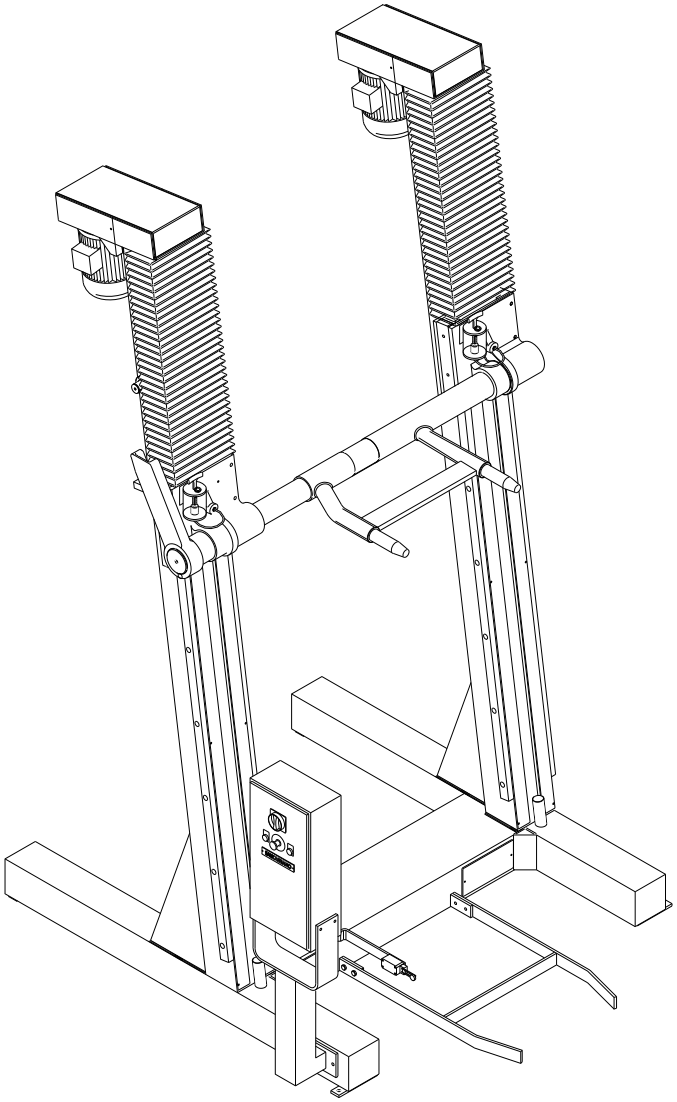
Serial # _____

SANCASSIANO

MACCHINE E IMPIANTI
PER L'ARTE BIANCA



BOWL LIFTING AND TILTING MACHINE

ER2

Instruction handbook
Operating, Maintenance and Spare parts

English

Keep this manual for future reference

NOTICE

The information contained in this manual is subject to change without notice.

We reserve the possibility to modify the machines or parts without a sudden and quick revision of the manual and parts list.

CONVENTION OF THE MANUAL

- **CAPITAL BOLDFACE**: Chapter's title or subject;
- **boldface**: particularly important text;
- text enclosed in a frame: important information regarding the safety of the operator;

Edition: October 2000 - Revision 00

Dear customer,

thanks for choosing SANCASSIANO.

We have prepared this "Manual" to help you to get a full satisfaction with the machine you have just purchased.
We recommend to read it very carefully before starting operating.

In this Manual you will find information, suggestions and warnings for a safe and quick use.

You will find enclosed the list of "SANCASSIANO Service Points" in Italy and in the rest of the world, and a few pages to present our whole production.

The President of SANCASSIANO S.p.A.
Davide Drocco

TABLE OF CONTENTS

1. GENERAL INFORMATION

This manual contains the information necessary for the comprehension of the characteristics and for a safe use and maintenance of the machine.

We shall treat subjects as:

- lifting, handling and transport;
- installation and commissioning;
- use;
- cleaning and maintenance;
- de-commissioning, disposal and recycling;

It is very important to keep the present manual for all the period of use of the machine. In case of sale to another user, please supply the manual too.

SANCASSIANO DECLINES EVERY RESPONSIBILITY FOR TROUBLES, FAULTS AND ACCIDENTS DUE TO THE INCORRECT APPLICATION OF THE RECOMMENDATIONS CONTAINED IN THIS MANUAL.

WE DECLINE EVERY RESPONSIBILITY IN CASE OF INJURIES HAPPENED IN CONSEQUENCE OF MODIFICATIONS MADE TO THE MACHINE BY THE USER, OR AFTER THE INSTALLATIONS OF EQUIPMENT NOT PREVIOUSLY AUTHORISED BY SANCASSIANO.

2. DESCRIPTION OF THE MACHINE

2.1. Introduction

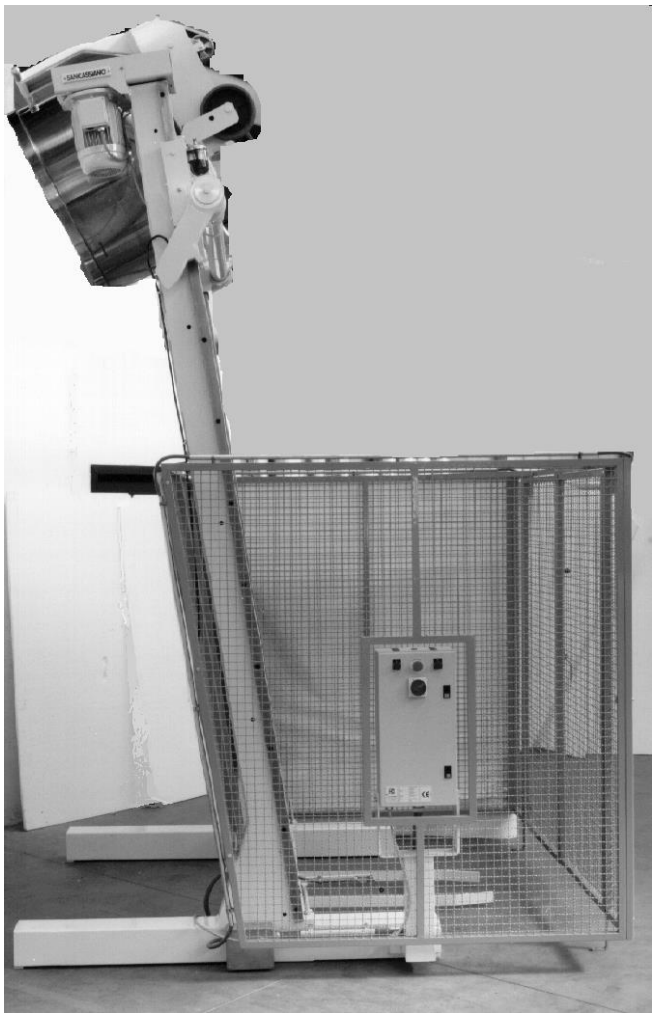


Figure a

The ER2 is an industrial machine for lifting and tilting bowls, with double inclined masts, designed to discharge food dough to containers, processing machines or what else is involved in the production cycle of the customer; it is available in different models with several tipping heights to adjust to customer's requirements.

The elevator can be equipped with some optional features such as the automatic bowl scraping system, the protection of the lifting screws (bellows), the vertical sliding door of the safety barrier, stainless steel feet, motorised translating system, complete stainless steel frame.

2.2. Main technical features.

- The frame is made of enamel coated carbon steel, to guarantee a long lasting service and a high corrosion protection.

- The load bearing sledge is made in cast iron with sliding blocks in synthetic anti friction material; guide in hardened carbon steel and lead nut in synthetic material.
- Lift and descent movement by means of worm in rectified steel and lead nut in synthetic material.
- Safety lead nut always clamped on the lifting screw (optional).
- The drive system of the lifting screw is composed of a three-phase electric motors and transmission belts.
- Safety limit switch both for the lifting and descent movement.
- Bowl lock system with centring guides, with safety interlocking device.
- The machine is lifted from the floor for easier cleaning operation of the operating area (optional).
- The electrical equipment is located inside a sealed metallic enclosure, enamel coated, and safety lock.
- Painting process with water bas epoxy paint and additional antioxidant agent.
- Safety mechanical stopping device

2.3. Max load liftable

The following table list the max. load liftable for each model of elevator.
We strictly recommend to follow this indication.

ELEVATOR MODEL	TYPE OF BOWL THAT CAN BE LIFTED	MAX LOAD LIFTABLE (Kg)
Elevator ER2 with single tilting lever, screw Ø50 mm with scraping system	DF140/300 BTE220/300 SE200/300 HE220/2800 FRC240 PLT400 FRC320	700
Elevator ER2 with single tilting lever, screw Ø50 mm without scraping system	DF140/300 BTE220/300 SE200/300 HE220/2800 FRC240 PLT400 FRC320	700
Elevator ER2 with double tilting lever, screw Ø50 mm with scraping system	HE400/520 DF500 PLT600	950
Elevator ER2 with double tilting lever, screw Ø50 mm without scraping system	HE400/520 DF500 PLT600	950
Elevator ER2 with double tilting lever, screw Ø60 mm with scraping system	SE700	1300

2.4. Intended use

"ELEVATOR / DOUBLE MAST BOWL LIFTING AND TILTING MACHINE"

The elevator SANCASSIANO ER2 must be employed only for lifting and tilting bowls manufactured by SANCASSIANO S.P.A..
The elevator ER2 can also be utilized for lifting and tilting bowls manufactured by other companies, when this application is previously authorized by SANCASSIANO S.P.A.

The elevators ER2 may have different tipping heights, (mt.1,20 - mt.1,80 - mt.2,40 - mt.2,80 - mt.3,20 - mt.3,60).

2.5. Overall dimensions

Dimensions of the machine may change according to the type of application or the type of bowl lifted. Figure b shows an example of application in which an elevator ER2 is lifting a bowl with capacity 300 Kg of dough, and a tipping height of 2950 mm.
All dimensions are in millimetres.

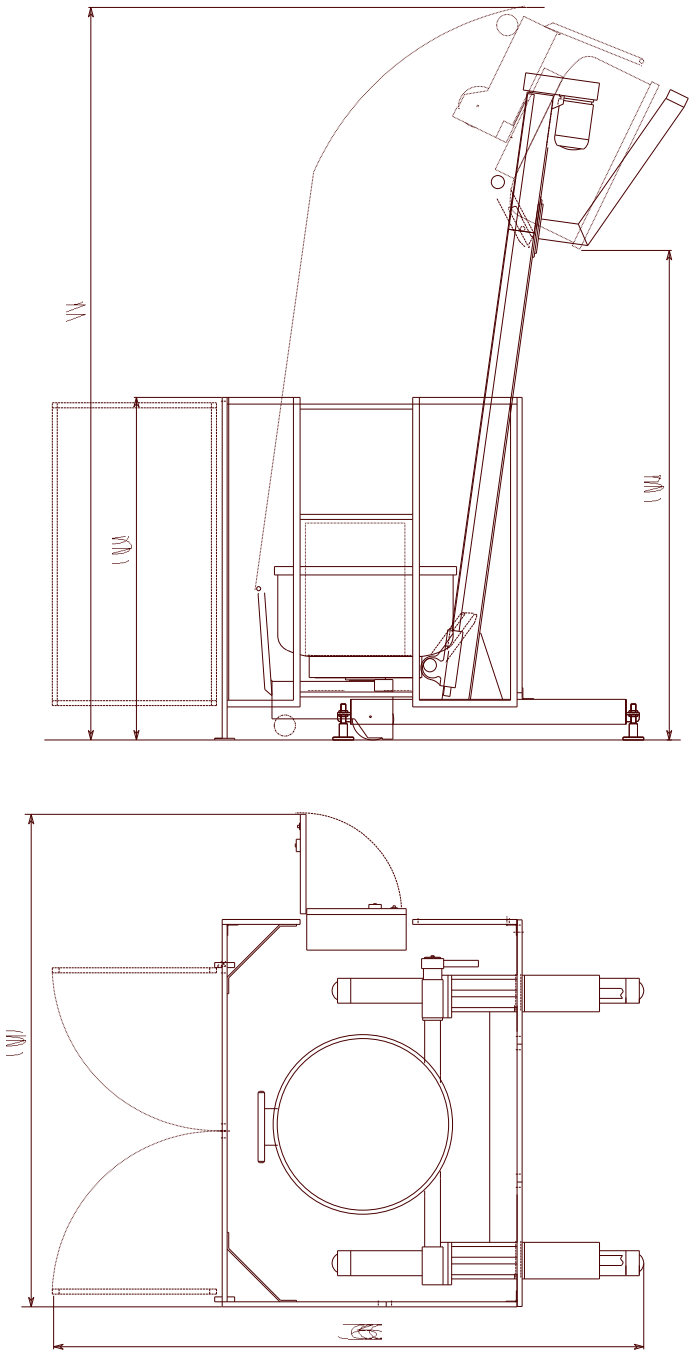


Figure b

2.6. Main parts of the machine

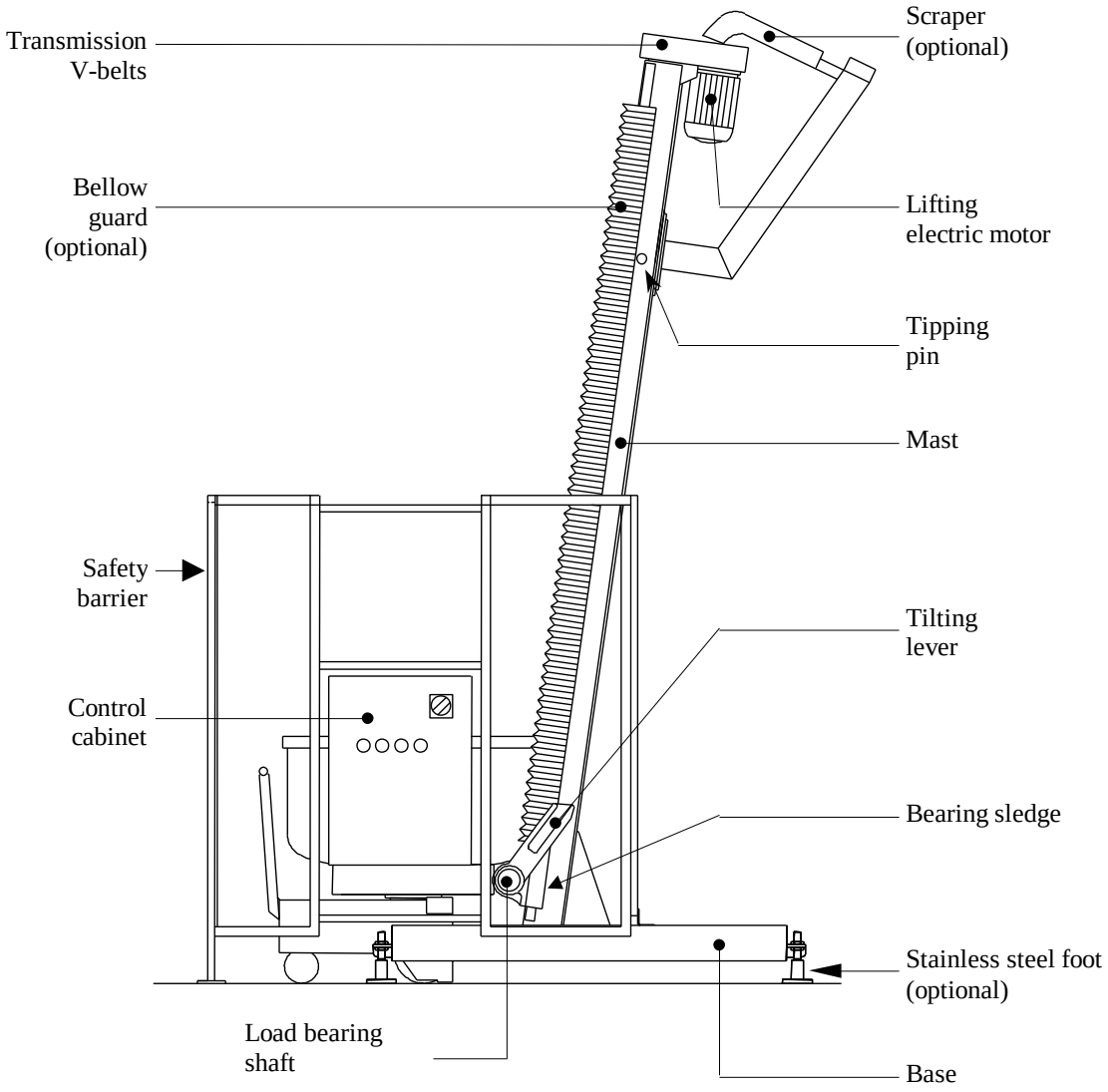

Transmission
V-belts
Bellow
guard
(optional)
Safety
barrier
Control
cabinet
Load bearing
shaft
Scraper
(optional)
Lifting
electric motor
Tipping
pin
Mast
Tilting
lever
Bearing sledge
Stainless steel foot
(optional)
Base

Figure c

3. PROVISIONS FOR LIFTING AND HANDLING

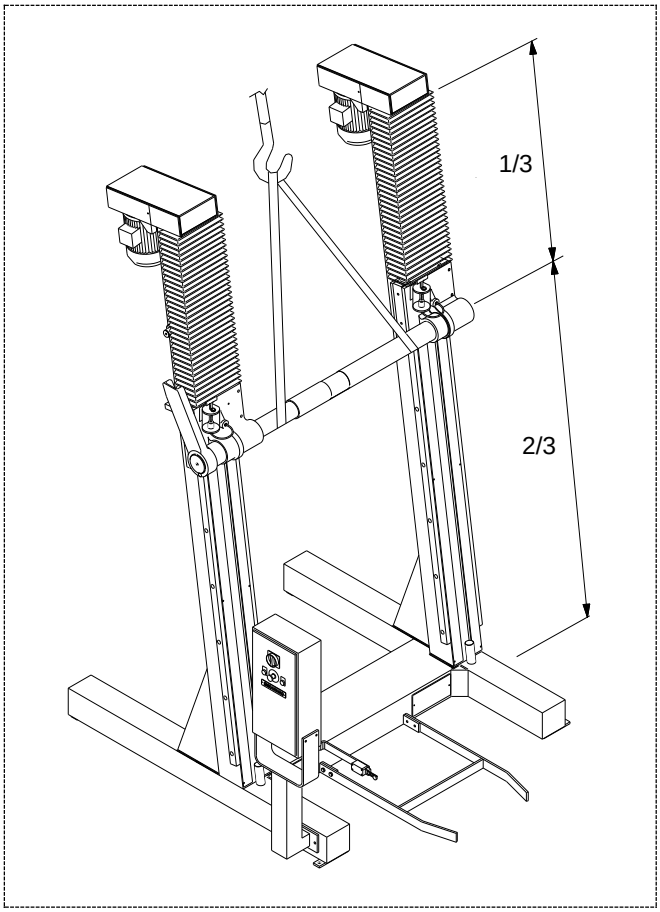


Figure d

Lifting must be done very carefully, by specialised personnel, previously trained on the procedure to follow.

