

## (Original) Use and maintenance manual

**Model: SKR-A301**

**Type: Automatic Skiving machine**



### **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:**

	<b>Page</b>
- <b>CE Declaration of Conformity:</b> .....	<b>3</b>
- <b>Description:</b> .....	<b>4</b>
- <b>Technical Characteristics:</b> .....	<b>4</b>
- <b>Standard Equipment:</b> .....	<b>4</b>
- <b>Optional Equipment:</b> .....	<b>4</b>
- <b>Installation:</b> .....	<b>4</b>
<i>Power Connection</i> .....	<i>4</i>
<i>Pneumatic Connection</i> .....	<i>5</i>
- <b>Usage Instructions:</b> .....	<b>6</b>
<i>Start-up</i> .....	<i>6</i>
<i>Programming:</i> .....	<i>7</i>
<i>Operating:</i> .....	<i>7</i>
<i>Level up:</i> .....	<i>11</i>
<i>Set up:</i> .....	<i>12</i>
<i>Replace and adjust the abrasive tape:</i> .....	<i>12</i>
<i>Cutting the abrasive tape:</i> .....	<i>14</i>
- <b>Warnings:</b> .....	<b>14</b>
- <b>Possible problems and solutions:</b> .....	<b>15</b>
- <b>Pneumatic Diagram:</b> .....	<b>16</b>
- <b>Electrical diagrams:</b> .....	<b>17</b>
- <b>Spare parts:</b> .....	<b>44</b>

---

## - CE Declaration of Conformity:

WE DECLARE, under our responsibility, that the machine:

- Type: Skiver machine
- Brand: ERM Engineering
- Model: SKR-A301
- 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 1005-1 - EN 1005-2 - EN 1005-3 - EN 1005-4 - EN 14118 - EN 12100- EN 13850 - EN 13857 - EN 14118 - EN 14120 - EN 60204-1 - EN 11161 - EN 61310-1 - EN 13849-1 - EN 13849-2 - EN 60204-1**

General Manager: Eduardo Ramos Martínez



ermengineering  
belting fabrication equipment

Arenys de Munt (Barcelona)-SPAIN

Date: 2021/08

---

- **Description:**

- Automatic Skiving machine to preform bevel connections on the transporting belt and transporting band, with motor-driven abrasive roller and pneumatic table advance with inclination adjustment for different beveling angles.
- Abrasive roller height adjustment using an eccentric shaft powered by an electric motor and bevel stroke adjustment.
- Waste extraction system using a centrifugal fan.

- **Technical Characteristics:**

- **Dimensions** 730x720x1610mm (L x A x H)
- **Weight** 143Kg
- **Roller width** 370 mm
- **Bevel stroke** 160 mm
- **Roller diameter** 120 mm
- **Maximum thickness** 13mm
- **Voltage** 230 V
- **Power** 2.4 kW
- **Bevel Angle** from 0° to 3.3° in 29 adjusting points

- **Standard Equipment:**

- Skiving Machine
- Structural Table
- Waste Extraction System

- **Optional Equipment:**

- Extra Bevel Roller

- **Installation:**

Once the equipment is placed in the work area, regulate the rubber legs for levelling the frame to prevent vibrations during operation.

**Power Connection**

Connect the black wire to the lower output of the machine box to the main supply 1x 230V (check the technical specifications plate), protected by earth connection, without having in mind the turn of the motor direction. These machines include previously programmed frequency inverters.

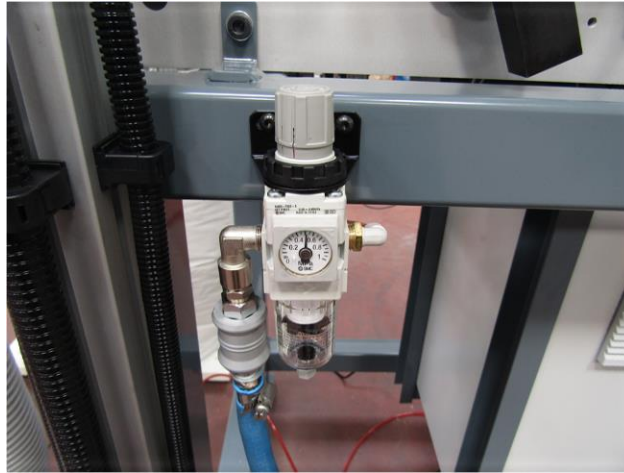
---

## Pneumatic Connection

Connect the air inlet to the regulator filter supply, minimum interior diameter must be 6mm.

This filter inlet has a sliding valve to release circuit pressure.

Adjust the pressure regulator between 4 to 6 bar:



Place the air intake equipment in the back part or side of the frame and connect the power.

Connect the feeding supply wire to the power supply located on the side of the electric box to be set on and off automatically:



Insert the end of the air suction in the nozzle of the back part of the bevel head:



- Usage Instructions:



**ATTENTION:**

**THIS DEVICE CAN BE DANGEROUS BY GETTING YOUR HANDS CAUGHT IN-BETWEEN THE ABRASIVE ROLLER AND TABLE, SO THE MACHINE OPERATOR MUST EXTREME CAUTION AT THE MATERIAL ABRASIVE AREA, AVOIDING PUTTING THEIR HANDS IN THIS AREA.**

Once the installation is done, check that air and power supply are the right ones.

### Start-up

Start-up the machine by pressing the connector or switch on the electrical control panel:



Wait for 5 seconds until the PLC is online and press the blue button REARME to rearm the system. If you cannot rearm, check that EMERGENCY stop is unlocked.

Touch the touch screen to access the MAIN MENU.

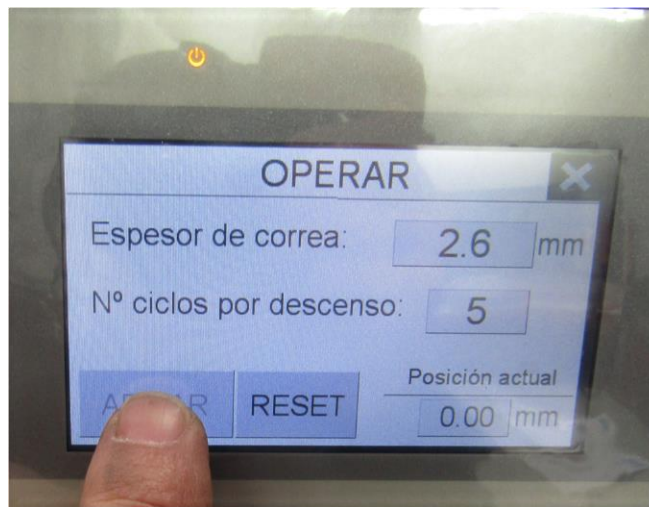
## Programming:

Main menu consists in three submenus:



## Operating:

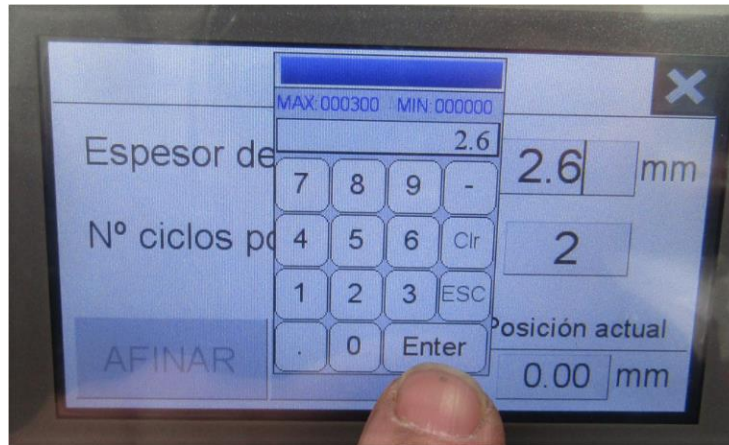
On this mode will appear the operation panel where we must enter thickness of the material to bevel:



**WARNING: If we program a thickness below the actual thickness of the material, the first beveling operations can be forced and cause mechanical damages to the device.**

Enter thickness data **IN MILIMETERS** click the box and a numeric keypad will show up to enter this value we will accept pressing Enter.

It is important to enter the number including tenths of millimeter not being an absolute value. For example, if the material thickness is 2,6mm. we must enter 2.6:



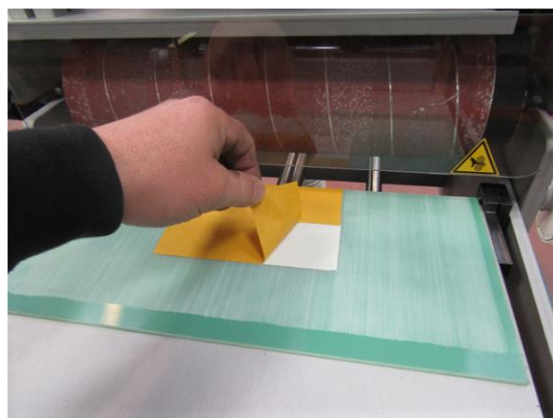
**Number of cycles per descent:**

This value indicates the reciprocating frequency for driving the decline beveled head, If the value is 5 it means that every 5 oscillating operations of the table, the head will make the descent.

This value must be modified depending on the type of material and abrasion resistance of each belt. In the SET-UP Menu we can adjust the measurement and speed descent.

In the lower right part of this screen, we will visualize the height position of the beveling roller.

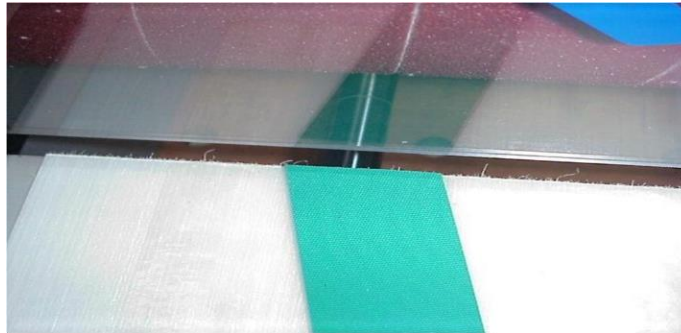
Place the double-sided adhesive tape on the wear plate in the working area, as shown in the picture. This operation is extremely important to obtain a good finish, since we avoid stretching and breakages during the process:



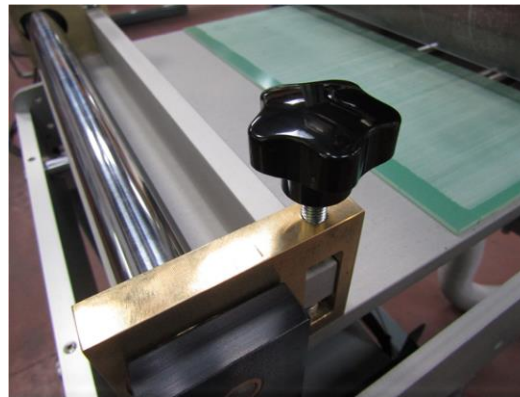
It is important to replace this tape when it is damaged or loses grip.

We will put the end of the strap under the clamping bar to the final edge of the bevel table.

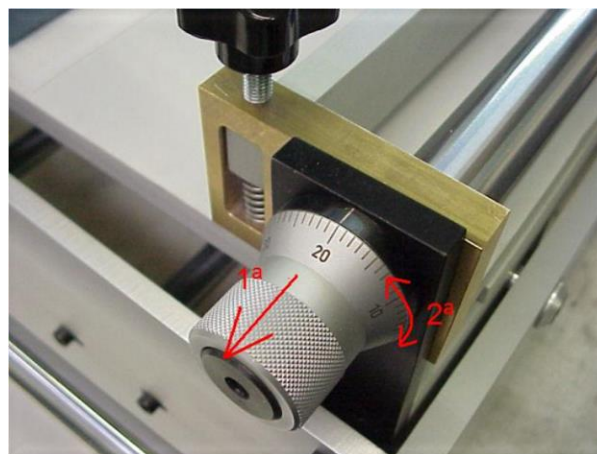
Pass the strap under the clamping bar to the edge of the table, sticking the end to be beveled on the adhesive tape just at the end of the table as shown in the following picture:



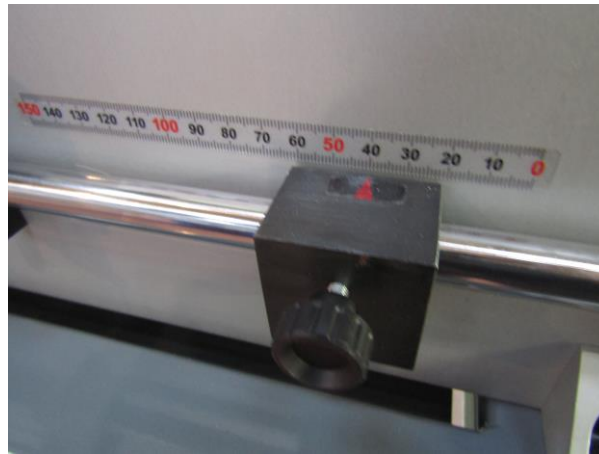
Hold the strap with the bar through the two knobs always trying to be parallel with the table, that is, doing this operation on both sides at the same time and in the same proportion:



We will adjust at a beveled angle that the table of values marks us unlocking the graphical knob towards the outside of the machine, as shown in the diagram, and turning to the desired point, re-engaging:



We will also adjust the beveling stroke marked by the value table, in order to limit the bevel or not use the entire stroke of the table to speed up the cycle:



Once the material to be beveled and the equipment is programmed, we will press the green button on the front panel.



Pressing START will start the beveling roller together with the suction unit and the beveling head will be raised to the programmed thickness size.

Once lifted, the table's oscillation cycle will start until the end of the bevelling process.

**NOTE: We can stop the beveling cycle at any moment pressing the RED stop button and restart pressing the GREEN start-up button. During the process, we can also modify the N° of descent cycles without having to stop the whole operation, if considered necessary.**


When the bevel head reaches 0, it will perform as many repetitions as are programmed in the SET-UP Menu in section REFINING REPETITIONS in order to clean and refine more the beveling.

If when the process finishes, we want to repeat the this refining operation, we only have to press on the screen REFINER and the operation will repeat as many times as it has been programmed.

If we want to interrupt the bevel cycle to start a new different one, we must stop the process pressing the RED stop button and press RESET to be able to start a new cycle.

### Level up:

The leveling action is required each time the abrasive belt of the roller or the wear plate is replaced. We should also do this when the abrasive belt has lost thickness and we want to gauge again point 0 of the head.

 **WARNING:**  
**THE LEVELING ACTION IS ESSENTIAL TO RAISE THE HEAD A FEW MILLIMETERS BEFORE PRESSING START TO AVOID EXCESSIVE FRICTION.**

In order to do this process, select function LEVEL UP of the Main Menu:



A message in yellow will show up which means that we must adjust the bevel table Angle to 0 and the bevel stroke to the maximum.

As warned before, we should raise the head a few millimeters pressing on the top arrow till we reach this size:



Then, we will press the GREEN start up button to start the cycle, we will have to lower the head by touching the button marked with an arrow descending while the oscillation of the table moves, in

such a way that when we consider that the rectification is even, we will press RESET to record that size as 0.

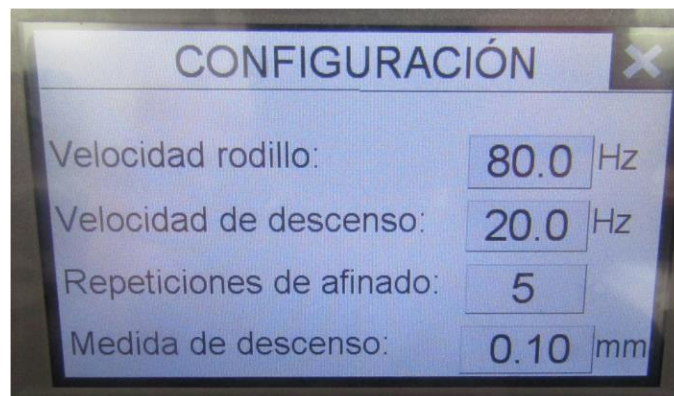
It is recommended to perform several backwards and forward operations after having recorded 0 to finish refining the wear table.

**NOTE: DURING THIS PROCESS, WHEN PRESSING START, THE ROLLER MOTOR WILL START WORKING, AS WELL AS THE EXTRACTOR SYSTEM AND OSCILLATION OF THE TABLE. THE HEIGHT OF THE HEAD IS MANUAL PRESSING THE ARROW UP OR DOWN.**

### Set up:

In this part of the MAIN Menu we can adjust:

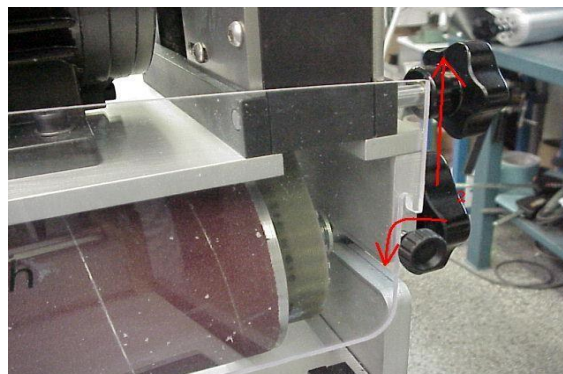
- Speed limit of the roller between 40 y 80 Hz depending on the type of material to bevel
- Descent Speed limit between 20 y 50 Hz
- N<sup>o</sup> of refining repetitions between 1 y 10
- Descent size between 0.10 y 0.50mm. recommended 0.15mm



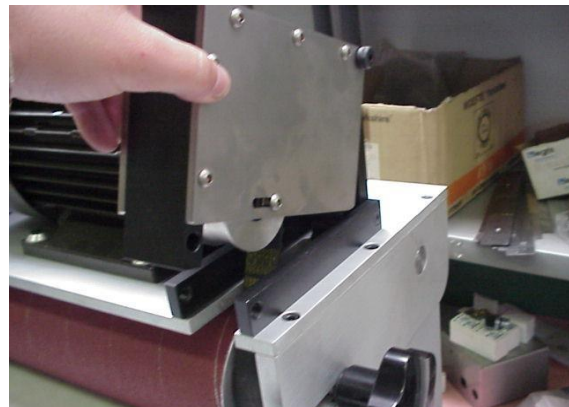
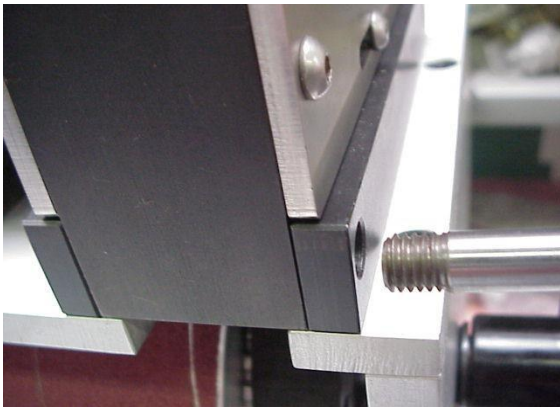
### Replace and adjust the abrasive tape:

In order to replace the abrasive tape, we will unplug the power supply of the machine, for security.

