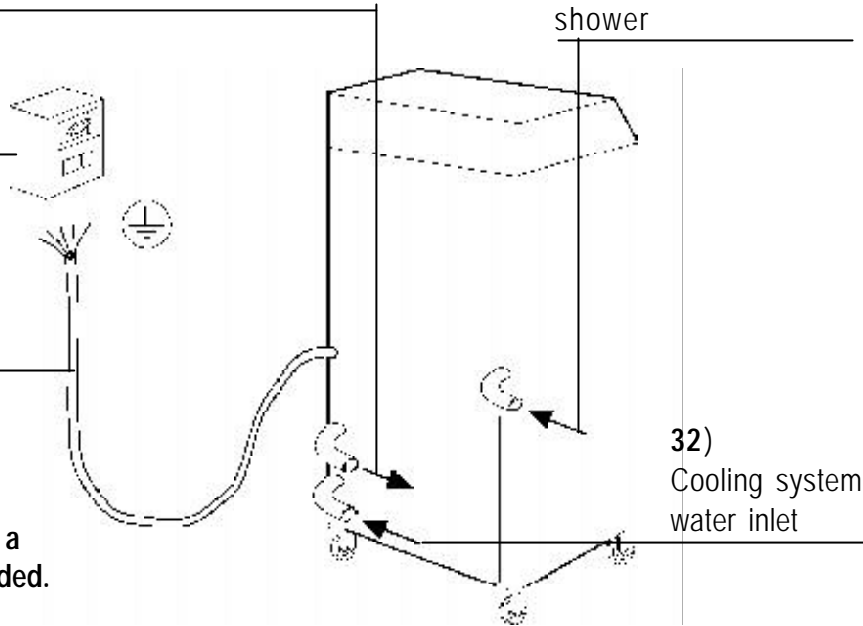
30)
Disconnecting switch

31)
Electrical cable

48)
Drinkable water inlet for
shower

32)
Cooling system
water inlet

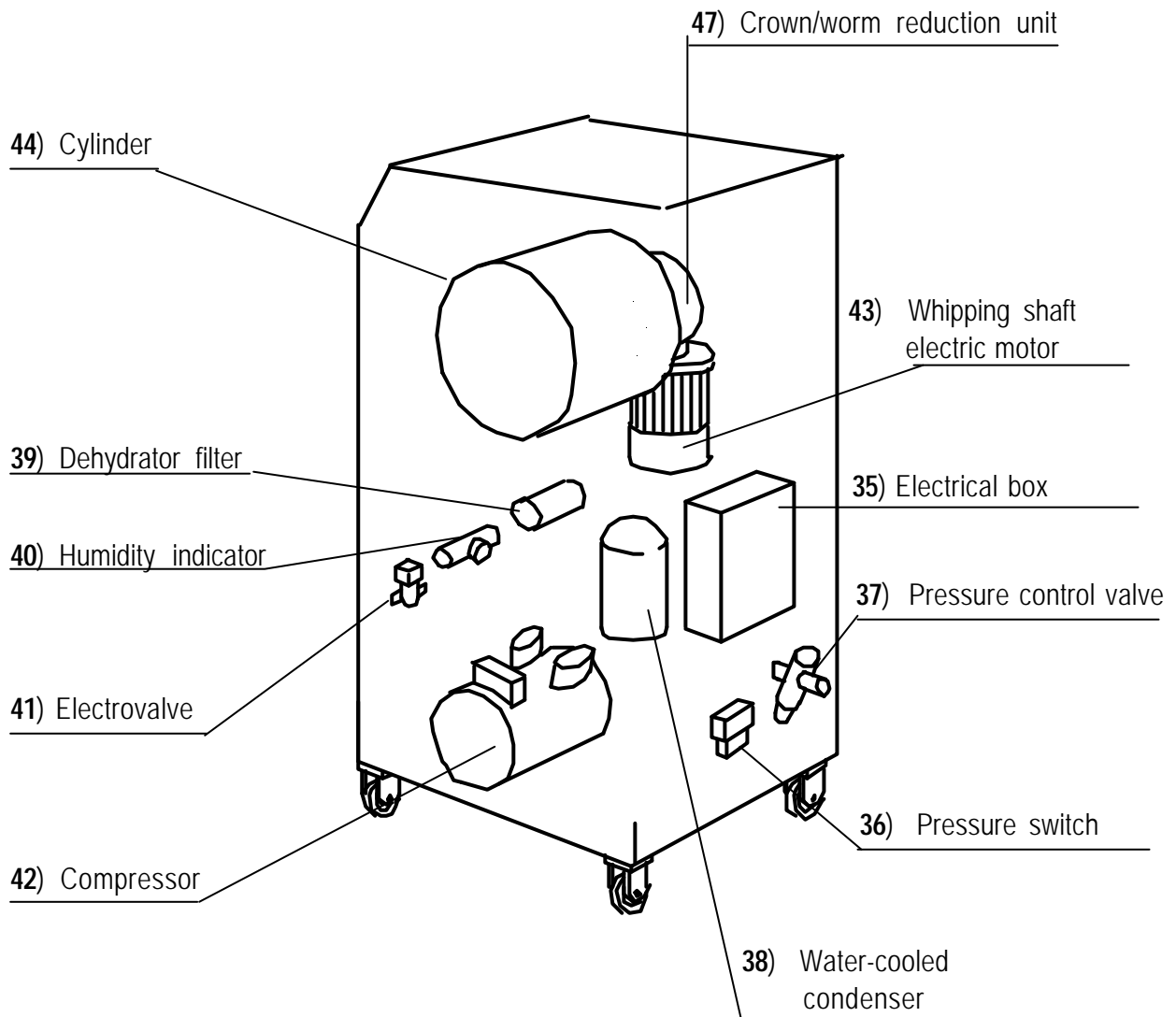
In order to avoid mineral
deposits in the tubes and
condenser, caused by water
hardness, the installation of a
water softener is recommended.



Informative note for the user which strictly concerns the Technician-Installer

A 10 DESCRIPTION OF INTERNAL COMPONENTS

A 10.1 Description of the internal components




A 11 - DANGEROUS POINTS ON THE MACHINE

Definition of the dangerous areas, the type of danger and the general protection measures taken.


GB

A11.1)
 Danger of cutting and members in movement

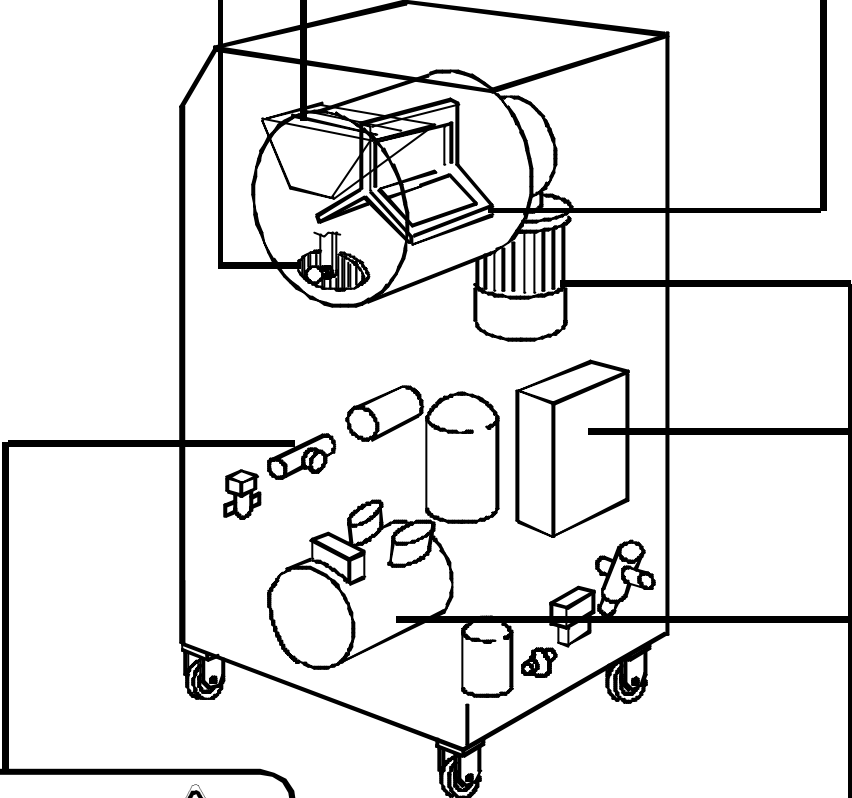


- In the mixture loading funnel opening
- On the vertical bars in the door


A11.4)



Danger of clothes, fingers, etc. getting caught and dragged by the reduction gear pin connecting the electrical motor and the whipping shaft.




A11.2)



Danger of hot and cold parts:

- The refrigeration system
- The tube connecting the compressor, condenser


A11.3)



Dangerous pressure:

- Refrigeration circuit under pressure

A11.5)



Dangerous voltage:

- General electrical panel
- Motor compressor
- Motor

— A 12 - PROTECTION PROVIDED FOR THE MACHINE'S DANGEROUS POINTS

The machine is provided with housing that prevents access to the machine's interior and its moving parts.

This housing is secured by means of screws and should only be removed by qualified, authorized, PROMAG personnel.

— A 13 - INFORMATION REGARDING RISKS THAT CANNOT BE AVOIDED NOTWITHSTANDING THE MEASURES ADOPTED BY THE DESIGNER



The residual risks involved in using the machine are as follows:

A 13.1

Danger of cuts

The mixture loading funnel (15) is welded to the door of the machine.

The funnel (15) cannot be disassembled and is protected by a welded grid to prevent, as much as possible, access to the moving parts of the whipping cylinder, while still allowing the easy insertion of mixtures containing solid or rather dense parts.

It is important to underline that the moving parts of the whipping cylinder should Never be touched with any object or part of the body, as this could result in jamming, crushing or chopping between the blades and the fixed parts of the machine.

It is also dangerous to put any mixture pieces into the funnel that have not been sufficiently reduced in size, as this could cause the user to try forcing large pieces using some object, or worse still, their hands or fingers.

It is advisable to first cut all solid material into very small pieces so that they will drop easily into the cylinder without requiring pushing.
In an emergency press the **STOP (7)** button.

A danger risk is also present during cleaning and the machine should be disconnected from the mains before starting any such operation.

Furthermore it can be dangerous to not pay enough attention when operating the machine as, with practise, your movements can become automatic and you can inadvertently make a wrong move without realizing it.

A 13.2

Danger of cuts

There are vertical bars located in the opening (49) in the lower part of the door.

This opening permits ice cream dispensing, the vertical bars do not prevent the ice cream from being dispensed and are designed to prevent, as much as possible, access to the moving parts of the whipping cylinder.

It is very important to underline that under no circumstances should any object or hands and fingers touch the moving parts of the whipping cylinder, as this could cause the whipping shaft and its blades to jam, crush and chop whatever is inserted.

The greatest danger exists when using the spatula during ice-cream dispensing and container filling operations.

The spatula must never be inserted between the bars or forced perpendicularly against the cover because, if your hand or the spatula is wet, your hand may slip and even go as far as to strike the bars and the moving parts of the whipping cylinder.



A 13.3 - Dangerous Pressure

The cooling system remains under pressure even after the machine has been turned off.

Before carrying out any maintenance operations on the cooling system, remove the pressure to eliminate this risk .

A 14 - SPECIAL PREVENTION MEASURES THAT MUST BE TAKEN

A 14.1

Safety norms.

In order to ensure perfect machine operating conditions and operator safety at all times, it is recommended that the following norms be carefully observed.

This machine must only be used for the purpose for which it was designed.

Any other use is not only considered improper but can also be dangerous.

During all shipping, loading, unloading and handling operations, pay great attention to the hoist points chosen.

Never leave the machine exposed to the weather (rain, sun, etc.)

Do not allow children or incapable persons to use the machine.

The machine must only be used by competently trained persons.

Keep the machine in perfect working order, always see that the various protective devices are in place, and have regular periodic maintenance performed by professionally qualified personnel.

Particular care must be taken to see that all safety devices are periodically inspected to assure that they are perfectly functional.

Before connecting the machine check that the data stated on the data plate corresponds with that of the electrical and hydraulic supply networks (the data plate is located on the rear side of the machine).

Ensure that the machine has been properly grounded in accordance with the norms in force.

Proper electrical grounding is absolutely necessary.

In case of any doubt have the system inspected by a professionally qualified electrician.

Check that the mains supply is adequate for the power required by the machine.

If in any doubt, have the wire cross-section in the mains inspected by a professionally qualified electrician to see that it is sufficient for supplying the required current.

Never touch the machine if your hands or feet are wet or damp.

Never use the machine barefoot.

Never use extension leads in rooms with bath or shower facilities.

Never pull the electrical cable to disconnect it from the wall socket.

In order to prevent the electrical cable from overheating, unwind it to its full length.

Before carrying out any maintenance whatsoever, disconnect the machine from the mains and turn off the main switch.

If the machine is operating badly or has a malfunction, turn off the main switch.

Do not try to correct any condition or make any repairs yourself, always call a professionally qualified, authorized service man.

Any necessary repairs must be done by the manufacturer or an authorized service centre, and only original spare parts must be used.

Failure to observe the above precautions can make the machine unsafe.

Never use water to put out a fire involving the electrical components, only use a powder-type extinguisher.

Never leave the machine plugged into the mains when not in use.

Never modify the protection devices and never remove them unless the machine is turned off and disconnected from the mains.

If you decide to no longer use this type of machine, disconnect it from the mains so that it cannot be operated.

The drains must be able to withstand a continuous temperature of 50° C.

When performing cleaning operations carefully follow the instructions given in the manufacturer's handbook.

Check that the air-flow grilles are free of any obstruction.

Work on the control panel must only be carried out by qualified personnel.

Before carrying out any such operation the machine must be disconnected from the mains.

Before opening the door, turn off the machine and wait at least 5 seconds to ensure that the motor and whipping shaft have come to a complete stop.

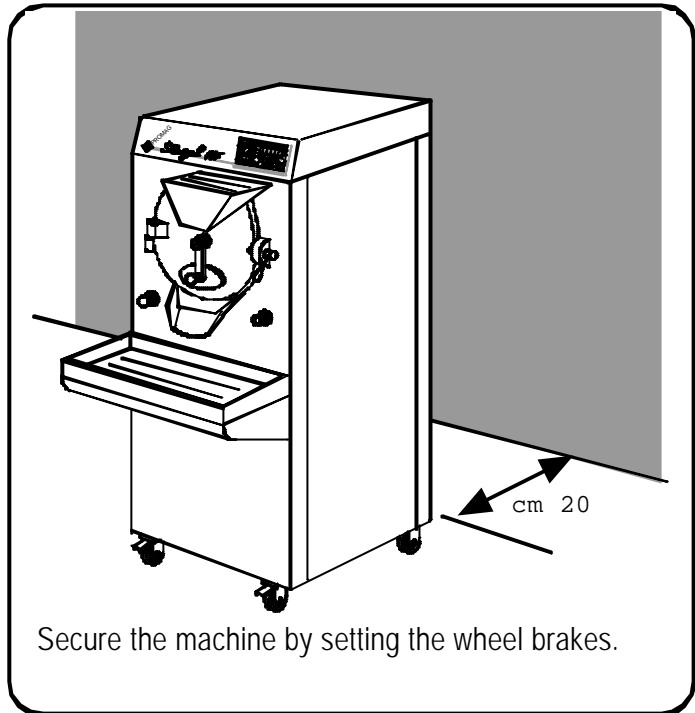
When cleaning the stainless steel parts, never use steel wool, a wire brush or anything else that could ruin the finish.

In order to avoid environmental pollution, we recommend that you do not use corrosive or contaminating products and do not exceed in the doses.



A 15 - INSTALLATION

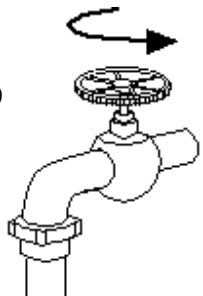
In order to provide sufficient air circulation, ensure that there is at least 20 cm space between the back of the machine and the nearest wall.



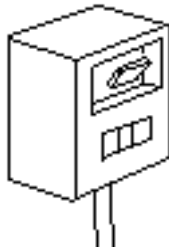
A 16 - MACHINE OPERATION

A 16.1 START UP OPERATIONS

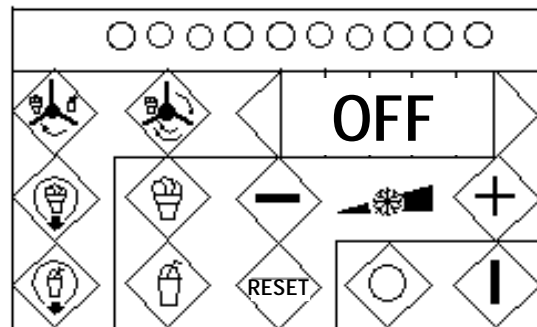
A 16.2
Open the water inlet tap



A 16.3
Turn on the main switch which was set up during the machine installation phase.



A 16.4
The word "OFF" will appear on the display.



A 16.5 MACHINE PREPARATION

The main switch must be turned on at least 5/6 hours before beginning to use the machine, to allow the motor-compressor resistance to heat up the oil in it and thus avoid possible damage that can result from starting-up cold.

A 17 - FUNCTIONING

Electronic logic

All STARGEL HF machines are designed to satisfy, in the best possible way, the requirements of the client and technician-installer/service man.

For this reason the ice cream consistency can be controlled using two completely different methods:

A 18 - FIRST METHOD

(The machines leave the factory with this kind of programming; if you wish to use the second method, consult the technician-installer).

Throughout the whole whipping cycle the electronic logic reads the power intake of the motor which turns the whipping shaft within the cylinder.

The power intake increases as the ice-cream hardens, and the READY signal is given when the required power level (set program) is reached.

These power levels (programs which can be set) have been fixed through sophisticated laboratory tests to satisfy the client's specific requirements, which may vary from the production of soft ice cream to very dense ice cream.

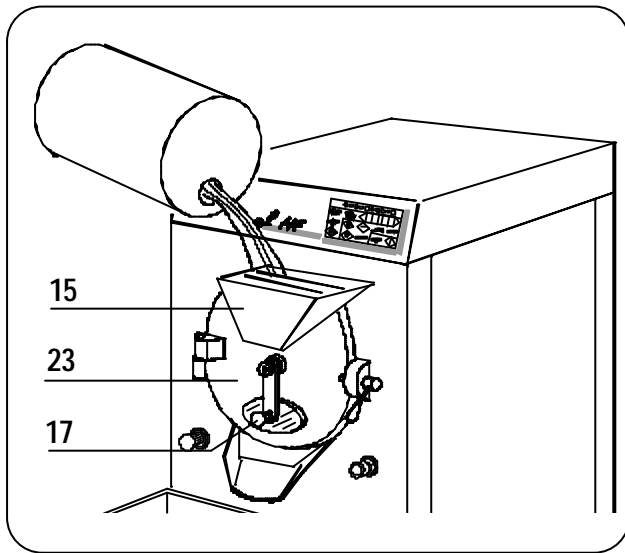
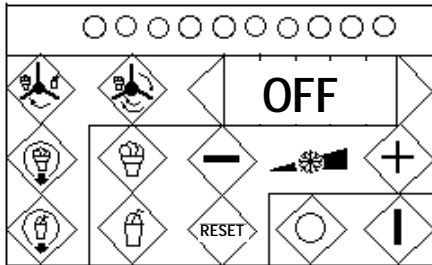
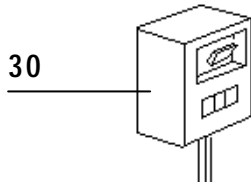


A 19 - SECOND METHOD:

(If you wish to use this kind of programming, consult the technician-installer who will carry out a simple operation on the electronic card in order to supply the necessary functions).

Some clients are used to this traditional method for controlling ice cream consistency, which works by setting a time cycle, at the end of which the ice cream has the consistency required according to the operators experience.

