

INSTRUCTION MANUAL

**AUTOMATIC SPIRAL MIXER
MOD. CPM 50-60**

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Chapter 1 General information

1.1 Documentation supplied

- Instruction manual (this manual).
- Spare parts manual.

Other documentation

- Electrical diagrams

1.2 This manual

Manual data

Automatic spiral mixer: Instruction Manual

Edition: 1.0

- Month and year of printing: January 2000.

Intended for

- Transport personnel
- Installer
- User
- Maintenance personnel

1.3 Information ownership

This manual contains confidential information. All right reserved.

This manual cannot be reproduced or photocopied, in full or in part, without prior written authorisation from the constructor. Only the customer to whom this documentary material was supplied together with the machine is authorised to use the same and only for the purposes of the installation, use and maintenance of the machine to which the manual refers.

The manufacturer declares that the information contained in this manual is congruent with the technical and safety specifications of the machine to which the manual refers. The constructor denies all responsibility for direct or indirect damage to persons, objects or domestic animals consequent on using this documentation or the machine in conditions other than those foreseen.

The constructor reserves the right to make modifications or improvements without notice to this documentation and the machines, and possibly also to machines sold of the same model to which this manual refers, but with a different serial number. The information contained in this manual refers in particular to the machine specified in 1.6 Machine identification data on page 3.

1. 4 Conventions

Terminology conventions

- To the left, to the right: refers to the operator position facing the control panel.
- Qualified personnel: those persons who by virtue of their training, experience and instruction as well as because of their knowledge of the relative standards, prescriptions and measures for accident prevention and service conditions have been authorised to perform any actions necessary by the person responsible for system safety. They must also be able to recognise and avoid all possible dangers.

Typographical conventions

Text in italics: indicates the title of a chapter, section, sub-section, paragraph, table or drawing in this manual, or in another reference publication.

DPI: Personal Protection Device.

N where N represents a generic number (e.g. 3): the symbolic representation of a control or indication device (e.g. buttons, switches, luminous warning lights).

L Where L represents a generic letter (e.g. B): the symbolic representation of a machine part.

NOTE The notes contain important information, highlighted outside the texts to which they refer.

ATTENTION The attention indications highlight procedures which if not observed even partially may cause damage to the machine or to the equipment connected to it.

DANGER The danger indications highlight procedures which if not observed even partially may cause injuries or damage to operator health.

1.5 Constructor identification data

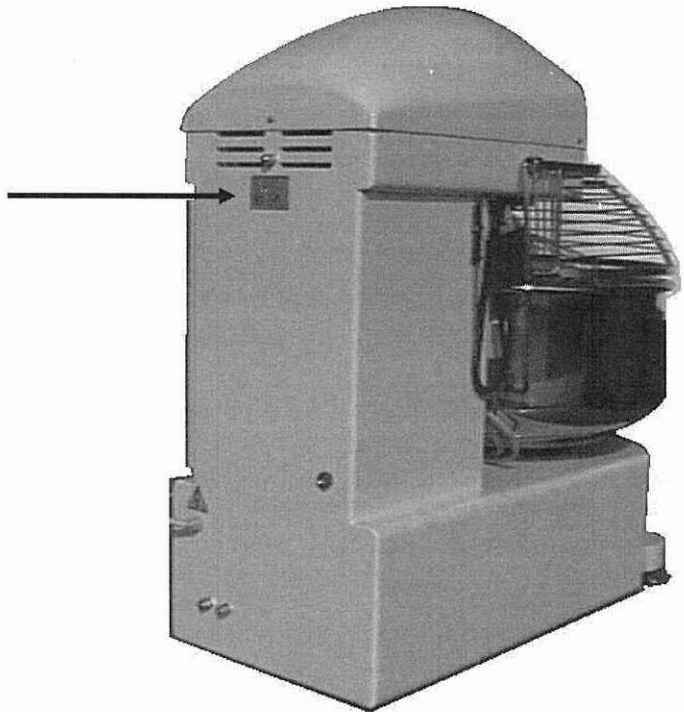
1.6 Machine identification data

Type: SPIRAL MIXER

Model:-----

Serial number:

Fig. 1 Identification plate position



1.7 CE conformity declaration

See *Enclosure 1 – CE conformity declaration*.

1.8 Guarantee

General conditions

1.

The machine guarantee is for 12 months from the effective delivery date with reference to the machine serial number.

In all case, it is subordinate to the reporting of the discovery of any faults or defects by registered mail within 8 days, once checked and recognised by the constructor.

2.

The guarantee includes the replacement or repair of the defective part (component, machine or part of the same), with the exclusion of the costs of disassembly, re-assembly and shipment.

3.

The replacement of any part does not lead to the renewal of the guarantee period for the entire machine, unless the entire machine is replaced.

By this, the constructor remains exonerated from any indemnity obligation for whatever reason and the purchaser renounces making any requests for costs or damage, even to others, due to possible machine stoppages.

4.

The electrical parts and those subject to normal wear or tear due to atmospheric agents and outdoor environments are excluded from the guarantee. Also, excluded are all those faults deriving from a lack of, insufficient or incorrect maintenance, careless use, improper use, forbidden or non-foreseen use, unauthorised modifications or repairs and tampering.

5.

The validity of the guarantee is subordinate to the correct execution of the maintenance as described in *Chapter 7 Maintenance* of the instruction manual supplied with the machine.

6.

The guarantee is not applicable if the payment conditions are not respected.

7.

For parts supplied by others, the guarantees offered by their constructors are valid.

8.

The Courts will decide any disputes.

NOTE

In the case of repair at the place where the machine is installed, the guarantee slip must be shown to the assisting technician and the guarantee is only valid if the same is fully compiled. Special guarantees will be expressly cited in the sales contract.

Operations that invalidate the guarantee

- Non-foreseen machine uses (see *Non-foreseen uses* on page 6).
- The use of work tools other than those specified in *Chapter 7 Maintenance*.
- Assembling the machine in conditions other than those specified in *Chapter 5 Installation*.
- Service connection not conforming to the specifications shown in *Chapter 5 Installation*.
- The use of non-original spare parts or ones not specified by the constructor

Call-out requests under guarantee

Method

Any requests for spare parts or for technical interventions under guarantee, must be made to the constructor or to the specialist stockist, immediately a defect included in the *General conditions* specifications on page 4. Is discovered.

