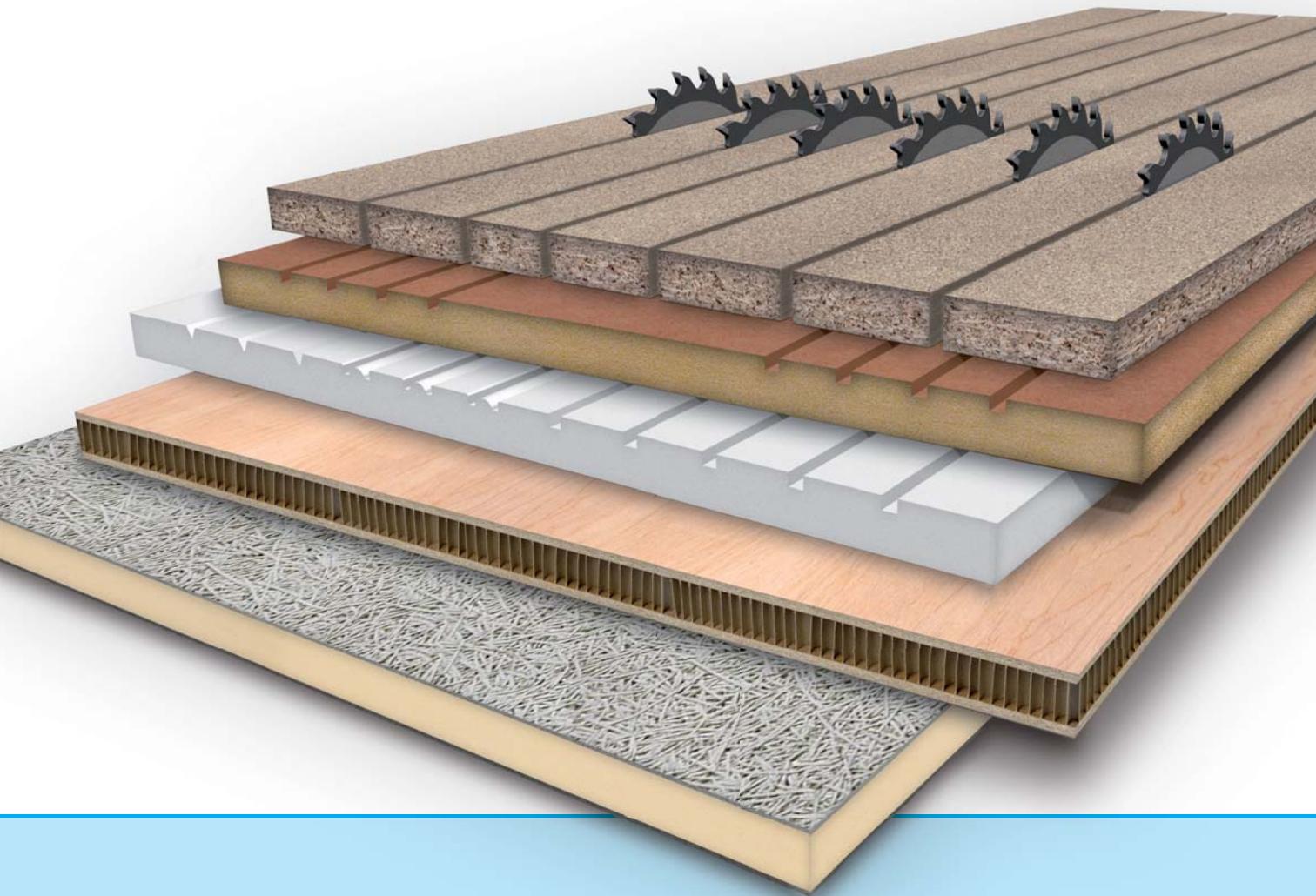
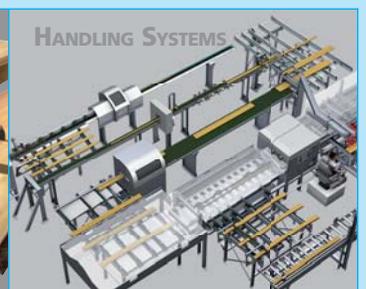
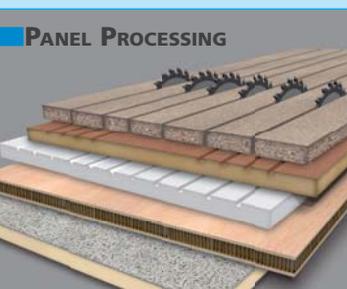


made
in
Germany

Paul
Maschinenfabrik GmbH & Co. KG



Multirip Circular Saws Series M34



USER-ORIENTED APPLICATIONS

▶ RIPPING OF PANELS

The PAUL Multirip Saws are designed to rip even the widest commercially available panels in a single pass. The machine opening widths range from 800 up to 3000 mm.

