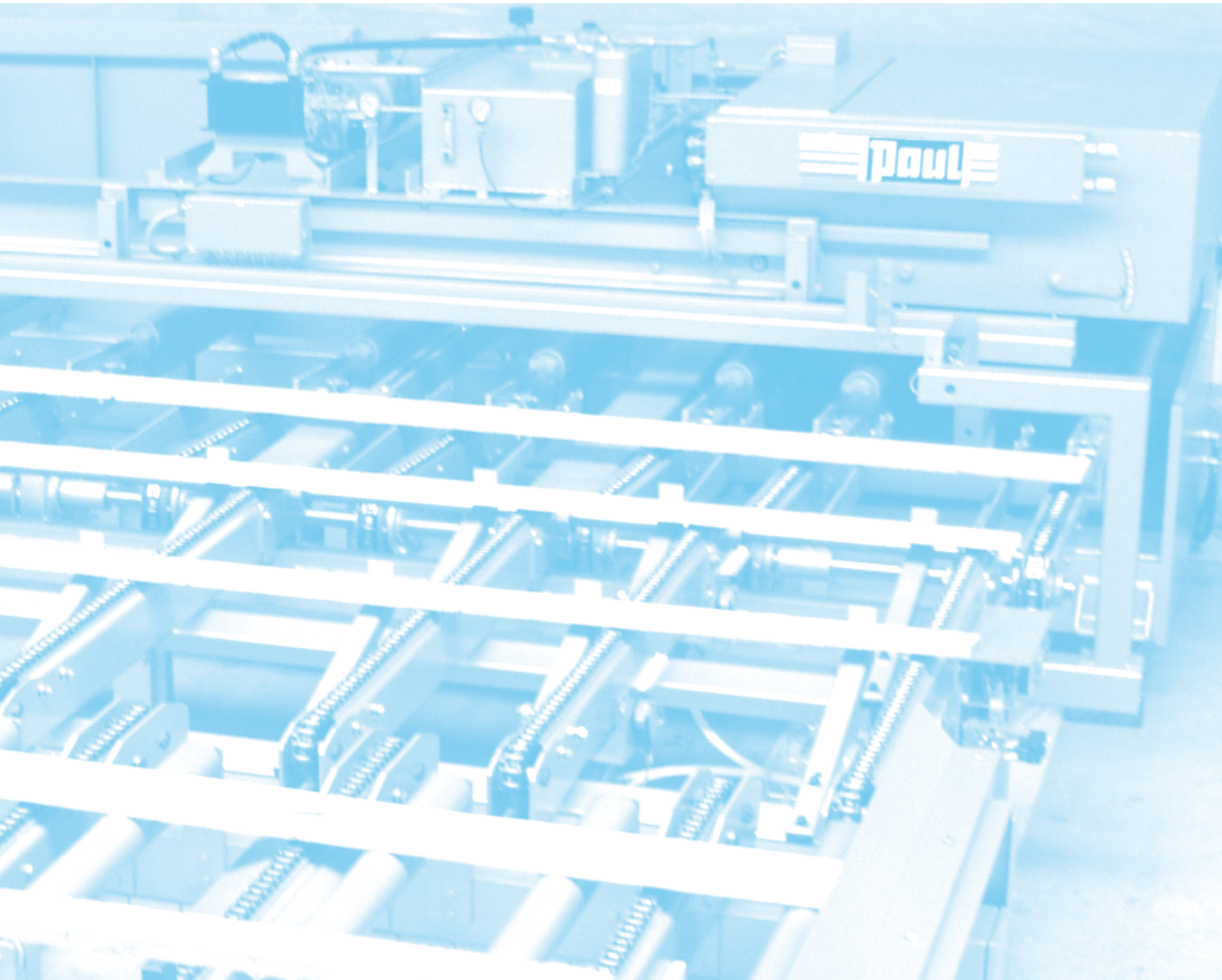




Maschinenfabrik GmbH & Co. KG



Feeding Systems





Applications

The right feed system for every application

The aim of a feed system is to achieve optimum performance linked to best material utilisation and profit maximisation. In combination with the various rip saws supplied by PAUL, it is possible to develop a solution for every possible application.

