(Original) Use and maintenance manual

Type: Slitter round blades for flat and conveyor belts
Model: SLC-600

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.

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Page

- CE Declaration of conformity:

WE DECLARE, under our responsibility, that the machine:
- Type: Slitter Transmission belt
- Brand: ERM Engineering
- Model: SLC-600
- 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 13850 - EN 13857 – EN 61310-1 EN 60204-1 - EN 14118 - EN 14120 – EN 982 – EN 983 – EN 292

General Manager: Eduardo Ramos Martínez

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

- Description:

The machine has been designed for longitudinal cutting of open or endless belts. The operation is carried out by means of the action of the rotating blades, mounted on the upper mobile roller that the operator lowers, through the hydraulic cylinder, until touching the lower roller of the nylon tubular cutting supports. This roller, rotating, drags the belt under the blades that make the cut to size according to the configuration.

The belts or bands are introduced on the work plane, between the upper roller of the blades and the lower roller of the cutting supports. The simultaneous pressure and rotation of the two rollers drag and cut the belts or bands longitudinally. The cutting width can be adjusted up to 600 mm using the spacer rings, placed between the circular blades on the blade roller and the sliding guides.

The approach movement of the roller of the supports of cut to the blades is realized by means of the activation of the hydraulic cylinder. The blades depth of penetration can be adjusted by acting on the lock nut on the upper end of the cylinder. During the cutting operation, the circular blades penetrate slightly into the roller of the cutting supports, guaranteeing a clean cut, without damaging the blade of the blades. The peripheral cutting speed of the blades can vary from 1 to 5 times the peripheral speed of the roller of the cutting supports by adjusting the differential potentiometer. When the surface has been consumed, the cutting supports can be easily replaced by removing the roller support.

The drive system consists of two electric gearmotors powered by inverter, which is operated by a foot switch and a hydraulic pump that drives the ascent and descent of the cutting roller by means of a cylinder.

A selector allows you to reverse the direction of rotation of the rollers when necessary.

- Machine uses:

The machine SLC 600 is a circular blade cutter designed for custom cutting of belts or of bands.

The machine is of manual type, since for its operation it demands the constant presence of an operator.

Any intervention on the machine by the client or third parties, which modifies substantially its intended use is strictly forbidden.

Possible structural modifications must be previously approved by ERM Engineering

⚠ ATTENTION:
- The machine operator must be a proven worker
- The owner of the facility or the person in charge of the plant must provide you with all the information and help necessary for the protection of your physical integrity
- The operator must be given a copy of this manual and it must be verified that he has read it and, therefore, knows the operation of the machine safely

- **Safety devices**

The machine is equipped with safety devices and emergency stop control, which guarantee safe operation for the operator.

- **Front screen**

The cutter is equipped with a mobile screen that prevents access to the blades during drag of the band. This shelter is transparent to allow perfect visibility in the area of operations. It is equipped with a micro safety switch that, activating with the turn of the screen, locks the machine and prevents the hand from approaching the circular blades of the cutter.

- **Micro proximity switch**

The upper crossbar has a safety micro switch installed: it locks the machine
when the upper roller closing plate is not correctly placed in its seat, indicating the anomaly with the warning light.

- **Rear screen**

The cutter is equipped with a fixed screen that prevents direct access to the blades from the rear. This guard is transparent.

- **Emergency button**

The emergency stop push button (mushroom) (see the control board in fig. 9) is located on the push button panel so that it can be reached quickly by the operator when required.
The emergency stop device and control are connected to the same system; for further details, consult the electrical diagram in this manual.

- Workstation and hazard zones:

The operator's job during cutting operations is ahead of the machine, of the introduction of the belt (**fig. 1**).

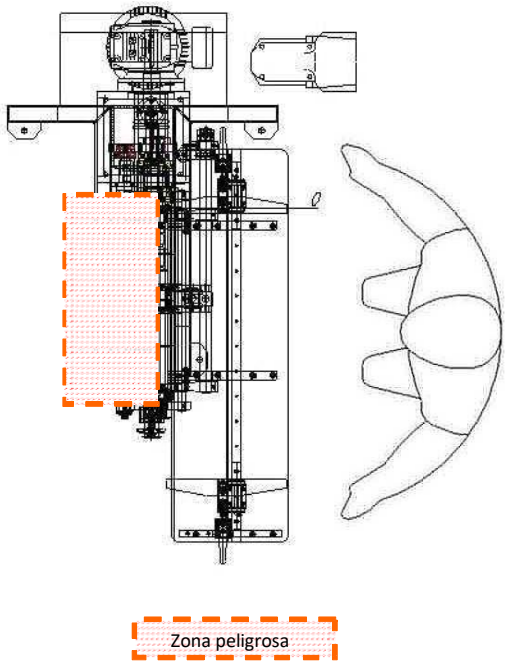


Fig. 1 – Workplace

Crush risk

DANGER!
Machine equipment operations must be carried out by trained personnel, who respect the instructions given by ERM Engineering.
It is forbidden to remove the fixed guards or alter the sensors.

Risk of cuts

During blade replacement there is a risk that the operator will cut their hands. The operator must wear appropriate protective gloves when changing the blades.
Use GLOVES during operations**.**

Risk of bumps

During the continuous roll extension, there is a risk of bumps on the supports mounted on unwinder. The operator must be located to the right of the unwinder.

First we place the first end of the belt on the pins side by the guide rail with the teeth on top and position under the two trad bar until end of aluminum plate.

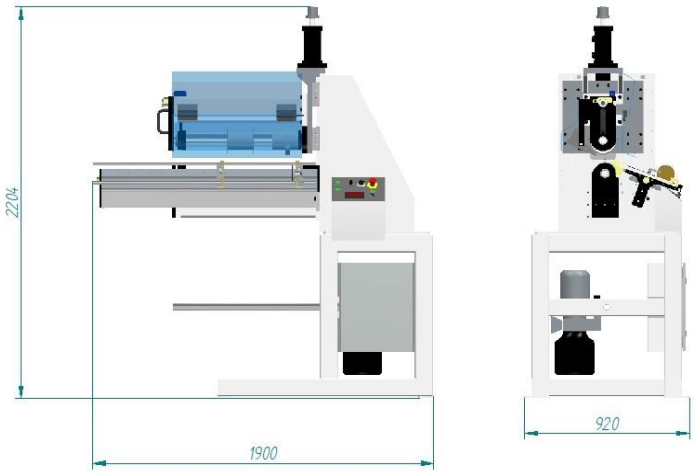
- Technical Data:

- **ELECTRICAL**
  - Voltage *Vac 230 V–50/60 Hz - Monofásica*
  - General power installed *kW 1,7*
  - Tensión de auxiliares y señalización de la máquina *VDC 24*

- **PRODUCTION**
  - Minimum cutting speed 10 *m / min.*
  - Maximum cutting speed 38 *m / min.*
  - Number of blades *10*
  - Blade diameter *160 mm*
  - Minimum length belt / *400/850/1350mm depending on passage*
  - Maximum belt width / 630 *mm // 1200mm in table*
  - Maximum belt thickness / 25 *mm*

- **DIMENSIONS OCCUPIED**
  - Dimensions of the machine installed (L x A x H) *mm 1900 x 920 x 2204*

- **WEIGHT**
  - No-loaded machine *991 kg*



- Standard equipment:

- 10 circular blades 160mm x 2mm.
- 10 disc separators 1mm.
- 10 disc separators 2mm.

- 6 disc separators 5mm.
- 6 disc separators 8mm.
- 6 disc separators 23mm.
- 6 disc separators 28mm.
- 6 disc separators 48mm.
- 6 disc separators 98mm.
- 1 trolley for accessories.
- 1 key for motor shaft.

