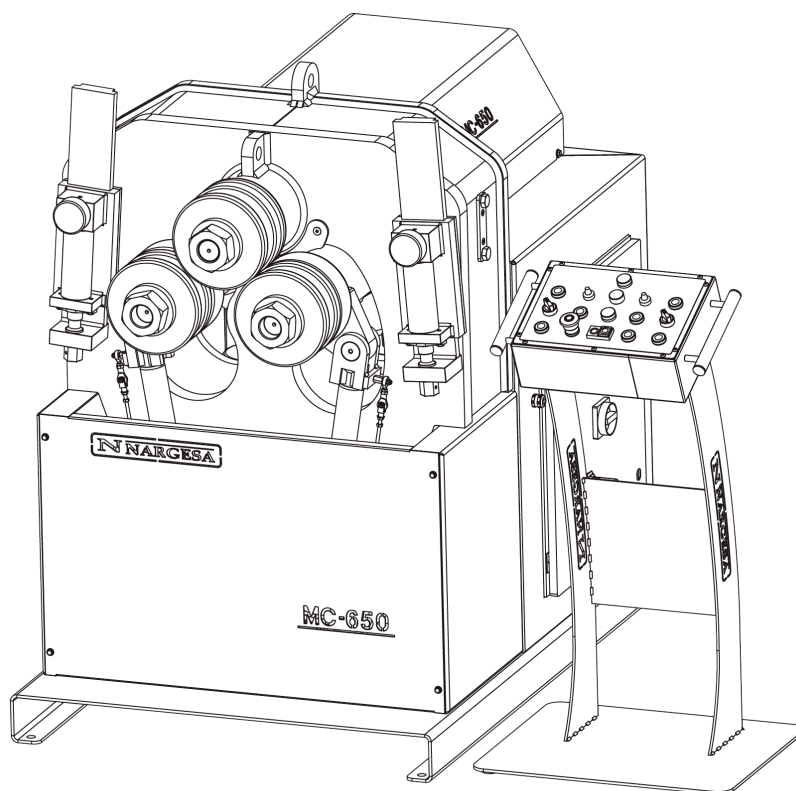


SECTION BENDING MACHINE

MC650



INSTRUCTIONS BOOK

PRADA NARGESA, S.L

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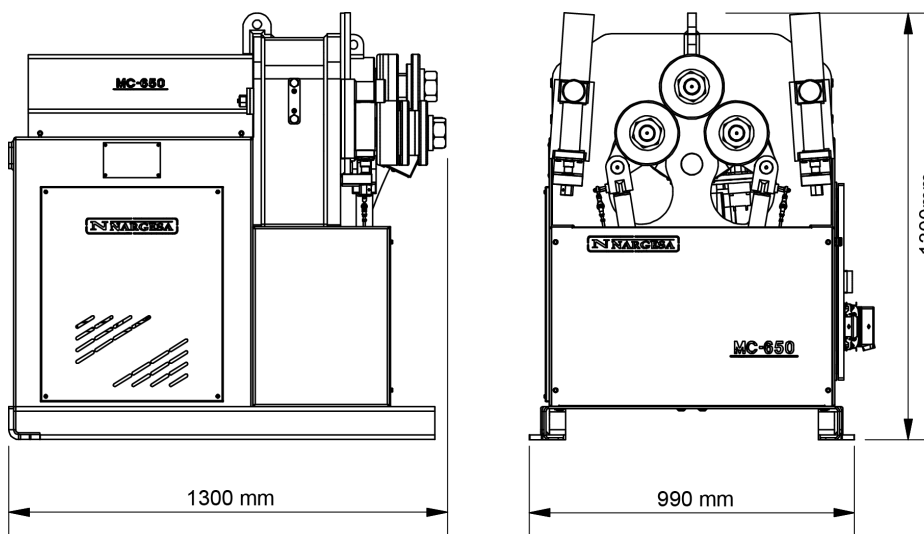
TECHNICAL ANNEX

1. MACHINE DETAILS

1.1. Machine identification details

Trademark	Nargesa
Type	Section bending machine
Model	MC650

1.2. Dimensions



Picture 1. External dimensions of the MC650 bending machine

1.3. Description of the machine

The MC650 bending machine is a machine specifically designed for bending profiles, the majority of which are metal, with different thicknesses and configurations, such as solid profiles, pipes, T-profiles, angles...

The bending machine offers a set of standard tools, rollers, to allow the bending of profiles in a range of shapes and sizes.

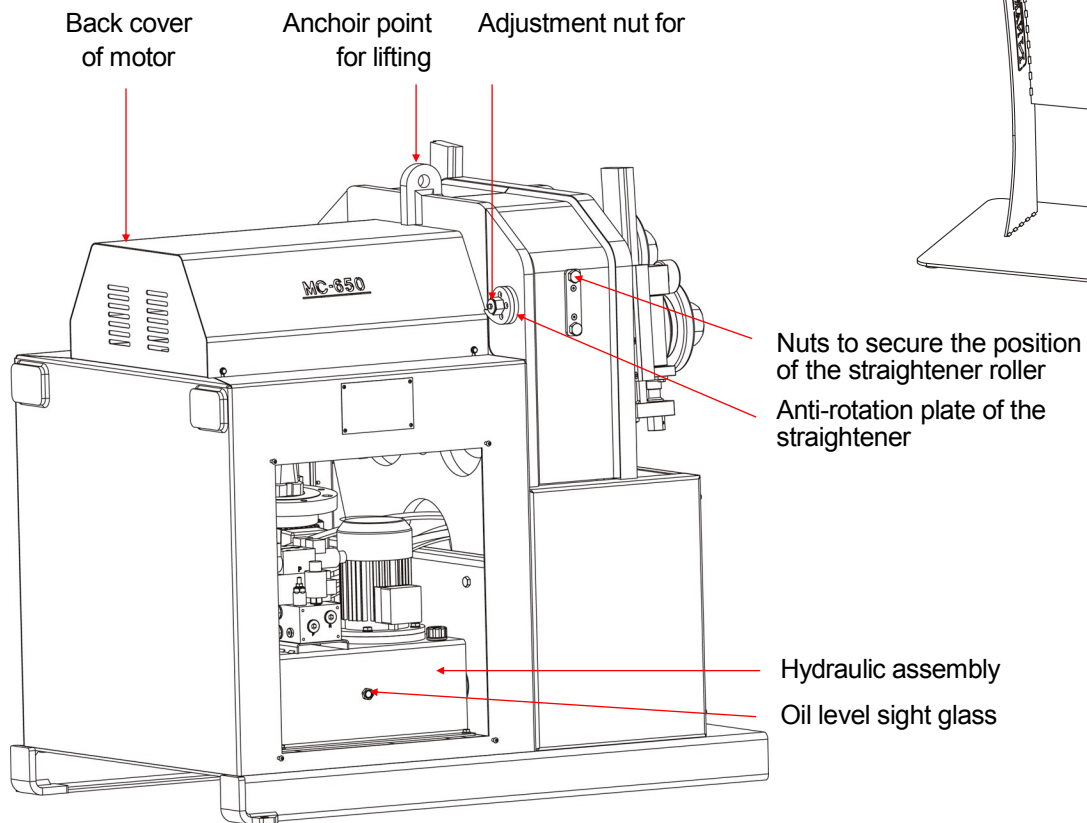
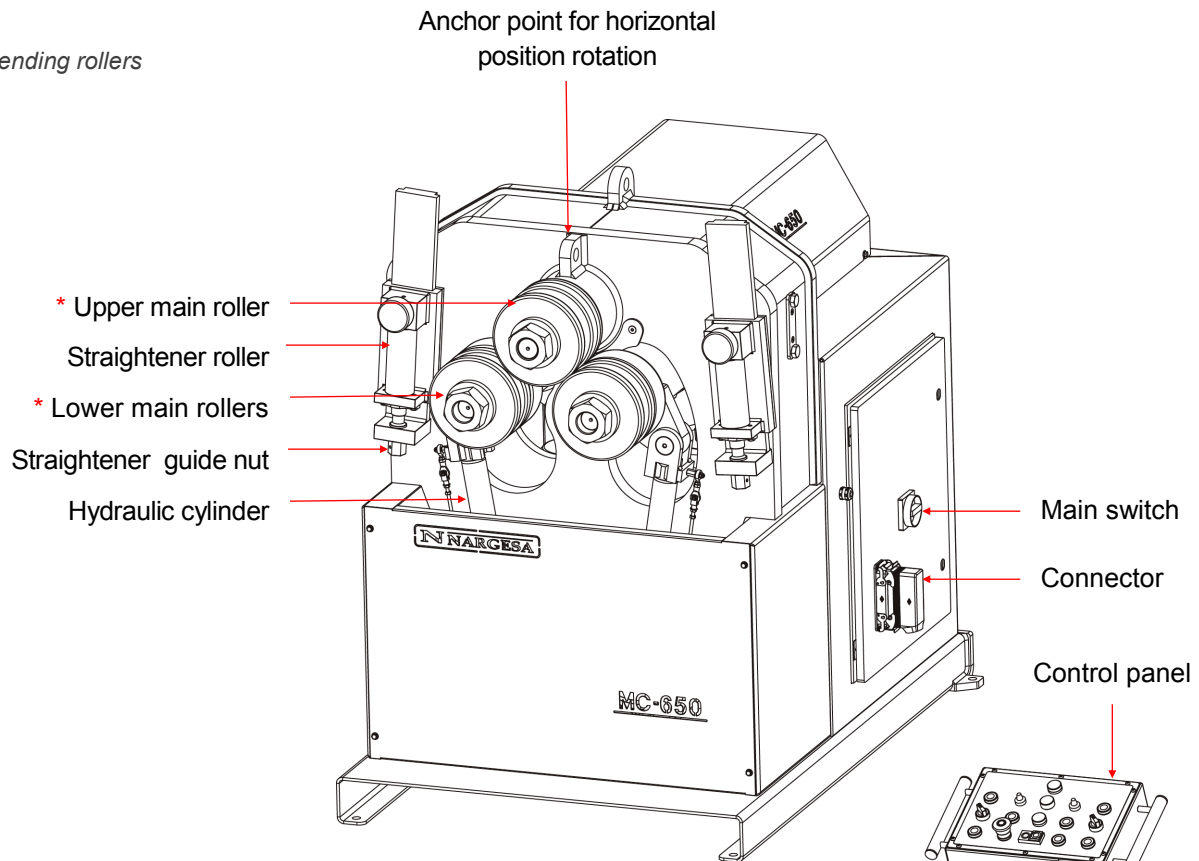
Apart from the standard rollers, the manufacturer also offers different types of additional rollers to produce other types of bending, according to the configuration of the material to be handled, as well as specific rollers for work with stainless steel or aluminium, manufactured with * SUSTARIN for jobs in stainless steel or aluminum avoiding the material to be damaged or scratched.

* Sustarin: Polyoxymethylene, high resistance and high rigid crystalline thermoplastic, low friction and excellent dimensional stability

**PRADA NARGESA S.L. is not liable for any damage that might occur due to misuse
or failure by users to comply with the safety standards.**

1.4. Machine part identification

* Bending rollers



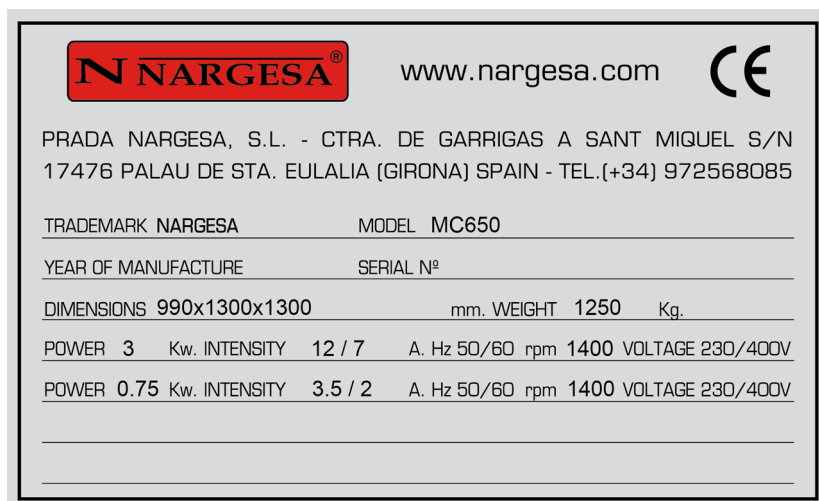


Figure 2. Nameplate

1.5. General characteristics

Motor power	3 Kw / 4 CV to 1400 r.p.m.
Intensity	12 / 7 A
Voltage supply	230/400 V 3 phased
Traction	3 rollers
Rollers speed	5 r.p.m.
Diameter of rollers	202 mm
Diameter of axes	Lower 65 mm / Higher 80 mm
Useful axes length	160 mm
Structure material	Sheet
Weight	1250 Kg
Dimensions	1300x990x1300 mm

Hydraulic unit features

Motor power	0.75 Kw/1 CV a 1400 r.p.m.
Intensity	3.5 / 2 A
Pump	1,5 l/min
Work pressure	200 bars

1.6. Description of the guards

The gear motor and all the gears that allow the operation of the machine are located under the main upper cover that protects the mechanisms.

Although the major mobile elements are protected by the upper cover, it is necessary to take special precautions during bending operations in order to avoid entrapment between the rollers and the piece being bent.

