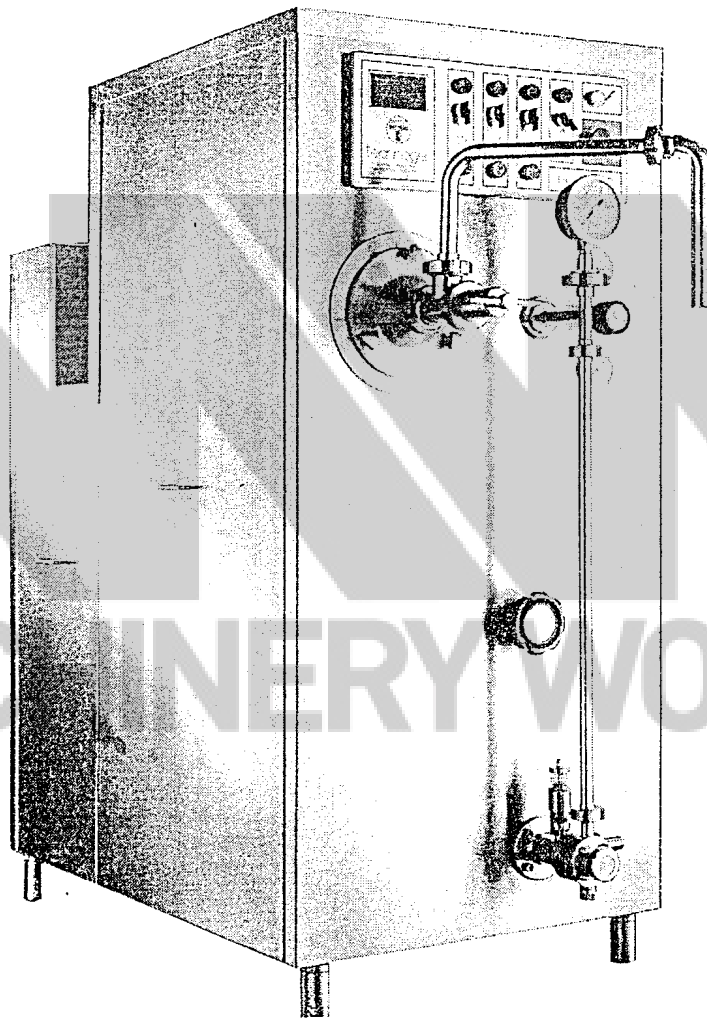


INSTALLATION, USE AND MAINTENANCE INSTRUCTIONS

GB



FREEZER 100 - 150 - 300 - 400

FREEZER 600 - 800 Two flavours

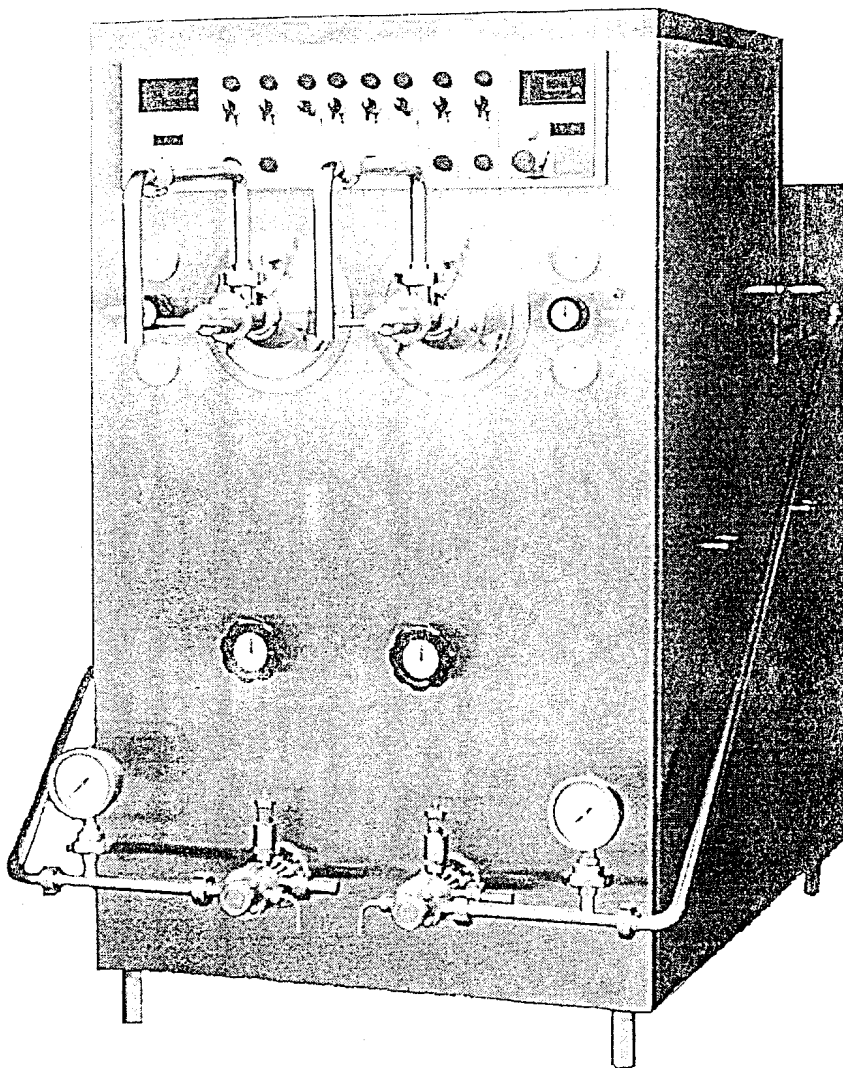


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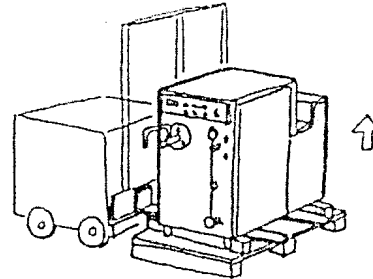
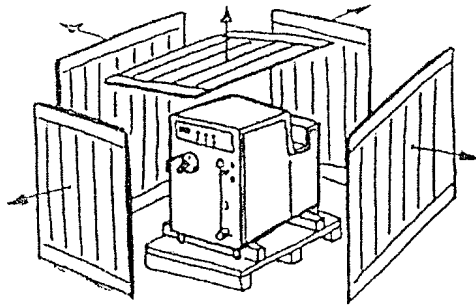




FREEZER 600 Two flavours
FREEZER 800 Two flavours

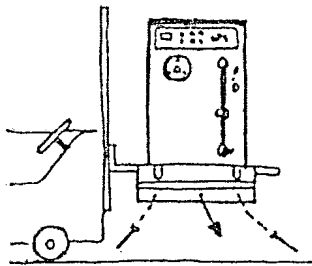
- Unpacking the machine

FREEZER 100	GROSS WEIGHT = 550 Kgs	NET WEIGHT = 413 Kgs
FREEZER 150	GROSS WEIGHT = 610 Kgs	NET WEIGHT = 470 Kgs
FREEZER 300	GROSS WEIGHT = 705 Kgs	NET WEIGHT = 555 Kgs
FREEZER 400	GROSS WEIGHT = 750 Kgs.	NET WEIGHT = 600 Kgs.
FREEZER 600 two flavours	GROSS WEIGHT = 1170 Kgs	NET WEIGHT = 970 Kgs
FREEZER 800 two flavours	GROSS WEIGHT = 1260 Kgs.	NET WEIGHT = 1060 Kgs.



Remove all upper and side wooden panels.

Use a fork lift truck to lift the machine, placing the lifting blades between the bottom of the machine and the packing case.



Unscrew the four bolts that secure the machine from the bottom of the case.

WARNING!

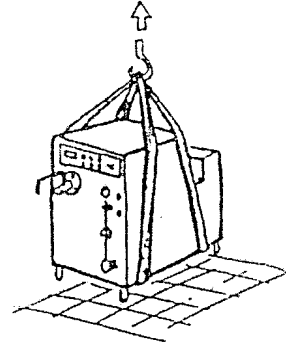
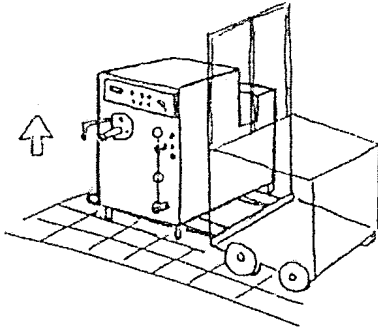
Once these bolts are removed, the bottom of the case will detach from the machine.

After removing the bottom part of the case, lower the fork lift and set the machine on the ground.

THE PACKING CASE IS MADE ENTIRELY FROM NATURAL SPRUCE, WITH NO ADDED CHEMICALS AND IS THEREFORE PERFECTLY RECYCLABLE.

- Lifting the machine

FREEZER 100	NET WEIGHT = 413 Kgs
FREEZER 150	NET WEIGHT = 470 Kgs
FREEZER 300	NET WEIGHT = 555 Kgs
FREEZER 400	NET WEIGHT = 600 Kgs
FREEZER 600 two flavours	NET WEIGHT = 970 Kgs
FREEZER 800 two flavours	NET WEIGHT = 1060 Kgs

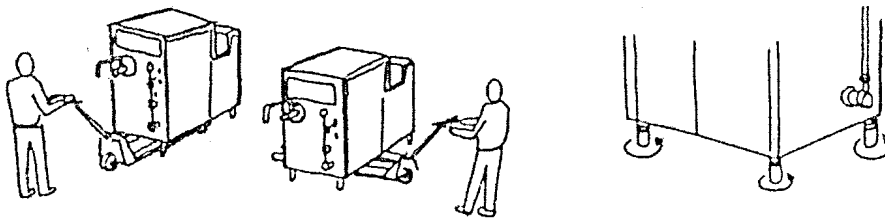


Use a fork lift to lift the machine, inserting the lifting blades on the side of the machine, between the front and rear support feet.

Use belts to lift the machine, keeping them as shown above, close to the front and rear support feet.

The lift rod must be positioned exactly in the centre of the machine.

- Moving the machine



Move the machine using a manual pallet truck.
Slide the blades of the truck under the machine either from the front or from the side.

After positioning the machine, verify that all four support feet are resting on the ground.
Adjust these support feet so that the machine is slightly tilted forward.

- Introduction

We thank you for choosing our product and strongly recommend that you follow the instructions contained in this manual in order to optimize machine performance.

The descriptions and illustrations contained in this manual are not binding. Therefore, TECHNOGEL S.p.A. reserves the right to make changes, at any time and without due notice, to parts of the machine whenever these are deemed necessary to meet any type of commercial and/or manufacturing requirement.

- Machine installation and first start-up

Installation and first start-up of the machine must be carried out by a TECHNOGEL S.p.A. technician or one authorized by TECHNOGEL S.p.A.



TECHNOGEL S.p.A. IS NOT RESPONSIBLE FOR MACHINE INSTALLATIONS AND START-UPS PERFORMED BY NON-AUTHORIZED PERSONNEL.

- Electric installation

Install an adequate wall switch; we strongly recommend installing a differential automatic switch.

See Table (A) for absorption and power data.

Verify that the mains voltage is the same as the machine operating voltage, as indicated on the serial number plate (see page 7).

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

Table A

FREEZER 100		220 V 50 HZ	220 V 60 HZ	200 V 50/60 HZ	380 V 50 HZ	380 V 60 HZ	415 V 50 HZ
Total capacity	kW	5.2	5.2		5.2	5.2	5.2
Maximum absorption	A	20	20		12	12	11.5
Line cable # of wires and cross-section		4 x 4 mm ²	4 x 4 mm ²		4 x 2.5 mm ²	4 x 2.5 mm ²	4 x 2.5 mm ²

FREEZER 150							
Total capacity	kW	6.6	6.6		6.6	6.6	6.6
Maximum absorption	A	26	26		15	15	14
Line cable # of wires and cross-section		4 x 6 mm ²	4 x 6 mm ²		4 x 2.5 mm ²	4 x 2.5 mm ²	4 x 2.5 mm ²


FREEZER 300							
Total capacity	kW	9.2	9.2		9.2	9.2	9.2
Maximum absorption	A	34	34		21	21	20
Line cable # of wires and cross-section		4 x 6 mm ²	4 x 6 mm ²		4 x 4 mm ²	4 x 4 mm ²	4 x 4 mm ²

FREEZER 400							
Total capacity	kW	12.2	12.2		12.2	12.2	12.2
Maximum absorption	A	45	45		28	28	26
Line cable # of wires and cross-section		4 x 10 mm ²	4 x 10 mm ²		4 x 6 mm ²	4 x 6 mm ²	4 x 6 mm ²

FREEZER 600 two flavours							
Total capacity	kW	18.4	18.4		18.4	18.4	18.4
Maximum absorption	A	65	65		40	40	38
Line cable # of wires and cross-section		4 x 25 mm ²	4 x 25 mm ²		4 x 10 mm ²	4 x 10 mm ²	4 x 10 mm ²

FREEZER 800 two flavours							
Total capacity	kW	24.4	24.4		24.4	18.4	18.4
Maximum absorption	A	90	90		56	56	52
Line cable # of wires and cross-section		4 x 35 mm ²	4 x 35 mm ²		4 x 16 mm ²	4 x 16 mm ²	4 x 16 mm ²

It is strongly recommended to verify the efficiency of your electric installation, in particular the earth and safety systems.

 TECHNOGEL S.p.A. IS NOT IN ANY WAY RESPONSIBLE FOR INCONVENIENCES CAUSED BY INCORRECT INSTALLATION OR BY PROBLEMS WITH THE MAINS NETWORK.



- Machine identification

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

- type of machine
- wattage
- serial number
- type of gas and amount
- voltage and hertz

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	FREEZER 300
MATRICOLA N. SERIAL NUMBER	N. 345-6
ANNO YEAR	1998
VOLTAGGIO VOLTAGE	V. 415-50-3 A 20
POTENZA POWER	KW 9,2
GAS FREON	R 22 Kg 13
Via Boschetti 51, GRASSOBBIO (BG) ITALIA Tel. 035-4522062 Fax 035-4522682	
	

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

- MACHINE TYPE FR300
- SERIAL NUMBER 345-6
- VOLTAGE V. 415-50-3

- Water connection

The refrigerating system is equipped with two water-cooled condensers. Connect to the **WATER INLET** pipe fitting, found in rear bottom section of the machine, the pipe coming from the water mains or tower installation. Then, connect the drain pipe or the tube going to the water tower installation return piping to the **WATER OUTLET** pipe fitting.

To connect the machine to the water mains, we recommend the use of rubber tubing that can stand a pressure of at least 10 Bar, with a diameter of approximately 21 mm (suited for the pipe fittings provided with the machine).

If for any reason whatsoever the inlet-outlet indications should not be legible, please note that the inlet tube is the one connected to the pressure switch valve.

- **WATER PRESSURE AND CONSUMPTION**

If the machine operates with mains water, make sure that the water reaching the machine has a pressure of at least 1 bar.

If the machine operates with tower water, make sure that the water reaching the machine has a pressure of at least 2 bar and a maximum temperature of 29 °C.

In either cases, the maximum pressure of the in-coming water should not exceed 4 Bar.

MAINS WATER - The average consumption of mains water (when the refrigerating system is working) is as follows:

FREEZER 100	=	180/200 litres/hour *
FREEZER 150	=	300/350 litres/hour *
FREEZER 300	=	600/700 litres/hour *
FREEZER 400	=	700/850 litres/hour *
FREEZER 600 two flavours	=	1200/1400 litres/hour *
FREEZER 800 two flavours	=	1400/1700 litres/hour *

*according to in-coming water temperature

TOWER WATER - Multiply the consumption of mains water by 4 to obtain the amount of water that must flow into the machine in one hour (maximum temperature +29 °C and minimum pressure 2 bar).

In case the water contains impurities, it is necessary and indispensable to install a cleaning filter so as to avoid deposits and/or damages to the pressure valve.

- Machine start-up

- Machine positioning

Verify that all four support feet are resting firmly on the ground. Adjust the support feet so that the machine is slightly tilted forward.

Once the machine is positioned, block the support feet by locking the special ring nuts.



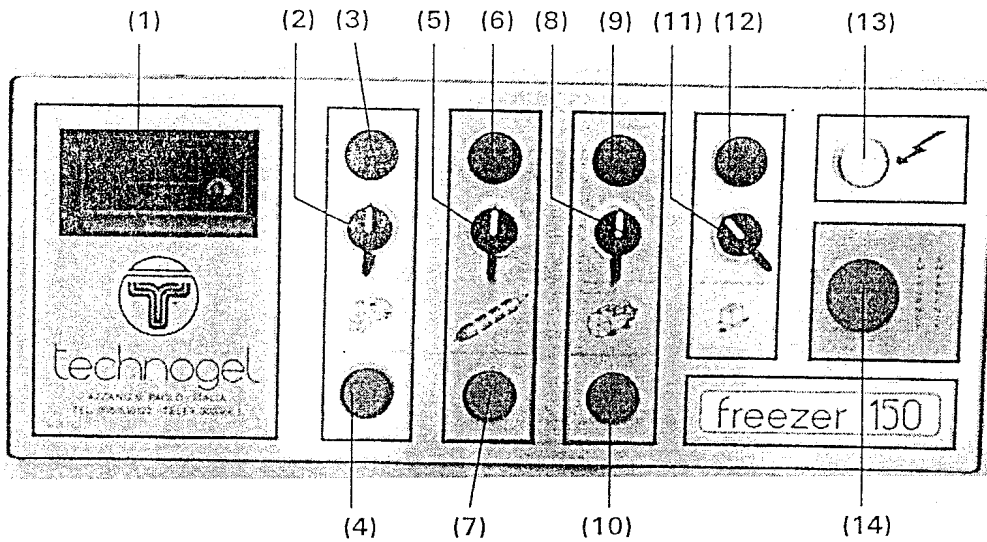
WARNING!

AT THE FIRST START-UP, TURN ON THE CONTROL PANEL AND WAIT AT LEAST 50 MINUTES BEFORE STARTING THE REFRIGERATING COMPRESSORS.

IF AT THE END OF THE DAY THE CONTROL PANEL IS TURNED OFF, THE NEXT DAY, AFTER TURNING IT ON AGAIN, IT WILL BE NECESSARY TO WAIT 35 MINUTES BEFORE RESTARTING THE MACHINE.

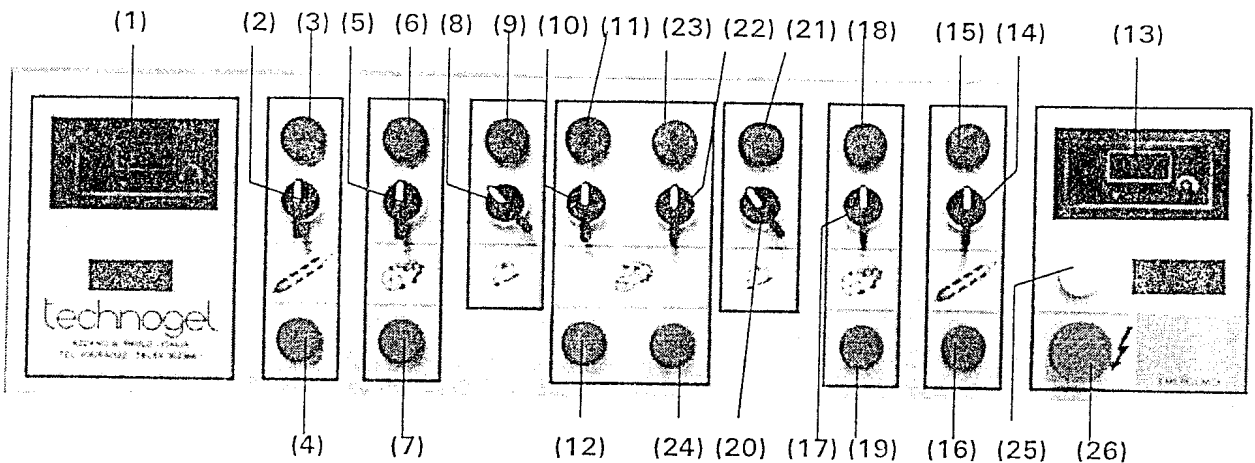
IF THE CONTROL PANEL STAYS ON, THE MACHINE MAY BE TURNED ON IMMEDIATELY.

