SCHELLING

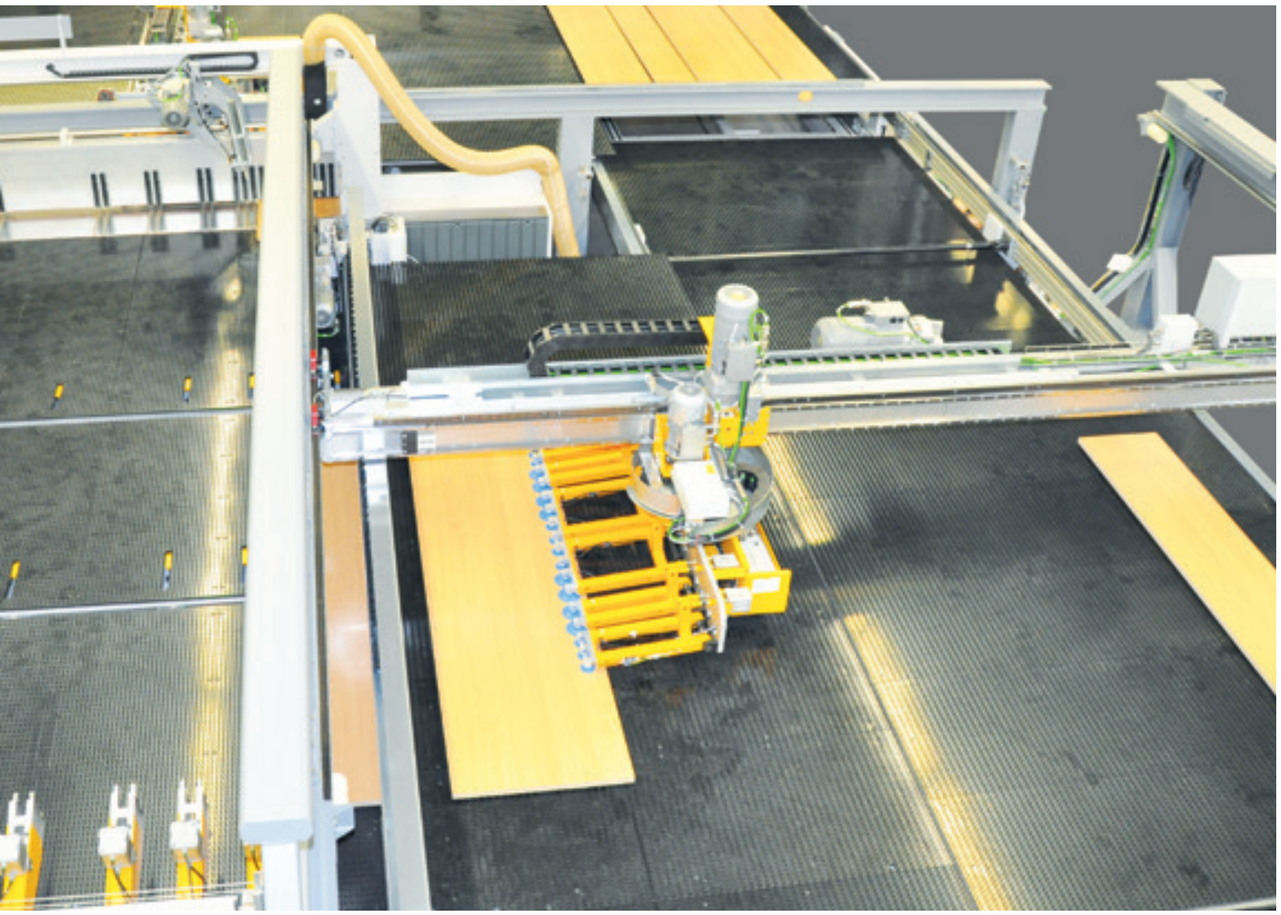
Lot-size-1 – cut-to-size plant ls 1

Daily thousands of constantly changing components getting cutted automatically.

schelling.com

PROFITABLE LOT-SIZE-1 PRODUCTION REQUIRES RELIABLE TECHNOLOGIES.

