

TECHNICAL PROPOSAL No. PM-2026-0428

Subject Top lamella processing line – technical description

**LENGTHWISE AND CROSSWISE
TOP LAMELLA PROCESSING LINE**

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CHAPTER 1 – INTRODUCTION

INTRODUCTION

The line described in this document is suitable for cutting top lamellas to final dimensions, both lengthwise and crosswise, with a productivity of 800 m² per shift.

MATERIAL TO BE PROCESSED

Oak

TECHNICAL DRAWINGS

To be provided

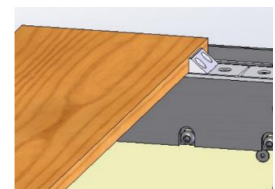
PROPOSED PROCESSING

To meet the production requirements, a machine with following technical configuration is proposed:

- Manual loading on a vertical hopper feeder
- Transfer into first machine for lengthwise processing
- Transfer with mechanization to second machine
- Automatically loading second machine for crosswise processing
- Manual unloading

ELEMENT REFERENCING DURING PROCESSING

- Bottom side over the chain (good side)
- Lengthwise processing: on the lateral reference guide (left)
- Crosswise processing: back side pushed by the dogs



crosswise

MACHINE FEEDING SPEED and/or PRODUCTION CAPACITY

To achieve the required productivity of 800 m² per shift (8 h), considering a lamella size of 500 × 70 × 3.8 mm. This corresponds to approximately 23.000 pieces per shift.

Assuming an effective working time of 6 hours, the required output is about 3.800 pieces per hour, equal to 64 pieces per minute.

With a lengthwise processing speed of 33 m/min in the first machine and a crosswise speed of 10,5 m/min (with feeding dog pusher center distance of 160 mm) in the second machine, this productivity level is achievable.

SUCTION HOODS AND MACHINE CLEANING

- Suction hood for dust and chips
- Casing for canalizing the waste to be removed by means of boxes or a waste conveyor belt

