Sanding

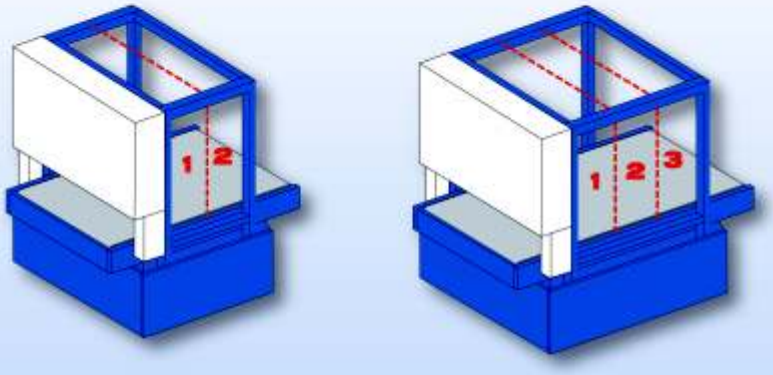
Flexible Solutions for
Wide Belt Sanding Machines

COSTA
LEVIGATRICI

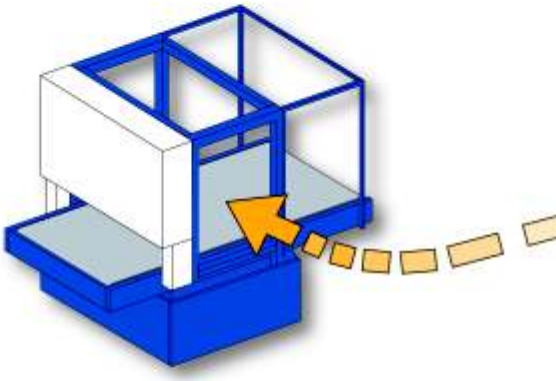
Wide belt Sanding Machines

Series Sanding - Kalibrating: possible compositions

Base frame for 2 / 3 internal units



Possible versions



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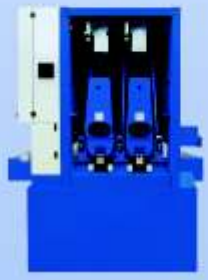

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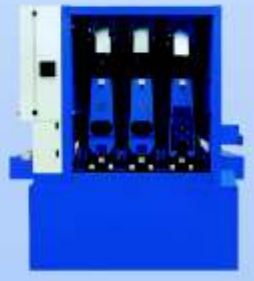

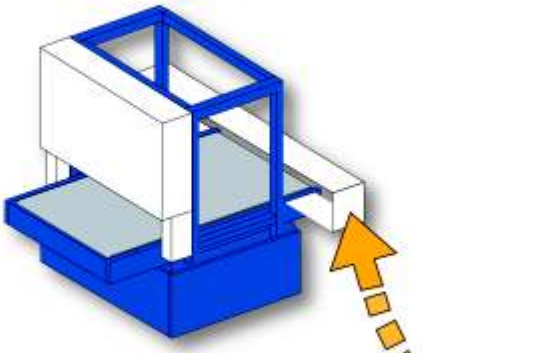

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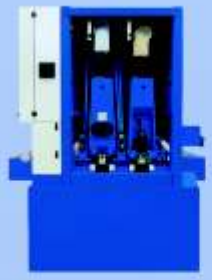

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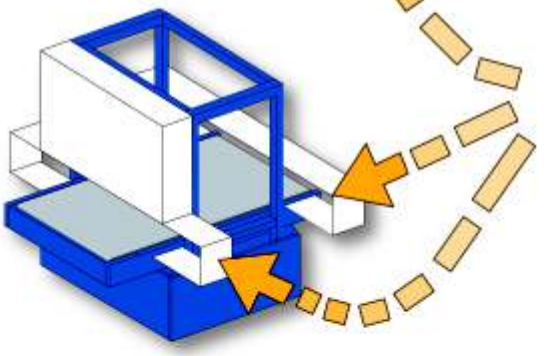

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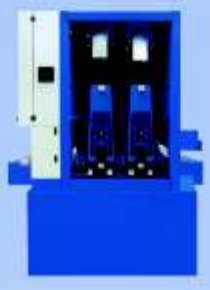

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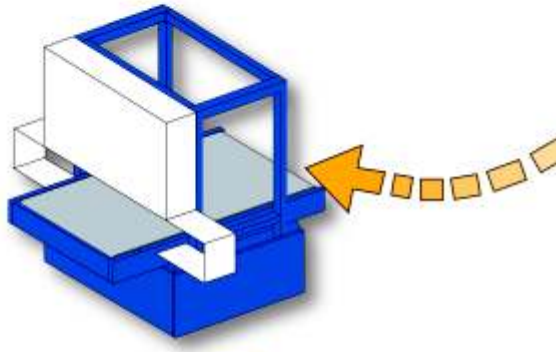

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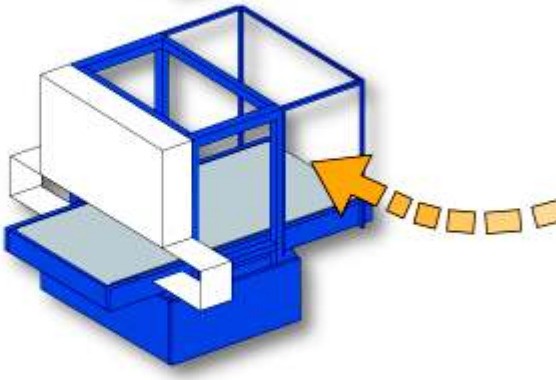


Internal working units

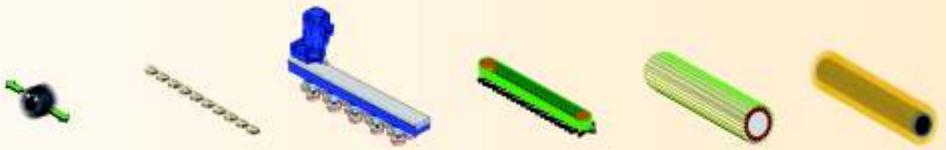
Cylinder

Pad

Superfinish

Combi

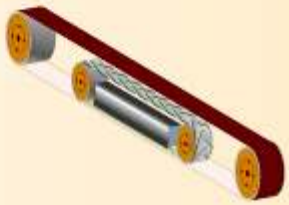
Planer Head



Brushes

External Cross - belts

Cross belt



Panel Cleaning Units in rear

Air jet blowers

Antistatic Bars

Brushes

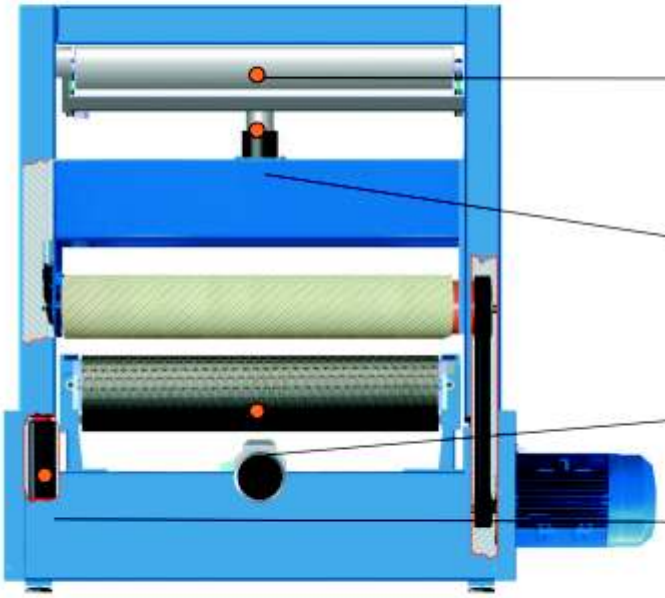
Extra Brush Units in rear cabin

Brushes

Series S sanding - K calibrating: Standard configuration

Frame

The rigidity of the structure is essential to guarantee a perfect process of the panels.
We can have two solutions for our frames, one with the main motors positioned inside the frame (but with a power limit due to the internal space availability), the other with motors positioned outside when the motor dimensions exceed the pitch of the working units.

