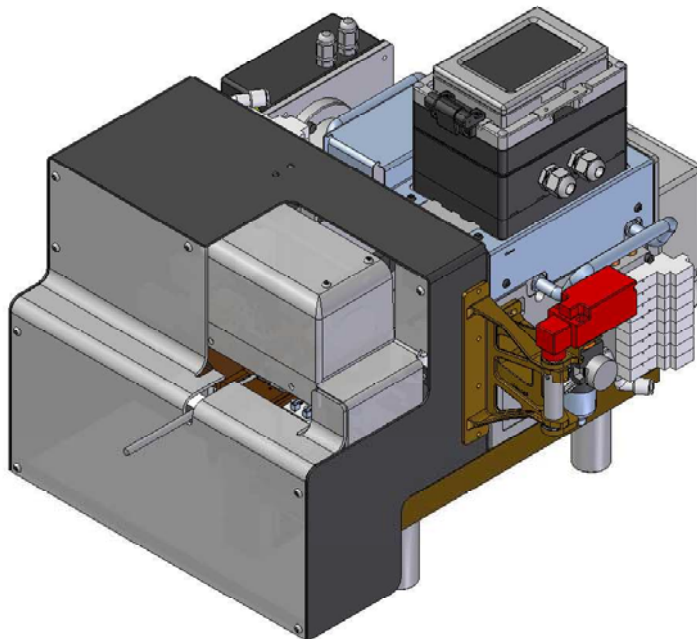


## USE AND MAINTENANCE MANUAL 6\_HSD INSULATION STATION

**CAUTION! Start-up and operation of Mecal equipment run is reserved for qualified personnel who have understood and will adhere to the contents of this manual. Any operations not described in this manual could cause damage to persons or affect the functionality of equipment itself.**





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These instructions were created in September 2016 and may be subject to change. MECAL also declares that the images shown in this manual may not be updated with technical changes made to products for the sake of improvements or special requests.

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## 1) Introduction

Mecal guarantees the safety of its production equipment only if the machine and its accessories are used in full compliance with safety regulations and with the following use and maintenance manual. Mecal excludes all liability for any changes made and/or tampering which endangers the safety of the machine.

This document provides support for the installation, start-up up, use and maintenance of the product in question. It complements but does not replace other documents, data sheets or diagrams.

No more than one operator can work on each piece of equipment.

### **CAUTION:**

**Carefully read the instructions before installing and operating equipment.**

## 2) General instructions

### 2.1) Use

The Insulation Station is the 6th step on the Mecal HSD (High Speed Data) cable production line. It is made up of a pin centring unit for connector insertion and of a rotating system to bend already crimped terminals 90°.

The process is controlled by two optical fibres that ensure correct pin positioning by reading cable colours.

The station is equipped with a fixed guard that houses a mobile part that protects the working area during the machine cycle.

Equipment is intended for use in industrial environments. The machine can be used for cold metal working only or, more specifically, solely for crimping applications. Its use for any application other than specified is **STRICTLY PROHIBITED**.

## 2.2) Technical information

### **HSD Insulation station**

|                     |                           |
|---------------------|---------------------------|
| AIR PRESSURE        | 5-7 BAR                   |
| DIMENSIONS (mm)     | W450xH520xD460            |
| DIMENSIONS (")      | W17.71xH20.47xD18.11      |
| WEIGHT              | 35 Kg                     |
| POWER SUPPLY        | 110-240V 50-60Hz          |
| CABLE CROSS-SECTION | HSD Dacar® 535 and 566    |
| CYCLE TIME          | approximately 5.5 seconds |

## 2.3) Inspection upon delivery



The applicator is delivered in a separate package containing:

- Equipment
- Crimping samples created for testing
- CD containing use and maintenance instructions

**(Optional) upon request:**

- Spare parts kit

Upon delivery:

-  Make sure that there is no damage to equipment and that there are no missing parts, checking the accompanying document.
-  If any defects are detected, inform Mecal no later than 10 days from the date of receipt.



Packaging must be disposed of according to current regulations, not release into the environment: contact authorised companies for disposal.

## 2.4) Machine identification



Equipment model

Application

Serial number

Year of production

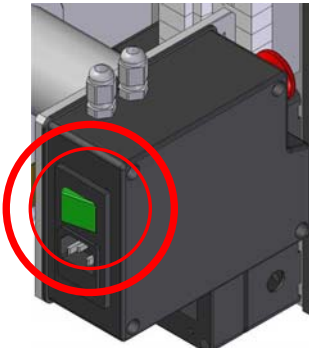
Electrical power

Pneumatic system pressure

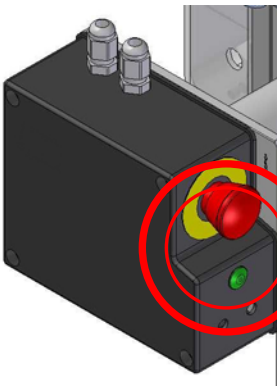


## 2.5) Safety requirements

When equipment is in use it must be equipped with all safety devices. Before performing any cleaning or maintenance operations:



Switch off the machine via the main switch located at the rear of the machine.



Make sure that the green warning light located under the emergency button is off.



Cut off power to the line switch and disconnect the equipment power cable.

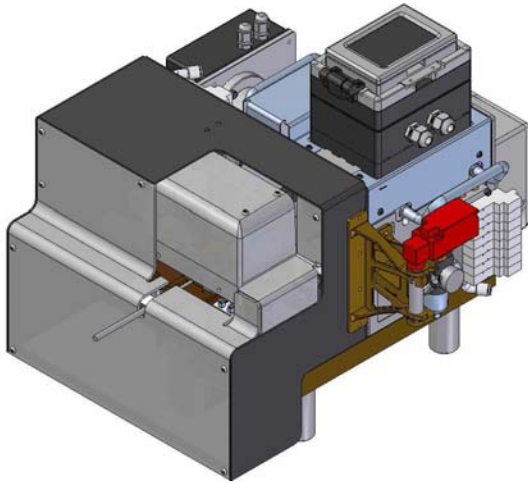


Announce operations on the line switch.

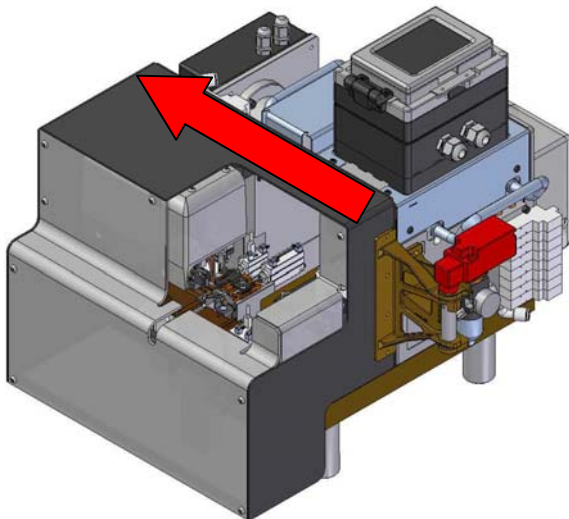
**CAUTION read the following carefully:**

- Equipment is provided with safety protections which, if removed, prevent operation.
- Do not attempt to use equipment without safety protection.
- Modifying protection slots or guards aimed at hindering the insertion of fingers or hands in moving parts is prohibited. Do not tamper with or inhibit microswitches or safety sensors.
- Do not intervene or leave maintenance equipment (wrenches, grippers, etc.) on moving press parts when on.
- Do not remove warning labels: replace them when deteriorated.
- Leave a space of one metre around the perimeter of the machine to permit access to and maintenance of parts by the operators responsible.
- Equipment must be installed in an industrial environment where there is no risk of water jets. Do not direct jets or sprays on electrical equipment when cleaning.
- Equipment must only be used for the type of cable for which it has been designed.

## 2.6) Protections

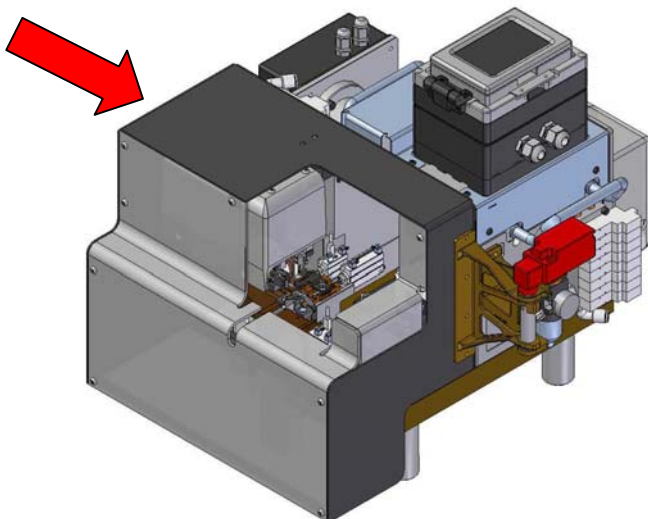


HSD Insulation Station equipment is equipped with a fixed guard that houses a mobile part activated by a two-hand control that protects the working area during the machine cycle. The casing is composed partly of Lexan technopolymer material (thickness 3mm) and partly of stainless steel (thickness 2mm). The casing has been designed to guarantee operator safety during the various production phases. In photo 5, we can see the casing in the working position and in the next we see the opening for cable positioning. The casing closes at the start of the cycle by means of a cylinder launched by a two-hand control.

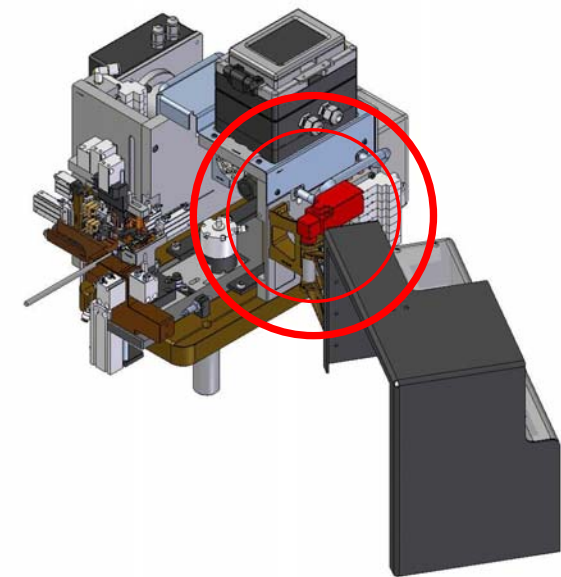


The casing opens automatically at the end of the cycle for removal of the processed cable and machine re-loading.

**CAUTION:** all maintenance operations must be carried out with the machine in emergency conditions or switched off. Electronically and pneumatically disconnect equipment.



Open the fixed casing by removing the screw located on the left side and rotate the casing toward the right to access moving equipment parts.



Safety is ensured by a rotating pin sensor (A) installed on the rotating axis of the hinge on the casing by means of a rigid connection. The end stop detects door opening and stops equipment power, preventing all movement. Power is automatically restored upon return to closed position.

### 3) Commissioning

This section describes all the operations and checks required to manage the machine during the period from delivery and implementation. Please carefully follow the instructions provided herein and contact Mecal with any doubts or uncertainty.

**CAUTION:** all installation operations must be carried out with the machine in emergency conditions or switched off and the air inlet closed.

#### 3.1) Unpacking, lifting and transport



- Use proper equipment to handle packaging.
- Make sure that there is no damage to equipment and that there are no missing parts, checking the accompanying document.
- If any anomalies are detected, inform Mecal no later than 10 days from the date of receipt.
- Equipment is provided with eyebolts or appropriate grip areas for handling. Use these with appropriate mechanical systems to position it.
- Packaging must be disposed of as per regulations in force.
- Make sure that the support surface is suitable for the weight of the equipment and that it is firmly secured in place.
- Do not dispose of packing in the environment: contact authorised companies for disposal.



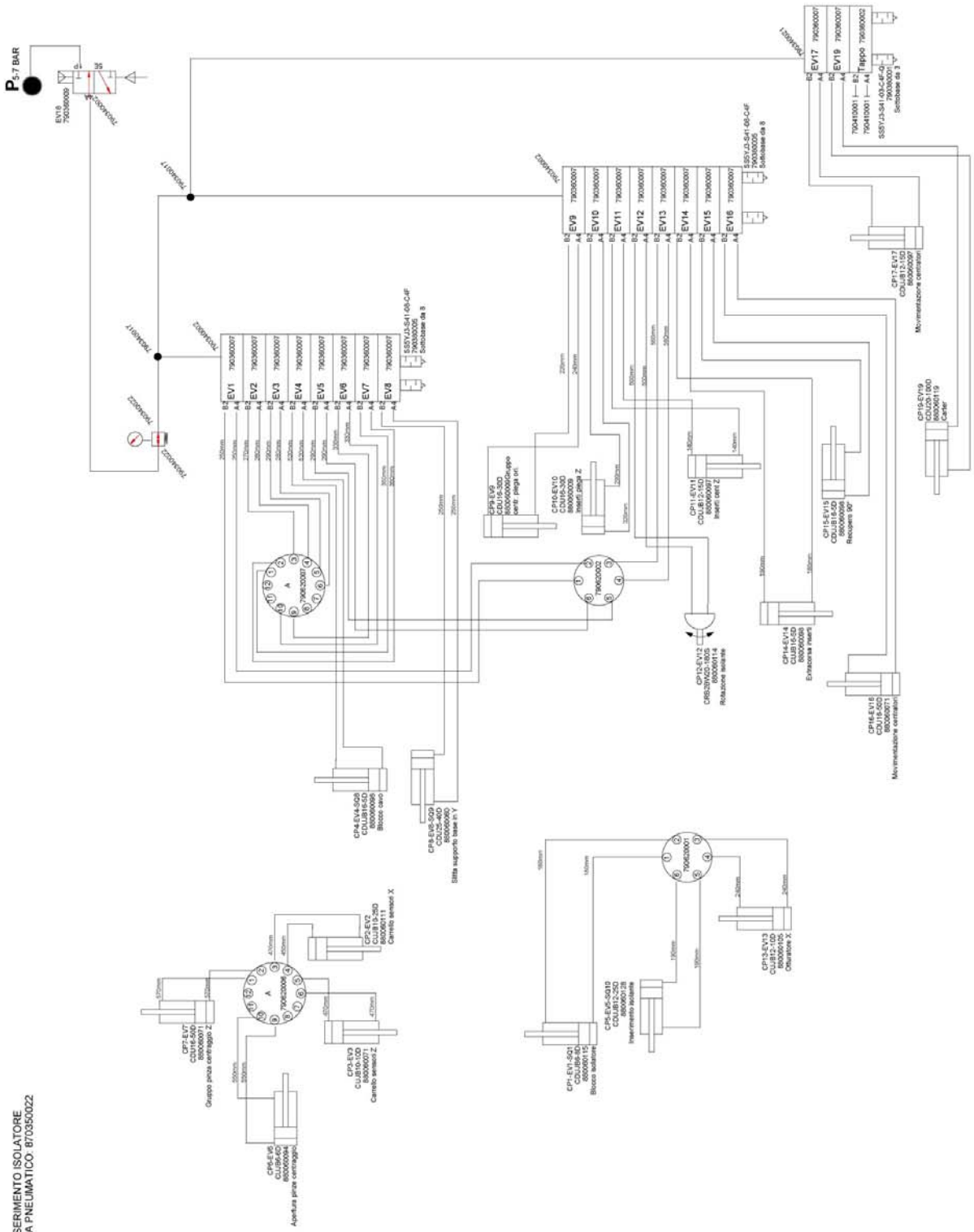
### 3.2) Pneumatic connection

The main electrical and pneumatic connections are on the left side of the equipment.