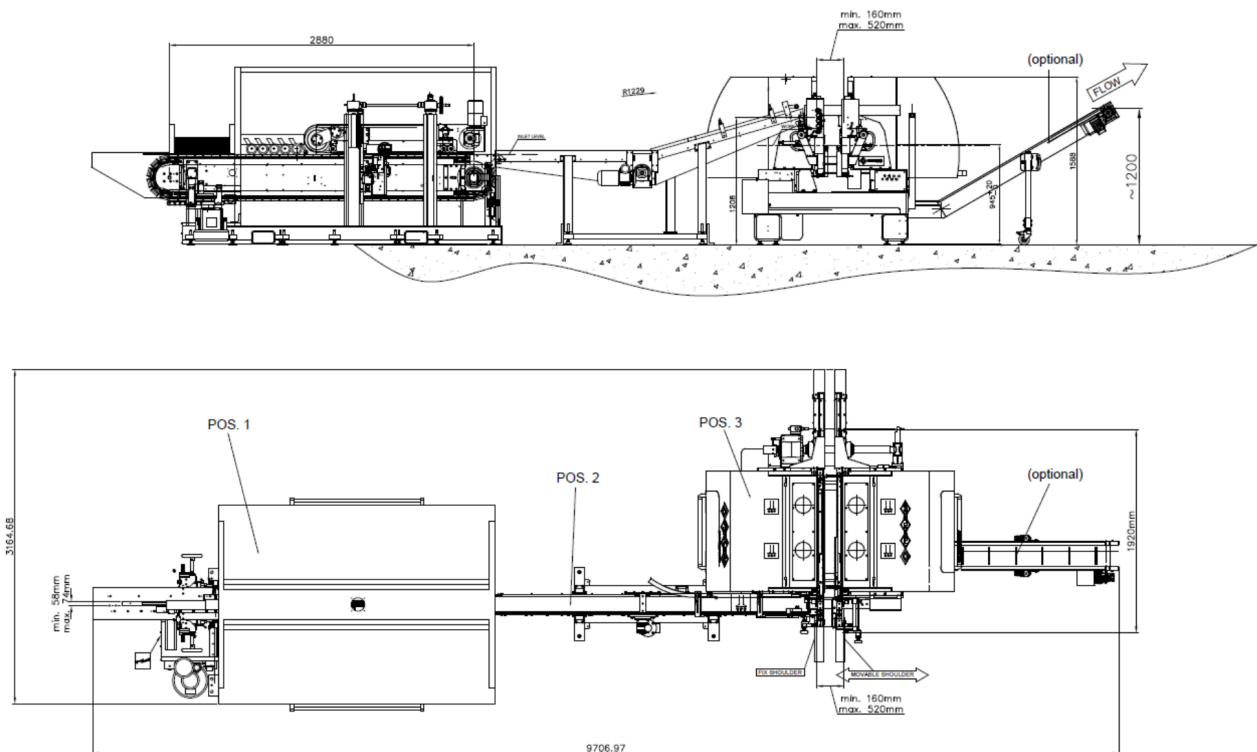
CHAPTER 2 – LINE DESCRIPTION

WORKING MEASURES

Length:	min. 180 mm	max. 520 mm
Width:	min. 58 mm	max. 74 mm
Thickness:	min. 3 mm	max. 3,8 mm
Extra material to be removed	Approx. 2/3 mm each side	

LINE COMPOSITION

POS.1	DOUBLE END TENONER MACHINE WITH SINGLE CHAIN – carrying system centre distance 2880 mm
POS.2	LINKING TRANSFER
POS.3	AUTOMATIC DOUBLE END CUT AND PROFILING MACHINE



PRELIMINARY

Layout as a reference

POS.1

MACHINE COMPOSITION DESCRIPTION

DOUBLE END TENONER MACHINE WITH SINGLE CHAIN CARRYING SYSTEM CENTRE DISTANCE 2880 mm

MACHINE BASE

The structure of the arc-welded and normalized framing heavy base allows to absorb and avoid both vibrations and resonance caused by the working process.

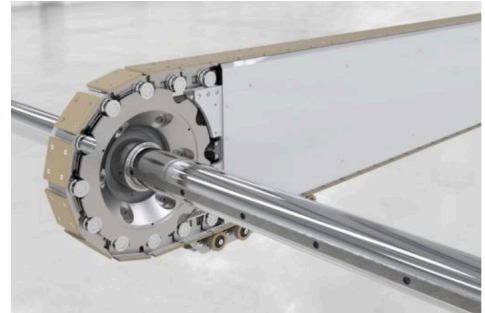
FEEDING SYSTEM

The work-piece feeding occurs by means of precision chain built of hard casting steel components, connected by pins mounted on bearings.

Each element building the chain is equipped with steel plates coated with rectified hard non-stainable rubber.

Chain displacement occurs on **bearings rolling** over rectified hardened cylindrical steel rails.

The feeding movement transmission runs on 80 mm diameter balanced axis connected to toothed wheels with 12 teeth.



PRESSURE SYSTEM

The not motorized top pressure system is composed of a non-marking rubber trapezoidal belt.

A uniform pressure is applied all along the machine length through the use of regulated air-compressed system acting on aluminum pulleys.



WORKING UNITS POSITIONING

The high precision of the sliding guides manufacturing allows a transversal and a vertical adjustment of the working units with no need of mechanical blocking.

The axial and radial working units positioning occurs manually by means of trapezoidal screws and the positioning are displayed on mechanical digital indicators.

Note: the supplied standard suction housings are intended to be fixed in vertical or horizontal position with limited working unit inclination; as an option, dedicated suction housings will be supplied.

ELECTRICAL SPECIFICATIONS

Built as per the CE rules. Different rules are not contemplated.

The touch-screen control panel is located on the free-standing electrical cabinet and it allows the machine management.

Lay out and labelling of all the controls follow the security rules.