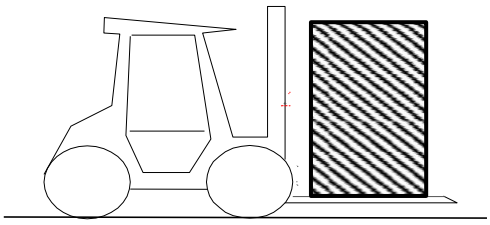
- Optional equipment

- Winding unit

- Transport and installation:

DANGER!
The machine must be offloaded with means of suitable capacity. Make sure any lifting cables or ropes are in good condition and that there are no people in the path of the machine.

For the transport of the machine packed in its wooden box, it is required a forklift.



During these operations, wear the protective HELMET and GLOVES.

The following image shows how the machine should be lifted, indicating the lifting

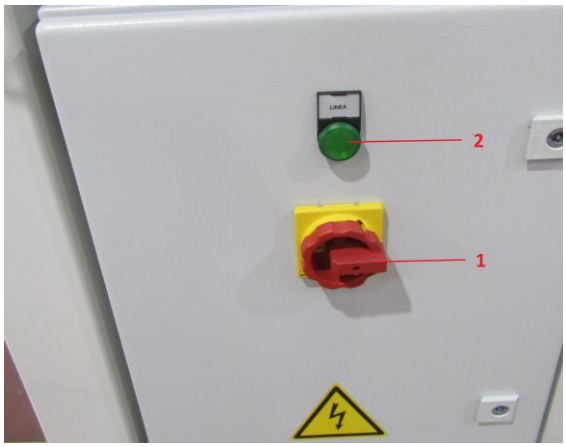
WARNING: Never try to raise the machine by any other place that it not indicated in the following image.

- ## Equipment connection:

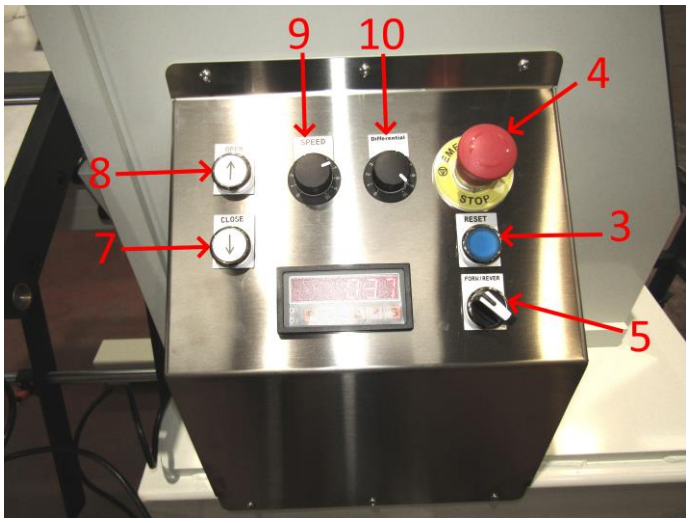
CONNECTION WITH THE EXTERNAL PROTECTION CIRCUIT ("EARTH")
To ensure the safety of people, it is necessary to make a correct grounding of the machine. It is mandatory to connect the "PE" terminal in the ground installation using a copper conductor of suitable section.
Connect the equipment power cable to the network. First, check the voltage of the unit indicated on the nameplate, located on the machine chassis.

DANGER!
THE COMMISSIONING PROVIDES FOR THE KNOWLEDGE OF THE DIFFERENT FUNCTIONS OF THE BUTTONS AND INSTRUMENTS OF THE COMMAND BOARD, SPECIFIED IN THE CORRESPONDING CHAPTER.

- ## Control panel:



1. General switch
2. Line



3. Reset pushbutton
4. Emergency stop
5. Reverse
6. Meter display
7. Up roller
8. Down roller
9. Cutting speed adjustment
10. Speed differential adjustment

- Equipment start-up

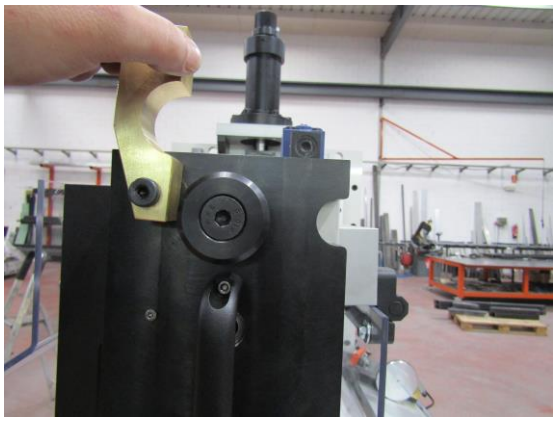
We will turn the red switch of the main panel clockwise:

We will press the blue “RESET” button to reset the system:

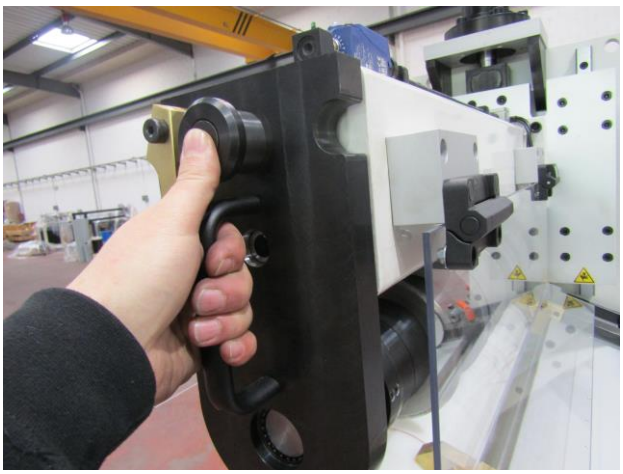
NOTE: **If you cannot reset, verify that the emergency stop is unlocked.**

- **Preparation:**

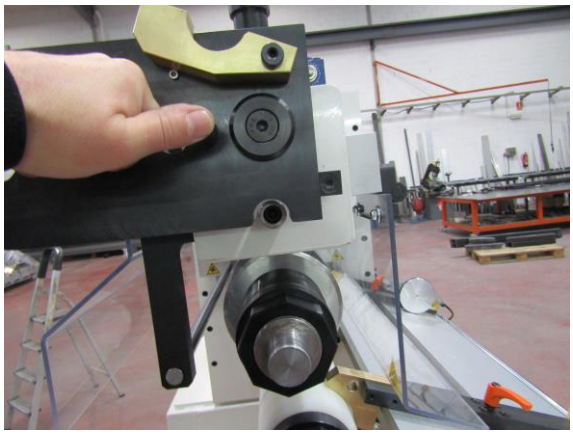
To open the upper closing plate, we will remove the brass safety latch by rotating it in the left direction:



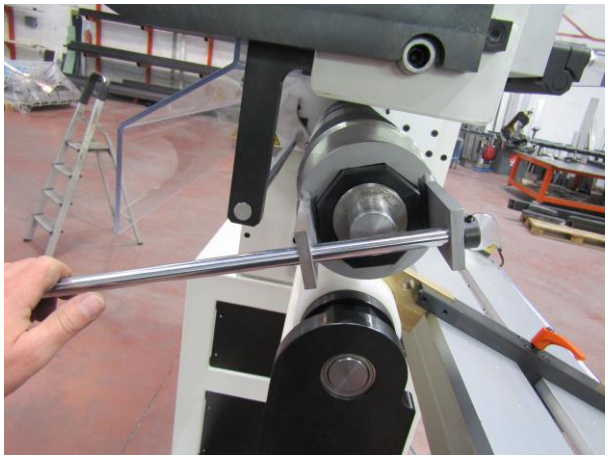
We will pull the closing plate strongly outwards and turn it to the left 90º:



We will press the plate against the structure again so that it remains firm in its support:



We will use the special wrench supplied with the machine to loosen the upper axle nut:

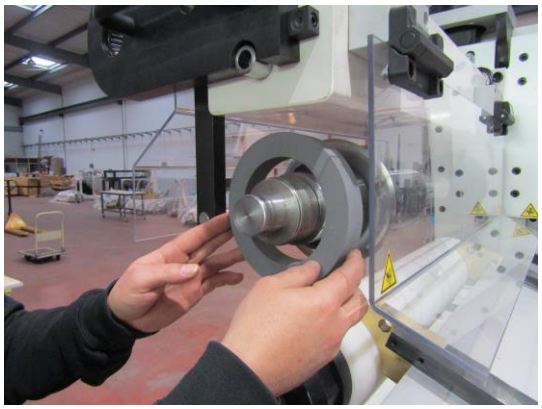


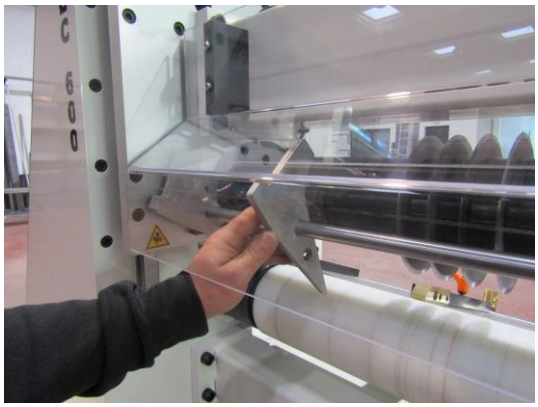
We will remove the first anti-rotation ring:

We will remove the spacers and blades from the machine shaft:

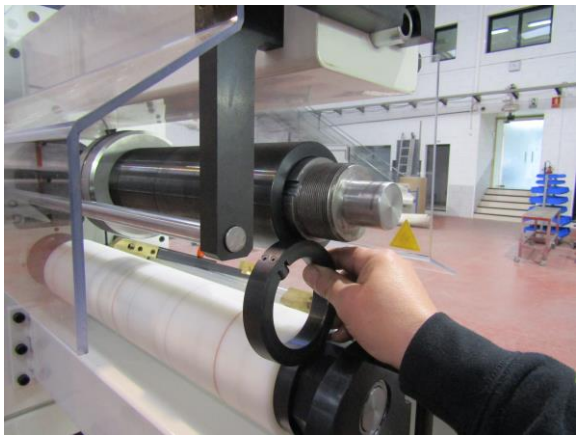
We will prepare the arrangement of the blades and the appropriate separators for the cut to be made, considering that the thickness of the blade is 2mm.

At the time of assembling the separators, we can decide if we will use the foam rings or the extraction nails, but never both:



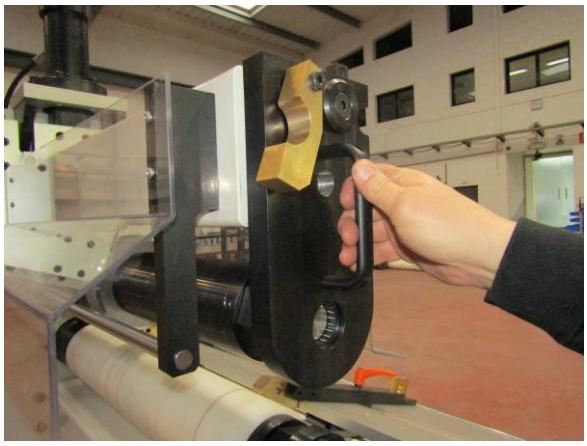


Once the corresponding blades and separators are assembled, we must leave enough room for the placement of the anti-rotation ring:



We will replace the lock nut and tighten with the special wrench:

We will return the roller closure plate to its original position by pulling it and turning it 90º to the right:



We will press the cover against the bench and place the safety latch in place to avoid opening the closing plate during the cutting operation:

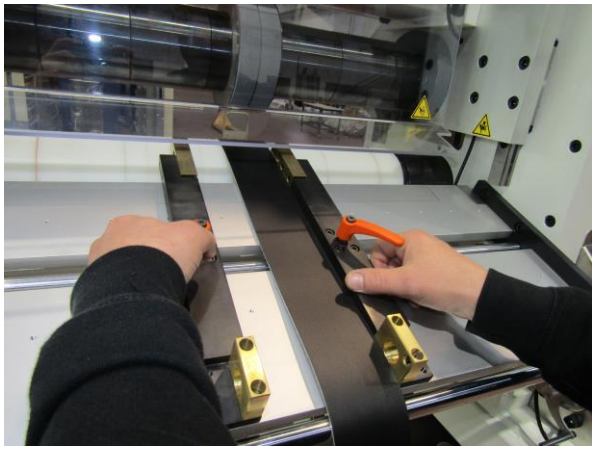
⚠ **<u>WARNING:</u> The system is equipped with a safety microphone which deprives some moving elements of the machine of power in the event that the closing plate is not completely closed.**

- **Proceed to cut:**

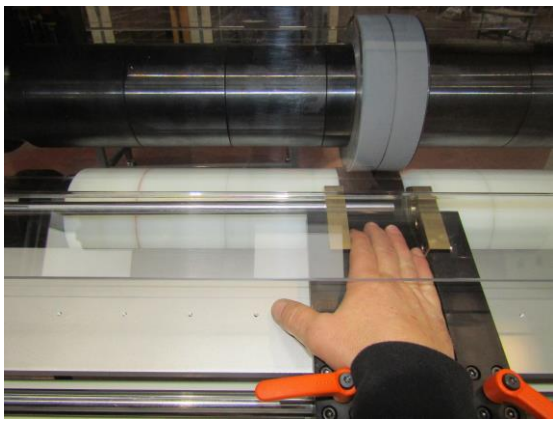
The SLC-600 cutting device is designed to cut rolls to footage or endless bands.

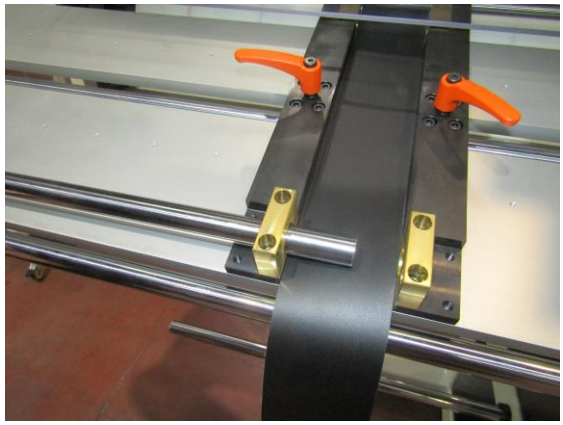
We will introduce the band on the table and between the two rollers, adjusting the lateral guides:

Once located in the low position to the blades, we will move and fix the guides through the orange hands:



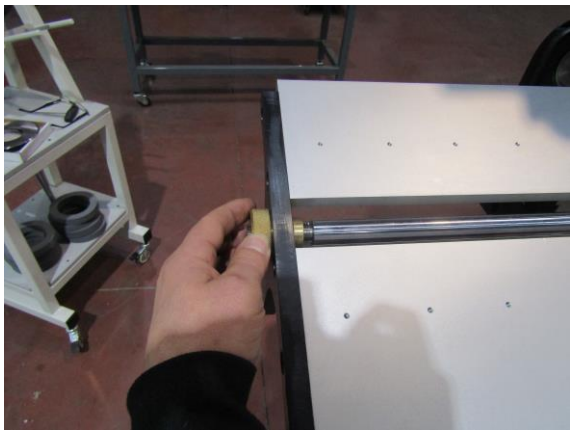
We recommend, in most cases, to use the passenger bars supplied with the equipment, both at the end of the blades and at the entrance of the table:



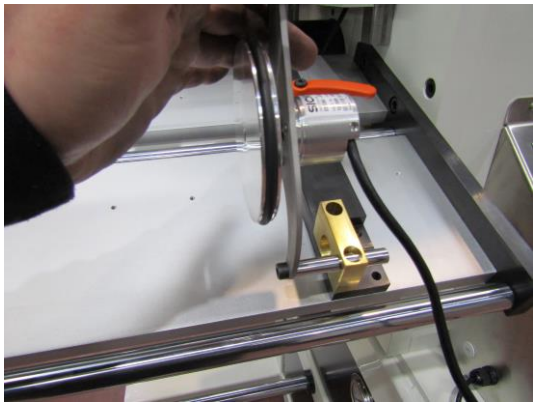


In this way, we guarantee the flatness of the material during the cutting operation.

