SERIE K

Calibrating Sanding Machines

COSTA
LEVIGATRICI

wood K EN

SEMI-AUTOMATIC CALIBRATING LINE for CORE MATERIAL (plywood)

complete with loading-stacking platforms

Working Width	1650	mm
Working Speed	30	m/min
Installed Power	270	kW

6 units CALIBRATING MACHINE

1st position in high-speed finishing line

This machine is equipped with a special sound-proofed AIR-RECOVERY system to recycle the air coming from the dust filter back inside the machine,

The machine and air return are equipped with sound protections to 75 dB.

High-speed top CALIBRATING FINISH SANDING LINE

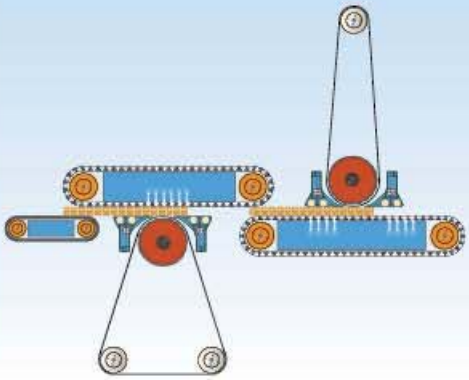
with full sound protections to 75dB , air return system, automatic re-setting control to hold thickness tolerance on work pieces with laser probes reading.

This is a line, integrated with 2 + 2 robots for feeding -stacking very special thin and flexible material, rather hard to calibrate.

Two bottom + two top heads to calibrate in the first section of the machine KK9 CC-CC , followed by another machine KK9 C-CTT with one bottom and three top units to finish.

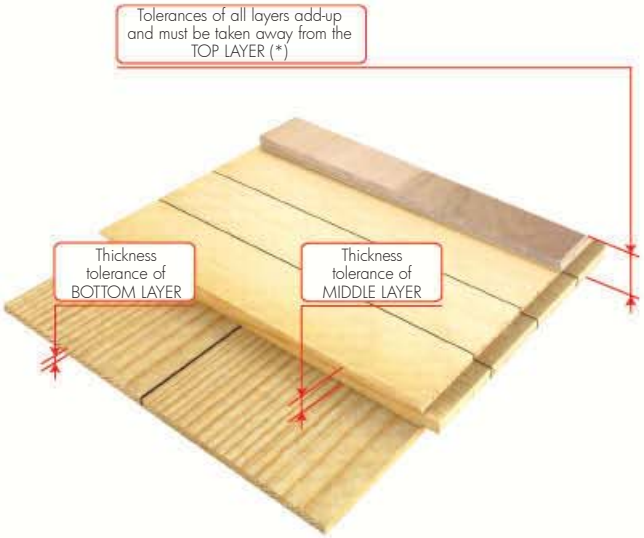
PARQUET FLOORING MACHINES - Example of configurations in

CALIBRATING machines for the accurate preparation of layers (prior to pressing)

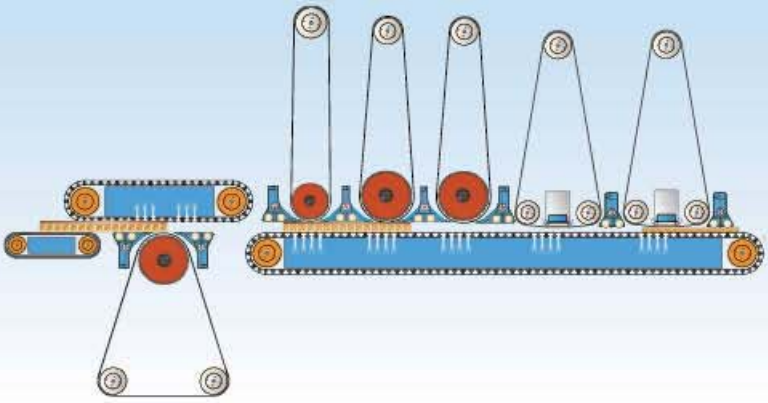


WHY CALIBRATING THE INDIVIDUAL LAYERS ?

- to avoid taking away the exceeding thickness tolerances of the internal layers from the top layer.
- to have a more stable plank with layers with normalized thickness.
- to have a better utilization of the press, with more even pressure on the work-pieces when pressing.

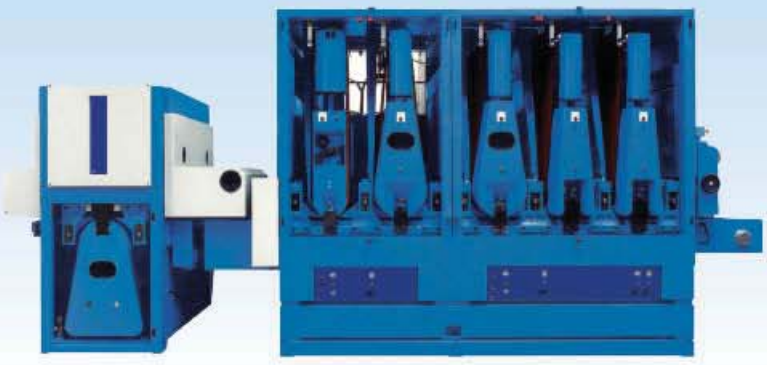


CALIBRATING machines utilized in the PARQUET flooring working cycle either in a stand alone or in first position of the finishing line to dimension the thickness of the planks

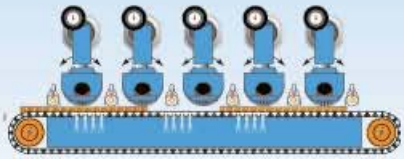


After pressing, the planks must be calibrated-sanded to "perfection" prior to lacquer finishing.
This calibrating-white-wood sanding operation is normally performed in the first position of the finishing line.
A first bottom machine can be usefull to level the back side of the planks, to reduce the take away from the top layer, (*) due to tolerances adding up from other layers.
On the top side the surface finish requirement is determining the number of working units, up to 6 units on top side, depending on feed speed and take away needed.
The power of the working units is in relation to the amount of take-away, to the sanding belt grit utilized, to the feed speed of the line.

some "special" finishi

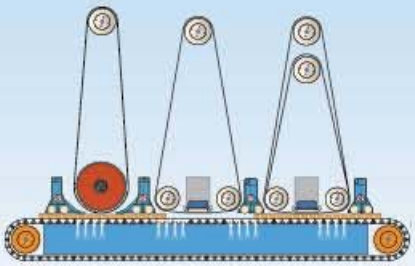


GRAIN HIGH-LIGTHING machine to brush the grain with steel-anderlon brushes



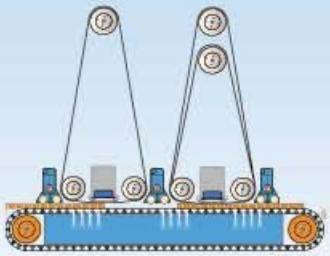
GRAIN HIGH-LIGTHING machine to brush the grain with steel-tynex/anderlon brushes.
This machine is positioned right after the calibrating machine.
The brushes are two for each type in use, each with the inversion of rotation to compensate the consumption of the threads, to obtain the same finish all around the knots and in the start-end of the grain (when with only 1 brush the finish is different in the grain direction and around the knots).
We recommend 2 steel brushes, 2 tynex/anderlon and a final vegetal cleaning brush, eventually with rotary blowers in the end to clean perfectly the work-pieces .