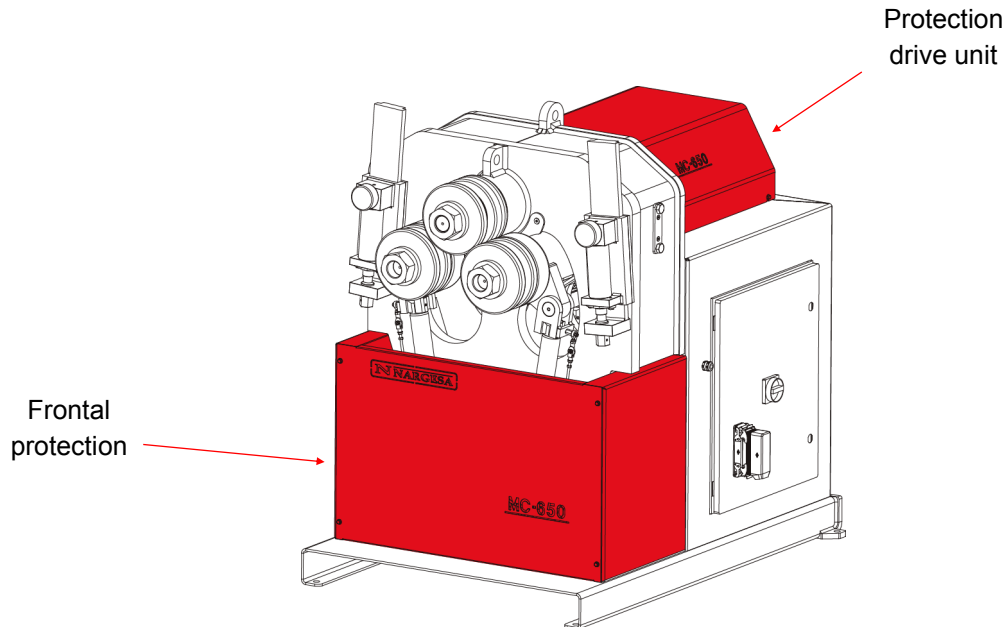


Figure 3. Mechanism protection guards

2. TRANSPORT AND STORAGE

2.1. Transport

There are two ways of carrying out the transportation of the machine:

- From the bottom, through the base of the machine, using a pallet jack or forklift as shown in the illustration. Never raise the machine more than 200 mm from the surface in order to prevent the risk of tipping
- From the top of the machine, from the anchor point designed for this purpose defined in figure 4, using a crane or forklift.

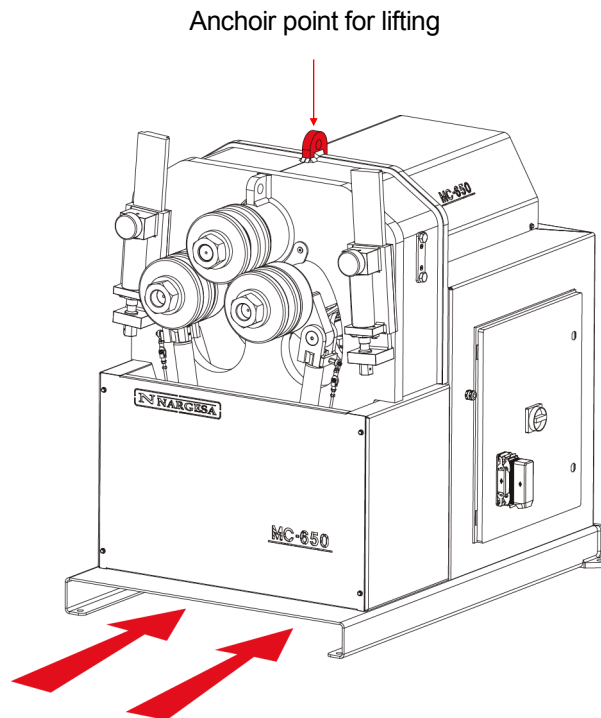


Figure 4. Transportation of the machine

2.2. Storage Conditions

The bending machine shouldn't be stored in a place that does not meet the following requirements:

- Humidity between 30% and 95%
- Temperature of -25 °C to 55 °C or 75 °C for periods not exceeding 24hrs
(remember that these temperatures are in storage conditions)
- Machines or heavy objects should not be stacked on top

3. MAINTENANCE

3.1. General maintenance

- To ensure correct operation and prolong service life, it is recommended to clean the piston rods whenever possible.
- It is advisable to keep the friction rule lubricated along which the upper roller support slides. It is also necessary to ensure a minimum lubrication of the inner walls along which the upper roller support slides.
- Regularly check the oil level in the hydraulic tank at the bottom of the machine. To obtain a correct reading of the oil level the lower rollers should be in their lower position.

CAUTION:

The "Emergency Stop" push button must be pressed and the machine brought to a stop in order to lubricate the machine".

In order to lubricate the moving parts of the machine that require lubrication, it's recommended to follow the next instructions:

- Clean the surface to be lubricated with a cotton cloth or a soft rag that does not release any threads. To remove the accumulated grease and any possible residues that have become stuck to it.
- After cleaning, reapply grease onto the surface with the help of a rag or a spatula.
- Spread the grease evenly without creating excesses or clumps.
- Once the machine is lubricated, using the mobile control that manages the height of the upper roller, raise this until it reaches its highest point.
- When the upper roller comes to a stop, reverse the direction of the piston to lower the roller down to its lowest point.
- Repeat the operation to ensure that the friction rule is lubricated.
- Repetir la operación para asegurar el engrase de las regla de fricción.
- Lubricate the machine regularly, according to use.

** It is recommended to use lithium grease for the rollers N.850 EP-2.*

To replace the hydraulic oil, the following is recommended:

- Check the oil level in the tank every 500 hours of use.
- The oil cap is located at the top of the tank. If it is necessary to add oil, fill to the level of the sight glass at the front of the tank.
- Change the hydraulic oil in the tank every 2000 hours of work or every 5 years.
- Remove the old oil in a tray and dispose of it at the nearest recycling point.
- Fill the tank with new hydraulic oil to the level of the sight glass located at the front. The capacity of the tank is approximately 13 litres.
- Return the hydraulic assembly to its location and secure it to the machine with the bolts.

** We recommend the use of CEPSA HIDRÁULICO HM 68 hydraulic oil.*

4. INSTALLATION AND START UP

4.1. Positioning the machine

Locate the machine properly in order to avoid moving it; otherwise, follow the guidelines described in the paragraph transport (no. 2). Must be placed on a flat, level surface to prevent it vibrating and moving during bending operations.

It is optional to fix the machine by the four bolts since it is provided with a lower base or stand with four perforations as it's shown in Figure 5.

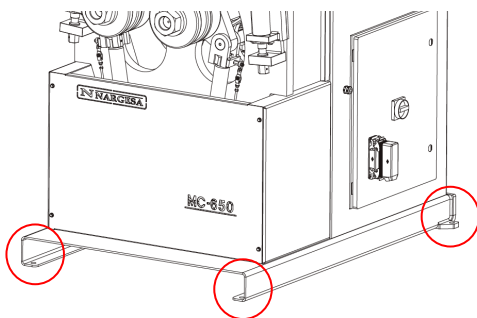


Figure 5. Anchor points of the machine

4.2. Dimensions and work area

The dimensions must be considered when the machine is being placed, the working area for the operator and the possible lengths of the parts to be worked.

The bending machine can be used by a single operator, who must be directly in the front of the machine to be able to handle the piece being bent with safety, and never on the side.

Prior to commencing the bending operation, with the machine shut down, the operator must adjust the bending rollers, adapting them to the material and the profile to be bent, as shown in paragraph 7, figure 13.

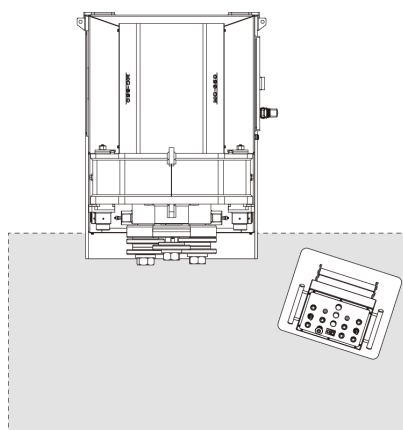


Figure 6. Operator's working area

4.3. External permissible conditions

It is advisable to work under the following atmospheric conditions:

- Room temperature between +5 °C and +40 °C without exceeding an average temperature of +35 °C within 24 hrs.
- Humidity between 30% and 90% without water condensation.

4.4 Instructions for connecting to the power supply

IMPORTANT: This machine must be connected to an electrical outlet with earthing contact.

The MC650 bending machine has a three-phase 230V/400V, 3 Kw motor to move the rollers and a three – phase 230V/400V, 0.75 Kw motor to govern the hydraulic piston, both prepared to connect to a 400V power supply. The machine must be connected through the the installed connector to a compatible power supply complying with the specified requirements.

If you wish to connect the machine to 230V three-phase, it is necessary to carry out some modification in the electric panel, which are:

- Change the main motor coil connection
- Change the hydraulic motor coil connection
- Adjustment of intensity range of motor keeper at the hydraulic.
- Change of motor keeper at the main engine.

Changing the motor connection:

When the power supply is 400 V three-phase, connect in Star form (as preinstalled at the factory).

If the power supply is 230 V three-phase, proceed to connect in Triangle form. As indicated in the illustration.

The connections are modified in the motor connection box, located inside the machine, changing the configuration of the plates according to the mains voltage.

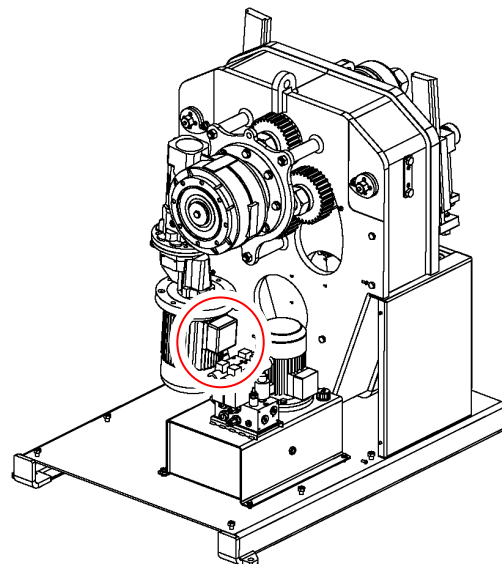
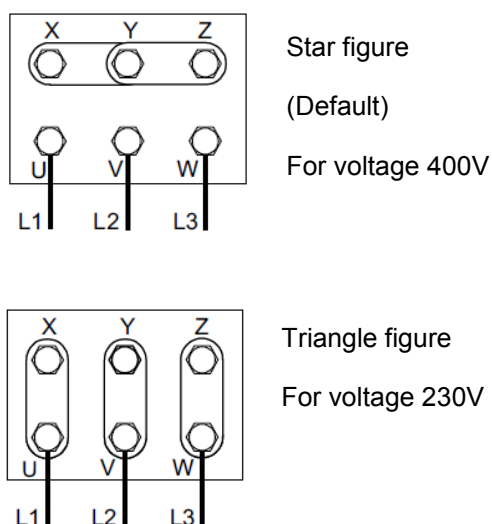


Figure 7. Change of engine connections

Before making any changes to the wiring of the motor bobbins or electrical panel, it is essential to check that the machine is not connected to any power source.

Changing the hydraulic motor connection:

The motor of the hydraulic system is located inside the cabinet, at the bottom of the machine.

The hydraulic assembly is inside the cabinet. The motor is secured to the tank and on its front is the connection box.

The same as the main motor, when the mains voltage is 400 V three-phase, proceed to connect in Star form (as preinstalled at the factory). If the power supply is 230 V three-phase, proceed to connect in triangular form. As indicated in the illustration.

It is necessary to change the configuration of the plates according to the voltage, as was done with the main motor.

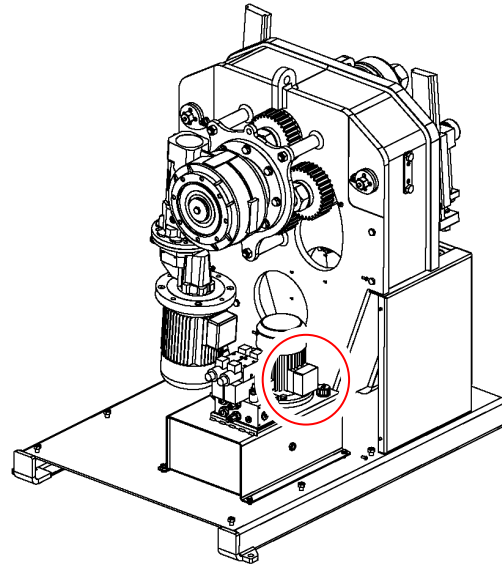
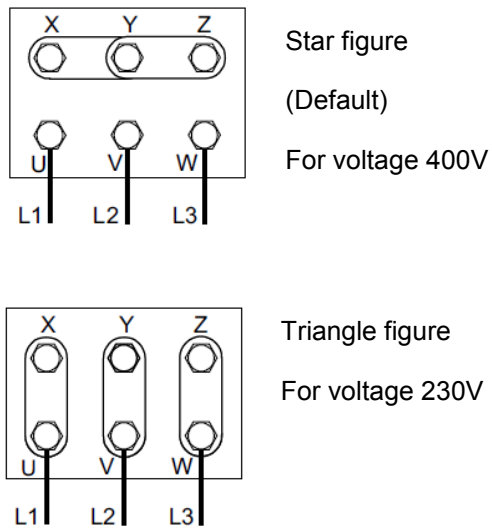


Figure 8. Changing the hydraulic engine connections

Adjust the range of intensities of the motor guard contactors:

Depending on the power voltage, the working intensity also varies, and it is therefore necessary to also modify the working range of the motor protection devices. The motor guard contactors are secured to the electrical panel as shown in section A3. *Electrical Box*

The motor guard contactor have a structure like the ones shown in the diagram below and allow a rapid adjustment through the regulator located at their front.

The right-hand contactor is responsible for protecting the main motor:

The regulator indication arrow must be around "5A" for 230V three-phase connection. In the case of a 400V three-phase connection, this must be around "2.6A".

The left-hand contactor is responsible for protecting the hydraulic motor:

The regulator indication arrow must be around "3.5A" for 230V three-phase connection. In the case of a 400V three-phase connection, this must be around "2A" .

**If the motor guard contactor cannot assume the intensity range required, this must be replaced with one with a greater range.*

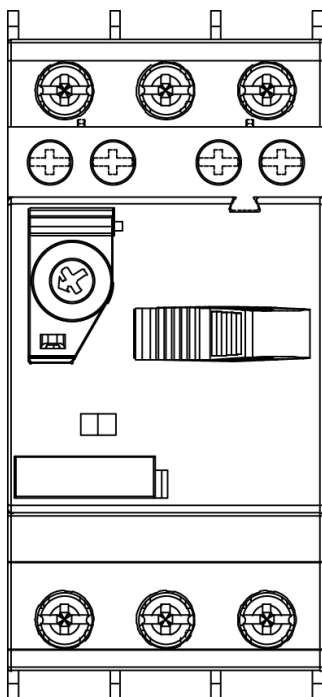


Figure 9. Intensity range adjustment

**We recommend contacting the Technical Service Department of NARGESA S.L.
if you wish to change the operation voltage of the machine in order to be guided and assisted
through the procedure.**

5. INSTRUCTIONS FOR USE

5.1. Bending principles

- The motor of the bending machine is controlled from the control panel.
- The radius of the curve is controlled by acting on the push buttons on the control panel, adjusting the height of the two lower rollers.
- There is an emergency button on the panel.
- You can insert the material into the machine from either side. Use the position buttons to adjust the height of the lower rollers and thus adjust admission of the material. By means of the limit switches, we can position the final point of the lower rollers, separately, enabling you to obtain great position repeatability.
- To adjust the alignment of the material, it is necessary to modify the distance between the straighteners and the work surface. This is done by acting on the nuts located at the back of the machine. These straighteners guide the material so as to minimise lateral deformation. (The rollers of the straightener must press gently against the section to be curved)
- In the event of not obtaining the proper results, the position of the guide rollers for deformation must be adjusted.
- The roller mounting nuts must be tightened by manual force only .

