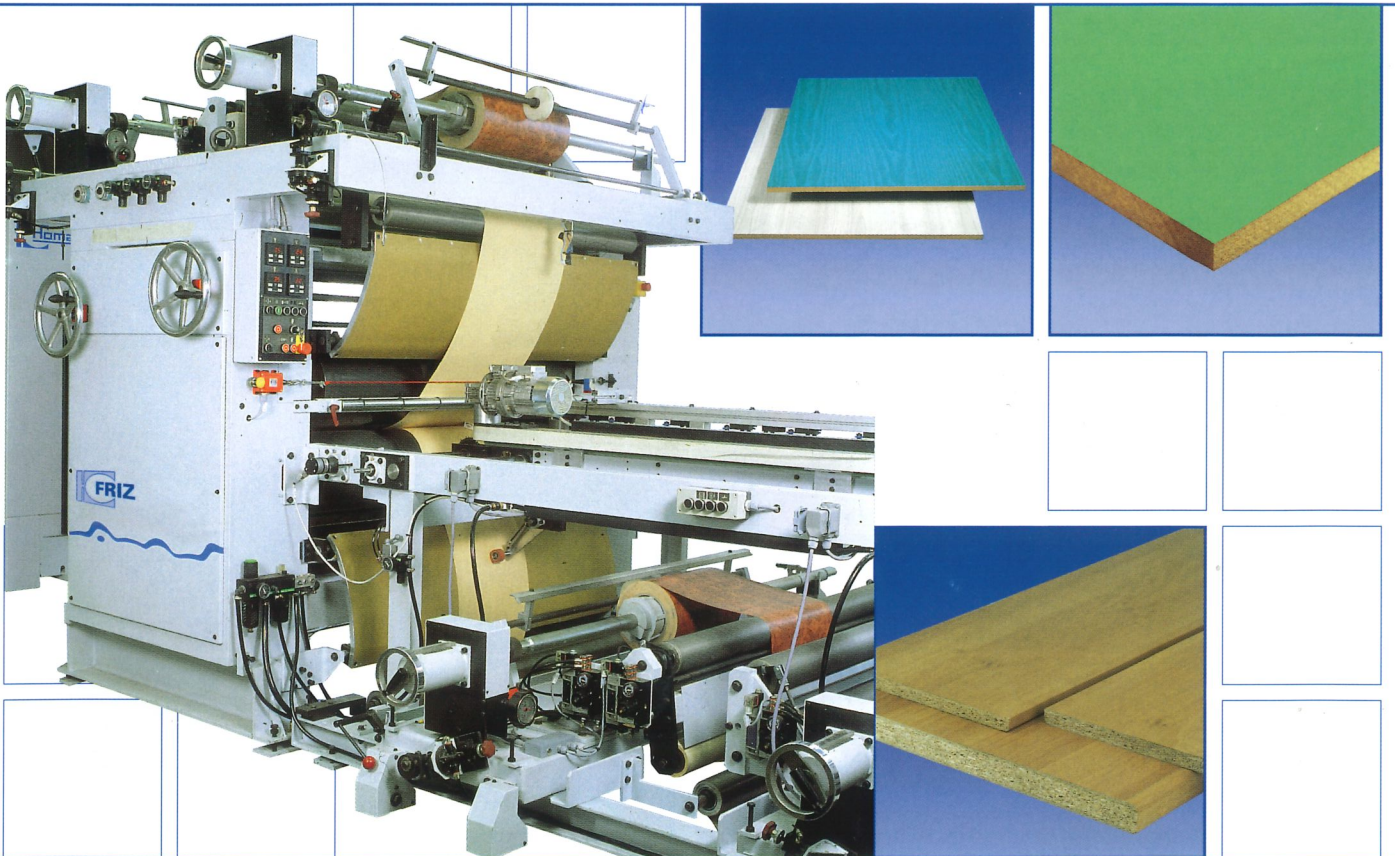


Thermo Laminating Lines FK



Optimat | profi line | power line



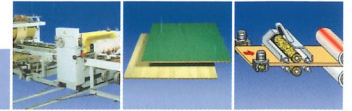
Economical solutions for all applications and demands



Friz offers more than just machines...

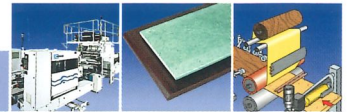


Flat surface lamination



Today Friz offers the classical surface lamination bonding with dispersion adhesives or urea formaldehyde glues, as well as an innovative system of bonding with hotmelt adhesives Page 4-5

Surface and edge



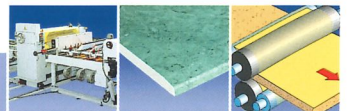
Laminate surfaces and edges in one pass Page 6-7

Profiled surfaces



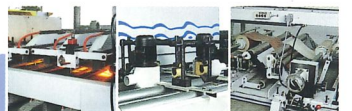
If you want to laminate profiled surfaces efficiently, we have the right system as well Page 8

Solutions for all applications



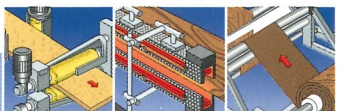
With Friz laminating lines you can laminate practically all known surfaces onto nearly any core material Page 9

Machines with the certain „extras“ !



We have reduced set-up times to a minimum! Page 10-11

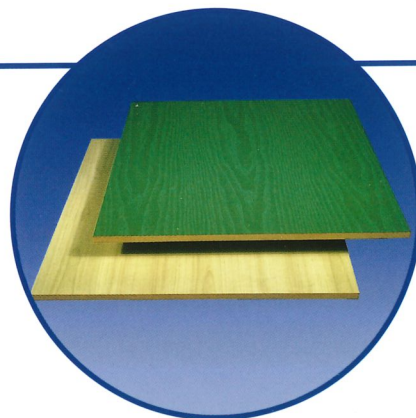
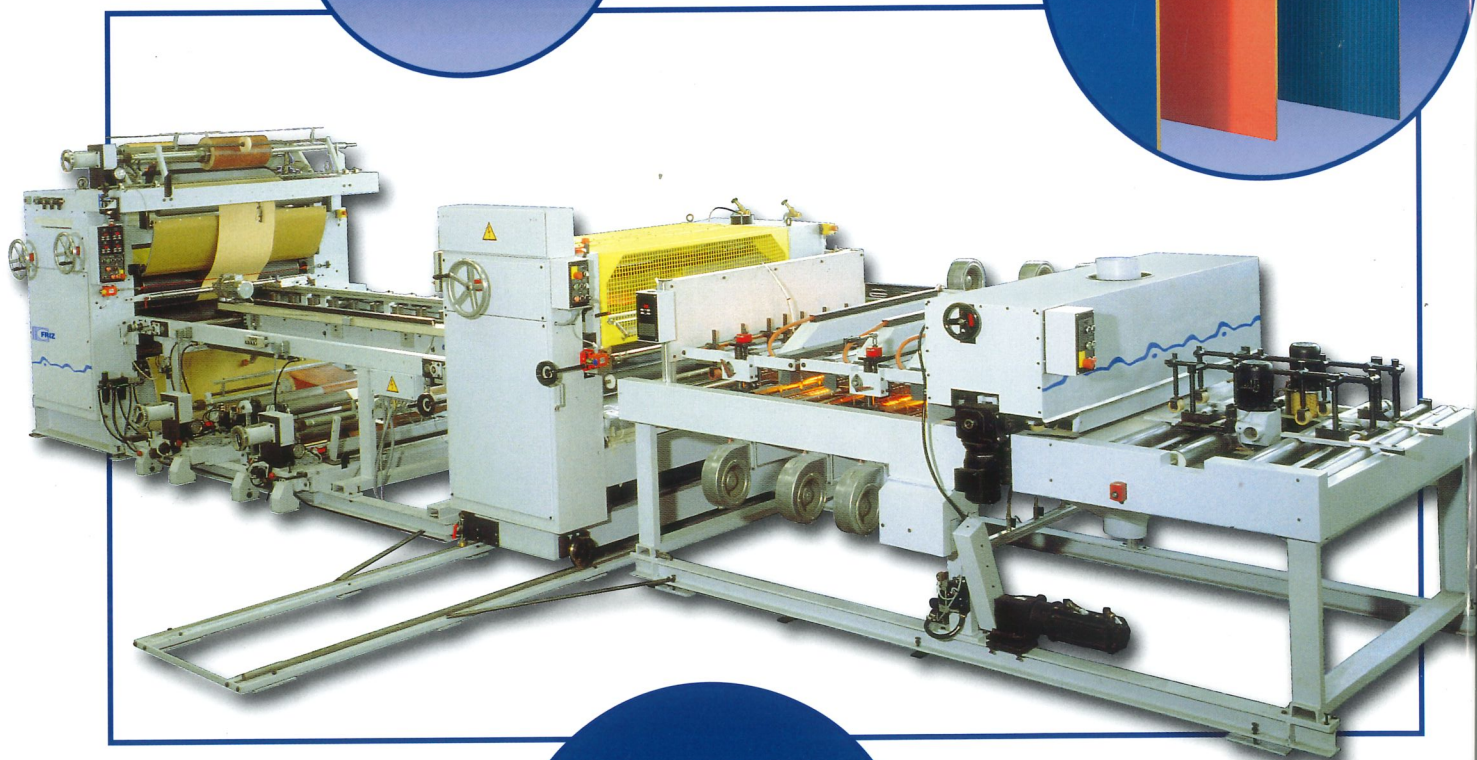
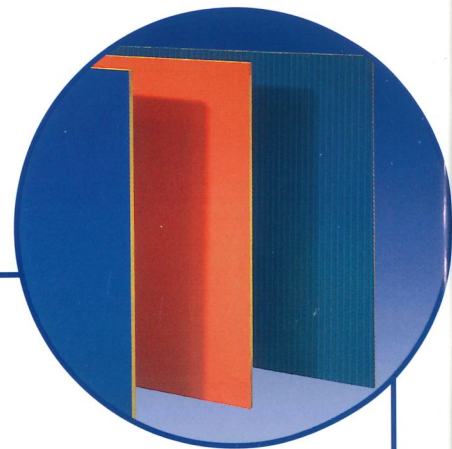
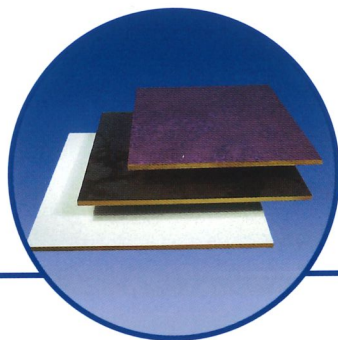
Building-block-system FK



