# (Original) Use and maintenance manual

**Type: Press device**
**Model: FRA-100**


**IMPORTANT:**

Read this user manual and follow the instructions and warnings before operating this device.

Any modification or transformation performed on this machine may cause loss of the manufacturer's guarantee and liability.

This manual must always remain near to the machine and visible to all the operating and maintenance staff, for any future consultation, forming part of the equipment.

## Index:

**Page**

## - CE Declaration of conformity:

WE DECLARE, under our responsibility, that the machine:
- Type: Press device
- Brand: ERM Engineering
- Model: FRA-100
- Serial No.: xxxxxx
- Manufacturer date: 2021

Inspired by the directives of the Official Journal of the European Communities:

**2006/42/CE Machinery Directive**
**2014/35/UE Low Voltage Directive**
**2014/30/UE Electromagnetic Compatibility Directive**

Complies with the design and construction specifications of the European Standards on General Machine Safety:

**EN 349 – EN 614-1 – EN 614-2 – EN 12100 – EN 11161-1 - EN 1005-1 – EN 1005-2 – EN 1005-3 - EN 1005-4 – EN 13849-1 – EN 13849-2 – EN 894-3 - EN 61310-1 - EN 13732-1 – EN 13850 - EN 13857 – EN 14120 – EN 60204-1**

General Manager: Eduardo Ramos Martínez

Arenys de Munt (Barcelona)-SPAIN
Date: 2021/08

## - Description of the equipment:

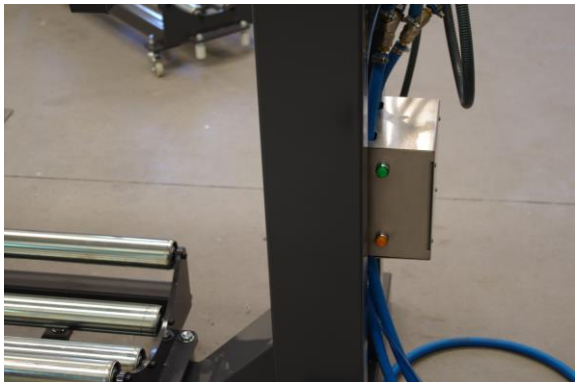
- Heating press for fusion welding of conveyor belts, comprised of two aluminium plates with cartridge electric elements, controlled by an external temperature board.
- Pressure by pneumatic cushions to guarantee uniform pressing.
- Intermediate support tray to prepare and hold the joint while hot.
- Interior cooling circuit, by water, and by air in some models, too.

## - Technical characteristics:

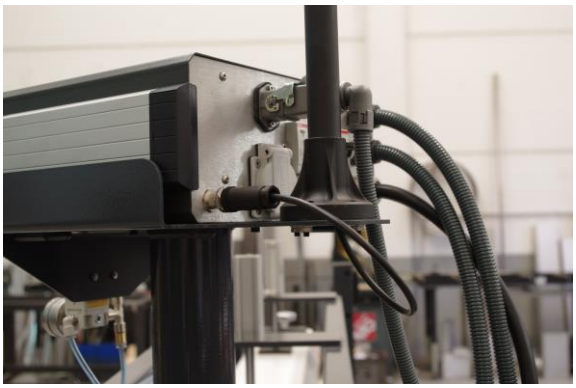
| **Model** | **FRA-100** |
|---|---|
| - Control box unit options | CB02 - CB01/3 |
| - Dimensions (LxWxH) | 1630x800x1570mm |
| - Weight | 340kg |
| - Maximum temperature | 200ºC |
| - Minimum length belt (mm.) | 1250 |
| - Heating area (mm.) | 1050x160 |
| - Maximum pressure | 2.5 bar |
| - Heating time 20ºC-170ºC | 6 min |
| - Cooling time with water 25ºC (170ºC-50ºC) | 1.7min |
| - Voltage V. | 3x230/3x400 |
| - Power W. | 4080 |

## - Workshop installation:

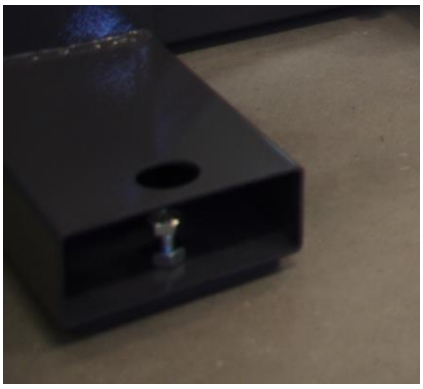
These presses may be used both for in-situ assembly, as well as in fabrication workshops, for which it is recommended to adapt the press to a metallic supporting structure, with pneumatic or counterweighted activation, to open the top plate and adapt the water cooling circuits correctly.



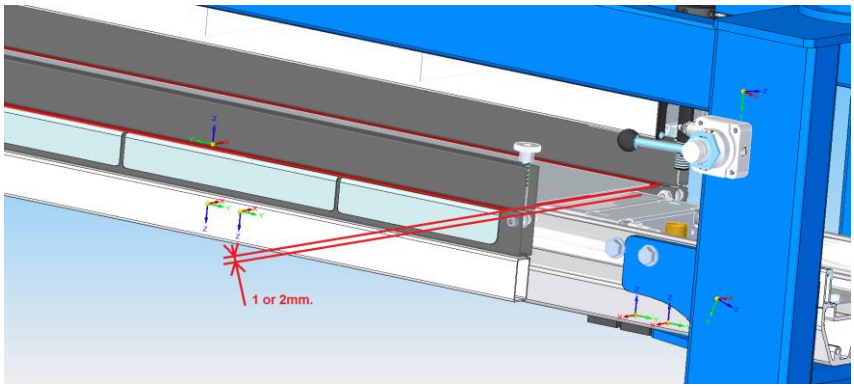
Place the control board on the rack at eye level, safely to avoid it breaking or falling.



Level the support with the regulation screws located inside the three legs.



