

**I.T.S. by Tecnodue**

**SLG 3000**

**Operating Manual**

The technical dates and information contained on this manual can be changed without any notice

The machine has been designed and constructed for the butt welding of PP, PE, PVC and PVDF sheets.

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**SLG 3000**

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## SAFETY RULES

### According to directives CEE

(To be read carefully and apply while utilizing the machine)

Due to the specific use, this machine cannot be supplied with all kind of fix and removable protections suitable to avoid any risk of accident.

The machine, therefore, must be utilized, adjusted and keep in the perfect functioning conditions by skill operators.

### Warning - Rules – Obligations

The use of machines composed by electrical components and movable parts, it's always a potential danger. In order to avoid any kind of accident caused by electrical or mechanical sources it' strongly suggested to read and follow carefully the following safety rules before operating the machine.

#### TRANSPORT

Keep the maximum care while moving the machine and it's compulsory to utilize mechanical aids.

Wear appropriate protective garments while moving the machine.

#### ELECTRIC CONNECTIONS

The machine is operated by 400 Volts therefore be sure that the power supply plug is supplied with the safety devices according to the standard requirements, also check that the power supply will be on the range of maximum 10% of the machine's nominal tension.

Check regularly the cables and the plug and in case substitute by qualify personnel.

Before carry out reparation or maintenance all the plugs must with plug out from the power supply

#### ENVIRONMENTAL CONDITIONS

The working area must be clean and duly lighted.

It's very dangerous to utilize the machine in case of rain or in wheat conditions or even close to flammable liquids.

#### CLOTHES

Keep the maximum care while utilizing the machine due to the high temperature involved on the heating mirror always more than 200°C, it's strongly suggested to use suitable gloves. Wear protective shoes.

Avoid long clothes and avoid bracelets, necklaces that might be hooked into the machine

#### CORRECT MACHINE'S OPERATION

Remember to check and read carefully the operating manual before utilizing the machine and the accessories. The improper use of the machine it is dangerous! Itat Trade Services S.r.l. declines all responsibilities in case of inappropriate use.

#### KEEP ALWAYS THE MAXIMUM ATTENTION

After the heating mirror has been disconnected temperature will be hot for some minutes.

Avoid utilizing the machine after drinking or drugs use

Take care that all the people around the machine are at safety distance

While starting operating take care to avoid leave arms between the movable trolleys and the pressing bars.

#### CRUSHING DANGER

While starting operating take care to avoid leave legs or arms between the trolleys and pressing bars.

It's compulsory to be at a safety distance during the working cycle of the machine.

#### ACUSTIC POLLUTION





The hydraulic unit acoustic pollution level complies the main rules & regulation. However, in case of malfunction of the hydraulic unit the noise could exceed the max allowed level. In this case proceed with maintenance and/or reparation.

#### IMPORTANT!!!!

Keep the maximum care reading and following the above Warning - Rules - Obligations the Itat Trade Services S.r.l. declines all responsibilities if are not followed totally

**All around the perimeter of the machine a safety wire has been installed, in case of emergency just pull the wire and machine will block.**

Labels stuck upon machine's part showing potential dangers

			
<b>Wear protective gloves</b>	<b>Hot surface/burn danger</b>	<b>Electric shock risk</b>	<b>Crushing danger</b>

## 1. Technical data

<b>Electrical Data</b>	
Voltage/Frequency/power	400V 3 ph.+Neutral+Ground/50 hz./11,2 Kw 16.2A
Voltage/Frequency/power (with sheet winder)	400V 3 ph.+Neutral+Ground/50 hz./15,7 Kw 22.7A
Hydraulic unit	2.2 Kw – 2840 rpm – 5.5 A 1.5 Kw – 1420 rpm – 4 A
Sheet winder motor	1.5 Kw – 1430 rpm – 3.7 A
<b>Hydraulic Data</b>	
Max. Working Pressure	200 bar
Min. Working Pressure	2.5 Bar + Drag pressure
Cylinders Section	9.69 sq.cm
Pump Capacity	5 cc/rev. 1420/2840 rpm
Hydraulic Oil Type	ISO 46
Tank Capacity	4 l.
<b>Mechanical data</b>	
Frame	Steel
Trolleys	Steel
Heating Mirror	PTFE coated steel
Trolleys Movements	Hydraulic Cylinders
Heating Mirror Movement	Hydraulic Cylinders
Pressing Bars Movement	Hydraulic Cylinders
<b>Weight</b>	
Machine w/ all accessories	Kg 3900

## 2. Working range

PP Max. Sheet Width	DVS(0,10 N/mm <sup>2</sup> )	3000 mm
PP Max. Sheet Wall Thickness	DVS(0,10 N/mm <sup>2</sup> )	50 mm (Vertical welding 30 mm)
PVDF Max. Sheet Width	DVS(0,10 N/mm <sup>2</sup> )	3000 mm
PVDF Max. Sheet Wall Thickness	DVS(0,10 N/mm <sup>2</sup> )	30 mm
PE Max. Sheet Width	DVS(0,15 N/mm <sup>2</sup> )	3000 mm
PE Max. Sheet Wall Thickness	DVS(0,15 N/mm <sup>2</sup> )	40 mm (Vertical welding 30 mm)
PVC Max. Sheet Width	DVS(0,60 N/mm <sup>2</sup> )	3000 mm
PVC Max. Sheet Wall Thickness	DVS(0,60 N/mm <sup>2</sup> )	10 mm
Minimum welding section	( PP – mm2 )	3000
Minimum Sheet Wall Thickness	( PP,PVDF,PE,PVC )	3 mm
Max opening under pressing bars (*)		60 mm

The working range shown above is related to standard sheet.

