

User Manual

M30/40/50

SPIRAL MIXER



Edition 04

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0.0 Preface

1.0 Purpose and use of the manual

The information contained in the manual is intended for:

- personnel responsible for the repair and maintenance of the machine
- personnel responsible for installing the machine
- personnel responsible for using the machine
- personnel responsible for dismantling the machine

The user must keep the manual, avoiding damage and making it easily accessible and consultable.

The manual is divided into four chapters: A preface and four chapters relating to the description of the machine, safety, use and maintenance.

- *Preface*: Indication of the manufacturing company and definition of the machine's plate data purpose of the manual.
- *Chapter 2*: - Warnings, general description.
Chapter 3: Reference safety regulations and general information regarding the type of machine in question.
- *Chapter 4*: Technical and functional data of the machines, transport, installation, operation, use.
- *Chapter 5*: Instructions for ordinary and extraordinary maintenance, technical diagrams and drawings of the functional groups of the machine as a whole.

For further information, contact the manufacturer directly or an authorised sales agent, providing the plate data shown on the machine itself as the machine reference.

1.1 Data marking required by the EC

MODEL	_____
SERIAL NUMBER	_____
DATE OF MANUFACTURE.	_____
VOLTAGE	_____
FREQUENCY	_____
PHASE	_____
AMPS	_____
<i>THERE IS</i>	

The content of this manual complies with the ECC Machinery Directive 89/392, Annex I, Paragraph 1.7.4

2.0 Warnings, description and safety criteria

2.1 Warnings

Maintaining the machine's efficient conditions depends on correct use and compliance with maintenance as prescribed in this manual.

The manufacturer requires that:

- Every topic covered in the manual must be read and clearly understood before using the machine.
- The machine must not be tampered with, altered or modified even partially, in particular the safety guards must not be removed.
- The machine cannot be used in conditions or for uses not specified in the manual. The manufacturer will be relieved of any responsibility relating to breakages, malfunctions or accidents caused by non-observance of these rules.

The CE marking is fixed on the rear side of the head in a central position.

2.1 General description of the machine

The machine was designed and built for professional use in the food sector.

The purpose of the mixer is to obtain a well-mixed dough for both bread-making and pastry-making.

The technical data that define the use of the machine will be specified below together with the available functions.

2.1.1 Working environment

Operating parameters for good machine performance:

- *Temperature*: from +5 °C to +40 °C, with an average that must not exceed +35 °C in the winter season.
24 hours.
- *Relative humidity*: 30% to 95% non-condensing.

The machine confinement environment must provide a suitable space for carrying out cleaning and maintenance operations on the machine itself.

The noise level of the machine never exceeds 70dB, whatever the operating conditions.

2.1.2 Disposal

In the event that the machine must be scrapped, the various components that constitute it must be selected on the basis of their composition and treated as industrial waste, as established by current regulations.

No component of the machine is classified as toxic-harmful products.

3.0 Unacceptable Terms of Use

The conditions under which it is prohibited to use the machine are listed below:

- Loads larger than permitted.
- Tampering with security systems.
- Use of equipment not supplied with the machine, which is not suitable for contact with food or which may damage the surface of the tank.
- Using the machine in an unsuitable environment.

3.1 Cleaning

Since the machine is used for food processing, cleaning must be thorough and performed on a daily basis.

Only water should be used together with non-abrasive sponges and plastic spatulas to remove any residues. encrustations.

The area surrounding the machine must be clean and the machine must be moved regularly to clean the surface occupied by the machine itself.

3.2 Reference standards

The machine described in the manual complies with directive 89/392/ECC, its amendments and the regulations listed below:

- UNI EN 292-1, UNI EN292-2. Basic concepts for the safety of machinery and general principles of design.
- UNI EN 294 Safety distances.
- UNI EN 349 Minimum distance to avoid crushing of body parts.
- EN 60204-1 Electrotechnical aspects.
- EN 453 Food processing machinery - Mixers

3.3 Operators

The machine has been designed and built for professional use. Therefore:

- The operator must know the implemented functions available on the control panel, the installed safety systems and regularly check their efficiency. He must know all the possible work cycles and the quantities of product to be used. He must also clean the machine every day.
- The maintenance technician (see chapter 5) must check the functionality of the controls on the control panel, the safety systems and check the condition of the drive belts. transmission.
- The technician in charge of extraordinary maintenance and repairs (see chapter 5), while the machine is under warranty, must be authorised by the manufacturer before carrying out interventions on the machine.
Refer to the maintenance chapter (chapter 5).

4.0 Using the machine

The use of the machine is summarised in table 4.1 which defines the maximum quantities of product that can be processed based on the machine model.

The following paragraphs illustrate the phases of transport, installation and commissioning.

4.1 Technical data

The maximum amount of dough for each machine model was estimated considering 60% water compared to the amount of flour.