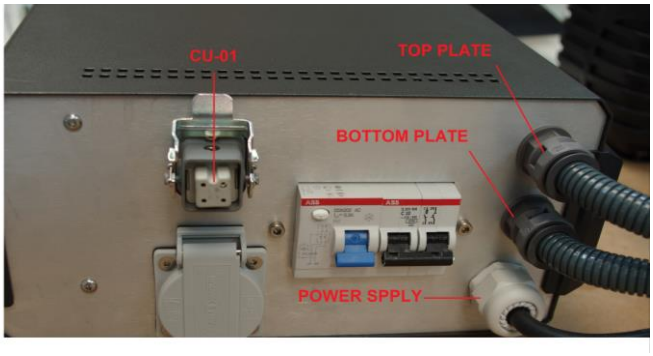
**NOTE: Once the frame is leveled, you most to introduce the trolley to level the wheels. The distance between bottom plate and steel plate of trolley is 1 or 2 mm.**




We can modify this distance across the wheel's screws.

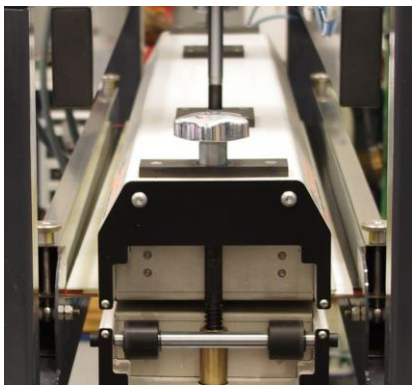
**NOTE: In the case of several presses being connected to the same drainage line, installation of a one-way valve at each press is recommended, thus avoiding water entering the other presses during the purge process.**

Connect control board CB-01
(For further information, consult the User Manual for CB-01)




- ## Instructions for use:

Open the press by releasing and extracting the two closing bolts located at both ends of the top plate.

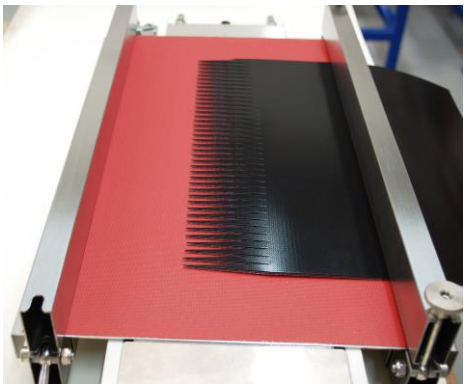


**⚠WARNING:**
**Before opening the press, check that the inflation pressure of the manometer is 0 bar.**

Up the top plate using the manual valve in UP position.

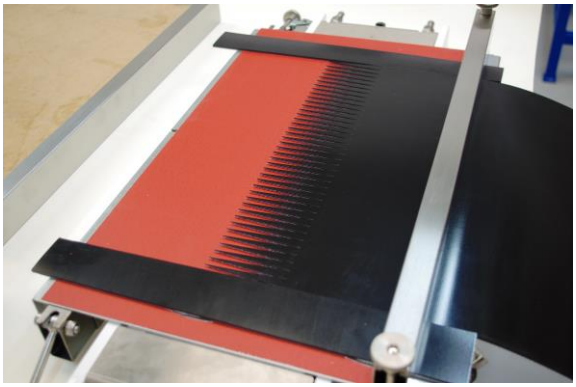
## - Preparing the joint

Place the first end of the belt on the lower silicone, well centred on the support tray and making sure the joint is within the welding zone of the hotplate.



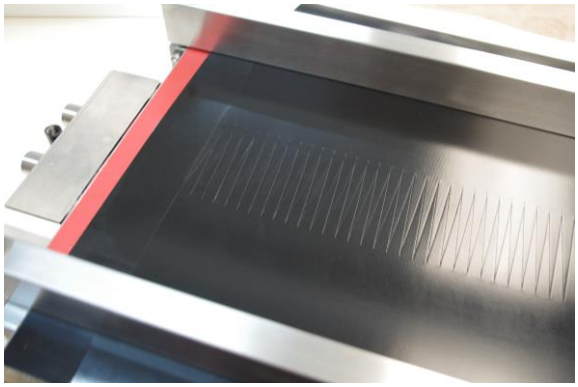
Then place two sufficiently large scraps and the same material offered up to weld, at both ends and properly tangential to the belt, and fix them using the same holding bar.

It is also possible to use metal callipers of the same thickness as the belt and, when necessary, use scraps of the same belt after the callipers to fill out the welding zone.



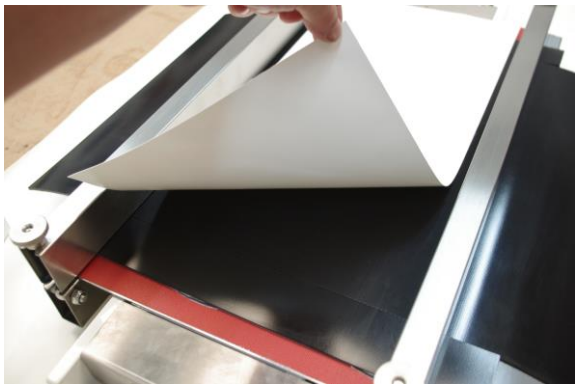
**NOTE: It is always recommendable to fill out the material, at least to 70% of the pressing surface, to avoid deformation in the plates or thickness differences in the welding.**

Afterward, insert the second end of the belt, leaving the whole surface to be joined fully in contact with the first end already fixed, and hold it with the other holding bar.

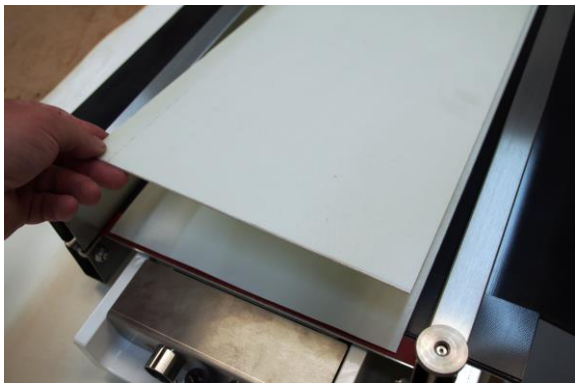


Once the joint placement operation has been completed, we cover the whole welding surface with silicone or adequate silicone paper recommended by the belt manufacturer.