The machine can clamp bigger sheet with a lower density like "PANELTIM ®"

It is not possible a 90° welding (vertical welding) of "PANELTIM ®" sheet.

However you can make 90° welding using a "PANELTIM ®" in horizontal position and a standard sheet in vertical position

### With sheet winder

Minimum pipe diameter 450 mm built by 3 mm wall thickness sheet.

### With Vertical tool

The machine can build box with a minimum side of 400 mm with 3 mm wall thickness sheets.

### 3. Description and Application Fields

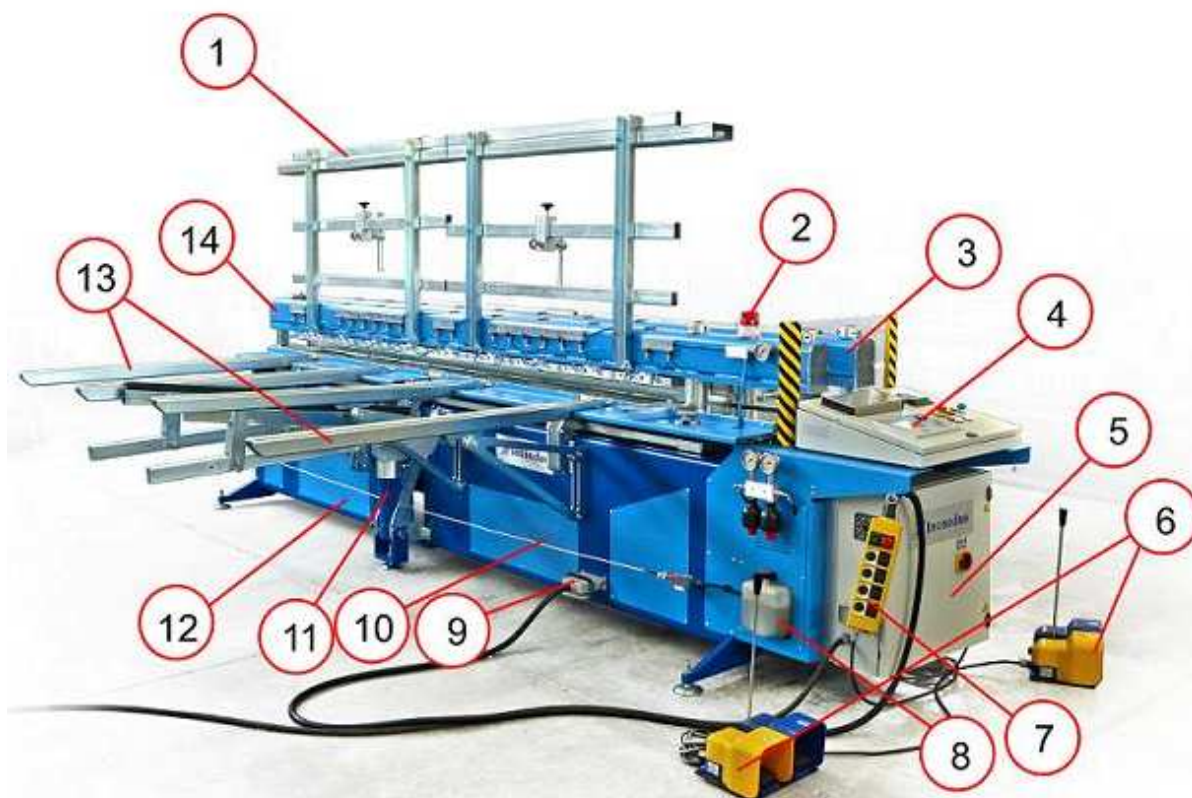
Workshop hydraulic operated butt welding machine suitable for the butt welding of thermoplastic materials sheets.

The machine has been designed and constructed for the butt welding of PP, PE, PVC and PVDF sheets. The computer controls the machine' cycle, the set up of the data, the display of the situations (Pressure, times and temperatures) during the functioning and allow the print of all parameters utilised during the welding.



The machine it is fully automatic equipped with proximity switches for controlling purposes, however it is strongly suggested to keep the maximum attention when you are acting on the machine controls.

