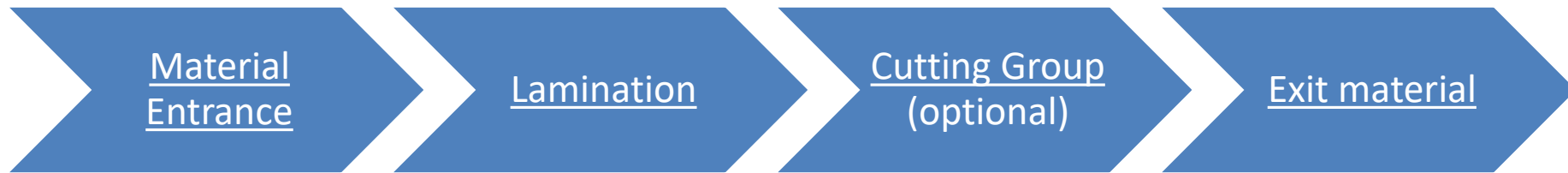


# KK1 T DS LC TC F

# Laminator workflow

## Applications Notes

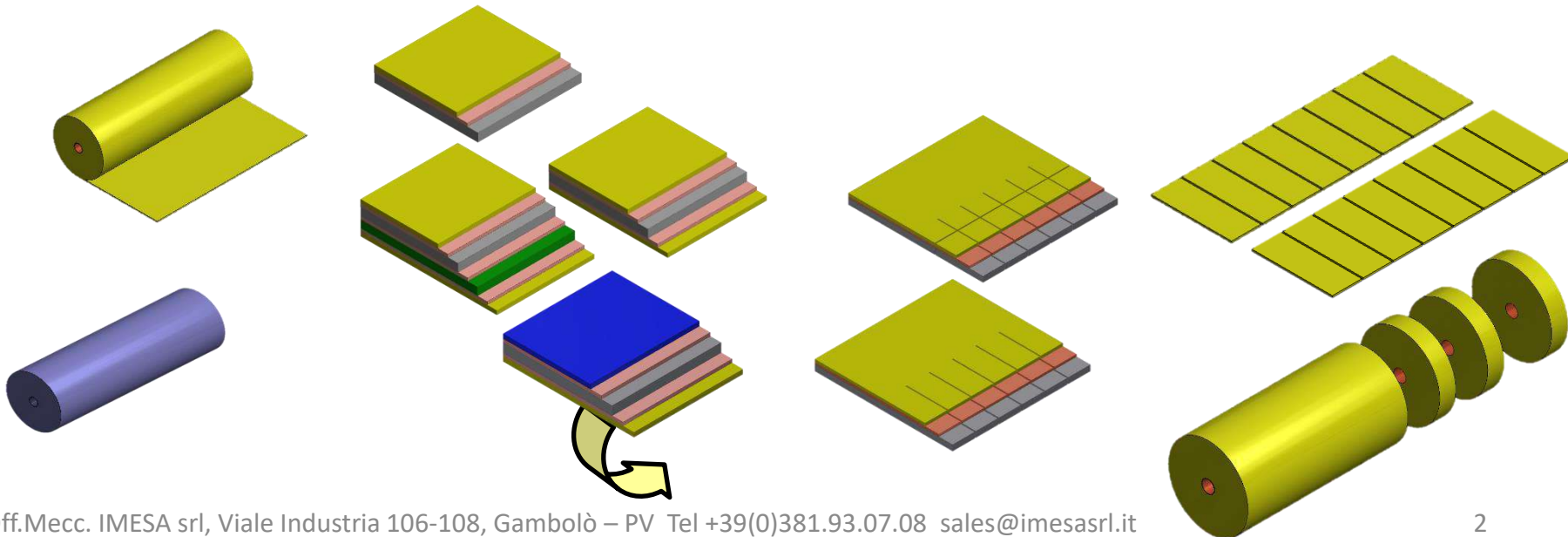


- **Entrance**
  - table
- **Unwinder**

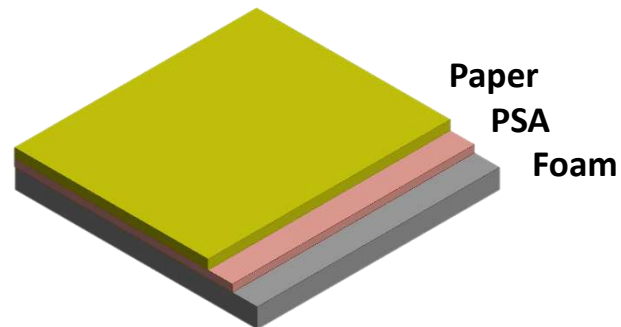
- **Single/Double Layer**
- **Liner remover(s)**
- **Thermo Adhesive**