- Connect the network **A** power cable, which comes out directly from the electrical box, to a normal outlet.
- Connect a Ø6mm air hose to pneumatic fitting **B**.



### 3.3) Pneumatic diagram



### 3.4) Electrical diagram

WIRING DIAGRAM

IS010 90°

CLIENT : YAZAKI

MECAL S.r.l.

DRAW IS010

SERIAL NR. ATT0153

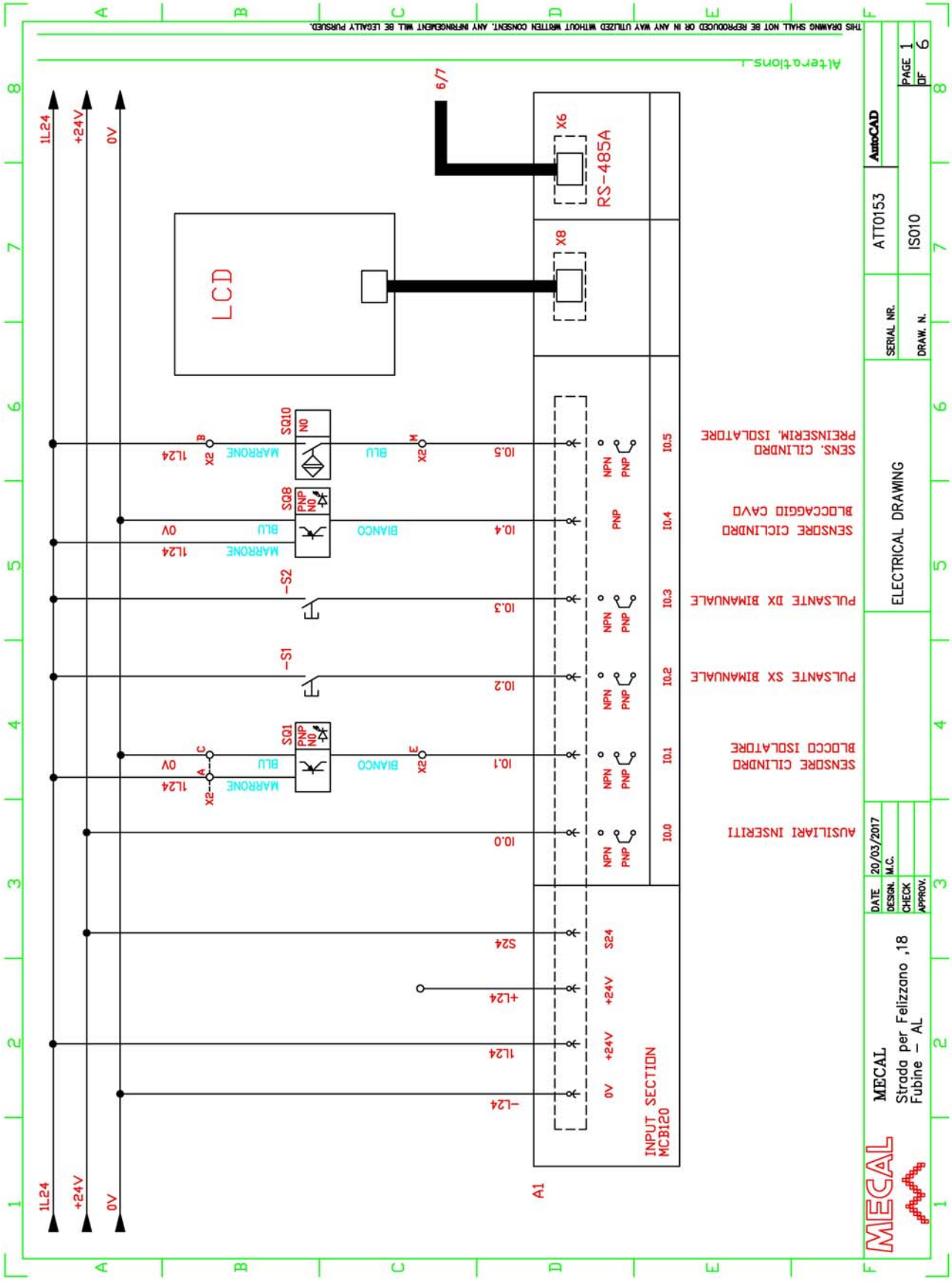
DATE 20/03/2017

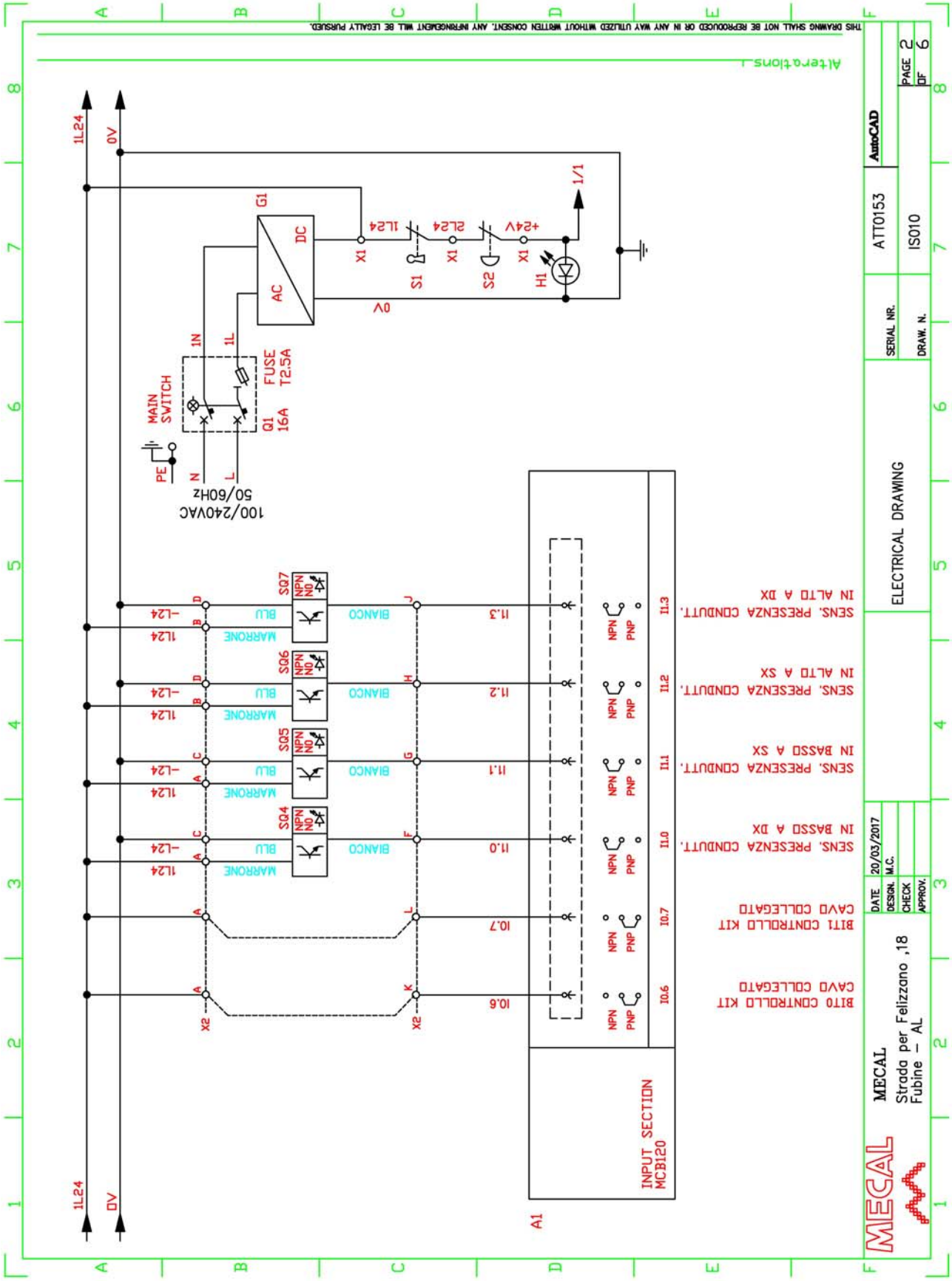
MCB120 PROGRAM A1 : MCP120AWR00

MCB120 PROGRAM A2 : MCP120AZR00

MECAL 





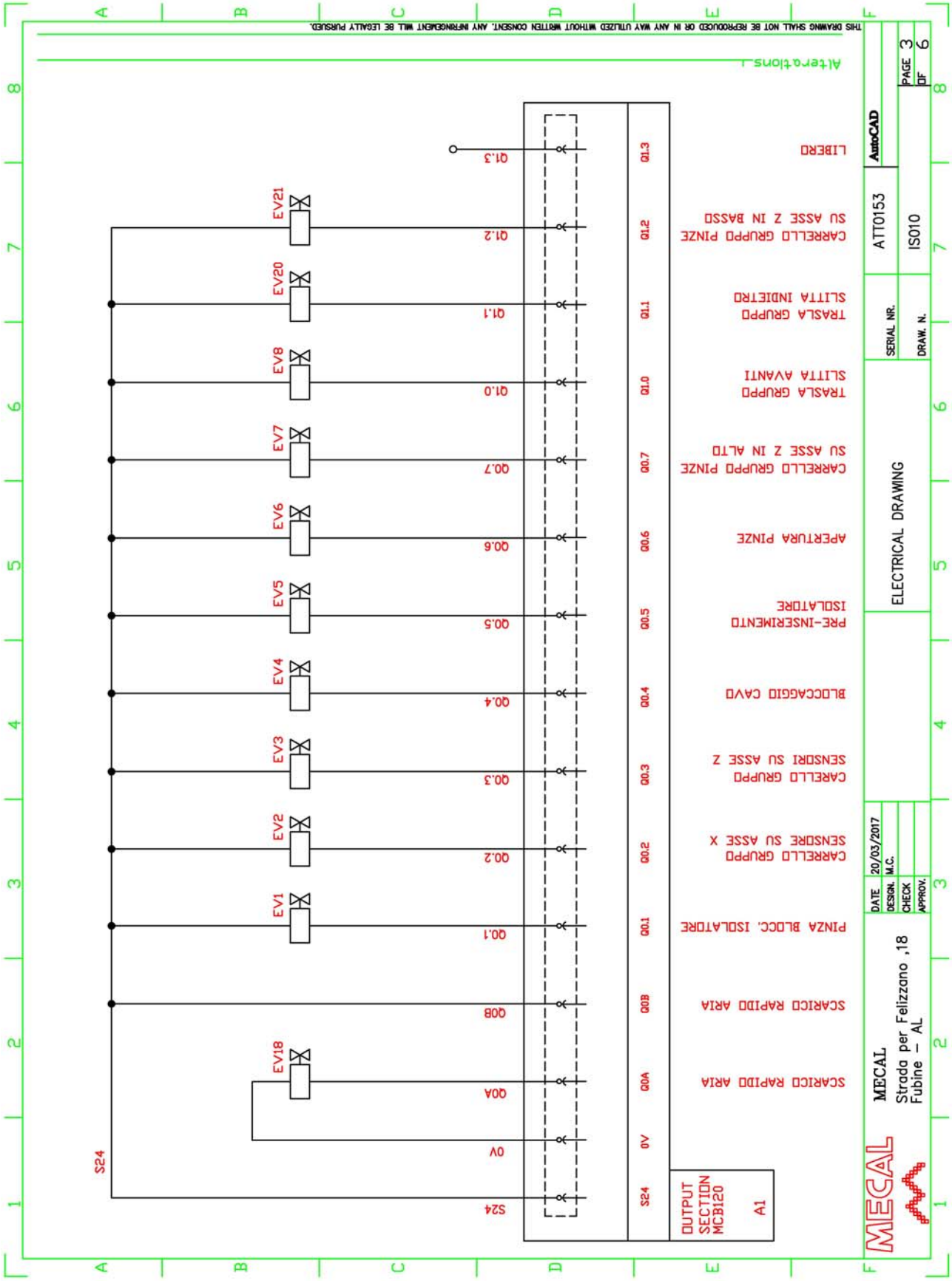


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Alterations 1

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|  | BITO CONTROLLO KIT<br>CAVO COLLEGATO<br>BITI CONTROLLO KIT<br>CAVO COLLEGATO<br>IN BASSO A DX<br>SENS. PRESENZA CONDUIT.<br>11.0<br>IN ALTO A SX<br>SENS. PRESENZA CONDUIT.<br>11.2<br>IN ALTO A DX<br>SENS. PRESENZA CONDUIT.<br>11.3 |  |  |                    |  |  |  | DRAW. N.<br>IS010     | PAGE 2<br>DF 6 |

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OUTPUT SECTION MCB120  
A1



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Fubine - AL

DATE 20/03/2017  
DESIGN M.C.  
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APPROV.

ELECTRICAL DRAWING

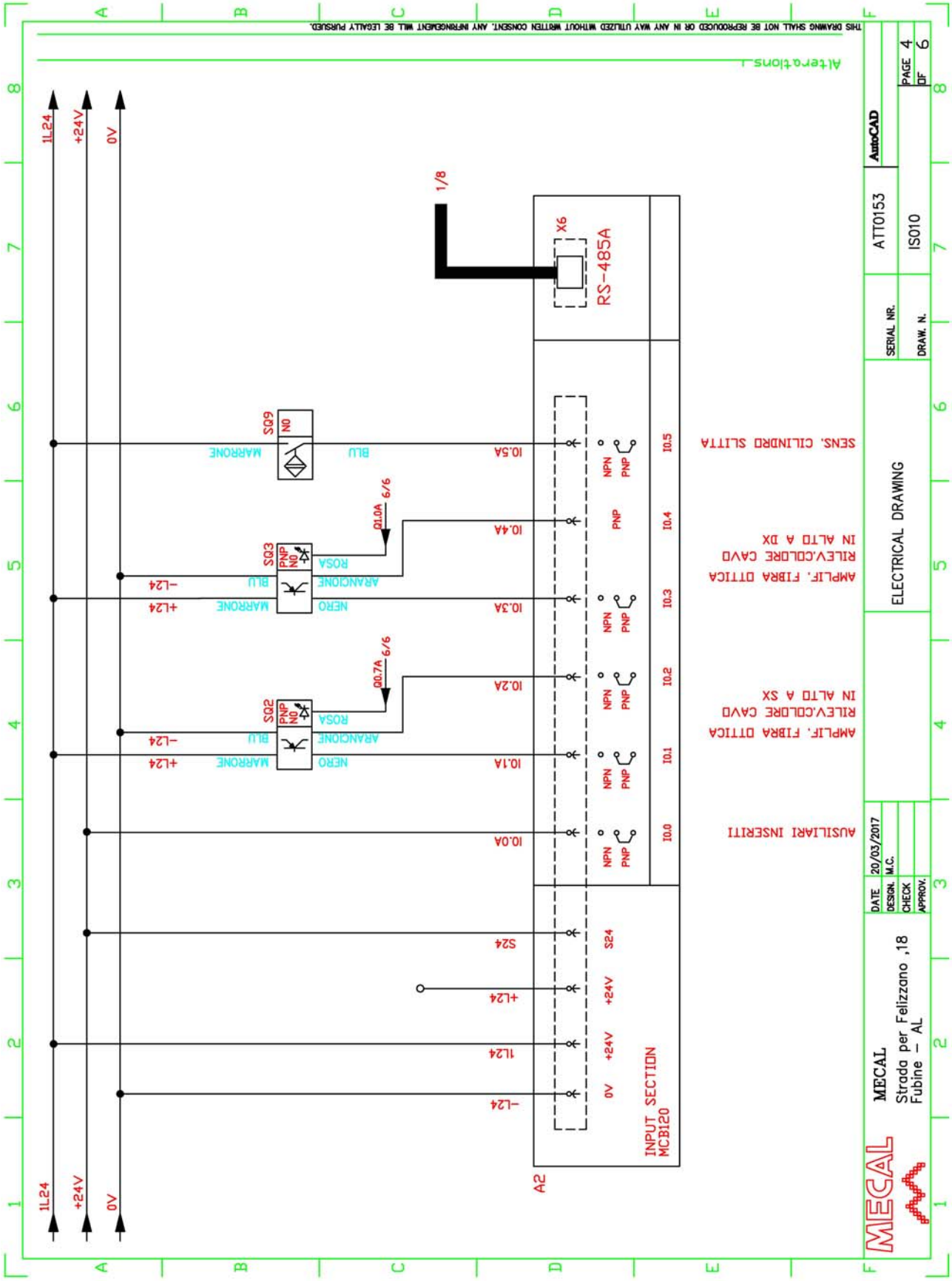
SERIAL NR.  
DRAW. N.