We can also make small guidance corrections through the graffiti control located at the outer end of the table to move both guides laterally:



If you want to make the measurement of the cut length, we will mount the measuring wheel in the hole of the right guide:



To set the meter counter to 0, simply press the R key on the display.

Once the band is placed in position and the lateral guides fixed, we will lower the upper cutting roller with the lowering button until the end of its travel. This lowering operation can be carried out gradually during the rotation of the belt in cases which require it:

NOTE: **The hydraulic system is equipped with a stroke stop to prevent excessive wear of the nylon rollers.**

This limit stop must only be readjusted in case of changing said nylon rollers, to adjust the limit, use a 17mm key to loosen the bolt and turn the black nut in left direction to increase the stroke or right direction to decrease the stroke.

After finish, fix again the bolt but do **not tighten too hard so as not to damage the cylinder thread.**

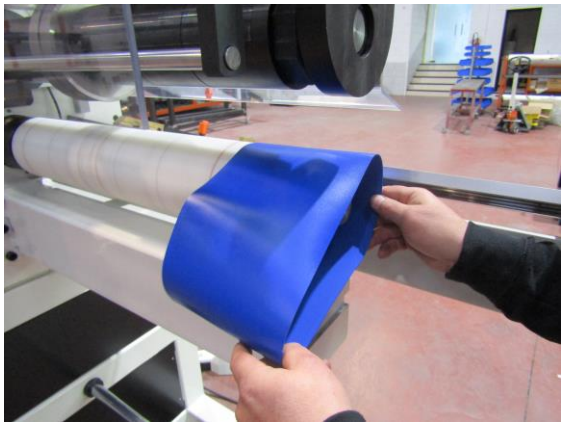
We will activate the roller motors through the pedal switch:

We will adjust the cutting speed through the control panel speed potentiometer:

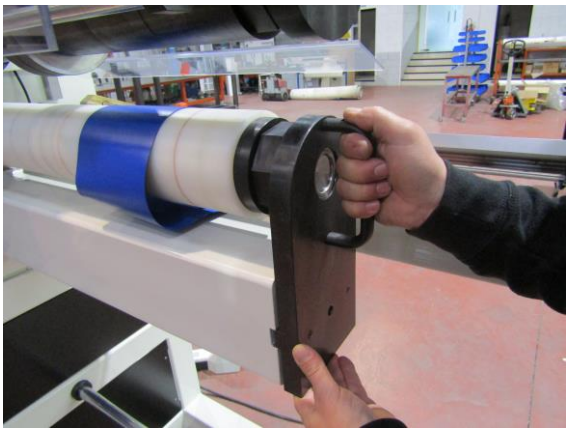
For some materials, it is required that the blade's speed of rotation is greater than the speed of the nylon roller. For this, a second potentiometer has been installed creating a speed differential.

To cut bands of minimum developments between 850 and 400mm, we must introduce the tape to be cut by the lower nylon roller. To do this, we must open the lower roller closing plate by removing the lobed fixing knob:

Then we will remove the closing plate to be able to introduce the tape through the lower roller:

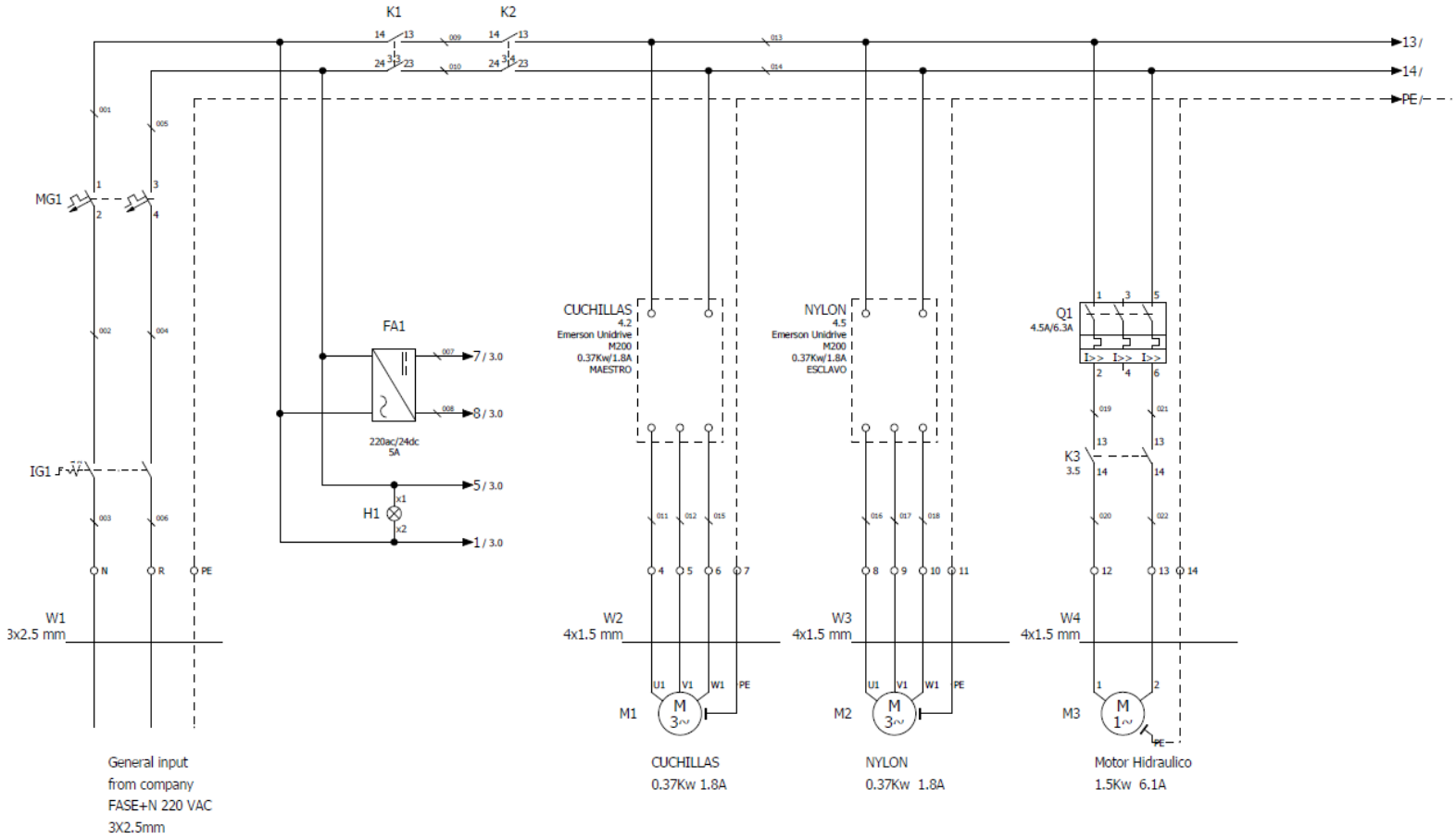


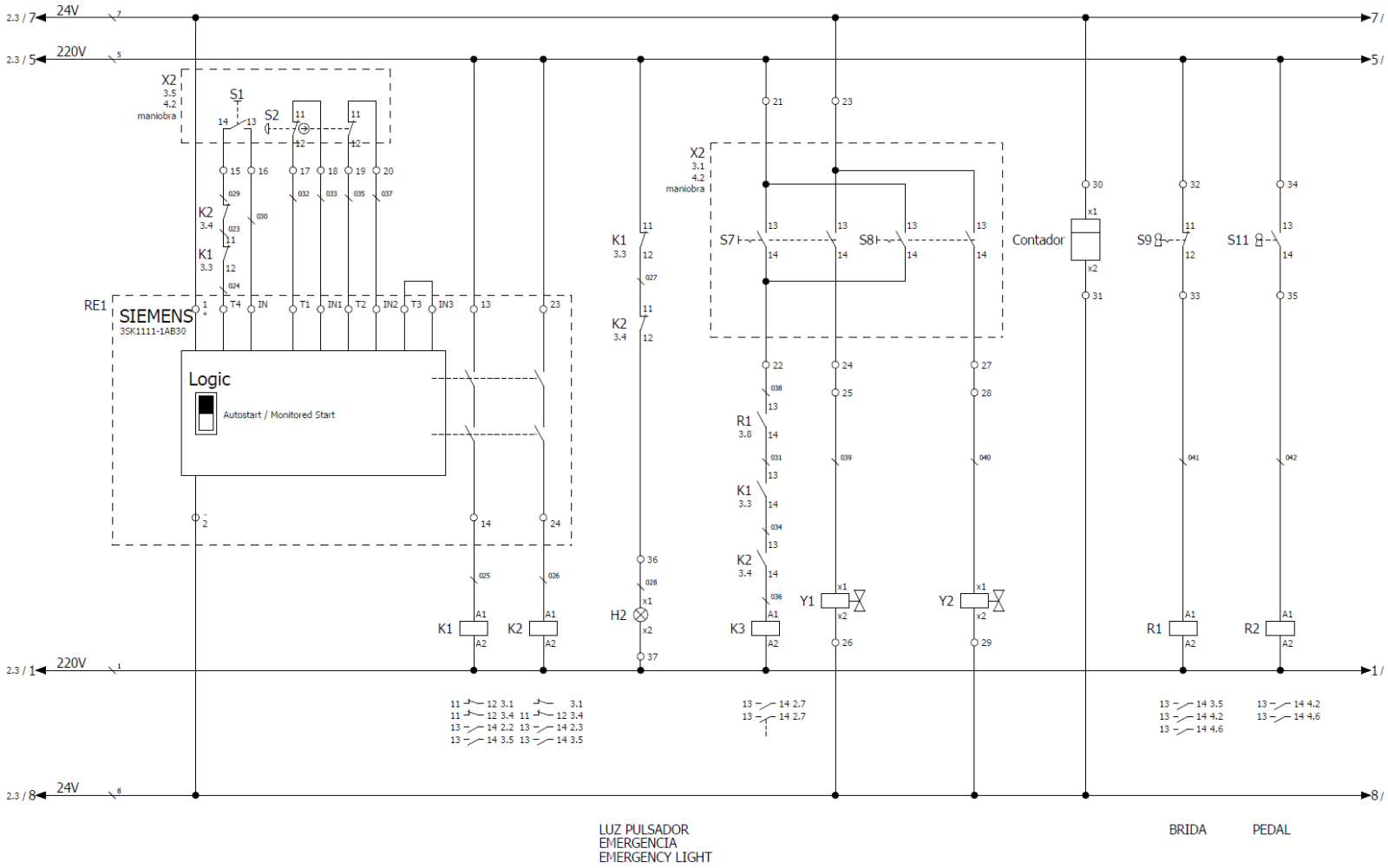
Once the tape is inserted, we will replace and fix the lower closing plate:

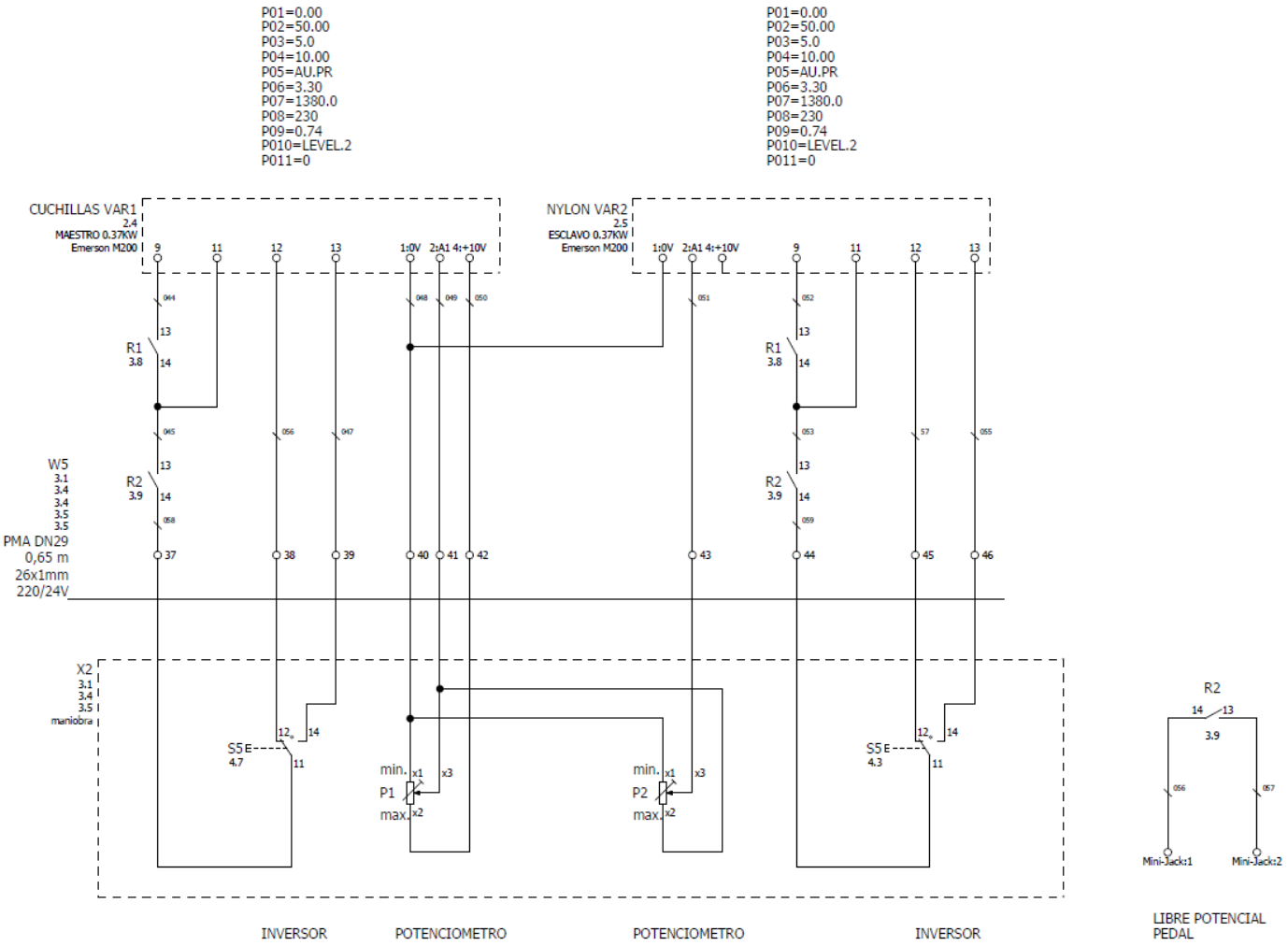


⚠ **WARNING: The lower closing plate is not provided with any security micro that disconnects mobile systems. The use of the machine without this plate can seriously damage the traction elements.**

