

ENG

ORIGINAL USER GUIDE



**DEL -25**

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## 1. OVERVIEW

**ATTENTION: Please read and understand these instructions before you start operating the machine.**

This manual provides you with the necessary instructions for commissioning, use, maintenance and, where appropriate, repair. The aspects that may affect the safety and health of users during the performance of any of these processes are also indicated. By following these instructions and operating as suggested, you will get safe service and easy maintenance.

Therefore, the reading of this manual is mandatory for anyone who is going to be responsible for the use, maintenance or repair of the machine.

## 2. MACHINE OVERVIEW

- Rebar processing machines are designed and manufactured to bend both smooth and corrugated steel bars UP TO 180° into passive steel reinforcements for structural concrete. The bending process is carried out cold-using mandrels that guarantee standard-compliant bending inner diameters.
- Any other use that may be given to this machine is considered inappropriate and may be dangerous, so it is expressly prohibited.
- Equipped with self-ventilated electric motor.
- The main element of the machine is the gearbox, transmitting the necessary energy to bend steel bars.
- The machine is driven by an electric motor moving the gearboxes which connect a rod that turns the pushing pin and the central bending mandrels.
- This machine can only bend the bar in one direction of rotation.
- The bending angle is selected by inserting the pin into one of the bending plate pin holders to select an approximate bending angle.
- Precise angle adjustment is achieved by moving the bar bracket to a millimeter.
- The control panel fits very simple and easily located electric buttons and controls, identified with pictograms.
- Equipped with emergency stop and reverse control for easy maneuvering.
- The electrical operations for the processing of the steel bars are carried out on 24 Volts, in accordance with European Standards.
- Steel bolts, bending chucks and brackets are heat-treated to withstand heavy work.
- The machine is set to work from a foot pedal, so the operator keeps a distance from the bending area while bending happens, thus avoiding occupational injuries.
- The structure of the machine is baked with epoxy paint, which gives it high surface resistance and keeps the structure protected from corrosion.
- Electrical equipment complies with EU safety regulations.

## 3. NORMAL USE OF THE MACHINE

The electric bending machine has been designed for bending smooth and corrugated round bars of the kind described in this manual. Bending other types of geometric shapes and materials may be possible but it will need to previously check with the manufacturer SIMA S.A before proceeding, in order to ensure safety.

Any other use not expressly stated is considered inappropriate. Any tool or accessory added or modified without the written authorization of the manufacturer is considered inappropriate and dangerous. If damage or injury occurs as a consequence of misuse, SIMA S.A. exempts all responsibility as a manufacturer. When installing the machine, it must be ensured that it is placed to work on a firm, horizontal surface, and that the ground is not soft.

## 4. FORESEEABLE MISUSE

- To bend other materials not described in this manual, consult the manufacturer.
- Use additional working benches if the bar protrudes from the machine beyond what you can control and part of it may fall off from the working surface area.
- Never operate equipment without covers or guards. Keep fingers, hands, hair, and clothing away from all moving parts to avoid injury.
- Always keep the working area clean and free of foreign matter and debris.
- Also keep the work area well-lit
- Use original spare parts.
- Do not try to remove the bar while the machine is moving, wait for it to stop.
- Do not attempt to remove the bar if the machine is on stand-by and the pushing pin is pressed against bar. Press reverse and control with the foot pedal.
- Do not install the machine on soft ground. Do this on a firm, smooth surface. If necessary, anchor the machine to the ground or working bench using screws. If you can't drill into the floor, lay a base of wood or other material that ensures stability and safety.

- It is forbidden to use DEL 25 without the electrical and mechanical safety elements fitted in the machine; guards, protectors, etc., working without safety elements is very risky and can cause very serious injuries and accidents. For this reason, the safety standards recommended in this Manual must be thoroughly followed, as well as the occupational safety standards applicable in each country. It must be borne in mind that any modification in any of the machine parts or elements, or improper use is considered dangerous and reckless.
- It is forbidden to make any type of modification to any of the parts, elements or features of the machine that by the user. Under no circumstances shall the manufacturer be held liable for any consequences that may arise from non-compliance with these recommendations.
- Do not double bars of greater hardness than those indicated in this manual: both the machine and you could be seriously damaged.
- Use the safety PPE proposed and those indicated in your workplace.
- Don't overreach. Always maintain posture and balance.
- Never leave equipment unattended. When not in use, always disconnect the equipment from the power source before performing maintenance and when changing accessories.
- Use this equipment only for its intended purpose.
- Keep this equipment clean for better and safer performance. At the end of the working day, clean or blow away any steel debris and grease the bolts and bolt holes.
- Inspect equipment after each use. Replace any damaged or worn parts immediately.
- If a malfunction occurs, disconnect immediately from the mains.
- This machine cannot be used in the rain. At the end of the day, cover the machine with a waterproof guard.
- Use standard extension electric hoses.