5.2. Assembly of the rollers

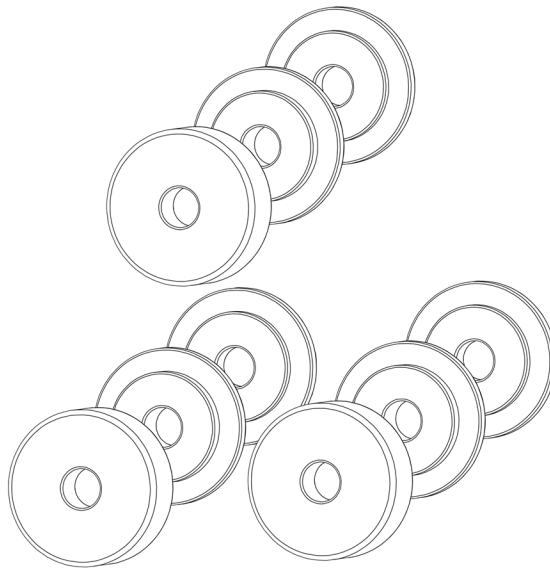
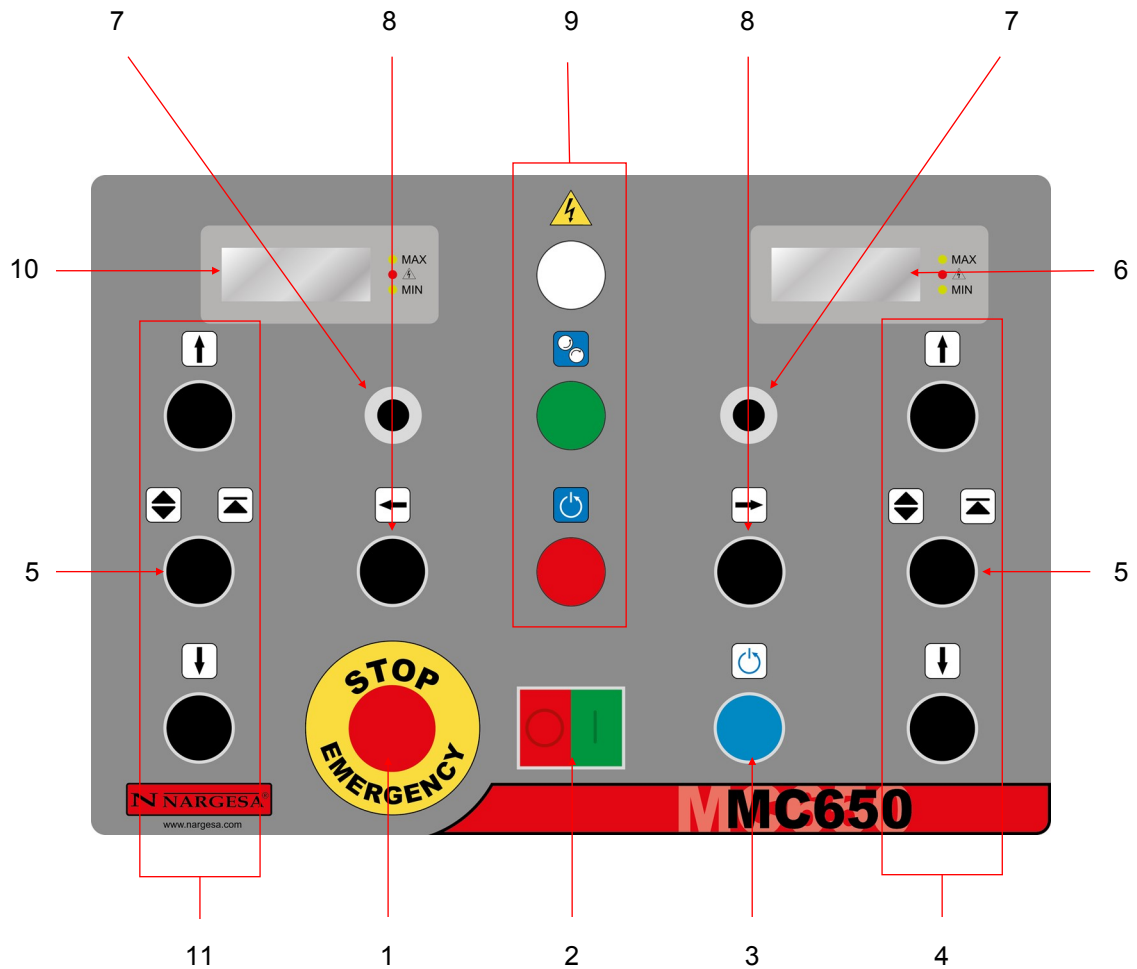


Figure 10. Position of the rollers in relation to the machine axes

5.3. Instruction manual

To control the operation of the MC650 hydraulic bending machine, there is a control desk from which the machine can be controlled in a simple and intuitive manner.



1. Emergency stop
2. Of/On
3. Reset
4. Right roller position controllers
5. Selector
6. Roller position indicator
7. Potentiometer
8. Direction of rotation of rollers
9. Pilot lights
10. Roller position indicator
11. Left roller position controller

Nevertheless, to know the function of each of the elements of the control desk, it is recommended to read the following sections:

5.3.1. Pilot lights

The control panel has three pilot lights, the function of each of which is explained below.

- **White pilot light:** Lights up when the main switch is in position 1 (ON), and informs that the bending machine is powered. It is off when the main switch is in 0 position (OFF).
- **Green pilot light:** Is only on when the machine is powered and the reset button has been pressed. In this case, the green pilot light comes on when the On button is pressed and it serves to indicate that the bending machine is on and ready to work. It is off when the stop button or the emergency button has been pressed, indicating that the machine is not in operation, even if it does have power.
- **Red pilot light:** Will only light up if the machine has mains power. In this case, the red pilot light will come on when the emergency stop button is pressed, and it is used to indicate that there has been an emergency stop. It will go off when the emergency stop lock has been released and the reset button has been pressed.

5.3.2. Main buttons

To start and stop the bending machine, as well as to reset it, and carry out an emergency stop, the control desk has the following buttons.

- **On / Off switch:** Integrating both switches in the same element, at the lower central part of the front of the control desk, The On / Off control has two buttons, One red with an "O" symbol (Off button), and the other green with the "I" symbol (On button). Therefore, they will turn on the machine if it is off and turn off the machine if it is on respectively.
- **Reset button:** This blue button, located on the right of the on / off control, is used to reset the machine. The machine must be reset whenever the machine is powered up and after an emergency stop.
- **Emergency stop button:** If there is a situation of danger during the use of the bending machine, before anyone is injured, it is necessary to press the emergency stop button. Once the dangerous situation has been dealt with, it is necessary to unlock the emergency stop button and then reset the machine to continue working with it.

5.3.3. Roller position controllers

To control each of the pistons producing upward and downward movement of the left and right hand rollers, the control desk has two different areas, one at each side of the front of the control desk. Obviously, as they carry out identical functions regarding the control of each of the pistons, we will explain the operation generically, without specifying which piston is being referred to, to make it more comprehensible.

- **Position indicator:** The position indicator is formed by a collection of 7-segment displays, informing both of the current position of the piston in question, and the maximum position limit value of the piston in question. Obviously, these two parameters, although they are displayed on the same indicator, cannot be shown simultaneously. To select the information you wish to see on the display, use the selector. In one position it will display the current position of the piston being controlled and in the other, the maximum position limit value of the piston in question. In addition, the position indicator has three LED lights. The upper (when on) indicates that the piston still has upward travel to reach the limit (configured by the user with a potentiometer). The central LED is a voltage indicator, and will always remain on while the machine has voltage. Finally, the lower LED (when on) indicates that the piston still has downward travel to reach the minimum limit (established electronically).
- **Selector:** As commented above, the selector is used to switch between the information displayed on the position indicator of the piston being controlled. In one of its two positions, it enables the viewing of the current position of the piston, while in the other it offers the maximum position limit of the piston in question.
- **Raise button:** Makes the piston in question move upwards while being pressed, until it reaches the maximum position limit.
- **Lower button:** Makes the piston in question move downwards while being pressed, until it reaches the minimum position limit.
- **Adjustment potentiometer for the maximum limit:** Used to adjust the maximum limit position to be reached by the piston.

5.3.4. Direction of rotation of rollers

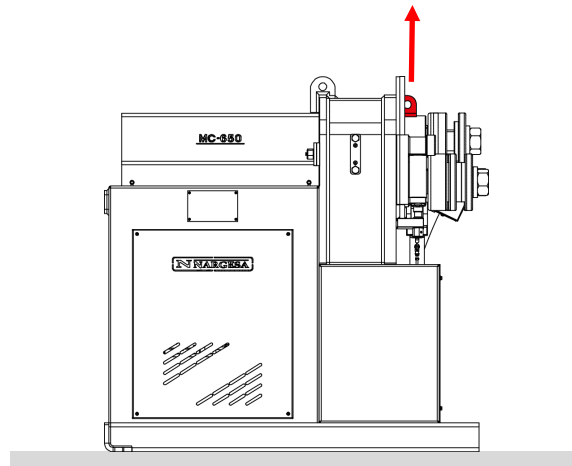
On the front of the control panel, in addition to the aforementioned controls, you can also find two buttons to control the direction of rotation of the rollers. To do this, just press and maintain pressed the button corresponding to the desired direction, left or right.

5.4. Working position

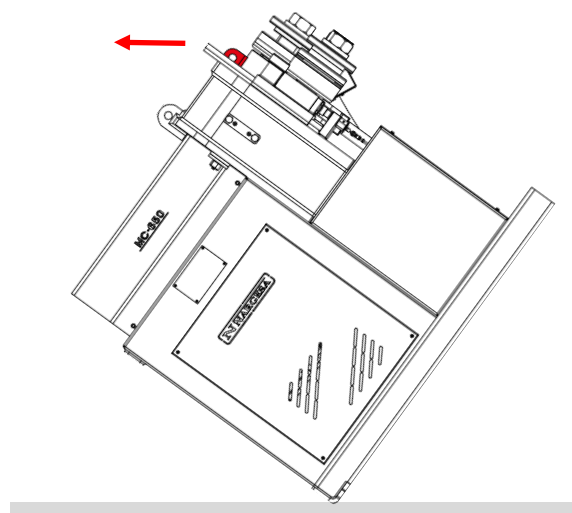
MC650 can work with the machine bed horizontal or vertical as needed, according to the work to be done.

To place the bending machine in horizontal position:

1. Secure the machine at the anchor point indicated in the illustration with a forklift.
2. Lift the machine carefully until it is not in contact with the ground



3. Lower it so that the part behind the machine bed is resting on the ground.
4. Using the forklift, carefully move the machine backwards until the machine bed is totally resting on the ground.



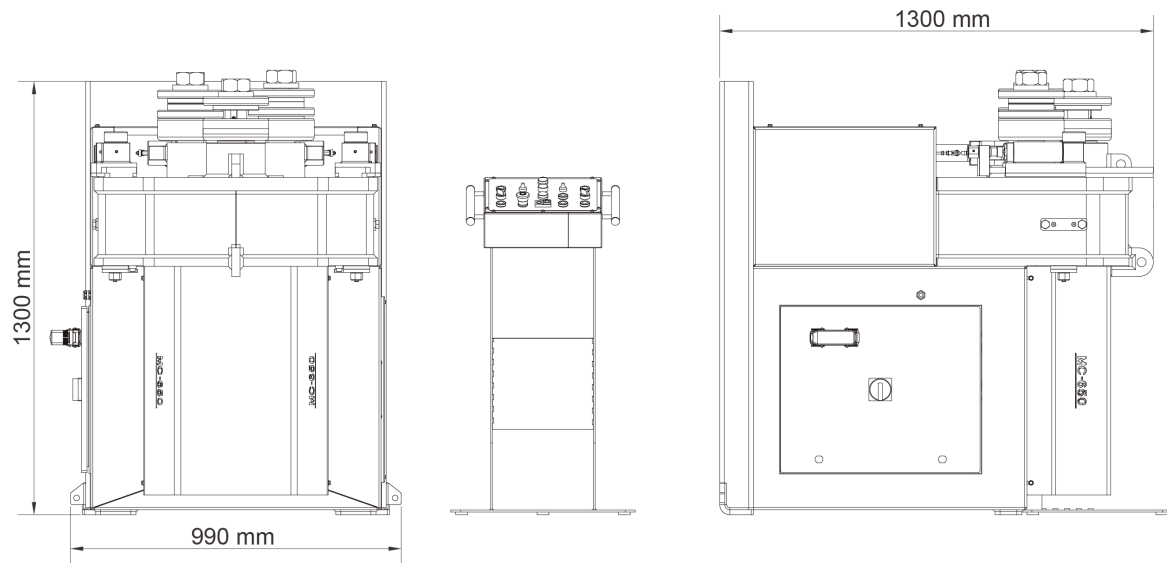


Figure 12. Machine dimensions with the base-plate in a horizontal position

WARNING:

To change the position of the machine from vertical to horizontal or vice versa, it must be switched off and with the emergency stop button pressed.

When carrying out the operation, make sure the control panel and power cables are not caught.

6. WARNINGS

The MC650 bending machine is designed and assembled to allow the operator to handle the machine and bend the necessary parts in a completely safe manner. Any change to the machine's structure or characteristics could modify the safety offered by the machine, breaching the EC certificate of conformity and could endanger the operator.

6.1. Residual hazards

Hazardous conditions may occur during the bending of materials that must be analysed and prevented.

Attention should be paid to the movements of the piece to be bent and the roller while the material is being introduced into the machine as well as during its shaping. Despite the fact that the forward speed of the rollers is slow, there is a risk of entrapment in the extremities between the rollers and the part.

Users of the machine are recommended to handle the part to be bent firmly with one hand and to move the hand according to the progress of the bending operation in order to maintain a safe distance from the rollers.

It is also necessary to prepare the work area to prevent other operators from injuring themselves during operation of the machine.

