

INSTRUCTIONS FOR INSTALLATION, USE AND MAINTENANCE



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GB



BLACK MAGIC



technogel
spa

MACCHINE E IMPIANTI
PER GELATO

ICE CREAM EQUIPMENTS
AND MACHINES

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❖ Introduction

Thank you for choosing our product. For best results, we recommend that you read this **instruction manual** carefully.

The descriptions and illustrations contained in this manual are not binding; **TECHNOGEL** reserves the right to modify and improve, without notice and at any point, machine parts where deemed necessary for construction and/or commercial motives.

⇒ Person qualified to carry out the work depending on the type of work involved

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



= Technician



= User

Where the symbol of the Technician is indicated (an electrician, plumber or mechanic) this means that the operations described can be carried out exclusively by these people. If the User attempts to carry out these operations this could prove dangerous and he/she must refrain from doing so.

⇒ Installation and first start-up



The installation and first startup of this machine must be carried out by a **TECHNOGEL** technician or one with **TECHNOGEL** authorization.

**TECHNOGEL S.p.A. DECLINES ALL LIABILITY FOR INSTALLATIONS OR STARTUPS
CARRIED OUT BY UNAUTHORIZED PERSONS.**

⇒ Positioning the machine

Keep the machine away from the sun, possibly in a cool place away from the heat.

If the machine has an air condenser, it must be kept at least half a metre (50cms) away from the wall, so that air can circulate freely.

**IF THE MACHINE IS WRONGLY POSITIONED, IT MAY OVERHEAT CONSIDERABLY
REDUCING PERFORMANCE AND INCREASING ENERGY CONSUMPTION.**



⇒ How to unpack the machine

EURO 3 - GROSS WEIGHT 290 KG. - NET WEIGHT 200 KG.
ATTENTION

DUE TO ITS PARTICULAR SHAPE, THE MACHINE MAY BE UNSTABLE DURING HOISTING



Remove all the side and top wooden panels.

Lift the machine using a fork lift truck, inserting the forks between the machine base and the crate base.



Under the crate base unscrew the four bolts that hold the machine tightly in position.

ATTENTION:

after removing these bolts, the base of the crate will drop to the ground.

After removing the crate base, lower the fork lift truck and place the machine on the ground. The machine can now be moved by means of the handles.

THE TYPE OF WOOD USED FOR THE PACKING CRATE IS NATURAL SPRUCE, NOT CHEMICALLY TREATED SO THAT IT CAN BE PERFECTLY RECYCLED.



⇒ Hoisting the machine

EURO 3

NET WEIGHT 200 KG.

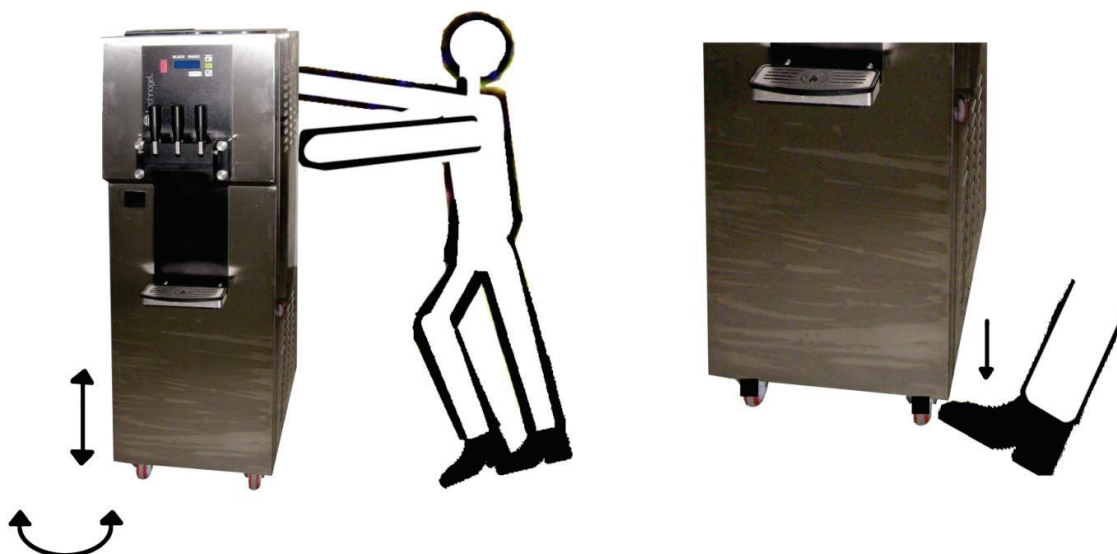
DUE TO ITS HIGH, NARROW SHAPE, THE MACHINE MAY BE UNSTABLE DURING HOISTING



Hoist the machine using a fork lift truck, inserting the forks from the side of the machine between the front and rear wheels.

Hoist the machine with belts near the front and rear wheels. (as in drawing). The tie rod lifting the machine must be at the exact centre of the machine.

⇒ Moving the machine



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

After positioning the machine, use your feet to lock with the front wheel brakes.

NEVER USE YOUR HANDS



⇒ Machine identification

Each machine is equipped with a plate that includes the following information:

- **type of machine**
- **serial number**
- **wattage**
- **year**
- **voltage and hertz**
- **electrical power**
- **type of gas and amount**

The plate can be found on the outside rear section of the machine.

Below is the serial number plate pertaining to this machine:

 technogel	
MACCHINA TIPO MACHINE TYPE	<input type="text"/>
MATRICOLA N. SERIAL NUMBER	N. <input type="text"/>
ANNO YEAR	<input type="text"/>
VOLTAGGIO VOLTAGE	V <input type="text"/> A <input type="text"/>
POTENZA POWER	KW <input type="text"/>
GAS FREON	R <input type="text"/> Kg <input type="text"/>
<div>Via Boschetti 51, GRASSOBBIO (BG) ITALIA Tel. 035-4522062 Fax 035-4522682</div> <div></div>	

When ordering spare parts or requesting technical assistance, always have the following data available:

- **MACHINE TYPE**
- **SERIAL NUMBER**
- **VOLTAGE**



⇒ Electric installation

The electrical installation, which the machine is connected to, must be carried out by a **skilled electrician** according to regulations and observing the **Laws in force**. An efficient electrical installation with earthing is the most important thing in order for your machine to work perfectly.

Fit a suitable wall switch: we strongly recommend fitting an automatic differential switch. See table (A) for power rating and absorption details.

Check that the mains voltage rate is the same as the machine rating, shown on the serial number plate (see page 5).

The power cable has 4 wires when the machine is 220V and 5 wires when it is 380V or 415V.