- Control panel functions FREEZER 100 - 150 - 300



- 1 Ice cream hardness check ammeter gearcase
- 2 Pump control switch - turn right to start - left to stop
- 3 Green pilot light - pump in motion
- 4 Red pilot light - magnetothermal set in (overload)
- 5 Turbine control switch - turn right to start - left to stop
- 6 Green pilot light - turbine in motion
- 7 Red pilot light - magnetothermal set in (overload)
- 8 Refrigerating compressor control switch - turn right to start - left to stop
- 9 Green warning light - refrigerating compressor in motion
- 10 Red warning light - magnetothermal set in (overload)
- 11 Hot gas solenoid valve control switch - right to turn on - left to turn off
- 12 Green pilot light - hot gas valve switched on
- 13 White pilot light - power on
- 14 Red "emergency" switch - press it to cut off power to control panel

- Control panel functions FREEZER 600 two flavours



LEFT FREEZER TUBE

- | | |
|----|---|
| 1 | Ice cream hardness check ammeter gearcase |
| 2 | Turbine control switch - right to start - left to stop |
| 3 | Green pilot light - turbine motor in motion |
| 4 | Red pilot light - magnetothermal set in (overload) |
| 5 | Refrigerating compressor control switch - right to turn on - left to turn off |
| 6 | Green pilot light - refrigerating compressor in motion |
| 7 | Red pilot light - magnetothermal set in (overload) |
| 8 | Hot gas valve control switch - right to turn on - left to turn off |
| 9 | Green pilot light - hot gas valve switched on |
| 10 | Pump control switch - turn right to start - left to stop |
| 11 | Green pilot light - pump in motion |
| 12 | Red pilot light - magnetothermal set in (overload) |

RIGHT FREEZER TUBE

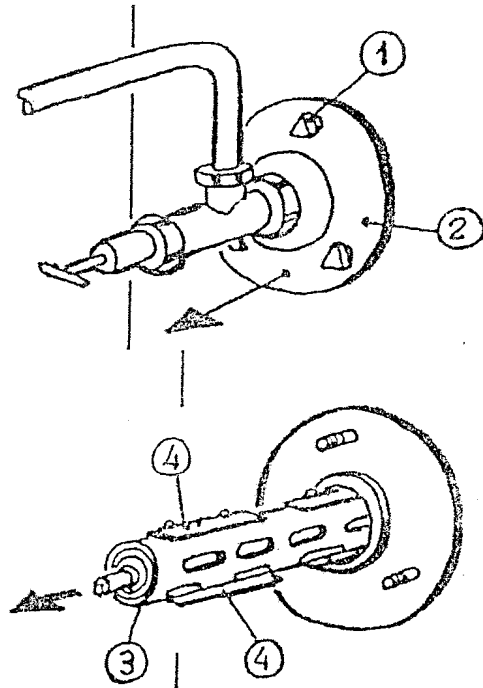
- | | |
|----|---|
| 13 | Ice cream hardness check ammeter gearcase |
| 14 | Turbine control switch - turn right to start - left to stop |
| 15 | Green pilot light - turbine motor in motion |
| 16 | Red pilot light - magnetothermal set in (overload) |
| 17 | Refrigerating compressor control switch - right to start - left to stop |
| 18 | Green pilot light - refrigerating compressor in motion |
| 19 | Red pilot light - magnetothermal set in (overload) |
| 20 | Hot gas valve control switch - right to turn on - left to turn off |
| 21 | Green pilot light - hot gas valve switched on |
| 22 | Pump control switch - turn right to start - left to stop |
| 23 | Green pilot light - pump in motion |
| 24 | Red pilot light - magnetothermal set in (overload) |

POWER SUPPLY

- | | |
|----|---|
| 25 | White light power on indicator |
| 26 | Red "emergency" switch - press it to cut off power to control panel |

SENSE OF ROTATION CONTROL

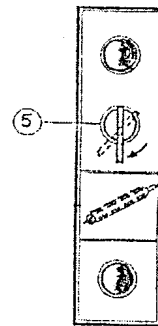
- A) Cut off power to the control panel by pushing the red "emergency" button.
- B) Use the special key to unscrew the three handwheels (1) that block the flange (2) and then disassemble it.
- C) Remove turbine (3) from the freezer tube, being careful to disassemble scraping blades (4) at the same time. Do not drop the blades as this may damage them.



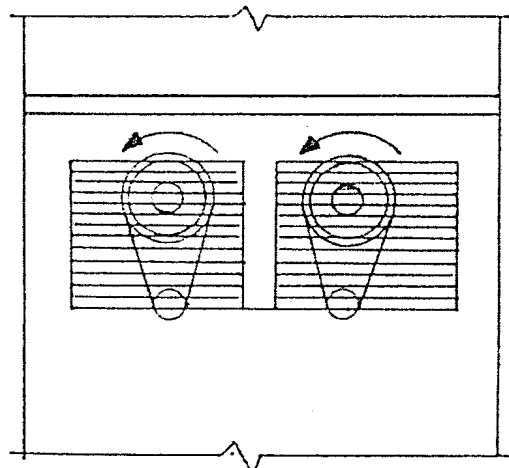
! BE CAREFUL NOT TO CUT YOURSELF WHEN HANDLING THE BLADES AS THEY ARE VERY SHARP.

ALWAYS CUT OFF POWER TO THE CONTROL PANEL BY PUSHING THE RED "EMERGENCY" BUTTON BEFORE DISASSEMBLING FLANGE (2).

- D) Turn on the control panel once again by releasing the "emergency" button (turn it clockwise).
- E) Turn on the turbine stirrer motors by rotating switch lever (5) clockwise and then releasing it.



- F) Look through the slits found in the back of the machine: the large pulley must rotate anti-clockwise. If this is not happening, disconnect the machine electric cable and reverse any two of the three phases.

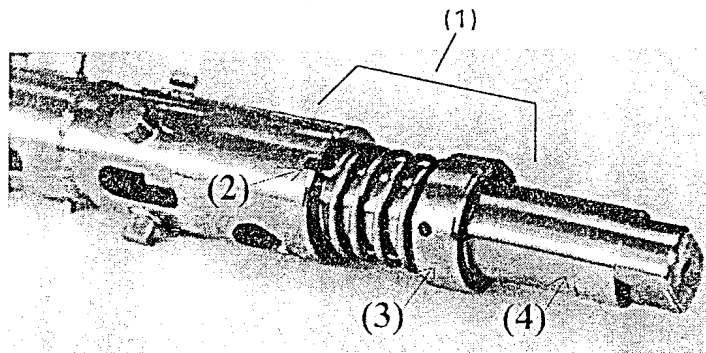


Try again and if everything is alright, cut off power to the control panel by pushing the red "emergency" button and reassemble the various components, stopping first to read carefully the instructions contained in the following page

- Correct assembly of turbine and blades

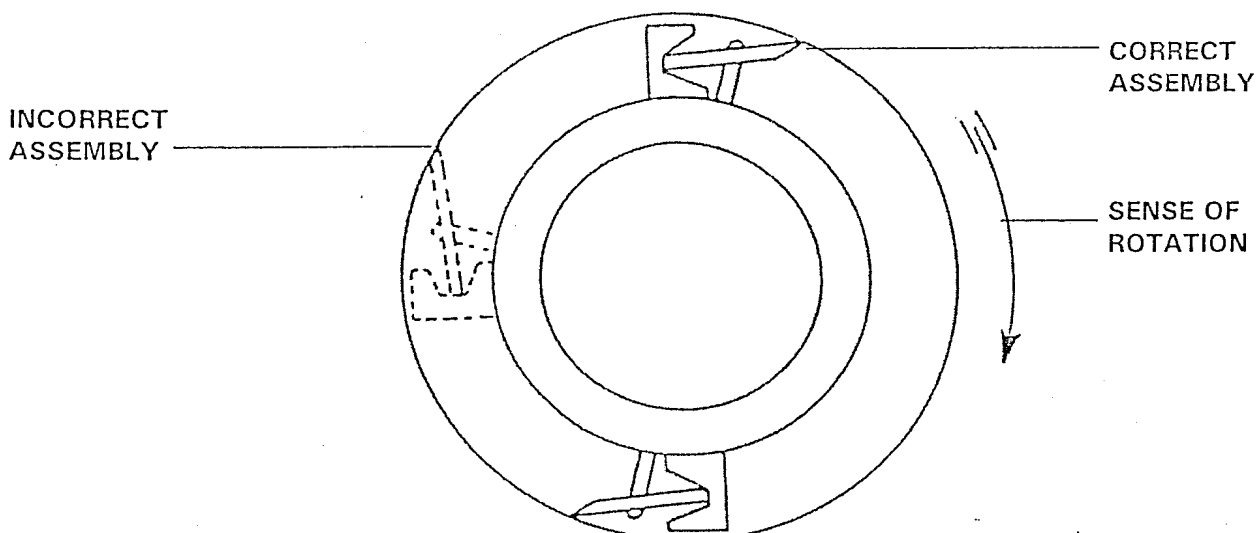
Before reassembling the turbine, verify that stuffing box (1) is installed correctly:

- the spring locking stem (2) must be positioned in its seat.
- the stuffing box rotating section (3) must be free to move along the axis of the turbine (4) pushed by the force of the spring. If the stuffing box rotating section (3) remains locked once the spring is completely pushed in, disassemble it by sliding it from axis (4) and then lubricate its internal gasket with Vaseline.



When reassembling the turbine in the freezer tube, be careful to correctly assemble the scraping blades.

The correct assembly is illustrated below:



WHEN ASSEMBLING THE TURBINE INSIDE THE MACHINE, BE CAREFUL NOT TO DAMAGE THE CHROME COVERING OF THE FREEZER TUBE. PERFORM THE ASSEMBLY SLOWLY AND CAREFULLY.

- Machine performance

The FREEZER 100 - 150 - 300 - 400 and 600 - 800 two flavours models were designed exclusively for ice cream production.

The numbers indicating the type of Freezer (100 - 150 - 300 - 400 - 600 - 800) refer to the maximum ice cream production in litres per hour produced by that particular model, with a 100% increase in volume at a temperature of -6 °C.

In other words, we can say that whatever the increase in volume of the ice cream, the maximum amount of mixture that the machine converts into ice cream is as follows:

FREEZER	100	=	50 kg/hour
FREEZER	150	=	75 kg/hour
FREEZER	300	=	150 kg/hour
FREEZER	400	=	200 kg/hour
FREEZER	600	=	300 kg/hour
FREEZER	800	=	400 kg/hour

In order to meet specific requirements, the machine may decrease ice cream production; the minimum quantity that can be produced is equal to 50% of the maximum quantity.

The maximum production quantities listed above may be obtained by supplying the machine with a mixture at a temperature of +4 °C.

The quality of ice cream produced by the Freezer depends on the treatment and ingredients of the mixture employed.

The minimum recommended volume increase needed to obtain ice cream that is structurally beautiful is 30%.

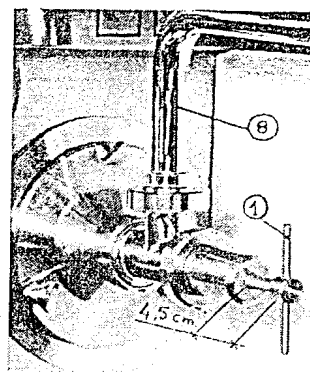


THE ABOVE-MENTIONED PRODUCTION QUANTITIES MAY BE OBTAINED WHEN THE CONDENSATION TEMPERATURE OF THE REFRIGERATING SYSTEM IS BETWEEN 35 °C (OPTIMUM CONDENSATION) AND 40 °C.

IF CONDENSATION IS ABOVE 45 °C, THE MACHINE PRODUCTION DECREASES CONSIDERABLY. OPERATING THE MACHINE UNDER THESE CONDITIONS FOR LONG PERIODS OF TIME MAY CAUSE DAMAGE TO THE REFRIGERATING SYSTEM.

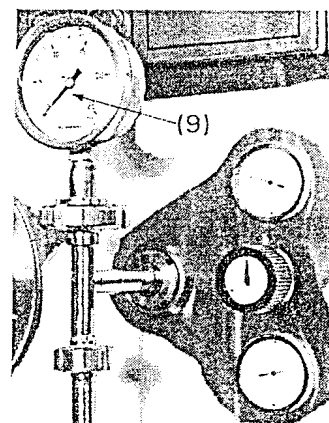
- Machine operation

Connect the Freezer to a mixture storage tank by means of a flexible rubber or plastic tube. The use of a rigid stainless steel tube is not recommended. The length of connection tube (5) must not exceed 4 metres.



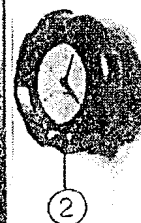
A) Unscrew tap (1) so that the thread of the handwheel protrudes by approximately 4.5 cm.

B) Turn handwheel (2) (pump 3 speed adjustment) clockwise to position 1.5 (black hand)



C) The air adjustment should be on minimum: that is, turn (unscrew) ring nut (4) anticlockwise so that all black lines are visible.

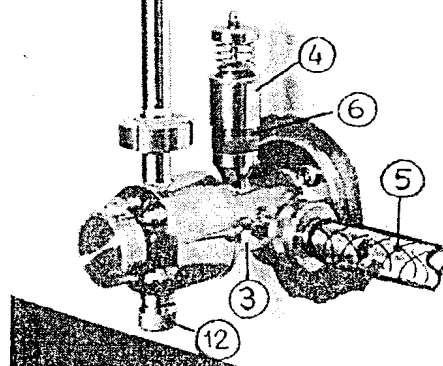
D) Start the pump by turning switch pos. 2, page 9 for Freezer 100 - 150 -300 and switch pos. 10 and 22 for Freezer 600 two flavours.



Do not start the turbine or the compressor!!

E) When liquid mixture begins to flow out of tube (8), turn tap (1) until pressure gauge (9) reaches 3 bar.

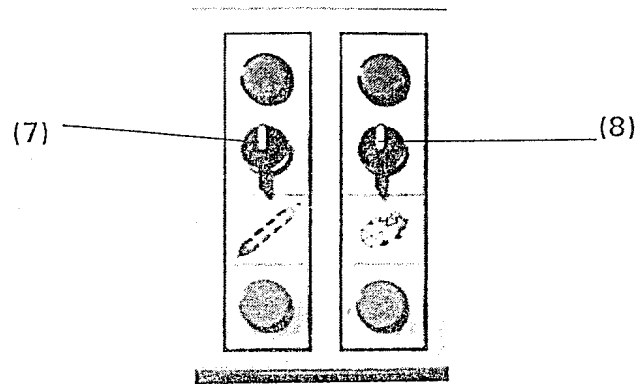
F) Stop the pump by turning the special switch to the left.



G) the Start turbine first (switch 7) and then the refrigerating compressor (switch 8) by turning the levers to the right.

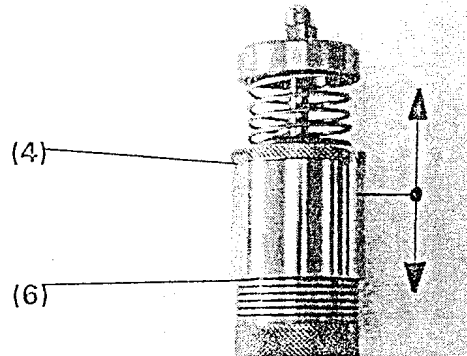
WARNING!

THE COMPRESSOR WILL NOT START IF THE TURBINE IS NOT TURNED ON FIRST.



H) While the machine is working, adjust the air valve, setting an initial air adjustment. Screw ring nut (4) so that at least two black lines (6) are covered.

I) While the machine is working, start the pump once again by turning the special switch to the right.



L) Adjust the pressure indicated by pressure gauge (9) by screwing tap (1). See page 15. Pressure gauge (9) should indicate a pressure between 8 and 12 bar. If the pressure exceeds 15 bar, safety valve (12) (see page 15) will release the excess pressure on the ground.

M) If the pump turns slowly, at a certain point the refrigerating compressor will stop. The ice cream, becoming hard, will cause the safety ammeter gearcase to set in (see page 17). After approximately 8 seconds, the compressor will start up again and then will stop. To prevent this from happening, just increase the pump speed (and thus machine production), by turning handwheel (2) clockwise, so that the black hand is on 2 or 2.5 (see page 15).

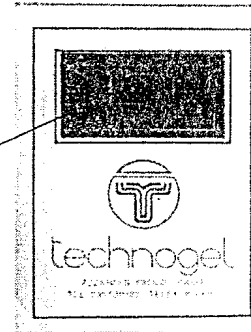
- Maximum adjustment to perform using handwheel (2) according to Model:

FREEZER 100	up to approx. 2.5
FREEZER 150	up to approx. 3.5
FREEZER 300	up to approx. 2.4
FREEZER 400	up to approx. 3,2
FREEZER 600	up to approx. 2.4 (each pump)
FREEZER 800	up to approx. 3,2 (each pump)

AMMETER GEARCASE CALIBRATION

The ammeter gearcase (1) is calibrated while still in-factory at the turbine motor maximum absorption value.

(1)



This adjustment must not be changed for any reason.

Calibration value of ammeter station in the various models:

Machine type	220V-50Hz	220V-60Hz	380 V - 50 Hz	380 V - 60 Hz	415 V - 50 Hz
FREEZER 100	max. 9.5	max. 9.5	max. 6.5	max. 6.5	max. 6.2
FREEZER 150	max. 9.5	max. 9.5	max. 6.5	max. 6.5	max. 6.3
FREEZER 300	max. 12.5	max. 12.5	max. 8.5	max. 8.5	max. 8.2
FREEZER 400	max. 16,5	max. 16,5	max. 10	max. 10	max. 10
FREEZER 600: - left gearcase	max. 12.5	max. 12.5	max. 8.5	max. 8.5	max. 8.2
- right gearcase	max. 12.5	max. 12.5	max. 8.5	max. 8.5	max. 8.2
FREEZER 800: - left gearcase	max. 16.5	max. 16.5	max. 10	max. 10	max. 10
- right gearcase	max. 16.5	max. 16.5	max. 10	max. 10	max. 10

 **TECHNOGEL S.p.A. IS NOT RESPONSIBLE FOR DAMAGE CAUSED BY HANDLING AND/OR CHANGING THE AMMETER GEARCASE PRE-CALIBRATED VALUES.**

- Calculating the increase in volume (overrun)

Follow the instructions listed below to calculate exactly the increase in volume of the ice cream being produced:

- Take a 1-litre container, fill it with liquid mixture and weigh it. Then remove the tare (weight of the empty container) to get the net weight of 1 litre of mixture.
- Fill the same container with ice cream, weigh it, and then remove the tare to get the weight of 1 litre of ice cream produced with that specific mixture.
- Use the following formula to calculate the percentage of volume increase:

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

Example: 1 litre of mixture weighs 1.050 kg and 1 litre of ice cream produced with the same mixture weighs 0.580 kg =

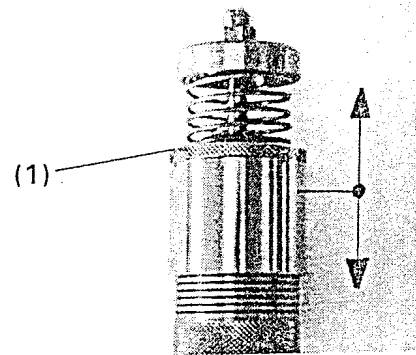
$$\frac{1.050 - 0.580}{0.580} \times 100 = \frac{0.470}{0.580} \times 100 = 0.81 \times 100 = \underline{81\%}$$

Thus, once litre of ice cream weighing 0.580 kg has an 81% increase in volume.

- Adjustments: volume increase - ice cream production

- The ice cream is heavy (contains little air) and needs to be lighter (more air):

turn air valve ring nut (1) clockwise (screw)
wait at least 5 minutes and check if the ice cream has gotten lighter



- The ice cream is too light (contains too much air) and needs to be heavier (with less air):

opposite of above procedure.

After each adjustment always wait until all the ice cream contained in the machine has been completely changed. If one adjustment is not enough to obtain the desired results, repeat the operation.

ACTIONS TO TAKE AS A RESULTS OF ADJUSTMENTS MADE

- When the air is increased (lighter ice cream), it is recommended to increase the pump speed so that ice cream production increases as well.
- When the air is decreased (heavier ice cream), it is recommended to decrease the pump speed so that ice cream production decreases as well.
- If the ammeter gearcase sets in due to the ice cream being too hard: increase the pump speed. If the pump speed is increased, it is recommended to decrease the air a little in order to keep the same increase in volume.
- If the ice cream coming out of the machine is too soft: decrease the pump speed (production exceeds the allowable quantities and therefore must be decreased). If the pump speed is decreased, it is recommended to increase the air a little in order to keep the same increase in volume.

To increase or decrease the pump speed, rotate handwheel (2) clockwise to increase and anticlockwise to decrease (see page 15).

To establish how much ice cream the machine produces, calculate how many kilograms per hour and not litres (see page 14).

- Ice cream consistency adjustment with hot gas valve

The machine is equipped with a hot gas injector. The amount of hot gas injected into the freezer tube may be adjusted using a manual adjustment valve.

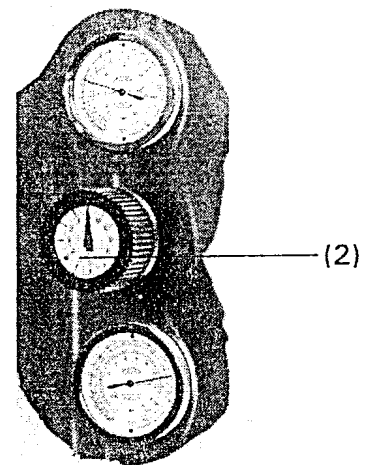
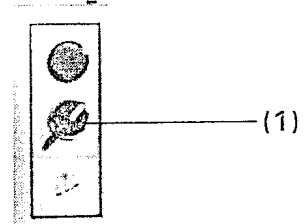
How to adjust ice cream consistency using hot gas:

When the Freezer is connected to a packaging machine, the amount and consistency of the ice cream produced must be adjusted according to specific requirements.

If you need less than the quantity produced your Freezer, the ice cream exiting the machine will be too hard and so it will be difficult to fill the containers being used (cones, cups, etc.).

In this case, it is necessary to use the hot gas valve to adjust the ice cream consistency as follows:

- while the Freezer is working, turn on the hot gas solenoid valve by turning switch (1);
- turn the hot gas adjustment knob (2) anticlockwise and look at the ammeter gearcase. Find the right consistency by basing yourself on the value indicated by the gearcase;
- for example, if the gearcase indicates a value of "11" when the ice cream has the right consistency to fill a specific container, it will be enough to maintain this value finding the right adjustment with knob(2).



THE ADJUSTMENT IS VERY SENSITIVE. ALL YOU NEED IS A SLIGHT MOVEMENT OF THE KNOB TO OBTAIN THE DESIRED RESULTS.



NEVER LEAVE THE HOT GAS TURNED ON AFTER THE PRODUCTION RUN IS FINISHED.
SCREW KNOB (2) TIGHTLY AND CUT OFF THE SOLENOID VALVE BY TURNING SWITCH (1) ANTICLOCKWISE.

