SERIE K

CALIBRATING - SANDING
Machines

Working Widths

650
1350
1650
1900
2200
2500
2800
3000

[mm]

COSTA LEVIGATRICI

ENG

Calibrating - Sanding machines & “high

SEMI-AUTOMATIC CALIBRATING LINE for CORE MATERIAL (plywood) complete with loading-stacking platforms)

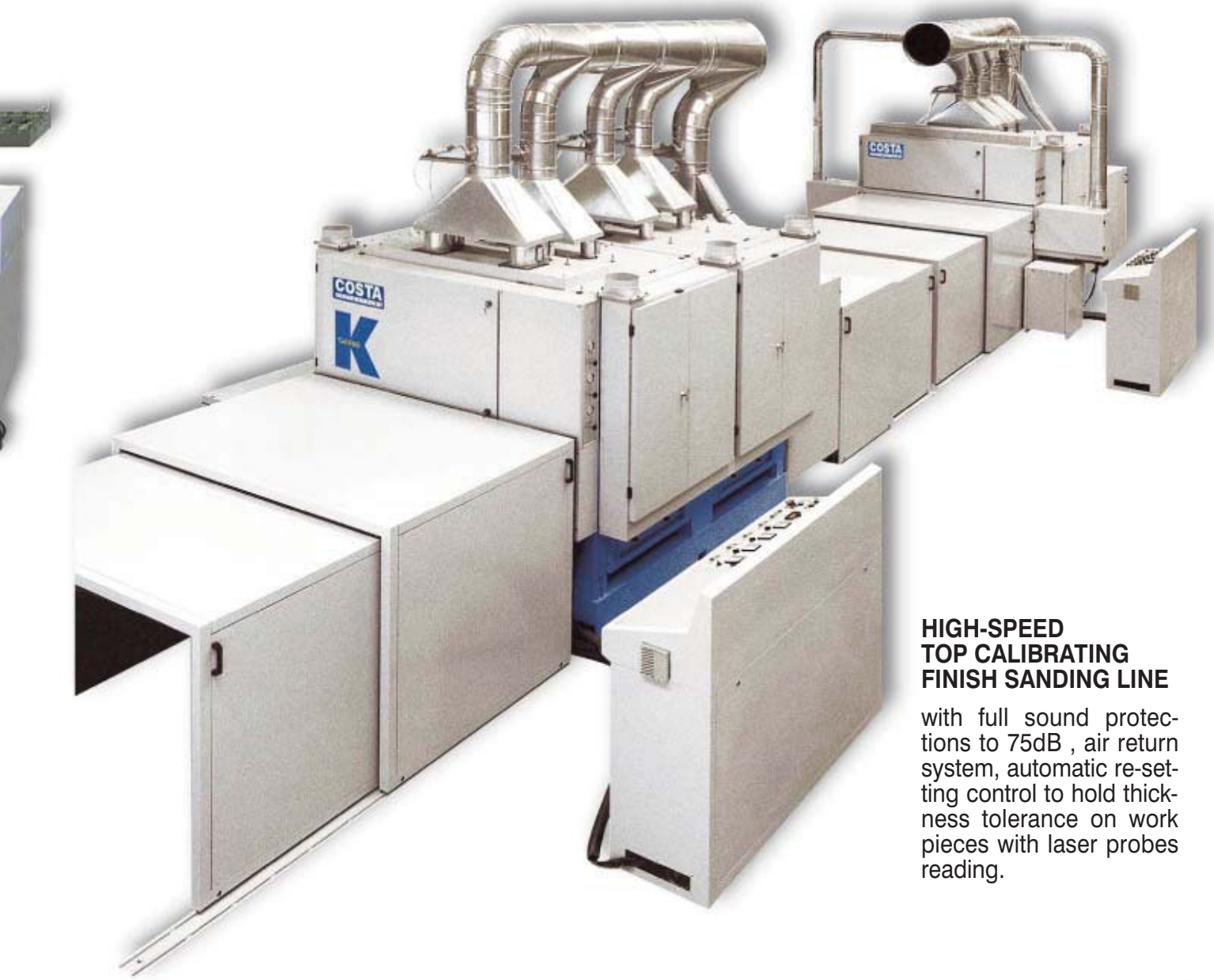
Working Width	1650 mm
Working Speed	30 m/min
Installed Power	270 kW

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.

performance" Production Lines



**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.

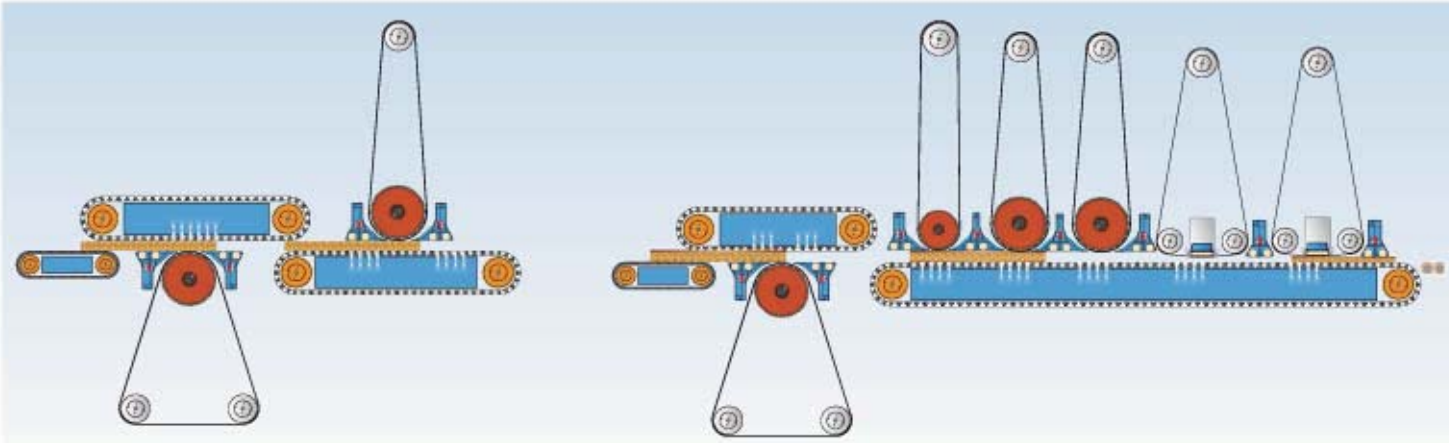
This is a line, integrated with 2 + 2 robots for feeding -stacking very special thin and flexible material, rather hard to calibrate.

