



INSTRUCTIONS BOOK

TWISTING MACHINE

MT500A CNC

NS: 2026/542



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Photography with the machine

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TECHNICAL ANNEX

1. MACHINE DETAILS

Marca	Nargesa
Tipo	Torsionadora
Modelo	MT500A

1.1. Dimensions

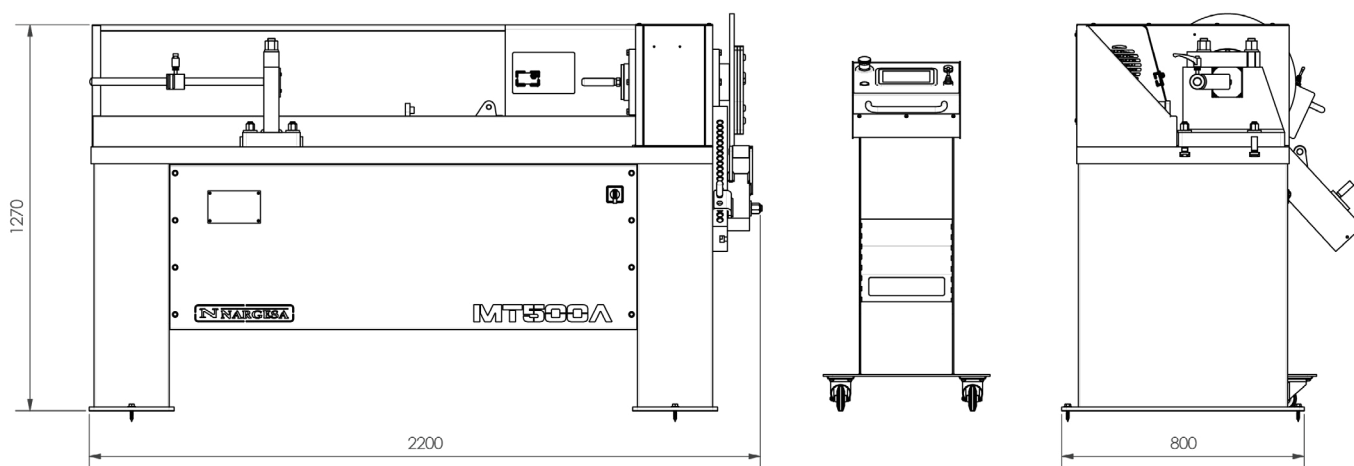


Figure 1. Overall dimensions of the MT500A twisting machine

1.2. Machine description

The machine has been basically designed to shape cold forge materials. It scrolls bars, it makes spirals of flat bars, etc. All drawings that can be made with a rotary head and a stand point will be easily makeable by using this machine. It will only be limited by the room it occupies and the engine power.

A set of standard tooling is supplied along with the machine, with which you will be able to make most of the basic shapes. However the manufacturer can provide the user with the fitting mould for the head, so he can create his own shapes.

The MT500A complies with European standards and directives for machinery manufacturing.

If an accident occurs due to operator negligence, or failure to comply with the safety regulations outlined in the manual, PRADA NARGESA S.L. is not responsible.

1.3. Machine part identification

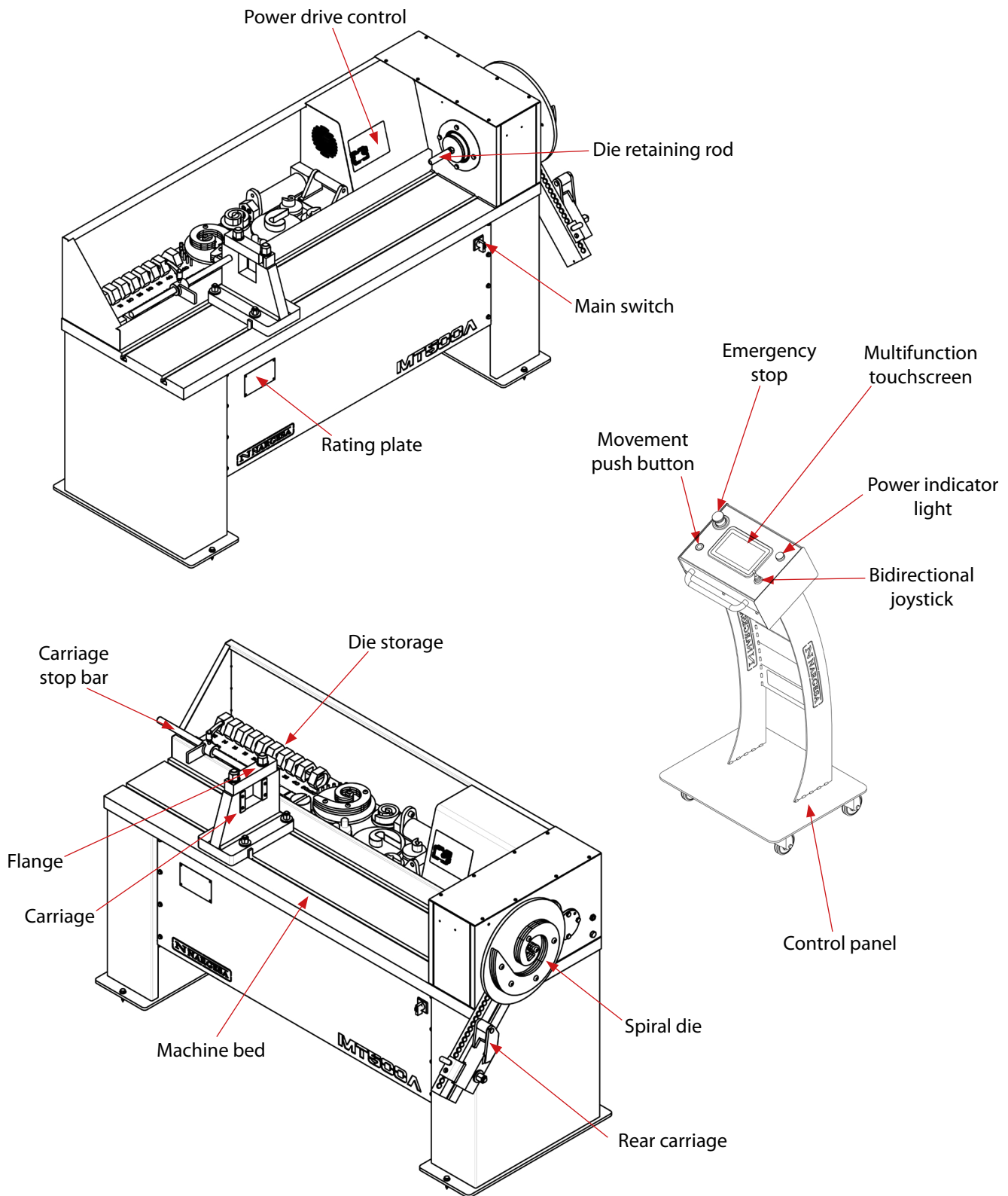


Figure 2. Nomenclature of the machine components



Figure 3. Rating plate

1.4. General characteristics

The machine is equipped with a 5 HP engine and the reductor which transmits rotation to the head by means of a cog wheel.

It has a box to keep the tooling and a stand table made of a welded and folded steel plate.

Engine power	4 KW / 5,5 CV.
Tension	230 / 400 V Three-Phase 230 V Single-Phase
Rotary speed	Adjustable from 0 to 10 r.p.m.
Twisting maximum capacity	40 mm o 1 3/8"
Bending Maximum capacity	25 mm o 1"
Max. scrolling & bending in flat bar	50x10 mm o 2"x3/8"
Max. Continued scrolling length	1.620 mm
Dimensions	2200x800x1270 mm
Weight	1350 Kg

1.5. Noise generated by the machine

In this case noise could be considered as non- existent under normall working conditions.

1.6. Vibrations

Like noise, vibrations are almost non-existent for this a fixed machine and it has got a low head rotation speed.

1.7. Description of accessories

The basic accessories the machine has are the ones to fit the head to make the different shapes. It is provided with different stand points, and clamping spots for materials. In the last chapter of this manual there are a series of operations all of them explained step by step by means of photographs.

1.8. Description of guards

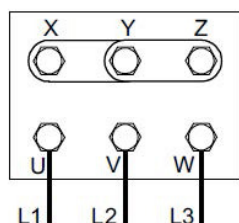
Gears and moveable parts are covered with the exception of the rotary head.

1.9. Basic specifications of compatible tools

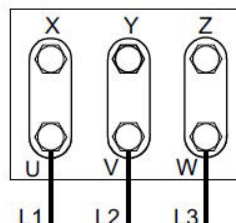
Making sure that the accessories that are to be fitted to the machine have the same clamping so they can be thrown out or get loose is the only thing to bear in mind to use them.

1.10. Electrical equipment data

The machine has a 230/400V three phase engine, connected star like when the line tension is 400V and connected in triangle when the three phased line tension is 230V, as it is indicated below:



*Star connection diagram for 400 V supply
(default)*



Delta connection diagram for 230 V supply

Likewise it is necessary to change the input transformer terminals for the change of tension. Input 400 V. (Terminals "0" and "400"). Input 230 V. (Terminals "0" and "230").

This modification must be carried out in the connector to the electric card.

See the sketch to get the steps in detail:

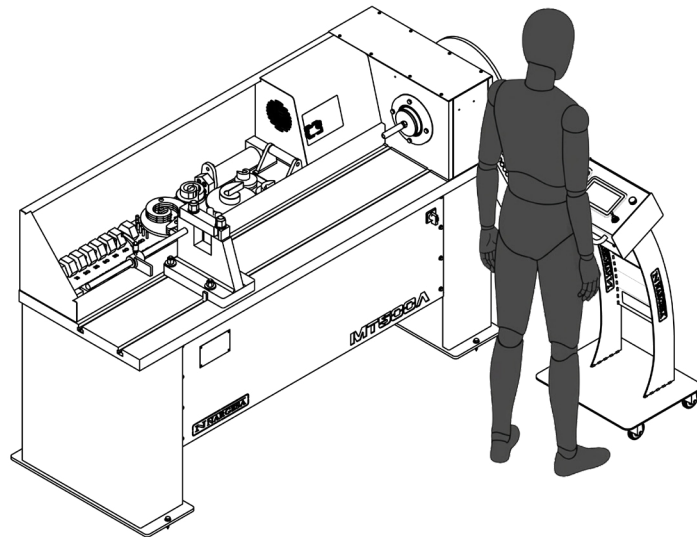
1.11. Instructions for connection to power supplies

It must be only connected to one power supply in the indicated source. If the line tension is not the correct one, then it will be necessary to change the connection of the engine bobins, the frequency inverter must be replaced by one with three phase 230V input.

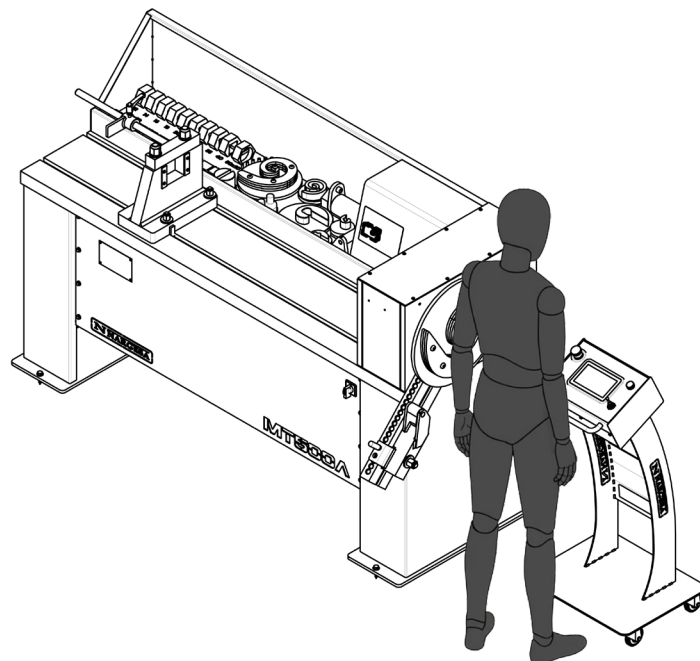
It is very important to connect properly the machine to the ground socket.

1.12. Operator's normal work position

The first zone is the machine bench, to the left of the drive where the twisting operation and the coil making is made.



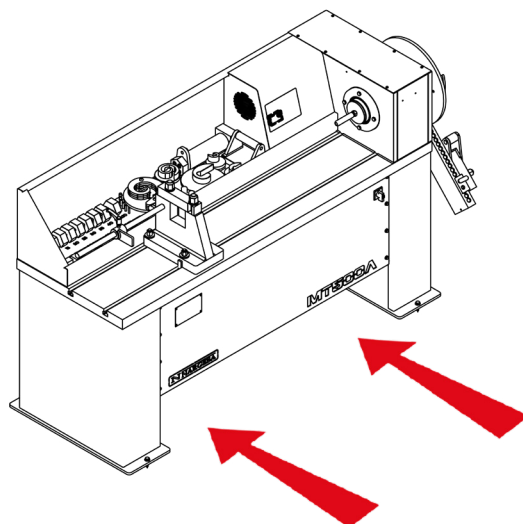
The second zone is the tooling area, to the right of the drive, where we make shapes by using a rotary drive and a fulcrum.



2. TRANSPORT AND STORAGE

2.1. Transport

Transport will be made by means of a forklift truck.



2.2. Storage conditions

The machine should be stored in place with the following requirements:

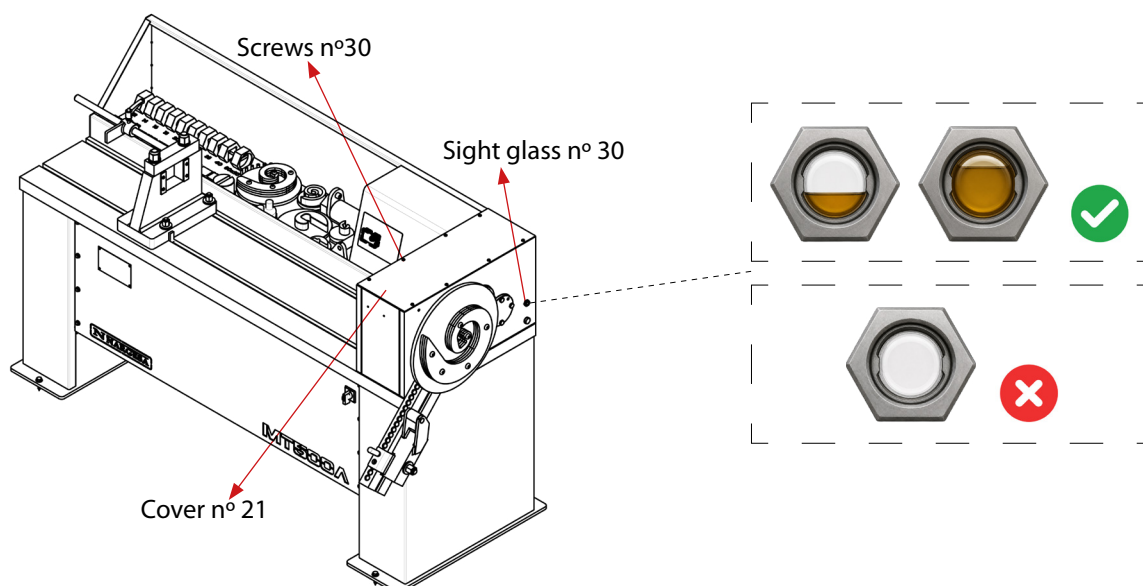
- Humidity between 30% and 95% without condensation.
- Temperature from -25°C to $+55^{\circ}\text{C}$ or $+75^{\circ}\text{C}$ for a length of time no longer than 24 h.
- It is advisable not to pile up machines or heavy objects on top of them.
- Do not disarm for its storage.

3. MAINTENANCE

3.1. General maintenance

Every 1,800 hours of operation, check the oil level. Oil used: SAE 85-140.

The oil level is checked through sight glass N° 30, located on the side of the machine.



If oil is visible through the sight glass, the level is correct and the machine can continue to operate normally.

If no oil is visible through the sight glass, the oil must be topped up. Before topping up the oil, check that there are no oil leaks from the various covers of the main reduction gearbox. If any oil leaks are detected, they must be repaired first. For this procedure, please contact the NARGESA Technical Service Department.

To fill the reduction gearbox with oil, proceed as follows:

- Remove screws No. 31 located on the upper part of the gearbox cover.
- Loosen and remove cover No. 21.
- Clean off any remaining flexible sealant from the cover and from the gearbox mounting surface. During this cleaning operation, make sure that no sealant residue falls inside the gearbox.
- Fill with SAE 85W-140 oil until the sight glass is completely covered with oil.
- Then apply a flexible sealant (silicone) to the contact surface between the gearbox and the cover.
- Refit the cover and install the corresponding screws.

4. INSTALLATION AND START-UP

4.1. Mounting instructions

When the machine is put down by the crane it will be necessary to do it correctly so it doesn't have to be moved once it is on the floor. If it isn't possible then put in a moveable base in order to transport it to the final proper location.

The machine will be fixed on the floor by its own weight, thus it is very important to put it in a flat and even surface.

4.2. Acceptable External Conditions

- Environmental temperature: Between +5°C and +40°C without exceeding +35°C as average temperature during 24h.
- Humidity: Between 30% and 90% without water condensation.

4.3. User safety systems

Never ever touch the material bar while the machine is performing.

The final place location for the machine must be estimated counting on the space that the material bar will be occupying while being shaped.

4.4. Frequency of inspections

Check up the oil level every 1800 hours of performance. Oil used: SAE 85-140.

4.5. Setting and adjustment instructions

This machine hasn't got any adjustable element with the exception of any kind of repair.

4.6. Residual hazards caused by attached elements

Always keep in mind not to put hands in the moveable parts of the head since it may cause the shearing off of arms or fingers.

4.7. Information on prohibited methods of use

Do not use tooling that are not provided by the manufacturer to prevent from the breaking of any element that might cause damage to the user.

4.8. Training instructions

In order to learn how to use this machine, placing the basic tooling and notice how to place the stand points, please, see the sequence of pictures in the last section of this manual. There are different thick parts and tops in the tooling box to adjust the proper height to fit them.

5. INSTRUCTIONS FOR USE

5.1. Basic Bending Principles

Materials are always bent by rotating one part of the piece—usually the end section—while another point remains fixed. This is achieved by using different dies for tubes, solid pieces and flat bars, as well as special tooling for creating scrolls and even ornamental pinecones.

The rotation required to create the bends is achieved through precise movement of the head, which is controlled using a console with a touchscreen.

To turn the machine on, place the power switch in the "On" position. The initial interface or Start Menu will appear on screen:



In addition to the touchscreen (1), an emergency stop button with a lighted ring (2) and a voltage indicator (3), the console also features a two-way joystick (4) and an orange button with an LED indicator (5) to improve and facilitate movement. The purpose of each of these elements are as follows:

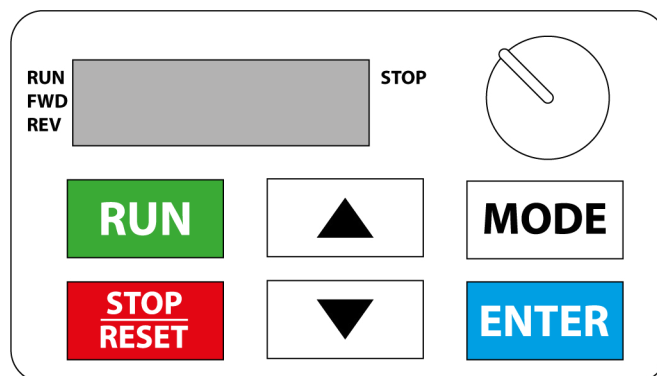
- Touchscreen: It runs the graphical user interface, providing access to all bend functions, operating modes, program management, etc.
- Emergency stop button with illuminated ring: A safety device that stops any action immediately after it is activa-

ted. The light ring flashes intermittently in an emergency. It will remain off under normal circumstances.

- Voltage indicator: Informs the user that the bending machine requires a 24 VDC power supply to operate properly.
- Two-way joystick: It allows the head to be moved manually clockwise or counterclockwise by moving the joystick to the right or left, respectively. It's designed to produce one-of-a-kind pieces in manual mode or for setting bend values and release points in automatic mode.
- Orange button: It allows you to initiate automatic head movements by replicating the function of the Start/S button on the graphical user interface. In addition, this component has an LED that indicates the following states:
 - LED off: The button is inactive; in other words, pressing it does not trigger any action.
 - Flashing LED: Pressing the orange button will start the automatic head movement. In other words, it indicates that the bending machine is ready to perform an action.
 - LED on: Indicates that the head is moving automatically. In addition, pressing the orange button stops the movement.

5.2. Frequency Drive Notifications and Alarms

When the physical limits for which the MT500A bending machine was designed are continuously exceeded, notifications and alarms from the frequency drive may appear on the secondary display.



This element has no other purpose than the one mentioned. However, it displays the head speed (in hertz) during normal operation of the bending machine and also provides technical service personnel with easy access to the frequency drive settings.

5.3. Start/Stop Buttons

Whenever any of the explanations provided in this manual as to how the MT500A bending machine works refers to pressing the Start/Stop button located in the vertical menu (whether in the  state or  state), there is an equivalent action: pressing the orange button located on the console.

This physical element is a replica of the button described above (available on the user interface) and is designed to enhance the operator's experience by making it easier to start and stop operations without using the touchscreen.

Therefore, from this point on, reference will only be made to the Start/Stop button in the vertical menu with the understanding that you can also press the orange button to perform the same operations described above.

5.4. System Reset

The system must reset before operations can resume whenever power is restored to the machine following an emergency shutdown or whenever an alarm is triggered.



To reset the system, you must first clear any active alarms, as explained in detail in section “1.11. Alarm Management”. Next, make sure that the emergency stop button is not pressed. To do so, simply glance at the console and check whether the emergency stop indicator light is flashing or not.

If it is, you must unblock the emergency stop button by turning it clockwise.

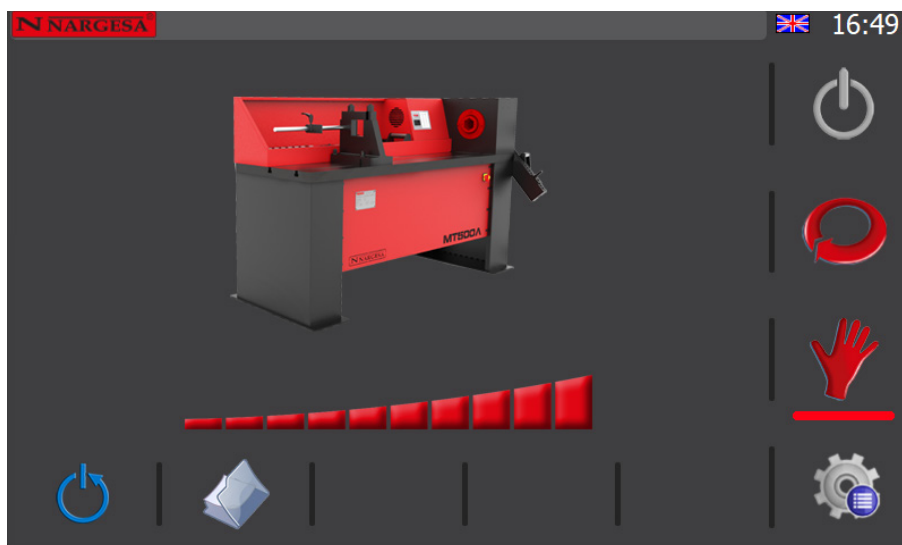
Now, press the  button to reset the system. When you do this, the informational message in the top bar disappears.

5.5. Referencing Bending Machine

The bending machine has a rotating head that must be referenced in order to operate correctly. Therefore, following this procedure every time the machine is powered is essential.

This axis is automatically referenced when the  button is pressed on the manual operating mode screen.

During the referencing process, the head first rotates counterclockwise until it reaches the physical reference point, at which point it reverses direction until it reaches the “homing” point. Now, the animation stops and the user interface changes to this. The machine is ready to work.



5.6. Manual Operating Mode

This method is designed to create one-of-a-kind pieces and is very easy to use. You can select it by pressing the  button in the vertical menu.

To make the machine head rotate clockwise or counterclockwise, move the joystick on the console in one direction or the other (right or left, respectively).

You can adjust the rotation speed by tapping directly on the  speed bar that appears on the screen. Depending on which segment you press, you can adjust the speed in 10-percent increments to make the head rotate faster or slower.