AutoCAD

PAGE 3  
DIF 6

- 00A SCARICO RAPIDO ARIA
- 00B SCARICO RAPIDO ARIA
- 001 PINZA BLOCC. ISOLATORE
- 002 CARRELLO GRUPPO SENSORE SU ASSE X
- 003 CARRELLO GRUPPO SENSORI SU ASSE Z
- 004 BLOCCAGGIO CAVO
- 005 PRE-INSELEMENTO ISOLATORE
- 006 APERTURA PINZE
- 007 CARRELLO GRUPPO PINZE SU ASSE Z IN ALTO
- 01.0 TRASLA GRUPPO SLITTA AVANTI
- 01.1 TRASLA GRUPPO SLITTA INDIETRO
- 01.2 CARRELLO GRUPPO PINZE SU ASSE Z IN BASSO
- 01.3 LIBERO

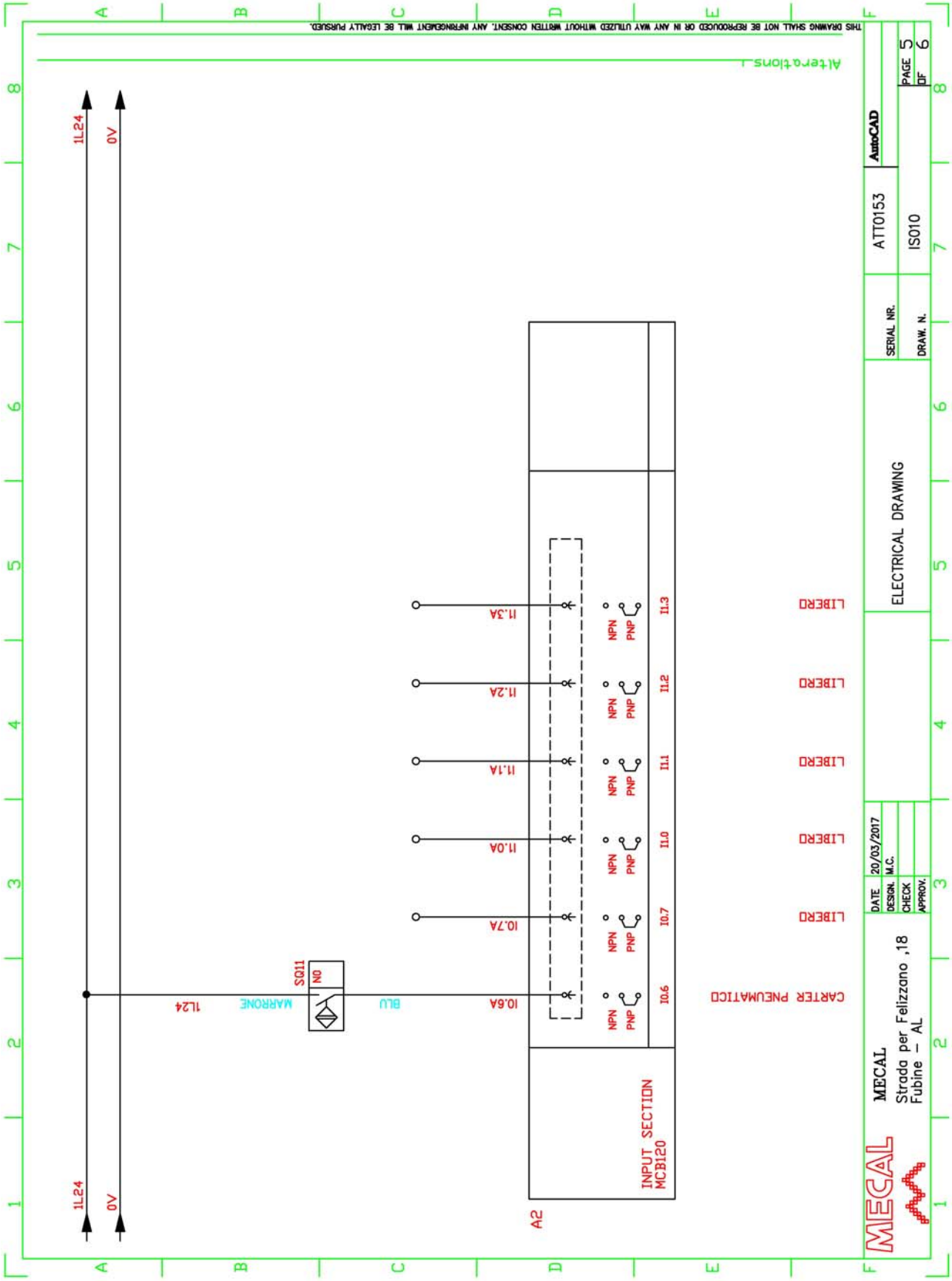
Alterations

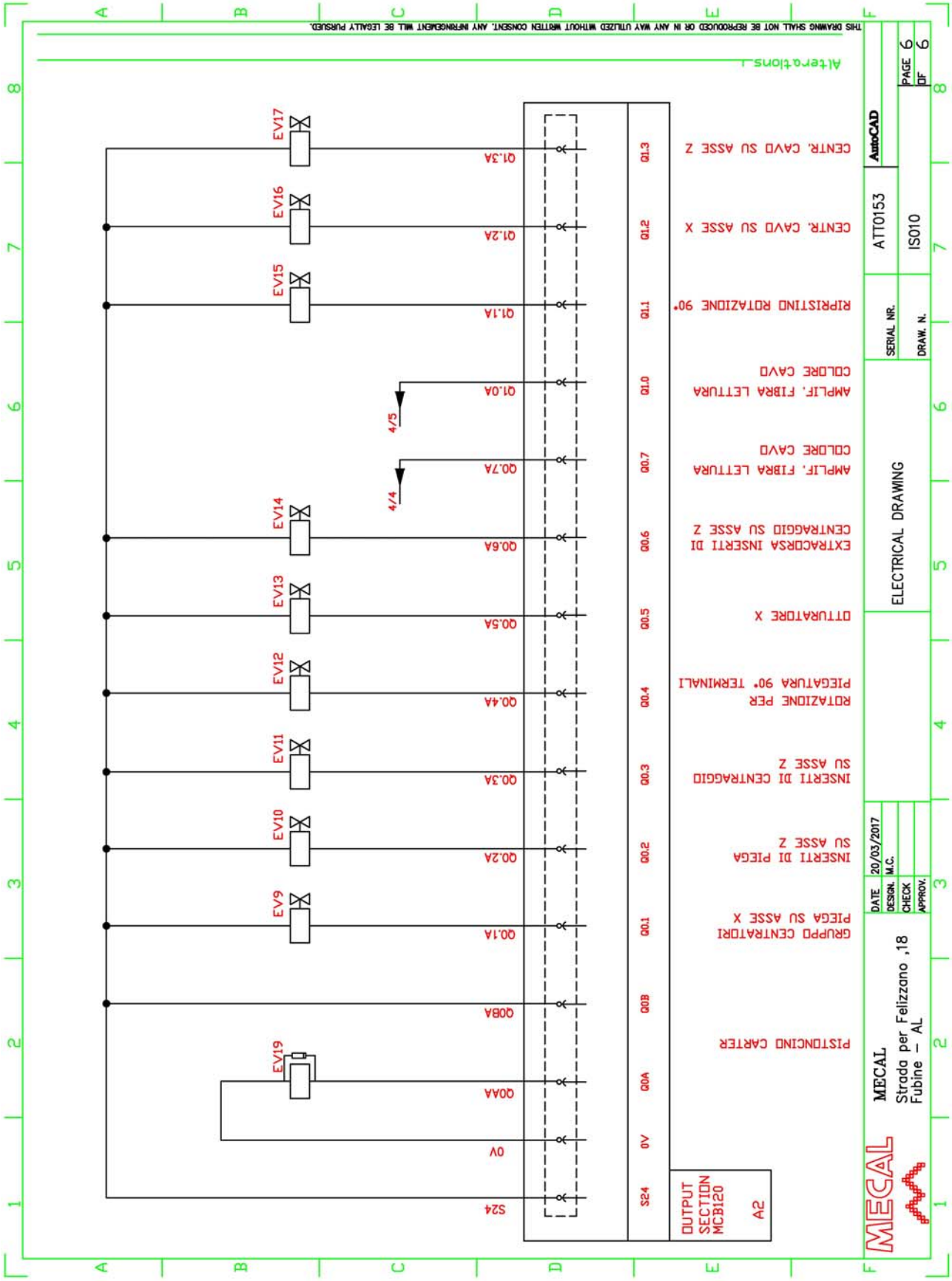


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|       |  | DESIGN |            |        |      |       |         |                    |                    |                       |                   |                |         |





WIRING DIAGRAM

IS010 180°

CLIENT : YAZAKI

MECAL S.r.l.

DRAW IS010

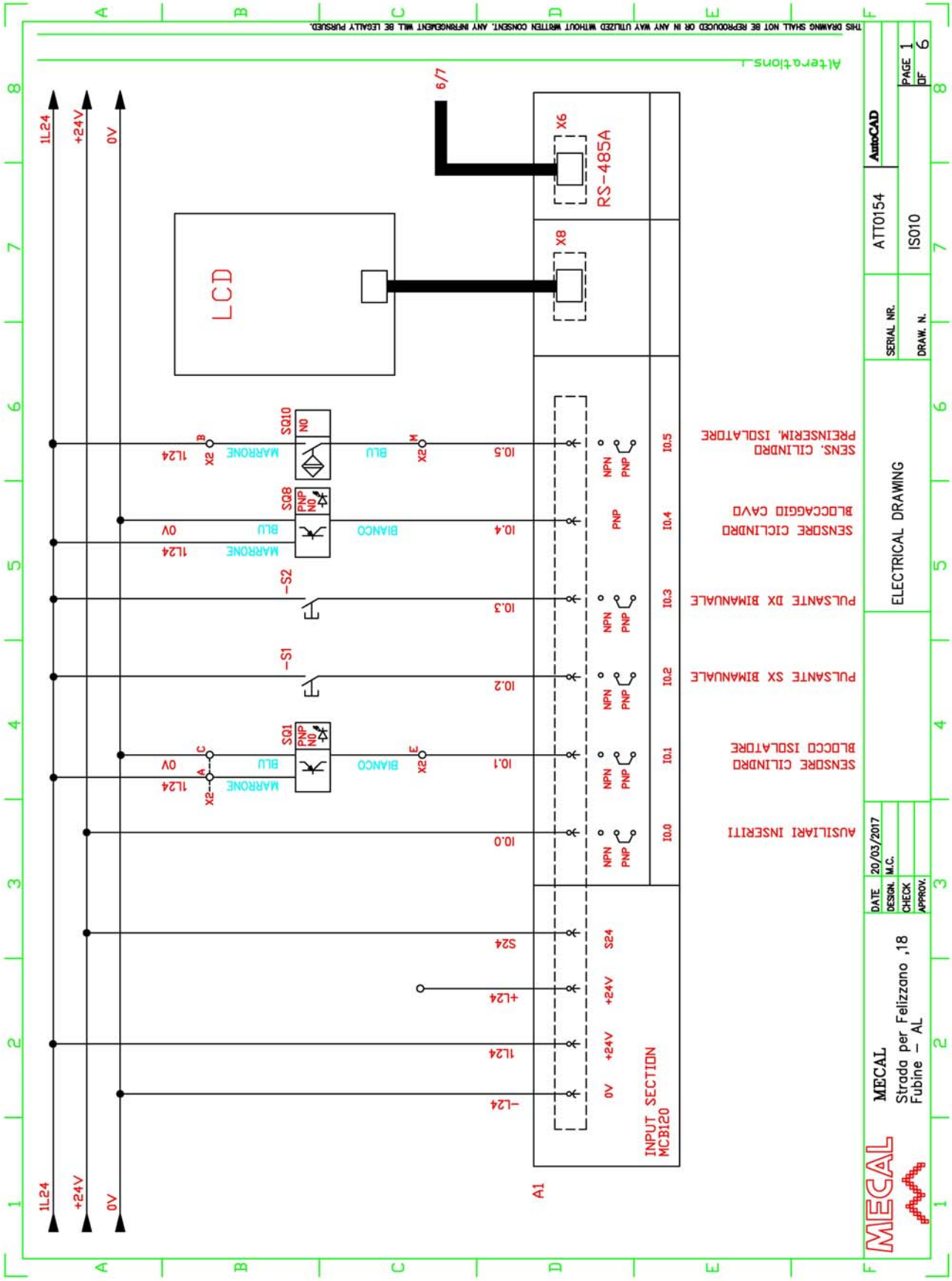
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DATE 20/03/2017

MCB120 PROGRAM A1 : MCP120AWR00

MCB120 PROGRAM A2 : MCP120AZR00





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Strada per Felizzano ,18  
Fubine - AL

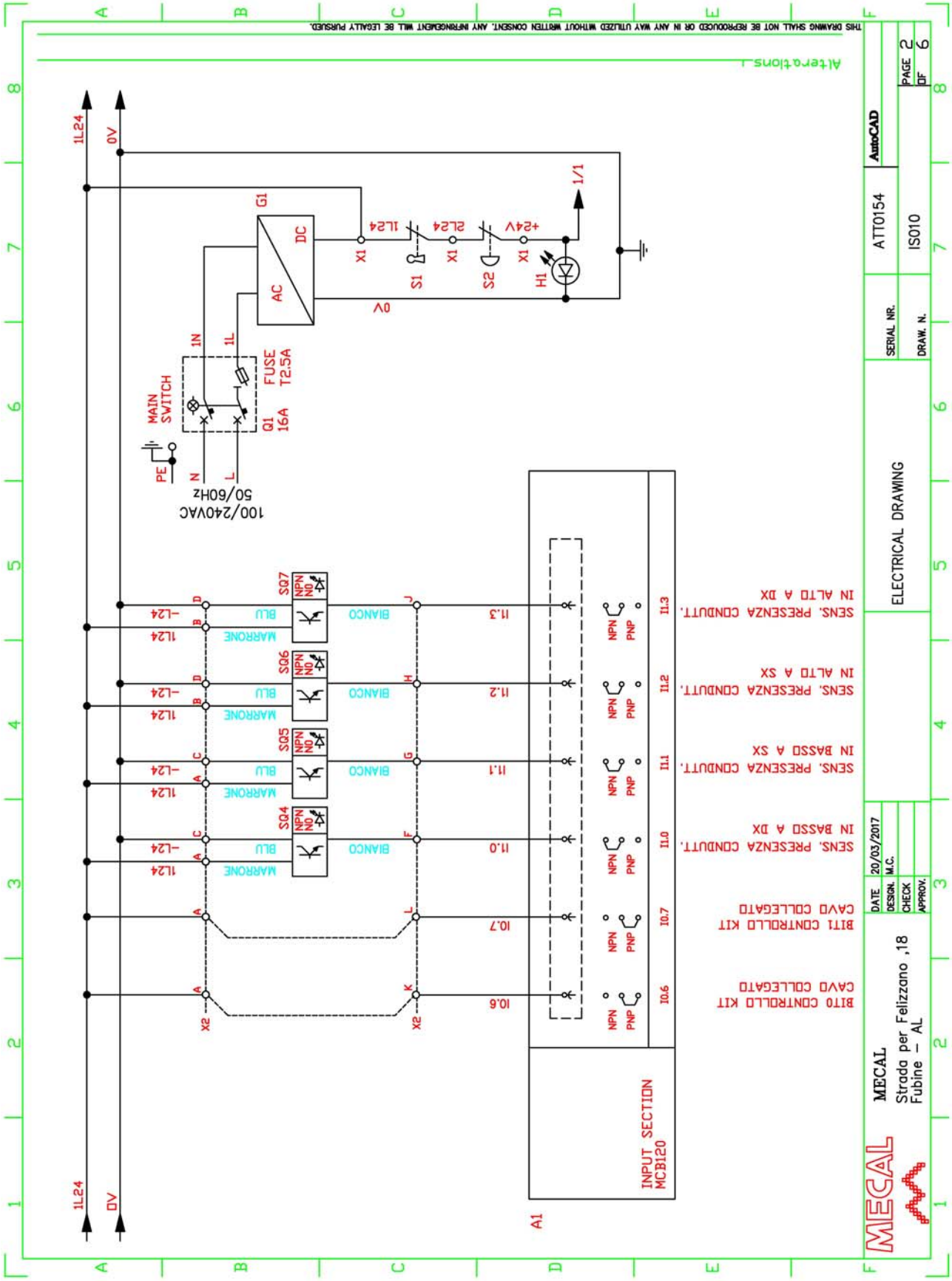
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DESIGN M.C.  
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ELECTRICAL DRAWING

SERIAL NR.  
DRAW. N.