A 20 - FIRST METHOD



A20 - SETTING UP THE MACHINE (FIRST METHOD)

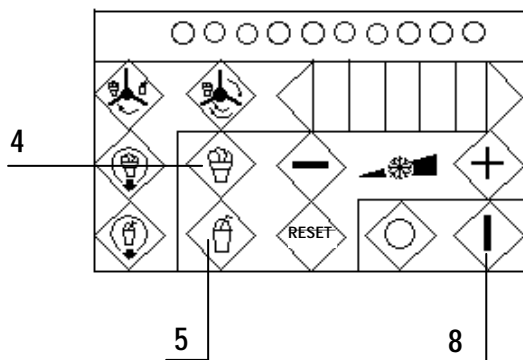
Turn on the main switch (30) at least three hours before use.

The DISPLAY will show the word OFF.

Close the door (23) and the ice cream dispensing cock (17).

Put the mixture, which should be at a temperature between +3° and +5° C, into the funnel, taking into consideration the maximum and minimum quantities shown below.

		MINIMUM	STANDARD	MAXIMUM
STARGEL	HF 35	3	4	6
STARGEL	HF 60	3	7,5	9
STARGEL	HF 90	6,5	10,8	14



A 20.2 (FIRST METHOD)

When the button (b) is pressed the last program set will appear on the display.

Two programs can be selected on the machine.

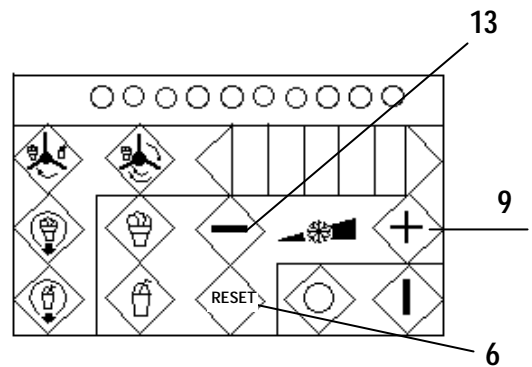
A = Ice cream program (button 4)

b = Grated-ice drink program (button 5).

(A) or **(b)** on the display indicates the STANDARD ice cream or grated-ice drink program.

A 20.3 (FIRST METHOD)

If a different previously selected program appears, such as **A S 1**, **A H 3**, **b S 1** or **b H 1** and a STANDARD program is required, press button **(13)** or **(9)** the necessary number of times, or, more simply, press the **RESET (6)** button.

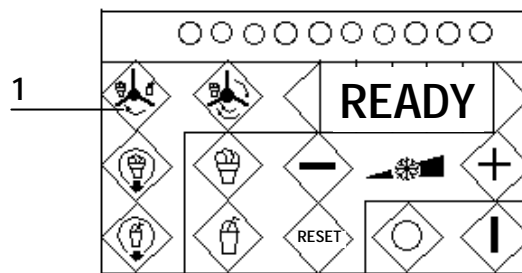


A 20.4 (FIRST METHOD)

Press button **(1)** to start the ice cream or grated-ice drink cycle.

This cycle will finish when all 10 LED are turned on, and an acoustic signal will sound for 5 seconds.

The word **(READY)** will appear on the display.

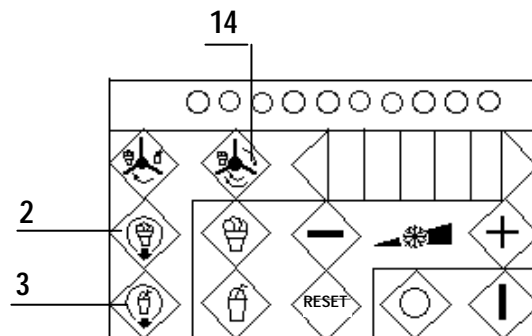


If button **(14)** (only for ice cream) is pressed instead of button **(1)** the ingredients are premixed at speeds one and two alternately, with the compressor disconnected, the whipping cycle will then start automatically as if button **(1)** had been pressed.

In order to dispense ice cream press button **(2)**.

In order to dispense grated-ice drink press button **(3)**.

By the position of the switches of the electronic card microswitch (address to the technician - installer), the extraction is settled by the buttons **(2)** or **(3)** for safety reasons, at the maximum value of three minutes, which can be repeated by subsequent pressures on the buttons. To interrupt the extraction, press again the buttons **(2)** or **(3)**.



A 20.4.1

POSSIBILITY OF EXTRACTING THE ICE CREAM WHILE THE COMPRESSOR IS IN

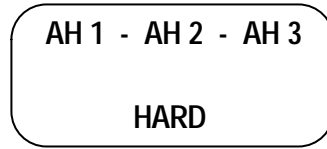
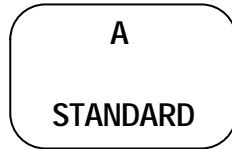
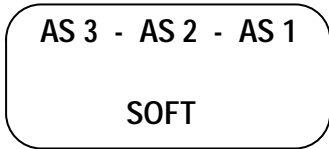
By pressing the button **(14)** for three seconds, the extraction program of the ice cream starts, with the whipping shaft which turns at second speed, with the following parameters:

- The display shows the countdown in minutes, starting from the value of 3 minutes (to get out of the program press again the button **(14)**).
- 30 seconds with the compressor off.
- Ten seconds with the compressor in
- The cycles are automatically repeated for a total time of three minutes.
- At the end of the 3 minutes, the display shows the blinking word END

By pressing again the button **(14)** for 3 seconds, the program starts again.

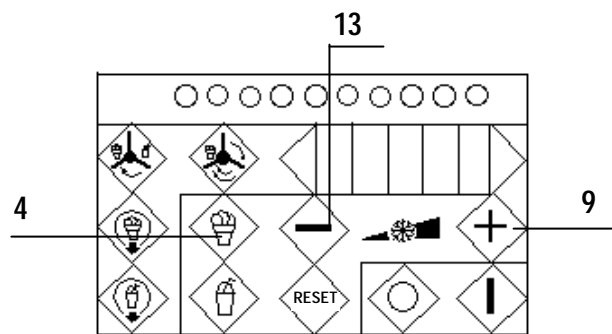
A 20.5 ICE CREAM PROGRAM (FIRST METHOD)

The ice cream program (button 4) has seven ice cream consistency levels.



When button **13** (-) is pressed one or more times (at any point during the program) the ice cream dispensed will be softer, running through the programs from the hardest to the softest.

When button **9** (+) is pressed one or more times (at any point during the program) the ice cream dispensed will be harder, running through the programs from the softest to the hardest.



The ice cream consistency is controlled by a sophisticated microprocessor system called: **AUTODIAGNOSTIC POWER CONTROL.**

Therefore, given that level **A** is the **STANDARD** ice cream consistency for the **STANDARD** mixture load for the machine model (**HF 35 - HF 60 - HF 90**), you can determine and memorize the most appropriate level for your recipes.

The consistency level (buttons **13, 9, 6**) can also be set at the end of the cycle.

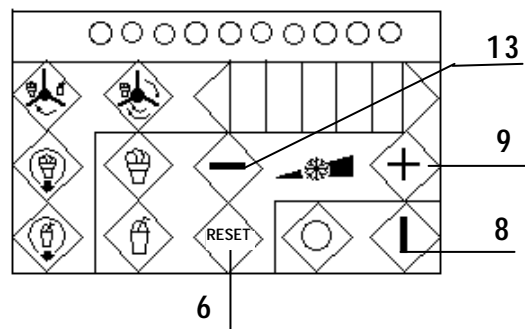
Example:

1) I have turned on the main switch at least three hours before starting to use the machine; the display shows **OFF**.

2) I press Button **8**, the display shows the last program set.

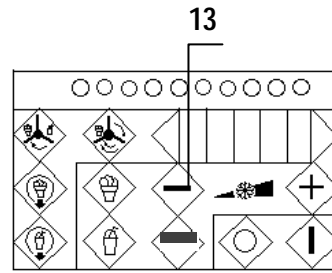
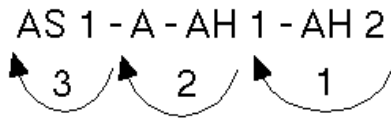
If ice cream has been made previously, one of the following programs will appear:

AS 3 - AS 2 - AS 1 - A - AH 1 - AH 2 - AH 3



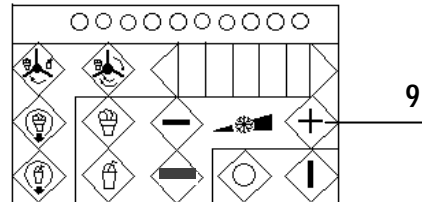
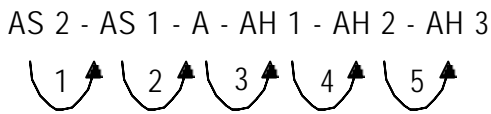
A 20.6 (FIRST METHOD)

If, for example, **AH 2** appears and I want to set **AS 1** I must press button **13** (-) three times.



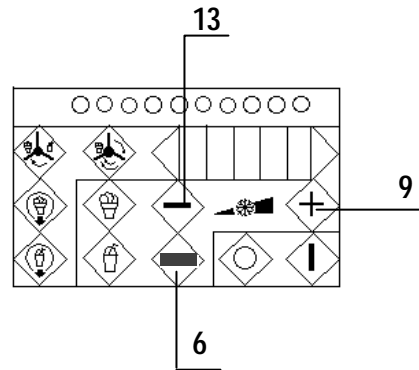
A 20.7 (FIRST METHOD)

If, for example, **AS 2** appears and I want to set **AH 3** I must press button **9** (+) five times.



A 20.8 (FIRST METHOD)

If I find myself at any one of these seven ice cream consistency levels and want to set **STANDARD A**, I can use buttons **13** or **9**, or simply press button **6** (RESET).



A 20.9 (FIRST METHOD)

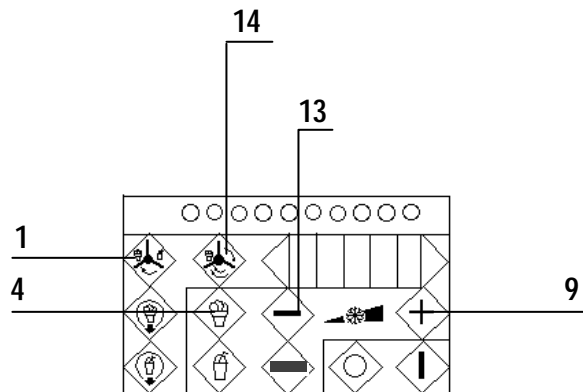
If I have previously made grated-ice drink, the display will show one of the following programs:

bS 2 - bS 1 - b - bH 1 - bH 2

in order to set an ice cream program I must press button **4** and **A** (**STANDARD** program) will appear on the display.

To increase or reduce the hardness of the ice cream, I must press buttons **9** or **13** the necessary number of times.

After setting the required program, I can start the ice cream cycle using either button **1** or button **14**.

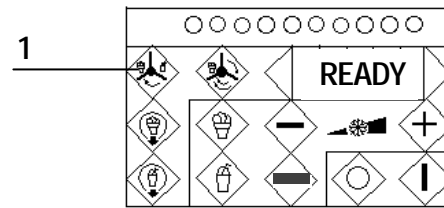


A 20.10 (FIRST METHOD)

Starting the cycle using button 1:

The whipping shaft turns in anticlockwise rotation and at first speed until the set consistency level is reached.

The LED above the display come on one by one as the ice cream gets harder.



When the tenth LED comes on an acoustic signal will sound for 5 seconds and the word **READY** will appear on the display.

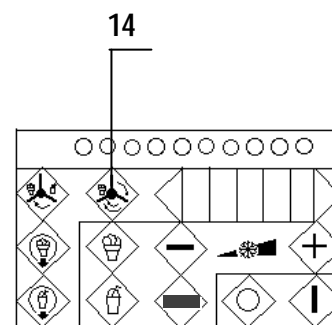
A 20.11 (FIRST METHOD)

Starting the cycle using button 14:

(this type of cycle is recommended when the ingredients are not mixed well; this allows some mixtures to reach a higher **OVERRUN**).

The whipping shaft turns anticlockwise and at first speed for 5 seconds with the compressor disconnected, then the cycle continues with the compressor activated and the whipping shaft turning at **speed 1** as though button 1 had been pressed.

When the whipping cycle is started by pressing button 14 the letter **M** will be added to the program on the display to indicate the mixing phase.



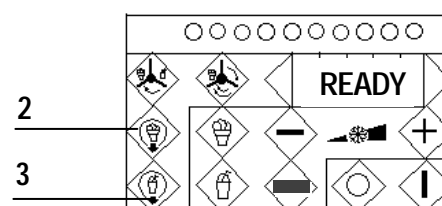
This letter will disappear when the normal cycle starts again:

AnS 3 - AnS 2 - AnS 1 - An - AnH 1 - AnH 2 - AnH 3

If after 15 minutes during the whipping cycle, the consistency of the ice cream does not increase, the display will show the alarm H5 flashing. It signals an anomaly caused either by the cooling circuit, or by the electronic rading or by a not balanced mix.

A 20.12 (FIRST METHOD)

In order to dispense the ice cream when it is **READY** press button 2 for fast dispensing or button 3 for slower dispensing (when it is necessary to work with the ice cream in the tub) and open the ice cream dispensing cock at the same time.



(See also chapter A 20.4 for the extraction)

A 20.13 (FIRST METHOD)

If you wish to vary the consistency of the ice cream during dispensing (or during the cycle) just press button

13 (less consistent)

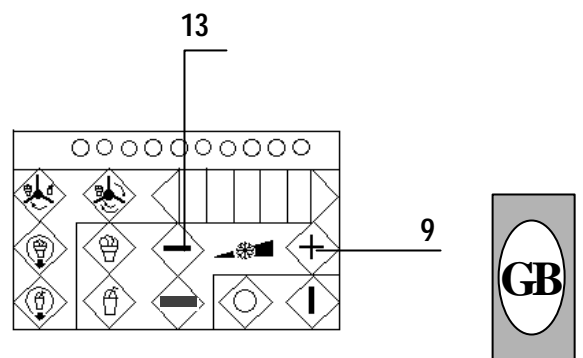
or button

9 (more consistent)

For the required number of times and await a new acoustic signal.

If the operator is unable to remove the ice cream when the cycle finishes (**READY**), the machine automatically switches to the "holding phase", which "holds" the ice cream constantly ready for dispensing.

It is advisable to remove the ice cream following the new acoustic signal (**READY**) at the end of the holding phase.



A 20.14 (FIRST METHOD)

In order to stop the machine after dispensing the ice cream, I can press button **2** or **3**, depending on which button I started dispensing with, or button **7**.

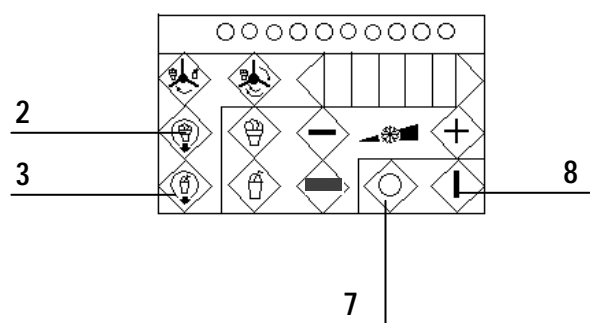
The last program set will appear on the display.

The word **OFF** will appear on the display.

CAUTION:

Only press button (**7**) **STOP** if a dangerous situation arises.

Button (**7**) **STOP** should only be pressed after the ice cream has been dispensed.



**A 20.15 (FIRST METHOD)
WORKING SITUATIONS**

During the normal working cycle, the following situations may arise:

A 20.16 (FIRST METHOD)

If, at the end of the whipping cycle, the operator sees that the product is not consistent enough, he can press button **9** the number of times required, up to the maximum program **AH 3**.



If the operator sees that the ice cream is ready before the automatic cycle ends, he can press button **2** or **3** and open the ice cream dispensing cock (**17**).

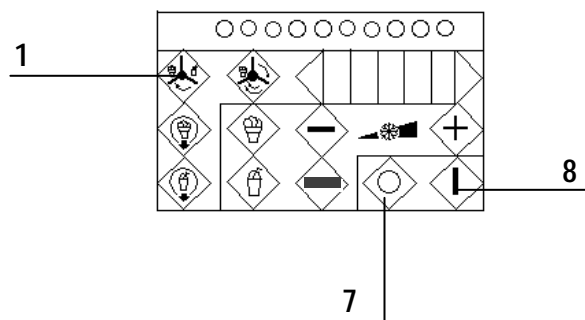
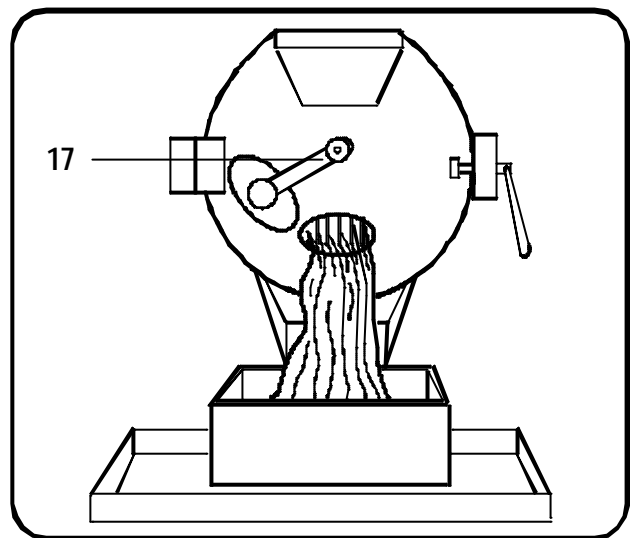
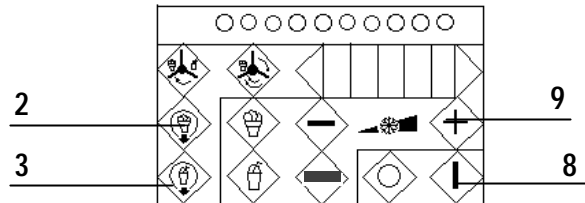
Slush dispensing button 3 can be used as ice cream distribution at low rotation speed of the beater shaft.

CAUTION: NEVER PRESS THE STOP BUTTON (7) DURING THE WHIPPING PHASE.

During the whipping cycle, the **STOP** button (**7**) must only be pressed if a dangerous situation arises.

In this case, the word **"OFF"** will appear on the display after the button (**7**) has been pressed

To re-start the previously set cycle first press button **8** and then button **1**.



A 21 - SECOND METHOD

Activation of the timed programs on the electronic card for ice cream production (button a)

This program can only be activated by an authorized **PROMAG** technician, following specific request.

The program will be activated on the card by means of a switch which will pass over to an electronic logic set for timed programs.

This type of programming is called **A (COUNT-DOWN)**.

Turn on the main switch, preferably at least three hours before starting to use the machine. The display will show **OFF**.

Press button **8**. If no programs have yet been set on the machine **A 00 00** will appear.

A **00** **00**
 COUNT-DOWN minutes seconds

Using button **9 (+)** it is possible to set whipping times between **0** and **20** minutes.

On the display the whipping time will increase by 1 minute each time the button is pressed.

A 01 00 - A 02 00 - A 20 00.....

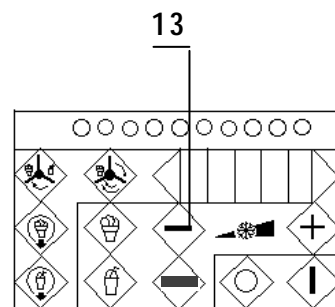
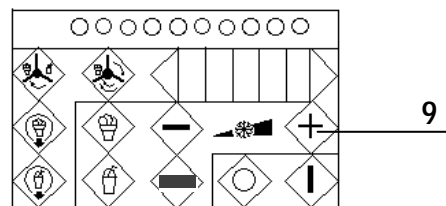
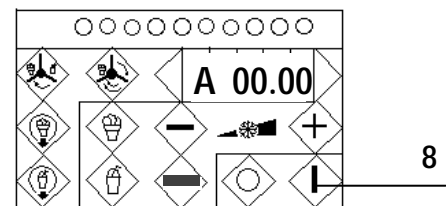
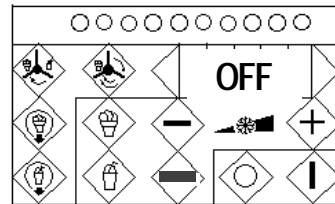
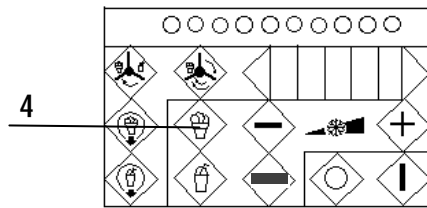
Using button **13 (-)** it is possible to set whipping times between **0** and **20** minutes.