FILLER SANDING machine to level the filler applied



FILLER SANDING machine is utilized in the flooring working cycle to level the filler applied to close the gaps between the top strips on the surface.
The machine is equipped with one cylinder and one or two pad units depending on the surface finish requirement.
The cylinder is recommended for the higher take away capacity of this unit (compare to pads) together with the easier-better cleaning possibility of the sanding belt grit to prevent clogging.

LACQUER SANDING machine utilized in the PARQUET flooring working cycle



LACQUER SANDING machine utilized in the PARQUET flooring working cycle to level the lacquer applied on the surface.
The machine is equipped with one or two pad units depending on the surface finish requirement.
The length of the sanding belt is very important for the longer lasting time and therefore for diminishing the down time needed for the change when the belts are clogged.
The final sanding belt grit sequence utilized ranges from 280-320 to 360-400.

ng effects on parquet, obtainable with ABRASIVE BELTS and BRUSHES

Calibrating / Sanding machines

Combined Calibrating - Sanding Machines

Series KK are our calibrating-sanding combined bottom+top machines, with up-to 4 bottom and 6 top main working units + cleaning brushes and air jet blowers for panel cleaning.
We can install high power motors for large take-away and/or for high feed speed of production.

- standard centralized thickness adjustment with electronic programmer with many programmes;
- standard centralized feed speed adjustment from control panel;
- abrasive belt length either mm. 2620 or 3250 (top machines only);
- thickness adjustment from 0 to 160 mm.

Bottom Calibrating - Sanding Machines

- available with 1 up to 4 working units;
- constant pass-line from floor mm 1000;
- abrasive belt length 2620 mm;
- thickness adjustment from 0 to 160 mm.

SERIE K

Top Calibrating / Sanding Machines

- available with 1 up to 6 working units.
- constant pass-line from floor mm 1000.
- abrasive belt length 2620 / 3250 mm;
- thickness adjustment from 0 to 160 mm.

Machines with PLANER Head & Sanding units

for high removal, low power consumption, high feed speed, ... at lowest operating costs

Planer heads "System Costa Levigatrici" by Guillen, combined with sanding units to obtain high take away with high level of surface finish in a single pass.

Planer head equipped with carbide inserts set at an angle that is giving an "inclined" cut.

The inclined cut is smoother, less noisy and more efficient thank to the lower requirement of power.

Planer heads W250 are a formidable working unit to take away large quantities of material without problem.

Main advantages, varying from minimum 5 and up to 10 times lower costs of tips versus sanding belts, with power utilization from 50% up to 150% lower when compared with machines equipped with sanding belts, with same take-away and utilization time.

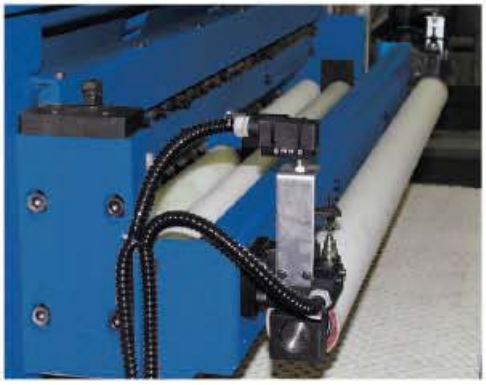
All our planer heads are equipped with standard carbide inserts dimensions mm 14 x 14 x 2 of thickness

W250/8 is the unit in diameter 250 mm,

with 8 sequences of inserts

W250/16 is the unit in diameter 250 mm,

with 16 sequences of inserts



We have set 4 levels of safety for the planer head W250

1- Infeed roller for over-thickness at + 4 mm

2- Double pressure rollers rubber covered

3- Anti kick-back barrier

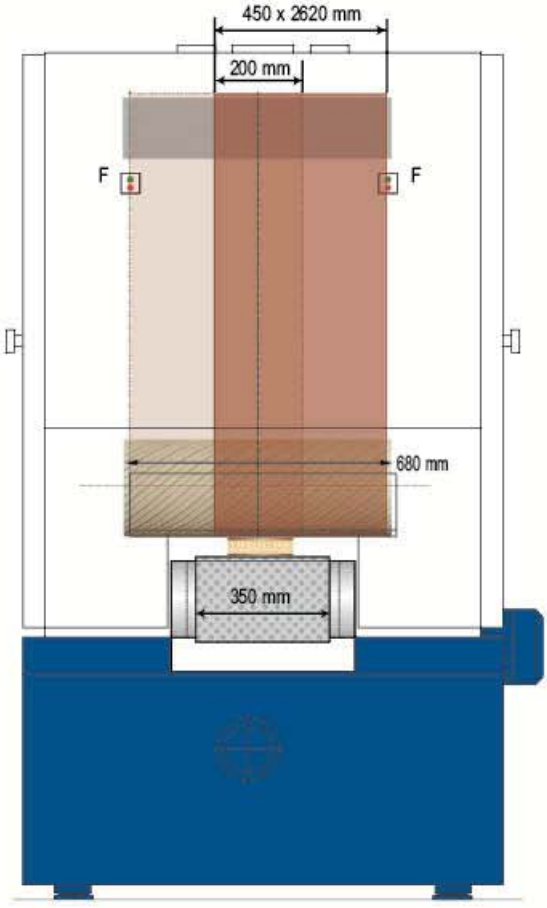
4- Sectioned pressure shoes with lips with pneumatic control