**This machine DOES NOT HAVE TO BE USED IN THE RAIN. Cover it with waterproof materials. If the machine has been exposed to the rain, check that the electrical parts are not smoky or wet before switching it on. ALWAYS WORK IN GOOD LIGHTING CONDITIONS.**

## 5. SAFETY RECOMMENDATIONS, PREVENTION MEASURES

### FALLING OF PEOPLE AT THE SAME AND/OR DIFFERENT LEVEL OF THE WORKING SURFACE.

- Keep the machine and its surroundings clean of grease, mud, concrete, and obstacles.

### FOOTSTEPS ON OBJECTS.

- Keep the work area tidy and clean of materials, tools, utensils, etc.
- Pay attention when moving to avoid twisting and wear appropriate footwear. .

### BLOWS AND CONTACT AGAINST MOVING OR STATIONARY ELEMENTS, OBJECTS AND/OR TOOLS

- Pay attention to anything that is moving around in your work area.
- Pay special attention to your own movements.
- Store equipment that you are not using in the designated places.
- Use tools in good use and only for the jobs they were intended for (do not keep them in your pockets).
- Do not store sharp tools with cutting edges uncovered.
- Cleaning and maintenance will be carried out with the equipment stopped and without the possibility of movement or operation.
- Check that housing and guards on moving parts are properly installed.
- Ensure adequate clamping and support of the workpiece on which the machine acts.
- Stop the machine to check, measure, and reposition the workpiece.
- Do not remove shavings or trimmings by hand, do it with a hook and gloves, and always with the machine stopped.

### PROJECTION OF FRAGMENTS OR PARTICLES.

- Check that no one is within the working area.

**ATTENTION:** All the safety recommendations indicated in this manual must be followed and the occupational risk prevention regulations of each place must be complied with

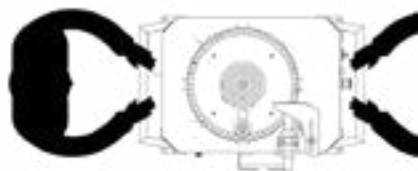
## 6. TRANSPORTATION & TRANSFER

The machine has two handles for transport between two people over short distances.

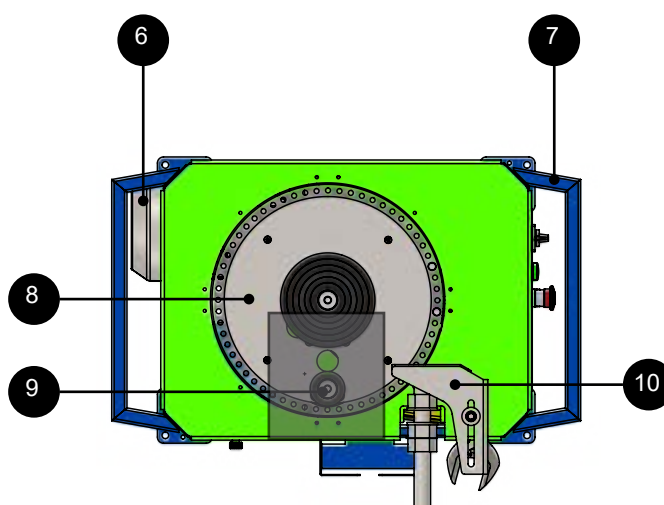
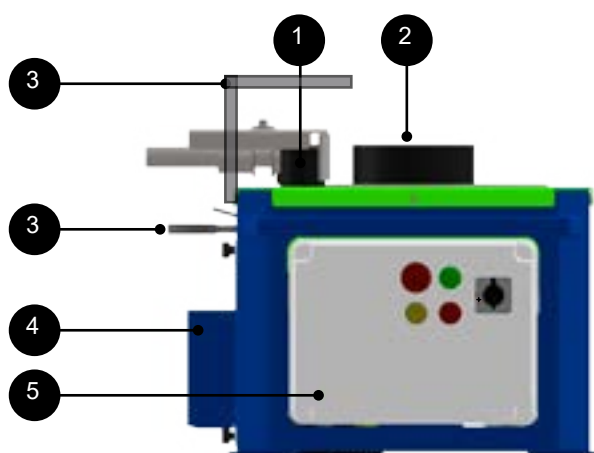
For longer distances, use a wheeled platform or thread an M10 lifting ring onto the shaft to lift the machine.



