INSTRUCTION AND MAINTENANCE MANUAL

MODEL SM80/SM120

(208 V / 60 Hz)

SPIRAL KNEADING MACHINE WITH FIXED BOWL
MANUFACTURER AND MACHINE SPECIFICATIONS
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1 USING THIS MANUAL

1.1 PURPOSE OF THE MANUAL

Using the manual

The manual for the use and maintenance of the machine, together with the Technical File, form an integral part of the machine. They must be preserved for the full life of the machine and must be passed on to any subsequent users.

The layout of the manual clearly identifies the chapters and the topics dealt with therein, allowing for efficient consultation.

Caring for the manual

The manual must be handled with care in order to prevent it from being damaged. It should be filed in a place which will ensure its safekeeping but at the same time which will allow it to be easily accessible for consultation.

Consulting the manual

The manual begins with a contents page, listing the various chapters and the topics contained therein.

It is necessary to strictly respect both the specified precautions before switching on the machine and the instructions concerning safety measures.
1.2 UPDATING THE MANUAL

Whenever modifications are made to the machine or the user purchases optional equipment, the manufacturer will either supply a new, complete manual or only the specific documentation related to the parts to be added or replaced. In the latter case of partial documentation, instructions will be given on the correct procedure to replace and/or complete:

- the documentation;
- the contents page;
- the enclosures.
2 GENERAL INFORMATION

2.1 CONDITIONS OF GUARANTEE

Validity

The guarantee period begins from the corresponding invoice date.
This guarantee is valid for a period of:
• six months, for electrical parts and motors;
• twelve months, for mechanical parts and other components.

An essential condition to ensure the validity of the guarantee in the above specified periods, is that accurate routine maintenance has been carried out, in accordance with the instructions specified in chapter 9.

Guarantee services

Defective pieces still under guarantee must be returned with no transport costs charged to the manufacturer.
The manufacturer, after having verified that the parts are truly defective, will forward the spare parts to be replaced; the transport costs will be charged to the consignee.

The manufacturer cannot be held responsible for any situations arising from incorrect or inappropriate use of the machine by the user, which could compromise the safety of the machine and of the user.
For example:

• a lack of maintenance;
• the installation of tools on the machine which do not belong to it or which are not allowed to be used on the machine.
2.2 TECHNICAL SERVICES

During the warranty period

If a technical intervention is required for special maintenance or to repair a fault, then it is obligatory to consult the manufacturer before carrying out any operations related to the aforesaid cases.

Technical services in general

In addition to routine maintenance, it is recommended that scheduled maintenance also be carried out by suitably qualified personnel, in the manner specified in chapter 9. The request for spare parts can be made following the procedure specified in section 15.

2.3 GENERAL SAFETY WARNINGS

Safety and precautionary measures for which the user is responsible

The personnel assigned to the operation of the machine, must be able to carry out all the tasks necessary for the basic operation of the machine. That is, they must have a good working knowledge of:

• the work cycle and the safety devices;
• the procedures for the loading of the ingredients and the unloading of the dough;
• the procedures for the cleaning of the machine and the workplace.

For additional information on this topic refer to sections 7 and 8.

During the kneading process, it is necessary not to exceed the maximum quantities of dough allowed for the specific machine being used.
The quantities of the ingredients can vary, depending on the respective percentages of the ingredients to be used.

Other safety measures

It is necessary to observe the local safety standards and codes currently in force at all times.

Under no circumstances must the personnel assigned to the machine operate without the safety guards and safety systems installed.

It is absolutely forbidden to tamper with or modify the safety devices and circuits.
3 PLANNED USES OF THE MACHINE

The machine has been designed and constructed for the purpose of making bread or pastry dough.

3.1 WORK ENVIRONMENT

In addition to the obligatory requirement of operating in an environment which is suitable for the production of foodstuffs, it is also necessary to respect other conditions, such as:

- the absence of ventilation during the loading and initial phase of the work cycle;
- the use of suitable containers and tools which come into contact with foodstuffs;
- sufficient access to the machine for all cleaning and routine maintenance operations.