They are ideally suited for processing panels of a variety of materials. The spectrum ranges from soft material such as mineral wool to hard CFRP (carbon fiber reinforced plastic) or fiber cement:

- Particle board, paper-coated
- Particle board, veneered
- OSB
- LVL
- MDF
- Glulam
- Wood fiberboard
- Laminate flooring material
- Laminated wood
- Plywood, paper-coated
- Multilayer solid wood
- Multilayer cork
- Lightweight furniture panels
- Corrugated board
- Rigid foam, glass fiber coated
- Rigid foam, aluminium coated
- PVC
- Rigid foam
- Polymer
- Honey-combed plastics
- GFRP
- CFRP
- Fiber cement
- Wood-wool building slabs
- Mineral wool
- etc.

▶ GROOVING / PROFILING

PAUL Multirip Saws are also perfectly suitable for grooving and profiling. A great variety of groove shapes are possible. The panels can be ripped, grooved and/or profiled in one pass. With a curved arrangement of the feed rollers it is possible for curved panels to be processed into bed slats.



Fig. 2

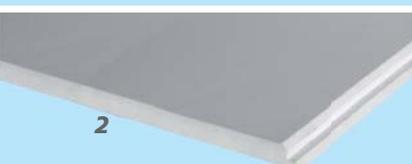


Fig. 1



SERIES M34

The unusually large opening widths of the PAUL M34 series from 800 up to 3000 mm meet a wide range of applications.

These machines are meant for use in all fields of industry: in sawmills and in the furniture industry, for the production of parquet and laminated flooring, pallets, concrete moulds, kitchen front panels, glued up panels, cement-bonded particle boards, profile strips, door skins, in packaging, window, bed and coffin factories, in the plastics or cardboard industry and in many other application areas.

The upward tilting protection hoods ensure excellent sound and noise emission values. For safety reasons they are interlocked until the saw shaft has come to a standstill.



Fig. 3: M34G11500

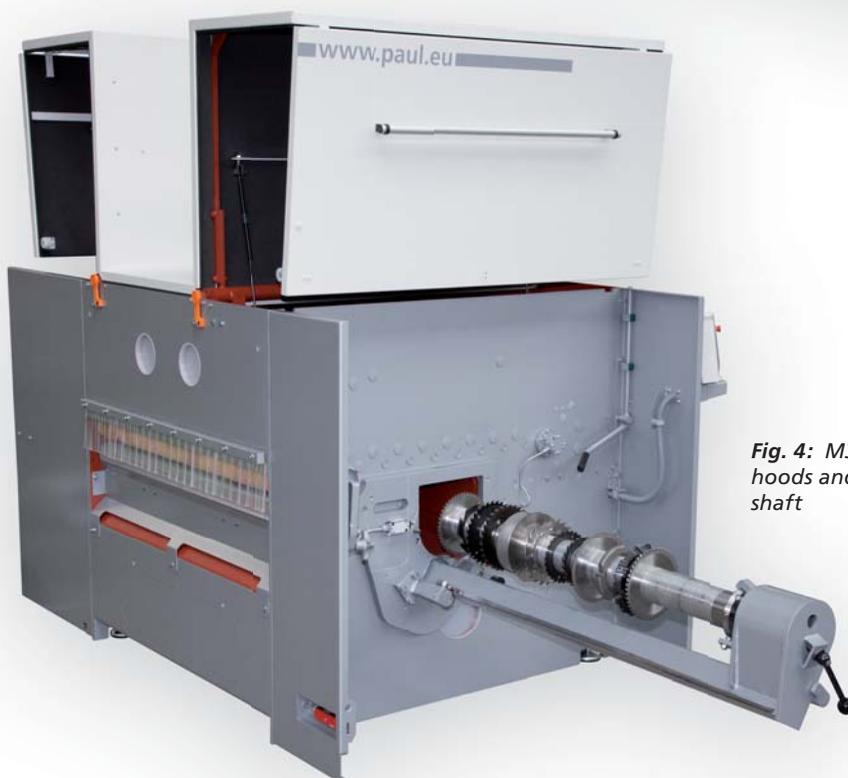


Fig. 4: M34 with opened hoods and extracted saw shaft

MODERN SAWING TECHNOLOGY

▶ INSERT TABLE

All models are equipped with an exchangeable insert table providing a positive material support in the area of the saw blades.