ATTENTION We recommend using original spare parts.

When requesting spare parts under guarantee, always indicate the machine type, model and serial number. This data is indicated on the machine identification plate.

NOTE Failure to observe the content of this manual will relieve the constructor from all responsibility in the event of accidents to persons and/or objects or of machine malfunctioning.

Requesting spare parts

When requesting spare parts, it is necessary to indicate the following data:

- Machine type
- Job number, impressed in the special label
- Year of construction
- Requested part reference number, read on the explicative diagram concerned shown in the spare parts catalogue.

Please contact:

1.9 Manual use

Carefully read *Chapter 1 General Information, Chapter 2 Safety information, Chapter 3 Machine characteristics, Chapter 4 Operator interface.*

For all installation, use, maintenance and demolition operations, consult the corresponding chapter.

NOTE This manual must be conserved for the entire technical life of the machine in a way that it is quickly to hand in case of need. If the machine is sold, it must be sold complete with this manual.

1.10 Machine description

Foreseen uses

Foreseen processes

The machine is designed and created for service during the confectionery and bread dough kneading phase, permitting short working times.

The work cycle may be manual or automatic at two speeds, both timed.

Foreseen use methods

The machine is designed and created for operating in indoor premises, protected from atmospheric agents.

Foreseen drive

The machine is supplied with electrical energy that is converted into mechanical energy for the foreseen uses.

Unforeseen uses

All uses not specifically indicated in the *Foreseen uses* on page 6 are unforeseen uses and in particular:

- Using the machine in an explosive atmosphere.
- Using the machine in an inflammable atmosphere.
- Washing the area of the machine where the control equipment is placed with jets of water.

Machine structure

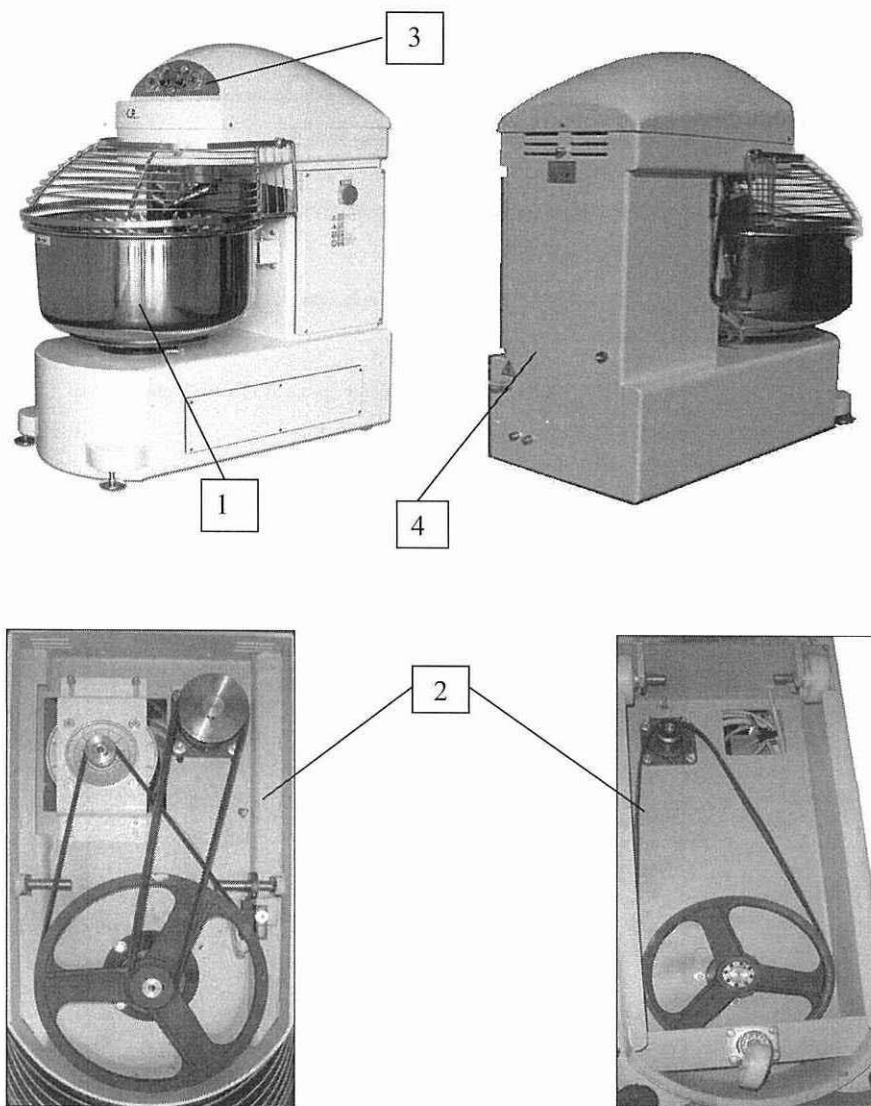
This section describes the main elements of the machine and their functions within the production cycle.

Main parts of the machine

The machine is comprised of the following main parts:

1. Bowl
2. Transmission group
3. Control console
4. Sealed electrical box.

Fig. 1.2 Overall view of the machine



Chapter 2 Safety information

2.1 Safety criteria

When this machine was designed and constructed, criteria and measures aimed at satisfying the essential safety requirements established by Machine Directive 89/392/CEE and successive modifications, Low Voltage Directive 73/23/CEE and successive modifications and the Electromagnetic Compatibility Directive 89/336/CEE and successive modifications, were adopted.

The careful risk analysis performed by the constructor has permitted the elimination of most of the risks connected to the machine use conditions that can be reasonably foreseen.

The complete documentation of the measures adopted for safety purposes is contained in the machine technical folder, held by the constructor.

The constructor recommends the strict observation of the instructions, procedures and recommendations contained in this manual and of the regulations in force concerning occupational safety and the use of personal protection devices, both integrated in the machine and personal ones.

DANGER Do not wear baggy clothing, ties, chains or watches that could become entrapped in the machine's moving parts.

NOTE The constructor denies all responsibility for any damage to persons, domestic animals or things deriving from a failure to respect the safety standards and the recommendations contained in the documentation supplied.