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

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

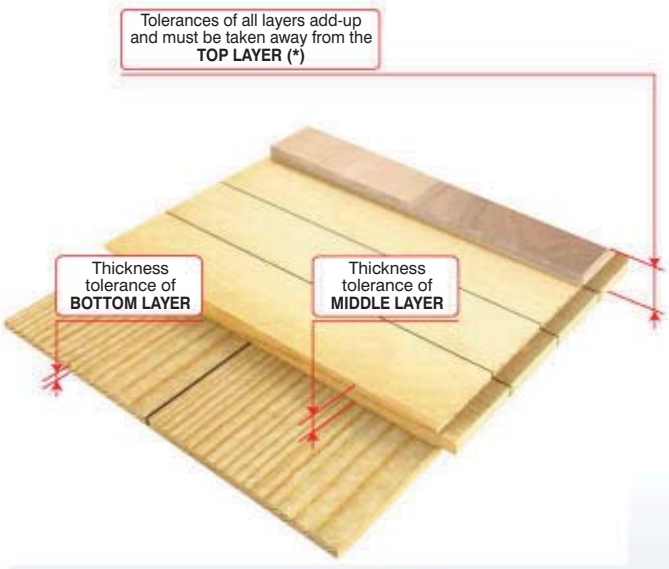
CALIBRATING machines utilized in the PARQUET flooring working cycle either in a stand alone or in first position of the finishing line to dimension the thickness of the planks



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.

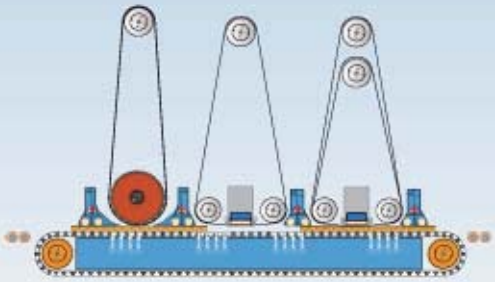
After pressing, the planks must be calibrated-sanded to "perfection" prior to lacquer finishing.
This calibrating-white-wood sanding operation is normally performed in the first position of the finishing line.
A first bottom machine can be usefull to level the back side of the planks, to reduce the take 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.

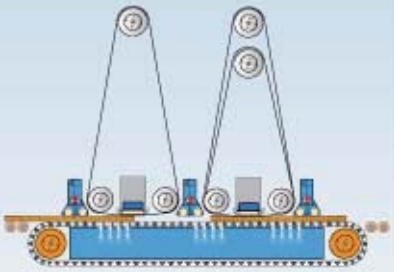


GRAIN HIGH-LIGTHING machine
to brush the grain with steel-anderlon brushes

FILLER SANDING machine
to level the filler applied

LACQUER SANDING machine
utilized in the PARQUET flooring working cycle





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 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 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.

CALIBRATING - SANDING Machines

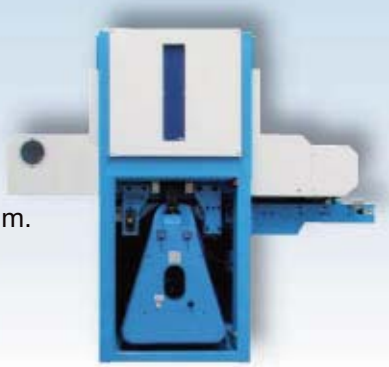
Combined Calibrating - Sanding Machines

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

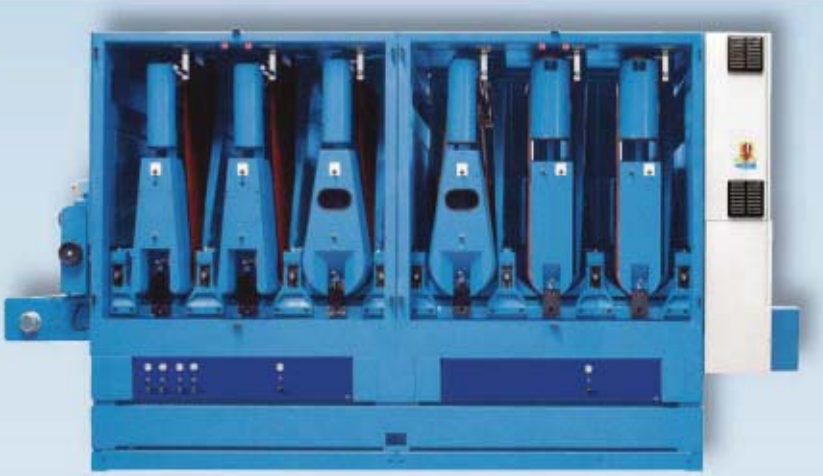
- available with 1 up to 4 working units;
- constant pass-line from floor mm 1000;
- abrasive belt length 2620 mm;
- thickness adjustment from 0 to 160 mm.



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 take-away, 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