In this way optimum cutting quality is ensured.

Fig. 5: Insert table with rip saws and bottom feed rollers



▶ HEIGHT ADJUSTMENT OF SAW SHAFT

Depending on the machine opening width the height adjustment is effected via a hydraulic or electric lifting device.

Fig. 6: Height adjustment of saw shaft by a hydraulic cylinder



▶ ANTI-KICKBACK DEVICE FOR MAXIMUM SAFETY

Unlike many conventional machines, the M34 is available with a modern anti-kickback device including splinter guard. This allows manual workpiece loading or implementing separate safety areas in interlinked lines which offers major benefits in practical use and significantly increases the safety of the complete system.



Fig. 7: Anti-kickback device

SAW SHAFT TECHNIQUE

Tooling of the saw shaft is effected outside the machine. For this purpose the shaft can be demounted and mounted by only one person. The transport carriage provides ease of handling so that even long shafts can be entered into the machine without difficulty.

Single saw shafts are stored and tooled by using a mounting bracket. For storing several saw shafts a shaft magazine is recommended.

The saw shafts are available in diameters of 50, 60, 70 or 100 mm. The spacings between the saw blades are obtained by specifically manufactured aluminium spacer rings or hydraulic saw bushes.



Fig. 8: Saw shaft magazine

Fig. 9: Saw shaft transport carriage and mounting bracket

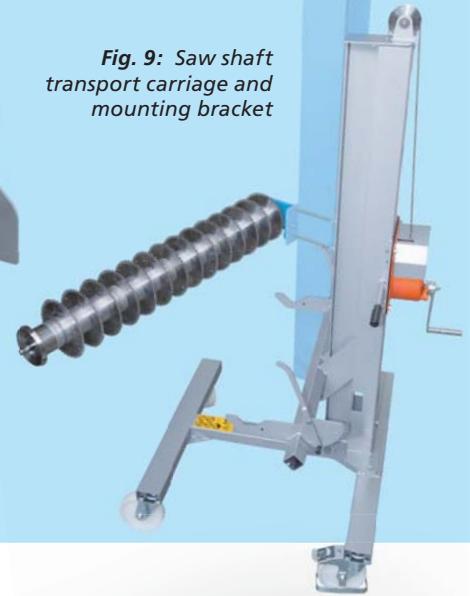


Fig. 10: Saw shaft systems

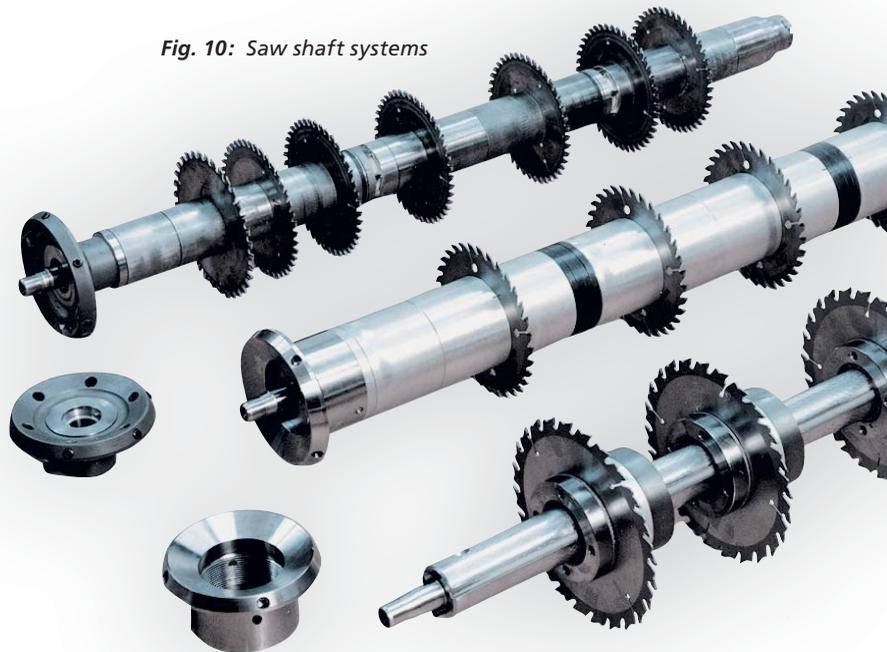


Fig. 11: Spacer rings

Fig. 12: Saw shaft set up with saw blades and spacer rings

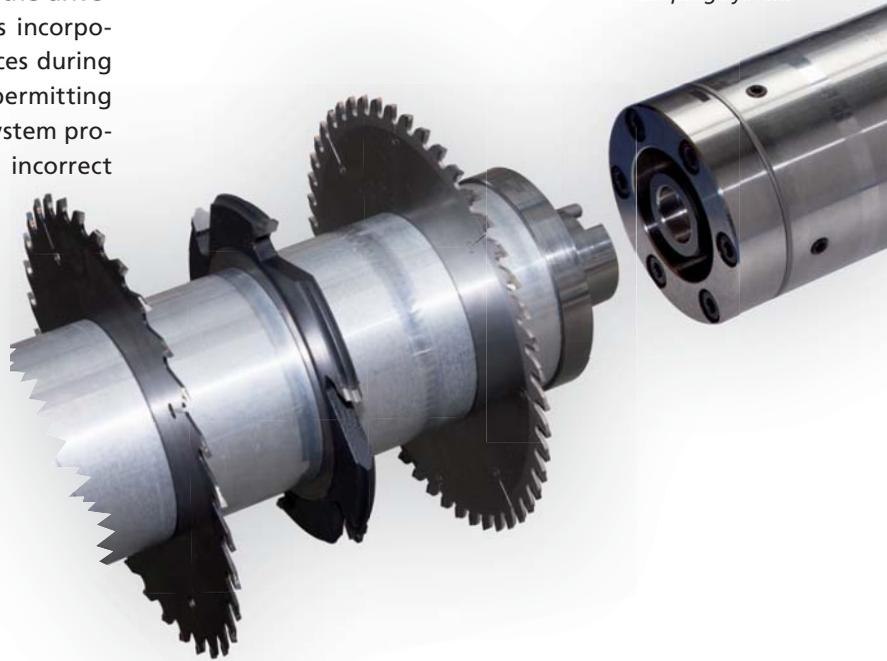


EASE OF HANDLING

▶ HSK SAW SHAFT CLAMPING SYSTEM (OPTION)

