IMPASTATRICE AUTOMATICA A SPIRALE A VASCA FISSA

AUTOMATIC SPIRAL MIXER WITH FIXED BOWL

PETRIN AUTOMATIQUE SPIRALE ET CUVE FIXE

SPI 30-200 F

ISTRUZIONI ORIGINALI

Istruzioni
uso e manutenzione

Instructions for use and maintenance

Notice d'utilisation et entretien

Codice/code 876568 rev. 02
Settembre 2013

ESMACH

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ABSTRACT OF CE DECLARATION OF CONFORMITY

Declaring Company
ESMACH S.P.A.
Via V. Veneto, 143
36040 Grisignano di Zocco (VICENZA) - I
TVA No. and Fiscal Code IT 00164350241

Name, Surname and Position in the Company of the person signing the CE Declaration of Conformity:
Luciano Delpozzo (CEO)

Machines, which the declaration relates to:

MIXERS, for which the destination for use is shown in paragraph 2.1 of the present manual.
Type **SPI** Model No. **30 - 45 - 60 - 80 - 100 - 130 - 160 - 200**
Versions: **E** and **M**

The Declaration of Conformity complies with the following European Directives for the above mentioned machines:

- Directive 2006/42/CE (European Parlament and Council -17 May 2006)
- Directive 2006/95/CE (European Parlament and Council - 12 December 2006)
- Directive 2004/108/CE (European Parlament and Council - 15 December 2004)

Authorized representative, responsible for the technical documents and company official position at Esmach S.p.A.:
Luciano Delpozzo (CEO)

Place of issue of CE Declaration of Conformity: same address of the declaring Company

INTRODUCTION

1.1 PREAMBLE

This instruction manual is designed for being consulted by any operator, authorized person or person in charge of the use and/or operating of the machine. It is also suitable for the company employer, directors and people in charge of the user company, who have to read it carefully and understand it in each of its parts, in order to use it as a useful support to fulfil a part of duties requested by the existing laws and standards in terms of safety and health at work.

The company employer of the personnel authorized to use the machine, the directors and the people in charge of it have to provide the operators all adequate information, education and training, even practical (to be simple and comprehensive according to the ability it is expected from the ones concerned) regarding its correct and safe use, the general or specific risks at the place of work and/or task.

This manual is divided into more sections, which can be generally summarized as follows:

Istructions for installation

This part, described in Chapter 3, is designed for the personnel in charge of handling, carrying on, installation, first start-up of the machine; its aim is to give all relevant information in addition to the ones belonging to the skills of a professionally qualified and/or skilled engineer, in order to carry out these operations correctly.

Instructions for use and routine maintenance on safety conditions

This part, described in Chapter 2 and 3 and partially in Chapter 4 and 5, is addressed to the company employer of the operators in charge of the machine use, to the directors and people in charge of the user company and to the same operators.

In addition to the instructions given for the current use of the machine, it includes instructions for maintenance, cleaning, control operations that, due to their simplicity and low hazard, do not require a particular experience or qualification and may be carry out by the operator of the machine for production purposes.

Instruction for unpredictable maintenance

This part, described in the remaining part of Chapter **Errore. L'origine riferimento non è stata trovata.** and, is addressed to the company employer of the operators in charge of the machine use, to the directors and people in charge of the user company, to the same operators and skilled personnel in charge of routine and unpredictable maintenance of the machine.

It includes some important instructions for safety purposes to follow for any eventual maintenance, adjustment, control operations, where the service of skilled and professionally qualified personnel having the knowledge to carry out operations properly done according to standards and on safety conditions is needed. Due to the skilled know how the personnel in charge of this kind of operation has to own, any technical instructions, which might be not essential to carry out operation on safety conditions, are here omitted.

Instructions for disposal and/or scrapping

This part is described in Chapter 6.

Before carrying out any operation on the machine (installation, connection, adjustment , usage, repair, scrapping, etc.) kindly **read carefully** all the general and specific instructions given in the present manual to well understand its aim and meaning in order to ensure the best operating of the machine, its correct maintenance, an adequate knowledge of the safety devices it is equipped with and any eventual residual risks arising from its use.

Keep this manual and any eventual notice enclosed (drawings, diagrams etc.) in a safe place known to the operators in charge of use and/or maintenance. Keep it in a dry place far from weathering agent exposure which may cause a possible deterioration (for ex. in a matt plastic bag). It is recommended to keep a copy within easy reach of the machine at disposal of the operators for a prompt consultation.

In case of loss or deterioration, contact immediately Esmach S.p.A. to get a new copy, in specifying all identification plate data of the machine (year of construction**,** model, registration no. etc)

This manual reflects the state of the art existing at the moment the machine is sold on the market or started-up and cannot be considered inadequate simply because it is updated later according to new experiences or new technical solutions.

The manufacturer is not responsible for the conformity of the place or the support services where the machine is to be used, even if some important instructions on how to install it correctly are given in the section concerned of this manual.The company reserves the right to eventually update the machines and manuals without any notice and/or obligation to update any manual or machine of previous production.

ATTENTION

Once placement and/or installation in a definite place have been completed, before authorizing or following its start-up, make sure that the machine is equipped with all devices concerned and in particular, the safety device, described in this manual and in any eventual commercial documentation.

The present manual is an integral part of the machine and has to be added to it in case of transfer or sale of the same, at any title and free of charge.
In paragraph 2.1 destination for use of the machine and details about any allowed or not allowed usage are given.

1.2 INSTRUCTIONS AND GENERAL WARNINGS

The manufacturer declines any responsibility for damages to people, animals or things caused by the non – observance or non-respect of instructions, information, suggestions, recommandations for installation, use and maintenance contained in this manual and in particular :

- **Do not alter/modify** any guard and safety device the machine is equipped with;
- **Do not remove** any guards and **do not deactivate** the safety devices the machine is equipped with, unless deemed as strictly necessary and in taking all preventive measures to reduce the risks arising from it;
- **Re-assemble** the guards and **re-activate** the safety devices as soon as there are no more reasons for which the temporary removal/deactivation was necessary;
- **Do not use** the machine for uses and/or loads being different from the ones given by the Manufacturer;
- **Carry out** daily checks to safety device, levels and state of the technological fluids if present and to the general state of the machine as well;
- **Carry out** a careful daily cleaning of the machine;
- **Take** all **necessary measures and precautions** in carrying out any adjustement, cleaning and maintenance operations in order to avoid any accidental starting up of the machine or its parts by others;
- **Observe** the European Directives and the laws of the State concerned for the workplace where the machine is used; in particular (but not limited to) the ones regarding the safety, food hygiene, safety and health at workplaces, individual protection devices, environment protection warning signs;
- **Observe the limits of the climatic conditions and usage allowed:** environmental relative humidity 90%, room temperature : min 4°C, max 40°C, altidute on the sea level : 1000 m max.
- **The company employer** shall have to provide adequate information, training, even practical (training) to the operators about the correct and safe use of the machine.
- **The operator has to wear proper adherent outfit only, i.e.** no free parts, jackets, open shirts etc, jewels (rings, bracelets, necklaces etc) are allowed, any eventual long hair is to be kept collected (for ex. in a suitable cap); the working outfit has to comply with the hygiene food products requirements.
- **Do not allow the entrance in the room where the machine is operating or the approach of the same to lay-users, minors or anybody else not expressely authorised;**
- if the machine is connected to other equipment or, implemented in a complex assembly, the manufacturer shall have to assess any major or minor risk, arising from this operation, carry out adequate measures to eliminate it or reduce it as much as possible, observe all requisites according to the laws, directives , standards etc. related to (Directive 2006/42/CE among the ones) and declare the conformity of the whole to the regulations of the same.
- **use spare parts only**, if deemed as necessary and purchase them from Esmach S.p.A.; this latter – in case of non-original spare sparts usage- declines any responsibility for damage to people, animals or things which may arising from this.
- **Any arbitrary modification**, made to the machine, **releases the manufacturer from the responsibility** for any eventual damage caused to people, animals and/or things which may arising from this.

1.3 MAIN CASES FOR WHICH THE COMPANY DECLINES ANY RESPONSIBILITY

Esmach S.p.A. declines any responsibility for any damage caused to people, animals, things and missing production as well, which may arise, directly or indirectly, from:

- **Non-conforming use** to the destination for use or different from the one described in this manual
- **Non-conforming installation** compared to the instruction given in the present manual
- **Use of the machine by unsufficiently informed personnel** and, where planned, not properly trained for a correct and safe use
- **Use of different power sources** compared to the ones given or not adequate to the technical date given in this manual
- **Missing or poor maintenance** or not carried out according to the instructions given
- **Non- or partial observance of the instructions** described in the present manual
- **Arbitrary modification** of the characteristics and original parts of the machine without receiving any formal previous authorisation from the Manufacturer
- **Coupling/Integration** through/ in the machine of parts **which are not supplied, necessary or authorised** by the Manufacturer; in this case the CE mark of the machine would be invalid
- **Integration** of the machine or its parts in a complex assembly, in case this operation could incur in new or major risks compared to the machine supplied
- **Non-observance of the existing laws and rules** in the country where the machine is used
- **Any exceptional event and acts of God** beyond the control of Esmach S.p.A.

1.4 TERMINOLOGY

OPERATOR: person in charge of the machine use; through use is to be meant the definition mentioned here below

MACHINE, MIXER: the object, for the correct and safe use of which this manual has been issued and delivered to the principal/user

USE OF THE MACHINE: each operation which is or may be reasonably related to the machine in its lifetime compared to its destination for use; in the present manual this word assumes a particular meaning, compling directly with the subject concerned (for ex.: dough production, maintenance, cleaning etc.)

PRINCIPAL: any physical or legal person who has purchased the machine from Esmach S.p.A.

USER: any natural or legal person using the machine for production purposes

MANUFACTURER, MANUFACTURING COMPANY of the machine:

Esmach S.p.A. Via V. Veneto, 143 36040 Grisignano di Zocco (VICENZA) - I

DPI: individual protection device (for ex.:gloves, shoes, glasses, etc.)

INGREDIENTS: products/food substances to mix and amalgamate through the machine in order to obtain an omogeneous mixture; the most common are: flour, water, yeast, salt but also fats, eggs, sugar etc.

MIXTURE, DOUGH: shapeless volume of homogeneous consistency, easily malleable, obtained through the mixing of ingredients in different portions, within the limits declared in this manual, from which to obtain bakery and/or pastry products through further operations (dividing, forming, baking etc.)

SPIRAL ARM : stainless steel rotating tool suitable for ingredient mixing and amalgamating in the bowl.

BOWL: recipient into which ingredients to be mixed are added; it rotates around a vertical shaft, allowing the dough to go out from the action of the spiral first and then to go into again after one bowl rotation.

BOWL COVER: bowl cover element connected to a safety microswitch; in lifting it up, the machine stops imediately and/or no start is possible. Available as a welded circle rod-shaped metallic cover (grid cover) or as a full thermoformed plastic cover (full cover).

FLOUR GUARD: part made of stainless steel shaped sheet, located on the bowl at the back as a natural extension of the bowl cover when this latter is closed; during the first mixing operations it allows the flour, not being yet well amalgamated, to reach the edge of the bowl and not spill out of due to the action of the spiral.

BASE: structure made of painted and welded stainless steel resting on the floor and supporting each part of the machine; in the upper side (head) are the transmission components for the spiral movement; in the lower side (base) are the ones of the bowl in the motor/s column along with the shaft/s and the electrical box concerned.

ROUTINE MAINTENANCE: periodic and/or occasional operations to keep the machine efficient and in a good state. They do not require any particular training or skilled qualification and shall be carried out by non-qualified personnel according to the instructions given in the present manual.

UNPREDICTABLE MAINTENANCE: periodic and/or occasional operations to keep the machine efficient and in a good state. They require a particular training and/or skilled qualification and/or specific ability; they shall be and have to be carried out by qualified personnel only (where required by the existing laws and rules), owing the technical concepts and standards to carry out operations properly done and on safety conditions.

DANGEROUS AREA: any area inside and/or in vicinity of the machine where the presence of a person exposed is a risk for the safety and the health of the same person.

PERSON EXPOSED: any person being enterely or partially in a dangerous area.

WARNING, CAUTION, ATTENTION: important notice for people's safety and health.

IMPORTANT REMARK/NOTICE: important advice for the use and integrity of the machine

2 MACHINE TECHNICAL SPECIFICATIONS

2.1 DESCRIPTION AND DESTINATION FOR USE

The mixer is to be used for mixing and amalgamating of various ingredients (the main are: flour, water, salt and yeast) **within the limits declared in this manual in order to get an homogeneous volume of dough for the next food processing necessary to achieve bakery and pastry products**.

The only professional use of the machine is allowed in places where no public, lay-users, minors and non-authhorised people etc. are admitted, except for trade expositions, and/or show rooms, where however all necessary measures are to be taken in order not to expose those present to risks.

Do not use the machine:

- for operations and/or with products which may be different from the ones specified
- if the connections to the service installations of the site have not been carried out according to the instructions in this manual
- in places with high fire hazard and/or explosion or relevant incidents, high humidity or wet, excess of water vapour, oil steam, dust, presence of corrosive substances/gas, adverse weather conditions
- in vicinity of free flames, sparking projection areas, heat sources
- on vibration conditions or abnormal impacts
- on board of ships, off-shore platform, etc.

Any other different use is to be considered uncorrect , non-conforming, not in compliance with the Manufacturer's instructions and, for this reason, dangerous for the safety and the health of people, animals and things.

The machine is basically composed of: (see PicturePicture 1 – Main parts of the machine):

Picture 1 – Main parts of the machine

(1) supporting structure or "base"
(2) bowl
(3) spiral arm
(4) central bar
(5) bowl cover
(6) flour guard
(7) control panel
(8) electrical box

The number next to the identification acronym of the machine shows the mixture nominal capacity of the bowl, expressed in Kg; for ex. :The Mixer SPI80 has a mixture nominal capacity equal to 80 Kg)
The machine can be supplied in the following versions:
- **E** : with electronic control panel (7) (ex. SPI 160 E)
- **M**: with electro-mechanical control panel (7) (ex. SPI 160 M) as follows:
  - with reverse controls for the bowl rotation direction (Mod. no. SPI 60-80-100-130-160-200 only)
  - without reverse controls for the bowl rotation direction (Mod. no. SPI 30-45 only)

The machine can be delivered equipped with the following devices s (options):
- (for E Version only) ingredient dispenser system with one or two dispenser devices (dispenser D1 and D2)
- (for E Version only) water dispenser system (E Version only)
- (for E Version only) temperature measurement system of the dough with infra-red device or, as an alternative, with manual "immersion" probe (E Version only)

The machine shall be supplied complete with options only, if they are requested while placing the order ; later it will be not possible to add any of the devices mentioned here above.

2.2 CONTROL DEVICES AND ADJUSTMENT

E Version (ELECTRONIC CONTROLS)

Any reference to " water dispenser" refers to machines equipped with the system concerned only (option), shown and described under paragraph 3.2.2 .

With reference to Picture 2, the control devices, besides the main power switch Ref. 18 – Picture 4, are:

(1) control panel (membrane keyboard panel)

(2) 1st speed working time display (timer) (minutes.seconds until 9'.99", minute for time ≥ 10' only), while operating it runs as a countdown. The operation mode " **water dispenser**" shows the litres of water (unit only) not yet added into the bowl compared to the set up value (operates as a countdown)

(3) 1st speed working time "up" key or litres of water (unit only) to pour into the

(4) 1st speed working time "down" key or litres of water (unit only) to pour into the

(5) 2nd speed working time display (timer); it operates as display (2). Under operation mode "**water dispenser**" its operating is like display (2) but referred to fractions (tenth-value) of litre

(6) 2nd speed working time "up" key or the quantity of water (tenth of litre, for ex. = 0,4 litre)

(7) 2nd speed working time "down" key or the quantity of water (tenth of litre, for ex. = 0,4 litre)

(8) According to the operation mode selected with (11), the display is :
- **AUTOMATIC** selected mode (led (12) on): no. of programm ⇨ numbers from 0 to 9
- **MANUAL** selected mode (led (12) on)⇨ "-"; at the following start, letter H is shown on display
- **WATER DISPENSER** function activated ⇨ letter W

(9) Key to select/confirm programm (led (10) on = in PROGRAMMING)

(10) PROGRAMMING led (red); see (9)

(11) Key to activate the operation mode: **MANUAL**⇨led (12) off, on display (8) is shown "-"; **AUTOMATIC**⇨led (12) on; **WATER DISPENSER** ⇨ led (12) off, W is shown on display (8), led (20) is on

(12) led (red) for running operation mode; see (11)

(13) Bowl **REVERSAL** key (activated in1st speed only); by pressing it through impulse, a reverse bowl direction is selected. Led (13): off= counter-clockwise rotation, on= clockwise

With protection grid closed: by keeping it pressed, bowl and spiral arm rotate, by releasing it they stop ; if the grid is open while keeping the key pressed, the machine stops and the key must be released and then pressed again to re-start the bowl rotation.

With protection grid open : by keeping it pressed, the bowl rotates; by releasing it the bowl stops; by pressing the key again, the bowl rotates in the reverse direction compared to the previous and so on.

(14) Bowl direction reversal led (red); see (13)

(15 **START** key; in **AUTOMATIC** and **MANUAL** mode, it starts the spiral arm and the bowl; in **WATER DISPENSER** mode, it allows the addition of water in the bowl for the maximum of the water quantity set up.

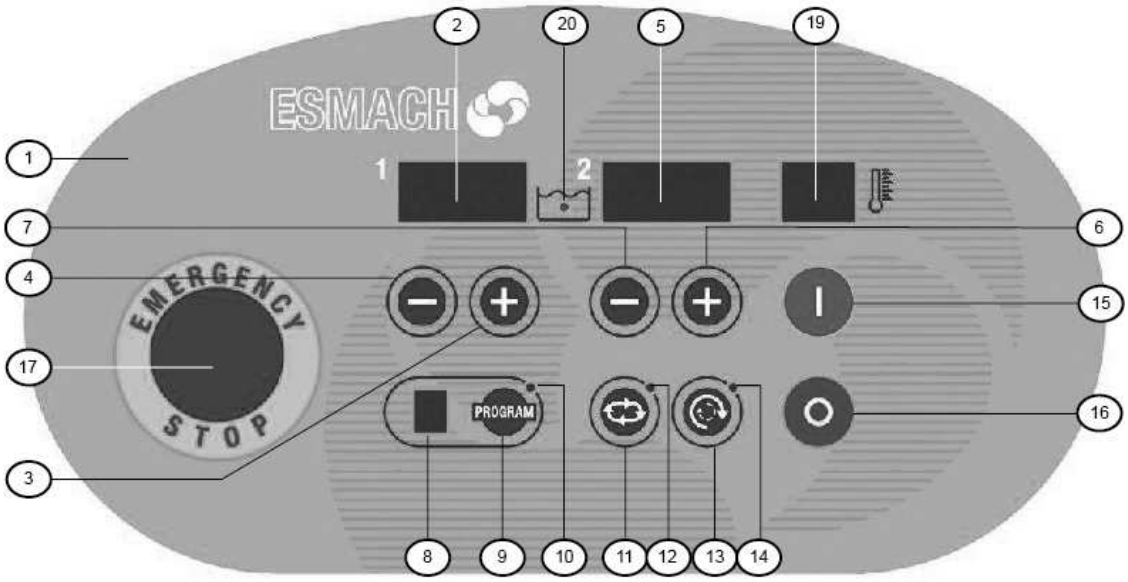
(16) **STOP** key (normal stop); in **AUTOMATIC** and **MANUAL** mode, it stops the spiral arm and the bowl: (by pressing it once, the residual operating times are stored, by pressing it twice, instead, the operating residual times are zero-adjusted as at the end of cycle), in **WATER DISPENSER** mode, it stops the water flow, the countdown in (2) and (5) stops; if (15) is pressed, the countdown re-starts from the point it had stopped before; if instead, (16) is pressed again all initial water values are re-established again on display

(17) **Emergency stop** button (red mushroom-headed button on a yellow base); once pressed, it remains in this position, allowing the stop of the machine and setting to zero the electric power of each of its parts, otherwise dangerous, in particular of motor (displays (2) and (5) show "- - -" and "- - - ")

(18) Main switch ON/OFF; it can be locked in position OFF by removing the lever and passing a lock with key into the hole concerned

(19) Mixture temperature display (for machine with the measurement system concerned only; see the end of par. 2.1.)

(20) **WATER DISPENSER** operation mode led (blue) led; see (11)



Picture 2 - E Version: Control Panels and Control Devices

M Version (ELECTRO-MECHANICAL CONTROLS)

With reference to Picture 3, the control devices, besides the main power switch Ref. 18 – Picture 4, are :

(1) Control panel

(2) Electromechanical display (timer) to set the 1st speed working time

(5) Electromechanical display (timer) to set the 2nd speed working time

(11) Selector to activate alternately the following operation mode:

- pos. 1: the machine operates non-stop in 1st speed; the timers are excluded
- pos. 2: after an initial operating at 1st speed for a time of 120 seconds, the machine operates non-stop in 2nd speed; the timer are excluded
- pos. ⇳ : both timers are enabled; its operating is based on the set up times, except for the first 120" during which the machine operates in 1st speed

(13) (SPI 60-80-100-130-160-200 only) 3-position-selector for the bowl rotation direction

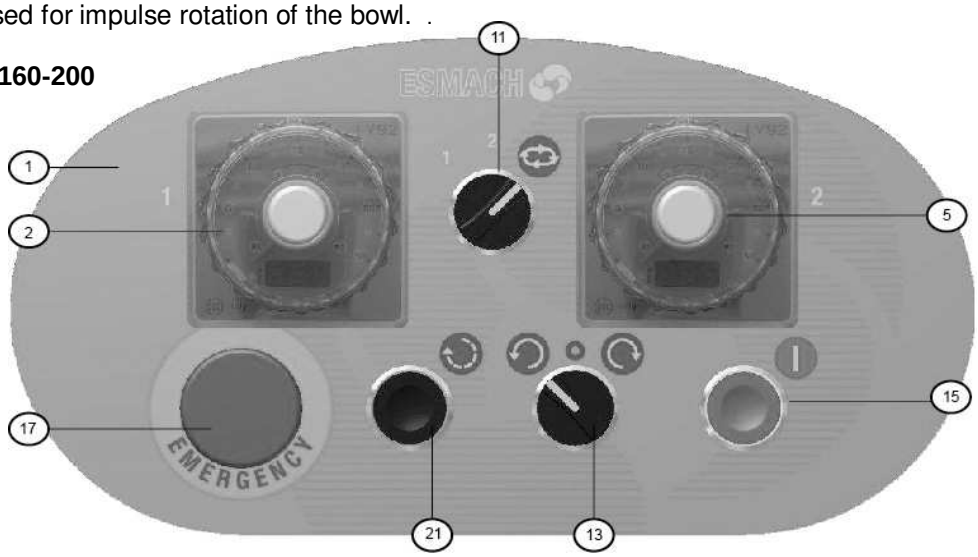
Left hand position= counter-clockwise (overhead view); central position= bowl still; right hand position= clockwise (overhead view)

(15) Start button (start)

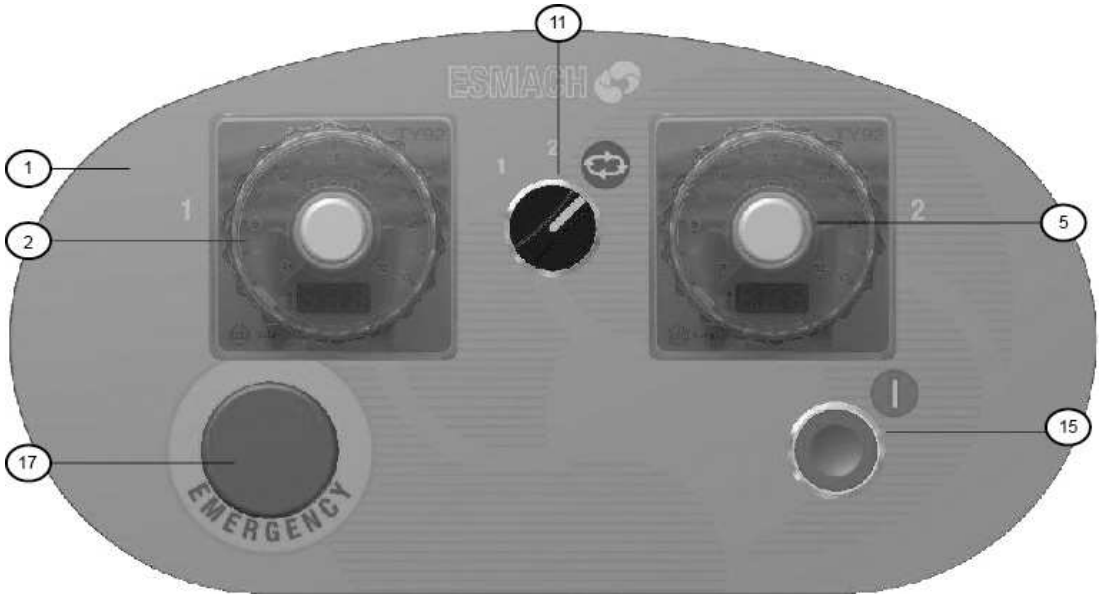
(17) **Emergency** stop button (red mushroom-headed button on a yellow base); once pressed, it remains in this position, allowing the stop of the machine and setting to zero the electric power of each of its parts

(21) (SPI 60-80-100-130-160-200 only) bowl rotation "dead man" button (after releasing it, the bowl stops) ; it is normally used for impulse rotation of the bowl. .