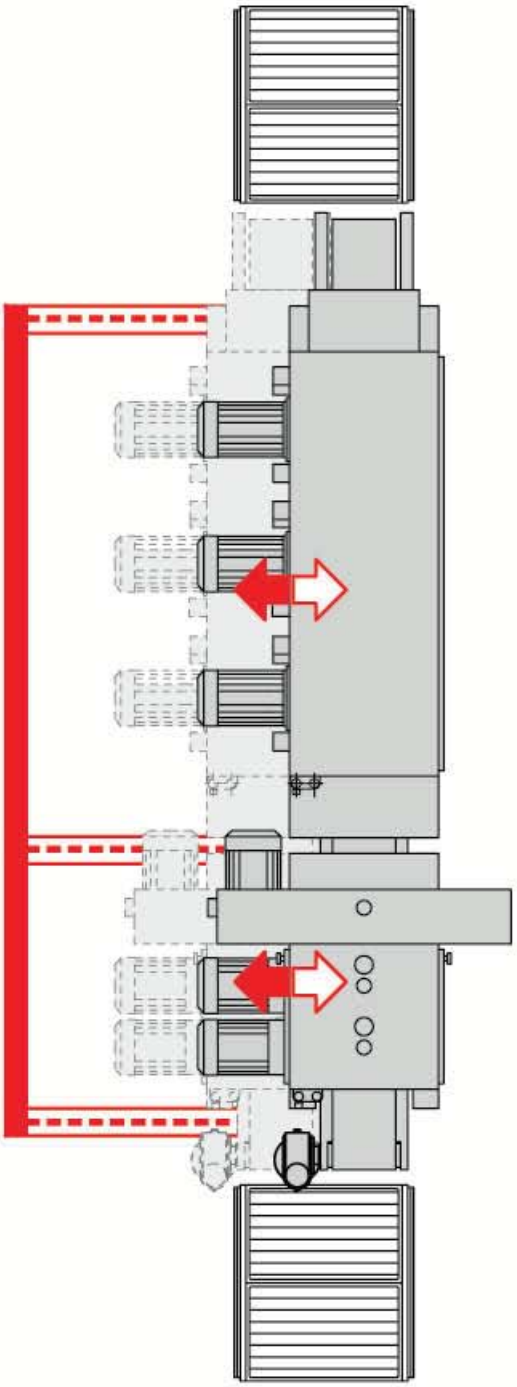
NARROW Calibrating-Sanding Machines working width 350

When sanding in line with moulders or with other machines processing narrow workpieces we have to consider the wearing of the sanding belt and also that of the feed belt of the rubber cylinders and of the pads , since they are always working in the same position.

We can overcome this problem by applying a "wide oscillation" to the sanding belts (but this only take care of the sanding belt consumption,

or we can oscillate the complete machine, and in this second case we take care of all wears (rubber belts, cylinder, sanding belts)



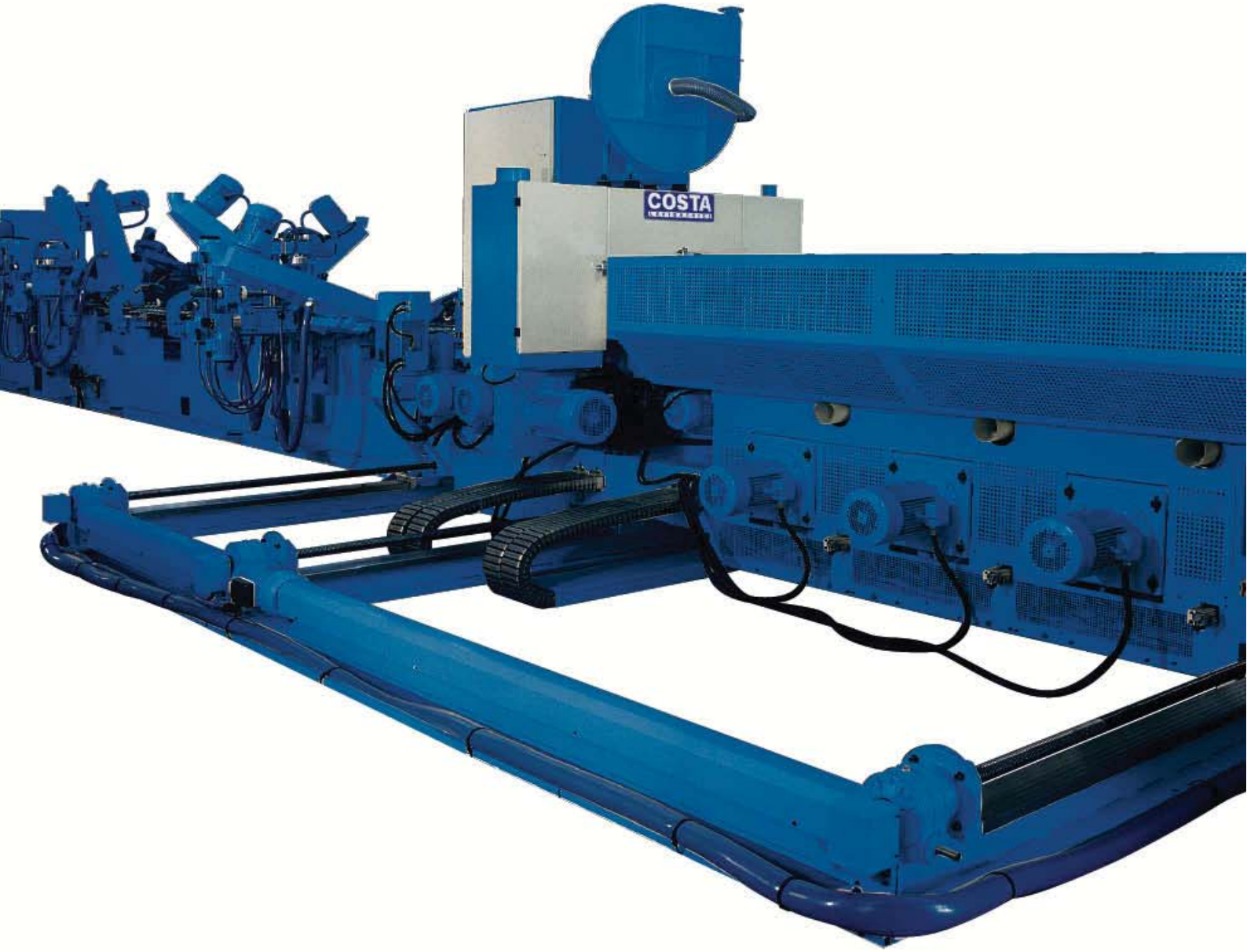


WIDE SANDING BELTS OSCILLATION

The WIDE oscillation of the sanding belts is quite simple, we only need photocels positioned on both sides of the sanding belts.

The OSCILLATION OF THE COMPLETE MACHINE is the most effective of the two systems of oscillation when in line with moulders (or similar operations).

We are compensating not only the wear of sanding belts but also that of the rubber elements (rubber cylinders, rubber feed belts, pad inserts), maintaning for a very long time the accuracy of calibrating-sanding operations of our machines.



The OSCILLATION OF THE COMPLETE MACHINE is obtained in different ways, depending on the rate of oscillation required. needed as the translation speed is very slow.

special features: **FEED & DRIVE SYSTEM**

A uniform feed speed is essential to obtain a constant removal and a fine surface finish (without thickness variations or chatter-marks)

The drive system of Costa Levigatrici machines is constituted by :

- The feed table
- Traction rollers rubber covered of large diameter

- The rubber feed belt

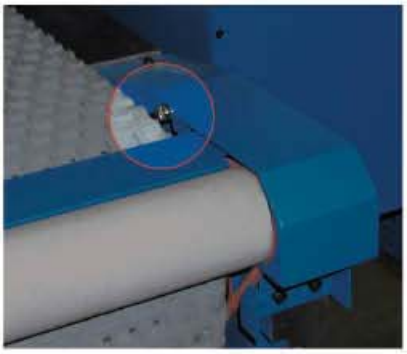
We utilize first-class feed belts with close loop (no joints) with 2-3-4 layers in the internal structure, with a thick layer of rubber to unable several re-grinding operations.