W 250/8

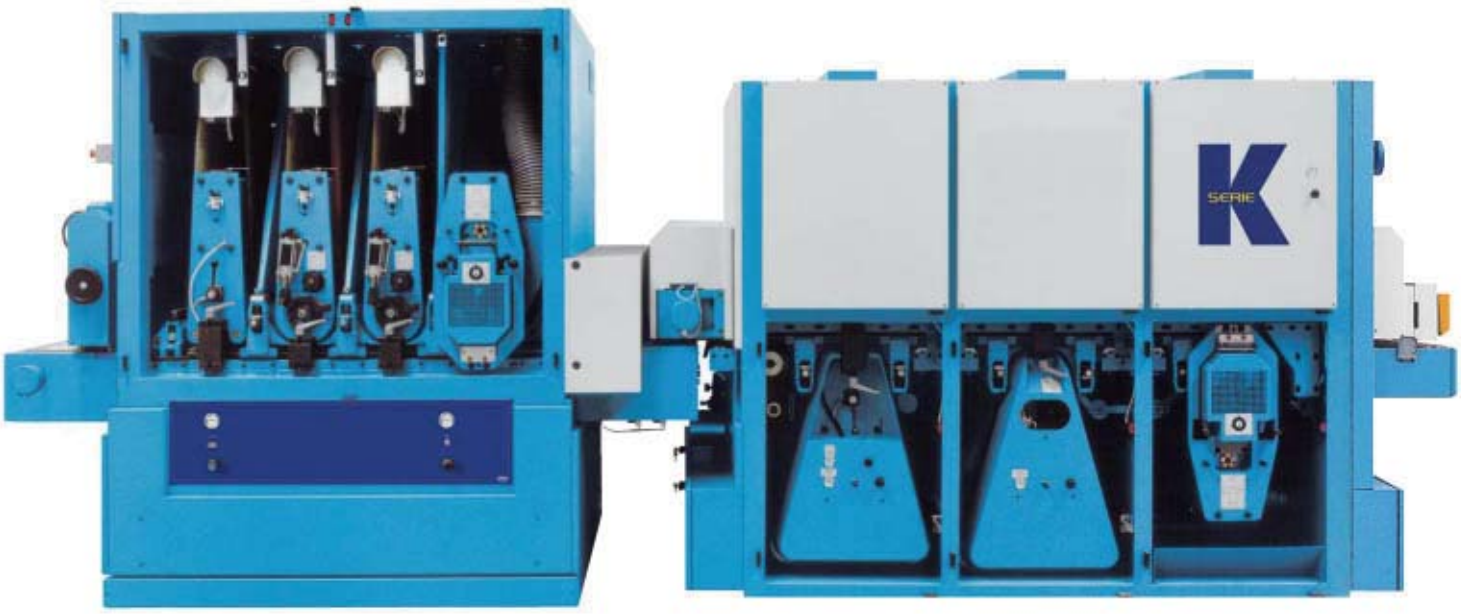
W250/8 is the unit in diameter 250 mm,

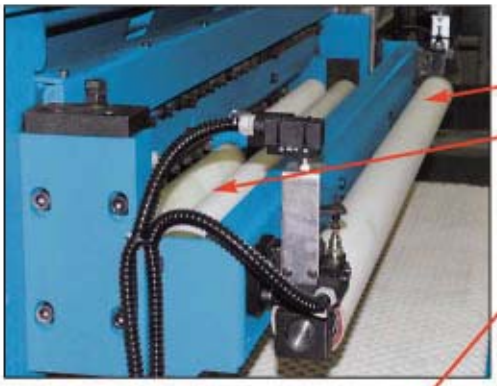
with 8 sequences of inserts

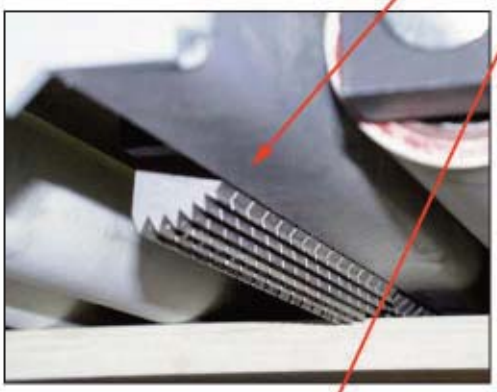
W 250/16

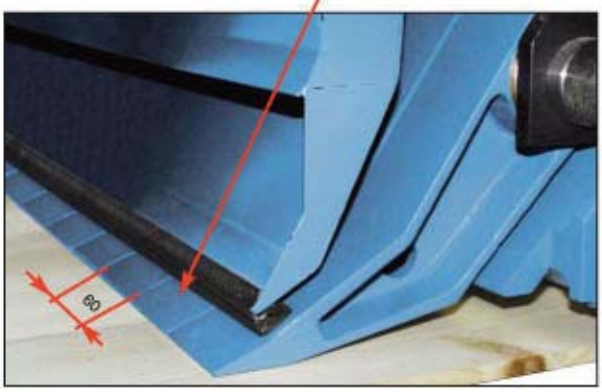
W250/16 is the unit in diameter 250 mm,

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

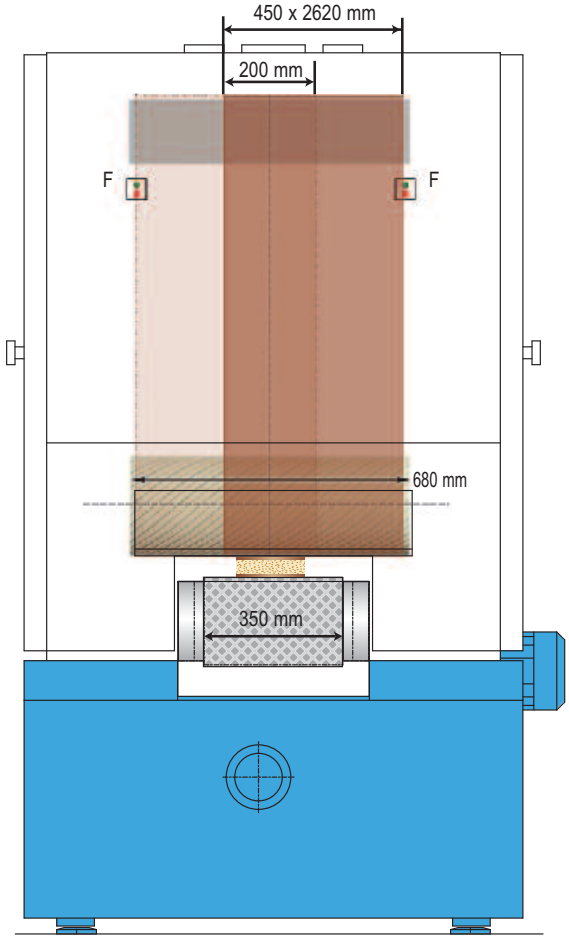
Each unit W250 either top or bottom as well as each spare head unit are standard equipped with trolley for carrying and positioning the heads.