Be sure that the weight of the machine does not exceed the capacity load of your crane. The weight is indicated on the identification plate located on the control panel.

Connect the machine to the electric power supply, turn the main disconnect switch to position (I) and push the LIFT button on the ER2 control panel; lift the bearing transversal shaft and bring it to 2/3 of the total stroke (see Figure d).
Sling the machine around the bearing shaft as shown in Figure d. Fasten the whole system to the hook of your crane (or other lifting equipment) and lift the machine.

We recommend to use a proper lifting band or a strong rope.

This method can assure the safety of the operator and prevent the machine from being damaged.

3.1. How to put the elevator in vertical position

For reasons of packing and transport you could happen to receive the ER2 in horizontal position, and so you should bring it in the correct operating position (vertical) before starting up.

Also, In particular cases, the locking platform could be found in overturned position (to reduce the overall dimensions during transport); in this case the first operation that must be done is to bring the locking platform in the correct position by rotating it manually in direction of the arrow (A) (see Figure e).

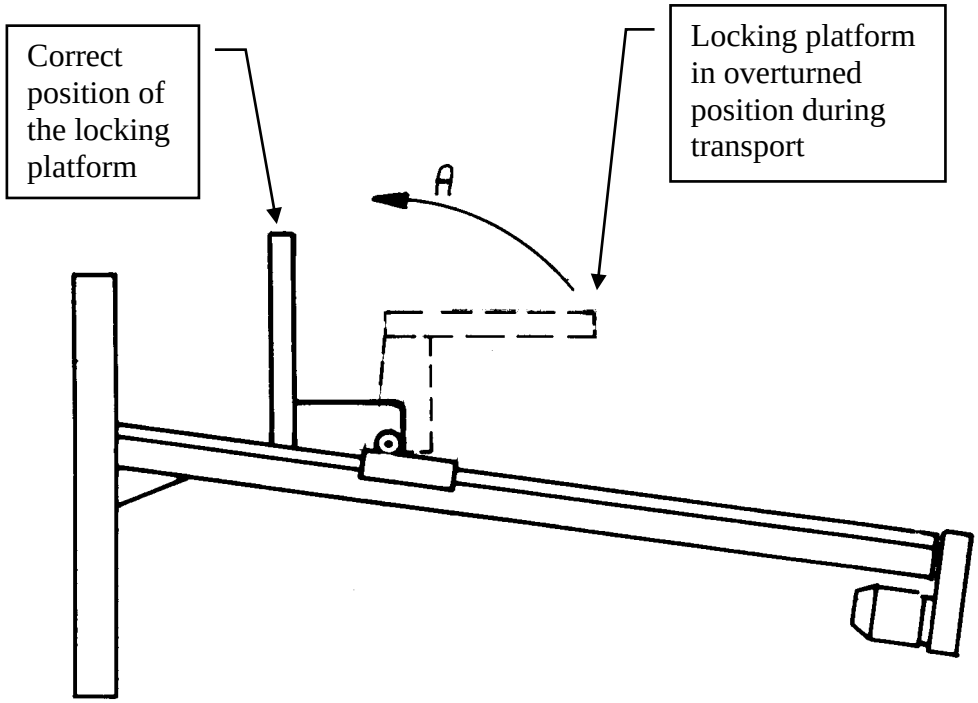


Figure e

To put the elevator ER2 upright you need a proper lifting equipment (crane, lift truck or else) and a lifting band or strong rope that will be fastened to the bearing transversal shaft of the elevator (see Figure f).

Lift the machine moving in direction “A” (Figure f); connect the elevator to the electric power supply source, turn the main disconnect switch to (I) and push the LIFT button (↑) on the control panel; the bearing shaft of the ER2 is now moving in direction “B” (Figure f).

IMPORTANT! In case the elevator doesn’t start, reverse the connection of the phases in the power supply plug.

The two movements (A) and (B) will cause the rotation (C) bringing the elevator in upright position.

CAUTION!!!
Operate very carefully, moving the bearing shaft and the crane in alternating way, to get a constant and slow rotation and prevent damage to the machine or risks for the operator.

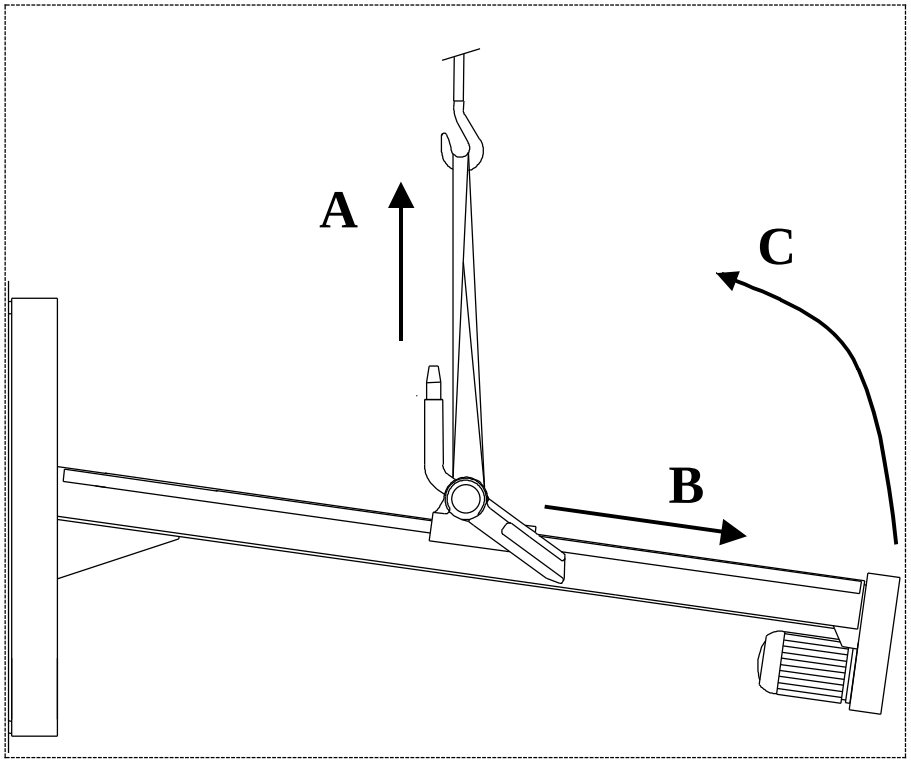
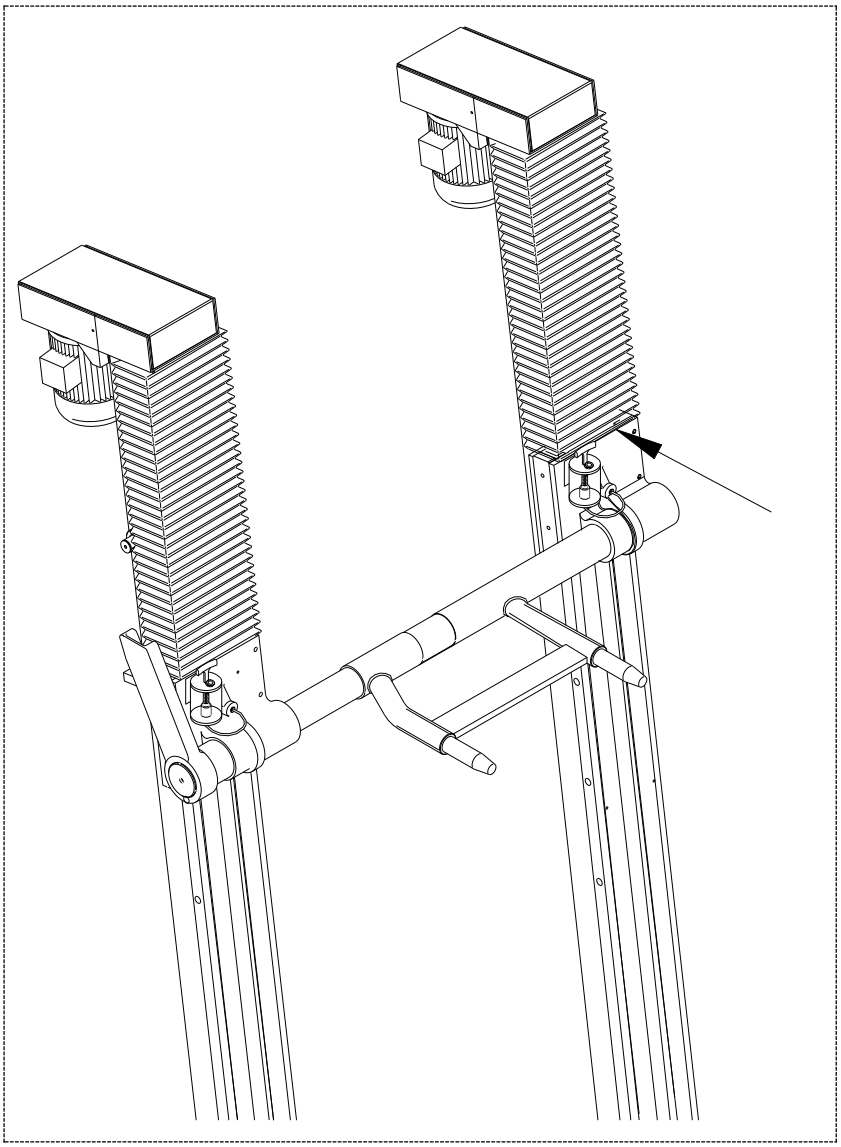


Figure f

4. INSTALLATION AND COMMISSIONING

4.1. Fixing the bellows (optional).

Figure g



Sometimes, to facilitate packing operations, the bellows are detached from the mobile sledge.
At the moment of installation you will have to fasten the low side of the bellows to the mobile sledges of the elevator by the proper brackets supplied.
The fixing point is shown by the arrow in Figure g.

When the bellow protection is mounted correctly the portion of screw between the top end and the sledge is always sheltered.

4.2. Assembling the electrical enclosure (control panel).

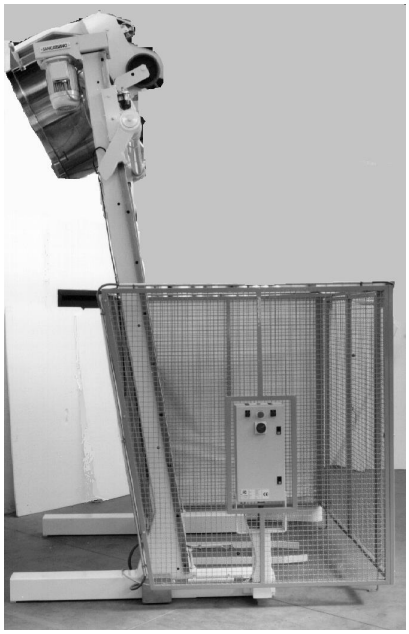


Figure h

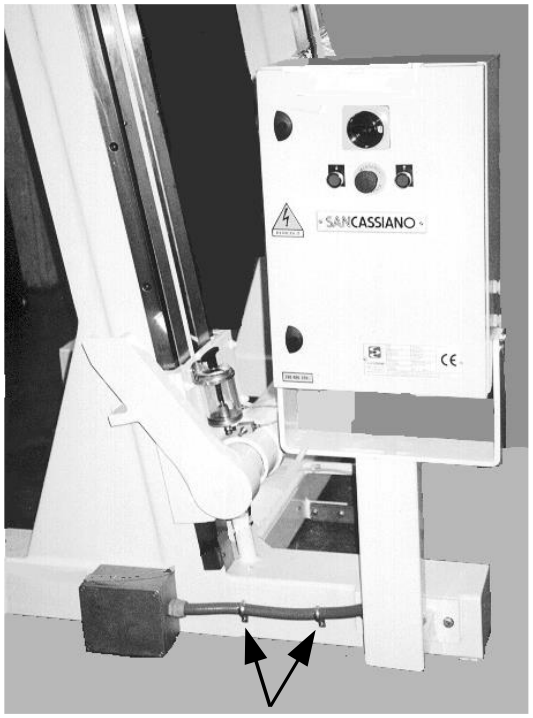
Assemble the electrical enclosure (control panel) beside the elevator, in the position shown in Figure h.

Utilize the support and the fixing bolts supplied.

Figure i

After you have assembled the control panel, it is very important to fasten correctly the flexible cable conduit to the side of the elevator's base (see arrow in Figure i).

Proper eyebolts are already fixed to the machine.



4.3. Environment conditions

4.3.1. Working place

We recommend to install the machine in a place large enough to permit the operator to move easily and operate on the controls located on the electric cabinet having a good vision of the whole operating area.
The recommended position of the operator is in front of the control panel, to have an easy access to the controls and the emergency devices.

4.3.2. Lighting

Install the elevator in a well lighted area to consent the operator a good vision on the controls.

4.3.3. Ambient temperature

Install the machine in an airy room with a temperature between 5°C and 45°C.(40 °F and 110 °F).

4.4. Levelling

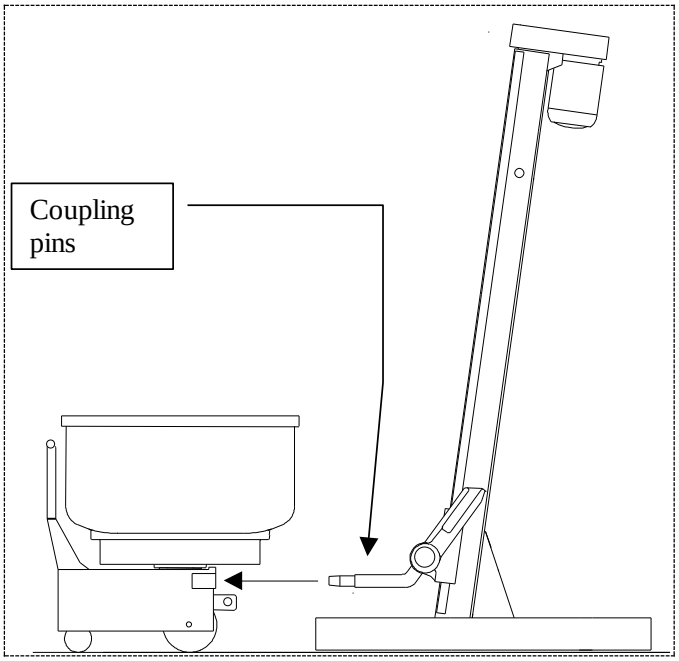
The floor on which the machine is positioned must be smooth, solid and perfectly plane, in order to guarantee the stability during the operating phase.

Any possible imperfection of the floor could cause problems to the bowl lock system of the elevator.

Make sure that the two coupling pins are perfectly horizontal and on the same level of the two holes on the bowl trolley (see arrow in Figure j).

In case one of the two coupling pins is too low, we advise to insert a piece of metal plate between the base of the machine and the floor.

Figure j



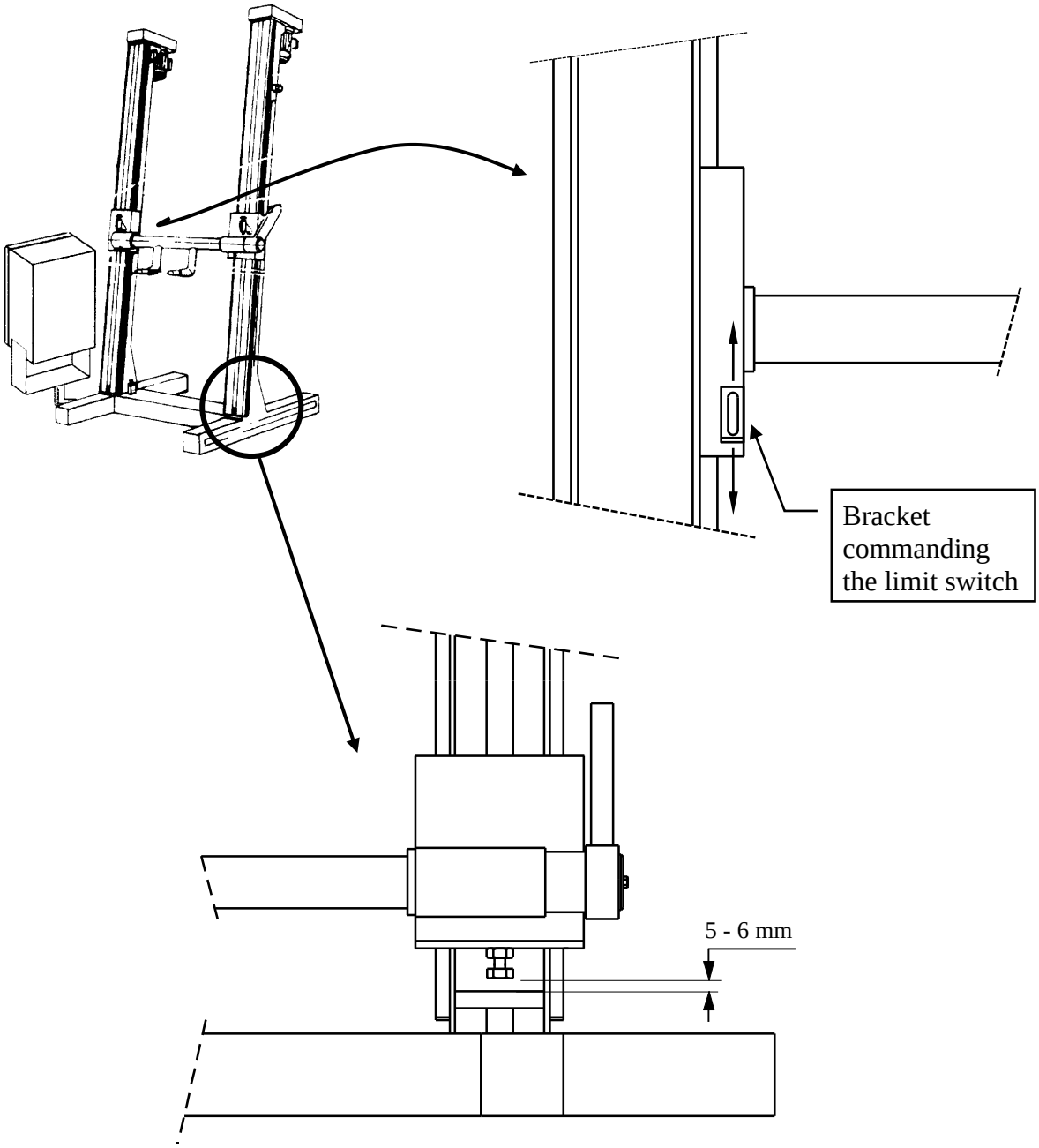
In case you need to lower the position of the coupling pins, move the bracket that commands the lower limit switch, mounted on the mobile sledge (see Figure k), in order to extend the stroke in downwards direction.

