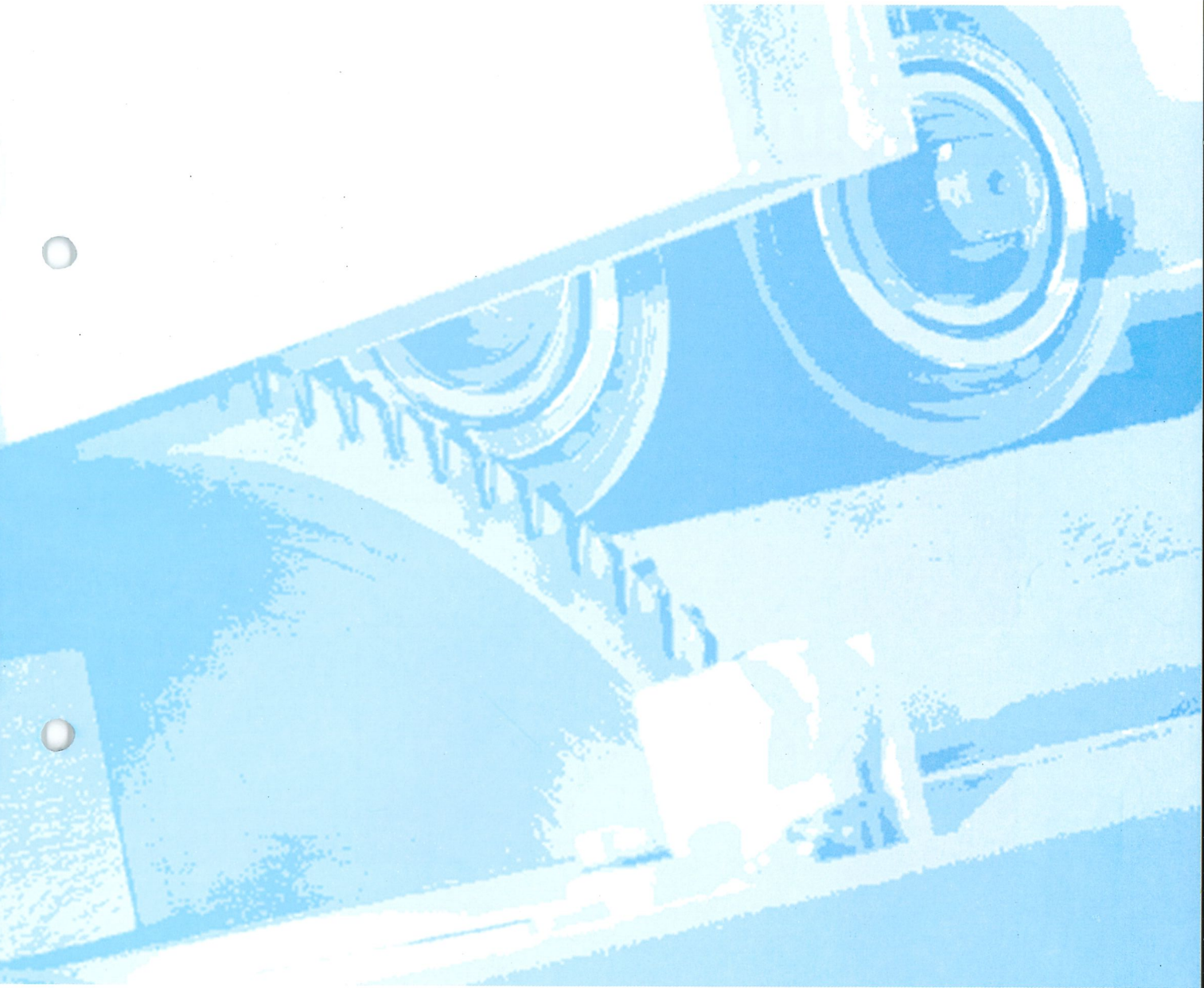




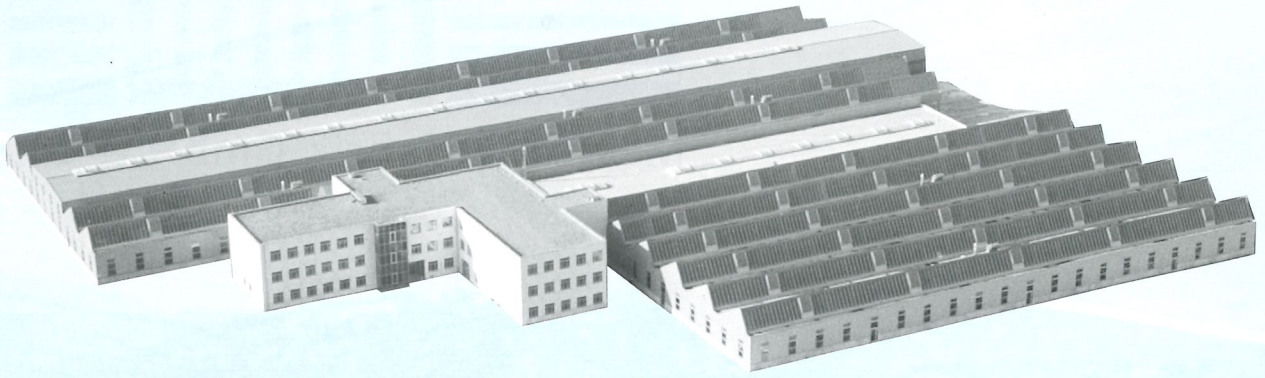
Maschinenfabrik GmbH & Co.



CNC Cross-Cut Systems



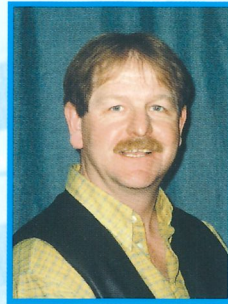
Series 14



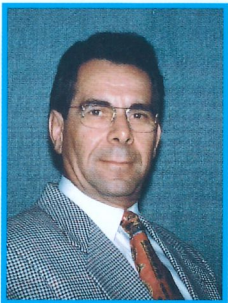

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Production speed

User-friendly

Experience

Further development

High technology

Ease of maintenance

Accuracy

Durability

Reliability

Production speed

High technology

Accuracy

Experience

User-friendly

Reliability

Durability

Ease of maintenance

Series 14

In 1975 PAUL was the first German manufacturer to build a computer-controlled cross-cut saw with yield optimization. Our today's machines reflect over 25 years of experience. Thanks to their continuous development and upgrading, the PAUL 14 series are up to the latest state of technology, even many years after their market launch. We design and manufacture all machines and handling equipment and program the associated CNC controls in-house. For special applications our standard machines are individually adapted and extended by the specific control functions required.

The PAUL Series 14 sets the standards...

... on productivity

An outstanding productivity is achieved by the very high feed speed, the rapid sawing action and the sharp acceleration characteristic of the series 14. The use of six bottom feed rollers combined with an AC servo drive motor and a non-stretch timing belt have resulted in very short cycle times and so maximum throughput at an extremely low noise level. Both the servomotor and timing belt are maintenance-free.

... on accuracy

Thanks to the design of the feed system the cut-to-length tolerances are reduced to a minimum. The so-called typical cut length accuracy is $< \pm 1$ mm. Even difficult, i.e. cupped timber can still be cut with great accuracy. The hard chromized and precision ground bottom feed rollers (spiral-fluted, slightly knurled or smooth) are driven by a large timing belt to ensure exact positioning of the timber. The polyurethane coated top pressure rollers are independently pressure loaded which ensures easy absorption of variations in the timber thickness and shape.

... on durability

The PAUL 14 is extremely robust due to a distortion-free 30 mm thick steel frame. Many other constructional features such as oversized bearings and guides and a long saw rocker (fig. 1) with widely spaced bearings will ensure a long life for the machine.