6.2. Counter-productive methods

Tools or rollers that are not supplied by the manufacturer of the machine, NARGESA S.L., and which have not been specially designed for the MC650 bending machine should never be used .

6.3. Other recommendations

- Use gloves for handling the machine and during the bending processes.
- Wear EC-approved goggles and protective boots
- Handle the material at the ends, and never around the area being bent
- Do not work without the protection devices that the machine is fitted with
- Ensure that there is a safe distance between the machine and the operator

7. ASSEMBLING OF THE ROLLERS

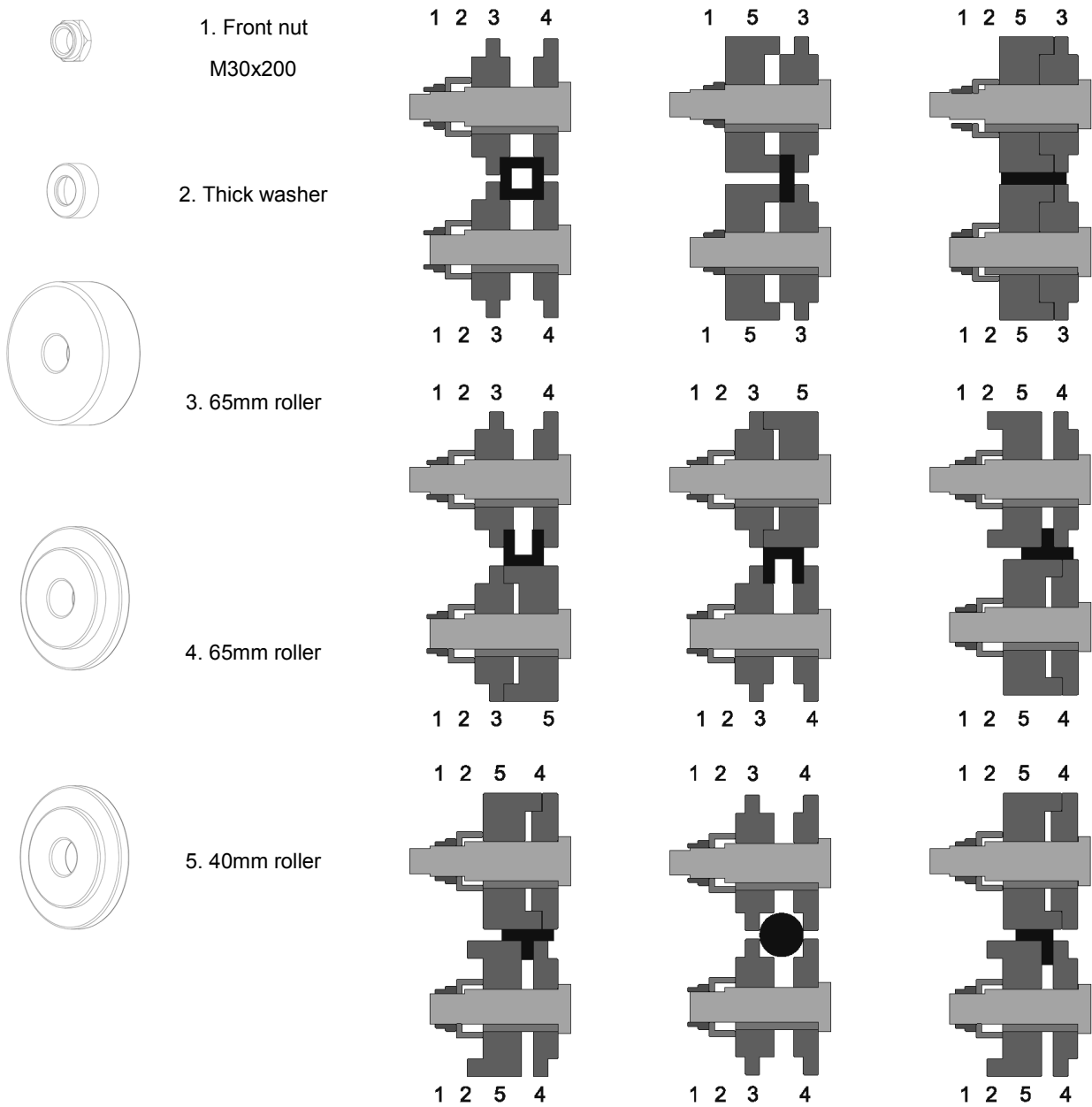






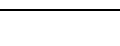
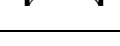





Figure 13. Nomenclature of the rollers and assembly

IMPORTANT NOTE:

The clamping nut of the rollers should never be tightened with a wrench and only by hand. If pipe rollers are being used, the nuts must be loose.

7.1. Bending capacity



	MC150B		MC200		MC400		MC200H		MC650	
Profile	Measures	Min. radius	Measures	Min. radius	Measures	Min. radius	Measures	Min. radius	Measures	Min. radius
	50 x 8	300	50 x 10	300	50 x 10	250	60 x 10	200	100 x 20 80 x 20	1250 450
	60 x 20	200	80 x 20	150	80 x 20	150	80 x 20	150	100 x 25 80 x 20	350 200
	25 x 25	200	30 x 30	200	30 x 30	150	30 x 30	150	45 x 45 25 x 25	300 200
	40 x 40 x 3	350	50 x 50 x 3	700	50 x 50 x 3	600	50 x 50 x 3	450	70 x 70 x 4 40 x 40 x 3	750 350
	40	200	40	200	40	150	40	200	80 * 70 40	500 400 150
	40	250	40	250	40	200	40	250	80 * 60 40	500 400 150
	50	200	60	300	60	225	60	225	120 * 100 * 80	600 600 400
	50	250	60	300	60	225	60	225	120 * 100 * 80	700 700 400
	40	500	40	420	40	200	40	300	70 40	600 250
	25	180	30	150	30	150	30	150	50 25	300 175
	40 x 2 * 50,8 x 3 * = 2" x 3 *	300 600 600	40 x 2 * 63,5 x 3 * = 2"1/2 x 3 *	250 500 500	40 x 2 * 63,5 x 3 * = 2"1/2 x 3 *	200 450 450	40 x 2 * 76,2 x 2 * = 3" x 2 *	200 500 500	88,9 x 4 * 101,6 x 3 * = 4" x 3 *	700 700 700

* Optional rollers

8. OPTIONAL ACCESSORIES

The bending machine has been designed for bending all kinds of profiles irrespective of their shape.

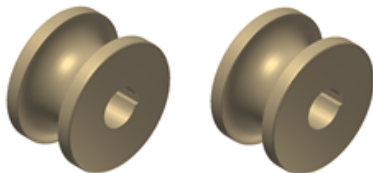
The standard rolls included as standard on the bending machine allow the configuration of all kinds of handrails, angles, square, round pipes, etc., thanks to their multiple configurations.

In order to facilitate the bending of certain more delicate materials that require a very good surface finish or to facilitate the bending of more common sections, NARGESA has designed a series of rollers that can be purchased at an official dealership or by directly by contacting NARGESA S.L.

Besides the accessories shown below, NARGESA also designs special rollers upon specific request for customers.

Set of 3 sets of treated steel rollers for steel round pipe or stainless steel.

For pipe					
in mm	Weight	ISO mm	Weight	Whitwort inches	Weight
(25+30)	45,30 Kg	(17,2+21,3)	49,50 Kg	$(1/2''+1''1/4'')$ = (12,700 + 31,751 mm)	47,25 Kg
(20+35)	44,80 Kg	(33,7+26,9)	43,75 Kg	$(1''+3/4'')$ = (25,401 + 19,051 mm)	48,00 Kg
40	45,30 Kg	42,4	44,40 Kg	$1''1/2$ = 38,101 mm	45,90 Kg
50	40,80 Kg	48,3	41,60 Kg	$2''$ = 50,802 mm	40,70 Kg
60	35,70 Kg	60,3	35,50 Kg	$2''1/2$ = 63,502 mm	33,70 Kg
70	64,70 Kg	76,1	60,20 Kg	$3''$ = 76,2 mm	60,20 Kg
80	57,40 Kg	88,9	50,35 Kg	$3''1/2$ = 88,9 mm	50,35 Kg
90	49,50 Kg	101,6	39,50 Kg	$4''$ = 101,6 mm	39,50 Kg
100	41,00 Kg				



$1''$ WHITWORT = 25,401mm

When pipe sizes are smaller, two sizes are included in the same roller.

Eg. (25+30) or $(1/2''+1''1/4'')$

It is advisable to clean up very well the rollers before using stainless

Steel to prevent from contaminating the pipe.

Set of 3 Sustarin rollers for stainless steel pipes, aluminium and delicate materials for thickness smaller than 2.5 mm.

For pipe					
in mm	Weight	ISO mm	Weight	Whitwort inches	Weight
(25+30)	9,35 Kg	(17,2+21,3)	10,10 Kg	$(1/2''+1''1/4'') = (12,700 + 31,751 \text{ mm})$	9,65 Kg
(20+35)	9,25 Kg	(33,7+26,9)	9,00 Kg	$(1''+3/4'') = (25,401 + 19,051 \text{ mm})$	9,80 Kg
40	9,30 Kg	42,4	9,15 Kg	$1''1/2 = 38,101 \text{ mm}$	9,40 Kg
50	8,50 Kg	48,3	8,65 Kg	$2'' = 50,802 \text{ mm}$	8,45 Kg
60	7,60 Kg	60,3	7,55 Kg	$2''1/2 = 63,502 \text{ mm}$	7,25 Kg
70	6,50 Kg	76,1	12,30 Kg	$3'' = 76,2 \text{ mm}$	12,30 Kg
80	11,80 Kg	88,9	10,50 Kg	$3''1/2 = 88,9 \text{ mm}$	10,50 Kg
90	10,35 Kg	101,6	8,50 Kg	$4'' = 101,6 \text{ mm}$	8,50 Kg
100	8,80 Kg				



1" WHITWORT = 25,401mm

When pipe sizes are smaller, two sizes are included in the same roller.

Eg. (25+30) or (1/2"+1"1/4")

Sustarin rollers do not spoil or contaminate the pipe.

For any other size or profile please ask the manufacturer.

Technical annex

MC650 Bending Machine

General parts diagram

Hydraulic group

Straightener roller

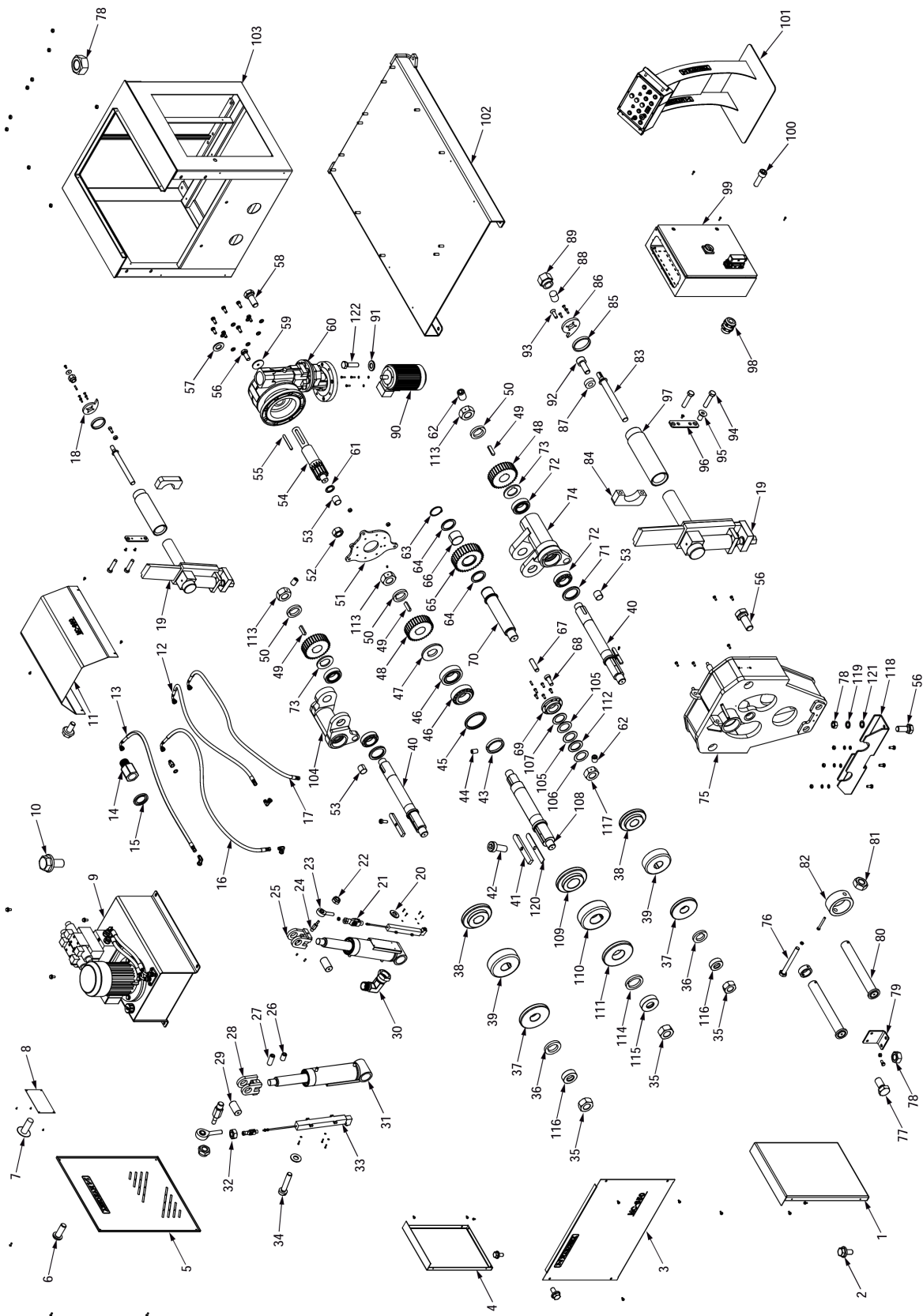
Hydraulic cylinder






















Electrical box





Electric maps




Hydraulic map






A1. General parts diagram






















ELEMENTO	DIBUJO	DESCRIPCION	REFERENCIA	CANTIDAD
1		TAPA LATERAL DERECHA MC650	120-08-08-00103	1
2		TORNILLO HEXAGONAL DIN 6921 M6X12	020-D6921-M6X12	16
3		TAPA FRONTAL MC650	120-08-08-00100	1
4		TAPA LATERAL IZQUIERDA MC650	120-08-08-00099	1
5		TAPA LATERAL MC650	120-08-08-00056	1
6		TORNILLO ALLEN ISO 7380 M6X16 8.8 PAVONADO	020-I7380-M6X16	4
7		REMACHE DE CLAVO DIN 7337 DE AL Ø3X8	020-D7337-3X8	4
8		PLACA CARACTERISTICAS MC650	122-PLC-0808-001	1
9		GRUPO HIDRAULICO MC650	130-08-08-00022	1
10		TORNILLO HEXAGONAL DIN 6921 M8X16	020-D6921-M8X16	4
11		CONJUNTO TAPA SUPERIOR MC650	130-08-08-00025	1
12		MANGUERA HIDRÁULICA 1/4 CODO 90° TG 1/4-TG 1/4 L=1250 MM	120-08-08-00144	1
13		MANGUERA HIDRÁULICA 1/4 CODO 90° TG 1/4-TG 1/4 L=1250 MM	120-08-08-00145	1
14		SUPLEMENTO MACHO HEMBRA 1/4	040-SMH-00002	2
15		JUNTA METAL GOMA 1/4"	040-JMG-00002	2
16		MANGUERA HIDRÁULICA 1/4 CODO 90° TG 1/4-TG 1/4 L=1450 MM	120-08-08-00147	1
17		MANGUERA HIDRÁULICA 1/4 CODO 90° TG 1/4-TG 1/4 L=1450 MM	120-08-08-00146	1
18		PLACA ANTIGIRO ENDEREZADOR IZQUIERDO	120-08-08-00157	1
19		CONJUNTO ENDEREZADOR MC650	130-08-08-00033	2
20		ARANDELA DIN 125-B M4	020-D125B-M4	8
21		CONJUNTO HORQUILLA ROTULA IGUS GERMKE-06	030-CHR-00001	2