SCHELLING

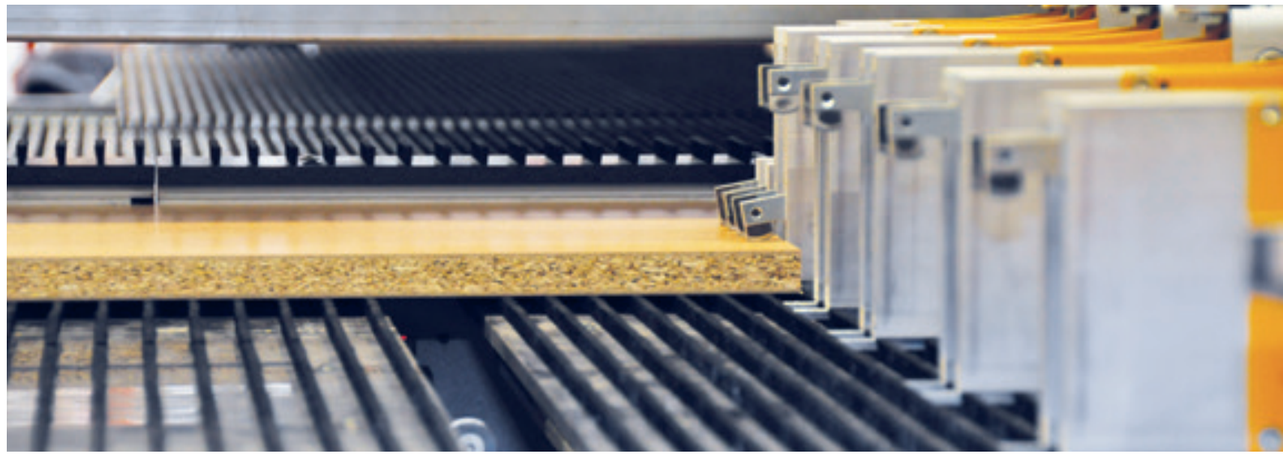


Lot-size-1 production is gaining in importance all the time. An ever-growing number of manufacturers are offering products based on entirely customized designs – kitchens, bathrooms, bedrooms and a host of others. The Schelling lot-size-1 cut-to-size saw for panel-shaped materials makes a decisive contribution to this trend. The ls 1 technology is a direct answer to the call for further individualization in industrial production. In a fully automated manner, Schelling ls 1 produces a constantly changing range of components in tiny and short production runs from a continuous production line. In an extremely fast and ultra-precise manner.
Many simultaneous factors are responsible for this, and Schelling is the only company to master them in this combination: Circular saw technology, proven rotary concept, well proven and robust Schelling design, powerful digital drives and high-performance controllers. Circular saw technology delivers maximum speed, fewer offcuts and less formation of dust.

The rotary concept stands for extremely low non productive periods, great process reliability and optimum material protection. This solid design assures precision while the powerful drives are the key to great productivity.
The high-performance controllers deliver perfect interaction of all components.
This makes the ls 1 a saw that combines proven, reliable technologies to create a highly innovative, future-oriented concept: With compact dimensions, despite a high level of performance output (rest return!) and great profitability thanks to a dramatic reduction in the investment cost, high levels of output, maximum material utilization and a long service life.

Second, third and fourth cuts etc.
Any desired number of cutting levels enable boards to be rotated very flexibly and almost completely. The return system with three brush shuttles and the additional infeed via DUPLUS2 assure virtually uninterrupted production by the saw.

THE INNOVATIVE ROTARY CONCEPT ENABLES THE SAW TO OPERATE CONTINUOUSLY.



Non productive and cost-effectiveness are indelibly linked to one another. Since the cutting times are optimized to perfection on the Schelling Is 1, thanks to rotary saw technology and powerful drives by short non productive periods. Z-axes – i.e. vertical movement of the sawn parts, e.g. by gantry structures or robots – harbour high risks in terms of downtime periods. Thin, thick, heavy and corrugated boards frequently cannot be handled reliably by the vacuum suction units used most commonly in this field. Which results in malfunctions and delays, and cycle times that cannot be maintained. This is why Schelling Is 1 dispenses movements of the Z-axis. This solution is called the rotary concept (also known as concentric, recirculation, flow production or return system). This simple technology, with proofed technology, is re-invented here with brush shuttles.
Three mobile brush trays are involved in this process. They also act as a form of buffer storage. In an endless circuit, longitudinal strips are first directed onto a first shuttle to position 1 until the shuttle and therefore also the buffer is full. The shuttle then travels towards position 2 and is replaced immediately at position 1 by a second shuttle. At position 2, a third shuttle, already loaded, supplies the saw with material until it is completely unloaded: The first shuttle is then already in position to be unloaded.