Optional components for every application Page 12-22

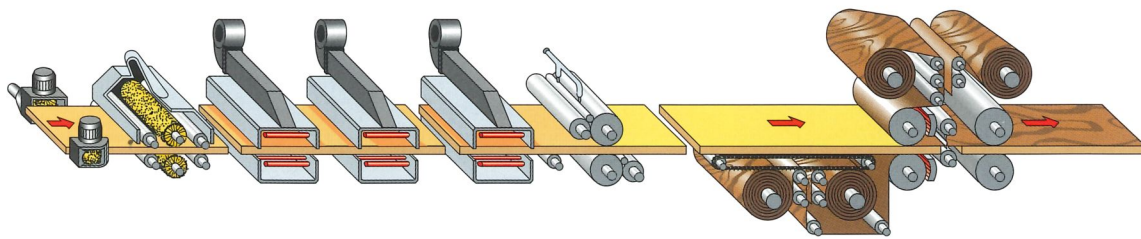
Flat surface lamination

Today Friz offers the classical surface lamination bonding with dispersion adhesives or urea formaldehyde glues, as well as an innovative system of bonding with hotmelt adhesives.



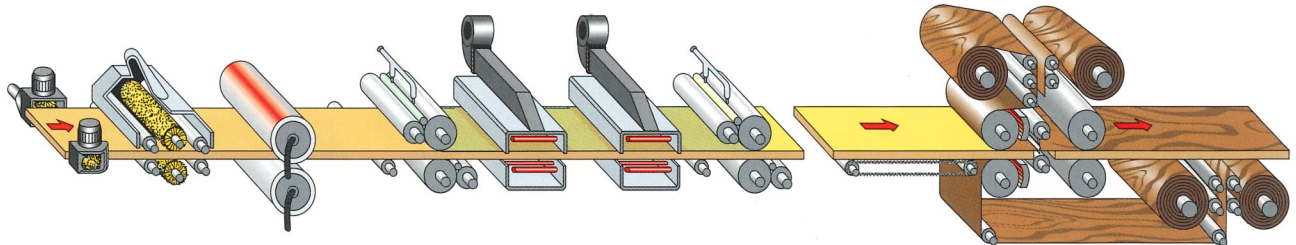
System FKF 300/WD

Surface bonding with dispersion adhesives (PVAc glue)



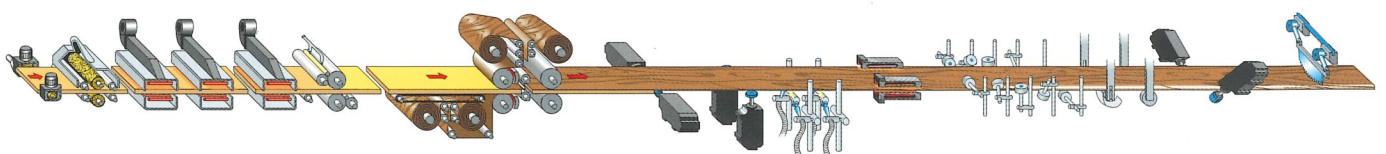
System FKF 400/WU

Surface bonding with urea formaldehyde glues



System FKP 300/WD

With dispersion adhesives for the surface - for the edges optionally with dispersion or hotmelt adhesives.

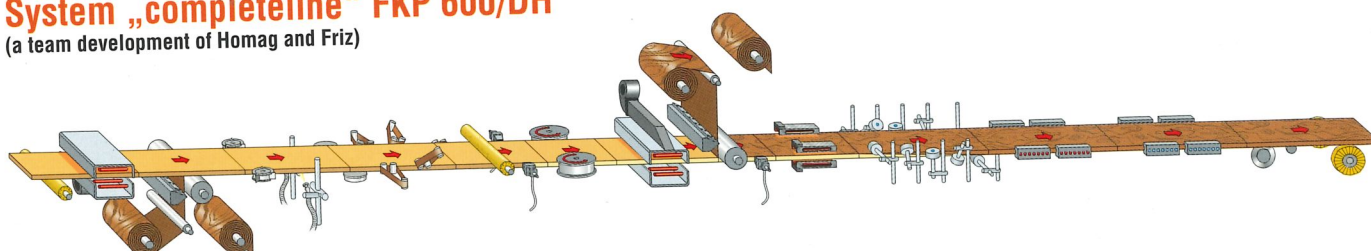


Surface and edge

We laminate surfaces and edges in one pass.



System „completeline“ FKP 600/DH
(a team development of Homag and Friz)

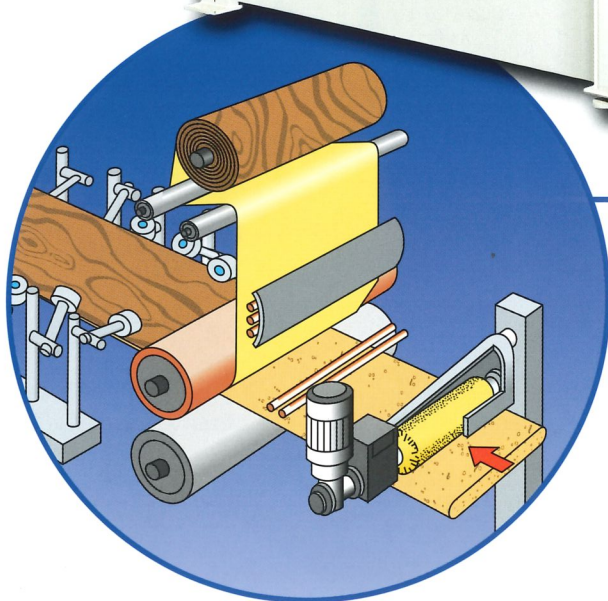
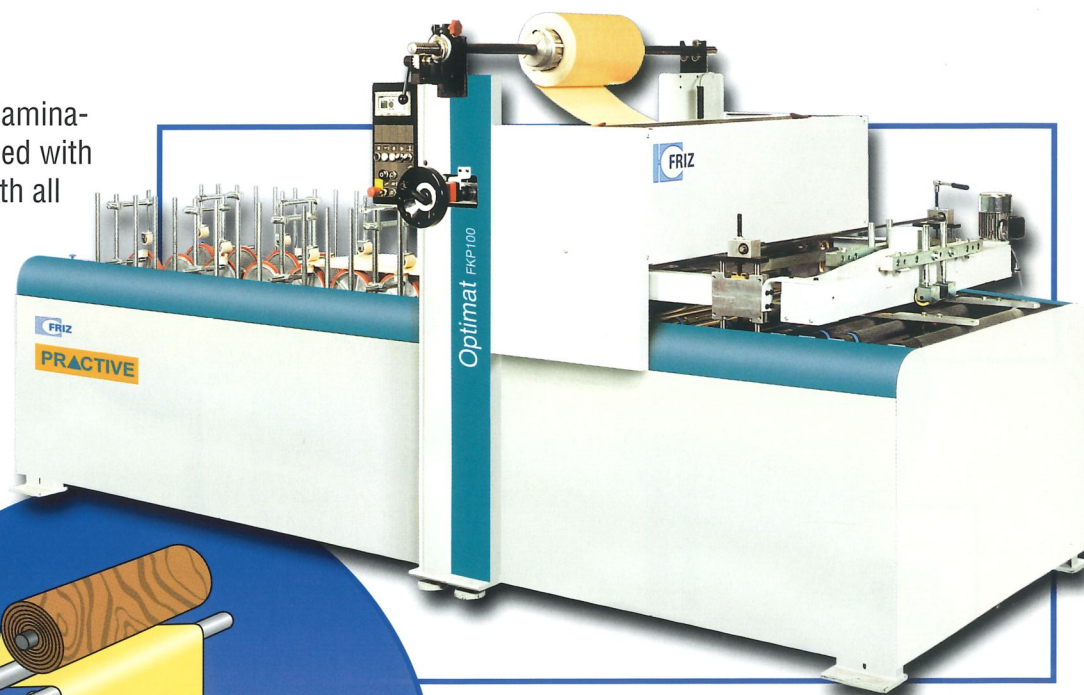


For highest performance and combined with an in-line edge sealing for profiled particle board edges

Optimat laminating lines FKP 100 for surface + edge



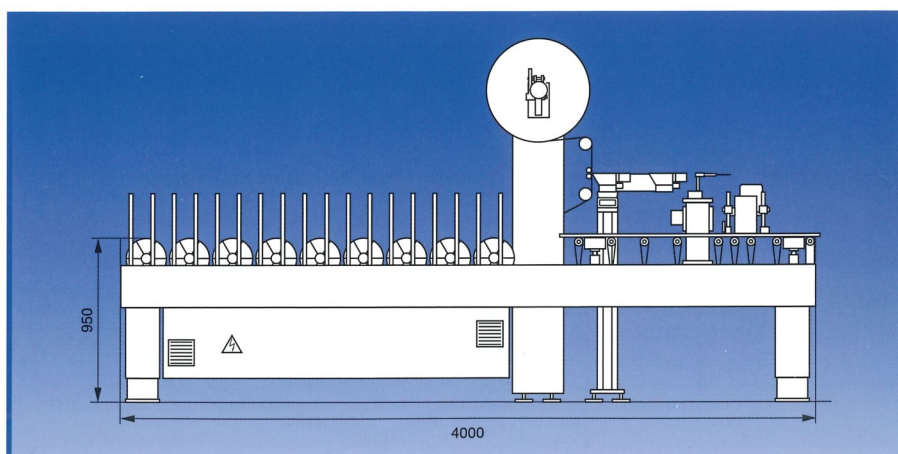
Today surface and edge lamination can already be realised with small compact lines – with all advantages of hotmelt bonding. This line works with pre-coated surface materials – the adhesive is reactivated in-line.