NARROW Calibrating-Sanding Machines

When sanding in line with moulders or with other machines processing narrow work-pieces 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,

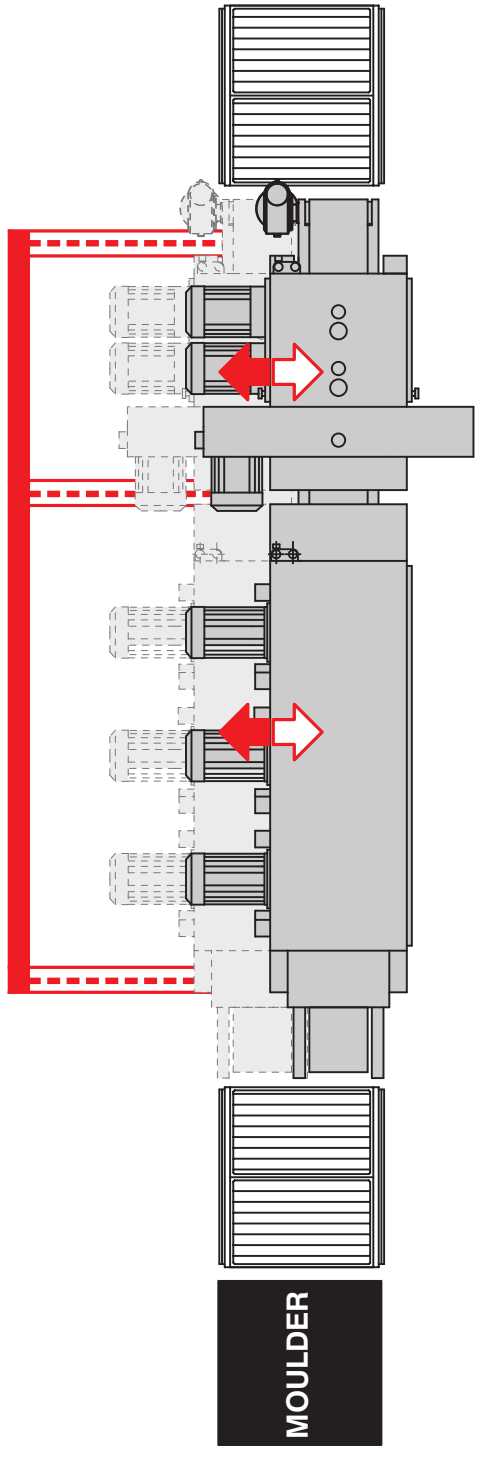
or we can oscillate the complete machine, and in this second case we take care of all wears (rubber belts, cylinder, sanding belts)



WIDE SANDING BELTS OSCILLATION

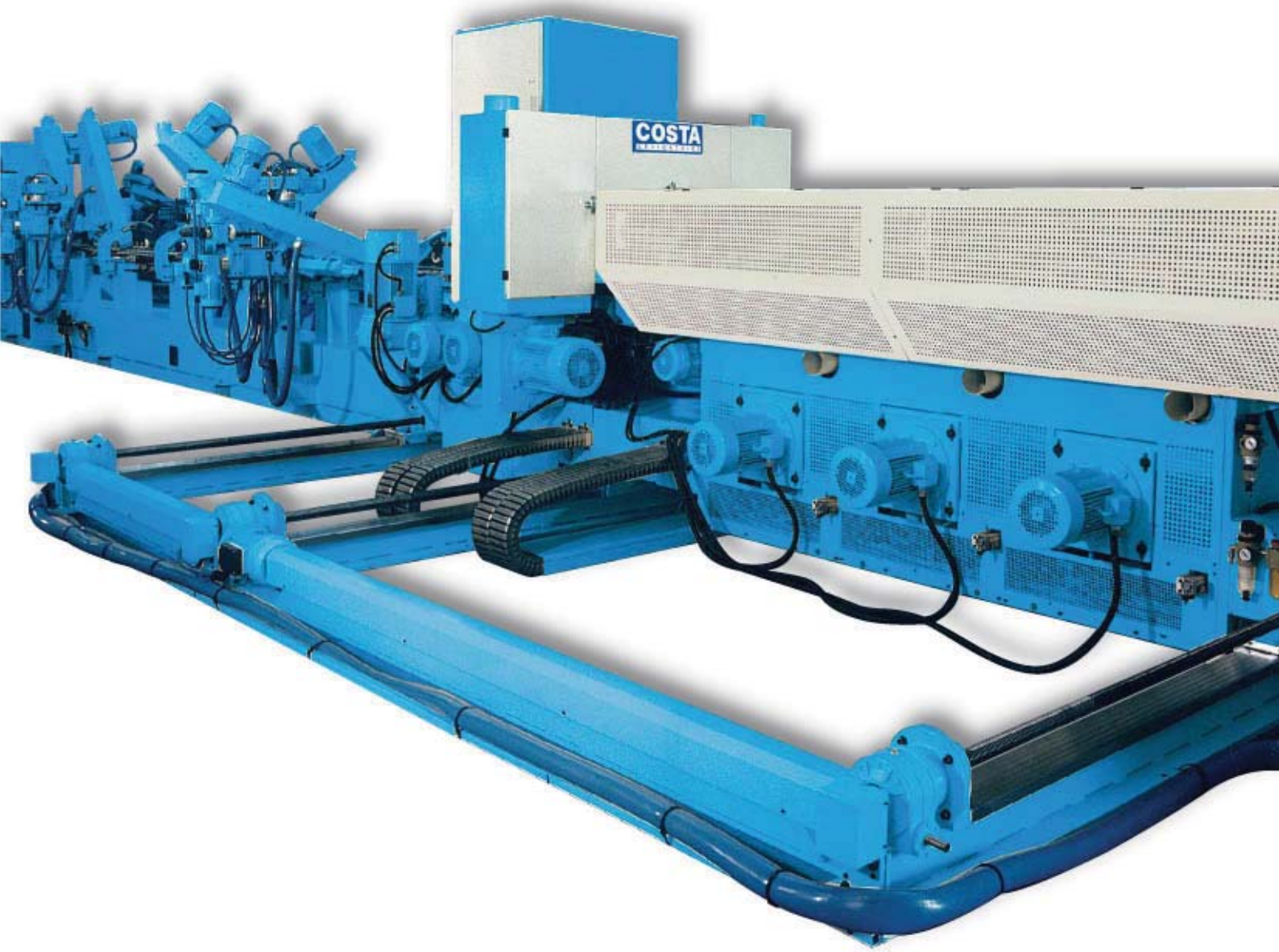
The WIDE oscillation of the sanding belts is quite simple, we only need photocels positioned on both sides of the sanding belts.

(SLOW) LATERAL MACHINE OSCILLATION

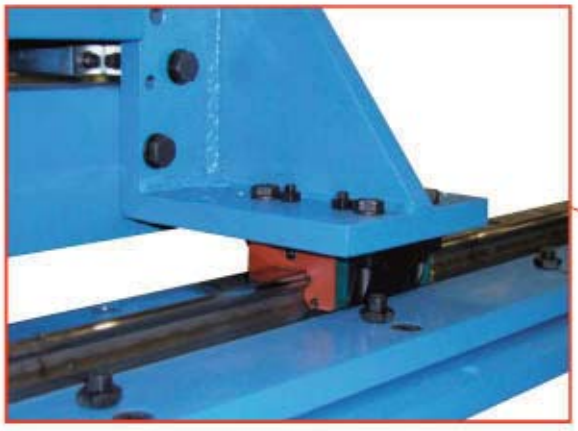


working width 350 - 650 mm , with lateral oscillation

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.