Brush shuttles protect surfaces

Well proven brush technology for careful handling of valuable board materials coupled with an ingenious shuttle system: At the same time, three shuttles also act as buffers, and transport parts stacked vertically for further cutting operations back to the sawing line. With a DUPLUS2 (double infeed) that takes charge of these parts and that works parallel to the loading operation for example from the storage area, the saw can be supplied with boards in a continuous manner.

Transfer carriage after the sawing line

Cut parts are immediately removed from the sawing line by a transfer carriage.

PROVEN CIRCULAR SAW TECHNOLOGY ASSURES SPEED AND HIGH MATERIAL UTILIZATION.

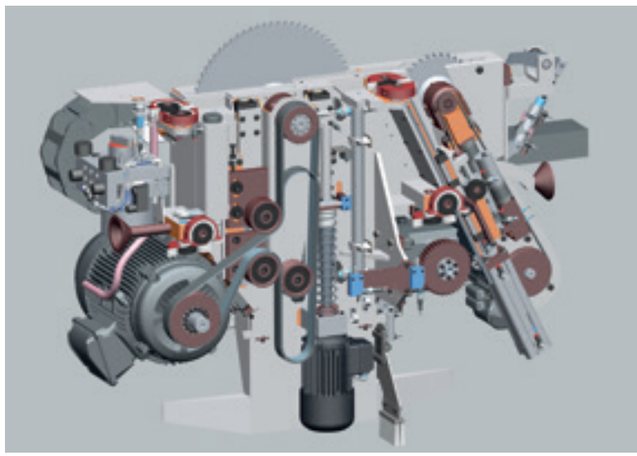
Speed, utilization of board materials and precision are essential in everyday production work. This is why Schelling is committed to circular saw technology.
100 years of know-how ensure that Schelling masters this technology like no other player in this field.
Coupled with powerful drives, this circular saw principle assures rapid material flow. The simple motor mounting with a sawblade that can be raised and lowered also reduces the cutting times.
Thin sawblades prevent unnecessary levels of offcut (i.e. waste). They also dramatically cut down the creation of sawdust and shavings, an important factor for component precision and protection of surfaces.

Sawblade geometries and an ingenious and encapsulated dust routing system for wood shavings also make important contributions here.
A key aspect of the proverbial precision of Schelling Is 1 is its heavy-duty and solid construction that prevents torsional stresses and vibration despite the powerful drives used in this process.
In conjunction with powerful Schelling software this leads to an impressive level of output, even when the individual orders are changing constantly: With infeed speeds of up to 120 m/minute and saw feed rates, some in excess of 100 m/minute, up to 5 parts a minute or 2400 parts per shift are entirely feasible output levels.

Saw unit with lifting and lowering sawblade
The saw unit lets the sawblade travel vertically upwards by itself while the sawing carriage and its heavy motor only ever move horizontally. This makes the dividing process significantly faster.

Less offcut, less dust and less shavings
In contrast to other technologies, circular saw technology really does come out on top. The thin sawblade and powerful drive deliver feed rates in excess of 100 m per minute, preventing the production of dust and shavings.

High energy efficiency
Thin sawblades, ultra-modern, digital, intelligent controlled drives and low suction requirements all reduce the electrical power required for operation – while at the same time reducing the noise level and dust level.



EVERY LEVEL OF AUTOMATION CAN BE SELECTED AS REQUIRED.

The core of the ls 1 is standardized, and the complete plant is very flexible thanks to its modular design. Loading and output can be designed as precisely as you could wish for. Optionally, e.g. as a stand-alone version with manual acceptance or completely integrated and linked into the production line, with or without a connection to board storage – and all variants between those.

The level of automation is a matter of choice. The plant can be loaded directly from the board storage area system, or by a different loading system. It is also possible to stock pick in a random stack manner, e.g. in the automatic panel store.

Unmanned operation also means that all parts are aligned fully automatically before every longitudinal and transverse cut, and that parts are segregated automatically, while the orientation of parts is also automated for subsequent machining, and labelled automatically in the outfeed area.

Loading from an board storage area system
The Schelling Is 1 can be loaded from a Schelling board storage area system type vs – but also by other systems – with new boards and remainder boards.

Automatic labelling
All parts (also remainder parts) are supplied automatically with labels.

LARGE AND SMALL REMAINDER IS RECYCLED IN A FLEXIBLE AND COST-EFFECTIVE MANNER.

Particularly in lot-size-1 production, the recycling of remainder is of fundamental importance to cost-effectiveness. Of course, the cutting plan optimization aspect of industrial lot-size-1 production always seeks to use up complete boards in a single operation by grouping together parts from different orders. However, it is in the nature of customized production that this goal is not always achievable in a cost-effective manner.
As a consequence, and not uncommonly, remainder is created, in small as well as large quantities. This material needs to be sent for rapid recycling. Regardless of the stage in the cutting process at which it was created.