Do not lift the machine from any other point, it could be damaged and is considered very dangerous



## 7. MACHINE PARTS



1. BAR SUPPORT PIN Ø25.
2. BENDING MANDRELS.
3. TOOLS.
4. MANDREL HOLDER.
5. ELECTRICAL PANEL.
6. ENGINE.
7. CARRYING HANDLES.
8. FOLDING PLATE.
9. PUSHING PIN.
10. ANGLE ADJUSTMENT BRACKET.
11. PLATE GUARD.



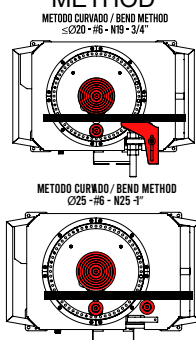
## 8 AWG EXTENSION HOSES CHART

In the table below you can see the wire gauge required for extension hoses

### EPI SAFETY



### BENDING METHOD



### VOLTAGE

110 v 50/60 Hz

230 v 50/60 Hz

### SPEED CONTROLLER

#### BENDING SPEED

BAR 1" MIN BAR ≤ 7/8" MAX



### ELEVATION METHOD



## 9. CONDICIONES DE SUMINISTRO

The packaging contains the following elements:

3pc Ø1.2" bending pin

3pc Ø 2.25" Mandrel

1pc Ø3" Mandrel

1pc Ø 3.75" Mandrel

1pc Ø 4.50" Mandrel

1pc Ø 5.25" Mandrel

1pc Ø 6" Mandrel

1Pc Key DIN 894 41mm

1PC Key DIN 894 13mm

## 9. AWG EXTENSION HOSES CHART

In the table below you can see the wire gauge required for extension hoses

Selección del calibre del cable de extensión /Extension Cord Gauge Selection										
Ampere Rating Range	Volts	Longitud del cable en pies / Length of Cord in Feet								
	115V	25 Ft.	50 Ft.	100 Ft.	150 Ft.	200 Ft.	250 Ft.	300 Ft.	400 Ft.	500 Ft.
	230V	50 Ft.	100 Ft.	200 Ft.	300 Ft.	400 Ft.	500 Ft.	600 Ft.	800 Ft.	1000 Ft.
14 - 16		16	12	10	8	6	6	4	4	2
16 - 18		14	12	8	8	6	4	4	2	2
18 - 20		14	12	8	6	6	4	4	2	2

## 10. START-UP



**ATTENTION:** All the safety recommendations indicated must be followed as well as those in compliance with the safety and occupational risk prevention regulations of each country.



Do not connect the machine to the mains if you are unsure of the available supply voltage. If the voltage is not correct, the machine will suffer irreparable electrical damage and become unusable.



Never handle the power cables, conductive wires or electrical material of the machine, unless the electrical power wire is disconnected from the mains.



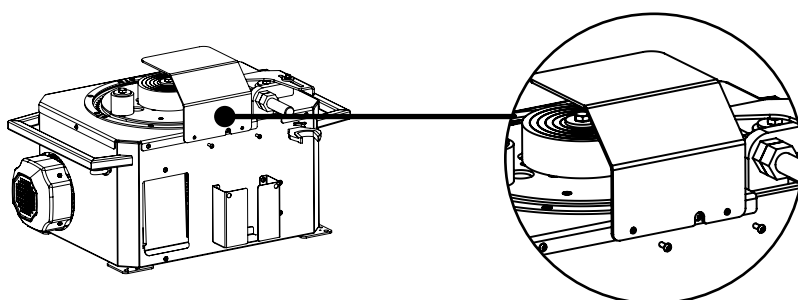
**VERY IMPORTANT:** The earthing connection must always be connected before commissioning.



**RUNNING-IN:** Bending machines do not require any running-in operation; they are specially designed to obtain maximum performance from the moment they are put to work.



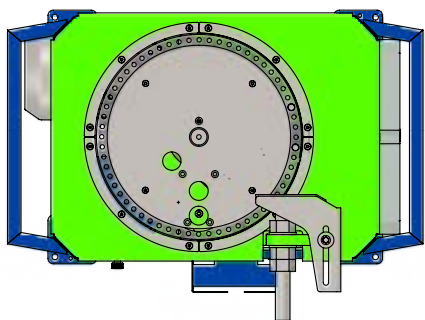
Mount the coil guard for safety. It will stop unexpected projections. Replace with a new one in case of deterioration.



## 1. CONNECT THE MACHINE TO THE MAINS

## 2. CLEAR THE WORKING SPACE.

Do not mount pins or mandrels on the platform until you have full control of the machine by performing no-load maneuvers



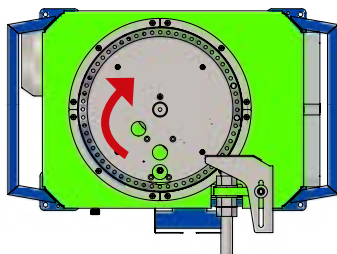
## 3. MANUAL RECOIL OF THE BENDING PLATE.