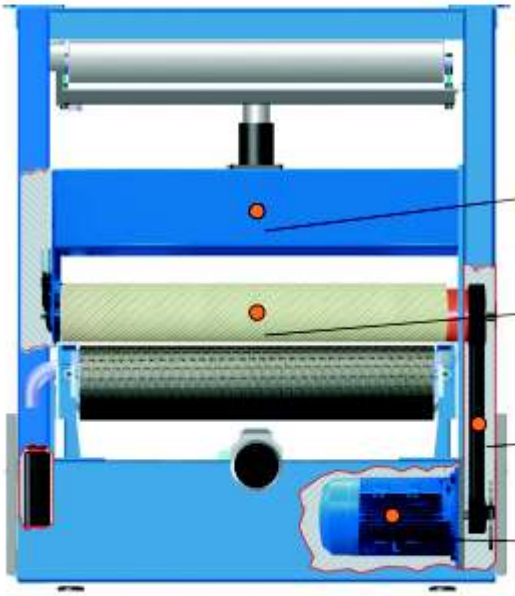


Sanding belts tensioning with large diameter rollers to turn at high revolutions

Tensioning system with heavy-duty chromium coated piston, with automatic system for compensation of (eventual) conicity of the sanding belts

Automatic centering of feed belt standard

Heavy-duty lifting columns for thickness adjustment



Large beam for supporting the working unit and the tensioning system

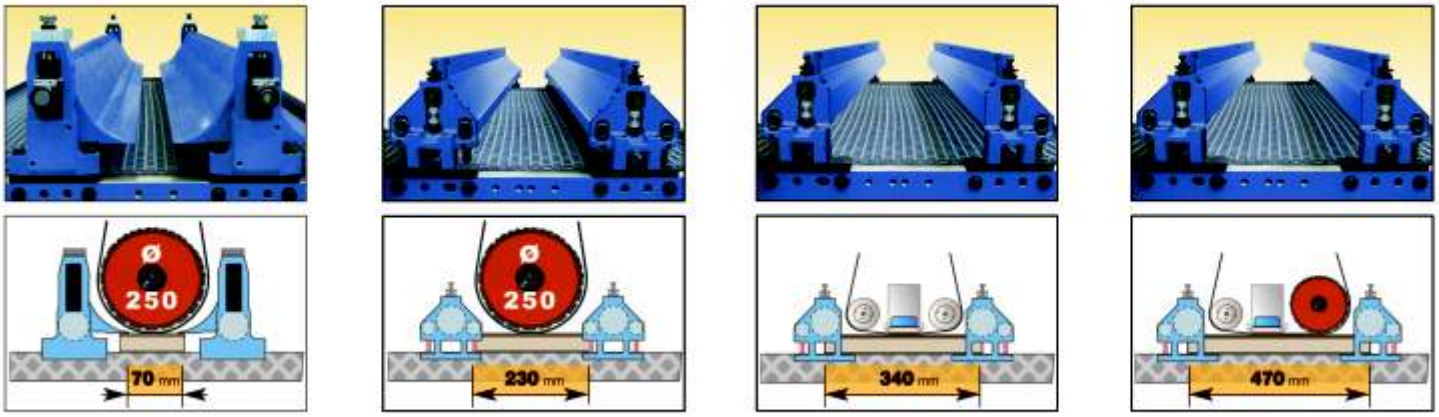
Working unit totally adjustable on right-left sides to reset parallelism.

4 V belts for transfering up to 37 kW, with mechanical tensioning system

Main motor (max 30 kW) with pneumatic disk brakes, inside machine frame for lowest noise emmissions

Pressure units

The safe traction of the work-pieces is determined by the rigidity of the pressure units; at same time these units must be able to adapt to thickness variations of work-pieces, this is the reason why we link them with springs/pneumatic pistons to the machine frame, to be rigid or flexible depending on mode of utilization (calibrating or fine veneer-lacquer sanding).



Feed system designed for heavy duty purposes and long lasting

Rubber feed belts with 3 layers of cloth without joint, for best surface planarity and longer lasting; thick rubber layer on top to allow many re-grinding operations over the years of utilization.

Vacuum intakes positioned under the working units to diminish the requirement of vacuum-power and to concentrate the vacuum pull only where needed.

T1 Steel feed-table with surface hardness of 260 Brinnel for longest lasting grinded to fine finish to prevent internal wearing of the feed belt.

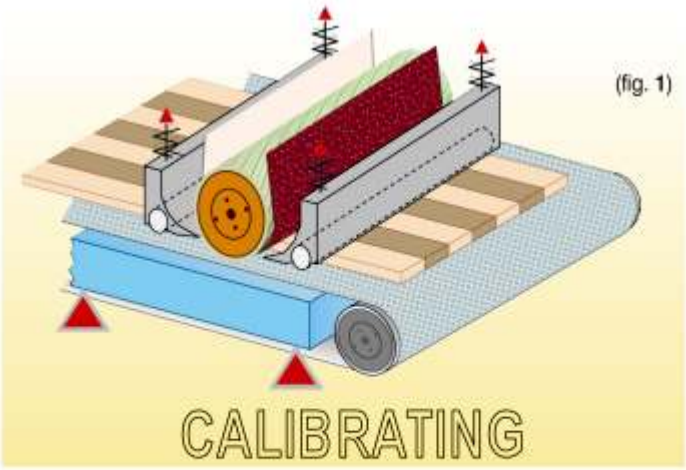
Large driven traction roller for wide contact area, not to stress the feed belt - traction roller rubber covered to increase the capacity of traction and to avoid sliding (that can deteriorate the feed belt).

Feed speed variation controlled by inverter from **3** m/min to **20** m/min

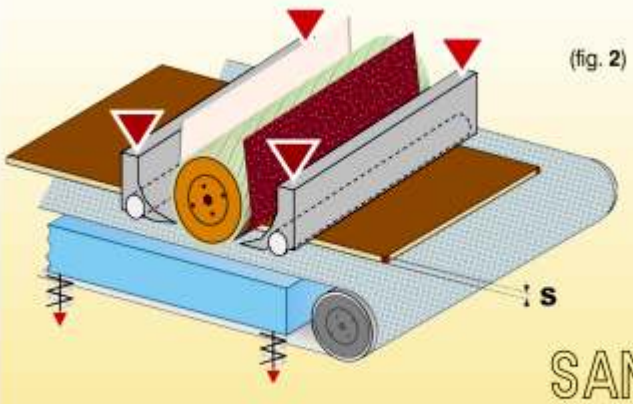
Multifunction feed table: Rigid / Floating

In calibrating mode (fig. 1) the feed table must be rigid to assure a high level of thickness tolerance of the processed workpieces, while the pressure units are free to float.