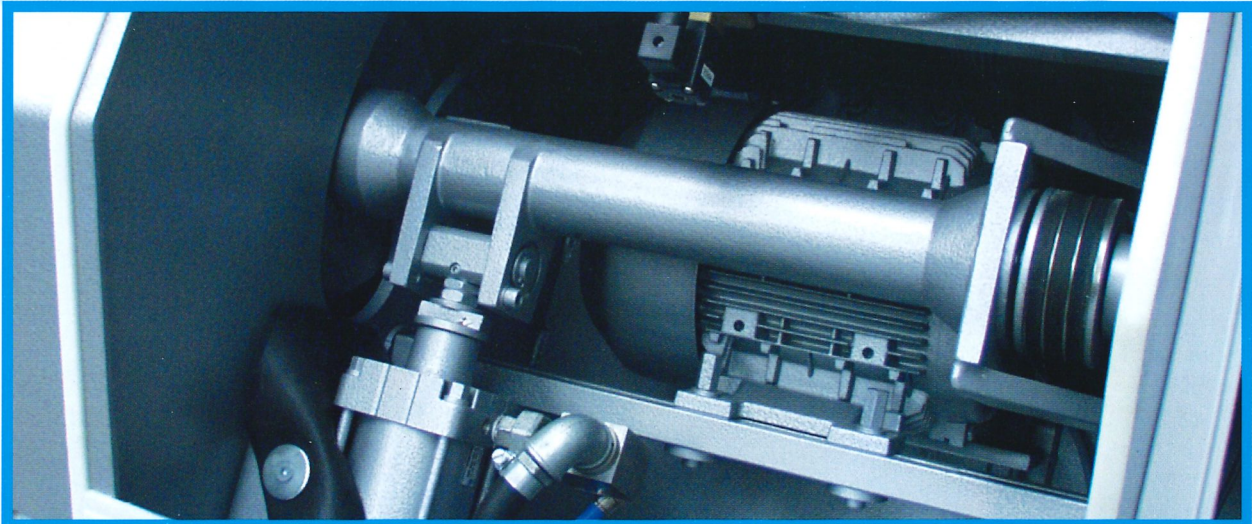


Fig. 1: Saw rocker with saw motor and lifting cylinder

Durability, robust construction, productivity and reliability are essential features for cutting larger cross sections.

... on reliability

The high reliability of the PAUL series 14 is ensured thanks to the robust design and durability of the whole machine as well as to the fact that all parts are basically wear-resistant, especially such important parts as timing belts, timing belt pulleys and the high quality transistor controller are completely maintenance free.

... on ease of use and maintenance

The PAUL 14 machines are extremely user-friendly and easy to service due to their clear and distinct principles of construction. With the machine hood opened, many components are directly accessible. The problem of separating waste offcuts from finished timber, which is frequently encountered on other machines, has been eliminated on the PAUL 14 by the inclined positioning of the machine. Small waste and trim cuts slide out to the rear by gravity and assisted by an efficient air-jet blower (fig. 2).