Thus, on completing the welding, we guarantee that the joint zone has the same texture and finish as the rest of the belt.



Before closing the press, we place the metal or fibreglass plate, according to the material to be welded, to avoid marks caused by the radical change of temperature and pressure outside the welding zone.



We introduce the trolley inside the press and down the top plate

Once the upper plate has been put in place, we close the press using the closing controls, softly pressing with just two fingers, and in a balanced way on both sides.

**NOTE: To obtain homogeneous pressure throughout the surface, it is always recommended not to press the closing controls too much, so the pneumatic cushion will thus work in a more balanced way.**

We can now proceed to inflate

## Inflation

**⚠WARNING:**
**Always make sure the press is correctly closed before inflating.**
**There is a risk of explosion of the top plate.**

We inflate the press turning the white wheel of pressure control until bar required.


We control the inflation visually using the manometer.

## Programming:

At the moment of starting up the board, the actual temperatures of both plates are displayed, and the welding time of the last programming.


To see the temperatures assigned, it shall suffice to press the relevant button for each plate.


To change these values, we must hold down the button for 3 seconds and change the value using the central keys.


The board shall memorise these values, showing the present ones again.

**NOTE:**
**The minimum and maximum temperatures that may be programmed are 30 to 200 ºC.**

We shall perform the same operation to program the welding time, ALWAYS IN MINUTES. The values shown are complete minutes without decimals.

That welding time shall always show the programmed value, except for starting the count, that shall show the count-down until ending.

Once the temperatures and time values are programmed, we press START.


**NOTE:**
**To halt the process or to make any change after beginning with START, we must press STOP and the cycle will stop.**

When the welding time ends, the relevant orange LED to start that operation shall turn on.


When the STOP led shows on the board, it means the operation has ended.