3.2 MATERIALS TO BE USED

The purpose of the machine

The machine and all its parts have been designed for the processing of foodstuffs (bread and pastry dough). This machine allows for the production of an homogeneous mixture of water, flour and other ingredients (yeast, salt...) required for bread dough or pastry dough.

Description of ingredients which can be used

All types of flour,
Water,
Yeast,
Fats- Butter,
Sugar,
Flavourings,
Salt,
Liqueurs and other ingredients used to make bread or pastry dough.
Percentages of ingredients

The maximum quantities of ingredients which can be placed into the bowl depend on the percentages of the ingredients in the mixture.
For information on the machine dough capacity and on the percentage of flour and water, refer to chapter 13 / 14.

3.3 INSTRUCTIONS TO AVOID IMPROPER USE OF THE MACHINE

The following conditions constitute improper use of the machine and are forbidden:

• Loading quantities which exceed the specified maximum quantities for the machine being used;
• Removing or changing the position of safety systems, such as fixed and mobile safety guards, limiting device microswitches;
• Using unsuitable ingredients;
• Cleaning with tools which can scratch the bowl;
• Using the machine in unsuitable environments.
4 HANDLING THE MACHINE

4.1 WARNING

When lifting and moving the machine, it is necessary to strictly adhere to the instructions specified in this chapter and in the chapter related to safety (refer to chapter 8).

4.2 UNPACKING THE MACHINE

As shown in Errore. L'argomento parametro è sconosciuto., the machine rests on a wooden pallet (pos. A).
The machine is held in place by two vertical threaded bars (pos. B) and one transverse bar (pos. C).
The machine always rests on a pallet and can then be packed in one of the following ways:
• machine wrapped in nylon bubble wrap;
• machine placed in a thick cardboard box;
• machine placed in a wooden crate;
• machine placed in a wooden box.

Figure 4-Errore. L'argomento parametro è sconosciuto.
The information concerning the gross weight appears on the outside of the packaging.

Once the outer packing material has been removed, in order to unpack the machine, it is first necessary to remove the two vertical threaded bars from the pallet and to remove the transverse bar.

In order to lift the unpacked machine from the pallet use:

1. a fork lift truck, inserting the forks under the machine in the position shown in **Errore. L'argomento parametro è sconosciuto.**;
2. a belt, passing it under the head, close to the column of the machine as shown in **Errore. L'argomento parametro è sconosciuto.**

For additional information on the procedure for lifting the unpacked machine from the pallet and placing it in the chosen position, refer to the next section.

All the material used for the packaging, excluding the vertical threaded bars and the transverse bar, can be recycled or disposed of as ordinary urban waste.

### 4.3 LIFTING AND MOVING THE MACHINE

**Lifting the machine with packaging**

Before starting, check the total weight of the machine with packaging and then use appropriate equipment to lift the packed machine. In the case when a transpallet or fork lift truck is used, the machine must be lifted by inserting the forks into the pallet in the positions indicated in the corresponding figures (**Errore. L'argomento parametro è sconosciuto.** and **Errore. L'argomento parametro è sconosciuto.**).
Lifting the machine without packaging

The unpacked machine can be lifted using a fork lift truck, in the manner shown in Error. L'argomento parametro è sconosciuto., or using a belt positioned under the head, between the column and the spiral mixing tool (refer to Error. L'argomento parametro è sconosciuto.). In order to prevent the machine cover from being damaged, use a spacer (suitable bar or
wooden board with a minimum section of 25x130 mm) to keep the belt away from the cover. During the lifting process, the machine is in an inclined position since the centre of gravity has been shifted, however, this does not compromise the safety of the people or of the machine itself. Avoid oscillations during this operation.

**Figure 4-**Errore. L'argomento parametro è sconosciuto.
Manually moving the machine

The machine rests on three wheels, two at the back which are fixed (A) and one at the front which can revolve (B). This allows the machine to be moved, in order to allow the space underneath the machine to be cleaned. This can be done simply by lifting the front plates (C) and pushing the machine to the desired position, making sure that the power cable (D) has first been removed from its socket.