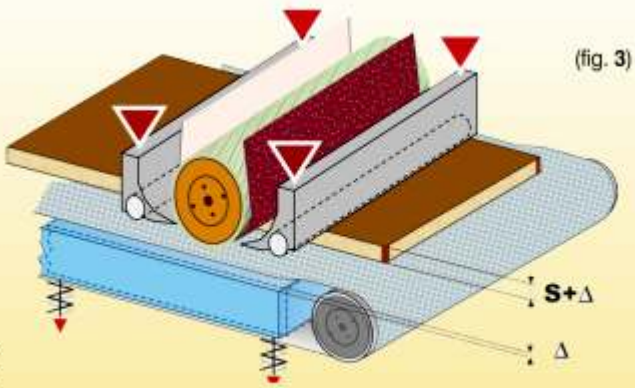
In veneer/lacquer sanding operation (fig. 2) the pressure units are set rigid and the feed table works in a floating mode. - This type of setting allows the levelling of different panel thickness (D) up to a maximum of 2 mm (fig. 3).
Setting operations of feed table and pressure units are automatically made by a quick set device.



(fig. 1)



(fig. 2)



(fig. 3)

SANDING

Working Units of Series S sanding - K calibrating

W1

The planer head W180-8 has a diameter of 180 mm with 8 rows of tips, set helicoidally and with inclined cutting edge in order to have a smooth impact.

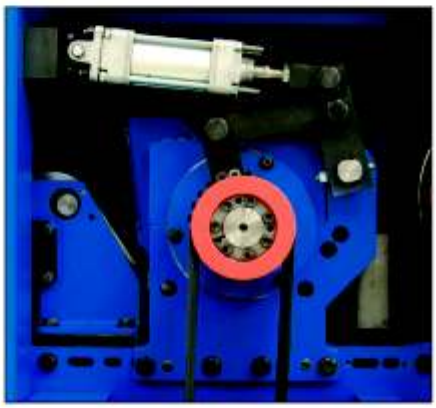
Many the advantages in processing of solid wood panels with W180:

- high amount of take away (impossible with sanding belts), from 0,5 to 1,5 / 2 mm, and up to 5 mm when needed.
- low motor power usage, 22 kW.
- feed speed of production variable from 4 to 8 / 12 m/min.
- low cost of tools, one set of tips lasts for hundred of thousands of meters in a ratio 1 to 20 (in comparison to sanding belts in the same operations and conditions).
- high level of surface finish, the first sanding belt after the planer starts with grit 100 / 120, the second can finish with grit 150.
- very low sanding belt wear (only utilized for finishing).
- good thickness tolerance of panels processed with 1 planer and 2 belt units = +/- 0,1 mm.

Quick & easy system of inspection and servicing of the planer unit W180, with a complete opening of the front side of the machine, the electric console and the control panel being the "door".

Sectioned pressure beams (optional)

Infeed sectioned pressure shoe with pneumatic control, sections pitch 65 mm.
(View of working unit without protection covers)



W-Set

W-set pneumatic for easy on-off setting of the W180 unit from its working position, from the main panel.

Carbide inserts n° 504
dim. 14 x 14 x 2 mm

W1 - E (Optional)

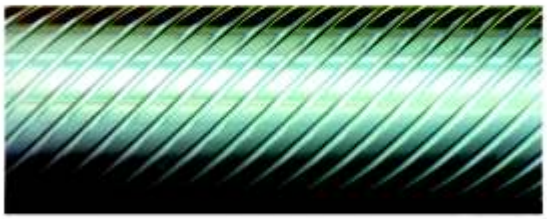
The planer head W180-E is complete with trolley to carry the planer head, with a new semi-automatic system to take the heads in or out.

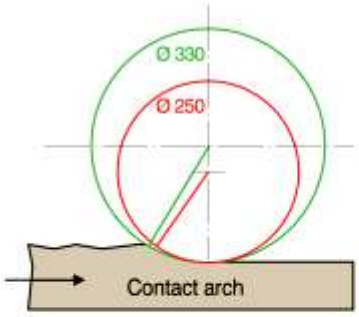
C25 - C33

You can have rubber covered or steel surface cylinders depending on utilization at same cost.

The rubber hardness determines the level of adaptation of the sanding action of the cylinder on the panel surface in white-wood/lacquer sanding operations.

A soft rubber covered cylinder has more adaptability to the unevenness of the surface therefore is preferred for veneer-lacquer sanding operations, while a hard rubber cylinder has less or no adaptability to the surface (thus better for calibrating operations).





For calibrating a smaller diameter cylinder is more aggressive, the angle of contact is more open, the surface of contact is narrower, this means less fritction and more take away.

GSE Electronic Grit-Set (optional)

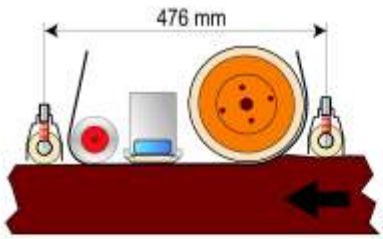
Centesimal positioning of the working level of the cylinder unit.
Exclusion of cylinder in emergency (stand-by)

GSP Pneumatic Grit-Set (optional)

To position by pre-set steps the working level of the cylinder unit. - Exclusion of cylinder in emergency (stand-by)

UCK

Combi unit cylinder + pad - a multifunctional unit to calibrate and to fine-sand with the utilization of one or the other of the two units (or both at same time)

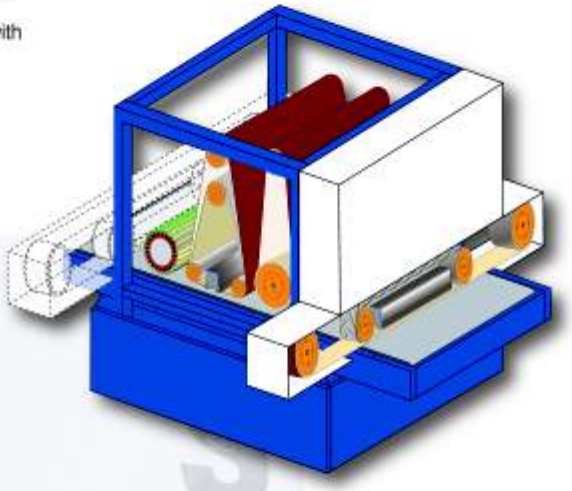


- Cilinder rubber covered Ø 200 mm, with a fine positioning system, with electronic grit-set (opt) or with pneumatic control in-out (standard)

- T1 pneumatic pad unit standard, or (opt) electronic controlled sectioned pad CA32 with pitch of sections 32 mm or CA16 with pitch of sections 16 mm, utilized for finishing sanding operations.

X - Cross belt units

Is utilized to smooth the grain of the wood-veneer and also of the lacquer surface to easy the longitudinal sanding operations, help flattening the surface of the panels.
The cross belt unit is standard equipped with the electronic controlled sectioned pads TPR32 with 42 sections/1350 pitch 32 mm (opt. TPR16 - 84 sections/1350 pitch 16 mm).