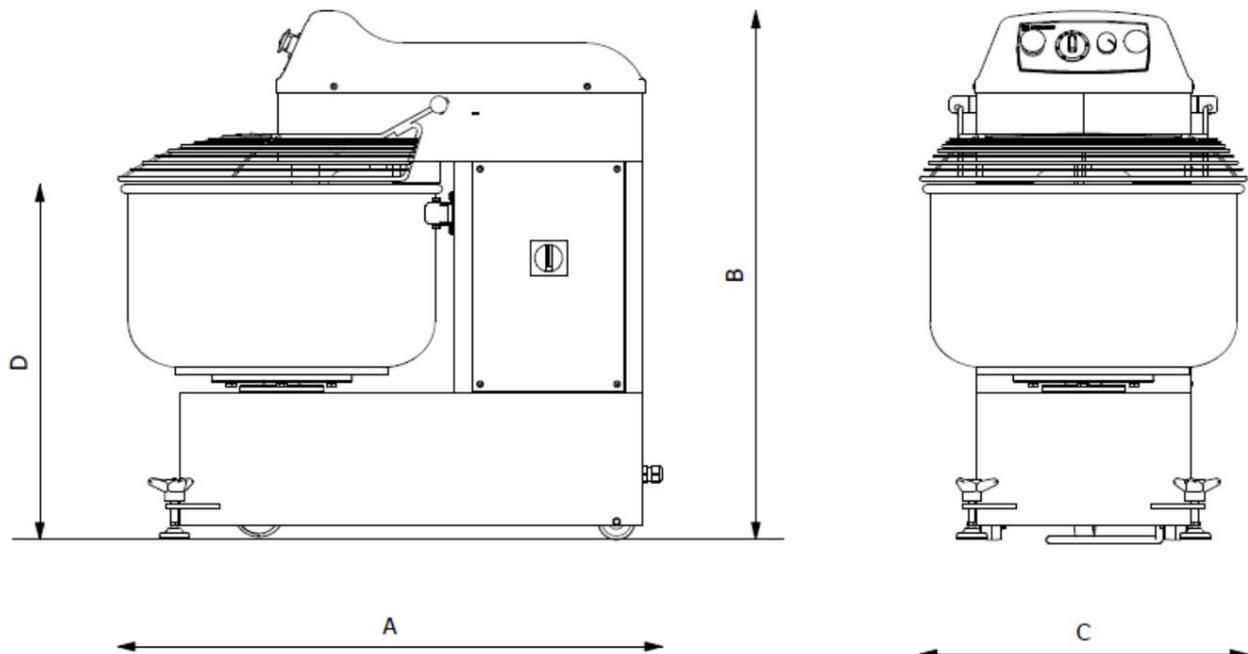
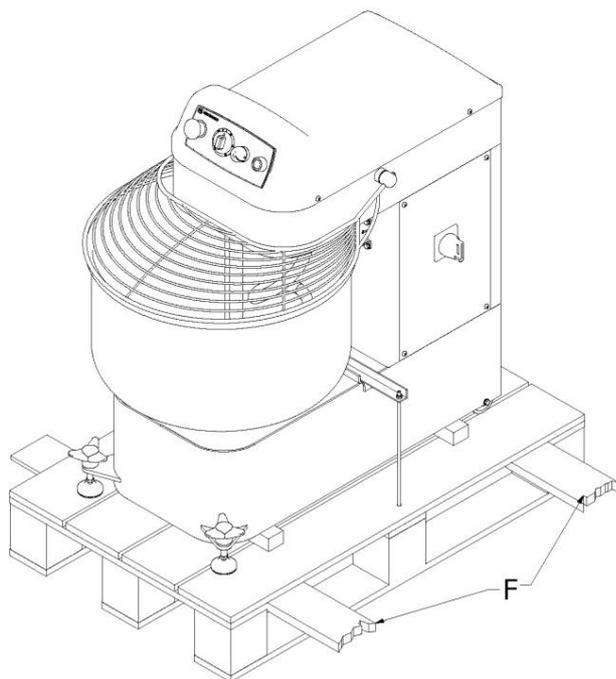


Table 4.1

Model	Characteristics dough			Characteristics basin			Machine footprint & tub edge from floor					Power motor	Speed Min/Max	
	Capacity	Flour	Waterfall	Volume	Diameter	Height	Length	Depth	Height	Height (D)	Weight	Poles	Spiral	Basin
	kg	kg	mm	l	mm	mm	mm	mm	mm	mm	kg		rpm	rpm
													95	9
													280	28
M30MVH	30	19	11	38.5	42	30	83	46	108	59	170	2.2	95	9
													280	28
M40MV	40	25	15	57	50	30	90	54	88	59	170	2.2	95	9
													280	28
M40MVH	40	25	15	57	50	30	90	54	108	79	180	2.2	95	9
													280	28
M50MV	50	31	29	68	55	30	95	58	88	59	180	2.2	95	9
													280	28
M50MVH	50	31	29	68	55	30	95	58	108	79	185	2.2	95	9
													280	28

4.2 Transport and handling



The lifting of the machine for handling and transport must be carried out with the aid of suitable means and equipment, avoiding jolts and oscillations.

during the various stages.

The machine is transported on a wooden pallet.

Lifting using a forklift or pallet truck involves inserting the forks into Pos.

F. Check suitability before lifting of the equipment.

The material that the packaging is made of can be disposed of as urban waste, except for the elements that fasten the machine to the pallet.

4.3 Installation and commissioning

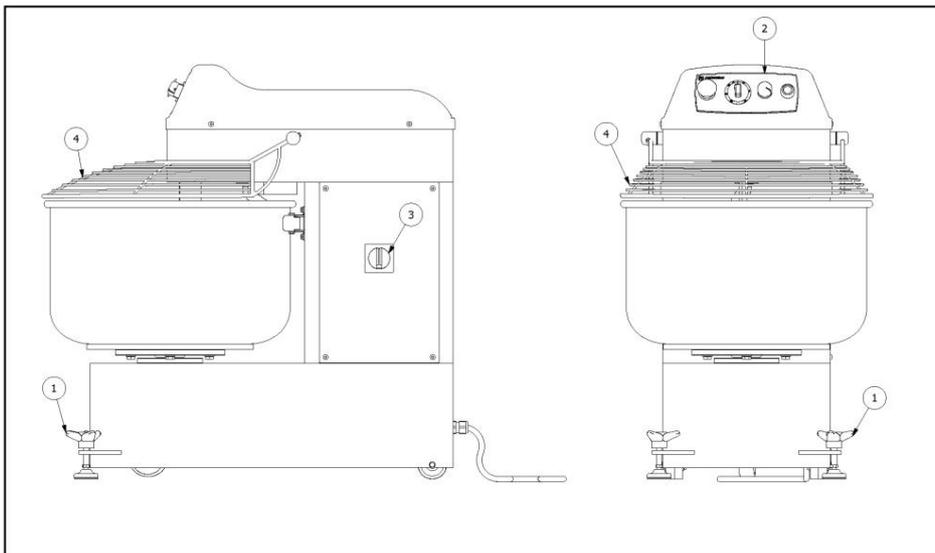
Preparatory phases for the installation and commissioning of the machine:

- Identify an area where the machine will be located that is suitable for food processing and fully accessible for cleaning.
- The floor must be well leveled even if the machine is equipped with leveling feet. frontal.
- Check that the power line is correctly connected by means of a suitable power outlet.
- Check that all controls and movable safety guards are working correctly.