- **Lenghtwise cut**
  - Powered circular smooth blade
- **Trasversal cut**

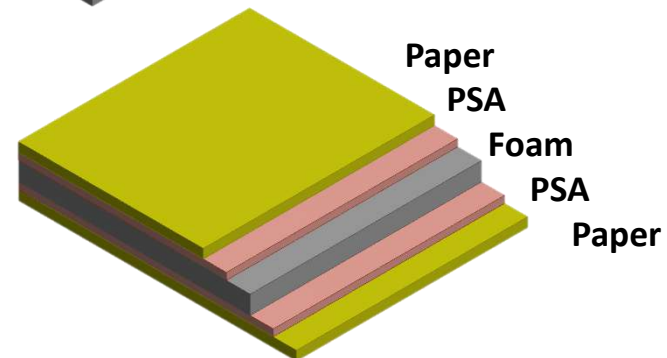
- **Exit**
  - conveyor
- **Rewinder**



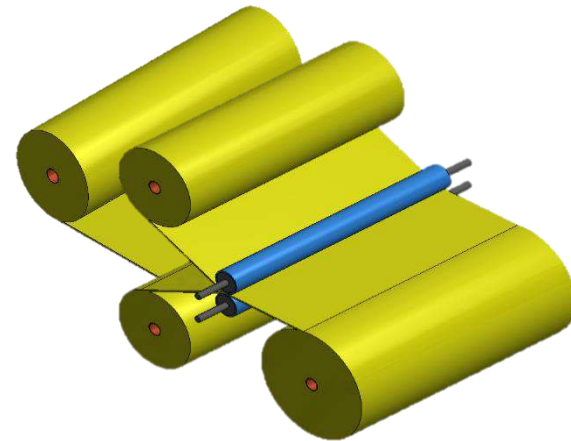
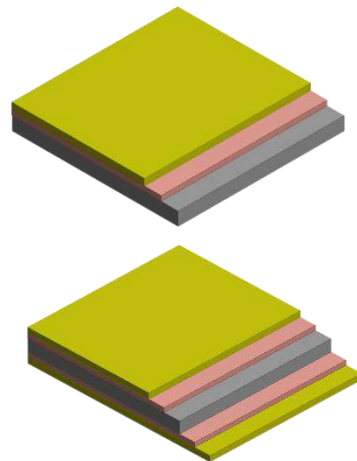
### Single-layer material



### Double-layer material

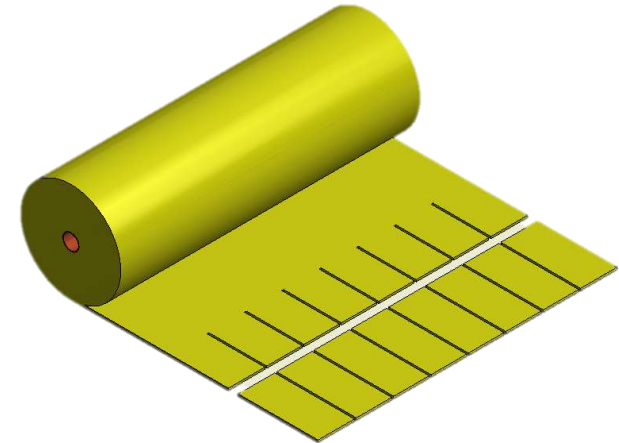
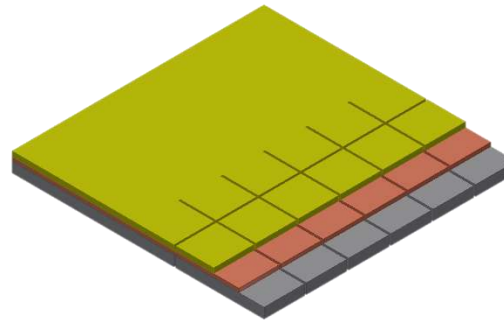


**Single-Double** layer  
material



### Combine Cutting

Longitudinal + Transversal **(LC)**



Continuous Flying Transversal cut, by chase

with double trim option for sheet and rolls: Cutting transversal cycle with double material header cut (clean cut for the last edge of the tail processed roll and clean cut for the first edge of the new material)

# Laminator workflow

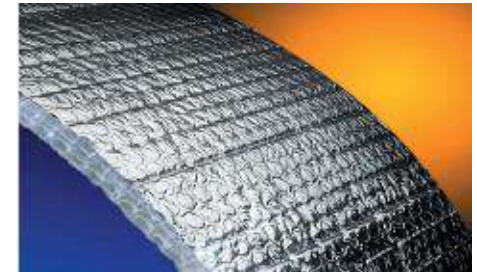
## Business sector/Applications Tips

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### **AUTOMOTIVE**

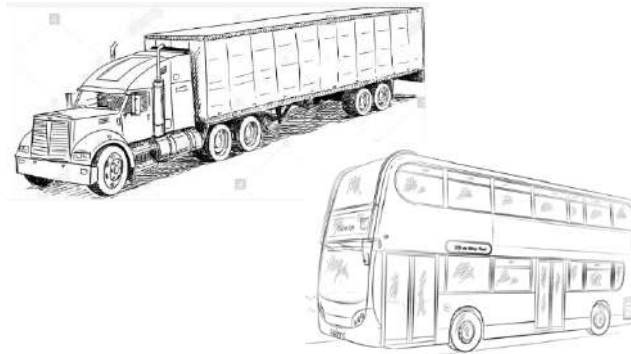
Acoustic and Thermal insulated panels  
Interiors  
Gasket and Technical Parts  
Oil proof and water proof panels  
Panels for High Temperature applications



### **INSULATION**

Acoustic and Thermal,  
for automotive,  
aerospace, buildings and  
appliances market.

**TRUCK/BUS  
FLOORING/ROOFING**  
Carpeting for flooring and  
roofing sheets,  
in automotive, truck,  
building, aerospace.