We recommend to perform this adjustment with much caution, in several attempts, moving up the bracket of 1 mm each time; after every new adjustment, raise the mobile group and lower it again to check the automatic stop position.

When the position of the bracket has been adjusted correctly, remember to re-adjust the distance between the over travel limit mechanism located at the bottom of the mast and the hexagonal head of the bolt located under the bearing sledge (see Figure k), which has to be about 5 - 6 mm. (1/4”).

IMPORTANT! The distance between the over travel limit and the bolt is required to prevent collapse and damage to the lifting system in case of fault of the normal control limit switch; always check this distance.

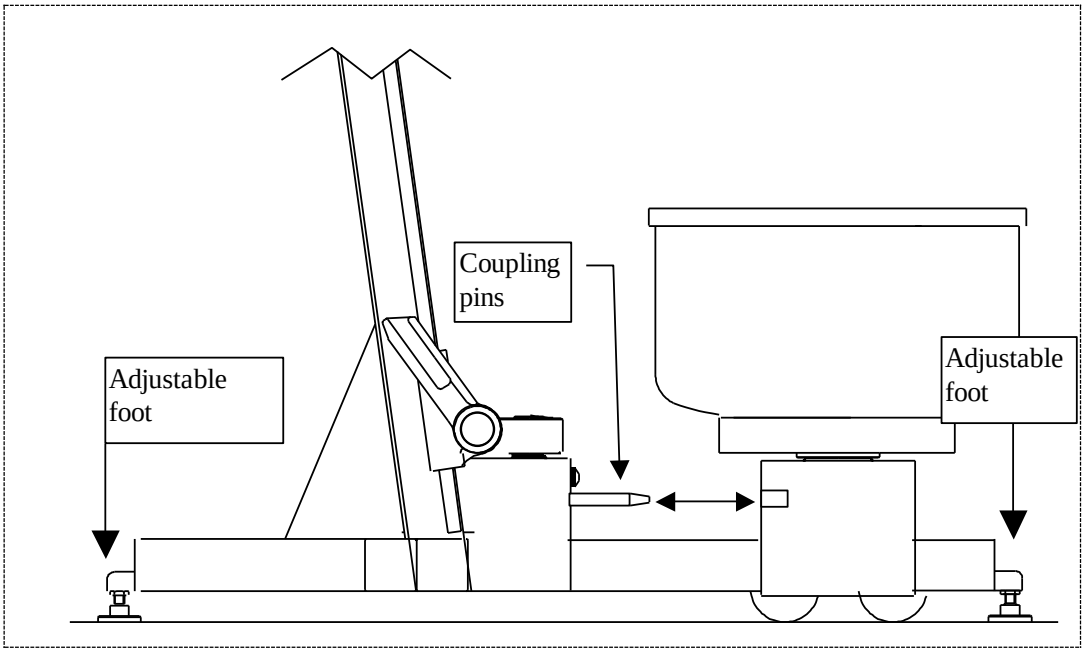
Figure k



In case of machines lifted from the ground by stainless steel adjustable feet (see Figure l), adjustment is very easy: operate on the adjustable feet until you have a perfect alignment between the coupling pins and the holes on the bowl trolley;

Figure l shows an elevator ER2 with hydraulic bowl lock system.

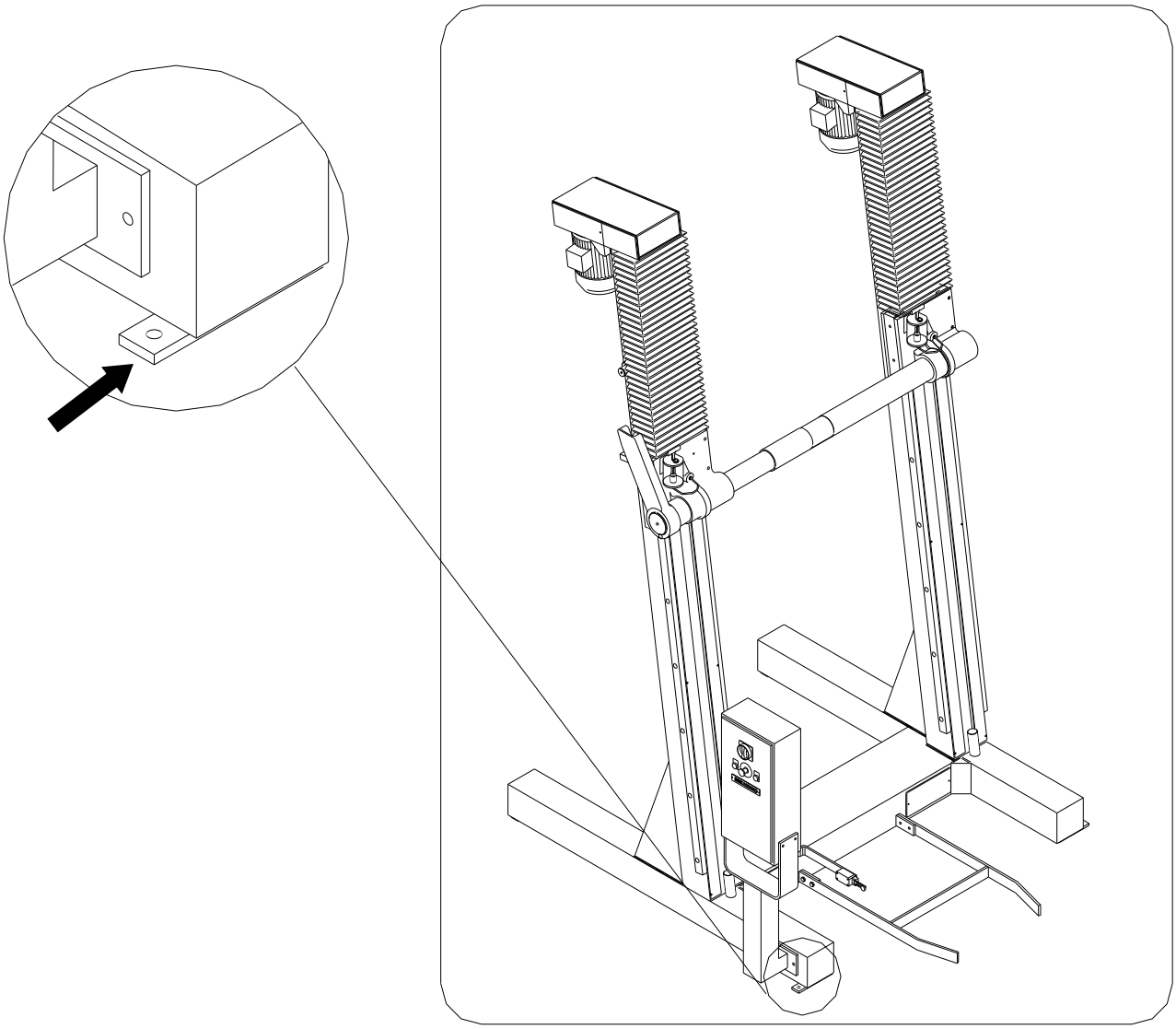
Figure l



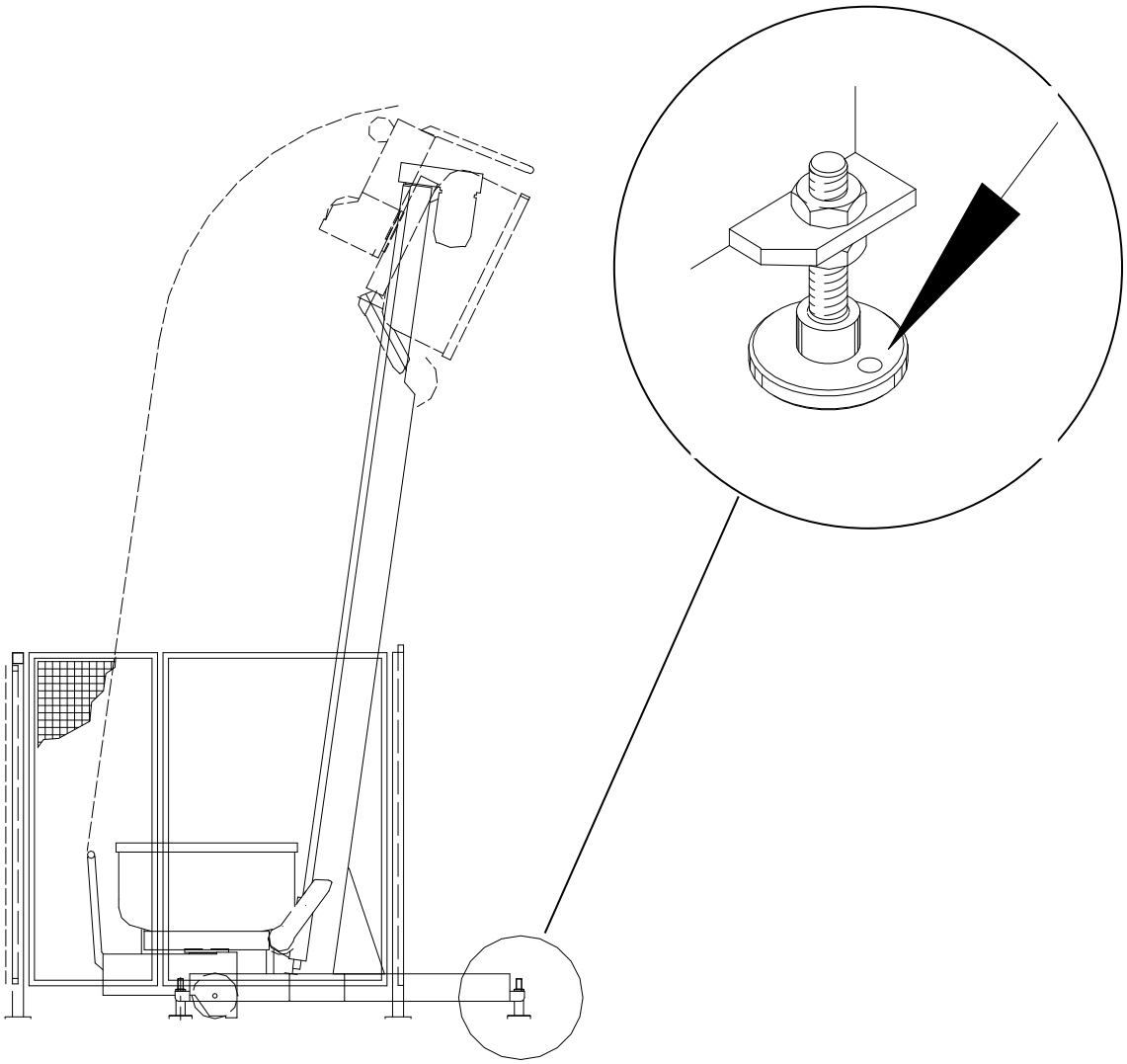
4.5. Fixing the unit to the floor

We recommend fastening the stainless stell feet of each machine to the floor by means of proper steel anchor bolts, to get a good dampening of vibrations and improve the stability of the machine

For the version resting on the floor: drill a hole of proper size in the floor, in the same position of the hole made in the mixer's feet (see arrow in the drawing) and fit the steel anchor bolt.



In case of machines lifted from the ground by stainless steel adjustable feet, make a hole with proper size in the same position of the hole on the foot and fit the steel anchor bolt



Consider a force of about 900 Kg in the fixing point to the floor. Consequently we recommend the use of steel anchor bolts with diameter 10 mm.

4.6. Assembling the safety barriers

Assemble the safety barrier in stainless steel grate surrounding the elevator; On each of them there is a number corresponding to the position shown in the drawing below to make the assembling easier (see Figure m

Figure m

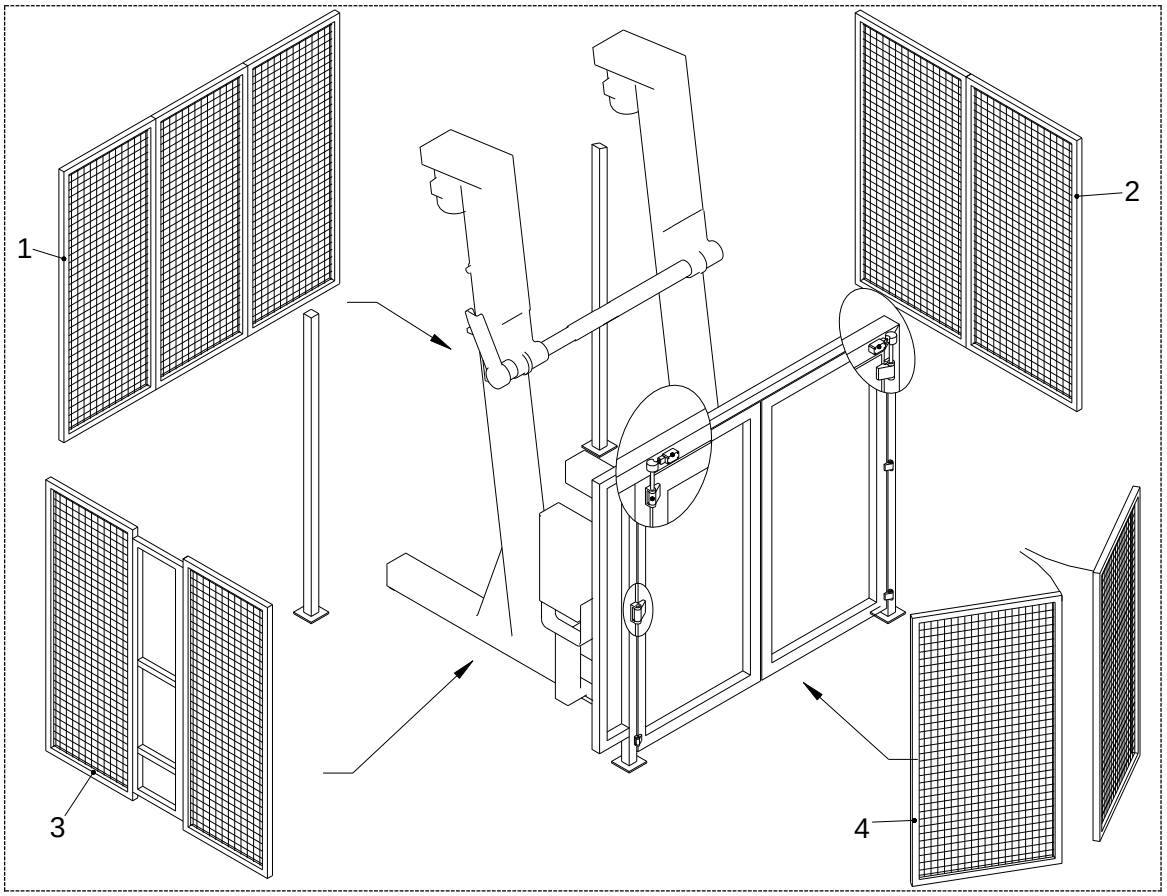


Figure n

When the safety barrier is mounted, fix the limit switch and the cam; when the operator opens the access door, the limit switch is pressed by the cam stopping the machine (see Figure n).
Also, fasten the micro switch electric cable to the structure by the proper clip bolts.

4.7. Filling the manual lubrication pump.

The lubrication pumps could be empty to prevent oil leakage during transport.

Fill up the oilcan to the level indicated with the oil supplied. The pumps are mounted on the bearing sledges of the elevator, or fixed outside the metal safety barriers (see Figure o).

For technical specification about the type of oil, see the chapter concerning lubrication.