ELEMENTO	DIBUJO	DESCRIPCION	REFERENCIA	CANTIDAD
22		TUERCA AUTOBLOCANTE DIN 985 M6	020-D985-M6	2
23		ROTULA IGUS D6-M6 KARM-06	030-ROT-00002	2
24		EJE ARRASTRE TRANSDUCTOR DE POSICION	120-08-08-00143	2
25		CONJUNTO HORQUILLA DERECHA CILINDRO MC650	130-08-08-00012	1
26		ESPARRAGO ALLEN DIN 913 M6X10	020-D913-M6X10	2
27		ESPARRAGO ALLEN DIN 913 M6X16	020-D913-M6X16	2
28		CONJUNTO HORQUILLA IZQUIERDA CILINDRO MC650	130-08-08-00015	1
29		BULON SUPERIOR CILINDRO MC650	120-08-08-00060	2
30		CODO 90° MACHO HEMBRA TL 1/4"	040-CMH-00003	4
31		CILINDRO HIDRAULICO MC650	130-08-08-00043	2
32		TUERCA DIN 934 M6	020-D934-M6	2
33		TRANSDUCTOR DE POSICION L=225MM	050-LVWH-00225	2
34		TORNILLO DIN 84 M4X20 CABEZA RANURADA	020-D84-M4X20	8
35		TUERCA FIJACION RODILLOS MC650	120-08-08-00034	3
36		GRUESO RODILLOS MC650	120-08-08-00064	2
37		RODILLO EXTERIOR MC650 D196	120-08-08-00051	2
38		RODILLO INTERMEDIO MC650 D196	120-08-08-00050	2
39		RODILLO PRINCIPAL MC650 D196	120-08-08-00049	2
40		EJE MC650	120-08-08-00215	2
41		CHAVETA RODILLOS MC650	120-08-08-00065	3
42		TORNILLO ALLEN DIN 6912 M6X16	020-D6912-M6X16	3

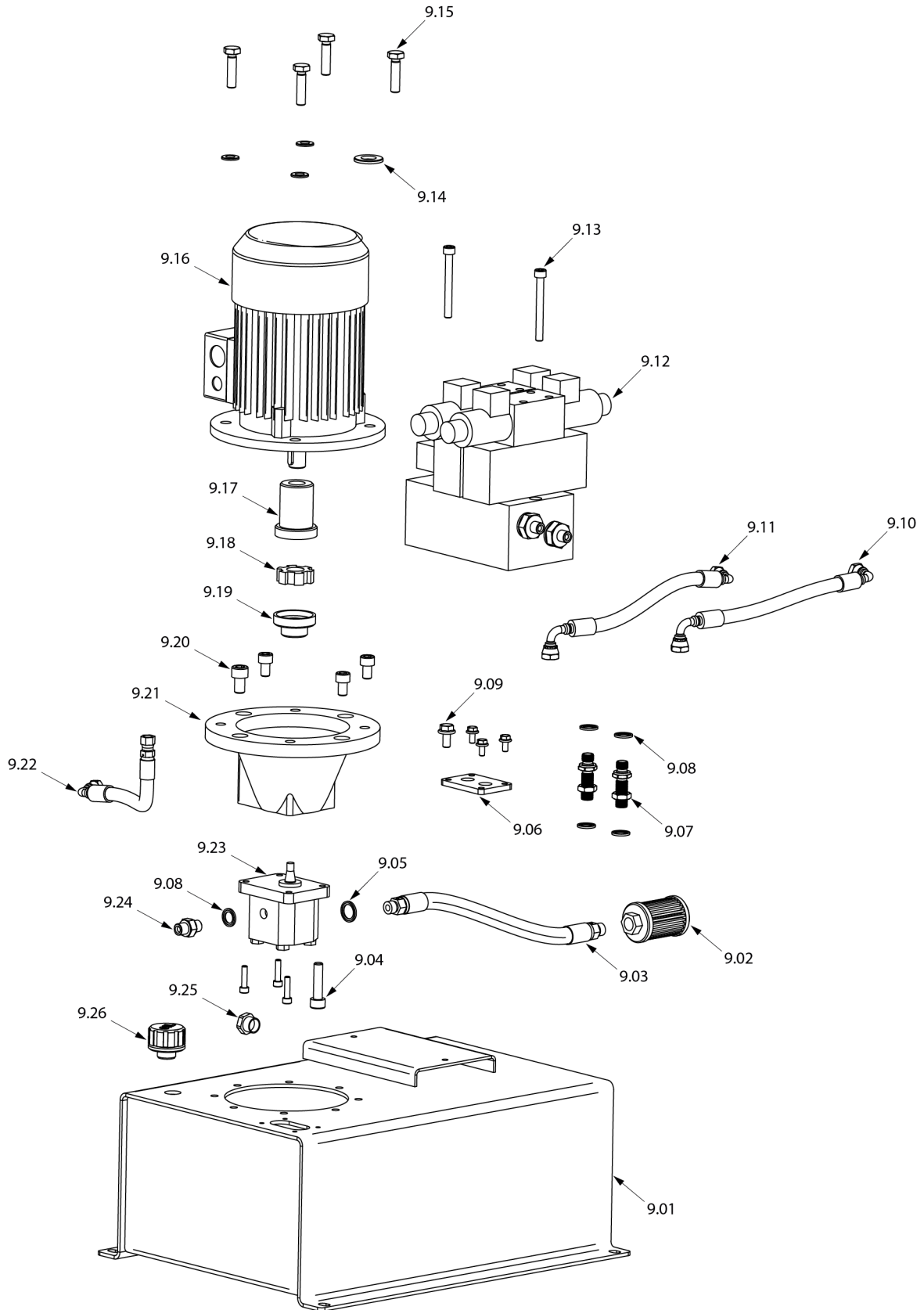
ELEMENTO	DIBUJO	DESCRIPCION	REFERENCIA	CANTIDAD
43		ARO RETEN EXTERIOR EJE CENTRAL MC650	120-08-08-00198	1
44		ESPARRAGO ALLEN DIN 913 M5X8	020-D913-M5X8	1
45		RETEN D120XD140X13	040-RET-00013	1
46		RODAMIENTO DE RODILLOS CONICOS 33216 80X140X46	030-CJ-00028	2
47		GRUESO TRASERO EJE CENTRAL MC650	120-08-08-00199	1
48		ENGRANAJE LATERAL Z33 M5 MC650	120-08-08-00033	3
49		CHAVETA DIN 6885 AB 18X11X70	030-D6885AB-00004	3
50		ARANDELA TRASERA FIJACION ENGRANAJE MC650	120-08-08-00187	3
51		PLACA SOPORTE REDUCTOR MC650	120-08-08-00113	1
52		TUERCA HEXAGONAL DIN 934 M18	020-D934-M18	3
53		DOLLA PARTIDA D40XD44X40	030-DP-00049	3
54		PIÑON Z14 M5 MC650	120-08-08-00195	1
55		CHAVETA PARALELA DIN 6885A 14X9X125	030-D6885A-00030	1
56		TORNILLO HEXAGONAL DIN 933 M12X30	020-D933-M12X30	11
57		ARANDELA DIN 125 1B M14	020-D125B-M14	8
58		TORNILLO HEXAGONAL DIN 933 M14X35	020-D933-M14X35	8
59		ARANDELA TRASERA REDUCTOR D75XD13X6	120-08-08-00111	1
60		REDUCTOR FRA100-130 PARA MOTOR 3 KW B14 i=108,64	050-RT-00004	1
61		ARANDELA GRUESO DELANTERO PIÑON MC650 D58XD40.1X4	120-08-08-00059	1
62		ESPARRAGO ALLEN DIN 914 M8X12	020-D914-M8X12	4
63		CIRCLIP EJE DIN 471 PARA D65	030-D471-00014	1

ELEMENTO	DIBUJO	DESCRIPCION	REFERENCIA	CANTIDAD
64		ARANDELA ENGRANAJE CENTRAL MC650 D85XD65.1X5	120-08-08-00038	2
65		ENGRANAJE INTERMEDIO Z33 M5 MC650	120-08-08-00188	1
66		DOLLA PARTIDA D65XD70X45	030-DP-00052	1
67		PASADOR CILINDRICO DIN 7979D D8X30	030-D7979D-8X30	2
68		TORNILLO ALLEN DIN 6912 M10X25	020-D6912-M10X25	6
69		TAPA TRASERA EJE INTERMEDIO MC650	120-08-08-00233	1
70		EJE INTERMEDIO MC650	120-08-08-00227	1
71		RETEN D80XD110X10	040-RET-00008	2
72		RODAMIENTO DE RODILLOS CONICOS 33113 - 65X110X34	030-CJ-00023	4
73		ARANDELA TRASERA MC650 D109.5XD65.1X8	120-08-08-00031	2
74		BUJE DERECHO MC650	130-08-08-00047	1
75		ESTRUCTURA SOLDADA MC650	130-08-08-00040	1
76		TORNILLO HEXAGONAL DIN 931 M10X90	020-D931-M10X90	2
77		TORNILLO HEXAGONAL DIN 933 M12X25	020-D933-M12X25	2
78		TUERCA DIN 934 M12	020-D934-M12	16
79		SOPORTE DELANTERO MC650	120-08-08-00107	1
80		EJE INFERIOR CILINDRO MC650	130-08-08-00018	2
81		TUERCA DIN 934 M10	020-D934-M10	2
82		CASQUILLO FIJACION EJE CILINDRO MC650	120-08-08-00098	2
83		CONJUNTO VARILLA ROSCADA MOV ENDEREZADOR MC650	130-08-08-00005	2
84		MEDIA LUNA FIJACION ENDEREZADOR MC650	120-08-08-00035	2

ELEMENTO	DIBUJO	DESCRIPCION	REFERENCIA	CANTIDAD
85		ARANDELA GRUESO ANTIGIRO ENDEREZADOR	120-08-08-00155	2
86		PLACA ANTIGIRO ENDEREZADOR DERECHO	120-08-08-00156	1
87		ARANDELA GRUESO D10XD22X8	120-08-08-00158	2
88		PASADOR ELASTICO DIN 1481 D6X30	030-D1481-6X30	2
89		HEXAGONO ENDEREZADOR MC650	120-08-08-00138	2
90		MOTOR ELECTRICO 3 Kw 1400 RPM 230/400V B14 IE2	050-ME-00017	1
91		ARANDELA DIN 125B M8	020-D125B-M8	4
92		TORNILLO ALLEN DIN 912 M10X25	020-D912-M10X25	2
93		TORNILLO ALLEN DIN 7991 M6X20	020-D7991-M6X20	8
94		TORNILLO HEXAGONAL DIN 931 M16X70 8.8 PAVONADO	020-D931-M16X70	4
95		TORNILLO ALLEN DIN 7991 M6X12	020-D7991-M6X12	4
96		PLACA SUFRIDERA FIJACION LATERAL	120-08-08-00089	2
97		CONJUNTO BUJE ENDEREZADOR MC650	130-08-08-00050	2
98		PRENSA ESTOPA M20X1,5	050-PE-00006	1
99		INSTALACION ELECTRICA MC650	050-KIE-0808-001	1
100		TORNILLO ALLEN DIN 912 M6X20	020-D912-M6X20	4
101		CONJUNTO FINAL PUPITRE MC650	130-08-08-00049	1
102		CONJUNTO ESTRUCTURA INFERIOR MC650	130-08-08-00045	1
103		CONJUNTO ESTRUCTURA TRASERA MC650	130-08-08-00044	1
104		BUJE IZQUIERDO MC650	130-08-08-00046	1
105		GRUESO BRONCE D97XD85,1X3	120-08-08-00240	2

ELEMENTO	DIBUJO	DESCRIPCION	REFERENCIA	CANTIDAD
106		GRUESO BRONCE D140X65,1X2,5	120-08-08-00238	1
107		GRUESO BRONCE D94XD65,1X4	120-08-08-00239	1
108		EJE CENTRAL MC650	120-08-08-00214	1
109		RODILLO INTERMEDIO EJE CENTRAL MC650	120-08-08-00176	1
110		RODILLO PRINCIPAL EJE CENTRAL MC650	120-08-08-00175	1
111		RODILLO EXTERIOR EJE CENTRAL MC650	120-08-08-00177	1
112		ARANDELA DELANTERA EJE CENTRAL D140X65,1X6	120-08-08-00237	1
113		TUERCA FIJACION EJES MC650	120-08-08-00186	3
114		ARANDELA DELANTERA EJE CENTRAL	120-08-08-00197	1
115		CASQUILLO AJUSTE RODILLOS CENTRAL	120-08-08-00200	1
116		CASQUILLO AJUSTE RODILLOS	120-08-08-00161	2
117		TUERCA FIJACION EJE BUJES MC650	120-08-08-00228	1
118		SOPORTE DELANTERO INFERIOR CILINDROS MC650	120-08-08-00245	1
119		ARANDELA GLOWER DIN 127 M12	020-D127-M12	4
120		GRUESO INFERIOR CHAVETA RODILLOS CENTRALES MC650	120-08-08-00246	1
121		ARANDELA DIN 125B M12	020-D125B-M12	4
122		TORNILLO HEXAGONAL DIN 933 M8X25	020-D933-M8X25	4