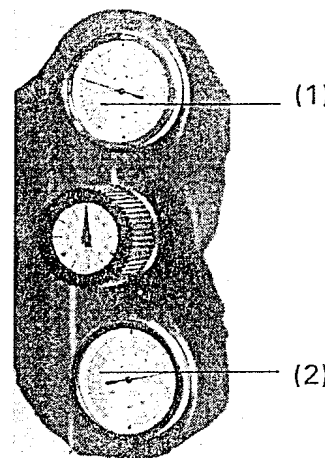
- Refrigerating system operational test

The machine is equipped with pressure gauges that indicate the working temperatures and pressure of the refrigerating system.

While the machine is working, it is possible to check if the refrigerating system is working properly by observing the values indicated by pressure gauges (1) and (2).

- High pressure gauge (condensation) (1)

This pressure gauge measures the condensation; observe the green scale R22. When the machine is working the temperature must be: minimum +35°C, maximum +40 °C.



If the gauge indicates a temperature above +40 °C (check after 5 minutes since it is normal for the temperature to rise and then fall again when the machine is first turned on), this means that not enough cooling water reaches the machine. Call Technical Service for further instructions.

- Low pressure gauge (evaporation) (2)

This pressure gauge measures the evaporation, that is, the cold produced by the machine. Check the green scale R22 to make sure that the temperature varies from -26 °C to -29 °C.

WARNING - VERY IMPORTANT

IT IS EXTREMELY IMPORTANT TO HAVE PRESSURE AND TEMPERATURE DATA FROM GAUGES (1) AND (2) AVAILABLE WHENEVER REQUESTING TECHNICAL ASSISTANCE. ALWAYS READ THE DATA WHILE THE MACHINE IS WORKING.



TECHNICAL ASSISTANCE PERFORMED INSIDE THE MACHINE BY UNAUTHORIZED PERSONNEL MAY ENDANGER THEIR SAFETY.

- Washing the machine

Once the production run is finished, connect the same mixture tube to a container filled with water (maximum temperature 70 °C), detergent and disinfectant.

We recommend turning to specialized Companies such as DIVERSEY - HENKEL, etc. for the type of detergent and disinfectant to use. They will be able to advise you on the specific product for appropriate use.



NEVER USE CHLORINE FOR DISINFECTING PURPOSES, AS THIS WILL DAMAGE THE INTERNAL SURFACE OF THE MACHINE.

Let the water be sucked by the machine pump, turning on the special switch at the same speed as for ice cream production. Open the ice cream outlet tap, start the turbine motor and let the water flow out of the tap.

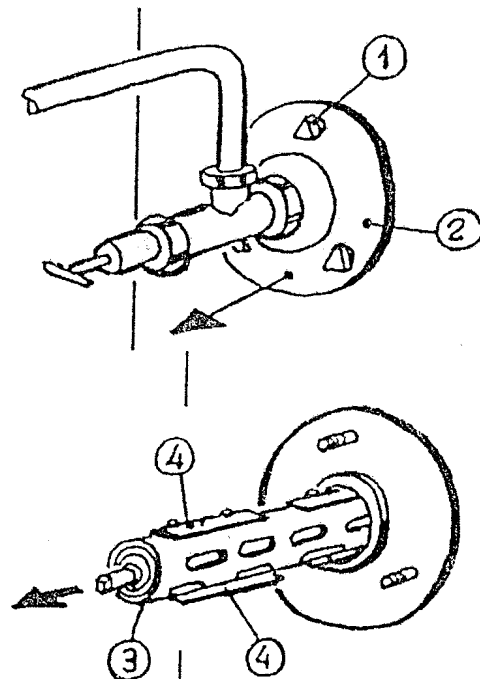
Repeat the operation until clean water flows out of the machine.

NEVER TURN ON THE REFRIGERATING COMPRESSORS WHILE WASHING THE MACHINE

DO NOT LEAVE THE TURBINE IN MOTION IF THERE IS NO WATER IN THE MACHINE.

Once the washing operation is over, it is absolutely necessary to completely empty out the residual wash water from the freezer tubes. Proceed as follows:

- A) Cut off the power supply to the control panel by pressing the red "emergency" button.
- B) Unscrew the three handwheels (1) that block tap flange (2) and the pressure gauge support inlet flange by using the special key. Then proceed to disassemble the two flanges.
- C) Remove the turbines (3) from the freezer tubes being careful when disassembling the scraping blades(4). Do not drop them on the ground.
- D) Dry off all the disassembled components, including the inside of the freezer tubes.
- E) Before reassembling the various parts, use Vaseline to lubricate all gaskets of the tap, of the turbine stuffing box (see page 11) and of the two flanges.



MAKE SURE THAT THE SCRAPING BLADES ARE ASSEMBLED CORRECTLY (see page 13)

- Noise level

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

- Environmental notice

The machine contains Freon Gas R22, which is harmful to the environment.

Remove the Gas from the machine before proceeding to a possible scrapping of the same.

DO NOT DISPERSE FREON GAS IN THE ENVIRONMENT

- Notice of possible machine breakdown

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.

- Maintenance

After each wash we recommend lubricating all accessible gaskets with Vaseline, so as to facilitate their assembly and operation.

After the first month of operation, verify the tension of the stirrers motors belts. This check must be performed by an authorized technician.

After each work season check the following:

The reducer (pos. 4) contains oil. Replace after 8000 normal work hours or after 4000 heavy work hours.

The type of oil is:

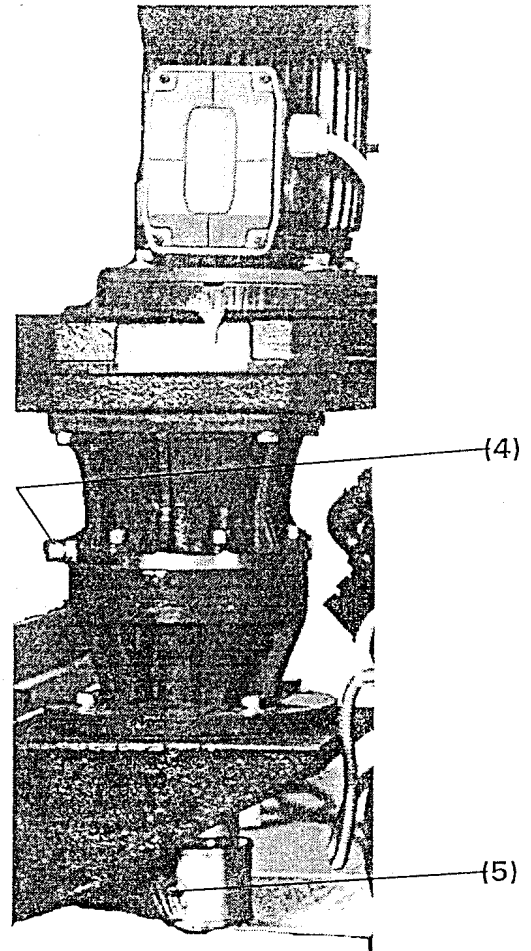
BP - ENERGOL GR-XP 150 or ENERGOL SG-150
 SHELL-OMALA OIL 150 or TIVELA OIL WA
 MOBIL - MOBILGEAR 629
 ESSO - SPARTAN EP 150

The amount is 0.4 litres.

Connecting rod (5) and the turbine dragging support are lubricated with grease. Check the lubrication condition

If necessary, use the following type of grease:

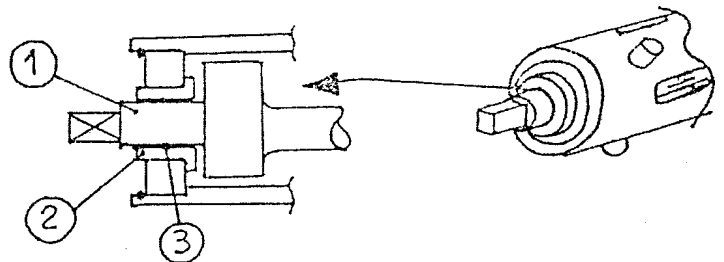
SKF LGMT 2/1



Periodically check that there isn't excessive play (3) between cam shaft (1) and bushing (2).

The maximum play should be 1 mm. If the actual play exceeds this value, replace the bushing, including the piece housing it.

Excessive play may compromise scraping of the ice cream.



- 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.

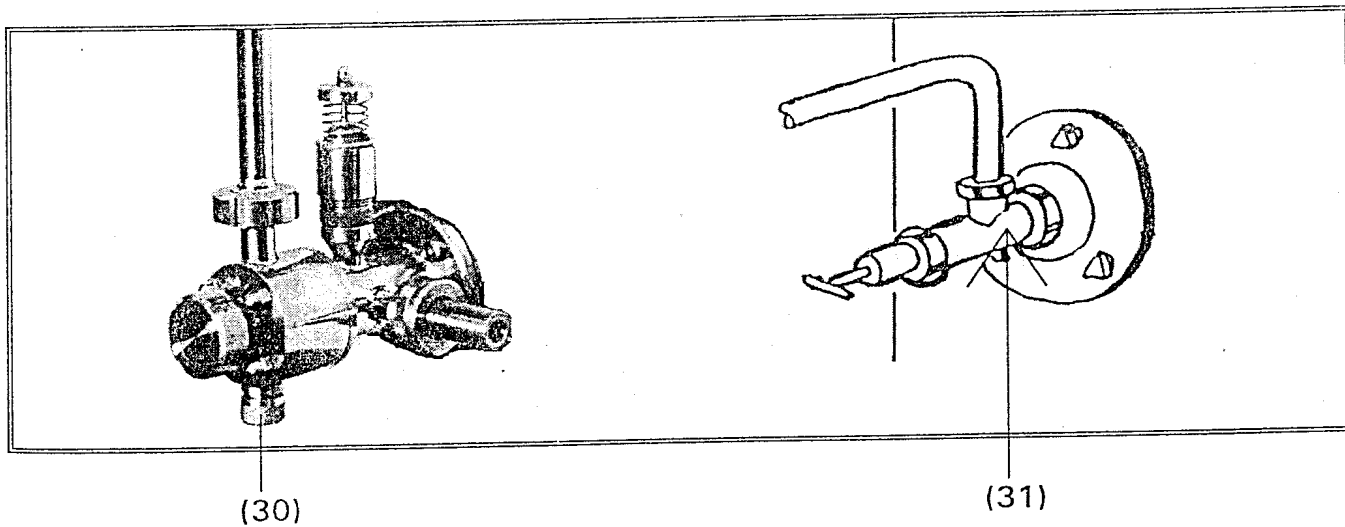
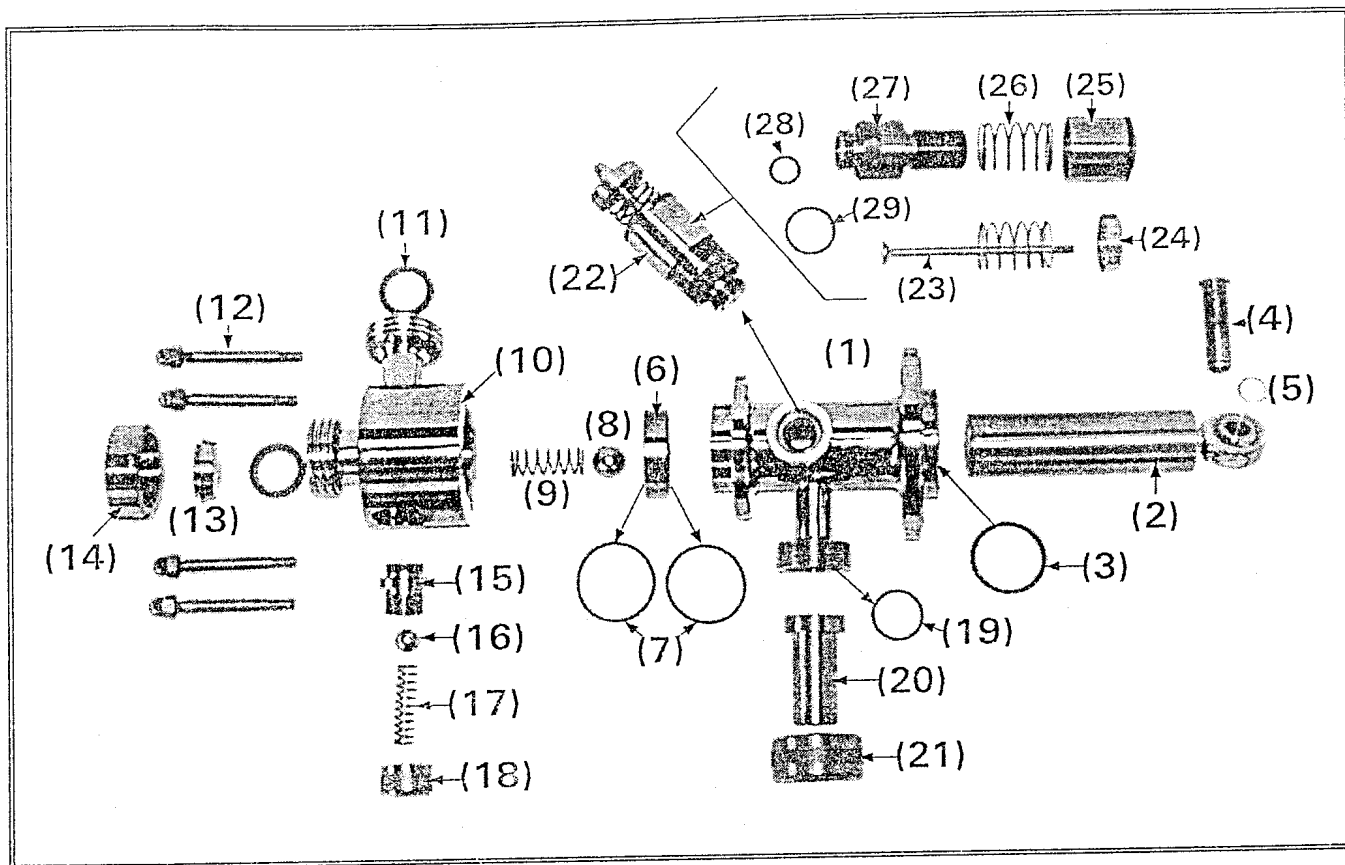
IN ADDITION, TECHNOGEL S.p.A. IS NOT RESPONSIBLE FOR DAMAGES CAUSED BY THE USE OF NON-ORIGINAL SPARE PARTS AND THUS NOT APPROVED FOR INSTALLATION ON TECHNOGEL MACHINES.

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 refrigerating compressor(s) stop and then start up again while the machine is working.	<i>Lack of cooling water in the compressors. The ice cream is too hard, causing the ammeter gearcase to set in.</i>	Verify the water supply. Increase the pump speed or turn on the hot gas.
One or more of the red pilot lights turn on, and then the relative motors stop.	<i>The corresponding magnetothermal inside the electric panel has set in.</i>	Reset the magnetothermal. If the breakdown occurs again, check absorption of motor involved.
While the machine is working the left or right compressor stops and does not restart.	<i>The corresponding ammeter gearcase has probably broken down. The refrigerating system low pressure switch has set in. The oil pressure switch has set in (where equipped). The compressor electronic control module has set in (where equipped).</i>	Verify if it is the gearcase by connecting terminals 3 and 4. If the compressor starts, the gearcase does not function and must be replaced. Check the pressure switch to find what caused the stop. Verify if it is the pressure switch or lack of lubrication in the compressor. Verify if it is the module or the compressor absorption.
The evaporation pressure indicated by the pressure gauge found on the front part of the machine is too low and the ice cream comes out too soft.	<i>There is probably no gas present in the refrigerating system.</i>	Check and restore gas if necessary. For the type of gas and amount to use, see the serial number plate found on the machine.

- Pump assembly explosion

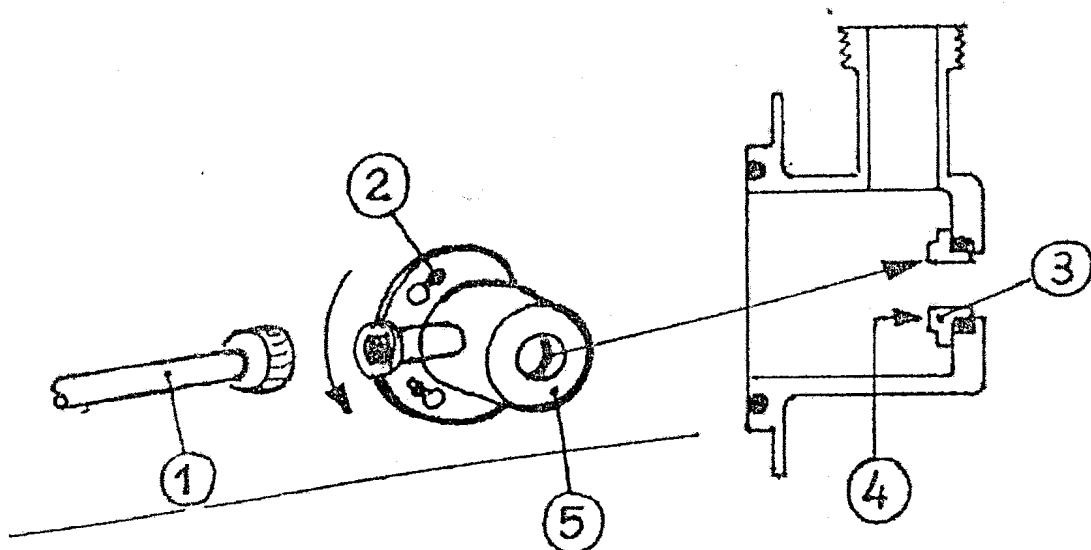


- Pump assembly problems, causes and solutions

PROBLEMS	CAUSES	SOLUTIONS
While the machine is working, ice cream mixture leaks out of safety valve (30) even though pressure gauge (9) page 14 indicates low pressure.	<i>The safety valve(s) (16) leak due to the presence of a foreign object.</i>	Disassemble valves (16) unscrewing ring nut (18) and clean their seat. Check spring (17) and replace if necessary.
While the machine is working the pumps idle or do not pump as they should. The ice cream exit flow stops and the ammeter gearcase sets in, stopping the refrigerating compressor.	<i>The mixture in the storage tank is finished.</i> <i>There is dirt or a foreign object between ball (8) and valve seat (6).</i>	Disassemble head (10) and clean or remove the foreign object. Replace ball (8) and spring (9) if worn. Replace seat (6) if worn.
There are mixture leaks under the machine near the pumps assembly.	<i>The pump piston "OR" gasket (3) may be broken or worn.</i>	Check and replace if necessary.
The ice cream does not increase in volume.	<i>Air valve (22) is obstructed and so air does not pass through.</i> <i>Gasket (28) is glued to stem (23) and does not let it move freely.</i>	Give a tap to cap (24) and release the valve. If the problem persists, replace gasket (28).
The pressure indicated on gauge (9) page 14 is unstable (it falls and rises continuously) and so the ice cream exit is irregular.	<i>The mixture entering the machine is not adequate (not balanced - has air in it - ingredients missing - etc.).</i> <i>The "OR" gasket inside tap (33) is broken or worn.</i>	Check the mixture ingredients and the pasteurisation method employed. Disassemble the tap to verify; replace gasket if necessary
The ice cream takes too much air even though the same compressed air pressure has been given.	<i>The mixture entering the machine is too cold and therefore too sticky. The first stage pump has difficulty sucking it.</i> <i>The mixture storage tank is positioned too far away (more than four metres) so the first stage pump has difficulty aspirating it.</i> <i>The mixture contains an elevated amount of total solids and therefore has a hard time reaching the first stage pump.</i>	Verify temperature of the mixture. Check the distance between the machine and the storage tank. If it is not possible to shorten it, place a servofreezer near the machine. Use a servofreezer and position it near the machine.

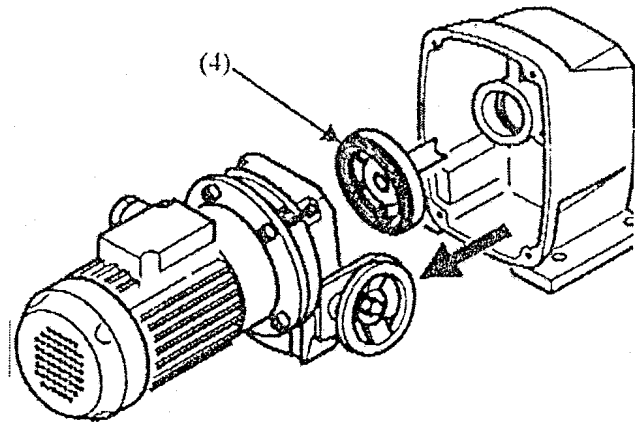
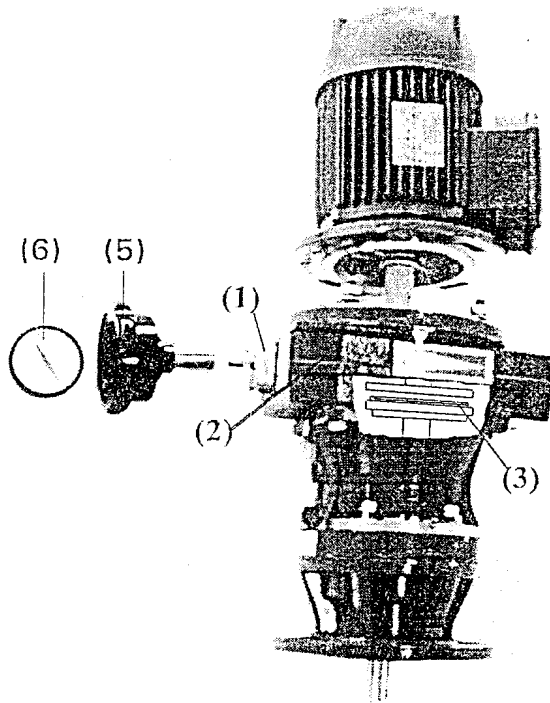
- Stuffing box leaks

PROBLEMS	CAUSES	SOLUTIONS
<p>During the initial load, mixture leaks out of breech (5).</p> <p>Mixture leaks out of breech (5) while the machine is working.</p>	<p><i>The stuffing box "OR" gasket has not been lubricated as described on page 12.</i></p> <p><i>The stuffing box spring has lost its elasticity.</i></p> <p><i>The stuffing box fixed part (3) assembled in breech (5) is damaged.</i></p> <p>WARNING <i>The fixed part (3) may become damaged in two ways:</i></p> <ul style="list-style-type: none"> - wear due to operation; - the machine was left running during the wash cycle with no water present in the freezer tubes; - the machine was left running for a long time even with water inside. 	<p>Follow instructions on page 12.</p> <p>Replace the stuffing box spring.</p> <p>Disassemble the breech(es) (5):</p> <ul style="list-style-type: none"> - disassemble the connection piping (1); - loosen screws (2) without disassembling them; - turn the breech anticlockwise and pull it out; - disassemble the stuffing box fixed section (3) and insert the new one. <p>WARNING Always change the complete gasket.</p> <p>In assembling the new part use your hands only, not tools. The part is made of soft plastic; if its surface (4) is accidentally dented, there will not be a good seal.</p>



- Speed variator assembly problems

PROBLEMS	CAUSES	SOLUTIONS
The speed variator revolutions change with the vibrations of the machine.	<i>Coupling (1) which keeps the shaft that changes the number of revolutions frictioned is slack.</i>	Check and if necessary tighten the coupling (1) special screw. Be careful not to tighten it too much or the shaft will be blocked.
The speed variator motor turns but the connecting rod that transmits movement to the pump is stopped.	<i>Disc (3) which transmits movement from the motor to the connecting rods is slipping.</i>	Disassemble as shown in figure and check: if the disc is only damp or dirty from oil clean and reassemble it. If the carbon disc (4) is broken, replace it.
The knob that changes the number of pump revolutions is blocked.	<i>Possibly the slide rack (2) is broken.</i>	Check and replace if broken.