When the cable has 4 wires, the **yellow/green** is the **earth** wire - the other three are for the **three phases**.

When the cable has 5 wires, the **yellow/green** is the **earth** wire- the **blue** wire is **neutral** - the other three are the **three phases**.

TABLE (A)

EURO 3	220V 50hz	220V 60hz	V.200 50/60hz	380V 50hz	V.380 60hz	415V 50hz
Total power KW	3,5	3,4		3,4	3,4	3,4
Max. absorp. A	25	25		13	13	14
Power cable Wires & section	4 x 4 mm²	4 x 4 mm²		5 x 2,5 mm²	5 x 2,5 mm²	5 x 2,5 mm²

We recommend checking the earth connection and safety devices of your electric plant thoroughly.

**TECHNOGEL CANNOT BE HELD LIABLE FOR ANY DAMAGE ARISING FROM
INCORRECT INSTALLATION OR MAINS DEFECTS.**



⇒ Water connection

This type of machine normally has an air-cooled condenser; it is therefore unnecessary to make a water connection.

If, on the other hand, the machine is water-cooled, connect the mains hose to the pipe fitting that reads “**ENTRATA ACQUA-WATER INLET**” on the serial number plate; The drain hose must be connected to the fitting that reads “**USCITA ACQUA-WATER OUTLET**”.

To connect the machine to the mains, we recommend using a rubber hose suitable for up to **10 BAR** with an inside diameter of about 15 mm (matching the fittings supplied with the machine).

If, for any reason, the plates indicating water inlet and outlet are illegible, please note that the water inlet hose is fitted to the pressure-switch valve.

WATER PRESSURE AND CONSUMPTION

If the machine is using mains water, check that the incoming water has a pressure of at least **1 BAR**.

If the water pressure is more than **5 BAR**, fit a pressure reducer to the system, to reduce this to **4 BAR**.

Average water consumption (when the refrigerating unit is on) is:

EURO 3 = 70/100 litres/hour

The above-mentioned consumption, depends on the temperature of the incoming water.

If the water contains impurities, fit a purifying filter to prevent scaling and/or damage to the pressure-switch valve.

⇒ Initial start-up



CAUTION IMPORTANT

TO CARRY OUT INITIAL START-UP, PRESS THE “START” BUTTON AND THEN WAIT FOR AT LEAST 60 MINUTES BEFORE ACTIVATING THE REFRIGERATOR COMPRESSOR.

IF THE MACHINE IS DISCONNECTED FROM THE POWER SUPPLY FOR ONE DAY OR MORE, AFTER PRESSING THE “START” BUTTON, IT IS NECESSARY TO WAIT FOR AT LEAST 60 MINUTES BEFORE ACTIVATING THE REFRIGERATOR COMPRESSOR.

**IF THE MACHINE IS NEVER DISCONNECTED FROM THE POWER SUPPLY NO WAITING PERIOD IS NECESSARY.
COMPRESS**

Features control panel






Screen that appears after pressing the "START"



ATTENTION:

Except the STOP button, with immediate effect, until the command is accepted, press and hold the other buttons for more than half a second.

Machine operation keys

	START Button: Starts and stops the operation of the machine
	STOP button: Stops the operating cycle of the machine whatever it is.
	ENTER button to confirm choices on the display
	UP ARROW key '': moves the cursor and increases the values of the settings
	DOWN ARROW button '': moves the cursor and decreases the values of the settings.

Cycle start

Pressing the button shown you enter the settings page Work

to choose
DISTRIBUTION
WASHING
STORAGE
LOAD MIX
move the cursor to the next
word by pressing the UP
ARROW 'June'.

Press the ENTER button to
enter the settings page

DISTRIBUTION

Viscosity value 'read / set

N ° pcs disbursed

tank temperature




Temperature cylinder chamber

Press STOP to return to the
ViewPreviousPage

KEY INCREASE VISCOSITY 'SET
POINTS OF TWO STEP)

KEY DECREASE VISCOSITY 'SET
POINTS OF TWO STEP,

Cycle start

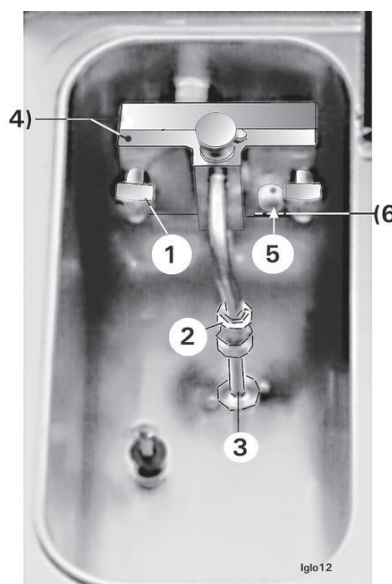
	<p>WASHING</p> <p>In this phase the motor only works batch freezer, to allow the operator to perform the washing machine.</p>
	<p>STORAGE</p> <p>It starts the cooling cycle to maintain the product in the tank 4 to 6 ° C. Similarly the product is retained in the cylinder.</p> <p>A regular interval of time the engine mixed batch freezer keeps the product in the cylinder.</p>
	<p>LOAD MIX</p> <p>After filling the tanks with the mixture press ENTER: the machine will load 'the mix in the freezer pipe then stop for 30 seconds to a minute for 3 consecutive times, this operation allows the tube-loading freezer properly.</p> <p>At the end of loading the machine will proceed 'in Automatic mode with the production of ice cream.</p>

Alarm list

ALARM	CAUSE	SOLUTION
The display shows the message "MAX C"	Exceeding the set current value	Reset and reboot the machine. If the problem persists, contact the Technical Assistance
The display shows the message "MAX P"	1. Exceeding the maximum pressure in the chiller plant and intervention at the state by: - Lack of air flow, or - Interruption of the flow of cooling water (water-cooled only) 2. Anomaly in the operation of the switch	1. Verify proper air flow leaving the correct space between the nearest wall and the back of the machine. Make sure the opening of the tap water. Check there are no obstructions in the water supply line. 2. Refer to Technical
The display shows the message "Tmax"	1. Viscosity value set too high 2. Cooling system drain 3. Mixture not properly balanced	1. Reset by pressing ENTER and restart distribution, lowering the viscosity set 2. Replace the processed product; if the problem persists, contact the Technical Assistance 3. Refer to Technical
The display shows the message "MAX IM"	Thermal protection of the motor batch freezer: - Excessive absorption	Wait a minute, reset the machine and reboot. If the alarm persists, contact the Technical Assistance
The display shows the message "MAX ICMP"	Thermal protection of the motor of the compressor: - Excessive absorption of the compressor motor	Contact Customer Services
The display shows the message "R. APERTO"	Failure to close the flange of delivery.	Make sure that the sensor with a magnet functions. Close and restart the flange. Contact Customer Services
The display shows the message "MANCANZA RETE"	During the cycle is no power supply: this is displayed when you restart	The machine starts in the state in which he was the first stop. Delete the message by pressing ENTER
The display shows the message "LIVELLO "	The contents of the tanks has fallen below the minimum level.	Press the "ENTER to silence the audible alarm. Proceed to fill the tanks.
The display shows the message "ERRORE PH"	The motor rotates in reverse.	Turn off the machine. Remove the power plug to rotate the phases. Reconnect the machine and start.
The display shows the message "SONDE TNK o CIL" e T999.9	Malfunction of temperature sensor or TNK CIL	Contact Customer Services
The display shows the message "ERRORE EEPROM"	Malfunction of the control board	Contact Customer Services
The display shows the message "DERIVE CIL"	Exceeding the temperature gradient cylinders. Cylinders not filled to capacity.	Reset by pressing ENTER, test the complete loading of the mixture and start whisking. If the problem persists, contact the Technical Assistance