If, during the bending operation, you stop the machine for any reason and need the bending plate to go back without having to reach the end of the cycle, press REVERSE and operate the pedal, the plate will go back from whatever position it is to its starting position



## 4. TURN THE ON SWITCH.

- Turn the switch to the ON position.
- Press the foot pedal to put the plate to turning. Lift your foot off the pedal to stop it turning.
- Press Reverse R and press the pedal to return the plate to the starting point.



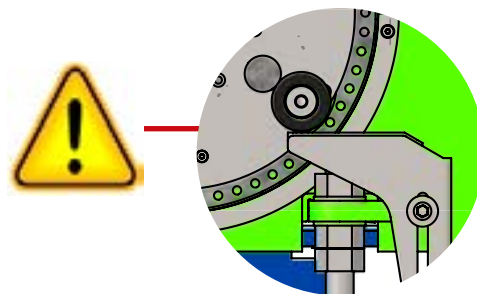
## 4. TURNING SPEED

Using the speed control, you can choose the working speed between 5 and 8 rpm. For 1" or Ø25 bar, always set the lowest speed (6 rpm).



## 6. DANGER OF COLLISION.

Be careful when attaching the pushing pin: it could collide with the square ruler if you do not limit the angle of rotation with the reversing pivot.

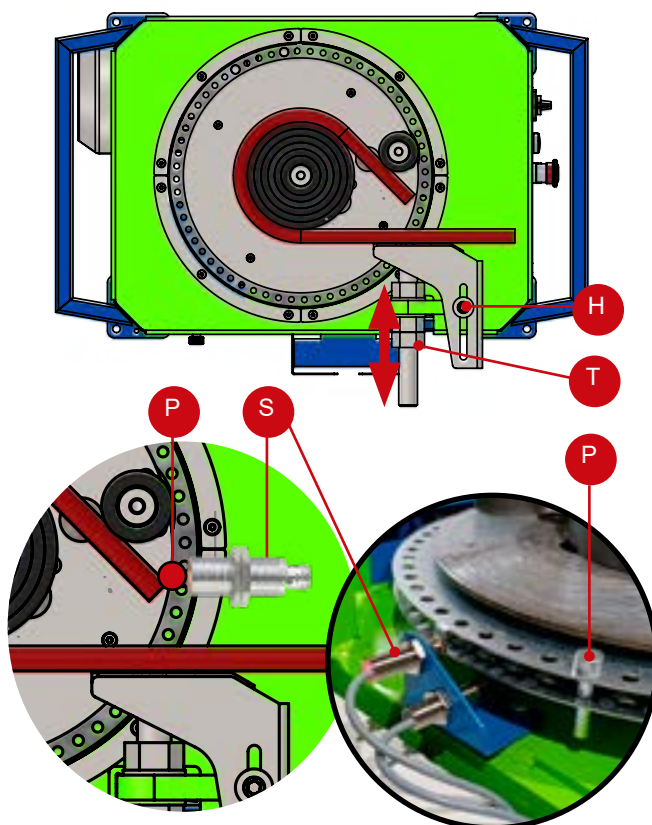


## 7. BENDING ANGLE CONTROL.

- Use the reversing pivot (P) to limit the angle of rotation.
- Place the desired mandrel configuration.
- Insert the bar.
- Press the foot pedal to start bending and release the pedal when you see the right angle formed.
- Without backing the plate, insert the pivot into the hole in front of the inductive sensor. The inductive sensor (S) is located under the green table and can be seen from the outside.
- Press Back R to return the dish to the source.

## CONGRATULATIONS, MACHINE IS SET UP

To precisely adjust the bending angle, if necessary, move the support bracket to the millimeter by manipulating the nuts (T) that lock it and the bolt that cancels the clearance (H).

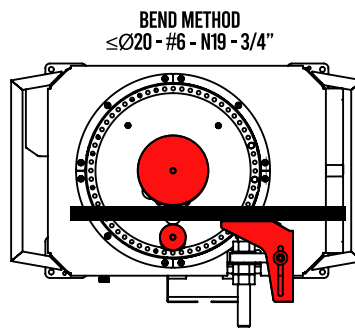


## 11. FOLDING METHOD

There are two methods for bending bars.