4.3.1 Installation

Once the machine has been transported to the chosen location, proceed with the installation by following the steps illustrated below (see Figs.2/3):

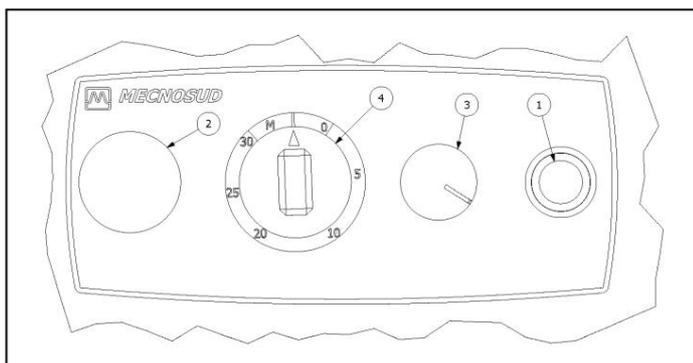
- a) The machine is positioned by adjusting the front feet Pos.1 Fig.2 using the handwheel.
- b) Connect the machine to the power socket, turn the knob Pos. 3 to 1.



c) Check that the tub protection Pos. 4, Fig.2 be lowered.

d) set a time interval by turning the knob Pos.4 Fig.:3 clockwise or select "M" by turning clockwise

counterclockwise and press the Start button Pos.1 Fig.: 3



The control panel Fig.:3 is made up of:

1. Start
2. Stop/Emergency
3. Speed variator
4. Timer

4.3.2 Check correct operation

The machine works correctly if:

- a) the functions on the control panel are available, that is, they are able to ensure the modes operational as specified in the following paragraphs,
- b) lifting the tub guard stops the motor.

4.4 Stop mode

The stop mode depends on whether the operation mode is manual or automatic.

4.4.1 Stopping in manual mode

The machine works in manual mode when you select the "M" position by turning the Timer Pos.:4 Fig.:3 anticlockwise and setting the speed by turning the knob Pos.:3.

In this mode the machine stops only through direct intervention by the operator by pressing the Stop/Emergency button Pos.:2 Fig.:3 or by lifting the tub guard Pos.:4 Fig.:2.

4.4.2 Stopping in automatic mode

The machine works in automatic mode when the Timer has been rotated clockwise and the desired time has been set. After the set time has elapsed, the machine stops automatically.

4.5 Description of the processing cycle

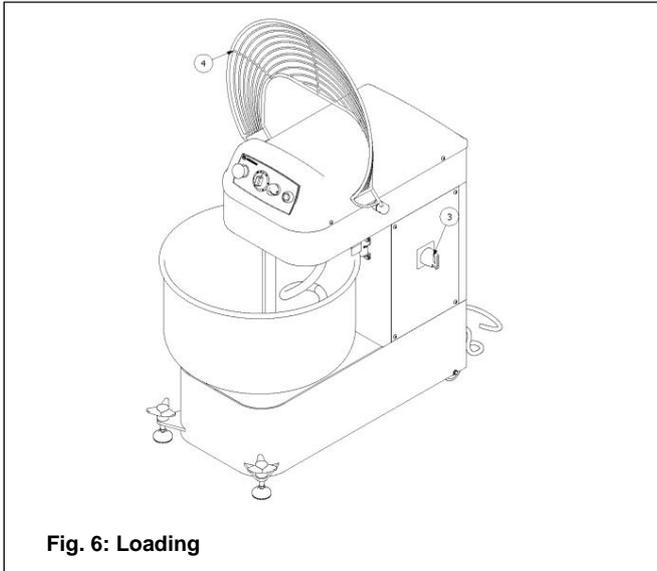
A work cycle, regardless of the operating mode, consists of the following phases:

- a) Machine loading
- b) Execution of the work cycle
- c) Unloading the dough

4.5.1 Machine loading

Once the machine has been installed and its correct functioning has been verified, together with the cleaning requirements of the machine and the installation area, the personnel in charge can proceed with loading as indicated below (see Fig.6):

Turn off the machine by pressing the switch Pos.3 Fig.:2.



Lift the movable safety guard Pos.4 fig.2/6.

Load the ingredients into the bowl. The only ingredients allowed are those intended for bread making and pastry making.

Verify that the quantity does not exceed the limits imposed by table 4.1.

It is recommended to pour the water in the required quantity as the first ingredient, then the flour in the right proportion to the water, as suggested in paragraph 4 and 4.1. and then the other ingredients such as salt, yeast, etc.

It is not recommended to load the flour before the water, to avoid the formation of very dense lumps which

cause absorption peaks and possible wear of the spiral-tank transmission belts.

4.5.2 Execution of the work cycle

Lower the mobile guard, set the line switch Pos.3 Fig.2 to position "1" and select manual or automatic mode as indicated in the previous paragraphs.

4.5.3 Machine unloading

At the end of the mixing cycle, the machine stops if in automatic mode or is stopped by the operator if in manual mode. Wait for the bowl and tool to stop, set the line switch, Pos.3 Fig.2 to "0" and proceed to empty the bowl.