SPI 60-80-100-130-160-200



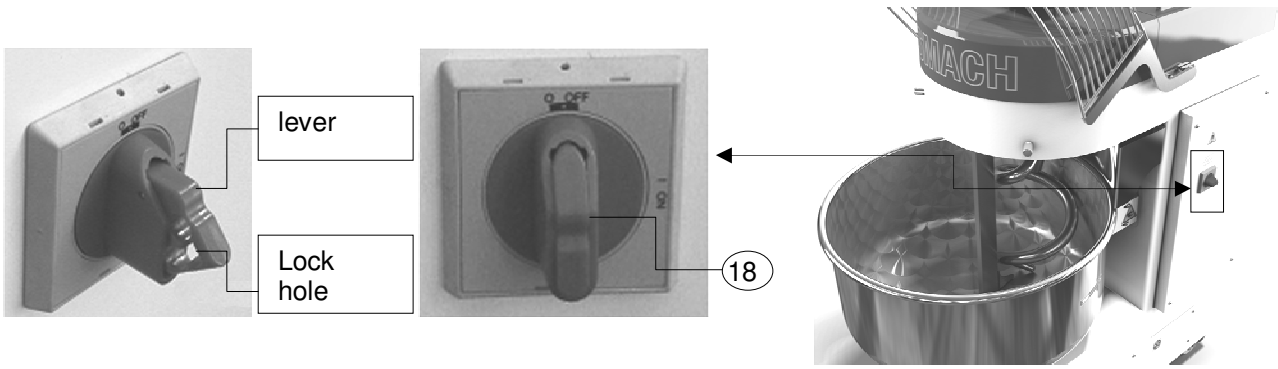
SPI 30-45



Picture 3 – M Version: Control Panels and Control Devices

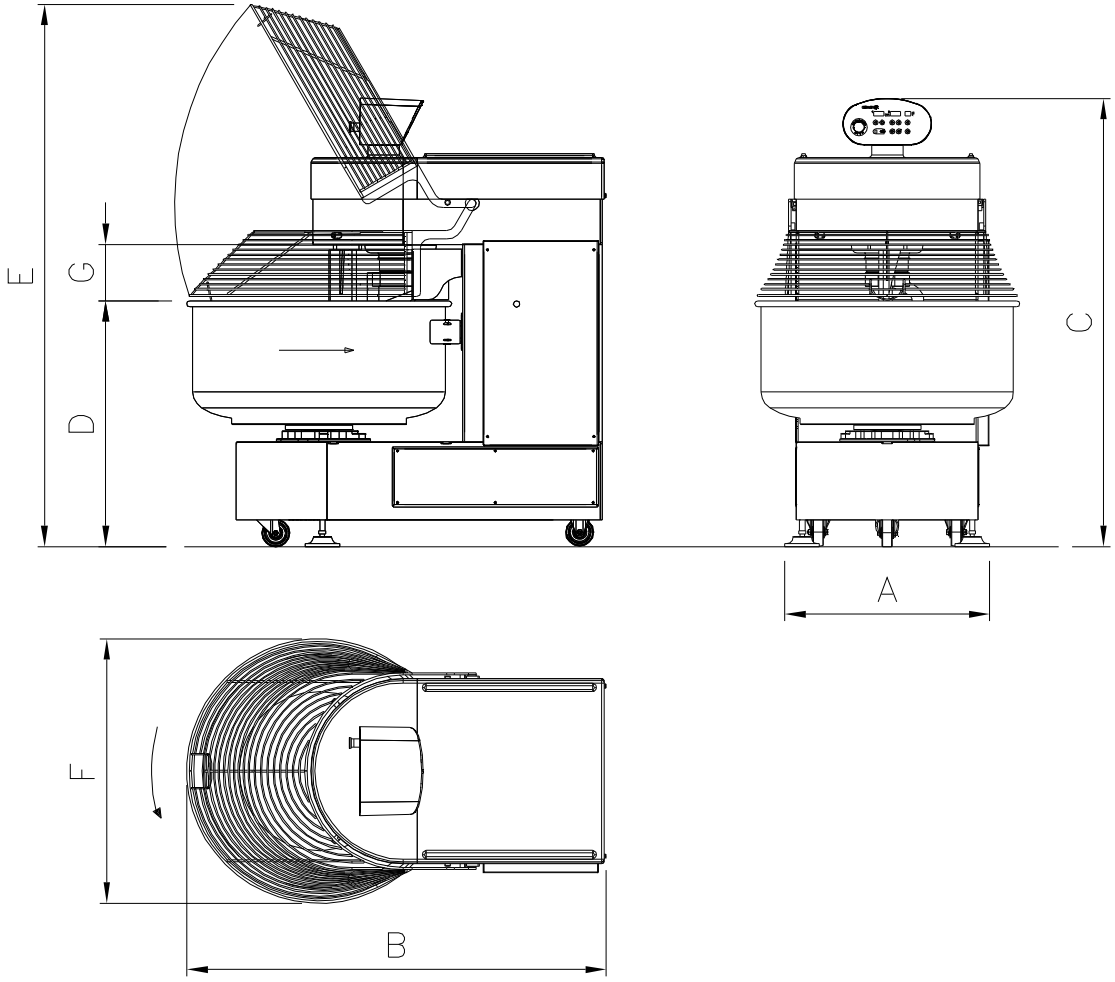
2.3 MAIN POWER SWITCH

Each machine is equipped with a main power switch as per position shown in Picture 4.



Picture 4 – Main Power Switch

2.4 MAIN TECHNICAL FEATURES



Picture 5 – Machine Dimensions

		SPI							
TECHNICAL SPECIFICATIONS		**30**	**45**	**60**	**80**	**100**	**130**	**160**	**200**
A	mm	477	477	588	588	588	735	735	735
B	mm	978	978	1121	1207	1207	1413	1495	1495
C	mm	1378	1378	1563	1563	1563	1610	1610	1610
D	mm	741	791	891	886	936	862	883	943
E	mm	1879	1864	1679	1751	1776	1864	1945	1975
F	mm	562	562	638	741	741	847	948	948
G	mm	181	131	184	189	139	222	202	142
Machine Mass	kg	218	222	385	417	417	624	680	705
Mass on a Pallet only	kg	239	243	420	452	452	660	716	741
Mass on a Cage	kg	301	305	504	536	536	744	800	825
Mass on a Case	kg	323	327	581	613	613	765	821	846
Machine Overall Dimensions on Pallet	mm	1150x650x1550		1300x850x1730			1600x1000x1750		
Packaging Overall Dimensions (wooden-cage/case)	mm	1250x750x1670		1400x950x1820			1700x1100x1850		
Mixture Capacity min./max. (**a**)	kg	2/30	2.5/45	3/60	3.5/80	4/100	4/130	4.5/160	4.5/200
Bowl Capacity	L	50	60	95	120	145	200	250	290
1st/2nd Spiral Arm Rotation Speed	r.p.m.	103/206			107/214				
1st/2nd Bowl Rotation Speed	r.p.m.	10/20		7.5/15	8/16		10.8/21.6		
Installed Power	kW	1.5	1.5	2.75	4.55	4.55	6.8	8.4	8.4
Spiral Arm Motor Power	kW	1.5-0.75 (**b**)		2.2 - 1.5	4 - 3		5.9 - 4.05	7.5 - 4.8	
Bowl Motor Power	kW	-	-	0.55-0.37			0.9-0.45		
Voltage (c)	V	400							
Frequency (c)	Hz	50							
No. of Phases (c)	-	3 ~ + PE							

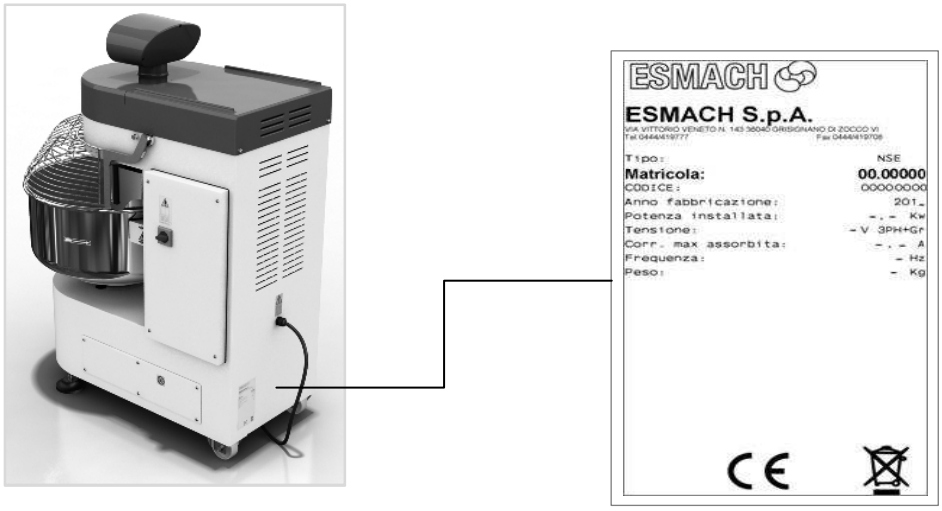
(**a**) the max. mixture capacity shown, refers to a water/flour ratio not less than 60% (flour W= 250, P/L= 0,4); it reduces in the ratio reduction:(water quantity)/(flour quantity)

(**b**) same motor both for spiral arm and bowl

(**c**) these values represent the most frequent case; should voltage and/or frequency and/or no. of phases be different, the specifications shown on the identification plate will be valid only (see par. 2.5)

2.5 IDENTIFICATION PLATE

The plate, on which the following CE mark, manufactures's specifications, number of registration, year of construction, weight, electrical data are indelebile reported, is stable fixed on the machine as shown in Picture 6. .



Picture 6 – Identification Plate and its Placement

3 INSTALLATION AND USE

3.1 INSTRUCTIONS REGARDING THE INSTALLATION ROOM

The place where the machine shall be installed and/or used shall have to comply with the existing laws and standards in order to assure an adequate protection from any impact, damage, deterioration and weathering agents as well. All access ways are to be easily accessible and wide to allow the crossing of the machine without any risk both for the operator's physical integrity and the integrity of the machine as well. The floor and the main structures shall have the features according to the existing laws and standards considering the whole load to support and safety factors concerned; floor and room walls must be easy to clean, to disinfect and disinfest.
The floor has to be flat, without inclination, compact and free from any holes and roughness.
The electrical equipment and the equipotential protection system (ground) of the site shall have to comply with the existing laws and standards; they shall have to be carried and maintained and, where prescribed by the law, checked periodically by authorized and qualified engineers, enabled to issue the eventual declaration of conformity concerned.
On the power supply panel any suitable protection devices are to be installed against overload current, short circuit and phase-phase, phase-neutral (if concerned), phase-ground failure.

3.2 TRANSPORT, HANDLING AND LOADING

Depending on destination and contractual agreements, the machine shall be delivered wrapped in a thermoshrinking plastic film bag and placed on a pallet or in a wooden-cage or a wooden-case.
Before dispatching it from the Manufacturer's site, the machine is put and fixed onto a wooden-pallet; then the pallet, the cage or the case shall be further fixed on the platform of the mean of transport through wooden blocks/supports, loaded and/or bound to resistant points of the mean of transport in order to avoid any motion during their transportation.
To lift and handle the pallet, the cage or the case use a suitable fork lift truck (the mass is shown in par. 2.4 and on the identification plate); the lifting forks are to be introduced in the pallet or in the base of the cage seat concerned and have to protrude to the opposite side for 200 mm at least as shown in (Picture 7).

Picture 7 – Pallet or Cage Lifting up and Handling by means of a Fork Lift Truck

CAUTION!
No different lifting devices and/or systems from the ones described are to be used.
Adopt all possible precautions in handling and/or transporting the machine and its parts in order to avoid or reduce any risks to people, animals or things.

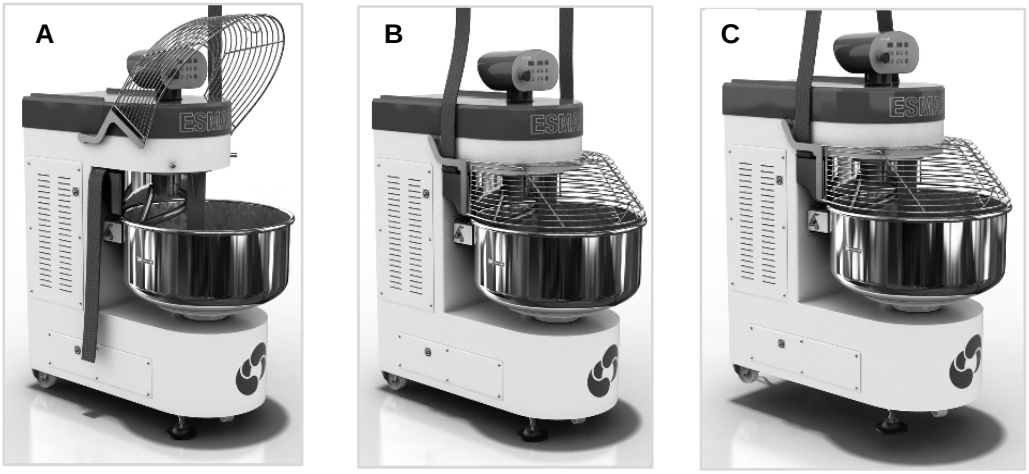
Remove any eventual packaging from the machine; in this case separate the different materials per type of packaging (rivets, plastic, wood etc) and place them in a suitable waste collection point, accessible to authorized personnel only and waiting to be collected from the disposal firms concerned. **The waste disposal, according to the strict regulations and respect of the environment, are obligations clearly and unequivocally imposed by the existing laws.**
Check the integrity of the machine in all of its parts; in case of doubt contact the Manufacturer.
To move the machine from the pallet or from the cage and, in general, to lift the machine released from its packaging, and according to the devices at disposal, it is allowed to :
a) use the fork lift truck with a suitable capacity (the mass is given in par. 2.4) as shown in Picture 8.

Picture 8 - Machine Lifting up by means of a Fork Lift Truck

b) use a suitable lifting belt (the mass is given in par. 2.4) to connect to a lifting device hook (bridge crane, console table crane, jib crane, etc.). In this case the **lifting belt end extremities cannot be lifted up by means of the forks of the forklift truck**: the load would not be protected against falling down and could cause a rolling over of the fork lift truck. The lifting belt has to be 3 m long at least and has to go across under the head of the base as follows (Picture 9) :
- remove the top cover of the head (the part without control panel only) following the instructions given in par. 4.3.2 (cover (1) Picture 14); if a rocker arm suitable to lift load is at disposal, no cover removal is necessary
- lift the bowl cover and let one belt extremity (eyebolt) go through between the spiral arm and the flour guard ; when the eyebolt is out from the head of the base, hold the belt horizontal (in plane) and introduce it between the flour guard and the head of the base (Picture A)

- lower the bowl cover (Picture B)
- connect the end extremities of the lifting belt to the lifting device (Picture C); with the lifting belt centered between the spiral arm and the column of the base (elements, not allowing the side motion of the belt), the load results to be well balanced.

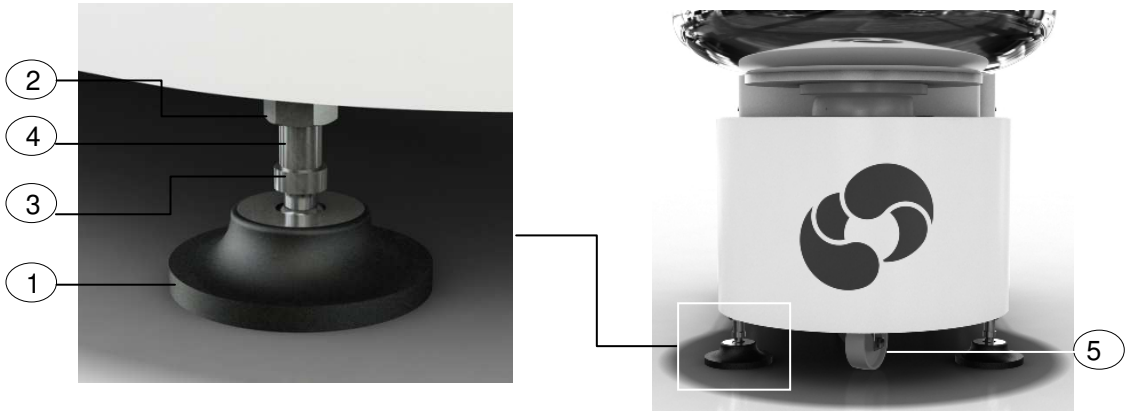
After completing this operation, it is necessary to lift up the cover before driving out the lifting belt and then to move the belt towards the spiral arm to avoid that the eyebolt, in taking the belt off, remains fixed in between the flour guard and the head of the base.



Picture 9 – Maschine Lifting up by means of a lifting Belt

Lift slowly the machine avoiding any impact and swinging.
Rest the machine on the ground, in a safe and protected room free from any risk of damage.
Once placed on the ground the machine can be moved in pushing it, as it is equipped with 3 caster wheels.
In positioning the machine, keep sufficient free space all around it in order to operate in a comfortable way during the normal production (1 m per each side is normally sufficient).
With reference to Picture 10, fix the machine in the room where it shall be used, by using the support feet (1):
- unloose the lock nut (2) by means of a hallen wrench;
- rotate the foot (1) clockwise (overhead view) by means of a hallen wrench in the shaft facets(3); this operation is to carry out in the same way for both feet;
- when the front wheel (5) will be unloaded from the weight of the machine, lock each foot in tigthen the nut (2); keep the threaded shaft (4) fixed by means of the wrench introduced in the facets (3)

Should it be necessary to move the machine again (for example to clean the floor), a reverse operation is to be carried out, i.e. through the unloading of the weight from the feet and placing the machine on the caster wheel (5)



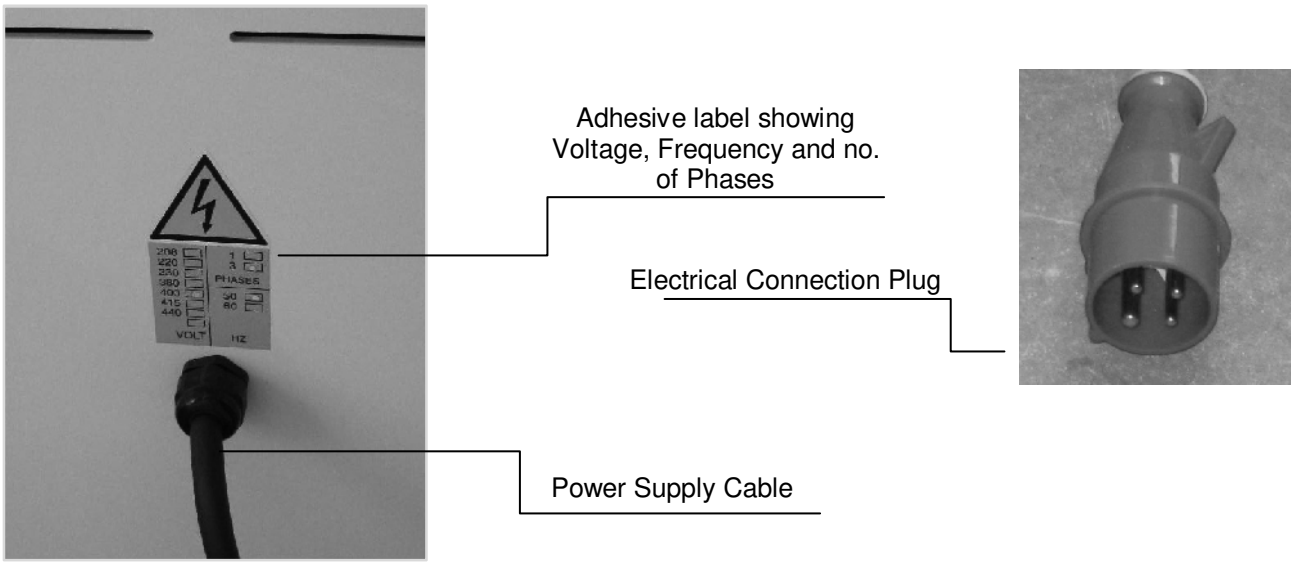
Picture 10 - Support Feet

3.2.1 ELECTRICAL CONNECTION

Any elctrical intervention involving the working site is to be carried out by qualified and skilled technicians, having a technical knowlege and a knowlegde of the standards concerned to carry out operation properly done and on safety conditions according to the existing laws and standards; they shall be able to issue the declaration of conformity concerned and required by the law. After delivering the machine and before proceeding to the electrical connection, **ensure that voltage, frequency and number of phases are the same declared by the Manufacturer and shown on the identification plate;** voltage, frequency and number of phases are also reported on a adhesive label placed at the back of the machine, in vicinity of the point where the power supply cable enters the base. **In any case, refer always to the technical specifications shown on the identification plate only** (paragraph 2.5).
The machine is delivered complete with cable and 4-pole plug (3-phase poles + 1 ground pole PE); see Picture 11.
Use the ground system concerned , the efficiency of which has to be periodically tested and do not connect to any gas or water pipes or other generic metallic structures .

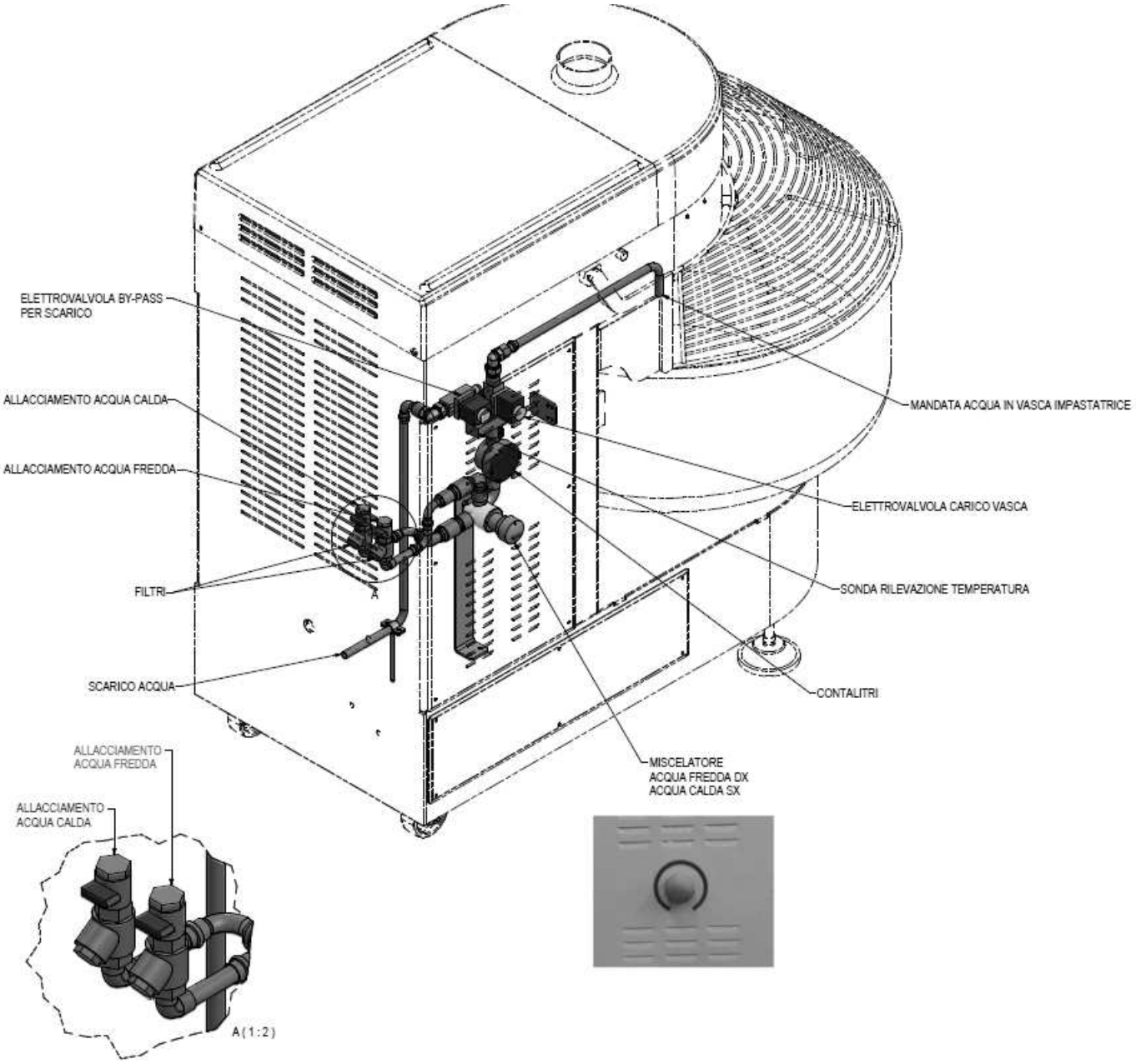
For connections in the US/Canada:
An electrician licensed under the jurisdiction (city, municipality, county, state, etc.) in which the mixer will be installed must install the plug that meets requirements in sub-clauses 4.5.2.2 of C22.2 No. 195
and 6.2.1, 11.1.1, 15.1.6 of UL 763.