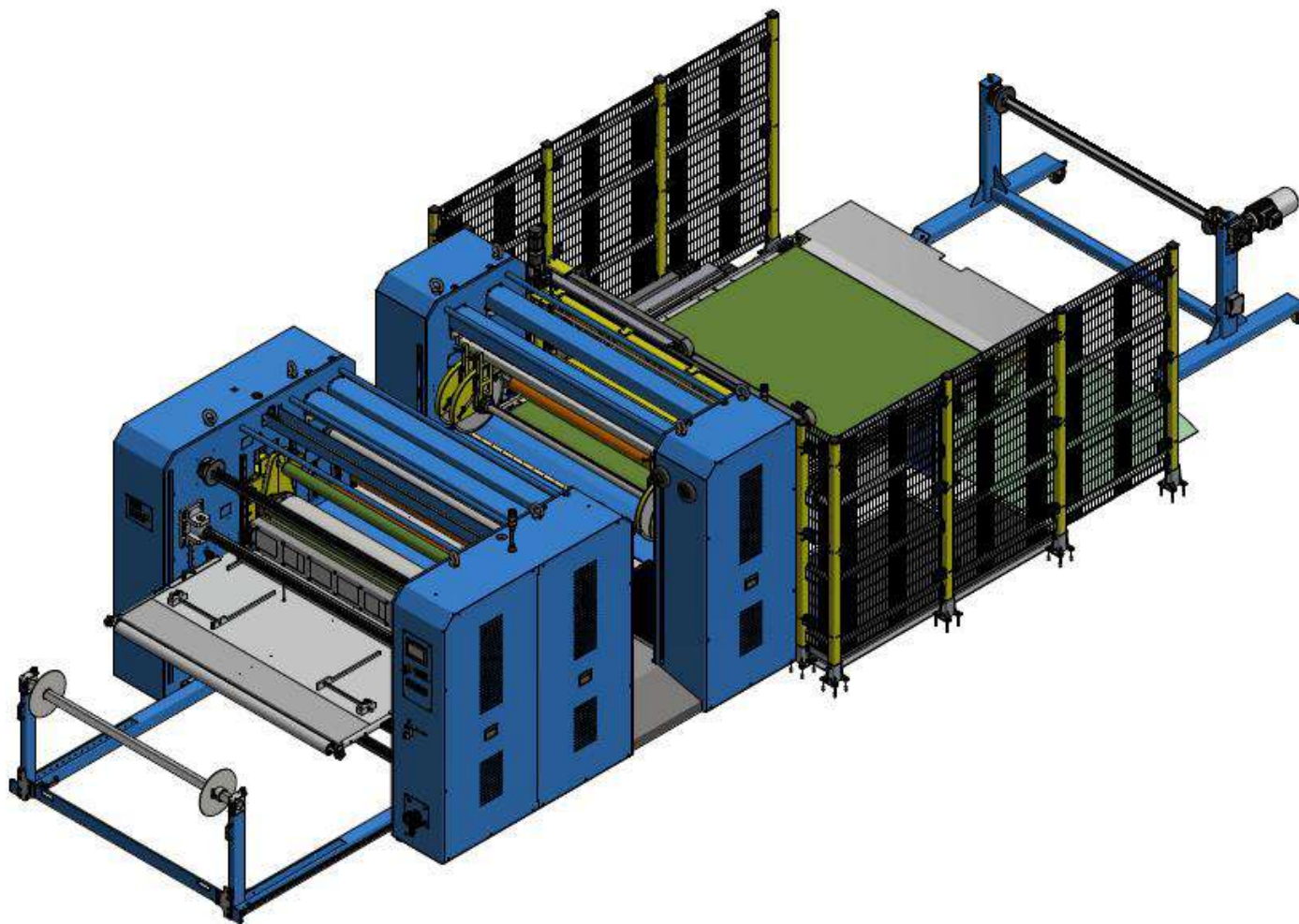
### **AEROSPACE**

Acoustic and Thermal insulated panels  
Interiors and Technical parts  
Oil proof and water proof panels  
Special laminated sheets for services and engines