**Another innovative new development of Friz
Kaschiertechnik - for innovative professionals**

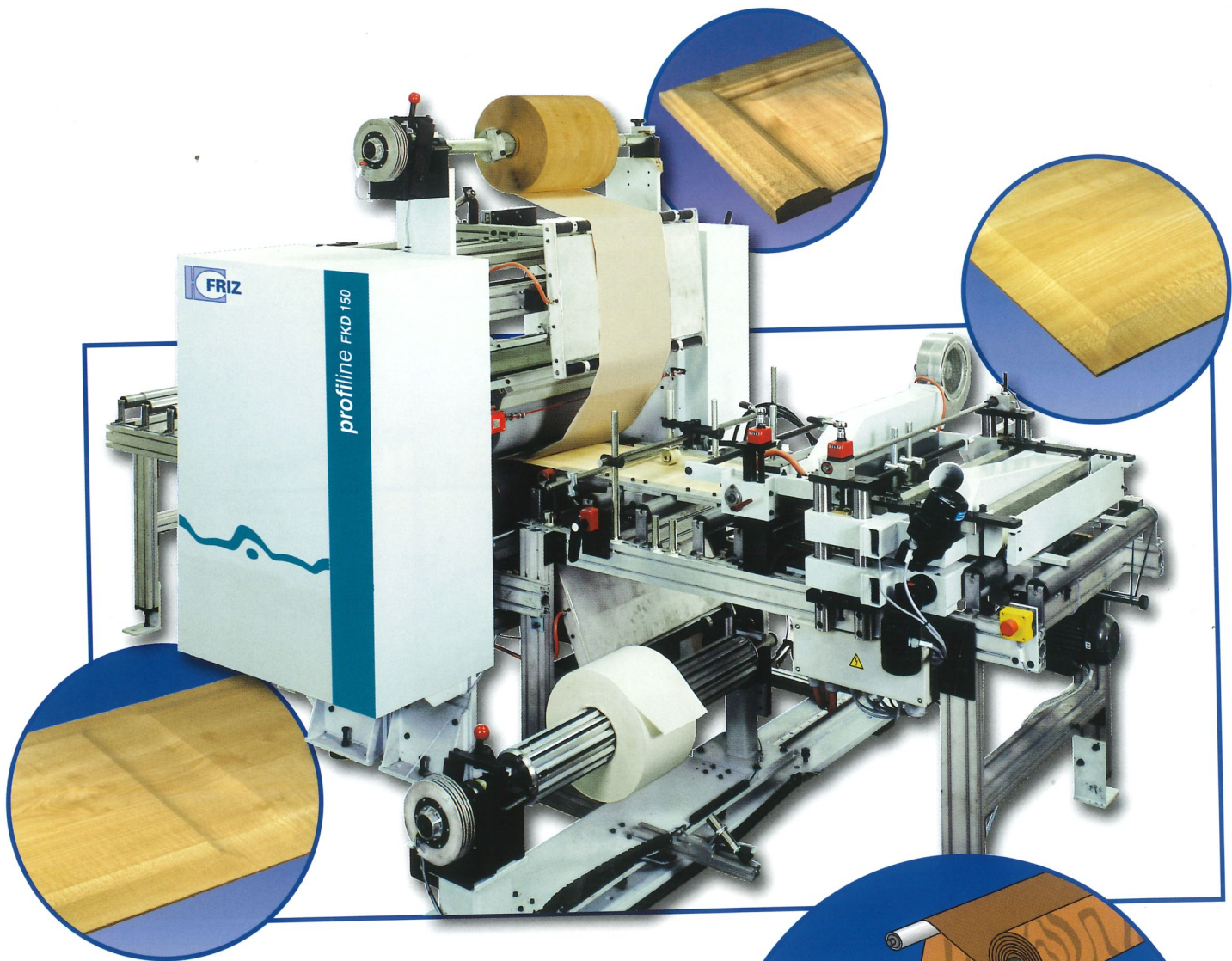
FKP 100/1/10/DH/R

With in-line slot-nozzle
hotmelt application !



Profiled surfaces

If you want to laminate profiled surfaces efficiently, we have the right system as well.

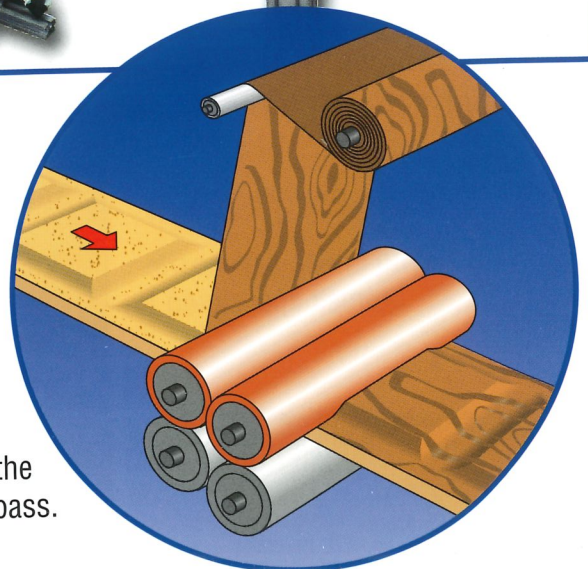


System FKD 150

Parts, which up to now have been produced in stationary form-presses with high unit costs, can be laminated now rationally in continuous technology with veneer, thin laminate or decorative paper.

Typical applications are raised panels for doors, wall and ceiling systems.

You laminate not only the profiled surface but also the flat reverse side - in one pass.

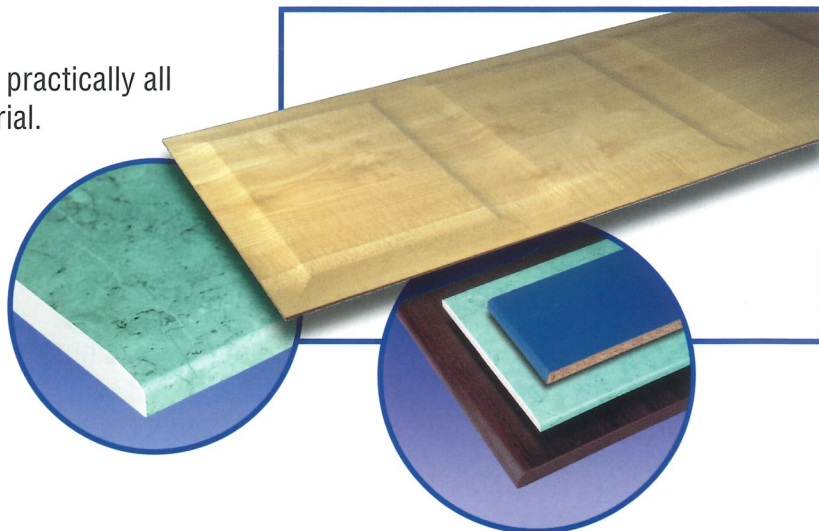


Solutions for all applications

With Friz laminating lines you can laminate practically all known surfaces onto nearly any core material.

You can laminate

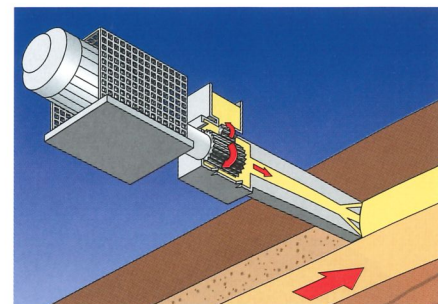
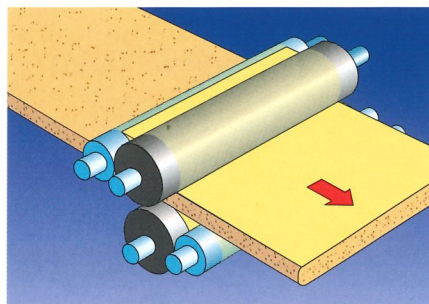
- surface and edge in one pass,
- bond sandwich constructions without pressing,
- profiled surfaces



Proven adhesive application systems

Roller application with

- dispersion adhesives
- urea formaldehyde glue systems
- PUR hotmelts



Slot nozzle application with

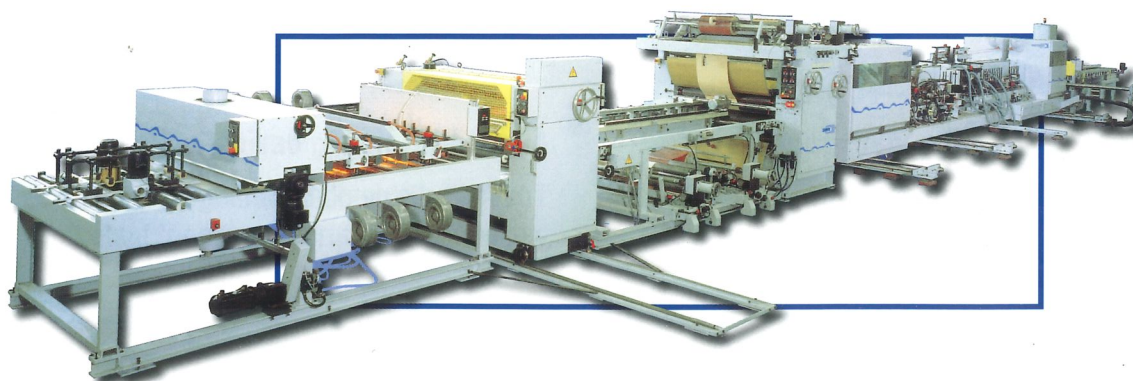
- EVA,
- PO, or
- PUR hotmelts

Solutions for all demands

From compact standard lines to fully automated and integrated production lines for specific products.