Here below the main parts composing the machine:



- 1 – Tool for vertical welding
- 2 – Warning light
- 3 – Pressing bars
- 4 – Control panel
- 5 – Connections box
- 6 – Pedal controls
- 7 – Sheet winder controls

- 8 – Hydraulic oil tank
- 9 – Sheet winder controls connector
- 10 – Pull wire emergency
- 11 – Lifting system for sheet winder
- 12 – Machine's frame
- 13 – Sheet supports
- 14 – Hooks

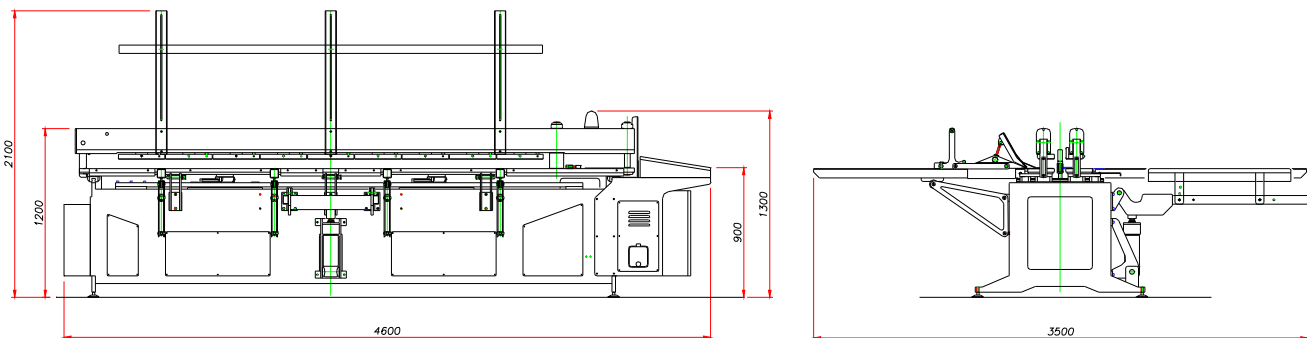


15 – Connections box for sheet winder  
16 – Belt winder

17 – Slides

#### 4. Dimensions of the machine

The draw below shows the dimensions of the machine.



#### 4. Available accessories

**The machine without accessories can weld sheet horizontally**  
**The following accessories extend the machine capabilities:**

- The sheet winder tool to realize pipes from a sheet.
- The vertical tool for 90° welding

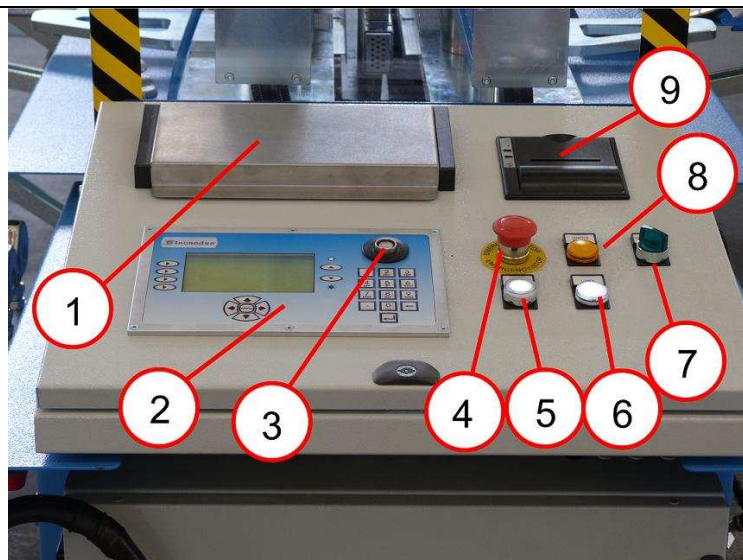


## 5. Main components of the machine

The machine is supplied with a CNC control. For more information consult the CNC manual. Each movement of the machine is hydraulically operated.

### 5.1 Control panel

- 1 – Panel for data transmission
- 2 – CNC Front panel
- 3 – I Button probe
- 4 – Emergency push button
- 5 – Machine reset button
- 6 – Line light
- 7 – Selector for switching on/off heating sword
- 8 – Motor overheating light
- 9 – Printer

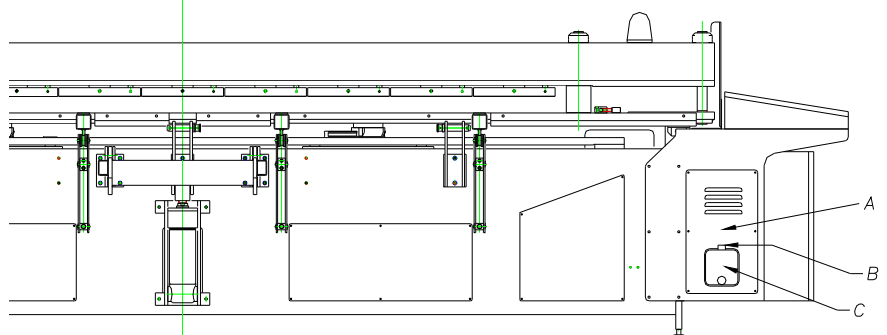


On the right side of the control panel there is a button to switch on/off the LED light