10% speed



50% speed



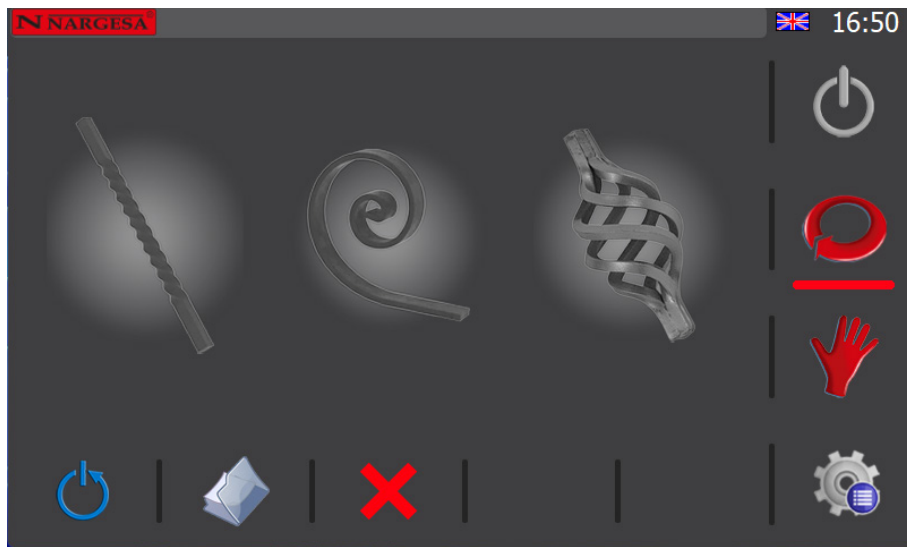
100% speed

5.7. Automatic Operating Mode

Automatic mode is ideal for mass production because it allows you to save different bending programs. You can select it by pressing the  button in the vertical menu.

When a program is loaded, this action opens the editing screen. Otherwise, it is equivalent to creating a new program.

When creating a new program, the first step is to define the type of bend to be made. There are three different types of bends, as shown on the screen.



5.7.1. Square bend

This type of bend is used to perform longitudinal bends on tubes, solid bars and flat bars.

It allows you to specify clockwise or counterclockwise rotation and assign a release mechanism to unclamp the finished piece.

5.7.2. Circle bend

This type of bend is used to create spiral bends in tubes, solid bars and flat bars.

For safety reasons, this bend can only be set in a counterclockwise direction to prevent being struck by the material when the piece is being formed.

It also allows you to assign a release command to unclamp the finished piece.

5.7.3. Pinecone bend

This type of bend is used to create decorative pinecones and is characterized by a series of different bending steps that make up the piece.

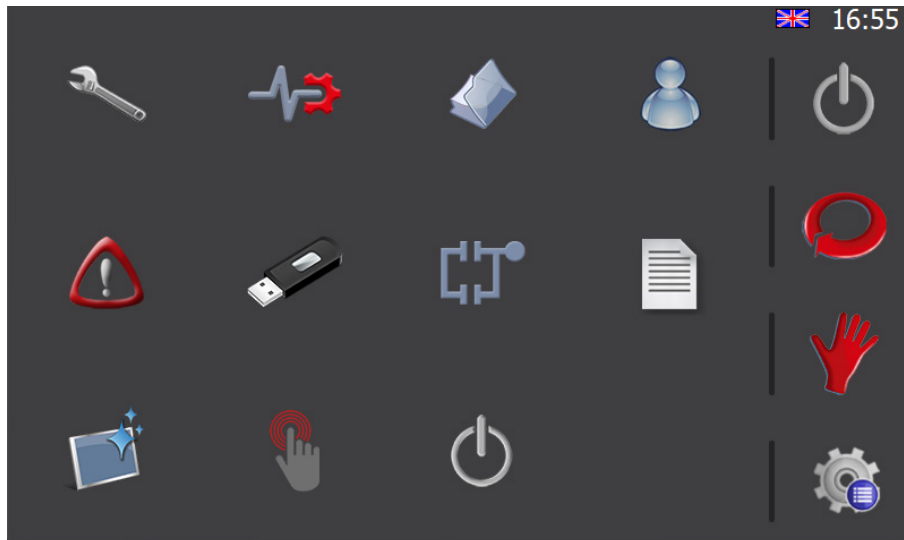
As a general rule, the piece must be rotated in one direction to generate a longitudinal bend, followed by a long release in the opposite direction; using special tooling, this is what creates the ornamental shape of the pinecone.

Due to the way the pinecone is formed, a second step is usually necessary to easily remove the finished piece from the die.

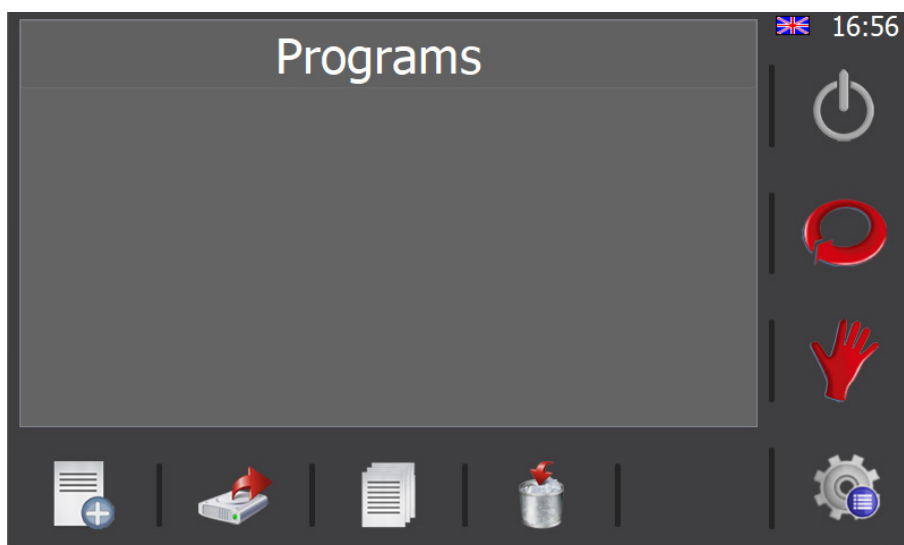
5.8. Using the Programs

To manage the bending programs, press the  button.

This button is always available in both manual and automatic modes, as well as from the menu page, which can be accessed by pressing the  button.



This is the program management screen.



The existing programs are listed at the top.

You can create a new program using the  button.

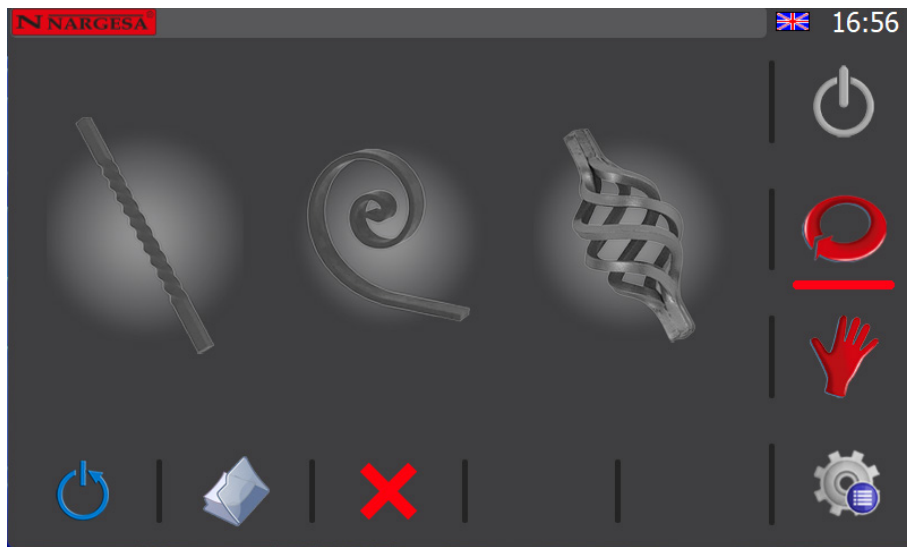
To load an existing program, simply select it from the list, press the  button and confirm the action on the screen.

The  button allows you to save a copy of an existing program under a different name.

To delete an existing program, simply select it from the list, press the  button and confirm the action on the screen.

5.8.1. Creating a New Program

Pressing the  button starts the process of creating a new program. The first screen that appears is as follows.



To cancel the creation of the new program, simply press the  button.

Otherwise, select the type of bend to be made in order to continue creating it. A square bend is used for this example. To do this, select the illustrative figure on the left, which shows a finished piece with this specific type of bend.

The window that appears is as follows:

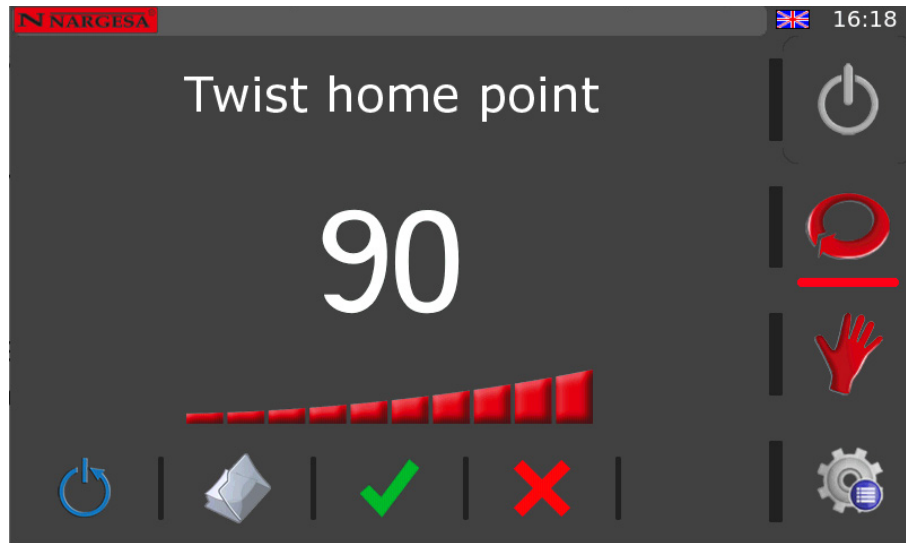


This is where the starting point of the bend should be set.

As a general rule, this is the point where the material enters the machine with sufficient clearance once the corresponding dies have been installed.

In this case, in order to position the solid square to be bent in the machine, you must rotate the head until the dies that hold the two ends are aligned.

To do this, move the joystick on the console in the chosen direction until you reach the desired point. In this example, the screen displays a value of 90°.



It's also worth noting that you can adjust the head speed at any time by tapping directly on the  speed bar that appears on the screen.

Depending on which segment you press, you can adjust the speed in 10-percent increments to make the head rotate faster or slower.



10% speed

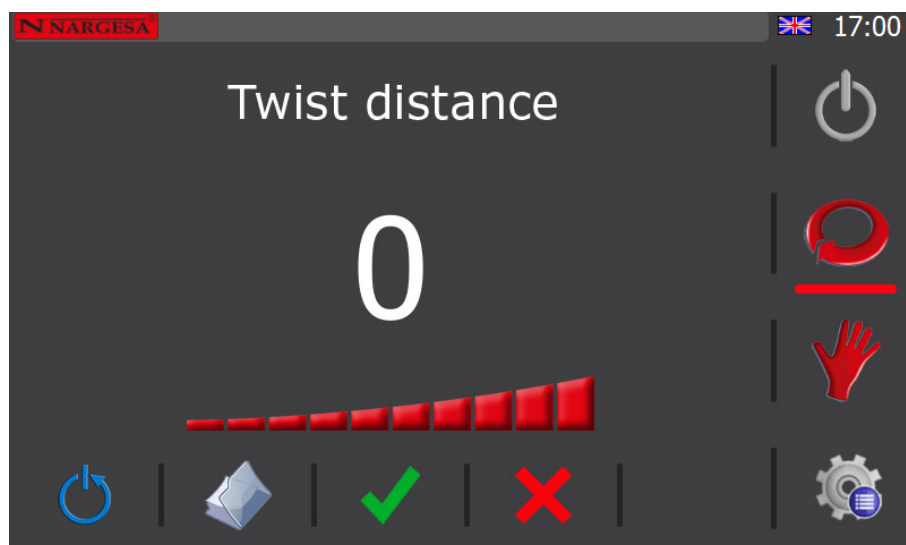


50% speed



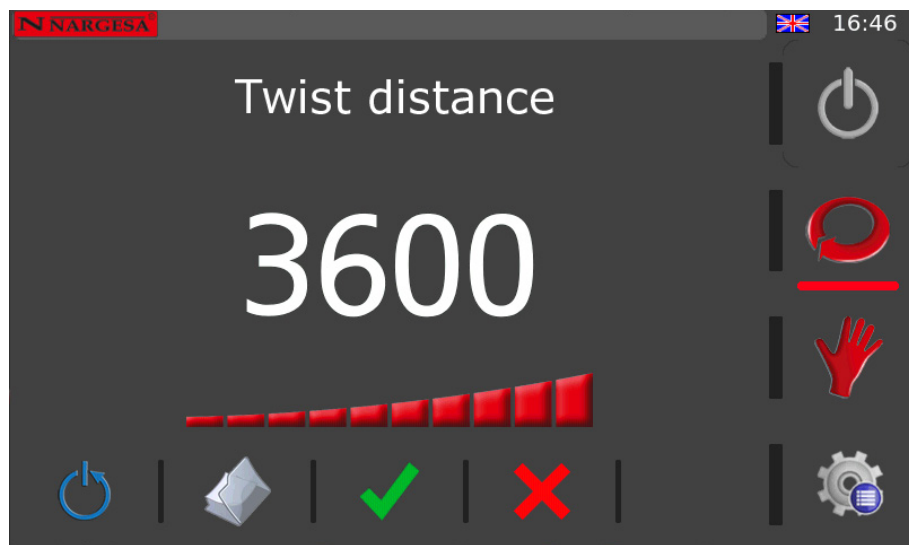
100% speed

To confirm the starting point of the bend, simply press the  button. By doing so, the information on screen switches to this:

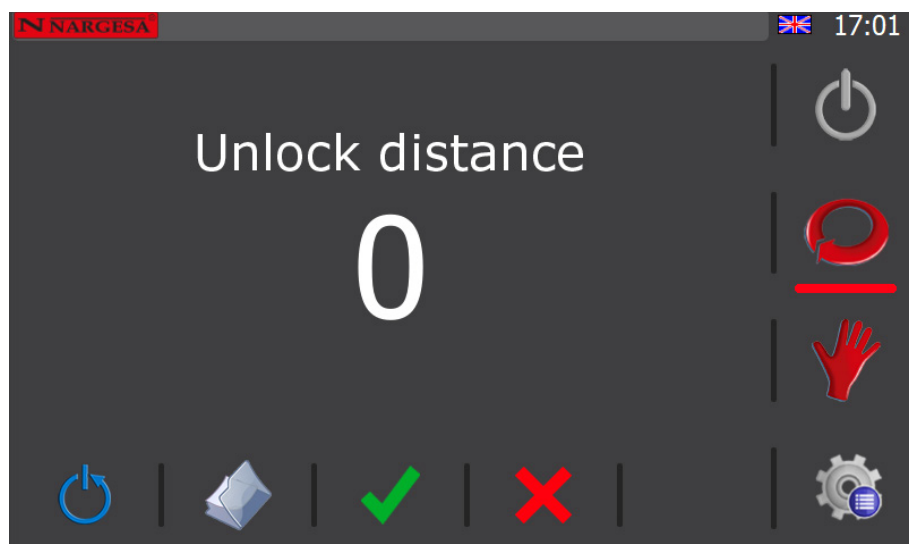


Now, move the joystick on the console in the chosen direction (left or right, to rotate the head counterclockwise or clockwise, respectively) and observe how the piece is created with a longitudinal square bend.

It is important to remember that, in the case of a circular bend, the head can only be rotated counterclockwise. For this type of bend, clockwise rotation is not possible for safety reasons. It prevents any dangerous situations that could result from counterclockwise rotation.



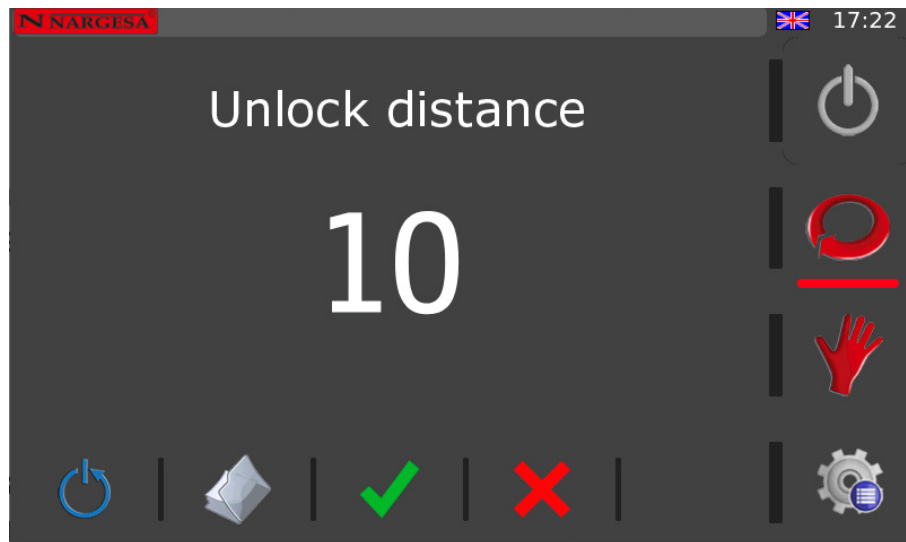
Once you're satisfied with the resulting piece, simply press the  button to confirm the bend. By doing so, the information on screen switches to this:



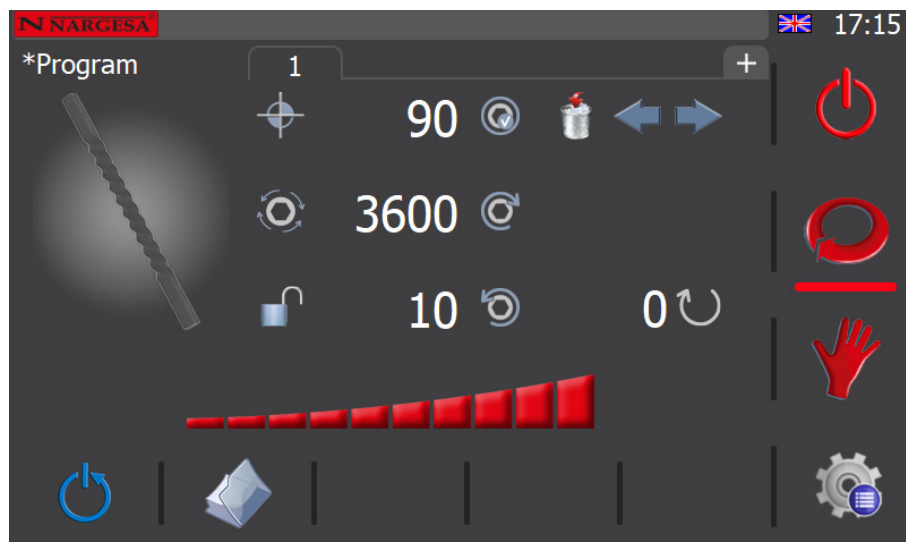
At this point, all you have to do is define the release position.

As previously mentioned, the piece is released once it is finished so that it can be unclamped for easier removal from the machine. It is always performed in the direction opposite to the bend in the piece, and, as a general rule, a slight bend is usually sufficient.

To perform this operation, move the joystick in the direction opposite to the bend in the piece (the software disables the direction in which the bend occurred) until you can see that the piece can be removed from the machine without any problems.



Now, all you have to do is confirm the release distance by pressing the  button. By doing so, the information on screen switches to this:

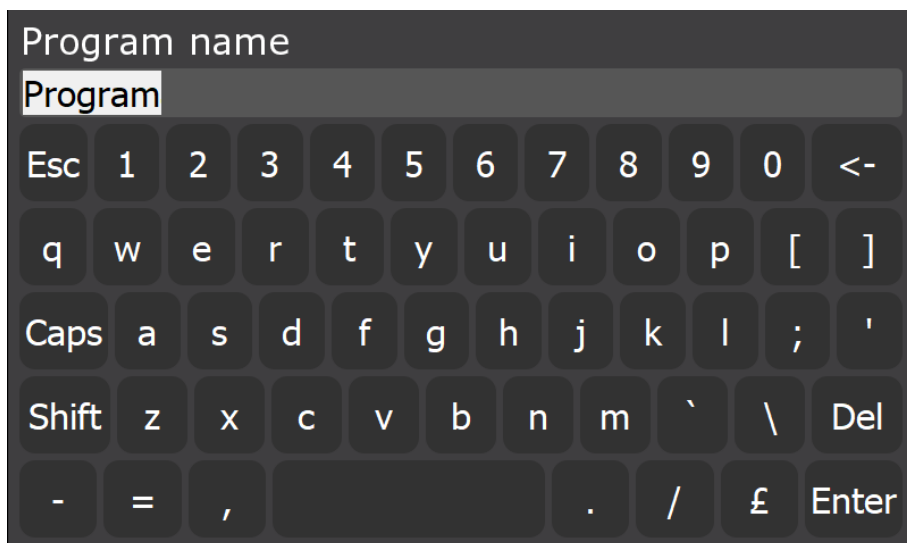


What the graphical interface now shows is the completed program for bending the square, which has made it possible to produce the piece now in your hands.

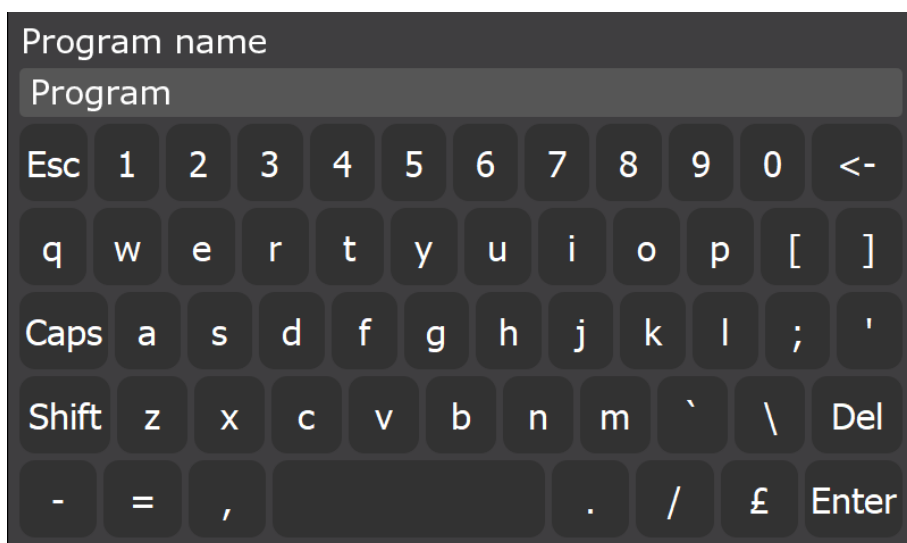
As you can see, the program's name appears in the upper-left corner. By default, whenever a program is created, it is given the generic name "Program".

It should also be noted that an "*" appears before the program name. This symbol indicates that the program has unsaved changes.

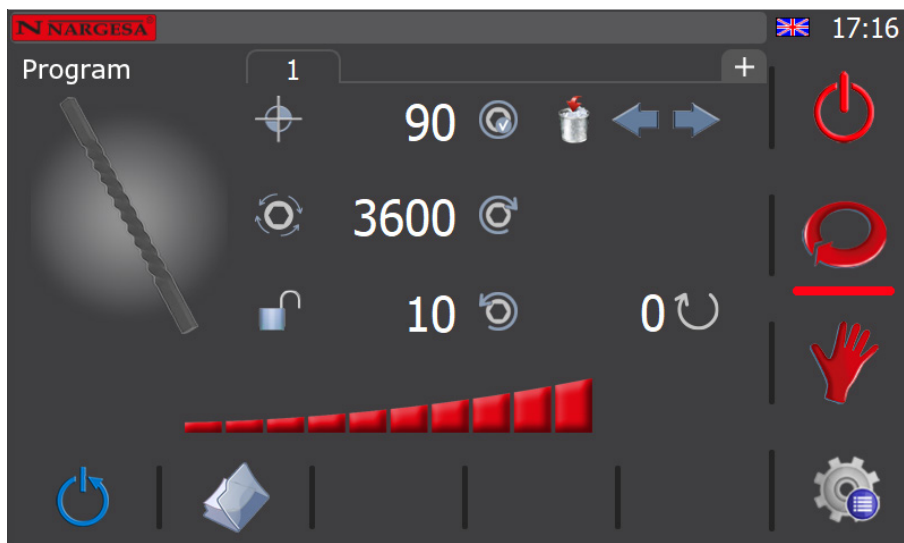
The program name can easily be changed to one that is more convenient for identifying the completed piece. To do this, this other screen appears in the numerical control graphical interface when you click on the program name to save it for the first time.



Here, you can rename the program to something more appropriate using the on-screen keyboard.



To confirm, simply press the "Enter" key.



From now on, whenever a program has unsaved changes (indicated by an "*" before the name), simply click on the name of the program and the changes will be saved.

In addition, an illustration showing the type of bend created with this program appears on the left side of the screen.

5.8.2. Editing a program

The information that defines the program is displayed in the center section, above the speed bar. This information is organized into tabs called "steps".

Every program requires at least one step, but it can have as many as necessary.

The current step is indicated by the active tab, as shown in this image



Steps are added by pressing the + buttons, but this will be covered later on.

As for the information that appears in step 1 of the program, from top to bottom and from left to right:



Starting point of the bend in degrees. The icon that appears to the right of the numerical value indicates the direction in which the bending machine's head will rotate to find the starting point of the bend. This icon can be pressed and each time it's pressed, it will display three different things that indicate:



Optimized search for the starting point: The machine head rotates in the direction that results in the shortest rotational distance between the current position and the starting point of the bend. This operating mode is particularly useful because it minimizes the time required to locate the starting point of the bend, thereby optimizing the production of mass-produced pieces.