Ease of changing the saw shaft is ensured by a specifically developed HSK clamping system reducing set-up times. The saw shaft is loosened and clamped at the touch of a button on the operator side. This eliminates the need for the operator to go to the drive side and open the drive-side machine hood. In particular on machines incorporated in flowline systems long walking distances during the set-up operation are extremely reduced permitting a saving of time and money. In addition, the system provides consistent clamping force and prevents incorrect operation by monitoring the clamping and releasing position.

Fig. 13: HSK saw shaft clamping system



▶ CONTROL SYSTEM WITH REMOTE MAINTENANCE

All machine functions are convenient to control via an intelligent control system. Apart from a particularly user-friendly touch screen display, the control offers a simple way to exchange line signals via a bus system. Thanks to the connection to the Internet it is possible to monitor all functions via the remote maintenance option and meet industry 4.0 requirements (option).

Fig. 14: Clearly arranged operating terminal of a M34G



ACCURATE FEED SYSTEM

▶ FEED ROLLERS

One of the reasons for the multitude of applications offered by the M34 series is their feed system that is available with feed rollers in various designs (e.g. knurled, fluted or plastic-coated) to provide a tailor-made solution to any requirement.

Fig. 15: Feed rollers in various designs



Fig. 16: Brush roller segments

▶ BRUSH ROLLERS

Coarse chips or contamination after the cutting operation are removed by an optional horsehair brush roller. This preliminary cleaning of the workpieces increases the process reliability of any downstream work steps.



▶ FEED DRIVE

Drive is provided by an infinitely variable, frequency-controlled gear motor. The feed rollers are driven either via high-strength chains or cardan shafts.