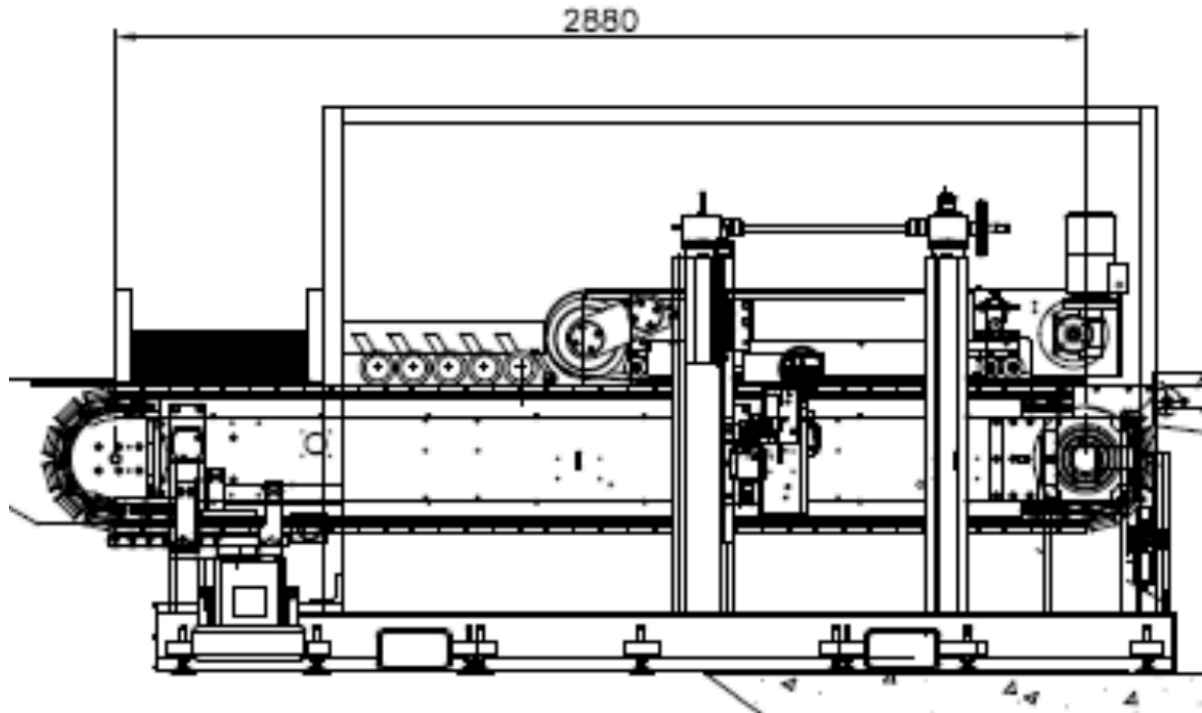
TECHNICAL DATA

Feeding chain speed, adjustable	: from 5 to 40 m/min
Movable shoulder displacement speed	: 1.2 m/min
Carrying system center distance	: 2880
Lubrication system of the bakelite guides supporting the chain	: manual
Columns on each side	: 2
Loading area dimension	: 600 mm approx.
Working table height from the floor (<i>to be verified during technical analysis</i>)	: 870 mm (to be defined)
Air pressure	: 6 bar
Voltage	: 400 V – 50 Hz

EQUIPMENTS INCLUDED

Compressed-air blower unit for the feeding system
Hopper feeder, with reference guide and roller guided transport chain before the top belt pressure system
Manual adjustment of the top pressure system in the sense of work-piece thickness
Motorized belts for automatic work-piece exit
Manual lubrication system of the bakelite guides supporting the chain
Control board air cooling system
Router for internet teleservice
Sound safety enclosure

MACHINE COMPOSITION



Preliminary layout

1st station:

PROFILING UNIT

Electrospindle motor power	: 5,8 kW
Rotation speed	: 6000 / 8000 rpm
Spindle diameter	: 40 mm
Usable spindle length	: 100 mm
Spindle assembled on precision bearings with oblique contact equipped with distance ring set	
Min. – max. tool diameter admitted (not included) : 220-250 mm	



Adjustment:

IN/OUT (each)	: manual
UP/DOWN (each)	: manual

Quotes visualisation on decimal mechanical digital indicators

Dust extraction:

N° 1 hole	: outside diameter 120 mm
Requested air speed	: 30 m/sec
Air consumption	: 1220 m³/h

POS.2

LINKING TRANSFER



Picture as a reference only

MACHINE BASE

Composed of a sturdy electro-welded steel frame and an adjustable speed motorised belt. The mechanization is composed of two sections:

a) FIRST HORIZONTAL SECTION

Section parallel to the ground, 1500 mm long (variable on request); the sliding table height 850 mm (based on the type of machine to be linked), adjustable +/-30 mm.

b) SECOND INCLINED SECTION

Section with a 30° slope, 1500 mm long; work pieces exit at 1160 mm from the ground.