On the connections box there is the main switch

### 5.2 Hydraulic unit

- A – Hyd. unit compartment
- B – Oil tank plug
- C – Oil tank

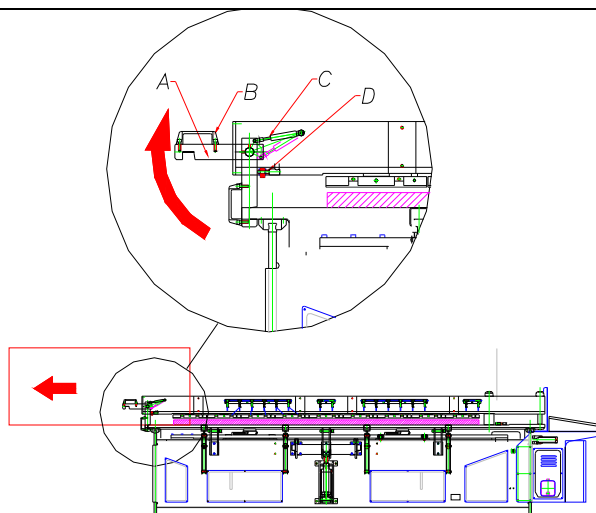


### 5.3 Hooks

On the control panel opposite side, at the end of pressing bars, you can find hooks to release welded pipes that can not be removed easily at the end of welding cycle (ex. pipes)

- A – Hook
- B – Hook handle
- C – Shock absorber
- D – Proximity switch

With the hooks released, the machine controls are disabled



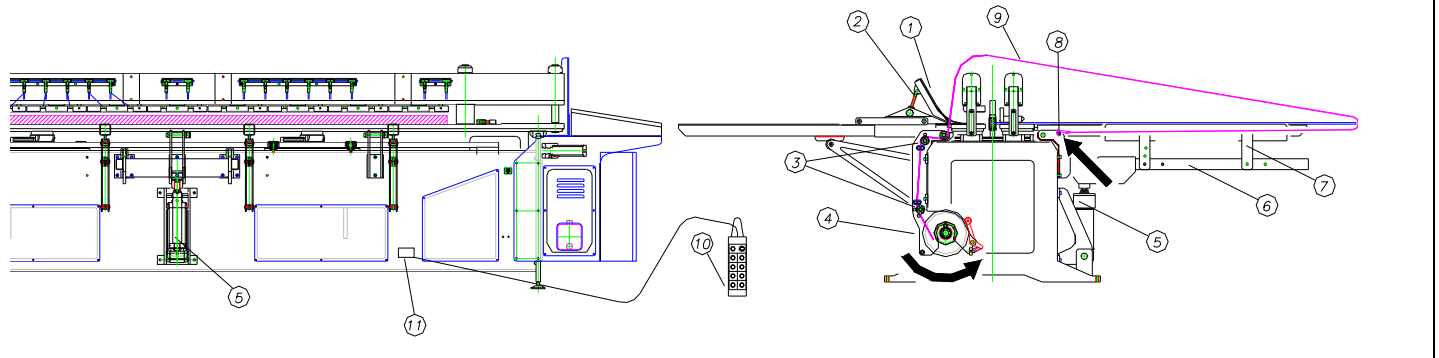
**5.4 Pedal controls**

The machine is supplied with two pedal controls for lifting/lowering the pressing bars

**6. Sheet winder**

**6.1 Main parts**

To build pipes from a sheet the sheet winder needs to be assembled on the machine



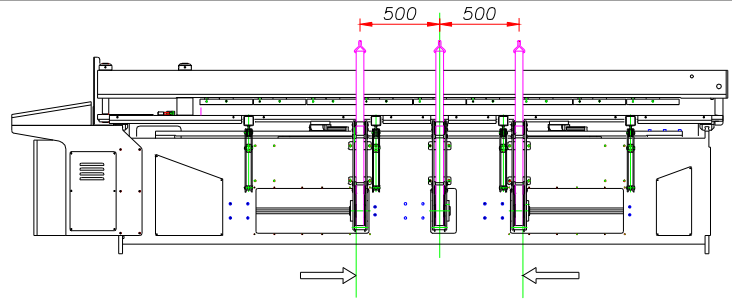
- |                                    |                                      |
|------------------------------------|--------------------------------------|
| 1 – Slides                         | 7 – Lifting arms                     |
| 2 – Support for slides slopes      | 8 – Belt hooking                     |
| 3 – Belt tensioning rolls          | 9 – Belts                            |
| 4 – Belt winder                    | 10 – Sheet winder controls           |
| 5 – Cylinder for lifting the sheet | 11 – Sheet winder controls connector |
| 6 – Sheet lifter                   |                                      |

**6.2 How to position the sheet winder**

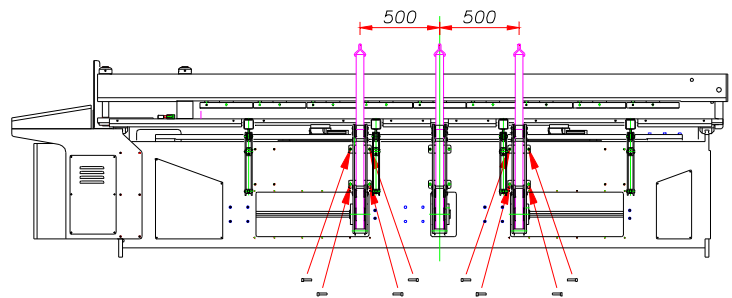
The machine is equipped with three motors for sheet winding, each controlled separately. The central part of the sheet winder can not be moved, the side parts can be moved to work with different sheet lengths. Here below the procedure to move the side parts.

Remove the panels	
Remove the fixing screws.	
Turn the winder part toward the outside of the machine and remove the winder.	