Searching for the starting point in a clockwise direction: From the current position, the starting point for the bend is always determined by rotating the machine head clockwise.



Searching for the starting point in a counterclockwise direction: From the current position, the starting point for the bend is always found by rotating the machine head counterclockwise.

 3600 

Bending angle in degrees. The icon that appears to the right of the numerical value indicates the direction in which the bending machine's head will rotate to perform the bending operation. This icon can be pressed (not the rotating circle) and changes each time it's pressed, displaying two different things that indicate:



Clockwise rotation: The piece is bent by rotating the head clockwise.



Counterclockwise rotation: The piece is bent by rotating the head counterclockwise.

It's important to note that changing the direction of rotation of the bend mechanism will automatically cause the direction of rotation of the release mechanism to change as well.

 10 

Release distance in degrees. The icon that appears to the right of the numerical value indicates the direction in which the bending machine's head will rotate to release the lock. This icon can be pressed (not the rotating circle) and changes each time it's pressed, displaying two different things that indicate:



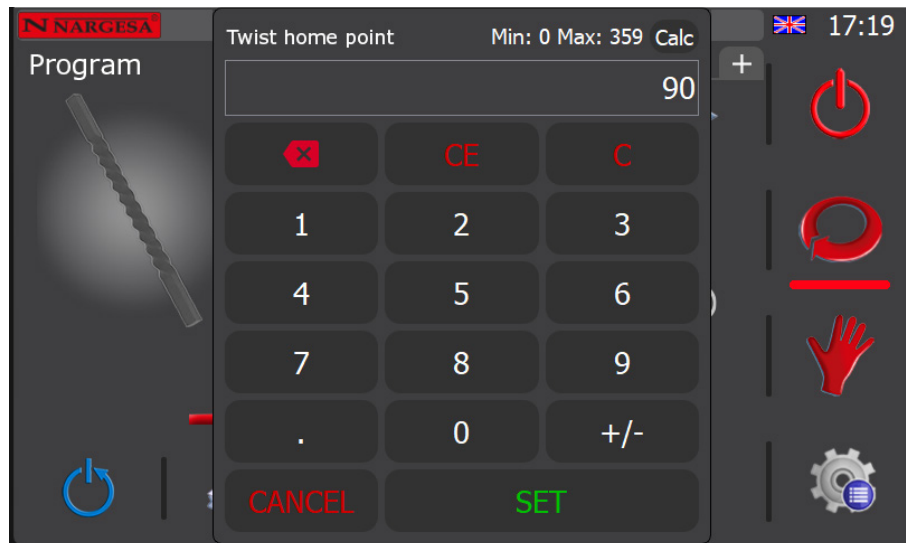
Clockwise rotation: To release the piece, turn the head clockwise.



Counterclockwise rotation: To release the piece, turn the head counterclockwise.

It's important to note that changing the direction of rotation of the release mechanism will automatically cause the direction of rotation of the bend to change as well.

Any of the numerical values representing the bend start point, bending distance and release distance can be tapped to change their value. When you do this, a numeric keypad appears that allows you to change the value within the permitted limits.



To discard the changes and close the numeric keypad, press the "CANCEL" key. Conversely, to confirm the entered value and return to the current program screen, press the "SET" key.



Deleting the current step and navigation buttons. By pressing the  button, you can delete the current step, provided the program has at least two steps. The  and  buttons allow you to navigate through the different steps of the program when it has more than one (the current step is indicated by the active tab).



Counter for the number of pieces produced. To reset it to zero, simply press the numerical value indicating the number of pieces created with this program, and confirm the message that appears on the screen.



Bend speed bar for the current bend. It can be adjusted in 10% increments.

Note: The search for the starting point of the bend and the release of the piece are always performed at speeds predefined by the software, which the machine operator cannot modify as they are already optimized for each of these cases.

5.8.2.1. Adding steps to a program

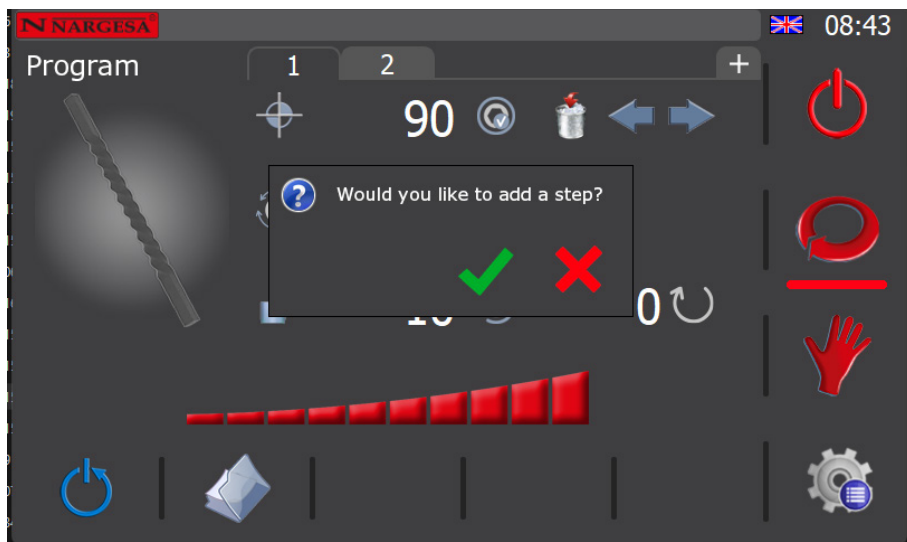
Last but not least, it is important to discuss how steps are added to a program.

It should be noted, however, that it is not common for a program designed to bend a square or a circle to have more than one step, whereas the standard for a program designed to create pinecones is usually two steps.

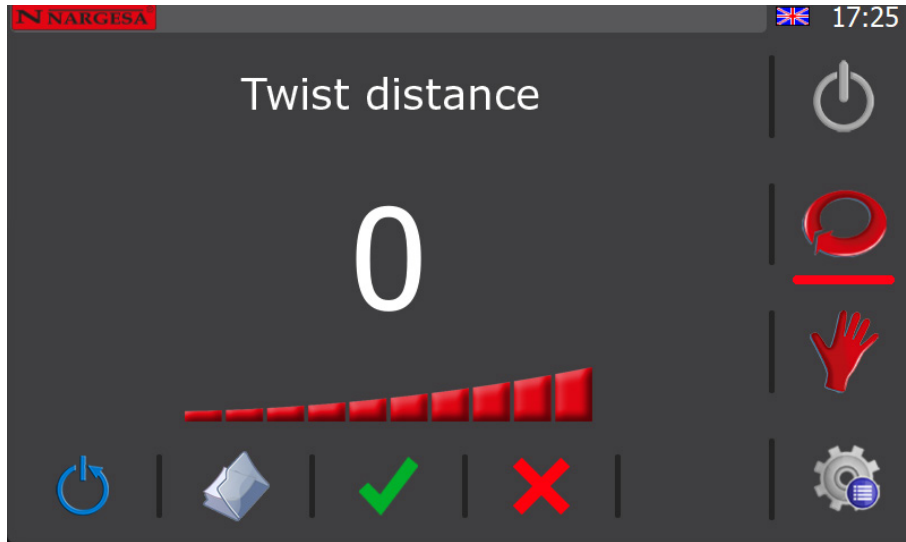
However, all programs can have as many steps as necessary. That's why the **+** buttons are useful.

With a single click, this button allows you to start the process of adding a step to the program. The new step is always created immediately after the current step and allows you to define only a bending distance and a release distance. The starting point for the new bend is the position of the machine at the end of the current step. It is, so to speak, a step nested within the previous one, so special care must be taken when adding a new step between existing ones.

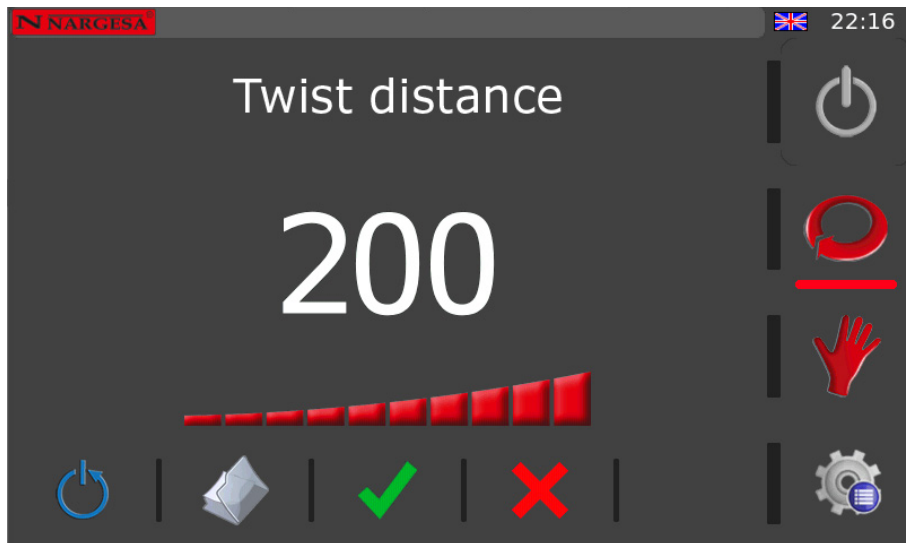
Therefore, once you press the **+** button, the following confirmation message appears on the screen.



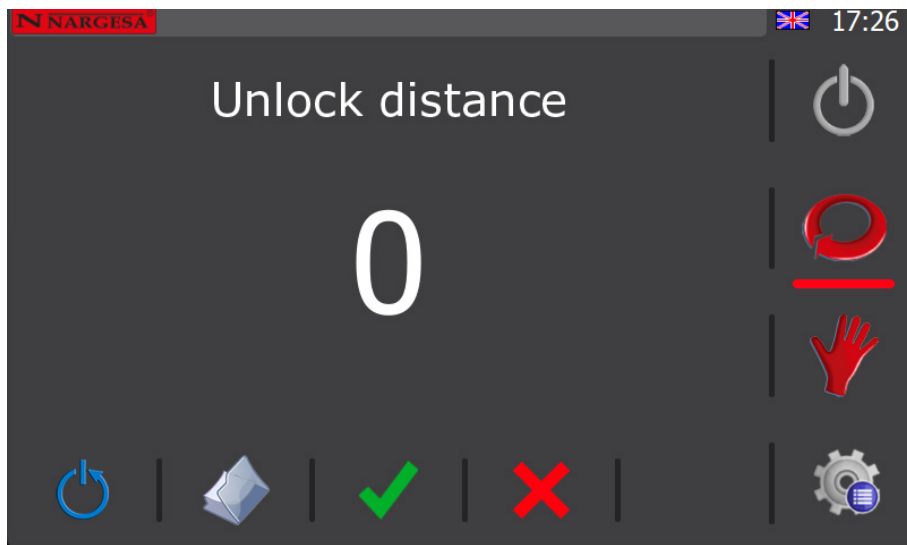
In this example, assuming there are already two steps, any new step will be added after step 1 (the current step) and before step 2 (which will become step 3) as soon as the process is finished.



By using the joystick and adjusting the bend using the bar that appears on the screen, you can apply the desired bend to the piece. Obviously, depending on the type of rotation defined for this program, you can rotate in one direction or the other, with or without restrictions.



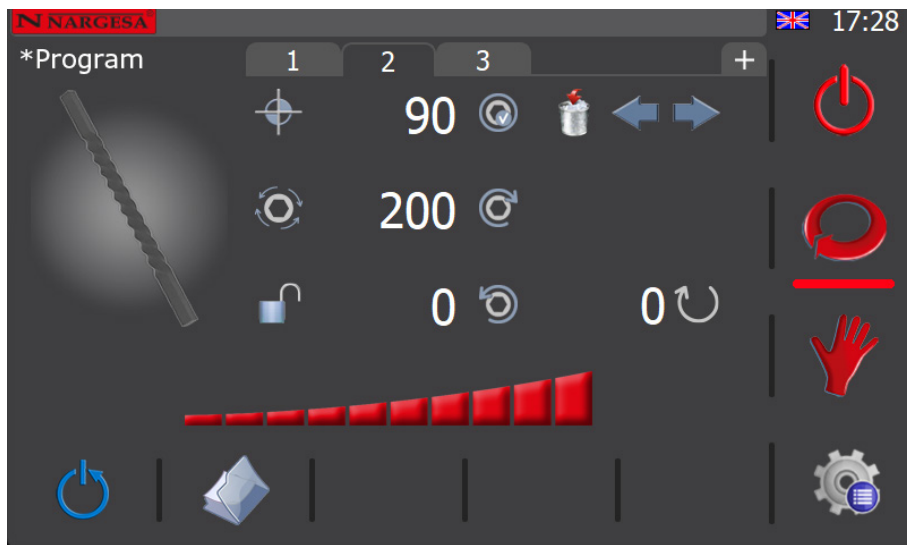
When you confirm this bend value by pressing the  button, the information on the screen changes as follows.



You will now release the piece by rotating the machine head in the opposite direction of the bend to disengage the piece.

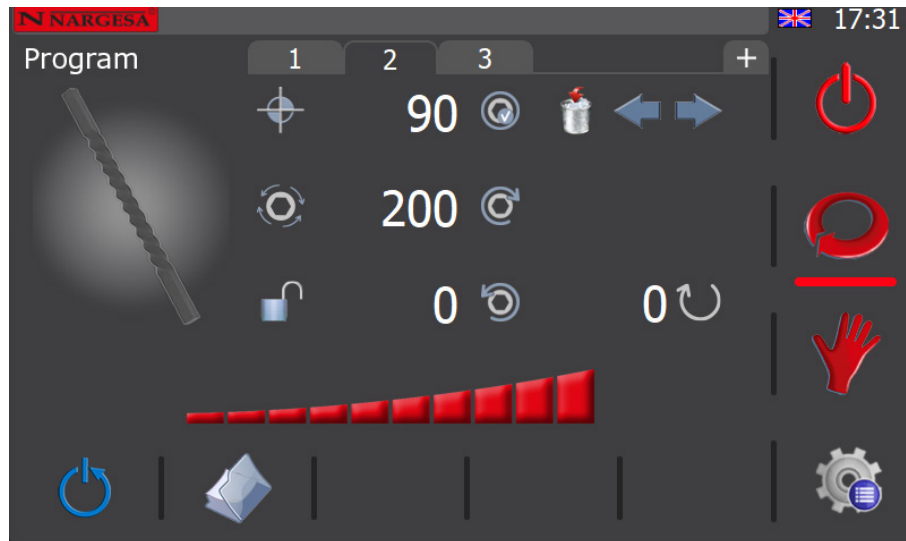
It's important to understand that, unlike the bending distance, the release distance can indeed be 0°. This is because some pieces do not need to be unclamped from the machine in order to be removed once they are finished.

Once you're satisfied with the release distance, confirm it using the  button.



As already mentioned, the step just created (step 2) has been inserted between the two existing steps.

Also, if you look at the area where the program name is displayed, you can see that it is preceded by an "*". This symbol appears whenever you have changes that haven't been saved yet. Therefore, save the current program by clicking on the corresponding name.



5.8.3. Creating an ornamental pinecone

To create an ornamental pinecone, the first thing you need to do is place the specialized tooling for this type of piece on the bending machine and secure it in place.

Next, lift the ratchet to release the thread from the tooling so you can rotate the head of the bending machine clockwise or counterclockwise to align the fixed end with the rotating end.

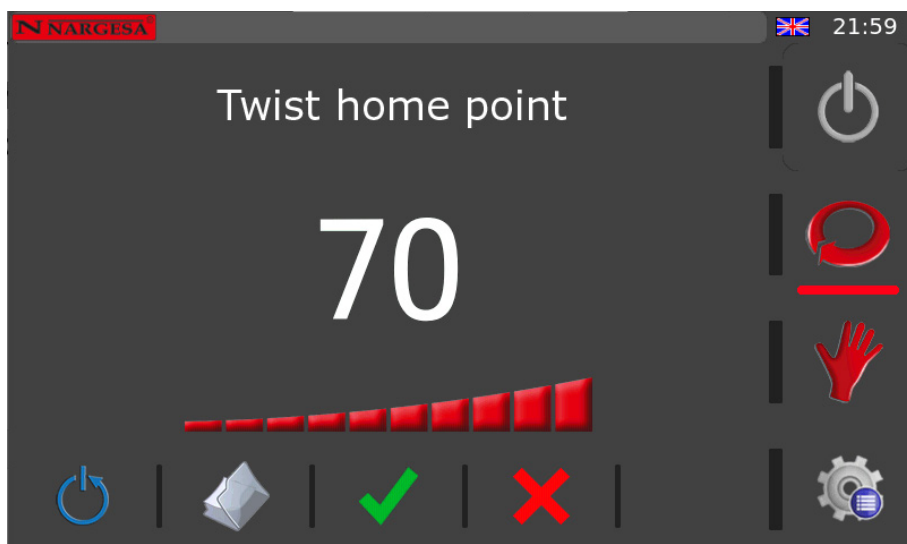
At this point, press the  button to access the program management screen, and then press the  button to create a new program. The following screen will appear upon doing this:



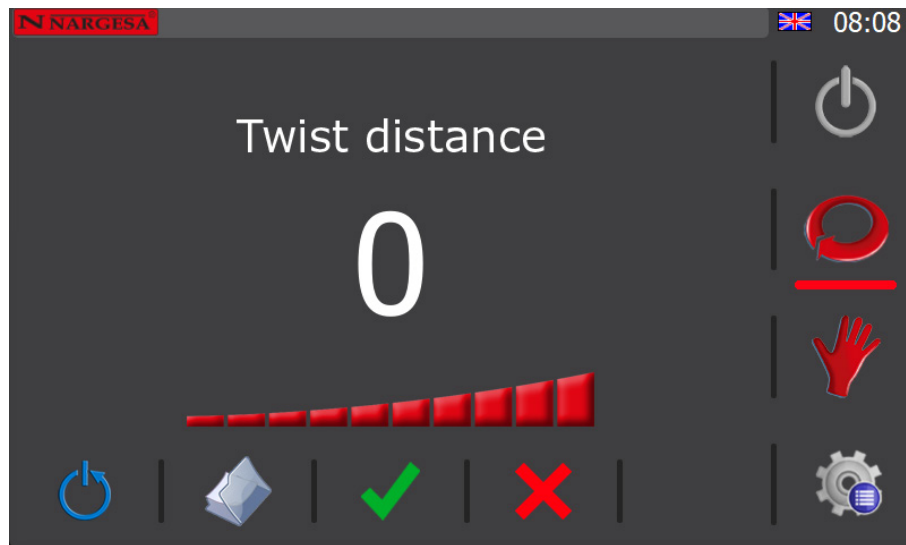
Since the goal is to create an ornamental pinecone, click on the image of the pinecone in the graphical interface. The screen changes as follows.



Now, since the ratchet is raised in the tool used to create the decorative pinecones, you can move the joystick to the left (counterclockwise rotation of the head) or to the right (clockwise rotation of the head) to set the starting point for bending, and align the fixed end and the rotating end of the tooling so that you can feed the material in with sufficient clearance.

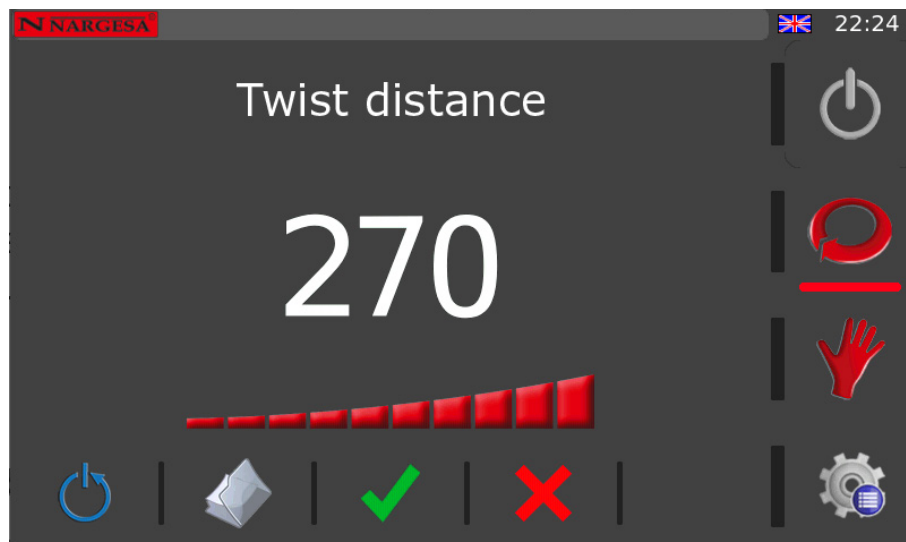


To confirm the starting point of the bend, press the  button. When you do this, the graphical interface changes, displaying the following screen.

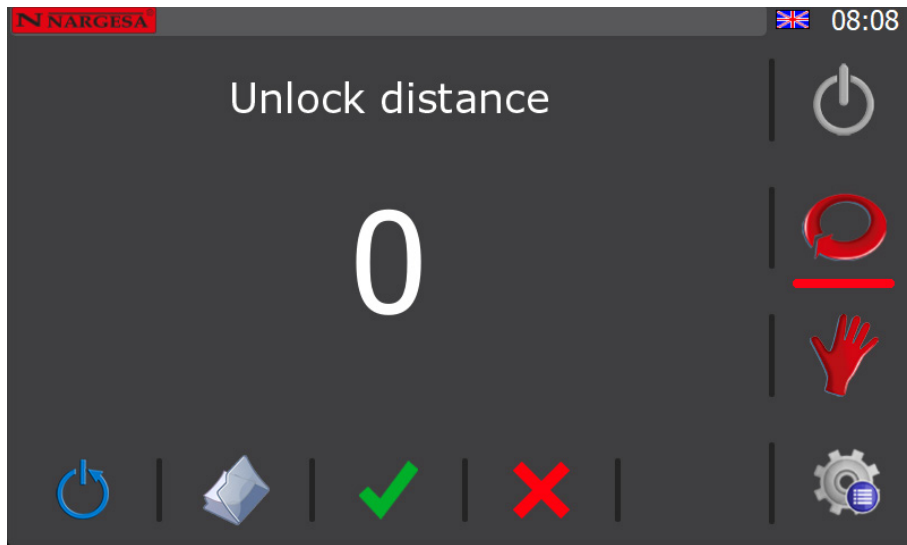


At this point, place the material in the drive assembly housing and secure it using the clamping wheel so that it is held in place. Now, lower the ratchet again.

At this point, move the joystick to the left to rotate the head counterclockwise so the tool's crown can rotate without being locked by the ratchet. As a general rule, a 270° rotation is sufficient to bend the material at this stage of the process of creating an ornamental pinecone.

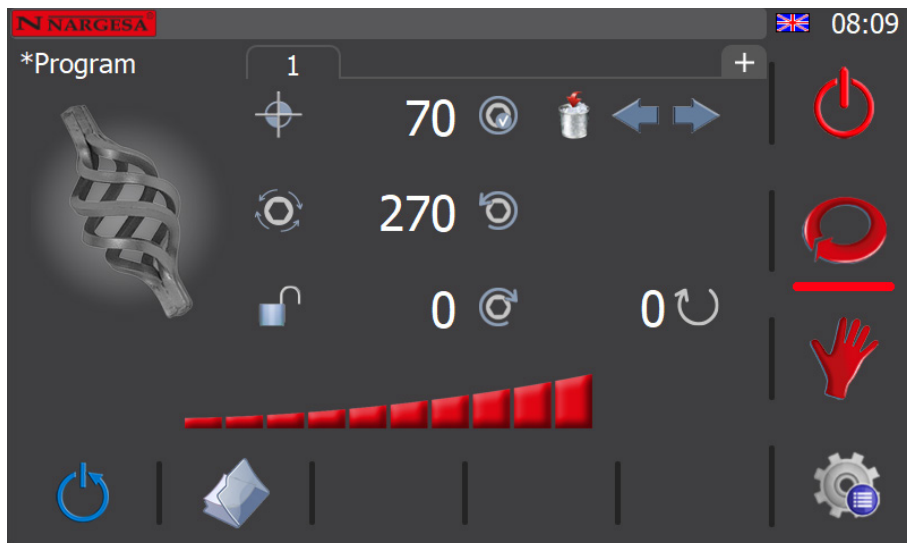


Check the bend distance by pressing the  button, and the information on the screen changes as follows.