WORKING MEASURES

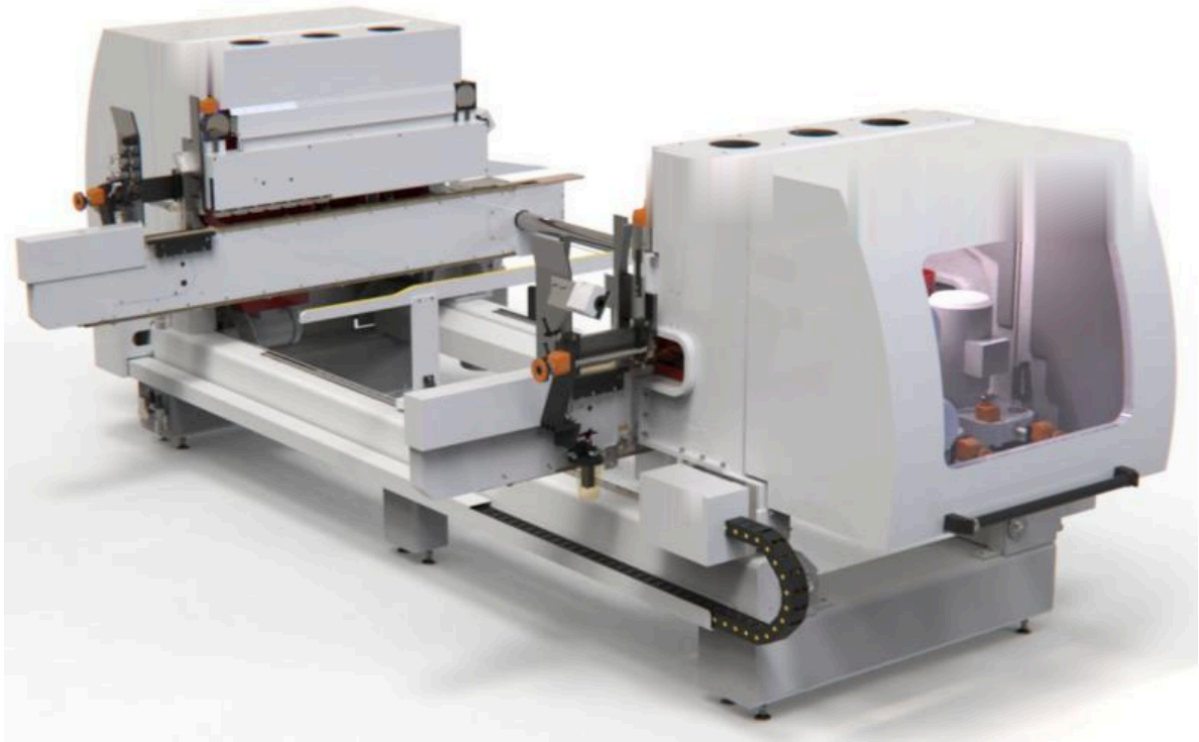
Length:	min. 200 mm	max. 1500 mm
Width:	min. 30 mm	max. 150 mm (*)
Thickness:	min. 15 mm	max. 60 mm

Notes: (*) on request up to 250 mm

TECHNICAL DATA

Plain belt of PVC	: 2 cloths of 2 mm
Belt width	: 150 mm (on request 250 mm)
Adjustable speed with motor power	: 0.5 kW
Belt feed speed continuously adjustable	: from 20 to 100 m/min
Voltage	: 400 V – 50 Hz

POS.3

AUTOMATIC DOUBLE END CUT AND PROFILING MACHINE*Picture as a reference only***MACHINE BASE**

The machine base is built of special welded steel shoulders. Iron beams interlocking one another create the supporting tables for the working units.

The left supporting table is fixed, **the right one is movable** on precision linear guides with re-circulating ball slides.

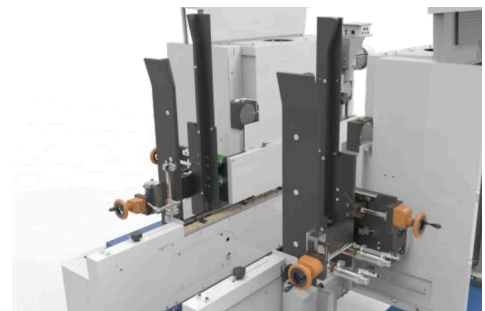
Length adjustment of the movable side is driven by two TPN thread screws controlled by a gear motor.

**VERTICAL MAGAZINE**

Machine is provided of a vertical magazine adjustable in width. Pieces are referenced inside the magazine being pushed by a pneumatic cylinder towards the right-side fence.

Maximum tolerance allowed in work pieces length 40 mm.

To guarantee the correct cycling and safety for the operator, the magazine is provided of a photocell which prevents its complete empty.