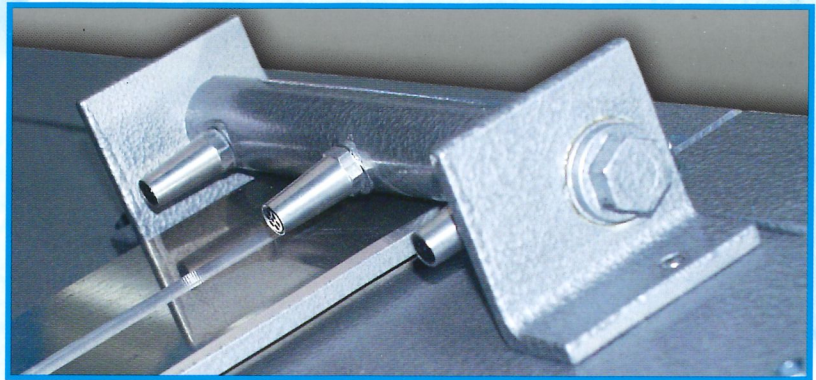


Fig. 2
Air-jet blower
close to saw blade

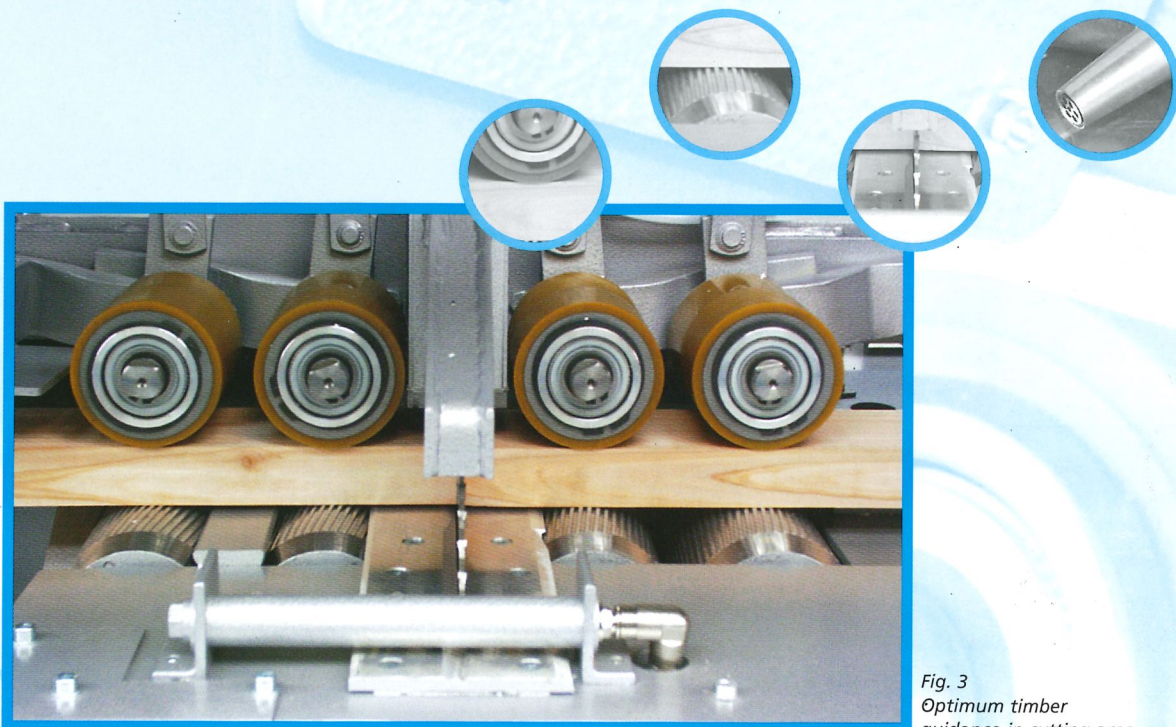


Fig. 3
Optimum timber
guidance in cutting area

The PAUL Series 14 is a combination of high technology and proven practical features.

Model 14 MKL

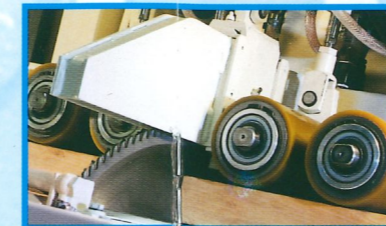
The Top Model for full optimization

Function

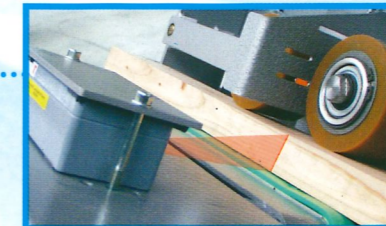
With this system the timber passes through a measuring station (on its way to the cross-cut station) where its

full length is measured and scanned for crayon mark locations. The values obtained are transmitted to the computer which

calculates the optimum cutting pattern.



Controlled clamping device with integrated dust suction above the saw blade



Width measuring unit (option) in measuring station

Crayon marks

Crayon marks are not only used to identify defects, but also to mark finger-joint lengths or different timber grades.