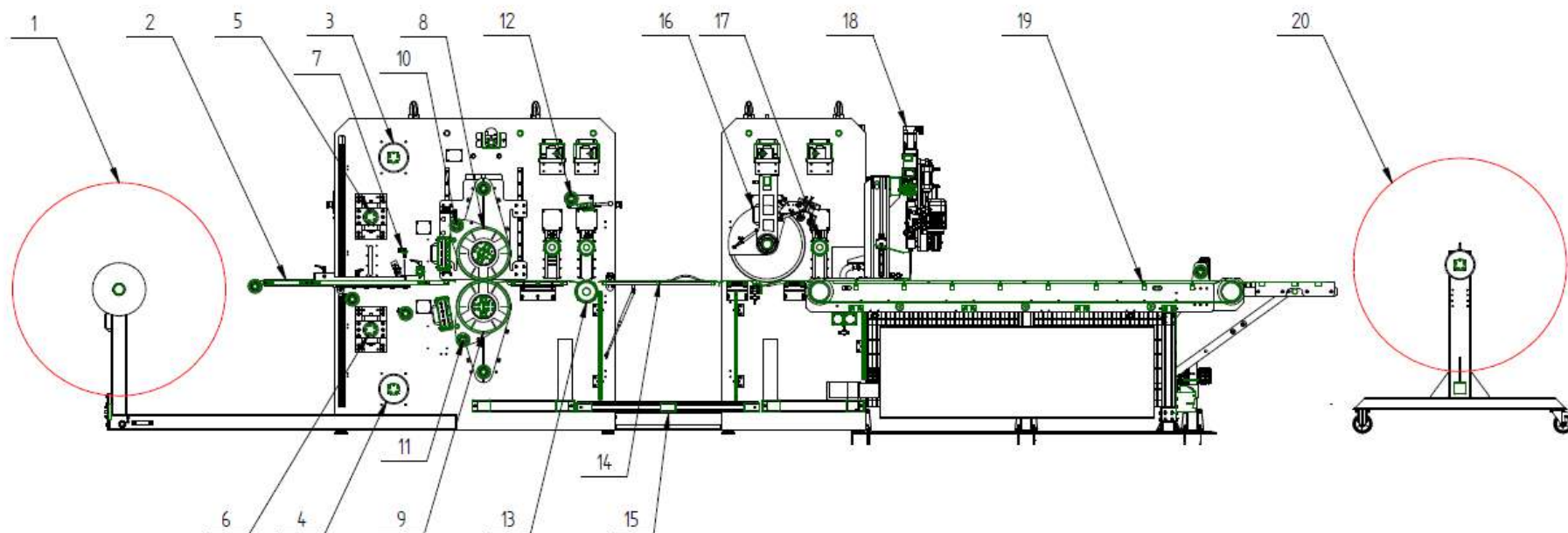


# Preliminary Layout

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# Preliminary Layout

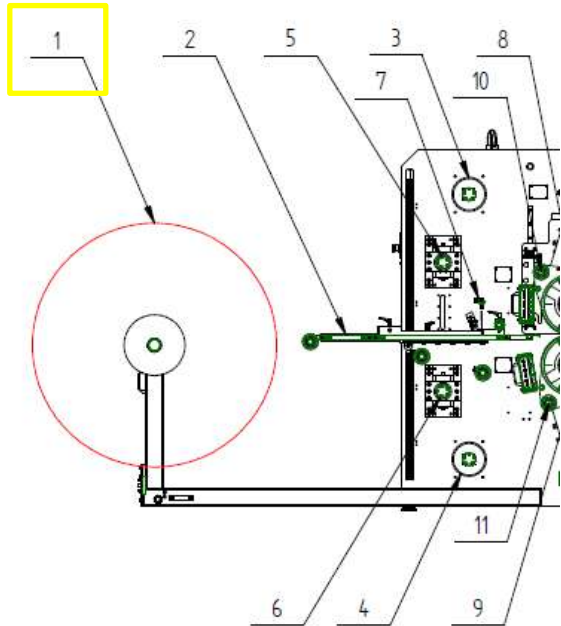




# Laminator Configuration

## External Unwinder

Layout position # 1

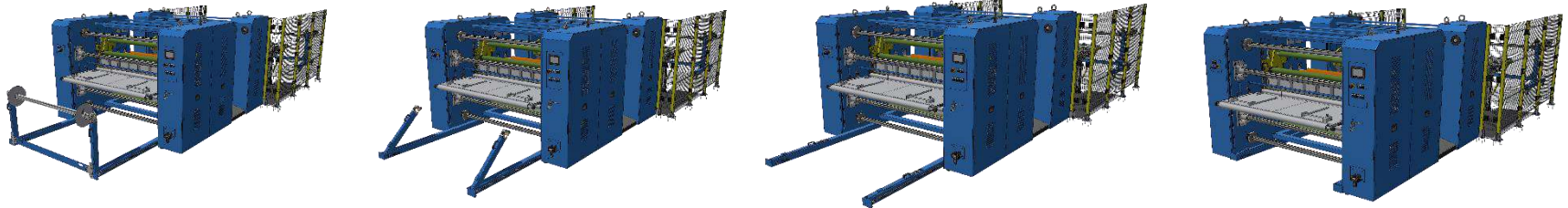
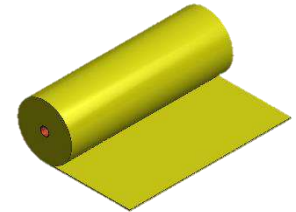


### Telescopic Folding Unwinder features

|                   |                    |
|-------------------|--------------------|
| Roll holder shaft | Steel Shaft, 70 mm |
| Roll check        | Mechanical brake   |
| Safety supports   | Two safety support |

### Material

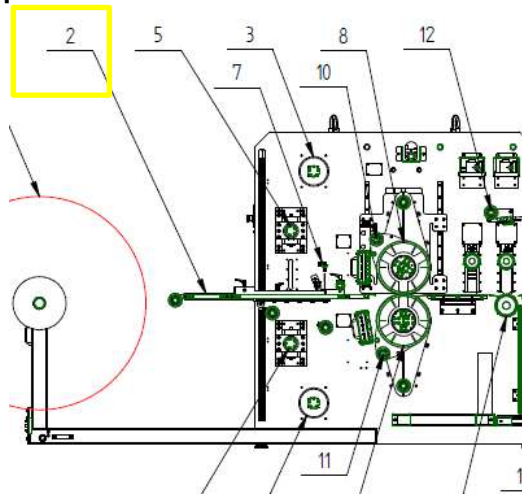
|        |         |
|--------|---------|
| Width  | 1600 mm |
| ID     | 76 mm   |
| OD     | 1400 mm |
| Weight | 100 Kgs |



# Laminator Configuration

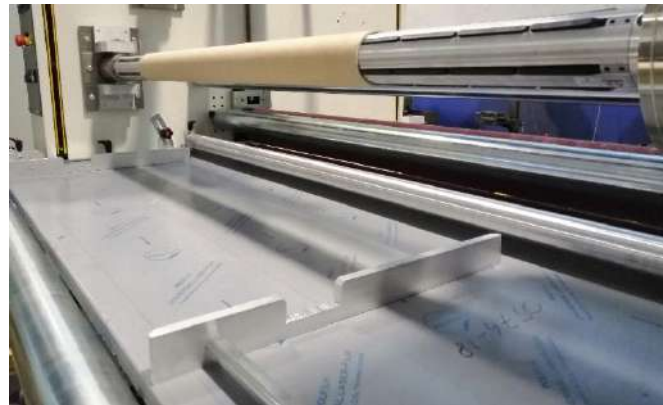
## Entrance Table

### Layout position # 2



#### Entrance table features

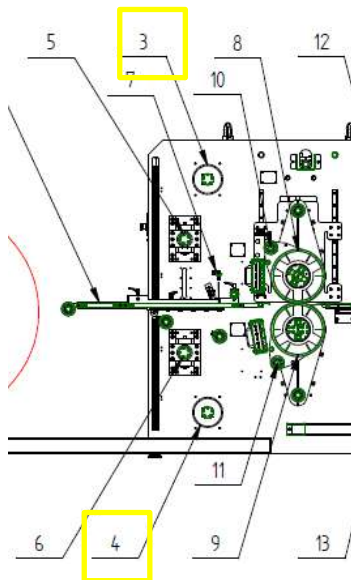
- Adjustable inclination to check the «curling» effect
- Fixing support with C-guides and bearings
- Adjustable lateral guides for material
- Free roller with adjustable height for liner removing
- Free rollers system to spread the material