AutoCAD





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 DESIGN: M.C.  
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BITO CONTROLLO KIT  
 CAVDO COLLEGATO

SENS. PRESENZA CONDUIT.  
 IN BASSO A DX  
 IN BASSO A SX

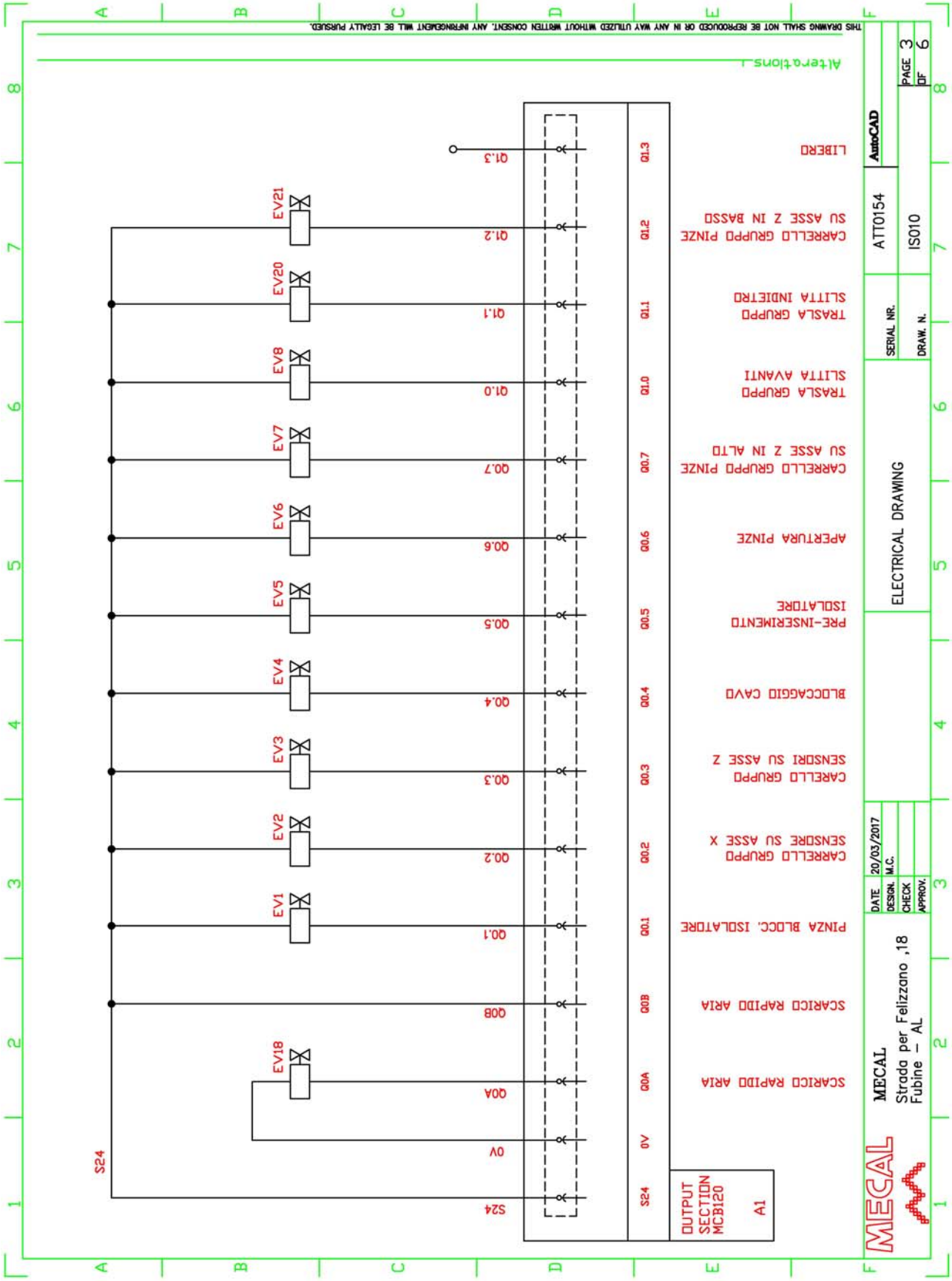
SENS. PRESENZA CONDUIT.  
 IN ALTO A SX  
 IN ALTO A DX

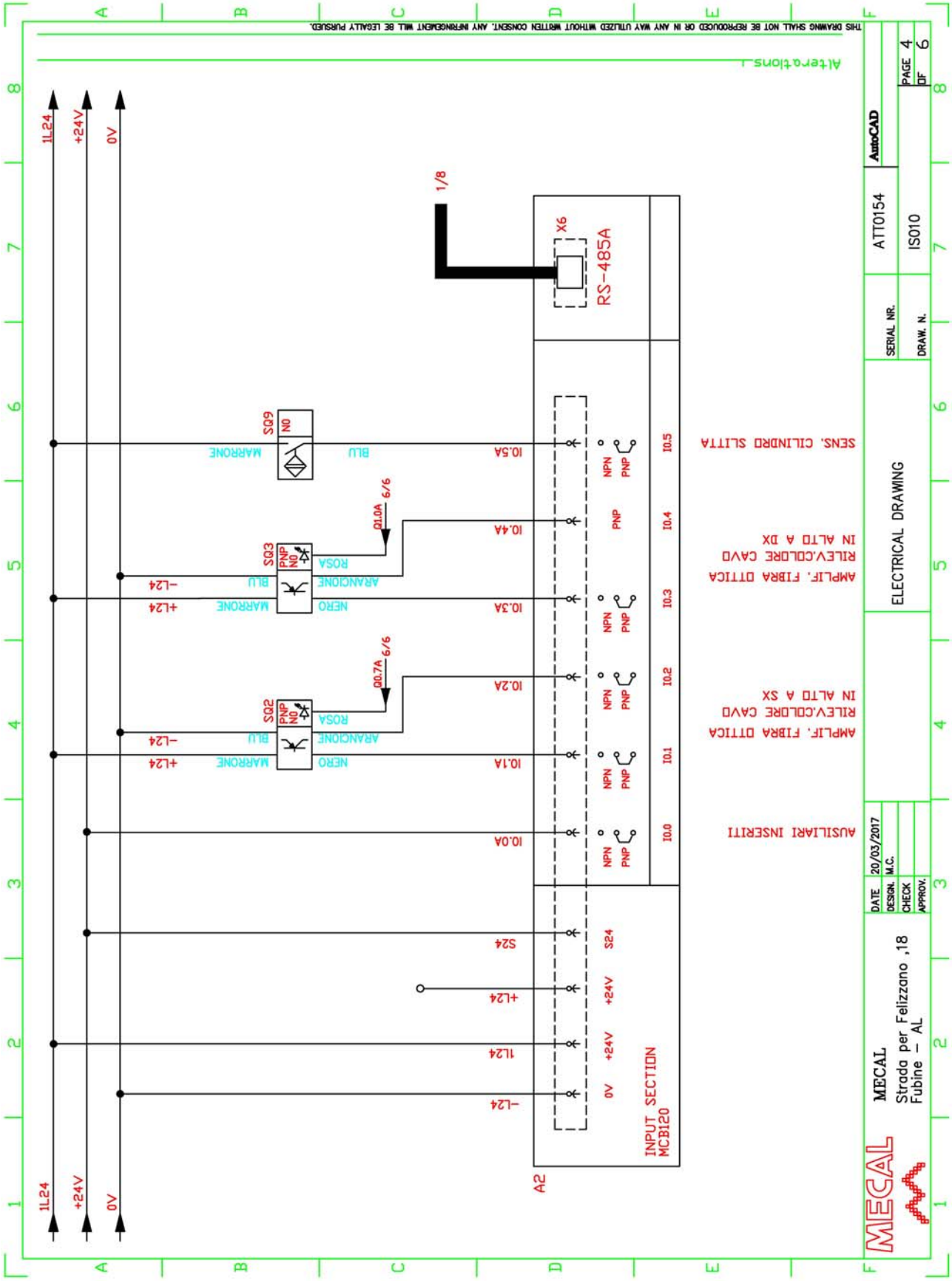
**ELECTRICAL DRAWING**

ATT0154  
 SERIAL NR. IS010  
 DRAW. N. IS010

AutoCAD

PAGE 2 OF 6





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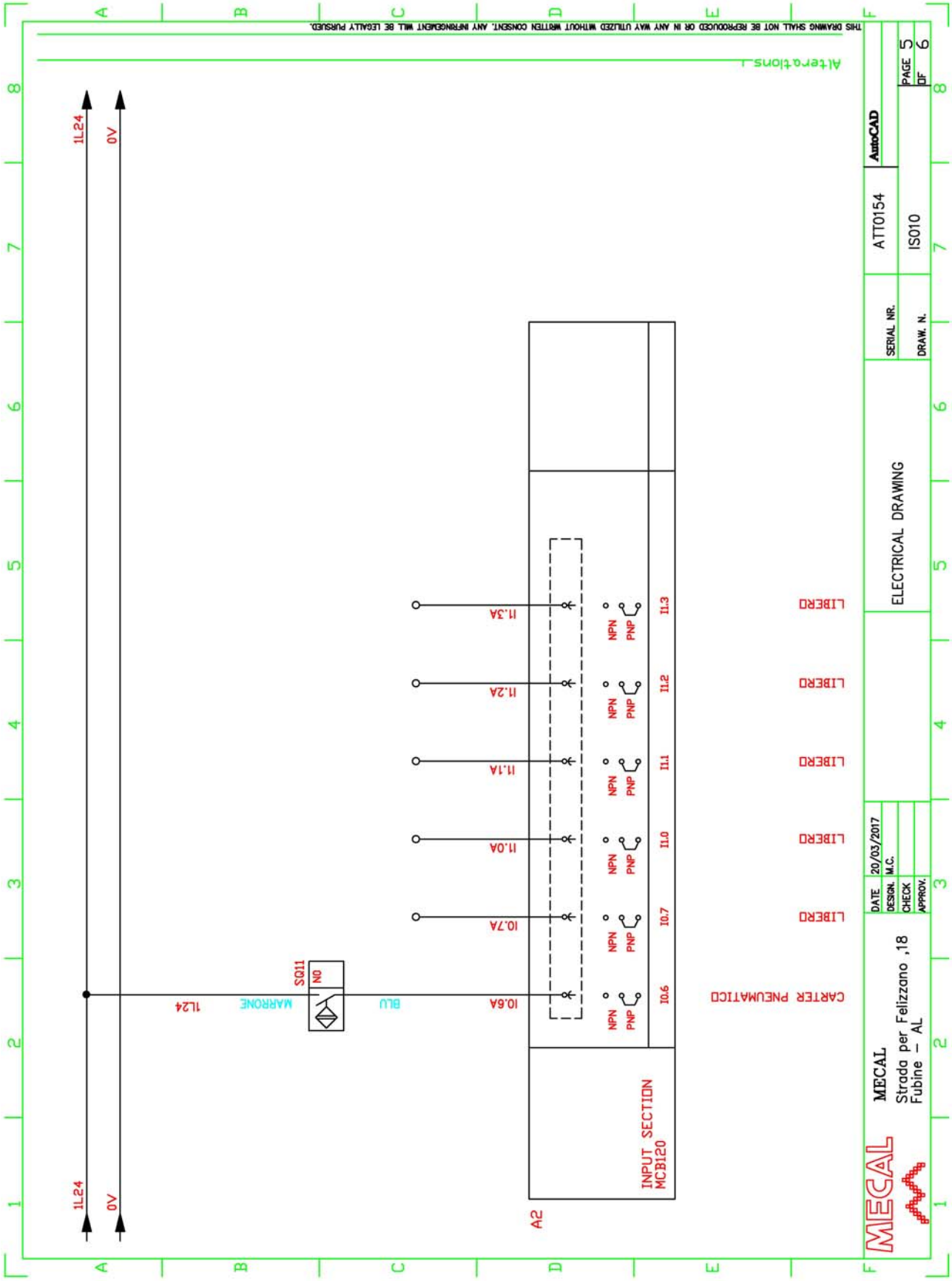
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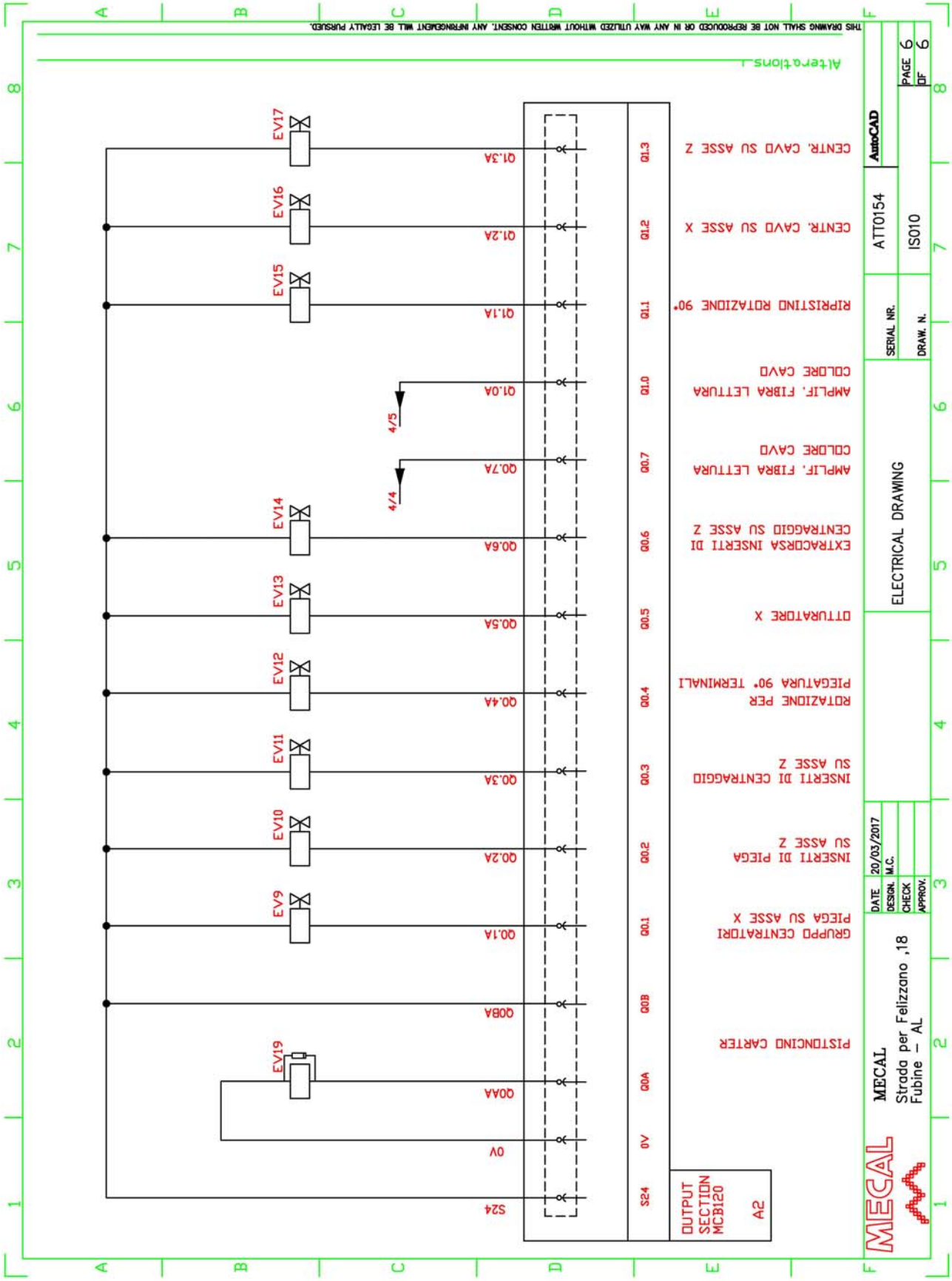
PAGE 4  
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Alterations