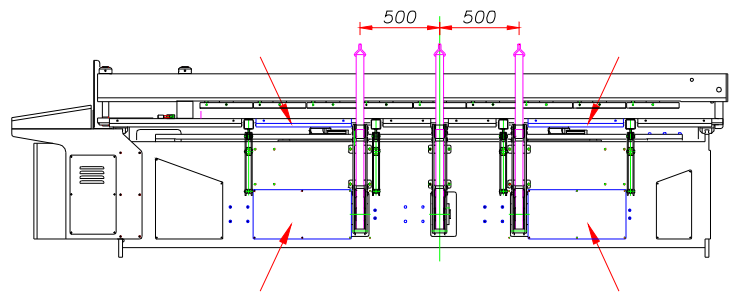
Place the winder in the new position



Fix the winder with the screws.

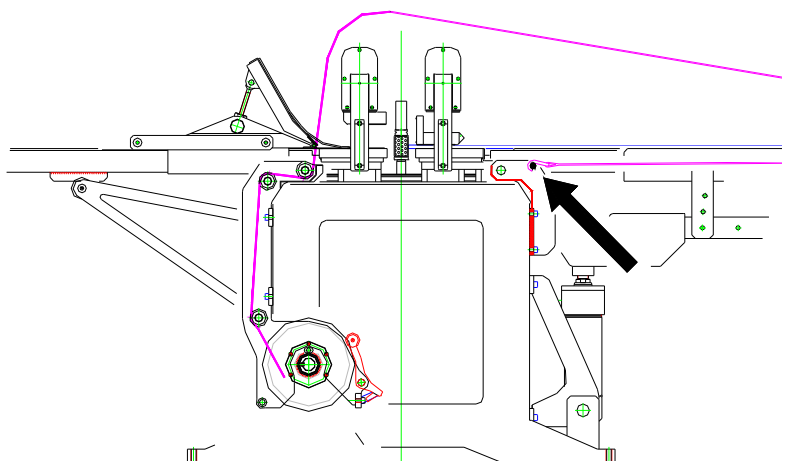


Assemble again the plates



### 6.3 How to thread the belts

The drawing shows how to correctly thread the belt inside the sheet winder



**6.4 Sheet winder controls**

The sheet winder controls let you control each motor independently. There is an additional button for controlling the three motors together. Furthermore there is an emergency push button. After releasing the emergency push button you need to push the green button.

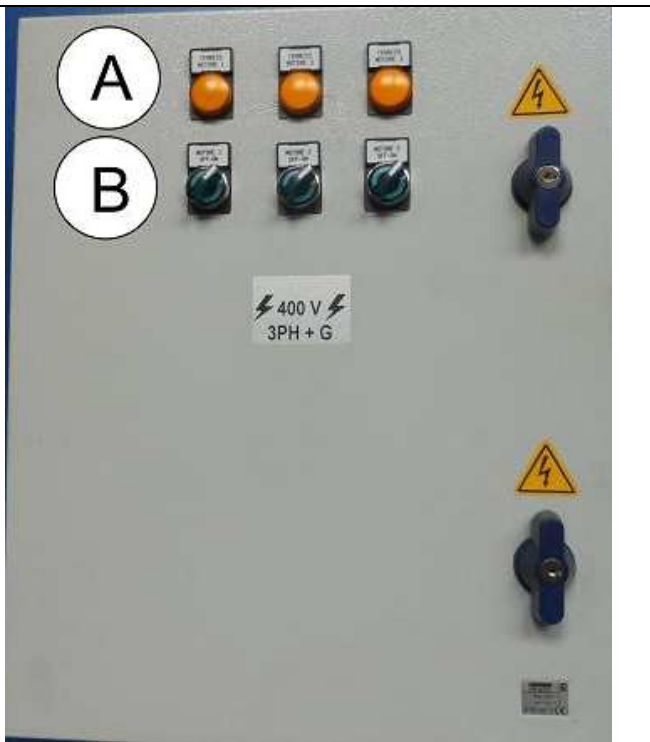


**6.5 Connections box for sheet winder**

On the opposite side of the machine connections box there is the connections box for sheet winder. On the connections box there are some selectors and lights

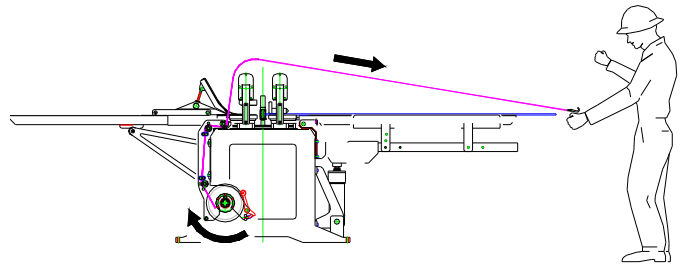
Using the selectors B, you can use or stop each motors of the sheet winder.

The lights A warn if one of the motors is in overload. The motor will be reset automatically.