Wide feed rollers ensure optimum timber guidance in the cross-cut station

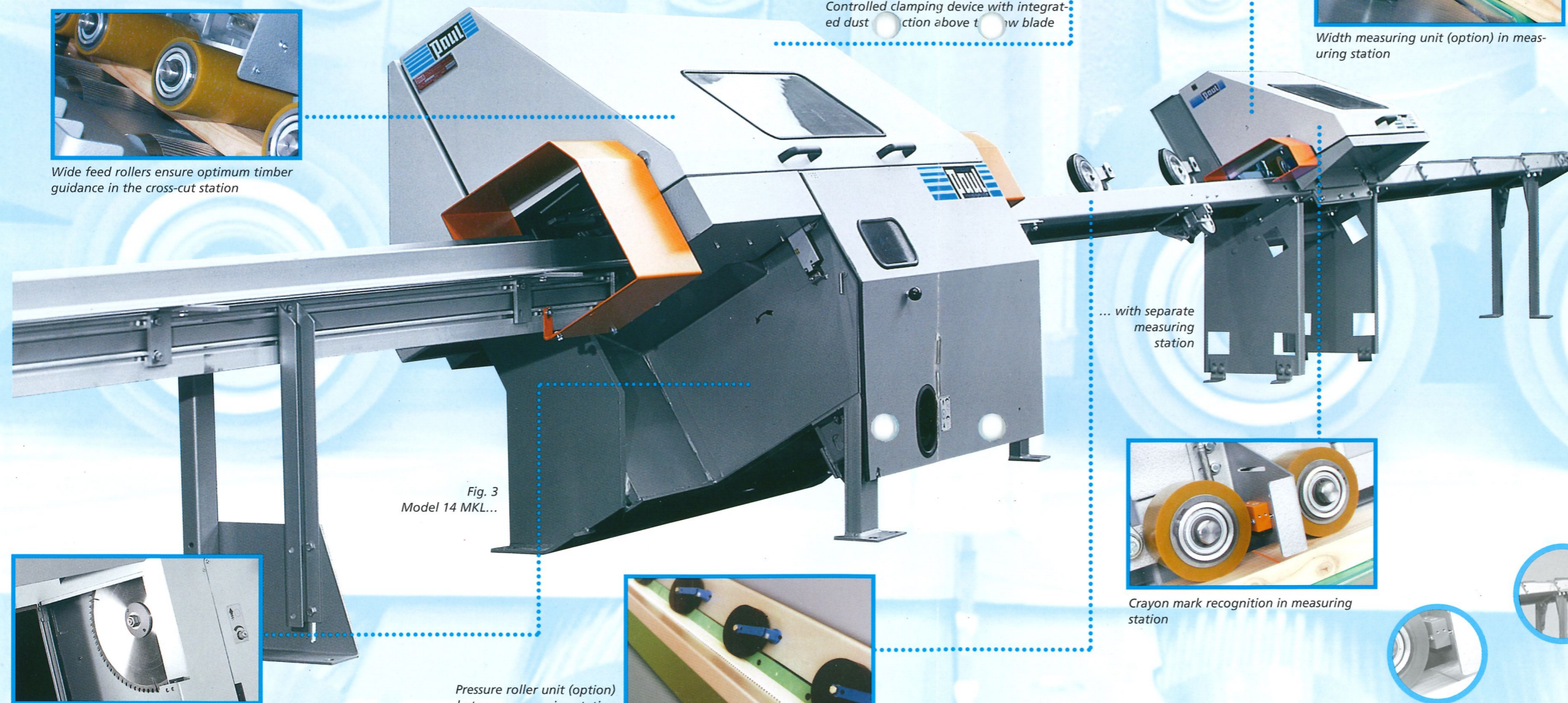


Fig. 3 Model 14 MKL...

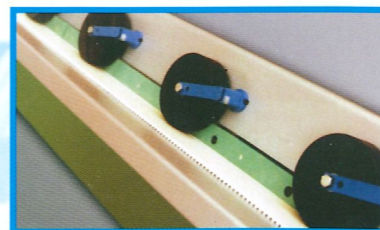
... with separate measuring station



MAXI 4.0 control with color screen



Crayon mark recognition in measuring station

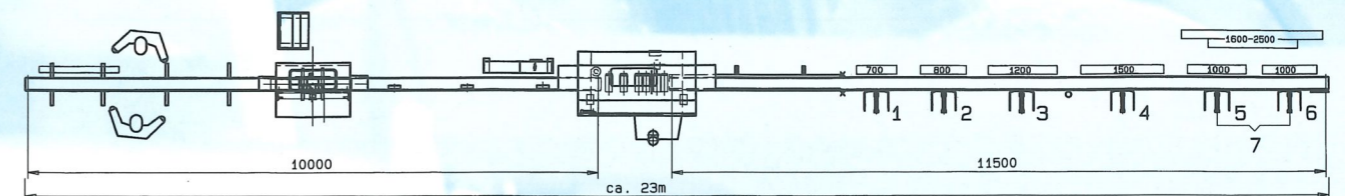


Pressure roller unit (option) between measuring station and cross-cut station



The saw blade is completely enclosed and easily accessible

Full optimization does not only mean a maximization of the timber yield. Full optimization also provides quality optimization, value optimization, cross-cutting with priorities, etc. Further details on optimization are contained in our MAXI 4.0 brochure.