2.2 Personnel qualification

Machine technical life phase	Qualification of the person responsible
Transport	A qualified transporter that is aware of the content of: <i>Chapter 2 Safety information</i> , <i>5.3 Transport</i> on page 18 of this manual.
Installation	A qualified electrician and a qualified mechanic who are aware of the content of: <i>Chapter 2 Safety information</i> <i>Chapter 3 Machine characteristics</i> <i>Chapter 4 Operator interface</i> <i>Chapter 5 Installation</i> .
Programming and setting-up	Qualified programmer and tester who are aware of the content of: <i>Chapter 2 Safety information</i> <i>Chapter 3 Machine characteristics</i> <i>Chapter 4 Operator interface</i> <i>Chapter 6 Use</i>
Use	Trained worker aware of the content of: <i>Chapter 2 Safety information</i> <i>Chapter 3 Machine characteristics</i> <i>Chapter 4 Operator interface</i> <i>Chapter 6 Use</i>
Maintenance	It is possible to identify three different figures who may work on the machine: <ul style="list-style-type: none"> • Mechanical maintenance engineer; a qualified technician capable of running the machine in normal conditions and with the guards open and of working on mechanical parts to perform adjustments, maintenance and repair. Not qualified for electrical work on live parts. • Electrical maintenance engineer: a qualified technician capable of running the machine in normal conditions and with the guards open and of performing all the electrical, regulation, maintenance and repair interventions. Qualified to perform electrical work on live parts in the electrical locker. • The constructor's technician: a qualified technician made available by the constructor to perform complex repairs in special situations, according to what is agreed with the customer.
Demolition	Qualified mechanic who is aware of the content of: <i>Chapter 2 Safety information</i> <i>Chapter 9 Demolition</i>

NOTE The constructor denies all responsibility for any damage to persons, domestic animals or things deriving from the use of unqualified operators.

2.3 Protection elements

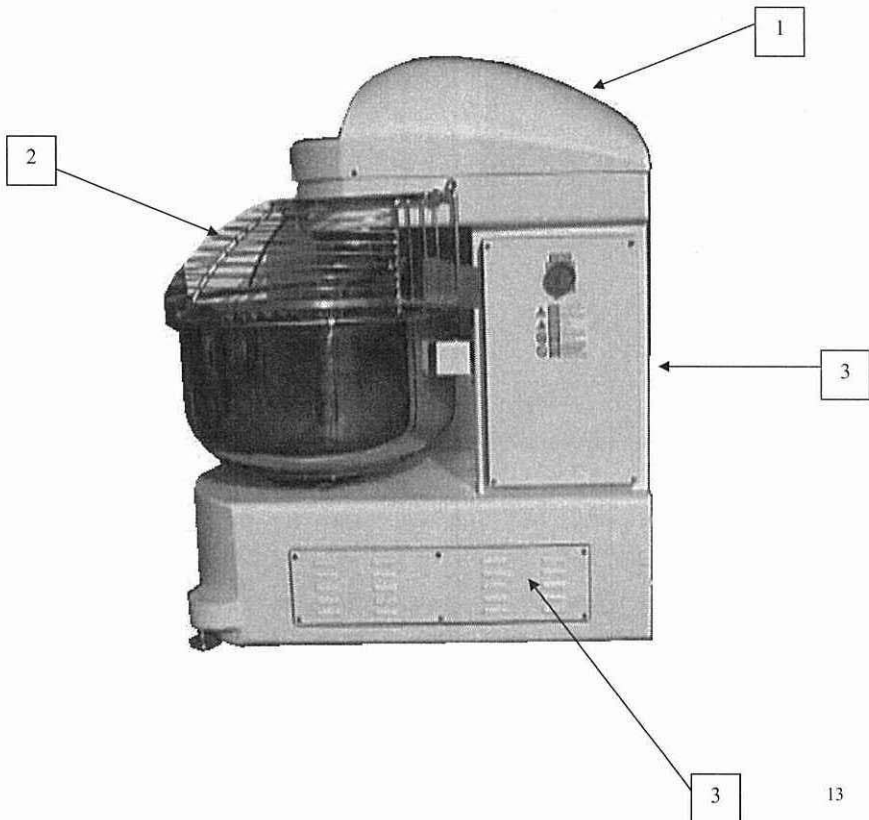
Definition

All the safety measures that consist of the use of specific technical means (guards, safety devices) to protect persons from the dangers that cannot reasonably be limited by design are protection elements.

Fixed and mobile guards

- All the transmission organs are protected by screwed casings 1) according to the EN 953 standard.
- Protection grid 2) that impedes access to the bowl during the working phase.
- Rear steel protection casing 3).

Fig. 2.1 Fixed and mobile guards.



Passive safety devices

DEFINITION

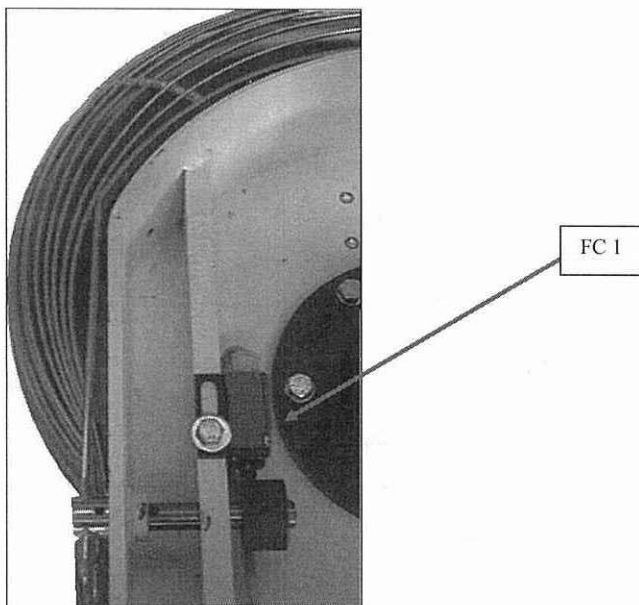
Passive safety devices are those devices or measures that eliminate or reduce the risks to operators, without the operators performing any active intervention.

Limit switch devices

The following micro-limit switches (Fig. 2.2) are present on the machine.