Figure 4-Errore. L'argomento parametro è sconosciuto.
5 INSTALLING THE MACHINE

5.1 WARNING

Place the machine in the workshop in a position which allows for easy loading of the ingredients and removal of the dough. Provide sufficient space around the machine to allow both the maintenance and cleaning operations to be carried out (refer to Error. L'argomento parametro è sconosciuto.).

![Diagram of machine installation](image-url)

**Figure 5**-Error. L'argomento parametro è sconosciuto.
5.2 ENVIRONMENTAL CONDITIONS

The machine has been designed for use in bakeries or pastry-making confectioneries and therefore for use in environments with extremely variable humidity and temperature. Avoid excessive ventilation of the environment itself, which could lead to flour powder escaping from the bowl during the initial phase of amalgamation of the ingredients.

5.3 POSITIONING AND FIXING THE MACHINE IN PLACE

Once the machine has been placed in the chosen position, it must be fixed in place by adjusting the front plates (C) so that the revolving front wheel (B) does not touch the floor. (Errore. L'argomento parametro è sconosciuto.)

Figure 5-Errore. L'argomento parametro è sconosciuto.
6 PREPARING THE MACHINE FOR USE

6.1 WARNING

It is absolutely necessary to observe the local safety standards and codes when operating on the machine. For a correct use of the machine, it is necessary to carefully check the type of ingredients which make up the dough to be kneaded and their quantities; the quantities of ingredients must not exceed the maximum quantities allowed for the specific machine being used (chapter 13 / 14).

6.2 ADJUSTING THE MACHINE

Machine stability

To ensure that the machine is in a stable position, it is sufficient to adjust the front plates (C) so that the revolving front wheel (B) does not touch the floor.
Safety mechanism related to the opening of the mobile protective cover

The minimum opening of the cover, which activates the safety mechanism to stop the machine, and the maximum opening of the cover allowed, are adjusted during the test phase carried out at the manufacturer’s workshop.

If the mobile protective cover (A) is lifted while the machine is running, then cam (B), positioned inside the machine head, activates a microswitch (C) which in turn triggers the stop signal.

The cam is adjusted so that the microswitch is activated as soon as the mobile protective cover starts to lift.

Figure 6-Errore. L’argomento parametro è sconosciuto.
6.3 CONNECTING THE MACHINE TO THE POWER SUPPLY

Check that the voltage specified on the machine plate corresponds with that of the power supply to be used, because an incorrect connection will damage the machine and will invalidate the guarantee. Then, connect the power cable (pos. D, Errore. L'argomento parametro è sconosciuto.) to the appropriate socket. The cable installed is of size AWG 8, therefore, the size of the branch circuit breaker device should be 50 Amps. Turn on the main switch (pos. E Errore. L'argomento parametro è sconosciuto.).

Figure 6-Errore. L'argomento parametro è sconosciuto.
6.4 CLEANING THE MACHINE

The machine has been designed for use in the production of foodstuffs, therefore it is indispensable that it be cleaned thoroughly each day.

Body of the machine

It must only be cleaned using a sponge which has been soaked in water and sufficiently wrung out.

Bowl

To remove the dough residue which has accumulated in the bowl, use only water and a suitable plastic spatula.

Floor under the machine

To clean this area, it is necessary to move the machine, after having unplugged the cable (D) from the socket and loosened the front fastening plates (C) to lower the front wheel onto the floor.

Figure 6-Errore: L'argomento parametro desconosciuto.
7 USING THE MACHINE

7.1 WARNING

Strict observance of the local safety standards and codes is indispensable for the starting up and use of the machine.

7.2 PRELIMINARY CHECKS BEFORE STARTING

Before starting the work process, check:
• that the machine is in a stable position;
• that it has been correctly connected to the electric socket;
• that the parts are clean.

7.3 DESCRIPTION OF THE WORK PROCESS

Loading the ingredients to be kneaded

With the machine turned off, the bowl can be simply accessed by lifting the mobile protective cover (A).

Figure 7-Errore. L'argomento parametro è sconosciuto.
The ingredients (exclusively those suitable for the production of bread and pastries) are added to the bowl in the required quantities, which must not exceed the maximum quantities specified for the machine being used (refer to chapter 13 / 14).