⇒ Machine operation – EURO 3 (machine with pump)

- Unscrew the handwheels (1) and remove the pump cover (4)
- Take out the pressure pipes (3) by pulling them upwards.
- Put **0,500 litres** of mixture into each tub.
- Reassemble the pump's covers and screw tight the handwheels (1).
- Put the mixture into the tanks, being carefull that the level (6) does not exceed the white air suction's sleeve (5).
- start the machine by turning the control handle from **STOP** to **DISTRIBUTION** (see page8).
- On the first startup the pumps will make a lot of noise. This means that everything is working properly.



Check the level of the mixture; if you see that it has gone down 10/15mm (in the course of 15/20 seconds) this means that the pumps are loading properly. If the level has not gone down, or has gone down only in one tub, this means that the pump is not loading the mixture properly.

If the level of the mixture does not go down, tighten the handwheels (1) again and you will see that the pump will start loading.

After about a minute the noise of the pump will lessen and will be no longer excessive, but normal; this means that the freezer pipes have gone into pressure and that the pumps are turning in by-pass. N.B TO MODIFY THE VISCOSITY ', USE THE ARROWS ORDERED TO RIGHT OF THE DISPLAY AFTER CHANGING THE VISCOSITY 'MUST WAIT A FEW STARTING TO VERIFY THE RESULT

- Wait for the machine to click three times, i.e. it will stop and start automatically three times; when it starts for the fourth time, the ice-cream will be ready and can be delivered from the flange by pulling one of the three handles.

IMPORTANT WARNING

THERE SHOULD NOT BE, FOR ANY REASON, ANY LUMPS IN THE MIXTURE, NOT EVEN IF SMALL ONES.

IF THEY GET INTO THE PUMP THEY MIGHT BLOCK IT.

THE AMOUNT OF AIR THE PUMPS PUT INTO THE ICE-CREAM IS REGULAR AND CANNOT BE ADJUSTED.

⇒ Machine performance

Whether or not the machine has pumps, production capacity is the following:

EURO 3 = Make a 75 gramme cone of ice-cream every 10/12 seconds.

BLACK MAGIC = Make a 75 gramme cone of ice-cream every 6/7 seconds

ATTENTION

The above-mentioned performance can be obtained by delivering ice-cream with the middle handle of the flange; i.e. delivering mixed ice-cream (half in one flavour and half in another).

(ONLY EURO 3)

Care must be taken to deliver one-flavour ice-cream. Ice-cream of the same flavour cannot be delivered continuously because at a certain moment, either the ice-cream will stop coming out, or it will come out liquid. In the meantime the other flavour will become so hard it will get blocked.

Therefore, try, as far as possible, to alternate delivering the ice-cream, bearing in mind that the best results are obtained by delivering mixed ice-cream (by pulling the middle lever).

IMPORTANT WARNING

THE MACHINE HAS BEEN DESIGNED TO DELIVER ICE-CREAM INTERMITTENTLY.

THE MACHINE CANNOT DELIVER ICE-CREAM CONTINUOUSLY.

BETWEEN MAKING ONE CONE AND ANOTHER, THERE MUST BE A PAUSE IN ACCORDANCE TO THE MACHINE TYPE REQUIREMENT.

N: B The hourly production can 'vary (even significantly) in function of the type of mixture used and the environmental conditions.

⇒ Washing the machine: BLACK MAGIC(machines without pumps)

We recommend washing the machine at the end of every working day.

the customer may wash it every 2/3 days at his own risk, according to the type of ice-cream he makes (milk-based ice-cream, water-based fruit ice-cream etc.)

To wash the machine proceed as follows:

A - turn the control handle to WASHING (see page 8) and let the machine turn for about 15 minutes.



DO NOT LET THE MACHINE TURN FOR MORE THAN 30 MINUTES.

B - While the machine is turning, remove the feeding valves from the tubs (see page 11) by pulling them out of their seats.

C - After 15 minutes, remove the mixture remaining in the tubs and the freezer pipes by pulling the output flange levers (this will have melted in 15 minutes). Then put the mixture into the refrigerator if you wish to use it again.

D - After taking the mixture out, pour water into the tubs (50°C is the maximum temperature) mixed with dish washer detergent; leave the machine to turn for 10 minutes and while it is turning remove any remaining mixture from the surface of the tubs with a sponge.

E - Drain the water from the flange and repeat operation D until clean water comes out of the machine.

F - Drain and repeat using cold water.

G - Drain the remaining water and stop the machine by turning the control handle to STOP.

H - Dismantle the various components and dry the machine (see the following pages).

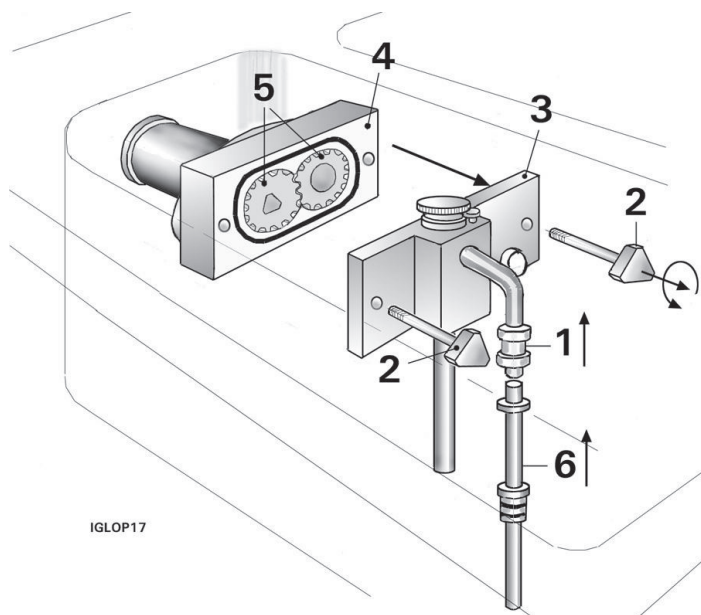
IMPORTANT WARNING

NEVER LET THE MACHINE TURN WITHOUT WATER IN IT. BETWEEN ONE PHASE AND ANOTHER, STOP THE MACHINE BY TURNING TO STOP AFTER DRAINING THE WATER AND BEFORE POURING IN ANY MORE.