**6.6 Sheet winder belt unwinding**

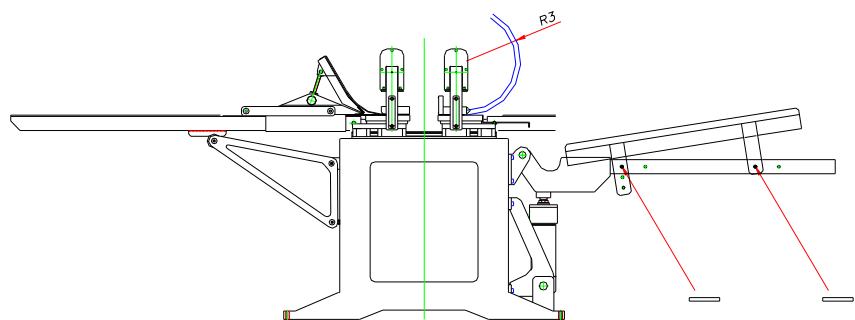
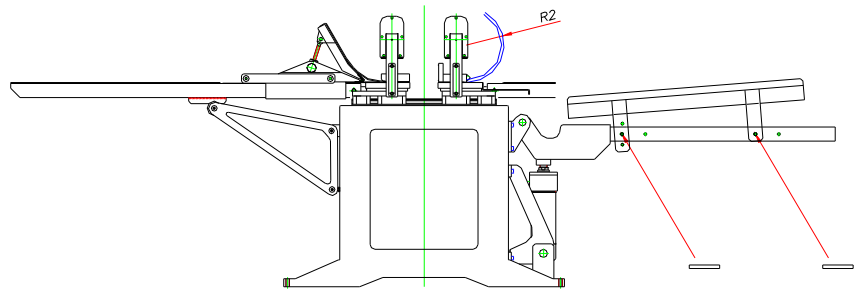
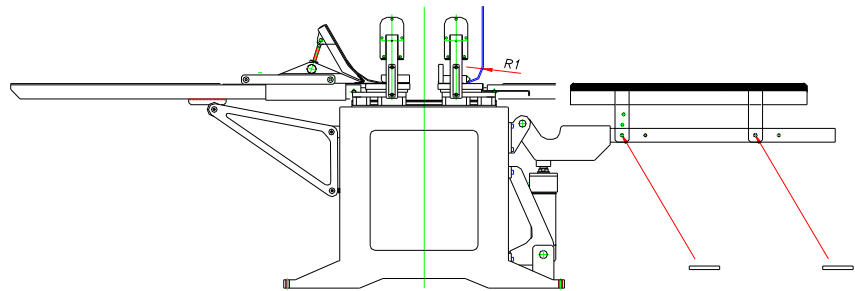
Keep the belt always tensioned during unwinding.



**6.7 How to adjust the lifting arm**

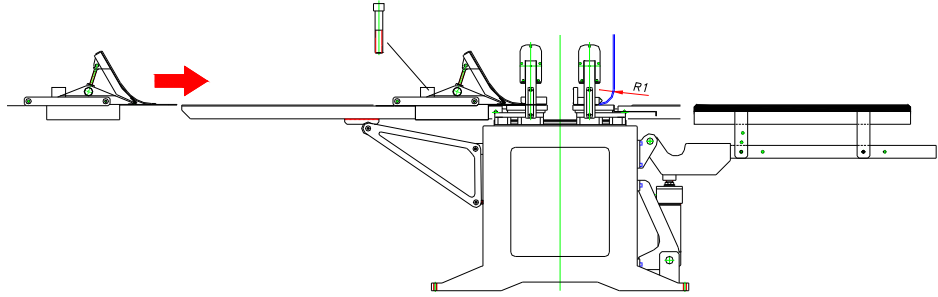
The slope of lifting arm can be adjusted

The sloped position it is suggested if you are building pipe with a huge diameter.



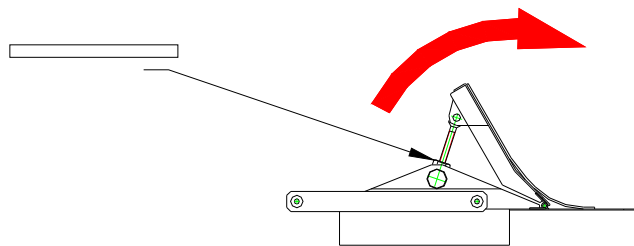
### 6.8 How to assemble the slides

The drawing shows how to assemble the slides on the sheet supports.



### 6.9 How to adjust the slides slope

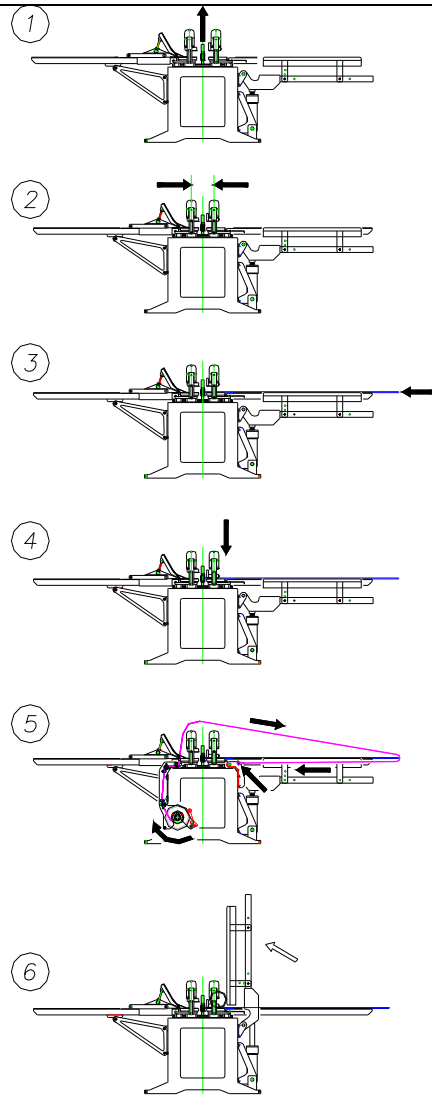
The slide slope can be adjusted.  
In case of building pipes with huge diameter we suggest to reduce the slope. In different case you can increase the slope.