5.0 Maintenance

Machine maintenance is divided into ordinary and extraordinary.

All maintenance and cleaning operations that do not involve checking the functionality of the controls on the control panel require the machine to be switched off using the line switch Pos. 3 Fig. 2 and the power cable to be disconnected from the electrical socket.

5.1 Ordinary maintenance

Routine maintenance includes daily cleaning, monthly checks of the belt tension level, and checking that the controls and safety systems the machine is equipped with (tank guard - Stop/Emergency button) are working correctly each time the machine is turned on.

5.1.1 Cleaning

The machine must be cleaned on a daily basis. Only sanitizing products that are required by the health regulations of the place where the machine is used are permitted. Tools and/or products that may damage or scratch the machine are absolutely prohibited.

The cleaning of the tub, spiral, column and fixed and movable protections must be done with a cloth soaked in water; any encrustations must be removed with a plastic spatula that does not scratch the surfaces.

The removal of encrustations must be complete.

5.1.2 Check operation of controls and safety systems

The following describes the checks to verify the functionality of the controls illustrated in Fig.2/3.

- Line switch, Pos. 3 Fig.2, its function is to isolate the machine from the electrical network, when it is on "0" no function is available.
- Red mushroom-shaped Emergency Stop button Pos.3 fig.3, cuts off the power supply to the engine, even if Due to inertia, moving mechanical parts will not stop instantly.
- Start Pos.1 fig.3. This function enables the rotation of the spiral and bowl.
- Timer by selecting the "M" position, manual operation is enabled by selecting a time any one enables automatic operation.

The Timer works correctly if the machine behaves as just described.

The machine's safety systems consist of the movable guard Pos.4 Fig.:2 and the emergency button.

5.1.3 Checking the belt tension

The condition of the belts and their tension should be checked on a monthly basis.

5.1.3.1 Spiral transmission belts

To inspect the spiral transmission belts it is necessary to access the head compartment, see figs.7/8, by unscrewing the screws Pos. 9 and removing the head casing Pos.8.

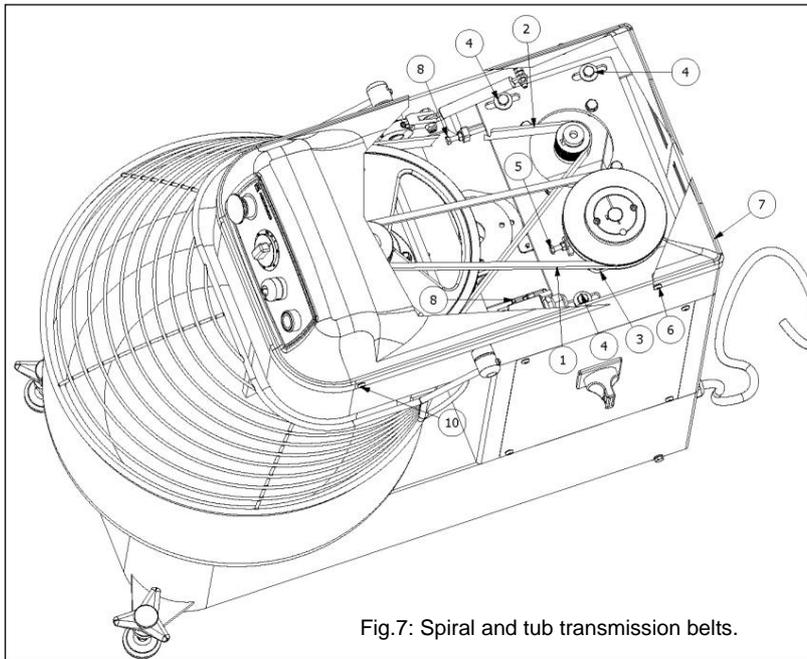


Fig. 7: Spiral and tub transmission belts.

If the spiral transmission belts Pos.2 have loosened, proceed as follows:

- Loosen the screws Pos. 4.
- Restore the correct tension of the belts Pos. 2 by acting on the screws Pos. 8
- Tighten the lock nuts of the screws Pos.:8 and the screws Pos.4.
- Reposition the cylinder head cover Pos.8.

If the spiral transmission belts are worn, their replacement requires the first step of removing the tub transmission belt,

proceeding as indicated below, see figs.7/8: Of

a) Removal of the tub return belts Pos.1:

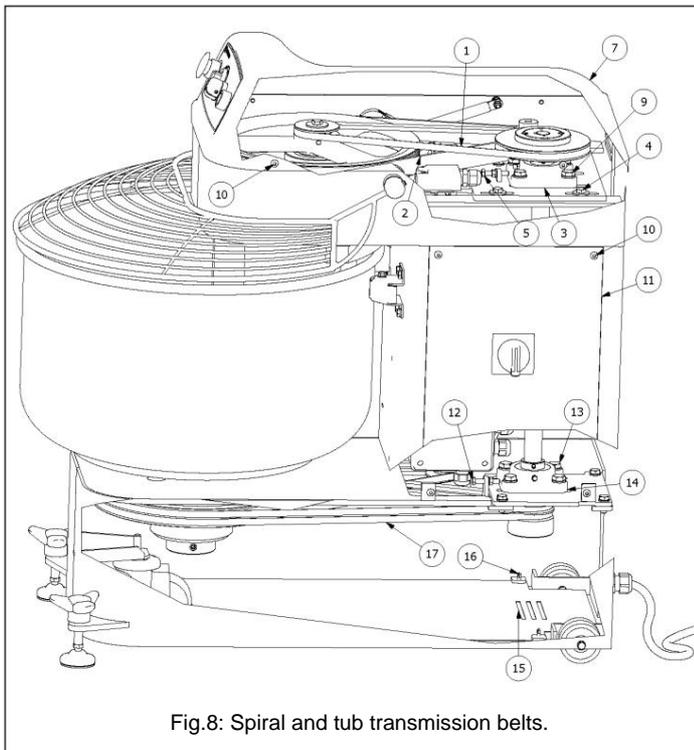


Fig. 8: Spiral and tub transmission belts.