- Technical specifications**FREEZER 100**

Semi-airtight refrigerating compressor	# 1 Capacity 3 Hp - 2.2 kW
Freon gas	Freon 22 Amount: 3.5 kg
Turbine stirrer motor 900 r.p.m.	# 1 Capacity 3 Hp - 2.2 kW
Condensation	Water
Pump speed variator	Motor 1400 r.p.m. 1 Hp - 0.75 kW

Magnetothermals calibration		200 V 50/60 HZ	220 V 50 HZ	220 V 60 HZ	380 V 50 HZ	380 V 60 HZ	415 V 50 HZ
Refrigerating compressor	A		13	13	7.5		7.5
Turbine stirrer motor	A		9.5	9.5	6.5		6.5
Pump speed variator	A		3.5	3.5	2.2		2.2

Electric system fuses	200V and 220V	380V and 415V
Primary transformer F2	#2 d. 5 x 20 2A quick type	#2 d. 5 x 20 2A quick type
Secondary transformer	#1 d. 5 x 20 6.3A delayed type	#1 d. 5 x 20 6.3A delayed type

Pressure switch calibration-low/high pressure	Set in values
Low pressure threshold value	0.2 bar = 2.5 psi
High pressure threshold value	20 bar = 280 psi
Differential	0.7 bar = 10 psi

Oil pressure switch (where equipped)	Calibration values: 0.7 - Differential 0.2 Bar
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REFRIGERATING SYSTEM WORKING PRESSURES AND TEMPERATURES

Condensation (high pressure)	Evaporation (low pressure)
+ 35 °C = 12.5 bar 95 °F = 183 psi	-29 °C = 0.7 bar -20.8 °F = 10 psi

The machine is delivered with the above-mentioned values and calibrations performed in-factory.



TECHNOGEL S.p.A. IS NOT RESPONSIBLE FOR DAMAGES 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.

- Technical specifications

FREEZER 150

Semi-airtight refrigerating compressor	# 1 Capacity 4 Hp - 3 kW
Freon gas	Freon R22 amount: 7 kg
Turbine stirrer motor - 900 r.p.m.	#1 Capacity 3 Hp - 2.2 kW
Condensation	Water
Pump speed variator	Motor 1400 r.p.m. 1 Hp - 0.75 kW

Magnetothermals calibration	200 V 50/60HZ	220 V 50 HZ	220 V 60 HZ	380 V 50 HZ	380 V 60 HZ	415 V 50 HZ
Refrigerating compressor A		15	15	9.5		9.5
Turbine stirrer motor A		9.5	9.5	6.5		6.5
Pump speed variator A		3.5	3.5	2.2		2.2

Electric system fuses	200V and 220V	380V and 415V
Primary transformer F2	#2 d. 5 x 20 2A quick type	#2 d. 5 x 20 2A quick type
Secondary transformer	#1 d. 5 x 20 6.3A delayed type	#1 d. 5 x 20 6.3A delayed type


#2 Pressure switches calibration-low/high pressure	Set in values
Low pressure threshold value	0.2 bar = 2.5 psi
High pressure threshold value	20 bar = 280 psi
Differential	0.7 bar = 10 psi

Oil pressure switch (where equipped)	Calibration values: 0.7 - Differential 0.2 Bar
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REFRIGERATOR SYSTEM WORKING PRESSURES AND TEMPERATURES

Condensation (high pressure)	Evaporation (low pressure)
+ 35 °C = 12.5 bar 95 °F = 183 psi	-29 °C = 0.7 bar -20.2 °F = 10 psi

The machine is delivered with the above-mentioned values and calibrations performed in-factory.

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- Technical specifications

FREEZER 300

Semi-airtight refrigerating compressor	# 1 Capacity 7.5 Hp - 5.5 kW
Freon gas	Freon R22 amount: 13 kg
Turbine stirrer motor 900 r.p.m.	#1 Capacity 4 Hp - 3 kW
Condensation	Water
Pump speed variator	Motor 1400 r.p.m. 1 Hp - 0.75 kW

Magnetothermals calibration		200 V 50/60HZ	220 V 50 HZ	220 V 60 HZ	380 V 50 HZ	380 V 60 HZ	415 V 50 HZ
Refrigerating compressor	A		23	23	14		13.5
Turbine stirrer motor	A		12.5	12.5	8.5		8.5
Pump speed variator	A		3.5	3.5	2.2		2.2

Electric system fuses	200V and 220V	380V and 415V
Primary transformer F2	#2 d. 5 x 20 2A quick type	#2 d. 5 x 20 2A quick type
Secondary transformer	#1 d. 5 x 20 6.3A delayed type	#1 d. 5 x 20 6.3A delayed type

#2 Pressure switches calibration-low/high pressure	Set in values
Low pressure threshold value	0.2 bar = 2.5 psi
High pressure threshold value	20 bar = 280 psi
Differential	0.7 bar = 10 psi

Oil pressure switch (where equipped)	Calibration values: 0.7 - Differential 0.2 Bar
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REFRIGERATOR SYSTEM WORKING PRESSURES AND TEMPERATURES

Condensation (high pressure)	Evaporation (low pressure)
+ 35 °C = 12.5 bar 95 °F = 183 psi	-29 °C = 0.7 bar -20.2 °F = 10 psi

The machine is delivered with the above-mentioned values and calibrations performed in-factory.



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- Technical specifications**FREEZER 400**

Semi-airtight refrigerating compressor	# 1 Capacity 10 Hp - 7.5 kW
Freon gas	Freon R22 amount: 13 kg
Turbine stirrer motor 900 r.p.m.	#1 Capacity 5,5 Hp - 4,1 kW
Condensation	Water
Pump speed variator	Motor 1400 r.p.m. 1 Hp - 0.75 kW

Magnetothermals calibration	200 V 50/60HZ	220 V 50 HZ	220 V 60 HZ	380 V 50 HZ	380 V 60 HZ	415 V 50 HZ
Refrigerating compressor	A	30	30	18		18
Turbine stirrer motor	A	16	16	10		10
Pump speed variator	A	3.5	3.5	2.2		2.2

Electric system fuses	200V and 220V	380V and 415V
Primary transformer F2	#2 d. 5 x 20 2A quick type	#2 d. 5 x 20 2A quick type
Secondary transformer	#1 d. 5 x 20 6.3A delayed type	#1 d. 5 x 20 6.3A delayed type

#2 Pressure switches calibration-low/high pressure	Set in values
Low pressure threshold value	0.2 bar = 2.5 psi
High pressure threshold value	20 bar = 280 psi
Differential	0.7 bar = 10 psi

Oil pressure switch (where equipped)	Calibration values: 0.7 - Differential 0.2 Bar
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REFRIGERATOR SYSTEM WORKING PRESSURES AND TEMPERATURES

Condensation (high pressure)	Evaporation (low pressure)
+ 35 °C = 12.5 bar 95 °F = 183 psi	-29 °C = 0.7 bar -20.2 °F = 10 psi

The machine is delivered with the above-mentioned values and calibrations performed in-factory.



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- Technical specifications

FREEZER 600 two flavours

Semi-airtight refrigerating compressor	# 2 Capacity 7.5 Hp - 5.5 kW
Freon gas	Freon R22 amount: 13 kg per circuit
Turbine stirrer motor 900 r.p.m.	#2 Capacity 4 Hp - 3 kW
Condensation	Water
Pump speed variator (#2)	Motor 1400 r.p.m. 1 Hp - 0.75 kW

Magnetothermals calibration		200 V 50/60HZ	220 V 50 HZ	220 V 60 HZ	380 V 50 HZ	380 V 60 HZ	415 V 50 HZ
Refrigerating compressor	A		23	23	14		13.5
Refrigerating compressor	A		23	23	14		13.5
Turbine stirrer motor	A		12.5	12.5	8.5		8.5
Turbine stirrer motor	A		12.5	12.5	8.5		8.5
Pump speed variator	A		3.5	3.5	2.2		2.2
Pump speed variator	A		3.5	3.5	2.2		2.2

Electric system fuses	200V and 220V	380V and 415V
Primary transformer F2	#2 d. 5 x 20 2A quick type	#2 d. 5 x 20 2A quick type
Secondary transformer	#1 d. 5 x 20 6.3A delayed type	#1 d. 5 x 20 6.3A delayed type

#2 Pressure switches calibration-low/high pressure	Set in values
Low pressure threshold value	0.2 bar = 2.5 psi
High pressure threshold value	20 bar = 280 psi
Differential	0.7 bar = 10 psi

Oil pressure switch (where equipped)	Calibration values: 0.7 - Differential 0.2 Bar
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REFRIGERATOR SYSTEM WORKING PRESSURES AND TEMPERATURES

Condensation (high pressure) the same for both circuits	Evaporation (low pressure) the same for both circuits
+ 35 °C = 12.5 bar 95 °F = 183 psi	-29 °C = 0.7 bar -20.2 °F = 10 psi

The machine is delivered with the above-mentioned values and calibrations performed in factory.



TECHNOGEL S.p.A. IS NOT RESPONSIBLE FOR DAMAGES 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.

- Technical specifications

FREEZER 800 two flavours

Semi-airtight refrigerating compressor	# 2 Capacity 10 Hp - 7.5 kW
Freon gas	Freon R22 amount: 13 kg per circuit
Turbine stirrer motor 900 r.p.m.	#2 Capacity 5,5 Hp - 4,1 kW
Condensation	Water
Pump speed variator (#2)	Motor 1400 r.p.m. 1 Hp - 0.75 kW

Magnetothermals calibration		200 V 50/60HZ	220 V 50 HZ	220 V 60 HZ	380 V 50 HZ	380 V 60 HZ	415 V 50 HZ
Refrigerating compressor	A		30	30	18		18
Refrigerating compressor	A		30	30	18		18
Turbine stirrer motor	A		16	16	10		10
Turbine stirrer motor	A		16	16	10		10
Pump speed variator	A		3.5	3.5	2.2		2.2
Pump speed variator	A		3.5	3.5	2.2		2.2

Electric system fuses	200V and 220V	380V and 415V
Primary transformer F2	#2 d. 5 x 20 2A quick type	#2 d. 5 x 20 2A quick type
Secondary transformer	#1 d. 5 x 20 6.3A delayed type	#1 d. 5 x 20 6.3A delayed type


#2 Pressure switches calibration-low/high pressure	Set in values
Low pressure threshold value	0.2 bar = 2.5 psi
High pressure threshold value	20 bar = 280 psi
Differential	0.7 bar = 10 psi

Oil pressure switch (where equipped)	Calibration values: 0.7 - Differential 0.2 Bar
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REFRIGERATOR SYSTEM WORKING PRESSURES AND TEMPERATURES

Condensation (high pressure) the same for both circuits	Evaporation (low pressure) the same for both circuits
+ 35 °C = 12.5 bar 95 °F = 183 psi	-29 °C = 0.7 bar -20.2 °F = 10 psi

The machine is delivered with the above-mentioned values and calibrations performed in factory.

	<p>TECHNOGEL S.p.A. IS NOT RESPONSIBLE FOR DAMAGES 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.</p>
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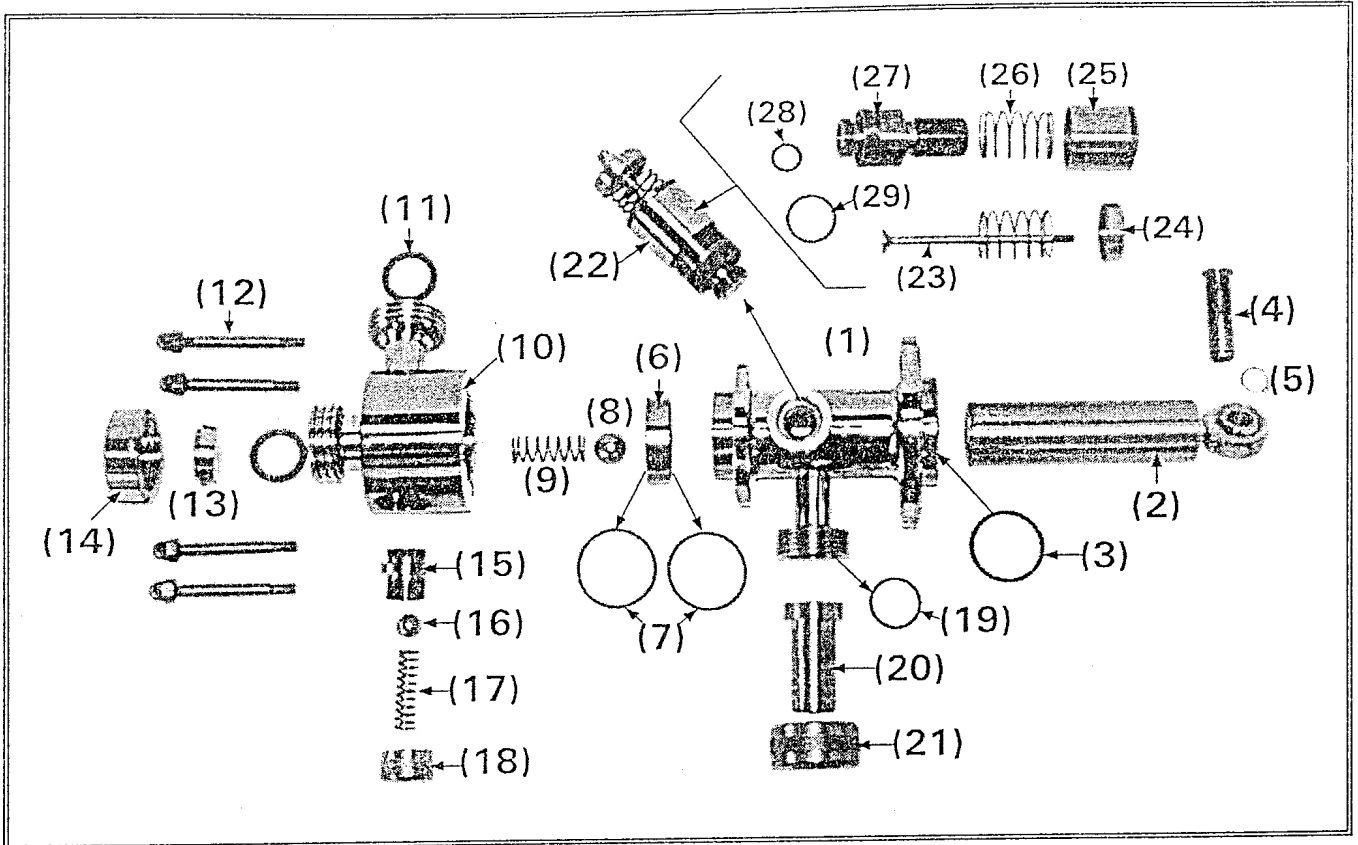
- Spare parts

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

When ordering spare parts, always include the following data:

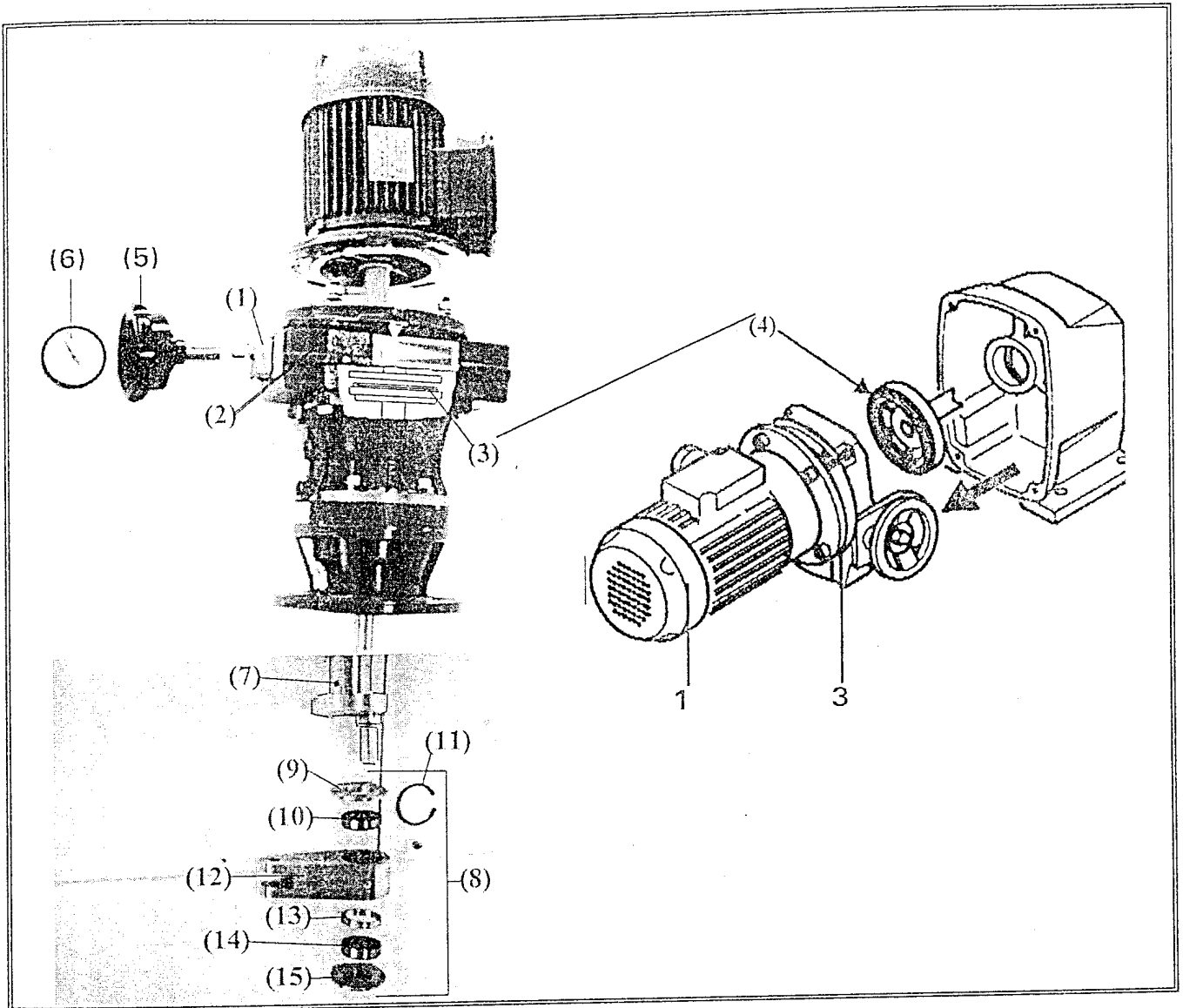
- machine model
 - serial number
 - electrical voltage (if the component requested is part of the electric installation)
 - part number of the component whenever available, otherwise the page number where the component is shown and its corresponding number.
-

- Pump assembly FREEZER 100-150-300-400
600 two flavours - 800 two flavours



Pos. #	# of Pieces	Part name	FREEZER 100 FREEZER 150 Part number	FREEZER 300 FREEZER 600/800 two flavours. Part number
1	1	Pump casing	FR1-3737.3/10	FR3.5675.3
2	1	Pump piston	FR1-2221-3/20	FR3-2219.3/20
3	1	Pump "OR" gasket	MX-0054	FR3-0054
4	1	Hardened piston pin	FR1-2220.0/11	FR1-2220.0/11
5	1	Piston pin snap ring	SEEI-14E	SEEI-14E
6	1	Check valve seat	FR1-5670.0	FR1-5670.0
7	2	"OR" gasket for valve seat	VR-029	VR-029
8	1	Check valve ball	FR3-0074	FR3-0074
9	1	Valve ball spring	FR1-5672.0	FR1-5672.0
10	1	Pump head	FR1-3738.0	FR1-3738.0
11	2	"DN20" type gasket	R-013.20	R-013.20
12	4	Head blocking screws	FR1-2226.0	FR1-2226.0
13	1	Head plug	R-025.20	R-025.20
14	1	Plug ring nut	R-012.20	R-012.20
15	1	Safety valve nipple	FR-2061.0	FR-2061.0
16	1	Safety valve ball	FR3-0074	FR3-0074
17	1	Safety valve spring	FR1-2062.0	FR1-2062.0
18	1	Safety valve blocking ring nut	FR1-3099.3	FR1-3099.3
19	1	Rubber holder "OR" gasket	MX-0003	MX-0003
20	1	Mixture inlet rubber holder	FR1-3302.0/10	FR1-3302.0/10
21	1	Rubber holder blocking ring nut	FR1-2258.0	FR1-2258.0
22	1	Complete air register valve	FR3-0193	FR3-0193
23	1	Air valve stem	FR1-3732.0	FR1-3732.0
24	1	Spring ball bush	FR1-2044.0	FR1-2044.0
25	1	Air adjustment ring nut	FR1-3731.0	FR1-3731.0
26	2	Air valve spring	FR1-2046.0	FR1-2046.0
27	1	Air valve body	FR1-3730.0	FR1-3730.0
28	1	Stem seal "OR" gasket	EP-0010	EP-0010
29	1	Valve body seal "OR" gasket	MX-0003	MX-0003