- **Electric Schemes:**




24V
220V
X2
3.5
4.2
maniobra
S1
S2
K2
3.4
K1
3.3
RE1
SIEMENS
3SK1111-1AB30
Logic
Autostart / Monitored Start
K1
K2
H2
X2
3.1
4.2
maniobra
S7
S8
R1
3.8
K1
3.3
K2
3.4
K3
Y1
Y2
Contador
S9
S11
R1
R2
LUZ PULSADOR
EMERGENCIA
EMERGENCY LIGHT
BRIDA
PEDAL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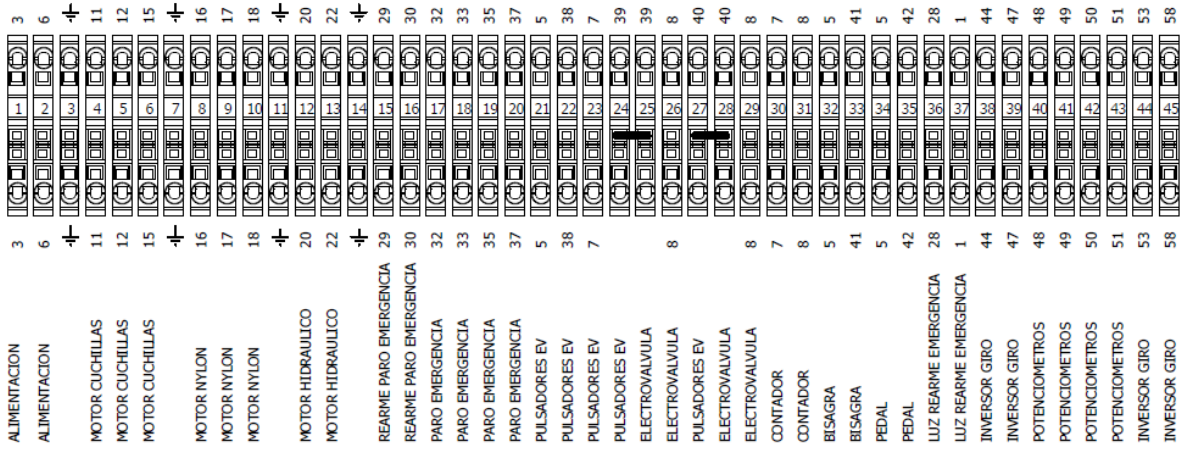
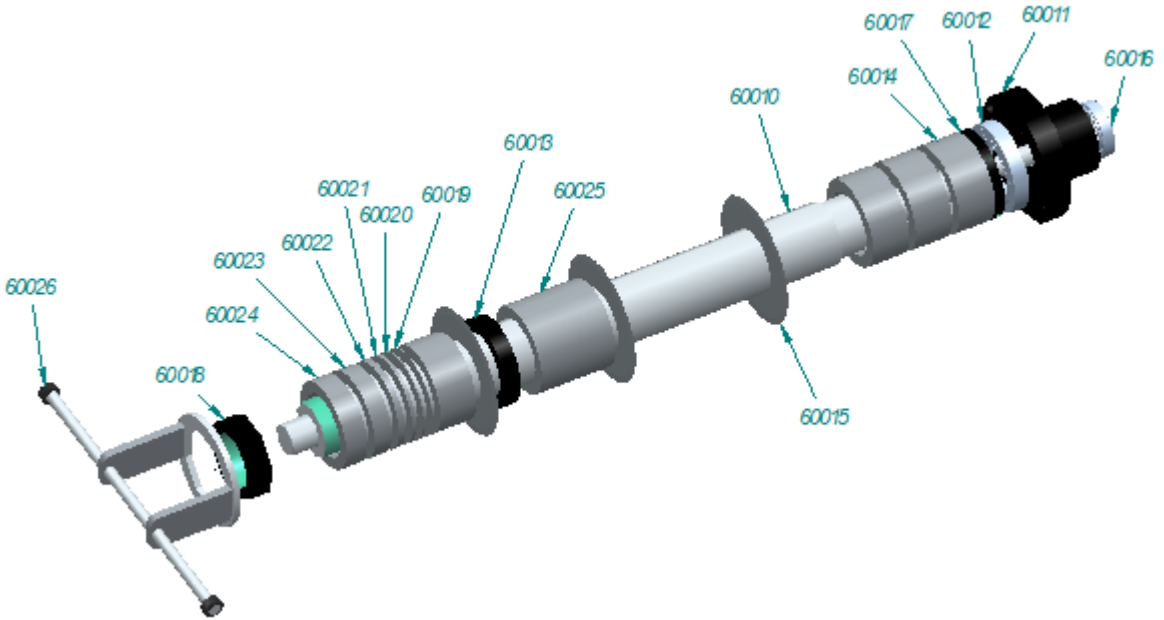
P02=50.00
P03=5.0
P04=10.00
P05=AU.PR
P06=3.30
P07=1380.0
P08=230
P09=0.74
P010=LEVEL.2
P011=0
P01=0.00
P02=50.00
P03=5.0
P04=10.00
P05=AU.PR
P06=3.30
P07=1380.0
P08=230
P09=0.74
P010=LEVEL.2
P011=0
CUCHILLAS VAR1
2.4
MAESTRO 0.37KW
Emerson M200
NYLON VAR2
2.5
ESCLAVO 0.37KW
Emerson M200
R1
3.8
R2
3.9
W5
3.1
3.4
3.4
3.5
3.5
PMA DN29
0,65 m
26x1mm
220/24V
X2
3.1
3.4
3.5
maniobra
S5E
4.7
S5E
4.3
min.
P1
max.
min.
P2
max.
INVERSOR
POTENCIOMETRO
POTENCIOMETRO
INVERSOR
R2
3.9
Mini-Jack:1
Mini-Jack:2
LIBRE POTENCIAL
PEDAL