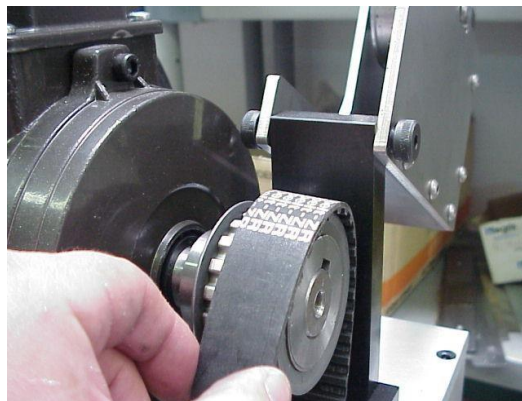
Once we have replaced it, we will remove the front protector:



Then we will release the tensor head taking out the control lock:



We will take out the timing belt from the driving belt:

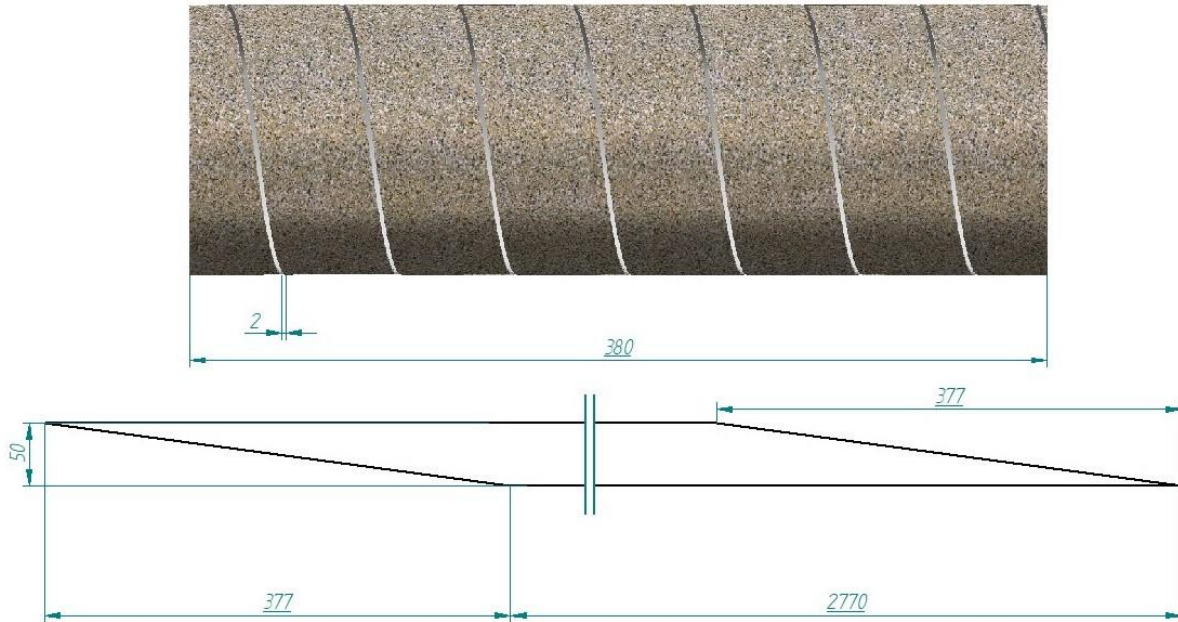


We will loosen both roller shaft controls to remove it together with the belt already released:



We will take off the worn tape, pulling the end of it and turning the roller till it is completely out. We will clean all the whole surface of the roller with alcohol or similar to guarantee a good grip of the new tape as well as an even finish without any bumps.

## Cutting the abrasive tape:



### - **Warnings:**



- The machine should always be connected to the main power supply via thermal and differential breakers and protected by earth connection.
- Under no circumstances should any work be carried out without the belt and roller protections.
- The suction nozzle should be connected to prevent the possibility of inhaling toxic particles.
- Remove the main power supply plug from the socket before carrying out any adjustment or similar operation.
- In case of emergency, hit the stop button located on the right-hand side of the display.

---

- **Possible problems and solutions:**

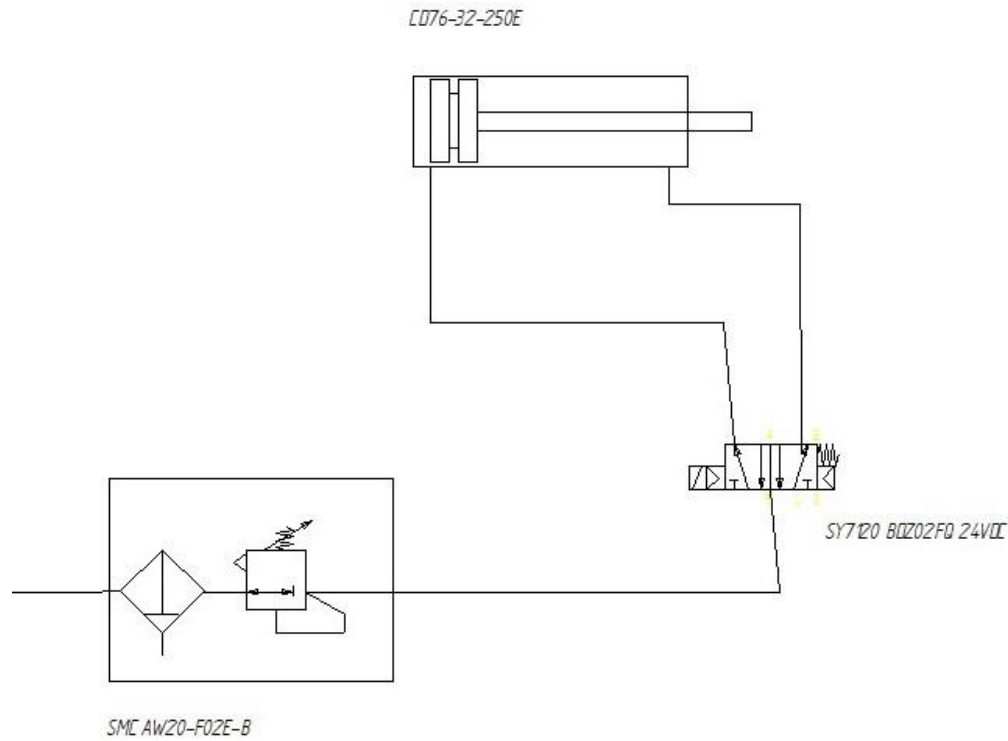
**If the cycle doesn't start-up...**

- ✓ Unlock the emergency stop and rearming the control box.
- ✓ Check there is no active alarm (⚠) → In case there is, reset.
- ✓ Press RESET on the operation display.
- ✓ Check correct air supply.

**If the bevel operation is incorrect...**

- ✓ Check grinding paper condition.
- ✓ Level up the table or replace the worn green board and level up again.



- **Pneumatic Diagram:**

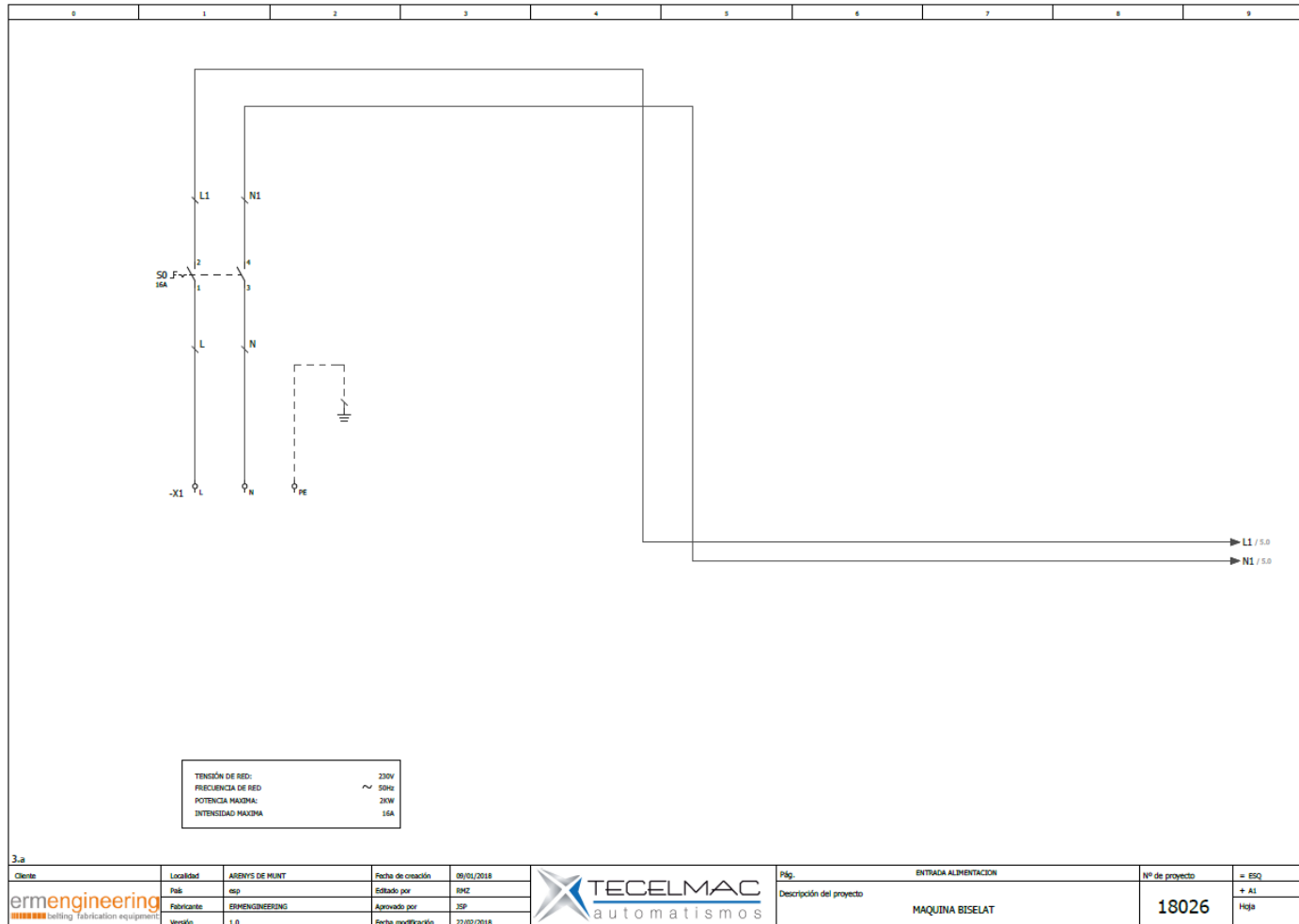


ermengineering  
belting fabrication equipment

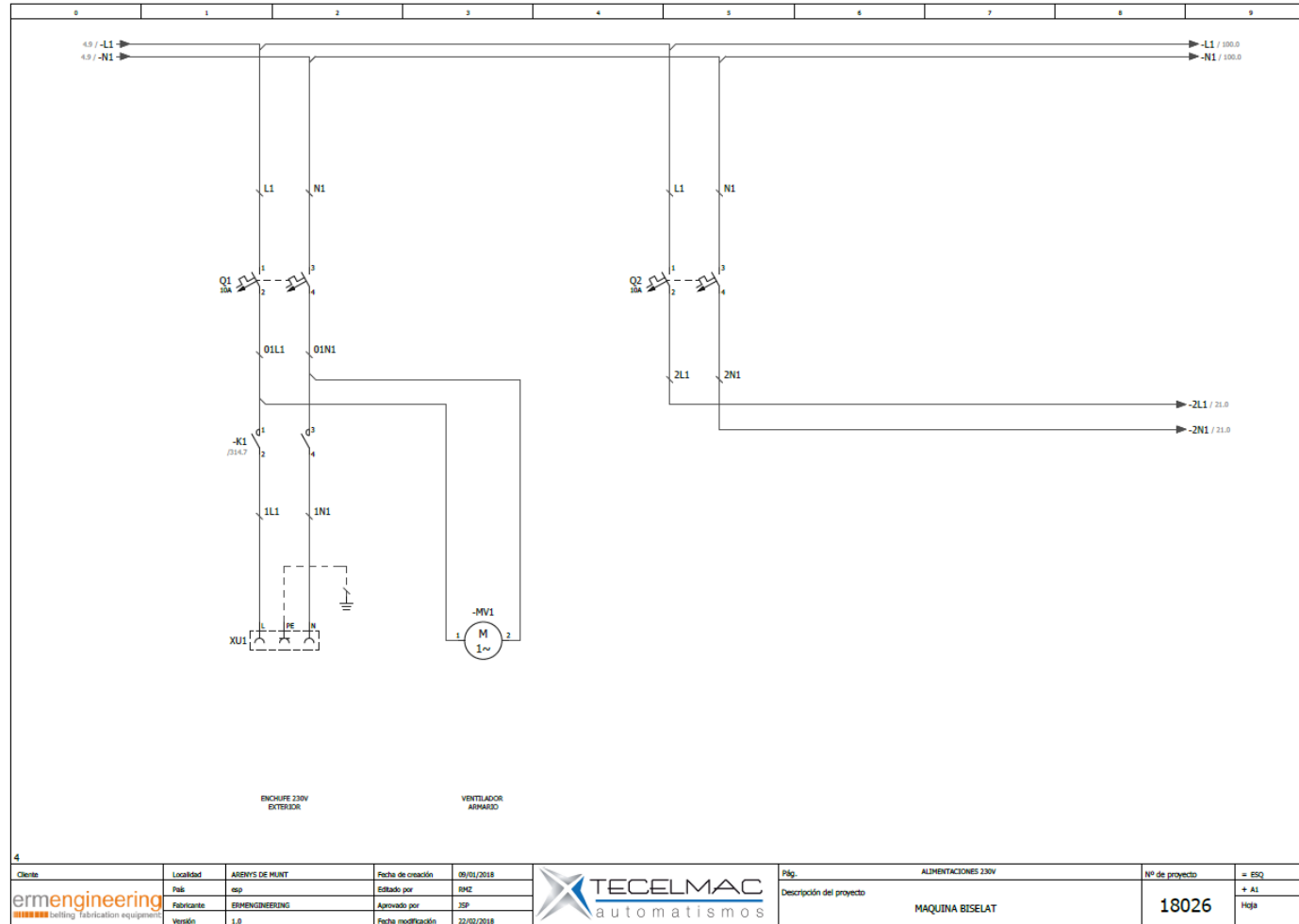
Nº documento:	
Referencia:	Pneumatic drawing SKR-A301
Material:	Unid.
Acabado:	Fecha: 10/02/2018