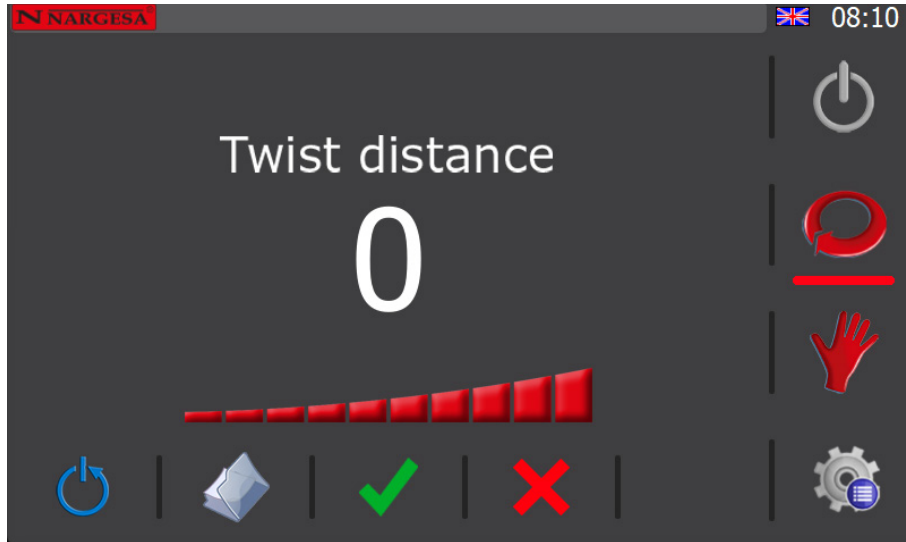


In this case, set the piece clearance distance to 0° because you're in the process of shaping the decorative pinecone and will need a second step in the program to create it.

Therefore, press the  button to complete the first step of the program, which is displayed on the screen as shown here.

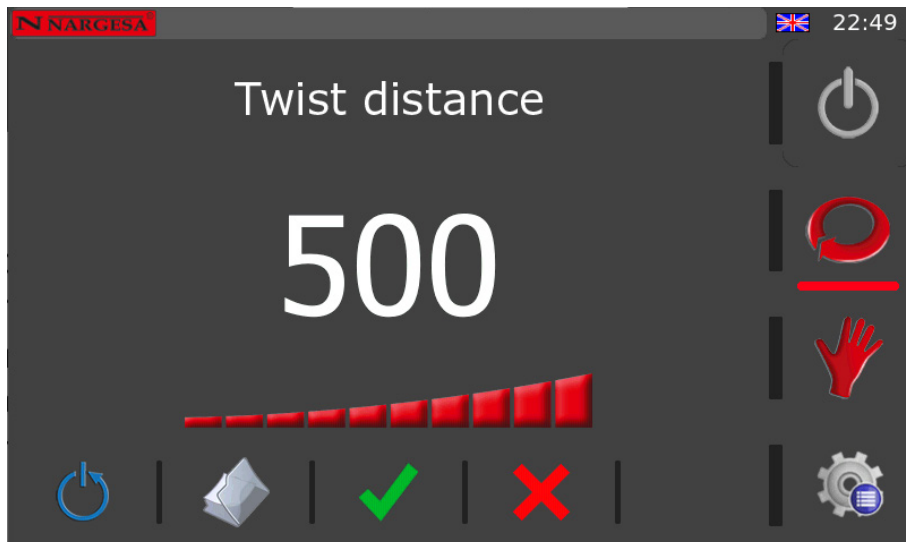


Now, to create the pinecone, you need to add a second step to the program. Therefore, press the **+** buttons and confirm on the screen that you want to add a new step.

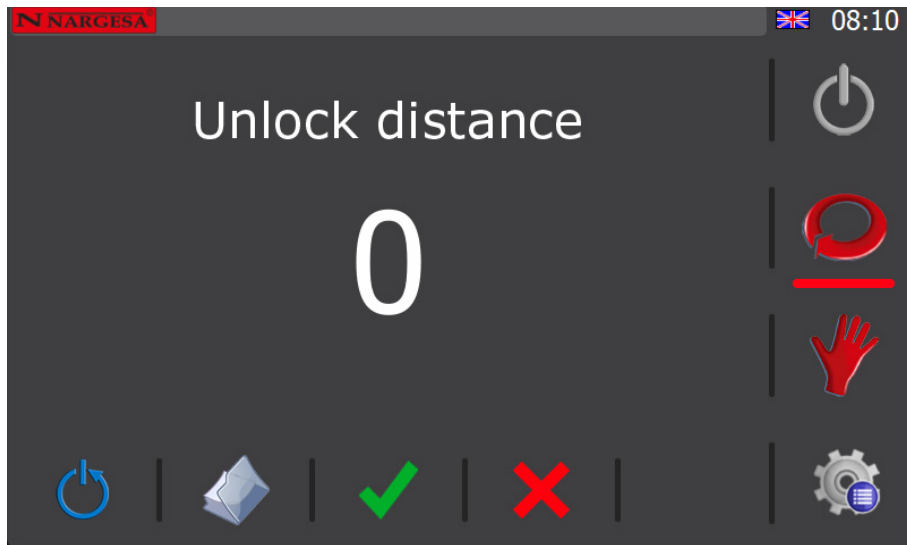


In this case, you must move the joystick to the right to make the machine head rotate clockwise. This causes the ratchet on the tool to engage the crown so the main drive shaft will move inward, undoing the previous bend and simultaneously compressing the material all while the pinecone gradually takes shape and increases in volume.

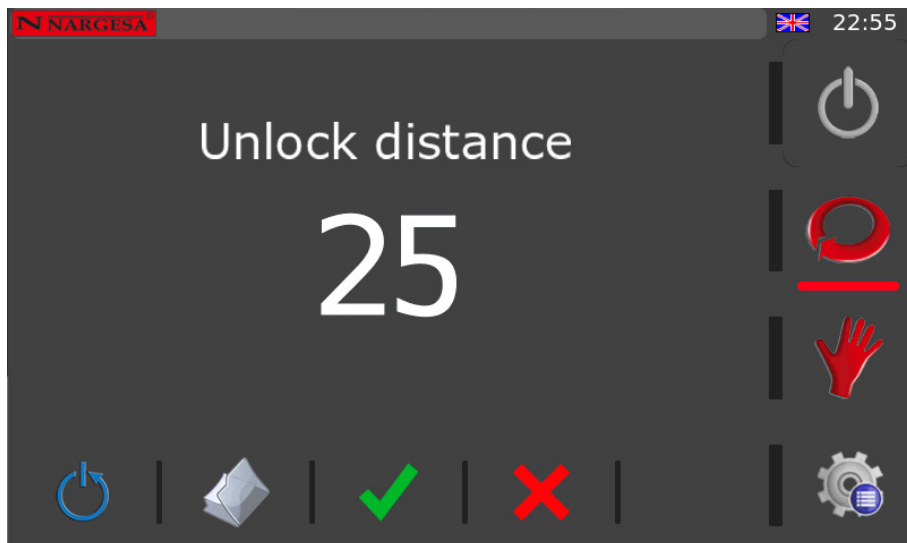
The size of the pinecone therefore depends on how much you bend it at this point. In this example, a 500° bend was applied, as shown on the screen.



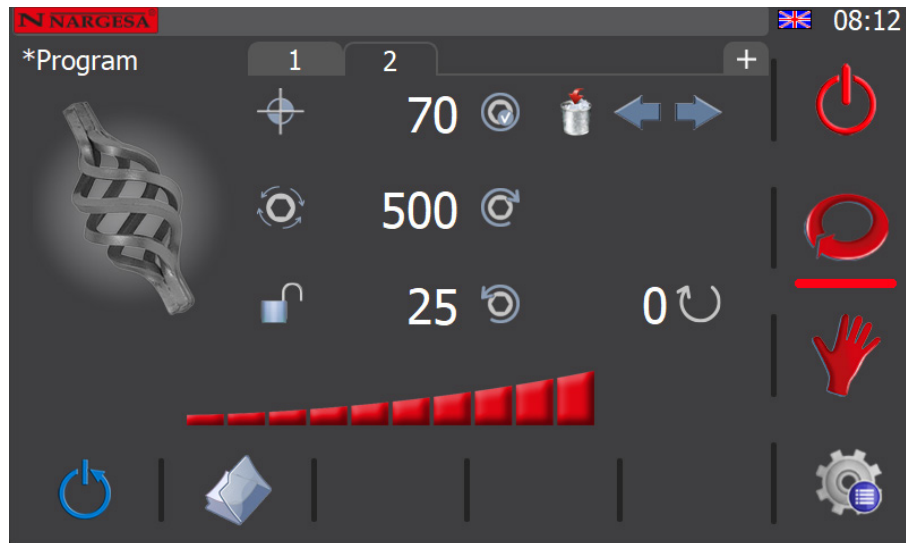
Confirm by pressing the  button, and then proceed to set the release distance that will allow you to remove the pin without any problems.



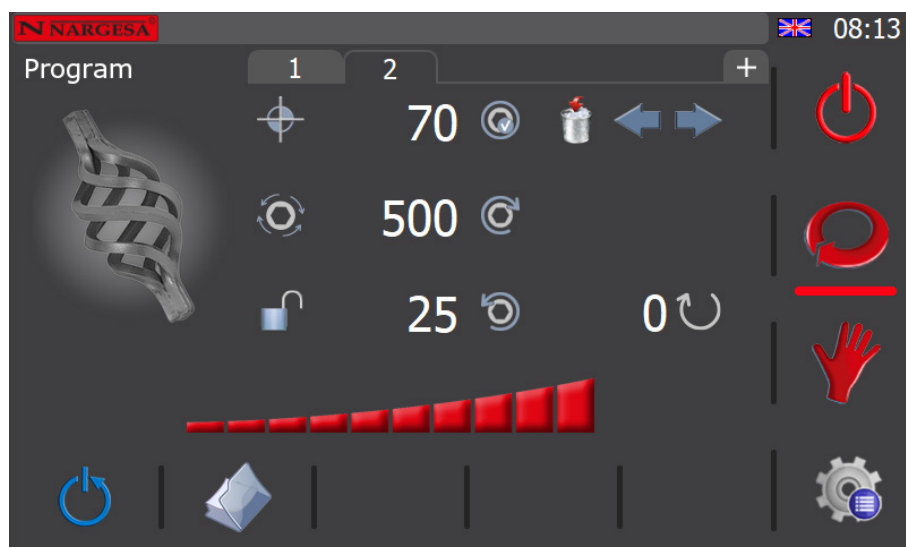
Move the joystick to the left to rotate the head counterclockwise (the only direction allowed by the software, since the rotation in this step was performed clockwise), and then release as soon as you feel it's enough to loosen the pinecone.



Finally, confirm the release distance by pressing the  button. Once this is done, the second step of the program is complete, and the information on the graphical interface changes to this.



Now, let's save the program with a more appropriate name. To do this, just as already mentioned, click on "Program" and type in the name you want.



The program for creating an ornamental pinecone is complete. All you need to do now is switch to production mode and start mass production.

WARNING

The direction in which the bends are made in the two steps of the program to create this decorative pinecone is valid only for an MT500A bending machine.

Since the tooling is mounted in the opposite direction, the direction of both bending forces must be reversed when using an MT150A.

5.9. Production Mode

To enter production mode, you must first verify that the program is currently at step one. After that, you can tap the  icon in the vertical menu. If you do so, the program in question will end.

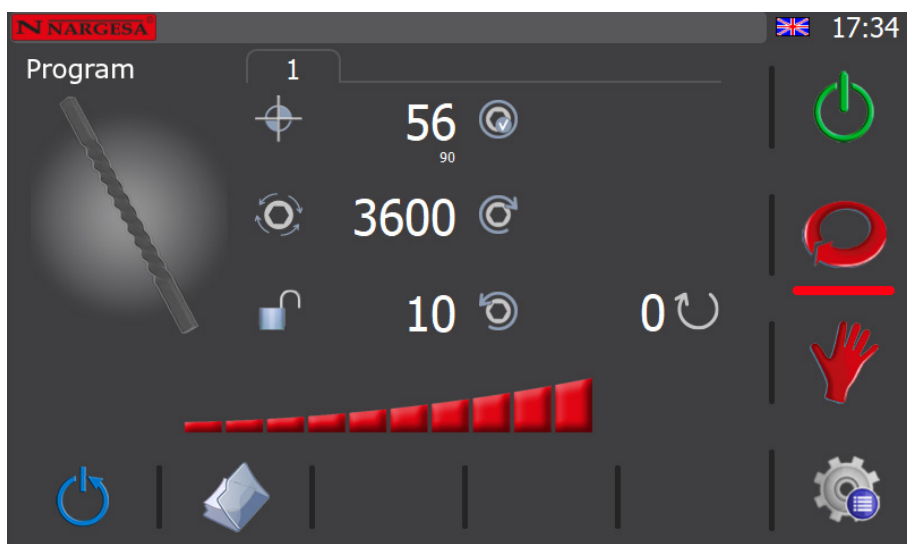
A finished program is a program suitable for mass production. In other words, a program that provides the appropriate steps for generating the desired bends on a profile made of a specific material. However, despite the “finalized” status—which means the program is ready for production—it is still possible to edit it further, for example, to remove or add existing steps and/or make corrections and adjustments to the starting point, bending distances and release points to achieve an optimal result.

To access edit mode, tap the  icon in the vertical menu. At this point, you will proceed to edit the finished program that is currently loaded, following the same steps explained above.

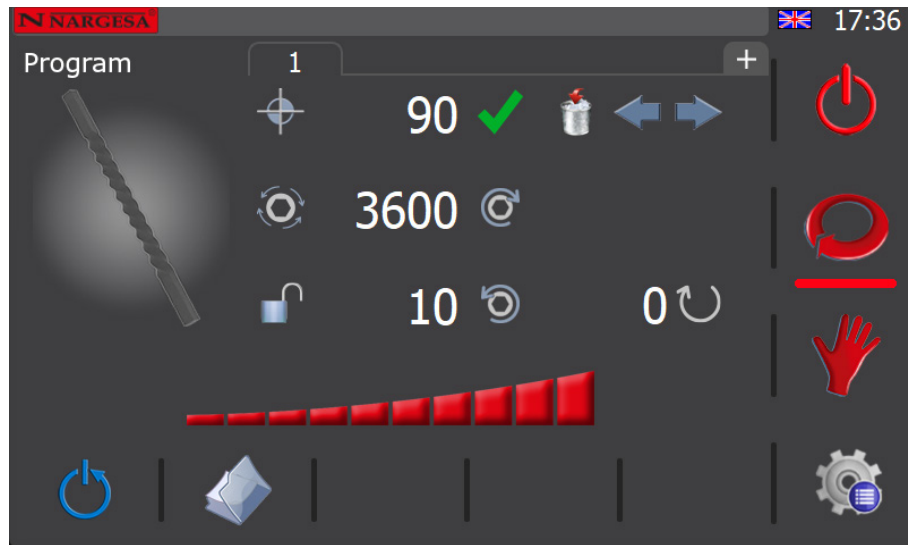
Returning once again to the production of mass-produced items, you need to understand how this mode of production works.

The first tap on the  icon, intended to enter production mode, will cause the head to move to the position you have defined as the starting point for the bend. Therefore, it is vitally important to note here that this movement must be performed with no material present in the machine, since the head will move at high speed—either clockwise, counter-clockwise or along the optimized path (the shortest route)—depending on how the search for this starting point was defined.

During this process, the bend starting point field will indicate the actual position of the head and, below that value, the target position of the movement, which corresponds to the defined starting point (90° in this example).

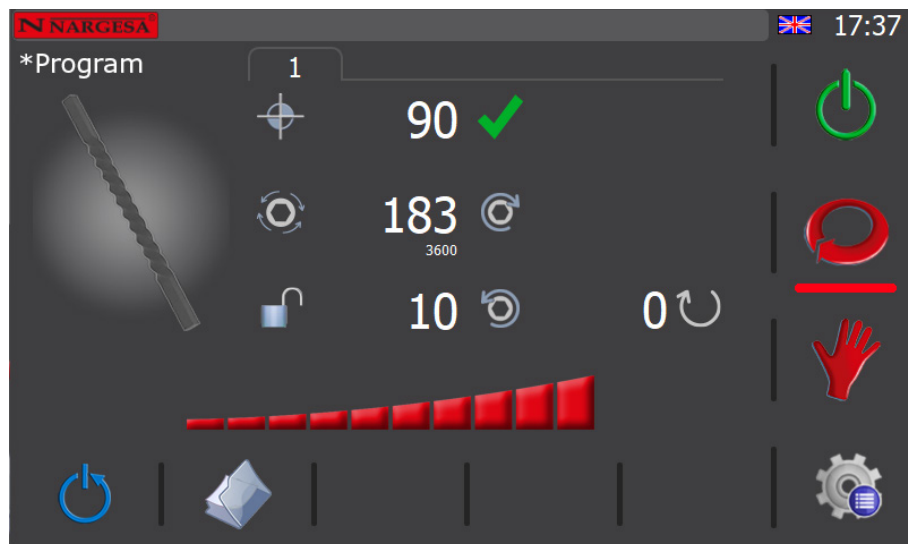


Once the head reaches the position defined as the starting point for bending, the program automatically exits production mode, and a “tick”  appears, indicating that the bending machine is in the correct position to load the material you want to work with.

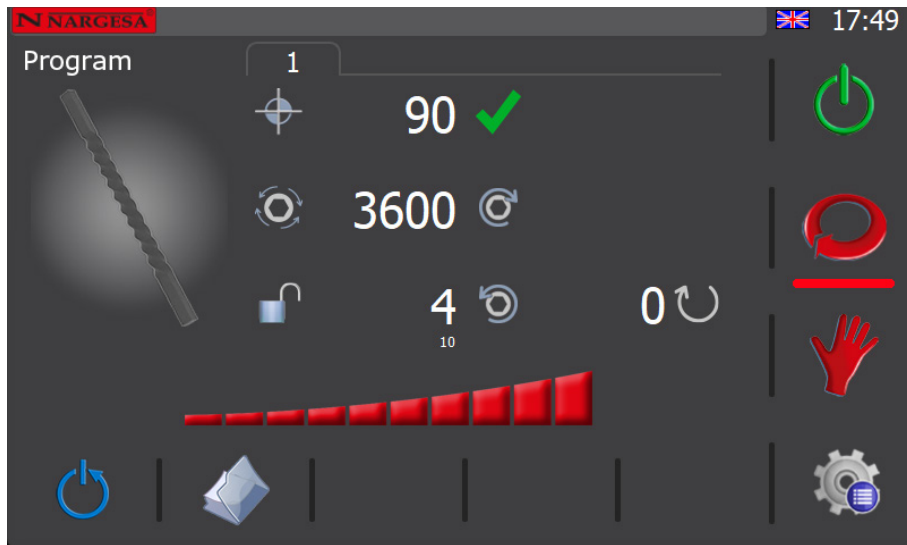


Now is the time to physically load the material into the machine and bend it. To do so, tap the  icon in the vertical menu again. By doing so, you'll return to production mode, but now all the steps in the program will be fully automatic.

First, the current step is rotated in the specified direction. During this process, the current distance is displayed in real time in the "Bending distance" field, and below that value, the target distance to be reached (in this case, 3,600° or; in other words, 10 complete revolutions of the head).



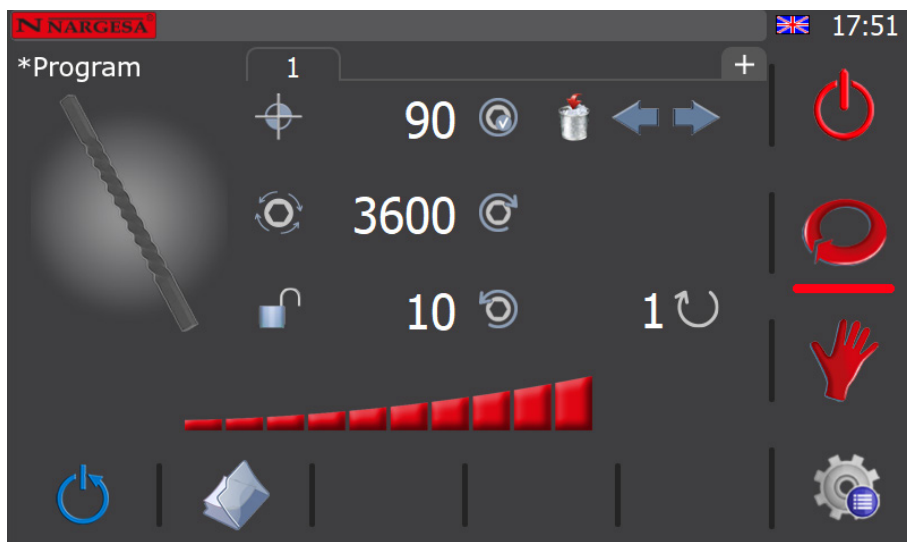
After the material has been bent, and provided that a release distance has been defined, the release is performed in the direction opposite to the bend. Similar to the rotation process, during the release process, the current distance is displayed in real time in the release distance field, and below this value, the target distance to be reached (in this example, 10°).



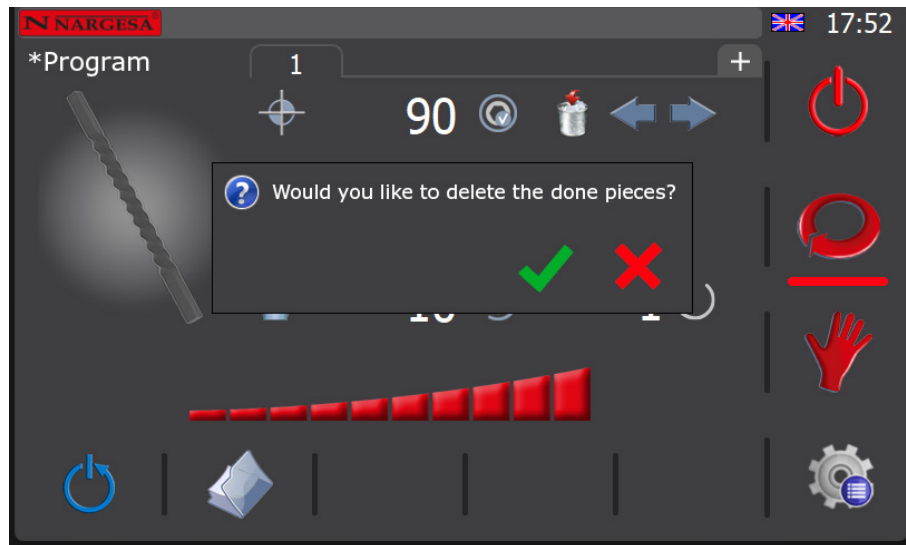
If the program has no more steps, the movement stops, the user interface exits production mode and the “tick” ✓ that appeared at the start position of the bend disappears. However, if there are more steps, they will be done one after another until all of them are completed, at which point the movement stops, the production mode is exited, and the “tick” ✓ disappears.

It’s important to note here that this is the time to remove the finished piece from the MT500A bending machine so it’s ready for new bending operations.

If you now look at the number of completed pieces, you can see that it has also increased by one. In this example, the counter shows how one piece has already been made.



Built into the program, this feature increments after each piece is produced and allows users to create specific series of units without having to perform manual calculations. In addition, you can reset this counter at any time by tapping the number of pieces and confirming the reset.



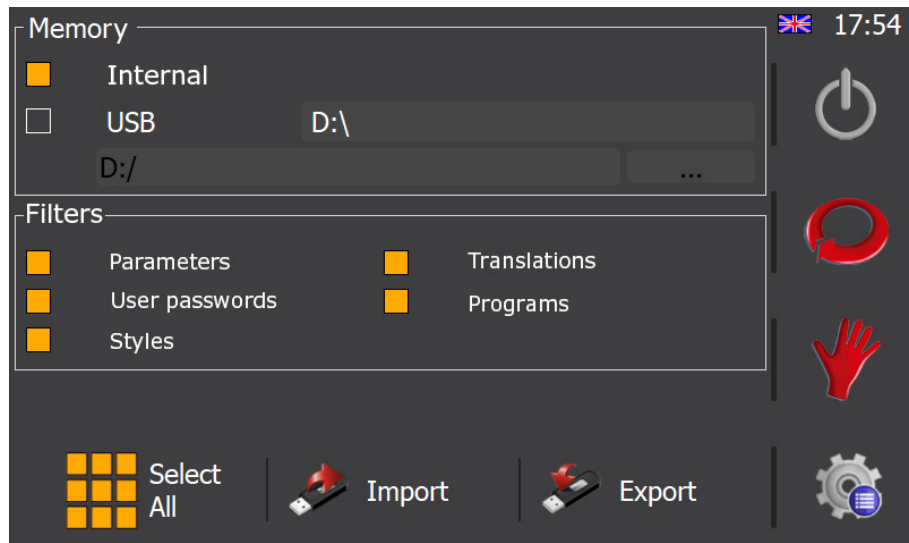
At this point, if you want to create more pieces, you must tap the  icon in the vertical menu again. This action reopens access to the production mode to locate the starting point for the bending operation (remember that there should be no physical piece in the machine) and, therefore, repeats the procedure described earlier for bending the first piece.

5.10. Importing and Exporting Data

The same software that runs on the physical machine can be run on a PC with a Windows operating system. This makes it possible to get the operators and technicians who will intervene in the development and production process familiar with the environment they will later use. However, remember that it's simply a simulation on a PC and some functions are not available unless done on the machine in question.

That said, it is possible to create programs on a PC. However, as you might expect, this is done not by moving the head to define starting positions and bending and release distances, but rather by editing steps. However, since you won't want to replicate all that work again on the actual machine, you have the "Importing and exporting data" screen.

To access it, you must first press the  icon at the bottom right-hand of the screen and then on the  icon in the menu that appears.



This screen allows you to export the data created on the PC and import them into the physical machine. Or vice versa. In other words, data can be exported from the machine and imported to the PC for the desired purpose if an operator has created new materials on the machine.