Solutions for every performance class

From compact lines with 15 m/min up to high performance lines with 60 m/min.

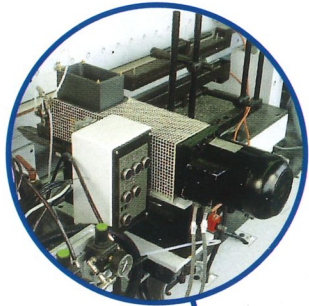


Machines with certain „extras“ ...

...which make machines especially reliable and operator friendly!

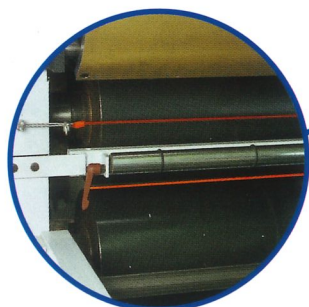
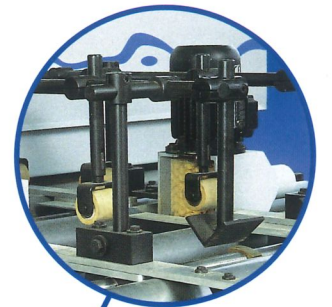
In-line edge filling

In a patent registered special process a hotmelt glue is pressed with high pressure into the profiled edge. Before the hotmelt cools down, the surface material is wrapped around the edge and smoothed.



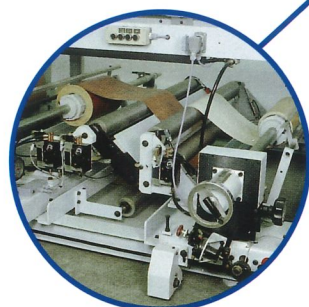
Brush cleaning

The top and bottom surfaces as well as the edges are cleaned from loose chips and dust.



Laminating rollers

The plasma coated surfaces are extremely hard and have a minimum wear. For an absolutely even pressure the upper laminating roller has an adjustable pneumatic pressure control.



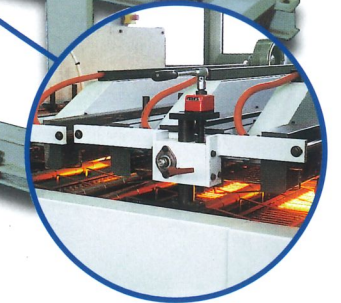
Automatic jointing device

The foil rolls can be exchanged while producing



Glue application

A very even glue application is important for a good surface bond. Very thin glue spreads increase the economy.



Board preheating

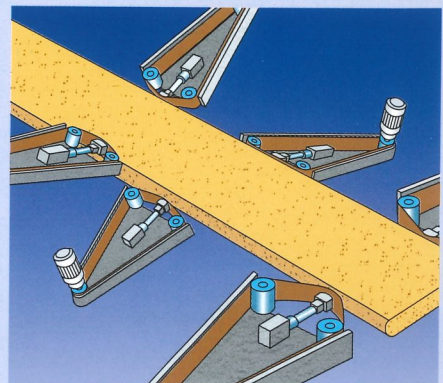
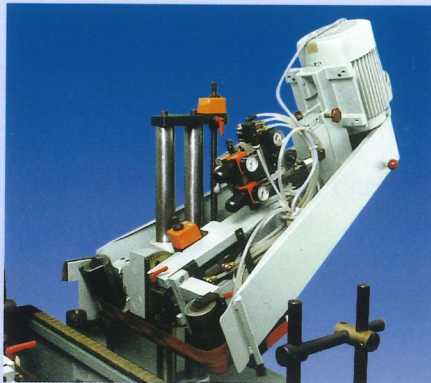
Short wave infrared radiators heat up the board surfaces to the required temperature. With capacity control and 6-step control for different working widths.

Building-block-system FK

Board preparation

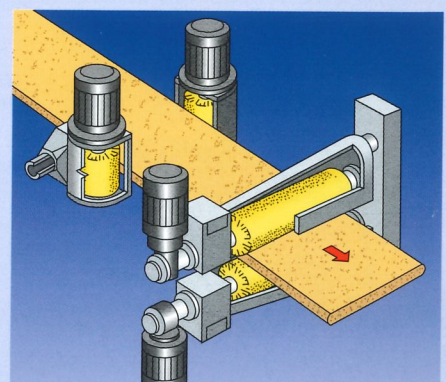
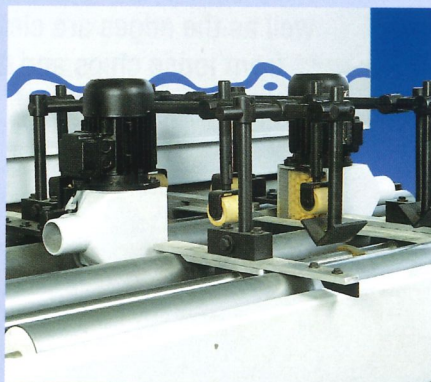
Sanding of edge profiles*

Profiled edges, which are wrapped subsequently, have to be sanded.



Brush cleaning*

The top and bottom surfaces as well as the edges are cleaned from loose chips and dust.



* graphic representation - subject to change without notice

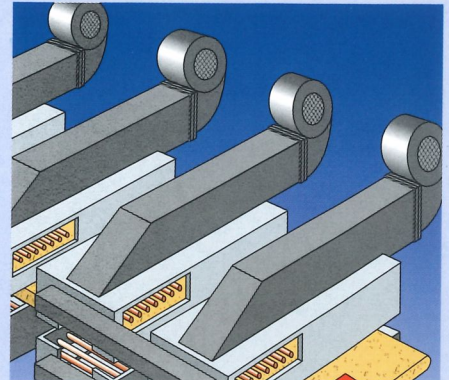
Building-block-system FK

Glue application and conditioning



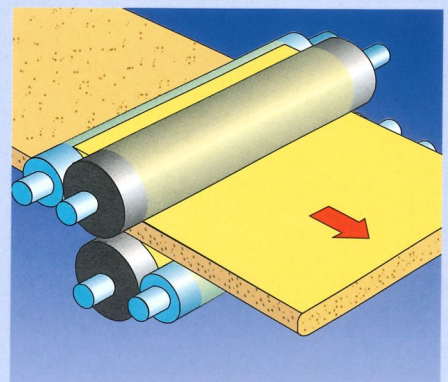
Board preheating*

Short wave infrared radiators heat up the board surfaces to the required temperature. With capacity control and 6-step control for different working widths.



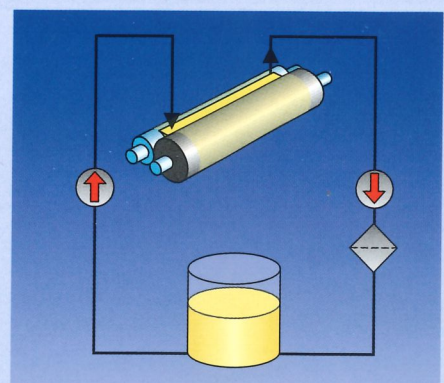
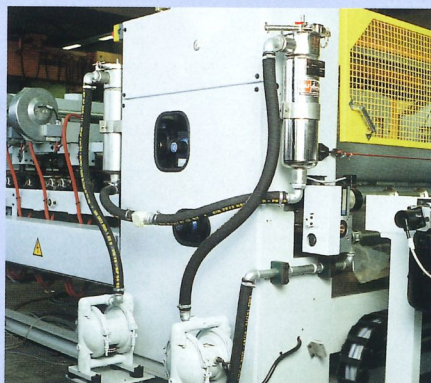
Glue spreader for dispersion glues*

An absolutely even glue spread is essential for a calm surface, very thin glue films increase the economic.



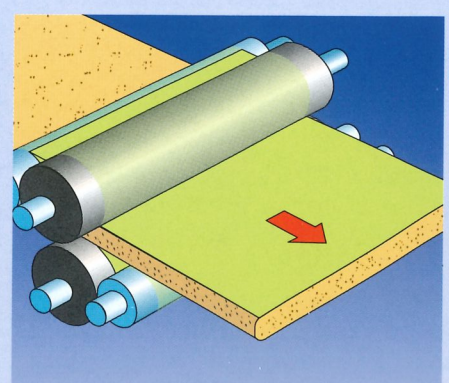
Glue circulation with filtration*

A glue circulation reduces the drying up and thickening of the glue, the filtration guarantees a particle free glue.



Hardener application*

An absolutely regular hardener application is essential for a good surface bond.



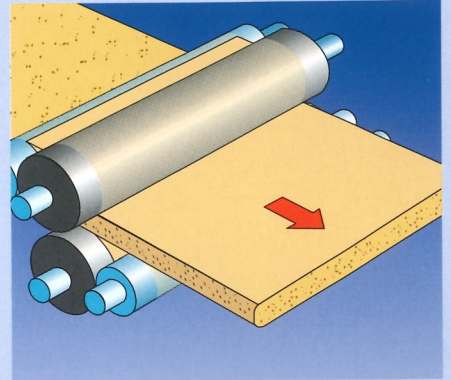
* graphic representation - subject to change without notice

Building-block-system FK

Glue application and conditioning

Urea resin application*

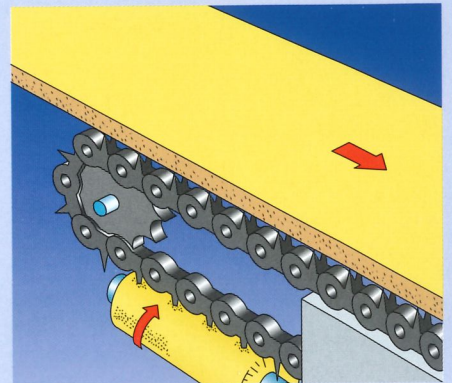
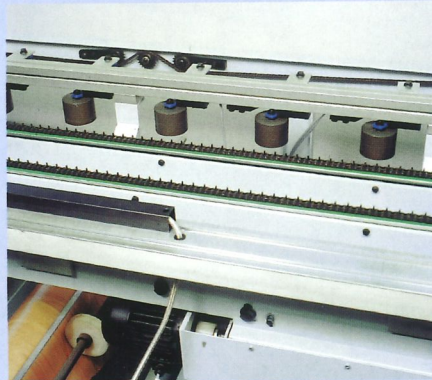
A very even resin application is important for a good surface bond. Very thin glue spreads increase the economic.