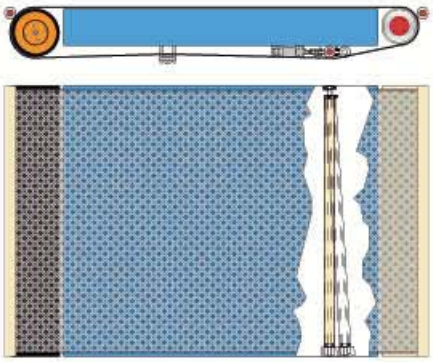
Flat surface
(for thin materials)

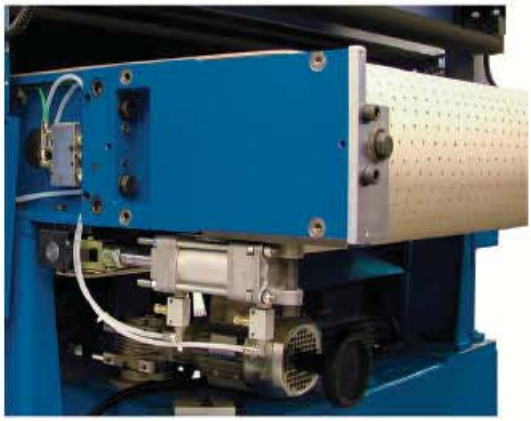
Raised lozenges pattern
(for rough calibration)

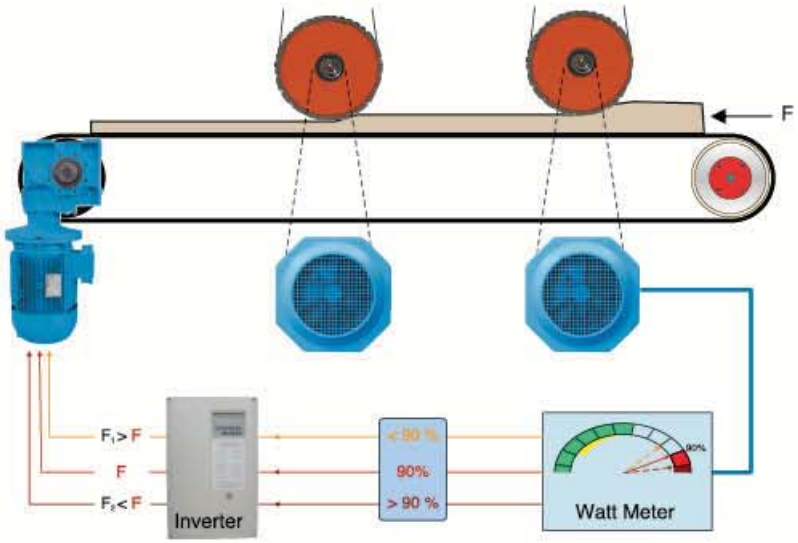
Small diagonal embossed squares (needed with vacuum hold system)

The automatic centering system - safety with double switches.







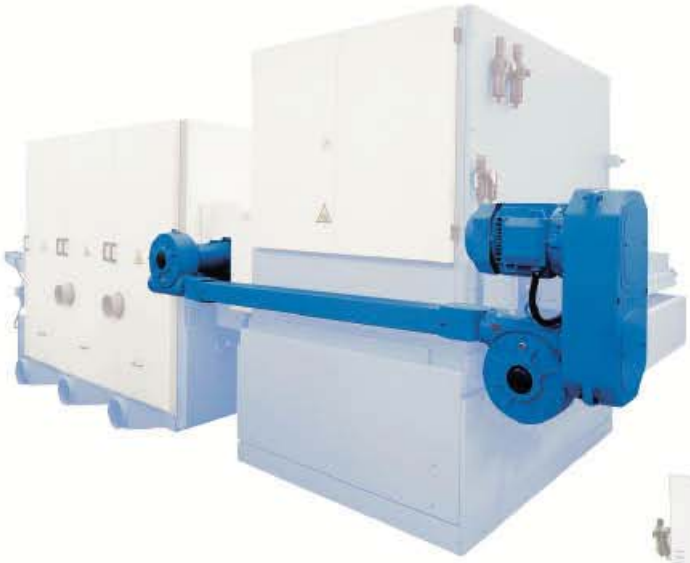


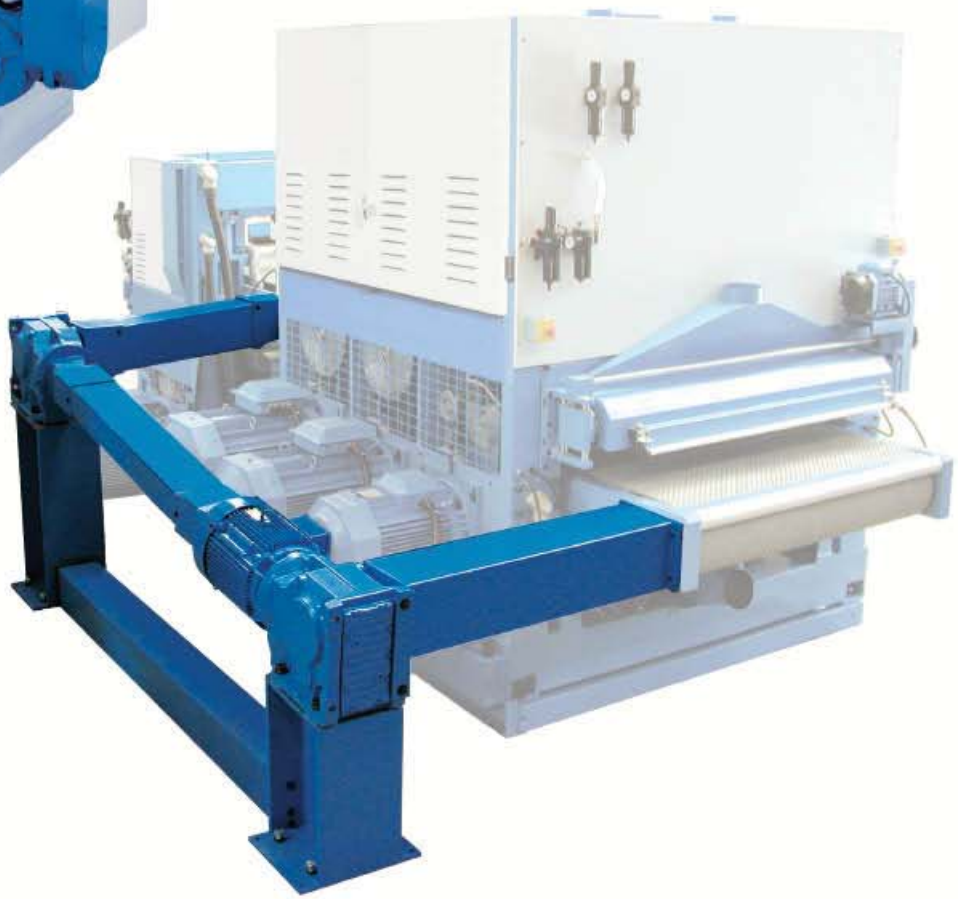
Automatic feed speed control system (optional)