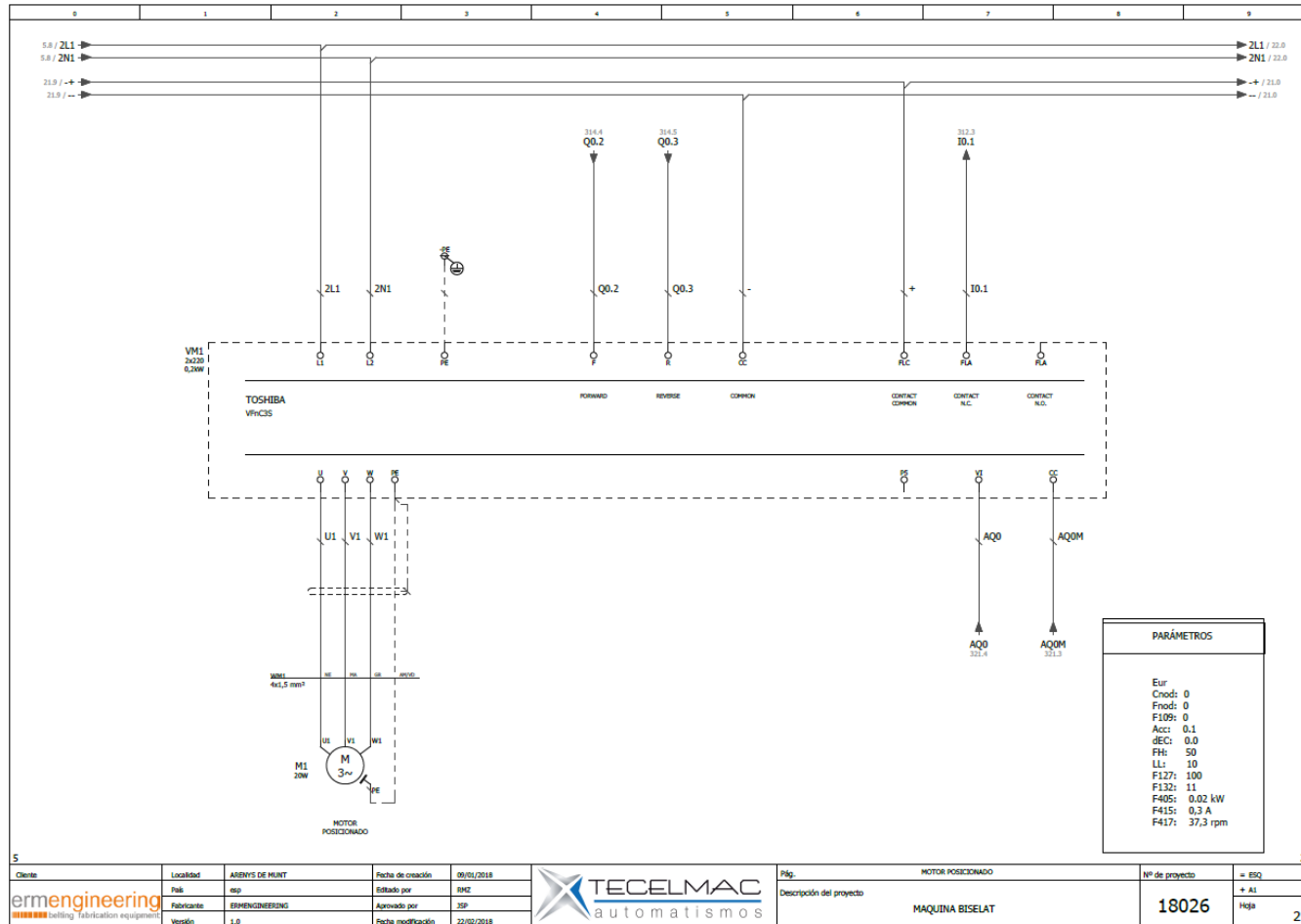
- **Electrical diagrams:**

1	2	3	4	5	6	7	8	9
<b>RESUMEN DE BORNEROS Y CONECTORES</b>								
RESUMEN DE BORNEROS Y CONECTORES								
<p><u>BORNEROS</u></p> <p>X1 = BORNERO ENTRADA ALIMENTACIÓN</p> <p>X4 = BORNERO ALIMENTACIÓN 24VDC</p> <p>X5 = BORNERO SEGURIDAD EMERGENCIAS</p> <p>X10 = BORNERO ENTRADAS DIGITALES</p> <p>X11 = BORNERO SALIDAS DIGITALES</p>					<p><u>CONECTORES</u></p>			
3						4		
	Localidad AGENYS DE MUNT	Fecha de creación 05/05/2018	Estado por RKG	Pág. RESUMEN DE BORNEROS Y CONECTORES	Descripción del proyecto MAQUINA BISELAT	Nº de proyecto 18026	= ESQ + A1 Hoja	3.a

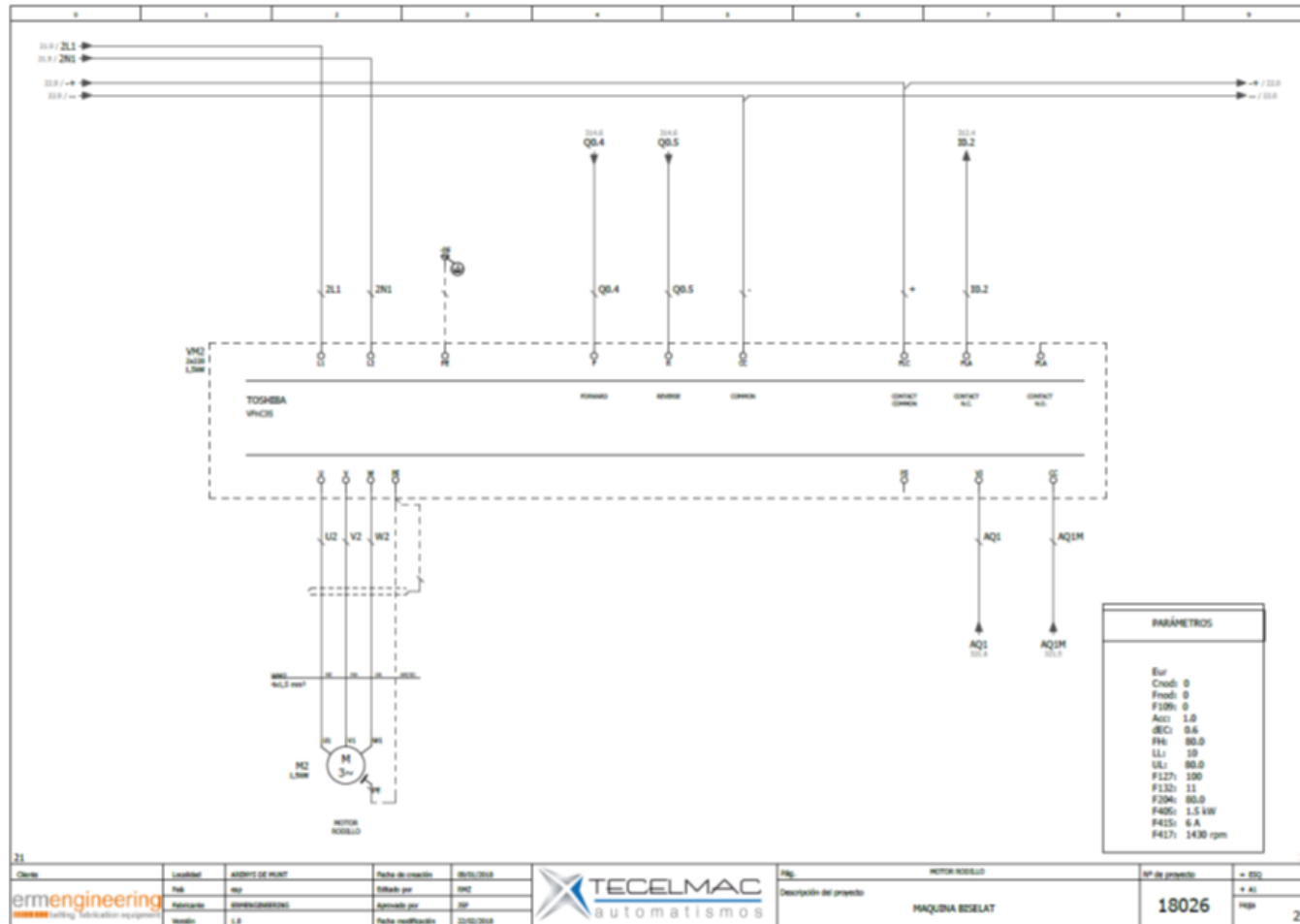


3.a								5	
Cliente	Localidad	ASERYS DE MUNT	Fecha de creación	09/01/2018	Pág.	ENTRADA ALIMENTACION	Nº de proyecto	= EQ	
<b>ermengineering</b> belting fabrication equipment	País	esp	Editado por	RMC	Descripción del proyecto		18026	+ A1	
	Fabricante	ERMENGINEERING	Aprobado por	ZSP	MAQUINA BESELAT			Hoja	
	Versión	1.0	Fecha modificación	22/02/2018				4	

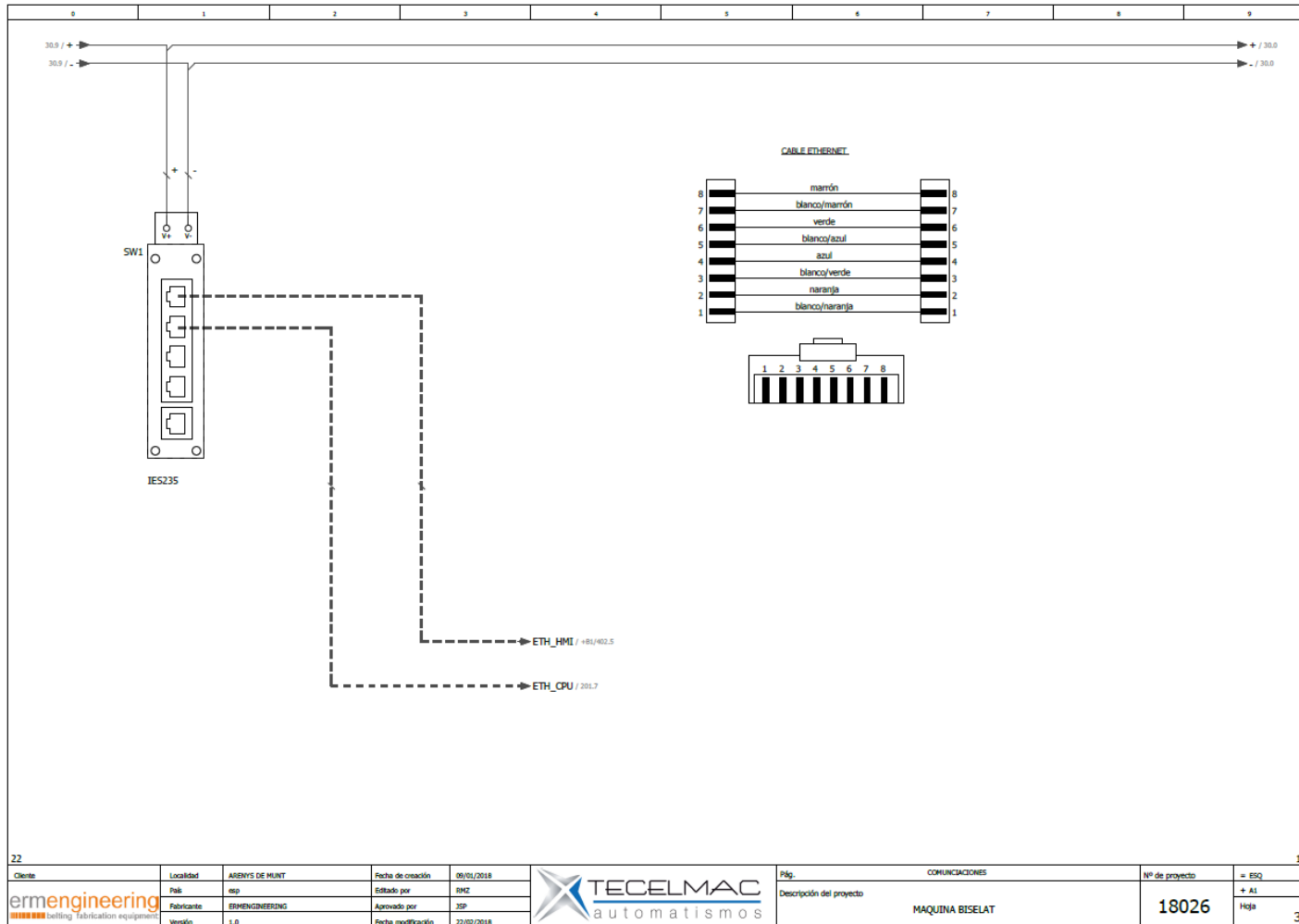


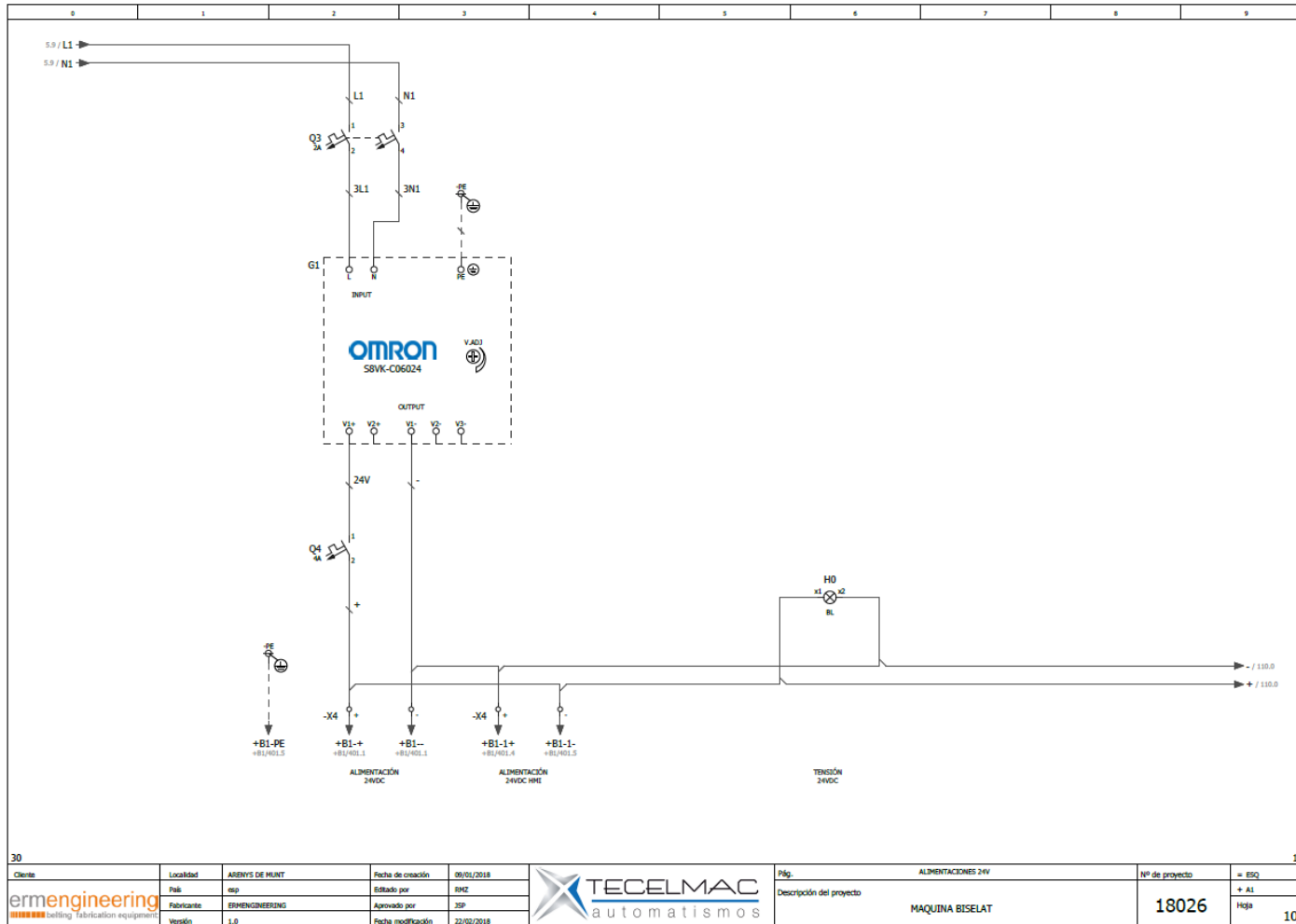


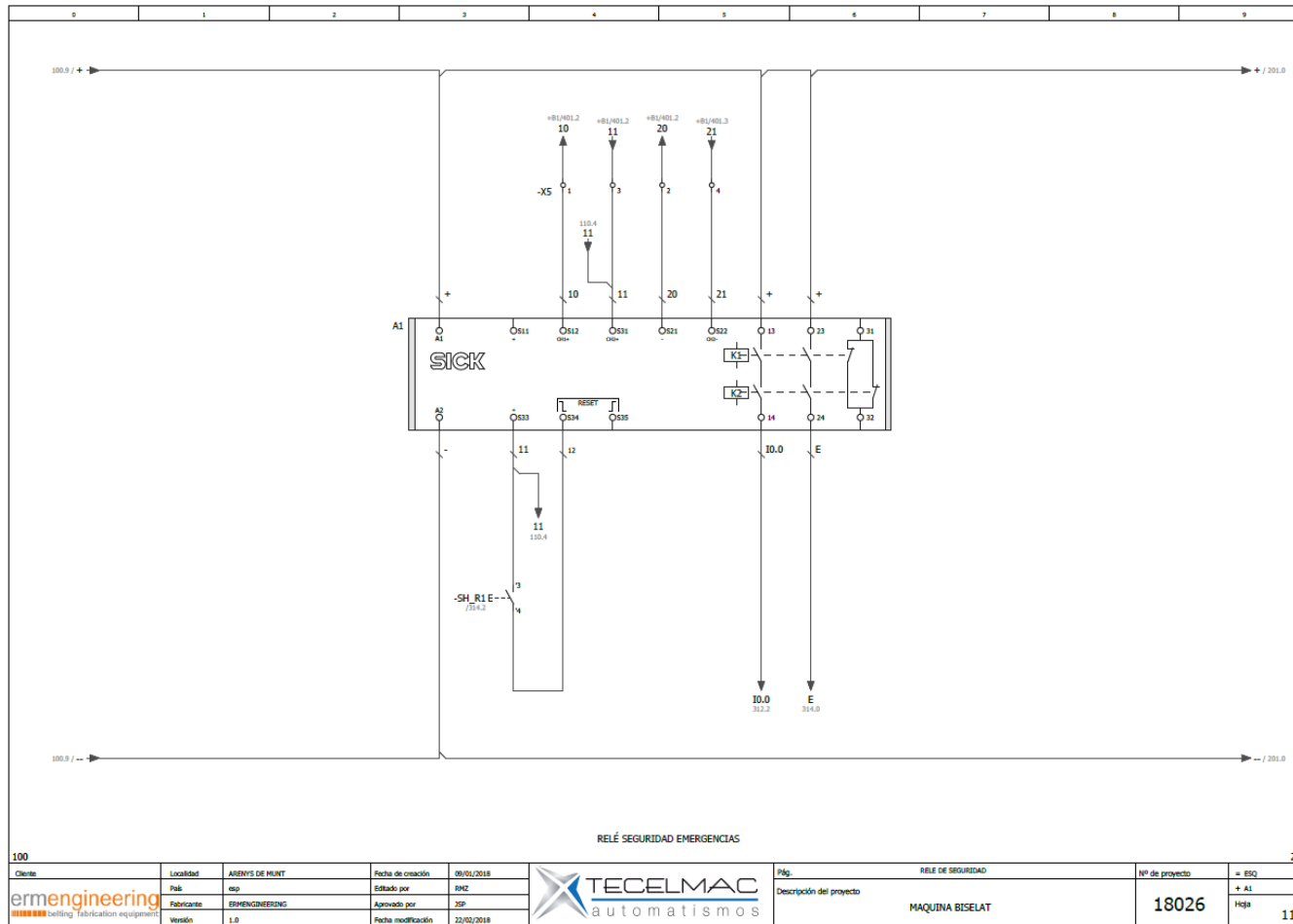
Cliente	Localidad	AREVIVS DE MUNT	Fecha de creación	09/01/2018	Pág.	MOTOR POSICIONADO	Nº de proyecto	= ESQ	
ermengineering	País	esp	Elaborado por	RHZ	Descripción del proyecto	MAQUINA BISELAT	18026	+ A1	
ermengineering	Fabricante	ERMENGINEERING	Aprobado por	JSP				Hoja	21
ermengineering	Versión	1.0	Fecha modificación	22/02/2018					