Mechanisation components have become an indispensable production factor in today's world. The main reasons for using such systems lies in their potential for cost and time savings.

PAUL offers decades of experience with feed systems. Over the years, standards have been developed to fit specific applications, and these standards are incorporated in the AB 220, AB 1200, RF 900 and RM 900 machines which PAUL manufactures today.

Modular system

The PAUL modular system makes it possible to combine different feed systems with different types of saws, so that maximum yield can be achieved within the value added chain. The function of the equipment is based on simple principles.

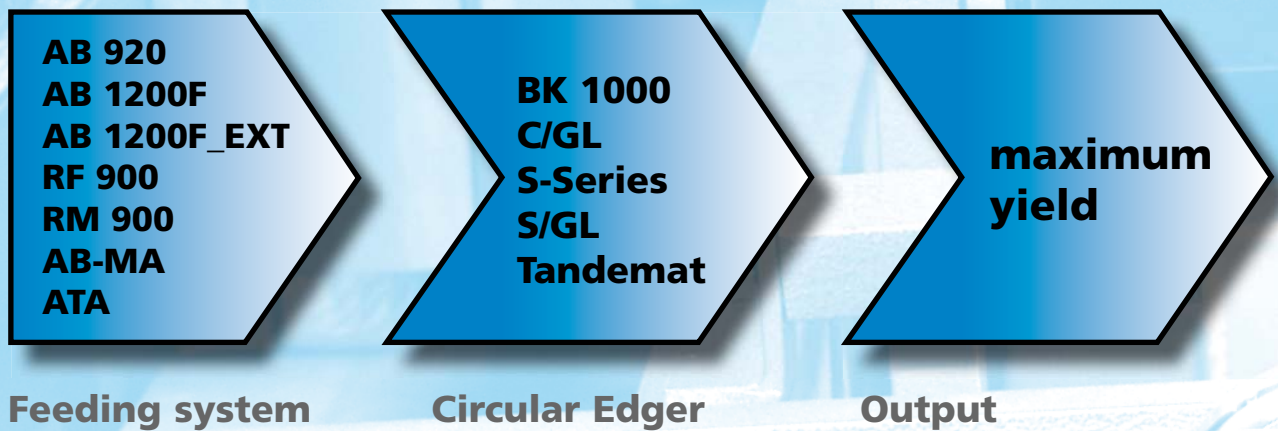


Fig. 1: A maximum yield can be achieved with a feeding system from PAUL

Superbly simple!



The technology in detail

Limitless measurement with the AB 920 and AB 1200

Buffering before the feed system which is independent of length and thickness allows optimum cycle times, even with different workpiece dimensions. The workpieces are measured using up to 32 laser sensors without the need to touch the timber. Because of this, an almost-perfect representation of the timber is obtained for transfer on to the optimisation computer system. In the same way, rough edges of all types can be determined down to the last millimetre.

The integrated carriage positions the measured workpiece correctly in front of the trim or rip saw. During the positioning process, this carriage is able to rotate the workpiece along its longitudinal axis. This means that timber utilisation is increased by up to 15% as against simple centering. Hori-



Fig. 2: The sliding carriage positions the workpiece with great accuracy

zontal bowing or bending of the planks does not affect the system, as the mechanics function without a longitudinal limit stop device.

The ready-positioned workpiece is transported into the trim saw with the help of the continuous feed chain (AB 920) or pressure rollers (AB1200). The feed speed of the entire trim equipment can be automatically optimised by the

CNC control unit depending on the material thickness and the number of tools involved, and this in turn means that the maximum number of possible cycles is achieved.



Fig. 3: The laser sensors measure the workpiece

	auto skew	fenceless	moving blade	Speed boards min. / max.*
AB 920	Yes	Yes	Yes	20
AB 1200F	Yes	Yes	No	20
EXT version	Yes	Yes	No	12-14
RF 900	No	No	No	6-10
RM 900	No	No	Yes	6-10

* without offcut separator

Fig. 4: Overview of the different PAUL feeding systems

Maximum timber yield with an

Model AB 920



Fig. 5: Automatic Edging System AB 920

The standard AB 920 model was designed by PAUL more than 25 years ago and has been under constant development ever since. This machine series is suitable for both trimmed and untrimmed wood. The proven success of the equipment is based above all on the following components:

The measuring system

- ensures correct plank measurement at a maximum of 32 measuring points (standard: 13 measuring points) along the length of the plank
- transfers the measuring results to the MAXI 5 control unit for optimisation
- recognises rough edges with the help of triangulation measuring heads (option)

The CNC control system

- coordinates the feed sequence of the planks into the rip saw
- is supplied with a convenient touchscreen for entering parameters and data
- works under the extremely reliable LINUX operating system

The positioning system

- consists of a twin-axe positioning table which transports the plank along under the measuring system
- ensures gentle transportation of the timber and places the timber at the optimum position
- works without limit stops and also allows automatic rotation of the plank
- allows higher finished timber yields than other manufacturers

The feed equipment

- works without any limit stops whatsoever
- consists of a hydraulic roller carriage, which lifts the plank to the working height of the rip saw
- is provided with an overlap mode which allows planks to be fed to the trim saw one after another

Maximum yield is achieved with

- precise, stop-free measurement, positioning and feed of the material
- precise control of the timber yield
- timber surface optimisation

Detailed information is available in our brochure
Automatic Edging System AB 920, PAUL-Info B 111.11/2.



PAUL Feeding systems



automatic feeding system from PAUL

Model AB 1200F

This model is an automatic feed system for optimisation with fixed rip saws and is suitable for both trimmed and untrimmed timber.

Optimum performance is achieved with

- stop-free positioning table with automatic rotation
- up to 32 measuring points for the width/geometry of the plank
- positioning table with 2 servo axes
- up to 20 planks per minute
- operating terminal with possible manual intervention



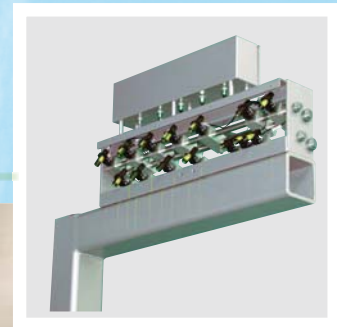
Fig. 6: From 1200F with buffer chain conveyor

Model AB 1200F_EXT

The extended version (EXT) from PAUL offers you the possibility of additional control of workpiece quality:

- horizontal displacement
- manual rotation
- removal of workpiece before ripping
- convenient joystick operation

Fig. 7: AB 1200F_EXT with laser gantry



Laser gantry for up to 32 laser units



Removal of unsuitable workpieces



Operating console with joystick console





Riptimizer - simple and efficient

Model RF 900

The Riptimizer is a feed system which can be attached to any rip saw with fixed blade. It measures the timber as it arrives and shows the operator the best sawing solution based on the timber itself and the positions of the saw blades. The operator can then decide himself if the sawing pattern which is suggested is the one he wishes to adopt. If he prefers a different pattern, the next-best solution appears at the touch of a button. If the operator does not wish to use any of the solutions, he can position the laser automatically using a joystick. This machine is only suitable for trimmed timber.



Fig. 8: The laser portal is positioned by means of a servomotor. The lasers can be slightly adjusted, in order to reflect the saw fixing

Model RM 900

The RM series (M stands for movable), is used in conjunction with movable saw blades. Laser light barriers are used in both systems in order to measure the width of the planks. This information is then sent immediately to the CNC control system in order to find the best-possible cutting solution.



Fig. 10: The stop rail enters into position so that the plank can be fed to the rip saw at right angles and precisely to fit the selected sawing pattern



Fig. 9: Clear operating console layout with joystick

Models AB-MA and ATA

Model AB-MA

- Semi-automatic and automatic feed of untrimmed and trimmed planks
- Manual orientation of individual planks in relation to a fixed laser line (zero line)
- Lifting device for easy alignment of planks
- Digital display of the widths determined by laser
- Simple removal of bends, rough edges and other material faults (e.g. cracks in the heart of the wood)
- Wood cut to the optimum width
- Quality/value optimisation (option)