In our calibrating machines is possible to install an automatic feed speed control "in relation to power utilization of main calibrating motors".
With such system we are certain to have the most appropriate machine utilization.
An electronic system is monitoring in real-time the power utilization of the calibrating motors.

CARDAN JOINT

The linkage with a mechanical system (with cardan joint) between the bottom and top sections of our calibrating machines is a typical Costa Levigatrici feature.





two examples of possible mechanical joint on our bottom + top machines

ELECTRONIC JOINT

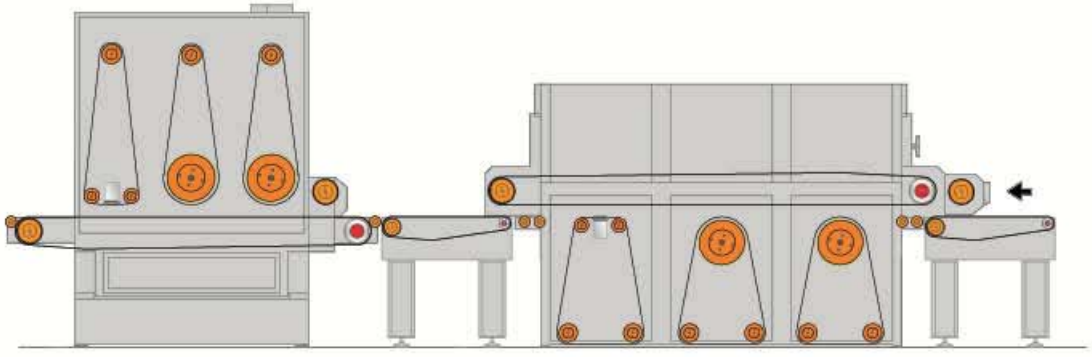
The linkage with the electronic solution is also available in our range of combined bottom + top machines.

To work properly, the system requires an immediate reaction-correction at any variation of speed of one feed belt in respect of the other belt, therefore the motors must be powerful, the electronic speed controls must be very accurate and reliable, and only in this way the system works.

CENTRALIZED THICKNESS SETTING
The thickness positioning of the bottom + top sections of Costa combined machines is made by one centralized thickness programmer (standard).

CENTRALIZED FEED SPEED SETTING
The control of the feed speed of Costa calibrating machines is centralized in one only instrument with digital read-out of value.

centralized thickness adjustment from 0 to 160 mm (standard)

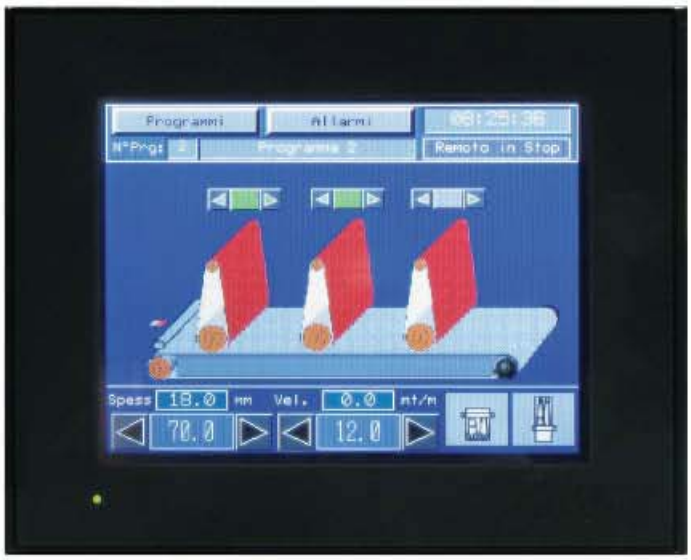


feed speed adjustment variable from 4 - 25 m/min (standard)

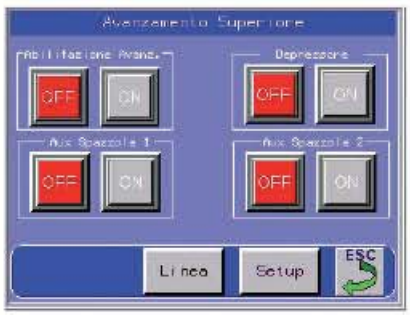
Control system: PLC

PLC VISION

The PLC panel VISION enable the visualization in a touch-screen monitor of the actual setup data and operation of the machine, and to store many complete working programmes. Possibility to program only thickness and feed speed adjustment.
This system is especially useful for calibrating machines, single or double (bottom + top).



In the PLC we have a number of pages available for many machine functions, each function can be stored forming complete working programmes, easy to store and recall with codes.