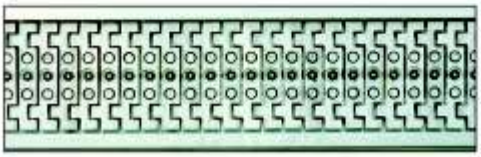


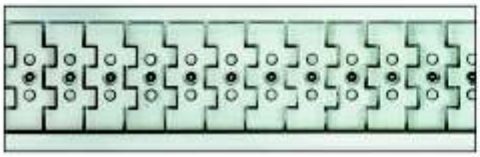
X7 - External Cross-Belt Units

The Sanding and the Lamellar belts are running at different speed to improve the quality of surface finish, especialy indicated for high-gloss processing.

CA - Electronic controlled sectioned pads

This is the classic sanding unit for finishing the surface; they give an ideal protection of edges and corners of panels; the wide surface of contact is giving a flat look to the work-pieces surface. The sectioned pads with electronic control of the timing of intervention and of the pressures of utilization can compensate thickness and planarity differences up to 2 mm.



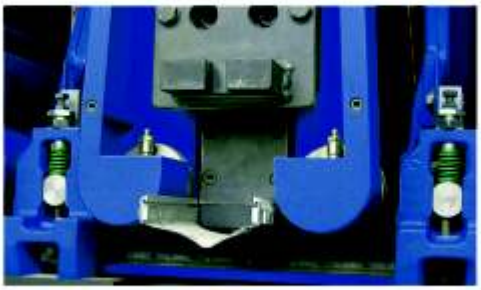


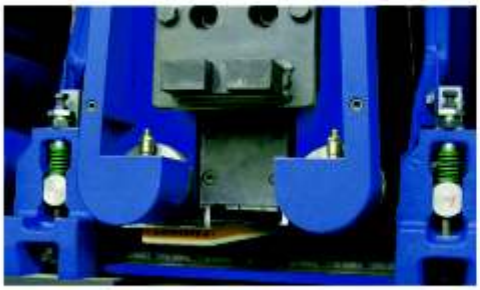
CA 16

pitch of sections 16 mm
n° 84 sections with a working width of 1350 mm

CA 32

pitch of sections 32 mm
n° 42 sections with a working width of 1350 mm





Quick - easy change of graphite cloth and inspection of the felt-rubber and of the steel blade inserts

TSF - Superfinish unit

The working pressure of the pad sections is applied onto the abrasive belt through an intermediate lamellar belt (running at different speed than that of the belt).
This sequence of homogeneous pressure application assures an higher level of surface finish thank to the contact of the felt lamellas on the abrasive belt, preventing the transmission of scratches or defects (caused) by the graphite cloth. This "superfinishing" process assures a very homogeneous surface finish even with very fine grit belts, a result very important in the staining process, thank to the high uniformity of absorption of the stain in the surface.

The Superfinish unit requires the abrasive belt length of 2620 mm (1).
The lamellar felt belt (2) has a length of 2120 mm.

The lamellar belt gives further advantages:

- the air flow between the felt stripes of the lamellar belt cools the abrasive belt;
- it is possible to utilise pads wider than normal;
- utilizing lamellar belts with different ratio full/empty of the lamellas, it is possible to diversify the finishing of the surface;
- thank to the independency of the tensioning and tracking systems, in case of necessity we can take out the lamellar belt and work with the sanding belt only.

Both the lamellar and the abrasive belts have their own tension system independent one another (to be able to work also without lamellar belt, just with a standard sanding belt)

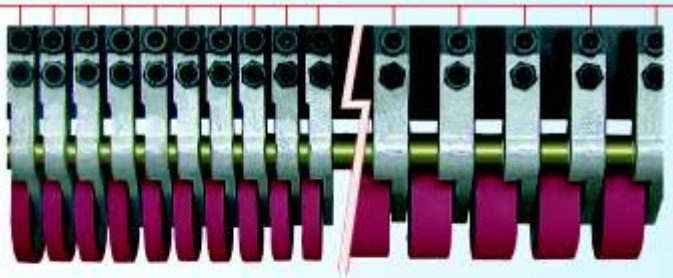
The pneumatic control are positioned in the sanding belt insertion side.

Finishing Units of Series S sanding - K calibrating

ELECTRONIC CONTROLLED SECTIONED PAD COMPLEX : THE MECHANICAL INFEED SENSING BAR

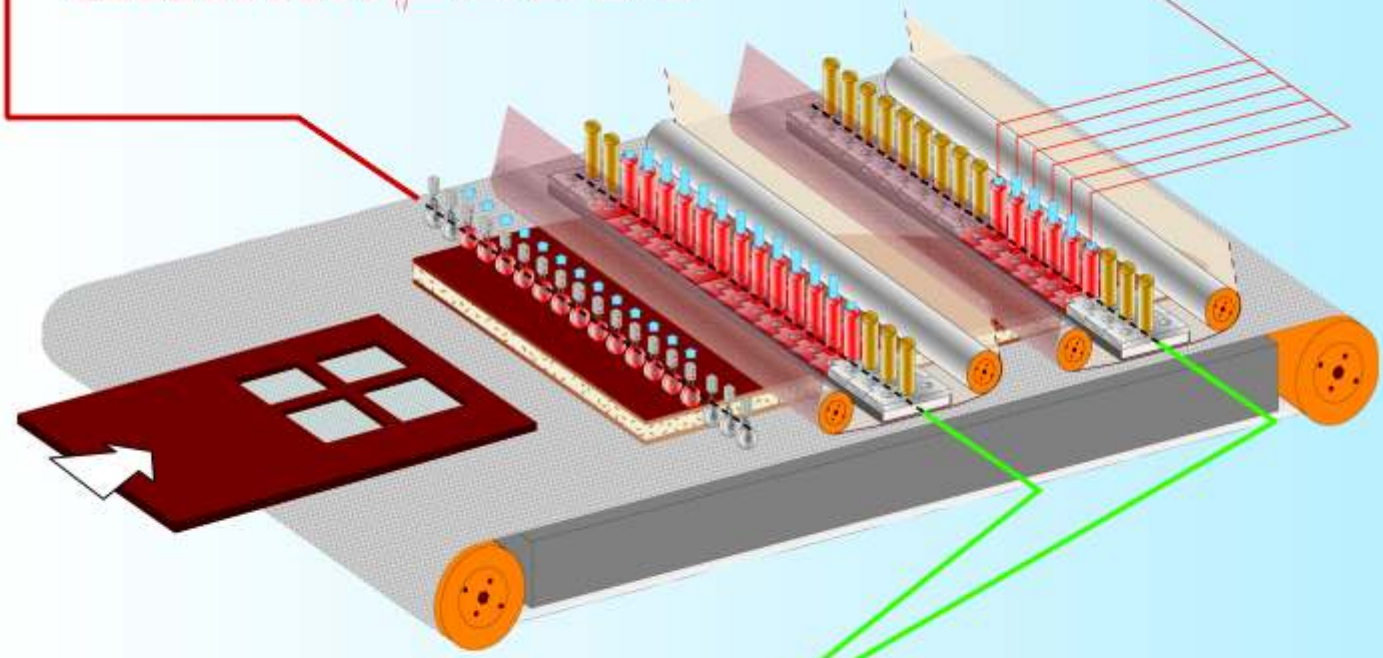
An in-feed sensing bar detects form and size of work-pieces; we utilize a MECHANICAL sensing bar (to avoid problems of sensing the feed belt when processing thin work-pieces or rounded edges giving wrong positions) constituted by special long lasting "vulcolan" covered wheels, all set at 1 mm below the thickness set for the work-pieces in the machine (the pre-load is of course adjustable). - The contact of each wheel with a pannel gives a signal ON to its related inductive proximity switch (there is no phisical contact, therefore no wearing) and the input signal is received and elaborate by the main electronic control of the pads that is giving the out-put signal to each pad-section when it is time to activate, considering also the hysteresis between the electro-valve and the delay of the time of movement of the single pad.
The pitch between the wheels on our sensing bars can be of 8 - 16 - 32 mm respectively for the bars TB 08 - TB 16 - TB 32
Of course the smaller the pitch the more accurate will be the definition of actual dimensions of the work-pieces, therefore allowing the system to determine with much higher accuracy the position and the pressure of contact of the actual pad sections.