**Starting the work process**

Only after the mobile protective cover has been lowered, can the mixer be started. Selecting the manual cycle, it is possible to start, select the required speed and stop the machine manually, by pressing the corresponding buttons on the control panel (refer to section 7.4).

To use the automatic or semi-automatic cycle, it is first necessary to set the pre-mixing and mixing times using the timers, after which the cycle can be started by pressing the required speed button on the panel (refer to section 7.4).

During the entire work cycle, the window (A) located on the mobile protective cover allows the state of the dough to be checked visually. Furthermore, it allows small quantities of ingredients to be added to correct the mixture, if this should be necessary.

![Figure 7](image-url)
Unloading the dough

At the end of the cycle, it is possible to remove the dough from the bowl, after having lifted the mobile protective cover.

7.4 DESCRIPTION OF THE FUNCTIONS FOR OPERATING THE TWO-SPEED MODEL

All the controls for the functions required to operate this machine are located on the control panel, as shown in Error! L'argomento parametro è sconosciuto. and Error! L'argomento parametro è sconosciuto.

The specific function of each button and selector is clearly indicated by graphic symbols located on or next to these controls.

Error! L'argomento parametro è sconosciuto. shows the control panel for the two-speed model. The two timers are located on the front of the machine, next to this panel.

Figure 7-Error! L'argomento parametro è sconosciuto.
Figure 7-Errore. L'argomento parametro è sconosciuto.

Description of push button control panel

<table>
<thead>
<tr>
<th>BOWL ROTATION SELECTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selects the direction of rotation of the bowl in the jog mode and first speed operating mode.</td>
</tr>
<tr>
<td>(In the NORMAL position, the bowl rotates in the same direction as the spiral)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MANUAL JOG BOWL BUTTON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impulsively rotates the bowl. The bowl rotation direction is selected using the “bowl rotation selector”.</td>
</tr>
</tbody>
</table>
1st SPEED START BUTTON

Starts mixing the ingredients at the first speed.
The bowl rotation direction is selected using the “bowl rotation selector”.

2nd SPEED START BUTTON

Starts kneading the dough at the second speed. The bowl rotation direction is NORMAL (same direction of rotation as that of the spiral).

MANUAL, SEMI-AUTOMATIC, AUTOMATIC CYCLE SELECTOR

- Manual cycle: the timers are disabled.
- Semi-automatic cycle: allows the mixer to operate in 1st speed or in 2nd speed.
- Automatic cycle: the mixer automatically switches from the 1st to the 2nd speed.

POWER ON LIGHT

Indicates that the power is on.

STOP BUTTON

The bowl and spiral rotation can be stopped by pressing the stop button. To restart the machine, press the required speed button.
parametro è sconosciuto.
The timers are not reset (it is the same as opening the protective bowl cover).
EMERGENCY BUTTON

The bowl and spiral rotation can be stopped by pressing the emergency button. To restart the machine, it is necessary to first remove the emergency condition, by rotating the same push button clockwise until it is released, and then to press the required speed button. The timers are reset.

Operating modes

The mixer can run in three modes with the mobile bowl cover closed:

- Manual mode;
- Semi-automatic mode;
- Automatic mode.

Relationship between the timer settings and the operating modes:

- If the pointer of the first speed timer is set below the zero marking, then this timer switches off (only the green LED indicating that the units of measurement are minutes remains on). With this setting, if the first speed start button is pressed, then the machine works in manual mode in first speed, even if the operating cycle selector (Errore. L'argomento parametro è sconosciuto.) has been set to automatic mode.

- If the pointer of the second speed timer is set below the zero marking, then this timer switches off (only the green LED indicating that the units of measurement are minutes remains on). With this setting, if the first speed start button is pressed, then the machine carries out the first speed cycle for the time set on the first speed timer, after which the machine stops. If the second speed button is subsequently pressed, then the machine will work in manual mode in second speed,
even if the operating cycle selector (Errore. L'argomento parametro è sconosciuto.) has been set to automatic mode.