If you pay attention to the middle of the screen, you'll see how the data to be exported or imported is decided under the "Filters" section. Even though only transferring programs has been mentioned thus far, there are also other options. They are highly important as they allow you to make backup copies of the machine configuration parameters, add new styles to personalize the look of the software and even define new passwords and add other languages.

All of this data is imported and/or exported using a USB memory stick which can be inserted into the corresponding connector on the console. It is also of vital importance to emphasize at this point that you can export and/or import data to the system's internal memory. This allows you to have a backup copy on the machine itself which can be recovered whenever necessary.

5.11. Using the Alarms

The user interface on the bender is not only capable of sending orders to the machine, but it can also show a large quantity of highly useful information to know what is happening at all times.

For example, you will see the following pop-up window clearly indicating an emergency stop if you press the safety button on the control panel.

This pop-up window can be bothersome in certain situations. Therefore, you can close it even though the alarm is still active. To do so, just press the  button.



Remember that this window will also automatically close if the alarm disappears. In other words, in line with this example, this window will disappear if you unblock the safety button and press the reset button  (always necessary after an alarm goes off).

The question now is how to tell if the system has an activated alarm. You just look to see if the icon  appears at the right of the message bar at the top of the screen.

The presence of this icon indicates an active alarm status. To find out exactly what is happening or, in other words, what situation is producing the alarm statuses, just press the  icon.

The following screen will appear upon doing this:

Category	Code	Alarm	Date
PLC Alarms	96	Emergency stop	17:55:46 20/...
PLC Alarms	96	Emergency stop	16:44:28 20/...

 17:57
 



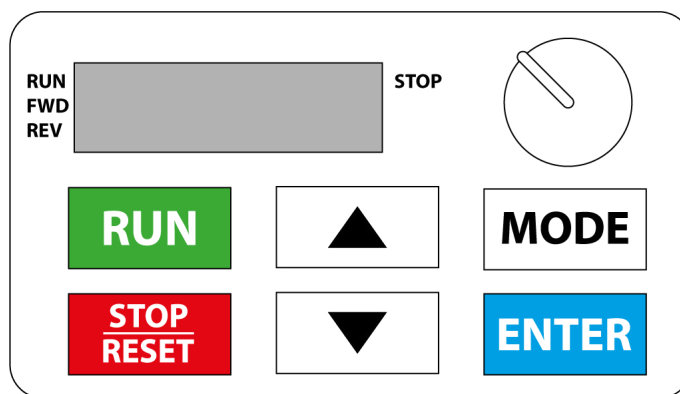


 From 20/5/2026 To 20/5/2026 Category All
 


Here's a list of all the alarms that have gone off to date and all those which are still active are marked in red. To delete the alarms, they need to be corrected by unblocking the emergency stop button, for example. However, other alarms can be reset by simply pressing the  icon.

This resets the active alarms that require no other action, making the system ready to be reset. So, when you return to manual mode, automatic mode or production mode, just press the  icon to continue working normally.

Also, keep in mind that any notifications and alarms from the frequency drive—which controls the rotation of the bend head motor—will appear on the secondary display. In addition, you can only clear the display by pressing the STOP/RESET button on this screen.

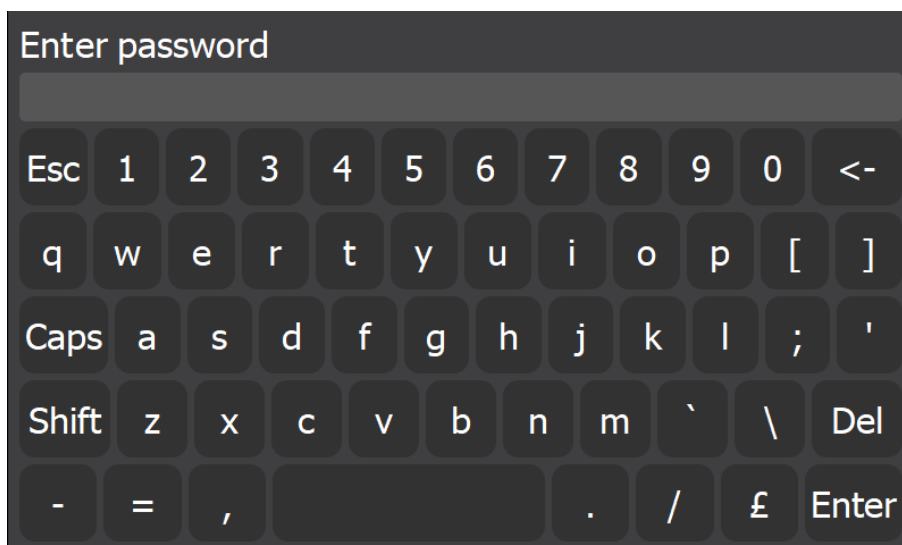


If said alarm condition occurs in the frequency drive and you follow the procedure described to clear it, resetting the system using the  icon will not be necessary in such case.

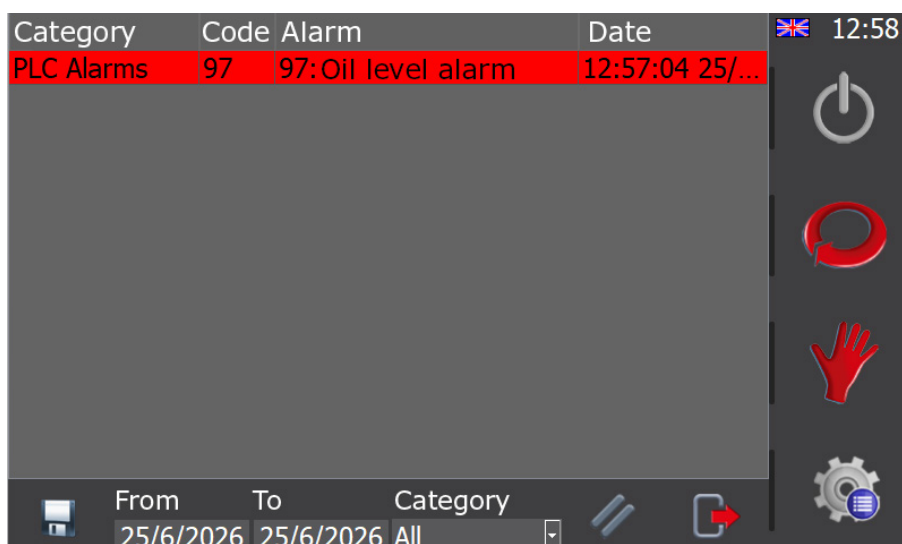
In any case, remember once again that alarms and notifications from the frequency drives are not common unless the mechanical capacities for which the bender was designed have been exceeded. In other words, they only appear to prevent the machine from suffering irreversible damage that may affect its operation.

In addition to these alarms, the twisting machine is equipped with an oil level check alarm, which is displayed after approximately 1,800 hours of operation. At that time, before continuing to operate the machine, the oil level must be checked as indicated in Section “**3. Maintenance**” of this instruction manual.

Once you have completed the review, you must clear the alert so you can continue working. To do so, access the menu by pressing the  icon in the lower right corner of the application. Now, from here, you must press the  icon providing access to the alarm management page.



As you can see, you will be asked to enter a password to guarantee you have permission to access it. The password you must enter is “nargesa”. Thus, as soon as you have entered it, press the “Enter” key and the following page will open.



Now, to delete the greasing alarm, just press the  icon, return to manual, automatic or production operating mode, and reset the system by pressing the .

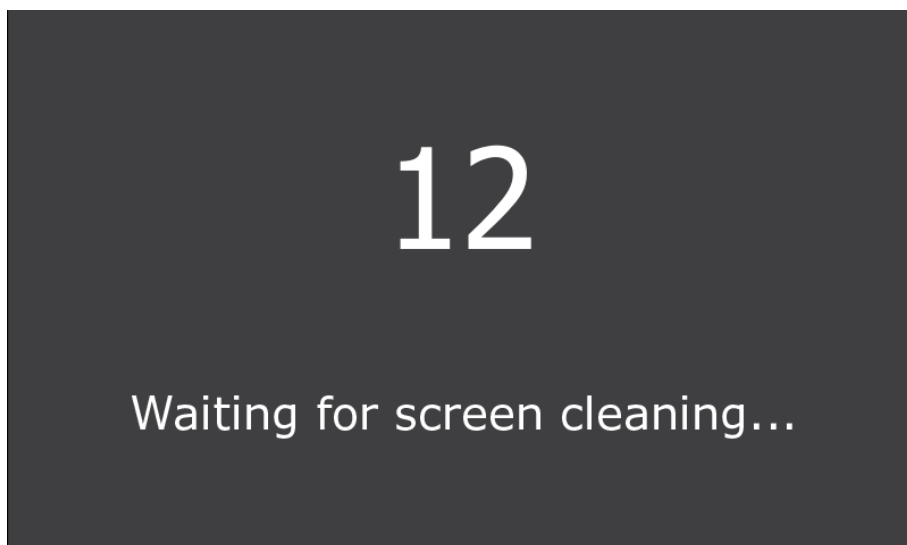
The greasing alarm will reappear repeatedly every 1800 operating hours so you will have to follow the procedure described many other times. This will ensure the machine is always working under the best conditions and is properly maintained to prevent problems.

5.12. Cleaning the Touchscreen

With continuous use of the touchscreen, it can accumulate some dirt which can become bothersome as you'll need to repeatedly press the screen to do any type of action. The solution is simple: cleaning the touchscreen with a soft cloth.

Nonetheless, you cannot do this while the bending machine is in certain operating modes as wiping the screen with a cloth will cause an enormous number of pulses which can lead to undesirable actions.

This is why there is a window designed for that purpose. To display it on the graphical interface, press the  button to access the menu page, and once there, press the  button located in the lower-left corner of the screen. If you follow these steps, the CNC will display a screen like this.



Here, a 15-second countdown begins, allowing you to clean the touchscreen without any problems, since any taps on it during this time have no effect. The application will automatically return to the general menu after 15 seconds.

If you didn't have enough time to completely clean the touchscreen, you can repeat the same operation as often as you wish.

6. POSSIBLE FAULTS

Due to the everyday use of the NARGESA MT500A twisting machine, certain abnormal situations may arise. These are described below in order to facilitate the operation and repair of the machine.

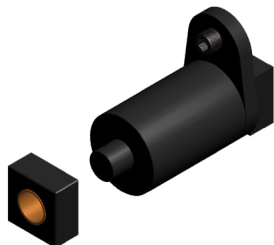
Fault	Cause	Solution
The display does not switch on	No power supply	Make sure that the machine is connected to the mains power supply
	One power supply phase is missing	Check that all three phases are present
	The protective fuse has blown	Replace the fuse
El motor eléctrico no se pone en marcha	One power supply phase is missing	Check that all three phases are present
	Emergency stop activated	Release the emergency stop and reset the machine
	Variable frequency drive fault	Contact the Technical Service Department

Control messages	Cause	Solution
Emergency	Emergency stop activated	Release the emergency stop and reset the machine

NOTE: If the faults persist, please contact the NARGESA Technical Service Department.

7. ACCESSORIES SUPPLIED WITH THE MACHINE

Flat bent rings 80mm.



REF: 130-01-03-00010

- > Tooling made of steel F1140 to make rings with 80mm inner diameter either in round or square.
- > The spiral cuts and some rings could be obtained to be put between the balusters.

Ring inner diameter: 80mm.
Max capacity: round or square 16mm.



Tooling for hooks and chains



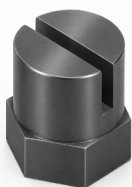
REF: 130-01-03-00165

- > Microfusion treated tooling to make all kind of bending, hooks, chains, etc.
- > It bends all kind of material.
- > Flat bar 50x10mm.
- *For different diameters please ask the manufacturers.*

Maximum capacity: round or square 20mm.



Flat bar bending tooling



REF: 140-01-03-00011

- > Tooling made of treated steel to make bending operations in flat bars, handrails or any kinds of clods.
- > Bending with minimum external radios.

Maximum capacity: flat bar 50x10mm.
Weight: 3,1 kg.



Spiral tooling diameter 120mm



REF: 120-01-03-00117

> Tooling made of treated steel F1140 to make the second operation of the spiral in flat bar, square or round maximum 10mm thickness.

Scroll external diameter: 120mm.
Max. Capacity: 40x8mm.



Spiral tooling diameter 220mm



REF: 130-01-03-00172

> Tooling made of steel F1140 to make the second operation of the spiral in flat bar, square or round maximum 16mm thickness.

Scroll external diameter: 220mm.
Maximum Capacity: 40x10mm.



Spiral tooling diameter 450mm



REF:130-01-03-00171

> Tooling made of steel F1140 to make the second operation of the spiral in flat bar, square or round maximum 25mm thickness.

Scroll external diameter: 450mm.
Maximum Capacity: 50x10mm.



Tooling for spiral start diameter 100mm



REF: 120-01-03-00116

> Tooling made of treated steel F1140 to make the start of the spiral in flat bar, square or round, 16mm maximum thickness.

Volute external diameter: 100mm.

Maximum Capacity: 40x10mm.



Tooling to make spiral start diameter 180mm



REF:120-01-03-000153

> Tooling made of treated steel F1140 to make the start of the spiral in flat bar, square or round, maximum 25mm thickness.

Volute external diameter: 180mm.

Maximum capacity: 50x10mm.



Tooling to make the spiral start diameter 80mm



REF: 120-01-03-00115

> Tooling made of treated steel F1140 to make the start of the spiral in flat bar, square or round maximum 10mm thickness.

Volute external diameter: 80mm.

Maximum capacity: 40x8mm.



Tooling to make scrolls on square bars 12 and 35mm or 1/4" and 1 1/2" inches whitworth



Units per machine: 2

> Tooling made of treated steel 140 to make the scrolling on square bars 12x12mm and 35x35mm or 1/4x1/4" and 1 1/2"x1 1/2" Inches Whitworth, on conventional mild steel.

REF: 120-01-03-00123 (12x12mm and 35x35mm)

REF: 125-01-03-00100 (1/4x1/4" and 1 1/2"x1 1/2" Inches Whitworth)



Tooling to twist square 14 and 30mm or 3/8" and 1 1/4" inch whitworth



Units per machine: 2

> Tooling made of treated steel F1140 to make twisting operations in square 14x14mm and 30x30mm or 3/8"x3/8" and 1 1/4"x1 1/4" inches Whitworth, in Carbon coal.

REF: 120-01-03-00124 (14x14mm and 30x30mm)

REF: 125-01-03-00101 (3/8"x3/8" and 1 1/4"x1 1/4" inches Whitworth).



Tooling to twist square 16 and 25mm or 1" and 1/2" inches Whitworth



Units per machine: 2

> Tooling made of treated steel F1140 to make the twisting for 16x16mm square bar and 25x25mm or 1"x1" and 1/2"x1/2" inches Whitworth, in conventional carbon steel.

REF: 120-01-03-00125 (16x16mm and 25x25mm).

REF: 125-01-03-00102 (1"x1" and 1/2"x1/2" inches Whitworth).



Tooling to scroll 18 and 20mm square bar or 3/4" and 5/8" inches whitwort



Units per machine: 2

> Tooling made of treated steel F1140 to make twisting in 18x18mm and 20x20mm square bar or 3/4"x3/4" and 5/8x5/8" inches Whitwort, in conventional carbon steel.

REF: 120-01-03-00127 (18x18mm and 20x20mm)

REF: 125-01-03-00103 (3/4x3/4" and 5/8x5/8" inches Whitwort)



Tooling for scrolling 40mm square and flat bar 50x10 mm or 1 3/4" and 2"x3/8" inches whitwort



Units per machine: 2

> Tooling made of treated steel F1140 to make the scrolling in 40x40mm square bar and 50x10mm flat bar or 1 3/4"x1 3/4" and 2"x3/8" inches Whitwort, in conventional carbon steel.

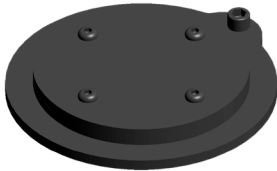
REF: 120-01-03-00126 (40x40mm y 50x10mm)

REF: 125-01-03-00104 (1 3/4"x1 3/4" y 2"x3/8" inches Whitwort)



8. OPTIONAL ACCESSORIES

Belly top railing tooling diameter 225mm



REF: 140-01-03-00003

> Tooling to make the belly top railing styles, very used in balconies and windows.

Optional tooling.



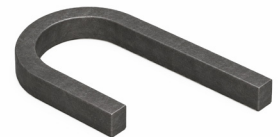
Inner diameter	Maximum capacity	Weight
225mm	16mm round or square.	12 Kg.

Flat bent rings, inner diameter 96,100,110mm



REF: 140-01-03-00005

> Tooling made of steel to make bending operations in square and round bars and the so called British Rail.



Inner diameter	Maximum capacity	Weight
96,100,110mm	16mm round or square.	10 Kg.

Edge scroll tooling



REF: 140-01-03-00006

> Tooling made of treated steel to make volutes or spirals on its edge in order to give it a different aspect, very used in some specific countries.

Maximum capacity: round or square 25mm.

Weight: 0,400 kg.



Baskets tooling



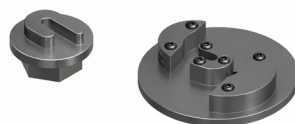
REF: 140-01-03-00012

- > Tooling to make all kinds of ornamental baskets in different sizes in square or round.
- > Available tooling for millimeter and inch square sizes

Maximum capacity: 4 square or round bars of 12mm.
Weight: 55kg.



Oval scrolls tooling



REF: 140-01-03-00004

- > Tooling made of steel to make oval scrolls for all kinds of rails.

Optional tooling.



Units per tooling	External diameter	Maximum capacity	Weight
2	240x190mm	16 mm square or round	11 Kg.

Bent pipe in fixed radius



REF: 140-01-03-00002

- > Tooling made of steel to make bents in adjustable and fixed radius and different degrees.



Pipe max. diameter	Min. pipe thickness	Radius of the piece	Degrees	Weight
40mm	3mm	3 times the pipe diameter.	Maximum 180°	15 to 35 Kg.

Double eyed tooling



REF: 140-01-03-00001

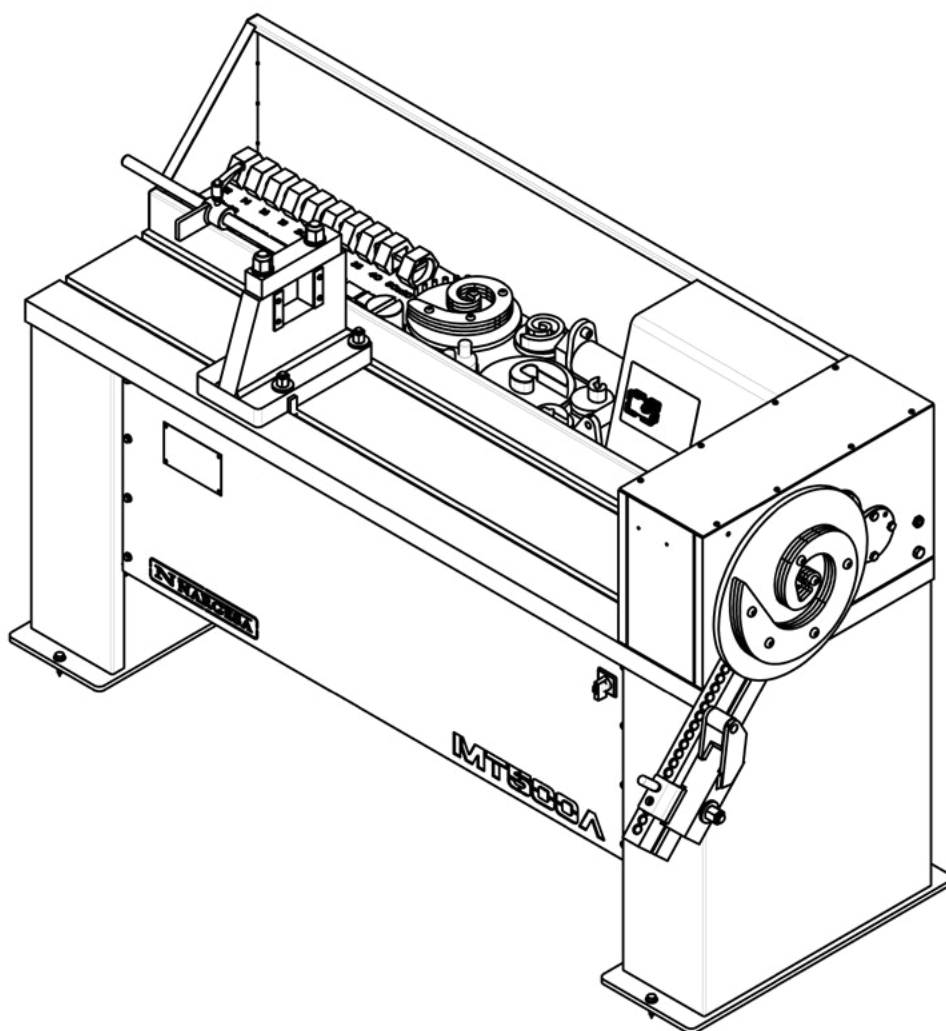
> Tooling to make the folding commonly called "pig's tail" it's very used in balconies, handrails and many ornamental utilities.



Pieces per tooling	Double eye	Capacidad máxima	Weight
7	To the right , to the left and double.	16mm Round.	35 Kg.

TECHNICAL ANNEX

MT500A Twisting Machine



PRADA NARGESA, S.L

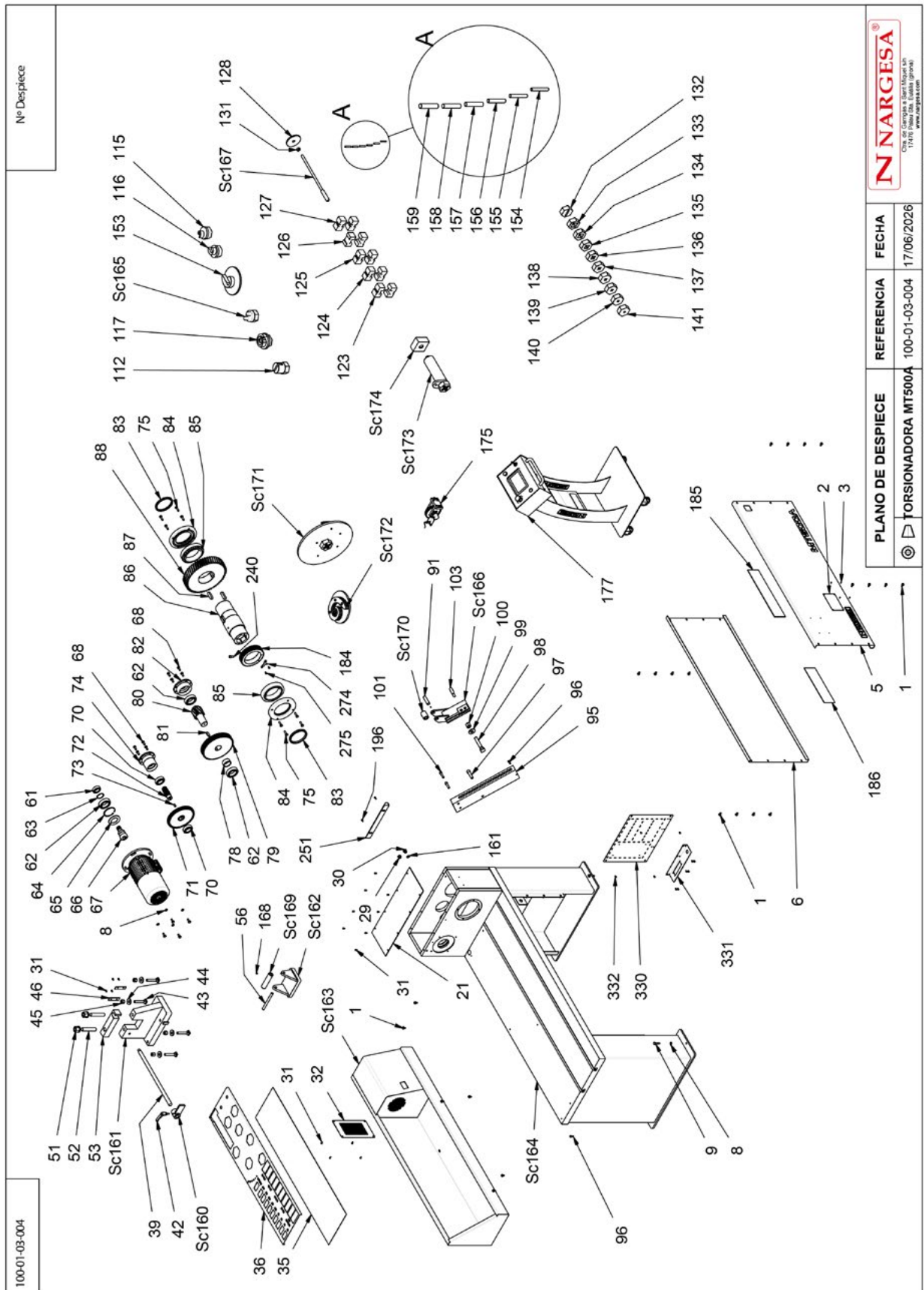
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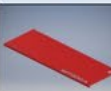
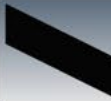
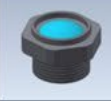
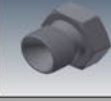
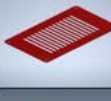
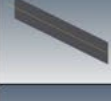
Tel. +34 972568085 · nargesa@nargesa.com · www.nargesa.com