INFEED SENSING BARS TB 08 - TB 16 - TB 32

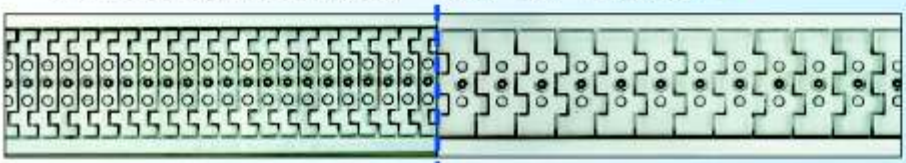


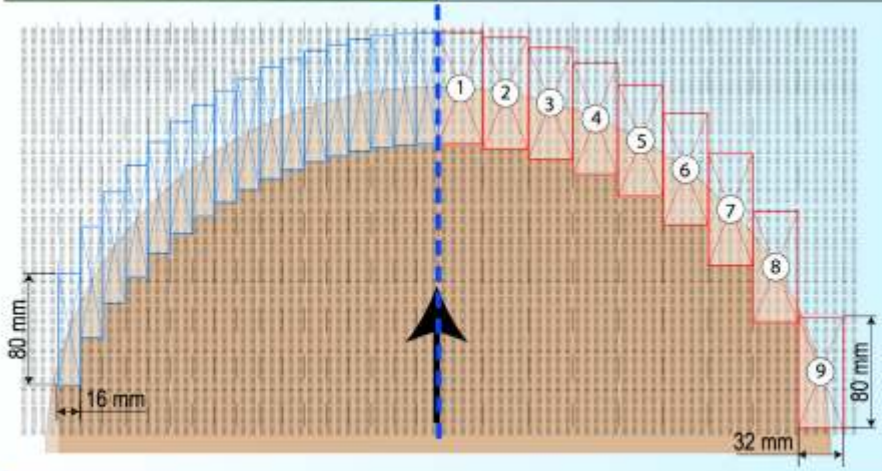
ELECTRONIC CONTROL CARD

Is superintending the processing of the incoming signals from the in-feed sensing barrier and is elaborating the timing and even the pressures (by activating different lines of electrovalves) of the various sections of the pads.



SECTIONED PADS CA 16 - CA 32





ACCURACY OF SANDING OF THE SECTIONS

The scheme shows what is "visualized" by the electronic card, that is looking like a net with 1 mm of height (in the sense of the feed direction) , and a width that of the pads, 16 or 32 mm.

This is the level of accuracy of the pads in relation to the dimension and to the form of the work-pieces.

We can see how, by having narrow pads, the resolution of entry in angled panels gets better and better, very much improving the sanding results in the edges.

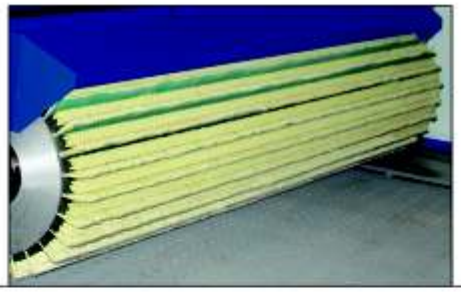
Our experience is favoring narrower pad sections working at constant pressure to sophisticated pressure controls (that may leave streaks of different finish on the panels surface)

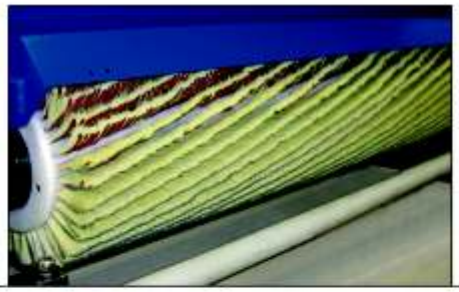
F - Finishing Brushes

The increasing utilization of water-soluble lacquers leads to the elimination of the wood fibres raised after the applicatin of water-based stain and lacquers, in order to reach a good finishing degree.
The utilization of brushes with interchangeable inserts (of various types and brands) allow the elimination of raising wood fibres helping to solve the problem.

The F units, are available in three sizes:

F2 • Ø 250 mm;
F3 • Ø 330 mm;
F4 • Ø 400 mm.





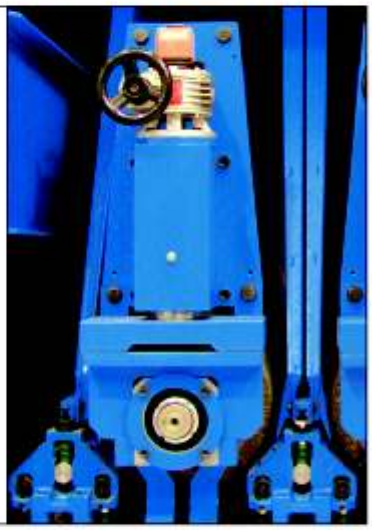
G - Structuring Brushes

The surface brushing operation requires a higher level of motor power, depending on the requested effects (depth of structuring) and the working speed needed.

For these reasons all brushing units on our machines can be equipped with powerfull motors.

Each brushing unit is equipped with an independent thickness positioning system (to compensate for wear) and also a quick exclusion device in case of emergency.

When the brushes start wearing out the independent height positioning becomes necessary especially in case of different brush diameters (when Tynex and Steel brushes are installed in the same machine).