Serie K , special features : FEED & DRIVE SYSTEM

A uniform feed speed is essential to obtain a constant take-away 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

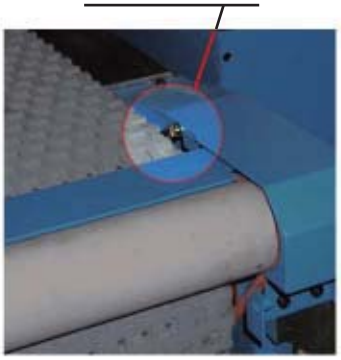
- **The rubber feed belt**
We utilize first-class feed belts with close loop (no joints) with 2-3-4 layers in the internal structure, with a thick layer of rubber to unable several re-grinding operations.

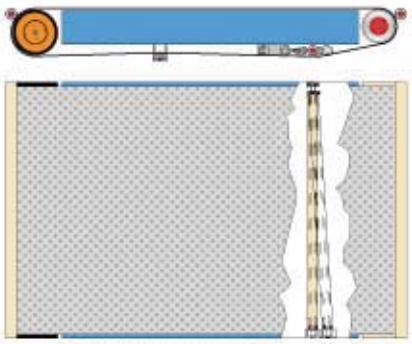
Flat surface
(for thin materials)

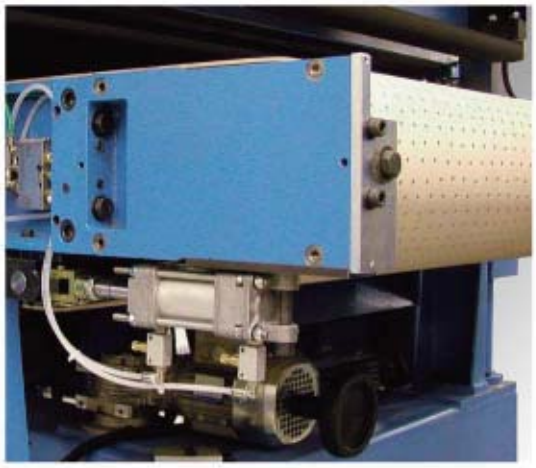
Raised lozenges pattern
(for rough calibration)

Small diagonal embossed squares (needed with vacuum hold system)

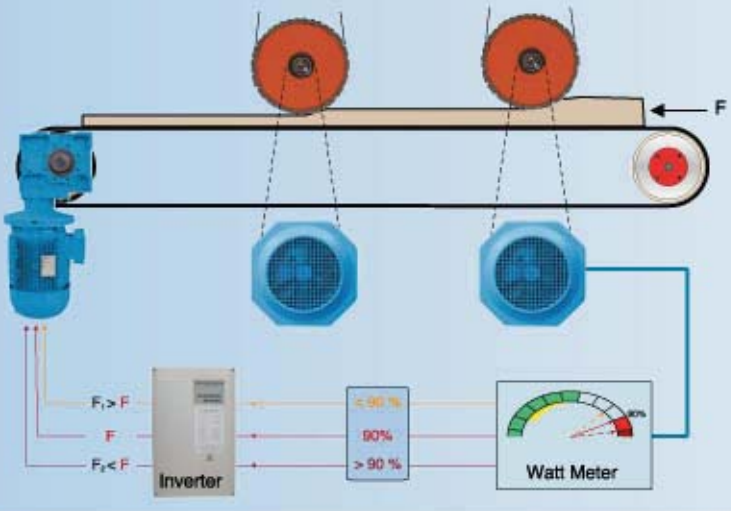
- **The automatic centering system** .
Safety with double switches.







- **The feed drive unit** (see next description and pictures)



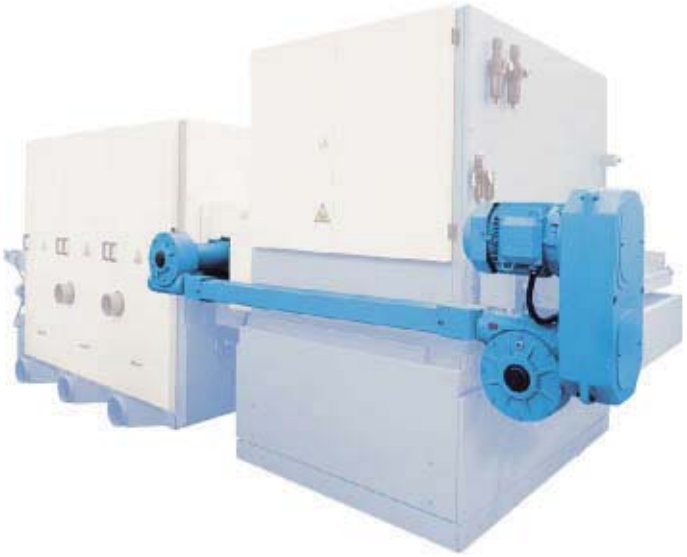
Automatic feed speed control system - (optional)

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.

Synchronization between feed systems of Bottom and Top sections



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

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.

ELECTRONIC JOINT

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

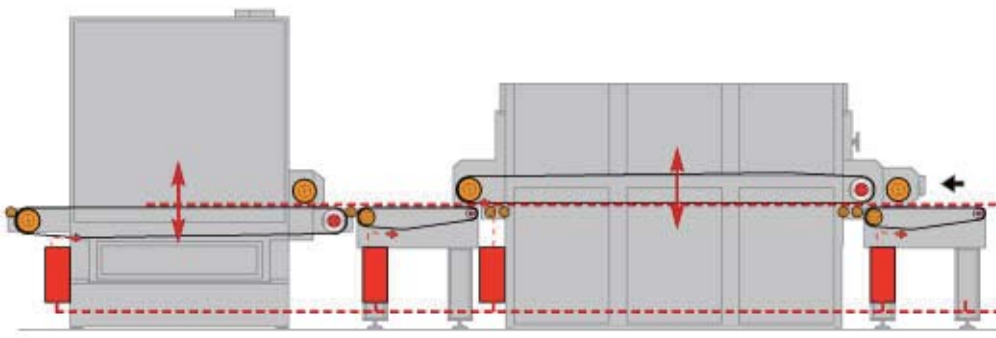
To work properly, the system requires an immediate reaction-correction at any variation of speed of one feed belt in respect of the other belt, therefore the motors must be powerful, the electronic speed controls must be very accurate and reliable, and only in this way the system works

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.