- Loosen the screw Pos. 4 and the nut and screws Pos.8.

- Remove the belts Pos.1.

b) Remove the belts Pos.2 by loosening the screws Pos.4 and the nuts Pos.5.

c) Replace the belts Pos.2 and tension following the steps indicated at the beginning of the paragraph.

d) Tensioning the tub return belts Pos.1.

When reassembling the belts Pos.1 of the tub transmission, special attention must be paid to providing the correct level of tension and at the same time checking that the support Pos.3 is aligned with the corresponding one on the opposite end of the drive shaft tub Pos.14.

After having blocked the support Pos.3, by tightening the screw Pos.9 and the nut Pos.4.

The operation just performed rotates the drive shaft, so it is necessary to check and if necessary adjust the belts in the base Pos.17. The operations necessary to adjust the belts Pos.17 they are the same as described for the belt in Pos.1.

After having restored the tension of the belts, make sure that the shaft Pos.29 (see exploded view) is parallel to the frame.

If the wear check requires the replacement of the belts only (Pos.17 or Pos.1), it may happen that the shaft is excessively rotated, in this case it is sufficient to use belts of the same brand, however misalignments of $\pm 2^\circ$ are permitted.

5.1.4 Greasing the swivel supports

The self-aligning supports of the tub drive shaft fig.8 require greasing every 4 months, with normal lithium grease.

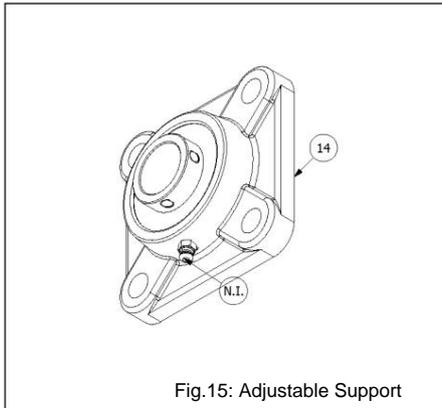


Fig.15: Adjustable Support

The "NI" grease nipple is shown in the figure alongside. There are two supports, one in the cylinder head compartment Pos.14 Fig.8 and one in the crankcase compartment. They can be reached by dismantling, respectively, the cylinder head cover Pos.7 and the electrical panel casing Pos.11 Fig.8.

5.2 Extraordinary maintenance

Extraordinary maintenance interventions are not recurring events, therefore they are not programmable. These can be preventive or due to malfunctions and/or breakages.

Preventive interventions are recommended if certain mechanical parts begin to exhibit abnormal noise or vibrations that may result in malfunctions or breakdowns and compromise the functionality of other parts of the machine.

Preventive inspections of the transmission organs and bearings must however be carried out every 2000 hours of operation.

However, these operations must be authorised by the manufacturer or one of its direct dealers.

In the event that the machine is no longer covered by warranty and the user has qualified personnel, he can request from the manufacturer more technical information on the machine in terms of drawings, component lists and mechanical parts. In this case the user is responsible for any damage caused to people and/or to the car.

5.2.1 Replacing the spiral support bearings

These bearings rarely need to be replaced, because they are oversized for the working load.

Replacing the bearings, see exploded view in the next chapter, requires removing the casing Pos. 5, removing the protection ring Pos.110, the belts Pos. 6 and 35, the pulley Pos. 239 and the screws Pos. 15, then the complete spiral support can be removed and finally the bearings can be replaced.

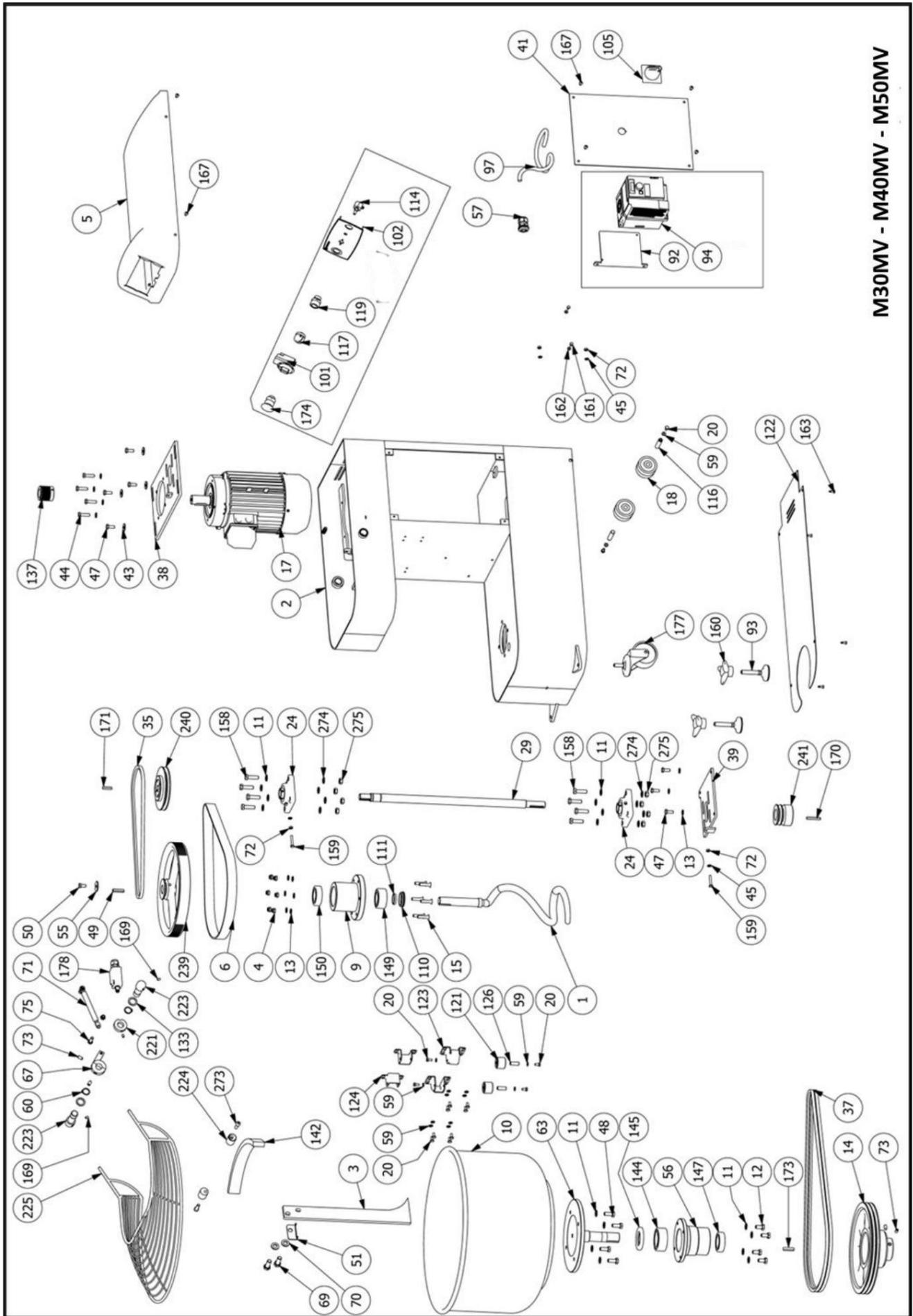
5.2.2 Replacing the tub support bearings