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|                          |  |                   |            |                    |  |         |  |         |  |            |  |         |  |         |  |          |  |        |  | DF 6   |  |





## 4) Start-up and use

Pay due attention when manoeuvring for equipment installation, removal and calibration so as not to damage any part of the machine.

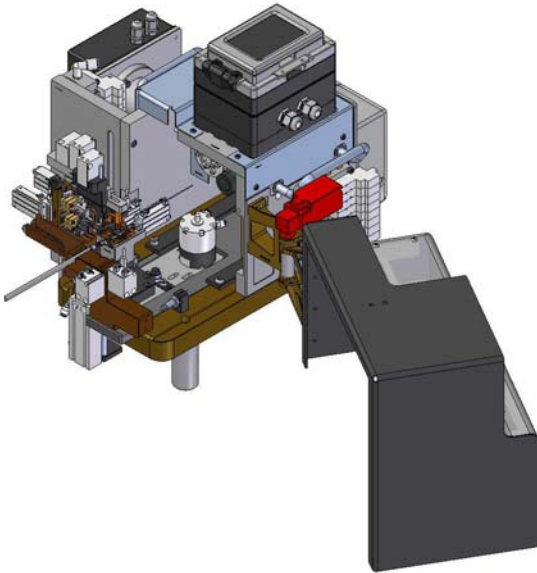
- Make sure that the green warning light is on.
- Load the material to be processed.
- Make sure that the safety guard is properly positioned and secured in place.  
Note: the safety guard has been designed to prevent equipment operation unless it is correctly positioned.
- Make sure that the emergency switch is disconnected.
- Check pneumatic power (6 Bar).
- Select the desired program on the touch-screen.
- Start up the two-handed control. The machine will reset.
- To start the cycle, read chapter 6.



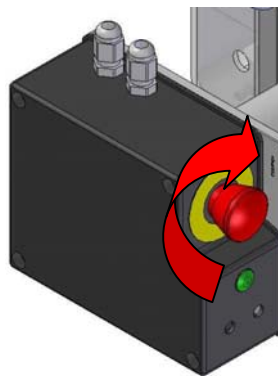
## 4.1) Stop and reset



**If you need to stop the machine at any time during the cycle, press the emergency button.**  
**The emergency button cuts off power to equipment and discharges the pneumatic system.**



Open the fixed guard by means of the captive screw and remove components that caused jamming. Close the casing.



To restore the emergency, release the button, turning it in the clockwise direction until you hear a release "click."

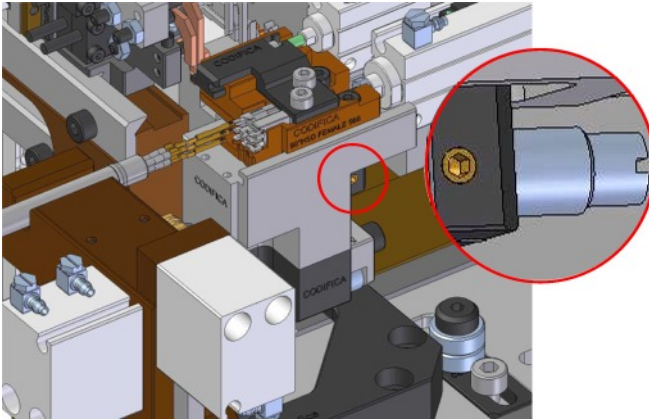


Activate the two-hand control to reset equipment.



## 5) Adjustments

### 5.1) Insulator insertion

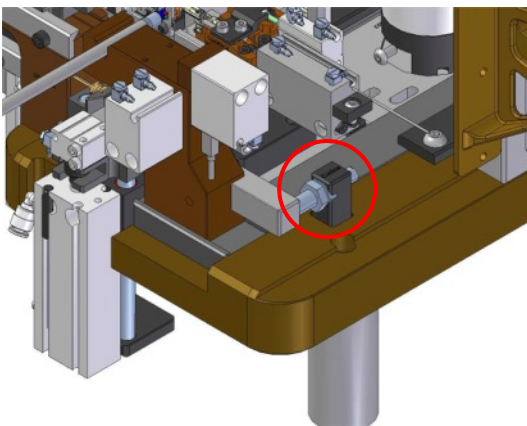


Adjust the decelerator to stabilise the placement position of the connector in terminals.

Unscrew the brass dowel and intervene on the decelerator:  
Screw in to decrease insertion  
Unscrew to increase insertion

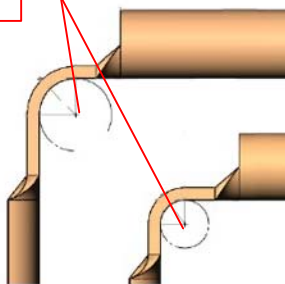
Re-tighten the dowel in place once the position has been reached.

### 5.2) Bend position



Adjust the decelerator to control the portion of the bent terminal and relative bending tip.

Punto di piega



Proceed by unscrewing the locking nut and intervening on the decelerator:

- Unscrew the decelerator to increase the bent portion
- Screw in the decelerator to decrease the portion

## 5.3) Display operation




The Home Screen is divided into two parts: the upper one, NOT selectable, specifies to the operator how cable colours that he has decided to crimp should be positioned.


There are 4 selectable menus at the bottom:

- Language
- Information
- Mode (page 35-36)
- Settings (page 36)



Select the icon  on the main menu to open the languages screen. Select the flag that corresponds to the desired language.




Info Screen  is divided into 3 sections:

- **Counter**: is not resettable and provides the total number of machine cycles.
- **Reset**: resettable counter, the operator can decide when to reset the count depending on need (i.e. reset the count to verify the last maintenance cycles).
- **Batch**: the batch quantity can be set with a countdown. The message BATCH DONE appears at the bottom left when the batch is completed.




Mode Screen is composed of 5 menu:




- Sel mode pressing the icon , it is possible to select AUTO (automatic) or STEP by STEP cycle function.
- Sel cable NOT a selectable menu; the machine automatically recognises the KIT being used (566/535)




- Contact press icon  to open another screen (fig.16) to select cable polarization.





- Cable lock select icon  to activate (ON) cable locking at the end of the cycle, inserting the TPA on-board the machine, or deactivate (OFF) cable locking, allowing for removal and insertion of the TPA outside of the machine.



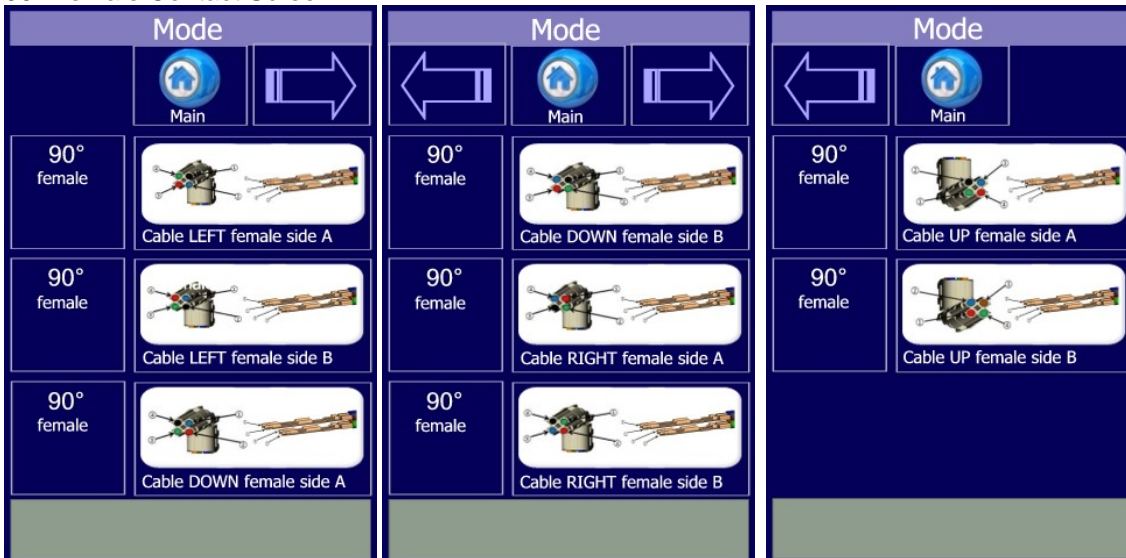
- Radius measurement select  and activate (ON) to lock the process after PIN bending and cable removal in order to measure the cable bending angle.



The arrows  allow you to change the page while the control  brings you to the main screen.



90° Female Contact Screen:



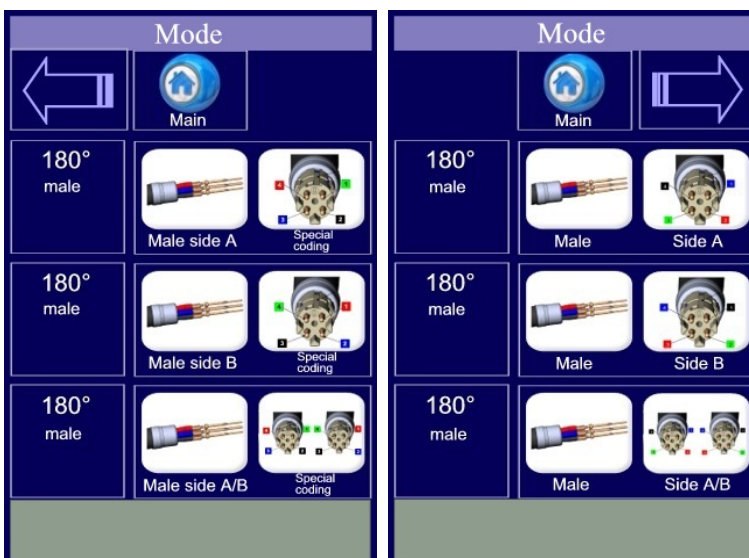
Select polarization from the 8 offered. An indication of the cable chosen and the position of colours will appear at the top of the main menu.

180° Female Contact Screen:



Select polarization from the 6 offered. An indication of the cable chosen and the position of colours will appear at the top of the main menu.

90° Male Contact Screen:



Select polarization from the 6 offered. An indication of the cable chosen and the position of colours will appear at the top of the main menu.

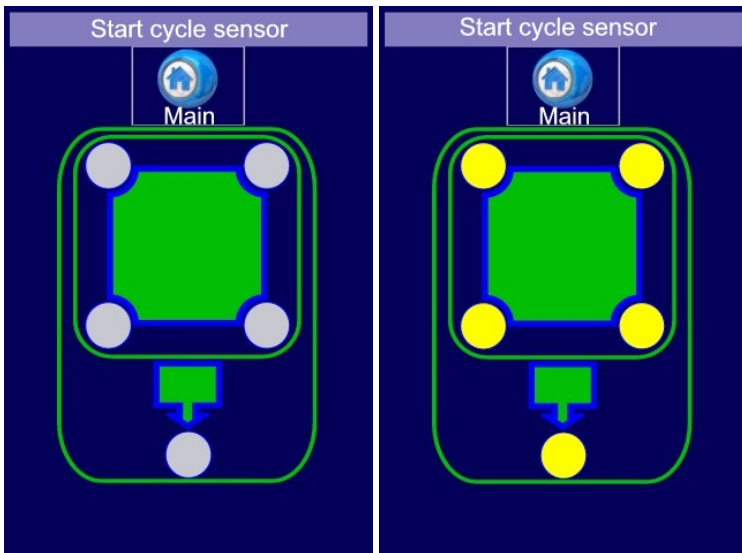
Setting Screen:



Select the icon to activate or deactivate the buzzer to signal:

- Machine on
- Errors on sensors
- Errors detected by the fibre optics

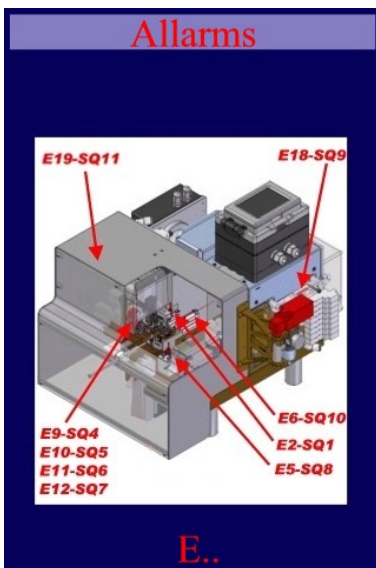
Sensor Screen:



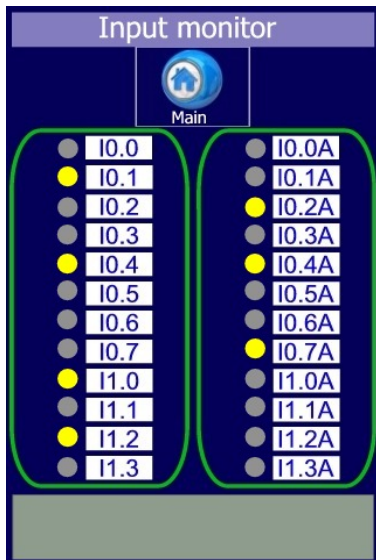
The sensors screen appears as soon as the cable is inserted in the correct position inside the machine.

The display indicates the sensors that are activated in yellow. The machine starts up a cycle when all 5 sensors are active (yellow).

Allarms Screen:



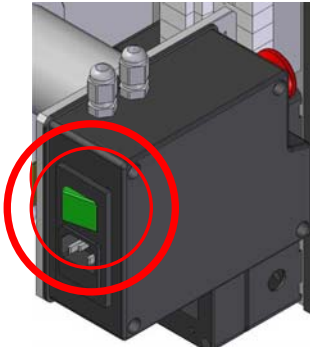
The alarms screen appears whenever the sensor detects an error. The image represents the position of sensors installed on equipment and relative errors, while the band underneath the figure signals the error.