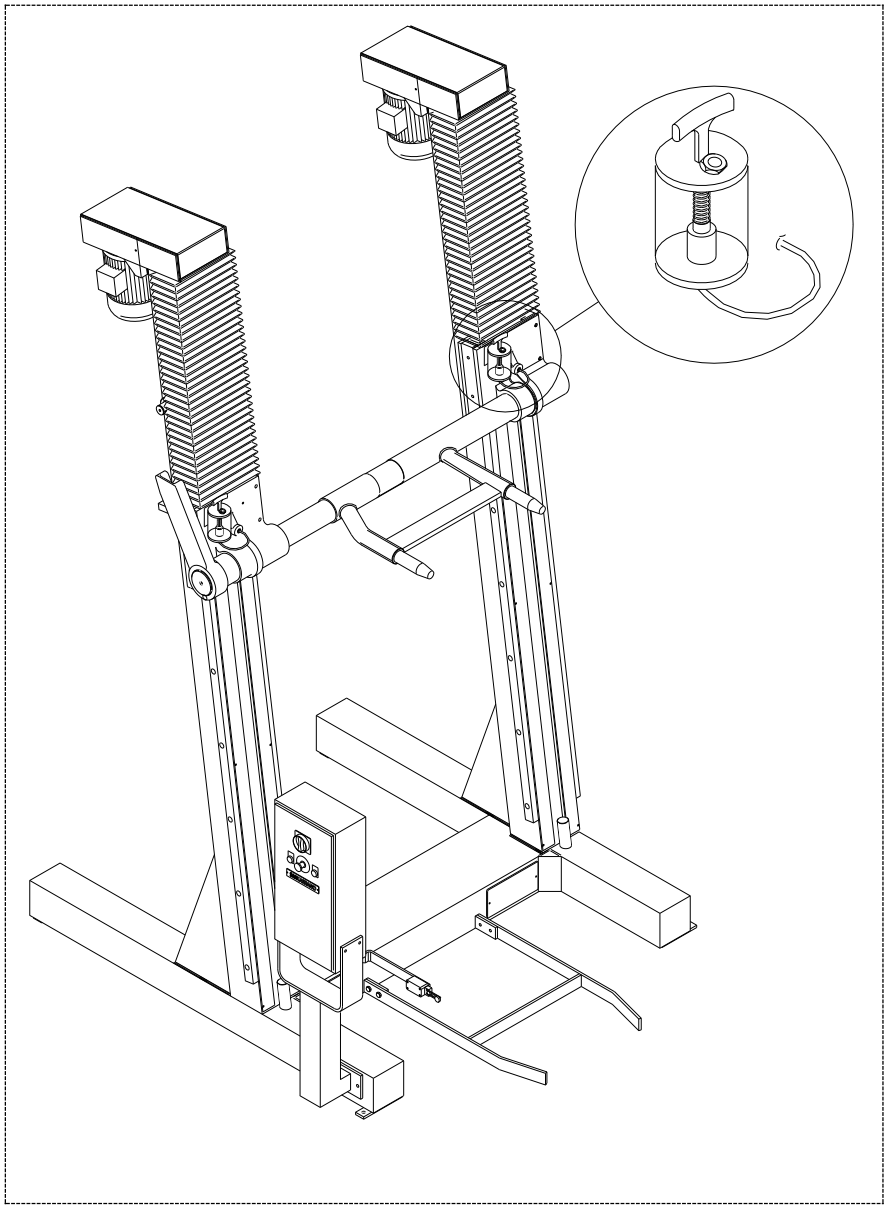
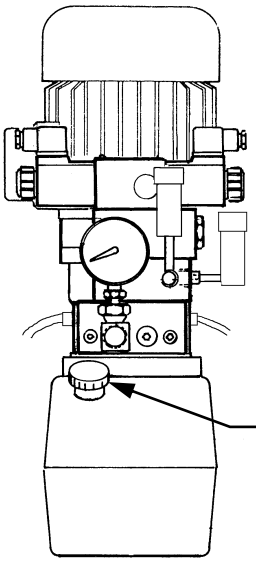


Figure o

4.8. Hydraulic pack (optional)

The elevators equipped with hydraulic pack for automatic bowl locking system, have an oil tank.

Figure p



To prevent oil leaks during the shipment a temporary plug is fitted on the tank; at the moment of installation we recommend to replace this plug with the breather plug (red plug) supplied.

Figure p shows an hydraulic pack for an elevator ER2 designed for lifting bowl trolleys type "Double Force".

Oil tank's plug

4.9. Electrical connection

The electrical power supply system and the connection of the machine to the source must be done in compliance with the local laws and safety standards.
Make sure that the power supply source has the correct ratings of *voltage* and *frequency*, compared with the data specified on the elevator's nameplate located on the control cabinet (see Figure q). The supply source shall have power enough for supplying the machine; also it must be equipped with an overload protecting device (fuses or automatic circuit breaker) with a suitable amperage. The data of current input and power installed are available on the nameplate.

Electric power supply voltage

Frequency of the electric power supply

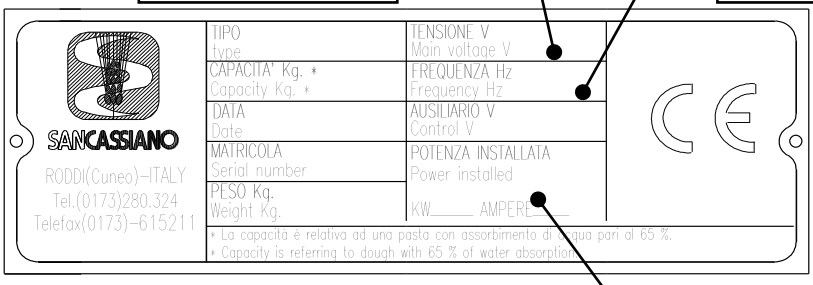


Figure q

Current input and power installed

Connect the cable of the electrical enclosure to the power supply circuit of your plant.

Make sure that the electrical phases are properly connected by pushing the LIFT button, the bearing transversal shaft will be raised.
In case the machine can not be started, that means the connection of the phases is inverted, so change the connection of two wires in the attachment plug of the supply cable.

To get more information about the electrical system, refer to the wiring diagram attached to the present manual.

4.10. Alignment of the elevator / Adjustment of the photo eye (optional).

Align the elevator with the following machine (hopper, divider, conveyor belt etc.), and adjust the position of the photo eye to detect the presence and the level of the dough.
To adjust the photo eye, with the mains turned ON, turn the screw in the back side of the photo eye itself and check by putting an object in front of it to see where it reads (when an object is detected a red led will light).
To get an optimal regulation, the photo eye has to read approximately 200 – 300 mm (8 – 12 inches) inside the hopper (see Figure r).

ATTENTION! The photo eye gives a signal to the elevator to tilt and feed more dough when the level into the hopper is low; when the hopper is full, on the contrary, it will stop the elevator to prevent overflows.

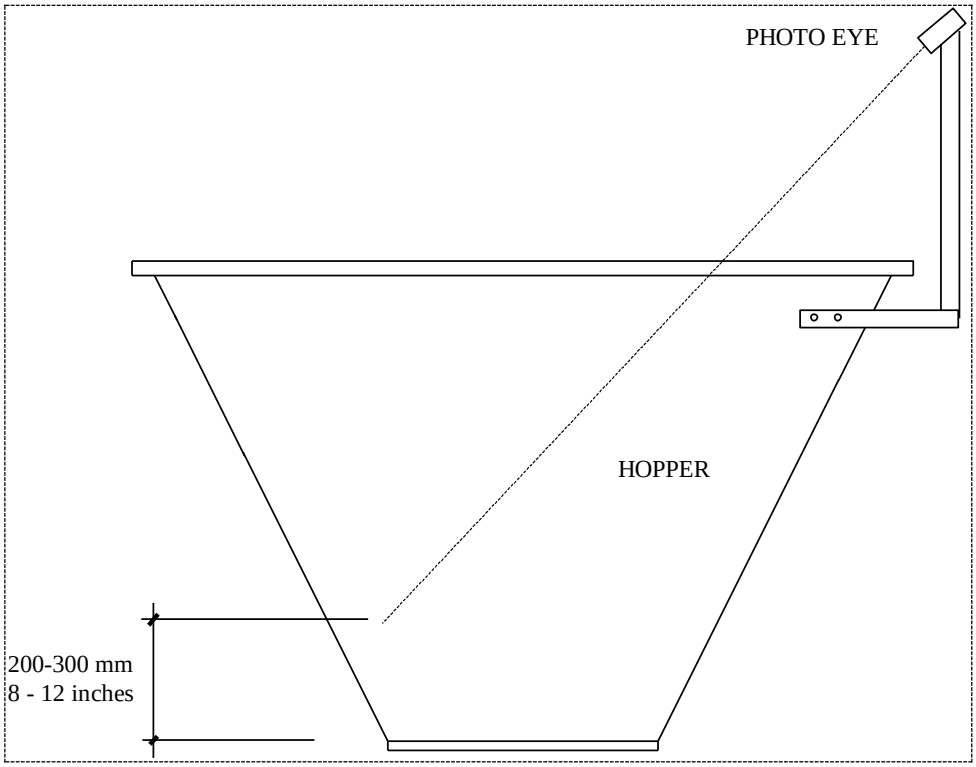


Figure r

5. INFORMATION ABOUT SAFETY

5.1. Protective devices

The machine is equipped with protective devices and guards, fixed or movable, to guarantee the safety of the operator and prevent the contact with the rotating parts:

- safety barrier in metal grate surrounding the machine;
- access door to the operating area (interlocking guard);
- fixed top guard protecting the V belts transmission;
- electrical enclosure with safety lock system (interlock main switch);
- safety lead nut on the lifting screw (only for some models);
- emergency stop push button;
- bowl detect sensor;

We recommend to never remove or tamper the guards and protective device mounted on the machine. Also we advise to periodically check the presence and the efficiency of every safety related part.
In particular, the microswitches on the barrier's access door and the bowl detect sensor must always be perfectly operational, so that lifting the bowl is possible only when the door is closed and the bowl trolley is properly locked.

5.2. Rules for safety

The user, or anyway the worker who is responsible for the machine, is expected to read carefully this instruction manual and follow all the indications given, and all the current laws regarding safety and hygiene requirements for personnel and sites of work.
He is expected to know the instructions for use and all the safety device installed on the machine and treated in this handbook, and to give all the necessary information to the other users.

The responsible for the machine will appoint the workers authorised to the use, maintenance and cleaning of the machine, and will not permit the use to the people who have not been trained and authorised before.

Although the machine is equipped with safety systems and devices making it extremely safe, we recommend the operator to keep out from dangerous areas such as below the trajectory of the container, during the tilting phase.

Safety in maintenance operations
Before any intervention of adjustment, maintenance, lubrication, cleaning or else, check the following conditions:

- the machine must be stopped;
- the emergency stop button must be pressed;
- the electric power supply must be disconnected;
- take measures to prevent the unexpected and unauthorised start up;

In case you replace the lifting nut in plastic material, we firmly recommend to always replace the safety lead nut in metallic material, to create the highest safety conditions. Before achieving this operation we suggest contacting Sancassiano S.p.A. to get detailed instructions, or contacting one of the many Sancassiano Service points (the complete list is attached to this manual.

At the end of maintenance operations, before starting the machine again, put in place all the parts previously removed or disconnected.

To check or repair the electrical system, refer to the wiring diagram attached to the present manual.

For cleaning, do not use jets of water or steam which might damage the machine and cause the risk of electric shock.
For cleaning instructions see the proper chapter in this manual.

SANCASSIANO DECLINES EVERY RESPONSIBILITY FOR ACCIDENTS CAUSED BY UNSKILFULNESS, INOBSERVANCE OF THE ABOVE RECOMMENDATIONS AND FROM WRONG USE OF THE MACHINE.

For every maintenance operation that could involve any type of risk for the operator and that is not treated in this manual, we suggest getting in contact with the Sancassiano Technical Service Department for the necessary instructions and information.

5.3. Safety mechanical stopping device

The elevator ER2 is equipped with a safety mechanical stopping device. In case of malfunction of the safety limit switch, it stops the running of the sledge and blocks the bowl trolley lifting, letting intervene the thermal protection of the motor, which stops the lifting movement.

If the mechanical stopping device should intervene, we recommend to reset the functions of the electric micro switch and then to replace the screws of the mechanical stop.

6. USE OF THE ELEVATOR

6.1. Controls

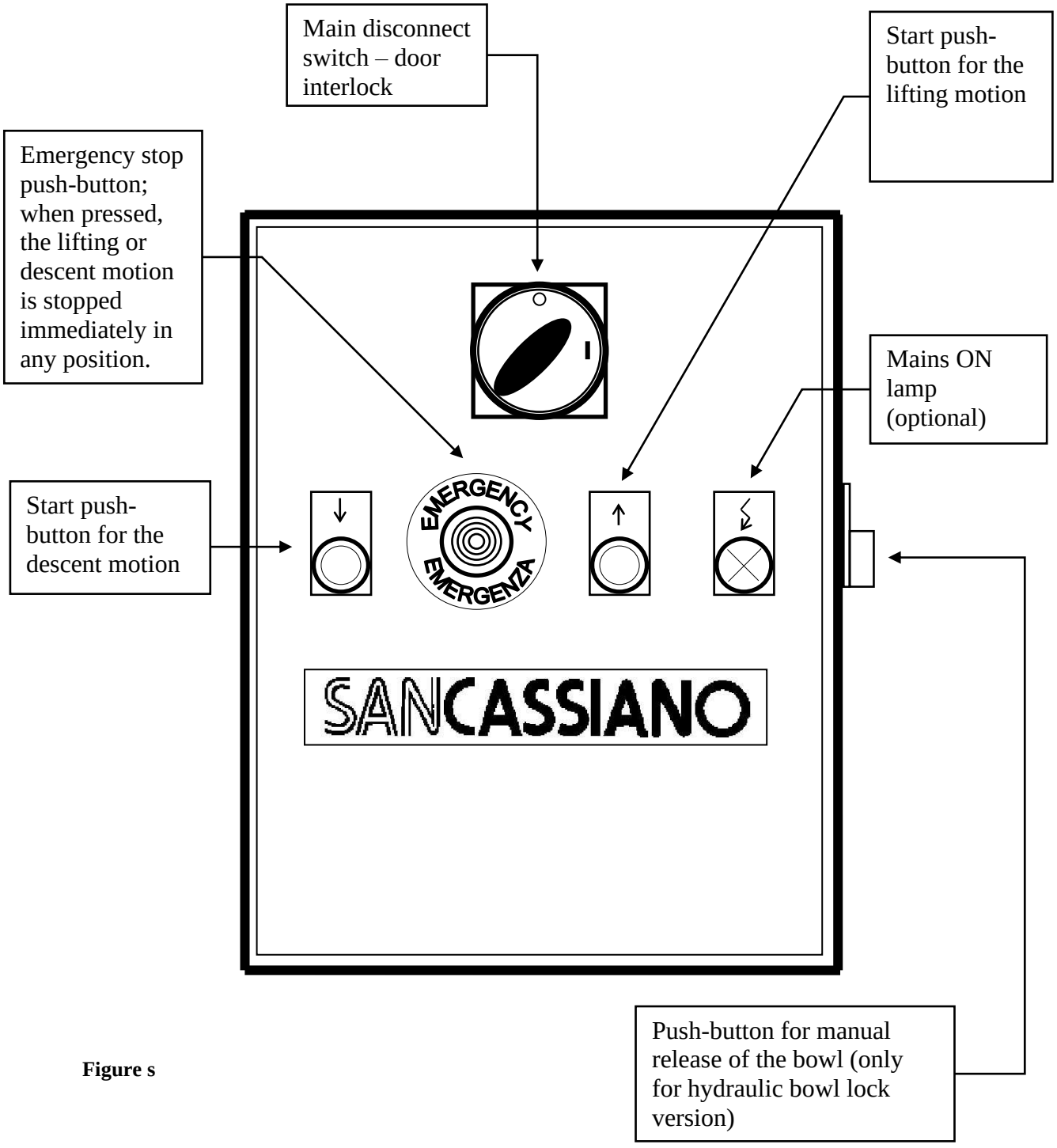


Figure s

6.2. Operating instructions

IMPORTANT**:** this machine is designed for lifting considerable weights (up to 300 kilos of dough); it is very important to observe every safety rule both for bowls to be tilted (they must be manufactured or anyway authorised by Sancassiano S.p.A.) and for the elevator itself.

For lifting the bowl and discharge the dough in the correct way operate as follows:

1) Turn the main disconnect switch to the position (I) to connect the elevator to the electric power supply source;
2) Open the safety barrier's doors;
3) Push the bowl trolley in position, until it is locked to the coupling pins (for the version equipped with hydraulic locking system, the bowl lock is activated automatically by simply pushing the bowl trolley against the elevator);
4) Close the safety barrier's access doors.
5) Push the LIFT button (↑); the motion can not start if the bowl is not in the correct position, or if the door is not perfectly closed. The machine starts lifting the bowl to the top of the stroke and then tilts the bowl to discharge the dough. The empty bowl stays in position until the operator starts the descent motion.
   The automatic descent of the bowl is only available for the version equipped with hydraulic locking system.
6) Push the DESCENT button (↓);
7) When the bowl is down, push the button for MANUAL RELEASE of the bowl (optional); utilize this control to release the bowl trolley in case it remains trapped between the friction wheels.
8) Open the door and pull the empty bowl back;

The ER2 is now ready for another working cycle.

Important: if you open the access door during the motion, the machine stops. To re-start the ER2 close the door and push the button (LIFT or DESCENT) depending on the situation.
The STOP due to opening the door is a safety device and so must not be used systematically to stop the machine.

The elevator can be stopped in any moment of the working cycle by pushing the EMERGENCY STOP button.

7. DIAGNOSTIC

7.1. Trouble shooting

In this chapter we shall treat the solution to the most common problems that can be found during the use of the elevator.
If you can not solve your problems following the indications given below, we suggest to contact SANCASSIANO after sale service.

The table below lists some of the most common problems that you can have during the use of the machine, the reason why the problem happened and the possible solutions.

PROBLEM	CAUSE	SOLUTION
The elevator doesn't start	The electric power supply is missing	Check the connection of the attachment plug and be sure that the main disconnect switch is in position ℵ.
The elevator doesn't start	The EMERGENCY STOP button is pushed.	Release the EMERGENCY STOP red button by turning it clockwise.
The elevator doesn't start	The access door of the safety barrier is open.	Close the access door of the safety barrier.
The elevator doesn't start	The bowl trolley is not properly locked, and the sensor can not detect the position of the bowl.	Make sure that the bowl trolley is properly locked to the coupling pins; push the bowl strongly toward the elevator.
The elevator stops during the motion.	The motor has been overloaded and the thermal protection has tripped.	Wait for a few minutes so that the overheated components return to the normal temperature; restart the machine.
The elevator doesn't start after the reset of the thermal protection.	The fuses are blown (only for models with fuses).	Replace the fuses. If you can't solve the problem contact SANCASSIANO after sales service.
The lift motion is irregular and sometimes slowing down.	The transmission belts are not tensioned enough or worn.	Check the tension of the V belts or replace them if necessary.
The rotation of the bowl during the scraping phase is irregular and the friction wheel slip.	The friction wheels are dirty or worn and so the transmission of the motion to the bowl is difficult.	Clean the friction wheels with a degreaser; if you cannot solve the problem, try to adjust the position of the wheel (see instructions).