To check and possibly replace the bowl support bearings, see exploded view, it is necessary to remove the spiral, as indicated in the previous paragraph, the protection Pos.225, the column

Pos. 3 and then access the base compartment to remove the tub and finally remove the tub support. The necessary operations consist of removing the casing Pos. 122, the pulley Pos. 14, the screws Pos. 48 of the tub Pos. 10, the screws Pos. 12 and finally the replacement of the bearings Pos. 147 and 144.

6.0 Attachments

The attachments below refer to the groups constituting the structural and mechanical part of the machine and the electrical diagrams.



Components list

ITEM	QTY	STOCK NUMBER	DESCRIPTION
1	1	SP030001	Spiral
2	1	M3000002	M30 Frame
		M4000002	M40 Frame
		M5000002	M50 Frame
3	1	M4000003	M40 column
4	6	050M0800	Self-locking high zinc nut - M8x1.25 UNI 7473
5	1	M4000005	M40 Case
6	1	P12J1194	Poly-V Belt 1194-12J
9	1	SP030009	Spiral support
10	1	M3000010	Tub Ø425x300
		M4000010	Tub Ø500x300
		M0500010	Tub Ø550x300
11	16	05810000	Zn Washer, ISO 7089 - A - 10,5X20X2
12	4	02610020	Internal Zn screw thread ISO 4017 - M10 x 20
13	15	05808000	Zn Washer, ISO 7089 - A - 8,4X16X1,6
14	1	SPX30014	Pulley SPZ De 287.6 - 2 grooves
15	6	07208035	VTPS-ei Inox ISO 10642 UNI 5933 - M8x35
17	1	MT100006	Motor MEC-100-B14-4pole-2.2kW
18	2	PC020084	Nylon wheel 60X40
20	14	07206012	Internal stainless screw thread ISO 4017 - M6 x 12
24	2	IMX25024	UCF Support
29	1	M4000029	Tub drive shaft
35	1	XPZ0962	SPZX 962 Belt
37	2	XPZ01537	SPZX 1537 Belt (M30 / M40)
		SPZX1600	SPZX 1600 Belt (M50)
38	1	M4000038	Engine plate
39	1	SPX30039	UCF support plate
40	2	SPX30114	UCF fixing bracket
41	1	M4000041	Carter_Switchboard
43	4	05408024	Zn Washer, ISO 7093 - 8,4X24X2
44	4	02608030	Internal Zn screw thread ISO 4017 - M8 x 30
45	8	05806000	Zn Washer, ISO 7089 - A - 6,4X12X1,6
47	7	02608020	Internal Zn screw thread ISO 4017 - M8 x 20
48	4	02610025	Internal Zn screw thread ISO 4017 - M10 x 25
49	1	CH080636	8X6X36 Key
50	1	02608016	Internal Zn screw thread ISO 4017 - M8 x 16
51	1	M4000051	Steering column interlock cover
55	1	05408032	Washer ISO 7093 - 8,4X32X2
56	1	SP030056	Bathtub support
57	1	PG160000	PG16 cable gland
59	30	08706000	Stainless Steel Washer, ISO 7089 - A - 6.4X12X1.6
60	2	051D2000	Seeger UNI 7435, DIN 471 - D20x1,2