- Micro-limit switch FC 1 acts to block the machine while working, if the protection grid 2) is lifted up – Fig. 2.1 Fixed and mobile guards on page 10

Fig 2.2 Limit switch



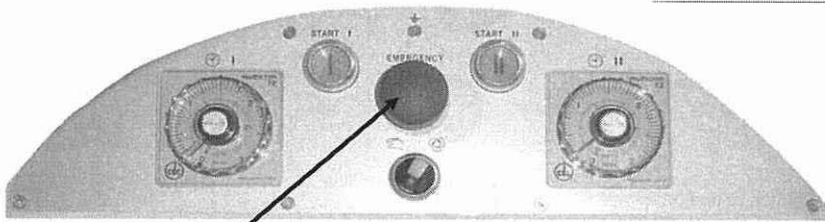
*Active safety devices***DEFINITION**

Active safety devices are those devices or measures that eliminate or reduce the risks, that require active and aware interventions by the operator to exert their preventive action.

Emergency stop

The machine has an emergency stop button. It is located on the control console (see pos. 1 of *Fig. 41 Controls* on page 16) and permits the operator to stop the machine in the event of an emergency.

Fig 2.3 Emergency button

**EMERGENCY BUTTON****Expedients**

- The electrical equipment ensures personal protection against electric discharge from direct and indirect contacts, as foreseen by the CEI EN 60204-1 standard.
- All the electrical power parts and those with dangerous voltages are in the code IP 54 electrical locker, in conformity with the CEI EN 60204-1 standard. The control and supply voltages to all the accessible components are 12 and 24 V; also, there is short-circuit protection and accidental grounding contact protection on both.

DANGER Tampering with the protection devices causes risks for machine users and for other exposed persons.




NOTE The constructor denies all responsibility for any damage to persons, domestic animals or things deriving from protection device tampering.

2.4 Dangerous zones and residual risks

Definition

Any zone inside or close to the machine in which a person is exposed to the risk of injury or damage to health is a dangerous zone.



During some work procedures on the machine - indicated each time in this manual – residual risks exist to the operator. Residual risks can be eliminated by carefully following the procedures indicated in this manual and by adopting the personal protection means indicated.

- Obligation to use protective gloves 
- Obligation to use protective footwear 
- Obligation to use protective work suit 

The handling zone of the packed and un-packed machine. The following risks are present:

- Operator impact risk.
- Risk of crushing

The operator must use the following PPM:


- Protective footwear 
- Protective gloves 

Dangerous zones and residual risks during use

The zone around the machine. The following risks are present:

- risk of crushing

The operator must use the following PPM:

- Protective work suit. 

DANGER

The constructor denies all responsibility for any damage to persons, domestic animals or things deriving from failure to respect the prescribed precautions or from failure to use the prescribed PPM.

Chapter 3 Machine characteristics

3.1 Technical specifications

Machine dimensions and mass

Model	Dough capacity Kg.	Flour capacity Kg.	Bowl diameter cm.	Spiral motor Kg.	Length x Width x H CM.	Weight Kg.
	40	25	53	1.2/2.4	100 x 57 x 100	280

Power supply data

Electrical system

Electrical power supply

Voltage	380 +/- 10% three phase
Frequency	50 +/- 1% Hz.

Electrical power supply tolerance

Voltage

Voltage when running: +/- nominal voltage

Frequency

+/- 1% of the nominal frequency in a continuous mode

+/- 2% of the nominal frequency for a brief period.

Harmonics

Harmonic distortion by the sum of the harmonics from the second to the fifth, no greater than 10% of the total voltage as an effective value between live conductors. A further distortion by the sum of the harmonics from the sixth to the thirtieth of 2% as an effective value between live conductors.

Three phase supply voltage imbalance

Neither the inverse sequence component or the zero sequence component must be greater than 2% of the voltage direct sequence component.

Voltage impulses

These must not last any longer than 1.5 ms with an ascent/descent time of between 500 ns and 500 μ s and a peak value no greater than 200% of the effective value of the nominal supply voltage.

Voltage interruption

The power supply must not be interrupted or the voltage must not fall to zero for longer than 3 ms and the instant of the supply wave does not matter. More than 1 s. must pass between two successive interruptions.

Voltage drops

Voltage drops must not exceed 20% of the peak power supply voltage for more than one cycle. More than 1 s. must pass between two successive drops.

Responsibility

NOTE

The constructor denies all responsibility for any problems, failures or malfunctioning that may occur as the consequence of failure to respect the power supply voltages supplied.

Chapter 4

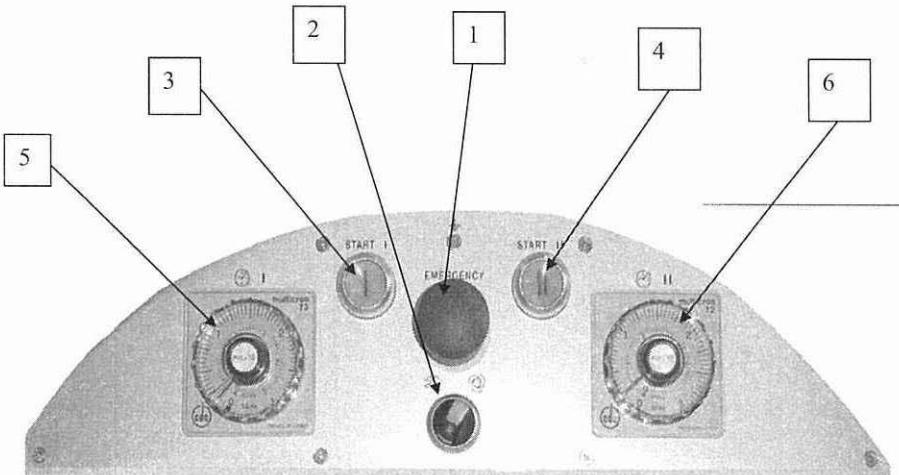
Operator interface

4.1 CONTROLS

Controls

Symbol	Description	Control button
1)	Red mushroom button on a yellow background	EMERGENCY button, which if pressed blocks the machine completely by removing voltage from the electrical circuits.
2)	Selector with two stable positions	If turned to the right: it enables the automatic work cycle. If turned to the left: it enables the manual work cycle.
3)	START 1 button	If pressed it makes the bowl and the hook rotate at speed 1.
4)	START 2 button	If pressed it makes the bowl and the hook rotate at speed 2.
5)	Timer	Regulates the holding time at speed 1
6)	Timer	Regulates the holding time at speed 2




Fig. 4.1 Controls



Chapter 5 Installation

Note When reading this chapter, refer to the control panel figures in *Chapter 4 Operator interface*.