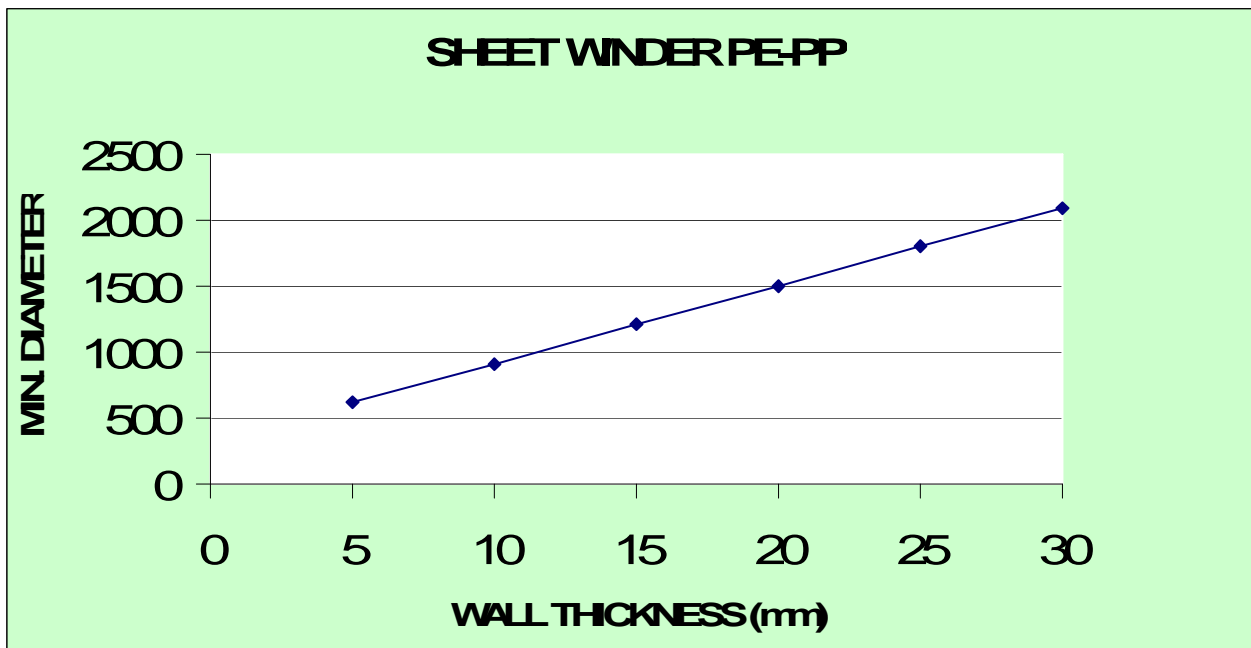
6.10 How to use the sheet winder

The drawing shows the procedure to wind a sheet with the sheet winder

- 1 – Lift the heating sword
  - 2 – Close the trolleys
  - 3 – Place the sheet under the pressing bars
  - 4 – Lower the pressing bars
  - 5 – Unwind the belt and hook it
  - 6 – Lift the arm and tension the belt
- When lifting and tensioning the belt keep care of inserting the plate under the pressing bar in a horizontal way.