### BENT BARS $\leq \varnothing 3/4"$ - #6 - N19

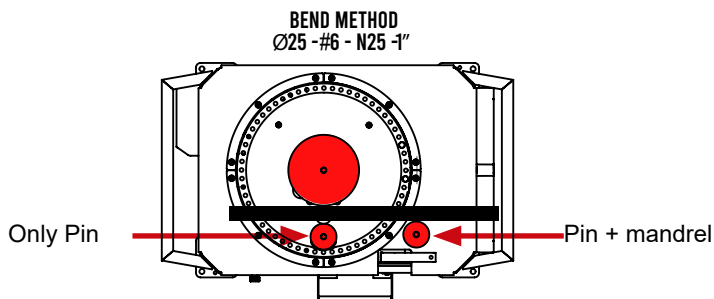
Use the adjustable support bracket for bending bars up to  $\varnothing 3/4"$  mm.



### 2. BENT BARS $\varnothing 1"$ - #6 - N25

Use the roller as a bar support to allow the bar to move forward by spinning the roller as it is curved. This system generates less friction and less effort from the drive unit.

Do not use the bracket support, the power consumption could be high, disconnected in the electrical system to protect itself



## 12. MAINTENANCE, CONTROL AND INSPECTION

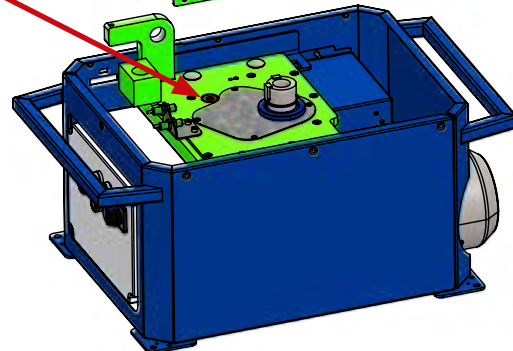
- First oil change after 1000 hours of operation if it is mineral oil, then after 3000/4000 hours of operation or after three years regardless of the hours of operation of the machine; or after 20,000 hours if synthetic oil is used.
- At the end of each day, turn off the machine.
- When necessary, use compressed air to remove any material debris that has fallen inside.
- Grease the holes where the bolts and the neck of the pin are housed with calcium grease at the end of the day, in this way we will avoid corrosion and seizure.
- If the machine is not covered, cover it with waterproof cloth and avoid water splashes.
- Check the oil level of the gearbox annually by removing the filler cap from both gearboxes.



**LLENADO DE ACEITE**  
Oil fill  
Plein d'huile



**NIVEL DE ACEITE**  
Oil level  
Niveau de l'huile



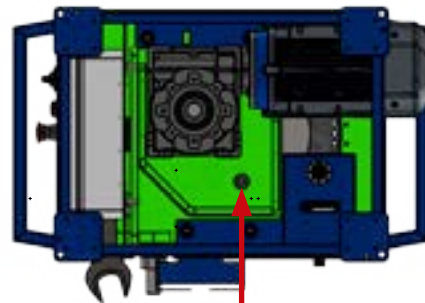
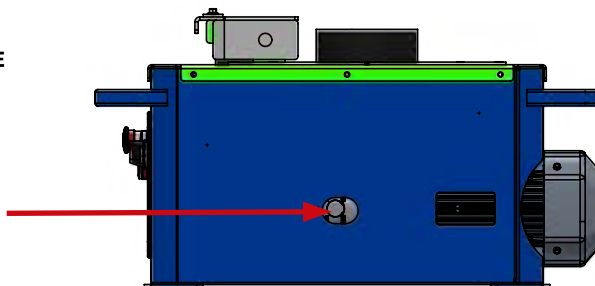
**LLENADO DE ACEITE**  
Oil fill  
Plein d'huile