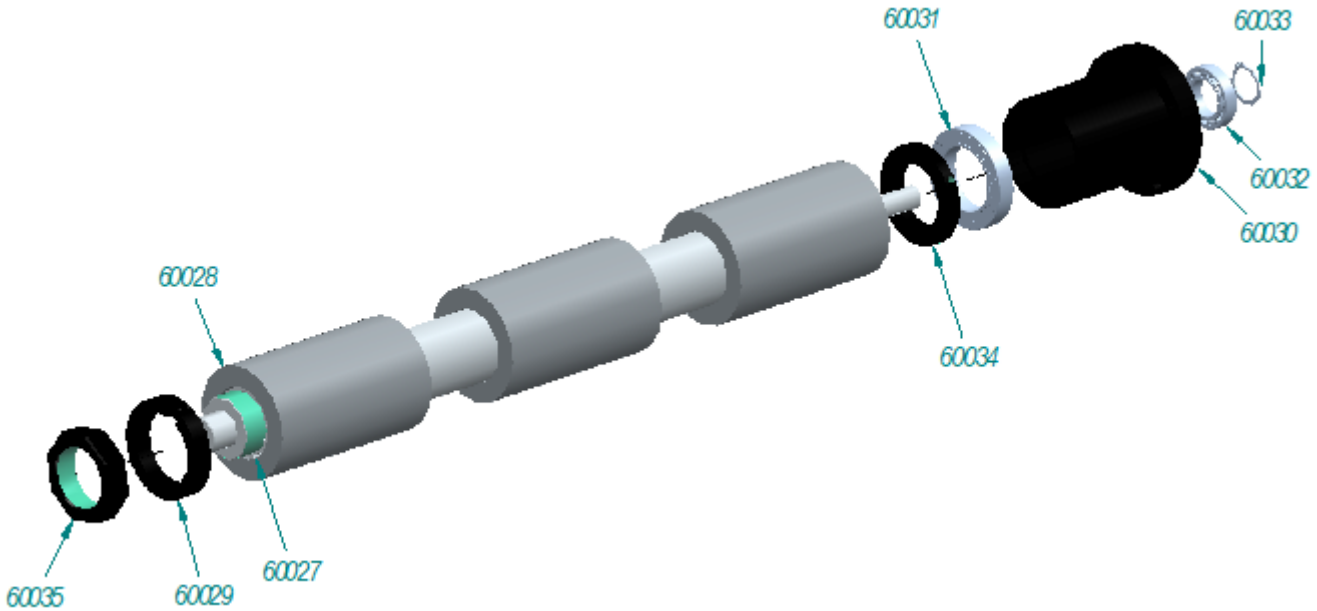

ALIMENTACION 3
ALIMENTACION 6
MOTOR CUCHILLAS 11
MOTOR CUCHILLAS 12
MOTOR CUCHILLAS 15
MOTOR NYLON 16
MOTOR NYLON 17
MOTOR NYLON 18
MOTOR HIDRAULICO 20
MOTOR HIDRAULICO 22
REARME PARO EMERGENCIA 29
REARME PARO EMERGENCIA 30
PARO EMERGENCIA 32
PARO EMERGENCIA 33
PARO EMERGENCIA 35
PARO EMERGENCIA 37
PULSADORES EV 5
PULSADORES EV 38
PULSADORES EV 7
PULSADORES EV 39
ELECTROVALVULA 39
ELECTROVALVULA 8
PULSADORES EV 40
ELECTROVALVULA 40
ELECTROVALVULA 8
CONTADOR 7
CONTADOR 8
BISAGRA 5
BISAGRA 41
PEDAL 5
PEDAL 42
LUZ REARME EMERGENCIA 28
LUZ REARME EMERGENCIA 1
INVERSOR GIRO 44
INVERSOR GIRO 47
POTENCIOMETROS 48
POTENCIOMETROS 49
POTENCIOMETROS 50
POTENCIOMETROS 51
INVERSOR GIRO 53
INVERSOR GIRO 58

- Spare parts:

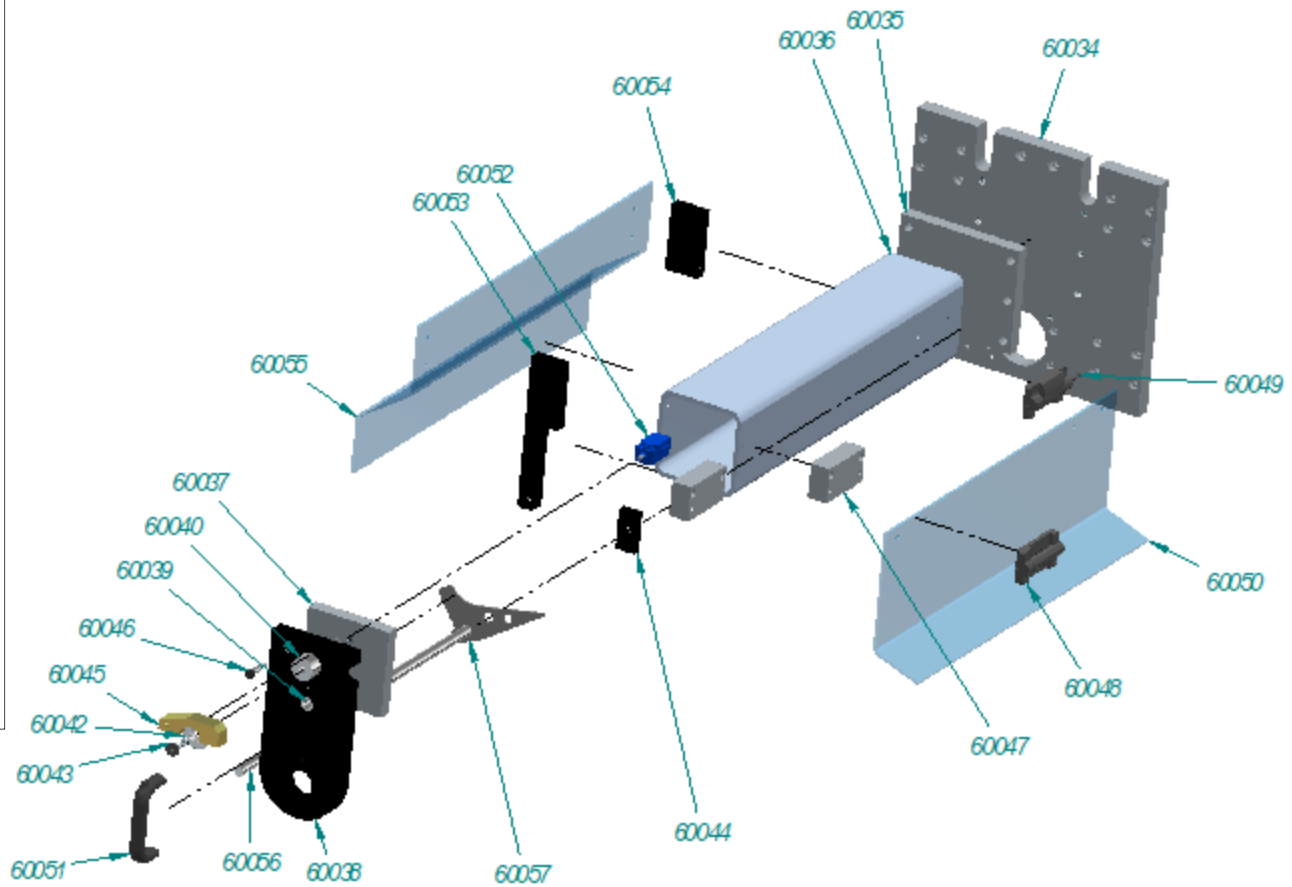
Part Number	Part Name	Units
60010	Eje Corte	1
60011	Brida eje superor	1
60012	Bearing_DIN_625_1_1989_6014_2RS_v12.00	1
60013	Separador inicio	1
60015	Cuchilla 150x80x2	10
60016	6008 40-68-15	1
60017	Dolla rodillo superor	1
60018	Tuerca M70x2	1
60019	Separador 1	10
60020	Separador 2	10
60021	Separador 5	10
60022	Separador 8	10
60023	Separador 23	5
60024	Separador 28	5
60014	Separador 48	4
60025	Separador 98	4
60026	Llave cierre	1



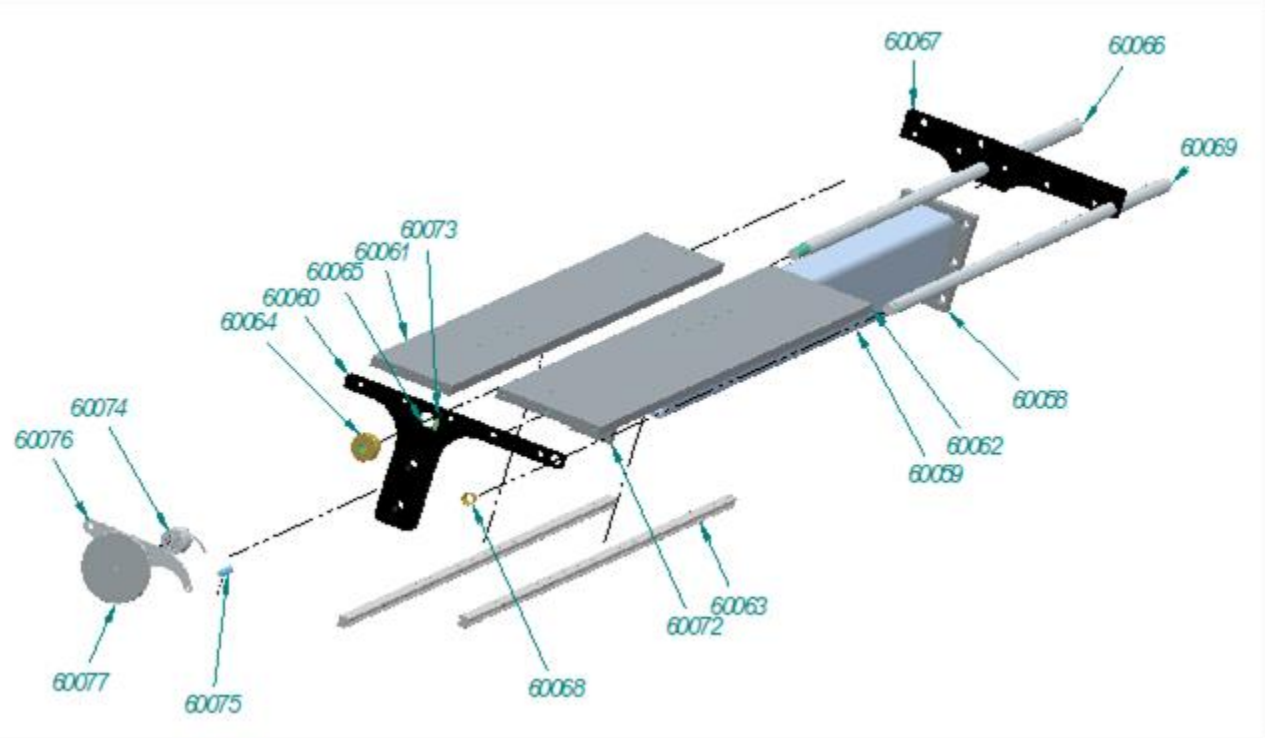
Part Number	Part Name	Units
60027	Eje Nylon	1
60028	Rodillo nylon	3
60013	Separador inicio	1
60030	Brida eje inferior	1
60031	Bearing_DIN_625_1_1989_6014_2RS_v12.00	1
60032	6008 40-68-15	1
60033	Guard 40x175	1
60017	Dalla rodillo superior	1
60018	Tuerca M70x2	1