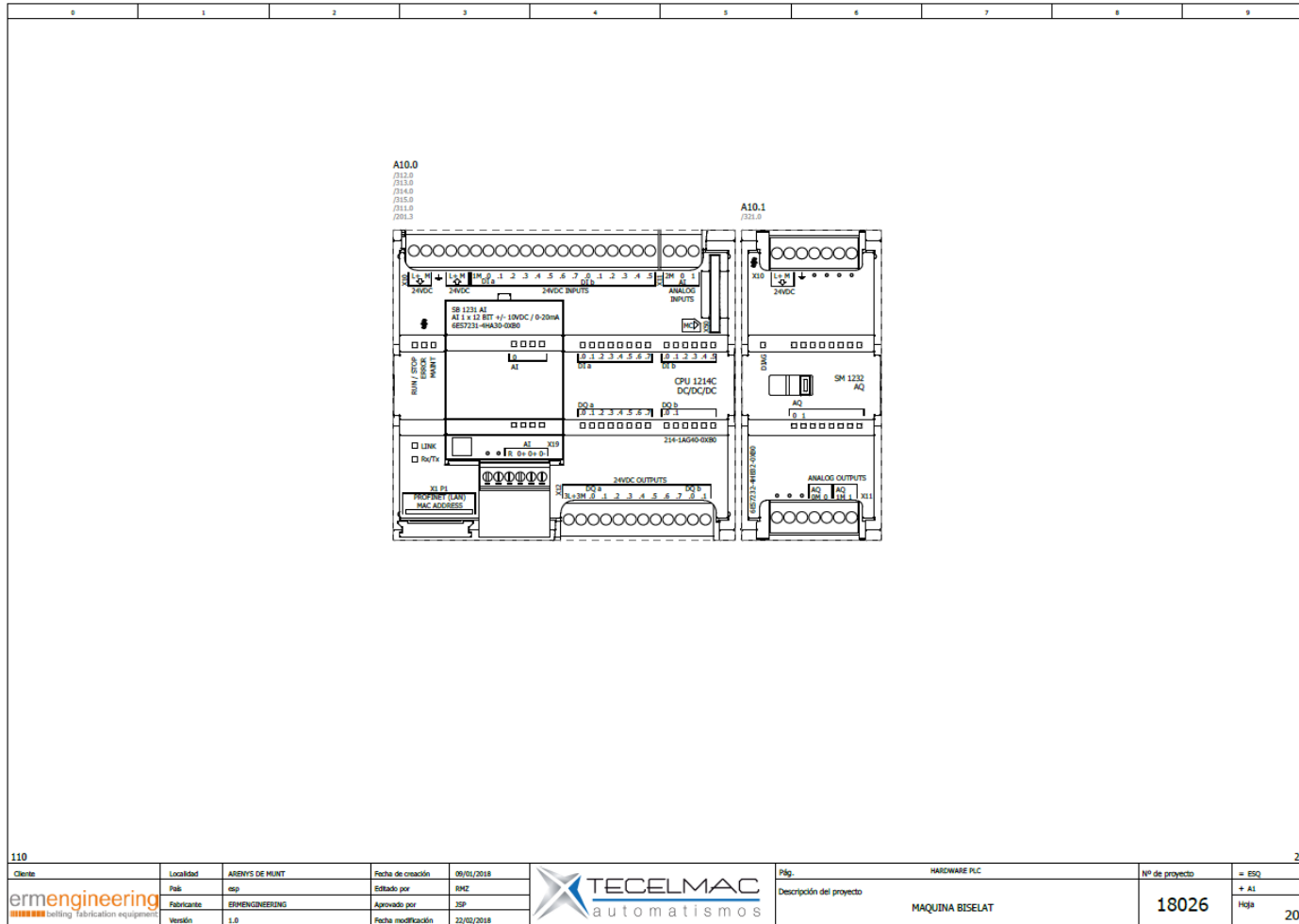


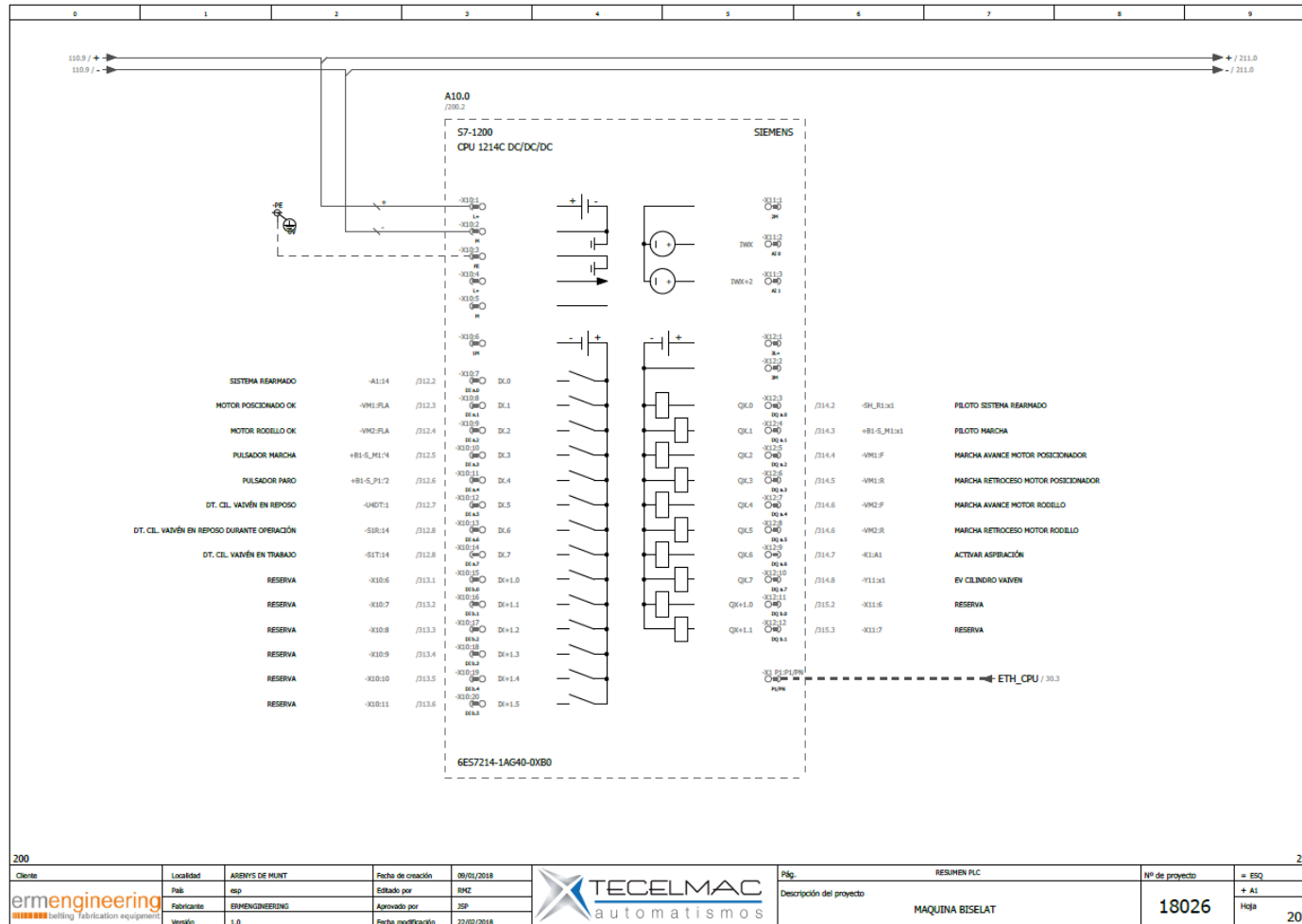
21	22																																		
<table border="1"> <tr><td>Cliente</td><td>Localidad</td><td>ADDRESS DEL CLIENT</td><td>Fecha de creación</td><td>06/01/2018</td></tr> <tr><td>ermengineering</td><td>País</td><td>es</td><td>Elaborado por</td><td>WMC</td></tr> <tr><td>belting fabrication equipment</td><td>Administración</td><td>CONSTRUCCIONES</td><td>Aprobado por</td><td>WMC</td></tr> <tr><td></td><td>Modelo</td><td>1.0</td><td>Fecha modificación</td><td>22/01/2018</td></tr> </table>	Cliente	Localidad	ADDRESS DEL CLIENT	Fecha de creación	06/01/2018	ermengineering	País	es	Elaborado por	WMC	belting fabrication equipment	Administración	CONSTRUCCIONES	Aprobado por	WMC		Modelo	1.0	Fecha modificación	22/01/2018	<table border="1"> <tr><td colspan="2">NOTA MODELO</td></tr> <tr><td colspan="2">Descripción del proyecto</td></tr> <tr><td colspan="2">MAQUINA BESELAT</td></tr> <tr><td>Nº de proyecto</td><td>= 170</td></tr> <tr><td></td><td>+ 01</td></tr> <tr><td>18026</td><td>18026</td></tr> <tr><td></td><td>22</td></tr> </table>	NOTA MODELO		Descripción del proyecto		MAQUINA BESELAT		Nº de proyecto	= 170		+ 01	18026	18026		22
Cliente	Localidad	ADDRESS DEL CLIENT	Fecha de creación	06/01/2018																															
ermengineering	País	es	Elaborado por	WMC																															
belting fabrication equipment	Administración	CONSTRUCCIONES	Aprobado por	WMC																															
	Modelo	1.0	Fecha modificación	22/01/2018																															
NOTA MODELO																																			
Descripción del proyecto																																			
MAQUINA BESELAT																																			
Nº de proyecto	= 170																																		
	+ 01																																		
18026	18026																																		
	22																																		

