



Automatic Edging System

AB 920



Why an AB 920 from PAUL?

The situation

In many small and medium-sized sawmills, side boards are frequently still pushed manually into the edger.

The result is:

- Insufficient output
- Poor timber yield
- Minimum profit
- Competitiveness at risk

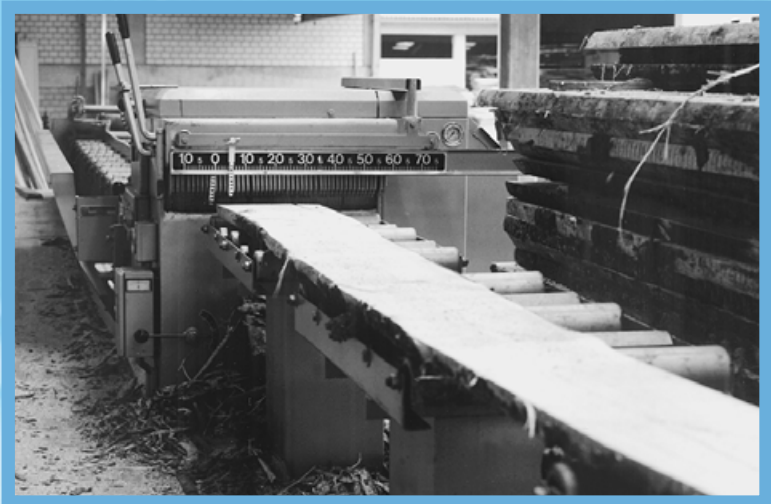


Fig. 1: Manual feeding as in many sawmills

The solution

A PAUL AB 920 automatic edging system will solve all these problems:

- Optimum timber yield
- Economical material utilization
- High productivity
- Transparent production
- High throughput of up to 16 boards per minute



Fig. 2: AB 920 with non-contact triangulation measuring heads

All from a single source

Complete automatic edging systems

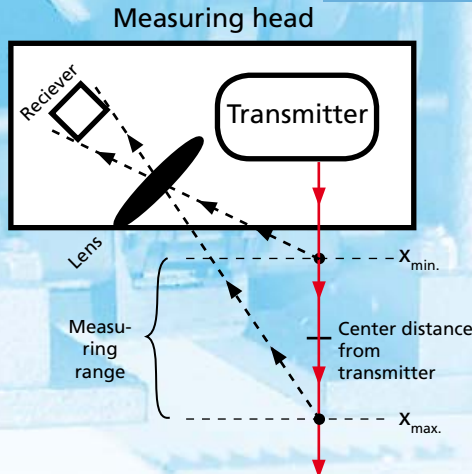
PAUL supplies complete automatic edging systems as a single-source solution. From pre-cross-cutting, feeding through the edging machine to the offcut separator.

Perfectly tuned high-grade components coordinated by intelligent control systems.

The automated handling equipment from PAUL will increase the efficiency of the edging system resulting in highest throughput speeds and maximum timber recovery.

Measurement is effected by non-contact opto-electronic measuring heads, so-called triangulation measuring heads.

Triangulation in detail



A laser beam is transmitted by the triangulation measuring heads and reflected by the surface of the board. Based on the angle of the returning beam, the system calculates the distance from the transmitter. This allows the shape of the board to be precisely determined and the incline of the wane edges to be ascertained. The data obtained are also used for the optimization of the ripping pattern.

Fig. 3: Function of triangulation system



Fig. 5: AB 920 with BK 1000 edger



Fig. 4: AB 920 combined with a climb-cutting S1500/GL rip saw



Fig. 6: AB 920 with integrated cross-cut trim saw

The complete cutting operation takes 4

Measurement

Step 1

The boards pass at high speed in the transverse direction through a measuring system, where their shape is gauged by up to 16 overhead non-contact laser measuring heads.

This process also ascertains the angle of incline of the wane edges, which can be highly beneficial for the optimization process.

Already squared boards are easily recognized by the opto-electronic measuring heads.



Fig. 7: Touchless scanning of the boards

Optimization

Step 2

The AB 920's control system determines the best possible cutting pattern.

This calculation is performed on the basis of the measuring data and - where necessary - rip lists entered by the user containing the required widths.

Using this information and additional parameters such as a percentage of wane allowance, the optimum cutting pattern is obtained within split seconds - taking into account your individual requirements and with the absolute optimum achievable yield.

The sawing positions are now defined and the board is positioned accordingly.