8. MAINTENANCE

8.1. General information

Maintenance must be done by personnel properly trained and informed about the correct procedure to follow.

IMPORTANT: before any intervention of maintenance, lubrication, cleaning or else, remember to disconnect the connection to the electric power supply source, and turn the main disconnect switch located on the control panel to position 0 (zero).

The main technical features of the machine and the serial number are written on the identification plate which is on the control panel.

We recommend to follow the indications given in the manual for a correct maintenance of the machine. The replacement of a worn component achieved in time and a good lubrication of the mechanical parts, will let you save money and time.

All the operations must be achieved with much care, following the suggestions about safety exposed in the chapter 5.

8.2. Tension of the transmission belts

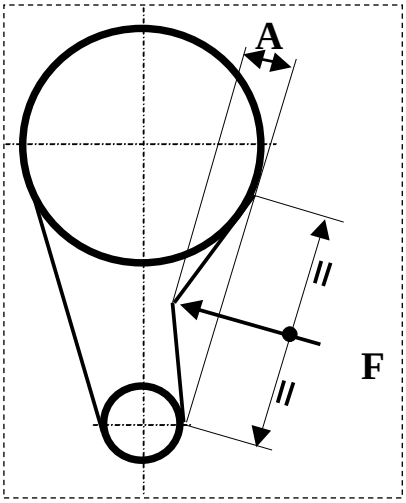
The motion transmission from the motor to the lifting screw is provided by V-belts. The tension of the transmission belts, and their condition, must be checked after the first 24-48 service hours, and then every 400 h.

We also advise to check:

a) **Condition of pulley's grooves.** In case the grooves are worn we advise to replace the pulley, or this might reduce the life of the belts.
b) **Clean the side profile of pulleys and belts from oil or other material.**
c) **Alignment of the pulleys.** It is very important to have a perfect alignment between the pulleys to guarantee the long lasting of the belts.

V-belts transmission for lifting screw drive:

Figure t

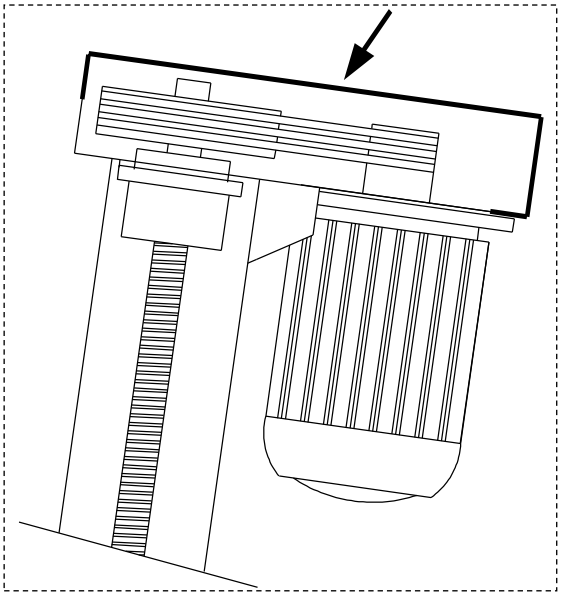


For a perfect tension of the transmission belts, apply a force "F" of 6 Kg to get a deflection "A" of 10 mm (see Figure t).

Figure u

To get to the transmission belts remove the top guard (see Figure u).

- Disconnect the machine from the electric power supply.
- Remove the top guard.
- Loosen the bolts that fix the motor.
- Tighten the belts to the recommended value.
- Fasten the bolts that fix the motor.
- Set the top cover in the original position.



Lower transmission (screws synchronization):

The lifting screws are connected at the base by means of a toothed belt transmission in order to synchronize the rotation.

We recommend to check the tension of the toothed belt every 1500 service hour. The position of the inspection panels is shown by the arrows in Figure v.

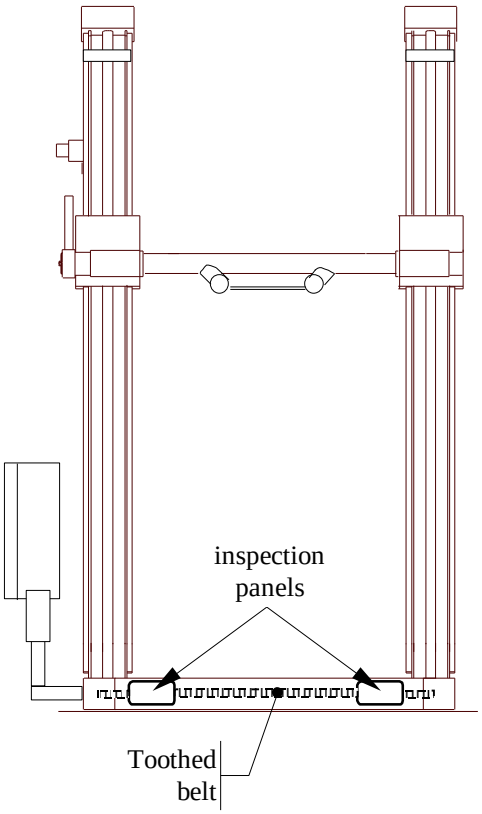


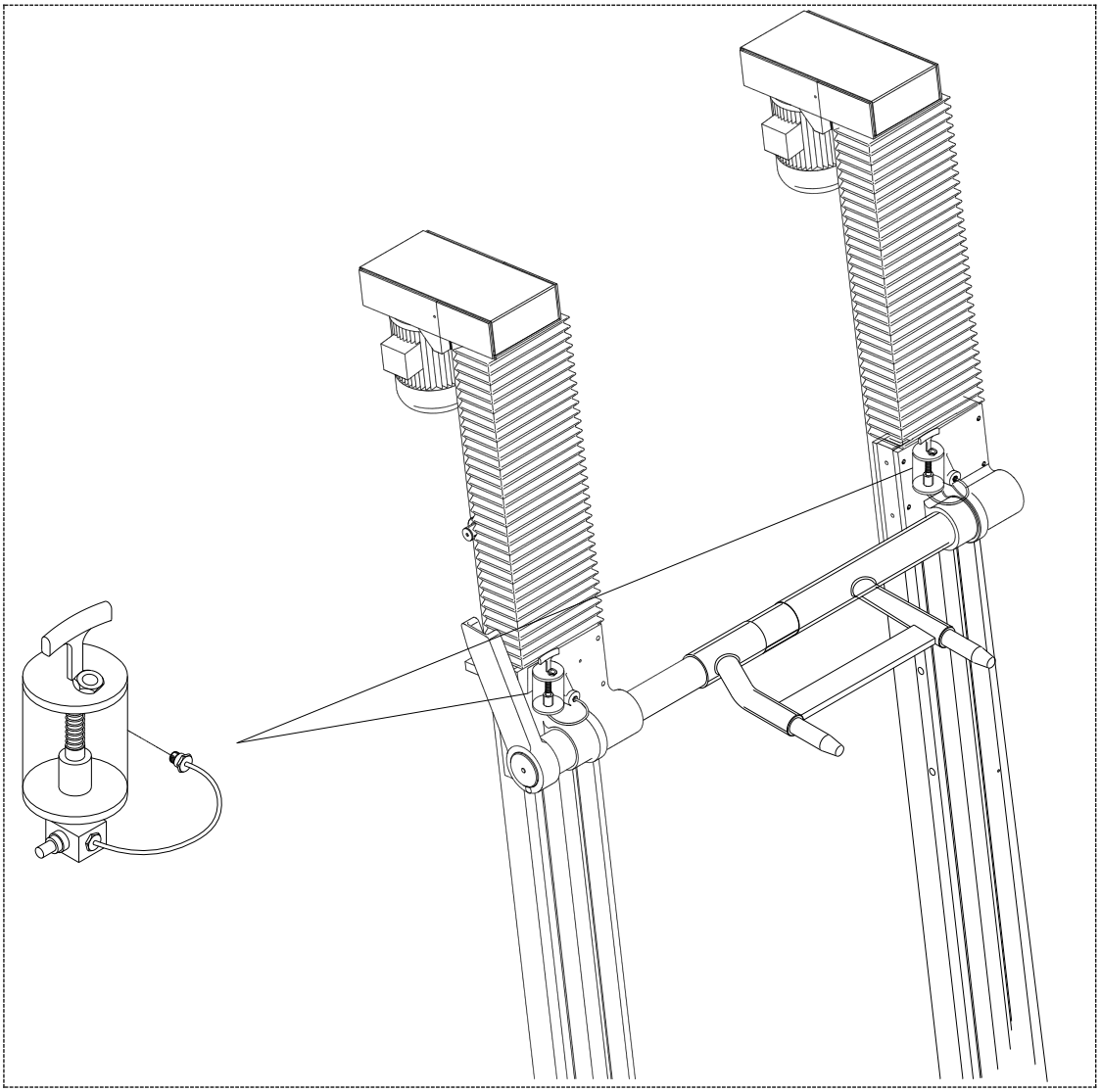
Figure v

8.3. Lubrication

The mechanical parts of the machine require a periodical lubrication with specific products. Follow the instructions given below both for the frequency of the operation and for the technical features of the lubricants.

8.3.1. Lubrication of the lifting screws

Figure w



Lubrication of the lifting screws must be done after every 50 service hours following the instructions below:

- Check the oil level in the manual lubrication pumps located on the bearing sledge (see Figure w).
- Pull up the handle of the manual pump to start the oil injection on the screw. This operation must be done during the movement of the sledge (up or down stroke). Be

sure that the oil injection will last the time necessary for a complete up and down stroke, to have a complete lubrication of the screw; if necessary adjust the flux regulator to reduce or increase the flux of oil (Figure x).

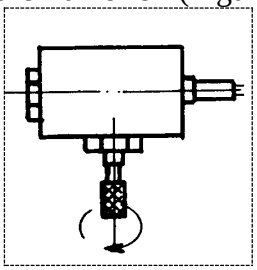


Figure x

After every lubrication we advise to check the screws to be actually covered by a film of oil all along its length; make sure that the flexible plastic pipe is not plugged or damaged.

Do not exceed with lubrication to prevent waste of oil but most of all to prevent damage to the lower transmission toothed belt.

RECOMMENDED LUBRICANT: for the lubrication of the screws we recommend oil class ISO UNI G68:

COMPANY	VANGUARD	ESSO	MOBIL	SHELL	TAMOIL
LUBRICANT	Stol 68	Febis K68	Vactra Oil N°2	Tonna T68	Tamway oil 68

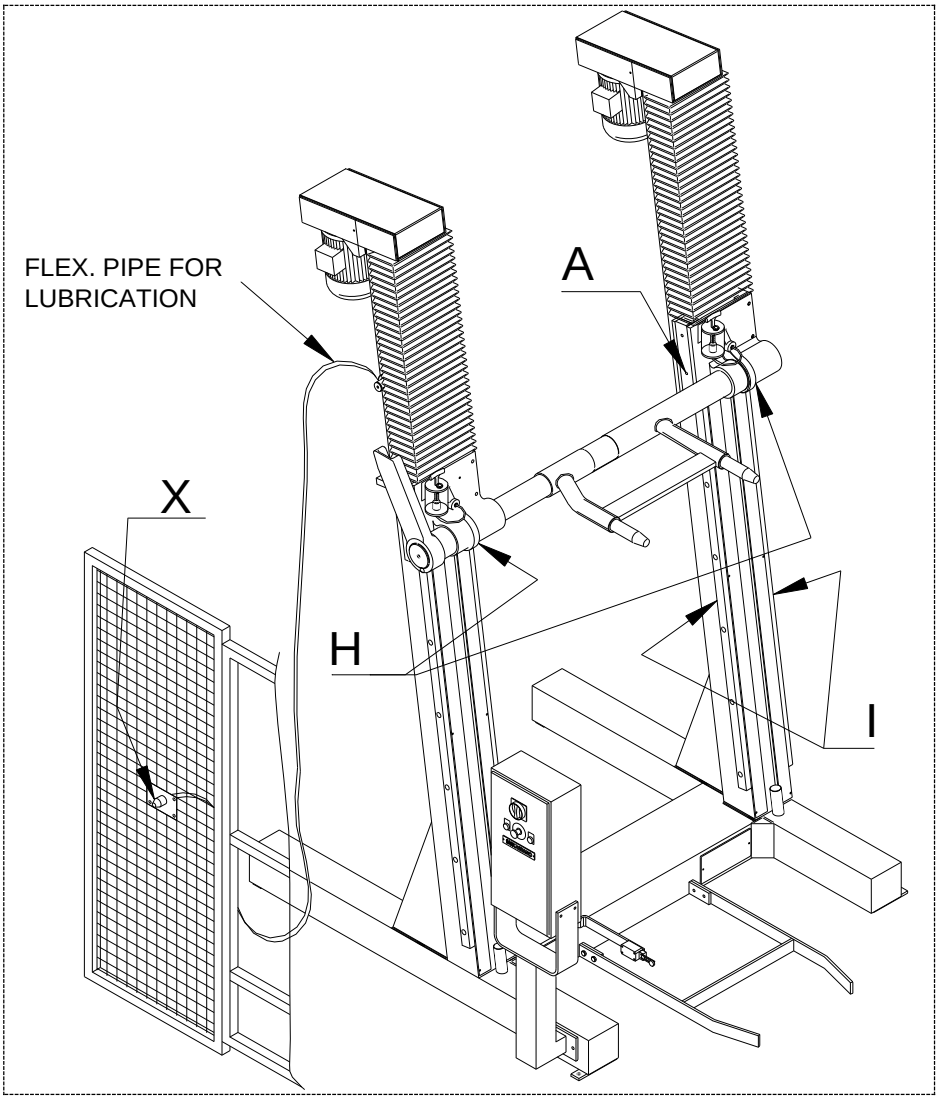
8.3.2. Lubrication of the guides and the load bearing main shaft

Referring to Figure y, lubricate the load bearing main shaft (H), the sledges (A) and the external guides (I) every 500 service hours with a manual grease pump. Inject grease until it starts getting out of the fissures. Also lubricate every 300 service hours the tipping pin (X).

RECOMMENDED LUBRICANT: Lithium grease class ISO UNI XBCEA 3.

COMPANY	VANGUARD	ESSO	MOBIL	SHELL	TAMOIL
LUBRICANT	Liko 3	Beacon 3	Mobilux EP3	Alvania R3	Tamlith Grease 3

Figure y



8.4. Periodical check and adjustments

To keep in working order the machine we recommend to submit the system to a periodical check, at least once every year, to ensure:

- **Good mechanical operating conditions;**
- **Proper functioning of all safety devices;**
- **Locking of bolts, ring, nuts ecc.**

Make this control in addition to the specifical check listed in this paragraph.

Gearboxes:

We advise to check the condition of the gearboxes mounted on the bowl rotation group (optional); in case of oil leakage contact immediately the Sancassiano Service Department.

Scraper:

In case the scraping of the bowl is not perfectly effective (only for models equipped with this optional), that means the plastic scraper is worn. We advise to check the condition of the scraper and adjust the position in order to increase the pressure on the bowl.
When the scraper is worn-out or particularly damaged, we advise to replace it with a new one.

Adjustment of the friction wheel (optional):

In case of slipping of the friction wheel (defective transmission of the motion) we advise to wash the surface of the wheel with liquid degreaser. When this treatment is not sufficient, adjust the position of the friction wheel.

Referring to fig.z

1. Release and remove the bowl trolley;
2. Loosen all bolts (1) that fix the group “gearbox/friction wheel” to the base of the machine and pull manually back the friction wheel (2);
3. Push the bowl trolley against the elevator to activate the hydraulic locking system;
4. Push the whole “gearbox / friction wheel” group as far as the rubber wheel (2) is in contact with the bowl support (3);
5. Tighten the bolts (1) to fasten the gearbox and then release the bowl trolley;
6. Loosen again bolts (1) and move the friction wheels toward the centre of the bowl for 2 – 2.5 mm (we advise to measure this shift with great precision, with a comparator or similar equipment see arrow in fig.x)
7. Tighten the bolts (1) to fasten the gearbox.