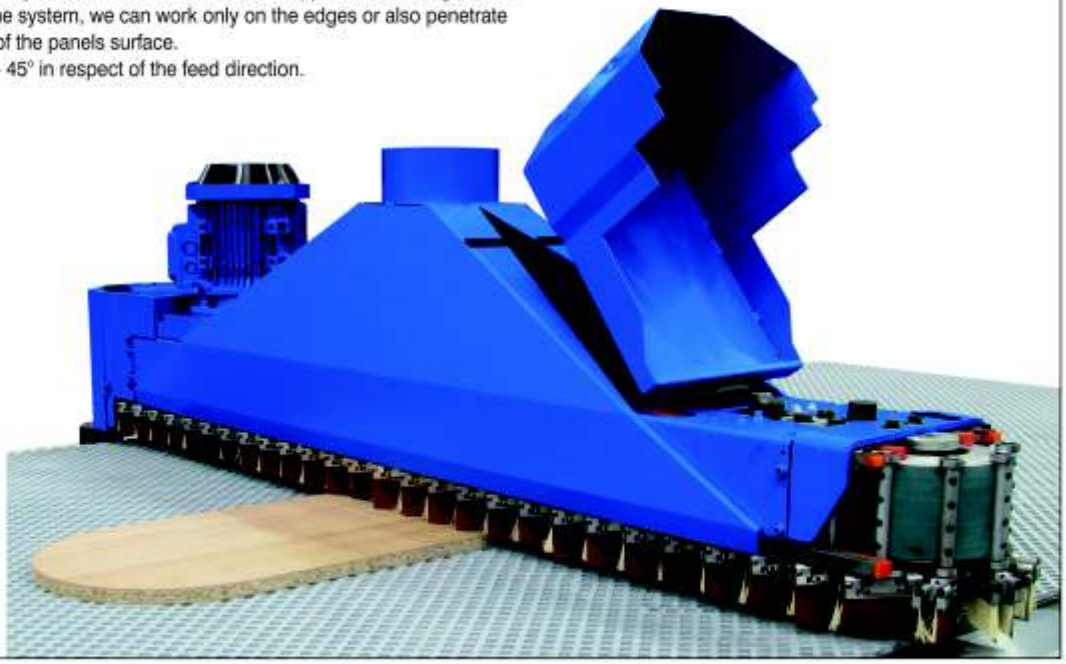


L - Bilateral Brush-Sanding for rounding the edges

The brush-sanding working system is constituted by an inclinable pad in which are inserted a sanding strip (abrasive grit variable) followed by one first back-up element (variable stiffness) followed by a second element to further support the sanding action.
Depending on the working height of the system, we can work only on the edges or also penetrate in the surface and inside the grooves of the panels surface.
The sanding pads are inclinable of +/- 45° in respect of the feed direction.

Unit **L** is equipped with:

- micrometrical setting of the working pre-load;
- motor power 2,2 kW controlled by inverter for variation of brushing speed range from 1 to 8 m/s;
- two dust hood collectors for proper cleaning of elements;
- quick change of abrasive inserts from the service side, abrasive inserts that can be prepared by the utilizers themselves.



Finishing Units of Series S sanding - K calibrating

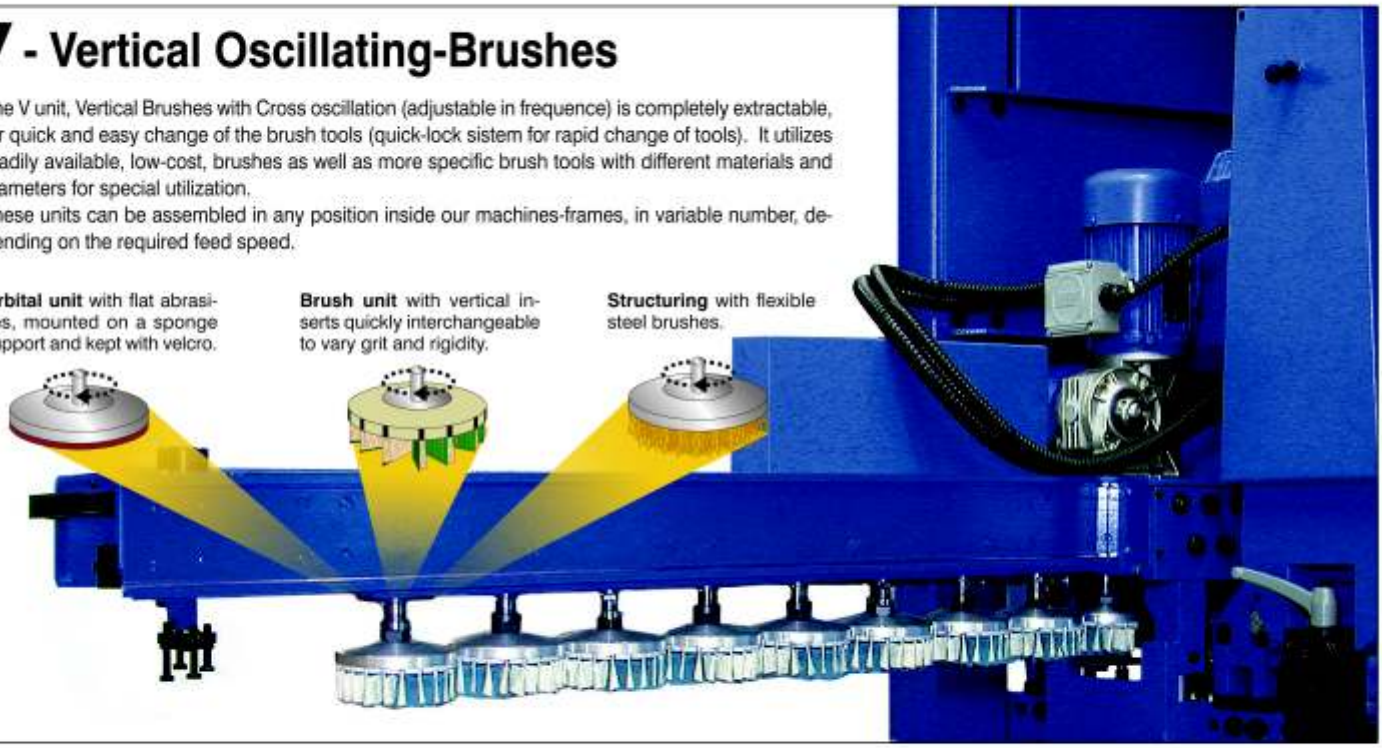
V - Vertical Oscillating-Brushes

The V unit, Vertical Brushes with Cross oscillation (adjustable in frequence) is completely extractable, for quick and easy change of the brush tools (quick-lock sistem for rapid change of tools). It utilizes readily available, low-cost, brushes as well as more specific brush tools with different materials and diameters for special utilization.
These units can be assembled in any position inside our machines-frames, in variable number, depending on the required feed speed.

Orbital unit with flat abrasives, mounted on a sponge support and kept with velcro.

Brush unit with vertical inserts quickly interchangeable to vary grit and rigidity.

Structuring with flexible steel brushes.



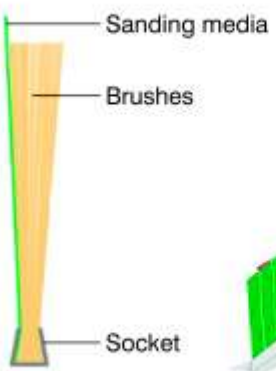
Brushes to operate mainly on flat surfaces, with edges only lightly rounded