Evaporation zone*

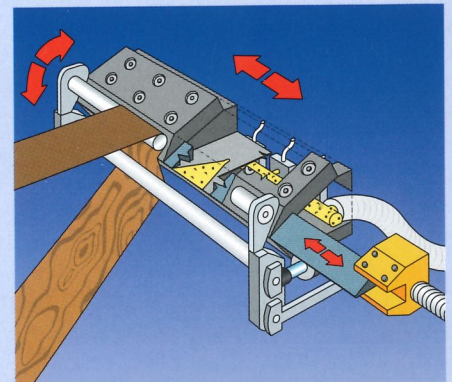
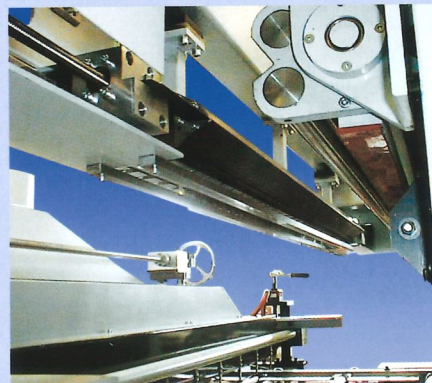
A correctly dimensioned evaporation zone is important for an optimal adhesion.

The spikechain transport guarantees a minimal glue transfer, the rotating brushes in the chain return ensure an always clean transport.



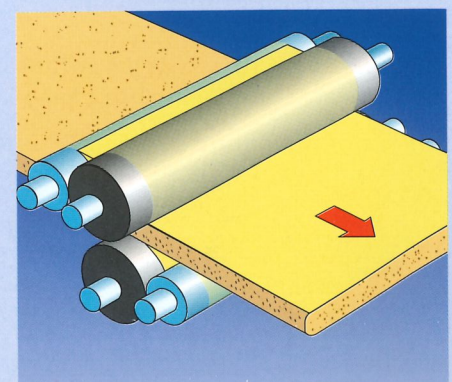
Hotmelt glue application for EVA and PUR hotmelt glues*

The hotmelt glue is applied to the surface material by slot nozzle units.



Roller application for PUR hotmelt glues*

Application and metering rollers have a special heat resistant coating and are equipped with thermo-oil heating. A special cleaning procedure enables a fast and easy cleaning.



* graphic representation - subject to change without notice

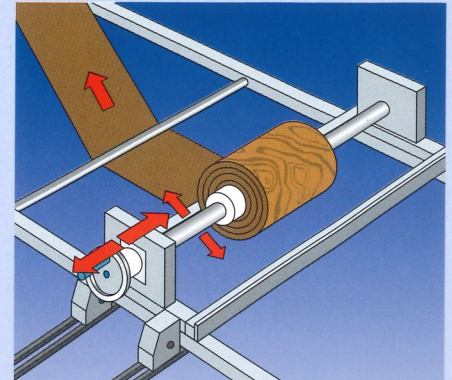
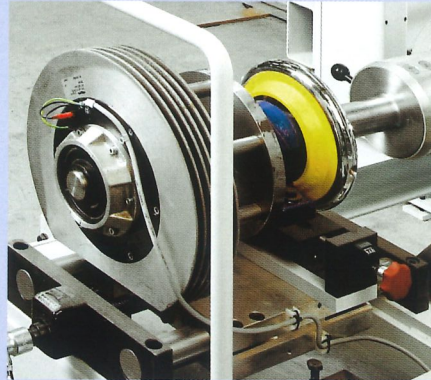
Building-block-system FK

Surface lamination



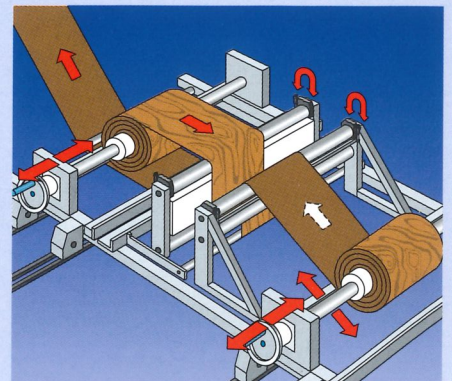
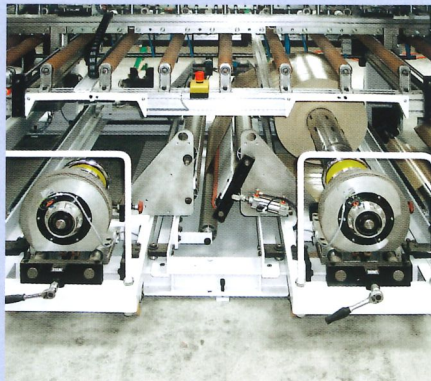
Foil unwinding*

For a simple and fast change of laminating material coils, with centre alignment and axle tilting for a wrinkle and tension free material transport.



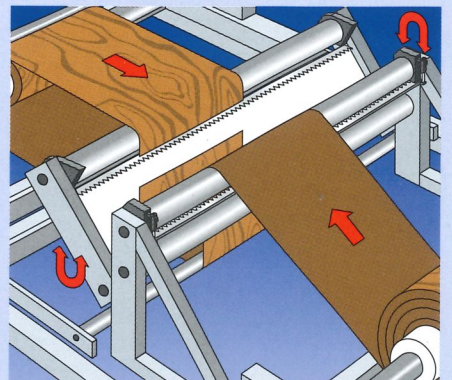
Double unwinding*

For coil change during production.



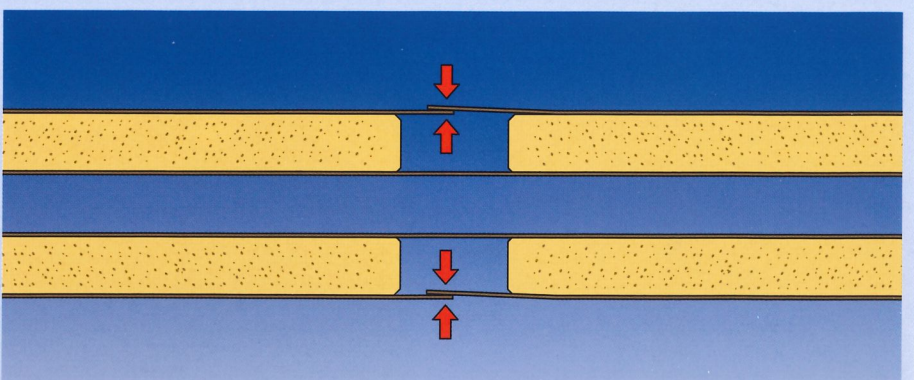
Automatic foil jointing device*

The foil rolls can be exchanged while producing



Automatic gap control for foil jointing*

To avoid a surface material jointing in the workpiece surface, it is possible to position the joint in the gap between two workpieces.



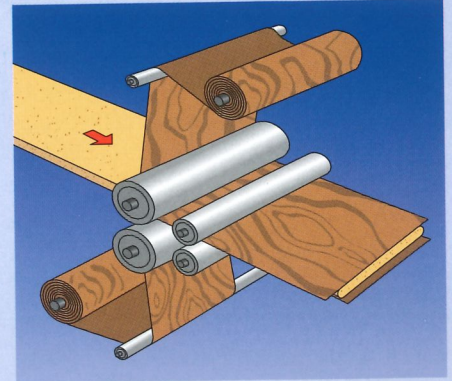
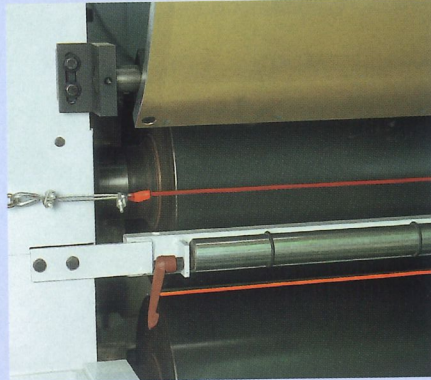
* graphic representation - subject to change without notice

Building-block-system FK

Surface lamination

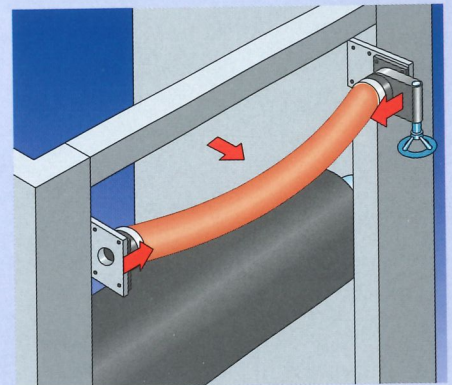
Laminating rollers*

The plasma coated surfaces are extremely hard and have a minimum wear. For an absolutely even pressure the upper laminating roller has an adjustable pneumatic pressure control.