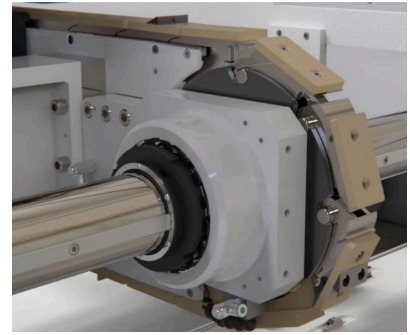
FEEDING SYSTEM

The feeding of the pieces occurs by means of precision chains built of hard cast steel components connected to hardened steel pins mounted on needle bearings.

Each element building the chain is equipped with steel plates coated with rectified hard non-stainable rubber.

The chain sliding movement occurs on special self-lubricating fiber guides.

The feeding movement transmission runs on 60 mm diameter balanced axis connected to toothed wheels with **8 teeth**.



PRESSURE SYSTEM

Work-pieces are held in position during processing by free, non-marking top pressure belts.



ELECTRICAL SPECIFICATIONS

Built as per the CE rules. Different rules are not contemplated.

The touch-screen control panel is located on the free-standing electrical cabinet and it allows the machine management.

Lay out and labelling of all the controls follow the security rules.

AUTOMATIC ADJUSTMENTS FROM CONTROL PANEL

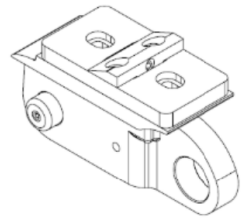
- Mobile shoulder opening;
- Carrying system feeding speed;
- ON/OFF working units motors.

TECHNICAL DATA

Feeding chain speed, adjustable	: from 6 to 25 m/min
Movable shoulder displacement speed	: 0.6 m/min
Carrying system centre distance	: 1920 mm
Lubrication system of the bakelite guides supporting the chain	: manual
Centre distance of the referencing stops	: 160 mm
Working table height from the floor (<i>to be verified during technical analysis</i>)	: 960 mm
Working height from the floor for in line machine with mechanization	: to be confirmed
Air pressure	: 6 bar
Voltage	: 400 V – 50 Hz

EQUIPMENTS INCLUDED

Machine opening 600 mm
N°28 Feeding dogs with 160 mm centre distance – fix
Predisposition for line connection
Sound safety enclosure
Motorized tracks, 500 mm long, for automatic part extraction
Inclined waste evacuation conveyor for a machine with a 1000 mm opening, complete with the final inclined section



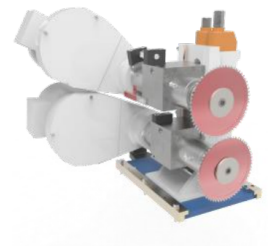
Feeding dogs
(picture as a reference only)

MACHINE COMPOSITION

1st station

SCORING UNIT / TRIMMING UNIT

Transmission by means of belt and pulley	
N° 2 motors with power	: 3 kW
Rotation speed	: 7200 rpm
Spindle diameter	: 30 mm
Usable spindle length	: 5 mm
Min. – max. tool diameter admitted (not included)	: 125-150 mm



Adjustment:

IN/OUT	: manual
UP/DOWN	: manual
Inclination	: not provided

Quotes visualization on mechanical digital indicators

Dust extraction:

N° 2 holes	: outside diameter 120 mm
Requested air speed	: 30 m/sec
Air consumption	: 2440 m³/h

SAFETY RULES

All offered equipments are built following CE regulations.

The device to manage the line security and the data interchange to manage all data coming from external supervisors, if any, are not included in the present scope of supply.

CHAPTER 3 – TECHNICAL NOTES

TOOLS

Technical studies of the working units are supplied together with the line.

Tool quality is a fundamental feature of the working cycle, therefore the purchase of quality tools is recommended. The final processing quality depends on the tool characteristics and is not covered by the scope of supply.

Within 15 days from receipt of the technical studies, the tool supplier has to:

- confirm the working unit motor power, the rpm and the requested working speed;
- confirm that the tools are able to perform the processings and the tolerances required by Buyer.

Tools and tool-holders must be dynamic balanced in G.2.5 and balanced after every sharpening or insert changing. The vibration produced by not balanced tools can quickly destroy the rotation axis bearings. Tools must always be sharpened to reduce shearing forces and the temperature increasing due to the material processing.