**NIVEL DE ACEITE**  
Oil level  
Niveau de l'huile



**PURGA DE ACEITE**  
Oil drain  
Purge de l'huile



**PURGA DE ACEITE**  
Oil drain  
Purge de l'huile

**OIL AGIP TELIUM BSF 320**

**OIL ISO 3448 CKC 460**

### 13. OPTIONAL ACCESORIES

BOLT EXTRACTOR in case of recessed due to oxidation



WORKING BENCH



### 14. SOLUTION TO THE MOST FREQUENT ANOMALIES

ANOMALUY	POSSIBLE CAUSE	SOLUTION
The bending plate rotates, but does not return and stops after matching the inductive sensor.	Faulty inductive sensor.	Check the inductive stop sensor and confirm its continuity. (1 open, 0 closed). Replace it in the event of a breakdown
There is a lack of voltage in the machine, the power status pilot lamp does not turn on	Lack of voltage in the power supply panel.	Check the inductive stop sensor and confirm its continuity. (1 open, 0 closed). Replace it in the event of a breakdown
	Faulty connection to the network	Check the electrical panel of the workplace, check that there is voltage at the place of the power outlet.
	Check the voltage of the workplace's electrical network and its connections.	Check the voltage of the worksite's electrical network and its connections
	Shunting circuit breaker disconnect.	Reassemble the circuit breaker
	Electrical Conductor Cable in Poor Condition.	Check the condition and connection of the cables.
The power status pilot lamp is on, but the machine is not working.	The machine is not properly connected.	Check that the machine is connected to all its phases. Check the circuit breaker on the machine's electrical panel.
	Locked emergency stops	Unlock Emergency Stops.
	Electrical safety elements deactivated.	Check that the safety devices of doors, guards, emergency stops and other safeguards are operational
Connection to 230V or 400V. The connection is regular, but the machine does not have enough force.	Unstable voltage.	Check the output of the emission current. If the voltage is less than 230V and 400V and the machine does not work, a voltage stabilizer is advised.
The machine leaks oil at the bottom of the reduction	Deteriorated or damaged seals.	Check the seals and replace them if they are damaged
During recoil after bending, the bending plate does not stop at the starting point.	Faulty inductive sensor	Check the inductive sensor and its continuity (1 open or closed). Replace it in the event of a breakdown
Strange noises inside the gear-box block.	Internal deterioration of any of its elements	Replace the Shoe Disc
Strange noises inside the gear-box block	Internal deterioration of any of its elements	Disassemble the gearbox and check bearings and gears, replace elements that show breakage or deterioration
Strange noises in the engine	Engine failure in some of its components	Observe where the noise is coming from, disassemble the engine and proceed with its repair