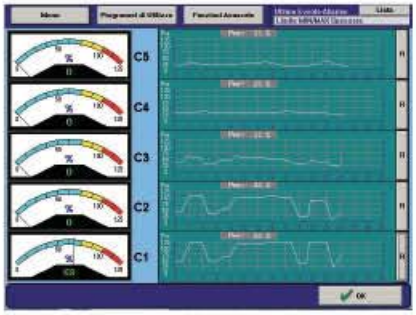
Control System: PC3 - PC/CN

PC3 (optional)
Computer control with interconnecting possibilities

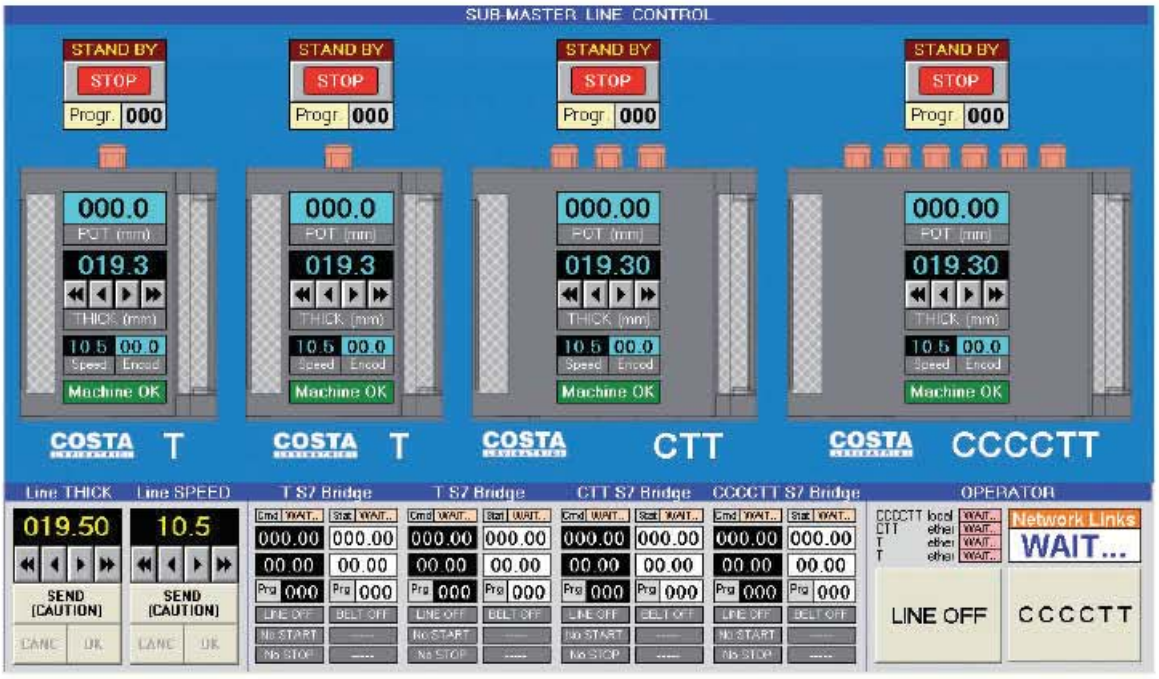
Computer controlled machine
This is a PC working position that can be fully integrated in the company network.
The PC control system allows to pre-set all the working programs; in addition to the total control of the machine, can also give complete production data (*) such: number of pieces processed, working time per each code, square meter produced, compressed air, volume of dust extraction, electric power consumption, etc..

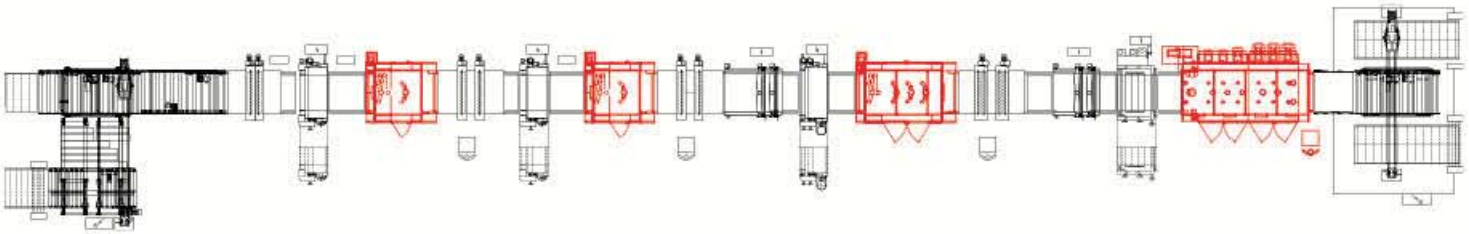
Through a modem we have the possibility to connect directly Costa Service for help and service.

(*) note:
this connectivity to company networks usually require a specific program of comunication.

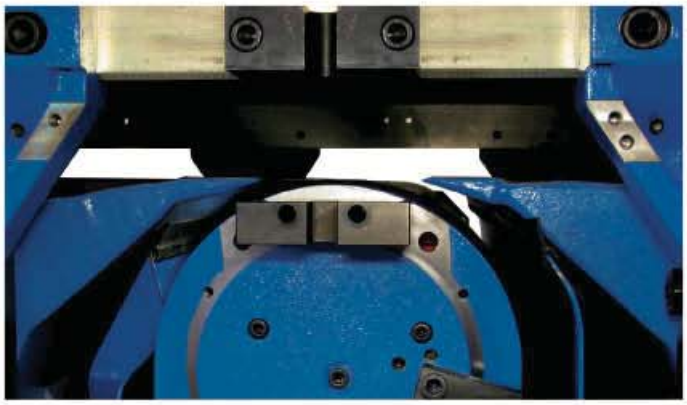


COSTA LINE MANAGER is the programme that is overlooking the passage of data between the different machines in a working line, to allow the control and the change to new working data, by recalling the code number of the work-pieces.
One PC "Line Master" is controlling all machines (or sections of line) with specific programmes and instructions for the sanding machines.
"Service Manager" is operated directly by Costa Levigatrici Service connected via modem with the PCs of the machines installed.





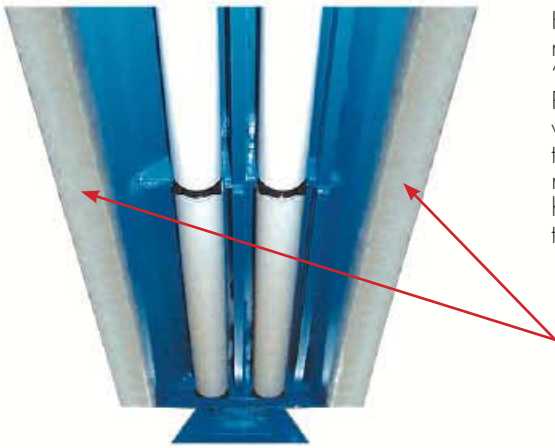
PRESSURE Units



Heavy Duty Pressure Units

The pressure units are mounted on smooth slides, all with variable pneumatic pressure adjustment, to control the load on the work-pieces.

The clearance of the pressure units is very small, so there are no problem of extra sanding in front and rear of the work-pieces.



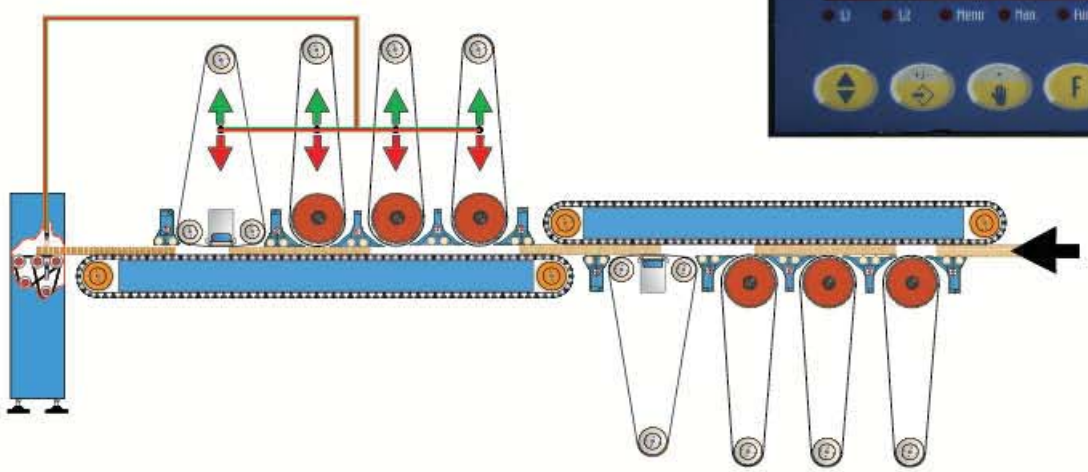
Heavy-duty pressure units with chromium coated or ceramic treated "lips".
Pressure unit (view from underneath) with chromium coated lips; the central part of the pressure unit is with rubber covered pressure rollers in two halves, heigth adjustable with excentric setting.