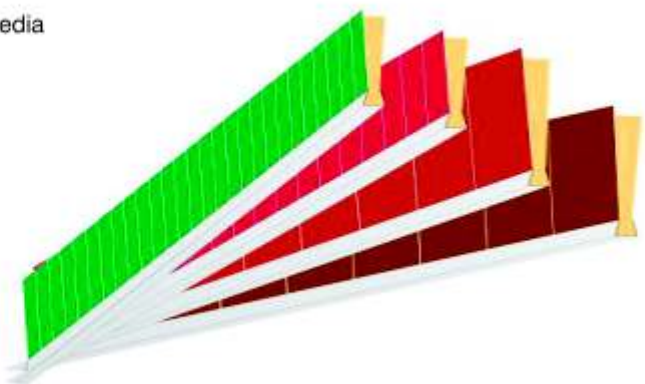
Brush with threads in tampico

Brush with threads in nylon

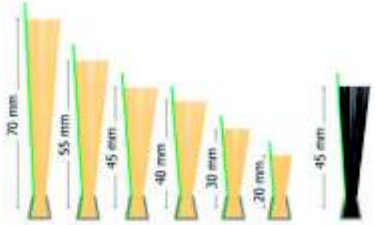
Brush with INTERCHANGEABLE INSERTS

Interchangeable inserts for finishing brushes



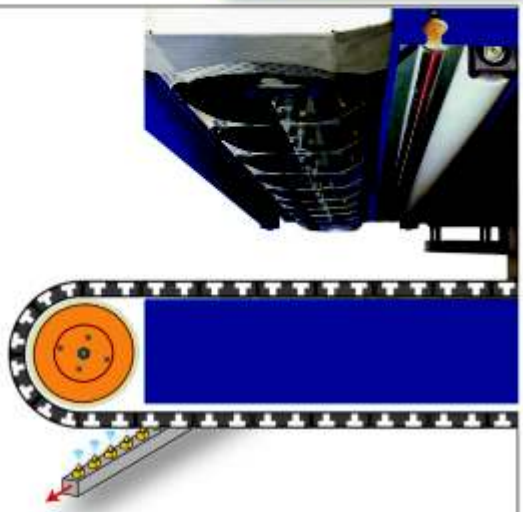


Brush sizes



Panel Cleaning Units

S18 / S25	• Brush unit Ø 180 / 250 mm made in nylon or vegetal fibers
SB18 / SB25	• Scotch-Brite™ unit Ø 180 / 250 mm - Scotch-Brite rollers ™ of various density
SE18 / SE25	• Interchangeable Brush Unit
JR	• Stationary rotary blowers
JRO	• Rotary blowers with lateral oscillation of the blowing units
Z1 / Z2	• Single and double antistatic bars
JL	• Linear oscillating blowers
JFB	• Linear oscillating blowers to clean the feed belt

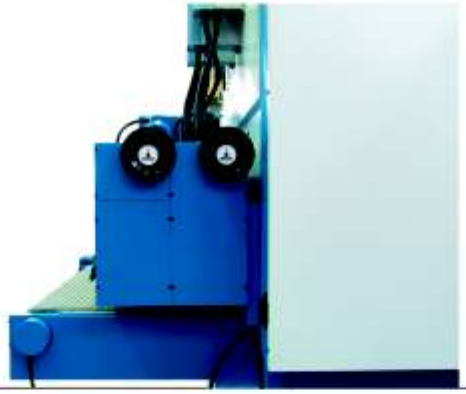


SE18 - SE25 INTERCHANGEABLE BRUSH UNIT

can be equipped with motors from:1,5 - 2,2 - 4 kW, that can be fitted with inverters for rotational speed variation.

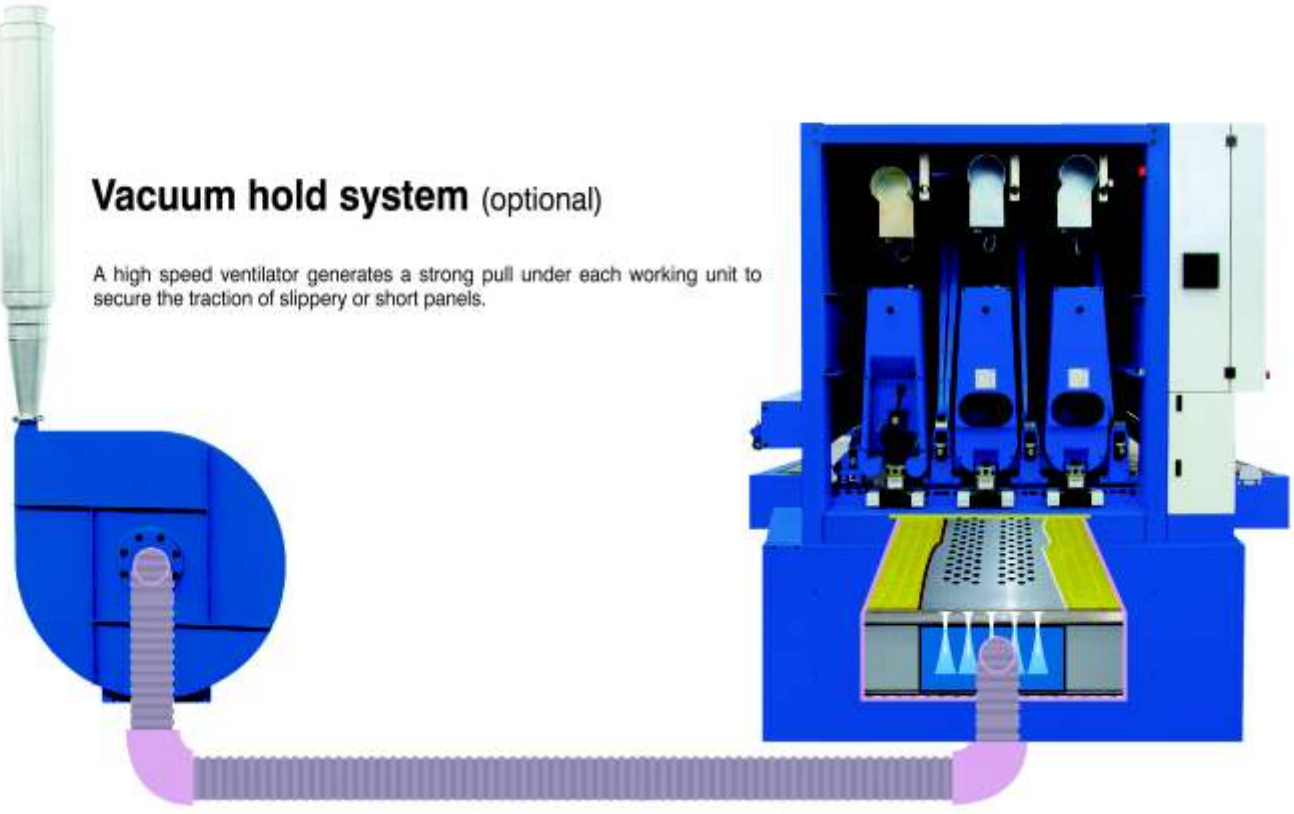
The brushes can be:

- vegetal fibers for the dust removal;
- scotch-brite™ for finishing on veneer and lacquers;
- FT2 with interchangeable inserts for the elimination of wood fibres.;
- steel or tynex for structuring.



Vacuum hold system (optional)

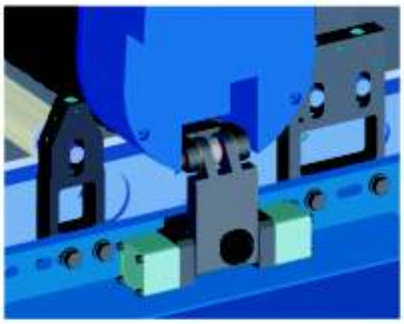
A high speed ventilator generates a strong pull under each working unit to secure the traction of slippery or short panels.

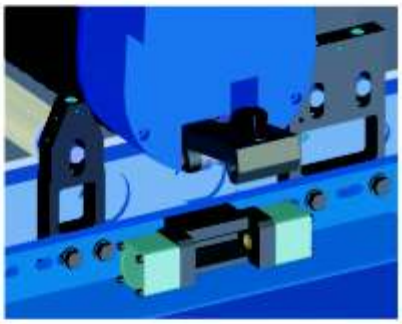


Series S sanding - K calibrating: Accessories & Options

Automatic locking of working units (optional)

An automatic - pneumatic system is locking the support of the working units to the machine frame with a precision conical coupling.
This operator-friendly device helps lowering the sanding belt change, at same time assuring an absolutely safe locking improving the overall efficiency.