5.1 Dangerous zones and residual risks during installation

- Obligation to use protective gloves 
- Obligation to use protective footwear 
- Obligation to use protective work suit 

The handling zone of the packed and un-packed machine. The following risks are present:

- Operator impact risk.
- Risk of crushing

The operator must use the following PPM:

- Protective footwear 
- Protective gloves 

DANGER During machine unloading, lifting and handling operations, personnel must be equipped with suitable PPM such as; gloves, boots, hard-hat and the correct equipment.

5.2 Operator qualification

The machine installation operations must be performed exclusively by persons who are trained, qualified and authorised, after studying and acquiring the information supplied in this manual.

5.3 Transport

The indications contained in this section must be respected during the machine transport phases which may happen in the following situations:

- Machine storage
- Machine first installation
- Repositioning the machine.

Transport conditions

The machine and its accessory parts may be transported in the following ways, according to the customer's request:

- in an "Open-Top" type container
- in a palletised wooden box
- on a road vehicle
- In any case, before transport or handling, the machine must be packaged and all its accessory parts must be affixed to it.

NOTE Follow the normal precautions to prevent impacts and tipping.

Pictograms illustrated on the machine packaging

The following pictograms are shown on the machine packaging:

- Handle with care
- Centre of gravity
- Hooking point
- No humidity symbol
- High
- CE marking.

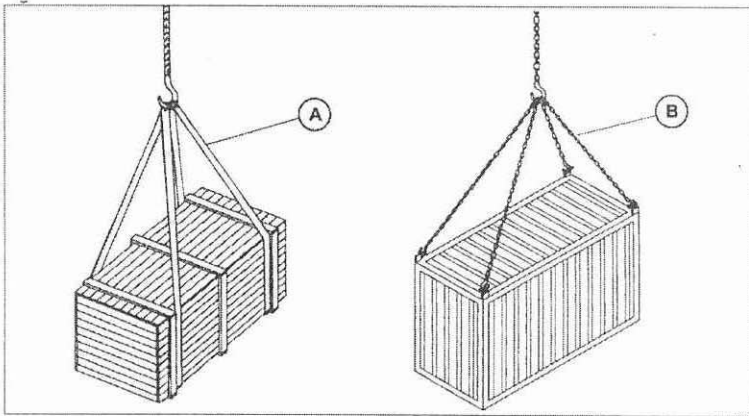
Lifting

DANGER

- Climbing onto the machine and/or the packaging, remaining and/or passing under the same during handling is forbidden.
- Accessing the lifting and handling area is forbidden to everyone not concerned with the operation.
- All operators must maintain a safety distance in order to avoid being hit in the event of the machine or its parts falling.
- Before starting operations, identify and check the entire machine handling area including the area for parking the vehicle and the machine installation area to identify the presence of any dangerous places.
- Use a bridge crane, a crane or a forklift truck of suitable capacity. Using unsuitable lifting equipment can lead to damage or accidents to the persons performing the operation and to machine damage.
- Check that the lifting cables have rings, are labelled showing all the constructor's data and that the load capacity is clearly legible.
- Inspect the cables before using them: they must not show any damage, broken strands or signs of wear.
- Do not twist or tie the cables and follow the use methods indicated by the constructor.
- The same warnings must be used if using chains or belts.

Lifting and handling the packaged machine

Fig. 5.1 Lifting and handling the packaged machine



Case/container on the load deck of the means of transport

The case/container must be unloaded from the means of transport using the lifting equipment in the following way:

1. Slide the cables A under the box and pass them into the hook of the crane/bridge crane. If it is a container, slide the chain hooks B into the brackets provided.
2. Lift the box/container the minimum height necessary for unloading.

3. Position the box/container at the established place.
4. Box/container resting on the ground
5. The box/container must be handled using lifting equipment in the following way:
 1. Slide the cables A under the box and pass them into the hook of the crane/bridge crane. If it is a container, slide the chain hooks B into the brackets provided.
 2. Lift the box/container the minimum height necessary for handling.
 3. Position the box/container at the point established for unpacking.

Lifting and handling means for the packaged machine

We recommend the following equipment for lifting up the machine:

- Crane/bridge crane of suitable capacity
- Ø 20 cable – "RR" type with fabric core
- Safety hook – BK-10 type
- Ring – 0-10000 type
- Lifting brackets.

ATTENTION

If you find any damage that occurred during transport, this must be immediately communicated to the constructor. This also applies to any differences that might be found between the material received and what is shown in the detailed list on the "Packing list".

ATTENTION

The machine and its accessories must be protected against external atmospheric agents. In particular, water and humidity may rust some machine elements, damaging them irreversibly.

5.4 Preliminary operations

Checking for any damage suffered during transport

Check the machine's condition by visually inspecting the inside and the outside of the same. Any deformation of the visible parts indicates impact the machine has suffered during transport that may compromise normal operation.

Check the tightness of the screws, bolts and fittings.

In the event of damage

Transport damage must be attributed to the transport company and be reported immediately to the constructor or his representative.

Machine cleaning

- Remove any dust and external dirt accumulated during the transport phases.
- Clean and carefully dry all the parts – bare or painted – using soft, clean and dry cloths.

ATTENTION

Climbing onto the boxes and stacking them one on top of each other is forbidden.

- If the boxes have to remain outdoors for some time, while awaiting transport inside the building, the customer should arrange to cover them with suitably sized waterproof canvases.
- If storage lasts for longer than 3 months, it must take place in a shed, protected both from atmospheric agents and from too high or too low temperatures.
- If the machine is unpacked, cover it with canvases to impede the accumulation of dust and dirt.

5.5 POSITIONING

Physical characteristics of the positioning zone.

In addition to the external dimensions of the machine, supplied in 3.1 *Technical specifications* on page 14, it is necessary to respect the following conditions:

- The electrical supply sources must be arranged close to the positioning zone, in conformity with the *Power supply data* on page 14.
- The operator must be able to circulate without impediment around the machine. The distance with respect to the nearest wall or the closest object must be greater than 1 m. in all cases.
- All the lockers must always be accessible and it must be possible to open the doors, fully and without any impediment.
- Arrange sufficient space for normal use and for machine maintenance, bearing in mind the space for any possible peripheral equipment.