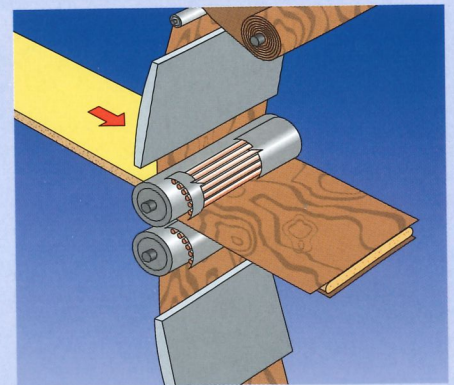
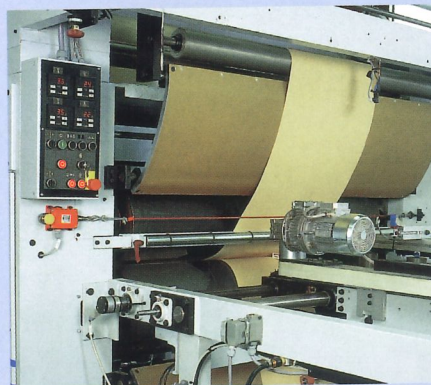
Stretching roller*

By using stretching rollers which are adjustable infinitely in tilt and radius, also very thin and elastic foils can be laminated without wrinkles.



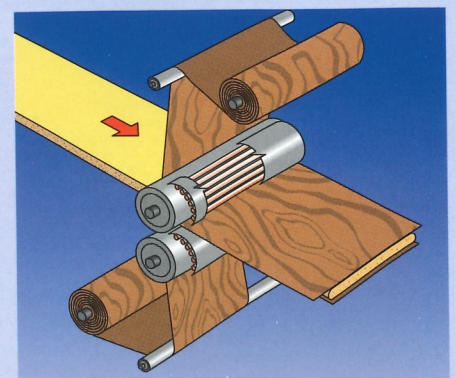
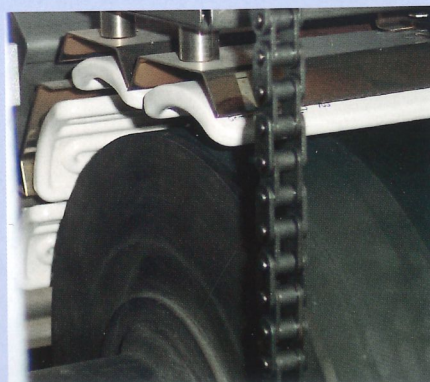
Heating plate to heat of laminating materials*

Especially with thicker laminating materials (CPL) a better adhesion is achieved with preheated material. At the same time the preheating allows higher feed speeds.



Heating of laminating rollers*

The plasma treated laminating rollers offer an optimal absorption for the external infrared radiation heating. The external heating enables a fast and flexible heating-up and a fast cooling.



* graphic representation - subject to change without notice

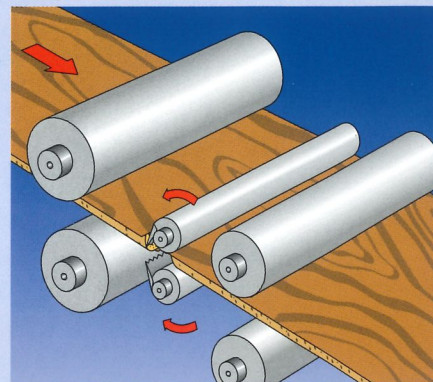
Building-block-system FK



Surface lamination

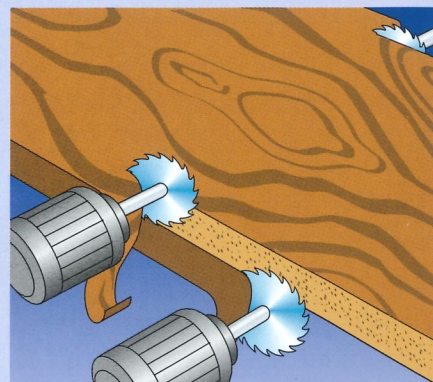
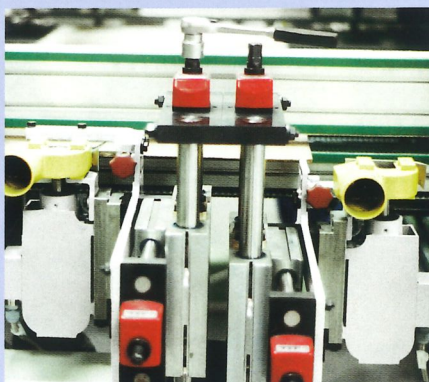
Rotary separating knife*

High precision controlled rotary knives separate the laminating material in very small workpiece gaps.



Trimming of foil overhang*

Special trimming, resp. saw units with lateral tracing trim also very thin boards lengthwise and crosswise.



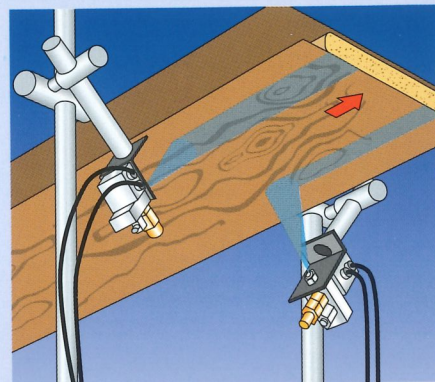
* graphic representation - subject to change without notice

Building-block-system FK

Edge wrapping

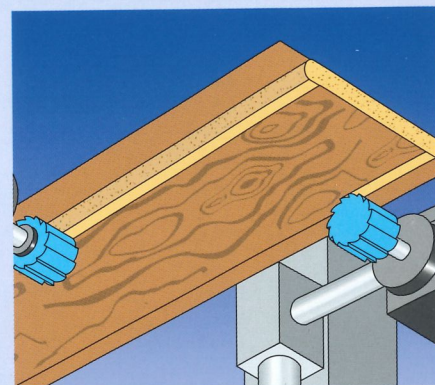
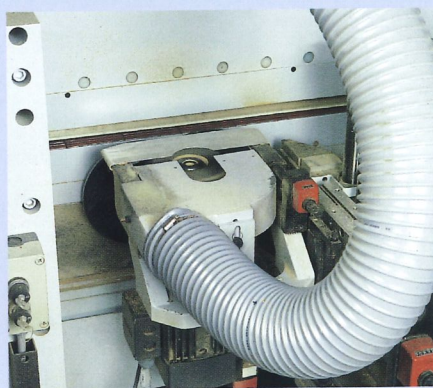
Separating agent application*

To avoid sticking of the remaining paper strip on U-Profiles, this area is sprayed with a separating agent prior to top-layer removal of the bottom laminating material.



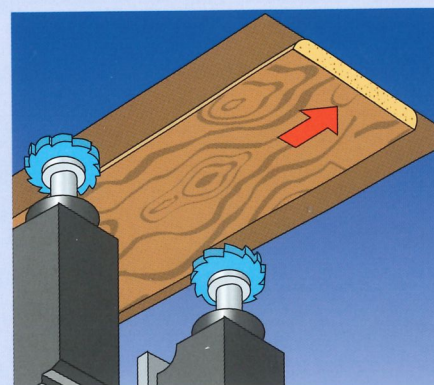
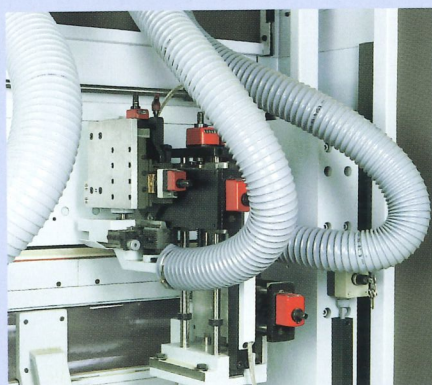
Top-layer removal of bottom laminating material*

With U-profiles the upper surface material joins the bottom laminating material in a butt-joint, therefore the bottom surface material is trimmed back to the fold-in depth, prior to edge wrapping.



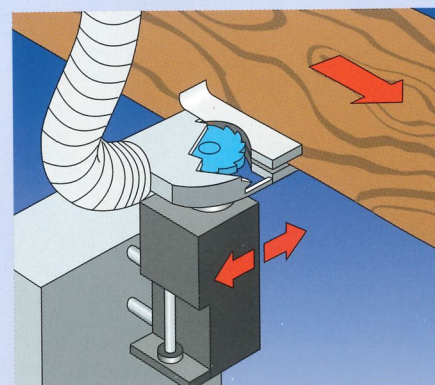
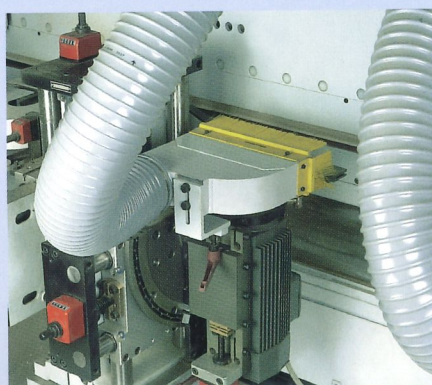
Flush-trimming of bottom laminating material*

With L-profiles the bottom laminating material is trimmed flush, prior the edge wrapping.



Trimming of laminate overhang to width*

With CPL laminates the upper material is trimmed to exact width, prior to edge wrapping.