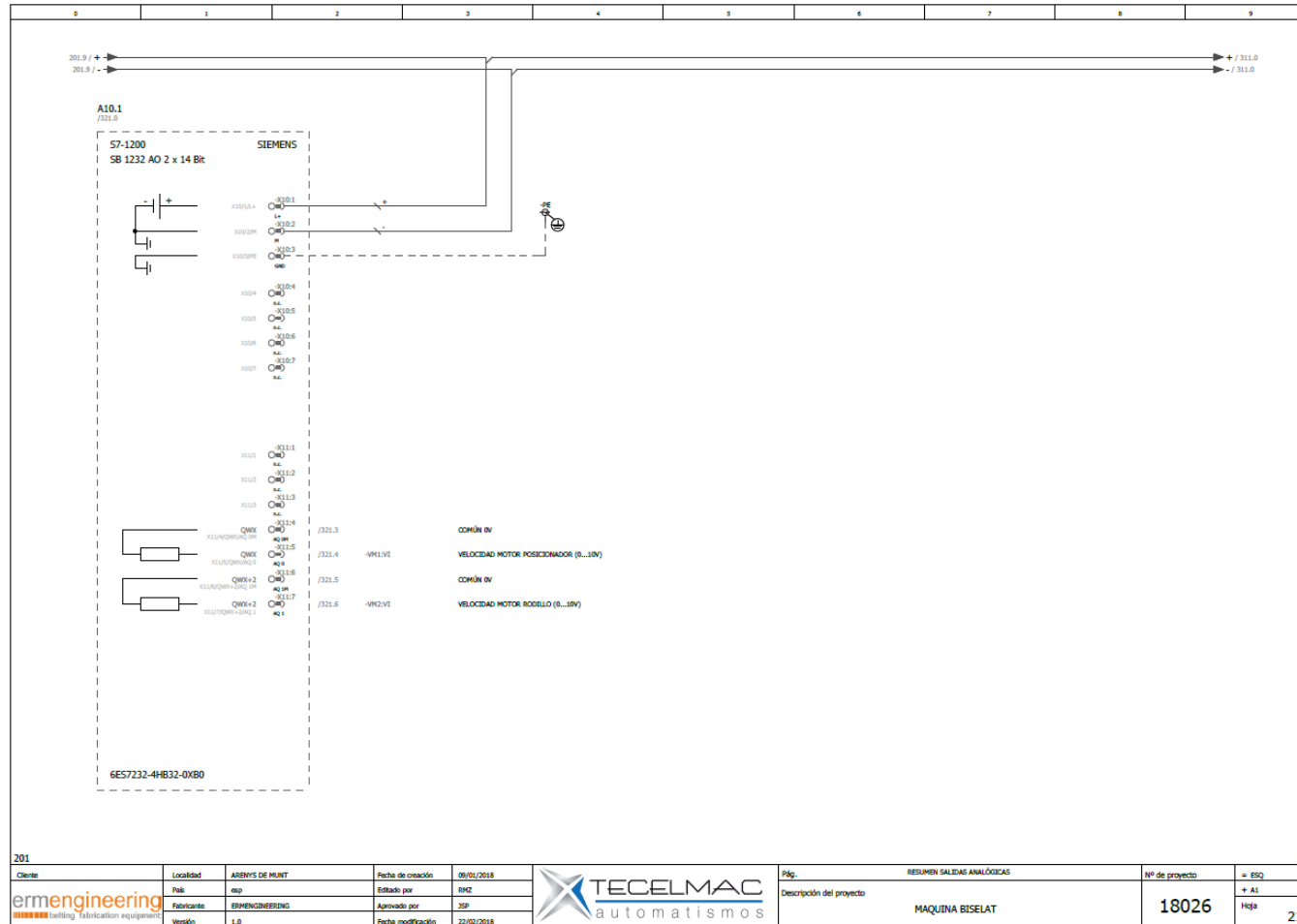


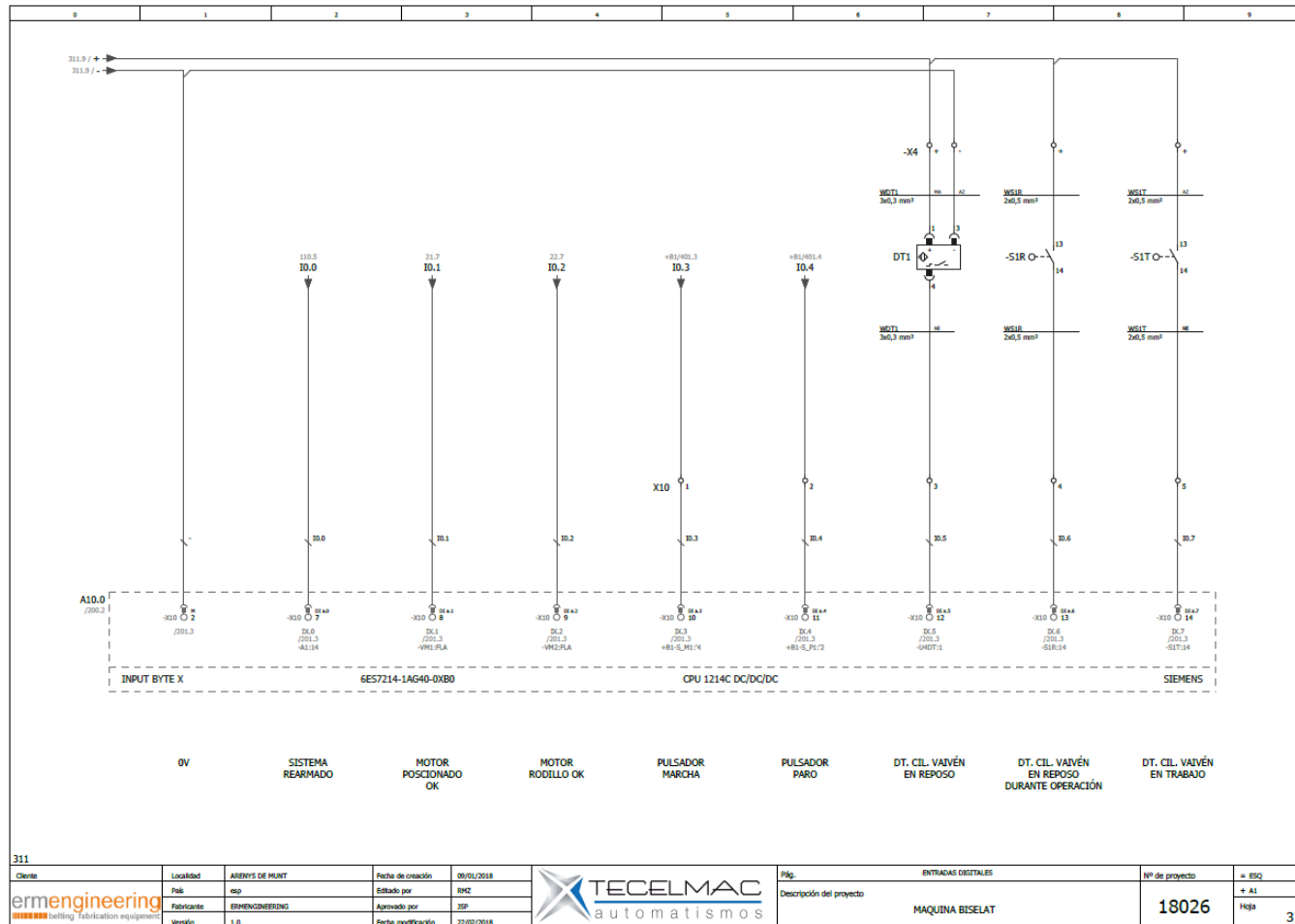




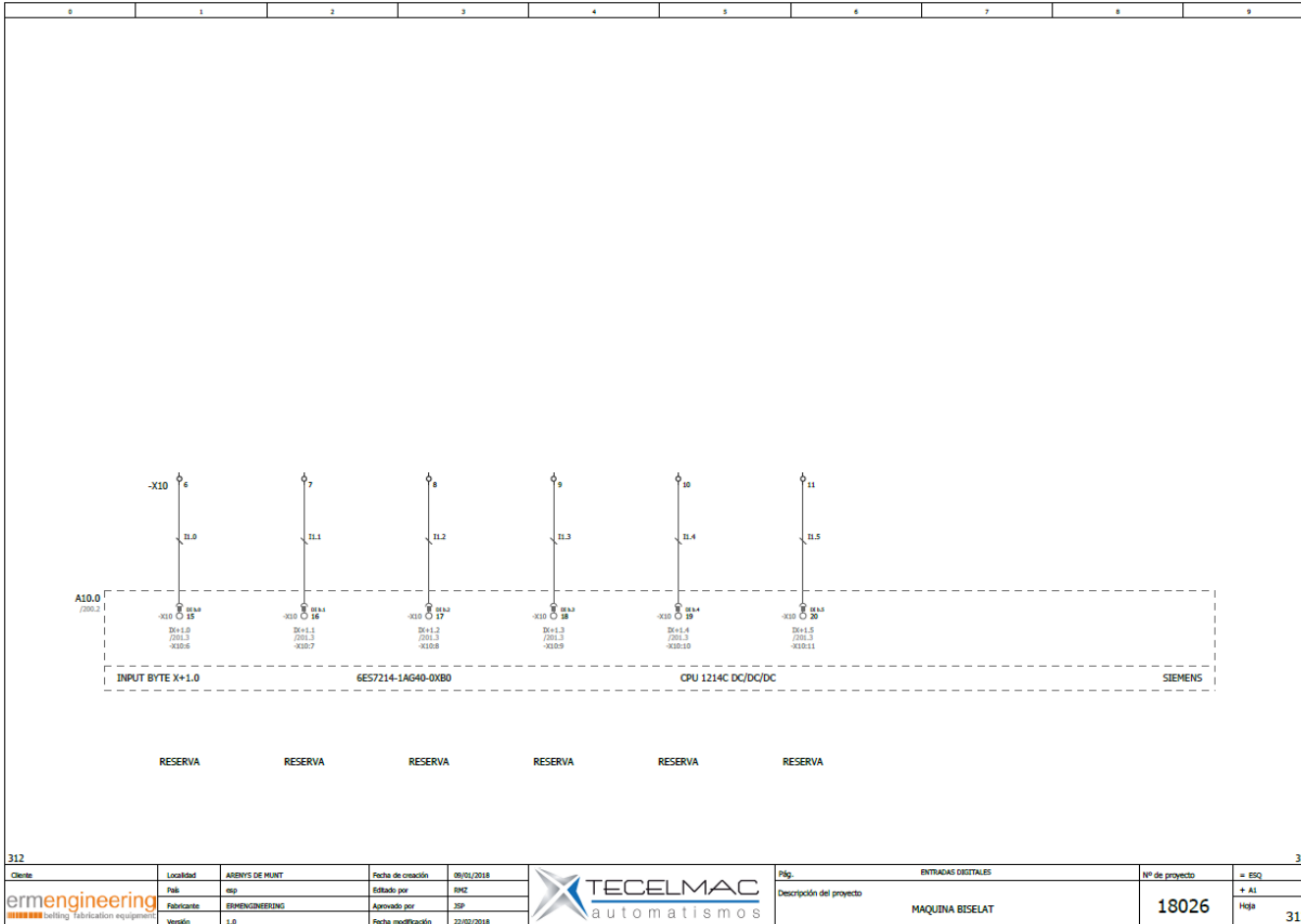


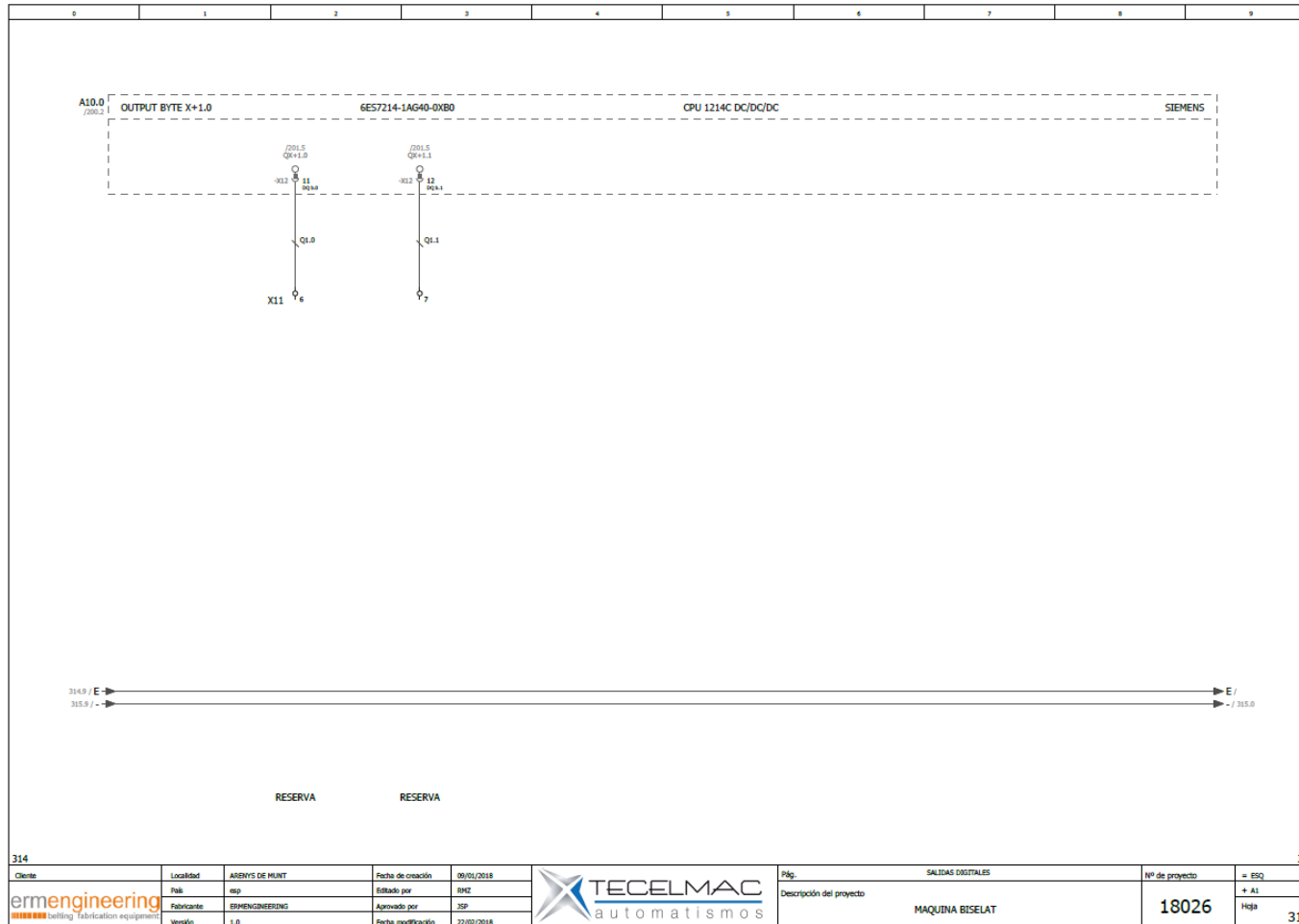


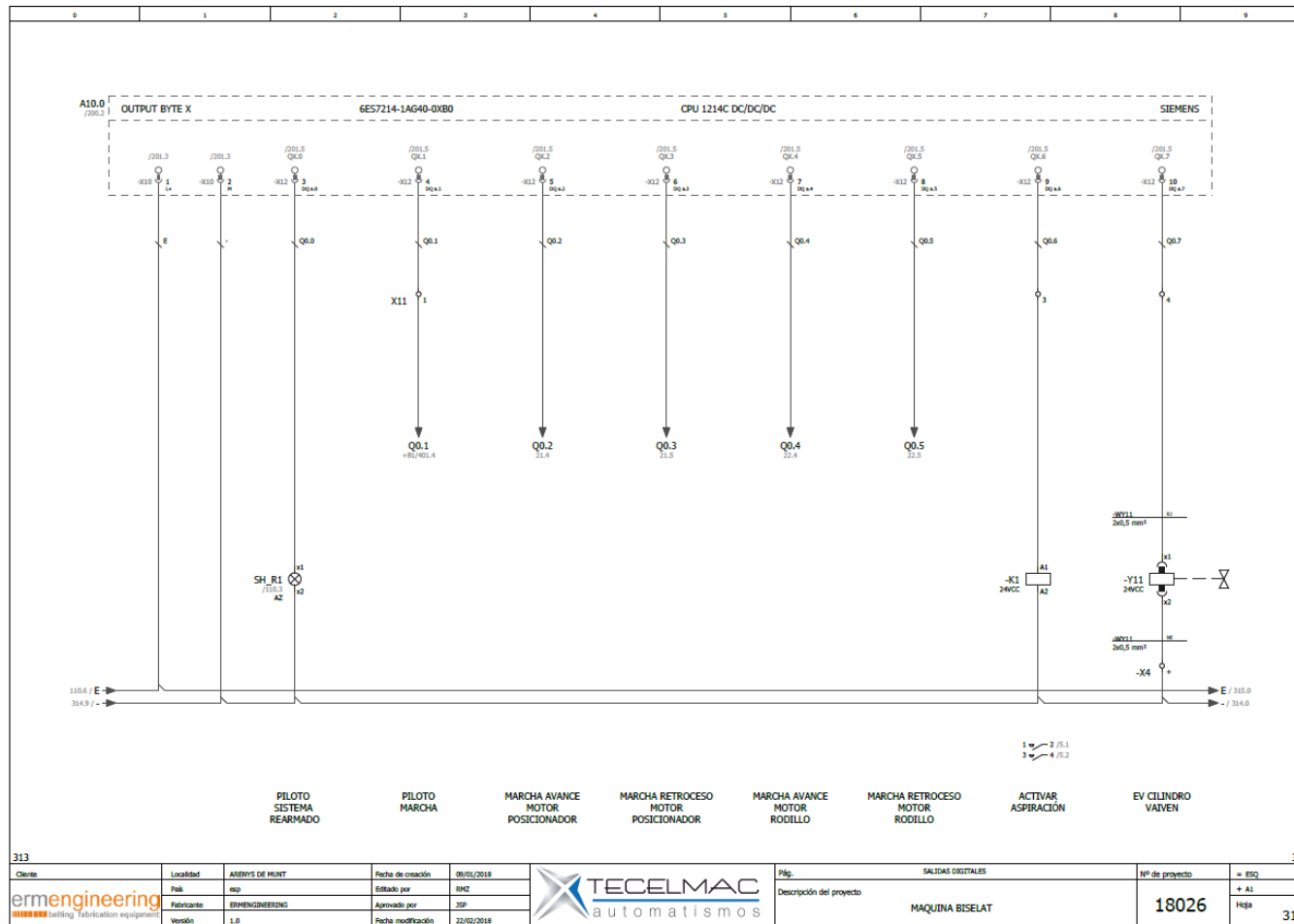




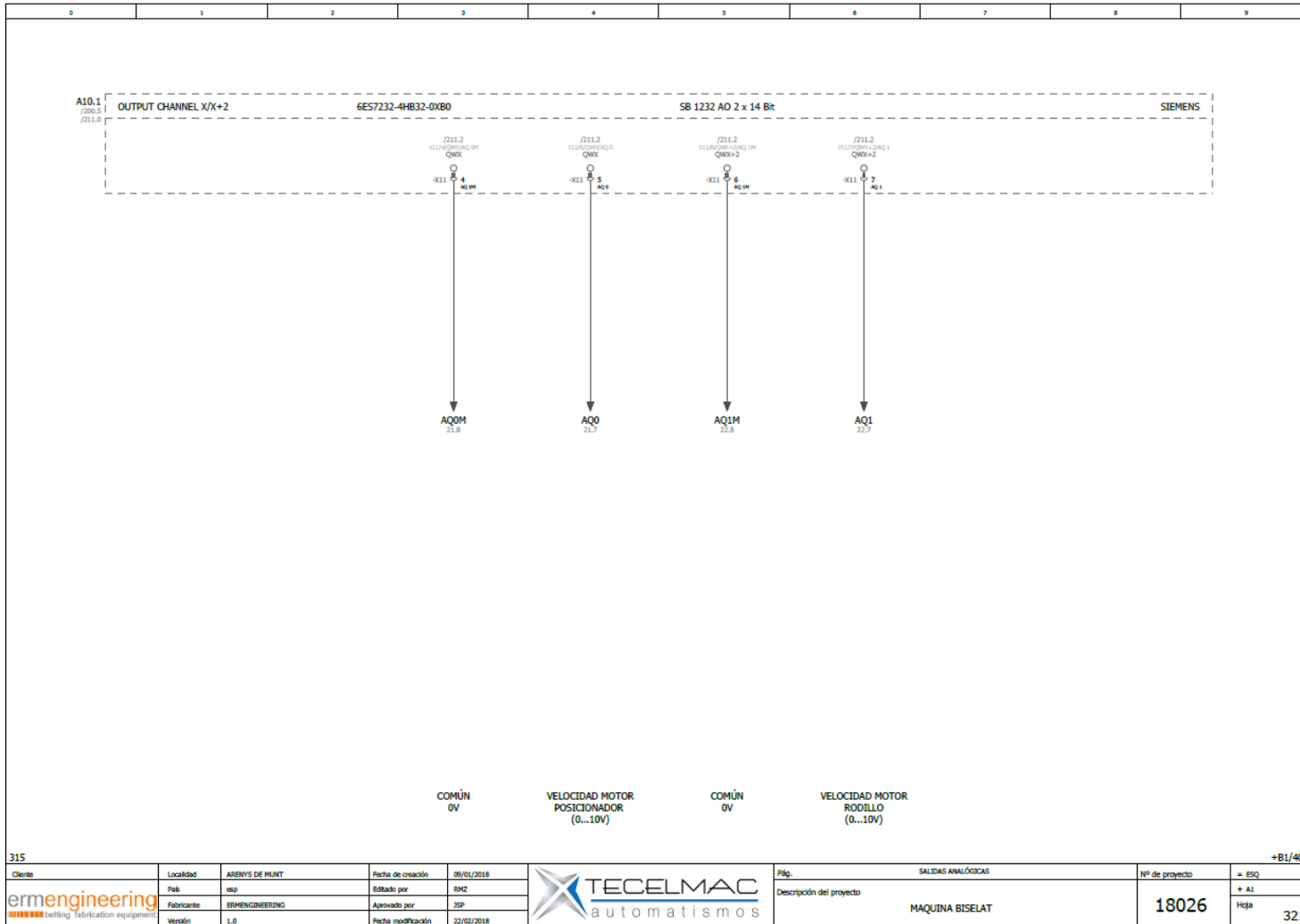
311					313			
Ciente	Localidad	ARENYS DE MUNT	Fecha de creación	09/01/2018	Pág.	ENTRADAS DIGITALES	Nº de proyecto	= ESQ
ermengineering	País	esp	Editado por	RHZ	Descripción del proyecto	MAQUINA BISELAT	18026	+ A1
belting fabrication equipment	Fabricante	ERMENGINEERING	Aprobado por	JSP				H99
	Versión	1.0	Fecha modificación	22/02/2018				312













313					315
Cliente	Localidad	AREVIVS DE MUNT	Fecha de creación	09/05/2018	Pág. SALIDAS DIGITALES
ermengineering	País	esp	Estado por	RMZ	Nº de proyecto
belting fabrication equipment	Fabricante	ERMENGINEERING	Aprobado por	JSP	18026
	Versión	1.0	Fecha modificación	22/02/2018	MAQUINA BISETAT
					TECELMAC automatismos
					Descripción del proyecto
					18026
					= ESQ
					+ A1
					Hoja
					314