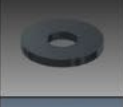
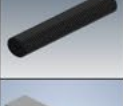
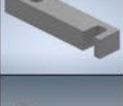
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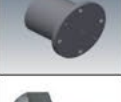
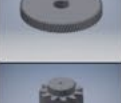
A1. General parts diagram	3
A2. Encoder assembly	12
A3. Control panel exploded view	15
A4. Electric boxes	19
A5. Electric maps	29

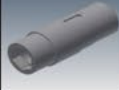
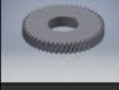
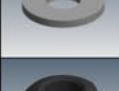
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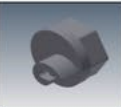
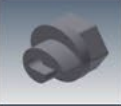
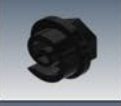
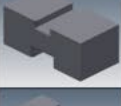
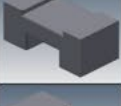
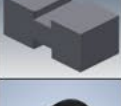
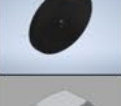
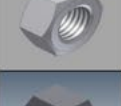
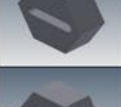
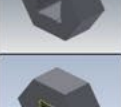


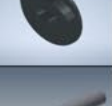
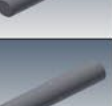
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1		020-D6921-M8X16	Tornillo Hexagonal Embridado DIN 6921 M8X16	22
2		122-PLC-0000-001	Placa Características General	1
3		020-D7337-3X8	Remache De Clavo DIN7337 De Al D3X8	4
5		120-01-03-00211	TAPA FRONTAL MT500	1
6		120-01-03-00006	TAPA TRASERA MT500	1
8		DIN 125-1 - B 13	Arandela	8
9		020-DIN571-10X50	Tornillo Hexagonal Para Madera	4
21		120-01-03-00187	Tapa de la Caja Reductora	1
29		040-NA-00001	Visor Nivel Aceite De 3/8" Gas	1
30		040-THE-00001-01	TAPON HEXAGONAL 3/8"	1
31		020-I7380-M6X12	Tornillo Allen Abombado ISO 7380 M6X12	18
32		120-01-03-00032	REJILLA MOTOR ELECTRICO MT500	1
35		120-01-03-00035	GOMA PORTA HERRAMIENTAS	1
36		120-01-03-00036	CHAPA UTILES METRICO	1

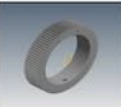
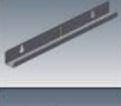
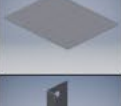
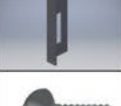
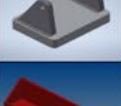
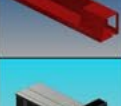
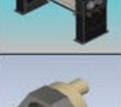
39		120-01-03-00039	Barra tope del carro	1
42		031-MAG-00002	Maneta Graduable Macho M10X25	1
43		020-D787-00001	Tornillo en T M16X100 DIN 787 Para Ranura de 18	4
44		020-D6340-M16	ARANDELA DIN 6340 M16	4
45		020-D6330B-M16	Tuerca Hexagonal Alta DIN 6330B M16	4
46		120-01-03-00046	TOPES VERTICALES CARRO MT500	2
51		020-D6331-M24	Tuerca Con Collar DIN 6331 M24	2
52		120-01-03-00052	VARILLA SUJECION BRIDA	2
53		120-01-03-00053	Brida	1
56		120-01-03-00056	Eje rulina	1
61		030-CJ-00017	Cojinete de Rodillos NJ206 D30XD62X16	1
62		030-CJ-00020	COJINETE DE BOLAS 6210 50X90X20	3
63		030-D471-00011	Circlip Eje DIN471 D50	1
64		030-D472-00007	CIRCLIP AGUJERO DIN472 D90	1
65		040-RET-00004	Reten D55XD90X10	1

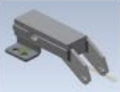
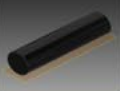
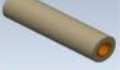
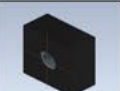
66		120-01-03-00066	Piñón 1 Z12 M2 Entrada	1
67		050-MEFC-00001	Motor trifasico con freno CC 5.5 CV 1500 rpm 50/60 Hz 240/400v B5 400V	1
68		020-D933-M10X25	Tornillo Hexagonal DIN 933 M10X25	12
70		030-CJ-00013	Cojinete de Bolas 6207 D35XD72X17	2
71		120-01-03-00071	Rueda 1 Z100 M2	1
72		120-01-03-00072	Piñón 2 Z10 M3.25	1
73		120-01-03-00189	Chaveta Especial 10X8X21	1
74		120-01-03-00074	Tapa de Ø90	1
75		020-D933-M10X35	Tornillo Hexagonal DIN 933 M10X35	8
78		120-01-03-00078	Anillo Separador	1
79		120-01-03-00079	Rueda 2 Z74 M3.25	1
80		120-01-03-00080	Piñón 3 Z11 M6	1
81		030-D6885A-00007	Chaveta Paralela DIN 6885A 14X9X40	1
82		120-01-03-00082	Tapa de Ø110	1
83		040-RET-00012	Reten D120XD140X12	2

84		120-01-03-00084	TAPA DE Ø180	2
85		030-CJ-00021	Rodamiento de rodillos cónico	2
86		120-01-03-00086	EJE PRINCIPAL	1
87		030-D6885A-00008	Chaveta Paralela DIN 6885A 20X12X70	2
88		120-01-03-00088	Rueda 3 Z52 M6	1
91		120-01-03-00091	Eje Carro Posterior	1
95		120-01-03-00095	Carro	1
96		020-D912-M8X20	Tornillo Allen DIN912 M8X20	2
97		020-D912-M16X60	TORNILLO ALLEN DIN 912 M16X60	1
98		020-D787-00002	Tornillo en T M20X125 DIN 787	1
99		020-D6340-M20	AARANDELA DIN 6340 M20	1
100		020-D6330B-M20	Tuerca Hexagonal Alta DIN 6330B M20	1
101		020-D912-M12X45	TORNILLO ALLEN DIN912 M12X45	2
103		120-01-03-00103	Pasador Carro Posterior	1
112		120-01-03-00112	Matriz Hex. De Doblar 12x40	1

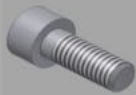
115		120-01-03-00115	MATRIZ INICIO ESPIRAL DIAMETRO 80	1
116		120-01-03-00116	MATRIZ ESPIRAL DIAMETRO 100	1
117		120-01-03-00117	MATRIZ ESPIRAL DIAMETRO 120mm	1
123		120-01-03-00123	Matriz 13x13 _ 36x36	2
124		120-01-03-00124	Matriz 15x15 _ 31x31	2
125		120-01-03-00125	Matriz 17x17 _ 26x26	2
126		120-01-03-00126	Matriz 40x40 _ 10x50	2
127		120-01-03-00127	Matriz 19x19 _ 21x21	2
128		120-01-03-00128	Arandela Trasera Maneta	1
131		020-D934-M16	Tuerca Hexagonal DIN934 M16	1
132		120-01-03-00132	Matriz de torsionar Hexagonal 10X50	1
133		120-01-03-00133	Matriz de torsionar Hexagonal 40x40	1
134		120-01-03-00134	Matriz de torsionar Hexagonal 35X35	1
135		120-01-03-00135	Matriz de torsionar Hexagonal 30X30	1
136		120-01-03-00136	Matriz de torsionar Hexagonal 25X25	1

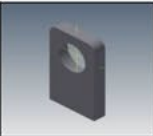
137		120-01-03-00137	Matriz de torsionar Hexagonal 20X20	1
138		120-01-03-00138	Matriz de torsionar Hexagonal 18X18	1
139		120-01-03-00139	Matriz de torsionar Hexagonal 16X16	1
140		120-01-03-00140	Matriz de torsionar Hexagonal 14X14	1
141		120-01-03-00141	Matriz de torsionar Hexagonal 12X12	1
153		120-01-03-00153	Matriz espiral diametro 180mm (1ª operacion)	1
154		120-01-03-00154	Grueso diametro 7 x 50	1
155		120-01-03-00155	Grueso diametro 8 X 50	1
156		120-01-03-00156	Grueso diametro 9 x 50	1
157		120-01-03-00157	Grueso diametro 10 x 50	1
158		120-01-03-00158	Grueso diametro 11 x 50	1
159		120-01-03-00159	Grueso diametro 12 x 50	1
161		040-JMG-00004	Junta Metal Goma 3/8' Gas	1
168		020-D913-M6X12	ESPARRAGO ALLEN DIN 913 M6X12	1
177		120-08-08-00303	Lateral Pupitre	2

184		120-01-03-00184	Rueda 4 Entrada Encoder Z90 M2	1
185		120-01-03-00185	Metacrilato modelo	1
186		120-01-03-00186	Metacrilato Nargesa	1
196		020-D912-M6X12	TORNILLO ALLEN DIN912 M6X12	2
240		020-D912-M10X25	Tornillo Allen DIN 912 M10X25	1
251		120-01-03-00188	Chapa pasacables	1
274		120-01-03-00179	Posicionat zero	1
275		020-D933-M6X12	Tornillo Hexagonal DIN 933 M6X12	2
330		120-01-03-00214	Chapa Montaje Electrico	1
331		120-01-03-00215	Chapa Soporte Conector Electrico MT500	1
332		020-I7380-M6X10	Tornillo Allen Abombado ISO 7380 M6X10	10
SC162		130-01-03-00162	BASE RULINA DE 138	1
SC163		130-01-03-00210	CONJUNTO SOLDADO TAPAS MESA V3	1
SC164		130-01-03-00212	CONJUNTO SOLDADO MESA + REDUCTOR V3	1
SC165		130-01-03-00165	MATRIZ TETONES MT500	1

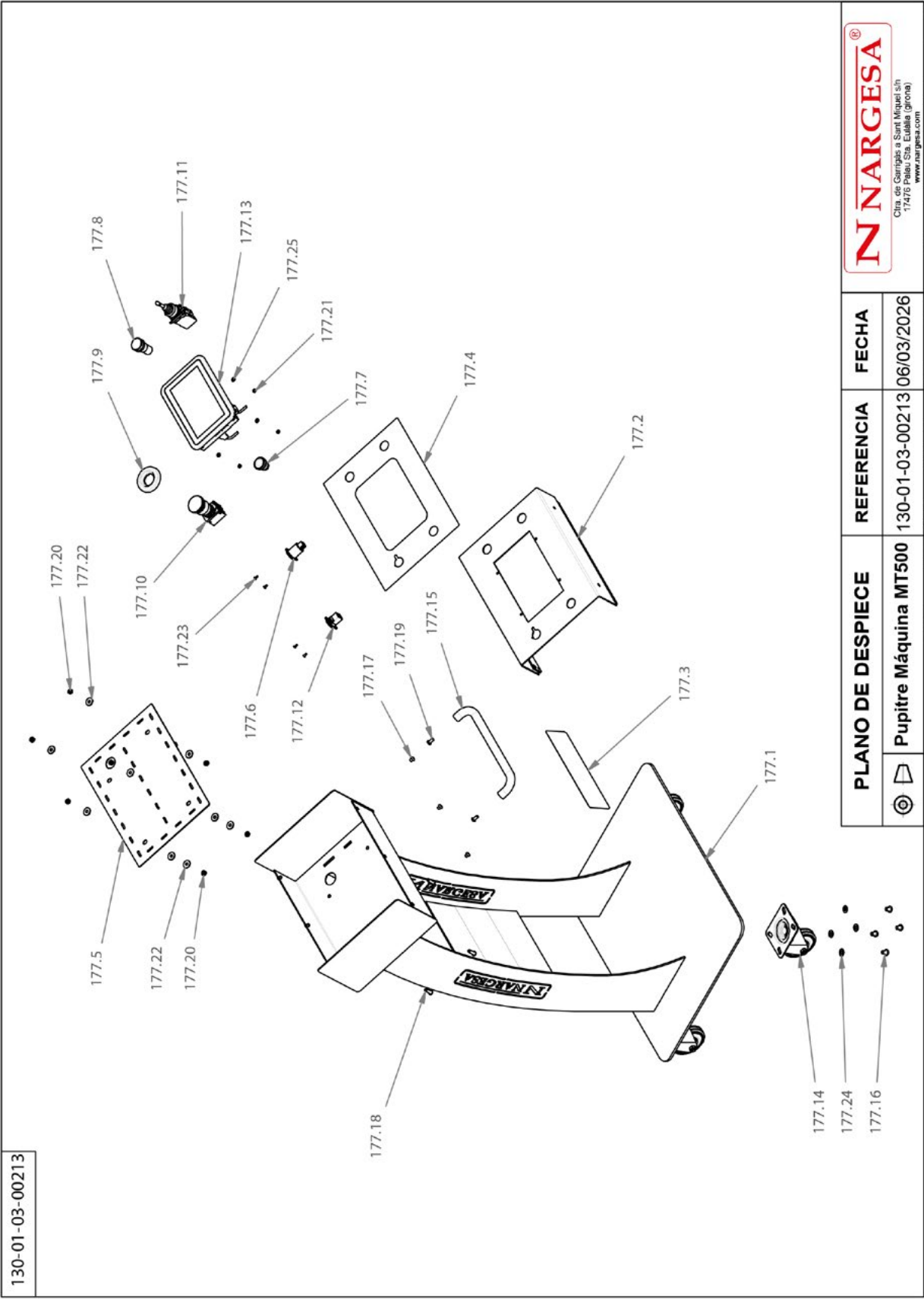
SC166		130-01-03-00166	Carro Posterior	1
SC167		130-01-03-00167	Varilla Roscada Sujeción Matrices	1
SC169		130-01-03-00169	CONJUNTO RULINA DE 138	1
SC170		130-01-03-00170	CONJUNTO RULINA DE 55	1
SC171		130-01-03-00171	Matriz espiral diametro 450 (2a operacion)	1
SC172		130-01-03-00172	Matriz espiral diametro 220 (2a operacion)	1
SC173		130-01-03-00173	Matriz anillas radio fijo 80	1
SC174		130-01-03-00174	Soporte cuadrado con dolla	1
SC204		130-01-03-00205	Conunto encoder	1

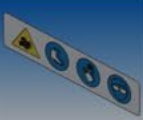
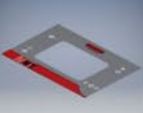
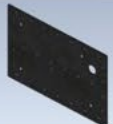
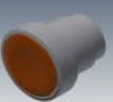
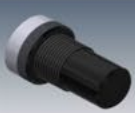
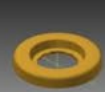
12

Elemento	Miniatura	Nº de pieza	Descripción	CTDAD
Sc204.1		020-D7991-M3x8	Tornillo Allen DIN 7991 M3X8	2
Sc204.2		020-D9021-M3	ARANDELA DIN 9021 M3	2
Sc204.3		020-D912-M6X10	Tornillo Allen DIN912 M6X10	2
Sc204.4		020-D912-M6X16	Tornillo Allen DIN912 M6X16	4
Sc204.5		020-D914-M6x25	ESPARRAGO ALLEN CON PUNTA DIN 914 M6x25	2
Sc204.6		020-D934-M3	Tuerca DIN 934 M3	2
Sc204.7		030-CJ-00030	Rodamiento 6004 2RS D20XD42D12	2
Sc204.8		030-D471-00010	Circlip Eje Din471 D20	2
Sc204.9		030-D7979D-00013	Pasador Cilindrico Con Rosca Int. DIN7979/D D5X20	4
Sc204.10		050-ENC-00018	Encoder Incremental Hohner22-3222-125.	1
Sc204.11		120-01-03-00175	Fixació suport encoder	1

Sc204.12		120-01-03-00176	Suport rodament	2
Sc204.13		120-01-03-00178	Eix supot pinyo encoder	1
Sc204.14		120-01-03-00180	Suport detector inductiu	1
Sc204.15		120-01-03-00182	Separador	2
Sc204.16		120-01-03-00183	Piñón 4 Salida Encoder Z60 M2	1

A3. Control panel exploded view



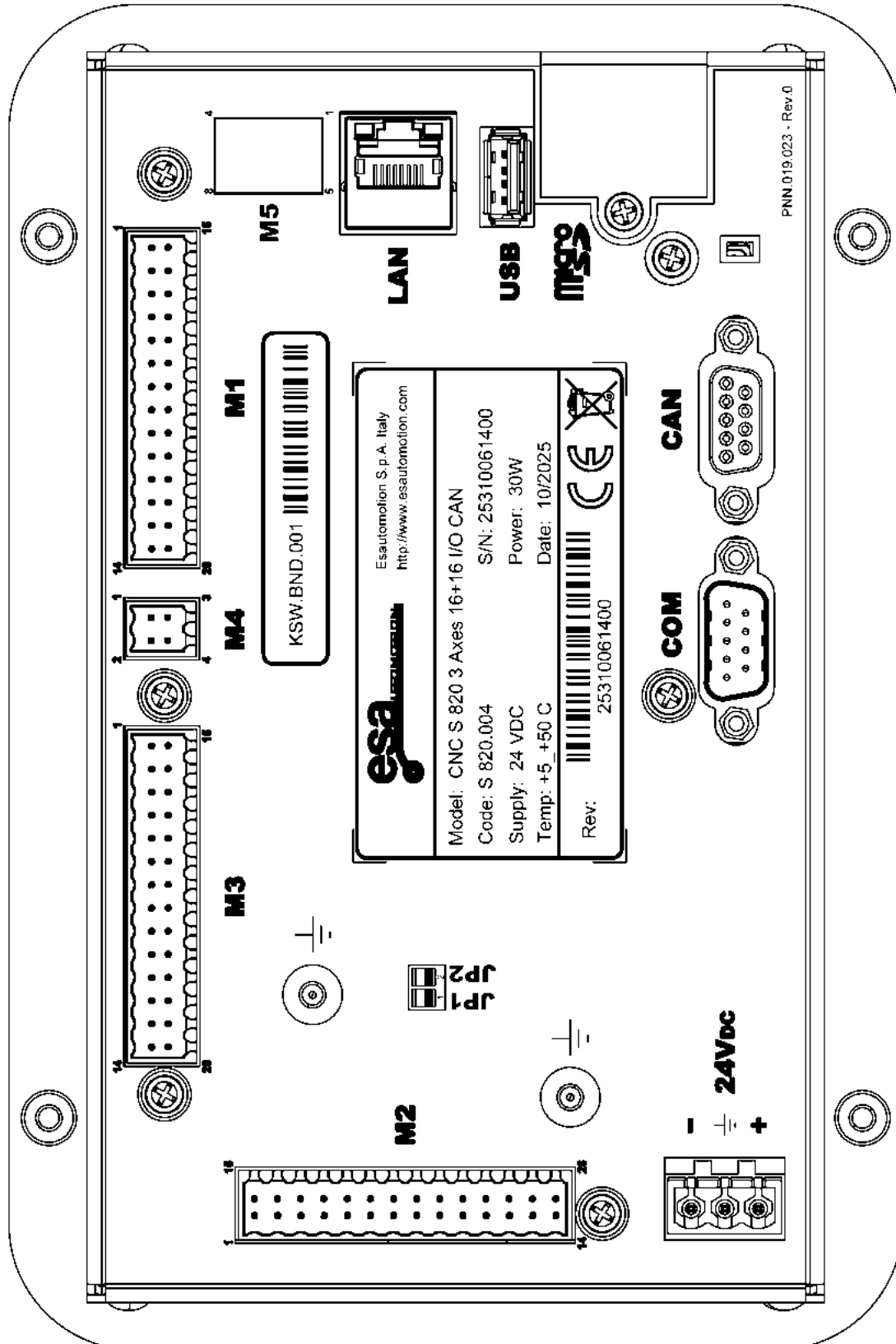
Elemento	Miniatura	Nº de pieza	Título	CTDAD
177.1		130-08-08-00159	Conjunto Soldado Pupitre	1
177.2		130-08-08-00158	Frontal Pupitre	1
177.3		122-CAL-1101-002	Calca Advertencias NOA60	1
177.4		122-CAL-0103-006	Calca Pupitre MT500	1
177.5		120-08-08-00285	Chapa Montaje Pupitre	1
177.6		050-USB-00002	Conector Pasante USB 2.0	1
177.7		050-PUL-00007	Pulsador D22mm con Luz Naranja	1
177.8		050-PL-00011	Piloto De D22 mm 24Vac Blanco	1
177.9		050-PED-00029	Anillo Luminoso Paro Emergencia	1
177.10		050-PED-00028	Paro Emergencia CAT 4 (2NC+1NO)	1
177.11		050-JOYSTICK-ZD4PA24	Joystick Schneider ZD4 PA24	1

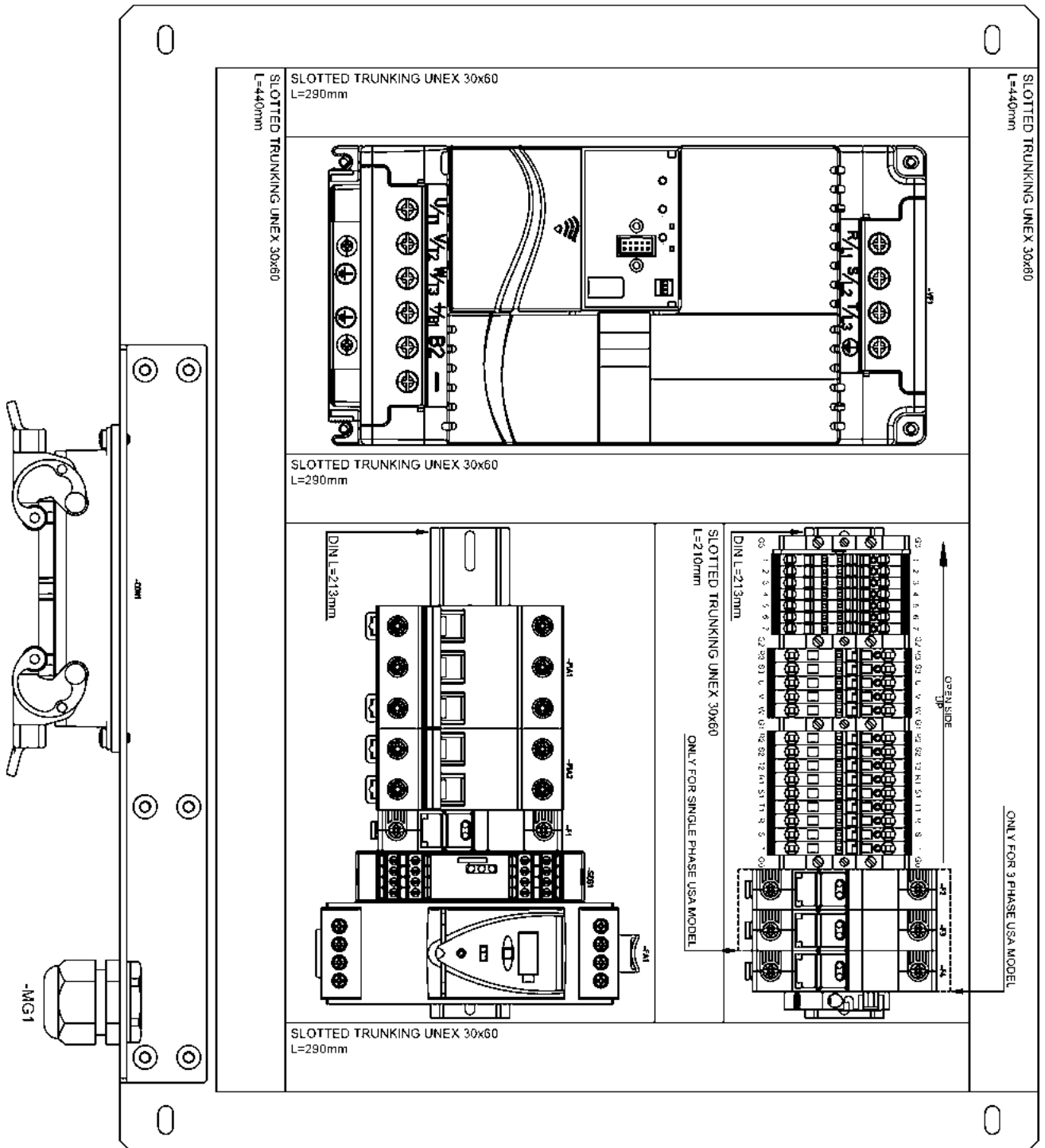
Elemento	Miniatura	Nº de pieza	Título	CTDAD
177.12		050-ETH-00002	Conector Pasante RJ45 Cat.5	1
177.13		050-CNC-00015	Pantalla ESA CNC S820	1
177.14		031-RG-D80-107	Rueda Giratoria Ø80x107 - Goma 83A	4
177.15		031-APM-00001	ASA INOXIDABLE 250X45 M6	1
177.16		020-I7380-M8X10	Tornillo Allen Abombado ISO7380 M8X10	16
177.17		020-I7380-M6X6	Tornillo Allen Abombado ISO 7380 M6X6	6
177.18		020-I7380-M6X20	Tornillo Allen Abombado ISO7380 M6X20	4
177.19		020-I7380-M6X12	Tornillo Allen Abombado ISO 7380 M6X12	2
177.20		020-D934-M6	Tuerca Hexagonal DIN 934 M6	8
177.21		020-D934-M4	Tuerca Hexagonal DIN934 M4	4
177.22		020-D9021-M6	Arandela Ancha DIN9021 Para M6	12