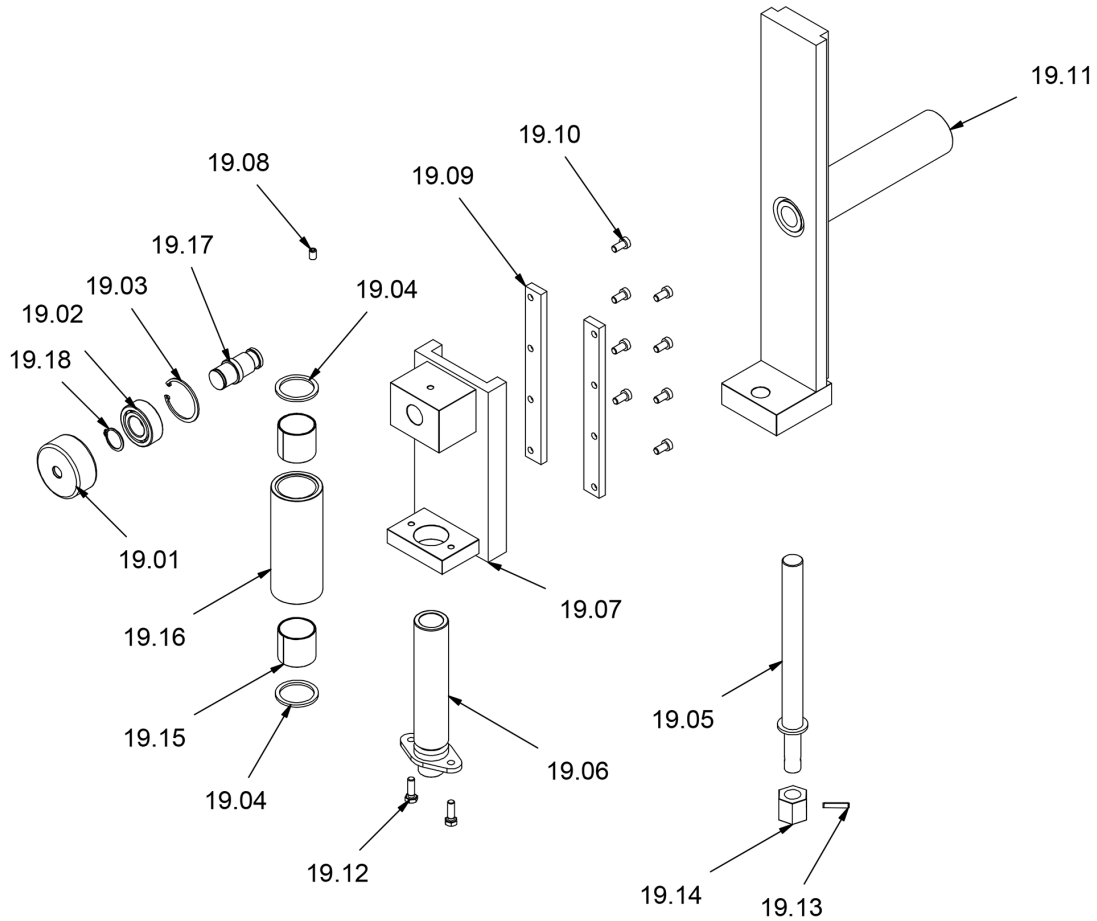
A2. Hydraulic group



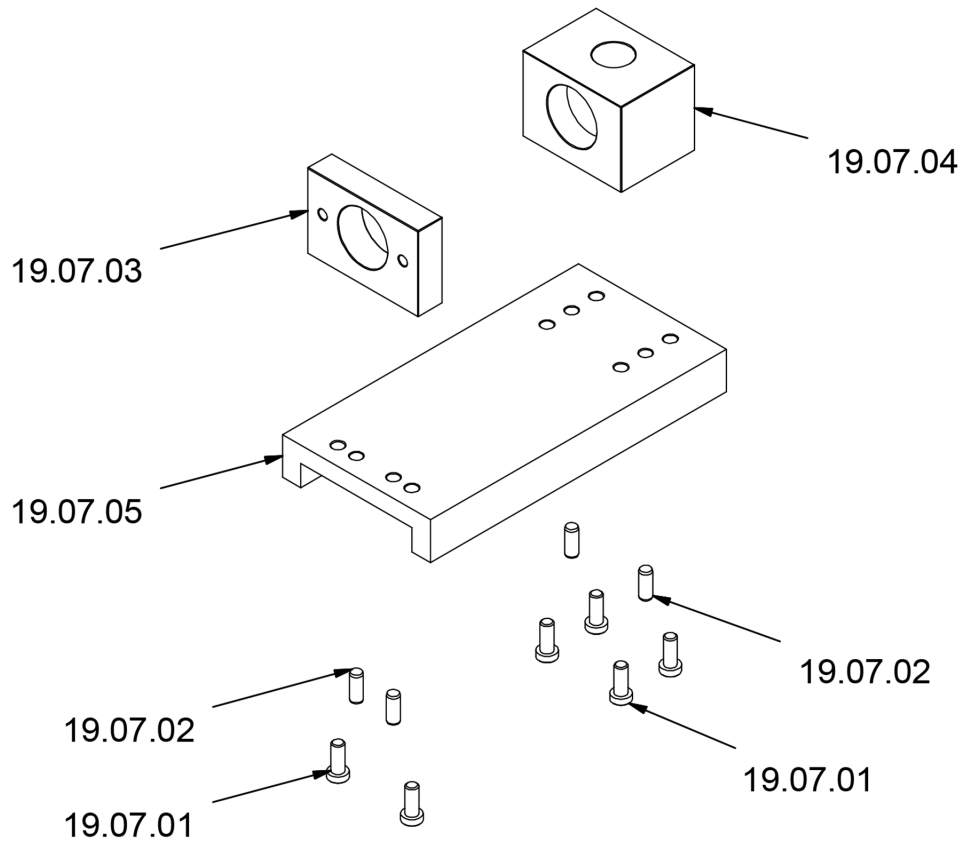
Nº ORDEN	DIBUJO	DESCRIPCION	Nº PLANO	CANTIDAD
9.01		DEPOSITO ACEITE MC650	130-05-04-00140	1
9.02		FILTRO 3/8" LARGO	040-FL-00005	1
9.03		MANGUERA HIDRAULICA 3/8" MACHO 3/8"-MACHO 3/8" L= 230 mm	120-08-08-00148	1
9.04		TORNILLO ALLEN DIN 912 M6X25	020-D912-M6X25	4
9.05		JUNTA METAL GOMA 3/8"	040-JMG-00004	1
9.06		PLACA PORTA PASATABIQUES MC650	120-08-08-00106	1
9.07		PASATABIQUE 1/4"	040-PST-00003	2
9.08		JUNTA METAL GOMA 1/4"	040-JMG-00002	5
9.09		TORNILLO HEXAGONAL EMBRIDADO DIN 6921 M6X12	020-D6921-M6X12	4
9.10		MANGUERA HIDRAULICA 1/4" CODO 90° TG 1/4" - CODO 90° TG 1/4" GIRADA 90° L= 350 mm	120-08-08-00149	1
9.11		MANGUERA HIDRAULICA 1/4" CODO 90° TG 1/4" - CODO 90° TG 1/4" GIRADA 90° L= 305 mm	120-08-08-00150	1
9.12		BLOQUE HIDRAULICO CILINDROS MC650	040-BL-00010	1
9.13		TORNILLO ALLEN DIN 912 M8X75	020-D912-M8X75	2
9.14		ARANDELA BISELADA DIN 125B M10	020-D125B-M10	4
9.15		TORNILLO HEXAGONAL DIN 933 M10X40	020-D933-M10X40	4
9.16		MOTOR ELECTRICO 0.75 Kw 1400 rpm BRIDA B5	050-ME-00007	1
9.17		ACOPLAMIENTO LADO MOTOR 0.75 Kw BOMBA LO	040-AE-00011	1

Nº ORDEN	DIBUJO	DESCRIPCION	Nº PLANO	CANTIDAD
9.18		ESTRELLA ACOPLAMIENTO 0.75 Kw BOMBA LO	040-AE-00013	1
9.19		ACOPLAMIENTO LADO BOMBA LO	040-AE-00012	1
9.20		TORNILLO ALLEN DIN 912 M10X16	020-D912-M10X16	4
9.21		CAMPANA ACOPLAMIENTO BOMBA LO MOTOR 0.75/1 CV	040-CA-00003	1
9.22		MANGUERA FLEXIBLE 1/4" CODO 90° TG 1/4" - TG 1/4" L=260mm	120-08-08-00151	1
9.23		BOMBA HIDRAULICA ALUMINIO DE 1,5 L	040-BH-00004	1
9.24		RACOR MACHO MACHO 1/4"	040-RMM-00002	1
9.25		NIVEL DE ACEITE 3/8"	040-NA-00001	1
9.26		TAPON LLENADO 1/2" DOBLE RESPIRADERO Y FILTRO	040-TLL-00003	1

A3. Straightener roller

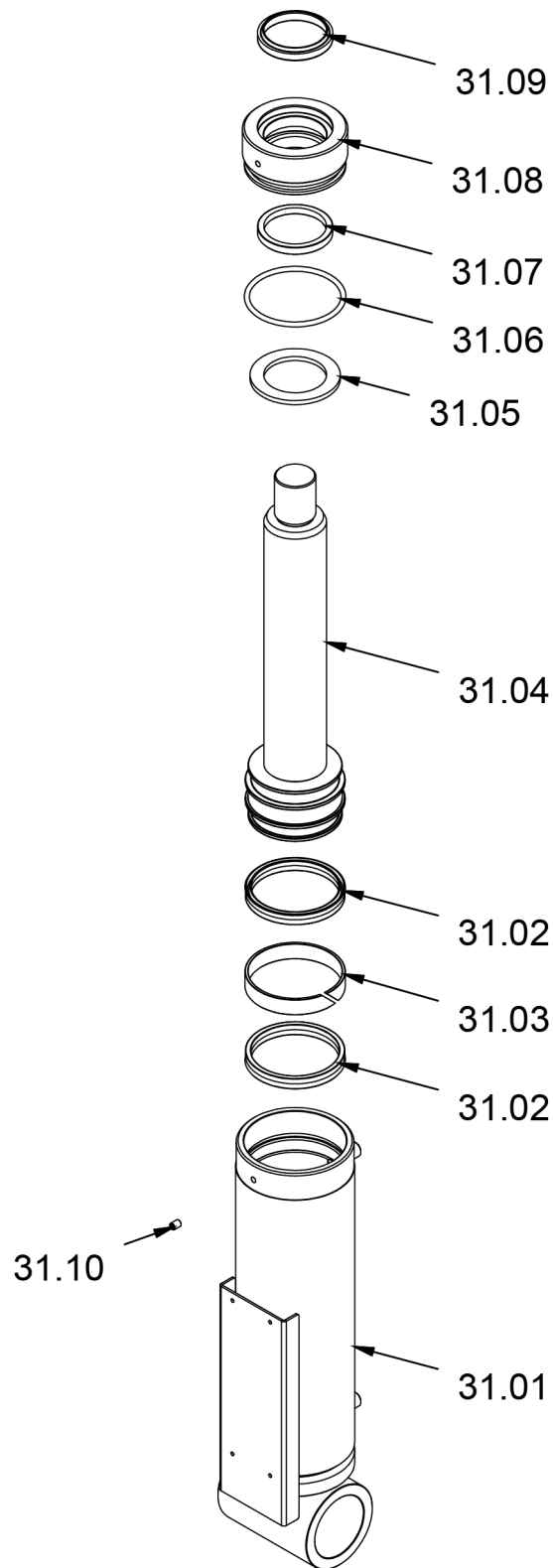


19.01	120-08-08-00140		RODILLO AJUSTE ANGULO ENDEREZADOR MC 650	1
19.02	030-CJ-00027		COJINETE 4205 - D25xD52x18	1
19.03	030-D472-00016		CIRCLIP AGUJERO DIN 472 D52X2	1
19.04	120-08-08-00123		ARANDELA BRONCE ENDEREZADOR MC 650	2
19.05	130-08-08-00013		CONJUNTO VARILLA ROSCADA ENDEREZADOR MC 650	1
19.06	130-08-08-00008	130-08-08-00008	CONJUNTO EJE ENDEREZADOR MC 650	1
19.07	130-08-08-00055	130-08-08-00055	CONJUNTO SOPORTE RULINA ENDEREZADOR MC 650	1
19.08	020-D913-M8X12		ESPARRAGO ALLEN DIN 913 M8X12	1
19.09	120-08-08-00121		PASAMANO INFERIOR ENDEREZADOR MC 650	2
19.10	020-D6912-M8X16		TORNILLO ALLEN CABEZA REDUCIDA DIN 6912 M8x16	8
19.11	130-08-08-00034	130-08-08-00034	CONJUNTO GUIA ENDEREZADOR MC 650	1
19.12	020-D933-M8X25		TORNILLO HEXAGONAL DIN 933 M8X25	2
19.13	030-D1481-6X30		Pasador Elastico DIN 1481 D6x30	1
19.14	120-08-08-00120		HEXAGONO ENDEREZADOR MC 650	1
19.15	030-DP-00049		DOLLA PARTIDA -40-44-40	2
19.16	120-08-08-00122		RODILLO ENDEREZADOR MC 650	1
19.17	120-08-08-00124		EJE AJUSTE ANGULO ENDEREZADOR MC 650	1
19.18	030-D471-00008		CIRCLIP EJE DIN 471 Ø25	1