⇒ Washing the machine: BLACK MAGIC (machines with pump)

Bearing in mind the introduction to washing on page 13, before you start to wash machines with pumps, dismantle the two groups of pumps from the machine in this way:

- Turn the control handle to STOP.
- Let the pressure out of the freezer pipes by pulling the sleeve (1) upwards.
- Unscrew the handwheels (2) and remove the pump cover (3).
- Pull pump body (4) with both hands being careful not to drop the two gears (5).
- Take out the pressure pipes (6) by pulling them upwards.



From now on, repeat the various washing phases A - C - D - E - F - G - H on page 16.



IMPORTANT WARNING

ALWAYS REMEMBER TO DISMANTLE THE PUMPS BEFORE WASHING.

IF THEY ARE NOT REMOVED ,THEY MAY BE DAMAGED BY TURNING WITH THE WATER.

⇒ DISMANTLING THE COMPONENTS

Dismantle the delivery flange (1) by unscrewing the four knurled nuts (2); by pulling outwards remove the flange from the machine.

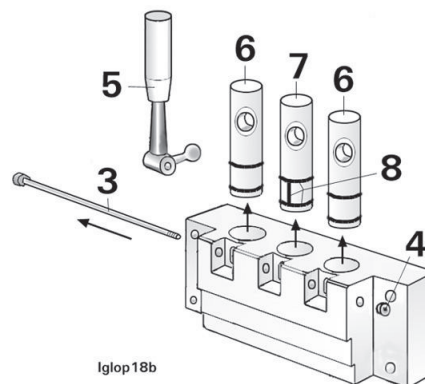
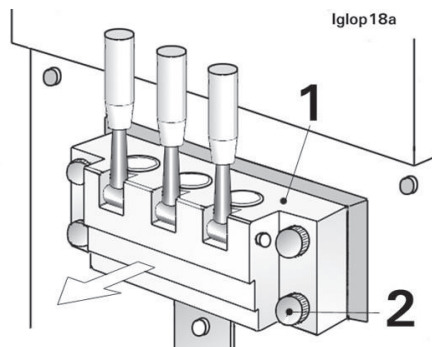
Dismantle the pieces of the flange by moving the rod (3) first which is held in position by the threaded tongue (4) - the levers with handles (5) and then the pistons (6) and (7).

Wash them thoroughly in the sink using the sponge provided with the machine so as to get into the piston seats.

Rinse and before reassembling, grease all the washers with Vaseline.

ATTENTION !

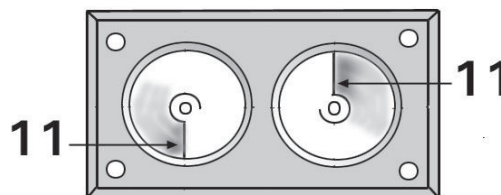
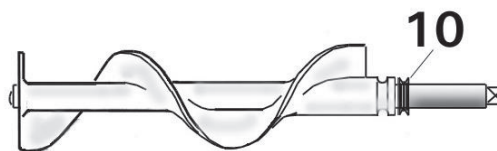
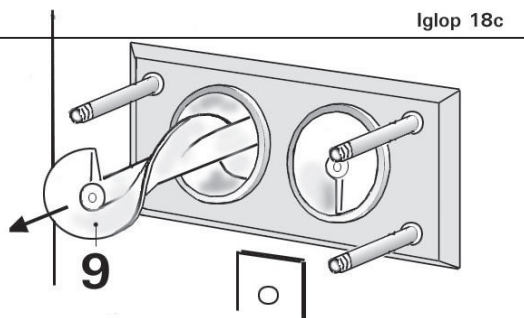
When assembling, mind the piston (7); this is different from pistons (6) as it has particular washers (8) which are different from the others. This piston is to be assembled in the centre of the flange.



⇒ MIXING TURBINE DISMANTLING

Remove the turbines (9) by pulling them outwards dry the remains of water inside the freezer pipes.

Check that the washers at V (10) of the turbines are in good condition and after greasing them with Vaseline, reassemble.



When you reassemble the turbines make sure that the ends (11) are opposite each other. They may be opposite vertically or horizontally.

⇒ Maintenance

Grease all rubber washers with Vaseline after washing.

Every so often check, by pulling out the side drawer (1), if there is any leakage of ice-cream from the turbines. (see fig. **A**).



If there should be a lot of ice-cream in the drawer, check the washers at **V (10)** (page 18); if they are damaged, replace them.

At the end of the season (only in the case of air-cooled machines), clean the air-condensor of the machine by blowing compressed air inwards. (see fig. **B**).



Check the nipple and wear of the transmission belts and if they need changing, change them all, never just one.



A



B



WARNING

PLEASE CALL AUTHORIZED TECHNICAL SERVICE FOR ANY IMPORTANT ASSISTANCE NEEDED ON THE INSIDE OF THE MACHINE.

- Noise level

The level of acoustic noise measured with the machine running at a distance of 1 metre, is less than 70 dB (A).

- Ecological warning

“This machine ,when it is no longer in use it must be handed over to the appropriate collection centres: please ask the local authorities in your town for information about the refuse collection service.”

- Notice of possible machine breakdown

(only in the case of water-cooled machines)

If the machine is not used during the winter season, make sure that the temperature in the room where the machine is stored does not fall below 0 °C.

Because the machine is water-cooled, freezing temperatures may cause the refrigerating system to break, resulting in severe economic damages.

⇒ **Technical assistance**



Technical interventions performed inside the machine by unauthorized personnel may endanger personnel safety.




It is therefore advisable to call the **AUTHORIZED TECHNICAL SERVICE** whenever the machine breaks down.

