

Division Wood Technology

August-Gottlieb-Straße 5
36251 Bad Hersfeld, Germany
Phone: +49 (0)66 21/81-406
Fax: +49 (0)66 21/81-496
e-mail: holztechnik@bsh.grenzebach.com
Internet: www.grenzebach-bsh.com

Our Range of Products for the Veneer and Plywood Industry:

- Roller-track dryer
- Continuous veneer dryers
- Belt dryers
- Press dryers for sliced veneers
- Press dryers for LVL veneers
- Infeed and outfeed systems
- Sorting and stacking systems
- Veneer slicers
- Sliced-veneer production lines
- Peeled-veneer production lines
- Blockboard and plywood mills
- Grading lines
- Rotary slicers



Vertical slicers SM 400/SM 520

novaslice



GRENZEBACH Maschinenbau GmbH

Albanusstraße 1–3
86663 Asbach-Bäumenheim, Germany
Phone: +49 (0)906/982-0
Fax: +49 (0)906/982-108
e-mail: info@grenzebach.com

GRENZEBACH BSH GmbH

August-Gottlieb-Straße 5
36251 Bad Hersfeld, Germany
Phone: +49 (0)66 21/81-0
Fax: +49 (0)66 21/81-494
e-mail: info@bsh.grenzebach.com

GRENZEBACH Fördertechnik GmbH

Hauptstraße 135
76344 Eggenstein, Germany
Phone: +49 (0)721/62 73 69-1
Fax: +49 (0)721/62 73 69-9
e-mail: info.gf@grenzebach.com

GRENZEBACH Corporation

10 Herring Road
Newnan, Georgia 30265, USA
Phone: +1 (770)253-4980
Fax: +1 (770)253-5189
e-mail: info.gn@grenzebach.com

GRENZEBACH AKI Corporation

29345 Airport Road
Eugene, Oregon 97402, USA
Phone: +1 (541)688-4117
Fax: +1 (541)688-3508
e-mail: info.ga@grenzebach.com

GRENZEBACH Machinery (Shanghai) Ltd.

Guanghua D-2, Minshen Industrial Garden Zone
Songjiang District, Shanghai 201612, P.R. China
Phone: +86 (21)57684982
Fax: +86 (21)57684984
e-mail: info@grenzebach.com.cn



Vertical slicers SM 400/SM 520



Through extensive co-operation with the veneer industry, we have now – after the upwards cutting vertical slicer SM 400 for 4.0 m cutting length – also successfully introduced the SM 520 for 5.2 m cutting length.

Both machines work with a maximum output of 90 sheets per minute and provide the same productivity and veneer quality.

Machine elements, hydraulics and drive for this somewhat wider machine have been reinforced. This more stable design is also the base for the worldwide fastest vertical slicer **novaslice** with 4.0 m cutting length and a maximum output of 105 sheets per minute.

The cutting on the upward stroke avoids turning the veneers during offbearing. Discharge and stacking are gentler, and a higher productivity with decreased staff strain can be achieved.

During standard operation, the flitch table can hold two split backs, one arranged above the other. Optionally, two flitches arranged side by side can also be handled by the machine.

A fast hydraulic knife change and the remote-controlled flitch pushes make sure of optimal time utilisation.

The knife carriage feed and the reliable linear hydraulic cylinders facilitate remote control and infinitely variable adjustment of the veneer thickness in seconds.

The horizontal clearance can be modified via remote control and the cutting angle can be changed during operation via the control desk.

Using a vacuum clamping table provided by customer to minimise the remainder board, the change times can also be reduced.

The machine consists of a base plate with mounted frame, flitch table, veneer discharge, stacking carriage, hydraulic unit, and electric equipment with drive, switch cabinet and control table.

Safety devices are provided in accordance to EC Machinery Directive.

The **flitch table** runs back and forth on three adjustable guides at an inclination of 20°. It is equipped with a hydraulic dogging system.

novaslice

The **dogs** of 12 mm height are staggered on opposite site and overlap so that the flitch can be clamped in optimum position. Additional large swing-out dogs, 70 or 100 and 180 mm in height, are subdivided into groups and arranged between the standard dogs. The dog pairs are monitored and swing out automatically without any interruption of the slicing operation. It is possible to clamp two split backs from the same log arranged one above the other on the flitch table at an inclination of 3°.

Optionally, the hydraulic control can be split up and the clamping dogs subdivided so as to allow for cutting two flitches arranged side by side.

The central lubrication supplies the adjustable table guides with their fast adaptable sliding elements.

The desired thickness of the remainder board can be set by means of the vertical slicer control.

In our plant, all machines are completely electrically and hydraulically installed and tested at up to 40 strokes per minute.





An **imbalance compensation** of the crank wheels ensures a smooth and even run, and the high precision of the machine provides an exact cut for excellent veneer quality.

The fast commissioning is supported by plugs in the tested electrical connections and in the also tested hydraulic piping.

The hydraulic clamping system of the table can also be replaced by a **vacuum clamping table** to be provided by customer.

This vacuum clamping table optimises the yield of special wood and offers handling advantages.

Additional dogs of the vacuum clamping table allow for particularly shaped trees, e.g. quarter, and offer additional safety.

The pressure bar with mounted knife holder and veneer off-bearing make up the **knife carriage**.

In order to ensure a high rigidity of the machine, pressure bars and knife holder are designed as hollow parts with internal ribs in welded construction.

The standard heated **pressure bar** with the hydraulic props of the flitch pushers is moved on clearance-free linear guides and driven by two linear amplifiers installed underneath the floor.