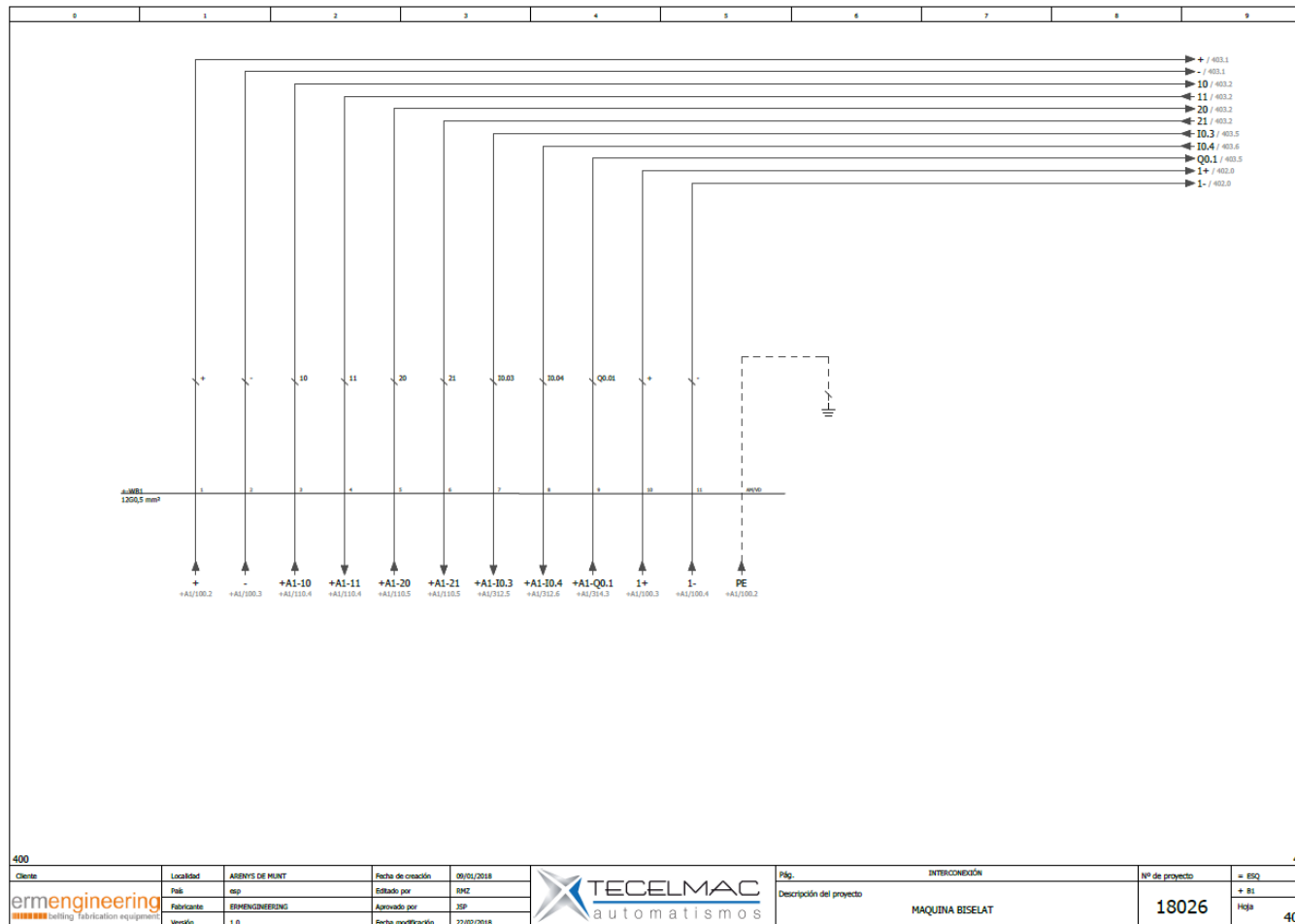


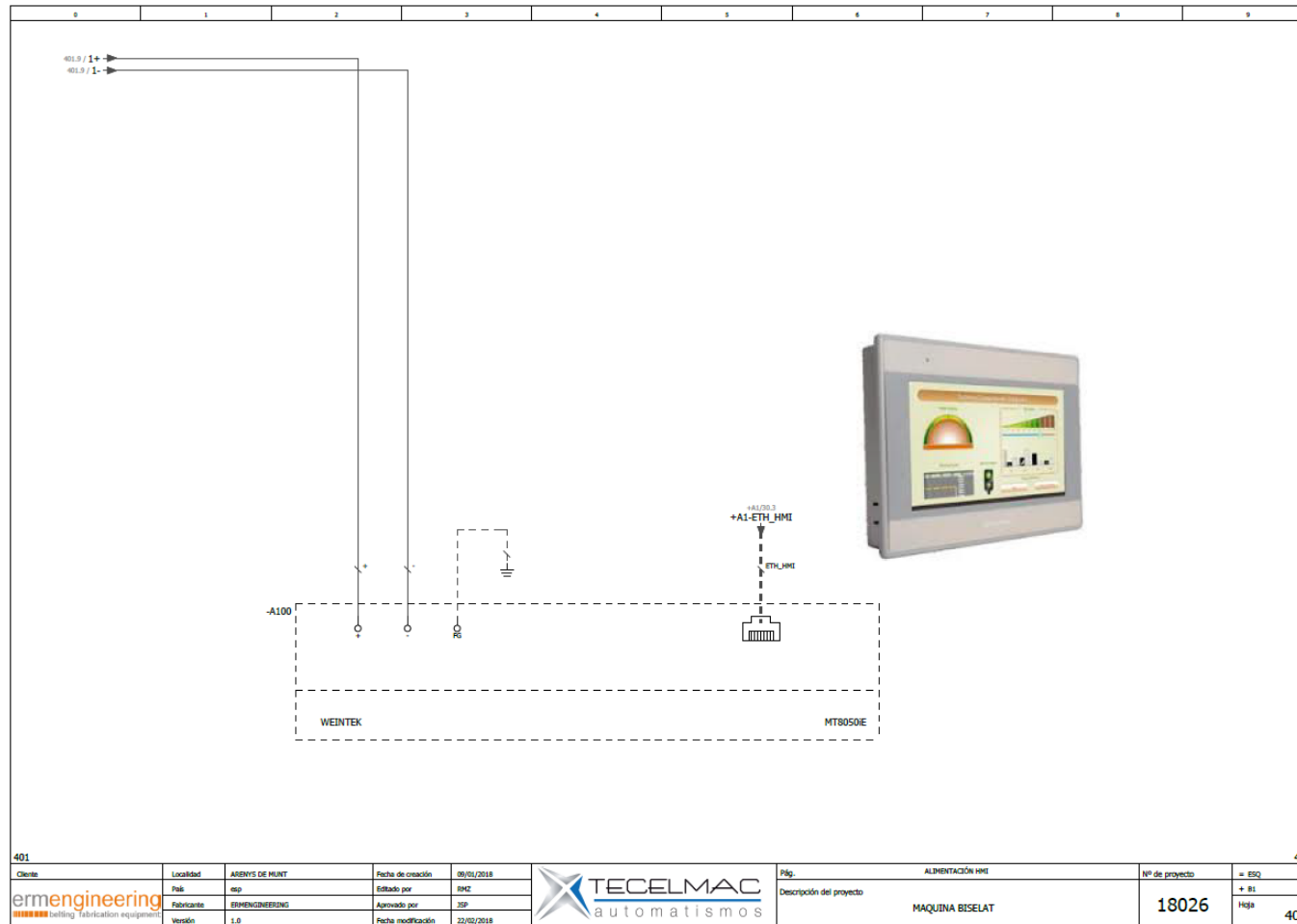
**Use and maintenance manual**

Skiving machine

Model: SKR-A301

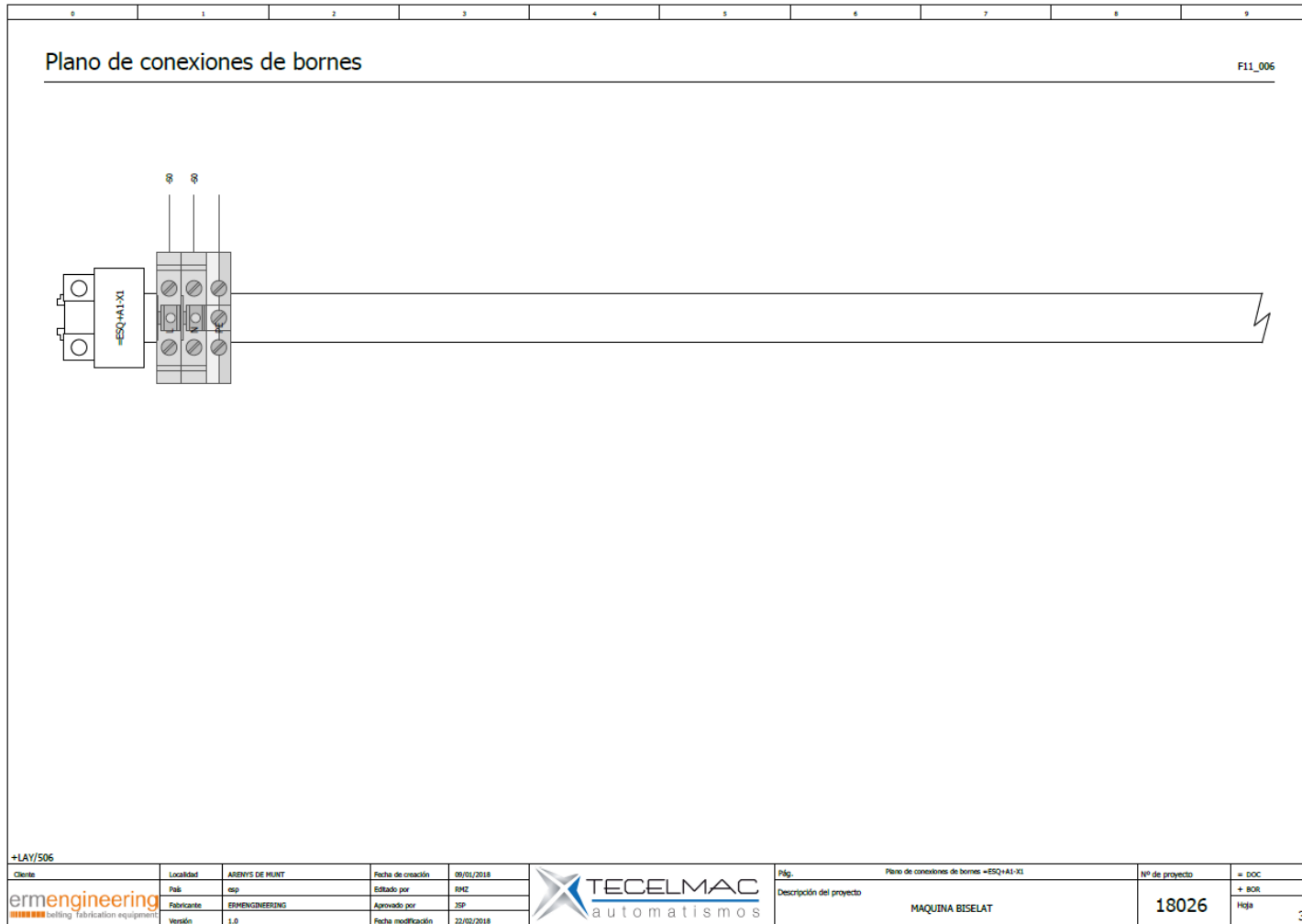
0	1	2	3	4	5	6	7	8	9																														
<p>BOTONERA -B1-</p>																																							
<p>+A1/321</p> <table border="1"> <tr> <td>  </td> <td>                 Localidad                  ARENYS DE MUNT             </td> <td>                 Fecha de creación                  06/01/2018             </td> <td colspan="2" style="text-align: center;">  </td> <td>                 Pág.                  PORTADA BOTONERA B1             </td> <td>                 Nº de proyecto                  18026             </td> <td>                 = EQ                  + B1             </td> <td colspan="2" style="text-align: right;">                 401             </td> </tr> <tr> <td>                 Fabricante                  ERMENGINEERING             </td> <td>                 País                  esp             </td> <td>                 Editado por                  RMZ             </td> <td>                 Aprobado por                  JSP             </td> <td>                 Descripción del proyecto                  MAQUINA BISELAT             </td> <td>                 18026             </td> <td>                 400             </td> <td colspan="3"></td> </tr> <tr> <td>                 Versión                  1.0             </td> <td colspan="2">                 Fecha modificación                  22/02/2018             </td> <td colspan="7"></td> </tr> </table>											Localidad ARENYS DE MUNT	Fecha de creación 06/01/2018			Pág. PORTADA BOTONERA B1	Nº de proyecto 18026	= EQ + B1	401		Fabricante ERMENGINEERING	País esp	Editado por RMZ	Aprobado por JSP	Descripción del proyecto MAQUINA BISELAT	18026	400				Versión 1.0	Fecha modificación 22/02/2018								
	Localidad ARENYS DE MUNT	Fecha de creación 06/01/2018			Pág. PORTADA BOTONERA B1	Nº de proyecto 18026	= EQ + B1	401																															
Fabricante ERMENGINEERING	País esp	Editado por RMZ	Aprobado por JSP	Descripción del proyecto MAQUINA BISELAT	18026	400																																	
Versión 1.0	Fecha modificación 22/02/2018																																						