Fig. 17: Feed drive via chains



Fig. 18: Drive of feed rollers via cardan shafts



MAXIMUM FLEXIBILITY

The M34 is configured to each specific customer's requirements. Apart from the surface design of the feed rollers, their number and arrangement varies according to the application concerned. For instance, long panels require less feed rollers than very short material. Also the cutting quality required affects the roller configuration. Each customer is supplied with his own tailor-made

machine that impresses with both optimum functionality and maximum efficiency. In case the requirements change in the course of time, additional rollers can easily be retrofitted.

Extra brush rollers for cleaning the workpieces are available as an option. If the machine is loaded manually, it will be equipped with

an anti-kickback device to protect the operator. On automatically loaded machines this device can be dispensed with.

MINIMUM ROLLER CONFIGURATION

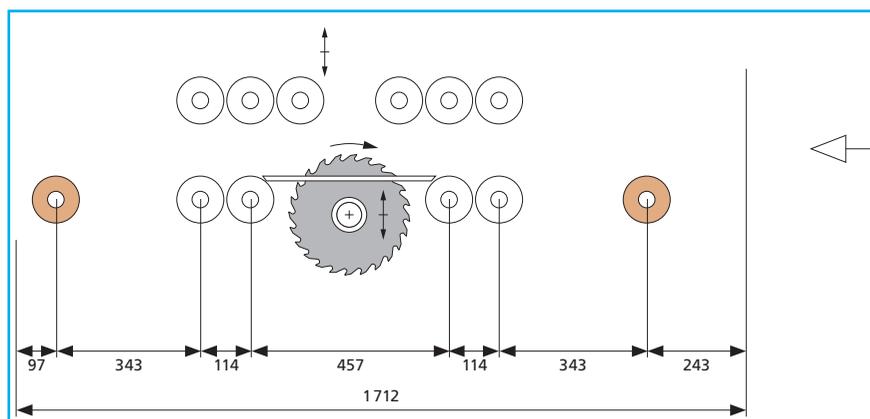


Fig. 19: Minimum roller configuration of an M34

MAXIMUM ROLLER CONFIGURATION

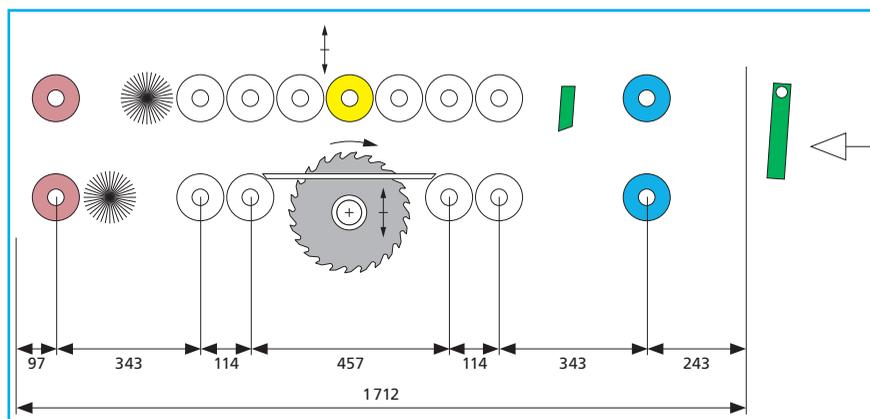


Fig. 20: Maximum roller configuration of an M34

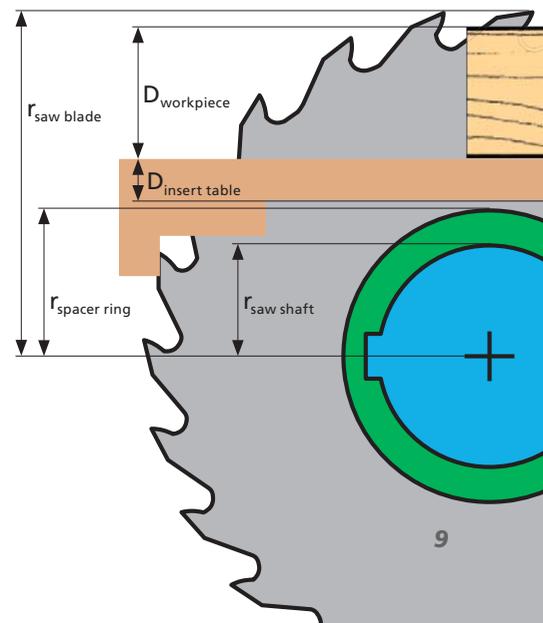
TECHNICAL DATA

| M34G | | | | | | | | |
|---|---------|-------------------------|------|------|------|------|------|------|
| Nominal opening width | [mm] | 800 | 1200 | 1500 | 1800 | 2200 | 2600 | 3000 |
| Max. workpiece thickness | [mm] | see table below | | | | | | |
| Min. workpiece length ¹⁾ | [mm] | 460 | | | | | | |
| Saw shaft diameter | [mm] | 50 / 60 / 70 / 75 / 100 | | | | | | |
| Max. saw blade diameter ²⁾ | [mm] | 270 (280) | | | | | | |
| Saw set-up width | [mm] | 690 | 1090 | 1390 | 1690 | 2090 | 2490 | 2890 |
| Powered top rollers, hydraulically height-adjustable | | 6-9 | | | | | | |
| Powered bottom rollers | | 5 | | | | | | |
| Idle bottom rollers | | 1 | | | | | | |
| Roller drive | | Chain / Cardan | | | | | | |
| Width of top rollers | [mm] | 742 | 1142 | 1442 | 1742 | 2142 | 2542 | 2942 |
| Width of bottom rollers | [mm] | 784 | 1184 | 1484 | 1784 | 2184 | 2584 | 2984 |
| Feed speed ³⁾ frequency-controlled | [m/min] | 15 - 50 | | | | | | |
| Feed motor power | [kW] | 2.2 | | | | | | |
| Max. driving power | [kW] | 90 | | | | | | |