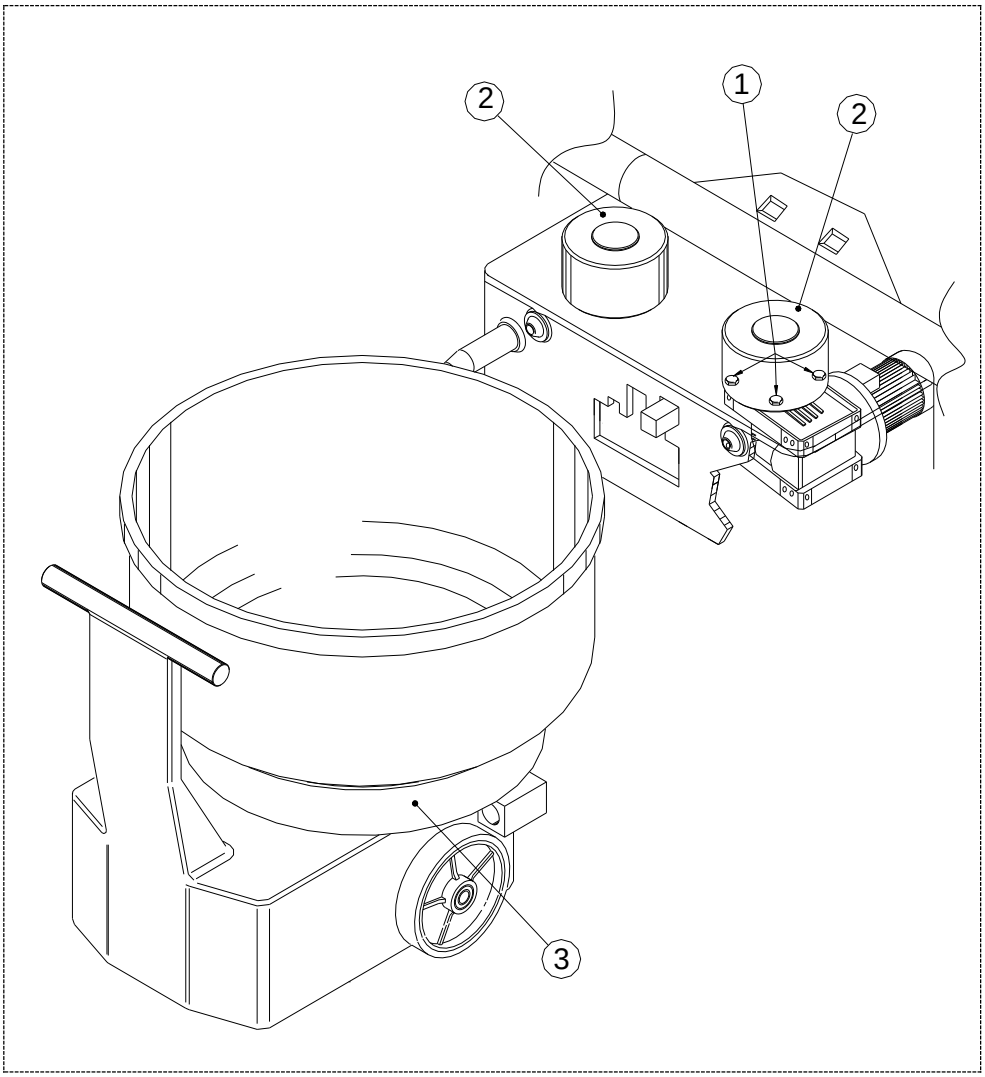


FIG. Z

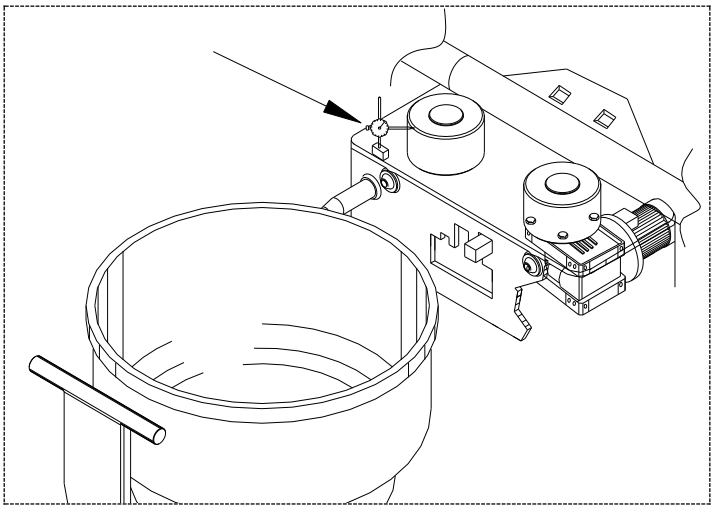


FIG. X

Adjustment of timers for delay time and scraping (optional):

The machines equipped with the bowl scraping system have two analogical rotary style timers (usually named TM1 and TM2) located inside the electric control cabinet (see Figure z).

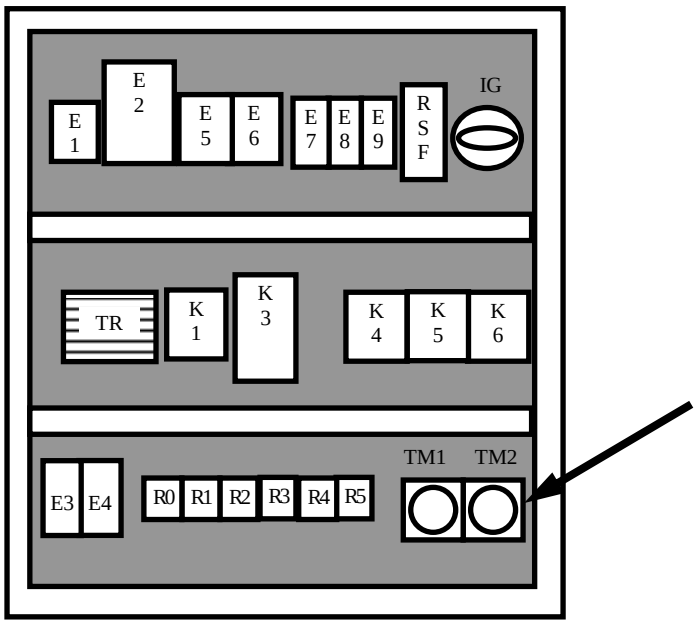


Figure z (inside of electric cabinet)

The timer TM1 controls the delay time for dough falling, which is the time between the end of the bowl lifting motion and the start of the rotation for scraping; this time must be long enough to permit the complete unloading of the bowl before the start of the actual scraping phase.

Caution! carrying out the scraping phase with the bowl still full of dough could overload the friction wheels and the bearings, resulting in the reduction of life for these parts.

The timer TM2 controls the length of the actual scraping phase; this time can be set by the operator according to production needs and the type of dough, in order to get a perfect cleaning of the inside bowl.

The default settings (programmed by Sancassiano) are:

TM1 = 15 sec.
TM2 = 15 sec.

We advise to check periodically that the time programmed on the timers is suitable to the type of dough in production.

Hydraulic system (optional)

Do the following checks at regular intervals (every month):

- Fluid level in the tank: a quick sinking of the fluid level is a signal of leakage.
- Leakage prevention: check the pipes and the fittings. Keep the equipment clean for an easy localisation of the leakage.
- Flexible pipes: check the pipes to have no deformations, tearing of the sheath, other damage or leakage. In case, replace the pipe.
- The fluid must be replaced every 20.000 service hours. Use only oil adaptable to high pressure hydraulic systems HLP - ISO - L - CKB46".

Clearance on the lifting group

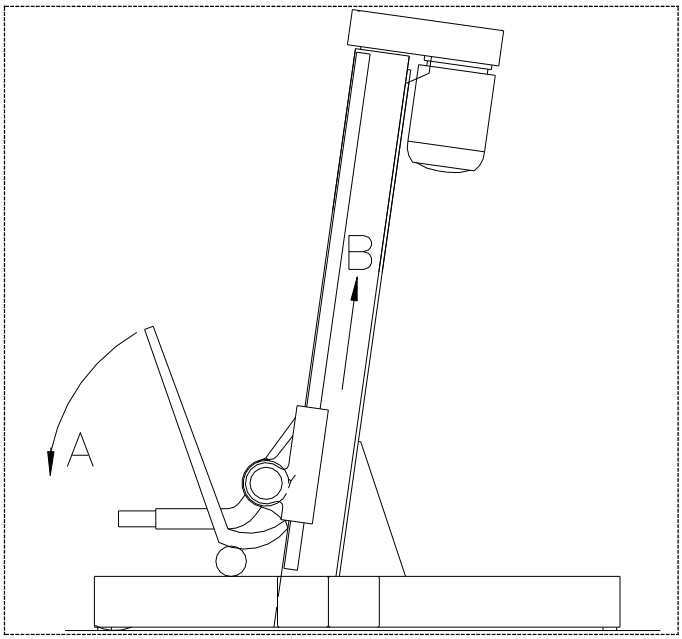
Check the clearance on the lead nuts mounted on the elevator's lifting screws every 6000 operating hours or at least once every year.
To do this, use a strong lever positioned under the sledge, and rotate in direction (A) to lift the sledge in direction (B) (see Figure aa). Measure the clearance with a proper instrument (we advise a gauge or similar) located on the sledge itself.

The max. acceptable end-play is 3 mm. Over this replace the plastic lead nuts.

Moreover we suggest to check the eventual wear of the lifting screw, by comparing the thread in central position with the thread at the very top end of the screw that is never used. In case you notice a wear that is over 2 mm we recommend to replace the screw.

In case you replace the lifting nut in plastic material, we firmly recommend to always replace the safety lead nut in bronze material (only for models with this feature) to create the highest safety conditions. Before achieving this operation we suggest contacting Sancassiano S.p.A. to get detailed instructions, or contacting one of the many Sancassiano Service points (the complete list is attached to this manual.

Figure aa



CAUTION! During the assembling / disassembling phase of the screw-lead nut group, we firmly recommend to never use tools or wrenches directly on the thread of the lifting screw since it would get seriously damaged. The scoring on the screw will then damage the plastic material of the lead nut jeopardizing the original safety conditions.

Clearance of the tipping pin

Figure bb

Check the clearance on the tipping pin of the elevator every 5000 service hours or at least once every year (see Figure bb).
The max. acceptable clearance is 1 mm. Over this replace the pin and the bushing.

8.5. Cleaning and sanitation

Before cleaning it is very important to disconnect the machine from the electric power supply source by turning the main switch to “0” position, and check that the machine can not be started by anyone else during the cleaning process.

The elevator has been designed and manufactured according to the basic principles to ensure an easy sanitation of the machine by a simple cleaning method (suitable materials, smooth surfaces, rounded edges, no acute angles, etc.).

All the parts of the system must be cleaned using a **damp cloth** with a detergent substance, and then dried with a soft and clean cloth. All the detergents usually employed for house and medical equipment are appropriate.
Do not use acids and bases with concentration over 50 % and organic solvents for paint.

The use of jets of water or steam could damage some mechanical parts of the machine and create risk of electric shock.

Machines can be supplied in special version for high pressure washing with water or steam.
In this case we recommend to not direct the pressurized jet straight towards electric boxes, limit switches and other electrical components in general, and also to shelter these components with a nylon film or other waterproof material.

9. TECHNICAL SERVICE AND SPARE PARTS

For a quick solution to any problem you could have while using the ER2, you can contact one of the SANCASSIANO Service points present worldwide (see the list attached to this manual) or you can contact directly:

SANCASSIANO SPA
Technical Service
V. Cavallotto 8
12060 Roddi (CN) - ITALIA
☎ 0039 - 173 – 280 324 - Telefax 0039 - 173 – 615 211

We recommend to employ only original spare parts supplied by SANCASSIANO SPA.

When you need technical assistance or spare parts please provide the following data:

- Type of machine;
- Serial number;
- Year of construction;

All the data mentioned above are written on the number plate (see Figure q).

When you order spare parts please specify also:
- Part number and description;
- Quantity;
- Voltage of the electric power supply;

To order spare parts we advise to fill in the enclosed form and fax it to SANCASSIANO.

SPARE PARTS ORDER FORM

SANCASSIANO

MACCHINE E IMPIANTI PER L'ARTE BIANCA

✉ 12060 RODDI (CN)

Via CAVALLOTTO, 8

ITALY

SENDER

COMPANY:.....

Mr./Mrs......

ADDRESS:.....

.....

TEL......

FAX......

MODEL OF MACHINE.....

SERIAL N°.....

YEAR OF CONSTRUCTION.....

Fault of the machine:

.....

.....

.....

PART N°	DESCRIPTION	Qty.

SHIPMENT.....

PAYMENT .....

Date: ..... **Stamp and signature** .....

10. ADDITIONAL INFORMATION

10.1. De-Commissioning, Disposal and Recycling

The disposal of the machine must be done in respect of the laws protecting the environment.

Most of the components are made of ordinary or stainless steel, recyclable and not polluting for the environment.
All the metallic parts of the machine can be disposed in an authorised centre for the collection of metallic material.

The gearboxes of the bowl rotation group (optional) are filled with oil; we recommend to not open or disperse in the environment.
Also the tank of the hydraulic unit (optional) is filled with **oil**.

The exhaust oil must be remitted to an authorised collection centre.

A particular attention is required for plastic material, which must be addressed to recycling.

10.2. Noise emission value

The noise emission of the mixer does not exceed, during normal working conditions, the limit of 78 dB (A).
The sound pressure level, measured according to the basic standards is 68 dB.

11. ATTACHMENTS

In the next pages you can find attached the additional documents supplied with the instruction manual:

- Spare parts list;
- Drawings showing the main components of the machine;
- List of SANCASSIANO service points world-wide;
- SANCASSIANO products range;
- Electric wiring diagram;

Figura: 1

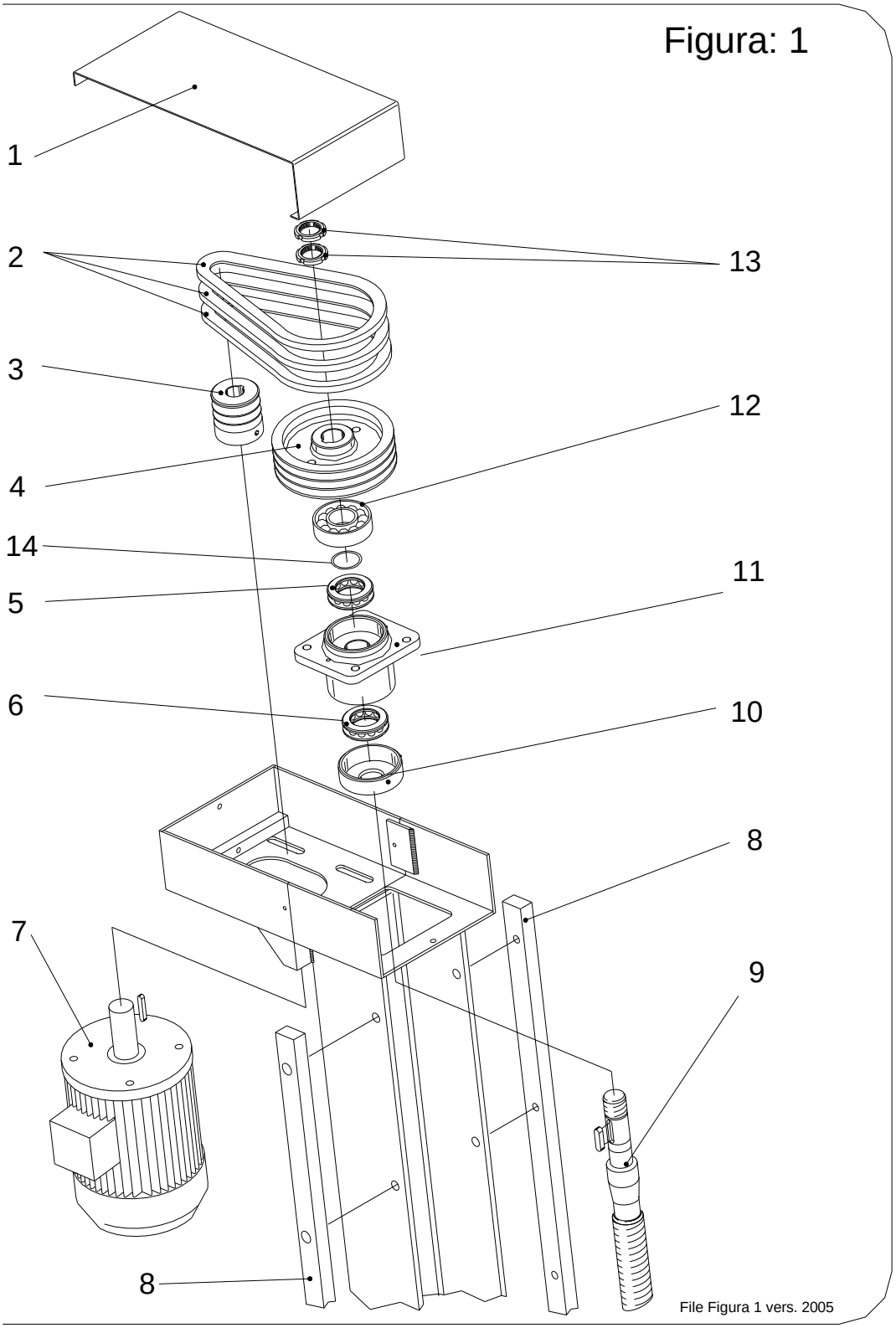


FIGURE 1

LIFTING SCREWS DRIVING GROUP

Pos.		Description	Q.	Model
1		Top guard	2	ER2
2		V-belt SPA 850	6	ER2
3		Driving pulley	2	ER2
4		Driven pulley	2	ER2
5		Axial bearing 51309	2	ER2
6		Axial bearing 51309	2	ER2
7		Motor	2	ER2 for bowls up to Ø 1200
		Motor	2	ER2 for bowls Ø 1400
		Motor	2	ER2 scraping system for bowls up to Ø 950
		Motor	2	ER2 scraping system for bowls Ø 1050-1200-1400
8		Sliding guide	4	ER2
9		Lifting screw	2	ER2
10		Support Axial bearing	2	ER2
11		Upper support	2	ER2
12		Radial ball bearing 6308 2RS	2	ER2
13		Ring nut	4	ER2
14		Distance ring DE65	1	ER2