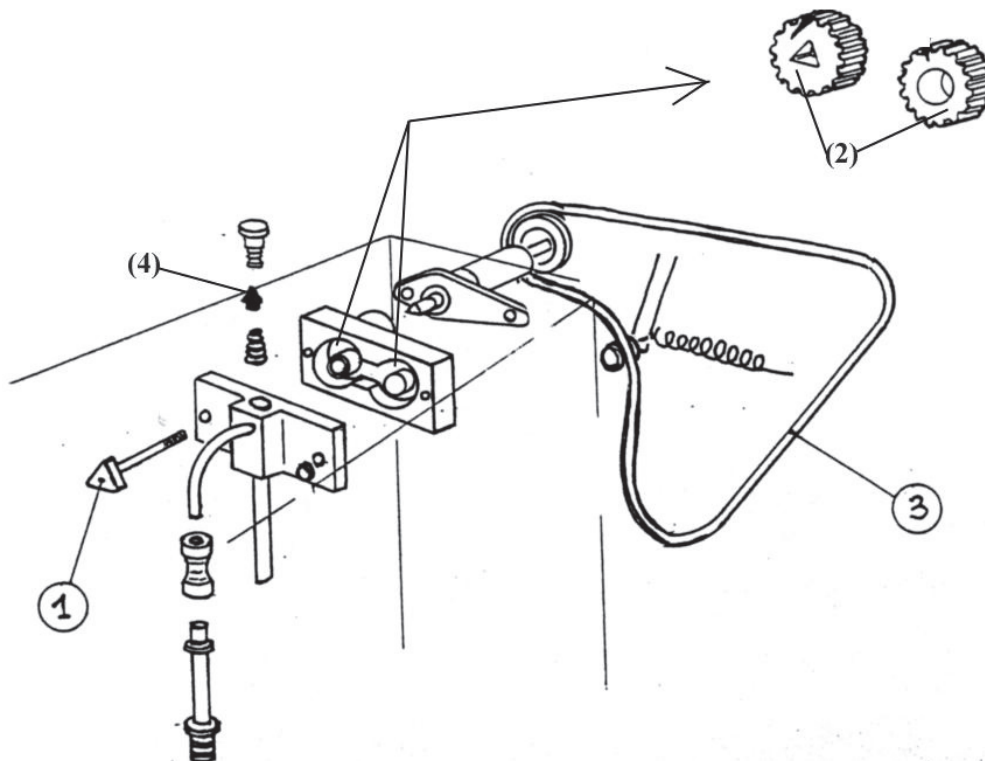
TECHNOGEL S.p.A. IS NOT RESPONSIBLE FOR DAMAGES CAUSED BY TECHNICAL INTERVENTIONS CARRIED OUT BY UNAUTHORIZED PERSONNEL.






IN ADDITION, TECHNOGEL S.p.A. IS NOT RESPONSIBLE FOR DAMAGES CAUSED BY THE USE OF NON-ORIGINAL SPARE PARTS AND THUS NOT APPROVED FOR INSTALLATION ON TECHNOGEL MACHINES.







The next pages contain special **INSTRUCTIONS FOR TECHNICAL SERVICE PERSONNEL** with technical data sheets pertaining to each model.

⇒ Problems, causes and possible solutions

PROBLEMS	CAUSES	SOLUTIONS	
The pumps work but they do not suck ice cream mix and, therefore, do not inject into the freezing pipes.	<p><i>You did not tightened the handwheels (1) locking the pumps well.</i></p> <p><i>You did not lubricate the pumps gears'sides.</i></p> <p><i>The pumps gears are worn.</i></p>	<p>Strongly lock the handwheels.</p> <p>Grease with vaseline grease or with the mix itself the two sides (2) of gears.</p> <p>Replace the gears.</p>	
<p>The pumps are locked and do not work.</p> <p>The pump/s works but do not load even if everything seems OK.</p>	<p><i>The pump/s are locked because of foreign matter.</i></p> <p><i>The by-pass valve(4) has been assembled on the wrong way.</i></p>	<p>Completely remove the pumps, wash them well, grease them again and reassemble.</p> <p>Remove the pump cover and verify.</p>	
The pumps are locked and do not work.	<i>The pumps do not work because the belts (3) slip.</i>	The belts (3) worn out; replace them.	



PROBLEMS	CAUSES	SOLUTIONS	
Ice cream does not flow out, even if you have operated correctly.	<i>The machine works on the wrong way.</i>	Check the pulley's direction of rotation (see page 9).	
After a while the machine jams up due to the excessive ice cream hardness and the overload cut-out stops the machine.	<i>Wrong regulation of the overload cut-out.</i> <i>Wrong composition of ice cream mixtures.</i>	Lower by 2°C the ice cream thermostat(see page 14). Connect again the cut-out by pushing the button (4). Remake the mixtures and try again.	
After delivering 5 mixed cones, ice cream does not come out from the flange any longer.	EURO 3 <i>Feeding valve is too shut.</i> <i>Excessive speed of cones delivery.</i>	Open by 2 or 3 mm. the feeding valves triangle (see page 11). Fill the cones with the correct frequency and complying with the breaks between one cone and the other (see page 13). See page 22.	
When pulling the flange handle the motor does not start up and, hence, the ice cream does not flow out.	<i>The motor overload cut-out is working and it stopped the machine operation.</i>	Turn on again the overload cut-out by pushing the button (4).	
When pulling the flange handle the motor does not start up and, hence, the ice cream does not flow out.	<i>The microswitch (1) operated by pistons does not work.</i>	Check the microswitch by removing the front panel (3) tightened by the screws (2) and, in case, replace.	

PROBLEMS	CAUSES	SOLUTIONS	
Machine goes on working up until it jams up.	<i>The ice-cream thermostat does not work.</i>	Check and, in case, replace it.	
Machine goes on working without topping but the ice cream is soft.	<i>The freezing compressor has certainly lost the refrigerating gas and it doesn't cool.</i>	Call the SERVICE and have the refrigerating system checked.	
The ice cream mix in the tanks does not cool.	<i>The thermostat of the tanks does not work.</i>	Check and, in case, replace.	
After 4-5 cones, air under pressure and soft ice cream come out of the flange.	<i>The flange was fully opened and thus all ice cream has come out too quickly.</i>	Always gradually open avoiding sudden operations. Be careful to keep the breaks between one cone and the other.	
Machine (air cooled) heats up too much.	<p><i>The condenser is not cooled enough:</i></p> <ul style="list-style-type: none"> - <i>the rear part is too close to the wall or to a glass door</i> - <i>machine is placed in a small and closed room where there is no change of air;</i> - <i>machine is in the sun without any protection.</i> 	<p>Place the rear part of the machine at 0,5 mts. at least from the wall.</p> <p>Remove the machine into a larger room where there is change of air.</p> <p>Put a sunshade parasol or move the machine in the shade.</p>	
Machine (water cooled) does not cool and works by fits and starts.	<i>The quantity of water to the machine is not enough.</i>	Check whether the water tap is turned on. Increase the quantity of water to the machine.	