# Laminator Configuration

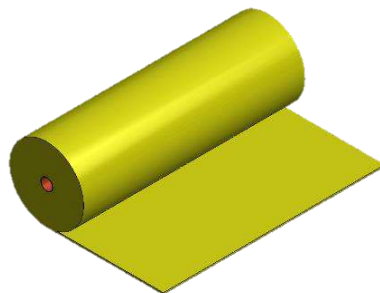
## Adhesive/Foil Unwinder

### Layout position # 3 & 4



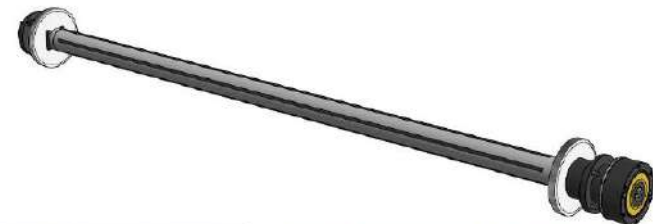
#### Material

|        |         |
|--------|---------|
| Width  | 1600 mm |
| ID     | 76 mm   |
| OD     | 400 mm  |
| Weight | 100 Kgs |



#### Unwinder features

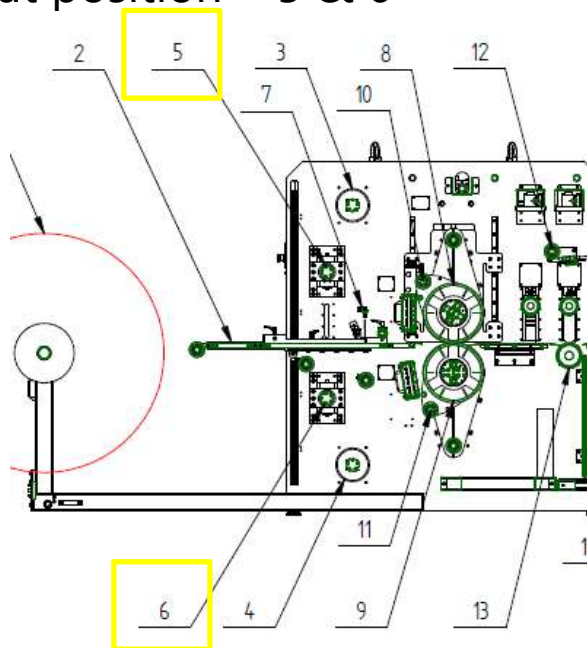
|                   |                            |
|-------------------|----------------------------|
| Checked by        | EMG Brake                  |
| Roll holder shaft | Air expanding shaft, 76 mm |
| Roll check        | Brake by Touch Screen      |
| Safety supports   | Two safety supports        |



# Laminator Configuration

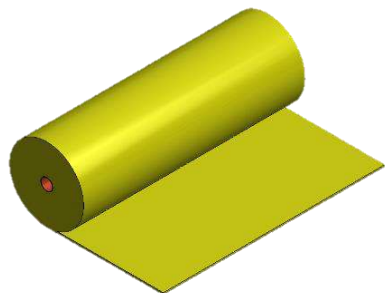
## Liner remover

### Layout position # 5 & 6



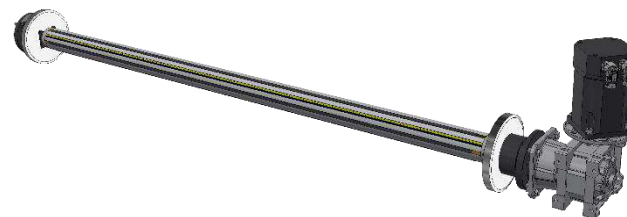
#### Material

|        |         |
|--------|---------|
| Width  | 1600 mm |
| ID     | 76 mm   |
| OD     | 300 mm  |
| Weight | 70 Kgs  |



#### Rewinder features

|                   |                                   |
|-------------------|-----------------------------------|
| Checked by        | Brushless Motor                   |
| Roll holder shaft | Air expanding shaft, 76 mm        |
| Tension Control   | Torque electronic control         |
| Safety supports   | One articulation + safety support |



# Laminator Configuration

## Liner remover process

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**From the adhesive/foil**

Removing liner from the Adhesive/Foil



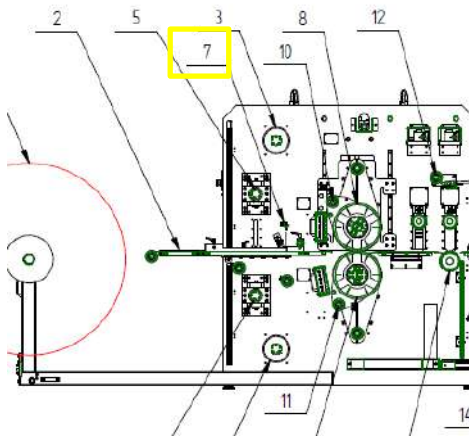
**From the material**

Removing liner from the fed material

# Laminator Configuration

## FTC - Sheet Presence Contactless Sensor

Layout position # 7



### FTC – Sheet Presence Sensor features

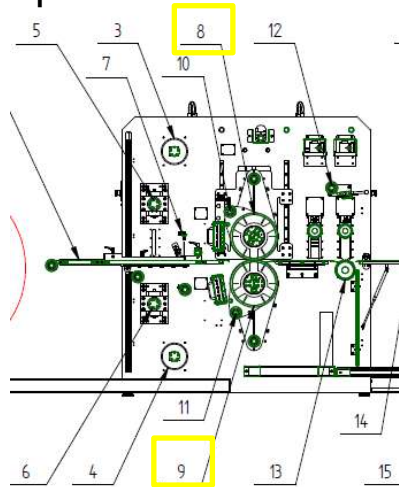
The sensor detect the first edge of the sheet allowing the Laminator to cut in between the two sheets (first and second)  
Even if the top surface it's already laminated with Adhesive