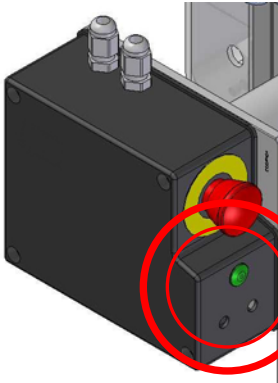
Sensors Screen is activated by pressing two times consecutively on the lower-right part of the Home screen. This screen allows you to view the active sensors (highlighted in yellow), or disable (marked in gray) and is an aid during sensor adjustment phases.

**CAUTION:** the screen can only be activated during the AUTO phase of the work process, in STEP by STEP mode, you can not activate it.

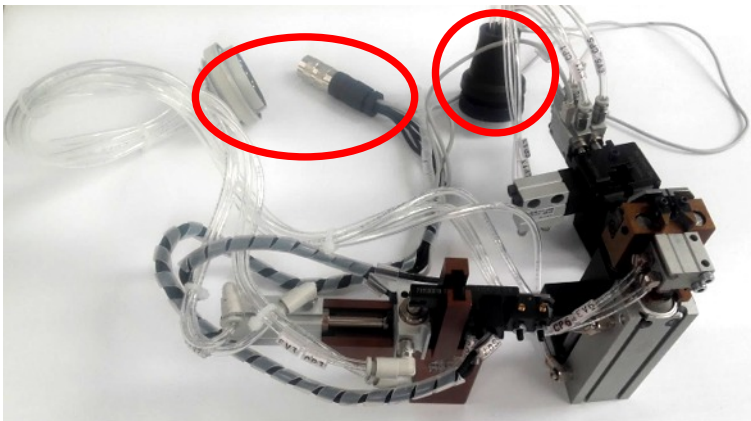
## 6) 90°-180° transformation 535-566



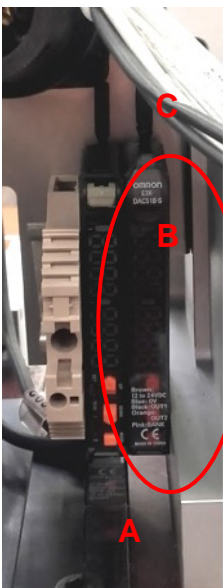
Switch off the machine via the main switch located at the rear of the machine.



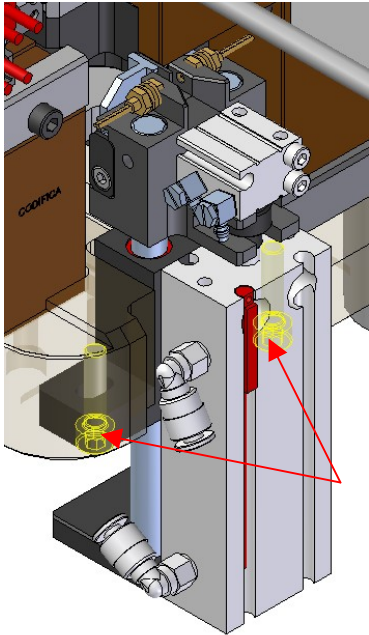
Make sure that the green warning light located under the emergency button is off.



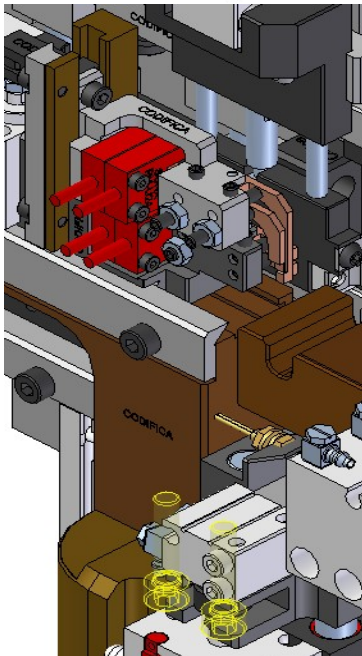
- Disconnect the pneumatic and electrical connections inside equipment.



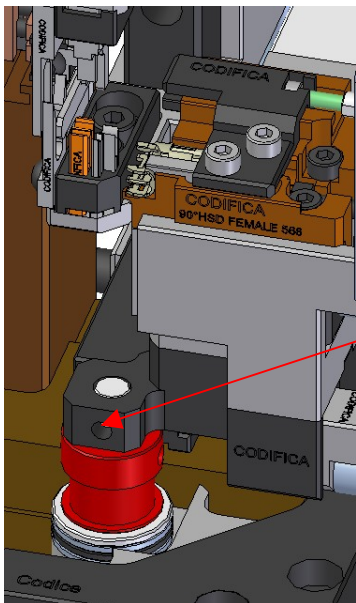
Open the door (A) of both fibre amplifiers, release the grey lever (B) at the top and remove the two fibre wires (C).



Unscrew the fibre block, unscrewing the two screws located under the base.



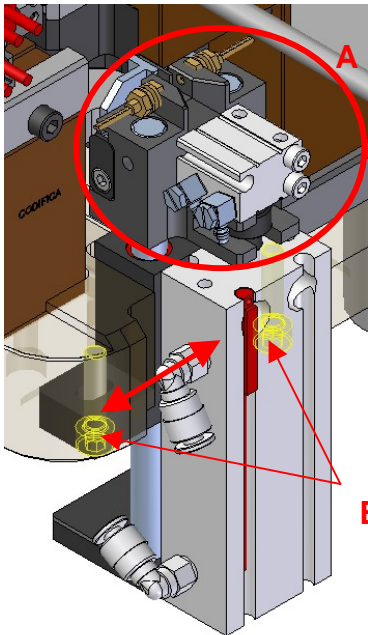
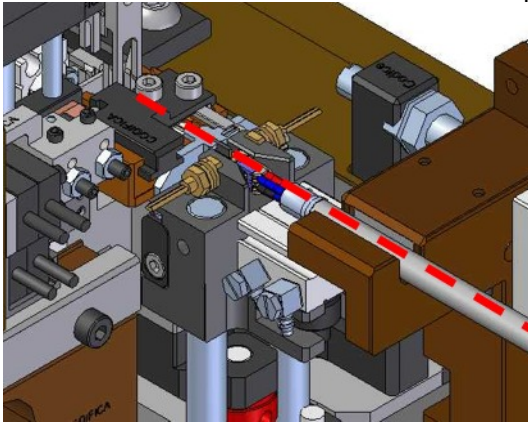
Unscrew the sensor lever support block, unscrewing the two screws located under the base.



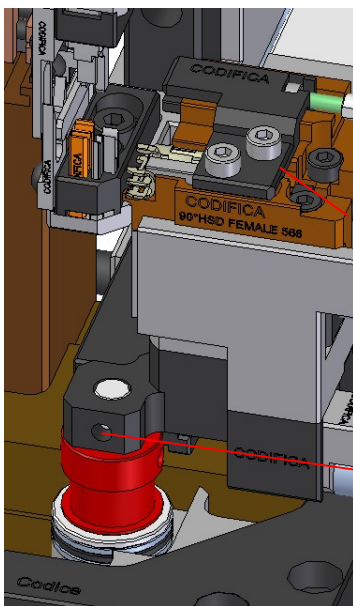
Unscrew the connector support block, unscrewing dowel A. Remove the block by moving it upward.



Install the Kit relative to the application to be processed and install in sequence: connector support, sensor lever support block, fibre block and then re-connect the fibre to the applicator. Verify adjustments of assembled parts and relative alignment.



Group "A" must be aligned with the connector support. Unscrew the screws B and align the fibre block unit, moving it inside its housing. Re-fasten the screws.



Adjust the connector support if it is too high or low with respect to the cable position. Unscrew the dowel and move it to the desired height. Re-fasten the dowel.

Connector support

Unscrew the dowel

Restart the machine as described in chapter 4 and select the program relative to the application to be processed (chapt.5).

## 7) Working cycle

Make sure that equipment is on (see chapter 4).

### STEP 1. Display



Start-up of the first working cycle involves an initial phase in which the operator must select the desired program from the touch-screen panel, choosing from the following options:

- Select the language (page 34)
- Set the batch (page 34)
- Select the type of polarization (pages 35-36)
- Set the buzzer (page 37)

### STEP 2. Connector loading

Insert connectors for different applications, as shown in the figure.



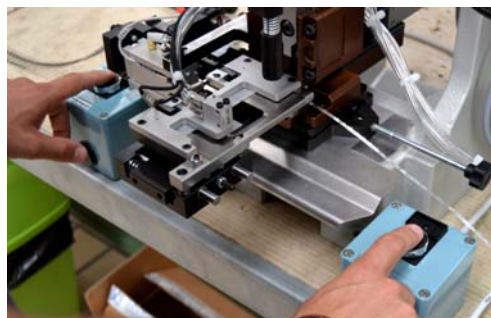
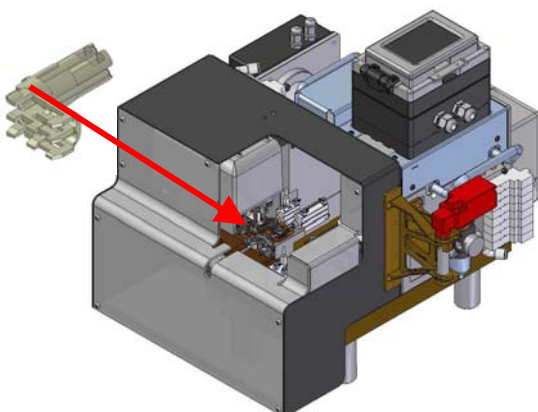
90° connector



Male 180° connector



Female 180° connector



Load the connector on-board the machine and press the two-hand control.

### STEP 3. Cable insertion

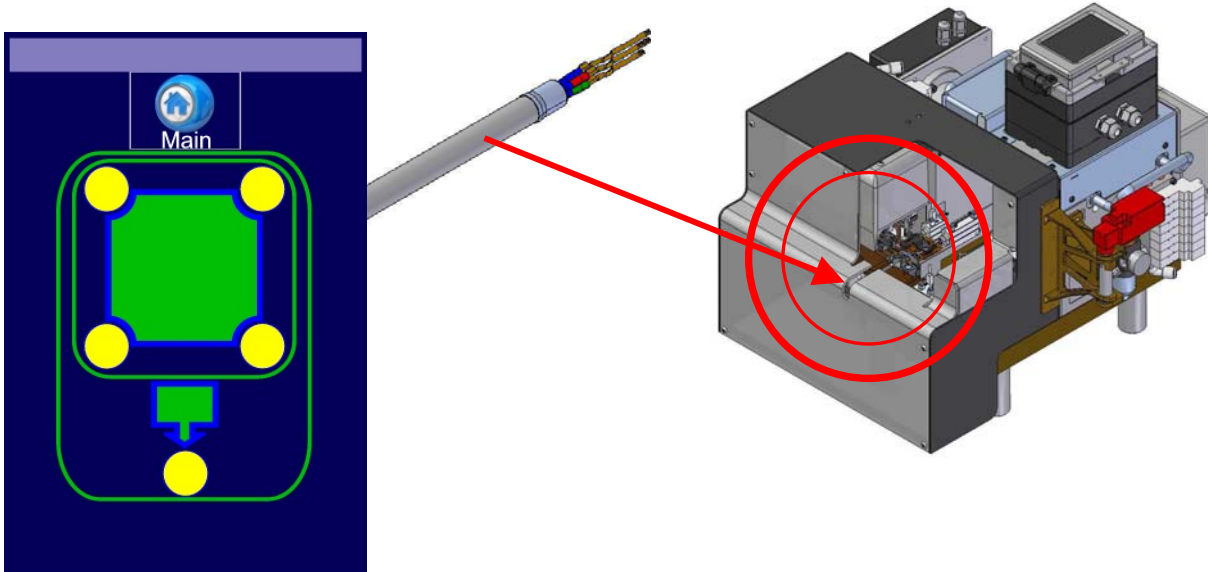
Press and hold the two-hand control to set equipment for cable loading.

#### STEP 3.1

Verify correct cable insertion with the selected program (see chapt. 5.1). For 90° applications, long pins should be positioned to the left.

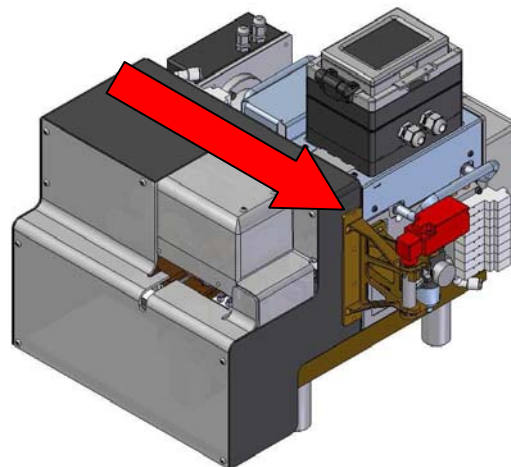
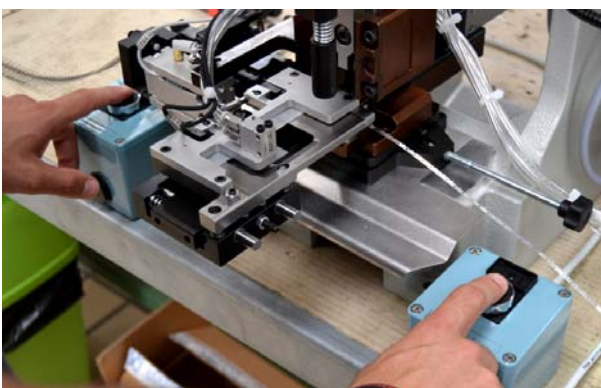
Insert the cable from the top downward into the guided part of the fixed guard, making sure that the cable colours correspond with the selected program. Insert the contacts inside the housings on the centring clamps and put slight pressure on the cable. Cable insertion in the equipment switches the sensor levers locking the cable.

!!If the cycle does not start, see chapter 8 “Troubleshooting and problem resolution”!!



### STEP 4. Cycle start-up

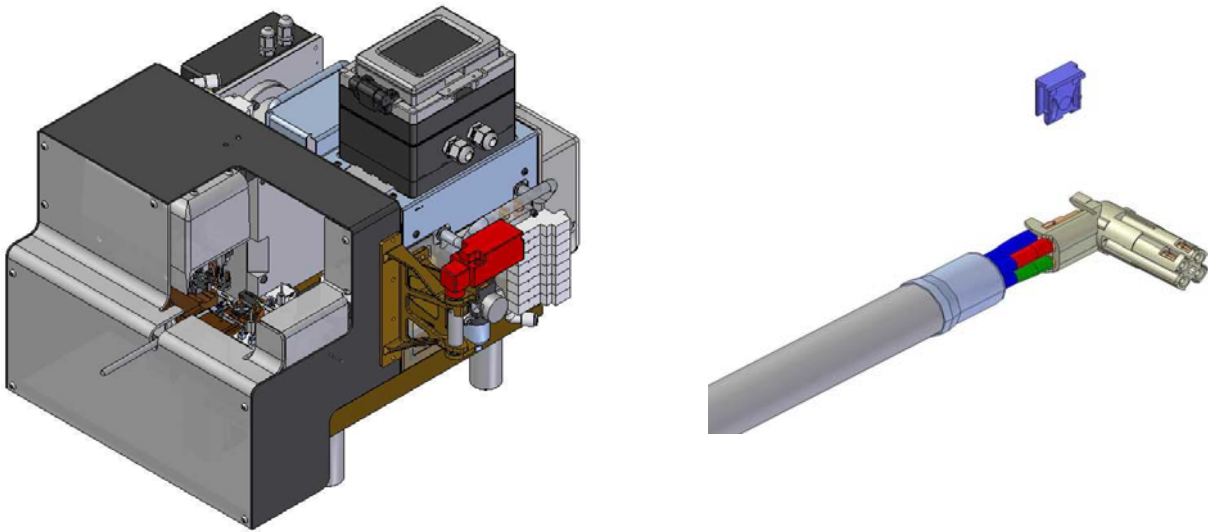
Press the two-hand control to close the mobile guard and allow for cycle start-up, ensuring that the operator can work in full safety.