PUMP VARIATOR ASSEMBLY WITH CONNECTING ROD



Speed variator with connecting rod components list

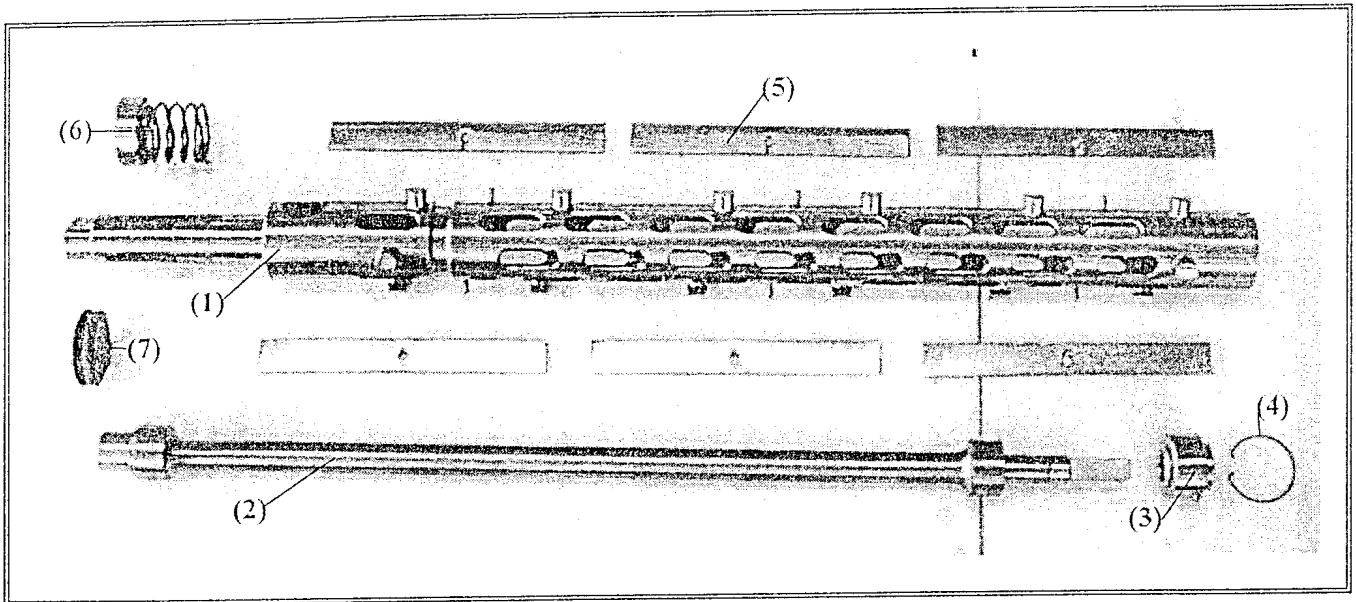
Pos.	Part name	Part number
1	Speed variator motor: Y 220/240 V 380/415 V - 50 Hz Y 220/380 V - 60 Hz Y 200 V - 50/60 Hz	MO-0001 FR3-0101/6 FR3-0101/2B
2	Speed variator	FR3-0237
3	Speed variator slide with rack	
4	Carbon disc clutch	FR3-0234
5	Speed variator control handwheel with extension	FR1-2463.0/10 + FR32466.0/10
6	Gravitational r.p.m. indicator	FR3-0239
7	Eccentric connecting rod drag	FR1-1789.3/10
8	Complete connecting rod	FR1-1793.4/20
9	Upper connecting rod cover	FR1-7116.0
10	Bearing	CS-7732.6
11	Snap ring	SEEA-521
12	Connecting rod casing	FR1-1793.0/20
13	Spacer	FR1-4462.0
14	Bearing	CS-7732.6
15	Lower connecting rod cover	FR1-7115.0

WARNING

To replace clutch (4), disassemble first motor (1) and then the variator slide (3); be careful when assembling the clutch as the carbon ring is extremely fragile.
The surface of the carbon disc and of the smooth disc must be completely clean and dry. Do not lubricate with grease or oil.

- Turbine assembly

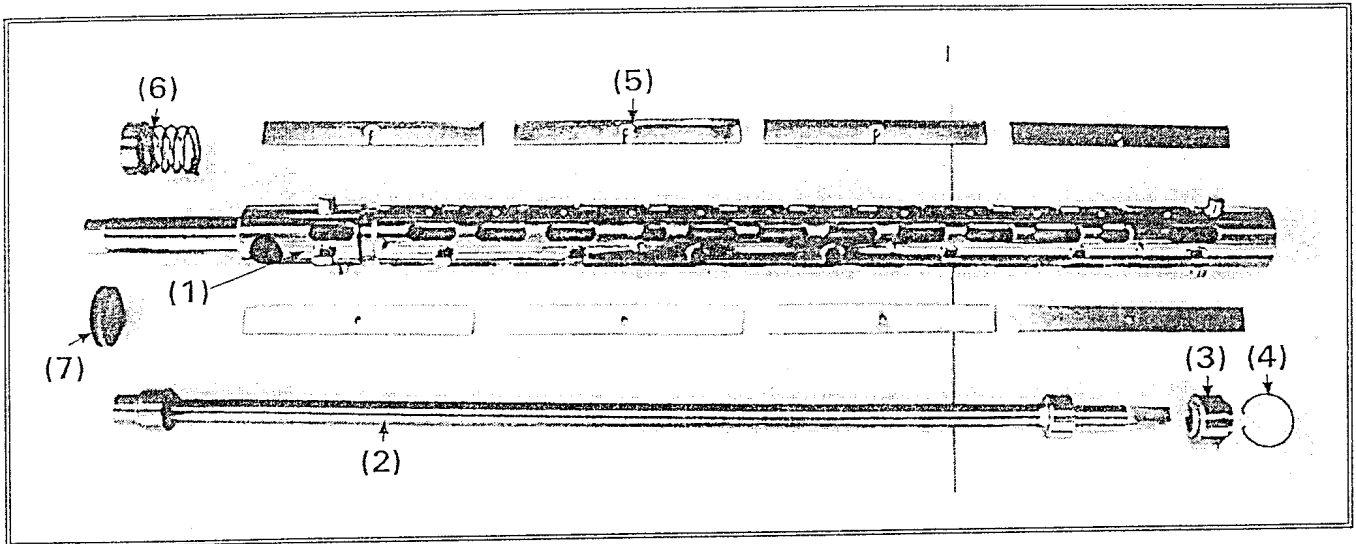
FREEZER 100 - 150



Pos.	Part name	Part number
1	Turbine casing	FR1-3798.3/30
2	Cam shaft	FR1-4518.3/10
3	Cam shaft coupling with guide bushing	FR1-4471.3
4	Bushing lock snap ring	FR1-3698.0/20
5	Ice cream scraping blade (6 pieces)	FR1-10765.0
6	Movable stuffing box (spring + metallic part + rubber seal)	FR3-0027
	- spring only	FR3-0104
	- hard metallic part with "OR" only	FR3-0110
	- "OR" gasket only	FR3-0054
7	Red Rulon stuffing box (fixed part - "OR" gasket)	FR3-0103
	- "OR" gasket only	FR3-0102

N.B. The two pieces pos. (2) and pos. (3), are provided with special bronze bushings.

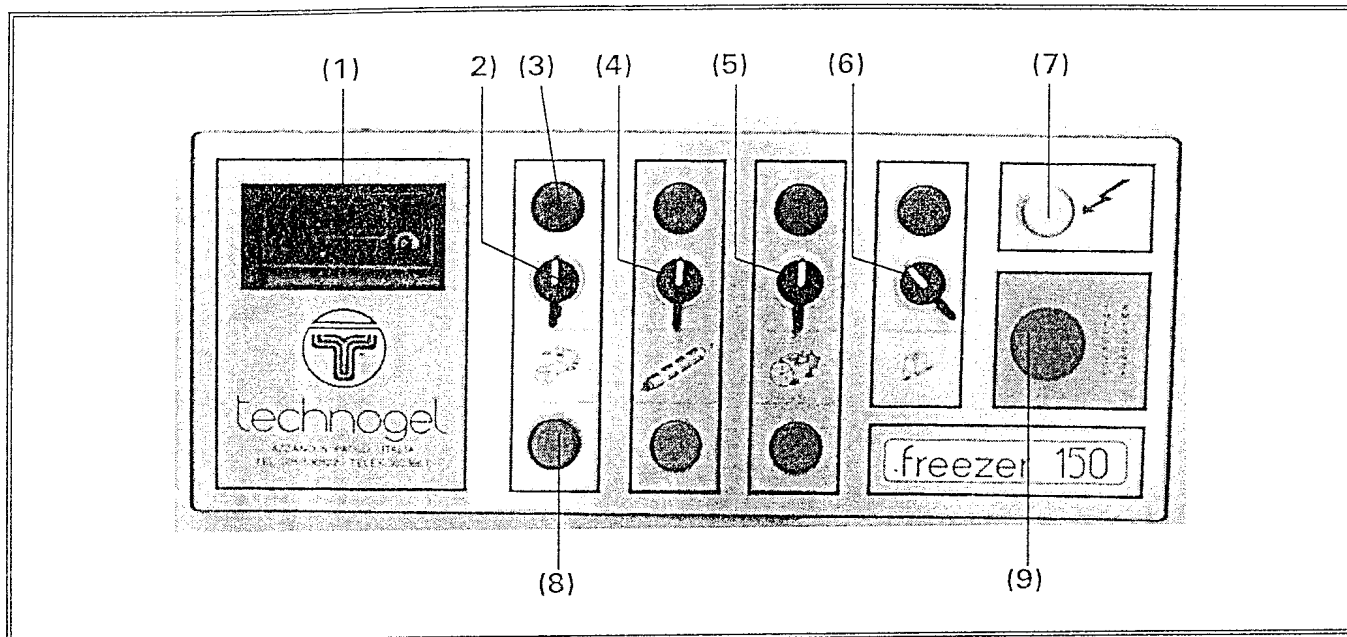
- Turbine assembly FREEZER 300 - 400 600 two flavours - 800 two flavours



Pos.	Part name	Part number
1	Turbine casing	FR3-3796.3/30
2	Cam shaft	FR3-4519.3/10
3	Cam shaft coupling with guide bushing	FR1-4471.3
4	Bushing lock snap ring	FR1-3698.0/20
5	Ice cream scraping blade (6 pieces)	FR1-10765.0
6	Movable stuffing box (spring + metallic part + rubber seal) - spring only - hard metallic part with "OR" only - "OR" gasket only	FR3-0027 FR3-0104 FR3-0110 FR3-0054
7	Red Rulon stuffing box (fixed part - "OR" gasket) - "OR" gasket only	FR3-0103 FR3-0102

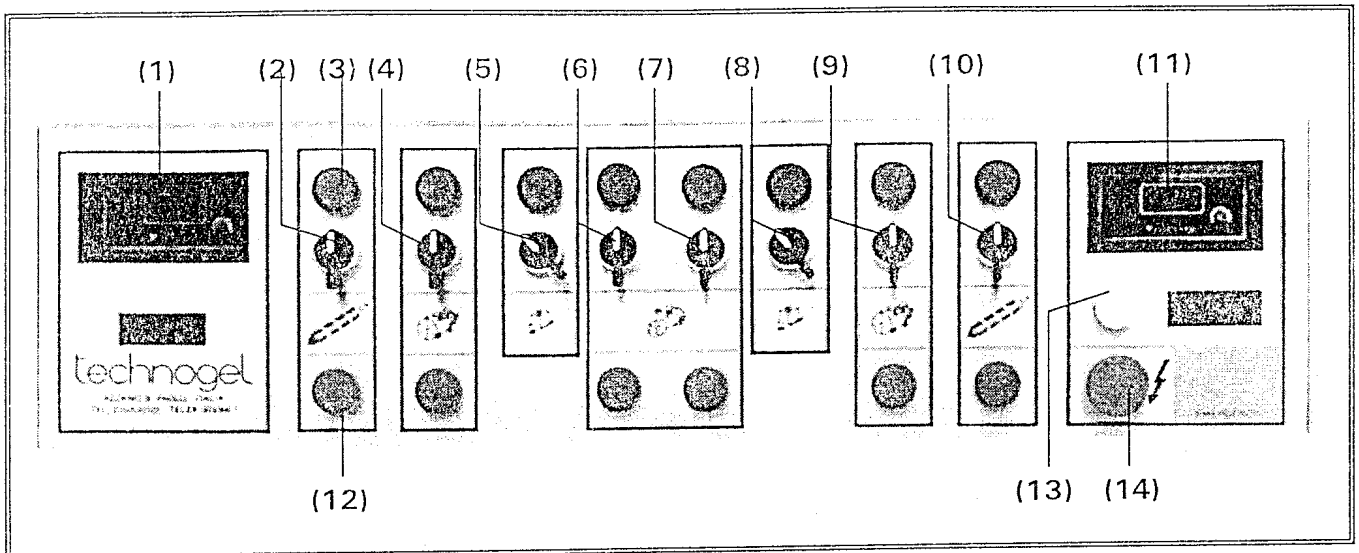
N.B. The two pieces pos. (2) and pos. (3), are provided with special bronze bushings.

- Control panel assembly FREEZER 100 - 150 - 300 - 400



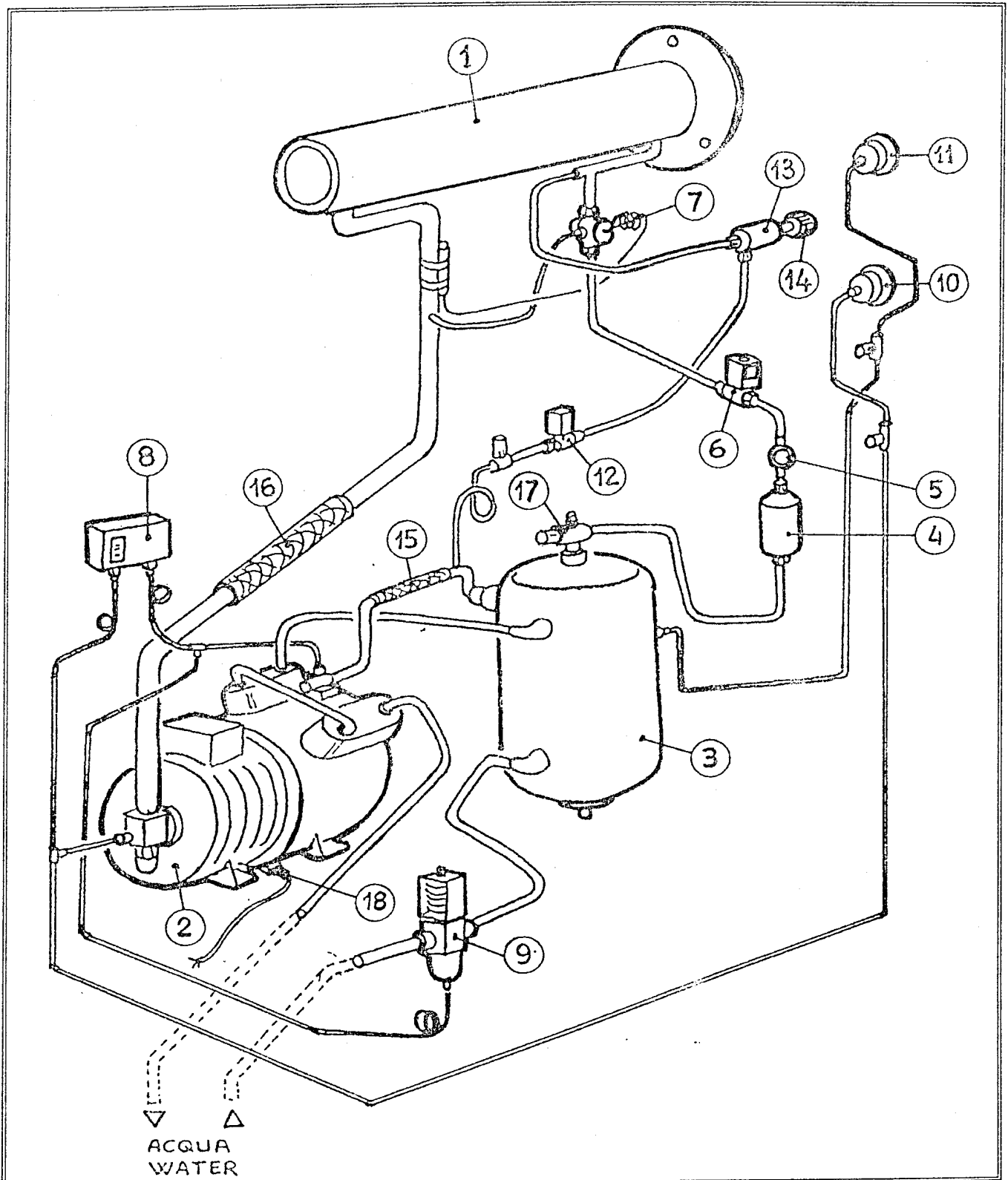
Pos.	Part name	Part number
1	Amperometric gearcase	CC-7237.6/10
2	Pump control switch	FR3-0170
3	Complete green pilot light - bulb only 30 V - 50/60 Hz	FR3-0164 + FR3-0165 CC-8574.6
4	Turbine motor control switch	FR3-0170
5	Refrigerating compressor control switch	FR3-0170
6	Hot gas valve control switch	FR3-0171
7	Complete white pilot light - bulb only 30 V - 50/60 Hz	FR3-0164 + FR3-0167 CC-8574.6
8	Complete red pilot light - bulb only 30 V - 50/60 Hz	FR3-0164 + FR3-0166 CC-8574.6
9	Emergency switch	DFA-0092

- Control panel assembly FREEZER 600-800 two flavours



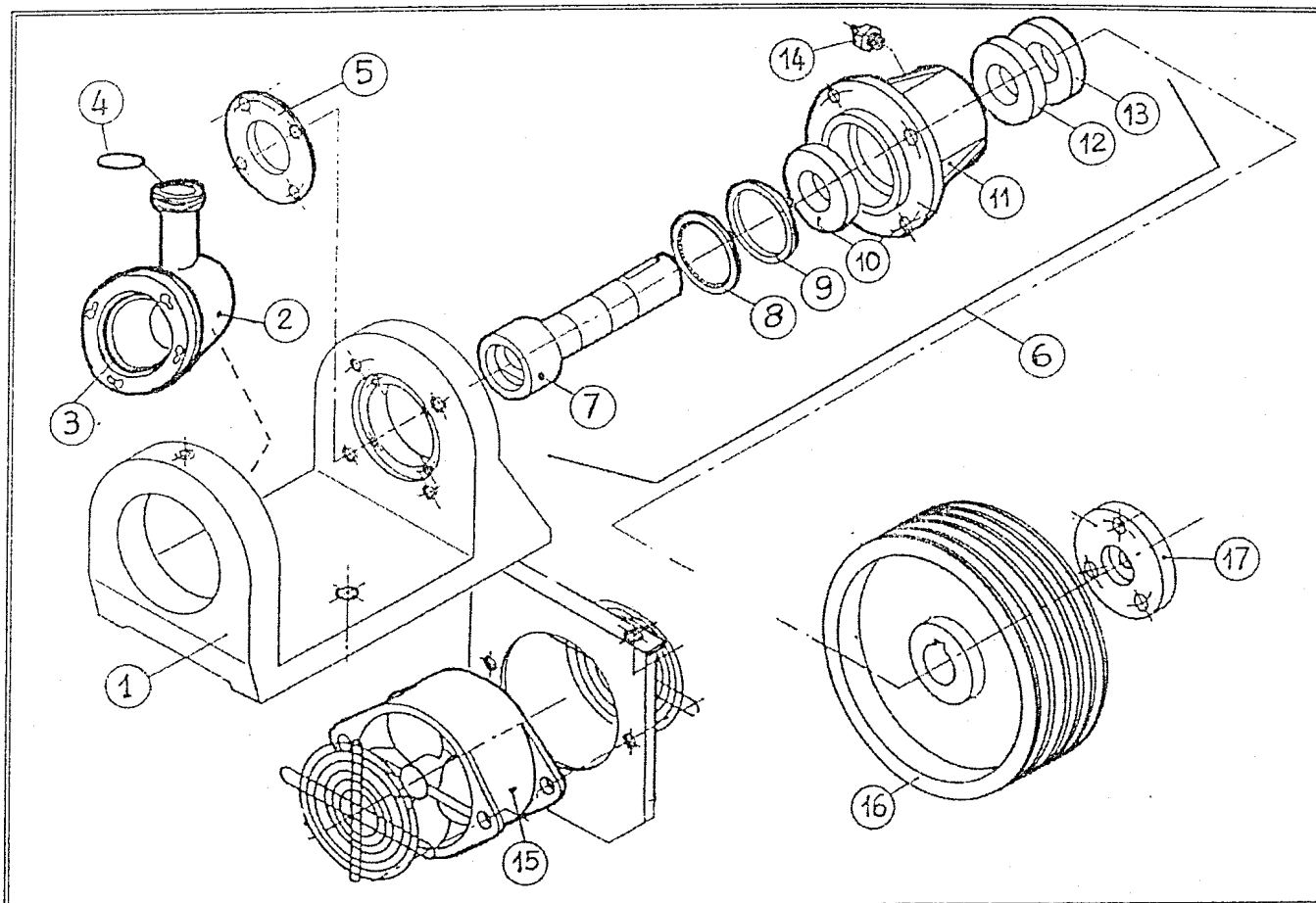
Pos.	Part name	Part number
1	Amperometric gearcase	CC-7237.6/10
2	Left turbine motor control switch	FR3-0170
3	Complete green pilot light - bulb only 30 V - 50/60 Hz	FR3-0164 + FR3-0165 CC-8574.6
4	Left refrigerating compressor control switch	FR3-0170
5	Left hot gas valve control switch	FR3-0171
6	Left pump control switch	FR3-0170
7	Right pump control switch	FR3-0170
8	Right hot gas valve control switch	FR3-0171
9	Right refrigerating compressor control switch	FR3-0170
10	Right turbine motor control switch	FR3-0170
11	Amperometric gearcase	CC-7237-06/10
12	Complete red pilot light - bulb only 30 V - 50/60 Hz	FR3-0164 + FR3-0166 CC-8574.6
13	Complete white pilot light - bulb only 30 V - 50/60 Hz	FR3-0164 + FR3-0167 CC-8574.6
14	Emergency switch	DFA-0092