| Max. speed of rotation | [rpm] | 4500 | | | | | | |
| Sound pressure level ⁴⁾ no load/operation | [dB(A)] | 77/86 | | | | | | |
| Sound power level ⁴⁾ no load/operation | [dB(A)] | 97/102 | | | | | | |
| Dimensions | | | | | | | | |
| Working height | [mm] | 900 | | | | | | |
| Length / height | [mm] | 1712 / 1658 | | | | | | |
| Width up to 37 kW motor | [mm] | 2190 | 2590 | 2890 | 3190 | 3590 | 3990 | 4390 |
| Width with 45-90 kW motor | [mm] | 2790 | 3190 | 3490 | 3790 | 4190 | 4590 | 4990 |
| Weight ⁵⁾ | [kg] | 2850 | 3300 | 3900 | 4400 | 5100 | 5800 | 6400 |

- 1) depending on roller configuration, see page 8
- 2) The maximum tool diameter depends on the design/equipment of the machine and type of tools used. Before ordering any tools, please seek our advice on the exact technical specification.
- 3) with manual workpiece removal max. 35 m/min
- 4) depending on saw blades used
- 5) weight incl. 30 kW motor and chain drive, without special accessories (extra weight of cardan drive: approx. 200 kg)
- 6) Example based on a saw blade dia. of 270 mm
Distance spacer ring – insert table plus 5 mm tooth projection
 $D_{\text{insert table}}$ standard 10 mm, $D_{\text{insert table}}$ aluminium 20 mm

$$\begin{aligned}
 & r_{\text{saw blade}} \\
 & - D_{\text{insert table}} \\
 & - 5 \text{ mm (distance)} \\
 & - r_{\text{spacer ring}} \\
 & = D_{\text{workpiece}}
 \end{aligned}$$

| Saw shaft \varnothing (2 x $r_{\text{saw shaft}}$) | Outside \varnothing of spacer rings (2 x r_{spacer}) | Saw bush \varnothing [mm] | Cutting height ⁶⁾ ($D_{\text{workpiece}}$) | | |
|--|---|--------------------------------|--|---------------------------|-------------------------|
| | | | Standard insert table | Aluminium insert table | without insert table |
| [mm] | [mm] | [mm] | [mm] | [mm] | [mm] |
| 50 | 70 | - | 85 | 75 | 95 |
| 60 | 80 | - | 80 | 70 | 90 |
| 70 | - | 100 | 70 | 60 | 80 |
| 75 | 100 | - | 70 | 60 | 80 |
| 100 | 120 | - | 60 | 50 | 70 |
| 100 | - | 140 | 50 | 40 | 60 |



CUSTOMIZED PACKAGE SOLUTIONS

PAUL not only supplies stand-alone machines, but also complete, customized high-volume systems for panels and solid wood. The degree of automation is suited to the application concerned, ranging from partial automation to the fully automatic high-end solution.