- If the pointers of both timers are set below the 0 marking, then both timers switch off (only the green LEDs indicating that the units of measurement are minutes remain on). With this setting, the machine works in manual mode, even if the operating cycle selector (Errore. L'argomento parametro è sconosciuto.) has been set to automatic mode.

**Manual Mode**

![Figure 7](image)

Figure 7-Errore. L'argomento parametro è sconosciuto.

- Turn the selector to the manual cycle position (Errore. L'argomento parametro è sconosciuto.). The timers switch off.
- Press the “first speed” push button on the control panel to start running at the first speed in order to amalgamate and pre-mix the ingredients (Errore. L'argomento parametro è sconosciuto.).
- It is possible to select the reverse bowl rotation direction (option only available in the first speed), to accelerate the process of mixing the ingredients (Errore. L'argomento parametro è sconosciuto.). Before changing the bowl rotation direction, wait 1 second with the selector in the central position (0), in order to stop the rotation.
- Press the “second speed” push button on the control panel to start running at the second speed to finish off the mixing process (Errore. L'argomento parametro è sconosciuto.).
• Press the “stop” push button to end the manual cycle (Errore. L'argomento parametro è sconosciuto.).
Semi-automatic Mode

Figure 7-Errore. L'argomento parametro è sconosciuto.

- Turn the selector to the semi-automatic cycle position (Errore. L'argomento parametro è sconosciuto.).
- Programme the first and/or second speed timer according to the speed at which the cycle is required to be executed.

To work in the first speed

- Press the “first speed” push button on the control panel to start running at first speed in order to amalgamate and pre-mix the ingredients (Errore. L'argomento parametro è sconosciuto.).
- It is possible to select the reverse bowl rotation direction (option only available in the first speed), to accelerate the process of mixing the ingredients (Errore. L'argomento parametro è sconosciuto.). Before changing the bowl rotation direction, wait 1 second with the selector in the central position (0), in order to stop the rotation.
- The end of cycle is determined by the first speed timer. At the end of the cycle, the machine is stopped automatically.
- If the “second speed” push button on the control panel is pressed, then the machine switches to the second speed (Errore. L'argomento parametro è sconosciuto.). The end of cycle will then be determined by the second speed timer.

To work in the second speed

- Press the “second speed” push button on the control panel to start running at the second speed (Errore. L'argomento parametro è
sconosciuto.). The end of cycle is determined by the second speed timer.

**Automatic Mode**

![Figure 7](image-url)

**Figure 7**-Errore. L'argomento parametro è sconosciuto.

- Turn the selector to the automatic cycle position (Errore. L'argomento parametro è sconosciuto.).
- Programme the two timers for the first and second speed.

To work with both the first and second speed

- Press the “first speed” push button on the control panel to start running at the first speed in order to amalgamate and pre-mix the ingredients (Errore. L'argomento parametro è sconosciuto.).
- It is possible to select the reverse bowl rotation direction (option only available in the first speed), to accelerate the process of mixing the ingredients (Errore. L'argomento parametro è sconosciuto.). Before changing the bowl rotation direction, wait 1 second with the selector in the central position (0), in order to stop the rotation.
- The first end of cycle is determined by the first speed timer. At the end of this first cycle, the machine automatically switches to the second speed and the second end of cycle is subsequently determined by the second speed timer.
- If you press the “second speed” push button on the control panel during a first speed cycle, then the machine will switch to the second speed (Errore. L'argomento parametro è sconosciuto.). The end of cycle will then be determined by the second speed timer.

To work in the second speed
• Press the “second speed” push button on the control panel to start running at the second speed (Errore. L'argomento parametro è sconosciuto.). The end of cycle is determined by the second speed timer.
Remarks

- If you open the protective bowl cover while a kneading cycle is being carried out, then the machine will stop and the timers will not be reset. To restart the mixer, it is necessary to close the protective bowl cover and press the required speed start button.

- In order to simplify the emptying of the bowl, it is possible to move the dough to the front extraction area, by using the “bowl rotation” selector and the “jog bowl” push button. This operation, which allows only the bowl to be rotated, can be carried out even when the protective bowl cover is open. However, for safety reasons, to do this, it is necessary to keep the “jog bowl” push button pressed in for the time of rotation required to move the dough to the front extraction area.