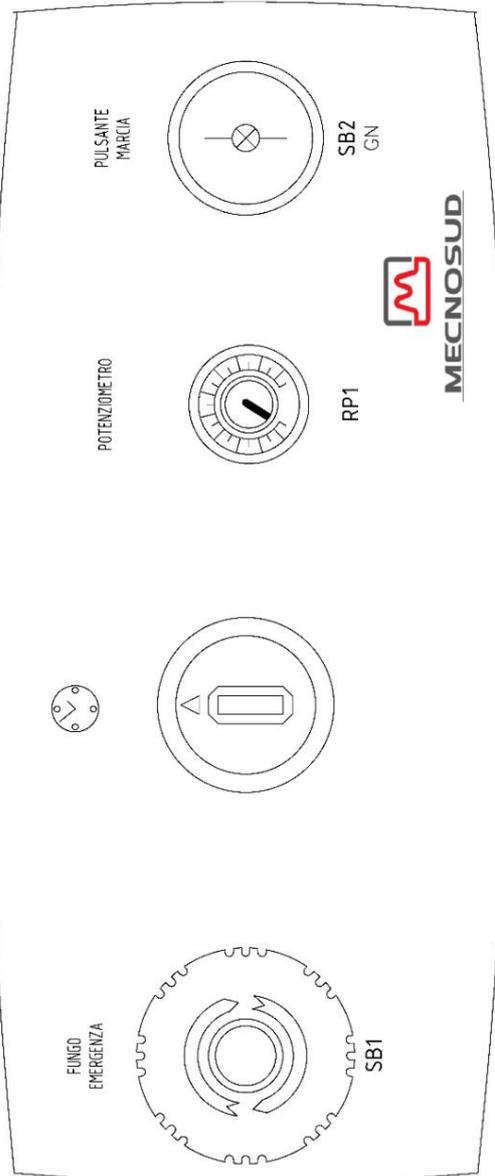
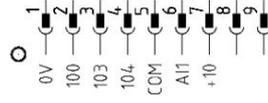
ITEM	QTY	STOCK NUMBER	DESCRIPTION
63	1	M4000063	Flanged shaft for tub support
67	1	SP040070	SP401/601/801 gas spring operating lever
69	2	02612030	Internal Zn screw thread ISO 4017 - M12 x 30
70	2	05812000	Zn Washer, ISO 7089 - A - 13X24X2,5
71	1	M4000071	Gas spring 200N - Stabilus code: 192872 0200N
72	8	041M0600	Zinc Nut - M6 ISO 4032
73	4	03508016	VST Zn DIN 914 - M8x16
75	1	02608025	Internal Zn screw thread ISO 4017 - M8 x 25
91	1	SPX30091	QE 2 Speed SP30/40 Box Support Bracket
92	1	SPX30092	SP30 inverter bracket
93	2	M4000093	Leveling foot 50X12X100
94	1	ATV320J22M2C	Inverter ATV320 - 2.2kW - 200-240V - 1 phase - compact
97	1	M4000097	CABLE 3g1,5x2,5 H05RR.F BLACK AD 108
98	1	M40MV198	SINGLE-PHASE ELECTRICAL SYSTEM WITH INVERTER
101	1	MXX20005	Timer
102	1	M4000102	QC Support Variable Speed Mechanical Timer
105	1	MXX20030	Switch 0-1
110	1	M4000110	Bearing protection ring
111	1	M4000111	Spiral bearing protection ring M40
114	1	MXX20132	Potentiometer
116	2	M4000116	Wheel hub shaft
117	1	MXB12130	Potentiometer adjustment knob and ring
119	1	ZB5AA131	Green start button
121	2	M4000121	Tub roller
122	1	M4000122	Crankcase crankcase
123	2	M4000123	Tub roller support
124	2	M4000124	Internal protection of the tub roller
125	4	07006020	Internal stainless screw thread ISO 4017 - M6 x 20
126	2	M4000126	Support shaft Roller
132	2	SPX60273	Hinge
133	4	07006025	Internal stainless screw thread ISO 4017 - M6 x 30
136	8	079M0600	Stainless Steel Blind Nut - M6x1 UNI 5721
137	1	MXX40137	Pulley-12-PPV-J-45
138	4	07206016	VTPS-ei Inox ISO 10642 UNI 5933 - M6x16
139	1	SPX60274	Knob
142	1	M4000142	Fixed tub protection M40
144	1	C32072RS	Bearing 3207-2RS
145	1	SPX30145	Sealing ring DIN 3760 - AS - 45 x 72 x 8
147	1	C62062RS	Bearing 6206-2RS
149	1	CU33052RS	Bearing 3205-2RS
150	1	CU63052RS	Bearing 6305-2RS
158	8	02610035	Internal Zn screw thread ISO 4017 - M10 x 35
159	2	02606035	Internal Zn screw thread ISO 4017 - M6 x 35
160	2	FXX80020	7P NYLON FLYWHEEL D.60
161	2	02605010	Internal Zn screw thread ISO 4017 - M5 x 10