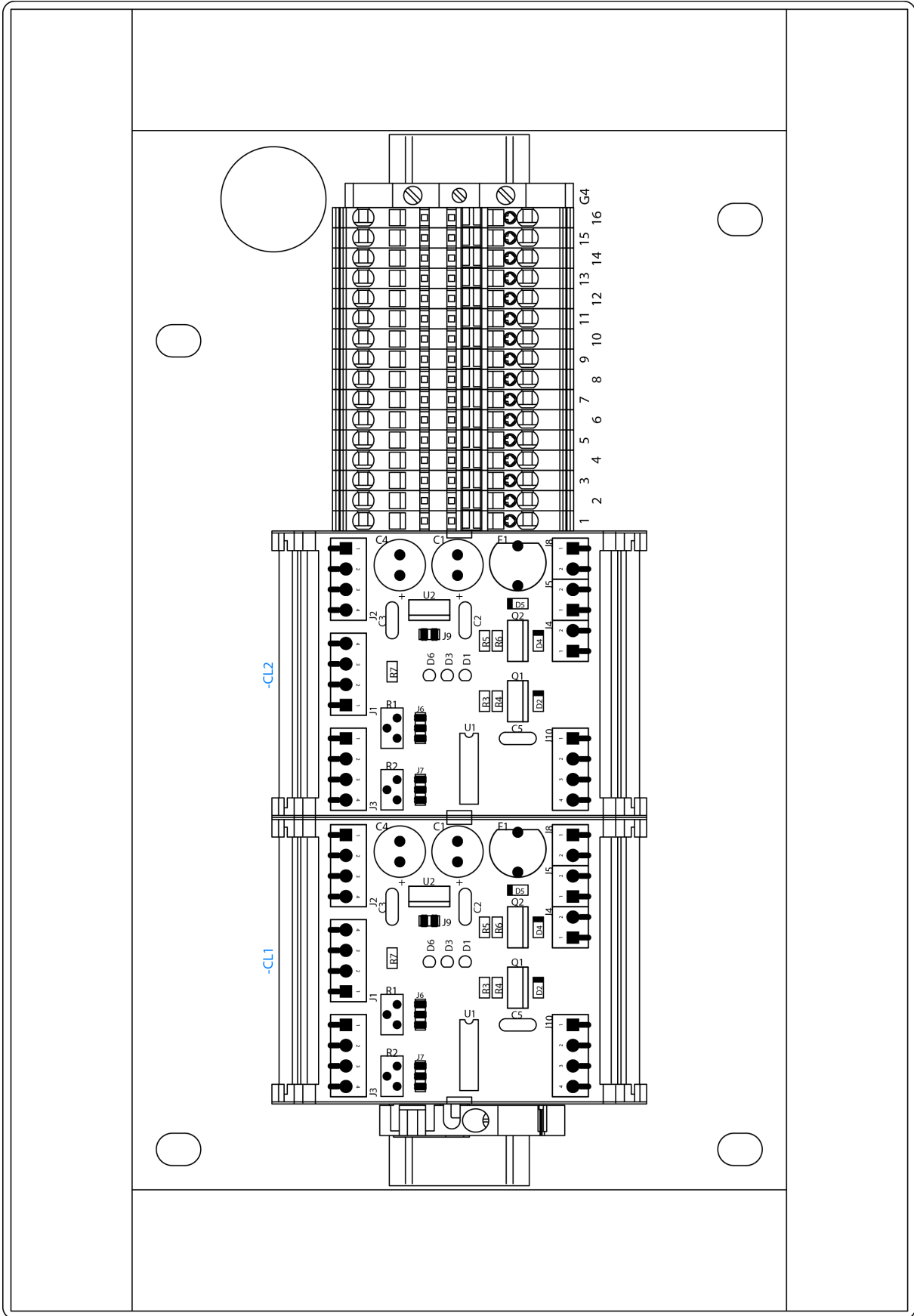
19.07.01	020-D6912-M8X20	Tornillo Allen Cabeza Reducida Din6912 M8X20	6
19.07.02	030-DIN7979D-8X20	PASADOR CILINDRICO DIN 7979D Ø8X20	4
19.07.03	120-08-08-00248	SOPORTE INFERIOR ENDEREZADOR MC 650	1
19.07.04	120-08-08-00249	SOPORTE SUPERIOR ENDEREZADOR MC 650	1
19.07.05	120-08-08-00250	PASAMANO PATIN ENDEREZADOR MC 650	1

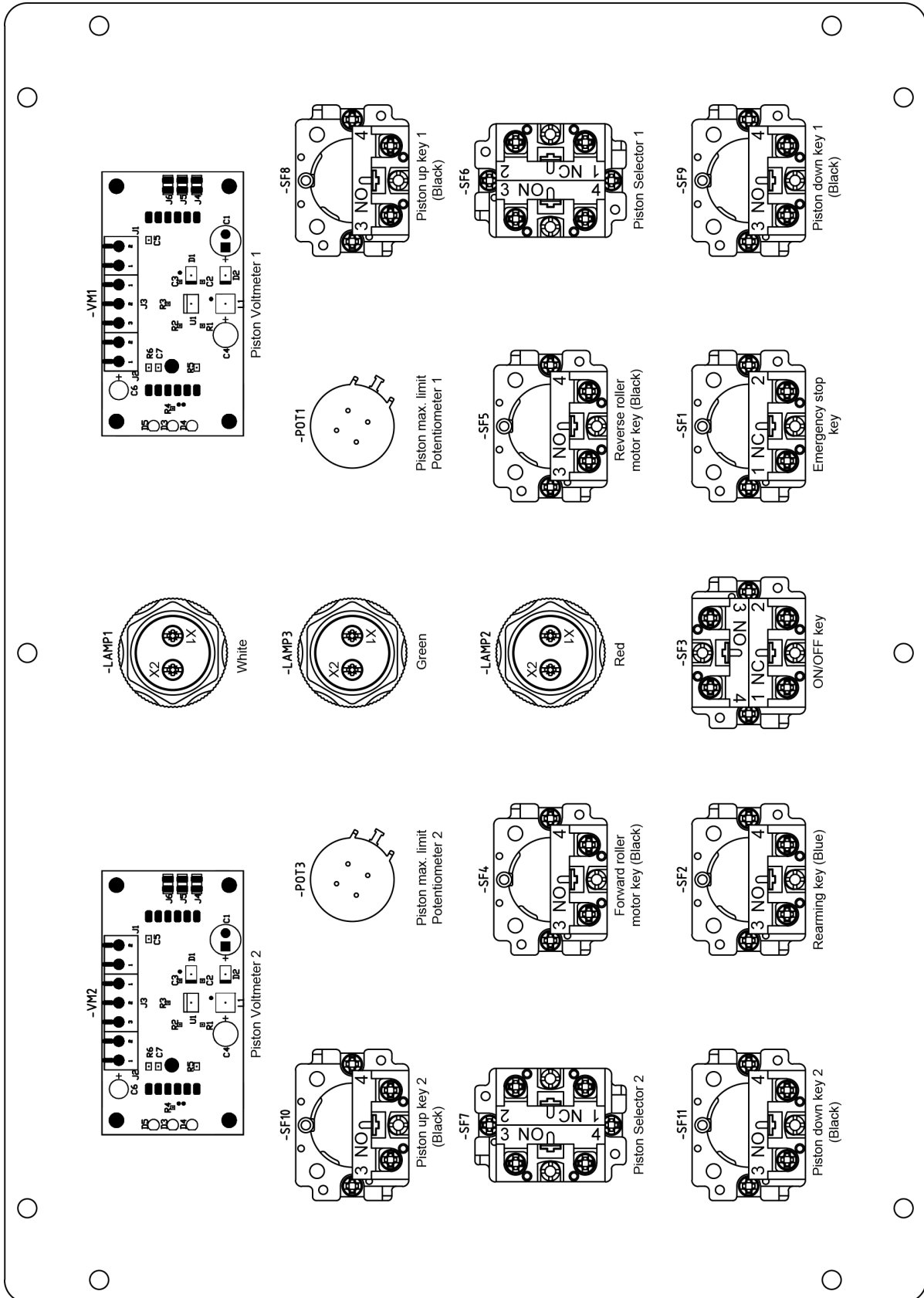
A4. Hydraulic cylinder

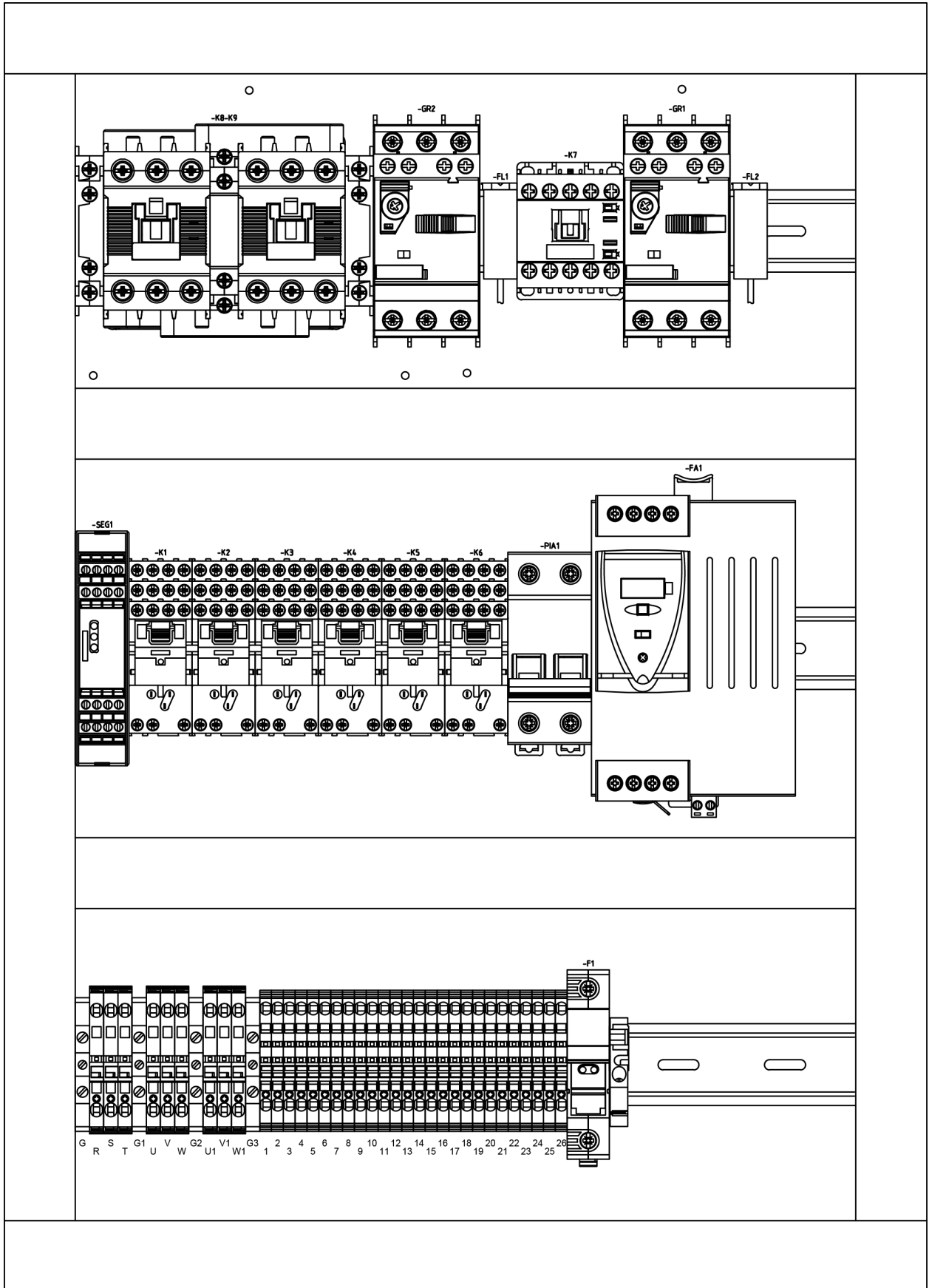


Nº ORDEN	DIBUJO	DESCRIPCION	Nº PLANO	CANTIDAD
31.01		CONJUNTO FINAL CAMISA CILINDRO MC650	130-08-08-00036	1
31.02		COLLARIN CILINDRO D80XD70X10	040-JC-00002	2
31.03		GUIA 80-75-15	040-GUI-00001	1
31.04		CONJUNTO VASTAGO CILINDRO MC650	130-08-08-00011	1
31.05		SEPARADOR CILINDRO MC650	120-08-08-00205	1
31.06		JUNTA TORICA D74X4 90 SHORE	040-JT-00021	1
31.07		COLLARIN BA D50XD60X7.3	040-BA-00007	1
31.08		DOLLA DE BRONCE CILINDRO MC650	120-08-08-00204	1
31.09		RASCADOR D50XD60X7/10	040-RAS-00004	1
31.10		ESPIGA ALLEN DIN 913 M6X8	020-D913-M6X8	1