- It is always possible to switch to the second speed when the machine is running at the first speed.

- The reverse bowl rotation direction option is automatically disabled when the machine is running at the second speed.

- In the automatic cycle, when the time set for the first speed cycle has elapsed and the bowl rotation direction has been set in the direction opposite to the normal direction of rotation (selector in Errore. L'argomento parametro è sconosciuto.), then the bowls stops for approximately 1.5 seconds, after which the machine switches to the second speed (in which the number of revolutions of the spiral is increased and the bowl rotates in the normal direction). This pause occurs in order to allow the bowl rotation direction to be changed and is necessary to avoid sudden changes in the direction of rotation of the bowl motor, which in the long term would damage the motor itself.
7.5 STOPPING THE MACHINE NORMALLY

In manual mode, the work cycle can be stopped normally, by pressing the “stop” button.

If the machine is operating in automatic or semi-automatic mode, then in the former case, the machine stops when the second speed timer reaches the end of the programmed time and in the latter case, the machine stops when the first or second speed timer reaches the end of the programmed time, depending on the speed at which the work cycle is carried out.

7.6 STOPPING THE MACHINE IN AN EMERGENCY

The bowl and spiral rotation can be stopped by pressing the “emergency” button. To restart the manual, semi-automatic or automatic cycle, it is necessary to first remove the emergency condition, by rotating the same push button clockwise until it is released, and then to press the required speed button.

7.7 DESCRIPTION OF THE SAFETY SYSTEMS

Mobile protective cover

If the protective bowl cover is lifted at any time, then the microswitch will stop the machine.

Emergency push button

The emergency button, located on the control panel, can be used to immediately stop the bowl and spiral rotation.
7.8 **EFFICIENCY OF THE SAFETY SYSTEMS**

When one of the safety systems is activated, the time taken for the spiral and bowl rotation to stop is not more than 4 seconds; this time interval is a result of the inertia.

An immediate stop would cause stresses and fatigue failures.
8  SAFETY INSTRUCTIONS

8.1  WARNING

The machine has been designed and constructed to guarantee maximum safety. The safety guards and safety systems, which are operational when the machine functions, do not in any way detract from the functionality and efficiency of the machine itself.

8.2  GENERAL CRITERIA

The mechanical parts and, above all, the moving members, have been designed to function in absolute safety and reliably for long periods of time. The electrical components, both in terms of the single components and the connections guarantee safety.

8.3  RISKS TO PERSONS

If the machine is used in accordance with the local safety standards and codes, in the correct manner, using suitable ingredients and respecting the maximum quantities specified for the machine, then there are no risks for the operators assigned to use the machine.

Maintenance

All maintenance and repair operations must be carried out in accordance with the instructions specified in chapter 9.

These operations must only be carried out by suitably qualified and authorised personnel and in strict observance of the local safety standards and codes in force.
8.4 ENVIRONMENTAL CONDITIONS AND NOISE

Other than the requirements explained in chapter 5 for the location of the machine, there do not exist any additional particular requirements.

The noise to which the operator may be subject is, in the most severe conditions, always less than 75 dB.

The noise detection reports are contained in the Technical File.
9 MAINTENANCE AND REPAIRS

9.1 WARNING

To carry out any type of maintenance on the machine, it is indispensable to first disconnect the machine from the power supply.

All maintenance and repair operations must be carried out by suitably qualified personnel, using suitable equipment and observing the local safety standards and codes in force.

Clean the machine daily in the manner specified in section 6.4. Thorough cleaning prevents the build up of material and flour which, in the long term, can damage the moving members.

9.2 MAINTENANCE

The preventive maintenance consists in checking the tension and wear of the belts and should be carried out monthly.

The driving belts must be replaced when they are frayed or under excessive tension, before they actually break. When a driving belt needs to be replaced, it is necessary to replace the entire set of belts related to that specific drive.