- Refrigerating system FREEZER 100-150-300-400
600 two flavours - 800 two flavours



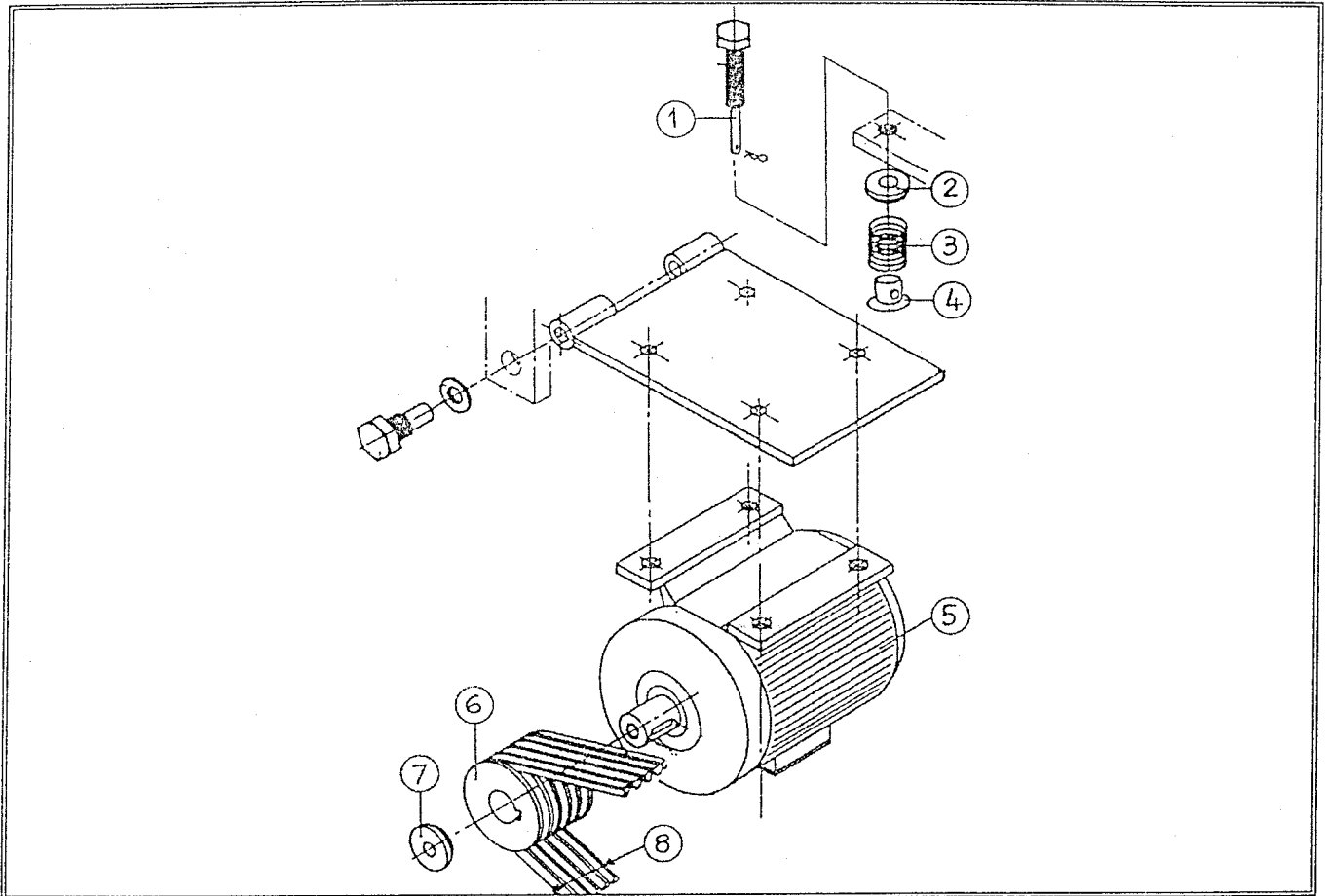
N.B. The refrigerating system of the FREEZER 600 and 800 two flavours consists of two systems like the one illustrated above.

- Support assembly with breech and fan



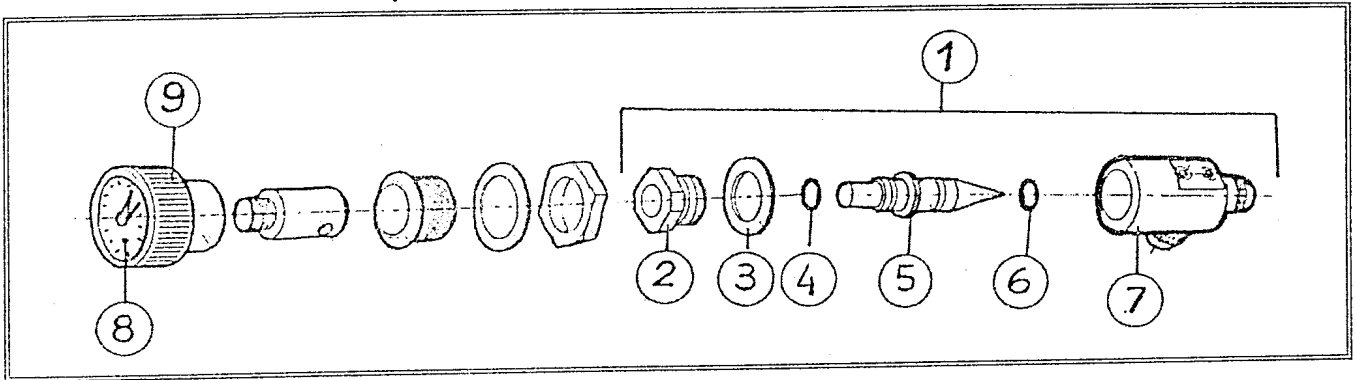
Pos.	Part name	Part number
1	Support and freezer door aluminium support	FR1-3719.0/10
2	Freezer tube breech	FR1-4480.3/10
3	Breech "OR" gasket	FR3-0037
4	Mixture inlet gasket type union	R.013.32
5	Stainless protection flange	FR1-3713.0
6	Complete support	FR1-7257.4
7	Turbine dragging shaft	FR1-1741.0/20
8	Rotating oil seal	GU-7256.6
9	Spacer	FR1-1820.0/01
10	Bearing	CS-7255.6
11	Aluminium support body	FR1-3717.0/20
12	Bearing	CS-7254.6
13	Bearing	CS-7255.6
14	Greaser connection	GU-7331.6
15	Fan	DFA-5048.6
16	Support pulley with 5 races	FR1-1740.0/10
17	Pulley blocking flange	FR1-4522.0/10

- Turbines drag motor assembly



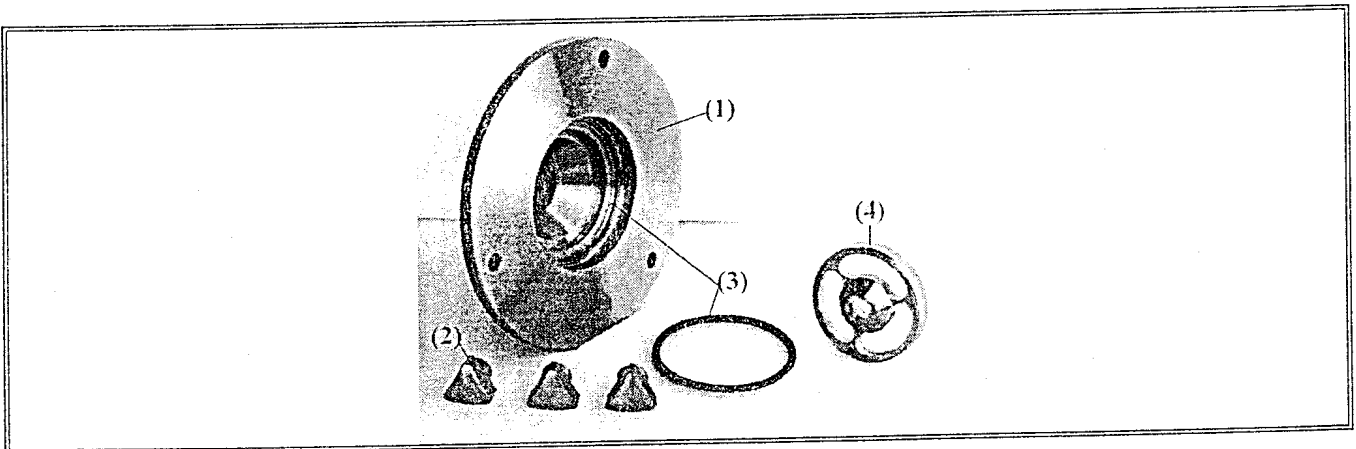
Pos.	Part name	FREEZER 100 FREEZER 150 Part Number	FREEZER 300 Part number	FREEZER 300 FREEZER 600 two flavours Part number	FREEZER 400 FREEZER 800 two flavours Part number
1	Belt tightening screw			NE-6047.0	NE-6047.0
2	Belt tightening upper disc			NE-6045.0	NE-6045.0
3	Belt tightening spring			ML-4912.0	ML-4912.0
4	Belt tightening lower bush			NE-6046.0	NE-6046.0
5	Stirrer motor 220/240-380/415 V 50 Hz 220/380 V 60 Hz 200 V 50/60 Hz	ES-0012 ES-0012/6 ES-0012/2B	FR3-0019 FR3-0019/6 FR3-0019/2B	FR3-0019 (#2) FR3-0019/6 (#2) FR3-0019/2B	MO-8301.6(N°2) MO-0016
6	Motor pulley 5 races	FR1-1844.0	FR3-6253.0	FR3-6253.0	FR3-6253.0
7	Pulley locking disc	FR1-6252.0	FR3-6254.0	FR3-6254.0	FR3-6254.0
8	Driving belts (5 pieces)	FR3-0131	FR3-0131	M2-0039	M2-0039

- "Hot gas" valve assembly



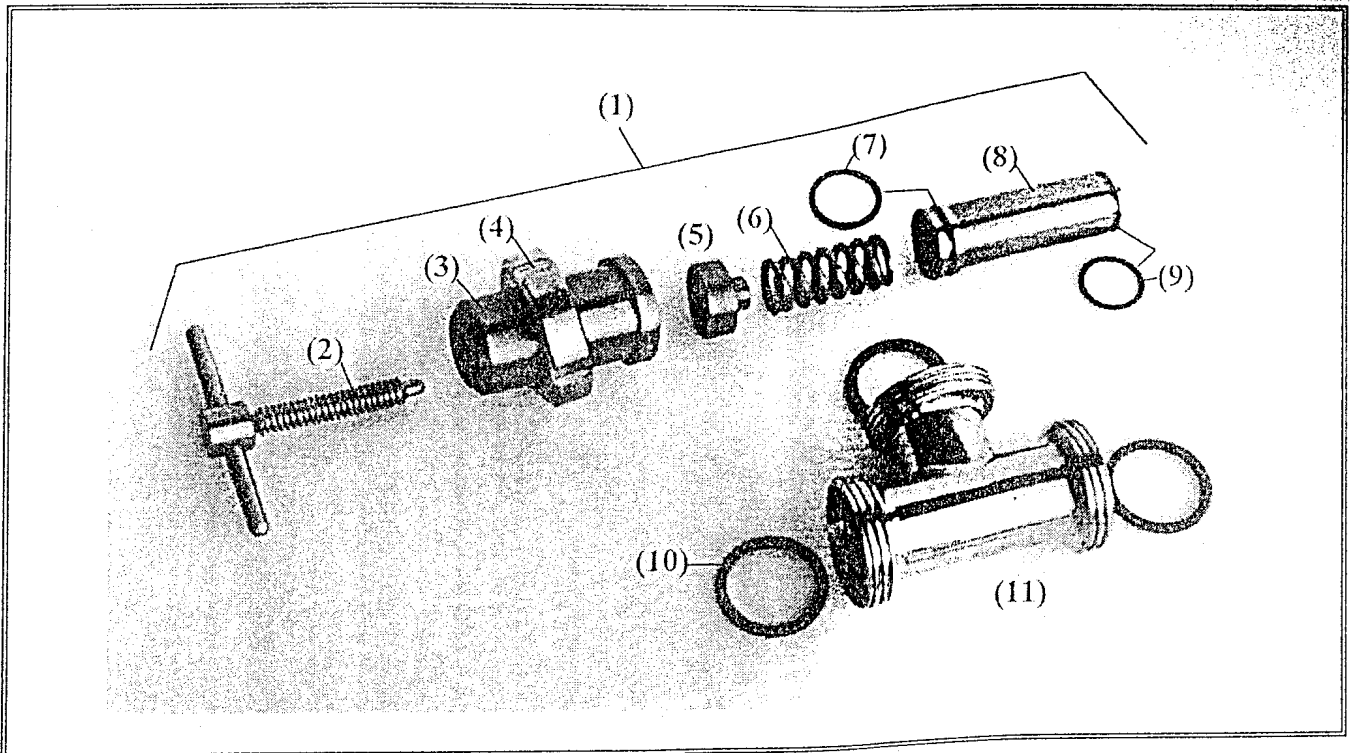
Pos.	Part name	Part number
1	Complete hot gas valve	FR1-5158.3
2	Valve closing nipple	FR1-5154.0/10
3	Lock washer	RCU-0016
4	Front "OR" gasket	FR6-0062
5	Adjustment stem	FR1-5155.0
6	Rear "OR" gasket	FR6-0062
7	Hot gas valve body	FR1-5158.3
8	Gravitational indicator	FR3-0199
9	Adjustment knob with gravitational indicator	FR1-3820.0

- Flange assembly with centre turbine



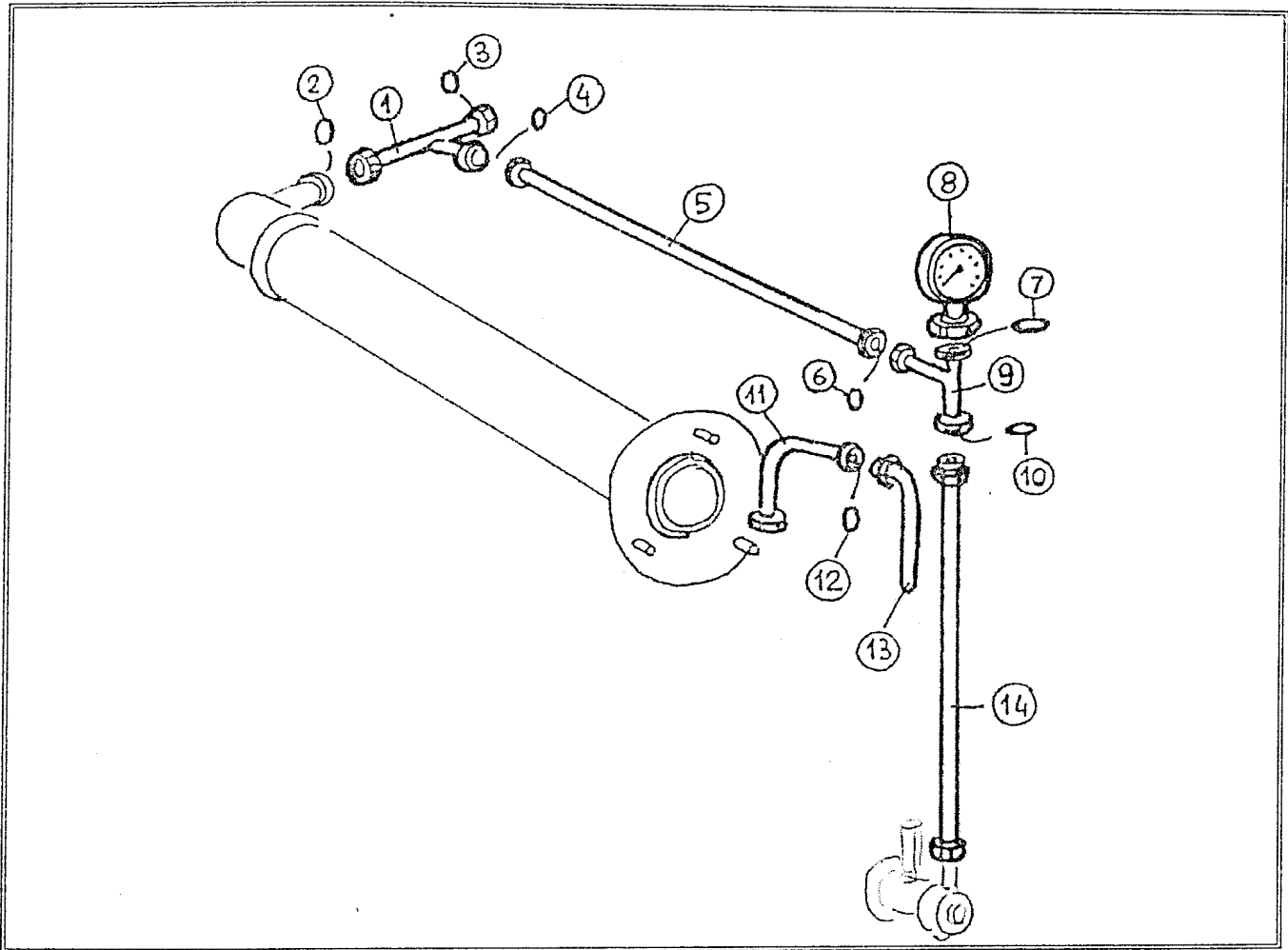
Pos.	Part name	Part number
1	Freezer tube anterior flange	FR1-3715.3/10
2	Flange blocking handwheels (# 3)	FR1-1808.0
3	"OR" gasket	FR3-0037
4	Centre turbine	FR1-1742.0/10

- Ice cream outlet tap assembly



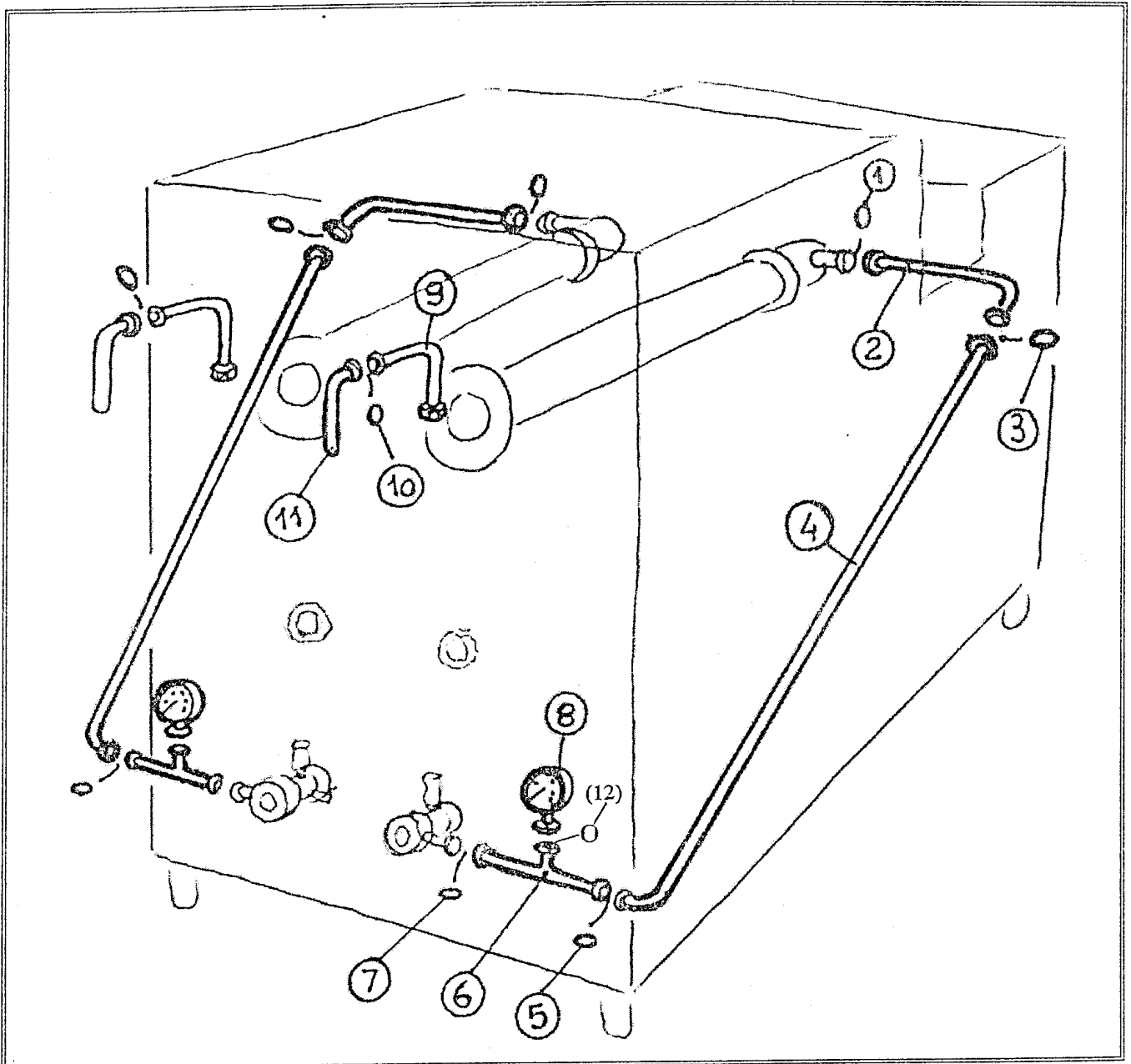
Pos.	Part name	Part number
1	Complete ice cream outlet tap	FR1-8134.4
2	Tap closing threaded pin	FR1-6219.3
3	Tap body	FR1-6218.3
4	Tap blocking DN40 ring nut	R-012.40
5	Spring pushing cap	FR1-3707.0/10
6	Spring	FR1-3701.0/10
7	"OR" gasket	AV-00020
8	Tap piston	FR1-3708.0/21
9	"OR" gasket	AV-00060
10	DN40 gaskets	R-013.40
11	Tap seat union tee	FR1-3711.2/10