PLC for the automatic cycle of resetting

The TRM reading system can be equipped with an (optional) PLC to coordinate the cycle of the re-setting process, that is:

Read the panel thickness for a pre-determined length of space or of time;
Confront the thickness of the panel with the value set in the calibrating-sanding machine;
Determine to leave the thickness in the machine as is ....
OR change the machine thickness to a new value, and therefore start the safety cycle for the change of thickness,

Thickness SET in the machine 22.0 mm (for example)
Thickness MEASURED in the TRL 22.1 mm (for example)
The PLC will re-set the machine thickness by closing 0.1 mm
(to bring the panel thickness back to 22.0 mm)



Selective Air Jet Blowers

(for saving energy - lowering air consumption)

SSE - Selective air jet blowers

With electronic control of the position, of the dimension and of the timing of activation of the single nozzles in the areas of utilization of the sanding belts.

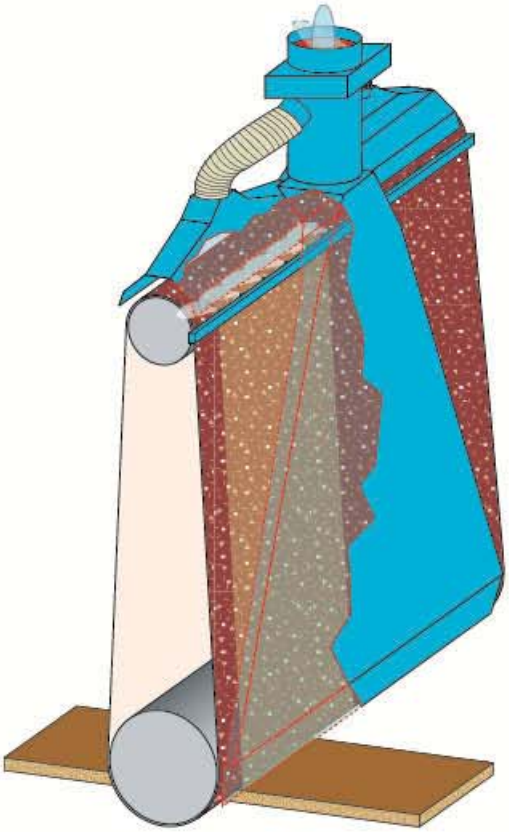
Optimization & efficiency of Air Jet Blowers

The position of the air jet blowers in the Costa machines is by the tension roller because it is far more efficient to clean the dust clogged in the sanding belts when the belt-grit is open.

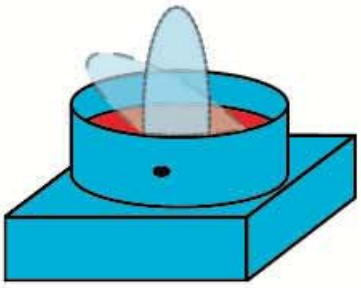
The dust is blown-away from the belts and is directed toward the top dust-hood, that is connected with the main dust hood of the working unit.

The position by the tension roller is making possible the eventual (optional) addition of an extra jet blower bar, recommended when we need to clean fine-grit sanding belts operating on lacquer sanding.

An efficient cleaning is assuring a much longer life time to the sanding belts and is giving a better finish sanded surfaces.



Dust hood valves with electronic control (for saving air requirement)



Centralized dust connectors - this picture is a good example of an efficient dust connector:

- the entrance of the central dust system should be from the front side (since the largest amount of dust is taken away by the front working units);
- wide radius curves should be connecting the machine to the central pipe to keep the air speed high;
- an air speed of 3 ÷ 4 m/s higher than the cutting speed of the sanding belts is recommended, to make sure to easy the flood of the dust particles into the dust hoods.

SCA - Automatic valve for dust extraction control (optional)

A set of pneumatically operated gates are positioned in the top part of each manifold in the area of the connection to the main dust system.

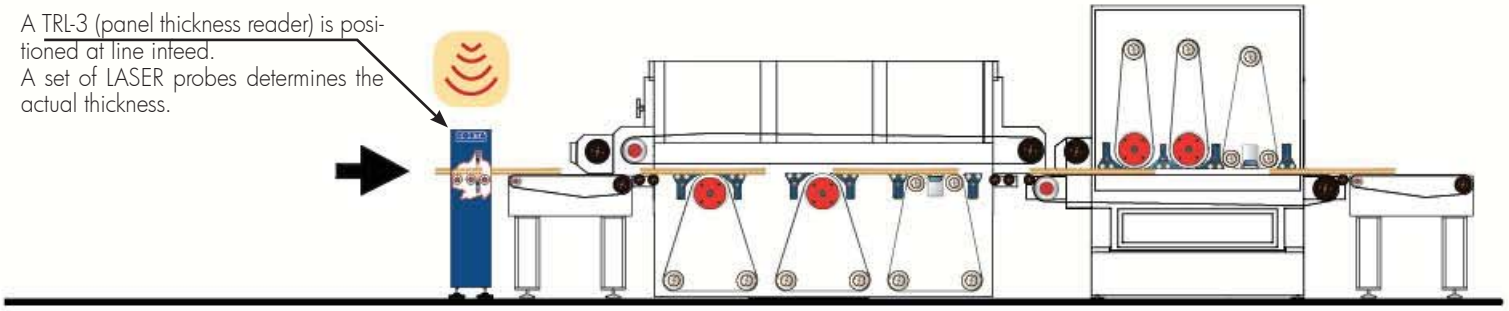
The electronic control of the In-feed Sensing Bar determins the progressive opening/closing of the valves in relation to the presence of work-pieces in the machine.

Automatic control of panels Thickness and possibility to mai

Calibrating Lines with limited availability of POWER

Machines with limited main motor power, in order to keep a reasonable accuracy of process in all circumstances, can be completed with either a THICKNESS CHECK AT INFEED to signal extra thick panels, or with a SYSTEM TO SLOW DOWN THE SPEED OF PROCESS to maintain the required accuracy of the processed panel thickness.