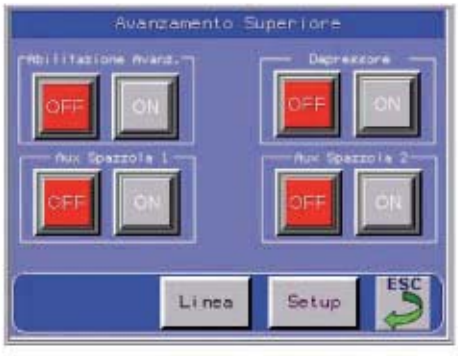
centralized thickness adjustment from 0 to 160 mm (standard)

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

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.

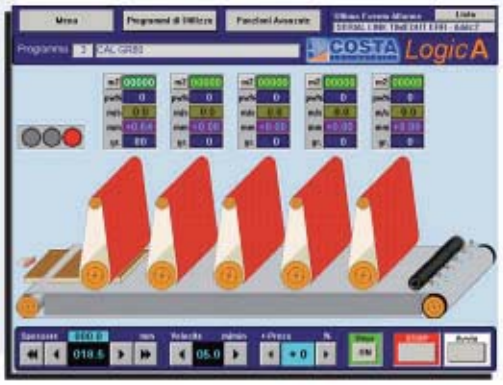


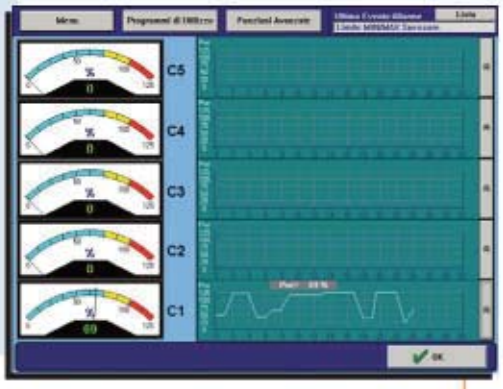
PC3 (optional) - Computer control with interconnecting possibilities

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..

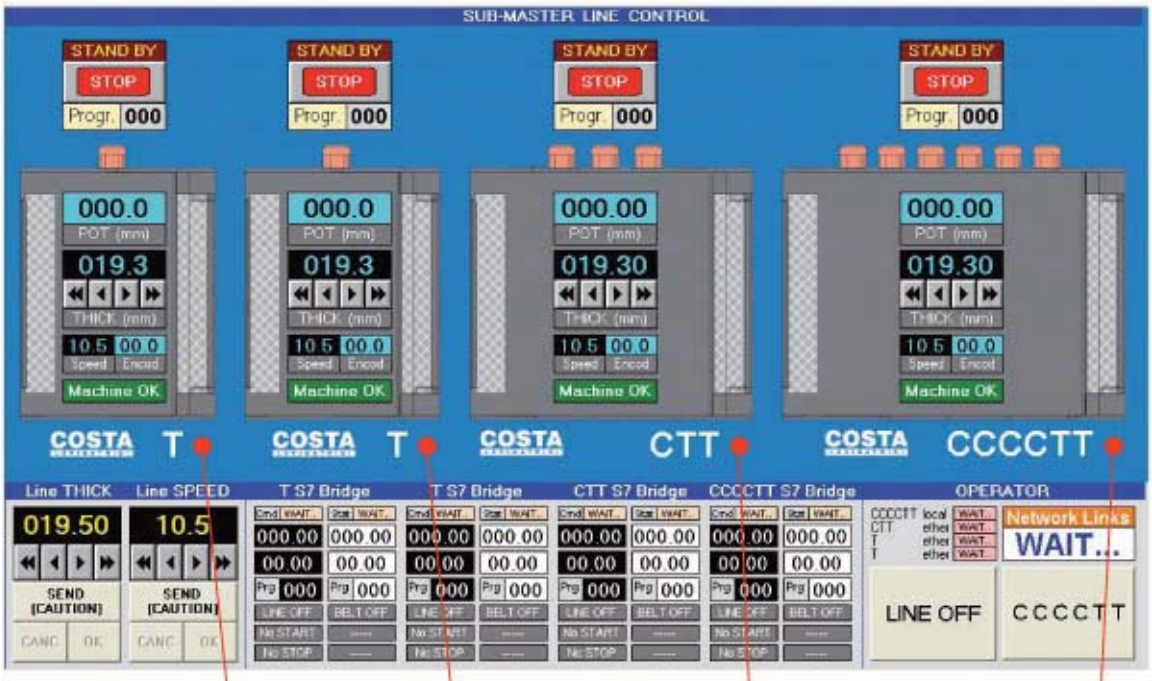
Through a modem we have the possibility to connect directly Costa Service for help and service.

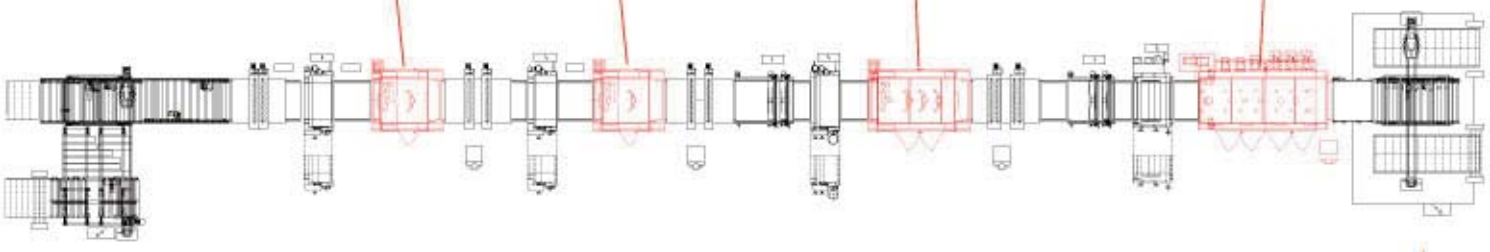
(*) note: - this connectivity to company networks usually require a specific program of comunication.