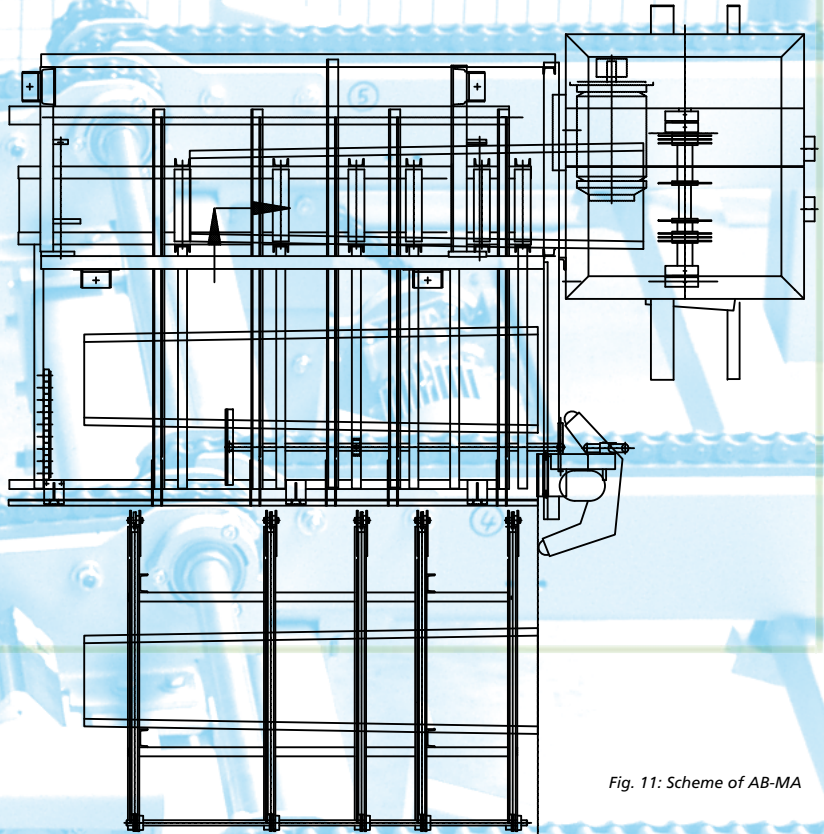


Fig. 11: Scheme of AB-MA

Model ATA

- Manual alignment / rotation
- Laser marking
- Quality/value optimisation option

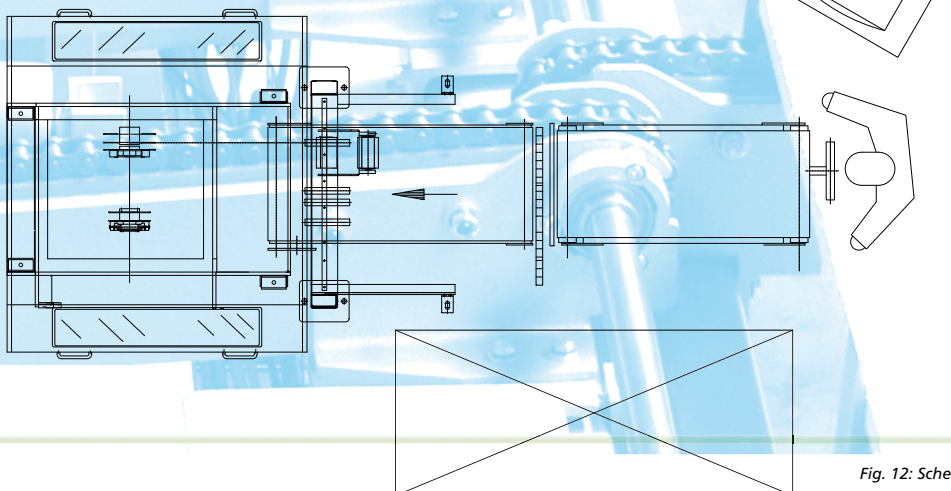


Fig. 12: Scheme of ATA



Feeding systems with rip scanner

All PAUL feed systems can be equipped with a rip scanner.

- Optical fault recognition of knots, cracks and other faults
- Determination of the best-possible division of the timber
- Maximum timber utilisation by means of two-dimensional scan method (recognition of flaws and form of plank)

Feed systems from PAUL harmonise with every rip scanner manufacturer.