On the display the whipping time will decrease by 1 minute each time the button is pressed.

A 20 00 - A 19 00 - A 18 00

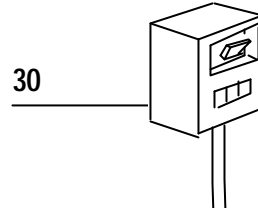
The time set will also be memorized for the next cycle or in the case of a black-out.

Following a black-out the word **OFF** will flash on the display.



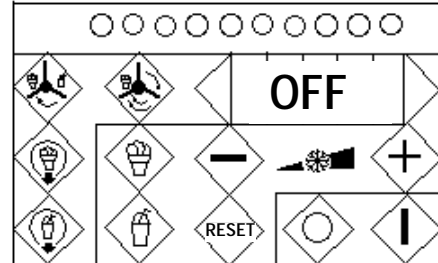
**A 21.1 (SECOND METHOD)
MACHINE START-UP**

Turn on the wall switch (30) at least 3 hours before starting to use the machine.

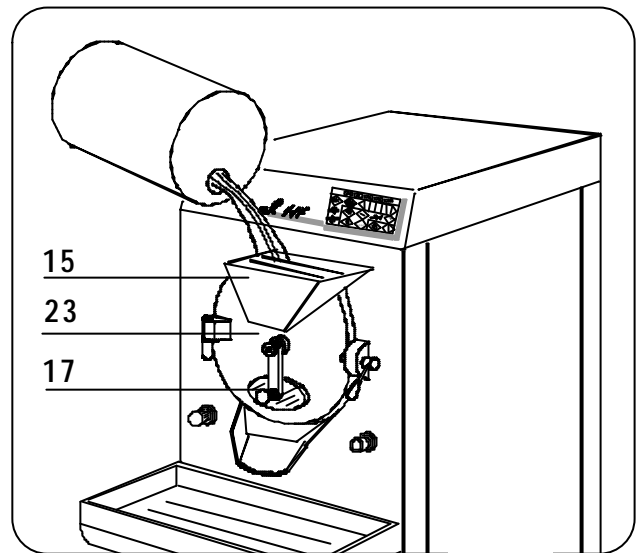


The display will show **OFF**.

Close the door (23) and the ice cream dispensing cock (17).



Put the mixture, which should be at a temperature between +3°and +5°C, into the funnel (15) taking into consideration the maximum and



		MINIMUM	STANDARD	MAXIMUM
STARGEL	HF 35	3	4	6
STARGEL	HF 60	3	7,5	9
STARGEL	HF 90	6,5	10,8	14

A 21.2 (SECOND METHOD)

When button (8) is pressed the last program set will appear on the display.

Two programs can be selected on the machine.

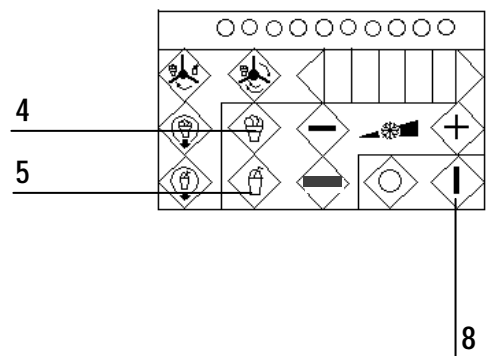
A = Ice cream program (button 4)

b = Grated-ice drink program (button 5).

Example:

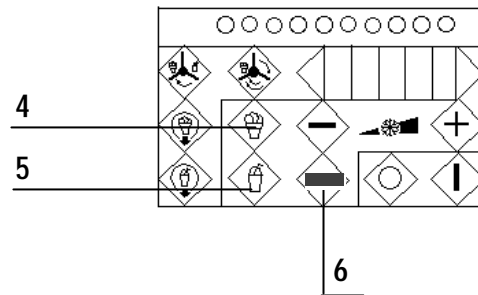
A 08 00 shown on the display indicates an ice cream program (**A**) of **08** minutes and **00** seconds

b written on the display indicates a **STANDARD** grated-ice drink program.



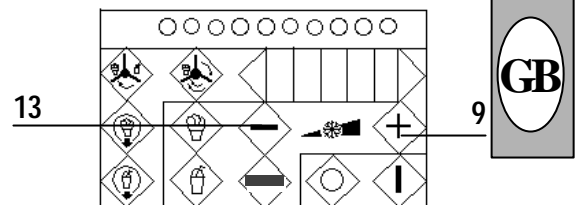
A 21.3 (SECOND METHOD)

If a grated-ice drink program appears, **b S 1** or **b H 1** for example, and a **STANDARD** program is required, press button (4) or (5) as many times as necessary, or, more simply, press the RESET (6) button.



A 21.4 (SECOND METHOD)

If any ice-cream program whatsoever appears, **A 09 00** for example, and a different whipping time is required press button 9 (+) or 13 (-) as mentioned previously.

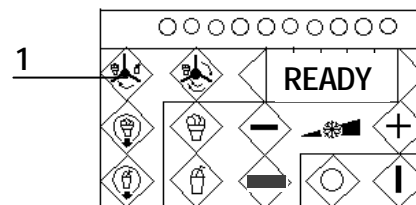


A 21.5 (SECOND METHOD)

Press button (1) to start the ice cream or grated-ice drink cycle.

This cycle will finish when all 10 LED are turned on, and an acoustic signal will sound for 5 seconds.

The word **READY** will appear on the display.



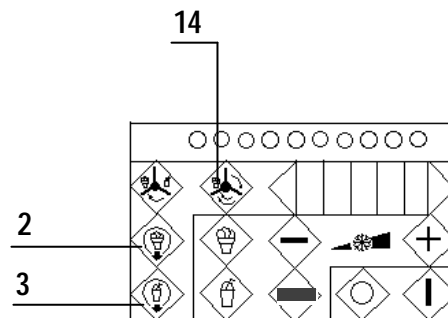
A 21.6 (SECOND METHOD)

If button (14) (only for ice cream) is pressed instead of button (1) the ingredients are premixed at speeds one and two alternately, with the compressor disconnected, the whipping cycle will then start automatically as if button (1) had been pressed.

In order to dispense ice cream press button (2).

In order to dispense grated-ice drink press button (3).

(See also chapter A 20.4 for the extraction).



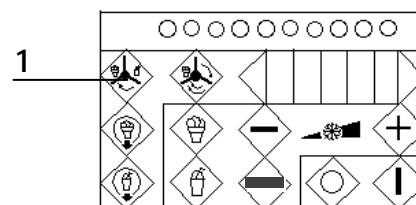
A 21.7 (SECOND METHOD)

ICE CREAM PROGRAM (OPERATION)

When button 1 is pressed to start the cycle the **COUNT DOWN** begins on the display.

The whipping shaft rotates at speed one and after a moment the compressor is activated until the set time elapses.

The display constantly shows the minutes and seconds decreasing, until the end of the set cycle. The **LED** above the display come on one by one as the set time passes.



When the tenth LED comes on the cycle is complete.
 For example, if I set 15 minutes the display will show:

A 15 00 - A 14 59 - A 14 58 -- A 00 01 **READY**

When the word **READY** appears, flashing, on the display and an acoustic signal sounds for 5 seconds the cycle is complete.

A 21.8 (SECOND METHOD)



When starting the cycle using button 14 the whipping shaft turns at speed one for 5 seconds with the compressor disconnected, then at speed two for 25 seconds (mixing phase), with the compressor still disconnected, then the cycle continues with the compressor activated, as though button 1 had been pressed.

During the mixing phase (the phase in which the compressor is disconnected) the letter M will be added on the display and the seconds of the normal program time will not be shown.

For example, if the set program is : **A 08 00**, during the mixing phase **AN 08** will be shown.

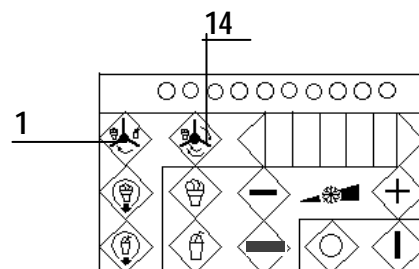
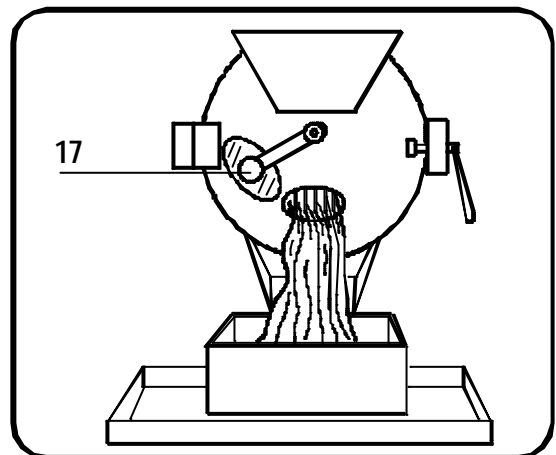
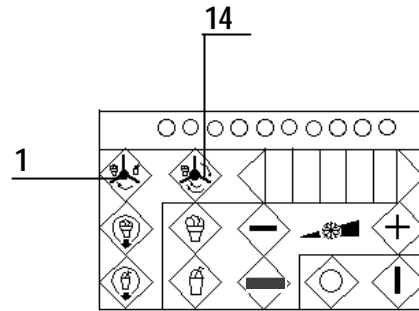
This letter will disappear when the normal cycle, with the compressor activated, starts again and the COUNT-DOWN will reappear.

A 08 00 - A 07 59 - A 07 58 - A 00 01 - READY.

In order to dispense the ice cream when it is **READY** press button 2 for fast dispensing or button 3 for slower dispensing (when it is necessary to work the ice cream in the tub) and open the ice cream dispensing cock at the same time.

During the whipping phase the first LED comes on when button 1 or button 14 is pressed and the others come on at equal intervals during the program time.

When button 14 is used this begins when the COUNT-DOWN starts.

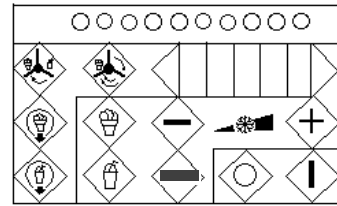


A 22 - VARIATION OF THE ICE CREAM CONSISTENCY AT THE END OF THE WHIPPING CYCLE

If the ice cream is not ready at the end of the set time (**READY** + acoustic signal + 10 LED on), button **9 (+)** reactivates the compressor for 2 minutes.

As the button is pressed the 2 minute **COUNT-DOWN** starts.

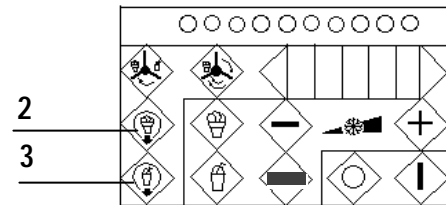
When the button is pressed the last two LED will switch off and will come back on during the **COUNT-DOWN**.



A 23 - HOLDING PROGRAM

If the operator is unable to remove the ice cream (buttons 2 or 3 as previously specified) at the end of the cycle (**READY**), the machine automatically sets an **ICE CREAM HOLDING PROGRAM**, which holds the ice cream constantly ready for dispensing.

It is advisable to remove the ice cream following the new acoustic signal (**READY**) at the end of the holding phase.

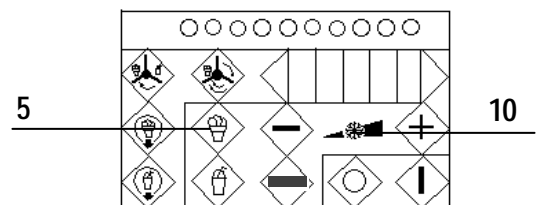


A 24 - PROGRAMING HOLDING PARAMETERS

A 24.1

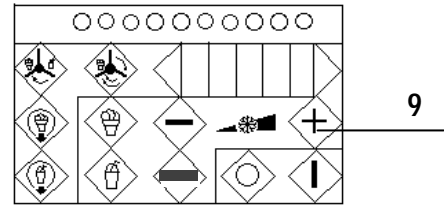
With the machine in the **OFF** position, press button **10** for **10** seconds, and the 1st parameter of the grated-ice drink program will appear.

Pressing the button 5 the display will show the parameters **2...10, 3...30, 4...30**, connected with the programming of the grated ice. By pressing again the button **5**, the display will show the parameter **5...30**, programmable from **0-240** and connected to the pauses of the compressor.



A 24.2

By pressing button **9 (+)** it is possible to set the compressor pause time, 10 seconds will be added each time the button is pressed.



A 24.3

Button **13 (-)** can be used in the same way.

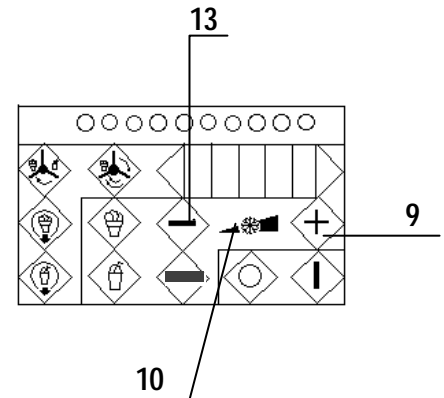
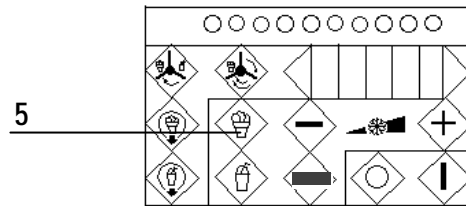


Press button **5** again to memorize the compressor pause parameter and the second parameter to be set will appear on the display **6...30**

When buttons **9 (+)** and **13 (-)** are pressed 10 seconds will be added or removed from the time, as above.

This parameter is programmable from **0-240** seconds and is connected with the functioning of the compressor.

Press button **10** to exit from the programming mode (holding parameters).



A 25 - GRATED-ICE DRINK PROGRAM

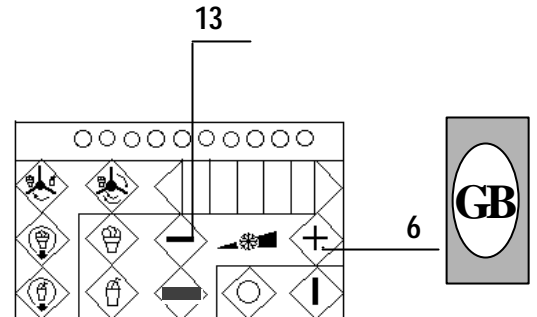
A 25.1

The grated-ice drink program has 5 consistency levels:

bS 2 - bS 1 - b - bH 1 - bH 2
SOFT **STANDARD** **HARD**

When button **13** (-) is pressed one or more times (at any point during the program) the grated-ice drink dispensed will be softer, running through the programs from the hardest to the softest.

When button **9** (+) is pressed one or more times (at any point during the program) the grated-ice drink dispensed will be harder, running through the programs from the softest to the hardest.



A 25.2

The grated-ice drink program works on a time basis and can be set using 4 parameters:

A 25.3

FIRST PARAMETER

Whipping shaft rotation time at speed one with the compressor activated.

From 0 to 240 seconds can be set (recommended time 90 seconds).

A 25.4

SECOND PARAMETER

Whipping shaft rotation time, at speed 2 (following time 1).

The compressor is not active.

From 0 to 240 seconds can be set (recommended time 30 seconds).

The grated-ice drink program (b) repeats parameters 1 and 2 three times.

1,2+1,2+1,2

The grated-ice drink program (bS 1) repeats parameters 1 and 2 twice.

1,2+1,2

The grated-ice drink program (bS 2) repeats parameters 1 and 2 once.

1,2

The grated-ice drink program (bH 1) repeats parameters 1 and 2 four times.

1,2+1,2+1,2+1,2

The grated-ice drink program (bH 2) repeats parameters 1 and 2 five times.

1,2+1,2+1,2+1,2+1,2

A 26 - GRATED-ICE DRINK HOLDING PROGRAM

A 26.1

THIRD PARAMETER

Whipping shaft rotation time at speed one, after the program has ended.

The compressor is not active.

From 0 to 240 seconds can be set (recommended time 30 seconds).

A 26.2

FOURTH PARAMETER

Whipping shaft rotation time at speed one (following time 3).

The compressor is activated (recommended time 30 seconds).

A27-SETTING THE FIRST-SECOND-THIRD-FOURTH PARAMETERS

A27.1

To set the grated-ice drink parameters the machine must be **OFF**.

If it is any other position, press button **7**.

When the display shows **OFF** press button **10** until **1 240** appears on the display.

If the machine has already been programmed, instead of **240** seconds, it could read:

0 - 10 - 20 - 30 - 40 -240 seconds, at 10 second intervals.

This means:

FIRST PARAMETER, set time **240** seconds.

If you wish to reduce this time, press button **13 (-)**, and the time on the display decreases by 10 seconds each time you press it.

240 seconds is the maximum time that can be set.

Example: **1 240**, press button **13 (-)** three times, **1 210** now shows.

If you wish to add another **20** seconds press button **9 (+)** twice and **1 230** now shows.

SECOND PARAMETER

After setting the first parameter, you must now set the second parameter.

Press button **5** and **2 240** appears on the display

If the machine has already been programmed, instead of **240** seconds, it could read:

0 - 10 - 20 - 30 - 40 - 240 seconds, at 10 second intervals.

This means: second parameter, set time **240** seconds, to decrease press button **13 (-)**, to increase press button **9 (+)**.

240 seconds is the maximum time that can be set.

THIRD PARAMETER

After setting the second parameter, you must now set the third parameter.

Press button **5** and **3 240** appears on the display

If the machine has already been programmed, instead of **240** seconds, it could read:

0 - 10 - 20 - 30 - 40 - 240 seconds, at 10 second intervals.

This means: third parameter, set time **240** seconds, to decrease press button **13 (-)**, to increase press button **9 (+)**.

240 seconds is the maximum time that can be set.

FOURTH PARAMETER

After setting the third parameter, you must now set the fourth parameter.

Press button **5** and **4 240** appears on the display

If the machine has already been programmed, instead of **240** seconds, it could read:

0 - 10 - 20 - 30 - 40 - 240 seconds, at 10 second intervals.

This means: fourth parameter, set time **240** seconds, to decrease press button **13 (-)**, to increase press button **9 (+)**.

240 seconds is the maximum time that can be set.

A27.2

Having set the four program parameters, you can verify the information,

by pressing button **5** repeatedly, the display shows the **4** parameters one after the other.

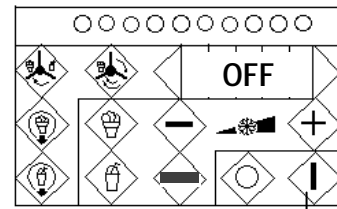
To exit the programming mode press button **10**.

The display will show **OFF**.

A 28 - EXAMPLE OF GRATED-ICE DRINK PRODUCTION

A 28.1

I turned the main switch on at least 3 hours before starting to use the machine, the display shows **OFF**.



A 28.2

I program the 4 grated-ice drink parameters as described above.

A 28.3

I press button **8**, the display shows the last program set.
If grated-ice drink has been made previously, one of the following programs will appear:



bS 2 - bS 1 - b - bH

A 28.4

If, for example, bH 1 appears and I want to set **bS 2** I must press button **13 (-)** three times.

bS 2 - bS 1 - b - bH

A 28.5

If, for example, **bS 1** appears and I want to set **bH 1** I must press button **9 (+)** twice.

bS 1 - b - bH

A 28.6

If I find myself at any one of these five grated-ice drink consistency levels and want to set **STANDARD b**, I can use buttons **13** or **9**, or simply press button **6 (RESET)**.