The power supply cable is to be kept far of warm parts and/or parts in motion and has not to be an obstacle for people, animal or things.
The plug has to be easily accessible and as visible as possible too.
Once the plug has been connected to the power supply socket, check the correctness of the bowl and spiral arm rotation direction: i.e. **clockwise** on normal conditions (overhead view); if the rotation direction is not correct, invert the two phases in the plug (do not disconnect the ground cable from its clamp) **but this operation has to be carried out by a professionally qualified electrician only**.



Picture 11 - Power Supply Cable with Plug

3.2.2 HYDRAULIC CONNECTION
(for machine equipped with "water dispenser" system only)



Picture 12 – Hydraulic System on Machine Board (option)

3.3 OPERATING AND USE

The use of the machine is allowed to authorized and qualified personnel only, skilled and able to use machines for bakery and pastry mixture, properly educated and trained about the correct and safe use of the machine and informed on the risks concerned and the measures to take in order to eliminate or reduce them accordingly.

An only one operator at a time is allowed and has to work at the machine.

The instructions contained in the present manual are sufficient and adequate; however, on specific request and previous agreements, the Manufacturer can provide education and training , as well as information required for a safe and correct use of the machine at its manufacturing facilities or at the principal's/user's. It is under the user's responsibility to choose and nominate the most suitable people to operate the machine, inform and train them accordingly.

ATTENTION!

It is strictly forbidden to carry out operations on and/or through the machine without owing the necessary skills required and described in this manual.

In compliance with the existing laws regarding health and safety at work place, the Company employer has to carry out a suitable and adequate **information, education, training activity for the personnel authorized** to the use of the machine and **implement any** any operational procedures suitable for reducing as much as possible the exposure to any eventual residual risk (see par. 5.2).

The manufacturing company declines any responsibility for damage to people, animals and things due to a non-observance of the instructions described in this manual.

3.3.1 GENERAL INFORMATION ABOUT THE NORMAL USE

Before starting the normal user, the following important remarks are to be taken into consideration:

1. **At the beginning of each working day and/or shift,** check the integrity and fixation of the protection covers and the efficiency of the safety devices according to paragraph 5.2.3.
2. To load the flour in the bowl, **do not** empty the flour sack quickly into it; instead, whenever possible, **lean the sack**, **possibly and already partially discharged**, **on the bottom of the bowl**, according to the instructions given here below, and then open the sack at the bottom base and let the flour spill out slowly in order to generate as few flour dust as possible; **each next sack, after lightening** according to the following instruction, **is to be held slightly inclined, with the opening near the flour already poured in; then let the flour go out slowly in order to limit the flour dust development as much as possible**. During the mixing operations, do not scatter the flour on the dough by using the hands from the above, through the cover openings; try instead to stop the machine, to lift up the cover and scatter the flour in a due necessary quantity with the hands or by means of a bailer and staying as near as possible to the dough and without any sudden movements.

CAUTION!

A manual handling of flour sacks may carry ergonomic risks causing possible muscle and skeletal injuries; it is safer to unload the sack before, in removing as much flour as possible, by means of **a** bailer**, and then when just a few kilograms of flour remain in the sack,** to lift it up manually and **pour it into the bowl**, following the above mentioned instructions**.**

3. The same procedure is to follow when water is to pour into the bowl; add just a few litres at once instead of full and large recipients. If possible, install an automatic "water dispenser" system to implement nearby.
4. During the normal use of the machine in production, no particular IPD (individual protection devices) are requested, except for particular requirements and specifications which may arise from the risk assessment regarding the health and the safety of operators and that the company employer has to carry out in compliance with the existing law regulations. If, for example, sacks of flours were poured quickly into the bowl and/or from the edge of the bowl, despite the instructions mentioned above, this would cause a flour dust dispersion wave in the air, with a consequent risk for the health of people exposed nearby, in case of inhalation (asthma, rhinitis, tearing etc.); in this case, besides the safety reinforced toe shoes, the operator shall have to wear a respiratory apparatus protection mask with filtrating capacity suitable for the flour dust granulometry (reported in the technical sheet of the flour, if available, or, in any case, to be defined and measured by the company employer) and make sure that nobody is nearby before emptying the flour sack into the bowl. It is responsibility of the company employer to identify further IPD to wear for different purposes, as for ex. to preserve the hygiene of the food ingredients.

5. During any cleaning operations, wear **reinforced toe shoes, water-proof gloves and dust-proof protection mask,** as above described.
6. The machines equipped with a bowl grid cover are conceived and developed in such a way that at the start the spiral arm and the bowl rotate at the lower speed (1st speed) for 120 seconds at least, in order to contain as much as possible the development of flour dust dispersed in the air; even if the operator sets a lower time than 120 seconds, the display concerned shall start the countdown starting from 120 seconds. For the machines equipped with bowl full cover, the minimum rotation time in 1st speed is 2 seconds. .
7. Do not try to reclaim the flour stored on the inside walls of the machine; this might cause a contamination of the food ingredients with a consequent risk for the consumers' health and a risk for the operator's safety in case of hand, finger etc. introduction in the limited spaces reserved to any gears in motion (for ex.: between bowl board and cover, wall and base column etc.)
8. To activate the normal stop, press STOP (16) Picture 2 - E Version: Control Panels and Control Devices.
9. If the emergency stop button is pressed (17) Picture 2 - E Version: Control Panels and Control Devices the machine stops immediately and the electrical power supply to the motor(s) is set to zero. To re-start the machine, it is necessary to set up the emergency button (rotate it in the direction shown by the arrow). **The emergency stop button is to be used in case of real emergency only**.
10. The same result is obtained in lifting up the bowl cover for a few centimetres; in this case close the cover completely before restarting the machine. On normal conditions, **do not stop the machine by lifting up the cover** in order to keep the safety system efficient as longer as possible, but use the button (16) Picture 2.
11. Before dipping (for machine equipped with this option only) the probe to measure the temperature of the dough, stop the machine through the button (16) Picture 2. After stopping the machine only, lift up the cover of the bowl, if required, to proceed with the temperature measurements.
12. The access to the adjustment devices and the adjustments of the same are permitted to a trained and authorised personnel only; it is responbibility of the company employer to identify the most suitable personnel and inform the other workers about their obligations to address to them if needed.
13. In the farest point on the bowl cover, compared to the spiral arm, is a small opeing to allow the operator to "touch" the dough consistency with one hand; in carrying out this operation keep the hand in the shape of the opening and touch just the dough on the surface only, and take some small pieces if needed. **For any reasons do not put the hand in the dough while the bowl is in motion: the risk that the arm is involved and pushed against the opening edge would be high and could cause injuries, even if probably slight. Do not put the hand towards the operating area of the spiral arm due to the risk of crushing and shearing between spiral arm and central bar with severe affection for the safety of the operator exposed.**
14. After removing the finished dough from the bowl, divide it into small portions, according to size and weight to be easily worked and without any risk. A very heavy and bulky dough is difficult to lift up and "keep still"; the dough is in fact extremely unstable (and the more unstable the higher is the water percentage compared to the flour), it stretches downwards and it is difficult to hold in the hands, except for small portions. This instability may cause continuous variations in the barycentre of the mass handled manually and also on the balance and effort conditions the operator has to carry out to keep it. Considering that the operator has to bend his breast in taking and lifting up the portion, it is easy to understand how higher the ergonomic risk is (and of muscle-skeletal injuries) while increasing the portion mass to handle manually.
15. For any reasons do not put your hands between the bowl while rotating and the wall of the base column; the distance between the two parts meets the safety requirements, however the residual risk of gripping and pulling remains if a person puts heavy the hand or also the arm into this passage way.
16. **IMPORTANT NOTICE!** If the machine is associated to a lifting/pouring device from our manufacturing line, please read carefully the user's manual referred to this machine.
17. **IMPORTANT NOTICE!** Before starting the machine, observe the following instructions:
    a) Ensure that the voltage in the socket, the power supply cable plug has to be connected to, refers to the one declared by the Manufacturer (par. 2.4) and shown on the identification plate (par. 2.5). If not, do not carry out any electrical connection and contact the supplier or the manufacturing company.
    b) Check the rotation direction of the spiral arm, which has to be counter-clockwise (overhead view)

3.3.2 MACHINE START-UP

After connecting the machine to the power supply socket, switch on (ON) the main power switch (18)

3.3.3 "MANUAL" OPERATING MODE

E Version (ELECTRONICAL COMMANDS; see picture below)

To operate in **MANUAL** mode the led (12) has to be off and the display (8) has to show "H"; if the led (12) is on, press the button (1) once.

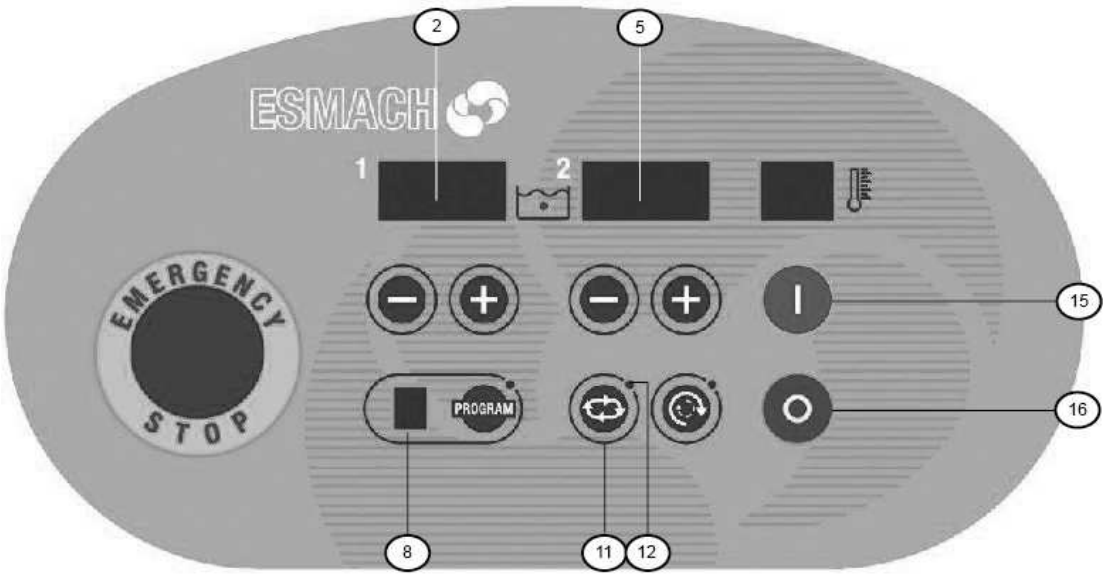
To start the machine in 1st speed , press the button (15); the display (2) starts to count and shows the 1st speed working time run.

To let the machine operate in 2nd speed, press again the button (15); the display (5) starts to count and shows the 2nd speed working time run; if the display(5) is blinking, this means that the 1st speed minimum working time (2 minutes or 2 seconds depending on the bowl cover, i.e. grid or full cover) has not yet elapsed.

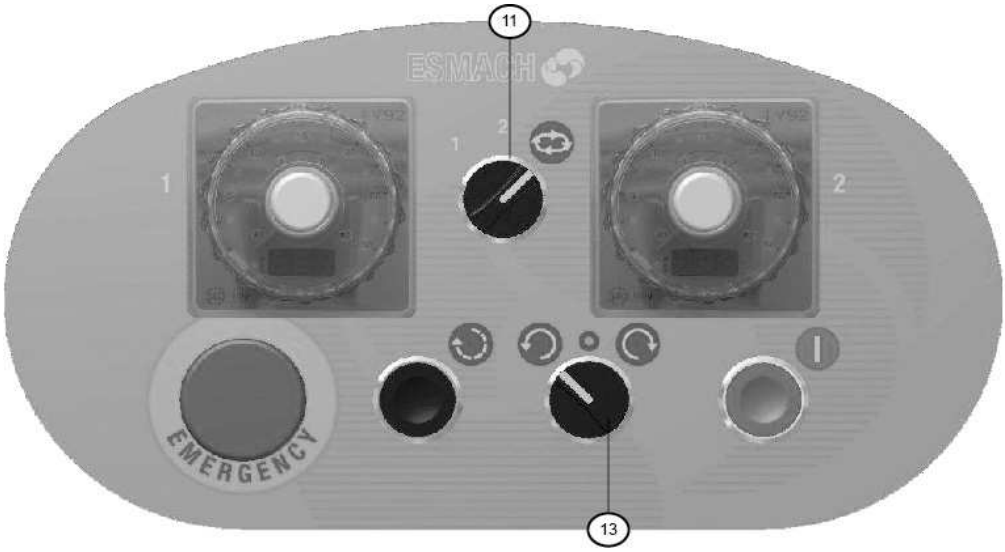
To return to 1st speed operating, it is sufficient to press again the button (15).

To stop the machine on normal conditions, press the button (16); in this case the timers remain stopped at the time shown after stopping; if the button (15) is pressed again, they re-start to count from the point it had been interrupted.

To set both timers to zero, press the button (16) twice; the displays (2) and (5) shall indicate "000" and "000".

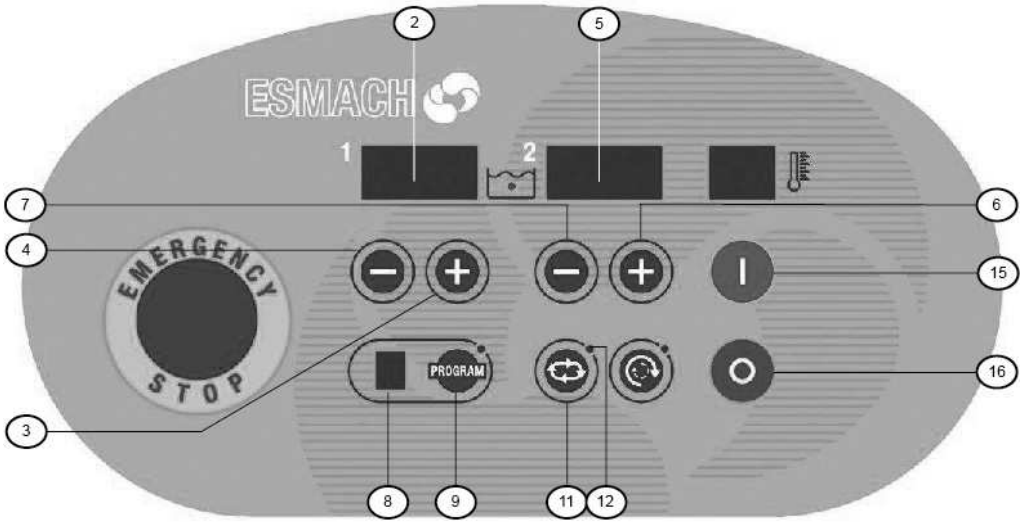


M Version (ELECTRO-MECHANICAL CONTROLS; see picture below)
To let the machine operate continuously in1st speed, put the selector (11) in position 1.
To let the machine operate continuously in 2nd speed, put the selector (11) in position 2; before switching to the 2nd speed, the machine shall operate in 1st speed for the minimum working time (2 minutes or 2 seconds depending on the bowl cover, i.e. grid or full cover)
Through the selector (13) it is possible to reverse the rotation direction of the bowl or to stop it (for all models, except for SPI 30 and SPI 45)



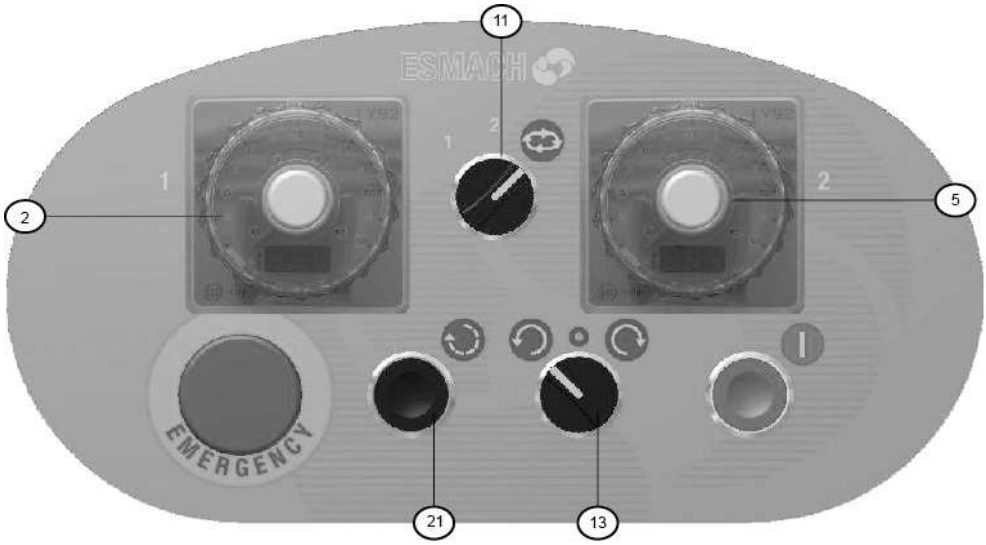
3.3.4 "AUTOMATIC" OPERATION MODE

E Version (ELECTRONIC CONTROLS)
To switch to AUTOMATIC operating mode, press the button (16) twice; the diplays (2) and (5) show "000" and "000".
Press the button (11) (the led (12) is on, then press again the button (9) until the number"0" is shown on the display (8).
Set the 1st speed operating time on the display (2): press the button (3) to increase it, the button (4) do decrease it.
Set the 2nd speed operating time on the display (5): press the button (6) to increase it, the button (7) do decrease it.
To start the machine, press the button (15). The time on the display (2) decreases progressively; when it reaches the 0 (zero), the machine switches automatically to the 2nd speed and starts decreasing the time on the display (5).
To switch to the 2nd speed before the elapsing of the time set for the 1st speed, it is necessary to set to zero the count on the display (2) in pressing the button(4); this shall be possible if the machine has already operated at 1st speed for the minimum time foreseen for the default (2 minutes or 2 seconds, depending on the type of cover the machine is equipped with, i.e. grid or full cover).
To stop the machine keeping in storage the elapsed time, press the button (16) once, to re-start press the button (15) (the count of time starts again from the point it was interrupted).
To stop the machine and set to zero the operating time already elapsed, press the button (16) twice; the time set at the beginning will appear again on the displays (2) and (5)



M Version (ELECTROMECHANICAL CONTROLS)
To let the machine operate according to the time set on the timers (2) and (5) , through the automatic switching from the 1st to the 2nd speed, take the selector (11) in position , once the time set for the 1st speed has elapsed and without prejudice to the minimum operating time at 1st speed (2 minutes or 2 seconds, depending on the type of cover the machine is equipped with, i.e. grid or full cover).
To set the time on the timers (2) and (5), turn the front disc until the red indicator coincides with the slot referring to the time needed.

Through the selector (13), it is possible to reverse the rotation direction of the bowl or to stop it (the models SPI 30 and SPI 45 are not equipped with the device (13) and the device (21)).

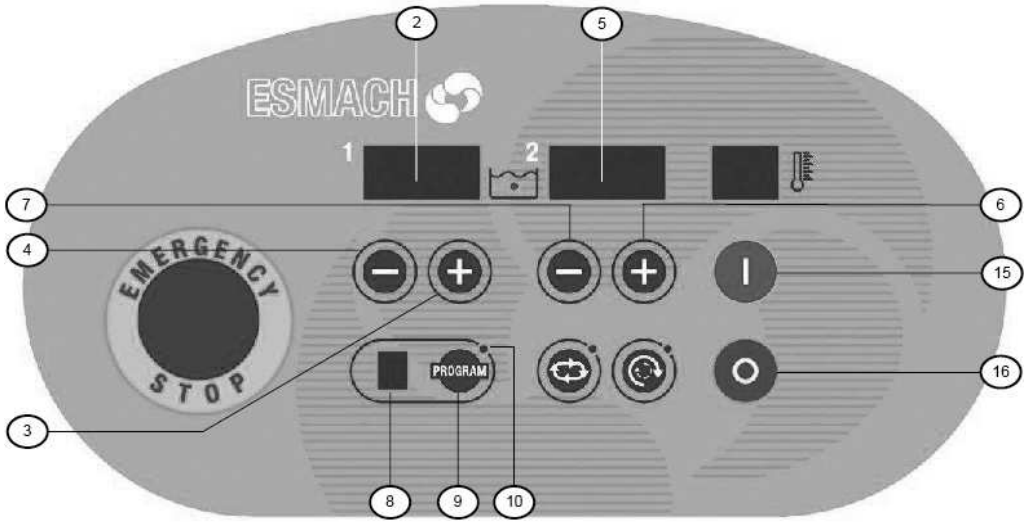


3.3.5 "E" VERSION MACHINE: WORKING CYCLE PROGRAMMING AND OTHER PARAMETERS

3.3.5.1 BASIC MACHINE: MIXTURE TIME PROGRAMMING

To select a program, press the button (9) more times, until on the display (9) the number of the program requested is shown. The program numbering is from "0" to "9", but only the programs from "0" to "9" are developed in such a way, that it is necessary to go on PROGRAMMING to modify the time stored; the program "0" (zero) keeps in storage the latest value, set up by the operator, through the AUTOMATIC operating mode.

As an example : if, after selecting the program “0”, the operator sets up 4 minutes for the 1st speed and 8 minutes for the 2nd speed, these times shall be stored in the program “0”; if later, while using the same program “0”, the operator sets up 3 minutes for the 1st speed and 6 minutes for the 2nd speed, these latter will be stored and next time the machine shall operate according to the latest times set up and stored, if no new times to set up are required.
For all the other programs from “1” to “9”, instead, the stored times remain unchanged; once the program has been loaded and should the operator have to change the time on the displays (2) and (5) (for ex.: because he realizes that the mixture needs different times at that moment), the times effectively stored in the program can be loaded again at the end of the cycle; it is possible to change the times by entering through the PROGRAMMING mode and acting as mentioned here below:
-select the number of the program needed by pressing repeatedly the button(9)
-keep the button (9) pressed for about 3 seconds: the display (8) starts blinking and the led(8) switches on
-set the 1st speed operating time on the display (2): press the buttons (3) to increase it, (4) to decrease it
-set the 2nd speed operating time on the display (5): press the buttons (6) to increase it, (7) to decrease it
To store the set up times in the selected program, press the button (9) for about 3 seconds: the display (8) stops blinking and the led (10) switches off.
To quit the program without storing the set up data, press the button (16)



At this time, after selecting the program concerned, by pressing the button (15), the machine shall carry out the mixture cycle observing the times stored for the two speeds through an automatic switching from the 1st to 2nd speed, once the time set up for the 1st speed has elapsed.
To switch to 2nd speed before the time given for the1st speed has elapsed, set to zero the count on the display (2) by pressing the button (4); this shall be possible however if the minimum time foreseen per default for the 1st speed (2 minutes or 2 seconds, depending on the type of cover the machine is equipped with, i.e. grid or full cover).
To stop the machine keeping in storage the elapsed time, press the button (16) once; to re-start press the button (15) (the count of time starts again from the point it had been interrupted).
To stop the machine and set to zero the operating time already elapsed, press the button (16) twice; the time set at the beginning will appear again on the displays (2) and (5).

3.3.5.2 MACHINES WITH MIXTURE TEMPERATURE MEASUREMENT SYSTEM

The temperature value measured is shown on the display (19); in the machines without any temperature measurement system of the mixture, the display (19) is not activated (not powered electrically).
The parameter P06 (see par. 3.3.5.6) allows to display the temperature in °C or °F.
While switching on, besides the functional control of the led, etc. C or F are also displayed in order to understand if the unit of measurement has been selected (i.e. Celsius or Fahrenheit grade).