Protection against atmospheric agents

The machine must be placed in a covered room and be protected against direct contact with atmospheric agents.

Illumination

Good illumination is necessary in order to work and maintain the machine in safe conditions. The machine does not have an incorporated lighting system.

Room lighting of a normal value permits working without causing risks due to shadow areas.

Environmental characteristics of the positioning zone

- Permitted temperature: from 5°C to +40°C with an average no greater than 35° C within a period of 24 hours.
- Permitted relative humidity: from 50% at a temperature of 40°C TO 90% at a temperature of 20°C.

NOTE The temperature limits are determined by considering the machine's electrical components.

5.6 Putting into service

Connections

Electrical connections

The machine has a single external electrical supply point.

DANGER

Check that the electricity distribution line is sized in function to the power of the machine.

Risks of an electrical nature. Make the connection of the grounding system, before any other connection to the electricity distribution line.

5.7 Testing

Before the machine is delivered, it is tested on the constructor's premises by performing the following operations:

- General regulation of the machine, the auxiliary equipment and of the protection devices fitted.
- Operating tests to check the adjustments made (correct rotation of the motors, efficacy of the safety devices and the limit switches).
- Execution of test cycles in safe conditions.

Checking the efficiency of the safety devices

Before operating the machine, we recommend checking the safety systems, by proceeding as follows:

1. The functionality of the emergency stop button 1) (*Fig. 4.1 Controls* on page 16); with the machine running, press the emergency buttons; the machine must stop immediately.

NOTE If the machine does not stop immediately, check and/or replace the emergency buttons.

If problems occur during operation and the indications in this manual do not provide the solution to the problem, contact the Technical Assistance service (see *Requesting spare parts* on page 5).

Chapter 6 Use

NOTE When reading this chapter, refer to the figures of the control panels shown in *Chapter 4 Operator interface*.

6.1 Operator qualification

Exclusively persons who are trained, qualified and authorised, after studying and acquiring the information supplied by this manual may use the machine.

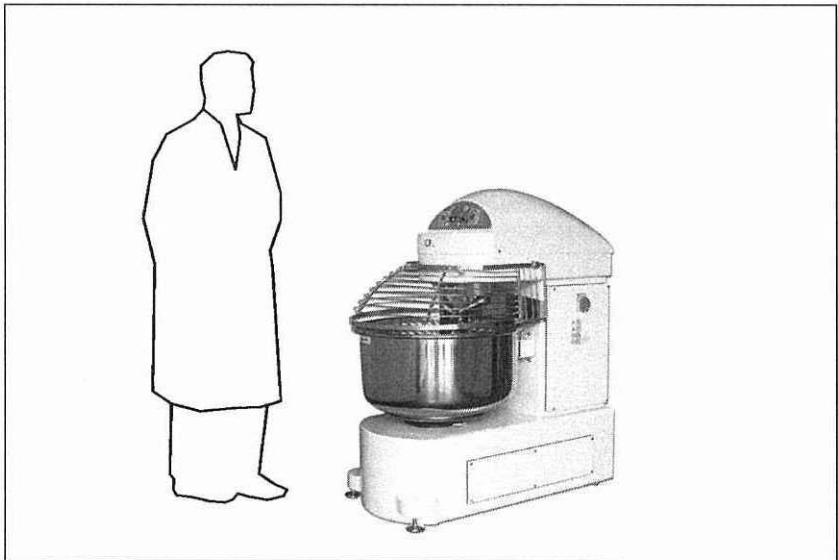
6.2 Work place

The work places where the operator may use the machine in safety are highlighted in *Fig. 6.1 Work place*.

The control position on the machine is situated opposite the control panel; the operator manages all the processing parameters from here.

NOTE When the machine is working, access to the machine field of work is absolutely forbidden.

Fig. 6.1 Work place



Operating mode

The machine operates in manual mode by following the instructions described in 6.6 *Start up* on page 24.

6.3 Switching the machine on

Switching on procedure

1. Turn the switch/selector before the external power supply cable to position I.

6.5 Tooling, regulation and set-up

Adjustment warnings

1. All adjustment, control and cleaning operations are performed with the machine at a standstill and with the electrical locker switched off. The switch/selector before the external power supply cable must be in the **O** position. **Every operation performed with the electrical system powered up can cause serious accidents to persons.**
2. Pay attention to the machine parts in motion.
3. Use the start buttons with special care and after checking that there are no dangers to persons or objects.
4. If protection casings or barriers are removed, make sure that they are correctly re-fitted before using the machine again.
5. Avoid resting tools or other objects on the machine when it is running or at a standstill.

6.6 Start up

For normal machine operation, proceed in the following way:

1. Position the machine in the decided place and level it as far as possible to the floor.
2. Connect the power supply cable to the switch-selector and turn this latter to I.
3. Set the two timers 5) and 6) to the desired mixing times, respectively for speeds I and II.
4. Press the start button 2) to start the work cycle.
5. The passage between speed I and speed II and successive switching off is automatically regulated by the two timers.

6.7 Normal stop

Stop procedure

1. Finish the work cycle
2. Turn the switch-selector to the **0** position.

6.8 Emergency stop

To stop the machine in the event of an emergency, press the EMERGENCY button 1). (Fig. 4.1 Controls on page 16):

- The machine stops
- The emergency button remains blocked.

6.9 Re-starting after a manual emergency stop action

1. Eliminate the situation that led to the need for the emergency stop.
2. Extract the EMERGENCY button 1) (Fig. 4.1 Controls on page 16).
3. The machine is ready to be used.

6.10 Switching off

Switching off procedure:

1. Rotate the switch-selector before the external power supply to **0**.

NOTE Always clean the machine and the work zone at the end of the work cycle.

Chapter 7 Maintenance

DANGER

Risks of electric shocks and ill-timed movements during maintenance.

Isolate the machine from electric and water supplies.

Dissipate and/or contain any residual kinds of energy (see *Chapter 6 Use*).

7.1 Ordinary maintenance

All those operations that the user may perform are classed as normal maintenance. These are cleaning operations and periodical and preventive inspections permitting safe machine use.

Operator qualification

The user can perform ordinary maintenance operations in safe conditions after carefully studying and understanding the recommendations and instructions supplied in this section.