⇒ Technical specifications: **BLACK MAGIC**

Refrigerator compressor	Semi-airtight, HP 2
Refrigerating Gas	R404 quantity: Kg. 1,100
Motor 900 r.p.m.	HP 2,5
Condensation	Air
Fan 1300/1550 r.p.m.	Single phase kW. 0,150

Overload cutout calibration	V.200 50/60HZ	V.220 50HZ	V.220 60HZ	V.380 50HZ	V.380 60HZ	V.415 50HZ
Refrigerator compressor A.		15		7		
Motor A.		10		5,5		

Electrical fuses	V.200 - V.220	V.380 - V.415
Line protection	n°3 d. 10 x 38 20A. AM type	n°3 d. 10 x 38 16A. AM type
Fan protection	n°2 d. 5 x 20 2A. rapid type	n°2 d. 5 x 20 2A. rapid type
F2 primary transformer	n°1 d. 5 x 20 2A. rapid type	n°1 d. 5 x 20 2A. rapid type
F3 secondary transformer	n°1 d. 5 x 20 6,3A. delayed type	n°1 d. 5 x 20 6,3A. delayed type

Fixed calibration high pressure switch	Intervention pressure values (+/- 0,5 Bar)
Cutout pressure	20,7 Bar - 300 Psi
Connect pressure	13,8 Bar - 200 Psi
Differential	6,9 Bar - 100 Psi

REFRIGERATION PLANT WORKING PRESSURE AND TEMPERATURES

Condensation	Cycle start-up	End of cycle
From +35°C to +45°C	-18°C	-30°C

The machine is supplied with the above default values and settings.

TECHNOGEL S.p.A. IS NOT RESPONSIBLE FOR DAMAGE TO OBJECTS AND/OR PERSONNEL CAUSED BY MODIFICATIONS TO THE PRE-SET VALUES, OR FROM USING FUSES THAT HAVE INCORRECT CHARACTERISTICS AND SIZE, OR IN ANY CASE DIFFERENT FROM THOSE PRESCRIBED.

The next pages contain a description of various components of the machine.

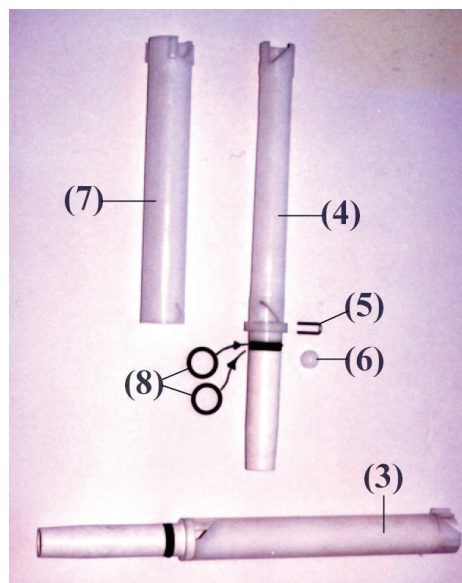
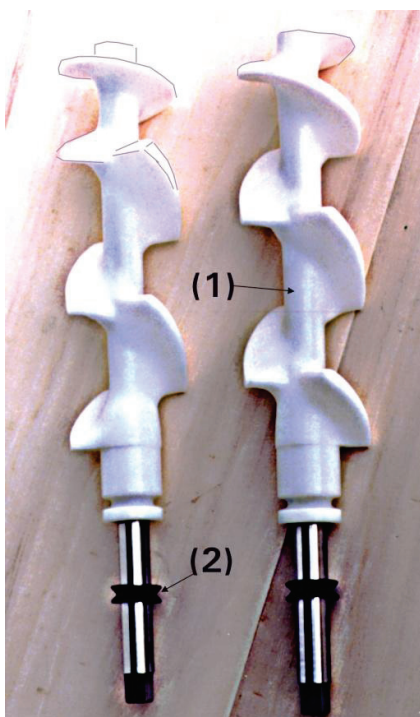
When ordering **spare parts**, always include the following data:

- **machine model**
- **serial number**
- **electrical voltage** (if the component requested is part of the electric installation)
- **part number of the component whenever available, otherwise the page number where the component is shown and its corresponding number.**

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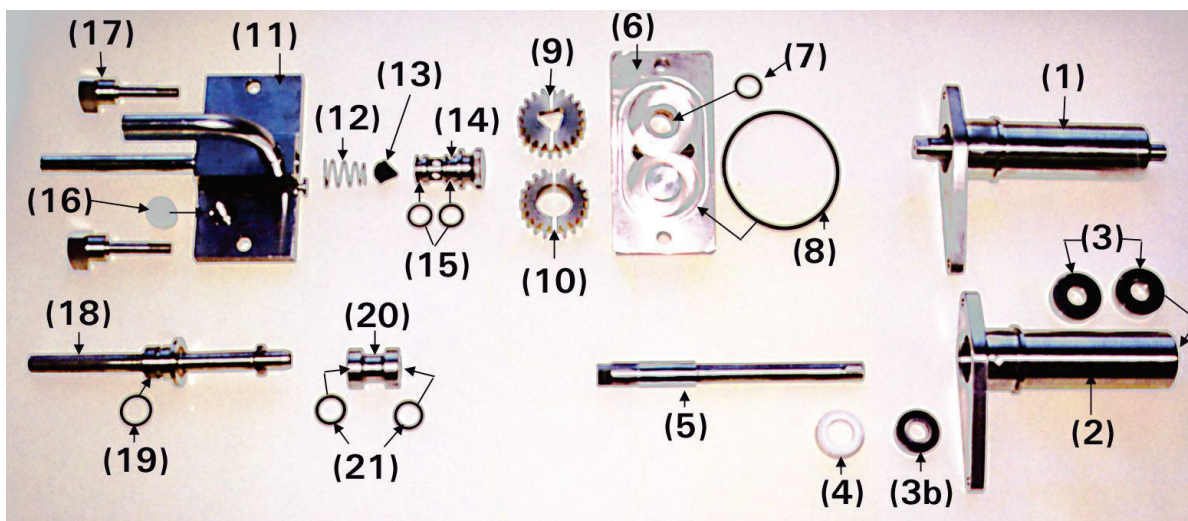