A 28.7

If I had previously made ice cream, the display will show one of the following programs:

AS 3 - AS 2 - AS 1 - A - AH 1 - AH 2 - AH 3

in order to set a grated-ice drink program I must press button **5** and **b (STANDARD program)** will appear on the display.

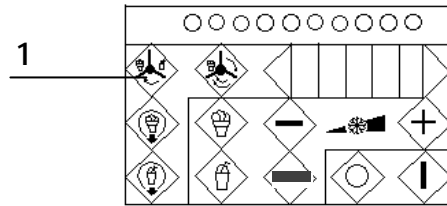
To increase or decrease the consistency of the grated ice drink press buttons **9** or **13** as described above.

A 28.8

After setting the required program, press button **1** to start the grated-ice drink cycle.

The LED above the display come on one by one as the set program proceeds.

When the tenth LED comes on an acoustic signal will sound for 5 seconds and the word **READY** will appear on the display.



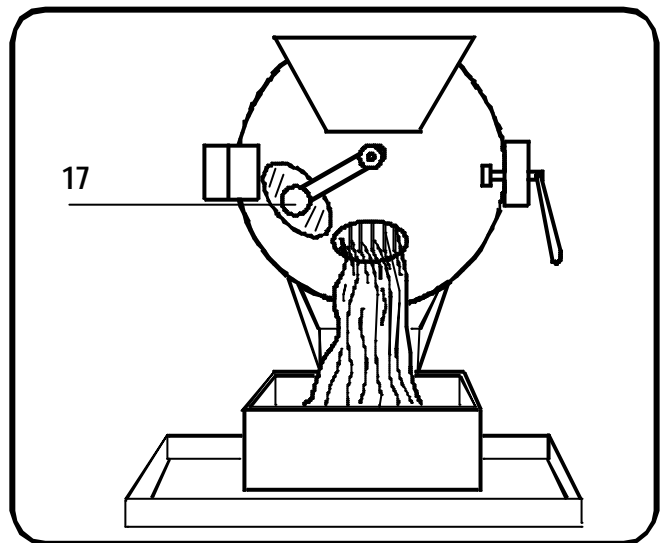
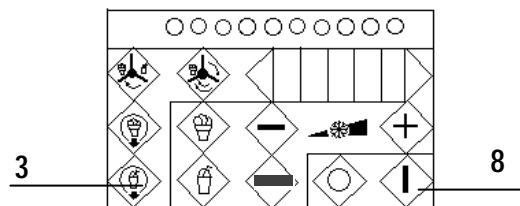
A 28.9

In order to dispense the grated-ice drink when **READY**, press button **3** and open the dispensing cock **17**.

Buttons **3** or **8** can be used to stop the machine after dispensing.

The display will show the last program set.

To turn off the machine, press button **7** and **OFF** will appear on the display.



A 28.10

If the operator is unable to remove the grated-ice drink at the end of the cycle (**READY**), the machine automatically starts the **GRATED-ICE DRINK HOLDING PROGRAM**, set by the user through parameters **3** and **4**, which holds the grated-ice drink constantly ready for dispensing,

It is advisable to remove the ice cream following the new acoustic signal (**READY**) at the end the holding phase.

A 29 - STOPPING WAYS AND MEANS

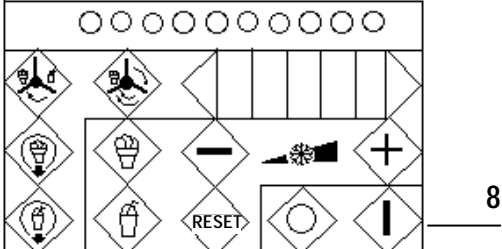
A 29.1

Stop Buttons

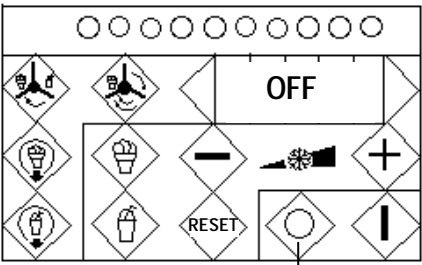
There are two machine stop buttons on the control panel:

Button 7

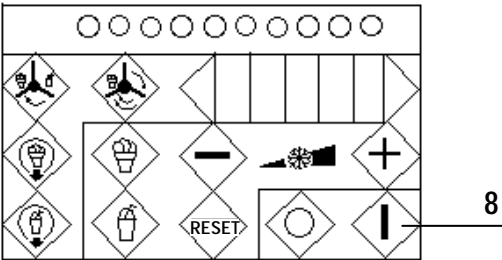
Button 8.



When button **8** is pressed, the last program set is displayed and the button functions are available.

When button **7** is pressed, the word **OFF** is displayed and the button functions are **not available**.



To return to programming, press button **8**.

A 30 - IMPORTANT

All STARGEL HF machines incorporate a self-diagnosis system that indicates any machine malfunctions.

The following are examples of what could appear on the display and what these indicate.

DISPLAY	CAUSE
OPEn + acoustic signal	Door open
H2O + acoustic signal	Refrigeration circuit pressure switch activated. No water intake from the mains. Check to see that the water tap is open. Check water delivery of the water web.
T1 + acoustic signal	Compressor thermal switch activated. The restoration of the thermic is automatic and happens as the temperature of the engine windings has gone under the safety levels. To continue the production one need to restart the work cycle wanted.
T2 + acoustic signal	Speed one motor thermal switch activated. Press the button marked T2 on the right-hand side of the machine. Wait a few minutes before reactivating.
T3 + acoustic signal	Speed two motor thermal switch activated. Press the button marked T3 on the right-hand side of the machine. Wait a few minutes before reactivating.
OFF flashing	There has been a power failure. Press button 7 or 8 .
H5	Inefficiency of the compressor

In all cases the acoustic signal can be turned off by pressing button **7**.

Whenever a malfunction is displayed, the best thing to do is make a note of the display and contact the service man.

A 30.1

ATTENTION:

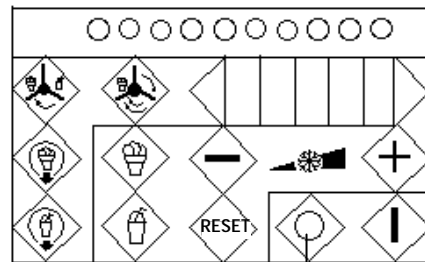
In the case of a power failure (black-out), as indicated above, the machine will shut down. When the power comes back on the word "OFF" will be flashing on the display.

Before going back to making ice cream, make sure the mixture is still fluid, to prevent the motor from blocking as this can damage the motor windings.

A 31 - OPERATIONS TO BE PERFORMED AFTER USE

When the day's production is completed, press button (7); the word 'OFF' will appear on the display.

Do not disconnect the electrical cord from the wall socket because this will interrupt the current to the motor-compressor oil electrical-heating resistance.



7

A 32 - CLEANING OPERATIONS

GB

A 32.1

After installation and before and after use, the machine should be very thoroughly cleaned as follows:

A 32.2

When using a water hose, the pressure should not exceed 0.2MPa (3 bar).

Pour lukewarm water through the funnel (15) until the cylinder is filled.

Then press button (2) for about 30 seconds.

While the cylinder is still very cold, before using lukewarm or hot water, pre-wash using water from the mains, therefore at room temperature.

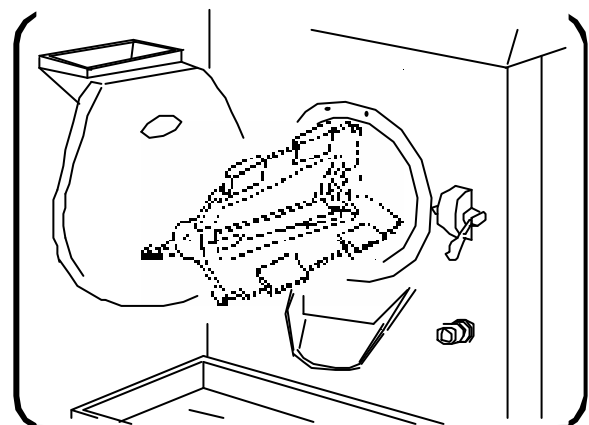
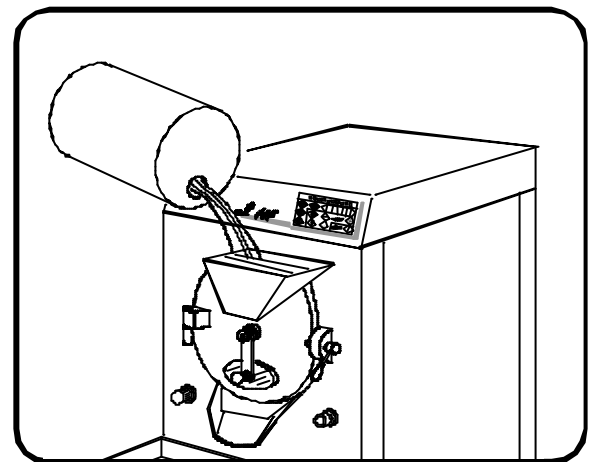
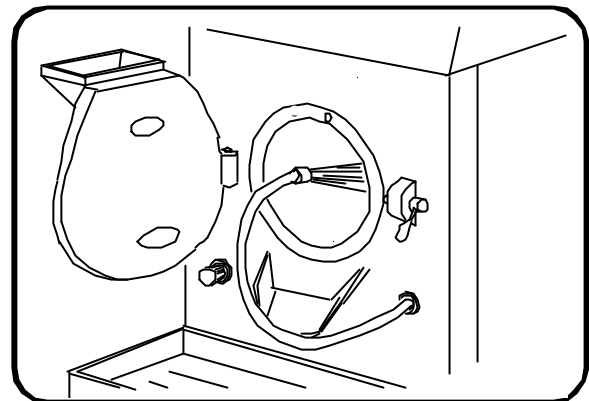
A 32.3

Repeat the operation using a sterilizing detergent (the non-toxic, non-corrosive kind used for cleaning food-processing machinery) and then rinse thoroughly.

A 32.4

Empty the cylinder, remove the ice-cream dispensing cock, open the door and take out the whipping shaft.

Wash the internal gasket, door, funnel, funnel cover, slide, shaft and blades using a sterilizing detergent (the non-toxic, non-corrosive kind used for cleaning food-processing machinery) and then rinse thoroughly.



A 32.5

The machine must be turned off before cleaning the cylinder, whipping shaft, funnel, ice cream dispensing cock, and other residual risk parts.

RECOMMENDATION

Ten minutes before starting the new cycle, prepare a non-corrosive sterilizing solution, pour it into the hopper and press button 2 for ten seconds.

Empty the cylinder and rinse thoroughly.

Once you have completed the sterilization, try not to touch any of the sterilized parts with your hands.

**GB****A 33 - DISMANTLING**

If you decide to discontinue using the machine, follow the instructions given in the preface regarding the removal of the machine's electrical and water connections.

Do not leave the machine in any area where it can create a hazard.

The removal and disposal of the refrigerant gas must be carried out by competent personnel in compliance with the norms regarding the protection of the ozone layer.

A 34- TECHNICAL CHARACTERISTICS

TECHNICAL CHARACTERISTICS	STARGEL HF 35		STARGEL HF 60		STARGEL HF 90	
Cylinder Capacity	Min.	3	3	3	6,5	
	Stand.	4	7,5	7,5	10,8	
	Max.	6	9	9	14	
Main Power Supply	V 380 - 400 / 3N ~ / 50 Hz					
Electrical absorption in kW of the whipping engine	1st speed	2nd speed	1st speed	2nd speed	1st speed	2nd speed
	1,7	2,2	2,2	3	3,3	4
Standard setting of the thermal [A]	4,3	6,5	6,4	9,3	9,4	12
Electrical absorption in kW of the compressor thermal	2,2		3,7		5,5	
Standard setting of the thermal (A)	9,6		12,5		17,3	
R 404 A Refrigerant Gas (Kg)	2,5		4,3		5	
Maximum Power Intake (KW)	4,4		6,7		9,5	
Condenser Water Consumption (l/h)	330		380		670	
Net Weight (Kg)	212		230		358	
Ice Cream Production rate (l/h)	Min.	35	40	40	70	70
	Max.	42	65	65	90	90
Grated Ice Drink Production rate (Kg/hr)	35		50		70	
Dimensions						
Height (mm)	1.430		1.430		1.430	
Width (mm)	600		600		600	
Depth (mm)	600		600		870	





INSTRUCTIONS FOR TECHNICIAN-INSTALLER — **B**

B 1	Machine Shipping and Handling _____	pag.	46
B 2	Storage _____	pag.	47
B 3	Dimensions _____	pag.	47
B 4	Uncrating and Positioning _____	pag.	48
B 5	Machine Assembly _____	pag.	49
B 6	Required Space _____	pag.	49
B 7	Machine Connections _____	pag.	49
B 8	Electrical Connections _____	pag.	49
B 9	Water Connections _____	pag.	50
B 10	Water Discharge Connection _____	pag.	50
B 11	Recommended Checks _____	pag.	51
B 12	Refrigeration and Water Systems _____	pag.	52
B 13	Self-Diagnosis _____	pag.	54/56
B 14	Maintenance _____	pag.	57
B 15	Drawings and Diagrams _____	pag.	57
B 16	Refrigeration Circuit _____	pag.	58
B 17	Mechanical Maintenance _____	pag.	57
B 18	Troubleshooting _____	pag.	59/60
C	Spare parts _____	pag.	61/71



B 1 - MACHINE SHIPPING AND HANDLING

B 1.1 CRATING AND SHIPPING

When the machine is shipped, handled and stored, it must always be positioned vertically, as indicated on the crating, to avoid the compressor oil flowing into the refrigeration circuit.

The unit can be shipped:

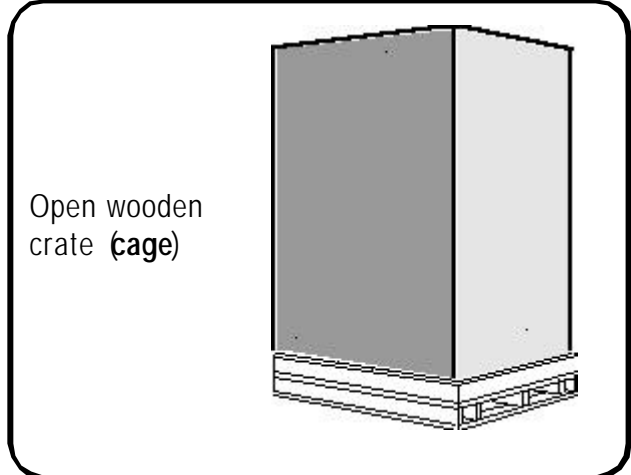
- by truck
- by container
- by air
- by sea

There are three possible ways of packing the machine:

Upon specific request, the unit can be enclosed in a low-density polyethylene bag and covered with shock-absorbent polyethylene.

The machines are divided and shipped according to model type.

Before being crated, the machines are enclosed in a low-density polyethylene bag.



B 1.2 HANDLING: CLOSED AND OPEN CRATES

The crated machine must only be moved with the use of a fork lift truck, and all manoeuvres must be done very carefully.

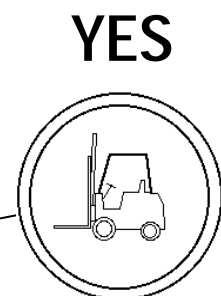
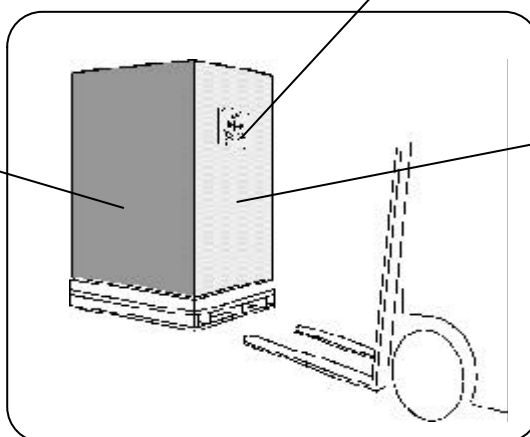
The crated machine's barycenter is indicated by a sticker located on the side of the crate from which the fork lift tines must be inserted.

The crated machine must never be lifted at a point outside the barycenter.

Ropes must never be put around the crated machine for the purpose of hoisting.



DO NOT INSERT THE FORK LIFT TINES FROM THE SIDE THAT DOES NOT HAVE THE STICKER.



THE FORK LIFT TINES SHOULD BE INSERTED FROM THE SIDE THAT HAS THE STICKER.

B 2 - STORAGE

CAUTION:

The storage procedures must include the use of pallets, vehicles and lifting equipment that will prevent damage due to vibration, shock, abrasion, corrosion, temperature or other conditions that may occur.

The items in storage must be inspected periodically to see if any deterioration has taken place.

B 2.1

While the machine is being handled, no one should be allowed to stand close to it because if it should accidentally tip over serious injury could result.

B 2.2

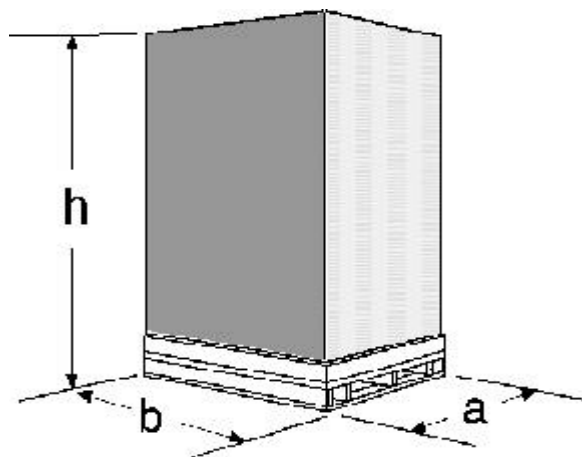
During handling and storage operations care must be taken to keep the machine from becoming entrapped or entangled or bumping into anything, as this could also result in injury.



B 3 - DIMENSIONS

The dimensions of the wooden crate for the various models are given in the table below:

**OPEN WOODEN CRATE
(CAGE)**



	a x b x h (cm)
STARGEL HF 35	94 x 76 x 161
STARGEL HF 60	
STARGEL HF 90	110 x 78 x 161

B 4 - UN-CRATING AND POSITIONING

Before the machine is shipped, it undergoes very careful inspection in the plant to ensure it is in perfect working condition.

B 4.1

When you receive the crate, unpack the machine and inspect it to see if it has been damaged in any way during shipping.

If any damage is found, immediately report this damage to the shipping company.

Do not install the machine.

Contact qualified, authorized personnel.

The manufacturer cannot be held liable for any damage incurred during shipping.

B 4.2

Remove the tools used for packing and remove the packing.

B 4.3

The packing material dissociates readily, so be careful not to allow it to disperse into the environment; abide by the norms in force regarding the recycling of waste materials.

B 4.4

Unlock the wheel brakes and manually roll the machine into the desired position.

Avoid going over rough surfaces or bumping into obstacles, as this could affect machine stability.

Apply the pushing force to the rear side of the machine at about 3/4 of its height.

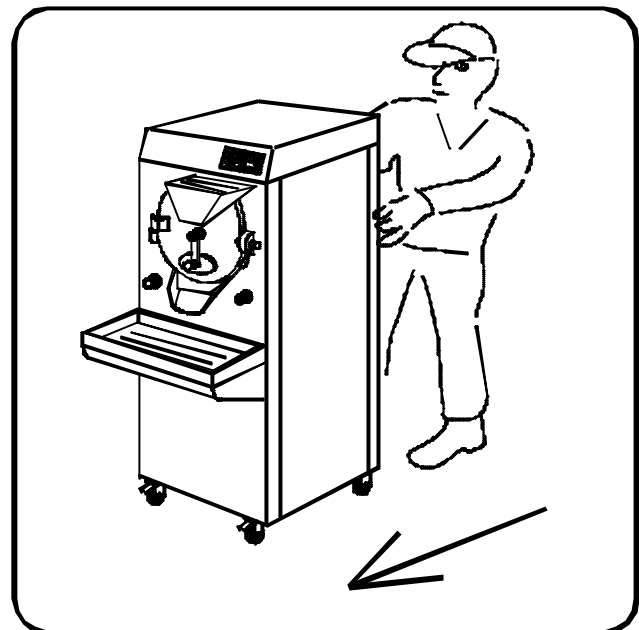
Once the machine is in position use the brakes fitted on the front wheels to block the machine.

