

Technological leads including the many important advantages of the lengthwise slicers from the inventor of this Slicing Technology MARUNAKA TEKKOSHO INC., Japan.

- MARUNAKA is the leader and originator of the lengthwise slicing technology.
- MARUNAKA is the inventor and the patent holder of the so-called RAND. The RAND makes perfect slicing of lamellae up to ~5.0 mm possible because it reduces twisting and bending phenomenon of the lamellae dramatically. Lamellae produced by MARUNAKA's lengthwise slicers come out of the slicer in axial direction and they are nearly flat with a minimum of deformation.
- In conjunction with the RAND and the latest state-of-the-art HIGH-SPEED technology MARUNAKA's slicer can reach slicing speeds of 120 m/min resp. 200 m/min. This demonstrates not only a performance advantage but also an epochal increase in the production output, in particular for the production of lamellae.
- ♣ Based on a special technical modification of MARUNAKA's lengthwise slicers (option) the final thickness of the remaining flitch (so called backboard) could be reduced to ~6.0 mm. In standard version the backboards thickness is ~10 mm. In a separate slicing process the backboard will be sliced completely down to zero!

1/8



- Based on the KNOW HOW and the long-term experience MARUNAKA decided to make their big lengthwise slicers (250 / 350 mm slicing/working width) with 80-degree knife bias angle.

Based on these bias angles the slicing results of MARUNAKA's slicers are improved especially for the production of lamellae sliced from all kind of wood species.

Bending and twisting are nearly compensated, the thickness tolerances could be dramatically reduced and the surface quality improved seriously.

Slicers with a bias angle below 78 degree creating huge deformations of the lamellae (low quality) and poor surface quality too.

- At 80-degree bias angle MARUNAKA slicers reach the optimal length of knife with 1,500 / 2,000 mm total length for their 250 / 350 mm lengthwise slicers. This guarantees quick knife changes and much easier and precise knife setting. Based on MARUNAKA's KNOW HOW longer knives in conjunction with larger bias angle are not recommended due to the more complicated adjustment of the knife in conjunction with longer maintenance time. Furthermore, expensive knife grinders are required.

- MARUNAKA's knives are made of high-quality steel (HRC 65 \pm 2) of highest precision. These knives are made exclusively for MARUNAKA slicers by the most experienced tool manufacturer in Japan Messrs. KANEFUSA.

These knives guarantee maximum durability, maximum live time and all the time first class slicing quality.

With a total of 6 (six) knives most of our MARUNAKA customers work successfully for more than 2 (two) years.

The Japanese knife are of recognized quality which is worldwide well known and legendary too.

- Of course, all MARUNAKA slicers from the T-series (T = thick slicing) are made for the production of lamellae and veneer. Therefore, the range of slicing thicknesses of these slicers are between 0.3 ~ 5.0 mm.

This wide range of thicknesses provide most flexibility for slicing lamellae and veneer with the same slicer.

- MARUNAKA recommend 18-degree knife angle for slicing lamellae but 22-degrees for slicing veneer. But the optimal degree depends on various conditions like timber species, flitch preparation besides other factors. MARUNAKA like to draw the attention to the fact that various manufacturers of slicers in the world promised max. slicing thickness of up to 10 mm which is unrealistic and therefore a false statement.

- The high-quality feeding belt for feeding the flitch smoothly and continuously through the slicer is an endless belt with high tensile strength and only very limited elongation which guarantees long live time for many years.

In case of smaller surface damages, the belt can be reconditioned by a very simple method. After reconditioning the belt surface and the belt is in full function again.

- Hardwood species up to ~950 kgs/m³ density (green condition) as well as soft wood species of various proveniences can be sliced on MARUNAKA's lengthwise slicers into lamellae and/or veneer.

Therefore, MARUNAKA's slicers are equipped with bigger feed motor in order to ensure considerable higher torque.

Other slicers are not strong enough to fulfil such requirements.

- All machine parts of MARUNAKA's slicers except the knife edge coming into contact with the hot/wet flitch are protected against corrosion.

Our special chrome-plated knives are for nearly 100 percent anti-blue-stain.

The upper feeding system is especially protected against corrosion for the protection against the aggressive ascending steam coming up from the hot (warm) flitch.

These protections (except the knife) guarantee that there is no blue-staining of timber with tannic acid like oak (*Quercus*), false or bastard acacia (*Robinia*), chestnut (*Castanea*) etc. possible.

- The thickness adjustment (height adjustment) of the feeding system for the flitches is made by means of high precision spindles.

The design of these spindles for MARUNAKA's slicers needs less power rating and ensures very quick adjustment.

The precise adjustment of the feeding system is made by means of an incremental rotary encoder.

4/8

- Since the invention of the lengthwise slicing technology in 1970 the world market leader MARUNAKA built some hundred's slicers which are supplied to customers on all six (6) continents.