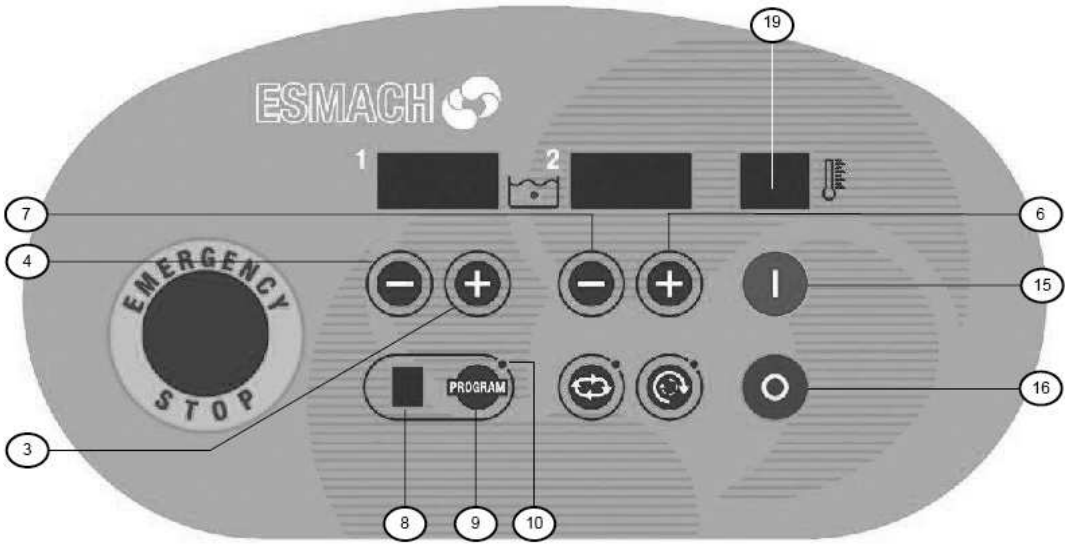
To measure the temperature of the mixture, the machine can be supplied complete with one of the following devices:
-PT100 “immersion” probe (par. 3.3.5.2.1)
-device for “infra-red” temperature measurement (par. 3.3.5.2.2)

3.3.5.2.1 MACHINE WITH PT100 “IMMERSION” PROBE

If the machine is equipped with this device, the temperature measurement of the mixture is not allowed while the machine is operating, because the dipping of the probe in the dough is to be carried out manually by the operator. If the machine is in motion, the operator would not only be able to measure the temperature but he would incur in the risk of being exposed to impacts or injuried if the probe were involved in the rotation from the mixture. It not possible to associate a stop of the cycle after achieving a certain temperature, as the machine stands still when the temperature is measured.
The probe can be dipped in the dough after stopping the machine only; this operation has to be carried out when the bowl cover is open (do not measure any temperature in introducing the probe through the opening used to take a sample of dough : this operation is not only uncomfortable but also dangerous in case of an accidental start given to the machine and with the probe dipped in the dough).
Do not press any key on the control panel when the probe is dipped in the dough inside the bowl.
The temperature value measured is shown on the display(19).

3.3.5.2.2 MACHINE WITH “INFRA-RED” MEASUREMENT DEVICE

In this case the temperature measurement does not require any direct operation of the operator (the device is permanently installed under the head of the machine and executes its function without interruption).
According to the value assigned to parameter P07 (see 3.3.5.6) the following alternatives are possible:
P07 = 0 ⇨ check the mixture temperature without stopping the cyle; if the temperature value measured exceeds the value set up, an acoustic alarm is activated through flashing and the display (19) blinks showing the value of the temperature every 4 seconds.
P07 = 1 ⇨ if the temperature value measured exceeds the value set up, this is detected through the activation of a flashing acoustic alarm; the system controls the stop of the ongoing cycle and the display (19) blinks showing the value of the temperature every 4 seconds. The operator can allow the cycle to proceed by pressing the button START (15) or cancelling it by pressing the button STOP (16).
P07 = 2 ⇨ the value of the temperature measured is displayed only (flashing) without any further effect.
IMPORTANT REMARK: the acoustic alarm is activated the first time only when the temperature measured exceeds the value set up in the program; for later exceedings, no acoustic alarm is activated. In MANUAL operating mode, the temperature is shown on the display (19) only and no value can be set up for it.

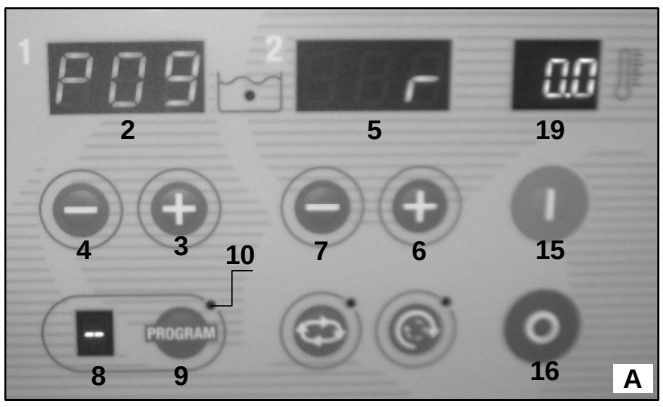


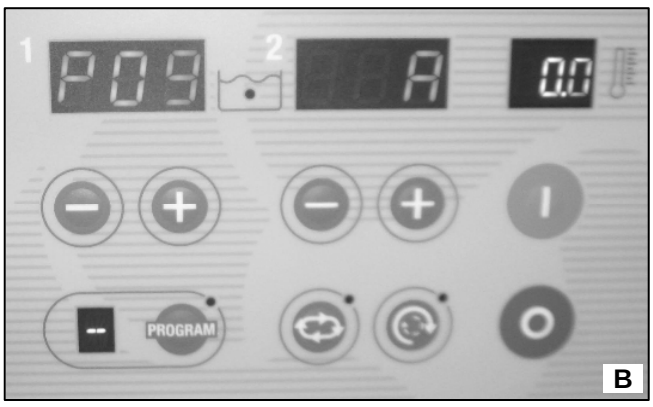
3.3.5.2.2.1 HOW TO SET UP THE TEMPERATURE VALUE IN A PROGRAM

For each program (from 0 to 9) a different temperature value can be set, but in the range between 0 °C and 65 ℃ (32 ℉ and 149 ℉). To set and store the temp erature value in a program, proceed as follows:
-press repeatedly the button (9) until the program required is shown on the display (8)
-press the key **PROGRAM (9**) for about 3 seconds and keep it pressed until the led (10) switches on and the display (8) starts blinking.
-press again the key (9) (the display (19) blinks); set the temperature through the keys (3),(4),(6),(7)
-if the machine has no ingredient dispenser systems, by pressing the key (9) for 3 seconds, it is possible to go out from **PROGRAMMING** (the led (10) switches off and the display (8)stops blinking), and the data are saved; otherwise switch to the programming of the 1°dispenser (par. 3.3.5.3)
If the set up temperature value has been exceeded, this may depend on the following :
a)machine not in operation: the display (19) blinks, showing the value of the temperature every 4 seconds
b)machine in operation: the display (19) blinks, as in case a), and (only the first time when the temperature value set exceeds, then no more) the acoustic alarm is activated for a time of 10 seconds.
The warning time is set up through the parameter P05 (see par. 3.3.5.6)

3.3.5.3 INGREDIENT DISPENSER (D1 – D2 DISPENSER)

The machine is equipped with one or two dispensers; or it may be without any dispenser according to the contractual agreement.
It is possible to program the delay time for each D1 and/or D2 dispenser, through which the ingredients to distribute are to be added after the START or the advance time through which the beginning of the ingredient addition is possible compared to the scheduled end of the cycle. The distribution occurs when the machine is operating only, independent from the ongoing operation step, but it does not happen if the machine is in STOP mode.
If the distribution has begun and the STOP button (16) is pressed or the bowl cover is lifted, the ongoing distribution shall be completed.
The distribution time has to be always lower than the entire time of the cycle, i.e. than the sum of 1st e 2nd speed mixture time ; in the case a higher time is set up (and this is wrong!), while programming, the display (2) shows ERR 009, the display (5) shows “d1” or “d2” depending of the dispenser concerned; it shall be impossible to go out from **PROGRAMMING.**
For each program (from 0 to 9) it is possible to schedule different dispenser times:
-keep the key (9) pressed for about 3 seconds until the led (10) switches on and the display (8) starts flashing
- press the key (9) until the display (19) shows a flashing “d1”; through the keys (3),84),(6),(7) (- decrease + increase), set up the time needed (advance or delay depending on how the parameter P09 has been set up).
If the machine is equipped with one D1 dispenser only, by pressing the key (9) for 3 seconds, it is possible to go out from the **PROGRAMMING** and the data set are saved. Instead, if the machine is equipped with a second dispenser, it is possible to switch to D2 dispenser programming, and this scheduling will follow the same operation mode as described per D1 dispenser.
The choice of the “delay” time (select “r”; see scheme below, Picture A) or “advance” time (select “A”, see scheme below, Picture B) to begin the ingredient dosage is made in setting the parameter P09 for D1 dispenser and parameter P11 for D2 dispenser; for the two both the pre-set data is “delay”.





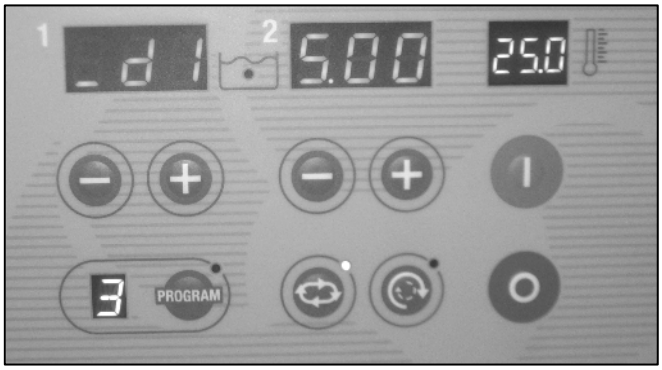
To modify the parameter P09 or P11, go to the user's menu (see par. 3.3.5.6)
When the display (2) shows:
"_ d1" the parameter P09 is set up on "r" (see example below)
"_ d2" the parameter P11 is set up on "r".

"d1_" the parameter P09 is set up on "A".
"d2_" the parameter P11 is set up on "A".

where: r = delay of distribution beginning compared to start
A = advance of distribution beginning compared to the end of the cycle scheduled

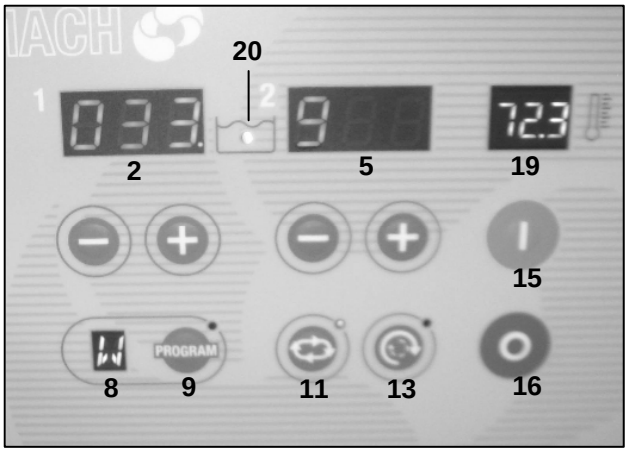
During the ingredient distribution, the acoustic alarm shall be activated for 5 seconds and the display (2) shows "_d1" or "_d2" in an intermittent way

In the example shown below, the setting for D1 dispenser is the following:
« 5 minutes delay to start the ingredient dosage compared to the cycle start command ».



3.3.5.4 WATER DISPENSER

Check that the water pipe taps are running. To reach the water dispenser program, press the button (11) the bowl cover has to be taken down), until the display (8) shows the letter "W".
If no button is pressed after "W" displaying, the program of the previous mixture appears automatically after 30 seconds.
If after selecting the "W" program, the button +/- or the button (13) is pressed, the "W" mode remains activated.
To go out from "W" selection, press the button (11), the system turns to the MANUAL program "**-**"



When the "W" program is selected, the blue led (20) between the two displays (2) and (5) switches on.
The display (2) shows the number of litres to pour into the bowl and to set up through the keys (3) and (4).
The display (5) shows the number of deciliters to pour into the bowl and to set up through the keys (6) and (7).
To adjust the water temperature to put into the bowl, turn the mixing handle control at the side of the machine (see picture 12, page 15) and at the same time keep the button pressed (13) (a by-pass valve shall be activated allowing the water drainage outside the bowl) until the value of the temperature is shown on the display (19); in turning the handle control clockwise, the water temperature decreases; it increases in counter-clockwise direction.
To start the water dosage, press the button (15) start.
The display (5) shows the value of the decilitres and the display (2) the value of the litres decreasing progressively.
By pressing the button (16) stop, the water flow to the bowl is interrupted and the displays (2) and (5) blink.
By pressing the button (15) start, the water flow re-start from the point it had been suspended

By pressing the button (16) twice, the water supply is set to zero, the displays (2) and (5) show the initial values again.
When the water dosage is completed, the system switches to the previous mixture program automatically (automatic from 0 to 9).
The values of litres and decilitres remain set up even if you switch from the mixture program and then you come back to "W" program.

IMPORTANT NOTICE!

If during the dispenser, the voltage is lacking/missing, the count of the litres remains stored; when the tension is re-established, the display (2) and (5) blink.
Press the button (15) to complete the dosage cycle, in this case take into account that the water temperature might have changed considerably, **or press the button (16) to terminate it**.

In dispenser mode, each output signal is deactivated for the operating of the bowl and spiral arm, which remain still.
The parameter P12 (see par. 3.3.5.6) allows to set the max.value of litres to supply for each water dosage cycle; this parameter is adjusted according to the bowl capacity (see table and picture below)

MACHINE	LITRE MAX. VALUE TO SET FOR PARAMETER P12
SPI 60 E	60
SPI 80 E	80
SPI 100 E	100
SPI 130 E	130
SPI 160 E	160
SPI 200 E	200

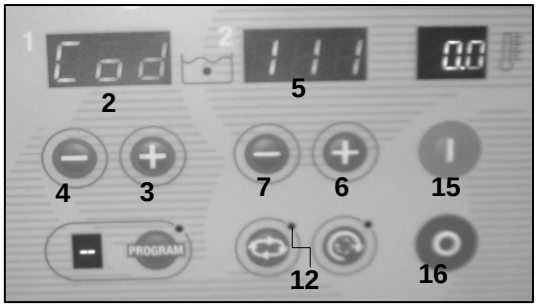
3.3.5.5 ("E " VERSION ONLY) PROGRAMMING STEPS SUMMING UP

In presence of the machine with infra-red temperature probe, D1 and D2 dispenser, the following setting parameter sequence is given when the system is in programming mode:
-**no. of programs**: through the button (9) choose the number of the program needed (from 0 to 9) on the display (8):
Set the the 1st and 2nd speed operating time on (2) and (5) through the keys -/+ concerned
- mixture temperature: press (9) (the display (8) blinks), and then set up the temperature value needed through the keys -/+
- **D1 dispenser**: press (9) (the display (2) shows "_d1"), then set up the dosage time for D1 on the display (5) through the keys -/+ concerned .
- **D2 dispenser**: press (9) (the display (2) shows "_d2"), then set up the dosage time for D2 on the display (5) through the keys -/+ concerned

3.3.5.6 USER'S PARAMETERS PROGRAMMING – CODE NO. 111

To reach the configuration "parameters set up" mentioned here below, do not press the emergency button (17), the led (12) is to be off and the machine not in operation.
On displays (2) and (5) the following "ooo" and "ooo" are to be shown.
Press and keep pressed at the same time the keys -/+ (3) - (4) - (6) - (7) for 4 seconds.
The display (2) shows "Cod" and the display (5) shows "000"

Through the keys +/- (3) and (4) set up on (5) the number 111; confirm it through the keys (15) (see picture by side).
The display (2) shows the number of the parameter P01.
Through the keys +/- (6) e (7), the parameter is activated (ON) or deactivated (OFF) or the value it to set up.
Through the keys +/- (3) and (4) the number of the parameter is changed progressively from P01 to P19.
After the parameter set up, press the keys (16) to store the set up carried out and go out.



USER'S PARAMETER LIST

	Parameter Description	Options			
		OFF Min	ON Max	Default	Remarks
P01	Bowl reverse exclusion			ON	Set by ESMACH S.p.A. a OFF for SPI30 and SPI45
				ON	For SPI 60-80-100-130-160-200
P02	Alarm activated			ON	
P03	Bowl rotation direction for unload (through lift only)			LH normal direction	
P04	Activate sign from to 1st to 2nd speed			OFF	
P05	Acoustic alarm operating time to signalize: - switching from 1a to 2a speed(only if P04 = ON) - exceeding of temperature set up (for infra-red probe machine only)	2	20	10	
P06	Temperature scale °C or °F	C	F	C	
P07	Infra-red temperature measurement probe usage mode	0	2	2	If this type of probe is present, the options are: **0** = mixture temperature control without stopping the cycle. Intermittent acoustic alarm if the temperature set up exceeds. **1** = cycle stop through intermittent acoustic alarm while exceeding the temperature set up. The operator proceeds with the cycle by pressing the key (15) or terminates the cycle by pressing the key (16). **2** = Display of the measured temperature only.

… continue

P08	D1 dispenser time (seconds)	2	120	30	
P09	D1 dispenser mode	Advance	Delay	Delay	Default value "delay from the initial START " (see Remark)
P10	D2 dispenser time (seconds)	2	120	30	
P11	D2 dispenser mode	Advance	Delay	Delay	Default value "delay from the initial START " (see Remark)
P12	Litre dispenser max. limit	1	999	150	Set the value according to the mixture capacity of the machine (see par.3.3.5.4)
P13	Acoustic alarm activation time (seconds) for D1 or D2 dispenser	0 sec	30 sec	5 sec	If = 0 loads the values of P08 or P10 If > 0 loads the value set on P13 for both D1 and D2.
P14				- - -	
P15				- - -	
P16				- - -	
P17				- - -	
P18				- - -	
P19				- - -	

Remark.
Delay = the distribution begins once the dispenser time set up has elapsed after the start
Advance = the distribution begins when the dispenser time set up is missing to reach the end of the cycle

3.4 MIXTURE PRODUCTION CYCLE

1. Select the **AUTOMATIC** or **MANUAL** operation mode through the button (11) for E version, through the selector (11) for M version.
2. If the **AUTOMATIC** mode is selected, set up the working time on the 1st (2) and 2nd speed (5) timers.
3. Put all initial ingredients into the bowl and then close the bowl cover.
   IMPORTANT NOTICE! Do not introduce into the bowl any quantity of ingredients exceeding the capacity given by the Manufacturer in the present manual; otherwise this might cause severe damage to the machine and in particular to the motion transmission system.
   The manufacturer will be not responsible for any reasons and for any eventual damages caused from a non-observance of the instructions given in the same.
4. Close the main power switch (18) Picture 4, and put it in position **ON - I**
5. If the machine is an E version, load the working program needed, after setting up again and storing the working parameters.
6. Press the button **START** (15) (the rotation direction of the bowl and spiral arm have to be already checked and eventually adjusted); the machine shall operate however at 1st speed for the minimum time foreseen (2 seconds or 2 minutes depending on the type of cover the machine is equipped with, i.e. full or grid cover respectively). If during the ongoing cycle the cover is being lifted, the residual cycle time remains stored while stopping the cycle. To re-start the cycle from its interruption, take down the cover and press the button **START** (15). If during the ongoing cycle the emergency button (17) is pressed, the machine stops and the timers return to the initial values.
7. After completing the cycle, lift the cover and remove the dough produced; to facilitate this operation it is possible to let the bowl rotate with its cover lifted (allowing to take the dough in the best position for the operator) by pressing the button (13) (E Version) or the button (21) (M Version, except for Models no. SPI 30 M and SPI 45 M); by releasing the button (13) or (21) the bowl stops.
8. After using the machine, open the main power switch (18) Picture 4 and put it in position **OFF - O**; in case of long stop, provide an accurate cleaning of the machine (par.4.8)

3.5 OPERATORS' THEORETICAL AND PRACTICAL TRAINING TO THE MACHINE USE

As often told in the present manual, the company employer has to provide adequate information, theoretical and practical training to the operators about a safe and correct use of the machine (they have to be simple and easy to understand and related to the perspicacity expected from the people concerned).
In the following table a list of the minimum topics is given on which to focus the information, the theoretical and practical training; for further information read the following definitions:

information: transfer of news, knowledge etc. without any learning test

theoretical training: transfer of news, knowledge, etc., on particular and specific topics through a comprehension test regarding the subjects examined, but without any practical demonstration

practical training: transfer of news, knowledge etc. with practical demonstration of application on particular and specific topics and with comprehension test through practical application of case study

Topic	Information	Theorical Training	Practical Training	Chapter/Paragraph
Dangers and risks related to the machine.	X			5.2 - 5.2.1
Machine limits and destination for use. Use allowance and prohibition	X			2.1
Use of the control panel. Programming. Machine stop mode	X	X	X	2.2 – 0 - 3.2.2 3.3 - 0
Possible anomaly and eventual remedy. Error/ Failure code on display	X			4.9
Machine handling	X		X	3.2
Use of the mixture temperature measurement "immersion" probe	X		X	3.3.1 - 3.3.5.2.1
Aim and correct use of the opening on the bowl cover to a manual extraction of dough samples	X	X		3.3.1
How to load the flour into the bowl			X	3.3.1
Maintenance and cleaning operations	X	X	X	4
Use of IPD		X	X	3.3.1 - 4
Residual risks and measures related to in order to limit them	X	X		3.3.1 - 4.6 5.2.4 - 5.2.5
Noise from the machine	X			5.2.6
Risks related to ergonomic factors	X			3.3.1 5.2.4
Risks related to flour dust	X			4.6 - 5.2.4
Safety device outfit and control of their efficiency			X	5.2.2 - 5.2.3
Safety warning signs	X	X		5.2.3

4 MAINTENANCE

4.1 PREAMBLE

If not otherwise specified, each maintenance operation described herewith is to be considered routine maintenance; any maintenance service, not mentioned in this manual, has to be considered unpredictable maintenance (for the definitions related to routine and unpredictable maintenance see par. 1.4). In case of doubt, please contact ESMACH S.p.A.

ATTENTION!

Unless otherwise specified, **every maintenance work is to be carried out** only after :

- **pressing the emercency button (17)** Picture 2
- **disconneting the main power switch** (18) Picture 4
- **removing the plug (**Picture 11**) from the electrical socket**; after the plug removal**,** the plug has to remain visible so that everybody can check the absence of mains supply to the machine and avoid any machine part or machine parts start by others.

Should it be necessary to remove a protection guard or deactivate a safety device, take all measures concerned to avoid any risks to thirds (i.e. delimit the operation zone through red-white chains and display warning signs of the risks for ongoing work); any protection guard is to be remounted and fixed by means of the fixation tools concerned; each safety device reactivated as soon as the reasons for their temporary removal/deactivation are ceased.

Whoever is a direct or indirect cause of damage to people, animals and things - owing to a non-observance of the instructions given in the present manual and/or improper or, however, non-conforming use of the machine- will take full responsability upon himself.

4.2 MAINTENANCE AND PERIODIC CONTROLS

Before starting any operation, carry out all safety measures as per par. 4.1.

- At the end of the day or work shift, carry out an accurate **cleaning of the machine** (par. **Errore. L'origine riferimento non è stata trovata.**)
- At the beginning of each day or work day, ensure **the efficiency of the guards and the safety devices** in carrying out the controls described as per par.5.2.3.

4.3 ADJUSTMENT OF THE MOTION TRANSMISSION BELTS TENSION

Keep a Phillips and flat head screwdriver set and a set of hexagon wrenches at disposal.

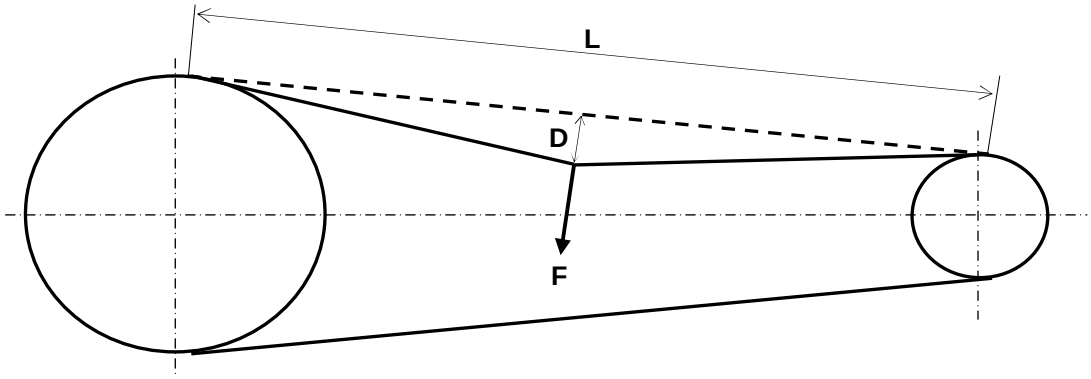
4.3.1 HOW TO VERIFY THE CORRECT BELT TENSION

Check regularly the belt tension in the first 24/48 working hours (running in).
The belt tension is to be adjusted every time an irregular or difficult motion (this is the sign that the belt is slipping) in the rotation of the operating gears (bowl and spiral arm) is remarked.
With reference to Picture 13, to check if the belt tension is correct, proceed as follows:

a) Measure the length of the free stretch **L**, the value of which is shown in the sub-paragraphs concerned below
b) In the centre of the free stretch **L** and perpendicularly to the same, the force **F** necessary to bend the belt as per value **D**, shown in the sub-paragraphs below, is equal to 1 mm every 100 mm of L (for ex.: for a free stretch of 500 mm, D = 5 mm); to check the flexion use a graph reference
c) The belt tension is correct if the force **F** applied to get a D flexion is between the values shown in the different sub-paragraphs; to measure the force use a dynamometer or a tensiometer (this latter normally is equipped with a reading system of D measure), both are easily available on the market. For a better comprehension of the force data, remind that 9.81 [N] = 1 kg

IMPORTANT NOTICE!