- Ice cream piping with pressure gauge FREEZER 100 - 150 - 300 - 400



Pos.	Part name	FREEZER 100 FREEZER 150 Part Number	FREEZER 300 FREEZER 400 Part number
1	Rear tee	FR3-0177	FR3-0177
2	Breech - tee gasket	R-013.32	R-013.32
3	DN20 gasket	R-013.20	R-013.20
4	DN20 gasket	R-013.20	R-013.20
5	DN20 machine inside tube	FR1-055	FR3-0201
6	DN20 gasket	R-013.20	R-013.20
7	DN40 gasket	R-013.4	R-013.4
8	Pressure gauge 0-25 Bar	FR3-0183	FR3-0183
9	Pressure gauge holder tee	FR3-0182	FR3-0182
10	DN20 gasket	R-013.20	R-013.20
11	Ice cream outlet DN25 half tube	FR3-0125	FR3-0125
12	DN25 gasket	TM-0006	TM-0006
13	Ice cream outlet end tube	FR3-0187	FR3-0187
14	Tube from pump to pressure gauge tee	FR3-0203	FR3-0203

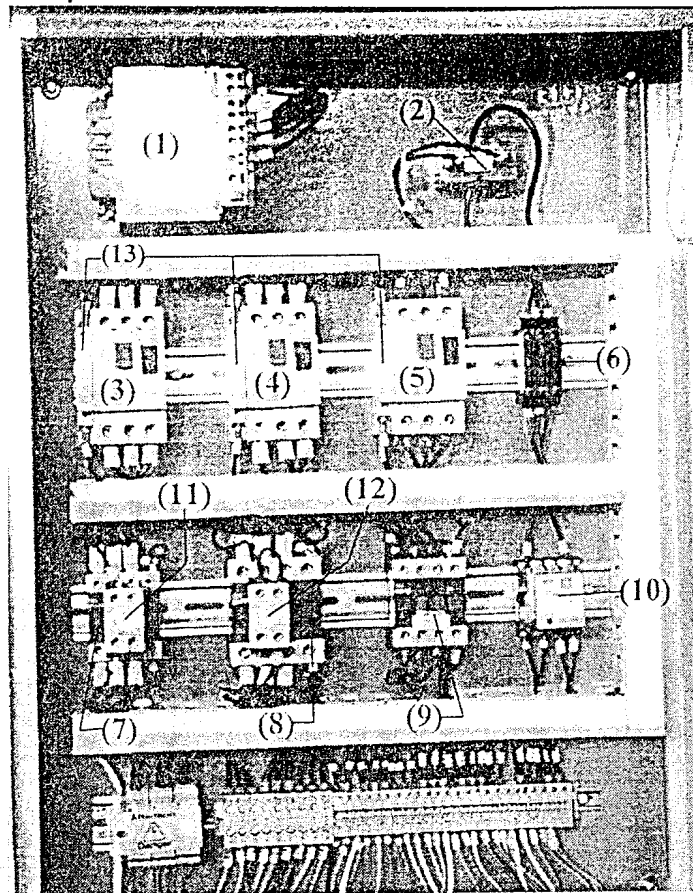
- Ice cream piping with pressure gauge FREEZER 600 and 800 two flavours



Pos.	Part name	FREEZER 600 and 800 two flavours Part Number
1	Gasket between arrival tube and braech	R-013.32
2	Tube with rear elbow D20	FR3-0308
3	DN20 gasket	R-013.20
4	Tube with side elbow DN20	FR6-0309
5	DN20 gasket	R-013.20
6	Pressure gauge holder T	FR6-0310
7	DN20 gasket	R-013.20
8	Pressure gauge 0-25 Bar	FR3-0183
9	Ice cream outlet DN25 half tube	FR3-0125
10	DN25 gasket	TM-0006
11	Ice cream outlet end tube	FR3-0187
12	DN40 gasket	R-013.40

- Electric panel

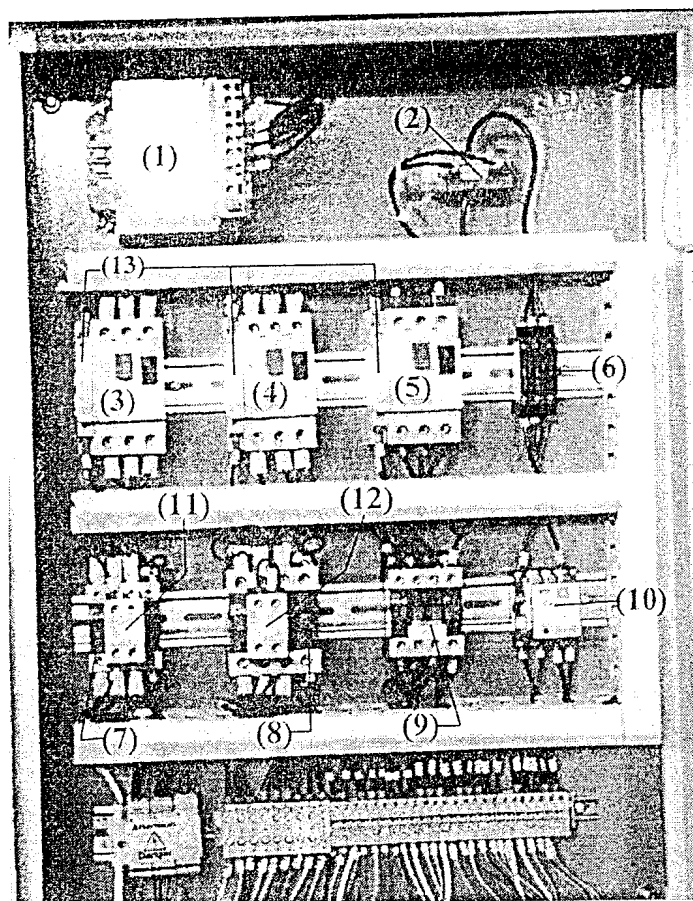
FREEZER 100



Pos.	Part name	FREEZER 100 200-220 V Part Number	FREEZER 100 380-415 V Part number
1	High/low voltage transformer - wattage 160 220 - 380V 240 - 415 V 200 V	FR1-032 FR1-032/4 FR1-032/2B	FR1-032 FR1-032/4 FR1-032/2B
2	Amperometric transformer TA for amper. gearcase	ME-0015	ME-0015
3	Magnetothermal for turbine motor	GV2 M16 = FR3-0243	GV2 M14 = FR1-085
4	Magnetothermal for refrigerating compressor	GV2 M16 = FR3-0243	GV2 M14 = FR1-085
5	Magnetothermal for pump motor	GV2 M08 = MXT-0032	GV2 M08 = MXT-0032
6	Fuses: #2 2 A A quick type in glass #1 6.3 A delayed type in glass	ME-0053/2 CC-9656.6	ME-0053/2 CC-9656.6
7	Turbine motor contactor - LC1 D1210	FR3-0158	FR3-0158
8	Refrigerating compressor contactor - LC1 D1810	FR6-0258	FR6-0258
9	Pump motor contactor - LC1 D0910	FR3-0157	FR3-0157
10	Relay Finder 6012	MXP-0034 + MXP-0035	MXP-0034 + MXP-0035
11	Auxiliary contactor - LA1-DN11	FR3-0162	FR3-0162
12	Auxiliary contactor - LA1-DN11	FR3-0162	FR3-0162
13	Auxiliary contactor for magnetothermal GV2 AN11	MXT-0030	MXT-0030

- Electric panel

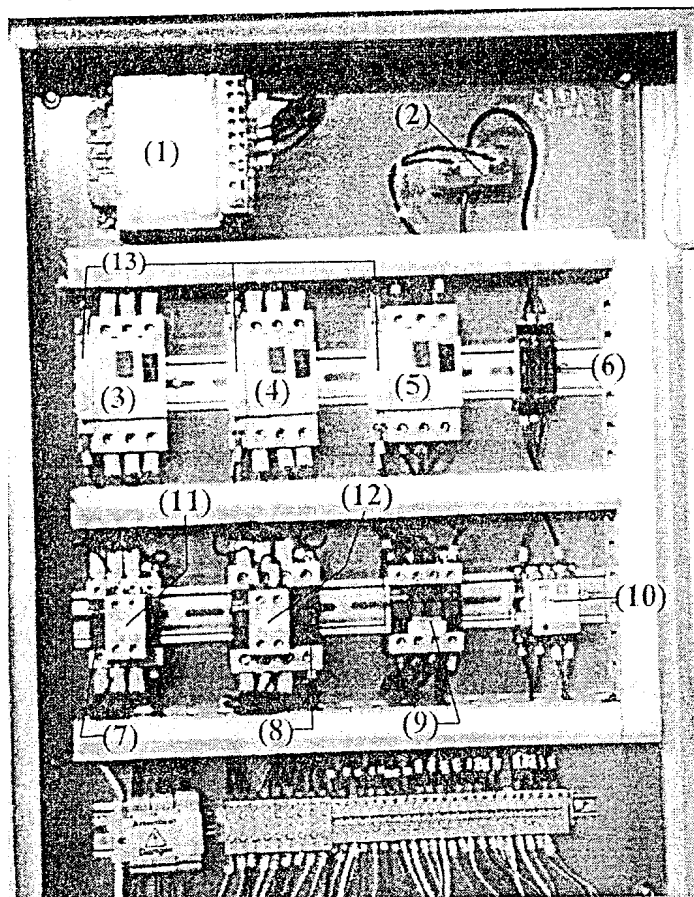
FREEZER 150



Pos.	Part name	FREEZER 150 200-220 V Part Number	FREEZER 150 380-415 V Part number
1	High/low voltage transformer - wattage 160 220 - 380 V 240 - 415 V 200 V	FR1-032 FR1-032/4 FR1-032/2B	FR1-032 FR1-032/4 FR1-032/2B
2	Ammeter transformer TA for amper. gearcase	ME-0015	ME-0015
3	Magnetothermal for turbine motor	GV2 M16 = FR3-0243	GV2 M14 = FR1-085
4	Magnetothermal for refrigerating compressor	GV2 M20 = MXT-0029	GV2 M20 = MXT-0029
5	Magnetothermal for pump motor	GV2 M08 = MXT-0032	GV2 M08 = MXT-0032
6	Fuses: #2 2 A A quick type in glass #1 6.3 A delayed type in glass	ME-0053/2 CC-9656.6	ME-0053/2 CC-9656.6
7	Turbine motor contactor - LC1 D1210	FR3-0158	FR3-0158
8	Refrigerating compressor contactor - LC1 D2510	FR3-0160	FR3-0160
9	Pump motor contactor - LC1 D0910	FR3-0157	FR3-0157
10	Relay Finder 6012	MXP-0034 + MXP-0035	MXP-0034 + MXP-0035
11	Auxiliary contactor - LA1-DN11	FR3-0162	FR3-0162
12	Auxiliary contactor - LA1-DN11	FR3-0162	FR3-0162
13	Auxiliary contactor for magnetothermal GV2 AN11	MXT-0030	MXT-0030

- Electric panel

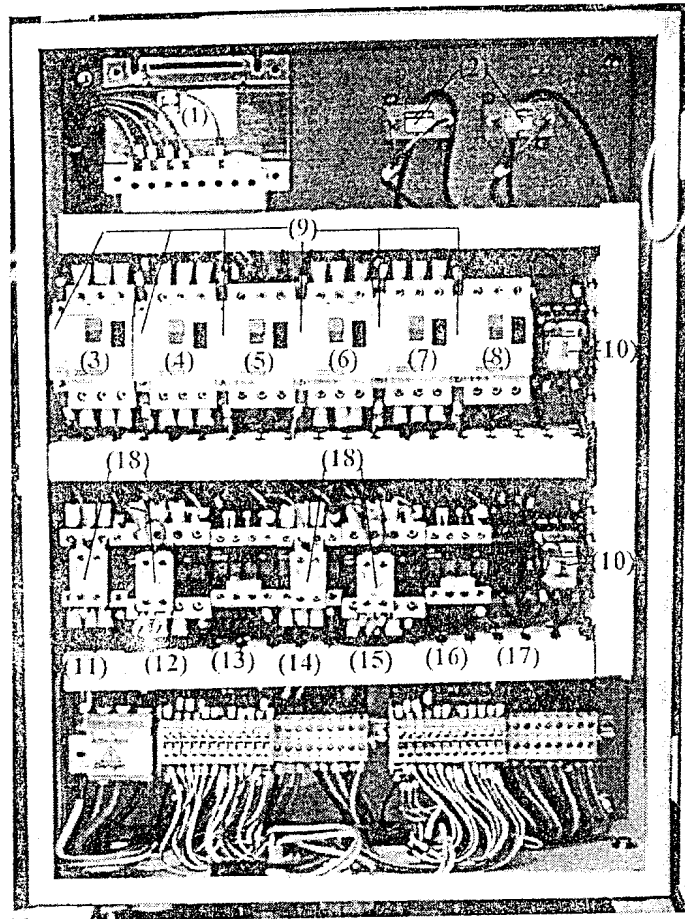
FREEZER 300 and 400



Pos.	Part name	FREEZER 300 200-220 V Part Number	FREEZER 300 380-415 V Part number
1	High/low voltage transformer - wattage 160 220 - 380 V 240 - 415 V 200 V	FR1-032 FR1-032/4 FR1-032/2B	FR1-032 FR1-032/4 FR1-032/2B
2	Amperometric transformer TA for amper. gearcase	ME-0015	ME-0015
3	Magnetothermal for turbine motor	GV2 M16 = FR3-0243	GV2 M14 = FR1-085
4	Magnetothermal for refrigerating compressor	GV2 M22 = MXT-0035	GV2 M20 = MXT-0029
5	Magnetothermal for pump motor	GV2 M08 = MXT-0032	GV2 M08 = MXT-0032
6	Fuses: #2 2 A A quick type in glass #1 6.3 A delayed type in glass	ME-0053/2 CC-9656.6	ME-0053/2 CC-9656.6
7	Turbine motor contactor	LC1 D1810 = FR6-0258	LC1 D1810 = FR3-0158
8	Refrigerating compressor contactor - LC1 D2510	FR3-0160	FR3-0160
9	Pump motor contactor - LC1 D0910	FR3-0157	FR3-0157
10	Relay Finder 6012	MXP-0034 + MXP-0035	MXP-0034 + MXP-0035
11	Auxiliary contactor - LA1-DN11	FR3-0162	FR3-0162
12	Auxiliary contactor - LA1-DN11	FR3-0162	FR3-0162
13	Auxiliary contactor for magnetothermal GV2 AN11	MXT-0030	MXT-0030

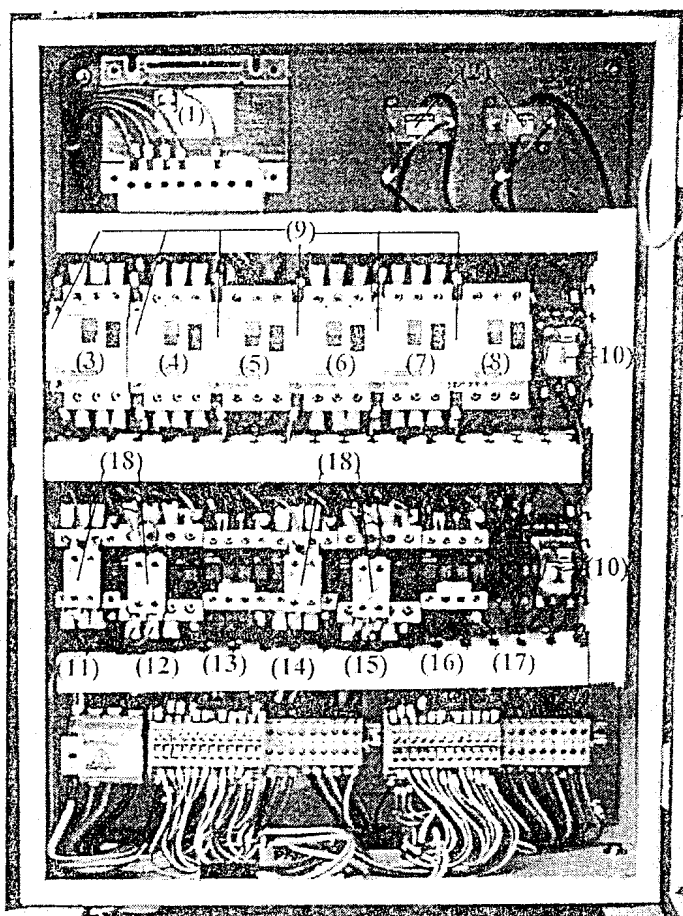
- Electric panel

FREEZER 600 two flavours 220 v



Pos.	Nome componente	FREEZER 600 Codice	FREEZER 800 Codice
1	Trasformatore alta/bassa tensione - potenza 300 VA	FR6-0115	FR6-0115
2	Trasformatore amperometrico TA per centralina amperometrica (n°2 pezzi uguali)	ME-0015	ME-0015
3	Magnetotermico per motore turbina sinistro - GV2 M16	FR3-0243	
4	Magnetotermico per compressore frigorifero sinistro - GV2 M22	MXT-0035	
5	Magnetotermico per motore pompa sinistra - GV2 M08	MXT-0032	
6	Magnetotermico per motore turbina destro - GV2 M16	FR3-0243	
7	Magnetotermico per compressore frigorifero destro - GV2 M22	MXT-0035	
8	Magnetotermico per motore pompa destra - GV2 M08	MXT-0032	
9	Contatto ausiliario per magnetotermico - GV2 AN11 (N° 6 tutti uguali)	MXT-0030	
10	Relay Finder 6012	MXP-0034 + MXP-0035	MXP-0034 + MXP-0035
11	Contattore per motore turbina sinistra - LC1 D 1810	FR6-0258	
12	Contattore per compressore frigorifero sinistro - LC1 D2510	FR3-0160	
13	Contattore per motore pompa sinistra - LC1 D0910	FR3-0157	
14	Contattore per motore turbina destro - LC1 D1810	FR6-0258	
15	Contattore per compressore frigorifero destro - LC1 D2510	FR3-0160	
16	Contattore per motore pompa destra - LC1 D0910	FR3-0157	
17	Fusibili : n° 2 da 2A. tipo rapido in vetro n° 1 da 6,3A. tipo ritardato in vetro	ME-0053/2 CC-9656.6	ME-0053/2 CC-9656.6
18	Contatto ausiliario - LA1 DN11 (n°4 tutti uguali)	FR3-0162	

- Electric panel FREEZER 600 and 800 two flavours 380 - 415 v

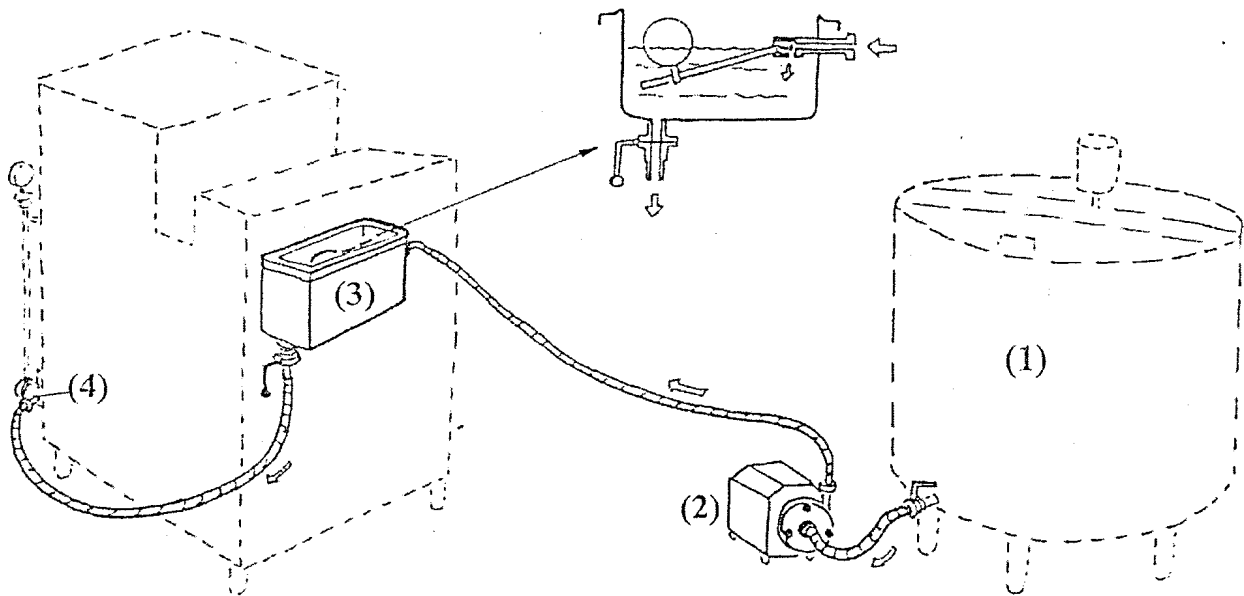


Pos.	Nome componente	FREEZER 600 Codice	FREEZER 800 Codice
1	Trasformatore alta/bassa tensione - potenza 300 VA 220/380 240/415	FR6-0115 FR6-0115/4	FR6-0115 FR6-0115/4
2	Trasformatore amperometrico TA per centralina amperometrica (n°2 pezzi uguali)	ME-0015	ME-0015
3	Magnetotermico per motore turbina sinistro - GV2 M14	FR1-085	
4	Magnetotermico per compressore frigorifero sinistro - GV2 M20	MXT-0029	
5	Magnetotermico per motore pompa sinistro - GV2 M08	MXT-0032	
6	Magnetotermico per motore turbina destro - GV2 M14	FR1-085	
7	Magnetotermico per compressore frigorifero destro - GV2 M20	MXT-0029	
8	Magnetotermico per motore pompa destra - GV2 M08	MXT-0032	
9	Contatto ausiliario per magnetotermico - GV2 AN11 - (n°6 uguali)	MXT-0030	
10	Relay Finder 6012	MXP-0034 + MXP-0035	MXP-0034 + MXP-0035
11	Contattore per motore turbina sinistra - LC1 D1210	FR3-0158	
12	Contattore per compressore frigorifero sinistro - LC1 D2510	FR3-0160	
13	Contattore per motore pompa sinistra - LC1 D0910	FR3-0157	
14	Contattore per motore turbina destro - LC1 D1210	FR3-0158	
15	Contattore per compressore frigorifero destro - LC1 D2510	FR3-0160	
16	Contattore per motore pompa destra - LC1 D0910	FR3-0157	
17	Fusibili: n° 2 da 2A, tipo rapido in vetro n° 1 da 6,3A, tipo ritardato in vetro	ME-0053/2 CC-9656.6	ME-0053/2 CC-9656.6
18	Contatto ausiliario per contattore - LA1 DN11	FR3-0162	

- Machine operation with servofreezer

As illustrated in the drawing below, the servofreezer (3) is generally located behind the machine, raised from the ground. The pump (2) which supplies the servofreezer must be placed near the mixture storage tank, which in turn may be as far as 15 metres away from the freezer.