PAUL multirip saws are ideally suitable for incorporation into through-feed panel sizing lines. They can be

used for both longitudinal and transverse ripping operations. The feeding systems available range from the simple solution using an inclined roller conveyor with fence up to the fully automatic, highly efficient alignment station where each workpiece is aligned by means of cameras and image processing.

Fig. 21: Automatic panel turning unit



Fig. 22: Grooving and ripping system for the production of charcoal lighters, comprising two multirip circular saws and a right-angle transfer unit



Fig. 23: Automatic panel turn-over device

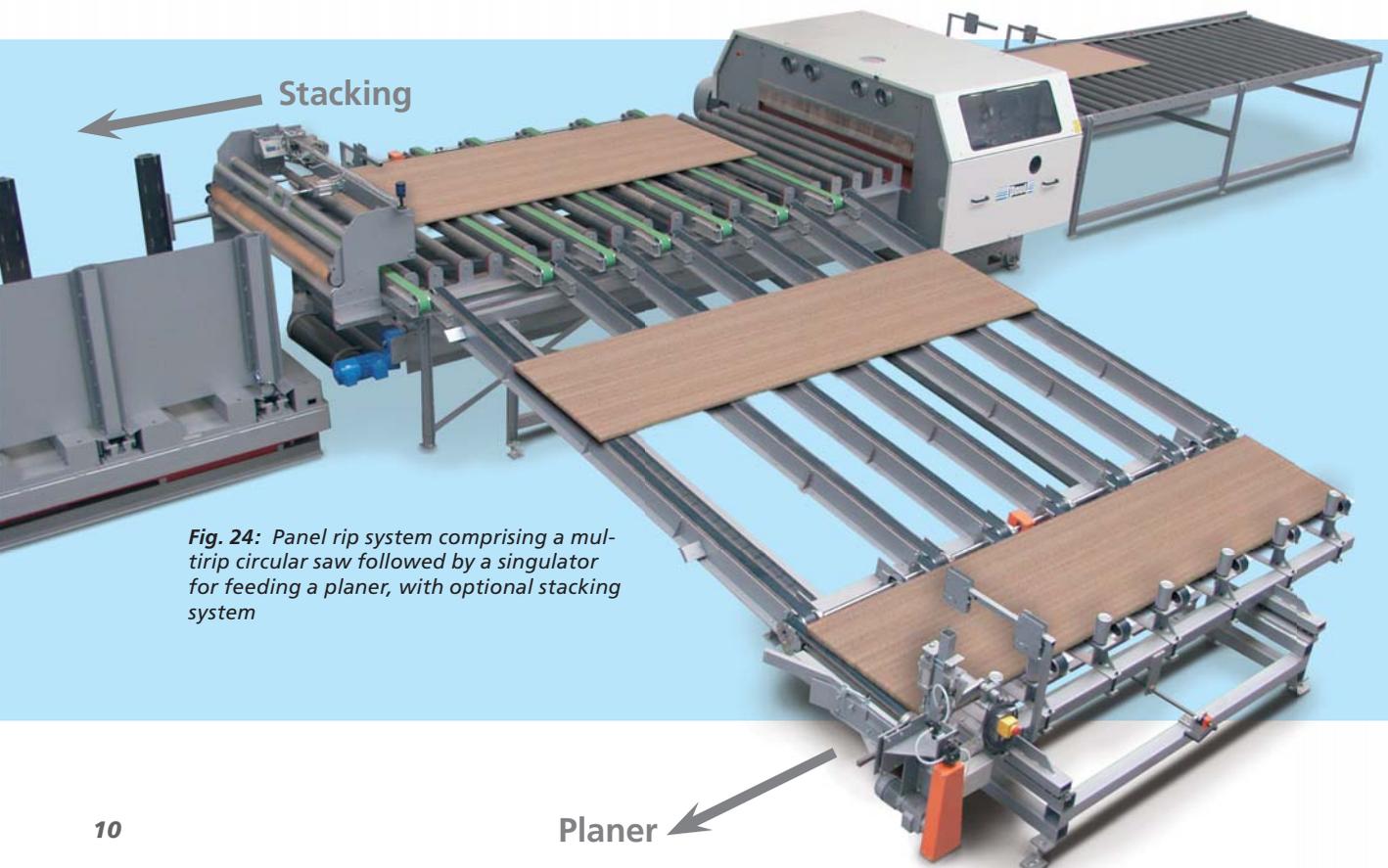


Fig. 24: Panel rip system comprising a multirip circular saw followed by a singulator for feeding a planer, with optional stacking system