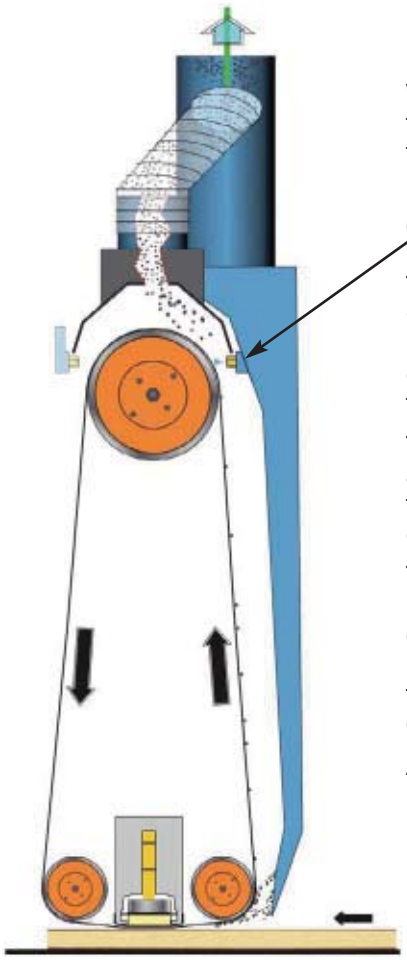


COSTA LINE MANAGER is the programme that is overlooking the passage of data between the different machines in a working line, to allow the control and the change to new working data, by recalling the code number of the work-pieces.
One PC "Line Master" is controlling all machines (or sections of line) 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.





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.

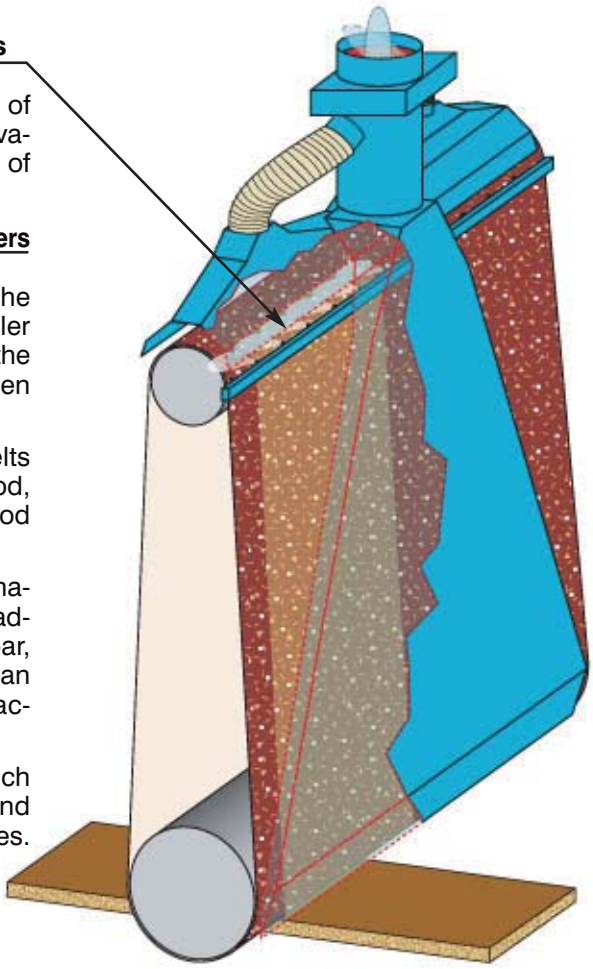
Optimization & efficiency of Air Jet Blowers

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.

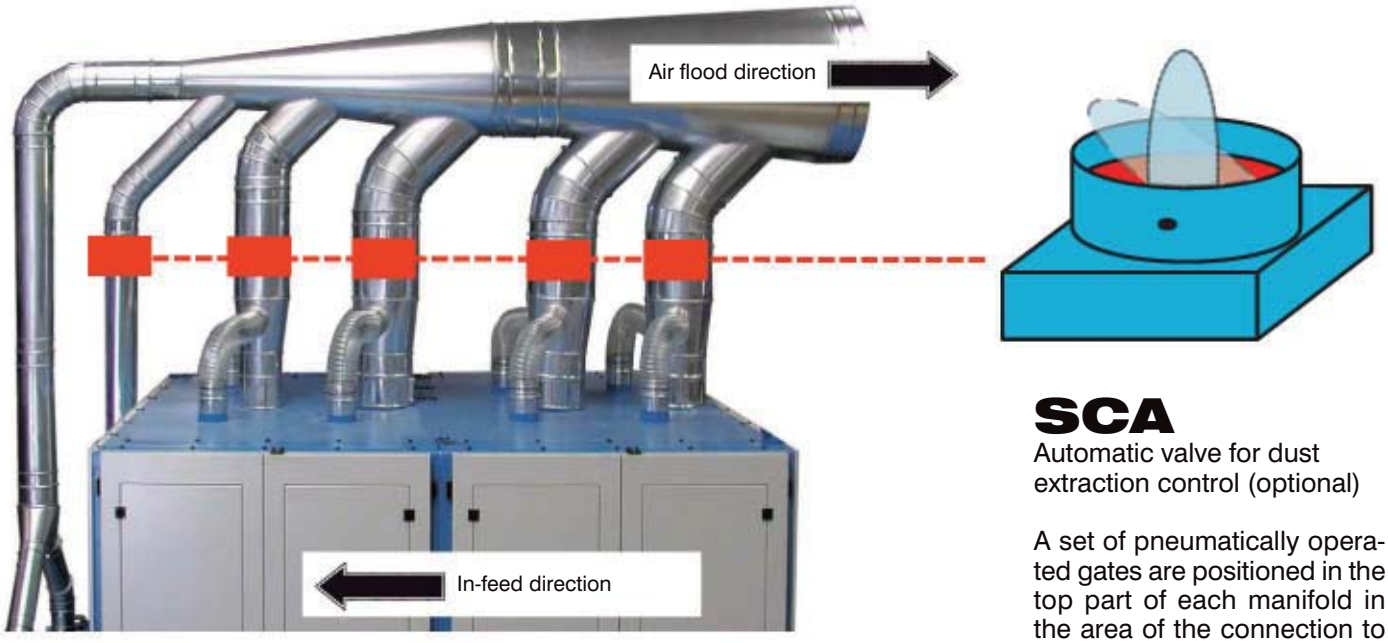
The dust is blown-away from the belts and is directed toward the top dust-hood, that is connected with the main dust hood of the working unit.