# Laminator Configuration

## Hot Lamination Calender

### Layout position # 8 & 9



#### Upper nip roller features

|                  |                                       |
|------------------|---------------------------------------|
| Checked by       | Brushless motor, adjustable speed     |
| Rollers features | Fluoropolymers covered steel cylinder |
| Heating system   | By Thermal Oil                        |
| Working Temp     | Adjustable up to 230°C ( 445°F)       |
| Gap control      | Powered and checked by PLC            |
| Gap Display      | Touch screen panel control            |

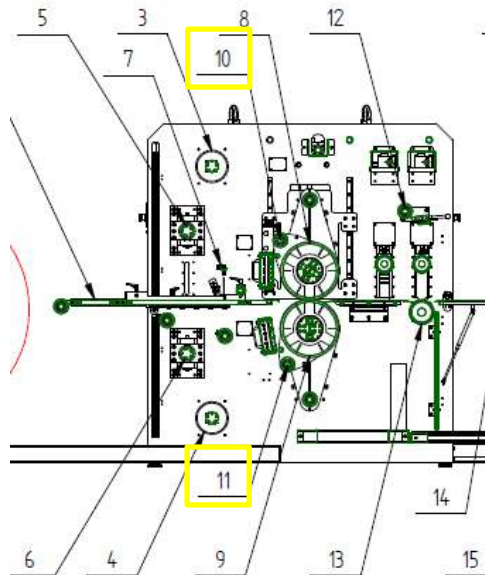
#### Lower nip roller features

|                  |                                       |
|------------------|---------------------------------------|
| Checked by       | Brushless motor, adjustable speed     |
| Rollers features | Fluoropolymers covered steel cylinder |
| Heating system   | By Thermal Oil                        |
| Working Temp     | Adjustable up to 230°C ( 445°F)       |
| Max Work speed   | Adjustable up to 5 mts/min            |

# Laminator Configuration

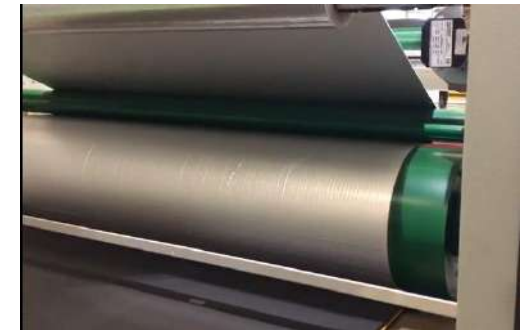
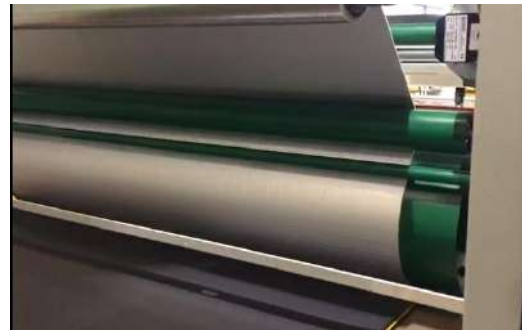
## Contact roller surface increasing system

Layout position # 10 & 11



### System features

|                  |                                       |
|------------------|---------------------------------------|
| Checked by       | Brushless motor, checked by PLC       |
| Rollers features | Fluoropolymers covered steel cylinder |

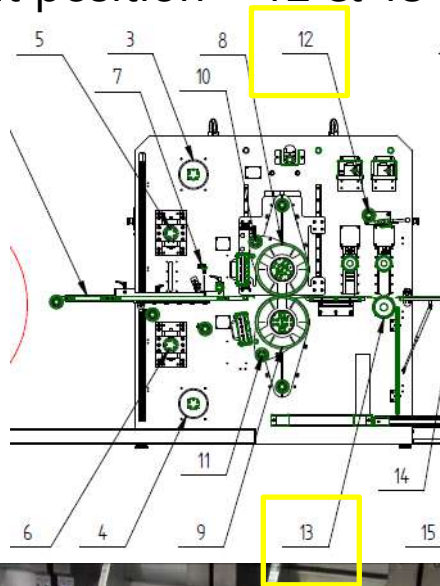




# Laminator Configuration

## Pre-cut Liner Device

Layout position # 12 & 13

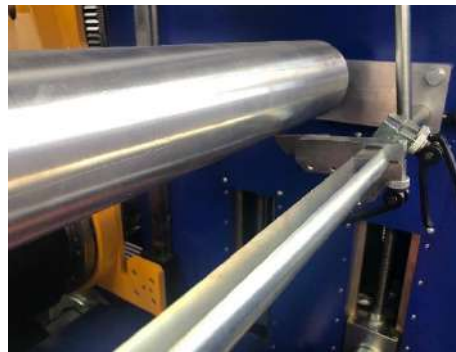


### Pre-cut liner device features

Lifter roller system for the liner separation, composed of one lifting free roller and one stationary free roller guide