Figura: 2

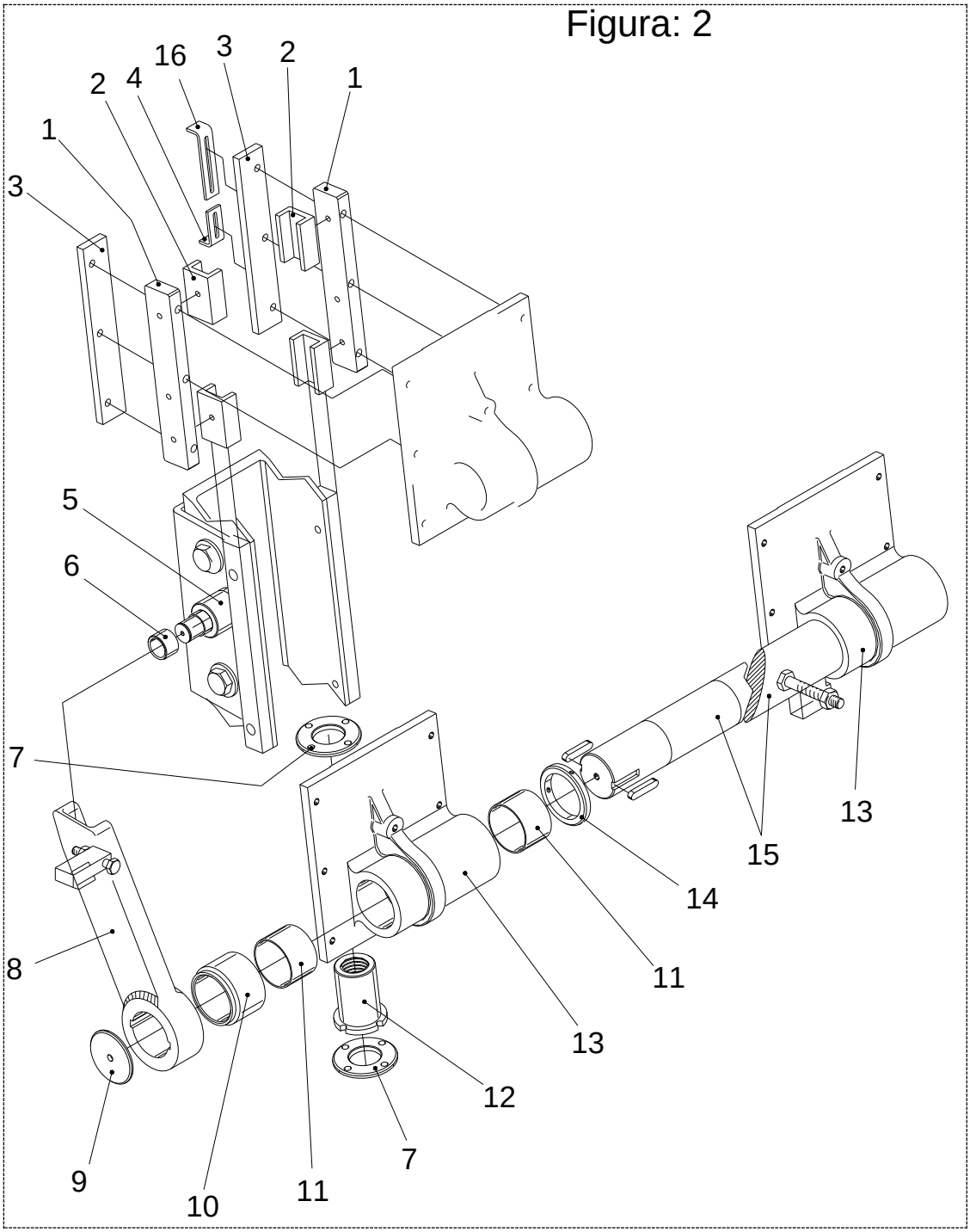


FIGURE 2

BEARING SLEDGE GROUP
(standard version)

Pos.		Description	Q.	Model
1		Sliding blocks support	4	ER2
2		Sliding block	8	ER2
3		Rear support for sliding blocks	4	ER2
4		Bracket	1	ER2
5		Tipping pin	1	ER2
6		Bushing for tipping pin	1	ER2
7		Locking washer	4	ER2
8		Tilting lever	1	ER2
9		Washer	1	ER2
10		Spacer	1	ER2
11		Fiberglide bushing	4	ER2
12		Lead nut	2	ER2
13		Bearing sledge	2	ER2
14		Retaining ring	1	ER2
15		Load bearing shaft	1	ER2 wide 1418
		Load bearing shaft	1	ER2 wide 1610
16		Bracket	1	ER2 (versione con raschiatura)
16		Bracket	1	ER2 (version with scraper)

Figura: 2-a

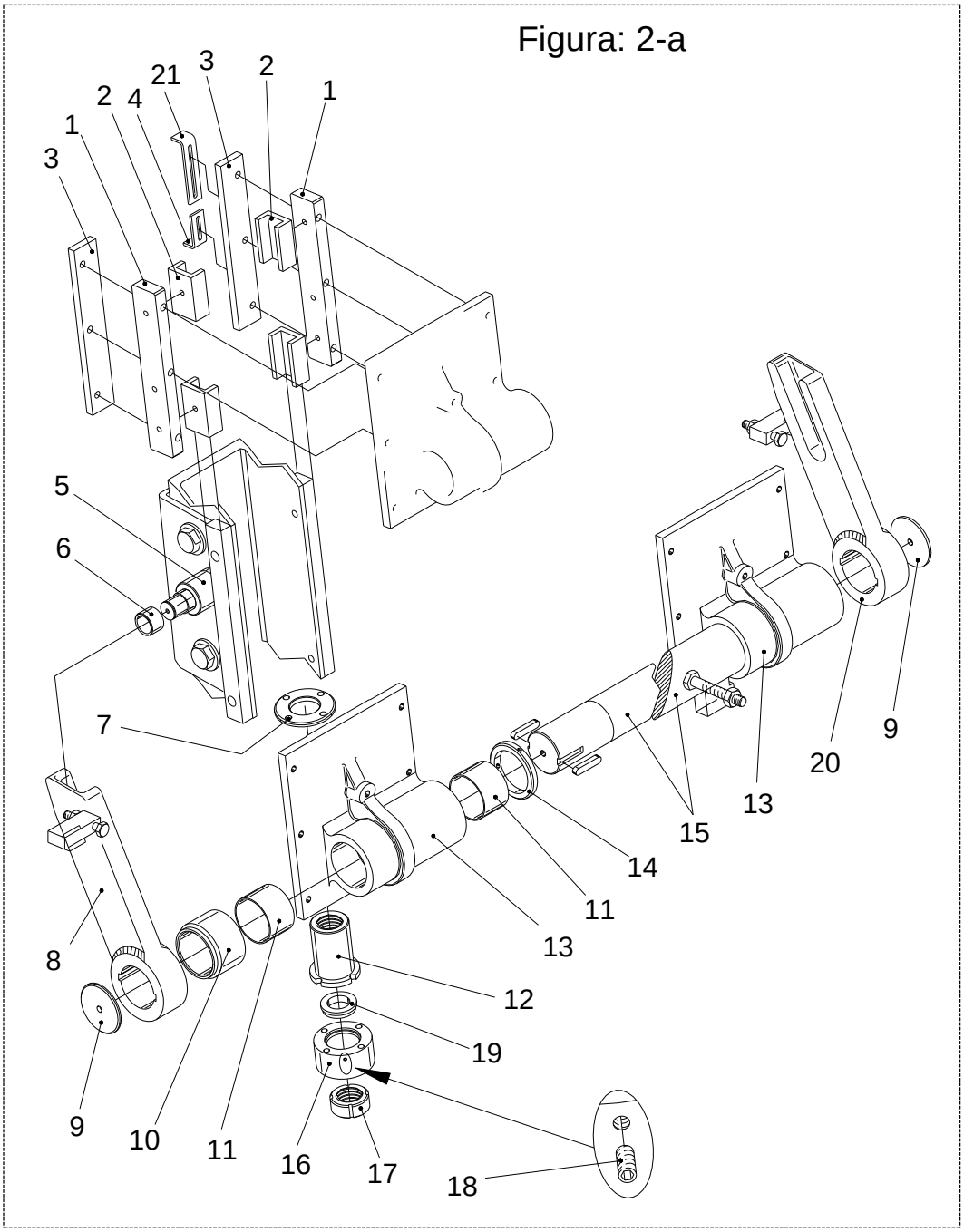


FIGURE 2-a

BEARING SLEDGE GROUP
(special version with safety lead nut and double tilting lever)

Pos.		Description	Q.	Model
1		Sliding blocks support	4	ER2
2		Sliding block	8	ER2
3		Rear support for sliding blocks	4	ER2
4		Bracket	1	ER2
5		Tipping pin	2	ER2
6		Bushing for tipping pin	2	ER2
7		Locking washer	2	ER2
8		Tilting lever	1	ER2
9		Washer	2	ER2
10		Spacer	1	ER2
11		Fiberglide bushing	4	ER2
12		Lead nut	2	ER2
13		Bearing sledge	2	ER2
14		Retaining ring	1	ER2
15		Load bearing shaft	1	ER2 wide 1418
		Load bearing shaft	1	ER2 wide 1610
16		Support for safety lead nut	1	ER2
17		Safety lead nut	1	ER2
18		Screw M6	1	ER2
19		Bushing	1	ER2
20		Tilting lever	1	ER2
21		Bracket	1	ER2 (versione con raschiatura)
21		Bracket	1	ER2 (version with scraper)

Figura: 3

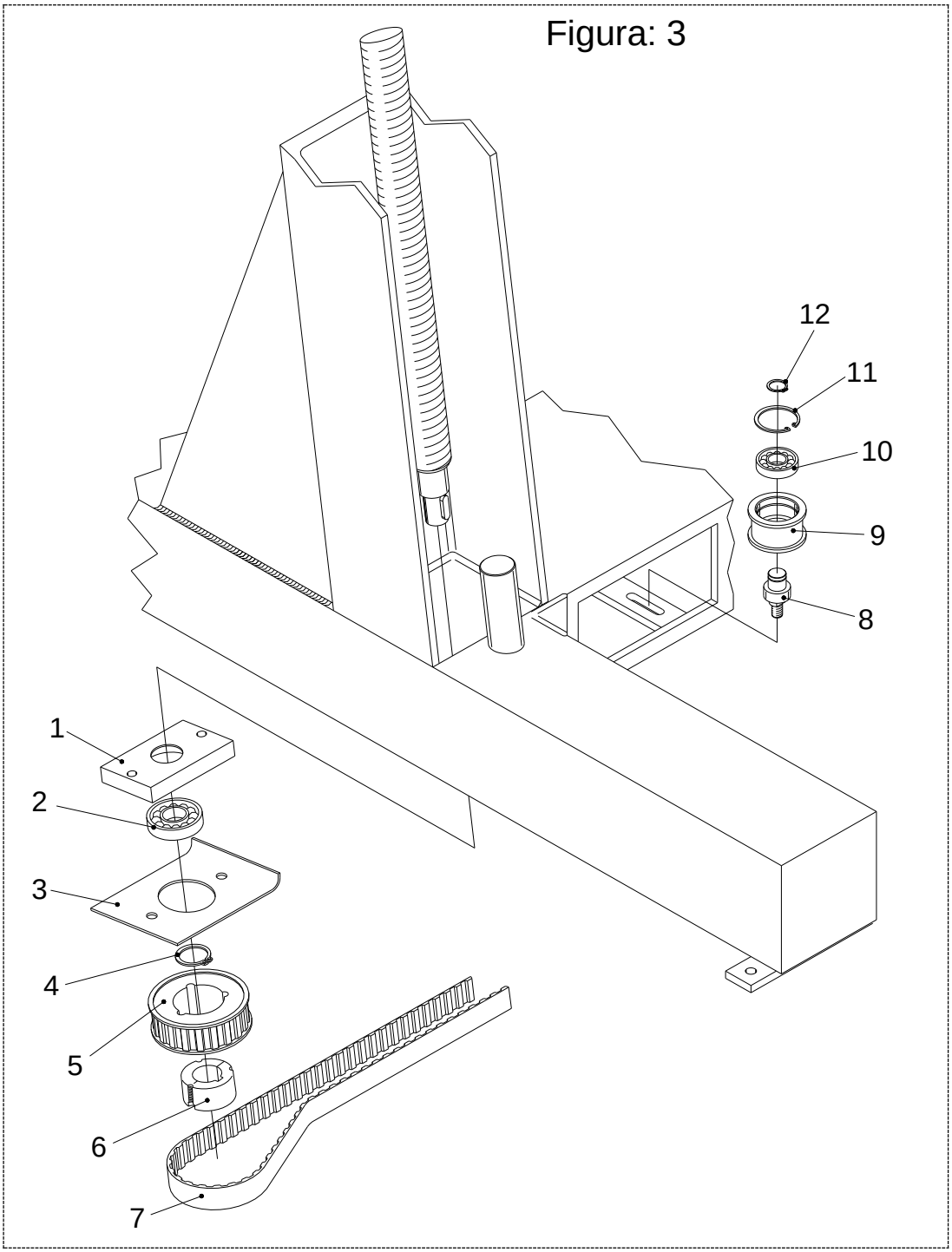


FIGURE 3

LIFTING SCREW – LOW END GROUP

Pos.		Description	Q.	Model
1		Lower support	2	ER2
2		Radial ball bearing W6007 2RS	2	ER2
3		Guard	2	ER2
4		Retaining ring for shaft Ø 35	2	ER2
5		Pulley	2	ER2
6		Taper lock bushing BC 40/25	2	ER2
7		Toothed belt 1400 H100 L = 3556	1	ER2 wide 1610
8		Belt tightening pin	2	ER2
9		Belt tightening pulley	2	ER2
10		Radial ball bearing W6204 2RS	2	ER2
11		Retaining ring for hole	2	ER2
12		Retaining ring for shaft	2	ER2

Figura: 4

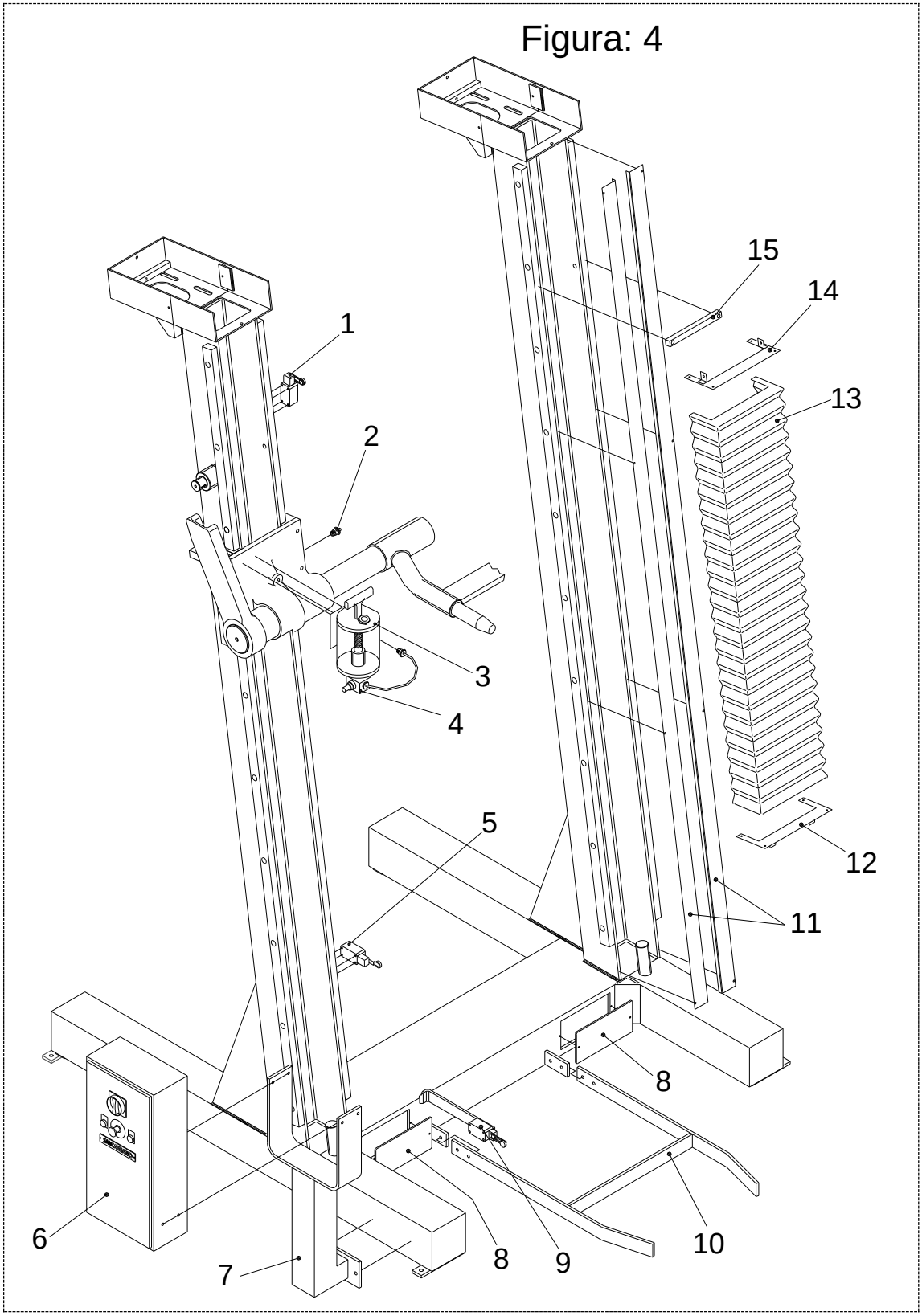


FIGURE 4

AUXILIARY EQUIPMENT GROUP

Pos.		Description	Q.	Model
1		Limit switch Crouzet 83851.301	1	ER2
2		Grease injection plug	6	ER2
3		Manual lubrication pump	2	ER2
4		Flow regulation valve	2	ER2
5		Limit switch Telemecanique XCKP 901	1	ER2
6		Electric cabinet	1	ER2
7		Support for electric cabinet	1	ER2
8		Inspection panels	2	ER2
9		Bowl detect sensor Crouzet 83851.303	1	ER2
10		Bowl guide structure	1	ER2
11		Guard	4	ER2
12		Lower support for bellow protection (optional)	2	ER2
13		Bellow protection (optional)	2	ER2
14		Upper support for bellow protection (optional)	2	ER2
15		Upper limit stop	2	ER2