!!If the cycle does not start, see chapter 8 “Troubleshooting and problem resolution”!!

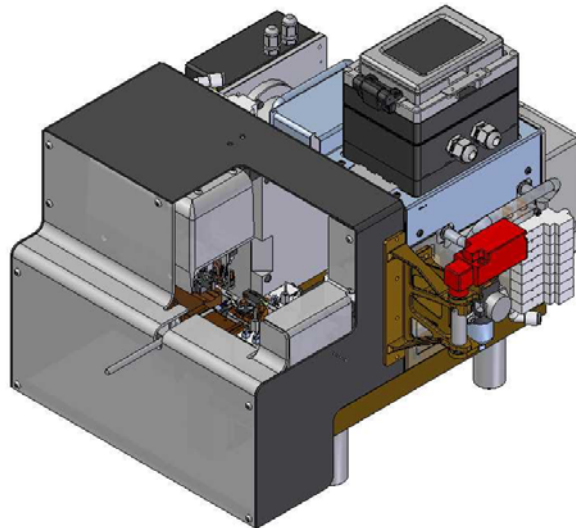
### STEP 5. TAP insertion outside of the machine

At the end of the cycle, the casing re-opens and the bent cable is freed. Once the cable is removed, the operator will have to perform manual insertion of the TPA.



### STEP 5. TAP insertion on-board the machine

At the end of the cycle, the casing re-opens and the bent cable remains blocked in the machine to allow the operator to insert the TPA on-board the machine.



### STEP 6. Resetting

Once the cable is removed, reset the machine by pressing the two-hand control.

## 8) Maintenance

**!! Before performing any operations, always switch off the machine, check that the green light is off and cut off power from the main switch!!**

### 8.1) Spare parts

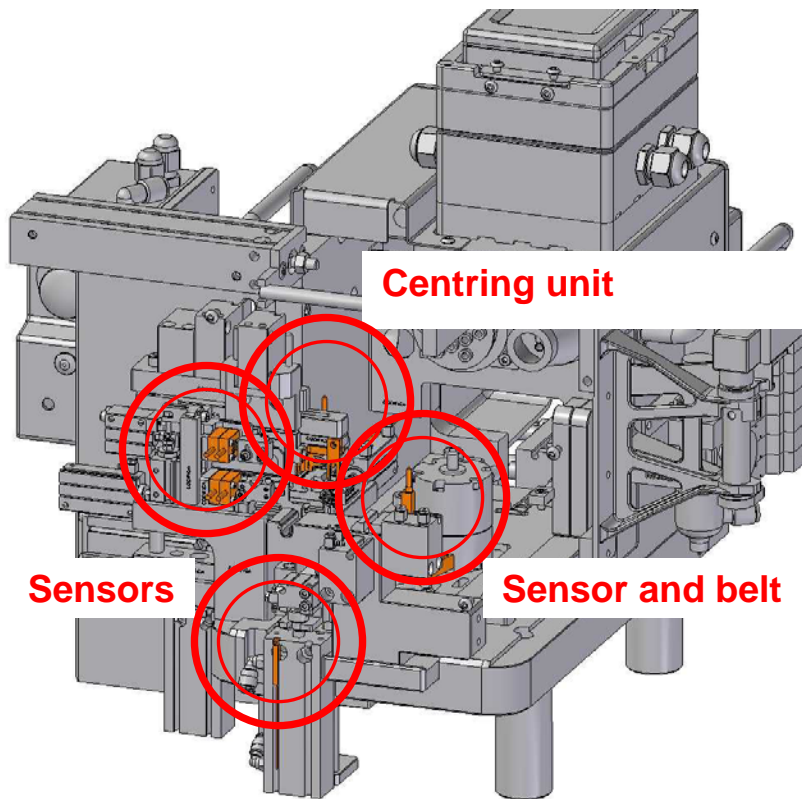
Only install spare parts with the correct code number contained on the part and included in the documentation in the attached CD. For correct use and for good quality, use **original spare parts** only.



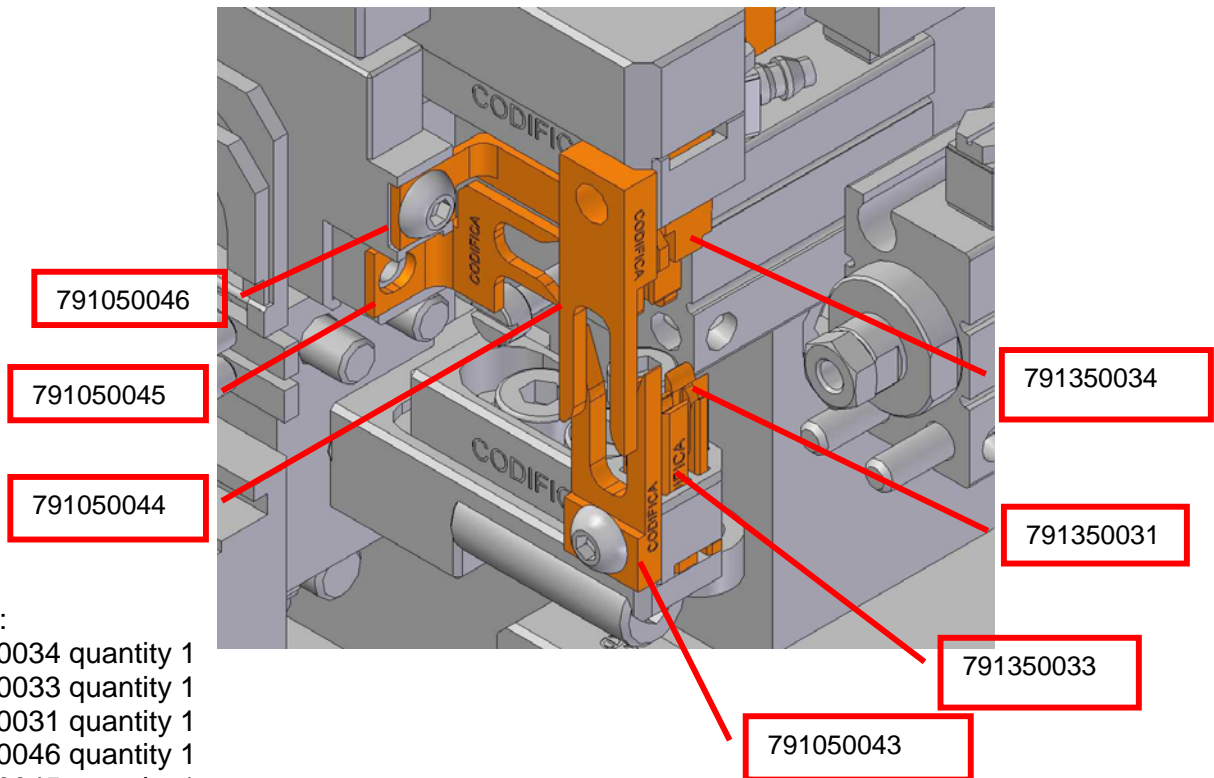
Download files in .pdf format via the "Documents" icon to access the BOM with part codes and reference to identification shown in the exploded diagram. Verify that the model and serial number correspond with the applicator in question.

## 8.2) Spare parts recommended by Mecal

To improve maintenance processes, Mecal recommends the purchasing of some parts that are sensitive to wear.



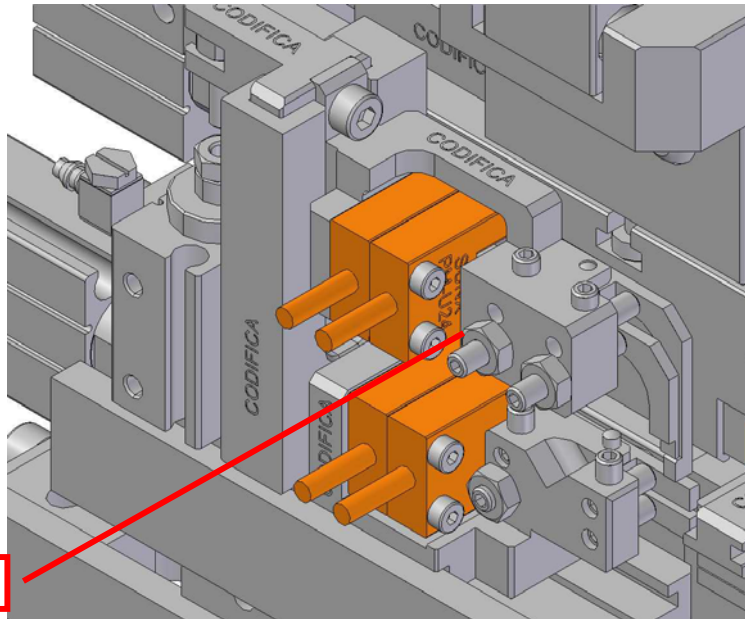
### 8.2.1) Centring unit



Codes:

791350034 quantity 1  
791350033 quantity 1  
791350031 quantity 1  
791050046 quantity 1  
791050045 quantity 1  
791050044 quantity 1  
791050043 quantity 1