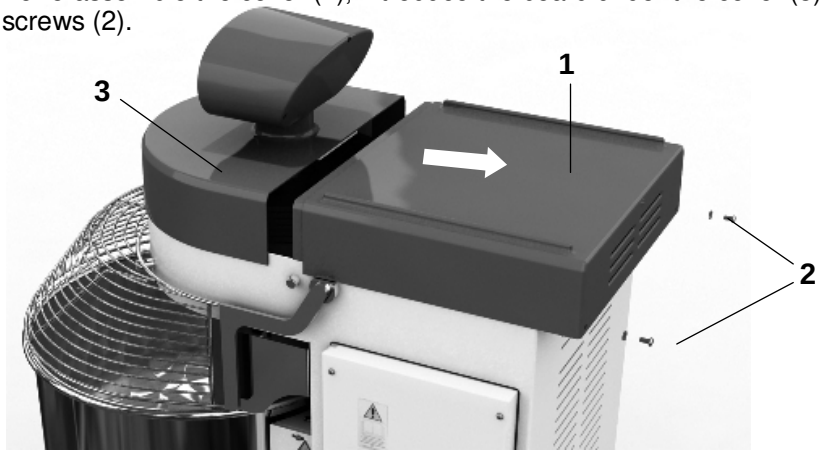
A too tensioned belt is destinated to wear out quickly; if , instead, it is too loosen it does not carrry out the function requested and does not transmit any motion.

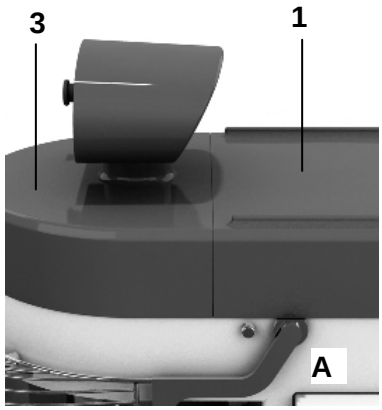


Picture 13 – Correct Belt Tensioning

4.3.2 HOW TO REACH THE SPIRAL AND BOWL TRANSMISSION BELTS AND THEIR TENSION ADJUSTMENT SYSTEMS

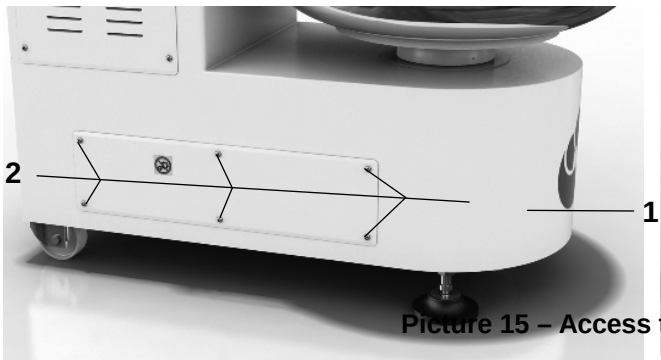
With reference to Picture 14, **to reach the spiral transmission belts,** disassemble the head cover (1) as follows : unscrew the 2 screws (2) and remove the cover from the carter (3).
To re-assemble the cover (1), introduce the board under the cover (3) (see Picture A), and fix it by using the screws (2).

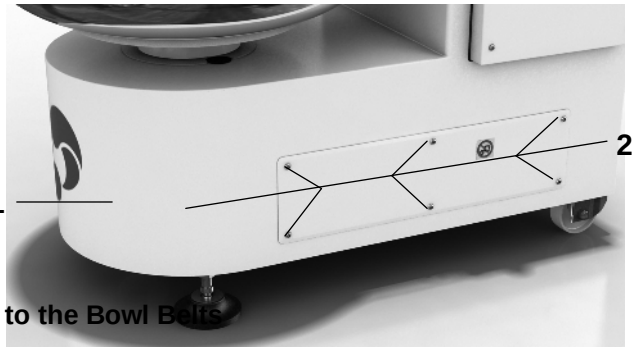




Picture 14 – Access to the Spiral Belts

With reference toPicture 15, **to reach the bowl transmission belts,** disassemble the carters (1); in some models these covers are in number of two for each side of the machine: unscrew the screws (2) (they do not release from the carter). In re-assembling the carters (1) fix them by using the screws (2).



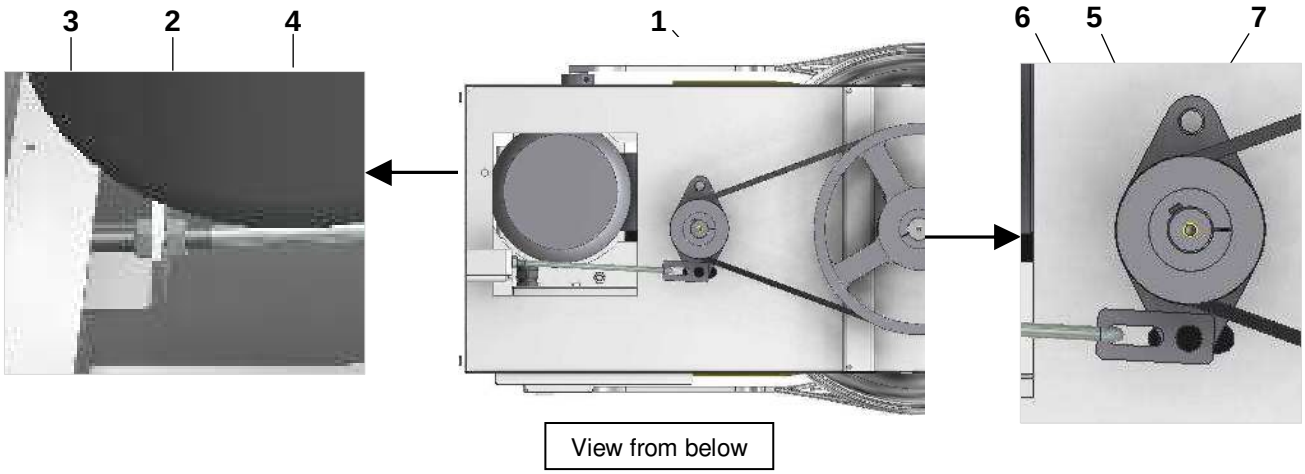


Picture 15 – Access to the Bowl Belts

4.3.3 MIXERS - MOD. 30 - 45

4.3.3.1 BOWL BELTS TENSION ADJUSTMENT

With reference to Picture 16 to adjust the belt tension (1), loosen the nut (2) and turn the nut (3) (by using suitable allen wrenches): the rod (4) moves the support (5) of the pulley (6), which can rotate on the pin (7), in changing the belt tension (1). After completing the adjustment, tighten the nut (2).
With reference to par. 4.3.1, p.ti a) – b) – c): **L** = 314 mm **D** = 3.1 mm 11 [N] < **F** < 16 [N]
IMPORTANT REMARK! The adjustment of the bowl belts(1) could involve the adjustment of the spiral tension as well; in this case follow the instructions as per par.4.3.3.2.



Picture 16 – Bowl Belts Tension Adjustment (for Mod. 30 - 45)

4.3.3.2 SPIRAL BELTS TENSION ADJUSTMENT

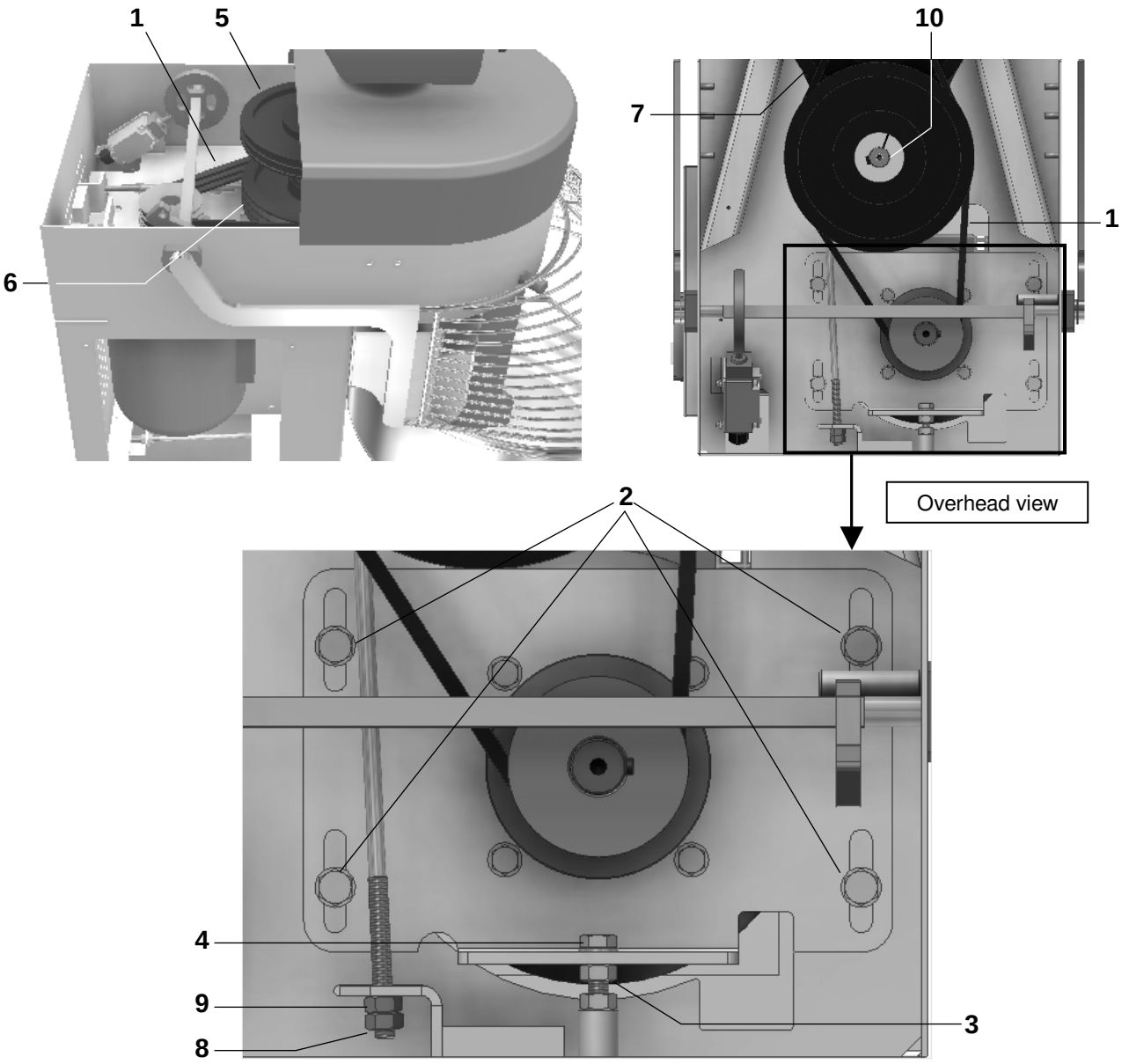
With reference to Picture Picture 17:

A. <u>To adjust the belts tension (1)</u>
- loosen the four screws (2)
- loosen the nut (3)
- turn the screw (4) until the correct belts tension is achieved (1); the pulleys (5) and (6) remain still and so the belts (7) tension does not change
- tighten the nut (3) and the screws (2)

With reference to par. 4.3.1 p.ti a) – b) – c): **L** = 209 mm **D** = 2.1 mm 11 [N] < **F** < 16 [N]

B. <u>To adjust the belts tension (7)</u>
- loosen the nut (2) Picture 16
- loosen the nut (8) Picture 17
- turn the nut (9) until the correct belts tension is achieved (7); similarly follow the same adjustment described in par. 4.3.3.1 so that the shaft (10) has no flexion whichmay be dangerous
- tighten the stop nut (8) and the nut (2) **Errore. L'origine riferimento non è stata trovata.**
- check and eventually adjust the belts tension (1) according to the instructions given at point **Errore. L'origine riferimento non è stata trovata.**
- tighten the nut (3) and the screws (2)

With reference to par. 4.3.1 items a) – b) – c): **Errore. L'origine riferimento non è stata trovata.** **L** = 155 mm **D** = 1.6 mm 10 [N] < **F** < 15 [N]

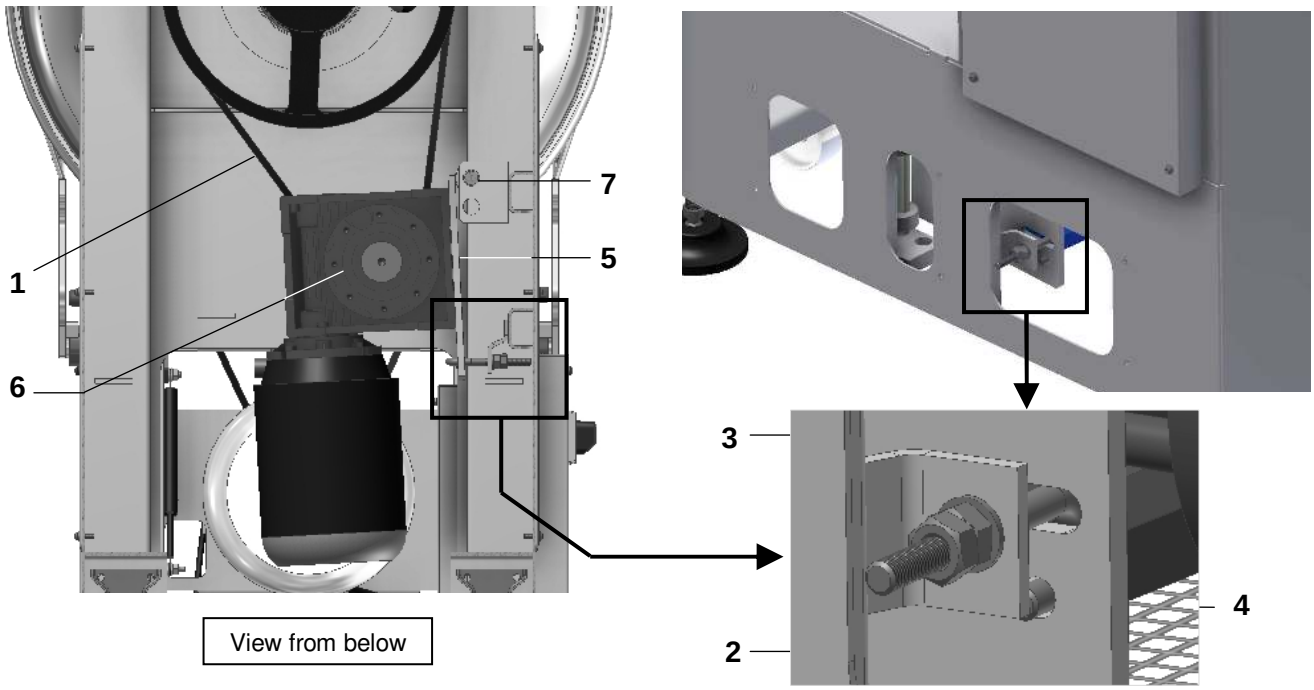


Picture 17 – Spiral Belts Tension Adjustment (for Mod. 30 - 45)

4.3.4 MIXERS - MOD. 60 - 80 - 100

4.3.4.1 BOWL BELTS TENSION ADJUSTMENT

With reference to Picture 18, to adjust the belts tension (1), loosen the nut (2) and turn the nut (3): the rod (4) moves the support plate (5) of the geared motor (6) on the shaft of which an engine pulley is mounted, plate which can rotate on the pin (7), changing the belts tension (1).
After completing the adjustment, tighten the nut (2).
With reference to par. 4.3.1, items a) – b) – c): **L** = 329 mm **D** = 3.3 mm 11 [N] < **F** < 16 [N]

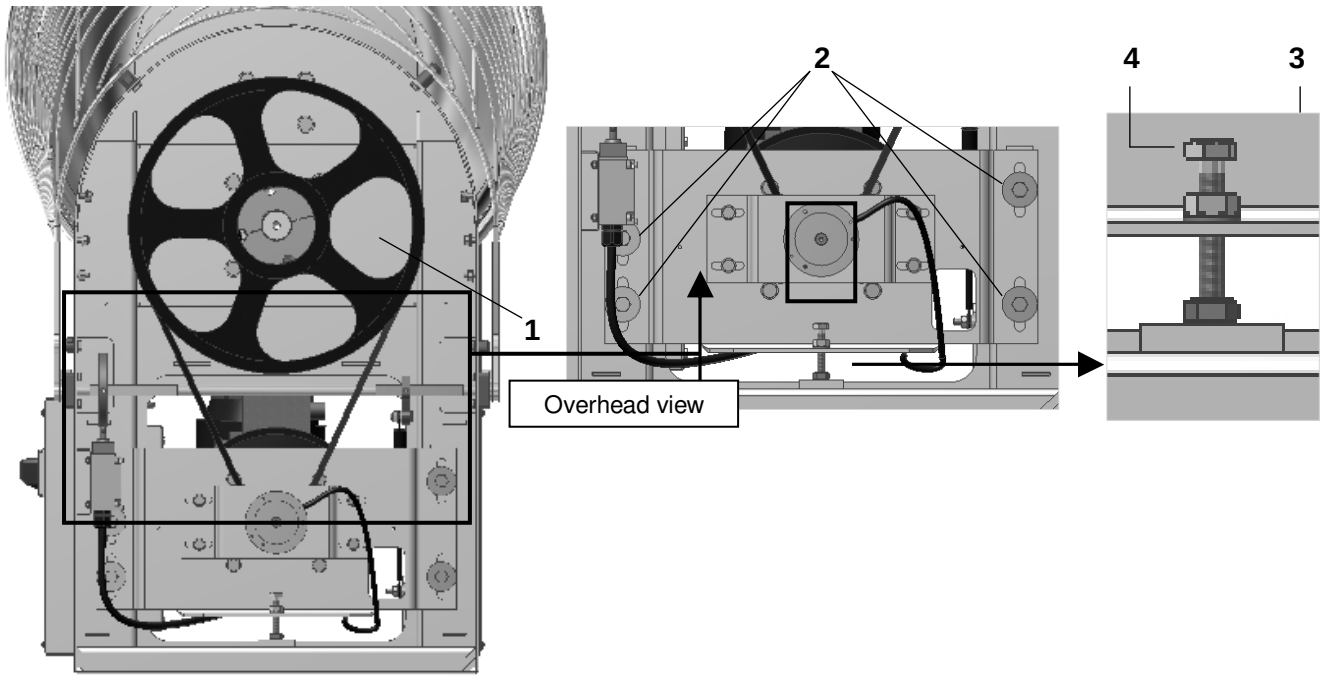


Picture 18 – Bowl Belts tension Adjustment (for Mod. 60 - 80 - 100)

4.3.4.2 SPIRAL BELTS TENSION ADJUSTMENT

With reference toPicture 19, to adjust the belts tension (1):
- loosen the four screws (2)
- loosen the nut (3)
- turn the screw (4) until the correct belts tension is achieved (1)
- tighten the nut (3) and the screws (2)

With reference to par.4.3.1. items a) – b) – c): **L** = 366 mm **D** = 3.7 mm 7 [N] < **F** < 11 [N]



Picture 19 – Spiral Belts Tension Adjustment (for Mod. 60 - 80 - 100)

4.3.5 MIXERS - MOD. 130 - 160 - 200

4.3.5.1 BOWL BELTS TENSION ADJUSTMENT

With reference to: Picture 15

A. <u>To adjust the belts tensions (1)</u>

- tighten the nut (2)
- turn the nut (3) until the correct belts tension is achieved (1)
- tighten the stop nut (2)
- check and eventually adjust the belts tension (4) as described in item **Errore. L'origine riferimento non è stata trovata.**

With reference to par. par.4.3.1. items a) – b) – c): **L** = 412 mm **D** = 4.1 mm 7 [N] < **F** < 11 [N]

B. <u>To adjust the belts tension (4)</u>

- tighten the nut (5)
- turn the nut (6) until the correct belts tension is achieved (4)
- tighten the stop nut (5)

With reference to par. par.4.3.1. items a) – b) – c): **L** = 235 mm **D** = 2.4 mm 7 [N] < **F** < 11 [N]

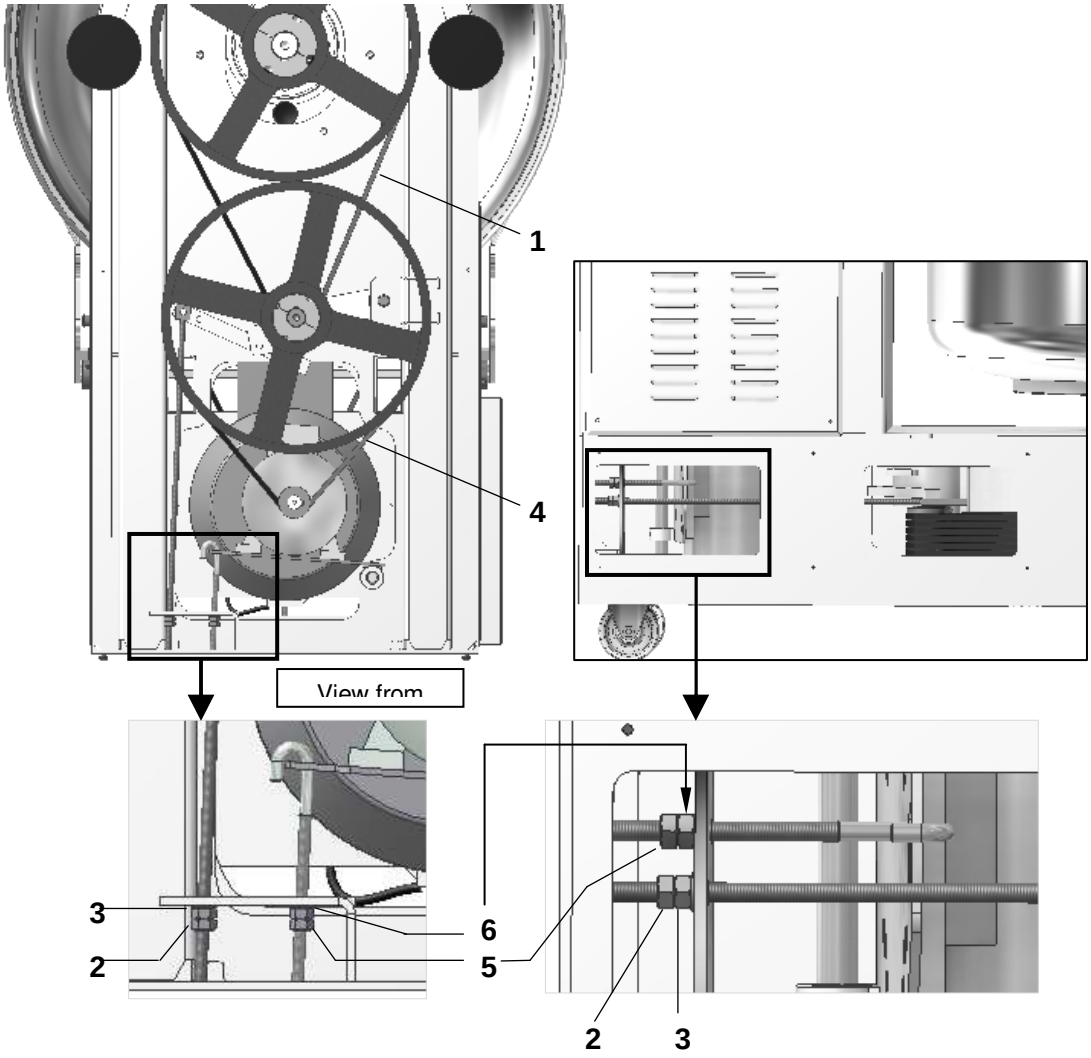
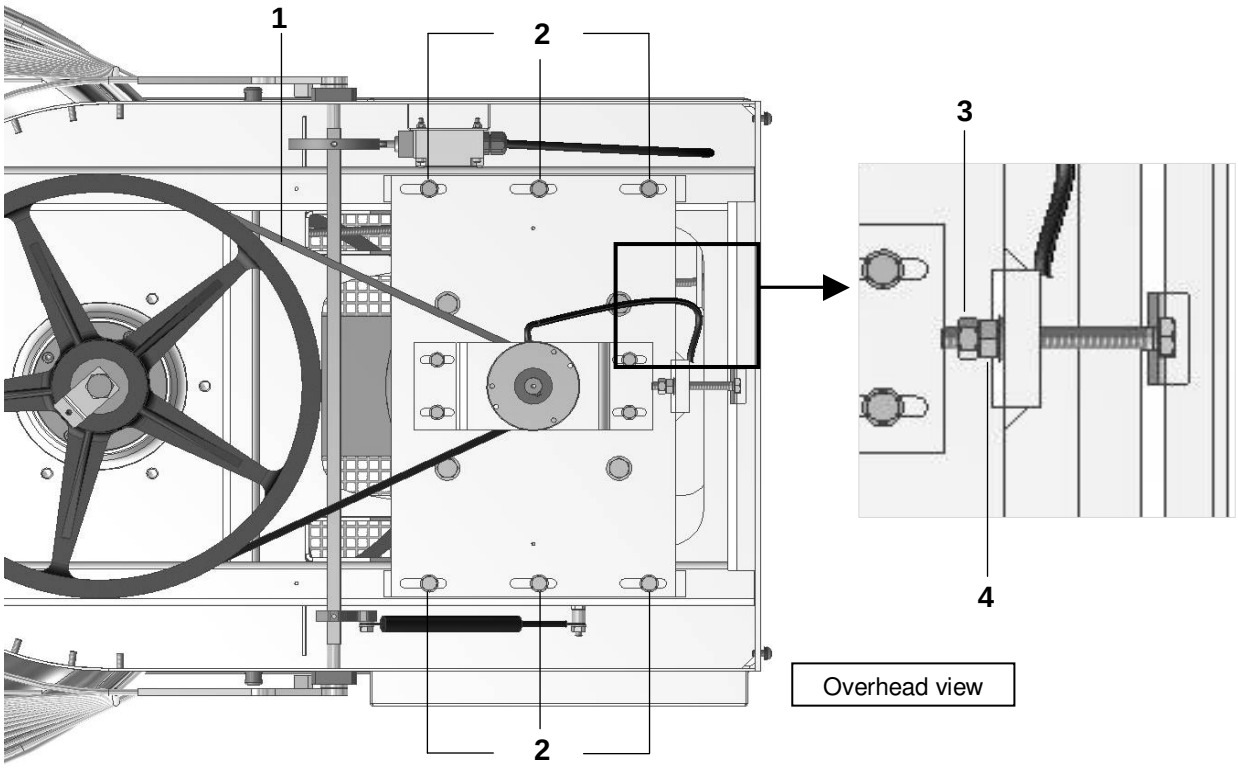


Figura 20 – Bowl Belts Tension Adjustment (for Mod. 130 - 160 - 200)

4.3.5.2 SPIRAL BELTS TENSION ADJUSTMENT

With reference to Picture 21, to adjust the belts tension (1)
- looosen the six screws (2)
- loosen the nut (3)
- turn the screw (4) until the correct belt tension is achieved (1)
- tighten the nut (3) and the screws (2)

With reference to par. par.4.3.1. items a) – b) – c): **L** = 427 mm **D** = 4.3 mm 9 [N] < **F** < 14 [N]



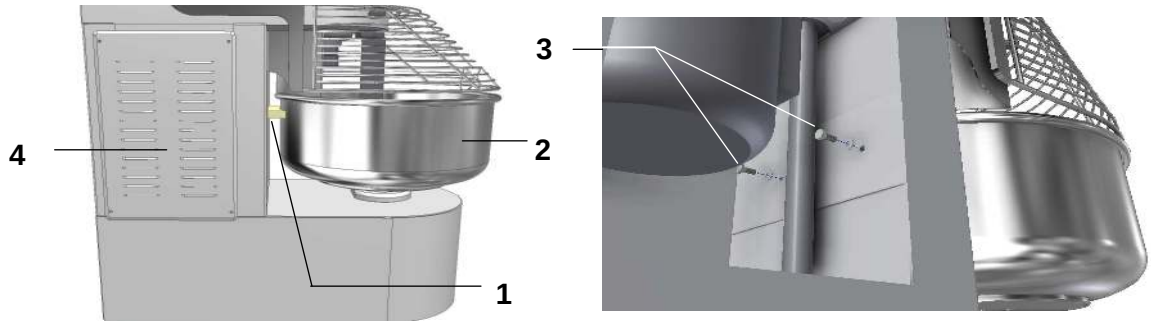
Picture 21 – Spiral Belts Tensions Adjustment (for Mod. 130 - 160 - 200)

4.4 BOWL PUSHER GROUP REPLACEMENT AND ADJUSTMENT

The bowl pusher groups are used to prevent any bowl deformation from the spiral push.