Figura: 5

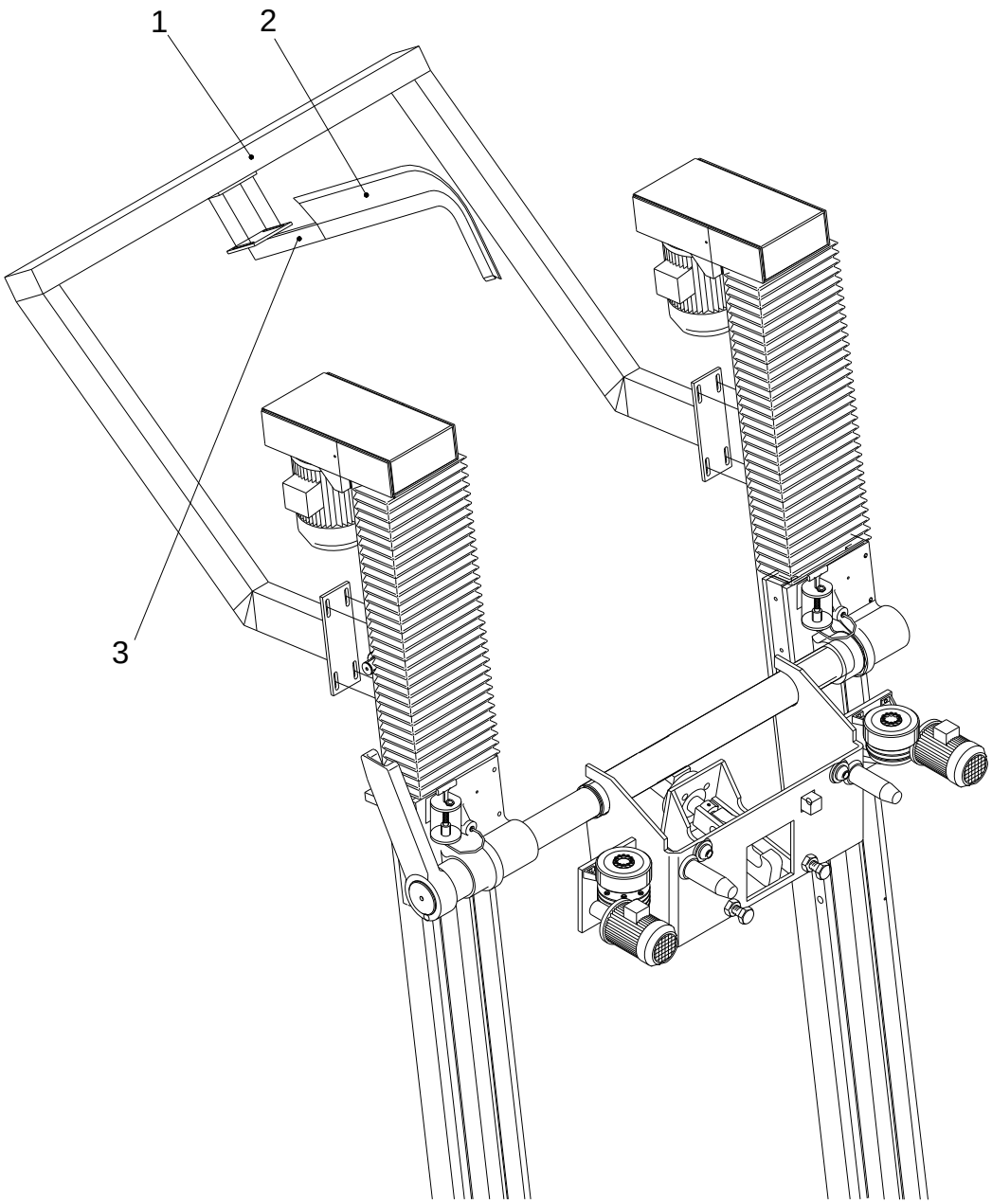


FIGURE 5

SCRAPER GROUP

Pos.	Code	Description	Q.	Model
1	ER2-15	Frame	1	ER2
2	ER2-16	Scraper	1	ER2
3	ER2-17	Metallic support for scraper	1	ER2

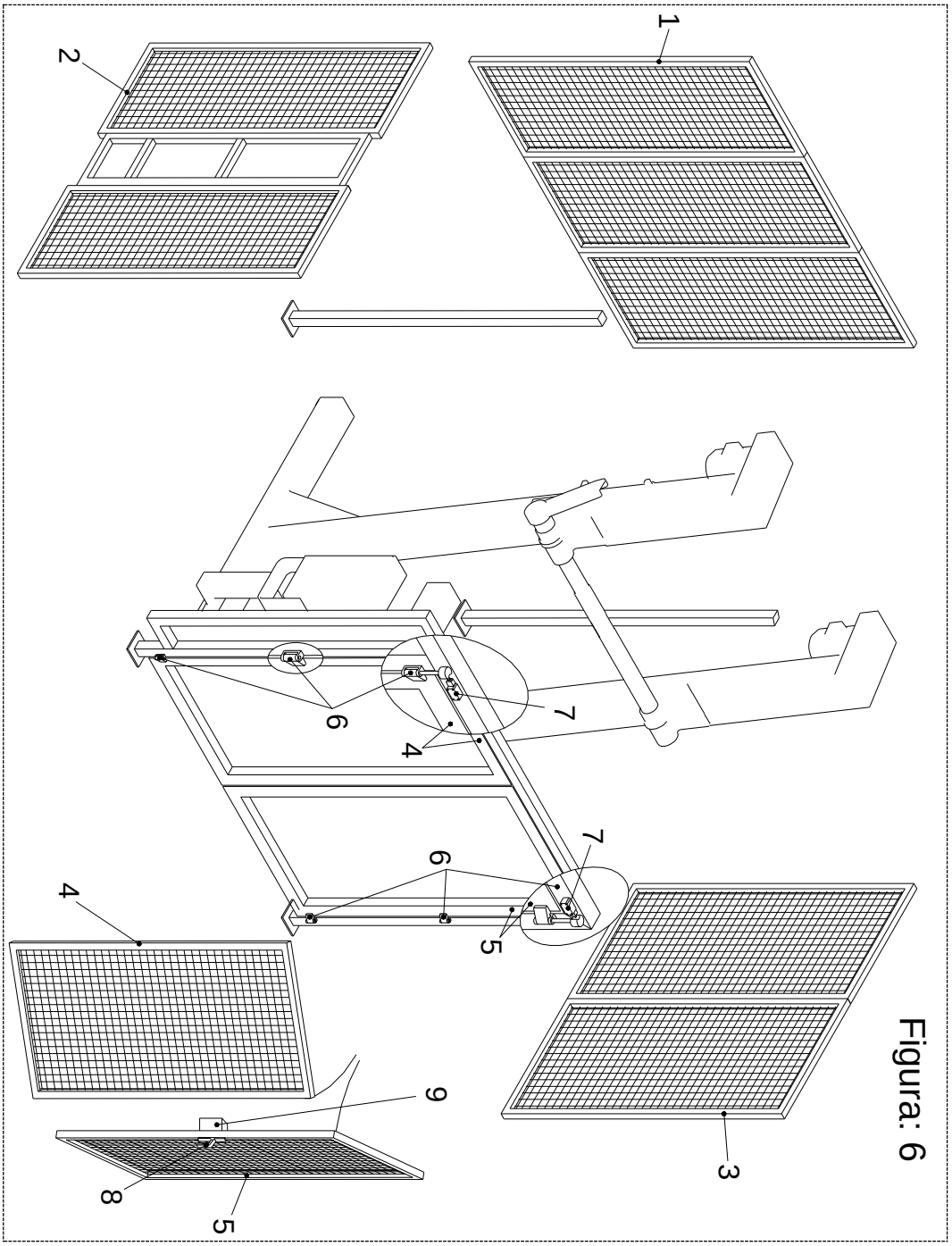


Figura: 6

FIGURE 6

SAFETY BARRIER WITH STANDARD DOUBLE DOOR

Pos.		Description	Q.	Model
1		Rear panel	1	ER2
2		Left side panel	1	ER2
3		Right side panel	1	ER2
4		Left door	1	ER2
5		Right door	1	ER2
6		Hinge	6	ER2
7		Limit switch	2	ER2
8		Handle	1	ER2
9		Safety block for bowl locking	1	ER2

Figura: 6-a

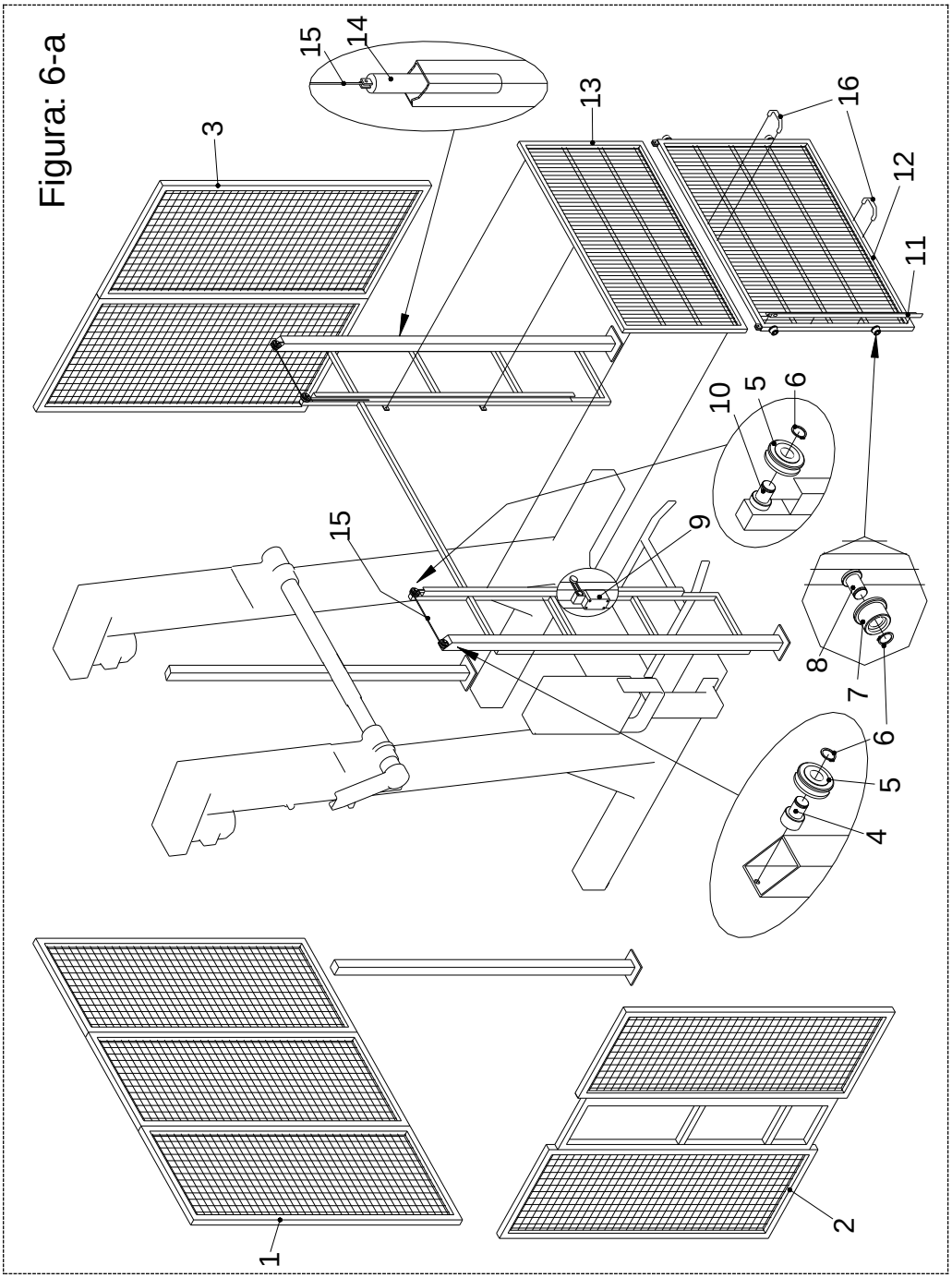


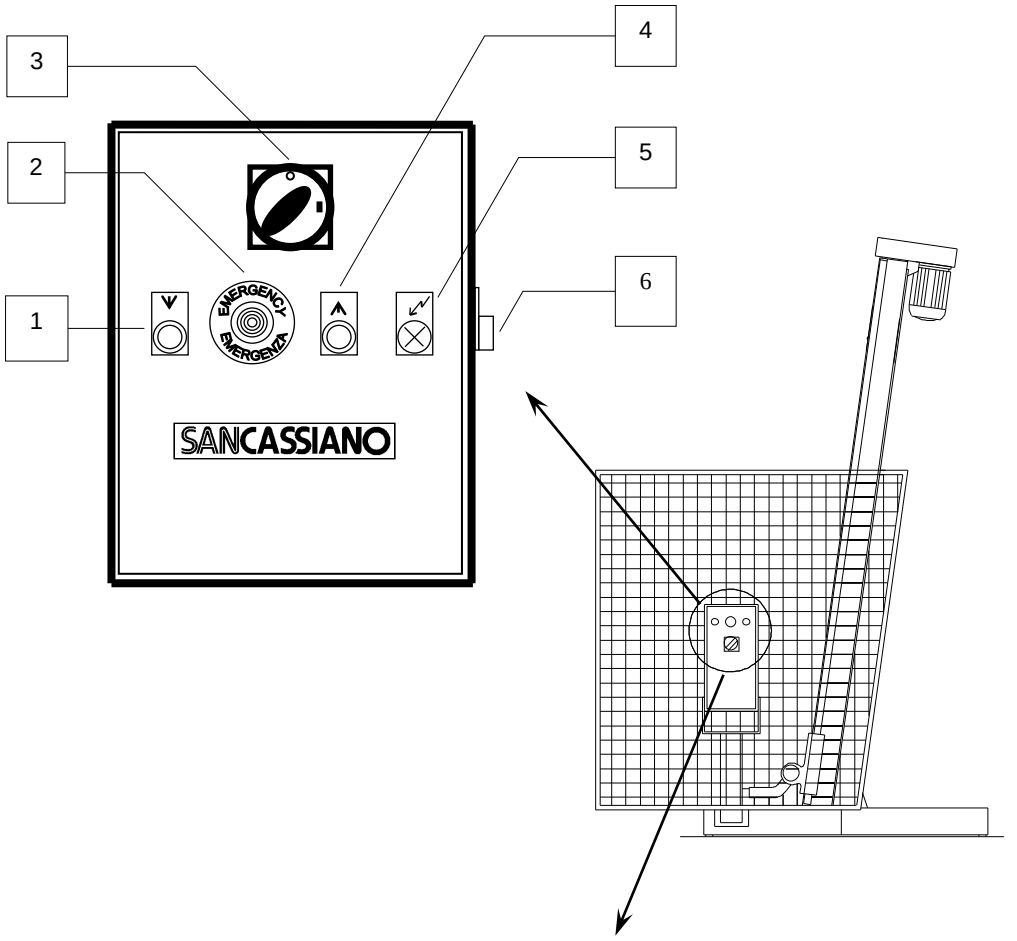
FIGURE 6-a

SAFETY BARRIER WITH VERTICAL SLIDING DOOR

Pos.		Description	Q.	Model
1		Rear panel	1	ER2
2		Left side panel	1	ER2
3		Right side panel	1	ER2
4		Pin	2	ER2
5		Pulley	4	ER2
6		Retaining ring	8	ER2
7		Bushing	4	ER2
8		Pin	4	ER2
9		Limit switch Crouzet 83851.301	1	ER2
10		Pin	2	ER2
11		Bar for activation of the limit switch	1	ER2
12		Sliding door	1	ER2
13		Fixed front panel	1	ER2
14		Balance weight	2	ER2
15		Steel cable	2	ER2
16		Handle	2	ER2

FIGURE 11

ELECTRICAL COMPONENTS



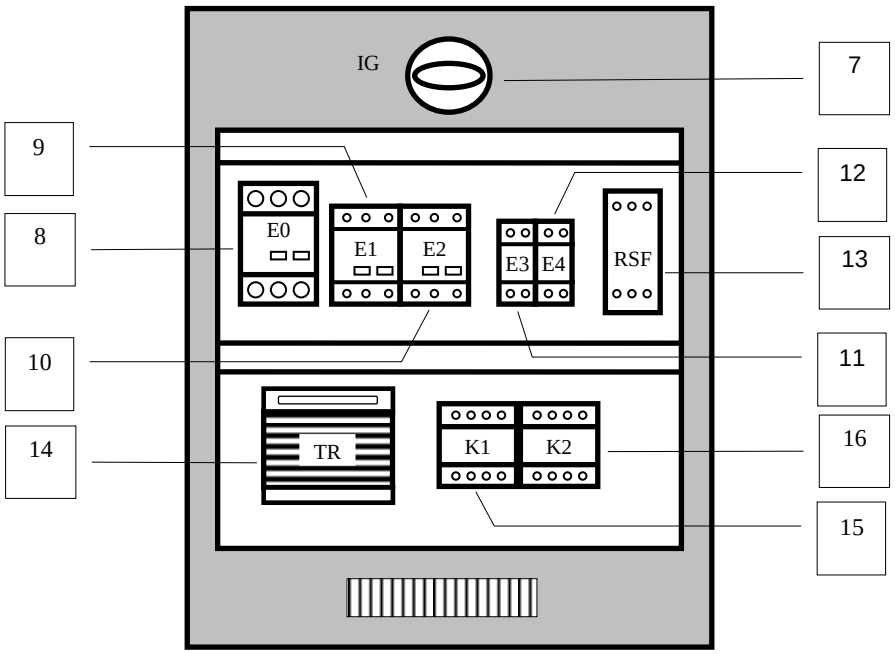


FIGURE 11

ELECTRICAL COMPONENTS

Pos.	Code	Description	Q.	Model
1	10.1839	Illuminated push button	1	ER2
2	10.1843	Emergency Push button	1	ER2
3	10.1918	Main disconnect switch	1	ER2
4	10.1839	Illuminated push button	1	ER2
5	10.1935.B	Lamp	1	ER2
6	10.1840	Push button	1	ER2
7	10.1918	Main disconnect switch	1	ER2
8	10.7628	Circuit breaker Telemecanique GV3M20	1	ER2
9	10.13101	Circuit breaker Telemecanique GV2M10	1	ER2
10	10.13101	Circuit breaker Telemecanique GV2M10	1	ER2
11	10.8092	Circuit breaker Telemecanique GB2CD07	1	ER2
12	10.8093	Circuit breaker Telemecanique GB2CB08	1	ER2
13	10.1810	Phase sequence relay Lovato ASF380	1	ER2
14	10.1825	Transformer 50 VA	1	ER2
15	10.7516	Contactor Telemecanique LC1 D1810	1	ER2
16	10.7516	Contactor Telemecanique LC1 D1810	1	ER2