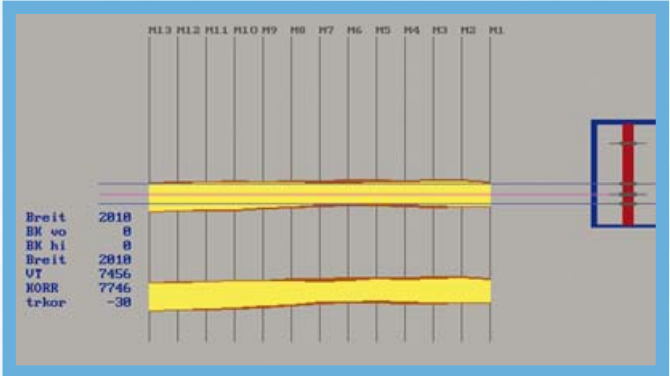
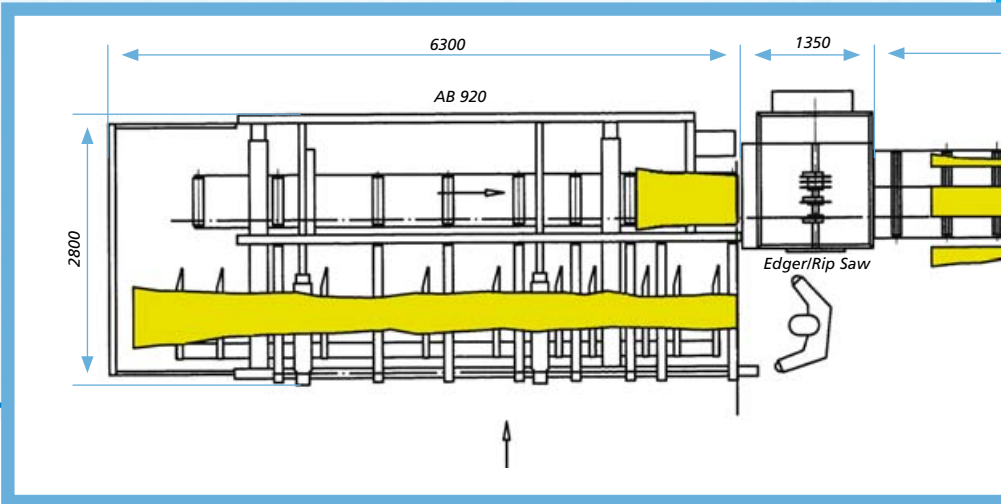


Fig. 8: Graphic display of a cutting pattern



seconds and comprises 4 fundamental steps

Alignment

Step 3

A swivel-mounted alignment table moves the boards to the optimum infeed position.

This offers the following advantages:
Boards are not simply centered, but perfectly aligned with the following possibilities:

1. Center alignment
2. Side alignment along one waney edge (right/left)

This method allows up to a 15% improvement in timber yield as against simple centering.

For more details on the alignment process, see overleaf.



Fig. 9: Optimum alignment by a swivel-mounted alignment table

Cutting

Step 4

Once the board has been aligned in front of the edger/rip saw, it is transferred from the alignment table to the feed system.

PU-coated bottom rollers and a non-slip chain above grip the board securely and carefully, eliminating the possibility of slippage after completed alignment. The board is accurately transferred to the following rip saw.

Movable saw bushes are positioned by the control system in accordance with the optimized cutting pattern.

The feed rate is automatically adjusted based on the board thickness and cutting pattern (number of saw blades) in order to avoid overloading the main motor.



Fig. 10 + 11: An optimum cutting pattern is obtained

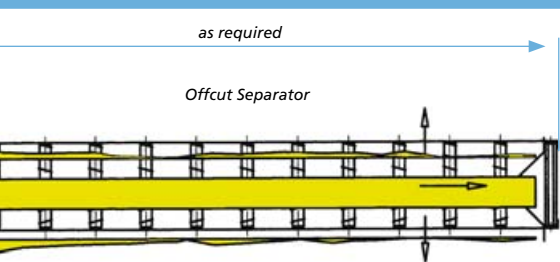


Fig. 12: Schematic view of a complete automatic edging system

Alignment instead of centering

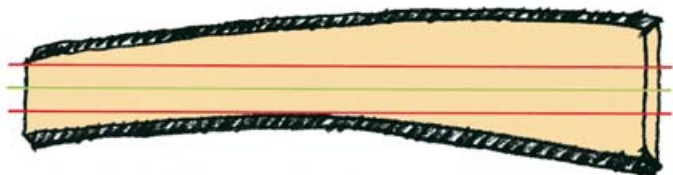
The alignment process

The AB 920 makes use of a special alignment process.