B 4.5

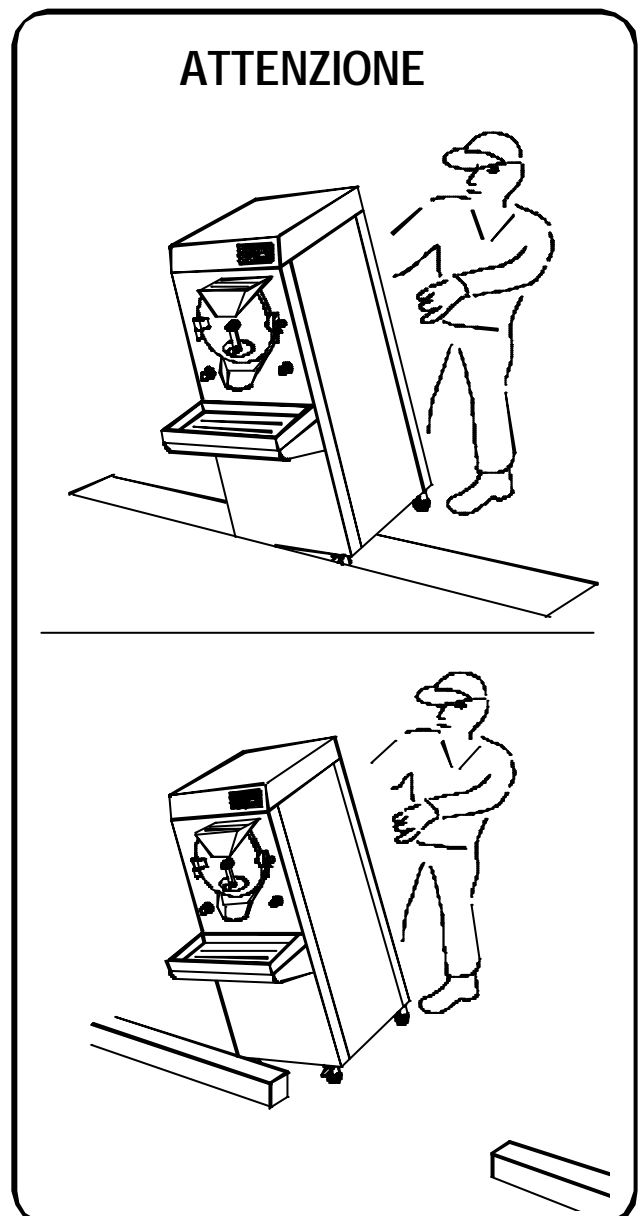
All packing materials (plastic bags, Styrofoam, pieces of wood, nails, etc.) can be dangerous to play with and should therefore be kept out of the reach of children.

B 4.6

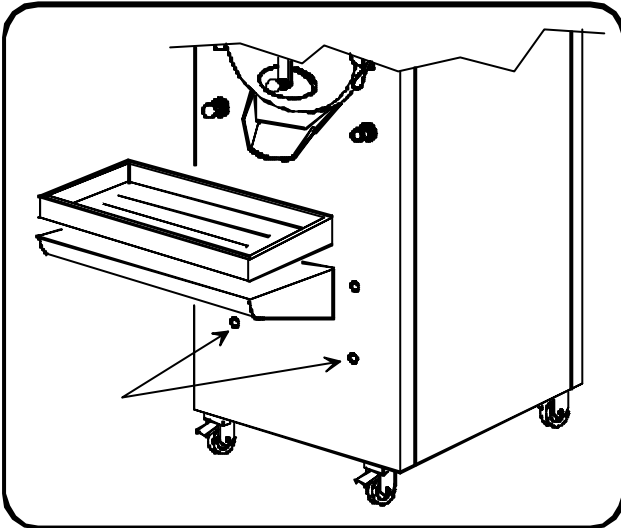
The floor where the machine is to be located must be both level and strong enough to support the overall weight of the machine.



ATTENZIONE



B 5 - MACHINE ASSEMBLY



In the packing you will also find two small items which complete the machine:

- A shelf, which is to be attached to the front of the machine by hooking it into the receptacles already present.
- A rubber mat, which is to be positioned on the shelf by means of two locating pins.

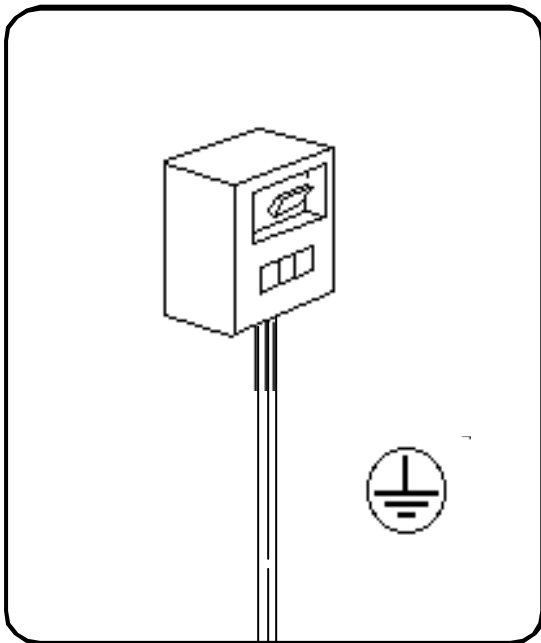


B 6 - REQUIRED OPERATING AND MAINTENANCE SPACE

Ample space should be left between the machine and the wall or walls to permit cleaning.

B 7 - MACHINE CONNECTIONS

B.8 - ELECTRICAL CONNECTIONS



Before connecting the machine to the mains electricity, check to see that the mains voltage and frequency is the same as that indicated on the data plate located on the rear panel.

B 8.1

The machine must be connected to the mains through a dedicated wall switch, in conformance with the existing safety regulations, positioned so as to be within easy reach.

The above switch, which does not come with the machine, must be installed on the wall at an easily-accessible height from the floor: between 0.6 and 1.70 meters.

A neutral wire is obligatory for the three-phase 380-400 V electrical power supply

B 8.2

Before connecting the machine to the mains, make sure the power to the feed line is off. Make sure the earth wire (yellow/green) is properly grounded.

Look through the ice cream dispensing opening and check that the whipping shaft turns in a clockwise direction.

The installer should make sure all the screws in the electrical panel, terminal strip, thermal switches and remote switches are properly tightened.

B 9 - WATER CONNECTIONS

IMPORTANT

B 9.1

Proper machine operation requires the use of 1/2" water inlet and outlet pipes with line pressure at no less than 0.3 M Pa (3 bar).

Connect the machine to the mains by way of an adequate sized shut-off valve to permit the water to be turned off when necessary or for making repairs.

The mains water pressure must not be lower than 0.3 MPa (3 bar).

B 9.2

If water from an economizer is used (which is at a higher temperature than that of the mains) open pressure switch **37** completely - or even remove it - and follow the instructions given for using the economizer.

Connect the drinkable water feed line for the shower to inlet fitting **48**.

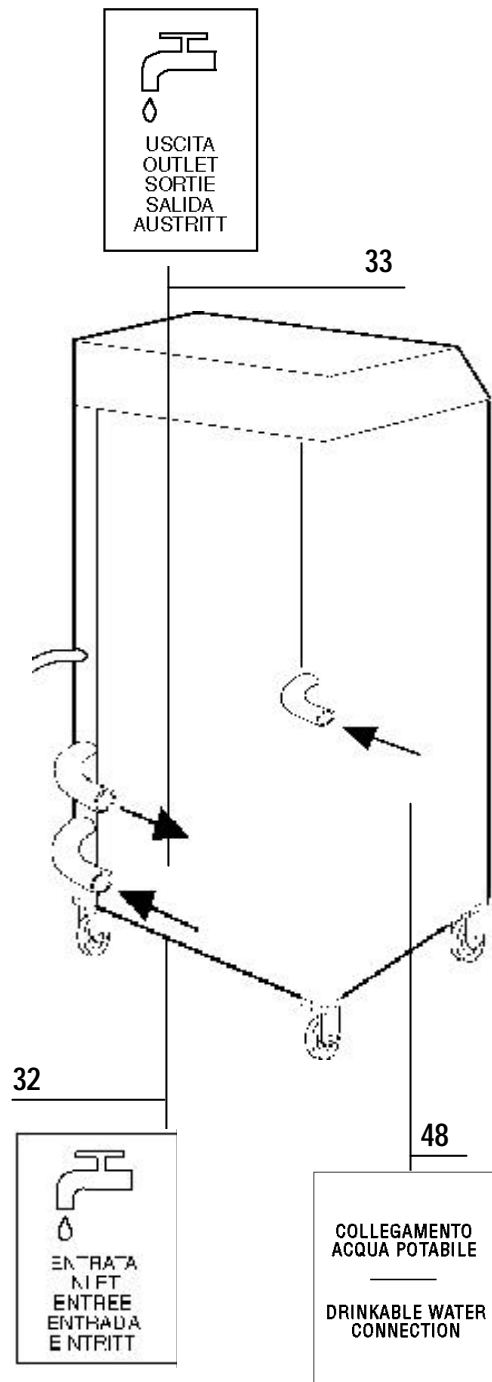
Connect the water feed line for the cooling system to inlet fitting **32**.

The flexible hose connecting the machine to the mains must be of the reinforced type, and its I.D. must be at least equal to that of the machine outlets.

Moreover, there must not be any kinks or obstructions of any kind throughout the length of the hose.

B 9.3

The drinkable-water connection is indicated by a label marked **DRINKABLE WATER CONNECTION**.



B 10 - WATER DISCHARGE CONNECTION

Connect the water discharge tubing to fitting 33.

The water discharge connection is indicated by a label marked OUTLET.

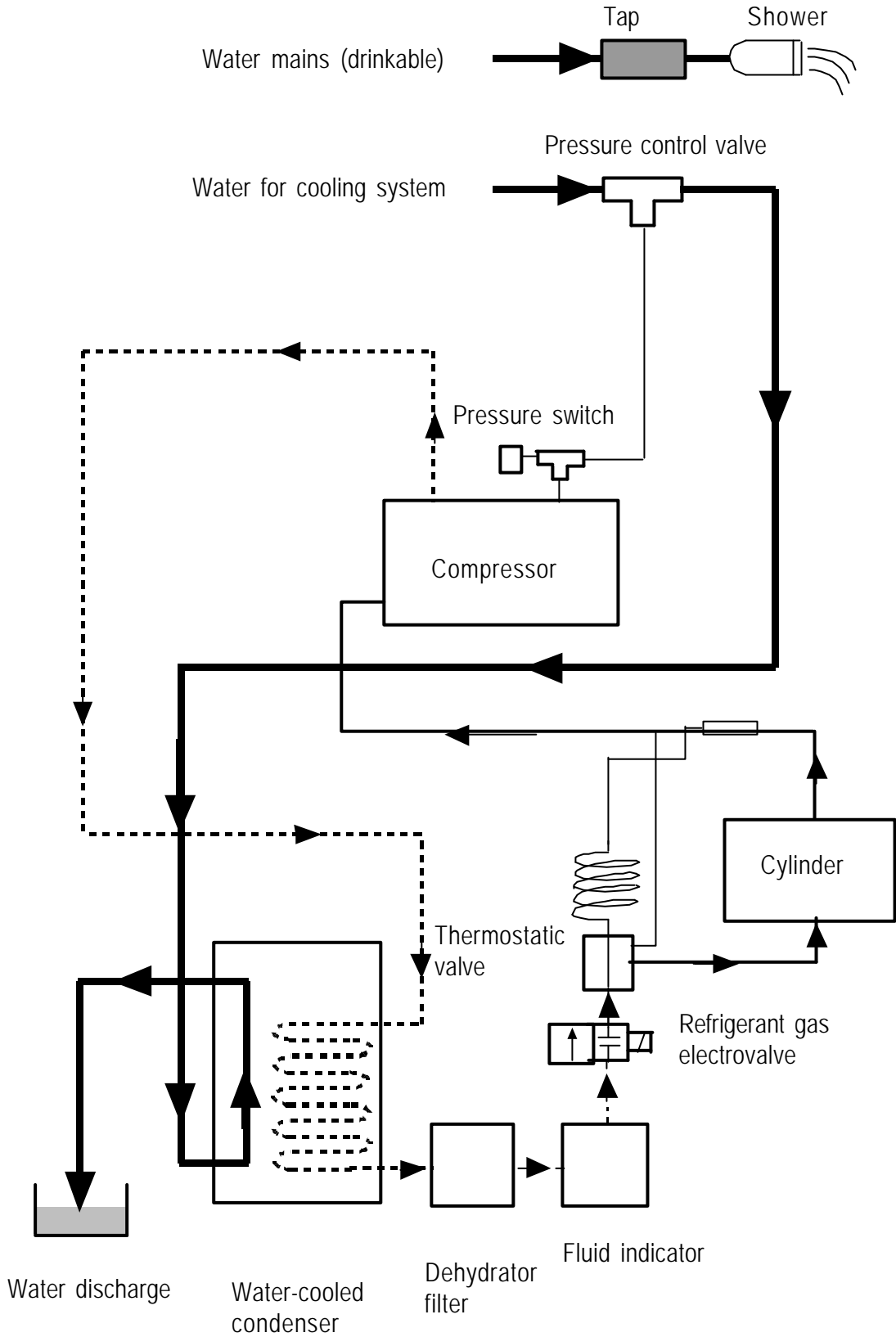
B 11 - RECOMMENDED CHECKS

- Make sure the water tubing is of the reinforced type and has the correct diameter (1/2").
- Make sure the discharge water outlet is no more than 40 cm above floor level.
- Use a wall switch whose current rating matches that of the machine.
- Make sure you have a good earth connection.
- Make sure that the line voltage is the same as that shown on the data plate located on the back of the machine.
- Make sure that the whipping shaft turns anticlockwise, looking through the ice cream dispensing opening.
- If a water economizer is installed upstream of the machine, completely open the pressure switch **37**, by turning the knob clockwise all the way.

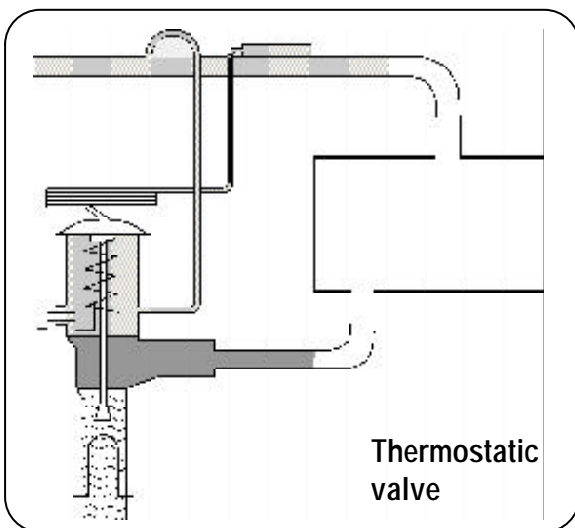
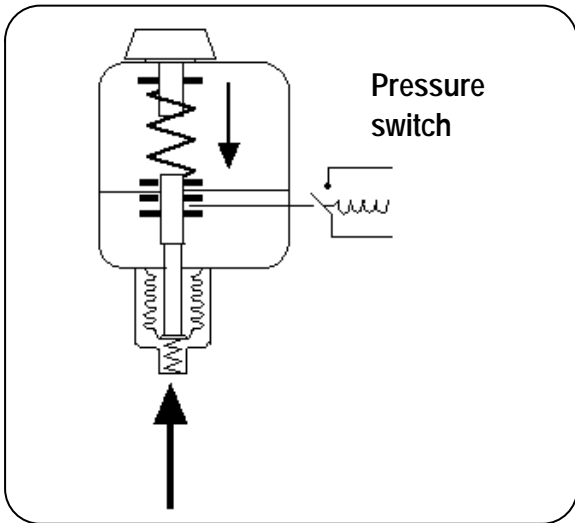
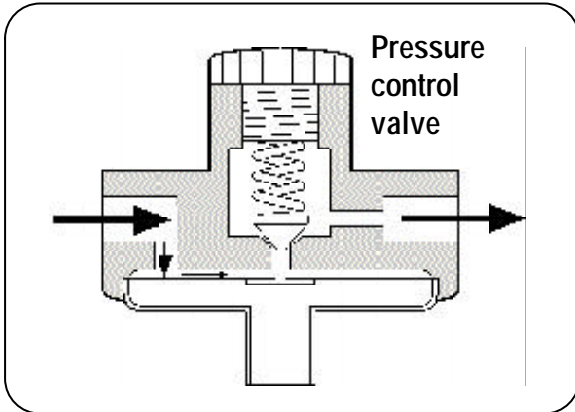
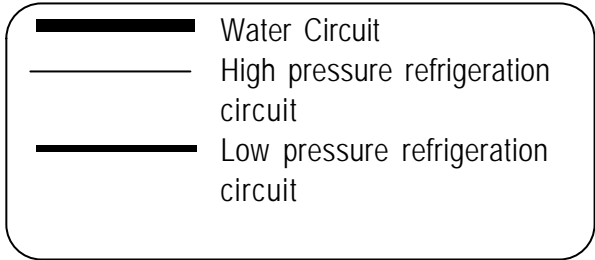
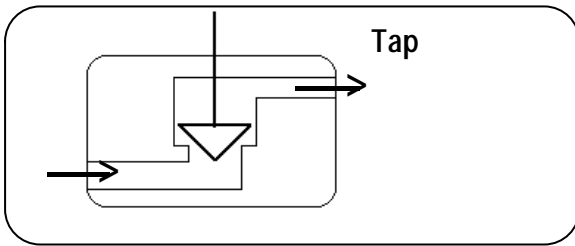




B 12.2 - REFRIGERATION AND WATER SYSTEM (water-cooled)



B 12.2 - REFRIGERATION AND WATER SYSTEM (water-cooled)



HOW THE REFRIGERATION SYSTEM WORKS

Premise

The refrigeration system works in two phases.

First Phase:

The refrigerant gas is compressed, which increases its temperature and pressure.

Second Phase:

The gas expands, which causes its temperature and pressure to diminish.

This phase cannot be carried out without first performing phase one.

Function

The refrigerant gas, after being compressed at a high temperature and pressure by the compressor, goes to the condenser, where it is condensed into liquid form by reducing the temperature without, however, any drop in pressure.

This transformation is obtained by means of the condenser's cooling system (water).

The liquefied refrigerant at high pressure then goes to the thermostatic valve where the liquid is allowed to expand. This lowers its pressure considerably and, at the same time, lowers its temperature to the degree required for refrigerating the cylinder.

The refrigerant gas is then withdrawn into the compressor from the cylinder and the cycle is repeated.

HOW THE WATER SYSTEM WORKS

When the refrigeration system is operating, the pressure control valve opens and allows the right amount of water to flow to maintain the correct condensation temperature.

B 13 - SELF-DIAGNOSIS

A self-diagnosis program is incorporated which immediately checks to see if the users connected to the board outlets, as well as the control panel, are functioning properly.

B 13.1 BUTTON FUNCTION TEST

When the machine is in the OFF position, that is, the main switch is turned on, the buttons do not operate the specific functions but it is possible to proceed with the BUTTON FUNCTION TEST.