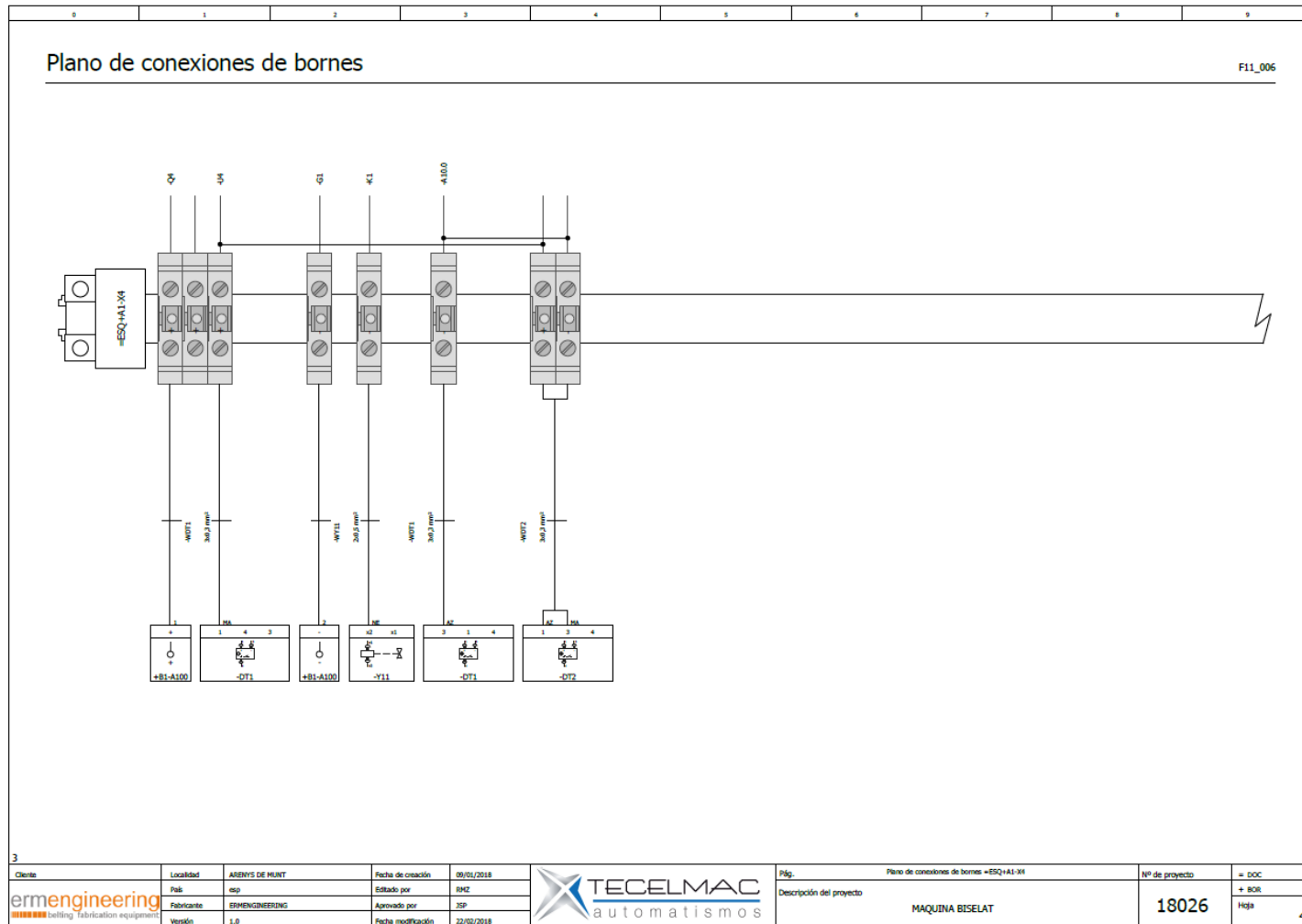


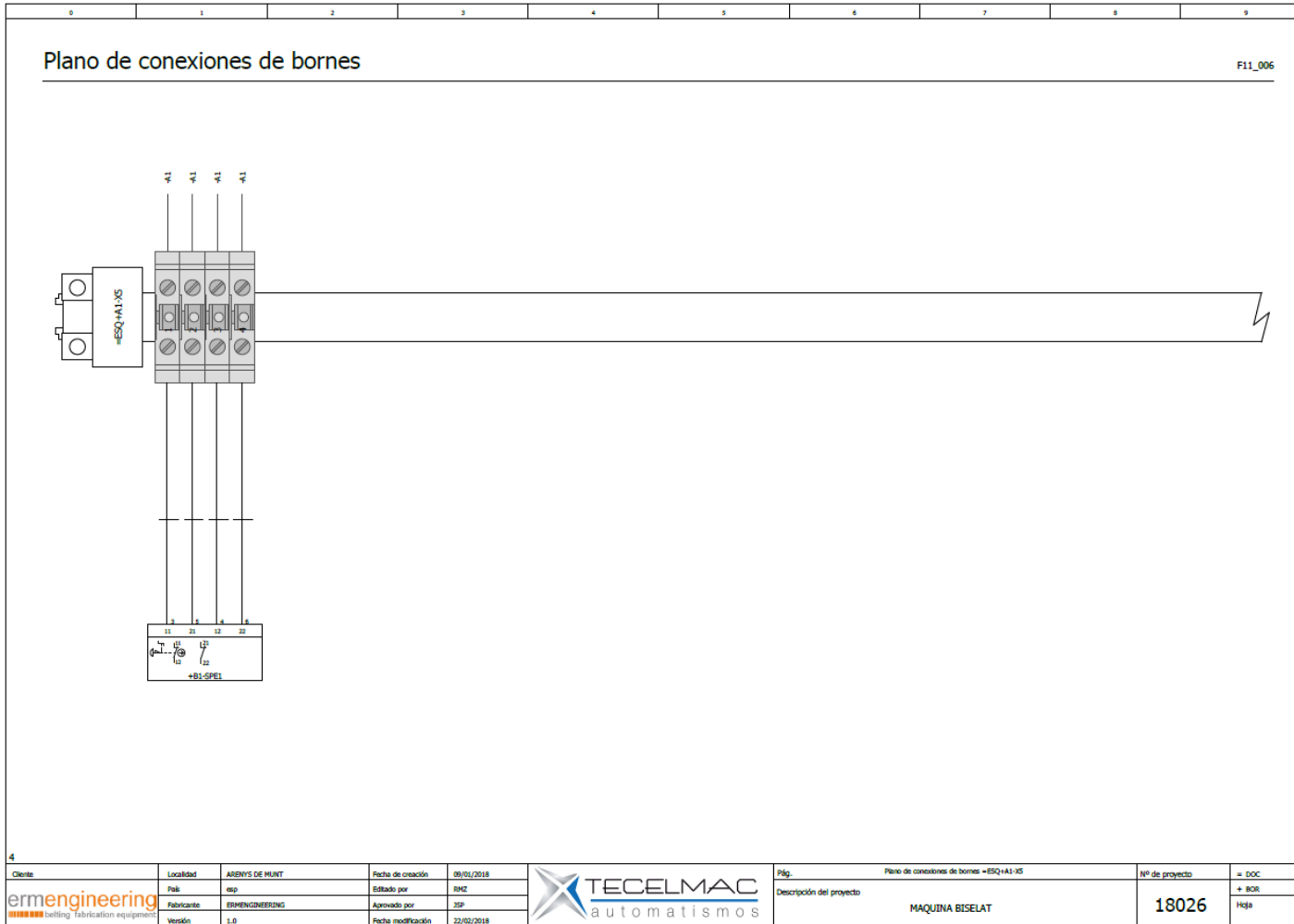


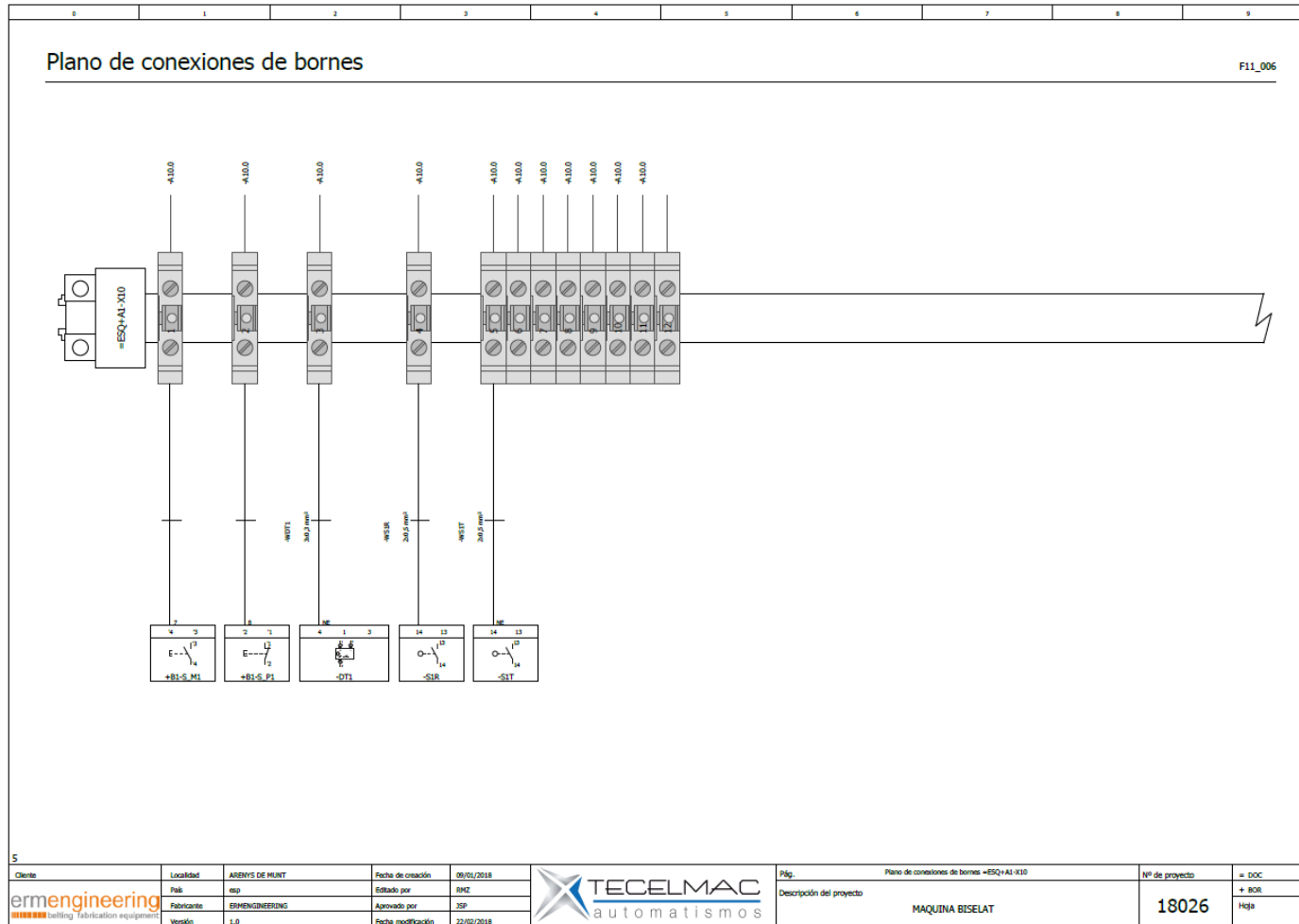
401		403	
Cliente	Localidad	Fecha de creación	Pág.
ermengineering belting fabrication equipment	ASENYS DE MUNT	09/02/2018	ALIMENTACIÓN HMI
País	Estado por	TECELMAC automatismos	Descripción del proyecto
esp	RHZ		MAQUINA BISELAT
Fabricante	Aprobado por		Nº de proyecto
ERMENGINEERING	ZSP		18026
Versión	Fecha modificación		= ESQ
1.0	22/02/2018		+ B1
			Hoja
			402

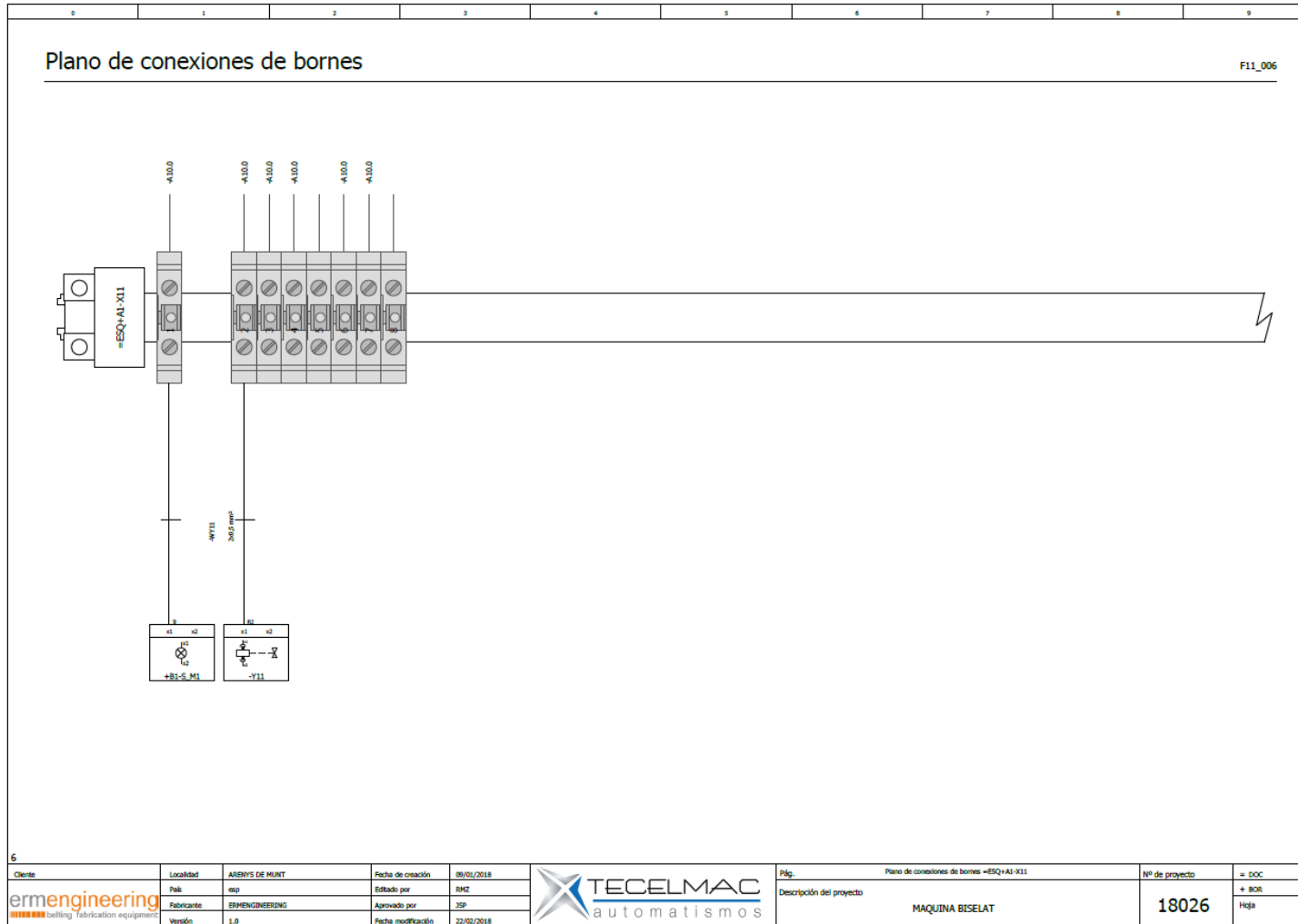


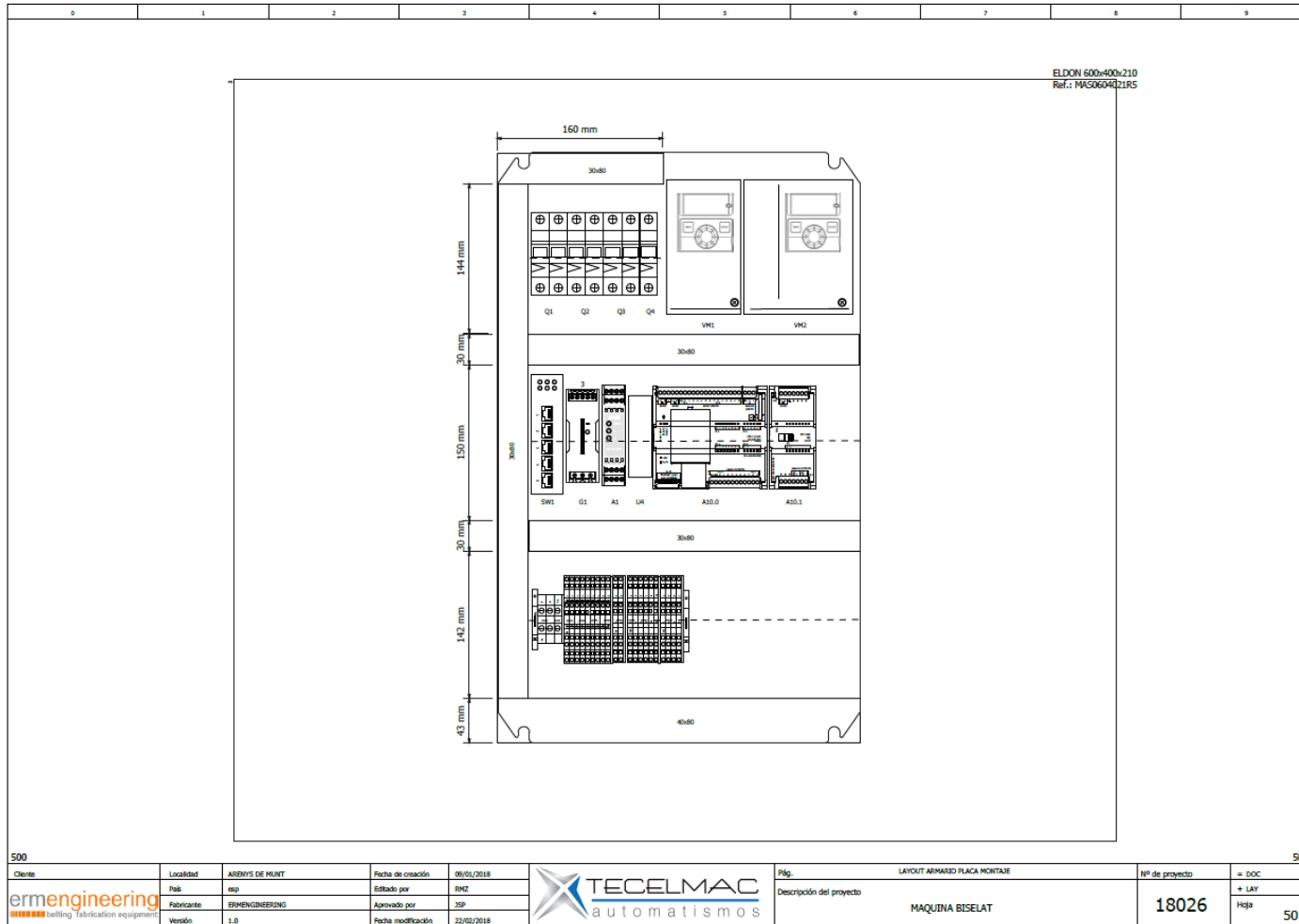




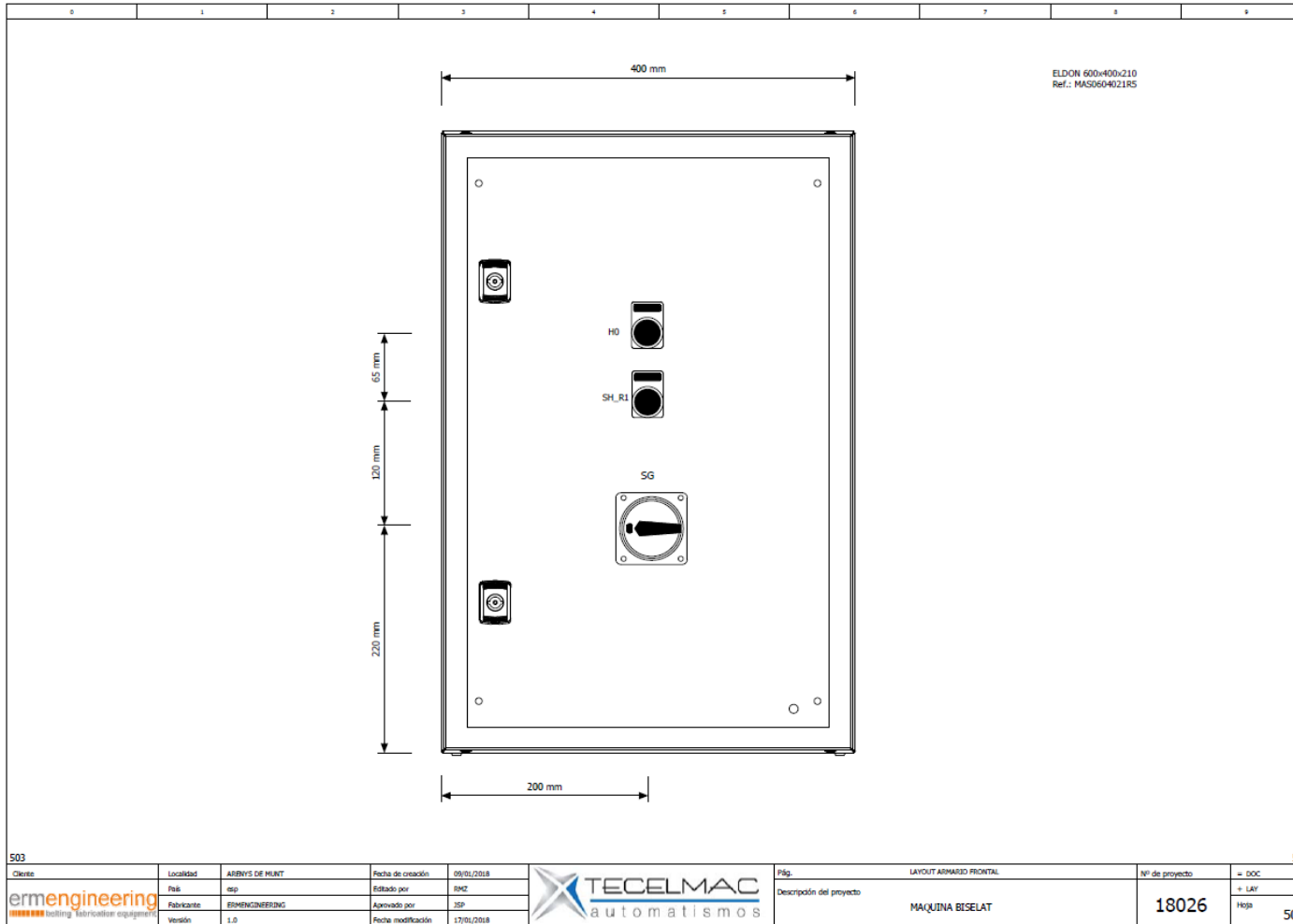




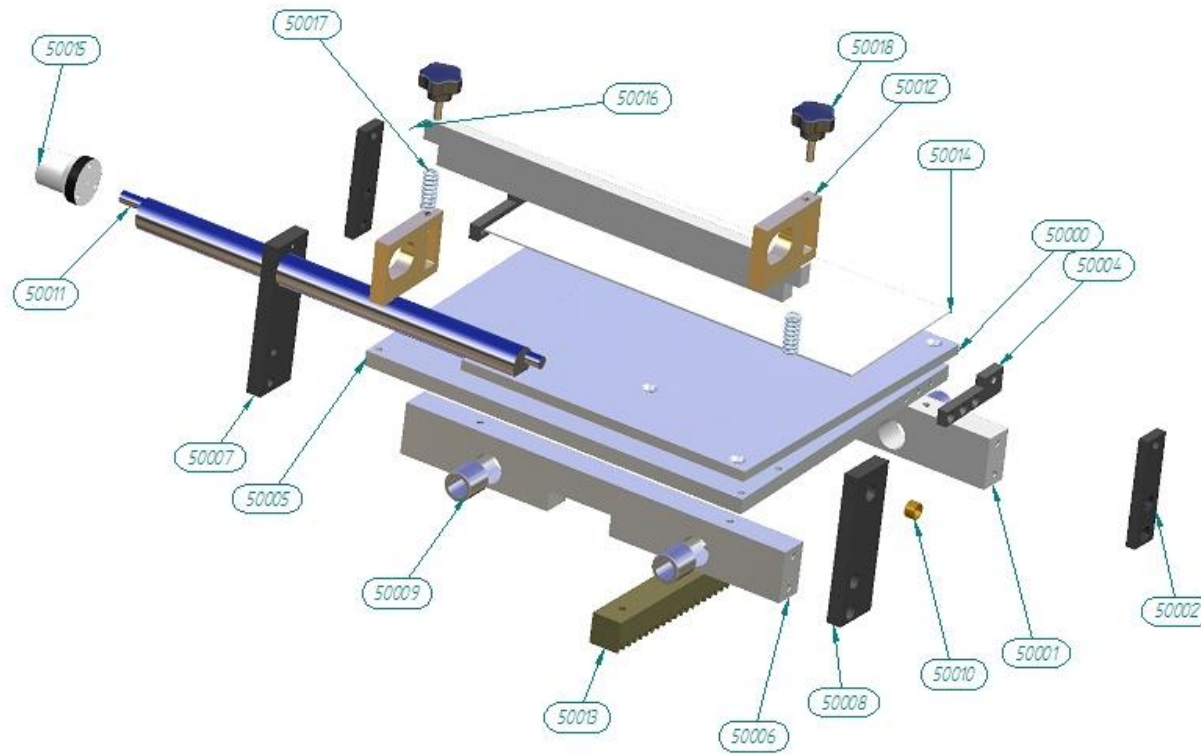




500								502	
Cliente	Localidad	ARENYS DE MUNT	Fecha de creación	09/01/2018	Pág.	LAYOUT ARMARIO PLACA MONTAJE	Nº de proyecto	= DOC	
ermengineering belting fabrication equipment	País	esp	Elaborado por	RHZ	Descripción del proyecto	MAQUINA BISELAT	18026	+ LAY	
	Fabricante	ERMENGINEERING	Aprobado por	SP				Hoja	501
	Versión	1.0	Fecha modificación	22/02/2018					