Thus, MARUNAKA has an incredible and unrivalled KNOW HOW in the construction, design and development of this technology.

- MARUNAKA's Merry-go-Round Systems are always designed for automatic feeding all flitch dimensions and weights the slicer can process. The layouts are always tailor-made according to customers' requirements.

Other manufacturers don't take care about these most important pre-requisites and mostly offer very light and inefficient conveyors.

- All conveying parts in the Merry-go-Round Systems like rollers, guides etc. made by MARUNAKA guarantee the transport of the flitches without damages. The parts which are in contact to the flitch are always protected against corrosion, thus timber species with tannic acids never can be blue stained.
- MARUNAKA slicers can reach thickness tolerances of $\pm 2.5\%$ for slicing lamellae and/or veneer. Pre-requisites are optimal thermal treatment (steaming/cooking) of the flitches and final calibration (tolerance ± 1 mm) directly before slicing starts.
The tolerance range might be fluctuated resp. influenced by the timber species. This extreme low tolerance can't be achieved with other lengthwise slicers.
- MARUNAKA's lengthwise slicers are in perfect harmony between machine weight and the working width. The result: high precision during slicing in conjunction with high performance.
The torsion-free base of MARUNAKA's slicers guarantees precise adjustment of the slicing thickness (lamellae/veneer) as well as the precise and accurate adjustment of the distance between the knife and the nosebar.
The upper feeding system is torsion-free too. This feeding system is guided by two large dimensioned cylindrical columns for precise up and down movement. MARUNAKA pay always attention for making steel structures in groove welding and annealing that guarantees high-tensile, stressless and torsion-free structures.
- The PLC from MITSUBISHI is the standard execution of MARUNAKA's slicer control. Alternatively, the slicer can also be furnished with the PLC from SIEMENS against surcharge.

- The machines from MARUNAKA are CE-certified by TÜV SÜD Germany and therefore in the conformity of the terms of the European Union (DIRECTIVE 2006/42/EC). Therefore, MARUNAKA guarantees highest operating safety for their machines and of course also towards our customers.
- Only one operator is needed to operate the MARUNAKA slicer line consisting of lengthwise slicer and the Merry-go-Round System.
This operator is responsible for the control of the slicer line, for automatic loading the flitches and unloading the backboards.
Stacking of the sliced lamellae resp. veneer is made manually by one person plus the operator or can be made automatically depending on individual solutions.
- The operation and the adjustment of MARUNAKA's slicers are really simple to learn and the integration of such slicer line into the production flow is uncomplicated too. Teaching of customers staff including knife grinding is usually made by MARUNAKA's staff during the installation on site.
- MARUNAKA's lengthwise slicers only need industrial flooring (thickness ~150mm reinforced and levelled concrete flooring ~39,2 kn/m² (~4 t/m²) floor load but no foundation in general!

- Besides necessary changes of the flitch batches, knife changes and machine inspections there are only very short interruptions of the continuous production process.

In comparison to traditional crosswise slicers (vertical or horizontal versions) there are no interruptions due to time-consuming loading and unloading the flitch.

Therefore, lengthwise slicing guarantees very high production output because of continuous production process.

- In comparison to cutting process by means of thin-kerf frames or band saws the slicing process does not produce any sawdust. Removing sawdust requires high energy consuming dust suction equipment etc.

Lengthwise slicing does not produce waste. 100% of the flitch input is converted into lamellae or veneer besides the very thin backboard (~6 mm) which is the remaining part of the flitch. The backboard can still be used for other purpose.

7/8

- Lengthwise slicing technology is the most efficient and advanced production method for slicing lamellae.

Lengthwise slicing technology protects the raw material resources and the environment in all kind of manners.

Therefore, the reliable manufacturer of lengthwise slicers - MARUNAKA - supply tailor-made solutions since 1970.

- Customers in Far East, Europe and North America slicing already since decades lamellae as well as veneers by means of MARUNAKA's lengthwise slicers.

- As option MARUNAKA can supply their slicers with an inline thickness measuring control system. If such auto-measuring system is installed this unique system makes a continuous fully automatic production control including recording possible.

Nevertheless, it's possible at any time to interrupt the production in case the operator (or somebody in charge) stops the slicer line.

- MARUNAKA also makes precision twin-head automatic wet knife grinding machines guaranteeing the precise rough grinding and lapping (honing) of the knives.

This grinding procedure guarantees high durability of the knife edge and therefore first-class lamellae as well as veneer surfaces.

The complete knife is clamped onto the 200 mm wide magnetic table that guarantees vibration-free and precise grinding of the knife.

This grinding machine is an excellent solution in conjunction with the slicers from MARUNAKA.

Regrinding of the STELLITE® tipped nosebar is performed on a surface grinding machine. Regrinding of the nosebar is possible several times.

8/8

Your reliable MARUNAKA-partner in the European Union incl. EU-associates and UK.

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