- Improvement of both quality and value (compare NC length cutting equipment)
- Creation of comprehensive statistics
- Integration into an existing trim / rip line
- Simulation of possible results
- Gap-free feed because of buffer and transport systems
- Transfer of collected data to optimisation length cutters downstream
- Network capability of CNC system means simple machine control and monitoring

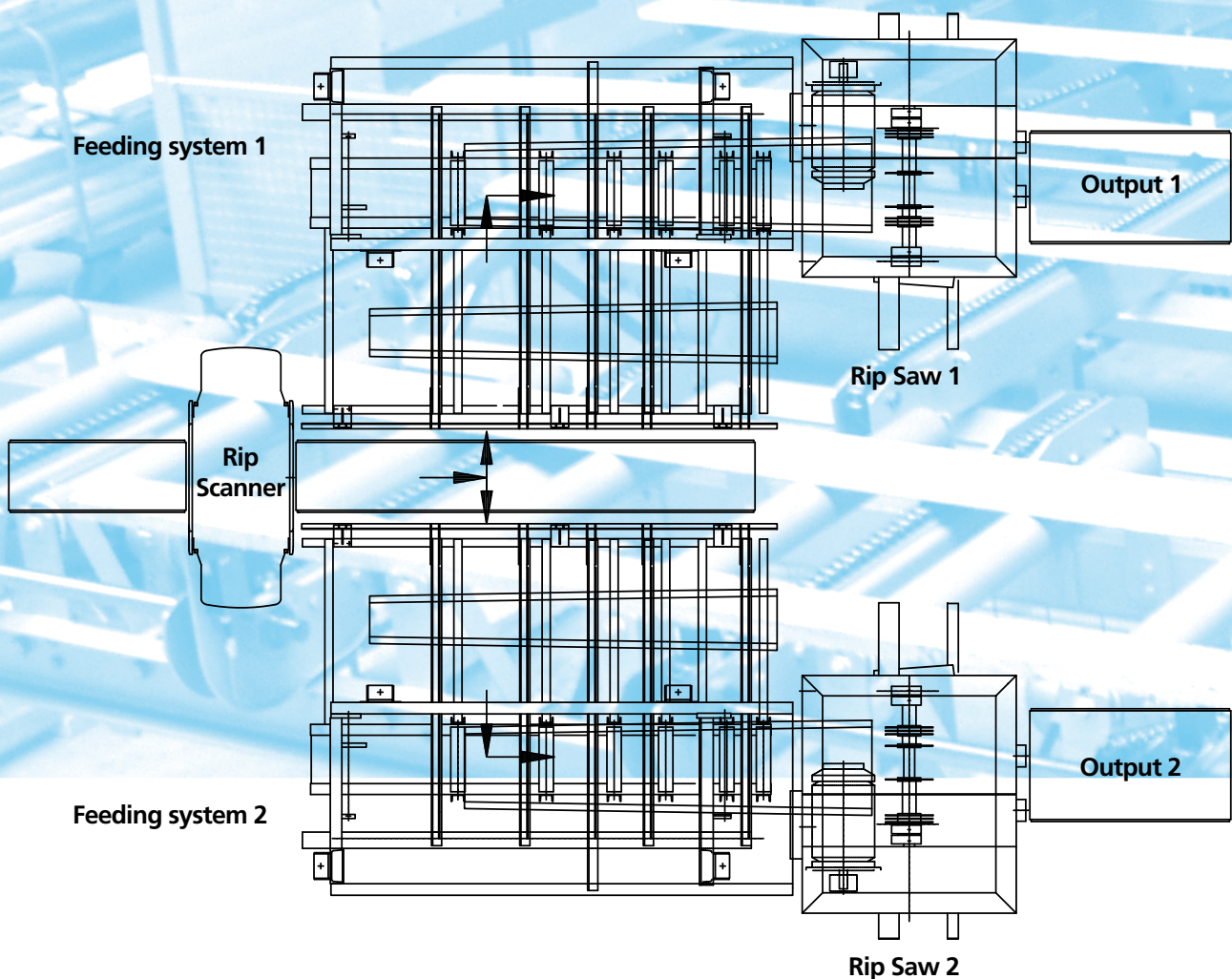


Fig. 13: The Rip Scanner in two rip saw lines