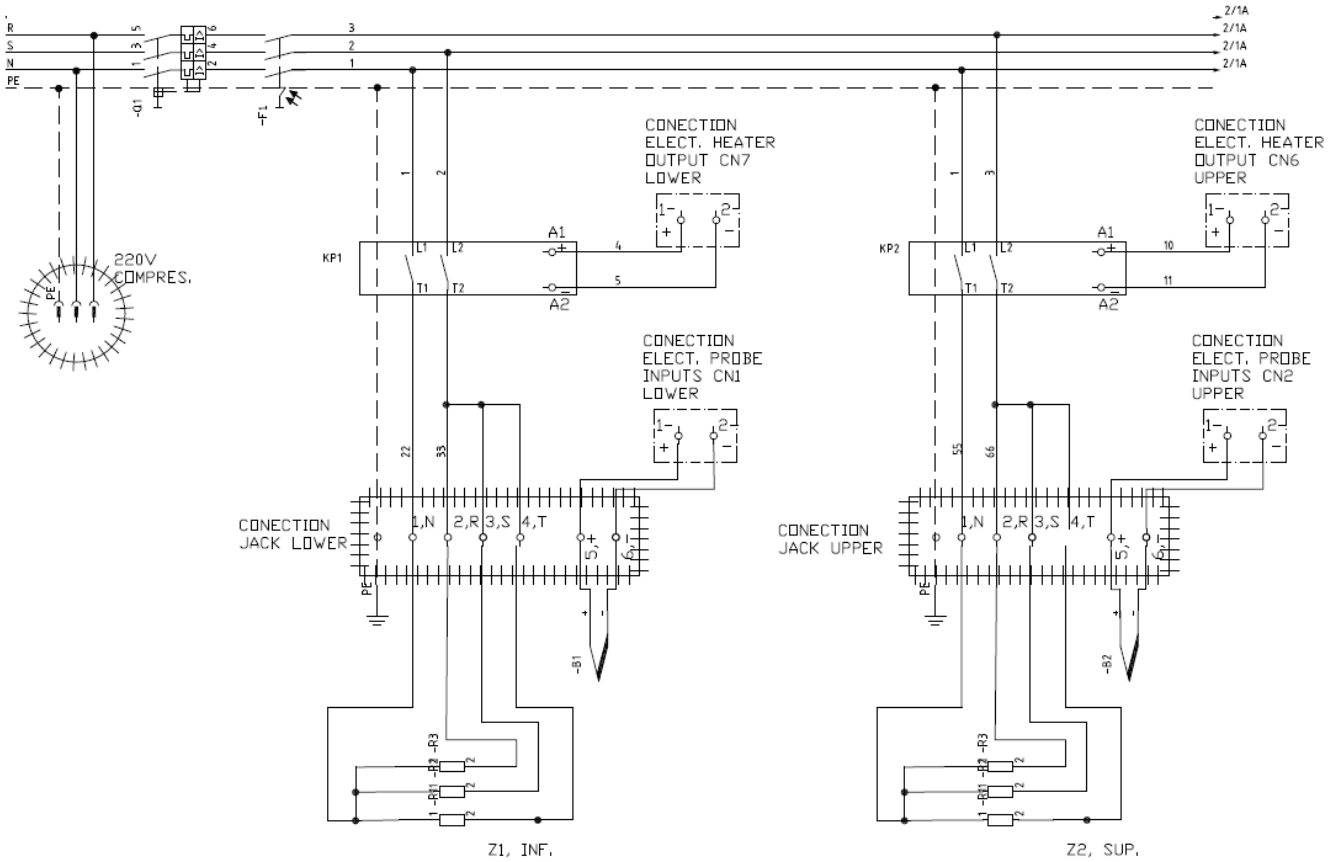

**If we have the CU-01 cooling control unit, the cooling and purging operations shall be performed automatically.**

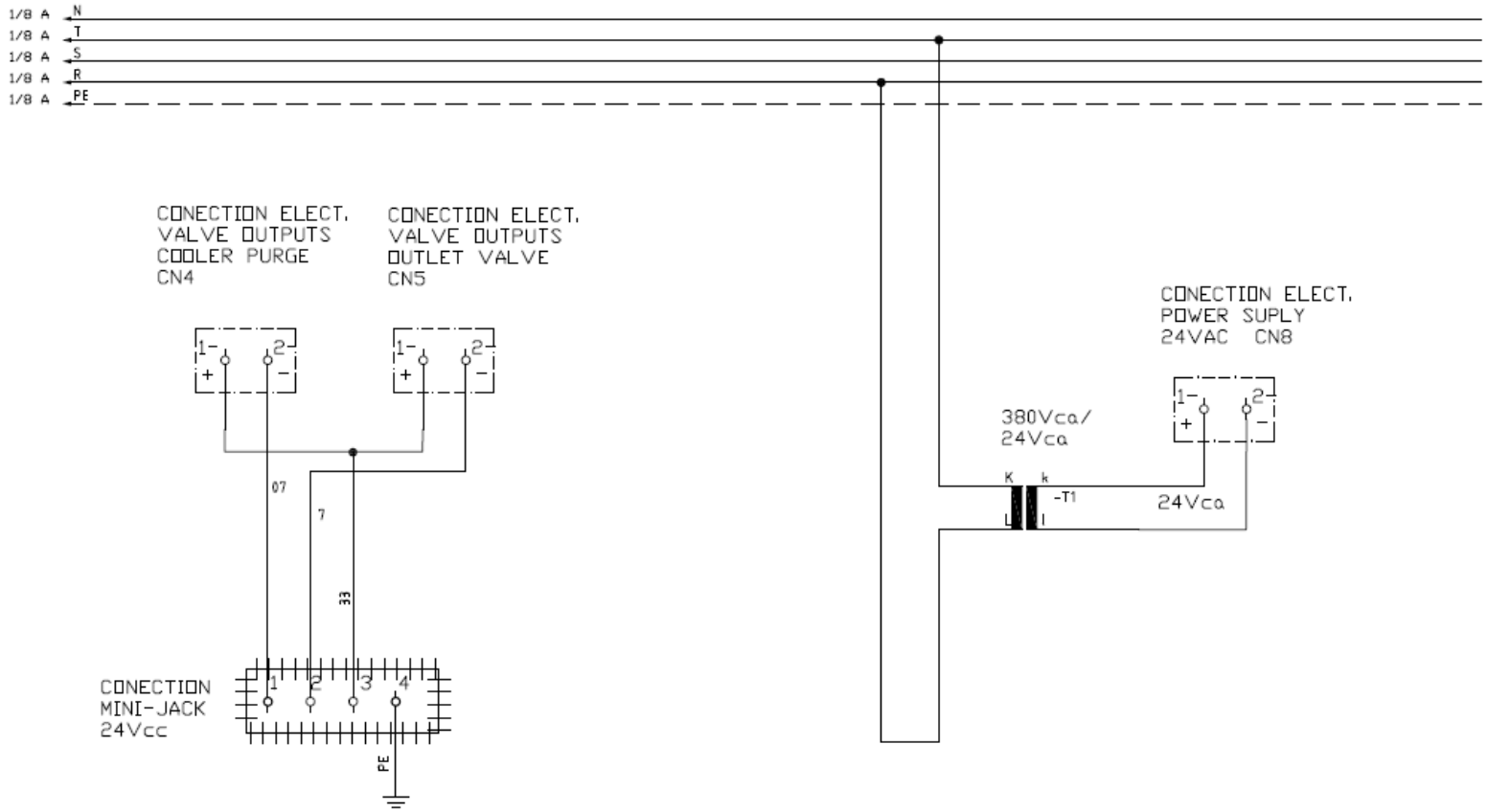
Once the welding has ended, we deflate the press pressure reducing the pressure until 0 bar.

We can then proceed to open it and up the top plate.

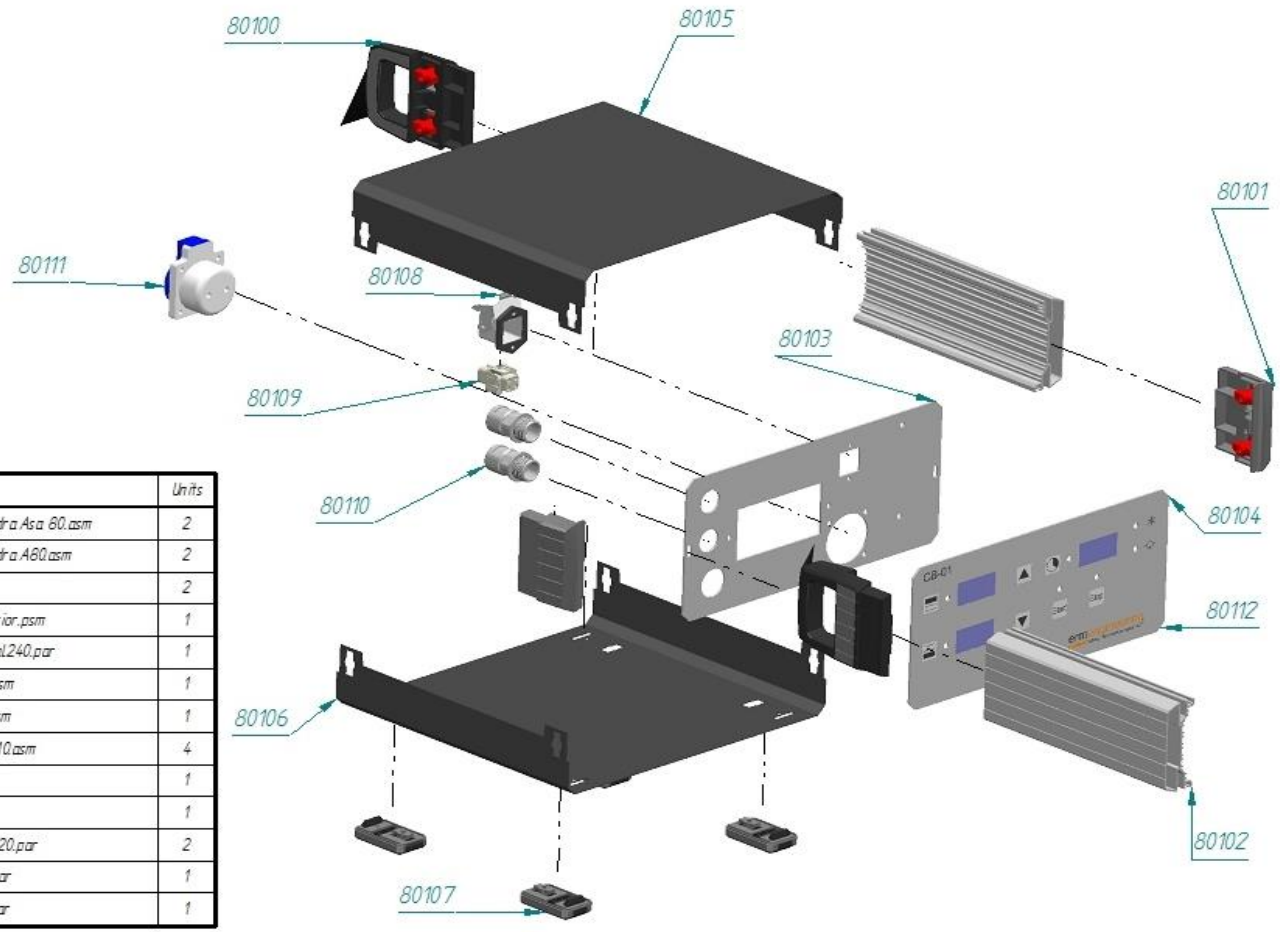
## - Electrical drawings:

### 3 Ph x 400 V.



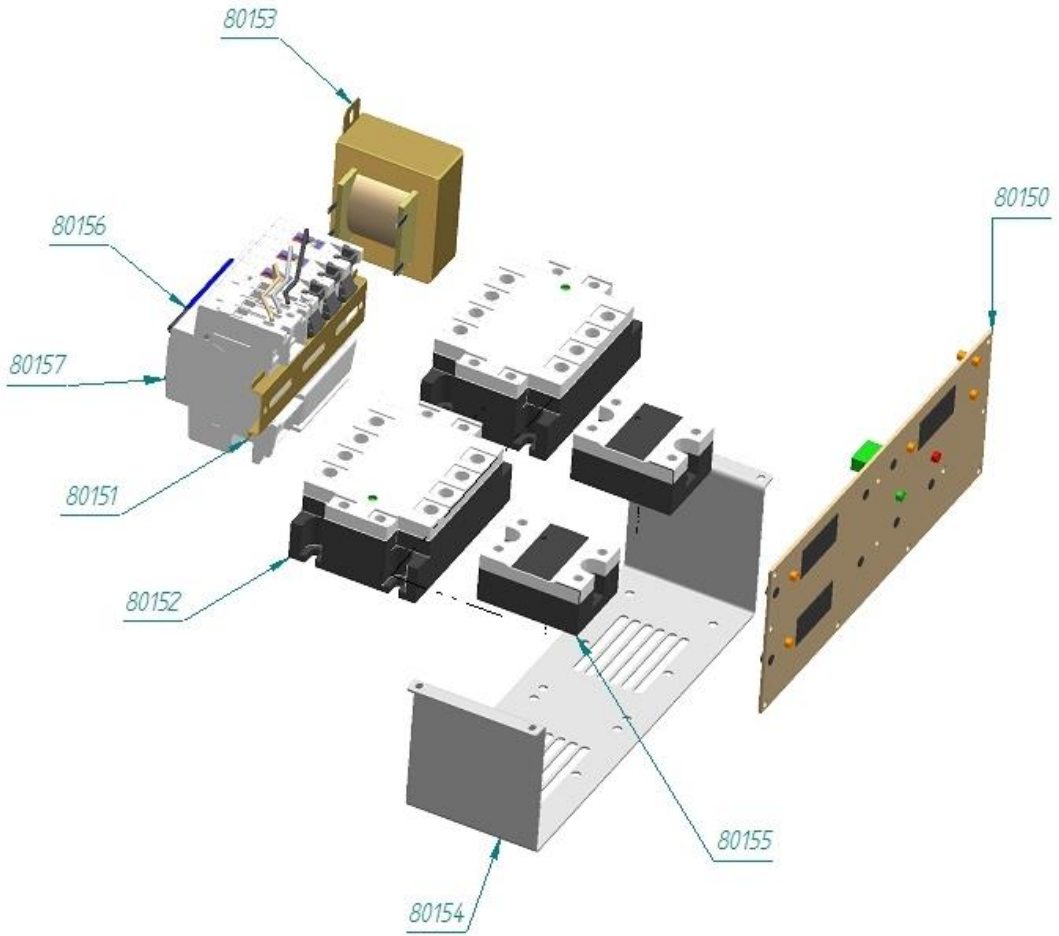

1/8 A N
1/8 A T
1/8 A S
1/8 A R
1/8 A PE
CONECTION ELECT.
VALVE OUTPUTS
COOLER PURGE
CN4
CONECTION ELECT.
VALVE OUTPUTS
OUTLET VALVE
CN5
CONECTION ELECT.
POWER SUPLY
24VAC CN8
380Vca/
24Vca
-T1
24Vca
07
7
33
CONECTION
MINI-JACK
24Vcc
PE