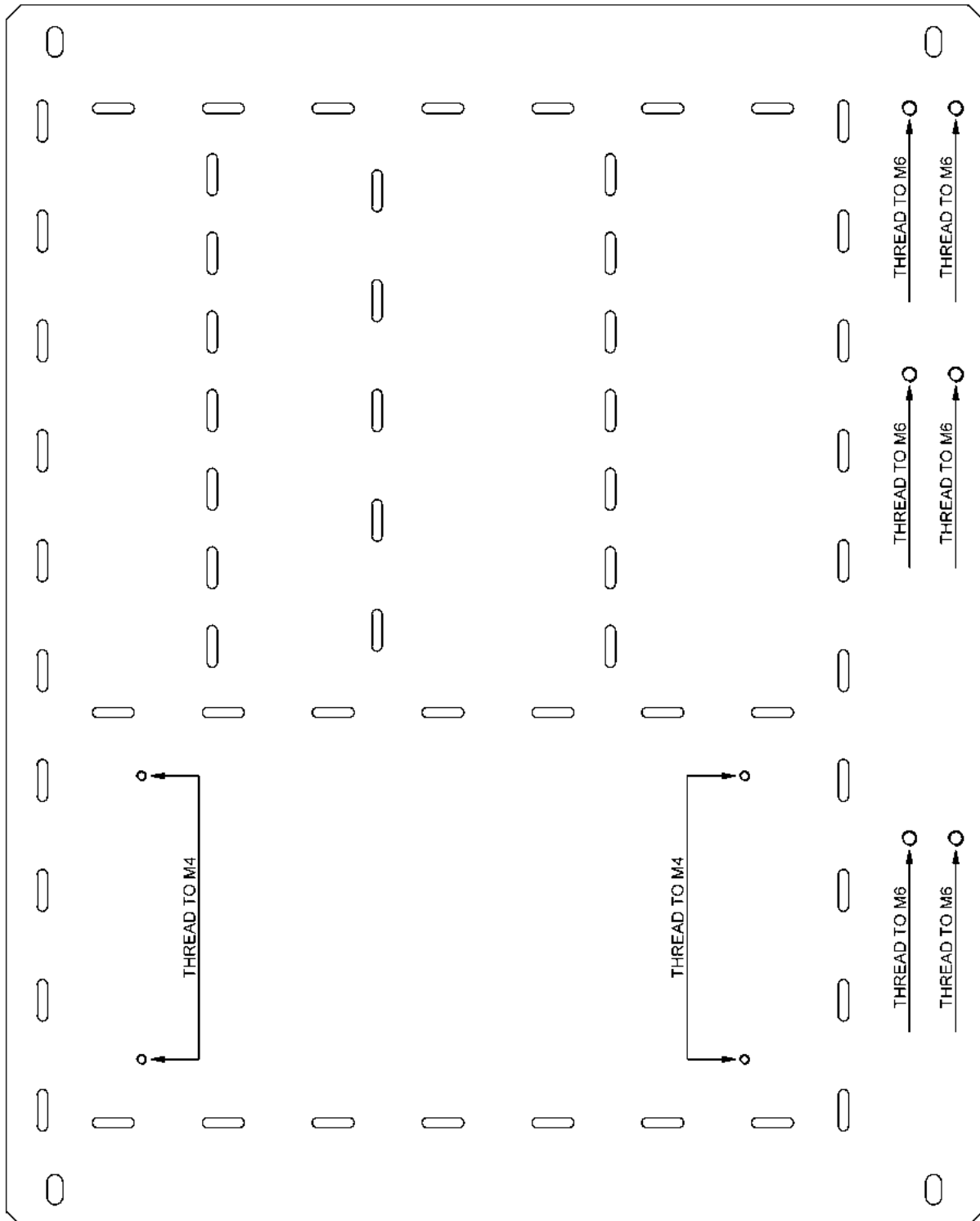
Elemento	Miniatura	Nº de pieza	Título	CTDAD
177.23		020-D7991-M3x8	Tornillo Allen DIN 7991 M3X8	4
177.24		020-D125B-M8	Arandela Biselada DIN 125B M8	16
177.25		020-D125B-M4	Arandela Biselada DIN125B Para M4	4

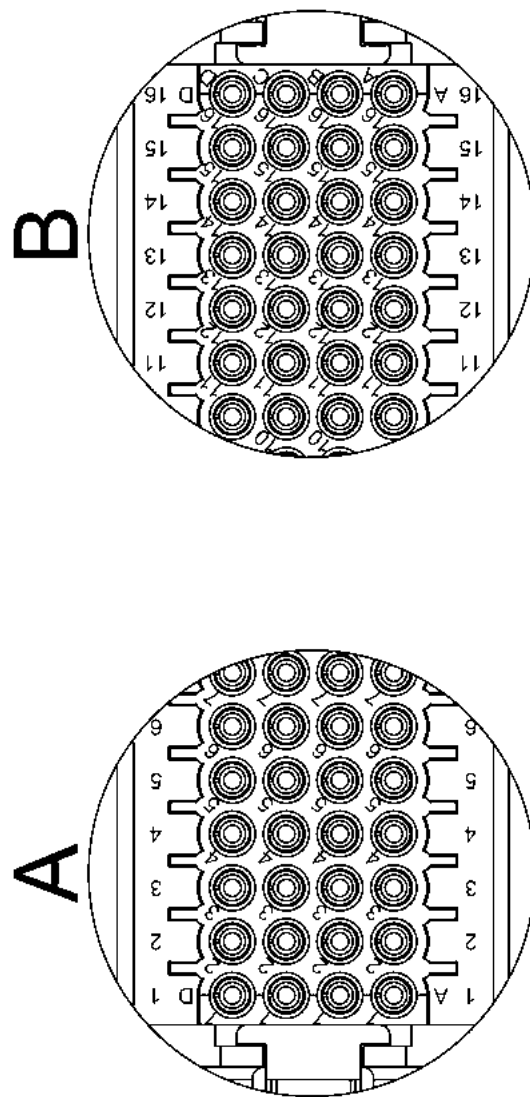
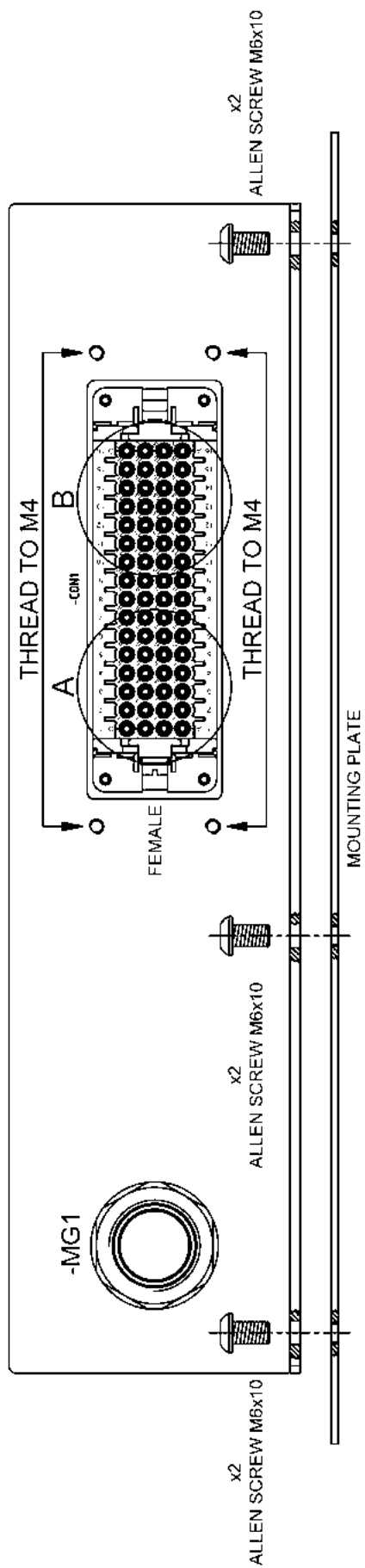
A4. Electric boxes

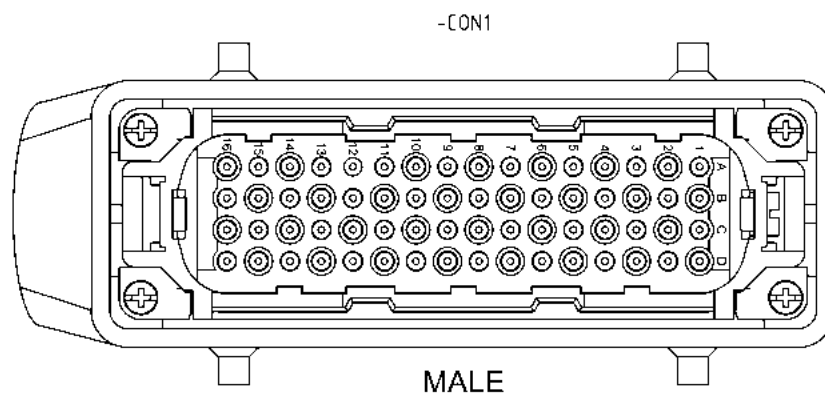
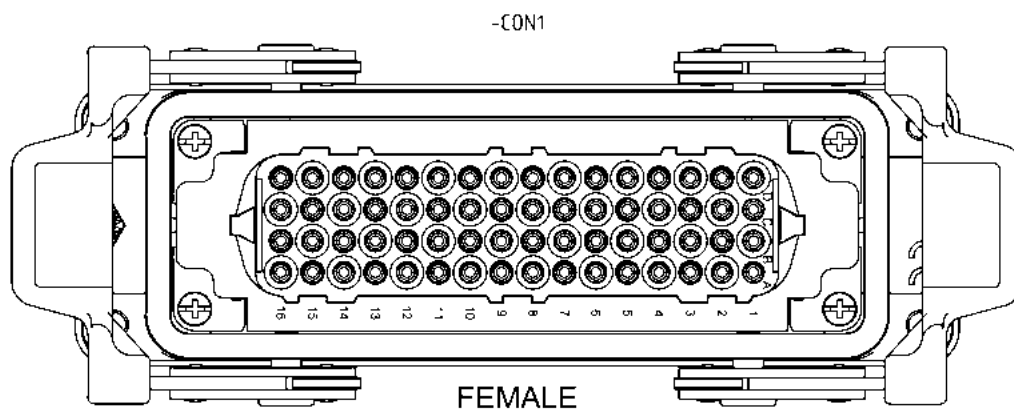
-CONTROL 1

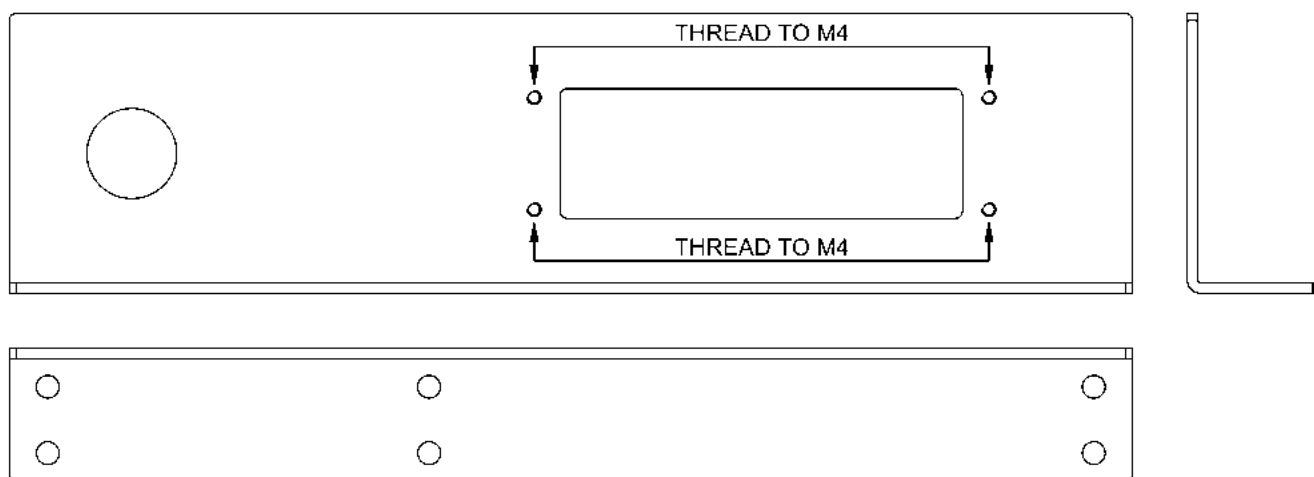






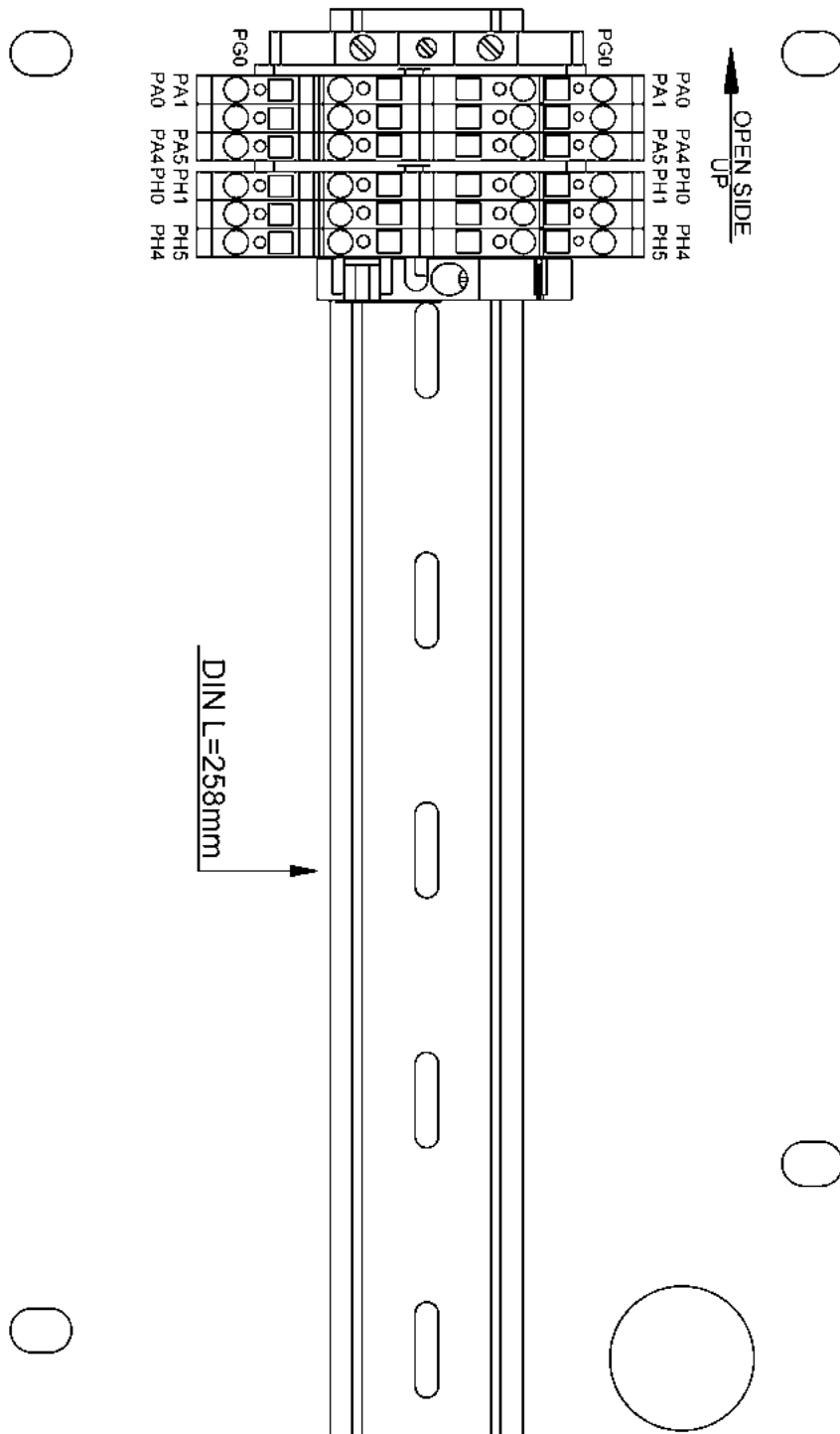




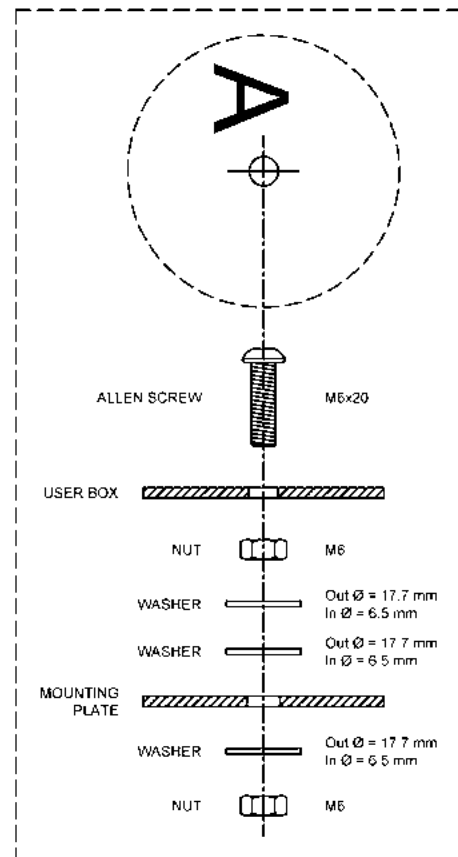
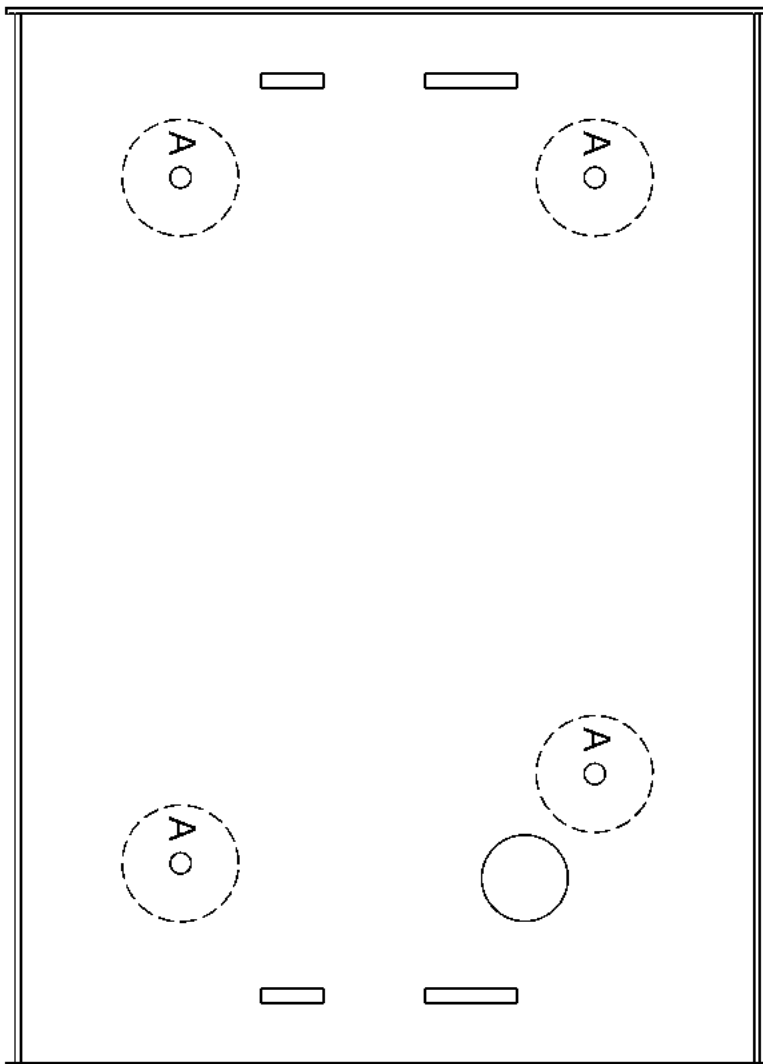