Razor cutter bench, with manual positioning of the cutters

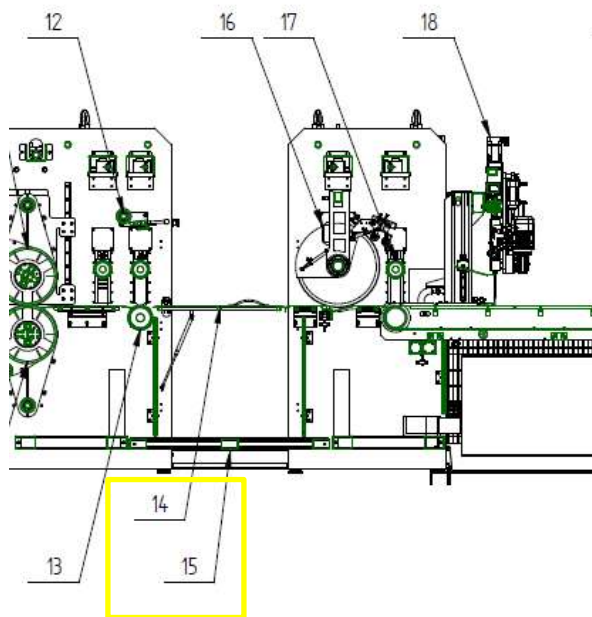
Second calender to re-laminate liner onto original adhesive



# Laminator Configuration

## Tilting Table

Layout position # 14 & 15



### Features

It allows the operator to easy check, index the material or carry out the blade positioning

Titling table complete of supporting pneumatic pistons

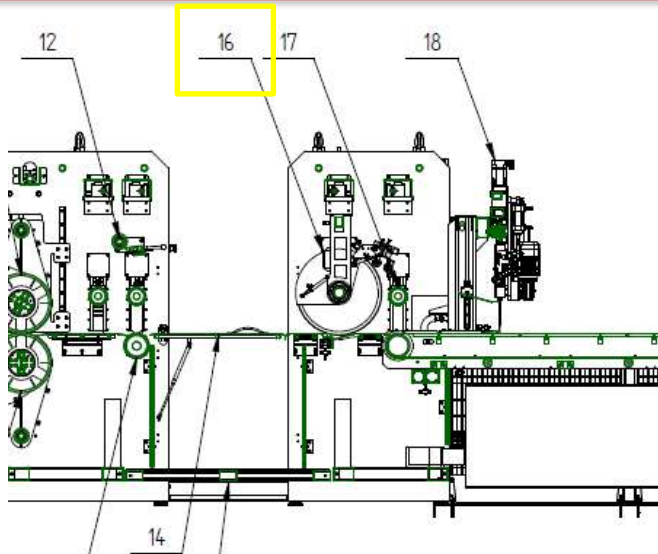
Provided with Safety Microswitches



# Laminator Configuration

## Powered Circular Knives Slitting Unit

Layout position # 16

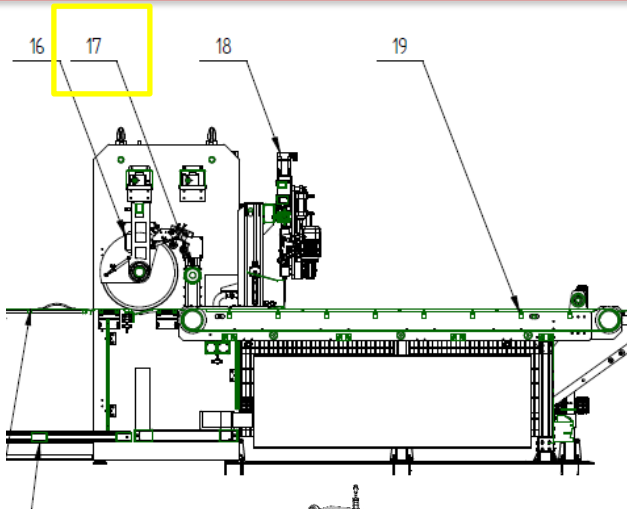


### Slitting features

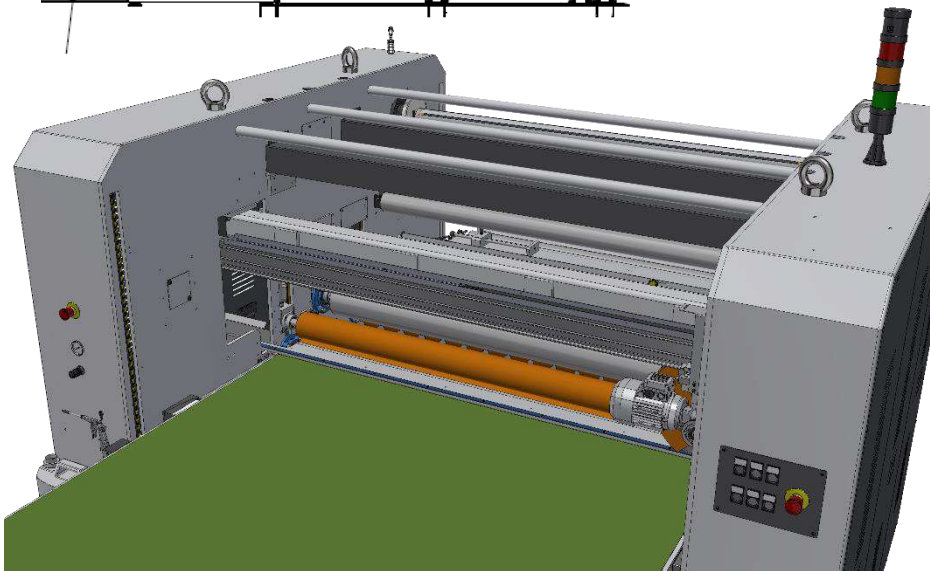
|                   |                                  |
|-------------------|----------------------------------|
| Knives            | 4 Powered circular smooth blades |
| Cutting system    | Multiple powered knives          |
| Blade Positioning | Manual                           |
| Knives control    | Adjustable blade speed           |
| Min cutting width | 140 mm                           |
| Thickness         | 150 mm                           |
| Opening           | 150 mm                           |