* graphic representation - subject to change without notice

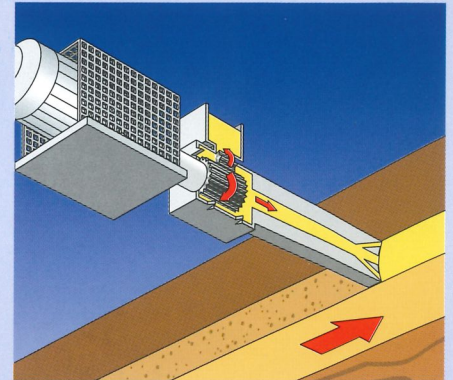
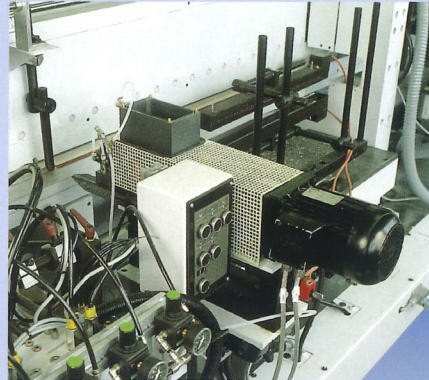
Building-block-system FK

Edge wrapping



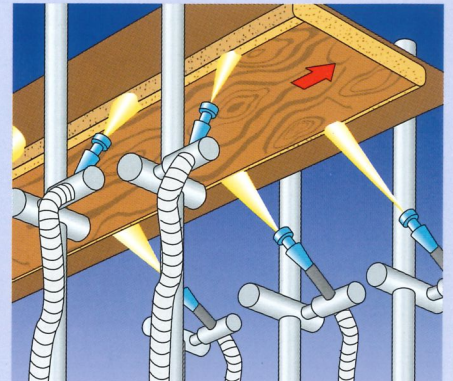
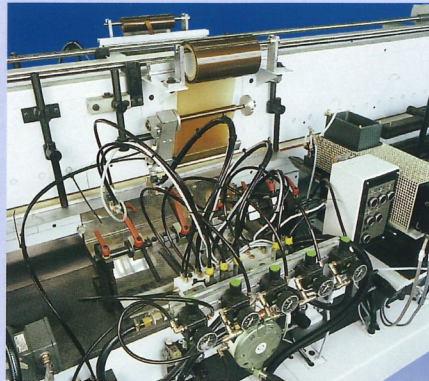
In-line edge filling*

In a patent registered special process a hotmelt glue is pressed with high pressure into the profiled edge. Before the hotmelt cools down, the laminating material is wrapped around the edge and smoothed.



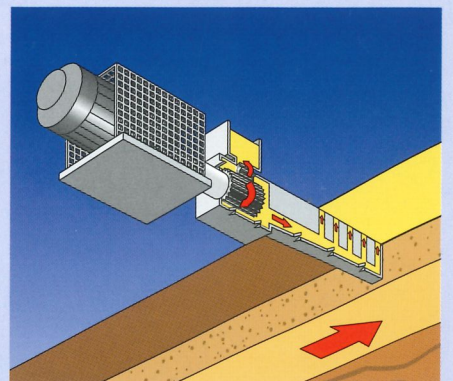
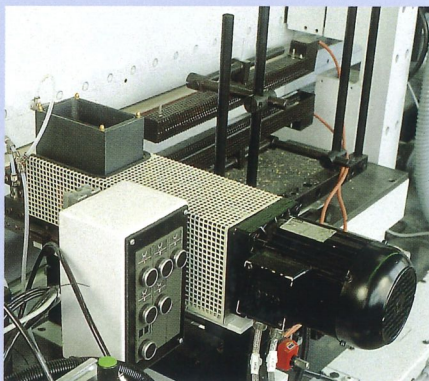
PVAc glue application*

With PVAc glue edge wrapping, the glue is sprayed onto the upper laminating material and the profiled edge with controlled special valves.



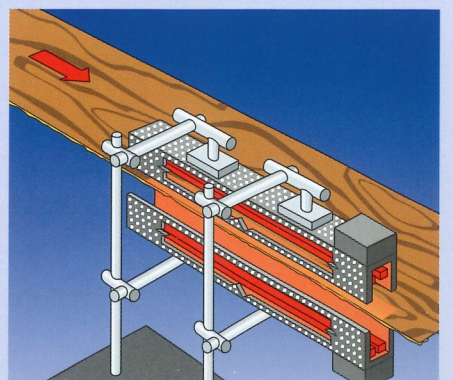
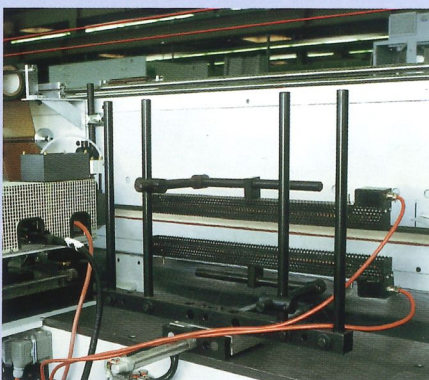
PUR hotmelt glue application*

For edge wrapping with CPL laminates, predominantly PUR hotmelts are used. The PUR glue is applied with special nozzles to the upper laminate overhang.



Glue evaporation*

PVAc glues are evaporated with IR-radiators prior to wrapping, to achieve an optimal adhesion.



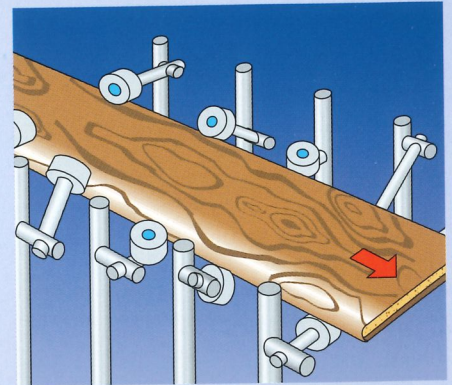
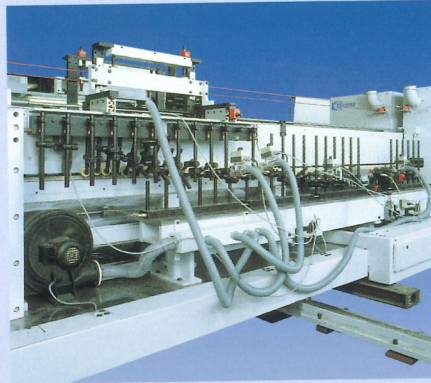
* graphic representation - subject to change without notice

Building-block-system FK

Edge wrapping

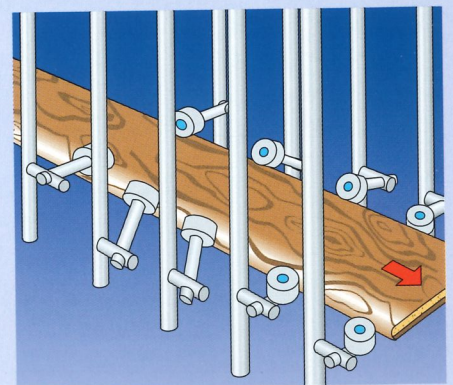
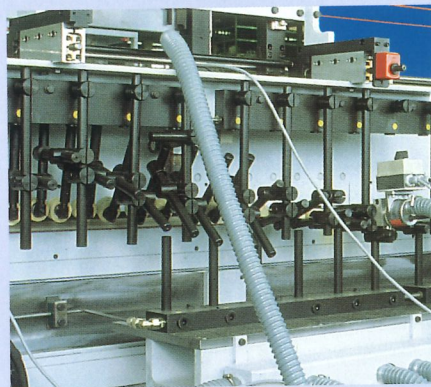
Edge wrapping*

For edge wrapping the proven Friz tooling-system with 4-axle adjustment and spring loaded holders is used. The tool-mounting bars are fixed to the lower transport system and are adjusted automatically, with each width adjustment.



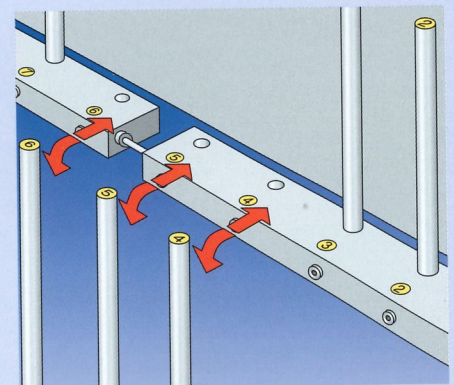
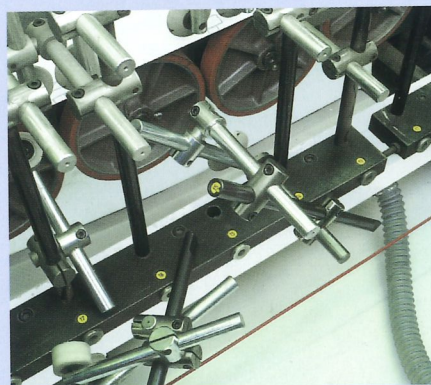
Wrapping tools mounted on the top pressure*

With changing workpiece thickness the tools do not have to be readjusted if they are mounted on the top pressure.



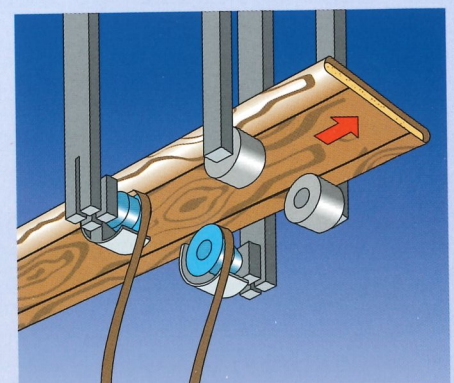
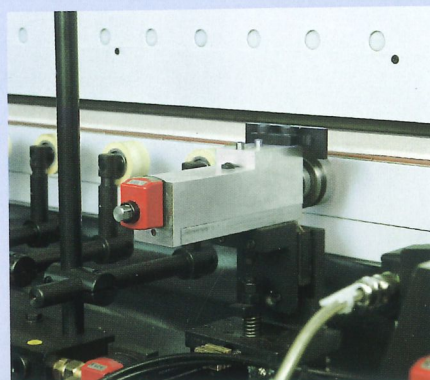
Hydraulic tool change system*

With the hydraulic tool change system the machine can be reset to a new profile within a few minutes.



Roll-knife*

With a roll-knife the upper laminating material is cut exactly in the butt-joint to the lower surface material. The remaining strip is evacuated by venturi suction valves.