## 15. SAFETY RECOMMENDATIONS

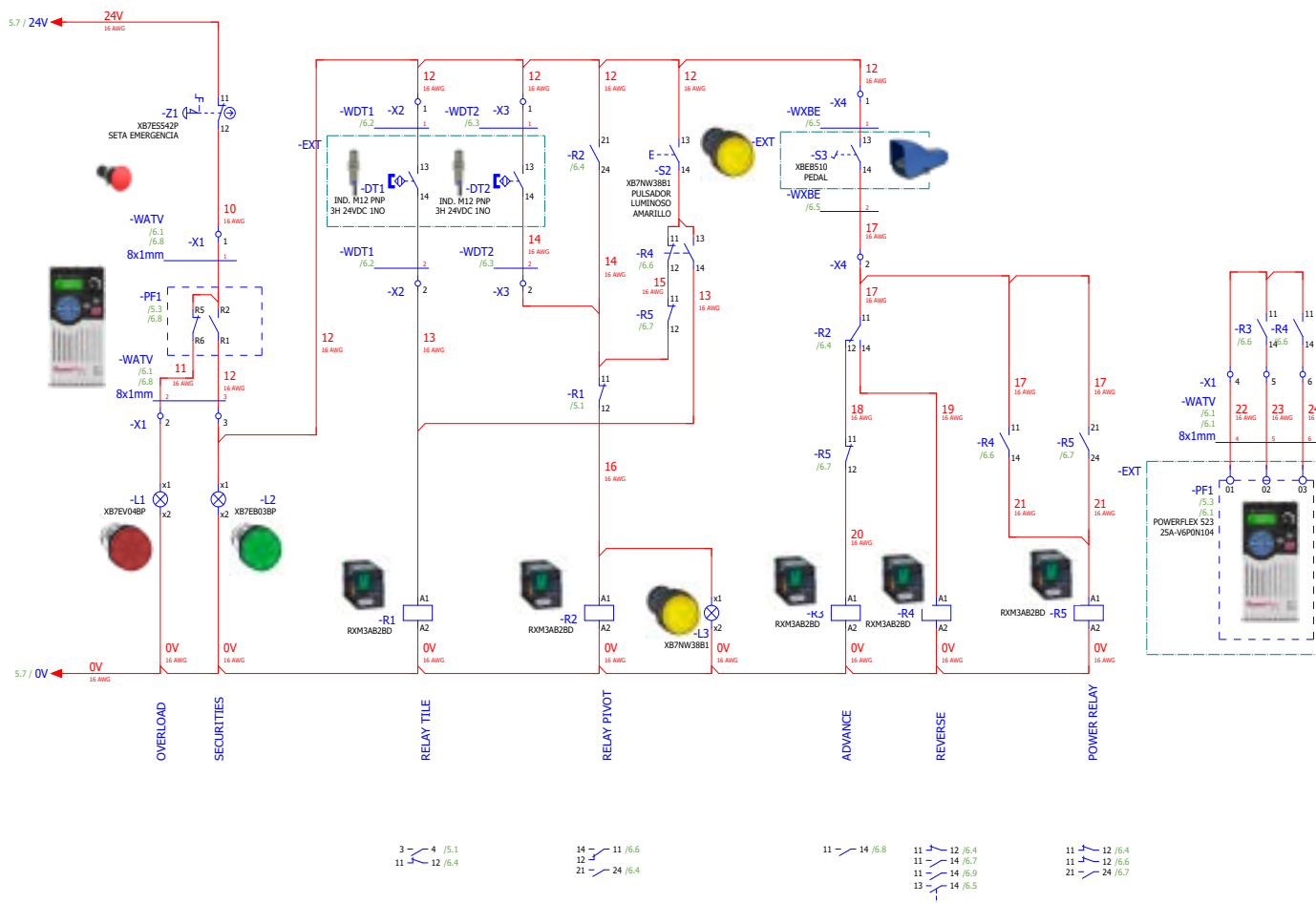
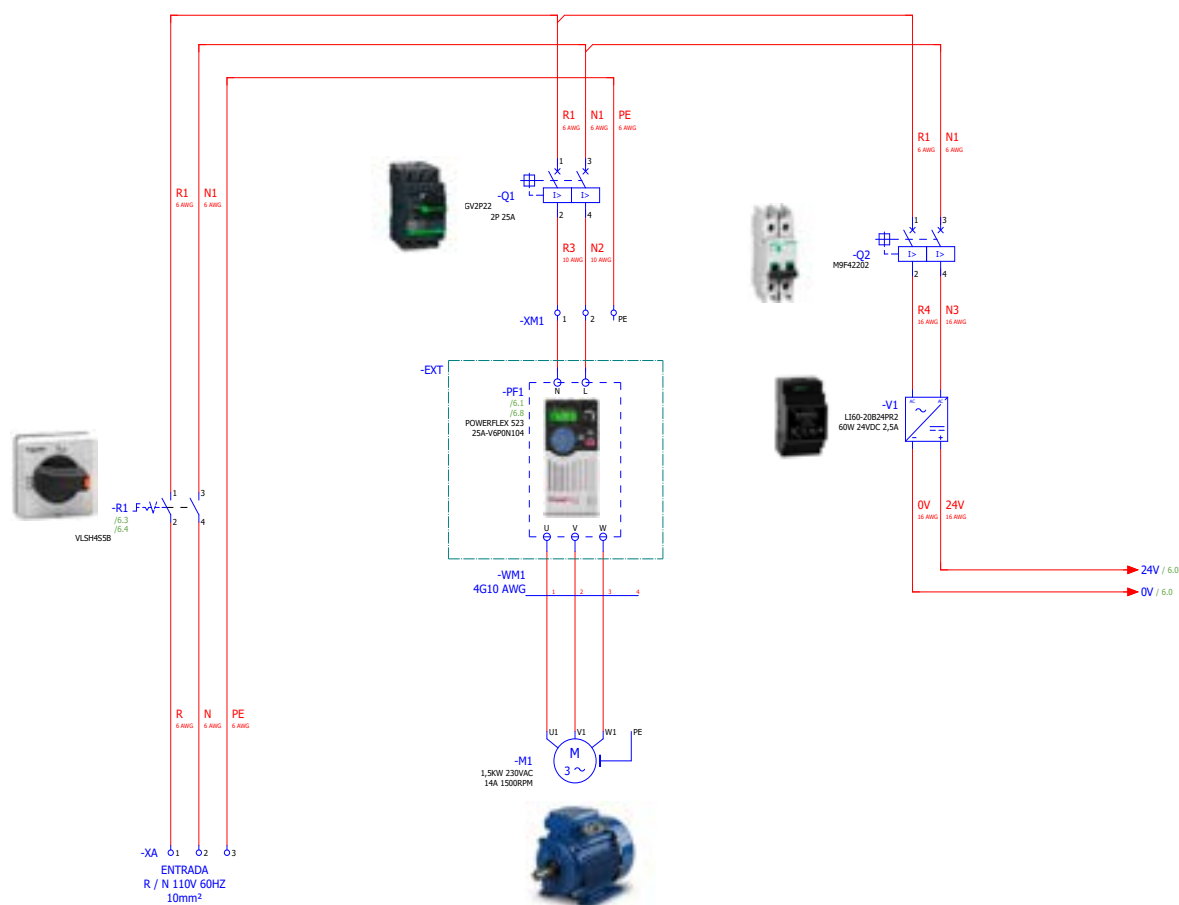
Steel bars bending machines must be always used by operators who have been instructed and trained in the operation of the machine.