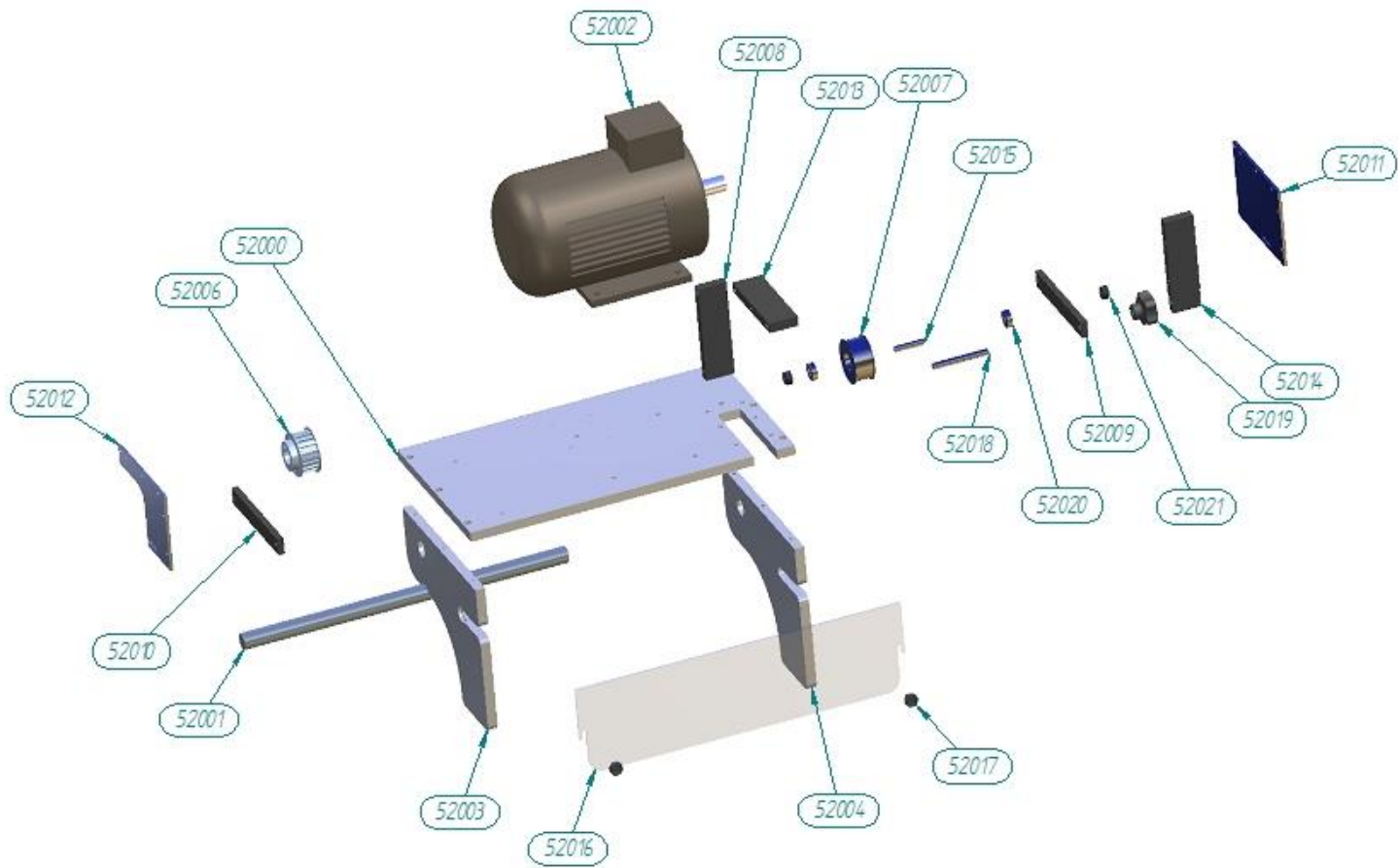


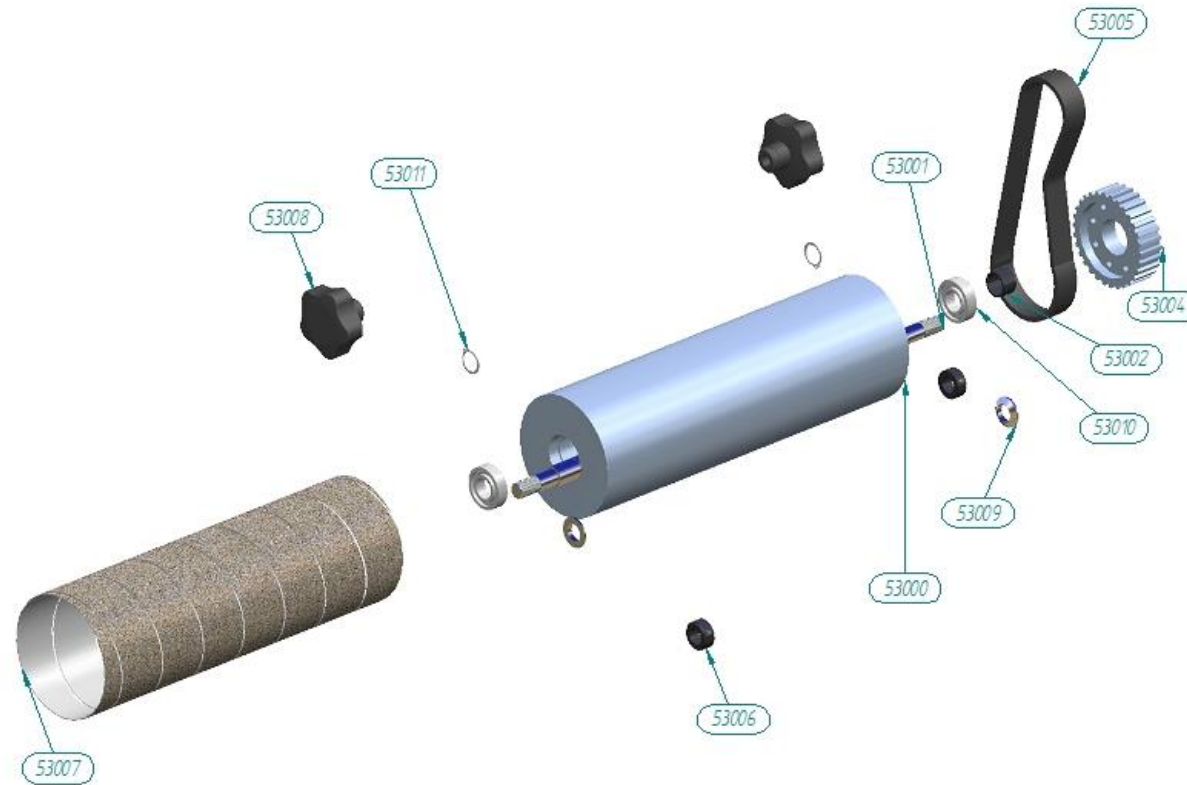
- Spare parts:



**Use and maintenance manual**

Skiving machine  
Model: SKR-A301



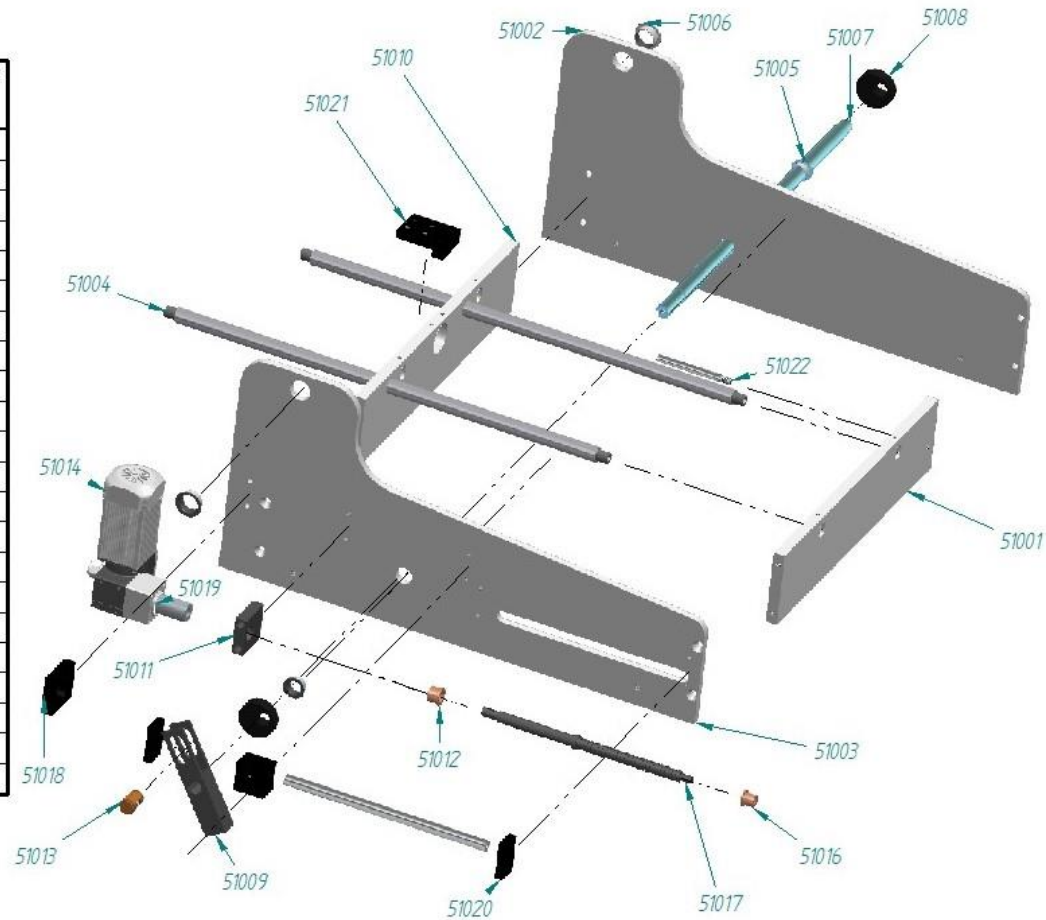


# Use and maintenance manual

Skiving machine

Model: SKR-A301

Número de elemento	Nombre archivo (.n extensión)	Cantidad
51001	DISTAN DELANTERO	1
51002	Lado SKRA2	1
51003	Lado SKA1	1
51004	DRW 20X600	2
51005	UB 20115	2
51006	UB 25115	2
51007	EJE EXCENTRICAS	1
51008	EXCENTRICA ALZA	2
51009	HORQUILLA EXCENTRICAS	1
51010	Dist. trasero SKA	1
51011	SOPORTE EJE ALZA	1
51012	SEFOL 16 20 16 3	1
51013	TUERCA HORQUILLA	1
51014	BCE2000 T50 B3_B14	1
51015	SOPORTE EJE ALZA2	1
51016	SEFOL 10 16 16 3	1
51017	EJE Alza SKA	1
51018	Placa BCE	1
51019	Enlace eje alza	1
51020	Tope carrera	1
51021	Base clevic	1
51022	Tope inicio	1

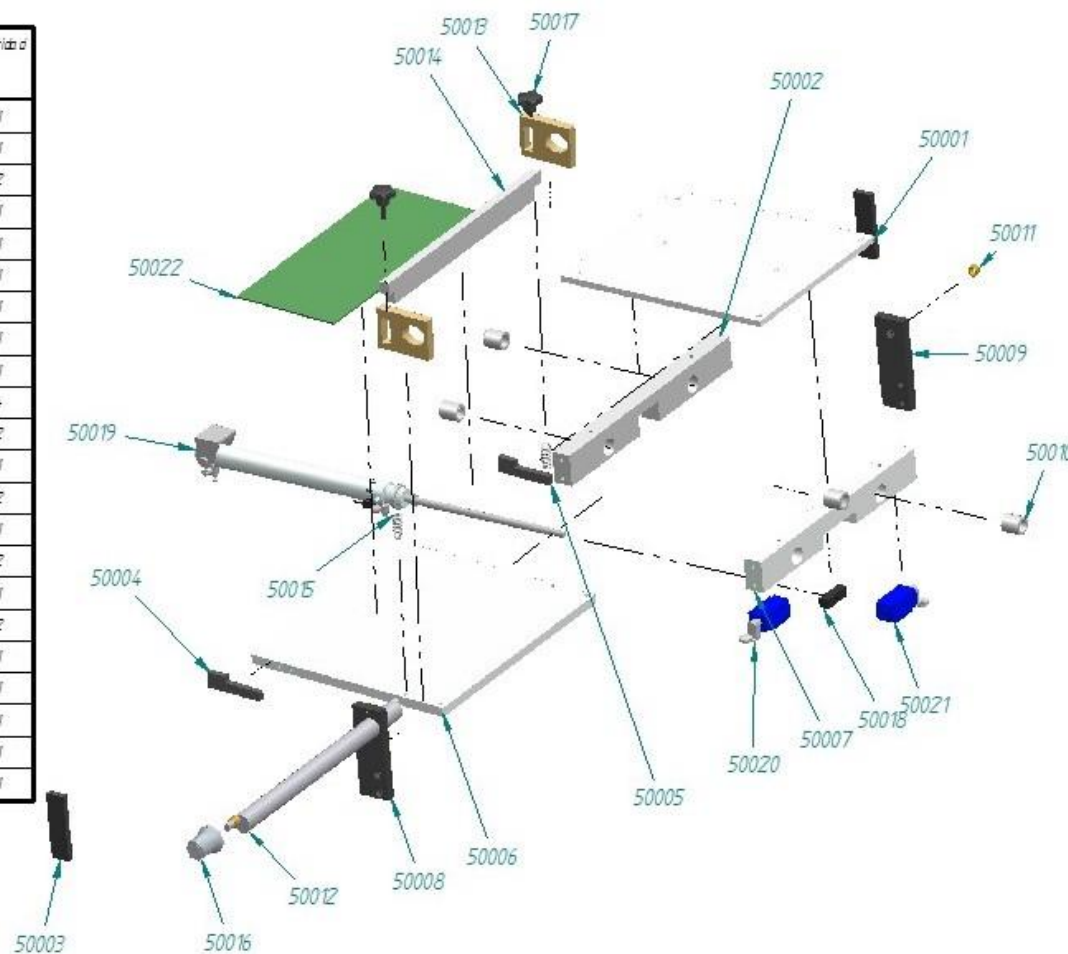


# Use and maintenance manual

Skiving machine

Model: SKR-A301

Número de elemento	Nombre archivo (sin extensión)	Cantidad
50001	MESA	1
50002	Avance SKA	1
50003	PESTAÑA SOBREMESA	2
50004	PATILLA MESAZ	1
50005	PATILLA MESA	1
50006	MESA SOBRE	1
50007	AVANCE TRASERO	1
50008	SOPORTE INCLINACION	1
50009	SOPORTE INCL-2	1
50010	RODAM LINEAL 20X28X30	4
50011	SELFOL 10X16X15	2
50012	EJE INCLINACION	1
50013	PESTAÑA INCLINACION	2
50014	BARRA PISADOR	1
50015	MUELLE	2
50016	gn 200 44 k12 as 0	1
50017	vc 192 40 p m 8x25	2
50018	Tuerca C76	1
50019	CD7 e632-250-8	1
50020	Micro 11	1
50021	Micro inicio	1
50022	Placa desgate	1



# Use and maintenance manual

Skiving machine

Model: SKR-A301

Número de elemento	Nombre archivo (sin extensión)	Cantidad
54001	Caratula SK301	1
54002	Pantalla	1
54003	xb4_bt42	1
54004	xb4_b1845	1
54005	etiquette_zby9130	1
54006*	Base botonera	1