## - Spare parts

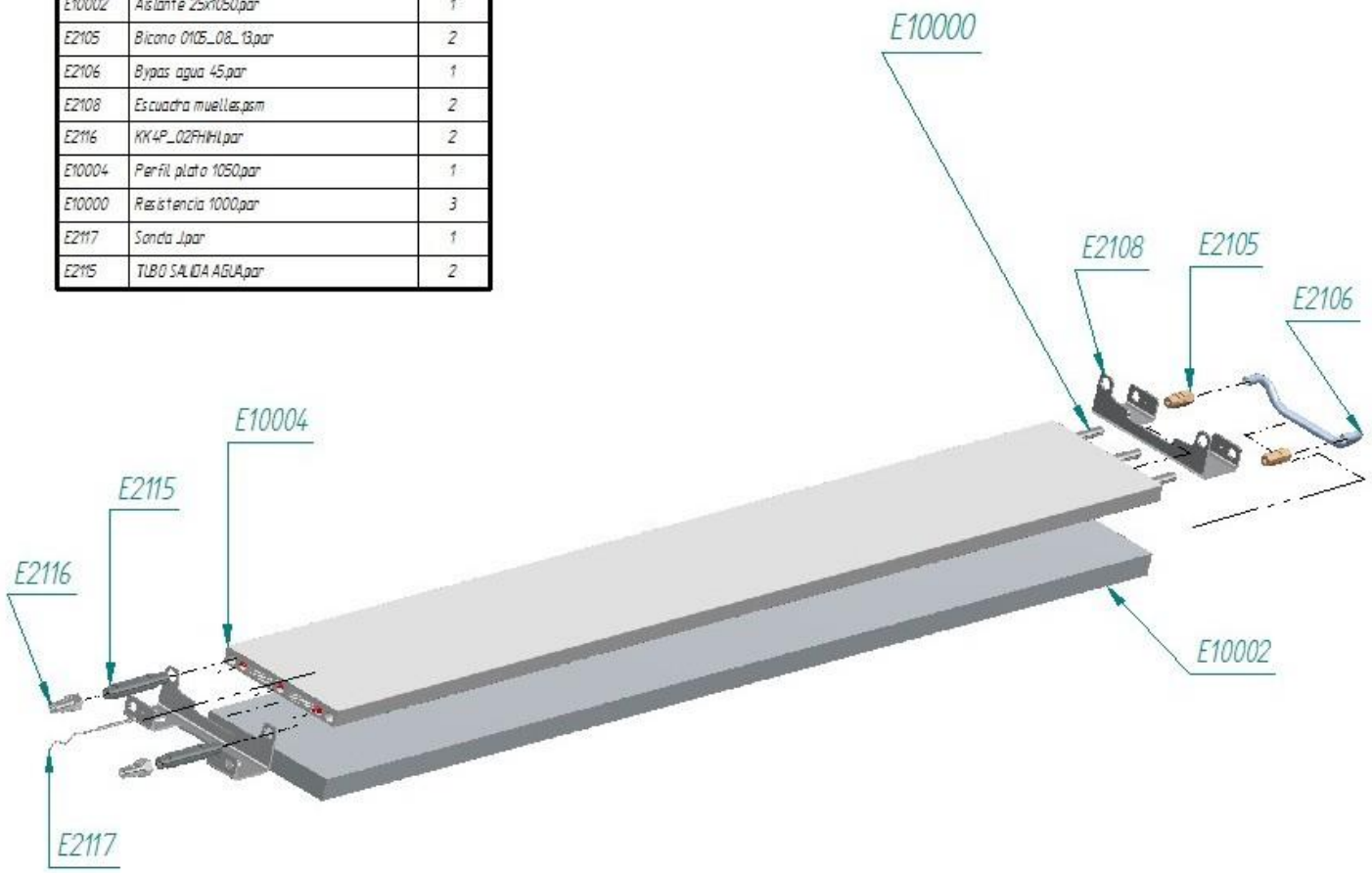



| Number | Name | Units |
|---|---|---|
| 80100 | Conjunto Escuadra Asa 60.asm | 2 |
| 80101 | Conjunto Escuadra A60.asm | 2 |
| 80102 | 21110007.par | 2 |
| 80103 | Caratula posterior.psm | 1 |
| 80104 | Caratula frontal240.par | 1 |
| 80105 | Tapa superior.psm | 1 |
| 80106 | Tapa inferior.psm | 1 |
| 80107 | Conjunto Pie S110.asm | 4 |
| 80108 | DKA 03 1.par | 1 |
| 80109 | DKF 03.par | 1 |
| 80110 | RACOR PMA 12M20.par | 2 |
| 80111 | BASE ENCHUFE.par | 1 |
| 80112 | Policarbonato.par | 1 |

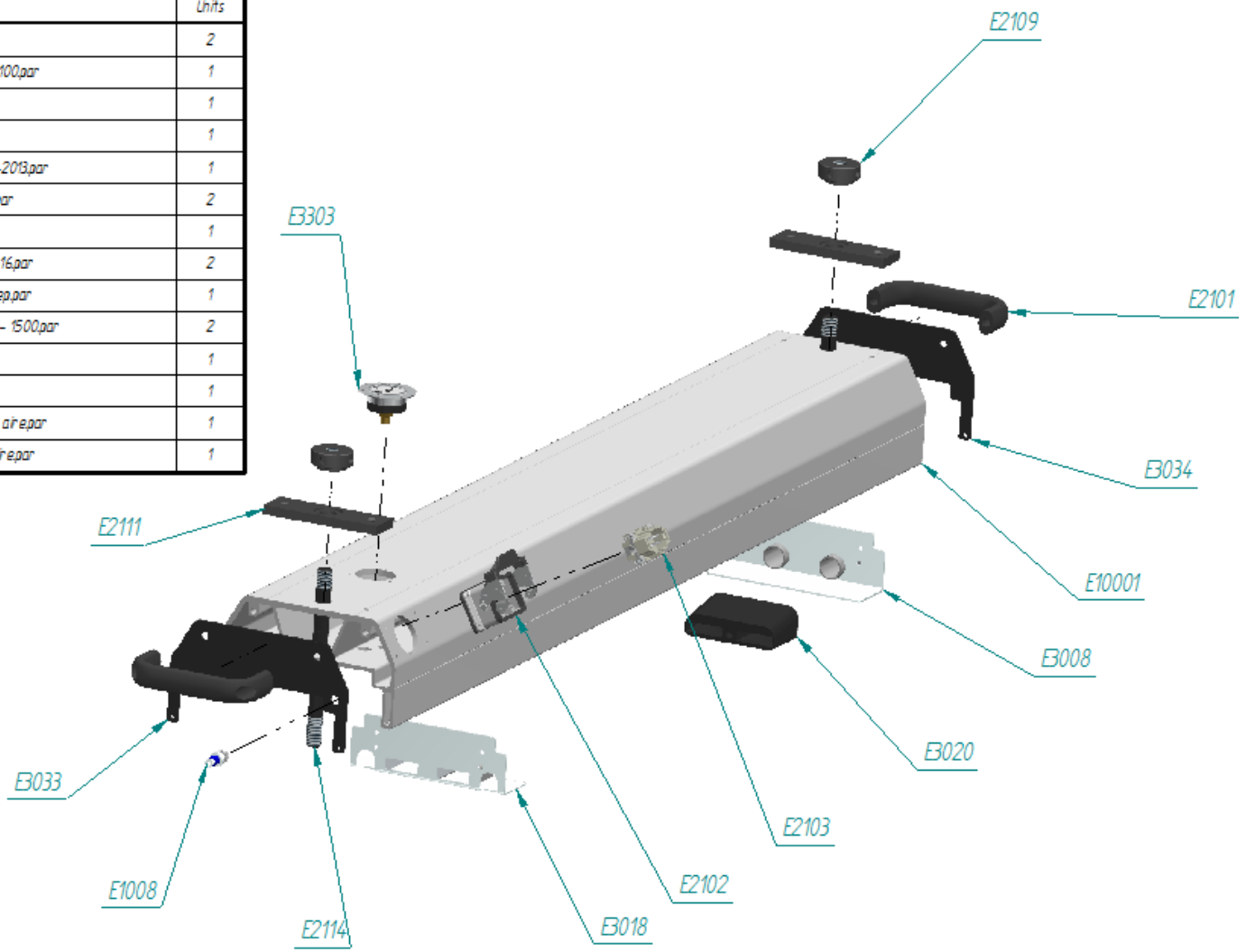
| Number | Name | Units |
|---|---|---|
| 80150 | Pieza6.par | 1 |
| 80151 | OMEGA ABB.par | 1 |
| 80152 | Rele 3 fases.par | 2 |
| 80153 | Trafo.par | 1 |
| 80154 | Base contactores.psm | 1 |
| 80155 | Rele 1 fases.par | 2 |
| 80156 | MAG_ABB.asm | 1 |
| 80157 | DIF_ABB.asm | 1 |