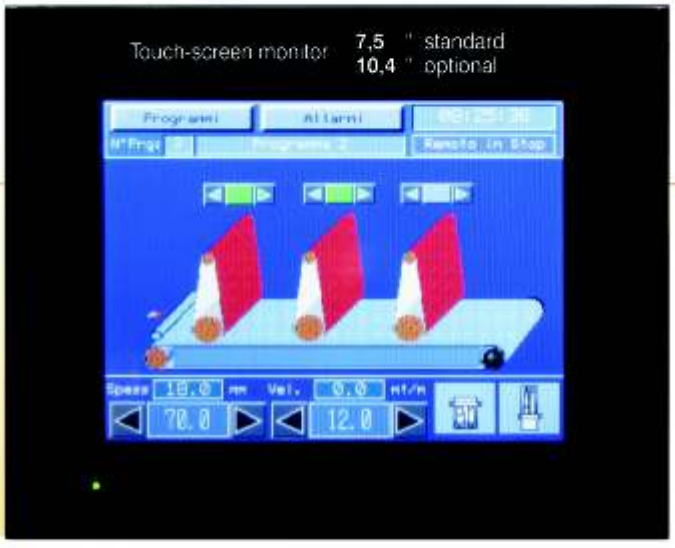


Oscillating blowers (optional)

Oscillating air jet blowers for sanding belt cleaning, with high efficiency jets.

Electromechanical Panel (standard)

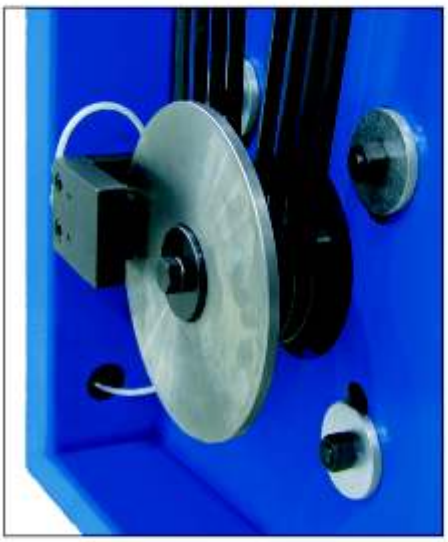
Control panel positioned in front of the machine, with push-buttons for all motors and amp-meter readers of power utilization of the working units. Digital positioner with read-out of the thickness adjustment with decimal accuracy.
Range change switch for the variation of the feed speed. Diagnostic leds of electric-pneumatic-safety problems.
Emergency stop and reset.



PLC VISION (optional)

The PLC panel VISION enable the visualization in a touch-screen monitor of the actual setup data and operation settings of the machine, to be filed in a number of complete working programmes.

The PLC contains a number of pages each for a machine function, that can be included in working programmes, to store and recall with own codes.



Disk brakes

Pneumatic operated disk brakes to stop the working units within few seconds from emergency.

Sanding belt oscillation system

Sanding belt oscillation system with electronic dual-photocell.
Complete with safety micro-switch to stop the machine in case of misalignment or breakage of the abrasive belt .

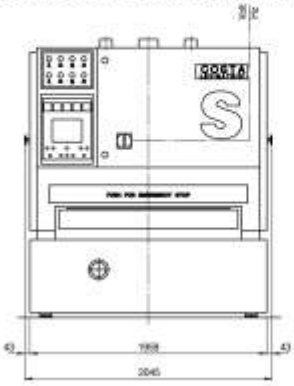
Main technical data

Useful working widths	**1350**	[mm]
Longitudinal sanding belt dimensions	1380 x 2620	[mm]
Cross sanding belt dimensions	150 x 7350	[mm]
Standard machine opening	3 ÷ 160	[m/min]
Feed speed of calibrating machines	3 ÷15	[m/min]
Feed speed of sanding machines	4 ÷ 20	[m/min]

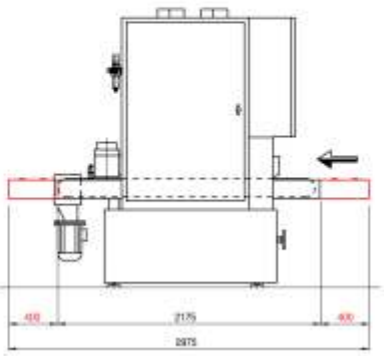
Air volume required for each unit

	ø outlet	20	24	28	[m/s]
Each longitudinal working unit	160 [mm]	1447	1737	2026	[m³/h]
Each F250/350 - S18/25 - SB18/25	160 [mm]	1447	1737	2026	[m³/h]
W180 - planer unit	200 [mm]	2261	2714	3166	[m³/h]

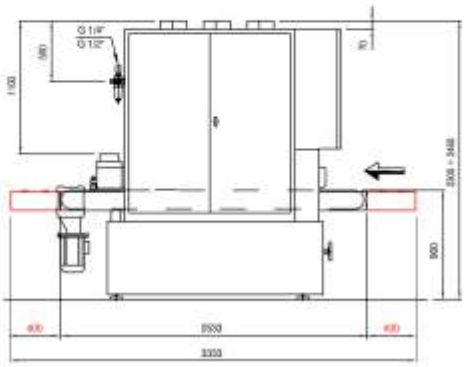
Machine with Longitudinal units



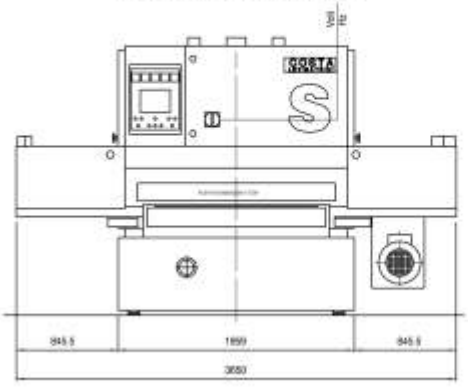
version with 2 working units



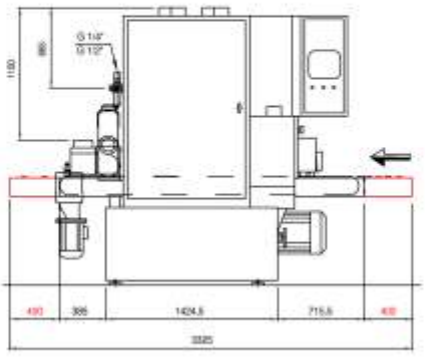
version with 3 working units



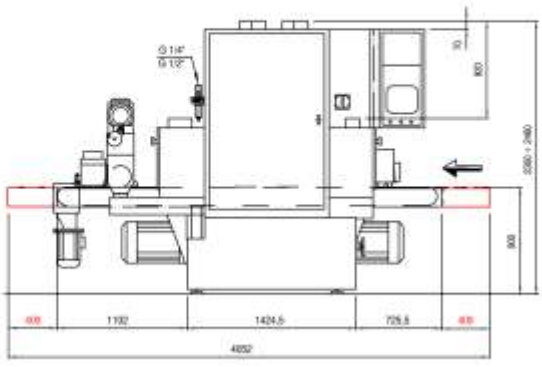
Machine with Cross belt unit and Longitudinal units



version with 1 cross belt unit and 2 longitudinal units



version with 2 cross belt units and 2 longitudinal units



The other lines in our range of products for the Woodworking Industry

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Universal Sanding-Calibrating machines

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S

Multi-function Finishing Sanding machines

B

Structuring, Brush-finishing machines

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