Cleaning

DANGER Perform cleaning operations with the machine switched off and isolated from the electrical and water supply networks.

In order to ensure good machine operation, we recommend periodical general cleaning: In particular:

- The machine must be cleaned at the end of every production shift.
- Machine cleaning must serve to keep the most delicate parts of the machine in an efficient condition and to more easily notice any slackening or abnormal wear.

ATTENTION

Do not use water jets for cleaning the control panels and the electrical locker.

Cleaning tools and products

Cleaning method

ATTENTION Avoid using solvents that damage paint and synthetic materials. In particular avoid using petrol, nitro thinners perchlorate and trichloroethylene.

Part to clean	Methods and instruments
Painted steel	Use hot water and a food quality degreasing agent and then dry with a clean cloth
Control panel	Clean using a gentle and dry cloth
Electrical parts	Clean using a vacuum cleaner

Intervention frequency

Frequency	Part to clean
Weekly	Control panel
Monthly	Motors
Monthly	Electrical parts
Monthly	Structural parts

7.2 Programmed maintenance

All the operations that can only be performed by authorised personnel are classed as programmed maintenance. These are periodical and preventive inspections and work on the machine permitting safe machine use.

Operator qualification

Programmed maintenance operations can be performed in safe conditions by specialised, trained personnel who are qualified to use prepare and maintain the machine, after carefully reading and understanding the recommendations and instructions supplied in this section.

Periodical inspections

Periodical controls and adjustments

Name of the parts to check and adjust	Frequency	Procedure
Emergency stop command	Every 40 working hours	Check correct operation

Periodical controls and lubrication

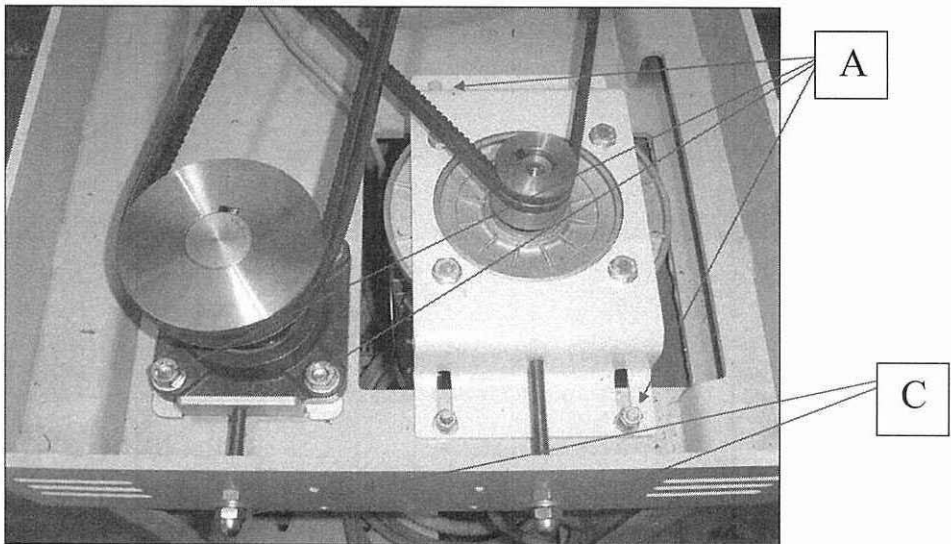
Name of the parts to check	Inspection frequency	Inspection procedure
Bearings	monthly	Oil with an greaser

7.3 Procedure for head belt tightening

If the tightness of the belts needs to be corrected, proceed as follows:

1. Remove the head cover.
2. Slacken the two motor support screws A) without completely unscrewing them.
3. Apply the right amount of tension to the belts using screw C
4. Tighten the two motor support screws A).

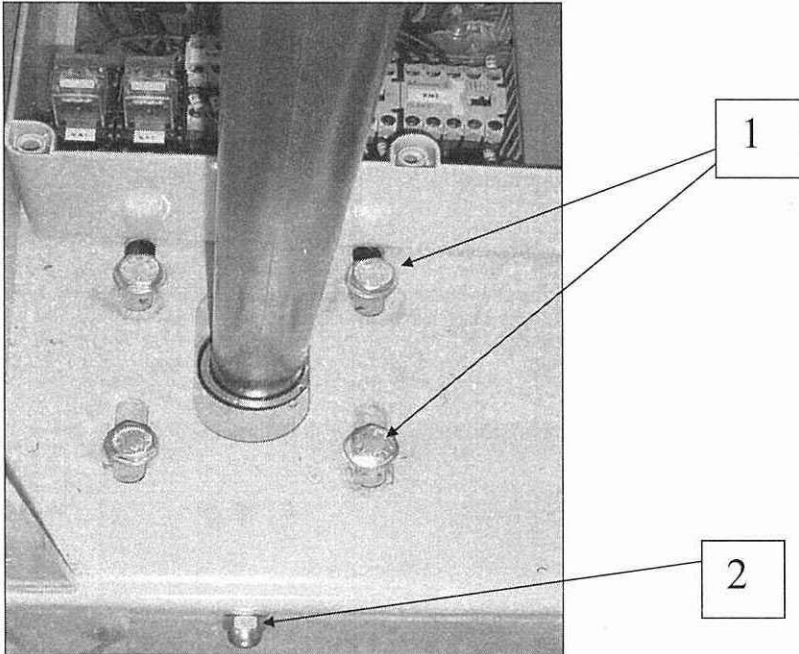
Fig. 7.1 Head belts.



7.4 Procedure for bowl belt tightening

1. Slacken the four screws Pos. 1, without unscrewing them completely.
2. Apply the right amount of tension to the belts using the nut Pos. 2.
3. Tighten the screws at Pos. 1.

Fig. 7.2 Bowl belts.



ATTENTION

Belts that are too tight damage the motor bearings and the belts themselves.

Belts that are too slack leads to slipping during the mixing operation and therefore a loss of speed of the whisk or the of the bowl and therefore fast wear of the same.

Chapter 8 Problems: causes and remedies

This chapter presents and discusses a list of simple problems that may arise during machine operation.

NOTE Contact the Assistance Service for all other problems not listed or if malfunctioning persists after the intervention of the operator.

8.1 Operator qualification

User

The user operations may only be performed in safe conditions after carefully reading and understanding the recommendations and instructions supplied in this manual.