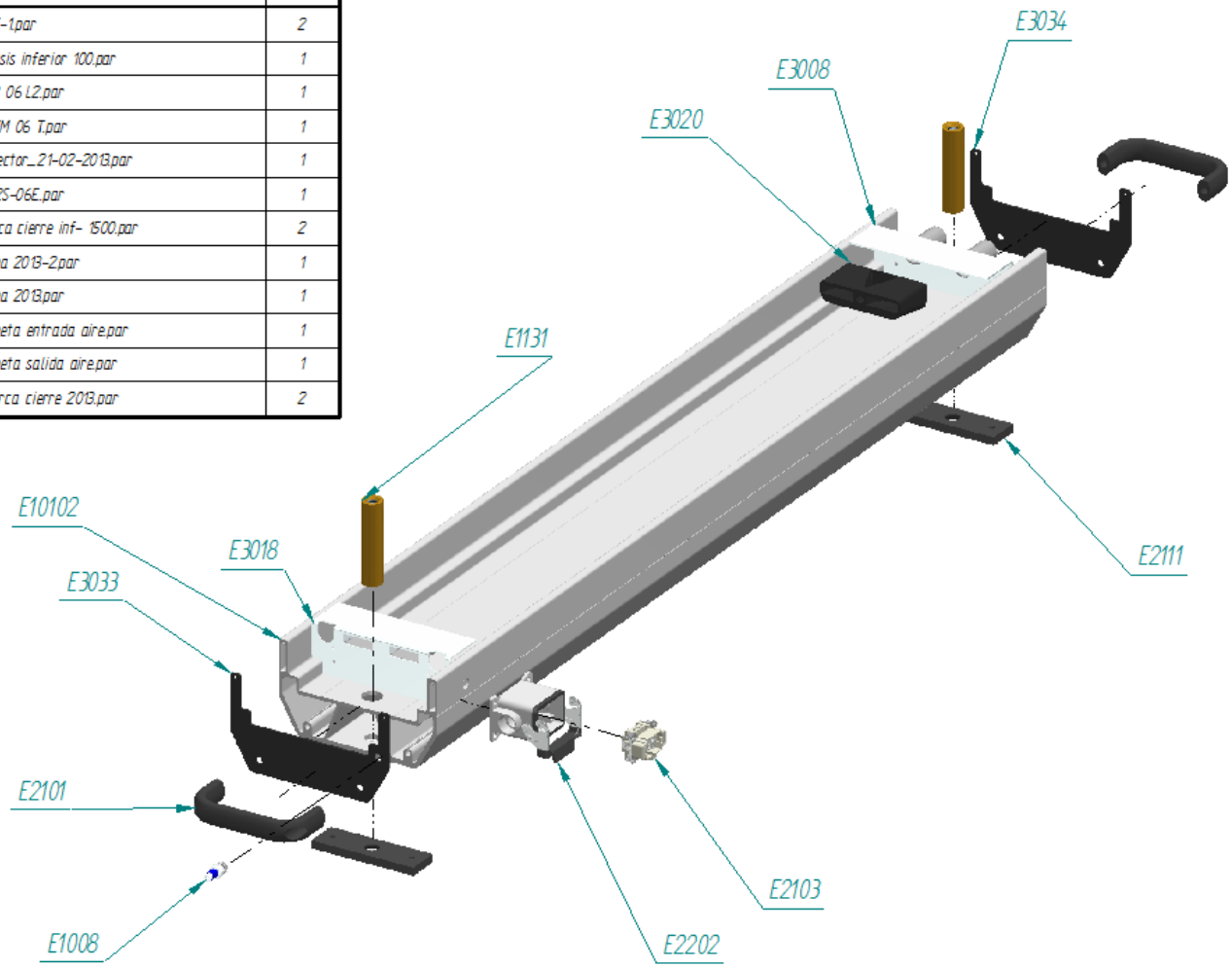
| Number | Part name | Units |
|---|---|---|
| E10002 | Aislante 25x1050.par | 1 |
| E2105 | Bicono 0105_08_13.par | 2 |
| E2106 | Bypas agua 45.par | 1 |
| E2108 | Escuadra muelles.asm | 2 |
| E2116 | KK4P_02FHHL.par | 2 |
| E10004 | Perfil plato 1050.par | 1 |
| E10000 | Resistencia 1000.par | 3 |
| E2117 | Sonda J.par | 1 |
| E2115 | TUBO SALIDA AGUA.par | 2 |