Layout of model 14MKL

Model 14 KE

For automatic cross-cutting following a cutting list including defect removal

Function

In addition to cutting the timber following a programmed cutting list the 14KE is capable of detecting crayon marked defects.

A luminescent scanner in the cross-cut station transmits the defect locations to the computer which then calculates the longest possible fixed length, either between the beginning and the end of the timber or between

Fig. 4
NCK-1
control

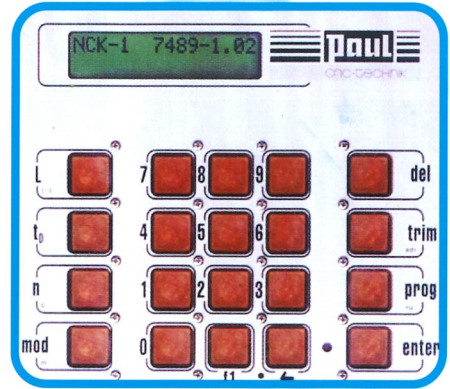
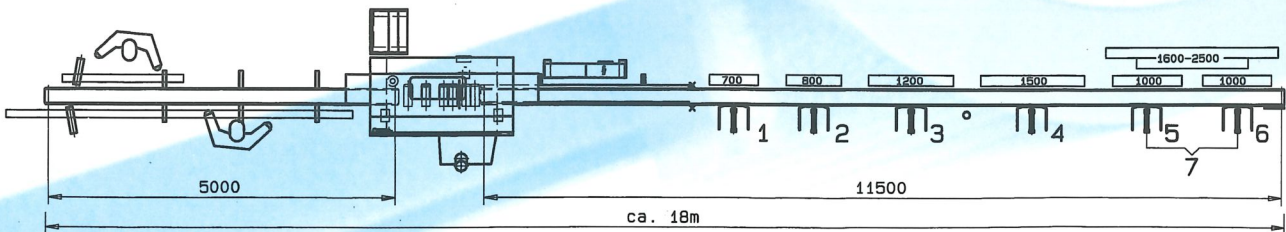
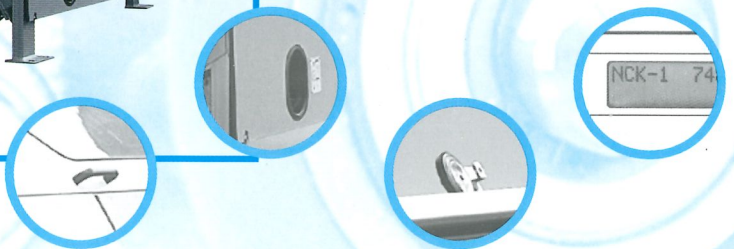


Fig. 5 Model 14 KE

two crayon lines (= partial optimization).

In this case there is no separate measuring station required.



Model 14KE is used with a NCK-1 or optional MAXI control

Model 14 E

For optimized cross-cutting following a cutting list

Function

Model 14E cuts the timber according to a programmed cutting list and normally chooses the longest possible preset length that can be cut between

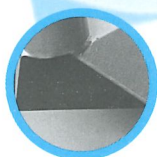
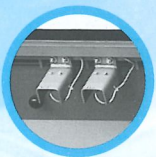
the beginning and end of the timber. Defects are not being considered.

Equipped with an automatic infeed length identification (no

crayon mark recognition), model 14E can also be used for full optimization (See table "Equipment/Types" on page 10).