The bearings are also subject to wear and may therefore also require replacement; this operation must be carried out by a suitably qualified technician using suitable equipment.
9.3 ADJUSTING THE TENSION OF THE SPIRAL TOOL DRIVING BELTS AND REPLACING THESE BELTS IN THE MODEL WITH TRANSMISSION IN TWO STEPS

Figure 9-Errore. L'argomento parametro è sconosciuto.
Replacing and adjusting the tension of the motor and spiral tool driving belts - model with transmission in two steps

The belt tension must be adjusted when it is noticed that the rotation of the spiral tool tends to slow down during the work cycle.

1. Lift the head casing (pos. T) and disconnect the connector (pos. E).
2. Turn the three nuts (1 in pos. C and two in pos. C1), to move them away from the corresponding supports.
3. Loosen the four screws (pos. D) of the spiral tool motor sliding plate, without unscrewing them completely.
4. Loosen the four screws (pos. A) of the spiral tool driving gear sliding plate, without unscrewing them completely.
5. Unscrew the nuts (pos. B).
6. Unscrew the nut (pos. F).
7. Remove the clamping plate (pos. L) by unscrewing the 4 screws (pos. I).

As a result of the above operations, the belts are now loosened and it is possible to replace them. Before replacing them, it is necessary to ensure that the new belts have the same characteristics as those installed by the manufacturer of the machine. The set of belts G is removed first, followed by the set of belts H, and the new set of belts H is then inserted followed by the set G.

8. Reposition the clamping plate (pos. L) and tighten the 4 screws (pos. I).
9. Adjust the belt tension for set G, by tightening the nut (pos. F) accordingly.
10. Tighten the four screws (pos. A) of the spiral tool driving gear sliding plate.
11. Turn the nut (pos. C), bringing it up against the corresponding support.
12. Adjust the belt tension for set H, by tightening the two nuts (pos. B).
13. Tighten the four screws (pos. D) of the spiral tool motor sliding plate.
14. Turn the two nuts (pos. C1), bringing them up against the corresponding supports.
15. Reconnect the connector (pos. E).
16. Place the casing (pos. T) back in the correct position, so that it closes onto the head (pos. T1).
9.4 ADJUSTING THE TENSION OF THE BOWL DRIVING BELTS AND REPLACING THESE BELTS

If it is noticed that the rotation of the bowl tends to slow down during the kneading process, then proceed in the following manner:

1. To tension the belts of the bowl driving gear, turn the nut (pos. A) clockwise, using a suitable spanner.

2. To tension the belts of the motor driving gear, turn the nut (pos. B) clockwise using a suitable spanner.

To replace the belts, it is first necessary to turn the nut (pos. B) anticlockwise and then the nut (pos. A) in the same direction (anticlockwise). In this manner, the belts are now loosened and it is possible to replace them. Before replacing them, it is necessary to ensure that the new belts have the same characteristics as those installed by the manufacturer of the machine. To tension the new belts carry out instructions 1 and 2 specified above.

Figure 9-Errore. L'argomento parametro è sconosciuto.
10 PERSONNEL TRAINING

10.1 WARNING

The operator must have a good working knowledge of all the functions on the control panel and of all the safety guards and safety systems installed on the machine. The operator must be instructed about the local safety standards and codes in force.

10.2 PERSONNEL ASSIGNED TO THE MACHINE

Operator

In addition to all the functions on the control panel, the safety guards and safety systems, the operator must also have a good working knowledge of the work cycles, the ingredients which can be used and the maximum quantities of ingredients allowed for the specific machine being used.

Maintenance engineer

The maintenance and repair operations must be carried out by suitably qualified personnel, using suitable equipment (following the instructions specified in chapter 9) and observing the local safety standards and codes in force.
11 ADDITIONAL IMPORTANT INSTRUCTIONS FOR THE USE OF THE MACHINE

Before starting the machine:

The voltage, frequency and number of phases of the power supply network must correspond to the ones specified on the plate located on the rear of the machine.

Check that the machine is in a stable position and that it is level (refer to chapter 5).

It is absolutely forbidden to tamper with or remove any of the safety guards and safety systems installed on the machine.

Loading the ingredients:

The machine is able to knead maximum quantities of ingredients, as specified in section 13 / 14, and these maximum quantities must not be exceeded.

While the machine is running:

When the machine is running, all the safety guards are installed and all the safety systems are connected.