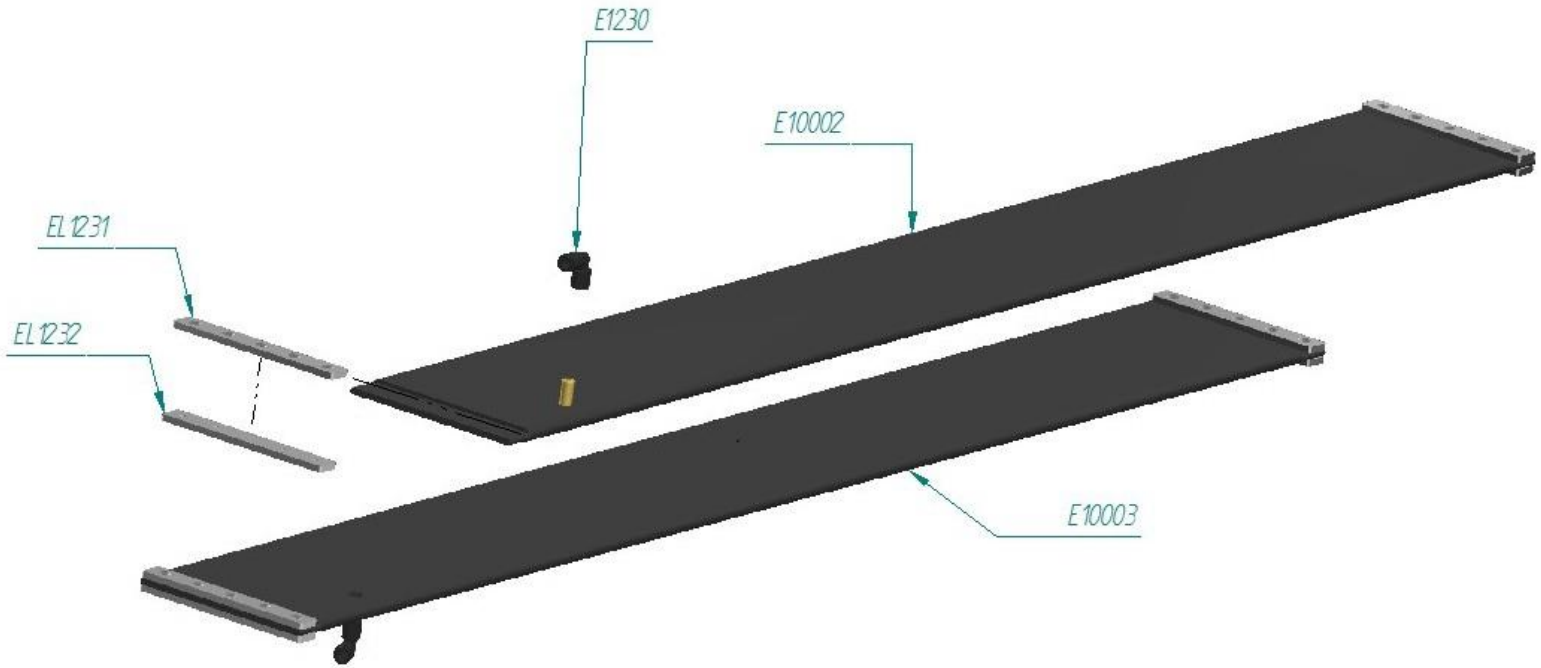
| Number | Part name | Units |
|---|---|---|
| E2101 | 565-1.par | 2 |
| E10001 | Chasis superior 100.par | 1 |
| E2102 | CHI 06 L.par | 1 |
| E2103 | CNEM 06 T.par | 1 |
| E3020 | colector_21-02-2013.par | 1 |
| E2114 | Eje cierre 2013.par | 2 |
| E1008 | KK25-06E.par | 1 |
| E2109 | MANDO ORRE M-16.par | 2 |
| E3303 | Manometro alineep.par | 1 |
| E2111 | Placa cierre sup- 1500.par | 2 |
| E3034 | Tapa 2013-2.par | 1 |
| E3033 | Tapa 2013.par | 1 |
| E3008 | Tapeta entrada aire.par | 1 |
| E3018 | Tapeta salida aire.par | 1 |



| Number | Part name | Units |
|---|---|---|
| E2101 | 565-1.par | 2 |
| E10102 | Chasis inferior 100.par | 1 |
| E2202 | CHP 06 L2.par | 1 |
| E2103 | CNEM 06 T.par | 1 |
| E3020 | colector_21-02-2013.par | 1 |
| E1008 | KK2S-06E.par | 1 |
| E2111 | Placa cierre inf- 1500.par | 2 |
| E3034 | Tapa 2013-2.par | 1 |
| E3033 | Tapa 2013.par | 1 |
| E3008 | Tapeta entrada aire.par | 1 |
| E3018 | Tapeta salida aire.par | 1 |
| E1131 | Tuerca cierre 2013.par | 2 |



| Número de documento | Part Name | Units |
|---|---|---|
| E10003 | Cojin 1000 inferior | 1 |
| E10002 | Cojin 1000 superior | 1 |
| EL1231 | PLETINA COJIN S | 2 |
| EL1232 | PLETINA COJIN I | 2 |
| EL1230 | 3009_08_11 | 1 |



| Number | Part name | Units |
|---|---|---|
| E4001 | 912 M8-45.par | 4 |
| E2104 | 934_M8_v9.00.par | 2 |
| E10020 | Bandeja 100.psm | 1 |
| E4003 | din_444_m8_75_ni.par | 4 |
| E4002 | Distancial tornillo bandeja.par | 8 |
| E10021 | Fleje 100.par | 1 |
| E4006 | Mando bandeja.par | 4 |
| E4005 | Nut_DIN_982_M8_v9.50.par | 4 |
| E10022 | Pisador 100.par | 2 |
| E218 | Screw_DIN_912_M8x65_v9.00.par | 2 |
| E10024 | Silic. inferior 100.par | 1 |
| E10023 | Tirante inf bandeja 100.par | 2 |