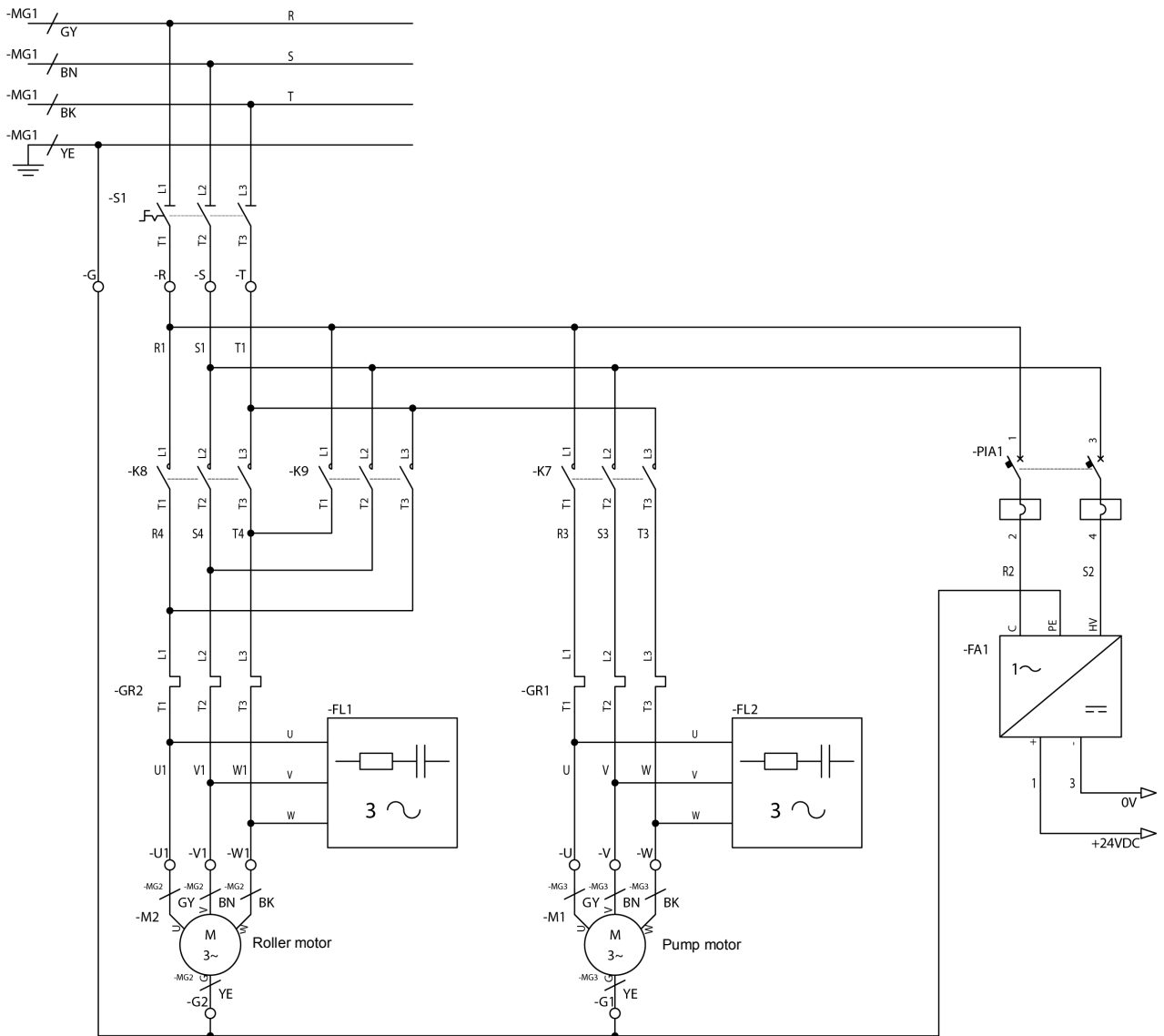
A5. Electrical box

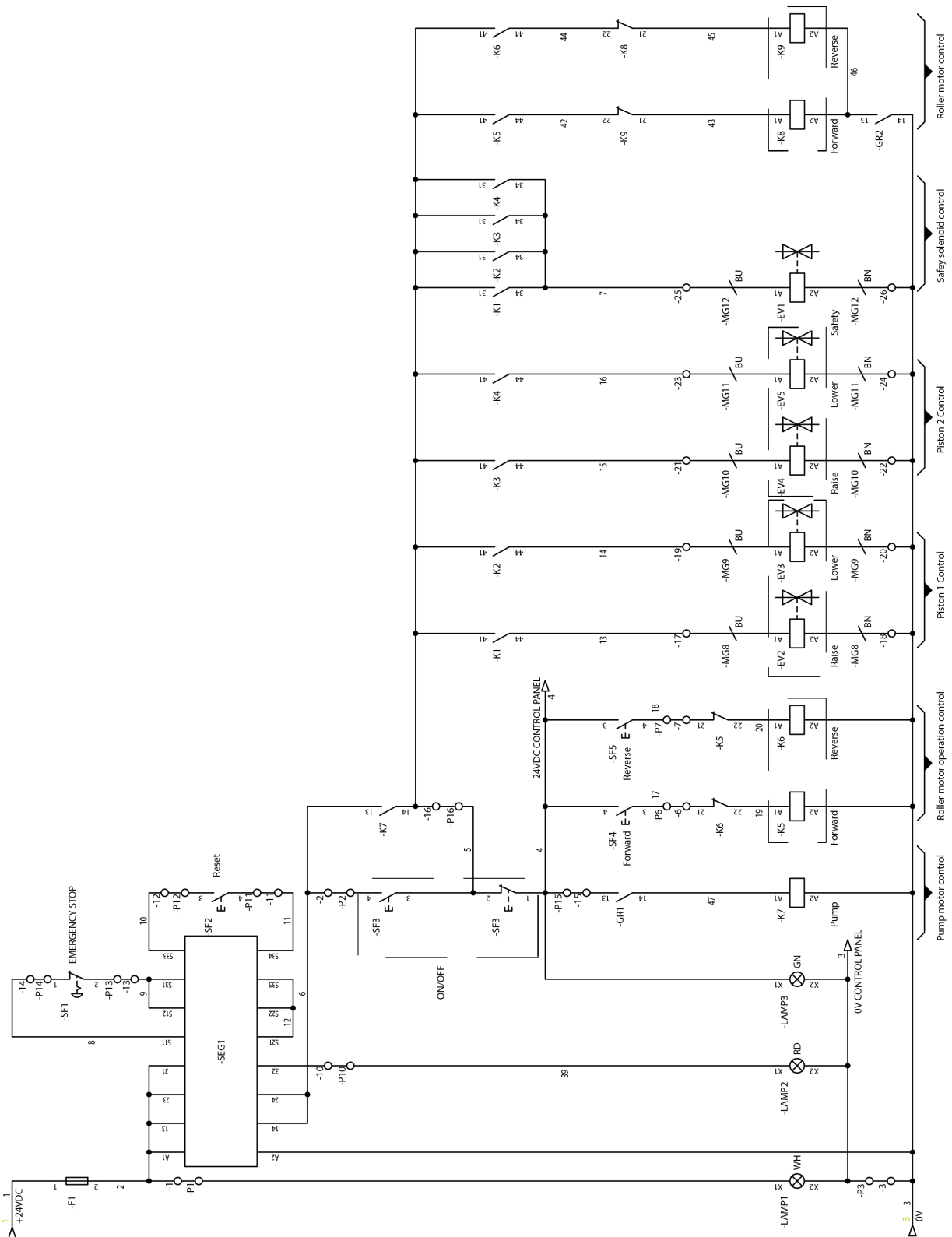


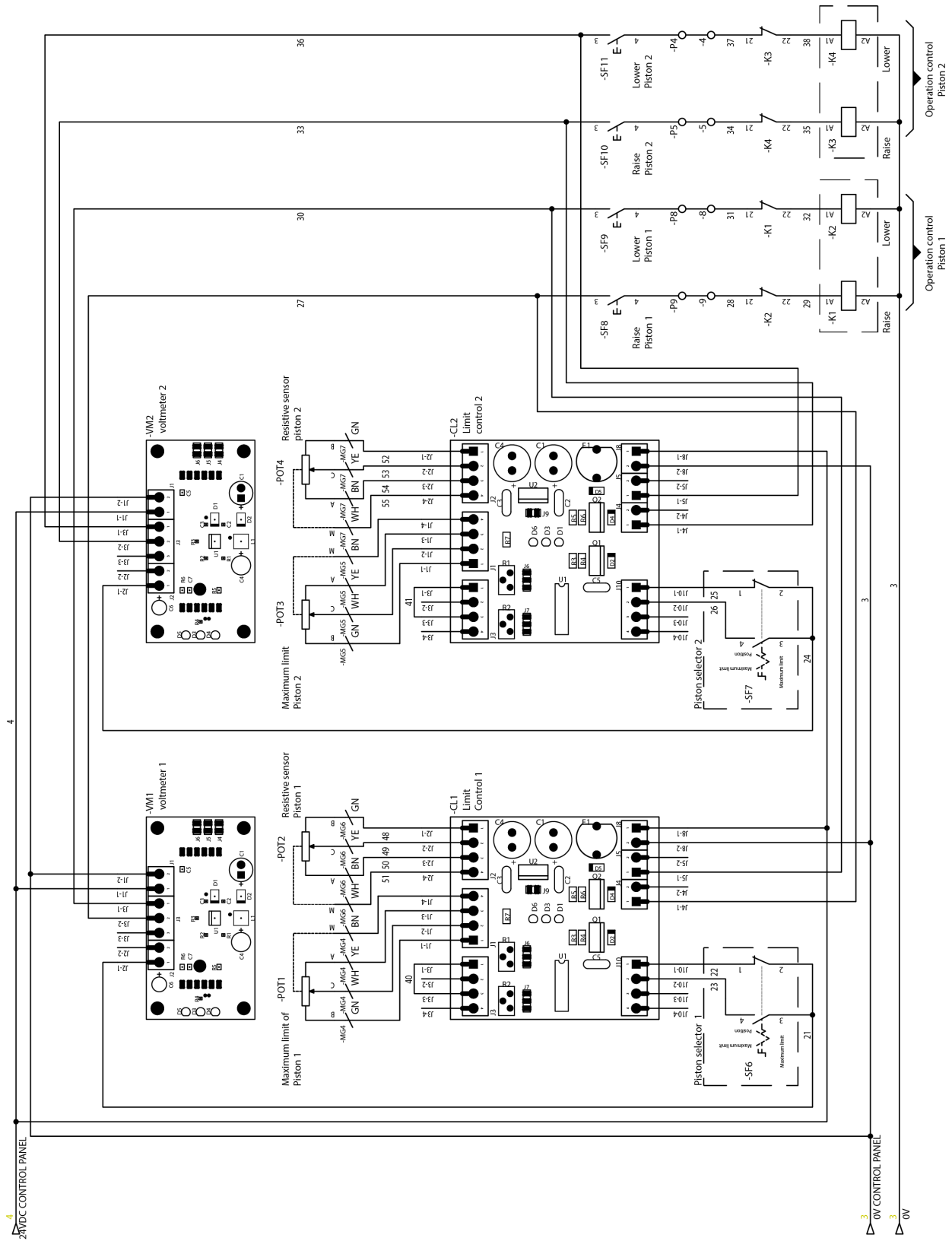




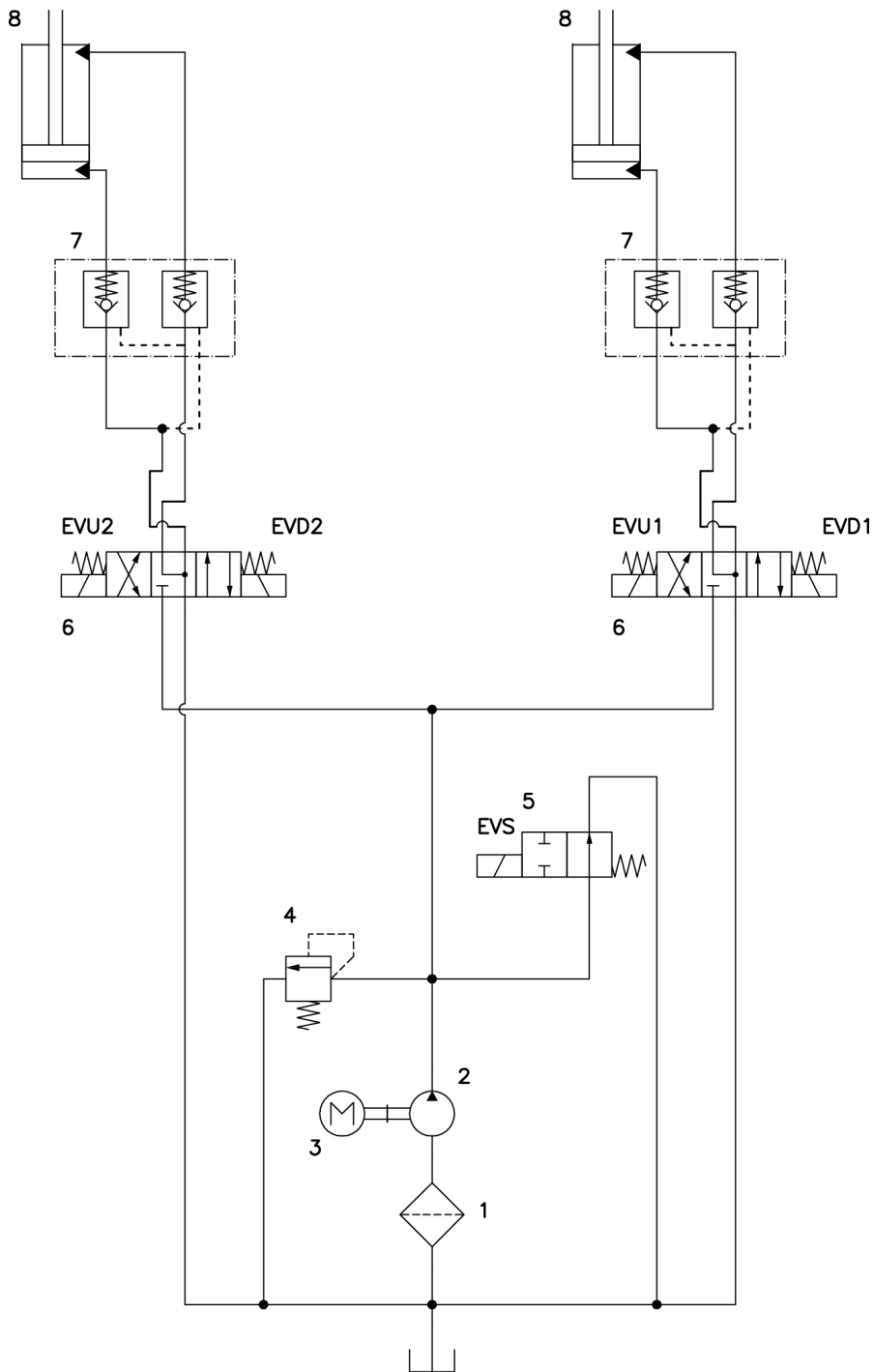
A6. Electric maps







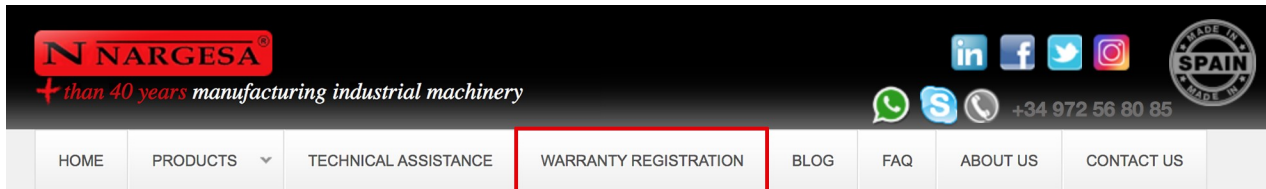
A7. Hydraulic map



- 1. Filter
- 2. Hydraulic pump
- 3. Electric motor
- 4. Pressure limiter
- 5. Bending solenoid
- 6. Cylinder solenoid
- 7. Piloted non-return valves
- 8. Roller position cylinders

WARRANTY REGISTRATION

1. Among www.nargesa.com on our site
2. Select the menu [Warranty Registration](#)



3. Complete the form with your details and press

Submit

4. **Message Sent:** confirms your data has been successfully sent to Prada Nargesa SL. Your machine has been registered and has a warranty of three years in total.

Your request has been sent correctly. We will contact you right away to confirm that your warranty has been extended up to three years