Large remainder go straight back into storage

Large remainder is directed back into storage automatically and is taken into account at the next suitable opportunity by the cutting plan optimization process.

Schelling XBoB recycles small remainder

Using small remainder in an optimum manner – by which we mean promptly – is the mission of Schelling XBoB software. Labelled with a fixed and assigned storage position, each remainder is incorporated in the cutting plan optimization process as soon as an opportunity is given. The times of constantly growing stocks of residual material are over!

HOW LS 1 ALMOST COMPLETELY ELIMINATES SHAVINGS AND SAWDUST.

Shavings and sawdust are a negative factor for precision, material surfaces and safety. Schelling has devised strategies to combat this, and that reduce the volume of shavings and sawdust in the machining area!
On the sawing unit and the pressure bar, sealed systems assure controlled disposal of all particulate created during the sawing process before it can enter the machine or the ambient air.
This maintains precision at a constant level, it prevents scratches in fragile panels, and makes work more pleasant for the operating personnel.
Thanks to a well managed waste disposal system, a low suction volume can be selected. This helps to keep noise and energy consumption at low levels.
Waste parts that cannot be reduced are disposed by a waste flap and sent for disposal without interrupting cutting cycle time.

Waste flap

Parts that cannot be reused are disposed directly through a waste flap. It is positioned right after the saw line and to be removed automatically.

Disposal of shavings and sawdust

Sealed systems on pressure beam and sawing unit assure the reliable disposal of dust and shavings.

Quiet suction unit

The intelligent dust and shaving disposal system makes it possible to have a small suction unit that does not consume much energy, and that operates quietly.

TECHNICAL DATA

Cutting lengths
3300 mm / 129.92'' 4300 mm / 169.29''

Saw blade projection
105 mm / 4.13''