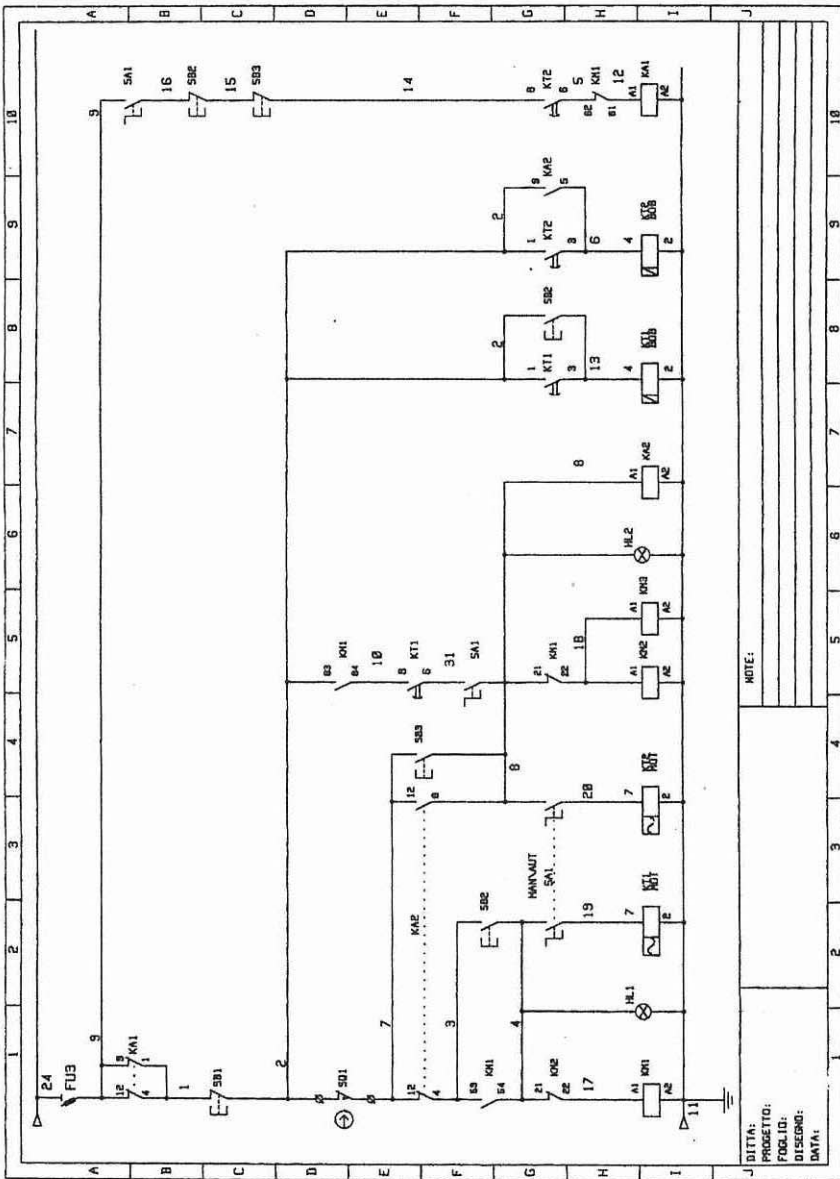
Maintenance engineer

The maintenance engineer operations may only be performed in safe conditions after carefully reading and understanding the recommendations and instructions supplied in this manual.

Problem	Possible cause	Remedy
The spiral loses speed	The head belts are too slack	Tighten the head belts according to the indications in <i>Fig. 7.1 on page 28</i> .
The bowl loses speed	The bowl belts are too slack, or the friction wheels are applying too weak pressure on the bowl drive ring.	Tighten the bowl belts (point 7.4 on page 29) or increase the pressure of the friction wheels according to the indications described in point <i>Chapter 8 on page 30</i> .

Problem	Possible cause	Remedy
The button panel does not reply to any command, or only to a few commands	<p>One or more fuses may be blown</p> <p>A thermal relay has tripped to protect the system</p>	<p>Check and replace any blown fuses and search for the causes that produced the intervention of the same.</p> <p>Reset the thermal relays and search for the causes that produced the intervention of the same.</p>
The timers 5) and 6) do not intervene in the kneading program.	<p>The switch 2) (<i>Fig. 4.1 on page 16</i>) may be in the manual cycle position</p> <p>The timers are in the zero time position</p> <p>The timers are not working</p>	<p>Position the switch 2) (<i>Fig. 4.1 on page 16</i>) to the automatic cycle position.</p> <p>Set the timers with the time desired for kneading.</p> <p>Replace the timers.</p>

8.2 Electrical diagrams



Control diagram

Chapter 9 Demolition

9.1 Operator qualification

A qualified mechanic who has understood the content of *Chapter 2 Safety information and Chapter 9 Demolition*.

Once the machine has reached the end of its technical and operational life, it must be deactivated. Placing the machine out of service and into a condition whereby it cannot be used for the purposes for which it was designed and built for, must be done in a way that its raw materials can be re-used.

NOTE The constructor denies all responsibility for damage to persons, domestic animals or objects, deriving from the re-use of single parts of the machine for functions or assembly situations different to the original ones.

9.2 Deactivation procedure

DANGER The machine deactivation and demolition operations must be entrusted only to suitably trained and equipped personnel.

1. Switch off the machine, according to the procedures indicated in *6.2 Switching off* on page 25.
2. Disconnect the energy supply sources. The supply points and the indications for the intervention are the same as those described in *Chapter 5 Installation*.
 - a. Electrical supply. Disconnect the power supply cable from the electrical board terminal block.
3. Dismount the following parts:
 - a. Electrical and electronic parts
 - b. Non-metallic parts and components.
4. In the case of moving the machine, refer to *5.3 Transport* on page 18.

9.3 Residual risks after deactivation

If the indications of 9.2 *Machine deactivation* on page 34 are executed carefully, no residual risks exist after deactivation.

ATTENTION The machine is constructed of non-biodegradable materials. Take the machine to an authorised deposit for disposal.

Chapter 10 Enclosure list

Enclosure 1 CE conformity declaration
Enclosure 2 Machine testing form
Enclosure 3 Oil and grease comparative table
Enclosure 4 Electrical diagram.