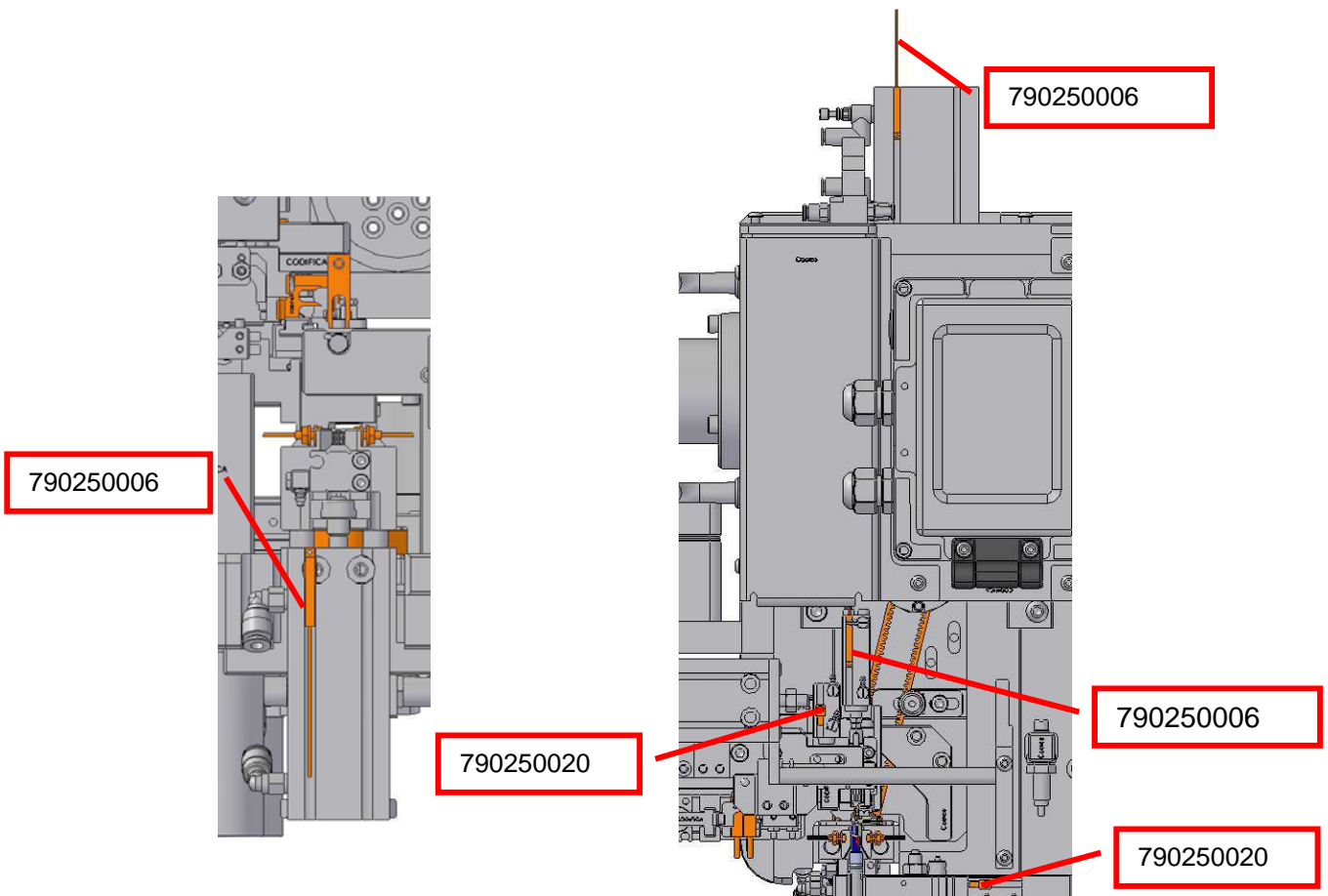
### 8.2.2) Forked sensors



790250013

Codes  
790250013 quantità 4

### 8.2.3) Magnetic sensors



790250006

790250006

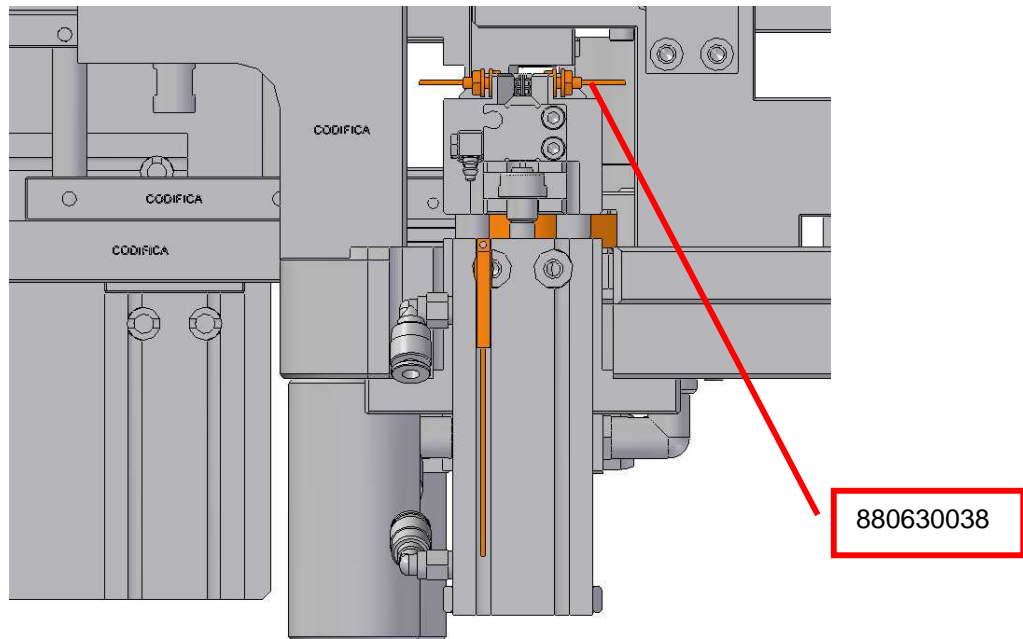
790250020

790250006

790250020

Codes  
790250006 quantity 3  
790250020 quantity 2

## 8.2.4) Optical fibres



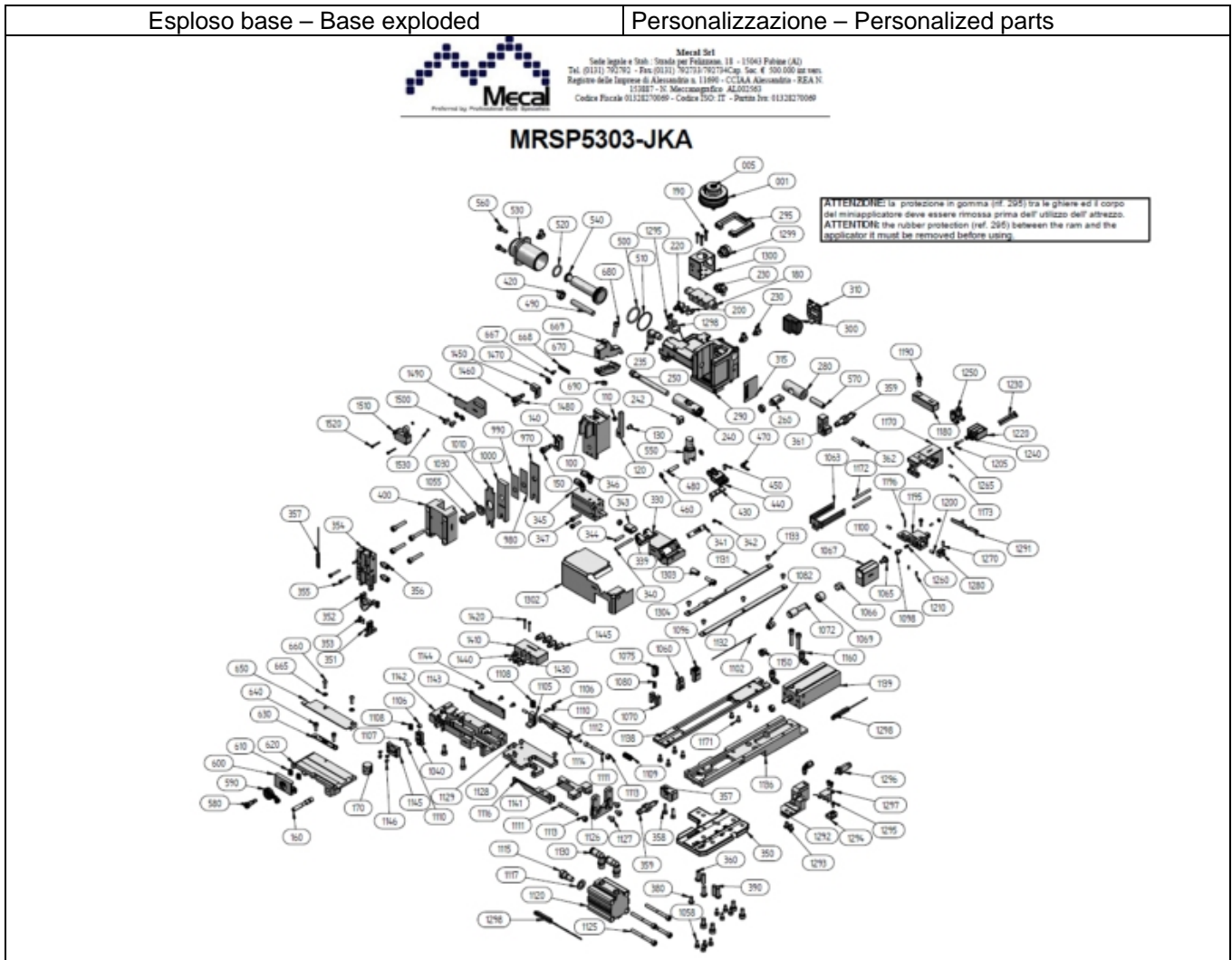
Code  
880630038 quantity 2



## 8.3) Example of documentation

Example of documentation.

- Pg.1 Data sheet complete with information relating to mini-appliator identification and testing
- Pg.2 BOM
- Pg.3 Representation of base mini-appliator parts
- Pg.4 Representation of personalized parts and high-wear parts of the mini-appliator



MECAL recommends saving files related to the BOM, data sheets and exploded diagrams inherent to the machine on the PC, to make a secure backup and a simpler search by serial number if you have multiple machines.

## 8.4) Cleaning

During the working cycle, clean equipment and the workstation at least every 4 hours. Periodically clean the machine using non-aggressive products so as to preserve machine characteristics over time.

**IMPORTANT!!** : Do not use alcohol or alcohol-based products to clean the transparent protections but use soap and water only. The use of alcohol-based products weakens protections.

## 8.5) Storage

When equipment is not used for a prolonged period of time, perform the required cleaning operations. Before setting it in the warehouse, spray all its parts with a layer of protective oil. It is advisable to take note of the number of cycles of the equipment shown on the counter located on the display to best manage the wear and requirements of spare parts.

## 8.6) Demolition and disposal

Applicator disposal is subject to directive listed below:



### User information

#### Part of the Operating Instructions Scrupulously store and comply with equipment

All instructions contained in this information are general safety precautions which we strongly recommended following. They may not however only specifically relate to single parts or procedures relating to use and may necessarily appear in other parts of this publication and/or in instructions for use of other pieces of equipment, of which they are an integral part.

#### WEEE Policy

Under Article 13 of Legislative Decree 25 July 2005, n. 151 "Implementation of Directives 2002/95/EC, 2002/96/EC and 2003/108/EC, regarding the reduction of hazardous substances in electrical and electronic equipment, including the disposal of waste."

#### "SEPARATE COLLECTION"

The wheeled bin symbol on the equipment or packaging indicates that the product must be collected separately from other waste at the end of its life.

The user must therefore give or (have a third party give) equipment at end of life to the appropriate differentiated collection centres for electronic and electro-technical waste, or return it to the dealer upon purchase of a new equipment of equivalent type, in the ratio of one to one.

Appropriate separate collection for the subsequent recycling, treatment and environmentally compatible disposal of decommissioned equipment helps prevent negative impact on the environment and health and promotes the re-use and/or recycling of the materials making up the product.

Illegal dumping of the product by the user entails the application of administrative penalties (Article 255 and on of Legislative Decree N. 152/06) provided by law.

When disposing of the individual parts of the press due to replacement, we recommend the following CER codes:

|                       |            |
|-----------------------|------------|
| Iron, Steel           | CER 170409 |
| Copper, Bronze, Brass | CER 170401 |
| Aluminium             | CER 170402 |
| Plastic material      | CER 170203 |
| Used oil              | CER 130205 |
| Electrical parts      | CER 160214 |

These codes are indicative and it is the responsibility of the equipment owner to ensure the correct disposal mode and codes.

## 9) Troubleshooting and problem resolution

### The cycle does not start:

- Verify that the air system is open and electrical connections are connected.
- Verify that the colour sensing fibres are clean, adjusted and correctly connected.
- Verify that the SQ8 sensor is clean, adjusted and properly connected.
- On the display, verify proper insertion of the cable and that the five sensors are switched.
- The sensors (SQ4, SQ5, SQ6, SQ7) do not allow cycle start. Check that there are no scraps or impediments to sensor lever stroke, check that the sensor lever is properly adjusted, check that the sensors have not become disconnected or the cable damaged,
- Sensor SQ9 is in error status; the table may not be in the correct position. Check that there are no impediments to the table stroke, verify that the sensor is reading and is properly adjusted.
- Verify that the machine was reset the end of the previous cycle.
- Verify that the emergency button has been reset.
- Verify that the casing has been closed correctly.

### The clamps are not closing the cable:

- Sensor SQ8 is not reading the cable presence. The cable may not have been inserted properly, the sensor is dirty, it has not been adjusted properly, or it has not been secured correctly.
- The clamp cylinder is not locking the cable. Check that the cylinder sliding area is clean.
- The cable has not been inserted correctly and sensors have not been switched (page 22).
- Verify that the machine was reset the end of the previous cycle.

### Bending is not correct

- Verify that the decelerator has been adjusted correctly.
- Verify that the "bend stop" activates to move the unit to 90° position before bending.
- Verify that the sliding areas are clean and free of scrap.

### The machine is not reset at the end of the cycle:

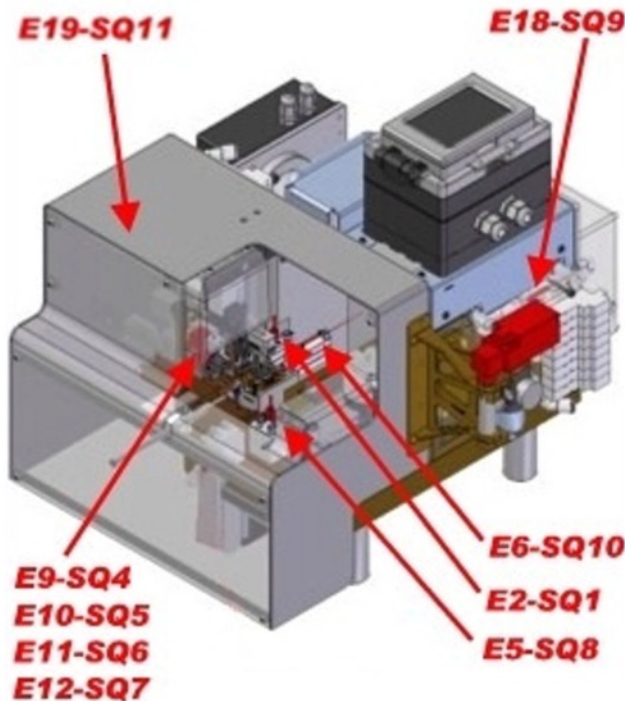
- Sensor SQ9 is in error status; the table is not in the correct position. Check that there are no impediments to the table stroke, verify that the sensor is reading and is properly adjusted.
- The sensor unit is not in the correct position. Verify that there are no mechanical impediments in the sliding area.
- Sensor SQ8 detects cable presence. Remove the cable at the end of the cycle, verify that the sensor is clean and connected correctly.

| ERROR CODE | SENSOR MESSAGE | MEANING                           | SOLUTIONS  |
|------------|----------------|-----------------------------------|--|
| E2         | SQ1            | Insulator locking cylinder sensor | <ul style="list-style-type: none"> <li>- The connected has not been inserted correctly in its housing→Check placement</li> <li>- The pneumatic system is not connected→ Connect system</li> <li>-The sensor cable may be broken→ Replace sensor</li> <li>- The sensor is not secured suitably, check screws→ Tighten them if necessary</li> <li>- Make sure that they are correctly adjusted.</li> <li>-The sensor may be burnt—&gt; Replace the sensor</li> </ul> |
| E5         | SQ8            | Cable locking cylinder sensor     | <ul style="list-style-type: none"> <li>- The pneumatic system is not connected→ Connect system</li> <li>-The sensor cable may be broken→ Replace sensor</li> <li>- The sensor is not secured suitably, check screws→ Tighten them if necessary</li> <li>- Make sure that they are correctly adjusted.</li> <li>-The sensor may be burnt—&gt; Replace the sensor</li> </ul>   |

|     |      |  |  |
|-----|------|--|--|
| E6  | SQ10 | Insulation pre-insertion cylinder sensor | <ul style="list-style-type: none"> <li>- The pneumatic system is not connected→ Connect system</li> <li>-The sensor cable may be broken→ Replace sensor</li> <li>- The sensor is not secured suitably, check screws→ Tighten them if necessary</li> <li>- Make sure that they are correctly adjusted.</li> <li>-The sensor may be burnt—&gt; Replace the sensor</li> </ul>   |
| E9  | SQ4  | Cable presence sensor at bottom right    | <ul style="list-style-type: none"> <li>- The pneumatic system is not connected→ connect system</li> <li>-The sensor cable may be broken→ Replace sensor</li> <li>- The sensor is not secured suitably, check screws→ tighten them if necessary</li> <li>- Make sure that they are correctly adjusted.</li> <li>-The sensor may be burnt—&gt; Replace the sensor</li> </ul>   |
| E10 | SQ5  | Cable presence sensor at bottom left     | <ul style="list-style-type: none"> <li>- The pneumatic system is not connected→ connect system</li> <li>-The sensor cable may be broken→ Replace sensor</li> <li>- The sensor is not secured suitably, check screws→ tighten them if necessary</li> <li>- Make sure that they are correctly adjusted.</li> <li>-The sensor may be burnt—&gt; Replace the sensor</li> </ul>   |
| E11 | SQ6  | Cable presence sensor at top left        | <ul style="list-style-type: none"> <li>- The pneumatic system is not connected→ Connect system</li> <li>-The sensor cable may be broken→ Replace sensor</li> <li>- The sensor is not secured suitably, check screws→ tighten them if necessary</li> <li>- Make sure that they are correctly adjusted.</li> <li>-The sensor may be burnt—&gt; Replace the sensor</li> </ul>   |
| E12 | SQ7  | Cable presence sensor at top right       | <ul style="list-style-type: none"> <li>- The pneumatic system is not connected→ connect system</li> <li>-The sensor cable may be broken→ Replace sensor</li> <li>- The sensor is not secured suitably, check screws→ tighten them if necessary</li> <li>- Make sure that they are correctly adjusted.</li> <li>-The sensor may be burnt—&gt; Replace the sensor</li> </ul>   |
| E18 | SQ9  | Slide cylinder sensor                    | <ul style="list-style-type: none"> <li>- The pneumatic system is not connected→ Connect system</li> <li>-The sensor cable may be broken→ Replace sensor</li> <li>- The sensor is not secured suitably, check screws→ tighten them if necessary</li> <li>- Make sure that they are correctly adjusted</li> <li>-The table is not in the correct position. Make sure that there are no impediments to cylinder stroke.→ Clean the area, removing the impediment.</li> <li>-The sensor may be burnt—&gt; Replace the sensor.</li> </ul> |

|     |      |                  |  |
|-----|------|------------------|--|
| E19 | SQ11 | Pneumatic casing | <ul style="list-style-type: none"> <li>- The pneumatic system is not connected→ Connect system</li> <li>-The sensor cable may be broken→ Replace sensor</li> <li>- The sensor is not secured suitably, check screws→ tighten them if necessary</li> <li>- Make sure that they are correctly adjusted.</li> <li>-The casing is not in the correct position. Make sure that there are no impediments to cylinder stroke.→ Clean the area, removing the impediment.</li> <li>-The sensor may be burnt—→ Replace the sensor</li> </ul> |
|-----|------|------------------|--|

## 10) Error signals



| ERROR CODE | SENSOR MESSAGE | MEANING                                  |
|------------|----------------|--|
| E2         | SQ1            | Insulator locking cylinder sensor        |
| E5         | SQ8            | Cable locking cylinder sensor            |
| E6         | SQ10           | Insulation pre-insertion cylinder sensor |
| E9         | SQ4            | Cable presence sensor at bottom right    |
| E10        | SQ5            | Cable presence sensor at bottom left     |
| E11        | SQ6            | Cable presence sensor at top left        |
| E12        | SQ7            | Cable presence sensor at top right       |
| E18        | SQ9            | Slide cylinder sensor                    |
| E19        | SQ11           | Pneumatic casing                         |

Should an abnormality occur, make sure that the sensor involved in the "error" is not blocked or obscured by machining scrap, that the pneumatic system is pressurised and that sensors are not damaged or disconnected.

## 11) After sales service

For any remaining unresolved problems or questions, notify MECAL technical support at these contacts:

Tel: +39 0131 792792 (hours 8:00am – 12:00pm / 1:30pm – 5:30pm from Mon. to Fri.)

Fax +39 0131 792733

e\_mail [support@mecal.net](mailto:support@mecal.net)