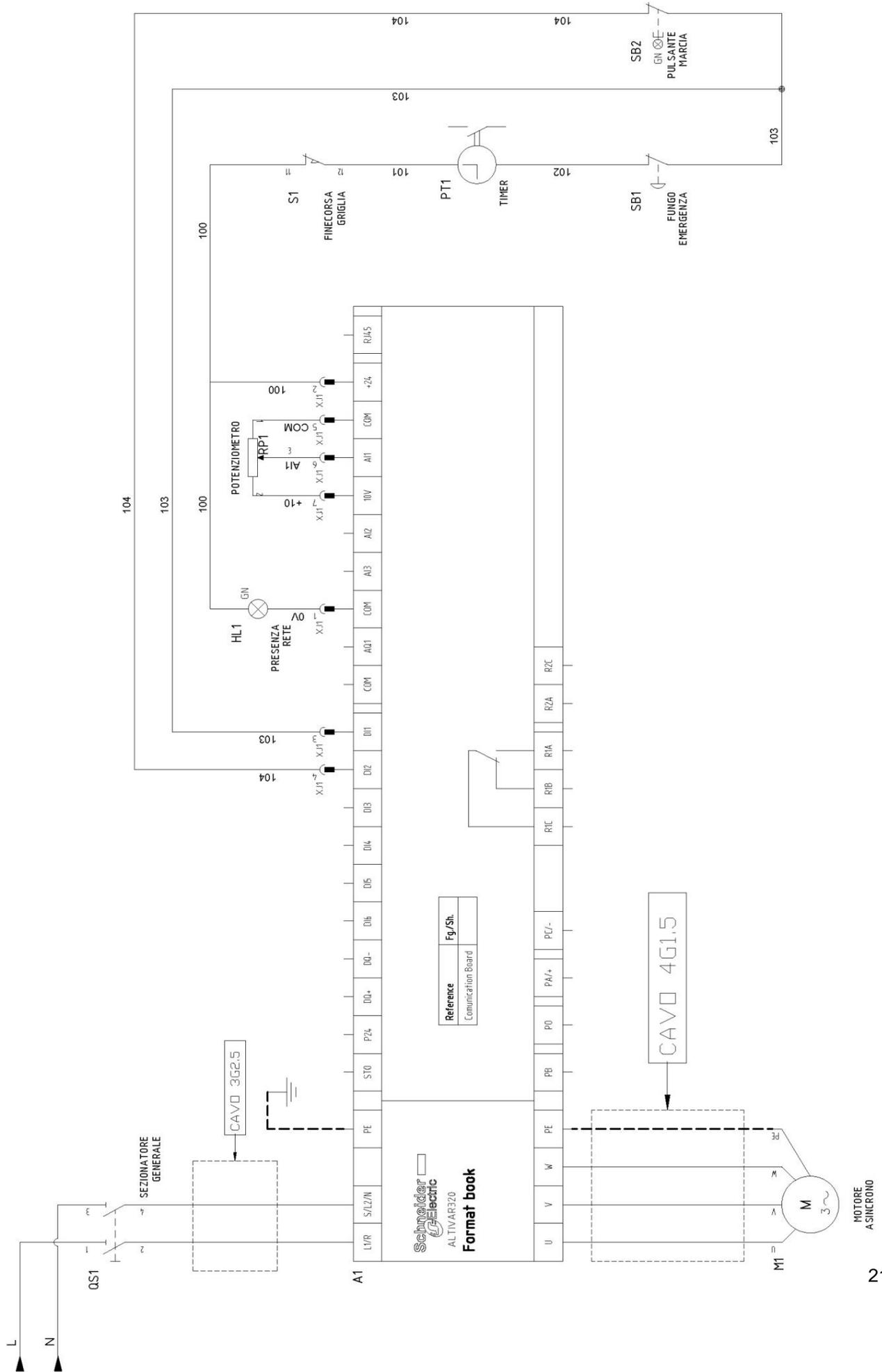
ITEM	QTY	STOCK NUMBER	DESCRIPTION
162	2	05805000	Zn Washer, ISO 7089 - A - 5,3X10X1
163	4	02204816	VTAC M4.8X16 stainless steel self-drilling screw
167	8	10406010	VTB-ei Stainless Steel ISO 7380 - M6x10
169	5	03506010	VST Zn DIN 914 - M6x10
170	1	CH060640	Key ISO 773 A-UNI 6604 A-DIN 6885 A -- A 6 x 6 x 45
171	1	CH060630	Key ISO 773 A-UNI 6604 A-DIN 6885 A -- A 6 x 6 x 30
173	1	CH080735	Key ISO 773 A-UNI 6604 A-DIN 6885 A -- A 8 x 7 x 36
174	2	SP000174	Emergency mushroom
177	1	IM060013	Rotating wheel
178	1	P2102G11	Limit switch
221	1	M4000221Z	M40 limit switch actuator
222	2	M4000223	M40 grid rotation pin
223	2	M4000133	Nylon spacer for tub protection M40
224	2	M4000224	M40 GRID STOP
225	1	M3000225	M30 tank cover grille
		M4000225	M40 tank cover grille
		M5000225	M50 tank cover grille
239	1	SPX30239	Pulley-12-PPV-J-284-1 - SPZ groove d.65
240	1	SPX30240	Pulley SPZ De 123 - 3 grooves
240/1	1	SPX30240/1	CONICAL COMPASS 1610/20
241	2	SPX30241	Pulley SPZ De 65 - 2 grooves
241/1	1	SPX30241/1	CONICAL COMPASS 1108-20
250	4	M4000250	Closed crankcase rod support block
251	2	M4000251	M40 Opening Protection Support Rod
252	1	M4000252	Opening protection Carter M40
271	1	M4000063	Flanged shaft support tub
280	1	M4000280	WOODEN CAGE

6.2 Electrical diagram

CONNETTORE
9 POLI

=QG - XJ1





Nome/Item	Tipo/Type	Descrizione/Description	Costruttore/Marke	Quadro/Board	Fg/Sh	Q.ta/Q.ty
A1	ATV320U2M2C	AltiVarATV320 Variatori formato compatto monofase 200-240V 2.2 kW 50/60 Hz con filtro EMC Integrato	Schneider Electric	=QG	4	1
HL1	LPXLPB8	PORTALAMPADA LED BIANCO 12/30V AC/DC	Lovato	=QG	4	1
M1		Motore asincrono trifase		=QG	4	1
PT1		Orologio con contatto NO		=QG	4	1
QS1	K2B1002HLH	COMMUTATORE COMPLETO 20A 0-1 2P	Schneider Electric	=QG	4	1
RP1		Potenziometro		=QG	4	1
S1	XCKP2102G11	FINECOR PLA 1NC1NO PG11	Schneider Electric	=QG	4	1
SB1	LPCB6144	PULSANTE FUNGO 40MM ROSSO IMPULSO	Lovato	=QG	4	1
	LPXAU120	BASE DI FISSAGGIO X PULSANTI PLATINUM	Lovato			1
	LPXC01	CONTATTO AUX 1NC ATT.VITE	Lovato			1
SB2	LPCBL103	PULSANTE LUMINOSO RASATO VERDE	Lovato	=QG	4	1
	LPXAU120	BASE DI FISSAGGIO X PULSANTI PLATINUM	Lovato			1
	LPXC10	CONTATTO AUX 1NO ATT.VITE	Lovato			1