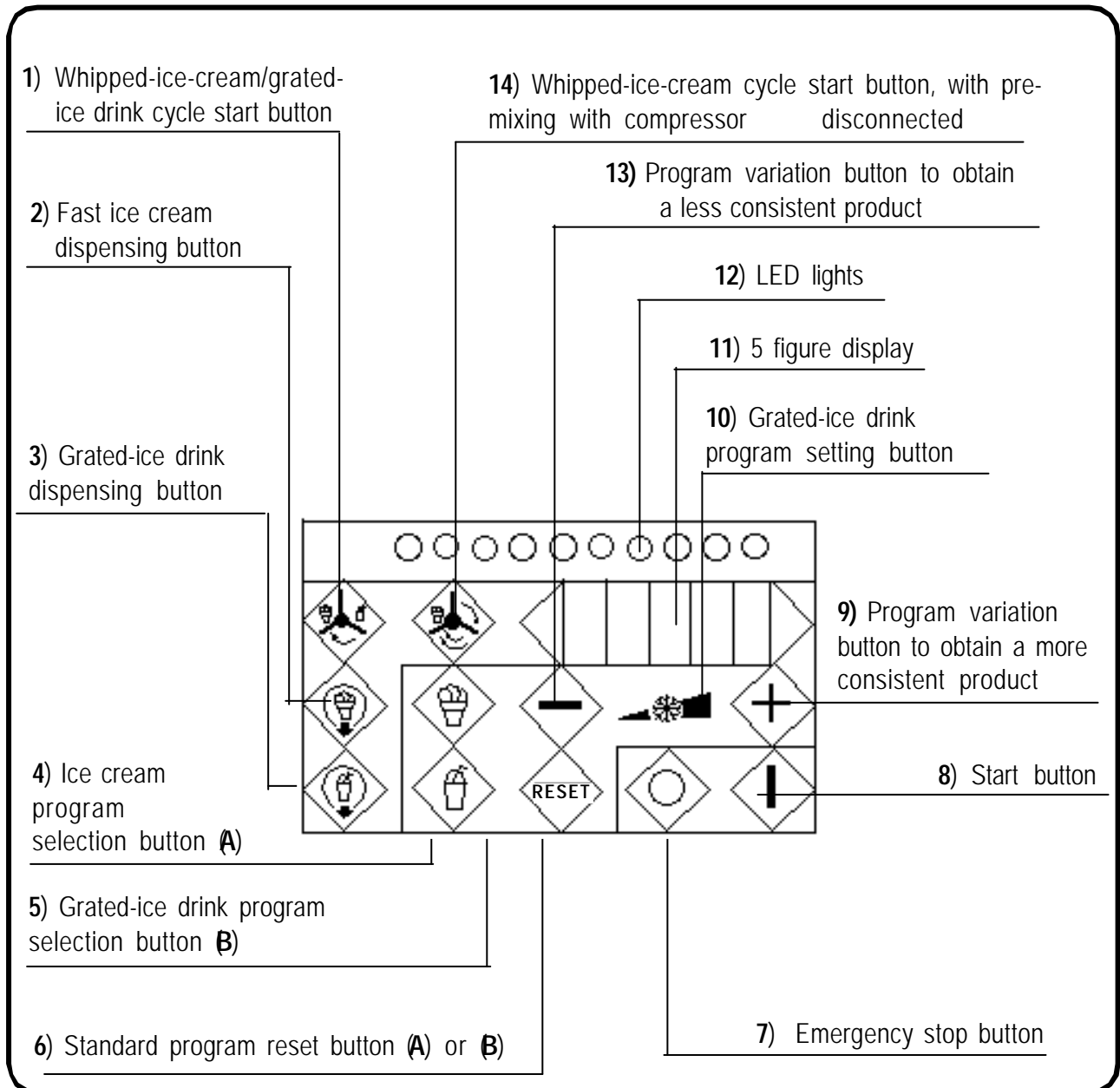
Press buttons 1,2,3,4,5,6,7,8,9,10, one at a time, if there is a signal P-01, P-02 P-10 will appear on the display.

When you let go of the button OFF will reappear.

If, when the button is pressed, the display does not change (**OFF remains**), the button is not sending the signal and the component is malfunctioning.

Button (11) is working if the last program used appears on the display when it is pressed.

If **OFF** remains, the button (11) is malfunctioning



B 13.2 COMPONENT TEST

The component test can only be carried out with the machine in the OFF position.

B 13.3

Press button 10 for five seconds and tEST will appear on the display

B 13.4

By pressing buttons 1,2,3,4,5,6,9, it is possible to check that the component relative to the button position is working.

The selected component will operate as long as the button is pressed and t1, t2, t3, Led, 88888, AL will appear on the display.

B 13.5

To exit the tEST phase, press button 10 for five seconds.

OFF will reappear on the display.



B 13.6

Description of the components to be tested.

t1	Compressor motor
t2	Speed one motor
t3	Speed two motor
Led	LED
□□□□□	Display
AL	Acoustic alarm signal
EL	Electrovalve

B 13.7

The same procedure used to check the motors can also be used to control that the 10 LED function properly, by making Led appear on the display and visibly checking if one or more LED malfunctions.

In the same way, it is also possible to check the display by making 88888 appear and visibly checking if there is a malfunction in any part of the five displays.

BUTTON	DISPLAY	TESTED FUNCTION
1	t 1	Compressor motor
14	t 2	Speed one motor
2	t 3	Speed two motor
4	EL	Electrovalve
13	LEd	LED
6	88888	Display
9	AL	Acoustic alarm signal

By using button 12 during the whipping phase, the AUTODIAGNOSTIC POWER CONTROL permits the WATT intake of the whipping shaft motor to be seen on the display.

B 13.8

If the relative word does not appear on the display there is a malfunction in the corresponding phase or the relative button.



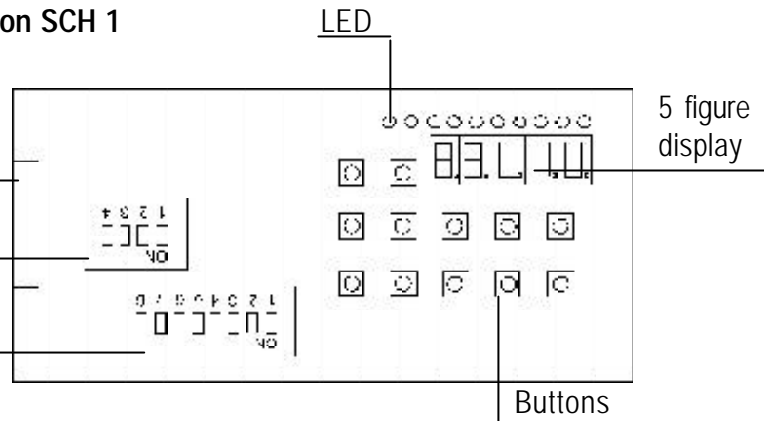
B 13.9

Button card configuration SCH 1

CN1 connection
(with relay card
SCH2)

Microswitch 1

Microswitch 2



Microswitch functionality

Microswitch 1

- Dip 1 (OFF) = Stargel with power control
- Dip 1 (ON) = Stargel with time control
- Dip 2 (ON) = Stargel with ice cream extraction, with functioning compressor
- Dip 3 (ON) = (Stargel) Activation of the consistency scale
- Dip 4 (OFF) = Choice of the kind of machine (Stargel)
- Dip 4 (ON) = Choice of the kind of machine (Starmix)

Microswitch 2

Machine model	Dip 1	Dip 2	Dip 3	Dip 4	Tension
HF 35	OFF	OFF	OFF	OFF	200 V
HF 60	ON	OFF	ON	OFF	400 V
HF 90	OFF	ON	OFF	ON	230 V
HF 35	ON	ON	ON	ON	200 V

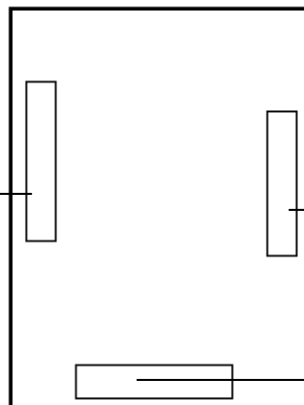
B 13.10

Relay card configuration SCH 2 located within the electrical box

Connection CN2 (with button card
SCH 1)

Connection CN6 (8 auxiliary
contact-poles)

Connection CN5
(12 supply-poles card and alarms)



B 14 - MAINTENANCE

B 14.1

General Rules

The STARGEL machines are designed to require only a minimal amount of maintenance.

The following rules must be observed in order to assure long, trouble-free service life.

There are certain general rules that apply in all cases that must be observed to keep the machine in perfect running order.

- Keep the machine clean and in order.
- Keep the need for making temporary or emergency repairs to a minimum.

It is very important to inspect all machine components periodically as this will enable you to plan the carrying out of any required maintenance in advance.



B 14.2

Maintenance Operations Safety Rules

Any and all maintenance carried out on the machine must be compatible and in strict compliance with the safety regulations in force.

Before any maintenance is done on the electrical circuit, first turn off the main wall switch, setting it at "O", machine off (nothing is written on the display), to ensure safe access to the inner parts of the electrical control panel or the mechanical components.

B 14.3

Bimonthly Inspection and/or Maintenance

Inspect the whipping shaft blades for wear.

Inspect to see that the interior of the machine is clean, and remove any dust accumulated on the bottom of the machine or on the air grilles.

B 15 - DRAWINGS AND DIAGRAMS

B 15.1

Drawings and diagrams which permit the maintenance personnel to carry out their work in a rational manner (especially as regards troubleshooting).

Enclosed to this manual you can find following diagrams and drawings:

Installation diagrams with connection points to power (B7 B9)

Draft with all technical data relevant to the machines and thermal protections (A 34).

Noise level table (A 1.1)

Trouble-shoot table (B 18).

Wire diagram

Machine wire diagram is inside the switchboard of the machine itself.

We remind you that any approach to switchboard and relevant components is lonely allowed to skilled personnel authorized by Promag.

B 16 - REFRIGERATION SYSTEM

All refrigeration system components used in our machines are manufactured by leading firms in the sector and are provided with internationally-recognized quality certification.

Before the refrigeration systems are installed, they are appropriately dehydrated and leak tested under hard vacuum and high pressure.



Our STARGEL HF machines use R 404 A refrigerant gas.

If gas has to be added to the refrigerating system, first eliminate the cause of the loss, then fill the system using the type and relative amount of gas indicated on the technical data table and on the data plate located on the rear side of the machine.

The compressor operating temperatures are:

- Evaporation: -25 to -35°C
- Condensation: + 39°C.

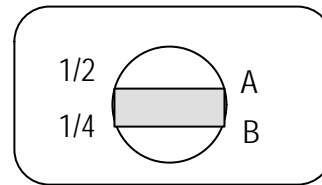
The condensation temperature is controlled by a special pressure control valve.

Whenever the condensation temperature is not being controlled properly, the water system must be checked.

Water hardness can cause the formation of deposits which can obstruct the filters and reduce cooling efficiency.

To overcome this, the filter deposits must be removed with the use of a chemical product especially designed for this purpose.

After each repair operation on the refrigeration system, the machine oil level should be checked. With the machine turned off, control that the indicated level is between A = 1/2 and B = 1/4.



Also replace the dehydrator filter.

ATTENTION: When adding oil, use the type indicated on the compressor data plate and replace the dehydrator filter.

B 17 - MECHANICAL MAINTENANCE

Clean and inspect the seals located on the front flange of the cylinder and on the rear.

B 18 - TROUBLESHOOTING

It is possible that your machine may not operate perfectly at all times and can develop some malfunction.

The following are possible malfunctions and what should be done to eliminate them.

CAUTION

Never attempt to perform maintenance operations of any kind on the machine without first disconnecting it from the power mains.



TROUBLE	
The machine will not start:	
POSSIBLE CAUSE	REMEDY
Main switch is OFF.	Turn main switch ON.
Thermal switches OFF.	They are automatically in

TROUBLE	
Compressor starts but stops after a few seconds.	
POSSIBLE CAUSE (water-cooled version)	REMEDY
Water not circulating. - Tap closed. - Flexible hose bent or squashed. - Water pressure too low.	Open tap. Replace hose - Eliminate the problem. Check tubing and mains pressure.
Condenser clogged with deposits.	Clean chemically.
POSSIBLE CAUSE (air-cooled version)	REMEDY
Condenser unit too close to wall.	Keep machine back at least 50 cm from the wall.
Condenser dirty.	Remove dust, dirt, etc.
Condenser fan motor inoperative.	Replace motor.

**PROBLEM**

Whipping time too long

POSSIBLE CAUSE

Worn out or broken scraping blades.

Poor refrigeration.

- Gas leak.

- Insufficient condensation due to water not circulating:

- Tap closed or pressure too low.

- Filters dirty.

- Flexible hose bent or squashed.

Thermostatic valve faulty or in need of setting.

Product overloading.

Mixture not well balanced.

REMEDY

Replace.

Fix leak and refill.

Open tap or check inlet pressure.

Clean filters.

Replace hose - Eliminate the problem.

Replace or reset valve.

Reduce load.

Reduce sugars and fats.

TROUBLE

Frequent thermal switch interventions

To reset press relative buttons

POSSIBLE CAUSE

Overloaded compressor:

- Too much refrigerant gas.

- Thermostatic valve not set right.

Condenser clogged with deposits.

Thermal switches worn or not set right.

REMEDY

Reduce to correct amount.

Correct valve setting.

Clean chemically.

Check contact points.

TROUBLE

During whipping, product leaks out the rear end of the shaft.

POSSIBLE CAUSE

Worn seals.

REMEDY

Replace seals

PROMAG cannot assume any responsibility for bad parts resulting from unskilful or improper use or bad maintenance.

The dimensions and data given in this manual are not binding and can be varied without prior notice.

PARTI DI RICAMBIO
 SPARE PARTS
 PIECES DE RECHANGE
 ERSATZTEILE
 REPUESTOS

**RICAMBI**

Per la richiesta di pezzi di ricambio specificare nell'ordine:

- Modello di macchina (Mod.)
- Numero di matricola (rintracciabile sulla targhetta dati posta sul lato posteriore della macchina)
- Data di acquisto della macchina
- Numero del pezzo di ricambio (rintracciabile nelle tavole seguenti)
- Quantità
- Voltaggio (nel caso di parti elettriche)

SPARE PARTS

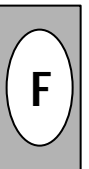
For spare parts orders, please detail:

- Type of machine
- Matriculation number
- Date of purchase of the machine
- Spare part number (listed on following tables)
- Quantity
- Voltage (for electric components)

**PIECES DE RECHANGE**

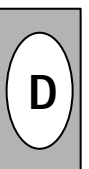
Pour la demande de pièces de rechange il faut toujours spécifier:

- Type de machine
- Numéro de matricule (il se trouve sur la fiche fixée à la machine)
- Date d'achat de la machine
- Numéro de la pièce de rechange (on le trouve dans la table suivante)
- Quantité
- Voltage (dans le cas des parties électriques)

**ERSATZTEILE**

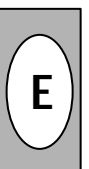
Bei der Ersatzteilbestellung sind folgende Angaben zu machen:

- Maschinentyp
- Kennummer (auf dem Maschinenschild angegeben)
- Kaufdatum der Maschine
- Ersatzteilnummer
- Menge
- Spannung (bei elektrischen Komponenten)

**REPUESTOS**

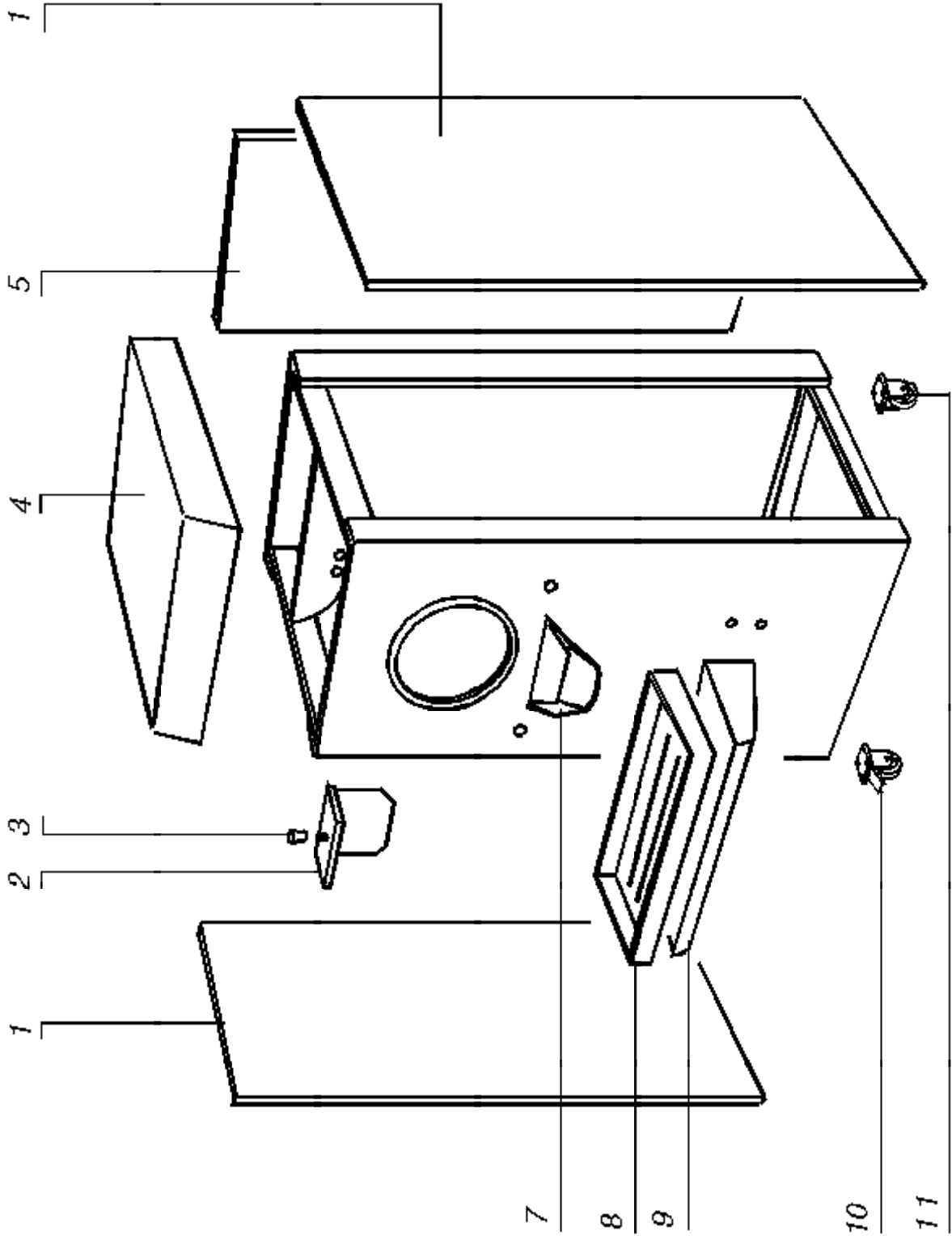
Para el pedido de piezas de repuesto, especificar en la orden:

- Número de máquina
- Número de matrícula (Ubicarlo en la tarjeta pegada a la máquina)
- Fecha de compra de la máquina
- Número de la pieza de repuesto (Ubicarlo en la tabla a continuación)
- Cantidad
- Voltaje (en el caso de partes eléctricas)