# Laminator Configuration

## Puller Calender



Layout position # 17



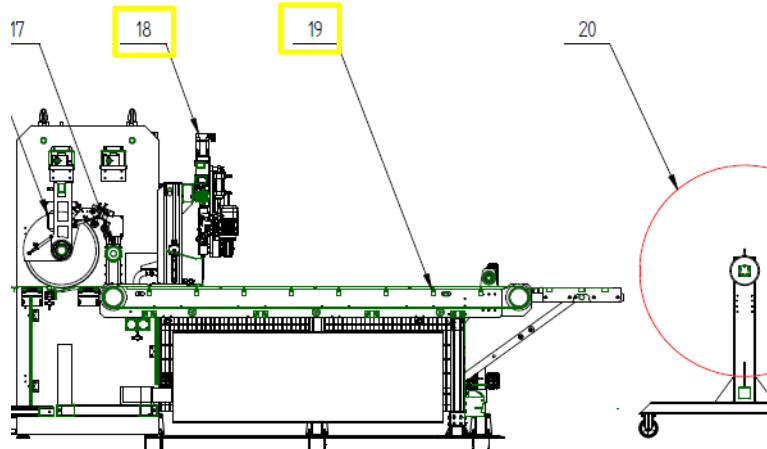
| <b>Upper nip roller features</b> |                     |
|----------------------------------|---------------------|
| Checked by                       | Free roller         |
| Rollers features                 | Silicone covered    |
| Gap control                      | Manual by handwheel |
| Gap Display                      | Mechanical display  |

| <b>Lower nip roller features</b> |                                  |
|----------------------------------|----------------------------------|
| Checked by                       | Brushless motor                  |
| Rollers features                 | Silicone covered                 |
| Speed Managing                   | Independently from main calender |

# Laminator Configuration

## Automatic Following Cross Cutting Unit

Layout position # 18 & 19



### Cutting system features

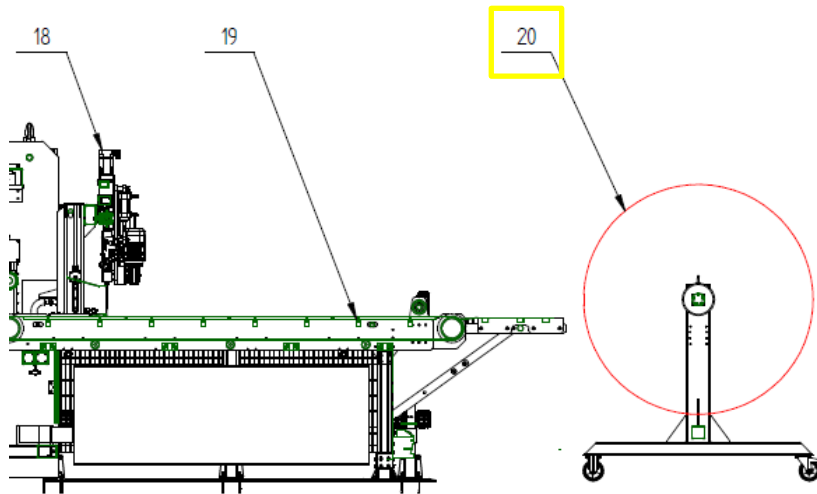
|                       |                                      |
|-----------------------|--------------------------------------|
| Knives                | Powered Circular Knife               |
| Cutting system        | Powered blade on steel counterblade  |
| Sliding               | Automatic sliding in both directions |
| Option Devices        | Lubrication, Sharpening and Presser  |
| Blade Cleaning        | Cleaning felt wiper                  |
| Cutting Cycle options | Static or Following by chase         |
| Start cutting         | Automatic, at set length             |
| Options               | Double trim for sheet applications   |



# Laminator Configuration

## External Rewinder

Layout position # 20

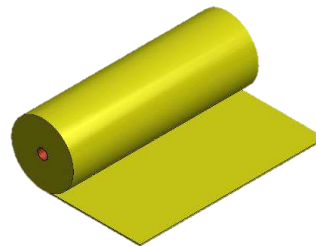


### Rewiner features

|                   |   |
|-------------------|---|
| Checked by        | Brushless Motor   |
| Roll holder shaft | Air expanding shaft, 76 mm  |
| Tension Control   | Torque electronic control   |
| Winding Options   | Sensor for proportional winding                                     |
| Safety supports   | Two Fast Locking Safety Supports<br>Removable by mounting on wheels |

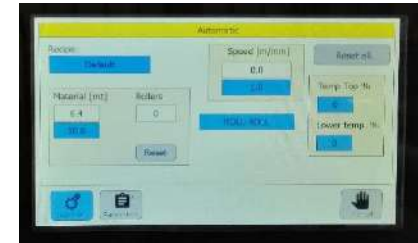
### Material

|        |         |
|--------|---------|
| Width  | 1600 mm |
| ID     | 76 mm   |
| OD     | 1400 mm |
| Weight | 500 Kgs |



# Laminator Configuration

## Safety device and Panel Control



### Rewiner features

|                |   |
|----------------|---|
| Norms Standard | EC/UL norms Machine, observing to machines Directive 2006 /42/EC ANNEX II/A and following modifications |
| Safety Devices | Light signals, emergency buttons, photocell barriers or laser scanner safety barriers                   |
| Control Panel  | PLC and Touch screen interface with possibility to save working recipes, and pannel control             |
| Other Options  | Embedded electronic counter of meters   |
|                | Start and Stop foot pedal / Automatic & Manual Working Cycle  |



**Thank you for your attention**