➤ Turbine unit and input valves



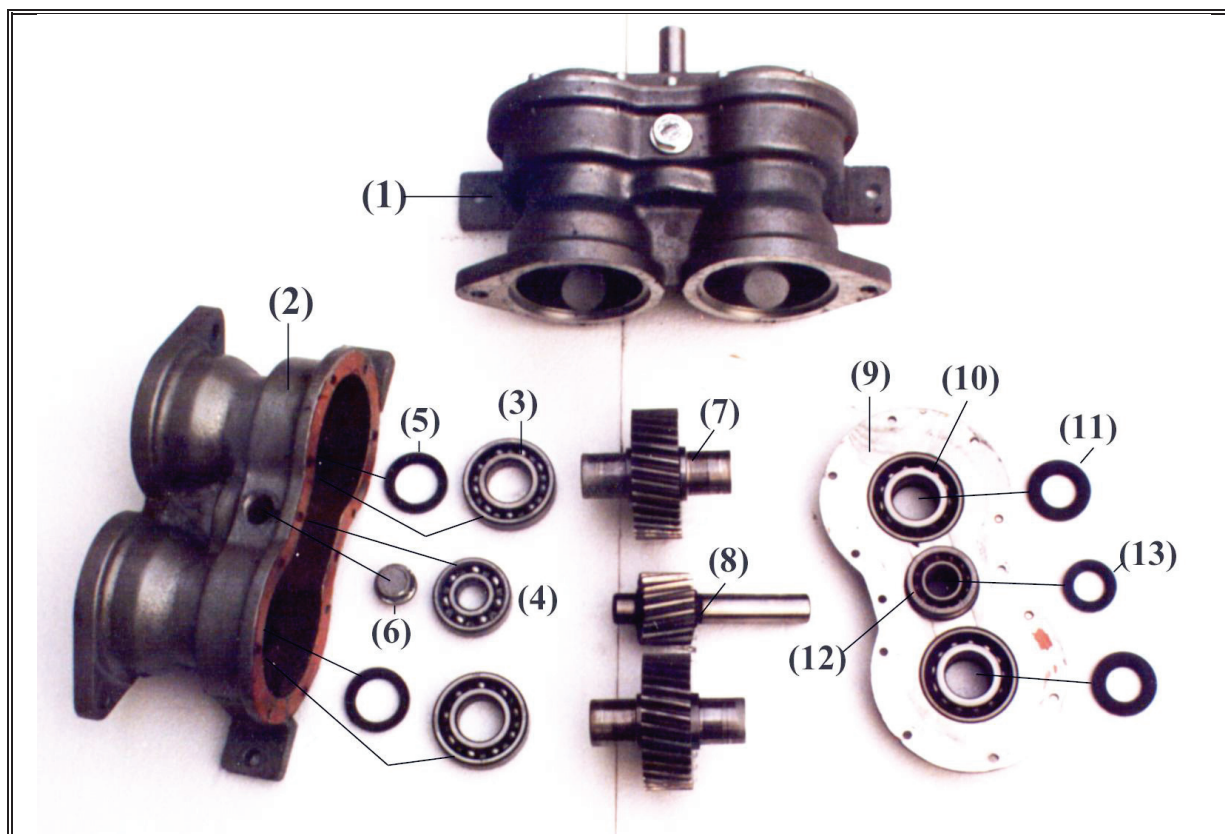
Pos.	Part name	Part number
1	Mixer turbine	NE-4344.3/11
2	V-gasket for turbine	GU-4280.0/10
3	Complete input valve	BA-0051
4	Input valve casing	EU-0038
5	Poppet ball	EU-0042
6	Floating ball	EU-0041
7	Turning sleeve	EU-0039
8	Valve seal "OR" gasket	EU-0040

➤ Pump unit



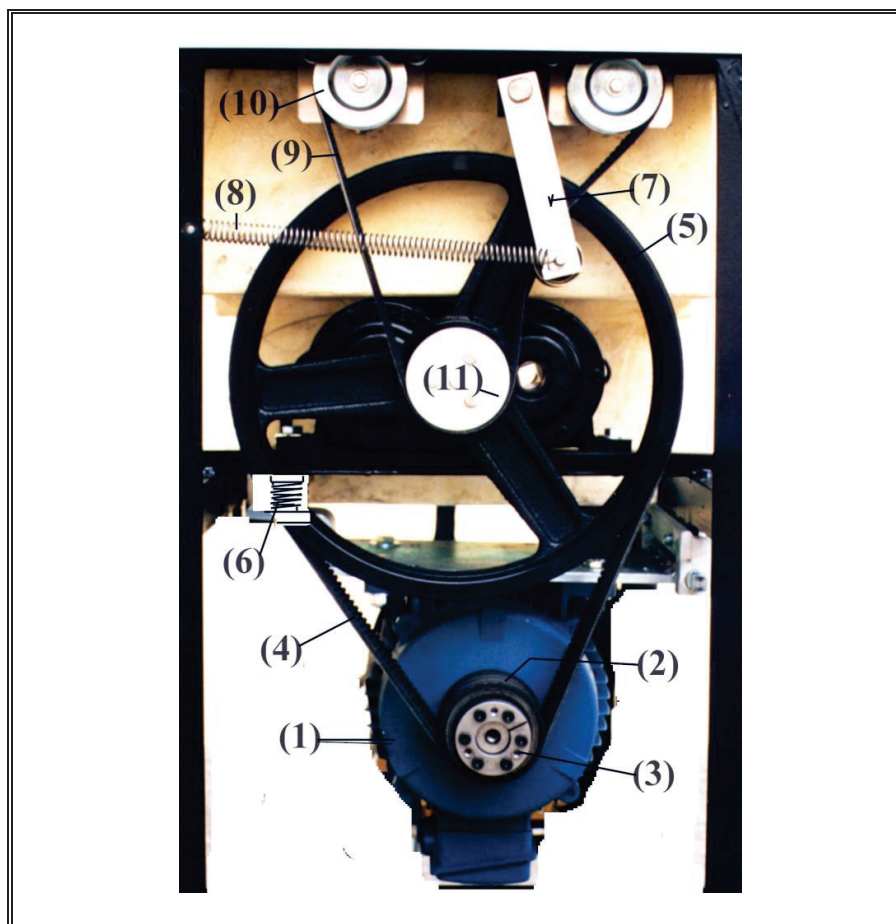
Pos.	Part name	Part number
1	Support for complete pump drag	NE-4369.4
2	Support casing	NE-4369.0/10
3	Support bearings	EP-0013
3b	Support bearing	EP-0012
4	Support hold Teflon bush	NE-1482.0
5	Pump driving shaft	NE-4376.0
6	Pump casing	NE-7130.3
7	Shaft seal "OR" gasket	AV-00028
8	Pump/cover casing seal "OR" gasket	EP-0016
9	Driving gear (with triangle)	NE-2603.0/30
10	Driven gear (with through hole)	NE-2604.0/30
11	Left pump cover	MS-0250.2 left
	Right pump cover	MS-0250.2 right
12	Spring for by-pass valve	NE-4613.0
13	By-pass rubber valve	EP-0024
14	Coupling with by-pass seal	NE-1476.0
15	Coupling gasket	EP-0010
16	Cover with air vents	NE-7740.0
17	Pump locking hand wheels	EP-0021
18	Injection pipe	NE-1498.2/20
19	Pipe "OR" gasket	EU-0040
20	Sliding coupling box	NE-1447.0
21	Coupling seal "OR" gasket	AV-00027