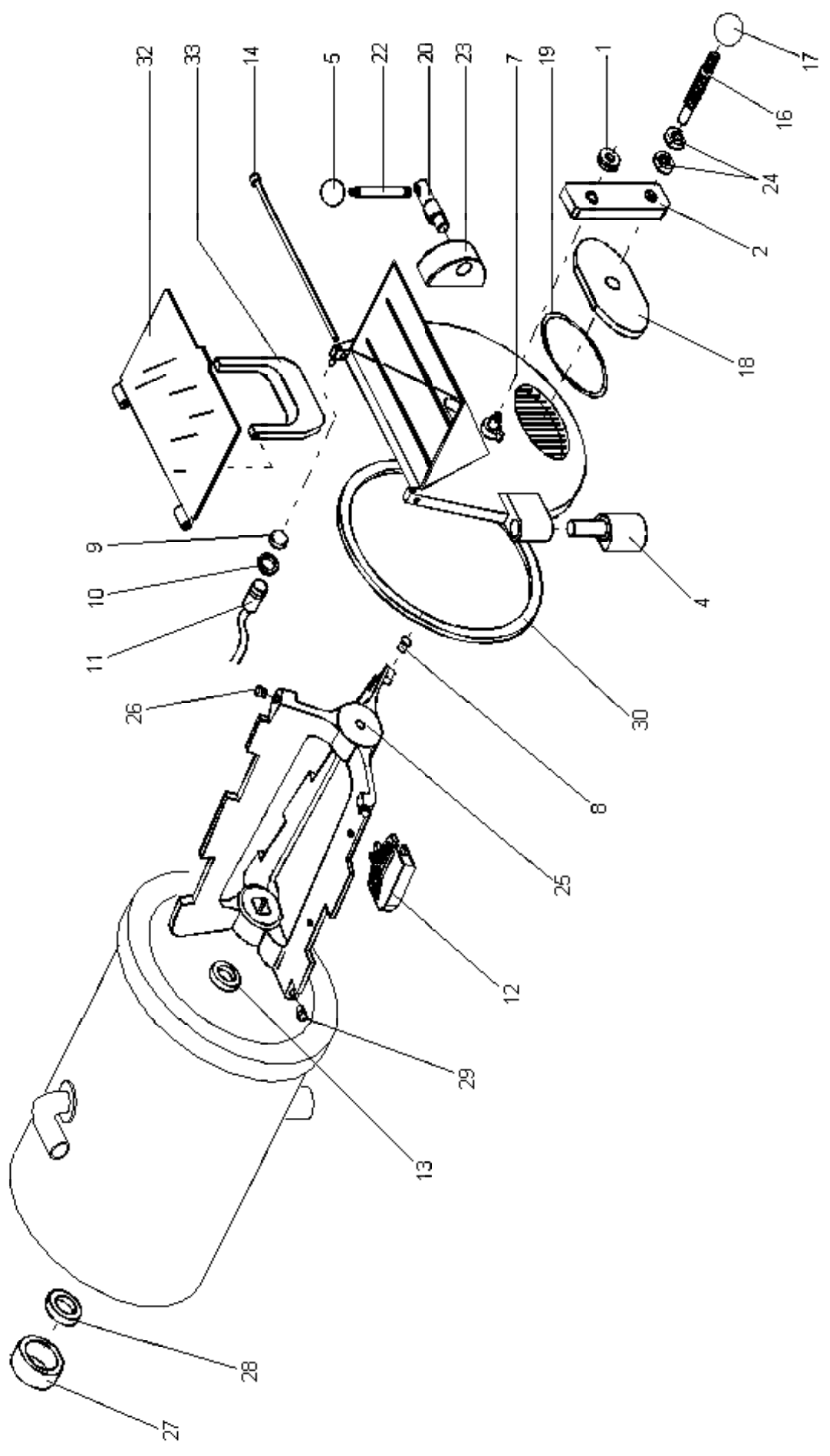


ISTRUZIONI PER IL TECNICO INSTALLATORE - INSTRUCTIONS FOR TECHNICIAN-INSTALLER
INSTRUCTIONS POUR L'INSTALLATEUR - ANWEISUNGEN FÜR DEN INSTALLATIONSTECHNIKER
INSTRUCCIONES PARA EL TECNICO INSTALADOR

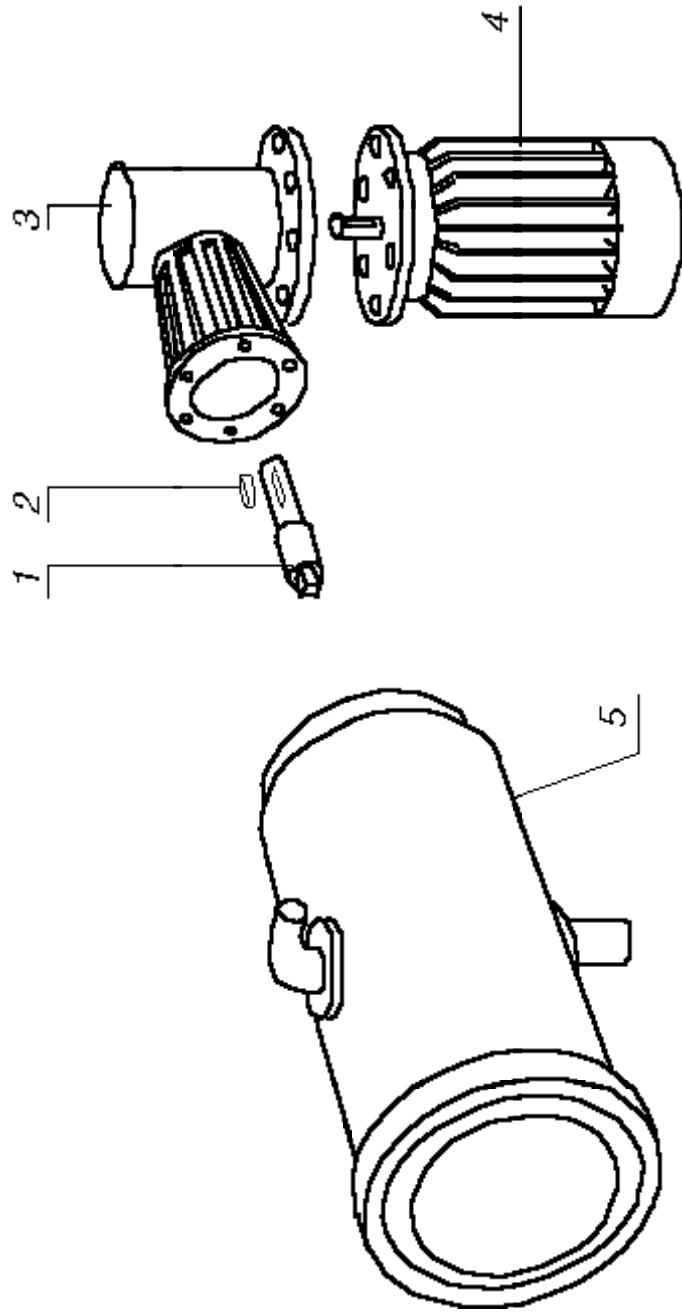
RICAMBI CARROZZERIA - SPARE PARTS - PIÈCES DE RECHANGE - GAHÄUSE-ERSATZTEILE - REPUESTOS ARMAZON



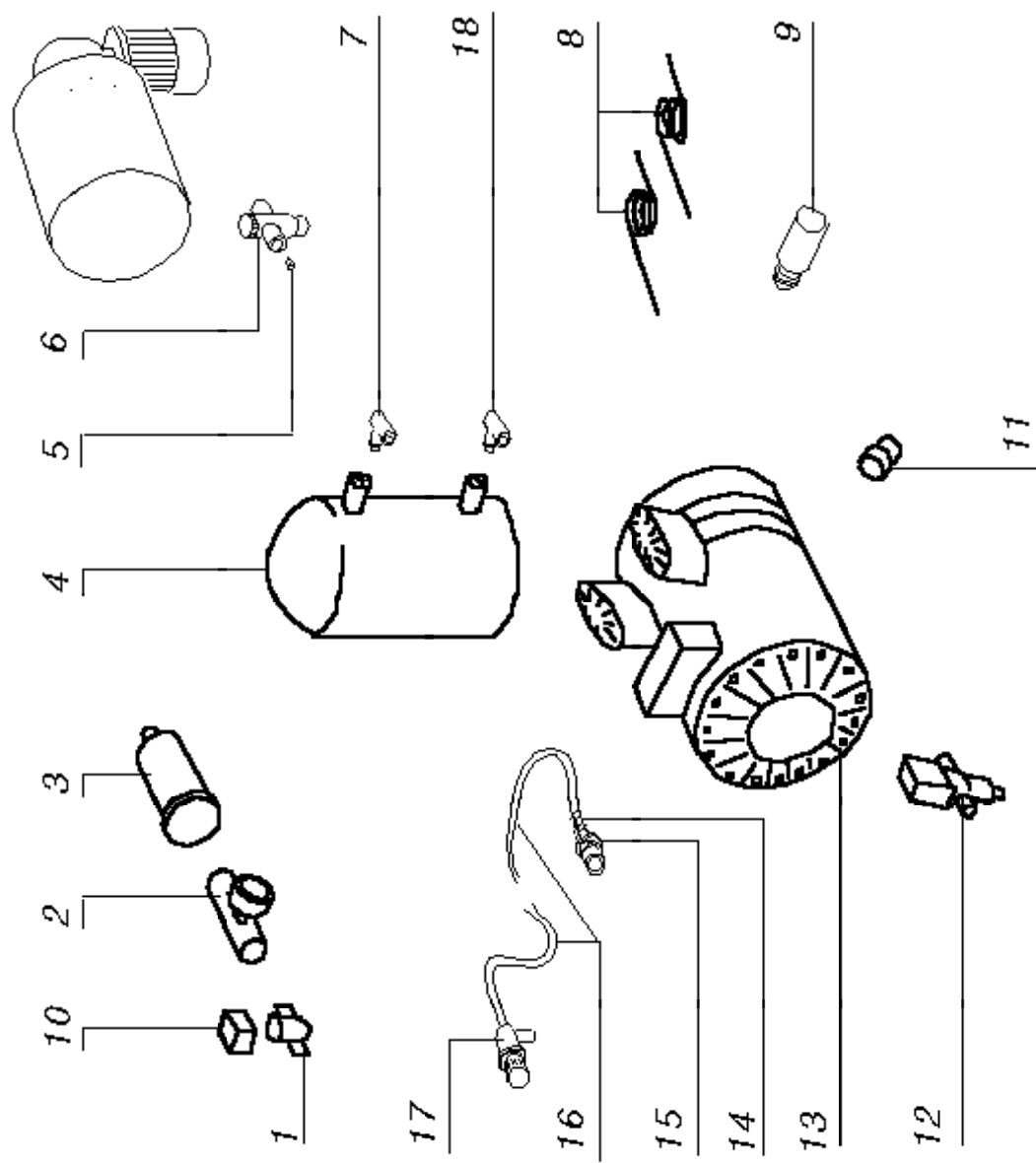
	RICAMBI CARROZZERIA		SPARE PARTS	PIECES DE RECHANGE	GEHÄUSE-ERSATZTEILE	REPUESTOS ARMAZON
1	Pannello sinistro/destro/posteriore		Left/Right/Rear Panel	Panneau gauche/droit/arrière	Linke/rechte/rückseitige Tafel	Panel izquierdo/derecho/posterior
	Stargel HF 35/60	102102040	STARGEL HF 35/60	Stargel HF 35/60	Stargel HF 35/60	Stargel HF 35/60
4	Pannello sinistro/destro		Left/right side panel	Panneau latéral gauche/droit	Seitentafel links/rechts	Panel lateral izquierdo/derecho
	Stargel HF 90	102102050	STARGEL HF 90	Stargel HF 90	HF 90	Stargel HF 90
5	Assieme coperchio HF 35 /60	102087860	Cover HF 35/60	Ensemble couvercle HF 35/60	Trichter-Satz HF 35/60	Conjunto tapa HF 35/60
	Assieme coperchio HF 90	102087870	Cover HF 90	Ensemble couvercle HF 90	Trichter-Satz HF 90	Conjunto tapa HF 90
7	Pannello posteriore	102102040	Rear Panel	Panneau arrière	Rückseitige Tafel	Panel posterior
	Stargel HF 35/60/90		STARGEL HF 35/60/90	Stargel HF 35/60/90	HF 35/60/90	HF 35/60/90
8	Scivolo	102167250	Slide	Bec	Rutsche	Plano inclinado
9	Bacinella in gomma	158255860	Rubber mat	Cuvette en caoutchouc	Gummischale	Cubeta de goma
10	Mensola	102132270	Shelf	Etagère	Konsole	Bandeja
11	Ruota girevole con freno	591000203	Front wheel with brake	Roulette pivotante avec frein	Tänzerrad mit Bremse	Rueda pivotante con freno
	Ruota posteriore fissa	591000101	Fixed rear wheel	Roulette arrière fixe	Festes ruckseitiges Rad	Rueda posterior fija



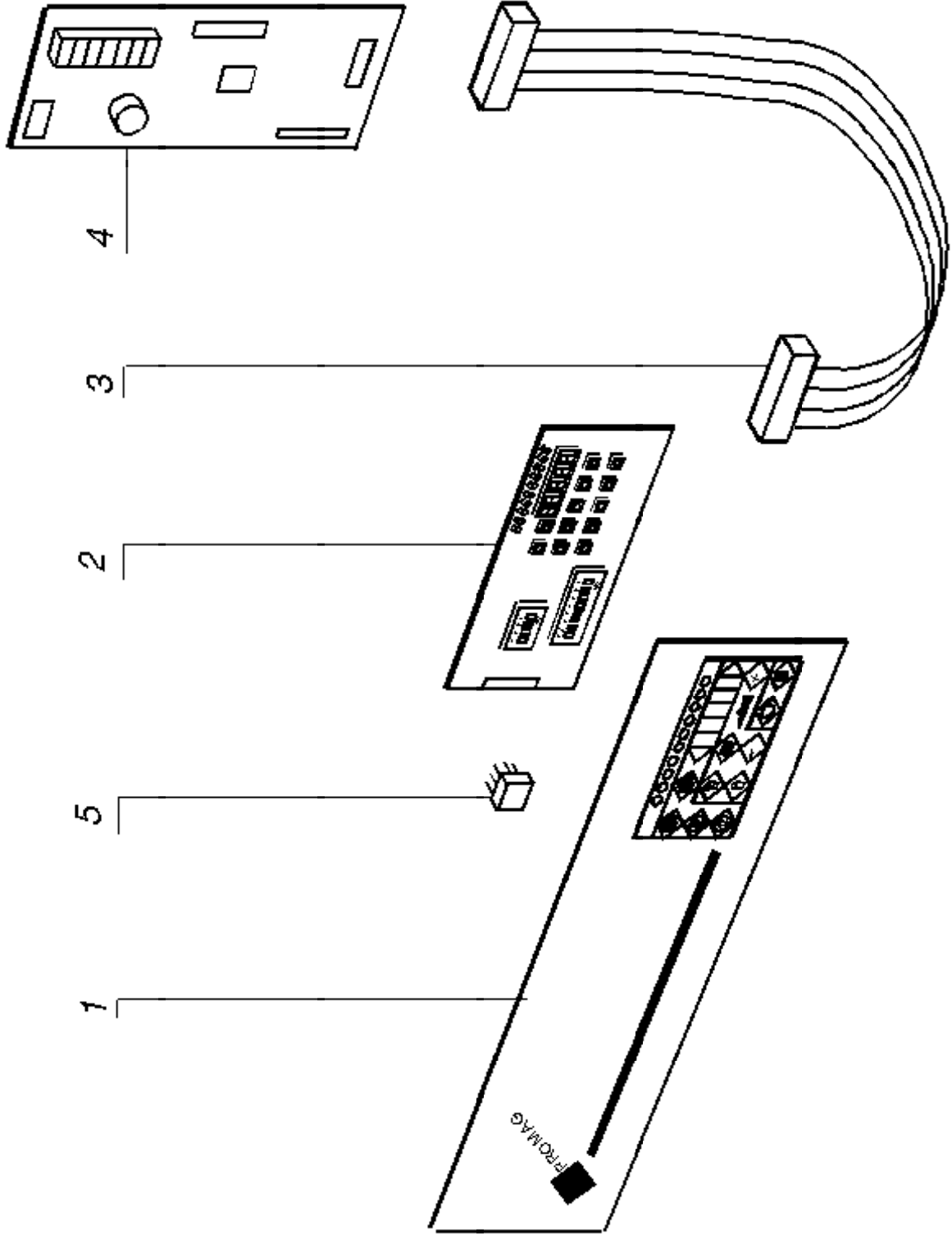
		SPARE PARTS	PIECES DE RECHANGE	ERSATZTEILE	REPUESTOS MOTOR
1	Ghiera	158175060 Ring nut	Collier de serrage	Scherungsring	Abrazadera
2	Leva portellino	155185350 Ice cream door lever		HebelEisaulassdeckel	
4	Supporto portello	164100640 front lid bracket		Halterung Frontverschluss	
5	Impugnatura	510300286 handle		Handgriff	
7	Portello	118130680 Dispensing head		Frontverschluss	
8	Pastiglia centrale	155230100 central plug nut		Mittigpastille	
9	Magnele	570300221 Magnet	Aimant	Magnet	Imán
10	Tappo	173138580 Plug		Stopfen	
11	Interruttore magnetico	572910184 Microswitch	Interruteur magnétique	Magnetschalter	Interruptor magnético
12	Alella raschante per HF 35 - HF 60	141115870 Scraping blade for HF 35 - 60	Lames raclantes pour HF 35 - 60	Abkratzer Messer für HF 35-HF 60	Cuchillas rascadoras por 35-60
	Alella raschante per HF 90	141120450 Scraping blade for HF 90	Lames raclantes pour HF 90	Abkratzer Messer für HF 90	Cuchillas rascadoras por 90
13	Anello di tenuta per HF 35 - HF 60	542001003 Seal for HF 35 - HF 60	Anneau d'étanchéité pour HF 35 - HF 60	Dichtungsring für HF 35 - HF 60	Anillo de retén para HF 35-HF 60
	Anello di tenuta per HF 90	542001004 Seal for HF 90	Anneau d'étanchéité pour HF 90	Dichtungsring für HF 90	Anillo de retén para HF 90
14	Perno	155161190 Pin		Stift	
16	Perno filettato	155162610 Threaded pin		Gewindestift	
17	Pomello	510300232 Knob		Handgriff	
18	Portellino	118125130 Ice cream door		Eisaulassdeckel	
19	Guarnizione portellino	158200710 Ice cream door gasket		Dichtung Eisaulassdeckel	
20	Eccentrico	161130160 Cam		Exzenter	
21	Chiavistello	164100600 lock	Verrou	Schloss	Pestillo
22	Leva eccentrico	155163130 cam lever		Exzenterhebel	
23	Supporto eccentrico	164100650 cam bracket		Halterung Exzenter	
24	Dado arresto	171145610 stop nut		Sperrbolzen	
25	Assieme albero mantecatore HF 35	155102860 Whipping shaft group for HF35	Ensemble arbre malaxeur HF 35	Knetwellesatz HF 35	Conjunto eje batidor HF 35
	Assieme albero mantecatore HF 60	155102870 Whipping shaft group for HF60	Ensemble arbre malaxeur HF 60	Knetwellesatz HF 60	Conjunto eje batidor HF 60
	Assieme albero mantecatore HF 90	155102880 Whipping shaft group for HF90	Ensemble arbre malaxeur HF 90	Knetwellesatz HF 90	Conjunto eje batidor HF 90
26	Pastiglia anteriore	155230230 Front weidnut	Pastille antérieure	Vorderpastille	Pastilla anterior
27	Bronzina HF 35 - HF 60	157140200 Brass HF 35 - HF 60	Coussinet HF 35 - HF 60	Bronzelager HF 35 - HF 60	Broncina HF 35 - HF 60
	Bronzina HF 90	157140210 Brass HF 90	Coussinet HF 90	Bronzelager HF 90	Broncina HF 90
28	Corteco HF 35 - HF 60	542000150 Seal for HF 35 - HF 60	Anneau d'étanchéité HF 35 - HF 60	Dichtungsring HF 35 - HF 60	Anillo de retén para HF 35 - 60
	Corteco HF 90	542000152 Sela for HF 90	Anneau d'étanchéité HF 90	Dichtungsring HF 90	Anillo de retén para HF 90
29	Pastiglia posteriore	155230300 Rear eldnut		Hinterpastille	Anterior pastilla
30	Guarnizione	158130250 Gasket	Joint	Dichtung	Empaquetadura
31	Assieme chiavistello	155130960 Clousure unit group	Ensemble verrou	Schloss-Satz	Conjunto pestillo
32	Coperchio bocca portello	158261470 lid mouthpiece protection		Deckel Einfüllöffnung	
33	Coperchio chiusura	158261140 lid cover		Verschlussdeckel	