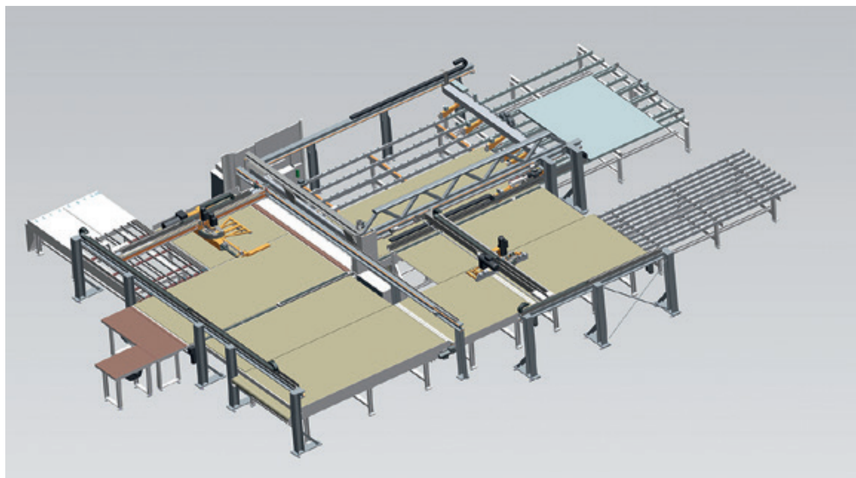
Saw motor power
18 kW / 24 HP

Saw feed rate

forward	up to 150 m/min / 492 ft/min
reverse	150 m/min / 492 ft/min

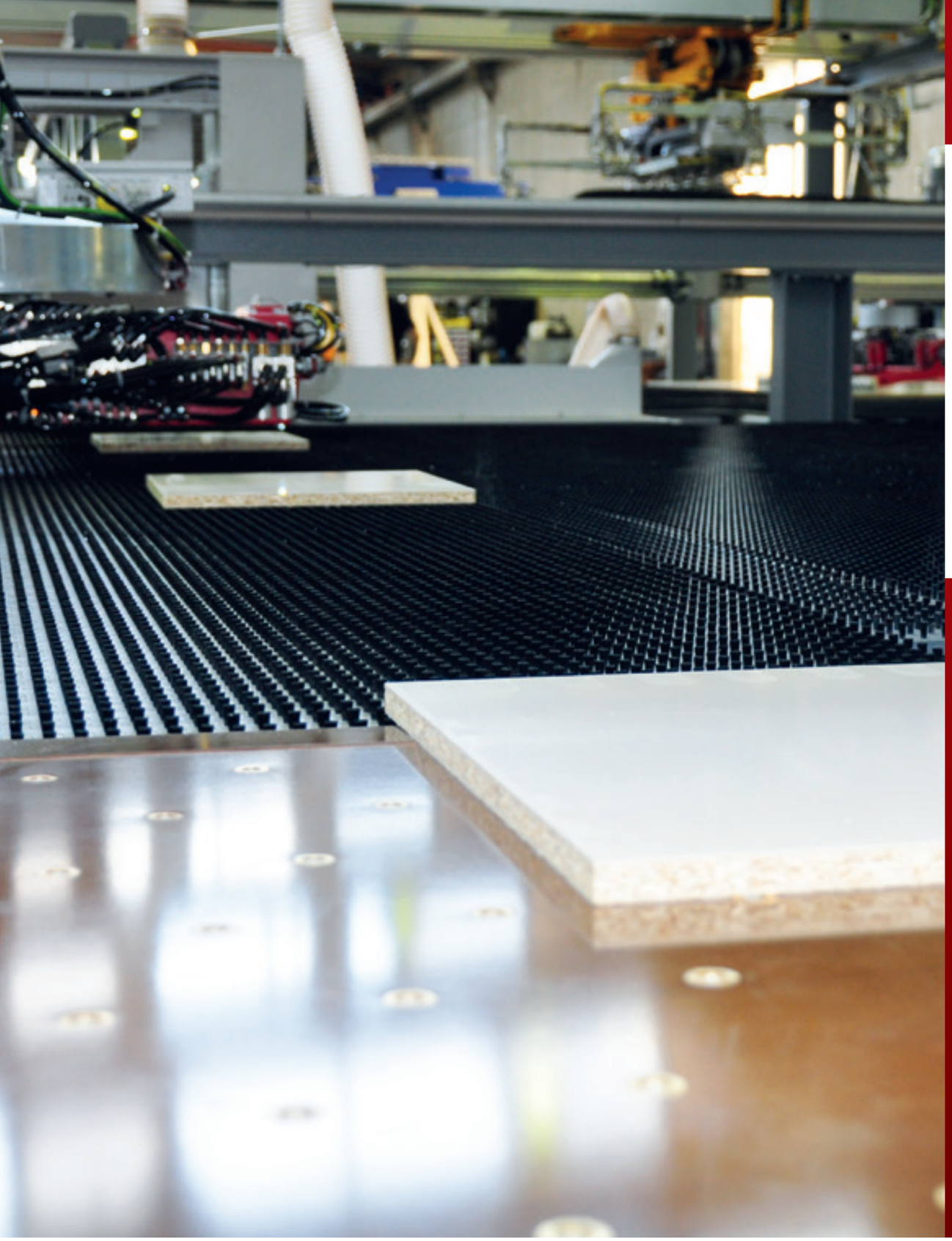
Feed rate

forward	up to 120 m/min / 393 ft/min
reverse	120 m/min / 393 ft/min



The Benefits

- MAXIMUM ENERGY EFFICIENCY
- MINIMISED MATERIAL WASTAGE
- HIGH PRECISION CUTS
- CLEAN MACHINE
- LOWEST POSSIBLE NOISE LEVEL
- MAXIMUM PROTECTION OF PANEL SURFACES
- HIGHEST DEGREE OF PROCESS RELIABILITY
- HIGHEST DEGREE OF PLANT AVAILABILITY
- HIGHEST DEGREE OF AUTOMATION
- PERFECTLY SUITED FOR MACHINING SMALL PARTS
- FUTURE-PROOFED BY MODULAR DESIGN
- SORTING OF PARTS
- VERY HIGH THROUGHPUT, MAXIMUM FLEXIBILITY
- CENTRALISED WASTE DISPOSAL
- AUTOMATIC LABELLING
- HIGHLY COST EFFECTIVE (HIGH ROI)
- PARTS ALWAYS CORRECTLY ALIGNED
- COMPACT
- PRODUCTION ANALYSES – MDE/BDE
- AUTOMATIC HANDLING OF REMAINDERS



ONE GROUP – ONE GOAL: EXPERTISE IN DEVELOPING SOLUTIONS FOR THE WOODWORKING INDUSTRY

The IMA Schelling Group is a reliable partner for implementing of sophisticated system solutions.
The demands of our customers are a daily challenge to us, our know-how and creativity!
We work with you to develop innovative and unique solutions for wood processing.

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