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)

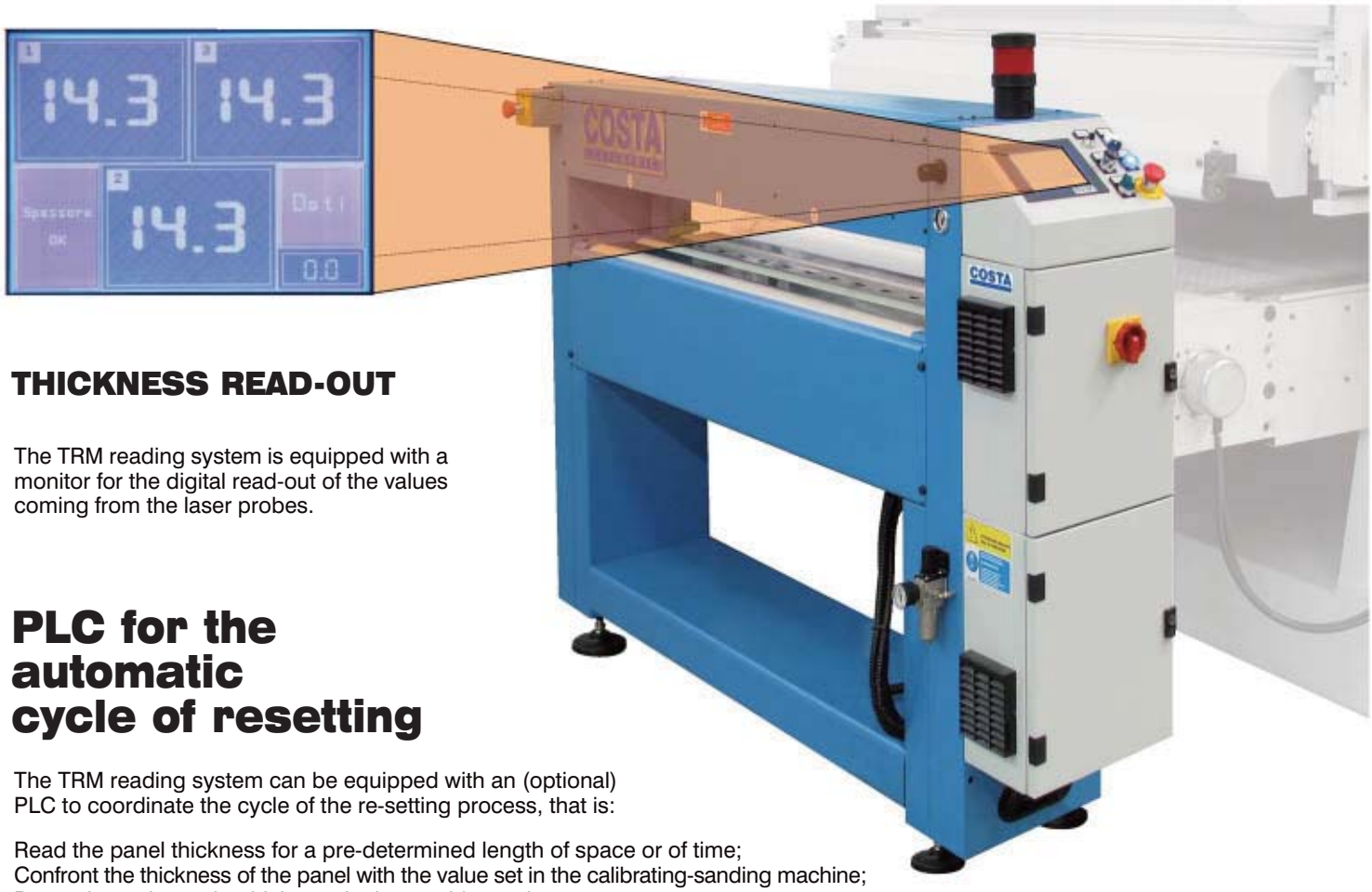
A set of pneumatically operated gates are positioned in the top part of each manifold in the area of the connection to the main dust system.

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 Thickness tolerances

An important "retro-action" control where a set of laser probes keep reading the processed panel thickness, and (eventually) is automatically resetting the machine heigth to the required thickness.

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.



THICKNESS READ-OUT

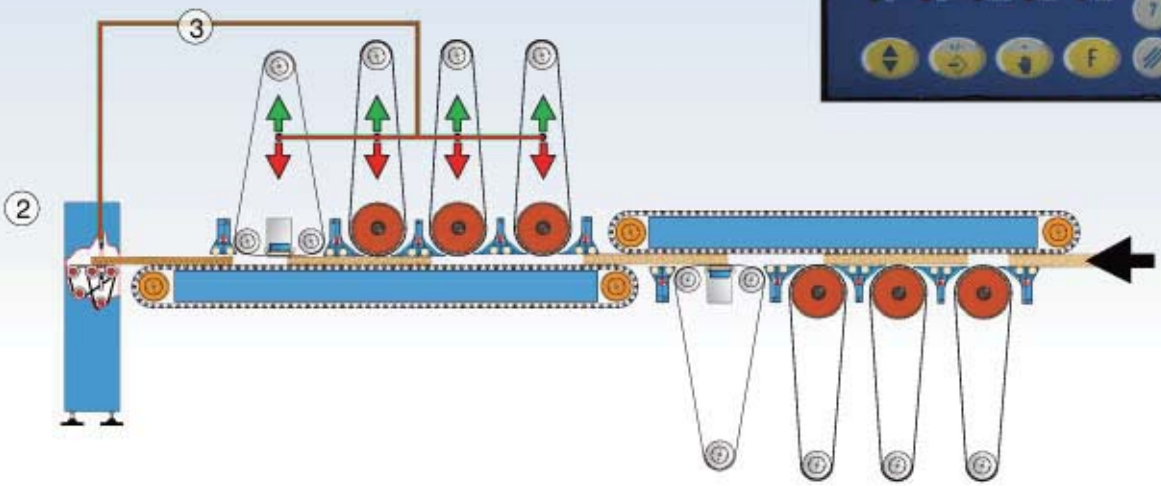
The TRM reading system is equipped with a monitor for the digital read-out of the values coming from the laser probes.

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,

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



The other lines in our range of products:

A SERIE

Universal
Calibrating-Sanding Machines

S SERIE

Sanding Machines

B SERIE

Finishing brushing machines
Structuring machines

COSTA LEVIGATRICI

COSTA LEVIGATRICI S.p.A.
Via Venezia, 144 - 36015 Schio (VI) Italy
Tel. (+39)0445-675000 – Fax (+39)0445-675110
www.costalev.com - info@costalev.com

05 / 09 15(00) - GP