* graphic representation - subject to change without notice

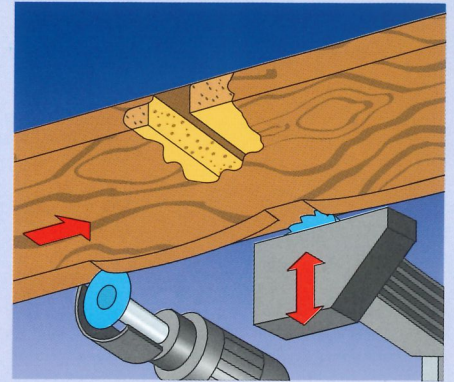
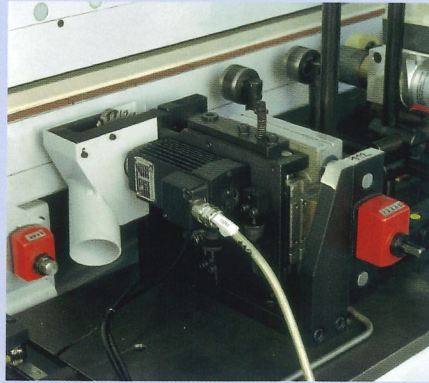
Building-block-system FK



Edge wrapping

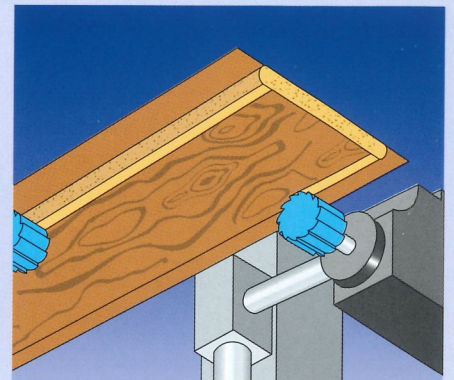
Separating saw*

If workpieces are fed with gap, the roll-knife cannot cut in the gap, because there is no counter pressure. A saw with controlled lift, separates in this case the remaining strip in the gap.



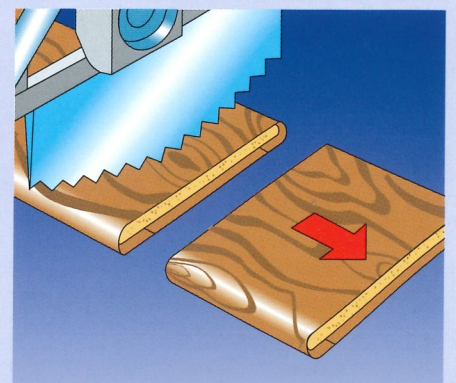
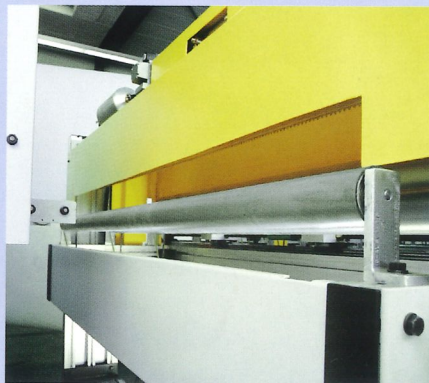
Flush-trimming*

Tilttable and traced motors trim the laminating material overhang on L-profiles flush.



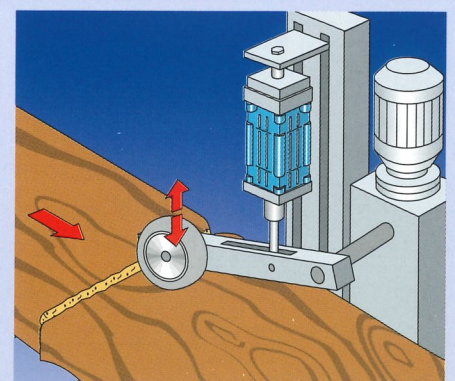
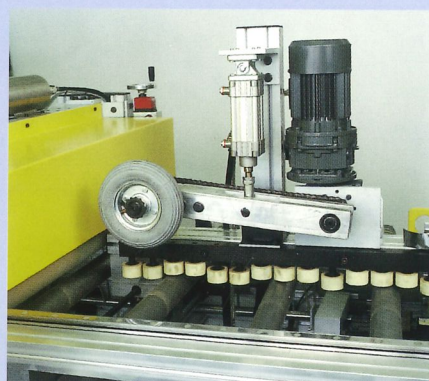
Separating knife*

To separate the laminating material in the workpiece gap.



Break-off-station*

Workpieces laminated with paper; the separation in the butt joint is effected by a controlled top pressure unit, which shears off the paper in the joint.



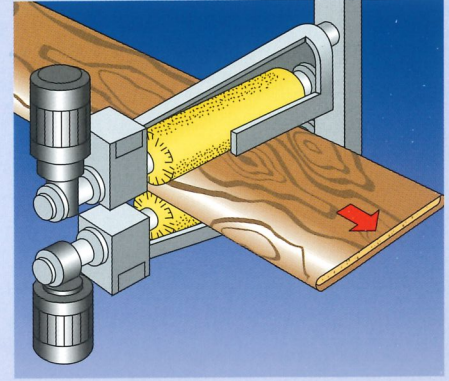
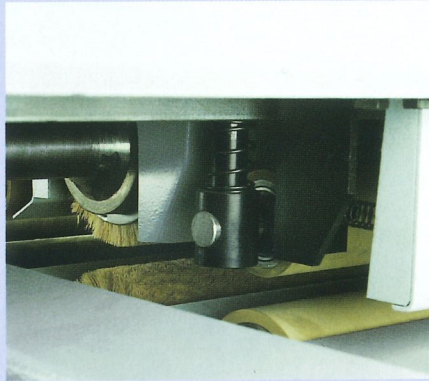
* graphic representation - subject to change without notice

Building-block-system FK

Edge wrapping

Brush cleaning*

The finished workpieces are cleaned again, to avoid damages due to stacking.



Control-Systems

PLC control Homatic NC 16*

The NC 16 is a special low-cost standard control. Ex factory it is equipped with 3 basic programs.

A large portion of all required machining you need, is thus already stored.

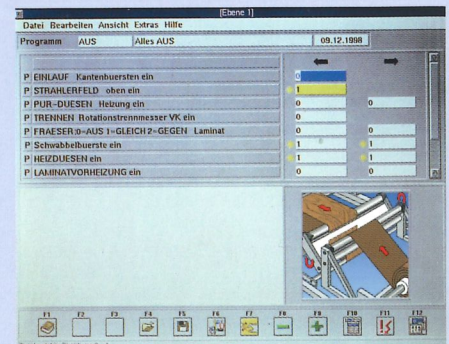
Furthermore you can enter more processing programs to your individual demand. A modem-remote-error-diagnosis can be integrated.



NC-control Homatic NC21, PC-based*

The NC 21 controls a machine as well as 2 handling (transport) stations in the same line. The programming during production increases the machine availability. With large storage capacity to secure

the user-know-how. Teach-in, offset and contact plan diagnoses. Network-port Ethernet, operator guide system and remote diagnoses can be integrated.



PLC control TP 22*

menu-guided control by a touchscreen terminal



* graphic representation - subject to change without notice

Friz machines and technologies are appreciated by all renowned manufacturers and their suppliers in Germany and around the globe.

Appreciation for innovation, flexibility, reliability and high availability.

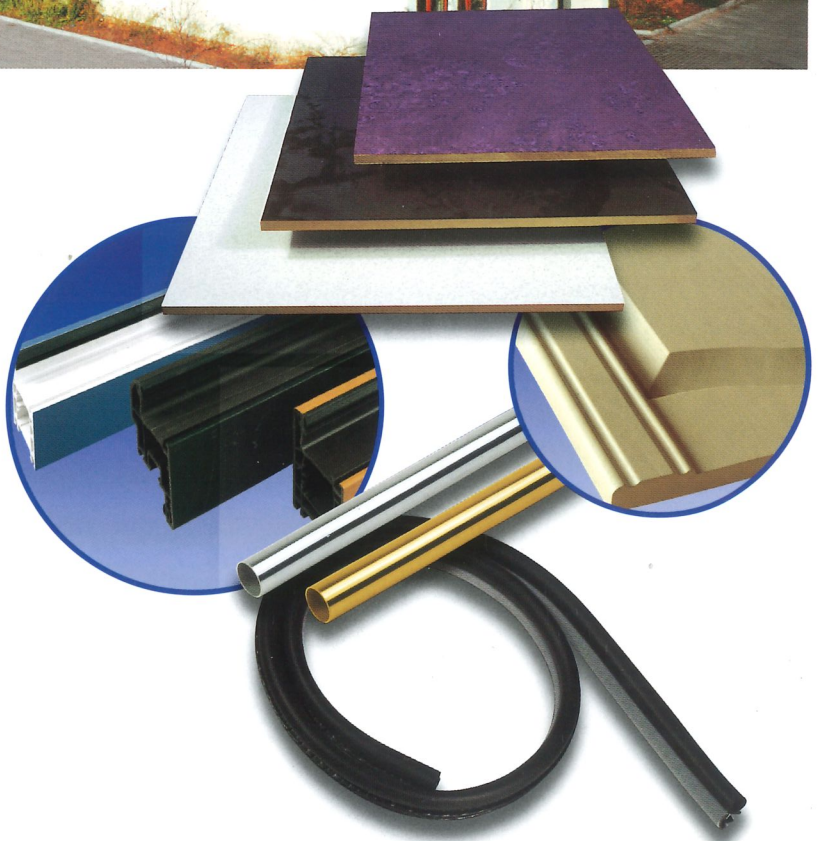


Our customers are

- the furniture industry and their suppliers
- the shopfitting and their suppliers
- plastic profile extruders and their value adding customers
- suppliers of the automotive industry

Our products are

Machines and production lines to laminate surfaces for any application - from the standard machine to the product-specific line.



With continuity into the future

Friz and its employees „live“ with the laminating technology. Their longstanding experience and creativity are bundled in a future and market orientated range of products - **to the advantage of our customers.**



Innovation ...with competence

Profile wrapping
Surface laminating
Membrane pressing

We have the right surface technology for you - from the standard machine to the product specific production line.

Machines with highest availability and economy, individually adapted to your demands.

Your partner in surface lamination

A company of the Homag-Group



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