Fig. 8
Rear view
of cross-cut station



Options

Special features and peripheral equipment for an increased efficiency of production

- Automatic Destacking "VacuSpeed"
- Buffer feeding systems
 - Distribution systems to several cross-cut saws
- Auto stackers
 - Width measurement
 - Ink-jet printer for letter or colour code printing on top or bottom face and/or end face of the cut pieces
 - Infeed top pressure roller unit

Sorting units

- ejecting to one side only using pneumatic ejectors
- right/left pendulum sorting
- compact cross-belt sorting

Automatic Defect Identification

The PAUL Series 14 CNC cross-cut systems can be equipped with an automatic defect scanner.



Fig. 9 Auto stacker



Fig. 10 VacuSpeed destacker

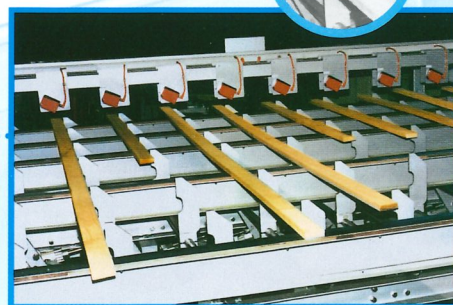


Fig. 11 Buffer feeding system

Equipment / Types

Equipment / Types	Length cutting acc. to cutting list	Defect cutting	Partial optimization	Full optimization	Measuring station	Length sorting	Width measurement	CNC control
14 E	■	○	■	○	○	□	×	NCK-1
14 E	■	○	■	●	○	□	□	MAXI 4.0
14 KE	■	■	■	×	×	□	×	NCK-1
14 KE	■	■	■	×	×	□	□	MAXI 4.0
14 MKL	■	■	■	■	■	□	□	MAXI 4.0

■ as standard □ option × not available
 ● with auto infeed length identification (option) and MAXI 4.0 ○ with defect scanner, standard

Technical Data - Series 14

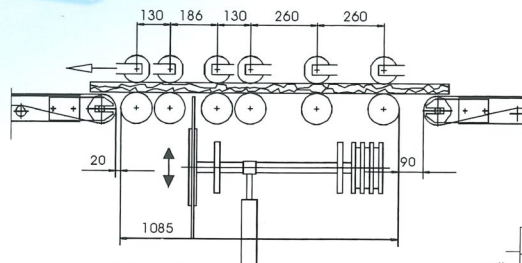
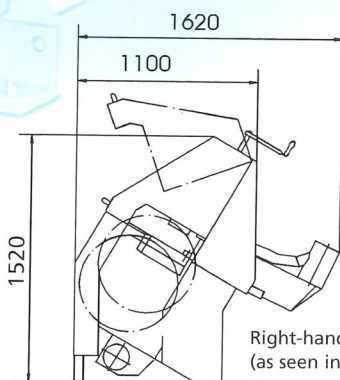
Technical Data

Saw motor	kW	7.5
Feed motor (option)	kW	4 (6)
Powered bottom rollers		6
Top idler rollers		6
Saw blade diameter	mm	570/600
Speed of saw shaft	rpm	3600
Dust outlet diameter	mm	2 x 160
Dust extraction requirement ¹⁾	m ³ /h	2900 - 4300