The duration of the reverse bowl rotation operation during the first speed running cycle is determined by the operator.

Repeated interruption of the work cycle can lead to overheating of the motor and, in the long term, can compromise its efficiency.
12  REFERENCE STANDARDS

The machine model described herein complies with the ETL requirements of the following reference standards:

- ETL Listing No. 95696 “Motor Operated Commercial Food Preparing Machines” – Conforms to UL STD. 763;
- ETL Sanitation Listing “Commercial Powered Food Preparation Equipment” – Conforms to STD. NSF-8;
- C-ETL Listing “Motor Operated Food Processing Appliances (Household and Commercial) - Conforms to CSA C22.2 No. 195 - M1987.

12.1  ETL PLATE

The ETL plate is located on the back of the machine. This plate is shown in Errore. L'argomento parametro è sconosciuto.

Figure 12-Errore. L'argomento parametro è sconosciuto.
13  TECHNICAL MACHINE SPECIFICATIONS - SM80

Kneading capacity (Max.): 80 kg 176 lb
Flour capacity (Max.): 50 kg 110 lb
Litres of water (Max.): 30 l 10 gal
Bowl volume: 154 l 40 gal
Bowl diameter: 680 mm 27 in
Floor to bowl rim height: 965 mm 38 in
Length: 1215 mm 47 in
Width: 710 mm 28 in
Height: 1510 mm 59 in
Weight: 390 kg 860 lb
Motor for spiral tool: 3,7/6 kW 5/8 hp
Motor for bowl: 0,55 kW 0,75 hp
Total power: 6,55 kW 8,75 hp
Spiral tool speed: 89/177 rpm 89/177 rpm
Bowl speed: 14 rpm 14 rpm

External dimensions and weight with packaging

Carton on pallet: 135 x 85 x 168 (h) cm 405 kg
Wooden crate: 140 x 90 x 177 (h) cm 450 kg
Wooden box: 140 x 90 x 177 (h) cm 480 kg
#TECHNICAL MACHINE SPECIFICATIONS - SM120

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<td>Flour capacity (Max.)</td>
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<td>5/8 hp</td>
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<tr>
<td>Motor for bowl</td>
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<td>0,75 hp</td>
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<td>Total power</td>
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<td>89/177 rpm</td>
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<tr>
<td>Bowl speed</td>
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**External dimensions and weight with packaging**

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<th>Value 2</th>
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<td>Wooden crate</td>
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<td>Wooden box</td>
<td>140 x 90 x 177(h) cm</td>
<td>590 kg</td>
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15 ASSEMBLY DRAWINGS FOR SPARE PARTS, WIRING DIAGRAMS AND LIST OF ELECTRIC COMPONENTS

Drawings and corresponding technical data

1\textsuperscript{st} Table: exploded view of head group
2\textsuperscript{nd} Table: exploded view of base group
3\textsuperscript{rd} Table: exploded view of machine structure
4\textsuperscript{th} Table: power wiring diagram
5\textsuperscript{th} Table: control wiring diagram
6\textsuperscript{th} Table: wiring arrangement for components

Instructions for requesting spare parts

When requesting spare parts, it is necessary to specify the following details:

• machine model;
• machine serial number;
• technical data table number;
• position of part in technical data table;
• description of part;
• quantity required;
• code of part.

If possible, a copy of the corresponding assembly drawing and technical data table should be enclosed with the request.
1st TABLE: exploded view of head group

code: 290500
## 1st TABLE

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<td>26</td>
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2nd TABLE: exploded view of base group

code: 290501
### 2nd TABLE

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3rd TABLE: exploded view of machine structure

code: 290502
### 3rd TABLE

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* Refer to electric materials legend
4th Table: power wiring diagram
5th Table: control wiring diagram

KT1 setup: 5/6/8 off
KT2 setup: 2/5/8 off
6th Table: wiring arrangement for components
## ELECTRIC MATERIALS LEGEND FOR SM80/SM120
### 208 V 60 Hz SYSTEM

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<td>24-pole connector ILME CHI24+CNF24</td>
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* Refer to assembly drawings
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