A TRL-3 (panel thickness reader) is positioned at line infeed.
A set of LASER probes determines the actual thickness.



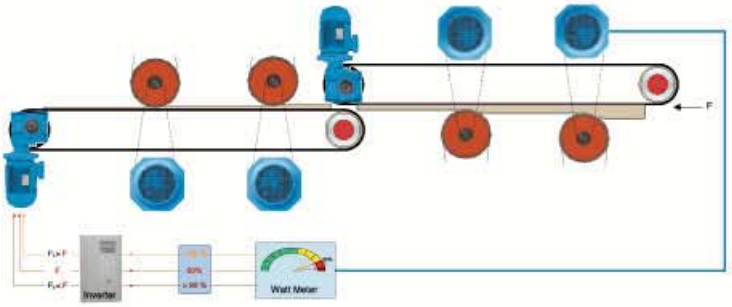
OPTION A: **MANUAL INTERVENTION BY OPERATOR** A "trafic ligth" indicates to the operator the possibility of a correct calibration as follows.

LIGHT INDICATOR			
	Thickness at infeed acceptable for correct process	Thickness at infeed AT the LIMIT of process	Thickness at infeed NOT processable

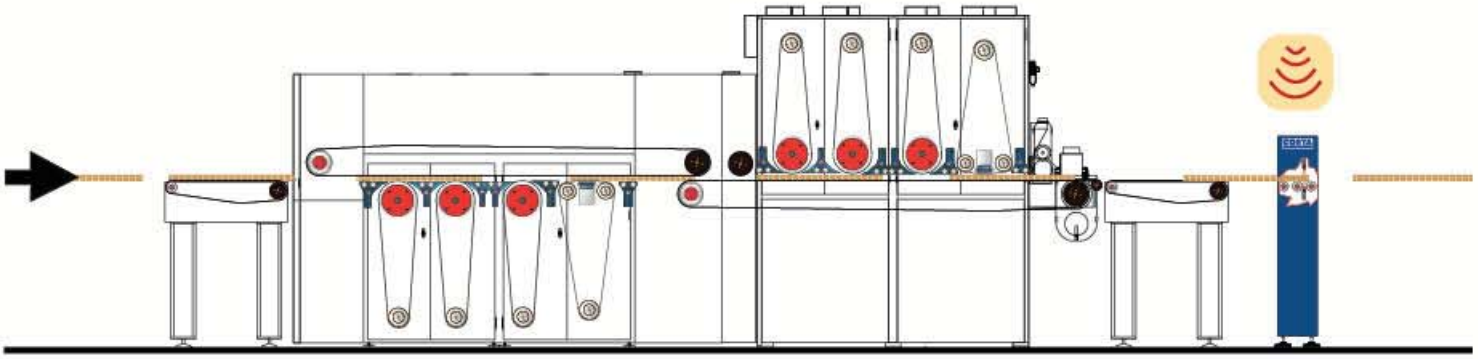
OPTION B: **AUTOMATIC ADJUSTMENT OF FEED SPEED**

A PLC determines if with the present feed speed of the line in relation with the removal required to reach the final thickness and with the motor power availlable are sufficient or not.

With such system we are certain to have the most appropriate machine utilization in relation to power utilization of main calibrating motors".
An electronic system is monitoring in real-time the power utilization of the calibrating motors.



Heavy-Duty Calibrating Lines (TRL in REAR of the machine)



OPTION A: **Positioning a TRL-3 (thickness measuring system) in rear of the machines we can have:**

An accurate thickness check of the actual thickness of the Rigth - Center - Left positions.

The check of the panels thickness tolerance within a range of +/- 0,1 mm in motion.

When the calibrating machine is equipped with a PLC, the automatic re-set of the panels thickness tolerance when we get an increase of the out-coming thickness measurements above a pre-determined amount.

TRL-3 - Thickness reader of panels by bottom & top LASER probes

standard 3 + 3 opposed probes (more laser probes can be installed on request)

TRL-3 is our LASER THICKNESS CONTROL UNIT, availlable on request with our calibrating machines, a measuring machine that assures an accurate reading system via a serie of opposed laser probes.

The TRL is monitored directly by the main PC Control (see the screenshot below). It can be also equipped with its own monitor.
It is possible to change unit scales (english / metrics), the frequency/position of reading, the average value among reading position, and many other functions.
All data is transfered to a PC via USB connection.

TRL-3R

TRL-3F

The TRL laser system is normally controlled and monitored directly by the main PC Control and the group of Laser Probes can be positioned either in front (TRL-3F) or in rear (TRL-3R).

Location: Italy - Veneto

Airports
Venezia: 90 Km - 1h drive
Treviso: 75 Km - 1,5 h drive
Verona: 65 Km - 45 min drive
Bologna: 160 Km - 2h drive

Train Station
Vicenza: 30 km - 30 min drive

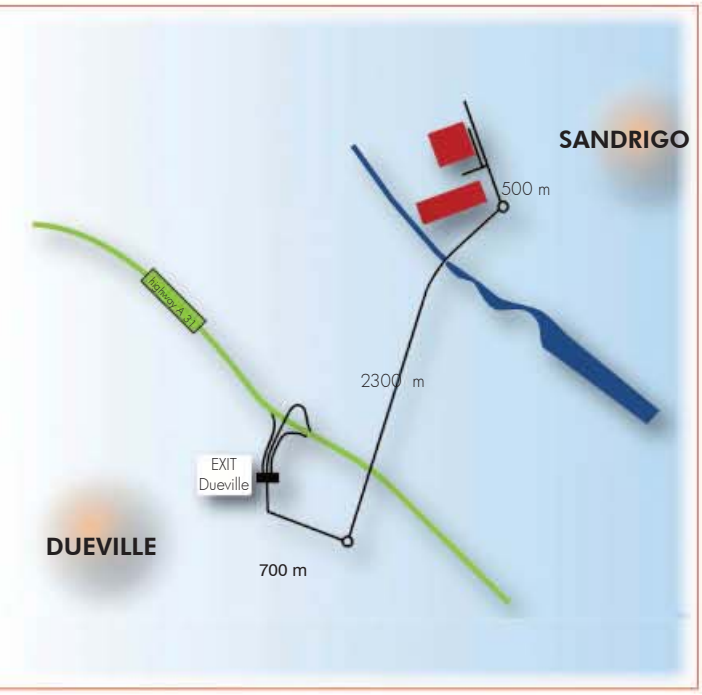
Car Directions

To the Factories in Sandrigo
Highway A31 - Exit Dueville - 3,5 km

To the Main Office in Schio
Highway A31 - Exit Thiene-Schio - 13 Km

Headquarter of Schio Via Venezia, 144 - 36015 Schio

Factory of Sandrigo 2 / Sandrigo3 Via G.Galilei, 5 / Via Galvani, 3-5 - 36066 Sandrigo



We reserve the right to change features without any notice

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