4.4.1 MIXERS - MOD. 30 - 45

With reference toPicture 22, the bowl pusher group (1) is unique and composed of a plastic properly shaped material group according to the external diameter of the bowl (2); it is fixed and held in position by means of two screws (3), and washers concerned; to reach them, the cover concerned (4) at the side of the machine column is to be removed.



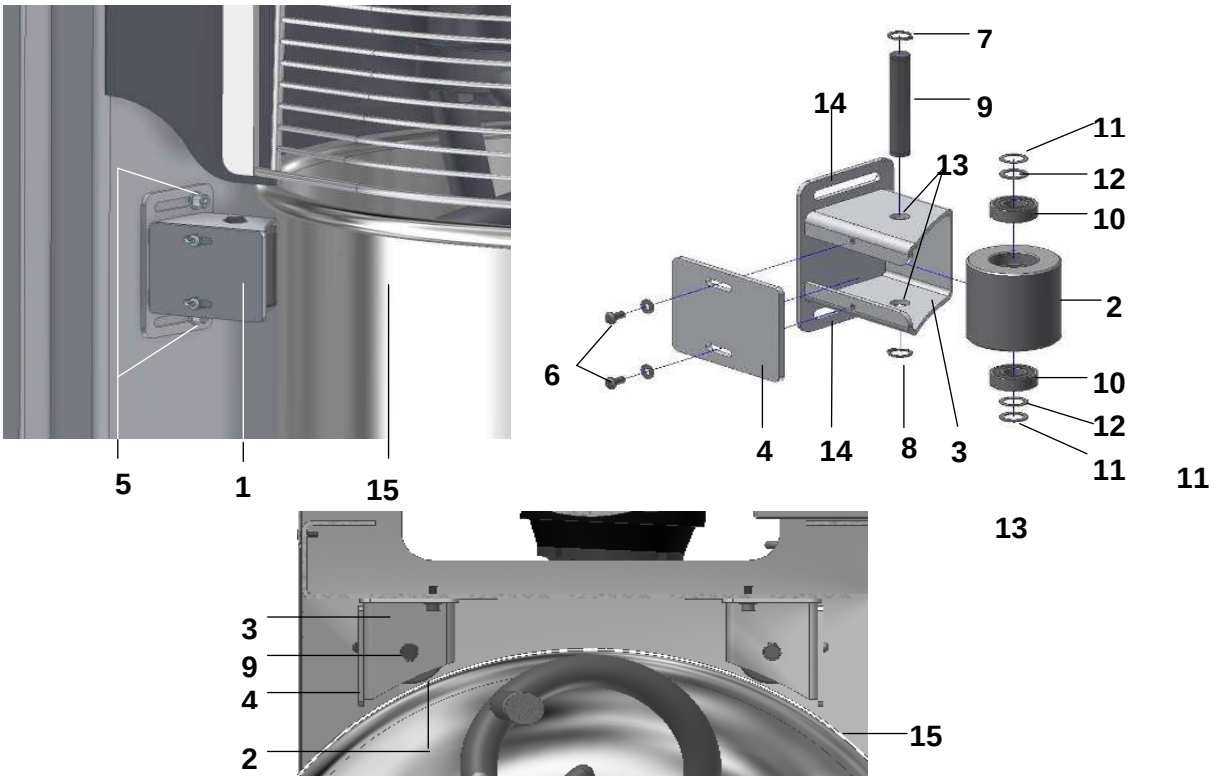
Picture 22 – Bowl Pusher (for Mod. 30 - 45)

4.4.2 MIXERS - MOD. 60 - 80 - 100 - 130 - 160 - 200

With reference to Picture 23, the two bowl pusher groups (1), for one of which the exploded component drawing is given, are composed of rollers (2)and support concerned (3) and covers (4). Usually it is not necessary to replace the entire group, but the roller only (2) (supplied by Esmach S.p.A. complete with bearings (10) already assembled) when an excessive wear or blocked bearing makes it useless :

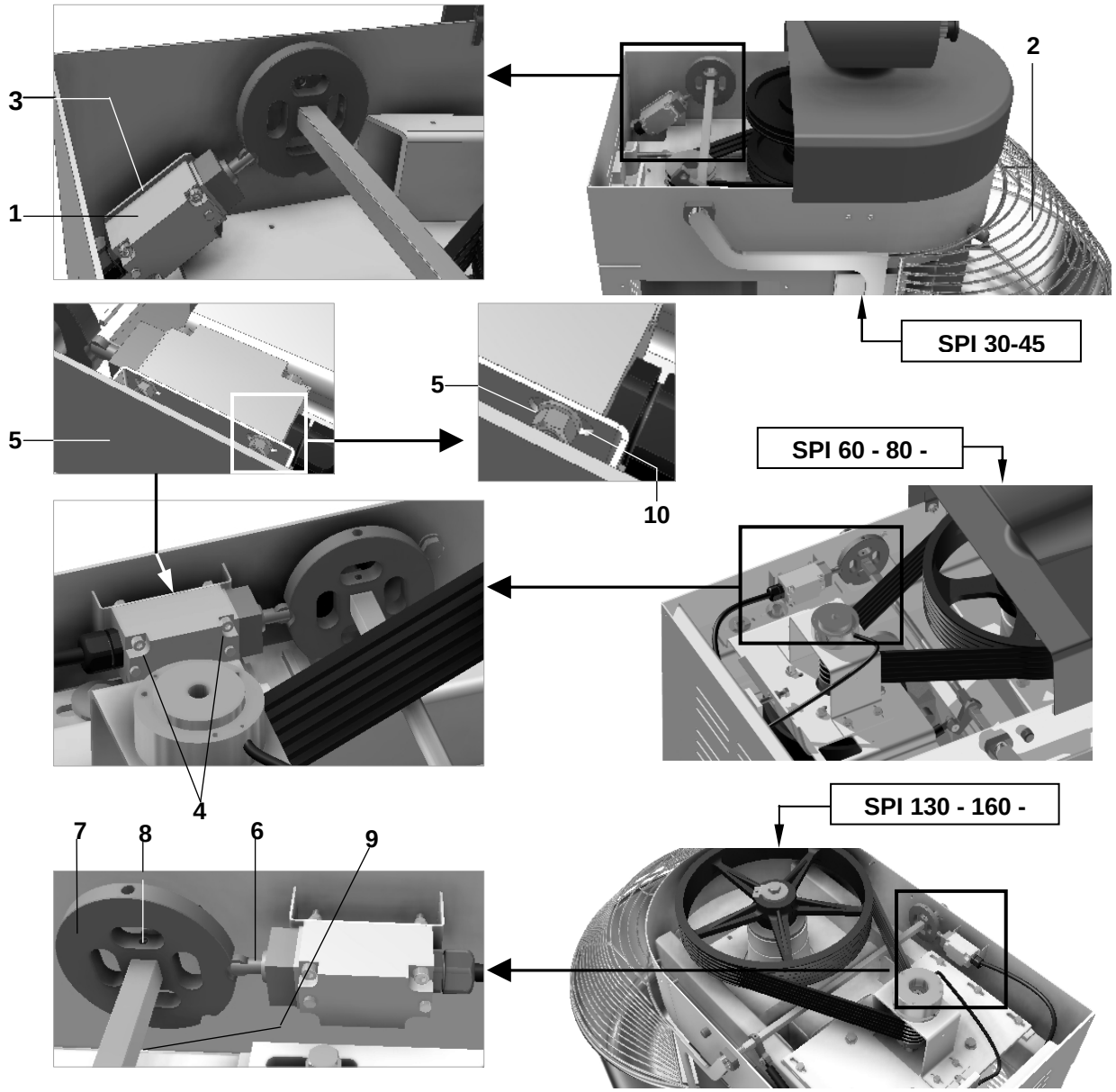
- remove the scres (5) and washers concerned to disassemble the group (1)
- remove the screws (6) ans washers concerned to disassemble the cover (4)
- through suitable pliers, usually available on the market, remove the seeger rings (7) and (8)
- hold the group by means of a grip clamp on the support (3)
- position the pindriver on the pin (9); by means of a hard plastic hammer, tap on it until it goes out from the bearings (10)
- remove the roller (2) and bearings concerned (10); pay attention not to loose the ring couple (11) and (12) which are to be absolutely kept separate the one from the other
- position the rings (11) and (12) close to the bearings, and then introduce them in the support (3) so that the bearing hole (10) fits together with the support (3) holes (13).
- put the pin (9) into the hole (12) of the support and in the central hole of the roller (2), then tapping on the pin by means of a pindriver and a hard plastic hammer; by means of the pliers install the seeger ring(7) before, then let the pin (9) go down until it rests on the seeger ring (7) on the support (3), and lastly mount the seeger ring (8) by means of the pliers concerned
- re-assemble the group on the machine without the cover (4) by screwing , but without tightening , the two screws (5), and washers concerned, into the holes of the column after running them across the loopholes (14) of the support (3)
- as the bowl (15) is not perfectly cylindrical, it is necessary to position the roller (2) in a way it does not touch the bowl wall at the point it goes near the same roller; to do that move the support (3) along the loopholes (14),and then, once the right position has been chosen, lock the support (3) by tightening the screws (5)
- keep the bowl still at the point above described and assemble the cover (4) by screwing (without tightening) the two screws (6) and washers concerned; move the cover (4) until its edge approaches the bowl wall (15), without touching it; at that moment tighten the the screws (6).

ATTENTION! A correct cover adjustment (4) is of primary importance in order to reduce the risk of meshing, dragging, crushing between roller (2) and bowl (15).



Picture 23 – Bowl Pusher (for Mod. 60 - 80 - 100 - 130 - 160 - 200)

4.5 ADJUSTMENT AND REPLACEMENT OF MICROSWITCH CONNECTED TO BOWL COVER



Picture 24 – Safety Microswitch connected to Bowl Cover

With reference to Picture Picture 24, the safety microswitch (1) coupled with the cover (2) is fixed on the support (3) with two screws (4) and two nuts (5) (these latter coupled with unscrewing washers). If for any reason it needs to be replaced, it is sufficient to disconnect the cables, remove the screws (4) and the nuts (5), and washers concerned, to disassemble it. The new microswitch (1) is and has to be electrically connected by a qualified electrician only, skilled in board machine electrical equipment.
The microswitch has to operate with contacts normally closed (forced opening of the contact by opening the cover).

The position of actuator stake (6) compared to the activation (cam) disc hollow (7) has to be that the opening of the microswith contacts (and also the stop command) occurs when the distance between the lower edge of the cover (2) and the upper edge of the bowl is < 75 mm (for details see par. **Errore. L'origine riferimento non è stata trovata.**).
The new microswitch must have equal or better physical and performance characteristics than the replaced one, in particular, the same dimensions and the same center distance of the fixation holes, capability to adjust the service point as mentioned above, stable contacts clamping when the cover is lowered. If the above is observed, no microswitch position adjustment should be needed; however, if needed, loosen the screws (4) and nuts (5) and move the microswitch (1) by using the slots (10) until the right position is found; after completing the adjustment, tighten the screws (4) and nuts (5).
A socket set screws (8) (dowel), is to be introduced in the hole slot of the rotation pin (9) preventing the cam (7) from running along the pin (9); in circumferencial direction it is the square section of the pin which does not allow the movement of the cam (7). Should it be necessary to remove the socket set screws (8), before re-screwing it check that the threaded hole and pin slot are aligned and put just a few LOCTITE 243 or equivalent (thread-brake)on the dowel thread . **Check often the tightening of screws (4) and nuts (5), and dowel (8) as well.**

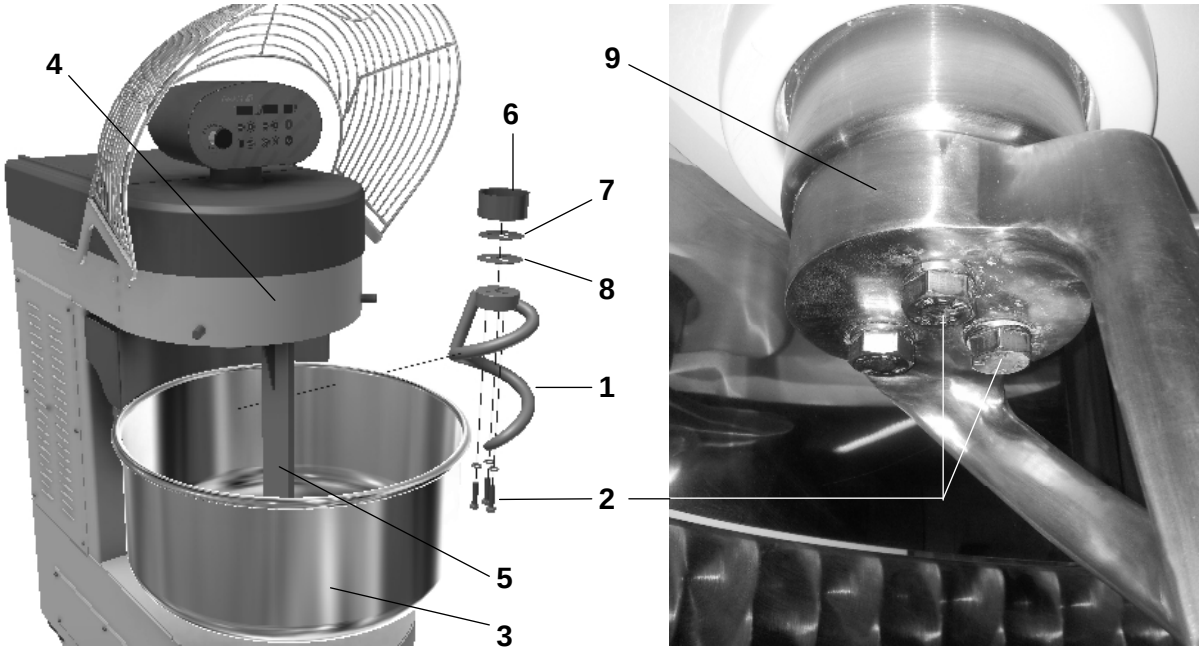
4.6 SPIRAL ASSEMBLY/DISASSEMBLY

The operation is to be carried out by one person only when the spiral weight does not exceed 15 Kg (see instruction below), in other cases a simultaneous work of two operators is needed.
With reference to PicturePicture 25, to disassemble the spiral (1) proceed as follows:
- unscrew the three screws slowly taking turn with them (2) until the spiral (1) rests on the bowl bottom (3)
- hold the spiral in vertical position (1), while removing the screws (2) and washers concerned ; pay attention not to let the cover (6) and the discs (7) and (8) fall down (re-assemble them as soon as possible), move the spiral (1) outside the head area (4) of the base and then remove it

To re-assemble the spiral:
- position the spiral (1) in the bowl with the cover (6) and the discs (7) and (8); align the flange (9) clearance holes with the threaded holes concerned of the head
- put the screws (2) into the clearance holes and screw them without tightening
- check visually that the spiral axis (1) is parallel to the central bar (5), and screw alternately the three screws (2) in tightening them, and checking the parallelism of the spiral axis (1) with the central bar (5)
- switch on the machine and stand by to press the emergency button (17)Picture 2, operate the start: verify that the spiral (1) turn on its axis without any swinging and without impacting the central bar (5), otherwise press the emergency button and repeat the assembly operation.

ATTENTION!

Due to the weight, the spiral for models no. SPI 130 - SPI 160 - SPI 200 is to be lifted and lowered and, in general, handled through the simultaneous work of two operators. Avoid bending the trunk as much as possible, but flex the knees in keeping the trunk upright; this to reduce the risk of muscle-skeletal injuries; observe the instruction given by the company employer during all training activities regarding safety and health at work place.



Picture 25 – Spiral Disassembly/Assembly

4.7 ELECTRICAL MAINTENANCE

Due to the high risk and the seriousness of the damage in case of accident, **any** even simple **operation** (for ex.: a fuse replacement) involving directly or indirectly the electrical equipment of the machine, **is to be carried out by qualified and expressely authorised technicians only**, owing the due skills in terms of technical knowledge and law regulations to carry out a well done work and on safety conditions; for this reasons they have to read carefully this manual before.

4.8 CLEANING

Before starting any operation, carry out the safety measures described in par 4.1.
Ensure the perfect hygienical conditions of the machine: clean it carefully at the end of each work day and/ or shift**. A complete and accurate cleaning is to be carried out each time a machine stop is expected to exceed twelve hours in order to avoid any biologic risk due to moulds, bacteria etc.** The machine cleaning is to be carried out as follows**:**

- make sure that nobody is near the machine,
- **wear a protection mask against dust inhalation** (the filtering capacity is to be compared to the granulometry of the flour dust) **and full protection glasses; ventilate the room during the operations for 15 minutes at least after their completion;** if possible carry out the cleaning in an open space,
- by means of an extractor fan remove any flour dust and any dried dough lumps or remains etc from the inside bowl, flour guard and bowl cover (for the grid covers use an extractor fan with a thin lip); if needed, try to remove the hardest remains by means of a plastic paddle and, in particular a middle size synthetic bristle brush for the “grid” cover. Before using the extractor fan and **if strictly requested only**, use short air compressed blows to remove the remains from those parts difficult to reach,
- by means of a clean and drinking water wet tissue, clean all surfaces designed to enter in contact with the ingredients ; in particular, the internal and the upper edge of the bowl, the flour guard, the central column and the spiral arm. If needed, disassemble the spiral (se instructions at par.4.6) ; it can be cleaned through drinking water and eventually by using a neutral washing-up liquid for kitchenware, however on condition

a meticulous rinse is carried out by using drinking water; before re-assembling it, make sure to dry the spiral fully in all of its parts, in particular the coupling flange and the clearance holes for the fixation screws.
- by means of a clean and drinking water wet tissue, clean the other surfaces reached by the machine and then dry them by means of a clean tissue.

Do not use any metallic object to avoid any damage to the parts. Do not use water splashes/jets.
Before re-using the machine ensure that all parts are perfectly dry, otherwise flour deposits or lumps mixed to water might appear in some points, that might be difficult to remove in the time.

4.9 POSSIBLE FAILURE AND/OR ANOMALIES

Herewith some possible failure and/or anomalies. The consequent operations are to be to carried out according to the instructions, whenever existing, and , in any case, **after taking all preventive safety measures only** , **as for example, the ones mentioned in par. 4.1 whenever possible**.

SPI 30 E - SPI 45, E Version		
Failure/Anomaly	**Possible Cause**	**Possible Remedy**
By pressing the key "1" of the main power switch the card leds do not switch on	▪ Fuse in glass (in the card) has a fault ▪ Transformer protection fuses burnt ▪ External power switch on "O" ▪ Main power switch has a fault	Check and, if needed, replace the defective parts.
By pressing the key start, the machine does not start	▪ Emergency button pressed ▪ Start button defective ▪ Bowl cover lifted up	Re-set the emergency button in turning it in clockwise direction. Check and, if needed, replace the defective parts. Close the cover bowl
During operating, the machine stops and the card is no more powered	▪ Excessive bowl filling up ▪ Magnetotermic switch disconnected ▪ Bowl protection microswitch	Check the magnetotermic switch. Check the efficiency of the bowl protection cover micro. If no positive result is achieved, contact the Technical Service
The machine in AUTOMATIC mode does not switch from 1st to 2a speed (2nd speed time ≠ 0)	▪ Card has a fault	Check and eventually contact the Technical Service .
Card displays show ERR 001	▪ Card keys pressed while switching on	Check the state of keys; if needed contact the Technical Service. Replace the card.
Card displays show ERR 003	▪ EEPROM memory malfunctioning	Contact the Technical Service. Replace the card.

… continue	**SPI 30 E - SPI 45, versione E**	
Card displays show "---" "---"	▪ Emergency button pressed	Re-establish the emergency button in turning it in counter-clockwise direction.
While operating the bowl swings noticeably	▪ Check the play to be 2-3 mm between bowl and sliding block	Check bowl pusher sliding block and, if needed, replace it (par.4.4.1).
Card display shows ERR 007	▪ Grid protection safety microswitch	NC and NO entry are both present on the card. Check the operating of card and micro.

SPI 60 - 80 - 100 - 130 - 160 - 200, "E" Version		
Failure/Anomaly	**Possible Cause**	**Possible Remedy**
Main power switch in position **ON** - **I**, the card leds do not switch on	▪ Glass fuse (in the card) has a fault ▪ Transformer protection fuses burnt ▪ External power switch on: OFF-O ▪ Main power switch has a fault	Check and eventually carry out the works needed by replacing the defective parts.
By pressing the button start, the machine does not start	▪ Emergency button pressed ▪ Start button defective ▪ Bowl cover lifted up	Re-establish the emergency button in turning it in clockwise direction. Check and, if needed, replace the defective parts. Close the cover bowl
During operating, the machine stops and the card display shows ERR 002	▪ Excessive bowl filling up ▪ Magnetothermic switch disconnected ▪ Bowl protection microswitch ▪ the machine has reached the max. time set for the 1st speed ; after 2 seconds the errors re-establish automatically	Check if the external power switch is on OFF- O and open the electrical box : check the magnetotermic switch Check the efficiency of cover micro. If no positive result is achieved, contact the Technical Service.
In AUTOMATIC mode the machine does not switch from 1st to 2a speed (2nd speed time vel.≠ 0)	▪ Card has a fault	Check and eventually contact the Technical Service .
Card displays show ERR 001	▪ Card keys pressed while switching on	Check the state of keys; if needed contact the Technical Service. Replace the card.
Card displays show ERR 003	▪ EEPROM memory malfunctioning	Contact the Technical Service. Replace the card.
Card displays show ERR 004	▪ Brale has a fault/ brake control circuit ▪ Fuse has a fault	Check the brake funtion . Check the glass fuse (1.6 A) on the electronic card. Check and eventually contact the Technical Service .
Card displays show ERR 005	▪ Brake power relay has a fault	Check and, if needed, contact the Technical Service to replace the card.
Card displays show ERR 007	▪ Grid protection safety microswitch	NC and NO entry are both present on the card. Check the operating of card and micro.