➤ Reduction unit



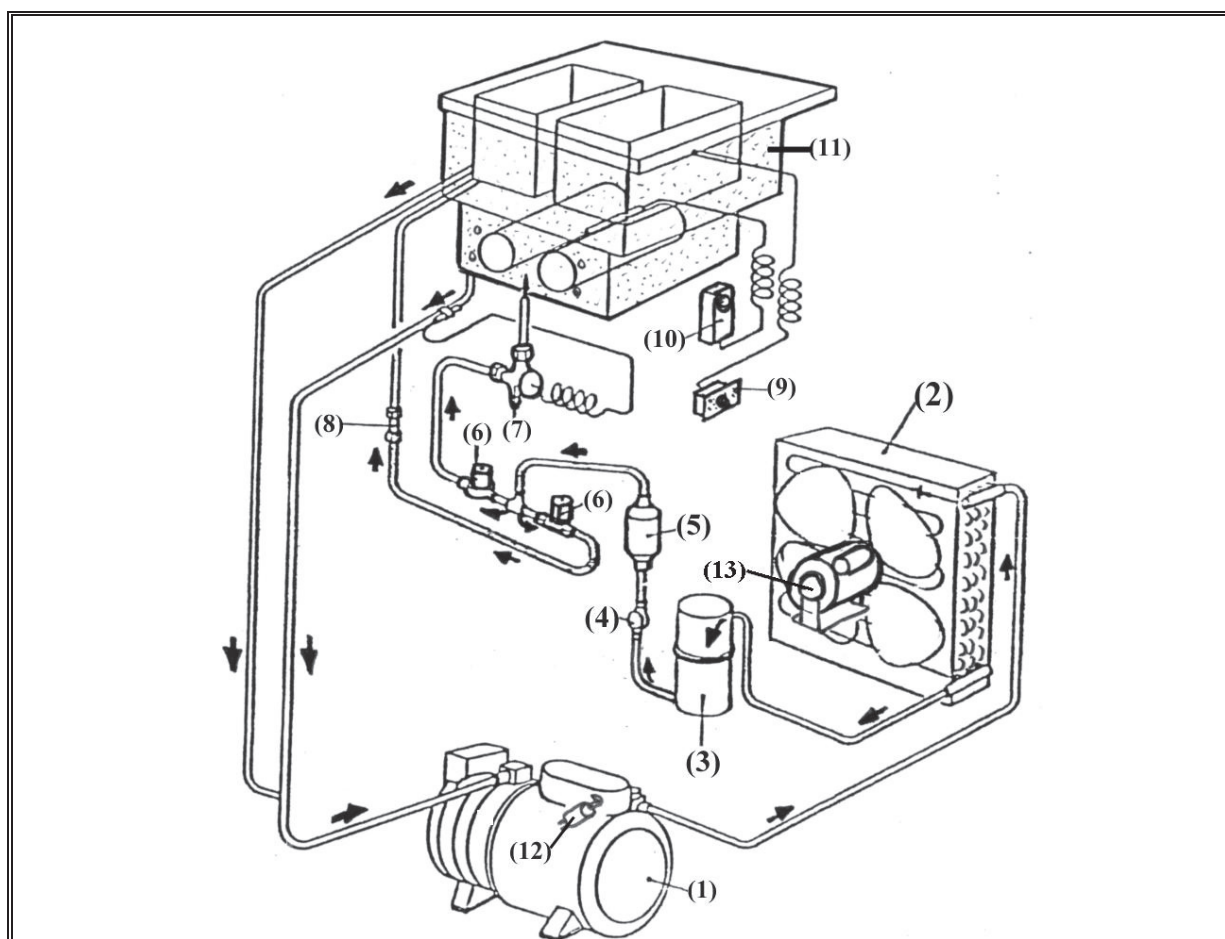
Pos.	Part name	Part number
1	Complete reduction unit	NE-2869.4/30
2	Reduction crankcase	NE-2870.0/30
3	Side bearing for crankcase	VA-0100
4	Central bearing for crankcase	NE-0019
5	Crankcase side seal	NE-0014
6	Breathing cap for oil	NE-0016
7	Side gear with hollow shaft	NE-0021
8	Central pignon gear	NE-0024
9	Reduction unit cover	NE-2871.0/20
10	Cover side bearing	NE-0013
11	Cover side seal	NE-0014
12	Cover central bearing	EU-0062
13	Cover central seal	NE-0015

➤ Shaft unit with turbine engine



Pos.	Part name	Part number
1	Turbine engine 220-240/380-415 V. 50HZ 220/380 V. 60HZ 200V./50-60HZ	MO-8653.6 MO-8653.6-6 MO-8653.6-2B
2	Motor pulley	NE-4412.0/10
3	Key for motor pulley	PU-6601.6
4	Transmission belts (3 pieces)	RO-0020
5	Reduction unit pulley	NE-4556.0
6	Turbine engine belt stretcher spring	ML-4912.0
7	Complete belt stretcher for pump support	NE-4605.4
8	Belt stretcher spring	NE-0018
9	Transmission belt for pumps (2 pieces)	NE-0114
10	Pump drag pulley	NE-7863.0
11	Transmission pulley for pump unit	NE-4562.0/10

➤ Air-cooled refrigerating system unit



Pos.	Part name	Part number
1	Refrigerating compressor : 220/240/380/415 V. 50HZ 220/380 V. 60 HZ 200 V. 50/60 HZ	CP-7820.6 CP-6052.6/10 CP-7823.6
2	Air condenser	CD-6519.3
3	Liquid gas container	NE-0040
4	Gas pilot lamp	M2-0049
5	Gas filter	CD-5622.6
6	Solenoid valve without electric coil - electric coil only 24V. 50/60HZ	VV-5615.6 VV-5616.6
7	Thermal expansion valve	VT-9157.6
8	Expansion nipple for tanks	RG-6949.0
9	Tank thermostat	TM-0103
10	Ice cream thermostat	EU-0146
11	Freezer pipes with tank for machine without pumps	NE-0069/IS
11	Freezer pipes with tank for machine with pumps	NE-0166/IS
12	High pressure valve	TR-6251.6
13	Fan : motor only 220/240 V. 50/60HZ - for fan	NE-0155 VE-5599.6