Tools supplied with the machine: **NO TOOLS SUPPLIED**

TECHNICAL DOCUMENTATION

A hard copy and a SW support containing the following documentation:

Instruction and maintenance manual in	: ENGLISH
Electrical diagrams together with the suggested spare part list in	: ENGLISH
Third-part components or technical annexes (e.g. electro spindles, gear motors, etc.) in	: ENGLISH
Dashboard labels, display and touchscreen (directly on the machine) in	: ENGLISH

If requested, all technical documentation can be quantified and provided in another language and/or in a number of copies other than the one specified.

TECHNICAL NOTES

All technical studies sent after the machine planning will prevail on all previous specification.

Motor power reported is standard; the tool supplier will confirm motor size based on requested working speed and maximum removal section.

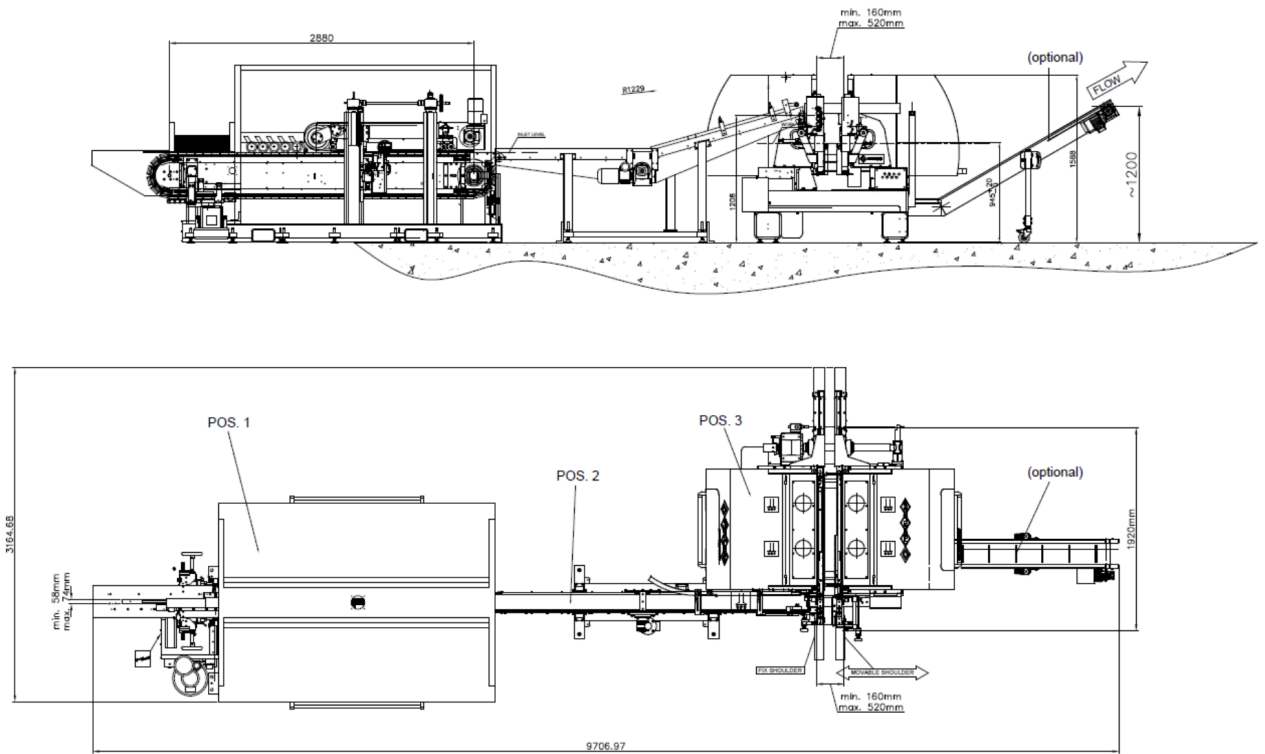
Buyer has to provide each dust hood with 30 mt/s AIR VELOCITY and each air connection with 6 bar SERVICE PRESSURE.

Any additional information provided after confirmation of the present document may imply modifications to the equipment not included in this technical description.

The engineering of the machine may be modified without affecting the quality of the equipment and the final results of the pieces to be worked.

CHAPTER 4 – ANNEX: PRELIMINARY LAYOUT

Annex 1: Preliminary layout



PRELIMINARY

Layout as a reference – preliminary, subject to confirmation during technical analysis.