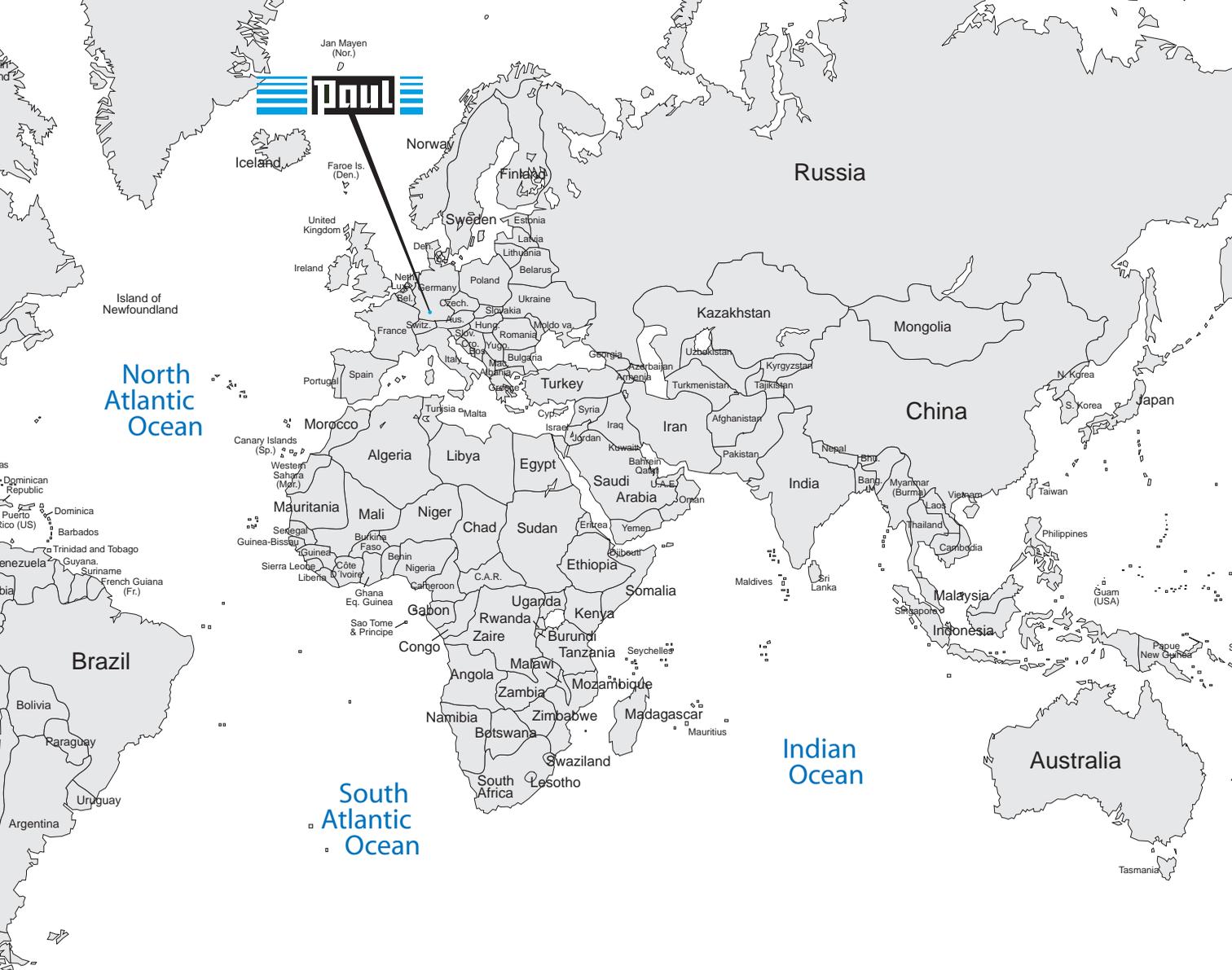
Fig. 25: Panel rip system comprising a multirip circular saw with automatic feeding and stacking system



Fig. 26: Panel rip system comprising an automatic vacuum destacker used in the plastics industry



Fig. 27: Multirip saw with automatic feeding system in the production of strips



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