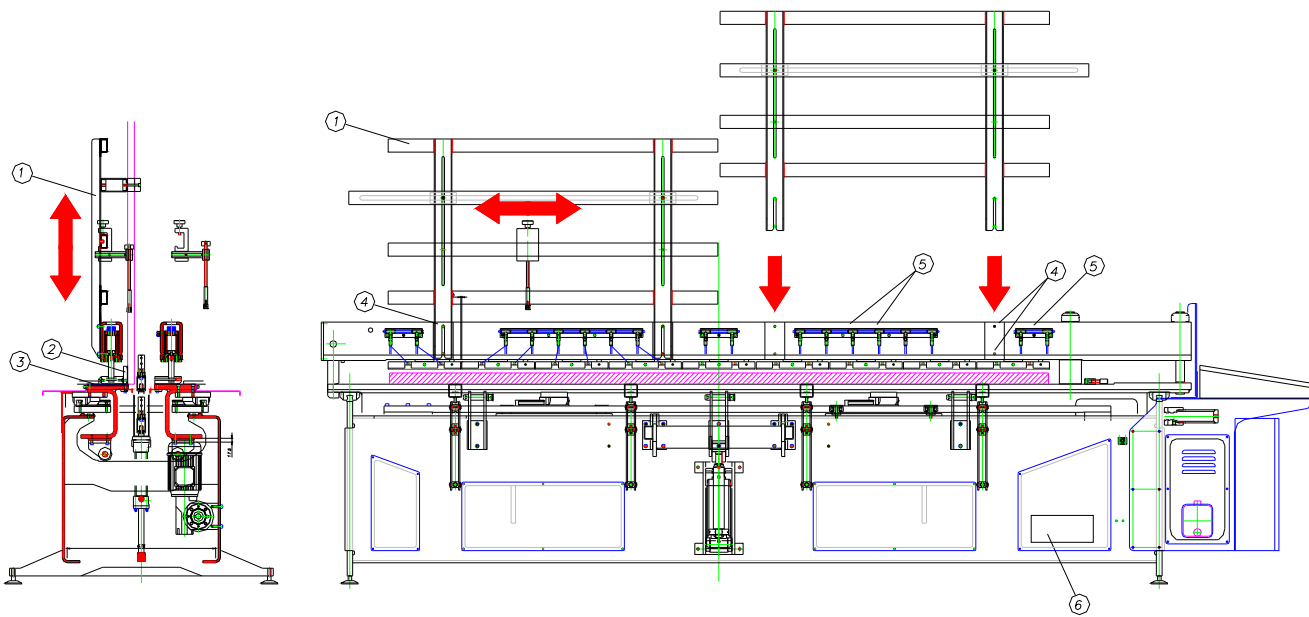


6.11 Sheet winder working range



## 7. Vertical tool

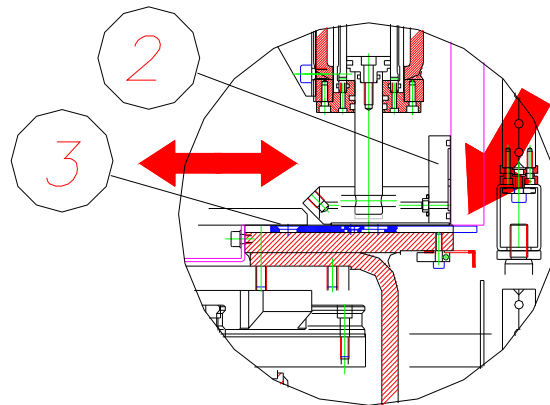
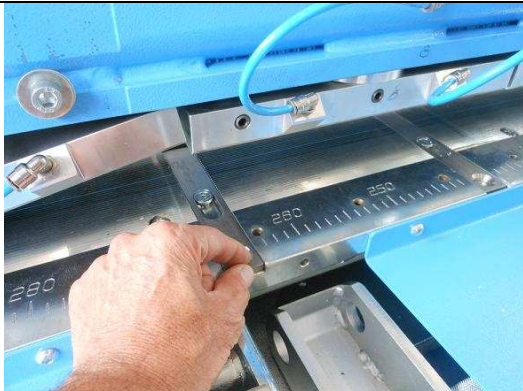
The drawing below shows the vertical tool for 90° welding



1 - Vertical tool main part  
 2 - Suction Pressori con ventose  
 3 - Sheet support

4 - Fixing screws  
 5 - Suckers faucet  
 6 - Suction pump

The sheet support (3) are retractable, they can be removed after the sheet positioning



You can adjust the position and height of the main part of vertical for a better adaptation to the sheet to be weld.

The side picture shows the suckers faucets. By the faucets you can activate only the required suckers.





## 8. Connections

Be sure that the power supply socket is supplied with the safety devices according to the standard requirements and equipped with safety devices as per law and regulations. , also check that the power supply will be on the range of maximum 10% of the machine's nominal tension.

The power plug of the control board to the main source power 3 phases with 5 cables (3PH+N+G) taking care on the connection of the neutral (blue) and ground (yellow/green). Check if the machine is properly wired by trying to close the trolleys. If the pressure increases the wires are properly connected, in different case, to avoid damages to the hydraulic unit pump, immediately switch off the machine. Try to reverse the motor rotation by connecting two of the phases terminals in a different way.

## 9. Maintenance

### 9.1 Basic machine

Keep always clean the machine by using compressed air in order to remove material shavings

### 9.2 Heating sword

During the heating element movements take care in order to avoid damages to the surfaces PTFE coated. The cleaning of the surfaces must be carry out after disconnecting the power and with the mirror still warm by using a soft clothe or paper. Avoid the use of any abrasive material

**It's understood that the above operation must be carry out by wearing a pair of gloves**

### 9.3 Hydraulic unit

Check periodically the oil level and in case add by using oil type: ESSO NUTO H 68, MOBIL DTE 26, SHELL TELLUS 68, and AGIP OSO 46. Keep the hydraulic unit clean

### 9.4 Control Panel

Please, at regular intervals, after disconnecting the power supply, open the control panel and remove the dust from the electrical component utilizing compressed air.

### 9.5 Suggested maintenance

Suggested maintenances for SLG 3000						
	AT THE MACHINE STARTUP	IF NECESSARY	DAILY	WEEKLY	MONTHLY	YEARLY
Screws tightening check up					<b>X</b>	
Heating plate cleaning			<b>X</b>			
Heating mirror surfaces check up					<b>X</b>	
Oil level check up					<b>X</b>	
Oil replacement						<b>X</b>
Oil filter check up					<b>X</b>	
Heating plate surfaces check up					<b>X</b>	
Cables check up	<b>X</b>				<b>X</b>	

**This manual has been printed on February 2017**