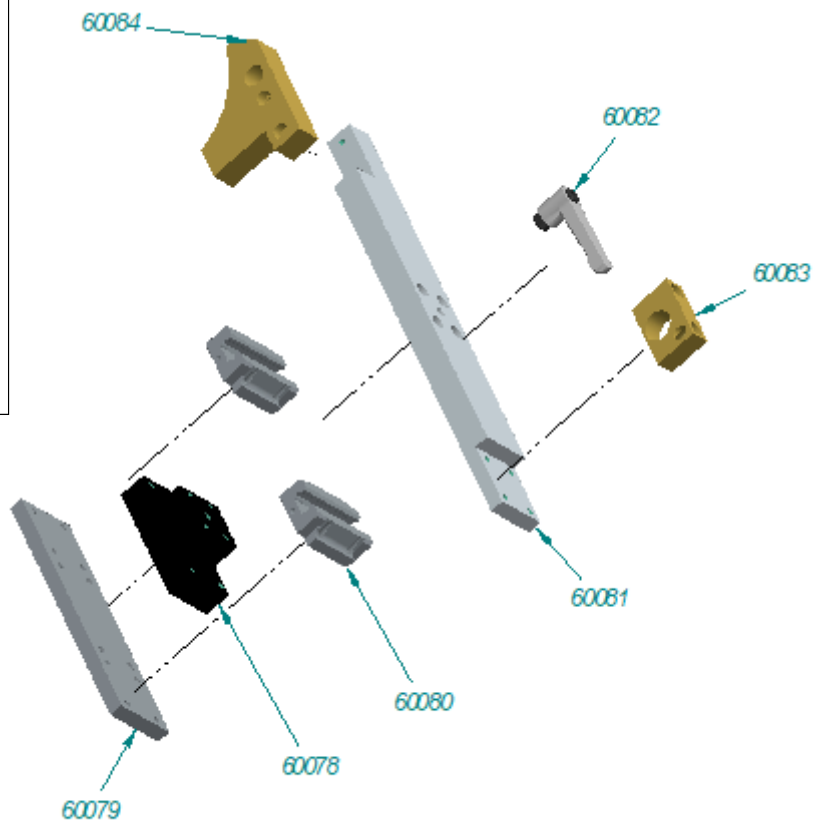
Part Number	Part Name	Units
60034	Base alza corredera	1
60035	Tapa sujecion infer	1
60036	Travesaño superior	1
60037	Tapa travesaño superior	1
60038	Tapeta cierre super	1
60039	Vastago cierre guia	1
60040	Vastago cierre guia 2	1
60041*	RNA49_32	1
60042	Arandela tope cierre	1
60043	7991M2X45	1
60044	Apoyo barra uñas	1
60045	Pestillo cierre tapa	1
60046	07534-10X30_Stahl	1
60047	Base bisagra delantera	2
60048	Hinges GFMW110-SH-6 abierta	1
60049	Hinge with built-in safety multiple switch GFSW110-6-2NO-2NC-F-G 2(0)	1
60050	Protec SIL-1	1
60051	565-1	1
60052	switch_xckp2110g11	1
60053	Pestaña uñas	1
60054	Pestaña uñas 2	1
60055	Protec SIL-2	1
60056	Barra uñas	1
60057	Uña SLC	10



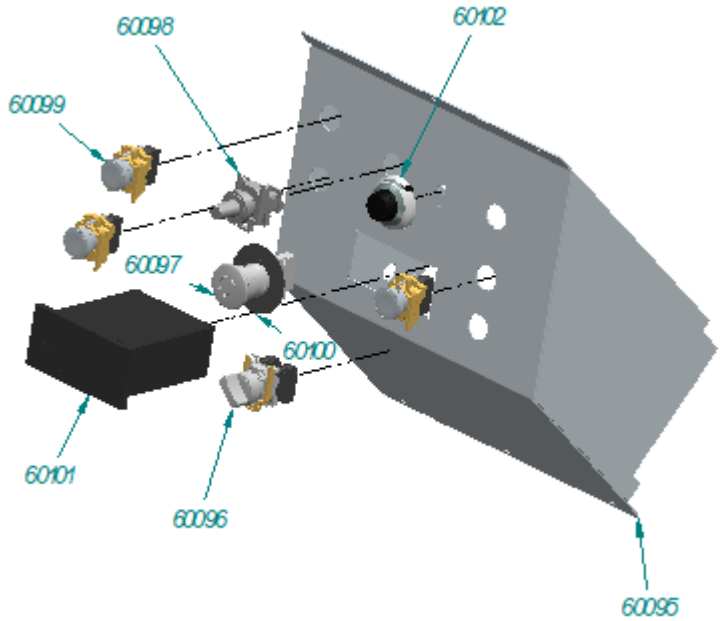
Part Number	Part Name	Units
60058	Tapa sujecion mesa	1
60059	120-60-5	1
60060	Final mesa	1
60061	Mesa 1	1
60062	Mesa 2	1
60063	Rail_HGR15R-1150	2
60064	Tuerca regulacion guias	1
60065	25x12	1
60066	Barra freno guias	1
60067	Final mesa 2	1
60068	Selfoil A15-18-20	2
60069	Rodillo entrada mesa	1
60072	Tapeta traviesa mesa	1
60073	912M6X20	1
60074	SICK DBS36E-S2A00100	1
60075	EJE DBR	1
60076	Brazo DBR	1
60077	Rueda encoder	1



Part Number	Part Name	Units
60078	Placa union patines	1
60079	Placa bajo patin	1
60080	TRHI5RN-XN-FB	2
60081	Guia mesa 1	1
60082	Manecilla GN302-63-M8-SR	1
60083	Soporte barra sobremesa	1
60084	Uña guia 2	1



Part Number	Part Name	Units
60095	Caratula	1
60096	xb4_bd25	1
60097	xb4_bt42	1
60098	potenciom-XB4BD912R4K7-	1
60099	xb4_ba3311	3
60100	etiquette_zby9130	1
60101	Totalizador	1
60102	multi tren volum-big	1



Número de documento	Nombre archivo (sin extensión)	Cantidad
60100	Cilindro hidraulico	1
60101	Tope cilindro	1
60102	Latiguillo	2
60103	Motor B80 0.75kW	1
60104	Voss 1/4 45º	2
60105	Conector DIN	2
60106	Electrovalvula	2
60110	Central hidraulica	1
60111	Machon 3/8-1/4	2
60112	Codo 1/4-L8	2