This proven advance system offers the following advantages:

- Highest precision since clearance-free.
- Fast advance and return of the knife carriage.
- Return to the previous knife position, e.g. after having removed a notch in the knife.
- Fast and precise advance of the tool carrier produces an already usable veneer sheet after the second stroke.
- Silent run, high service life, maintenance-free.

The pressure bar can be partially adjusted by hand using tension bolts and pressure screws while the knife carriage is open.

The heated **knife holder** is hinged in the position of the knife tip; the pivot point is hydraulically fixed in a V-block.

Settings:

- Hydraulic fast opening by tilting (opening 180 mm).
- Hydraulic adjustment of the cutting angle during operation, without changing the pressure clearance (15–23°).
- Horizontal clearance adjustment of the knife during operation, either on one side only or parallel to the pressure bar, also hydraulically via 2 linear amplifiers; linear guide systems serve for supporting and guiding.
- The passage clearance (veneer thickness) is adjusted from a reference point with a 1/100 mm tolerance, practically infinitely variable.
- Vertical clearance is adjusted via pressure screws positioned on both sides.

A water gutter is installed underneath the pressure bar.

The **knife change** is hydraulic via pull-in gibs, the knife is clamped by individually controlled hydraulic chucks.

Knife adjustment with a gauge is possible using special accessory.

Knives without slots can be resharpened up to 100 mm and are pre-adjusted before being installed.

The **veneer offbearing** is designed as a vacuum table with conveyor belts. The belt drive is controlled from the main drive or can be infinitely adjusted by hand.

The vacuum offbearing displays the veneer sheet immediately after the cut on the tilted table, supported by **light bars** underneath; correction at an early stage and careful offbearing can thus be realised.

Small swivel top rolls improve the offbearing especially for veneers which tend to curl.

The complete veneer offbearing system can be moved in order to allow access to the knife carriage for inspections.

A stacking carriage with mounted platform lift is available as an optional extra. This carriage, which is direct-coupled to the knife carriage drive, follows the knife carriage when it moves to the “closed” or “open” end positions. During the slicing operation, the stacking carriage will follow the knife carriage only at intervals. It can be moved separately from the slicer for transfer of a veneer stack. The offbearing staff stand on the platform and can control the important machine functions from there.

The **switch cabinet** at the left side of the machine contains all the electrical equipment, a programmable logic controller (PLC), the stepping motor control for the linear amplifiers of the knife carriage feed and pressure bar alignment drives.

The **DC main drive** is equipped with a 4-Q-rectifier for infinitely variable adjustment of the number of strokes and a current recovering device. The offbearing belts and vacuum unit are equipped with inverter-controlled drives for individual adjustment of the offbearing speed and suction.

The additional **control desk** contains all control elements and displays of the main function. The veneer thickness and the horizontal clearance alignment are entered digitally. The number of strokes and the number of produced veneer sheets are displayed as digits.

Required operating functions can be controlled from the **control panel** at the discharge side.





Via an installed **modem**, a remote diagnosis and thus access to the vertical slicer control is possible. During machine failures, the control state can be inspected directly from our plant.

The **hydraulic power pack** supplies hydraulic fluid at 70 bar low pressure and 140 bar high pressure so that all essential machine functions are ensured. An electric heater and an air cooler always keep the oil at the temperature required for operation; the hydraulic fluid is constantly filtered.

Monitors for filling level, temperature and pressure monitoring, as well as LED displays on the hydraulic valves, ensure that the valves are always operational.

A large pressure accumulator ensures that several functions can be carried simultaneously time, thus reducing the set-up and shut-down times. Furthermore, the clamping pressure of the dogs can be adjusted to the specific wood characteristics or to the board to be sliced.

Options:

Liquid cooled table guides to support high speed slicing, allowing immediate production start after service period (patented).

Log turning device inside the slicer to reduce downtimes for blockcuts.

Direct veneer transfer DVT
A direct link between slicer and dryer allows to gather up the veneer sheets by means of transfer top and bottom belts with reduction of speed in 5 steps, assuring good track load of the dryer. Independent manual operation of slicer and dryer is possible

Slanting mechanism for the complete knife carriage provides for an optimum veneer yield when processing conical flitches (patented).

Flitch detection system reduces the set-up time and serves to define a desired slicing pattern (patent pend.).

Technical data	SM 400	SM 520	novaslice 400
Max. flitch size	800 x 800 x 4000 mm	800 x 800 x 5200 mm	800 x 800 x 4000 mm
Max. flitch weight	3000 kg	4000 kg	3000 kg
Max. cutting length (at a flitch width of 300 mm)	4200 mm	5400 mm	4200 mm
Knife length	4450 mm	5650 mm	4450 mm
Max. dog opening	1000 mm	1000 mm	1000 mm
Max. machine opening	1180 mm	1180 mm	1180 mm
Veneer thickness adjustment range (0/100 mm steps)	0.2 – 3.2 mm	0.2 – 3.2 mm	0.2 – 3.2 mm
Cutting angle adjustment range	15 – 23°	15 – 23°	15 – 23°
Maximum cutting speed	90 sheets/min	90 sheets/min	105 sheets /min
Minimum cutting speed	15 sheets/min	15 sheets/min	15 sheets/min
Compressed air consumption (at 6 bar)	approx. 250 l/min	approx. 250 l/min	approx. 250 l/min
Net weight of the machine	approx. 56 t	approx. 62 t	approx. 57 t
Main drive motor	115 kW	181 kW	181 kW
Installed electrical total load	184 kW	264 kW	255 kW