RICAMBI MOTORE	SF 35 - HF 60 - HF 90	A	M	O	R	P
RICAMBI MOTORE	SF 35 - HF 60 - HF 90	SARE PARTS	PIECES DE RECHANGE	MOTOR - ERSATZTEILE	REPUESTOS MOTOR	
1 Albero motoriduttore per HF 35	155102820	Gearmotor shaft for HF 35	Arbre motoréducteur pour HF 35	Getriebemotorwelle für HF 35	Eje motorreductor para HF 35	
Albero motoriduttore per HF 60	155102830	Gearmotor shaft for HF 60	Arbre motoréducteur pour HF 60	Getriebemotorwelle für HF 60	Eje motorreductor para HF 60	
Albero motoriduttore per HF 90	155102930	Gearmotor shaft for HF 90	Arbre motoréducteur pour HF 90	Getriebemotorwelle für HF 90	Eje motorreductor para HF 90	
2 Languetta per HF 35 - HF 60	517105020	Tab for HF 35 - HF 60	Languette pour HF 35 - HF 60	Lasche für HF 35 - HF 60	Languetta para HF 35 - HF 60	
Languetta per HF 90	517105027	Tab for HF 90	Languette pour HF 90	Lasche für HF 90	Languetta para HF 90	
3 Riduttore HF 35	558500001	Reduction unit HF 35	Réducteur HF 35	Untersetzungsgetriebe HF 35	Reductor HF 35	
Riduttore HF 60	558500002	Reduction unit HF 60	Réducteur HF 60	Untersetzungsgetriebe HF 60	Reductor HF 60	
Riduttore HF 90	558500003	Reduction unit HF 90	Réducteur HF 90	Untersetzungsgetriebe HF 90	Reductor HF 90	
4 Motore elettrico V 380-400/3N/50Hz 2-4 poli per HF 35	552723010	Electric motor V 380-400/3N/50Hz 2-4 for HF 35	Moteur électrique V 380-400/3N/50Hz 2-4 pour HF 35	Motor V 380-400/3N/50Hz 2-4 für HF 35	Motor eléctrico V 380-400/3N/50Hz 2-4 para HF 35	
per HF 60	552724010	for HF 60	pour HF 60	für HF 60	para HF 60	
per HF 90	552725010	for HF 90	pour HF 60	für HF 90	para HF 90	
5 Cilindro HF 35	115115950	Cylinder HF 35	Cylindre HF 35	Zylinder HF 35	Cilindro HF 35	
Cilindro HF 60	115116030	Cylinder HF 60	Cylindre HF 60	Zylinder HF 60	Cilindro HF 60	
Cilindro HF 90	115116040	Cylinder HF 90	Cylindre HF 90	Zylinder HF 90	Cilindro HF 90	

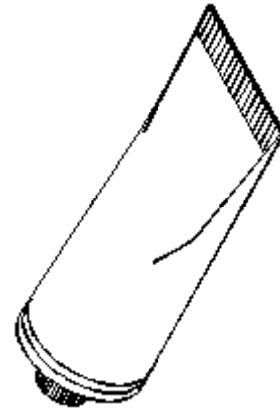


RICAMBI	581200821	581500117	581400107	584200107	584200108	581110613	581101054	589100107	589100108	589100109	581810002	583100148	581201042	584210001	581800116	561222611	561222811	561222910	589100214	589110002	589800562	589100213	589100106
1	Corpo valvola solenoide	Solenoid valve 3/8" SAE	Warning light for the liquid	Condenser for HF 35	Condenser for HF 60 - HF 90	Orifice No. 03	Thermostatic valve	Cock HF 35	Cock HF 60	Cock HF 90	Capillary 1 MT attachment 1/4" SAE	Pressure valve	Bobbin solenoid valve 24V	Fuse cap 1/4"	Pressure control valve 1/2"	Compressor HF 35	Compressor HF 60	Compressor HF 90	Shower aerator	Base for shower 3/4"	Metal flexible tube 1.800	Complete tap	Cock
2	Spia liquido	Vanne solénoide 3/8" SAE	Lampe témoin pour le liquide	Condensateur pour HF 35	Condensateur pour HF 60 - HF 90	Orifice n° 03	Vanne thermostatique	Robinet HF 35	Robinet HF 60	Robinet HF 90	Capillaire 1 m fixation 1/4" SAE	Pressostat	Bobine vanne solénoide 24 V	Bouchon fusible 1/4"	Vanne pressostatique 1/2"	Compresseur HF 35	Compresseur HF 60	Compresseur HF 90	Buse Aérateur	Base 3/4" pour buse	Flexible métallique 1800	Robinet complet	Robinet
3	Filtro disidratatore	Solenoid-Ventil 3/8" SAE	Kontrolllampe für Flüssigkeit	Entwässerungsfilter 3/8"	Kondensator für HF 35	Öffnung N.03	Thermostatventil	Hahn HF 35	Hahn HF 60	Hahn HF 90	Kapillare 1 MT, Anschluss 1/4" SAE	Druckwächter	Spule Solenoid - Ventile 24 V	Gewindeverschluss 1/4"	Druckwächterventil 1/2"	Verdichter HF 35	Verdichter HF 60	Verdichter HF 90	BrauseBelüfter	Basis 3/4" für Brause	Flexible de metal 1.800	Grifo completo	Grifo
4	Condensatore per HF 35	Indicador liquido	Entwässerungsfilter 3/8"	Condensateur pour HF 35	Condensateur pour HF 60 - HF 90	Orifice n° 03	Vanne thermostatique	Robinet HF 35	Robinet HF 60	Robinet HF 90	Capillaire 1 m fixation 1/4" SAE	Pressostat	Bobine vanne solénoide 24 V	Bouchon fusible 1/4"	Vanne pressostatique 1/2"	Compresseur HF 35	Compresseur HF 60	Compresseur HF 90	Buse Aérateur	Base 3/4" pour buse	Flexible métallique 1800	Robinet complet	Robinet
5	Condensatore per HF 60 - HF 90	Indicador liquido	Entwässerungsfilter 3/8"	Condensateur pour HF 35	Condensateur pour HF 60 - HF 90	Orifice n° 03	Vanne thermostatique	Robinet HF 35	Robinet HF 60	Robinet HF 90	Capillaire 1 m fixation 1/4" SAE	Pressostat	Bobine vanne solénoide 24 V	Bouchon fusible 1/4"	Vanne pressostatique 1/2"	Compresseur HF 35	Compresseur HF 60	Compresseur HF 90	Buse Aérateur	Base 3/4" pour buse	Flexible métallique 1800	Robinet complet	Robinet
6	Orifizio N. 03	Agujero n° 03	Entwässerungsfilter 3/8"	Condensateur pour HF 35	Condensateur pour HF 60 - HF 90	Orifice n° 03	Vanne thermostatique	Robinet HF 35	Robinet HF 60	Robinet HF 90	Capillaire 1 m fixation 1/4" SAE	Pressostat	Bobine vanne solénoide 24 V	Bouchon fusible 1/4"	Vanne pressostatique 1/2"	Compresseur HF 35	Compresseur HF 60	Compresseur HF 90	Buse Aérateur	Base 3/4" pour buse	Flexible métallique 1800	Robinet complet	Robinet
7	Valvola termostatica	Thermostatventil	Entwässerungsfilter 3/8"	Condensateur pour HF 35	Condensateur pour HF 60 - HF 90	Orifice n° 03	Vanne thermostatique	Robinet HF 35	Robinet HF 60	Robinet HF 90	Capillaire 1 m fixation 1/4" SAE	Pressostat	Bobine vanne solénoide 24 V	Bouchon fusible 1/4"	Vanne pressostatique 1/2"	Compresseur HF 35	Compresseur HF 60	Compresseur HF 90	Buse Aérateur	Base 3/4" pour buse	Flexible métallique 1800	Robinet complet	Robinet
8	Rubinetto HF 35	Hahn HF 35	Entwässerungsfilter 3/8"	Condensateur pour HF 35	Condensateur pour HF 60 - HF 90	Orifice n° 03	Vanne thermostatique	Robinet HF 35	Robinet HF 60	Robinet HF 90	Capillaire 1 m fixation 1/4" SAE	Pressostat	Bobine vanne solénoide 24 V	Bouchon fusible 1/4"	Vanne pressostatique 1/2"	Compresseur HF 35	Compresseur HF 60	Compresseur HF 90	Buse Aérateur	Base 3/4" pour buse	Flexible métallique 1800	Robinet complet	Robinet
9	Rubinetto HF 60	Hahn HF 35	Entwässerungsfilter 3/8"	Condensateur pour HF 35	Condensateur pour HF 60 - HF 90	Orifice n° 03	Vanne thermostatique	Robinet HF 35	Robinet HF 60	Robinet HF 90	Capillaire 1 m fixation 1/4" SAE	Pressostat	Bobine vanne solénoide 24 V	Bouchon fusible 1/4"	Vanne pressostatique 1/2"	Compresseur HF 35	Compresseur HF 60	Compresseur HF 90	Buse Aérateur	Base 3/4" pour buse	Flexible métallique 1800	Robinet complet	Robinet
10	Rubinetto HF 90	Hahn HF 35	Entwässerungsfilter 3/8"	Condensateur pour HF 35	Condensateur pour HF 60 - HF 90	Orifice n° 03	Vanne thermostatique	Robinet HF 35	Robinet HF 60	Robinet HF 90	Capillaire 1 m fixation 1/4" SAE	Pressostat	Bobine vanne solénoide 24 V	Bouchon fusible 1/4"	Vanne pressostatique 1/2"	Compresseur HF 35	Compresseur HF 60	Compresseur HF 90	Buse Aérateur	Base 3/4" pour buse	Flexible métallique 1800	Robinet complet	Robinet
11	Capillare 1 MT. attacco 1/4" SAE	Kapillare 1 MT, Anschluss 1/4" SAE	Entwässerungsfilter 3/8"	Condensateur pour HF 35	Condensateur pour HF 60 - HF 90	Orifice n° 03	Vanne thermostatique	Robinet HF 35	Robinet HF 60	Robinet HF 90	Capillaire 1 m fixation 1/4" SAE	Pressostat	Bobine vanne solénoide 24 V	Bouchon fusible 1/4"	Vanne pressostatique 1/2"	Compresseur HF 35	Compresseur HF 60	Compresseur HF 90	Buse Aérateur	Base 3/4" pour buse	Flexible métallique 1800	Robinet complet	Robinet
12	Pressostato	Druckwächter	Entwässerungsfilter 3/8"	Condensateur pour HF 35	Condensateur pour HF 60 - HF 90	Orifice n° 03	Vanne thermostatique	Robinet HF 35	Robinet HF 60	Robinet HF 90	Capillaire 1 m fixation 1/4" SAE	Pressostat	Bobine vanne solénoide 24 V	Bouchon fusible 1/4"	Vanne pressostatique 1/2"	Compresseur HF 35	Compresseur HF 60	Compresseur HF 90	Buse Aérateur	Base 3/4" pour buse	Flexible métallique 1800	Robinet complet	Robinet
13	Bobina valvola solenoide 24 V	Spule Solenoid - Ventile 24 V	Entwässerungsfilter 3/8"	Condensateur pour HF 35	Condensateur pour HF 60 - HF 90	Orifice n° 03	Vanne thermostatique	Robinet HF 35	Robinet HF 60	Robinet HF 90	Capillaire 1 m fixation 1/4" SAE	Pressostat	Bobine vanne solénoide 24 V	Bouchon fusible 1/4"	Vanne pressostatique 1/2"	Compresseur HF 35	Compresseur HF 60	Compresseur HF 90	Buse Aérateur	Base 3/4" pour buse	Flexible métallique 1800	Robinet complet	Robinet
14	Tappo fusibile 1/4"	Gewindeverschluss 1/4"	Entwässerungsfilter 3/8"	Condensateur pour HF 35	Condensateur pour HF 60 - HF 90	Orifice n° 03	Vanne thermostatique	Robinet HF 35	Robinet HF 60	Robinet HF 90	Capillaire 1 m fixation 1/4" SAE	Pressostat	Bobine vanne solénoide 24 V	Bouchon fusible 1/4"	Vanne pressostatique 1/2"	Compresseur HF 35	Compresseur HF 60	Compresseur HF 90	Buse Aérateur	Base 3/4" pour buse	Flexible métallique 1800	Robinet complet	Robinet
15	Valvola pressostatica 1/2"	Druckwächterventil 1/2"	Entwässerungsfilter 3/8"	Condensateur pour HF 35	Condensateur pour HF 60 - HF 90	Orifice n° 03	Vanne thermostatique	Robinet HF 35	Robinet HF 60	Robinet HF 90	Capillaire 1 m fixation 1/4" SAE	Pressostat	Bobine vanne solénoide 24 V	Bouchon fusible 1/4"	Vanne pressostatique 1/2"	Compresseur HF 35	Compresseur HF 60	Compresseur HF 90	Buse Aérateur	Base 3/4" pour buse	Flexible métallique 1800	Robinet complet	Robinet
16	Compressore HF 35	Verdichter HF 35	Entwässerungsfilter 3/8"	Condensateur pour HF 35	Condensateur pour HF 60 - HF 90	Orifice n° 03	Vanne thermostatique	Robinet HF 35	Robinet HF 60	Robinet HF 90	Capillaire 1 m fixation 1/4" SAE	Pressostat	Bobine vanne solénoide 24 V	Bouchon fusible 1/4"	Vanne pressostatique 1/2"	Compresseur HF 35	Compresseur HF 60	Compresseur HF 90	Buse Aérateur	Base 3/4" pour buse	Flexible métallique 1800	Robinet complet	Robinet
17	Compressore HF 60	Verdichter HF 60	Entwässerungsfilter 3/8"	Condensateur pour HF 35	Condensateur pour HF 60 - HF 90	Orifice n° 03	Vanne thermostatique	Robinet HF 35	Robinet HF 60	Robinet HF 90	Capillaire 1 m fixation 1/4" SAE	Pressostat	Bobine vanne solénoide 24 V	Bouchon fusible 1/4"	Vanne pressostatique 1/2"	Compresseur HF 35	Compresseur HF 60	Compresseur HF 90	Buse Aérateur	Base 3/4" pour buse	Flexible métallique 1800	Robinet complet	Robinet
18	Compressore HF 90	Verdichter HF 90	Entwässerungsfilter 3/8"	Condensateur pour HF 35	Condensateur pour HF 60 - HF 90	Orifice n° 03	Vanne thermostatique	Robinet HF 35	Robinet HF 60	Robinet HF 90	Capillaire 1 m fixation 1/4" SAE	Pressostat	Bobine vanne solénoide 24 V	Bouchon fusible 1/4"	Vanne pressostatique 1/2"	Compresseur HF 35	Compresseur HF 60	Compresseur HF 90	Buse Aérateur	Base 3/4" pour buse	Flexible métallique 1800	Robinet complet	Robinet
19	Doccetta con areatore	BrauseBelüfter	Entwässerungsfilter 3/8"	Condensateur pour HF 35	Condensateur pour HF 60 - HF 90	Orifice n° 03	Vanne thermostatique	Robinet HF 35	Robinet HF 60	Robinet HF 90	Capillaire 1 m fixation 1/4" SAE	Pressostat	Bobine vanne solénoide 24 V	Bouchon fusible 1/4"	Vanne pressostatique 1/2"	Compresseur HF 35	Compresseur HF 60	Compresseur HF 90	Buse Aérateur	Base 3/4" pour buse	Flexible métallique 1800	Robinet complet	Robinet
20	Base 3/4" per doccia	Basis 3/4" für Brause	Entwässerungsfilter 3/8"	Condensateur pour HF 35	Condensateur pour HF 60 - HF 90	Orifice n° 03	Vanne thermostatique	Robinet HF 35	Robinet HF 60	Robinet HF 90	Capillaire 1 m fixation 1/4" SAE	Pressostat	Bobine vanne solénoide 24 V	Bouchon fusible 1/4"	Vanne pressostatique 1/2"	Compresseur HF 35	Compresseur HF 60	Compresseur HF 90	Buse Aérateur	Base 3/4" pour buse	Flexible métallique 1800	Robinet complet	Robinet
21	Flessibile metallico lunghezza 1.800	Metallschlauch 1.800	Entwässerungsfilter 3/8"	Condensateur pour HF 35	Condensateur pour HF 60 - HF 90	Orifice n° 03	Vanne thermostatique	Robinet HF 35	Robinet HF 60	Robinet HF 90	Capillaire 1 m fixation 1/4" SAE	Pressostat	Bobine vanne solénoide 24 V	Bouchon fusible 1/4"	Vanne pressostatique 1/2"	Compresseur HF 35	Compresseur HF 60	Compresseur HF 90	Buse Aérateur	Base 3/4" pour buse	Flexible métallique 1800	Robinet complet	Robinet
22	Rubinetto completo	Vollständiger Hahn	Entwässerungsfilter 3/8"	Condensateur pour HF 35	Condensateur pour HF 60 - HF 90	Orifice n° 03	Vanne thermostatique	Robinet HF 35	Robinet HF 60	Robinet HF 90	Capillaire 1 m fixation 1/4" SAE	Pressostat	Bobine vanne solénoide 24 V	Bouchon fusible 1/4"	Vanne pressostatique 1/2"	Compresseur HF 35	Compresseur HF 60	Compresseur HF 90	Buse Aérateur	Base 3/4" pour buse	Flexible métallique 1800	Robinet complet	Robinet
23	Rubinetto	Hahn	Entwässerungsfilter 3/8"	Condensateur pour HF 35	Condensateur pour HF 60 - HF 90	Orifice n° 03	Vanne thermostatique	Robinet HF 35	Robinet HF 60	Robinet HF 90	Capillaire 1 m fixation 1/4" SAE	Pressostat	Bobine vanne solénoide 24 V	Bouchon fusible 1/4"	Vanne pressostatique 1/2"	Compresseur HF 35	Compresseur HF 60	Compresseur HF 90	Buse Aérateur	Base 3/4" pour buse	Flexible métallique 1800	Robinet complet	Robinet



RICAMBI	SPARE PARTS	PIECES DE RECHANGE	ERSATZTEILE	REPUESTOS
1 Etichetta pulsantiera HF 35	192111260 Sticker for button board HF 35	Etiquette clavier HF 35	Klebezettel für Druckknopftafel HF 35	Etiqueta botonera HF 35
Etichetta pulsantiera HF 60	192111270 Sticker for button board HF 60	Etiquette clavier HF 60	Klebezettel für Druckknopftafel HF 60	Etiqueta botonera HF 60
Etichetta pulsantiera HF 90	192111280 Sticker for button board HF 90	Etiquette clavier HF 90	Klebezettel für Druckknopftafel HF 90	Etiqueta botonera HF 90
2 Scheda pulsanti	573800124 Button card	Carte touches	Tastenkarte	Ficha teclas
3 Cavo base	577400504 Basic cable	Cable base	Basis-Kabel	Cable base
4 Scheda relé	573800126 Relay card	Carte relais	Relaiskarte	Ficha relé
5 Microprocessore	573810142 Microprocessor	Microprocesseur	Mikroprozessor	Microprocesador

PRODOTTI CONSIGLIATI PER LA MANUTENZIONE ORDINARIA - PRODUCTS RECOMMENDED FOR ORDINARY MAINTENANCE - PRODUITS
 CONSEILLES POUR LA MAINTENANCE ORDINAIRE - FÜR DIE ORDENTLICHE WARTUNG ZMPFOHLENE PRODUKTE - PRODUCTOS ACONSEJADOS
 PARA EL MANTENIMIENTO DE RUTINA



Lubrificante alimentare codice:
 Lubricant for food-processing machinery code:
 Lubrifiant alimentaire code:
 Schmierstoff zulässig für mit Nahrungsmittel in
 Berührung kommende Teile Bestell-Nr.:
 Lubricante para limentos código:

74300011