… continue	SPI 60 – 80 – 100 – 130 – 160 – 200 , versione E	
Card displays show "---" "---"	▪ Emergency button pressed	Re-set the emergency button in turning it in counter-clockwise direction
One or more keys of the membrane control panel do not operate	▪ General damage of the membrane control panel : ▪ a key ▪ a rail ▪ a flat cable	Replace the membrane control panel.
Card displays show ERR 008	Water missing	Check water supply network and if water taps are open. Check if the counterlitre operates well (select program "W", then press the key (13): on the display (5) the central line has to move from the left to the right. Check the eletrovalves.
After setting of the cycle time, distribution etc, by pressing the key PROGRAMM to store the program, the card display shows ERR 009 or ERR 010	Wrong programming of distribution time. ERR 009 is displayed indistribution mode r " delay" _d1 only ERR010 is displayed in distribution mode r "delay" _d2 only	Check the mixture time and ingredient distribution time; this latter has to be lower than the total cycle time (sum of 1st and 2nd speed time). If the distribution time is wrong, it is not possible to go out from the programming; to do that, change the distribution time.
During the execution of mixture cycle, by pressing keys 4 or 7, the display shows ERR 009 or ERR 010	The cycle time has ben reduced to achieve the distribution initial time of dispenser 1 (ERR 009) or dispenser 2 (ERR 010) and in r "delay" mode	If the mixture cycle has to be reduced, change the distribution time in the program. If distribution has started, this runs on even if the work cycle shall be suspended or terminated.
Temperature display shows 000	Probe has a fault	Temperature probe in short circuit
Temperature display shows 99.9	Probe has a fault	Temperature probe interrupted or disconnected

SPI 30 - 45 - 60 - 80 - 100 - 130 - 160 - 200, M Version		
Failure/Anomaly	**Possible Cause**	**Possible Remedy**
Main power switch in position (ON – I), the leds of the timers (2) and (5) do not switch on	Transformer fuses Trasformer Timer	Open the electrical box and check the fuses of FU1-FU2 transformer. Check the presence of tension in the transformer secondary. Check the funtion of timers.
By pressing the key start (15) the machine does not start	Elergency button pressed Start button defective Bowl cover microswitch	Release the emergency button (turn it clockwise). Check and, if needed, replace the defective parts.

… continue	**SPI 30 - 45 - 60 - 80 - 100 - 130 - 160 - 200, versione M**	
Trough selector (11) in position (AUTOMATIC), the machine does not switch from 1st to 2nd speed	Manual/automatic selector (11) 1st speed timer on panel KT3 timer inside the electrical box	Check the selector contacts (11) and eventually replace the defective parts. Check if the delayed contact of timer "2" switches when the time has reached zero . Check the timer KT3 in 1st speed min. operating inside the electrical box
The machine does not stop after the time set on 2nd speed 2 timer (5)	Timer (5) KT4 additional relay	Check and eventually replace the defective parts.
(except for SPI 30 and SPI 45 and SPI60) The brake of the spiral motor does not operate	AC/DC power brake rectifier Bowl protection microswitch Brake "KT4" additional timer	Check and eventually replace the defective parts.
(Except for SPI 30 and SPI 45) During machine operating in 1st speed turning the selector (13), there is no bowl reverse	Selector Bowl meter	Check and eventually replace the defective parts.
(Except for SPI 30 and SPI 45) With bowl cover open, by pressing key (21), the bowl does not rotate	Bowl rotation key KT4 additional relay KT5R additional relay	Check and eventually replace the defective parts.

MIXERS SPI 60 - 80 - 100 - 130 - 160 - 200, "E" Version and "M" Version		
Failure/Anomaly	**Possible Cause**	**Possible Remedy**
During mixture cycle phase spiral and/ or bowl slow down	▪ The transmission belts concerned are loosen	Adjust the belt tension (see par.4.3.1 - 4.3.4 - 4.3.5).
While operating the bowl swings noticeably	▪ Check the play to be 2-3 mm between bowl and rollers	Adjust the rollers (par.4.4.2).
By lifting up the bowl cover with empty bowl, the spiral does not stop within 4 seconds	▪ Possible safety brake lining wear	Contact the qualified Technical Service
Strong burnign smell or strong noise from the spiral motor	▪ Anomaly in the safety brake ▪ The brake holds the spiral	Replace the safety brake; Contact the qualified Technical Service

4.10 SPARE PARTS

In the last part of this manual the component lists and drawings related to are reported. Each component is identified through a number or an acronym on the drawing, making it univocally identifiable in the list concerned. To place orders for spare parts, please refer to the drawing and to the component lists concerned, reporting a short description of the part and/or its use and its identification number; kindly remind to mention the registration no. of the machine as well.

4.11 LONG STOP OR OUT OF ORDER

In case of long stop or out of order, disconnect the machine from the main supply network.
Clean it in all parts and cover it by means of water-proof ground cloth to protect it from weathering agents, dust, insects, rats etc. Take all suitable measures to avoid any risks of impact, violation or damage etc.
Before re-establishing its operating, a careful preliminary examination is deemed as necessary to check its integrity; then operate as it would be the first start up.

5 SAFETY

5.1 PREAMBLE

The considerations, made in this chapter, are based on condition that:

- The conditions and the destination for use of the machine, foreseen and described in this manual, are well known to the principal/user and to any other operator in charge of the use of the machine.
- The operators have been adequately informed and , if needed, trained in relation to the risks existing at work place and in compliance with the existing laws.
- The access to the work place is prohibited to non-authorized people, lay-users and minors.

5.2 HAZARDS, SAFETY DEVICES AND RESIDUAL RISKS

Some information concerning the hazards being typical of the machine and risks related to are given herewith along with the measures to be taken to eliminate them or reduce them; wherever a risk had not been not eliminated , some information regarding the residual risks and any eventual measure to be taken by the user , in order to limit more an more their extent, are given as well.

5.2.1 TYPICAL MACHINE HAZARDS

Referring to Picture 26 the machine is characterized by the following hazards:

Mechanical :

A. Crushing, shearing, dragging, impact: volume involved through the spiral in motion

B. Dragging: space between the bowl in motion and the base column (also between the bowl base and the base area of the base, but the risk is almost null and void); the hazard is present on both sides of the machine considering that the rotation motion of the bowl can be reversed by the operator

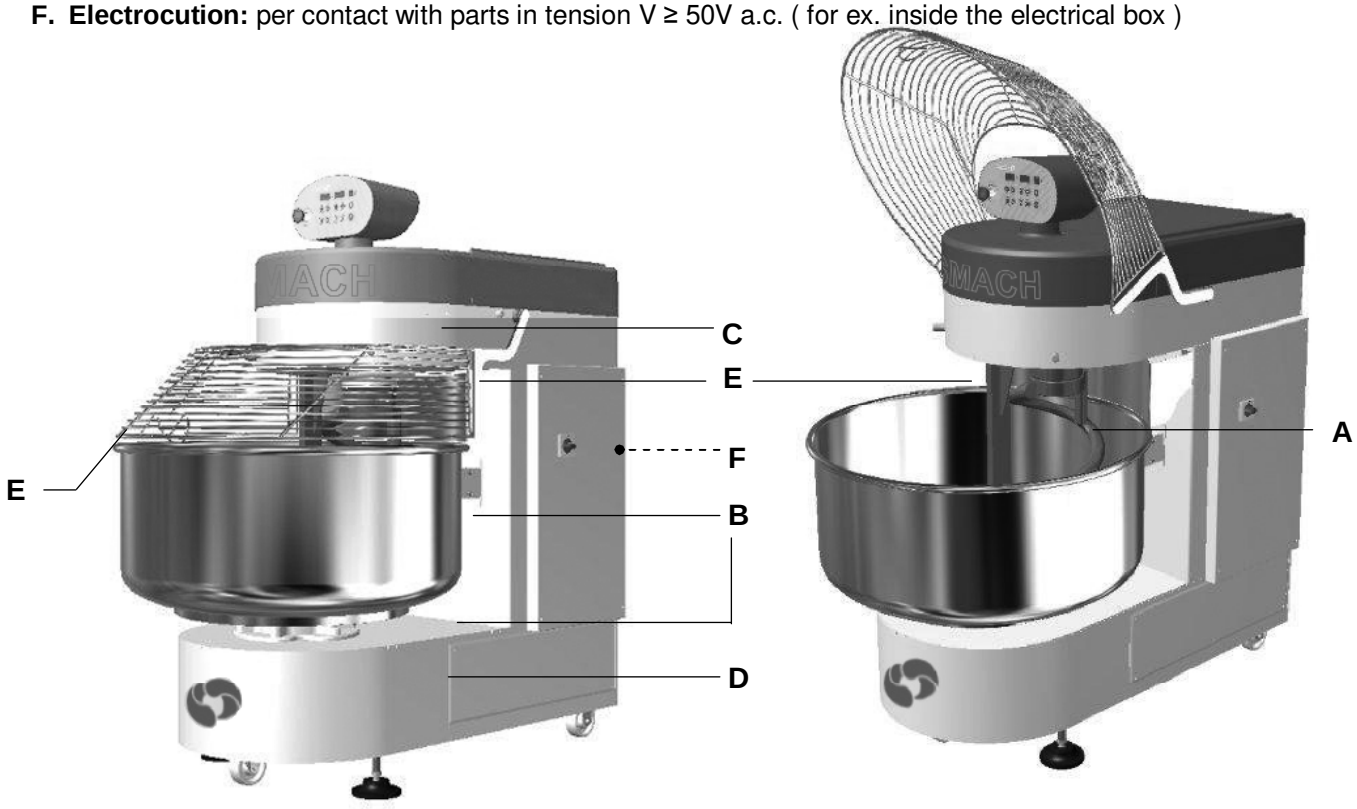
C. Shearing, dragging, crushing, impact: transmission gears of the motion to the spiral

D. Shearing, dragging, crushing, impact: transmission gears of the motion to the bowl

E. Impact, crushing, injury: in case of quick fall of the cover: between the upper edge of the bowl and the cover, between the side edges of the flour guard and cover.

Electrical :

F. Electrocution: per contact with parts in tension V ≥ 50V a.c. (for ex. inside the electrical box)



Picture 26 – Typical Mechanical and Eletrical Machine Hazards

The machine is also characterized by the following hazards and risks due to:

Dust inhalation

G. **Damage to the breathing apparatus** (rhinitis, tearing,"professional" athsma , etc.) caused from flour dust inhalation and/or other ingredients

Hygiene

H. **Damage to health people** due to contact with moulds, rotten substances, insect penetration, rats etc.
I. **Unacceptable modification of the food product** (for ex. contamination due to microorganism development or foreign materials)

Non-observance of the ergonomic principles

J. **Injuries/ damage to the body** due to non-correct posture
K. **Lifting up and handling of heavy loads** (flour sack pouring into the bowl, dough mass driving out from the bowl, etc.)

The risks concerned have been eliminated or reduced as much as possible in taking the measures and the safety devices as described in the par. 5.2.2, 5.2.3, 5.2.5 e 5.3 and/ or can be further reduced if the user carry out the measures described in the par. 5.3, 5.2.4, 5.2.5 e 5.3.

5.2.2 MACHINE SAFETY EQUIPMENTS

1. **Movable cover coupled with safety microswitch** located to protect the inside of the bowl and, in particular, the area of the spiral rotation. It can be composed of welded circle shaped metallic rods (grid) as the one shown in Picture 25, or of plastic thermoformed material. If the cover is lifted up, while the machine is operating, the safety device controls the emergency button in each part, otherwise dangerous when the space between the bowl edge and cover is lower than 75 mm; the stop of the spiral and bowl is instantaneous for mixers mod.no. SPI 80 - 100 - 130 - 160 - 200 (equipped with brake system), instead is less quick, but within a time of max. 4 seconds for the mod. no. SPI 30 - 45 - 60.
   To re-start the working gears, it is necessary to close completely the cover before resting it downwards.
2. **Fixed covers :** they are guards held fixed by means of fixation elements, that cannot be disasssembled without using a tool; if correctly installed and fixed on the base, they do not allow any access to the transmission gears giving motion to the spiral and bowl. In detail, the transmission gears giving motion to the spiral are protected by means of covers (1) and (3) Picture 14, instead the transmission gears giving motion to the bowl are protected by means of cover (1) Picture 15 .
3. Also the flour guard (6) Picture 1 is a fixed guard, because, combined with the one described in pos. 1 and the bowl, does not allow any access to the spiral in rotation (except what mentioned in par.5.2.4RESIDUAL RISKS.)
   Other fixed guards, similar to the one above described , are the two carters located at the side of the base column, one of the two ones is a closing panel of the electrical box .
   Finally, at the bottom of the base, a drilled metal sheet is fixed, the function of which is to avoid or to hinder in particular any penetration of rats or large size insects.
4. **"Dead man" button for open cover bowl rotation**
   It is a button (21), for the machines **M Version**, or (13), for machines E Version.
   After completing the mixture, it allows the operator to put the dough in the best position to extract the mixture .
   In case of release of the button, the rotation of the bowls stops .
   In the E Version machines, each time the button (13) is pressed, after releasing it, the bowl rotates in a reverse direction compared to the previous one.
5. **Emergency button** (17) Picture 2; by pressing it (to be done in case of real need and never as normal stop), the stop in each part in motion and the machine setting to zero of electricity to all of its parts , otherwise dangerous, are operated . To re-start the machine it is necessary to re-establish the emergency button (turn it in direction as shown in the arrow on the same).
6. **Gas cyclinder (springs)**, to avoid a sudden descent movement of the bowl cover and facilitate the lifting up; they allow a position of the cover, when it is open, as much as stable as possible.

ATTENTION!

Do not open/remove any protection guard and/or deactivate the safety devices for any reasons, unless in case of real need and in adopting previously all necessary measures suitable for eliminating the risks related to or to reducing them as much as possible**.**
These measures are to be carried out by qualified and authorized personnel only. Re-assemble the guards and fix them by using the suitable fixations means and re-activate the safety devices as soon as the reasons for their temporary removal /deactivation are ceased. Whoever does not observe the instructions above mentioned is fully responsible for any eventual direct or indirect damage to people, animals, things which may occur .

5.2.3 SAFETY EQUIPMENT EFFICIENCY CONTROLS

The efficiency and the integrity of the safety equipment described in par.5.2.2, have to be checked at the beginning of each work day and/or shift as follows:

1 Movable bowl cover check related to safety microswitch

The check is to be carried out with empty bowl. Operate the start of the machine and wait it to switch in 2nd speed operating; lift up the cover very slowly and stop as soon as the microswitch clicks ; then:
- check the microswitch to operate the emergency button of each gear in motion when the cover is far less than 75 mm from the upper edge of the bowl (75 mm is not an acceptable value)
- check that in the models no. SPI 30 - 45 - 60 the spiral and the bowl stop within 4 seconds from the click of the microswitch (check by means of a chronometer; in case of doubt, the check is to be carried out by using an oscilloscope done by a qualified and skilled electrician), instead, for all other models the stop has to be instantaneous due to the brake system they are equipped with.
- check that, on the microswitch conditions described above, it is not possible to carry out any start command

Should the control result negative, do not use the machine and contact immediately a qualified technician skilled in board machine electrical equipment.

2 Fixed Covers

Check visually that all guards are at their place, and in a good state (without dent or break etc.) and fixed through suitable fixation means. Every time a fixed cover is disassembled , check that the screws, used to hold it fix in position, remain and do not release from the cover.

Should the control result negative, do not use the machine and contact immediately a qualified engineer skilled in machine assembly; in case of need, contact the manufacturing company.

3 "Dead man" button for open cover bowl rotation

Open the cover and keep the button (21) pressed, for **M** Version, or (13), for **E** Version. When the bowl is in motion, check that it rotates at the slowest speed (1st speed); release the button: the bowl has to stop.

Should the control result negative, do not use the machine and contact immediately a qualified engineer skilled in machine assembly; in case of need, contact the manufacturing company.

4 Emergency stop button check

The check is to carry out with empty bowl. Operate the machine start and wait it to switch in 2nd speed operating; press the emergency button and :
- check that each gear in motion stops and the button stays in position pressed
- check that for the mod. no. SPI 30 - 45 - 60 the spiral and the bowl stop within 4 seconds from the pressing of the button (check it by using a chronometer; in case of doubt, the check is to be carried out by using an oscilloscope done by a qualified and skilled electrician), instead, for all other models the stop has to be instantaneous due to the brake system they are equipped with.
- check that , by keeping the button pressed, it is not possible to carry out any start command

Should the control result negative, do not use the machine and contact immediately a qualified technician skilled in board machine electrical equipment.

5 Gas spring check

The check is visual only. In lifting up the cover, no particular strain must be necessary; in closing the cover, release it 200 mm before its closing completion: it has to remain fix or execute a very slow movement.

5.2.4 RESIDUAL RISKS

Meshing or dragging risk between the bowl and the base. Despite the distance between the bowl and the machine structure meets the requirements of UNI EN 453:2010, a residual risk of meshing, dragging remains in the case a person introduces a part of the body in this area. The risk is the higher, the higher is the push through which the person exposed , forces the way (for ex.:an upper limb).

A similar residual risk, but of moderate extent, remains the area between the bottom of the bowl and the low part of the base. It is strictly forbidden to go close to the hazard areas with the parts of the body when the machine is in motion ; in case of need, it is compulsory to switch off precautionally the machine and disconnect the plug from the supply power socket.

Crushing, shearing, dragging, impact risk in case of contact with the spiral in motion. Despite the bowl cover (either full or grid) meets the requirements of UNI EN 453:2010, it exists a chance, even remote, that a person reaches the spiral in motion through the opening (to extract dough samples or pour into some ingredients) on the cover, through the free space between the cover and the bowl in lifting up the cover before the safety microswitch switches in operating the emergency button. Avoid any temptation to reach the tool through these above mentioned actions, there is no predictable reason to do that and the risk of exposure to serious injury for the own safety is high.
You may incur into the same risk when the bowl is open and if you try to reach the spiral through a sudden movement of the arm, in particular when the bowl is empty. The UNI EN 453:2010 allows a tool max. stop time of 4 seconds, this time is widely observed from the machine (from mod. no. SPI 80 till mod. no. SPI 200 the machines are equipped with brake system), but it allows to reach the tool before it stops ; the risk is particularly important when the bowl is empty (the dough would contribute to reduce appreciably the stop time) and in the mod. no. SPI 30, SPI 45 and SPI 60, considering that the other ones are equipped with brake system allowing a very quick stop of the spiral.

Dragging risk in case of hand dipping in the mixture with the bowl in motion through the opening on the cover (to extract dough samples or pour ingredients in) and **consequent chance to be injuried and/or being painfully pressed from the opening cover edge.** Avoid similar actions and try to extract samples from the dough surface.

Contusion risk due to dragging while using the button (21), for M version, or button (13) for E version, with open bowl cover. If the operator dips the hand into the dough in vicinity of the spiral and/ or central column, when the bowl start rotating, it could be pulled and pushed against these gears with the consequent risk of slight contusion. The risk is slightly higher for the machine **E** version, considering that, by each pressing of the button, the motion of the bowl reverses. To further reduce this risk, the operator has to keep his hands far from the spiral arm and the central column.

Health risk due to inhalation of flour dust ; follow instructions as per par.3.3.1, items 2, 4, 5 and par. 4.8

Muscle-skeletal injury risk due to ergonomic factors; follow instructions as per par.3.3.1, items 2 -3 -4 -14)

It is responsibility of the company employer to inform and train adequately the operators in charge of the machine use about the residual risks it presents and about a safe use of the same on safety conditions, precautions and behavior to avoid (see also par 3.5)

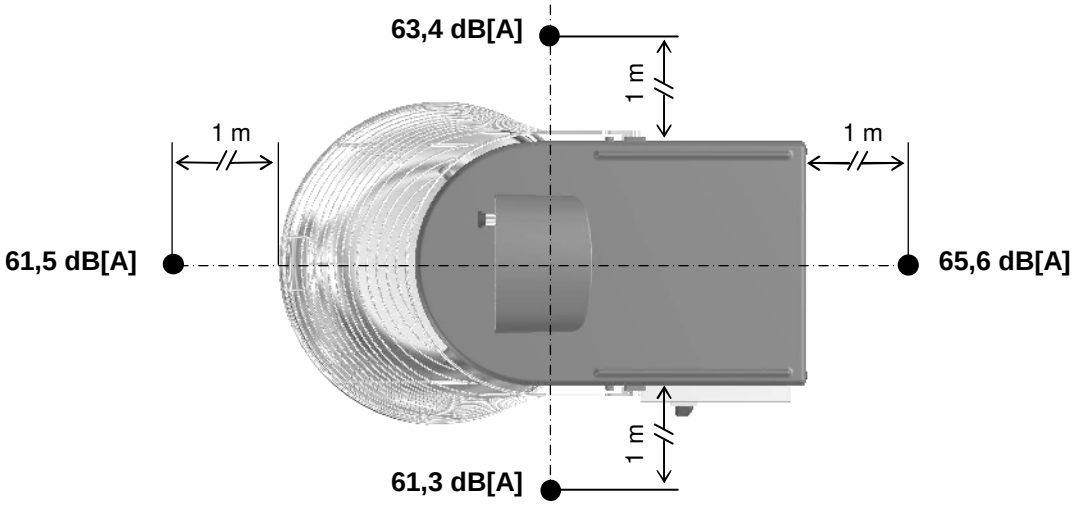
5.2.5 ELECTRICAL RESIDUAL RISKS

On the closing panel of the electrical box ref.(8) Picture 1**Errore. L'origine riferimento non è stata trovata.** and on each other casing containing parts in tension an appropriate warning sign has been affixed (see par. 5.3). The risk is mostly connected to any

eventual accidental contacts (impossibile on normal conditions) where parts are in tension during maintenance; as noticed more times, **it is compulsory to cut off the power** Picture 11**Errore. L'origine riferimento non è stata trovata., before carry out any operation; the plug cutting off has to be clearly visible so that everyone can make sure that no power supply is in the machine**.
It is highly recommended to have electrical operations executed by qualified and skilled personnel only, able to carry out operations properly done, on safety conditions and owing technical knowledge and knowledge of the standards concerned.

5.2.6 MACHINE NOISE INFORMATION

Measurements, carried out by means of Class 1 noise meter integrator in more points around the operating empty machine at max. speed, by means of a microphone put at 1.6 m from the ground and at 1000 mm distance from the same, in presence of a background noise characterized by LAeq= 39,5 dB[A], have highlighted that the same emits a LAeq (acoustic pressure level of assessed emission A) appreciably lower than 70 dB[A] (see Picture 27).
The max. error of the measurements is to assess in the order of 2 dB[A].



Picture 27 – Machine Noisy Emission Measurement Points

5.3 SAFETY AND WARNING SIGNS

The following safety and warning signs are affixed on the machine:

A		Danger – High Voltage ! *(on the external part of each casing having electrical parts in tension inside)*
D		CAUTION! Danger of hands crushing, meshing, dragging *(on both machine sides close to the B hazard area B; see par.* **Errore. L'origine riferimento non è stata trovata.***)*
B		Do not remove any protection guards and/or deactivate the safety devices *(on the fixed guards of the base and the column of the base and behind the cover ref. 1* **Errore. L'origine riferimento non è stata trovata.** *of the head and on the fixed guards ref. 1* **Errore. L'origine riferimento non è stata trovata.***)*
C		Do not clean, lubricate gears of the machine in motion *(as in B)*

ATTENTION!

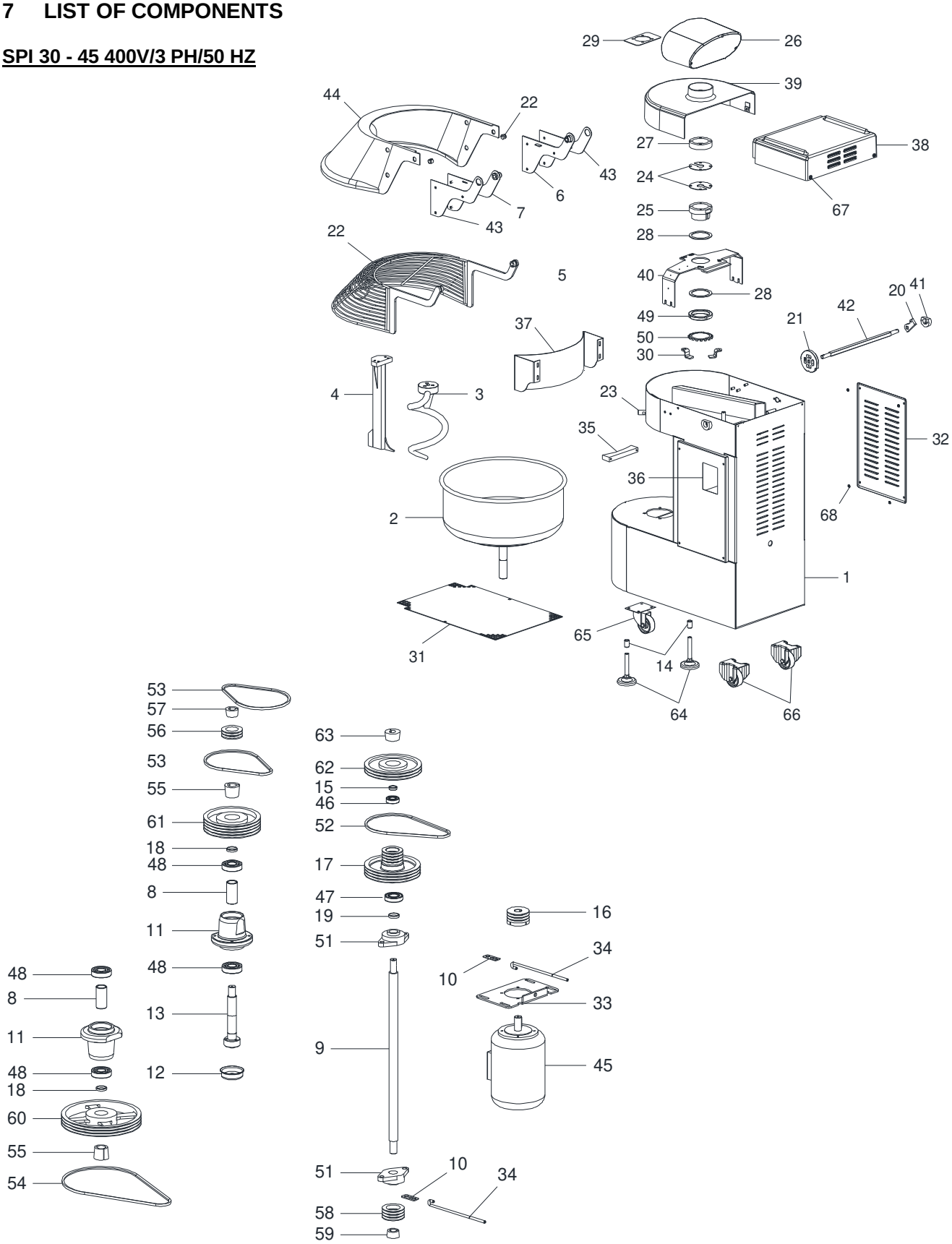
Check the integrity of the pictures and the warning sign colours; should they show any even slight degradation/discoloration, replace them immediately.