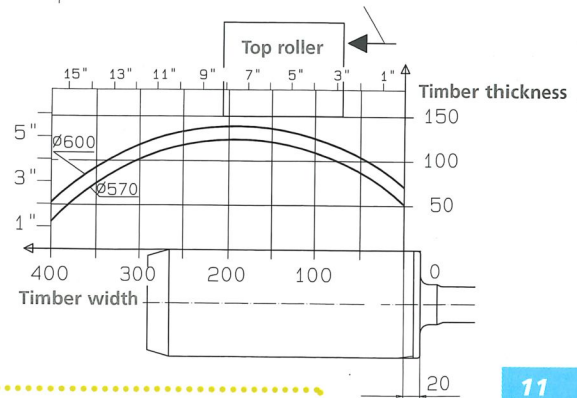
Basic Timber Data

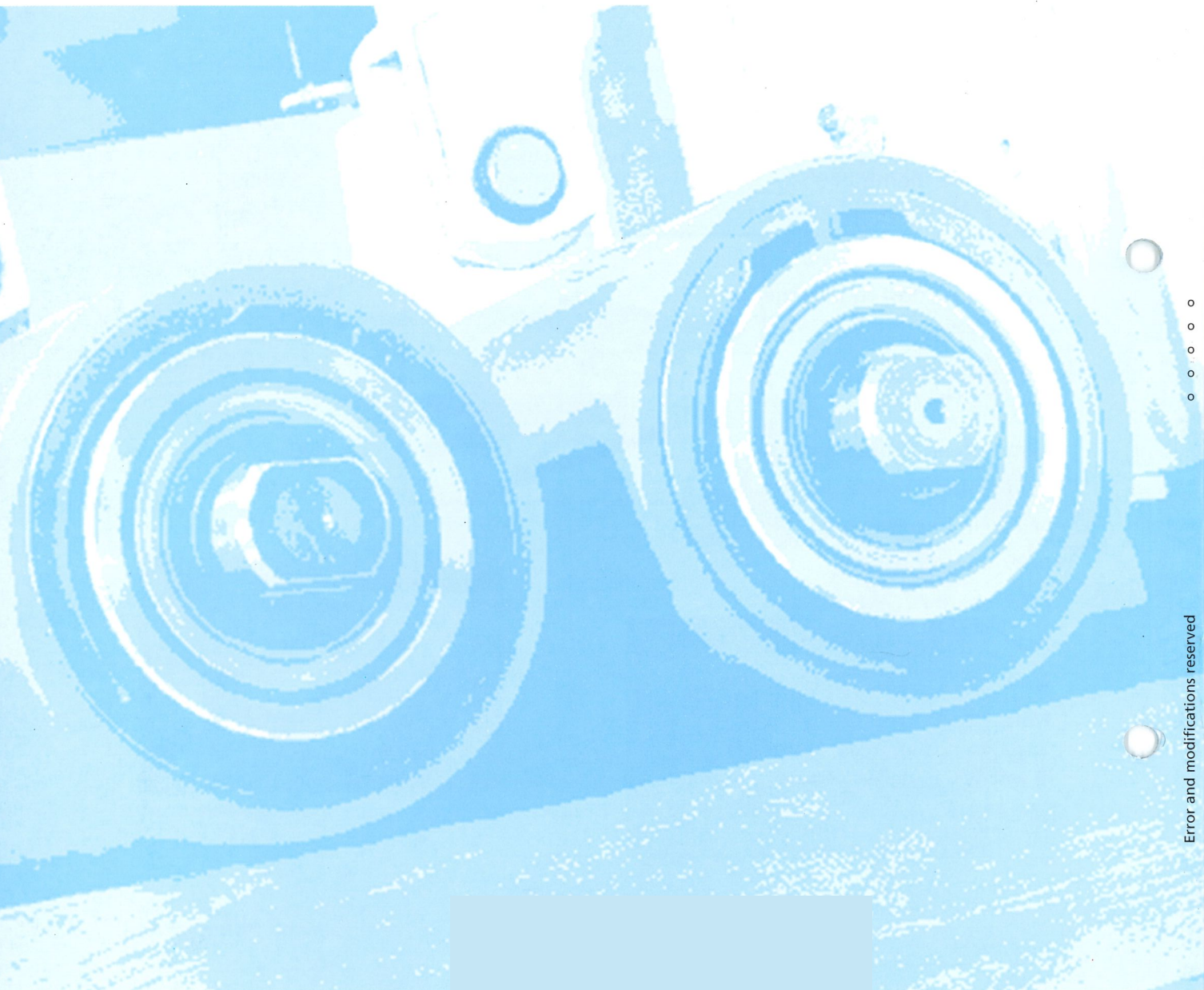
Min. infeed timber length	mm	300 ²⁾ /500 ³⁾
Max. infeed timber length	mm	7000 ⁶⁾
Max. timber thickness	mm	100/120 ⁴⁾
Max. timber width	mm	380
Min. timber cross section	mm	12 x 40
Max. timber cross section	mm	45 x 380/100 x 200
Max. timber weight	kg	70
Min. fixed cut length	mm	140/30 ⁵⁾

1) at air speed 20 - 30 m/sec 2) on models E and KE 3) on model MKL
 4) with saw blade 600 mm dia. 5) with fence, i.e. sorting flap for short pieces 6) or longer



These machines are available
in right-hand or left-hand
design.






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