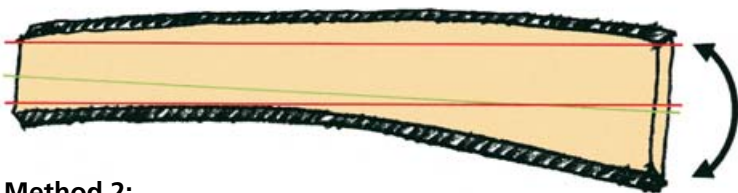
This not only ensures that boards are transported to the correct infeed position after measuring, but additionally skews them in the longitudinal direction to achieve the maximum possible edging width.

Center alignment

Side alignment along the waney edge



Method 1:
The board is centered. Maximum edging width 100%



Method 2:
The board is skewed. Maximum edging width 115%

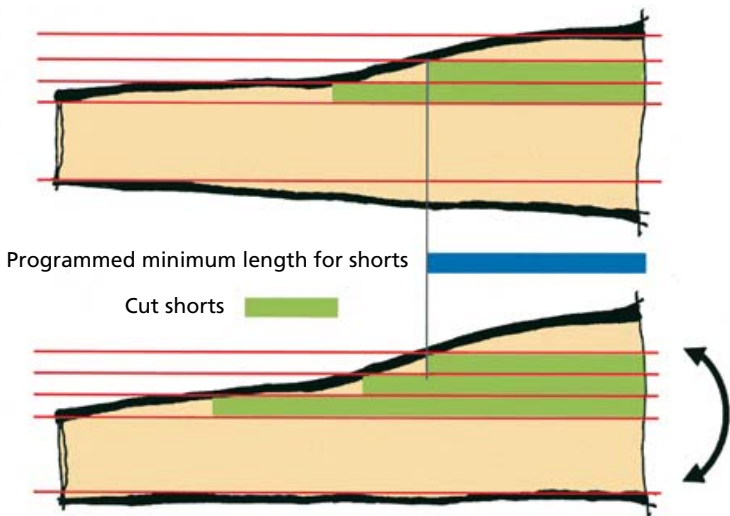


Fig. 13: Schematic view of alignment process



Fig. 14: Skewing of board for optimum alignment

The control system

Designed for industrial use

The operating terminal with its dustproof keypad and monitor is used for entering cutting lists and parameters.

Statistics generated by the computer can be displayed and printed out (optional extra). On starting the equipment the control system carries out an automatic performance check on all electronic elements and indicates their operating state.

In the operating mode, the monitor displays measurement and optimization results for the timber being processed.



Fig. 15: Control desk of the AB 920

In the normal mode, the operator controls the unit from a large control desk, designed for industrial use.

The integrated simulation function allows you to determine the timber yield without cutting a single workpiece. Via the MAXI control it is possible to exchange processing data with PAUL cross-cut systems or network computers (option).

Optical defect scanning systems (option) complete the automatic edging systems to the highest degree.



Fig. 16: Dustproof operating terminal with 14" VGA color monitor

Technical Data

Technical Data of AB 920 Infeed System

Opening width	max. mm	920
Opening height	max. mm	140
Infeed length	min. mm	depending on edger/rip saw
Infeed length (standard)	max. mm	6000
Number of triangulation measuring heads (standard)	(max.)	13 (16)
Distance between measuring heads	mm	432 (350)
Feed rate (continuously adjustable)	max. m/min.	120
Motor power (infeed system)	kW	10
Height	approx. mm	2100
Width	approx. mm	2800
Length	approx. mm	6300
Weight	approx. kg	3000

Suitable Edger/Rip Saw

BK 1000: Proven edger in combination with the AB 920

Cutting height	max. mm	125
Opening width	max. mm	1000
Infeed length (optional)	min. mm	1000 (800)
Motor power	max. kW	55
Number of movable saw bushes		1 to 4

C/GL Climb-cutting rip saw with overhead saw shaft for best cutting quality

Cutting height	max. mm	100
Opening width	max. mm	1000
Infeed length (optional)	min. mm	1000 (800)
Motor power, standard	(max.) kW	55 (90)
Number of movable saw bushes		1 to 4

S models: Heavy-duty edgers in different opening widths

Schnittthöhe	max. mm	180
Opening width	max. mm	906 / 1206 / 1506
Infeed length	min. mm	1200
Motor power	max. kW	220
Number of movable saw bushes		1 to 4

S/GL Heavy-duty climb-cutting resaw with overhead saw shaft

Cutting height	max. mm	180
Opening width	max. mm	906 / 1206
Infeed length	min. mm	1200
Motor power	max. kW	220
Number of movable saw bushes		1 to 4