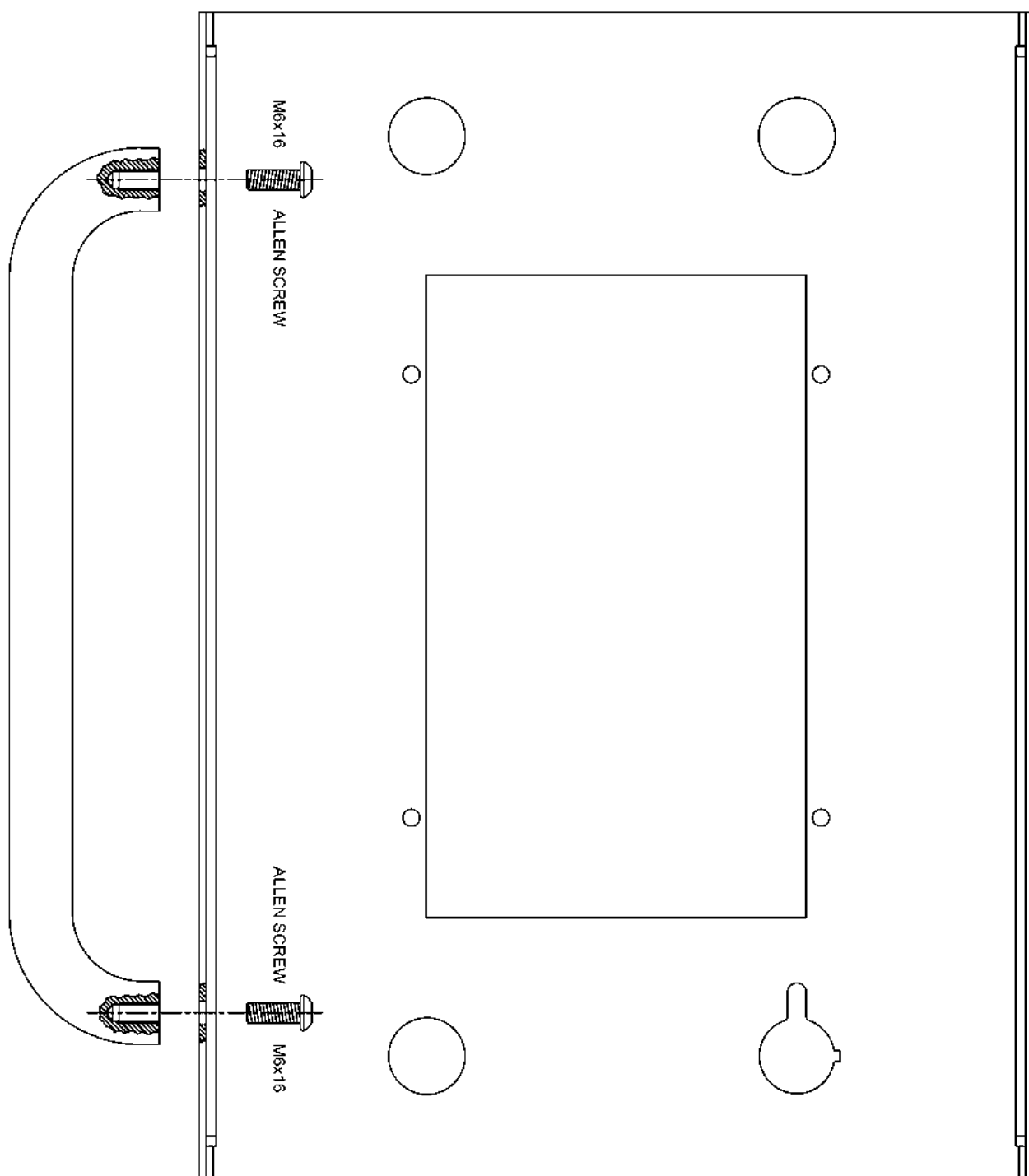
SLOTTED TRUNKING UNEX 30x60
L=320mm

SLOTTED TRUNKING UNEX 30x60
L=160mm



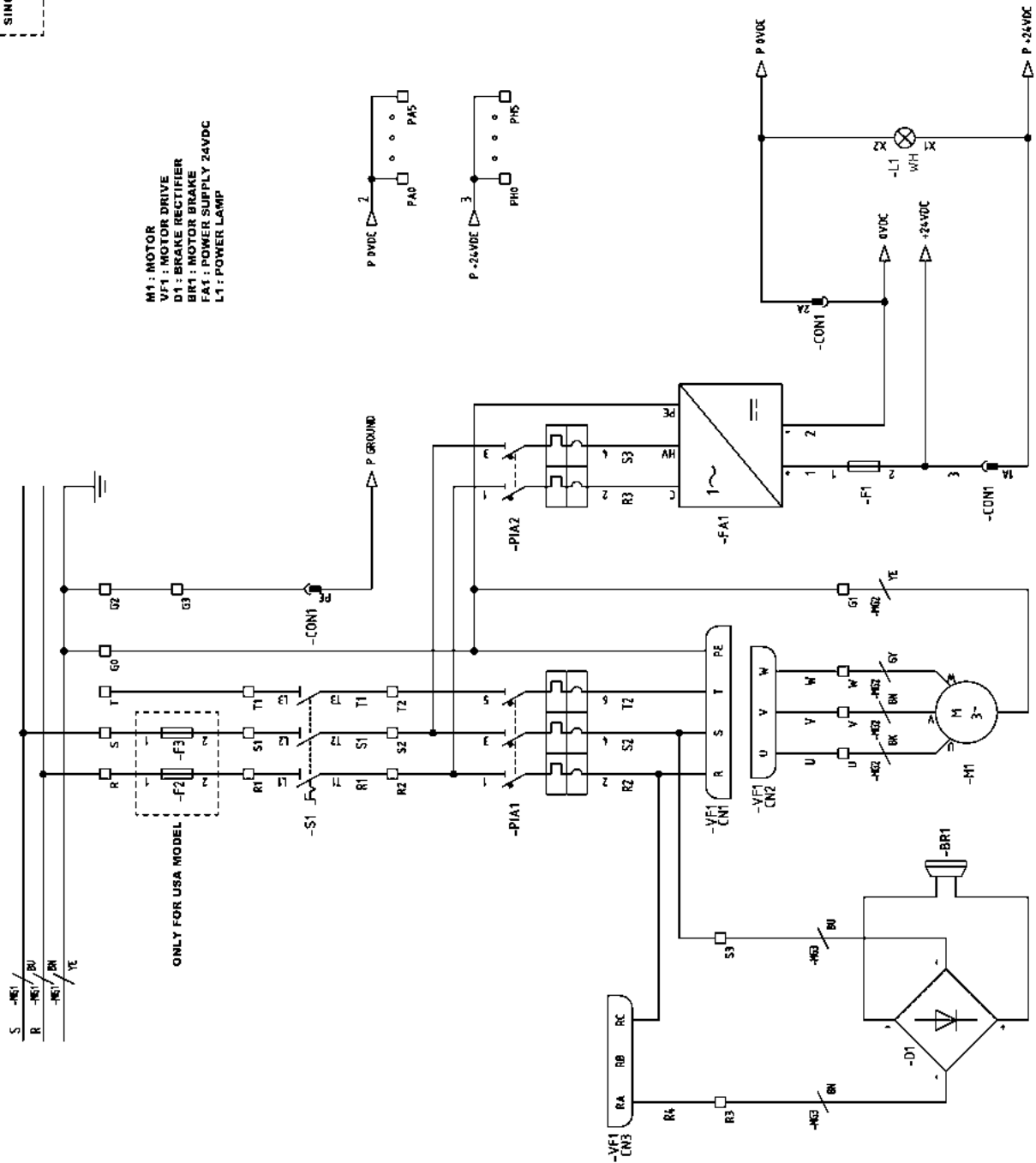
SLOTTED TRUNKING UNEX 30x60
L=160mm



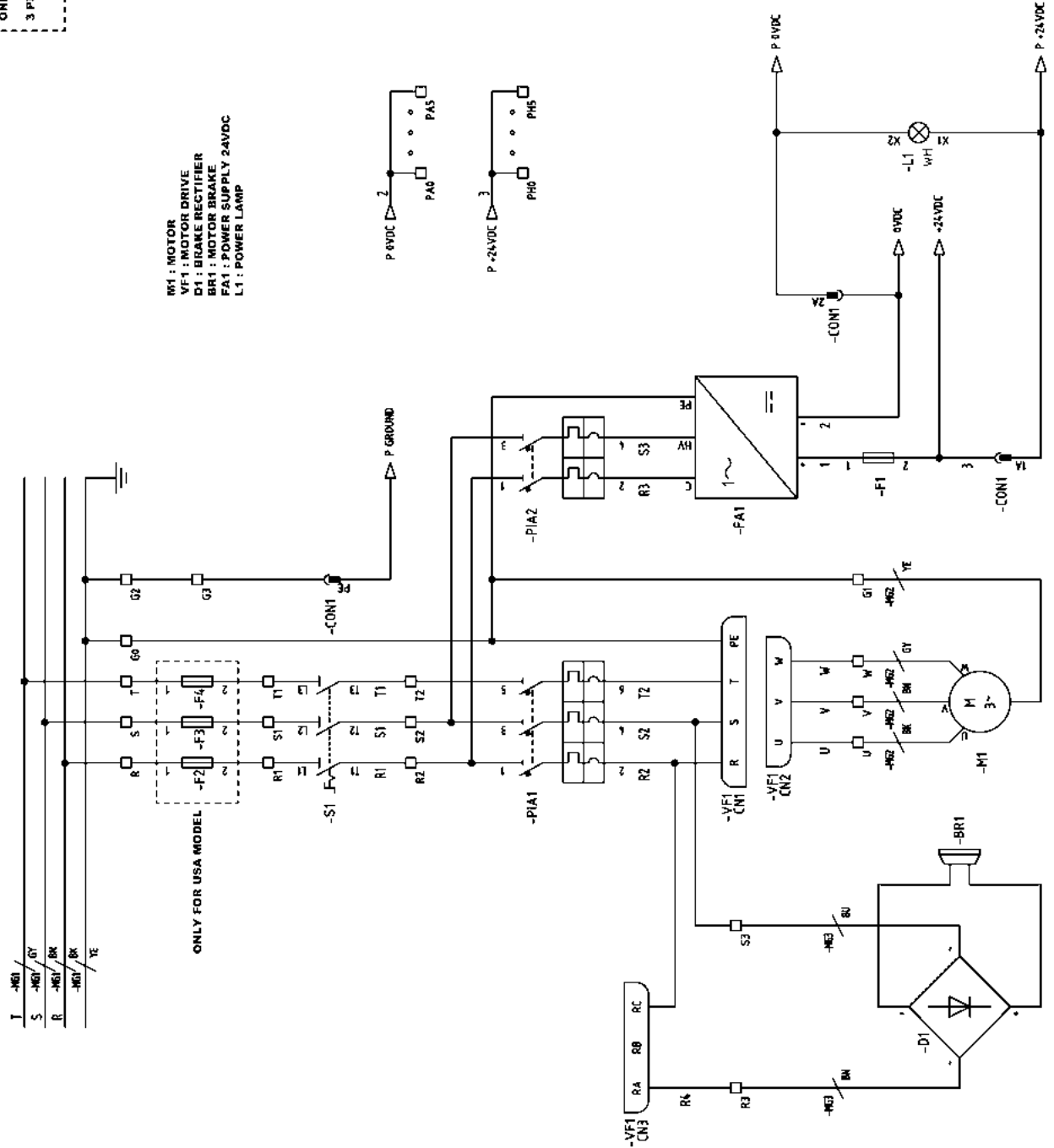


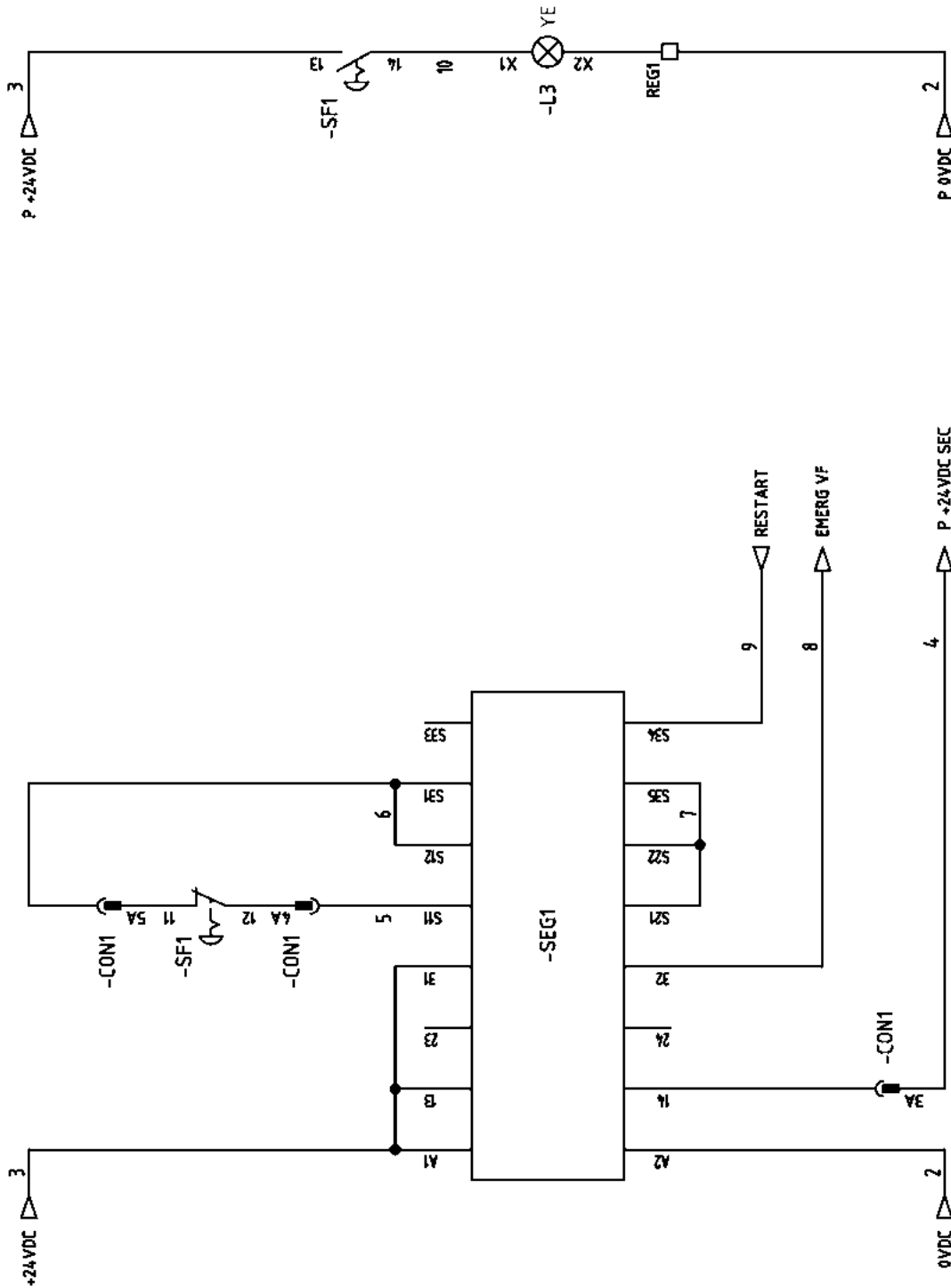
A5. Electric maps

ONLY FOR:
SINGLE PHASE MODEL

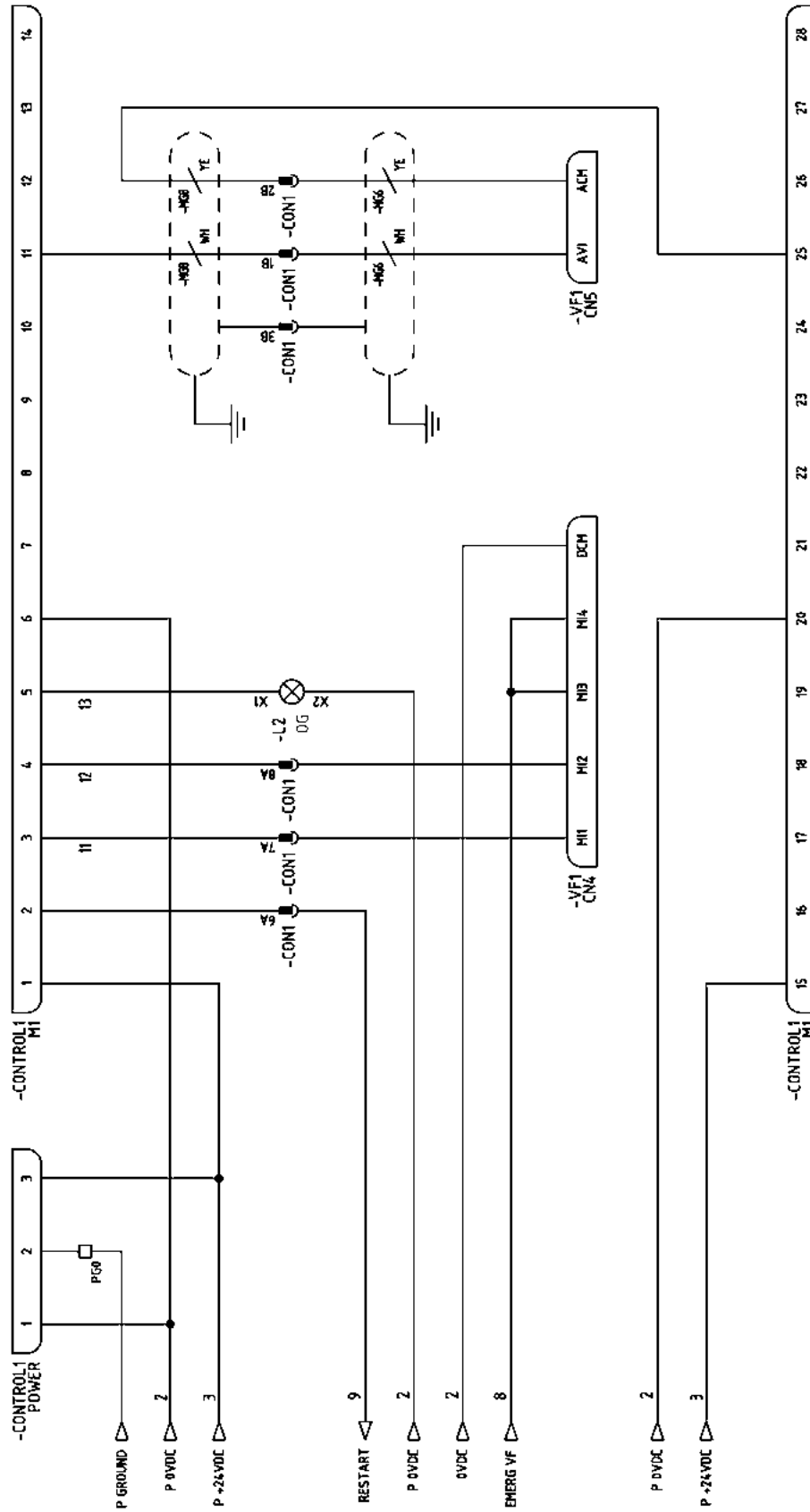


ONLY FOR:
3 PHASE MODEL

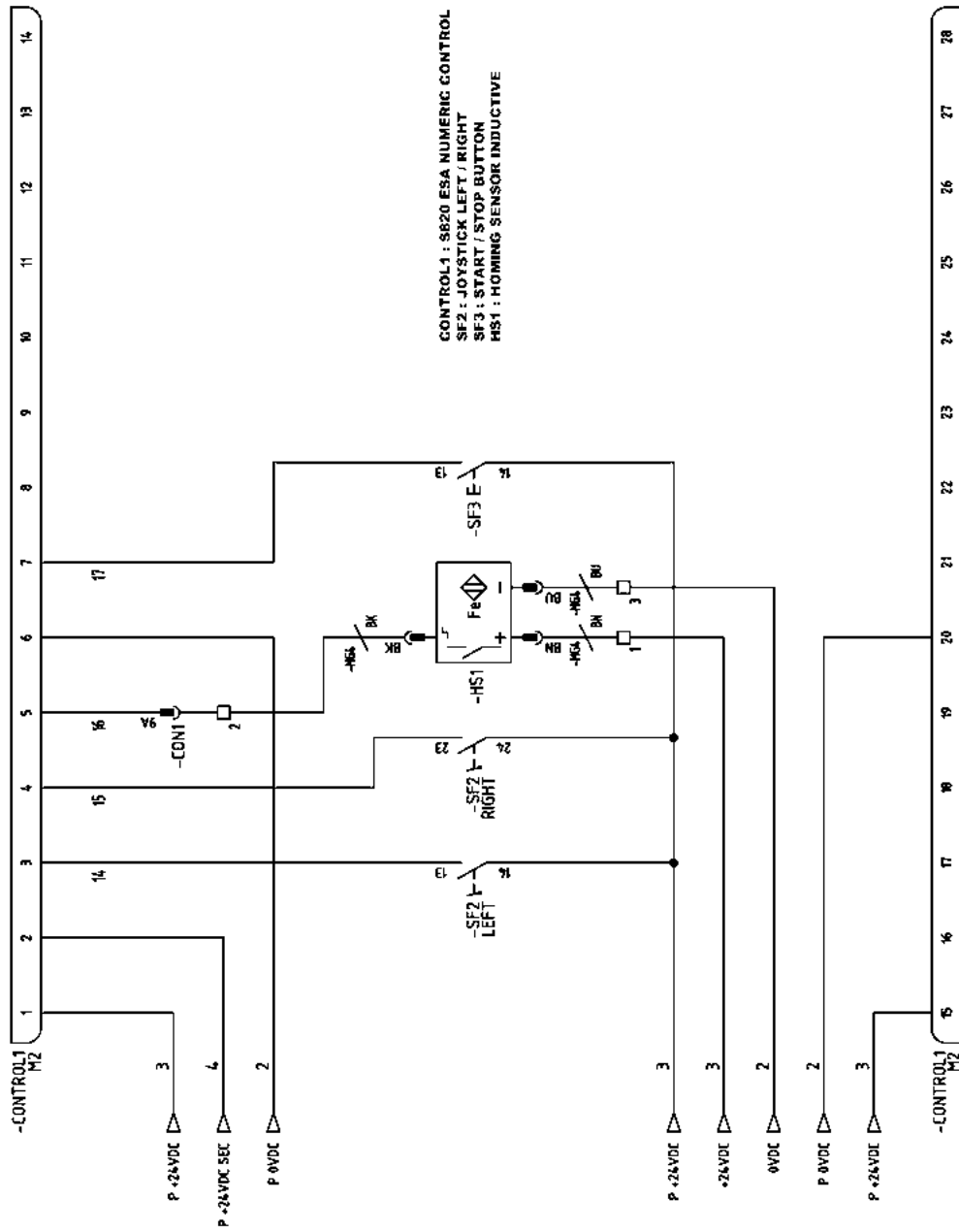


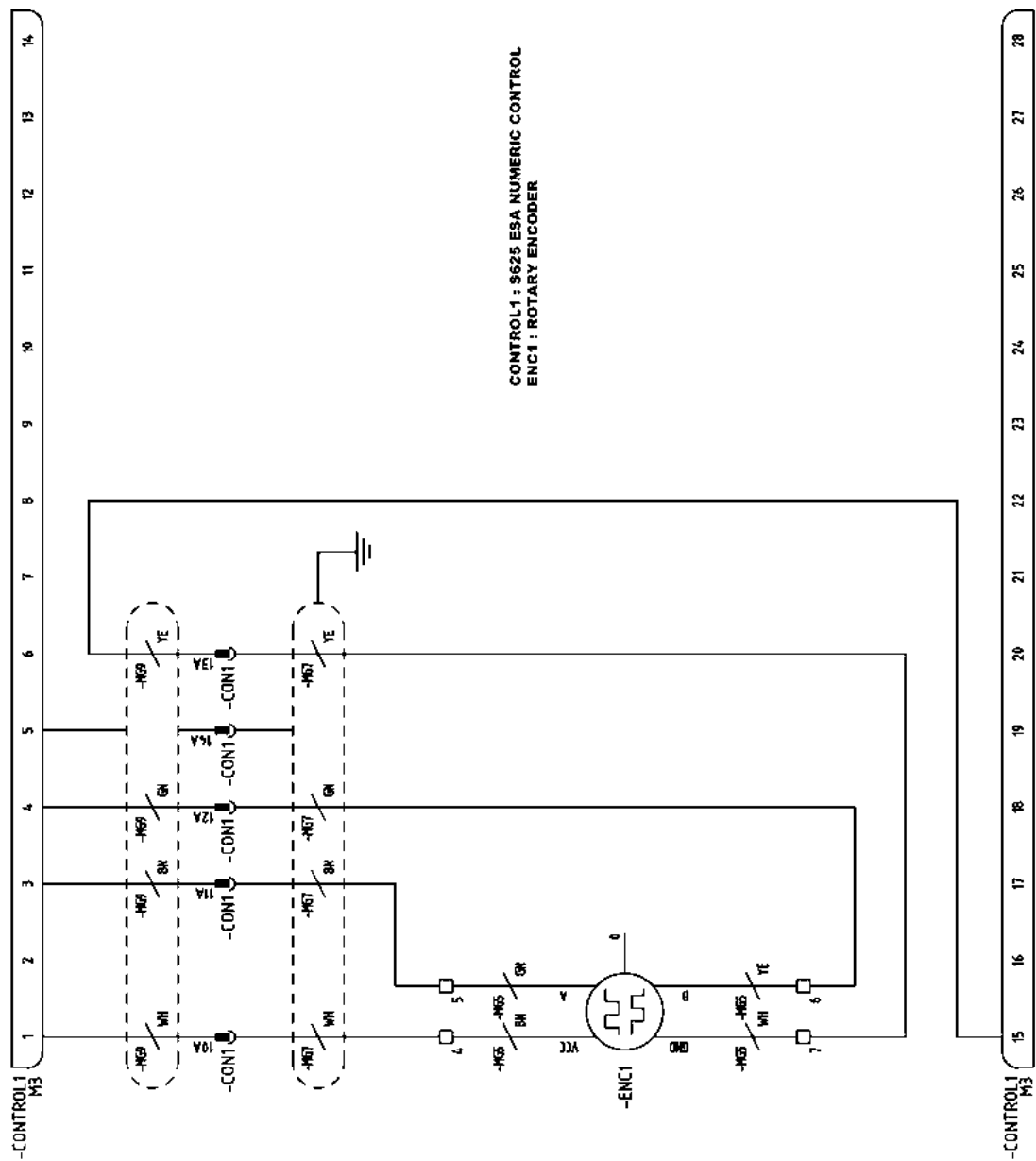


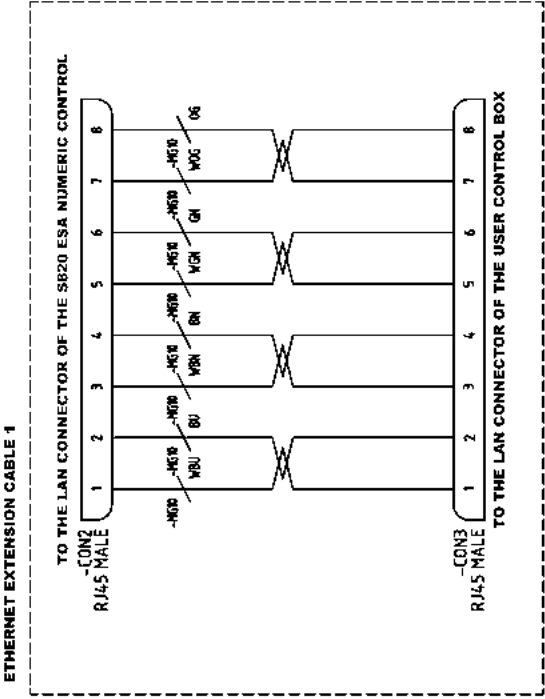
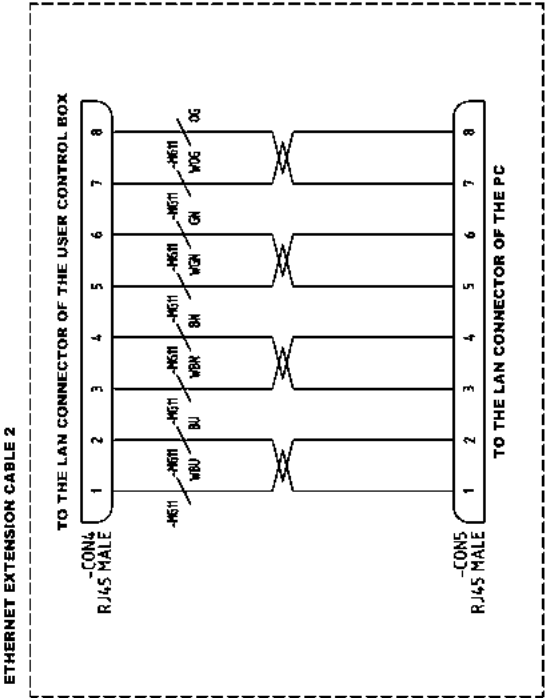
SEG1 : SAFETY MODULE
 SF1 : EMERGENCY STOP
 L3 : EMERGENCY STOP RING



CONTROL 1 : SB20 ESA NUMERIC CONTROL
 L2 : START / STOP LAMP
 VF1 : MOTOR DRIVE







OUR RANGE OF MACHINERY



IRON WORKERS



NON-MANDREL PIPE BENDERS



HORIZONTAL PRESS BRAKES



SECTION BENDING MACHINES



CNC PIPE BENDERS



LASER WELDING EQUIPMENTS



TWISTING/SCROLL BENDING
MACHINES



HYDRAULIC PRESS BRAKES



HYDRAULIC SHEAR MACHINES



GAS FORGES



IRON EMBOSSING MACHINES



END WROUGHT IRON MACHINES



BROACHING MACHINES



POWER HAMMERS



BLACKSMITH FORGING PRESS