6 SCRAPPING

In case of machine scrapping, separate the different parts according to material type and provide the scrapping in compliance with the existing laws and regulations.
Remove any lubricants used, if existing, and dispose them separately.
Contact the company in charge of garbage disposal in compliance with the existing laws .

7 LIST OF COMPONENTS

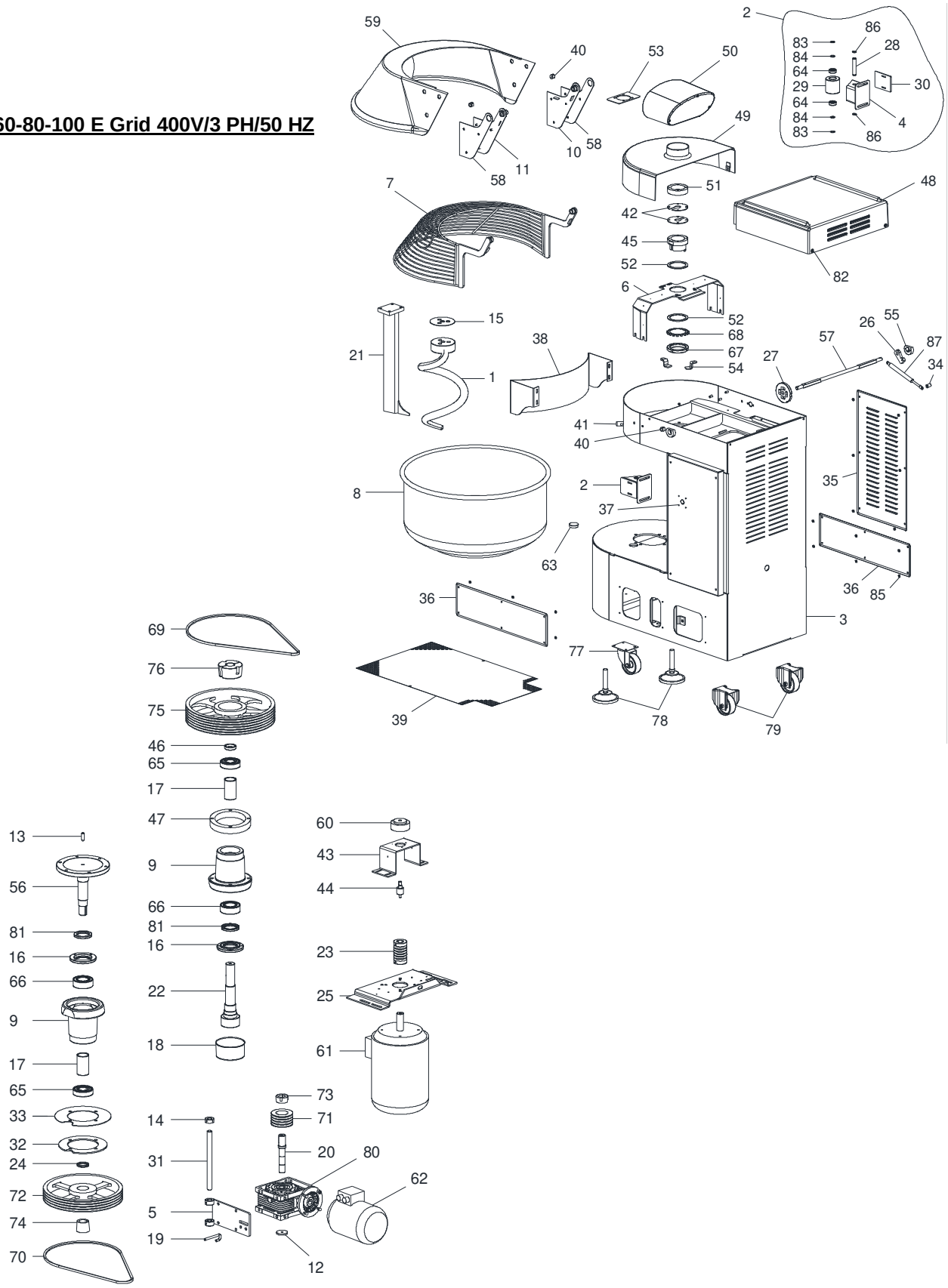
SPI 30 - 45 400V/3 PH/50 HZ



Pos.	Ref.	P/No.	Description
1		3A100001/M	PAINTED STRUCTURE
		3A100001X	STAINLESS STEEL STRUCTURE
2	SPI 30	3A100023/M	BOWL WITH PAINTED EDGE
	SPI 45	334909/M	
	SPI 30	3A100023/R	BOWL WITH INOX EDGE
	SPI 45	334909/R	
3		3A100024	SPIRAL ARM
4		3A100025	CENTRAL BAR
5	SPI 30	3A100028	BOWL PROTECTION GRID
	SPI 45	3A100021	
6		3A100033	RIGHT HAND FLANGE
7		3A100034	LEFT HAND FLANGE
8		434691	SPACER
9		434778	TRANSMISSION SHAFT
10		434779	TIE ROD CONNECTING PLATE
11		495001/M	PAINTED BOWL AND SPIRAL ARM SHAFT SUPPORT
		495001/R	INOX SPIRAL ARM AND BOWL SUPPORT
12		495018	SPIRAL ARM BEARING PROTECTION
13		495021	SPIRAL ARM SHAFT
14		495022	SPACER
15		495539	SPACER
16		495541	PULLEY
17		495542	PULLEY
18		495620	SPACER
19		495623	SPACER
20		4A100002/R10	LEVER
21		4A100003/R10	CAM
22		4A100024	PIN
23		4A100025	PIN
24		4A100027	PLATE
25		4A100032	FLANGE
26		4A100052	CONTROL PANEL SUPPORT
27		4A100058	SPACER
28		4A100059	SPACER
29		4A100060	PLATE
30		4A100061/M	ROTATION BATTING PAINTED
		4A100061/R	ROTATION BATTING, INOX VERSION
31		4A100065/M	PAINTED LOWER SHEET
		4A100065X	INOX LOWER SHEET
32		4A100066/M	PAINTED SIDE CARTER
		4A100066X	INOX SIDE CARTER
33		4A100067/M	PAINTED MOTOR SLIDE
		4A100067/R	PAINTED MOTOR SLIDE – INOX VERSION

Pos.	Ref.	P/No.	Description
34		4A100068	PIN
35		4A100069	BOWL PUSHER
36		4A100070/M	PAINTED ELECTRICAL BOX COVER
		4A100070X	INOX ELECTRICAL BOX COVER
37	SPI 30	4A100071	FLOUR GUARD
	SPI 45	4A100064	
38		4A100072	REAR HEAD COVER
39		4A100073	FRONT HEAD COVER
40		4A100076/M	PAINTED SUPPORT.
		4A100076/R	PAINTED SUPPORT – INOX VERSON
41		4A100078	BUSH
42		4A100079	PIN
43		4A100087	COUNTERFLANGE
44	SPI 30	4A100093	BOWL PROTECTION COVER
	SPI 45	4A100094	
45		902825	MOTOR 400V 50Hz
46		910124	BEARING
47		910125	BEARING
48		910137	BEARING
49		910470	LOCKRING
50		910480	LOCK WASHER
51		910533	SUPPORT
52		911007	BELT
53		911008	BELT
54		911012	BELT
55		911182	TAPER BUSH
56		911190	PULLEY
57		911191	TAPER BUSH
58		911192	PULLEY
59		911193	TAPER BUSH
60		911194	PULLEY
61		911195	PULLEY
62		911196	PULLEY
63		911197	TAPER BUSH
64		913334	JOINTED FOOT
65		913361	CASTER WHEEL
66		913399	FIXED WHEEL
67		920700	RUBBER WASHER
68		920792	RESTRAINT WASHER

SPI 60-80-100 E Grid 400V/3 PH/50 HZ

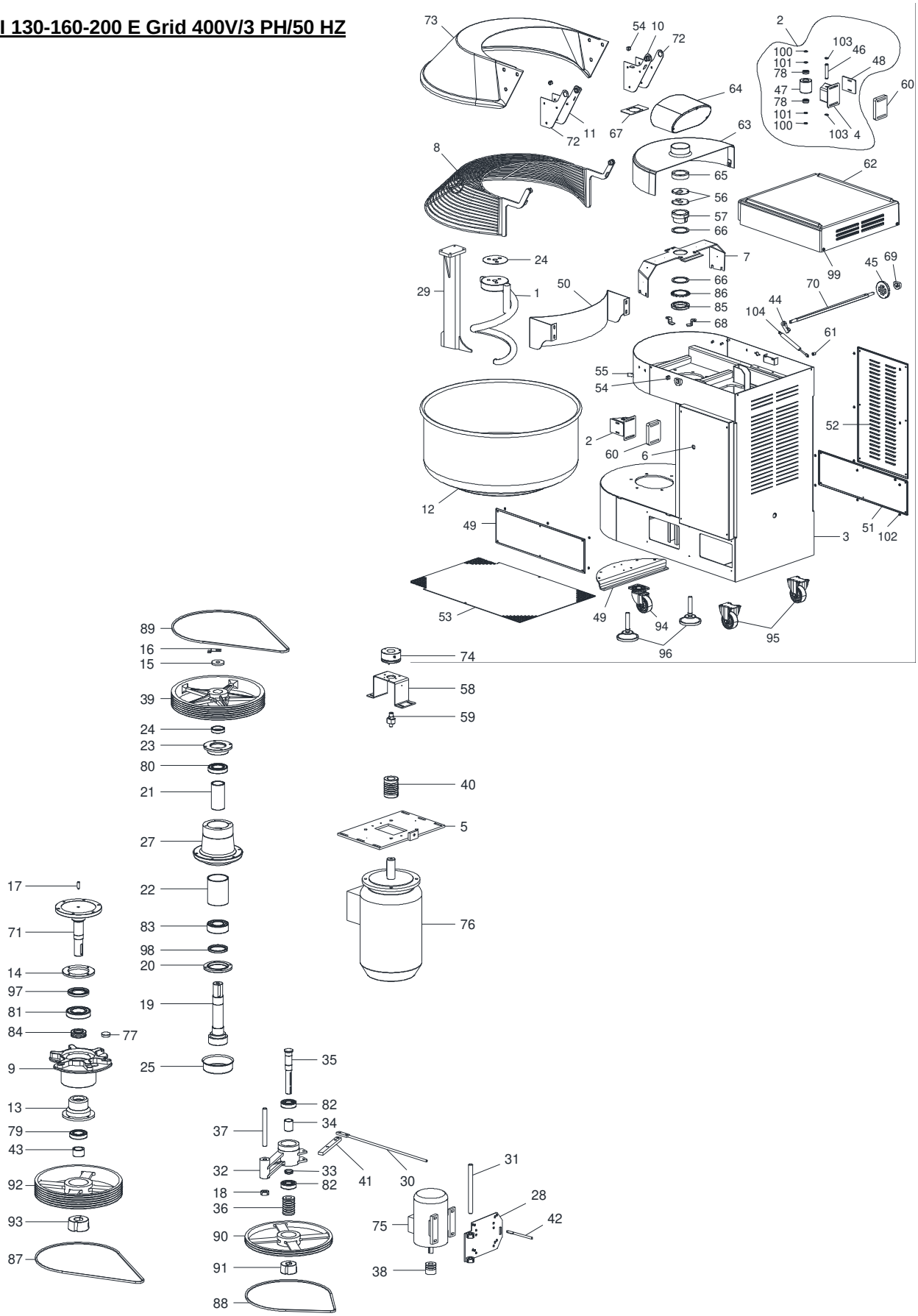


Pos.	Ref.	P/no.	Description
1	SPI 80 SPI 100	214741	SPIRAL ARM
	SPI 60	3A100018	
2		2A101003	ROLLER ASSEMBLY
		2A101003X	INOX ROLLER ASSEMBLY
3		3A100002/M	PAINTED STRUCTURE
		3A100002X	INOX STRUCTURE
4		3A100004/M	PAINTED BOWL PUSHER SUPPORT
		3A100004X	INOX BOWL PUSHER SUPPORT
5		3A100005/M	PAINTED MOTOR SLIDE
		3A100005/R	PAINTED MOTOR SLIDE – INOX VERSION
6		3A100007/M	PAINTED SUPPORT
		3A100007/R	PAINTED SUPPORT – INOX VERSION
7	SPI 80	3A100010	BOWL PROTECTION GRID
	SPI 60	3A100011	
	SPI 100	3A100012	
8	SPI 60	3A100019/M	BOWL WITH PAINTED EDGE
	SPI 80	3A100039/M	
	SPI 100	3A100040/M	
	SPI 60	3A100019/R	BOWL WITH PAINTED EDGE – INOX VERSION
	SPI 80	3A100039/R	
	SPI 100	3A100040/R	
9		3A100031/M	PAINTED BOWL AND SPIRAL ARM SHAFT SUPPORT
		3A100031/R	PAINTED BOWL AND SPIRAL ARM SHAFT SUPPORT – INOX VERSION
10		3A100035	RIGHT HAND FLANGE
11		3A100036	LEFT HAND FLANGE
12		412018	SUPPORT SHAFT WASHER
13		412034	BOWL CENTERING PIN
14		412037	BUSH
15		414352	SPACER
16		440002/M	PAINTED COVER
		440002/R	PAINTED COVER – INOX VERSION
17		440003	INTERNAL SPACER
18		440047	SPIRAL ARM BEARING PROTECTION
19		440057	TIE ROD
20		495171	BOWL GEARED MOTOR SHAFT
21	SPI 60	3A100022	CENTRAL BAR
	SPI 80 SPI 100	495191	
22		495509	SPIRAL ARM SHAFT
23	SPI 80 SPI 100	495512	PULLEY
	SPI 60	4A100086	
24		495520	SPACER
25		4A100001/M	PAINTED MOTOR SLIDE

Pos.	Ref.	P/No.	Description
		4A100001/R	PAINTED MOTOR SLIDE - INOX VERSION
26		4A100002/R10	LEVER
27		4A100003/R10	CAM
28		4A100006	PIN
29		4A100007	ROLLER
30		4A100008	CARTER
31		4A100009	PIN
32		4A100010/M	PAINTED COVER
		4A100010X	INOX COVER
33		4A100011/M	PAINTED COVER
		4A100011X	INOX COVER
34		4A100012	SPACER
35		4A100015/M	PAINTED LATERAL CARTER
		4A100015X	INOX LATERAL CARTER
36		4A100016/M	PAINTED LATERAL LOWER CARTER
		4A100016/X	INOX LATERAL LOWER CARTER
37		4A100017/M	PAINTED ELECTRICAL BOX COVER
		4A100017X	INOX ELECTRICAL BOX COVER
38	SPI 80	4A100019	FLOUR GUARD
	SPI 60	4A100028	
	SPI 100	4A100029	
39		4A100023/M	PAINTED LOWER PROTECTION
		4A100023X	INOX LOWER PROTECTION
40		4A100024	PIN
41		4A100025	PIN
42		4A100027	PLATE
43	SPI 80 SPI 100	4A100030/M	SUPPORT
44	SPI 80 SPI 100	4A100031	BRAKE SHAFT
45		4A100032	FLANGE
46	SPI 80 SPI 100	4A100039	SPACER
	SPI 60	4A100047	
47	SPI 60	4A100046	SPACER
48		4A100048	REAR HEAD COVER
49		4A100049	FRONT HEAD COVER
50		4A100052	CONTROL PANEL SUPPORT
51		4A100058	SPACER
52		4A100059	SPACER
53		4A100060	PLATE
54		4A100061/R	PAINTED ROTATION LEDGE/PIECE
		4A100061/M	ROTATION LEDGE /PIECE- INOX VERSION
55		4A100078	BUSH

Pos.	Ref.	P/No.	Description
56		4A100083/M	PAINTED BOWL SHAFT
		4A100083/R	PAINTED BOWL SHAFT – INOX VERSION
57		4A100085	PIN
58		4A100088	COUNTERFLANGE
59	SPI 60	4A100094	BOWL PROTECTION GRID
	SPI 80	4A100095	
	SPI 100	4A100096	
60	SPI 80 SPI 100	902125	ELECTROMAGNETIC BRAKE
61	SPI 60	903122	MOTOR 400V 50Hz
	SPI 80 SPI 100	903123	
62		903124	MOTOR 400V 50Hz
63		906888	CAP
64		910121	BEARING
65		910151	BEARING
66		910152	BEARING
67		910470	LOCKRING
68		910480	LOCKING WASHER
69		911003	BELT
70		911004	BELT
71		911178	PULLEY
72		911179	PULLEY
73		911181	TAPER BUSH
74		911182	TAPER BUSH
75	SPI 60	911176	PULLEY
	SPI 80 SPI 100	911199	
76	SPI 80 SPI 100	911200	TAPER BUSH
	SPI 60	911215	
77		913386	CASTER WHEEL
78		913394	JOINTED FOOT
79		913396	FIXED WHEEL
80		914184	REDUCER
81		915525	TIGHTENESS RING
82		920700	O-RING
83		920774	WASHER
84		920775	WASHER
85		920792	RESTRAINT WASHER
86		922215	SEEGER
87		923552	GAS SPRING

SPI 130-160-200 E Grid 400V/3 PH/50 HZ



Pos.	Ref.	P/No.	Description
1	SPI 130	212141	SPIRAL
	SPI 160 SPI 200	212211	
2		2A101003	ROLLER ASSEMBLY
		2A101003X	INOX ROLLER ASSEMBLY
3		3A100003/M	PAINTED STRUCTURE
		3A100003X	INOX STRUCTURE
4		3A100004/M	PAINTED BOWL PUSHER SUPPORT
		3A100004X	INOX BOWL PUSHER SUPPORT
5		3A100006/M	PAINTED MOTOR SLIDE
		3A100006/R	PAINTED MOTOR SLIDE – INOX VERSION
6		3A100009/M	PAINTED ELECTRICAL BOX COVER
		3A100009X	INOX ELECTRICAL BOX COVER
7		3A100013/M	PAINTED CONTROL PANEL SUPPORT
		3A100013/R	PAINTED CONTROL PANEL SUPPORT – INOX VERSION
8	SPI 160	3A100014	BOWL PPROTECTION GRID
	SPI 130	3A100029	
	SPI 200	3A100030	
9		3A100032/M	PAINTED BOWL SUPPORT
		3A100032/R	PAINTED BOWL SUPPORT – INOX VERSION
10		3A100038	RIGHT HAND FLANGE
11		3A100038	LEFT HAND FLANGE
12	SPI 130	3A100041/M	BOWL WITH PAINTED EDGE
	SPI 160	3A100042/M	
	SPI 200	3A100043/M	
	SPI 130	3A100041/R	BOWL WITH PAINTED EDGE – INOX VERSION
	SPI 160	3A100042/R	
	SPI 200	3A100043/R	
13		412012/M	PAINTED SUPPORT SPACER
		412012/R	PAINTED SUPPORT SPACER – INOX VERSION
14		412014/R10	BOWL UPPER COVER
15		412025	WASHER
16		412026	LOCKING PLATE SCREW
17		412034	PIN
18		412037	BUSH
19		412109	SPIRAL SHAFT
20		412110/R10	SPIRAL LOWER COVER
21		412111	SPACER
22		412112	SPACER
23		412113/R10	SPIRAL UPPER COVER
24		412114	SPACER
25		412130	BEARING LOWER PROTECTION
26		414354	SPACER
27		495002/M	PAINTED SPIRAL SUPPORT
		495002/R	PAINTED SPIRAL SUPPORT – INOX VERSION
28		495069/M	PAINTED BOWL MOTOR SLIDE
		495069/R	PAINTED BOWL MOTOR SLIDE – INOX VERSION

Pos.	Ref.	P/No.	Description
29		495094	CENTRAL BAR
30		495097	TIE ROD
31		495192	PIN
32		495254/M	PAINTED TRANSMISSION SHAFT SUPPORT
		495254/R	PAINTED TRANSMISSION SHAFT SUPPORT INOX-VERSION
33		495255	EXTERNAL SPACER
34		495256	INTERNAL SPACER
35		495257	TRANSMISSION SHAFT
36		495258	PULLEY
37		495267	PIN
38		495271	PULLEY
39		495503	PULLEY
40	SPI 160 - SPI 200	495522	PULLEY
	SPI 130	4A100074	
41		4A001156/M	PAINTED BRACKET
		4A001156/R	PAINTED BRACKET – INOX VERSION
42		4A001157	TIE ROD
43		4A001190	SPACER
44		4A100002/R10	LEVER
45		4A100003/R10	CAM
46		4A100006	PIN
47		4A100007	BOWL PUSHER ROLLER
48		4A100008	ROLLER PROTECTION CARTER
49		4A100013/M	PAINTED WHEEL SUPPORT PLATE
		4A100013/R	PAINTED WHEEL SUPPORT PLATE – INOX VERSION
50	SPI 160	4A100014	FLOUR GUARD
	SPI 130	4A100035	
	SPI 200	4A100036	
51		4A100020/M	PAINTED LOWER LATERAL CARTER
		4A100020X	INOX LOWER LATERAL CARTER
52		4A100021/M	PAINTED LATERAL CARTER
		4A100021X	INOX LATERAL CARTER
53		4A100022/M	PAINTED LOWER PROTECTION
		4A100022X	INOX LOWER PROTECTION
54		4A100024	PIN
55		4A100025	PIN
56		4A100027	PLATE
57		4A100032	FLANGE
58		4A100033/M	PAINTED BRAKE SUPPORT
		4A100033/R	PAINTED BRAKE SUPPORT – INOX VERSION
59	SPI 160 - SPI 200	4A100034	BRAKE SHAFT
	SPI 130	4A100075	
60	SPI 130	4A100037	PAINTED SPACER
		4A100037/R	PAINTED SPACER – INOX VERSION
61		4A100040	SPACER

Pos.	Ref.	P/No.	Description
62		4A100050	REAR HEAD COVER
63		4A100051	FRONT HEAD COVER
64		4A100052	CONTROL PANEL SUPPORT
65		4A100058	SPACER
66		4A100059	SPACER
67		4A100060	PLATE
68		4A100061/M	ROTATION BATTING PAINTED
		4A100061/R	ROTATION BATTING, INOX VERSION
69		4A100078	BUSH
70		4A100080	PIN
71		4A100084/M	PAINTED BOWL SHAFT
		4A100084/R	BOWL SHAFT – INOX VERSION
72		4A100089	COUNTERFLANGE
73	SPI 130	4A100098	BOWL PROTECTION COVER
	SPI 160	4A100099	
	SPI 200	4A100100	
74	SPI 130	902125	ELECTROMAGNETIC BRAKE
	SPI 160 - SPI 200	902126	
75		902817	MOTOR 400V 50Hz
76	SPI 130	902837	MOTOR 400V 50Hz
	SPI 160 - SPI 200	902844	
77		906888	CAP
78		910121	BEARING
79		910127	BEARING
80		910128	BEARING
81		910129	BEARING
82		910137	BEARING
83		910147	BEARING
84		910177	BEARING
85		910470	LOCKRING
86		910480	LOCK WASHER
87		910999	BELT
88		911000	BELT
89		911015	BELT
90		911170	PULLEY
91		911172	TAPER BUSH
92		911204	PULLEY
93		911205	TAPER BUSH
94		913383	CASTER WHEEL
95		913387	FIXED WHEEL
96		913394	JOINTED FOOT
97		915530	TIGHTNESS RING
98		915540	TIGHTENESS RING
99		920700	O-RING
100		920774	WASHER

Pos.	Ref.	P/No.	Description
101		920775	WASHER
102		920792	RESTRAINT WASHER
103		922215	STOP RING
104		923553	GAS SPRING