- Before starting the machine, read the instructions carefully and observe compliance with safety regulations. Learn how to stop the machine quickly and safely
  - Place the machine on a flat, well-lit surface.
  - Do not connect the machine until its stability has been guaranteed
  - Do not start the machine if it does not have all the safety guards including those fitted in the machine.
  - The use of protective goggles, safety boots and gloves is advised. Always use approved material and comply with the prevention and risk norms of each place.
  - Always wear personal protective equipment (PPE) according to the job you are doing
  - Make sure that persons other than the machine operators walk by the working area.
  - Workwear should not include loose clothing that can be caught by moving parts of the machine.
  - Make sure that the engine is stopped and the moving parts blocked before moving the machine.
  - Always keep all protective and safety elements in their correct position.
  - Attention: Before placing the bolts, mandrels and bending bracket, check the direction of rotation of the bending plate. After this check, install the necessary accessories for the job.
  - Any deteriorated electrical (cuts or breaks) should be immediately replaced.
  - Disconnect the machine from the mains and do not handle or operate on the mechanical and electrical elements of the machine while the engine is running.
  - Do not use the machine for functions that it has not been designed for
  - VERY IMPORTANT: The earthing connection must always be connected before commissioning.
  - Use standard extension cords.
  - Make sure that the voltage of the power supply to which the machine is to be connected coincides with the voltage indicated on the sticker affixed to the machine.
  - Make sure that the power extension cord of the machine does not encounter high temperature points, oil, water, sharp edges, etc.
- Do not step on or crush the cord by driving vehicles over or letting people step on them or dropping objects on it.
- Do not use pressurized water to clean circuits and electrical elements.

ATTENTION: All the safety recommendations indicated in this manual must be followed and the occupational risk prevention regulations of each place must be complied with.

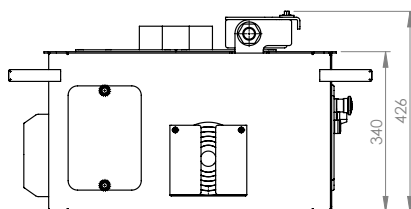
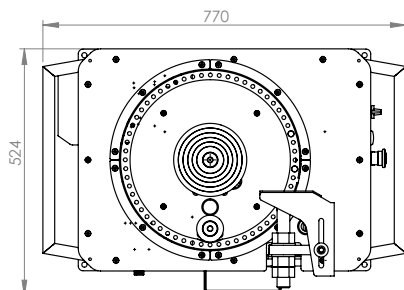
SIMA, S.A. is not responsible for the consequences that may arise from the misuse or improper use of steel bars bending machines.

## 16. WIRING DIAGRAMS



## 17. TECHNICAL DATA

CÓDIGO	VOLTAGE	DIMENSIONES NETAS		DIMENSIONES BRUTAS	
20251003	120V 1.5 KW 50/60HZ 18A	90 KG	77 X 52 X 42 CM	100 KG	80 X 60 X 61 CM
20251004	230V 1,5 KW 50/60HZ 10A	198 LB	30" X 20" X 20"	220 LB	32" X 24" X 24"



Ø MANDRIL DOBLADO RECOMENDADO				
		B500 SD GRADO 60	MANDRIL DOBLADO	Nº BARRAS
#3	Nº 10	3/8" / # 10	2,25" / Ø 60	4
#4	Nº 13	1/2" / # 13	3" / Ø 80	3
#5	Nº 16	5/8" / # 16	3,75" / Ø 95	2
#6	Nº 19	3/4" / # 19	4,5" / Ø 115	2
#7	Nº 22	7/8" / # 22	5,25" / Ø 135	1
#8	Nº 25	1" / # 25	6" / Ø 155	1

Important: Please consult your country's regulations or laws on bending diameters for steel bars.

## 18 STORAGE

Store the machine indoors and in a dry environment.

When the machine is not to be used, it should be stored in a warm, dry environment. Keep the machine out of the reach of children.

## 19 STATEMENT ON MECHANICAL VIBRATIONS

As it is not a hand-guided machine, mechanical vibrations do not pose a risk to the health and safety of workers

## 20 NOISE STATEMENT

The machine has no sources of mechanical vibration that pose risks to the health and safety of workers.

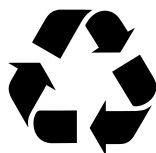
## 21 SPARE PARTS

The available spare parts are identified in the spare parts drawings and can be viewed via B2B. To request any of them, you must contact the after-sales department and clearly specify the number with which it is indicated, as well as the model, manufacture number and year of manufacture that appears on the nameplate of the machine for which it is intended.

## 22 ENVIRONMENTAL PROTECTION



Raw materials should be recovered instead of scraps discarded. Appliances, accessories, fluids and packaging should be sent to designated sites for ecological reuse. Plastic components are marked for selected recycling.



R.A.E.E. Waste electrical and electronic equipment must be deposited in designated places for separate collection.