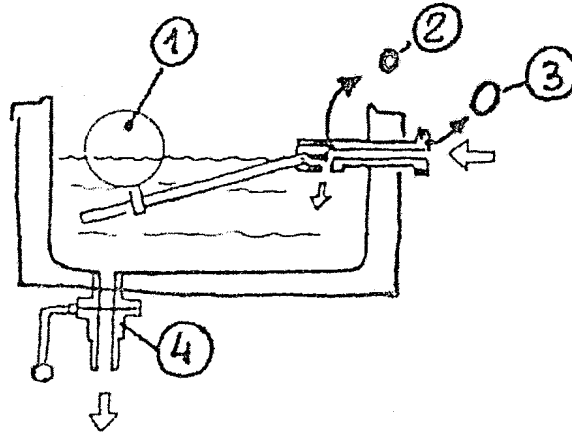
The piping that connects the servofreezer (3) to pump (2) must be made of rubber or plastic. We strongly advise not to use metallic piping.



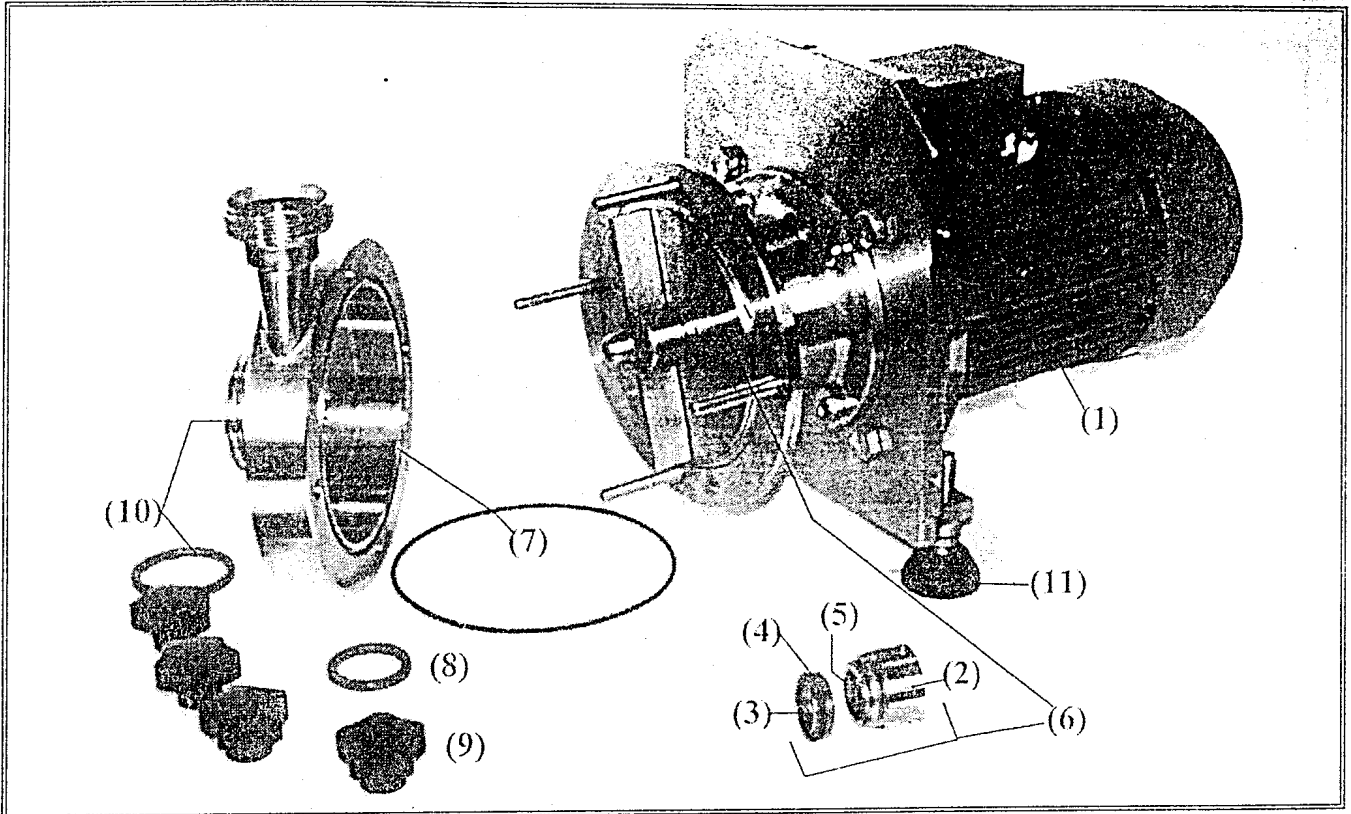
In case Technogel S.p.a. has supplied only the servofreezer and that the Client must install the pump, we recommend installing a centrifugal pump with a maximum head of **10 metres (thrust pressure)**.

In case the storage tank is positioned above the freezer (for example, on the floor above), just connect the tank outlet directly to the servofreezer, without the aid of a pump.

- Spare parts for servofreezer

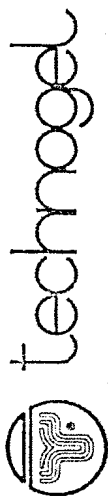


Pos.	Part name	Part Number
1	Stainless floating ball	SF-012
2	Mixture inlet small piston seal gasket	MP-0008
3	DN20 connection gasket	TM-0006
4	DN25 MF throttle tap	MW-00227/2

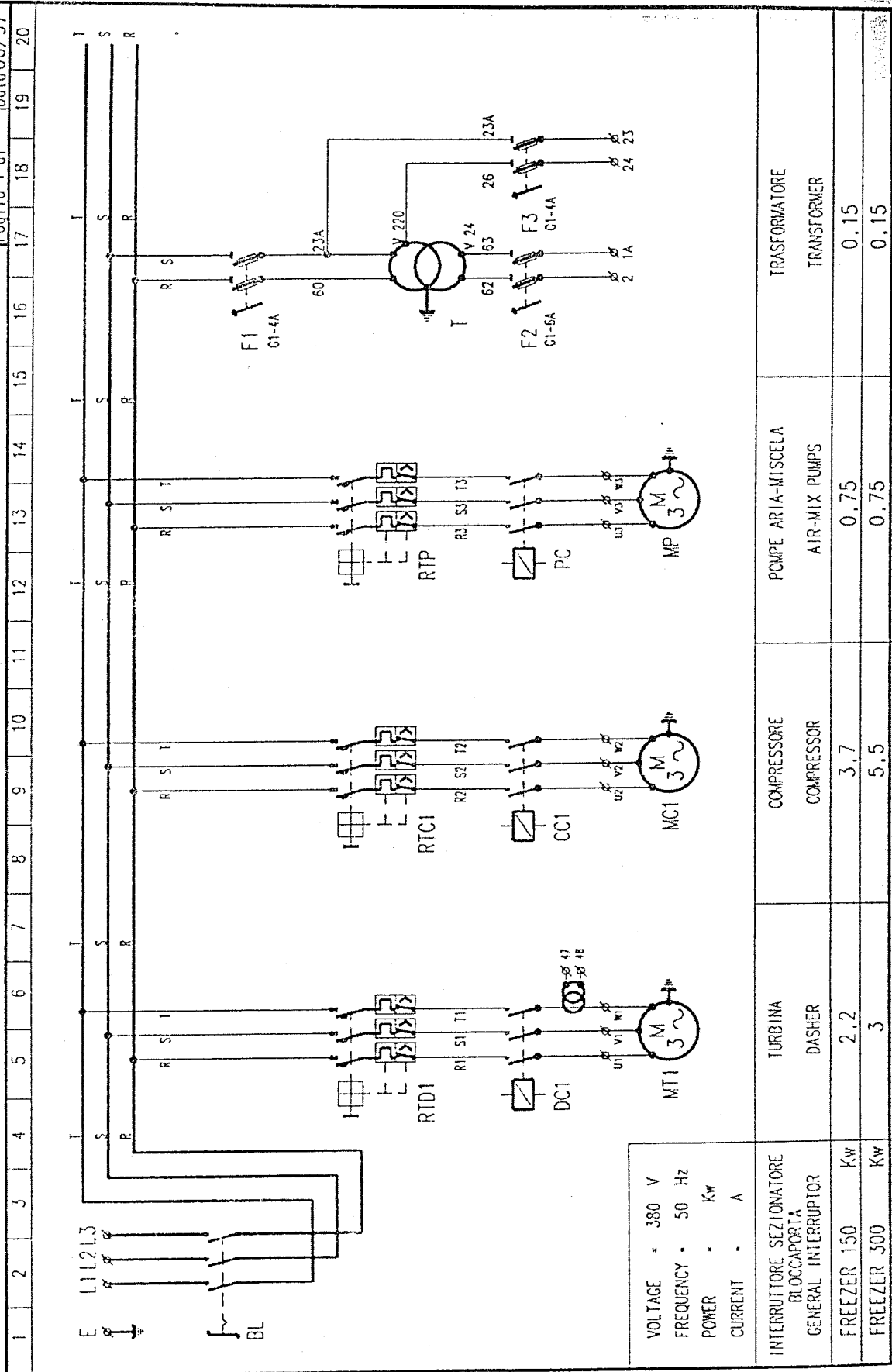


Pos.	Part name	Part Number
1	Motor 0.75 hp 1400 r.p.m. 220/240-380/415 V 50 Hz 220/380 V 60 Hz	MO-0008 DFA-0029/6
2	Pump stuffing box rotating part	MW-0172
3	Stuffing box fixed part	MW-0080
4	Fixed part "OR" gasket	AV-00125
5	Rotating part "OR" gasket	AV-00124
6	Complete stuffing box	MW-00166
7	Pump cover "OR" gasket	T1-0081
8	Force main DN25 gasket	TM-0006
9	Pump cover closing handwheel	DE-0020
10	Inlet union DN40 gasket	R-013.40
11	Pump support foot	BA-0002

FREEZER 150 - 300



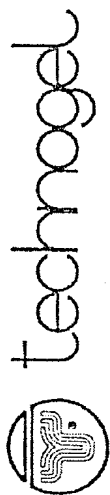
Macchina: FREEZER 150-300
 N.Dis: FR1-3914.4
 Foglio 1 di Data06/97



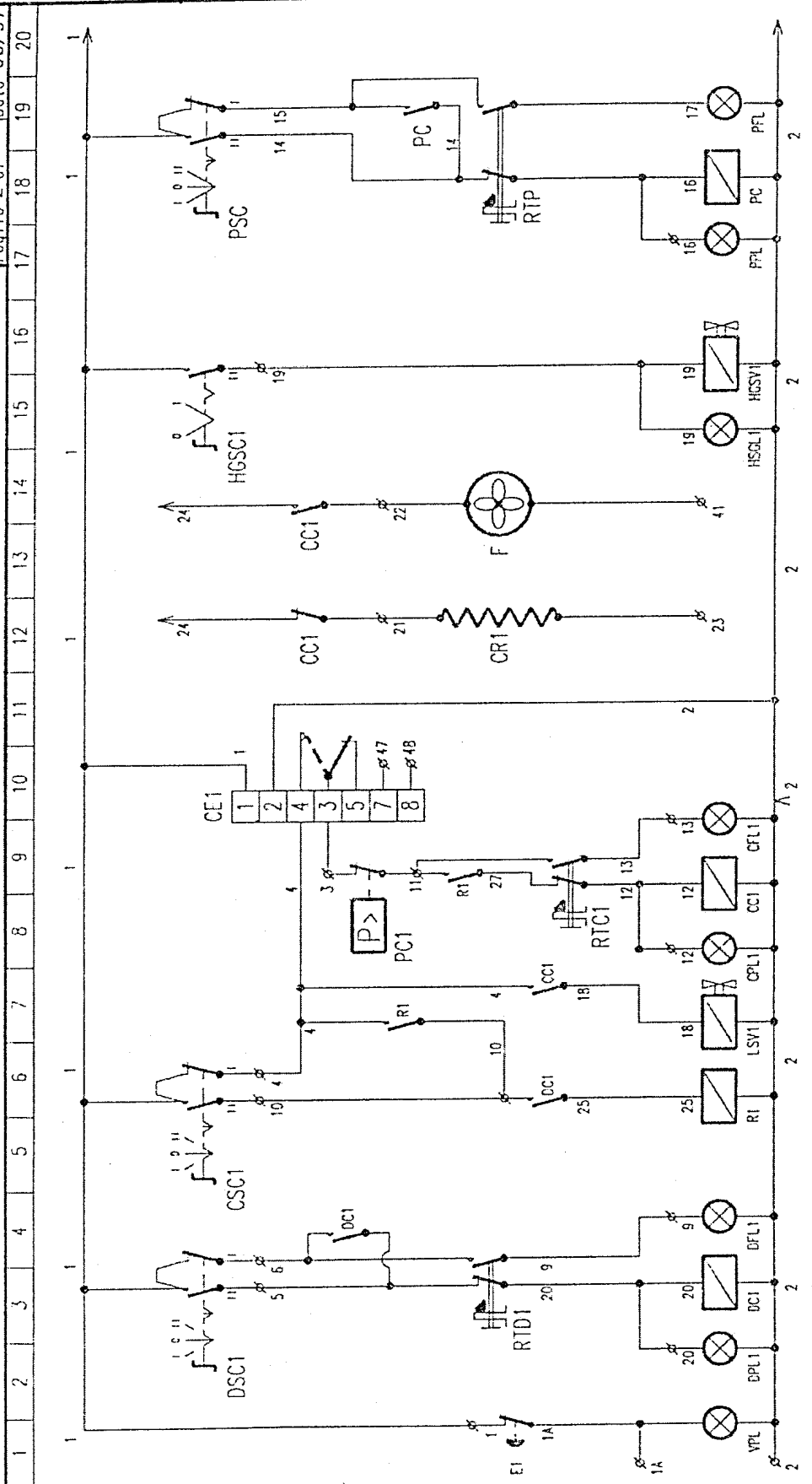
VOLTAGE	= 380 V
FREQUENCY	= 50 Hz
POWER	= Kw
CURRENT	= A

INTERRUTTORE SEZIONATORE BLOCCAPORTA GENERAL INTERRUPTOR					
TURBINA DASHER	2,2	3			
COMPRESSORE COMPRESSOR	3,7	5,5			
POMPE ARIA-MISCELA AIR-MIX PUMPS	0,75	0,75			
TRASFORMATORE TRANSFORMER	0,15	0,15			

FREEZER 100 - 150 - 300

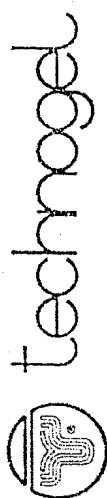


Macchina: FREEZER 150-300
 N.Dis: FR1-3914.4
 Foglio 2 di 20 Data 06/97

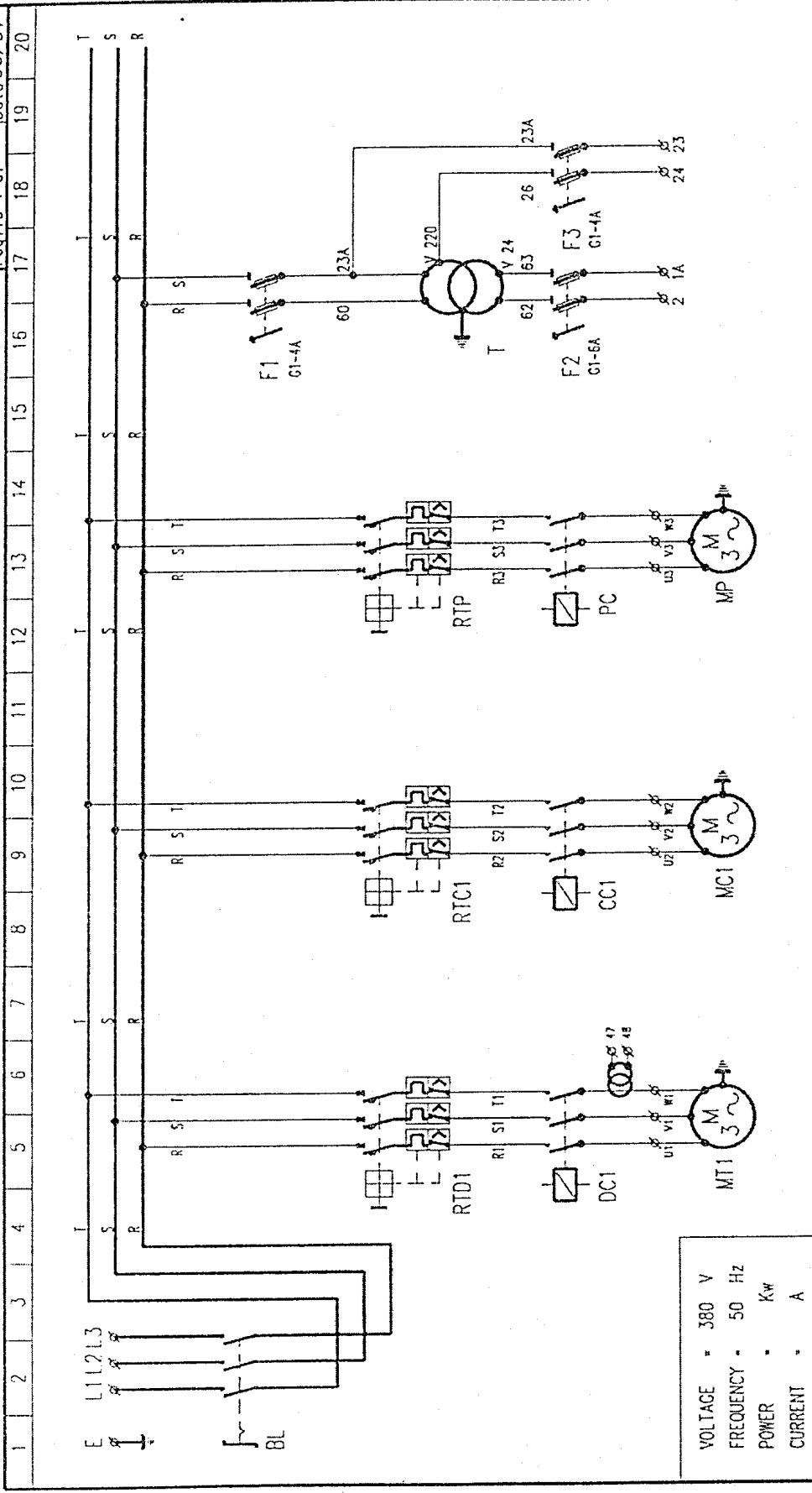


EMERGENZA EMERGENCY	TURBINA DASHER	COMPRESSORE COMPRESSOR	VENTILATORE FAN	VALVOLA GAS CALDO HOT GAS SOLENOID VALVE	POMPE ARIA-MISCELA AIR-MIX PUMPS
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FREEZER 100



Macchina: FREEZER 100
 N.Dis:
 Foglio 1 di 20
 Data 06/97



VOLTAGE	= 380 V
FREQUENCY	= 50 Hz
POWER	= Kw
CURRENT	= A

INTERRUTTORE SEZIONATORE BLOCCAPORTA GENERAL INTERRUPTOR	COMPRESSORE COMPRESSOR	PCPME ARIA-MISCELA AIR-MIX PUMPS	TRASFORMATORE TRANSFORMER
FREEZER 100 Kw	2,2	0,75	0,15